


PROTOCOL # 308-H

LOW VOLTAGE SOLAR POWERED LANDSCAPE AND GARDEN LIGHTING (UL 1838)

Test Property	Test Method	Samples	Test Principle / Requirements	Rating (Section or exec. Summary which failed items can be referenced)
LABELING				
Labeling / Packaging Review	FPLA 16 CFR 500 & 19 CFR 134	All Samples	Should be legibly marked with the following information: -Distributor's name, trademark or other means of identification of the manufacturer or packer & address (City, State & Zip) -Product identification -Net quantity of the contents in terms of weight, measure or numerical count (Metric & US Standard) or a combination so as to give accurate information and facilitate value comparison by the consumer -Country of origin (if imported)	
Verify Label Claims	Visual Check	All Samples	The labeling must comply and valid with all claims.	
Packaging / Product (Shall Be Permanently Marked on Battery Compartment)	Visual Check	All Samples	Size of battery Polarity of battery Voltage of battery	
FCC Requirement (if applicable)	FCC CFR 47 part 15	All Samples	Must be listed if product is a digital device with power consumption > 6nW; and with clock frequency greater than 9 kHz for AC operated item (or greater than 1.705 MHz for battery operated item)	
Packaging / Instructions	Visual Check	All Samples	For products with more than one battery, must include: "Do Not Mix Old And New Batteries. Do Not Mix Alkaline, Standard (Carbon - Zinc), Or Rechargeable (Nickel - Cadmium) Batteries" Should provide use, care, and maintenance information, as well as disposal of batteries information	
Rechargeable Batteries (If Applicable)	Battery Act	All Samples	Rechargeable cell batteries must be labeled  Nickel-Cadmium Batteries Must Be Labeled "Nickel-Cadmium" or "Ni-Cd," with the phrase "BATTERY MUST BE RECYCLED OR DISPOSED OF PROPERLY." Regulated Lead-Acid Batteries Must Be Labeled "Pb" or with words "LEAD," "RETURN", and "RECYCLE" and if the regulated batteries are sealed, the phrase "BATTERY MUST BE RECYCLED."	
Adult Tracking Label: **If space limitations exist, contact Kohl's Quality Assurance & Product Integrity teams to discuss minimum required information: (quality.assurance@kohls.com)	Kohl's Requirement	All Samples	Must be marked as a pass/fail Kohl's Assigned Factory Number Manufacture Date (Month/Year) UPC #	
Import Permit (For Natural Materials Only)	US Department of Agriculture Animal and Plant Health Inspection Service (APHIS), Plant Protection and Quarantine (PPQ)	All Samples	Product shall not have prohibited materials present per US Department of Agriculture, Animal and Plant Health Inspection Service (APHIS), Plant Protection and Quarantine (PPQ) Documentation and/ or proper permit(s) for specific product shall be supplied along with Testing Request form and samples. Permit information may be found at: https://www.aphis.usda.gov/wps/portal/aphis/home/ It is the vendor's responsibility for the compliance to relevant requirements.	
Safety Listing Mark	Visual Check	All Samples	Shall have valid ETL, UL or CSA listing or equivalent. Verify listing by NRTL product directory with the sample's listing number and model number.	

Cautionary Markings	UL 1838 3 rd Ed. Sect. 50	All Samples	Cautionary or warnings intended to inform the user of a potential risk of fire, electrical shock, or injury to persons shall be provided. “Suitable for Ground Installation” for power unit intended for installation < 1 foot aboveground, in ground, or below grade level “GROUND”, “GRND” OR “GND” for unit having pressure wire terminal for connection of an equipment grounding conductor “CAUTION – To reduce the risk of fire, replace only with same type ____A, ____V fuse” for replaceable fuse provided “WARNING – To reduce the risk of electric shock, install only on a circuit protected by a GFCI.” For power unit provided with a convenience receptacle that is not a GFCI type. “Suitable for Indoor Use Only” and “WARNING – Risk of Fire. If installation involves running wiring through a building structure, special wiring methods are needed. Consult a qualified electrician.” for power unit intended for indoor use only “Suitable for Outdoor Use Only” for power unit intended for outdoor use only “Suitable for Indoor or Outdoor Use” and “WARNING – Risk of Fire. If installation involves running wiring through a building structure, special wiring methods are needed. Consult a qualified electrician.” for power unit intended for either indoor or outdoor use Other cautions or warnings required by the standard	
User Manual / Important Safety Instructions / Assembly Instructions	UL 1838 3 rd Ed. Sect. 51	All Samples	Instructions and warnings shall be provided in the user manual identifying reasonable, foreseeable uses or misuses of the product. It shall also include instructions regarding the installation, use, safety and maintenance.	
*Reese's Law Supplemental Protocol	Refer to Protocol 1700	All Samples	All samples shall be reviewed against the requirements of Reese's Supplement Protocol to determine if additional testing or labeling is required	
MARKING AND INSTRUCTIONS				
Instructions	Visual Check	1 Sample	Should be complete and accurate	
PHYSICAL CHARACTERISTICS				
Weight Of Components (lbs.)	Std. Measure	3 Samples	As approved / as claimed / product specifications (+5% / -0%)	
Dimensions LxWxH (In.)	Std. Measure	3 Samples	As approved / as claimed / product specifications (+5% / -0%)	
Metal Enclosure Thickness (In.)	UL 1838 3 rd Ed. Sect. 9 (Mod.)	3 Samples	As approved / as claimed / product specifications.	
Solar cell, type & area	Std. Measure	1 Sample	Report. Shall meet the claim, if any.	
Battery	Std. Measure	1 Sample	Report the battery and numbers.	
CONSTRUCTION QUALITIES				
Kohl's Workmanship Review	Visual Check / Actual Use	1 Sample	All components shall be provided as claimed and shall not be deformed or fractured. All hardware shall be provided All welds shall be smoothly finished and free from pits and splatter All components shall not contain any burrs or sharp edges (test by touch or sight) Product shall not contain any loose components or unsecured fastening where rigidity is required	
Material Type	Visual Check	All Samples	Shall be constructed of material suitable for the intended environment	
Battery compartment	Visual Check	1 Sample	The battery shall be so constructed as to prevent the battery from being connected to the circuit reversely.	

Products that use standard batteries; sizes AAA, AA, C, D or 9V:	Actual Use	All	<p>The battery compartment door/cover must be secured with screw.</p> <p>Door/cover shall be opened and closed, and the battery removed and replaced, for a total of 5 cycles. The process shall simulate replacement according to the manufacturer's instructions.</p> <p>The screw(s) is to be loosened and then tightened by means of a suitable screwdriver.</p> <p>Battery door(s) and screws shall be still functional when tested as follows:</p> <p>Attach battery door with each screw tightened to 2 in-lbf and held for 10 seconds.</p> <p>Detach and perform test a total of 5 open / close cycles.</p> <p>Screw must stay secured in door when removed.</p> <p>There shall be no loss of functionality of the battery compartment door/cover.</p> <p>Record reasons for failure and take digital image of damage.</p>	
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PERFORMANCE

Operating test	Actual Use	1 Sample	<p>Install/place/hang two new units as indicated by manufacturer in an open site. And let them undergo 2 sunny days of charging and discharge cycles. After the 3rd day of charging is terminated, rest them for one hour and then start discharging them.</p> <p>Record the discharging time.</p> <p>If the discharge time is claimed, the actual time shall not be less than the claim.</p>	
Light sensor	Standard Measure	1 Sample	<p>Record the lux when the unit turns on or off automatically.</p> <p>Light sensor must function properly</p>	
Temperature Test	UL 1838 3rd Ed. Sect. 33	1 Sample	<p>A unit shall not attain a temperature rise at any point sufficiently high to present the risk of fire, to damage any materials employed in the unit. Unit surface temperature at any point shall not exceed the following temperature rise: Outdoor: 225o F (107 °C), Indoor: 117o F (47 °C)</p>	
Leakage Current	UL 1838 3rd Ed. Sect. 35	1 Sample	<p>Shall be less than 0.5 mA between surface and ground</p>	
Effects Of Extreme Temperature (Environmental)	Visual Check	1 Sample	<p>24 Hours @ 0° F (-18°C) and 24 Hours @ 120° F (49°C) - no failure</p>	
Resistance To Corrosion (Metal Components)	ASTM B117 G85	1 Sample	<p>Shall withstand 24 Hours in 1% Salt Spray (Fog) for outdoor with no major visual change or corrosion.</p>	
Humidity Test	Kohl's TM 31	1 Sample	<p>No failure @ 95% RH @ 100° F (38° C) for 24 Hours</p>	
Rain Test (For Power Unit Only Not Applicable if Power Unit Marked For Indoor Use Only)	UL 1838 3rd Ed. Sect. 37.9	1 Sample	<p>After 4 hours rain test as described, no water shall has entered the unit, or wetting of any primary winding if the unit provided with drain hole</p>	
8 Hour Test	Actual Use	1 Sample	<p>There shall not be any deterioration after 8 hours of use</p>	

PERFORMANCE For Tungsten – Halogen Lamps (If Applicable):

Lamp Containment Barrier	UL 1838 3rd Ed. Sect. 59.2	1 Sample	<p>A lamp containment barrier shall not have any open holes greater than 1/8 In. diagonally or in diameter</p>	
<i>Lamp Containment Barrier Materials</i>				
A. Metal	UL 1838 3rd Ed. Sect. 59.3	1 Sample	<p>Metal walls shall meet the requirements of 0.016 in. minimum thickness</p>	
B. Glass	UL 1838 3rd Ed. Sect. 59.3	1 Sample	<p>Glass shall meet the requirements of 0.125 in. minimum thickness</p>	
C. Ceramic	UL 1838 3rd Ed. Sect. 59.3	1 Sample	<p>Ceramic shall meet the requirements of 0.125 in. minimum thickness</p>	
Abnormal Operation	UL 1838 3rd Ed. Sect. 62 (Mod.)	1 Sample	<p>A light unit is to be operated near a test surface in a position representing the most severe condition. The test surface shall be 2 sheets of white tissue paper. The light unit shall be operated for 7 hours (Or claimed longevity of solar power). If the tissue ignites at any time the light unit fails the test.</p>	

ANALYTICAL

*Lead In Scrapable Surface Coating	ASTM E1613 / E1645	1 Sample	≤90ppm (0.009% by weight). (CPSA – 16 CFR 1303)	
* CA Prop 65	Refer to Protocol 1300	All Samples	All shall be reviewed against the requirements of California Proposition 65 to determine if additional testing or labeling is required.	
Refer to protocol Hardlines Regulatory Supplement for additional State & Federal Regulations	Refer to Protocol 1800	All Samples	All samples shall be reviewed against the requirements of the Hardlines Regulatory Supplemental Protocol (State Regulation Only) to determine if additional testing or labeling is required	
PRICING AND ADDITIONAL NOTE: *Please refer to Kohl's preferred third party labs for individual pricing and sample size				

Protocol Version	Description of Change	Revised by / Date	Approved by / Date
308 -0	Initial Release	CY Chan 2/10/2004	Roger Mayerson 3/8/2004
308-1	Amend labeling section, to include acceptance of ETL certification and add standard revision no.	Simon Leung 2/14/2005	Roger Mayerson 2/21/2005
308-2	Deleted Regulatory Listing Reviewed. Updated the Prop 65 warning label. Price Adjustment.	Simon Leung Oct. 31, 2008	Ro Jain Oct. 31, 2008
308-3	Added Lead in Solder Test.	Elizabeth Armstrong June 8, 2009	Ro Jain 6/8/2009
308-A	Updated chemical test pricing	Candy Chan 7/30/2014	Jeetendra Shelatkar 8/5/2014
308- B	Renamed all in-house method	Candy Chan Sep. 4, 2014	Elaine Smaczniak 10/30/2014
308-C	Revised Item “*Lead In Scrapable Surface Coating” from “600ppm” to “90ppm”	Jerry Chen 3/21/2016	Jeetendra Shelatkar 3/23/2016
308-D	Added adult tracking label and import permit requirements, safety listing mark, cautionary markings, and user manual/important safety instructions/assembly instructions	Charlene Swanson 8/1/2020	Charlene Swanson 8/1/2020
308-E	Added test lines for packaging/product for battery compartment, packaging/instructions for batteries, rechargeable batteries, solar cell type and area, battery, battery compartment, material type, operating test, light sensor, added marking and instructions section	Charlene Swanson August 2021	Charlene Swanson August 2021
308-F	Added Reese's Law Supplemental Protocol test line under Label Verification	Kevin Makocy October 2023	Kevin Makocy October 2023
308-G	Added 1800 Hardlines Regulatory Supplement for additional State & Federal Regulations	February 2025	February 2025
308-H	Added requirement for battery compartment to be secured.	Kate Anderson December 2025	Kate Anderson December 2025