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## Energy Focus LED lights Verified with "Less Than 1%" Flicker by UL

### First in the U.S. lighting industry with UL-verified flicker performance

SOLON, Ohio, Jan. 04, 2017 (GLOBE NEWSWIRE) -- Energy Focus, Inc. (NASDAQ:EFOI), a leader in LED lighting technologies, today announced its new 500D series tubular LED lighting products are the [first in the U.S. verified](#) as "Low Optical Flicker, Less Than 1%" by UL, a leading global safety science company for products including electrical devices and components. The designation confirms Energy Focus' industry-leading status as an innovator of LED lighting technology and commitment to developing flicker-free lighting.

Optical flicker is any fluctuations in brightness over time. Flicker of sufficiently low frequency can be visually perceived as blinking or flashing. Higher frequency flicker is invisible to the human eye but puts stress on the human brain as it processes visuals, and is a known cause of headache and eyestrain. People who have visual hypersensitivity, especially those on the autism spectrum, are susceptible to adverse reactions to fluctuations in light. People with photosensitive epilepsy may experience seizures from flickering light. While LEDs are capable of flicker-free lighting, flicker is often present as a result of low-quality drivers having output current ripple. By engineering our driver to remove current ripple, Energy Focus products ensures practically flicker-free operation that avoids potential flicker-induced health risks.

UL Verification is an objective, science-based assessment that confirms the accuracy of marketing claims. The flicker marketing claim Verification service was created in response to new requirements in California Title 24, a new standard designed to reduce commercial and residential energy consumption, for reduced-flicker lighting, as well as address market demand for third-party verified flicker results. This test measures all types of flicker, including frequencies of flicker higher than what the eye can "see" as flashing or blinking, but also the higher frequency, invisible flicker.

"Concern over the effects of optical flicker from lighting on occupants, particularly LED products, has been a frequent topic in the lighting industry," said Austin Gelder, Technical Advisor for UL's Lighting division. "The UL Verified Program for Optical Flicker was developed to analyze the optical waveform generated by the product in multiple frequency ranges against the IEEE 1789 recommended practice, and recognizes products that have placed significant effort into their design to minimize the flicker. These requirements are stringent, and the Energy Focus 500D series had less than 1/10<sup>th</sup> of the maximum flicker allowed by the program. It is great to see a lighting manufacturer addressing occupant comfort by prioritizing low flicker in their product design."

IEEE, or Institute of Electrical and Electronic Engineers, is the world's largest technical professional organization with a core purpose to foster technological innovations for the benefit of humanity. IEEE Recommended Practice #1789 sets a threshold for "no human impact" of 5% flicker at 120Hz. A new California law requires that flicker be less than 30% when measured at full brightness, and, for lamps that dim, at 20% brightness. UL's results show less than 0.50% flicker on Energy Focus' new 500D products.

To learn more about Energy Focus, please call 1-800-327-7877 or visit [www.energyfocus.com](http://www.energyfocus.com).

### About Energy Focus

Energy Focus is an industry-leading innovator of energy-efficient LED lighting technology. As the creator of the only UL-verified low-flicker LED products on the market, Energy Focus products provide extensive energy savings, aesthetics, safety and health benefits over conventional and fluorescent lighting.

As a longstanding partner with the US Government providing energy efficient LED lighting products to the U.S. Navy and the Military Sealift Command fleets, Energy Focus products go through rigorous testing in the most adverse conditions possible and still have a zero percent failure rate. In the commercial sphere, customers include national, state and local U.S. government agencies as well as Fortune 500 companies across education, healthcare, retail and manufacturing. Energy Focus is headquartered in Solon, Ohio, with additional sales offices in Washington, D.C., New York and Taiwan.

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