



COMMISSION INTERNATIONALE DE L'ÉCLAIRAGE  
INTERNATIONAL COMMISSION ON ILLUMINATION  
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**DIVISION 6**  
**PHOTOBIOLOGY AND PHOTOCHEMISTRY**  
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**Minutes of the CIE Division 6 Meeting**  
**Hyatt Regency, Burlingame CA, USA**  
**22 June 2008**

**In Attendance:**

Frank De Gruijl	Netherlands
Patrick Neale	USA
John O'Hagan	UK (NC rep; Editor)
Mario Blumthaler	Austria
Stephen Wengraitis	US
Shu Takeshita	Japan
Tadeusz Sarna	Poland
Alina Porojnicu	Norway
William Grant	USA
Robert Sayre	USA
Uli Osterwalder	Switzerland
Werner Horak	Germany
Paul Donald Forbes	USA
David Sliney	USA
Kohtaro Kohmoto	Japan (NC rep; ADD)
Richard Young	USA
Ann Webb	UK (DD)

**Welcome by Director.** Ann Webb welcomed the attendees at 1 pm.

**Approval of Agenda.** The group approved the agenda.

**Approval of Minutes of Division Meeting, Beijing, 2007.** Webb noted that the minutes had been distributed by email, and asked for comments from the group. A motion was made to accept the minutes, and this motion was seconded.

**Progress Report from Director and Secretary.** These items were combined and presented by Webb, who welcomed the new Division Secretary (Andrew Smedley, Manchester University, UK) in absentia.

Webb discussed several changes at the CIE Central Bureau:

1. A new website has been developed by CIE and Division websites are now centrally located. Our Secretary has editing rights so the Division now has much more direct control over web content.

2. The CB at the moment has no editor; Janos Makai has stepped down due to some health problems, and a new Editor is being sought.

3. A rollover of personnel took place at the CIE in Beijing. There is an on-going movement to modernize and streamline the processes and speed up voting procedures, with the help of improved computer and internet technology. TCs are encouraged to accelerate their efforts, with new guidelines on (active) TC membership proposed from Division 2.

4. The International Lighting Vocabulary still requires some editing. The lack of an Editor at CIE CB has slowed this process, and the editing has gone back to the Divisions.

Within the Division it was noted that we now have an active Editor and there is a clear need to ensure that documents are edited by the Division Editor before they are sent forward to the CIE CB. A recent TC report was submitted straight to the CB for voting, and while it was approved in principle it still requires significant editing as well as attention to a few other points, and this is slowing publication. There was an additional concern that few votes were received from the National Committees (2), and the

CB as well as the DD exhorts National Committee members to support their Division and exercise their voting rights when Division TC reports are circulated for approval.

TC Chairs are reminded that a template for TC Reports is available from both the Division Editor and Secretary to aid them in finalizing and formatting reports, and further assistance is available from the Editor if he is sent a scientifically complete report.

It was noted that Germany, New Zealand and Switzerland currently lack National Committee members. Webb requested that new members be sought.

**Editor's Report.** O'Hagan reported that one TC had been completed, the 6-24 report on UV-A Protection and Sunscreens. He discussed the problem that reports tended to go to the CIE CB without having gone to him first. Several reports were promised by December of last year, but have not arrived.

**Progress Reports from Technical Committee Chairs.** These updates were compiled by Webb if the chairs were not present.

**6-03 Photo-kerato-conjunctivitis.** Sliney indicated that he had information to update this technical committee, but requires a copy of 6-03. Request.

–Action: AW

**6-08 Guidelines for Obtaining Action Spectra.** Sliney was expecting several .pdf copies of earlier versions of reports, and had not received them. Wengraitis discussed the documents that were to be integrated into the current draft. A final draft was expected by September 7.

–Action: DS

**6-15 Computerized Approach to Reflectoin, Transmisson and Absorption Characteristics of the Human Eye.** Sliney stated that he had recently visited Lund, and that he had volunteered to help. Data were available in a spreadsheet, and it was requested that O'Hagan partially fill out the CIE TC document template and send it to Lund for finishing the report.

–Action: DS/JO

**6-20 Phototoxicity in Domestic and Industrial Environments.** Webb stated that Gibbs had taken over this effort, and that he was enthusiastic to move this effort forward. Gibbs had asked if the same work

could be used from a phototoxicity working group known as the BPG, and have a report co-written by the members of this group. Webb discussed this with the Central Bureau, and they approved this development. She also stated that Sliney and Cesarini had completed some efforts to move the document forward.

**6-21 Low Level UV-A Cataract.** Sliney stated that the effort was completed, and that the draft had been circulated one week ago to the members of the TC, and he did not expect any major revisions.

–Action: DS/JO

**6-23 Develop Generalized Action Spectra for Plant Responses to Wavebands from 280 to 1100 nm.** Neale stated the idea of having generalized action spectra was proposed by Martyn Caldwell, but that in his own work, there were variable responses for plants and biological effects, and he did not believe that “generalized” action spectra could be developed across such a wide waveband. Neale stated that he could be a contributing member of the TC, but not the TC chair. Discussions followed as to the usefulness of keeping the TC open. It was suggested that a “state of the art” report might be written, but a generalized action spectrum could not be developed. There were some indications that an action spectrum developed by Flint, which was defined in the UV range, would be a candidate action spectrum for this report. Webb indicated her preference to close the TC, given that no report had been completed in 20 years, and that no “generalized” action spectrum was likely to be developed. She suggested that this effort be transferred to 6-61, which was of greater interest to the lamp and plant industry. The motion was seconded, and carried.

–TC CLOSED

**6-24 Sunscreen and UVA.** Ballotted, now in editing.

**6-25 Spectral Weighting of Solar Ultraviolet Radiation.** Wengraitis promised an update within 1 to 3 months that would include the CIE previtamin D3 action spectrum.

–Action: SW

**6-28 Standardization of Sunscreen Testing.** Waiting on the completion of the 6-24 report. Osterwalder raised some questions as to the cooperative efforts by CIE and ISO on this subject. Sliney discussed that there were protocols for these cooperative efforts, to rapidly complete efforts, and

that ISO was a standards body for industry, and that CIE concentrated more on the scientific basis of those standards, and that this symbiotic relationship could accelerate the efforts by ISO. Osterwalder discussed several in vivo and in vitro methods of varying degrees of complexity, and that more work was needed on some of these methods. Webb asked what ISO was doing – Osterwalder stated that their standards were only based on reviews of what was published in existing literature, and they would harmonize the data from these publications. He believed that a published CIE report would be considered. Sliney stated that a draft existed, and the question was raised that some additional text could be added to finish the report. Sayre pointed out that the original intent was to collect the literature on various techniques, but that no consensus could be reached. Webb suggested that a consensus should not be developed, but that a “state of the art” report should be written instead, stating that the in vivo methods were fairly well accepted, and that the in vitro methods needed some more development. Wengraitis indicated that he would check his archival information for the draft and members. A draft was promised within six months.

–Action: SW/UO

**6-31 Immediate Pigment Darkening.** The consensus of the group was to close the TC as this method was no longer viable cf. 6-28. Sayre suggested that the current information could be incorporated into the 6-28 report.

–TC CLOSED

**6-32 Action Spectrum for Photocarcinogenesis (non-melanoma skin cancers).** Forbes stated that this action spectrum had been accepted as an ISO standard, and was being considered as an IEC standard as well.

**6-33 Photoimmunological Effects Mediated Through the Skin.** DeFabo was not present at the meeting. He had stated in conversations with Wengraitis that he was waiting on the completion of some research. This research was published, and Sliney and Wengraitis stated that they would speak with him and complete the effort.

–Action SW

**6-36 UV Protective Materials Used in Shading.** Van Tonder stated a report would be provided.

**6-37 Light and Retinal Disease.** Sliney stated that this TC met recently in London, and that Marshall was seeking more epidemiological data. Sliney

stated that the report was 99% completed, and hoped that the report could be completed by the end of summer.

**6-39 UV Radiation in Lighted Environments.** Kohmoto stated that comments had been received on the current draft. O’Hagan expressed concerns that the TC report would soon be overtaken by other documents, and suggested that those documents be referenced in the CIE report. He asked Kohmoto to send him the available draft, as his group had people working on this topic.

–Action: KK

**6-40 and 6-41** had been finished and reviewed as standards

**6-42 Lighting Aspects for Plant Growth in Controlled Environments.** Now chaired by Navvab, who did seem to be contacting TC members and collecting more up-to-date references. It was hoped that an updated draft would be circulated soon.

**6-43 UV Water Disinfection.** Vincent has been pushing for word from Cabaj on this TC.

**6-44 Illuminators for Treatment of Infant Hyperbilirubinemia.** Webb stated that the Pratesi had been out of contact. Young asked if there was a hyperbilirubinemia action spectrum. Sliney stated that there was, but that it needed revision. Young stated that he had been waiting for such an action spectrum for several years. Sliney suggested that the TC be closed if Pratesi could not be contacted. Young stated that the need would still exist even if the TC were closed. Wengraitis stated that he would search his archival information for the Pratesi report, and for other contact information that may exist. Sliney stated that Giovanni Agati, a colleague of Pratesi’s, could be contacted to serve as chair, if Pratesi could not be reached. There was agreement that there was a real need for this effort to continue in some guise but in its present form it has been stalled for many years. Final efforts will be made to contact Pratesi / his work, and if this fails the TC in its current form will be closed.

–Action: SW/AW

**6-45 Optical Radiation Hazard Measurements in the Workplace.** CEN produced a report on this subject. CIE agreed that the science was solid, but that the report needed language editing. There is ongoing discussion as to whether the report would be a CIE/CEN report, and Angelo is waiting for

approval from CEN to edit the report into a CIE format. CIE will not accept the glossary section of the report, because it does not agree with CIE's International Lighting Vocabulary.

**6-46 Standardized Action Spectrum for UV Disinfection.** Vincent has offered to help finish this report but wishes to complete 6-59 first. Wengraitis offered to assist in the work.

**6-47 Photobiological Safety of Lamps and Lamp Systems.** O'Hagan was planning on meeting with CENELEC, and stated that he and Schulmeister had restructured the document to have it accepted in IEC, so that the IEC document would be less of a scientific document, and more of a product-oriented document. The TC planned to meet that week.

**6-48 Typical Minimal Erythema Doses.** The TC was waiting on Chinese data, which Webb provided to the meeting. Beer was still serving as chair, although Sayre stated that he was in poor health. It was noted Diane Godar worked in the same lab. And might help with contact. Sliney suggested that Sharon Miller could be contacted as a new chair. Sayre suggested Barbara Zminski as another possible chair.

*–Action: AW*

**6-49 Infrared Cataract.** Okuno was officially approved as the new chair, and hopes are high that this TC will move forward.

**6-50 Photodegradation of Pharmaceuticals.** Hanne Hjorth Tennesen was suggested as a replacement, and has corresponded with Webb. She expressed her interest in accepting the role of chair. A motion was made and carried, now to go to BA.

*–Action: AW*

**6-51 Standardized Solar Simulator Spectral Irradiance for Sunscreen Testing.** Sayre stated that a report could be provided by the middle of September, if he were provided a template. It was agreed that this would be provided. Sayre indicated a strong interest in moving this effort forward.

*–Action: AW*

**6-52 Proper Measurement of Passive Air Disinfection Sources.** On hold until 6-59 completed. Report expected by Fall 2008.

**6-53 Personal Dosimetry for UV Radiation.** The TCC has resigned the position. Elizabeth Thieden

was suggested as a possible new chair for the effort and will be contacted by Webb.

*–Action: AW*

**6-55 Photobiological Safety for LEDs.** Horak stated that the document needed to be supported by measurement procedures (D2). He stated that they had developed a measurement procedure and would present this to the 2-58 committee. He stated another concern regarding the title, and mentioned hazards to the eye, and expressed his interest to collect some material on the visual effects. Webb suggested that the measurement system be developed, and that an updated report could be provided by the end of the year. It was noted that 6-55 would not preclude the efforts by 2-58 since the latter described measurements in a physical sense beyond the requirements for photobiological safety, but that 6-55 would move forward.

**6-56 Infrared Warming Cabins.** A replacement chair was sought, and this TC was identified as a candidate for closure. It was discussed that IR warming cabins were still widely used, so the report might still have relevance. Wengraitis stated that he would contact Stolwijk, and if there was no interest in moving forward as chair, the TC would be closed.

*Update – Stolwijk contacted and recommends closing the TC.*

*–Action: SW/AW*

**6-57 Standardization of Terms and Action Spectra for Blue Light and Retinal Thermal.** Kohmoto stated that the report was 50% completed. Horak expressed concern that one of the action spectra in the report was out of date and that the action spectrum in the report should be updated.

*–Action: KK*

**6-58 A Recommendation on Lower Limits for UV Exposure.** The TC recently met in Bath, and it was hoped that the final draft would be completed before the end of the year.

**6-59 UVC Photocarcinogenesis Risks from Germicidal Lamps.** Vincent has sent draft to Sliney and Webb. To be discussed this week. De Gruijl expressed interest and Wengraitis offered to send him a draft.

*–Action: SW*

**6-60 Spectral Weighting of Ultraviolet Radiation from Solar Surrogate Sources.** Forbes explained that there were problems from manufacturer's who were unwilling to supply "typical" lamp spectra, and

he was now reconsidering whether this TC could proceed. Forbes stated that, instead, lamps would be measured, and the action spectra would be applied, and this could be published in a technical journal, at which point the data could be used by the TC. At that point Webb showed some interest in putting the TC on hold, and possibly seeing if the situation could improve in a year's time.

The other TC's are all recently formed, so there were no overriding concerns with regard to their progress.

**6-xx Guidelines for Protection for Xeroderma Pigmentosum Patients.** Still in limbo, idea approved at Division level, but lacking a TCC.

Webb discussed that there isn't really a mechanism for cooperative efforts on TC's across Divisions, and that this situation needed to improve (for BA consideration). D6 has two nominally joint TCs: 1-67 and a proposal from D8 Vertical illuminance and spectral output of domestic imaging appliances.

Webb stated that there were proposals for three new TCs:

**Optical Safety of Infrared Eye Trackers applied for Extended Durations.** A group called COGAIN proposed this TC. This is for disabled persons who can use computers using infrared eye trackers – the safety of these devices has not been evaluated. Sliney evidently has had much input and is the de facto chair, and would soon have a TC meeting. A motion was made and accepted, and will be forwarded for BA approval.

–Action: AW

**Characterization of Sources Used in Photobiological Research.** Proposed by Dowdy, with concerns about (in particular) photodiode spectroradiometers and their suitability (or not) for measuring light sources used in photobiological research. Use of the resulting spectra by the unwary could lead to erroneous conclusions. Neale stated that, to the extent that people followed CIE recommendations on the spectroradiometric measurement of light sources, the problems stated by Dowdy could be eliminated. Young suggested that, as this was a measurement issue, then Division 2 may be the proper avenue for this effort. Webb commented that, as photobiological researchers are the primary audience for this effort, then perhaps Division 6 would be a suitable avenue for the effort, if presented as a guide for non-metrologists, applying D2 recommendations. Neale stated that the TC could

reference current Division 2 documents on the subject. There was interest in the TC, but that some details needed to be better formulated i.e. TCC and terms of reference required. Wengraitis: maybe better as a reportship. Webb to provide feedback to Dowdy.

–Action: AW

#### **Dosimetry of low-level-laser (light) therapy.**

Aimed at exploring exposure doses, and internal tissue doses. Interest, impetus from American Society for Laser Medicine and Surgery meeting on LLLT. In principle, it was agreed that this was a worthwhile effort for Division 6 to pursue, but a TCC was required. Kohmoto indicated that a Division 1 TC exists on this subject. Webb stated again that the CIE CB planned to address the mechanism for complementary and cooperative efforts across multiple Divisions.

#### **Progress Reports from Reporters**

**Action Spectra by Alois Schmalwieser.** Webb stated that this document was moving along.

**Liaisons with ICNIRP, CEN, WHO, IEC and ISO** (other than the discussions mentioned previously) None. Kohmoto mentioned IEC TC 76,

#### **Future Meetings.**

Budapest in May 2009, in conjunction with the mid-session and a scientific meeting.

The next quadrennial meeting would be held at Sun City in South Africa in 2011.

By 2010, a proposed Division Director would be needed, as Webb planned to retire as the Director, having served the maximum 2 terms. She asked if anyone had any thoughts for possible directors, as it would be worthwhile to think about the choices now.

Webb thanked the attendees, and the meeting was adjourned at 3:44 pm local time.