

**Minutes of teleconference meeting of the IEEE P1789**

**Date: 09/09/09**

**Start time: 12:00 PM**

**End time: 1:00 PM**

**Attendees:**

Rolf Bergman, Brad Lehman(chair), Brandon Oakes, Conor Quinn, Conor Quin, Jennifer Veitch, Arnold Wilkins

1. The agenda and the last meeting minutes were presented. The meeting minutes were entered without any objection.
2. The Photosensitive Epilepsy draft report was discussed. It was agreed that: 1) More background information may be included on optics, perhaps with references to basic texts and web links on basic optics, vision, etc.; 2) The paragraph on fluorescent 120Hz lighting will be made more precise; 3) The recommendation made about the array of light sources needing to be spaced apart needs to be explained better. Background material needs to be included, along with references and justification. Arnold Wilkins will lead these above revisions; 4) Specific, existing LED driving approaches that may lead to photosensitive epileptic seizures should be explained in detail. Brad Lehman will write this revision and include information about what happens when LEDs are driven directly by AC and a leg of a rectifier fails or an LED in one of two daisy chained legs fails. In this case, unless protection circuitry is added, there will be 50Hz or 60Hz frequency modulation that may has risks to induce photosensitive epileptic seizures (PSE).
3. The PAR1789 committee agreed that the ranges of modulation between 3Hz and 70Hz should be avoided to mitigate the risks of photosensitive seizures.
4. The Glossary of Terms Draft Report was discussed. It was agreed that these terms will need continual updating, especially since the IEC is presently changing some of their glossary that is being relied upon. Members that want a term added to the glossary should email Faisal Khan directly, either with the term or perhaps even include the definition.
5. Considering that the PAR1789 may have already identified methods that have risk of danger of (PSE) that may exist in lamps today, the committee felt a need to make ongoing documents and work of PAR1789 public. An effort will be made to better increase DOE awareness, increase lamp designer awareness through short magazine articles, and allow NEMA and other PAR1789 approved standards groups to view some preliminary documents such as the draft subcommittee reports.
6. The PSE subcommittee will begin to draft a new document about higher frequency modulation and their risks. The already drafted document/table by Arnold Wilkins that has been on the private IEEE web site for PAR1789 member for 8 months will be expanded upon with more background material. It is important that dangers of higher frequencies become addressed so that people understand that 3Hz-70Hz is not the only driving frequency range of concern. It was proposed that we should openly discuss the levels of risk of each frequency by discussing their dangers and probability of occurring in different situations. Grades of danger for the different frequencies will be addressed. Brad Lehman will propose an outline of topics that may be included in the report and submit it to the PSE subcommittee.
7. Meeting was adjourned.

**IEEE Approved Scope of PAR1789 (any modifications must be approved by the IEEE Standards Board of Governors)**

*The scope of this standard is to: 1) Define the concept of modulation frequencies for LEDs and give discussion on their applications to LED lighting, 2) Describe LED lighting applications in which modulation frequencies pose possible health risks to users, 3) Discuss the concept of dimming of LEDs by modulating the frequency of driving currents/voltage 4) Present recommendations for modulation frequencies for LED lighting and dimming applications to protect against known adverse health effects.*