



TEST REPORT

		TEX TEX INTER WITH WILL WITH WITH WITH
Reference No	-21	WTX23X08189910S
Applicant	: 5	GlobTek, Inc.
Address	211-	186 Veterans Dr. Northvale, NJ 07647 USA
Manufacturer	STE.	The same as above
Address	<u>.</u> +	The same as above
Product Name	: <	ICT/ITE Power Supply
Model No	-:	GT*46161-**-** (see general product information for model designation)
Test specification Date of Receipt sample		IEC 61558-2-16:2021 used in conjunction with IEC 61558-1:2017 declared deviations for Australia and New Zealand Safety of transformers, reactors, power supply units and combinations thereof - Part 2-16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units for general applications 2023-08-30
Date of Test		2023-08-30 to 2023-09-25
Date of Issue	× ,	2023-10-17
Test Report Form No		WTX_IEC61558_2-16_2021A
Test Result		Pass Tet Tet with whit will will will will
reproduced, except in full, with	nout	rt refer only to the sample(s) tested, this test report cannot be prior written permission of the company. The report would be invalid ute and the signatures of approver.
		MALIER MALIER WALLER WALLER WALLER WALLER WALLER WALLER WALLER
	Walt	Prepared By: tek Testing Group (Shenzhen) Co., Ltd.
Address: 1/F., Ro	om 1	101, Building 1, Hongwei Industrial Park, Liuxian 2nd Road, Bao'an District, Shenzhen, Guangdong, China
		08 Fax:+86-755-33663309 Fmail: sem@waltek.com.cn

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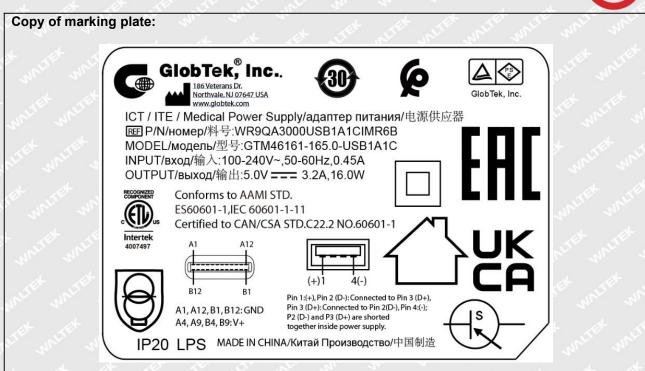


Test item description ICT/ITE Power	er Supply
TrademarkGGlobTek	, Inc. who will the test let
Model and/or type reference GT*46161-**- designation)	** (see general product information for model
Serial number: /	
Rating(s) Input: 100-24	0V~ 50-60Hz 0.45A
	ils see next page)
Whether parts of tests for the product have been sul ☐ Yes ☐ No If Yes, list the related test items and lab information: Test items: Lab information: Summary of testing:	
Tests performed (name of test and test clause):	Testing location:
 IEC 61558-2-16:2021 IEC 61558-1:2017 AS/NZS 61558.1:2018+A1:2020+A2:2020 AS/NZS 61558.2.16:2022 The submitted samples were found to comply with the requirements of above specification. 	Waltek Testing Group (Shenzhen) Co., Ltd. Address: 1/F., Room 101, Building 1, Hongwei Industrial Park, Liuxian 2nd Road, Block 70 Bao'an District, Shenzhen, Guangdong, China
Summary of compliance with National Difference	es:
List of countries addressed: AU AU=Australia	

The product fulfils the requirements of Australia and New Zealand National Differences

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MARLERE



Test item particulars ::	THE THE STEEL PUTE MILLE WALL WALL
Protection against electric shock:	Class II
Supply Connection:	Portable equipment
Possible test case verdicts:	L LIER OLIER WILL MULL AND AN
- test case does not apply to the test object	N/A (not applicable)
- test object does meet the requirement:	P (Pass)

General remarks:

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.

- test object does not meet the requirement...... F (Fail)

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

Reference No.: WTX23X08189910S



General product information:

The EUT is an adapter intended for using within the scope of information technology equipment, all electronic components are mounted on PWB and housed in a plastics enclosure which is secured by ultrasonic welding, output by non-detachable output wire, class II equipment, for indoor use only.

Maximum recommended ambient (Tma):40°C

Model Differences:

All the models are similar to each other except for model name, PCB Layout, output rating and output port (USB A or USB C). So, the detail see below

GT*46161-**-**

- The 1st "*" part can be 'M' or '-' or 'H' for market identification and not related to safety.
 The 2nd "*" denotes the rated output wattage designation, which can be "01" to "16", with interval of 1.
- 3. The 3rd "*" denotes the standard rated output voltage designation, which can be "5.0" to "5.5" or "05" to "05.5" with interval of 0.1Vdc.
- 4. The 4th "*" = USB means Type 1 with USB*1
 - = USB1A means Type 2 with USB*1
 - = USB2A means Type 2 with USB*2
 - = USBC means Type 2 with USB Type C*1
 - = USB2C means Type 2 with USB Type C*2.
 - = USB1A1C means Type 2 with USB*1 and USB Type C*1
- 5. The last * denote any six character, which can be 0-9 or A-Z or ()[] or or blank for marketing purposes.

Model rating list:

Secondary output, the detail sees below table:

Model	Rated output voltage range (Vdc)	Max. rated output current (A)	Max. rated output power (W)
GT*46161-*5.0-**, GT*46161- *05-**	5	3.2	16
GT*46161-**-** (The 3rd "*" can be "5.1" to "5.5" or "05.1" to "05.5"	5.1-5.5Vdc	3.14	16

There are two kinds of Circuit diagram and PCB layout, the detail sees below table:

Circuit diagram/ PCB layout	Fuse	Output type
Type 1	Fusible resistor (RF1) & fuse (FS1)	USB
Type 2	Fusible resistor (RF1) or fuse (RF1) & fuse (FS1) USB1A, USUSBC, USBC, USB1A1	
Note: Circuit diagram/ PCB La	yout type 1 and type 2 are similar except	for fuse type and

secondary component (LF2).

Reference	No.: W1X23X081899105	Page 6 of 122		
LIET WITE	MILL MILL MILL MILL	IEC 61558-2-16	et let let all	WILLE WALTE
Clause	Requirement + Test	K RITER WALL WA	Result - Remark	Verdict

Clause	Requirement + Test	Result - Remark	Verdict
8	MARKING AND OTHER INFORMATION	<u>- 18 18 18 18 18 18 18 18 18 18 18 18 18 </u>	
8.1	Transformers shall be marked with the following (for symbols see Table 1):	WIET MULTER MULTER WATER	uni P
LIEK WAL	a) rated supply voltage(s) or the rated supply voltage range(s) (V)	100-240V ~	P
A 25	b) rated output voltage(s) (V or kV):	See marking label	of P
, we	c) rated output (VA, kVA, or W)	t lifet nijet unlik un	N/A
	d) rated output current(s) (A or mA)	See marking label	y Par
MILL	e) rated supply frequency(ies) (Hz)	50-60Hz	P
, t	f) rated power factor (if not 1)	00 00112	N/A
INTE VIII	g) symbol AC for alternating current, or DC for direct current-output	The symbol for DC The symbol ∼ for AC	P
y with	h) relevant graphical symbols shown in Table 101 that indicate the kind of transformer in addition with the symbol for SMPS. (IEC 61558-2-16: 2021)	For example:	P
nit.	i) name or trademark of the manufacturer or responsible vendor	See marking label	Р
200 C	j) model or type reference	See marking label	₩P V
JEEK NE	k) vector group in accordance with IEC 60076-1 for three phase transformer	Not a 3-phase transformer.	N/A
* 20	I) symbol for class II construction		Р
White	symbol for class III construction	m comment and	N/A
JEN	m) indication of the protection index IP	IP20	Р
2112	n) rated maximum ambient temperature <i>t</i> a, if other than 25 °C	MULT MULT MULT MULT	N/A
unit un	o) rated minimum ambient temperature <i>t</i> _{amin} , if lower than +10 °C and if a temperature sensitive device is used	RELIEF WHITE MALIE WHITE	N/A
	p) duty cycle, if any, unless the operating time is limited by the construction of the transformer or corresponds to the operating conditions specified in the relevant part of IEC 61558-2.	Multer white white	N/A
NATER OF	q) symbol for overvoltage category, if other than OVC II	TEL TIPE STIPE WITH	N/A
all .	r) transformers used with forced air cooling shall be marked with "AF" in m/s	in in the let	N/A
Vr. My	s) Information from the manufacturer to the purchaser (data sheet)	See below.	Aug P
TER WITE	- short-circuit voltage (% rated supply voltage) for stationary transformers > 1000 VA	et stiet milet aniret an	N/A
t STEK	- electrical function of the transformer	The electrical input/output rating is shown.	P

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	IEC 61558-2-16			
Clause	Requirement + Test	Result - Remark	Verdict	
Whitek	- All markings except those under i) and j) may be illustrated as QR Code according ISO/IEC 18004.	White white with the	P	
All S	t) symbol indicating the maximum altitude of installation, if higher than 2 000 m	the same and the	P	
8.2	Marking for transformers IP00 or for associated transformers: type and trademark, instruction sheets	the main man was	N/A	
8.3	Adjusted voltage easily and clearly discernible	No adjustable voltage.	N/A	
8.4	For each tapping or winding: rated output voltage and rated output	Single output.	N/A	
	necessary connections clearly indicated	me in in	N/A	
8.5	For non-short-circuit proof transformers or non-inherently short-circuit proof transformers designed to be protected by fuses shall be marked:	Symbol provided on marking plate.	P N	
MUTER MUTER	Rated current (A or mA) and symbol for time current characteristics of the fuses for non-inherently short-circuit proof transformer with incorporated fuses and non-short-circuit proof transformer:	MULTER MULTER MULTER ME	N/A	
MULIER A	For non-short-circuit proof transformers or non-inherently short-circuit proof transformers designed to be protected with protective devices other than fuses shall be marked:	UNLIER WILLER WILLER WILLER	N/A	
EK MALTE	Manufacturer's models or type reference of the protective device, and/or the ratings of the protective device	The wife while	N/A	
WALTEK.	Instruction sheet for transformers with replaceable protective device (other than fuses) information with information about the replacement.	Whitek Whitek Whitek Whi	N/A	
8.6	Terminals for neutral: "N"	st st set se	N/A	
ar an	Terminal for protective earth marked with earthing symbol		N/A	
21/2	Identification of input terminals:	TEX MITE WALL WALL .	N/A	
y Let	Identification of output terminals:	at at at	N/A	
"M"	Symbol for any point/terminal in connection with frame or core	A was and an	N/A	
8.7	Indication for correct connection	aliet milet white whi	Р	
8.8	Instruction sheet for type X, Y, Z attachments		N/A	
8.9	Transformer for indoor use shall be marked with the relevant symbol.	Continue me	P	
8.10	Symbol for Class II construction not confused with manufacturer's name or any other identification	ex muter muter muter	P	
WALTER	Class II transformer with parts to be mounted – delivered with all parts for class II after mounting.	No such parts.	N/A	

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" We	IEC 61558-2-16			
Clause	Requirement + Test	Result - Remark	Verdict	
UN CO	Symbol for class II transformer placed on the part which provides class II.	White white white	P	
8.11	Correct symbols:	NITE MALTE WALL VI	Р	
LEF S	Volts	V	et de P	
- 711	Amperes	A (mA)	P	
ek white	Volt amperes (or volt-amperes reactive for reactors)	VA or (VAR)	N/A	
All the	Watts	W	Part Part	
11/2 1	Hertz	Hz	an an P	
Alt .	Input	PRI	N/A	
10, 20	Output	SEC	N/A	
THE SITE	Direct current	d.c. (DC) or	et P	
-21,	Neutral	N West was any	Р	
e cliff	Single-phase a.c.	THE THE	P	
1,,	Three-phase a.c.	3~ ""	N/A	
CLIER	Three-phase and neutral a.c.	3N ~	N/A	
2	Power factor	cos φ	N/A	
ALTE WAL	Class II construction	antiet un	P	
EK WALTE	Class III construction		N/A	
- MITER	Equipment of overvoltage category I	I stret mark	N/A	
UNLIEK WI	Equipment of overvoltage category II	III State Milet	NITEL DE	
TEK WIT	Equipment of overvoltage category III	III at the same	N/A	
ek watek	Equipment of overvoltage category IV	IV	N/A	
NLTEK .	Fuse white white white was	The gat	NUTER POR	
2, 1	Rated max. ambient temperature	ta	Р	
NITE ON	Rated minimum ambient temperature	t _{amin}	N/A	
4 1	Rated minimum temperature	t _{min}	N/A	
in Mile	Frame or chassis (or core terminal)	THE STATE WITH	N/A	
MALIER	Protective earth (ground)		N/A	
	IP number	IPX0	P-	

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IEC 61558-2-16			
Clause	Requirement + Test	Result - Remark	Verdic
An Cit	Earth (ground or functional earth)	I white white	N/A
inter m	For indoor use only		Р
ie mi	To indicate that the appliance is intended to be usable up to the maximum altitude 3 000 m.	≤3000m	N/A
Whitek Maritek	To indicate that the power supply unit shall not be used, if pins of the plug part are damaged.	F	WALTER P
**	Additional Symbols (IEC 61558-2-16:2021)	m m n	Р
rr. m	SMPS (Switch mode power supply unit)		Р
MULL	SMPS incorporating a Fail-safe separating transformer	8 _F	N/A
MULIT	SMPS incorporating a Non-short-circuit-proof separating transformer		N/A
yntit di Test ot	SMPS incorporating a Short-circuit-proof separating transformer (inherently or non-inherently)	8	N/A
# 17E	SMPS incorporating a Fail-safe isolating transformer	⊖ _F	N/A
VILLER	SMPS incorporating a Non-short-circuit-proof isolating transformer		N/A
VILLEK M	SMPS incorporating a Short-circuit-proof isolating transformer (inherently or non-inherently)		N/A
IEK WILL	SMPS incorporating a Fail-safe safety isolating transformer	₽ _F	N/A
	SMPS incorporating a Non-short-circuit-proof safety isolating transformer		N/A
MULIER 2	SMPS incorporating a Short-circuit-proof safety isolating transformer (inherently or non-inherently)	O LINETED LINETED	NATES P
LIER WY	SMPS incorporating a Fail-safe auto-transformer	OF INTER METER OF	N/A
EK WALTE	SMPS incorporating a Non-short-circuit proof auto-transformer	South with with	N/A
WALTER	SMPS incorporating a Short-circuit proof auto-transformer (inherently or non-inherently)	Det milet milet	N/A

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C WELL	IEC 61558-2-16			
Clause	Requirement + Test	Result - Remark	Verdict	
8.12	Number, letters or other visual means for different positions of regulating devices and switches	while while while whi	N/A	
me m	OFF position indicated by number 0	ALTER WALTER WALL WALL	N/A	
ITEK WAL	Greater output, input etc. indicated by higher number	Telt Street Mariet Mariet	N/A	
8.13	Marking not on screws or other easily removable parts	t itet stet stret st	Р	
LITER	Marking clearly discernible (transformer ready for use)	at the the	Р	
164 20	Marking for terminals clearly discernible if necessary after removal of the cover	and any any and	N/A	
ist in	Marking for terminals: no confusion between input and output	HITE WALL WALL WALL THE	N/A	
ir unii	Marking for interchangeable protective devices positioned adjacent to the base	EX MILIER MILIER MILLE	N/A	
WALTE TEN	Marking for interchangeable protective devices clearly discernible after removal of cover and protective device	Whitek whitek whiteh wh	N/A	
8.14	Visible information (symbols) shall be provided, when it is necessary to take special precautions for installation, transportation or use (in the catalogue, data sheet, instruction sheet or packaging):	JULIE WHITE WHILL WHILE	Р	
Whitek	For non-inherently short-circuit proof transformers with non-self-resetting or non-replaceable devices and non-replaceable intentional weak parts: The device cannot be reset or replaced after a short-circuit or an overload	White while white w	N/A	
INLTEK WI	For transformers generating a protective earth conductor current greater than 10 mA and are intended for permanent connection The installation shall be made according to the wiring rules.	LIFE WILLER WILLER WILLER	N/A	
ek waitek	For stationary transformers exceeding 1000 VA: The short circuit voltage expressed as a percentage of the rated supply voltage	Whilet whilet whilet wh	N/A	
MITER	The electrical function of the transformer	TEK ITEK ALTEK OLT	Р	
ULLER AU	the limiting temperature of the winding under abnormal conditions which shall be respected when the transformer is built into an appliance as information for appliance design;	TIER MUTER MUTER MUTER	N/A	
AL WALLY	For transformers not designed for series and/or parallel connection with more than one output winding, not for series or parallel connection	White White white w	N/A	

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IEC 61558-2-16			
Clause	Requirement + Test	Result - Remark	Verdic
WALTER WA	For IP00-transformers the test of 27.2 is not performed. The result may be affected by the enclosure in the final application.	White white white	N/A
8.15	Marking durable and easily legible	10 20 20 20 A	Р
8.16	Portable transformers with integrated plugs complying with EN 50075 (IEC plug type C), shall use the symbol IEC 60417-6352:2015-10. The instruction sheet of the plug in transformer shall contain the following information, or equivalent:	Tex united united united white was	Р
	if the pins of the plug parts are damaged, the plug- in power supply shall be scrapped.	m w w	
9	PROTECTION AGAINST ELECTRIC SHOCK		Р
9.1	General	1 1 1 1	Р
* WALLEY	Transformers shall be enclosed and provided with adequate protection against contact with hazardous-live-parts and shall have no risk of an electric shock from stored charge on capacitors.	- stek mile mile one	Р
9.2	Protection against contact with hazardous-live- parts	Tet tet tiet stiet	Р
9.2.1	Determination of hazardous-live-parts	Mr. Mr. M. M.	Р
9.2.1.1	A live part is not a hazardous-live-part if it is separated from the supply by double or reinforced insulation and the requirements of 9.2.1.2 or 9.2.1.3 are met when the transformer is supplied at rated supply voltage	The source was	Р
9.2.1.2	The voltage shall not exceed 35 V AC peak or 60 V ripple free DC.	Measured maximum output voltage: Max. 5.5Vd.c.	Р
9.2.1.3	Where the voltage exceeds 35 V (peak) AC or 60 V ripple free DC, the touch current shall not exceed:	A B B TO	N/A
me m	- for AC. 0,7 mA (peak)	ALTE WALL WALL WALL	N/A
TER IT	- for DC. 2,0 mA	at the set set	N/A
* 24	In addition, when a capacitor is connected to live parts:	The man and and	N/A
9.2.1.3.1	The discharge shall not exceed 45 µC for stored voltages between 60 V and 15 kV, or	AMILIE WALTER WALTER WALTER	N/A
9.2.1.3.2	The energy of discharge shall not exceed 350 mJ for stored voltages exceeding 15 kV.	ITEK SLIEK SLIEK MILIER	N/A
9.2.2	Accessibility to hazardous-live-parts	Mr. Mr. Mr.	Р
	Transformers shall be constructed to provide adequate protection against accessibility to hazardous-live-parts.	LITER WALTER WALTER WALTER	Р
	Class I and II transformers shall be so constructed and enclosed that there is adequate protection against accidental contact with	The plastic enclosure considered as electrical and mechanical enclosure.	Р

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2	W	
<u> </u>	Verdict	

01	IEC 61558-2-16		
Clause	Requirement + Test	Result - Remark	Verdict
WILL M	For class I transformers, accessible parts shall be separated from hazardous-live-parts by at least basic insulation.	White white white white	Р
itek mur ek itek	Class II transformers shall be so constructed and enclosed that there is adequate protection against accessibility to basic insulation and to conductive parts separated from hazardous-live-parts by basic insulation only.	TEX MUTER MUTER MUTER W	Р
VIA.	Only parts separated from hazardous-liveparts by double or reinforced insulation may be accessible	white men and whi	N/A
TIEK S	Hazardous-live-parts shall not be accessible after removal of detachable parts except for	No detachable parts.	N/A
	- lamps having caps larger B9 and E10	The Mary Mary My	N/A
SER OLIFE	- type D fuse holder	et tet itet sitet ki	N/A
+ WALTER	IP00 transformers shall comply with the end product standard after incorporation in the end product.	THE WIFE WIFE WALT	Р
pinitek w	The insulating properties of lacquer, enamel, paper, cotton, oxide film on conductive parts and sealing compound shall not be considered as giving the required protection against accidental contact with hazardous-live-parts with the exception of fully insulated winding wire (FIW).	UNLIER WHITER WHITER WHITER	Р
EK WITE	Shafts, handles, operating levers, knobs and the like shall not be hazardous-live-parts.	The lift stiff and	N/A
STEEL	Compliance is checked by inspection and by the relevant tests of IEC 60529.	the tex itex rite	Р
TEX.	Class II transformers and Class II parts of Class I construction are tested with the test pin (fig. 3)	whi are are are	Р
iler met.	Hazardous live parts shall not be touchable by test finger (fig. 4) with the exception of fully insulated winding wire (FIW).	No live parts were touched.	Р
X WALTEX	for Class II transformers: conductive parts separated by basic insulation from hazardous live parts not touchable by test finger	while while while whi	Р
MITEK	hazardous live parts shall not be touchable with the test pin	No live parts were touched.	Р
9.2.3	Accessibility of non-hazardous live parts	Mr. M. M. A.	Р
ire wh	Non-hazardous live parts of the output circuit isolated from the input circuit by double or	LIER WHITE WHITE WHITE	Р
	reinforced insulation may be accessible under the following conditions:	ex street writest awarest	
NALTEX	 for no-load output voltages not exceeding 35 V peak AC or 60 V ripple-free DC, both poles may be accessible; 	The no load output voltage is 5.5Vdc	Р

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	77	V	A
3			

IEC 61558-2-16			in in
Clause	Requirement + Test	Result - Remark	Verdic
MULTER AN	- for no-load output voltages exceeding 35 V peak AC or 60 V ripple-free DC and not exceeding 250 V AC, only one of the poles may be accessible.	While while while whi	N/A
9.3	Protection against hazardous electrical discharge	a at at all	N/A
ex antitex	Transformers with primary supply plug: 1 s after the interruption of the supply the voltage between the pins do not exceed 35 V (peak) AC or 60 V ripple free DC	TO WALL WALLEY	N/A
	Transformers without a primary supply plug: 5 s after the interruption of the supply the voltage between the input terminals do not exceed 35 V (peak) AC. or 60 V ripple free DC.	united united united un	N/A
	If the nominal capacitance is $\leq 0.1 \ \mu F$ – no test is conducted.	the man was the	N/A
- WALTER	- 10 times switch the supply source on and off, or use a special equipment for to switch off at the most unfavourable electrical angle	er whit with the	N/A
- Test	If the measured voltage is > 60 V ripple free DC, the discharge must be \leq 45 μ C.	Mary Mary Mary	N/A
10	CHANGE OF INPUT VOLTAGE SETTING		Р
LIFEK WAL	Transformers with more than one rated supply voltage shall be so constructed that the voltage setting cannot be changed without the aid of a tool.	No such devices.	N/A
ek walte	Transformers which can be set to different rated supply voltages:	MITE WHILE	N/A
WALTER	- The indication of voltage for which the transformer is set is discernible on the transformer.	MILIER MILITER MILIER ON	N/A
10.101	A wide range (e.g. 100 V AC to 240 V AC) of supply voltage is allowed (IEC 61558-2-16: 2021) - if the output voltage does not exceed the rated	LIER MALIER MALIER MALE	Р
TEK MILI	output voltage - if the no-load output voltage does not exceed	at the test state	P
	the limits of the output voltage deviation	me in in	P
11	OUTPUT VOLTAGE AND OUTPUT CURRENT UN	DER LOAD	
11.1	Difference from rated value (without rectifier; with rectifier):	With rectifier. (see appended table)	P
17 EK 161	 a) inherently short-circuit proof transformers with one rated output voltage for the output voltage: AC≤ 10%; DC≤ 15% 	and and the tree tree	N/A
iek vie	b) inherently short-circuit proof transformers with more than one rated output voltage for the highest output voltage: AC≤10%; DC≤15%	et let let riet	N/A
- Tet	c) inherently short-circuit proof transformers with more than one rated output voltage for the other output voltages: AC≤15%; DC≤20%	THE THE THE	N/A

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Clause	Requirement + Test	Result - Remark	Verdic
No.	d) other transformers for the output voltages: AC≤5%; DC≤10%	(see appended table)	Р
11.2	If a transformer is marked with the rated output, the rated output voltage, the rated output current, and the rated power factor, these values shall be substantially in agreement with each other.	NATER WHITE WHITE WALLER	Р
y writer	If no rated output current is assigned to the transformer, the rated output current for the purpose of this specification can be calculated from the rated output and the rated output voltage.	t whilek whilek whilek was	N/A
12	NO-LOAD OUTPUT VOLTAGE (IEC 61558-2-16:2	021)	Р
TEX S	Remark: with rectifier measuring on both sides of the rectifier if they are accessible to the user	Input terminals of the rectifier are not accessible to user.	Р
12.101	The no load output voltage shall not exceed :	The Mer Mer Mer.	Р
TEK WILTE	- For SMPS incorporating separating or auto- transformers: 1000V AC. or 1415 V ripple free DC	Et united whiles whiles wh	N/A
	- For SMPS including isolating transformers: 500 V AC. or 708 V ripple-free DC	White white white whi	N/A
NUTTER OF	- For SMPS including safety isolating transformers: 50 V AC. or 120 V ripple-free DC	INLIER WALTER WALTER	Р
	For independent SMPS incorporating separating transformers, isolating transformers or autotransformers: 50 V AC. or 120 V ripple-free DC	Et Whitet Whitet	N/A
	For independent SMPS, this output voltage limitation applies even when output windings, not for interconnection, are connected in series	white white white wh	N/A
m	The requirement for series connection does not apply to associated or IP 00 SMPS	MULL MILL MILL MILL	N/A
12.202	The difference between no-load output voltage and the output voltage measured in clause 11 does not exceed the values of table 102	RUTER WHITE WHITE WHITE	Р
12.103	Unless otherwise specified by the manufacturer, SMPS shall be tested with 20 cm to 200 cm length of wire connected to the output terminals under the most unfavourable conditions. Twisted wires or cables rated in accordance with IEC 60227-5:2011 (type 60227 IEC 53) may be used. The cross sectional area of the conductors shall be determined in accordance with the rated output current of the SMPS, and the current density shall not exceed 5 A/mm² in normal use.	JUNITER WHITER WHITER WHITER WHITER WHITER WHITER	Р
13	SHORT-CIRCUIT VOLTAGE		N/A
nr.	The short-circuit voltage measured shall not deviate by more than 20 % from the value marked.	No marked.	N/A
14	HEATING		Р
14.1	General requirements		P

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IEC 61558-2-16			
Clause	Requirement + Test	Result - Remark	Verdic
14.1.1	Temperature-rise test	White Multiple Mile	Р
Jet .	No excessive temperature in normal use	A 10 10 0	Р
itek avri itek	The manufacturer may choose the simulated load methods according to 14.1.2.1 or 14.1.2.2 instead of the direct load method that may be applied.	Tet whitet whitet white	Р
MULL	Room temperature: rated ambient temperature ta <u>+</u> .5 °C	Marited Walter Walter	P P
white 4	Type X, Y, Z attachments: 1 pull (5 N) to the connection windings	MUNITER WALTER WALTER WA	N/A
ALTER ON	Upri (V): 1,1 times rated supply voltage loaded with rated impedance – for independent transformers	264V (240 x 1.1)	P
	Upri (V): 1,1 times rated supply voltage: with I sec (A), measured with rated impedance and 1,0 times of the rated supply voltage for others than independent transformers	et united united united	N/A
m.	Max. temperature windings	(see appended table)	N/A
JEH .	- Class A: 100 °C	at at the	N/A
1	- Class E: 115 °C	note mer mer me	N/A
III N	- Class B: 120 °C	at a still	Р
70	- Class F: 140 °C	2 24 24	N/A
A CALLE	- Class H: 165 °C	The State State	N/A
	- other classes	my my	N/A
WILLE .	Temperature of external enclosures of stationary transformers:	Whitek Whitek Whiteh W	N/A
	- bare metal: 65 °C	it let the st	N/A
~ ~	- metal covered by lac or varnish: 70 °C	Vr. Mr. Mr. M.	N/A
TER WILL	- other material: 80 °C	CER THE LITTER STITES	N/A
MULIER	Temperature of external enclosure of stationary transformer 85 °C (not touchable with the IEC test finger)	united whites whites	N/A
WILLER OF	Temperature of external enclosures, handles, etc. of portable transformers:	itel mirek mirek uni	P
*	- continuously held parts of metal: 48 °C	71, 72, 7	N/A
11/2	- continuously held parts of other material: 48 °C	LIER OLIER WITE WHILE	N/A
d d	- not continuously held parts of metal: 60 °C	The state of the s	N/A
W.F.	- not continuously held parts of other material: 80 °C	Plastic enclosure.	n, b
WILL.	Temperature of terminals for external conductors and terminals of switches 70 °C	No switch.	N/A

IEC 61558-2-16			
Clause	Requirement + Test	Result - Remark	Verdict
NO LIE	Walter Mr. Mr. Mr. Mr.	Light wifet with while	, all
	Temperature of internal and external wiring:	N. N. 2.	Р
التركيبين	- rubber: 65 °C	No rubber.	N/A
` .	- PVC: 70 °C	Internal plug pin lead wire	Р
The SUL	Temperature of parts where safety can be affected:	THE LIFE STEE STILL	N/A
	- rubber: 75 °C	70, 72, 7	N/A
MULL	- phenol-formaldehyde: 105 °C	t tiet alien with whi	N/A
	- urea-formaldehyde: 85 °C	20, 20, 2	N/A
White of	- impregnated paper and fabric: 85 °C	TIEK WITER WITE WHITE	N/A
*	- impregnated wood: 85 °C	71. 22. 2	N/A
ivry an	- PVC, polystyrene and similar thermoplastic material: 65 °C	LIER MILIER WALTE MAIL	N/A
IE WIT	- varnished cambric: 75 °C	Et ITEX SITEX MITES OF	N/A
+	Temperature rise of supports 85 °C	The state of	Р
MUTIL	Temperature of printed boards:	UL approved PCB used, the limit is 130 °C	Р
CLIFE A	- bonded with phenol-formaldehyde: 105 °C	fet the the time	N/A
2, ,	- melamine-formaldehyde: 105 °C	no my m	N/A
NLTER AIRLY	- phenol-furfural: 105 °C	at the little	N/A
	- polyester: 105 °C	2 1 1 1 1 1 1	N/A
C JALIE	- bonded with epoxy: 140 °C	PCB rating: 130°C	Р
L CLIER	Electric strength between input and output windings (18.3, 1 min); test voltage (V)	tet tet tet still	Р
14.101	Winding temperature measured by thermocouples at the surface of the winding (IEC 61558-2-16: 2021)	THE WILL WILLEY WATER	Р
J 1	- if the internal frequencies is > 500Hz	the state of	Р
7 W	- the values of Table 2 for windings temperatures are reduced by 10°C	Class: 120-10=110° C	Р
14.102	SMPS shall be tested at 0,9 times and 1,1 times the rated supply voltage	White White White Whi	Р
14.2	Application of 14.1 or 14.3 according to the insulation	n system	Р
14.2.1	Class of insulation system (classified materials according to IEC 60 085 and IEC 60 216)	Class B	Р
14.2.2	No classified material, or system but the measured temperature does not exceed the value of Class A	it with the time.	N/A
14.2.3	No classified material or system but the measured temperature exceeds the value for Class A, the live parts of the transformers are submitted to the test of 14.3	White white white whi	N/A
14.3	Accelerated ageing test for undeclared class of insu	lation system	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
14.3.1	General Cycling test (10 cycles):	Measured transformer winding within the specified limit on normal heating test.	N/A
14.3.2	Heat run (temperature in table 4)	1. 24 2	N/A
14.3.3	Vibration test: 30 min; amplitude 0,35 mm; frequency range: 10 Hz, 55 Hz, 10 Hz	TER WHITE WHITE WHITE	N/A
14.3.4	Moisture treatment (48 h, 17.2)	t the the state of	N/A
14.3.5	Measurements and tests at the beginning and after each test:	of the late of	N/A
UNITER AND	- deviation of the no-load input current, measured at the beginning of the test less than 30%	TEX STEX WIFEX	N/A
J+ 1	- insulation resistance acc. cl.18.1 and 18.2	. M. 2.	N/A
er and E liter	- electric strength, no breakdown (18.3 and 18.4); 2 min; test voltage 35% of specified value	et united white white w	N/A
MUTER A	- Transformers (50 or 60 Hz version) are tested after the dielectric strength test as follows: under no load; duration: 5 min; Upri(V):1,2 times rated supply voltage; frequency (Hz): 2 times rated frequency	until whilet while while	N/A
15	SHORT-CIRCUIT AND OVERLOAD PROTECTION		Р
15.1	General requirements		Р
15.1.1	Short circuit and overload test method		
WALTER.	Tests direct after 14.1 at the same ta and without changing position.	(see appended table)	Р
UNLIEK W	Supply voltage between 0,9 times and 1,1 times of the rated supply voltage	264V (240 x 1.1) 90V (100 x 0.9)	Р
IEK MI	Transformer with rectifier tests of 15.2 and 15.3 at the input and the output terminals of the rectifier.	et let let silet.	Р
H WALTER	Transformers with more than one output winding or tapping, all windings tested with normal load, the winding with the highest temperature is short circuited.	whitet whitet whitet wh	N/A
MITTER	Wining protected inherently (15.2)	TEX STEX NUTER WITH	N/A
NLIEK WY	- Max. temperature of winding protected inherently (insulation class): 150°C (A); 165°C (E); 175°C (B); 190°C (F); 210°C (H)	LIET WILLER MYTER MITTER	N/A
CENT SE	Winding protected by protective device:	e at at at	Р
L MATIEK	- Test according 15.3.2 - 15.3.3 – 15.3.4: max. temperature of winding during the time required or the time T given in table 6 (insulation class): 200 °C (A); 215 °C; (E); 225 °C (B); 240 °C (F); 260 °C (H)	white white white whi	N/A

	IEC 61558-2-16		CALLES NA
Clause	Requirement + Test	Result - Remark	Verdic
WALLEX W	- Test according 15.3.1: max. temperature of winding during the first hour, peak value (insulation class): 200 °C (A); 215 °C (E); 225 °C (B); 240 °C (F); 260 °C (H)	Protected, no high temperature	Р
iter whi	- Test according 15.3.1: max. temperature of winding after first hour, peak value (insulation class): 175 °C (A); 190 °C (E); 200 °C (B); 215 °C (F); 235 °C (H)	Tet while while while	P
WILLIEM.	- Test according 15.3.1: max. temperature of winding after first hour, arithmetic mean value (insulation class):150 °C (A); 165 °C (E); 175 °C (B); 190 °C (F); 210 °C (H)	MULTER MATTER MATTER	P
17 LEP - 719 17 LEP - 719	- Test according 15.3.5: max. temperature of winding (insulation class): 175 °C (A); 190 °C (E); 200 °C (B); 215 °C (F); 235 °C (H)	ALTER WALTER WALTER WAY	P
	Max. temperature of external enclosures (accessible by test finger) 105 °C	les white white white	n P
MUEL	Max. temperature of insulation of wiring (rubber and PVC) 85 °C	Whitek Whitek White.	_{MNLI} P
CIER .	Temperature rise of supports 105 °C	LET LET LIET .	LITER P
15.1.2	Alternative short circuit and overload test method	ar ar an	Р
EL ALTE	The manufacturer may choose to apply any of the following methods described in 14.1.2.1 and 14.1.2.2. These test procedures are according to IEC 60076-11:2004, 23.2.1 and 23.2.2	art untier unti	Р
15.2	Inherently short-circuit proof transformers	in min me me	N/A
WALTER	Inherently short-circuit proof transformers are tested by short-circuiting the output windings until steady-state conditions are reached	Whitek whitek whitek	N/A
15.3	Non-inherently short-circuit proof transformers	ret tet tet de	r P
50 - 55 50 - 55	Non-inherently short-circuit proof transformers are tested as follows	the me me of	P
15.3.1	Output terminals short-circuited: protection device operates, test at 0,9 1,1 of the rated supply voltage	it whit will write	P
15.3.2	If protected by a fuse accordance with either IEC 60 269-2 or IEC 60 269-3, or a technical equivalent fuse, the transformer is loaded as in table 6.	MULTER MULTER MULTER	N/A
15.3.3	If protected by a fuse accordance with either IEC 60 127(all parts) or ISO 8820(all parts), or a technical equivalent fuse, the transformer is loaded with the current as specified for the longest pre arcing time.	STEE WALTER WALTER	N/A
	If protected by miniature fuses in accordance to IEC 60127(all parts), 1,5 times of the rated fuse, until steady state condition (in addition)	WALTER WALTER WALTER	MALI

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Clause	Requirement + Test	Result - Remark	Verdict
15.3.4	If protected by a circuit-breaker according to IEC 60 898(all parts) the transformer is loaded with a current equal to 1,45 times the value of the circuit-breaker rated current	White white white	N/A
15.3.5	If other overload protection than a fuse (IEC 60 127) or a circuit-breaker (IEC 60 269) test with 0,95 times of operating current	Protected by electronic circuit	Р
WILLER	If an internal week point is used, the test must be repeated with two new samples. The two additional samples works similar to the first sample. Temperatures in the limit of table 5	MULTER WILLER WHILE WHILE	N/A
15.4	For non-short-circuit proof transformers: temperature rises values in table 5, tests as indicated in 15.3	STEE WHITEK WHITEK	N/A
15.5	For fail-safe transformers:	the the tipe attention	N/A
15.5.1	Three additional new specimens are used	m m m	_
JA LICE	- Upri (V): 1,1 times rated supply voltage:	- THE STEE NITE SOUTH	_
	- Isec (A): 1,5 times rated output current:	The An An A	_
Will a	- time until steady-state conditions t1 (h):	LIER ALTER MITE MAIL	_
<i>A</i>	- time until failure t2 (h): t1; 5 h	12 24 X	_
15.5.2	During the test:	of Chile while of	N/A
at all	- no flames, molten material, etc.		N/A
Me	- temperature of enclosure 175 °C	white oute many and	N/A
- Let	- temperature of plywood support 125 °C	in a state	N/A
mr.	After the test:	mile while while while	N/A
unitek wi	- electric strength (Cl. 18, 1 min, test voltage: 35% of specified value); no flashover or breakdown for primary-to-secondary only for safety isolating, isolating and separating transformer and for primary-to-body for all kinds of transformer	NITER WHITER WHITER	N/A
MULIE	- bare hazardous live parts not accessible by test finger through holes of enclosure	While while while whi	N/A
15.101	Electronic circuits shall be so designed and applied that a fault condition within the SMPS will not cause electric shock, or fire hazard, and unintentional operation of the appliance will not impair safety.	(Details see Annex H)	P
16	MECHANICAL STRENGTH		Р
16.1	General	EX SLIER WILL WILL SON	Р
- 6	After tests of 16.2, 16.3 and 16.4	20	Р
"NVET	- no damage	THE STIE WIFE WIFE	Р

The The	IEC 61558-2-16	it it set set	Je ni
Clause	Requirement + Test	Result - Remark	Verdict
WALL TEX	- hazardous live parts not accessible by test pin according to 9.2.2	Mile Mile Mile Mile	Р
الم مالي	- no damage for insulating barriers	RITE MITTER WALL WALL	Р
18 1	- handles, levers, etc. have not moved on shafts		N/A
16.2	Stationary transformers	LITE WALTE WALTE WALTE W	N/A
it det	3 blows, impact energy 0,5 ±0,05 J	e at at at a	N/A
16.3	Portable transformers (except of direct plug in transformers)	MALL WALL THE THE	Р
Mr. 1	For portable transformers: 100 falls, 25 mm	MITE MITE WALL WALL	Р
16.4	Portable transformers provided with integral pins fo of the fixed wiring	r introduction in socket outlets	Р
16.4.1	General requirements	AU plug accord with AS/NZS 3112, reference test report No.:WTX23D08189911Z	Р
WALTER WALTER	Portable transformers with integral pins for introduction into fixed socket-outlets shall have adequate mechanical strength.	Whitek whitek whitek whit	N/A
MUTER MUTE	Plug in power supply units with integral main plug complying with IEC TR 60083, without plugs complying with EN 50075 (IEC plug type C) shall be tested:	white white white white	N/A
EK NITE	a) plug-in transformers: tumbling barrel test: 50 times, x ≤ 250 g; 25 times, x > 250 g		N/A
7. 7	b) torque test of the plug pins with 0,4 Nm	me me m	N/A
MUTES.	c) pull force according to table 7 for each pin	THE LIFE SLIFE MITE	N/A
16.4.2	Portable transformers provided with integral pins according to EN 50075 (IEC plug type C) for introduction in socket-outlets of the fixed wiring	NITER INTER WHITER WHITER	N/A
TEK WIT	a) The test is carried in a tumbling barrel as described in IEC 60068-2-31.	feet street street species su	N/A
y nitex	- 1000 times: x ≤ 100 g; 500 times: 100 g< x ≤ 200 g; 200 times: g< 100 x	et set set stet ni	N/A
TEX.	- pull force according to IEC 60884-1:2002, 24.10 for each pin	MULT MULT MULT ME	N/A
24. 2	b) torque test of the plug pins with 0,4 Nm	MULL MULL MULL MULL	N/A
16.5	Additional requirements for transformers to be used applications	l in vehicles and railway	N/A
16.5.1	Transformers to be used in vehicles and railway ap	plications	N/A
WALTER	An test according IEC 61373 shall be performed with conditions of Table 8 and Table 9 and the frequency values depending on the weight of the specimen are defined in Table 10	TER WHITE MITER WITER WHITE	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
10 F 0	Took you in month for the transportation of transfer	k tiek stiek stier wi	NI/A
16.5.2	Test requirements for the transportation of transformula Shock and vibration testing requirements for	Tiers	N/A N/A
	transformers subjected to while being transported per IEC 60721-3-2 with conditions according to Table 11 and Figure 8.	online antite antite vante	
17	PROTECTION AGAINST HARMFUL INGRESS OF	F WATER AND MOISTURE	Р
17.1	Degree of protection (IP code marked on the transfe	ormer)	Ø P
17.1.1	General requirements	IP20	Р
MULTE V	Test according to 17.1.2 and for other IP ratings test according to IEC 60 529:	WALTER WALTER WALTER WALTER	Р
ALTER ON	- stable operating temperature before starting the test for < IPX8	STEE METER WATER WATER	N/A
TEK WALT	- the water for the test shall be at a temperature of 15±10℃	CEL MILIER WHITER WHITER	N/A
WALTER WALTER	transformer mounted and wired as in normal use	e niter writer water was	N/A
NALTER O	- fixed transformer mounted as in normal use by the tests according to 17.1.2 A to J	Tet Tet Street Mile	N/A
	portable transformers placed in the most unfavourable position and wired as in normal use	THE WILLEY WILLEY	N/A
ek white	- glands tightened with a torque equal to two-thirds of 25.6	Service Silver Miller W	N/A
	After the tests:	70 7	N/A
wir.	- dielectric strength test according to 18.3	alter alte and wal	N/A
_et	Inspection:	Th. T. T. W.	N/A
irex and	a) no access with hazardous-live-parts or hazardous moving parts with the relevant test probe according to the test described in 17.1.2, items A 1), B 1) and C 1). The test finger may penetrate but the stop face (ø 50 x 20 mm) shall not pass through the openings for the number 2 of the first characteristic numeral	a file while while while	N/A
MULIER AN	b) no entry into the transformer enclosure by the relevant test probe for solid-object-proof transformers according to test described in 17.1.2, items A 2) and B 2). The protection is satisfactory if the full diameter of the probe does not pass through any openings;	WILLER MULTER MULTER MULTER	N/A
ien walte	c) no deposit of talcum powder in dust-proof transformers	Tex Whitek Whitek Whitek W	N/A
WALTER	d) no deposit of talcum powder inside dust-tight transformers	A STER WILER MILER MAN	N/A

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ill antil	IEC 61558-2-16			
Clause	Requirement + Test	Result - Remark	Verdic	
WALTER W	e) no trace of water on live parts except SELV parts below 15 V AC or 25 V DC or insulation if hazard for the user or surroundings no reduction of creepage distances	Whitek whitek whitek w	N/A	
ITEK WAL	f) no accumulation of water inside the enclosures of drip-proof, spray-proof, splash-proof and jet-proof transformers, which may impair safety	TEX WHITEK WHITEK WHITE	N/A	
WALTE	g) no trace of water entered in any part of water-tight transformer	MALTER WALTER WALTER	N/A	
17.1.2	Tests on transformers with enclosure:	at at let	TIE P	
41. 1	A) Solid-object-proof transformers:	When Mar Mar a	Р	
Vilek 'AU	- 2 IP2X test finger (IEC 60 529) and test pin (fig. 3)	LIFET MILES WALTER WAY	Р	
CENT SE	- rigid sphere	s st st st	P	
The	B) Solid-object-proof transformers:	E WILL WILL MAN	N/A	
- Jet	- IP3X, wire 2,5 mm; force 3 N	at at at	N/A	
201	- IP4X, wire 1 mm; force 1 N	with with me	N/A	
JUEN .	C) Dust-proof transformers, IP5X;	et et et	N/A	
763	1) At every possible point with a probe according to test probe D of B 1).	Will My My M	N/A	
in The	2) dust chamber according to IEC 60 529, fig. 2:	The country was	N/A	
ik JE	a) transformer has operating temperature	# . At	N/A	
- TEX	b) transformer, still operating, is placed in the dust chamber	MULL MULL MULL	N/A	
me.	c) the door of the dust chamber is closed	OLITER SPLITE SUPLIFY	N/A	
18th	d) fan/blower is switched on	The state of	N/A	
" K " " " " " " " " " " " " " " " " " "	e) after 1 min transformer is switched off for cooling time of 3 h	NITE WALL WALL WA	N/A	
AN CALL	D) Dust-tight transformers (IP6X) test according with C)	TER MUTTER MUTTER MUTT	N/A	
MALTE	E) Drip-proof transformers (IPX1) test according to fig. 3 of IEC 60 529 for 10 min	White white white	N/A	
MALTEK V	F) Rain-proof transformers (IPX2) test according to fig. 3 of IEC 60 529 for 10 min in operation, any angle up to 15°	MALIER MALIER MALIER W	N/A	
LIE WAITE	G) Spray proofed transformers (IPX3) test according to fig. 4 of IEC 60 529 for 10 min in operation and 10 min switched off, time for complete oscillation (2 x 120°) is 4 sec.	etek whitek white whi	N/A	
WALTER	H) Splash-proof transformers (IPX4) test according to fig. 4 of IEC 60 529 (see F) for 10 min in operation and 10 min switched off (the tube shall oscillate ≈360)	Whitek Whitek Whitek	N/A	

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Clause	Requirement + Test	Result - Remark	Verdict
ANCO.	I) Jet-proof transformer (IPX5) test according to fig. 6 of IEC 60 529 (nozzle 6,3mm)	White white white	N/A
uni wi	J) Powerful Jet-proof transformer (IPX6) test according to fig. 6 of IEC 60 529 (nozzle 12 mm)	nite white white w	N/A
3,1	K) Watertight transformers (IPX7)	we are an	N/A
ER WILLE	L) Pressure watertight transformers (IPX8)	t the the ste	N/A
17.2	After moisture test (48 h for IP20, 168 h for other transformers):	48h	P
70°	- insulation resistance and electric strength (Cl. 18)	mer mer mer	P
18	INSULATION RESISTANCE AND ELECTRIC STR	ENGTH	Р
18.2	Insulation resistance between:	a start of	P
24,	- live parts and body for basic insulation ≥ 2 MΩ	in while whis must	N/A
ynliek Vnliek	- live parts and body for reinforced insulation ≥ 7 MΩ	>100ΜΩ	WILL P
MITER	- input circuits and output circuits for basic insulation ≥ 2 MΩ	itely sitely sairely	N/A
LIER IN	- input circuits and output circuits for double or reinforced insulation $\geq 5~\text{M}\Omega$	>100ΜΩ	P
r Ek jili	- each input circuit and all other input circuits connected together $\geq 2~M\Omega$	- 1 Cult. 14 16	N/A
- Jest	- each output circuit and all other output circuits connected together $\geq 2~M\Omega$	white whi whi	N/A
ant.	- hazardous live parts and metal parts with basic insulation (Class II transformers) ≥ 2 MΩ	White White White	N/A
MUTTE M	 conductive parts of class II transformers which are separated from hazardous-live parts by basic insulation only, and the body ≥ 5 MΩ 	NITER WALLER WHITE W	N/A
LIE WALL	- metal foil in contact with inner and outer surfaces of insulating enclosures ≥ 7 MΩ	>100ΜΩ	Р
18.3	Electric strength test (1 min): no flashover or breakdown:	- Writek muriek	WALL P
J.E.	Overvoltage category:	II to the second	P
16x 2	functional insulation; working voltage (V); test voltage (V)	until with white	Tex Tex
Vr. 711	basic insulation; working voltage (V); test voltage (V):	(see table 18.3)	Р
in min	supplementary insulation; working voltage (V); test voltage (V):	antiek whitek whit	N/A
LITE	4) double or reinforced insulation:	(see table 18.3)	, LITE P

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TER MITE	IEC 61558-2-16	et tet liet aller mi	ie unite
Clause	Requirement + Test	Result - Remark	Verdict
anite and	5) Functional insulation for windings intended to be connected in series or parallel (test voltage = working voltage + 500 V)	White white writes	N/A
18.3.1	A partial discharge test according to IEC 60664-1, (see test description below) shall be performed, if FIW wires or TIW wires are used and if the recurring peak working voltage Ut across the insulation is greater than 750 V. The relevant recurring peak voltage is the maximum measured voltage between the input and the output circuit, if the secondary side is earthed. The measuring shall be done at 1,0 of the maximum rated input voltage.	TEK Whitek Whitek Whitek W	N/A
18.3.1.101	For transformers incorporated in an SMPS in accordance with Annex BB, a partial discharge type test in accordance with Annex AA shall be performed	SLITER MALIER MALIER MALIER	N/A
18.4	Does not apply (IEC 61558-2-16:2021)	er with with min m	-
18.101	SMPS shall fulfil the impulse dielectric test in accordance with Annex R of IEC 61558-1:2017	at the fit of	Р
Whitek White	After the test of 18.3, the SMPS shall be connected to the impulse test equipment. The impulse dielectric test shall be carried out in accordance with Annex R of IEC 61558-1:2017 between the input and output terminals of the SMPS. The interval between the impulses shall be at least 1 s if the impulses are produced inside the SMPS.	Junit whitek whitek whitek whitek	Р
	During the test, there shall be no breakdown of the insulation between turns of a winding, between input and output circuits, between adjacent input or output circuits, or between the windings and any conductive core	Tex Tex Street Willer	P
18.5	Touch current and protective earthing conducto	r current	Р
18.5.1	General	THE LIFE NITE WITE	Р
18.5.2	Touch current		Р
ett white et whitet wheret wh	Touch current measured after the clause 14 test (hot) for class I and class II transformers (class II transformers with metal foil at the plastic surface). The test circuit according figure 10. Measuring network according Figure J.1 (Annex J). If the frequency is >30kHz, measuring across the 500 ohm resistor of J.1 (burn effects).	LEK WILLER WILLER WILLER WILLER	Р
NITER WILL	Measurement of the touch current with switch p in both positions and in combination with switches e and n. The measured values are less than the required values of table 15.	STEK WALTER WALTER	Р
ر با	switches n and e in on position	me me me	N/A
NALIE W	switch n: off and switch e: on	LIEF OLIER WITE MILE	N/A
25	switch n: on and switch e: off	0.076mA(limit: 0.5mA)	Р

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Clause	Requirement + Test	Result - Remark	Verdict	
18.5.3	Protective earthing conductor current	onlies writer writer	N/A	
JEE .	The transformer is connected as in clause 14	at at let .	N/A	
riek wir. Grunner	Impedance of the ammeter < 0,5 ohm, connected between earthing terminal of the transformer and protective earthing conductor	Nite Milit Milit Milit	+	
	The measured values are less than the required values of table 15.	t lit tilt stilt	N/A	
19	CONSTRUCTION		Р	
19.1	General construction	Let Jet Jet .	LITE P	
19.1.1	General	me me m	Р	
19.1.2	Auto-transformers	No auto-transformers	N/A	
19.1.2.1	Plug connected auto-transformers where the rated input voltage is higher than the rated output voltage, shall not have any potential to protective earthing at the output socket higher than the rated output voltage.	No polarised input	N/A	
19.1.2.2	Polarised input and output plug and socket-outlet system: an instruction shall be given for not using such a transformer with a nonpolarized plug and socket-outlet system.	JUNITE WHILL WHILL W	N/A	
19.1.2.3	A polarity detecting device only energises the output in the case: output potential to earth ≤ rated output voltage, also with reversed input plug.	THE WALLEST WHILE	N/A	
	- The contact separation of the device is ≥ 3mm	The second	N/A	
2,,	- A current to earth does not exceed 0,75 mA.	whit with whi	N/A	
WILLEY.	- All tests are repeated under fault conditions of H.3.3. The potential to earth does not exceed 1,1 times the max output voltage for more than 5 s.	Martin Miles Walter	N/A	
iek muti	for class I transformers, the insulation between the input / output winding and the body shall consist of at least basic insulation (rated for the working voltage)	LEK MUTEK MUTEK MUTE	N/A	
* WALTER	 for class II transformers, the insulation between the input / output winding and the body shall consist of double or reinforced insulation (rated for the working voltage). 	united united united	N/A	
19.1.3	Separating transformers	ALTER WITE WALTER WA	Р	
19.1.3.1	Input and output circuits electrically separated.	n v	_j P	
19.1.3.2	The insulation between input and output winding(s) consist of basic insulation	LEE WHILE MULL MULL	Р	
WALT	Class I transformer	EX STEE STEEL STEEL	uni -	
- JEX	Insulation between input windings and body consist of basic insulation	in the left	N/A	

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Clause	Requirement + Test	Result - Remark	Verdic
White .	- Insulation between output windings and body consist of basic insulation	White white white wh	N/A
ne m	Class II transformer	ULIE WILL WALL WALL	Р
LIEK WALI	Insulation between input windings and body consist of double or reinforced insulation	Tet Street Miles Miles	N/A
e antiek	Insulation between output windings and body consist of double or reinforced insulation	t tet tet stet	Р
19.1.3.3	The insulation between input windings and intermediate conductive parts and the output windings and intermediate part consist of basic insulation	MULTER MULTER MULTER MAL	N/A
NLTE VIN SER SE	For class I transformer the insulation between input and output windings via the intermediate conductive parts consist of basic insulation	Street White White White	N/A
MALTER.	For class II transformer the insulation between input winding and the body and between the output windings and the body via the intermediate conductive parts consist of double or reinforced insulation.	white white white w	P P
19.1.3.4	Parts of output circuits may be connected to protective earthing	Intife Multer White White	N/A
19.1.3.5	No direct contact between output circuits and the body, unless:	THE WALTER WALTER	N/A
EK WALTER	- Allowed for associated transformers by the relevant equipment standard	intile white whitek	N/A
19.1.4	Isolating transformers and safety isolating transformers	THE STIFE MITES WAY	Р
19.1.4.1	Input and output circuits electrically separated	14 14 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Р
inti, in	No possibility of any connection between these circuits	NITER WHITE WAITE WALL	Р
19.1.4.2	The insulation between input and output winding(s) consist of double or reinforced insulation (exception see 19.1.4.4)	LEX WILLEY WHITE WHITE.	P
	Class I transformers not intended for connection to the mains by a plug:	MULLE MULLE MULL M	N/A
WALL ON	Insulation between input windings and body connected to earth consist of basic insulation (rated for the input voltage)	White white white whi	N/A
EK WITE	Insulation between output windings and body, connected to earth consist of basic insulation rated (rated for the output voltage)	et tet tet stet	N/A
- Jet	Class I transformers intended for connection to the mains by a plug:	The the the	N/A

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	IEC 61558-2-16		LIE MIL
Clause	Requirement + Test	Result - Remark	Verdict
unliek unliek	- Insulation between input windings and body connected to earth consist of basic insulation (rated to the working voltage)	White white white	N/A
TEX WALT	Insulation between output windings and body, connected to earth consist of supplementary insulation (rated for the working voltage)	TEX WILLEY MULTER MULTER OF	N/A
t cet	Class II transformers	L st st st s	Р
WILLER OF	Insulation between input windings and body consist of double or reinforced insulation (rated for the input voltage)	TEX STEX STEX SOLIE	Р
NITEH WIN	 Insulation between output windings and body consist of double or reinforced insulation (rated for the output voltage) 	aret milet whilet	Р
19.1.4.3	For transformers with intermediate conductive parts not connected to the body (between input/output):	Iron core was considered as primary circuit	N/A
19.1.4.3.1	For class I and class II transformers the insulation between input and output windings, via intermediate conductive parts, consist of double or reinforced insulation (rated for the working voltage)	Whitet whilet whilet whi	N/A
uni w Liek wali Ek waliek	- For class II transformers the insulation between input winding and the body and between the output windings and the body via the intermediate conductive parts consist of double or reinforced insulation. (rated for the input voltage and output voltage), for SELV circuits only basic insulation is required.		N/A
MULTER MAI	- For transformers, different from independent, the insulation between input and output windings, via intermediate conductive parts, consist of double or reinforced insulation (rated for the working voltage)	MILIER WHITER WHITER	N/A
19.1.4.3.2	Class I transformers with earthed core, and not allowed for class II equipment	et ret tret state	N/A
	Insulation between the input winding and the earthed core: basic insulation rated for the input voltage	orites writes and the	N/A
MUTIEK M	- Insulation between the output winding and the earthed core: basic insulation rated for the output voltage	UNLIEK WALTER WALTER	N/A
19.1.4.3.3	Insulation between: input and intermediate conductive parts, and output and intermediate parts consist of at least basic insulation	LIEK WHITEK WHITEK	Р
Whitek	If the insulation from input or output to the intermediate metal part is less than basic insulation, the part is considered to be connected to input or output.	Iron core was considered as primary circuit	Р

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	IEC 61558-2-16		
Clause	Requirement + Test	Result - Remark	Verdict
19.1.4.4	For class I transformers, with protective screen, not connected to the mains by a plug the following conditions comply:	White white white	N/A
LIEY WALT	The insulation between input winding and protective screen consist of basic insulation (rated for the input voltage)	TEK MILTER WILLER WILL	N/A
WALTER	- The insulation between output winding and protective screen consist of basic insulation (rated for the output voltage)	WALTER WALTER	N/A
White W	The protective screen consist of metal foil or a wire wound screen extending the full width of the windings and has no gaps or holes	united united united u	N/A
ne white	- Where the protective screen does not cover the entire width of the input winding, additional insulation to ensure double insulation in this area, is used.	STER WHITE WALLEY WHITE	N/A
K WILLER	- If the protective screen is made by a foil, the turns are isolated, overlap at least 3 mm	STEE STEET MITTEE	N/A
ounlites an	- The cross-section of the screen and the lead out wire is at least corresponding to the rated current of the overload protective device	MITEX WHITEX WHITEX	N/A
LIEK WALT	- The lead out wire is soldered or fixed to the protective screen.	and the sound	N/A
ek waitek	For transformers for connection to the mains by the means of a plug of any type (incorporating or not), the alternative with basic insulation plus protective screening is not allowed.	MULTER WILLIAM MINITER	N/A
19.1.4.5	No connection between output circuit and protective earth, except of associated transformers (allowed by equipment standard) or 19.8 is fulfilled.	MILIER WALLER WHITE V	N/A
19.1.4.6	No connection between output circuit and body, except of associated transformers (allowed by equipment standard) or when 19.8 is fulfilled.	nite milit milit m	N/A
19.1.4.7	The distance between input and output terminals for the connection of external wiring is ≥ 25 mm	Mar and an	Р
19.1.4.8	Portable transformers having an rated output ≤ 630 VA shall be class II.	MULL MULL MULL	Р
19.1.4.9	No connection between output circuit and body except of associated transformers (allowed by equipment standard)	antie antie antie o	P P
19.1.4.10	Protective screening is not allowed for transformers with plug connection to the mains		N/A
19.2	Flammability of materials	E WILL WILL WILL	n P
WALTER	Materials known to be highly flammable, such as celluloid, shall not be used in the construction of transformers.	SLIEF SMITH WALTER	MALTE P

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The state of	IEC 61558-2-16	et the other all	THE WALL
Clause	Requirement + Test	Result - Remark	Verdict
an it	Cotton, silk, paper and similar fibrous material shall not be used as insulation, unless impregnated.	White Mile Mile	P
inere an	Wax and similar impregnators shall not be used, unless suitably restrained from migration	ALTER WALTER WALTER W	Р
ITER WAL	Wood, even if impregnated, shall not be used as supplementary or reinforced insulation	TEX MILIER WALTER WAL	N/A
19.3	Short-circuit characteristics of portable transformers	L A A A	Р
an,	Portable transformer: short-circuit proof or fail-safe	WILL WILL MU	P P
19.4	Class II transformer contact prevention of accessible conductive parts		
VILEX AN	There shall be provisions to prevent contact between accessible conductive parts and conduits or metal sheaths of supply wiring for class II transformers.	unite water water	NI P
19.5	Class II transformer insulation reassembling after se	rvice	N/A
- Writek	Parts of class II transformers serving as supplementary insulation or reinforced insulation which might be omitted during reassembly after servicing, shall either:	- NIEK WIEK WITEK	N/A
JEt.	 be fixed in such a way that they cannot be removed without being seriously damaged; or 	at at let	N/A
	be so designed that they cannot be replaced in an incorrect position and that, if they are omitted, the transformer is rendered inoperable or is manifestly incomplete	meri wali wali wa	N/A
ek waite	Sleeving may, however, be used as supplementary insulation on internal wiring, if it is retained in position by positive means.	antie milit mulie	N/A
19.6	Loosening of wires, screws or similar parts		
writek wr	Class I and II transformers: creepage distances and clearances over supplementary or reinforced insulation if wire, screw, nut, etc. become loose or fall out of position not less than 50% specified values (Cl. 26)	MILIER MILITER MILITER W	nn P
19.7	Resistor or capacitor connection with accessible con	nductive parts	N/A
MUTIEN	Conductive parts connected to accessible metal parts by resistors or capacitors shall be separated from hazardous live parts by double or reinforced insulation	No such parts	N/A
19.8	Bridging of separated conductive parts by resistors of	or capacitors	Р
LIEK WA	Resistors or capacitors connected between hazardous live parts and the body (accessible metal parts) consist of:	THE WATER WATER	TEX P
JUNITE WALTE	- components according to IEC 60 065, 14.2 or capacitor Y2 according to IEC 60 384-14	ex milex mater mate	N/A
LIEN	- at least two separate components	at at at	P
an.	- if one component is short-circuited or opened, values specified in Cl. 9 shall not be exceeded	men men men	Р

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Clause	Requirement + Test	Result - Remark	Verdic
Will.	- if the working voltage is ≤ 250 V, one Y1 capacitor according 60384-14 is allowed	White white with white	Р
izek "vi	- For a working voltage above 250 V AC and not exceeding 500 V AC and an overvoltage category III, two Y1 capacitors are required.	NITE WALL WALL WALL WALL	N/A
19.9	Insulating material separating input and output windi	ings	N/A
WALTE	Insulation material input/output and supplementary insulation of rubber resistant to ageing	MUNITER WHITER WHITER WHI	N/A
WALTER J	Creepage distances (if cracks) > specified values (Cl. 26)	NATER ANTER MINITER WHITE	N/A
19.10	Accidental contact protection against hazardous-live coating	-parts provided by isolating	N/A
iek alif	Protection against accidental contact by insulating coating:	et fet ifet sitet e	N/A
	a) ageing test (IEC 60068-2-14), test Na: 168 h; 70± 2°C	- Tet Tet Tet Will	N/A
on Citest	b) impact test (spring-operated impact hammer according to IEC 60 068-2-75; 0,5 ± 0,05 J)	or of the set	N/A
	c) scratch test (hardened steel pin) electric strength test according to Cl. 18.3	Will Must Aug Aug	N/A
19.11	Insulating material of handles, operating levers, knobs and similar parts		
# (TE	Handles, levers, knobs, etc.:	it list	N/A
n.	- insulating material	antit ant ant an	N/A
	- supplementary insulation covering	at the the the	N/A
	- separated from shafts or fixing by supplementary insulation	while must must must be	N/A
19.12	Winding construction	nuter anute wait was	Р
19.12.1	Undue displacement in all types of transformers not allowed:	set street mires anirest on	Р
الحار با	- of input or output windings or turns thereof	an a start	Р
Aller.	- of internal wiring or wires for external connection	MULTER MULTER MULTER MULT	Р
White w	of parts of windings or of internal wiring in case of rupture or loosening	WALTER WALTER WALTER	Р
19.12.2	Serrated tape:	Winding not contact wound parts, TIW used as Secondary winding	Р
Whis	- distance through insulation according to table 22	ex mortex mortes mire and	Р
MLTER	- one additional layer of serrated tape, and	TEX SEX STEX WITH	N/A
200	- one additional layer without serration	Mir. My. M. M.	N/A

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L. Wr.	IEC 61558-2-16	the the the wife of	ir, arr
Clause	Requirement + Test	Result - Remark	Verdict
Whitek W	in case of cheekless bobbins the end turns of each layer shall be prevented from being displaced	While while while	N/A
19.12.3	Insulated winding wires, in an insulation system providing basic, supplementary or reinforced insulation, shall meet the following requirements.	TEX STEX STEX SPLIES	Р
EX MITES	Multi-layer extruded or spirally wrapped insulation, passed the tests of annex K	t fit fit still is	Р
TER	Basic insulation: two wrapped or one extruded wire	A LA LA ST	Р
THE T	Supplementary insulation: two layers, wrapped or extruded	unit was the tit	Р
24 % Wr. M	Reinforced insulation: three layers wrapped or extruded	Still Wall Wall Wall	Р
The Maria	Spirally wrapped insulation:	ER WILL WILL MILL M	N/A
y anite	creepage distances between wrapped layers > cl. 26 _ P1 values	- tek stek stek ski	N/A
NITE!	path between wrapped layers sealed, the test voltage of K2 is multiplied with 1,35	alt to the state with	N/A
<u> </u>	test 26.2.4 – Test A, passed for wrapped layers	no mo m	N/A
NLTER WAY	the finished component pass routine test for the electric strength test according to cl. 18.3	THE MILITER MILITERS	N/A
a)	Insulated winding wire used for basic or supplementary insulation in a wound part:	onlie while mulies w	N/A
t det	comply with annex K	1 ct 10t 15	N/A
m.	two layers for supplementary insulation	WILL MULL MULL MULL	N/A
Jak .	one layer for basic insulation	A SER SER SER	N/A
out wh	one layer for mechanical separation between the insulated wires of primary and secondary. This layer fulfils the requirement of basic insulation.	TEX MUTER MUTER MUTER	N/A
b)	Insulated winding wire used for reinforced insulation in a wound part:	MILIER WHITER WHITER WHI	Р
TEX	comply with annex K	at at at at	Р
11, 1	three layers	MILL MILL MILL MILL	Р
ALTEK IN	relevant dielectric strength test of 18.3	et tet tet tet	N/A
	Where the insulated winding wire is wound:	it mi me me	N/A
16th 10 17th	upon metal or ferrite cores	at the tipe attern	N/A
	upon enamelled wire	m. m. m.	N/A
TALLE.	under enamelled wire	THE LIFE LIFE WI	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
MUTER M	one layer for mechanical separation between the insulated wires and the core or the enamelled wires is required. This layer fulfils the requirement of basic insulation.	Antiet Multer Multer	N/A
LIER WAL	both windings shall not touch each other and also not the core.	TEX MITER MILIER WAS	N/A
et cet	100 % routine test of Annex K3 is fulfilled	e state	N/A
- TEN	no creepage distances and clearances for insulated winding wires	MILL MULL MULL	N/A
c)	Toroidal cores used with TIW wires for double or reinforced insulation between the primary and secondary circuits shall comply with the following:	unite unit unit	MAL P
n de	a coating which fulfils the requirements of basic insulation between a winding and the core	it was not any in	N/A
WALTER W	2) The primary winding consists of TIW wire with 3 layers (reinforced insulation) and the secondary winding consists of enamelled wire. These independent windings shall not be able to contact each other either by mechanical separation or a gap which fulfil the dielectric strength tests for basic insulation.	MILIER MILIER MILIER	N/A
PLIET WALTE	3) For polyfilar windings (primary and secondary windings in contact with each other), the primary winding consists of TIW wire with 3 layers and the secondary winding consists of a TIW wire with 1 layer (requirements for primary and secondary windings can be changed). This construction also is allowed for use with EEcores or similar.	Multer white white white white white white	TEC N/A
d) The M	Toroidal cores used with FIW wires for double or reinforced insulation between the primary and secondary circuits shall comply with the following:	NITER WHITER WHITER W	N/A
LIER WIL	a coating, which fulfil the requirements of basic insulation.	IER NUTER MUTER MUT	N/A
ak whitek	2) The primary winding consists of FIW wire for reinforced insulation and the secondary winding consist of FIW wire – of basic insulation. These independent windings shall not be able to contact each other either by mechanical separation or a gap which fulfil the dielectric strength test for basic insulation.	united whited whited	N/A
TEX WALTE	3) For polyfilar windings (primary and secondary windings in contact with each other), the primary winding and the secondary winding consist of FIW wire for reinforced insulation. This construction also is allowed to use for EEcore or similar.	A MULTER MULTER MULT	N/A

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IEC 61558-2-16			
Clause	Requirement + Test	Result - Remark	Verdict
e)	Toroidal cores used with TIW in combination with FIW wire, for double or reinforced insulation between the primary and secondary circuits shall comply with the following:	White Miles Whites	N/A
LIER WAL	a coating, which fulfils the requirements of basic insulation.	TEX UNITER WALTER WALT	N/A
ounties on	2) The primary winding consists of FIW wire for reinforced insulation, and the secondary winding consists of TIW wire for basic insulation (1 layer). These independent windings shall not be able to contact each other either by mechanical separation or a gap which fulfil the dielectric strength tests for basic insulation.	AND TEX WHITEK WHITEK	N/A
TEK WILTE VIII.TEK TEK	3) For polyfilar windings (primary and secondary windings in contact with each other), the primary winding consists of TIW wire for reinforced insulation (3 layer) and the secondary winding consists of FIW wire for reinforced insulation. This construction also is allowed for use with EE-cores or similar.	EX WALTEX WALTER WALTER	N/A
f)	Toroidal cores used with TIW in combination with FIW wire, for basic insulation between the primary and secondary circuits shall comply with the following:	mite muit muit mi	N/A
EK WALTE	1) a coating, which fulfils the requirements of basic insulation	The Milk White	N/A
	2) The primary winding consists of FIW wire for basic insulation, and the secondary winding consists of TIW wire for basic insulation (1 layer). These independent windings shall not be able to contact each other either by mechanical separation or a gap which fulfils the dielectric strength tests for basic insulation.	NUTER WHITER WHITER WA	N/A
WALLEY W	3) For polyfilar windings (primary and secondary windings in contact with each other), the primary winding consists of TIW wire for supplementary insulation (2 layers) and the secondary winding consists of FIW wire for basic insulation. This construction also is allowed for use with EE-cores or similar.	THE WILLE WHITE WHITEK	N/A
NLTEX WA	4) Further polyfilar constructions with FIW and TIW wires in combination with enamelled wires for basic insulation only:	LIET WHITEK WHITEK WAT	N/A
	4.1) Primary winding consists of enamelled wire, secondary winding consists of FIW wire for reinforced insulation	A MULTER MULTER WALTE	anit K
	4.2) Primary winding consists of enamelled wire, secondary winding consists of TIW wire for reinforced insulation	WALTER WALTER WALTER	

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Clause	Requirement + Test	Result - Remark	Verdict
19.12.3.1	Max. class F for transformers which use FIW-wire	White Multiple	N/A
19.12.3.2	FIW wires comply with IEC 60851-5:2008, IEC 60317-0-7 and IEC 60317-56.	NITER WILLER W	N/A
LIER WALTE	other nominal diameter as mentioned in table 24 can be calculated with the Formula (6) in 26.3.5:	TEX MUTER MUTER MUT	N/A
Mer	FIW wire used for basic or supplementary insulation for transformers according 19.1.3:	MILIER WALTER WALTER	wri -
Watter W	the test voltage of table 14, based on the working voltage of basic or supplementary insulation, comply with the min. voltage strength of table 24	Whitek Whitek whitek	N/A
	one layer for mechanical separation is located between the insulated wires of primary and secondary. This layer fulfil the requirement of basic insulation	et while writes while	N/A
WALL .	between FIW and enamelled wire, no requirements of creepage distances and clearances	whitek white white	N/A
ne in	no touch of FIW and enamelled wires	Write Auto Mar M	N/A
	FIW wire used for double or reinforced insulation for transformers according 19.1.4:	antiet uni	7 TER
et waiter	the test voltage of table 14, based on the working voltage of basic or supplementary insulation, comply with the min. voltage strength of table 24	white white	N/A
an a	for primary and secondary winding FIW-wire for basic insulation is used	white main was	N/A
irex murie	one layer for mechanical separation is located between the insulated wires of primary and secondary. This layer fulfil the requirement of basic insulation	NITER WALTER WALTER WALT	N/A
Whitek W	no touch between the basic insulated PRI and SEC FIW-wires	TIEK NITEK MATEK	N/A
	between PRI- and SEC-FIW wires, no requirements of creepage distances and clearances	uniter whilet whilet	N/A
LIEK WILL	Alternative construction used for reinforced insulation (reinforced insulated FIW wire and enamelled wire)	LIEK WHITEK WHITEK WH	N/A
ie white	the test voltage of table 14, based on the working voltage reinforced insulation, comply with the min. voltage strength of table 24	EX WHITEK WHITEK WHITE	N/A

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	W	71
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	200	

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Clause	Requirement + Test	Result - Remark	Verdict
Whitek M	one layer for mechanical separation is located between the reinforced insulated FIW wire and the enamelled wire. This layer fulfil the requirement of basic insulation	White Miles Miles	N/A
LIER WAL	no touch between the FIW wire and the enamelled wire	TEX MITTER MILIER WIN	N/A
EK WALTER	between the reinforced FIW wire and any other parts, no requirements of creepage distances and clearances exist	A WALTER WALTER WALTE	N/A
WALL V	Alternative construction with FIW wires, basic or supplementary insulated for transformers with double or reinforced insulation:	united united united.	N/A
TEX WHITE	the test voltage of table 14, based on the working voltage of basic or supplementary insulation, comply with the min. voltage strength of table 24	et while while whi	N/A
y whites	PRI or SEC basic insulated FIW wire and to the other winding (enamelled wire) requirements of supplementary insulation	Whitek whitek whitek	N/A
	creepage distances and clearances between the basic insulated FIW wire and the enamelled wire for basic or supplementary insulation are required.	UNLIER WHITE WHITE W	N/A
ان عد	Where the FIW wire is wound	3 (3)	N/A
Wir	upon metal or ferrite cores	ALTE WITH MALT	N/A
WALTER.	one layer for mechanical separation between the insulated wires and the core or the enamelled wires is required. This layer fulfils the requirement of basic insulation.	WHITEK WHITEK WHITEK	N/A
in m	both windings shall not touch each other and also not the core.	NITE WHITE WALL W	N/A
19.13	Fixing of handles, operating levers and similar parts	TER STEE WITE MI	N/A
ek whitek	Handles, operating levers and similar parts shall be fixed in a reliable manner so that they will not become loose as a result of heating, vibration, etc. which may occur in normal use.	MULTER MULTER MULTER	N/A
19.14	Fixing of covers providing protection against electric	shock	NALTE P
	Protection against electric shock: covers securely fixed, 2 independent fixing means, one with tool	at let let	P
19.15	Strain on fixed socket-outlets caused by pin-transformers connection		N/A
TEN MALTE	Transformer with pins for fixed socket-outlets: no strain on socket-outlet	ex unifer whilek whi	N/A
L CIEN	Additional torque ≤ 0,25 Nm	at at at	N/A
19.16	Portable transformers for use in irregular or harsh co	onditions	Р

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Clause	Requirement + Test	Result - Remark	Verdic
WELL TELL	Portable transformers for use in irregular or harsh conditions	which while while wh	Р
itek wi	Portable transformers having a weight not exceeding 18 kg shall have a protection index IPX4 or higher.	IP20 for indoor use only.	Р
19.17	Drain hole of transformers protected against ingress	of water	N/A
ek waite Waitek	Transformers having a protection index from IPX1 up to and including IPX6 shall have an effective drain hole at least 5 mm in diameter or 20 mm ² in area, with a width of at least 3 mm.	MUNITER WHITE WATER W	N/A
Vilex An	The drain hole is not required if the transformer, including its windings and core and all uninsulated live parts, are completely embedded in a potting material.	while while while while	N/A
19.18	Plug connected transformers protected against ingre	ess of water	N/A
- JEK	Transformers classified for a protection index higher than IPX1 and having a cord provided with a plug; it shall be a moulded-on plug.	er white white white	N/A
19.19	Flexible cable or flexible cord connection for class I	portable transformers	N/A
NATIEK N	Class I transformers with a non-detachable flexible cable or cord with earth conductor and a plug with earth contact	UNITER WHITER WHITER WHIT	N/A
19.20	SELV- and PELV-circuit separation of live parts	at the street	Р
EK MITE	Live parts of SELV- and PELV-circuits shall be electrically separated from each other and from other circuits	SELV	P
	- SELV output circuits separated by double or reinforced insulation from all other than SELV or PELV circuits	witer writer whiter and	P
in ^{liek} vin	- SELV output circuits separated by basic insulation from other SELV or PELV circuits	LIER WIEL WITER WHITE	N/A
19.20.1	SELV circuits and parts not connected to protective earth, to live parts, or protective conductors forming part of other circuits	let writet writet writet	N/A
	Nominal voltage (V) > 25 V a.c. or 60 V d.c., the required insulation fulfils the high voltage test according to table 14	Whitek Whitek Whitek W	N/A
19.20.2	PELV-circuits double or reinforced insulation is necessary	UNLIER WALTER WALTER WAL	N/A
19.21	Protection against contact for FELV-circuit	let let let liet liet	N/A
	FELV-circuits: protection against contact fulfils the min. test voltage required for the primary circuit	t st set tet	N/A
19.22	Protective earthing regarding class II transformers	THALL WALL WALL	N/A
MALTEK.	Class II transformers shall not be provided with means for protective earth	LIER OUTER WITER MY	N/A

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IEC 61558-2-16			
Clause	Requirement + Test	Result - Remark	Verdic
MILIEK MILIEK MILIEK MI	A class II transformer intended for looping-in may have an internal terminal for maintaining the electrical continuity of a protective earthing conductor not terminating in the transformer, provided that the terminal is insulated from the accessible conductive parts by class II insulation.	NITER WHITE	N/A
19.23	Protective earthing regarding class III transformers	is mi me me	N/A
WALTE	Class III transformers shall not be provided with means for protective earth	NUNLIER WHITER WHITER WHITE	N/A
20	COMPONENTS		Р
20.1	Components such as switches, plugs, fuses, lamp holders, capacitor and flexible cables and cords, comply with relevant IEC standard	See appended Critical Component list.	Р
TEK MIT	Components inside the transformer pass all tests of this standard together with the transformer tests	et set set with a	Р
t Tet	Testing of components separately to the transformer according the relevant standard:	THE THE THE THE	Р
ONLIEK O	- Ratings of the component in line with the transformer ratings, including inrush current. Component test according the component standard, based on the component marking (rating).	White whitek whitek whitek	N/A
in mi	- Components without markings tested under transformer conditions including inrush current.	antit whit w	Р
	If no IEC standard exists, the component is tested under transformer conditions.	Components complied with IEC or UL. Components which comply with UL standard only are tested additionally under transformer conditions.	Р
20.2	Appliance couplers for main supply shall comply with:	SLIER WHITER WHITER	N/A
C. J.	- IEC 60 320 for IPX0	at the late of	N/A
21,	- IEC 60320-2-3 or IEC 60309 for other	the mile me me me	N/A
20.3	Automatic controls shall comply with IEC 60730-1	L At All All All	N/A
20.4	Thermal-links comply with IEC 60691	mer me me m	N/A
20.5	Switches shall comply with annex F	No switch	N/A
7, ,	Disconnection from the supply:	mer mer mer m	N/A
ALTER ON	by a switch, disconnecting all poles of the supply (full disconnection under the relevant overvoltage category)	THE WALTER WALTER WALTER	N/A
, Mr.	- or a flexible supply cable and cord with plug	Direct plug-in only	N/A
NLIEK	or an instruction sheet: disconnection by all- poles switches incorporated in fixed wiring	The state with with	N/A

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	IEC 61558-2-16		
Clause	Requirement + Test	Result - Remark	Verdict
20.6	Socket-outlets of the output circuit shall be such that there is no unsafe compatibility to plugs complying with input circuit.	while while while	N/A
itek mi	SELV plug and socket-outlets shall comply with IEC 60 884-2-4 and IEC 60 906-3	et set set	N/A
MALTER	Plugs and socket-outlets for SELV systems with both a rated current ≤3A and a rated voltage ≤ 24 VAC or 60VDC with a power not exceeding 72W are allowed to comply only with following:	MALTER MALTER MALTE	N/A
White 4	It is not possible for plugs to enter socket- outlets of other standardised voltage system	WHITEK WHITEK WHITEK	N/A
NLTEK WIN	- Socket outlets do not accommodate plugs of other standardised voltage systems	LIER WILER WILER	N/A
IEK WALTE	- Socket outlets do not have a protective earth contact	et the street mit	N/A
LITER	PELV plug and socket-outlets shall comply with following:	THE THE THE	N/A
7 (1)t	It is not possible for plugs to enter socket- outlets of other standardised voltage system	me me me	N/A
in i	- Socket outlets do not accommodate plugs of other standardised voltage systems	until white whit y	N/A
TILL MAN	- Socket outlets do not have a protective earth contact	The familie and	N/A
MULLE	FELV plug and socket-outlets shall comply with following:	White white white	N/A
WALTER	It is not possible for plugs to enter socket- outlets of other standardised voltage system	MITEL MALIER WALTER	N/A
INLIEK WI	- Socket outlets do not accommodate plugs of other standardised voltage systems	THE STEEL STIEF OF	N/A
20.7	Thermal cut-outs, thermal links, overload relays, fuses and other overload protective devices shall have adequate breaking capacity	SEX MILES MUTER MUT	EK P
WALTER	- Thermal cut outs fulfil the relevant requirements of 20.8 and 20.9	- NUTEK WALTER WALTER	N/A
MITEK	- Thermal links fulfil the relevant requirements of 20.9	THE STEE STEET	N/A
LIEK K	- The breaking capacity is in accordance with the relevant fuse standard		P
EK WALTE	For fuses according IEC 60127 and IEC 60269, the fuse current does not exceed 1,1 times of the rated value	of still with the	P P
20.8	Thermal cut outs shall meet the requirements of 20.8.1.1 and 20.8.2, or 20.8.1.2 and 20.8.2.	Tet Tet Tet	N/A
20.8.1	Requirements according to IEC 60730-1	me me me	N/A

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IEC 61558-2-16			- Write Who
Clause	Requirement + Test	Result - Remark	Verdict
20.8.1.1	Thermal cut-out tested as component shall comply with IEC 60 730-1	White white white	N/A
ار بار در بار	a) Thermal cut outs type 1 or type 2 (see 6.4 of IEC 60730-1:2013)	NETER WALLE WHILE W	N/A
EK WATTER	b) Thermal cut outs fulfil the requirements of micro-interruption (type 1.C or 2.C) or micro-disconnection, (type 1.B or 2.B) (see IEC 60730-1:2013)	Test white white whi	N/A
MALTER	c) Thermal cut outs with manual rest have a trip free mechanism (type 1.E and 2.E) (see IEC 60730-1:2013)	united united united	N/A
INLIEK WA	d) The number of cycles of automatic action shall be:	LIEK MITER MATER ON	N/A
at de	- 3000 cycles for self-resetting thermal cut-outs		M/A
4 "I"	- 300 cycles for non-self-resetting thermal cut- outs resetting by hand	er white white whi	N/A
mr	- 300 cycles for non-self-resetting thermal cut- outs resetting disconnecting	White White White	N/A
MULIE M	- 30 cycles for non-self-resetting thermal cut-outs which are only resettable by a tool	UNLIEK WALTER WALTER	N/A
NITEK WINI	e) Thermal cut outs fulfil the electrical stress according 6.14.2 of IEC 60730-1:2013	Et MILIET WI	N/A
Et SEY	f) Characteristic of thermal cut-outs:	* t 16	N/A
"In"	- ratings according IEC 60730-1:2013, cl. 5	MALIE WALL WALL	N/A
- Set	- classification according to:	A ST SET	N/A
20 1	1) nature of supply to IEC 60730-1:2013, cl. 6.1	while mure mure	N/A
unliek wh	2) type of load controlled to IEC 60730-1:2013, cl. 6.2	STEET MITTER WALTER	N/A
LIEK WALT	3) degree of protection IPX0 to IEC 60730- 1:2013, cl. 6.5.1	tek sitek mitek ini	N/A
ek mijek	4) degree of protection IP0X to IEC 60730- 1:2013, cl. 6.5.2	- Let Let Tel	N/A
7,,	5) pollution degree to IEC 60730-1:2013, cl. 6.5.3	mer mer m	N/A
WALTE W	6) comparative tracking index to IEC 60730- 1:2013, cl. 6.13	UNLIER WHITER WHITER	N/A
NITEK WA	7) max. ambient temperature to IEC 60730- 1:2013, cl. 6.7	LIET WILET WILET	N/A
20.8.1.2	Thermal cut-out tested as a part of the transformer, test with 3 samples:	et lifet niget spir	N/A
t stiet	- at least micro-interruption or micro-disconnection (IEC 60730-1:2013)	of the lift	N/A
200	- 300 h aged at ta (transformer) + 10°C	Mr. Mr. M.	N/A

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IEC 61558-2-16			
Clause	Requirement + Test	Result - Remark	Verdict
ANGEL -	- subjected to a number of cycles for automatic operating according 20.8.1.1	white white white	N/A
itek mut	During the test no sustaining arcing shall occur, during and after the test no damage at the thermal cut out and the transformer in the sense of this standard	Nate Multi Multer Mult	N/A
20.8.2	Thermal cut-outs shall have adequate breaking capacity	t night night ship	N/A
20.8.2.1	The output of the transformer with a non-self-resetting thermal cut out is short circuited at a supply voltage 1, 1 of rated supply voltage. After opening of the cut off, the supply voltage is switched of, until the transformer is cooling down.	Whitek whitek whitek	N/A
	- 3 cycles at 25° C for transformers without t _{amin}	- W W 1	N/A
The Will.	- 3 cycles at t _{amin} for transformers with t _{amin}	Et STER STER WIT	N/A
y WITER	- after the 3 cycles short circuit of the output at 1,1 of rated supply voltage for 48 h.	- Tex Tex Tex	N/A
whitek w	During the tests no sustaining arcing shall occur After the test: withstand the test of clause 18, show no damage in sense of this standard, and be operational.	Writek auritek auritek	N/A
20.8.2.2	The output of the transformer with a self-resetting thermal cut out is short circuited at a supply voltage 1, 1 of rated supply voltage.	and the survival of the surviv	N/A
. In	- 48 h at 25° C for transformers without t _{amin}	antit whit whi	N/A
. WALTER	- 24 h at ta and 24 h at t _{amin} for transformers with t _{amin}	itek nifek inifek	N/A
	During the tests no sustaining arcing shall occur After the test: withstand the test of clause 18, show no damage in sense of this standard, and be operational.	NITER WAITER WAITER W	N/A
20.8.3	Test of a PTC resistor:	TER WITER WITE MAN	N/A
ek antiek	5 cycles: transformer short-circuited for 48 h by 1,1 times of the input voltage and max. ta	the street mater	N/A
WALTEK V	5 cycles: transformer short-circuited for 48 h by 0,9 times of the input voltage and min. ta (if declared)	Wite Writer Writer	N/A
NLTEX WA	After the test: withstand the test of clause 18, show no damage in sense of this standard, and be operational.	LIEK WALTER WALTER WA	N/A
20.9	Thermal links shall be tested in one of the following two ways.	MULTER WALTER WALT	N/A
20.9.1	Thermal-links shall comply with IEC 60 691 as a separate component.	NITER WITER WHITER	N/A
t-	- electrical conditions to IEC 60691, cl. 6.1	14, 2, 1	N/A

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IEC 61558-2-16			
Clause	Requirement + Test	Result - Remark	Verdict
An Co	- thermal conditions to IEC 60691, cl. 6.2	WILL MULTER WATER	N/A
JEK .	- ratings to 8 b) of IEC 60691:2015	at at at st	N/A
iin ii LEX wal	- suitability of sealing components, impregnating fluids or cleaning solvents 8 c) of IEC 60691:2015	TEX STEX WITER WITER	N/A
20.9.2	Thermal-links tested as a part of the transformer:	The state of	N/A
ant	- ageing test 300 h by 35 °C or ta + 10 °C	t with white white our	N/A
MALTER	- After transformer fault condition the thermal link operate without sustaining arcing	The street street shirt	N/A
alter in	- after opening the thermal-link shall have an insulation resistance of at least 0,2 $\text{M}\Omega$	and an are	N/A
	- 3 cycles for replaceable thermal-links	res me me m	N/A
TER WALT	- 3 new specimens for not replaceable thermal- links	ex multex multex multer	N/A
20.10	Self-resetting devices not used if mechanical, electrical, etc. hazards	NATER MILIER MILIER WIL	N/A
20.11	Thermal cut-outs intended to be reset by soldering operation shall not be used for overload protection.	at the the	N/A
20.12	Overload protection devices do not operate during test (20 times switched on and off, at no load); Upri (V): 1,1 times rated supply voltage.	or white with anital	Р
21	INTERNAL WIRING		N/A
21.1	Internal wiring and electrical connections protected or enclosed	White white while w	N/A
Mile.	Wire-ways smooth and free from sharp edges	THE LITTER SELECTION	N/A
21.2	Openings in sheet metal: edges rounded (radius ≥ 1,5 mm) or bushings of insulating material	and any and are	N/A
21.3	Uninsulated conductors: distances adequately maintained	NET WITH WITH WITH	N/A
21.4	When external wires are connected to terminal, internal wiring shall not loosen up	te unite was wat	N/A
21.5	Insulation of heat-resistant and non-hygroscopic material for insulated conductors subject to temperature rise > limiting values given in 14.1	MULTER MULTER MULTER WA	N/A
22	SUPPLY CONNECTION AND EXTERNAL FLEXIB	LE CABLES AND CORDS	N/A
22.1	All cables, flexible cords etc. shall have appropriate current and voltage ratings	tiek writek writek writek	N/A
22.2	Input and output wiring inlet and outlet openings for external wiring: separate entries without damage to protective covering of cable or cord	et united united united a	N/A
WALTE	Input and output wiring inlet and outlet openings for flexible cables or cords: insulating material or bushing of insulating material	Whitek Whitek Whitek Wh	N/A

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IEC 61558-2-16			
Clause	Requirement + Test	Result - Remark	Verdict
WALTER THE SERVICE OF	Bushings for external wiring: reliably fixed, not of rubber unless part of cord guard	White white white	N/A
22.3	Fixed transformer:	Will MULL MULL M	N/A
LEK J	- possible to connect after fixing	A 24 28 A	N/A
	inside space for wires allow easy introduction and connection of conductors	The mile man was	N/A
ant	- fitting of cover without damage to conductors	ALTER WALTE WALL	N/A
MALTER	 contact between insulation of external supply wires and live parts of different polarity not allowed 	waited waited waited	N/A
22.4	Length of power supply cord for portable transformers:	LIET WILLEY WHILEY W	N/A
IEK WALTE	- not exceed 2 m for cross-sectional area of 0,5 mm ²	et stret night unit	N/A
t unlik	- exceed 2 m for cross-sectional areas greater than 0,5 mm².	- Tex Lifet NUTER	N/A
22.5	Power supply cords for transformers IP20 or higher and transformers for "indoor use only" ≥ IP20:	Mr M W	N/A
an v Street and Et 18	- for transformers with a mass ≤ 3 kg: IEC 60227-5:2011 – type 60227 IEC 52 or ordinary tough rubber sheathed flexible cable or cords according to IEC 60245-4:2011 – type 60245 IEC 53;	one of the same of	N/A
WALTER.	- for transformers with a mass > 3 kg: IEC 60227-5:2011 – type 60227 IEC 53 or ordinary tough rubber sheathed flexible cable or cords according to IEC 60245-4:2011 – type 60245 IEC 53.	MULTER MILIER MILIER	N/A
iner in	Power supply cords for transformers for outdoor use: ≥ IPX0: IEC 60245-4:2011 – type 60245 IEC 57	TITEL WHITE WHITE W	N/A
22.6	Power supply cords for single-phase portable transformers with input current ≤ 16A:	The Author	N/A
211.F	- cord set fitted with an appliance coupler in accordance with IEC 60320(all parts)	White White Whi	N/A
22.7	Nominal cross-sectional area (mm²); input current (A) at rated output not less than shown in table 16	UNLIER WALTER WALTER	N/A
22.8	Class I transformer with power supply flexible cable: green/yellow core connected to earth terminal	LITER WALTER WALTER WA	N/A
- TIEK	Plug for single-phase transformer with input current at rated output ≤16 A shall comply with IEC TR 60083, IEC 60 906-1 or IEC 60 309(all parts)	White white with	N/A
22.9	Type X, Y or Z attachments: see relevant part of IEC 61558-2.	MULT MULT WITH	N/A

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The state of	IEC 61558-2-16			
Clause	Requirement + Test	Result - Remark	Verdic	
22.9.1	For type Z attachment: moulding enclosure and external flexible cable or cord do not affect insulation of cable	While while while	N/A	
22.9.2	Inlet openings or inlet bushing: without risk of damage to protective covering of external flexible cable or cord	TEK WITER WITER MIN	N/A	
it set	Insulation between conductor and enclosure:	L St. St. B	N/A	
211	- for Class I transformer: insulation of conductor plus separate basic insulation	MULL MULL MULL	N/A	
White d	- for Class II transformer: insulation of conductor plus double or reinforced insulation	WALTER WALTE WALL	N/A	
ncie wn Test wat i	The sheath of an external flexible cable or cord equivalent to at least that of a cord complying with IEC 60227 (all parts) or 60245 (all parts) is regarded as basic insulation.	riter white miter w	N/A	
	A lining or a bushing of insulating material in a metallic enclosure is only regarded as supplementary insulation	Mittel whitel whitel	N/A	
NATEK W	An enclosure of insulating material is regarded as reinforced insulation	aliet pliet writet	N/A	
22.9.3	Inlet bushings:		N/A	
ic mi	- no damage to external flexible cable or cord	THE MILITARY	N/A	
EK KE	- reliably fixed		N/A	
n.	- not removable without tool	antite with with	N/A	
WALTER	- not integral with external flexible cable or cord (for type X attachment)	LIET OUTER MITER	N/A	
WITEK W	- not of natural rubber except for Class I transformer with type X, Y and Z attachments	THE LIFE STEEL	N/A	
22.9.4	For transformers which are moved while operating:	in my	N/A	
TE WILL	- cord guards, if any, of insulating material and fixed	rex uniter uniter unit	N/A	
MULTER	Compliance is tested by the oscillating test according to fig. 12:	- WATER WATER WATER	N/A	
TEK.	- loaded force during the test according to fig. 12	A ST ST	N/A	
240 2	- 10 N for a cross-sectional area > 0,75	write with wine	N/A	
Jet N	- 5 N for other cords	it it it.	N/A	
	After the test according to fig. 12:	The Mary Mary My	N/A	
et ale	- no short-circuit between the conductors	of the the t	N/A	
- TEX VIII-TEX	- no breakage of more than 10% of stands of any conductor	mer and and	N/A	
	- no separation of the conductor from the terminal	MULL MULL MULL	N/A	

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IEC 61558-2-16			
Clause	Requirement + Test	Result - Remark	Verdict
. Orlie	Mary May My My My	CONTRACTOR NOTES	AND COLOR
	- no loosening of any cord guards	The the the	N/A
الماسكان	- no damage of the cord or cord guard	LER STER STER	N/A
	no broken strands piercing the insulation and not becoming accessible		N/A
22.9.5	Cord anchorages for type X attachment:	ite morie and and	N/A
ek water	- glands in portable transformers not used unless possibility for clamping all types and sizes of cable	MALTER WALTER WALTE	N/A
MULTE	- moulded-on designs, tying the cable into a knot and tying the end with string not allowed	WALTER WALTER WALTER	N/A
LITER OF	- labyrinths, if clearly how, permitted	at all the	N/A
3,	- replacement of cable easily possible	ing they are an	N/A
TEN	- protection against strain and twisting clearly how	EX MATER WALTER WALT	N/A
WALTER	- suitable for different types of cable unless only one type of cable for transformer	. SLIER MITER WALTER	N/A
NALTER OF	- the entire flexible cable or cord with covering can be mounted into the cord anchorage	tet tet stet	N/A
	- if tightened or loosened no damage	11 11 11	N/A
er ve	no contact between cable or cord and accessible or electrically connected clamping screws	THE MILITER WAS	N/A
The same	- cord clamped by metal screw not allowed	WILL MULL MULL	N/A
- JEF	- one part securely fixed to transformer	A A A	N/A
CA.	for Class I transformer: insulating material or insulated from metal parts	Marie Mari Mari	N/A
ing in	for Class II transformers: insulating material or supplementary insulation from metal parts	NITER WHITE WALLE W	N/A
ik ilik	Cord anchorages for type X, Y, Z attachments: cores of power external flexible cable or cord insulated from accessible metal parts by:	TEX MUTEL MUTE MUT	N/A
Zile.	- basic insulation (Class I transformers), separate insulating barrier/cord anchorage	MULL MILL MILL	N/A
Whi. a	supplementary insulation (Class II transformers), special lining/cable or cord sheath of cable sheath of cable	MILIER WILLE WILL	N/A
21/2	Cord anchorages for type X and Y attachments:	THE WILL MUTT AN	N/A
LEK WALTE	replacement of external flexible cable or cord does not impair compliance with standard	et nifet whilet whi	N/A
NALIEK	- the entire flexible cable or cord with covering can be mounted into the cord anchorage	TER STER WITH	N/A
	- if tightened or loosened no damage	24, 24, 24	N/A

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01	Deminerate Test	Daniel Daniel	\ \/!!
Clause	Requirement + Test	Result - Remark	Verdic
WALTER WI	no contact between cable or cord and accessible or electrically connected clamping screws	White white while	N/A
, t	- cord clamped by metal screws not allowed	1. 20 2. Z.	N/A
is and	- knots in cord not used	TEX STEE WITE MY	N/A
+ 2	- labyrinths, if clearly how, permitted	40 10	N/A
Mer	Tests for type X with special cords, type Y, type Z	t outer white white	N/A
MULTER	Test for type X attachments one test with a cord with smallest and one test with a cord with the largest cross-sectional area:	MALIER MALIER	N/A
nlier wh	- for the test with clamping screws or tightened with torque 2/3 of that specified in table 18	LIFE WHITEH WHITEH W	N/A
CEP SE	- not possible to push cable into transformer	e at at a	N/A
2/1	- 25 pulls of 1 s	E WHILL MULL MUST	N/A
LIEP CITE	- 1 min torque according to table 17	. It let set	N/A
211	- mass (kg); pull (N); torque (Nm)	Will Aug Aug	N/A
CLIER I	- during test: cable not damaged	At Let 5th	N/A
ili ek Vinil	 after test: longitudinal displacement ≤ 2 mm for cable or cord and ≤ 1 mm for conductors in terminals 	and any of the	N/A
EK MITE	- creepage distances and clearances values specified in Cl. 26		N/A
22.9.6	Space for external cords or cable for fixed wiring and for type X and Y attachments:	The the text	N/A
All A	- before fitting cover, possibility to check correct connection and position of conductors	mur mr mr	N/A
no in	- cover fitted without damage to supply cords	ALTER WALTE WALL W	N/A
TEK WILTEK	for portable transformers: contact with accessible metal parts if conductor becomes loose not allowed unless for type X and Y attachments terminations of cords do not slip free of conductor	SEK WILLER WILLER WILLER	N/A
WALTER	Space for external cords or cable for type X attachment and for connection to fixed wiring, in addition:	UNLIER WALTER WALTER	N/A
UP S	- conductor easily introduced and connected	at at at	N/A
ER WITE	possibility of access to terminal for external conductor after removal of covers without special purpose tool	of the state and	N/A
23	TERMINALS FOR EXTERNAL CONDUCTORS		N/A

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in with	IEC 61558-2-16			
Clause	Requirement + Test	Result - Remark	Verdict	
23.1	Transformer for connection to fixed wiring and transformer without power supply cords with type Y and Z attachments: only connections by screws, nuts or equally effective devices.		N/A	
178 M	Terminals are integral part of the transformer:	et tet itet it	N/A	
et jet	- comply with IEC 60 999-1 under transformer conditions		N/A	
	Other terminals:	MULL WILL MILL	N/A	
WILLIEF V	- separately checked according to IEC 60 998-2-1, IEC 60 998-2-2 or IEC 60 947-7-1	Mariet Mariet Mariet.	N/A	
VILL CAL	- used in accordance with their marking	LIEK STEK WITER OF	N/A	
JEK NIF	- checked according to IEC 60 999-1 under transformer conditions	et ret ret si	N/A	
ynitek wnitek writek	Transformer with type X attachments: soldered connection permitted if reliance not placed upon soldering, crimping or welding alone unless by barriers, creepage distances and clearances between hazardous live parts and other conductive part cannot be reduced to less than 50% of specified value (Cl.26) should conductor break away	whitek wh	N/A	
	Transformer with type Y and Z attachments for external conductors: soldered, welded, crimped, etc. connections allowed	And the street	N/A	
whitek wh	For Class II transformer: reliance not placed upon soldering, crimping or welding alone unless by barriers, creepage distances and clearances between hazardous live parts and other conductive parts cannot be reduced to less than 50% of specified value (Cl.26) should conductor break away	MULTER WHITER WHITER	N/A	
23.2	Terminals for type X with special cords Y and Z attachments shall be suitable for their purpose:	TER WHITER WHITE WHI	N/A	
Mile	- test by inspection according to 23.1 and 23.2	the little still	N/A	
LIEK	- pull of 5 N to the connection before test according to 14.1	the text text	N/A	
23.3	Other terminals than Y and Z attachments shall be so fixed that when the clamping means is tightened or loosened:	unit with night with	N/A	
A 10	- terminal does not work loose	20, 20, 2	N/A	
in Murre	- internal wiring is not subjected to stress	EK NITER INITER INDIT	N/A	
LIE	- creepage distances and clearance are not reduced below the values specified in Cl. 26	the tel tel	N/A	

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IEC 61558-2-16			
Clause	Requirement + Test	Result - Remark	Verdict
23.4	Other terminals than Y and Z attachments shall be so designed that:	White white white	N/A
me m	they clamp the conductor between metallic surfaces with sufficient contact pressure	nite wait with w	N/A
it with	- without damage to the conductor	TER NITER INITERIAL	N/A
* it	- test by inspection according to 23.3 and 23.4	70 7	N/A
VILE X	- 10 times fastening and loosening a conductor with the largest cross-sectional area with 2/3 of the torque specified in Cl. 25	untile muit muit	N/A
23.5	Terminals for fixed wiring and for type X: located near their associated terminals of different polarities and the earth terminal if any	ounce out on the	N/A
23.6	Terminal blocks not accessible without the aid of a tool	et ret itet it	N/A
23.7	Transformer with type X attachments: stranded conductor test (8 mm removed):	Mar Mr M	N/A
"In	- Class I transformers: no connection between live parts and accessible metal parts	mill mil mil	N/A
Mer. M	free wire of earth terminal: no touching of live parts	MITE WALTE WALTE	N/A
EK WALTER	Class II transformers: no connection between live parts and accessible metal parts, no connection between live parts and metal parts separated from accessible metal parts by supplementary insulation	THE WILLIAM WALLE	N/A
23.8	Terminals for a current > 25 A:	THE THE STATE	N/A
2,	- pressure plate, or	me me m	N/A
inlite in	- two clamping screws	TEX STEX STER S	N/A
23.9	When terminal, other than protective earth conductor, screws loosened as far as possible, no contact:	let writes writes wri	N/A
. WALTER	- between terminal screws and accessible metal parts	- Lifet SLIFET MILIE	N/A
MATER A	between terminal screws and accessible metal parts separated only by basic or supplementary insulation for Class II transformers	uniter whiter whiter	N/A
24	PROVISION FOR PROTECTIVE EARTHING		N/A
24.1	Class I transformers: accessible conductive parts connected to earth terminal	et the stat act	N/A
- Let	Class II transformers: no provision for protective earth	THE THE TEXT	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
24.2	Protective earth terminal for connection to fixed wiring and for type X attachment transformers: comply with Cl. 23, adequately locked, not possible to loosen without a tool	MILE MALE MALES W	N/A
24.3	No risk of corrosion from contact between metal of earth terminal and other terminal	TEX MILEX WALTER WAL	N/A
EK WITER	In case of earth terminal body of AI, no risk of corrosion from contact between Cu and AI	t suffet mufet smith	N/A
TALTER	Body of earth terminal or screws/nuts of brass or other metal resistant to corrosion	Tet Jet stet	N/A
24.4	Resistance of connection between earth terminal and metal parts ≤0,1Ω with a min. 25 A or 1,5 times rated input current at 1 min	STOR WITH WILLIAM	N/A
24.5	Class I transformers with external flexible cables or cords:	Et stat which man	N/A
t nitet	- current-carrying conductors becoming touch before the earth conductor	The let the	N/A
25	SCREWS AND CONNECTIONS		N/A
25.1	Screwed connections withstand mechanical stresses	MITER WAITER WAITER W	N/A
NITEK WA	Screws transmitting contact pressure or likely to be tightened by the user or having a diameter < 2,8 mm, shall screw into metal	THE WALTER WAL	N/A
WALL	Screws not of metal which is soft or liable to creep (Zn, Al)	White White White	N/A
WALTER.	Screws of insulating material: not used for electrical connection	MALIER WALTER WALTER	N/A
Writek M	Screws not of insulating material if their replacement by metal screws can impair supplementary or reinforced insulation	NITER MULTER MULTER M	N/A
is whise was a superior of the	Screws to be removed (replacement etc. of power supply cord) not of insulating material if their replacement by metal screws can impair basic insulation	SEX MILIER WILLER MILE	N/A
WILLER O	For a screw in engagement with the threads of insulating material: No damage after torque test: diameter (mm); torque (Nm); ten times	MILES MILES MILES	N/A
NLTEX WA	For nuts and other screws: No damage after torque test: diameter (mm); torque (Nm); five times	TEX STEX STEEL	N/A
25.2	Screws in engagement with thread of insulating material:	et let liet life	N/A
- Jek	- length of engagement ≥ 3 mm + 1/3 screw diameter or 8 mm whichever is shorter	The tity the	N/A
- A 1 1/2	7 7 7	AV CV AV	100

N/A

correct introduction into screw hole

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IEC 61558-2-16			ar ar
Clause	Requirement + Test	Result - Remark	Verdic
25.3	Electrical connections: contact pressure not transmitted through insulating material	White white white wh	N/A
25.4	In case of use of thread-forming (sheet metal) screws for connection of current-carrying parts: clamping and locking means provided	NITE WITE WILL WALL	N/A
ANTIEK ANTIEK	Thread-cutting (self-tapping) screws used for the connection of current-carrying parts allowed if they generate a full form machine screw thread and if not operated by the user	Tunited miles martes	N/A
White A	Thread-cutting screws and thread-forming screws used for earth continuity allowed if at least 2 screws for each connection are used and it is not necessary to disturb the connection in normal use	Whitek whitek whitek whi	N/A
25.5	Screws for current-carrying mechanical connections locked against loosening	at that the state	N/A
t Jet	Rivets for current-carrying connections subject to torsion locked against loosening	me on an	N/A
25.6	Test of screwed glands with a torque according table 19. After the test no damage at the transformer and the gland.	TEX TEX STEX OUT	N/A
26	CREEPAGE DISTANCES, CLEARANCES AND DI	STANCES THROUGH	Р
26.2	Creepage distances and clearances	and the	7) P
26.2.1	General	A THE LIEF	Р
- All	The creepage distance and clearance values are shown in Table 20 and Table 21.	mer mer mer	Р
26.2.2	Windings covered with adhesive tape	WILL WILL MULL WA	N/A
INLIEK WY	- all insulating materials are classified according to IEC 60085 and IEC 60216 (all parts);	SLIER MATER MATER WHATE	N/A
IEK WILL	- the impulse voltage dielectric test of 6.1.2.2.1 of IEC 60664-1:2007 is fulfilled; and	EX ITEX NITEX MITEX	N/A
٠, ٠	- test A of 26.2.4 is fulfilled	m n n	N/A
26.2.3	Uncemented insulating parts pollution degree P2 or P3	Pollution degree 2	Р
MILIER W	- all isolating material are classified acc. to IEC 60085 and IEC 60216(all parts)	UNITER WHITER WHITER WAY	Р
JER N	- values of pollution degree 1 are not applicable	A ST SET SET	Р
26.2.4	Cemented insulating parts	The Maria Maria Maria	N/A
EK WALTE	- all isolating materials are classified acc. to IEC 60085 and IEC 60216(all parts)	et writet writet	N/A
	- values of distance through insulation (dti) are fulfilled	The The The	N/A

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Clause	Requirement + Test	Result - Remark	Verdic
An It	- creepage distances and clearances are not required	white white with	N/A
mes m	- test A of this sub clause is fulfilled	alter walter walter	N/A
at s	Test A	and the state of	N/A
211	- thermal class	It's ancie ancie wai w	N/A
it det	- working voltage	e state of s	N/A
MALTER	Test with three specially specimens, with uninsulated wires, without impregnation or potting	(see appended table)	N/A
	Two of the three specimens are subjected to:	m m m	N/A
ur. au	- the relevant humidity treatment according to 17.2 (48 h)	LIER WHITE WHITE WHITE.	N/A
TE WALTE	- the relevant dielectric strength test of 18.3 multiplied with factor 1,35	EX WHITEX WHITEX WHITEX WH	N/A
MUNITER MILITER	- One of the three specimens is subjected to the relevant dielectric strength test of 18.3 multiplied by the factor 1,35 immediately at the end of the last cycle with high temperature	White white white whi	N/A
all a	Impulse dielectric test according to 6.1.2.2.1 of IEC 60664-1:2007 – see Annex R of IEC 61558-1	met was and the	N/A
26.2.5	Enclosed parts (e.g. by impregnation or potting)	Considered (test B) fulfilled by internal construction of approved opto-coupler.	Р
26.2.5.1	The requirements of reduced values as stated for pollution degree 1 (P1) are fulfilled	white white the see	N/A
The s	- all isolating materials are classified acc. to IEC 60085 and IEC 60216(all parts)	White white with white	N/A
ines in	Test B	ALTER WITE WALLE WALL	N/A
at s	- thermal class		N/A
- m	- test voltage of 500 V or the working voltage	THE WALL MALL WALL ON	N/A
WILLER	Test with three specially specimens, potted or impregnated. The dielectric strength test is applied directly to the joint.	(see appended table)	N/A
DLIE S	Two of the three specimens are subjected to:	THE THE STEE OUTE	N/A
urek si	- the relevant humidity treatment according to 17.2 (48 h)	and all the text	N/A
Car Car	the relevant dielectric strength test of 18.3 multiplied with factor 1,25	it with the till	N/A
MULTER	- One of the three specimens is subjected to the relevant dielectric strength test of 18.3 multiplied by the factor 1,25 immediately at the end of the last cycle with high temperature	THE WHITE WHITE WHITE	N/A

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IN A METER	IEC 61558-2-16			
Clause	Requirement + Test	Result - Remark	Verdict	
WALTER WA	The three spacemen pass the Impulse dielectric test according to 6.1.2.2.1 of IEC 60664-1:2007–see Annex R of IEC 61558-1	White white white	N/A	
26.2.5.2	The requirements of distance through insulation (dti) are fulfilled. (P1 values are not required)	TEX MITEX MILIER MILIE	N/A	
TH WITEK	- all isolating materials are classified acc. to IEC 60085 and IEC 60216(all parts)	t still nitet witet	N/A	
_Et	Test C	70 7	N/A	
We 2	- thermal class	CITER WITE WALLE AN	N/A	
Let .	- test voltage of 500 V or the working voltage	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	N/A	
if an	Test with three specimens, potted or impregnated. (finished components)	(see appended table)	N/A	
MUL	- Neither cracks, nor voids in the insulating compounds	EX WALLEY WALLEY WALLEY	N/A	
MILITER	Two of the three specimens are subjected to:	TER LIER WIFE.	N/A	
LIEN.	- the relevant humidity treatment according to 17.2 (48 h)	the left test	N/A	
en en	the relevant dielectric strength test of 18.3 multiplied with factor 1,35	men when we will	N/A	
EK WILLEY	- One of the three specimens is subjected to the relevant dielectric strength test of 18.3 multiplied by the factor 1,35 immediately at the end of the last cycle with high temperature	antit while while	N/A	
WALTER .	The three spacemen pass the Impulse dielectric test according to 6.1.2.2.1 of IEC 60664-1:2007 – see Annex R of IEC 61558-1	Whitek Whitek Whitek W	N/A	
26.3	Distance through insulation	THE THE LIFE OF	Р	
26.3.1	For supplementary, double or reinforced insulation, the required values of Tables 22 are fulfilled	the text to	Р	
* MUTER	The insulation fulfil the material classification according IEC 60085 and 60216(all parts) or the test of 14.3	to the stiff with	In I	
26.3.2	Reduced values of the thickness of insulation for supplementary or reinforced insulation are allowed if the following conditions are fulfilled:	Martin Martin Martin	N/A	
LIEK WA	- the isolating materials are classified acc. to IEC 60085 and IEC 60216(all parts)	LIEK MITER MITER WALT	N/A	
JF 7(1)	- the test of 14.3 is fulfilled		N/A	
t allek	- If both requirements are fulfilled, the required values for solid insulation can be multiplied by 0,4	the set set	N/A	
	- Minimum thickness of reinforced insulation ≥0,2 mm	Mur. Aur. Au. 2	N/A	

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IEC 61558-2-16			the and
Clause	Requirement + Test	Result - Remark	Verdic
W C	- Minimum thickness of supplementary insulation ≥0,1 mm	MUTTER MUTE MUTE	N/A
26.3.3	Insulation in thin sheet form	ALTER WALTER WALTE WALTE	Р
TEK WIT	If the layers are non-separable (glued together):	THE DIFFE WITH WITH	N/A
+ 2+	The requirement of 3 layers is fulfilled	The state of the s	N/A
- William	The mandrel test according 26.3.4 is fulfilled with 150±10 N	MULL MULL MULL AND	N/A
White 1	The required values for d.t.i. of thin layers in Tables 22 is fulfilled.	MULTER MULTER MULTER AUTH	N/A
THE OF	- If the layers are separated:	THE THE LIFE MITTER	Р
IEK WALTE	The requirement of 2 layers is fulfilled	Insulation tape wrap around external of switch mode transformer	Р
	 If serrated tape is used, 1 additional layer (serrated) and one additional layer without serration is required 	MINISTER MINISTER WALTER	N/A
ynlier w	The mandrel test according 26.3.4 is fulfilled on each layer with 50±5 N	INCIES WALTES WALTER WALTER	Р
LIFEK WAL	The required values for d.t.i. of thin layers in Tale 22 is fulfilled.	THE MALIET WALLES	Р
# JE	- If the layers are separated (alternative):	The safe	N/A
in.	The requirement of 3 layers is fulfilled	Write Mris Mris M	N/A
WALTER.	 If serrated tape is used, 1 additional layer (serrated) and one additional layer without serration is required 	WHITEH WHITEH WHITEH WHITE	N/A
Vrie Au	The mandrel test according 26.3.4 is fulfilled on 2/3 of the layers with 100±5 N	REFER MILITER MILITER MILITER	N/A
iek wit	The required values for d.t.i. of thin layers in Tale 22 is fulfilled.	LEK MILITER MILITER MILITER O	N/A
WALTER WALTER	Test according to 14.3 and if the isolating materials are classified acc. to IEC 60085 and IEC 60216(all parts) no distances through insulation are required for insulation in thin sheet form	MULTER MULTER MULTER MU	N/A
on in	The values for thin layers are used for insulation in thin sheet form as follows:	MILL MILL MILL WILL	Р
	- rated output > 100 VA values for thin layers apply	THE WILL MALL MALL	N/A
	- rated output ≥ 25 VA and ≤ 100 VA 2/3 of the values for thin layers apply	ex maries maries white on	Р
	- rated output < 25 VA 1/3 of the values for thin layers apply	NIFE WILLER WALLER WAL	N/A

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TEL WILL	IEC 61558-2-16			
Clause	Requirement + Test	Result - Remark	Verdict	
26.3.4	Mandrel test of insulation in thin sheet form (specimen of 70±0,5 mm width are necessary):	White white white	Р	
We W	- If the layers are non-separable – at least 3 layers glued together fulfil the test:	ALTE WALL WALL WALL WALL	N/A	
Tile Wit	- pull force of 150±10 N	TER STEE WIFE WITE	N/A	
EX WILLEY	- high voltage test of 5,0 kV or the test voltage of 18.3 multiplied by 1,35 whatever is the greater. No flashover, no breakdown.	MALIER WALTER	N/A	
MULTER	- If the layers are separable and 2/3 of at least 3 layers fulfil the test.	DITEK MITEK MITEK W	N/A	
Lett.	- pull force of 100±5 N	a to the state of	M/A	
TEK UT	- high voltage test of 5,0 kV or the test voltage of 18.3 multiplied by 1,25 whatever is the greater. No flashover, no breakdowns.	the more more more	N/A	
y Tex	- If the layers are separable 1 of at least 2 layers fulfil the test:	A CA TEA	Р	
2/12	- pull force of 50±5 N	white white white or	Р	
MULTER A	- high voltage test of 5,0 kV or the test voltage of 18.3 multiplied by 1,25 whatever is the greater. No flashover, no breakdown.	MUTER MULTER WHITER MAN	Р	
26.3.5	For transformers with FIW wires	ALL STREET MITE	N/A	
٠ ا	- thermal cycles	_ 1	N/A	
Will	- test voltage of 500 V or the working voltage	The mile write	N/A	
- 15	- Test with three specimens	(see appended table)	N/A	
Mrs.	Two of the three specimens are subjected to:	OLIER WITE WALL ON	N/A	
UNLTEK WI	- the relevant humidity treatment according to 17.2 (48 h)	THE SITES STILL SING	N/A	
	- the relevant dielectric strength test of 18.3		N/A	
er whilek	- One of the three specimens is subjected to the relevant dielectric strength test of 18.3 immediately at the end of the last cycle with high temperature	TEX WITE MITTER WHITE	N/A	
MULLER	The partial discharge test shall be done at the end of the cycling test at normal room temperature as performed in 18.3.1.	MILER WHITER WHITER WH	N/A	
NLTEK WY	The values of allowed voltage strength for other FIW dimensions than defined in Table 24 are calculated	LIER WHITER WHITER WHITE	N/A	
26.101	Creepage distances and distances through insulation given in Table 21, Table 22 and Table 23 of IEC 61558-1:2017 are generally applicable (IEC 61558-2-16: 2021)	(see appended table)	yuni P	

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IEC 61558-2-16			
Clause	Requirement + Test	Result - Remark	Verdict
26.102	In compliance with IEC 60664-4:2005, the requirements of 26.103 to 26.106 for creepage distances, clearances and solid insulation are required above 30 kHz and up to the frequency of 3 MHz. For frequencies above 3 MHz, the tests in accordance with 7.4 and 7.5 of IEC 60664-4:2005, high-frequency testing (high-frequency high-voltage test and high-frequency partial discharge test) shall be carried out.	et tet tet stet	P
26.103	Clearance (IEC 61558-2-16:2021)	mr m m m	Р
	 a) Clearance for frequency ≥ 30 kHz according figure 101 two determinations are necessary: 	UNITER WHITER WHITER WHITE	N/A
INLIEK WY	determination based on the rated impulse voltage of the rated supply voltage in accordance with Table 103 and Table 104.	Liek Whilek Whilek Whilek	N/A
ie whi.	determination based on the measured peak working voltage in accordance with Table 106.	Et Milet While while w	N/A
* WALTER	b) Clearance for frequency ≤ 30 kHz according figure 101 two determinations are necessary:	TIFEK INLIEK MILIEK WIN	Р
ounlitek (N	determination based on the rated impulse voltage of the rated supply voltage in accordance with Table 103 and Table 104.	SLIES MITES MILIES MILIES	Р
itek ni	determination based on the measured peak working voltage in accordance with Table 105.	at the state	Р
26.104	The working voltages of Table 105 and Table 106 for determination of clearances are peak working voltages. (IEC 61558-2-16: 2021)	To the little	Р
	All peak working voltages including µs-peaks shall be used to determine clearances in accordance with Table 105 and Table 106.	Tet let lifet wi	P
26.105	Creepage distances (IEC 61558-2-16: 2021)	mr. m. m. m.	Р
Writer ON	Two determinations of creepage distances are necessary (see Figure 102)	NITER WHITER WHITER WHITER	Р
TEK WALT	 determination based on the measured RMS working voltage in accordance with Table 21 of IEC 61558-1:2017; 	TEX MILIER MILIER MILIER	P
WILTER	determination based on the measured peak working voltage in accordance with Table 107 to Table 112 and the fundamental frequency shall be considered	MULTER WILLER WILL	P
124 1715 - 1	A high-frequency RMS ripple voltage content not more than 10% can be neglected.	Here were were	Р
er e	The values in Table 107 to Table 112 do not take into account the effects of tracking phenomena for frequencies above 30 kHz.	LIET WILLS WILL WILL	Р
WALTER	The most severe value of the required creepage distances in accordance with Table 107 to Table 112 for frequencies above 30 kHz and the relevant values in Table 21 of IEC 61558-1:2017 shall take precedence.	White White White	Р

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IEC 61558-2-16			
Clause	Requirement + Test	Result - Remark	Verdic
JUNITEE VI	If the value of the creepage distance is lower than the value of the clearance, the value of the clearance shall be applicable for the creepage distance.	White white white wh	P
itek wai	The peak working voltage also includes any DC voltage and any repetitive peak impulse generated by the SMPS (see 26.105). A determination based on RMS values is also required (see 26.104 and Table 112).	Telt whitelt whitelt whitel	N/A
26.106	Distance through insulation (IEC 61558-2-16:2021)	Mur Mur Mi.	Р
White v	Instead of partial discharge with high frequency voltage the test of the distance and the calculation of the electric field is applicable under the following conditions:	Multiple Military Military Military	P
	- the max. frequency is < 10 MHz	e m m m	Р
Le Muri	- the field strength approximately comply with Figure 103	EX WALTER WALTER WALTER	, P
WALTER	- no voids or gaps are present in between the solid insulation	UNITER WHITER WAITER	INLIT P
nnliek n	For thick layers d1 \geq 0,75 the peak value of the field strength is \leq 2 kV/mm	TITEL STEEL WITTEN	N/A
LIEK MIL	For thin layers d2 \leq 30 μ m the peak value of the field strength is \leq 10 kV/mm	AND SITE OF THE	N/A
ek ate	For d1 > d > d2 formula (2) is used for calculation the field strength	To the left	N/A
27	RESISTANCE TO HEAT, FIRE AND TRACKING		Р
27.1	General	LEK LEK LIEK .	P P
27.2	Resistance to heat	me me me	Р
27.2.1	All insulating parts are resistant to heat	THE THE STATE OF	P
ser si	For parts of rubber, which passed the test of 19.9, no additional test is required.	No rubber used	N/A
	The tests are not required for cables and small connectors with a rated current ≤ 3 A, a rated voltage ≤ 24 V AC or 60 V DC and a power ≤ 72 W	THE STEE WITE	uniii P
27.2.2	External accessible parts	20, 20, 2	P
Whitek Wh	The Ball-pressure test: diameter of impression ≤ 2 mm; heating cabinet temperature (°C) at 70±2 °C or the temperature T of 14.1 (T+15±2) is fulfilled.	(See appended table)	Р
27.2.3	Internal parts	, J. J.	Р
WALTER	For insulating material retaining current carrying parts in position, the ball-pressure test -: diameter of impression ≤ 2 mm; heating cabinet temperature (°C) at 125±2 °C or the temperature T of 14.1 (T + 15±2) is fulfilled	(See appended table)	yin P

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IEC 61558-2-16			
Clause	Requirement + Test	Result - Remark	Verdict
27.3	Resistance to abnormal heat under fault conditions	- Will write mile	N/A
27.4	Resistance to fire	at the set set	Р
27.4.1	All isolating parts of the transformer shall be resistant to ignition and spread of fire. The test according to IEC 60695-2-10 is required	ACT MIT WILL WITE	Р
27.4.2	External accessible parts (glow wire tests)	70, 71, 74	Р
Mr	- 650°C for enclosures	A CULTER WILL MAIL WAY	Р
WALTEK W	- 650 °C for parts retaining current carrying parts in position and terminals for external conductors Current ≤ 0,2 A	SUNTER WHITER WHITER SUNTE	Р
NITER WAT	- 750° C for parts retaining current carrying parts in position and terminals for external conductors with fixed wiring. Current > 0,2 A	NITES WALTES WALTES	N/A
y whitek	- 850° C for parts retaining current carrying parts in position and terminals for external conductors with non-fixed wiring. Current > 0,2 A	et united white white whi	N/A
27.4.3	Internal parts	20 T T T T	Р
The Au	- 550 °C for internal insulating material – not retaining current carrying parts in position	MILE MULTE MULT MULT	N/A
ALTE WALT	- 650 °C for coil formers (bobbins)	T1 STEE MITE	Р
EK MUTTER	- 650 °C for parts retaining current carrying parts in position and terminals for external conductors. Current ≤ 0,2 A	Until While while wh	N/A
Whitek W	- 750 °C for parts retaining current carrying parts in position and terminals for external conductors with fixed wiring. Current > 0,2 A	Bobbin, PCB	Р
unite unite	- 850 °C for parts retaining current carrying parts in position and terminals for external conductors with non-fixed wiring. Current > 0,2 A	RITER MULTER MULTER MULTER	N/A
27.5	For IP other than IPX0: If insulating parts retaining current carrying parts in position and under P3 conditions, the material resistance to tracking is at least material of group IIIb	white white white whi	N/A
MUTTER OF	Material group IIIb (100≤CTI≤175) is not recommended for application in pollution degree 3 above 630V	united united united united	N/A
	Test (175 V): no flashover or breakdown before 50 drops	THE MUT MUT MUT.	N/A
28	RESISTANCE TO RUSTING		N/A
- Let	Ferrous parts protected against rusting	The state of	N/A
ANNEX E	GLOW WIRE TEST		Р

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IEC 61558-2-16			
Clause	Requirement + Test Result - Remark	Verdic	
E.1	The test is required according to IEC 60695-2-10 Considered. and IEC 60695-2-11 with the following additions:	Р	
E.2	The requirements of 8.2, "Test temperatures" of IEC 60695-2-11:2014, apply with the temperature stated in 27.4 of IEC 61558-1	Р	
E.3	Clause 7, "Conditioning", of IEC 60695-2-11:2014 apply, preconditioning is required	Р	
E.4	Clause 8, "Test procedure", of IEC 60695-2-11:2014 apply, the tip of the glow wire is applied to the flat side of the surface.	P	
ANNEX F	REQUIREMENTS FOR MANUALLY OPERATED SWITCHES WHICH ARE PARTS OF THE TRANSFORMER	N/A	
F.2	Manually operated mechanical switches, tested as separate component, shall comply with IEC 61058:2016 under the conditions of F.2.	N/A	
F.3	Manually operated mechanical switches tested as part of the transformer shall comply with the conditions specified under F.3	N/A	
ANNEX H	ELECTRONIC CIRCUITS	Р	
H.1	For transformers including electronic circuits, the following requirements apply additionally to Clauses 5, 15, 26. This annex is not required for associated transformers	Р	
H.2	General notes on tests (addition to clause 5)	Р	
H.3	SHORT-CIRCUIT AND OVERLOAD PROTECTION (ADDITION TO CLAUSE 15) P	
H.3.1	Circuits designed and applied so that fault conditions do not render the appliance unsafe	TE P	
. Tet	During and after each test:	ў Р	
ing the	- temperatures do not exceed values specified in table 5	Р	
~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	- transformer complies with conditions specified in sub-clause 15.1	W P	
	If a conductor of a pcb becomes open circuited, the transformer is considered to have withstood the particular test, provided that all six conditions as specified are met	N/A	
H.3.2	Fault conditions a) to f) of sub-clause H.3.3 are not tested if the following conditions are met:	Р	
Et JES	- electronic circuit is a low-power circuit as specified	Р	
- Willest	- safety of the appliance as specified does not rely on correct functioning of the electronic circuit	M P	
H.3.3	Fault conditions tested as specified when relevant:	Р	

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IE WITE	IEC 61558-2-16		
Clause	Requirement + Test	Result - Remark	Verdict
TEX.	a) short-circuit of creepage distances and clearances, if less than specified in Cl. 26	ANTICK ANTIC AND	N/A
me m	b) open circuit at the terminals of any component	ALTER WALTE WALL WALL	Р
TIEK MUTE	c) short-circuit of capacitors, unless they comply with IEC 60 384-14	Tet street writes writes	Р
ex unitex	d) short-circuit of any two terminals of an electronic component as specified	t tet tiet stret stret in	Р
74	e) any failure of an integrated circuit as specified	The Mr. In.	N/A
MULLE M	f) low-power circuit: low-power points are connected to the supply source	WALLER WALLER WALLE WALL	Р
niek _w ni jek mije	CI. 15 is repeated with a simulated fault as indicated in a) to e), if the transformer incorporates an electronic circuit to ensure compliance with CI. 15	Street whitest whitest whitest	N/A
t tek	Fault condition e) is applied for encapsulated and similar components	and an an a	N/A
Zu.	PTC's and NTC's are not short-circuited if they are used as specified	white me we we	N/A
H.3.4	If for a fuse-link complying with IEC 60 127-3 rated fuse current I1 is used, current I2 is measured as specified:	untitle white white white	Р
et jet	- if I2 < 2,1 x I1 test of 15.8 is repeated with fuse- link short-circuited	a fair air	N/A
m	- if I2 > 2,75 x I1, no other tests are necessary	antic mer mer m	N/A
WILLER	If I2 > 2,1 x I1 and I2 < 2,75 x I1 test of 15.8 is repeated as specified	THE BUILD MALTER WALL	N/A
unitek yini	For fuses other than those complying with IEC 60 127-3, the test is carried out as specified 15.3.2 to 15.3.5	Wifek whitek mutek whitek	Р
H.4	CREEPAGE DISTANCES, CLEARANCES AND DISTANCES (ADDITION TO CLAUSE 26)	STANCES THROUGH	N/A
H.4.1	For live parts separated by basic insulation smaller cr and cl as in 26 are allowed, if H.3 is fulfilled.	LIET STEET WITH MI	N/A
, de	In optocouplers no requirements of cr and cl	711 711 7	N/A
wari wa TEX . L	For coatings annex W applies. Smaller distances as required in IEC 60664-3:2016, clause 4 are applicable,	Miter Miter Miter Mit	N/A
	For potted transformers cycling tests according to 26.2. are applicable	The many many many	N/A
H.4.2	The ma. surface temperature of optocouplers is 50 K	MULLE MULL MULL M	N/A
ANNEX K	INSULATED WINDING WIRES		N/A
K.1	Wire construction:	24	N/A

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	IEC 61558-2-16		
Clause	Requirement + Test	Result - Remark	Verdict
MULTE.	insulated winding wire for basic or supplementary insulation (see 19.12.3)	which was an item	N/A
ansis an	insulated winding wire for reinforced insulation (see 19.12.3)	NITE WALL WALL V	N/A
in the	splid circular winding wires and stranded winding wires with 0,05 to 5,0 mm diameter	TER WITER WITE AND	N/A
MALTE	spirally wrapped insulation – overlapping	t LIER SLIER WIFE	N/A
K.2	Type tests	20, 20, 2,	N/A
K.2.1	General Tests between ambient temperature between 15°C and 35°C and at a humidity between 25% and 75 %	united united united.	N/A
K.2.2	Electric strength test	1 1 0 6	/ N/A
K.2.2.1	Solid circular winding wires and stranded winding wires	while mer me	N/A
MUE	Test samples prepared according to clause 4.4.1 of IEC 60851-5:2008 (twisted pair)	WHITE WHITE WALTE	N/A
MUTTE M	Dielectric strength test: 6 kV for reinforced insulation	UNITER WALTER WALTER V	N/A
NITER WAT	Dielectric strength test: 3 kV for basic or supplementary insulation	Et Millet Mi	N/A
K.2.2.2	Square or rectangular wires.	#	N/A
- Lex	Test samples prepared according to clause 4.7.1 of IEC 60851-5:2008	white mit mit	N/A
Mur.	Dielectric strength test: 5,5 kV for reinforced insulation	WALTER WALTER WALTER	N/A
MUTTER MU	Dielectric strength test: 2,75 kV for basic or supplementary insulation	NIFE WHITEK WALTER W	N/A
K.2.3	Flexibility and adherence	at all the	N/A
	Claus 5.1 in Test 8 of IEC 60851-3:2009 shall be used	Ant Au Au	N/A
"Ex-	Test samples prepared according to clause 5.1.1.4 of IEC 60851-3:2009	MULL MULL MULL	N/A
ane a	Dielectric strength test: 5,5 kV for reinforced insulation	MALIER WALLE WALLE	N/A
VILLE MU	Dielectric strength test: 2,75 kV for basic or supplementary insulation	liek writek writer w	N/A
TER WILL	Mandrel diameter according table K.1	at left the the	N/A
+ All	The tension to the wire during winding on mandrel is 118 N/mm² (118 MPa)	Must must an	N/A
K.2.4	Heat shock	write will will	N/A

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	A	7	K
I		V	
	V	7	

	IEC 61558-2-16		
Clause	Requirement + Test	Result - Remark	Verdict
White Lex	Test samples prepared according to 3.2.1 (in Test 9) of IEC 60851-6:2012	untity united white	N/A
en en	high voltage test immediately after this test	NITE WALTER WALTE	N/A
LIEK WIL	Dielectric strength test: 5,5 kV for reinforced insulation	TEX WILEY WILEY MAN	N/A
EK WILLER	Dielectric strength test: 2,75 kV for basic or supplementary insulation	t light slight mile	N/A
K.2.5	Retention of dielectric strength after bending (test as specified under test 13 of 4.6.1 c) of IEC 60 851-5)	MALTER MALTER MALTER	N/A
CEN.	high voltage test immediately after this test	at at all	N/A
Telf Te	Dielectric strength test: 5,5 kV for reinforced insulation	The Maria Maria	N/A
- 74 - 74	Dielectric strength test: 2,75 kV for basic or supplementary insulation	er while while with	N/A
K.3	Testing during manufacturing	- NIFE MITE WALTER	N/A
K.3.1	General Tests as subjected in K.3.2 and K.3.3	TEX LIEX NITEX	N/A
K.3.2	Routine test	11 21 21	N/A
VILLE MAR	Dielectric strength test: 4,2 kV for reinforced insulation	tek y Junite wi	N/A
MULTE	Dielectric strength test: 2,1 kV for basic or supplementary insulation	white white white	N/A
K.3.3	Sampling test	LEK LEK LIEK	N/A
K.3.3.1	Solid circular winding wires and stranded winding wires	me me me	N/A
	Test with a twisted pair, prepared according clause 4.4.1 of IEC 60851-5:2008	HILL MILL MALL W	N/A
The ships	Dielectric strength test: 6 kV for reinforced insulation	TEX MUTTER MUTTE MUT	N/A
MULTE	Dielectric strength test: 3 kV for basic or supplementary insulation	MULTER MALTER MALTE	N/A
K.3.3.2	Square or rectangular wire	TEK TEK LIFEK	N/A
TEN S	Samples prepared according to clause 4.7.1 of IEC 60851-5:2008	ing in the	N/A
ek le	Dielectric strength test: 5,5 kV for reinforced insulation	THE MIT ME ME	N/A
. 140	Dielectric strength test: 3 kV for basic or supplementary insulation	MULLE MULL MULL	N/A

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I Veletelle	VO W 1 X 2 3 X 0 0 1 0 9 9 1 0 3	Fage 01 01 122		
TER WITE	white must meet all	IEC 61558-2-16	et let liet liet	WILL WILL
Clause	Requirement + Test	et river with whi	Result - Remark	Verdict



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		7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7		
TER WITE		IEC 61558-2-16		MLIE
Clause	Requirement + Test	Et aller wall wal	Result - Remark	Verdict

ANNEX V	ANNEX V, SYMBOLS TO BE USED FOR THERMAL CUT-OUTS	S N/A
Figure V.1	Restored by manual operation	N/A
Figure V.2	Restored by disconnection of the supply Head of the supply Head of	N/A
Figure V.3	Thermal link	N/A
Figure V.4	Self-resetting thermal cut-out	N/A

Requirement + Test

Clause



11 and 12 TABLE: OUTPUT VOLTAGE AND OUTPUT CURRENT UNDER LOAD; NO-LOAD OUTPUT VOLTAGE										
Clause		1	1		12					
type/rated output/	rated voltage (V)	sec. voltage (V)	delta Usec (%)	Usec V no-load output	delta Usec no-load output %	further information				
Model:	5	4.92	-1.6	5.08	+3.25	100V/50Hz				
GTM46161-	5	4.91	-1.8	5.08	+3.46	100V/60Hz				
165.0-	5	4.94	-1.2	5.08	+2.83	240V/50Hz				
USB1A1C	5	4.93	-1.4	5.08	+3.04	240V/60Hz				
JEE SITE	5.5	5.24	-4.73	5.55	+5.9	100V/50Hz				
Model:	5.5	5.24	-4.73	5.55	+5.9	100V/60Hz				
GTM46161- 165.5-USBC	5.5	5.25	-4.55	5.55	+5.7	240V/50Hz				
20, 20	5.5	5.25	-4.55	5.55	+5.7	240V/60Hz				
Limits	E	10 Th	±10	- 20, 2	±20	A A A S				

14	TABLE: Heating Test	*	et de	t Cler	. LIEF J	I P
LIER .	Supply voltage (V):	90V/60H z	90V/60H z	264V/50 Hz	264V/50 Hz	_
	Ambient (°C)	See below	See below	See below	See below	_
Maximu	m measured temperature T of part/at:		Т (°C)		max. temperature limit, (°C)
TEX	LIER MITER MITER MILIER WHITE.	Label up	Label down	Label up	Label down	TEK CTEK
Model: 0	GTM46161-165.0-USB1A1C	CTER OUT	ET SINLIE	WILL	re in	14, 1
AC plug	LIES RUTER WITE WALL MAN AND	41.2	41.9	42.9	42.7	70
MOV1 b	oody	83.9	83.0	83.5	92.6	125
Choke v	vinding (LF1)	98.3	92.6	89.1	93.9	130
C1 body	, who we the	97.3	92.3	92.7	98.7	105
C2 body	TER STEE STEE WITH MALE	99.6	93.4	78.2	83.5	105
PCB nea	ar BD1	88.4	83.5	83.9	87.2	130
CY1 boo	dy of the second	82.1	79.2	83.1	85.3	125
CY2 boo	dy	80.8	79.6	81.4	83.6	125
T1 coil	EX TEX TEX LITER WALL WAS	105.7	99.8	101.9	108.3	110
T1 core	And And And And	103.5	97.8	99.0	107.3	110
C5 body	t ret itet inti white	92.4	94.9	99.0	99.6	105
Enclosu	re inside above T1	81.4	78.2	81.7	85.9	Ref.
Enclosu	re inside under T1	92.7	83.3	87.5	98.3	Ref.

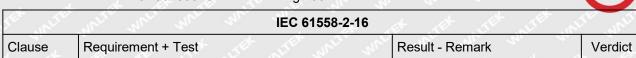
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St 18		9/2	IFC A	4550.0	40			1		10
1, 24,	are my m	- 57	IEC 6	1558-2	-16	et .	5 ⁽²⁾	<u> </u>	- C	ing and
Clause	Requirement + Test	Comment of the contract of the	J. C.	Wer.	The.	Resul	lt - Rem	ark		Verdic
- 01	The The The	20 2		77.0	12	4.0	* 		70 o N	200
	outside above T1	- CON - CO		77.3	-	1.9	74.4	_	78.6	80
	outside under T1	12 21		78.4	-5.5	0.6	73.6		78.6	80
Support ne	ear pin	<u> </u>	_ <	40.9		1.9	43.2		13.0	85
Ambient	it water was	- w	tan.	40.0	40	0.0	40.0	4	10.0	-11-12-11
Model: GT	M46161-165.5-USBC	+ 15	- 1	المريح	~ _ \(\sigma^2 \)		h, i	n.	71/2	20, 1,
AC plug	LITE WILL WALL	Mer.	the same	40.5		1.5	42.6		12.9	70
MOV1 boo			d.	73.9	7	7.8	82.2	8	34.0	125
Choke win	iding (LF1)	mi, m		101.4	9	5.6	75.5	8	30.7	130
C1 body	11. 21. 2			98.2	92	2.1	77.9	316	37.1	105
C2 body	TEX TEX STEED	recent of the	47	96.1	90	90.9 85.1		9	92.9	105
PCB near	BD1		_	95.5	8	87.9 93.7		1	01.6	130
CY1 body	of the tier of	The spring	In.	92.6	86	6.9	89.0	9	96.8	125
CY2 body	20, 20, 20,		بابر	89.2	83	3.9	86.5	9	93.4	125
T1 coil	LEK TEK JEK	alter o	V.C.	98.9	94	4.9	100.3	1	06.8	110
T1 core	mr. mr. m.	70.		90.4	8	5.9	90.7	9	98.9	110
C5 body	at let let	JEE N	٤ ١	81.9	78	3.4	91.0	1	01.4	105
Enclosure	inside above T1	11. 20.		94.0	89	9.1	81.0	3	88.6 Ref.	
Enclosure	inside under T1			75.9	68	3.7	90.0	(96.9	Ref.
Enclosure	outside above T1	V (2)		78.3	₀ 7	1.7	68.7	JE	74.1	80
Enclosure	outside under T1	1º \ 1º	أكم	68.7	66	6.9	71.1	ên -	78.6	80
Support near pin				40.8	4	41.5 42.5 42.		12.7	85	
Ambient			VILLE.	40.0	40	0.0	40.0	4	10.0	
Suppleme	ntary information:	mr 2			٠,		+ ~	£	JEH J	THE MITE
Temperatu	ure T of winding:	t ₁ (°C)	R ₁ (Ω) t_2	2 (°C)	R ₂ (9	Ω) T	(°C)	Allowed	
$\overline{\eta}_{L_{n}} = \overline{\eta}_{h}$	7	0		Cart I	<u> 16, </u>	J	102	-11-	ale.	n

15	TABL	E: SHORT-	CIRCUIT ANI	OVERLO	AD PROTEC	CTION	it with a	nti (Pi
	ambie	nt temperat	ure (°C)		: 24	l.5		
type/rated	output	r-cold Ω	r-warm Ω	temp. °C	ext. encl. °C	support °C	int. + ext. wire	further information
GTM4616 165.0-USE / 5Vdc, 16W	B1A1C	ir _{vir} ir L _{ain} riek	and w	118.3	80.4	27.6	NITER WINDTE	White wi
GTM4616 165.5-USE 5.5Vdc, 16	3C /	ountife r ount	EK LIE	89.6	68.6	27.4	onliek W	LIEK WALTER

The heating test performed at unit continuous operation.

Reference No.: WTX23X08189910S Page 65 of 122



15	TABL	E: SHORT-	CIRCUIT AN	D OVERLO	AD PROT	ECTION	Mr.	m. n	Р
	ambie	ent temperati	ıre (°C)		:	24.5			
type/rated o	utput	r-cold Ω	r-warm Ω	temp. °C	ext. end		port C	int. + ext. wire	further ormation

Note:

- 1. The model of GTM46161-165.0-USB1A1C that output overload to 3.4A, the unit protected, T1 winding max. temp.: 118.3°C no hazards.
- The model of GTM46161-165.5-USBC that output overload to 3.4A, the unit protected, T1 winding max. temp.: 89.6°C no hazards.
- 3. Short circuit at the output terminal and secondary winding, the unit protected immediately, no temp. rising, no hazards.
- Rated ambient temperature ta: 40°C

18.2	P		
Insulation	resistance R between:	R (MΩ)	Required R (MΩ)
Between	mains poles (primary F1 disconnected)	>100	2
Between were con	primary and enclosure* (All type of enclosure sidered)	>100	7
Between	input and output	>100	5 11
	primary and secondary of T1 (All source of er were considered)	>100	THE WILLS
	core and secondary of T1 (All source of er were considered)	>100	5 100
	enclosure inside and outside* (All type of ewere considered)	>100	7 The National
Supplem	entary information:	to the me	

*: All sources of materials were considered, tested according to the client's required.

18.3 TABLE: Dielectric Strength		TEX TEX TEP IN
Test voltage applied between:	Test potential applied (V)	Breakdown / flashover (Yes/No)
Between mains poles (primary F1 disconnected)	2100 AC	No
Between primary and enclosure* (All type of enclosure were considered)	4200 AC	No white
Between input and output	4200 AC	No
Between primary and secondary of T1 (All source of transformer were considered)	4200AC	No
Between core and secondary of T1(All source of transformer were considered)	4200 AC	No
Between enclosure inside and outside (All type of enclosure were considered)	4200 AC	No

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IEC 61558-2-16						
Clause	Requirement + Test	NITER WALL WAL	Result - Remark	Verdict		

Supplementary information:

ANNEX H	Electr	onic circui	ts fault test				mr. mr.	Р
et de	ambie	nt temperat	ure (°C)		:	25.1	* #	Let.
ic and	Test vo	oltage(V)			:	264V	With Miles M	2 4
Componer	nt No.	fault	Test voltage	Test time	Fuse No	o. Fuse current(A)	Result	
BD1	NITEH V	S-C	264V/ 50Hz	1s	FS1/RF	1 0	Fuse (F1) opendimmediately and ten times, no ha	l repeat
C1 The same	THE WING	S-C	264V/ 50Hz	1s	FS1/RF	0	Fuse (F1) opend immediately and ten times, no ha	repeat
C2	MULL	S-C	264V/ 50Hz	1s	FS1/RF	0	Unit shut down, damage, no haz Output :	
T1 Pin 1-2.	TEX.	S-C	264V/ 50Hz	10min	FS1/RF	0.01	Unit shut down, damage, no haz Output :	
T1 Pin TA-	ГВ.	S-C	264V/ 50Hz	10min	FS1/RF	0.01	Unit shut down, damage, no haz Output :	
DS3	AIL.	S-C	264V/ 50Hz	10min	FS1/RF	0.01	Unit shut down, damage, no haz Output :	
C5	ALTEK .	S-C	264V/ 50Hz	10min	FS1/RF	1 0.01	Unit shut down, no damage, no hazard Output :	
Output	ille mi	S-C	264V/ 50Hz	10min	FS1/RF	1 0.01	Unit shut down, damage, no haz Output :	

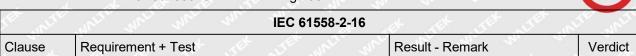
20	TA	BLE: Components					P
Object/part	No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)		rk(s) of formity1)
Plastic enclosure a Blade holde		TEIJIN CHEMICALS LTD	LN-1250G	V-0, 125°C, Min. thickness: 1.5mm	UL 94, IEC 61558-1 IEC 61558-2-16	and t	50075 ested appliance
Alt.	ئىرىن د	SABIC JAPAN L L C	945	V-0, 125°C, Min. thickness: 1.5mm	UL 94, IEC 61558-1 IEC 61558-2-16	and t	207780 ested appliance

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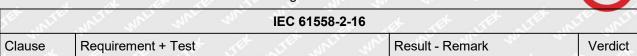
20	TAI	BLE: Components	Et JET O	LIE WALTE WALL	Mrs. Mrs.	Р
Object/pa	art No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity1)
Alt.	TEX VI	SABIC INNOVATIVE PLASTICS US L L C	915R(GG)	V-0, 120°C, Min. thickness: 1.5mm	UL 94, IEC 61558-1 IEC 61558-2-16	UL E121562 and tested with appliance
Alt.	VINLTER	LG Chem (Guangzhou) Engineering Plastics Co Ltd	LUPOY EF- 1006F(m)	V-0, 120°C, Min. thickness: 1.5mm	UL 94, IEC 61558-1 IEC 61558-2-16	UL E248280 and tested with appliance
Alt.	TER N	Covestro Deutschland AG [PC Resins]	FR6005 + (z)	V-0, 105°C, Min. thickness: 1.5mm	UL 94, IEC 61558-1 IEC 61558-2-16	UL E41613 and tested with appliance
Alt.	EX WAS	SILVER AGE ENGINEERING PLASTICS (DONGGUAN) CO LTD	PC2330	V-0, 115°C, Min. thickness: 1.5mm	UL 94, IEC 61558-1 IEC 61558-2-16	UL E225348 and tested with appliance
Alt.	MITEN.	SABIC INNOVATIVE PLASTICS B V	945	V-0, 120°C, Min. thickness: 1.5mm	UL 94, IEC 61558-1 IEC 61558-2-16	UL E45329 and tested with appliance
PCB	75 ⁴	WALEX ELECTRONIC (WUXI) CO LTD	T2, T2A, T2B, T4	V-0, 130°C, Min. 1.2 mm thickness	UL 796, IEC 61558-1 IEC 61558-2-16	UL E154355 and tested with appliance
Alt.	y wh	DONGGUAN HE TONG ELECTRONICS CO LTD	CEM1, 2V0, FR4	V-0, 130°C, Min. 1.2 mm thickness	UL 796, IEC 61558-1 IEC 61558-2-16	UL E243157 and tested with appliance
Alt.	JIN .	CHEERFUL ELECTRONIC	02, 03, 03A	V-0, 130°C, Min. 1.2 mm thickness	UL 796, IEC 61558-1 IEC 61558-2-16	UL E199724 and tested with appliance
Alt.	itik "nu	DONGGUAN DAYSUN ELECTRONIC CO LTD	DS2	V-0, 130°C, Min. 1.2 mm thickness	UL 796, IEC 61558-1 IEC 61558-2-16	UL E251754 and tested with appliance
Alt.	WALTER	SHANGHAI AREX PRECISION ELECTRONIC CO LTD	02V0, 03V0, 04V0	V-0, 130°C, Min. 1.2 mm thickness	UL 796, IEC 61558-1 IEC 61558-2-16	UL E186016 and tested with appliance
Alt.	itek M	SHENZHEN TONGCHUANG XIN ELECTRONICS CO LTD	TCX	V-0, 130°C, Min. 1.2 mm thickness	UL 796, IEC 61558-1 IEC 61558-2-16	UL E250336 and tested with appliance
Alt.	JUN-	PACIFIC WIN INDUSTRIAL LTD	PW-02, PW- 03	V-0, 130°C, Min. 1.2 mm thickness	UL 796, IEC 61558-1 IEC 61558-2-16	UL E228070 and tested with appliance

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20	TABL	E: Components	et tet w	THE MILLER WHILE	me me.	11 P
Object/part N	No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity1)
Alt.	1 8 1 9	TECHNOLOGIE S LTD	GT-D	V-0, 130°C, Min. 1.2 mm thickness	UL 796, IEC 61558-1 IEC 61558-2-16	UL E340752 and tested with appliance
Alt.		KUOTIANG ENT LTD	C-2, C-2A, C-4	V-0, 130°C, Min. 1.2 mm thickness	UL 796, IEC 61558-1 IEC 61558-2-16	UL E227299 and tested with appliance
Alt.	L	KINGBOARD LAMINATES HOLDINGS LTD	KB-3151C, KB-5150	V-0, 130°C, Min. 1.2 mm thickness	UL 796, IEC 61558-1 IEC 61558-2-16	UL E123995 and tested with appliance
Alt.	Jun J	SHENZHEN JINDIAN PRECISION CIRCUIT CO LTD	JD-1, JD-1A	V-0, 130°C, Min. 1.2 mm thickness	UL 796, IEC 61558-1 IEC 61558-2-16	UL E347010 and tested with appliance
Fusible resistor (RF1) (E	ANHUI CHANGSHENG ELECTRONICS CO LTD	RXF21-1W	1 Ω, 1 W	UL 248-1, UL 248-14, IEC 61558-1 IEC 61558-2-16	UL E306095 and tested with appliance
Alt.	C	SHENZHEN GREAT ELECTRONICS CO LTD	RXF-1W	1 Ω, 1 W	UL 248-1, UL 248-14, IEC 61558-1 IEC 61558-2-16	UL E301541 and tested with appliance
Alt.	E	IIANGSU KINYANG ELECTRONIC COMPONENT CO LTD	RF10-1W	1 Ω, 1 W	UL 248-1, UL 248-14, IEC 61558-1 IEC 61558-2-16	UL E312842 and tested with appliance
Alt.	5 F	SHENZHEN KAYOCOTA ELECTRONICS CO LTD	FRKNP-1WS	1 Ω, 1 W	UL 248-1, UL 248-14, IEC 61558-1 IEC 61558-2-16	UL E318056 and tested with appliance
Alt.	E	TZAI YUAN ENTERPRISE CO LTD	KNF1W	1 Ω, 1 W	UL 248-1, UL 248-14, IEC 61558-1 IEC 61558-2-16	UL E355632 and tested with appliance
Alt.		/ageo Components Suzhou) Co. Ltd.	FKN	1 Ω, 1 W	UL 248-1, UL 248-14, IEC 61558-1 IEC 61558-2-16	UL E323780 and tested with appliance
Fuse (FS1) (For circuit diagram/ PCI layout type 1 & 2)	B L	Conquer Electronics Co., .td.	MST series	T1 A or T2 A, 250 V, LBC	IEC/EN 60127-1, IEC/EN 60127-3	VDE 40017118

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20 T.	ABLE: Components				Р
Object/part No	o. Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity1)
Alt.	SUZHOU WALTER ELECTRONIC CO LTD	2000	T1 A or T2 A, 250 V, LBC	IEC/EN 60127-1, IEC/EN 60127-3	VDE 40018790
Alt.	SUZHOU WALTER ELECTRONIC CO LTD	2010	T1 A or T2 A, 250 V, LBC	IEC/EN 60127-1, IEC/EN 60127-3	VDE 40018781
Alt.	Bel Fuse Ltd.	RST	T1 A or T2 A, 250 V, LBC	IEC/EN 60127-1, IEC/EN 60127-3	VDE 40011144
Alt.	Cooper Bussmann LLC	SS-5	T1 A or T2 A, 250 V, LBC	IEC/EN 60127-1, IEC/EN 60127-3	VDE 40015513
Alt.	Walter Electronic Co. Ltd.	ICP series	T1 A or T2 A, 250 V, LBC	IEC/EN 60127-1, IEC/EN 60127-3	VDE 40012824
Alt.	Shenzhen Lanson Electronics Co. Ltd.	SMT	T1 A or T2 A, 250 V, LBC	IEC/EN 60127-1, IEC/EN 60127-3	VDE 40012592
Alt.	Das & Sons International Ltd.	385T	T1 A or T2 A, 250 V, LBC	IEC/EN 60127-1, IEC/EN 60127-3	VDE 40008524
Fuse (RF1) (For circuit Diagram / PCE layout type 2) (optional)	Walter Electronic Co. Ltd.	ICP series	T1 A or T2 A, 250 V, LBC	IEC/EN 60127-1, IEC/EN 60127-3	VDE 40012824
Alt.	Zhongshan Lanbao Electrical Appliances Co., Ltd.	RTI-10 Serie(s)	T1 A or T2 A, 250 V, LBC	IEC/EN 60127-1, IEC/EN 60127-3	VDE 40017009
Bridging- Capacitor (CY1, CY2) (optional)	TDK Corporation	CD	250Vac, 125°C, Max. 1000pF	IEC/EN 60384- 14	VDE 40029780
Alt.	Success Electronics Co., Ltd.	SE	250Vac, 125°C, Max. 1000pF	IEC/EN 60384- 14	VDE 40037211
Alt.	Success Electronics Co., Ltd.	SB	250Vac, 125°C, Max. 1000pF	IEC/EN 60384- 14	VDE 40037221
Alt.	Murata Mfg. Co., Ltd.	KX	250Vac, 125°C, Max. 1000pF	IEC/EN 60384- 14	VDE 40002831
Alt.	Walsin Technology Corp.	AH	250Vac, 125°C, Max. 1000pF	IEC/EN 60384- 14	VDE 40001804
Alt.	JYA-NAY Co., Ltd.	JN	250Vac, 125°C, Max. 1000pF	IEC/EN 60384- 14	VDE 40001831
Alt.	Haohua Electronic Co.	CT7	250Vac, 125°C, Max. 1000pF	IEC/EN 60384- 14	VDE 40003902

Requirement + Test

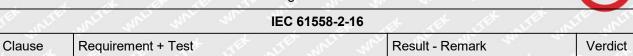
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20	TAE	BLE: Components	et ret in	ITE WALTE WALE	ALT ALL	10	Р
Object/part	No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)		rk(s) of ormity1)
Alt.	, _.	Hongzhi Enterprises Ltd.	Y	250Vac, 125°C, Max. 1000pF	IEC/EN 60384- 14	VDE 4003	8760
Alt.	MALT MEK	SHANTOU HIGH- NEW TECHNOLOGY DEVELOPMNT ZONE SONGTIAN ENTERPRISE CO LTD	CD -	250Vac, 125°C, Max. 1000pF	IEC/EN 60384- 14	VDE 4002	5754
Varistor MOV1		Joyin Co., Ltd.	JVR10N471K, JVR14N471K	300Vac, coating is V-0, 125 °C, 6KV/3KA, pulse test passed	IEC 61051-1, IEC 61051-2, IEC 61051-2-2	VDE	005937
Alt.	VNI.	Centra Science Corp.	10D471K, 14D471K	300Vac, coating is V-0, 125 °C, 6KV/3KA, pulse test passed	IEC 61051-1, IEC 61051-2, IEC 61051-2-2	VDE 4000a	8220
Alt.	TEK.	Thinking Electronic Industrial Co., Ltd.	TVR10471K, TVR14471K, TFV10S471K, TVR10621K	300Vac, coating is V-0, 125 °C, 6KV/3KA, pulse test passed	IEC 61051-1, IEC 61051-2, IEC 61051-2-2	VDE	005944
Alt.	Tall of	Success Electronics Co., Ltd.	SVR10D471K , SVR14D471K	300Vac, coating is V-0, 125 °C, 6KV/3KA, pulse test passed	IEC 61051-1, IEC 61051-2, IEC 61051-2-2	VDE 40030	0401
Alt.	ALTEK LIK	Ceramate Techn. Co., Ltd.	GNR10D471K , GNR14D471K	300Vac, coating is V-0, 125 °C, 6KV/3KA, pulse test passed	IEC 61051-1, IEC 61051-2, IEC 61051-2-2	VDE 4003	1745
Alt.	, , , ,	Brightking (Shenzhen) Co., Ltd.	14D471K, 10D471K	300Vac, coating is V-0, 125 °C, 6KV/3KA, pulse test passed	IEC 61051-1, IEC 61051-2, IEC 61051-2-2	VDE 4002	7827
Alt.	MLTE	Lien Shun Electronics Co., Ltd.	10D471K, 14D471K	300Vac, coating is V-0, 125 °C, 6KV/3KA, pulse test passed	IEC 61051-1, IEC 61051-2, IEC 61051-2-2	VDE 4000	5858
Alt.	liek Ek	HONGZHI ENTERPRISES LTD	HEL- 10D471K, HEL-14D471K	300Vac, coating is V-0, 125 °C, 6KV/3KA, pulse test passed	IEC 61051-1, IEC 61051-2, IEC 61051-2-2	VDE 40008	8621
Alt.	ار نامار	GUANGXI NEW FUTURE INFORMATION INDUSTRY CO LTD	10D471K, 14D471K	300Vac, coating is V-0, 125 °C, 6KV/3KA, pulse test passed	IEC 61051-1, IEC 61051-2, IEC 61051-2-2	VDE 40030	0322
Alt.	ivries Verk	Thinking Electronic Industrial Co., Ltd.	TVR10471-M	300Vac, coating is V-0, 125 °C, 6KV/3KA, pulse test passed	IEC 61051-1, IEC 61051-2, IEC 61051-2-2	VDE 4003	6061

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20 TA	BLE: Components	et jet o	LIE WILLE WHILE	Mrs. Mrs.	N P
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity1)
Alt.	SHANTOU HIGH- NEW TECHNOLOGY DEVELOPMNT ZONE SONGTIAN ENTERPRISE CO LTD	10D471K, 14D471K, 10D621K	300Vac, coating is V-0, 125 °C, 6KV/3KA, pulse test passed	IEC 61051-1, IEC 61051-2, IEC 61051-2-2	VDE 40023049
Alt.	Guangdong Huiwan Electronics Technology Co Ltd	V-471K-10D, V-471K-10E V-471K-14D, V-471-14E	300Vac, coating is V-0, 125 °C, 6KV/3KA, pulse test passed	IEC 61051-1, IEC 61051-2, IEC 61051-2-2	VDE 40043880
Alt.	XIAMEN SET ELECTRONICS CO LTD	TFV8S471K, TFV10S471K	300Vac, coating is V-0, 125 °C, 6KV/3KA, pulse test passed	IEC 61051-1, IEC 61051-2, IEC 61051-2-2	TUV J 50554061
Thermal conductive pad	Suzhou Springgrass Electronic Technology Co., LTD	HRTP-M16	V-0, 130°C, Min. thickness: 5.8mm	UL 94 IEC/EN 61558-2- 16	UL E528141 and tested with appliance
Alt.	SUZHOU HUIMEI PACKAGING PRODUCTS CO LTD	HM-300	V-0, 130°C, Min. thickness: 5.8mm	UL 94 IEC/EN 61558-2- 16	UL E516470 and tested with appliance
Alt.	PIONEER MATERIAL PRECISION TECH	PMP-P-300	V-0, 130°C, Min. thickness: 5.8mm	UL 94 IEC/EN 62368-1	UL E153203 and tested with appliance
Transformer (T1)	GlobTek, Shan Dong Boam Electric Co Ltd, WUXI HAOPUWEI ELECTRONICS CO.,LTD, ENG	XF01036	Class B	IEC 61558-1 IEC 61558-2-16	Tested with appliance
-Insulation system	GLOBTEK INC	GTX-130-TM	Class B	UL 1446 IEC 61558-1 IEC 61558-2-16	UL E243347 and tested with appliance
Alt.	ENG ELECTRIC CO LTD	ENG130-1	Class B	UL 1446 IEC 61558-1 IEC 61558-2-16	UL E308897 and tested with appliance
Alt.	SHAN DONG BOAM ELECTRIC CO LTD	BOAM-01, B1	Class B	UL 1446 IEC 61558-1 IEC 61558-2-16	UL E252329 and tested with appliance
Alt.	WUXI HAOPUWEI ELECTRONICS CO LTD	ZT-130	Class B	UL 1446 IEC 61558-1 IEC 61558-2-16	UL E315275 and tested with appliance

Clause

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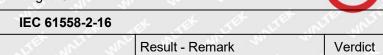


20 1	TABLE: Components				Р
Object/part N	o. Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity1)
-Magnet wire (primary)	PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN) CO LTD	UEWN/U, UEWS/U	MW28-C, 130°C	UL 1446 IEC 61558-1 IEC 61558-2-16	UL E201757 and tested with appliance
Alt. W	JUNG SHING WIRE CO LTD	UEW-4, UEY- 2	MW75C, 130°C	UL 1446 IEC 61558-1 IEC 61558-2-16	UL E174837 and tested with appliance
Alt.	JIANGSU HONGLIU MAGNET WIRE TECHNOLOGY CO LTD	2UEW/130	MW75-C, 130°C	UL 1446 IEC 61558-1 IEC 61558-2-16	UL E335065 and tested with appliance
Alt.	CHANGZHOU DAYANG WIRE & CABLE CO LTD	2UEW/130	MW75-C, 130°C	UL 1446 IEC 61558-1 IEC 61558-2-16	UL E158909 and tested with appliance
Alt.	WUXI JUFENG COMPOUND LINE CO LTD	2UEWB	MW75#, 130°C	UL 1446 IEC 61558-1 IEC 61558-2-16	UL E206882 and tested with appliance
Alt.	JIANGSU DARTONG M & E CO LTD	UEW	MW 75-C, 130°C	UL 1446 IEC 61558-1 IEC 61558-2-16	UL E237377 and tested with appliance
Alt.	SHANDONG SAINT ELECTRIC CO LTD	UEW/130	MW75#, 130°C	UL 1446 IEC 61558-1 IEC 61558-2-16	UL E194410 and tested with appliance
Alt.	ZHEJIANG LANGLI ELECTRIC EQUIPMENTS CO LTD	UEW	MW 79#, 130°C	UL 1446 IEC 61558-1 IEC 61558-2-16	UL E222214 and tested with appliance
Alt.	NINGBO JINTIAN NEW MATERIAL CO LTD	2UEW/155	MW 79#, 155°C	UL 1446 IEC 61558-1 IEC 61558-2-16	UL E227047 and tested with appliance
Alt.	HUIZHOU HUILI INDUSTRIAL CO LTD	MIW-B(x)	MW75#, 130°C	UL 1446 IEC 61558-1 IEC 61558-2-16	UL E322908 and tested with appliance
-Triple- insulated wire (Secondary)	Great Leoflon Industrial Co., Ltd.	TRW (B) Serie(s)	Class B, 130°C, reinforced insulation	UL 2353	VDE 136581
Alt.	HOI LUEN ELECTRICAL MFR CO LTD	THL-F-XX, THL-F-SB-XX	Class B, 130°C, reinforced insulation	UL 2353	UL 257525
Alt.	KBI COSMOLINK CO.,LTD.	TIW-M Serie(s)	Class B, 130°C, reinforced insulation	UL 2353	VDE 138053

Requirement + Test

Clause

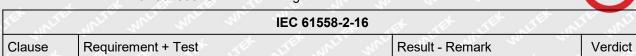
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20 T.	ABLE: Components	EK TEK IN	ITER WALTER WALE	mer mer	Р
Object/part No	o. Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity1)
Alt.	Furukawa Electric Co., Ltd. Electronics	TEX-E	Class B, 130°C, reinforced insulation	UL 2353	VDE 006735
Alt.	TOTOKU ELECTRIC CO LTD	TIW-2	Class B, 130°C, reinforced insulation	UL 2353	VDE 40005152
Alt.	E&B TECHNOLOGY CO LTD	E&B-XXXB, E&B-XXXB-1	Class B, 130°C, reinforced insulation	UL 2353	VDE 40023473
Alt.	SHENZHEN JIUDING NEW MATERIAL CO LTD	DTIW-B	Class B, 130°C, reinforced insulation	UL 2353	VDE 40037495
-Bobbin	CHANG CHUN PLASTICS CO LTD	T375J, T375HF, T373J	V-0, 150°C, thickness 0.45 mm min.	UL 94 IEC 61558-1 IEC 61558-2-16	UL E59481 and tested with appliance
Alt."	SUMITOMO BAKELITE CO LTD	PM-9820, PM- 9630, PM- 9823	V-0, 150°C, thickness 0.74 mm min.	UL 94 IEC 61558-1 IEC 61558-2-16	UL E41429 and tested with appliance
Alt.	Resonac Techno Service Corporation	CP-J-8800	V-0, 150°C, thickness 0.45 mm min.	UL 94 IEC 61558-1 IEC 61558-2-16	UL E514814 and tested with appliance
Alt.	CHANG CHUN PLASTICS CO LTD	4130	V-0, 150°C, thickness 0.45 mm min.	UL 94 IEC 61558-1 IEC 61558-2-16	UL E59481 and tested with appliance
-Insulating tap	E 3M COMPANY ELECTRICAL MARKETS DIV (EMD)	1350F-1, 1350T-1, 44	Min.130°C	UL 510A IEC 61558-1 IEC 61558-2-16	UL E17385 and tested with appliance
Alt.	HUIZHOU YAHUA ELECTRONIC TECHNOLOGY CO LTD	CT	Min.130°C	UL 510A IEC 61558-1 IEC 61558-2-16	UL E495875 and tested with appliance
Alt.	BONDTEC PACIFIC CO LTD	370S	Min.130°C	UL 510A IEC 61558-1 IEC 61558-2-16	UL E175868 and tested with appliance
Alt.	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	PZ CT WF	Min.130°C	UL 510A IEC 61558-1 IEC 61558-2-16	UL E165111 and tested with appliance
Alt.	JINGJIANG JINGYI ADHESIVE PRODUCT CO LTD	JY25-A	Min.130°C	UL 510A IEC 61558-1 IEC 61558-2-16	UL E246950 and tested with appliance

Supplementary information: N/A

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20	TAE	BLE: Components				Р
Object/par	t No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) c
Alt.	'an	CHANG SHU LIANG YI TAPE INDUSTRY CO LTD	LY-XX	Min.130°C	UL 510A IEC 61558-1 IEC 61558-2-16	UL E24682 and tested with appliar
Alt.		SHEN ZHEN WEI CHUANG DA PACKAGING MATERIALS CO., LTD.		Min.130°C	UL 510A IEC 61558-1 IEC 61558-2-16	UL E33358 and tested with appliar
-PTFE tubi	ng	Great Holding Industrial Co Ltd	TFT, TFS	Min. 300V, 200°C	UL 224 IEC 61558-1 IEC 61558-2-16	UL E15625 and tested with appliar
Alt.		Shenzhen Woer Heat-Shrinkable Material Co Ltd	WF	600V, 200°C	UL 224 IEC 61558-1 IEC 61558-2-16	UL E20395 and tested with appliar
Alt.		Changyuan Electronics (Shenzhen) Co Ltd	CB-TT-T, CB- TT-S	Min. 300V, 200°C	UL 224 IEC 61558-1 IEC 61558-2-16	UL E18090 and tested with appliar

26	TABLE: \	Norking voltage meas	surement.	THE THE THE PART
Location	·	RMS voltage (V)	Peak voltage (V)	Comments
T1 Pin 1 to pir	n TA	232	476	Max. Peak voltage
T1 Pin 1 to pir	n TB	216	432	int we we were
T1 Pin 2 to pir	n TA	217	426	TEX TEX STEX OUTER MUTE IN
T1 Pin 2 to pir	n TB	218	424	in the second
T1 Pin 3 to pir	n TA	240	440	Max. RMS voltage
T1 Pin 3 to pir	n TB	180	360	an an a
T1 Pin 5 to pir	n TA	174	372	I TES RITES WITE MITTER
T1 Pin 5 to pir	n TB	192	380	an an at the
CY1 & CY2	" The	214	368	LIER WITE WITE MILL

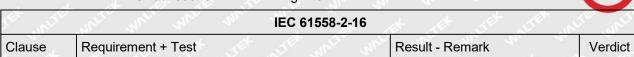
Note(s):

Operating conditions: Input voltage: = AC 240V (rated voltage)

Used to determine the test voltage of dielectric strength and clearance, creepage distance and Dti.

26	Table: cr	Table: creepage distances and clearances and distances through insulation						Р
Insulation		Required	Clear	ance	Cree	page	D	ti
		Insulation	Measured	Required	Measured	Required	Measured	Required

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		(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
L & N trace before fuse	BI	3.6	2.4	3.6	2.5	TEK - UNITER	White W
Two terminals of fuse	BI	3.0	2.4	3.0	2.5		, -
CY1 primary pin to earth trace	ВІ	4.4.	2.4	4.4	2.5	July 1	Will - Wer
CY2 primary pin to earth trace	SI	4.6	2.4	4.6	2.5	NATE VIN	TER UNITE
Live parts to accessible parts	RI	> 7.0	4.6	> 7.0	5.5	LIEK MIT	y anliek
Primary circuits to secondary circuits (PCB trace under T1)	RI	> 7.0	4.6	> 7.0	5.5	EK UNITEK	MULTER OUT
Transformer primary winding to secondary winding	RI	> 7.0	4.6	> 7.0	5.5	Whitek W	TEK MULL
Transformer secondary winding to core	RI	> 7.0	4.6	> 7.0	5.5	mite l	ektek

Remark:

B = basic insulation S = supplementary insulation R = reinforced insulation

- 1. The core of transformer (T1) is considered as primary.
- 2. CY1 consider supplement insulation.

27.2	TABLE: E	ABLE: BALL-PRESSURE TEST FOR ENCLOSURE						
Material	``	Temperature (°C)	Result (mm)	Comments				
Plastic en	closure	108.3	1.1	See table 20				
Remark: -	- J	the the alite	antite mail mais	Party Party Communication				

27.4	27.4 TABLE: GLOW-WIRE TEST FOR ENCLOSURE					
Material	NITE .	Temperature (°C)	Result (mm)	Comments	J ^{er} (1)	
Plastic enc	losure	650	No flame	See table 20		
Remark:	WILLE WY	is me me	at at all	· THE LITTER MITTER	it willer	

27.2		LL-PRESSURE TEST F CARRYING PART	OR INSULATION MATE	RIAL RETAINING	P.Y
Material	et et	Temperature (°C)	Result (mm)	Comments	
T1 bobbin		125	0.8	See table 20	9 (
РСВ	LIEK NU	125	1.0	See table 20	et .
Plug holde	r	125	1.2	See table 20	1/1/
Remark:	ALTER MATE	William Aug Ang	70, 0, 7	let tet stell	- 554

27.4	TABLE: GLOW-WIRE TEST FOR INSULATION MATERIAL RETAINING	P
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	IEC 61558-2-16					
No.	Clause	Requirement + Test	ITEX NITEX WALTER WAL	Result - Remark	Verdict	

CURR	ENT CARRYING PART	alife wife while wh	- 1/4 1/4 1/4 1/4 1/4 1/4 1/4 1/4 1/4 1/4
Material	Temperature (°C)	Result (mm)	Comments
PCB	750 / 850	No flame / No flame	See table 20
T1 bobbin	650 / 750	No flame / No flame	See table 20
Plug holder	750	No flame	See table 20

26.2 TEST A	V-1	CREEPAGE DISTANGH INSULATION	NCES AND CL	EARAN	CES A	ND DISTANC	ES	N/A
		h three special prepar ited wires, without pot						
cycles 2 x working betwe pri / s	voltage en	68 h at the temperature acc. Cl. 14 (min. 85 °C)	1 hour 25 °C	2 ho 0 °		1 hour 25 °C		
The same	ner a	- Mr M		- 20	- 4	of the same	TE WILL	"ales
		at let let	LIEF WILL	are	11/2	n n		.4.

26.2 TEST B		CREEPAGE DISTANGH INSULATION	NCES AND CL	EARAN	CES A	AND DISTANC	ES	N/A
		h three specially prepa or impregnation (P1)	ared specimen	s with				
cycles v 2 x working betwe pri / so	voltage en	68 h at the temperature acc. Cl. 14 (min. 85 °C)	1 hour 25 °C	2 hc 0 °		1 hour 25 °C		
set s	C* 5	ALTER MITTER	in m	21,		4 0	5	154
ure in	21,	2, 2	at alt	C.E.	160	WITE WITE	we.	in i

26.2 TEST C	E-2 / A-2	CREEPAGE DISTANGE OF CONTROL C	NCES AND CL	EARAN	CES A	AND DISTANC	ES	All The N	I/A			
		with three specially prepared specimens with ng (only dti is required)										
cycles with 2 x working voltage between pri / sec		68 h at the temperature acc. Cl. 14 (min. 85 °C)	1 hour 25 °C	2 hc 0 °		1 hour 25 °C		·				
re me	29.	2, 7	et let	det .	Ten	WILL WILL	21/2	m.	-2			
at at	164	LIER RITE WAL	24. 24	- 20,			1	-e*				

Annex U	U.5.1 THERMAL ENDURANCE TEST
Type ref.	The state of the s

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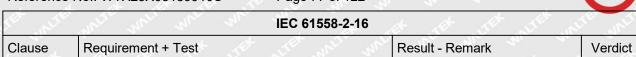


	TABLE:					ES A	ND CL	EARA	NCES	AND	DISTA	ANCE	S W		N/A
٦ ا	Test wit	h thre	ee spe	cially p	orepare d)	ed spe	ecimen	s with							
cycles wi 2 x working v between pri / sec	oltage n		68 h a nperat Cl. (min. 8	ure ac 14	cc.	1 ho 25			hour) °C		1 hour 25 °C				
Rated PRI-Vo	ltage														
Rated SEC- Voltage	111		on.	7 E.A	· ~	er .	NUTER	MLTE	y will	iek si	ALTER.	White	we	, '1 ₁	
Material of Wi	inding	الۍ	٧,	in.	m.		بد		, E	<u>.</u>	et .	JEK	LIE	. Inti	, U
Material of bo	bbin		et .	TEX	J. J. E.W.	in.	. (II		me	m	21		<i>a</i> ,		
Material of res	sin	Me	2/1		20.			e st	NO.	JE	کی ا	(T	UE.	Nette	21/2 E
Material of po	tting	164	'آن ت	,	aret .	N.CTV	aur	2/1		<i>i</i> ,	100			<i>,</i> +	18
Material of foil	ř 🤟		20,	10.			A COM		et .	TEK.	-NLTE	ALL!	, ur	, (Mr.
Components removed for to	est	Cart 3	INLTER	WALT	, w	Ý.	n, t	- CA		*	TEK.	LIEN	المنارة	* "L	LIEK
tw		4	, the	<u> </u>	_5E	٠,,١		U.C.	"Office	7/1			2,,		4
S	1/4	100	15	Α,	-2),		ek.	46. E			1	5 ^{EX} ,	NETE	with	w
Objective test duration (days				Sec.	I've	W.C.				3	1	<i>(</i>	JEK .	LIEX	on Life
Theoretical te temperature	st	TEX	NALTE	k Whi	iek 1	WILE	MUTT	in		ist.	"I'A"	-7.1 -7.1	* ·	(e)t	TEL
Sample			1		2		3		4		5		6		7
Winding		PRI	SEC	PRI	SEC	PRI	SEC	PRI	SEC	PRI	SEC	PRI	SEC	PRI	SEC
Start – Rk		a , j	et e	KEY.	_LTE	ام	(E) (V)		anti	71/2	7/		20,	100	
After 4 h – Rw	Virti	me	-211		1,,		L	J.L	16th	. 46	4	et .	CT ELL	WITE	أعران
After 4 h – wir temperature	nding	NITE	ساران	ir Er	LTEK.	WALL	MUE	11		in.	701 7 EX		est.	JEH	OLTE!
After 4 h - ove temperature	en	TEX-	MITER	ani.	ex w	CT EL	WALTE	wi	21		W.F.	711	74	*	TEX.
After 24 h – R	.w	555		, (EK	TEK.	CLTE	أران ا	, N		In Lie	ME	40	
After 24 h – winding temperature	WALTE ZX	, un	,Te 7	ALTE KEIK	WALTER	الى ناماد	Ek 'VL	JEK ,	MITER	whi	'n Tr	JEK.	W.T.E.K	wni.	'n
After 24 h - ov temperature	/en	دار مارور	-1112		Clerk N	NITE!	الله	, t , t	LIEK	NITE!	WILL	71). F	TELL	المالة	WILL
Final test perio	od		Mur.	711	`	LEIK LEIK	OF EX		et o	SEL	JALTEK	MALT	ik m	(E) 1	MITER

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THE WITE		IEC 61558-2-16		INLIES WILL
Clause	Requirement + Test	TEK OLIEK WALL WAL	Result - Remark	Verdict

26.2 TEST C	1 100	E: CREEPAGE DISTANCES AND CLEARANCES AND DISTANCES JGH INSULATION											
		n three spe		ared specimen	s with								
cycles v 2 x working betwe pri / so	voltage en	68 h a temperat Cl. (min. 8	ure acc. 14	1 hour 25 °C	2 hour 0 °C	1 hou 25 °C	-						
Output volta (11.1) under		TEX MUTER	WALTER	MULTER ANT	'MUE .	of the	LIEN AL	EK MITEK					
Insulating resistance	EK MITE	y antiek	ANLIEK W	ir danife	un in	s sh		TEX.					
High voltage (35% of the in Table 8.a	values	MUTTER M	TEK MUT	WALTER W		WALL W	CA WILEY	Wriek MU					

Annex U	N. C.	"II Ü.	5.2 Th	e use	of an			ant S 10 day		than 4	500 ii	1 tw te	sts	MITE
Type ref.		WITE.	MALT	in		c _{tt}	20,		۰	J+	, e*	4	٠ .	Clerk
Rated PRI-Voltage			_+	. 6	٠.	CLER	RETER	WIT	, ar	a. 1	100	m	4,	- 3
Rated SEC- Voltage	ar.		A	ans	-S	est.	CIEN	.0		, and	JEH J	INLIER	WALT	in.
Material of Winding			.C.	140	2/6				-		£	, et	16th	
Material of bobbin	2,		,	.+	164		٠,	Jer .	RETE	"aver.	" on	, 4		al.
Material of resin	J. E.	NITE .	1/1/2	× 3	10	7/1	200					+ ,	E.C.	UEL
Material of potting			.,		SEK.	CLIER	C.C.C.	10	٠, ١	N. C.	m	an.	-2'	
Material of foil		VII.	anc.	-m	-	V	., "		_	,et	16th	S.C	- 1	E. L
Components removed for test		ZEF (LIEK	MALTE	t m	TEN W	NITO	MUTTER	in	, ₍₁₎	, t	Th.	- 10°	
tw		- 31		, t		ر ع		NITE .	11/2	Me	<i>"</i>	Α,	ar.	m.
S get get	RUTE	JAL!	ال	U.	m	20,	. "		٠, ـ	الح		et	16th	TE
Objective test duration (days)	TEX	N. LIEB	كاي	211 Ex	T. E. K.	WITE	mri	. W		me.	nu.	741	· ·	O)
Theoretical test temperature	ţ-	STEK	TE EN	· whi	.E.K - 1/1	LIEK	MALTE	MUL	(I)	U.	in Line	MULL	711	e e
Sample		1		2		3		4		5		6		7
Winding	PRI	SEC	PRI	SEC	PRI	SEC	PRI	SEC	PRI	SEC	PRI	SEC	PRI	SEC
Start – Rk	21/2	10.		_t	_ (E)		٠,	JEK	ALT E	- INLET	$v_{\nu_{\nu}}$	J. 1	4	2hr
After 4 h – Rw	TE !	CLIFE	10	ν, ,	100	21/2	100			٠, ٠			Et	TEX
After 4 h – winding temperature		TEK.	, LT*	ري.	JEK	INLTEK	WILL	, un	, °	N. I.	MARI	-File	,	le l

Reference	9 NO W 1 \ 23 \ 00 1099 103	Fage 79 01 122		
TER WILLE	write mer me m	IEC 61558-2-16	THE THE STEP ALT	et incle will
Clause	Requirement + Test	EK STEEL MUTTER	Result - Remark	Verdict
The state of	Will Mr. Mr. Mr.	100	at let let ite	LITE WITH

1	ar.	21,	3			9 0	.4	J.	16	- 33			10°
E.L.	ALTEK.	المالية	نامان	Et 1	MITER	MILL	21/2	, ,	int.	"EA			TEX.
		٠, د	.0		e.t	NITE .	MITE	'ur'	ای کا	, , , , , , , , , , , , , , , , , , ,	1115	1/1	11
JUN!	. " . "	est.	WAL.	WILLE	- uni	(E)* \	NLTEK.	MALTE	t yns	EF J	LIEK	المالية الحالم	whi.
ine.	11/2	7	er .	TEX TEX	MITE	ار ا	2.E.K - 21	LIEN	MALTE	, one	IER W	J.C	WILL
, T	our Cr.	411.5	-211	Ļ	Clerk	NLT F	, NI	E.K. 143	LIEN.	MITE	, whi	171'	LIER.
, w	LITE V	WELL	MUST	1		TEX.	TE		E.F11	CIEN	NATER	WILL	EK W
WILL	en in	JEE .	MALTER	whi	, m	, t	rest Test	70°		* .	LIEF	NLTER	- NALTI
NLTEX	MILI	<i>*</i>	LTER ,	NLTE EX	UNL TEX	الدي الدي		TEX.	MITER MITER	NI L	est ou	JEK .	MITER
	SER JUNE	SEX NITES WAS TEX W	Et NIET JULE JULET JULE JULET JULE JULET JULE JULET JULET JU	EL NIFE WILL WILL WILL WILL WILL WILL WILL WIL		Et Ritt Initit and Et anitit In I an		Et Right Antiet Antie An	Et nitt nitt ne et nitt nitt nitt nitt ni				

Annex U	<u> </u>	U.	5.2 Th	e use	of an			ant S o		than 4	500 iı	1 tw te	sts	7
Type ref.	1/10		_ N	21/2		, i.					JEN .	CLIER	100	an'
Rated PRI-Voltage	V		4	10	كالمالم				3	150		,	 	
Rated SEC- Voltage	ال بلا	4		et.	CLI EN	- INLIE	y an	ITE N	NITE	Junit.	in,	7 E. V	NET	WILL
Material of Winding	5	men	m					e .	et	164	J.	, t	CERT TO	RUTER
Material of bobbin	٠,	.et	(4	نی با	\$ C.	With .	W.C.	27/20	, 4	10	$a_{j_{j_{s}}}$	-2,		
Material of resin	10	Α,	ale.			.4		26		TEX.	JEN.	NITE.	ناري	(N
Material of potting		est.	TEK	NLTE.	100	10	. .	non	n,	-91		10		L
Material of foil	1/1/2	1/1			4	٠ ,	J.	NEX.	J.	ئى ب		NITE .	WELL	WILL
Components removed for test	JNLTE!	L WILL	اران البار	LIEE.	Mer	June.	- 4	, t	in.	7 E.A.		CENT .	TEX	OLIEN
tw	-4-	264		et "	JE	WITE	Me	115	٧.	ar.	n.	20,		
S of sold sol		W.	m		_	٠,		٠ ,	,\-	C. E.K.	LIE	كام.	رار.	J (
Objective test duration (days)	, J	TEK 1	IN LITER	WIL	, Jul	NET .	ne.	me	- 4	et s	TEK.	T. C.		11 T
Theoretical test temperature	, LIT	. IL	TEX.	MALTER	Whi	'E' 'VI	, T	alver.	MUS	-74	· .	TEX VII.	ZEA.	- J
Sample		1		2		3		4		5		6		7
Winding	PRI	SEC	PRI	SEC	PRI	SEC	PRI	SEC	PRI	SEC	PRI	SEC	PRI	SEC
Start – Rk	30	J.L			JEK	NITE	AL LY	" UN		N.	are	211.	- 3	

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nur in	IEC 61558-2-16	ART THE STATE AST	INLIE WALTE
t + Tost		Posult Pomark	Vordict

Clause	Require	ement	+ Tes	۴ ,	JEH.	CLIER	"With	ان	Res	sult - F	Remark	-2,	,	V	erdict
	ala a	N.	The same	20	1		1		با	S.	10			Ý.,	
After 4 h – F	₹w	<i>*</i>	et	4	٢ .	E	WITE .	MILL	'ur			In.	-2,	353	
After 4 h – v temperature		, 1	Vr.	in.	211			NLTE!	L NLIF	ر ر ار	ZEK Z	LITER	WALTE	in.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
After 4 h - o temperature		un	J.C. 11		Mer	m	· ·		TEN	, cliff	, k	Et .	NITEK.	SUNLITE	y with
After 24 h –	Rw	LITE .		Ø .	LITE.	West.	"in	S	2	2n.			٠,٠	16th	, (E
After 24 h – winding temperature	<i>A</i>	STEK.	MITE	uni	EK ON	TEX	WILLE.	un	STEET IN	LTE.	MILITE TEK	yun' TÉ	. W	et .	J.TEK
After 24 h - temperature		, L	LIEK	NLTE!	L WALT	7	nite	W.T.	ALL.	1	rt .	in.	7E.W	2	CENT.
Final test pe (days)	eriod		Elt .	TEK	MITER	, in	, TEK _ (1)	LIER	MILLE	me	, JI		UN.	- EN	- 4
Output volta (11.1) unde		1 E.A	- '''	٠	TEX.	QLTE!	whi	15 - 21	NITER.	UNLITE	MIL	<i>'</i> 11	,	V.F.	21/2
Insulating resistance	inti s	/v.	Mr.	- Z	e ^t .	E.	MITE	an'	I EK WI	JEK.	onlite	WILL	e. m		NUT.
High voltage (35% of the in Table 8.a	values		ine.	We.	712. ************************************	, J	LIEK	NLTE!	k Walif	711 74	LIEF	ALTE	MILIE	7/1/	ite 1



Page 81 of 122 IEC 61558-2-16 Verdict Requirement + Test Result - Remark Clause

AA	ANNEX AA PARTIAL DISCHARGE (PD) TEST		N/A
CLIEF IN			N/A
2	t of let the little with while a	mr. mr. m. m.	, t
вв	ANNEX BB		N/A
et stret	Particular requirements for associated transforme supplies with internal frequencies > 500 Hz	ers for switch mode power	N/A
10.	See separate test report-form for these Annex.	mr mr m m	N/A
3B.8	MARKING AND OTHER INFORMATION	TER STER STER WIT	N/A
3B.8.2	Marking for transformers IP00 or for associated transformers: type and trademark, instruction sheets	TEX WIFEX WHITEX	N/A
3B.8.11	Correct symbols:	L A A A	N/A
Mus	Volts	V mill mill w	N/A
Merick on	Amperes	A (mA)	N/A
	Volt amperes (or volt-amperes reactive for reactors)	VA or (VAR)	N/A
	Watts	Wet with white	N/A
dit d	Hertz	Hz	N/A
11/1/2	Input	PRI	N/A
Et JEK	Output	SEC	N/A
7/1	Direct current	d.c. (DC) or ====	N/A
LIE .	Neutral	N at at at	N/A
20. 2	Single-phase a.c.	~ 11 N N	N/A
NITER ONE	Three-phase a.c.	3~ /* /*	N/A
	Three-phase and neutral a.c.	3N ∼	N/A
ie wite	Power factor	cos φ	N/A
y ciex	Class II construction		N/A
Mr.	Class III construction	(iii)	N/A
MUTTE W	Equipment of overvoltage category I	I write write write	N/A
NITE WAL	Equipment of overvoltage category II	II	N/A
in min	Equipment of overvoltage category III	III MALIER MALIE M	N/A
MULLEY	Equipment of overvoltage category IV	IV and the and	N/A

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, ,,,,	IEC 61558-2-16					
Clause	Requirement + Test	Result - Remark	Verdic			
NA CIT	Fuse-link		N/A			
n in	Rated max. ambient temperature	ta	N/A			
C. S	Rated minimum ambient temperature	t _{amin}	N/A			
140	Rated minimum temperature	t _{min}	N/A			
NILIER	Frame or core terminal	THE LIFE WIFE	N/A			
NITER	Protective earth		N/A			
4,	IP number	IPXX	N/A			
The Mu	Earth (ground for functional earth)	L MITER WALTER WALTE	N/A			
IEK NALTE	For indoor use only		N/A			
WILLER	To indicate that the appliance is intended to be usable up to the maximum altitude 3 000 m.	≤3000m	N/A			
INLIER W	To indicate that the power supply unit shall not be used, if pins of the plug part are damaged.	\frac{1}{2}	N/A			
140	Additional Symbols (IEC 61558-2-16:09)	Muri Muri	N/A			
y white	SMPS incorporating a Fail-safe separating transformer	F or F	N/A			
MALTEX	SMPS incorporating a Non-short-circuit-proof separating transformer	9 or O	N/A			
nlie wh	SMPS incorporating a Short-circuit-proof separating transformer (inherently or non-inherently)	g or O	N/A			
, 24r	SMPS incorporating a Fail-safe isolating transformer	F or F	N/A			
Whi.	SMPS incorporating a Non-short-circuit-proof isolating transformer		N/A			
Marie M	SMPS incorporating a Short-circuit-proof isolating transformer (inherently or non-inherently)	e or the	N/A			
	SMPS incorporating a Fail-safe safety isolating transformer	F	N/A			
VIN.L.	SMPS incorporating a Non-short-circuit-proof safety isolating transformer		N/A			

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IEC 61558-2-16				
Clause	Requirement + Test	Result - Remark	Verdict	
Maria .	SMPS incorporating a		N/A	
NATEK WA	Short-circuit-proof safety isolating transformer (inherently or non-inherently)		Y WALTER	
	SMPS incorporating a Fail-safe auto-transformer	O _F or O _F	N/A	
EK WILTEK	SMPS incorporating a Non-short-circuit proof auto-transformer	or -O	N/A	
Whitek W	SMPS incorporating a Short-circuit proof auto-transformer (inherently or non-inherently)	or or	N/A	
INLIER WAS	SMPS (Switch mode power supply unit)	s Interpretation	N/A	
BB.9	PROTECTION AGAINST ELECTRIC SHOCK		N/A	
BB.10	CHANGE OF INPUT VOLTAGE SETTING		N/A	
3B.11	OUTPUT VOLTAGE AND OUTPUT CURRENT U	INDER LOAD	N/A	
3B.12	NO-LOAD OUTPUT VOLTAGE (see supplementa	ary requirements in Part 2)	N/A	
3B.13	SHORT-CIRCUIT VOLTAGE		N/A	
3B.14	HEATING		N/A	
BB.14.2	Application of 14.1 or 14.3 according to the insulation system	ST WALTER WALTER	N/A	
BB.14.2.1	Class of isolating system (classified materials according to IEC 60 085 and IEC 60 216)	e Crite Write Willer	N/A	
BB.14.2.2	No classified material, or system but the measured temperature does not exceed the value of Class A	MULTER WHITER WHITER WAY	N/A	
BB.14.2.3	No classified material or system but the measured temperature exceeds the value for Class A, the live parts of the transformers are submitted to the test of 14.3	PLIET WHITEK WHITEK WHITE	N/A	
BB.14.3	Accelerated ageing test for undeclared class of isolating system	Men All the	N/A	
'm.	Cycling test (10 cycles):	must must me my	N/A	
ALTER J	measuring of the no-load input current (mA)	let tet tet at	N/A	
3B.14.3.1	heat run (temperature in table 2)	our mr mr m	N/A	
3B.14.3.2	 vibration test: 30 min; amplitude 0,35 mm; frequency range: 10 Hz, 55 Hz, 10 Hz 	TEX WHITEK WHITEK WAITER	N/A	
3B.14.3.3	- moisture treatment (48 h, 17.2)	the state of the	N/A	
BB.14.3.4	Measurements and tests at the beginning and after each test:	Must mer my a	N/A	

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4	0	7	/
	17	V	ľ
	V		

IEC 61558-2-16				
Clause	Requirement + Test Re	esult - Remark	Verdict	
oluties and	deviation of the no-load input current, measured at the beginning of the test is 30%	nties white white while	N/A	
	- insulation resistance acc. cl.18.1 and 18.2	71/2 71/2 71	N/A	
in mur	 electric strength, no breakdown (18.3); 2 min; test voltage 35% of specified value (table VI) 	MILITER MILITER WALLE	N/A	
WALTER V	- Transformers (50 or 60 Hz version) are tested after the dielectric strength test as follows: under no load; duration: 5 min; Upri(V):1,2 times rated supply voltage; frequency (Hz): 2 times rated frequency	Militer Militer Militer Militer	N/A	
BB.15	SHORT-CIRCUIT AND OVERLOAD PROTECTION		N/A	
BB.16	MECHANICAL STRENGTH		N/A	
BB.17	PROTECTION AGAINST HARMFUL INGRESS OF V	WATER AND MOISTURE	N/A	
BB.18	INSULATION RESISTANCE AND ELECTRIC STRE	NGTH	N/A	
BB.18.2	Insulation resistance between:		N/A	
NITER I	 live parts and body for basic insulation 2 M 	the text that with	N/A	
Sir S	 live parts and body for reinforced insulation 7 M 	The the	N/A	
5. F. 7. E.	input circuits and output circuits for basic insulation 2 M	a me we a	N/A	
"Mrs	input circuits and output circuits for double or reinforced insulation 5 M	MILITE WHILE WALL WA	N/A	
MULL	each input circuit and all other input circuits connected together 2 M	NITES WALTER WALTER WALTER	N/A	
MULITER WA	each output circuit and all other output circuits connected together 2 M	EX MITEX WHITEE	N/A	
TEX WALL	hazardous live parts and metal parts with basic insulation (Class II transformers) 2 M	MUTER MUTER MUTER A	N/A	
MULTE	body and metal parts with basic insulation (Class II transformers) 5 M	WALTER WALTER WALTER WAL	N/A	
WALTER V	metal foil in contact with inner and outer surfaces of enclosures 2 M	TEK WILLER WATER WATER	N/A	
BB.18.3	Electric strength test (1 min): no flashover or breakdown:	at native matrix south	N/A	
TEK WALTE	basic insulation between input circuits and output circuits; working voltage (V); test voltage (V):	MULTER MULTER MULTER MU	N/A	
WALTER	double or reinforced insulation between input circuits and output circuits; working voltage (V); test voltage (V):	NUTER WALTER WALTER WALT	N/A	

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1		-	
	4	V	А
ı		v	11
		V.	

it will	IEC 61558-2-16	er the the the	are are
Clause	Requirement + Test	Result - Remark	Verdict
CALLER TO		ALIEN NEITH NEITH	N/A
	3) basic or supplementary insulation between:	m. m. n.	N/A
MULL MULL	a) live parts of different polarity; working voltage (V); test voltage (V)	LIER WILLER WHILE AN	ir mr.
LIEK WALTER	b) live parts and the body if intended to be connected to protective earth	EX WIFE WILLER WILL	N/A
ek mitek	c) inlet bushings and cord guards and anchorages:	THE THE LITTER	N/A
CIER N	d) live parts and an intermediate conductive part	The The The	N/A
24, 24,	e) intermediate conductive parts and body .:	Will Mill Mill a	N/A
UNLIER WALTE	4) Reinforced insulation between the body and live parts; working voltage (V); test voltage (V)	TER WHITER WHITER WH	N/A
or while a	5) Functional insulation for windings intended to be connected in series or parallel (test voltage = working voltage + 500 V) (IEC 61558-2-16:2009)	STEET WILLE WAITER	N/A
18.102 (A1)	Partial discharge tests according IEC 60664-1 , if the working voltage is > 750 V peak	ALTER WALTER WALTER W	N/A
NITER WALTE	Partial discharge is ≤ 10 pC at time P2 See Fig. 19.101	of Maile and	N/A
BB.19	CONSTRUCTION		N/A
BB.19.1	General construction	with Mrs Mrs	N/A
BB.19.1.1	General	et set set	N/A
BB.19.1.2	Auto-transformers	mer with me a	N/A
BB.19.1.2.1	For plug connected auto-transformers with rated input voltage > rated output voltage the potential to earth shall not exceed the rated output voltage.	LIET WHITER WHITER WA	N/A
BB.19.1.2.2	Polarised input and output plug and socket-outlet system: an instruction is given with the information, that the transformer shall not be used with non-polarised plug and socket outlet system.	OUTER MATTER MATTER	N/A
BB.19.1.2.3	A polarity detecting device only energises the output in the case: output potential to earth ≤ rated output voltage, also with reversed input plug.	DUTER WALTER WALTER W	N/A
ik ilk	 The contact separation of the device is ≥ 3mm 	the much much much	N/A
I WILL .	A current to earth does not exceed 0,75 mA.	RITER MITER WALTE	N/A
ynitek yn	 All tests are repeated under fault conditions of H.3.3 of annex H of part 1. The potential to earth does not exceed the max output voltage for more than 5 s. 	MILIER WALTER WHITER	N/A

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recicione	140 W 17(20)(00 1000 100	1 age 00 01 122		
TEN WITE	with mi me of	IEC 61558-2-16	ret tet tret sit	MITE WALL
Clause	Requirement + Test	EX SLIER WALL WA	Result - Remark	Verdict

Clause	Requirement + Test	Result - Remark	verdict
S. Wille Ma	3 and my my my the	the fift for	The state
BB.19.1.3	Separating transformers	an an an	N/A
BB.19.1.3.1	Input and output circuits electrically separated.	LET LET LET	N/A
BB.19.1.3.2	The insulation between input and output winding(s) consist of basic insulation	of the survey	N/A
	Class I SMPS	The wat we was	N/A
EK WILLER W	Insulation between input windings and body consist of basic insulation	M. NIFEK WAITER WAITE	N/A
WALTER WAL	Insulation between output windings and body consist of basic insulation	TER STER BUTER	N/A
A	Class II SMPS	10 20 0	N/A
inter and	Insulation between input windings and body consist of double or reinforced insulation	TER WITE WITE M	N/A
LIE WALTE	Insulation between output windings and body consist of double or reinforced insulation	MULTER WALTER WALT	N/A
BB.19.1.3.3	The insulation between input windings and intermediate conductive parts and the output windings and intermediate part consist of basic insulation	Whitek whitek whitek	N/A
WIEK WILL	For class I SMPS the insulation between input and output windings via the intermediate conductive parts consist of basic insulation	at Militer was	N/A
iek whitek w	For class II SMPS the insulation between input winding and the body and between the output windings and the body via the intermediate conductive parts consist of double or reinforced insulation.	TEX LIEX WITE	N/A
BB.19.1.3.4	Parts of output circuits may be connected to protective earth	et set set	N/A
BB.19.1.3.5	No direct contact between output circuits and the body, unless:	t it it is	N/A
ek lek	Allowed for associated transformers by the equipment standard	ANTI MILL MA	N/A
BB.19.1.4	Isolating transformers and safety isolating transformers	MILLE MILLE MILL	N/A
BB.19.1.4.1	Input and output circuits electrically separated	LIEF ALTER MITE	N/A
NITEY ANTIES	No possibility of any connection between these circuits	et let let	N/A
BB.19.1.4.2	The insulation between input and output winding(s) consist of double or reinforced insulation (exception see 19.1.4.4)	et wites writes whi	N/A
k autiek au	Class I transformers not intended for connection to the mains by a plug:	TET LIET LIES	mur —

	IEC 61558-2-16					
Clause	Requirement + Test	Result - Remark	Verdict			
MALIER MAL	Insulation between input windings and body connected to earth consist of basic insulation rated to the input voltage	WHITE WHITE WATER	N/A			
LIEK WILLEY	Insulation between output windings and body, connected to earth consist of basic insulation rated for the output voltage	et unifer whilet whi	N/A			
ek whilek	Class I transformers intended for connection to the mains by a plug:	MILEY MILEY MILES	N/A			
MUTIEK MU	 Insulation between input windings and body connected to earth consist of basic insulation rated to the working voltage 	MITER WALTER WALTER	N/A			
INLIER WHITE	 Insulation between output windings and body, connected to earth consist of supplementary insulation rated for the working voltage 		N/A			
ITE WILL	Class II transformers	CE ALTER MITER MALE	N/A			
WUTEK W	Insulation between input windings and body consist of double or reinforced insulation rated to the input voltage	White white white	N/A			
whitek whi	Insulation between output windings and body consist of double or reinforced insulation, rated to the output voltage	ALTER WALTER WALTER	N/A			
BB.19.1.4.3	For transformers with intermediate conductive parts not connected to the body (between input/output):	antie un	ir _u nci - ur t set sii			
BB.19.1.4.3.	For class I and class II transformers the insulation between input and output windings, via intermediate conductive parts, consist of double or reinforced insulation, rated to the working voltage.	untilet untilet untilet,	N/A			
and whitek	For class II transformers the insulation between input winding and the body and between the output windings and the body via the intermediate conductive parts consist of double or reinforced insulation. (rated to the input voltage, for SELV circuits only basic insulation to the body)	CITE WHITE WHITE WHITE	N/A			
TEX	For transformers, different from independent,	- A A	N/A			

N/A

N/A

BB.19.1.4.3.2

the insulation between input and output windings, via intermediate conductive parts, consist of double or reinforced insulation,

Class I transformers with earthed core, and not

Insulation from the input to the earthed core: basic insulation rated for the input voltage

rated to the working voltage.

allowed for class II equipment

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120 01000 2 10	VI_ 12 - 11 - 12 - 12 - 12 - 12 - 12 - 12	
	Result - Remark	Verdict

Clause	Requirement + Test	Result - Remark	Verdict
onliek onli	Insulation from the output voltage to the earthed core: basic insulation rated for the output voltage	WALLER WALTER WATER	N/A
BB.19.1.4.3.3	Insulation between : input to intermediate conductive parts and output and intermediate parts consist of at least basic insulation	CE WILLER WILLER	N/A
SEK WASTER W	If the insulation from input or output to the intermediate metal part is less than basic insulation, the part is considered to be connected to input or output.	White white white	N/A
BB.19.1.4.4	For class I transformers, with protective screen, not connected to the mains by a plug the following conditions comply:	THE THE STEET OF	N/A
TEK WITTER	The insulation between input winding and protective screen consist of basic insulation (rated input voltage)	THE MILES WHITE WHI	N/A
EK MUTLEK MI	The insulation between output winding and protective screen consist of basic insulation (rated output voltage)	Whitek whitek whitek	N/A
MULLE MUC	The protective screen consist of metal foil or a wire wound screen extending the full width of the windings and has no gaps or holes	ALIER MALIER WALTER	N/A
TEK MITTER	 Where the protective screen does not cover the entire width of the input winding, additional insulation to ensure double insulation in this area, is used. 	anti white	N/A
k whilek wh	If the screen is made by a foil, the turns are isolated, overlap at least 3 mm	LIET SLIET MITER	N/A
WUTEK MUTE	The cross-section of the screen and the lead out wire is at least corresponding to the rated current of the overload device	DETEK WILLER WILLER W	N/A
LIEK WILLER	The lead out wire is soldered or fixed to the protective screen.	JEK NIJEK WALTER WAL	N/A
EK UNITEK W	Protective screening is not allowed for transformers with plug connection to the mains	FIRE STEE STEE	N/A
BB.19.1.4.5	No connection between output circuit and protective earth, except of associated transformers (allowed by equipment standard) or 19.8 is fulfilled.	WILE MUTER MUTER	N/A
BB.19.1.4.6	No connection between output circuit and body, except of associated transformers (allowed by equipment standard)	STER MUTEL MUTEL M	N/A
BB.19.1.4.7	The distance between input and output terminals for the connection of external wiring is ≥ 25 mm	mer mer me	N/A
BB.19.1.4.8	Portable transformers having an rated output ≤ 630 VA shall be class II.	MUTTER MUTTER MUTTER	N/A

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Reference	3 No.: WTX23X001099100	1 age 03 01 122		
I FEET SOUTH	White Mut Mut M	IEC 61558-2-16	ally the the st	INLIE WALL
Clause	Requirement + Test	A WILLEY MULL AN	Result - Remark	Verdict

Clause	Requirement + Test	Result - Remark	Verdict
BB.19.1.4.9	No connection between output circuit and body except of associated transformers (allowed by equipment standard)	JET TET STEE	N/A
BB.19.1.4.1	Protective screening is not allowed for transformers with plug connection to the mains	of the test	N/A
BB.19.12	Windings construction	They are the	N/A
BB.19.12.1	Undue displacement in all types of transformers not allowed:	Whitek Whitek White	N/A
- Liter .	of input or output windings or turns thereof	at all sat	N/A
7 Ept 7	of internal wiring or wires for external connection	The me me	N/A
	of parts of windings or of internal wiring in case of rupture or loosening	The water was an	N/A
BB.19.12.2	Serrated tape:	A WILL WALL WALL	N/A
EK NATEK	distance through insulation according to table 13	STER NITER MITER	N/A
	 one additional layer of serrated tape, and 	711. 711. 7	N/A
With M	one additional layer without serration	STEE STEE SMILE S	N/A
NITEK WALT	 in case of cheek less bobbins the end turns of each layer shall be prevented from being displaced 	Et Junifet Jun	N/A
BB.19.12.3	Insulated windings wires providing basic, supplementary or reinforced insulation, meet the following requirements:	White while while	N/A
MULLE	Multi-layer extruded or spirally wrapped insulation, passed the tests of annex K	MALIER WALTER WALTER	N/A
MALTER WAS	Basic insulation: two wrapped or one extruded wire	LIEK WALTER WALTER W	N/A
LIEK WALTE	Supplementary insulation: two layers, wrapped or extruded	et milet milet mai	N/A
EK WILTEK	Reinforced insulation: three layers wrapped or extruded	alter outer ande	N/A
, de	Spirally wrapped insulation:	10 10 1	N/A
THE THE	creepage distances between wrapped layers > cl. 26 _ P1 values	ALTER WALTER WALTER	N/A
intie whe	path between wrapped layers sealed, the test voltage of K2 is multiplied with 1,35	TEX WALTER WALTER WA	N/A
LIER WALTER	test 26.2.4 – Test A, passed for wrapped layers	t writes writes write	N/A
WALTER V	the finished component pass the electric strength test according to cl. 18.3	WIET WIFE WHILE	N/A

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IEC 61558-2-16				
Clause	Requirement + Test	Result - Remark	Verdict	
a)	Insulated winding wire used for basic or supplementary insulation in a wound part:	unit white write	N/A	
min m	comply with annex K	ULITER MALIER MALIER VI	N/A	
. Let . S	two layers for supplementary insulation	4 A A	N/A	
115	one layer for basic insulation	Cantill Must my	N/A	
EK WALTER	one layer for mechanical separation between the insulated wires of primary and secondary. This layer fulfils the requirement of basic insulation.	MULTER WHITE WHITE	N/A	
b)	Insulated winding wire used for reinforced insulation in a wound part:	A Set Set	N/A	
1. 2.	comply with annex K	hy, we me m	N/A	
TER WITE	three layers	ret in the line of	N/A	
, \ \	relevant dielectric strength test of 18.3	me m m	N/A	
WILL	Where the insulated winding wire is wound:	t tek alter miter	N/A	
	upon metal or ferrite cores	m m r	N/A	
Weige a	upon enamelled wire	ALTER ONLY NOTE OF	N/A	
jet s	under enamelled wire		N/A	
iek waite	one layer for mechanical separation between the insulated wires and the core or the enamelled wires is required. This layer fulfils the requirement of basic insulation.	E White White White	N/A	
MULL	both windings shall not touch each other and also not the core.	WALLEY WALLEY WALLEY	N/A	
muriter m	100 % routine test of Annex K3 of part 1 is fulfilled	INTER WHITER WATER W	N/A	
LIER WALT	no creepage distances and clearances for insulated winding wires	Jet united united unit	N/A	
c) white	Toroidal cores used with TIW wires for double or reinforced insulation between the primary and secondary circuits shall comply with the following:	WATER WATER WATER	N/A	
MUTTER	a coating which fulfils the requirements of basic insulation between a winding and the core	MITER WHITE WAITER	N/A	
TEX WALTER	2) The primary winding consists of TIW wire with 3 layers (reinforced insulation) and the secondary winding consists of enamelled wire. These independent windings shall not be able to contact each other either by mechanical separation or a gap which fulfil the dielectric strength tests for basic insulation.	Whitek whitek whitek	N/A	

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	IEC 61558-2-16	et the other all	" INLIE WALL
Clause	Requirement + Test	Result - Remark	Verdict
Whitek Whitek	3) For polyfilar windings (primary and secondary windings in contact with each other), the primary winding consists of TIW wire with 3 layers and the secondary winding consists of a TIW wire with 1 layer (requirements for primary and secondary windings can be changed). This construction also is allowed for use with EE-cores or similar.	White white white w	N/A
d)	Toroidal cores used with FIW wires for double or reinforced insulation between the primary and secondary circuits shall comply with the following:	INLIER WHITER	N/A
NATER ON	a coating, which fulfil the requirements of basic insulation.	of the state of the sale	N/A
LIEK WILLE WILLER	2) The primary winding consists of FIW wire for reinforced insulation and the secondary winding consist of FIW wire – of basic insulation. These independent windings shall not be able to contact each other either by mechanical separation or a gap which fulfil the dielectric strength test for basic insulation	THE WALTER WALTER WALTER	N/A
AND AND THE AN	3) For polyfilar windings (primary and secondary windings in contact with each other), the primary winding and the secondary winding consist of FIW wire for reinforced insulation. This construction also is allowed to use for EE-core or similar.	anife while while w	N/A
e)	Toroidal cores used with TIW in combination with FIW wire, for double or reinforced insulation between the primary and secondary circuits shall comply with the following:	MULTER MULTER	N/A
Write M	a coating, which fulfils the requirements of basic insulation.	PITER MULTER MULTER M	N/A
ister whitek	2) The primary winding consists of FIW wire for reinforced insulation, and the secondary winding consists of TIW wire for basic insulation (1 layer). These independent windings shall not be able to contact each other either by mechanical separation or a gap which fulfil the dielectric strength tests for basic insulation.	TEX WHITEK WHITEK WHITEK	N/A
onliek oon liek oonlie k aliek	3) For polyfilar windings (primary and secondary windings in contact with each other), the primary winding consists of TIW wire for reinforced insulation (3 layer) and the secondary winding consists of FIW wire for reinforced insulation. This construction also is allowed for use with EE-cores or similar.	E SLIFE WITH WALL	N/A

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iek lier	IEC 61558-2-16	at the title of	I UE N
Clause	Requirement + Test	Result - Remark	Verdic
f)	Toroidal cores used with TIW in combination with FIW wire, for basic insulation between the primary and secondary circuits shall comply with the following:	Whitek whitek whitek	N/A
LIER WALTE	a coating, which fulfils the requirements of basic insulation	ex unitex whitex whi	N/A
WASTER ON	2) The primary winding consists of FIW wire for basic insulation, and the secondary winding consists of TIW wire for basic insulation (1 layer). These independent windings shall not be able to contact each other either by mechanical separation or a gap which fulfils the dielectric strength tests for basic insulation.	Whitek whitek whitek	N/A
TEK WILTEK	3) For polyfilar windings (primary and secondary windings in contact with each other), the primary winding consists of TIW wire for supplementary insulation (2 layers) and the secondary winding consists of FIW wire for basic insulation. This construction also is allowed for use with EE-cores or similar.	t whitek whitek whitek	N/A
White White	4) Further polyfilar constructions with FIW and TIW wires in combination with enamelled wires for basic insulation only: 4.1) Primary winding consists of enamelled wire, secondary winding consists of FIW wire for reinforced insulation 4.2) Primary winding consists of enamelled wire, secondary winding consists of TIW wire for reinforced insulation	LIER WITER WHITER WAS THE WALLES	N/A
BB.19.12.3.1	Max. class F for transformers which use FIW-wire	mi m m	N/A
3B.19.12.3.2	FIW wires comply with IEC 60851-5:2008, IEC 60317-0-7 and IEC 60317-56.	LIER WHITER WHITER W	N/A
ie whie	other nominal diameter as mentioned in table 24 can be calculated with the Formula (6) in 26.3.5:	Whitek whitek whi	N/A
21/2 A	FIW wire used for basic or supplementary insulation for transformers according 19.1.3:	MULL MULL MULL	Mr. Mr.
White White	the test voltage of table 14, based on the working voltage of basic or supplementary insulation, comply with the min. voltage strength of table 24	ALIEK WEIEK WEIEK	N/A
TEX WATER	one layer for mechanical separation is located between the insulated wires of primary and secondary. This layer fulfil the requirement of basic insulation	MILITER WALTER WALT	N/A

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IEC 61558-2-16			
Clause	Requirement + Test	Result - Remark	Verdic
	The same same same as	The fift of the	The Maria
UNLIEK W	between FIW and enamelled wire, no requirements of creepage distances and clearances	TER WILEY WILEY	N/A
at a	no touch of FIW and enamelled wires	1 1 1	N/A
7 NV.	FIW wire used for double or reinforced insulation for transformers according 19.1.4:	ET WALTE WALTE WAL	N/A
WALTER	the test voltage of table 14, based on the working voltage of basic or supplementary insulation, comply with the min. voltage strength of table 24	White white white	N/A
LIEK NI	for primary and secondary winding FIW- wire for basic insulation is used	at the life of	N/A
IEK MUTE	one layer for mechanical separation is located between the insulated wires of primary and secondary. This layer fulfil the requirement of basic insulation	ANTER ANTIER MUTE	N/A
Murr	no touch between the basic insulated PRI and SEC FIW-wires	WALTER WALTER WALTER	N/A
NATTE V	between PRI- and SEC-FIW wires, no requirements of creepage distances and clearances	ALTER WALTER WALTER W	N/A
ir mi K nift	Alternative construction used for reinforced insulation (reinforced insulated FIW wire and enamelled wire)	The state of the s	N/A
WILLIEM.	the test voltage of table 14, based on the working voltage reinforced insulation, comply with the min. voltage strength of table 24	unties whites whites	N/A
inter on	one layer for mechanical separation is located between the reinforced insulated FIW wire and the enamelled wire. This layer fulfil the requirement of basic insulation	LIER WHITER WHITER W	N/A
WALTER	no touch between the FIW wire and the enamelled wire	MALIER WALTER WALTER	N/A
WILLER OF	between the reinforced FIW wire and any other parts, no requirements of creepage distances and clearances exist	Writer Miller Miller	N/A
er le	Alternative construction with FIW wires, basic or supplementary insulated for transformers with double or reinforced insulation:	LEK MILLER WILLER WIL	* 184 - 41
WALTER	the test voltage of table 14, based on the working voltage of basic or supplementary insulation, comply with the min. voltage strength of table 24	Write Mrites Mutes	N/A

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Clause	Requirement + Test Result - Remark	Verdict		
WUTTER AN	PRI or SEC basic insulated FIW wire and to the other winding (enamelled wire) requirements of supplementary insulation	N/A		
ilitek whi	creepage distances and clearances between the basic insulated FIW wire and the enamelled wire for basic or supplementary insulation are required.	N/A		
, me	Where the FIW wire is wound	N/A		
- TEN	upon metal or ferrite cores	N/A		
MUTER AU	one layer for mechanical separation between the insulated wires and the core or the enamelled wires is required. This layer fulfils the requirement of basic insulation.	N/A		
r sh	both windings shall not touch each other and also not the core.	N/A		
BB.20	COMPONENTS	N/A		
BB.21	INTERNAL WIRING			
BB.22	SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CABLES AND C	ORDS N/A		
BB.23	TERMINALS FOR EXTERNAL CONDUCTORS	N/A		
BB.24	PROVISION FOR PROTECTIVE EARTHING	N/A		
BB.25	SCREWS AND CONNECTIONS	N/A		
BB.26	CREEPAGE DISTANCES AND CLEARANCES	N/A		
BB.26.1	See 26.101	N/A		
BB.26.2	Creepage distances (cr) and clearances (cr)	N/A		
BB.26.2.1	Windings covered with adhesive tape	N/A		
<i>s</i> v	the values of pollution degree 1 are fulfilled	N/A		
LIFER WALK	 all isolating material are classified acc. to IEC 60085 and IEC 60216 	N/A		
ek litek	- test A of 26.2.3 is fulfilled	N/A		
BB.26.2.2	Uncemented insulating parts pollution degree P2 or P3	N/A		
24 202 2	 all isolating material are classified acc. to IEC 60085 and IEC 60216 	N/A		
uris aus	values of pollution degree 1 are not applicable	N/A		
BB.26.2.3	Cemented insulating parts	N/A		
t tiet	all isolating materials are classified acc. to IEC 60085 and IEC 60216	N/A		

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1	W

IEC 61558-2-16			
Clause	Requirement + Test	Result - Remark	Verdict
SUCLEY.	values of distance through insulation (dti) are fulfilled	White Market White M	N/A
nes m	creepage distances and clearances are not required	STEE WHITE WHITE WAS	N/A
LIE WALE	test A of this sub clause is fulfilled	ex street mares white	N/A
* 16*	Test A	A A OF	N/A
'n'	- thermal class	WILL MULL MULL	N/A
JEK.	working voltage	at the let .	N/A
Viley Wi	Test with three specially specimens, with uninsulated wires, without impregnation or potting	(see appended table)	N/A
at a	Two of the three specimens are subjected to:	Mr. All	N/A
AND T	the relevant humidity treatment according to 17.2 (48 h)	MULTER WHITE WHITE	N/A
MULTE	the relevant dielectric strength test of 18.3 multiplied with factor 1,35	WALTER WALTER WALTER W	N/A
	One of the three specimens is subjected to the relevant dielectric strength test of 18.3 multiplied by the factor 1,35 immediately at the end of the last cycle with high temperature	ALTER WALTER WALTER WALTER	N/A
EK WITEK	Impulse dielectric test according to 4.1.1.2.1 of IEC 60 664-1 (1,2 / 50 s waveform) – see Annex R of IEC 61558-1	White white	N/A
3B.26.2.4	Enclosed parts, by impregnation or potting	TEX STEX STEEL OF	N/A
BB.26.2.4.1	The requirements of reduced values as stated for pollution degree 1 (P1) are fulfilled	in in in in	N/A
CEX 76	 all isolating materials are classified acc. to IEC 60085 and IEC 60216 	The sure of	N/A
'an	Test B	o with Authorities	N/A
t Jet	- thermal class	at the left	N/A
m.	working voltage	MULL MULL MULL M	N/A
MUTIER M	Test with three specially specimens, potted or impregnated. The dielectric strength test is applied directly to the joint.	(see appended table)	N/A
LIV WILL	Two of the three specimens are subjected to:	TER STEE WITE WITE	N/A
EK OLIEK	the relevant humidity treatment according to 17.2 (48 h)	t get get gret	N/A
- 18	the relevant dielectric strength test of 18.3 multiplied with factor 1,25	When the the	N/A

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1	A		K
		V	
	W	V	

IEC 61558-2-16			
Clause	Requirement + Test	Result - Remark	Verdict
WALTER WAS	One of the three specimens is subjected to the relevant dielectric strength test of 18.3 multiplied by the factor 1,25 immediately at the end of the last cycle with high temperature	untick united white whi	N/A
et whilet	The three spacemen pass the Impulse dielectric test according to 4.1.1.2.1 of IEC 60 664-1 (1,2 / 50 s waveform) – see Annex R of IEC 61558-1	White white white	N/A
BB.26.2.4.2	The requirements of distance through insulation (dti) are fulfilled. (P1 values are not required)	NITE WITE WITE ON	N/A
ing the	all isolating materials are classified acc. to IEC 60085 and IEC 60216	The same was	N/A
211.5	Test C	ANTIF WHILE WILL	N/A
t the	- thermal class	A ST ST	N/A
1/1 /	working voltage	with the the A	N/A
WALTER ON	Test with three specimens, potted or impregnated. (finished components)	(see appended table)	N/A
ALTEK MALTE	Neither cracks, nor voids in the insulating compounds	et Nitet mile	N/A
at let	Two of the three specimens are subjected to:	2 7 7	N/A
Mur	the relevant humidity treatment according to 17.2 (48 h)	WILLE WILL WILL.	N/A
WALLE W	the relevant dielectric strength test of 18.3 multiplied with factor 1,35	WALLER WALLER WALLER WA	N/A
uniter unite	One of the three specimens is subjected to the relevant dielectric strength test of 18.3 multiplied by the factor 1,35 immediately at the end of the last cycle with high temperature	EX WITER MUTER MUTER	N/A
MULIEK W	The three spacemen pass the Impulse dielectric test according to 4.1.1.2.1 of IEC 60 664-1 (1,2 / 50 s waveform) – see Annex R of IEC 61558-1	WALLER WHILER WHILER	N/A
BB.26.3	Distance through insulation	L St L	N/A
ier uier	For double or reinforced insulation, the required values of Tables 13, C1, and D1 – boxes 2b, 2c and 7 are fulfilled	ter unite unit unit	N/A
t TEX	The insulation fulfil the material classification according IEC 60085 or 60216 or the test of 14.3	mer mer m	N/A

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Reference	e No.: WTX23X08189910S	Page 97 of 122		
LIET JOLIE	WILL MILL MULT MU	IEC 61558-2-16	THE THE STEEL STEEL	ER WILLE WALL
Clause	Requirement + Test	L CLIEB MALL ON	Result - Remark	Verdict

Clause	Requirement + Test	Result - Remark	verdici
	to any any any as	at the ser	Life Mile
BB.26.3.1	Reduced values of the thickness of insulation for supplementary or reinforced insulation are allowed if the following conditions are fulfilled:	and when we	N/A
LIEK MLIEK	the isolating materials are classified acc. to IEC 60085 and IEC 60216	et ret tret at	N/A
	- the test of 14.3 is fulfilled	mr m m	N/A
White 4	 If both requirements are fulfilled, the required values for solid insulation can be multiplied by 0,4 	Whitek whitek white	N/A
Mur Mu	Minimum thickness of reinforced insulation ≥0,2 mm	With Mile Mile.	N/A
are and	 Minimum thickness of supplementary insulation ≥0,1 mm 	TER MUTEL MUTE M	N/A
BB.26.3.2	Insulation in thin sheet form	et itet liet ni	N/A
it still i	If the layers are non-separable (glued together):	et tet tet	N/A
14 2	The requirement of 3 layers is fulfilled	Mrs. Mrs. Mrs.	N/A
MALTER MAL	The mandrel test according 26.3.3 is fulfilled with 150 N	NITER MILIER WHITER	N/A
NITEK WALTE	The required values for d.t.i. of Tables 13, C.1 and D.1 – marked by index "e" is fulfilled.	Et Whitet wh	N/A
IET MITTE	If the layers are separated:	- The Life Stiff	N/A
	The requirement of 2 layers is fulfilled	2015. 201. 201.	N/A
White on	If serrated tape is used, 1 additional layer (serrated) and one additional layer without serration is required	untitle water waite	N/A
ing in	The mandrel test according 26.3.3 is fulfilled on each layer with 50 N	The Marie Marie of	N/A
er Tex	The required values for d.t.i. of Tables 13, C.1 and D.1 – marked by index "e" is fulfilled.	White white whi	N/A
10 1	If the layers are separated (alternative:	Aury Aury Aury	N/A
RLIER IN	- The requirement of 3 layers is fulfilled	At Alt Set	N/A
VILER MUTE	If serrated tape is used, 1 additional layer (serrated) and one additional layer without serration is required	TEX NITER WITER ON	N/A
TEK MATEK	The mandrel test according 26.3.3 is fulfilled on 2/3 of the layers with 100 N	t litt litt si	N/A
K WALTER W	The required values for d.t.i. of Tables 13, C.1 and D.1 – marked by index "e" is fulfilled.	SLIET WIFE WILLER	N/A

Reference	Reference No.: WTX23X081899105 Page 98 of 122			
VIEW WILLE	White Mill Mur Mr	IEC 61558-2-16	all the state set	INLIE WALTE
Clause	Requirement + Test	L CLIEB WHILE AN	Result - Remark	Verdict

Clause	Requirement + Test	Result - Remark	Verdict
	with the anger and and the	The set of the	1 1 1/0
untiek un	Test according to 14.3 and if the isolating materials are classified acc. to IEC 60085 and IEC 60216 no distances through insulation are required for insulation in thin sheet form	THE MUTER MUTER	N/A
riter Muri	The figures within square brackets in box 2 and 7 of table 13 (C.1/D.1) are used for insulation in thin sheet form as follows:	EX WHITEX WHITEX WH	N/A
AUST	rated output > 100 VA values in square brackets apply	WALTER WALTER WALT	N/A
MUTTE A	 rated output 25 VA 100 VA 2/3 of the value in square brackets apply 	INTER WALTER WALTER	N/A
inlier uni	 rated output 25 VA 1/3 of the value in square brackets apply 	TER WILLER WITTER M	N/A
BB.26.3.3	Mandrel test of insulation in thin sheet form (specimen of 70 mm width are necessary):	of writer writer whi	N/A
k antiek	 If the layers are non-separable – at least 3 layers glued together fulfil the test: 	Tet stet stret	N/A
	– pull force of 150 N	m. m. m.	N/A
MULTER MALT	high voltage test of 5,0 kV or the test voltage of 18.3 multiplied by 1,25 whatever is the greater. No flashover, no breakdown.	RIFER WALTER WHITE A	N/A
EK MITER	 If the layers are separable and 2/3 of at least 3 layers fulfil the test. 	- T. T.	N/A
	pull force of 100 N	any any any	N/A
WALTE V	 high voltage test of 5,0 kV or the test voltage of 18.3 multiplied by 1,25 whatever is the greater. No flashover, no breakdowns. 	united united united	N/A
TEK OLI	If the layers are separable 1 of at least 2 layers fulfil the test:	et let let l	N/A
- 2	- pull force of 50 N	20, 20, 20	N/A
Whitek	 high voltage test of 5,0 kV or the test voltage of 18.3 multiplied by 1,25 whatever is the greater. No flashover, no breakdown. 	White white white	N/A
BB.26.101	Creepage distances, clearances and distances through insulation, specified values according to (IEC 61558-2-16:09):	TEX WITH MITTER AN	N/A
CENT CENT	- table 13, material group IIIa (part 1)	1 1 1 1	N/A
Ans.	table C, material group II (part 1)	white whit whi	N/A
t JEK	- table D, material group I (part 1)	at the left	N/A
1115	working voltage	WILL WILL WILL	N/A

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- 4,		70, 7, 1
Clause	Requirement + Test Result - Remark	Verdic
1000	THE THE THE THE	NI/A
	- rated supply frequency 50/60 Hz	N/A
	rated internal frequency	N/A
18th - 5	Insulation between input and output circuits (basic insulation):	N/A
4 C4	a) measured values specified values (mm):	N/A
Aura	Insulation between input and output circuits (double or reinforced insulation):	N/A
MULLER	a) measured values specified values (mm):	N/A
nlife ^{it} our	b) measured values specified values (mm):	N/A
EK WALTE	c) measured values specified values (mm):	N/A
WALTER	Insulation between adjacent input circuits: measured values specified values (mm)	N/A
un ^{liek} w	Insulation between adjacent output circuits: measured values specified values (mm)	N/A
	Insulation between terminals for external connection:	N/A
WILL	a) measured values specified values (mm):	N/A
WALTER.	b) measured values specified values (mm):	N/A
NLTEX W	c) measured values specified values (mm):	N/A
	5. Basic or supplementary insulation:	N/A
in mi	a) measured values specified values (mm)	N/A
MALIER	b) measured values specified values (mm):	N/A
MITER	c) measured values specified values (mm):	N/A
LIFEK NY	d) measured values specified values (mm)	N/A
EK STE	e) measured values specified values (mm)	N/A
MITER	6. Reinforced or double insulation: measured values specified values (mm)	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
W.C.	7. Distance through insulation:	JALIE WALTER WATER	N/A
WILLER WA	a) measured values specified values (mm):	Lifet writer writer was	N/A
LIEK WALT	b) measured values specified values (mm)	Et stet street spriet	N/A
EK MITEK	c) measured values specified values (mm)	THE THE STATE	N/A
BB.26.102	Values of IEC 61558-2-16 applicable for frequency up to 3 MHz (IEC 61558-2-16:09)	And the let	N/A
The The Table	For frequency above 3 MHz clause 7 of IEC 60664-4 is applicable (high frequency testing)	The The The Th	N/A
BB.26.103	Clearance (IEC 61558-2-16:09)	LIE WILL MILL MILL	N/A
TEK WITE	 a.) Clearance for frequency ≥ 30 kHz according figure 101 two determinations are necessary: 	ek mitek mitek mitek	N/A
K WILLER	 determination based on peak working voltage according Table 104 : 	THE LIFE MITTER .	N/A
	Peak working voltage	me me m	N/A
الل يرايان	Basic insulation: required / measured	LITER NITER WILLER WILL	N/A
NIFE WALL	Double or reinforced insulation: required / measured value	at July nite	N/A
EK STEK	 and alternative if applicable for approximately homogeneous field according to Table 102 	The Tex	N/A
-20,	Peak working voltage	Mur. Mur. Mr.	N/A
LITER .	Basic insulation: required / measured	LET LET LET O	N/A
TEX N	Double or reinforced insulation: required / measured value	The same say	N/A
TEK MILE	 determination based on measured r.m.s. working voltage according Tables 13, C1 and D1 (see clause 26.101) 	et tet stret nitet	N/A
ek altek	The minimum clearance is the greater of the two values.	IN THE TEXT	N/A
TEX	b.) Clearance for frequency ≤ 30 kHz according figure 101 two determinations are necessary:	mer mer me a	N/A
Mr. Mr.	determination based on peak working voltage with recurring peak voltages according Table 103 :	Nite whit were wife	N/A
TEK WALTER	determination based on measured r.m.s. working voltage according Tables 13, C1 and D1 (see clause 26.101)	t witer whilet whilet	N/A
L MITER	The minimum clearance is the greater of the two values.	Tet ITET LIET	N/A

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IEC 61558-2-16			
Clause	Requirement + Test	Result - Remark	Verdict
BB.26.104	The working voltages of Table 102, 103 and 104 are peak voltages including µsec peaks IEC 61558-2-16:09)	MILIER MILIER MILIER	N/A
LIER OLIE	The working voltage according to Table 13 of part 1 are r.m.s. voltages	of the the	N/A
BB.26.105	Creepage distances	me me m	N/A
WALLE.	Two determinations of creepage distances are necessary (see Figure 102)	White white white	N/A
WALTER W	determination based on measured peak working voltage according Tables 105 to 110	MITER MITER WHITER	N/A
.4E* .U	Peak working voltage	L A A	N/A
in an	Pollution degree	LIL MULL MULL ON	N/A
TEK WALTER	Basic or supplementary insulation: required / measured	A WILL MITER MALL	N/A
H WITEK	Double or reinforced insulation: required / measured value	THE STEEL STEEL	N/A
WILLIEM WIN	 determination based on measured r.m.s. working voltage according Tables 13, C1 and D1 (see clause 26.101) 	MILER WILLER WALLER	N/A
RITER WALTE	If the values based on table 105 to 110 are lower than the relevant values in Tables 13, C.1 or D.1, the higher values shall be applicable	of white and	N/A
BB.26.106	Distance through insulation (IEC 61558-2-16:09)	Muri Aur Mur	N/A
Whitek W	Instead of partial discharge with high frequency voltage the test of the distance and the calculation of the electric field is applicable under the following conditions:	unlitek whitek whitek	N/A
	 the max. frequency is < 10 MHz 	in men in a	N/A
IFER WALTE	 the field strength approximately comply with Figure 103 	ex miles miles wit	N/A
ek whitek.	no voids or gaps are present in between the solid insulation	nites unites whites	N/A
WALTEK WA	For thick layers d1 \geq 0,75 the peak value of the field strength is \leq 2 kV/mm	LIER NITER WITER	N/A
NLTEK MILT	For thin layers d2 ≤ 30 µm the peak value of the field strength is ≤ 10 kV/mm	et let liet a	N/A
TEK LITEK	For d1 > d > d2 equation (1) is used for calculation the field strength	L St Set Se	N/A
BB.26.107 (A1)	For transformers with FIW wires the following test is required	mi mi m	N/A
ang a	10 cycles are required	ALTE MITE MALL	N/A

W

Neierence	No.: WTX23X08189910S Page 102 of 122	70, 7	
IE SULTE	IEC 61558-2-16	Et JET JET ALT	er antibanti
Clause	Requirement + Test	Result - Remark	Verdict
WALTER WA	68 h test at max heating temperature + 10°C or test at max. allowed winding temperature based on the insulation class (required in table 1) + 10°C	While while while w	N/A
LIER WILL	• 1 h at 25° C	Et JET JET N	N/A
4 1	• 2 h at 0° C	me me m	N/A
MULL	1 h at 25° C — (next cycle start again with 68 h max winding temp + 10)	WALTER WALTER WALTE	N/A
White	during the 10 cycles test 2 x working voltage is connected between PRI and SEC	UNLIER WALTER WALTER	N/A
uncités Street vantifes	after 10 cycle test 2 transformers are subjected to the 17.2 test for 48 h and direct after the 48 h the dielectric strength test of 18.3 (100 % test voltage) is done	TER WALTER WHITE W	N/A
et whiter	after the 10 cycle test the third sample is tested at the end of the last cycle in the hot position with the dielectric strength test of 18.3 (100 % test voltage)	Whitek whitek whitek	N/A
MITEL MILI	the partial discharge test according to 18.101 is done after the cycling test and after the high voltage test, if the peak working voltage is >750 V	RLIE WALL WALL WALL WA	N/A
BB.27	RESISTANCE TO HEAT, FIRE AND TRACKING		N/A
BB.E	ANNEX E , GLOW WIRE TEST	Mire Mer Mu	N/A
MULTER	The test is required according to IEC 60695-2-10 and IEC 60695-2-11 with the following additions:	WHITE WHITER WHITER	N/A
BB.E.1	Clause 6, "Severities" of IEC 6095-2-11, apply with the temperature stated in 27.3 of IEC 61558-1	LITER WHITEK WHITEK	N/A
BB.E2	Clause 8, "Conditioning", of IEC 60695-2-11 apply, preconditioning is required	et united united uni	N/A
BB.E3	Clause 10, "Test Procedure", of IEC 60695-2-11apply, The tip of the glow wire is applied to the flat side of the surface.	MILITER WILLIER WILLIE	N/A

BB.F.	ANNEX F, REQUIREMENTS FOR MANUALLY OPERATED SWITCHES	N/A
alife april	WHICH ARE PARTS OF THE TRANSFORMER	Willy and

BB.H	ANNEX H, ELECTRONIC CIRCUITS (IEC	N/A
	61558-1)	

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1 (0) 0) 0)		1 490 100 01 122	200	
TER WILL	White Aut Mut Au	IEC 61558-2-16	est test trest surf	IN JE WALTE
Clause	Requirement + Test	ix critical maril mar	Result - Remark	Verdict

вв.к	ANNEX K, INSULATED WINDING WIRES FOR USE AS MULTIPLE LAYER INSULATION				
BB.K.1	Wire construction:				
LIEK WALTER	insulated winding wire for basic or supplementary insulation (see 19.12.3)	* OLIER MITER MITER W	N/A		
ek unliek w	insulated winding wire for reinforced insulation (see 19.12.3)	ifet sifet mifet uni	N/A		
INLIEN MAI	splid circular winding wires and stranded winding wires with 0,05 to 5 mm diameter	set itel itel nite	N/A		
7	spirally wrapped insulation - overlapping	12 24 24 24 24	N/A		
BB.K.2	Type tests	EX LIEX NITER INTER	N/A		
BB.K.2.1	General Tests between ambient temperature between 15° C and 35° C and at an humidity between 45% and 75 %	MILIER MILIER MILIER OF	N/A		
BB K.2.2	Electric strength test	Write Maril Wari War	N/A		
BB K.2.2.1	Solid circular winding wires and stranded winding wires				
ALTER MALTE	Test samples prepared according to clause 4.4.1 of IEC 60851-5:2008 (twisted pair)	the liter niter	N/A		
EK STEK	Dielectric strength test: 6 kV for reinforced insulation	The Test	N/A		
F 184	Dielectric strength test: 3 kV for basic or supplementary insulation	mer my me m	N/A		
BB K.2.2.2	Square or rectangular wires .		N/A		
NALTEK WALTE	Test samples prepared according to clause 4.7.1 of IEC 60851-5:2008	EX NITEX INLIER WHITEK	N/A		
LIEK WALTER	Dielectric strength test: 5,5 kV for reinforced insulation	- Tet street suitet su	N/A		
ek stek i	Dielectric strength test: 2,75 kV for basic or supplementary insulation	at let let set	N/A		
BB K.2.3	Flexibility and adherence	me me me m	N/A		
WALTER WAL	Claus 5.1 in Test 8 of IEC 60851-3:2009 shall be used	LIER MILIER MILIER MILIER	N/A		
nitek white	Test samples prepared according to clause 5.1.1.4 of IEC 60851-3:2009	the street whitek whitek	N/A		
TEK WALTER	Dielectric strength test: 5,5 kV for reinforced insulation	liet still milet an	N/A		
k stiff is	Dielectric strength test: 2,75 kV for basic or supplementary insulation	et the tet of	N/A		
10, 2,	Mandrel diameter according table K.1	Vr. Mr. Mr. M.	N/A		

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1	A			ľ
M		X	ı	,
		-		

IEC 61558-2-16							
Clause	Requirement + Test	Result - Remark	Verdic				
ZIPLE V	The tension to the wire during winding on mandrel is 118 N/mm² (118 MPa)	MULLER MALTER MALTER	N/A				
BB.K.2.4	Heat shock	LIFE WALLEY WALLEY	N/A				
LIEK WALTE	Test samples prepared according to 3.1.1 (in Test 9) of IEC 60851-6:1996	Et NITER MITER WA	N/A				
at at	high voltage test immediately after this test	777	N/A				
'Aller	Dielectric strength test: 5,5 kV for reinforced insulation	White White Whit	N/A				
MUTEL MI	Dielectric strength test: 2,75 kV for basic or supplementary insulation	UNLIER WHITE WHITE	N/A				
BB.K.2.5	Retention of dielectric strength after bending (test as specified under test 13 of 4.6.1 c) of IEC 60 851-5)	LEK WALLER WALLER W	N/A				
-711	high voltage test immediately after this test	MULL MALL MAR	N/A				
	Dielectric strength test: 5,5 kV for reinforced insulation	MALTEX MALTEX WALTER	WALTE WALTE				
	Dielectric strength test: 2,75 kV for basic or supplementary insulation	LIET BLIEF WALTER	UNITER WALTER				
BB.K.3	Testing during manufacturing		N/A				
BB.K.3.1	General Tests as subjected in K.3.2 and K.3.3	anti w	N/A				
BB K.3.2	Routine test	CLIE WITH WALL	N/A				
- WALTER W	Dielectric strength test: 4,2 kV for reinforced insulation	LIER SLIER WILLER	N/A				
INLIER MINI	Dielectric strength test: 2,1 kV for basic or supplementary insulation	Let Let liet	N/A				
BB K.3.3	Sampling test	in the things	N/A				
BB K.3.3.1	Solid circular winding wires and stranded winding wires	ex matter matter mai	N/A				
EK WALTER.	Test with a twisted pair, prepared according clause 4.4.1 of IEC 60851-5:2008	MILEK MILTER WHITE	N/A				
WALLEY WA	Dielectric strength test: 6 kV for reinforced insulation	SUFER DUTER SOUTH	N/A				
NITEK MALT	Dielectric strength test: 3 kV for basic or supplementary insulation	Tet tret street to	N/A				
BB K.3.3.2	Square rectangular wire	14. 24. 24.	N/A				
The Maria	Samples prepared according to clause 4.7.1 of IEC 60851-5:2008	WALTER WALTER WALT	N/A				
NITE .	Dielectric strength test: 5,5 kV for	LEK JEK JEK	N/A				

reinforced insulation

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SEE OLIV	IEC 61558-2-1	- T	مناهد عائده
Clause	Requirement + Test	Result - Remark	Verdict
ANGEL TERF	Dielectric strength test: 3 kV for basic supplementary insulation	cor	N/A

BB.U	ANNEX U – INFORMATIVE – OPTIONAL TW – MARKING FOR TRANSFORMERS	N/A
V- A	ANNEX V, SYMBOLS TO BE USED FOR THERMAL CUT-OUTS	N/A

BB.26.2 TEST A	TABLE: CREEPAGE DISTANCES AND CLEARANCES AND DISTANCES THROUGH INSULATION							N/A
		ith three special prepared specimens with lated wires, without potting or impregnation						
cycles 2 x working betwe pri / s	g voltage een	68 h at the temperature acc. Cl. 14 (min. 85 °C)	1 hour 25 °C	2 hc 0 °		1 hour 25 °C		
1.	JEE .	Life Mile Will	mr. m	-2,		L 2+	et 1	et s
2.	10. 0		et set	2516	" NET	" NICE W	in m	The.
3.	All S	et alle alle a		11,	,		st st	A COLOR
4.	. 'm	20, 20,	A THE	CIEN	CLIER	WILL WILL	ZIV.	Me
5.			7	100	2,			2 Et
6. June	100	ALVA	TEN.	4EM	11/2	S INLIE	W. C.	Vr. a
7		1	are a		- 3			et.
8.	ale -	J - 2- 1	- A	£ 3	2	Carrier .	WILL WA	, an
9.	d.	TEN JER JIER	with one	no.	24.	70		(
10.	Ver all	2112 211		- L+	. é	F JOHN J	all all	1/2

BB.26.2 TEST B		TABLE: CREEPAGE DISTANCES AND CLEARANCES AND DISTANCES THROUGH INSULATION						
		h three specially prepa P1 values are require		s with				
cycles with 2 x working voltage between pri / sec		68 h at the temperature acc. Cl. 14 (min. 85 °C)	1 hour 25 °C	2 hour 0 °C		1 hour 25 °C		
1.	+ 0	- TEX ITEX II	The Maria	in.	21/2	21, 2,	1	, t
2.	"Mer.	The The	 	, t	1EX	TEK STE	RUTE	WILL WA
3.	*	LEK TEK MI	WELL WI	2 41	X S	n n	20	٠ ـ ـ ـ ـ ـ
4.	arts.	he he m		*	et	LET CENT	Liter 10	Life Will.
5.		of cet sites	With Will	and a	24	1/2 1	M SY	
6.	الم المالي	in with my				t to the terms of	TEN IS	er alle
7.		at at at	alter alter	West .	Men	me m	20,	

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T COLOTOTION I	140.: 17 17/20/1001000100	1 age 100 of 122		
TER INCTE	Write Mrs. Mrs. Mrs. Mrs.	IEC 61558-2-16	ek fek jiek sife	INLIE WALTE
Clause	Requirement + Test	er with mit me	Result - Remark	Verdict

BB.26.2 TEST B								N/A
	Test with three specially prepared specimens with potted – P1 values are required							
cycles 2 x working betwe pri / s	g voltage een	68 h at the temperature acc. Cl. 14 (min. 85 °C)	1 hour 25 °C	2 hc 0 °		1 hour 25 °C		
8.	d		alter with	me	211	2, ,		ان -
9.	Vr. 211.	100 100		26th	1	Little N	The Market	W. C.
10.		L it it	THE CO.	10	W.			

BB.26.2 TABLE: CREEPAGE DISTANCES AND CLEARANCES AND DISTANCE THROUGH INSULATION							CES AND CLEARANCES AND DISTANCES	
		n three specially prepa only dti is required)	ared specimens	s with				
cycles with 2 x working voltage between pri / sec		68 h at the temperature acc. Cl. 14 (min. 85 °C)	1 hour 25 °C	2 ho 0 °		1 hour 25 °C		
1.16 July	167	200 2 200	,. .	.0	4	STEP STEP	NITE.	antite and
2.	$\setminus V_{-}$		SINLI' N		_ <	100	20.	
3.					<i>-</i>		LITER	Write Write
4.		at let let	INLIE NATE	TOWER.	- In	140 1		
5.	ir in	ir mur mur	,			t get .		THE NUTE
6.		+ at alt	LIFE INLIE	Welle.	ant.	mr. m	21/	
7. 18th 21th		I WHE WE A	, ,	٠	_+	at de	J	A CLIEB
8.	, ,	A A .	CENT STEET	NET O	MILL	Wir Mir	1/1	1, ,
9.	alter	Write Will My	20 2		٠.	at at	150	THE ST
10.	20,	** J. J.	JEK J	(C)	3 J	in whi	in the	24. 24.
et jet	CIER .	LIFE WILL WALL	24. 24		,	* #	et.	JEH JEH

BB.26.3.5		CREEPAGE DISTANGH INSULATION	ICES AND CL	EARAN	CES A	AND DISTANC	ES	N/A
	Test for	transformers, use FIV	V-wire					
cycles v 2 x working betwe pri / s	voltage en	68 h at the temperature acc. Cl. 14 (min. 85 °C)	1 hour 25 °C	2 hc 0 °		1 hour 25 °C		
1.	4	A A ST	NITER WALL	" WE	"IL	- m 1	1, 1,	
2.	مارتاقة ما	it with wh	<i>y</i> , ,			t set .	CER LITE	, alife
3.		L A B	LIE SLIE	MILLE	"WES	me m	10	-

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TCICICIOC I	10 W 17/25/100 1055 100	1 age 107 01 122		
TER WITE	WILL ME MUT M	IEC 61558-2-16	rek rek trek ati	IN WILL WILL
Clause	Requirement + Test	EK STER WALL WAS	Result - Remark	Verdict

BB.26.3.5	BB.26.3.5 TABLE: CREEPAGE DISTANCES AND CLEARANCES AND DISTANCES THROUGH INSULATION						N/A
	Test for	transformers, use FIW	-wire				
cycles 2 x working betwe pri / s	y voltage een	68 h at the temperature acc. Cl. 14 (min. 85 °C)	1 hour 25 °C	2 hour 0 °C	1 hour 25 °C		
4.	an a	h. 20. 2	1	- Set	View with a	ris and	41/2
5.	tet .	TER STER WITE	Write My	24, 24		ال الم	· A
6	n 14	24 24	a dit	. Test . S	EL NITER INT	Will	Mr.
7.	عار المان	t the the	The wife.	n in	n ,		24
8.	Me	24. 24. 24.	, J+	LET JET	TIEN STE	Mile	mi.
9.	٠ ا	THE SHE ST	e will al	ir mr	n. 2.		1
10.	are.	are are an		+ 4	LET SET	JE	1

BB 18.2 TABLE: insulation resistance measure	ments	in my	N/A
Insulation resistance R between:	R (MΩ)	Required R (M	1Ω)
The state of the s	with min mu	1/1 /1/1	20 -
The state of the s		John Alle	300
Pr July 1	A	Curry and a	12 14
Supplementary information:		1 st	At A

BB 18.3	TABLE: Dielectric Strength	in me me	N/A
Test voltage	applied between:	Test potential applied (V)	Breakdown / flashover (Yes/No)
Set S		70 7 7	at the set .
me me	A A At Att STATE	CLITER INLIER WALLY	his me me m
JEK JEK	BLIEF WILL WALL WILL WILL	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	at the the
. 71	The second of the second of	TER WALL WILL ON	211 111 20
Supplementa	ary information:	2 A B C	the little with

BB 26	TABLE: Clearance And Creepage Distance Measurements						N/A
clearance cl distance dcr	and creepage at/of:	Up (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	required dcr (mm)	dcr (mm)
VII MUE	an an	-80	- 164	JEK JE	· CLIFER A	PLITE WALL .	n 21
et et	TEX TEX	CITE WALL	me n		70, 4	L 3-	at .
. The	me m.	the life	LEX.	EK LIEK	WITE WILL	Write an	10
- et	Tet Tet	LIET WILL	ne in	70,		J+	y _(i)
Supplement	ary information:	*	TEK JE	CLIEN AND	TEK WITE	WILLE MILL	mes

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VIEW WILLE	The man and the the	C 61558-2-16	WITE WITE
Clause	Requirement + Test	Result - Remark	Verdict

BB 26	TABLE: Distance Through Insulation Measurements						
Distance t	through insulation di at/of:	U r.m.s. (V)	Test voltage (V)	Required di (mm)	di (mm)		
ITEK WAL	TER WALL MALL WALL WALL WALL	un liet	NUTE AND THE	JUNITER WITER	WILLIE VI		
ik " _{Nite} i	White white white	Mrs. Mr.	at let	TEK STEK	NITER MAY		
- V	at let let let	WHILE M	ur aur a	L 111 2			



IEC 61558-2-16 ATTACHMENT Clause Requirement + Test Result - Remark Verdict

ATTACHMENT TO TEST REPORT

IEC 61558-2-16 (AUSTRALIA/NEW ZEALAND) NATIONAL DIFFERENCES

(Safety of transformers, reactors, power supply units and combinations thereof - Part 2-16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units for general applications)

AS/NZS 61558.2.16:2022

Differences according to.....

AS/NZS 61558.1:2018 +A1:2020 + A2:2020

TRF template used:..... IECEE OD-2020-F3, Ed. 1.1

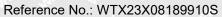
Attachment Form No...... AU_NZ_ND_IEC61558_2_16H

Attachment Originator.....: NZ Electrotechnical Committee/Standards New Zealand

Master Attachment...... Date 2022-07-08

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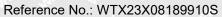
	National Differences	
5	GENERAL CONDITIONS FOR THE TESTS	P
5.2	Add the following variation:	N/A
NITE WY SEK NITE	If the tests of AZ.19.201 need to be performed they are carried out on separate specimens, the number of specimens is that required by AS/NZS 3112. (AS/NZS 61558.1:2018/A2:2020)	N/A
5.5	Replace the text with the following variation:	Р
MILIEN	For a.c., test voltages are of substantially sinusoidal wave form, and, if not otherwise specified, have a frequency of 50 Hz. (AS/NZS 61558.1:2018)	et mitet wifet
16	MECHANICAL STRENGTH	
16.4	Replace the text with the following variation:	N/A
	VOID (AS/NZS 61558.1:2018/A2:2020)	N/A
19	CONSTRUCTION	
19.15	Replace the test specification with the following variation:	N/A
	VOID (AS/NZS 61558.1:2018/A2:2020)	N/A





	IEC 61558-2-16 ATTACHME	ENT	
Clause	Requirement + Test	Result - Remark	Verdict
211 2	Insert the following variation:	MULL MULL MULL MILL	N/A
AZ.19.201	Transformers having integral pins for insertion into socket outlets shall comply with the appropriate requirements of AS/NZS 3112.	LIET MILET MILET WILE	N/A
et tet	Compliance is checked as specified in Appendix J of AS/NZS 3112 (AS/NZS 61558.1:2018)	EX WHITE WHITE WALLE	N/A
20	COMPONENTS	White white wind with	N/A
- Jet	Replace the first paragraph with the following variati	on:	N/A
Muritan Auri	Components shall comply with the safety requirements specified in the relevant IEC or Australian/New Zealand Standards as far as they reasonably apply. (AS/NZS 61558.1:2018)	The morry many many	N/A
	Replace the third paragraph with the following variation	tion:	N/A
	Compliance with the IEC or Australian/New Zealand Standards for the relevant component does not necessarily ensure compliance with the requirements of this Standard (AS/NZS 61558.1:2018)	MULTER MULTER MULTER MUL	N/A
20.6	Insert the following variation:	alter outer white white	N/A
nites unite	Plugs and socket-outlets for SELV systems may also comply with the requirements of Appendix E in AS/NZS 3112 (AS/NZS 61558.1:2018/A2:2020)	Et Whitet whitet	N/A
22	SUPPLY CONNECTION AND OTHER EXTERNAL FLEXIBLE CABLES OR CORDS		N/A
22.4	Replace the text by the following variation:	TER TER STEE WIT	N/A
NIFE N	VOID. (AS/NZS 61558.1:2018)	at 1st 1st 1st	N/A
22.6	Replace the text by the following variation:	er, and any an	N/A
LIFE WALTER	Power supply cords may be cord sets fitted with appliance couplers in accordance with IEC 60320, provided the transformers are single-phase portable transformers with input current not exceeding 10 A at the rated output (AS/NZS 61558.1:2018)	THE WALTER WALTER WALTER	N/A
22.8	Replace the second paragraph in the requirement, v	with the following variation:	N/A
wifek anti	Power supply cords of portable transformers shall be fitted with an appropriately rated plug complying with AS/NZS 3112 or AS/NZS 3123 or IEC 60309-	net and one was	N/A
	1 (AS/NZS 61558.1:2018)	2/1/2 2/1/2 2/1	

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	IEC 61558-2-16 ATTACHME	ENT THE THE	
Clause	Requirement + Test	Result - Remark	Verdict
ANNEX H	ELECTRONIC CIRCUITS		Р
H.3.1	Add the following to the test specification after the existing fourth paragraph:		νP
NITES WHITE	During and after the tests the no-load output voltage of an accessible safety extra-low voltage outlet or connector or Universal Serial Bus (USB) outlet shall not have increased by more than 3 V or 10% of its no-load output voltage in normal use, whichever is higher. (AS/NZS 61558.1:2018)	Max. 3.46% (for model GTM46161-165.0-USB1A1C) Max. 5.9% (for model GTM46161-165.5-USBC)	P
INLIE N	Special national conditions (if any)		N/A
3,	Australia		N/A
8 5 5	MARKING AND OTHER INFORMATION		Р
8.1	After Item a) insert the following variation:	the me of the same of	Р
LIER WALTER	The marking of rated supply voltage or rated supply voltage range of single-phase transformers shall cover 240 V and for poly-phase transformers, 415 V (AS/NZS 61558.1:2018/A2:2020)	MULTER WALTER WALTER WAL	P
	New Zealand	m m	P-
8,000	MARKING AND OTHER INFORMATION		JI P
8.1	After Item a) insert the following variation:		ιP
Nite Whit	The marking of rated supply voltage of single- phase transformers shall be 230 V and for poly-phase transformers shall be 400 V. (AS/NZS 61558.1:2018/A2:2020)	or white mile of	N/A
WALTER O	The marking of rated supply voltage range of single-phase transformers shall cover 230 V and for poly-phase transformers, 400 V (AS/NZS 61558.1:2018/A2:2020)	writer writer writer writer	PE

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600	IEC61558_2_16E ATTACHM	ENT	
Clause	Requirement + Test	Result - Remark	Verdict
200 Elik	VOID (AS/NZS 61558.1:2008)	mer mer and an	N/A
mr m	Insert the following variation	CLIFE WALL WALL WALL	N/A
19.201	Transformers having integral pins for insertion into socket outlets shall comply with the appropriate requirements of AS/NZS 3112.	et unifer unifer unifer	un selle un
EK WALTER	Compliance is checked as specified in Appendix J of AS/NZS 3112 (AS/NZS 61558.1:2008/A3:2020)	WILLIER WILLIER WEITER OF	P.
20	COMPONENTS	SLIFE WITH WHILE WHI	N/A
.*	Replace the first paragraph with the following variati	ion:	N/A
unt wh	Components shall comply with the safety requirements specified in the relevant IEC or Australian/New Zealand Standards as far as they reasonably apply. (AS/NZS 61558.1:2008) Replace the third paragraph with the following variations.	MUNITER MINITER MINITER	N/A
West.		don.	N/A
	Compliance with the IEC or Australian/New Zealand Standards for the relevant component does not necessarily ensure compliance with the requirements of this Standard (AS/NZS 61558.1:2008)	NITER WHITE WHITE WHITE	N/A
20.5	Insert the following variation:	EX WALL WALL	N/A
iek mute K	Plugs and socket-outlets for SELV systems may also comply with the requirements of Appendix E in AS/NZS 3112 (AS/NZS 61558.1:2008/A3:2020)	White white white	N/A
22	SUPPLY CONNECTION AND OTHER EXTERNAL FLEXIBLE CABLES OR CORDS		N/A
22.4	Replace the text by the following variation:	TER STER STER SPITE	N/A
ijek sij	VOID. (AS/NZS 61558.1:2008)	et tet tet tiet	N/A
22.6	Replace the text by the following variation		N/A
Whitek w	Power supply cords may be cord sets fitted with appliance couplers in accordance with IEC 60320, provided the transformers are single-phase portable transformers with input current not exceeding 10 A at the rated output (AS/NZS 61558.1:2008)	MULTER MULTER WALTER WALTER	N/A
22.8	Replace the second paragraph in the requirement, v	with the following variation:	N/A
	Power supply cords of portable transformers shall be fitted with an appropriately rated plug complying with AS/NZS 3112 or AS/NZS 3123 or IEC 60309 (AS/NZS 61558.1:2008)	MULTER WHITER WHITER	N/A



	IEC61558_2_16E ATTACHM	ENT	
Clause	Requirement + Test	Result - Remark	Verdict
ANNEX H	ELECTRONIC CIRCUITS	West Mer Mer My	P
H.2.1	Add the following to the test specification after the existing third paragraph		Р
AND THE WALLE	The no-load output voltage at an SELV appliance outlet or connector shall not increase by more than 10% of its no-load output voltage in normal use. (AS/NZS 61558.1:2008/A2:2015)	EX WILLEX MULTER MULTER M	P
MULTER ON	The no-load output voltage of a USB outlet or connector shall not increase by more than 3 V or 10% of its no-load output voltage in normal use, whichever is higher. (AS/NZS 61558.1:2008/A2:2015)	Max. 3.46% (for model GTM46161-165.0-USB1A1C) Max. 5.9% (for model GTM46161-165.5-USBC)	P
SER N	Special national conditions (if any)		N/A
1, 2,	Australia	ter me me me a	N/A
8 10	MARKING AND OTHER INFORMATION		Р
8.1	After Item a) insert the following variation:	any any any and	Р
ek whiter v	The marking of rated voltage or rated voltage range of single-phase transformers shall cover 240 V and for polyphase transformers, 415 V (AS/NZS 61558.1:2020)	Whitek Whitek Whitek White	WALTE P LITER
	New Zealand		Р
850 50	MARKING AND OTHER INFORMATION		√ P
8.1	After Item a) insert the following variation:		Р
	The marking of rated voltage of single-phase transformers shall be 230 V and for polyphase transformers shall be 400 V. The marking of rated voltage range of single-phase transformers shall cover 230 V and for polyphase transformers, 400 V (AS/NZS 61558.1:2020)	whitek whitek whitek whitek	Р

Reference No.: WTX23X08189910S

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W

PHOTO:

Model: GTM46161-165.5-USBC



Photo 1

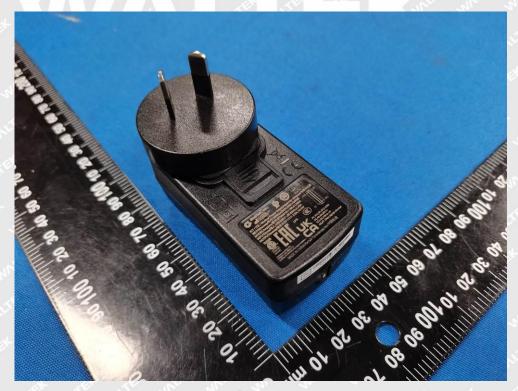


Photo 2



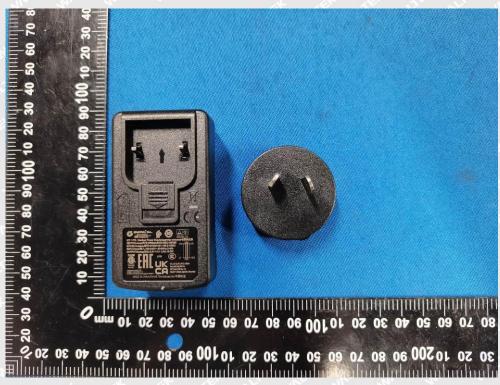


Photo 3



Photo 4



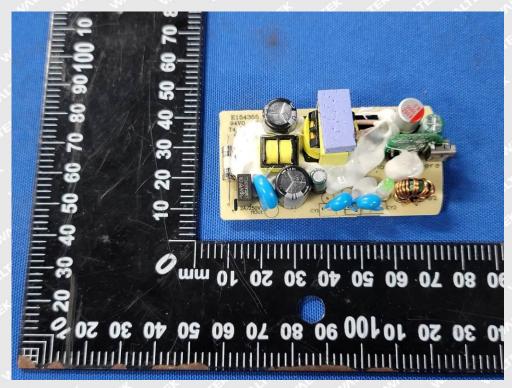


Photo 5

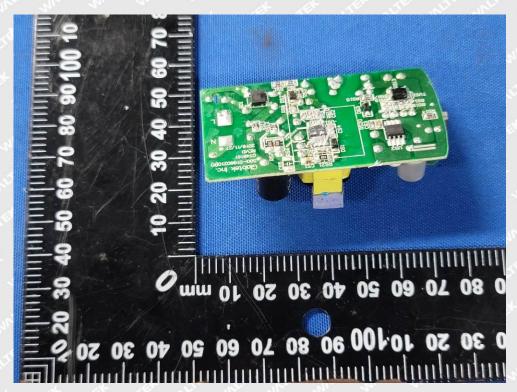


Photo 6

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Model: GTM46161-165.0-USB1A1C



Photo 7

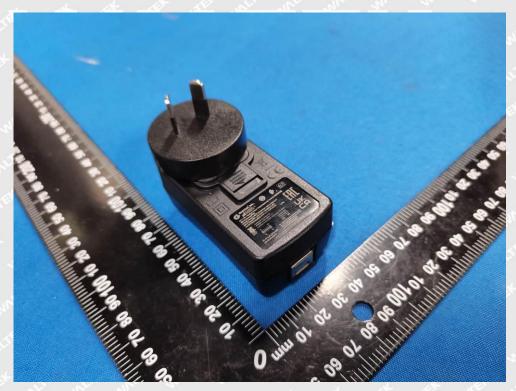


Photo 8





Photo 9

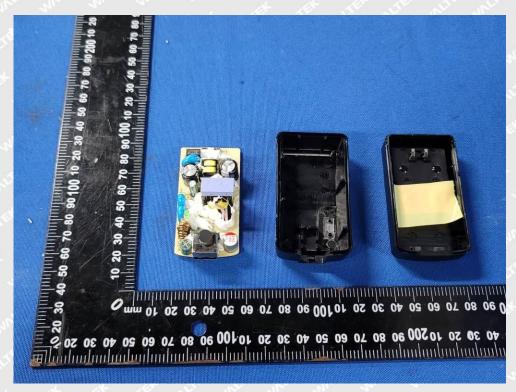


Photo 10



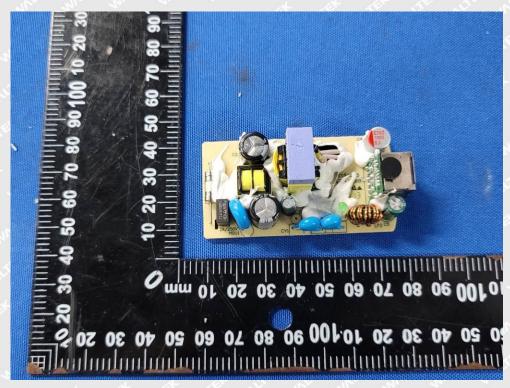


Photo 11

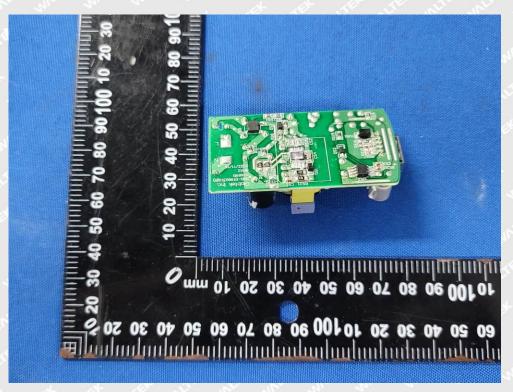


Photo 12

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Reference No.: WTX23X08189910S P

Model: GTM46161-155.0-USB2C





Photo 13

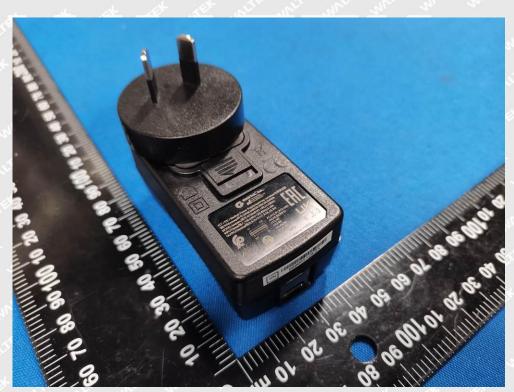


Photo 14





Photo 15

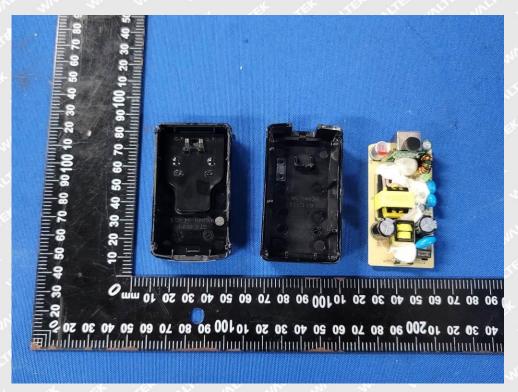


Photo 16





Photo 17



Photo 18

===== End of Report =====