

Energy - Docket Optical System

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Sent: Tuesday, June 09, 2015 6:10 PM
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Subject: Docket No. 15-BSTD-01

Categories: Ready to Docket

Flicker was an important issue when fluorescent lamps operated with magnetic ballasts dominated offices and schools. There were widespread complaints about flickering fluorescents and the headaches they caused, and documented reduction in visual performance. High-frequency electronic ballasts, operating at 20,000 Hz or higher eliminated that flicker complaint, and improved visual performance, as well as saving energy.

Now we have a completely new technology of LEDs and drivers, and PNNL has measured some LED systems with much greater modulation in output than older fluorescent systems. It is a small number of products, but enough to raise concerns about distraction, headaches, migraines, reduced reading comprehension, and malaise. The IEEE P1789 Committee was formed 7 years ago in response to this concern and has worked diligently to produce a Risk Analysis document, followed by the Standard 1789 Recommended Practice published last week. The Committee used the best research and techniques available to provide guidance in this area, and followed strict rules in membership, process, and balloting in order to produce these documents. They contain an excellent compendium of research results, and a well-reasoned approach to developing numerical standards from that research data.

The flicker-sensitive population is small, although one recent paper estimated the number of migraine sufferers at 10% (Chorlton 2000), and that is just one of the flicker-prone populations. Flicker has a societal cost: reduced productivity, higher numbers of sick days, and reduced quality of life. When the electronic circuit technology is widely available to mitigate flicker, and when the cost is small, it may make economic sense to promote the reduction of problematic photometric flicker.

A flicker requirement for LED lighting systems is advisable for public health and well-being.

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