



The minutes of the Division 4 meeting in Torino, Italy, on the 28th in September 2002, 10 am - 11.30 am, and on the 2nd in October 2002, 9.30 am - 1 pm

10 NC's were represented: Czech Republic, Finland, France, Germany, Hungary, Italy, Japan, Netherlands, Great Britain and USA; altogether about 40 persons attended the meetings (appendix 1).

Saturday 28.9.2002

1. Opening of the meeting

Division director Pentti Hautala opened the Division 4 meeting with a word of welcome to all present Division members, reporters, liaisons and guests. A special word of thanks was spoken to our hosts, Giuseppe Rossi and Paolo Soardo.

Dr. Paolo Soardo also welcomed everyone present.

Giuseppe Rossi told about the arrangements of the meeting, transportation facilities on Torino etc.

2. Approval of Draft agenda

Draft agenda, which had been published in our www-pages and sent to some members earlier, was accepted as the agenda of the meeting. Only the sequence of some items were changed because some division members had problems with their travel arrangements.

3. Apologies for the absence

Division director/Division secretary had received 9 and half messages of the absence: Arve Augdal, Sermin Onaygil, Peter Chan, Marko Bizjak, Ron Simons, Norb L. Johnson, Pieter Walraven, Vladimir Ptchelin, Jim Havard and Stuart Yerrell (apologies to the first session) .

4. Approval of the executive summary of the minutes of the last division meeting in Istanbul

The last meeting was held on the 10th and 11th in September 2001 in Istanbul, Turkey. DD noticed that this summary has been published in the Division's www-pages. The summary was approved by general consensus.

5. Announcements

The Division Director read an email he had received from Ron Simons. Mr. Simons said in his email-letter that he is resigning from Division 4 and from chairmanship of TC4.15. Division Director said he hope success and happiness to Ron in the future. Meeting decided after DD:s proposal that DD will send a letter to Ron Simons.

DD told about the situation of TC 4-24; in Istanbul we decided that DD should ask Mr. Embrecht to be a new chairman of this TC. However DD had contacted Peter Blaser and asked him to be the new chairman of this TC because actually Peter has done the most of this TC:s job. The meeting agreed this decision.

6. Report by the Division director

Report is based on CIE Board of administration meeting in 11th June 2002.

6.1 CIE Session 2003: Conference

For the first time authors had the possibility to register their abstracts via the website. About 75% of the abstracts arrived in this way. About 1/3 of the abstracts will be presented orally.

The format of the session has been changed to accommodate more oral presentations. Presented papers are scheduled for the forenoon and the afternoon sessions, each with 10 minutes for the presentation and 5 minutes for the discussion.

Presented posters will be displayed at the stand during the whole Session, and short oral presentations, 5 minutes and 5 minutes for questions, will be held at a fixed time.

The Session related to the activities of Division 4 will be organised on 28th June. The programme offers a little story of traffic lighting as follows:

1. Mosser, France: Methods of diagnosis of urban lighting.
2. Fenimore, USA: Relighting of Kansas City Missouri, USA
3. Narisada, Japan: Design parameters of road lighting and distributions of revealing power.
4. Onaygil, Turkey: Comparison of the different interpolation methods used for estimating the intensity values in road lighting.
5. Hayashi, Japan: Study of intensity of illuminance required by pedestrian lighting.
6. Okada, Japan: Tunnel interior lighting and visibility of preceding cars.
7. Bazalar Vidal, Argentina: New method for characterising the reflection properties of road surfaces.
8. Andersen, USA: Development of a U.S. Standard for direct emitting traffic signal lights.

Altogether 15 posters will be presented at the stand on 27th June 14.30-15.20 and 28th June 13.20-15.20 in accordance with the final programme.

6.2. Finance of CIE

The highly positive financial result of the year 2001 was due to additional income from various symposia, the Supporting Membership of Philips, increased publications sales and a higher interest income.

The profit will be reduced as follows:

- All active TC members will get a free printed copy of new publications
- All publication prices will be reduced by 50 %. CIE can afford this only as long as the financial situation allows it.
- The long-term investments will be increased to 300 000 EUR.

6.3 Membership development

Membership development should be better.

Division 4 has a special problem. European highway authorities have lost their interest in CIE because they support CEN.

6.4. Activity reports

After the Istanbul meeting there was a misunderstanding. Activity reports as well as strategy plans will be included in the updated website.

7. Secretary's announcements

The division secretary Mr. Nurmi had some comments to make:

- He had received only very few reports prior to this meeting; only report from the editor, two liaison reports, two reports from reporters and five reports from TC-chair-

men (these reports from TC's that had also meeting in Torino). In the future the secretary wants more information so that this information can also be published in advance.

- DS told that the new mailing list ("email reflector") is now in use after some big problems. This list (cie-l@tut.fi) is open to all persons interested of the activities of DIV 4; they can join to the list and quit from the list by themselves. Precise instructions of the usage of the email list is in divisions www-pages.

-In Istanbul meeting some division members said that they had found it difficult to find the most recent information on the webpages. After Istanbul the secretary had renewed DIV 4 webpages: now the outlook of the webpages is similar to CIE "main" webpages (pages made by frames). Also on the left frame everybody can now find links to "What is new" and "DIV 4 mailing list".

- DS also told he is planning new webpages (with passwords) to publish some information that is not allowed to put in public webpages: list of TC- progress, list of all DIV 4 members with their contact information etc.....
These webpages will be published by the end of this year.

- DS told that after Istanbul meeting he found some difficulties to get TC-reports. He said that in Torino he hopes all TC-chairs give the report of TC meeting before leaving Torino, so that the minutes can be published shortly after the meeting. The division members agreed this policy by general consent.

8 a. Editors report

Since Istanbul, September 2001, the following have been published:

- Report No. 144:2001 Road Surface and Road Marking Reflection Characteristics

Proceedings:

- No. x019:2001 Proceedings of three CIE Workshops on Criteria for Road Lighting
- No. x023:2002 Proceedings of two CIE Workshops on Photometric Measurement Systems for Road Lighting Installations.

Also, from Division 1:

- Report No. 145:2002 The Correlation of Models for Vision and Visual Performance and, from Divisions 1 and 3:

CIE Collection on Glare 2000:

- Report No. 146:2002
- Report No. 147:2002

8 b. Report from Ad de Visser

Automotive

PAL symposium

At last PAL symposium (Progress in Automobile Lighting) 25,26 September 2001, a paper called "Activities of CIE relevant to automotive lighting" was presented.

TC 4-10

There are still two documents "nearly ready for publication" since many years within TC 4-10 "Automobile lighting systems". Dr. Karl Manz offered to volunteer to review these documents. Original TC4-10 files and the documents that need to be made ready for publication were however in a format that cannot be used anymore; a format update is about to be ready. Prof. Schmidt-Clausen offered to review the renewed drafts.

Reports to GTB

Regular reports to GTB regarding CIE activities that might be of interest to automotive lighting people were given. These reports include a list of TC's from division 4. Information is further from CIE News.

GTB / CIE Agreement

GTB has changed their terms of reference. As GTB was a joint working party of CIE, IEC and ISO these 'mother organisations' have been consulted. GTB is now an independent and international committee for the preparation of regulations for automotive lighting, in liaison with CIE, IEC and ISO. It should be considered whether the agreement between GTB and CIE has now automatically been terminated, or that it should be reviewed. Approval from CIE Division 4 and Board necessary.

New developments

- Adaptive Front lighting Systems (AFS) : additional modes and classes to passing (low) beam and driving (high) beam like: bend lighting mode, wet road passing beam, motorway passing beam, town passing beam; daytime running lamps. Intelligent automatic activation is included. Intelligent rear and/ or signal lighting is under study.
- Bend lighting will become available for conventional front lighting too and in advance of AFS.
- Mandatory use of Daytime Running Lights (DRL) is under discussion of the EU.
- Cornering lamps, activated at low speed and while direction indicator is activated, is being introduced in the Regulations as is already the case in for instance Japan and USA.
- Distributed Lighting Systems (DLS) for head lighting is nearly approved for introduction in the Regulations; for rear lighting proposals are made.
- A Regulation for a new and improved front fog lamp (NFF) is under development.
- A project for introduction of an ECE and USA / Canada 'harmonised' low and high beam is in a critical stage of approval or rejection by the governments.
- Signal colours for automotive lighting are nearly all harmonised between USA and ECE.
- 42V systems (as a matter of fact 3*12V) are under study of the car industry; the impact for light sources that cannot change the operating voltage and the effect to the Regulations is being investigated.
- In addition to amber coloured light sources, red coloured filament lamps are being introduced to allow the car stylists more design freedom and to compete LED's.
- In view of European Directives on environmental protection (ELV Directive) the introduction of mercury free gas discharge light sources is being prepared.

Websites

- ECE Regulations: <http://www.unece.org/trans/main/wp29/wp29regs.html>
- US FMVSS: <http://www.access.gpo.gov/>
- SAE standards (costs charged): <http://www.sae.org/servlets/index>

Standards

Draft standard TC4-16 "File format for electronic transfer of luminaire data" was produced and was sent to the editor. To the editor to report further progress.

To my personal opinion however I'm not sure whether the actual situation in the 'outside world' is such that publication should proceed.

Ad de Visser, Associate Director

Wednesday 2.10.2002

DD Pentti Hautala reopened the meeting Wednesday 2.10.2002 at 9.30 am.

9. Planning meeting 2003 in San Diego

Justin Rennilson had a PowerPoint presentation about this meeting.

Mr. Rennilson especially pointed out that it is possible to have TC meetings during whole event, also during the Conference.

SCHEDULE: Detailed schedules are available on our Web Site: www.cie-usnc.org.

	Conference					Divisional meetings		
	Wed 25 June	Thu 26 June	Fri 27 June	Sat 28 June	Sun 29 June	Mon 30 June	Tue 1 July	Wed 2 July
a.m.	GA (General Assembly)	Keynote Speaker				Divisional meetings Up to three parallel sessions		
		3 Invited Papers in Plenary Session 3 X 2 Presented Papers 3 X 5 Presented Posters in 3 Parallel Sessions						
p.m.	GA	2 Poster Sessions 3 X 2 Workshops			City Bus Tour	Technical Tours		
		TC meetings as scheduled						
Evening	Reception	Free Evening	Banquet	Harbor Cruise	Zoo Dinner	Technical Visits	Technical Visits	Closing Farewell

10. Progress Reports by TC-chairmen

Progress reports of the next TC:s were presented:

TC 4-21, TC 4-24, TC 4-36, TC 4-37, TC 4-38, TC 4-40, TC 4-41

Also TC 4-35 had a meeting in Torino, but the TC-Chair had to leave Torino before Wednesday; this report will be added to minutes (see appendices 2...6).

All these reports are as appendices of these minutes.

The rest of TC:s did not have meeting in Istanbul but there was a short discussion about the situation of these TC:s.:

TC 4-10: The situation of this TC is described in Ad de Visser's report (see item 8b).

TC 4-15: Ron Simons has resigned from the chairmanship of this TC. The report of this TC has been published as CIE publication 140-2000, but task still remaining: "Test data will be given in a separately issued report to enable programs to be verified." The meeting had a discussion whether the TC should be abolished and establish a new TC with new terms of reference or keep the same TC number. The meeting decided to keep the number of this TC and revise its terms of reference and try to find a new chairman.

TC 4-16: The situation of this TC is described in Ad de Visser's report (see item 8b). DD told this report is in his desk, only the foreword is missing. The meeting discussed whether this report should be published as CIE/ISO standard or should we skip the publication. It was decided that the report should be published as CIE/ISO standard.

TC 4-19: Alain Floris told that M. Colomb has been ill, but now she is better and she had promised to finish the report before the end of this year.

TC 4-26: Mr. Giuseppe Rossi told about the situation of this TC: The TC did not meet in Torino because the new draft of the guide was only partially supplemented and improved. The next draft will be distributed in a couple of months and discussed by e-mail. Therefore in San Diego the entire guide as a final draft could be considered.

The Proceedings of two CIE workshops on Photometric Measurement Systems for Road Lighting Installation has been published in April by CB

TC 4-27: DD read the email he has received from Pieter Walraven in June: "It is expected that the TC, by correspondence, can finish the report before the San Diego CIE Session."

TC 4-31: The work of this TC has been published (143-2001), so this TC should be officially abolished. The meeting agreed.

TC 4-32: DD read the email he has received from Pieter Walraven in June: "During the TC 4-40 meeting in Maastricht several members came together to discuss the progress. Members have contributed to the text by email. This will be implemented in the draft of the document, and discussed and voted by email. The intention is to have the report finished at the San Diego CIE Session."

TC 4-33: This TC has booked time for meeting in Torino, but apparently professor Schmidt-Clausen left Torino before the meeting time and so there was no meeting. DD sends email to Prof. Schmidt-Clausen asking the situation of this TC.

TC 4-42: This is new TC established in Istanbul meeting (chair Prof. Schmidt-Clausen). DD asked if someone has information about this TC; has the work of this TC really started, has it some members etc. DD sends email to Prof. Schmidt-Clausen asking the situation of this TC.

11. Progress Reports by Reporters

R 4-14 Road Lighting and Accidents (Carl K. Andersen)

No formal report was prepared for the meeting in Torino, Italy. While much work has been conducted in this area, the data remain difficult to collect and often of questionable accuracy. In response to requests for guidance on reducing power consumption by modifying or eliminating fixed roadway lighting, the U.S. Federal Highway Administration seeks to undertake a more comprehensive study of this issue in the near future. Within the U.S., however, each state has its own crash reporting system. Only eight (8) of the states have reporting systems that meet the Federal requirement to be placed in the Highway Safety Information System (HSIS) database, and even these states do not collect data in the same manner. For greatest accuracy, studies can use the Fatal Accident Reporting System (FARS), a Federally mandated reporting system for all fatal crashes. Use of this data across roadway types presupposes the consistency of the ratios between fatal, injury, and property-damage only crashes.

Mr. Jim Havard, in his role as Chair, Roadway Lighting Committee, IESNA, is seeking to have IES CP-31-1989, Value of Public Roadway Lighting, updated as a new IESNA Technical Manual (TM). This report will present information from studies on road lighting and accidents from around the world, as well as the most recent work on street lighting and crime.

Following the meeting in Torino, Mr. Jose Luiz Pimenta provided a synopsis of a newspaper report dated March 3, 2002 from Jornal Folha de São Paulo. This report compared the changes in numbers of pedestrian fatalities in seven (7) major Brazilian cities in June-December 2001 as compared to June-December 2000. The key issue in this comparison was that in five (5) of the cities, street lighting was reduced by 19-30% in the 2001 time period. In all five cities where lighting was reduced, the number of pedestrian fatalities increased (from 18 to 87%), while in the two (2) cities that did not reduce lighting the number of pedestrian fatalities decreased or remained nearly constant.

The reporter apologizes to the division for lack of apparent effort in this important area, and especially for lack of contact with other nations. It is hoped that a more thorough report will be available at the Quadrennial meeting in San Diego.

- R 4-21 300 mm Traffic Lights** Ad de Visser had tried to find reporter to this reportership, but no success. Carl K. Andersen volunteered to be a new reporter in this area.
- R 4-22 Use of LEDs in Visual Signalling** (Steve Jenkins) DD told that there is no report from this area; Carl Andersen asks Steve Jenkins about the situation of this reportership.
- R 4-23 Management and Maintenance of Road Lighting** Eirik Bjelland gave presentation: *"Intelligent road lighting – Light on the way"*:

Deregulation of electricity power suppliers in Europe gives new possibilities for organisation and sale of road lighting.

Norway and England were the first countries to deregulate.

Viken Nett AS (Viken) with its 575.000 net subscribers and 250.000 road lighting points has started the development of a new concept involving control and administration of road lighting in a market where the customer can buy his power independent of chosen supplier and energy stock exchange. And where power and energy control can mean savings for both highway authorities and net suppliers. Furthermore one will be able to exercise quality control and protect management functions by the use of hand held terminals linked to registers in a central database.

In Norway 15-20% of electricity consumption goes to lighting, and of this 3% is used for road lighting. The possibility of an effective management of this electrical power will enable reduced costs for net expansion. In addition the public highway authorities will be able to control lighting and ensure that defined road lighting levels are maintained.

Viken Nett AS intend, through their position as net suppliers, to introduce new and energy-efficient technology in a well arranged but conservative market where lack of incentive today is one of several barriers to progress.

The concept involves a new form of management where many of these barriers will be reduced or even eliminated, and where customer profits will be significantly increased by Viken Nett AS undertaking both investment and administrative responsibility within a given contract period.

Viken has a unique position in relation to their primary customers in the Oslo region. Further development of the concept in addition to Vikens general business development will strengthen the idea and its position in the market throughout southern Norway.

Planned activities for 2001-2003 will immediately enable an energy-saving potential of approximately 1,5 GWh per annum with a related power reduction of 0,7 MW. Anticipated side-effects of the project could give a further saving of 2 GWh per annum. An assumed 50% share of the market will enable a yearly establishment of new installations which will give 2,5GWh savings per annum.

Vikens concept is dependent on finding new ways of measuring and calculating energy consumption.

To this end Viken is developing a database where settlement of accounts for electricity will be effected by a non-numerical (electronic) meter.

The lecture will describe our system and explain methods and co-operation with highway authorities, and the areas which come under Customs and Excise.

The project is a joint venture with ENOVA Norway which is the governments ENØK (Energy-economic) institution.

Furthermore, development of intelligent solutions will require new standards for logging and data assimilation from integrated lighting systems, thereby exploiting marketing and competition between suppliers.

The idea is to change the lighting class when the amount of traffic or the environmental conditions in the road changes.

R 4-24 Definition of an Eye Sensitivity Function in the Mesopic Region to be Used for the Calculation of Road Lighting Levels Email from Pieter Walraven: There is presently enough material to make a recommendation by the reporter. This recommendation will be formulated before the Torino meeting of the Division.

R 4-25 Automotive lighting Ad de Visser gave his report on Saturday (see item 8b).

12. New R&D reports

No discussion.

13. Discussion of the new items

Peter Blaser suggested that a new TC should be established in the field of tunnel lighting measurements. Peter volunteered to be a member of this new TC. The starting time of this TC could be in the middle of next year. This TC needs also chairman and it was decided that secretary makes announcement to the webpages.

There was a proposal from Elizabeth Alvarez del Castillo: It should be established a new TC to investigate the effects of Obtrusive Light to animals, plants etc. The meeting decided that Elizabeth Alvarez del Castillo makes a short written presentation about this topic so that some decisions can be made in our next meeting in San Diego. This TC can be in DIV 4 or DIV 5.

Eirik Bjelland suggested that in San Diego there should be a workshop about the management and maintenance of road lighting. It was decided that division officers discuss about this item with our next hosts.

14. Liaison matters

The next liaison matters were discussed:

CEN/TC 226: Road Equipment Pentti Hautala

After Istanbul meeting three draft standards have been accepted in internal enquiry:

- prEN 13201-2 "Road lighting - Part 2: Performance requirements"
- prEN 13201-3 "Road lighting - Part 3: Calculation of performance"
- prEN 13201-4 "Road lighting-Part 4: Methods of measuring lighting performance"

They will be forwarded for Formal Vote to the members of CEN

Draft standards are in line with CIE recommendations.

CEN/TC 226 will have its next meeting on 17.-18.10.2002 in Dublin.

GTB Ad de Visser gave his report on Saturday (see item 8b)

Internat. Astronom. Union Elizabeth M. Alvarez del Castillo gave presentation:

(Extract from IAU Liaison report to Division 4 ;Oct. 2002 - Torino, Italy)

Priorities for Future Work by the IAU Working Group (IAUWG)

(Prepared by M. Smith, chair of the IAUWG)

The IAUWG has to be quite selective in what its individual members take on. Most of us can only work in this field as part-timers at best. Nevertheless, by careful selection of areas of work, our group members have been able to produce enormous leverage on the use of our time. We decided last March, during the conference on light pollution in La Serena, Chile

<http://www.ctio.noao.edu/~emond/lpc/lpc-presentations>

<http://www.opcc.cl>

that our priorities for new work, in addition to the ongoing work described in these web links, will be as follows:

1. Seek ways to support the production of a "Second World Atlas of the Artificial Night Sky Brightness".
2. Investigate the consequences of the International Telecommunications Union (ITU) becoming involved in the regulation of frequencies between 20 and 375THZ (15microns and 0.8 microns, the infrared and (red) optical spectrum. Seek how best to combine these initiatives with work being done by the IAU in conjunction with the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS).
3. Seek ways to monitor the artificial night sky brightness from key existing and potential observatory sites, as a complement to the modelling of satellite-based measurements.
4. Develop more quantitative experience on financial savings from the use of quality lighting in regions around key existing and potential observatory sites.
5. Extend international educational outreach programs based around light pollution - including teacher exchanges and the use of videoconferencing.

Working-group members are already active in each of these areas.

ST-3 / C 13 Road Safety (Stuart Yerrel) To be added later to the webpages.

15. Activity plan of the Division 4

DD told that he is going to send a letter to the members of division asking advice and comments for planning of strategy and long-term activities in the field of Lighting and Signalling for Transport. All members are also asked to discuss these items in their NC:s. Reply to this letter will be asked to send before the end of February 2003.

16. Planning the future meetings

2004 meeting:

Mr. Jose Luiz Pimenta from Brazil said that Rio de Janeiro should be a good place for the meeting in 2004. The decision will be made at next division meeting.

2005 meeting:

Axel Stockmar pointed out that Lux Europa is 19.9.-21.9.2005 in Berlin.

Some of division members pointed out that CIE midterm meeting is in Leon, Spain

17. Other business

Division secretary read the report made by Giuseppe Rossi **TC 4-11: High Level Matters:**

26 members of the TC met in Aosta Valley last Sunday. According to the agenda a first group (18 members) had the main meeting at Punta Helbronner (3462 m) for about 2 hours. The influence of sun and moon in the night-time lighting condition of mountain paths has been considered in reduced percentage of oxygen environments. The other group remained at 1200 m and considered the lighting conditions in a mountain village. The lunch was served in a typical mountain "baita", with a typical Aosta menu and typical Italian mishaps. In the afternoon the middle age lighting conditions in the Fenis castle had been considered.

Secretary had also PowerPoint presentation with pictures. These pictures will be added to the webpages.

18. Closure

DD closed the meeting (12.45), thanking our hosts, Giuseppe Rossi, Paolo Soardo and Paola Iacomussi about the meeting facilities.

We all are looking forward to our next meeting in San Diego.

A handwritten signature in black ink, appearing to be 'T. Nurmi', with a stylized flourish at the end.

Tapani Nurmi
Secretary, CIE DIV 4



Meeting 29th September - 2nd October 2002 in Torino, Italy

Attendees:

Tapani Nurmi	Finland	Paolo Soardo	Italy
Pentti Hautala	Finland	H.J. Schmidt-Clausen	Germany
Ad de Visser	Netherlands	Sandor Almasi	Hungary
Ton van den Brink	Netherlands	Dennis Couzin	USA
Tetsuji Takeuchi	Japan	Stuart Yerrell	UK
Alain Floris	France	Axel Stockmar	Germany
Eirik M. Bjelland	Norway	E. Alvarez del Castillo	USA
Nigel Pollard	UK	David Crawford	USA
Jaroslav Kotek	Czech Rep.	Mary Crawford	USA
Duco Schreuder	Netherlands	Richard E. Stark	USA
Kohei Narisada	Japan	Jon M. Hart	USA
Giuseppe Rossi	Italy	Carl K. Andersen	USA
Hayato Ito	Japan	D.J. Coatham	UK
Peter Blaser	Switzerland	Patrick Baldrey	UK
Jose Luiz Pimenta	Brazil	Kate Painter	UK
Robert Gent	Usa(Italy)	Pierantonio Cinzano	Italy
Henri Juslén	Finland	Holgw Kschischenk	Germany
Jozsef Horváth	Hungary	Paola Iacomussi	Italy
Larry Leetzow	USA		
Patrick Rombauts	Belgium		
Andreas Walkling	Germany		



TC 4-21 Interference by Light of Astronomical Observations

We met on 01/10/02 in Torino and had 9 members, 6 advisors/consultants, and 16 guests attending. The TC has a relatively mature document, "Guidelines for Reducing Sky Glow," but still has significant work to do on it. Our plan is thus.

The chair and our Division 4 Editor will review the draft for formatting and grammatical compliance with CIE guidelines then re-distribute it to the TC. Various sections will be reviewed by sub-groups of the TC for accuracy and completeness, before the document returns to the full TC for comment.

- Terminology
- References
- Sky glow formula
- Measurement of sky glow

A sub-group will review our recommendations for lighting zones, more particularly the sub-zones and descriptions and suggest whether to leave them as is or apply slight modifications to ease practical applications.

A sub-group will review our table which recommends levels for an upward light ratio. We envision this to affect much of our section on "Recommendations for Sky Glow Limits."

The subgroups and entire TC will interact electronically and potentially with small meetings in the spring of 2003, but the full TC's next meeting is tentatively scheduled for Thursday, 03 July, 2003 in San Diego.

The TC received reports on:

- A symposium in London in November 2001
- The International Astronomical Union's work on light pollution
- An international conference in Chile on light pollution in March 2002
- The International Dark-Sky Association meeting in Arizona in March 2002
- A European Symposium on light pollution in Lucerne in September 2002
- A book on light pollution (in development) by Schreuder and Narisada

The TC received short, but highly relevant presentations on related work by Marc Gillet, Paolo Soardo, and Pierantonio Cinzano.

The TC is using a password protected site for its work on the draft document.

Elizabeth Alvarez, Chair

TC 4-24 Calculation and Measurement of Tunnel Lighting Quality Criteria

The committee decided to discuss only technical matter and make the necessary decision (no discussion on editorial)

The 9th draft will be produced according to the results, sent to members in November for detailed comments. If these comments were contradictory, a meeting is planned in March 2003. If not, the final draft is produced using the comments. Distribution of the final draft before San Diego.

Decisions (only main ones)

- Coordinate system as in CIE-140-200
- More detailed description of the calculation of indirect contributions to vertical illuminance
- Revision of chapter 5.4 interreflection
- Proposal for uniformity in the transition zone. Definitions must be accepted by TC 4-35



- Proposal for threshold increment in the transition zone. Must be accepted by TC 4-35
- Draft 9 will be sent to TC 4-35 for discussion and decision of the two last points.

Peter Blaser, Chair

TC 4-35 Tunnel Lighting

The secretary has got no report from TC 4-35, it will be added later to webpages.

TC 4-36 Visibility Design for Roadway Lighting

A meeting of TC 4-36 was held on 30th of September 2002. There were seven committee members and eight guests present.

Chairman Richard Stark called the meeting to order at 15.00. Apologies were received from James Havard, Dr. Werner Adrian and Richard Vincent.

Minutes of the previous (Istanbul) meeting were approved as sent out to the members.

The most important business is the completion of the document on visibility in road lighting. Progress on committee assignments were reviewed with the following comments:

Section 1	Reason for the Visibility Concept - Complete
Section 2	History of visibility research - Complete
Section 3	Basis for seeing objects in the roadway - In process
Section 4	Some parameters needed to establish the necessary visibility criteria - Complete
Section 5	Status of research - past, present, needed - To be started
Section 6	Design Advantages of the visibility approach - Complete
Section 7	Inexpensive measurement methods - Complete
Section 8	Differences in visibility vs. revealing power - Complete

The majority of the Meeting was taken up in reviewing the above sections. Suggested revisions and reductions in quantity were recommended and will be followed up by the various section authors.

Current research of Douglas Mace of the USA was mentioned. He found that STV (small target visibility) has validity as a design tool. High STV improves visibility of targets on the road.

Presentations to the committee were made by Dr. Kohei Narisada and Jacques Le Cocq.

A schedule for revisions to the document and a committee vote is as follows:

- Complete unfinished sections by 15 Dec 2002
- Send comments and suggestions on Sect. by 15 Dec 2002
- Revise current sections as suggested by 15 Dec 2002
- Send out for committee vote by 30 Jan. 2003
- Return committee vote and any comments by 28 Feb. 2003
- Make revisions and/or resolve No votes by 30 March 2003
- Send out for division vote by 30 April 2003
- Return of division vote by 30 June 2003



The committee is proposing to finish this document by 30 June 2003. The document will be a summary of the current status of visibility design, visibility history, current and past research and comparison with revealing power.

There was no old or new business and the meeting was adjourned at 17.45.

P. Lutkevich; Secretary Pro-Temp

TC 4-37 Road Transport Lighting for Developing Countries

Fortunately, progress within TC 4-37 has improved since the rather pessimistic report of May 2002. Face to face meetings were held with two key contributors, and new information on vehicle lighting was received from UMTRI. As a result, it was possible to present a preliminary, if very rough, draft of a report to a well attended meeting on October 1st.

The draft was considered chapter by chapter to identify significant gaps in its coverage, and - equally important - areas which needed less emphasis. In parallel with this, there were important discussions on the target readership of the final report and the level of technical knowledge and sophistication assumed in the various chapters.

Many promises and commitments for additional of missing material were made during the meeting. If these are realised, it is planned to have a second draft ready for a meeting prior to San Diego - probably in Hungary at the end of February 2003. (A decision on this will be made by the end of 2002).

Stuart Yerrel, Chair

TC 4-38 Daytime visibility requirements for roadway signs

Meeting Minutes:

Opening of the meeting and introduction of members: Terms of reference and the purpose of the committee

Pick a secretary: Norb Johnson

Review of members, attendance roster, update the current committee members list

What were the previous participation commitments?

- Section 2.1 What is a Traffic Sign (Norb Johnson)
- Section 2.2 to be reviewed by Hawkins and Carlson
- Section 2.4 Traffic Signs worldwide
 - No one has this yet. Should we do this for different countries with one author per country?
 - Vincent Ledoux will contact PIARC to get some stuff on signs worldwide, Giuseppe Rossi will contact Italian Ministry of Transportation
 - We should have several membership countries write about their signs, colors (including fluorescent)
- Section 2.3 International History of Traffic Signs and introduction to 2.4 (Roman Kafinski)
- Section 2.4 Needs to be researched, give assignment to a student to determine meaning of signs worldwide, shapes and color, etc.
- Section 3.1 Anatomy of the Human Eye (H.J. Schmidt-Clausen)
- Section 3.2 Visual Acuity (Werner Adrian)
 - Terminology in CIE Report 19.2, information from Jay
 - Schober "Das Sehen" some information will be sent by Jay
 - Kaufman, Boff



- Fuat and Tom, add the legibility contrast stuff that we now use in Tarvip
- Section 3.4 Transient Adaptation (Werner Adrian)
- Section 3.6 Conspicuity (Jenkins CIE documentation and ask Schieber for search conspicuity)
 - Check with Jay to get in touch with Cole on Signal color report WC1-35)
- Section 3.7 Perception of Fluorescent Color (Dennis Couzin)
- Section 3.9.1. Variation of Visual Abilities in General (NorbJohnson)
- Section 3.9.2. Correlation of Visual Abilities with Age (Schieber, Chrysler)
- Section 4 Intro, Seeing as it applies to traffic signs (Schnell, SchmidtClausen, Topolova)
- Section 5.6 Signing for Bilingual Populations (Smiley)
- Section 7.1 Effect of Fog (Dumont, Paulmier ?)
- Section 7.2 Effects of Rain (Schmidt-Clausen)

Next meeting

- Meet at San Diego Quadrennial, June 25-July 2

Meeting adjourns.

TC 4-40 Requirements for Retroreflective Traffic Signs

Meeting on Monday afternoon and Tuesday morning

Nine members and two guests were present

Draft 3-1 was distributed to all members including corresponding members. Comments on the eight chapters were received from five members and corresponding members. These were discussed and many comments were determined valid and will be incorporated into the fourth draft. A significant section dealing with terminology will be written by TC 4-38 with duplication of some of the terms applicable to night time driving, included in TC 4-40's report.

New chapters and powerpoint figures were introduced during the meeting. An apparent conflict between the use of distance and luminance classes can be resolved by describing in the foreword the scope of the report and use of signs for legibility and detection.

Symbology for headlight distributions needs more work as some symbols conflict with definitions for retroreflection. On addition many figures need to have expanded text and appropriate references. Decisions on what headlight distributions can and cannot be included will be made through e-mail exchanges.

The meeting was adjourned at 13.00 Tuesday with another meeting scheduled at ASTM facilities in Pennsylvania the third week of January 2003, in close coordination with ASTM E12 Color and Appearance committee. It is planned to have two full days (divided in smaller periods) during the CIE 25th Session in San Diego.

Justin Rennilson; Chairman



TC 4-41 Crime and Road Lighting

Kate Painter gave a verbal report on two, recently published meta-analyses on street lighting and crime (world wide) and CCTV crime - for reference. These can be downloaded from:

www.homeoffice.gov.uk/rds/pdfs2/hors251.pdf
and www.homeoffice.gov.uk/rds/pdfs2/hors252.pdf

Kate will provide a summary of these two reports which will be made available on the division 4 website.

Broadly, in the USA, street lighting was found to reduce crime by around 20 % and in the UK by around 30 %. CCTV was found, in the UK, to reduce crime by around 4 %.

The media coverage on these two reports should help to influence future UK government policy.

For the meeting, next June, in San Diego, Kate will prepare a “toolkit” for executing lighting and crime research studies.

Ongoing research into CCTV and crime, in the UK by Leicester University, has already found major difficulties in providing control areas for each study site and in separating the effects of CCTV and street lighting. Results from this research will be available at the end of 2003.

Patric Baldrey, Secretary