IEC IECEE CB SCHEME

Ref. Certif. No.

JPTUV-014900-A1/M1

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

SYSTEME CEI D'ACCEPTATION MUTUELLE DE CERTIFICATS D'ESSAIS DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC

CB TEST CERTIFICATE
CERTIFICAT D'ESSAI OC

Product Produit	Battery Charger
Name and address of the applicant Nom et adresse du demandeur	Mean Well Enterprises Co., Ltd. No. 28, Wu-Chuan 3rd Road Wu Ku Ind. Park, Taipei Hsien 248 Taiwan
Name and address of the manufacturer Nom et adresse du fabricant	Mean Well Enterprises Co., Ltd. No. 28, Wu-Chuan 3rd Road Wu Ku Ind. Park, Taipei Hsien 248 Taiwan
Name and address of the factory Nom et adresse de l'usine	See additional page(s)
Rating and principal characteristics Valeurs nominales et caractéristiques principales	Input : AC 100-120V; AC 200-240V; 1) 7A/3A; 2) 7A/4A; 50/60Hz; Class I Output: refer to the test report
Trade mark (if any) Marque de fabrique (si elle existe)	MEAN WELL
Model/type Ref. Ref. de type	1) PB-300P-12, PB-300P-24, PB-360P-12, PB-360P-24, 2) PB-300N-12, PB-300N-24, PB-360N-12, PB-360N-24
Additional information (if necessary) Information complémentaire (si nécessaire)	For model differences, refer to the test report. Re-issue of JPTUV-014900-A1 dated 05.06.2006, due to first modification.
A sample of the product was tested and found to be in conformity with Un échantillon de ce produit a été essayé et a été considéré conforme à la	IEC 60335-2-29:2003 IEC 60335-1:2001 National differences see test report
As shown in the Test Report Ref. No. which forms part of this Certificate Comme indiqué dans le Rapport d'essais numéro de référence qui constitue une partie de ce Certificat	12013452 003

This CB Test Certificate is issued by the National Certification Body
Ce Certificat d'essai OC est établi par l'Organisme National de Certification

TÜVRheinland®

TÜV Rheinland Japan Ltd.
Global Technology Assessment Center
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Yokohama 224-0021 Japan
Phone + 81 45 914-3888
Fax + 81 45 914-3354
Mail: info@jpn.tuv.com
Web: www.tuv.com

Date: 07.05.2009

Signature: Dipl.-Ing. F. Stoelzel

1. Mean Well Enterprises Co., Ltd.
   No. 28, Wu-Chuan 3rd Road
   Wu Ku Ind. Park, Taipei Hsien 248
   Taiwan

2. GuangZhou Meanwell
   Electronics Co Ltd.
   A Bldg.
   2nd Fl. Yuean Industrial Park
   Dongpu Town Tianhe, Guangzhou Guangdong, P.R. China

Additional information (if necessary)
Information complémentaire (si nécessaire)

Date: 07.05.2009 Signature: Dipl.-Ing. F. Stoelzel

TEST REPORT FOR AN ADDITIONAL APPROVAL

IEC/EN 60 335-2-29

Safety of household and similar electrical appliances

Report reference No.	12013452 003
Compiled by (+ signature)	Tina C. W. Chou
Approved by (+ signature)	Tony Huang
Date of issue	May 07, 2009
Testing laboratory	TÜV Rheinland Taiwan Ltd., Taichung Laboratory
Address	10F, No. 219, Min Chuan Rd., Taichung 403, Taiwan
Testing location/procedure	CBTL ☒ CCATL ☐ SMT ☐ TMP ☐
	Same as above
Applicant	Mean Well Enterprise Co., Ltd.
Address	No. 28, Wu-Chuan 3rd., Wu-Ku Industrial Park. Taipei Hsien, Taiwan
Standard	IEC 60335-2-29:2003 (4th edition), IEC 60335-1:2001 (4th edition), EN 60335-1:2002+A11, EN 60335-2-29:2004
Test Report Form No.	Cbaddapp.doc
TRF originator.	TÜV Rheinland
Test procedure	CB-Scheme
Procedure deviation	See page 2
Non-standard test method	N.A.

This report is not valid as a CB Test Report unless appended to a CB Test Certificate issued by a NCB, in accordance with IECEE 02

Type of test object	Battery Charger
Trademark	MEAN WELL
Model/type reference	PB-300P-12, PB-300N-12, PB-300P-24, PB-300N-24, PB-360P-12, PB-360N-12, PB-360P-24, PB-360N-24
Manufacturer	Same as applicant
Factory	Refer to 12013452 001 report
Rating	I/P: AC 100-120V/7A, AC 200-240V/3A, 50/60Hz for models PB-300P-12, PB-300P-24, PB-360P-12, PB-360P-24
	I/P: AC 100-120V/7A, AC 200-240V/4A, 50/60Hz for models PB-300N-12, PB-300N-24, PB-360N-12, PB-360N-24
	O/P: DC 14.4V, 20.85A for models PB-300P-12, PB-300N-12;
	O/P: DC 14.4V, 24.3A for models PB-360P-12 and PB-360N-12;
	O/P: DC 28.8V, 10.5A for models PB-300P-24 and PB-300N-24;
	O/P: DC 28.8V, 12.5A for models PB-360P-24 and PB-360N-24
	Max. ambient temperature: +40°C

This project is the modification of the following items:

1. Change the resistance of bleeder resistors (R1, R2, R3) from 180kΩ to 68kΩ.

The evaluated product is the same as final manufactured product.
The manufacturer's declaration, that the samples tested represent the products from each factory, is available.

Summary of compliance with National Differences:

Argentina, Austria, Belgium, Switzerland, Czech Republic, Germany, Demark, Finland, France, United Kingdom, Greece, Hungary, Israel, Italy, Korea, The Netherlands, Norway, New Zealand, Poland, Portugal, Sweden, Singapore, Slovenia, Turkey, Ukraine.

For the above described modification the following testing was considered to be necessary:

Modification	Testing	Comments	Result
1.	Discharge test	See sub-clause 22.5 for test result and appended table 24.1 for the rating.	P

History of amendments and modifications:

Ref. No. 12013452 001, dated May 21, 2006 (original test report)
Ref. No. 12013452 002, dated June 02, 2006 (amendment)
Ref. No. 12013452 003, dated May 07, 2009 (modification)

IEC 60 335-2-29			
Cl.	Requirement - Test	Result	Verdict
22	CONSTRUCTION		P
22.5	No risk of electric shock when touching the pins of the plug, for appliances having a capacitor with rated capacitance exceeding 0,1μF, the appliance being disconnected from the supply at the instant of voltage peak	Measured: 26V (C1=C2=1.0μF; R1=R2=R3=68kΩ)	P

24.1	TABLE: components					P
object/part No.	manufac-turer/trademark	type/model	technical data	standard	mark(s) of conformity	
Bleeder Resistors (R1, R2, R3)	--	--	68kΩ, min. 1/4W	--	--	
* Components are tested as part of the appliance.						

IEC IECEE CB SCHEME

Ref. Certif. No.

JPTUV-014900-A1

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

SYSTEME CEI D'ACCEPTATION MUTUELLE DE CERTIFICATS D'ESSAIS DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC

CB TEST CERTIFICATE
CERTIFICAT D'ESSAI OC

Product Produit	Battery Charger
Name and address of the applicant Nom et adresse du demandeur	Mean Well Enterprises Co., Ltd. No. 28, Wu-Chuan 3rd Road Wu Ku Ind. Park, Taipei Hsien 248 Taiwan
Name and address of the manufacturer Nom et adresse du fabricant	Mean Well Enterprises Co., Ltd. No. 28, Wu-Chuan 3rd Road Wu Ku Ind. Park, Taipei Hsien 248 Taiwan
Name and address of the factory Nom et adresse de l'usine	(See appendix for factories information)
Rating and principal characteristics Valeurs nominales et caractéristiques principales	Input : AC 100-120V; AC 200-240V; 1) 7A/3A; 2) 7A/4A; 50/60Hz; Class I Output: refer to the test report
Trade mark (if any) Marque de fabrique (si elle existe)	MEAN WELL
Model/type Ref. Ref. de type	1) PB-300P-12, PB-300P-24, PB-360P-12, PB-360P-24, 2) PB-300N-12, PB-300N-24, PB-360N-12, PB-360N-24
Additional information (if necessary) Information complémentaire (si nécessaire)	For model differences, refer to the test report. Re-issue of JPTUV-014900 dated 29.05.2006, due to non-technical change.
A sample of the product was tested and found to be in conformity with Un échantillon de ce produit a été essayé et a été considéré conforme à la	IEC 60335-2-29:2003 IEC 60335-1:2001 inclusive CENELEC Common Modifications National differences see test report
As shown in the Test Report Ref. No.which forms part of this Certificate Comme indiqué dans le Rapport d'essais numéro de référence qui constitue une partie de ce Certificat	12013452 002

This CB Test Certificate is issued by the National Certification Body
Ce Certificat d'essai OC est établi par l'Organisme National de Certification

TÜV **TÜV Rheinland Group**

TÜV Rheinland Japan Ltd.
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Yokohama 222-0033 Japan
Phone + 81 45 470-1850
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Mail: info@jpn.tuv.com
Web: www.tuv.com

Date: 05.06.2006

Signature: Dipl.-Ing. W. Herlitschke

10/061 CB 4.03

www.tuv.com

TÜV Rheinland Group

Test report
IEC 60335-2-29
Safety of household and similar electrical appliances
Part 2: Particular requirements for battery chargers

Report Reference No. .....:	12013452 002
Tested by (name + signature).....:	S. Kischka
Approved by (name + signature) .....:	M. Kera
Date of issue.....:	02.06.2006
Contents .....:	3 pages

CB Testing Laboratory.....:	TÜV Rheinland Japan Ltd., Yokohama Laboratory
Address .....:	4-25-2 Kita-Yamata, Tsuzuki-ku, Yokohama 224-0021, Japan
Testing location / procedure .....:	CBTL ☒ SMT ☐ TMP ☐
Testing location / address.....:	TÜV Rheinland Japan Ltd., Yokohama Laboratory 4-25-2 Kita-Yamata, Tsuzuki-ku, Yokohama 224-0021, Japan
Applicant's name.....:	Mean Well Enterprise Co., Ltd.
Address .....:	No.28, Wu-Chuan 3rd Rd., Wu-Ku Industrial Park. Taipei Hsien, Taiwan
Test specification:	
Standard.....:	IEC 60335-2-29:2003 (4th edition), IEC 60335-1:2001 (4th edition), EN 60335-1:2002+A11, EN 60335-2-29:2004
Test procedure .....:	CB Scheme
Non-standard test method.....:	N/A
Test Report Form No.....:	IEC60335_2_29B
TRF Originator.....:	SIQ
Master TRF.....:	Dated 2004-11

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Test item description .....:	Battery Charger
Trade Mark .....:	
Manufacturer .....:	Same as applicant
Model/Type reference .....:	PB-300P-12, PB-300N-12, PB-300P-24, PB-300N-24, PB-360P-12, PB-360N-12, PB-360P-24, PB-360N-24.
Ratings .....:	I/P: AC 100-120V/ 7A, AC 200-240V/3A, 50/60Hz for models PB-300P-12, PB-300P-24, PB-360P-12, PB-360P-24. I/P: AC 100-120V/ 7A, AC 200-240V/4A, 50/60Hz for models PB-300N-12, PB-300N-24, PB-360N-12, PB-360N-24: O/P: DC 14.4V, 20.85A for models PB-300P-12, PB-300N-12: O/P: DC 14.4V, 24.3A for models PB-360P-12 and PB-360N-12; O/P: DC 28.8V, 10.5A for models PB-300P-24 and PB-300N-24; O/P: DC 28.8V, 12.5A for models PB-360P-24 and PB-360N-24; Maximum ambient temperature: +40°C.

The construction of Battery Charger models PB-300P-12 and PB-300N-12 was modified as follow:

1. Correction typing error in report 12013452 001 page 2.

For the above described modification no testing was considered to be necessary:

Modification	Testing	Comments	Result
1	N/A	Change output rating from 20.52A to 20.85A for models PB-300P-12 and PB-300N-12.	**P**

Remark:

This test report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE02.

Summary of compliance with National Differences:

Refer to 12013452 001 report.

Factories:

Refer to 12013452 001 report.

History of amendments and modifications:

Ref. No. 12013452 001, dated 21nd-May- 2006 (original test report)

Ref. No. 12013452 002, dated 02th-June- 2006 (Amendment)

IEC IECEE CB SCHEME

Ref. Certif. No.

JPTUV-014900

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

SYSTEME CEI D'ACCEPTATION MUTUELLE DE CERTIFICATS D'ESSAIS DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC

CB TEST CERTIFICATE
CERTIFICAT D'ESSAI OC

Product Produit	Battery Charger
Name and address of the applicant Nom et adresse du demandeur	Mean Well Enterprises Co., Ltd. No. 28, Wu-Chuan 3rd Road Wu Ku Ind. Park, Taipei Hsien 248 Taiwan
Name and address of the manufacturer Nom et adresse du fabricant	Mean Well Enterprises Co., Ltd. No. 28, Wu-Chuan 3rd Road Wu Ku Ind. Park, Taipei Hsien 248 Taiwan
Name and address of the factory Nom et adresse de l'usine	(See appendix for factories information)
Rating and principal characteristics Valeurs nominales et caractéristiques principales	Input : AC 100-120V; AC 200-240V; 1) 7A/3A; 2) 7A/4A; 50/60Hz; Class I Output: refer to the test report
Trade mark (if any) Marque de fabrique (si elle existe)	MEAN WELL
Model/type Ref. Ref. de type	1) PB-300P-12, PB-300P-24, PB-360P-12, PB-360P-24, 2) PB-300N-12, PB-300N-24, PB-360N-12, PB-360N-24
Additional information (if necessary) Information complémentaire (si nécessaire)	For model differences, refer to the test report.
A sample of the product was tested and found to be in conformity with Un échantillon de ce produit a été essayé et a été considéré conforme à la	IEC 60335-2-29:2003 IEC 60335-1:2001 inclusive CENELEC Common Modifications National differences see test report
As shown in the Test Report Ref. No.which forms part of this Certificate Comme indiqué dans le Rapport d'essais numéro de référence qui constitue une partie de ce Certificat	12013452 001

This CB Test Certificate is issued by the National Certification Body
Ce Certificat d'essai OC est établi par l'Organisme National de Certification

TÜV **TÜV Rheinland Group**

TÜV Rheinland Japan Ltd.
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Mail: info@jpn.tuv.com
Web: www.tuv.com

Date: 29.05.2006

Signature: Dipl.-Ing. W. Herlitschke

10/061 CB 4.03

TÜV Rheinland Japan Ltd.
Member of TÜV Rheinland Group

TÜV Rheinland Group

Appendix to CB Certificate JPTUV-014900
Report Number: 12013452 001

Name and address of the manufacturer
Mean Well Enterprises Co., Ltd.
No. 28, Wu-Chuan 3rd Road
Wu Ku Ind. Park, Taipei Hsien 248
Taiwan

Name and address of the factory(ies)
Mean Well Enterprises Co., Ltd.

No. 28, Wu-Chuan 3rd Road
Wu Ku Ind. Park, Taipei Hsien 248
Taiwan

GuangZhou Meanwell Electronics Co Ltd.

A Bldg.
2nd Fl. Yuean Industrial Park
Dongpu Town Tianhe, Guangzhou Guangdong, P.R. China

Date: 29.05.2006

Dipl.-Ing. W. Herlitschke

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Yokohama 224-0021, Japan
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Fax : (045) 914-3377
e-mail : yoko-lab@jpn.tuv.com

Test report
IEC 60335-2-29
Safety of household and similar electrical appliances
Part 2: Particular requirements for battery chargers

Report Reference No. .....:	<12013452 001>
Tested by (name + signature).....:	S. Kischka
Approved by (name + signature) .....:	M. Kera
Date of issue.....:	21.05.2006
Contents.....:	78

CB Testing Laboratory.....:	TÜV Rheinland Japan Ltd., Yokohama Laboratory
Address.....:	4-25-2 Kita-Yamata, Tsuzuki-ku, Yokohama 224-0021, Japan
Testing location / procedure .....:	CBTL ☒ SMT ☐ TMP ☐
Testing location / address.....:	TÜV Rheinland Japan Ltd., Yokohama Laboratory 4-25-2 Kita-Yamata, Tsuzuki-ku, Yokohama 224-0021, Japan

Applicant's name .....:	Mean Well Enterprise Co., Ltd.
Address.....:	No.28, Wu-Chuan 3rd Rd., Wu-Ku Industrial Park. Taipei Hsien, Taiwan

Test specification:	
Standard .....:	IEC 60335-2-29:2003 (4th edition), IEC 60335-1:2001 (4th edition), EN 60335-1:2002+A11, EN 60335-2-29:2004
Test procedure.....:	CB Scheme
Non-standard test method.....:	N/A

Test Report Form No. .....:	IEC60335_2_29B
TRF Originator .....:	SIQ
Master TRF .....:	Dated 2004-11

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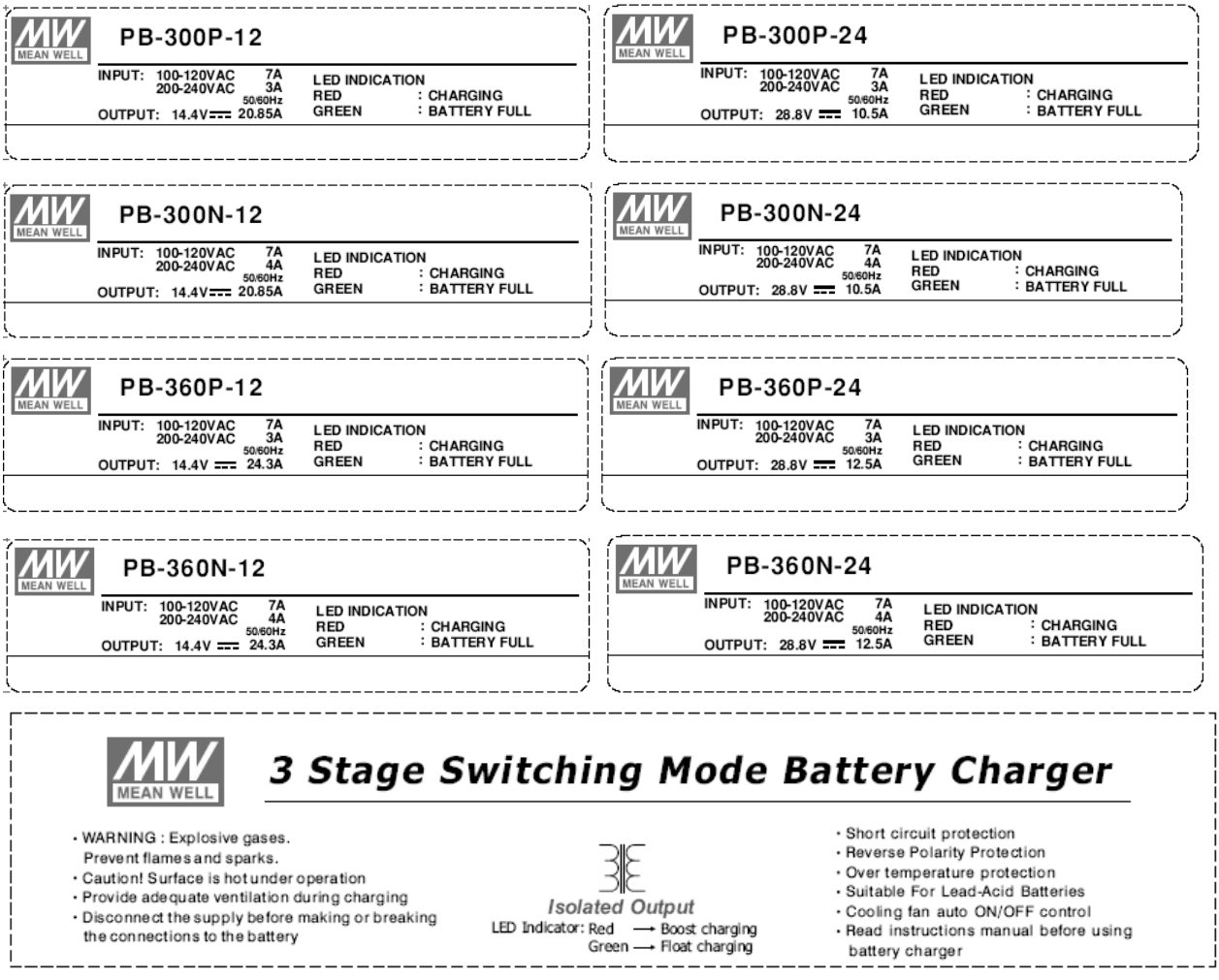
Test item description.....:	Battery Charger
Trade Mark .....:	MEAN WELL
Manufacturer.....:	Same as applicant
Model/Type reference.....:	PB-300P-12, PB-300N-12, PB-300P-24, PB-300N-24, PB-360P-12, PB-360N-12, PB-360P-24, PB-360N-24.

Ratings .....:	I/P: AC 100-120V/ 7A, AC 200-240V/3A, 50/60Hz for models PB-300P-12, PB-300P-24, PB-360P-12, PB-360P-24. I/P: AC 100-120V/ 7A, AC 200-240V/4A, 50/60Hz for models PB-300N-12, PB-300N-24, PB-360N-12, PB-360N-24: O/P: DC 14.4V, 20.52A for models PB-300P-12, PB-300N-12: O/P: DC 14.4V, 24.3A for models PB-360P-12 and PB-360N-12; O/P: DC 28.8V, 10.5A for models PB-300P-24 and PB-300N-24; O/P: DC 28.8V, 12.5A for models PB-360P-24 and PB-360N-24; Maximum ambient temperature: +40°C.

Copy of marking plate:



Summary of testing:

See test report for details.

Test item particulars ..... :	
Classification of installation and use ..... :	Class I
Supply Connection ..... :	Appliance inlet
..... :	
Possible test case verdicts:	
- 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)
Testing ..... :	
Date of receipt of test item ..... :	Apr, 2006
Date (s) of performance of tests ..... :	Apr, 2006

General remarks:

This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

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.

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

General product information:

Tested appliance models PB-XY-Z series are built-in battery chargers that designed with an appliance inlet for indoor use.

The battery charger's top enclosure is secured to bottom enclosure by screw.

All models are identical except for type designation, output rating, transformer T1 and some components detailed in the model difference list table on page 4.

Unless otherwise specified the tests were performed on model PB-360Y-24, PB-360Y-12, PB-300Y-24 and PB-3600Y-12 to represent the other similar models and all tests using lead-acid batteries as normal load.

Tested samples are pre-production engineering samples without any serial numbers.

Summary of compliance with National Differences:

Argentina, Austria, Belgium, Switzerland, Czech Republic, Germany, Demark, Finland, France, United Kingdom, Greece, Hungary, Israel, Italy, Korea, The Netherlands, Norway, New Zealand, Poland, Portugal, Sweden, Singapore, Slovenia, Turkey, and Ukraine.

This report included CENELEC common modification as shown on page 75 to 78.

Factories:

1) Mean Well Enterprises Co., Ltd.
No.28, Wu-Chuan 3rd Rd., Wu-Ku Industrial Park. Taipei Hsien, Taiwan

2) GuangZhou Meanwell Electronics Co Ltd

A Bldg. 2nd Fl. Yuean Industrial Park, Dongpu Town Tianhe, Guangzhou Guangdong, P.R. China

Model Differences List

Items	Model							
	PB-300P-12	**PB-300P-24**	**PB-300N-12**	**PB-300N-24**	**PB-360P-12**	**PB-360P-24**	**PB-360N-12**	**PB-360N-24**
DC Output rating	14.4V/20.85A	28.8V/10.5A	14.4V/20.85A	28.8V/10.5A	14.4V/24.3A	28.8V/12.5A	14.4V/24.3A	28.8V/12.5A
Transformer (T1)	TF-1343	TF-1344	TF-1343	TF-1344	TF-1343	TF-1344	TF-1343	TF-1344
Zener Diode (ZD100)	15W/1W	33V/1W	15W/1W	33V/1W	15W/1W	33V/1W	15W/1W	33V/1W
Capacitor (C104-C106)	1200uF/16V	1000uF/35V	1200uF/16V	1000uF/35V	1200uF/16V	1000uF/35V	1200uF/16V	1000uF/35V
Diode (D0101)	FME-230A	BYV32E-200	FME-230A	BYV32E-200	FME-230A	BYV32E-200	FME-230A	BYV32E-200
Diode (D0102)	FME-230A	SF20LC30	FME-230A	SF20LC30	FME-230A	SF20LC30	FME-230A	SF20LC30
Inductor (L101)	TR-610	TR-611	TR-610	TR-611	TR-610	TR-611	TR-610	TR-611
Resistor (R103)	330Ω/2W	1kΩ/2W	330Ω/2W	1kΩ/2W	330Ω/2W	1kΩ/2W	330Ω/2W	1kΩ/2W
Fuse (FS100)	35A/32V	30A/32V	35A/32V	30A/32V	35A/32V	30A/32V	35A/32V	30A/32V
Resistor (R101, R102)	10Ω/1W	27Ω/2W	10Ω/1W	27Ω/2W	10Ω/1W	27Ω/2W	10Ω/1W	27Ω/2W
Capacitor (C101, C102)	222/500V	331/1KV	222/500V	331/1KV	222/500V	331/1KV	222/500V	331/1KV
Jump (J101, J102)	5/5mm	5/xmm	5/5mm	5/xmm	5/5mm	5/xmm	5/5mm	5/xmm
Diode (D300)	X	X	X	X	FR102	FR102	FR102	FR102
Capacitor (C301)	X	X	X	X	470μF/25V	470μF/25V	470μF/25V	470μF/25V
Resistor (R300, R301)	X	X	X	X	3R/1026	3R/1026	3R/1026	3R/1026
Transistor (Q300)	X	X	X	X	2SC2120	2SC2120	2SC2120	2SC2120
Connector (CN4)	X	X	X	X	8822-02	8822-02	8822-02	8822-02
Resistor (R302)	X	X	X	X	2R21306	2R21306	2R21306	2R21306
Inductor (L2)	TF-1338	TF-1338	JUMP 0.8	JUMP 0.8	TF-1338	TF-1338	JUMP 0.8	JUMP 0.8
Capacitor (C5, C6)	470μF/200V	470μF/200V	470μF/200V	470μF/200V	680μF/200V	680μF/200V	680μF/200V	680μF/200V
Resistor (R124)	21.5KΩ	51KΩ	21.5KΩ	51KΩ	21.5KΩ	51KΩ	21.5KΩ	51KΩ

Resistor (R126)	4.22KΩ	4.64 KΩ	4.22KΩ	4.64KΩ	4.22KΩ	4.64 KΩ	4.22KΩ	4.64 KΩ
Resistor (R111)	5.1KΩ	7.5KΩ	5.2KΩ	7.5KΩ	7.5KΩ	7.5KΩ	7.5KΩ	7.5KΩ
Resistor (R135)	1.62KΩ	910Ω	1.62KΩ	910Ω	2KΩ	1.62KΩ	2KΩ	1.62KΩ
Resistor (R116)	15KΩ	10KΩ	15KΩ	10KΩ	5.1KΩ	5.6KΩ	5.1KΩ	5.6KΩ
Resistor (R117)	560Ω	620Ω	560Ω	620Ω	510Ω	510Ω	510Ω	510Ω
Resistor (R154)	68KΩ	82kΩ	68KΩ	82kΩ	68KΩ	82kΩ	68KΩ	82kΩ
Resistor (R138)	2.49KΩ	2.49KΩ	2.49KΩ	2.49KΩ	2kΩ	680Ω	2kΩ	680Ω
Resistor (R139)	3.6KΩ	3.6KΩ	3.6KΩ	3.6KΩ	3.6KΩ	1k	3.6KΩ	1k
Resistor (R150)	x	x	x	x	2.7KΩ	2.7KΩ	2.7KΩ	2.7KΩ
Capacitor C140	104/25V	103/25V	104/25V	103/25V	104/25V	103/25V	104/25V	103/25V
Resistor (R130)	10KΩ	820Ω	10KΩ	820Ω	10KΩ	820Ω	10KΩ	820Ω
Note: refer to appended tables 24.1 for details of differences.								

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Cl.	Requirement - Test	Result	Verdict
5	GENERAL CONDITIONS FOR THE TESTS		P
	Tests performed according to cl. 5, e.g. nature of supply, sequence of testing, etc.		P
5.2	If the test of 21.101 is carried out two additional battery chargers are required (IEC 60335-2-29)	See clause 21.101.	P
5.101	Battery chargers are tested as motor-operated appliances (IEC 60335-2-29)	Tested as motor-operated appliances.	P
6	CLASSIFICATION		P
6.1	Protection against electric shock: Class 0, 0I, I, II, III .....:	Class I appliance.	P
6.2	Protection against harmful ingress of water	IP20.	N/A
7	MARKING AND INSTRUCTIONS		P
7.1	Rated voltage or voltage range (V).....:	AC 100-120V or 200-240V.	P
	Nature of supply .....:	Frequency provided, see below	P
	Rated frequency (Hz).....:	50/60Hz	P
	Rated power input (W).....:	Not shown.	N/A
	Rated current (A) .....:	See page 2.	P
	Manufacturer's or responsible vendor's name, trademark or identification mark .....:	MEAN WELL	P
	Model or type reference .....:	PB-300P-12, PB-300N-12, PB-300P-24, PB-300N-24, PB-360P-12, PB-360N-12, PB-360P-24, PB-360N-24.	P
	Symbol 5172 of IEC 60417, for Class II appliances	Class I appliance.	N/A
	IP number, other than IPX0 .....:		N/A
	Symbol IEC 60417-5036, for the enclosure of electrically-operated water valves in external hose-sets for connection of an appliance to the water mains		N/A
	Battery chargers marked with (IEC 60335-2-29):		P
	- rated d.c. output voltage (V)	See page 2.	P
	- rated d.c. output current (A)	See page 2.	P
	- rated current (A) of protective devices incorporated in a d.c. distribution board	No d.c. distribution boards.	N/A
	- polarity of the output terminals	On the enclosure.	P

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Cl.	Requirement - Test	Result	Verdict
	- time-current characteristic of fuse-links of the time-lag type	FS1: F10A/250V, output fuse marked on the fuse body.	P
	If the output exceeds 20 VA, battery chargers marked with (IEC 60335-2-29):		P
	- before charging, read the instructions		P
	- for indoor use or do not expose to rain, unless appliance is at least IPX4	Built-in charger.	N/A
	If the output exceeds 20 VA and the battery charger is for lead-acid batteries, battery chargers marked with (IEC 60335-2-29):		P
	- disconnect the supply before making or breaking the connections to the battery	In manual.	P
	- WARNING: Explosive gases. Prevent flames and sparks. Provide adequate ventilation during charging.		P
	Battery chargers incorporating an engine cracking switch allowing the charger to supply a supplementary starting current for the engine marked with (IEC 60335-2-29):		N/A
	- maximum “on” time	No engine cranking switches provided.	N/A
	- minimum “off” time or maximum ratio between “on” time and “off” time		N/A
7.2	Warning for stationary appliances for multiple supply	Built-in appliance.	N/A
	Warning placed in vicinity of terminal cover		N/A
7.3	Range of rated values marked with the lower and upper limits separated by a hyphen	Voltage selector switch used.	N/A
	Different rated values marked with the values separated by an oblique stroke		N/A
7.4	Appliances adjustable for different rated voltages, the voltage setting is clearly discernible	Voltage selector switch used.	P
	Output voltage clearly discernible if the battery charger can be adjusted to different rated d.c. output voltages (IEC 60335-2-29)		N/A
7.5	Appliances with more than one rated voltage or one or more rated voltage ranges, marked with rated input or rated current for each rated voltage or range, unless		N/A
	the power input is related to the mean value of the rated voltage range		N/A
	Relation between marking for upper and lower limits of rated power input or rated current and voltage is clear		N/A
7.6	Correct symbols used		P

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Cl.	Requirement - Test	Result	Verdict
7.7	Connection diagram fixed to appliances to be connected to more than two supply conductors and appliances for multiple supply		N/A
7.8	Except for type Z attachment, terminals for connection to the supply mains indicated as follows:		N/A
	- marking of terminals exclusively for the neutral conductor (N)	Appliance inlet provided.	N/A
	- marking of protective earthing terminals (symbol 5019 of IEC 60417)		N/A
	- marking not placed on removable parts		N/A
7.9	Marking or placing of switches which may cause a hazard		P
7.10	Indications of switches on stationary appliances and controls on all appliances by use of figures, letters or other visual means .....:	See below.	P
	The figure 0 indicates only OFF position, unless no confusion with the OFF position	Switch marking with O and I.	P
7.11	Indication for direction of adjustment of controls	No adjustment of controls.	N/A
7.12	Instructions for safe use provided		P
	Instructions for safe use contains (IEC 60335-2-29):		P
	- specification of types, number of cells and rated capacity of batteries that can be charged		P
	- warning against recharging non-rechargeable batteries	Provided.	P
	- statement that during charging, batteries must be placed in the well ventilated area, only for battery chargers for lead-acid batteries		P
	- statement that battery chargers must only be plugged into an earthed socket-outlet, only for portable Class I battery chargers for outdoor use	Class I battery charger and indoor use only.	N/A
	- explanation of automatic function stating any limitation, only for automatic battery chargers		N/A
	Battery chargers for charging automobile batteries include substance concerning (IEC 60335-2-29):		N/A
	- way of connection of battery terminal to chassis		N/A
	- way of disconnection of battery charger and chassis connection		N/A
7.12.1	Sufficient details for installation supplied		P

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Cl.	Requirement - Test	Result	Verdict
	Statement above connection to the supply, only for battery chargers for installation in caravans and similar vehicles (IEC 60335-2-29)		N/A
7.12.2	Stationary appliances not fitted with means for disconnection from the supply mains having a contact separation in all poles that provide full disconnection under overvoltage category III, the instructions state that means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules	Built-in appliance.	N/A
7.12.3	Insulation of the fixed wiring in contact with parts exceeding 50 K during clause 11; instructions stating that the fixed wiring must be protected		N/A
7.12.4	Instructions for built-in appliances:		P
	- dimensions of space	At least 325x458x55mm	P
	- dimensions and position of supporting means		P
	- distances between parts and surrounding structure		N/A
	- dimensions of ventilation openings and arrangement		N/A
	- connection to supply mains and interconnection of separate components		P
	- allow disconnection of the appliance after installation, by accessible plug or a switch in the fixed wiring, unless	Appliance inlet used.	N/A
	a switch complying with 24.3		N/A
7.12.5	Replacement cord instructions, type X attachment with a specially prepared cord	Appliance inlet provided.	N/A
	Replacement cord instructions, type Y attachment		N/A
	Replacement cord instructions, type Z attachment		N/A
7.12.6	Caution in the instructions for heating appliances with a non-self-resetting thermal cut-out	Not a heating appliance.	N/A
7.12.7	Instructions for fixed appliances stating how the appliance is to be fixed	Portable appliance.	N/A
7.12.8	Instructions for appliances connected to the water mains:		N/A
	- max. inlet water pressure (Pa).....:	Not connected to the water mains.	N/A
	- min. inlet water pressure, if necessary (Pa).....:		N/A

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Cl.	Requirement - Test	Result	Verdict
	Instructions concerning new and old hose-sets for appliances connected to the water mains by detachable hose-sets		N/A
7.13	Instructions and other texts in an official language	English languages.	P
7.14	Marking clearly legible and durable		P
7.15	Marking on a main part	On the enclosure.	P
	Marking clearly discernible from the outside, if necessary after removal of a cover	No removal covers.	P
	For portable appliances, cover can be removed or opened without a tool		N/A
	For stationary appliances, name, trademark or identification mark and model or type reference visible after installation		N/A
	For fixed appliances, name, trademark or identification mark and model or type reference visible after installation according to the instructions	Compliance checked.	P
	Indications for switches and controls placed on or near the components. Marking not on parts which can be positioned or repositioned in such a way that the marking is misleading	No switches or controls.	N/A
7.16	Marking of a possible replaceable thermal link or fuse link clearly visible with regard to replacing the link	FS1: F10A/250V, output fuse marked on the fuse body.	P
7.101	D.C. distribution boards marked with (IEC 60335-2-29):		N/A
	- maximum output current (A) for each output circuit.:	No D.C. distribution boards.	N/A
	- types of any additional power supply which can be connected		N/A
8	PROTECTION AGAINST ACCESS TO LIVE PARTS		P
8.1	Adequate protection against accidental contact with live parts	Building-in battery charger must be investigated in the final system assembly.	N/A
8.1.1	Requirement applies for all positions, detachable parts removed		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: no contact with live parts		N/A

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Cl.	Requirement - Test	Result	Verdict
8.1.2	Use of test probe 13 of IEC 61032 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: no contact with live parts of visible glowing heating elements		N/A
8.1.4	Accessible part not considered live if:		P
	- 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	Max. 28.38V (PB-300Y-24) < 42.4V at no load condition.	P
	- or separated from live parts by protective impedance	Two Y1 type capacitors (C31 and C32) provided between primary and secondary circuits.	P
	If protective impedance: d.c. current not exceeding 2 mA, and	See below.	P
	a.c. peak value not exceeding 0,7 mA	- Normal condition: 0.29mA, - C30 or C31 shorted condition: 0.58mA.	P
	- for peak values over 42,4 V up to and including 450 V, capacitance not exceeding 0,1 μF		N/A
	- for peak values over 450 V up to and including 15 kV, discharge not exceeding 45 μC		N/A
8.1.5	Live parts protected at least by basic insulation before installation or assembly:		P
	- built-in appliances		P
	- 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		P
	Only possible to touch parts separated from live parts by double or reinforced insulation	Output terminals separated by double or reinforced insulation from primary circuits.	P

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Cl.	Requirement - Test	Result	Verdict
9	STARTING OF MOTOR-OPERATED APPLIANCES		N/A
	Requirements and tests are specified in part 2 when necessary		N/A
10	POWER INPUT AND CURRENT		P
10.1	Power input at normal operating temperature, rated voltage and normal operation not deviating from rated power input by more than shown in table 1		N/A
10.2	Current at normal operating temperature, rated voltage and normal operation not deviating from rated current by more than shown in table 2	(See appended table)	P
10.101	No-load d.c. output voltage does not exceed 42,2 V (IEC 60335-2-29).....:	Max. 28.8V(PB-300Y-24) < 42.4V	P
10.102	Arithmetic mean value of output current does not deviate from rated d.c. output current by more than 10 % (IEC 60335-2-29)	(See appended table)	P
11	HEATING		P
11.1	No excessive temperatures in normal use		P
11.2	Placing and mounting of battery chargers in the test corner as specified for heating appliances (IEC 60335-2-29)		P
11.3	Temperature rises, other than of windings, determined by thermocouples	By thermocouples.	P
	Temperature rises of windings determined by resistance method, unless		N/A
	the windings makes it difficult to make the necessary connections		N/A
11.4	Heating appliances operated under normal operation at 1,15 times rated power input .....:	See below.	N/A
11.5	Battery chargers supplied only at 1,06 times rated voltage (IEC 60335-2-29).....:	At 90V and 255V.	P
11.6	Combined appliances operated under normal operation at most unfavourable voltage between 0.94 and 1,06 times rated voltage .....:		N/A
11.7	Battery chargers operate until steady conditions are established (IEC 60335-2-29)		P
11.8	Temperature rises not exceeding values in table 3	(See appended tables)	P
	Sealing compound does not flow out		N/A
	Protective devices do not operate, except		P

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Cl.	Requirement - Test	Result	Verdict
	components in protective electronic circuits tested for the number of cycles specified in 24.1.4		N/A
13	LEAKAGE CURRENT AND ELECTRIC STRENGTH AT OPERATING TEMPERATURE		P
13.1	Leakage current not excessive and electric strength adequate		P
	Heating appliances operated at 1,15 times rated power input .....:		N/A
	Motor-operated appliances and combined appliances supplied at 1,06 times rated voltage .....:	At 255V.	P
	Protective impedance and radio interference filters disconnected before carrying out the tests		P
13.2	Leakage current measured by means of the circuit described in figure 4 of IEC 60990	Used figure 4 of IEC 60990.	P
	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
	No breakdown during the tests	No breakdown.	P
14	TRANSIENT OVERVOLTAGES		N/A
	Appliances withstand the transient overvoltages to which they may be subjected		N/A
	Clearances having a value less than specified in table 16 subjected to an impulse voltage test, the test voltage specified in table 6		N/A
	No flashover during the test, unless of functional insulation		N/A
	In case of flashover of functional insulation, the appliance complies with clause 19 with the clearance short circuited		N/A
15	MOISTURE RESISTANCE		P
15.1	Enclosure provides the degree of moisture protection according to classification of the appliance	IP20 for indoor use.	N/A
	Compliance checked as specified in 15.1.1, taking into account 15.1.2, followed by the electric strength test of 16.3		N/A

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Cl.	Requirement - Test	Result	Verdict
	No trace of water on insulation which can result in a reduction of clearances and creepage distances below values specified in clause 29		N/A
15.1.1	Appliances, other than IPX0, subjected to tests as specified in IEC 60529 .....:	IP20.	N/A
	Water valves 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		N/A
	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		N/A
	However, 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		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		N/A
	For IPX4 appliances, the movement of the tube is limited to two times 90° from the vertical for a period of 5 min		N/A
	Wall-mounted appliances, take into account the distance to the floor stated in the instructions		N/A
	Appliances with type X attachment fitted with a flexible cord as described		N/A
	Detachable parts tested as specified		N/A
15.2	Spillage of liquid does not affect the electrical insulation	No liquid containers.	N/A

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Cl.	Requirement - Test	Result	Verdict
	Appliances with type X attachment fitted with a flexible cord as described		N/A
	Appliances incorporating an appliance inlet tested with or without an connector, whichever is most unfavourable		N/A
	Detachable parts removed		N/A
	Overfilling test with additional amount of water, over a period of 1 min (l) .....:		N/A
	The appliance withstands the electric strength test of 16.3		N/A
	No trace of water on insulation that can result in a reduction of clearances and creepage distances below values specified in clause 29		N/A
15.3	Appliances proof against humid conditions		N/A
	Humidity test for 48 h in a humidity cabinet	At 25°C, 95%R.H.	P
	The appliance withstands the tests of clause 16		P
16	LEAKAGE CURRENT AND ELECTRIC STRENGTH		P
16.1	Leakage current not excessive and electric strength adequate		P
	Protective impedance disconnected from live parts before carrying out the tests		P
16.2	Single-phase appliances: test voltage 1,06 times rated voltage.....:	At 255V.	P
	Three-phase appliances: test voltage 1,06 times rated voltage divided by √3 .....:	Single-phase appliances.	N/A
	Leakage current measurements	(See appended table)	P
16.3	Electric strength tests according to table 7	(See appended table)	P
	No breakdown during the tests	No breakdown.	P
17	OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS		P
	No excessive temperatures in transformer or associated circuits in event of short-circuits likely to occur in normal use	(See appended table)	P
	Appliance supplied with 1,06 or 0,94 times rated voltage and the most unfavourable short-circuit or overload likely to occur in normal use applied.....:	Transformer secondary shorted test at 255V.	P
	Output terminals of battery chargers are short-circuited (IEC 60335-2-29)	Unit shut down.	P

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Cl.	Requirement - Test	Result	Verdict
	Temperature rise of insulation of the conductors of safety extra-low voltage circuits not exceeding the relevant value specified in table 3 by more than 15 K		N/A
	Temperature of the winding not exceeding the value specified in table 8,		P
	however limits do not apply to fail-safe transformers complying with sub-clause 15.5 of IEC 61558-1		P
18	ENDURANCE		N/A
	Requirements and tests are specified in part 2 when necessary		N/A
19	ABNORMAL OPERATION		P
19.1	The risk of fire or mechanical damage under abnormal or careless operation obviated		P
	Electronic circuits so designed and applied that a fault will not render the appliance unsafe	See 19.11 and 19.12.	P
	Battery chargers subjected to the tests of 19.11, 19.12 and 19.101 to 19.103 (IEC 60335-2-29)		P
19.2	Test of appliance with heating elements with restricted heat dissipation; test voltage (V): power input of 0,85 times rated power input .....:	No heating elements.	N/A
19.3	Test of 19.2 repeated; test voltage (V): power input of 1,24 times rated power input .....:		N/A
19.4	Test conditions as in cl. 11, any control limiting the temperature during tests of cl. 11 short-circuited		N/A
19.5	Test of 19.4 repeated on Class 0I and I appliances with tubular sheathed or embedded heating elements. No short-circuiting, but one end of the element connected to the elements sheath		N/A
	The test repeated with reversed polarity and the other end of the heating element connected to the sheath		N/A
	The test is not carried out on appliances intended to be permanently connected to fixed wiring and on appliances where an all-pole disconnection occurs during the test of 19.4		N/A
19.6	Appliances with PTC heating elements tested at rated voltage, establishing steady conditions		N/A

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Cl.	Requirement - Test	Result	Verdict
	The working voltage of the PTC heating element is increased by 5% and the appliance is operated until steady conditions are re-established. The voltage is then increased in similar steps until 1.5 times working voltage or until the PTC heating element ruptures		N/A
19.7	Stalling test by locking the rotor if the locked rotor torque is smaller than the full load torque or locking moving parts of other appliances	No motors.	N/A
	Locked rotor, motor capacitors open-circuited or short-circuited, if required		N/A
	Locked rotor, capacitors open-circuited one at a time		N/A
	Test repeated with capacitors short-circuited one at a time, if required		N/A
	Appliances with timer or programmer supplied with rated voltage for each of the tests, for a period equal to the maximum period allowed		N/A
	Other appliances supplied with rated voltage for a period as specified		N/A
	Winding temperatures not exceeding values specified in table 8		N/A
19.8	Three-phase motors operated at rated voltage with one phase disconnected		N/A
19.9	Running overload test on appliances incorporating motors intended to be remotely or automatically controlled or liable to be operated continuously		N/A
	Winding temperatures not exceeding values as specified		N/A
19.10	Series motor operated at 1,3 times rated voltage for 1 min .....:		N/A
	During the test, parts not being ejected from the appliance		N/A
19.11	Electronic circuits, compliance checked by evaluation of the fault conditions specified in 19.11.2 for all circuits or parts of circuits, unless they comply with the conditions specified in 19.11.1	See 19.11.2.	P
	Appliances incorporating a protective electronic circuit subjected to the tests of 19.11.3 and 19.11.4	See 19.11.3.	P
	Appliances having a switch with an off position obtained by electronic disconnection, or a switch placing the appliance in a stand-by mode, subjected to the tests of 19.11.4		N/A

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Cl.	Requirement - Test	Result	Verdict
19.11.1	Before applying the fault conditions a) to f) in 19.11.2, it is checked if circuits or parts of circuit meet both of the following conditions:		N/A
	- the electronic circuit is a low-power circuit, that is, the maximum power at low-power points does not exceed 15 W according to the tests specified		N/A
	- the protection against electric shock, fire hazard, mechanical hazard or dangerous malfunction in other parts of the appliance does not rely on the correct functioning of the electronic circuit		N/A
19.11.2	Fault conditions applied one at a time, the appliance operated under conditions specified in cl. 11, but supplied at rated voltage, the duration of the tests as specified:		P
	a) short circuit of functional insulation if clearances or creepage distances are less than the values specified in 29	See appended tables 29.1 and 29.2.	N/A
	b) open circuit at the terminals of any component	R12 and C48 opened, normal operation, no hazards.	P
	c) short circuit of capacitors, unless they comply with IEC 60384-14	C5, C301 shorted, no hazards.	P
	d) short circuit of any two terminals of an electronic component, other than integrated circuits. This fault condition is not applied between the two circuits of an optocoupler	Q110, U1, Q3 and SCR shorted, no hazards.	P
	e) failure of triacs in the diode mode	Q3 and SCR shorted, no hazards.	P
	f) failure of an integrated circuit	U1 shorted no hazards.	P
19.11.3	If the appliance incorporates a protective electronic circuit which operates to ensure compliance with clause 19, the relevant test is repeated with a single fault simulated, as indicated in a) to f) of 19.11.2	Component fault tests as clause 19.11.2 are repeated with a single fault simulated. No hazards.	P
	During and after each test the following is checked:		P
	- the temperature rise of the windings do not exceed the values specified in table 8		P
	- the appliance complies with the conditions specified in 19.13		P
	- any current flowing through protective impedance not exceeding the limits specified in 8.1.4	See 8.1.4.	P
	If a conductor of a printed board becomes open-circuited, the appliance is considered to have withstood the particular test, provided all three of the following conditions are met:		N/A
	- the material of the printed circuit board withstands the burning test of annex E		N/A

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Cl.	Requirement - Test	Result	Verdict
	- any loosened conductor does not reduce the clearances or creepage distances between live parts and accessible metal parts below the values specified in cl. 29		N/A
	- the appliance withstands the tests of 19.11.2 with open-circuited conductor bridged		N/A
19.11.4	Appliances having a switch with an off position obtained by electronic disconnection, or	No switches.	N/A
	a switch that can be placed in the stand-by mode,		N/A
	subjected to the tests of 19.11.4.1 to 19.11.4.7		N/A
	Appliances incorporating a protective electronic circuit subjected to the tests of 19.11.4.1 to 19.11.4.7, except that		N/A
	appliances operated for 30 s or 5 min during the test of 19.7 are not subjected to the tests for electromagnetic phenomena.		N/A
19.11.4.1	The appliance is subjected to electrostatic discharges in accordance with IEC 61000-4-2, test level 4	Not apply for A1.	N/A
19.11.4.2	The appliance is subjected to radiated fields in accordance with IEC 61000-4-3, test level 3		N/A
19.11.4.3	The appliance is subjected to fast transient bursts in accordance with IEC 61000-4-4, test level 3 or 4 as specified		N/A
19.11.4.4	The power supply terminals of the appliance subjected to voltage surges in accordance with IEC 61000-4-5, test level 3 or 4 as specified		N/A
	Earthed heating elements in class I appliances disconnected		N/A
19.11.4.5	The appliance is subjected to injected currents in accordance with IEC 61000-4-6, test level 3		N/A
19.11.4.6	The appliance is subjected to voltage dips and interruptions in accordance with IEC 61000-4-11		N/A
19.11.4.7	The appliance is subjected to mains signals in accordance with IEC 61000-4-13, test level class 2		N/A
19.12	If the safety of the appliance for any of the fault conditions specified in 19.11.2 depends on the operation of a miniature fuse-link complying with IEC 60127, the test is repeated, measuring the current flowing through the fuse-link; measured current (A); rated current of the fuse-link (A).....:	Fuse current: 10A, measured 32A when BD1 shorted.	N/A

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Cl.	Requirement - Test	Result	Verdict
19.13	During the tests the appliance does not emit flames, molten metal, poisonous or ignitable gas in hazardous amounts		P
	Temperature rises not exceeding the values shown in table 9	(See appended table)	P
	Winding temperatures not exceeding the values shown in table 8	(See appended table)	P
	Enclosures not deformed to such an extent that compliance with cl. 8 is impaired		P
	If the appliance can still be operated it complies with 20.2		P
	Insulation, other than of class III appliance, withstand the electric strength test of 16.3, the test voltage specified in table 4:		P
	- basic insulation.....:		N/A
	- supplementary insulation .....:		N/A
	- reinforced insulation .....:	- Primary and secondary of transformer, - Primary and output.	P
	The appliance does not undergo a dangerous malfunction, and		P
	no failure of protective electronic circuits, if the appliance is still operable		P
	Appliances tested with an electronic switch in the off position or in the stand-by mode, do not become operational	No switches.	N/A
19.101	Battery chargers supplied at rated voltage and operated under normal operation, any control limiting the temperature during tests of clause 11 short-circuited (IEC 60335-2-29)	SHR 1 short, result: unit shut down, no hazards.	P
19.102	Reverse connection of battery chargers to a fully charged battery at rated voltage (IEC 60335-2-29)	Unit shut down.	P
	The capacity of the battery (IEC 60335-2-29) .....:	125Ah.	P
19.103	Battery chargers intended to be used with a d.c. distribution board supplied at rated voltage and operated under normal operation, load increased as specified until protective device operates or short-circuit conditions are established (IEC 60335-2-29)	No d.c. distribution boards.	N/A
20	STABILITY AND MECHANICAL HAZARDS		P

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Cl.	Requirement - Test	Result	Verdict
20.1	Adequate stability	Built-in & fixed appliance.	N/A
	Tilting test through an angle of 10° (appliance placed on an inclined plane/horizontal plane); appliance does not overturn		N/A
	Tilting test repeated on appliances with heating elements, angle of inclination increased to 15°	No heating elements.	N/A
	Possible heating test in overturned position; temperature rise does not exceed values shown in table 9		N/A
20.2	Moving parts adequately arranged or enclosed as to provide protection against personal injury	Building-in battery charger must be investigated in the final system assembly.	N/A
	Protective enclosures, guards and similar parts are non-detachable		N/A
	Adequate mechanical strength and fixing of protective enclosures		N/A
	Self-resetting thermal cut-outs and overcurrent protective devices not causing a hazard, by unexpected reclosure		N/A
	Not possible to touch dangerous moving parts with test probe		N/A
21	MECHANICAL STRENGTH		N/A
21.1	Appliance has adequate mechanical strength and is constructed as to withstand rough handling	Building-in battery charger must be investigated in the final system assembly.	N/A
	Checked by applying blows to the appliance in accordance with test of IEC 60068-2-75, spring hammer test, impact energy 1,0 J ± 0,05 J (IEC 60335-2-29)		N/A
	If necessary, supplementary or reinforced insulation subjected to the electric strength test of 16.3		N/A
	If necessary, repetition of groups of three blows on a new sample		N/A
21.2	Accessible parts of solid insulation having strength to prevent penetration by sharp implements	See below.	N/A
	The insulation is tested as specified, unless		N/A
	the thickness of supplementary insulation is at least 1 mm and reinforced insulation is at least 2 mm		N/A

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Cl.	Requirement - Test	Result	Verdict
21.101	Battery chargers, other than built-in battery chargers, having a mass not exceeding 5 kg, subjected to a drop test (IEC 60335-2-29)		N/A
	Battery chargers show no damage that could impair compliance with 8.1, 15.1.1, 16.3 and cl. 29 (IEC 60335-2-29)		N/A
21.102	Battery chargers for installing in caravans and similar vehicles withstand vibrations to which they may be subjected (IEC 60335-2-29)		N/A
	Vibration test as specified in IEC 60068-2-6 (IEC 60335-2-29)		N/A
	Battery chargers show no damage that could impair compliance with 8.1, 15.1.1, 16.3 and cl. 29 (IEC 60335-2-29)		N/A
	Connections have not worked loose (IEC 60335-2-29)		N/A
22	CONSTRUCTION		P
22.1	Appliance marked with the first numeral of the IP system, relevant requirements of IEC 60529 are fulfilled	IP20.	P
22.2	Stationary appliance: means to provide all-pole disconnection from the supply provided, the following means being available:		P
	- a supply cord fitted with a plug		N/A
	- a switch complying with 24.3		N/A
	- a statement in the instruction sheet that a disconnection incorporated in the fixed wiring is to be provided		N/A
	- an appliance inlet		P
	Singe-pole switches and single-pole protective devices for the disconnection of heating elements in single-phase permanently connected class I appliances, connected in the phase conductor		N/A
22.3	Appliance provided with pins: no undue strain on socket-outlets	Appliance inlet provided.	N/A
	Applied torque not exceeding 0.25 Nm		N/A
	Pull force of 50N to each pin after the appliance has being placed in the heating cabinet; when cooled to room temperature the pins are not displaced by more than 1mm		N/A

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Cl.	Requirement - Test	Result	Verdict
	Each pin subjected to a torque of 0.4Nm; the pins are not rotating unless rotating does not impair compliance with the standard		N/A
22.4	Appliance for heating liquids and appliance causing undue vibration not provided with pins for insertion into socket-outlets		N/A
22.5	No risk of electric shock when touching the pins of the plug, the appliance being disconnected from the supply at the instant of voltage peak.	34V within 1s.	P
22.6	Electrical insulation not affected by condensing water or leaking liquid	No water or liquid.	N/A
	Electrical insulation of Class II appliances not affected in case of a hose rupture or seal leak		N/A
22.7	Adequate safeguards against the risk of excessive pressure in appliances provided with steam-producing devices	No steam-producing devices.	N/A
22.8	Electrical connections not subject to pulling during cleaning of compartments to which access can be gained without the aid of a tool, and that are likely to be cleaned in normal use		P
22.9	Insulation, internal wiring, windings, commutators and slip rings not exposed to oil, grease or similar substances		P
	Adequate insulating properties of oil or grease to which insulation is exposed	No oil or greases provided.	N/A
22.10	Not possible to reset voltage-maintained non-self-resetting thermal cut-outs by the operation of an automatic switching device incorporated within the appliance		N/A
	Non-self resetting thermal motor protectors have a trip-free action, unless	No thermal motor-protectors.	N/A
	they are voltage maintained		N/A
	Location or protection of reset buttons of non-self-resetting controls is so that accidental resetting is unlikely		N/A
22.11	Reliable fixing of non-detachable parts that provide the necessary degree of protection against electric shock, moisture or contact with moving parts	Enclosures fixed by one screw.	P
	Obvious locked position of snap-in devices used for fixing such parts	No snap-in devices.	N/A

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Cl.	Requirement - Test	Result	Verdict
	No deterioration of the fixing properties of snap-in devices used in parts that are likely to be removed during installation or servicing	Ditto,	N/A
	Tests as described		P
22.12	Handles, knobs etc. fixed in a reliable manner	No such constructions.	N/A
	Fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible		N/A
	Axial force 15 N applied to parts, the shape being so that an axial pull is unlikely to be applied		N/A
	Axial force 30 N applied to parts, the shape being so that an axial pull is likely to be applied		N/A
22.13	Unlikely that handles, when gripped as in normal use, make the operators hand touch parts having a temperature rise exceeding the value specified for handles which are held for short periods only		N/A
22.14	No ragged or sharp edges creating a hazard for the user in normal use, or during user maintenance	No sharp edges of enclosures.	P
	No exposed pointed ends of self tapping screws etc., liable to be touched by the user in normal use or during user maintenance	Compliance checked.	P
22.15	Storage hooks and the like for flexible cords smooth and well rounded	No storage hooks.	N/A
22.16	Automatic cord reels cause no undue abrasion or damage to the sheath of the flexible cord, no breakage of conductors strands, no undue wear of contacts	No cord reels.	N/A
	Cord reel tested with 6000 operations, as specified		N/A
	Electric strength test of 16.3, voltage of 1000 V applied		N/A
22.17	Spacers not removable from the outside by hand or by means of a screwdriver or a spanner	No spacers.	N/A
22.18	Current-carrying parts and other metal parts resistant to corrosion under normal conditions of use		P
22.19	Driving belts not used as electrical insulation	No driving belts.	N/A
22.20	Direct contact between live parts and thermal insulation effectively prevented, unless material used is non-corrosive, non-hygroscopic and non-combustible	No thermal insulation material.	N/A
	Compliance is checked by inspection and, if necessary, by appropriate test		N/A

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Cl.	Requirement - Test	Result	Verdict
22.21	Wood, cotton, silk, ordinary paper and fibrous or hygroscopic material not used as insulation, unless impregnated	No such material.	P
22.22	Appliances not containing asbestos	Not used.	P
22.23	Oils containing polychlorinated biphenyl (PCB) not used	Not used.	P
22.24	Bare heating elements adequately supported	No heating elements.	N/A
	In case of rupture, the heating conductor is unlikely to come in contact with accessible metal parts		N/A
22.25	Sagging heating conductors cannot come into contact with accessible metal parts		N/A
22.26	Output circuit supplied through a safety isolating transformer (IEC 60335-2-29)	Safety isolating transformer (T1) provided.	P
	No connection between the output circuit and accessible metal parts or an earthing terminal (IEC 60335-2-29)		P
	Insulation between parts operating at safety extra-low voltage and live parts complies with the requirements for double or reinforced insulation (IEC 60335-2-29)		P
22.27	Parts connected by protective impedance separated by double or reinforced insulation	Two Y1 capacitors (C30/C31) provided between primary and secondary.	P
22.28	Metal parts of Class II appliances conductively connected to gas pipes or in contact with water: separated from live parts by double or reinforced insulation	No gas or water.	N/A
22.29	Class II appliances permanently connected to fixed wiring so constructed that the required degree of access to live parts is maintained after installation		N/A
22.30	Parts serving as supplementary or reinforced insulation fixed so that they cannot be removed without being seriously damaged, or		N/A
	so constructed that they cannot be replaced in an incorrect position, and so that if they are omitted, the appliance is rendered inoperable or manifestly incomplete		P
22.31	Clearances and creepage distances over supplementary and reinforced insulation not reduced below values specified in clause 29 as a result of wear	Internal wires for switch and voltage selector are fixed by soldering and heat shrinkage tube.	P

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Cl.	Requirement - Test	Result	Verdict
	Clearances and creepage distances between live parts and accessible parts not reduced below values for supplementary insulation, if wires, screws etc. become loose		N/A
22.32	Supplementary and reinforced insulation designed or protected against deposition of dirt or dust		P
	Supplementary insulation of natural or synthetic rubber resistant to ageing, or arranged and dimensioned so that creepage distances are not reduced below values specified in 29.2		N/A
	Ceramic material not tightly sintered, similar material or beads alone not used as supplementary or reinforced insulation		N/A
	Oxygen bomb test at 70°C for 96 h and 16 h at room temperature		N/A
22.33	Conductive liquids that are or may become accessible in normal use are not in direct contact with live parts	No liquids.	N/A
	Electrodes not used for heating liquids		N/A
	For class II constructions, conductive liquids that are or may become accessible in normal use, not in direct contact with basic or reinforced insulation		N/A
	For class II constructions, conductive liquids which are in contact with live parts, not in direct contact with reinforced insulation		N/A
22.34	Shafts of operating knobs, handles, levers etc. not live, unless the shaft is not accessible when the part is removed	No knobs, handles or levers.	N/A
22.35	Handles, levers and knobs, held or actuated in normal use, not becoming live in the event of an insulation fault		N/A
	Such parts being of metal, and their shafts or fixings are likely to become live in the event of an insulation fault, they are either adequately covered by insulation material, or their accessible parts are separated from their shafts or fixings by supplementary insulation		N/A
	This requirement does not apply to handles, levers and knobs on stationary appliances other than those of electrical components, provided they are either reliably connected to an earthing terminal or earthing contact, or separated from live parts by earthed metal		N/A

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Cl.	Requirement - Test	Result	Verdict
22.36	Handles continuously held in the hand in normal use are so constructed that when gripped as in normal use, the operators hand is not likely to touch metal parts, unless they are separated from live parts by double or reinforced insulation		N/A
22.37	Capacitors in Class II appliances not connected to accessible metal parts, unless complying with 22.42	See 22.42.	P
	Metal casings of capacitors in Class II appliances separated from accessible metal parts by supplementary insulation, unless complying with 22.42		N/A
22.38	Capacitors not connected between the contacts of a thermal cut-out	No thermal cut-outs.	N/A
22.39	Lamp holders used only for the connection of lamps	No lamp holders.	N/A
22.40	Motor-operated appliances and combined appliances intended to be moved while in operation, or having accessible moving parts, fitted with a switch to control the motor. The actuating member of the switch being easily visible and accessible		N/A
22.41	No components, other than lamps, containing mercury		P
22.42	Protective impedance consisting of at least two separate components	Two Y1 capacitors (C30/C31) provided.	P
	Values specified in 8.1.4 not exceeded if any one of the components are short-circuited or open-circuited	See 8.1.4.	P
22.43	Appliances adjustable for different voltages, accidental changing of the setting of the voltage unlikely to occur		P
22.44	Appliances are not allowed to have an enclosure that is shaped and decorated so that the appliance is likely to be treated as a toy by children		P
22.45	When air is used as reinforced insulation, clearances not reduced below the values specified in 29.1.4 due to deformation as a result of an external force applied to the enclosure		P
22.46	Software used in protective electronic circuits is software class B or C .....:		N/A
22.47	Appliances connected to the water mains withstand the water pressure expected in normal use	Not connected to water.	N/A
	No leakage from any part, including any inlet water hose		N/A

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Cl.	Requirement - Test	Result	Verdict
22.48	Appliances connected to the water mains constructed to prevent back siphonage of non-potable water		N/A
22.101	Conductors for connection to the terminals of the battery coloured as specified (IEC 60335-2-29)	O/P connector used and + / - marked near terminal.	P
22.102	Each circuit supplied from a d.c. distribution board incorporates an overload protective device (IEC 60335-2-29)	No d.c. distribution boards.	N/A
22.103	Battery chargers for installing in caravans or similar vehicles constructed so that they can be securely fixed to a support (IEC 60335-2-29)	Not used in caravans.	N/A
23	INTERNAL WIRING		P
23.1	Wireways smooth and free from sharp edges		P
	Wires protected against contact with burrs, cooling fins etc.		N/A
	Wire holes in metal well rounded or provided with bushings	No wire holes.	N/A
	Wiring effectively prevented from coming into contact with moving parts		P
23.2	Beads etc. on live wires cannot change their position, and are not resting on sharp edges or corners		N/A
	Beads inside flexible metal conduits contained within an insulating sleeve		N/A
23.3	Electrical connections and internal conductors movable relatively to each other not exposed to undue stress	No such constructions.	N/A
	Flexible metallic tubes not causing damage to insulation of conductors		N/A
	Open-coil springs not used		N/A
	Adequate insulating lining provided inside a coiled spring, the turns of which touch one another		N/A
	No damage after 10 000 flexings for conductors flexed during normal use or 100 flexings for conductors flexed during user maintenance		N/A
	Electric strength test, 1000 V between live parts and accessible metal parts		N/A
23.4	Bare internal wiring sufficiently rigid and fixed	No bare internal wiring.	N/A

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Cl.	Requirement - Test	Result	Verdict
23.5	The insulation of internal wiring withstanding the electrical stress likely to occur in normal use		N
	No breakdown when a voltage of 2000 V is applied for 15 min between the conductor and metal foil wrapped around the insulation		N/A
23.6	Sleeving used as supplementary insulation on internal wiring retained in position by positive means	No sleeving used as supplementary insulation.	N/A
23.7	The colour combination green/yellow used only for earthing conductors		P
23.8	Aluminium wires not used for internal wiring	No aluminium wires.	P
23.9	No lead-tin soldering of stranded conductors where they are subject to contact pressure, unless	Appliance inlet provided.	N/A
	clamping means so constructed that there is no risk of bad contact due to cold flow of the solder		N/A
23.10	The insulation and sheath of internal wiring, incorporated in external hoses for the connection of an appliance to the water mains, at least equivalent to that of light polyvinyl chloride sheathed flexible cord (60227 IEC 52)		N/A
24	COMPONENTS		P
24.1	Components comply with safety requirements in relevant IEC standards		P
	List of components	(See appended table)	P
	Components not tested and found to comply with relevant IEC standard for the number of cycles specified are tested in accordance with 24.1.1 to 24.1.6		P
	Components not tested and found to comply with relevant IEC standard, components not marked or not used in accordance with its marking, tested under the conditions occurring in the appliance		P
24.1.1	Capacitors likely to be permanently subjected to the supply voltage and used for radio interference suppression or for voltage dividing, complying with IEC 60384-14, or	Approved X capacitor (C1) provided.	P
	tested according to annex F		N/A
24.1.2	Safety isolating transformers complying with IEC 61558-2-6, or	See below.	N/A
	tested according to annex G	Transformer (T1) tested within the appliance, see annex G.	P

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Cl.	Requirement - Test		Result	Verdict
24.1.3	Switches complying with IEC 61058-1, the number of cycles of operation being at least 10 000, or		Approved switches.	P
	tested according to annex H			N/A
	If the switch operates a relay or contactor, the complete switching system is subjected to the test			N/A
24.1.4	Automatic controls complying with IEC 60730-1 with relevant part 2. The number of cycles of operation being:			N/A
	- thermostats:	10 000	No automatic controls.	N/A
	- temperature limiters:	1 000		N/A
	- self-resetting thermal cut-outs:	300		N/A
	- voltage maintained non-self-resetting thermal cut-outs:	1000		N/A
	- other non-self-resetting thermal cut-outs:	30		N/A
	- timers:	3 000		N/A
	- energy regulators:	10 000		N/A
	Thermal motor protectors are tested in combination with their motor under the conditions specified in Annex D		No thermal motor protectors.	N/A
	For water valves containing live parts and that are incorporated in external hoses for connection of an appliance to the water mains, the degree of protection declared for subclause 6.5.2 of IEC 60730-2-8 is IPX7		No such components.	N/A
24.1.5	Appliance couplers complying with IEC 60320-1		Approved appliance inlet provided.	P
	However, appliances classified higher than IPX0, the appliance couplers complying with IEC 60320-2-3		IP20.	N/A
	Interconnection couplers complying with IEC 60320-2-2		No interconnection couplers.	N/A
24.1.6	Small lamp holders similar to E10 lampholders complying with IEC 60238, the requirements for E10 lampholders being applicable		No lamp holders.	N/A
24.2	No switches or automatic controls in flexible cords		No power cord provided.	N/A
	No devices causing the protective device in the fixed wiring to operate in the event of a fault in the appliance			P
	No thermal cut-outs that can be reset by soldering		No thermal cut-outs.	P

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Cl.	Requirement - Test	Result	Verdict
24.3	Switches intended for all-pole disconnection of stationary appliances are directly connected to the supply terminals and having a contact separation in all poles, providing full disconnection under overvoltage category III conditions		N/A
24.4	Plugs and socket-outlets for extra-low voltage circuits and heating elements, not interchangeable with plugs and socket-outlets listed in IEC 60083 or IEC 60906-1 or with connectors and appliance inlets complying with the standard sheets of IEC 60320-1	No socket-outlets.	N/A
24.5	Capacitors in auxiliary windings of motors marked with their rated voltage and capacitance and used accordingly	No motors.	N/A
	Voltage across capacitors in series with a motor winding does not exceed 1,1 times rated voltage, when the appliance is supplied at 1,1 times rated voltage under minimum load		N/A
24.6	Working voltage of motors connected to the supply mains and having basic insulation that is inadequate for the rated voltage of the appliance, not exceeding 42V		N/A
	In addition, the motors are complying with the requirements of Annex I		N/A
24.7	Hose-sets for connection of appliances to the water mains, complying with IEC 61770 and supplied with the appliance	Not connected to water mains.	N/A
25	SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS		P
25.1	Appliance not intended for permanent connection to fixed wiring, means for connection to the supply:		P
	- supply cord fitted with a plug	See below.	N/A
	- an appliance inlet having at least the same degree of protection against moisture as required for the appliance	Appliance inlet provided.	P
	- pins for insertion into socket-outlets	See above.	N/A
25.2	Appliance not provided with more than one means of connection to the supply mains	Single supply.	P
	Stationary appliance for multiple supply may be provided with more than one means of connection, provided electric strength test of 1250 V for 1 min between each means of connection causes no breakdown		N/A

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Cl.	Requirement - Test	Result	Verdict
25.3	Connection of supply conductors for appliance intended to be permanently connected to fixed wiring possible after the appliance has been fixed to its support	Appliance inlet provided.	N/A
	Appliance provided with a set of terminals for the connection of cables or fixed wiring, cross-sectional areas specified in 26.6		N/A
	Appliance provided with a set of terminals allowing the connection of a flexible cord		N/A
	Appliance provided with a set of supply leads accommodated in a suitable compartment		N/A
	Appliance provided with a set of terminals and cable entries, conduit entries, knock-outs or glands, allowing connection of appropriate type of cable or conduit		N/A
25.4	Cable and conduit entries, rated current of appliance not exceeding 16 A, dimension according to table 10		N/A
	Introduction of conduit or cable does not reduce clearances or creepage distances below values specified in 29		N/A
25.5	Method for assemble supply cord with the appliance:		N/A
	- type X attachment	Appliance inlet provided.	N/A
	- type Y attachment		N/A
	- type Z attachment, if allowed in part 2		N/A
	Type X attachment, other than those with a specially prepared cord, not used for flat twin tinsel cords		N/A
25.6	Plugs fitted with only one flexible cord	No power cord provided.	N/A
25.7	Supply cord not lighter than:		N/A
	- braided cord (60245 IEC 51)	No power cord provided.	N/A
	- ordinary tough rubber sheathed cord (60245 IEC 53)		N/A
	- ordinary polychloroprene sheathed flexible cord (60245 IEC 57)		N/A
	- flat twin tinsel cord (60227 IEC 41)		N/A
	- light polyvinyl chloride sheathed cord (60227 IEC 52), appliance not exceeding 3 kg		N/A
	- ordinary polyvinyl chloride sheathed cord (60227 IEC 53), appliance exceeding 3 kg		N/A

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Cl.	Requirement - Test	Result	Verdict
	Natural rubber supply cords not used for battery chargers for charging automobile batteries (IEC 60335-2-29)		N/A
	Temperature rise of external metal parts exceeding 75 K, PVC cord not used, unless		N/A
	appliance so constructed that the supply cord is not likely to touch external metal parts in normal use, or		N/A
	the supply cord is appropriate for higher temperatures, type Y or type Z attachment used		N/A
25.8	Nominal cross-sectional area of supply cords according to table 11; rated current (A); cross-sectional area (mm²) .....:		N/A
25.9	Supply cord not in contact with sharp points or edges		P
25.10	Green/yellow core for earthing purposes in Class I appliance		P
25.11	Conductors of supply cords not consolidated by lead-tin soldering where they are subject to contact pressure, unless	No power cord provided.	N/A
	clamping means so constructed that there is no risk of bad contacts due to cold flow of the solder		N/A
25.12	Moulding the cord to part of the enclosure does not damage the insulation of the supply cord		N/A
25.13	Inlet opening so shaped as to prevent damage to the supply cord	Appliance inlet provided.	N/A
	Unless the enclosure at the inlet opening is of insulation material, a non-detachable lining or bushing complying with 29.3 for supplementary insulation provided		N/A
	If unsheathed supply cord, a similar additional bushing or lining is required, unless		N/A
	the appliance is class 0		N/A
25.14	Supply cords adequately protected against excessive flexing		N/A
	Flexing test:		N/A
	- applied force (N).....:		N/A
	- number of flexings.....:		N/A
	The test does not result in:		N/A
	- short circuit between the conductors		N/A

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Cl.	Requirement - Test	Result	Verdict
	- breakage of more than 10% of the strands of any conductor		N/A
	- separation of the conductor from its terminal		N/A
	- loosening of any cord guard		N/A
	- damage, within the meaning of the standard, to the cord or the cord guard		N/A
	- broken strands piercing the insulation and becoming accessible		N/A
25.15	Conductors of the supply cord relieved from strain, twisting and abrasion by use of cord anchorage	Appliance inlet provided.	N/A
	The cord cannot be pushed into the appliance to such an extent that the cord or internal parts of the appliance can be damaged		N/A
	Pull and torque test of supply cord, values shown in table 10: pull (N); torque (not on automatic cord reel) (Nm).....:		N/A
	Max. 2 mm displacement of the cord, and conductors not moved more than 1 mm in the terminals		N/A
	Creepage distances and clearances not reduced below values specified in 29.1		N/A
25.16	Cord anchorages for type X attachments constructed and located so that:		N/A
	- replacement of the cord is easily possible	Appliance inlet provided.	N/A
	- it is clear how the relief from strain and the prevention of twisting are obtained		N/A
	- they are suitable for different types of cord		N/A
	- cord cannot touch the clamping screws of cord anchorage if these screws are accessible, unless separated from accessible metal parts by supplementary insulation		N/A
	- the cord is not clamped by a metal screw which bears directly on the cord		N/A
	- at least one part of the cord anchorage securely fixed to the appliance, unless part of a specially prepared cord		N/A
	- screws which have to be operated when replacing the cord do not fix any other component, if applicable		N/A
	- if labyrinths can be bypassed the test of 25.15 is nevertheless withstood		N/A

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Cl.	Requirement - Test	Result	Verdict
	- for Class 0, 0I and I appliances: they are of insulating material or are provided with an insulating lining, unless a failure of the insulation of the cord does not make accessible metal parts live		N/A
	- for Class II appliances: they are of insulating material, or if of metal, they are insulated from accessible metal parts by supplementary insulation		N/A
25.17	Adequate cord anchorages for type Y and Z attachment		N/A
25.18	Cord anchorages only accessible with the aid of a tool, or		N/A
	so constructed that the cord can only be fitted with the aid of a tool		N/A
25.19	Type X attachment, glands not used as cord anchorage in portable appliances		N/A
	Tying the cord into a knot or tying the cord with string not used		N/A
25.20	Conductors of the supply cord for type Y and Z attachment adequately additionally insulated		N/A
25.21	Space for supply cord for type X attachment or for connection of fixed wiring constructed to permit checking of conductors with respect to correct positioning and connection before fitting any cover, no risk of damage to the conductors when fitting the cover, no contact with accessible metal parts if a conductor becomes loose, etc.		N/A
	For portable appliances, the uninsulated end of a conductor prevented from any contact with accessible metal parts, unless the end of the cord is such that the conductors are unlikely to slip free		N/A
25.22	Appliance inlet:		P
	- live parts not accessible during insertion or removal		P
	- connector can be inserted without difficulty		P
	- the appliance is not supported by the connector		P
	- is not for cold conditions if temp. rise of external metal parts exceeds 75 K, unless the supply cord is not likely to touch such metal parts		P
25.23	Interconnection cords comply with the requirements for the supply cord, except as specified	No interconnection cords.	N/A
	If necessary, electric strength test of 16.3		N/A

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Cl.	Requirement - Test	Result	Verdict
25.24	Interconnection cords not detachable without the aid of a tool if compliance with the standard is impaired when they are disconnected		N/A
25.25	Dimensions of pins compatible with the dimensions of the relevant socket-outlet. Dimensions of pins and engagement face in accordance with the relevant plug in IEC 60083		N/A
26	TERMINALS FOR EXTERNAL CONDUCTORS	→ ***Appliance inlet provided.***	N/A
26.1	Appliances provided with terminals or equally effective devices for connection of external conductors		N/A
	Terminals only accessible after removal of a non-detachable cover		N/A
	However, earthing terminals may be accessible if a tool is required to make the connections and means are provided to clamp the wire independently from its connection		N/A
26.2	Appliances with type X attachment and appliances for connection to fixed wiring provided with terminals in which connections are made by means of screws, nuts or similar devices, unless the connections are soldered		N/A
	Screws and nuts serve only to clamp supply conductors, except		N/A
	internal conductors, if so arranged that they are unlikely to be displaced when fitting the supply conductors		N/A
	If soldered connections used, the conductor so positioned or fixed that reliance is not placed on soldering alone		N/A
	Soldering alone used, barriers provided, clearances and creepage distances satisfactory if the conductor becomes free at the soldered joint		N/A
26.3	Terminals for type X attachment and for connection to fixed wiring so constructed that the conductor is clamped between metal surfaces with sufficient contact pressure and without damaging the conductor		N/A
	Terminals for type X attachment and those for connection to fixed wiring so fixed that when tightening or loosening the clamping means:		N/A
	- the terminal does not loosen		N/A

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Cl.	Requirement - Test	Result	Verdict
	- internal wiring is not subjected to stress		N/A
	- clearances and creepage distances are not reduced below the values in 29		N/A
	Compliance checked by inspection and by the test of subclause 8.6 of IEC 60999-1, the torque applied being equal to two-thirds of the torque specified. Nominal diameter of thread (mm); screw category; torque (Nm) .....:		N/A
26.4	Terminals for type X attachment, except those with a specially prepared cord, and those for connection to fixed wiring, no special preparation of conductors required, and so constructed or placed that conductors prevented from slipping out		N/A
26.5	Terminals for type X attachment so located or shielded that if a wire of a stranded conductor escapes, no risk of accidental connection to other parts that result in a hazard		N/A
	Stranded conductor test, 8 mm insulation removed		N/A
	No contact between live parts and accessible metal parts and, for class II constructions, between live parts and metal parts separated from accessible metal parts by supplementary insulation only		N/A
26.6	Terminals for type X attachment and for connection to fixed wiring suitable for connection of conductors with required cross-sectional area according to table 13; rated current (A); nominal cross-sectional area (mm²).....:		N/A
	Terminals only suitable for a specially prepared cord		N/A
26.7	Terminals for type X attachment accessible after removal of a cover or part of the enclosure		N/A
26.8	Terminals for the connection to fixed wiring, including the earthing terminal, located close to each other		N/A
26.9	Terminals of the pillar type constructed and located as specified		N/A
26.10	Terminals with screw clamping and screwless terminals not used for flat twin tinsel cords, unless conductors ends fitted with a device suitable for screw terminals		N/A
	Pull test of 5 N to the connection		N/A
26.11	For type Y and Z attachment: soldered, welded, crimped and similar connections may be used		N/A

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Cl.	Requirement - Test	Result	Verdict
	For Class II appliances: the conductor so positioned or fixed that reliance is not placed on soldering, welding or crimping alone		N/A
	For Class II appliances: soldering, welding or crimping alone used, barriers provided, clearances and creepage distances satisfactory if the conductor becomes free		N/A
27	PROVISION FOR EARTHING		P
27.1	Accessible metal parts of Class 0I and I appliances, permanently and reliably connected to an earthing terminal or contact of the appliance inlet		P
	Earthing terminals not connected to neutral terminal		P
	Class 0, II and III appliance have no provision for earthing		N/A
	Safety extra-low voltage circuits not earthed, unless protective extra-low voltage circuits	Separated by a Y capacitor.	P
27.2	Clamping means adequately secured against accidental loosening		P
	Terminals used for the connection of external equipotential bonding conductors allow connection of conductors of 2.5 to 6 mm², and		N/A
	do not provide earthing continuity between different parts of the appliance		P
	Conductors cannot be loosened without the aid of a tool	Tool is needed.	P
27.3	For detachable parts that are plugged into another part of the appliance, and having an earth connection, the earth connection made before and separated after current-carrying connections when removing the part		N/A
	For appliances with supply cord, current-carrying conductors become taut before earthing conductor, if the cord slips out of the cord anchorage	No supply cord used.	N/A
27.4	No risk of corrosion resulting from contact between metal of earthing terminal and other metal		P
	Adequate resistance to corrosion of coated or uncoated parts providing earthing continuity, other than parts of a metal frame or enclosure		P
	Parts of steel providing earthing continuity provided at the essential areas with an electroplated coating, thickness at least 5 µm		N/A

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Cl.	Requirement - Test	Result	Verdict
	Adequate protection against rusting of parts of coated or uncoated steel, only intended to provide or transmit contact pressure		N/A
	In case of aluminium alloys precautions taken to avoid risk of corrosion		P
27.5	Low resistance of connection between earthing terminal and earthed metal parts		P
	This requirement does not apply to connections providing earthing continuity in the protective extra-low voltage circuit, provided that clearances of basic insulation are based on the rated voltage of the appliance		P
	Resistance not exceeding 0,1 Ω at the specified low-resistance test	0.056Ω<0,1 Ω (inlet to metal case)	P
27.6	The printed conductors of printed circuit boards not used to provide earthing continuity in hand held appliances		N/A
	They may be used in other appliances if:		N/A
	- at least two tracks are used with independent soldering points and the appliance complies with requirements of 27.5 for each circuit		N/A
	- the material of the printed circuit board complies with IEC 60249-2-4 or IEC 60249-2-5		N/A
28	SCREWS AND CONNECTIONS		P
28.1	Fixings, electrical connections and connections providing earthing continuity withstand mechanical stresses		P
	Screws not of soft metal liable to creep, such as zinc or aluminium	Metal screw provided.	P
	Diameter of screws of insulating material min. 3 mm		N/A
	Screws of insulating material not used for any electrical connection or connections providing earthing continuity		N/A
	Screws used for electrical connections or connections providing earthing continuity screw into metal		P
	Screws not of insulating material if their replacement by a metal screw can impair supplementary or reinforced insulation		P

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Cl.	Requirement - Test	Result	Verdict
	Type X attachment, screws to be removed for replacement of supply cord or for user maintenance, not of insulating material if their replacement by a metal screw can impair basic insulation	No user maintenance.	N/A
	For screws and nuts; test as specified	(See appended table)	N/A
28.2	Electrical connections and connections providing earthing continuity constructed so that contact pressure not transmitted through insulating material liable to shrink or distort, unless shrinkage or distortion compensated	No electrical connection or earthing continuity.	P
	This requirement does not apply to electrical connections in circuits carrying a current not exceeding 0.5A		N/A
28.3	Space-threaded (sheet metal) screws only used for electrical connections if they clamp the parts together		P
	Thread-cutting (self-tapping) screws only used for electrical connections if they generate a full form standard machine screw thread	Not used such kind of screw.	N/A
	Such screws not used if they are likely to be operated by the user or installer unless the thread is formed by a swaging action		N/A
	Thread-cutting and space-threaded screws may be used in connections providing earthing continuity, provided unnecessary to disturb the connection and at least two screws are used for each connection		P
28.4	Screws and nuts that make mechanical connection secured against loosening if they also make electrical connections or connections providing earthing continuity		P
	Rivets for electrical connections or connections providing earthing continuity secured against loosening if subjected to torsion		N/A
29	CLEARANCES, CREEPAGE DISTANCES AND SOLID INSULATION		P
	Clearances, creepage distances and solid insulation withstand electrical stress		P
	For coatings used on printed circuits boards to protect the microenvironment (Type A) or to provide basic insulation (Type B), annex J applies .....:	No coating used on PCB.	N/A
	The microenvironment is pollution degree 1 under Type A coating		N/A

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Cl.	Requirement - Test	Result	Verdict
	No creepage distance or clearance requirements under Type B coating		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	Overvoltage category II, impulse voltage 2500 V.	P
	for basic insulation and functional insulation they comply with the impulse voltage test of clause 14		N/A
	However, if the construction is 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		P
	Impulse voltage test not applicable:		N/A
	- when the microenvironment is pollution degree 3		N/A
	- for basic insulation of class 0 and class 01 appliances		N/A
	Appliances are in overvoltage category II	Category II.	P
	Clearances less than specified in table 16 not allowed for basic insulation of class 0 and class 0I appliances,	Class I appliance.	N/A
	or if pollution degree 3 is applicable	Pollution degree 2.	N/A
	Compliance is checked by inspection and measurements as specified		P
29.1.1	Clearances of basic insulation withstand the overvoltages, taking into account the rated impulse voltage	Impulse voltage 2500 V.	P
	Clearance at the terminals of tubular sheathed heating elements may be reduced to 1mm if the microenvironment is pollution degree 1	No heating elements.	N/A
	Lacquered conductors of windings considered to be bare conductors		P
29.1.2	Clearances of supplementary insulation not less than those specified for basic insulation in table 16		P
29.1.3	Clearances of reinforced insulation not less than those specified for basic insulation in table 16, but using the next higher step for rated impulse voltage		P
29.1.4	For functional insulation, the values of table 16 are applicable, unless		P
	the appliance complies with clause 19 with the functional insulation short-circuited		N/A

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Cl.	Requirement - Test	Result	Verdict
	Lacquered conductors of windings considered to be bare conductors		P
	However, clearances at crossover points are not measured		N/A
	Clearance between surfaces of PTC heating elements may be reduced to 1mm	No heating elements.	N/A
29.1.5	Appliances having higher working voltage than rated voltage, the voltage used for determining clearances from table 16 is the sum of the rated impulse voltage and the difference between the peak value of the working voltage and the peak value of the rated voltage		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 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		P
	Pollution degree 2 applies, unless	Pollution degree 2.	P
	precautions taken to protect the insulation; pollution degree 1		N/A
	insulation subjected to conductive pollution; pollution degree 3		N/A
	Compliance is checked by inspection and measurements as specified		P
29.2.1	Creepage distances of basic insulation not less than specified in table 17		P
	For pollution degree 1, 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	Pollution degree 2.	N/A
29.2.2	Creepage distances of supplementary insulation at least as specified for basic insulation in table 17		P
29.2.3	Creepage distances of reinforced insulation at least double as specified for basic insulation in table 17		P

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Cl.	Requirement - Test	Result	Verdict
29.2.4	Creepage distances of functional insulation not less than specified in table 18	See 29.2.	P
	Creepage distances may be reduced if the appliance complies with clause 19 with the functional insulation short-circuited		N/A
29.3	Supplementary and reinforced insulation having adequate thickness, or a sufficient number of layers, to withstand the electrical stresses		P
	Compliance checked by:		P
	- measurement, in accordance with 29.3.1, or		N/A
	- an electric strength test in accordance with 29.3.2, or	See 29.3.2.	P
	- an assessment of the thermal quality of the material combined with an electric strength test, in accordance with 29.3.3		N/A
29.3.1	Supplementary insulation having a thickness of at least 1 mm		N/A
	Reinforced insulation having a thickness of at least 2 mm		N/A
29.3.2	Each layer of material withstand the electric strength test of 16.3 for supplementary insulation	Insulation tape for transformer.	P
	Supplementary insulation consisting of at least 2 layers		N/A
	Reinforced insulation consisting of at least 3 layers	3 layers used between primary and secondary.	P
29.3.3	The insulation is subjected to the dry heat test Bb of IEC 60068-2-2, followed by		N/A
	the electric strength test of 16.3		N/A
	If the temperature rise during the tests of Clause 19 does not exceed the value specified in Table 3, the test of IEC 60068-2-2 is not carried out		N/A
30	RESISTANCE TO HEAT AND FIRE		P
30.1	External parts of non-metallic material,	Metal enclosure.	N/A
	parts supporting live parts, and	For appliance inlet and transformer bobbin.	P
	thermoplastic material providing supplementary or reinforced insulation,		N/A
	sufficiently resistant to heat		P

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Cl.	Requirement - Test	Result	Verdict
	Ball-pressure test according to IEC 60695-10-2		P
	External parts: at 40°C plus the maximum temperature rise determined during the test of clause 11, or at 75°C, whichever is the higher; temperature (°C).....:		N/A
	Parts supporting live parts: at 40°C plus the maximum temperature rise determined during the test of clause 11, or at 125°C, whichever is the higher; temperature (°C) .....:	(See appended table)	P
	Parts of thermoplastic material providing supplementary or reinforced insulation, 25°C plus the maximum temperature rise determined during clause 19, if higher; temperature (°C).....:	(See appended table)	P
30.2	Relevant parts of non-metallic material adequately resistant to ignition and spread of fire		P
30.2.1	Glow-wire test of IEC 60695-2-11 at 550°C, unless		N/A
	the material is classified at least HB40 according to IEC 60695-11-10		N/A
	Parts for which the glow-wire test cannot be carried out meet the requirements in ISO9772 for category HBF material		N/A
30.2.2	Appliances operated while attended, parts of insulating material supporting current-carrying connections and parts within a distance of 3mm subjected to the glow-wire test of IEC 60695-2-11 at a temperature of:		N/A
	-750°C, for connections carrying a current exceeding 0,5A during normal operation		N/A
	-650°C, for other connections		N/A
	Test not applicable to conditions as specified		N/A
30.2.3	Appliances operated while unattended, tested as specified in 30.2.3.1 and 30.2.3.2		P
	Test not applicable to conditions as specified		P
30.2.3.1	Parts of insulating material supporting connections carrying a current exceeding 0.2A during normal operation, and	Bobbin.	P
	parts of insulating material within a distance of 3mm,		P
	having a glow-wire flammability index of at least 850°C according to IEC 60695-2-12		P
30.2.3.2	Parts of insulating material supporting current-carrying connections, and		P
	parts of insulating material within a distance of 3mm,		N/A

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Cl.	Requirement - Test	Result	Verdict
	subjected to glow-wire test of IEC 60695-2-11		P
	Test not carried out on material having a glow-wire ignition temperature according to IEC 60695-2-13 as specified		N/A
	Glow-wire test of IEC 60695-2-11, the temperature being:		P
	-750°C, for connections carrying a current exceeding 0,2A during normal operation	For all material of transformer bobbin.	P
	-650°C, for other connections		N/A
	Parts that during the test produce a flame persisting longer than 2 s, tested as specified		N/A
	If a flame persists longer than 2 s during the test, parts above the connection, as specified, subjected to the needle-flame test of annex E, unless		N/A
	the material is classified as V-0 or V-1 according to IEC 60695-11-10		N/A
30.2.4	Base material of printed circuit boards subjected to needle-flame test of annex E	See annex E.	P
	Test not applicable to conditions as specified		P
31	RESISTANCE TO RUSTING		P
	Relevant ferrous parts adequately protected against rusting		P
32	RADIATION, TOXICITY AND SIMILAR HAZARDS		P
	Appliance does not emit harmful radiation		P
	Appliance does not present a toxic or similar hazard		P
A	ANNEX A (INFORMATIVE) ROUTINE TESTS		P
	Description of routine tests to be carried out by the manufacturer		P
	Test voltage of electric strength test between the input and output circuits (IEC 60335-2-29)		P
B	ANNEX B (NORMATIVE) APPLIANCES POWERED BY RECHARGEABLE BATTERIES		N/A
	The following modifications to this standard are applicable for appliances powered by batteries that are recharged in the appliance	Not powered by batteries.	N/A

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Cl.	Requirement - Test	Result	Verdict
	This annex does not apply to battery chargers		N/A
3.1.9	Appliance operated under the following conditions:		N/A
	-the appliance, supplied by its fully charged battery, operated as specified in relevant part 2		N/A
	-the battery is charged, the battery being initially discharged to such an extent that the appliance cannot operate		N/A
	-if possible, the appliance is supplied from the supply mains through its battery charger, the battery being initially discharged to such an extent that the appliance cannot operate. The appliance is operated as specified in relevant part 2		N/A
	If the appliance incorporates inductive coupling between two parts that are detachable from each other, the appliance is supplied from the supply mains with the detachable part removed		N/A
3.6.2	Part to be removed in order to discard the battery is not considered to be detachable		N/A
5.101	Appliances supplied from the supply mains tested as specified for motor-operated appliances		N/A
7.1	Battery compartment for batteries intended to be replaced by the user, marked with battery voltage and polarity of the terminals		N/A
7.12	The instructions for appliances incorporating batteries intended to be replaced by the user includes required information		N/A
	Details about how to remove batteries containing materials hazardous to the environment given		N/A
7.15	Markings placed on the part of the appliance connected to the supply mains		N/A
8.2	Appliances having batteries that according to the instruction may be replaced by the user need only have basic insulation between live parts and the inner surface of the battery compartment		N/A
	If the appliance can be operated without batteries, double or reinforced insulation required		N/A
11.7	The battery is charged for the period described		N/A
19.1	Appliances subjected to tests of 19.101, 19.102 and 19.103		N/A
19.101	Appliances supplied at rated voltage for 168 h, the battery being continually charged		N/A

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Cl.	Requirement - Test	Result	Verdict
19.102	Short-circuiting of the terminals of the battery, being fully charged, for appliances having batteries that can be removed without the aid of a tool		N/A
19.103	Appliances having batteries replaceable by the user supplied at rated voltage under normal operation with the battery removed or in any position allowed by the construction		N/A
21.101	Appliances having pins for insertion into socket-outlets have adequate mechanical strength, checked according to procedure 2 of IEC 68-2-32		N/A
	Part of the appliance incorporating the pins subjected to the free fall test, procedure 2, of IEC 60068-2-32, the number of falls being:		N/A
	- 100, the mass of part does not exceed 250 g		N/A
	- 50, the mass of part exceeds 250 g		N/A
	After the test, the requirements of 8.1, 15.1.1, 16.3 and clause 29 are met		N/A
22.3	Appliances having pins for insertion into socket-outlets tested as fully assembled as possible		N/A
25.13	An additional lining or bushing not required for interconnection cords operating at safety extra-low voltage		N/A
30.2	For parts of the appliance connected to the supply mains during the charging period, 30.2.3 applies		N/A
	For other parts, 30.2.2 applies		N/A
C	ANNEX C (NORMATIVE) AGEING TEST ON MOTORS		N/A
	Tests, as described, carried out when doubt with regard to the temperature classification of the insulation of a motor winding	No motors.	N/A
D	ANNEX D (NORMATIVE) THERMAL MOTOR PROTECTORS		N/A
	Applicable to appliances having motors that incorporate thermal motor protectors	No thermal motor protectors.	N/A
E	ANNEX E (NORMATIVE) NEEDLE-FLAME TEST		P
	Needle-flame test carried out in accordance with IEC 60695-2-2, with the following modifications:		P

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Cl.	Requirement - Test	Result	Verdict
5	Severities		P
	The duration of application of the test flame is 30 s ± 1 s	30 s.	P
8	Test procedure		P
8.2	The specimen so arranged that the flame can be applied to a vertical or horizontal edge as shown in the examples of figure 1		P
8.4	The first paragraph does not apply		P
	If possible, the flame is applied at least 10 mm from a corner		P
8.5	The test is carried out on one specimen		P
	If the specimen does not withstand the test, the test may be repeated on two further specimens, both withstanding the test		N/A
10	Evaluation of test results		P
	The duration of burning not exceeding 30 s		N/A
	However, for printed circuit boards, the duration of burning not exceeding 15 s	tb = 0 s.	P
F	ANNEX F (NORMATIVE) CAPACITORS		N/A
	Capacitors likely to be permanently subjected to the supply voltage, and used for radio interference suppression or voltage dividing, comply with the following clauses of IEC 60384-14, with the following modifications:	Approved X capacitor provided.	N/A
1.5	Terminology		N/A
1.5.3	Class X capacitors tested according to subclass X2		N/A
1.5.4	This subclause is applicable		N/A
1.6	Marking		N/A
	Items a) and b) are applicable		N/A
3.4	Approval testing		N/A
3.4.3.2	Table II is applicable as described		N/A
4.1	Visual examination and check of dimensions		N/A
	This subclause is applicable		N/A
4.2	Electrical tests		N/A
4.2.1	This subclause is applicable		N/A

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Cl.	Requirement - Test	Result	Verdict
4.2.5	This subclause is applicable		N/A
4.2.5.2	Only table IX is applicable		N/A
	Values for test A apply		N/A
	However, for capacitors in heating appliances the values for test B or C apply		N/A
4.12	Damp heat, steady state		N/A
	This subclause is applicable		N/A
	Only insulation resistance and voltage proof are checked		N/A
4.13	Impulse voltage		N/A
	This subclause is applicable		N/A
4.14	Endurance		N/A
	Subclauses 4.14.1, 4.14.3, 4.14.4 and 4.14.7 applicable		N/A
4.14.7	Only insulation resistance and voltage proof are checked		N/A
	Visual examination, no visible damage		N/A
4.17	Passive flammability test		N/A
	This subclause is applicable		N/A
4.18	Active flammability test		N/A
	This subclause is applicable		N/A
G	ANNEX G (NORMATIVE) SAFETY ISOLATING TRANSFORMERS		P
	The following modifications to this standard are applicable for safety isolating transformers:		P
7	Marking and instructions		P
7.1	Transformers for specific use marked with:		P
	-name, trademark or identification mark of the manufacturer or responsible vendor	Long sail or Yao Sheng or JET signal.	P
	-model or type reference	TF-1343 or TF-1344.	P
17	Overload protection of transformers and associated circuits		P
	Fail-safe transformers comply with subclause 15.5 of IEC 61558-1		N/A
22	Construction		P

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Cl.	Requirement - Test	Result	Verdict
	Subclauses 19.1 and 19.1.2 of IEC 61558-2-6 are applicable		P
29	Clearances, creepage distances and solid insulation		P
29.1, 29.2 and 29.3	The distances specified in items 2a, 2c and 3 in table 13 of IEC 61558-1 apply	See appended tables 29.	P
H	ANNEX H (NORMATIVE) SWITCHES		N/A
	Switches comply with the following clauses of IEC 61058-1, as modified:		N/A
	-The tests of IEC 61058-1 carried out under the conditions occurring in the appliance		N/A
	-Before being tested, switches are operated 20 times without load		N/A
8	Marking and documentation		N/A
	Switches are not required to be marked		N/A
	However, switches that can be tested separately from the appliance marked with the manufacturer's name or trade mark and the type reference		N/A
13	Mechanism		N/A
	The tests may be carried out on a separate sample		N/A
15	Insulation resistance and dielectric strength		N/A
15.1	Not applicable		N/A
15.2	Not applicable		N/A
15.3	Applicable for full disconnection and micro-disconnection		N/A
17	Endurance		N/A
	Compliance is checked on three separate appliances or switches		N/A
	For 17.2.4.4, the number of cycles is 10 000, unless otherwise specified in 24.1.3 of the relevant part 2 of IEC 60335		N/A
	Switches for operation under no load and which can be operated only by a tool and switches operated by hand that are interlocked so that they cannot be operated under load, are not subjected to the tests		N/A
	Subclauses 17.2.2 and 17.2.5.2 not applicable		N/A

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Cl.	Requirement - Test	Result	Verdict
	The ambient temperature during the test is that occurring in the appliance during the test of Clause 11 in IEC 60335-1		N/A
	Temperature rise of the terminals not more than 30 K above the temperature rise measured in clause 11 of IEC 60335-1		N/A
20	Clearances, creepage distances, solid insulation and coatings of rigid printed board assemblies		N/A
	This clause is applicable to clearances and creepage distances for functional insulation, across full disconnection and micro-disconnection, as stated in table 24		N/A
I	ANNEX I (NORMATIVE) MOTORS HAVING BASIC INSULATION THAT IS INADEQUATE FOR THE RATED VOLTAGE OF THE APPLIANCE		N/A
	The following modifications to this standard are applicable for motors having basic insulation that is inadequate for the rated voltage of the appliance:		N/A
8	Protection against access to live parts		N/A
8.1	Metal parts of the motor are considered to be bare live parts		N/A
11	Heating		N/A
11.3	Temperature rise of the body of the motor is determined instead of the temperature rise of the windings		N/A
11.8	Temperature rise of the body of the motor, where in contact with insulating material, not exceeding values in table 3 for the relevant insulating material		N/A
16	Leakage current and electric strength		N/A
16.3	Insulation between live parts of the motor and its other metal parts not subjected to the test		N/A
19	Abnormal operation		N/A
19.1	The tests of 19.7 to 19.9 not carried out		N/A
19.101	Appliance operated at rated voltage with each of the following fault conditions:		N/A
	- short circuit of the terminals of the motor, including any capacitor incorporated in the motor circuit		N/A
	- short circuit of each diode of the rectifier		N/A
	- open circuit of the supply to the motor		N/A

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	- open circuit of any parallel resistor, the motor being in operation		N/A
	Only one fault simulated at a time, the tests carried out consecutively		N/A
22	Construction		N/A
22.101	For class I appliances incorporating a motor supplied by a rectifier circuit, the d.c. circuit being insulated from accessible parts of the appliance by double or reinforced insulation		N/A
	Compliance checked by the tests specified for double and reinforced insulation		N/A
J	ANNEX J (NORMATIVE) COATED PRINTED CIRCUIT BOARDS		N/A
	Testing of protective coatings of printed circuit boards carried out in accordance with IEC 60664-3 with the following modifications:		N/A
6.6	Climatic sequence		N/A
	When production samples are used, three samples of the printed circuit board are tested		N/A
6.6.1	Cold		N/A
	The test is carried out at -25°C		N/A
6.6.3	Rapid change of temperature		N/A
	Severity 1 is specified		N/A
6.8.6	Partial discharge extinction voltage		N/A
	Type A coatings not subjected to a partial discharge test		N/A
6.9	Additional tests		N/A
	This subclause is not applicable		N/A
K	ANNEX K (NORMATIVE) OVERVOLTAGE CATEGORIES		P
	The information on overvoltage categories is extracted from IEC 60664-1		P
	Overvoltage category is a numeral defining a transient overvoltage condition		P
	Equipment of overvoltage category IV is for use at the origin of the installation		N/A

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	Equipment of overvoltage category III is equipment in fixed installations and for cases where the reliability and the availability of the equipment is subject to special requirements		N/A
	Equipment of overvoltage category II is energy consuming equipment to be supplied from the fixed installation		P
	If such equipment is subjected to special requirements with regard to reliability and availability, overvoltage category III applies		N/A
	Equipment of overvoltage category I is equipment for connection to circuits in which measures are taken to limit transient overvoltages to an appropriate low level		N/A
L	ANNEX L (INFORMATIVE) GUIDANCE FOR THE MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES		P
	Sequences for the determination of clearances and creepage distances		P
M	ANNEX M (NORMATIVE) POLLUTION DEGREE		P
	The information on pollution degrees is extracted from IEC 60664-1		P
	Pollution		P
	The microenvironment determines the effect of pollution on the insulation, taking into account the microenvironment		P
	Means may be provided to reduce pollution at the insulation by effective enclosures or similar		P
	Minimum clearances specified where pollution may be present in the microenvironment		P
	Degrees of pollution in the microenvironment		P
	For evaluating creepage distances, the following degrees of pollution in the microenvironment are established:		P
	- pollution degree 1: no pollution or only dry, non-conductive pollution occurs. The pollution has no influence		N/A

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	- pollution degree 2: only non-conductive pollution occurs, except that occasionally a temporary conductivity caused by condensation is to be expected		P
	- pollution degree 3: conductive pollution occurs or dry non-conductive pollution occurs that becomes conductive due to condensation that is to be expected		N/A
	- pollution degree 4: the pollution generates persistent conductivity caused by conductive dust or by rain or snow		N/A
N	ANNEX N (NORMATIVE) PROOF TRACKING TEST		N/A
	The proof tracking test is carried out in accordance with IEC 60112 with the following modifications:		N/A
7	Test apparatus		N/A
7.3	Test solutions		N/A
	Test solution A is used		N/A
10	Determination of proof tracking index (PTI)		N/A
10.1	Procedure		N/A
	The proof voltage is 100V, 175V, 400V or 600V.....:		N/A
	The last paragraph of Clause 3 applies		N/A
	The test is carried out on five specimens		N/A
	In case of doubt, additional test with proof voltage reduced by 25V, the number of drops increased to 100		N/A
10.2	Report		N/A
	The report stating if the PTI value was based on a test using 100 drops with a test voltage of (PTI-25) V		N/A
O	ANNEX O (INFORMATIVE) SELECTION AND SEQUENCE OF THE TESTS OF CLAUSE 30		P
	Description of tests for determination of resistance to heat and fire		P
P	ANNEX P (INFORMATIVE) GUIDANCE FOR THE APPLICATION OF THIS STANDARD TO APPLIANCES USED IN WARM DAMP EQUABLE CLIMATES		N/A

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	Modifications applicable for class 0 and 01 appliances having a rated voltage exceeding 150V, intended to be used in countries having a warm damp equable climate and that are marked WDaE		N/A
	Modifications may also be applied to class 1 appliances having a rated voltage exceeding 150V, intended to be used in countries having a warm damp equable climate and that are marked WdaE, if liable to be connected to a supply mains that excludes the protective earthing conductor		N/A
5	General conditions for the tests		N/A
5.7	The ambient temperature for the tests of Clauses 11 and 13 is 40 $^{+3}/_{0}$		N/A
7	Marking and instructions		N/A
7.1	The appliance marked with the letters WDaE		N/A
7.12	The instructions state that the appliance is to be supplied through a RCD having a rated residual operating current not exceeding 30 mA		N/A
	The instructions state that the appliance is considered to be suitable for use in countries having a warm damp equable climate, but may also be used in other countries		N/A
11	Heating		N/A
11.8	The values of Table 3 are reduced by 15 K		N/A
13	Leakage current and electric strength at operating temperature		N/A
13.2	The leakage current for class I appliances not exceeding 0,5 mA		N/A
15	Moisture resistance		N/A
15.3	The value of t is 37 °C		N/A
16	Leakage current and electric strength		N/A
16.2	The leakage current for class I appliances not exceeding 0,5 mA		N/A
19	Abnormal operation		N/A
19.13	The leakage current test of 16.2 is applied in addition to the electric strength test of 16.3		N/A
Q	ANNEX Q (INFORMATIVE) SEQUENCE OF TESTS FOR THE EVALUATION OF ELECTRONIC CIRCUITS		P
	Description of tests for appliances incorporating electronic circuits		P
R	ANNEX R (NORMATIVE) SOFTWARE EVALUATION		N/A

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	Software evaluated in accordance with the following clauses of Annex H of IEC 60730-1, as modified		N/A
H.2	Definitions		N/A
	Only definitions H.2.16 to H.2.20 applicable		N/A
H.7	Information		N/A
	Only footnotes 12) to 18) of Table 7.2, as modified, applicable		N/A
H.11.12	Controls using software		N/A
	All the subclauses of H.11.12, as modified, except H.11.12.6 and H.11.12.6.1, applicable		N/A
H.11.12.7	Delete text		N/A
H.11.12.7.1	For appliances using software class C having a single channel with self-test and monitoring structure, the manufacturer provides the measures necessary to address the fault/errors in safety related segments and data		N/A
H.11.12.8	Software fault/error detection occurs before compliance with 19.13 of IEC 60335-1 is impaired		N/A
H.11.12.8.1	Replace text		N/A
H.11.12.13	Software and safety related hardware under its control initializes and terminates before compliance with 19.13 of IEC 60335-1 is impaired		N/A

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10.2	TABLE: Current deviation				p
Current deviation of/at:	I rated (A)	I measured (A)	dI	Required dI	Remark
100V/50Hz	7	6.47	-7.5%	+15%	PB-360P-12
120V/50Hz	7	5.21	-25.5%	+15%	
200V/50Hz	3	2.33	-22.3%	+15%	
240V/50Hz	3	1.95	-35%	+15%	
100V/60Hz	7	6.02	-14%	+15%	
120V/60Hz	7	5.17	-26.1%	+15%	
200V/60Hz	3	2.29	-23.6%	+15%	
240V/60Hz	3	1.91	-36.3%	+15%	
100V/50Hz	7	6.11	-12.7%	+15%	PB-360N-12
120V/50Hz	7	5.23	-25.2%	+15%	
200V/50Hz	4	3.31	-17.25%	+15%	
240V/50Hz	4	2.83	-29.25%	+15%	
100V/60Hz	7	6.10	-12.8%	+15%	
120V/60Hz	7	5.18	-26%	+15%	
200V/60Hz	4	3.20	-20%	+15%	
240V/60Hz	4	2.74	-31.5	+15%	
100V/50Hz	7	5.74	-18%	+15%	PB-360P-24
120V/50Hz	7	4.95	-29.2%	+15%	
200V/50Hz	3	2.24	-25.3%	+15%	
240V/50Hz	3	1.88	-37.3%	+15%	
100V/60Hz	7	5.73	-18.1%	+15%	
120V/60Hz	7	4.91	-29.8%	+15%	
200V/60Hz	3	2.20	-26.6%	+15%	
240V/60Hz	3	1.85	-38.3%	+15%	
100V/50Hz	7	5.83	-16.7%	+15%	PB-360N-24
120V/50Hz	7	4.98	-28.8%	+15%	
200V/50Hz	4	3.17	-20.75%	+15%	
240V/50Hz	4	2.72	-32%	+15%	
100V/60Hz	7	5.87	-16.1%	+15%	
120V/60Hz	7	4.92	-29.7%	+15%	
200V/60Hz	4	3.07	-23.25%	+15%	

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240V/60Hz	4	2.63	-34.25%	+15%	

10.102	TABLE: Output current deviation					P
Current deviation of/at:	U_o rated (V)	I_o rated (A)	I_o measured (A)	d I_o	Required d I_o	Remark
AC 240V/60Hz	14.4	20.85	19.75	-7.6	±10%	PB-300Y-12
AC 240V/60Hz	28.8	10.5	9.85	-6.2	±10%	PB-300Y-24
AC 240V/60Hz	14.4	24.3	22.77	-6.1	±10%	PB-360Y-12
AC 240V/60Hz	28.8	12.5	11.55	-5.2	±10%	PB-360Y-24

11.8	TABLE: Heating test, thermocouples for model PB-300P-12		P
	Test voltage (V) ..... :	A: 90 / B: 264	—
	Ambient (°C) .....:	A: 40 / B: 29	—

Thermocouple locations	dT (K) A / B	Max. dT (K) A / B
Appliance inlet	7/15	30/ 45
CN1 body	16/22	45 / 45
C30 body	15/22	45 / 60
C2 body	20/24	45 / 60
LF1 coil	23/24	80/95
LF2 coil	48/25	80/95
PCB near RTH1	24/24	90 / 105
L2 coil	9/23	80/ 95
C5 body	25/31	45/ 60
HS body of Q2	16/27	90/ 105
HS body of D102	31/36	90/ 105
T1 top side coil	33/37	85(class B)/ 70
T1 bottom side coil	35/38	85(class B)/ 70
T1 core	30/45	-
L101 coil	36/42	80/ 70
U3 body	22/38	--
C31 body	26/37	45/60

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Enclosure (inside) near T1*	14/22	--
Top of enclosure (outside) near T1*	9/18	--

Notes:

The battery charger is connected to a circuit as figure 101 for normal operation specified in part 2 replacement of Cl.3.1.9

With a specified ambient temperature of 40°C, the maximum temperature rise is calculated as follows:

- T1 → ΔTmax ≤ 95K – (40-25)°C = 80K
- CN1 of Min 85°C → ΔTmax ≤ 85°C - 40°C= 45K
- Appliance inlet Min. 70°C → ΔTmax ≤ 70°C - 40°C= 30K
- C2, C5, C30, C31 Capacitor of 85°C → ΔTmax ≤ 85°C - 40°C= 45K
-120°C for L101, LF1, LF2, L2 → ΔTmax ≤ 120°C - 40°C= 80K
- PCB with temperature of 130°C → ΔTmax ≤ 130°C - 40°C= 90K

* Enclosure is not accessible by user.

11.8	TABLE: Heating test, thermocouples for model PB-300P-24		P
	Test voltage (V) ..... :	A: 90 / B: 264	—
	Ambient (°C) ..... :	A: 40 / B: 24	—

Thermocouple locations	dT (K) A / B	Max. dT (K) A / B
Appliance inlet	14/16	30/ 45
CN1 body	42/24	45 / 45
C30 body	28/25	45 / 60
C2 body	37/27	45 / 60
LF1 coil	54/27	80/95
LF2 coil	20/28	80/95
PCB near RTH1	52/28	90 / 105
L2 coil	20/28	80/ 95
C5 body	20/34	45/ 60
HS body of Q2	26/29	90/ 105
HS body of D102	27/41	90/ 105
T1 top side coil	33/48	85(class B)/ 70

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T1 bottom side coil	38/49	85(class B)/ 70
T1 core	36/50	-
L101 coil	34/60	80/ 70
U3 body	21/39	--
C31 body	24/41	45/60
Enclosure (inside) near T1*	14/21	--
Top of enclosure (outside) near T1*	8/18	--

11.8	TABLE: Heating test, thermocouples for model PB-360P-12		P
	Test voltage (V) ..... :	A: 90 / B: 264	—
	Ambient (°C) ..... :	A: 26 / B: 23	—

Thermocouple locations	dT (K) A / B	Max. dT (K)
Appliance inlet	1/ 2	45
CN1 body	17/8	45
C30 body	10/7	60
C2 body	13/7	60
LF1 coil	49/10	95
LF2 coil	65/13	95
PCB near RTH1	75/36	105
L2 coil	4/17	95
C5 body	16/11	60
HS body of Q2	33/23	105
HS body of D102	24/22	105
T1 top side coil	31/20	70
T1 bottom side coil	39/34	70
T1 core	32/31	--
L101 coil	30/20	70
U3 body	28/22	--
C31 body	29/23	60
Enclosure (inside) near T1*	15/11	--
Top of enclosure (outside) near T1*	1/11	--

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11.8	TABLE: Heating test, thermocouples for model PB-360P-24		P
	Test voltage (V) ..... :	A: 90 / B: 264	—
	Ambient (°C) ..... :	A: 27 / B: 24	—

Thermocouple locations	dT (K) A / B	Max. dT (K) A / B
Appliance inlet	9/7	45
CN1 body	17/8	45
C30 body	23/16	60
C2 body	23/13	60
LF1 coil	75/30	95
LF2 coil	63/30	95
PCB near RTH1	23/12	105
L2 coil	--/11	95
C5 body	31/16	60
HS body of Q2	23/14	105
HS body of D102	11/9	105
T1 top side coil	37/32	70
T1 bottom side coil	44/40	70
T1 core	34/19	--
L101 coil	31/30	70
U3 body	45/18	--
C31 body	27/18	60
Enclosure (inside) near T1*	15/11	--
Top of enclosure (outside) near T1*	11/6	--

11.8	TABLE: Heating test, resistance method		N
	Test voltage (V) ..... :		—
	Ambient, t_1 (°C) ..... :		—
	Ambient, t_2 (°C) ..... :		—

Temperature rise of winding	R_1 (Ω)	R_2 (Ω)	dT (K)	Max. dT (K)	Insulation class

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13.2	TABLE: Leakage current		P
	Heating appliances: 1,15 x rated input.....:		—
	Motor-operated and combined appliances: 1.06 x rated voltage .....:	254	—

Leakage current between	I (mA)	Max. allowed I (mA)
Line and output	0.20	0.25
Neutral and output	0.17	0.25
Line and enclosure wrapped with metal foil*	3.25	3.5
Neutral and enclosure wrapped with metal foil*	1.65	3.5
* Fixed appliances.		

13.3	TABLE: Electric strength	P

Test voltage applied between: (all models)	Voltage (V)	Breakdown (Yes/No)
Primary and earth	AC 1000	No
Primary and output	AC 3000	No
Primary and enclosure	AC 3000	No

14	TABLE: Transient overvoltages	N

Clearance between:	Cl (mm)	Required Cl (mm)	Rated impulse voltage (V)	Impulse test voltage (V)	Flashover (Yes/No)

16.2	TABLE: Leakage current		P
	Single phase appliances: 1,06 x rated voltage .....:	254V	—
	Three phase appliances 1,06 x rated voltage divided by √3: .....:		—

Leakage current between	I (mA)	Max. allowed I (mA)
Live parts and output	0.2	0.25
Live parts and enclosure wrapped with metal foil*	3.2	3.5
* fixed appliance.		

16.3	TABLE: Electric strength	P

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Test voltage applied between: (all models)	Voltage (V)	Breakdown (Yes/No)
Primary and earth	AC 1250	No
Primary and output	AC 3000	No
Primary and enclosure wrapped with metal foil	AC 3000	No

17	TABLE: Overload protection, temperature rise		P
Temperature rise of part/at:		dT (K)	Max. dT (K)
T1 winding (for overload test, after D101) for PB-300Y-12		61 (ambient at 24°C)	175
T1 winding (for overload test, after D101) for PB-300Y-12		60 (ambient at 24°C)	175
T1 winding (for overload test, after D200) for PB-300Y-24		66 (ambient at 23°C)	175
T1 winding (for overload test, after D200) for PB-300Y-24		63 (ambient at 25°C)	175
T1 winding (secondary shorted test, pin 9-12)		--*1	--
T1 winding (secondary shorted test, pin 15-16)		--*1	--
Notes:			
*1 Unit shut down.			

19.7	TABLE: Abnormal operation, locked rotor/moving parts					N
	Test voltage (V) ..... :					—
	Ambient, t_1 (°C) ..... :					—
	Ambient, t_2 (°C) ..... :					—
Temperature of winding		R_1 (Ω)	R_2 (Ω)	dT (K)	T (°C)	Max. T (°C)

19.9	TABLE: Abnormal operation, running overload					N
	Test voltage (V) ..... :					—
	Ambient, t_1 (°C) ..... :					—
	Ambient, t_2 (°C) ..... :					—
Temperature of winding		R_1 (Ω)	R_2 (Ω)	dT (K)	T (°C)	Max. T (°C)

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19.13	TABLE: Abnormal operation, temperature rises		P
Thermocouple locations		dT (K)	Max. dT (K)
T1 winding (for Q3 B-E shorted test)		41 (ambient at 25°C)	175
T1 winding (for SCR A-G shorted test)		40 (ambient at 25°C)	175
T1 winding (for SCR, R-C shorted test)		41 (ambient at 25°C)	175
T1 winding (for Q1, G-D shorted test)		47 (ambient at 24°C)	175
T1 winding (for C301 shorted test)		47 (ambient at 25°C)	175
T1 winding (for R12 opened test)		45 (ambient at 23°C)	175
T1 winding (for C48 opened test)		44 (ambient at 27.0°C)	175

19.13	TABLE: Abnormal operation, winding temperature					P
	Test voltage (V) ..... :					—
	Ambient, t_1 (°C) .....:					—
	Ambient, t_2 (°C) .....:					—
Temperature of winding		R_1 (Ω)	R_2 (Ω)	dT (K)	T (°C)	Max. T (°C)
See table 19.13 above.						

24.1	TABLE: Components				P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity
1. Metal Chassis	--	--	Min. 1.0 mm thick	--	--
2. Appliance Inlet	Supercom	SC-8	10A, 250V, T70	IEC60320-1	VDE
	Inalways	0711	10A, 250V, T70	IEC60320-1	VDE
	Rong Feng	SS-120	10A, 250V, T70	IEC60320-1	VDE
4. Primary Connector (CN1)	Chyao Shiunn	JS-1120 series JS-4001 series	7A, 250V	EN 61984-1	TÜV
	Molex	41791 series	7A, 250V	EN 61984-1	TÜV
	Sheng Ming	4001W series 4002W series	7A, 250V	EN 61984-1	TÜV
	Taiwan King Pin	P-8800I series	5A, 250V	EN 61984-1	TÜV
5. Power Switch	Pronic	BR series	6A, 250V	IEC/ EN 61058-1	VDE

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	Pronic	R13 series	6A , 250V	IEC/ EN 61058-1	VDE
	Solteam	MR-21	6A , 250V		VDE
6. Voltage Select Switch	Zhang Jia Gang Hua Feng	HF-308	12/10A, 125/250V	IEC/EN 61058-1	VDE
7. DC Fan (for PB-360Y-Z only)	Sunonwealth	KDE1204PKV2	12Vdc, 0.07A, 7.7 CFM	IEC/EN 60950	TUV, UL
	Yen Sun	FD124020EB	12Vdc, 0.12A, 8.5CFM	IEC/EN 60950	TUV, UL
	Sunonwealth	KDE1204PKVX	12Vdc, 0.13A, 10.8 CFM	IEC/EN 60950	TUV, UL
8. Fuse (FS1)	Coquer	UBM	F10A, 250V	IEC/EN 60127-2	VDE
9. X Capacitors (C1, C2) (Optional)	Arcotronics	R.46	Max. 1.0 µF Min. 300V, 110°C	IEC/EN 60384-14/1993	VDE
	Arcotronics	R.49	Max. 1.0 µF Min. 310V, 110°C	IEC/EN 60384-14/1993	ENEC
	Iskra	KNB 1530	Max. 1.0 µF Min. 275V, 100°C	IEC/EN 60384-14/1993	ENEC
	Iskra	KNB 1560	Max. 1.0 µF Min. 275, 110°C	IEC/EN 60384-14/1993	ENEC
	Liow Gu	GS-L	Max. 1.0 µF Min. 275V, 100°C	IEC/EN 60384-14/1993	VDE
	Pilkor	PCX2 335M PCX2 337	Max. 1.0 µF Min. 275V, 100°C	IEC/EN 60384-14/1993	VDE
	Pilkor	PCX2 335	Max. 1.0 µF Min. 275V, 85°C	IEC/EN 60384-14/1993	VDE
	Epcos	B3292#	Max. 1.0 µF Min. 300V, 100°C	IEC/EN 60384-14/1993	VDE
	Ultra Tech	HQX	Max. 1.0 µF Min. 275V, 100°C	IEC/EN 60384-14/1993	VDE
	Vishay	339	Max. 1.0 µF Min. 275V, 105°C	IEC/EN 60384-14/1993	ENEC
	Cheng Tung	CTX	Max. 1.0 µF Min. 300V, 100°C	IEC/EN 60384-14/1993	VDE
	Shiny Space	SX1	Max. 1.0 µF Min. 300V, 100°C	IEC/EN 60384-14/1993	VDE
10. Bleeder Resistors (R1, R2, R3)	--	--	180K Ω, min.1/4W	--	--

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11. Thermsitor (RTH1) (optional)	--	--	Min. 3 A, max.15Ω	--	--
12.Y-Capacitors (C3, C4, C22, C23, C30) (Optional)	Murata	KH, KX	Max. 4700pF, Min. 250V, 125°C	IEC 60384-14/1993	VDE
	Pan Overseas	AC, AH	Max. 4700pF, Min. 250V, 125°C	IEC 60384-14/1993	VDE
	TDK	CD	Max. 4700pF, Min. 250V, 125°C	IEC 60384-14/1993	VDE
	TDK	CS	Max. 4700pF, Min. 250V, 85°C	IEC 60384-14/1993	VDE
	Welson	WD , KL	Max. 4700pF, Min. 250V, 125°C	IEC 60384-14/1993	VDE
13. Varistor (ZNR1, ZNR2) (Optional)	Centra Science	CNR-07D-14D241K.	150Vac, 200Vdc	--	UL
	Don's	7D-14D241K	150Vac, 200Vdc	--	UL
	Joyin	JVR-07N-14N241K	150Vac, 200Vdc	--	UL
	Nipoon Chemi-Con	7-14V241K 7-15G241K	150Vac, 200Vdc	--	UL
	Matsushita	7-14K241U	150Vac, 200Vdc	--	UL
	Song Long	SAS241KD07-14	150Vac, 200Vdc	--	UL
	Uppermost	V07K-V14K150	150Vac, 200Vdc	--	UL
14.Bridge Rectifier (BD1)	--	--	Min. 4A, min. 600V	--	--
15. Storage capacitors (C5, C6) (for PB-360Y-Z)	--	--	680μF, min. 200V, min. 85°C	--	--
(For PB-300Y-Z)	--	--	470μF, min. 200V, min. 85°C	--	--
16. Photo coupler (U2, U3)	Isocom	ISP621-1X ISP817X	dti=0.6mm Internal dcr=4.1mm Ext. dcr=9mm 100°C	DIN EN 60747-5-2:2003	VDE, FI, UL
	Lite-on	LTV817	dti=0.4mm Internal dcr=4.0mm Ext. dcr=8.0mm 100°C	DIN EN 60747-5-2:2003	VDE, FI, UL

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Cl.	Requirement - Test	Result	Verdict

	NEC	PS256..-.	dti.=0.4mm Internal dcr=4mm Ext. dcr=7mm 100°C	DIN EN 60747-5-2:2003	VDE, FI, UL
	Sharp	PC123	dti=0.7mm Internal dcr=5mm Ext. dcr=8mm 100°C	DIN EN 60747-5-2:2003	VDE, FI, UL
	Cosmo	K1010	dti=0.5mm Internal dcr=5.3mm Ext. dcr=8mm 115°C	DIN EN 60747-5-2:2003	VDE, FI, UL
17. Bridging Capacitors (C31 , C32) (Y1 type)	Murata	KX	Max. 3300pF, Min. 250V, 125°C	IEC 60384-14/1993	VDE
	Pan Overseas	AH	Max. 3300pF, Min. 250V, 125°C	IEC 60384-14/1993	VDE
	TDK	CD	Max. 3300pF, Min. 250V, 125°C	IEC 60384-14/1993	VDE
	Welson	WD	Max. 3300pF, Min. 250V, 125°C	IEC 60384-14/1993	VDE
18. Line Filter (LF1) (Optional)	Mean Well	LF-702	120°C, 4mH.	--	--
19. Line Filter (LF2) (Optional)	Mean Well	LF-751	120°C , 5.5mH	--	--
-Bobbin of LF1 & LF2	Chang Chun Plastic	PBT-4115	94V-0, 120°C, CTI>175.	UL 94	UL (E59481)
-Base of LF1& LF2	Chang Chun Plastic	T373J	94V-1, 150°C, CTI>175.	UL 94	UL (E59481)
20. PFC Chock (L2) (Optional) (For PB-360P-Z, PB300P-Z only)	Mean Well	TF-1338	130°C, N1: 0.8ϕx166Ts; N2: 0.8ϕx166Ts; N1+N2=9mH-19mH.	--	--
-Bobbin of L2	Shinkong Synthetic	D202G30	94V-0, 140°C, CTI>175.	UL 94	UL (E107536)
-Bobbin of L2	Nan Ya Plastic	1403G6	94V-0, 130°C, CTI>175.	UL 94	UL (E130155)
21. Transformer (T1) For O/P 12V	Long Sail	TF-1343	Class B, N1:0.35ϕX32t; N2: 0.1ϕx90x22t; N3, N4, N5:	IEC 60335-1; IEC 60335-2-29	Tested within this appliance.
	Yao Sheng	TF-1343			

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Cl.	Requirement - Test	Result	Verdict

	JET Signal	TF-1343	0.6ϕx4x6t; N6, N7:0.25ϕx2; N8: 0.1ϕx90x10t.		
For O/P 24V	Long Sail	TF-1344	Class B, N1:0.35ϕX32t; N2: 0.1x90ϕx22t; N3, N4: 0.32ϕx12t; N5:0.25ϕx2t; N6: 0.25ϕx2t; N7: 0.1ϕx10t.	IEC 60335-1; IEC 60335-2-29	Tested within this appliance.
	JET Signal	TF-1344			
-Bobbin of T1	Sumitomo Bakelite	PM-9820	Phenolic, 94V-0, 150°C, CTI>175.	UL 94	UL (E41429)
- Insulation Tape	3M Company	1350-1, 1350T	130°C, CTI >400	--	UL, E17385
	Bondtec	370S	130°C, CTI ≥ 600	--	UL, E175868
- Margin Tape	3M Company	44, 44-A	130°C, CTI ≥ 600	--	UL, E17385
	Bondtec	201-45	130°C, CTI ≥ 600	--	UL, E175868
Power Transistors (Q1, Q2)	--	--	Min. 5A, min.500V	--	--
Fuse (FS100)	Green	ATQ	30A/32V	--	--
	Purple	ATQ	35A/32V		
[1)] An asterisk indicates a mark which assures the agreed level of surveillance					

28.1	TABLE: Threaded part torque test		P
Threaded part identification	Diameter of thread (mm)	Column number (I, II, or III)	Applied torque (Nm)
Enclosure screw	2.9	II	0.5
Earth screw	2.9	II	0.5

29.1	TABLE: Clearances					P
	Overvoltage category....:	II				—
		Type of insulation:				
Rated impulse voltage (V):	Min. cl (mm)	Basic	Functional	Supplementary	Reinforced	Verdict / Remark
330	0,5					N
500	0,5					N
800	0,5					N

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Cl.	Requirement - Test	Result	Verdict

1500	1,0					N
2500	2,0	X	X	--		Functional: Between line and neutral: 3.5mm. Basic insulation: 1. Trace between C22 to earth =5.04mm, 2. L/N to C30 =5.0mm. 3. BD to enclosure= 2.5mm
4000	3,5				X	1. Between U2/U3= 7.5mm, 2. Between R101 and pri= 13.6mm, 3. Trace under T1: 16.4mm.
6000	6,0					N
8000	8,5					N
10000	11,5					N

29.2	TABLE: Creepage distances, basic, supplementary and reinforced insulation										P
Working voltage (V)	Creepage distance (mm) Pollution degree							—			
	1	2			3			Type of insulation			—
		Material group			Material group			—			—
		I	II	IIIa/IIIb	I	II	IIIa/IIIb	B*)	S*)	R*)	Verdict
≤50	0,2	0,6	0,9	1,2	1,5	1,7	1,9		—	—	N/A
≤50	0,2	0,6	0,9	1,2	1,5	1,7	1,9	—		—	N/A
≤50	0,4	1,2	1,8	2,4	3,0	3,4	3,8	—	—		N/A
>50 and ≤125	0,3	0,8	1,1	1,5	1,9	2,1	2,4		—	—	N/A
>50 and ≤125	0,3	0,8	1,1	1,5	1,9	2,1	2,4	—		—	N/A
>50 and ≤125	0,6	1,6	2,2	3,0	3,8	4,2	4,8	—	—		N/A
>125 and ≤250	0,6	1,3	1,8	***2,5***	3,2	3,6	4,0		—	—	See table 29.1
>125 and ≤250	0,6	1,3	1,8	2,5	3,2	3,6	4,0	—		—	N/A

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Cl.	Requirement - Test	Result	Verdict

>125 and ≤250	1,2	2,6	3,6	**5,0**	6,4	7,2	8,0	—	—	X	See table 29.1
>250 and ≤400	1,0	2,0	2,8	4,0	5,0	5,6	6,3		—	—	N/A
>250 and ≤400	1,0	2,0	2,8	4,0	5,0	5,6	6,3	—		—	N/A
>250 and ≤400	2,0	4,0	5,6	8,0	10,0	11,2	12,6	—	—		N/A
>400 and ≤500	1,3	2,5	3,6	5,0	6,3	7,1	8,0		—	—	N/A
>400 and ≤500	1,3	2,5	3,6	5,0	6,3	7,1	8,0	—		—	N/A
>400 and ≤500	2,6	5,0	7,2	10,0	12,6	14,2	16,0	—	—		N/A
>500 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0		—	—	N/A
>500 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	—		—	N/A
>500 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
>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

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Cl.	Requirement - Test	Result	Verdict

>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
*), B=Basic, S=Supplementary and R=Reinforced											

29.2	TABLE: Creepage distances, functional insulation							P
Working voltage (V)	Creepage distance (mm) Pollution degree							—
	1	2			3			—
		Material group			Material group			—
		I	II	IIIa/IIIb	I	II	IIIa/IIIb	Verdict / Remark
≤50	0,2	0,6	0,8	1,1	1,4	1,6	1,8	N
>50 and ≤125	0,3	0,7	1,0	1,4	1,8	2,0	2,2	N
>125 and ≤250	0,4	1,0	1,4	**2,0**	2,5	2,8	3,2	3.5mm (Line to Neutral)
>250 and ≤400	0,8	1,6	2,2	3,2	4,0	4,5	5,0	N
>400 and ≤500	1,0	2,0	2,8	4,0	5,0	5,6	6,3	N
>500 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	N
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	N

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Cl.	Requirement - Test	Result	Verdict

>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	N
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0	N
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	N
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	N
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	N
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	N
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	N
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	N
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	N
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	N
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	N

30.1	TABLE: Ball pressure			P
Part	Test temperature (°C)	Impression diameter (mm)	Allowed impression diameter (mm)	
Bobbin (type PBT-4115)	125	0.6	2.0	
Base (type T373J)	125	0.8	2.0	
Bobbin (type D202G30)	125	1.3	2.0	
Bobbin (type 1403G6)	125	1.4	2.0	

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Cl.	Requirement - Test	Result	Verdict

30.2	TABLE: Resistance to ignition and spread of fire												P
Parts description	Type / manufacturer	cl.30.2.1 GWT (IEC 60695-2-11) 550°C		cl.30.2.3.1 GWFI >0,2A: 850°C ≤0,2A: no test (IEC60695-2-12)		cl.30.2.3.2 GWT >0,2A: 750°C ≤0,2A: 650°C (IEC 60695-2-11) Flame: ≤ 2sec Pass > 2sec :* (Cl 30.2.4)			alt. cl.30.2.3.2 GWIT >0,2A: 775°C ≤0,2A: 675°C (IEC 60695-2-13) Flame: ≤ 5sec Pass			30.2.4 Annex E needle flame test	—
		test at (°C)	Result	test at (°C)	Result	test at (°C)	time (s)	Result	test at (°C)	time (s)	Result	Result	Result
Transformer bobbin	BPT-4115/ Change Chun					750	0	Pass					
Transformer bobbin	T355J, T375J / Chang Chun					750	0	Pass					
Transformer bobbin	D202G30 / Shinkong Synthetic					750	0	Pass					
Transformer bobbin	D1403G6 / Nan Ya					750	0	Pass					
PCB	02V0-1 / Chian You											Pass	

National Deviation			
Cl.	Requirement - Test	Result	Verdict

APPENDIX	IEC Publication 60335-1 4rd edition, 2001+Amd.1,2004 Test Report CENELEC common modification, Special National condition, Nation deviation and other information		P
	EXPLANATION FOR ABBREVIATIONS **S =** Special National Condition **A =** National Deviation (A-deviation) **C =** ENELEC Common Modification (Group differences) **F =** their information AT = Austria, AU = Australia, BE = Belgium, CH = Switzerland, CN = China, CZ = Czech Republic, DE = Germany, DK = Denmark, FI = Finland, FR = France, GB = United Kingdom, GR = Greece, HU = Hungary, IL = Israel, IT = Italy, JP = Japan, KR = Rep. of Korea, MX = Mexico, MY = Malaysia, NL = The Netherlands, NO = Norway, NZ = New Zealand, PL = Poland, RU = Russia, SE = Sweden, SG = Singapore, SI = Slovenia, TR = Turkey, UA= Ukraine. P=Pass, F=Fail, N=Not applicable. place in the column to the right.		—
Introduction	Add: The principal objectives of the Low Voltage Directive, 73/23/EEC, are covered by this standard. The essential safety requirements of the following directives, which could be applicable to household and similar appliances, have been taken into account: - 89/392/EEC - Machinery directive; - 89/106/EEC – Construction products directive; - 97/23/EEC – Pressure equipment directive.		P
6.1 C	Delete lass 0, Class 01,"		P
7.1 A	**(IT**). The voltage is 220V/380V	AC 100-120V or AC 200-240V.	P
7.1 C	Add to the requirement: The marking of the rated voltage or rated voltage range shall cover; - 230 V for single-phase appliances - 400 V for multi-phase appliances.		P
19.5 S	**(NO).** The test is also applicable to appliances intended to be permanently connected to fixed wiring		P
22.2 S	(NO). The second paragraph of this subclause dealing with single-phase Class I appliances with heating elements is not applicable due to the supply system	No heating elements.	N/A
24.5	Deleted the second paragraph of the requirement, Annex G (safety insulating transformers)		P

National Deviation			
Cl.	Requirement - Test	Result	Verdict
25.6	(DK). Supply cords of single-phase portable appliances having a rated current not exceeding 10A provided with a plug according to the following:	Should be revaluated when submitted to national approval.	N/A
	Class I appliances: Section 107-2-DI Standard Sheet DK2-1a		N/A
	For appliances covered by a Part 2 of EN 60 335, also plugs in accordance with IEC 83, Standard Sheet C2b, C3b or C4 are allowed		N/A
	Class II appliances: IEC 83, Standard Sheet C5 or C6		N/A
	Stationary single-phase appliances, having a rated current not exceeding 10A, and provided with a plug, the plug is in accordance with the requirements above		N/A
	Multi-phase appliances and single-phase appliances having a rated current exceeding 10A, and provided with a plug, the plug is in accordance with the requirements below:		N/A
	Class I appliances: Section 107-2-D1, Standard Sheet DK6-1a/EN 60 309-2, Standard Sheet 2-II, 2-IV		N/A
	Class II appliances: Section 107-2-D1, Standard Sheet DK6-1a/2-II, 2-IV		N/A
	(CH). Supply cords of portable household and similar electrical appliances, rated current not exceeding 10A, provided with a plug complying with SEV 1011 or IEC 884-1 and one of the following dimension sheets:	Should be revaluated when submitted to national approval.	N/A
	SEV 6532-2:1991 plug type 15 3P+N+PE 250/400V, 10A		N/A
	SEV 6532-2:1991 plug type 11 L+N 250V, 10A		N/A
	SEV 6532-2:1991 plug type 12 L+N+PE 250V, 10A		N/A
	(GB). plug according to Standard Sheet B2 or C5 used (refer to Annex B)	No plug provided.	N/A
25.6 A	(GB). Regulations concerning plugs to be fitted to domestic appliances	No plug provided.	N/A
25.6 C	Add: Supply cord of single-phase portable appliances having a rated current not exceeding 16 A shall be provided with a plug complying with the following standard sheets of IEC 83: - for class I appliances standard sheet C2b, C3b or C4	No plug provided.	N/A

National Deviation			
Cl.	Requirement - Test	Result	Verdict
	- for class II appliances standard sheet C5 or C6. NOTE Z1 - Refer to annex ZA.		
25.7 C	Add after the second dashed item: - ordinary polychloroprene sheathed flexible cord (code designation 245 IEC 57); Add to the notes: Z1 The harmonized code designations corresponding to the IEC types are given in annex ZF.		N/A
25.8 S	**(GB).** Replacement of figures (rated current/cross-sectional area) in the table		N/A
29.1 C	Add after note 6: Z1 The values specified in the table do not apply to creepage distances and clearances over reinforced insulation of appliance outlets, provided that the distance is at least 5,7 mm. Add: NOTE Z2 - refer to the footnote		N/A
Annex ZB	National deviation due to regularatuinm, the alteration of which is for the time being outside the competence of the CEN/CENELEC member.		P
Annex ZC	National reference to the deviation due to regularatuinm, the alteration of which is for the time being outside the ompetence of the CEN/CENELEC member.		P

National Deviation			
Cl.	Requirement - Test	Result	Verdict

APPENDIX	National Differences according to CB Bulletin No. 109B, December 2005 REPORT (IEC Publication 60335-2-29, 4rd edition 2002+A1)		**P**
EXPLANATION FOR ABBREVIATIONS **S** = Special National Condition**A** = National Deviation (A-deviation) **C** = CENELEC Common Modification (Group differences) **F** = other information P=Pass, F=Fail, N=Not applicable. Placed in the column to the right.			
7.1(AU)	Insert after seventh dash item of the first paragraph, the following variation: -the type of battery that are intended to be charged in the battery charger.	In manual.	P
7.14 (AU)	Insert the following variation: Addition: The marking concerning the types of battery that are intended to charged in the battery charger shall be visible when the battery charger is being used. As in normal use. The lettering shall have a height of not less than 3mm.		P
25.7 (FI)	Polyvinyl chloride sheatted cords are not allowed for battery charger automobile batteries in outdoor use or in locations where the temperature is equal to the outdoor temperature.	No cord used.	N/A

PB-360Y-24, PB-360Y-12

Picture 1

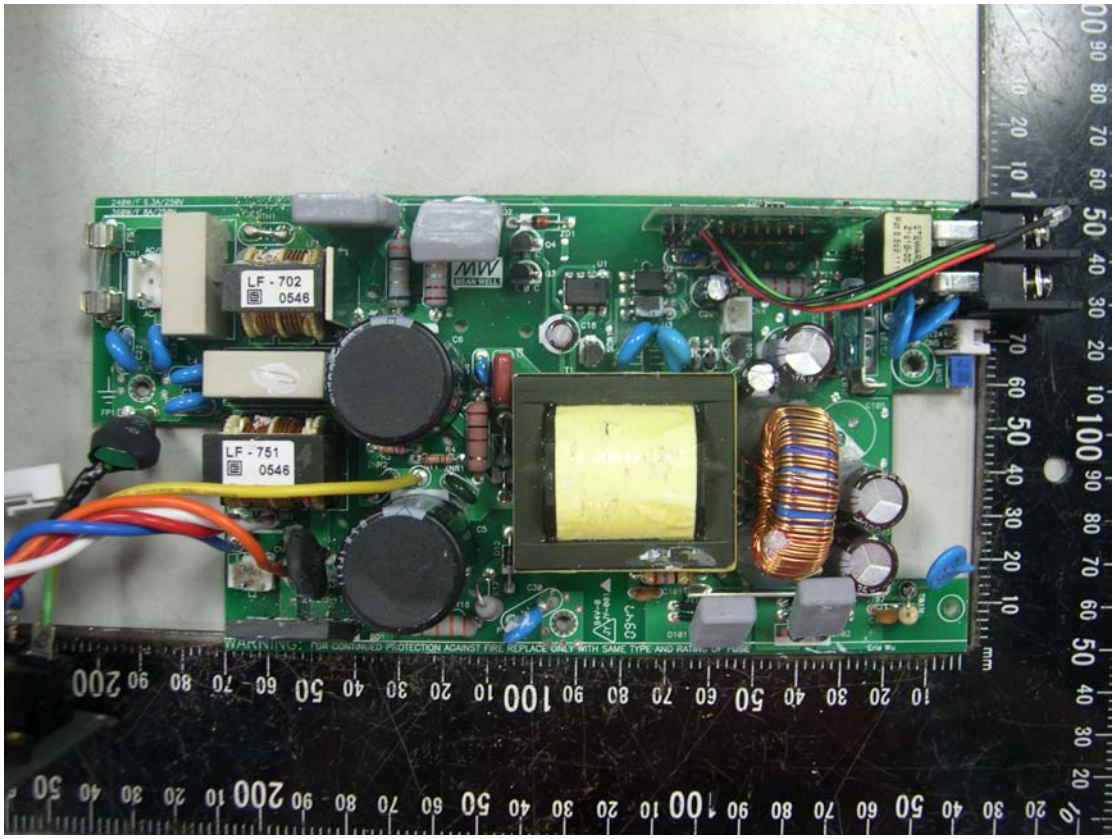
PB-300Y-24, PB-300Y-12

Picture 2

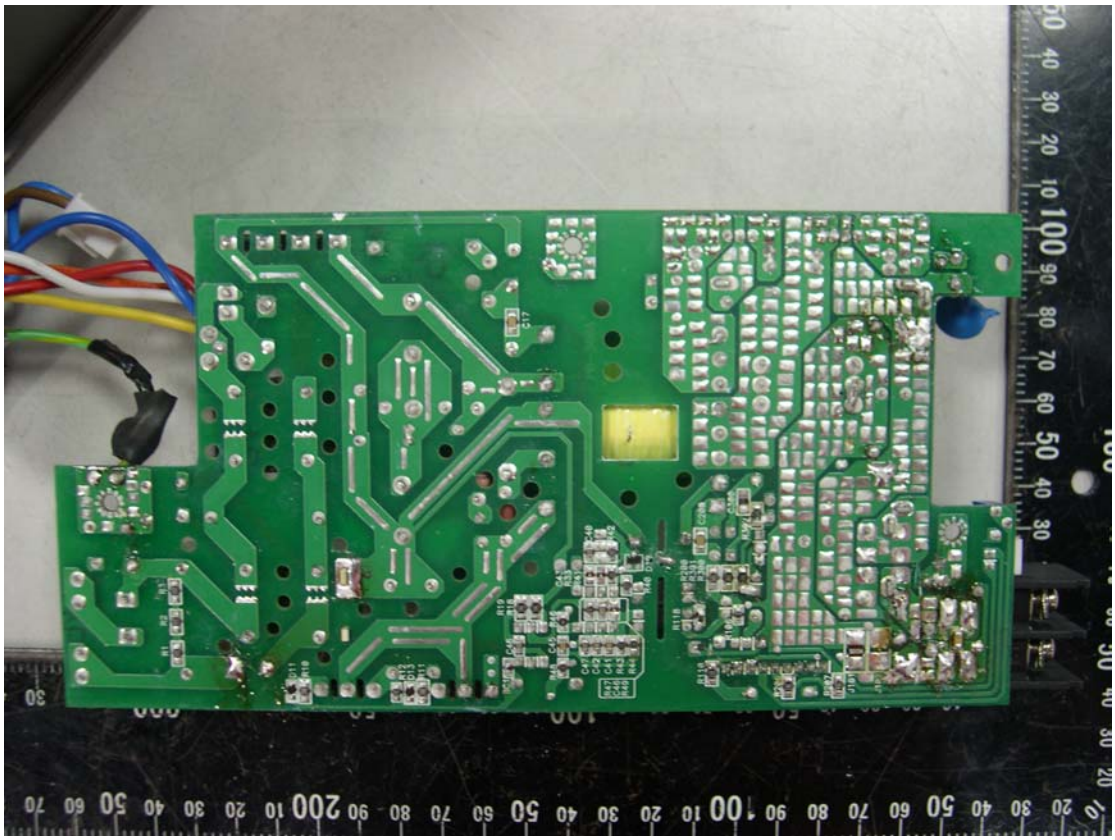
Picture 3

Picture 4

Picture 5



Picture 6



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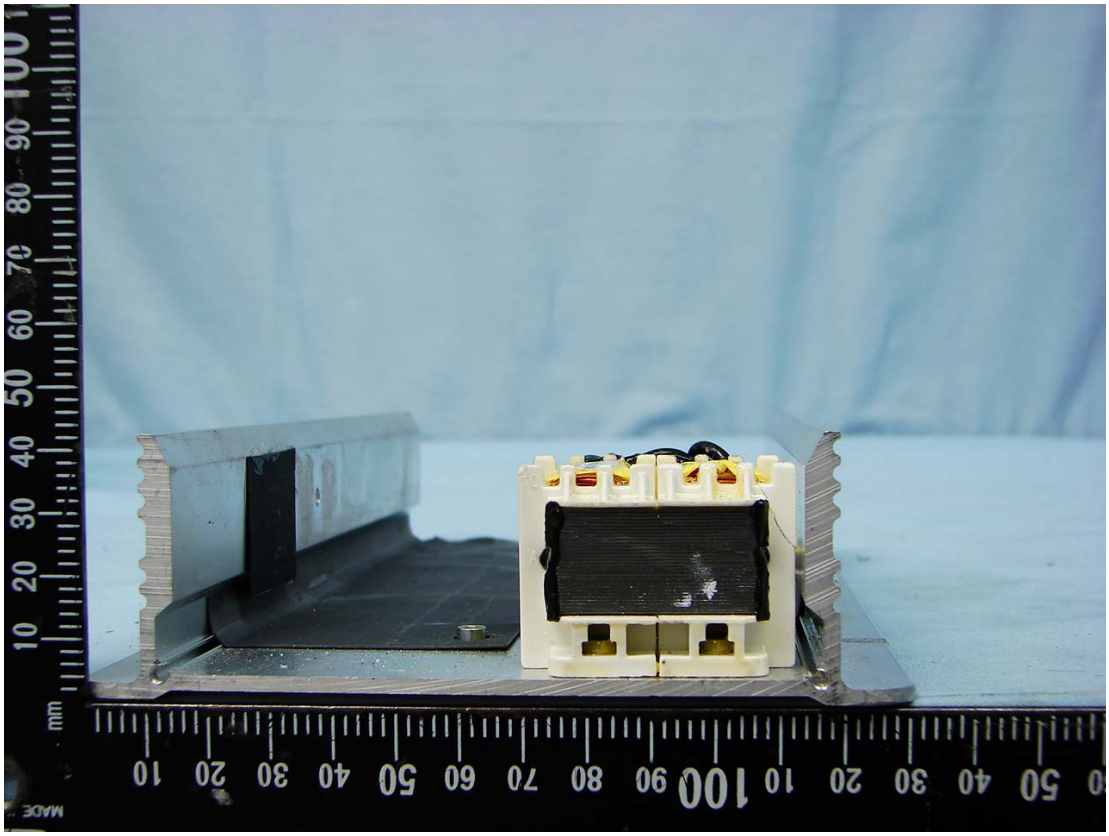
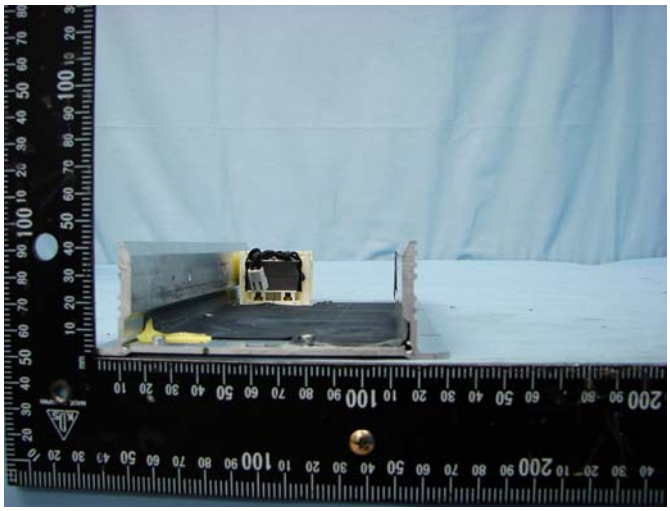


Picture 8

Picture 9



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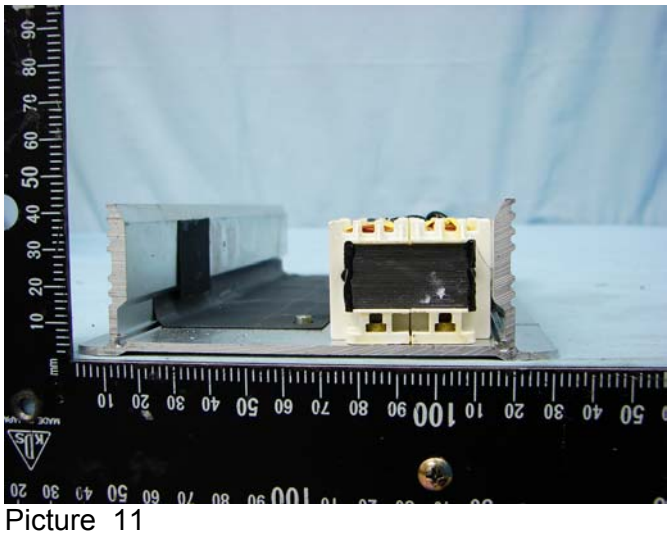

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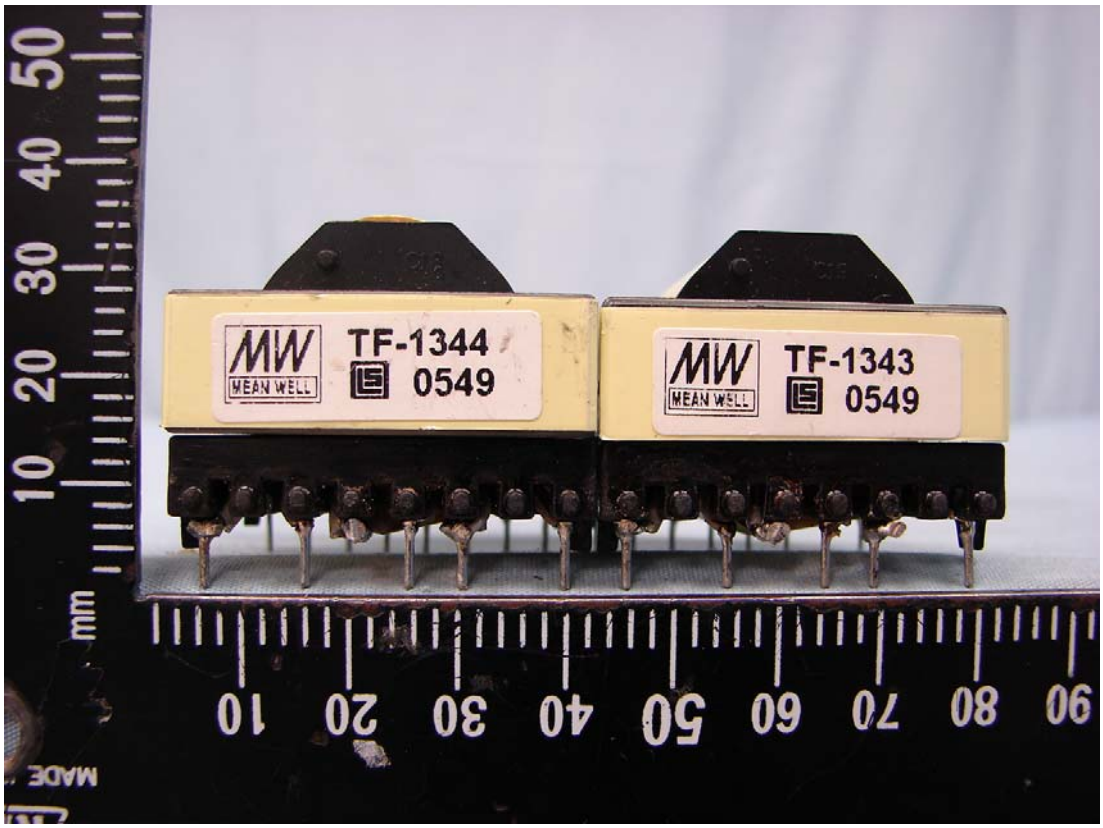

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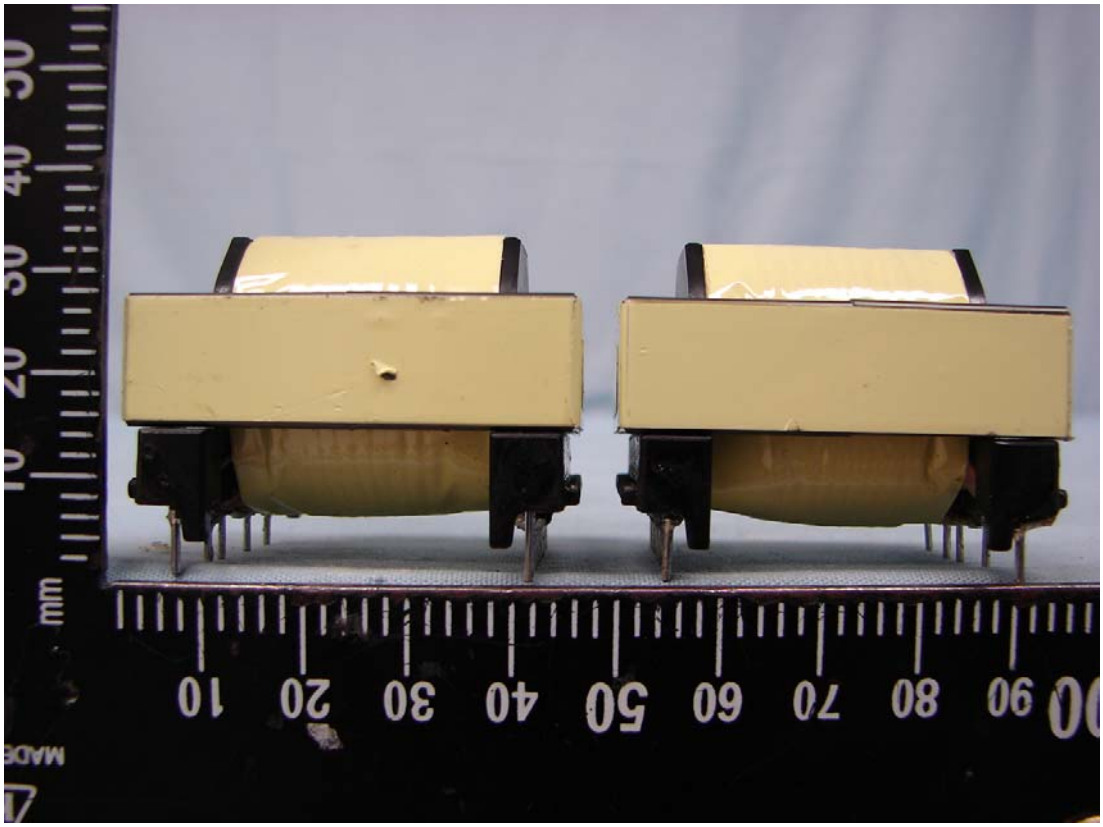

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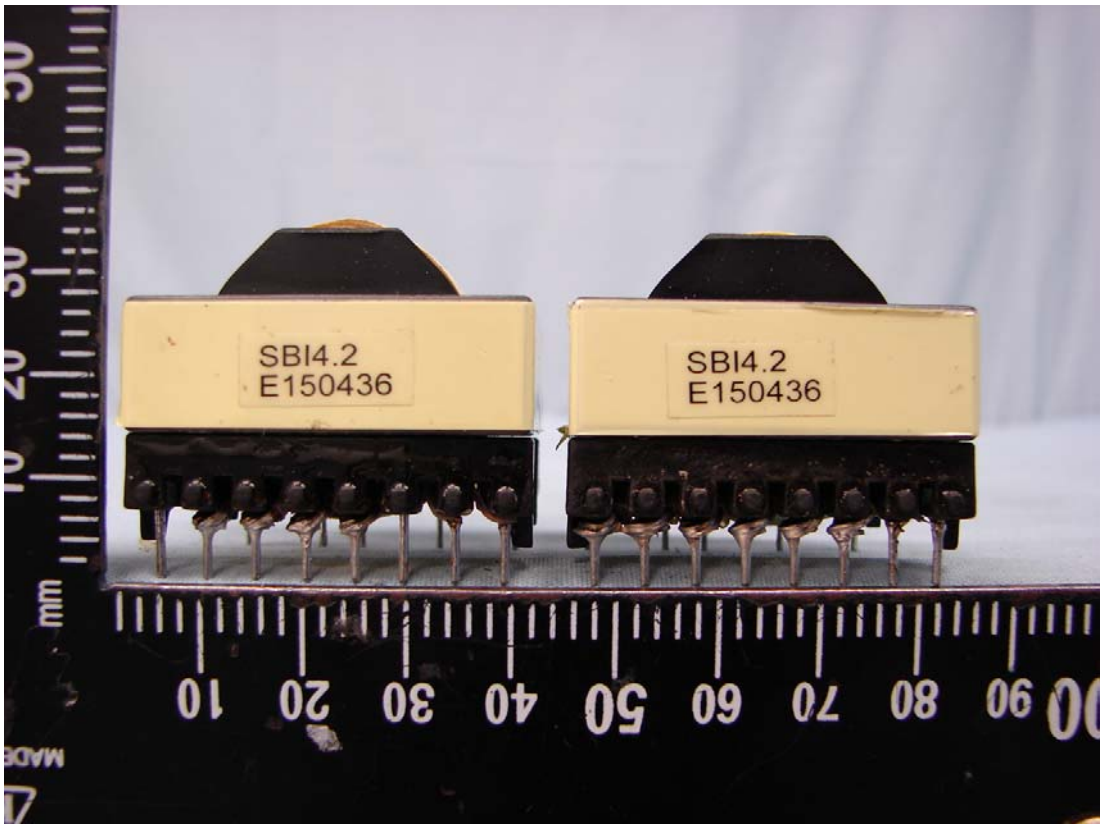

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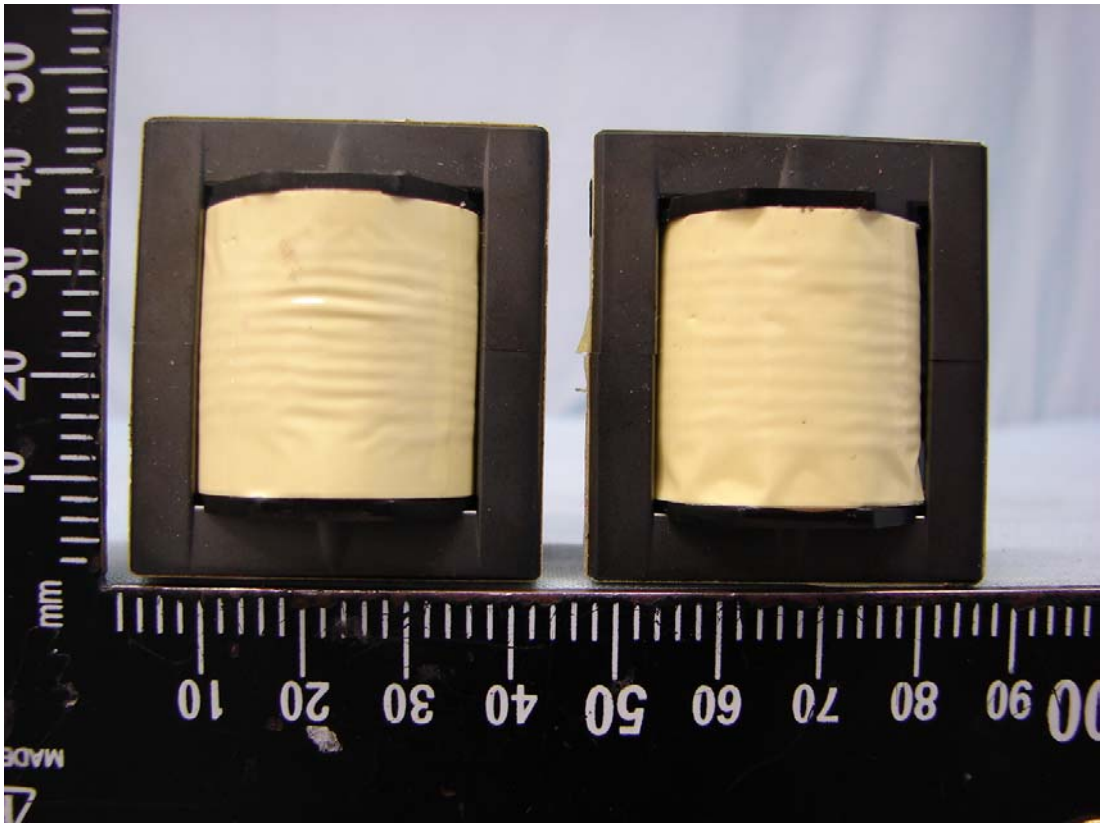

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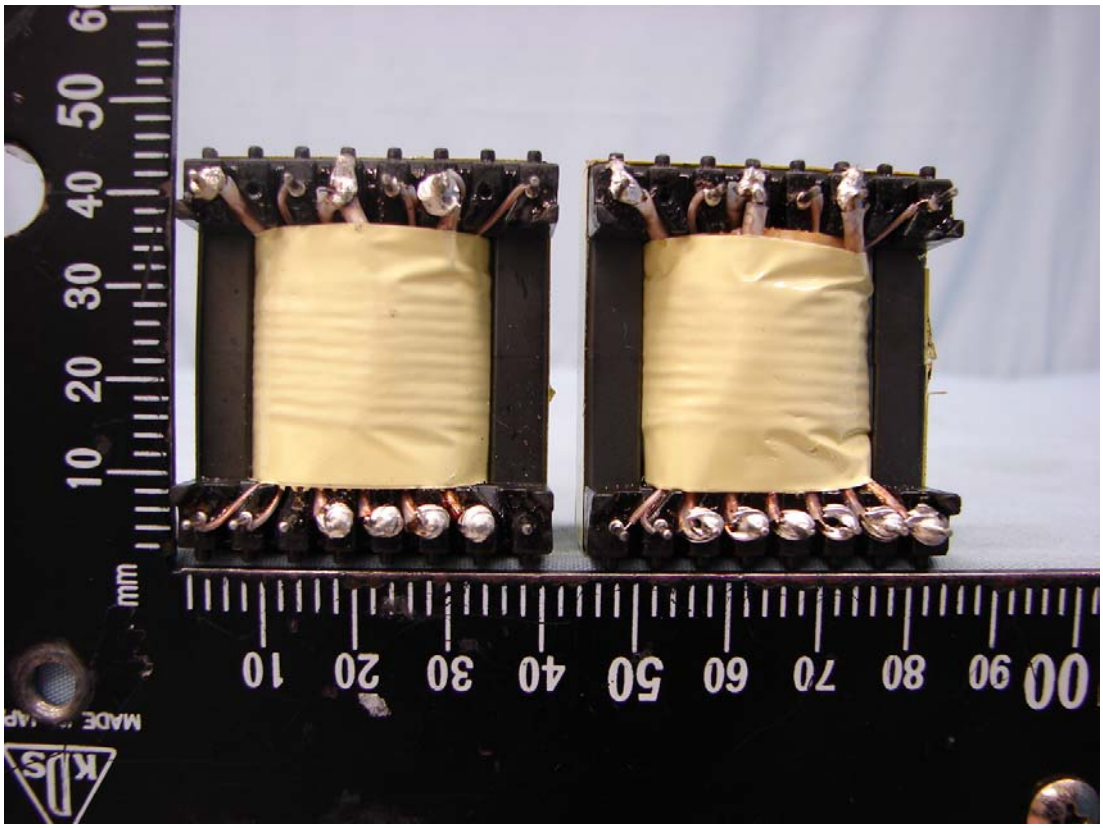

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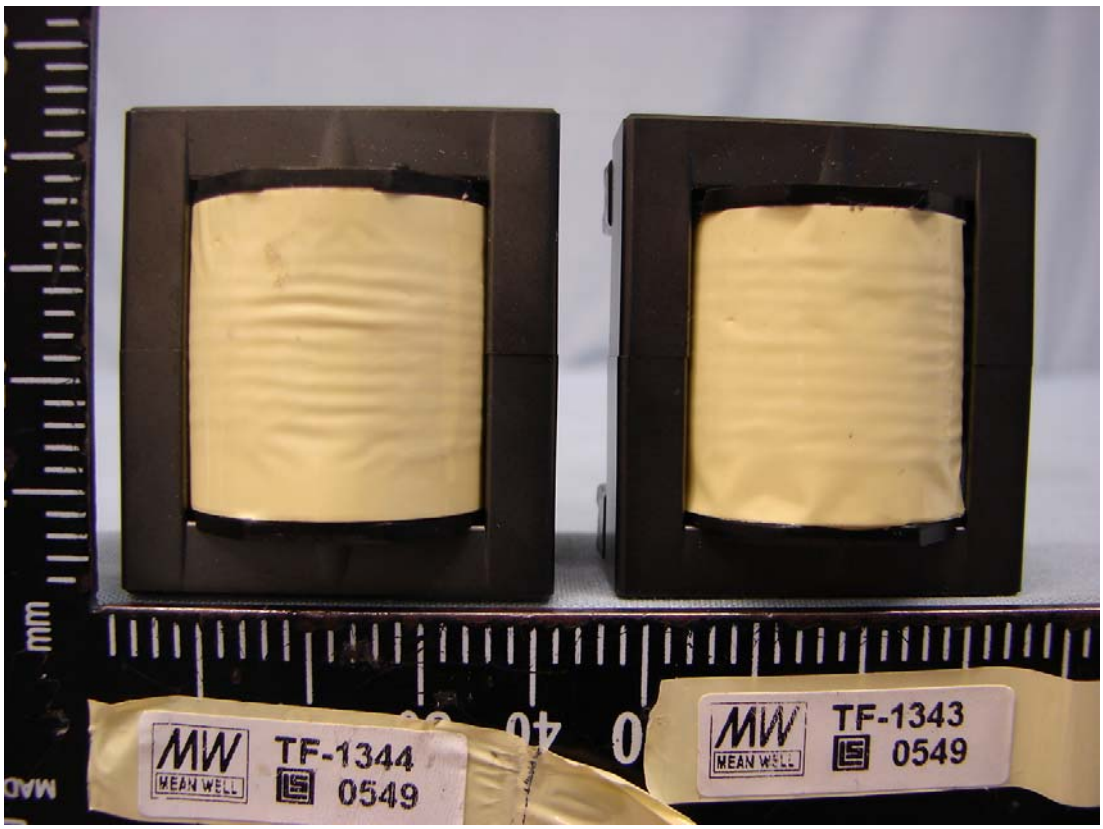

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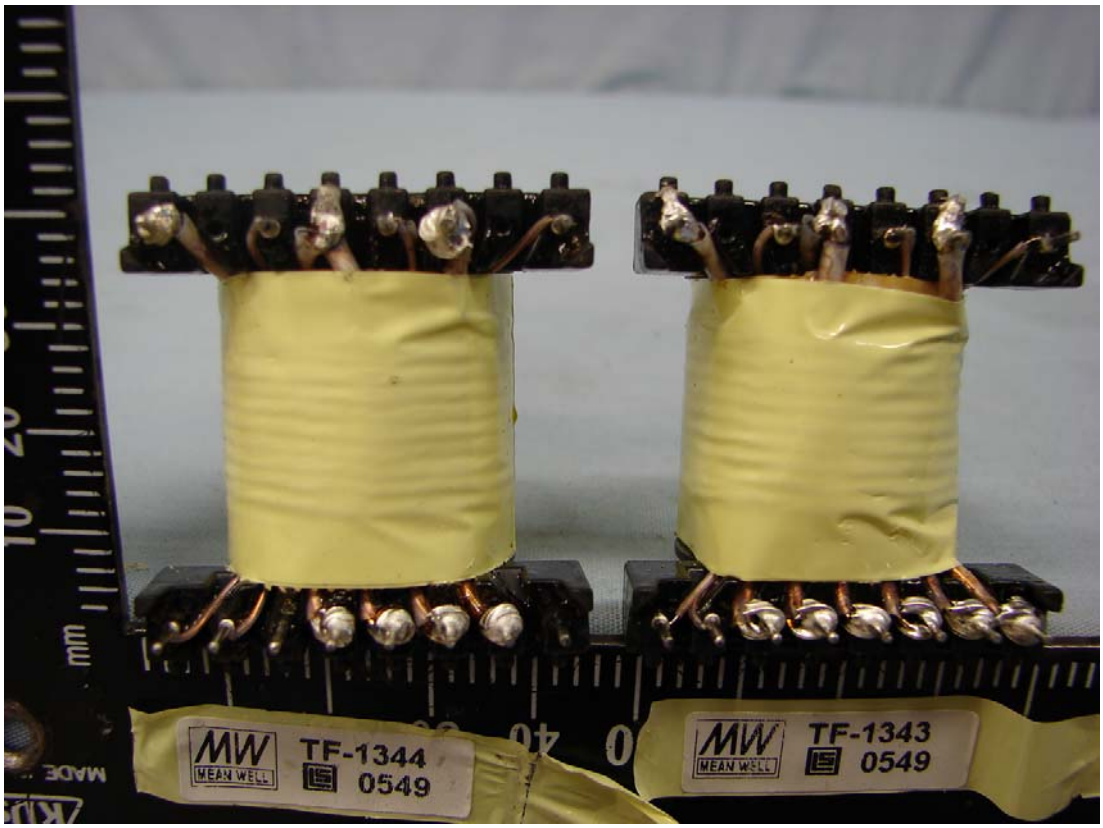

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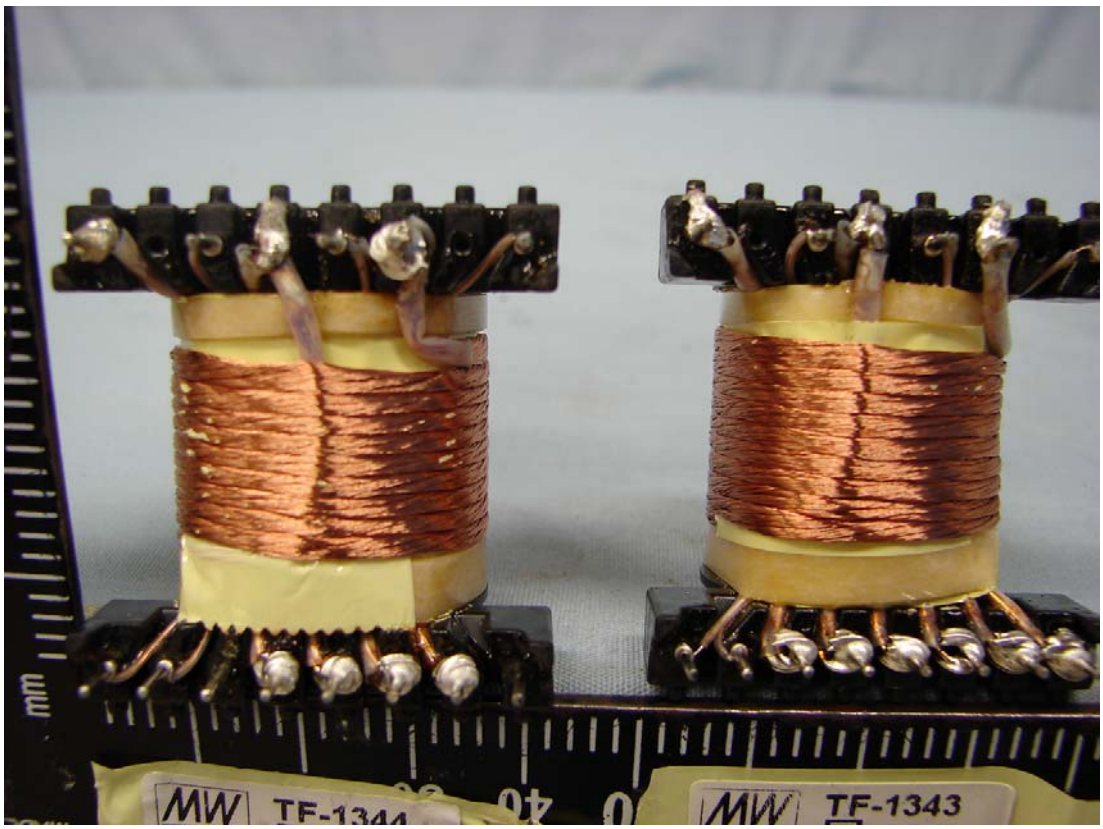

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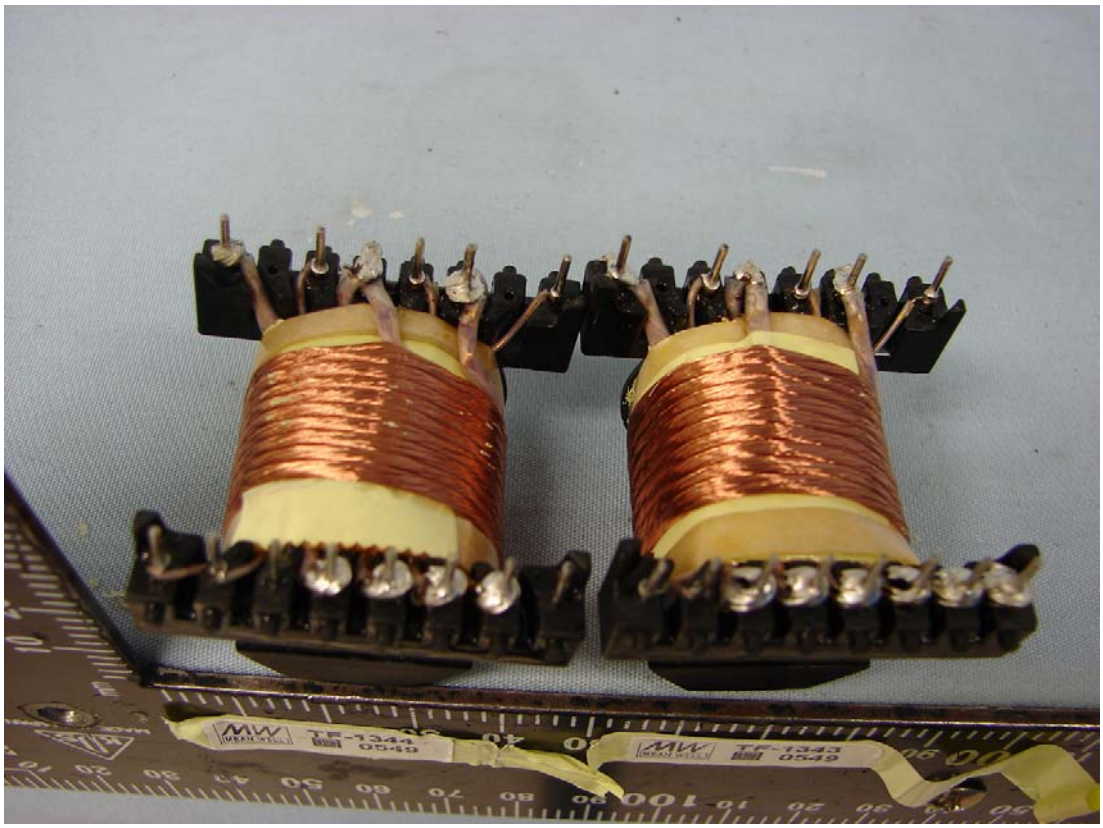

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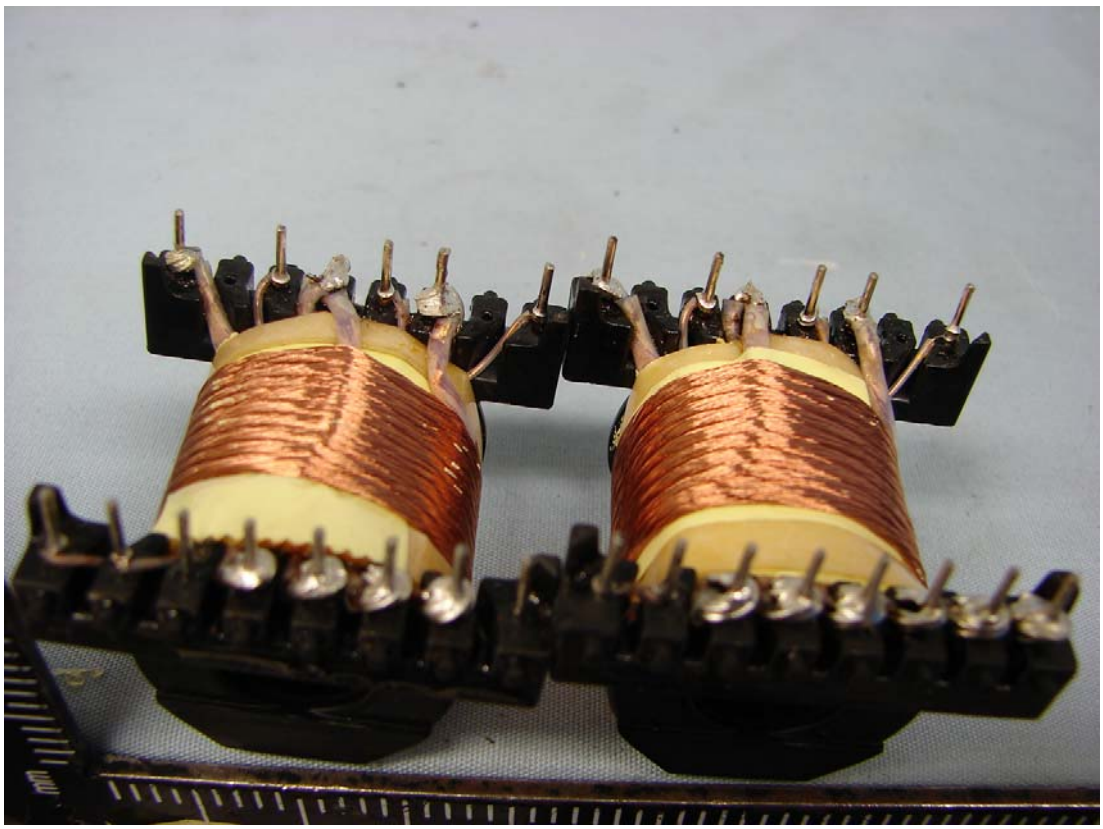

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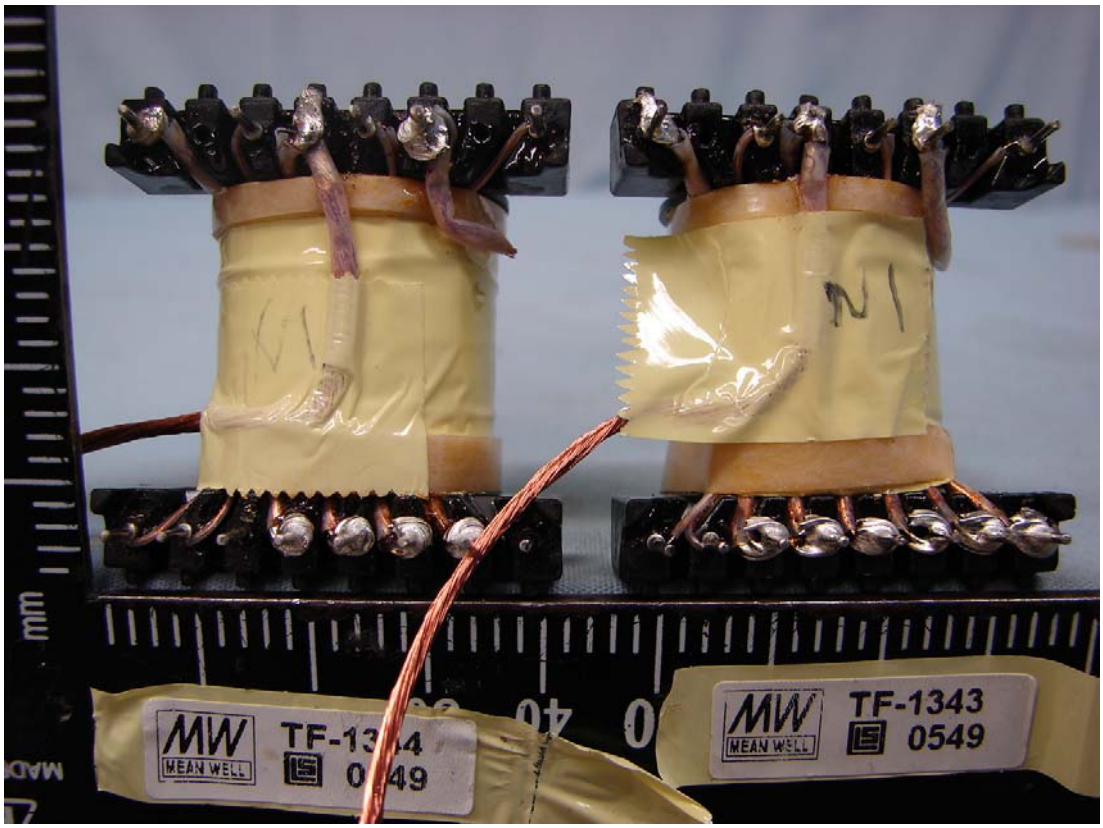
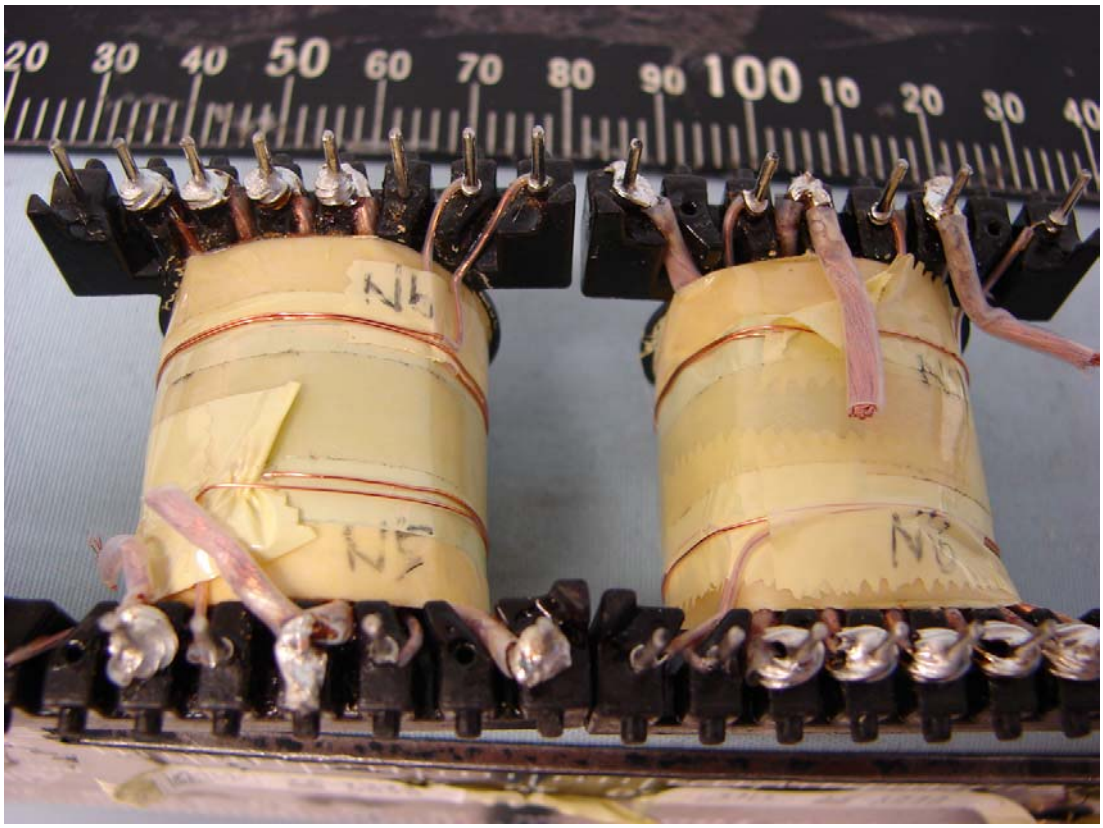


Picture 22

Picture 23



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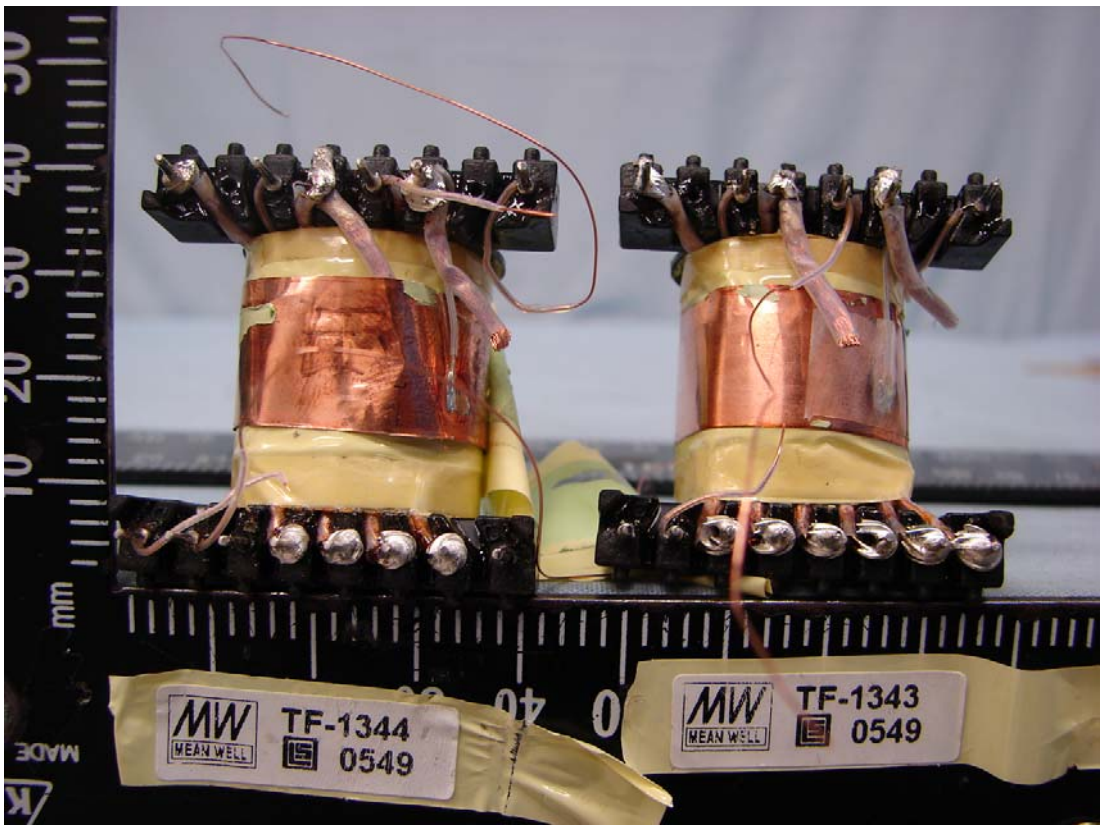

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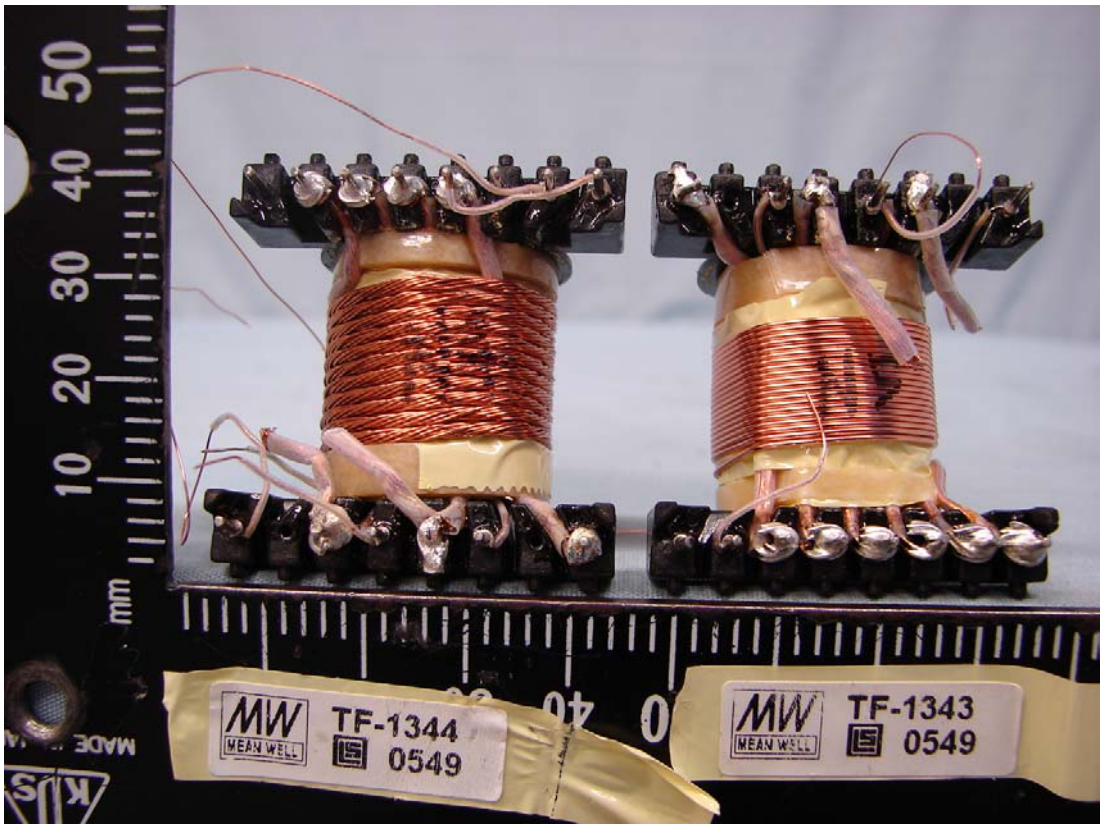

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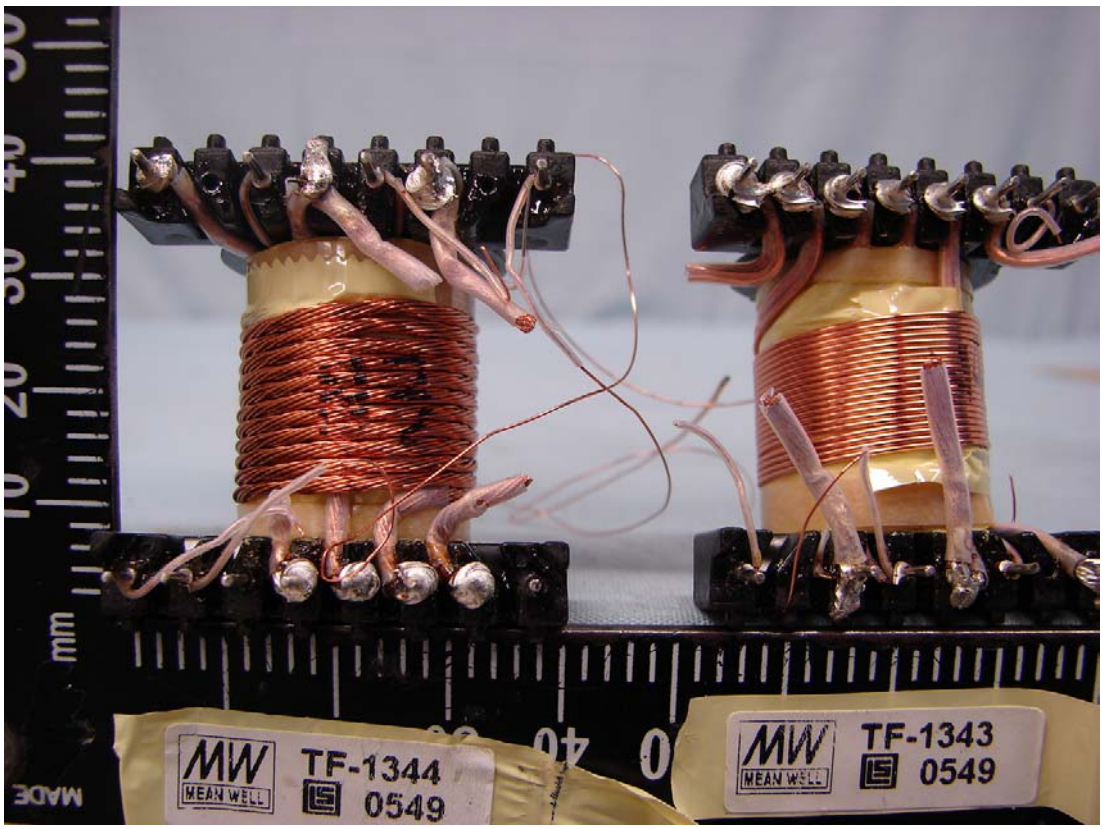

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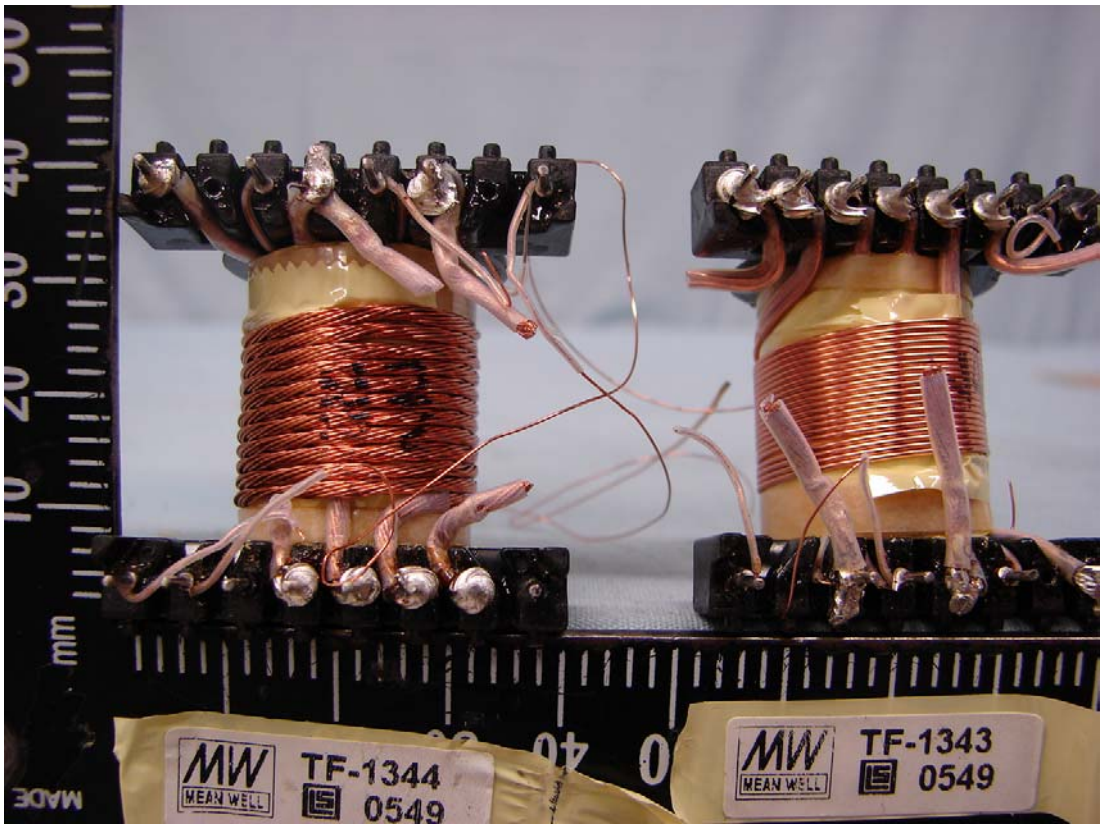

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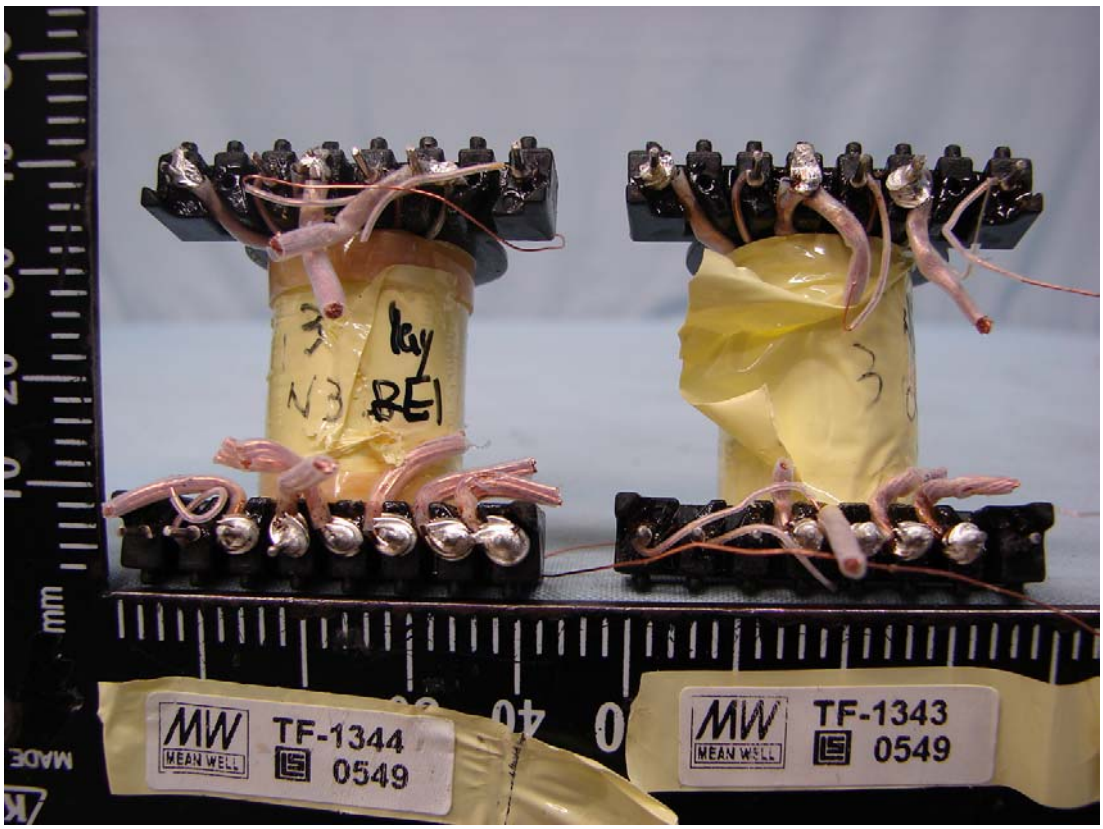

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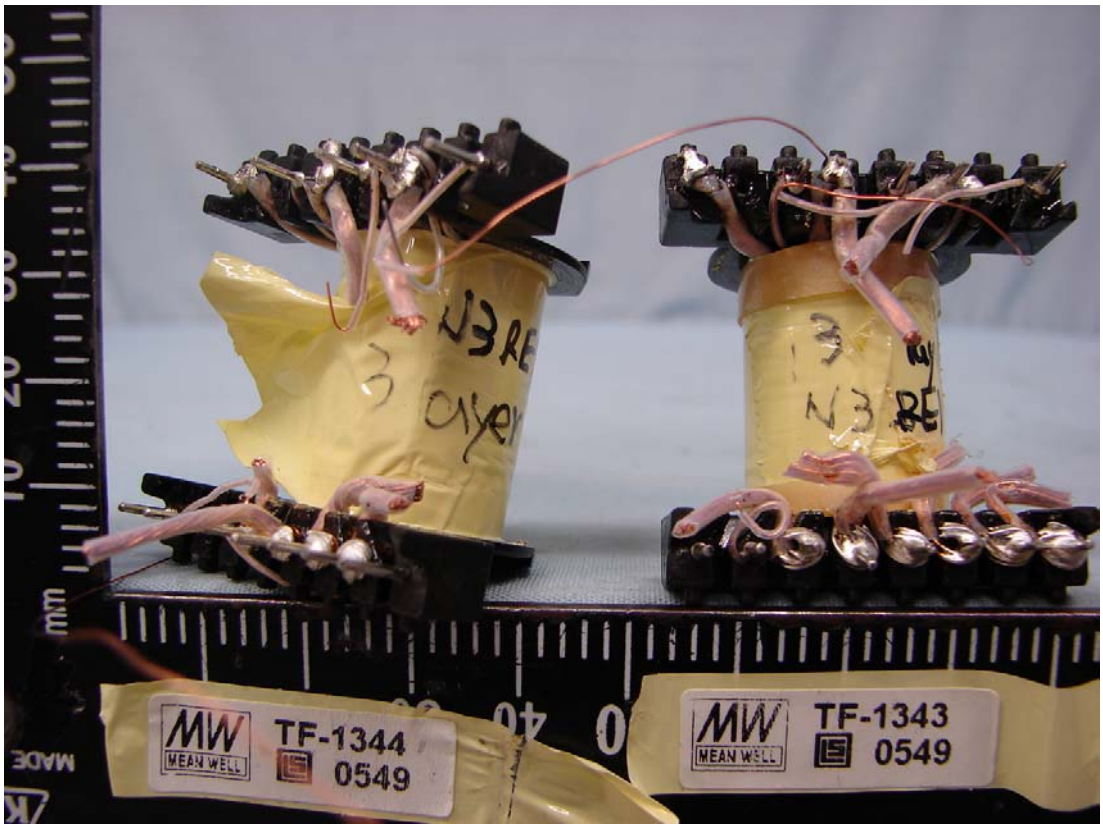

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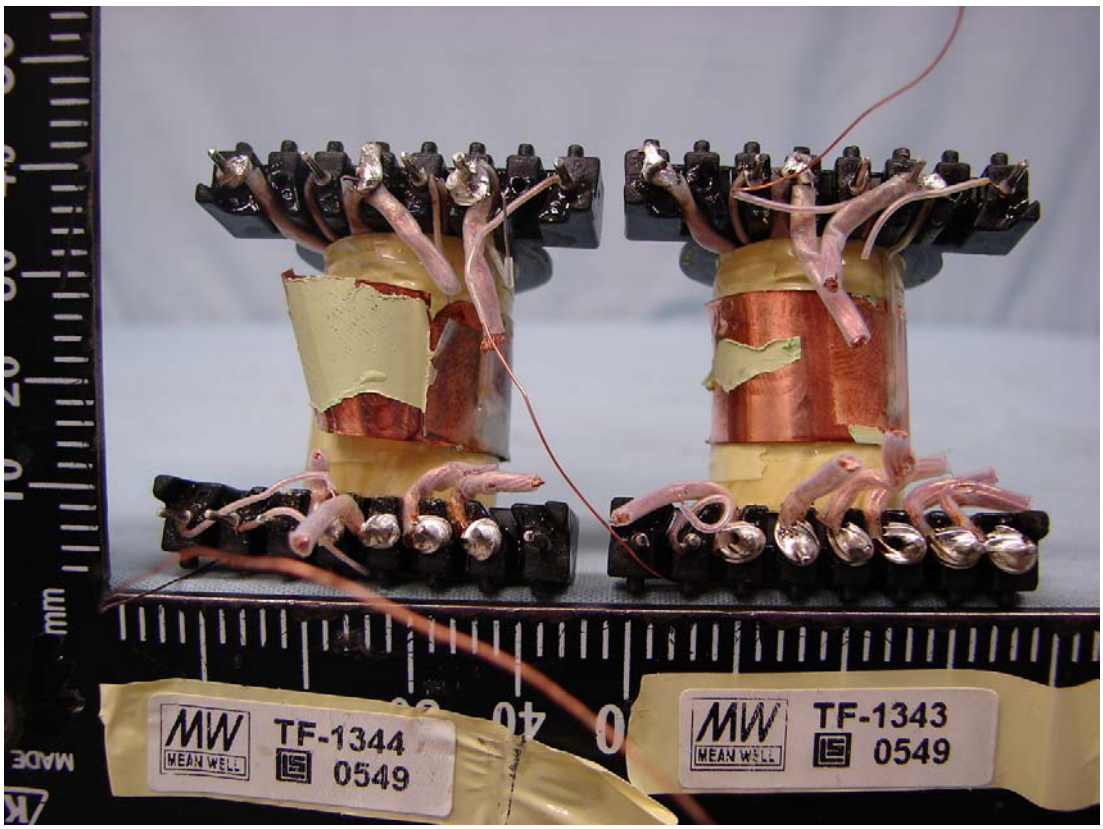

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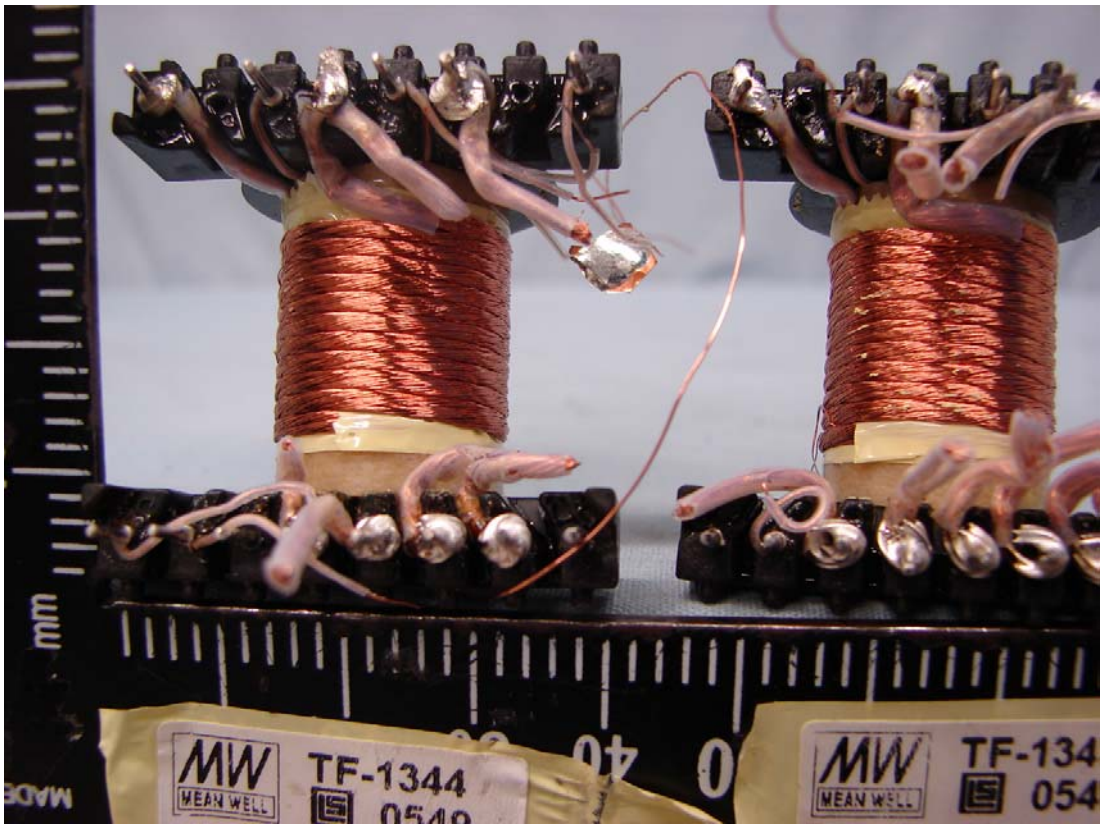

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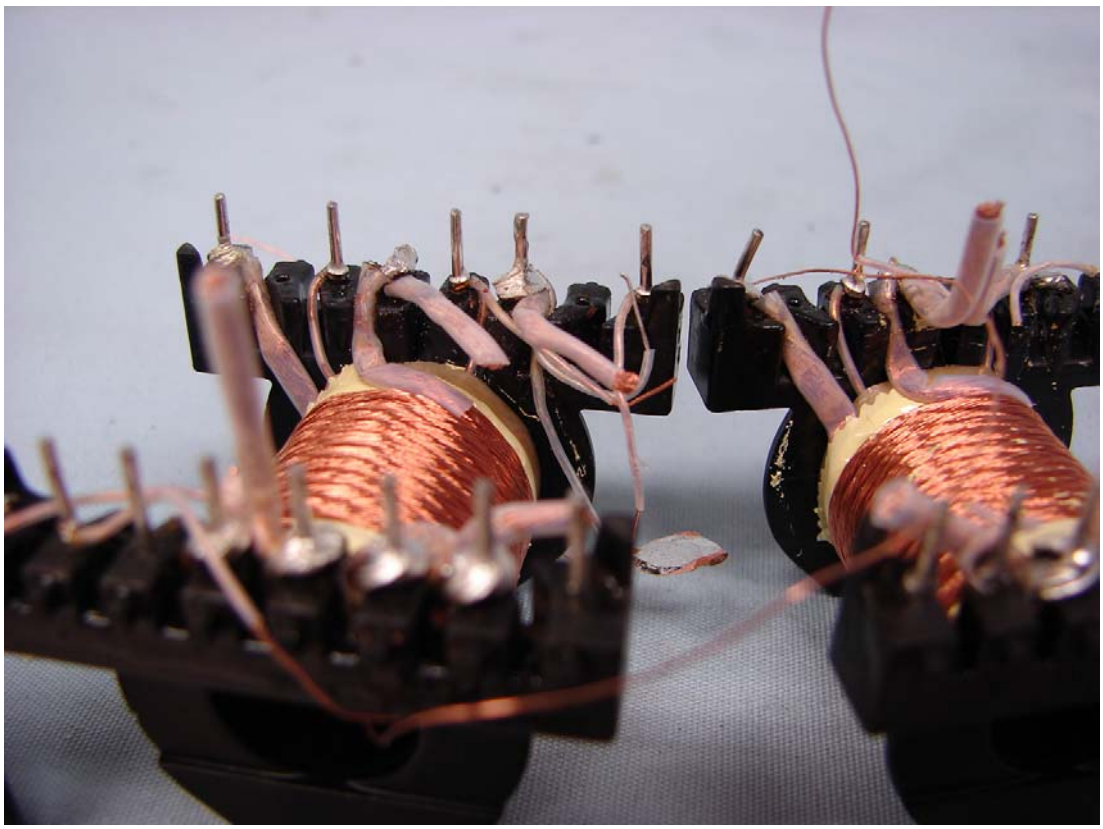

Picture 33