What is ENERGY STAR®?

ENERGY STAR® is a voluntary program administered by the U.S. Environmental Protection Agency (EPA) designed to save consumers and businesses money and protect our climate through outstanding energy efficiency, while also incorporating certain minimum performance criteria to ensure customer satisfaction. Many utilities offer rebates to customers who purchase and install ENERGY STAR® certified products. A summary of those rebates can be found at www.energystar.gov/DIME.

How can I get my LED luminaire certified to ENERGY STAR® Luminaires 2.0?

EPA released ENERGY STAR® Luminaires V2.0 (ES L V2.0) on June 1, 2015 which expanded the scope of products to include surface-mount SSL retrofit products (wall sconce, ceiling-mount), an expanded outdoor category and made adjustments to performance criteria.

To bear the ENERGY STAR® mark, any luminaire manufactured after June 1, 2016 must be certified to ES L V2.0; products can no longer be certified to earlier versions of the standard. The ES L V2.0 standard, along with other relevant documents, can be found at https://www.energystar.gov/products/spec/luminaires_specification_version_2_0_pdf.

To qualify a new product, contact an EPA-recognized Certification Body (CB) to have the product’s performance certified. A list of EPA-recognized CBs, as well as an overview of the EPA’s third-party certification procedures, is available at www.energystar.gov/3rdpartycert. Please see “Important notes on ENERGY STAR® Luminaires V2.0 testing” before submitting a luminaire with a Lutron LED driver for certification.

How can Lutron LED drivers help me get my LED luminaire certified to ENERGY STAR® requirements?

ES L V2.0 applies to complete luminaires, but the LED driver is directly responsible for or heavily affects meeting many of the performance criteria.

| Performance Criteria of ENERGY STAR® Luminaires V2.0 Directly Affected by the LED Driver |
|---------------------------------------------|---------------------------------|-----------------|---------------------|-----------------|
| Category                                    | Start Time                      | Power Factor    | Transient Protection | Standby Power Consumption | Operating Frequency |
| Performance Criteria                        |                                 |                 | 2.5 kV Category A operation per ANSI/IEEE C62.41.1-2002 and ANSI/IEEE C62.41.2-2002 | Non-connected driver = 0 W | ≥ 120 Hz (IEEE PAR1789) |
| Non-connected driver ≤ 0.75 seconds         | PF ≥ 0.7 for total luminaire power ≥ 5 W |                 | Connected driver ≤ 0.5 W | | |
| Connected driver ≤ 1.0 seconds              |                                 |                 | | | |
Many Lutron drivers meet these requirements, as shown below:

<table>
<thead>
<tr>
<th>LED driver family</th>
<th>Case Type</th>
<th>ES L V1.1 or V1.2 compliant?</th>
<th>ES L V2.0 compliant?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hi-lume® Premier 0.1% 3-wire voltage LED driver</td>
<td>No</td>
<td>Yes(4)</td>
<td></td>
</tr>
<tr>
<td>Hi-lume® Premier 0.1% EcoSystem™ voltage LED driver with Soft-on, Fade-to-Black™</td>
<td>No</td>
<td>Yes(4)</td>
<td></td>
</tr>
<tr>
<td>Hi-lume® 1% EcoSystem™ LED driver with Soft-on, Fade-to-Black™ (LDE1)</td>
<td>K-can</td>
<td>Yes(1)</td>
<td>Yes(2)(4)(8)</td>
</tr>
<tr>
<td></td>
<td>M-can</td>
<td>No</td>
<td>Yes(3)(4)(8)</td>
</tr>
<tr>
<td>Hi-lume® 1% 2-wire LED driver (120 V forward phase only) (LTE)</td>
<td>K-can, M-can</td>
<td>Yes</td>
<td>Available Q1 2017(5)(8)</td>
</tr>
<tr>
<td>Hi-lume® 1% 3-wire or EcoSystem™ LED driver (L3D)</td>
<td>K-can, M-can</td>
<td>Yes</td>
<td>No(6)(8)</td>
</tr>
<tr>
<td>5-Series Ecosystem™ LED driver (LDE5)</td>
<td>K-can</td>
<td>No</td>
<td>No(7)</td>
</tr>
<tr>
<td></td>
<td>M-can</td>
<td>Yes</td>
<td>Yes(3)(4)</td>
</tr>
</tbody>
</table>

(1) Portions of each bulk type. Consult Product Specification Submittal.
(2) Models shipped after June 1, 2016 (manufactured after May 25, 2016) will be ES L V2.0 compliant. See “Reading Lutron LED driver manufacturing date codes” below to tell the date code of the LED driver.
(3) Models shipped after July 1, 2016 (manufactured after June 27, 2016) will be ES L V2.0 compliant. See “Reading Lutron LED driver manufacturing date codes” below to tell the date code of the LED driver.
(4) All products with EcoSystem™ are considered “connected” devices for ES L V2.0 certification. See “Lutron’s EcoSystem™ control system allows LED drivers to be classified as “Connected” devices” below before submitting a luminaire with a Lutron LED driver for certification.
(5) All LTE products are considered “non-connected” devices for ES L V2.0 certification.
(6) Recommended substitute: Hi-lume® 1% EcoSystem™ LED driver with Soft-on, Fade-to-Black™ (LDE1).
(7) Recommended substitute: Hi-lume® 1% EcoSystem™ LED driver with Soft-on, Fade-to-Black™ (LDE1).
(8) LED driver needs to “learn” the LED array characteristics before performing certification testing. See “Important notes on ENERGY STAR® Luminaires V2.0 testing” below before submitting a luminaire with a Lutron LED driver for certification.

Important notes on ENERGY STAR® Luminaires V2.0 Testing

Some LED drivers must “learn” the load before start time measurements can be made

Some Lutron LED drivers need to “learn” the high-end operating voltage of the LED array before they will dim it properly. Until they do, start times will not meet the ES L V2.0 requirements. To get these LED drivers to learn the load, simply run the LED driver (with no dimming control) on the specific LED array for 20 seconds. This procedure should be repeated whenever a new LED array is used.

Lutron’s EcoSystem™ control system allows LED drivers to be classified as “Connected” devices

ES L V2.0 contains alternate performance criteria for “Start Time” and “Power Factor” for “Connected” devices. Lutron’s EcoSystem™ meets the definition for “Connected” control systems. For information on how to comply with the requirements for “Connected Devices”, an API is available at www.lutron.com/ENERGYSTARAPI
Reading Lutron LED driver manufacturing date codes

All Lutron LED drivers are date coded at the factory during production. This information is printed in dd/mm/yyyy format on the unit serial label.

Date code 10-02-2016 (February 10, 2016)
Lutron, EcoSystem and Hi-lume are registered trademarks and Soft-on, Fade-to-Black and EcoSystem are trademarks of Lutron Electronics Co., Inc.

ENERGY STAR is a registered trademark of the U.S. Environmental Protection Agency.

## Lutron Contact Numbers

### WORLD HEADQUARTERS

**USA**
Lutron Electronics Co., Inc.
7200 Suter Road
Coopersburg, PA 18036-1299
TEL: +1.610.282.3800
FAX: +1.610.282.1243
support@lutron.com

### EUROPEAN HEADQUARTERS

**United Kingdom**
Lutron EA Ltd.
6 Sovereign Close
London, E1W 3JF United Kingdom
TEL: +44.(0)20.7702.0657
FAX: +44.(0)20.7480.6899
FREEPHONE (UK): 0800.282.107
Technical Support: +44.(0)20.7680.4481
lutronlondon@lutron.com

### ASIAN HEADQUARTERS

**Singapore**
Lutron GL Ltd.
390 Havelock Road
#07-04 King’s Centre
Singapore 169662
TEL: +65.6220.4666
FAX: +65.6220.4333
Technical Support: 800.120.4491
lutronsea@lutron.com

### North & South America

**Customer Assistance**
USA, Canada, Caribbean:
1.844.LUTRON1 (1.844.588.7661)
Mexico:
+1.888.235.2910
Central/South America:
+1.610.282.6701

### Asia Technical Hotlines

Northern China: 10.800.712.1536
Southern China: 10.800.120.1536
Hong Kong: 800.901.849
Indonesia: 001.803.011.3994
Japan: +81.3.5575.8411
Macau: 0800.401
Taiwan: 00.801.137.737
Thailand: 001.800.120.665853
Other Countries: +65.6220.4666

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Lutron Electronics Co., Inc.
7200 Suter Road
Coopersburg, PA 18036-1299 U.S.A.
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