



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

Canadian National Committee Comité National Canadien



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## **CNC/CIE Annual Report 2001**

CNC/CIE and CIE/USA

Technical Conference and Joint Meeting

2001–November–15 to 17

- Program
- Minutes of CNC/CIE 46<sup>th</sup> Annual Meeting
- CNC/CIE Division Members' Reports



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## **PROGRAM**

**CIE/USA and CNC/CIE**

**Joint Meeting and Technical Conference**

**2001-November-15 to 17**



***The CIE/USA and the CNC/CIE  
invite you to the  
2001 Joint Meeting  
and  
Annual Technical Conference***

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***November 15-17, 2001  
Niagara Falls, Ontario, Canada***

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***Hotel & Conference Venue:***

**Niagara Falls Marriott Fallsview Hotel:**

6740 Fallsview Boulevard ( formerly Oakes Drive)  
Niagara Falls, Ontario L2G 3W6  
Tel: 905-357-7300 or 888-501-8916 (toll free)  
Fax: 905-357-0490

Excellent rates with the hotel have been arranged as follows (Canadian Dollars):  
November 14, 15, and 16, 2001: \$99 Canadian Dollars per night plus tax  
November 17, 2001: \$149 Canadian Dollars per night plus tax

Reserve now and ask for the "CIE USA" or "CIE Canada" rate. The cutoff for reservations is **Friday, October 26, 2001**. Additional hotel information may be found at:

[www.niagarafallsmarriott.com](http://www.niagarafallsmarriott.com)

***Program Highlights:***

- Reports from the CIE Mid-Term meeting in Istanbul
- CIE Division Activity Reports
- Technical Update
- Technical Workshop on "Measurement Uncertainty" (Additional Registration Fee)
- "Winter Festival of Lights" turn-on - Canada's largest light display

## ***Schedule:***

### **Thursday, November 15**

Morning: Arrivals

12:30 PM	Registration Opens
2:00 – 5:00 PM	"Measurement Uncertainty" Workshop - Session I
3:00 – 3:15	Coffee Break
6:00 – 7:30 PM	Wine and Cheese Reception – All invited

### **Friday, November 16**

8:00 AM	Registration Opens; Coffee/Rolls Available
9:00 AM – 12:00	"Measurement Uncertainty" Workshop - Session II
8:30 – 10:00 AM	CIE/USA Technical Council Meeting
10:00 – 10:30	Coffee Break
10:30 – 12:00	CIE/USA ExComm Meeting
----	TC (and other) Meetings as arranged
12:00 – 2:00	Lunch on your own
2:00 – 5:00 PM	Business Meetings of the CNC/CIE & CIE/USA (Separate Meetings)
3:00 – 3:15	Coffee Break
6:30 PM	Refreshments (cash bar) – All invited
7:30 PM	Conference Banquet - All invited

### **Saturday, November 17**

8:00 AM	Registration Opens; Coffee/Rolls Available
9:00 – 10:30	CIE Mid-Term Meeting Review & Technical Update (Joint Session)
10:30 – 11:00	Coffee Break
11:00 – 12:30	CIE Division Reports (Joint Session)
12:30 – 2:00	Buffet Lunch – All invited
2:00 -	TC (and other) Meetings as arranged
Evening	"Winter Festival of Lights"

## ***Workshop:***

### **Uncertainty in Lighting Measurements**

This special workshop has been arranged for those interested or involved in photometry and other lighting measurements. It is modeled after the very-successful workshop organized earlier this year by the CIE in Vienna and will be presented by several of the same speakers including Dr. Georg Sauter, Physikalisch-Technische Bundesanstalt (PTB) Germany. Uncertainty calculations are becoming required to meet ISO and national standards so come prepared for some timely and practical information. Two half-day sessions have been organized. The first (Thursday afternoon) will be a tutorial by Dr. Sauter; the second (Friday morning) is being organized by Dr. Yoshi Ono of NIST and Dr. Rolf Bergman, formerly the Technical Manager of Photometric and Radiometric Testing at GE Lighting. This session will include a practice problem session.

**Note: There is a separate registration fee for this workshop.**

## **Conference Committee:**

### Chairman

Terry McGowan  
Tel: 216-291-1884  
Fax: 216-382-6424  
E: [lighting@ieee.org](mailto:lighting@ieee.org)

### Treasurer & Registration

Herb Odle  
943 Grafton Road  
Newark, OH 43055-4768  
Tel: 740-366-1140  
Fax: 740- 366-4860  
E: [herbodle@alltel.net](mailto:herbodle@alltel.net)

### CIE/USA President

Justin Rennilson  
E: [jrennilson@earthlink.net](mailto:jrennilson@earthlink.net)

### CNC/CIE President

Sharon McFadden  
E: [Sharon.McFadden@dciem.dnd.ca](mailto:Sharon.McFadden@dciem.dnd.ca)

### Technical Chairmen

CIE/USA  
Rolf Bergman  
Tel: 216-371-5141  
E: [rolfb@nccw.net](mailto:rolfb@nccw.net)

### CNC/CIE

James Love  
Tel: 403-220-7428  
Fax: 403-284-4399  
E: [love@acs.ucalgary.ca](mailto:love@acs.ucalgary.ca)

### Hotel/Facilities

Phil Wychorski  
Tel: 716-722-4368  
Fax: 716-722-4793  
E: [philip.wychorski@kodak.com](mailto:philip.wychorski@kodak.com)

## **Registration Information:**

### **Conference Registration**

**\$110 US - \$173 CDN**

***Includes Welcome Reception, Business and Technical sessions on Friday and Saturday, Continental Breakfasts, Breaks, Banquet and Saturday Lunch.***

### **Accompanying Person Registration**

**\$45 US - \$70 CDN**

***Includes Welcome Reception, Continental Breakfasts, Banquet and Saturday Lunch.***

### **Uncertainty Workshop Registration**

**\$80 US - \$125 CDN**

***Includes 2 half-day Workshop Sessions, Handouts, Breaks and Thursday Welcome Reception***

### **Full Conference Package (Best Value)**

**\$170 US - \$265 CDN**

***Includes Uncertainty Workshop and Business and Technical Sessions, Welcome Reception, Continental Breakfasts, Breaks Banquet and Saturday Lunch.***

***To register, use the form on the next page.***

**REGISTRATION FORM**  
**2001 JOINT CIE/USA AND CNC/CIE ANNUAL CONFERENCE**

To register, fill out the form and send it with your check (in either US or Canadian funds) to:

Herb Odle, Treasurer CIE/USA  
943 Grafton Road  
Newark, OH 43055-4768  
Tel: 740-366-1140  
Fax: 740- 366-4860  
E: [herbodle@alltel.net](mailto:herbodle@alltel.net)

You may also fax your registration and pay at the conference.

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State/Province: \_\_\_\_\_ ZIP/Postal Code: \_\_\_\_\_

Telephone: \_\_\_\_\_ E-Mail: \_\_\_\_\_

Accompanying Person Name: \_\_\_\_\_

*Conference Registration: \$110 US - \$173 CDN* \_\_\_\_\_

*Accompanying Person Registration \$45 US - \$70 CDN* \_\_\_\_\_

*Uncertainty Workshop Registration \$80 US - \$125 CDN* \_\_\_\_\_

*Full Conference Package (Best Value) \$170 US - \$265 CDN* \_\_\_\_\_

*Total Amount (check) \_\_\_\_\_ \$US or \_\_\_\_\_ \$Canadian Enclosed:* \_\_\_\_\_

**Make checks payable to: CIE/USA**

The CIE/USA and the CNC/CIE 2001 Joint Meeting and  
Annual Technical Conference

November 15-16, 2001: Workshop on  
**Uncertainty in Lighting Measurements**

Schedule of Presentations

<b>Time</b>	<b>Presenter</b>	<b>Affiliation</b>	<b>Topic</b>
Thursday, 15 <sup>th</sup> 14:00 - 17:00	Dr. Georg Sauter	PTB, Germany	Uncertainty Principles and their Application to Lighting Measurements
Friday, 16 <sup>th</sup> 9:00 – 9:45	Dr. Yoshi Ohno	NIST, USA	Numerical Methods in Calculating Uncertainty
9:45 – 10:30	Dr. Réjean Baribeau	NRC, Canada	Case study: uncertainty of chromaticity coordinates measured with a multi- channel spectroradiometer
10:45 – 11:30	Dr. Rolf Bergman	Consultant	Uncertainty in lumen measurements of various lamp types using integrating sphere photometers
11:30 – 12:00	All		Discussion



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## **MINUTES**

**CNC/CIE 46th Annual Meeting**

2001-November-16





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## MINUTES OF THE 46TH ANNUAL CNC/CIE MEETING

2001-November-16

The 46th annual meeting of the Canadian National Committee of the Commission Internationale de l'Éclairage (CNC/CIE) was held on Friday, November 16, 2001 at the Niagara Falls Marriott Fallsview Hotel, 6740 Oakes Drive, Niagara Falls, Ontario L2G 3W6. This meeting was part of a CIE/USA and CNC/CIE Joint Meeting and Technical Conference held November 15 to 17, 2001.

**Note:** the following acronyms are used in this report:

CIE	Commission Internationale de l'Éclairage
CNC/CIE	Canadian National Committee of the CIE
CIE/USA	US National Committee of the CIE
CIE-BA	CIE Board of Administration
CIE-CB	CIE Central Bureau
NC	CIE National Committee
TC	CIE Technical Committee
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

### 1. Call-to-order:

The 46th annual meeting of the Canadian National Committee of the Commission Internationale de l'Éclairage (CNC/CIE) was called to order at 14:10 on Friday, November 16, 2001 by S.M. McFadden, President.

Eighteen Members and Advisory Members were in attendance. The list of all attendees is given in Appendix A. At the President's request, each attendee introduced themselves.

The agenda, as circulated by mail (Appendix B), was modified with the interchange of Items 2 and 3. Moved by J. Roberge, seconded by A.R. Robertson, that this modified agenda be accepted. Passed.

**NOTE:** The Division Members' reports were presented at the joint CIE/USA–CNC/CIE session from 11:00 to 12:30 on Saturday, November 17, 2001. The Division Members' reports included with these Minutes are solely those of the CNC/CIE Division Members intended for the CNC/CIE annual report.

### 3. Election of Reporter for the Lighting Press:

There was no report from J.A. Love. J. Bastianpillai indicated that he had not been contacted concerning this activity, but that he would be willing to undertake the responsibility. A discussion of the mandate of this position indicated that it was to enhance the visibility of the CNC/CIE in Canada and would include a report of this CNC/CIE annual meeting. The particular emphasis is to submit the information in a form suitable for publication in the Canadian lighting journals.



M.K. Timmings volunteered to undertake this task. This offer was accepted by J. Bastianpillai and the attendees. J. Roberge noted that there was a journal *Monde Electricité* in Québec and M.K. Timmings indicated that he was aware of it. It was also noted that the IESNA journal *Lighting Design and Application* has a circulation of approximately 600 in Canada, and that *Lighting Magazine* has an even wider circulation.

## **2. Minutes of the 45th Annual CNC/CIE Meeting:**

The action items arising from the Minutes of the 45th annual meeting were considered. The actions taken are recorded in Appendix C.

Moved by J.A. Veitch, seconded by J. Roberge, that the Minutes be accepted as circulated.  
Passed.

## **4. President's Report:**

S.M. McFadden presented her report, which is attached as Appendix D. She asked whether any member living near Ottawa would be interested in working with the CNC/CODATA. No volunteers were identified.

## **5. Secretary's Report:**

A.A. Gaertner presented his report, which is attached as Appendix E. A.R. Robertson suggested that, in addition to CNC/CIE Members and Advisory Members, the NRC-IRO be asked for their opinion on CIE membership issues such as that in CIE Matters: 2 of the report. It was noted that NRC-IRO should be sent a copy of CNC/CIE ballots related to financial and administrative issues, for their comment, with a deadline of approximately two weeks. It was agreed that the present action concerning the CNC/CIE mailing list (CNC/CIE Matters : 2.2) be continued. A.A. Gaertner requested that the membership keep him updated on their email addresses if they wish to receive all the electronic mailings.

## **6. Financial Report:**

K.F. Lin presented his Financial/Publication Report, attached as Appendix F. He indicated that the CNC/CIE has approximately \$12K in the bank, an increase of approximately \$6K since he took over the operations of the publications/finances in 1999. He noted that there appear to be copies of several publications (approximately 12) which are missing from the time when he assumed responsibility. A.R. Robertson, the previous Publications Officer, indicated that he would look into any discrepancies which may have occurred at the time of the transition. K.F. Lin passed a list of the missing items to A.R. Robertson. A. Silbiger asked whether we had any purposes for the extra money we now have in our bank account. It was agreed to defer this discussion until agenda Item 11.4 (Other Business). J.A. Veitch moved, seconded by J.C. Zwinkels, that the Financial and Publications reports be approved. Passed.

## **7. Publications Report**

This information was presented as part of Item 6 above. It was agreed that Items 6 and 7 be combined in future meeting agendas.

## **8. Nominations and Appointments:**

A list of the CNC/CIE Members and Advisory Members (Appendix G) was circulated by the Secretary.

### **8.1 Members:**

The Secretary noted that the two Member appointments recommended by the CNC/CIE at its 45th annual meeting were endorsed by Dr. Janusz Luszyk, Director-General of NRC-INMS, and both had accepted this appointment: K. Frank Lin and Lorne A. Whitehead.

The Secretary indicated that the terms of two of the present Members expire this year: A.A. Gaertner and Ralph A. Smith. Moved by J.A. Veitch, seconded by J. Bastianpillai, that A.A. Gaertner be nominated to continue as CNC/CIE Member and Secretary. Passed. S.M. McFadden noted that she had contacted R.A. Smith, who indicated that he was willing to continue as a CNC/CIE Member, and would like to receive an assignment appropriate to his line of work. J. Roberge moved, M.K. Timmings seconded, that R.A. Smith be renominated as a CNC/CIE Member. This was passed.

## **8.2 Advisory Members:**

The Secretary indicated that Ken Loach of H.H. Angus had indicated to S.M. McFadden that he was interested in Advisory Membership in the CNC/CIE. Moved by S.M. McFadden, seconded by J. Roberge, that Ken Loach be appointed an Advisory Member. Passed.

A discussion followed concerning what was expected of Advisory Members. It was pointed out the Advisory Members should be encouraged to serve on CIE Technical Committees, and that the invitation letter to Advisory Members should include this suggestion. It was also recommended that the Secretary email information concerning new CIE TCs to the membership.

It was recommended that the Secretary poll the people on the present Advisory Member list to determine whether they were still interested in supporting the work of the CIE and CNC/CIE. J.A. Veitch noted that D.K. Tiller had moved to the USA and questioned whether he should be removed from the Advisory Member list. W.K. Adrian noted that R.B. Gibbons was also in the USA and had changed jobs from Philips to Virginia Tech.

The Secretary noted that the CNC/CIE Code of Procedure states that all Canadians serving on a CIE TC automatically became Advisory Members of the CNC/CIE. It was pointed out that the knowledge of TC membership is not easily accessible, and that there are Canadians serving on CIE TCs who are not Advisory Members (e.g. L.P. Boivin of NRC). It was agreed that the CNC/CIE Division Members send the Secretary a list of all the Canadians who they knew were serving on CIE TCs.

The Secretary indicated that response to many of the ballots which he mails to the membership is often rather low. It was pointed out that the members prefer not to vote on issues with which they do not have knowledge or experience. It was suggested that the Secretary include an option “abstain” on the ballots to provide for greater response from the membership in these circumstances.

J. Roberge indicated that he is considering resigning from his responsibilities as the Canadian Division 5 Member by 2003, the end of his present term.

## **9. CIE Midterm Session, Istanbul 2001 September 6–16:**

Our Canadian General Assembly delegate was Werner K Adrian, and Jacques Roberge was our ‘Appointed Alternate With Voting Right’. W.K. Adrian presented his report (Appendix H), which is the same report he sent to the NRC-IRO. J. Roberge added that two of the aims of the CIE Finance Committee, of which he is a member, have been to make the CIE financially stable and to set equitable fees for the member countries. He thinks that they have succeeded in both.

## **10. CIE 25th Session, San Diego 2003**

The Secretary distributed the “Circular Letter to National Committees NCCL 0122”. He noted that this contains a preliminary Session Timetable, together with requests to the NCs for proposed invited papers and workshops, and a Call for Papers. It was suggested by J.A. Veitch, and agreed to by the attendees, that a committee of the CNC/CIE President, Vice-President, and Secretary be appointed to receive suggestions from the CNC/CIE membership concerning possible invited papers and workshops, evaluate them, and forward the appropriate suggestions to the CIE-CB.

The Secretary pointed out that the procedure for submission of papers appeared to be ambiguous in that it did not state that the NCs were to evaluate all submissions before forwarding them to the

CIE-CB, as was done in the past. It was agreed that the Secretary should obtain clarification of the procedure from the CIE-CB.

It was pointed out that the lead time of 15 months before the Session for the submission of papers was too long. It was agreed that S.M. McFadden would write the CIE-CB with our concerns.

A discussion arose concerning the registration fee for the Session. Some people preferred an all inclusive fee as it is at present, whereas some people preferred that the various items such as social items be priced separately. J.A. Veitch cautioned that this would not necessarily reduce the cost of registration since many of the prices are interdependent. It was noted that this item could be discussed the next day during our joint meeting with the CIE/USA.

## **11. Other Business:**

### **11.1 Correspondence:**

The President brought forward a letter from E. Wotton of 2001-August-05 indicating that he was resigning from the subcommittee on Lighting Education which was formed last meeting

### **11.2 Date and Place for Next Year's Meeting:**

J.A. Veitch presented the suggestion of G.R. Newsham of NRC-IRC that the CNC/CIE hold its 47th annual meeting in Ottawa in conjunction with several other meetings taking place in Ottawa at the beginning of October. The present plans are to hold meetings of IEA (International Energy Agency) Tasks #27 (Performance of Solar Facade Components) and #31 (Daylighting Buildings in the 21st Century) from 2002-September-30 to October-03, and the CIE Division 3 meeting on 2002-October-04. The CNC/CIE annual meeting could be held on Saturday, 2002-October-05. G.R. Newsham of NRC-IRC is the contact for the IEA and CIE Division 3 meeting arrangements. The attendees agreed with the suggestion to holding the CNC/CIE annual meeting on Saturday, 2002-October-05.

### **11.3 Lighting Education.**

At the last CNC/CIE annual meeting a working group was set up to study the issues of lighting education in Canada, prepare a report, and determine the most appropriate recipients of the report. Rados Topalova presented a report (Appendix I) summarising her experiences concerning advanced lighting education in Canada, together with five recommendations for CNC involvement. Andrew Silbiger also presented a report (Appendix J) summarising the results of several meetings which discussed the Lighting Design Certificate program at Ryerson.

A lively discussion followed concerning the present state of lighting education, the differences between a certificate program and a degree program, and the appropriate involvement of the CNC/CIE. The President summarised the discussion by noting that there are programs under way in Canada which might develop into larger activities, and that there would be no formal action in the CNC/CIE at this time.

### **11.4 Other Business:**

The issue of CNC/CIE financial assistance to its members was introduced, as indicated under Item 6 (Financial Report) above. W.K. Adrian indicated that he would be holding a task force meeting concerning tunnel lighting in Toronto in the near future. He requested funds to host the coffee breaks and a dinner for the five members to be in attendance, suggesting that \$280.00 would cover the dinner expenses. It was moved by J.A. Veitch, seconded by B. Jordan, that the CNC/CIE authorize up to \$300.00 to W.K. Adrian to cover the meeting expenses.

It was noted that the CNC/CIE now needs to set up some criteria for the use of the funds available in its bank account. It was moved by B. Jordan, seconded by A. Silbiger, that the executive (President, Vice-President, Secretary, and Treasurer), with power to add, be set up as a committee to develop some proposed criteria. Passed. A deadline of February, 2002 was suggested.

## **12. Adjournment:**

The meeting was adjourned at 18:03 on a motion by W.K. Adrian, seconded by M.K. Timmings.

A.A. Gaertner  
Secretary, CNC/CIE  
Institute for National Measurement Standards  
Building M-36  
National Research Council of Canada  
Ottawa, Ontario K1A 0R6

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

2002-January-22

## CNC/CIE 46th Annual Meeting

### Action Items

MINUTES ITEM NUMBER	RESPONSIBLE	ACTION
2	A.A. Gaertner	contact E. Szamosi at CSA re possible Advisory Members
2	J.A. Love	Check Ontario Hydro contacts re Advisory Membership
3	M.K. Timmings	CNC/CIE information to the lighting press
6	A.R. Robertson	account for missing CIE publications to K.F. Lin
8.1	A.A. Gaertner	Membership appointments for A.A. Gaertner and R.A. Smith
8.2	A.A. Gaertner	Notify K. Loach re Advisory Membership
8.2	A.A. Gaertner	Advisory Member appointment letters to suggest service on CIE TCs
8.2	A.A. Gaertner	email any new CIE TC info to membership
8.2	A.A. Gaertner	poll Advisory Members for their continuing interest in CNC/CIE and CIE
8.2	Division Members	send list of Canadians serving on TCs to Secretary
8.2	A.A. Gaertner	add people on above list to Advisory Membership
8.2	A.A. Gaertner	add 'Abstain' to voting ballot to encourage more responses
8.2	all	consider 2003 replacement for J. Roberge (Division 5)
10	Pres,VP,Secr.	review CNC/CIE suggestions for invited papers and workshops
10	S.M. McFadden	write CIE-CB re lead time for Call for Papers
10	A.A. Gaertner	clarify with CIE-CB the procedure for submission of papers
11.4	Pres,VP,Sec, Treas.	develop proposed criteria for use of CNC/CIE funds by February, 2002

## **LIST OF APPENDICES**

Appendix A:	Attendees to the 46th Annual Meeting of the CNC/CIE
Appendix B:	CNC/CIE 46th Annual Meeting Proposed Agenda
Appendix C:	Action Items from 45th annual meeting
Appendix D:	President's Report
Appendix E:	Secretary's Report
Appendix F:	Financial/Publications Report
Appendix G:	CNC/CIE Members and Advisory Members
Appendix H:	Report on CIE General Assembly Meeting in Istanbul
Appendix I:	Lighting Education in Canada - Rados Topalova
Appendix J:	Lighting Education - Andrew Silbiger

## **APPENDIX A**

### **Attendees to the 46th Annual Meeting of the CNC/CIE**

2001-November-16

Werner Adrian	Professor Emeritus, University of Waterloo
Réjean Baribeau	National Research Council (INMS)
Joe Bastianpillai	Lumentech Engineers Inc.
Mario Bucci	SNC Lavalin Engineers and Construction
Arnold Gaertner	National Research Council (INMS)
Byron Jordan	PAPRICAN
Frank Lin	Lighting Sciences Canada Ltd.
Sharon McFadden	DCIEM
Keith Niall	DCIEM
Ivan Pasini	Public Works and Government Services Canada (A&ES)
Jacques Roberge	self
Alan Robertson	National Research Council (INMS)
Andrew Silbiger	Andrew Silbiger Management Inc.
Martyn Timmings	Canlyte Inc.
Rados Topalova	consultant
Jennifer Veitch	National Research Council (IRC)
Lorne Whitehead	UBC Physics and Astronomy
Joanne Zwinkels	National Research Council (INMS)

### **Regrets**

Yvon Deslauriers	Health Canada (RPB)
André Laperrière	Hydro-Québec
James Love	University of Calgary
Guy R. Newsham	National Research Council (IRC)
Mankajee Shrestha	self
Ralph Smith	Ralph Smith Engineering Inc.
R.W. White	Duschenes & Fish Architects
Ernest Wotton	consultant - Toronto





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## **APPENDIX B**

### **CNC/CIE 46th Annual Meeting**

2001-November-16

### **Proposed Agenda**



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## CNC/CIE 46th Annual Meeting

### Proposed Agenda

DATE: 2001-November-16, Friday

TIME: 14:00 to 17:00

LOCATION: Niagara Falls Marriott Fallsview Hotel  
6740 Oakes Drive, Niagara Falls, Ontario L2G 3W6

#### PROPOSED AGENDA:

1. Call to Order and Approval of Agenda S.M. McFadden
2. Minutes of the 45th Annual CNC/CIE Meeting  
- Action items  
- Matters arising?
3. Election of reporter for lighting press
4. President's Report S.M. McFadden
5. Secretary's Report A.A. Gaertner
6. Financial Report K.F. Lin
7. Publications Report K.F. Lin
8. Nominations and Appointments (CNC/CIE)
9. CIE midterm session, Istanbul 2001, 6–16 September
10. CIE 25th Session, San Diego 2003, 25 June to 02 July  
- Proposals for Invited Papers  
- Proposals for Workshop Items
11. Other Business  
11.1 Correspondence S.M. McFadden  
11.2 Date and Place for next year's meeting  
- possibly joint with CIE Division 3 and IEA (International Energy Agency) in  
Ottawa early October 2002  
11.3 Lighting Education  
11.4 Other business
12. Adjournment

NOTE: The Division Members' Reports will be given as part of the joint USNC/CNC/CIE session on Saturday morning, November 17.

## APPENDIX C

### Action Items from CNC/CIE 45th Annual Meeting

MINUTES ITEM NUMBER (45th annual meeting)	RESPONSIBLE	ACTION
2.1	S.M. McFadden, A.A. Gaertner	presentation of certificate to H.W. Budde
		<b>- done: see President's and Secretary's reports</b>
2.4	A.A. Gaertner	Advisory Membership invitation to Dr. Guy Newsham
		<b>- done: see Secretary's report</b>
2.5	J. Roberge	Insurance company information for R. Topalova
		<b>- J. Roberge indicated that he does not expect to obtain any information</b>
3	S.M. McFadden	follow-up on CNC/CIE information sent to USA contact
		<b>- done</b>
3	J.A. Love, J. Bastianpillai	CNC/CIE information to the lighting press
		<b>- not done, see Item 3 of this year's Minutes</b>
5	A.A. Gaertner	copy of CIE "Image Brochure" to CNC/CIE mailing lists
5	M.K. Timmings	IESNA information to CIE News.
5	A.A. Gaertner	summary action sheet from Minutes
		<b>- above 3 items were done</b>
7	A.A. Gaertner	CIE x017 to Warsaw attendees?
		<b>- A.A. Gaertner indicated that this publication is not included with the Session fees and must be purchased separately</b>
7A	W.K. Adrian	Written report of CIE Division 4 and 5 meetings in Toronto
7A	J. Bastianpillai	List of Sponsors of CIE Division 4 and 5 meetings in Toronto.
8.4	W.K. Adrian	written Division 4 report
		<b>- above 3 items were done</b>
9	A.A. Gaertner	Membership appointments for K.F. Lin and L.A. Whitehead
9	S.M. McFadden	check interest of Ken Loach for Advisory Membership
9	A.A. Gaertner	Advisory Membership invitations to Mario Bucci, Keith Niall, and Pascale Reinhardt.
		<b>- above 3 items were done, see Secretary's report</b>
9	A.A. Gaertner	contact E. Szamosi at CSA re possible Advisory Members
		<b>- not done</b>
9	J.A. Love	Check Ontario Hydro contacts re Advisory Membership
		<b>- no report</b>
13.1	Lighting Education working group	interim report on lighting education by April 15, 2001
		<b>- see report later in this meeting (Item 11.3)</b>
13.4	Division Members, Secretary	distribute reports before annual meeting
		<b>- done by email with PDF files (4 reports)</b>



COMMISSION INTERNATIONALE DE L'ÉCLAIRAGE  
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INTERNATIONALE BELEUCHTUNGSKOMMISSION

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## **APPENDIX D**

### **CNC/CIE 46th Annual Meeting**

2001-November-16

### **President's Report**



COMMISSION INTERNATIONALE DE L'ÉCLAIRAGE  
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## **PRESIDENT'S REPORT TO THE CNC/CIE 46<sup>TH</sup> ANNUAL MEETING**

**2001-November-16**

Once again we have the pleasure of holding a joint meeting with our colleagues in the USNC/CIE. I can assure you that they have worked very hard to produce an interesting and informative workshop and meeting. They are to be doubly commended given their ongoing effort to organize the Quadrennial Meeting in 2003. I would also like to extend my appreciation to those members of the CNC/CIE who have assisted the USNC in preparing for this meeting.

The main event for the CIE this past year was the Interim Meeting that was held in Istanbul, Turkey. Unfortunately, I was unable to attend. However, Dr. Werner Adrian, the Vice-President, ably substituted for me and represented the interests of the CNC/CIE at the General Meeting of the CIE. I would like to thank him for his participation and for his timely and detailed report on the events of that meeting.

My most pleasant duty this past year was to present Mr. Wolfgang Budde with a certificate of achievement from the CNC/CIE. I enjoyed meeting Mr. Budde and listening to his memories about the CNC/CIE during the time he was active in it. As a relatively new member of the CNC/CIE, it was fascinating to get even a brief glimpse of some of its long and productive history. I would like to thank everyone from the Institute of National Measurement Standards (INMS) that helped arrange the lovely reception that accompanied the presentation. Hopefully, we will continue to recognize those individuals without whose unfailing support the CNC/CIE would not function.

At the request of the Director General of INMS, Arnold Gaertner and I represented the CNC/CIE at a CNC/NRC partners meeting that was held as part of the annual meeting of the Committee on International Science, Engineering and Technology (CISET). CISET's mandate is to advise and assist NRC in developing and implementing policy positions with respect to scientific and technological cooperation with international non-governmental organizations such as the CIE. The purpose of the meeting was to exchange information on matters of importance to the Canadian National Committees of the 29 International Organizations that NRC is an adhering member. Many of the issues raised by representatives from the various CNCs were similar to those faced by the CNC/CIE. They included how to attract young members, how to improve national meetings, and how to improve interdisciplinary communication.

One of the committees represented, the CNC/CODATA was particularly interested in the issue of interdisciplinary communication since they are concerned with the archiving and representation of all types of scientific data. Thus, they have invited other CNCs to send representatives to their annual meeting. This fall they extended such an invitation to the CNC/CIE. Unfortunately, it was not possible to present their request to the members prior to their annual meeting.

In closing, I would like to thank all the members and associate members for their support of the work of the CIE through their participation in Technical Committees and in the operation of the CNC/CIE and by keeping Canadians in the lighting field informed about the work of the CIE.

Respectfully submitted

A handwritten signature in cursive script, reading "Sharon McFadden".

Sharon McFadden  
President, CNC/CIE  
Defence and Civil Institute of Environmental Medicine  
P.O. Box 2000, Toronto, Ontario M3M 3B9

Phone: (416) 635-2189

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## **APPENDIX E**

### **CNC/CIE 46th Annual Meeting**

2001-November-16

### **Secretary's Report**





COMMISSION INTERNATIONALE DE L'ÉCLAIRAGE  
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## CNC/CIE SECRETARY'S REPORT TO THE 46th ANNUAL MEETING

2001-November-16

The following acronyms are used in this report:

CIE-CB: CIE Central Bureau in Vienna, Austria  
CIE-BA: CIE Board of Administration  
CNC/CIE: Canadian National Committee of CIE  
GA: General Assembly  
NC: National Committee  
NRC: National Research Council of Canada  
INMS: Institute for National Measurement Standards

This report covers the period from 2000-October-13 to 2001-November-15.

### CIE MATTERS:

#### 1. Annual Membership Fee:

The annual membership fee of the CNC/CIE as a member of the CIE for 2001 is 6,976 EUROS. This was \$9687.57 Cdn. The NRC International Relations Office is responsible for making this payment, and has continued to do so.

#### 2. CIE Membership of Pakistan:

The results of the CNC/CIE letter ballot was to approve expulsion of the CIE National Committee of Pakistan from CIE membership for not paying their dues. Fifty-five ballots were mailed to Members and Advisory Members, 24 were returned, of which 22 were in favour and 2 were opposed. The final approval, together with the concerns expressed, was conveyed to the CIE-CB. The results for the international CIE vote were 15 NC ballots returned, 14 in favour, 1 against, which resulted in the NC Pakistan being expelled.

#### 3. CIE General Assembly meeting:

The CIE Midterm Session was held in Istanbul, Turkey from 6–16 September 2001. The CIE General Assembly meeting was held at the Istanbul Technical University on Saturday, 8 September 2001. Our official GA-member was Werner K. Adrian, and Jacques Roberge was our 'Appointed Alternate With Voting Right'.

#### 4. CIE Draft Standards:

4.1 CIE DS 008.3/E-2001 *Lighting of Indoor Work Places*. Last year the CIE-CB solicited the comments of CIE-NCs on version 2 of this Draft Standard. These comments were collected and this third version was produced for final voting by the CIE-NCs. Fourteen copies were mailed to CNC/CIE Members and potentially interested parties. Six replies were received, all in favour, despite some reservations. The CNC/CIE approval of the publication of this document was forwarded to the CIE-CB. The results for the international voting were 12 votes in favour and 5 votes against, which resulted the approval of publishing this draft standard as CIE S008/E-2001.

4.2 DS 009.1/E-2000 *Photobiological Safety of Lamps and Lamp Systems*. This CIE Draft Standard has passed the CIE-BA and Divisional ballots. It was sent to the NCs for comments. Fourteen copies were mailed to CNC/CIE Members and potentially interested parties. Five were returned with comments. These comments were forwarded to the CIE-CB.

4.3 DS 010.2/E-2001 *Photometry—The CIE System of Physical Photometry*. This CIE Draft Standard has passed the CIE-BA and Divisional ballots. It was sent to the NCs for comments. Thirteen copies were mailed to CNC/CIE Members, and CNC/CIE Advisory Members were notified. Comments are to be sent to me by 2001-December-01. If any CNC/CIE Advisory Members would like to review this draft standard and send me their comments before the above date, please contact me.





## 5. Mailings:

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

*CIE NEWS* #56, December 2000

*CIE NEWS* #57, March 2001

*CIE NEWS* #58, June 2001

*CIE NEWS* #59, September 2001

CIE Press Releases:

Publication CIE 51.2-1999: *A Method for Assessing the Quality of Daylight Simulators for Colorimetry.*

Publication CIE 54.2-2001: *Retroreflection: Definition and Measurement.*

Publication CIE 138-2000: *CIE Collection in Photobiology and Photochemistry 2000.*

Publication CIE 139-2001: *The Influence of Daylight and Artificial Light on Diurnal and Seasonal Variations in Humans. A Bibliography.*

Publication CIE 140-2000: *Road Lighting Calculations.*

Publication CIE 141-2001: *Testing of Supplementary Systems of Photometry.*

Publication CIE 142-2001: *Improvement to Industrial Colour-Difference Evaluation.*

Publication CIE 143-2001: *International Recommendations for Colour Vision Requirements for Transport.*

Publication CIE 144-2001: *Road Surface and Road Marking Reflection Characteristics.*

Publication CIE x019-2001: *Proceedings of three CIE Workshops on Criteria for Road Lighting.*

Publication CIE x020-2001: *Proceedings of the CIE Symposium 2001 Uncertainty evaluation - Methods for analysis of uncertainties in optical radiation measurement.*

Publication CIE x021-2001: *Proceedings of the CIE Expert Symposium 2000 Extended Colour Range Spaces.*

Publication CIE x022-2001: *Proceedings of the 2<sup>ND</sup> CIE Expert Symposium on LED Measurement: Standard methods for specifying and measuring LED and LED cluster characteristics.*

CIE Draft Standard DS 009.1/E-2000 *Photobiological Safety of Lamps and Lamp Systems.*

CIE Draft Standard DS010.2/E-2001 *Photometry—The CIE System of Physical Photometry.*

CIE Publication S004/E-2001: *CIE Standard S004 Colours of Light Signals.*

CIE Publication S008/E-2001: *CIE Standard S008 Lighting of Indoor Work Places.*

## CNC/CIE MATTERS:

### 1. CNC/CIE Award:

Mr. Wolfgang Budde was a member of the CNC/CIE with 34 years of meritorious service from 1963 to 1997. He was Secretary from 1963 to 1966 and President from 1966 to 1976. He worked diligently during these years as member and chairman of many CIE Technical Committees, and served as the General Secretary of the CIE. On Friday 2000-December-15 the CNC/CIE hosted a gathering in his honour in building M36 of the NRC in Ottawa. Many of his friends and colleagues were present to celebrate his achievements and present their best wishes to him and his wife Brita. A CNC/CIE Award was presented to Mr. Budde to mark the occasion. Mr. Budde has asked me to forward the following message to the CNC/CIE: "I would like to thank the members of the CNC/CIE again for the great honour of giving me the award for my service. Could you, please, inform the officers and the members of the CNC of my gratitude and that I am truly enjoying this award. Working for the CNC was mostly pleasure, occasionally some sweat, sometimes minor trouble, but again: mostly pleasure, because the members were friendly and helpful and all contributed to the successes of our work. As Syl Guth, a former president of the CIE said at the end of his term: 'I do not miss the work, but I truly am missing the people'. This is what I also feel."

### 2. Mailing Lists:

2.1 At present I maintain 3 mailing lists: Members(13), Advisory Members(42), General Interest(28). In general, the difference between the first two and the third is that the third list tends to receive only CIE material (press releases of CIE publications, *CIE NEWS* ) and notices of international conferences. Members and Advisory Members receive more CNC information such as various ballots, and the Minutes of the annual meeting and related information.

2.2 Occasionally I receive requests for the use of our mailing list by outside parties. In general I have responded by asking the parties to send me the material, which I include with one of my mailings if I consider it of interest to the membership. Should the CNC/CIE have a policy on these matters?

2.3 Electronic Mail: I have sent more documents to the CNC/CIE membership this year by email, such as the Division Members' reports which were sent out just prior to this annual meeting. I have been using a PDF format which should be more versatile in accommodating the various computer systems, and the reader can be downloaded free from the Adobe website. I can now receive more information from the CIE-CB, such as Press Releases, in electronic format. I often receive announcements of meetings in electronic format, and I will forward these electronically rather than sending a large paper mailing. At present my email mailing lists are: Members(13), Advisory Members(28), General Interest(6). Please keep me updated on your email address.

### 3. 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.

#### 3.1. 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. Janusz Lusztyk, Director-General of INMS. Both have accepted. They are:

K. Frank Lin as Publications Officer of the CNC/CIE  
Dr. Lorne A. Whitehead

#### 3.2. Advisory Members:

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

Mario Bucci of SNC•LAVALIN  
Dr. Guy Newsham of NRC Institute for Research in Construction  
Dr. Keith Niall of Defence and Civil Institute of Environmental Medicine  
Pascale Reinhardt of Health Canada, Healthy Environment and Consumer Safety Branch

The following have been removed from our Advisory Membership:

J. Diwan (lost contact)  
C.M. Henville (lost contact)  
H.H. Mikaelian (deceased)

Mr. Ken Loach of H.H. Angus & Associates has indicated his interest in Advisory Membership.

Respectfully submitted,

A.A. Gaertner  
Secretary, CNC/CIE  
Institute for National Measurement Standards  
Building M-36  
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## **APPENDIX F**

### **CNC/CIE 46th Annual Meeting**

2001-November-16

### **Financial and Publications Report**

**CIE PUBLICATION - CANADA  
FINANCIAL REPORT  
AS OF  
OCTOBER 31, 2001**

<b>Income Statement</b>	<b>Page 1</b>
<b>Balance Sheeet</b>	<b>Page 2</b>
<b>Bank Account Balance</b>	<b>Page 3</b>
<b>Publication Sale for December 1999 - December 2000</b>	<b>Page 4</b>
<b>Publication Sale for January - October 2001</b>	<b>Page 5</b>
<b>Publication Purchase from Central Bureau: December 1999 - October 2001</b>	<b>Page 6</b>

**CIE PUBLICATION - CANADA  
FINANCIAL REPORT**

**INCOME STATEMENT    Oct/01/1999 - Oct/31/2001**

**Revenue**

Publication sale [year 1999/2000]	\$ 978.00
Other income [year 1999/2000]	\$ 7,572.24
Publication sale [year 2000/2001]	\$ 4,169.47
Other income [year 2000/2001]	<u>\$ 2,381.52</u>

**Total Revenue** **\$ 15,101.23**

**Expense**

Publication purchase [year 1999/2000]	\$ 1,062.97
Other expenses [year 1999/2000 (bank & other)]	\$ 6,034.60
Publication purchase [year 2000/2001 Euro\$468.65]	\$ 697.14
Bank charges [year 2000/2001]	\$ 63.40
A/P - due to Central Bureau [Euro\$416.00]	\$ 624.00
A/P - due to Lighting Sciences Canada Ltd. [courier expense]	<u>\$ 253.22</u>

**Total Expense** **\$ 8,735.33**

**Net Income** **\$ 6,365.90**

**CIE PUBLICATION - CANADA  
FINANCIAL REPORT**

**BALANCE SHEET      Oct/01/1999 - Oct/31/2001**

**Assets**

Bank/Cash \$ 13,321.20

**Total Assets** \$ 13,321.20

**Liabilities**

Accounts Payable-Central Bureau [Euro\$416.00] \$ 624.00

Accounts Payable-Lighting Sciences Canada [courier expenses] \$ 253.22

**Total Liabilities** \$ 877.22

**Equity**

Balance, beginning @Oct/06/99 \$ 6,078.08

Current Income \$ 6,365.90

**Total Equity** \$ 12,443.98

**Liability & Equity** \$ 13,321.20

**CIE PUBLICATION BANK ACCOUNT - CANADA**  
**Financial Report**

<b>CIE Publications Bank Account, 1999/2000 (CANADA)</b>						
<b>Date</b>		<b>Sales</b>	<b>Other Income</b>	<b>Payments to CB</b>	<b>Other Expenses</b>	<b>Balance</b>
99-10-06	Forward					\$6,078.08
99-09-30	Bank charges (May 31 to Sep 30)				\$10.00	\$6,068.08
99-10-21	Publication sales	\$978.00				\$7,046.08
99-10-21	1999 meeting income		\$4,430.00			\$11,476.08
99-10-21	1999 meeting income (US\$1735)		\$2,542.24			\$14,018.32
99-10-21	Publications payment (Euro 649.30)			\$1,062.97		\$12,955.35
99-11-17	R. Smith, audio-visual equipment				\$287.50	\$12,667.85
99-11-17	R. Smith Eng, distribution of materials				\$30.07	\$12,637.78
99-12-15	J. Love, gifts re 1999 meeting				\$211.50	\$12,426.28
00-01-31	Bank charges (Oct 31 to Jan 31)				\$8.80	\$12,417.48
00-02-22	Philips, advertising re 1999 meeting		\$600.00			\$13,017.48
00-02-22	Regal Constellation Hotel re 1999 meeting				\$5,486.73	\$7,530.75
	<b>Total</b>	<b>\$978.00</b>	<b>\$7,572.24</b>	<b>\$1,062.97</b>	<b>\$6,034.60</b>	<b>\$7,530.75</b>

<b>CIE Publications Bank Account, 2000/2001 (CANADA)</b>						
<b>Date</b>		<b>Sales</b>	<b>Other Income</b>	<b>Payments to CB</b>	<b>Other Expenses</b>	<b>Balance</b>
00-02-22	Forward					\$7,530.75
00-09-30	Bank charges (Feb 29 to Sep 30)				\$16.00	\$7,514.75
00-10-19	Publication sales (inv.#2001 to 2003)	\$766.47				\$8,281.22
00-12-30	Bank charges (Oct 31 to Dec 30)				\$11.85	\$8,269.37
01-01-02	Publication sales (inv.#2004)	\$158.00				\$8,427.37
01-01-02	Publication sales (inv.#2006)	\$334.00				\$8,761.37
01-01-31	Bank charges (Jan 31, 2001)				\$3.95	\$8,757.42
01-02-20	Publication sales (inv.#2005)	\$461.00				\$9,218.42
01-02-20	W.Adrian (Div.meeting, Sep.3-8,2000)		\$2,381.52			\$11,599.94
01-02-20	Publication sales (inv.#2007)	\$95.00				\$11,694.94
01-02-20	Publication payment (ck#12,Euro\$468.65)			\$697.14		\$10,997.80
01-04-30	Bank charges (Feb 28 to Apr 30)				\$11.85	\$10,985.95
01-05-16	Publication sales (inv.#2008 to 2010)	\$486.00				\$11,471.95
01-05-31	Bank charges (May 31, 2001)				\$3.95	\$11,468.00
01-06-29	Publication sales (inv.#2011,2013,2014)	\$389.00				\$11,857.00
01-07-31	Bank charges (June 30 to July 31)				\$7.90	\$11,849.10
01-08-31	Publication sales (inv.#2012,2015)	\$774.00				\$12,623.10
01-09-29	Bank charges (Aug 31 to Sep 29)				\$7.90	\$12,615.20
01-10-17	Publication sales (inv.#2016 to 2020)	\$706.00				\$13,321.20
	<b>Total</b>	<b>\$4,169.47</b>	<b>\$2,381.52</b>	<b>\$697.14</b>	<b>\$63.40</b>	<b>\$13,321.20</b>

**CIE PUBLICATION SALE - CANADA**  
**Financial Reprot**

<b>CIE Publication Sales: Dec 1999 - December 2000</b>					
<b>Date/Inv. #</b>	<b>Description/Title of Publication</b>	<b>Qty</b>	<b>Sale</b>	<b>Expense</b>	<b>Net Amount</b>
Dec/01/1999	Balance brought forward		\$ -	\$ -	\$ -
Dec/10/1999 <b>#2001</b>	<b>Sherritt International Corporation</b> CIE-116-1995: Technical report 'Industrial Colour-Difference Evaluation' Shipping cost - FedEx(\$13.25 already deducted)	1	\$ 92.52	\$ 13.25	\$ 79.27
Mar/14/2000 <b>#2002</b>	<b>Elcan Optical Technologies</b> CIE-69-1987: Illuminance Meters CIE-53-1982: Radiometers & Photometers CIE-63-1984: Spectroradiometry CIE-84-1984: Measurement of Luminous Flux Shipping cost - FedEx (\$18.80 already deducted) Shipping cost - Loomis	1 1 1 1	\$ 496.00	\$ 18.80 \$ 22.87	\$ 454.33
May/25/2000 <b>#2003</b>	<b>The Optikon Corporation Ltd.</b> CIE-61-1984: Tunnel Entrance Lighting-A survey of fundamentals for determining the luminance in the threshold zone. Shipping cost - N/A (Personally pickup)	1	\$ 210.00	\$ -	\$ 210.00
Nov/17/2000 <b>#2004</b>	<b>Institut des Communications</b> CIE-15.2-1986: Colorimetry, Second Edition Shipping cost - Loomis	1	\$ 158.00	\$ 18.37	\$ 139.63
Dec/07/2000 <b>#2005</b>	<b>Health Canada</b> CIE-130-1998: Pract. Methods for the Meas.of reflectance & Transmittance CIE-134-1999: CIE Collection in Photobiology & Photochemistry 1999 CIE-138-2000: CIE Collection in Photobiology & Photochemistry 2000 CIE-S 007/E-1998: Erythema Reference Action Spectrum & Standard Erythema Dose. Shipping cost - Loomis	1 1 1 1	\$ 461.00	\$ 18.37	\$ 442.63
Dec/20/2000 <b>#2006</b>	<b>Philips Analytical</b> CIE-ISO 10526 CIE-ISO 10527 CIE-Disk D001 Rel 1.2: CIE Photometric & Colorimetric Tables (1988) Shipping cost - N/A (Delivered by K. Frank Lin)	1 1 1	\$ 334.00	\$ -	\$ 334.00
Dec/31/2000	<b>Adjustment</b> (shipping cost for inv.#2001/\$13.25+18.80/inv.#2002)		\$ (32.05)	\$ (32.05)	\$ -
Dec/31/2000	<b>Total (balance carried forward)</b>		\$ 1,719.47	\$ 59.61	\$ 1,659.86



**CIE PUBLICATION SALE - CANADA**  
**Financial Report**

**CIE Publication Sales: January - October 2001**

Date/Inv. #	Description/Title of Publication	Qty	Sale	Expense	Net Amount
Dec/31/2000	Balance brought forward		\$1,719.47	\$ 59.61	\$ 1,659.86
Feb/06/2001 #2007	<b>Tir Systems Ltd.</b> CIE-DISK D008 Shipping cost - N/A (directly e-mailed from Central Bureau of CIE)	1	\$ 95.00	\$ -	\$ 95.00
Feb/19/2001 #2008	<b>ICAO Library</b> CIE-15.2-1986: Colorimetry, Second Edition Shipping cost - Loomis	1	\$ 158.00	\$ 18.15	\$ 139.85
Mar/06/2001 #2009	<b>University of British Columbia</b> CIE-DISK D008 Shipping cost - N/A (directly e-mailed from Central Bureau of CIE)	1	\$ 95.00	\$ -	\$ 95.00
Mar/27/2001 #2010	<b>Carmanah Technologies Inc.</b> CIE-79-1988: A Guide for the Design of Road Traffic Lights. CIE-48-1980: Light Signals for Road Traffic Control. Shipping cost - Loomis	1 1	\$ 233.00	\$ 26.08	\$ 206.92
Apr/24/2001 #2011	<b>National Defense Headquarters</b> CIE-15.2-1986: Colorimetry, Second Edition Shipping cost - Loomis	1	\$ 158.00	18.15	\$ 139.85
May/23/2001 #2012	<b>Ministere des transports</b> CIE-140-2000: Road Lighting Calculations Shipping cost - Loomis	1	\$ 130.00	\$ 19.70	\$ 110.30
Jun/05/2001 #2013	<b>Canadian Petroleum Safety Council</b> CIE-129-1998: Guide for Lighting Exterior Work Areas. Shipping cost - Loomis	1	\$ 106.00	\$ 16.05	\$ 89.95
Jun/29/2001 #2014	<b>Heritage Casting &amp; Ironworks Ltd.</b> CIE-92-1992: Guide to the Lighting of Urban Areas Shipping cost - Loomis	1	\$ 125.00	\$ 18.15	\$ 106.85
Aug/27/2001 #2015	<b>IESNA Fiddlehead Section</b> CIE-17.4-1987: International Lighting Vocabulary Shipping cost - Loomis	1	\$ 644.00	\$ 24.48	\$ 619.52
Aug/27/2001 #2016	<b>ICAO Library</b> CIE-143-2001: Int'l Recom. for Colour vision req. for Transport Shipping cost - Loomis	1	\$ 139.00	\$ 18.15	\$ 120.85
Aug/27/2001 #2017	<b>National Research Council Canada</b> CIE-S008/E-2001: Lighting of Indoor Work Places Shipping cost - Loomis	1	\$ 119.00	\$ 18.15	\$ 100.85
Aug/31/2001 #2018	<b>Tir Systems Ltd.</b> CIE-62-1984: Lighting for Swimming Pools Shipping cost - Loomis	1	\$ 119.00	\$ 16.55	\$ 102.45
Sep/27/2001 #2019	<b>EFOS Inc.</b> CIE-53-1982: Radiometers & Photometers Shipping cost - N/A (directly shipped from Central Bureau of CIE)	1	\$ 130.00	\$ -	\$ 130.00
Oct/02/2001 #2020	<b>Ying Zhan</b> CIE-136-2000: Guide to the Lighting of Urban Areas CIE-S 008/E-2001: Lighting of Indoor Work Places Shipping cost - N/A (Personally pickup)	1 1	\$ 199.00	\$ -	\$ 199.00
Oct/31/2001	<b>Total</b>		<b>\$4,169.47</b>	<b>\$253.22</b>	<b>\$ 3,916.25</b>

# CIE PUBLICATION PURCHASE - CANADA

## Financial Report

### Publication purchases from CB, 1999-2000 (CANADA)

Date	CIE Inv.	CIE Code	Title of Publication	Qty	Unit Cost (Euro)	Total Cost (Euro)	Discount (Euro)	Running Total (Euro)	Payments (Euro)
1999.12.20	Forward							\$ -	
1999.12.20	328/NC	135-1999	CIE Collection 1999: Vision and Colour	2	\$ 63.00	\$ 126.00	(\$44.10)	\$ 81.90	
2000.02.11	031/NC	136-2000	Guide to the Lighting of Urban Areas	2	\$ 48.00	\$ 96.00	(\$33.60)	\$ 62.40	
2000.03.03	073/NC	137-2000	Conspicuity of Traffic Signs in Comp. Backg.	2	\$ 48.00	\$ 96.00	(\$33.60)	\$ 62.40	
2000.05.03	145/NC	084-1989	Measurement of Luminous Flux	1	\$ 56.00	\$ 56.00	(\$19.60)	\$ 36.40	
2000.09.30	253/NC	138-2000	Collection in Photobio. & Photochem. 2000	2	\$ 56.00	\$ 112.00	(\$39.20)	\$ 72.80	
2000.10.31	294/NC	051.2-1999	Quality of Daylight Simulators for Colorimetry	2	\$ 48.00	\$ 96.00	(\$33.60)	\$ 62.40	
2000.11.13	323/NC	140-2000	Road Lighting Calculations	2	\$ 48.00	\$ 96.00	(\$33.60)	\$ 62.40	
2000.12.19	377/NC	Disk-D001	CIE Colorimetric Data	1	\$ 43.00	\$ 43.00	(\$15.05)	\$ 27.95	
			<b>Total to date as of 2000.12.31</b>			<b>\$ 721.00</b>	<b>(\$252.35)</b>	<b>\$ 468.65</b>	
			<b>Payment to CB @ 2001.02.20</b>						<b>\$ 468.65</b>
			<b>Balance due</b>					<b>\$ 0.00</b>	

### Publication purchases from CB, 2000-2001 (CANADA)

Date	CIE Inv.	CIE Code	Title of Publication	Qty	Unit Cost (Euro)	Total Cost (Euro)	Discount (Euro)	Running Total (Euro)	Payments (Euro)
2000.12.31	Forward							\$ -	
2001.02.07	033/NC	D008-1995	Computer program to calculate CRIs	1	\$ 34.00	\$ 34.00	(\$11.90)	\$ 22.10	
2001.03.15	077/NC	D008-1995	Computer program to calculate CRIs	1	\$ 34.00	\$ 34.00	(\$11.90)	\$ 22.10	
2001.05.10	123/NC	141-2001	Test of supplementary systems of photometry	2	\$ 71.00	\$ 142.00	(\$49.70)	\$ 92.30	
2001.08.08	233/NC	142-2001	Imp. to industrial colour-difference evaluation	2	\$ 37.00	\$ 74.00	(\$25.90)	\$ 48.10	
"	"	143-2001	Colour vision requirements for Transport	2	\$ 52.00	\$ 104.00	(\$36.40)	\$ 67.60	
"	"	54.2-2001	Retroreflection: Definition & Measurement	2	\$ 59.00	\$ 118.00	(\$41.30)	\$ 76.70	
2001.08.27	273/NC	S008-2001	Lighting of indoor work places	2	\$ 43.00	\$ 86.00	(\$30.10)	\$ 55.90	
2001.09.27	305/NC	53-1982	Radiometers & photometers	1	\$ 48.00	\$ 48.00	(\$16.80)	\$ 31.20	
			<b>Total to date as of 2001.10.31</b>			<b>\$ 640.00</b>	<b>(\$224.00)</b>	<b>\$ 416.00</b>	
			<b>Payment to CB</b>						<b>\$ -</b>
			<b>Balance due as of 2001.10.31</b>					<b>\$ 416.00</b>	<b>(Euro)</b>



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## **APPENDIX G**

### **CNC/CIE 46th Annual Meeting**

2001-November-16

### **CNC/CIE Members and Advisory Members**



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## CNC/CIE MEMBERS

<u>CNC/CIE</u>			<u>TERM (expiry)</u>	<u>CIE</u>
President	S.M. McFadden	Ontario	2003-12-31	Division 1
Vice President	W.K. Adrian	Ontario	2002-12-31	Division 4
Secretary/Treasurer	A.A. Gaertner	Ontario	2001-12-31	
Publications	K.F. Lin	Ontario	2004-12-31	
	R. Baribeau	Ontario	2002-12-31	Division 8
	J.A. Love	Alberta	2002-12-31	
	I.C. Pasini	Ontario	2002-12-31	Division 3
	J.D. Yvon Deslauriers	Ontario	2003-12-31	Division 6
	J.B. Roberge	Québec	2003-12-31	Division 5, Finance Com.
	Ralph A. Smith	New Brunswick	2001-12-31	
	Lorne A. Whitehead	British Columbia	2004-12-31	
	J.C. Zwinkels	Ontario	2002-12-31	Division 2
<i>ex officio</i>	A.R. Robertson	Ontario		NRC/INMS Member

## CNC/CIE ADVISORY MEMBERS

Eduard Alf	Ontario	J. Bruce McArthur	Ontario
Ian Ashdown	British Columbia	Donald B. McIntyre	Ontario
M.G. Bassett	Ontario	S.W. McKnight	Ontario
J.(Joe) Bastianpillai	Ontario	Arthur H. Mendel	Québec
Mario Bucci	Ontario	Guy Newsham	Ontario
J. Allyson Chrysler	Ontario	Keith Niall	Ontario
Vince Cimino	Ontario	T. Nilsson	P.E.I.
W.B. Cowan	Ontario	Pascale Reinhardt	Ontario
Biman Das	Nova Scotia	Tim M. Richardson	Ontario
R.V. Day	Ontario	Mankajee Shrestha	Ontario
R.B. Gibbons	Ontario	Andrew D. Silbiger	Ontario
Byron Jordan	Québec	Nikolay Stoev	Ontario
Roy Kaufmann	British Columbia	Eli Szamosi	Ontario
S.M. Kaye	Manitoba	B.W. Tansley	Ontario
A. Ketvirtis	Ontario	D.K. Tiller	Ontario
Barbara Kolesnik	Ontario	M.K. Timmings	Ontario
Jacques Lacasse	Québec	R. Topalova	Ontario
R. Lakowski	British Columbia	J.A. Veitch	Ontario
André Laperrière	Québec	James G. White	Ontario
Brian Liddy	Ontario	R.W. White	Québec
(Ken Loach)	Ontario	Ernest Wotton	Ontario
P. Manning	Nova Scotia		

( ) = requires CNC/CIE appointment at annual meeting of 2001-November-16.

2001-November-08





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## **APPENDIX H**

### **CNC/CIE 46th Annual Meeting**

2001-November-16

### **Report on CIE General Assembly Meeting**

**Istanbul, Turkey**

**2001-September-08**

21.Sept. 2001

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## Report on the CIE General Assembly Meeting Istanbul, Turkey September 8, 2001 at the Feryje Cultural Center

The president of the CIE, H.A. Löfberg, Sweden, opened the meeting at 9:15 with 26 countries represented. He honoured and commemorated those colleagues who passed away in the last two years.

No changes to the 16 point agenda had been proposed, and also the minutes of the last meeting in Warsaw, Poland, had been accepted with no corrections.

The report of the president had been mailed in advance and there was no need to read it to the assembly. The most essential issues contained in the Reports of the Vice-Presidents and further BA Officers F. Hengstberger, S.A. are mentioned here. F. Hengstberger, S.A., announced that proceedings, such as of the Warsaw meeting and the "Symposium 75 years of Photometry", are now available on disc. The strategic direction is towards a trademark of the CIE logo and transfer of publications.

VP Technical W. Julian, Australia, mentioned successful Symposia in Div. 2 and Div. 8, and a Symposium on Signals to be held in October 2002 at the NRC in Canada.

W. van Bommel, NL, designated President for the quadrenium 2003-2007, described a layout of public activities of the CIE with the focus on the dissemination and relay of publications to lighting magazines and the support of Symposia. He stressed that Websites of National Committees and Divisions should be linked to the CIE Homepage.

H.S. Mamak, India, urged the Assembly to bring over meetings and other CIE related events to developing countries, that would open gates. He mentioned the great importance the CIE-quadrenial conference held in New Delhi 1995 had on the lighting development.

In the education section J. Schanda, Hungary, requested a concerted action without offering a firm program, and J. Bastie, France, had no chance to promote Research as there are no CIE-funds to do so. No discussion arose on education and research.

In contrast to previous meetings the finances of the CIE are now in a more pleasant stage, and in the years 1999 and 2000 the budget could be moved out of "the red".

However the surplus will not be able to be continued as more administration cost will occur in 2002 and on.

Thanks to the great engagement and efforts of the finance committee, a new system for the calculation of the fees to be paid by the different countries could be established which was accepted in principle by the assembly. I was glad for the guidance received by Dr. J. Jorjani of the NRC-ICSU and International Relations to the point of financial security of Canada till 2003. As no higher fees were asked by the CIE, this point passed smoothly. The assembly voted to keep the 0.75% base as opposed to 0.85%, which would not have changed much. No majority was achieved for the newly proposed formula for the CIE coefficients  $U_{CIE} = U_{UN} - 10(U_{UN}/25)^2$  in the

first run (see attached diagram). The treasurer however, supported by the president, desperately pressed the delegates to accept the smooth curve as it constitutes in their opinion a fairer solution to the member-countries. Finally it was accepted. For Canada it does not make a significant difference with regard to the fees.

The slate of officers for the 2003-2007 quadrenium was accepted as proposed. The number of Vice presidents was increased to four to accommodate D. Sliney, USA. As to my own knowledge and experience of the CIE I welcome that proposal, and I am confident that the addition of D. Sliney will be very advantageous to the future of the CIE.

A sad chapter dealt with the expulsion or suspension of member countries. No representative of Pakistan had been present to explain the financial situation. This led to the expulsion of Pakistan as no dues had been paid in the last two years. Different to that was the case of the Czech-Republic. The representative of the National Committee of that country made a desperate plea to the assembly for patience. They have made financial contributions which fell short to balance their budget but will try to do so within 6 months. The assembly agreed to extend the deadline to July 2002, which I supported with my vote. From my experience in Division 4, "Light and Signalling in Transport" I can say, that the representative of the Czech-Republic made valuable contributions, and it would be regrettable to lose such a member.

Time and place for the next General Assembly will be in 2003 at the CIE meeting in San Diego, CA, USA. In 2002 there will be a Division 4 & 5 meeting in Torino, Italy, as was held in Toronto in 2000. After San Diego an invitation of Spain, to hold the Division meeting in 2004, to possibly León, has been received.

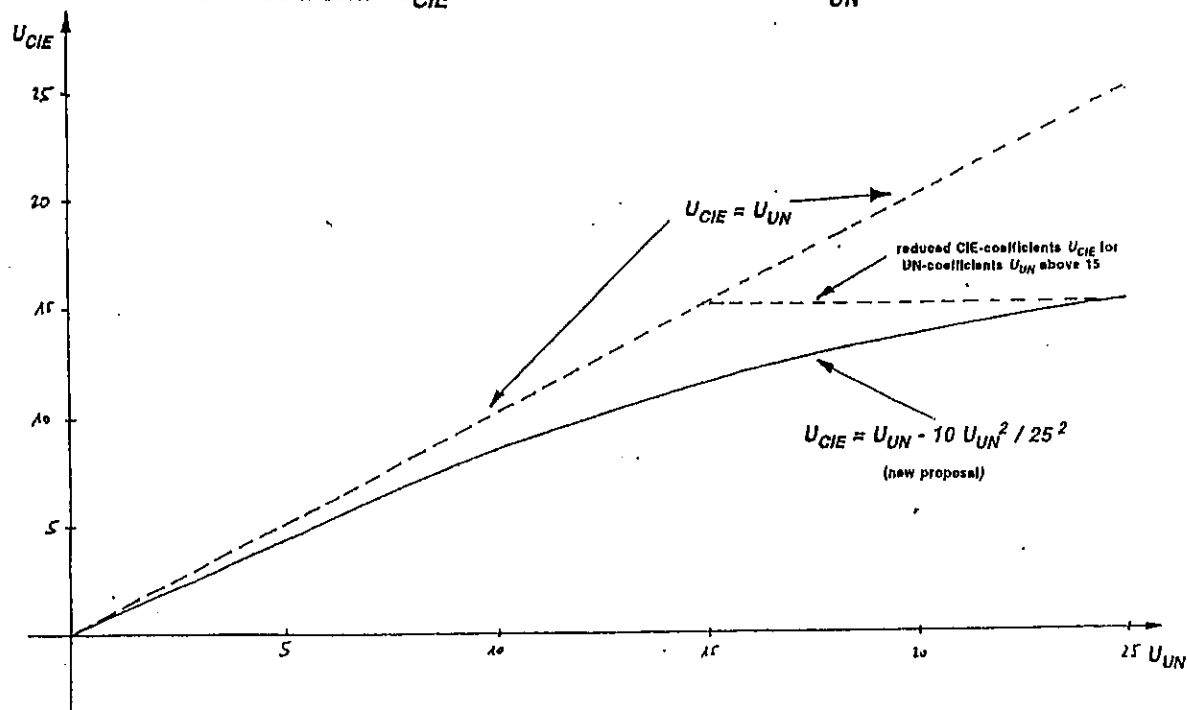
At the end the issue of CIE-Awards was raised and found moderate support by the assembly. It seemed to be a more politically motivated issue and is not strongly related to the contributions made to the CIE,

The president closed the in general successful meeting of the General Assembly in the late afternoon.

# **Proposed Slate of Officers for the 2003 - 2007 quadrennium**

President-Elect 2001-2003 and President 2003-2007	W. van Bommel	Netherlands
Past-President	H. A. Löfberg	Sweden
Vice-President Publications	F. Hengstberger	South Africa
Vice-President Technical	W. Julian	Australia
Vice-President	J. Bastie	France
Vice-President	H. S. Mamak	India
Vice-President	K. Sagawa	Japan
Vice-President	D. Sliney	USA
Secretary	J. Schanda	Hungary
Treasurer	M. Seidl	Germany

CIE-coefficients  $U_{CIE}$  in relation to UN-coefficients  $U_{UN}$







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## **APPENDIX I**

### **CNC/CIE 46th Annual Meeting**

2001-November-16

### **Lighting Education In Canada**

**Rados Topalova**

## **Lighting Education in Canada**

### **Report for CNC/CIE Annual Meeting 2001**

The necessity to establish lighting academic education in Canada was recognized during the discussion, initiated by the CNC/CIE President Sharon McFadden at the CNC/CIE Annual meeting on October 15, 2000. A working group was formed to encourage that matter.

As a member of that working group I am sending a summary of the status and main ideas for advancing lighting education in Canada. They are synthesized on the basis of my many years of University experience as Associate Professor, teaching graduate and undergraduate courses and supervising Masters' Degree projects in Lighting and Visual Ergonomics. They also reflect my personal impressions and conclusions, from my research work at the University of Waterloo, and my assistance in developing the IESNA educational materials for ED150 and the Certificate Lighting Program at Ryerson University. Some issues that occurred from formal interviews and informal discussions with colleagues, lighting professionals and authorities from University, CIE and IESNA are also incorporated.

The goal of the paper is to draw the attention to this important topic, and through the review and suggestions from the working group members and all CNC/CIE members, to help design a successful CNC/CIE strategy for building a solid academic lighting education in Canada.

### **I. Status of the Lighting Education in Canada**

The research in the university programs across Canada found:

**1. At the moment there is no University in Canada that provides formal academic lighting education at graduate or undergraduate level.**

As an exception, a higher academic knowledge in Lighting could be acquired only if an university professor has a personal scientific interest in Lighting and opportunity to supervise graduate students from closely related programs such as Optometry, Systems Design, Architecture. However, since an academic lighting education does not exist in Canada there are a few, close to non number of scholars with such interests.

**2. There is not a program that offers a specialization in lighting** during other basic graduate or undergraduate education, such as architecture, interior design, civil engineering, electrical engineering, system design engineering.

**3. The first evening Certified Program** is running at Continuing Education at Ryerson University, Toronto. Through six courses it provides a basic lighting knowledge for practical application to designers in architecture, interior design, landscape, engineering. The idea had been launched around six years ago, the initial course Lighting Fundamentals had been offered in Fall of 1998 and in June this year the first five Certificates in Lighting were awarded.

**4. Training courses in Lighting** are provided by some lighting manufacturers, such as OSRAM SYLVANIA LTD in Mississauga, Ontario. It offers two 3-days courses:

1. Lighting Essentials, and
2. Lighting Design and Application

These course give a fundamental understanding of lighting concepts and initial knowledge of lighting design process. They usually accent more on the manufacturers' products, then on the lighting design knowledge.

**5.** Some lighting topics are included in seminars and elective courses in arts, photography, visual arts, interior design and architecture.

The idea for academic education is shared by many Chairs and Directors of University Schools and Departments. I interviewed five at the University of Waterloo.

However, the first step of launching of a regular educational program meets a closed circle: the lighting education is not in the University Program; to be offered a program with teaching courses should be developed; for that purpose lighting scholars are needed; they are not among the existing faculty; funds are needed for hiring of outstanding external lighting scholars; the funds that educational subunits usually received go for well designed and defended proposals by the existed core program leaders; they see the "not born yet" lighting program only as a competitor, that will still their support funds from grants and sponsors. Without supporting advocates among the faculty the idea for launching a lighting program dies before its initial start.

The existing lighting courses, leading or not to Certificate, provide basic information for lighting products and their applications in the design process. They are good for starting designers, technicians and lighting product selling staff. These practical courses fulfill their goals, by providing entry level knowledge and assuring additional income and heightening the image of the educational sub-units. Following that, it is less likely to expect that satisfied providers would share and take the initiative for high level academic program. There is even room for competitors concerns towards its creation.

Two times during informal conversations with respectful lighting professionals I heard the opinion that Canada, having a population almost ten times smaller then the US does not need an academic lighting education.

## II. Concepts for advancing the Lighting Education in Canada

This survey of the U.S. and Canadian Lighting Programs for the Residential, Commercial and Industrial Sectors reveals that lighting education and design in North America is performed mostly by professionals with architectural and artistic education. That paved the road for effective architectural lighting solutions, with artistic colorful design. However, without or restricted calculations of the lighting quality, the trait of not ergonomically designed lighting applications is very strong.

In Europe the leaders in lighting are diploma lighting engineers with electrical or civil engineering background. They usually have strong mathematical knowledge and work in an interactive mode with the leading project architect. The education in lighting is provided in the electrical and civil engineering faculties.

### **CNC is recommended to:**

**1.** Discuss and define the *direction of lighting academic education in Canada*:

To follow the European model, the United States model, or create a hybrid model.

Most likely the best solution would be a *Masters' Program in Lighting Education* for Graduates of Engineering, Arts, and Architecture.

**2.** Work for creating a dedicated *Fund for Academic Lighting Education*, incorporating Government, Provincial, and private contributions from leading lighting manufacturers, foundation grants, and other sources.

**3.** Establish a *Canadian Educational Standard for Admission to Lighting Designer* in Architecture and Engineering - CNC/CIE requirements

**4.** Establish an *Exchange Program* with European and United States universities

**5.** Establish Canadian sponsorship for *Online Education* supplemented with a one week seminar that includes workshops, laboratory experiments, and field surveys.



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## **APPENDIX J**

### **CNC/CIE 46th Annual Meeting**

2001-November-16

#### **Lighting Education**

**Andrew Silbiger**

## LIGHTING EDUCATION

Report prepared for CNC/CIE

November 16<sup>th</sup>, 2001

1) Joe Bastianpallai, Barbara Kolesnik and Andrew Silbiger met with Gerry Cornwall (Education Program Manager for the IES Toronto Section) on October 16<sup>th</sup>, 2001

Gerry Cornwall outlined the Lighting Design course put on by Ryerson University. It consists of 7 semesters, 7 half credits leading to a Ryerson Certificate.

We then discussed other lighting courses that may be available in Canada.

University of Toronto - no longer gives any lighting courses

NAT - gives a course

University of Calgary - may give a course

UBC - may give a course

IES runs a technical program

Ryerson course is geared towards Interior Designers and Architects and is much more detailed than the IES courses. It has a Canadian focus.

Getting LC into Canada may have legal problems (PEO etc.). Will LC be recognized in Canada?

Can Ryerson course be upgraded to a degree course?

The various faculties - Architecture, Civil, Electrical, etc, must support the program.

When the program gets to a day course, then it could be expanded.

In order to get lighting as a degree course we need to get PEO on board.

The Ryerson course is nearly self-supporting

b) Andrew Silbiger and Gerry Cornwall (Lighting Design Certificate program coordinator) attended the steering committee meeting of the Ryerson Centre for Lighting Research and Design on November 9<sup>th</sup>, 2001

We outlined the interests that have been expressed by CNC in education in lighting in Canada.

The Ryerson Lighting Design certificate program is a postgraduate, continuing education, type course. It had 5 graduates this June all of which took the LC examination.

They are working on linkages with the faculties of Civil and Electrical Engineering.

Prepared by Andrew Silbiger



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## **Canadian Division Members' Reports**

### **CNC/CIE 46th Annual Meeting**

2001-November-16

#### **CIE Division 1**

#### **Vision and Colour**

## **Division 1: Vision and Colour Report to CNC/CIE 46th Annual Meeting**

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Defence and Civil Institute of Environmental Medicine  
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The annual meeting of Division 1 was held 22-23 June in Rochester, New York in conjunction with the AIC 2001 meeting. Eleven nations were represented. S. McFadden and A. Robertson represented Canada. Nine Technical Committees (TC) met in conjunction with the Division 1 meeting: TC1-27 Specification of Colour Appearance for Reflective Media and Self-Luminous Display Comparison (P. Alessi), TC1-37 Supplementary Systems of Photometry (K. Sagawa), TC1-38 Compatibility of Tabular Data for Computational Purposes (C. S. McCamy), TC1-42 Colour Appearance in Peripheral Vision (M. Ayama), TC1-44 Practical Daylight Sources for Colorimetry (R. Hirschler), TC1-48 Revision of CIE Document 15.2 Colorimetry (J. Schanda), TC1-56 Improved Colour Matching Functions (M. Brill), TC1-57 Standards in Colorimetry (A. Robertson), and TC1-59 Standard Photometric 10° Observer (J. Schanda).

### **Highlights**

Three TCs, TC1-21, TC1-47, and TC1-51 and four Reporterships, R1-03, R1-06, R1-18, and R1-25 were closed and two TCs, TC1-60 (formerly R1-22), and TC1-61 and two Reporterships, R1-27 and R1-28, were initiated. Highlights of Division 1 activities over the past year include:

1. New publications:
  - a. 51.2 A Method for Assessing the Quality of Daylight Simulators for Colorimetry (TC1-45) - a combination of CIE 51, 1981 + CIE 135/3, 1999
  - b. Testing of Supplementary Systems of Photometry (TC1-21)
2. In printing process:
  - a. TC1-47 Improvement to Industrial Colour Difference Evaluation
  - b. TC1-19 Report on the Correlation of Models for Vision and Visual Performance (needs some revision)
3. In ballot:
  - a. DS 012.1/E Standard method of assessing the spectral quality of daylight simulators for visual appraisal and measurement of color (TC1-53)
  - b. Lighting Terminology: Section 2 and 3 (R1-15)
  - c. TC1-50 CIE Equations for Disability Glare

### **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 Activity Report for 2001, a draft of the minutes from the 2001 meeting, and my notes. The complete Activity Report is available in PDF format on request.



## **Progress in Vision Section**

TC1-19 Specification of visibility for real tasks: The report from this TC was submitted to ballot. There was one negative vote. Dr Halonen has addressed most of the requests for revision. The more serious comments have been sent to the chair, Dr. Adrian, to be addressed.

TC1-21 Testing of supplementary systems of photometry: A final report has been published and the TC closed. The recommended method is currently being evaluated in TC1-37.

TC1-26 Individual variation in heterochromatic brightness matching: The chair has drafted a report that presents different heterochromatic brightness matching data sets and the results of the analyses of these data.

TC1-30 Luminous efficiency functions: The acting chair, Y Nakano, has not been able get responses from the committee members. The report should categorized all existing functions and explain how they should be used. It is almost complete except for the issue of interpolation. Although interpolation is within the terms of reference of the TC, it was recommended that the committee should simplify their task by just listing the data and stating that interpolation should follow CIE guidelines.

TC1-36 Fundamental chromaticity diagram with physiologically significant axes: The TC voted to agree on Stockman and Sharpe fundamentals. The 10° fundamentals are a linear transformation of Stiles & Burch; the 2° fundamentals are reconstructed from the 10° and are not far from Stiles & Burch, but they are difference from the CIE fundamentals. Issues still under discussion include should the tables be in energy and linear scale, wavelength interval, the number of significant digits of the matrix, to which luminous efficiency function should the fundamentals be weighted, analytical expressions of the change of macular pigmentation, the change of cone effective optical density with field size, and a table of the lens component that is modified with age. The report may be split in two parts, 1) the numbers and 2) those things that can be derived from the numbers.

TC1-37 Supplementary system of photometry: This TC met at Rochester and discussed the activities of the committee. The plan is to prepare a report on a proposed photometric system for brightness at any level including the mesopic range. After comments are received this will be published as a technical report.

TC1-41 Extension of  $V_m(\lambda)$  beyond 830 nm: The terms of reference of this TC were changed at the last meeting. The new terms of reference are to write a report on the feasibility of extending the  $V_M(\lambda)$  function beyond 830 nm, and the possible amendment of  $V_M(\lambda)$  on the long wavelength side. A report was sent by the chairman indicating a problem with the definition of  $V_M(\lambda)$  and suggesting a derivative of  $V_{10}(\lambda)$  instead.

TC1-42 Colour appearance in peripheral vision: Two of the committee members presented data from their experiments on the measurement of unique hues in the periphery. From their analysis they were able to draw a colour zone map for the unique hues. The chair said it would

be necessary to collect a little more data and then it would be possible to prepare a final report.

TC1-46 Concept and application of equivalent luminance: A first draft of a technical report was prepared and distributed. The chair received some comments from members and will now prepare the next draft. However progress is slow.

TC1-50 Disability glare formula: The technical report of this committee is under ballot.

TC1-51 Visual acuity: The purpose of this TC was to write a technical report to provide, on the basis of data collected from the literature, standard functions on visual acuity, defined by the Landolt-ring, as a function of luminance, contrast, presentation time, age, and colour. It has been closed.

TC1-54 Age-related changes of visual responses: Its purpose is to establish luminous efficiency, visual acuity, and contrast sensitivity data as a function of age. Two data sets, one of contrast sensitivity and one of visual acuity as a function of age, were presented at the meeting.

TC1-58 Visual performance in the mesopic range: This TC was established in 2000. Its terms of reference are to:

1. define visual performance and related terms,
2. investigate performance based photometry and colorimetry in the low photopic to scotopic region, and
3. investigate and establish a relationship between performance and equivalent luminance.

To date there has been no report.

TC1-59 Standard photometric 10° observer: This TC was also established in 2000. Its terms of reference are to adopt the CIE  $V_{10}(\lambda)$  as the spectral efficiency function of the standard photometric 10° observer. The TC met at Rochester and began discussions on an outline of the report and distributed the tasks of writing different sections. One open question remained - why was the official request to the CIE to adopt  $V_{10}(\lambda)$  turned down last time. There was also a question as to whether the TC had done any work to see if luminances are additive with this function.

R1-03 Engineering applications of brightness scales: Closed.

R1-06 Transient adaptation: Closed.

R1-16 Visual adaptation to complex luminance distribution: A poster on this topic was presented at AIC Color 2001.

R1-19 Specification on individual variation in heterochromatic matching: The reporter stated that there are two major causes of individual variation in heterochromatic brightness matching:

1. contribution of chromatic channels to brightness,
2. optical density of the ocular media.

The reporter suggested measuring heterochromatic brightness matching (HBM) and heterochromatic flicker photometry (HFP) with a reference stimulus of white and two test stimuli of blue and red primaries to determine the brightness to luminance ratio and to estimate the optical density of the ocular media for individuals. The aim is to complete this work in one year.

R1-22 Contrast sensitivity function for detection and discrimination: A report was presented at this meeting suggesting a new TC with the title Contrast sensitivity function (CSF) of human vision.

R1-23 Guidelines for planning a mesopic photometry investigation: A report was presented at the meeting. Some important considerations that were addressed were the best method to present the data in order to assess their validity, the properties of a reference stimulus of a complex power distribution, the choice of the reference stimulus, and the range of test stimuli to be used.

R1-27 Measurement of pupil diameter: The purpose of this reportship is to examine the reported variation in pupil diameter with both scotopic and photopic luminance. No report was received.

### **Progress in Colour Section**

TC1-27 Specification of colour appearance for reflective media and self luminous display comparison: The TC met at Rochester. The TC has performed its final experiments featuring hardcopy/softcopy image comparisons to evaluate various colour appearance models under different viewing conditions for both media. The first experiment featured reflection prints in a room with CIE D50 simulators at 70cd/m<sup>2</sup> and a self-luminous display with a 9300K white point, also at 70cd/m<sup>2</sup>. Thirty observers performed psychophysical memory matching, forced choice, paired comparison experiments comparing softcopy images from nine colour appearance models to the illuminated reflection prints of 4 scenes. For all scenes, the Duncan significance test showed that the Bradford chromatic adaptation model, including the D partial adaptation factor along with the CIECAM97s colour appearance model outperformed all other models. This suggests that for cross media image comparisons where viewing conditions differ only in chromaticity, a chromatic adaptation model is sufficient. A colour appearance model, like CIECAM97s, is overkill, especially since it is only being used for its chromatic adaptation portion.

The second experiment featured reflection prints in a booth with CIE D50 simulators at 600cd/m<sup>2</sup> and a self-luminous display with a 9300K white point at 70cd/m<sup>2</sup>. Using the same paradigm, thirty observers compared softcopy images from seven colour appearance models to the illuminated reflection prints of 4 scenes. For four out of the six scenes, RLAB and LLAB outperformed all other colour appearance models, including two revisions to CIECAM97s: one from Fairchild and one from Li and Luo. This is a surprising result; the reason for which is not immediately obvious. For the two remaining scenes, the three CIECAM97s versions were the top performers. All 3 CIECAM97s versions performed similarly. CIE TC8-01 has

been informed of the surprising findings that RLAB & LLAB outperformed CIECAM97s in a situation where hardcopy and softcopy media differed in chromaticity and luminance level. CIE TC1-27 wishes to publish its findings, close the TC, and transfer the work over to CIE TC8-01 for further study.

TC1-38 Compatibility of tabular data for computational purposes: This TC met in Rochester. There was discussion about the spectral interval to be recommended and the interpolation method to be used for spectral data. It was recognised that there were situations where interpolation was not practical, for example, when dealing with measurements of sources with mercury lines in their spectra. It was agreed that a mathematical procedure should be included in the report, not just a reference to a suitable text. There was also discussion on the best method of extrapolating data at the ends of the spectra. A committee draft report is expected soon.

TC1-44 Practical daylight sources for colorimetry: This TC met in Rochester. R. Luo described work, sponsored by the Society of Dyers and Colourists, in which observers scaled the colour difference of a set of metamers under six daylight simulators. The spectral power distributions of the lamps were measured using three different spectroradiometers. It was found that a lamp rated 'B' might give a smaller visual colour difference than a different lamp rated 'A' suggesting that the rating scale is not correct. There was also some evidence that the filtered tungsten daylight simulator gave the 'best' performance. It was noted that all lamps performed poorly in the UV. Further work by Patrick Chong and Calvin Lam (Hong Kong Polytechnic University) confirmed the results of Luo in the sense that in the visible range it is possible to get CIE 51 'A' rating with filtered tungsten light, and 'B' with the best fluorescent tubes, while many get only 'D' or 'E' rating. Lam also made a large number of visual tests both using the D&H Colour Rule and a set of over 50 metameric textile sample pairs under different daylight simulators.

It was agreed that the Chairman would write a draft report that would include descriptions of the data and results obtained by Luo, Chong and Lam, and also Schanda. The report would then highlight the problems found when using the CIE Document 51 method for assessing the quality of daylight simulators and suggest ways of addressing these issues. A Reporter or a new TC will be established to progress these ideas.

TC1-47 Hue and lightness correction to industrial colour difference evaluation: This TC has finished its work; a technical report has been approved and is awaiting publication. The committee was therefore disbanded.

TC1-48 Revision of CIE document 15.2 Colorimetry: This TC met in Rochester. Draft 10 of the report was circulated to committee members in May 2000 and several comments have been received. A number of issues were discussed including the definition of colour temperature, the use of other than linear interpolation to obtain one nanometer data, and the number of decimal places to quote in the different tables of data. An editorial panel will be established to give the document a final review before proceeding to the voting stages.

TC1-52 Chromatic adaptation transform: Dr. Luo had hoped to finalise this work and a draft report had been circulated to the committee members. Further transforms have been published

(CIECAT94LAB, CMCCAT2000, CATMDF) however, and these have required analysis. Luo is going to report on the performance of the new transforms and on new experimental data comparing CMCCAT2000 and CIECAT2000 (conclusions are that there is not much difference in many centers, 12 to 14, but for the majority of centers in the blue region, neither transform gives satisfactory predictions. CIECAT94 predicted a reddish hue which agrees better with visual perception.) New papers have been written and submitted to *Color Research & Application*. It is still apparent that it is not possible to distinguish between the various transforms and so the report will be modified to include all current models, but no recommendation for a single transform will be made. It was noted that Nayatani and Yano had suggested that different transforms might be a function of different experimental techniques e.g. haploscopic and magnitude estimation.

TC1-53 A standard method for assessing the quality of daylight simulators: The work of this TC is completed and awaits final voting. The only comment received so far concerns the terminology involved with fluorescence.

TC1-55 Uniform color space for industrial colour difference evaluation: This committee now has 12 members and has begun to assemble relevant visual data sets and colour spaces. Some new experiments are in progress and a methodology for performance testing is being devised.

TC1-56 Improved colour matching functions: This TC met in Rochester. Some offers of experimental work had been received and there was considerable discussion about the details of the experiments that should be performed: 2° or 10°, surround level, Maxwell or saturation matching. Saturation matching was considered preferable because Maxwell matching assumes additivity to be valid and it is this principle that is under question. A theoretical study has been accepted for publication (David Oulton) and it was suggested that a study into the effects of data variability on the calculation of colour matching functions might be performed.

TC1-57 Standards in Colorimetry: This TC was established last year. Its chair is Alan Robertson. It will prepare a series of CIE/ISO/IEC standards that describe:

1. a method for calculating CIE XYZ and x,y,
2. a uniform colour space and its associated metric,
3. a formula for industrial colour difference evaluation.

It met in Rochester and now has eight members. There was discussion as to whether to produce a separate document for each aspect of colorimetry: calculation of tristimulus values, uniform colour spaces, colour difference formula, etc. or one document covering all aspects. The former was preferred. David McDowell agreed to investigate formal liaison with ISO although it was recognised that CIE should lead in this work with ISO using the resulting documents in specific application committees. The TC members provide several ISO liaisons including ISO TC6 Paper, board and pulps, TC35 Paints and Varnishes, TC38 Textiles, TC42 Photography, TC130 Graphic technology.

R1-11 Cognitive aspects of colour: Following the report presented at the last Division meeting a paper has been written and accepted for publication in *Color Research & Application*. The reporter was urged to consider what steps might be taken to initiate further work.

R1-15 Lighting terminology: Following the Division and BA ballot, many comments were received. These were addressed by the Reporter in September 2000 and returned to the Central Bureau. The result of a further ballot is awaited. The Japanese National Committee of IEC has proposed several changes that will be considered. The vocabulary work of Division 2 is near completion and Division 1 will be asked to comment.

R1-18 The use of colour identification under various illuminance levels: The reporter reviewed 12 literature studies on categorical color measurement and recommended that a TC be established.

R1-24 Colour appearance models: Most of the progress on the evaluation and improvement of colour appearance models has been carried out by TC 8-01 in Division 8. Their goal is to make CIECAM97s useful in practical imaging situations and they have been examining possible corrections, refinements and simplifications of the model.

R1-25 Liaison with ICO/TC35: Paint and Varnishes Colorimetry: The reportership was closed and its liaison work will now contribute to TC 1-57.

R1-26 CIE Encyclopedia of Colour: Wiley have been informed that the idea of an encyclopaedia was not considered practical and the alternative concept of a series of books is being pursued.

### **Proposals for New Reporterships and Technical Committees**

Two TCs and two Reporterships were proposed.

TC1-60 Contrast Sensitivity Function (CSF) for Detection and Discrimination: The terms of reference are:

1. to specify a baseline achromatic CSF with its reference conditions and reference observer,
2. to specify CSF extensions based on discrimination thresholds as well as chromatic CSFs for both detection and discrimination.

The chair is E. Martinez-Uriegas (US) and the current members are K Sagawa (JP), L MacDonald (UK), S McFadden (CA), and K Wenzel (HU). This TC arises out of R1-22.

TC1-61 Categorical Colour Identification: The purpose is to prepare a report describing a colour categorization map for the photopic and mesopic illumination levels. The chair is T Ishida (JP). So far, there are two members, H. Yaguchi and L. Ronchi. This TC arises out of R1-18.

R1-28 Equivalent Luminance of a Flash of Light: The reporter is Denis Couzin and the terms of reference are to investigate the visibility of a flash of light.

R1-27 Colour Rendering of LED Light Sources: The reporter is P Bodrogi (HU) and the terms of reference are to document any problems associated with the use of the CIE Colour Rendering Index in assessing the lighting quality of near-white LED sources.

### **Liaisons**

Liaisons are currently established with:

- The Association International de la Couleur: The quadrennial meeting was held following the Division 1 meeting in Rochester.
- ISO/TC35 – Determination of Colour Bias of Achromatic Near White Paint Films: No report was received.
- ISO/TC38/SC1 – Textiles: Colour Fastness and Measurement: Tests for coloured textiles were referred to WG 7, colour measurement, which was to meet in Goteborg at the end of July.
- ISO/TC42 – Photography: At the last meeting, Dr. Yaguchi recommended appointing a new liaison. It was suggested that this could be done through Division 8. Division 8 indicated that their liaison was Michael Pointer ( but only for colour items).
- ISO/TC187 – Colour Notations: Since initiation, there has been no activity in this TC.
- ISO/TC6/3 – Paper, Board, and Pulp – Optical Properties: This TC met in September 2000 in Canada. The major issues discussed were revision of ISO 2469 (Measurement of diffuse reflection factor), preparation of an ISO draft standard for gloss at 20°, report of activities of the ISO/TC6 standardizing and authorized laboratories, and proposals for new work items on: D65 brightness, colour (D65/10) and transparency. The proposal on transparency was accepted.
- Comité Consultatif de Photométrie et Radiométrie, BIPM: No report.
- JTAG2: This group does not exist any more. Its replacement is the Steering Committee for Image Technology (SCIT). McDowell is the liaison. It meets twice a year – once in Geneva, and once elsewhere.

### **Next Meeting**

The 2002 meeting will be held in either August or September in Veszprém Hungary in conjunction with the AIC Colour in Textile meeting in Slovenia. It will be a joint meeting with Division 2.

### **New Officers for Division 1**

The officers of Division 1 are unchanged.

### **Canadian Participation in Division 1**

Based on the latest information available to me, Canada has representatives on 14 Technical Committees in Division 1. The Canadian representatives are W. Adrian TC1-19, W. Cowan on TC1-37, S. McFadden on TC1-19, TC1-42, and TC1-60, A. Robertson on TC1-27, TC1-38, TC1-48, TC1-56, TC1-57, and TC1-59, R. Topalova on TC1-46 and TC1-54, and J. Zwinkels on TC1-38, TC1-44, TC1-53, and TC1-57. If anyone is interested in participating in one of the TCs, especially the new ones, please contact me.



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## **Canadian Division Members' Reports**

### **CNC/CIE 46th Annual Meeting**

2001-November-16

### **CIE Division 2**

### **Physical Measurement of Light and Radiation**



**CIE DIVISION 2:  
PHYSICAL MEASUREMENT OF LIGHT AND RADIATION**

**Report to Joint CIE/US and CNC Annual Conference**

**November 16, 2001**

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The most recent CIE Division 2 meetings were held May 17-18, 2001 at NIST, Gaithersburg, USA in conjunction with the CORM'2001 meeting and the 2<sup>nd</sup> CIE Expert Symposium on LED Measurements. I attended the CIE D2 meetings and several TC meetings. The following report is a summary of the meeting highlights. The full minutes of this meeting can be found at:  
<http://cie2.nist.gov>.

**Administrative Matters**

The Division 2 officers for the 1999-2003 term are:  
Division Director – T. Goodman (UK) ; Associate Directors: N. Johnson (USA), T. G. Sauter (Germany); G. Vandermeersch (Belgium); Division Editor - J. Moore.  
Secretary: Y. Ohno (USA).

Country members: 35 ( Yugoslavia has recently been added as D2 member)

**Secretary's Report**

The official D2 site is: <http://cie2.nist.gov/>, which was most recently updated October 29, 2001. The CSIR site is no longer maintained. TC draft documents are now posted on the web-site, each with a separate PW. Email reflectors have been setup for distribution of circular, for unmoderated discussions and to facilitate virtual TC meetings.

## Editor's Report

TC 2-35 *CIE Standard for  $V(\lambda)$  and  $V'(\lambda)$*  has been revised and circulated for national committee ballot for comments; Deadline: Dec. 10, 2001.

Note: ISO Editor has changed this CIE document to list reference wavelength values in vacuum c.f. CIE D2 is more interested in standard air definition. This ISO policy will also have an impact on 15.3, *Revision of CIE Publication 15.2*; Moore has written to D1 recommending that this standard be formulated in standard air.

CIE 54.2-2001 *Retroreflection: Definition and Measurement* was published in July 2001.

Circulated for Division Ballot: (Deadline: Oct. 20, 2001)

TC 2-04 *Secondary light sources*

TC 2-22 *Luminous flux of high-pressure sodium lamps*

## Technical Committee Work in Progress

<b>TC 2-04</b>	Secondary light sources (Moore, UK)	Report has been approved by TC members. This has been restricted to tungsten lamps only so TC title has been changed to "the use of tungsten filament lamps as secondary standard sources. Report will now go to D2 members and CIE BA for voting.
<b>TC 2-16</b>	Characterization of the performance of tristimulus colorimeters (Rastello, Italy)	The TC met in Gaithersburg and discussed 6 <sup>th</sup> draft of report. An editorial WG has been formed and next draft will be sent for TC vote.
<b>TC 2-17</b>	Simulated solar radiation (D. Kockot, Germany)	No report received. DD is to contact TCC.
<b>TC 2-19</b>	Measurement of spectral coefficient of retroreflection (N. Johnson, USA)	The intercomparison is complete and report only needs final editing by D2 Editor; report will be published in CIE Collection.
<b>TC 2-23</b>	Photometry of street-lighting luminaires (G. Vandermeersch, Belg.)	The results of D4 have been published as CIE-140- 2000 and TC can now begin its work of collecting parameters to be covered in TC report. TCC asked for members from D4.

<b>TC 2-24</b>	Users guide for the selection of illuminance and luminance meters (K. Ganesha, India)	TC has completed draft of 1 <sup>st</sup> 6 chapters (out of 8). TCC hopes to complete the 2 chapters by end of June and have a virtual meeting.
<b>TC 2-25</b>	Calibration methods and photoluminescent standards for total radiance factor measurements (J. Zwinkels, Canada)	TC last met in Gaithersburg and discussed 9 <sup>th</sup> draft of the report. Discussion focussed on terminology and notation. Several action items were identified with deadline of mid July. 10 <sup>th</sup> draft is targeted for TC ballot in Fall of 2001.
<b>TC 2-28</b>	Methods of characterizing spectrophotometers (P. Clarke, UK)	The TC draft report is close to completion. The TCC is working to finalize within next few months.
<b>TC 2-29</b>	Measurement of detector linearity (T. Goodman, UK)	TCC is looking for new chairman.
<b>TC 2-30</b>	Diode array radiometry (J. Palmer, USA)	No report received. It was suggested to move this work to TC 2-51 (Austin).
<b>TC 2-32</b>	Measuring retroreflectance horizontal road markings (Hodson, USA)	The TC last met with D4 in Toronto last year. A draft report is in preparation. TC plans to meet in Budapest with D4.
<b>TC 2-35</b>	CIE Standard for $V(\lambda)$ and $V'(\lambda)$ (Mielenz, USA)	This TC is open until document has final clearance.
<b>TC 2-36</b>	Revision of CIE Publ. 54: Retroreflection (J.Rennilson, USA)	This TC is open until document has final clearance.
<b>TC 2-37</b>	Photometry using $V(\lambda)$ -corrected detectors as relative and absolute methods transfer standards (Ohno, USA)	The TCC has prepared a 6th draft and re-written sections on reference plane determination and circulated document to members. It is hoped to send next draft for TC vote.
<b>TC 2-39</b>	Geometric tolerances for colorimetry (D. Rich, USA)	TC met in Gaithersburg to discuss 3rd draft. It was decided to restructure the document: first emphasize the definition and then give the experimental justification.

<b>TC 2-40</b>	CIE standard: characterizing the performance of luminance illuminance meters (Rattunde, Germany)	Last draft of report was discussed in Warsaw; there has been little progress since then. TCC is working on next draft and plans to use e-mail reflector for TC virtual meeting.
<b>TC 2-42</b>	Colorimetry of visual displays. (C. Wall, U.K.)	TC met in Gaithersburg with new TCC to discuss 2 <sup>nd</sup> draft of report. Target of June 2001 was set for 3 <sup>rd</sup> draft and several volunteers will review the various sections of the report.
<b>TC 2-43</b>	Determination of measurement uncertainties in photometry (Sauter, Germany)	TC met in Gaithersburg. The 1 <sup>st</sup> part on uncertainty evaluation is complete, except for editing. TCC is requesting more input on practical applications. The document is planned for completion in 1 yr.
<b>TC 2-44</b>	Vocabulary Matters (Moore, UK)	This TC is responsible for D2 terms in the revision of the ILV. DD recommended that e-mail reflector be set-up for vocabulary terms; next ILV version is now being finalized.
<b>TC 2-45</b>	Measurement of LEDs- Revision of CIE 127 (Murray, USA)	TC met in Gaithersburg and discussed 3rd draft of report. There are still issues to be resolved: bandwidth, intervals, geometry and evaluation of spectral mismatch. TCC has adopted partial flux with a given opening angle and not hemispherical forward flux.
<b>TC 2-46</b>	CIE/ISO standards on LED intensity measurements (Scarangelo, USA)	TC met in Gaithersburg and discussed 4th draft of report. The major issues were: tolerances, detector head calibration, uncertainty calculations, LED test conditions and test geometry variations. Target is to complete report by 2003.
<b>TC 2-47</b>	Characterization and Calibration Methods of UV Radiometers (G. Xu, Singapore)	TC met in Gaithersburg and discussed 1st draft of report; target for completion of 2nd draft is Oct. 2001.

<b>TC 2-48</b>	Spectral responsivity measurement of detectors, radiometers, and photometers (Eppeldauer, USA)	TC met for in Gaithersburg and discussed 2 <sup>nd</sup> draft of report. TCC agreed to change scope and structure to discuss 3 types of measurements: power, radiance and irradiance. Target is to complete report in next 3 years.
<b>TC 2-49</b>	Photometry of Flashing Lights (Y. Ohno, USA)	TC met in Gaithersburg and discussed 1st draft of report. Discussion focussed on: terminology, effective intensity, and if form factor method is appropriate. TCC has requested members to collect data on real waveforms of flashing lights.
<b>TC 2-50</b>	Measurement of the LED clusters and arrays (G.Sauter, Germany)	TC had an informal meeting in Gaithersburg after the LED Symposium; many new members joined the committee.
<b>TC 2-51</b>	Calibration of diode-array spectrometers (R.Austin, USA)	TC met in Gaithersburg and discussed expanding TR to include CCD array spectroradiometers. Title of TC has been changed to "Calibration of multi-channel spectrometers"; D2 members voted in favour of change.

#### **Reporterships in Progress:**

<b>R 2-05</b> will	Visual gloss (J. Taylor, UK)	Reporter has moved out of this area; DD ask Mike Pointer (NPL) to take over this reportership.
<b>R 2-06</b>	Standardization of measuring geometry for the colorimetry of metallic paints (C. McCamy, USA)	Reporter recommends the formation of a TC; this was approved. AD is to contact McCamy to close reportership.
<b>R 2-18</b>	OIML Matters (Sauter, Germany)	No new issues at this time. It was recommended to move this reportership to a liaison; this was approved.
<b>R 2-21</b>	Use of detectors as absolute transfer standards for spectroradiometry (N. Fox, UK)	No report received; DD recommended keeping reportership open for 1 more year if action needed by D2.

<b>R 2-23</b>	ISO/CIE standards for the measurement of reflectance and transmittance (D. Rich, USA)	Reporter conducted extensive literature search. However, the original intent of this reportership was to look at the existing TC 130 report and determine feasibility of converting parts into ISO/CIE standard methods.
<b>R 2-24</b>	Classification of colour-measuring instruments (Y. Ohno, USA)	This reportership was a request from D8 to have a standardized method for classifying instruments – similar to TC 2-40. Reporter has an approach to this problem; will develop more fully for next meeting.
<b>R 2-25</b>	Liaison with IALA (I. Tutt)	Report given by Andersen. IALA is now developing a recommendation rather than a photometry standard because of the broad scope. IALA will be contacted to determine if document will be submitted as a CIE recommendation or standard.

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**\* Reports of Liaisons:**

**CCPR (Kohler)** No report received. Zwinkels reported on recent CCPR meeting in Paris; in particular, the status of various key comparisons and CMC submissions.

**ISO/ TC6 (J.Zwinkels, Canada)** The meeting of the working group (WG3) scheduled for London, Sept. 14, 2001 was cancelled because of recent terrorist attacks in N.Y. and Washington. The main issues under current discussion are the revision of ISO 2469, the limitations of the UV(D65) and UV( C) adjustment routines, the reports of ISO and CEN ballots on ISO 8254 – measurement of specular gloss: 20° gloss, and the need for a new ISO standard on determination of transmittance by diffuse reflectance measurement (transparency). There has also been considerable discussion within WG3 about Annex B of ISO 11475 regarding the correction of absolute radiance factor data of fluorescent reference standards calibrated by the standardizing laboratory for 45°/0° geometry to give results corresponding to the ISO 2469 d/0° geometry.

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**\* Proposals for 2 New Technical Committees:**

**(1) Multi-Geometry Colour Measurements of Effect Materials**

G. Roessler (Germany) as the Chairman

TR Write recommendations for the colour measurements of effect materials.

**(2) Review of IEC Documents for Colour Measurement and Management in Multimedia Systems**

J. Schanda (Hungary) as the Chairman.

TR: To review the draft documents prepared by IEC /TC100/TA2 on behalf of D2.

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**\* Proposal for 3 New Reporterships:**

**(1) Eye Safety of Light Emitting Diodes**

Reporter: T. Goodman (UK)

**(2) Field Measurements for Traffic Signals**

Reporter: C. Andersen (USA)

**(3) Evaluation of Colorimeter Spectral Responsivity**

Reporter: B. Kranicz (Hungary)

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**\* Proposal for 3 New Liaisons:**

(1) OIML (G. Sauter)

(2) IDA - International Dark Sky Association (J. Rennilson)

(3) ISO on reflectance and transmittance issues (D. Rich)

**General CIE Issues:**

There was considerable discussion of handling TC draft documents on the web-site. It was decided to have one password for all TCs but changed every 6 months. In the long-term, it is hoped to have individual passwords for each TC.

It was considered that the two CIE expert symposia on LEDs and uncertainties were very well-received and that they should be offered again. A symposium on a display-related subject will be held in 2002 in Hungary. A workshop on Uncertainty evaluation will be offered in conjunction with the CIE USNC/CNC meeting in Niagara Falls, Nov. 2001 and a CIE Symposium on Uncertainty should be held in 1 to 2 years. An LED symposium will be held in 2003 at the CIE CB.

The DD encouraged that all D2 members should also be NC members. ACTION: Each country member should review its D2 mailing list.

**Upcoming Meetings in 2002:**

NEWRAD 2001, NIST, Gaithersburg, Re-scheduled for May 20-24, 2002

**Future CIE Division 2 Meetings:**

**2002:** Date TBD in Veszprem, Hungary in conjunction with D1 and AIC Color 2002 in Maribor, Slovenia.

**2003:** June-July at San Diego, California in conjunction with CIE 25<sup>th</sup> Session.

**2004:** Possibly in Australia if NEWRAD is held there. Other proposals will be considered and decision will be made at next D2 meeting.

**Other CIE Division 2 Notes:**

Canadian participation in the work of the Division continues at a high level with the following members of Technical Committees or Liaisons:

TC 2-16	A.R. Robertson (NRC)
TC 2-25, Chairman	J.C. Zwinkels (NRC)
TC 2-28	A.R. Robertson, J.C. Zwinkels
TC 2-35	A.R. Robertson
TC 2-39	J.C. Zwinkels, B. Jordan (PAPRICAN)
TC 2-42	S. McFadden (DCIEM), R. Baribeau (NRC)
TC 2-43	A. Gaertner (NRC)
TC 2-47	L.P. Boivin (NRC), B. McArthur (AES)
TC 2-48	B. McArthur (AES)
ISO/TC6, Liaison	J.C. Zwinkels (NRC)





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## **Canadian Division Members' Reports**

### **CNC/CIE 46th Annual Meeting**

2001-November-16

### **CIE Division 3**

### **Interior Environment and Lighting Design**

## CIE DIVISION 3 ACTIVITY REPORT

Submitted by I. Pasini, Canadian Delegate to Division 3  
for the CNC/CIE Annual Meeting, Niagara Falls, Ontario, October 15-17, 2000

The most recent meeting of Division 3 was June 16 and 17 in Reykjavik, Iceland. I. Pasini could not attend but Dr. Guy Newsham of NRC/IRC attended on his behalf. The minutes of the meeting are attached. Note that these are marked 'DRAFT' as not yet approved by the Division Director, Mark Fontoynt. Minor corrections are expected, however, and the approved version will be sent out by the Secretary as soon as available.

The following reports are available from the CNC/CIE Secretary. A hard copy is available for viewing at this meeting.

R3-18 *'Influence of thermal and/or light conditions on visual expectations: A review of previous experiments'* by Catherine Laurentin and Marc Fontoynt, ENTPE, France

R3-19 *'Glare from windows'* by Marine Velds, Berlin

R3-20 *'Use of Satellite Images'* by Yasuko Koga, Kyushu University, Japan

# DRAFT

## **Division 3 Meeting of CIE, Reykjavik, Iceland Minutes of Meeting TC3-31 16 – 17 June 2001-07-06**

**Held at The Radisson SAS, Saga Hotel Reykjavik,  
at/ Hagatorg, 107 Reykjavik.**

**Sunday June 17<sup>th</sup> 2001**

The Previous day, Saturday June 16. 2001 there were meetings of TC's 3-25  
Chairman D. Dumortier, 3-33 Chairman R.. Mitanchey represented by  
Marc Fontoynont, 3-35 and 3-36 Chairman D. Dumortier.

### **Attendance**

#### **Chairman**

Marc Fontoynont -	Director Division 3
Dominique Dumortier	Divisional Director (Natural Lighting) LASH-ENTPE, France
Sueko Kanaya -	Divisional Director (Artificial Lighting) Kanazawa Institute of Technology, Japan

#### **Secretary**

Geoff Cook -	The University of Reading, UK
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Werner Osterhaus	Victoria University of Wellington, N Zealand
Dilek Enarun -	Istanbul Technical University, Turkey
Simon Simos -	University of Applied Sciences, W Switzerland
Johan van Kemenade	Philips Lighting, Netherlands
Lou Bedocs -	Thorn Lighting Ltd, UK
Masato Oki -	Ashikaga Institute of Technology, Japan
Lusa Halonen -	Technical University of Helsinki
Peter Dehoff -	Zumtobel Staff Dornbirn, Austria
Guy Newsham -	Canada
Hayden Willey -	New Zealand
Andrzej Kotlicki -	Canada
Richard Kittler -	Slovak Academy of Sciences, Slovakia
Heinrich Kramer -	Germany
Jan Ejhed -	Sweden
Allan Ottosson -	Sweden
Rados Topaliva -	New York, USA
Yosuko Koga -	Kyushu University, Japan
Rados Topalova -	Ergonomics, Lighting & Visual Science, USA
Axel Stockmar -	Germany

### **1. Opening of Meeting**

The Director thanked the organising committee of LuxEuropa for their assistance in hosting the meeting of CIE Division 3. The Division Secretary [DS] to formally write to the Chairman of the Conference.

**2 Approval of Agenda**

The Agenda was formally approved.

**3 Apologies for Absence**

Apologies for absence were received from:

Stanislav Darula, Slovakia Representative

Hans-Allan Lofberg, President, Liaison Officer ISO/C160/SC2/WG2

Jennifer Veitch, Canada Representative, Chairman TC3-34.

Ivan Pasini, Canada Representative

Yasuco Uetani, Japanese Representative, Chairman of TC3-15, 3-37.

Martin Van Ooyen, Netherlands Representative.

Kit Cuttle, New Zealand Representative.

Lorne Whithead, Canada Representative, Chairman TC3-30

Mojtaba Naavab, Chairman TC3-11, TC3-19, TC332 and TC3-11

Prof. Eliyahu Ne'eman, Israel Representative.

**4 Approval of York Meeting Minutes**

The minutes of the previous meeting of the Division in York in 2000 were approved.

**5 Division Membership changes**

The new Representative for Hong Kong is:

Mr Thomas Chan

Parsons Brinckerhoff (Asia) Ltd

23/F AIA Tower

183 Electric Road, North Point,

HONG KONG

The new representative for Germany is:

Dr Ing. Heinrich Kramer

LICHTDESIGN GmbH

Neusser Str. 27-29

50670 Köln

GERMANY

The new contact details for the Slovenia Member are:

Dipl.Ing.Boris Sovic

Drzavni zbor Republike Slovenije

Subiceva 4

SI 2000 Ljubljana

SLOVENIA

The new contact details for the Turkey Member are:

Dilek Enarun

Istanbul Technical University.

TURKEY

## 6 The Divisional Director & Associate Director's Report

### The Divisional Directors [DD] Report

The Director of the Division gave a report that focussed on the work of the TC's within the Division. There was an emphasis on the successful completion of several Reporterships. Several final reports had been received. A range of new topics were summarised and the Director gave a general call for there to be new activities within the Division. The Division was reminded of the range of different outputs that are available to disseminate the work of Technical Committees and Reporterships.

### The Divisional Director (Artificial Lighting)[DDAL] Report

The Divisional Director (Artificial Lighting) gave a report that highlighted the successful completion of the work of TC3-21. This committee has now produced an approved CIE/ISO Standard for the Lighting of Indoor Workplaces. The need for further work in the area of Overhead Glare and the finalisation of the work of TC3-01 were cited as being priority activities for the Division. (More here please Sueko, I do not have the paper concerning you report)

### The Divisional Director (Natural Lighting) [DDNL] Report

The Divisional Director (Natural Lighting) gave a report that examined the work of the TC's 3-15, 3-25, 3-36 and 3-37. The work of TC3-15 has been completed and the Division is required to consider the adoption of the new standard sky as developed by this committee. This would replace the existing CIE General Overcast Sky. In order for this to progress the Divisional Editor is required to review the final report of this TC.

The Deputy Director called for all of the measuring stations associated with the work of TC3-25 to measure zenith luminance and diffuse illuminance at one minute intervals in order to enhance the range of available data. In addition the Deputy Director called for sky luminance to be assessed in more detail in the work of this TC and in all other natural lighting studies concerned with sky measurements.

## 7 TC Chairman reports

### **TC3-01 Glare from small and large sources - Chairman H Einhorn**

The work of this committee has been affected by the sad death of the Chairman. The division committee engaged in a wide-ranging discussion on the work and output of this TC. There was some evidence that a final report had been produced and that balloting of the Division had occurred. The content of the report was considered to address glare from small and large sources although there it was unclear if the work had also addressed the assessment of glare from windows. In order to establish the nature of the work and output of this TC DDAL and Lou Bedocs agreed to investigate and report to the DD.

Action: DDAL and Lou Bedocs

DS Update: Following further communications it has been confirmed that the content of the report from TC3-01 addresses glare from large and small artificial sources. In addition it is confirmed from CIE HQ that this report, although

cleared for publication in the main collection, is awaiting a report from TC1-50 on glare formula.

**TC3-11 Daylight calculation methods - Chairman M Navvab**

A report had been received from the TC Chairman. There was discussion concerning the work of this TC. In noting that a draft final report is prepared the division committee were concerned that the opportunity to actively involve all members of the TC had not been taken. The DS was requested to contact the Chairman to ensure that this was carried out and also to remind the Chairman of the need to circulate the final report to all TC members and carry out a vote of TC members on the final text of the report.

Action: DS

**TC3-15 Sky Luminance models - Chairman Y Uetani**

The Board of Administration and Division ballot on the Draft Standard DS011.1E has been carried out and has received the necessary majority. The general comments associated with the voting have been addressed by the Chairman. The Division meeting decided that the existing standard S003/E is now superceded by this new standard.

**TC3-19 Scale Model Photometry for Interior Lighting -  
Chairman M Navvab**

A report had been received from the TC Chairman. There was discussion concerning the work of this TC. In noting that a draft final report is being prepared the division committee were concerned that the opportunity to actively involve all members of the TC had not been taken. The DS was requested to contact the Chairman to ensure that this was carried out and also to remind the Chairman of the need to circulate the final report to all TC members and carry out a vote of TC members on the final text of the report.

Action: DS

**TC3-20 Lighting and Architecture - Chairman H Kramer**

The Chairman made a presentation of the work of the TC to the division committee. This covered the wide ranging nature of the work and illustrated the psychological aspects of lighting. The TC chairman outlined the further work required to complete the report by September 2001. The division fully endorsed the need to publish the work of this TC within the main CIE collection. The division committee recognised that the proposed format is unlike the usual CIE published material. The DS was requested to contact VP Publications to obtain advice concerning publication.

Action: DS

**TC3-21 CIE/ISO Interior Lighting Standards - Chairman L Bedocs**

The Chairman gave a report of the work of the TC. This confirmed that the DS 008.3/E had been voted on and was due for release as a standard in July 2001. Comments received during the balloting have identified issues concerning the applicability of UGR at spacings other than 1:1 and colour rendering and colour appearance. The latter has been identified as an issue of concern within North America.

The Director thanked the Chairman of the TC for the work of his committee.

**TC3-22 Museum Lighting and Protection against Radiation Damage**  
**Chairman E Ne'eman.**

A report was tabled which indicated some progress in the work of this TC. The division committee requested that the DS write to the chairman asking for a copy of the draft guide circulated to TC members and also for a programme of work to provide a draft for Division balloting by early 2002.

Action: DS

**TC3-25 Co-ordination Development of the IDMP and its data**  
**Chairman D Dumortier.**

The Chairman gave a report of the work of this TC. The output of this TC is a web server that is currently operating effectively. In order to formally complete the work of this TC it was agreed that a brief final report be produced for balloting of the division in the normal way.

Action: TC Chairman

**TC3-30 Hollow Light Guides - Chairmen L Whitehead**

Dr. Kotlicki a member of the TC had been requested by the TC Chairman to give a verbal report of the work to date. This has concentrated on the production of a final report. There are, however, strong differences of opinion within the TC concerning the content of the report. The DD has been in communication with the TC Chairman and another member with a view to producing an agreed final report. The division committee require that the TC is balloted on the final report prior to any further balloting within the Division and CIE. Where the content of TC's final reports is contentious it is important that the views of all the TC members is reflected in the final report. The Division Committee require the TC Chairman to consult with all TC members and produce a report which reflects their views. It is essential that final reports are academically rigorous and offer an un-biased commentary on issues relating to light and lighting.

Action: TC Chairman

**TC3-31 Lighting for Real Spaces - Chairman D Carter**

The Chairman of the TC gave a report of the work to date. A final version of the Technical Report has been voted on by the TC and this has been circulated to the DD and DDAL for comment. This version will be modified to accommodate all comments and passed to Division Ballot in the near future with responses required by September 2001.

**TC3-32 Validation of Algorithms for Daylight Outdoors**  
**Chairman N Navvab.**

A report had been received from the TC Chairman. There was discussion concerning the work of this TC. In noting that a draft final report is being prepared the division committee were concerned that the opportunity to actively involve all members of the TC had not been taken. The DS was requested to contact the Chairman to ensure that this was carried out and also to remind the Chairman of the need to circulate the final report to all TC members and carry out a vote of TC members on the final text of the report.

Action: DS

**TC3-33 Test Cases for the Assessment of Accuracy of Lighting Computer Programmes - Chairman R Mitanchey**

The DD gave verbal report on the work of this TC. The Chairman, R Mitanchey, has resigned. The DD proposed that Fawaz Maamari be appointed to carry forward the work of this TC. This was agreed by the Division Committee and the DD to advise Fawaz Maamari of his appointment. The possibility of the terms of reference of the TC being changed was discussed. Any changes must be noted by the DD, CIE HQ informed and the Division 3 web server modified. General discussions followed concerning the availability of data from the BRE in the UK. The chairman of the TC was recommended to contact Anthony Slater at BRE.

Action: DD

**TC3-34 Protocols for describing lighting - Chairman Jennifer Veitch**

A report was tabled from the TC Chairman. Guy Newsham, a colleague of the TC Chairman, was in attendance and gave a verbal summary of the work of the TC. Progress was considerable and the final report should be ready for Divisional Ballot in 2003. This was agreed by the Divisional committee.

**TC3-35 General evaluation of discomfort glare Chairman - Kai Sorensen**

Following the resignation of the Chairman there has been no progress on the work of this TC. Following a wide ranging discussion concerning the activities of the Division with regard to Glare. It was noted that glare from windows had been considered by Reportership R3-19. Although glare from windows was not part of the work of TC3-01, this TC had examined glare from large and small sources. It was agreed that the Division did have a keen interest in work associated with glare and that two areas for further work were identified. These are glare from windows and overhead glare. Members of the division to be encouraged to support work in these areas. Werner Osterhaus a TC member from New Zealand indicated a willingness to act as a focus for overhead glare.

**TC3-36 Use of satellite images to derive daylight data.**

Chairman: D. Dumortier.

The TC Chairman gave a verbal report on the work of this TC. This gave a review of the work to date and identified the need to broaden the membership of the TC to include countries outside the EU. It was the intention of the TC to produce a CIE Standard, drawing from the report produced from Reportership R2-20. The TC is working to a completion date of 2004.

**TC3-37 Guide for the application of the CIE General Sky**

Chairman: Y. Uetani.

The work of this committee was reported by the DDNL. A draft report is under production which will address the need to provide design guidance concerning the CIE General Sky. The TC aims to complete their work in 2004.

**8 Division Reporters Reports**

**R3-02 Stage and studio lighting - K R Ackerman**

The DS gave a verbal report on the work of this Reportership. The main activity of this committee was the regular SHOWLIGHT conference. The latest



conference was held in Edinburgh on 21<sup>st</sup> to 23<sup>rd</sup> May 2001. This had been a successful event. Details are available at: [www.showlight.org.uk](http://www.showlight.org.uk)

**R3-06 Accidents and lighting - R Topalova**

The Reporter gave a verbal report of the work to date. Several difficulties had been encountered in the gathering of accurate data. As this is a key part of the work of this reportership the work could not proceed in a satisfactory manner. The Reportership was therefore closed.

**R3-10 Maintenance of indoor lighting - L Bedocs**

The Reporter gave a verbal report of the work to date. This reportership was established to monitor the feedback of comments concerning CIE Document 97. To date no major comments have been received.

**R3-13 Lighting vocabulary - C Belcher**

The Reporter has resigned. Since the Reporter is also the Division Editor there is an urgent need to make a new appointment. It was agreed that the DS write to Clay Belcher to confirm his retirement from these posts in Division 3 and also thank him for his contribution to the work of the Division.

Action: DS

**R3-15 Lighting standards - S Simos**

The Reporter gave a verbal report of the work to date. An extensive spreadsheet had recently been issued to all Division members calling for information concerning national standards and codes for lighting. All members are encouraged to complete this spreadsheet and return it to the Reporter.

**R3-16 Lighting in developing countries - R Henderson**

No report was received.

**R3-17 Calculation of utilisation factors - R Topalova**

A verbal summary of the work to date was delivered by the Reporter. The need to revise the CIE utilisation factor was explored. It was agreed that the Reporter produce a report for circulation and comment by the Division.

Action: R. Topalova

**R3-18 Thermal Environment, outdoor climate and visual preferences - C. Laurentin**

A verbal review was given by the DD. Members of the Division had not received the draft report and it was agreed that this should be re-circulated by the DS. Comments from the Division are required by September 2001.

Action: DS.

**R3-19 Glare from windows - M.Velds**

A verbal review was given by the DD. Members of the Division had not received the draft report and it was agreed that this should be re-circulated by the DS. Comments from the Division are required by September 2001.

Action: DS.

**R3 20 The use of satellite images - Y.Koga**

A final report from the work of this reportership was tabled by the Reporter. This to be circulated to members of the Division for comment by September 2001.

Action: DS

## 9 Liaison Officers Reports

### 9.1 CEC JULE Projects: Liaison Officer - Mark Fontoynt

The Liaison Officer gave a verbal report which confirmed the generally lower priority being given to lighting within the JULE Programme. Several areas associated with natural light and satellite data were, however, an active part of this programme.

### 9.2 CEN/TC169 Lighting Applications

Liaison Officer - Anthony Slater

WG1 Documents are being balloted within CEN

WG2 Progressing to a final enquiry

WG3 A draft for enquiry into photometric requirements is due for release.

WG4 A document has been released.

WG5 Work is progressing.

WG6 No report

WG7 A document which forms Part I of a CEN document has been published.

This is as CIE document 121.

WG8 A draft report is being produced.

### 9.3 International Association of Lighting Designers

Liaison Officer - Jules G Horton

No report was tabled. It was agreed that the DS contact the Liaison Officer to determine his willingness to engage in CIE activities. Should this not be forthcoming it was agreed that H. Kramer be appointed as Liaison Officer.

### 9.4 International Energy Agency

Liaison Officer - Nancy Ruck

A verbal report was delivered by the DD. The work of IEA 21 is now completed.

The IEA has called for the development of new task areas within the next year.

These tasks are associated with:

- Occupant Satisfaction
- Design Guidelines
- Validating Tools for Simulation
- Promotion of the Quality of Natural Light

The Division is encouraged to contact the DD for further information.

### 9.5 ISO/TC159/SC5/WG2 Ergonomics Physics Environment Lighting

Liaison Officer - Lou Bedocs

The Liaison Officer gave a verbal report. The draft report containing symbols for safety are out for comment. This includes the CIE recommended colours.

ISO/159/SC4/WG3:Ergonomics/Signs and Controls, Workplace and Environment. Liaison Officer - Lou Bedocs

The Liaison Officer gave a verbal report. Work is proceeding to align the work here with that of the new standard produced by TC3-21.

9.6 ISO/TC160/SC2/WG2 Glass in Buildings - Light and Energy  
Transmission - Hans Allan Löffberg  
A report was tabled confirming no new developments

9.7 ISO/TC59/SC159/SC3: Building Construction User  
Requirements  
Liaison Officer - Peter Tregenza  
No report.

9.8 WMO - Liaison Officer Peter Valco  
No report was received. It was suggested that the Liaison Officer had retired. It  
was agreed that the DS contact him to confirm this and report to the DD.  
Action: DS

#### **10 Review of Division 3 Publications**

It was noted that the Division Editor [DE] had resigned. There is an urgent need  
to appoint a new DE and members of the Division were asked to consider a  
suitable candidate. In order to carry forward the editing role it was agreed that the  
following would carry out editing duties for the following TC's.  
TC3-15 The DS; TC3-18 L. Bedocs; TC3.19 W. Osterhaus; TC3-20 DDNL and  
R. Perez; TC3-31 DD.

#### **11 Future work**

A wide ranging discussion of the division committee agreed that the following  
areas should be given priority in CIE Division 3 activities.  
Overhead glare; Glare from windows; Lighting for the elderly; Producing a  
comprehensive approach to lighting design.

##### **11.1 New Technical Committees**

No new TC's were proposed.

##### **1.3 Proposals for new reporterships**

There were no new proposals for Reporterships.

#### **12 Any Other Business**

The DDNL gave a review of addition features available on or shortly to be  
available on the Division web server.

#### **13. Date of Next Meeting**

The possibility of meeting prior to LuxPacifica in September 2002 in New Delhi  
was discussed. The DS to contact the organisers and report to the DD.



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## **Canadian Division Members' Reports**

### **CNC/CIE 46th Annual Meeting**

2001-November-16

#### **CIE Division 4**

### **Lighting and Signalling for Transport**

# **Report on the Activities of Division 4 “ Lighting and Signalling in Transport “ in the Years 2000 and 2001.**

Presented at the CIE/CNC meeting on November.16, 2001 in Niagara Falls.

Dr. W. Adrian

The Division comprises 20 active committees. Seven of these have finished their reports that are either in the voting process or are almost ready for printing. One of these reports, that on “ Lighting of Roads for Motor and Pedestrians” will be combined with the document on calculation ( TC 4-24 ).

The proposed incorporation of “ Tunnel Lighting “ to form a comprehensive handbook appears not feasible and too time consuming, and it would delay the publication of the whole Road lighting document

In Tunnel-lighting ,fortunately,a big step towards completion of the 6<sup>th</sup> Tunnel draft report has been achieved at the Toronto meeting. With 12 to 2 votes the members agreed to adopt the Lseq – method to determine the necessary luminance in the entrance zone which has been prevented before by more or less disguised commercial interests. However prior experience showed that decisions have often been overturned, and I am reluctant to make any predictions regarding a soon completion of the report. It seems that we are underway to agree on a draft that contains also the French suggestions and those of the meanwhile disclosed Dutch method. An agreement on the influence of the windscreen on the driver adaptation seems possible. The windscreen luminance was found to be between 30 and >100cd/m<sup>2</sup> which is not as high as formerly predicted. At last ,the Tunnel lighting document has no scientific hurdles to overcome any more, and the acceptance is just a matter of politics and personal interests.A meeting of a task force is planned for the end of this month in Toronto.

TC 4-26 “ Systems for measurement of photometric quantities of Road Lighting Installations “. The very active chairman G. Rossi, Italy, held a meeting in

Toronto. Due to his own developments of a mobile photometer for

dynamic data collection, a report on such systems is well underway.

- TC 4-27 “In-service visibility requirements for road markings”  
P.Walraven and K.Sørensen feel that there is a need for a CIE-publication. No meeting took place in Toronto. And nothing happened in the meantime.
- TC 4-29 This committee remains inactive as ISO-Standards on road traffic lights have been published. The development of very efficient LED's, which are best suited for traffic lights, will soon make a revision of the standards necessary.
- TC 4-31 and 4-32 “Colour Vision Standards for Transport” and “Surface Colours for Traffic Signs” are interrelated and have to be discussed together. The main experts, B.Cole, Australia, and P.Walraven, NL, were not present at the Toronto meeting. The 3<sup>rd</sup> draft of a common document has been circulated to members and international authorities in this field for final comment. The work can be considered as completed.
- TC 4-33 “Discomfort Glare in Road Lighting” The new chairman H.-J.Schmidt-Clausen, Germany, called a meeting at which the presently available descriptions of discomfort glare have been elaborately presented. Formulae exist for lighting installations and for discomfort glare by automotive head-lighting, which have very different forms. It will be attempted to find a common basis for both descriptive terms that could serve for recommendations for discomfort glare evaluation. This was also the conclusion reached at a short meeting held in Istanbul.
- TC 4-36 “Visibility Design for Roadway Lighting” This relatively new committee, chaired by R.Stark, USA, is still in the introductory phase, and a list of topics have been prepared. The list has been distributed for comment. It is expected that the Committee follows the suggestions contained in the American Standard RP-8, which was recently released.
- TC 4-37 “Roadway Lighting in Developing Countries” This committee met at the Toronto divisional meeting with H.Yerell in the chair. In principle there is no difference in the fundamentals to whatever country it applies. However it has been argued that many cases are so typical for developing countries that a separate study is recommendable. No material of substance is available yet and no progress has been made.

- TC 4-38 "Daytime requirements for roadway signs" At the Toronto meeting the chairman, T.Schnell, aggressively addressed the matter, which will be reflected in the 1<sup>st</sup> draft of a report that should be ready for the divisional meeting in Istanbul but failed to meet the deadline. However the chairman delivered an interesting paper at the Symposium on related matters.
- TC 4-40 "Requirements for retro-reflective traffic signs". The chairman, J.Rennilson, has structured the committee into four working groups to study specific issues which will form the basis of an overall report. Considerable progress has been made, and the groups seem to work very well. Another meeting took place on September 25 in Darmstadt, Germany.
- TC 4-41 "Crime and lighting" K.Painter called a meeting in Toronto. A remarkable amount of data have been collected that are presently condensed into a report that is awaited with great interest by the members of the division. How far the report has developed is not known to me.
- R 4-14 "Road lighting and accidents". B.Bijelland of Norway has compiled a great many data which are contained in a Norwegian report. The content was presented at the meeting. It will be translated into English and made available to Div.4. No further details surfaced in Istanbul.
- R 4-21 "300 mm roundel traffic lights". No committee was established yet. So far there was no necessity for such, as recommendations regarding intensities for 300 mm signals are contained in a DIN standard. However in this standard no LED light sources are foreseen. Because of their strongly directional light emission LED's show greater efficiency than Tungsten filament lamps and feature substantially longer life-times at lower maintenance requirements. The reporter was asked to continue his work and to address the application of LED's for signal lights.

Questions had been put forward to the CIE that suggested to appoint a reporter to look into the feasibility of defining a set of eye sensitivity functions in the mesopic range to allow for calculations for road lighting levels. No one seems to know that the CIE has already recommended in 1967 a set of functions for *preliminary use*. They were based partly on measurements of Smith-Kinney and interpolated curves. They proved to be not too bad as Kokoschka showed, who reinvestigated in 1970 to 74 systematically the eye sensitivity including also the influence of field size. The results suggest to adopt the  $V(\lambda)$  10° curve as initial photopic function. The mesopic sensitivity functions form the basis for the mesopic photometry system that is described in DIN 5031 Part 1 and 2 and used for 17 years. It is time that we learn it and not try to reinvent the wheel. Nothing has been discussed in Istanbul on that topic.

The divisional meeting in 2002 will be, again in conjunction with Division 5, held in Torino, Italy.

Waterloo , November 1. 2001.





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## **Canadian Division Members' Reports**

### **CNC/CIE 46th Annual Meeting**

2001-November-16

#### **CIE Division 5**

### **Exterior Lighting and Other Applications**

(CIE/USA Division 5 Member's report)

To: CIE/USA  
From: Tom Lemons – Division 5 Member  
Subject: Annual Report  
Date: November 13, 2001

Division 5 met in Istanbul on Sept. 11, 2001. J. Horvath, Div. Dir. & N. Pollard, Sec.

The following is the status of the various Technical Committees & Reporters:

TC 5-08 Lighting of Off-shore Gas and Oil Structures (H-H Bjorest chair) no USA member – There has been no progress in the past year.

TC 5-11 Practical Design Guidelines for Sports Lighting Installations for Television and Filming (G van Den Beld chair) T. Lemons USA member – There has been no progress in the last two years and the Division Director Horvath will take over the committee and complete the work.

TC 5-12 Obtrusive Light (N. Pollard chair) D. Crawford USA member. A meeting was held in Istanbul and it is expected that the report will be completed in 2002.

TC 5-13 CIE/ISO Standard for the Lighting of Exterior Working Areas (J. Horvath chair) R. Beckford USA member - This Standard is being delayed by an attempt to coordinate with a similar CEN committee about the document's format.

TC 5-14 Maintenance of Outdoor Lighting (N. Pollard chair) R. Beckford USA member – A meeting of this committee was held in Istanbul and the report should be completed in early 2002.

TC 5-15 Tolerances in Lighting Design (Dr W. Julian chair) no USA member – A report will be circulated by early 2002.

TC 5-16 Exterior Security Lighting of Private Properties (P. Schwarcz chair) D. Paulin USA member – A meeting was held in Istanbul to review the first draft and a second draft will be circulated by the end of 2001.

TC 5-17 Standardization Format for Sports Guide (T. Lemons chair and USA member) – The work of the committee is completed and will be used by TC 5-20.

TC 5-18 Practice Design Guidelines for the Lighting of Exterior Work Areas (P. Bandyopadhyay chair) P. Arumugasaamy USA member – A first draft is being completed and will be circulated by early 2002.

TC 5-19 Emergency Lighting (Dr B. Weis chair) W. Buckson USA member – The committee met earlier this year, a first draft has been completed and the committee will meet early in 2002.

TC 5-20 Guide for Sports Lighting (T. Lemons chair and USA member) The committee met in Istanbul and a first draft will be completed in 2002.

TC 5-21 City Beautification (M. Serfhanoglu Sozen chair) M. Crawford USA member – The committee met in Istanbul to review a proposed outline and two meetings are planned during the coming year to prepare the first draft.

R 5-05 Semi-cylindrical Illuminance (P. Rombauts reporter) No report yet.

R 5-07 Review of CIE Pub. # 83 (G. van den Beld reporter) The reporter recommended withdrawing this publication which was not accepted by the Division. It is recommended that it remain in print until the report by TC 5-20 is completed and a revised publication can be addressed. The Reportership was closed.

R 5-11 Modeling in Sports Lighting (T. Lemons reporter) A final report was submitted, accepted by the Division and the reportership was closed.

The next meeting of the Division will be held in Turin, Italy on Tuesday, October 1, 2002.



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## **Canadian Division Members' Reports**

### **CNC/CIE 46th Annual Meeting**

2001-November-16

### **CIE Division 6**

### **Photobiology and Photochemistry**

**CIE DIVISION 6, Photobiology and Photochemistry**  
**Report to the Canadian National Committee**  
**November, 2001**

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The last CIE Division 6 "Photobiology and Photochemistry" mid-term meeting took place as planned on September 10-11, in conjunction with the International Lighting Congress in Istanbul, Turkey. There has been no feedback yet from the Chair. This report has been drafted from the limited information available.

## **1. Division 6 "Photobiology and Photochemistry"**

Terms of Reference: To study and evaluate the effects of optical radiation on biological and photochemical systems

Director:	Dr. D. H. Sliney, US
Assistant director:	Dr. J.-P. Césarini, FR
Secretary:	Dr. A. Thompson, US
Editor:	Dr. M. L. Wolbarsht, US

Members:	There are thirty country members. The Canadian member is Yvon Deslauriers. Canada is represented in TC 6-11 and TC 6-49 with proposed membership to TCs 6-24, 6-28 and 6-48.
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## **2. Active Technical Committees**

**TC 6-08 Guidelines for Obtaining Action Spectra.** Definitions (detector, effective radiant quantities, responsivity, spectral responsivity, action spectra, threshold radiant exposure, threshold exposure period). Bunsen-Roscoe law; type of detectors; general relation between effect and irradiation; principles of obtaining action spectra; monochromatic irradiation; sources (random parameters); measurement of irradiance on the detector; measurement of the effect of irradiation. Chair: Dieter Kockott (Germany).

**TC 6-11 Systemic Effects of Optical Radiation on the Human.** To provide the CIE with a concise, summary document on the systemic effects of ocularly detected optical radiation with relevant, key scientific references. Specifically the document will introduce the controlled laboratory and clinical studies on the effects of light on human physiology, mood and behaviour. Studies on use of light therapy (ocular exposure) for clinical disorders as well as for improving human adaptation to shift work and intercontinental jet travel will be discussed. How these new findings may change future architectural lighting strategies will be considered. This document will be cross-referenced to the report from CIE "Psychological aspects of lighting" (TC 3-16), 6-16 and 6-17. Chair: Jennifer Veitch (Canada).

**TC 6-14 The "Blue Light" Hazard (BLH).** Summarise and evaluate action spectrum and threshold of BLH for the human eye. To investigate and recommend a practical protecting measure for the BLH. Chair: Kohtaro Kohmoto (Japan).

**TC 6-15 A Computerised Approach to Reflection, Transmission and Absorption Characteristics of the Human Eye.** Design a working model, for the assessment of the actual amount of radiation reaching various eye structures. Chair: David J. Lund (USA).

**TC 6-20 Phototoxicity in Domestic and Industrial Environments.** To collate information on the production and use of new substances representing potential phototoxic, photoallergic, photo carcinogenic hazard. They may be present in the working environment as powders, sprays, emulsions, and, in general, as polluting factors, or they may be administered as medicaments. The assessment of their effects needs careful consideration and may have implications on the actinic effectiveness of sources, as related, for instance, to lighting in hospitals. Chair: Jean Pierre Cesarini (France).

**TC 6-21 Low Level UV-A Cataract.** To inform the lighting engineers about the basic facts concerning eyelens cataract and, in particular, the role of exposure to the UV radiation. Particular emphasis is to be given to the controversies concerning the effects of day-after-day accumulation of small UV-A radiant exposures. Chair: David H. Sliney (USA).

**TC 6-23 Develop Generalised Action Spectra for Plant Responses to Wavebands from 280 to 1100 nm.** Extending information published in CIE-Journal by TC 6-05. Obtaining agreement on generalised (or normalised) action spectra for photosynthesis, photochromism, blue light photomorphogenic responses and other receptor responses in plants. Developing specific narrow band and broad band sensors for each of these responses. Chair: Donald T. Krizek (USA).

**TC 6-24 Sunscreen and UVA.** In view of the importance of UVA (in matter of skin premature ageing, skin carcinogenesis, immune local or systematic depression), and because of lack of existing regulations to test for UVA protection, it is proposed to extend the work of TC 6-12 (concerning UVB protection) on high protection factor (SPF) sunscreens. The goal is to arrive at an international consensus on sunscreen testing for UVA protection. Chair: Jean Pierre Cesarini (France).

**TC 6-25 The Conventional Solar Day Weighted by UV Action Spectra.** The model data published in the CIE 85-1989 document "Solar Spectral Irradiance" are convoluted with five enveloped action spectra on various effects of relevance. A comparison is also made between CIE 85-1989 data and another empirical model. Stephen Wengraitis (USA).

**TC 6-28 Standardisation of Sunscreen Testing: Method for UV-A sunscreen testing.** To develop standardised specifications for the spectral distribution of light sources used in testing sunscreens based upon the report of TC 6-12 as CIE Publication 90. Chair: Jean Pierre Cesarini (France). (This TC is working on a standard.)

**TC 6-29 UV Protective Index for Clothing.** To develop standardised methods to measure the sun protective factor of fabrics based upon realistic exposure conditions (e.g. wet and dry states). Chair: Peter Gies (Australia).

**TC 6-31 Immediate Pigment Darkening.** To develop a standardised action spectrum for IPD (after a review of contrasting published results of testing for immediate pigment darkening). Chair: Jean Pierre Cesarini (France). (This TC is working on a standard.)

**TC 6-32 Action Spectrum for Photocarcinogenesis and Connective Tissue Damage.** To develop a standardised action spectra for photocarcinogenesis and connective tissue damage. Chair: Donald Forbes (USA). (This TC is working on a standard.)

**TC 6-33 Photoimmunological Effects Mediated through the Skin.** To prepare a report on the current state of knowledge regarding the effects of UVR photo immunology aimed for the lighting engineering community. Chair: E. C. de FBA (USA).

**TC 6-35 UVR Disinfection.** To review the current status of UVR disinfection of air. This is now of great interest in locations where a new drug-resistant strain of tuberculosis has appeared. Chair: Richard L. Vincent (USA).

**TC 6-36 UVR Protective Materials Used in Shading.** To investigate the properties of materials, such as tent or awning fabrics used in solar UVR shading devices, and develop standardised methods for the testing fabrics other than clothing that are used for UVR protection. Chair: Natasha van Tonder (South Africa).

**TC 6-37 Light and Retinal Disease.** To prepare a report on the current state of knowledge regarding the alleged effects of light exposure as an etiologic factor in retinal disease. The report should be written to be understood by the lighting engineering community. Chair: David H. Sliney (USA).

**TC 6-39 UV Radiation at Lighted Environments.** To develop an evaluation method of UV radiation at lighted environments. To investigate UV spectral characteristics of filters and reflectors used for luminances, and interior environment. Chair: Kohtaro Kohmoto (Japan).

**TC 6-41 A Standardised UV-Index.** To review current UV indices and to recommend a standardised method for deriving a UV index, if this is feasible, based upon the WMO recommendations. Chair: E. C. Weatherhead (USA).

**TC 6-42 Lighting Aspects for Plant Growth in Controlled Environments.** To define the general prerequisites for growing terrestrial plants in controlled environments and the characteristics of both commercial and research facilities. To discuss the economic constraints of commercial production facilities, and the critical optical radiation parameters for successful culture. To examine the interaction of optical radiation with other environmental parameters. To identify new and current optical sources suitable for plant culture. Chair: Harald Seidlitz (Germany).

**TC 6-43 UV Water Disinfection.** To examine the state of knowledge on UV water disinfection. Chair: Viney Jain (India).

**TC 6-44 Illuminators for Treatment of Infant Hyperbilirubinemia.** To examine the state of knowledge on infant hyperbilirubinemia, and recommend the formation of a standardised action spectrum for comparative evaluation of therapy lighting. Chair: Myron L. Wolbarsht (USA).

**TC 6-45 Optical Radiation Hazard Measurements in the Workspace.** To examine the methods of measurement and the required accuracy of field instruments and broad-band meters used to measure the optical radiation hazards in the workplace. Emphasis is on UV and blue light hazards. To develop approved (recommended) methods or measurement of UV, visible and IR in the workplace. Chair: R. Angelo (USA)

**TC 6-46 Standardised Action Spectrum for UV Disinfection.** To develop a standardised action spectrum for UV disinfection; DIN, US and other published action spectra are not consistent. Chair: Edward Nardell (USA)

**TC 6-47 Photobiological Lamp Safety Standard.** To develop a standard based on the report of TC 6-38. Chair: Rolf Bergman (USA). (This TC is working on a standard.)

**TC 6-48 Typical Minimal Erythema Doses.** To propose typical minimal erythema doses for different skin types, for use in the evaluation and revision of different standards for UV-emitting appliances and in educational efforts related to the risk of UV exposure. Chair: Janusz Z. Beer (USA).

**TC 6-49 Infrared Cataract.** To evaluate current biophysical data related to infrared and heat-induced Cataractogenesis and report on the potential mechanisms - both thermal and photochemical. Chair: Myron L. Wolbarsht (USA).

**TC 6-50 Photodegradation of Pharmaceuticals.** To report on the current knowledge related to the potential photodegradation of pharmaceuticals during storage and illumination by both sunlight and artificial illuminants. Chair: Joseph Piechocki (USA).

**TC 6-51 Standardised Solar Simulator Spectral Irradiance for Sunscreen Testing.** To provide a standardised solar simulator emission spectrum for testing sunscreens. Spectral tolerance values will be provided. Chair: Robert M. Sayre (USA). (This TC is working on a standard.)

**TC 6-52 Proper Measurement of Passive UV Air Disinfection Sources.** To specify the biologically meaningful measurement distances and positions in installations of UV germicidal lamps for open, upper-air disinfection. Physical aspects of the measurement will be co-ordinated with CIE Division 2. Chair: Richard Vincent (USA)

**TC 6-53 Personal Dosimetry for UV Radiation.** To update a previous report on UV personal dosimetry. Chair: Gerda Horneck (Germany)

### 3. Technical Committee News

Newly formed TC:

**TC 6-54 Standardised Action Spectrum for Vitamin D Synthesis in Human Skin.** To evaluate the current state of knowledge in the photobiological action spectrum for general use in estimating effective exposures in humans of differing skin types. The Technical Committee will examine the impact of natural skin pigmentation, skin optics, and skin exposure area and describe the effective dose per unit of skin area that produces a given quantity of serum Vitamin D. The output will be a technical report and a standard. Chair: Michael F. Holick (USA)

The status reports of the technical committees.

**6-08 Guidelines for Obtaining Action Spectra.** Dr. Dieter Kockott, chair. The report should be in the finish stage.

**6-11 Systemic Neuroendocrine Effects of Optical Radiation on the Human.** Dr. Veitch, chair. The report on the Systemic Neuroendocrine Effects of Optical Radiation on Humans has been revised.

**6-31 Immediate Pigment Darkening** Dr. Cesarini, chair. The report should be in the finish stage.

**6-46 Proper Measurement of Passive UV Air Disinfection Sources.** Ed Nardell, chair. The report should be in the finish stage.

**6-48 Typical Minimal Erythemat Doses.** Dr. Janusz Beer, the Chair of TC 6-48 on typical minimal erythemat doses (MED), still collecting data for use in sunbed standards and related standards.

### 4. Proposals for New TC's and Reporterships.

*Action Spectra*

*Dosimetry of Light Therapy*



*Photobiological Requirements for Broad-Band Solar UV Radiometers*

*Biologically Relevant Source Terms for Outdoor Sunlight Exposure*

*Potential Health Effects Related to Indoor Illumination*

## **5. Completed Technical Committees and New Publications**

A new issue of the *CIE Collection in Photobiology and photochemistry* (CIE Publication 138-2000) is now being published and this includes the four technical committee reports from:

- TC 6-14 on the Blue Light Hazard
- TC 6-32 on the Action Spectrum for Photocarcinogenesis
- TC 6-34 on the Testing Protocols for Photocarcinogenesis Safety
- A report from a Division 6 Reporter, Angelika Anders, on the high-resolution UV erythema action spectrum obtained by a laser.

CIE Draft Standard DS 013 "International Standard Global UV Index" elaborated by TC 6-41, has been sent to Division and Board for ballot.

The draft CEE Standard on the Photobiological Safety of Lamps has been approved and is now being sent out to National Committees for voting.

### **Reportership News**

According to Division 6 records, the currently active reporterships include:

- Actinic aspects of daylight utilisation indoor
- Actinic properties of sunlamps
- Lighting in fish farming
- Reflectance of natural materials
- EGG and vigilant reactivity
- Health-related institutions or buildings and radiant exposure
- Measurement of skin colour for clinically normal and certain pathological conditions
- UVR emitting car headlamps



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

Canadian National Committee Comité National Canadien



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## **Canadian Division Members' Reports**

### **CNC/CIE 46th Annual Meeting**

2001-November-16

### **CIE Division 8**

### **Image Technology**

# **The CIE Division 8 “Image Technology” and its Activities in 2000/2001**

**Report to the CNC-CIE, November 17, 2001**

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## **1- Introduction**

The CIE Division 8 “Image Technology” had not held its annual meeting at the time of this writing and this report was worked out from the information found at the CIE Div. 8 Web site, as well as from correspondence with the various TC chairs. Furthermore, the division 8 has decided not to hold the official division meeting that was plan to take place in Scottsdale in Fall 2001. Instead, members were invited to an unofficial meeting for informal discussion of ongoing issues.

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](mailto:ciedivision8-L@vivid.colour.org).

## **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.

Domain 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/>

### **2.1 Division Officers**

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

## **2.2 Official Division Members**

CIE Division 8 has 34 member countries. Canadian Member: Réjean Baribeau

## **2.3 Liaisons**

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

CIE Division 1 (Michael Pointer)

CIE Division 2 (Y. Ohno)

AIC - Association Internationale de la Couleur

ISO/TC36: Cinematography

ISO/TC38/SC1: Textiles: Colour Fastness & Measurement

ISO/TC42: Photography (Mike Pointer)

ISO/TC61/SC5/WG1:

ISO/TC159/SC4/WG2: Ergonomics/Sign & Contr/VDU Requirements

ISO/TC187: Colour Notations

ISO/TC6/WG3: Paper Board and Pulp - Optical Properties

ISO/TC130: Graphic Technology (Danny Rich)

ISO/IEC/JTAG2: Joint Technical Advisory Group (JTAG) 2 for Imagery (Tim Kohler)

ICC -- International Colour Consortium (Tim Kohler)

CCPR - Comité Consultatif de Photométrie et Radiométrie,

BIPM

IEC/TC100 Multimedia Equipment and (Danny Rich)

ASTM/E12 Color and Appearance (Mike Pointer)

## **2.4 Publications from Division 8**

None.

## **2.5 Technical Reports**

None.

## **2.6 Technical Committees**

TC8-01: Colour Appearance Modeling for Colour Management Applications

TC8-02: Colour Difference Evaluation in Images

TC8-03: Gamut Mapping

TC8-04: Adaptation under Mixed Illumination Conditions

TC8-05: Communication of Colour Information

TC8-06: Image Technology Vocabulary

## **2.7 Reporterships**

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

R8-02 Reportership of Fluorescence (C. McCamy) –closed.

R8-03 Reportership on Potential CIE and IEC/TC100/PT61966 Interactions (H. Ikeda)

R9-04 Reportership on the Effects of Fluorescence in the Characterization of Imaging Media. (D. Rich)

## **2.8 Activity Reports**

The following activity reports are available in electronic format at the CIE Division 8 Web site:

Report from 29 September 1998 Division meeting  
Divisional Status report prepared for 24th Session of the CIE  
Report from 28 June 1999 Division meeting  
Attendees at the 28 June 1999 Division meeting  
Minutes of 10 April 2000 Division meeting  
2001 Activity Report

### **3- Technical Committees work in progress**

#### **TC8-01: Colour Appearance Modeling for Colour Management Applications**

Terms of Reference:

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

Chair: Nathan Moroney

Web site: <http://www.colour.org/tc8-01/>

There is abundant literature available from the Web site: slides, notes, published papers, guidelines, links etc. Overall there is convergence on a subset of useful simplifications and revisions of CIECAM97s. Two open issues are chromatic adaptation transform and chroma scaling. Once these issues are investigated sufficiently, the TC will begin to prepare a draft technical report.

#### **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 working interim report “Methods to Derive Colour Differences for Images” has evolved from version 3 to version 4 where new chapters on Spatial Based Metrics, Visual Color Difference Methods and Existing Experimental Data have been incorporated. It is available from the Web site (cietc802v04.pdf).

A set of test images that stick to the new Japanese standard XYZ/sRGB SCID are to be distributed between different sites for assessing their perceptibility and acceptability thresholds.

#### **TC8-03: Gamut Mapping**

Terms of Reference:

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

Chair: Jan Morovic

Web site: <http://www.colour.org/tc8-03/>

In short, the work program of this TC is:

- To review current Gamut Mapping Algorithms (GMAs).
- To provide guidelines for the evaluation of GMAs.
- To review results of GMA evaluation.
- To recommend a standard GMA, or a small number of GMAs with rules for deciding which one to use.

The survey of GMAs has been completed and a document *Survey of Gamut Mapping Algorithms* has been accepted for publication in the Journal of IS&T. A draft of it can be downloaded as a PDF file, and extracts in HTML format are available as well.

The guidelines for the evaluation of GMAs were discussed during the 6 Nov. 2000 TC meeting; the following issues were discussed: workflows, test images, how standards might be implemented, and device characterisation. Minutes from that (tc8-03-06-11-2000.pdf) are available from the Web site.

It is expected that the following organizations will conduct the experiments on gamut mapping: Derby, London College of Printing, Canon and Matsushita. Standardized instructions for experimenters are being produced which will cover: response forms, characterization procedure, gamut boundary decision. Standard transforms from ROMM RGB to XYZ and CIELAB will be provided in the form of MATLAB and C code.

This TC was to meet on Nov. 6 in Scottsdale.

#### **TC8-04: Adaptation under Mixed Illumination Conditions**

Terms of Reference:

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

Chair: Naoya Katoh

Web site: <http://www.colour.org/tc8-04/>

The work program of this TC is:

- Survey past relevant works
- Share a standard method and guideline for cross-examination
- Perform cross-examinations at different laboratories
- Publish a Report

A survey of relevant work (authors, titles, and, for some, abstracts) has been made available on the Web site.

The basic idea for the cross-examination is to show to test observers some soft copies and hard copies side by side and to find the percentage of adaptation between the two underlying illuminants for the best match. A related issue is the determination of the adapted white point (AWP) for a single media. It is agreed that CIECAM97s2 model is to be used by the members in future experiments on AWP determination. An Excel implementation of CIECAM97s2 is available on the Web site. Images have been made available for the testing and are available in sRGB format from the Web site. The committee wants to use the F11 as standard fluorescent.

For personal reasons, the two most active members were not able to perform the cross-examination experiment that were due in 2000 and it was hoped that interested workers from outside the TC would proceed with this work in 2001. At the time of this writing, no report on that work is available.

#### **TC8-05: Communication of Colour Information**

Terms of Reference:

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

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

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

Chair: Rob Buckley

Web site: <http://www.colour.org/tc8-05/>

The desire of this TC is to prepare a technical report to be drafted into a joint standard with ISO/IEC. The program of work covers three areas: Terminology, Procedures for evaluation of colour spaces, and Methods of analysis of evaluation data. Task groups are associated with each of those and are led by M. Pointer, K. Spaulding and R. Buckley respectively. A draft report on terminology and a preliminary list of criteria for evaluating large-gamut colour encoding have been made available on the Web site.

A sample evaluation, including a template and procedure, is under development. It will demonstrate the application of one of the current evaluation criteria to a set of candidate colour spaces.

The TC played a major role in the preparation and support of the Color Experts conference ( Scottsdale, November 2000) that discuss the issues involved in Communication of Colour. Proceedings are available.

This TC is trying to set a liaison with ISO/TC42 and IEC/TC100.

#### **TC8-06: Image Technology Vocabulary**

Terms of Reference:

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

Chair: Janos D. Schanda

Web site: <http://www.colour.org/tc8-06/>

The chairman has submitted parts of several terminology documents to members who are to collect terms and definitions and place them in a database. The plan is to consolidate the material through circulation to the members and feed-back to the Chairman.

### ***4- Reporterships***

Since no official Division 8 meeting took place at the time of this writing, no progress can be reported for now and the following is a recall of the terms of references.

#### **R8-01 Reportership on Grading of Color Measurement Equipment**

(Y. Ohno)

Y. Ohno had suggested that a method for colorimeter and digital camera evaluation be developed using a form of the CIE Publ. 13.3 Color Rendering Index as a test metric. He wanted to continue this reportership as he followed the use of this index for instrument evaluation in a closely related CIE Division 2 reportership.

**R8-02 Reportership on Fluorescence**

C McCamy (USA)

**Terms of Reference**

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

This reportership is now closed.

**R8-03 Reportership on potential CIE and IEC/TC100/PT61966 interactions**

H Ikeda (Japan)

**Terms of Reference**

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

**R8-04 Reportership on the Effects of Fluorescence in the Characterization of Imaging Media.**

D. Rich (USA)

The reporter is to define the issues and report on what the terms of reference and working program should be for possibly a Division 2 TC.

***5- Outside Liaison Reports***

No report has been presented at the time of this writing.