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

Canadian National Committee Comité National Canadien

CNC/CIE Annual Report 2007

Joint CNC/CIE and CIE/USA Technical Conference
2007-October-18
and

Minutes of 52nd Annual Meeting
2007-October-19
and

Division Members' Reports

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

Program for the 2007 Joint Meeting Technical Day
U.S. and Canadian National Committees of the CIE

Thursday, October 18 — NRC Montreal Road Campus, Building M-36

7:30 – 8:30 AM Registration Opens – Coffee, Juice, Muffins

8:30 – 8:35 AM Opening Remarks

8:35 – 9:20 AM Session #1 – Arnold Gaertner
NRC-INMS Measurement of Spectral Irradiance in the UV

9:20 – 10:05 AM Session #2 – Yoshi Ohno
Measurement of LEDs and Solid State Lighting

10:05 – 10:20 AM Coffee, Juice Break

10:20 – 11:05 AM Session #3 – Werner Adrian
The CIE and Mesopic Photometry

At the conclusion of his presentation, Dr. W.K. Adrian was presented with the CIE Certificate that was awarded to him at the CIE 2007 General Assembly in Beijing, China in grateful appreciation of distinguished and valuable service as the Vice-President of the CNC/CIE from 1992 to 2002, the Canadian Member of CIE Division 4 from 1994 to 2003, and an active participant in several Technical Committees in Division 1 and Division 4.

11:05 – 11:50 AM Session #4 – Ron Gibbons
Development Of Guidelines For Mid-Block Crosswalk Lighting

11:50 AM – 1:00 PM Lunch

1:00 – 1:45 PM Session #5 – Mojtaba Navvab
Modeling Color Appearance of Glazing Systems Under Daylight Conditions

1:45 – 2:15 PM Session #6 – Guy Newsham
Task Lighting Effects on Office Worker Satisfaction and Performance, and Energy Efficiency

2:15 – 2:30 PM Coffee, Beverage, Cookies Break

2:30 – 3:10 PM Session #7 – Anca Galasiu
Energy Saving Lighting Control Systems for Open-Plan Offices: a Field Study

3:10 – 3:50 PM Session #8 – Jennifer Veitch
Office Lighting Appraisal, Performance, and Well-Being: a Linked Mechanisms Map

3:50 – 4:30 PM Session #9 – Christoph Reinhart
Daylight 1-2-3: A New Daylighting/Energy Analysis Program

Copies of some of the presentations from this program are available from the CNC/CIE website at: www.cie-cnc.ca.

Program for the 2005 Joint Meeting
U.S. and Canadian National Committees of the CIE

Thursday, October 18, 2007

NRC-INMS Measurement of Spectral Irradiance in the UV

Arnold Gaertner, PhD, Research Officer
National Research Council of Canada Institute for National Measurement Standards

In response to the increased scientific and commercial requirements for accurate UV measurements in fields such as environmental monitoring and air and water purification systems, the NRC-Institute for National Measurement Standards (INMS) has established a strategic initiative for the Photometry and Radiometry (PAR) Group to develop improved UV scales for the measurement of optical sources and detectors. I will present some of our recent work in the PAR Group toward the establishment of a spectral irradiance scale in the UV range from 200 nm to 350 nm. Two important components are the calibration of a high temperature blackbody source as a primary optical source and the transfer of UV calibrations between deuterium lamps. I will discuss some of the problems involved in these measurements, with an emphasis on the calibration of deuterium lamps.

Measurement of LEDs and Solid State Lighting

Yoshi Ohno, PhD, Group Leader
Optical Technology Division, National Institute for Science and Technology (NIST)

The US Department of Energy is starting an EnergyStar program for high performance SSL products, with minimum requirements for lm/W and CRI. This necessitates standard test methods as well as a laboratory accreditation program for measurement of SSL products. NIST is developing NVLAP program for SSL products and leading efforts to develop ANSI standard on chromaticity of SSL products and IESNA standard on electrical and photometric measurement of SSL products. NIST is developing calibration services and standards required in these measurement procedures. Measurement of high-power LEDs is also a problem. CIE 127:2007 (Measurement of of LEDs) does not address the thermal issues of high-power LEDs. The current industry practice to measure LEDs at Tj=25 degrees C (using pulsed operation) does not meet the industry needs. NIST is developing a standard method in which LEDs are measured under realistic thermal conditions.

The CIE and Mesopic Photometry

Werner Adrian, PhD, Professor Emeritus
University of Waterloo

As the spectral sensitivity of the eye changes below photopic luminance levels, we need to know these changes. In 1963, the CIE recommended a set of curves for preliminary use. This prompted reinvestigations to provide a firm basis for mesopic photometry. This led to a DIN (German) Standard in 1982. Applications of the "equivalent luminance Leq " , as the CIE termed it, to visual functions are shown.

Development of Guidelines for Mid-Block Crosswalk Lighting

Ron Gibbons, PhD, Group Leader
Lighting and Infrastructure Technology, Virginia Tech Transportation Institute

Pedestrian crossings pose significant illumination challenges due to the complexity of the visual task, involving urban scenes and moving vehicles and pedestrians. Development of lighting guidelines for this context is therefore difficult. Mid-block crosswalks offer a less complex setting than intersections and therefore were chosen as the context for developing new approaches to formulating illumination guidelines. Digital imaging is being used to test visibility under and range of low light conditions. The methods are explained.

Modeling Color Appearance of Glazing Systems Under Daylight Conditions

Mojtaba Navab, PhD, FIESNA, Associate Professor
Taubman College of Architecture and Urban Planning, University of Michigan (Ann Arbor)

Architects and lighting designers often use glass samples to evaluate the outdoor color or appearance of buildings from the exterior or interior under different daylight conditions. However, there are limits on the number of samples that can be ordered and on the range of viewing conditions. This paper describes results of computer simulation and modeling of color appearance of glazing systems compared with physical assessment. The optical properties of selected coatings and substrates were measured and compared under real sky conditions. Portable instrumentation and field assessment protocols were developed to obtain the glazing system optical properties to be used as an input to computer visualization of glazing systems. Basic glazing constructions such as monolithic, double, triple, laminated, were included in all the testing and simulation. More complex glazing constructions, such as double laminated, were tested at full scale to better evaluate phenomena such as inter-reflections. The results of this study will accelerate decision-making and contribute to better criteria for glazing systems.

Task Lighting Effects on Office Worker Satisfaction and Performance, and Energy Efficiency

Guy Newsham, PhD, Group Leader, Lighting
National Research Council of Canada Institute for Research in Construction

This presentation reports on two experiments conducted in a mockup office. In the first, participants worked for a day under one of two lighting designs1) ceiling-recessed parabolic luminaires and 2) the same parabolic ambient lighting with the addition of an angle-arm task light. Participants had no control over the lighting until the afternoon, when they were offered dimming control over the ambient parabolic lighting; participants with task lighting were also permitted to move the arm location. During the day participants performed a variety of simulated office tasks and completed questionnaires on mood, satisfaction, and discomfort. There was no main effect of lighting design on questionnaire outcomes, however, task lighting was associated with performance improvements on some tasks. Participants' preferred ambient light output remained the same in the task lamp scenario. The second experiment followed up on this point. Ambient lighting was provided by ceiling-recessed, parabolic luminaires and participants were given a variety of options for task and ambient lighting. Increasing task lighting did reduce chosen ambient light output, but the reduction in lighting power was small, and only about the same as the power drawn by the task light. Results suggested that participants did not dim ambient lighting further because they preferred to maintain illumination on non-task surfaces, and to avoid extreme luminance ratios.

Energy Saving Lighting Control Systems for Open-Plan Offices: a Field Study

Anca Galasiu, MSc, Technical Officer, Lighting
National Research Council of Canada Institute for Research in Construction

We conducted a field study in a deep-plan office building equipped with suspended direct-indirect luminaires located centrally over cubicle workstations. In order to reduce lighting energy use, the luminaires employed integral occupancy sensors and light sensors (daylight harvesting), as well as individual dimming control accessed through occupants' computer screens. Data were collected from 86 workstations over a year to examine the energy savings and power reduction attributable to the use of controls. An awareness campaign that used e-mail reminders to encourage the occupants to use the individual control feature of the lighting system was also conducted. Results indicate that the lighting system generated substantial energy savings and peak power reductions compared to a conventional fluorescent lighting system installed on a neighboring floor. The energy savings by control element (e.g., daylighting, occupancy) are reviewed. The light sensor savings were, as expected, higher in perimeter workstations, and would have matched the performance of the occupancy sensors with some modifications to the control parameters. The average daily peak power demand for lighting was also substantially reduced.

Office Lighting Appraisal, Performance, and Well-Being: a Linked Mechanisms Map

Jennifer Veitch, PhD, FIESNA, Senior Research Officer, Lighting
National Research Council of Canada Institute for Research in Construction

Most would agree that a high-quality lighting installation provides good task visibility and contributes to the attractiveness of the space. In two experiments in a simulated office space, temporary office personnel worked under one of six lighting conditions for a day. Combined results from two statistical approaches show that people who perceived their office lighting as being of higher quality rated the space as more attractive, reported more pleasant mood, and showed greater well-being at the end of the day. Direct-indirect lighting and personal control were favoured. Lighting conditions that improved visibility also improved task performance.

Daylight 1-2-3: A New Daylighting/Energy Analysis Program

Christoph Reinhart, PhD, Research Officer, Lighting
National Research Council of Canada Institute for Research in Construction

Daylight 1-2-3 is a non-expert design analysis tool that supports daylighting-related design decisions in commercial buildings during the initial design and design development stages. The tool predicts the daylighting and energy performance of sidelit and/or toplit private offices, open plan offices, and classrooms. The tool's main objective is to help design professionals with interest in - but no expert knowledge of - daylighting to develop climate-responsive daylighting design concepts; to optimize façade/ roof layout and orientation with respect to daylight and energy use; and to quantify energy savings from occupancy sensors and/or photocell controlled dimming.

MINUTES OF THE 52nd ANNUAL CNC/CIE MEETING

2007-October-19

The 52nd annual meeting of the Canadian National Committee of the Commission Internationale de l'Éclairage (CNC/CIE) was held on Friday, October 19, 2007 at the NRC Institute for National Measurement Standards, Building M36, National Research Council Canada, 1200 Montreal Road, Ottawa, Ontario, Canada K1A 0R6.

The meeting was part of the Joint CNC/CIE and CIE/USA 2007 Technical Conference and Annual Meetings held at NRC-INMS on October!17–19, 2007. The conference and annual meetings were hosted by the CNC/CIE.

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
ISO	International Organization for Standardization
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
NRCan	Natural Resources Canada
DRDC	Defence Research and Development Canada
IESNA	Illuminating Engineering Society of North America
SCC	Standards Council of Canada
M/AM	Members/Advisory Members

The Division Members' reports were presented jointly with the CIE/USA on Friday morning, October!19, 2007. The Canadian Division Members have also submitted written reports for the purpose of our CNC/CIE annual meeting and annual report. These reports are attached to these Minutes.

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

The 52nd annual meeting of the Canadian National Committee of the Commission Internationale de l'Éclairage (CNC/CIE) was called to order at 8:30am on Friday, October 19, 2007 by J.A.!Love, President.

Thirteen Members and Advisory Members were in attendance. The list of all attendees, regrets and proxies is given in Appendix!A.

It was moved by J.C.!Zwinkels, seconded by J.A.!Veitch, that the agenda as circulated by email (Appendix!B) be accepted. The President indicated that Item 12, the Reports from Division Members, would be held jointly with the CIE/USA later in the morning. Passed.

2. Minutes of the 51st CNC/CIE Annual Meeting:

The secretary indicated that an electronic version of the Minutes of the 51st Annual Meeting had been emailed to all Members and Advisory Members on 2007-October-13. It was moved by S.M.!McFadden, seconded by B.D.!Jordan, that the Minutes be accepted as distributed. Passed.

The action items from the 51st Annual Meeting (Appendix!C) were considered. With respect to AI-1, it was decided that the next step concerning the CNC/CIE stock of CIE publication should be to put information concerning these publications on the CNC/CIE website. Items AI-2 and AI-3 have been completed. Item AI-4: since the report of TC 1-66 is almost completed, it was decided not to act upon this item. The Secretary and J.D.Y.!Deslauriers are to follow-up on Item AI-5. The Secretary and L.A.!Whitehead are to follow-up on Item AI-6. Item AI-7: J.A.!Veitch, B.D.!Jordan and R.!Baribeau are to coordinate on determining whether someone from IRC would serve on TC 8-10. Item AI-8 will be considered in agenda item 8 of this meeting. Items AI-9 to AI-11 have been completed. Item AI-12: the Secretary reported that he had lost contact with R.!Lanteigne. Item AI-13 has been completed.

There were no further Matters Arising.

3. President's Report:

J.A.!Love presented a verbal report during which he reviewed his activities in connecting the CNC/CIE with other lighting groups in Canada, and the preparations for the Technical Sessions held yesterday as part of this joint CNC/CIE and CIE/USA 2007 meeting. He indicated that he would prepare a written report.

4. Vice-President's Report:

J.C.!Zwinkels presented her report, which is attached as Appendix!E. This report was prepared for the NRC-IRO and NRC-INMS Director General concerning the CIE General Assembly meeting in Beijing, China. She noted that the CNC/CIE hosted two of the four CIE symposia that were held this past year. J.A.!Love asked whether the CIE was seeing any signs of the involvement of young scientists in its activities. S.M.!McFadden indicated that there were more young scientists now active in Division!1, and J.C.!Zwinkels noted that there were many young people in attendance at the CIE session in Beijing, China.

5. Secretary's Report:

A.A. Gaertner presented his report, which is attached as Appendix!F. He briefly summarised each item in the report. His report also contained the *In Memoriam* for H.W.!Budde written by A.R.!Robertson for the *CIE NEWS*. It was decided that that the CNC/CIE letter sent by the President to NRCan concerning the efficiency regulations under development for 40 W to 100W lamps be included with these Minutes. They are attached as Appendix!G.

J.A.!Veitch suggested that the CNC/CIE should try to contact the Canadian members who are active on the ISO technical committees and working groups that have lighting-related topics. It was decided that J.A.!Veitch and A.A.!Gaertner would contact the SCC concerning these members, and that J.A.!Veitch would determine how this CIE-ISO liaison was done in the USA.

6. Financial and Publications Report:

K.F.!Lin presented his report (Appendix!H), noting that there are two parts to the report: the CIE/CNC Publication Stock List, and the CNC/CIE Publication – Canada Financial Report. He

indicated that there were no sales this year of any of the CNC/CIE stock of CIE Publications. It was suggested that the list of CIE publications which the CNC/CIE has in stock and for sale be made available to the public by placing this list on the CNC/CIE website. (See also item 2 above and Action Item 1.) It was also decided that we would charge the same price for these publications as that charged by the CIE-CB.
With respect to the Financial Report, C.!Suvagau confirmed that the CNC/CIE bank account book entry was the same as that presented by K.F.!Lin in his Financial Report. K.F.!Lin asked the CNC/CIE for advice on how the funds that the CNC/CIE holds in its bank account should be managed. After some discussion, it was decided that the CNC/CIE set up a sub-committee to consider various options the CNC/CIE could use in managing and directing its finances. It was recommended that the sub-committee consider ways in which the CNC/CIE could make its CIE publications more accessible, promote CNC/CIE- and CIE-related activities, and invest in the future of lighting in Canada. Suggestions included the investment of some of the CNC/CIE funds and the use of some of the subsequent interest for scholarships to support students in travel to CNC/CIE or CIE meetings, or for assistance in their university studies. S.M.!McFadden (Chair), K.F.!Lin. J.A.!Love and V.!Venkataramanan agreed to serve on the sub-committee.

It was moved by J.C.!Zwinkels, seconded by J.D.Y.!Deslauriers, to accept the Treasurer's Report. Passed.

7. Requests for Financial Support:

The Secretary reported on the three requests for funding that were considered during the year since the last annual meeting. These requests will need to be reviewed and recorded at this annual meeting, as required by the CNC/CIE Policy for Reimbursement of Expenses.

7.1 Division 3 and Division 6 meetings in Ottawa (2006-September-09). The Request for Funding from J.A. Veitch was approved at the 50th CNC/CIE annual meeting held 2005-October-29. The meetings have been held and the Request for Reimbursement of Approved Expenses of $1000.00 was received by the CNC/CIE Secretary in late October 2006. These expenses were approved by the CNC/CIE Secretary and the CNC/CIE Treasurer, and a check was issued on 2006-November-21.

7.2 Hospitality for joint luncheon with IESNA Montréal and Solar Buildings Research Network at the CNC/CIE 51st Annual Meeting in Montréal (2006-October-13). The verbal request for funding up to $1000.00 presented by J.A. Love at the 51st Annual Meeting in Montréal was approved at that meeting. The CNC/CIE Request for Funding form was received from J.A. Love on 2006-October-16 and the Request for Reimbursement of Approved Expenses of $572.00 was received by the CNC/CIE Secretary on 2006-October-18. These were approved by the CNC/CIE Secretary and the CNC/CIE Treasurer, and a check was issued on 2006-November-21.

7.3 A request for funding to provide travel assistance, up to a maximum of $1000.00, to Canadian student(s) to enable their attendance to present a paper at the joint meeting and symposium of the CNC/CIE with the CIE/USA in Ottawa in 2007, was presented verbally by J.A. Love at the CNC/CIE 51st Annual Meeting in Montréal (2006-October-13). This was approved at that meeting. The CNC/CIE Request for Funding form was received from J.A. Love on 2006-October-19.

The request forms are attached in Appendix!I. There has been no activity or Request for Reimbursement of Approved Expenses associated with request 7.3 above. It was moved by

J.C.!Zwinkels, seconded by S.M.!McFadden, that the above actions taken by the CNC/CIE Secretary and the CNC/CIE Treasurer be approved. Passed.

8. CNC/CIE Subcommittee Reports

8.1 CNC/CIE Website report:

J.A.!Veitch presented her report, which is attached as Appendix J. She raised the issue concerning the presentation of material on the website in the two official languages. After some discussion, it was decided that scientific papers and business material such as Minutes and Division Members' reports would be presented in the language in which they were originally published.

8.2 Renewal of Lighting Expertise in Canada report:

L.A.!Whitehead was unable to attend this meeting. J.A.!Veitch presented results of some discussions she has had with L.A.!Whitehead. She indicated that L.A.!Whitehead has prepared a curriculum and is looking for collaborators at another university so that a joint program can be prepared.

K.!Pero indicated that she has been working with IALD (International Association of Lighting Designers) on lighting classes and expressed an interest in contacting L.A.!Whitehead for further discussions.

9. CIE 26th Session (2007-July-04 to 11, Beijing):

The Secretary introduced an issue that had been raised by one of the Members concerning the appointment of a delegate to CIE meetings when the Canadian Division Member was not able to attend. He noted that the CNC/CIE Code of Procedure contains the following: "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." After some discussion, the Secretary was requested to check with the CIE-CB to determine CIE policy on the matter.

It was noted that the CNC/CIE should try to obtain delegates to all the CIE Division meetings, especially at CIE quadrennial sessions.

10. Nominations and Appointments (CNC/CIE):

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

10.1 CNC/CIE Officers:

The President noted that the CNC/CIE Code of Procedure requires that the slate of Officers shall be reviewed by the CNC/CIE at its first meeting following a CIE General Assembly. He suggested that we should encourage new members to become involved as officers. He stated that he does not wish to undertake a second term as CNC/CIE President. He has had conversations with several members concerning their willingness to serve as officers of the CNC/CIE, particularly for the positions of President and Vice-President. He indicated that A.A.!Gaertner and K.F.!Lin have agreed to continue in their capacities as Secretary and Finance/Publications Officer respectively. It was noted that it would be better if a nominating committee could be struck a year in advance if it was known that any of these positions were to become vacant.

After some discussion, it was moved by J.A.!Veitch, seconded by J.D.Y.!Deslauriers, that a nominating committee, composed of three recent CNC/CIE Presidents (J.A.!Love, S.M.!McFadden and A.R.!Robertson, with S.M.!McFadden as Chair), be appointed to prepare a slate of nominees for the two positions of CNC/CIE President and Vice-President for the next four-year term starting in January 2008. The final slate of nominees is to be sent to the CNC/CIE Secretary by 2007-November-15, so that a ballot can be sent to the CNC/CIE Members and Advisory Members for their final vote with deadline of 2007-December-15. Passed.

10.2 CNC/CIE Members:

The President noted that the terms of six CNC/CIE members were expiring at the end of December this year. He indicated that all six were willing to continue. He also pointed out that the term of office of Canadian Division Members ends at the first meeting following a CIE General Assembly.

It was moved by S.M.!McFadden, seconded by R.!Baribeau, that J.A.!Love be nominated to continue as CNC/CIE Member. Passed.

It was moved by J.A.!Veitch, seconded by J.D.Y.!Deslauriers, that J.C.!Zwinkels be nominated to continue as CNC/CIE Member and reappointed as Canadian Division 2 Member. Passed.

It was moved by S.M.!McFadden, seconded by V.!Venkataramanan, that J.!Bastianpillai be nominated to continue as CNC/CIE Member and reappointed as Canadian Division 4 Member. Passed.

It was moved by V.!Venkataramanan, seconded by K.F.!Lin, that J.D.Y.!Deslauriers be nominated to continue as CNC/CIE Member and reappointed as Canadian Division 6 Member. Passed.

It was moved by J.A.!Veitch, seconded by C.!Suvagau, that S.M.!McFadden be nominated to continue as CNC/CIE Member and reappointed as Canadian Division 1 Member. Passed. It was also discussed that S.M.!McFadden would consider mentoring a possible new person for this position.

It was moved by J.A.!Veitch, seconded by K.F.!Lin, that M.K.!Timmings be nominated to continue as CNC/CIE Member and reappointed as Canadian Division 5 Member. Passed.

It was moved by C.!Suvagau, seconded by K.F.!Lin, that V.!Venkataramanan be nominated as CNC/CIE Member. Passed.

It was moved by K.F.!Lin, seconded by J.A.!Veitch, that C.!Suvagau be nominated as CNC/CIE Member. Passed.

It was moved by J.C.!Zwinkels, seconded by V.!Venkataramanan, that B.D.!Jordan be nominated as CNC/CIE Member. Passed.

The Secretary is to forward these CNC/CIE Member nominations to the Director General of INMS for final approval and appointment.

10.3 Canadian Division Members:

It was moved by B.D.!Jordan, seconded by J.D.Y.!Deslauriers, that J.A.!Veitch be reappointed as Canadian Division 3 Member and that R.!Baribeau be reappointed as Canadian Division 8 Member. Passed.

10.4 CNC/CIE Advisory Members:

J.A.!Love indicated that he had received expressions of interest in the CNC/CIE from several people at Laval University. The Secretary was requested to add these people to the CNC/CIE general interest mailing list.

S.M.!McFadden and B.D.!Jordan indicated that they had colleagues who would be interested in the CNC/CIE. They said they would forward their names to the Secretary to add them to the CNC/CIE mailing lists.

11. Other Business:

11.1 Correspondence:

There was none to report.

11.2 Date and Place of next Year's Meeting:

V.!Venkataramanan suggested that the CNC/CIE might meet at the University of Toronto in 2008-October. Dates suggested were October 03, 17 or 24, avoiding the Thanksgiving weekend and other meetings such as NEWRAD.

11.3 Other Business:

There was none.

12. Reports from Division Members:

The Division Members' reports were presented following this CNC/CIE meeting at a joint meeting of the CNC/CIE and CIE/USA.

13. Adjournment

At approximately 10:45, it was moved by C.!Suvagau, seconded by K.F.!Lin, 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

2008-October-17

CNC/CIE 52nd Annual Meeting

2007-October-19

Action Items

Action Item Number (AI#)	52nd Minutes Item Number	Responsible	Action
1	2	K.F.!Lin, J.A.!Veitch	put list of CNC/CIE Stock of CIE publications on CNC/CIE website
2	2	L.A.!Whitehead, A.A.!Gaertner	anyone from UBC for TC 8-08?
3	2	J.A.!Veitch, B.D.!Jordan, R.!Baribeau	anyone from NRC-IRC for TC 8-10?
4	5	A.A.!Gaertner, J.A.!Veitch	contact SCC re Canadians on ISO TCs and WGs.
5	6	S.M.!McFadden (chair), K.F.!Lin, J.A.!Love and V.!Venkataramanan	subcommittee to consider CNC/CIE finances
6	9	A.A.!Gaertner	check CIE policy on substitute Division Member voting rights
7	10.1	S.M.!McFadden (chair), J.A.!Love and A.R.!Robertson	prepare nominations for President and Vice-President
8	10.2	A.A.!Gaertner	forward recommendations re 9 CNC/CIE Members to NRC-INMS-DG
9	10.4	A.A.!Gaertner	add new General Interest members

LIST OF APPENDICES

APPENDIX A

CNC/CIE 52nd Annual Meeting

2007-October-19

Attendees

Réjean Baribeau	National Research Council (INMS)
Yvon Deslauriers	Health Canada (RPB)
Arnold Gaertner	National Research Council (INMS)
Byron Jordan	FPInnovations (PAPRICAN)
K. Frank Lin	Lighting Sciences Canada Ltd.
James Love	University of Calgary
Sharon McFadden	DRDC Toronto
Ivan Pasini	Pasini Lighting Services
Karen Pero	Pero Consulting Inc.
Cristian Suvagau	BC Hydro
Jennifer Veitch	National Research Council (IRC)
Venkat Venkataramanan	University of Toronto
Joanne Zwinkels	National Research Council (INMS)

Regrets

Werner Adrian	Professor Emeritus, University of Waterloo
Joe Bastianpillai	Lumentech Engineers Inc.
Jacques Roberge	consultant
Alan Robertson	National Research Council (INMS)
Andrew Silbiger	Andrew Silbiger Management Inc.
Martyn Timmings	Canlyte Inc.
Ernest Wotton	consultant

Proxies

Alan Robertson	Joanne Zwinkels

APPENDIX B

CNC/CIE 52nd Annual Meeting

2007-October-19, Friday
Ottawa, Ontario

Agenda

1. Call to Order and Approval of Agenda — J.A.!Love
2. Minutes of the 51st Annual CNC/CIE meeting
   - Action items
   - Matters arising
3. President's report — J.A.!Love
4. Vice-President's report — J.C.!Zwinkels
5. Secretary's report — A.A.!Gaertner
6. Financial and Publications report — K.F.!Lin
7. Requests for Financial Support — J.A.!Love
   - CIE Division 3 and Division 6 meetings 2006-September-09, Ottawa (J.A. Veitch)
   - Joint CNC/CIE – IESNA/Montreal lunch 2006-October-13 (J.A. Love)
   - Student travel assistance – Joint CNC/USNC/CIE technical symposium 2007-October-18 (J.A. Love)
8. CNC/CIE Subcommittee reports:
   - CNC/CIE website report — J.A.!Veitch
   - Renewal of Lighting Expertise in Canada — L.A.!Whitehead
9. CIE 26th Session (2007-July-04 to 11, Beijing) — J.A.!Love
10. Nominations and Appointments (CNC/CIE) — J.A.!Love
    - 10.1 Officers, review and recommendations
    - 10.2 Members
    - 10.3 Division Members, review and appointment
    - 10.4 Advisory Members
11. Other Business — J.A.!Love
    - 11.1 Correspondence
    - 11.2 Date and Place for next year's meeting
    - 11.3 Any other business
12. Reports from Division Members
    - Division 1: Vision and Colour — S.M.!McFadden
    - Division 2: Physical Measurement of Light and Radiation — J.C.!Zwinkels
    - Division 3: Interior Environment and Lighting Design — J.A.!Veitch
    - Division 4: Lighting and Signalling for Transport — J.!Bastianpillai
    - Division 5: Exterior and Other Lighting Applications — M.K.!Timmings
    - Division 6: Photobiology and Photochemistry — J.D.Y.!Deslauriers
    - Division 8: Image Technology — R.!Baribeau
13. Adjournment — J.A.!Love

2007-October-13

APPENDIX C

CNC/CIE 52nd Annual Meeting

Action items from CNC/CIE 51st Annual Meeting

Action Items

Action Item Number (AI#)	51st Minutes Item Number	Responsible	Action
1	6	S.M.!McFadden, J.A.!Love	deal with CNC/CIE stock of CIE publications
2	7	J.A.!Love	submit CNC/CIE forms for luncheon reimbursement
3	7	J.A.!Love	submit CNC/CIE form for student travel assistance
4	8	B.!Jordan	add T.!Tzempelikos to TC 1-66
5	8	J.D.Y.!Deslauriers	send Canadian TC member's addresses to Secretary
6	8	L.A.!Whitehead	anyone from UBC for TC 8-08?
7	8		anyone from NRC-IRC for TC 8-10?
8	9	L.A.!Whitehead	pursue implementation of Lighting course
9	11b	A.A.!Gaertner	forward GA nominations to NRC-IRO for authorisation
10	12.2.1	A.A.!Gaertner	forward recommendations re 2 CNC/CIE Members to NRC-INMS-DG
11	12.2.2	A.A.!Gaertner	welcome Thanos Tzempelikos as Advisory Member
12	12.2.2	A.A.!Gaertner	circulate R. Lanteigne's resumé, upon receipt
13	13.2	J.A.!Love	coordinate technical session with CIE/USA

APPENDIX D

CNC/CIE 52nd Annual Meeting

2007-October-19

President's Report

(no written report received)

APPENDIX E

CNC/CIE 52nd Annual Meeting

2007-October-19

Vice-President's Report

Report to NRC of the CIE 26th Session - General Assembly

It was my pleasure to attend the General Assembly (GA) of the 26th Session of the International Commission on Illumination (CIE) on July 4, 2007 in Beijing, China, as one of the two official Canadian delegates. As Vice-President of the Canadian National Committee of the CIE (CNC-CIE), I participated as the voting member, and the Past-President of the CNC-CIE, Dr. Sharon McFadden, was the non-voting advisor. There were 33 National Committees (NCs) out of a total of 37 represented at the GA meeting. The following is a summary of the key discussions and decisions that were carried out at this meeting.

Finances:

The CIE Budget has continued to improve with reserves up by about 123000 Euros taking account of inflation. This healthy financial situation is largely due to the work of the NCs from publication sales and Supportive Members and from the tight fiscal management by the CIE Central Bureau. The revenues from publications have been stable and the harmonized pricing structure for CIE publications has been working well with the system of credits to the NC's which was initiated in 2004.

Review of membership: The President announced the decision of the Board of Administration (BA) to suspend the NC of Thailand for not paying their dues The GA approved this expulsion unless the arrears for 2005 are received before the end of 2007.

CIE Membership fees: In 2001, the CIE refined its system for calculating fees. The membership fee is composed of two parts: a basic fee and a subscription fee. The basic fee is the same for all NCs and is fixed at 0.75% of the total fees from the NCs and the subscription fee is calculated on a linear scale from UN coefficients. The CIE income from publications and Supportive memberships currently constitutes about 25-30% of the NC dues and this portion is projected to increase by nearly 45% by 2009, allowing the CIE to gradually reduce the burden of dues on NCs.

New Supportive Membership System: The system introduced in 1999 to increase CIE sponsorship through a system of Supportive Members was not a success at first but has greatly improved in recent years due to the efforts of the VP Marketing. There are three classes of Supportive members: Supportive, Silver, and Gold with CIE fees of 500, 3000 and 80000 Euros, respectively, with 200, 400 and 800 Euros, respectively, going to the NC's as income. The CIE currently has 12 Supportive Members; with 4 of these from Developing Countries (there are none from Canada).

Budget for 2008 and 2009: The revenues and expenses are expected to be within the budget that was presented and approved for 2007. Draft budgets for 2008 and 2009 were prepared and approved by the CIE Board.
The budgets for both 2008 and 2008 propose a 3% reduction of the total sum of membership fees for each of these years. Individual membership fees may vary according to the number of NCs. The budgets for 2008 and 2009 were accepted by the GA country members with one abstention (Italy).

Internal Auditors: It is a new Austrian law that requires two internal auditors. A recent audit of the CIE financial records as of December 31, 2005 showed that the statements were in good order and there were no objections. The GA approved Mr. Norb Johnson (USA) and Mr. Peter Dehoff (Austria) as internal auditors for 2006.

Publications:
There were 28 technical reports published in the period 2003-2007 (c.f. 20 published in the period 1999-2003). In the past four years, the CIE also produced 10 new Standards, 7 new Proceedings, a new book entitled "Colorimetry: Understanding the CIE System" which is to be published by Wiley in 2007. This book contains contributions by many CIE experts including Canadians, Dr. Alan Robertson and Dr. Joanne Zwinkels. It is expected that this book will greatly increase CIE sales of colorimetry publications.

The CIE Web-shop has proven to be an extremely good tool. This has given better availability, more users, better image and income for the CIE. It was noted that that in 2005, the income from CIE publications was back to the level it was in 2001 before the price was reduced by one-half. Thus, the increased sales has compensated for this price reduction. It is also better for the income of the NCs since a portion of the web shop receipts is distributed by the CB to the NCs.

Technical Matters:
During the past two years, there have been four Symposia:

2nd Symposium on Uncertainty at the PTB, Braunschweig, Germany (June 2006)

Expert Symposium on 75 Years of the Standard Colorimetric Observer, NRC, Ottawa (May 2006)

Symposium on Lighting and Health, NRC, Ottawa (September 2006)

Symposium on Vision, Colour and Appearance, Paris (June 2006)

It is notable that NRC was the venue for two of these highly successful Symposia.

To raise the profile and impact of the CIE internationally, the CIE Board has initiated several measures. These include: 1) Production of a Book of Highlights from the Quadrennial Meetings that will contain a selection of papers and posters, that have been peer-reviewed; 2) Development of a process to review

CIE publications and technical reports every 4 years to ensure that they are up-to-date.

The CIE and the International Bureau of Weights and Measures (BIPM) have signed a MOU.

Administration

New Slate of BA Officers; F. Hengstberger, SA (President); J. Schanda, HU (Vice President Technical), M. Seidl, Germany (Vice President Standards), T. Goodman, UK (Vice President Publications), and 4 Vice Presidents without Portfolio: S. Venkataramani, India; L.Chang Wai Ling, China; G. Shakhparunvants, Russia; M. Fantoynont, France. The Vice-President Marketing position is vacant due to the recent resignation of Todd Newman from this position.

CIE Statutes and By-Laws: there were no proposed changes.

Other Matters: There was a presentation from NC Finland on the topic of Lighting and Energy. It was proposed that the CIE take a more visible role concerning lighting and energy issues. As a consequence, the CIE issued a Press Release on 12 July 2007, entitled “Energy Conservation Requires Smart Lighting”.

Canadians Elected to Executive or Other Prestigious Positions:

Dr. Sharon McFadden (DCIEM-DND) completed her term as Director for Division 1 (Vision and Colour) and was specially commended at the D1 meeting for her outstanding leadership.

Dr. Jennifer Veitch (NRC) is the new Secretary for D3 (Indoor Environment and Lighting Design).

Dr. Werner Adrian, retired Professor Emeritus from the University of Waterloo, was a recipient of a CIE Certificate of Recognition presented at the CIE General Assembly banquet.

The CIE has also created 3 new prestigious Awards to recognize outstanding contributions to the CIE. One of these awards is the Wyszecki Award for Fundamentals, named after Dr. Gunter Wyszecki who was a former Assistant Director of NRC Division of Physics and Past-President of the CIE. The first recipient of this CIE Wyszecki Award was Dr. Richard Kittler of Slovakia for his work on sky luminance calculations for architectural design. (The other two CIE Outstanding Awards are the Waldram Award for Application and the de Boer Award for Organization and Administration; the recipients of these CIE Awards were Prof. Dr. Kohei Nanisada,, Japan and Dr. Yoshi Ohno, USA, respectively).

Time and Place of Next Meetings;
CIE Session 2011. Invitation was extended from the NC of South Africa to have the meeting in Sun City, South Africa. The proposed dates are: 4 –11 July, 2011. This proposal was accepted by the GA.

Next GA Midterm Meeting in 2009: Invitation was extended from Vice-President Technical (J. Schanda) to have the meeting in Budapest, Hungary. The proposed dates are the last week of May 2009. This proposal was accepted by the GA. It was later suggested at the D2 meeting to also hold a Special Symposium on Solid State Lighting in conjunction with this Midterm meeting.

Additional information on the General Assembly meeting can be found at the main CIE website: http://www.cie.co.at

APPENDIX F

CNC/CIE 52nd Annual Meeting

2007-October-19

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 52ND ANNUAL MEETING

2007-October-19

The following acronyms may be used in this report:

CEN:	Comité Européen de Normalisation
CIE-CB:	CIE Central Bureau in Vienna, Austria
CIE-BA:	CIE Board of Administration
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
CISET:	NRC advisory Committee on International Science, Engineering and Technology
NRC-IRO:	NRC International Relations Office
NRC-INMS:	NRC Institute for National Measurement Standards
NRC-IRC:	NRC Institute for Research in Construction
NRCan:	Natural Resources Canada

This report covers the period from 2006-October-13 to 2007-October-17.

CIE MATTERS:

1. Annual Membership Fee:
   The annual membership fee for the CNC/CIE as a member of the CIE for 2007 is 7,270 EUROS, which was $10,608.39 Cdn. The NRC-International Relations Office has continued to make these payments on our behalf.

2. CIE treasurer for the quadrennium 2007-2011:
   All CIE NCs were asked to vote to approve Mr. Johann Schleritzko as CIE Treasurer for the quadrennium 2007-2011. A CNC/CIE email vote for approval or disapproval, including the Curriculum Vitae of Mr. Schleritzko, was sent to all CNC/CIE Members (13) and Advisory Members (41) on 2007-March-23 with a deadline for reply by 2007-April-16. Replies were received from 7 Members and 11 Advisory Members, all in favor. The CIE-CB was informed of our approval on 2007-April-23.

3. The 26TH Session of the CIE 2007-July-4 to 11:
   This quadrennial session of the CIE was held in Beijing, China. The CIE General Assembly met 2007-July-04. Due to financial restrictions and changes in travel plans, the final CNC/CIE delegates to the CIE-GA, nominated by the CNC/CIE to the NRC-IRO and approved by the NRC-IRO, were J.C.!Zwinkels as the Canadian Member with voting right, and S.M.!McFadden as our non-voting advisor. A report on the CIE-GA will be given by J.C.!Zwinkels at this CNC/CIE annual meeting. Five Canadians were able to attend the meetings in Beijing: B.!Jordan, S.M.!McFadden, A.R.!Robertson, J.A.!Veitch and J.C.!Zwinkels. J.A.!Veitch presented a paper by Veitch, J.A.; Newsham, G.R.; Boyce, P.R.; Jones, C.C. entitled *Office lighting appraisal, performance, and well-being: a linked mechanisms map*.

   CIE Certificates are awarded for outstanding contributions to CIE activities, and are presented to persons who have retired from their normal CIE activities. A CIE Certificate was awarded at this Session to W.K.!Adrian of the University of Waterloo. Since Dr. Adrian was unable to attend the CIE Session, it is planned to present the Certificate to him at this joint CNC/USNC/CIE meeting. His certificate states: "This certificate is awarded by the CIE Board of Administration to Dr. Werner K. Adrian in grateful appreciation of distinguished and valuable service as: The Vice-President of the CNC/CIE from 1992 to 2002, the Canadian Member of CIE Division 4 from 1994 to 2003, an active participant in several Technical Committees in Division 1 and Division 4."

4. CIE Draft Standards:

CIE DS 020.3/E:2006 *Emergency Lighting*.

The comments from all NCs as submitted for the Draft Standard 020.2/E:2006 were collected by the CIE-CB and sent to the CIE Vice-President Technical, Vice-President Publications, TC Chair and Division Director, who evaluated the comments received and made necessary changes to the draft standard. The final version, with a summary of all NC comments, was submitted on 2006-August-15 to all NCs for final vote. Copies were mailed on 2006-August-18, with a deadline of 2006-November-10, to each of the 13 CNC/CIE Members for their vote. Replies were received from 9 Members, with 7 in favor and 2 opposed. The CNC/CIE approval for the publication of this document as a CIE Standard was conveyed to the CIE-CB on 2006-November-15. This was also approved by the CIE and issued as a CIE Standard on 2007-February-05.

CIE DS 014-4.2/E:2006 *Colorimetry – Part 4: CIE 1976 L*a*b* Colour Spaces*

This CIE Draft Standard has been approved by the CIE Board of Administration and CIE Division 1, and then submitted to all the CIE National Committees for Comments. Copies were mailed (2006-September-22) to each of the 13 CNC/CIE Members for their evaluation. Deadline for submission of comments was 2007-March-09. Replies were received from six Members and the comments were forwarded to the CIE-CB on 2007-March-15.

CIE DS 014-4.3/E:2007 *Colorimetry – Part 4: CIE 1976 L*a*b* Colour Spaces*

This Draft Standard had been submitted by the CIE-CB to all NCs for comments as indicated above. Comments were collected from all NCs and sent to the CIE Vice-President Technical, Vice-President Publications, TC Chair and Division Director, who evaluated the comments received and made necessary changes to the draft standard. The final version, with a summary of all NC comments, was submitted on 2007-May-18 to all NCs for final vote. Copies were mailed on 2007-May-25, with a deadline of 2007-August-06, to each of the 13 CNC/CIE Members for their vote. Replies were received from 7 Members, with 6 in favor and 1 abstention. The CNC/CIE approval for the publication of this document as a CIE Standard was conveyed to the CIE-CB on 2007-August-20. This was also approved by the CIE and issued as a CIE Standard on 2007-October-05.

CIE DS 018.2/E:2007 *Standard File Format for Luminaire Photometric Data*.

This CIE Draft Standard has been approved by the CIE Board of Administration and CIE Division 4, and then submitted to all the CIE National Committees for Comments. Copies were mailed to each of the 13 CNC/CIE Members on 2007-March-26 and one Advisory Member on 2007-April-13 for their evaluation and reply before 2007-July-27. Replies were received from three Members and one Advisory Member. The comments were forwarded to the CIE-CB on 2007-July-28.

5. Mailings:

Amongst others, the following CIE materials have been received and mailed and/or emailed to the membership as appropriate:

CIE Annual Report for 2006

CIE Publication List, February 2007 update

CIE NEWS Number 79, October 2006
CIE NEWS Number 80, 1/2007
CIE NEWS Number 81, 2/2007
CIE NEWS Number 82, 3/2007

CIE Press Releases:

Publication CIE 127:2007 *Measurement of LEDs (2nd ed.)*.
Publication CIE 175:2006 *A Framework for the Measurement of Visual Appearance*.
Publication CIE 176:2006 *Geometric Tolerances for Colour Measurements.*
Publication CIE 177:2007 *Colour Rendering of White LED Light Sources*.
Publication CIE 179:2007 *Methods for Characterising Tristimulus Colorimeters for Measuring the Colour of Light*.
Publication CIE x030:2006 *Proceedings of the ISCC/CIE Expert Symposium "75 Years of the CIE Standard Colorimetric Observer"*, 16-17 May 2006, NRC, Ottawa, Canada.
Publication CIE x031:2006 *Proceedings of the 2nd CIE Expert Symposium "Lighting and Health"*, 7-8 September 2006, Ottawa, Ontario, Canada.
Publication CIE x032:2007 *Proceedings of the CIE Expert Symposium "Visual Appearance"*, 19-20 October 2006, Paris, France.

CIE Standard S 014-1/E:2006 *Colorimetry-Part 1: CIE Standard Colorimetric Observers*.
CIE Standard S 014-2/E:2006 *Colorimetry-Part 2: CIE Standard Illuminants.*
CIE Standard S 020/E:2007 *Emergency Lighting*.

CNC/CIE MATTERS:

1. CNC/CIE 2007 Annual Meeting:
   This meeting will be held at the Institute for National Measurement Standards (M-36) of the National Research Council of Canada in Ottawa, Ontario. It is part of a joint meeting with the CIE/USA held from Wednesday, 2007-October-17, when the CIE/USA holds some of their meetings, to a joint technical symposium on Thursday, 2007-October-18, and NC meetings, followed by a joint time for discussion on CIE issues and goals, on Friday morning. Tours of some NRC-INMS and NRC-IRC laboratories are planned for the Friday afternoon. We extend our thanks to NRC for hosting these meetings and laboratory tours, and to our CNC/CIE President, J.A.!Love and Carl Andersen, CIE/USA Vice President, for organising the technical symposium. We are grateful to Foraytek of Calgary for hosting the reception at the Sheraton Ottawa Hotel on Wednesday evening.

2. H. Wolfgang Budde:
   Wolfgang Budde passed away on 2006-December-16. He was a longtime active member of the CNC/CIE and the CIE internationally. A copy of the obituary written by A.R.!Robertson for the *CIE NEWS* Number 81, 2/2007, is attached to this report.

3. Canadian Lighting Issues:

   Natural Resources Canada (NRCan): The CNC/CIE has been put on the mailing list of the NRCan Office of Energy Efficiency to receive information concerning any lighting issues of interest to the Canadian lighting community. I will then forward this information to our email list. I have also included two of their people on our email list to receive general information concerning the CIE and CNC/CIE.

   A small committee of J.A.!Love, L.A.!Whitehead and J.A.!Veitch drafted a letter to NRCan to comment publicly on the efficiency regulations under development for 40 W to 100 W lamps. This was circulated to all thirteen CNC/CIE Members for comment. After incorporating the comments received, J.A.!Love prepared the final version, which was sent on 2007-June-15 by the CNC/CIE Secretary to Katherine Delves, Senior Standards Development Manager at NRCan.

   Note: The CIE General Assembly, at their meeting of 2007-July-04 in Beijing, China, issued a press release concerning energy conservation and lighting. This was sent to all the CNC/CIE email list on 2007-July-27, and in hard-copy to all the mailing list on 2007-August-27.

   International Organization for Standardization (ISO): Canada is a member of ISO through the Standards Council of Canada (SCC). I have recently started receiving requests for comments from the SCC for ISO draft international standards that have so far been CIE standards submitted to the ISO for publication as joint standards. As CNC/CIE Secretary I have been responding with the results of our CNC/CIE vote on that particular standard. This item is of interest due to concern at the CIE level (expressed by M.!Seidl, CIE Vice President Standards, in a letter to all CIE NCs on 2007-July-24) that CIE standards were not being accepted as ISO standards. A copy of this letter was forwarded to all CNC/CIE Members on 2007-July-26.

4. Requests for Funding:
   We have considered three requests for funding during this past year. These requests will need to be reviewed and recorded at this annual meeting, as required by the CNC/CIE Policy for Reimbursement of Expenses.
   - 4.1 Division 3 and Division 6 meetings in Ottawa (2006-September-09). The Request for Funding from J.A.!Veitch was approved at the 50th CNC/CIE annual meeting held 2005-October-29. The meetings have been held and the Request for Reimbursement of Approved Expenses of $1000.00 was received by the CNC/CIE Secretary in late October 2006. These expenses were approved by the CNC/CIE Secretary and the CNC/CIE Treasurer, and a check was issued on 2006-November-21.
   - 4.2 Hospitality for joint luncheon with IESNA Montréal and Solar Buildings Research Network at the CNC/CIE 51st Annual Meeting in Montréal (2006-October-13). The verbal request for funding up to $1000.00 presented by J.A.!Love at the 51st Annual Meeting in Montréal was approved at that meeting. The CNC/CIE Request for Funding form was received from J.A.!Love on 2006-October-16 and the Request for Reimbursement of Approved Expenses of $572.00 was received by the CNC/CIE Secretary on 2006-October-18. These were approved by the CNC/CIE Secretary and the CNC/CIE Treasurer, and a check was issued on 2006-November-21.
   - 4.3 A request for funding to provide travel assistance, up to a maximum of $1000.00, to Canadian student(s) to enable their attendance to present a paper at the joint meeting and symposium of the CNC/CIE with the CIE/USA in Ottawa in 2007, was presented verbally by J.A.!Love at the CNC/CIE 51st Annual Meeting in Montréal (2006-October-13). This was approved at that meeting. The CNC/CIE Request for Funding form was received from J.A.!Love on 2006-October-19.

5. CNC/CIE website:

The website has been operating since 2005-October-26 at the web address of www.cie-cnc.ca. I have begun to receive requests for information through the website. If anyone has suggestions for corrections, updates, or additions, please contact the Secretary or J.A.!Veitch, our website coordinator. A report on the website will be given at this meeting.

6. Mailing Lists:

6.1 At present I maintain 3 mailing lists: Members (13), Advisory Members (50), General Interest (19). In general, the difference between the first two and the third is that the third list tends to receive only CIE material (press releases of CIE publications, *CIE NEWS*) and notices of international conferences. Members and Advisory Members receive, in addition to the CIE material, more CNC information such as various ballots, and the Minutes of the annual meeting and related information.

6.2 Electronic Mail: I have sent most 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 now receive most information from the CIE-CB, such as Press Releases, in electronic format. I often receive announcements of meetings in electronic format, and I forward these electronically rather than sending a large paper mailing. At present my email mailing lists are: Members (13), Advisory Members (42), General Interest (14). Please keep me updated on your email address.

7. 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.

7.1. Members:

At last year's annual meeting two Member appointments were recommended by the CNC/CIE. Letters of appointment were sent to these people by Dr. James W. McLaren, Director-General of INMS. Both have accepted. They are:

Dr. Réjean Baribeau for a four-year term until 2010-December-31
Mr. Ivaldo Pasini for a four-year term until 2010-December-31

7.2. Advisory Members:

As a result of the actions taken at our last annual meeting, the following was added to our Advisory Membership, and a letter was sent to him indicating his appointment:

Dr. Thanos Tzempelikos, Concordia University, Montréal, Québec.

At our last annual meeting Robert Lanteigne also expressed interest in the CNC/CIE and I made initial contact with him by email. However, I have since lost contact with him as his emails now 'bounce'.

The following people have been removed from our mailing lists:

Igor Peshko, no longer involved
William A. Simpson, moved from Canada
R.Topalova, moved from Canada

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

In Memoriam

Wolfgang Budde

(1919-2006)

On 16 December 2006, Wolfgang Budde died peacefully in his sleep after fighting a losing battle against cancer.

Wolfgang was born on 1 February 1919 in Stettin, which is the present-day Szczecin, Poland. In 1926, his family moved to Berlin where he attended school and university. His education included the study of colorimetry under Prof. Manfred Richter at the Technical University of Berlin. His masters thesis was on absolute diffuse reflectance measurements, a subject that remained a major interest throughout his career. In 1958, he was invited to join his former colleague, Gunter Wyszecki at the National Research Council of Canada (NRC) where he remained until his retirement in 1984.

His main areas of activity were optical radiation detectors, reflectance measurements and gloss. He developed many state-of-the art instruments for measuring the characteristics of detectors, such as spectral responsivity, linearity and uniformity. He became a renowned expert in the field and, in 1983, published a book "Physical Detectors of Radiation" (Volume 4 of the series on Optical Radiation Measurements edited by Franc Grum and James Bartleson) which became the definitive reference book on the subject.

In reflectance measurement he developed techniques for the measurement of absolute reflectance that remain in use today as the primary method for the calibration of reflectance. As Chair of Working Group 3 (Optical properties) of ISO TC6 (Paper, board and pulps), he played a major role in the definition of "standardizing" and "authorized" laboratories and in developing the concept of three levels of ISO reference standards (IR1, IR2 and IR3) to regulate and improve the consistency of measurement of reflectance throughout the paper industry.

Wolfgang's work on gloss measurement was also in response to industry's needs, this time the paint industry, although his work also supported methods used in other industries such as plastics and paper. Again, as befitting work in a National Metrology Institute, and using his own meticulous attention to detail, he developed instrumentation that became the best in the world.

He was extremely active in the CIE, being a major contributor and often the Chair of numerous committees, sub-committees and working groups, most of which would in modern terminology be Technical Committees of Division 2. He was General Secretary of the CIE from 1983 to 1985 during the transition of the Central Bureau from Paris to Vienna. During this time the Central Bureau was actually Wolfgang's office at NRC and he contributed a lot towards defining the scope and nature of the much expanded and permanent Central Bureau in Vienna. His term as General Secretary started when Gunter Wyszecki became President and Gunter's illness and subsequent death put an extra load on Wolfgang. He kept the organization operating smoothly and actively assisted in the transfer of power to Gunter's "emergency" successor, Mike Marsden.

Wolfgang was a valued member of the Canadian National Committee of the CIE from 1963 until after his retirement from NRC and he continued as an Advisory Member until 1997. He served as Secretary from 1963 to 1967 and as President from 1967 to 1975.

Wolfgang had a creative wit and humour and an exceptionally friendly attitude to everyone he came in contact with. He was a tireless mentor to many younger colleagues at NRC and in the CIE. We owe him a lot and will remember him gratefully and affectionately.

After his retirement, Wolfgang participated actively in the German Evangelical Martin Luther Church in Ottawa, as a member of the Church Council and as a Substitute Pastor, giving many sermons, particularly on the reconciliation of science and faith. He is survived by Brita, his wife of 59 years, by his son Michael and by his daughter-in-law Gina.

APPENDIX G

CNC/CIE 52nd Annual Meeting

2007-October-19

CNC/CIE letter to NRCan re efficiency regulations concerning 40 W to 100 W lamps

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

Canadian National Committee Comité National Canadien

Katherine Delves, P. Eng.
Senior Standards Development Manager, ETPS/OEE/H&E/SL
Natural Resources Canada
C.E.F. 930 Carling Ave. 5 Observatory Crescent, 1st Floor, Room. 100
Ottawa, ON
Canada K1A 0Y3

Friday, June 15, 2007

Dear Ms. Delves:

The Commission Internationale de L'Eclairage (CIE) is the principal international authority and standards-writing body concerned with the science and engineering of light, vision and illumination. The national committees of the CIE represent national concerns and help communicate the knowledge of the CIE to official bodies in their countries.

In Canada, as part of a general recognition of the need for reduced energy consumption and associated greenhouse gas emissions, media and government attention has recently focused on the potential for reductions from more efficient lighting, and in particular on the possibility of reductions associated with a change from incandescent lamps to compact fluorescent lamps (CFLs). The Canadian National Committee of the CIE (CNC-CIE) is of the view that the long term success of measures to improve lighting energy efficiency depends on the balance between lighting energy use, the functional aspects of lighting installations, and a life-cycle analysis of overall environmental performance. This document brings together knowledge from physics, electrical engineering, physiology, and psychology to highlight issues to be considered as part of any regulatory effort to improve lighting energy efficiency and, in particular, the current effort to develop minimum efficiency standards for incandescent lamps.

Background
Canada is moving towards the development of regulations that would increase the minimum efficacy of incandescent lamps (expressed as lumens per watt), largely to promote conversion to CFLs. Attention is currently focused on general service lamps with medium screw bases, and in particular on incandescent lamps of 40-60-100 W varieties, such as are most commonly used in homes. Several aspects of lamp function underlie this development based on current technology. These are:

- Incandescent lamps convert only a small fraction of their power into light and the rest becomes heat. In contrast, CFLs convert about 3 to 4 times more of their power into light and correspondingly less into heat.

- Incandescent lamps generally operate for about 1000 hrs before failing, whereas CFLs typically last 5 to 10 times longer.
- Because of these two facts, under ideal conditions, the higher initial cost of a CFL lamp will be recovered over its operating life through power cost savings.
- Widespread adoption of CFL lamps in place of incandescent lamps with long operating hours would significantly reduce electrical energy use for lighting.

While the CNC-CIE strongly supports the responsible use of energy for lighting, we wish to draw attention to broad issues that should be taken into account in formulating lamp efficiency regulations:

1. Meeting functional needs for illumination, in particular colour appearance, light distribution, controllability.
2. Relative life cycle performance of various lamp technologies.

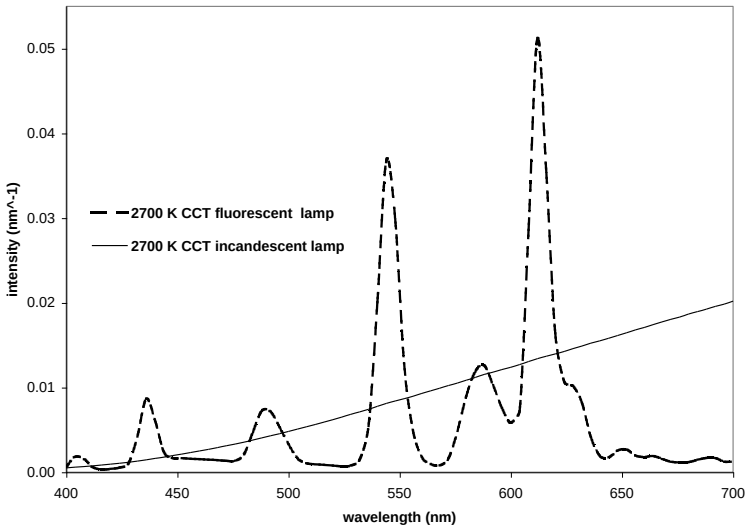
These issues are further elaborated below.

1) Functional Needs:

- **Safety:** a) Enclosed and recessed applications. Most CFL screw base lamps lack approval for enclosed and recessed applications. Those that manufacturers suggest may be used in enclosed applications generally have low temperature ratings. More data and better rating systems should be developed if more general CFL use is to be encouraged or mandated.

  b) End of life failure. The typical current design compact fluorescent lamp lacks end of life circuitry to prevent catastrophic failure. Although such failure is rare, increased use of CFLs could increase the number of incidents of this type.

- **Colour:** Vision is our most important sense and human perception of colour is extremely important to our psychological and social well-being. We judge such factors as the quality of our food, or the state of our health, by means of subtle assessment of shades of colour, which in turn are dependent on the nature of the light source. Incandescent lamps are the dominant light source used in residences, and are the standard against which other light sources of the same correlated colour temperature (~ 2700 K) are judged (i.e., their colour rendering index (CRI) = 100 by definition). Currently available CFLs have CRI values around 80-85 compared with about 95 for incandescent lamps.



The above graph shows the spectral power distribution of an incandescent lamp versus a CFL lamp, both of the same correlated colour temperature. They are very different. Reds in surfaces with reddish hues, such as human skin, wood, and many foods, are less pronounced under light from CFLs than under incandescents.

Colour rendering impacts and choices should be considered as part of the regulatory impact assessment in framing efficiency regulations.

- **Size and shape:** Illumination is provided by a lighting fixture (luminaire), not just a lamp, much as heat in a building is provided by a furnace, not just a flame. Just as furnaces are designed for a specific fuel, luminaires are designed for a specific lamp. Efficiency, comfort and safety depend on the match between the luminaire and lamp.

  The light-emitting region in a CFL is much larger than in an incandescent lamp; the incandescent lamp is effectively a point source, whereas the CFL emits light along the entire tube. In many luminaires designed for incandescent lamps, this difference will mean that luminaire efficiency drops when a CFL is substituted, glare may be created that impedes vision, and light distribution may shift from that intended. In such cases a lower wattage incandescent lamp would be a much better solution for saving power unless the luminaire were changed to suit the source. Impact on luminaire performance should be considered as part of the regulatory impact assessment in framing efficiency regulations.

- **Dimming:** Inexpensive dimmers are commonly used in homes to reduce the light output of incandescent lamps, providing controlled dimming over a range of about 10,000 to 1 ranging from bright white light (for reading) to a subdued warm candle-lit atmosphere (for dining). Currently available CFLs are neither capable of dimming over such a range nor compatible with conventional dimmers. Dimming applications should be considered as part of the regulatory impact assessment in framing efficiency regulations, including the possible effects of a shift to fuel-based illumination sources (e.g., candles) if sources dimmable over a very wide range are excluded from the market.

- **Use with controls such as occupancy sensors:** Effects on lamp life and lumen maintenance should be addressed.

- **Enclosed and recessed applications – effects on life and lumen output:** CFL performance (light output) is subject to bulb wall temperature: as temperature rises light output declines.

2) Life-cycle effectiveness:

A comprehensive, comparative, life-cycle analysis is needed in order to demonstrate the overall environmental consequences of a large-scale change in lighting technology from incandescent to CFL technologies. This assessment should take into account the following issues, among others:

- CFL lamps contain mercury, a hazardous substance. Although each lamp contains a small quantity (5 mg), the disposal of large numbers of CFLs in landfills may increase the risk of mercury contamination of local water supplies. Conversely, the energy savings associated

with CFLs should reduce mercury emissions from power plants, particularly if the electricity generation is from coal-burning plants. Even hydroelectric generation can result in mercury release.

- CFL lamps also contain much more material - metals, semi-conductors, phosphors and glass - and much more embodied energy than incandescent lamps. At the present time, CFLs are manufactured outside North America, meaning that transcontinental transport is required.
- Some of the heat that is produced by incandescent lamps is useful. In most of Canada, for much of the year, the heat produced by incandescent lamps contributes to space heating. Thus, a switch from one lighting technology to another may save energy for lighting but increase energy used for heating.
- The energy use and cost reductions from conversion to compact fluorescent lamps depend on annual operating hours. Operating hours should be considered as part of the regulatory impact assessment in framing efficiency regulations.
- The use of compact fluorescent lamps with controls such as those related to occupancy should be addressed in terms of effects on lamp life.

The only existing comparative life-cycle assessment of compact fluorescent and incandescent lamps that the CNC-CIE found was "Study on External Environmental Effects Related to the Life Cycle of Products and Services, Appendix 2: Case Studies" of February, 2003, a copy of which I am providing for your convenience.

Summary

The CNC-CIE urges that regulation of light source performance be based on comprehensive life-cycle assessment that strives to avoid counterintuitive effects experienced with previous efforts to regulate lamps (e.g., the use of A lamps in reflector lamp luminaires). We also urge that effects on lighting quality be considered in the context of an overall strategy on energy efficiency and environmental protection for Canada. The CNC-CIE has become aware that several groups (e.g., the International Energy Agency) are working to formulate advice regarding the promotion of a shift to more energy-efficient light sources in ways that will reduce negative consequences and encourages NRCan to take advantage of this.

Yours truly

Jim Love, D. Arch., P. Eng., MRAIC, LC, LEED AP
President, Canadian National Committee, Commission Internationale de l'Eclairage
Faculty of Environmental Design, University of Calgary
2500 University Drive NW, Calgary AB T2N 1N4 Canada

att.

STUDY ON EXTERNAL ENVIRONMENTAL EFFECTS RELATED TO THE LIFE CYCLE OF PRODUCTS AND SERVICES

APPENDIX 2

CASE STUDIES

FEBRUARY 2003

EUROPEAN COMMISSION

DIRECTORATE GENERAL ENVIRONMENT

Directorate A- Sustainable Development and Policy support

Contact BIO Intelligence Service
Eric LABOUZE / Véronique MONIER
☎ 01 56 20 28 98
elabouze@biois.com; vmonier@biois.com

LAMPS: FLUOCOMPACTS VS. FILAMENT LAMPS

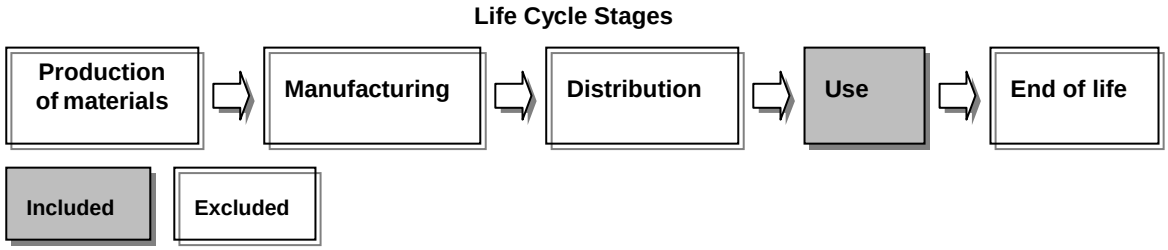
A. Functional Unit

10 million lumens[1] hours. (This correspond to roughly 1.6 times the light yield of a conventional filament lamp and a bout one fifth of that of a compact fluorescent lamp).

B. Reference

The International Journals of Life Cycle Assessment, Vol. 1 N°1 1996, page 8. Case studies: Comparison between Filament lamps and Compact Fluorescent Lamps. Rolf P. Pfeifer.

C. System Studied



Four different alternative types of lamp were selected for analysis:

- A conventional standard filament lamp, with a power input of 60W, a light output of 650 lm, and an average life of 1000 h.
- A compact fluorescent lamp with integral electronic control gear, a power input of 15 W, a light output of 600 lm, and an average life of 8000 h.
- A compact fluorescent lamp with integral inductive control gear, a power input of 13 W, a light output of 650 lm, and an average life time of 8000 h.
- A compact fluorescent lamp with a separate ballast, a total power input of 11 W, a light output of 600 lm and an average life time of 8000 h for the lamp and 32 000 h for the ballast.

The authors were forced to use exclusively data from the literature reference available in the public domain, as none of the lamp producers was willing to provide further information. The author stress explicitly that the available data is insufficient and that there are, in part, substantial data gap.

Only energy consumption of the production and use phases is considered in this paper.

[TAB 1] ENERGY CONSUMPTION IN MJ

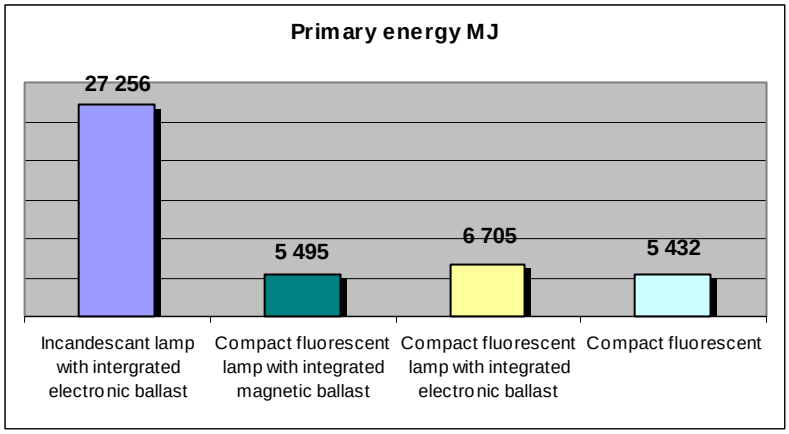
	Incandescent lamp	Compact fluo lamp with integrated magnetic ballast	Compact fluo lamp with integrated electronic ballast	Compact fluo lamp
Production step	0.8-3.1	1.1-3.7	1.0-2.1	0.6
Use step	875	174	189-214	116-174
Total	875-878	175-177	190-216	117-175

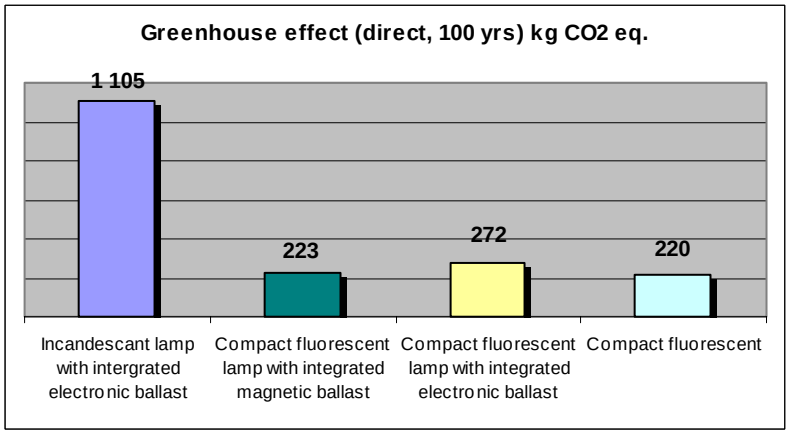
[1] Lm (lumen) is the unit of luminous flux, and thus quantifies the light output emitted by a source or, colloquially speaking, the "brightness" of a lamp. Lux is the unit of illumination of a surface, whereby one lux equals to one lumen per square meter.

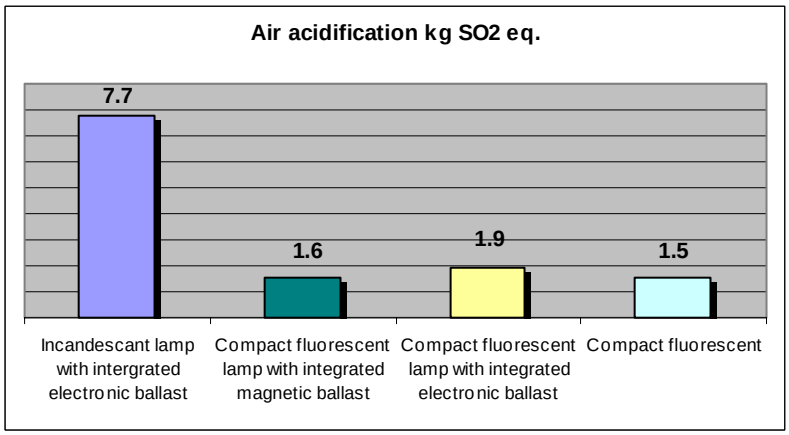
[TAB 2] MIX OF ENERGY IN THE ELECTRICITY MODEL – 1 KWH

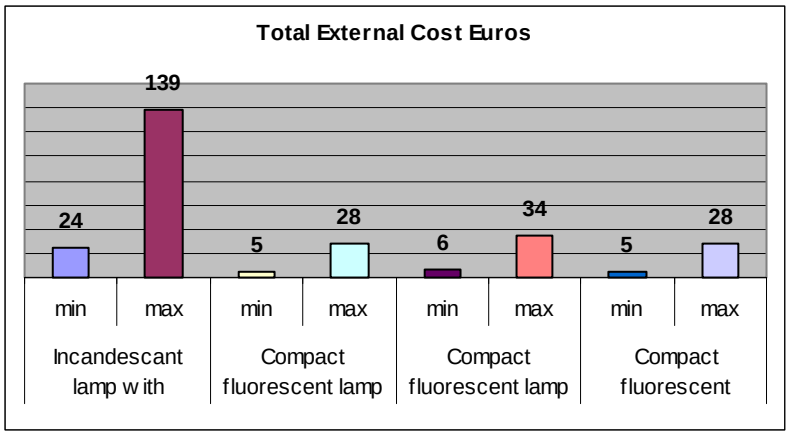
Electricity from coal B250	kWh	17,4%
Electricity from gas B250	kWh	7,4%
Electricity from hydropower B250	kWh	16,4%
Electricity from lignite B250	kWh	7,8%
Electricity from uranium B250	kWh	40,3%
Electricity from oil B250	kWh	10,7%

D. Main Results for one million lumen hours









E. Conclusions of the authors

The LCA clearly finds much more favourable results for the compact fluorescent lamp. The decisive weak point of the conventional filament lamp is its energy consumption in the use stage. Only some 1-5% of the total primary energy consumption are to produce the lamp itself, while approx. 95-99% are consumed in the use stage. In total, a filament lamp consumes about five to height times more primary energy than a compact fluorescent lamp. A further consequence of the higher consumption of the filament lamp is that its ascribable emissions to air are much higher than those of the compact fluorescent lamp.

Mercury emissions:

Compact fluorescent lamps use mercury in production, and contain mercury in the final product. The total emissions of mercury over the whole life cycle of both lamp types, the filament and the compact fluorescent lamp, are approximately equal. This is due to the fact that the comparatively higher mercury emissions of the compact fluorescent lamp in the production and disposal stages are compensated by the mercury emissions of the filament lamp that follow from its higher energy consumption. Coal has a slight, but detectable mercury content, and this is emitted by the conventional coal-fired power plants that supply the power for the lamp.

F. Differences between options

FLUOCOMPACT VS. FILAMENT LAMP	**Factor between the option having the lowest environmental impact and the option having the highest environmental impact**
Primary Energy Consumption	5
Global Warming	5
Air acidification	5

G. Detailed results

Functional unit: one million lumen hour		Incandescant lamp with intergrated electronic ballast		Compact fluorescent lamp with integrated magnetic ballast		Compact fluorescent lamp with integrated electronic ballast		Compact fluorescent	
A/ Environmental Impacts									
		Values							
Linked to resources consumption									
Depletion of non renewable resources	kg antimony eq.	8		2		2		2	
Linked to air emissions									
Greenhouse effect (direct, 100 yrs)	kg CO_2 eq.	1 105		223		272		220	
Stratospheric Ozone Depletion	g CFC-11 eq.	0.22		0.04		0.05		0.04	
Air acidification	kg SO_2 eq.	7.7		1.6		1.9		1.5	
Photochemical oxidation	g ethylene eq.	674		136		166		134	
Linked to water effluents									
Eutrophication	g PO4 eq.	32.2		6.5		7.9		6.4	
Linked to human health									
Human Toxicity	kg eq. 1-4-dichlorobenzene	12 031		2 425		2 960		2 398	
Years of Life Lost	year	3.4E-04		6.8E-05		8.3E-05		6.7E-05	
Linked to ecotoxicological risk									
Aquatic Ecotoxicity	kg eq. 1-4-dichlorobenzene	2 336		471		575		466	
Sediment Ecotoxicity	kg eq. 1-4-dichlorobenzene	7 490		1 510		1 843		1 493	
Terrestrial Ecotoxicity	kg eq. 1-4-dichlorobenzene	90		18		22		18	
B/ Other Environmental Indicators									
		Values							
Primary energy	MJ	27 256		5 495		6 705		5 432	
Fossil energy	MJ								
Consumption of raw materials	kg	670		135		165		134	
Dusts	g	1 247		251		307		249	
Dioxins	g								
Metals into air	g	376		76		93		75	
Metals into water	g	1 119		226		275		223	
Metals into soil	g								
Municipal and industrial waste	kg								
Hazardous waste	kg								
Inert waste	kg								
C/ External Cost									
		Values							
Linked to air emissions		**min**	**max**	**min**	**max**	**min**	**max**	**min**	**max**
Greenhouse effect (direct, 100 yrs)	Euros	21.0	53.0	4.2	10.7	5.2	13.0	4.2	10.6
Stratospheric Ozone Depletion	Euros	1.5E-04	1.5E-04	3.0E-05	3.0E-05	3.7E-05	3.7E-05	3.0E-05	3.0E-05
Air acidification	Euros	1.1	11.3	0.2	2.3	0.3	2.8	0.2	2.2
Photochemical oxidation	Euros	0.49	0.63	0.10	0.13	0.12	0.15	0.10	0.12
Linked to water effluents									
Eutrophication	Euros	0.05	0.05	0.01	0.01	0.01	0.01	0.01	0.01
Linked to solid waste									
Disaminity caused by incineration	Euros								
Disaminity caused by landfilling	Euros								
Linked to human health									
Carcinogenic potential of heavy metals	Euros	4.7E-03	4.7E-03	9.5E-04	9.5E-04	1.2E-03	1.2E-03	9.4E-04	9.4E-04
Human health effects caused by dusts	Euros	1.73	73.93	0.35	14.90	0.43	18.19	0.35	14.74
Human health effects caused by dioxins	Euros								
Total External Cost	**Euros**	**24**	**139**	**5**	**28**	**6**	**34**	**5**	**28**

	Compact fluorescent		Incandescant lamp with intergrated electronic ballast		Compact fluorescent lamp with integrated magnetic ballast		Compact fluorescent lamp with integrated electronic ballast	
A/ Environmental Impacts								
Linked to resources consumption								
Depletion of non renewable resources	100%		502%		101%		123%	
Linked to air emissions								
Greenhouse effect (direct, 100 yrs)	100%		502%		101%		123%	
Stratospheric Ozone Depletion	100%		502%		101%		123%	
Air acidification	100%		502%		101%		123%	
Photochemical oxidation	100%		502%		101%		123%	
Linked to water effluents								
Eutrophication	100%		502%		101%		123%	
Linked to human health								
Human Toxicity	100%		502%		101%		123%	
Years of Life Lost	100%		502%		101%		123%	
Linked to ecotoxicological risk								
Aquatic Ecotoxicity	100%		502%		101%		123%	
Sediment Ecotoxicity	100%		502%		101%		123%	
Terrestrial Ecotoxicity	100%		502%		101%		123%	
B/ Other Environmental Indicators								
Primary energy	100%		502%		101%		123%	
Fossil energy								
Consumption of raw materials	100%		502%		101%		123%	
Dusts	100%		502%		101%		123%	
Dioxins								
Metals into air	100%		502%		101%		123%	
Metals into water	100%		502%		101%		123%	
Metals into soil								
Municipal and industrial waste								
Hazardous waste								
Inert waste								

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

Canadian National Committee Comité National Canadien

APPENDIX H

CNC/CIE 52nd Annual Meeting

2007-October-19

Financial and Publications Report

CNC/CIE PUBLICATION - CANADA
FINANCIAL REPORT
AS OF
September 30, 2007

CNC/CIE PUBLICATION - CANADA
FINANCIAL REPORT

INCOME STATEMENT **01/October/2006 - 30/September/2007**

Revenue		
Publication sale [year 2006-2007]	Nil	
Other Income	$ 5,811.69	
[1/2 of the consolidated profit of the CIE-ISCC Symposium held in 2006]		
CIE Central Bureau credit note #CN002/2007 income	$ 1,786.39	
[re: Euro$1,285.36.00 = Can$1,786.39]		
Total Revenue		**$ 7,598.08**
Expense		
Bank charges [Oct/2006 - Sep/2007]	$ 63.40	
Central Bureau of CIE	Nil	
[re: publication purchase in year 2006-2007]		
CNC/CIE Division 3 & Division 6 meeting expenses	$ 1,000.00	
Joint luncheon with IESNA Montreal & Solar Buildings Research	$ 572.00	
Cyberton	$ 154.90	
[re: Web service]		
Total Expense		**$ 1,790.30**
Net Income (Loss)		**$ 5,807.78**

CNC/CIE PUBLICATION - CANADA
FINANCIAL REPORT

BALANCE SHEET **01/October/2006 - 30/September/2007**

Assets		
Bank/Cash	$ 21,533.57	
Accounts Receivable	Nil	
Total Assets		**$ 21,533.57**
Liabilities		
Accounts Payable	Nil	
Total Liabilities		**$ -**
Equity		
Balance, beginning @ 01/October/2006	$ 15,725.79	
Current Income(Loss)	$ 5,807.78	
Total Equity		**$ 21,533.57**
Liability & Equity		**$ 21,533.57**

CNC/CIE PUBLICATIONS BANK ACCOUNT - CANADA

Financial Report - Bank Account

CNC/CIE Publications Bank Account: 01/October/2006 - 30/Sep/2007 **(Canada)**

Date		Sales	Other Income	Payments to CB	Other Expenses	Balance
30-Sep-2006	Balance brought forward					$15,725.79
31-Oct-2006	Bank monthly charges (Oct/2006)				$3.95	$15,721.84
21-Nov-2006	Solar Buildings Research Network [CNC/CIE ck#106]				$ 572.00	$15,149.84
	(Reimbursement for Joint Luncheon with IESNA Montreal					
	& Solar Buildings Research Network on Oct/13/2006)					
21-Nov-2006	Dr. Jennifer Veitch [CNC/CIE ck#107]				$1,000.00	$14,149.84
	(Reimbursement for Div. 3 & Div. 6 Meetings on Sep/09/2006)					
30-Nov-2006	Bank monthly charges (Nov/2006)				$3.95	$14,145.89
30-Dec-2006	Bank monthly charges (Dec/2006)				$3.95	$14,141.94
31-Jan-2007	Bank monthly charges (Jan/2007)				$3.95	$14,137.99
28-Feb-2007	Bank monthly charges (Feb/2007)				$3.95	$14,134.04
31-Mar-2007	Bank monthly charges (Mar/2007)				$3.95	$14,130.09
30-Apr-2007	Bank monthly charges (Apr/2007)				$3.95	$14,126.14
3-May-2007	Deposit: "Inter-Society Color Council" ck #766					
	US$5,349.00 = Can$5,811.69		$5,811.69			$19,937.83
	(Re:1/2 of the consolidated profit of the CIE-ISCC Symposium					
	held in Ottawa in May 2006)					
31-May-2007	Bank monthly charges (May/2007)				$3.95	$19,933.88
28-Jun-2007	Deposit: "CIE Central Bureau" wire transfer					
	Euro$1,285.36 = Can$1,786.39 @1.3898		$1,786.39			$21,720.27
	[Re: credit note #CN002/2007 for publication sales]					
	Bank charge for above transaction				$10.00	$21,710.27
30-Jun-2007	Bank monthly charges (June/2007)				$3.95	$21,706.32
31-Jul-2007	Bank monthly charges (July/2007)				$3.95	$21,702.37
	Record keeping fees (Bank)				$2.00	$21,700.37
31-Aug-2007	Bank monthly charges (Aug/2007)				$3.95	$21,696.42
	Record keeping fees (Bank)				$2.00	$21,694.42
19-Sep-2007	Cyberton - Web service [CNC/CIE ck#108]				$154.90	$21,539.52
29-Sep-2007	Bank monthly charges (Sep/2007)				$3.95	$21,535.57
	Record keeping fees (Bank)				$2.00	$21,533.57
30-Sep-2007	**Total**	**$0.00**	**$7,598.08**	**$0.00**	**$1,790.30**	**$21,533.57**

CNC/CIE PUBLICATION SALE - CANADA

CNC/CIE Publication Sale: 01/October/2006 - 30/September/2007 (Canada)					
Date/Inv. #	**Description/Title of Publication**	**Qty**	**Sale**	**Expense**	**Net Amount**
	No Sale		$ -	$ -	$ -
30-Sep-2007	**Total**		**$ -**	**$ -**	**$ -**

Please note: CIE Central Bureau's credit note no. CN 002/2007 wire-transferred **Euro$1,285.36.00 = Can$1,786.39** to CNC/CIE's Bank Account on 28/June/2007 (see page 3 - Bank Account), due to "Credit notes for direct publication sales from CIE Central Bureau to customers in Canada".

CNC/CIE PUBLICATION PURCHASE - CANADA

Publication purchase from Central Bureau of CIE: 01/October/2006 - 30/September/2007 (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-2006	Forward		**No Purchase**		$ -	$ -	$ -	$ -	**$ -**
			Total to date as of 30-September-2007			**$ -**	**$ -**	**$ -**	
			Payment to CB @ 30-September-2007						**$ -**
			Balance due as of 30-September-2007					**$ -**	**(Euro)**

CIE/CNC PUBLICATION STOCK LIST

2007-SEPTEMBER-30

CIE	Title	Year	Price	Price	Sales								Purchase						Current	CB
No.			Code	Cd$	97-98	98-99	99-00	2001	2002	2003	04/05	05-07	99-00	2001	2002	2003	04/05	05-07	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	Colorimetry (3rd edition)	2004	I	Euro															0	
15.2	Colorimetry	1986	H	98	1	3	1	3		2				1		4			2	X
16	Daylight	1970	I	109															5	
17.4	International lighting vocabulary	1987	X	Euro				1											0	
18.2	Physical photometry	1983	E	80	1	1				1									0	
19.21	Visual performance - volume I	1981	K	137															4	
19.22	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 colorimetr	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

2007-SEPTEMBER-30

CIE	Title	Year	Price	Price	Sales								Purchase						Current	CB
No.			Code	Cd$	97-98	98-99	99-00	2001	2002	2003	04/05	05-07	99-00	2001	2002	2003	04/05	05-07	Stock	X
56	Proceedings 1983/light&lighting	1983	L	166															5	X
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	Roadsigns	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	X
88(2nd ed.)	Lighting for road tunnels&underpas	2004	D	Euro															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 mea	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	X
97(2nd ed.)	Maintenance/indoor ltg systems	2005	D	Euro															0	
98	Personal dosimetry of uv radiat.	1992	C	68															1	

CIE/CNC PUBLICATION STOCK LIST

2007-SEPTEMBER-30

CIE	Title	Year	Price	Price	Sales								Purchase						Current	CB
No.			Code	Cd$	97-98	98-99	99-00	2001	2002	2003	04/05	05-07	99-00	2001	2002	2003	04/05	05-07	Stock	X
99	Lighting education(1983-1989)	1992	B	57															1	
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	Euro															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	X	Euro	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	
127	Measurement of LEDs	2007	D	Euro															0	
127	Measurement of LEDs(French)	2007	D	Euro															0	
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	Euro															0	
133CD	Proc.24th ses.CIE,Warsaw	1999	X	Euro															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	
139CD	Diurnal&seas. var.in humans	2001	X	Euro															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	

CIE/CNC PUBLICATION STOCK LIST

2007-SEPTEMBER-30

CIE	Title	Year	Price	Price				Sales						Purchase					Current	CB
No.			Code	Cd$	97-98	98-99	99-00	2001	2002	2003	04/05	05-07	99-00	2001	2002	2003	04/05	05-07	Stock	X
143	Colour vision req.for transport	2001	E	80				1	1					2					0	
144	Road surf. & marking refl.charact.	2001	D	74										2					2	
145	Cor.for vision&visual perform.	2002	E	80					2						2				0	
146/147	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 outdr. lt	2003	E	80						2	1					2	1		0	
151	Spectral weighting of Solar UV	2003	D	74												2			2	
152	Proc.of 25th Session of CIE	2003	X	Euro															0	
152CD	Proc.of 25th Session of CIE	2003	X	Euro															0	
153	Interc.of luminous flux of HPS	2003	A	43												2			2	
154	Maint.of outdoor lighting system	2003	C	Euro						1	1					2			0	
154(Fren.)	Maint.of outdoor lighting system	2003	C	Euro															0	
155	Ultraviolet air disinfection	2003	G	91						1	1					2			0	
155(Fren.)	Ultraviolet air disinfection	2003	G	Euro															0	
156	....Gamut mapping algorithms	2004	C	Euro															0	
156(Fren.)	....Gamut mapping algorithms	2004	C	Euro															0	
157	..Museum object by optical rad.	2004	D	Euro															0	
157(Fren.)	..Museum object by optical rad.	2004	D	Euro															0	
158	Ocular light effects on human..	2004	F	Euro															0	
158(Fren.)	Ocular light effects on human..	2004	F	Euro															0	
159	Colour appearance..CIECAM02	2004	C	Euro															0	
159(Fren.)	Colour appearance..CIECAM02	2004	C	Euro															0	
160	Chromatic adaptation transfm.	2004	D	Euro															0	
161	Lighting ..for obstructed interior	2004	D	Euro															0	
161(Fren.)	Lighting ..for obstructed interior	2004	D	Euro															0	
162	Chromatic adaptation under mix.	2004	C	Euro															0	
163	Effects of fluo..of Imaging data	2004	B	Euro															0	
163(Fren.)	Effects of fluo..of Imaging data	2004	B	Euro															0	
164	Hollow light guide tech. & appli.	2005	D	Euro															0	
165	CIE 10 deg. photopic photometer	2005	C	Euro															0	
166	Cognitive colour	2005	C	Euro															0	
167	Recom..tabulating spectral data	2005	C	Euro															0	
168	Criteria..gamut colour encoding	2005	I	Euro															0	
168(Fren.)	Criteria..gamut colour encoding	2005	I	Euro															0	
169	..Sport events for col.tev.& film,	2005	H	Euro															0	
169(Fren.)	..Sport events for col.tev.& film,	2005	H	Euro															0	
170-1	.chromati. diag./w physio-part I	2006	F	Euro															0	
170-1(Fre.)	.chromati. diag./w physio-part I	2006	F	Euro															0	
171	Assess..lighting computer prog.	2006	I	Euro															0	
171(Fren.)	Assess..lighting computer prog.	2006	I	Euro															0	
172	UV protection and clothing	2006	F	Euro															0	
172(Fren.)	UV protection and clothing	2006	F	Euro															0	
173	Tubular daylight guidance syst.	2006	H	Euro															0	
173(Fren.)	Tubular daylight guidance syst.	2006	H	Euro															0	
174	Action spectr..previtamin D3..	2006	B	Euro															0	
174(Fren.)	Action spectr..previtamin D3..	2006	B	Euro															0	

CIE/CNC PUBLICATION STOCK LIST

2007-SEPTEMBER-30

CIE	Title	Year	Price	Price	Sales								Purchase						Current	CB
No.			Code	Cd$	97-98	98-99	99-00	2001	2002	2003	04/05	05-07	99-00	2001	2002	2003	04/05	05-07	Stock	X
175	Framework for meas.visual appear	2006	I	Euro															0	
176	Geometric toler.for color meas.	2006	C	Euro															0	
177	Colour render. of white LED	2007	B	Euro															0	
179	charact.tristimulus colorimeters	2007	B	Euro															0	
	CIE Publications on Diskettes:																			
D001	Phot. & colorimetric data	1988	C	68	1		1			1			1			1			0	X
D001	Phot.&colorimetric data (18.2)	2006	C	Euro																
D002	Colorimetric&colour rend. data	2004	J	Euro															0	
D005	Daylight simulators for colorim.	1994	A	43															0	
D007	Corresponding colours	1994	F	86															0	
D008	Colour rendering index (13.3)	1995	X	53				2						2					1	
	Standards and Draft Standards:																			
ISO10526	Standard illuminants	1991	B	57			1												1	X
ISO10527/E	Colorimetric observers	1991	G	91			1												2	X
ISO10527/F	Colorimetric observers	1991		Euro															0	X
S003	Spatial distribution of daylight	1996	A	43	1														0	X
S004	Colours of light signals	2001	B	57															0	
S005/E	Illuminants for colorimetry	1999	B	57															2	
S005/F	Illuminants for colorimetry	1999		Euro															0	
S005/D	Illuminants for colorimetry	1998		Euro															0	
16508/S006	Road traffic light	1998	A	43	1														1	
17166/S007	Erythema action spectrum	1999	A	43			1		2						2				1	
S007/F	Erythema action spectrum	1999	A	Euro															0	
S007/D	Erythema action spectrum	1998	A	Euro															0	
8995/S008	Lighting of indoor work places	2001	C	68				3		4				3		5			1	
S009/E	Photobio.safety of lamp&system	2002	D	Euro															0	
S009/F	Photobio.safety of lamp&system	2002	D	Euro															0	
S009/D	Photobio.safety of lamp&system	2002	D	Euro															0	
S009/E&F	Photobio.safety of lamp&(bilingual.	2006	I	Euro															0	
23539/S010	CIE syst.of physical photometry	2005	C	Euro															0	
15469/S011	Spatial distribution of daylight	2003	A	43						2						3			1	
S011/E	Spat. dis.of daylight-gen. sky	2003	A	Euro															0	
23603/S012	Spat.quli.of daylight simulators..	2004	C	Euro															0	
S013/E	Int'l stand.global solar UV index	2003	A	43															0	
S014-1/E	Colorimetry-1:colorimetric observe	2006	D	Euro															0	
S014-2/E	Colorimetry-2:illuminants	2006	B	Euro															0	
S014-4/E	Colorimetry-4:lab color spaces	2007	B	Euro															0	
S015/E	Lighting of indoor work places	2005	C	Euro															0	
S016/E	Lighting req.for safety & security	2005	A	Euro															0	
S019/E	Photocarcinogenesis act.spect	2006	B	Euro															0	
S020/E	Emergency lighting	2007	A	Euro															0	
DS007.4	Erythema action spectrum	1998	X	-	1														0	X
DS010.2/.3	CIE sys.of physical photometry	2001	X	31				2						2					0	X
DS012.2/E	Spectral quality of daylight simu.	2002	X	31															0	X
DS015/E	Ltg.of work places-outdoor work	2002	X	31						1						1			0	X
DS018.2/E	Format for lumin.photome.data	2007																	0	

CIE/CNC PUBLICATION STOCK LIST

2007-SEPTEMBER-30

CIE	Title	Year	Price	Price	Sales								Purchase						Current	CB
No.			Code	Cd$	97-98	98-99	99-00	2001	2002	2003	04/05	05-07	99-00	2001	2002	2003	04/05	05-07	Stock	X
	Special CIE Publications:																			
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	Euro	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.	1998	K	137															0	
X015	Proc. symp. lighting quality	1998	H	98															0	
X016	Meas.of optical radiation haz.	1998	X	Euro															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	X	Euro															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	X	Euro															0	
X025	Temporal & spatial aspects of light	2003	L	166															0	
X025CD	Temporal & spatial aspects of light	2003	X	Euro															0	
X026	LED light source:measr.& asses.	2004	N	Euro															0	
X027	Light & Health:non-visual effect	2004	X	Euro															0	
X028	Vision&lighting in mesopic cond.	2005	H	Euro															0	
X029	Proc.of 2nd symp.Meas.uncer	2006	M	Euro															0	
X030	75 yrs of CIE std color.observer	2006	M	Euro															0	
X031	Proc.of 2nd symp.ltg&health	2006	M	Euro															0	
X032	Proc.of symp.visual appearance	2007	N	Euro															0	
AIC1AB	AIC Proc. 93 A+B	1993		Euro															0	
AIC1AC	AIC Proc. 93 A+C	1993		Euro															0	
AIC1ABC	AIC Proc. 93 A+B+C	1993		Euro															0	
Misc.	CIE symposium Toronto 2000	2000		10						1									0	
	Total				**19**	**21**	**14**	**28**	**24**	**27**	**17**	**0**	**14**	**24**	**16**	**39**	**2**	**0**	**280**	

NOTE:

1) **CB x** - Withdrawn and/or out-of-print publications from Central Bureau of CIE.
2) There was no publication purchase from CNC/CIE for the period: Oct/01/2006 - Sep/30/2007.
3) There was no publication sale from CNC/CIE for the period: Oct/01/2006 - Sep/30/2007.
4) Central Bureau of CIE's website is *www.cie.co.at*
5) Total value of the publications in stock is around Can$21,519.00 (includng some CBx publications)

APPENDIX I

CNC/CIE 52nd Annual Meeting

2007-October-19

Requests for Financial Support

RECEIVED NOV 20 2006

CNC/CIE

Request for Reimbursement of Approved Expenses

Applicant's Name: DR. JENNIFER A. VEITCH

Address: 138 HOPEWELL AVE.
OTTAWA, ON K1S 2Z3

Activity for which reimbursement is requested: HOSPITALITY FOR DIVISIONS 3 & 6 MEETINGS – SEPT. 9, 2006 (COFFEE BREAKS)

Description of items and expenses to be reimbursed:

Item	Date	Description	Amount
1	2006-SEP-09	COFFEE/TEA/COOKIES/JUICE/SOFT DRINKS	1052.63
		(8:30 AM, 10:30 AM, 2:30 P.M.)	
2	2006-SEP-09	LESS MY CONTRIBUTION	– 52.63

Total: $ 1000.00

CIE ck# 107
Pd Nov/21/2006

Attach original receipts for expenditures in excess of $20.00

Make cheque Payable to: DR. JENNIFER VEITCH
Mail cheque to address: 138 HOPEWELL AVE
OTTAWA, ON
K1S 2Z3

I certify that all expenses are legitimate expenses made for and on behalf of the CNC/CIE and are in accordance with CNC/CIE policy for reimbursement of approved expenses.

Requester: Jennifer Veitch Date: 2006-Oct-16

For approval: Arnold J. Gaertner Date: 2006-Nov-15
Secretary

For payment: K. Fox Date: 2006-Nov-21
Treasurer

Mail request form to:

A.A. Gaertner
Secretary, CNC/CIE
Institute for National Measurement Standards
M-36, Room 115
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

CNC/CIE
Request for Funding

Applicant's Name: Jim Love
Address: Faculty of Environmental Design
University of Calgary
2500 University Drive NW
Calgary AB T2N 1N4

Activity for which funding is requested: Joint lunch with IESNA Montreal and Solar Buildings Research Network

Justification for CNC/CIE Funding (refer to General Policy for criteria):

CNC funders expect the CNC to raise the profile of the CIE and the CNC. This event leveraged the expenditures made by the CNC members to attend the annual meeting by adding the additional component of a joint lunch that increased the awareness of the CIE and CNC on the part of those involved in lighting in the Montreal area.

Detailed Budget

Item	Description	Amount
1	Food services	$572.00

Other Sources of Funding and Amounts:

Name	Amount
~~none~~	

Return to:

A.A. Gaertner
Secretary, CNC/CIE
Institute for National Measurement Standards
M-36, Room 115
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

RECEIVED NOV 2 0 2006

CNC/CIE
Request for Reimbursement of Approved Expenses

Applicant's Name: Jim Love
Address: Faculty of Environmental Design
University of Calgary
2500 University Drive NW
Calgary AB T2N 1N4

Activity for which reimbursement is requested: Joint lunch with IESNA Montreal and Solar Buildings Research Network

Description of items and expenses to be reimbursed:

Item	Date	Description	Amount
1	Oct. 13	Food services	$572.00

Total: $ $572.00

CIE ck# 106
P'd Nov/21/2006

Attach original receipts for expenditures in excess of $20.00

Make cheque Payable to: Solar Buildings Research Network
Mail cheque to address: Solar Buildings Research Network attn: Lyne Dee
Concordia University
1455 de Maisonneuve W.
Montréal, Québec H3G 1M8

I certify that all expenses are legitimate expenses made for and on behalf of the CNC/CIE and are in accordance with CNC/CIE policy for reimbursement of approved expenses.

Requester: _____ Date: ~~2006-10-17~~

For approval: _____ Date: 2006-NOV-15
Secretary

For payment: _____ Date: 2006-Nov-21
Treasurer

Mail request form to:

A.A. Gaertner
Secretary, CNC/CIE
Institute for National Measurement Standards
M-36, Room 115
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

CNC/CIE
Request for Funding

Applicant's Name: Jim Love

Address: Faculty of Environmental Design
University of Calgary
2500 University Drive NW
Calgary AB T2N 1N4

Activity for which funding is requested: Student paper award - contribution to travel costs to present at 2007 Ottawa CNC-USNC technical day

Justification for CNC/CIE Funding (refer to General Policy for criteria):
Renewal is a key issue for most organizations. The CNC can contribute by stimulating the interest of young scientist who might consider a career in lighting-related research. CNC funders expect the CNC to raise its profile and the promotion of this award will help with this.

Detailed Budget

Item	Description	Amount
1	travel assistance	$1000.00
	(may be divided to aid more than one student, depending	
	on decision of student paper committee with approval	
	of CNC executive	

Other Sources of Funding and Amounts:

Name	Amount
none	

Return to:

A.A. Gaertner
Secretary, CNC/CIE
Institute for National Measurement Standards
M-36, Room 115
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

APPENDIX J

CNC/CIE 52nd Annual Meeting

2007-October-19

CNC/CIE Web Site Report

CIE-CNC Web Site Report
October, 2007

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

Usage
Our web page http://www.cie-cnc.ca had an increase in traffic in 2007 over 2006, with a total of 576 unique visitors and 822 visits in the first 9 months of calendar 2007 to date (versus 266 and 367 in the same period of 2006). In addition there were 81 visitors and 109 visits during the first two weeks of October 2007, no doubt because of the technical meeting this week. (Detailed usage statistics are available on request.)

Content
At present the content is a thorough description of the CIE-CNC and of Canadian participation in CIE activities, with an additional page of links to lighting information for Canadians. I did not thoroughly update the content in 2006-2007 because of the press of other work, but will faithfully do so in November 2007.

Translation services for this information will be provided by the National Research Council of Canada.

We could add many other features, such as:
- the annual report (as a PDF file)
- meeting minutes
- the Code of Procedure
- the forms for requesting funding for specific events
- a members-only (password access) area, where documents for review and ballots could be downloaded
- an automated e-mail discussion list (for any combination of membership categories)

As I reported last year, I would particularly like to add the documents listed in the first four bullet points, if there is agreement from the Committee. Last year I added in my report:

> However, we need to consider what our translation policy will be if we are to do so. To fully translate all documents would be very expensive, and would not dramatically increase their readership (given the statistics above). I think we should translate the Code of Procedure and the forms; but meeting minutes and reports could be posted in the language in which they were provided (or in which the meeting took place). We might consider having a short summary in the other language for these documents. (This is how my NRC institute addresses the issue for scientific reports.) I would welcome comments on this issue.

The minutes record no discussion of this topic. I respectfully request some guidance on this before I proceed. I note that our French pages seem to have among the highest hit rates, so I think that it is a valuable service to provide as much information as possible in French.

History of Lighting in Canada
This year I initiated a project to augment the web content with information about the history of lighting and of the CNC. I had a summer student who was able to begin the work by preparing biographical sketches of notable Canadian lighters (to borrow a term used in the UK). She made good progress, but not sufficient to create even a draft section. I hope to pick this up as time permits over the next year. Nothing will be posted without a prior review from the CNC members. When there is a complete, agreed-upon, English text, I can arrange for translation into French.

Maintenance
The cost for the domain registration, site hosting, and maintenance in 2007 was $154.90. Mr. Bridges is very responsive to requests, and we should continue our relationship with him.

Note that the cost in 2008 will be somewhat higher because I plan more extensive updates to the pages. When we get to the point of having history pages to design there will be a modest additional charge, but realistically I don't expect that to happen in the next year.

It has not been an onerous task to be the liaison for the web site, and I would be pleased to continue in that role for the coming year.

APPENDIX K

CNC/CIE 52nd Annual Meeting

2007-October-19

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	2009-12-31	
Publications	K.F. Lin	Ontario	2008-12-31	
	R. Baribeau	Ontario	2010-12-31	Division 8
	J.(Joe) Bastianpillai	Ontario	2007-12-31	Division 4
	J.D. Yvon Deslauriers	Québec	2007-12-31	Division 6
	S.M. McFadden	Ontario	2007-12-31	Division 1
	I.C. Pasini	Ontario	2010-12-31	
	M.K. Timmings	Ontario	2007-12-31	Division 5
	J.A. Veitch	Ontario	2008-12-31	Division 3
	Lorne A. Whitehead	British Columbia	2008-12-31	
ex officio	A.R. Robertson	Ontario		NRC/INMS Member

CNC/CIE ADVISORY MEMBERS

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

2007-October-13

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

Canadian National Committee Comité National Canadien

Canadian Division Members' Reports

CNC/CIE 52nd Annual Meeting

2007-October-19

CIE Division 1

Vision and Colour

Division 1: Vision and Colour
Report to CNC/CIE 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 10 July 2007 in Beijing, China in conjunction with the 26th Session of the CIE. The meeting was attended by all 5 officers, 18 country representatives, 20 TC Chairs, and many guests. S. McFadden was the official Canadian representative. Ten Technical Committees (TC) met in conjunction with the meeting: TC1-42 Colour Appearance in Peripheral Vision, TC1-44 Practical Daylight Sources for Colorimetry, TC1-56 Improved Color Matching Functions, TC1-58 Visual Performance in the Mesopic Range, TC1-61 Categorical Color Identification, TC1-63 Validity of the Range of CIEDE2000, TC1-65 Measurement of Visual Appearance, TC1-66 Indoor Daylight Illuminant, TC1-68 Effect of Stimulus Size on Color Appearance, and TC1-69 Color Rendition by White Light Sources.

Highlights

Three TCs, TC1-30, TC1-62, TC1-65, and one Reportership, R1-19 were closed. Three TCs, TC1-70, TC1-71, and TC1-72, and five Reportership, R1-41 through R1-45, were initiated. Details on the latter are available below. As well, a very successful Expert Symposium on Visual Appearance was organised by TC1-65 in Paris, France, 19-20 October, 2006.

Publication activities over the past year include:

1. DS 014-4 Colorimetry – Part 4. CIE 1976 L*a*b* colour space. (TC1-57).
2. x030:2006. Proceedings of the ISCC/CIE Expert Symposium '06, 75 Years of the CIE Standard Colorimetric Observer, 16-17 May 2006, NRC, Ottawa, Ontario, Canada.
3. CIE 175:2006. A framework for the measurement of visual appearance. (TC1-65).
4. CIE 177:2007. Colour rendering of white LED light sources. (TC1-62).
5. CIE x032:2007 - Proceedings of the CIE Expert Symposium on "Visual Appearance", 19-20 October, 2007, Muséum National d'Histoire Naturelle, Paris, France.

The following draft Standard is currently out for Division and Board ballot:

1. Colorimetry - Part 5: CIE 1976 L*u*v* colour space and u', v' uniform chromaticity scale diagram (CIE DS 014-5.1/E:2007) (TC1-57).

In addition to the above, the book, *Colorimetry – Understanding the CIE System*, is now available from Wiley. Although not published by the CIE, this book was written under the auspices of the CIE and commemorates the 75th Anniversary of the 1931 CIE Standard Colorimetric Observer. The CIE is deeply indebted to Dr. Janos Schanda for the successful and timely completion of this book.

Summary of Progress of Technical Committees and Reporterships

The following summaries of activities in the various Technical Committees of Division 1 are based on the minutes from the 2007 Division 1 meeting. Additional information on some of the TCs can be found in the Activity Report for 2007. It is available in PDF format on the Division 1 website. This website will be changing shortly. Thus, please go to the new CIE website at http://www.cie.co.at and follow the

link to Division 1. The activity report 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, Chair)

It was agreed that some of the work required by the Terms of Reference of this TC was no longer necessary and that the TC should be closed with a Reportership established to cover the additional items. The TC was formally closed.

TC1-36: Fundamental Chromaticity Diagram with Physiologically Significant Axes (F Viénot, Chair)
Part 1 of the final report was published as CIE Publication 170:2006. Completion of Part 2 is awaiting journal publication of a paper on a proposed XYZ representation of the cone fundamentals.

TC1-37: Supplementary Systems of Photometry (K Sagawa, Chair)

In 2006, the Chairman published a scientific paper which addressed problems, points of consideration, current state of the art, etc, concerning the development of a CIE Supplementary System of Photometry. Based on this article, a CIE technical report is currently being prepared.

TC1-41: Extension of $V_m(\lambda)$ beyond 830 nm (P Walraven, Chair)

No report. It is still awaiting completion of TC1-36.

TC1-42: Colour Appearance in Peripheral Vision (M Ayama, Chair)

This TC met in Beijing. The Chair is actively writing a final report which should be ready later this year.

TC1-54: Age-Related Change of Visual Responses (K Sagawa, Chair)

The Chairman has been developing guidelines for lighting for elderly and disabled people, to be incorporated in ISO/IEC Guide 71 – Guidelines to address the needs of the elderly, and TC 1-54 has joined in this work with the data collected so far in the TC being adopted in the draft version of the guidelines. The aim is to complete the guidelines by the end of 2007. As well, Division 3 is intending to have a TC on the same subject and TC1-54 intends to liase with them.

TC1-58: Visual Performance in the Mesopic Range (L Halonen, Chair)

This TC met in Beijing. The aim of the Beijing meeting was to present an analysis of the MOVE- and X-models based on three new independent data-sets, to present a draft of the contents of the proposed TC report and to agree on the specific contents, and to discuss the required future actions needed to accomplish the TC work.

The work of the TC is divided into three main tasks. The tasks on analysis of new data and modelling of mesopic data are still in progress. After these are completed, the TC can propose a model for the basis of performance-based mesopic photometry. The aim is to finalise the TC work by June 2008.

Three presentations were given of recent research work done in the mesopic field:

1. A proposed integrated-system of photometry by T. Goodman, NPL UK
2. Visions for a mesopic luminance-evaluation by S. Völker, L-Lab Germany
3. Analysis of performance based mesopic models and required future actions towards a solid proposal for future performance based mesopic photometry by M. Eloholma, HUT Lighting Laboratory Finland

The next TC meeting will be held in Eindhoven, Netherlands on November 9, 2007 along with the 'Light, Performance and Quality of Life' Symposium.

TC1-60: Contrast Sensitivity Function (CSF) for Detection and Discrimination (E Martinez-Uriegas, Chair)

Members of the TC are working on different parts of the report including:

- Introduction/philosophy of the approach of the technical report.
- Search for data and conditions
- Preparing tables of data and conditions
- Combining data sets – analysis and review of data

TC1-67: The Effects of Dynamic and Stereo Visual Images on Human Health (H. Ujike, Chair)

This TC is considering three different aspects of the subject: photosensitive seizures (PSS), visually induced motion sickness (VIMS) and visual fatigue caused by stereoscopic images (VFSI). The Chair is involved with related work in ISO TC 159 (Ergonomics)/SC4 (Ergonomics of human-system interaction)/SG on Image Safety which plans write a report on a strategy of standardization to reduce the incidence of undesirable biomedical effects of moving images in terms of PSS, VIMS, and VFSI, for completion in mid 2008. TC1-67 is also working on a draft report on PSS, to be completed by mid 2008. A report on VIMS will start later in 2007 and on VFSD in early 2008.

R1-19: Specification on Individual Variation in Heterochromatic Matching (H Yaguchi)

The reporter has surveyed papers on heterochromatic brightness matching in terms of individual difference, examined the possibility to develop a simple test of individual characteristics for heterochromatic brightness matching and prepared a short report. Various factors of individual differences in brightness sensation are discussed including the optical density of the ocular media in the eye, the physiological mechanism of brightness, and the psychological attitudes of the observers. Experimental data of the spectral luminous efficiency functions for brightness from 18 papers were reviewed in terms of individual differences. The possibility to develop a simple test of individual characteristics for heterochromatic brightness matching is discussed. It was suggested that this report might be published in the CIE Collection.

R1-23: Guidelines on Planning a Mesopic Photometry Investigation (P Trezona)

Division 1 is still waiting for the revised report.

R1-35: Irregularities in $ybar_{10}(\lambda)$ (P. Walraven)

No report.

R1-36: Action Spectra for Glare (J. Fekete)

There were no publications about action spectra for glare in 2006. The Reporter has collected data and gave a presentation at the CIE Session in Beijing. A report is promised by the end of 2007.

R1-37: Definition of the Visual Field for Conspicuity (N. Itoh)

The reporter introduced additional studies on the aging effects of the useful viewing field. The first group of additional studies focused on the effect of the luminance difference of target and background on conspicuity and on the effects of the colour difference between the target and the background on conspicuity. The second group of additional studies focused on the effect of low vision on colour similarity and contrast sensitivity. From the measurement of the visual acuity and the ratio of useful visual field, visual field deficiencies were classified into 3 types:

- Moderate concentric constriction of visual field (>10°)

- Severe constriction of visual field (<10°)
- Central scotoma

Visual field deficiency causes a reduction of contrast sensitivity and an expansion of colour similarity.

The chairman plans to write a report and to propose a new TC next year.

R1-38: Concept and Application of Equivalent Luminance (Y. Nakano)

A draft report has been prepared and is currently under review.

R1-40: Scene Dynamic Range: (Jack Holm)

A comprehensive report is included in the January 2007 Activity Report. It was recommended that this report be passed to D2 and D8 for comment and that members of those Divisions and also of D1 be encouraged to send comments to all D1 officers as well as to the Reporter.

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, Chair)

A final report has been partially written and should be completed later this year.

TC1-44: Practical Daylight Sources for Colorimetry (R Hirschler, Chair)

Two version of a draft report have been circulated during the past year and this TC also met in Beijing. The chapters in the report include:

- Daylight simulator technologies
- Daylight simulators for visual assessment
- Daylight simulators in colour measuring instruments
- Conclusions, recommendations
- *ANNEX 1.* Standard methods for the evaluation of daylight simulators
- *ANNEX 2.* Standards for the classification of daylight simulators

The report concludes that daylight simulators for visual evaluation are satisfactory for D50 in the visible range, are commercially available, and fully comply with the principal standards for D65 in the visible and UV. D75 is claimed but not proven. Daylight simulators for spectrophotometers are available for D65 that give adequate daylight simulation according to all the relevant national and international standards when properly calibrated.

TC1-55: Uniform Colour Space for Industrial Colour Difference Evaluation (M. Melgosa, Chair)

This TC met in June 2006 at the University of Leeds. Following 4 short individual presentations discussions focused on available experimental datasets to be used by the TC and the concept of 'uniform colour space' within the goal of the TC. A website is being prepared for data exchange. A more detailed report is available in the 2007 Activity Report.

TC1-56: Improved Colour Matching Functions (M Brill, Chair)

This TC met in Beijing. A revision of the Terms of Reference of the TC was approved at the Division 1 meeting such that the TC will now concentrate on the testing of Grassmann's Laws and the transformability of primaries. Three investigators have obtained data pertaining to these terms of reference, all published or in the process of publication. Further data are expected and work will now start on a report that will, tentatively, recommend that Grassmann additivity continue to apply to

colorimetry except at low levels of luminance for which mesopic colour mechanisms must be considered.

TC1-57: Standards in Colorimetry (A Robertson, Chair)

TC1-57 is preparing four CIE standards, as follows:

S 014-3 Colorimetry – Part 3: Calculation of CIE tristimulus values
S 014-4 Colorimetry – Part 4: CIE $L^*a^*b^*$ colour space
S 014-5 Colorimetry – Part 5: CIE $L^*u^*v^*$ colour space
S 014-6 Colorimetry – Part 6: CIEDE2000 colour-difference formula

Part 3 is still at the draft stage. The related work of TC2-60 (Effect of instrumental bandpass function and measurement interval on spectral quantities) is being monitored to be sure that the Standard does not conflict with potential recommendations of that TC. A new draft is planned for later in 2007.

Part 4 has been approved by the National Committees and was announced in early October 2007. The first stage of balloting elicited an unexpectedly large number of comments from National Committees, some of which have led to clarifications in the Standard.

The third draft of Part 5 has recently been approved by the TC and passed to the Division Secretariat and the Central Bureau for Division 1 and Board of Administration approval.

Work has not yet started on Part 6. The first draft is planned for later in 2007.

TC1-61: Categorical Colour Identification (T. Ishida, Chair)

This TC met in Beijing where data were presented using the CIECAM02 colour appearance model as opposed to the previous use of both CIELAB and Munsell space. It was agreed that work would now start on a report describing the application of colour categorisation for surface colours, at different levels of illumination (1000 lx and 1 lx), using both Munsell and CIECAM02 to present the data.

TC1-62: Colour rendering of LED light sources: (P. Bodrogi, Chair)

The report from this TC was published during the past year and the it was formally closed in Beijing.

TC1-63; Validity of the range of CIEDE2000 (K. Richter, Chair)

This TC met in Beijing. The TC had earlier produced test charts with large colour difference patches that were equally spaced (10 to 40 units) in CIELAB space, and had decided that only colour differences on a relative visual scale of adjacent and separated colours would be considered. Two sets of data are now available and two more have been promised. Preliminary results suggest that CIELAB is better at describing these large colour differences as opposed to CIEDE2000. Further work is being conducted at BAM looking at threshold colour differences and further large sample differences.

TC 1-64: Terminology for vision, colour and appearance (S. McFadden, Chair)

The International Lighting Vocabulary has now been placed on the IEC website. This has forced the CIE to reconsider its method of publication of the ILV and it was decided that the relevant sections of the publication will be placed on the CIE website as a searchable dictionary. As a result of this decision, a new process may be put in place for updating the vocabulary which may remove the requirement for TC1-64. The new process should be in place within the year.

TC1-65: Visual Appearance Measurement (M. Pointer, Chair)

With the publication of its technical report on Measurement of Visual Appearance along with the Proceedings of the Symposium on Visual Appearance the work of this TC has been completed. It was formally closed at the Division 1 meeting in Beijing.

TC1-66: Indoor daylight illuminant (J. Schanda, Chair)

TC1-66 met in Beijing. A report has been approved by TC members. It will recommend two indoor daylight Illuminants - ID65 and ID50. Data supporting this recommendation will be published in a peer reviewed paper. No corresponding sources are recommended; this should form future work. It was also suggested that a new TC might investigate methods for the evaluation of simulators for ID50 and ID65 based on CIE Publication 51.

TC1-68: Effect of Stimulus Size on Colour Appearance (P. Bodrogi, Chair)

This TC met in Beijing. A comprehensive literature review has been carried out and some experimental work completed. The first study compared the colour appearance of a large (85° horizontal) homogeneous self-luminous visual stimulus displayed on a plasma panel display monitor with 2° and 10°) standard-size stimuli presented on a grey background on a CRT monitor. The near-immersive colour stimulus was perceived to be lighter compared to the standard situation. Chromatic changes were also detected but they were not systematic. In another study, the conspicuity of a coloured pattern was varied as a complex function of the size (area) and the hue and the apparent saturation and lightness of a surface colour was found to increase with size (area). In a third study comparing the “inherent” and the perceived colour of building facades, viewed in their existing surroundings, a consistent pattern of variation was found. The perceived facade colour was always less blackish than the “inherent” colour, and whitish colours tended to show increased whiteness, whereas more chromatic colours tended to become even more chromatic. In a fourth study applying the colour perception of two-dimensional colour stimuli, e.g. computer screen images, it was shown that there were unexpected perceptual changes after application for real three-dimensional scenes (interiors and facades). In the real world, facades are generally not flat and they have textures and shadows as well. In this context, the perceived facade colours are subject to change. Further studies are planned.

TC1-69: Colour Rendering of White Light Sources (Wendy Davis Chair)

This TC met in Beijing and agreed on the following work plan:

1. To agree on some basic criteria for a new metric (or system of metrics) such that it (or they) could be developed to be scientifically sound, acceptable to lighting industry, and useful.
2. To solicit, share, and discuss proposals for new assessment procedures for colour rendition properties of white light sources.
3. To evaluate proposed assessment procedures with visual experiments and compatibility with basic criteria (in 1).
4. To recommend a new metric (or system of metrics) based on evaluation (in 3).
5. To prepare a CIE Technical Report on recommended new metric (or system of metrics), including calculation procedures and justification for recommendation.

After discussion, the TC members agreed that:

- The new metric would assume that CRI may not exist in the future.
- The new metric would have a one number output, with optional supplementary indices.
- The new metric would be scaled to be comparable to CRI for traditional lamps, but acknowledge that the exact ordering of certain existing lamps may change.

It was also agreed that colour fidelity would be an important component in a new metric. The group was split as to whether other aspects of colour quality should be incorporated and will wait for the results of additional experiments. A subgroup was formed to develop experiment guidelines to encourage others to contribute data.

R1-32: Emotional aspects of colour and light (G. Derefeldt)

An extensive report is available in the January 2007 Activity Report.

R1-39: Alternative Forms of the CIEDE2000 Colour-Difference Equations (Mike Pointer)

This Reportership was established to investigate the validity of the work reported in the paper entitled *A Lightness, Chroma and Hue Splitting Approach to CIEDE2000 Colour Differences* by J H Nobbs which showed that the four terms of the present formulation of the CIEDE2000 colour-difference equation could be re-worked into three terms. This reformulation has obvious advantages in many applications of the colour-difference formula, for example apportioning the colour difference into hue, chroma and lightness components for shade sorting and for attributing size and direction to a specific difference in recipe prediction. As a result of the review it was recommended that this reformulation of the equations used to derive the CIEDE2000 colour-difference formula should form part of the CIE recommendation. The initial step will be to provide the modified colour-difference formula in an addendum to the present CIE publication (CIE Publication 142:2001, Improvement to industrial colour-difference evaluation). This addendum will be distributed for Division and Board of Administration ballot.

Proposals for New Technical Committees and Reporterships

Three new TCs and five Reporterships were proposed at the Division meeting in Beijing. These were subsequently approved at the Board of Administration meeting following the Division meetings.

TC1-70: (C) Metameric Samples for Indoor Daylight Evaluation

Terms of Reference: To investigate the derivation of a set of metameric samples to enable the evaluation of indoor daylight simulators

Chair: B. Kranicz (HU) will be approached by Janos Schanda.

TC1-71: (C) Tristimulus Integration

Terms of Reference: To investigate methods for computing weighting tables for the calculation of tristimulus values from abridged data.

Chair: C. Li (CN)

The following indicated that they were interested in membership: Michael Brill, Hugh Fairman, Alan Robertson, Byron Jordan. Bryan Rigg and Robert Seve should also be asked.

TC1-72: Measurement of Appearance Network: MApNet

Terms of Reference:

1. To establish a network of those interested in the measurement of visual appearance.
2. The network shall be under the direction and guidance of a group of at least four Technical Leaders each responsible for a particular aspect of the subject.
3. Each Technical Leader shall provide substantial periodic reports in a form that might be published.
4. A second Expert Symposium on Appearance shall be organised at an appropriate time within the next 4 years.

5. A database of relevant published work shall be maintained.
6. Consideration shall be given to the establishment of separate Technical Committees when appropriate.

Chair: M. Pointer (GB)

R1-41 : (C) Adaptation Transforms

Terms of Reference: To investigate and report, in one year, on the state-of-the-art of adaptation transforms.

Reporter: B. Oicherman (IS)

R1-42: (C) Extensions of CIECAM02

Terms of Reference: To evaluate potential additions to CIECAM02 in liaison with Division 8 and to include:

- Those published in the literature
- Extension to include unrelated colours
- Extension of the range down to scotopic levels

Reporter: C. Li (CN)

R1-43: (V) Standard Deviate Observer

Terms of Reference : To document available databases that could yield a definition of a new standard deviate observer.

Reporter: B. Oicherman (IS)

R1-44: (V) Limits of Normal Colour Vision

Terms of Reference: To review the literature to see what information is available to establish the limits of normal colour vision.

Reporter: S. McFadden (CA)

R1-45: (V) Luminous Efficiency Functions

Terms of Reference: To provide definitions and tables of the existing functions $V_{b,point}(\lambda)$, $V_{b,2}(\lambda)$, and $V_{b,10}(\lambda)$.

Reporter: Y. Nakano (JP)

Liaisons

The Association International de la Couleur (P. Alessi US): The following meetings are planned:

- Hangzhou, China: Colour Science for Industry, 12-14 July 2007. See: www.aic07.com
  - Alan Robertson was given the Judd AIC Award at this meeting.
- Stockholm, Sweden: Colour: Effects and Affects, 15-18 June 2008. See: www.aic2008.org
- Sydney, Australia: 11th AIC Congress 27 September – 2 October 2009. See: www.aic2009.org

ISO/TC38/SC1: Textiles: Colour Fastness & Measurement (R. Luo GB): The Committee is working to progress standards on:

- CMCON02: colour inconstancy index

- Standardising viewing cabinets using CRI and the Publication 51 method assessing daylight simulators.
- Standardising the use of dyers' terms for describing colour difference: fuller/flatter, and brighter/duller.

ISO/TC42: Photography (J. Holm US): There is an extensive report in the January 2007 Activity Report.

ISO/TC130: Graphic Technology (D. Rich US): No report.

ISO/TC6/WG3: Paper, Board and Pulp – Optical Properties (J. Zwinkels, CA): In the past year, several ISO standards on optical properties of paper, pulp and board, have gone for ballot. These are:

- Paper and board: Measurement of specular gloss – Part 1: 75 degree gloss with a converging beam, TAPPI method.
- Paper – determination of light scattering and absorption coefficients using Kubelka-Munk theory.
- Paper, board and pulp: Basic equations for optical property.
- ISO/CD 5631 Paper and board – Determination of colour by diffuse reflectance: This standard has been issued in three parts:
- Part 1: Indoor daylight conditions (C/2 degrees)
- Part 2: Outdoor daylight conditions (D65/10 degrees)
- Part 3: Indoor illumination conditions (D50/2 degrees)

This WG has indicated a need for a CIE normative reference for indoor and outdoor illumination conditions and the work being carried out in CIE TC 1-66, chaired by Janos Schanda, has addressed this need by recently establishing recommendations for spectral power distributions for indoor daylight (ID65) and indoor illumination conditions for D50 (ID50). The WG has also indicated a need for a normative reference for the weighting tables for tristimulus calculations since colorimetric instrumentation for the paper industry typically uses a 10 or 20 nm measurement interval. At this time, ISO has received special permission from ASTM to include a copy of the relevant weighting tables from ASTM E308-99 for inclusion in each of the above ISO colour measurement standards. However, the WG would prefer to cite a CIE recommended method for computing these weighting tables for abridged tristimulus calculation.

The five authorized laboratories for ISO TC6/WG3 (known as the OPAL Group) met in Stockholm, Sweden, 11-12 June 2007. Some of the issues that were raised were: the need for a black level calibration procedure; and the geometric and bandpass correction procedures from 45/0 geometry, 5 nm bandpass standardizing laboratory calibration conditions to the d/0 geometry, 10 nm bandpass of ISO 2469 commercial instrumentation conditions.

ISO/IEC JTC1/SC28 Office Equipment (Klaus Richter DE): SC28 concluded that the question of office equipment and how to mange successful visual colour comparison between prints and softcopy can be examined in SC28. They agreed to consider the questions regarding, for example monitor and device calibration, encoded document colour information, adaptability to differing office conditions, and media colour information, to determine the potential for a set of specifications that can guide users and equipment manufacturers to improve the user experience with colour documents rendered in both softcopy and in print. Thus, a special interest group for colour comparison has been created.

Note. There are two different areas of work identified for office colour prints and softcopy display. The question of illuminant belongs within the scope of CIE.

The 53rd meeting of ISO/TC 159/SC4/WG2 Visual display requirements was held 19 May, 2007 in the USA. The noted that the colour spaces CIELAB and CIELUV of CIE Division 1 would soon become ISO/CIE standards and that these CIE colour spaces are used in a wide range of applications. For users

of visual display systems a device-independent RGB colour space is oftenuseful. This produces, via software, the elementary hues Red, Green and Blue for RGB data 100, 010 and 001, and equally spaced output in CIE colour spaces for equally spaced RGB input. They recommended that CIE Division 1 study the colorimetric definition of such a space, which can be used in visual display applications. They also proposed a white paper for discussion at CIE Division 1 technical meeting with title: Relative CIELAB data nce* and rgb* based on eight CIELAB reference colours.

ISO/TC159/WG2 Ergonomics (Ken Sagawa JP): This work was reported under TC1-54.

International Association of Lighthouse Authorities (Ian Tutt GB): No report.

Next Meeting

Possible venues for the next meeting of Division 1 in 2008 are:

- Stockholm, Sweden: in conjunction with the AIC meeting: Colour Affects and Effects, 15-18 June.
- Barcelona, Spain: in conjunction with the CGIV (Colour in Graphics, imaging and Vision) meeting 10-13 June.

In 2009 the CIE Interim meeting will be held in Budapest, Hungary. There is also the possibility to meet in association with the 11th AIC Congress in Sydney, Australia.

New Officers for Division 1

The following people were installed as officers of Division 1 during the Beijing meeting:

Director: Dr. Ronnier Luo (GB)
Associate Director Colour: Dr. Ellen Carter (US)
Associate Director Vision: Dr. Miyoshi Ayama (JP)
Secretary: Dr. Michael Pointer (GB)
Editor: Dr John Setchell (US)

Canadian Participation in Division 1

Based on the latest information available to me, Canada has representatives on 14 Technical Committees and 1 Reportership in Division 1. The Canadian representatives are I. Ashdown on TC1-69, B. Jordan on TC1-66, and TC1-71, W. Cowan on TC1-37, D. Kline on TC1-54, S. McFadden on TC1-42, TC1-60, TC1-64, and R1-44, A. Robertson on TC1-27, TC1-55, TC1-56, and TC1-57, B. Tansley on TC1-67, and J. Zwinkels on TC1-44, TC1-57, and TC1-66. J. Zwinkels is also a liaison between Division 1 and ISO TC6/WG3. A. Robertson is the Chair of TC1-57 and S. McFadden is the Chair of TC1-64. If anyone is interested in participating in one of the TCs, 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 52nd Annual Meeting

2007-October-19

CIE Division 2

Physical Measurement of Light and Radiation

Division 2: Physical Measurement of Light and Radiation

Report to CNC/CIE 52nd Annual Meeting
Ottawa, Ontario, October 19, 2007

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 9-11 July 2007 in Beijing, China, in conjunction with the 26th CIE Session. I was the official Canadian representative at the CIE D2 meeting and also attended several D2 TC meetings as member/observer. The following report is some of the meeting highlights. The detailed minutes of the meeting should be available shortly at the web-site: http://cie2.nist.gov.

Eleven Technical Committees (TCs) and one Reportership met in conjunction with the meeting: TC 2-40 Characterizing the performance of luminance and illuminance standards (Blattner); TC 2-47 Characterization and calibration methods of UV radiometers (Sperling); TC 2-48 Spectral responsivity measurement of detectors, radiometers, and photometers (Eppeldauer); TC 2-49 Photometry of flashing light(Ohno); TC 2-50 Measurement of the optical properties of LED clusters and arrays (Schuette), TC 2-51 Calibration of multi-channel spectrometers (Austin); TC 2-52 Addendum to CIE 121-1996 for the photometry of emergency lighting luminaires (Vandermeersch); TC 2-53 Multi-geometry colour measurements of effect materials (Roesler); TC 2-56 CIE/ISO standard on retroreflection measurements (Miller); TC 2-58 Measurement of LED radiance and luminance ((Kohmoto); TC 2-59 Characterization of imaging luminance measurement devices (Blattner); and R2-36 Measurement requirements for solid state light sources(Heiddel).

The General D2 meeting had 65 participants from 22 countries, including 20 country members. The new Director for D2 is Dr. Yoshi Ohno (USA) and the new Secretary is Dr. Armin Sperling (Germany). There is no change in the Editor (Gardner) and the 3 Associate Directors (Sauter, Johnson and Vandermeersch). The former D2 Director (Goodman) is the new VP Publication.

D2 has developed guidelines for TC membership; similar guidelines are being considered for all CIE divisions. D2 has also developed Guidelines for Uncertainty Sections in TC reports; these are available on the D2 website.

Highlights
One TC, TC 2-42, and two Reporterships, R2-28 and R2-37, were closed.
One new TC, TC 2-62, and two new Reporterships, R2-38 and R2-39, were initiated (see details below).

Publication activities over the past year:
• Final revisions have been prepared for DS014-1, DS014-2, TC 2-16 and TC 2-45 documents (these have all been published).
• TC 2-25 document (Chaired by J. Zwinkels) has been edited for Division ballot.

Proposals for New Technical Committees and Reporterships

TC 2-62 Imaging-photometer-based near-field goniophotometry
Chair: Walter Steudtner (Germany)
TR: To prepare a CIE recommendation on the methods for characterization and calibration of imaging-photometer-based near-field goniophotometers and for determination and conversion of photometric data of lamps and luminaries for both near-field and far-field applications.

R 2-38 Measurement of spectral properties of photometers and colorimeters
Reporter: Jiangen Pan (China)
TR: Investigate the measurement conditions for spectral responsivity of colorimeters and photometers, with special account for determination of f_1'.

R 2-39 Display measurement standard – liaison with ICDIM
Reporter: Ken Vassie (UK)
TR: Liaise with International Committee for Display Metrology for Information Display and investigate possibility of collaboration.

Changes in TCs and Reporterships
- The Chair of TC 2-40 has changed to Peter Blattner (Switzerland), due to death of R. Rattunde.
- The Chair of TC 2-59 has changed to Udo Krueger (Germany) due to Blattner taking on TC 2-40.
- The TR of TC 2-51 Calibration of multi-channel spectrometers has changed. The new TR: Produce a technical report for the calibration of detector array spectroradiometers primarily for the determination of colorimetric and photometric quantities, including performance characteristics, evaluation of these characteristics, calibration methods and guidance in the application of methods for the determination of uncertainty.
- The TR of TC 2-49 will be changed to limit the scope to measurement of effective intensity only. The new TR will be finalized by the TC.

Summary of Progress of Technical Committees and Reporterships

Additional information on the terms of reference and membership for all Technical Committees and Reporterships can be found at the website: http://cie2.nist.gov.

Progress in TCs: 29, 37, 40, 43, 46, 47, 48, 58, 59 and 60 (Sauter, AD)

TC 2-29 Linearity (Larason). Ohno gave the report. There has not been much progress since the meeting at PTB in May 2006. No new draft has been prepared. The comments received from the PTB meeting are being reviewed by the TCC.

TC 2-37 Detectors as transfer standards (Ohno). Draft 8 of document has been prepared for 2nd TC ballot and has been sent to Editor. Issues regarding the reference plane and limiting aperture have been addressed.

TC 2-40 Characterization of luminance/illuminance meters (Rattunde). The TCC Rattunde passed away and Blattner (Switzerland) was asked to assume the Chairmanship. He had a TC meeting in Beijing. There were 11 members at the meeting but no instrument manufacturers. Discussion included calibration conditions and classification system; some of the members are anxious to have this info published quickly. On the issue of directional response, f_1' for class L meters, there is no agreement yet on IR response. Blattner has proposed the formation of a Task Group to only look at Class L photometers and some NMIs have volunteered to carry out this work (spectral responsivity measurements). It is hoped to have results within 6 months and to have an extended TC meeting next year to expedite this work. Van der Meersch noted that Rattunde had planned to include an Annex (based on CEN standard) in the TC report. The change in Chairmanship of this TC to Blattner was approved at the D2 meeting.

TC 2-43 Uncertainty (Sauter). The 8th draft of this report has been posted at the D2 web-site and is awaiting response from TC members. At the 2006 meeting at PTB, there were several contributions on calculating of uncertainties using Monte Carlo simulations and this method gave different results for non-linear systems. There are 2 Annexes in the TC report on Modelling and Examples. In the latter, there are 11 examples, including Excel templates for both the GUM and Monte Carlo methods. There is also an Annex C – looking at spectral and angular distributions (not yet distributed to the TC members). This document will be continuously open for TC members to add further examples. It is hoped that the final document will be ready by the next D2 meeting. Ohno asked about the additional Annexes for new applications. The document is now 80 pages without Annex C. Schanda clarified that the first part of this report with the 2 Annexes will be sold as one document and that the Annex C will be available as a separate document.

TC 2-46 Standard on LED intensity measurement. (Scarangello). Report was read by Ohno. The main issues are how to define the mechanical axis in a general way that covers the small multi-chip and how to specify the LED conditions w.r.t. temperature and forward current since they have a large influence on the measurement. The TCC will

attempt to add a section on Uncertainty. Ohno will contact TCC to confirm that timely progress is being made on preparing this Standard..

TC 2-47 UV meters (Sperling). The TC met in Beijing and there were 23 attendees but only 4 members present. The former TCC (Gan Xu) was present and gave an overview of the history of the first 3 drafts of this report. The main discussion between TC members will be carried out via e-mail. The TCC estimated that the next draft would be sent out before the end of the year.

TC 2-48 Spectral responsivity measurement (Eppeldauer). TC met in Beijing and there were 40 attendees. Draft 10 of the report was discussed, which is almost completed with 71 pages. It will be restricted to single element devices (excludes imaging devices). The summary and introduction have been modified because of the change in scope. The Uncertainty Chapter 9 has been extended to include wavelength shifts. Guidance will be given on how and when to use the biasing method. Detector tests will be described in an Annex. The members from PTB will provide a Chapter and Zong from NIST has contributed a Chapter on stray light correction. The Appendices have been reorganized and some details on monochromator designs will be deleted and referenced to CIE Publication No. 64:1994. It is hoped that the report will be ready for TC ballot within one year.

TC 2-58 Measurement of LED radiance/luminance (Kohmoto). TC met in Beijing and there were 32 attendees. Last year the TC had a joint meeting with D6 in Ottawa and discussed issues of mutual interest, such as: what is LED luminance? Luminance output at a certain point on an LED chip surface; for safety risk evaluation, LED luminance shall be a value for the whole LED surface. One the issues that was discussed in Beijing was: in case of small sources such as LEDs, subtending angle is smaller than the cone area of the eye. The 1st draft of the report is under-preparation. Goodman noted that D6 is anxiously awaiting the results of this TC. They are primarily interested in biological assessment of radiance. Goodman suggested that the luminance issues should be deferred in order to complete this document in a timely manner.

TC 2-59 Characterization of imaging luminance measurement devices (Blattner). TC met in Beijing and discussed a new draft of the report. The inputs largely came from TC member, Dr. Kruger. At the TC meeting, the technical discussion was on how to measure f1 prime. Blattner asked to resign from this TC and to have it taken over by Kruger (Germany) who is indicated his willingness to do so. This change in TCC was approved

TC 2-60 Effect of instrumental bandpass function and measurement interval on spectral quantities (Wooliams). The TCC prepared an outline of the TC report and TC members have provided significant inputs. Goodman confirmed that Wooliams will be back at NPL part-time soon and full-time in September. This TC was an excellent example of how effective the e-mail reflector can work even when the TCC is not available.

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

TC 2-23 Photometry of street lighting luminaires (Vandermeersch). TCC is preparing an addendum to cover specific applications: street lighting and emergency luminaires. To-date the focus has been on emergency luminaires. There has been no progress on this TC since Leon (2 years ago)

TC 2-49 Flashing lights (Ohno) TC met in Beijing. The last TC meeting was in 2002 and has been inactive for a few years awaiting experimental results to support one of three proposed methods: Blondel Ray, form Factor and a third method. There has been some work done by the US Coast Guard using a train of pulses – which is the type of data needed. The TCC has examined this research paper in detail and received communication from other groups. Industry needs a definition of a standardized intensity. The data in the paper show very good results with modified allotment method and a second paper from Japan also supports this method. TCC made a proposal to adopt the modified allotment method for all applications of signaling lights. Recently, the TCC has prepared draft 3.0 and distributed to TC members. They plan to modify the TR to focus on effective intensity and not other photometric quantities. The TCC hopes to have the report ready for TC ballot by next meeting.

TC 2-50 LED clusters & arrays (Schuette) TC met in Beijing with many attendees. The TC members discussed the technical details including the most urgent quantities. It is planned to have next draft available by September 2007.

TC 2-52 Emergency lighting (Vandermeersch). This document has gone for ballot and received a majority vote but with some comments (from the UK) that this concept is not used in lighting design. TCC will wait until September to hear the views of industry. The TC report can be issued as a Majority Report but it is preferable to have a consensus. and not wait for IEC report.

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

TC 2-17 Simulated solar radiation (Zerlaut) TC met on 28 June 2006 in Toronto. The TC's work will be based on SMARTS2 version 2.9.5. See the Activity Report for further details.

TC 2-19 Spectral coefficient of retroreflection (Johnson) The report is now in a form to be distributed to TC for b allot.

TC 2-25 Fluorescence measurements (Zwinkels, *Canada*). The editing of the final TC report has been completed by TCC, D2 Editor and CB and sent for Division ballot.

TC 2-28 Characterization of spectrophotometers (Goodman) TCC had a lot of difficulty tracking down the latest version of the document but this has now been resolved. The outstanding issues are: lacking uncertainty analysis, some diagrams were of poor quality (hand-drawn). TCC believes that the fundamental part of the document is still current, except for the uncertainty section. There was a request to A. Robertson (Canada) to update the uncertainty analysis section.

TC 2-32 Wet horizontal road markings (Hodson) There was no report. AD Johnson will contact TCC to find out recent progress on this TC. It was noted at the D2 meeting that some of the work of this TC has been incorporated into an ASTM standard. Austin (USA) volunteered to review the current document

TC 2-42 Colorimetry of visual displays (Vassiel). TCC sent a detailed report The ICDM (Society for Information Displays) are wishing to update the TC 2-42 document (last draft document was in 2001) and issue it through an acknowledged international standard, together with IEC and SEMI. The flat panel display community would greatly benefit from the ICDM document being published through CIE. A meeting of SID ICDM is planned for Aug.5-7, 2007 in Copenhagen. Schanda commented that many of the TR in this TC have already been addressed in the ISO Report (ISO TC 1-59) and that if an organization wants to have a joint CIE standard, then a new TC needs to be established with this in its TR rather than amend the TR of an existing TC. It was proposed to close this TC and ask Vassiel to serve as an interim Reporter to provide clear TR for a new TC. DD felt that this was a good solution and the recommendation to close this TC was approved.

TC 2-51 Multi-channel spectrometers (Austin) The TC met in Beijing with 9 members, 1 former member and 7 requests to be members. Draft 2 of this report (about 25 pages) was discussed; it is considered still relevant – expanded for diode arrays to other types of displays but it is proposed to revise the TR to remove the requirement to evaluate "errors". Draft 3 will be prepared with suggestions from the meeting. It is also planned to have several meetings of the TC members - in NZ/Australia August 2007, NY Sept. 2007, and Darmstadt, Sept. 2007. TCC is trying to access bibliography from Jim Palmer TC 2-30 Array spectroradiometer. DD said that this bibliography was only available in hard-copy and was copyrighted by Kodak. There was a vote on the change in TR (see Highlights above) and this was approved.

TC 2-53 Multi-geometry measurements (Roesler) The TC met in Beijing with 16 attendees but only 4 members. TCC distributed Draft 3a. at the meeting. The Scope of materials to be referenced was decided to include only: gonoapparent effect paint, textured plastic, non high-gloss or textured metals, anodized aluminum, textiles, paper. Terminology issues with ASTM have been resolved and the geometries will be referenced to the normal. The geometries will include: 5 classical metallic geometries plus 3 additional interference geometries and one additional texture geometry. Measurements on a reference material – Russian opal were performed by PTB and this showed that for a geometry of 45 degrees, aspecular 110 degrees, there is a dip of about 5%. Zwinkels (Canada) volunteered to provide input to the Reference section.

TC 2-56 Standard on retroreflectance (Miller) TC met in Beijing with 7 members and 6 observers. Reviewed the scope and purpose. They have carried out some experiments to resolve differences between various methods – this has been resolved – what parameters need to be specified. The TCC will be working on Draft 1a. and a Draft 2 will be prepared by next D2 meeting.

TC 2-57 Revision of CIE S014-2 (*Robertson*) TCC gave report. The TR of this TC are to add D50 to the standard illuminants. The committee had to await the completion of the original CIE Standard to begin this work. This has been recently approved so it is expected that the committee can now complete its work in 6 to 12 months.

Progress of Reporterships

R 2-23 Standards for the measurement of reflectance and transmittance (Rich). No report.

R2-28 Evaluation of Colorimeter Responsivity – Kranicz (Hungary) - no report for several years. It was proposed to close this TC. Approved with 2 negative votes.

R 2-32 Visual appearance measurement (Pointer). CIE Publication 175:2005 has now been published and TC 1-63 will be meeting in Beijing to propose a plan for the future.

R 2-33 Laser-based projection displays (*Niall, Canada)* Detailed report sent and read by Ohno. This report will be sent to D2 Editor and upon finalizing the document, this Reportership will be closed.

R 2-34 Photon-Counting regime (Rastello). There are new single-photon detectors, single photon sources (on demand) and different types of quantum dot sources available and the application are in low signal level photometry, quantum communication, and bioanalytical applications. Calibration methods, including uncertainties, have been studied and published. In September 2007, there will be the 3rd Workshop on single photons in Torino, Italy. It is proposed to have a Reportership meeting at this venue and then decide if a new TC should be established.

R 2-36 Solid state light sources (Heidel). Reporter said that there had been no contributions before the meeting. In Beijing, there was a considerable discussion about the thermal problems.

R 2-37 Industrial requirements for D65 sources (Pierson) Reporter said that he is not really active anymore in the field of lighting and will no longer be the D2 representative for Belgium. It was proposed to close this Reportership. This was approved.

Reports of Liaisons

CCPR (Ohno) Detailed report given. Of note: BIPM-CIE agreement was signed in April 2007; the President of CCPR is Hengstberger; Bastie is the official liaison person from CIE to CCPR; CIE has been given official observer status in CCPR and Ohno has been apponted liaison from CCPR to CIE. There are 3 WGs which meet every year. WG-KC (Ohno), WG-CMC (chairman rotates among the RMOs), WG-SP (*Zwinkels, Canada*). The next round of CCPR key comparisons (KCs) is planned to start around

2009. CCPR has agreed on a general policy to limit the number of participants for CCPR KCs (to within 12) and to coordinate with RMO KCs.

CIE D8 (Kravetz) No report.

ISO/TC6 (*Zwinkels*) Detailed report given and included as Attachment in D2 minutes. Of note:

> The WG3 (optical properties) has indicated a need for a CIE normative reference for indoor and outdoor illumination conditions and the work being carried out in CIE TC 1-66, Chaired by Schanda, has addressed this need by recently establishing recommendations for spectral power distributions for indoor daylight (ID65) and indoor illumination conditions for D50 (ID50). The WG has also indicated a need for a normative reference for the weighting tables for tristimulus calculations since colorimetric instrumentation for the paper industry typically uses a 10 or 20 nm measurement interval. At this time, ISO has received special permission from ASTM to include a copy of the relevant weighting tables from ASTM E308-99 for inclusion in each of the above ISO colour measurement standards. However, the WG would prefer to cite a CIE recommended method for computing these weighting tables for abridged tristimulus calculation.

IEC TC34 Lamps and related equipment (G. Vandermeersch) No report.

ISO on reflectance and transmittance (Rich) No report

IDA (Rennilson) Noreport

OIML(Sauter) Reported that there were no developments of note.

IALA (Tutt) Detailed report given. Of note: on Light Topics: effective intensity (to provide an all-encompassing effective intensity model for all flash shapes); Conspicuity (to provide a model to quantify the conspicuity. IALA has an ad hoc WG to look at: colours of signal lights, notation of luminous intensity and range, measurement, calculations. New product challenges: flickering light, LED precision sector light (> 5000 cd), large LED arrays (60,000 cd white)

IEC TC100 Colour measurement and management in multimedia systems (Rich) No report.

Dissolution of TCs and Reporterships

- TC 2-42 Colorimetric measurements for visual display (K. Vassie): Closed due to inactivity. Related activity will continue under a new Reportership.
- R2-28 Evaluation of colorimeter spectral responsivity (B. Kranicz): Closed due to inactivity for several years.

• R2-37 Industrial lighting requirements for a D65 illuminant (E. Pierson): A report was submitted in 2006 with no TC proposal. Acivity has been completed and Reportership closed..

Future D2 Meetings and Symposia

2008 – IEN, Torino, Italy, in conjunction with a planned D2 Symposium on Advanced photometer, colorimeter and spectral measurements (tentative title with a focus on imaging photometers and colorimeters, spectral measurements and f1' characterization, near-field goniophotometry). Date: TBD (the week of July 7th is being considered).

2009 - Budapest, Hungary, in conjunction with the CIE Midterm Session. A conference

on solid-state lighting is also planned for the Midterm meeting which will include sessions on measurements of LEDs/SSL. Date: TBD (last week of May is being considered).

2010 – Open.

Canadian Participation in Division 2

Canada has representation on 10 Technical Committees:

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 2-42	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 2-53	J.C. Zwinkels
TC 2-57	A.R. Robertson (*Chairman)*, J.C. Zwinkels
TC 2-60	A.R. Robertson, J.C. Zwinkels

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

One Reportership:
R2-33: K, Niall (DCIEM)

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CIE Division 3

Interior Environment and Lighting Design

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

2007 Activity Report to the Canadian National Committee

Jennifer A. Veitch, Ph.D. – Canadian Delegate
2007-August-15

jennifer.veitch@nrc-cnrc.gc.ca

2007 Division 3 Meeting
The meeting was held on July 10, 2007, in Beijing, China. I was in attendance. Minutes of the meeting are available from ne, and should shortly be posted on the Division 3 wek site (http://ciediv3.entpe.fr/).

Current Division 3 Activities
Completed reports and publications
In 2007 there were no technical committee report ballots, and Division 3 has produced no CIE publications since the last report (October 2006). However, the proceedings of the Division 3 - sponsored 2nd Expert Symposium on Lighting and Health were released in March 2007.

Active TCs and Reporterships
There are 10 active technical committees and 7 open reporterships in Division 3. Terms of Reference and current status of the committees are available on the Division 3 web site. *New activities are in italics.*

TC	Title	Chairman	Started	End?	Product
3-25	Coordination and development of the IDMP and its data	D. Dumortier	1991	2004	Web Server
3-34	Protocols for describing lighting	J. Veitch	1999	2005	Guide
3-36	Use of satellite images to derive daylight data	D. Dumortier	2000	2007	Standard
3-37	Guide for the application of the CIE general sky	Y. Uetani	2000	2007	Guide
3-39	Discomfort glare from daylight in buildings	W. Osterhaus	2002	2005	Guide
3-42	Lighting design applications	H. Kaplan	2006	2009	Guide
3-43	Determination of discomfort glare	L. Bedocs	2006	2010	Guide
3-44	*Lighting for the elderly*	*G. Cook*	*2007*	*2010*	*Guide*
3-45	*Luminance-based design approach*	*Y. Nakamura*	*2007*	*2010*	*Guide*
3-46	*Research roadmap for healthful interior lighting applications*	*J. Veitch*	*2007*	*2011*	*Guide*

R #	Title	Reporter	Start	End?	Product
3-13	Lighting vocabulary	Y. Koga	2002	2004	Publication
3-23	Lighting control and energy efficiency	P. Dehoff	2004	2005	Review
3-24	Assessment of overhead glare	T. McGowan	2004	2005	Review
3-25	Lighting and health	M. Fontoynont	2006	2006	Statement
3-26	Climate based daylight analysis	J. Mardaljevic	2005	2007	Statement
3-27	*CIE Method for the calculation of utilization factor*	*L. Bedocs*	*2007*	*2008*	*Report*
3-28	*Lighting requirements for night-shift workers*	*M. Knoop-Velds*	*2007*	*2011*	*Report*

Current Canadian Participation in D3 Technical Committees (August 2007)

TC#	Title	Canadian Members
3-34	Protocols for describing lighting	J. Veitch (Chairman); D. Smith

		(Corresponding Member)
3-42	Lighting design applications	proposed member: K. Pero
3-46	Research roadmap for healthful interior lighting applications	J. Veitch (Chairman)

TC 3-34, which I chair, has completed a draft report which is currently under committee review. Ballotting is expected to occur over the winter.

TC 3-46 is new, having been approved by the Board of Administration at the post-Session meeting on July 12, 2007.

Other D3 Activities
Divisions 3 and 6 co-sponsored a workshop on Lighting and Health at the Beijing session. I presented the D3 perspective on the issues, and have led the writing of the workshop report for the final proceedings of the 26th Session.

At the Beijing meeting, I agreed to take on the role of Secretary of Division 3 for the 2007-2011 term.

Issues for Division 3
There was an extensive discussion concerning CIE standards - their creation, maintenance, and recognition within member countries. CIE has worked in recent years to establish itself as the primary source for standards concerning lighting, but the links to ISO, IEC, and CEN in particular require constant attention and come action. These issues, and the actions immediately required of Division 3, are summarized in the meeting minutes.

Next Meeting
Lubljana, Slovenia, October 7, 2008; TC meetings Monday, Oct. 6.

——— End ———

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CIE Division 4

Lighting and Signalling for Transport

CIE Canadian National Committee
Division 4 Lighting and Signalling for Transport
Report, 2007

Division meeting was held in Beijing, 4-11 July, 2007 in conjunction with the 26th session of the CIE
Minutes are available in CIE Div. 4 website

Next Divisional meeting to be held in Helsiki in September 2008

The following TCs were established:

TC 4-44 Management and Maintenance of Road Lighting.
Chair: P. Hautala, Finland
Terms of Reference: To revise Publication CIE 115-1995

TC 4-45 Performance Assessment Method for Vehicle Headlamps.
Chair: G. Draper, U.K.

Terms of Reference: To develop a technical report that defines the objective procedure for the evaluation of forward lighting system performance.

The new chairperson for TC 4-41 “Crime and road lighting” is Dr. Webster, UK

A draft of TC 4-37 “ Road transport lighting for developing countries” was circulated for Division ballot.

Draft standard TC 4-16 “Standard file format for luminaire photometric data” was circulated to CIE National Committee for comments

The new chairperson of TC 4-33 “Discomfort glare in road lighting” is Ron Gibbons, USA (displaced Canadian)

TC-436 is developing a visibility based matrix for Roadway Lighting.

TC-446 Is developing standards for improved recognition of 300mm Traffic Signal lights.
C-115 The final draft of this Roadway Lighting document is out for review by each National Council.

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 52nd Annual Meeting

2007-October-19

CIE Division 5

Exterior Lighting and Other Applications

CIE Division 5 Meeting Minutes

Beijing, China
7 July 2007

1. CIE Division 5 meeting in Beijing, China was called to order at 9:05 AM.

1.a The following members and guests were present:

MEMBERS	*GUESTS*
N. Pollard – UK	L. Djokic – Serbia
T. Lemons – USA	T. Novak – CZ
M. Serefhanoglu Sozen – Turkey	K. Kawakami – Japan
T. Kotani – Japan	E. Bjelland – Norway
P. Schwarcz – Hungary	A. Stockmar - Germany
P. Rombauts – Belgium	W. Shuxiao – China
P. Zak - CZ	K. Austin – UK
Z. Jianping – China	T. Kallasjoki – Finland
J. Lecocq – France	T. Nurmi – Finland
D. Culley – S. Africa	S. Venkotaramani – India
H. Juslen – Finland	M. Seidl – CIE VP Standards
J. L. Pimenta – Brazil	
B. Weis – Germany	
A. Korobko – Russia	
P. Soardo – Italy	

Apologies from: S. Jenkins – Australia, R. San Martin – Spain, N. Ben Ali, Tunisa, S. Fotios – UK Mary Crawford – USA and D. Crawford – USA

Membership Changes: Japan – T. Kotani replaces K. Kawakami
UK – S. Fotios replaces N. Pollard

1.b CIE President Wout van Bommel introduced the following:

Pres. Elect - Franz Hengstberger
VP Technical – Janos Shanda
General Secretary – Martina Paul

Questioned about TC members, it was clarified that a TC chairman establishes committee members but any country may appoint a committee member. The chairman may contact a committee member that does not contribute to require activity and if they do not become active the chairman can request through the Division Director that the Board allows this person to be dropped.

Questioned about Division 6 activity related to light and health, it was identified that Divisions 3 and 5 should have a joint liason with D6 on this subject.

Questioned about the need for new TC chairman assistance, it was identified that the Central Bureau is preparing a new procedure for members of TCs and chairman training may be provided at future quadrennial and mid term meetings.

1.c Michael Seidl, VP Standards presented information about CIE Standard S015, *Lighting for Outdoor Work Places*, not being accepted as an ISO Standard but is a CEN Standard. It was requested that S015 be revised in conjunction with CEN which can be

approved and resubmitted to ISO to obtain approval. It was noted that S016, *Lighting Requirements for safety and Security in Outdoor Work Places* was approved as an ISO Standard

.

1.d It was noted that documents that are in the process of being prepared should always be named, numbered, dated and identified as drafts.

2. **Minutes**

The minutes of the 2006 Division 5 meeting in Athens were accepted.

3. **Division Director's Report** – N. Pollard

3.a Nigel has been elected for the next four years and was pleased to report that both T. Lemons, Secretary and M. Crawford as Editor were also willing to continue in their posts for the next Quadrennium. It was noted that the Division members should start thinking about a new Division Director that will be needed in four years as CIE rules limit any Director for two Quadrennium.

3.b The Athens meeting was followed by a Symposium on *Urban Nightscape* and a UNESCO sponsored Symposium was recently held in the Canary Islands that called for the protection of the night sky and the wiser use of energy.

3.c The following issues were addressed at the CIE Board and General Assembly meetings held on 4 July 2007:

1) The CIE has a liaison agreement with EBE
2) The CIE has prepared a statement on Lighting and Energy
3) A new procedure for members of TCs is being prepared by the CB.
4) The change in the method of publication sales is considered successful.
5) The CIE has a new General Secretary, Martina Paul.
6) Thailand has been expelled as a CIE member for nonpayment of dues.
7) Future meetings include the 2009 mid term meeting in Budapest, Hungary and the 2011 27th Session in Sun City, S. Africa.

4. **Secretary's Report** – T. Lemons

During the past year the secretary has been active in preparing the minutes from Athens, preparing the information for the 26th Session in Beijing, providing input about the new CIE Vocabulary publication and up dating the rooster.

5. **Editor's Report** – M. Crawford

The only activity during the past year was a review of the 10th Draft of the *Sports Lighting Guide.*

6. **Technical Committee Reports**

TC 5-13 *Lighting of Outdoor Work Areas* - The remaining members of this committee (Schwartz, Weis and Pollard) will address the request to work with CEN to revise S015 and resubmit it to ISO for approval.

TC 5-18 *Practical Design Guidelines for the Lighting of Exterior Work Areas* - K. Austin reported that a revised Terms of Reference that included security lighting has been established. The committee met on Tuesday to assign topics and requests help in preparing material on lighting for railways, petrochemical and CCTV. B. Weis volunteered to assist with the subject of lighting of petrochemical facilities.

TC 5-19 *Emergency Lighting* – B. Weis identified that this Standard, S020, is now being voted upon to become an ISO Standard.

TC 5-20 *Sports Lighting Guide* – T. Lemons reported that this committee met on Monday to address an 11th Draft and it is expected that this discussion will result in a 12th Draft that will be accepted by the committee and submitted to the Division for approval in 2008.

TC 5-21 *Master Planning Urban Lighting* – M. Serefhanoglu Sozen reported that this committee met on Tuesday to review Draft 7a.1 which is now expected to be completed next year. Upon its completion a new committee will be established to prepare a report on Architectural Floodlighting that may require two parts to properly cover this subject.

TC 5-22 *Beam Patterns for Exterior Floodlighting Luminaires* – S. Davis was not present to report on the committee meeting held on Monday. T. Lemons reported that at the meeting the IESNA document TM-15-07 *Luminaire Classification System for Outdoor Luminaires* was reviewed by the committee as well as a First Draft of a report. The committee will look at how the TM-15-07 material to see if it could be adapted for use with floodlights. Further it was determined that CIE Publication # 43 needs revision but it should be done by Division 2 and not Division 5.

TC 5-23 *Guidelines for the Use of Different Illuminance Concepts in Outdoor Applications* – P. Rombauts reported on the committee meeting held Tuesday where assignments were made to address the application of the various concepts.

7. **Reporter Reports**

R 5-12 *Lighting and ECO Systems* – S. Davis was not present but provided a written report identifying recent activity and requested that a committee should be formed to address *Lighting Effects on Wildlife*.

R 5-13 *Lighting Controls for Visual Effects* – J. Pimenta reported that he has been unable to complete this task and suggested that a new reporter should be found.

R 5-15 *Fundamental Aspects of Vision at Night* – No report. Nigel will contact David Crawford to see if this activity should be continued.

8. **Liaison Officer Reports -** None present.

9. **Work Program**

9.a It was voted to dissolve TC 5-19 if S020 is adopted as an ISO Standard**.**

9.b New TCs

1) *Guide for Architectural and Decorative Lighting*

Terms of Reference – To review CIE Publication # 94 and produce a new guide that reflects both the technical and aesthetic values required for architectural and decorative lighting taking into account both the efficient use of energy and the effect that lighting has on the environment.
Chairman – Mujgan Serefhanoglo Sozen (She has the list of the many present that want to serve on this committee.)
Approved

2) *Lighting Effects on Wildlife*

Terms of Reference – To prepare a technical report and make recommendations on methods to better manage the impact of artificial lighting on wildlife. This would be accomplished making recommendations on lighting levels, spectral distributions and other specific considerations for a broad range of organisms as well as habitants.
Chairman – Scott Davis and committee members T. Novak (CZ), Y Akashi (Japan) J. Pimenta (Brazil) and B. Weis (Germany).
Approved

3) *Revise CIE # 67, Guide for the Photometric Specification and Measurement of Sports Lighting Installations*

Terms of Reference – To prepare a revision of the 1986 report to better relate to CIE # 169 and the new Sports Lighting Guide.
Chairman – T. Lemons and committee members K. Austin and J. Lecocq.
Approved

4) *Revise CIE # 83 Guide for the Lighting of Sports Events for Colour Television and Film Systems*

Terms of Reference – To prepare a revision of the 1989 report to better relate to CIE # 169 and the present state of the art of HDTV.
Chairman – T. Lemons and committee members K. Austin and J. Lecocq.
Approved

9.c New Reporters

B. Weis – *Lighting and Health in Outdoor Areas*
Approved

(No action was taken related to R 5-13.)

10. **Next Meeting**

Proposal by H. Juslen to meet in September, 2008 in Helsinki, Finland.
Approved

2009 – Budapest, Hungary (mid term meeting)
2010 – ? (Please bring proposals to the meeting in 2008.)
2011 – CIE 27th Session, Sun City, S. Africa

11. **Other Business** – None

12. Meeting adjourned at 12:12 PM

Respectfully submitted,
Tom Lemons, Secretary

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CIE Division 6

Photobiology and Photochemistry

DIVISION 6

PHOTOBIOLOGY AND PHOTOCHEMISTRY

Report to the Canadian National Committee
October 19, 2007

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

Introduction.

The Division 6 Annual Meeting took place on July 9, 2007 in Beijing, China, in conjunction with the CIE 26th Quadrenium Meeting. The meeting had 27 participants from 11 countries.

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

Division Officers.

The Division Officers are:

Director:	Dr. Ann R. Webb (UK)
Associate Director, Photobiological Standards:	Dr. Kohtaro Kohmoto (JP)
Associate Director, Photobiological Measurements and Dosimetry:	Dr. Karl Schulmeister (AT)
Associate Director, Photodermatology:	Vacant
Secretary:	Mr. Stephen Wengraitis (USA)
Editor:	Dr. John O'Hagan (UK)

Technical Committees that met at the occasion of the Quadrenium Meeting.

TC 6-47 Photobiological Safety of Lamps and Lamp Systems
Chair: Rolf Bergman (USA).

TC 6-52 Proper Measurement of Passive UV Air Disinfection Sources
Chair: Richard Vincent (USA).

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

TC 6-59 UVC Photocarcinogenesis Risks from Germicidal Lamps.
Chair: Richard Vincent (USA).

Progress Reports and Updates.

6-08 Guidelines for Obtaining Action Spectra.
TCC: David Sliney (USA).
Report in final form and chair commited to finishing by end of the year.

6-15 A Computerized Approach to Reflection, Transmission and Absorption Characteristics of the Human Eye.
TCC: David Jack Lund (USA).
Document available. May only need template. Follow up by Dr. Sliney.

6-20 Phototoxicity in Domestic and Industrial Environments.
TCC: Neil Gibbs (UK).
No information available, the TCC took over 2-3 years ago. Request status by DD.

6-21 Cataractogenesis by Low-Level Exposure to Ambient Ultraviolet Radiation.
TCC: David Sliney (USA).
TC met in Florida in 2006. Draft has been revised. Should be ready by the end of the year.

6-23 Develop Generalized Action Spectra for Plant Responses to Wavebands from 280 to 1100 nm.
TCC: Stephan Flint (USA).
New chair Patrick Neale is progressing.

6-24 Sunscreen and UVA.
TCC: Jean-Pierre Cesarini (FR).
Uli Osterwalder (Switzerland) has taken on the task of finalising this. Hoping to have something ready by the end of the year.

6-28 Standardization of Sunscreen Testing: Method of UV-A Sunscreen Testing.
TCC: Jean-Pierre Cesarini (FR).
This TC needs input from 6-24. Uli Osterwalder (Switzerland) will complete this after 6-24.

6-31 Immediate Pigment Darkening.
TCC: Jean-Pierre Cesarini (FR).
A final draft is thought to exist, and should be acquired.

6-33 Photoimmunological Effects Mediated through the Skin.
TCC: E.C. de Fabo (USA).
Final draft was sent to Bureau some years ago and deemed too technical. Definitions added with help of Dr. Sliney and Dr. Webb. Should be finalised with editor.

6-36 UVR Protective Materials Used in Shading.
TCC: Natasha van Tonder (South Africa).
Plenty of information available on materials, less on structures. Aim for report by the end of the year.

6-37 Light and Retinal Disease.
TCC: David Sliney (USA).
Met in Florida 2006. Draft available but some controversies. Needs some more work to resolve issue with after images of LEDs

6-39 UV Radiation in Lighted Environments.
TCC: Kohtaro Kohmoto (Japan).
TC met in Ottawa. Draft in progress.

6-41 A Standardized UV-Index.
TCC: E.C. Weatherhead (USA).
Standard was published in 2003 (S013/E: 2003), no further action required.

6-42 Lighting Aspects for Plant Growth in Controlled Environments.
TCC: Harald Seidlitz (GER).
The TC needs a new Chair and the Division has approached Mojtaba Navvab (USA), who requests existing draft and template. Would like interested members (plant side) to come forward. Ted Tibitz who started TC should be contacted.

6-43 UV Water Disinfection.
TCC: Alexander Cabaj (Austria).
No information. Template should be sent. TCC should be put in contact with bureau to help. Richard Vincent knows people who could help out if necessary. Vienna symposium presentation could act as a draft.

6-44 Illuminators for Treatment of Infant Hyperbilirubinemia.
TCC: Myron L. Wolbarsht (USA).
Riccardo Pratesi was to be approached as a new TCC of 6-44. His presentation at the Vienna symposium could serve as a draft. Need current address to contact him.

6-45 Optical Radiation Hazard Measurements in the Work Space.
TCC: Robert Angelo (GER).
TC Chair was to be approached to consider the CEN report for adoption by CIE. There is a CEN issue.

6-46 Standard Action Spectrum for UV Disinfection.
TCC: Petra Rettberg (GER).
Chair can no longer continue as TCC. Richard Vincent will take a look at any existing draft if sent to him. Tom Coohill wrote a review on the subject that could be useful. Contact Tom.

6-47 Photobiological Safety of Lamps and Lamp Systems.
TCC: Rolf Bergman (USA).
Working on revision of standard.

TC 6-48 Typical Minimal Erythema Doses.
TCC: Janusz Z. Beer (USA).
Material is thoughth to be available for this. Study of Chinese MED just published, to be provided to DD.

6-49 Infrared Cataract.
New TCC: Tsutomu Okuno (Japan).
Chair has received old draft and formatting details to work with.

6-50 Photodegradation of Pharmaceuticals.
TCC: Steven Baertschii (USA). Chair has provided a rough draft for this TC. Had some contact in 2006. Draft template will be sent as encouragement to complete.

6-51 Standardized Solar Simulator Spectral Irradiance for Sunscreen Testing.

TCC: Robert M. Sayre (USA).
This TC is working on a standard. TCC will be contact for update.

6-52 Proper Measurement of Passive UV Air Disinfection Sources.
TCC: Richard Vincent (USA).
Outline draft available. Linked to research project. Report ready for mid term.

6-53 Personal Dosimetry for UV Radiation.
New TCC: Attila Berces.
Chair has been sent recent drafts and template.

6-54 Standardised Action Spectrum for Vitamin D Synthesis in Human Skin.
TCC: Michael Holick (USA).
Activity completed and published as CIE Document 174:2006. Done and published.

6-55 Light Emitting Diodes.
TCC: Werner Horak (GER).
Theoretical material is available. Waiting for measurement material from TC2-58.

6-56 Infrared Warming Cabins.
TCC: Jan Stolwijk (USA).
Draft circulated in Sandiego. Contact TCC for latest draft and update. Karl Shulmeister also involved.

6-57 Standardization of Terms and Action Spectra for Blue Light and Retinal Thermal Hazard Functions.
TCC: K. Kohmoto (Japan)
This TC is working on a standard. Draft should be ready by the end of the year.

6-58 A Recommendation on Lower Limits for UV Exposure.
TCC: Wim Passchier (NL).
Chair held meetings in Aix les Bains, the Netherlands, and will meet at upcoming ESP meeting in Bath. Chair is synthesizing information from various sources into a draft.

6-59 UVC Photocarcinogenesis Risks from Germicidal Lamps.
TCC: Richard Vincent (USA).
TC met in Ottawa. Draft available for members review. Finished draft should be ready by the end of the year.

6-60 Spectral Weighting of UVR from Solar Surrogate Sources.
TCC: P. Donald Forbes (USA).
First TC meeting took place in Ottawa. No update. Contact Don.

Definition of UV wavebands: Masako Sasaki (China) reported briefly on her reportership and indicated a final draft would be ready by the end of the year.

Occupational UV Protection by Disposable Gloves: The reportership by Marina Khasova (UK) suggested in Ottawa was approved by the Board in November 2006 and is now with the Central Bureau for publication. The efficiency was applauded by the Division Director.

New TCs and Reporterships.

TC 6-61 Action Spectra and Dosimetric Quantities for Circadian and Related Neurobiological Effects.
Chair: Howard Cooper (France)
Terms of reference: To evaluate currently available biological research data relating to action spectra for human neurorendocrine effects, alerting effects and chronobiological effects with the aim of providing guidance to the

lighting community for assessing the impact of different spectral distributions of lighting upon non-visual effects in humans.

TC 6-62 Photobiological Strategies for Adjusting Circadian Phase to Minimize the Impact of Shift Work and Jet Lag.
Chair: Stephen Lockley (USA)
Terms of reference: To evaluate currently available biological research data relating to chronobiological effects and neurorendocrine effects, to include alerting effects with the aim of develop strategies for countering the effects of shift work and jet lag, as well as other sleep-wake disorders.

TC 6-63 Measurement of Radiation Using the Phytometric System for Plant Applications.
Chair: Gilberto J.C. da Costa (Brazil)
Terms of reference: To prepare a document intended to provide growers, lamp manufacturers, greenhouse and growth-chamber designers, lighting engineers, architects, and plant scientists and engineers with a concise reference for the use of the phytometric system for measuring radiation for plant photosynthesis and related processes.

A survey of action spectra in the scientific literature: Reportership by Alois Schmalweisser (Austria) was proposed by Division Director. Schmalweisser has a collection of over 200 action spectra with original references. This was agreed.

A **joint D6/D8 TC** was proposed by the Division Director to look at vertical illuminance and spectral output of domestic imaging appliances e.g. TV screens. The idea needs to be formalised and also agreed by D8 where the DD8 is enthusiastic.
The Division agreed with the principle and interested members were asked to contact DD6.

There is also, in principle, a joint **TC with Division 1 (TC1-67)**, but our representative David Sliney has not received any communication regarding the TC.

Procedures within CIE for inter-divisional TCs are needed. This should be raised at the Board meeting.

Proposals for Dissolution of TCs and Reporterships

No TCs or Reporterships were proposed for dissolution but it was agreed that those with no activity to report at the Beijing meeting will be considered for dissolution next year if there is no clear evidence that the TC is active.

Other meeting discussions

CEI Joint Standards Issues: A query was raised about the maintenance of joint standards e.g. CIE/IEC or CIE/ISO. If the different bodies work on different time scales then there is a danger of divergence in opinion as standards are reviewed.
This issue will be raised at the next Board meeting.

DIN Proposal

DIN has written to D6 stating that they have established FNL27 to address questions relating to light and biological responses. They state an interest in information exchange, and a willingness to contribute to CIE activities in this field.
It was agreed that DD6 would respond thanking them for their interest. A list of current TCs would be supplied with an invitation to contribute to the TCs. This should be achieved by working through the German NC to put in place appropriate people into TCs.

Canadian members and chairs of D6 Technical Committees

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

TC 6-49 A.P. Cullen

TC 6-54 F.H. Glorieux

TC 6-55 J.D.Y. Deslauriers

TC 6-59 P. Reinhardt

TC 6-62 M. Dumont

Future Division Meeting

2008 - It was suggested that the next meeting be held in conjunction with the 2008 ASP meeting in San Fransisco. David Sliney (USA), new President of ASP will provide more details.

2009 - The Division was encouraged to hold a meeting along the CIE mid-term meeting in Budapest, Hungary possibly in May.

2011 - The next Quadrennial meeting will be held in Sun City, South Africa in July of 2011.

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CIE Division 8

Image Technology

The CIE Division 8 "Image Technology" and its Activities in 2006/2007

Report to the CNC-CIE, 19 October, 2007

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-cnrc.gc.ca

1- Highlights

The CIE Division 8 Image Technology held its division meeting at the CIE Beijing meeting in July. To summarize the major developments:

- The delegates approved the new officers of Division 8: Nathan Moroney as Secretary and Ann McCarthy as Editor.
- Two new Technical Committees were approved by the Division, and also
- by the Board in a subsequent meeting:
  -- TC8-11: CIECAM02 Mathematics Terms of Reference: To investigate the improvements to the CIECAM02 model to avoid mathematical inconsistencies. Chair: Changjun Li (GB).
  -- TC8-12: Video Compression Assessment. Terms of Reference: To establish and report on the display and viewing conditions and materials for video compression quality evaluation in different applications including, but not limited to, web, mobile phones, HDTV, home cinema and digital cinema. Chair: Christine Fernadez-Maloigne (FR).

Division 8 will hold an open meeting during the IS&T/SID Color Imaging Conference in Albuquerque, NM. The proposed date is November 6th, from 9 to 11 am. This is not an official Division meeting, the purpose is to inform a more general public about the activities of the different TCs, and to solicit ideas for new TCs that work on problems relevant to the color imaging community. More details to follow shortly.

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	Sabine Susstrunk
Secretary of Division	Nathan Moroney
Editor of Division	Ann McCarthy

2.2 Official Division Members

Canadian Member: Réjean Baribeau

2.3 Liaisons

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

ISC/TC42: Photography (Mike Pointer)
ISO/TC130: Graphic Technology(Danny Rich)
ISO/IEC/JTAG2:Joint Technical Advisory Group (JTAG) 2 for Imagery(J. Schanda)
ICC -- International Colour Consortium (Cacant)
IEC/TC100 Multimedia Equipment and (Danny Rich)
ASTM/E12 Color and Appearance (Mike Pointer)

2.4 Publications and Technical Reports from Division 8

CIE 156-2004, Guidelines for the Evaluation of Gamut Mapping Algorithms (TC8-03)
CIE 159:2004, A Colour Appearance Model for Colour Management Systems:
CIECAM02. (TC8-01)
CIE 162:2004, Chromatic Adaptation Under Mixed Illumination Condition When
Comparing Softcopy and Hardcopy Images (TC8-04)
CIE 163-2004, The Effects of Fluorescence in the Characterization of Imaging Media (R8-05)
CIE 168:2005, Criteria for the evaluation of extended-gamut colour encodings
(TC8-05)
The work of TC8-06, Vocabulary, has become part of the revision of CIE
Publication 17, International Lighting Vocabulary.

2.5 Technical Committees

TC8-02: Colour Difference Evaluation in Images
TC8-07: Multispectral Imaging
TC8-08: Spatial Appearance Models for High dynamic range Images
TC8-09: Image Archiving
TC8-10: Office Illumination for Imaging
TC8-11: CIECAM02 Mathematics **– new**
TC8-12: Video Compression Assessment **– new**

2.6 Reporterships

R8-05 Reportership on Image Appearance (M. Fairchild)
R8-07 Reportership on an alternative chromatic adaptation transform for CIECAM02 (Sabine Susstrunk)

3- Technical Committees work in progress

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/

The TC technical report Draft 13 was distributed May 22 between TC members. It includes the following sections:
1. Introduction
2. Factors affecting the evaluation of colour differences for digital images
3. Reference colour digital images
4. Statistical processing of colour differences in images
5. Instrumental colour difference method
6. Existing experimental data
7. TC8-02 studies and recommendations

The TC is awaiting comments. The hope is that the report will be published soon. The conclusion is that they can not pick one.

TC8-07: Multispectral Imaging

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. Jussi Parkinen (in replacement of Dr. Patrick Herzog)

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.

As the first task, the standard for the multispectral color images was set as a goal. Two new candidate standards have been proposed: One by the Aixpert and Aachen University of Technology, German and the other by Natural Vision Project, later Tokyo Institute of Technology, Japan. Also JPEG2000 has been tested for the purpose. Furthermore, the committee has decided to focus on extended visual range of the spectrum with good spectral resolution images. Testing software (in Matlab and Java) has been produced and spectral images have been offered at the web-site http://www.multispectral.org . There is also a discussion forum and a feedback form for testing results. The idea is to collect real world information about the usability of the standards. The next step in autumn will be to activate the testing of standards in real world situations, after which the selection of a standard should be made.

TC8-08: Spatial Appearance Models for High dynamic range

Terms of Reference:
To study high-dynamic range imaging and to provide methods and examples for evaluating spatial appearance models for such images. The priorities are to provide the community with techniques for testing and improving existing algorithms, as well as providing a repository for hosting HDR images and tone-mapped versions (as well as experimental results) of said images.

Chair: Garrett Johnson

The TC had previously recognized the following priorities:

- Define the vocabulary, in particular, define “perceptible contrast raito” and which tone curve to use for this definition.
- Methods for testing HDR scenes.
    - Preference scaling: Techniques for scaling preference without an original.
    - Accuracy scaling: Comparing tone-mapping algorithms against an "original" scene.
    - Accuracy scaling: Using and HDR display as the original...is it the same or equivalent to real scene.
    - Visibility/Perceptibility scaling: Techniques for measuring scientific usefulness of HDR rendering.
- Defining a "standard" scene for testing algorithm performance
    - Built out of common items.
    - Blueprint for construction of identical scene in a variety of locations.
    - Providing measurement (3D geometry, BRDF, spectral, luminance, colorimetric, and appearance scaling data).
    - Providing HDR images of standard scene.
- Providing a repository for unprocessed HDR scenes.
- Providing experimental tone mapped images and results for future comparisons.
- Providing guidelines for testing new algorithms against existing results.

The chair has recently requested help from Dr. Rizzi (Italy) in moving the TC forward. The TC chair would welcome recommended testing methods and test images.

TC8-09: Image Archiving

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

Chair: Robert Buckley

The TC chair is trying to get the right people together to work on this – users as well as academic developers.

TC8-10: Office lighting for imaging

Terms of Reference:
To report on the spectral power distribution and illuminations levels used to view images in office lighting conditions. The report is to be based on empirical research.

Chair: Todd Newman
The TC has so far

- developed guidelines for the experiment,
- developed a questionnaire to use with each measurement set,
- developed analytical techniques to assess the captured data,
- conducted a pilot study to test the methodology
- revised methodology based on pilot study
- started the worldwide study at the CIE session

The TC is now to conduct the worldwide study, analyze the results and draft a technical report. Div. 8 members are invited to measure their own office environment.

TC8-11: CIECAM02 Mathematics - new

Terms of Reference:
To investigate the improvements to the CIECAM02 model to avoid mathematical inconsistencies.

Chair: Changjun Li (GB).

TC8-12: Video Compression Assessment - new

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

Chair: Christine Fernadez-Maloigne (FR).

4- Reporterships

R8-05 Reportership on Image Appearance.
Prof.. M. 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

Dr. Fairchild wishes to keep this reportership open, but there was no report this year. Last year, the following was reported:

There continues to be incremental research in this area both in the open scientific literature and through activities of various CIE technical committees. It remains safe to say that there is no fully-defined image appearance model that has been published to date and that seems to be a logical prerequisite to forming a TC to explore possible CIE recommendations in the area. The iCAM framework that was one motivating factor for the formation of this reportership remains a topic of active research by its original authors and others. It shows promise, but still remains very immature relative to a formal CIE recommendation like CIECAM02. This process of gradual evolution and refinement will likely carry on for many years. Regarding items 1 and 2 in the terms of reference, CIE activities in TCs 1-60, Contrast Sensitivity Function for Detection and Discrimination, and 8-02, Colour Difference Evaluation in Images, 8-08, Testing of Spatial Colour Appearance Models, are providing some advancements in this area. These committees seem to be adequate for at this time. Formation of a new TC specifically on image appearance should wait for

further research and the availability of comparable visual data and model structures from multiple research groups.

R 8-07
Sabine Susstrunk

Terms of reference:
Investigate and report on alternate chromatic adaptation transforms for CIECAM02 that do not create computational problems in boundary conditions.

An alternate chromatic adaptation transform has been published by the reporter and collaborators that solves this problem. However, other issues are left unsolved, and the formation of a new technical committee (TC8-11) has been proposed to investigate CIECAM02 mathematics.

5- Canadian Participation

Alastair Reed (Cymbolic Sciences)	TC8-05
Byron Jordan	TC8-10