

Product specific requirements: 207. Light Chain

Version: 4.0
Last update: 06.04.2022

Material	Products	Remark
-	Light Chain	-

No	Parameter	Method	Reference	Requirement
Safety				
1	LVD	-	Low Voltage Directive 2014/35/EU EN 60598-1 EN 60598-2-20 EN 62493 LED Driver: EN 61347-1 EN 61347-2-13	Have to fulfill requirements
2	Led Photo-biological Safety	-	IEC/TR 62778 or EN 62471	Have to fulfill requirements
3	EMC	-	EMC Directive 2014/30/EU EN 55015 EN 61547 EN 61000-3-2 EN 61000-3-3	Have to fulfill requirements
4	ErP	-	(EU) 2019/2020	Have to fulfill requirements
5	Energy Labelling	-	(EU) 2019/2015	Have to fulfill requirements
Chemical Requirements				
6	WEEE	-	Directive 2012/19/EU EN 50419	Have to fulfill requirements
7	RoHS	-	Directive 2011/65/EU amended by EU directive 2015/863	Have to fulfill requirements
8	PAHs	-	REACH regulation 1907/2006/EC Annex XVII Entry 50 ((EU) 1272/2013)	Have to fulfill requirements
9	PAHs	-	AFPS GS 2019:01 PAK	Have to fulfill requirements
10	REACH SVHC	-	Regulation (EC) No 1907/2006	Have to fulfill requirements
11	SCCP	-	POPs Regulation (EU) 2019/1021 and its amendments	Have to fulfill requirements

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Performance Requirements				
12	Durability	Actual Use		<p>Switch test</p> <p><u>Test preparation</u> Set rated voltage; Pre-condition the sample; Set maximum setting of the operation switch.</p> <p><u>Test cycle</u> Press all of the switch at a frequency of 6-10/Min</p> <p>Rating(cycles): Very Good ≥ 1000 Good ≥ 800 Satisfactory ≥ 600 Sufficient ≥ 400 Poor < 400</p>
13	Durability	Actual Use		<p>Endurance</p> <p><u>Test preparation</u> Set rated voltage Pre-condition the sample Test sample at room temperature: 45 ± 1 °C Select maximum settings</p> <p><u>Test cycle</u> Continuous operation 96 hours at rated power</p> <p>Rating(cycles): Very Good ≥ 96 Good ≥ 72 Satisfactory ≥ 48 Sufficient ≥ 24 Poor < 24</p>
14	Function Test	Actual Use		<p>Fuction check</p> <p>Use the sample for all the intended major functions according to the instruction manual.</p>
15	Function Test	Actual Use		<p>Setting of control</p> <p><u>Test preparation</u> Operate the control gear acc. to the instruction manual</p>
16	Function Test	Actual Use		<p>Light source performance</p> <p><u>Test preparation</u> Measured the below test data: Light output(lm) Color correlated temperature(CCT) Color rending index(CRI)</p>
17	Function Test	Actual Use		<p>Flicker of lighting systemsFlicker of lighting systems</p> <p><u>Test preparation</u> Test at both 100% and 20% output Lamps with a percent amplitude modulation (percent flicker) less than 30 percent at frequencies less than 200 Hz shall report "yes" for "reduced flicker operation" described</p>
18	Function Test	Actual Use		<p>Reverse battery</p> <p><u>Test preparation</u> For battery operated lighting chains, batteries are inserted in reverse polarity for 1 h unless such connections are prevented by the construction. After test shall not indicated saftety issue, fire risk, or any abnormal situation.</p>
19	Function Test	Actual Use		<p>Operation without a light bulb</p> <p><u>Test preparation</u> One light bulb was removed in series of light chain. Check if light bulbs in other series operate properly.</p>
20	Function Test	Actual Use		<p>Power consumption of the light chain</p> <p><u>Test preparation</u> The energy consumption of light chain is measured by applying the rated voltage of the lighting chain</p>
21	Function Test	Actual Use		<p>Bridging of light chain</p> <p><u>Test preparation</u> For light bulb with bridging function, a bulb is deliberately damaged without damaging the bridging link. The light chain is connected to the power to check. If bridging is provided</p>
22	Function Test	Actual Use		<p>Drop test</p> <p><u>Test preparation</u> Drop the sample from the height of 1 m to hard floor Repeat the test for 3 times</p>
23	Function Test	Actual Use		<p>Low temperature test</p> <p><u>Test Requirement</u> Continuous operation 24 hours at the temperature: - 20 ± 1 °C The sample shall function properly, without damage, deformation or other similar problem after test The sample shall pass an electric strength test after the prolong operation</p>

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24	Handling	Actual Use		Unpacking / assembly Check the suitability and convenience for unpacking and assembly the sample.
25	Handling	Actual Use		Switch/Buttons On/off switch Cord rewinder button
26	Handling	Actual Use		Mounting test Mounting the light chain on the Christmas tree or intended area with accessories provided Check for fixing of sockets, length of cable between sockets suitable for the intended use
27	Handling	Actual Use		Radius of action Record the length of the power cord. Check if it is long enough when using.
28	Handling	Actual Use		Battery compartment
29	Handling	Actual Use		Battery
30	Handling	Actual Use		Special features Passive / active
31	Handling	Actual Use		Weight of sample Record the net weight of the sample
32	Handling	Actual Use		Length of the power cord Record the length of power cord. Check if it is long enough when using
33	Handling	Actual Use		Maintenance / Care
34	Finishing	In-House Method	-	Housing Marking Switch / Buttons Battery compartment Battery Check the workmanship and type of the product.

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