

**Email received on October 22, 2010 from William Young.**

Dear Mr. Alex:

Appreciate your valuable time in participating the modulation depth discussion.

Here is my written response for EPA's consideration:

The "modulation depth < 50%" language should be removed from the final version of ENERGY STAR Luminaires Specification.

Reasons:

- 1) There is NO SUPPORT of any biological effect relating to the modulation depth among the literature study from all links available on the IEEE PAR1789 website.
- 2) Lots of quality products--such as PWM dimming and HVLED--will be eliminated from the market.

My intent is to help to bring high-quality and cost-effective LED Luminaires to the market for generations to come. Your discernment to remove this "modulation depth < 50%" language is highly appreciated.

Regards,

Dr. William Young

LED Lighting Electronics System Architect TSMC

Included attachment:

**IEEE PAR 1789**

**“Recommended Practices of Modulating Current in High Brightness LEDs for Mitigating Health Risks to Viewers”**

Teleconference 10/22/10 12pm-1pm EST

Agenda

- 1) Summary of Minutes
- 2) Summary of activities since last telecon:
  - a. Education subcommittee: Tutorials, papers and workshops for education awareness of the flicker issue that took place over the summer
  - b. Hazard analysis progress of subcommittee
  - c. Measuring flicker
- 3) Discussion on Pge32 from ENERGY\_STAR\_Luminaires\_V1\_0\_Draft\_2\_FINAL2.pdf
- 4) Planning for next telecons /Other business
- 5) Adjournment

**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.*