Lighting Global Product Testing Verification

SHS family

Expiration Date: October 31, 2020

Verify here: www.lightingglobal.org/products/lemi-family

This verifies that the SHS family product family was tested according to the Quality Test Method in IEC 62257-9-5, ed. 4. The product family met the Lighting Global Quality Standards. The product family includes the following kits:


Testing Details:

Product Name: SHS family
Model Number: See list above
Company Name: Shenzhen LEMI Technology Development Co., Ltd
Country of Origin: China
Company Contact: Wendy Chen, info@lemi88.com
Original QTM Sample Size: n=4 or 6, as required by the applicable test method
Renewal Test Conducted: n/a
Sample Procurement Method: Random warehouse sampling
Testing Laboratory: Shenzhen Academy of Metrology and Quality Inspection, Shenzhen, Guangdong, China

These SKUs are interpreted as follows.

Kits without PAYG are labeled LM-LI***-B**-2 (*) 3 (*) 5 (*), and kits with PAYG are labeled LM-SHS-***-B**-2 (*) 3 (*) 5 (*).

- LI*** stands for the power of PV module, including 010 (10W), 020 (20W), 045 (45W), 050 (50W), 060 (60W), 080 (80W), 100 (100W);
- *** stands for the power of PV module, including 030 (30W), 045 (45W), 050 (50W), 060 (60W), 080 (80W), 100 (100W);
- B** stands for the capacity of the Li-ion battery, including 4.0 (4AH), 7.5 (7.5AH), 14 (14AH), 18 (18AH), 24 (24AH), 30 (30AH), 48 (48AH);
- 2 stands for 2W LED bulb, 3 stands for 3W LED bulb, 5 stands for 5W LED bulb;
- (*) stands for the quantity of LED bulbs.

1 Lighting Global requires re-testing every two years or upon major product revisions, and in special cases reserves the right to grant an extension on results validity.
2 www.lightingglobal.org/quality-assurance-program/
3 www.lightingglobal.org/quality-assurance-program/our-standards/
Lighting Global Product Testing Verification

SHS family
Expiration Date: October 31, 2020
Verify here: www.lightingglobal.org/products/lemi-family

Documentation:
Specifications book with verified test results and original version of this verification: http://www.lightingglobal.org/products/lemi-family
Specifications sheets with verified test results for selected systems within this product family:
www.lightingglobal.org/products/lemi-30W
www.lightingglobal.org/products/lemi-10W

Russell Sturm
Global Head, Energy Access
Lighting Global Project Manager
International Finance Corporation
<table>
<thead>
<tr>
<th>Category</th>
<th>Quality Standard</th>
<th>Verdict</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Truth In Advertising</strong></td>
<td>Manufacturer accurately specified</td>
<td>Pass</td>
</tr>
<tr>
<td></td>
<td>Product Name and Model Number accurately specified</td>
<td>Pass</td>
</tr>
<tr>
<td></td>
<td>Performance and Component Ratings accurately specified. Any description of the product that appears on the packaging, inside the package and in any media shall be truthful and accurate. No statements shall mislead buyers or end users about the utility of the product. Numeric ratings must deviate no more than 15% from actual performance (note that it is acceptable for actual performance to exceed advertised performance).</td>
<td>Pass</td>
</tr>
<tr>
<td><strong>Lumen Maintenance</strong></td>
<td>Average relative light output ≥ 85% of initial light output at 2,000 hours with only one sample allowed to fall below 75% OR All 6 samples maintain ≥ 95% of initial light output at 1,000 hours</td>
<td>Pass</td>
</tr>
<tr>
<td><strong>AC-DC Charger Safety</strong></td>
<td>Any included AC-DC charger carries approval from a recognized consumer electronics safety regulator</td>
<td>n/a</td>
</tr>
<tr>
<td><strong>Battery Composition</strong></td>
<td>No battery may contain cadmium or mercury at levels greater than trace amounts</td>
<td>Pass</td>
</tr>
<tr>
<td><strong>Battery Protection</strong></td>
<td>Protected by an appropriate charge controller that prolongs battery life and protects the safety of the user. 5 out of 6 samples must meet the requirements outlined in Lighting Global Quality Standards.</td>
<td>Pass</td>
</tr>
<tr>
<td><strong>Battery Durability</strong></td>
<td>The average capacity loss of 6 samples must not exceed 25% and only one sample may have a capacity loss greater than 35% following the battery durability storage test as defined in IEC/TS 62257-9-5 Annex BB* *This product also meets the Battery Longevity requirement described in KS 2542:2014: the measured capacity after storage is at least 80% of the measured capacity before storage; no more than 1/6 samples fail</td>
<td>Pass</td>
</tr>
<tr>
<td><strong>Physical Ingress</strong></td>
<td>Minimum IP2X for all products, IP3X for PV modules, and IP5X for fixed integrated outdoor products</td>
<td>Pass</td>
</tr>
<tr>
<td><strong>Water Ingress Protection</strong></td>
<td>Degree of protection required is based on product type: Fixed separate (indoor): No protection required Portable separate: Occasional exposure to rain Portable integrated: Frequent exposure to rain Fixed integrated (outdoor): Permanent outdoor exposure PV modules: Outdoor rooftop installation</td>
<td>Pass</td>
</tr>
</tbody>
</table>
## Type Approval Continued

### SHS family

Verify here: www.lightingglobal.org/products/lemi-family

<table>
<thead>
<tr>
<th>Category</th>
<th>Quality Standard</th>
<th>Verdict</th>
</tr>
</thead>
</table>
| Drop Test                       | Fixed separate (indoor): No requirement  
All other products: 5 out of 6 samples are functional after drop test; none result in dangerous failures                                                                                              | Pass    |
| Soldering and Electronics Workmanship | Pass soldering and electronics inspection; the maximum prevalence of bad solder joints, poor wiring or overall workmanship failure is 1 out of 6 samples in each category                                                                 | Pass    |
| Mechanical Durability           | 5 out of 6 samples are functional after Switch, Connector, Gooseneck and Strain Relief tests; none result in dangerous failures                                                                                     | Pass    |
| Minimum Warranty Terms          | Accurately specified and consumer-facing; minimum coverage of at least one year on manufacturing defects under normal use, including the battery. Detailed requirements are specified in the Lighting Global Quality Standards | Pass    |
| Performance Reporting           | Light output and the corresponding solar run time are reported on the product packaging for at least the brightest setting                                                                                     | Pass    |
|                                | Impact of mobile phone charging on product performance is qualitatively described on packaging                                                                                                               | Pass    |

Additional details on the requirements listed above are provided in the Lighting Global Quality Standards, available here:  
www.lightingglobal.org/quality-assurance-program/our-standards/

Kits in the product family with peak power ratings less than or equal to 10 W are evaluated based on test methods described in the edition 4 of IEC/TS 62257-9-5 and found to meet the Lighting Global Quality Standards for Pico PV kits. The LM-LI010 meets the Lighting Global SHS Standards as well.

Kits in the product family with peak power ratings greater than 10 W are evaluated based on edition 4 of IEC/TS 62257-9-5 and found to meet the Lighting Global Quality Standards for SHS Kits.