

US government gives LED performance approval

After testing thirty-eight models of PAR38 LED lamps, the United States Department of Energy confirms that they are more energy efficient than certain other types of light bulb. The claim that LED lighting is more energy efficient than other forms of lighting is often used as a selling point. Anecdotal evidence that supports the claim is often used—such-and-such business replaced its halogen lights with LED lamps and saw energy savings of X dollars. Now the claim can be made with the authority of the US government, at least for the three dozen models of PAR38 LED lamps that it tested.



PAR38 LED from Leapfrog Lighting.

The DOE has been testing solid-state lighting products since 2005 under terms of the government's Energy Policy Act. The department's mandate is to support research and development and assist in commercialization of advanced SSL technologies. Product testing is one of the activities it undertakes to provide "unbiased, reliable performance data" about such products as LED lamps. One of the components of the so-called CALiPER program is "evaluating the accuracy of manufacturers' performance claims," a task it says is difficult because of a lack of standards for reporting.

Thus, it is reasonable to conclude that LED PAR38 lamps are (at least in terms of performance) a viable option in most installations where PAR38 lamps are used.

Department of Energy CALiPER Report, LED PAR38 Lamps

The conclusions of the CALiPER testing are unambiguous, however. One of these is that the LED PAR38 lamps showed "noteworthy promise" for replacing halogen PAR38 lamps up to 90W. The report found that the LED lights "provided more lumen output, higher efficacy and a more diverse selection of luminous intensity distributions" compared to earlier products tested. As well, it found efficacy and colour characteristics are "similar to or better than" directional CFL (compact fluorescent) and CMH (ceramic metal halide) lamps. The power factor of the tested lamps was "considerably better" than previously tested LED PAR38 lamps, with all but one of the products exceeding the ENERGY STAR minimum requirement. Luminous efficacies ranged from 44 lm/W to 79 lm/W.

All of the lamps tested, the report states, offer "substantial energy savings" compared to halogen PAR38 lamps and are more efficacious than CFL or CMH versions. PAR38 lamps were chosen because they are the most common size and most widely used.