

ZHEJIANG LADIS TECHNOLOGY CO.,LTD.

# CE LVD REPORT

Prepared For :	ZHEJIANG LADIS TECHNOLOGY CO.,LTD. Room 1004, No. 829, Gudun Road, Xihu District, Hangzhou City, Zhejiang Province
Product Name:	UPS
Model :	LADS G33-30KL, LADS D3000, LADS H2000, LADS G10K, LADS G10KL, LADS G31-10KL, LADS G31-30KL, LADSG33-10KL, LADS G33-300KL, LADSG33-10K, LADS G33-80K, LADS GR1K, LADS H1000M, LADS L33-100KL, LADS GR10KL, LADS LM-20K, LADS LM-400KL, LADS L31-50K, LADS L33-10K, LADSL33-800K
Prepared By :	BST Testing (Shenzhen) Co.,Ltd.  No.7, New Era Industrial Zone, Guantian, Bao'an District, Shenzhen, Guangdong, China
Test Date:	Nov. 29, 2022 – Dec. 09, 2022
Date of Report :	Dec. 09, 2022
Report No.:	BSTXD221222772801SR

**TEST REPORT****EN IEC 62040-1  
Uninterruptible power systems (UPS) -  
Part 1: Safety requirements**

Testing Laboratory Name .....	BST Testing (Shenzhen) Co.,Ltd.
Address .....	No.7, New Era Industrial Zone, Guantian, Bao'an District, Shenzhen, Guangdong, China
Testing location .....	BST Testing (Shenzhen) Co.,Ltd.
Applicant's Name .....	ZHEJIANG LADIS TECHNOLOGY CO.,LTD.
Address .....	Room 1004, No. 829, Gudun Road, Xihu District, Hangzhou City, Zhejiang Province
Manufacturer .....	ZHEJIANG LADIS TECHNOLOGY CO.,LTD.
Address .....	Floor 3-4, Building 3, No. 7, Na Xian Street, Liang Zhu Zhen, Yuhang District, Hangzhou City, Zhejiang province
Test specification	
Standard.....	EN IEC 62040-1:2019/A11:2021
Procedure deviation .....	N/A
Non-standard test method .....	N/A
Test item description .....	UPS
Trademark .....	LADS
Model and/or type reference .....	LADS G33-30KL, LADS D3000, LADS H2000, LADS G10K, LADS G10KL, LADS G31-10KL, LADS G31-30KL, LADSG33-10KL, LADS G33-300KL, LADSG33-10K, LADS G33-80K, LADS GR1K, LADS H1000M, LADS L33-100KL, LADS GR10KL, LADS LM-20K, LADS LM-400KL, LADS L31-50K, LADS L33-10K, LADSL33-800K
Rating(s).....	110-320V~, 50/60Hz, Class I
Test case does not apply to the test object ...	N/A
Test item does meet the requirement .....	P(ass)
Test item does not meet the requirement .....	F(ail)

**General remarks**

This report shall not be reproduced except in full without the written approval of the testing laboratory.

The test results presented in this report relate only to the item(s) tested.

"(see remark #)" refers to a remark appended to the report.

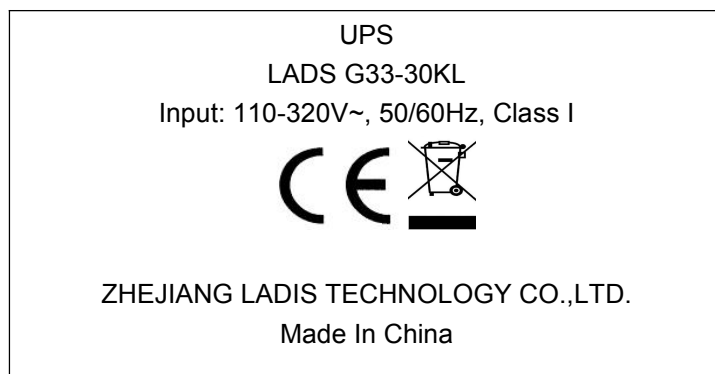
"(see Annex #)" refers to an annex appended to the report.

Clause numbers between brackets refer to clauses in IEC 60598-1 (EN 60598-1)

Throughout this report a comma is used as the decimal separator.

**General product information:**

(Note: the series products have the same circuit diagram, pcb layout and functionality. The differences are the model name, so, we select LADS G33-30KL to test.)

**Copy of marking plate and summary of test results:**

Prepared by :

*Jade Zhan*

Engineer

Reviewer :

*Jacky Zhang*

Supervisor

Approved &amp; Authorized Signer :



Andy / Manager



EN 62040-1			
Cl.	Requirement – Test	Result	Verdict
1	SCOPE AND SPECIFIC APPLICATIONS		P
1.1	Scope.....:		P
1.2	Specific applications.....:		--
2	NORMATIVE REFERENCES		P
4	GENERAL CONDITIONS FOR TESTS		P
4.1	Introduction		P
	Only the leakage current and heating tests shall be performed at input voltage tolerances (see 1.4.5/RD). All tests shall be run at nominal input voltages, unless specifically prescribed otherwise.		P
4.2	Type test		P
	Where in this standard compliance of materials, components or subassemblies is checked by inspection or by testing of properties, it is permitted to confirm compliance by reviewing any relevant data or previous test results that are available instead of carrying out the specified type tests.		P
4.3	Operating parameters for tests		P
	-absence of supply voltage	110-320V~	P
	-supply frequency	50/60Hz	P
	-charge condition of the battery		P
	-physical location of UPS and position of movable parts	UPS	NP
	-operating mode		P
4.4	UPS loading during tests		P
	that could be connected to any standard supply outlet or terminal on the equipment, up to the value indicated in the marking required by 4.7.2;		P
	due to recharge of the stored energy source (batteries or similar);		P
	due to optional features, offered or provided for by the manufacturer for inclusion in or with the equipment under test		N
	due to other units of equipment intended by the manufacturer to draw power from the equipment under test		N
4.5	Components		--





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Cl.	Requirement – Test	Result	Verdict
	Where safety is involved, components shall comply either with the requirements of this standard or with the safety aspects of the relevant IEC component standards.		P
4.6	Power interfaces		--
	The provisions of 1.6.1/RD, 1.6.2/RD, 1.6.4/RD apply together with the following		P
a)	Recharging mode – Applicable to the primary power received by the UPS while also charging the battery.		N
b)	Stored energy mode – Applicable to the d.c. current from, for example, a remote battery while simulating primary power outage.		P
c)	Bypass mode – The transfer switch should be positioned to allow the primary power for the output load to bypass the rectifier/charger and inverter sections of the UPS and be delivered directly to the load.		P
d)	Normal mode – With a fully charged battery, the UPS should receive power from the primary power source		P
4.7	Markings and instructions		--
4.7.1	General		P
	The marking shall be readily visible either in an operator access area or shall be located on an outside surface of the equipment.		P
	- polarized supply		P
4.7.2	Power rating		P
	- input supply requirements	110-320V	P
	- output supply ratings.	220V	P
	The markings of input and output shall include those in the RD, in addition to the following:		P
	- output rated voltage;		P
	- output rated power factor, if less than unity, or active power and rated current;		P
	- number of output phases and neutral (refer to 1.7.1/RD);		N
	- output rated active power, in watts or kilowatts according to Annex L/RD;		P



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Cl.	Requirement – Test	Result	Verdict
	– output rated apparent power in volt-amperes or kilovoltamperes according to Annex L/RD;		P
	– ambient operating temperature range (if other than 0 °C to 40 °C).	25°C	P
4.7.3	Safety instructions		P
4.7.3.2	Installation		P
	The manufacturer shall provide guidance on the level of competence necessary for installation.		P
	– UPS designed for location in a restricted access location only		P
	– UPS designed for permanent connection by fixed wiring to the a.c. supply or to the load or to a separate energy storage device, e.g. batteries that are not installed when delivered to the user.		P
	– Pluggable type A or pluggable type B UPS with energy storage device, e.g. a battery, already installed by the supplier.	type B	P
4.7.3.3	Operation		P
	The manufacturer shall, except when the UPS is intended for operation by a layperson, provide guidance on the level of competence necessary to operate the equipment.		P
4.7.3.4	Maintenance		P
	Except for minor routine maintenance that may be performed by the operator, safety instructions to be used during maintenance of the UPS are normally made available only to service persons.		P
4.7.3.5	Distribution related backfeed		--
	the installation instructions for permanently connected UPS shall require the fitting of a warning label		P
	– by the UPS supplier, at the UPS input terminals		P
	– by the user, on all primary power isolators installed remote from the UPS area and on external access points, if any, between such isolators and the UPS when	type B	P
a)	the automatic backfeed isolation (see 5.1.4) is provided external to the equipment		P



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Cl.	Requirement – Test	Result	Verdict
b)	the UPS input is connected through external isolators that, when opened, isolate the neutral		P
c)	the UPS is connected to an IT power distribution system (see 1.6.1/RD).		P
4.7.4	Main voltage adjustment		P
4.7.5	Power outlets		P
4.7.6	Fuses		P
4.7.7	Wiring terminals		P
4.7.8	Battery terminals		P
4.7.9	Controls and indicators		P
4.7.10	Isolation of multiple power sources		P
4.7.11	IT power systems		--
4.7.12	Protection in building installation		P
	If pluggable equipment type B or permanently connected equipment relies on the building installation for the protection of internal wiring of the equipment, the equipment installation instructions shall so state and shall also specify the necessary requirements for short-circuit protection or overcurrent protection or, where necessary, for both		P
4.7.13	High leakage current		P
	For UPS systems intended for use as pluggable equipment type B or fixed installations, where the earth leakage currents of the UPS and connected loads sum in the primary UPS protective earth conductor		P
4.7.14	Thermostats and other regulating devices		P
4.7.15	Language		--
	Instructions and equipment marking related to safety shall be in a language which is acceptable in the country in which the equipment is to be installed.		P
4.7.16	Durability of markings		P
4.7.17	Removable parts		N
4.7.18	Replaceable batteries		N
4.7.19	Operator access with a tool		N
4.7.20	Battery		P



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Cl.	Requirement – Test	Result	Verdict
	External battery cabinets or battery compartments within the UPS shall be provided with the following, clearly legible information in such a position as to be immediately seen by a service person when servicing the UPS,		P
4.7.21	Installation instructions		P
	Adequate information shall be provided in the installation instructions as to the purpose and connection of any signaling circuits, relay contacts, emergency power off (EPO) circuits, etc.		P
5	FUNDAMENTAL DESIGN REQUIREMENTS		--
5.1	Protection against electric shock and energy hazards		P
5.1.1	Protection for UPS intended to be used in operator access areas		P
	The requirements for protection against electric shock from energized parts are based on the principle that the operator is permitted to have access to:		P
	– bare parts of SELV circuits;		P
	– bare parts of limited current circuits;		P
	– TNV circuits under specified conditions.		P
5.1.2	Protection for UPS intended to be used in service access areas		P
	Bare parts at hazardous voltage shall be located or guarded so that unintentional contact with such parts is unlikely during service operations involving other parts of the equipment.		P
5.1.3	Protection for UPS intended to be used in restricted access areas		P
	For equipment to be installed in a restricted access location, the requirements for operator access areas apply, except as permitted in the following three paragraphs.		P
5.1.4	Backfeed protection		--
	A UPS shall prevent hazardous voltage or hazardous energy from being present on the UPS input a.c. terminals after interruption of the input a.c. power.		N
5.1.5	Emergency switching (disconnect) device		P
	A UPS shall be provided with an integral single emergency switching device (or terminals for the connection of the remote emergency switching device), which prevents further supply to the load by the UPS in any mode of operation.		P
5.2.	Requirements for auxiliary circuits		--



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Cl.	Requirement – Test	Result	Verdict
5.2.1	Safety extra low voltage circuits – SELV		--
5.2.2	Telephone network voltage circuits – TNV		P
	The provisions of 2.3/RD apply for any incoming TNV circuits supported by the UPS.		P
5.2.3	Limited current circuits		N
5.2.4	External signalling circuits		N
5.2.5	Limited power source		P
5.3	Protective earthing and bonding		P
5.3.2	Protective earthing		P
	Accessible conductive parts of Class I equipment, which might assume a hazardous voltage in the event of a single insulation fault, shall be reliably connected to a protective earthing terminal within the equipment.		P
5.3	Protective bonding		P
	The UPS output a.c. circuit shall be referenced to the protective earth of the equipment as required by the AC power distribution system in which the UPS is intended to operate.		P
5.4	AC and d.c. power isolation		N
5.4.2	Disconnect devices		--
	Means shall be provided to disconnect the UPS from the a.c. and d.c. supplies for service and testing by qualified personnel.		N
5.5	Overcurrent and earth fault protection		P
5.5.2	Basic requirements		--
	Protection against excess currents, short circuits and earth faults in input and output circuits shall be provided, either as an integral part of the equipment or as part of the building installation.		P
5.5.3	Battery circuit protection		N
5.5.3.1	Overcurrent and earth fault protection		N
	A battery supply circuit shall be provided with overcurrent and earth fault protection and shall comply with the requirements described in 5.5.3.2 and 5.5.3.3.		N
5.5.3.2	Location of protective devices		--
	Where the batteries are installed inside the UPS, the battery supply circuit shall be provided with a protective device.		N
5.5.3.3	Rating of protective devices		N



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Cl.	Requirement – Test	Result	Verdict
	The rating of the overcurrent protective device located internally shall be such as to protect against conditions described in 5.3.1/RD.		N
5.6	Protection of personnel – Safety interlocks		P
5.6.1	Operator protection		P
5.6.2	Service person protection		P
5.6.2.1	Introduction		--
	In addition to the requirements of 2.8/RD, the following subclauses apply to service persons who find it necessary to reach over, under, across and around an uninsulated electrical part or moving part to make adjustments or measurements while the UPS is energized.		N
5.6.2.2	Covers		--
	Parts at hazardous voltage or energy level shall be so arranged and covers so located as to reduce the risk of electric shock or high current levels while covers are being removed and replaced.		P
5.6.2.3	Location and guarding of parts		--
	Parts at hazardous voltage or energy level and moving parts that involve a risk of injury to persons shall be located, guarded or enclosed		N
5.6.2.4	Parts on doors		--
	Parts at hazardous voltage or energy level located on the rear side of a door shall be guarded or insulated to reduce the likelihood of unintentional contact of the live parts by a service person.		N
5.6.2.5	Component access		N
5.6.2.6	Moving parts		P
	Moving parts that can cause injury to persons during service operations shall be located or protected so that unintentional contact with the moving parts is not likely.		P
5.6.2.7	Capacitor banks		--
5.6.2.8	Internal batteries		P
	"CAUTION: A battery can present a risk of electrical shock and high short circuit current. The following precautions should be observed when working on batteries.		P
a)	Remove watches, rings or other metal objects.		P
b)	Use tools with insulated handles.		N



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Cl.	Requirement – Test	Result	Verdict
c)	Wear rubber gloves and boots.		N
d)	Do not lay tools or metal parts on top of batteries.		P
e)	Disconnect the charging source prior to connecting or disconnecting battery terminals.		N
5.7	Clearances, creepage distances and distances through insulation		N
6	WIRING, CONNECTIONS AND SUPPLY		--
6.2.1	Dimensions and ratings of busbars and insulated conductors		P
	The choice of cross-sections of conductors inside the UPS is the responsibility of the manufacturer. In addition to the current which must be carried,		P
6.2	Connection to power		P
6.2.1	General provisions for connection to power		P
6.2.2	Means of connection		P
	– UPS for permanent connection: terminals for permanent connection to the supply;		P
	– pluggable UPS type B: non-detachable power supply cord or a type B appliance coupler meeting the requirements of 3.2.5/RD;		P
	– pluggable UPS type A: an appliance inlet for connection of a detachable power supply cord or a non-detachable power supply cord meeting the requirements of 3.2.5/RD.		P
6.3	Wiring terminals for external power conductors		P
	Provisions shall be made for the securement of external power cable glands and accessories, for example, metal/wire sheaths to prevent movement of the cable in its installed condition.		P
7	PHYSICAL REQUIREMENTS		P
7.1	Enclosure		P
	The frame or chassis of a unit shall not be used to carry current during intended operation.		P
7.2	Stability		P
	Under conditions of normal use, units and equipment shall not become physically unstable to the degree that they may become a hazard to operators and service persons.		P
7.3	Mechanical strength		P
7.4	Construction details		--
7.4.2	Openings		--



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Cl.	Requirement – Test	Result	Verdict
	Openings vertically above bare parts at hazardous voltages in the top of a fire enclosure or an electrical enclosure shall not exceed 5 mm in any dimension unless the construction prevents vertical access to such parts,		N
7.4.3	Gas concentration		N
7.4.4	Equipment movement		P
	Equipment provided with castors to temporarily enable easy movement to installed position and intended to have rigid fixed wiring shall have an additional method to ensure the equipment does not move when installed.		P
7.5	Resistance to fire		P
7.6	Battery location		N
7.6.1	Battery location and installation		N
	Batteries shall be installed in:		N
	– separate battery rooms or buildings;		N
	– separate cabinets or compartments, indoor or outdoor;		N
	– battery bays or compartments within the UPS.		N
7.6.2	Accessibility and maintainability		N
	When deemed necessary, battery poles and battery connectors shall be accessible so that their fixings can be tightened with the correct tools.		N
7.6.3	Distance		P
	Battery cells shall be mounted with a distance to each other for the purpose of complying with ventilation, battery temperature and insulation requirements.		P
7.6.4	Case insulation		P
7.6.5	Wiring		P
	Contacts, connections and wiring shall be protected against effects of ambient temperature, moisture, gas, vapor and mechanical stress according to Clause 6.		P
7.6.6	Electrolyte spillage		N
	To prevent electrolyte spillage from the battery, adequate protection such as an electrolyteresistive coating on the battery trays and cabinets shall be provided.		P
7.6.7	Ventilation		P





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Cl.	Requirement – Test	Result	Verdict
	Proper ventilation shall be provided so that any potential explosive mixtures of hydrogen and oxygen are dispersed safely below hazardous levels.		P
7.6.8	Charging voltages		N
	Batteries shall be protected against excessive voltages, including under a single fault condition, for example due to a charger failure, by switching off the charger or interrupting the charging current.		N
7.7	Temperature rise		P
8	Electrical requirements and simulated abnormal conditions		P
8.1	General provisions for earth leakage		--
8.2	Electric strength		--
8.3	Abnormal operating and fault conditions		P
8.3.2	Simulation of faults		N
	– faults in any components in primary circuits;:		N
	– faults in any components where failure could adversely affect supplementary insulation or reinforced insulation;		N
	– additionally, for equipment that does not comply with the requirements of 4.7.1/RD and 4.7.2/RD, faults in all components;		P
	– faults arising from connection of the most unfavourable load impedance to terminals and connectors that deliver power or signal outputs from the equipment, other than main power outlets.		P
8.3.3	Conditions for tests		P
	Equipment shall be tested by applying any condition that may be expected in normal use and foreseeable misuse, with the UPS operating at rated voltage or at the upper limit of the rated voltage range.		P
9	Connection to telecommunication networks		--
Annex A	Tests for resistance to heat and fire		P
Annex B	Motor tests under abnormal conditions		N
Annex C	Transformers		N
Annex D	Measuring instruments for touch current tests		N
Annex E	Temperature rise of a winding		P
Annex F	Measurements of clearances and creepage distances		P



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Cl.	Requirement – Test	Result	Verdict
Annex G	Alternative method for determining minimum clearances		P
Annex H	Guidance on protection against ingress of water and foreign objects		P
Annex I	Backfeed protection test		N
I.2	Test for pluggable UPS		P
	The UPS shall initially operate in normal mode. The a.c. input terminals or plug(s) shall then be disconnected. This shall cause the UPS to operate in stored energy mode.		—
I.3	Test for permanently connected UPS		—
	The UPS shall initially operate in normal mode.		—
1.4	Load-induced change of reference potential		—
	Change of reference potential can be caused by summation of otherwise complying load-induced earth currents and may arise when a UPS operate in stored-energy mode.		P
1.5	Solid-state backfeed protection		P
Annex J	Table of electrochemical potentials		N
Annex K	Thermal controls		N
Annex L	Reference loads		N
Annex M	Ventilation of battery compartments		N
Annex N	Minimum and maximum cross-sections of copper conductors suitable for connection (see 6.3)		N
Annex O	Guidance for disconnection of batteries during shipment		N

	TABLE I: Creepage distances and clearances						P
	Minimum distances (mm) for a.c. up to 30 kHz sinusoidal voltages						P
	Applicable part of IEC 60598-1 Table 11.1.A*, 11.1.B* and 11.2*						P
	Insulation type **	Measured clearance	Required		Measured creepage	Required	
			clearance	*Table		creepage	*Table
Distance 1:	B	>3.0	1.5	11.1	>3.0	2.5	11.1
Working voltage (V)..... :					--		—
PTI..... :					<div>&lt; 600 <input checked="" type="checkbox"/></div> <div><input type="checkbox"/></div> <div>≥ 600</div>		—
Pulse voltage or $U_P$ if applicable (kV) ..... :					240		—
Supplementary information:							
Distance 2:	R	>8	3	11.1	>8	5	11.1



Working voltage (V)..... :		—
PTI..... :	< 600 <input type="checkbox"/> <span style="float: right;">≥ 600</span>	—
Pulse voltage or $U_P$ if applicable (kV) .....		—
Supplementary information:		
Distance 3:	R	>8 3 11.1
Working voltage (V)..... :	240	—
PTI..... :	< 600 <input checked="" type="checkbox"/> <span style="float: right;">≥ 600</span>	—
Pulse voltage or $U_P$ if applicable (kV) .....	--	—
Supplementary information:		

\*\* Insulation type: B – Basic; S – Supplementary; R – Reinforced. See also IEC 60598-1 Annex M.

1.7 (11.2)	TABLE II: Creepage distances and clearances						N/A
Minimum distances (mm) for a.c. higher than 30 kHz sinusoidal voltages							
Applicable part of IEC 61347-1 Table 7 and 8* or IEC 60664-4 Table 1 and 2							
Distances	Insulation type **	Measured clearance	Required		Measured creepage	Required	
			clearance	*Table		creepage	*Table
Distance 1:							
Working voltage (V)..... :							—
Frequency if applicable (kHz)..... :							—
PTI..... :					< 600 <input type="checkbox"/> <span style="float: right;">≥ 600</span>		—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) .....							—
Supplementary information:							
Distance 2:							
Working voltage (V)..... :							—
Frequency if applicable (kHz)..... :							—
PTI..... :					< 600 <input type="checkbox"/> <span style="float: right;">≥ 600</span>		—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) .....							—
Supplementary information:							
Distance 3:							
Working voltage (V)..... :							—
Frequency if applicable (kHz)..... :							—



PTI..... :	< 600 <input type="checkbox"/> <input type="checkbox"/>	≥ 600	—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) .....			—
Supplementary information:			

\*\* Insulation type: B – Basic; S – Supplementary; R – Reinforced.

<b>1.15 (13.2.1)</b>	<b>TABLE: Ball Pressure Test of Thermoplastics</b>			<b>P</b>
<b>Allowed impression diameter (mm) .....</b>	2			—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)	
Plastic parts	Refer to Annex 1	75	0.6	
Terminal block	Refer to Annex 1	125	0.7	
Supplementary information:				

<b>1.15 (13.3.1)</b>	<b>TABLE: Needle-flame test (IEC 60695-11-5)</b>				<b>P</b>
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
Terminal block	Refer to Annex 1	30	NO	0	Pass
Supplementary information:					

<b>1.15 (13.3.2)</b>	<b>TABLE: Glow-wire test (IEC 60695-2-11)</b>				<b>P</b>
<b>Glow wire temperature .....</b>	650°C				—
Object/ Part No./ Material	Manufacturer/ trademark	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict	
Plastic parts	Refer to Annex 1	No	0	Pass	
Terminal block	Refer to Annex 1	No	0	Pass	
Supplementary information:					

<b>1.15 (13.4)</b>	<b>TABLE: Proof tracking test (IEC 60112)</b>				<b>N/A</b>
<b>Test voltage PTI .....</b>	175 V				—
Object/ Part No./ Material	Manufacturer/ trademark	Withstand 50 drops without failure on three places or on three specimens			Verdict



Supplementary information:

<b>ANNEX 1</b>	<b>TABLE: Critical components inform</b>	<b>N/A</b>
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object/part No.	code	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity

The codes above have the following meaning:

- A - The component is replaceable with another one, also certified, with equivalent characteristics
- B - The component is replaceable if authorised by the test house
- C - Integrated component tested together with the appliance
- D - Alternative component

ANNEX 2	TABLE: Thermal tests of Section 12		P				
	Type reference.....:	LADS G33-30KL	—				
	Mounting position of luminaire.....:	As in normal use	—				
	Supply wattage (W).....:	240W	—				
	Temperatures in test 1 - 4 below are corrected for ta (°C) .....	25	—				
	- abnormal operating mode.....:		—				
1.12 (12.4)	- test 1: rated voltage .....	110-320V	—				
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current .....	1.06 x 320V	—				
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage.....:		—				
	Through wiring or looping-in wiring loaded by a current of A during the test .....		—				
1.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current.....:		—				
Temperature measurements (°C)							
Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Plug	25	--	52.1	--	--	--	--
Power cord	25	--	44.3	--	105	--	--
Internal wire	25	--	47.9	--	105	--	--



PCB	25	--	53.5	--	80	--	--
Terminal block	25	--	50.4	--	130	--	--
Mounting surface	25	--	38.7	--	90	--	--
Enclosure	25	--	40.1	--	90	--	--
Supplementary information:							

<b>ANNEX 3</b>	<b>Screw terminals (part of the luminaire)</b>		N/A
<b>(14)</b>	<b>SCREW TERMINALS</b>		N/A
(14.2)	Type of terminal.....:		—
	Rated current (A).....:		—
(14.3.2.1)	One or more conductors		N/A
(14.3.2.2)	Special preparation		N/A
(14.3.2.3)	Terminal size		N/A
	Cross-sectional area (mm <sup>2</sup> ).....:		—
(14.3.3)	Conductor space (mm).....:		N/A
(14.4)	Mechanical tests		
(14.4.1)	Minimum distance		N/A
(14.4.2)	Cannot slip out		N/A
(14.4.3)	Special preparation		N/A
(14.4.4)	Nominal diameter of thread (metric ISO thread).....:	M	N/A
	External wiring		N/A
	No soft metal		N/A
(14.4.5)	Corrosion		N/A
(14.4.6)	Nominal diameter of thread (mm).....:		N/A
	Torque (Nm).....:		N/A
(14.4.7)	Between metal surfaces		N/A
	Lug terminal		N/A
	Mantle terminal		N/A
	Pull test; pull (N).....:		N/A
(14.4.8)	Without undue damage		N/A

<b>ANNEX 4</b>	<b>Screwless terminals (part of the luminaire)</b>		N/A
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<b>(15)</b>	<b>SCREWLESS TERMINALS</b>		N/A
(15.2)	Type of terminal.....:		—
	Rated current (A).....:		—
(15.3.1)	Material		N/A
(15.3.2)	Clamping		N/A
(15.3.3)	Stop		N/A
(15.3.4)	Unprepared conductors		N/A
(15.3.5)	Pressure on insulating material		N/A
(15.3.6)	Clear connection method		N/A
(15.3.7)	Clamping independently		N/A
(15.3.8)	Fixed in position		N/A
(15.3.10)	Conductor size		N/A
	Type of conductor		N/A
(15.5)	Terminals and connections for internal wiring		N/A
(15.5.1)	Mechanical tests		N/A
(15.5.1.1.1)	Pull test spring-type terminals (4 N, 4 samples).....:		N/A
(15.5.1.1.2)	Pull test pin or tab terminals (4 N, 4 samples).....:		N/A
	Insertion force not exceeding 50 N		N/A
(15.5.1.2)	Permanent connections: pull-off test (20 N)		N/A
(15.5.2)	Electrical tests		
	Voltage drop (mV) after 1 h (4 samples).....:		N/A
	Voltage drop of two inseparable joints		N/A
	Number of cycles:		—
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples).....:		N/A
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples).....:		N/A
	After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples).....:		N/A
	After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples).....:		N/A
(15.6)	Terminals and connections for external wiring		N/A
(15.6.1)	Conductors		N/A
	Terminal size and rating		N/A
15.6.2	Mechanical tests		N/A



(15.6.2.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N) .....		N/A
(15.6.2.2)	Pull test pin or tab terminals (4 samples); pull (N) .....		N/A
(15.6.3)	Electrical tests		N/A
	Tests according 15.6.3.1 + 15.6.3.2 in IEC 60598-1		N/A

(15.6.3.1) (15.6.3.2)	TABLE: Contact resistance test / Heating tests										N/A
	Voltage drop (mV) after 1 h										—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
	Voltage drop of two inseparable joints										
	Voltage drop after 10th alt. 25th cycle										
	Max. allowed voltage drop (mV).....:										—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
	Voltage drop after 50th alt. 100th cycle										
	Max. allowed voltage drop (mV).....:										—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
Supplementary information:											





## **ANNEX A:**

### **Photo-documentation**



### Photo Overview



Photo 1



Photo 2



Photo 3



Photo 4





Photo 5



Photo 6

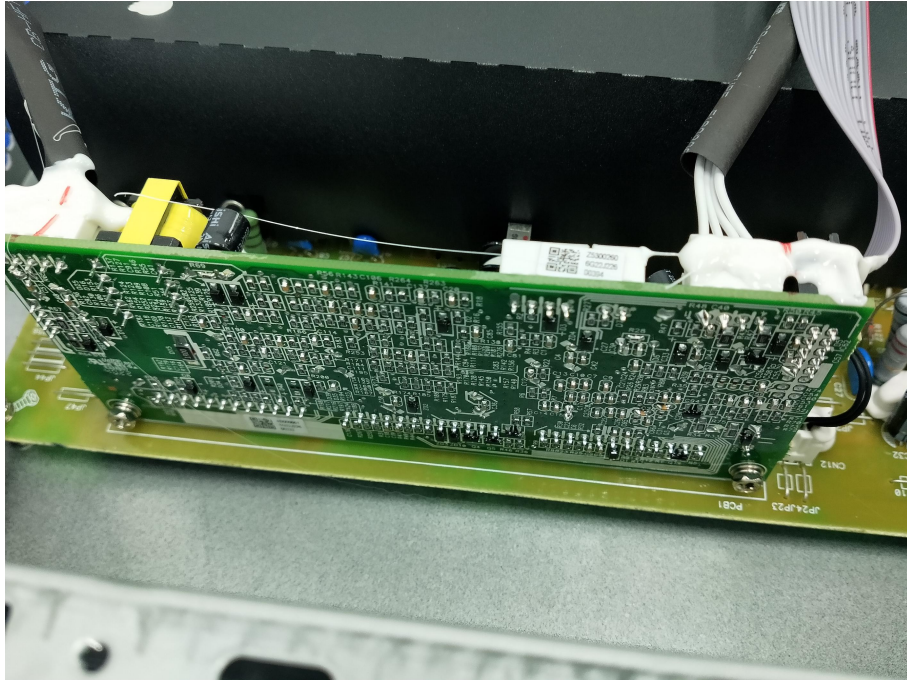


Photo 7



Photo 8





Photo 9



Photo 10

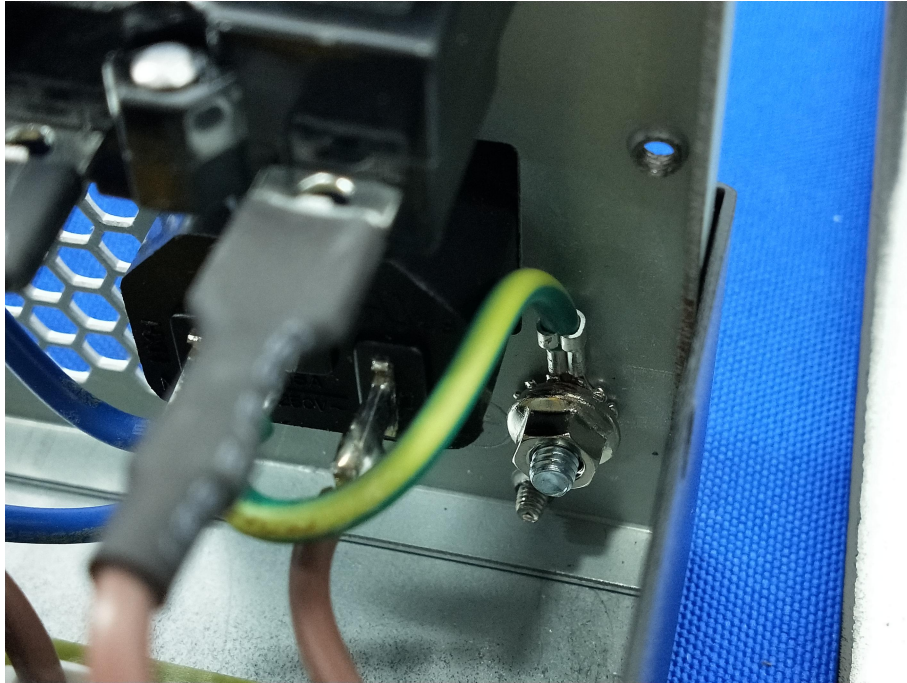


Photo 11



Photo 12