

## Test Report

**Report No: SZES171100487501**

**Date: 2017-12-12**

**Applicant:** Shenzhen Dipinle Technology Co., Ltd.  
2/F., Block 2, Guanfeng Industrial Area, Jiuwei Village, Xixiang, Bao'an, Shenzhen,  
518126 Guangdong, China

**Manufacturer:** Same as applicant


**Test object / Model:** Wall Charger  
CA-29, CA-29A, CA-29T, CA-27A Plus, CA-27T Plus


**Test specifications / Test standard:** EN 60950-1: 2006 + A11: 2009 + A1: 2010 + A12: 2011 + A2: 2013


**Purpose of examination:** Test according to the test specification.  
Inspection of the compliance with protective objectives of the following EC Directives:  
- 2014/35/EU

**Test result:** In the opinion of SGS-CSTC the presented appliance was found to be in compliance with the test specification and standards.

**Remark:** None

  
Jerry Xiao  
Project Reviewer  
Safety Laboratory



  
Megan Xue  
Project Engineer

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### 1. Function / Description:

1. The apparatus is Class II direct plug-in switching mode power supply for IT and similar electrical appliances.
2. External enclosure is of plastic material, the enclosure secured by ultrasonic welding. The plastic enclosure is surrounded by metal enclosure. For indoor use only.

Model difference:

All models are identical except for model name.

### 2. Ratings:

Model:	CA-29, CA-29A, CA-29T, CA-27A Plus, CA-27T Plus
Rated Input (AC):	100 V - 240 V; 50 Hz / 60 Hz; 0,5 A max.
Rated Output (DC):	5 V, 3 A; or 9 V, 2 A; or 12 V, 1,5 A
Protection Class:	Class II
Protection Against Moisture:	IPX0
Construction:	Direct plug-in type
Supply connection:	Plug
Operation mode:	Continuous
Weight:	0,074 kg

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### 3. Test:

Possible test case verdicts:

- |  |                      |
|--|----------------------|
| - test case does not apply to the test object: | N/A (Not Applicable) |
| - test object does meet the requirement:       | P (Pass)             |
| - test object does not meet the requirement:   | F (Fail)             |

The tests were done in the Electrical Safety Laboratory of SGS-CSTC in Shenzhen.

Test item was received on 2017-12-04.

Tests were performed from 2017-12-04 to 2017-12-09.

Unless otherwise specified, all tests carried out on model CA-29 were considered representative.

Heating test (4.5):

T<sub>ma</sub> = 25 °C (declared by manufacturer)

T<sub>amb</sub> = 21,7 °C – 23,0 °C

Input voltage range: 90 V - 264 V (+/-10% according to manufacturer)

Output: 5 V, 3 A; 9 V, 2 A; 12 V, 1,5 A (Electronic load used)

T-type thermocouple used for temperature measurement.

The EU plug portion was tested according to EN 50075: 1990, detailed test result see attachment A.

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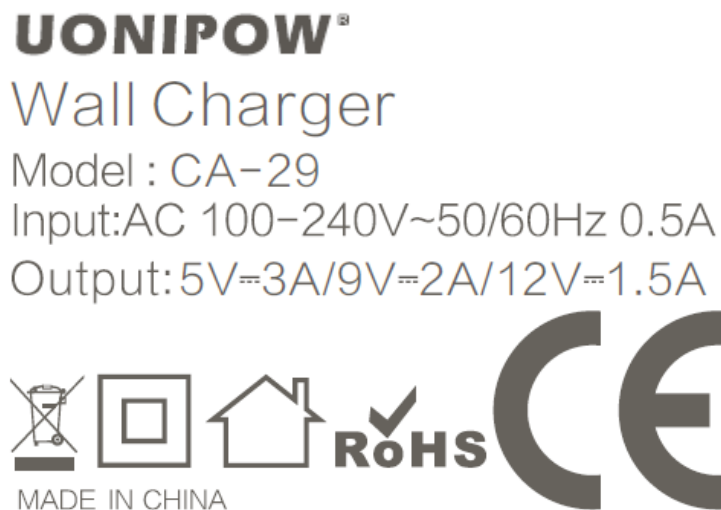
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### 4. Marking plate:



#### Remark:

1. The marking plates for other models are of the same pattern;
2. As declared by the applicant, the importer (and manufacturer, if it is different)'s name, registered trade name or registered trade mark and the postal address will be marked on the products before being placed on the market. The contact details shall be in a language easily understood by end-users and market surveillance authorities.
3. Marking on the packaging or in a document accompanying the electrical equipment is only acceptable if it is not possible to place such markings on the product.
4. The Height of CE logo shall not be less than 5 mm; Height of WEEE logo shall not be less than 7 mm.

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### 5. Test result:

CLAUSE	REMARKS	Verdict
1.3.Z1 Exposure to excessive sound pressure		N/A
1.5 Components		P
1.6 Power interface		P
1.7 Markings and instructions	See marking plate	P
2.1 Protection from electric shock and energy hazards	Access to SELV and LCC circuit only	P
2.2 SELV circuits	For type C output	P
2.3 TNV circuits		N/A
2.4 Limited current circuits	For CY1: measured max. 0,352 mA peak (limit 0,7 mA peak)	P
2.5 Limited power sources	<p>Normal operation (overload at rated output of 5VDC 3 A): Uoc = 5,0 V d.c, Isc = 3,3 A, S = 15,3 VA</p> <p>Normal operation (overload at rated output of 9VDC 2 A): Uoc = 8,96V d.c, Isc = 3,3 A, S = 19,6 VA</p> <p>Normal operation (overload at rated output of 12VDC 1,5 A): Uoc = 11,95V d.c, Isc = 2,2 A, S = 20,7 VA</p> <p>Signal fault (short circuit C7): Uoc = 0 V d.c, Isc = 0 A, S = 0 VA</p> <p>Signal fault (short circuit ZD1): Uoc = 0 V d.c, Isc = 0 A, S = 0 VA</p>	P
2.6 Provisions for earthing and bonding		N/A
2.7 Overcurrent and earth fault protection in primary circuits		P
2.8 Safety interlocks		N/A
2.9 Electrical insulation	25 °C, 95 % Rh, 48 h	P
2.10 Clearances, creepage distances and distances through insulation	See appended table	P
3.1 General		P

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3.2	Connection to an a.c. mains supply or a d.c. mains supply		P
3.3	Wiring terminals for connection of external conductors		N/A
3.4	Disconnection from the mains supply		P
3.5	Interconnection of equipment	SELV & LPS	P
4.1	Stability		N/A
4.2	Mechanical strength	250N steady force test complied; Drop test (1m) complied; Mold-stress relief test complied	P
4.3	Design and construction		P
4.4	Protection against hazardous moving parts		N/A
4.5	Thermal requirement	See appended table	P
4.6	Openings in enclosures	No openings	P
4.7	Resistance to fire	See critical component table	P
5.1	Touch current and protective conductor current	Measured max. 0,186 mA (limit 0,25 mA)	P
5.2	Electric strength	See appended table	P
5.3	Abnormal operating and fault conditions	See appended table	P
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		N/A
6.2	Protection of equipment users from overvoltages on telecommunication networks		N/A
6.3	Protection of the telecommunication wiring system from overheating		N/A
7.1	General		N/A
7.2	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment		N/A
7.3	Protection of equipment users from overvoltages on the cable distribution system		N/A
7.4	Insulation between primary circuits and		N/A

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cable distribution systems		
Annex B Motor tests under abnormal conditions		N/A
Annex C Transformers		P
Annex L Normal load conditions for some types of electrical business		P
Annex ZA Normative references to international publications with their corresponding European publications		N/A
Annex ZB Special national conditions		N/A
Annex ZC A-deviations		N/A

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1.6.2		TABLE: electrical data (in normal conditions)					P
fuse #	Irated (A)	U (V)	P (W)	I (A)	Ifuse (A)	condition/status	
Normal operated with load at 5 V / 3 A							
F1	--	90 V / 50 Hz	18,76	0,363	0,363	Normal operated with load at 5 V / 3 A	
<b>F1</b>	<b>--</b>	<b>90 V / 60 Hz</b>	<b>18,74</b>	<b>0,367</b>	<b>0,367</b>	<b>Ditto</b>	
F1	0,5	100 V / 50 Hz	18,65	0,339	0,339	Ditto	
F1	0,5	100 V / 60 Hz	18,63	0,337	0,337	Ditto	
F1	0,5	240 V / 50 Hz	18,46	0,170	0,170	Ditto	
F1	0,5	240 V / 60 Hz	18,47	0,180	0,180	Ditto	
<b>F1</b>	<b>--</b>	<b>264 V / 50 Hz</b>	<b>18,59</b>	<b>0,166</b>	<b>0,166</b>	<b>Ditto</b>	
F1	--	264 V / 60 Hz	18,60	0,173	0,173	Ditto	
Normal operated with load at 9 V / 2 A							
F1	--	90 V / 50 Hz	21,43	0,413	0,413	Normal operated with load at 9 V / 2 A	
<b>F1</b>	<b>--</b>	<b>90 V / 60 Hz</b>	<b>21,41</b>	<b>0,428</b>	<b>0,428</b>	<b>Ditto</b>	
F1	0,5	100 V / 50 Hz	21,29	0,393	0,393	Ditto	
F1	0,5	100 V / 60 Hz	21,28	0,397	0,397	Ditto	
F1	0,5	240 V / 50 Hz	20,88	0,198	0,198	Ditto	
F1	0,5	240 V / 60 Hz	20,79	0,195	0,195	Ditto	
<b>F1</b>	<b>--</b>	<b>264 V / 50 Hz</b>	<b>20,82</b>	<b>0,171</b>	<b>0,171</b>	<b>Ditto</b>	
F1	--	264 V / 60 Hz	20,84	0,186	0,186	Ditto	
Normal operated with load at 12 V / 1,5 A							

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fuse #	I rated (A)	U (V)	P (W)	I (A)	I fuse (A)	condition/status
F1	--	90 V / 50 Hz	20,74	0,398	0,398	Normal operated with load at 12 V / 1,5 A
<b>F1</b>	<b>--</b>	<b>90 V / 60 Hz</b>	<b>20,73</b>	<b>0,416</b>	<b>0,416</b>	<b>Ditto</b>
F1	0,5	100 V / 50 Hz	20,60	0,368	0,368	Ditto
F1	0,5	100 V / 60 Hz	20,56	0,384	0,384	Ditto
F1	0,5	240 V / 50 Hz	20,16	0,194	0,194	Ditto
F1	0,5	240 V / 60 Hz	20,15	0,191	0,191	Ditto
<b>F1</b>	<b>--</b>	<b>264 V / 50 Hz</b>	<b>20,25</b>	<b>0,166</b>	<b>0,166</b>	<b>Ditto</b>
F1	--	264 V / 60 Hz	20,23	0,180	0,180	Ditto

2.10.3 and 2.10.4 TABLE: Clearance and creepage distance measurements							P
Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)	
Functional:							
Across Fuse F1 on PWB	<420	<250	1,5	3,6	2,5	3,6	
Across primary directly connected to mains before F1	< 420	< 250	1,5	2,5	2,5	2,5	
Basic/supplementary:							
--	--	--	--	--	--	--	--
Reinforced:							
Primary circuit to accessible part of enclosure	<420	<250	4,0	>6,5	5,0	>6,5	
Primary circuit to secondary circuit on PWB	<420	<250	4,0	6,8	5,0	6,8	
Across Y-cap. (CY1) on PWB	<420	<250	4,0	6,8	5,0	6,8	
U1 input to output	512	237	4,4	See table 6	5,0	See table 6	
Input to output through U1 on PWB	512	237	4,4	>6,5	5,0	>6,5	
Primary winding / Ferrite core of T1 to secondary winding of T1 on PWB	512	237	4,4	6,8	5,0	6,8	

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Primary winding to secondary winding of transformer T1 body	512	237	4,4	>6,5	5,0	>6,5
Primary component C2 to Sec. Circuit (sec. pin of CY1)	<420	<250	4,0	7,5	5,0	7,5
Supplementary information: Ferrite core of transformer (T1) was considered as primary part; Secondary winding of transformer is triple insulating wire.						

2.10.5	TABLE: Distance through insulation measurements					P
Distance through insulation (DTI) at/of:	U peak (V)	U rms (V)	Test voltage (V)	Required DTI (mm)	DTI (mm)	
Bobbin of Transformer T1	512	237	3000	0,4	Min. 0,45	
Insulation sheet	<420	<250	1500	--	--	
Enclosure	<420	<250	3000	0,4	Min. 1,5	
One layer Insulation tape wrapping transformer	512	237	3000	2 layers	3 layers	
Supplementary information:						

4.5	TABLE: Thermal requirements					P	
	Test condition:	Rated output: 5 VDC, 3 A		Rated output: 9 VDC, 2 A		—	—
	Supply voltage (V) .....	90V	264V	90V	264V	—	—
	Ambient T <sub>min</sub> (°C) .....	22,4	22,6	21,7	22,3	—	—
	Ambient T <sub>max</sub> (°C) .....	23,0	23,0	22,4	22,7	—	—
Maximum measured temperature T of part/at:		T (°C)				--	Allowed T <sub>max</sub> (25°C)
Surface of E-cap (C10)		80,3	77,0	70,9	59,8	--	105
Surface of Y-cap (CY1)		81,6	80,1	72,1	64,0	--	125
Winding of line filter (L2)		79,8	70,5	67,9	53,7	--	120
Winding of transformer (Switch mode) T1		87,9	89,4	83,0	74,6	--	110
Winding of transformer (Switch mode) T1		80,9	80,5	76,8	68,0	--	110
Ferrite core of transformer T1		82,2	80,7	66,5	60,0	--	Ref.
PWB (DB1)		77,7	66,2	73,6	53,8	--	130
PWB (U1)		82,2	84,3	81,6	73,8	--	130
PWB (Q1)		89,0	92,3	79,2	63,0	--	130
Enclosure inside (side)		73,1	74,3	59,4	54,0	--	Ref.

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Enclosure inside (top)	77,0	73,6	50,7	46,5	--	Ref.
Metallic enclosure surface (Side)	50,2	50,5	44,7	41,8	--	70
Metallic enclosure surface (Top)	48,2	49,0	45,4	41,6	--	70
Metallic enclosure surface (Front)	59,4	62,1	48,1	44,4	--	70
Pin holder	32,2	31,8	30,9	29,1	--	Ref.
Supplementary information:						
Temperature T of winding:	t <sub>1</sub> (°C)	R <sub>1</sub> (Ω)	t <sub>2</sub> (°C)	R <sub>2</sub> (Ω)	T (°C)	Allowed T <sub>max</sub> (°C)
--	--	--	--	--	--	B
Supplementary information: --						

4.5	TABLE: Thermal requirements					P	
	Test condition:	Rated output: 12 VDC, 1,5 A				—	—
	Supply voltage (V) .....	90V	264V			—	—
	Ambient T <sub>min</sub> (°C) .....	22,5	22,2			—	—
	Ambient T <sub>max</sub> (°C) .....	23,0	22,5			—	—
	Maximum measured temperature T of part/at::	T (°C)				--	Allowed T <sub>max</sub> (25°C)
	Surface of E-cap (C10)	68,6	58,9			--	105
	Surface of Y-cap (CY1)	68,6	61,7			--	125
	Winding of line filter (L2)	65,6	52,8			--	120
	Winding of transformer (Switch mode) T1	78,3	72,1			--	110
	Winding of transformer (Switch mode) T1	73,0	65,8			--	110
	Ferrite core of transformer T1	64,5	59,2			--	Ref.
	PWB (DB1)	71,3	53,4			--	130
	PWB (U1)	77,6	72,4			--	130
	PWB (Q1)	72,7	64,0			--	130
	Enclosure inside (side)	57,1	52,6			--	Ref.
	Enclosure inside (top)	49,3	45,0			--	Ref.
	Metallic enclosure surface (Side)	44,1	40,3			--	70
	Metallic enclosure surface (Top)	44,8	40,5			--	70
	Metallic enclosure surface (Front)	45,7	42,2			--	70
	Pin holder	30,8	28,9			--	Ref.

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## Test Report

Report No: SZES171100487501

Date: 2017-12-12

Supplementary information:							
Temperature T of winding:	t <sub>1</sub> (°C)	R <sub>1</sub> (Ω)	t <sub>2</sub> (°C)	R <sub>2</sub> (Ω)	T (°C)	Allowed T <sub>max</sub> (°C)	Insulation class
--	--	--	--	--	--	--	B
Supplementary information: --							

4.5.5	TABLE: ball pressure test of thermoplastic parts		P
	allowed impression diameter (mm) ..... : ≤ 2 mm		—
part	test temperature (°C)		impression diameter (mm)
Pin Bridge	125		1,4

5.2	TABLE: electric strength tests, impulse tests and voltage surge tests		P
test voltage applied between:		test voltage (V) a.c. / d.c.	breakdown Yes / No
L and N with fuse opened		1500	No
L/N of plug and enclosure		3000	No
L/N of plug and output terminals		3000	No
One layers of insulation tape wrapping T1		3000	No
Primary winding and secondary winding of T1		3000	No
supplementary information			

5.3	TABLE: fault condition tests		P
	ambient temperature (°C) ..... : 21,2 – 22,3	—	
	model/type of power supply ..... : --	—	
	manufacturer of power supply ..... : --	—	
	rated markings of power supply ..... : --	—	

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## Test Report

Report No: SZES171100487501

Date: 2017-12-12

component No.	fault	test voltage (V)	test time	fuse No.	input/fuse current (A)	result
Output terminal	Overload	90 V / 60 Hz	3 h 42 min	F1	0,509 → 0,508 → 0,511 → 0,367 → 0,004	Output current 2,1 A for attaining steady conditions and max. power attained. When added to 5%, output power dropped to 19,55 W. When added output current to 3,2 A, got max. input power 25,6 W and attained steady conditions, then added 5% output current, output power dropped to 12,21 W, and then added 5% output current, output changed to 0 W. No component damage, no hazard.  P <sub>n</sub> = 25,3 → 25,4 → 25,6 → 17,4 → 0,12 W  I <sub>out</sub> = 2,1 → 2,3 → 3,2 → 3,3 → 0 A  Winding temp. T <sub>1</sub> = 97,4 °C

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Report No: SZES171100487501

Date: 2017-12-12

component No.	fault	test voltage (V)	test time	fuse No.	input/fuse current (A)	result
Output terminal	Overload	264 V / 50 Hz	4 h 21 min	F1	0,225 → 0,225 → 0,224 → 0,160 → 0,009	Output current at 2,2 A got max. input power 25,3 W for attaining steady conditions and max. power attained. When added 5% output current, output power dropped to 20,01 W. When added output current to 3,1 A, got input power 25,2 W (output power 17,7 W) and attained steady conditions, then added 5% output current, output power dropped to 8,25 W, and then added 5% output current, output changed to 0 W. No component damage, no hazard.  P <sub>n</sub> = 25,3 → 25,3 → 25,2 → 15,8 → 0,3 W  I <sub>out</sub> = 2,2 → 2,3 → 3,1 → 3,3 → 0 A  Winding temp. T <sub>1</sub> = 94,4 °C
Output terminal	s-c	264 V / 50 Hz	10 min	F1	0,008	Unit shut down immediately. No higher temperature rise. No hazard.
Q1	s-c pin 1/8	264 V / 50 Hz	10 min	F1	0	Unit shut down immediately. No higher temperature rise. No damage, no hazard.
U1	s-c pin 6/8	264 V / 50 Hz	10 min	F1	0,008	U1 shut down immediately, input changed to 0,4 W, no hazard.
C7	s-c	264 V / 50 Hz	<1s	F1	0,006	Unit shut down immediately. No higher temperature rise. No hazard.

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component No.	fault	test voltage (V)	test time	fuse No.	input/fuse current (A)	result
U1	s-c pin 1/2	264 V / 50 Hz	<1s	F1	0	Fuse F1 opened immediately and components L3 damaged and U1 MOSFET function shutdown immediately, no hazard.
U1	s-c pin 1/2	90 V / 60 Hz	<1s	F1	0	Fuse F1 opened immediately and components L3 damaged and U1 MOSFET function shutdown immediately, no hazard.
C2	s-c	264 V / 50 Hz	<1s	F1	0	Fuse F1 opened immediately, no damage, no hazard.
C2	s-c	90 V / 60 Hz	<1s	F1	0	Fuse F1 opened immediately, no damage, no hazard.
BD1	s-c pin 1/2	264 V / 50 Hz	<1s	F1	0	Fuse F1 opened immediately, no damage, no hazard.
BD1	s-c pin 1/2	90 V / 60 Hz	<1s	F1	0	Fuse F1 opened immediately, no damage, no hazard.
BD1	s-c pin 2/3	264 V / 50 Hz	<1s	F1	0	Fuse F1 opened immediately, no damage, no hazard.
BD1	s-c pin 2/3	90 V / 60 Hz	<1s	FR1	0	Fuse F1 opened immediately, no damage, no hazard.
supplementary information						
Electric strength test between pri. and sec. circuit: 3000 Va.c. / 1 min: Pass						

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## Test Report

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### 6. Component List

object/part No.	manufacturer / trademark	type/model	technical data	Standard	Mark(s) of conformity
Enclosure	CHI MEI CORPORATION	PC-6620	PC, V-0, 110°C, min. thickness: 1,5 mm	UL94	UL(E56070)
Pin holder	CHI MEI CORPORATION	PC-6620	PC, V-0, 110°C, min. thickness: 1,5 mm	UL94	UL(E56070)
PWB	Interchangeable	Interchangeable	V-0, 130°C	UL796	UL
Fuse (F1)	Littelfuse, Inc.	392	T2A, 250 V	IEC 60127-1:2006 + A1: 2011 + A2: 2015 IEC 60127-3: 2015 EN 60127-1:2006 + A1: 2011 + A2: 2015 EN 60127-3:2015	VDE (126983)
Y-cap. (CY1)	Dongguan Easy-gather Electronic Co., Ltd.	DCF	2200 pF, 400 VAC, 25/125/21/C, Y1	IEC 60384-14: 2005 EN 60384-14: 2005	VDE (4002922942)
Isolating IC (U1)	Power Integrations, Inc.	INN2215K1608	650Vpk or 725Vpk max at 1,36Apk max, 400 Vpk at 2,55 A max, 130°C	IEC 60950-1:2005 (Second Edition) + Am 1:2009 EN 60950-1:2006 + A11: 2009 + A1: 2010 + A12: 2011	TUV Rheinland CB cert.: US-TUVR-9085; CB test report No.: 31380082.012
Insulation sheet	SABIC JAPAN L L C	FR700	PC, V-0, 125 °C, min. thickness: 0,4 mm	--	UL (E207780)
Line fitter (L1)	Shenzhen Songdao Technology Co., Ltd.	6*3*2-100UH	100 UH, 130°C	--	Tested with appliance
--Copper wire	Interchangeable	Interchangeable	130°C	UL1446	UL
--TIW	TA YA ELECTRIC WIRE & CABLE CO LTD	TILW-B	130 °C, class B, reinforced insulation	EN 60950-1: 2006 + A11+A1+A12+A2: 2013	VDE (40019957)

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# Test Report

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Date: 2017-12-12

Transformer (T1)	Dongguan BiaoKe Electronic Technology Co., Ltd.	PQ20V	Class B	--	Tested with appliance
-- Bobbin	CHANG CHUN PLASTICS CO LTD	T375J	PMC, V-0, 150°C, min. thickness: 0,45 mm	UL94	UL (E59481)
-- Primary Winding	SIHUI HENGHUI ELECTRICAL APPLIANCES CO LTD	2UEW/155	155°C	UL1446	UL (E337948)
-- Secondary winding (TIW)	TA YA ELECTRIC WIRE & CABLE CO LTD	TILW-B	130 °C, class B, reinforced insulation	EN 60950-1: 2006 + A11+A12+A2: 2013	VDE (40019957)
--Insulating tape	DONGGUAN BLEN ELECTRONIC TECHNOLOGY CO LTD	BL002	130°C	UL510	UL (E480647)
--Insulation tube	GREAT HOLDING INDUSTRIAL CO LTD	TFL	PTFE, 200°C, 150 V, VW-1	UL224	UL (E156256)

## Supplementary information:

1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.

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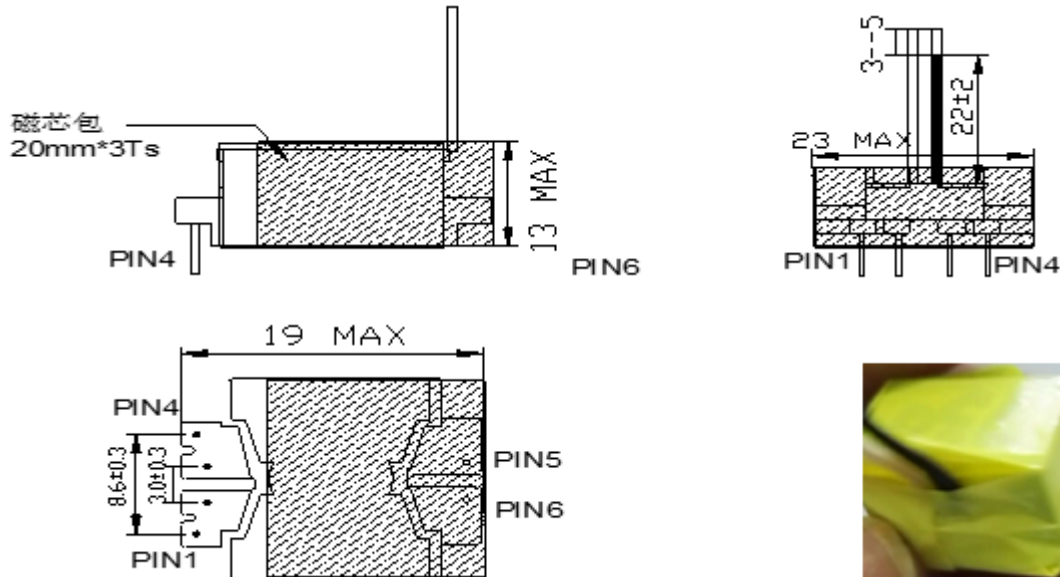
## Test Report

Report No: SZES171100487501

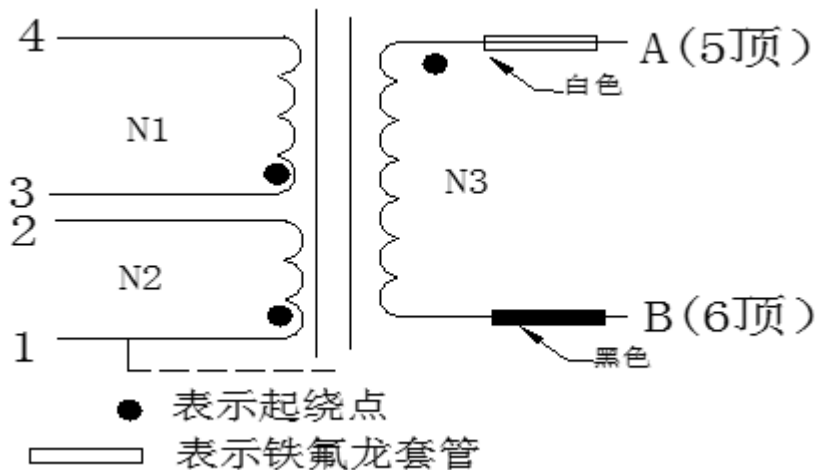
Date: 2017-12-12

### Specification of transformer

#### 1. 外形尺寸图: (单位: mm)



#### 2. 原理图



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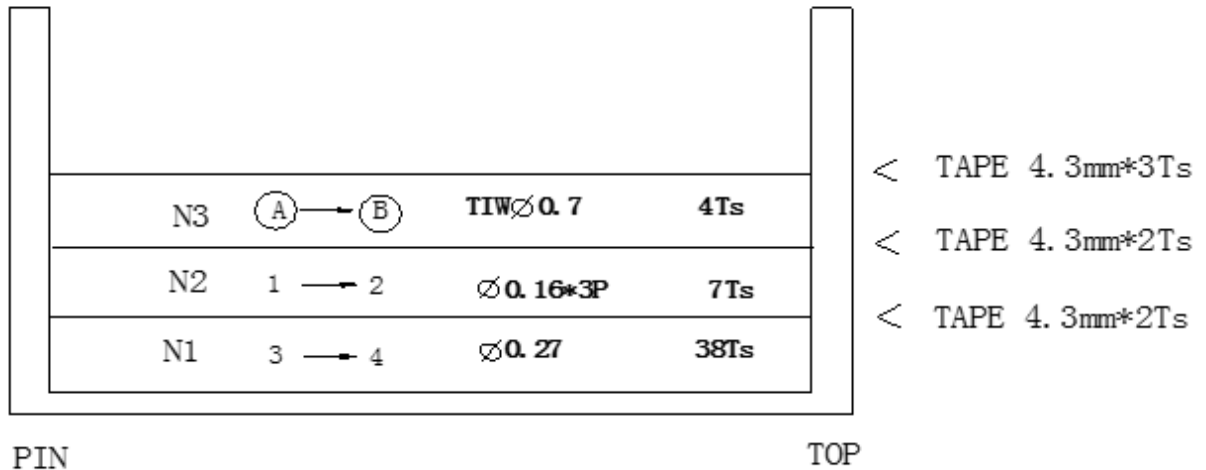
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## Test Report

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### 3. 绕制结构图:



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## Test Report

Report No: SZES171100487501

Date: 2017-12-12

### Attachment A: Plug portion test results for direct plug-in equipment according to EN 50075: 1990

Clause	Requirement test	Result- remark	Verdict
<b>5</b>	<b>RATING</b>		
	The product shall be rated $\leq 2,5$ A and $\leq 250$ V a.c.		P
<b>6</b>	<b>MARKING</b>		
	Marking requirement shall be checked by the product standard	Should be evaluated in whole unit	—
<b>7</b>	<b>DIMENSIONS</b>		
	Plugs comply with standard sheet 1		P
	Compliance is checked by measurement	See appended table	P
	Compliance checked by means of the gauges in figure 1 (optional) and figure 2		P
<b>8</b>	<b>PROTECTION AGAINST ELECTRIC SHOCK</b>		
8.1	Live parts shall not be accessible		P
	Checked by test finger		P
	No deformation or no live part accessible during the additional test: $(75^{+3})$ N through the tip of a straight unjointed test finger for $(60^{+5})$ s at ambient temperature $(35 \pm 2)$ °C	75 N, 35 °C	P
8.2	No possibility to make connection between a pin of the plug and a live socket contact of a socket-outlet while the other pin is accessible		P
	Compliance is checked by means of the gauge in figure 4: no contact between the gauge and the engagement face of the plug for 1 min (at $35 \text{ °C} \pm 2 \text{ °C}$ for thermoplastic material)	The gauge did not come into contact with the engagement face of the plug.	P
8.3	External parts of plugs, with the exception of the pins, shall be of insulating material		P
<b>9</b>	<b>CONSTRUCTION</b>		
9.1	Non-rewirable requirements are not applicable to the direct plug-in equipment		—
9.2	This clause is not applicable to the direct plug-in equipment		—
9.3	Pins shall be solid and have adequate mechanical strength	See tests of clause 13	P

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# Test Report

Report No: SZES171100487501

Date: 2017-12-12

Clause	Requirement test	Result- remark	Verdict
9.4	Pins shall be locked against rotation and adequately fixed into the body of the plug	See tests of 13.1 and 13.4	P
9.5	Connection requirements are not applicable to the direct plug-in equipment		—
9.6	The equipment shall easily be withdrawn by hand from a socket-outlet		P
<b>10</b>	<b>RESISTANCE TO HUMIDITY</b>		
	Humidity treatment shall be checked by the product standard		—
<b>11</b>	<b>INSULATION RESISTANCE AND ELECTRIC STRENGTH</b>		
	Insulation resistance and electric strength shall be checked by the product standard		—
<b>12</b>	<b>FLEXIBLE CORDS AND THEIR CONNECTION</b>		
	Flexible cords and their connection requirements are not applicable to the direct plug-in equipment		—
<b>13</b>	<b>MECHANICAL STRENGTH</b>		
13.1	Pressure between 2 flat surfaces on the plug (150 N for 5 min)		P
	15 minutes after removal of the force, no deformation would result in undue alteration of those dimensions which ensure safety		P
13.2	Subjected to tumbling barrel; number of falls :	Direct plug-in equipment, 50 falls	P
	After the test, no part shall become detached or loosened		P
	After the test, the pins shall not become so deformed that the plug cannot be introduced into the gauge of figure 2 and also fails to comply with clause 7 and 8.2		P
	After the tumbling barrel test, the pins shall not turn when applying a torque of 0,4 Nm, first in one direction and then in opposite direction		P
13.3	Insulating sleeves: 20000 movements, (4-0,1) N (apparatus shown in Figure 9)		P
	After the test		P
	- the sleeve shall show no damage		P

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# Test Report

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Date: 2017-12-12

Clause	Requirement test	Result- remark	Verdict
	- the sleeve shall not have punctured or rucked up		P
	- the sleeve shall satisfy electric strength test		P
13.4	(40 <sup>+1</sup> ) N applied for (60 <sup>+5</sup> ) s on each pin in turn, at (70 ± 2) °C, after the plug has been placed for (60 <sup>+5</sup> ) min	40 N, 70 °C	P
	Displacement ≤ 1 mm when the plug has cooled down	Max. displacement: 0,3 mm	P
<b>14</b>	<b>RESISTANCE TO HEAT AND TO AGEING</b>		
14.1	Plugs shall be sufficiently resistant to heat		P
14.1.1	Stress relief test shall be checked by the product standard		—
14.1.2	A force of (20 <sup>+1</sup> ) N applied by means of an apparatus shown in figure 10 at (80 ± 2) °C	20 N, 80 °C	P
	After (60 <sup>+5</sup> ) min, the jaws are removed and the plugs shall show no damage		P
14.2	This ageing test is not applicable to direct plug-in equipment		P
<b>15</b>	<b>CURRENT-CARRYING PARTS AND CONNECTIONS</b>		
15.1	This clause is not applicable to the direct plug-in equipment		—
15.2	This clause is not applicable to the direct plug-in equipment		—
15.3	Current-carrying parts shall be either of:		P
	- copper		N/A
	- an alloy containing at least 58% copper for parts made from rolled sheet (in cold condition) or at least 50% copper for other parts		P
	- other metals having a mechanical strength, an electrical conductivity and a resistance to corrosion adequate for their intended use		N/A
	Current-carrying parts which may be subjected to mechanical wear, shall not be made of steel provided with an electroplated coating		N/A
<b>16</b>	<b>CREEPAGE DISTANCES, CLEARANCES AND DISTANCES THROUGH INSULATION</b>		
	Creepage distances, clearances and distances through insulation shall be checked by the product standard	Should be evaluated in whole unit	—
<b>17</b>	<b>RESISTANCE OF INSULATING MATERIAL TO ABNORMAL HEAT AND TO FIRE</b>		
	Glow-wire test	See appended table	P

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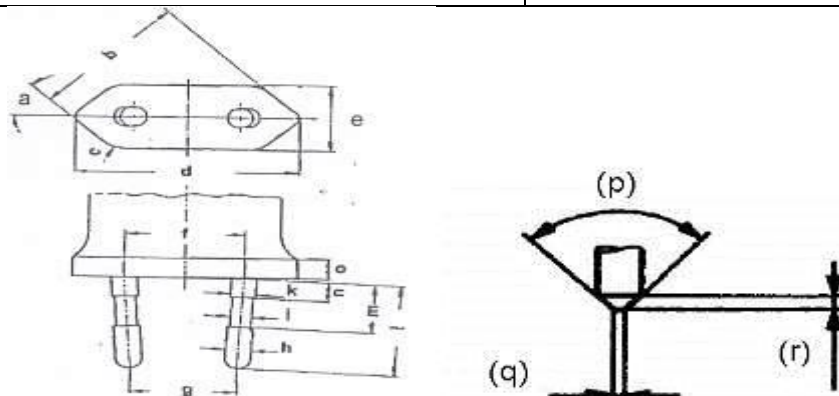
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# Test Report

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Clause	Requirement test	Result- remark	Verdict
	The test made on one plug, 2 further plugs tested in case of doubt		N/A



7	TABLE: Dimensional measurement					P
Locations	Size (mm)	Tolerance (mm)	Measured (for both pins, if applicable) (mm)			
			Sample No.:1	Sample No.:2	Sample No.:3	
a	45°	--	Pass	Pass	Pass	
b	26,1	±0,5	25,81 – 26,16	25,81 – 26,13	25,89 – 26,16	
c	R5	+1	Pass	Pass	Pass	
d	35,3	±0,7	35,02 – 35,27	35,04 – 35,27	35,04 – 35,26	
e	13,7	±0,7	13,67 – 13,88	13,66 – 13,87	13,67 – 13,87	
f	18 – 19,2	--	18,22	18,20	18,21	
g	17 – 18	--	17,45	17,51	17,49	
h	Ø4	±0,06	3,99 / 3,99	3,99 / 4,00	3,99 / 3,99	
i	Ø3,8	max.	3,43 / 3,40	3,43 / 3,42	3,42 / 3,43	
k	Ø4	max.	3,83 / 3,84	3,81 / 3,82	3,83 / 3,82	
l	19	±0,5	19,21 / 19,15	19,12 / 19,10	19,17 / 19,16	
m	10	+1	10,56 / 10,61	10,64 / 10,65	10,66 / 10,64	
n	0-4,0	--	3,92 / 3,93	3,88 / 3,90	3,91 / 3,91	
o	18,0	min.	Pass	Pass	Pass	

17	TABLE: glow-wire test				P
part	test temperature (°C)	Type of material	technical data of material	observation	
Pin bridge	750	PC-6620	PC, V-0	No flame	
Enclosure	650	PC-6620	PC, V-0	No flame	

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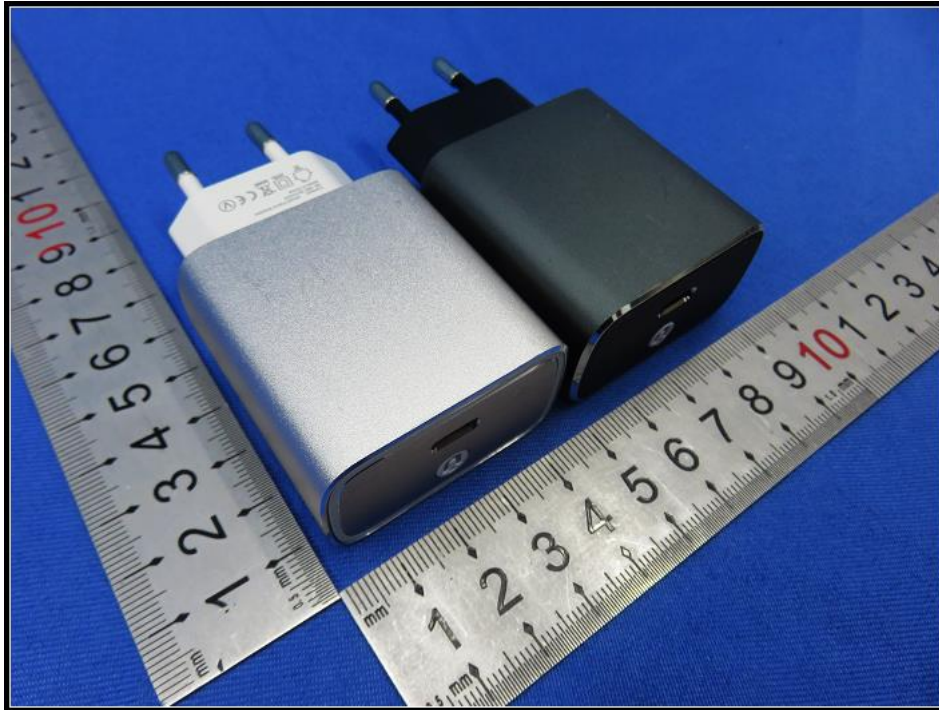
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### 7. Photo documentation

Whole unit



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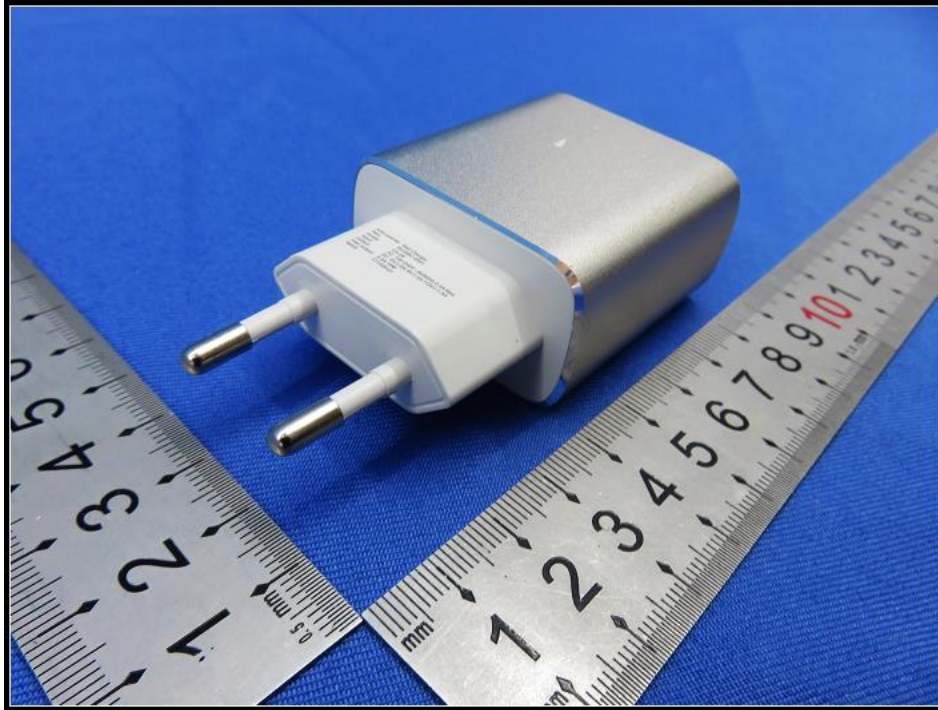
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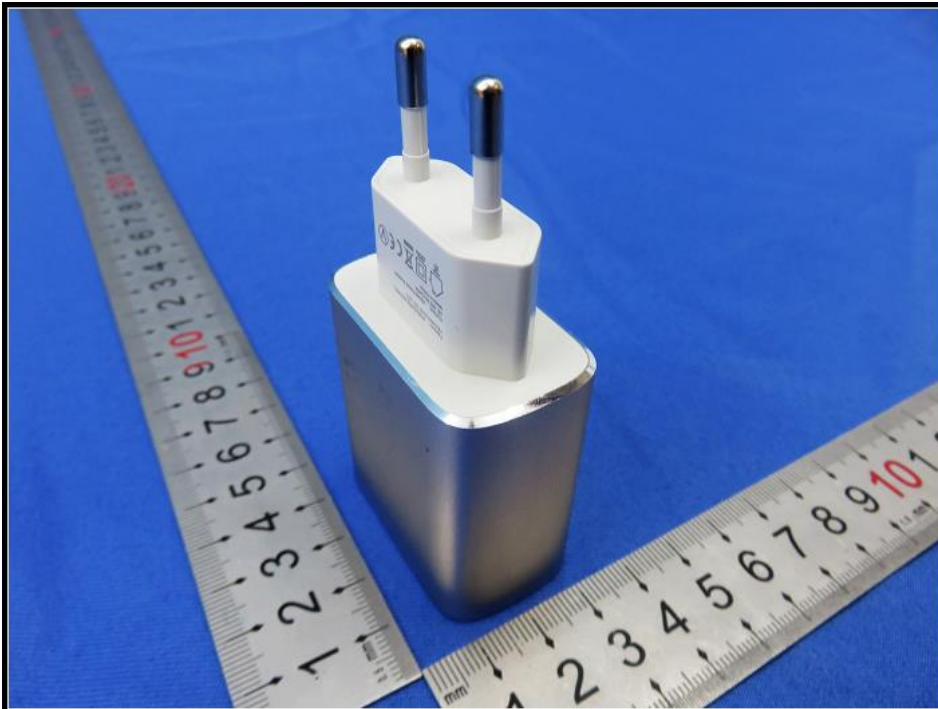
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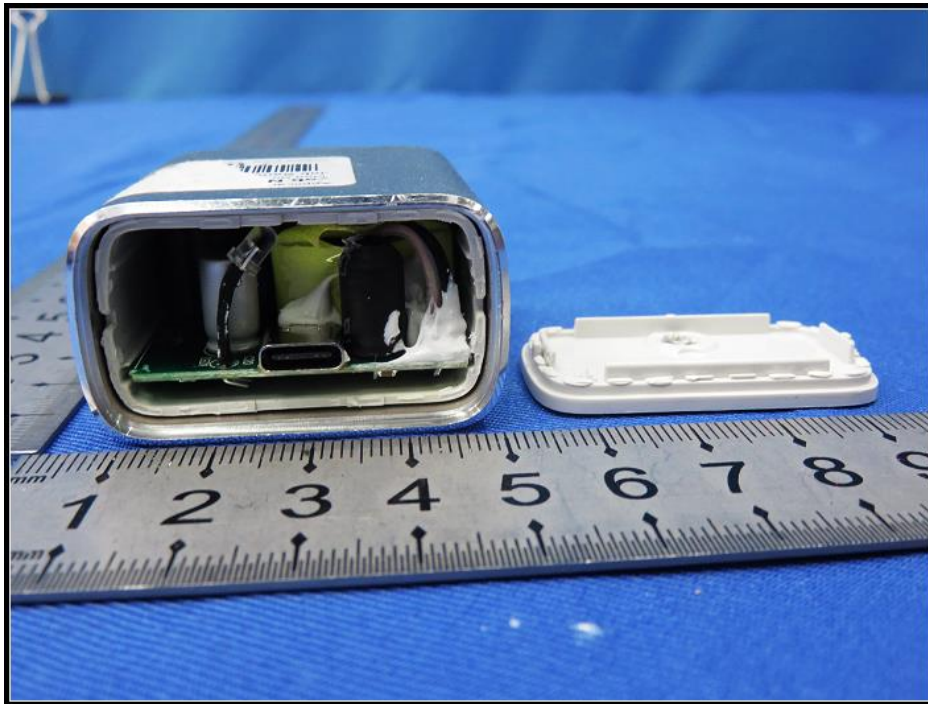
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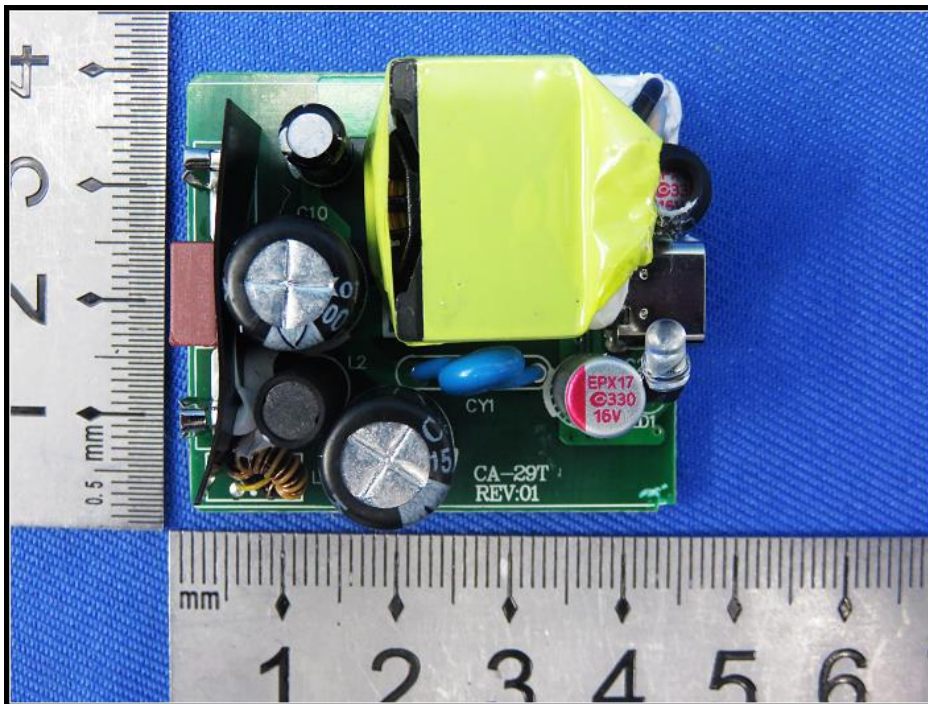
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Internal view



PWB



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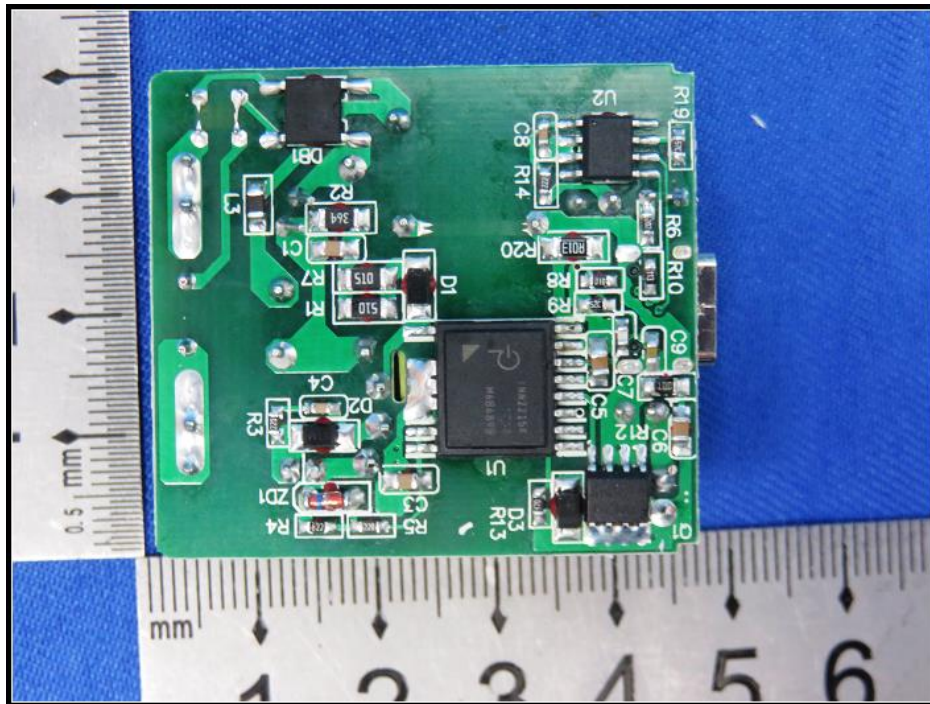
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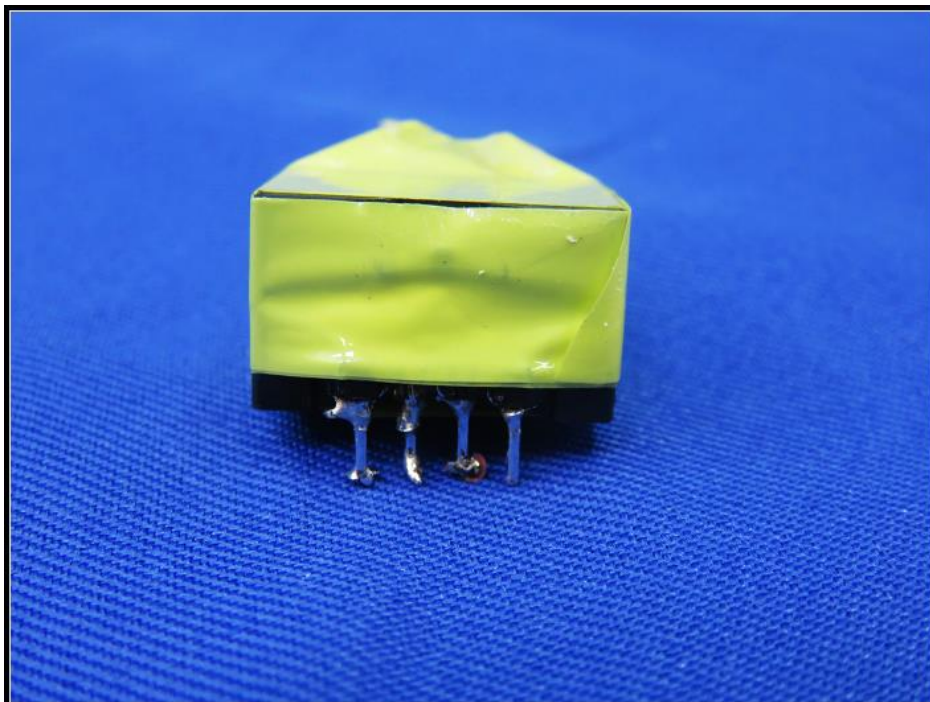
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## Transformer



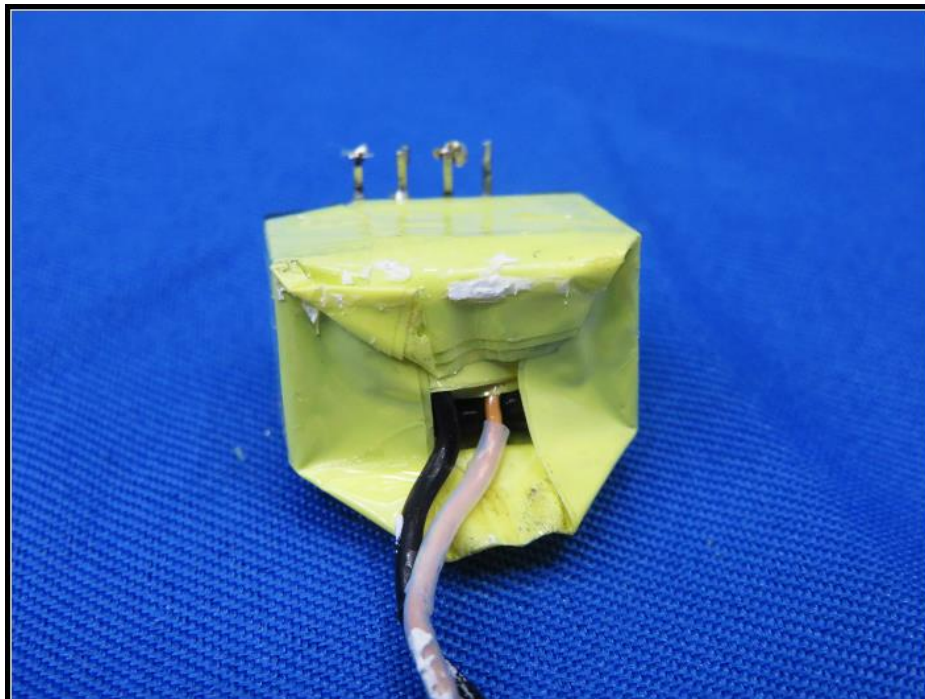
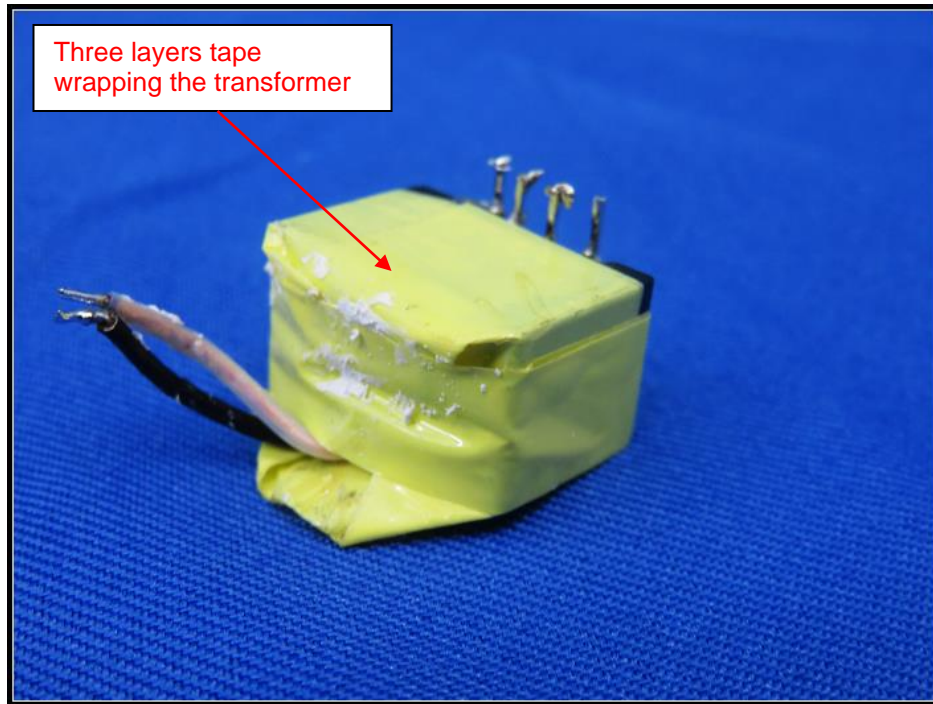
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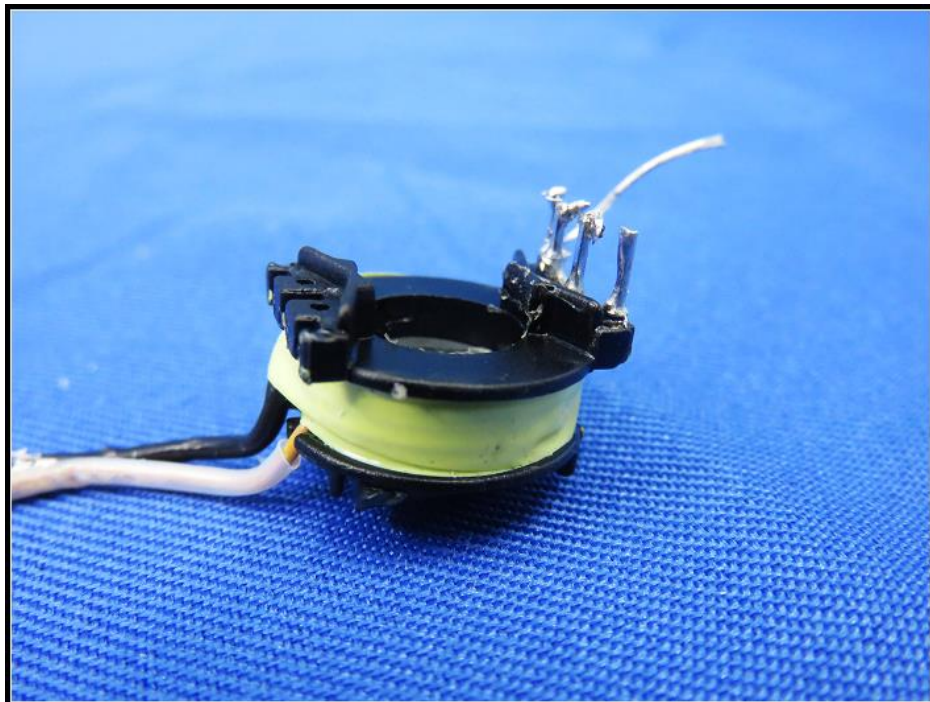
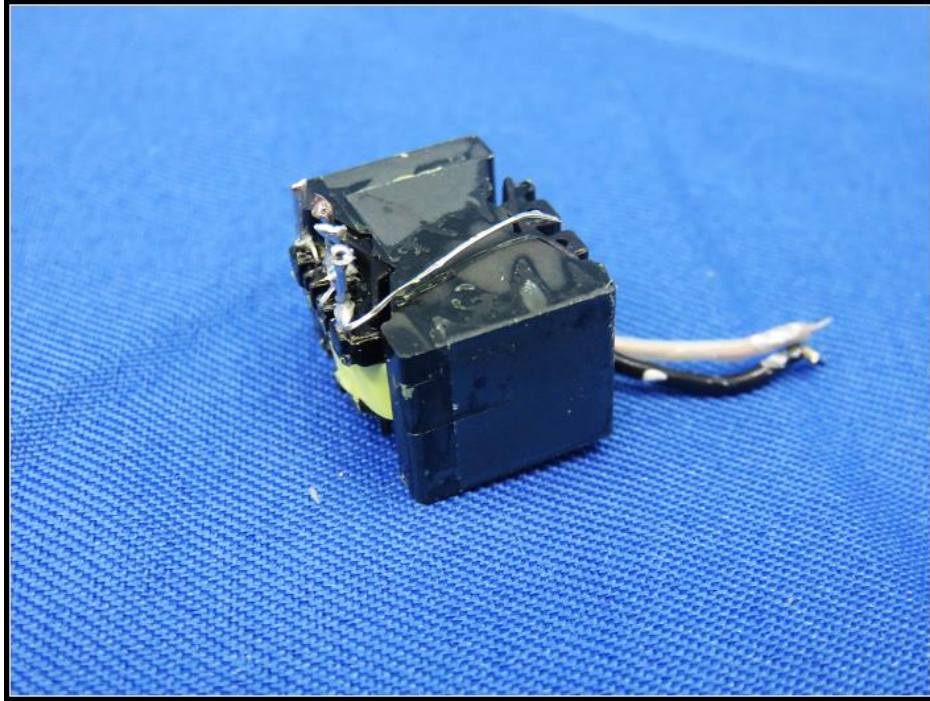
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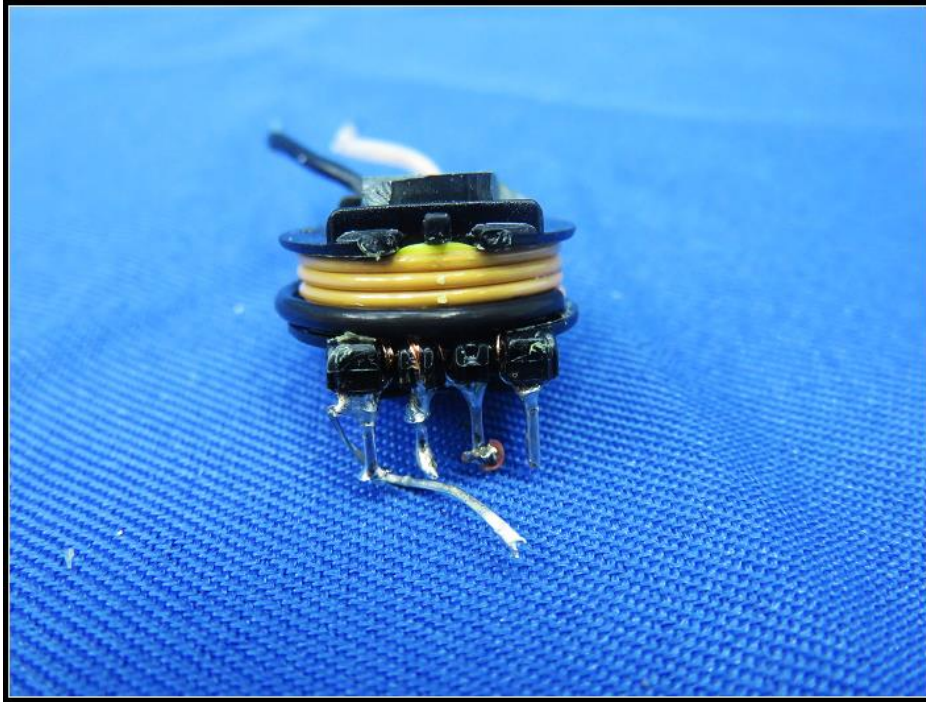
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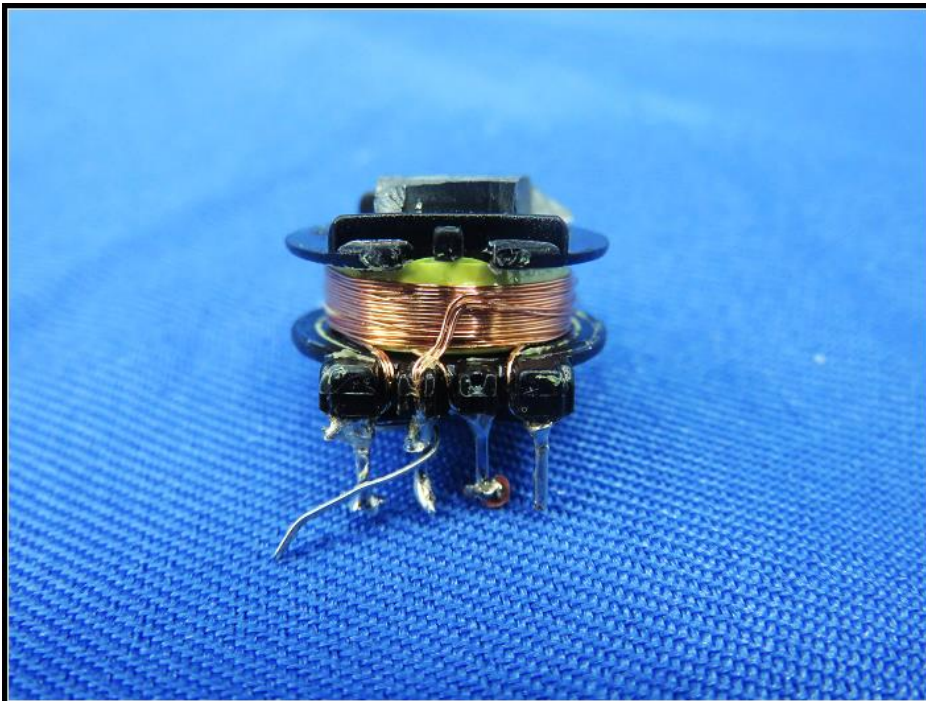
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Secondary winding



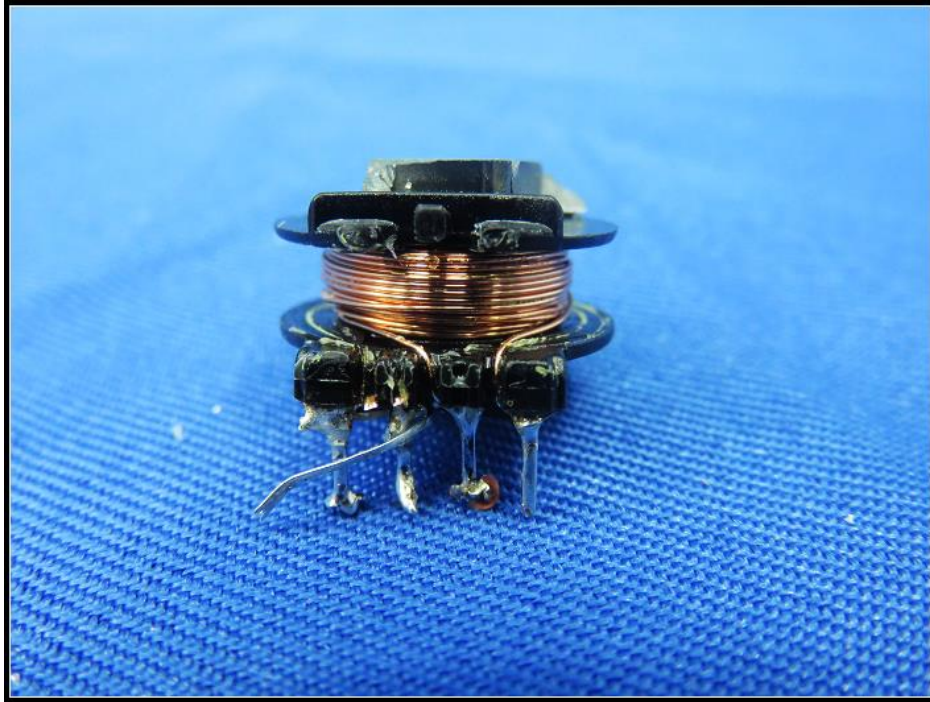
Primary winding



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### NOTES TO THIS TEST REPORT

1. The following language(s) of marking(s) and instruction sheets were submitted during the test application:
  - English
  - Throughout this report a comma is used as the decimal separator.

According to the standard, instruction sheets and other texts required by the standard should be written in the official language(s) of the country in which the product is to be sold. The applicant should ensure that the product in future production fulfils the receptive standard requirements.

2. The components performed satisfactorily during testing and are considered to be suitable for use in the sample tested. Acceptances of the safety critical components and materials were based on:
  - the certification record(s) and/or test report submitted by the applicant; or
  - component / material tested with the appliance
 Detail shall be referred to the component list on the appendix of this test report.

3. Plug (and socket) used in this product must be compiled with the local plug and socket regulation of the respective country.

- - - End of Report - - -

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