



<b>TEST REPORT</b> <b>IEC 60335-2-2</b>  <b>Household and similar electrical appliances – Safety –</b> <b>Part 2-2: Particular requirements for vacuum cleaners and water-</b> <b>suction cleaning appliances</b>	
<b>Report Number.....</b>	EFSH16110237-IE-01-L01-A1
<b>Date of issue.....</b>	2017-01-11 Amendment 1:2018-02-08
<b>Total number of pages .....</b>	32 pages
<b>Name of Testing Laboratory preparing the Report .....</b>	<b>Eurofins Product Testing Service (Shanghai) Co., Ltd.</b> No. 395 West Jiangchang Road, Jing'an District, Shanghai, China
<b>Applicant's name .....</b>	<b>Suzhou Maijun Electric Appliance Co., Ltd.</b>
<b>Address.....</b>	Room 1172, 7# Building, No. 51# Suli Road, Wuzhong District, Suzhou, China
<b>Test specification:</b>	
<b>Standard .....</b>	<input checked="" type="checkbox"/> EN 60335-2-2: 2010 + A11: 2012 + A1: 2013 <input checked="" type="checkbox"/> EN 60335-1: 2012 + A11: 2014 <input checked="" type="checkbox"/> EN 62233: 2008
<b>Test procedure .....</b>	GS approval + CE-LVD
<b>Non-standard test method .....</b>	N/A
<b>Test Report Form No. ....</b>	IEC60335_2_2H
<b>Test Report Form(s) Originator ....</b>	LCIE
<b>Master TRF .....</b>	Dated 2016-03
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Test item description .....	Vacuum Cleaner	
Trade Mark .....	--	
Manufacturer .....	Same as applicant	
Model/Type reference .....	MJ1601A, MJ1801A	
Ratings .....	DC 3,7V, IPX4, Class III	
<b>Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):</b>		
<input checked="" type="checkbox"/>	<b>Testing Laboratory:</b>	<b>Eurofins Product Testing Service (Shanghai) Co., Ltd.</b>
Testing location/ address.....		No. 395 West Jiangchang Road, Jing'an District, Shanghai, China
<input type="checkbox"/>	<b>Associated CB Testing Laboratory:</b>	N/A
Testing location/ address.....		N/A
Tested by (name, function, signature) .....		Paul Pan /Project Engineer <i>Paul Pan</i>
Approved by (name, function, signature)...		Wise Feng /Project Engineer <i>Wise Feng</i>
<input type="checkbox"/>	<b>Testing procedure: CTF Stage 1:</b>	N/A
Testing location/ address.....		N/A
Tested by (name, function, signature) .....		N/A
Approved by (name, function, signature)...		N/A
<input type="checkbox"/>	<b>Testing procedure: CTF Stage 2:</b>	N/A
Testing location/ address.....		N/A
Tested by (name + signature) .....		N/A
Witnessed by (name, function, signature) ..		N/A
Approved by (name, function, signature)...		N/A
<input type="checkbox"/>	<b>Testing procedure: CTF Stage 3:</b>	N/A
<input type="checkbox"/>	<b>Testing procedure: CTF Stage 4:</b>	N/A
Testing location/ address.....		N/A
Tested by (name, function, signature) .....		N/A
Witnessed by (name, function, signature) ..		N/A
Approved by (name, function, signature)...		N/A
Supervised by (name, function, signature) :		N/A

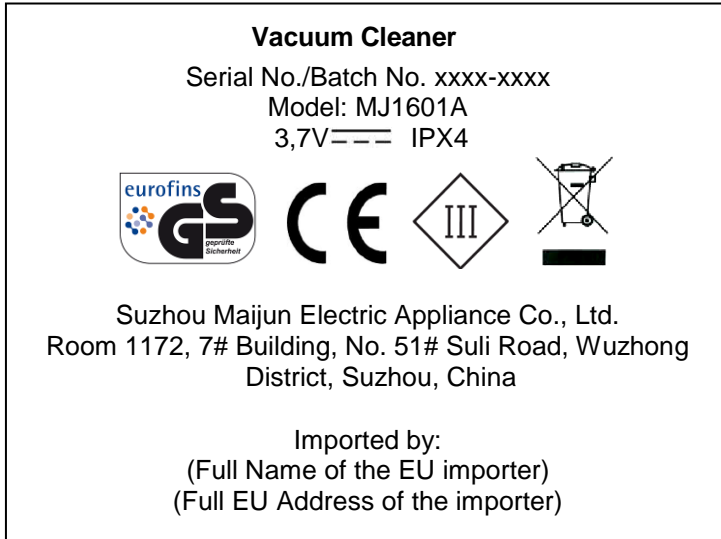
<p><b>List of Attachments (including a total number of pages in each attachment):</b></p> <p>Photo document: 5 pages (in the main report)</p> <p>Constructional data form (CDF): 3 pages (separated file)</p>	
<p><b>Summary of testing:</b></p> <p>From the result of our inspection and tests on the submitted samples, we conclude they comply with requirements of the standard.</p>	
<p><b>Tests performed (name of test and test clause):</b></p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Cl.8 Protection against access to live parts</li> <li><input checked="" type="checkbox"/> Cl.11 Heating</li> <li><input checked="" type="checkbox"/> Cl.13 Leakage current and electric strength at operating temperature</li> <li><input checked="" type="checkbox"/> Cl.15 Moisture resistance</li> <li><input checked="" type="checkbox"/> Cl.16 Leakage current and electric strength</li> <li><input checked="" type="checkbox"/> Cl.29 Clearances, creepage distances and solid insulation</li> <li><input checked="" type="checkbox"/> Cl.30 Resistance to heat and fire</li> </ul>	<p><b>Testing location:</b></p> <p>Eurofins Product Testing Service (Shanghai) Co., Ltd.                  No. 395 West Jiangchang Road, Jing'an District, Shanghai, China</p>
<p><b>Summary of compliance with National Differences (List of countries addressed):</b></p> <p>National differences of Germany and U.K. were checked.</p>	

**Copy of marking plate:**

**The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.**

(Representative, may differ in model no.)

For Appliance:



Copy of adaptor marking plate (representative, may differ with model no.)



<b>Test item particulars</b> .....: Vacuum Cleaner	
<b>Classification of installation and use</b> .....: Adaptor class II, Vacuum Cleaner Class III, Handheld and Household use	
<b>Supply Connection</b> .....: Battery operated .....:	
<b>Possible test case verdicts:</b>	
- test case does not apply to the test object..... : N/A	
- test object does meet the requirement..... : P (Pass)	
- test object does not meet the requirement..... : F (Fail)	
<b>Testing</b> ..... :	
<b>Date of receipt of test item</b> ..... : 2018-01-26	
<b>Date (s) of performance of tests</b> ..... : 2018-01-26 to 2018-02-07	
<b>General remarks:</b>	
<p>The test results presented in this report relate only to the object tested.                      This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.                      "(See Enclosure #)" refers to additional information appended to the report.                      "(See appended table)" refers to a table appended to the report.  <b>Determination of the test result includes consideration of measurement uncertainty from the test equipment and methods.</b>  <b>The related applicable CTL/OSM decisions have been considered and the requirements found fulfilled.</b>  <b>For GS approval, EK1 601-15e Rev1, EK1 588-14 and EK1 527-12 Rev. 2 are considered.</b></p> <p>Throughout this report a <input checked="" type="checkbox"/> comma / <input type="checkbox"/> point is used as the decimal separator.</p>	
<b>Manufacturer's Declaration per sub-clause 4.2.5 of IEC 60335-2-29:</b>	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided ..... :	<input type="checkbox"/> <b>Yes</b> <input checked="" type="checkbox"/> <b>Not applicable</b>
<b>When differences exist; they shall be identified in the General product information section.</b>	
<b>Name and address of factory (ies)</b> ..... : Suzhou AZA Clean Electric Technology Co., Ltd. No.3999, Puzhuang Avenue, Xukou Town, Wuzhong District, Suzhou 215105, China	

**General product information:**

The appliance covered by this report is rechargeable vacuum cleaner with adaptors for household and indoor use.

Component	Manufacturer	Type	Parameters
Adaptor	Zhongshan Xiao Lan HuiYang Electric Appliance Factory	HS06-0500500EU	Input:100-240VAC, 50/60Hz, 0,2A Max Output:5,0VDC, 0,5A
-Alternative	Zhongshan Xiao Lan HuiYang Electric Appliance Factory	HS06-0500500UK	Input:100-240VAC, 50/60Hz, 0,2A Max Output:5,0VDC, 0,5A
-Alternative	Shenzhen Sunshine Technology Co., Ltd.	XS-050050EU	Input:100-240VAC, 50/60Hz, 0,3A Output:5,0VDC, 0,5A
-Alternative	Shenzhen Sunshine Technology Co., Ltd.	XS-050050UK	Input:100-240VAC, 50/60Hz, 0,3A Output:5,0VDC, 0,5A

After review, MJ1601A with XS-050050EU was subjected to the tests and the most unfavourable data was recorded.

**Amendment 1:**

The original test report ref. No. EFSH16110237-IE-01-L01, dated 2017-01-11, was modified on 2018-02-08 to include the following changes and/or additions:

1. Add new model MJ1801A;

MJ1801A is identical with MJ1601A except for model name, appearance color, air inlet and air outlet.

2. Add an alternative motor for both models;

3. Change the name and address of factory from “Suzhou Xinwei Electric Co., Ltd.” and “No.299, Chang'an Road, Xukou Town, Wuzhong District, 215156, Suzhou, China” to “Suzhou AZA Clean Electric Technology Co., Ltd.” to “No.3999, Puzhuang Avenue, Xukou Town, Wuzhong District, Suzhou 215105, China”

After review, MJ1601A with alternative motor MJ-280P was selected for tests of Cl.11, Cl.13, Cl.15.3, Cl.16, Cl.30, EN 62233:2008, MJ1801A with motor GFK-280PA was selected for tests of Cl.8, Cl.11, Cl.13, Cl.15, Cl.16, Cl.29 and the most unfavourable data was recorded.

This report is only valid in conjunction with EFSH16110237-IE-01-L01.

IEC 60335_2_2H			
Clause	Requirement + Test	Result - Remark	Verdict
<b>8</b>	<b>PROTECTION AGAINST ACCESS TO LIVE PARTS</b>		<b>--</b>
8.1	Adequate protection against accidental contact with live parts	Class III vacuum cleaner Supplied by separated certified adaptor	P
8.1.1	Requirement applies for all positions, detachable parts removed		N/A
	Lamps behind a detachable cover not removed, if conditions met		N/A
	Insertion or removal of lamps, protection against contact with live parts of the lamp cap		N/A
	Use of test probe B of IEC 61032, with a force not exceeding 1 N: no contact with live parts		N/A
	Instructions for disconnection before opening (IEC 60335-2-2)		N/A
	Access to live parts prevented by at least basic insulation (IEC 60335-2-2)		N/A
8.1.2	Use of test probe 13 of IEC 61032, with a force not exceeding 1 N, through openings in class 0 appliances and class II appliances/constructions: no contact with live parts		N/A
	Test probe 13 also applied through openings in earthed metal enclosures having a non-conductive coating: no contact with live parts		N/A
8.1.3	For appliances other than class II, use of test probe 41 of IEC 61032, with a force not exceeding 1 N: no contact with live parts of visible glowing heating elements		N/A
8.1.4	Accessible part not considered live if:		--
	- safety extra-low a.c. voltage: peak value not exceeding 42.4 V		N/A
	- safety extra-low d.c. voltage: not exceeding 42.4 V		P
	- or separated from live parts by protective impedance		N/A
	If protective impedance: d.c. current not exceeding 2 mA, and		N/A
	a.c. peak value not exceeding 0.7 mA		N/A
	- for peak values over 42.4 V up to and including 450 V, capacitance not exceeding 0,1 $\mu$ F		N/A
	- for peak values over 450 V up to and including 15 kV, discharge not exceeding 45 $\mu$ C		N/A

IEC 60335_2_2H			
Clause	Requirement + Test	Result - Remark	Verdict
	- for peak values over 15kV, the energy in the discharge not exceeding 350 mJ		N/A
8.1.5	Live parts protected at least by basic insulation before installation or assembly:		--
	- built-in appliances		N/A
	- fixed appliances		N/A
	- appliances delivered in separate units		N/A
8.2	Class II appliances and constructions constructed so that there is adequate protection against accidental contact with basic insulation and metal parts separated from live parts by basic insulation only		N/A
	Only possible to touch parts separated from live parts by double or reinforced insulation		N/A

<b>11</b>	<b>HEATING</b>		--
11.1	No excessive temperatures in normal use		P
11.2	The appliance is held, placed or fixed in position as described.....:	Held in it's normal position of use	P
11.3	Temperature rises, other than of windings, determined by thermocouples		P
	Temperature rises of windings determined by resistance method, unless		N/A
	the windings are non-uniform or it is difficult to make the necessary connections	DC motors	P
11.4	Heating appliances operated under normal operation at 1.15 times rated power input (W) ....:		N/A
11.5	Motor-operated appliances operated under normal operation at most unfavourable voltage between 0.94 and 1.06 times rated voltage (V).....:	254,4 V~, charging	P
	Booster settings activated during test as often as allowed .....(IEC 60335-2-2):		N/A
	Docking stations of automatic battery-powered cleaners are operated at 0,94 or 1,06 times rated voltage, whichever is the most unfavourable .....(IEC 60335-2-2):		N/A
	If a suction mode is incorporated in docking stations of automatic battery-powered cleaners, the test conditions of 3.1.9 are applied.....(IEC 60335-2-2):		N/A
11.6	Combined appliances operated under normal operation at most unfavourable voltage between 0.94 and 1.06 times rated voltage (V).....:		N/A

IEC 60335_2_2H			
Clause	Requirement + Test	Result - Remark	Verdict
11.7	Operation duration corresponding to the most unfavourable conditions of normal use		P
	Until steady conditions are established (IEC 60335-2-2)		P
	Appliances incorporating an automatic cord reel are operated first during 30 min with one third of cord unreeled (IEC 60335-2-2)		N/A
11.8	Temperature rises monitored continuously and not exceeding the values in table 3 .....	(see appended table)	P
	If the temperature rise of a motor winding exceeds the value of table 3, or		N/A
	if there is doubt with regard to classification of insulation,		N/A
	tests of Annex C are carried out		N/A
	Sealing compound does not flow out		N/A
	Protective devices do not operate, except		P
	components in protective electronic circuits tested for the number of cycles specified in 24.1.4		N/A

<b>13</b>	<b>LEAKAGE CURRENT AND ELECTRIC STRENGTH AT OPERATING TEMPERATURE</b>		--
13.1	Leakage current not excessive and electric strength adequate		P
	Heating appliances operated at 1.15 times the rated power input (W) .....		N/A
	Motor-operated appliances and combined appliances supplied at 1.06 times the rated voltage (V) .....	254,4V~, charging	P
	Protective impedance and radio interference filters disconnected before carrying out the tests		N/A
	Booster settings not used (IEC 60335-2-2)		N/A
13.2	For class 0, class II and class III appliances, and class II constructions, leakage current measured by means of the circuit described in figure 4 of IEC 60990	Class III	P
	For class 0I and class I appliances, a low impedance ammeter may be used		N/A
	Leakage current measurements .....	(see appended table)	P
13.3	The appliance is disconnected from the supply		P
	Electric strength tests according to table 4 .....	(see appended table)	P

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Clause	Requirement + Test	Result - Remark	Verdict
	No breakdown during the tests		P

15	<b>MOISTURE RESISTANCE</b>		--
15.1	Enclosure provides the degree of moisture protection according to classification of the appliance		P
	Compliance checked as specified in 15.1.1, taking into account 15.1.2, followed by the electric strength test of 16.3		P
	No trace of water on insulation which can result in a reduction of clearances or creepage distances below values specified in clause 29		P
15.1.1	Appliances, other than IPX0, subjected to tests as specified in IEC 60529 .....	IPX4	P
	Water valves containing live parts in external hoses for connection of an appliance to the water mains tested as specified for IPX7 appliances		N/A
15.1.2	Hand-held appliance turned continuously through the most unfavourable positions during the test		P
	Built-in appliances installed according to the instructions		N/A
	Appliances placed or used on the floor or table placed on a horizontal unperforated support		N/A
	Appliances normally fixed to a wall and appliances with pins for insertion into socket-outlets are mounted on a wooden board		N/A
	For IPX3 appliances, the base of wall mounted appliances is placed at the same level as the pivot axis of the oscillating tube		N/A
	For IPX4 appliances, the horizontal centre line of the appliance is aligned with the pivot axis of the oscillating tube, and		P
	for appliances normally used on the floor or table, the movement is limited to two times 90° for a period of 5 min, the support being placed at the level of the pivot axis of the oscillating tube		P
	Wall-mounted appliances, take into account the distance to the floor stated in the instructions		N/A
	Appliances normally fixed to a ceiling are mounted underneath a horizontal unperforated support, the pivot axis of the oscillating tube located at the level of the underside of the support, and		N/A

IEC 60335_2_2H			
Clause	Requirement + Test	Result - Remark	Verdict
	for IPX4 appliances, the movement of the tube is limited to two times 90° from the vertical for a period of 5 min		P
	Appliances with type X attachment fitted with a flexible cord as described		N/A
	Detachable parts subjected to the relevant treatment with the main part		N/A
	However, if a part has to be removed for user maintenance and a tool is needed, this part is not removed		N/A
15.2	Spillage of liquid due to overfilling, and due to overturning of appliances liable to be overturned in normal use does not affect the electrical insulation in normal use and, (IEC 60335-2-2)		P
	Appliances with type X attachment fitted with the lightest flexible cord of the smallest cross-sectional area specified in table 13 (IEC 60335-2-2)		N/A
	Appliances incorporating an appliance inlet tested with or without a connector in position, whichever is most unfavourable (IEC 60335-2-2)		N/A
	Overfilling test with additional amount of water, over a period of 1 min (l) (IEC 60335-2-2)		P
	Containers of hand-held appliances and other appliances liable to be overturned in normal use are completely filled, the cover being closed. The appliance is then overturned and left in that position for 5 min, unless it returns automatically to its normal position of use. (IEC 60335-2-2)		P
	Operation of water suction cleaning appliance until its liquid container is completely full and for a further 5 min, with nozzle placed in a container with a detergent solution (IEC 60335-2-2)		N/A
	The appliance withstands the electric strength test of 16.3 (IEC 60335-2-2)		P
	No trace of liquid on insulation that can result in a reduction of clearances and creepage distances below values specified in clause 29 (IEC 60335-2-2)		P
15.3	Appliances proof against humid conditions		P
	Checked by test Cab: Damp heat steady state in IEC 60068-2-78		P
	Detachable parts removed and subjected, if necessary, to the humidity test with the main part		P
	Humidity test for 48 h in a humidity cabinet	23 °C, 93% RH	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Reassembly of those parts that may have been removed		N/A
	The appliance withstands the tests of clause 16		P
15.101	Motorized cleaning heads of water-suction cleaning appliances resist contacting liquids (IEC 60335-2-2)		N/A
	Impact test according to IEC 60068-2-75, impact being 2 J (IEC 60335-2-2)		N/A
	Free-fall test according IEC 60068-2-32, dropped 4000 times (IEC 60335-2-2)		N/A
	Motorized cleaning head subjected to test 14.2.7 as specified in IEC 60529 (IEC 60335-2-2)		N/A
	The appliance withstands the electric strength test of 16.3 (IEC 60335-2-2)		N/A
	No trace of liquid on insulation that can result in a reduction of clearances and creepage distances below values specified in clause 29 (IEC 60335-2-2)		N/A

16	LEAKAGE CURRENT AND ELECTRIC STRENGTH		--
16.1	Leakage current not excessive and electric strength adequate		P
	Protective impedance disconnected from live parts before carrying out the tests		N/A
	Tests carried out at room temperature and not connected to the supply		P
16.2	Single-phase appliances: test voltage 1.06 times rated voltage (V) .....	254,4V~, charging	P
	Three-phase appliances: test voltage 1.06 times rated voltage divided by $\sqrt{3}$ (V) .....		N/A
	Leakage current measurements .....	(see appended table)	P
	Limit values doubled if:		--
	- all controls have an off position in all poles, or		N/A
	- the appliance has no control other than a thermal cut-out, or		N/A
	- all thermostats, temperature limiters and energy regulators do not have an off position, or		N/A
	- the appliance has radio interference filters		N/A
	With the radio interference filters disconnected, the leakage current do not exceed limits specified .....	(see appended table)	N/A
16.3	Electric strength tests according to table 7 .....	(see appended table)	P

IEC 60335_2_2H			
Clause	Requirement + Test	Result - Remark	Verdict
	Test voltage applied between the supply cord and inlet bushing and cord guard and cord anchorage as specified .....		N/A
	Tests for current-carrying hoses immersed for 1 h .....(IEC 60335-2-2)		N/A
	- electric strength test 2000 V		N/A
	- electric strength test 3000 V		N/A
	No breakdown during the tests		P

29	CLEARANCES, CREEPAGE DISTANCES AND SOLID INSULATION	--
	Clearances, creepage distances and solid insulation withstand electrical stress	P
	For coatings used on printed circuits boards to protect the microenvironment (Type 1) or to provide basic insulation (Type 2), Annex J applies .....	N/A
	The microenvironment is pollution degree 1 under type 1 protection	N/A
	For type 2 protection, the spacing between the conductors before the protection is applied is not less than the values specified in Table 1 of IEC 60664-3	N/A
	These values apply to functional, basic, supplementary and reinforced insulation .....	N/A
29.1	Clearances not less than the values specified in table 16, taking into account the rated impulse voltage for the overvoltage categories of table 15, unless.....	(see appended table) P
	for basic insulation and functional insulation they comply with the impulse voltage test of clause 14	N/A
	However, if the distances are affected by wear, distortion, movement of the parts or during assembly, the clearances for rated impulse voltages of 1500V and above are increased by 0,5 mm and the impulse voltage test is not applicable	N/A
	For appliances intended for use at altitudes exceeding 2 000 m, the clearances in Table 16 is increased according to the relevant multiplier values in Table A.2 of IEC 60664-1	N/A
	Impulse voltage test is not applicable:	--
	- when the microenvironment is pollution degree 3, or	P
	- for basic insulation of class 0 and class 01 appliances	N/A

IEC 60335_2_2H			
Clause	Requirement + Test	Result - Remark	Verdict
	- to appliances intended for use at altitudes exceeding 2 000 m		N/A
	Appliances are in overvoltage category II		P
	A force of 2 N is applied to bare conductors, other than heating elements		P
	A force of 30 N is applied to accessible surfaces		P
29.1.1	Clearances of basic insulation withstand the overvoltages, taking into account the rated impulse voltage		N/A
	The values of table 16 or the impulse voltage test of clause 14 are applicable .....	(see appended table)	N/A
	Clearance at the terminals of tubular sheathed heating elements may be reduced to 1,0 mm if the microenvironment is pollution degree 1		N/A
	Lacquered conductors of windings considered to be bare conductors		N/A
29.1.2	Clearances of supplementary insulation not less than those specified for basic insulation in table 16 .....	(see appended table)	N/A
29.1.3	Clearances of reinforced insulation not less than those specified for basic insulation in table 16, using the next higher step for rated impulse voltage .....	(see appended table)	N/A
	For double insulation, with no intermediate conductive part between basic and supplementary insulation, clearances are measured between live parts and the accessible surface, and the insulation system is treated as reinforced insulation		N/A
29.1.4	Clearances for functional insulation are the largest values determined from:		--
	- table 16 based on the rated impulse voltage..... :	(see appended table)	P
	- table F.7a in IEC 60664-1, frequency not exceeding 30 kHz		N/A
	- clause 4 of IEC 60664-4, frequency exceeding 30 kHz		N/A
	If values of table 16 are largest, the impulse voltage test of clause 14 may be applied instead, unless		N/A
	the microenvironment is pollution degree 3, or		P
	the distances can be affected by wear, distortion, movement of the parts or during assembly		N/A
	However, clearances are not specified if the appliance complies with clause 19 with the functional insulation short-circuited		P

IEC 60335_2_2H			
Clause	Requirement + Test	Result - Remark	Verdict
	Lacquered conductors of windings considered to be bare conductors		P
	However, clearances at crossover points are not measured		P
	Clearance between surfaces of PTC heating elements may be reduced to 1mm		N/A
29.1.5	Appliances having higher working voltages than rated voltage, clearances for basic insulation are the largest values determined from:		--
	- table 16 based on the rated impulse voltage..... :		N/A
	- table F.7a in IEC 60664-1, frequency not exceeding 30 kHz		N/A
	- clause 4 of IEC 60664-4, frequency exceeding 30 kHz		N/A
	If clearances for basic insulation are selected from Table F.7a of IEC 60664-1 or Clause 4 of IEC 60664-4, the clearances of supplementary insulation are not less than those specified for basic insulation		N/A
	If clearances for basic insulation are selected from Table F.7a of IEC 60664-1, the clearances of reinforced insulation dimensioned as specified in Table F.7a are to withstand 160% of the withstand voltage required for basic insulation		N/A
	If clearances for basic insulation are selected from Clause 4 of IEC 60664-4, the clearances of reinforced insulation are twice the value required for basic insulation		N/A
	If the secondary winding of a step-down transformer is earthed, or if there is an earthed screen between the primary and secondary windings, clearances of basic insulation on the secondary side not less than those specified in table 16, but using the next lower step for rated impulse voltage		N/A
	Circuits supplied with a voltage lower than rated voltage, clearances of functional insulation are based on the working voltage used as the rated voltage in table 15		N/A
29.2	Creepage distances not less than those appropriate for the working voltage, taking into account the material group and the pollution degree .....	(see appended table)	P
	Pollution degree 2 applies, unless		N/A
	- precautions taken to protect the insulation; pollution degree 1		N/A
	- insulation subjected to conductive pollution; pollution degree 3		P

IEC 60335_2_2H			
Clause	Requirement + Test	Result - Remark	Verdict
	A force of 2 N is applied to bare conductors, other than heating elements		P
	A force of 30 N is applied to accessible surfaces		P
	In a double insulation system, the working voltage for both the basic and supplementary insulation is taken as the working voltage across the complete double insulation system		N/A
29.2.1	Creepage distances of basic insulation not less than specified in table 17 .....	(see appended table)	N/A
	However, if the working voltage is periodic and has a frequency exceeding 30 kHz, the creepage distances are also determined from table 2 of IEC 60664-4, these values being used if exceeding the values in table 17 .....		N/A
	Except for pollution degree 1, corresponding creepage distance not less than the minimum specified for the clearance in table 16, if the clearance has been checked according to the test of clause 14.....		N/A
29.2.2	Creepage distances of supplementary insulation at least those specified for basic insulation in table 17, or .....	(see appended table)	N/A
	Table 2 of IEC 60664-4, as applicable.....		N/A
29.2.3	Creepage distances of reinforced insulation at least double those specified for basic insulation in table 17, or .....	(see appended table)	N/A
	Table 2 of IEC 60664-4, as applicable.....		N/A
29.2.4	Creepage distances of functional insulation not less than specified in table 18 .....	(see appended table)	P
	However, if the working voltage is periodic and has a frequency exceeding 30 kHz, the creepage distances are also determined from table 2 of IEC 60664-4, these values being used if exceeding the values in table 18 .....		N/A
	Creepage distances may be reduced if the appliance complies with clause 19 with the functional insulation short-circuited		P

<b>30</b>	<b>RESISTANCE TO HEAT AND FIRE</b>		--
30.2.3	Appliances operated while unattended, tested as specified in 30.2.3.1 and 30.2.3.2	For parts of the appliance connected to the supply mains during the charging period, 30.2.3 applies	P

IEC 60335_2_2H			
Clause	Requirement + Test	Result - Remark	Verdict
	The tests are not applicable to conditions as specified .....		N/A
30.2.3.1	Parts of non-metallic material supporting connections carrying a current exceeding 0,2 A during normal operation, and		P
	parts of non-metallic material, other than small parts, within a distance of 3 mm,		P
	subjected to the glow-wire test of IEC 60695-2-11 with a test severity of 850 °C	(see appended table)	P
	Glow-wire applied to an interposed shielding material, if relevant		P
	The glow-wire test is not carried out on parts of material classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least 850 °C		N/A
30.2.3.2	Parts of non-metallic material supporting connections, and		P
	parts of non-metallic material within a distance of 3mm,		P
	subjected to glow-wire test of IEC 60695-2-11		P
	The test severity is:		--
	- 750 °C, for connections carrying a current exceeding 0,2 A during normal operation	(see appended table)	P
	- 650 °C, for other connections		N/A
	Glow-wire applied to an interposed shielding material, if relevant		P
	However, the glow-wire test of 750 °C or 650 °C as appropriate, is not carried out on parts of material fulfilling both or either of the following classifications:		--
	- a glow-wire ignition temperature according to IEC 60695-2-13 of at least:		N/A
	<ul style="list-style-type: none"> <li>775 °C, for connections carrying a current exceeding 0,2 A during normal operation</li> </ul>		N/A
	<ul style="list-style-type: none"> <li>675 °C, for other connections</li> </ul>		N/A
	- a glow-wire flammability index according to IEC 60695-2-12 of at least:		N/A
	- 750 °C, for connections carrying a current exceeding 0,2 A during normal operation		N/A
	- 650 °C, for other connections		N/A
	The glow-wire test is also not carried out on small parts. These parts are to:		--
	- comprise material having a glow-wire ignition temperature of at least 775 °C or 675 °C as appropriate, or		N/A

IEC 60335_2_2H			
Clause	Requirement + Test	Result - Remark	Verdict
	- comprise material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N/A
	- comply with the needle-flame test of Annex E, or		N/A
	- comprise material classified as V-0 or V-1 according to IEC 60695-11-10		N/A
	The consequential needle-flame test of Annex E applied to non-metallic parts that encroach within the vertical cylinder placed above the centre of the connection zone and on top of the non-metallic parts supporting current-carrying connections, and parts of non-metallic material within a distance of 3 mm of such connections if these parts are those:		--
	- parts that withstood the glow-wire test of IEC 60695-2-11 of 750 °C or 650 °C as appropriate, but produce a flame that persist longer than 2 s, or		N/A
	- parts that comprised material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N/A
	- small parts, that comprised material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N/A
	- small parts for which the needle-flame test of Annex E was applied, or		N/A
	- small parts for which a material classification of V-0 or V-1 was applied		N/A
	However, the consequential needle-flame test is not carried out on non-metallic parts, including small parts, within the cylinder that are:		--
	- parts having a glow-wire ignition temperature of at least 775 °C or 675 °C as appropriate, or		N/A
	- parts comprising material classified as V-0 or V-1 according to IEC 60695-11-10, or		N/A
	- parts shielded by a flame barrier that meets the needle-flame test of Annex E or that comprises material classified as V-0 or V-1 according to IEC 60695-11-10		N/A

<b>Annex EN 62233:2008</b>			
Clause	Requirement + Test	Result - Remark	Verdict
<b>EMF- ELECTROMAGNETICS FIELDS</b>			
	The tested product also complies with the requirements of EN 62233:2008		--
	Limit .....100%	Measured max. :.....<10%	P

IEC 60335_2_2H			
Clause	Requirement + Test	Result - Remark	Verdict

<b>11.8</b>	<b>TABLE: Heating Test (MJ1601A with alternative motor MJ-280P Charging)</b>		<b>P</b>
	<b>Test voltage (V) .....</b>	254,4	—
	<b>Ambient (°C) .....</b>	20,0	—
Thermocouple Locations		Max. temperature measured, (°C)	Max. temperature limit, (°C)
Internal wire		7,5	55(T80-25)
PCB		13,9	120
Ambient of switch		2,5	--
Internal enclosure		3,5	--
Battery surface		5,8	--
Switch button		0,9	50
Handle		0,7	50
Motor		13,2	80
DC inlet		23,1	45
External enclosure of adaptor		31,2	60
Supplementary information:			

<b>11.8</b>	<b>TABLE: Heating Test (MJ1601A with alternative motor MJ-280P Discharging)</b>		<b>P</b>
	<b>Test voltage (V) .....</b>	Battery operated, 3,7V d.c.	—
	<b>Ambient (°C) .....</b>	20,0	—
Thermocouple Locations		Max. temperature measured, (°C)	Max. temperature limit, (°C)
Internal wire		46,5	55(T80-25)
PCB		53,2	120
Ambient of switch		13,0	--
Internal enclosure		26,9	--
Battery surface		29,6	--
Switch button		6,3	50
Handle		4,4	50
Motor		77,2	80
Supplementary information:			

IEC 60335_2_2H			
Clause	Requirement + Test	Result - Remark	Verdict

11.8	TABLE: Heating Test (MJ1801A with motor GFK-280PA Charging)		P
	Test voltage (V) .....	254,4	—
	Ambient (°C) .....	20,0	—
Thermocouple Locations		Max. temperature measured, (°C)	Max. temperature limit, (°C)
Internal wire		6,9	55(T80-25)
PCB		13,4	120
Ambient of switch		2,7	--
Internal enclosure		3,1	--
Battery surface		5,2	--
Switch button		0,8	50
Handle		0,6	50
Motor		12,1	80
DC inlet		22,2	45
External enclosure of adaptor		27,3	60
Supplementary information:			

11.8	TABLE: Heating Test (MJ1801A with motor GFK-280PA Discharging)		P
	Test voltage (V) .....	Battery operated, 3,7V d.c.	—
	Ambient (°C) .....	20,0	—
Thermocouple Locations		Max. temperature measured, (°C)	Max. temperature limit, (°C)
Internal wire		35,9	55(T80-25)
PCB		48,4	120
Ambient of switch		14,7	--
Internal enclosure		25,6	--
Battery surface		26,0	--
Switch button		5,7	50
Handle		3,9	50
Motor		63,8	80
Supplementary information:			

IEC 60335_2_2H			
Clause	Requirement + Test	Result - Remark	Verdict

13.2	TABLE: Leakage current		P
	Heating appliances: 1.15 x rated input (W) .....	N/A	—
	Motor-operated and combined appliances: 1.06 x rated voltage (V) .....	254,4	—
Leakage current between		I (mA)	Max. allowed I (mA)
L/N -- Enclosure (with metal foil or ungrounded metal parts)		0,038/0,039	0,35 peak
L/N – Switch button/ handle		0,047/0,048	0,35 peak
Supplementary information: the most unfavourable data was recorded			

13.3	TABLE: Dielectric Strength		P
Test voltage applied between:		Test potential applied (V)	Breakdown / flashover (Yes/No)
SELV isolated with basic insulation-SELV to enclosure		500	No
Supplementary information:			

16.2	TABLE: Leakage current		P
	Single phase appliances: 1.06 x rated voltage (V) .....	254,4	—
	Three phase appliances 1.06 x rated voltage divided by $\sqrt{3}$ (V) .....	N/A	—
Leakage current between		I (mA)	Max. allowed I (mA)
L/N -- Enclosure (with metal foil or ungrounded metal parts)		0,069	0,25
L/N – Switch button/ handle		0,047	0,25
Supplementary information: the most unfavourable data was recorded			

16.3	TABLE: Electric strength		P
Test voltage applied between:		Voltage (V)	Breakdown (Yes/No)
SELV isolated with basic insulation-SELV to enclosure		500	No
Supplementary information:			

IEC 60335_2_2H			
Clause	Requirement + Test	Result - Remark	Verdict

24.1	TABLE: Components information					P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity <sup>1)</sup>	
The test report is only valid in conjunction with the current valid version of the Constructional Data Form (EFSH16110237-IE-01-CDF).						

29.1	TABLE: Clearances						P
	Overvoltage category .....					II	—
		Type of insulation:					
Rated impulse voltage (V):	Min. cl (mm)	Basic (mm)	Supplementary (mm)	Reinforced (mm)	Functional (mm)	Verdict / Remark	
330	0,2* / 0,5 / 0,8**					N/A	
500	0,2* / 0,5 / <b>0,8**</b>				>1,04	P	
800	0,2* / 0,5 / 0,8**					N/A	
1 500	0,5 / 0,8** / 1,0***					N/A	
2 500	1,5 / 2,0***					N/A	
4 000	3,0 / 3,5***					N/A	
6 000	5,5 / 6,0***					N/A	
8 000	8,0 / 8,5***					N/A	
10 000	11,0 / 11,5***					N/A	
Supplementary information:							
*) For tracks on printed circuit boards if pollution degree 1 and 2							
**) For pollution degree 3							
***) If the construction is affected by wear, distortion, movement of the parts or during assembly							

IEC 60335_2_2H			
Clause	Requirement + Test	Result - Remark	Verdict

29.2	TABLE: Creepage distances, basic, supplementary and reinforced insulation										N/A
Working voltage (V)	Creepage distance (mm)							Type of insulation			Verdict
	Pollution degree										
	1	2			3						
		Material group			Material group						
		I	II	IIIa/IIIb	I	II	IIIa/IIIb <sup>*</sup>	B <sup>**</sup>	S <sup>**</sup>	R <sup>**</sup>	Verdict
≤50	0,18	0,6	0,85	1,2	1,5	1,7	1,9		—	—	N/A
≤50	0,18	0,6	0,85	1,2	1,5	1,7	1,9	—		—	N/A
≤50	0,36	1,2	1,7	2,4	3,0	3,4	3,8	—	—		N/A
125	0,28	0,75	1,05	1,5	1,9	2,1	2,4		—	—	N/A
125	0,28	0,75	1,05	1,5	1,9	2,1	2,4	—		—	N/A
125	0,56	1,5	2,1	3,0	3,8	4,2	4,8	—	—		N/A
250	0,56	1,25	1,8	2,5	3,2	3,6	4,0		—	—	N/A
250	0,56	1,25	1,8	2,5	3,2	3,6	4,0	—		—	N/A
250	1,12	2,5	3,6	5,0	6,4	7,2	8,0	—	—		N/A
400	1,0	2,0	2,8	4,0	5,0	5,6	6,3		—	—	N/A
400	1,0	2,0	2,8	4,0	5,0	5,6	6,3	—		—	N/A
400	2,0	4,0	5,6	8,0	10,0	11,2	12,6	—	—		N/A
500	1,3	2,5	3,6	5,0	6,3	7,1	8,0		—	—	N/A
500	1,3	2,5	3,6	5,0	6,3	7,1	8,0	—		—	N/A
500	2,6	5,0	7,2	10,0	12,6	14,2	16,0	—	—		N/A
>630 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0		—	—	N/A
>630 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	—		—	N/A
>630 and ≤800	3,6	6,4	9,0	12,6	16,0	18,0	20,0	—	—		N/A
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5		—	—	N/A
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	—		—	N/A
>800 and ≤1000	4,8	8,0	11,2	16,0	20,0	22,0	25,0	—	—		N/A
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0		—	—	N/A
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	—		—	N/A
>1000 and ≤1250	6,4	10,0	14,2	20,0	25,0	28,0	32,0	—	—		N/A
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0		—	—	N/A
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0	—		—	N/A
>1250 and ≤1600	8,4	12,6	18,0	25,0	32,0	36,0	40,0	—	—		N/A

IEC 60335_2_2H												
Clause	Requirement + Test							Result - Remark			Verdict	
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0		—	—	N/A	
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	—		—	N/A	
>1600 and ≤2000	11,2	16,0	22,0	32,0	40,0	44,0	50,0	—	—		N/A	
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0		—	—	N/A	
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	—		—	N/A	
>2000 and ≤2500	15,0	20,0	28,0	40,0	50,0	56,0	64,0	—	—		N/A	
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0		—	—	N/A	
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	—		—	N/A	
>2500 and ≤3200	20,0	25,0	36,0	50,0	64,0	72,0	80,0	—	—		N/A	
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0		—	—	N/A	
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	—		—	N/A	
>3200 and ≤4000	25,0	32,0	44,0	64,0	80,0	90,0	100,0	—	—		N/A	
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0		—	—	N/A	
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	—		—	N/A	
>4000 and ≤5000	32,0	40,0	56,0	80,0	100,0	112,0	126,0	—	—		N/A	
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0		—	—	N/A	
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	—		—	N/A	
>5000 and ≤6300	40,0	50,0	72,0	100,0	126,0	142,0	160,0	—	—		N/A	
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0		—	—	N/A	
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	—		—	N/A	
>6300 and ≤8000	50,0	64,0	90,0	126,0	160,0	180,0	200,0	—	—		N/A	
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0		—	—	N/A	
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	—		—	N/A	
>8000 and ≤10000	64,0	80,0	112,0	160,0	200,0	220,0	250,0	—	—		N/A	
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0		—	—	N/A	
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	—		—	N/A	
>10000 and ≤12500	80,0	100,0	142,0	200,0	250,0	280,0	320,0	—	—		N/A	

Supplementary information:

\*) Material group IIIb is allowed if the working voltage does not exceed 50 V

\*\*) B = Basic insulation, S = Supplementary insulation, R = Reinforced insulation

IEC 60335_2_2H			
Clause	Requirement + Test	Result - Remark	Verdict

29.2	TABLE: Creepage distances, functional insulation							P
Working voltage (V)	Creepage distance (mm) Pollution degree							Verdict / Remark
	1	2			3			
	Material group			Material group				
	I	II	IIIa/IIIb	I	II	IIIa/IIIb <sup>*)</sup>		
≤10	0,08	0,4	0,4	0,4	1,0	1,0	<b>1,0</b>	P (1,4)
50	0,16	0,56	0,8	1,0	1,4	1,6	1,8	N/A
125	0,25	0,71	1,0	1,4	1,8	2,0	2,2	N/A
250	0,42	1,0	1,4	2,0	2,5	2,8	3,2	N/A
400	0,75	1,6	2,2	3,2	4,0	4,5	5,0	N/A
500	1,0	2,0	2,8	4,0	5,0	5,6	6,3	N/A
>630 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	N/A
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	N/A
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	N/A
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0	N/A
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	N/A
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	N/A
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	N/A
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	N/A
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	N/A
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	N/A
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	N/A
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	N/A
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	N/A

Supplementary information:  
\*) Material group IIIb is allowed if the working voltage does not exceed 50 V

IEC 60335_2_2H			
Clause	Requirement + Test	Result - Remark	Verdict

30	<b>TABLE: Resistance to heat and fire</b>																		
Object/ part No.	Manufactur er/ trademark	Type/ model	Ball pressure test °C				Glow wire test (GWT) °C				Glow-wire flammability index (GWFI) °C				Glow- wire ignition temp. (GWIT) °C		Needle - flame test (NFT)	Verdict	
			75	125	cl. 11 +40	cl. 19 +25	550	650		750		850	550	650	750	850			675
								te	ti	te	ti								
DC inlet	Refer to Table 24.1	Refer to Table 24.1								NI	NI	X							P

Supplementary information:

- 1) Parts of material classified at least HB40 or if relevant HBF
- 2) Parts of material classified as V-0 or V-1
- 3) Flame persisting longer than 2 s (= te – ti) need only be reported for unattended appliances
- 4) Surrounding parts subjected to the needle-flame test of annex E
- 5) Base material classified as V-0 or if relevant VTM-0
- 6) The GWIT pre-selection option, the 850 °C GWFI pre-selection option, and the 850 °C GWT are not applicable for attended appliances
- 7) NI: no ignition

Photo 1.

Description: Alternative motor view



Photo 2.

Description: Overview for MJ1801A



Photo 3.

Description: Front view for MJ1801A



Photo 4.

Description: Side view for MJ1801A



Photo 5.

Description: Rear view for MJ1801A



Photo 6.

Description: Side view for MJ1801A



Photo 7.

Description: Top view for MJ1801A

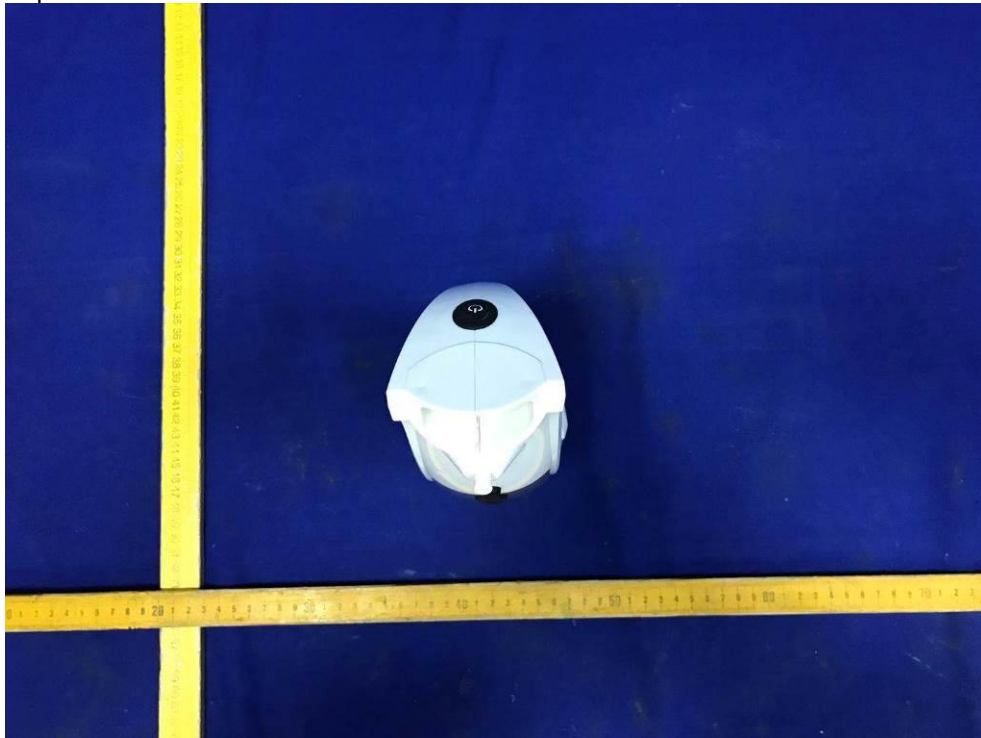


Photo 8.

Description: Bottom view for MJ1801A

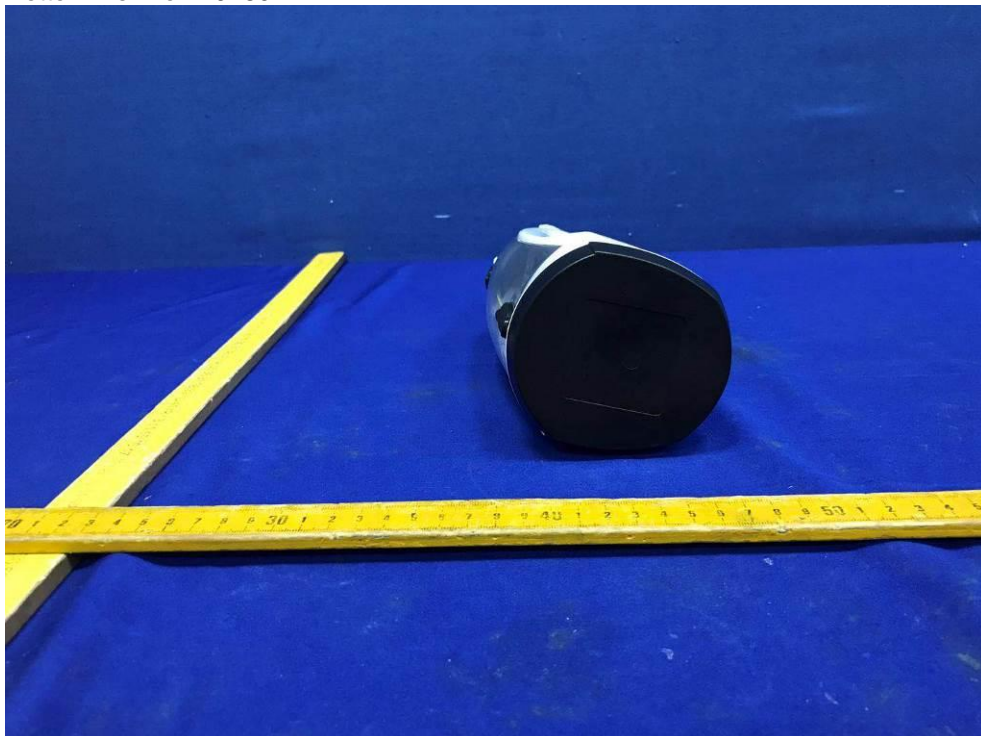


Photo 9.

Description: Air inlet view for MJ1801A



Photo 10.

Description: Air outlet view for MJ1801A

