

Protocol 340-B

FLASHLIGHT (BATTERY OPERATED)

Test Property	Test Method	Samples	Test Principle/Requirements	Rating (Section or Executive Summary which failed items can be referenced)
LABELING				
† Product Packaging and Labeling	F.P. & L. Act, 16 CFR 500 (For one time use products) OR NIST Handbook 130 Uniform Laws and Regulations (For others)	All Samples	<p>Manufacturer, packer, or distributor's name & address (city, state & zip)</p> <p align="center">Product Identification</p> <p>Net quantity of contents shall be expressed in terms of weight or mass, measure, numerical count, or combination so as to give accurate information to facilitate consumer comparison (U.S. and metric units).</p>	
†Country of Origin Marking	19 CFR 134.11	All Samples	<p>Shall indicate country of origin legibly, permanently, and in comparable size and close proximity to any mention of country other than country in which the article was manufactured or produced. Shall be visible at point of purchase.</p>	
†Plastic Bag Warning Statement (if provided)	Requirements Based on Various State Laws	All Samples	<p>Plastic bags with a thickness of less than one mil (0.001 inch), in which a diameter is 5 inches or greater (when formed into a circle) used as packaging or packaging article for domestic/household use (e.g. laundry bag, garbage bag) shall contain a warning statement as following or equivalent to below, visible on both sides of each bag: WARNING: Keep this bag away from babies and children. Do not use in cribs, beds, carriages or playpens. The thin film may cling to nose and mouth and prevent breathing. This bag is not a toy.</p> <p>The warnings shall be printed clearly as to prevent the ink from smearing or upon a gummed label securely attached to the bag. It shall be contrasted by typography, layout or color from the contents of the bag and from other printed matter on the bag, if any.</p> <p>If the total length and width is > 40", the warning shall be repeated in 20-inch intervals. The font size shall adhere to:</p> <p align="center">Total length and width of bag Font</p> <p align="center">60 inches or more at least 24 points</p> <p align="center">40 inches to less than 60 inches at least 18 points</p> <p align="center">25 inches to less than 40 inches at least 14 points</p> <p align="center">less than 25 inches at least 10 points</p>	
†US FCC Part 15 Rules	Document Check	All Samples	<p>If operating frequency > 1.705MHz, shall have valid FCC part 15V report for verification.</p>	
†US FCC Part 15 marking and instruction	Visual Check	All Samples	<p>Marking shall include,</p> <p align="center">Model number</p> <p>"This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation."</p> <p align="center">Instruction manual shall include,</p> <p>"Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment."</p> <p>"NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.</p> <p>However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:</p> <p align="center">Reorient or relocate the receiving antenna.</p> <p align="center">Increase the separation between the equipment and receiver.</p> <p align="center">Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.</p> <p align="center">Consult the dealer or an experienced radio/TV technician for help."</p>	

Marking Check (if applicable)	ANSI/NEMA FL 1-2009 Sec.3	All Samples	<ul style="list-style-type: none"> - Standard icon can be use on packaging from a single icon to completed grouping of icon. - The smallest size icon that will be acceptable on packaging is 9.0 mm x 9.0 mm for an individual icon. <ul style="list-style-type: none"> - All icons on the same surface or side of a package or document must be the same size. - The icons must only have a total of two contrasting colors, all icons on the same surface or side of a package or document must use the same color scheme. - If an individual icon is used or the icons are separated on the packaging, then the format for the icon will require the solid "FL 1 Standard" border to be on top <ul style="list-style-type: none"> - If icons are linked together, then the solid "FL 1 Standard" border is extended to cover all icons; and this border can be on top or on the left side of the icons. The linked icons must represent a common setting / function of the lighting device
Battery Product Packaging	Visual Check	All Samples	Packaging of products using replaceable batteries shall indicate the type/designation and number of batteries required and whether they are included or not. Report claim.
Battery Compartment Marking	Visual Check	All Samples	Battery compartment have replacement pictorials or markings providing the following information: (as applicable) <ul style="list-style-type: none"> - Number of batteries - Size / Type of batteries - Polarity orientation
Battery Warning Statement	Visual Check	All Samples	The following statement either in the instructions or marked on the device (required only for devices which use more than one battery in one circuit) <ul style="list-style-type: none"> - Do not mix old and new batteries - Do not mix alkaline, standard (carbon-zinc), or rechargeable (ni-cad, ni-mh, etc) batteries
Use Labeling	Visual Check	All Samples	Use/care instructions that are clear and understandable shall be provided in language appropriate to destination countries.
Instructions	Visual Check	All Samples	Shall provide an easy understandable instructions regarding assembly, use and maintenance
Instructions for Product Used with Rechargeable Battery	Visual Check	All Samples	The following instruction shall be provided in user manual: <ul style="list-style-type: none"> - Method of battery replacement - Battery disposal - Warning statement to state that only the rechargeable battery should be used.
Parts Labeling	Visual Check	All Samples	Shall match the actual content if present.
Verify Label claims	Actual Use	All Samples	Must comply with all claims
Lithium cells and batteries (If applicable)	49CFR. 173.185 (a)	All Samples	Each lithium cell or battery must be of the type proven to meet the criteria in Part III, sub-section 38.3 of the UN Manual of Test and Criteria. Valid test report within one year shall be provided.
Marking on the outside case of lithium ion battery (For rechargeable battery only, if applicable)	49CFR. 173.185 (c)	All Samples	Each lithium ion battery subject to this provision must be marked with the Watt-hour rating on the outside case.
*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
PHYSICAL CHARACTERISTICS			
Dimensions (Inch)	Standard Measurement	1 Sample	Report overall dimensions; shall meet claims (if applicable). (-5% / +5%).
Weight (lb)	Standard Measurement	1 Sample	Report overall weight; shall meet claims (if applicable). (-5% / +5%).
Lens Dimensions (Inch)	Standard Measurement	1 Sample	Report overall dimensions; shall meet claims (if applicable). (-5% / +5%).
Handle (Inch)	Standard Measurement	1 Sample	Report overall dimensions; shall meet claims (if applicable). (-5% / +5%).
Number and Size of Batteries	Visual Check	1 Sample	Report; shall meet claims (if applicable).
Bulb type and size	Visual Check	1 Sample	Report; shall meet claims (if applicable).
The number of LED (if applicable)	Visual Check	1 Sample	The number of LED shall be recorded; it shall meet claims (if applicable).
The color of LED (If applicable)	Visual Check	1 Sample	The color of LED (including change color) ;it shall meet claims (if applicable).
CONSTRUCTION QUALITIES			
Kohl's Workmanship Review	Visual Check	All Samples	<ul style="list-style-type: none"> • 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.
Sharp Points / Edges	16 CFR 1500.48/1500.49 (Mod.)	1 Sample	Shall have no sharp points/edges, other than those required for function.
PERFORMANCE			
Functional Check	Actual Use	1 Sample	To check if the product is able to operate as intended according to the instruction manual.
Ease of Installation	Follow directions for installation in Instruction manual	1 Sample	Report relative ease of installation. Report if instructions pertaining to installation are complete and understandable. Parts shall be provided as claimed.
Switch Durability	Actual Use	1 Sample	No loosening or malfunction after 200 repeated uses

Normal Use Test	Actual Use	1 Sample	No part deterioration after 8 hours of use
Stability Test (If applicable)	Standard Method	1 Sample	The unit shall be sufficiently stable to remain standing when resting on a plane inclined 8 degrees to the horizontal.
Resistance to Environmental Exposure	Standard Method	1 Sample	No cracking, crazing, separation of parts, other detrimental affects, or loss of serviceability subjecting the flashlight to the following: - 4 hrs at 120°F - 4 hrs at 0°F
Resistance to Corrosion (for metal components)	ASTM B117	1 Sample	Withstand 24 hours in 5% salt spray (fog) with no major corrosion or visual change.
Battery Short Circuit Test (If applicable)	ANSI C18.1M Part 2 Cls. 7.4.2 (Mod: sample size = 1; temp. tested = 20+/- 5degC)	1 Sample	For non-rechargeable batteries, the undischarged battery sample shall be short-circuited and remain on test for 24 hours or until the case temperature declines by 20% of the temperature rise. No explosion and no fire occur.
	ANSI C18.2M Part 2 Cls. 7.2.2 (Mod: sample size = 1; temp. tested = 20+/- 5degC)	1 Sample	For rechargeable batteries, fully charged sample shall be short-circuited and remain on test for 24 hours or until the case temperature declines by 20% of the temperature rise. No explosion and no fire occur.
Battery Overcharge (If applicable)	ANSI C18.2M Part 2-1999 Cls. 7.2.5	1 Sample	A battery is subjected to a constant charging current of two times the recommended charging current or maximum of 2.0 times of C5 rate. A thermocouple is to be attached to the unit. The battery shall remain on test for either one hour, until the temperature of the outer casing reaches a steady state, or until the temperature begins to decline. No explosion or fire shall be observed.
Reverse Battery Test (If applicable)	Standard Method	1 Sample	Batteries are inserted into the battery compartment with reverse polarity. Turn on the appliance for 1 hour. There shall not any emission of fire, or chemical leakage or explosion of batteries.
Short-circuited Prevention (For Battery Compartment) (if applicable)	(EN 62115 mod.)	1 Sample	- The metal strip used to connect the positive and negative MUST be shielded from the batteries by insulation material. - The internal construction of the sample shall be prevented a straight steel pin 0.5 mm in diameter, at least 25 mm long, from short-circuiting the positive and negative of the battery. - Place the test pin at any position of the internal compartment, short-circuit shall not happen by bridging with the pin.
Beam Distance & Peak Beam Intensity	ANSI/NEMA FL 1-2009 Cls. 2.2&2.3 (Mod sample size)	1 Sample	-Testing should be performed in a dark environment where the ambient conditions are determined to be less than 1 lux. -Test was conducted 1 piece of sample with fresh batteries or fully charged batteries/energy storage devices. 12V DC devices that are only tethered shall be powered with 13.8V DC using a power supply. -Place the light measuring device at a test distance of either 2 or 10 or 30 meters from the front of the surface of the lens of the device to be tested and record the highest indicated value. Measurements shall be taken 30 s to 2 min of turning on the device. -Use the Inverse Square Law to calculate the beam distance to 0.25 lux as follows: $\sqrt{(\text{peak beam intensity} / 0.25)} = \text{Max Beam Distance}$ Where: Surface light intensity is in lux (lx) Distance and Max Beam Distance are in meters (m) Peak Beam intensity is in candela (cd)
Run Time	ANSI/NEMA FL 1-2009 Cls. 2.4 (Mod sample size)	1 Sample	-Testing should be performed in a dark environment where the ambient conditions are determined to be less than 1 lux - Test was conducted 1 piece of sample with fresh batteries or fully charged batteries/energy storage devices. -Periodic light measurements and corresponding time values are recorded, and the end point is reached when the output value reaches 10% of the initial value for each sample. -A run time less than one hour is reported in minutes; more than 1 hour but less than 10 hours is reported in hours and minutes, rounded to the nearest 15 min. For 10 hours or more, report the run time only in hours. Standard rounding rules apply. (NOTE—If the device has an auto shut off mechanism, the operator must restart the light within 15 s for the test to be valid.)

Light Output	ANSI/NEMA FL 1-2009 Cls. 2.5 (Mod sample size)	1 Sample	<ul style="list-style-type: none"> - Lab conditions shall be a controlled temperature of $22 \pm 3^{\circ}\text{C}$ and a relative humidity of 50% nominal, 80% maximum. - Test was conducted 1 piece of sample with fresh batteries or fully charged batteries/energy storage devices. 12V DC devices that are only tethered shall be powered with 13.8V DC using a power supply. - Devices are to be securely mounted against an external port adapter or placed inside the sphere. Measurements shall be taken at 30 s to 2 min of continuous operation after turning on the device. - Round to whole numbers following standard rounding rules. 	
Impact Resistance	ANSI/NEMA FL 1-2009 Cls.2.6(Mod sample size)	1 Sample	<ul style="list-style-type: none"> - An impact surface consisting of a minimum 4 cm nominal thickness of cured concrete. Impact area must be a minimum of 1 m x 1 m. - Test was conducted 1 piece of sample, be dropped with all intended additions: batteries, elastic, tethers, hand straps, etc. Sample shall be in the "off" position with batteries in place. - Drop height for product sample shall be 1 m minimum. Higher drop heights can be used for testing and product claims. - Each sample is dropped 6 times using impact orientations that approximate a cube. The test sample is held in the desired orientation with its lowest part at the correct height. - Dropped sample must not exhibit any cracks or breaks visible with normal vision and remain fully functional 	
Water Resistance Test (if applicable)	ANSI/NEMA FL 1-2009 Cls.2.7.3.1&Cls.2.7.5.1 (Mod sample size)	1 Sample	<ul style="list-style-type: none"> - Test was conducted 1 piece of sample shall be in the "off" position with batteries in place. -The sample is exposed to water when using oscillating tube or spray nozzle -The unit shall function normally immediately after the test and 30 min after the test. Water ingress is allowed as long as the above conditions are met. 	
Water-proof Test (if applicable)	ANSI/NEMA FL 1-2009 Cls.2.7.3.2&Cls.2.7.5.2 (Mod sample size)	1 Sample	<ul style="list-style-type: none"> - Test was conducted 1 piece of sample shall be in the "off" position with batteries in place. - The test is made by completely immersing the enclosure in water in its service position so that the following conditions are satisfied: <ul style="list-style-type: none"> a) A 1 m deep reservoir sufficient to cover the entire device with water or a water vessel that is pressurized equivalent to 1 m depth b) the duration of the test is 30 min; c) the water temperature does not differ from that of the equipment by more than 5 K. -The unit shall function normally immediately after the test and 30 min after the test. There should be no ingress of water in any functional area that contains unprotected electrical components (contacts, batteries, PCB, wires) or light sources. 	
Submersible Test (if applicable)	ANSI/NEMA FL 1-2009 Cls.2.7.3.3&Cls.2.7.5.2 (Mod sample size)	1 Sample	<ul style="list-style-type: none"> - Test was conducted 1 piece of sample shall be in the "off" position with batteries in place. -The sample is immersed in water at manufacturer specified depth for 4 hours -The unit shall function normally immediately after the test and 30 min after the test. There should be no ingress of water in any functional area that contains unprotected electrical components (contacts, batteries, PCB, wires) or light sources. 	
*Transit Testing (by request only)	ISTA Procedure as Appropriate to Package	1 full carton with products	Packaged product shall be tested to applicable ISTA procedure and method, based on package configuration. Inspect package and product for damage upon completion of test. Report results.	
ANALYTICAL				
*†CA Prop 65 (mandatory in state California)	Intertek Protocol	All Samples	Consent Judgment of related court cases based on California Proposition 65.	
†Mercury-Containing and Rechargeable Battery Management Act	Title I, Rechargeable Battery Recycling Act, Visual (if applicable)	All Samples	<p>Cadmium and lead containing batteries shall bear 3 chasing arrows or comparable recycling symbol and Ni-CD or nickel-cadmium and "battery must be recycled or disposed of properly"</p> <p>PB or "lead", "return" and "recycle" and "battery must be recycled" if sealed.</p>	
*†Mercury-Containing and Rechargeable Battery Management Act (If Applicable)	U.S. Pub. L. 104-142. 13 May 1996. Stat. 110.1333. Mercury Analysis (EPA Guidance, Best Practice) Title II	All Samples	<p>Batteries larger than button cell shall contain no intentionally added Mercury. No intentionally added Hg is demonstrated in this protocol if testing shows less than 1 ppm (best practice). Batteries of button cell size are allowed small amounts of added mercury, but shall test to less than 25 mg Hg /cell. Testing is required on all included alkaline-manganese batteries, zinc-carbon (Heavy Duty) batteries, and silver-oxide and zinc-air button cells.</p> <p>The provided test report shall be validated (Document is valid for 1 year).</p>	
*†Hazardous substances in lights-document review (California RoHS)	CA AB1109 / acid digestion, organic extraction / ICP, GCMS analysis	All Samples	<p>General purpose lights shall meet the following levels of hazardous substances provided in the EU directive 2002/95/EC.</p> <p>Lead (Pb), Chromium VI(Cr (VI)), Mercury (Hg), Polybrominated biphenyls (PBBs) and Polychlorinated diphenyl ester (PBDEs) shall not exceed 1000mg/kg.</p> <p>Cadmium (Cd) shall not exceed 100mg/kg.</p>	
*Lead Content of Paints or Similar Surface Coating	16 CFR 1303 (scope widened)	All Samples	Shall not contain Lead or Lead compounds in which the Lead content is in excess of 0.009% by weight of the total content (90ppm).	

