Minutes CIE TC08-10 August 17, 2006

Attendees: Jordi Arnabat, Phil Green, Danny Rich, Al Kravetz, Yamauchi-san, Ann McCarthy, János Schanda, Dave McDowell, Byron Jordan, Todd Newman, Eric Zeiss (NexPress is a digital press manufacturer).

Our website:
http://www.colour.org/tc8-10/

The agenda is mostly a matter of trying to finish up last month's agenda.

Agenda:
1. Agenda Review
2. Liaison reports (Ann)
3. Review from tasks
  a. Measurement analysis (Danny Rich)
4. Pilot Study
- what progress have we made
- what needs to be done and who will do it?
5. Next meeting

Manufacturer participation:
Al will ask Rich Austin (Gamma Scientific) and Rich Young (Optronics), to make measurements with their equipment. CIE TC08-10 will include appreciation of these manufacturers in our report. János suggests that he can ask people from Munich (Instrument Systems) to make measurements there as well . CIE TC08-10 should make a request of manufacturers who are interested to join. Send the guidelines to these candidates when they are ready. Phil mentioned that Bentham in the UK may also be a site. We should send it to the reflectors for D1 and D2 as well.

Note on reference std CIE 063-1984 – 1:
This std covers instrument concepts and measurement concepts – generally good tutorial – not specific to particular instrumentation. It has descriptions of photomultipliers and photodiodes as well as IR detectors. They have an example of a 3 band fluorescent lamp showing examples from 300 to 800 nm. Note from János: I looked now at CIE 63-1984. This is the document describing the spectral measurements of lamps; it is not the relevant document for us.

Additional references from János Schanda:

> There are some elements that can interest us in
>
> 53-1982: Methods of characterizing the performance of radiometers and photometers and
> 69-1987: Methods of characterizing illuminance meters and luminance meters: Performance, characteristics and specification
>
> especially the f_2 index, the description of the spatial characterization of illuminance and luminance measuring instruments.

Someone might be interested in
64-1984: Determination of the spectral responsivity of optical radiation detectors

Further publications of some interest are:

114/1: Survey of reference materials for testing the performance of spectrophotometers and colorimeters

118/4: CIE guidelines for co-ordinated research on evaluation of colour appearance models for reflection print and self-luminous display image comparisons

135/6: 45°/0° spectral reflectance factors of pressed polytetrafluoroethylene (PTFE) powder

162:2004: Chromatic adaptation under mixed illumination condition when comparing softcopy and hardcopy images.

Spectral Power Distributions are collected in CIE 15:2004 Colorimetry, between 380 nm and 780 nm with 5 nm steps. There are also the spectra specially sepelcted as most relevant in present applications.

As for journals: CIE NEWS, LR&T and Leukos come also to my mind.

Call for participation:
Dave mentioned that he can put call for participation into IS&T newsletter a few months before July 2007. We should aim for April 2007 issue – get notice to Dave McD in March 2007. We could also post in the CR&A and the ISCC newsletter.

SC28 Liaison Report:

Notification from SC28 that the SIG for Color Comparison has officially started. Ann to send Color Comparison [call for participation] to team members. Also include the SIG-CC resolution [see below]. János asked about the overlap of SC28 and CIE. SC28 is meant to be applied and an engineering guideline that builds on the work of CIE, not taking the place of it.
Quote of SC28 SIG-CC resolutions:

Resolution Lexington 04/2006: SIG Color Comparison
SC28 resolves that the question of office equipment and how to manage successful visual color comparison between prints and softcopy can be examined in SC28. SC28 agrees to consider the questions regarding, for example monitor and device calibration, encoded document color information, adaptability to differing office conditions, and media interactions to determine the potential for a set of specifications that can guide users and equipment manufacturers to improve the user experience with color documents rendered in both softcopy and in print.

Resolution Lexington 05/2006: Establish SIG Color Comparison
SC28 resolves to establish a Special Interest Group within SC28 to study matters identified for SIG Color Comparison with J. Thomas Schmelzer as the contact person and instructs the Secretariat to announce the establishment of a special interest group for color comparison and solicit application for participation.

References and comments on the SC28 work provided by János:

122-1996: The relationship between digital and colorimetric data for computer-controlled CRT displays covers the CRT monitor calibration issue.

An update of this publication is in progress:

TC2-42
Colorimetric Measurements for visual displays

I am not quoting the D8 activity, where there are also projects under way. Just TC 8-10 has also to do with lighting used in soft- and hard-copy comparison, and not the specialized graphic arts surrounding.
Perhaps Todd should put on his DD hat and together with DD2 check the situation and bring their opinion to the attention of SCIT that will meet in October in Geneva (without active CIE participation).

Note from CEA TC100 TA 2, opRGB the wide gamut monitor space standard has progressed to CD. It is not an exact match to Adobe RGB.

Guideline [reminder from Todd]:

I have started on a draft for the guidelines for experimenters. You'll see that it needs A LOT of work. This is sort of a place holder. Please send comments on content, tone, structure, or anything else you feel is appropriate. Please send them to the whole group, so everyone can see what's been said. I'll integrate the non-controversial issues and flag the others for group discussion. I did not put the guidelines on the agenda for this meeting, because many of you won't have time to read and think about this draft before the meeting. I propose we discuss it in the September meeting (or whenever the meeting after tomorrow.
Proposed additions:
Length of test period must be > 1 year.

Measurement analysis:
After we get our measurements what will we do with them?
Danny: Still some confusion regarding how we will combine measurements from lamp manufacturers, neighborhood measurements, measurements with borrowed instruments.

Danny did send the white PTFE plate to János.
János: working on constructing the LED calibrator. He has also received some glass and gotten access to the Berkeley database.. We will have measurements he has made of the glass, and the calibrator equipment available within one month. The PTFE plaque is six inch square. It will be mounted with reference standard elements including a calibrated LED light source.

Byron: I expect that we will have a spectroradiometer – pointing at place in room. Do we want it to be looking at a highly reflective target that will passively reflect the room lighting? Yes - the PTFE plaque calibration equipment will be shared around among the participants for the purpose of calibration.
Byron recommends we should use a special paper for the measurements. Byron uses a particular paper – high quality, pure cellulose, non-fluorescing paper. That comes in sheets 30" on a side. Used for reflectance standards. Has an intrinsic reflection factor of about 95% but falls off in the blue to about 70% at 200 nm. 30" by 30" is about $1 per sheet. Paper comes from Munktel, a mill in Sweden. that has intrinsic reflectance for most of visible = 95%, falls off in blue to 70% at 200nm. One dollar per sheet. Paper comes from Munktel in Sweden [chromatographic filter paper].

Calibrate each instrument with the single LED based reference instrument. Also each person taking measurements will get some of the paper to use for the actual on site measurements. Variation in absolute reflectance is on the order of 1/10 of a percent from pad to pad when paper thickness is 10 sheets. This paper is very white in visible and also retains this to a great extent in UV. Potentially - We also can use papers that have known excitation spectra [Byron knows of two: one CIE Whiteness134 and one CIE Whiteness 150]. These will have some usage lifetime restrictions. We are considering using these papers for measurement sites that do not have access to a spectroradiometer that works for UV.

Calibration instrument design notes from János:

> It will have an input port where temperature stabilized LEDs can be mounted. My intention is to circulate at least three LEDs: a white, a green and a red (the white has a maximum in the blue, thus wavelength errors ion the blue can be seen).
>
> The lower end of the calibrator will have a port for the PTFE plaque, which will be removable (I have some concern about how to keep it clean during transportation). At this opening the irradiance type instruments should be attachable. As I do not know the head diameters and how far from the front surface the reference plane is, probably every user will have to report the place of the reference plane compared to a fix mark on the calibrator, and I will have to correct irradiance to a reference distance (although for us absolute values are less of interest (?),. the SPD measurement should be OK.

Our pilot study should evaluate the effectiveness of the fluorescent paper approach in comparison to the 'use a good instrument' approach. Single site with Optronics instrument and fluorescent paper.

Meeting ended early.

Next meeting Sept 6: Same time. Next meeting agenda will be solely the pilot study.