Certificate of Conformity

No. ESTS-P19041905

The following products have been tested by us with the listed standards and found in compliance with the council Low Voltage Directive 2014/35/EU. It is possible to use CE marking to demonstrative for the compliance with this Directive.

Applicant	:	Channel Well Technology Co., Ltd.
Address	:	No.1 Guiyang Road Qingyang Road Wujin Changzhou Jiangsu P.R. China
Product	:	AC Adapter
Trade Name	:	CWT or Synology or NETGEAR or D-Link
Model No.	:	1a). KPL-xy; 1b). KPL-xy; 1c). KPL-xy-VI or KPL-xy-II or KPL-xy-KV; 1d). GTRxxxYzzzzz; 2a). 2ABFxxxYzzzzz; 2b). 2ACLxxxYzzzzz

Test Standards :	
EN 62368-1:2014+A11:2017	Audio/video, information and communication technology equipment Part 1: Safety requirements

CE

EST Technology Co.,Ltd. * Authorized *

John Lan
Manager
Date: May 17, 2019

EST Technology Co., Ltd.
Http://www.gdest.cn; Tel: +86 769-83081888
Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China

APPLICATION FOR LOW VOLTAGE DIRECTIVE

TEST REPORT EN 62368-1 Audio/video, information and communication technology equipment Part 1: Safety requirements	
Report reference No. ……:	ESTS-P19041905
Tested by……: (printed name and signature)	Monster Feng
Approved by……: (printed name and signature)	Jeff Yang
Date of issue……:	2019-05-10
Testing laboratory ……:	EST Technology Co., Ltd.
Address……:	Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China
Test location……:	Same as above
Applicant……:	Channel Well Technology Co., Ltd.
Address:……:	No.222, Sec. 2, Nankan Rd., Lujhu Township, Taoyuan Hsien 33855 Taiwan
Manufacturer……:	Same as applicant
Address:……:	Same as applicant
Standards……:	EN 62368-1:2014+A11:2017 (Second Edition)
Test Procedure ……:	LVD
Non-standard test method……:	N/A
Type of test equipment ……:	AC Adapter
Trade mark……:	1a-1d). CWT 1c). Synology 2a-2b). CWT NETGEAR D-Link

Model/Type designation……..:	1a). KPL-xy (x = 040, 050, 060, 065; y = F, G, V, H, I, W, J, K, L, N, Q, R, M) 1b). KPL-xy (x = 048, 066; y = F) 1c). KPL-xy-VI or KPL-xy-II or KPL-xy-KV(x = 030, 040, 048, 050, 060, 065, 066; Y = F, G, V, H, I, W, J, K, L, N, Q, R, M, A, S, T, P, U) 1d). GTRxxxYzzzzz (x=038, Y=2, z = 0-9, A-Z, "-" or blank) 2a). 2ABFxxxYzzzzz (x = 036, 048, 060, 065; Y = F, R; z = 0-9, A-Z, "-" or blank) 2b). 2ACLxxxYzzzzz (x = 025, 030, 050, 060, 065, 068; Y = B, K, M, R, S, U; z = 0-9, A-Z, "-" or blank)
Rating……..:	Input: See model list on page 12 to 14 for detail Output: See model list on page 12 to 14 for detail
TRF originator……..:	EST Technology Co., Ltd.
Copyright blank test report:	EST Technology Co., Ltd.
Test item particulars:	--
Equipment mobility	Transportable apparatus
Operating Condition	Continuous
Tested for IT power systems	No
IT testing, phase-phase voltage (V)	N/A
Class of equipment	Class I equipment
Mass of equipment (kg)	Max. 0.31 kg
Protection against ingress of water	IPX0

List of Attachments (including a total number of pages in each attachment):

Attachment 1: National Differences (10 pages)

Attachment 2: Photographs (15 pages)

Attachment 3: Product document (25 pages)

Summary of testing:

See below for summary and applicable clauses.

All tests were conducted under maximum normal load conditions as below, if not specified elsewhere.

Tests performed (name of test and test clause):	**Testing location:**
All applicable tests as described in test case and measurement sections were performed. Unless otherwise indicated, all tests were conducted on Model 2ACL068S, KPL-065A-KV, KPL-066F-VI, 2ACL030B, KPL-065U-VI, GTR0382, 2ABF065F, 2ABF060R, 2ACL065U, 2ACL065R, 2ACL060M, 2ACL060K, 2ACL065U, 2ACL065R, 2ACL060M, 2ACL060M, 2ABF065F, 2ABF060R, KPL-060I-VI, KPL-050F-VI, KPL-060F-VI, KPL-066F-VI, KPL-065J-VI, KPL-065M-VI, KPL-050F, KPL-050M, KPL-060I, KPL-065F, KPL-065J, KPL-065M, which can be representative of all models.	All tests as described in Test Case were performed at the laboratory described on page 2

Summary of compliance with National Differences:

EU group differences

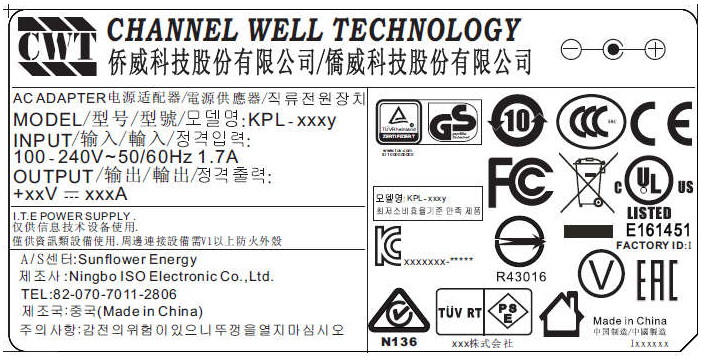
CENELEC member countries (EU group differences): Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

☒ **The product fulfils the requirements of EN 62368-1:2014/A11:2017.**

Copy of marking plate:

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

The marking plate of KPL-xy (Efficiency Level V)



The marking plate of KPL-xy (Efficiency Level VI)

The marking plate of KPL-xy-VI (Efficiency Level VI)

Copy of marking plate:

The marking plate of 2ABFxxxYzzzzz

The marking plate of 2ABFxxxYzzzzz

The marking plate of 2ABFxxxYzzzzz

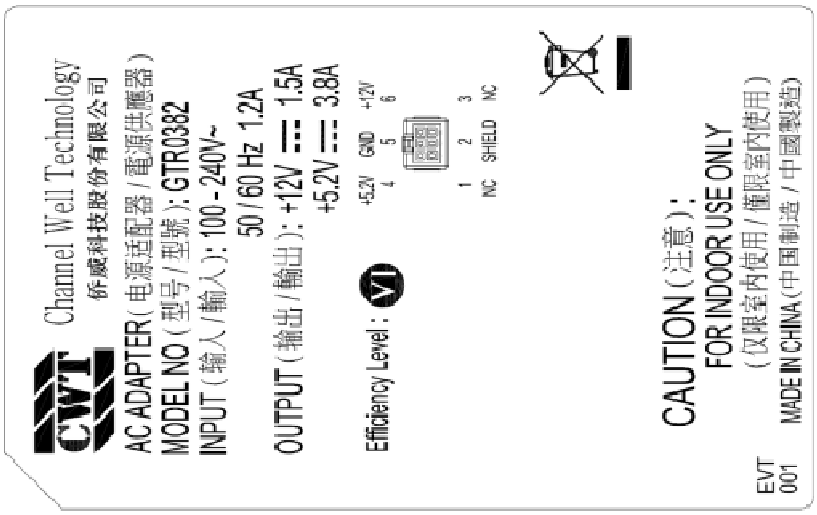
Copy of marking plate:

The marking plate of 2ACLxxxYzzzzz

The marking plate of 2ACLxxxYzzzzz

The marking plate of 2ACLxxxYzzzzz

The marking plate of GTRxxxYzzzzz



The marking plate of KPL-xy-VI (Efficiency Level VI)

TEST ITEM PARTICULARS:	
Classification of use by ..... :	☒ Ordinary person ☐ Instructed person ☐ Skilled person ☒ Children likely to be present
Supply Connection ..... :	☒ AC Mains ☐ DC Mains ☐ External Circuit - not Mains connected - ☐ ES1 ☐ ES2 ☒ ES3
Supply % Tolerance ..... :	☒ +10%/-10%: AC Version ☐ +20%/-15% : DC Version ☐ +____%/ -_____% ☐ None
Supply Connection – Type ..... :	☒ pluggable equipment type A - ☐ non-detachable supply cord ☒ appliance coupler ☐ direct plug-in ☐ mating connector ☐ pluggable equipment type B - ☐ non-detachable supply cord ☐ appliance coupler ☐ permanent connection ☐ mating connector ☐ other:_____
Considered current rating of protective device as part of building or equipment installation ..... :	☒ 13A for UK, 16A for other Installation location: ☒ building; ☐ equipment
Equipment mobility..... :	☐ movable ☐ hand-held ☒ transportable ☐ stationary ☐ for building-in ☐ direct plug-in ☐ rack-mounting ☐ wall-mounted
Over voltage category (OVC) ..... :	☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV ☐ other: _____
Class of equipment ..... :	☒ Class I ☐ Class II ☐ Class III
Access location ..... :	☐ restricted access location ☒ N/A
Pollution degree (PD) ..... :	☐ PD 1 ☒ PD 2 ☐ PD 3
Manufacturer's specified maxium operating ambient :	40-50°C (See General Product Information)
IP protection class ..... :	☒ IPX0 ☐ IP___
Power Systems ..... :	☒ TN ☐ TT ☒ IT - 230 V (For Norway)
Altitude during operation (m) ..... :	☐ 2000 m or less ☒ 5000 m or less
Altitude of test laboratory (m) ..... :	☒ 2000 m or less ☐ _____ m
Mass of equipment (kg) ..... :	☒ 0.24 for KPL O/P: 25-50W models; 0.27 for KPL O/P: 60-66W models; 0.25 for 2ABF and 2ACL models; 0.31 for GTR models.

POSSIBLE TEST CASE VERDICTS:	
- test case does not apply to the test object.....:	N/A
- test object does meet the requirement.....:	P (Pass)
- test object does not meet the requirement.....:	F (Fail)
TESTING:	
Date of receipt of test item .....:	2019-04-19
Date (s) of performance of tests .....:	2019-04-19 to 2019-05-10

GENERAL REMARKS:

"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

Throughout this report a ☐ comma / ☒ point is used as the decimal separator.

Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided.....:	☒ **Yes** ☐ **Not applicable**
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies) .....:	1. Channel Well Technology (Guangzhou) Co., Ltd Bld.B, Eastern Hi-tech Industrial Base, Zengjiang Street, Zengcheng , Guangzhou, Guangdong 511300, P.R. China 2. Power Plus Technology (Wanzai) Co., Ltd No.66, Jiangjun East RD, Industrial Park, Wanzai County Yichun City Jiangxi Province, 336100, China 3. Channel Well Technology (Vietnam) Co., Lt d Lot 38G1 Quang Minh Industrial Zone, Quang Minh Town, Me Linh District, Hanoi, Vietnam

GENERAL PRODUCT INFORMATION:

Product Description –

- The EUTs are desktop type, switching mode, AC input adaptor for the use in information technology equipment.
- All models are similar except for the type designation, output rating, different transformer (T1):
  PQ-2620-12 or PQ-2620-12-VI applied for KPL series with output voltage 12V to 16V.
  PQ-2620-17 applied for KPL series with output voltage 17V to 24V.
  PQ-2620-36 applied for KPL series with output voltage 36V
  PQ-2620-48 applied for KPL series with output voltage 48V to 56V.
  PQ2620-12 applied for 2ABF series with output voltage 12V.
  PQ2620-19 applied for 2ACL series with output voltage 19V and 24V.
  PQ2620-48 applied for 2ABF and 2ACL series with output voltage 48V, 54V, and 56V.
  RM10-12 applied to GTR series with output voltage 12V (DC-DC converter provided to create 5.2V output which was powered by 12V).

and also the rating of components for different output voltage and wattage.

- The Adaptor's bottom enclosure is secured to top enclosure by ultrasonic welding for KPL and GTR series.
- The Adaptor's bottom enclosure is secured to top enclosure by screw for 2ABF and 2ACL series.
- CX1: Max. 0.47uF for KPL PCB with FUSE1 and 2ACLxxxB
- CX1: Max. 0.33uF for GTR, KPL PCB with F1, F2, 2ABF, and 2ACLxxxY (except Y=B).
- CY1 and CY2: Max. 2200pF for KPL (with F1 and F2), and CY1: Max. 3300pF for KPL (with FUSE1), 2ABF, 2ACL, and GTR.
- For KPL series, new model (KPL-xy-VI) with 48V output (50W, 60W and 65W), and 12V output (48W and 66W) were added. PCB was modified to include two fuses (F1 and F2). When TVS1 is not present, F1 (6.3A/250V) will be replaced by a jumper wire.
- For KPL series (PCB with fuses: F1 and F2), CY2 (optional) was added in series with CY1 cross over between primary GND and secondary GND. Please refer to the clause 1.5.1, the attachment of Photos, and the attachment of Circuit Diagram in details.
- For 2ABF and 2ACL series, If F2 (optional) is not present, the value of F1 will be T3.15A/250V.
- For 2ABF and 2ACL series, TH1 (Max. 5Ω at 25°C, min. 3A) and Gas Tube, SA1/SA2, (Min. 200V) were added as optional items.
- For GTR series, F1 = 3.15A
- The model, KPL-xy (PCB with fuse: FUSE1), was submitted and tested for use at maximum ambient temperature (Tma): 40°C.
- The model, KPL-xy and KPL-xy-VI (PCB with fuses: F1 and F2), was submitted and tested for use at maximum ambient temperature (Tma): 45°C for x= 40, 48, 50, 60 and y= all; 40°C for x= 65, 66 and y= all.
- The model, 2ABFxxxYzzzzz and 2ACLxxxYzzzzz, was submitted and tested for use at maximum ambient temperature (Tma): 40°C (except Y=B) and 50°C (Y=B).
- The model, GTRxxxYzzzzz, was submitted and tested for use at maximum ambient temperature (Tma): 40°C.

Unless otherwise specified, throughout this report, the tests were performed on selected models under the ambient temperature at around +25 °C and on an open bench table:

T1 (PQ-2620-12-VI): KPL-066F (highest output current), KPL-060I (highest output voltage).

T1 (PS-2620-17): KPL-065J (highest output current), KPL-065M (highest output voltage).

T1 (PQ-2620-36): KPL-065A-VI (highest output current and voltage).

T1 (PQ-2620-48): KPL-065S, KPL-065U-VI (highest output current and voltage).

T1 (PQ2620-12): 2ABF065F (highest output current and voltage).

T1 (PQ2620-19): 2ACL060K (highest output current), 2ACL060M (highest output voltage).

T1 (PQ2620-48): 2ACL065R (highest output current), 2ACL065U (highest output voltage).

T1 (PQ2620-05): 2ACL030B (highest output current and voltage)

- The altitude during operation is 5000 meter.
- Working Ambient Temperature: please refer to the Model List Table in details.
- The Product under test was loaded to the maximum of the rated output for the worst working condition.
- The Product under test was pre-production samples without serial number assigned.

Model Differences –

1a). KPL-xy

- x represents the output wattage; x = 040, 050, 060, 065
- y represents the output voltage; y = F, G, V, H, I, W, J, K, L, N, Q, R, M

1b). KPL-xy

- x represents the output wattage; x = 048, 066
- y represents the output voltage; y = F

1c). KPL-xy-VI or KPL-xy-II or KPL-xy-KV

- x represents the output wattage; x = 030, 040, 048, 050, 060, 065, 066
- y represents the output voltage; y = F, G, V, H, I, W, J, K, L, N, Q, R, M, A, S, T, P, U

x = O/P Wattage (W)	y = O/P Voltage	DC Output Voltage (V)	AC Input Voltage (VAC)	AC Input Current (A)	AC Input Frequency (Hz)
040, 048, 050, 060, 065, 066	F	12	100-240	1.7	50/60
040, 050, 060	G	13	100-240	1.7	50/60
040, 050, 060	V	14	100-240	1.7	50/60
040, 050, 060	H	15	100-240	1.7	50/60
040, 050, 060	I	16	100-240	1.7	50/60
040, 050, 060	W	17	100-240	1.7	50/60
040, 050, 065	J	18	100-240	1.7	50/60
040, 050, 060, 065	K	19	100-240	1.7	50/60
040, 050, 065	L	20	100-240	1.7	50/60
040, 050, 065	N	21	100-240	1.7	50/60
040, 050, 065	Q	22	100-240	1.7	50/60
040, 050, 065	R	23	100-240	1.7	50/60
040, 050, 060, 065	M	24	100-240	1.7	50/60
040, 050, 060, 065	A	36	100-240	1.7	50/60
030, 050, 060, 065	S	48	100-240	1.7	50/60
030, 050, 060, 065	T	52	100-240	1.7	50/60
030, 050, 060, 065	P	54	100-240	1.7	50/60
030, 050, 060, 065	U	56	100-240	1.7	50/60

O/P Voltage (y =)	O/P Voltage (V)	DC Output Current @ O/P Wattage 30W	DC Output Current @ O/P Wattage 40W	DC Output Current @ O/P Wattage 48W	DC Output Current @ O/P Wattage 50W	DC Output Current @ O/P Wattage 60W	DC Output Current @ O/P Wattage 65W	DC Output Current @ O/P Wattage 66W
F	12	---	3.33	4.00	4.17	5.00	5.42	5.50
G	13	---	3.08	---	3.85	4.62	---	---
V	14	---	2.86	---	3.57	4.29	---	---
H	15	---	2.67	---	3.33	4.00	---	---
I	16	---	2.50	---	3.13	3.75	---	---
W	17	---	2.35	---	2.94	3.53	---	---
J	18	---	2.22	---	2.78	---	3.61	---
K	19	---	2.11	---	2.63	3.16	3.42	---
L	20	---	2.00	---	2.50	---	3.25	---
N	21	---	1.90	---	2.38	---	3.10	---
Q	22	---	1.82	---	2.27	---	2.95	---
R	23	---	1.74	---	2.17	---	2.83	---
M	24	---	1.67	---	2.08	2.50	2.71	---
A	36	---	1.11	---	1.39	1.67	1.81	---
S	48	0.63	---	---	1.04	1.25	1.35	---

T	52	0.58	---	---	0.96	1.15	1.25	---
P	54	0.56	---	---	0.93	1.11	1.20	---
U	56	0.54	---	---	0.89	1.07	1.16	---

1d). GTRxxxYzzzzz

- xxx represents the output wattage, xxx = 038
- Y represents the output voltage. Y=2, means two groups of output voltage.
- z represents the different customers. z = 0-9, A-Z, "-" or blank

xxx = O/P Wattage (W)	AC Input Voltage (VAC)	AC Input Current (A)	AC Input Frequency (Hz)
038	100-240	1.2	50/60

O/P Voltage (Y=)	O/P Voltage (V)	O/P Current (A)	O/P Wattage (W)
2	5.2	3.8	38
	12	1.5	

2a). 2ABFxxxYzzzzz

- xxx represents the output wattage, xxx = 036, 048, 060, 065
- Y represents the output voltage. Y = F, R
- z represents the different customers. z = 0-9, A-Z, "-" or blank

2b). 2ACLxxxYzzzzz

- xxx represents the output wattage. xxx = 025, 030, 050, 060, 065
- Y represents the output voltage. Y =B, K, M, R, S, U
- z represents the different customers. z = 0-9, A-Z, "-" or blank

For 2ABF series

xxx = O/P Wattage (W)	Y = O/P Voltage	DC Output Voltage (V)	AC Input Voltage (VAC)	AC Input Current (A)	AC Input Frequency (Hz)
036, 048, 060, 065	F	12	100-240	1.7	50/60
060	R	48	100-240	1.7	50/60

O/P Voltage (Y =)	O/P Voltage (V)	DC Output Current @ O/P Wattage 36W	DC Output Current @ O/P Wattage 48W	DC Output Current @ O/P Wattage 50W	DC Output Current @ O/P Wattage 60W	DC Output Current @ O/P Wattage 65W	DC Output Current @ O/P Wattage 66W
F	12	3.00	4.00	---	5.00	5.40	---
R	48	---	---	---	1.25	---	---

For 2ACL series

xxx = O/P Wattage (W)	Y = O/P Voltage	DC Output Voltage (V)	AC Input Voltage (VAC)	AC Input Current (A)	AC Input Frequency (Hz)
025, 030	B	5	100-240	1.7	50/60
060	K	19	100-240	1.7	50/60
060	M	24	100-240	1.7	50/60

060, 065	R	48	100-240	1.7	50/60
060, 065, 068	S	54	100-240	1.7	50/60
050, 060, 065	U	56	100-240	1.7	50/60

O/P Voltage (Y =)	O/P Voltage (V)	DC Output Current @ O/P Wattage 25W	DC Output Current @ O/P Wattage 30W	DC Output Current @ O/P Wattage 50W	DC Output Current @ O/P Wattage 60W	DC Output Current @ O/P Wattage 65W	DC Output Current @ O/P Wattage 68W
B	5	5	6	---	---	---	---
K	19	---	---	---	3.16	---	---
M	24	---	---	---	2.50	---	---
R	48	---	---	---	1.25	1.35	---
S	54	---	---	---	1.10	1.20	1.25
U	56	---	---	0.90	1.07	1.16	---

Note:

1a). KPL-xy (for x=040, 050, 060, 065; y= F, G, V, H, I, W, J, K, L, N, Q, R, M)

i. PCB with fuse: FUSE1 (Efficiency Level V)
ii. Working Ambient Temperature: 40°C
iii. Efficiency Level V

1b). KPL-xy (for x=48, 66; y=F)

i. PCB with fuses: F1 and F2
ii. Working Ambient Temperature: 45°C for x= 048 and y= F
iii. Working Ambient Temperature: 40°C for x= 066 and y= F
iv. (Efficiency Level VI)

1c). KPL-xy-VI or KPL-xy-II or KPL-xy-KV (for x=030, 040, 048, 050, 060, 065, 066; y = F, G, V, H, I, W, J, K, L, N, Q, R, M, A, S, T, P, U)

i. PCB with fuses: F1 and F2
ii. Working Ambient Temperature: 45°C for x= 030, 040, 048, 050, 060 and y= all
iii. Working Ambient Temperature: 40°C for x= 065, 066 and y= all
iv. (Efficiency Level VI)

1d). GTR-xxxYzzzzz

i. Working Ambient Temperature: 40°C
ii. Efficiency Level VI

3a). 2ABFxxxYzzzzz

i. Working Ambient Temperature: 40°C
ii. Efficiency Level VI

3b). 2ACLxxxYzzzzz

i. Working Ambient Temperature: 40°C for xxx = 050, 060, 065, 068 and Y = K, M, R, S, U
ii. Working Ambient Temperature: 50°C for xxx = 025, 030 and Y = B
iii. Efficiency Level VI

Additional application considerations –

Definition of variable(s):

KPL-xy/KPL-xy-VI (x can be 030, 040, 048, 050, 060, 065, or 066 to represent the output wattage; y can be F, G, V, H, I, W, J, K, L, N, Q, R, M, A, S, T, P or U to represent the output voltage).

Variable	Range of variable	Content
x	030, 040, 048, 050, 060, 065, 066	030=30W, 040=40W, 048=48W, 050=50W, 060=60W, 065=65W, 066=66W
y	F, G, V, H, I, W, J, K, L, N, Q, R, M, A, S, T, P, U	F=12V, G=13V, V=14V, H=15V, I=16V, W=17V, J=18V, K=19V, L=20V, N=21V, Q=22V, R=23V, M=24V, A=36V, S=48V, T=52V, P=54V, U=56V

2ABFxxxYzzzzz and 2ACLxxxYzzzzz (xxx can be 025, 030, 036, 048, 050, 060, 065 or 068 to represent the output wattage; Y can be B, F, K, M, R, S, or U to represent the output voltage)

Variable	Range of variable	Content
x	025, 030, 036, 048, 050, 060, 065, 068	025=25W, 030=30W, 036=36W, 048=48W, 050=50W, 060=60W, 065=65W, 068=68W
y	B, F, K, M, R, S, U	B=5V, F=12V, K=19V, M=24V, R=48V, S=54V, U=56V

GTRxxxYzzzzz (xxx can be 038 to represent the output wattage; Y can be 2 to represent the output voltages)

Variable	Range of variable	Content
x	038	038=38W
y	2	2= 12V, 5.2V output

ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
(Note 1: Identify the following six (6) energy source forms based on the origin of the energy.) (Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite a combustible material. Any energy source can be declared Class 3 as a worse case classification e.g. PS3, ES3.	
Electrically-caused injury (Clause 5): (Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification) Example: +5 V dc input ES1	
Source of electrical energy	**Corresponding classification (ES)**
Input from models KPL-xy, KPL-xy-VI, KPL-xy-II, KPL-xy-KV	ES3
Input from models GTRxxxYzzzzz	ES3
Input from models 2ABFxxxYzzzzz	ES3
Input from models 2ACLxxxYzzzzz	ES3
Output from models KPL-xy, KPL-xy-VI, KPL-xy-II, KPL-xy-KV (y= 12V to 24V, 36V, 48V, 52V, 54V, 56V)	ES1
Output from models GTRxxxYzzzzz	ES1
Output from models 2ABFxxxYzzzzz (y= 12V, 48V)	ES1
Output from models 2ACLxxxYzzzzz (y= 5V, 19V, 24V, 48V, 54V, 56V)	ES1
Electrically-caused fire (Clause 6): (Note: List sub-assembly or circuit designation and corresponding energy source classification) Example: Battery pack (maximum 85 watts): PS2	
Source of power or PIS	**Corresponding classification (PS)**
Output from models KPL-xy, KPL-xy-VI, KPL-xy-II, KPL-xy-KV; y= 12V@3.33A/4.00A/4.17A/5.00A/5.42A/5.50A 13V@3.08A/3.85A/4.62A 14V@2.86A/3.57A/4.29A 15V@2.67A/3.33A/4.00A 16V@2.50A/3.13A/3.75A 17V@2.35A/2.94A/3.53A 18V@2.22A/2.78A/3.61A 19V@2.11A/2.63A/3.16A/3.42A 20V@2.00A/2.50A/3.25A 21V@1.90A/2.38A/3.10A 22V@1.82A/2.27A/2.95A 23V@1.74A/2.17A/2.83A 24V@1.67A/2.08A/2.50A/2.71A 36V@1.11A/1.39A/1.67A/1.81A 48V@0.63A/1.04A/1.25A/1.35A 52V@0.58A/0.96A/1.15A/1.25A 54V@0.56A/0.93A/1.11A/1.20A 56V@0.54A/0.89A/1.07A/1.16A	PS2
Output from models GTRxxxYzzzzz (5.2V@3.8A & 12V@1.5A)	PS2

ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
Output from models 2ABFxxxYzzzzz; y= 12V@3A/4A/5A/5.4A 48V@1.25A	PS2
Output from models 2ACLxxxYzzzzz; y= 5V@5A/6A 19V@3.16A 24V@2.5A 48V@1.25A/1.35A 54V@1.10A/1.20A/1.25A 56V@0.90A/1.07A/1.16A	PS2
Input from models KPL-xy, KPL-xy-VI, KPL-xy-II, KPL-xy-KV	PS3
Input from models GTRxxxYzzzzz	PS3
Input from models 2ABFxxxYzzzzz	PS3
Input from models 2ACLxxxYzzzzz	PS3
Injury caused by hazardous substances (Clause 7) (Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.) Example: Liquid in filled component Glycol	
Source of hazardous substances	Corresponding chemical
No hazardous substances present in the product.	--
Mechanically-caused injury (Clause 8) (Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.) Example: Wall mount unit MS2	
Source of kinetic/mechanical energy	Corresponding classification (MS)
Equipment Mass	MS1
Sharp Edges	MS1
Thermal burn injury (Clause 9) (Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.) Example: Hand-held scanner – thermoplastic enclosure TS1	
Source of thermal energy	Corresponding classification (TS)
External accessible surfaces that need not be touched to operate equipment	TS1
Radiation (Clause 10) (Note: List the types of radiation present in the product and the corresponding energy source classification.) Example: DVD – Class 1 Laser Product RS1	
Type of radiation	Corresponding classification (RS)
No ionizing radiation produced in the product.	--

ENERGY SOURCE DIAGRAM
Indicate which energy sources are included in the energy source diagram. Insert diagram below
☒ ES ☒ PS ☐ HS ☒ MS ☒ TS ☐ RS **(refer to ENERGY SOURCE INDENTIFICATION AND CLASSIFICATION TABLE for DETAIL)**

OVERVIEW OF EMPLOYED SAFEGUARDS				
Clause	**Possible Hazard**			
5.1	Electrically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (ES3: Primary Filter circuit)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary	ES3: The circuit connected to AC mains	N/A	N/A	Enclosure See 5.4.2, 5.4.3, 5.5.3 and 5.5.4
Ordinary	ES3: capacitor discharge (CX3)	N/A	N/A	See 5.5.2.2
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source (PS2: 100 Watt circuit)	Safeguards		
		Basic	Supplementary	Reinforced
Enclosure	PS3, PS2 circuit	See 6.3	V-0	N/A
PCB	PS3, PS2 circuit	See 6.3	V-1 or better	N/A
Plastic materials not part of PS3 circuit	PS3 circuit	See 6.3	V-2 or better	N/A
The other components/materials	PS3/PS2 circuit	See 6.3	See 6.4.5, 6.4.6	N/A
Internal/external wiring	PS3, PS2 circuit	N/A	N/A	See 6.5
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementary	Reinforced
N/A				
8.1	Mechanically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (MS3:High Pressure Lamp)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
N/A				
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	TS3: Internal parts/circuits	N/A	N/A	Enclosure
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
N/A				
Supplementary Information: (1) See attached energy source diagram for additional details.				

(2) “N” – Normal Condition; “A” – Abnormal Condition; “S” Single Fault

4	**GENERAL REQUIREMENTS**		P
4.1.1	Acceptance of materials, components and subassemblies	See appended table 4.1.2	P
4.1.2	Use of components	Certified components are used in accordance with their ratings, certifications and they comply with applicable parts of the standard. Components which are not Certified are used in accordance with their ratings and they comply with applicable parts of IEC 62368-1 and applicable component standard. Components, for which no relevant IEC- standard exists, have been tested under the conditions occurring in the equipment, using applicable parts of IEC 62368-1.	P
4.1.3	Equipment design and construction	Equipment is designed with appropriate safeguards. Hazardous parts are not accessible. Adjustment of controls does not defeat equipment safeguards.	P
4.1.15	Markings and instructions.....:	(See Annex F)	P
4.4.4	Safeguard robustness	See below.	P
4.4.4.2	Steady force tests.....:	(See Annex T.4, T.5)	P
4.4.4.3	Drop tests .....:	(See Annex T.7)	P
4.4.4.4	Impact tests .....:	(See Annex T.6)	P
4.4.4.5	Internal accessible safeguard enclosure and barrier tests.....:	None	N/A
4.4.4.6	Glass Impact tests .....:	Not applied	N/A
4.4.4.7	Thermoplastic material tests.....:	(See Annex T.8)	P
4.4.4.8	Air comprising a safeguard.....:	Considered	N/A
4.4.4.9	Accessibility and safeguard effectiveness	Class 3 energy sources not accessible. All safeguards remain effective	P
4.5	Explosion	Explosion did not occur during normal and operating conditions.	P
4.6	Fixing of conductors		P
4.6.1	Fix conductors not to defeat a safeguard		P
4.6.2	10 N force test applied to .....:	10N applied to relevant conductors.	P
4.7	Equipment for direct insertion into mains socket - outlets	Desktop type	N/A
4.7.2	Mains plug part complies with the relevant		N/A

	standard.....:		
4.7.3	Torque (Nm) .....:		N/A
4.8	Products containing coin/button cell batteries	No batteries	N/A
4.8.2	Instructional safeguard		N/A
4.8.3	Battery Compartment Construction		N/A
	Means to reduce the possibility of children removing the battery.....:		—
4.8.4	Battery Compartment Mechanical Tests .....:		N/A
4.8.5	Battery Accessibility		N/A
4.9	Likelihood of fire or shock due to entry of conductive object.....:	No enclosure openings	N/A

5	**ELECTRICALLY-CAUSED INJURY**		P
5.2.1	Electrical energy source classifications.....:	(See appended table 5.2)	P
5.2.2	ES1, ES2 and ES3 limits	Complies	P
5.2.2.2	Steady-state voltage and current.....:	See appended table 5.2)	P
5.2.2.3	Capacitance limits.....:	(See appended table 5.2)	P
5.2.2.4	Single pulse limits .....:	None	N/A
5.2.2.5	Limits for repetitive pulses .....:	None	N/A
5.2.2.6	Ringing signals .....:	Equipment does not generate ringing signals.	N/A
5.2.2.7	Audio signals .....:	No audio signals (See Clause E.1)	N/A
5.3	Protection against electrical energy sources	Complies	P
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons	Safeguards are provided for ordinary, instructed and skilled persons.	P
5.3.2.1	Accessibility to electrical energy sources and safeguards	ES3 are not accessible under normal operating conditions.	P
5.3.2.2	Contact requirements	See below.	P
	a) Test with test probe from Annex V.....:	No contact possible.	P
	b) Electric strength test potential (V) .....:	ES3 voltage is less than 420V peak	N/A
	c) Air gap (mm) .....:	ES3 voltage is less than 420V peak	N/A
5.3.2.4	Terminals for connecting stripped wire	No such terminals.	N/A
5.4	Insulation materials and requirements		P
5.4.1.2	Properties of insulating material	No hygroscopic materials used for insulating materials.	P
5.4.1.3	Humidity conditioning .....:	(See sub-clause 5.4.8)	P
5.4.1.4	Maximum operating temperature for insulating materials .....:	(See appended table 5.4.1.4)	P
5.4.1.5	Pollution degree .....:	2	—
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound	Pollution degree 2 applied.	N/A

5.4.1.5.3	Thermal cycling	See above.	N/A
5.4.1.6	Insulation in transformers with varying dimensions	Considered.	N/A
5.4.1.7	Insulation in circuits generating starting pulses	No such circuits.	N/A
5.4.1.8	Determination of working voltage	(see appended table 5.4.1.8)	P
5.4.1.9	Insulating surfaces	Considered.	P
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted		N/A
5.4.1.10.2	Vicat softening temperature ..... :		N/A
5.4.1.10.3	Ball pressure ..... :		N/A
5.4.2	Clearances		P
5.4.2.2	Determining clearance using peak working voltage	(see appended table 5.4.2.2)	P
5.4.2.3	Determining clearance using required withstand voltage ..... :		N/A
	a) a.c. mains transient voltage ..... :		—
	b) d.c. mains transient voltage ..... :		—
	c) external circuit transient voltage ..... :		—
	d) transient voltage determined by measurement ..... :		—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test		N/A
5.4.2.5	Multiplication factors for clearances and test voltages ..... :	Multiplication factors 1.48 used	P
5.4.3	Creepage distances ..... :		P
5.4.3.1	General		P
5.4.3.3	Material Group ..... :	Material group IIIb is assumed to be used	—
5.4.4	Solid insulation		P
5.4.4.2	Minimum distance through insulation ..... :	(see appended table 5.4.4.2)	P
5.4.4.3	Insulation compound forming solid insulation	None used	N/A
5.4.4.4	Solid insulation in semiconductor devices	Photo-couplers are approved components with routine testing.	P
5.4.4.5	Cemented joints	No such construction	N/A
5.4.4.6	Thin sheet material		P
5.4.4.6.1	General requirements		P
5.4.4.6.2	Separable thin sheet material		P
	Number of layers (pcs) ..... :		P
5.4.4.6.3	Non-separable thin sheet material	No such construction.	N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material ..... :		N/A
5.4.4.6.5	Mandrel test	No such construction	N/A
5.4.4.7	Solid insulation in wound components		P

5.4.4.9	Solid insulation at frequencies >30 kHz .....:	Considered	N/A
5.4.5	Antenna terminal insulation	No such components	N/A
5.4.5.1	General		N/A
5.4.5.2	Voltage surge test		N/A
	Insulation resistance (MΩ).....:		—
5.4.6	Insulation of internal wire as part of supplementary safeguard .....:	No such internal wires	N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning		P
	Relative humidity (%).....:	95	—
	Temperature (°C) .....:	40	—
	Duration (h) .....:	120	—
5.4.9	Electric strength test .....:		P
5.4.9.1	Test procedure for a solid insulation type test	Tested following temperature tests.	P
5.4.9.2	Test procedure for routine tests	Performed by manufacturer at room temperature for min. duration of 1s.	P
5.4.10	Protection against transient voltages between external circuit	No external circuits	N/A
5.4.10.1	Parts and circuits separated from external circuits		N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test .....:		N/A
5.4.10.2.3	Steady-state test.....:		N/A
5.4.11	Insulation between external circuits and earthed circuitry .....:	No external circuits	N/A
5.4.11.1	Exceptions to separation between external circuits and earth		N/A
5.4.11.2	Requirements		N/A
	Rated operating voltage U_{op} (V).....:		—
	Nominal voltage U_{peak} (V).....:		—
	Max increase due to variation U_{sp} .....:		—
	Max increase due to ageing ΔU_{sa} .....:		—
	$U_{op}= U_{peak} + \Delta U_{sp} + \Delta U_{sa}$ .....:		—
5.5	Components as safeguards		
5.5.1	General		P
5.5.2	Capacitors and RC units		P
5.5.2.1	General requirement		P
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector.....:	(See appended table 5.5.2.2)	P

5.5.3	Transformers	Transformer complied with the relevant requirements	P
5.5.4	Optocouplers		P
5.5.5	Relays		N/A
5.5.6	Resistors		P
5.5.7	SPD's		N/A
5.5.7.1	Use of an SPD connected to reliable earthing		N/A
5.5.7.2	Use of an SPD between mains and protective earth		N/A
5.5.8	Insulation between the mains and external circuit consisting of a coaxial cable.....:	No such connections.	N/A
5.6	Protective conductor		P
5.6.2	Requirement for protective conductors		P
5.6.2.1	General requirements		P
5.6.2.2	Colour of insulation	Green and yellow	P
5.6.3	Requirement for protective earthing conductors	The earth pin of the approved appliance inlet.	P
	Protective earthing conductor size (mm^2) .....:	See above	—
5.6.4	Requirement for protective bonding conductors		P
5.6.4.1	Protective bonding conductors		P
	Protective bonding conductor size (mm^2). .....:	Min. 18AWG	—
	Protective current rating (A) ..... :	Protective current rating 20A	—
5.6.4.3	Current limiting and overcurrent protective devices	No current limiting and overcurrent protective devices in parallel with any other components.	P
5.6.5	Terminals for protective conductors	AC inlet pin provided as protective earthing terminal	P
5.6.5.1	Requirement	See above	P
	Conductor size (mm^2), nominal thread diameter (mm). .....:	AC inlet used.	N/A
5.6.5.2	Corrosion	No combination above the line in Annex N is used.	P
5.6.6	Resistance of the protective system	See below	P
5.6.6.1	Requirements	Compliance checked.	P
5.6.6.2	Test Method Resistance (Ω).....:	(See appended table 5.6.6.2)	P
5.6.7	Reliable earthing	The equipment is not permanently connected equipment.	N/A
5.7	Prospective touch voltage, touch current and protective conductor current		P
5.7.2	Measuring devices and networks	Figure 4 of IEC 60990 was used in determining of the limit of ES1.	P
5.7.2.1	Measurement of touch current .....:	(See appended table 5.2)	P
5.7.2.2	Measurement of prospective touch voltage		P

5.7.3	Equipment set-up, supply connections and earth connections	Clause 4, 5.3 and 5.4 of IEC 60990:1999 applied.	P
	System of interconnected equipment (separate connections/single connection) .....:	Single equipment.	—
	Multiple connections to mains (one connection at a time/simultaneous connections) .....:	Single connection	—
5.7.4	Earthed conductive accessible parts.....:		P
5.7.5	Protective conductor current	(See appended table 5.7.2.2)	P
	Supply Voltage (V).....:		—
	Measured current (mA).....:		—
	Instructional Safeguard.....:		N/A
5.7.6	Prospective touch voltage and touch current due to external circuits		N/A
5.7.6.1	Touch current from coaxial cables	No such connections	N/A
5.7.6.2	Prospective touch voltage and touch current from external circuits		N/A
5.7.7	Summation of touch currents from external circuits	Not multiple connections to external circuits	N/A
	a) Equipment with earthed external circuits Measured current (mA).....:		N/A
	b) Equipment whose external circuits are not referenced to earth. Measured current (mA).....:		N/A

6	**ELECTRICALLY- CAUSED FIRE**		P
6.2	Classification of power sources (PS) and potential ignition sources (PIS)		P
6.2.2	Power source circuit classifications		P
6.2.2.1	General		P
6.2.2.2	Power measurement for worst-case load fault ... :	Considered.	P
6.2.2.3	Power measurement for worst-case power source fault .....:	Considered.	P
6.2.2.4	PS1 .....:	(See appended table 6.2.2)	P
6.2.2.5	PS2 .....:		N/A
6.2.2.6	PS3 .....:	(See appended table 6.2.2)	P
6.2.3	Classification of potential ignition sources		P
6.2.3.1	Arcing PIS .....:	No open conductors that exceed 15 W	N/A
6.2.3.2	Resistive PIS .....:	(See appended table 6.2.3.2)	P
6.3	Safeguards against fire under normal operating and abnormal operating conditions		P
6.3.1 (a)	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials .....:	(See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6)	P
6.3.1 (b)	Combustible materials outside fire enclosure	See appended table 4.1.2	P
6.4	Safeguards against fire under single fault conditions		P

6.4.1	Safeguard Method	Both methods (reduce the likelihood of ignition and control fire spread) employed.	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits	No safeguards required.	N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits	See below.	P
6.4.3.1	General	See below.	P
6.4.3.2	Supplementary Safeguards	Protective devices employed (see appended table 4.1.2)	P
	Special conditions if conductors on printed boards are opened or peeled	Not applied	N/A
6.4.3.3	Single Fault Conditions ..... :	(See appended table B.4)	P
	Special conditions for temperature limited by fuse	Considered.	P
6.4.4	Control of fire spread in PS1 circuits	No safeguards required. Fire enclosure provided.	P
6.4.5	Control of fire spread in PS2 circuits	No PS2 circuits	N/A
6.4.5.2	Supplementary safeguards .....:	(See appended tables 4.1.2 and Annex G)	P
6.4.6	Control of fire spread in PS3 circuit	Complies. Fire enclosure provided	P
6.4.7	Separation of combustible materials from a PIS	Separation by fire enclosure	P
6.4.7.1	General .....:		P
6.4.7.2	Separation by distance		N/A
6.4.7.3	Separation by a fire barrier		N/A
6.4.8	Fire enclosures and fire barriers	Fire enclosure provided	P
6.4.8.1	Fire enclosure and fire barrier material properties		P
6.4.8.2.1	Requirements for a fire barrier		N/A
6.4.8.2.2	Requirements for a fire enclosure	V-0	P
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier	Considered	P
6.4.8.3.1	Fire enclosure and fire barrier openings		P
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm) .....:	No openings	P
	Needle Flame test		N/A
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm) .....:	No openings	N/A
	Flammability tests for the bottom of a fire enclosure .....:		N/A
6.4.8.3.5	Integrity of the fire enclosure, condition met: a), b) or c) .....:	No doors or covers	N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating ..... :	Fire enclosure not made of combustible material	N/A
6.5	Internal and external wiring		P

6.5.1	Requirements	Input wire and output cord provided	P
6.5.2	Cross-sectional area (mm^2) .....:	Complied with IEC/TS 60695-11-21	—
6.5.3	Requirements for interconnection to building wiring .....:	(See Annex Q.)	N/A
6.6	Safeguards against fire due to connection to additional equipment		P
	External port limited to PS2 or complies with Clause Q.1	Output complies with Clause Q.1	P

7	**INJURY CAUSED BY HAZARDOUS SUBSTANCES**		N/A
7.2	Reduction of exposure to hazardous substances	No hazardous substances present in the product.	N/A
7.3	Ozone exposure	Does not produce ozone	N/A
7.4	Use of personal safeguards (PPE)	Not used	N/A
	Personal safeguards and instructions ..... :		—
7.5	Use of instructional safeguards and instructions	None	N/A
	Instructional safeguard (ISO 7010)..... :		—
7.6	Batteries.....:		N/A

8	**MECHANICALLY-CAUSED INJURY**		P
8.1	General	Safeguards provided	P
8.2	Mechanical energy source classifications	MS1	P
8.3	Safeguards against mechanical energy sources	Complies with 4.3	P
8.4	Safeguards against parts with sharp edges and corners	No sharp edges accessible	P
8.4.1	Safeguards	See above.	N/A
8.5	Safeguards against moving parts	No moving parts	N/A
8.5.1	MS2 or MS3 part required to be accessible for the function of the equipment	MS1	N/A
8.5.2	Instructional Safeguard ..... :		—
8.5.4	Special categories of equipment comprising moving parts	Not this type of equipment	N/A
8.5.4.1	Large data storage equipment	Not this type of equipment	N/A
8.5.4.2	Equipment having electromechanical device for destruction of media	Not this type of equipment	N/A
8.5.4.2.1	Safeguards and Safety Interlocks ..... :		N/A
8.5.4.2.2	Instructional safeguards against moving parts		N/A
	Instructional Safeguard ..... :		—
8.5.4.2.3	Disconnection from the supply		N/A
8.5.4.2.4	Probe type and force (N) ..... :		N/A

8.5.5	High Pressure Lamps	No such components	N/A
8.5.5.1	Energy Source Classification		N/A
8.5.5.2	High Pressure Lamp Explosion Test..... :		N/A
8.6	Stability	No required. MS1	N/A
8.6.1	Product classification		N/A
	Instructional Safeguard ..... :		—
8.6.2	Static stability		N/A
8.6.2.2	Static stability test		N/A
	Applied Force .....:		—
8.6.2.3	Downward Force Test		N/A
8.6.3	Relocation stability test		N/A
	Unit configuration during 10° tilt.....:		—
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test (Applied Force).....:		N/A
	Position of feet or movable parts .....:		—
8.7	Equipment mounted to wall or ceiling	Not for wall or ceiling mounting	N/A
8.7.1	Mounting Means (Length of screws (mm) and mounting surface) .....:		N/A
8.7.2	Direction and applied force .....:		N/A
8.8	Handles strength	None declared for lifting or carrying	N/A
8.8.1	Classification		N/A
8.8.2	Applied Force .....:		N/A
8.9	Wheels or casters attachment requirements	No wheels or casters	N/A
8.9.1	Classification		N/A
8.9.2	Applied force .....:		—
8.10	Carts, stands and similar carriers	No carts or stands	N/A
8.10.1	General		N/A
8.10.2	Marking and instructions		N/A
	Instructional Safeguard .....:		—
8.10.3	Cart, stand or carrier loading test and compliance		N/A
	Applied force .....:		—
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Applied horizontal force (N) .....:		—
8.10.6	Thermoplastic temperature stability (°C).....:		N/A
8.11	Mounting means for rack mounted equipment	Not rack mounted	N/A
8.11.1	General		N/A
8.11.2	Product Classification		N/A
8.11.3	Mechanical strength test, variable *N* ..... :		N/A

8.11.4	Mechanical strength test 250N, including end stops		N/A
8.12	Telescoping or rod antennas	None	N/A
	Button/Ball diameter (mm) ..... :		—

9	**THERMAL BURN INJURY**		P
9.2	Thermal energy source classifications	Accessible external parts and surfaces do not exceed TS1 limits in normal or abnormal operating conditions. See appended table 9.0	P
9.3	Safeguard against thermal energy sources		P
9.4	Requirements for safeguards		P
9.4.1	Equipment safeguard	Enclosure of equipment provides safeguard against unintentional contact of internal parts	P
9.4.2	Instructional safeguard .....:		N/A

10	**RADIATION**		N/A
10.2	Radiation energy source classification	No ionizing radiation produced in the product.	N/A
10.2.1	General classification		N/A
10.3	Protection against laser radiation		N/A
	Laser radiation that exists equipment:		—
	Normal, abnormal, single-fault.....:		N/A
	Instructional safeguard .....:		—
	Tool.....:		—
10.4	Protection against visible, infrared, and UV radiation		N/A
10.4.1	General		N/A
10.4.1.a)	RS3 for Ordinary and instructed persons .....:		N/A
10.4.1.b)	RS3 accessible to a skilled person.....:		N/A
	Personal safeguard (PPE) instructional safeguard.....:		—
10.4.1.c)	Equipment visible, IR, UV does not exceed RS1 .:		N/A
10.4.1.d)	Normal, abnormal, single-fault conditions .....:		N/A
10.4.1.e)	Enclosure material employed as safeguard is opaque.....:		N/A
10.4.1.f)	UV attenuation .....:		N/A
10.4.1.g)	Materials resistant to degradation UV .....:		N/A
10.4.1.h)	Enclosure containment of optical radiation.....:		N/A
10.4.1.i)	Exempt Group under normal operating conditions.....:		N/A
10.4.2	Instructional safeguard .....:		N/A

10.5	Protection against x-radiation		N/A
10.5.1	X- radiation energy source that exists equipment :		N/A
	Normal, abnormal, single fault conditions		N/A
	Equipment safeguards.....:		N/A
	Instructional safeguard for skilled person..... :		N/A
10.5.3	Most unfavourable supply voltage to give maximum radiation .....:		—
	Abnormal and single-fault condition .....:		N/A
	Maximum radiation (pA/kg).....:		N/A
10.6	Protection against acoustic energy sources		N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output, dB(A).....:		N/A
	Output voltage, unweighted r.m.s.....:		N/A
10.6.4	Protection of persons		N/A
	Instructional safeguards .....:		N/A
	Equipment safeguard prevent ordinary person to RS2.....:		—
	Means to actively inform user of increase sound pressure.....:		—
	Equipment safeguard prevent ordinary person to RS2.....:		—
10.6.5	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.5.1	Corded passive listening devices with analog input		N/A
	Input voltage with 94 dB(A) L_{Aeq} acoustic pressure output.....:		—
10.6.5.2	Corded listening devices with digital input		N/A
	Maximum dB(A).....:		—
10.6.5.3	Cordless listening device		N/A
	Maximum dB(A).....:		—

B	**NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS**		P
B.2	Normal Operating Conditions	Considered	P
B.2.1	General requirements..... :	(See Test Item Particulars and appended test tables)	P
	Audio Amplifiers and equipment with audio amplifiers ..... :	No such amplifiers	N/A
B.2.3	Supply voltage and tolerances	AC version: ±10%	P
B.2.5	Input test..... :	(See appended table B.2.5)	P
B.3	Simulated abnormal operating conditions		P

B.3.1	General requirements..... :	(See appended table B.3)	P
B.3.2	Covering of ventilation openings	Considered.	P
B.3.3	D.C. mains polarity test	No such connection	N/A
B.3.4	Setting of voltage selector ..... :	Auto-ranging	N/A
B.3.5	Maximum load at output terminals ..... :	No output terminals.	N/A
B.3.6	Reverse battery polarity	No batteries	N/A
B.3.7	Abnormal operating conditions as specified in Clause E.2.	No audio amplifiers	N/A
B.3.8	Safeguards functional during and after abnormal operating conditions	Confirmed	P
B.4	Simulated single fault conditions		P
B.4.2	Temperature controlling device open or short-circuited ..... :	No such devices	N/A
B.4.3	Motor tests		N/A
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature ..... :		N/A
B.4.4	Short circuit of functional insulation	Considered	P
B.4.4.1	Short circuit of clearances for functional insulation	Clearances for functional insulation comply with basic insulation requirements as specified in 5.4.2.	P
B.4.4.2	Short circuit of creepage distances for functional insulation	Clearances for functional insulation comply with basic insulation requirements as specified in 5.4.3.	P
B.4.4.3	Short circuit of functional insulation on coated printed boards	No coated printed boards providing functional insulation.	N/A
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors	See appended table B.4.	P
B.4.6	Short circuit or disconnect of passive components	See appended table B.4.	P
B.4.7	Continuous operation of components	No components intended for short-time or intermittent operation. Equipment and components rated for continuous operation.	N/A
B.4.8	Class 1 and Class 2 energy sources within limits during and after single fault conditions	Considered.	P
B.4.9	Battery charging under single fault conditions.... :		N/A
C	**UV RADIATION**		N/A
C.1	Protection of materials in equipment from UV radiation	No UV radiation	N/A
C.1.2	Requirements		N/A
C.1.3	Test method		N/A
C.2	UV light conditioning test		N/A
C.2.1	Test apparatus		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure apparatus		N/A

C.2.4	Xenon-arc light exposure apparatus		N/A
D	**TEST GENERATORS**		N/A
D.1	Impulse test generators	Not used	N/A
D.2	Antenna interface test generator		N/A
D.3	Electronic pulse generator		N/A
E	**TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS**		N/A
E.1	Audio amplifier normal operating conditions	No audio amplifiers	N/A
	Audio signal voltage (V).....:		—
	Rated load impedance (Ω) .....:		
E.2	Audio amplifier abnormal operating conditions		N/A
F	**EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS**		P
F.1	General requirements	Considered	P
	Instructions – Language ..... :	Considered	—
F.2	Letter symbols and graphical symbols	Considered	P
F.2.1	Letter symbols according to IEC60027-1	Considered	P
F.2.2	Graphic symbols IEC, ISO or manufacturer specific	Considered	P
F.3	Equipment markings		P
F.3.1	Equipment marking locations	Exterior	P
F.3.2	Equipment identification markings	See copy of marking plate	P
F.3.2.1	Manufacturer identification .....:	See copy of marking plate	—
F.3.2.2	Model identification .....:	See copy of marking plate	—
F.3.3	Equipment rating markings	See copy of marking plate	P
F.3.3.1	Equipment with direct connection to mains	Marked with rating	P
F.3.3.2	Equipment without direct connection to mains		N/A
F.3.3.3	Nature of supply voltage..... :	Marked AC	—
F.3.3.4	Rated voltage ..... :	See copy of marking plate	—
F.3.3.4	Rated frequency ..... :	See copy of marking plate	—
F.3.3.6	Rated current or rated power..... :	See copy of marking plate	—
F.3.3.7	Equipment with multiple supply connections	Single supply connection	N/A
F.3.4	Voltage setting device	None	N/A
F.3.5	Terminals and operating devices		N/A
F.3.5.1	Mains appliance outlet and socket-outlet markings ..... :	No outlets	N/A
F.3.5.2	Switch position identification marking..... :	No such switch	N/A
F.3.5.3	Replacement fuse identification and rating markings ..... :	No replaceable fuses	N/A
F.3.5.4	Replacement battery identification marking ..... :	No batteries	N/A
F.3.5.5	Terminal marking location	No terminals	N/A

F.3.6	Equipment markings related to equipment classification		P
F.3.6.1	Class I Equipment	Class I	P
F.3.6.1.1	Protective earthing conductor terminal		P
F.3.6.1.2	Neutral conductor terminal		N/A
F.3.6.1.3	Protective bonding conductor terminals		N/A
F.3.6.2	Class II equipment (IEC60417-5172)		N/A
F.3.6.2.1	Class II equipment with or without functional earth		N/A
F.3.6.2.2	Class II equipment with functional earth terminal marking		N/A
F.3.7	Equipment IP rating marking .....:	No IP rating	—
F.3.8	External power supply output marking	Complies	P
F.3.9	Durability, legibility and permanence of marking	The marking plate has no curling and is not able to be removed easily.	P
F.3.10	Test for permanence of markings	Complies	P
F.4	Instructions		P
	a) Equipment for use in locations where children not likely to be present - marking	Not applied	N/A
	b) Instructions given for installation or initial use	Sufficient information is provided to the user.	P
	c) Equipment intended to be fastened in place	Not this type of equipment.	N/A
	d) Equipment intended for use only in restricted access area	Not this type of equipment.	N/A
	e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1	No such terminals.	N/A
	f) Protective earthing employed as safeguard		N/A
	g) Protective earthing conductor current exceeding ES2 limits		N/A
	h) Symbols used on equipment	Sufficient information is provided to the user.	P
	i) Permanently connected equipment not provided with all-pole mains switch	Not permanently connected	N/A
j)	j) Replaceable components or modules providing safeguard function	No such components or modules	N/A
F.5	Instructional safeguards	Considered	P
	Where “instructional safeguard” is referenced in the test report it specifies the required elements, location of marking and/or instruction	Considered	P
G	**COMPONENTS**		P
G.1	**Switches**		N/A
G.1.1	General requirements	No switches	N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A

G.2	**Relays**		N/A
G.2.1	General requirements	No relays	N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supply power		N/A
G.2.4	Mains relay, modified as stated in G.2		N/A
G.3	**Protection Devices**		N/A
G.3.1	Thermal cut-offs	No thermal cut-offs	N/A
G.3.1.1a) &b)	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A
G.3.1.1c)	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Thermal cut-off connections maintained and secure		N/A
G.3.2	Thermal links		N/A
G.3.2.1a)	Thermal links separately tested with IEC 60691	No thermal links	N/A
G.3.2.1b)	Thermal links tested as part of the equipment		N/A
	Aging hours (H) ..... :		—
	Single Fault Condition ..... :		—
	Test Voltage (V) and Insulation Resistance (Ω) . :		—
G.3.3	PTC Thermistors		N/A
G.3.4	Overcurrent protection devices	Considered	N/A
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.5		N/A
G.3.5.1	Non-resettable devices suitably rated and marking provided	No such devices	N/A
G.3.5.2	Single faults conditions..... :		N/A
G.4	**Connectors**		P
G.4.1	Spacings	Output connector located in ES1	P
G.4.2	Mains connector configuration .....:	No mains connector	N/A
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		P
G.5	**Wound Components**		P
G.5.1	Wire insulation in wound components.....	Triple insulation wire used in transformer.	P
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°	Prevented by tape or tube.	P
G.5.1.2 b)	Construction subject to routine testing		N/A
G.5.2	Endurance test on wound components		N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Time (s).....:		—
	Temperature (°C).....:		—

G.5.2.3	Wound Components supplied by mains		N/A
G.5.3	**Transformers**		P
G.5.3.1	Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1).....:	(Refer to appended table 4.1.2)	P
	Position.....:		—
	Method of protection .....:	Overcurrent protection by circuit design	—
G.5.3.2	Insulation	(Refer to appended table 5.4.9)	P
	Protection from displacement of windings.....:	(Refer to appended table G.5.3.2)	—
G.5.3.3	Overload test ..... :	(Refer to appended tables B.3 & B.4)	P
G.5.3.3.1	Test conditions		P
G.5.3.3.2	Winding Temperatures testing in the unit		P
G.5.3.3.3	Winding Temperatures - Alternative test method		N/A
G.5.4	**Motors**		N/A
G.5.4.1	General requirements	No motors used	N/A
	Position .....:		—
G.5.4.2	Test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4	Locked-rotor overload test		N/A
	Test duration (days) .....:		—
G.5.4.5	Running overload test for d.c. motors in secondary circuits		N/A
G.5.4.5.2	Tested in the unit		N/A
	Electric strength test (V) .....:		—
G.5.4.5.3	Tested on the Bench - Alternative test method; test time (h) .....:		N/A
	Electric strength test (V) .....:		—
G.5.4.6	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature .....:		N/A
	Electric strength test (V) .....:		N/A
G.5.4.6.3	Tested on the bench - Alternative test method; test time (h).....:		N/A
	Electric strength test (V) .....:		N/A
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A
G.5.4.9	Series motors		N/A
	Operating voltage .....:		—
G.6	**Wire Insulation**		P

G.6.1	General	Relevant wiring in ES3 circuits provides basic insulation and is not under mechanical stress.	P
G.6.2	Solvent-based enamel wiring insulation		N/A
G.7	**Mains supply cords**		N/A
G.7.1	General requirements		N/A
	Type ..... :	Approved appliance inlet used.	—
	Rated current (A) ..... :		—
	Cross-sectional area (mm^2), (AWG)..... :		—
G.7.2	Compliance and test method		N/A
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		N/A
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N).....:		—
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm)....:		—
G.7.3.2.4	Strain relief comprised of polymeric material		N/A
G.7.4	Cord Entry..... :		N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Mass (g) .....:		—
	Diameter (m).....:		—
	Temperature (°C).....:		—
G.7.6	Supply wiring space		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Test with 8 mm strand		N/A
G.8	**Varistors**		P
G.8.1	General requirements	(See appended table 4.1.2)	P
G.8.2	Safeguard against shock	Complies	P
G.8.3	Safeguard against fire		P
G.8.3.2	Varistor overload test.....:	Fire enclosure provided	N/A
G.8.3.3	Temporary overvoltage.....:	Fire enclosure provided	N/A
G.9	**Integrated Circuit (IC) Current Limiters**		N/A
G.9.1 a)	Manufacturer defines limit at max. 5A.	No IC current limiters	N/A
G.9.1 b)	Limiters do not have manual operator or reset		N/A
G.9.1 c)	Supply source does not exceed 250 VA .....:		—
G.9.1 d)	IC limiter output current (max. 5A) .....:		—
G.9.1 e)	Manufacturers' defined drift .....:		—
G.9.2	Test Program 1		N/A

G.9.3	Test Program 2		N/A
G.9.4	Test Program 3		N/A
G.10	**Resistors**		N/A
G.10.1	General requirements	Discharge resistors do not provide a safeguard and do not bridge basic, supplementary or reinforced insulation.	N/A
G.10.2	Resistor test		N/A
G.10.3	Test for resistors serving as safeguards between the mains and an external circuit consisting of a coaxial cable		N/A
G.10.3.1	General requirements		N/A
G.10.3.2	Voltage surge test		N/A
G.10.3.3	Impulse test		N/A
G.11	**Capacitor and RC units**		P
G.11.1	General requirements	Capacitors used in accordance with their rating and complied with subclasses of IEC 60384-14 with at least 21 days damp heat test.	P
G.11.2	Conditioning of capacitors and RC units		P
G.11.3	Rules for selecting capacitors	Considered	P
G.12	**Optocouplers**		P
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results) ..... :	(See appended table 4.1.2)	P
	Type test voltage Vini .....:	(See appended table 5.4.4.2)	—
	Routine test voltage, Vini,b .....:	(See appended table 5.4.4.2)	—
G.13	**Printed boards**		P
G.13.1	General requirements	See below.	P
G.13.2	Uncoated printed boards	(See appended table 5.4.2, 5.4.3)	P
G.13.3	Coated printed boards	No coated printed boards.	N/A
G.13.4	Insulation between conductors on the same inner surface	Single layer board	N/A
	Compliance with cemented joint requirements (Specify construction) .....:		—
G.13.5	Insulation between conductors on different surfaces	Single layer board	N/A
	Distance through insulation ..... :		N/A
	Number of insulation layers (pcs) .....:		—
G.13.6	Tests on coated printed boards	No coated printed boards.	N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2a)	Thermal conditioning		N/A
G.13.6.2b)	Electric strength test		N/A
G.13.6.2c)	Abrasion resistance test		N/A

G.14	**Coating on components terminals**		N/A
G.14.1	Requirements ..... :	Not used.	N/A
G.15	**Liquid filled components**		N/A
G.15.1	General requirements	No such components.	N/A
G.15.2	Requirements		N/A
G.15.3	Compliance and test methods		N/A
G.15.3.1	Hydrostatic pressure test		N/A
G.15.3.2	Creep resistance test		N/A
G.15.3.3	Tubing and fittings compatibility test		N/A
G.15.3.4	Vibration test		N/A
G.15.3.5	Thermal cycling test		N/A
G.15.3.6	Force test		N/A
G.15.4	Compliance		N/A
G.16	**IC including capacitor discharge function (ICX)**		N/A
a)	Humidity treatment in accordance with sc5.4.8 – 120 hours	No components critical to the discharge of a capacitor are accessible.	N/A
b)	Impulse test using circuit 2 with Uc = to transient voltage .....:		N/A
C1)	Application of ac voltage at 110% of rated voltage for 2.5 minutes		N/A
C2)	Test voltage .....:		—
D1)	10,000 cycles on and off using capacitor with smallest capacitance resistor with largest resistance specified by manufacturer		N/A
D2)	Capacitance .....:		—
D3)	Resistance .....:		—
H	**CRITERIA FOR TELEPHONE RINGING SIGNALS**		N/A
H.1	General	Equipment does not generate ringing signals.	N/A
H.2	Method A		N/A
H.3	Method B		N/A
H.3.1	Ringing signal		N/A
H.3.1.1	Frequency (Hz) ..... :		—
H.3.1.2	Voltage (V) ..... :		—
H.3.1.3	Cadence; time (s) and voltage (V) ..... :		—
H.3.1.4	Single fault current (mA):..... :		—
H.3.2	Tripping device and monitoring voltage..... :		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage complied with		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V) ..... :		—

J	**INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION**		P
	General requirements	Certified triple insulated wire used. See table 4.1.2	P
K	**SAFETY INTERLOCKS**		N/A
K.1	General requirements	No safety interlocks	N/A
K.2	Components of safety interlock safeguard mechanism		N/A
K.3	Inadvertent change of operating mode		N/A
K.4	Interlock safeguard override		N/A
K.5	Fail-safe		N/A
	Compliance ..... :		N/A
K.6	Mechanically operated safety interlocks		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Compliance and Test method ..... :		N/A
K.7	Interlock circuit isolation		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements (type and circuit location) ..... :		N/A
K.7.2	Overload test, Current (A) ..... :		N/A
K.7.3	Endurance test		N/A
K.7.4	Electric strength test ..... :		N/A
L	**DISCONNECT DEVICES**		P
L.1	General requirements	AC inlet used as disconnect device.	P
L.2	Permanently connected equipment		N/A
L.3	Parts that remain energized	When AC inlet is disconnected no hazardous voltage in the equipment.	P
L.4	Single phase equipment	The AC inlet disconnects both poles simultaneously.	P
L.5	Three-phase equipment	Not three-phase equipment.	N/A
L.6	Switches as disconnect devices		N/A
L.7	Plugs as disconnect devices	See above	P
L.8	Multiple power sources	Only one a.c. mains connection	N/A
M	**EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS**		N/A
M.1	General requirements	No batteries	N/A
M.2	Safety of batteries and their cells		N/A
M.2.1	Requirements		N/A
M.2.2	Compliance and test method (identify method) ..:		N/A
M.3	Protection circuits		N/A
M.3.1	Requirements		N/A
M.3.2	Tests		N/A

	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
M.3.3	Compliance .....:		N/A
M.4	Additional safeguards for equipment containing secondary lithium battery		N/A
M.4.1	General		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Charging operating limits		N/A
M.4.2.2a)	Charging voltage, current and temperature ..... :		—
M.4.2.2 b)	Single faults in charging circuitry..... :		—
M.4.3	Fire Enclosure		N/A
M.4.4	Endurance of equipment containing a secondary lithium battery		N/A
M.4.4.2	Preparation		N/A
M.4.4.3	Drop and charge/discharge function tests		N/A
	Drop		N/A
	Charge		N/A
	Discharge		N/A
M.4.4.4	Charge-discharge cycle test		N/A
M.4.4.5	Result of charge-discharge cycle test		N/A
M.5	Risk of burn due to short circuit during carrying		N/A
M.5.1	Requirement		N/A
M.5.2	Compliance and Test Method (Test of P.2.3)		N/A
M.6	Prevention of short circuits and protection from other effects of electric current		N/A
M.6.1	Short circuits		N/A
M.6.1.1	General requirements		N/A
M.6.1.2	Test method to simulate an internal fault		N/A
M.6.1.3	Compliance (Specify M.6.1.2 or alternative method) .....:		N/A
M.6.2	Leakage current (mA) .....:		N/A
M.7	Risk of explosion from lead acid and NiCd batteries		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
M.7.2	Compliance and test method		N/A
M.8	Protection against internal ignition from external spark sources of lead acid batteries		N/A
M.8.1	General requirements		N/A

M.8.2	Test method		N/A
M.8.2.1	General requirements		N/A
M.8.2.2	Estimation of hypothetical volume *Vz* (m^3/s).....:		—
M.8.2.3	Correction factors .....:		—
M.8.2.4	Calculation of distance *d* (mm) .....:		—
M.9	Preventing electrolyte spillage		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing) .....:		N/A
N	**ELECTROCHEMICAL POTENTIALS**		N/A
	Metal(s) used.....:		—
O	**MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES**		P
	Figures O.1 to O.20 of this Annex applied .....:	Considered (See appended table 5.4.2)	—
P	**SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS**		P
P.1	General requirements	No openings	P
P.2.2	Safeguards against entry of foreign object		P
	Location and Dimensions (mm) .....:		—
P.2.3	Safeguard against the consequences of entry of foreign object	No openings	P
P.2.3.1	Safeguards against the entry of a foreign object		P
	Openings in transportable equipment	Not transportable equipment.	N/A
	Transportable equipment with metalized plastic parts.....:		N/A
P.2.3.2	Openings in transportable equipment in relation to metallized parts of a barrier or enclosure (identification of supplementary safeguard) .....:		N/A
P.3	Safeguards against spillage of internal liquids	No internal liquids.	N/A
P.3.1	General requirements		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Safeguards effectiveness		N/A
P.4	Metallized coatings and adhesive securing parts	No such coatings or parts.	N/A
P.4.2 a)	Conditioning testing		N/A
	Tc (°C) .....:		—
	Tr (°C).....:		—
	Ta (°C).....:		—
P.4.2 b)	Abrasion testing .....:		N/A

P.4.2 c)	Mechanical strength testing .....:		N/A
Q	**CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING**		P
Q.1	Limited power sources	See appended table Annex Q.1	P
Q.1.1 a)	Inherently limited output		N/A
Q.1.1 b)	Impedance limited output		P
	- Regulating network limited output under normal operating and simulated single fault condition	A regulating network limits the output in compliance with table Q.1 both under normal operating conditions and after any single fault.	P
Q.1.1 c)	Overcurrent protective device limited output		N/A
Q.1.1 d)	IC current limiter complying with G.9		N/A
Q.1.2	Compliance and test method	See appended table Annex Q.1	P
Q.2	Test for external circuits – paired conductor cable		N/A
	Maximum output current (A) .....:		—
	Current limiting method .....:		—
R	**LIMITED SHORT CIRCUIT TEST**		N/A
R.1	General requirements	Protective bonding not used.	N/A
R.2	Determination of the overcurrent protective device and circuit		N/A
R.3	Test method Supply voltage (V) and short-circuit current (A)). .....:		N/A
S	**TESTS FOR RESISTANCE TO HEAT AND FIRE**		N/A
S.1	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W	(See appended table 4.1.2) V-0 class material used	N/A
	Samples, material.....:		—
	Wall thickness (mm).....:		—
	Conditioning (°C).....:		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	Flammability test for fire enclosure and fire barrier integrity		N/A
	Samples, material.....:		—
	Wall thickness (mm).....:		—
	Conditioning (°C).....:		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	Test specimen does not show any additional hole		N/A

S.3	Flammability test for the bottom of a fire enclosure		N/A
	Samples, material.....:		—
	Wall thickness (mm).....:		—
	Cheesecloth did not ignite		N/A
S.4	Flammability classification of materials		N/A
S.5	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material.....:		—
	Wall thickness (mm).....:		—
	Conditioning (test condition), (°C).....:		—
	Test flame according to IEC 60695-11-20 with conditions as set out		N/A
	After every test specimen was not consumed completely		N/A
	After fifth flame application, flame extinguished within 1 min		N/A
T	**MECHANICAL STRENGTH TESTS**		P
T.1	General requirements		P
T.2	Steady force test, 10 N ..... :	(See appended table T.2)	P
T.3	Steady force test, 30 N ..... :		N/A
T.4	Steady force test, 100 N ..... :		N/A
T.5	Steady force test, 250 N ..... :	(See appended table T.5)	P
T.6	Enclosure impact test		N/A
	Fall test		N/A
	Swing test		N/A

T.7	Drop test ..... :	(See appended table T.7)	P
T.8	Stress relief test..... :	(See appended table T.8)	P
T.9	Impact Test (glass)	Not applied. No relevant glass material.	N/A
T.9.1	General requirements		N/A
T.9.2	Impact test and compliance		N/A
	Impact energy (J).....:		—
	Height (m).....:		—
T.10	Glass fragmentation test.....:	Not applied. No relevant glass material.	N/A
T.11	Test for telescoping or rod antennas	No such parts.	N/A
	Torque value (Nm) ..... :		—
U	**MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFECTS OF IMPLOSION**		N/A
U.1	General requirements	No CRTs	N/A
U.2	Compliance and test method for non-intrinsically protected CRTs		N/A
U.3	Protective Screen..... :		N/A
V	**DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)**		P
V.1	Accessible parts of equipment	Test finger, pin or probe unable to make contact with hazardous voltages	P
V.2	Accessible part criterion	Considered.	P

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Clause	Requirement + Test	Result - Remark	Verdict

4.1.2	**TABLE: List of critical components**	P

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1]
Plastic Enclosure	SABIC Innovative Plastics Japan LLC	SE1X	V-1 or better, 105°C, thickness 1.5mm min.	UL94	UL
Alternative	Teijin Chemicals Plastic Compounds Shanghai Ltd	LN-1250G(#)(*)	V-0 or better, 115°C, thickness 1.5mm min.	UL94	UL
Alternative	SABIC Innovative Plastics Japan LLC	940	V-0 or better, 120°C, thickness 1.5 mm min.	UL94	UL
Alternative (for KPL PCB with F1,F2; 2ABF, 2ACL only)	Covestro Deutschland AG [PC Resins]	FR3010HF+	V-0 or better, 85°C, thickness 1.5 mm min.	UL94	UL
Alternative	Teijin Limited Resin And Plastic	LN-1250G(#)(*)	V-0 or better, 120°C, thickness 1.5 mm min.	UL94	UL
PCB	Walex Electronic (Wuxi) Co Ltd	T4	V-1 or better, min. 130°C	UL94, UL796	UL
Alternative	Kingboard Laminates Holdings Ltd.	KB-5150	V-1 or better, min. 130°C	UL94, UL796	UL
Alternative	Huizhou Times Dragon Technology Co., Ltd.	SDJL-1,SDJL-2	V-1 or better, min. 130°C	UL94, UL796	UL
Alternative	Huizhou Hosond PCB Co., Ltd.	HSD-DS,HSD-ML	V-1 or better, min. 130°C	UL94, UL796	UL
Alternative	NIPPON (BOLUO) Electronics	D2	V-1 or better, min. 130°C	UL94, UL796	UL
Alternative	Dong Guan New Energy Printed Circuit Board	NE1000, NE2000, NE4000, NE5000, NE5000A	V-1 or better, min. 130°C	UL94, UL796	UL
Alternative	Jia He Electronic	B1,D1	V-1 or better, min. 130°C	UL94, UL796	UL
Alternative	Guangdong Chaohua Technology	C-104	V-1 or better, min. 130°C	UL94, UL796	UL
Alternative	Suichuan The Speed of Light Electronics	GS-001,GS-002	V-1 or better, min. 130°C	UL94, UL796	UL

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Clause	Requirement + Test	Result - Remark	Verdict

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1]
Alternative	Meizhou Taihua Printed Circuit Board	TH-1,TH-2	V-1 or better, min. 130°C	UL94, UL796	UL
Alternative	Huizhou APL Electronic	APL-1,APL-2	V-1 or better, min. 130°C	UL94, UL796	UL
Alternative	Dongguan City Top Star Circuit	TS-01,TS-02	V-1 or better, min. 130°C	UL94, UL796	UL
Alternative	Cheung Hung Technology International	CH-D,CH-M	V-1 or better, min. 130°C	UL94, UL796	UL
Appliance Inlet (CON1)	Tecx-Unions Technology	TU-301-SP, TU-301-S	10 A, 250 Vac, 70°C	IEC/EN 60320-1+A1, ANSI/UL 498	VDE, UL
Alternative	Tecx-Unions Technology	TU-333	2.5 A, 250 Vac, 70°C	IEC/EN 60320-1+A1, ANSI/UL 498	VDE, UL
Alternative	Rong Feng Industrial	RF-190	2.5 A, 250 Vac, 70°C	IEC/EN 60320-1+A1, ANSI/UL 498	VDE, UL
Alternative	Rong Feng Industrial	SS-120,SS-7B SS-7B-1, SS-120-PCB	10 A, 250 Vac, 70°C	IEC/EN 60320-1+A1, ANSI/UL 498	VDE, UL
Alternative	Rich Bay	R-30790	2.5 A, 250 Vac, 70°C	IEC/EN 60320-1+A1, ANSI/UL 498	VDE, UL
Alternative	Rich Bay	R-301SN	10 A, 250 Vac, 70°C	IEC/EN 60320-1+A1, ANSI/UL 498	VDE, UL
Alternative	Zhe Jiang Bei Er Jia Electronic	ST-A01-003J, ST-A01 series	10 A, 250 Vac, 70°C	IEC/EN 60320-1+A1, ANSI/UL 498	VDE, UL
Alternative	Zhe Jiang Bei Er Jia Electronic	ST-A04-002	2.5 A, 250 Vac, 70°C	IEC/EN 60320-1+A1, ANSI/UL 498	VDE, UL
Alternative	Solteam Electronics	ST-01	10A, 250V(VDE) 15A, 250V(UL) 70°C	IEC 60320-1	VDE, UL
Alternative	Shengming Enterprise	S06-101-B01-2, S06-101-B01-2A,	7A, 250V 100°C	IEC 60320-1	UL,ENEC
Alternative	Shengming Enterprise	S14-101, S14-102, S14-201, S14-202, S14-203	10A, 250V 70°C	IEC 60320-1	VDE, UL

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Clause	Requirement + Test	Result - Remark	Verdict

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1]
Fuse (Fuse1) (KPL PCB with Fuse1)	XC Electronics (Shenzhen)	4T	T4.0A, 250 Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
Alternative	XC Electronics (Shenzhen)	5TE	T4.0A, 250 Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
Alternative	Ever Island Electric and Walter Electric	2010	T4.0A, 250 Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
Alternative	Conquer Electronics	PTU	T4.0A, 250 Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
Alternative	Conquer Electronics	MST	T4.0A, 250 Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
Alternative	Littelfuse, Inc. Wickmann-Werke	392	T4.0A, 250 Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
Alternative	Walter Electronic	ICP	T4.0A, 250 Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
Fuse (F1) (Optional) (KPL PCB with F1,F2)	XC Electronics (Shenzhen) Corp. Ltd.	4T	T6.3A or T8A, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
Alternative	XC Electronics (Shenzhen) Corp. Ltd.	5TE	T6.3A or T8A, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL

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Clause	Requirement + Test	Result - Remark	Verdict

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1]
Alternative	Ever Island Electric Co., Ltd. and Walter Electric	2010	T6.3A or T8A, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
Alternative	Conquer Electronics Co., Ltd.	PTU	T6.3A or T8A, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
Alternative	Conquer Electronics Co., Ltd.	MST	T6.3A or T8A, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
Alternative	Littelfuse, Inc. Wickmann-Werke	392	T6.3A or T8A, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
Alternative	Walter Electronic Co. Ltd.	ICP	T6.3A or T8A, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
Alternative	Dongguan Better Electronics Technology Co., Ltd	932	T6.3A or T8A, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
Fuse(F1) (2ABF, 2ACL)	Cooper Bussmann	SS-5	T3.15A or T6.3A 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	UL, VDE
Alternative	Littelfuse Wickmann Werke	392	T3.15A or T6.3A 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	UL, VDE
Alternative	Walter	2010	T3.15A or T6.3A 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	UL,VDE

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Clause	Requirement + Test	Result - Remark	Verdict

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1]
Alternative	Conquer	MST	T3.15A or T6.3A 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	UL, VDE
Alternative	Hollyland	5ET-SERIES	T3.15A or T6.3A 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	UL, VDE
Alternative	Nippon	SLT	T3.15A or T6.3A 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	UL, VDE
Alternative	Dongguan Better Electronics Technology Co., Ltd	932	T3.15A or T6.3A 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
Alternative	XC Electronics (Shenzhen) Corp. Ltd.	5TE	T3.15A or T6.3A 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
Fuse(F1) (GTR)	Cooper Bussmann	SS-5	T3.15A 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	UL, VDE
Alternative	Littelfuse Wickmann Werke	392	T3.15A 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	UL, VDE
Alternative	Walter	2010	T3.15A 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	UL,VDE
Alternative	Conquer	MST	T3.15A 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	UL, VDE

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Clause	Requirement + Test	Result - Remark	Verdict

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1]
Alternative	Hollyland	5ET-SERIES	T3.15A 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	UL, VDE
Alternative	Nippon	SLT	T3.15A 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	UL, VDE
Alternative	Dongguan Better Electronics Technology Co., Ltd	932	T3.15A, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
Fuse (F2) (KPL PCB with F1,F2) (2ABF, 2ACL [optional])	XC Electronics (Shenzhen)	4T, 3T	T3.15A, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
Alternative	XC Electronics (Shenzhen)	5TE	T3.15A, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
Alternative	Ever Island Electric and Walter Electric	2010	T3.15A, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
Alternative	Conquer Electronics	PTU	T3.15A, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
Alternative	Conquer Electronics	MST	T3.15A, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
Alternative	Littelfuse, Inc. Wickmann-Werke	392	T3.15A, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL

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Clause	Requirement + Test	Result - Remark	Verdict

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1]
Alternative	Walter Electronic	ICP	T3.15A, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
Alternative	Littelfuse	677	T3.15A, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
Alternative	Bussman Fuse	SS-5	T3.15A, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	UL, VDE
Alternative	Hollyland	5ET-SERIES	T3.15A, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	UL, VDE
Alternative	Dongguan Better Electronics Technology Co., Ltd	932	T3.15A, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
Fuse (F3) (2ACL, y=R,S,U [optional])	XC Electronics (Shenzhen)	4T	T1.6A, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
Alternative	Walter Electronic	ICP	T1.6A, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
Alternative	Conquer Electronics	PDU, PTU	T1.6A, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
Alternative	Littlefuse	677	T1.6A, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
Varistor (Optional) (TVS1,TVS2, TVS3: KPL, 2ACL,GTR) (ZNR1: 2ABF)	Thinking Electronic Industrial	TVR14471	Rated 300 Vac, 470Vdc, Max. 4500A, 85°C	IEC 61051-1, IEC 61051-2, IEC 61051-2-2, ANSI/UL 1449	VDE, UL

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Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1]
Alternative	Thinking Electronic Industrial	TVR14561	Rated 350 Vac, 560 Vac, Max. 4500A, 85°C	IEC 61051-1, IEC 61051-2, IEC 61051-2-2, ANSI/UL 1449	VDE, UL
Alternative	Thinking Electronic Industrial	TVR14681	Rated 420 Vac, 680 Vac, Max. 4500A, 85°C	IEC 61051-1, IEC 61051-2, IEC 61051-2-2, ANSI/UL 1449	VDE, UL
Alternative	Nanjing Jocol Electronics Technology	TUR14D471K, TUR10D561K	Rated 300 Vac, 470Vdc, Max. 4500A, 85°C	IEC 61051-1, IEC 61051-2, IEC 61051-2-2, ANSI/UL 1449	VDE, UL
Alternative	Nanjing Jocol Electronics Technology	TUR14D561, TUR10D561	Rated 350 Vac, 560Vdc, Max. 4500A, 85°C	IEC 61051-1, IEC 61051-2, IEC 61051-2-2, ANSI/UL 1449	VDE, UL
Alternative	Nanjing Jocol Electronics Technology	TUR14D681	Rated 420 Vac, 680Vdc, Max. 4500A, 85°C	IEC 61051-1, IEC 61051-2, IEC 61051-2-2, ANSI/UL 1449	VDE, UL
Alternative	Success Electronics	SVR14D471K SVR10D471K	Rated 300 Vac, 470Vdc, Max. 4500A, 85°C	IEC 61051-1, IEC 61051-2, IEC 61051-2-2, ANSI/UL 1449	VDE, UL
Alternative	Success Electronics	SVR14D561K SVR10D561K	Rated 350 Vac, 560Vdc, Max. 4500A, 85°C	IEC 61051-1, IEC 61051-2, IEC 61051-2-2, ANSI/UL 1449	VDE, UL
Alternative	Success Electronics	SVR14D681K	Rated 420 Vac, 680Vdc, Max. 4500A, 85°C	IEC 61051-1, IEC 61051-2, IEC 61051-2-2, ANSI/UL 1449	VDE, UL
Alternative	Thinking Electronic Industrial	TVR10471-D, TVR14471-D	Rated 300Vac, 470Vdc, Max. 4500A, 85°C	IEC 61051-1, IEC 61051-2, IEC 61051-2-2, ANSI/UL 1449	UL
Alternative	Thinking Electronic Industrial	TVR10561-D, TVR14561-D	Rated 350Vac, 560Vdc Max. 4500A, 85°C	IEC 61051-1, IEC 61051-2, IEC 61051-2-2, ANSI/UL 1449	UL
Alternative	Joyin	10N471K 10S471K 14N471K	Rated 300Vac, 470Vdc. Max. 4500A, 85°C	IEC 61051-1, IEC 61051-2, IEC 61051-2-2, ANSI/UL 1449	UL
Alternative	Joyin	10N561K 14N561K	Rated 350Vac, 560Vdc. Max. 4500A, 85°C	IEC 61051-1, IEC 61051-2, IEC 61051-2-2, ANSI/UL 1449	UL

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Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1]
Alternative	Joyin	10S561K	Rated 350Vac, 560Vdc. Max. 4500A, 85°C	IEC 61051-1, IEC 61051-2, IEC 61051-2-2, ANSI/UL 1449	UL
Alternative	Shantou High-New Zone Songtian Enterprise	14D471K, 10D471K	Rated 300 Vac, 470Vdc, Max. 4500A, 85°C	IEC 61051-1, IEC 61051-2, IEC 61051-2-2, ANSI/UL 1449	VDE, UL
Alternative	Shantou High-New Zone Songtian Enterprise	14D561K, 10D561K	Rated 350 Vac, 560Vdc, Max. 4500A, 85°C	IEC 61051-1, IEC 61051-2, IEC 61051-2-2, ANSI/UL 1449	VDE, UL
Alternative	Shantou High-New Zone Songtian Enterprise	14D681K, 10D681K	Rated 420 Vac, 680 Vdc, Max. 4500A, 85°C	IEC 61051-1, IEC 61051-2, IEC 61051-2-2, ANSI/UL 1449	VDE, UL
Varistor (Optional) (TVS4 for KPL PCB with F1, F2)	Littelfuse	CG33.0L+	Rated 380Vac, Max. 5000A, 85°C	ANSI/UL 1449	UL
X-Capacitor (CX1) (X1 or X2 type) (Optional)	Okaya Electric Industries	LE	Max. 0.47uF, min. 250 Vac, 100°C	IEC/EN 60384-14: 2005, UL 1414	ENEC, UL
Alternative	Jenn Fu Electronics	MPX	Max. 0.47uF, min. 250 Vac, 100°C	IEC/EN 60384-14: 2005, UL 1414	VDE, UL
Alternative	Europtronic (Taiwan) Ind.	MPX2, MPX	Max. 0.47uF, min. 250 Vac, 100°C	IEC/EN 60384-14: 2005, UL 1414	VDE, UL
Alternative	Ultra Tech Xiphi Enterprise	HQX	Max. 0.47uF, min. 250 Vac, 100°C	IEC/EN 60384-14: 2005, UL 1414	VDE, UL
Alternative	Hua Jung Components	MKP	Max. 0.47uF, min. 250 Vac, 100°C	IEC/EN 60384-14: 2005, UL 1414	ENEC, UL
Alternative	Arcotronics Italia S.P.A	R.46	Max. 0.47uF, min. 250 Vac, 100°C	IEC/EN 60384-14: 2005, UL 1414	ENEC, UL
(Alternative)	Yimanfeng	MPX/MKP	Max. 0.47uF, min. 250 Vac, 100°C	IEC/EN 60384-14: 2005, UL 1414	ENEC, UL
(Alternative)	KEMET	R.46	Max. 0.47uF, min. 250 Vac, 100°C	IEC/EN 60384-14: 2005, UL 1414	ENEC, UL
(Alternative)	Okaya Electric Industries	RE ,LE	Max. 0.47uF, min. 250 Vac, 100°C	IEC/EN 60384-14: 2005, UL 1414	VDE, UL
(Alternative)	Pilkor Electronics	PCX2 337	Max. 0.47uF, min. 250 Vac, 100°C	IEC/EN 60384-14: 2005, UL 1414	VDE, UL

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Clause	Requirement + Test	Result - Remark	Verdict

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1]
(Alternative)	Vishay	F1772	Max. 0.47uF, min. 250 Vac, 100°C	IEC/EN 60384-14: 2005, UL 1414	VDE, UL
(Alternative)	Joey Electronics (Dong guan)	MPX	Max. 0.47uF, min. 250 Vac, 100°C	IEC/EN 60384-14: 2005, UL 1414	VDE, UL
(Alternative)	ARCO	R46	Max. 0.47uF, min. 250 Vac, 100°C	IEC/EN 60384-14: 2005, UL 1414	VDE, UL
(Alternative)	BC	MKP 336 1	Max. 0.47uF, min. 250 Vac, 100°C	IEC/EN 60384-14: 2005, UL 1414	VDE, UL
(Alternative)	CHENG TUNG	CTX	Max. 0.47uF, min. 250 Vac, 100°C	IEC/EN 60384-14: 2005, UL 1414	VDE, UL
(Alternative)	ISKRA	KMC 1540	Max. 0.47uF, min. 250 Vac, 100°C	IEC/EN 60384-14: 2005, UL 1414	VDE, UL
(Alternative)	KEMET	R49	Max. 0.47uF, min. 250 Vac, 100°C	IEC/EN 60384-14: 2005, UL 1414	VDE, UL
(Alternative)	OKAYA	XE	Max. 0.47uF, min. 250 Vac, 100°C	IEC/EN 60384-14: 2005, UL 1414	VDE, UL
(Alternative)	PILKOR	PCX1	Max. 0.47uF, min. 250 Vac, 100°C	IEC/EN 60384-14: 2005, UL 1414	VDE, UL
(Alternative)	VISHAY	VY1	Max. 0.47uF, min. 250 Vac, 100°C	IEC/EN 60384-14: 2005, UL 1414	VDE, UL
(Alternative)	Shantou High-New Technology Development Zone songtian Enterprise	MPX	Max. 0.47uF, min. 250 Vac, 100°C	IEC 60384-14:2005, UL 1414	VDE,UL
Bleeder Resistor (R2,R3,R4,R5) (KPL PCB with FUSE1)	Tzaiyuan Enterprise Co., Ltd	SMD********* HSMD*********	2.2MΩ 1/4 W	IEC/UL 62368-1	CB,UR
Alternative	Yageo Corporation	SMD	2.2MΩ 1/4 W	IEC/EN 62368-1	Tested with appliance
Alternative	Giant Chip Technology Co., Ltd	SMD	2.2MΩ 1/4 W	IEC/EN 62368-1	Tested with appliance
Alternative	Kunshan Funtex Electronics	SMD	2.2MΩ 1/4 W	IEC/EN 62368-1	Tested with appliance

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Clause	Requirement + Test	Result - Remark	Verdict

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1]
Bleeder Resistor (R2,R3,R4,R5) (KPL PCB with F1, F2)	Tzaiyuan Enterprise Co., Ltd	SMD********* HSMD*********	3.0MΩ or 3.9MΩ 1/4 W	IEC 62368-1	**CB,UR**
Alternative	Yageo Corporation	SMD	3.0MΩ or 3.9MΩ 1/4 W	IEC/EN 62368-1	Tested with appliance
Alternative	Giant Chip Technology Co., Ltd	SMD	3.0MΩ or 3.9MΩ 1/4 W	IEC/EN 62368-1	Tested with appliance
Alternative	Kunshan Funtex Electronics	SMD	3.0MΩ or 3.9MΩ 1/4 W	IEC/EN 62368-1	Tested with appliance
Bleeder Resistor (R2,R4)(R2A,R4A is not present) (GTR)	Tzaiyuan Enterprise	SMD********* HSMD*********	1/4 W, Max.2MΩ	IEC 62368-1	CB,UR
Bleeder Resistor (R2,R4,R2A,R4A) (GTR)	Tzaiyuan Enterprise	SMD********* HSMD*********	1/4 W, Max.4MΩ	IEC 62368-1	CB,UR
Alternative	Yageo Corporation	SMD	1/4 W, Max.4MΩ	IEC/EN 62368-1	Test with appliance
Alternative	Giant Chip Technology	SMD	1/4 W, Max.4MΩ	IEC/EN 62368-1	Test with appliance
Alternative	Kunshan Funtex Electronics	SMD	1/4 W, Max.4MΩ	IEC/EN 62368-1	Test with appliance
Bleeder Resistor (R14,R21) (R14A, R21A is not present) (2ABF)	Tzaiyuan Enterprise	SMD********* HSMD*********	1/4 W, Max. 1.5MΩ	IEC 62368-1	CB,UR
Bleeder Resistor (R14,R21,R14A,R2 1A) (2ABF)	Tzaiyuan Enterprise	SMD********* HSMD*********	1/4 W, Max. 3MΩ	IEC 62368-1	**CB,UR**
Alternative	Yageo Corporation	SMD	1/4 W, Max. 3MΩ	IEC/EN 62368-1	Test with appliance
Alternative	Giant Chip Technology	SMD	1/4 W, Max. 3MΩ	IEC/EN 62368-1	Test with appliance
Alternative	Kunshan Funtex Electronics	SMD	1/4 W, Max. 3MΩ	IEC/EN 62368-1	Test with appliance
Bleeder Resistor (R2, R4) (R2A,R4A is not present) (2ACL)	Tzaiyuan Enterprise	SMD********* HSMD*********	1/4 W, Max.1.5MΩ	IEC 62368-1	CB,UR
Bleeder Resistor (R2, R4, R2A, R4A: 2ACL)	Tzaiyuan Enterprise	SMD********* HSMD*********	1/4 W, Max.3MΩ	IEC 62368-1	CB,UR
Alternative	Yageo Corporation	SMD	1/4 W, Max.3MΩ	IEC/EN 62368-1	Test with appliance
Alternative	Giant Chip Technology	SMD	1/4 W, Max.3MΩ	IEC/EN 62368-1	Test with appliance
Alternative	Kunshan Funtex Electronics	SMD	1/4 W, Max.3MΩ	IEC/EN 62368-1	Test with appliance

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Clause	Requirement + Test	Result - Remark	Verdict

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1]
Bridging Capacitor (CY1 for 2ACL, 2ABF, GTR,KPL PCB with Fuse1) (CY1,CY2 for KPL PCB with F1, F2, CY2 Optional) (Y1 type)	TDK Corporation	CD	Max. 3300 pF, min. 250 Vac, 125°C	IEC/EN 60384-14: 2005, UL 1414	VDE, UL
Alternative	Walsin Technology	AH	Max. 3300 pF, min. 250 Vac, 125°C	IEC/EN 60384-14: 2005, UL 1414	VDE, UL
Alternative	Success Electronics Co., Ltd.	SB, SE	Max. 3300 pF, min. 250 Vac, 125°C	IEC/EN 60384-14: 2005, UL 1414	VDE, UL
Alternative	Success Electronics Co., Ltd.	SE	Max. 3300 pF, min. 250 Vac, 125°C	IEC/EN 60384-14: 2005, UL 1414	VDE, UL
Alternative	Xiangtai Electronics Co., Ltd.	YO	Max. 3300 pF, min. 250 Vac, 125°C	IEC/EN 60384-14: 2005, UL 1414	VDE, UL
Alternative	JYA-NAY Co., Ltd.	JN	Max. 3300 pF, min. 250 Vac, 125°C	IEC/EN 60384-14: 2005, UL 1414	VDE, UL
Alternative	Murata MFG Co Ltd	KX	Max. 3300 pF, min. 250 Vac, 125°C	IEC/EN 60384-14: 2005, UL 1414	VDE, UL
Alternative	Welson Industrial Co Ltd	WD	Max. 3300 pF, min. 250 Vac, 125°C	IEC/EN 60384-14: 2005, UL 1414	VDE, UL
(Alternative)	Shantou High-New Technology Development Zone songtian Enterprise	CD	Max. 3300 pF, min. 250 Vac, 125°C	IEC/EN 60384-14:2005,UL1414	UL, VDE
Y-Capacitor (CY2,CY3) (GTR) (Optional) Y1 or Y2 type	Murata MFG	KX, KY, KH	Min. 250 V, Max. 3300 pF 125°C	IEC/EN 60384-14:2005,UL1414	UL, VDE
(Alternative)	TDK-EPC	CD, CS	Min. 250 V, Max. 3300 pF 125°C	IEC/EN 60384-14:2005,UL1414	UL, VDE
(Alternative)	Jya-Nay	JN	Min. 250 V, Max. 3300 pF 125°C	IEC/EN 60384-14:2005,UL1414	UL, VDE

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Clause	Requirement + Test	Result - Remark	Verdict

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1]
(Alternative)	Walsin Technology	AH, KL	Min. 250 V, Max. 3300 pF 125°C	IEC/EN 60384-14:2005,UL1414	UL, VDE
(Alternative)	Success Electronics	SE, SB, SF	Min. 250 V, Max. 3300 pF 125°C	IEC/EN 60384-14:2005,UL1414	UL, VDE
(Alternative)	Welson Industrial	WD, KL	Min. 250 V, Max. 3300 pF 125°C	IEC/EN 60384-14:2005,UL1414	UL, VDE
(Alternative)	Shantou High-New Technology Development Zone songtian Enterprise	CE	Min. 250 V, Max. 3300 pF 125°C	IEC/EN 60384-14:2005,UL1414	UL, VDE
Bridge Diode (BD1) (KPL, GTR)	Zowie	GBL, GBU	Min. 2 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	Shen zhenJU-Topvessel	GBL	Min. 2 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	Diodes	KBP	Min. 2 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	Liteon	GBL, KBP, GBU, GBJ	Min. 2 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	Willas	GBL, KBP	Min. 2 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	SEP	GBU, KBJ, RS	Min. 2 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	Panjit	GBL, GBU	Min. 2 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	TSC	UR	Min. 2 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	Chongqing Pingwei Enterprise	GBL	Min. 2 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	HY	KBP	Min. 2 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	Vishay	KBP	Min. 2 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	UPM	KBP	Min. 2 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	LH	KBP	Min. 2 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	PY	GBP	Min. 2 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	Zhonghuan	T2K	Min. 2 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	HS	T2K	Min. 2 A, min. 600 V	IEC/EN 62368-1	Tested with appliance

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Clause	Requirement + Test	Result - Remark	Verdict

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1]
Bridge diode (BD1) (2ABF, 2ACL)	Zowie	GBL, GBU	Min. 4 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	Shen zhenJU-Topvessel	GBL	Min. 4 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	Diodes	KBP	Min. 4 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	Liteon	GBL, KBP, GBU, GBJ	Min. 4 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	Willas	GBL	Min. 4 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	SEP	GBU, KBJ, RS	Min. 4 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	Panjit	GBL, GBU	Min. 4 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	TSC	UR,GBL	Min. 4 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	Lision	UR,GBL	Min. 4 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	HY	UR,GBL	Min. 4 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	Chongqing Pingwei	UR,GBL	Min. 4 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Ripple Capacitor (C2) (KPL PCB with fuse: FUSE1)	Kuan kun Electronic enterprise	SK, SE	68-120 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Tested with appliance
Alternative	NCC	KMQ, SMQ, SMG, KMG, KXJ	68-120 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Tested with appliance
Alternative	Man Yue Electronics	KM, RT	68-120 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Tested with appliance
Alternative	Taiwan Chinsan Electronics	DW, DV	68-120 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Tested with appliance
Alternative	Capxon	KM, KL	68-120 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Tested with appliance
Alternative	Hunan Aihua Group	WH, RH	68-120 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Tested with appliance
Alternative	Lelon Electronics	RGA, RXB, RXC, RXQ	68-120 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Tested with appliance
Alternative	Taicon	AM, AS, AQ, BY, SD, SK	68-120 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Tested with appliance

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Clause	Requirement + Test	Result - Remark	Verdict

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1]
Alternative	Nichicon	CY, CS	68-120 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Tested with appliance
Alternative	ELITE	MV, DV	68-120 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Tested with appliance
Alternative	SUSCON	MF,HE, SE	68-120 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Tested with appliance
Alternative	SAMXON	RT	68-120 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Tested with appliance
Alternative	AISHI	HS	68-120 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Tested with appliance
Ripple Capacitor (C2) (KPL PCB with fuse: F1, F2)	Kuan kun Electronic enterprise	SK, SE	68-150 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Tested with appliance
Alternative	NCC	KMQ, SMQ SMG, KMG, KXJ	68-150 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Tested with appliance
Alternative	Man Yue Electronics	KM, RT	68-150 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Tested with appliance
Alternative	Taiwan Chinsan Electronics	DW, DV	68-120 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Tested with appliance
Alternative	Capxon	KM, KL	68-120 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Tested with appliance
Alternative	Hunan Aihua Group	WH, RH	68-120 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Tested with appliance
Alternative	Lelon Electronics	RGA, RXB, RXC, RXQ	68-120 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Tested with appliance
Alternative	Taicon	AM, AS, AQ, BY, SD, SK	68-120 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Tested with appliance
Alternative	Nichicon	CY, CS	68-120 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Tested with appliance
Alternative	ELITE	MV, DV	68-120 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Tested with appliance
Alternative	SUSCON	MF,HE, SE	68-120 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Tested with appliance

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Clause	Requirement + Test	Result - Remark	Verdict

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1]
Alternative	SAMXON	RT	68-120 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Tested with appliance
Alternative	AISHI	HS	68-120 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Tested with appliance
Electrolytic Capacitors (C1: 2ABF) (C2: 2ACL, GTR)	Kuan kun Electronic	SK, SE	68-150 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Test with appliance
Alternative	NCC	KMQ, KMG, KXJ	68-150 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Test with appliance
Alternative	Man Yue Electronics	KM, RT	68-150 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Test with appliance
Alternative	Taiwan Chinsan Electronics	DW, DV	68-150 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Test with appliance
Alternative	Capxon	KM, KL	68-150 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Test with appliance
Alternative	Hunan Aihua Group	WH, RH	68-150 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Test with appliance
Alternative	Lelon Electronics	RGA, RXB, RXC, RXQ	68-150 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Test with appliance
Alternative	Taicon	AM, AS, AQ, BY, SD, SK	68-150 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Test with appliance
Alternative	Nichicon	CY, CS	68-150 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Test with appliance
Alternative	ELITE	MV, DV	68-150 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Test with appliance
Alternative	SUSCON	MF, HE, SE	68-150 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Test with appliance
Alternative	SAMXON	RT	68-150 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Test with appliance
Alternative	AISHI	HS	68-150 uF, min. 400 V, min. 105°C	IEC/EN 62368-1	Test with appliance
Transistor (Q1) (KPL)	WINSEMI Electronics	WFF	Min. 4.5 A, min. 600 V	IEC/EN 62368-1	Tested with appliance

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Clause	Requirement + Test	Result - Remark	Verdict

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1]
Alternative	NEC	3SK, 2SK	Min. 4.5 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	ON Semiconductor	NDF,	Min. 4.5 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	Fairchild	FQPF	Min. 4.5 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	Toshiba Corporation Semiconductor	2SK, TK, K	Min. 4.5 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	Unisonic Technologies	xN, x=8-20	Min. 4.5 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	Miracle Technology	MPF,NPF,NPD	Min. 4.5 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	Miracle Technology	MPF,NPF,NPD	Min. 4.5 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	Magnachip semiconductor	MDF,MMFT	Min. 4.5 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	Alpha & Omega Semiconductor	AOTF	Min. 4.5 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	SILAN	SVD	Min. 4.5 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	SL	SVF, SVD	Min. 4.5 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	STMicroelectronics	STP	Min. 4.5 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
Alternative	Fairchild Semiconductor	FCP, FCPF, FDP, FDPF	Min. 4.5 A, min. 600 V	IEC/EN 62368-1	Tested with appliance
MOSFET (Q2: 2ABF) (Q1: 2ACL, GTR)	Infineon	IPA,IPP,SPA, SPP	Min. 6 A, min. 600 V.	IEC/EN 62368-1	Test with appliance
Alternative	Hzngzhou Silan Microelectronic	SVF	Min. 6 A, min. 600 V.	IEC/EN 62368-1	Test with appliance
Alternative	STMicroelectronics	STF, STP	Min. 6 A, min. 600 V.	IEC/EN 62368-1	Test with appliance
Alternative	Unisonic Technologies	xN, x=8-20	Min. 6 A, min. 600 V.	IEC/EN 62368-1	Test with appliance
Alternative	Korea Electronics	KHB,KPS,KF	Min. 6 A, min. 600 V.	IEC/EN 62368-1	Test with appliance
Alternative	InPower Semiconductor	ITA,ISA,ITD	Min. 6 A, min. 600 V.	IEC/EN 62368-1	Test with appliance
Alternative	Hi-Sincerity Microelectronic	H	Min. 6 A, min. 600 V.	IEC/EN 62368-1	Test with appliance
Alternative	Wuxi China Resources Semico	CS	Min. 6 A, min. 600 V.	IEC/EN 62368-1	Test with appliance
Alternative	Miracle Technology	MPF,NPF,NPD	Min. 6 A, min. 600 V.	IEC/EN 62368-1	Test with appliance

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Clause	Requirement + Test	Result - Remark	Verdict

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1]
Alternative	Toshiba Corporation	TK,2SK,T	Min. 6 A, min. 600 V.	IEC/EN 62368-1	Test with appliance
Alternative	Taiwan Semiconductor	TSM	Min. 6 A, min. 600 V.	IEC/EN 62368-1	Test with appliance
Alternative	LiSion Technology	LS	Min. 6 A, min. 600 V.	IEC/EN 62368-1	Test with appliance
Alternative	Magnachip semiconductor	MDF,MMFT	Min. 6 A, min. 600 V.	IEC/EN 62368-1	Test with appliance
Alternative	Niko-Sem	PO	Min. 6 A, min. 600 V.	IEC/EN 62368-1	Test with appliance
Alternative	Alpha & Omega Semiconductor	AOTF	Min. 6 A, min. 600 V.	IEC/EN 62368-1	Test with appliance
Alternative	Fairchild Semiconductor	FCP, FCPF, FDP, FDPF	Min. 6 A, min. 600 V.	IEC/EN 62368-1	Test with appliance
Alternative	Rohm Semiconductor (Taiwan)	R	Min. 6 A, min. 600 V.	IEC/EN 62368-1	Test with appliance
Alternative	International Rectifier	IRFP, IRFB	Min. 6 A, min. 600 V.	IEC/EN 62368-1	Test with appliance
Alternative	Trinno Technology	TMPF	Min. 6 A, min. 600 V.	IEC/EN 62368-1	Test with appliance
Alternative	SILAN	SVD	Min. 6 A, min. 600 V.	IEC/EN 62368-1	Test with appliance
Alternative	Toshiba	2SK	Min. 6 A, min. 600 V.	IEC/EN 62368-1	Test with appliance
Alternative	SL	SVF, SVD	Min. 6 A, min. 600 V.	IEC/EN 62368-1	Test with appliance
Alternative	Jiangsu Dongguan Micro-electronics	DG	Min. 6 A, min. 600 V.	IEC/EN 62368-1	Test with appliance
Alternative	CET-MOS Corporation	CEF	Min. 8 A, min. 600 V.	IEC/EN 62368-1	Test with appliance
Current Sensor Resistor (R9,R15,R16, R18,R23) (KPL PCB with FUSE1)	Tzaiyuan Enterprise Co., Ltd	SMD	Min. 1.8 Ω, min. 1/4 W	IEC/EN 62368-1	Tested with appliance
Alternative	Yageo Corporation	SMD	Min. 1.8 Ω, min. 1/4 W	IEC/EN 62368-1	Tested with appliance
Alternative	Giant Chip Technology	SMD	Min. 1.8 Ω, min. 1/4 W	IEC/EN 62368-1	Tested with appliance
Alternative	Kunshan Funtex Electronics	SMD	Min. 1.8 Ω, min. 1/4 W	IEC/EN 62368-1	Tested with appliance

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Clause	Requirement + Test	Result - Remark	Verdict

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1]
Current Sensor Resistor (R9,R15,R16, R18,R23) (KPL PCB with F1, F2)	Tzaiyuan Enterprise	SMD	Min. 1.5 Ω, min. 1/4 W	IEC/EN 62368-1	Tested with appliance
Alternative	Yageo Corporation	SMD	Min. 1.5 Ω, min. 1/4 W	IEC/EN 62368-1	Tested with appliance
Alternative	Giant Chip Technology	SMD	Min. 1.5 Ω, min. 1/4 W	IEC/EN 62368-1	Tested with appliance
Alternative	Kunshan Funtex Electronics	SMD	Min. 1.5 Ω, min. 1/4 W	IEC/EN 62368-1	Tested with appliance
Current sense resistor (R34,R35,R36,R37, R38: 2ABF) (R9,R15,R16, R18,R23: 2ACL)	Tzaiyuan Enterprise	SMD	Min. 1.2 Ω, min. 1/4 W	IEC/EN 62368-1	Test with appliance
Alternative	Yageo Corporation	SMD	Min. 1.2 Ω, min. 1/4 W	IEC/EN 62368-1	Test with appliance
Alternative	Giant Chip Technology	SMD	Min. 1.2 Ω, min. 1/4 W	IEC/EN 62368-1	Test with appliance
Alternative	Kunshan Funtex Electronics	SMD	Min. 1.2 Ω, min. 1/4 W	IEC/EN 62368-1	Test with appliance
Current Sensor Resistor (R9,R15,R16) (GTR)	Tzaiyuan Enterprise	SMD	Min. 1.4 Ω, min. 1/4 W	IEC/EN 62368-1	Test with appliance
Alternative	Yageo Corporation	SMD	Min. 1.4 Ω, min. 1/4 W	IEC/EN 62368-1	Test with appliance
Alternative	Giant Chip Technology	SMD	Min. 1.4 Ω, min. 1/4 W	IEC/EN 62368-1	Test with appliance
Alternative	Kunshan Funtex Electronics	SMD	Min. 1.4 Ω, min. 1/4 W	IEC/EN 62368-1	Test with appliance
Line Choke (LF1) (KPL) (Optional)	Sunycore Electronics	T18*10*7	130°C	IEC/EN 62368-1	Tested with appliance
Alternative	Channel Well Technology	T18*10*7	130°C	IEC/EN 62368-1	Tested with appliance
Line Choke (LF1) (GTR) (Optional)	Channel Well Technology	T14*8*7	130°C	IEC/EN 62368-1	Tested with appliance
Line Choke (LF2: 2ABF) (LF1: 2ACL)	Channel Well Technology	T16*12*8	130ºC	IEC/EN 62368-1	Tested with appliance
Line Choke (LF1: 2ABF) (LF2: 2ACL)	Channel Well Technology	T10*6*5	130ºC	IEC/EN 62368-1	Tested with appliance

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Clause	Requirement + Test	Result - Remark	Verdict

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1]
Line Choke (LF2) (KPL) (Optional)	Sunycore Electronics	T10*6*5+C, T12.7*7.9*5C	130°C	IEC/EN 62368-1	Tested with appliance
Alternative	Channel Well Technology	T10*6*5+C, T12.7*7.9*5C	130°C	IEC/EN 62368-1	Tested with appliance
Line Choke (LF2) (GTR) (Optional)	Channel Well Technology	T9*5*3	130°C	IEC/EN 62368-1	Tested with appliance
Transformer (T1) (O/P 12-16V) (KPL PCB with FUSE1)	Channel Well Technolog	PQ-2620-12	Class B (GH-130)	IEC/EN 62368-1	Tested with appliance
Transformer (T1) (O/P 12-16V) (KPL PCB with F1, F2)	Channel Well Technology	PQ-2620-12-VI	Class B (GH-130)	IEC/EN 62368-1	Tested with appliance
Transformer (T1) (O/P 36V) (KPL PCB with F1,F2)	Channel Well Technology	PQ-2620-36	Class B (GH-130)	IEC/EN 62368-1	Tested with appliance
Transformer (T1) (O/P 17-24V) (KPL)	Channel Well Technology	PQ-2620-17	Class B (GH-130)	IEC/EN 62368-1	Tested with appliance
Transformer (T1) (O/P 48-56V) (KPL)	Channel Well Technolog	PQ-2620-48	Class B (GH-130)	IEC/EN 62368-1	Tested with appliance
Bobbin	Chang Chun Palstics	T375J	Phenolics, 150°C, V-0	UL94	UL
Triple insulated wire	Great Leoflon Industria	TRW(B)	130°C	IEC/EN 60950-1, UL 2353	VDE, UL
Sleeving	Great Holding Industrial	TFL	200°C, VW-1	UL 224	UL
Transformer (T1) (2ACL, Y=B)	Channel Well Technology	PQ2620-05	Class B	Applicable parts in IEC 62368-1 and acc. To IEC 60085	Accepted by TUV Rheinland
Transformer (T1) (2ABF, Y=F)	Channel Well Technology	PQ2620-12	Class B	Applicable parts in IEC 62368-1 and acc. To IEC 60085	Accepted by TUV Rheinland
Transformer (T1) (2ACL, Y=K,M)	Channel Well Technology	PQ2620-19	Class B	Applicable parts in IEC 62368-1 and acc. To IEC 60085	Accepted by TUV Rheinland
Transformer (T1) (2ACL, 2ABF, Y=R,S,U)	Channel Well Technology	PQ2620-48	Class B	Applicable parts in IEC 62368-1 and acc. To IEC 60085	Accepted by TUV Rheinland

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Clause	Requirement + Test	Result - Remark	Verdict

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1]
Bobbin	Chang Chun Palstics	T375J	Phenolics, 150 °C, V-0	UL94	UL
Triple insulated wire	Great Leoflon Industrial	TRW(B)	130°C	IEC/EN 60950-1, UL 2353	VDE, UL
Sleeving	Great Holding Industrial	TFL	200°C, VW-1	UL 224	UL
Transformer (T1) (GTR)	Channel Well Technolog	RM10-12	Class B (GH-130)	IEC/EN 62368-1	Tested with appliance
-Bobbin	Chang Chun Palstics	T375J	Phenolics, 150°C, V-0	UL94	UL
-Triple insulated wire	Great Leoflon Industrial	TRW(B)	130°C	IEC/EN 60950-1, UL 2353	VDE, UL
Optocoupler (IC1: KPL, 2ACL,GTR) (U4: 2ABF)	Lite-On Technology	LTV-817, LTV-817S	Dti ≥ 0.4 mm, Int. cr > 4.0 mm, Ext. cr = 8.0mm, 110 °C	DIN EN 60747-5-5, UL 1577	VDE, Fimko, UL
Alternative	Cosmo Electronics	K1010	Dti = 0.5 mm, Int. cr = 5.3 mm, Ext. cr = 8.0mm, 110 °C	DIN EN 60747-5-5, UL 1577	VDE, Fimko, UL
Alternative	Toshiba Corp. Semiconductor	TLP781/TL781F	Dti = 0.5 mm, Int. cr = 6.0 mm, Ext. cr = 7.7mm, 110 °C	DIN EN 60747-5-5, UL 1577	VDE, Fimko, UL
Alternative	Everlight Electronics	EL817	Dti = 0.5 mm, Int. cr = 6.0 mm, Ext. cr = 7.7mm, 110 °C	DIN EN 60747-5-5, UL 1577	VDE, Fimko, UL
Alternative	Fairchild Semiconductor	FOD817	Dti ≥ 0.4 mm, Int. cr ≥ 5.0 mm, Ext. cr ≥ 7.0mm, 110 °C	DIN EN 60747-5-5, UL 1577	VDE, Fimko, UL
Alternative	Sharp Corp Electronic Components And Devices Group	PC817	Dti = 0,7 mm, Int. cr = 5,0 mm, Ext. cr =8,0mm. 110℃	DIN EN 60747-5-5, UL 1577	VDE, UL
Alternative	Sharp Corp Electronic Components And Devices Group	PC123	Dti = 0,7 mm, Int. cr = 5,0 mm, Ext. cr =8,0mm. 110℃	DIN EN 60747-5-5, UL 1577	VDE, UL
Alternative	Cosmo Electronics	KPC817	di = 0.5 mm, int. dcr = 5.3 mm, ext. dcr = 8.0 mm, 5000 Vac, 100 oC	DIN EN 60747-5-5, UL 1577	UL, VDE
Alternative	Lite-On Technology	LTV-10xx, xx=06,07,08,09	di=0.4mm, thermal cycling, ext. dcr=8.0mm 100° C	DIN EN 60747-5-5, UL 1577	VDE, UL

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Clause	Requirement + Test	Result - Remark	Verdict

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1]
(Alternative)	Vishay Semiconductor Gmbh	TCLT1008	di=0.4mm, thermal cycling, ext. dcr=8.0mm 100° C	DIN EN 60747-5-5, UL 1577	VDE, UL
(Alternative)	Vishay Semiconductor Gmbh	TCLT1006	di=0.4mm, thermal cycling, ext. dcr=8.0mm 100° C	DIN EN 60747-5-5, UL 1577	VDE, UL
(Alternative)	Vishay Semiconductor Gmbh	TCET1109	di=0.6mm, thermal cycling, ext. dcr=8.4mm 100° C	DIN EN 60747-5-5, UL 1577	VDE, UL
Insulator sheet (KPL PCB with fuse: FUSE1)	ITW Electronics Components/ Products (Shanghai)	FORMEX GK-17	V-1 or better, thickness 0.43 mm min.	UL 510	UL
Alternative	YI-HSN Plastech	YIMEX PP-17	V-1 or better, thickness 0.43 mm min.	UL 510	UL
Output cable	Xinfeng Kangxin Enterprise	SPT-1	16 or 18AWG, 300V, 80°C min, VW-1	UL 758	UL
Alternative	Channel Well Technology	1185	16 or 18AWG, 300V, 80°C min, VW-1	UL 758	UL
Alternative	Channel Well Technology	10748	16 or 18AWG, 300V, 80°C min, VW-1	UL 758	UL
Alternative	Channel Well Technology	2468	16 or 18AWG, 300V, 80°C min, VW-1	UL 758	UL
Alternative	Channel Well Technology	2464	16 or 18AWG, 300V, 80°C min, VW-1	UL 758	UL
Thermal pad for C2 (KPL O/P≧60W models)	Pioneer Material Precision Tech	PMP-P-300	V-2 or better	UL 94	UL
Rubber pad (under PCB) (KPL)	Inaoc	CR4505	HF-1 or better	UL 94	UL
Thermistor (TH1) (2ABF, 2ACL,GTR) (Optional)	Thinking Electronic	SCK	Max. 5Ω, min. 3A at 25°C	IEC/EN 62368-1	Test with appliance
Alternative	Nanjing shiheng Electronics	MF72	Max. 5Ω, min. 3A at 25°C	IEC/EN 62368-1	Test with appliance
Gas tube (SA1,SA2) (2ABF, 2ACL) (optional)	Sinnaggata	SPG-xxxM-LF	Min200V	IEC/EN 62368-1	Test with appliance

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Clause	Requirement + Test	Result - Remark	Verdict

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1]
Alternative	Brightking	BK3200xxx2	Min200V	IEC/EN 62368-1	Test with appliance
Alternative	Solomon Group	BLKSxxxxK-E	Min200V	IEC/EN 62368-1	Test with appliance
DC Plug	Shenzhen Taiji Electronics	oi-CC-I, oi-CCL-I; oi-CC-I-1; o≦55, i≦300, I>18	ID:3mm max., Max.10A, Plastic HB min	IEC/EN 62368-1	Test with appliance
Alternate	Shenzhen Taiji Electronics	od-IPC-I, od-IP-I, o≦80, d≦15,I>20	ID:3mm max., Max.10A, Plastic HB min	IEC/EN 62368-1	Test with appliance
Alternate	Shenzhen Taiji Electronics	oi-PHC-I, oi-PH-I,o≦80, i≦300, I>20	ID:3mm max., Max.10A, Plastic HB min	IEC/EN 62368-1	Test with appliance
Alternate	Shenzhen Taiji Electronics	DCoil-zz, SFoil-zz, o≦800, i≦30, I>20, z=0-9	ID:3mm max., Max.10A, Plastic HB min	IEC/EN 62368-1	Test with appliance
Alternate	Dongguan Jupeng Electronic	YCoiL, o≦550, i=210-350, I>200	ID:3mm max., Max.10A, Plastic HB min	IEC/EN 62368-1	Test with appliance
Alternate	Yong Feng Ying Electronic Co., Ltd	CS-1149 series	Max. 7A, Plastic V-2	UL 1977	UL E241915
Supplementary information: 1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.					

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Clause	Requirement + Test	Result - Remark	Verdict

4.8.4, 4.8.5	TABLE: Lithium coin/button cell batteries mechanical tests		N/A
(The following mechanical tests are conducted in the sequence noted.)			
4.8.4.2	TABLE: Stress Relief test		—
Part	Material	Oven Temperature (°C)	Comments
4.8.4.3	TABLE: Battery replacement test		—
Battery part no. .....:			—
Battery Installation/withdrawal		Battery Installation/Removal Cycle	Comments
		1	
		2	
		3	
		4	
		5	
		6	
		8	
		9	
		10	
4.8.4.4	TABLE: Drop test		—
Impact Area	Drop Distance	Drop No.	Observations
4.8.4.5	TABLE: Impact		—
Impacts per surface	Surface tested	Impact energy (Nm)	Comments
4.8.4.6	TABLE: Crush test		—
Test position	Surface tested	Crushing Force (N)	Duration force applied (s)
Supplementary information:			

4.8.5	TABLE: Lithium coin/button cell batteries mechanical test result		N/A
Test position	Surface tested	Force (N)	Duration force applied (s)
Supplementary information:			

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Clause	Requirement + Test	Result - Remark	Verdict

5.2	Table: Classification of electrical energy sources	P
5.2.2.2 – Steady State Voltage and Current conditions		

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				U (Vrms or Vpk)	I (Apk or Arms)	Hz	
1.KPL-065U-VI(with FG wire)	240Vac, 50Hz	Output “+” to “-“ (“-“ is connected to earth)	Normal	56.598Vdc	--	--	ES1
			Abnormal Output overload	56.598Vdc max.	--	--	ES1
			Single fault (R9 O-C)	56.598Vdc	--	--	ES1
			Single fault (R9 S-C)	0Vdc (Unit shutdown)	--	--	ES1
			Single fault (IC1 pin1 to 2 S-C)	0Vdc (Unit shutdown)	--	--	ES1
			Single fault (IC1 pin 3 to 4 S-C)	0Vdc (Unit shutdown)	--	--	ES1
			Single fault (IC1 pin 1 to 2 O-C)	0Vdc (Unit shutdown)	--	--	ES1
2.KPL-065U-VI (without FG wire)	240Vac, 50Hz	Output “+” to “-“	Normal	56.598Vdc	--	--	ES1
			Abnormal Output overload	56.598Vdc max.	--	--	ES1
			Single fault (R9 O-C)	56.598Vdc	--	--	ES1
			Single fault (R9 S-C)	0Vdc (Unit shutdown)	--	--	ES1
			Single fault (IC1 pin1 to 2 S-C)	0Vdc (Unit shutdown)	--	--	ES1
			Single fault (IC1 pin 3 to 4 S-C)	0Vdc (Unit shutdown)	--	--	ES1
			Single fault (IC1 pin 1 to 2 O-C)	0Vdc (Unit shutdown)	--	--	ES1
		Output “+”/”-“ to Earth	Normal	--	0.15mA peak	--	ES1
			Abnormal Output overload	--	0.15mA peak	--	ES1
			Single fault (R9 O-C)	--	0.15mA peak	--	ES1

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Clause	Requirement + Test	Result - Remark	Verdict

2.KPL-065U-VI (without FG wire)	240Vac, 50Hz	Output “+”/”-“ to Earth	Single fault (R9 S-C)	--	0.15mA peak	--	ES1
			Single fault (IC1 pin1 to 2 S-C)	--	0.15mA peak	--	ES1
			Single fault (IC1 pin 3 to 4 S-C)	--	0.15mA peak	--	ES1
			Single fault (IC1 pin 1 to 2 O-C)	--	0.15mA peak	--	ES1
		Output “+” to “-“ (“-“ is connected to earth)	Normal	24.02Vdc	--	--	ES1
			Abnormal Output overload	24.02Vdc max.	--	--	ES1
			Single fault (IC1 pin1 to 2 O-C)	0Vdc (Unit shutdown)	--	--	ES1
			Single fault (IC1 pin3 to 4 O-C)	0Vdc (Unit shutdown)	--	--	ES1
			Single fault (IC1 pin1 to 2 S-C)	0Vdc (Unit shutdown)	--	--	ES1
			Single fault (IC1 pin3 to 4 S-C)	0Vdc (Unit shutdown)	--	--	ES1
			Single fault (R9 S-C)	0Vdc (Unit shutdown)	--	--	ES1
4.2ACL065U	240Vac, 50Hz	Output “+” to “-“ (“-“ is connected to earth)	Normal	56.528Vdc	--	--	ES1
			Abnormal Output overload	56.528Vdc max.	--	--	ES1
			Single fault (IC2, pin2 to 3 S-C)	0Vdc (Unit shutdown)	--	--	ES1
			Single fault (IC1, pin1 to 2 S-C)	0Vdc (Unit shutdown)	--	--	ES1
			Single fault (IC1, pin3 to 4 S-C)	0Vdc (Unit shutdown)	--	--	ES1
			Single fault (R9 S-C)	0Vdc (Unit damaged)	--	--	ES1

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Clause	Requirement + Test	Result - Remark	Verdict

5.GTR0382	240Vac, 50Hz	+5V output “+” to “-“ (“-“ is connected to earth)	Normal	5.403Vdc	--	--	ES1
			Abnormal Output overload	5.403Vdc max.	--	--	ES1
			Single fault (R43 S-C)	1.212Vdc	--	--	ES1
			Single fault (R44 S-C)	6.41Vdc	--	--	ES1
		+12V output “+” to “-“ (“-“ is connected to earth)	Normal	12.223Vdc	--	--	ES1
			Abnormal Output overload	12.223Vdc max.	--	--	ES1
			Single fault (U3 pin 2 to 3 S-C)	0Vdc (Unit shutdown)	--	--	ES1
			Single fault (IC1 pin 1 to 2 S-C)	0Vdc (Unit shutdown)	--	--	ES1
			Single fault (IC1 pin 3 to 4 S-C)	0Vdc (Unit shutdown)	--	--	ES1
			Single fault (R9 S-C)	0Vdc (Unit shutdown)	--	--	ES1
6.2ABF060R	240Vac, 50Hz	Output “+” to “-“ (“-“ is connected to earth)	Normal	47.9Vdc	--	--	ES1
			Abnormal Output overload	47.9Vdc max.	--	--	ES1
			Single fault (U3, pin2 to 3 S-C)	0Vdc (Unit shutdown)	--	--	ES1
			Single fault (U4, pin1 to 2 S-C)	0Vdc (Unit shutdown)	--	--	ES1
			Single fault (U4, pin3 to 4 S-C)	0Vdc (Unit shutdown)	--	--	ES1
			Single fault (R34 S-C)	0Vdc (Unit damaged)	--	--	ES1

Supplementary information:

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Clause	Requirement + Test	Result - Remark	Verdict

5.2.2.3 - Capacitance Limits						
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters		ES Class
				Capacitance, nF	Upk (V)	
			Normal			
			Abnormal			
			Single fault – SC/OC			

5.2.2.4 - Single Pulses							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Duration (ms)	Upk (V)	Ipk (mA)	
			Normal				
			Abnormal				
			Single fault – SC/OC				

5.2.2.5 - Repetitive Pulses							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Off time (ms)	Upk (V)	Ipk (mA)	
			Normal				
			Abnormal				
			Single fault – SC/OC				
Supplementary information: SC=Short Circuit, OC=Open Circuit							

5.4.1.4, 6.3.2, 9.0, B.2.6 a)	TABLE: Temperature measurements					P
	Supply voltage (V) .....:	See below	See below	See below	See below	—
	Ambient T_{min} (°C) .....:	--	--	--	--	—
	Ambient T_{max} (°C) .....:	See below	See below	See below	See below	—
	Tma (°C) .....:	--	--	--	--	—
Maximum measured temperature T of part/at:		T (°C)				Allowed T_{max} (°C)
Model: 2ACL068S						
Test condition		90V 60Hz	264V 50Hz	90V 60Hz	264V 50Hz	--
--		Label down	Label down	Label up	Label up	--
AC Inlet		41.5	37.1	41	36.7	55

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Clause	Requirement + Test	Result - Remark	Verdict

Internal input wire	60.6	51.5	59.6	50.6	90
TVS1 body	64.2	58	62.8	57	70
CX1 body	79.8	63.5	78.2	62.4	85
LF1 coil	85.7	64.4	83.9	63.3	115
LF2 coil	78.3	63	76.8	62	115
PCB near BD1	90.1	68.1	87.4	66.2	115
C2 body	78.7	66.3	77.8	65.7	90
T1 coil	84.7	78.5	83.8	77.9	95
T1 core	83.2	76.9	81.8	76	95
CY1 body	74.4	68	73	67.2	110
IC1 body	76.3	70.6	75.1	70	85
PCB near Q2	78.0	77.6	76.8	76.8	115
PCB near Q1	86.8	73	84.2	71.4	115
L1 winding	55.4	52.5	55	52.5	115
C6 body	64.6	61.2	63.8	60.8	90
Output cord	39.3	38.3	40	38.3	65
Internal plastic enclosure above T1	63.3	58.5	63.9	59	70
External plastic enclosure above T1	52.3	48.8	54.2	50.5	77
Ambient	25.0	25.0	25.0	25.0	--
Model: KPL-065A-KV(36V/1.81A)(LF2: T10*6*5+C					
Test condition	90V 60Hz	264V 50Hz	90V 60Hz	264V 50Hz	--
--	Label down	Label down	Label up	Label up	--
AC Inlet (70°C)	44.2	36.5	43	38	55
TVS1 body (85°C)	51.8	40.7	52.1	41.3	70
TVS2 body (85°C)	63.7	48.3	63.6	48.8	70
CX1 body (100°C)	66.6	50.8	66.1	51.2	85
LF1 coil (130°C)	96.5	63.2	95.4	63.7	115
LF2 coil (130°C)	89.7	60.2	88.5	60.5	115
PCB near BD1 (130°C)	102.7	66.2	101.1	66.1	115
C2 body (105°C)	83.7	62.7	82.8	63	90
T1 coil (Class B)	80.7	72.2	80.7	72.9	95
T1 core (Class B)	73.5	65.3	73.9	66.4	95
PCB under T1 (130°C)	73.1	65	72.7	65.1	115
CY1 body (125°C)	72.5	60.9	73.1	61.8	110
IC1 body (100C)	74.1	62.8	73.7	63.5	85
PCB near Q1 (130°C)	91.8	68.7	90.9	68.8	115
PCB near D3 (130C)	83.5	77.5	83.5	77.8	115
C6 body (105°C)	77.5	70.7	77.3	71	90
Internal plastic enclosure above T1	63.4	55.6	63.8	57	70

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Clause	Requirement + Test	Result - Remark	Verdict

External plastic enclosure above T1	53.6	47.7	56.1	50.8	77
Output cord	32.7	32.1	32.2	32.2	65
Ambient	25	25	25	25	--
Model: KPL-065A-KV(36V/1.81A)(LF2: T12.7*7.9*5C)					
Test condition	90V 60Hz	264V 50Hz	90V 60Hz	264V 50Hz	--
--	Label down	Label down	Label up	Label up	--
AC Inlet (70°C)	41.7	36.1	43.5	37.3	55
TVS1 body (85°C)	52.6	40.5	51.6	40.6	70
TVS2 body (85°C)	62.8	47.3	61.9	47.5	70
CX1 body (100°C)	66.2	50.1	65	50.2	85
LF1 coil (130°C)	99.2	64	98.3	64.4	115
LF2 coil (130°C)	89.4	59.8	88.3	60.1	115
PCB near BD1 (130°C)	104.1	66.5	102.6	66.4	115
C2 body (105°C)	85	63.5	83.6	63.6	90
T1 coil (Class B)	81.2	72.3	80.8	72.9	95
T1 core (Class B)	73.9	65.3	73.8	66.4	95
PCB under T1 (130°C)	73.7	64.8	72.6	65.2	115
CY1 body (125°C)	73.2	61	73.6	62.1	110
IC1 body (100C)	74.8	63.1	73.6	63.5	85
PCB near Q1 (130°C)	92.6	68.6	91.3	69	115
PCB near D3 (130C)	83.8	77	82.9	77.5	115
C6 body (105°C)	77.7	70.3	76.8	70.6	90
Internal plastic enclosure above T1	63.9	56	64.2	57.4	70
External plastic enclosure above T1	55.2	49.5	56.5	51.3	77
Output cord (80°C)	34.5	33	34.4	33.8	65
Ambient	25	25	25	25	--
Model: KPL-066F-VI (12V/5.5A) (LF2: T12.7*7.9*5C)					
Test condition	90V 60Hz	264V 50Hz	90V 60Hz	264V 50Hz	--
--	Label down	Label down	Label up	Label up	--
AC Inlet (70°C)	40.7	36.6	43.2	39.1	55
TVS1 body (85°C)	53.1	44.8	53.7	45.1	70
CX1 body (100°C)	59.6	51	61	51.6	85
LF1 coil (130°C)	90.2	65.7	90.9	66.6	115
LF2 coil (130°C)	76	59.3	77.1	60	115
PCB near BD1 (130°C)	85.2	63.5	86.1	64	115
C2 body (105°C)	80.7	69	81.8	69.8	90
T1 coil (Class B)	83.4	79	84	79.1	95
T1 core (Class B)	78.4	72.5	79.4	74.3	95

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Clause	Requirement + Test	Result - Remark	Verdict

CY1 body (125°C)	67.2	63.1	69.1	64.4	110
IC1 body (100C)	69.9	64.5	70.9	65.3	85
PCB near Q1 (130°C)	82.1	74	83.2	74.7	115
PCB near D3 (130C)	86.7	84.2	86.4	83.6	115
C6 body (105°C)	83.7	80.9	83.4	80.3	90
C7 body (105°C)	77.9	75	77.7	74.3	90
PCB under T1 (130°C)	73.8	70.2	74.2	70.3	115
Internal plastic enclosure above T1	67.1	63.8	65.4	62	70
External plastic enclosure above T1	59.8	56.5	57.5	54.1	77
Output cord (80°C)	37.9	37.4	36.9	36.1	65
Ambient	25	25	25	25	--
Model: 2ACL030B(5V/6A)					
Test condition	90V 60Hz	264V 50Hz	90V 60Hz	264V 50Hz	--
--	Label down	Label down	Label up	Label up	--
Inlet body	41.7	37.8	41.9	37.2	45
Enclosure inside near T1	57.4	53.9	57.4	53.6	60
Enclosure outside near T1	51	48.2	50.4	47.3	77
TVS1 body	44.8	40.4	45.3	40.3	60
CX1 body	56.3	49.7	56.4	49.4	75
LF1 coil	58.7	50.5	58.7	50.2	105
LF2 coil	52.6	46.8	53.7	47.1	105
PWB near BD1	67.5	58	67.2	57.3	105
PWB near Q1	71.2	65.5	70.2	64.7	105
C2 body	67.7	58.8	68.4	58.2	80
T1 coil	72.9	67	72.4	66.5	85
T1 core	67.7	63	67.5	62.5	85
CY1 body	60.6	56.7	60.6	56.6	100
IC1 body	64.8	58.8	65	58.6	75
PWB near Q2	68.2	61.2	68.4	61.4	105
Q1 body	69.9	65.7	69.3	64.9	125
Q2 body	67.1	59.3	67.2	59.2	125
Input wire	40.3	36.8	40.6	36.2	80
Output wire	50.3	47.2	50	46.8	55
Ambient	25	25	25	25	--
Model: KPL-065U-VI (56V/1.16A)					
Test condition	90V 60Hz	264V 50Hz	90V 60Hz	264V 50Hz	--
--	Label down	Label down	Label up	Label up	--
AC Inlet	48.9	41.2	48.8	42.0	50

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Clause	Requirement + Test	Result - Remark	Verdict

CX1 body	66.3	53.8	65.9	54.5	80
LF1 coil	88.9	64.5	87.9	65.3	110
LF2 coil	82.7	61.8	83.1	63.1	110
PCB near BD1	99.0	75.1	98.0	75.6	110
C2 body	80.1	66.8	80.0	68.0	85
T1 coil	89.9	84.2	89.4	84.5	90
T1 core	87.0	81.5	85.8	82.0	90
PCB near T1	77.4	72.0	76.6	72.1	110
CY1 body	74.7	68.1	75.5	69.7	105
IC1 body	75.5	68.3	75	69.1	80
PCB near Q1	96.5	83.4	95.7	84.0	110
PCB near D3	94.4	90.8	94.1	91.0	110
C6 body	81.8	75.8	80.8	76.0	85
C7 body	75.0	69.8	74.1	69.6	85
Enclosure inside near T1	66.3	59.6	67.7	61.9	70
Enclosure outside near T1	55.6	51.0	57.8	53.6	77
Output wire	52.3	49.2	52.7	50.0	60
Q1 body	95.0	83.3	94.8	84.2	110
Ambient	25.0	25.0	25.0	25.0	--
Model: GTR0382					
Test condition	90V 60Hz	264V 50Hz	90V 60Hz	264V 50Hz	--
--	Label down	Label down	Label up	Label up	--
Inlet body	31.2	31.3	33.9	30.8	55
Enclosure inside near T1	71.5	69.4	73.7	72.1	90
Enclosure outside near T1	62.6	60.3	65.7	64.0	77
TVS1 body	54.8	45.3	57.1	46.8	70
CX1 body	70.1	56.5	69.2	57.4	85
LF2 coil	65.2	50.5	68.8	53.5	115
LF1 coil	81.6	61.3	80.2	62.1	115
PWB near BD1	85.2	67.1	85.3	68.4	115
PWB near Q1	81.0	78.1	80.8	78.8	115
C2 body	81.1	70.1	80.6	71.2	90
T1 coil	92.3	88.5	91.8	88.9	95
T1 core	88.8	85.8	88.0	86.1	95
CY1 body	82.1	80.8	84.9	83.2	110
IC1 body	69.6	65.7	69.1	65.9	85
PWB near Q2	84.1	78.4	85.1	80.1	115
L1 body	68.9	67.6	72.2	70.7	115
L2 body	105.7	104.3	103	102.7	115

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Clause	Requirement + Test	Result - Remark	Verdict

Input wire	61.7	61.1	64.3	63.0	90
Output wire	44.3	38.7	45.4	38.7	65
Ambient	25.0	25.0	25.0	25.0	--
Model: 2ABF065F (HS: Length=20mm)					
Test condition	90V 60Hz	264V 50Hz	90V 60Hz	264V 50Hz	--
--	Label down	Label down	Label up	Label up	--
Inlet body	39.6	38.6	40.4	35.9	55
Enclosure inside near T1	67.7	58.3	68.1	59.5	70
Enclosure outside near T1	54.9	49.6	62.4	52.8	77
ZNR1 body	64.5	58.8	65.0	57.3	70
CX1 body	82.5	64.4	82.9	63.0	85
TH1 body	85.8	63.8	86.5	62.6	--
LF2 coil	91.0	67.0	91.3	65.5	115
LF1 coil	83.2	63.8	83.6	62.3	115
PWB near BD1	93.2	70.2	93.1	68.3	115
PWB near Q2	89.0	74.8	89.2	73.1	115
C1 body	83.8	67.5	84.6	66.4	90
T1 coil	88.1	74.5	89.1	73.4	95
T1 core	81.9	70.2	82.9	69.1	95
CY1 body	76.3	66.3	77.2	65.3	110
U4 body	79.3	67.0	79.6	65.5	85
PWB near Q1	87.7	71.4	87.4	69.7	115
Q2 body	89.0	76.4	89.3	74.7	--
Input wire	66.8	55.3	67.5	53.9	90
Output wire	60.1	53.2	60.5	51.7	65
Ambient	25.0	25.0	25.0	25.0	--
Model: 2ABF060R (HS2:Length=20mm)					
Test condition	90V 60Hz	264V 50Hz	90V 60Hz	264V 50Hz	--
--	Label down	Label down	Label up	Label up	--
Inlet body	37.3	33.8	37.4	34.6	55
Enclosure inside near T1	62.8	57.9	63.1	58.2	70
Enclosure outside near T1	53.5	49.8	53.7	50.1	77
ZNR1 body	68.4	54.8	68.6	55.0	70
CX1 body	76.1	60.1	76.0	60.2	85
TH1 body	78.8	59.6	78.9	59.9	--
LF2 coil	80.5	61.1	80.2	61.1	115
LF1 coil	78.2	60.3	78.2	60.4	115
PWB near BD1	77.5	61.6	77.2	61.4	115

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Clause	Requirement + Test	Result - Remark	Verdict

PWB near Q2	75.4	65.2	75.3	65.2	115
C1 body	72.8	61.6	72.8	61.8	90
T1 coil	81.4	75.7	81.3	75.8	95
T1 core	75.0	70.7	75.0	70.8	95
CY1 body	66.7	62.0	66.0	61.7	110
U4 body	73.7	70.5	73.8	71.1	85
PWB near Q1	82.6	90.4	82.6	90.7	115
Q2 body	74.2	65.2	74.0	65.1	--
Input wire	61.8	51.3	61.8	51.4	90
Output wire	52.0	51.5	51.4	51.2	65
Ambient	25.0	25.0	25.0	25.0	--
Model: 2ACL065U (HS2:Length=70mm)					
Test condition	90V 60Hz	264V 50Hz	90V 60Hz	264V 50Hz	--
--	Label down	Label down	Label up	Label up	--
Inlet body	39.9	42.0	45.9	41.9	55
Enclosure inside near T1	66.3	62.8	67.8	61.7	70
Enclosure outside near T1	59.8	59.3	64.2	59.4	77
TVS1 body	66.7	65.7	67.3	65.6	70
CX1 body	81.7	70.3	82.4	70.2	85
TH1 body	90.5	70.2	91.5	70.1	--
LF1 coil	99.2	76.1	99.8	76.0	115
LF2 coil	88.2	71.1	88.8	71.0	115
PWB near BD1	97.2	77.4	97.2	77.3	115
PWB near Q1	92.4	82.0	92.4	81.8	115
C2 body	85.0	76.2	85.9	76.1	90
T1 coil	91.3	88.0	92.2	87.9	95
T1 core	87.5	83.1	88.7	83	95
CY1 body	78.9	74.3	79.6	74.1	110
IC1 body	82.3	78.4	83.2	78.2	85
PWB near Q2	86.7	88.3	87.1	88.2	115
Q1 body	98.3	87.9	98.8	87.8	--
Input wire	64.5	55.5	64.9	55.4	90
Output wire	60.6	59.5	61.8	59.3	65
Ambient	25.0	25.0	25.0	25.0	--
Model: 2ACL065R (HS2:Length=70mm)					
Test condition	90V 60Hz	264V 50Hz	90V 60Hz	264V 50Hz	--
--	Label down	Label down	Label up	Label up	--
Inlet body	41.1	37.8	42.6	38.6	55

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Clause	Requirement + Test	Result - Remark	Verdict

Enclosure inside near T1	67.8	63.1	68.2	63.2	70
Enclosure outside near T1	57.9	54.7	58.2	54.3	70
TVS1 body	67.9	62.1	67.9	61.8	70
CX1 body	80.6	67.3	80.6	67.1	85
TH1 body	84.5	65.3	84.8	65.3	--
LF1 coil	92.0	68.7	91.9	68.4	115
LF2 coil	85.2	66.1	85.3	65.9	115
PWB near BD1	95.5	73.1	95.2	72.7	115
PWB near Q1	91.2	77.9	90.9	77.5	115
C2 body	83.6	70.1	83.8	70.1	90
T1 coil	88.9	82.3	89.1	82.2	95
T1 core	83.7	78.2	83.9	78.2	95
CY1 body	74.8	69.1	74.7	68.8	110
IC1 body	78.2	74.1	78.5	74.5	85
PWB near Q2	88.8	97.6	89.0	97.6	115
Q1 body	91.6	79.1	91.3	78.6	--
Input wire	63.5	53.2	63.6	52.9	90
Output wire	57.1	56.1	56.9	55.8	65
Ambient	25.0	25.0	25.0	25.0	--
Model: 2ACL060M (HS2:Length=70mm)					
Test condition	90V 60Hz	264V 50Hz	90V 60Hz	264V 50Hz	--
--	Label down	Label down	Label up	Label up	--
Inlet body	38.6	35.3	39.8	36.3	55
Enclosure inside near T1	66.4	61	66.9	61.3	70
Enclosure outside near T1	55.4	51.6	55.9	51.8	77
TVS1 body	68.6	57.7	68.7	58.1	70
CX1 body	78.7	62.9	79	63.2	85
TH1 body	85.6	63.2	86	63.7	--
LF1 coil	82.8	63.8	83	64.2	115
LF2 coil	80.5	63	80.8	63.5	115
PWB near BD1	79.9	64.5	80.2	64.8	115
PWB near Q1	78.9	69.2	79.2	69.7	115
C2 body	79.4	66.9	79.6	67.2	90
T1 coil	84.9	77.6	85.2	78	95
T1 core	80.8	75.6	81.1	75.8	95
CY1 body	68	63.1	68.2	63.1	110
IC1 body	76.4	70.8	77.1	71.6	85
PWB near Q2	85	82.9	85.5	83.4	115
Q1 body	77.6	69.5	77.9	69.7	--

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Clause	Requirement + Test	Result - Remark	Verdict

Input wire	63.7	53.6	63.4	53.6	90
Output wire	53.5	51.3	54.1	51.3	65
Ambient	25	25	25	25	--
Model: 2ACL060K (HS2:Length=70mm)					
Test condition	90V 60Hz	264V 50Hz	90V 60Hz	264V 50Hz	--
--	Label down	Label down	Label up	Label up	--
Inlet body	41.9	37.3	42.5	39.8	55
Enclosure inside near T1	66.6	62.6	67	64.5	70
Enclosure outside near T1	53.5	52.5	59.3	55.8	77
TVS1 body	66.7	60.9	66.6	60.9	70
CX1 body	78.1	66.0	77.9	66.0	85
TH1 body	81.7	64.6	81.7	64.8	--
LF1 coil	84.7	67.5	84.5	67.6	115
LF2 coil	79.8	65.6	79.5	65.7	115
PWB near BD1	82.0	68.2	81.5	68.0	115
PWB near Q1	82.0	75.2	81.8	75.2	115
C2 body	80.7	70.2	80.8	70.6	90
T1 coil	88.2	82.1	88.7	82.5	95
T1 core	82.9	78.5	83.3	78.9	95
CY1 body	70.9	66.7	71.1	67.0	110
IC1 body	78.8	74.4	79.5	75.0	85
PWB near Q2	91.6	89.7	92.4	90.0	115
Q1 body	80.6	75.2	80.8	75.4	--
Input wire	62.5	54.8	62.2	54.5	90
Output wire	56.3	54.9	58.1	55.4	65
Ambient	25.0	25.0	25.0	25.0	--
Model: 2ACL065U (HS2:Length=20mm)					
Test condition	90V 60Hz	264V 50Hz	90V 60Hz	264V 50Hz	--
--	Label down	Label down	Label up	Label up	--
Inlet body	39.9	42	45.9	41.9	55
Enclosure inside near T1	66.3	62.8	67.8	61.7	70
Enclosure outside near T1	59.8	59.3	64.2	59.4	77
TVS1 body	66.7	65.7	67.3	65.6	70
CX1 body	81.7	70.3	82.4	70.2	85
TH1 body	90.5	70.2	91.5	70.1	--
LF1 coil	99.2	76.1	99.8	76.0	115
LF2 coil	88.2	71.1	88.8	71.0	115
PWB near BD1	97.2	77.4	97.2	77.3	115

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Clause	Requirement + Test	Result - Remark	Verdict

PWB near Q1	92.4	82.0	92.4	81.8	115
C2 body	85.0	76.2	85.9	76.1	90
T1 coil	91.3	88.0	92.2	87.9	95
T1 core	87.5	83.1	88.7	83.0	95
CY1 body	78.9	74.3	79.6	74.1	110
IC1 body	82.3	78.4	83.2	78.2	85
PWB near Q2	86.7	88.3	87.1	88.2	115
Q1 body	98.3	87.9	98.8	87.8	--
Input wire	64.5	55.5	64.9	55.4	90
Output wire	60.6	59.5	61.8	59.3	65
Ambient	25	25	25	25	--
Model: 2ACL065R (HS2:Length=20mm)					
Test condition	90V 60Hz	264V 50Hz	90V 60Hz	264V 50Hz	--
--	Label down	Label down	Label up	Label up	--
Inlet body	41.1	37.8	42.6	38.6	55
Enclosure inside near T1	67.8	63.1	68.2	63.2	70
Enclosure outside near T1	57.9	54.7	58.2	54.3	77
TVS1 body	67.9	62.1	67.9	61.8	70
CX1 body	80.6	67.3	80.6	67.1	85
TH1 body	84.5	65.3	84.8	65.3	--
LF1 coil	92.0	68.7	91.9	68.4	115
LF2 coil	85.2	66.1	85.3	65.9	115
PWB near BD1	95.5	73.1	95.2	72.7	115
PWB near Q1	91.2	77.9	90.9	77.5	115
C2 body	83.6	70.1	83.8	70.1	90
T1 coil	88.9	82.3	89.1	82.2	95
T1 core	83.7	78.2	83.9	78.2	95
CY1 body	74.8	69.1	74.7	68.8	110
IC1 body	78.2	74.1	78.5	74.5	85
PWB near Q2	88.8	97.6	89.0	97.6	115
Q1 body	91.6	79.1	91.3	78.6	--
Input wire	63.5	53.2	63.6	52.9	90
Output wire	57.1	56.1	56.9	55.8	65
Ambient	25.0	25.0	25.0	25.0	--
Model: 2ACL060M (HS2:Length=20mm)					
Test condition	90V 60Hz	264V 50Hz	90V 60Hz	264V 50Hz	--
--	Label down	Label down	Label up	Label up	--
Inlet body	38.6	35.3	39.8	36.3	55

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Clause	Requirement + Test	Result - Remark	Verdict

Enclosure inside near T1	66.4	61.0	66.9	61.3	70
Enclosure outside near T1	55.4	51.6	55.9	51.8	77
TVS1 body	68.6	57.7	68.7	58.1	70
CX1 body	78.7	62.9	79.0	63.2	85
TH1 body	85.6	63.2	86.0	63.7	--
LF1 coil	82.8	63.8	83.0	64.2	115
LF2 coil	80.5	63.0	80.8	63.5	115
PWB near BD1	79.9	64.5	80.2	64.8	115
PWB near Q1	78.9	69.2	79.2	69.7	115
C2 body	79.4	66.9	79.6	67.2	90
T1 coil	84.9	77.6	85.2	78.0	95
T1 core	80.8	75.6	81.1	75.8	95
CY1 body	68.0	63.1	68.2	63.1	110
IC1 body	76.4	70.8	77.1	71.6	85
PWB near Q2	85.0	82.9	85.5	83.4	115
Q1 body	77.6	69.5	77.9	69.7	--
Input wire	63.7	53.6	63.4	53.6	90
Output wire	53.5	51.3	54.1	51.3	65
Ambient	25.0	25.0	25.0	25.0	--
Model: 2ACL060K (HS2:Length=20mm)					
Test condition	90V 60Hz	264V 50Hz	90V 60Hz	264V 50Hz	--
--	Label down	Label down	Label up	Label up	--
Inlet body	41.9	37.3	42.5	39.8	55
Enclosure inside near T1	66.6	62.6	67.0	64.5	70
Enclosure outside near T1	53.5	52.5	59.3	55.8	77
TVS1 body	66.7	60.9	66.6	60.9	70
CX1 body	78.1	66.0	77.9	66.0	85
TH1 body	81.7	64.6	81.7	64.8	--
LF1 coil	84.7	67.5	84.5	67.6	115
LF2 coil	79.8	65.6	79.5	65.7	115
PWB near BD1	82.0	68.2	81.5	68.0	115
PWB near Q1	82.0	75.2	81.8	75.2	115
C2 body	80.7	70.2	80.8	70.6	90
T1 coil	88.2	82.1	88.7	82.5	95
T1 core	82.9	78.5	83.3	78.9	95
CY1 body	70.9	66.7	71.1	67.0	110
IC1 body	78.8	74.4	79.5	75.0	85
PWB near Q2	91.6	89.7	92.4	90.0	115
Q1 body	80.6	75.2	80.8	75.4	--

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Clause	Requirement + Test	Result - Remark	Verdict

Input wire	62.5	54.8	62.2	54.5	90
Output wire	56.3	54.9	58.1	55.4	65
Ambient	25.0	25.0	25.0	25.0	--
Model: 2ABF065F					
Test condition	90V 60Hz	264V 50Hz	90V 60Hz	264V 50Hz	--
--	Label down	Label down	Label up	Label up	--
CH22 Inlet body	41.9	45.5	38.7	39.0	55
CH23 Enclosure inside near T1	63.8	65.8	53.4	54.3	70
CH24 Enclosure outer near T1	51.5	54.8	43.5	46.2	70
CH25 ZNR1	66.2	66.5	52.9	52.2	70
CH26 CX1	79.9	79.0	60.8	59.6	85
CH27 LF1	75.7	75.6	57.9	56.8	90
CH28 LF2	85.5	82.8	60.8	60.1	90
CH29 PWB near BD1(HS1)	74.7	75.2	59.7	58.2	90
CH30 PWB near Q2(HS1)	89.6	88.7	68.4	66.9	90
CH31 C1	83.7	83.3	63.3	62.5	90
CH32 T1 coil	87.7	87.0	71.2	70.2	95
CH33 T1 core	79.3	79.3	66.3	65.7	95
CH34 CY1	71.8	71.5	60.3	59.3	110
CH35 U4	76.9	76.7	62.8	62.5	85
CH36 PWB near Q1(HS2)	77.9	77.9	63.4	63.0	90
CH37 C5	78.1	77.8	62.9	62.3	90
CH38 C6	69.2	68.6	57.0	56.0	90
CH39 output wire	53.1	52.1	44.5	43.9	65
Ambient	25.0	25.0	25.0	25.0	--
Model: 2ABF060R					
Test condition	90V 60Hz	264V 50Hz	90V 60Hz	264V 50Hz	--
--	Label down	Label down	Label up	Label up	--
CH02 Inlet body	39.2	41.1	35.0	35.6	55
CH03 Enclosure inside near T1	59.2	60.5	53.7	54.7	70
CH04 Enclosure outer near T1	52.1	53.4	46.5	48.1	77
CH05 ZNR1	60.5	61.5	51.0	51.2	70
CH06 CX1	74.0	74.7	59.7	59.6	85
CH07 LF1	68.4	69.0	56.4	56.2	90
CH08 LF2	71.4	72.2	56.4	56.6	90
CH09 PWB near BD1(HS1)	69.9	71.1	56.4	56.5	90
CH10 PWB near Q2(HS1)	74.8	75.2	64.2	64.1	90
CH11 C1	75.8	76.5	64.6	64.9	90

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Clause	Requirement + Test	Result - Remark	Verdict

CH12 T1 coil	78.5	78.9	74.0	74.2	95
CH13 T1 core	69.6	70.2	65.7	66.0	95
CH14 CY1	66.7	66.7	61.0	60.6	110
CH15 U4	71.4	72.1	68.0	68.3	85
CH16 PWB near Q1(HS2)	74.8	75.4	76.0	76.3	90
CH17 C5	67.0	67.5	65.4	65.7	90
CH18 C6	62.2	62.6	58.8	59.1	90
CH19 output wire	55.8	55.8	53.7	53.7	65
Ambient	25.0	25.0	25.0	25.0	--
Model: KPL-060I-VI					
Test condition	90V 60Hz	264V 50Hz	90V 60Hz	264V 50Hz	--
--	Label down	Label down	Label up	Label up	--
AC Inlet (70°C)	43.2	37.4	43.7	37.4	50
CX1 body (100°C)	48.5	41.8	48.4	41.9	80
LF1 coil (130°C)	79.2	55.3	78.8	55.2	110
LF2 coil (130°C)	62.6	48.1	63.0	48.6	110
PCB near BD1 (130°C)	78.2	62.0	77.8	61.7	110
C2 body (105°C)	66.7	56.7	66.5	56.9	85
T1 coil (Class B)	68.1	65.1	67.0	64.3	90
T1 core (Class B)	57.2	56.1	55.9	55.4	90
PCB under T1 (130°C)	62.1	61.5	61.1	61.3	110
CY1 body (125°C)	58.8	53.3	55.9	51.0	105
IC1 body (110C)	55.9	52.4	56.3	54.0	90
PCB near Q1 (130°C)	74.4	63.3	74.3	63.1	110
PCB near D3 (130C)	72.6	73.7	70.9	72.7	110
C6 body (105°C)	66.3	66.9	65.1	66.6	85
C7 body (105°C)	61.7	61.9	60.9	61.6	85
Internal plastic enclosure above T1	52.7	50.0	51.5	49.2	65
External plastic enclosure above T1	43.6	42.6	42.9	41.7	77
Output cord (80°C)	27.0	27.6	27.2	27.4	60
Ambient	25.0	25.0	25.0	25.0	--
Model: KPL-050F-VI					
Test condition	90V 60Hz	264V 50Hz	90V 60Hz	264V 50Hz	--
--	Label down	Label down	Label up	Label up	--
AC Inlet (70°C)	42.2	35.8	42.3	36.1	50
CX1 body (100°C)	44.0	37.6	43.1	36.9	80
LF1 coil (130°C)	77.3	52.6	73.9	52.9	110
LF2 coil (130°C)	60.8	45.9	60.3	46.2	110

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Clause	Requirement + Test	Result - Remark	Verdict

PCB near BD1 (130°C)	77.3	60.1	78.0	60.2	110
C2 body (105°C)	73.8	58.9	74.0	59.0	85
T1 coil (Class B)	74.0	71.2	74.7	71.5	90
T1 core (Class B)	68.2	69.9	70.5	70.2	90
PCB under T1 (130°C)	67.4	65.8	67.8	66.1	110
CY1 body (125°C)	62.9	58.5	64.1	59.6	105
IC1 body (110C)	57.7	54.3	59.1	56.0	90
PCB near Q1 (130°C)	73.5	63.9	74.1	64.3	110
PCB near D3 (130C)	72.5	71.1	73.0	71.5	110
C6 body (105°C)	69.4	67.9	69.7	68.2	85
C7 body (105°C)	64.3	62.6	64.8	62.9	85
Internal plastic enclosure above T1	50.7	50.0	50.8	50.2	65
External plastic enclosure above T1	44.0	43.4	45.0	44.4	77
Output cord (80°C)	29.9	29.2	29.8	29.6	60
Ambient	25.0	25.0	25.0	25.0	--
Model: KPL-060F-VI					
Test condition	90V 60Hz	264V 50Hz	90V 60Hz	264V 50Hz	--
--	Label down	Label down	Label up	Label up	--
AC Inlet (70°C)	48.2	37.5	48.4	38.2	50
CX1 body (100°C)	56.5	43.3	54.8	42.9	80
LF1 coil (130°C)	92.2	56.6	91.7	57.4	110
LF2 coil (130°C)	74.1	49.7	74.0	50.3	110
PCB near BD1 (130°C)	85.4	59.1	85.6	59.9	110
C2 body (105°C)	74.7	56.4	73.8	56.7	85
T1 coil (Class B)	78.8	67.8	78.2	68.5	90
T1 core (Class B)	67.4	58.3	66.6	59.0	90
PCB under T1 (130°C)	71.9	63.3	71.3	63.9	110
CY1 body (125°C)	68.0	55.9	69.0	57.4	105
IC1 body (110C)	64.5	56.0	63.0	55.7	90
PCB near Q1 (130°C)	80.3	61.0	81.0	62.0	110
PCB near D3 (130C)	80.3	74.0	79.7	73.9	110
C6 body (105°C)	77.2	70.8	77.4	71.4	85
C7 body (105°C)	72.9	65.9	73.1	66.7	85
Internal plastic enclosure above T1	60.8	50.6	60.8	51.8	65
External plastic enclosure above T1	52.4	44.6	53.1	46.3	77
Output cord (80°C)	32.9	30.9	34.0	32.6	60
Ambient	25.0	25.0	25.0	25.0	--
Model: KPL-066F-VI					
Test condition	90V 60Hz	264V 50Hz	90V 60Hz	264V 50Hz	--

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Clause	Requirement + Test	Result - Remark	Verdict

--	Label down	Label down	Label up	Label up	--
AC Inlet (70°C)	50.6	40.6	51.2	41.4	55
CX1 body (100°C)	56.8	45.1	57.4	45.9	85
LF1 coil (130°C)	90.1	60.7	91.7	61.8	115
LF2 coil (130°C)	760	53.2	78.0	54.3	115
PCB near BD1 (130°C)	82.6	61.5	83.6	62.2	115
C2 body (105°C)	78.0	61.3	79.3	62.3	90
T1 coil (Class B)	78.2	68.6	80.6	70.6	95
T1 core (Class B)	70.1	61.7	72.7	63.6	95
PCB under T1 (130°C)	72.6	65.3	74.4	66.8	115
CY1 body (125°C)	67.8	59.3	70.3	61.2	110
IC1 body (110C)	64.7	57.2	67.6	59.8	95
PCB near Q1 (130°C)	77.4	65.0	79.5	67.4	115
PCB near D3 (130C)	85.3	79.1	88.4	81.4	115
C6 body (105°C)	83.2	76.6	86.1	78.8	90
C7 body (105°C)	77.1	70.5	80.0	72.8	90
Internal plastic enclosure above T1	67.4	56.9	70.0	58.9	70
External plastic enclosure above T1	53.3	47.1	57.5	50.7	77
Output cord (80°C)	31.6	30.8	33.1	32.0	65
Ambient	25.0	25.0	25.0	25.0	--
Model: KPL-065J-VI					
Test condition	90V 60Hz	264V 50Hz	90V 60Hz	264V 50Hz	--
--	Label down	Label down	Label up	Label up	--
AC Inlet (70°C)	53.5	43.6	53.7	44.1	55
CX1 body (100°C)	54.5	44.3	56.2	45.6	85
LF1 coil (130°C)	93.5	61.8	91.4	62.7	115
LF2 coil (130°C)	76.2	53.4	77.3	54.8	115
PCB near BD1 (130°C)	91.1	67.7	88.7	68.2	115
C2 body (105°C)	71.8	58.0	72.8	59.5	90
T1 coil (Class B)	77.3	69.7	77.7	71.1	95
T1 core (Class B)	67.0	61.1	68.1	62.4	95
PCB under T1 (130°C)	70.9	65.7	72.3	67.3	115
CY1 body (125°C)	75.2	66.4	75.6	67.0	110
IC1 body (110C)	60.6	54.8	65.4	59.6	95
PCB near Q1 (130°C)	88.0	75.6	87.8	75.9	115
PCB near D3 (130C)	78.1	75.0	80.8	78.0	115
C6 body (105°C)	75.6	72.2	78.0	74.5	90
C7 body (105°C)	70.6	66.1	72.0	67.8	90
Internal plastic enclosure above T1	61.1	54.6	62.7	56.4	70

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Clause	Requirement + Test	Result - Remark	Verdict

External plastic enclosure above T1	48.2	44.4	50.5	46.9	77
Output cord (80°C)	28.8	29.1	32.9	32.2	65
Ambient	25.0	25.0	25.0	25.0	--
Model: KPL-065M-VI					
Test condition	90V 60Hz	264V 50Hz	90V 60Hz	264V 50Hz	--
--	Label down	Label down	Label up	Label up	--
AC Inlet (70°C)	50.2	41.3	50.9	41.3	55
CX1 body (100°C)	55.9	45.5	55.7	45.0	85
LF1 coil (130°C)	86.9	58.0	86.3	57.8	115
LF2 coil (130°C)	75.0	52.5	75.7	52.6	115
PCB near BD1 (130°C)	87.7	62.1	88.0	61.9	115
C2 body (105°C)	75.6	59.1	75.6	58.8	90
T1 coil (Class B)	70.5	66.1	70.7	65.9	95
T1 core (Class B)	61.2	58.0	61.2	57.8	95
PCB under T1 (130°C)	65.2	62.0	65.4	62.0	115
CY1 body (125°C)	64.6	55.6	67.4	57.1	110
IC1 body (110C)	58.6	53.3	58.3	53.2	95
PCB near Q1 (130°C)	81.1	62.8	81.9	62.9	115
PCB near D3 (130C)	69.5	67.9	68.8	67.1	115
C6 body (105°C)	67.5	65.6	67.0	64.9	90
C7 body (105°C)	63.3	60.9	63.0	60.5	90
Internal plastic enclosure above T1	56.6	52.1	56.8	51.9	70
External plastic enclosure above T1	48.9	45.8	46.3	45.4	77
Output cord (80°C)	32.9	32.3	33.6	33.0	65
Ambient	25.0	25.0	25.0	25.0	--
Model: KPL-065S-VI					
Test condition	90V 60Hz	264V 50Hz	90V 60Hz	264V 50Hz	--
--	Label down	Label down	Label up	Label up	--
AC Inlet (70°C)	52.8	43.7	53.7	43.8	55
CX1 body (100°C)	55.8	45.8	56.1	46.0	85
LF1 coil (130°C)	87.6	61.3	89.4	61.3	115
LF2 coil (130°C)	74.7	53.7	74.6	53.8	115
PCB near BD1 (130°C)	87.4	65.5	89.2	65.6	115
C2 body (105°C)	72.8	58.9	73.9	58.8	90
T1 coil (Class B)	77.5	69.9	78.4	69.6	95
T1 core (Class B)	67.4	61.6	68.6	61.4	95
PCB under T1 (130°C)	68.8	62.5	68.8	61.8	115
CY1 body (125°C)	70.2	60.2	70.3	59.6	110

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Clause	Requirement + Test	Result - Remark	Verdict

IC1 body (110C)	61.6	52.1	60.1	51.5	95
PCB near Q1 (130°C)	82.9	67.1	84.7	66.9	115
PCB near D3 (130C)	68.8	59.0	67.6	57.6	115
C6 body (105°C)	64.3	56.1	63.5	54.6	90
C7 body (105°C)	62.3	54.4	61.4	53.2	90
Internal plastic enclosure above T1	62.2	55.2	63.2	55	70
External plastic enclosure above T1	53.9	49.2	54.8	48.6	77
Output cord (80°C)	34.1	32.7	33.0	32.0	65
Ambient	25.0	25.0	25.0	25.0	--
Model: KPL-050F					
Test condition	90V 60Hz	264V 50Hz	90V 60Hz	264V 50Hz	--
--	Label down	Label down	Label up	Label up	--
AC Inlet (70°C)	52.1	47.1	52.4	48.9	55
CX1 body (100°C)	64.6	60.1	69.6	64.7	85
LF1 coil (130°C)	81.3	63.2	83.6	65.8	115
LF2 coil (130°C)	79.1	64.4	81.5	66.7	115
PCB near BD1 (130°C)	90.9	70.4	90.9	70.7	115
C2 body (105°C)	86.1	73.4	86.6	76.9	90
T1 coil (Class B)	89.0	86.5	92.7	89.6	95
T1 core (Class B)	85.2	83.3	89.5	85.1	95
PCB under T1 (130°C)	82.4	78.1	81.4	77.5	115
CY1 body (125°C)	76.5	71.1	78.8	73.7	110
IC1 body (110C)	76.5	73.7	80.4	77.6	95
PCB near Q1 (130°C)	96.2	80.6	95.7	80.8	115
PCB near D3 (130C)	79.5	77.9	85.0	83.3	115
C6 body (105°C)	77.7	76.5	82.2	81.0	90
C7 body (105°C)	75.5	74.1	78.6	77.3	90
Internal plastic enclosure above T1	59.2	59.2	74.9	74.6	90
External plastic enclosure above T1	51.8	51.7	70.0	69.6	77
Output cord (80°C)	37.5	36.8	37.6	37.3	65
Ambient	25.0	25.0	25.0	25.0	--
Model: KPL-050M					
Test condition	90V 60Hz	264V 50Hz	90V 60Hz	264V 50Hz	--
--	Label down	Label down	Label up	Label up	--
AC Inlet (70°C)	37.5	35.1	36.5	34.4	55
CX1 body (100°C)	46.8	44.2	47.1	44.5	85
LF1 coil (130°C)	64.1	52.7	62.9	52.1	115
LF2 coil (130°C)	55.3	48.5	54.9	48.3	115

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Clause	Requirement + Test	Result - Remark	Verdict

PCB near BD1 (130°C)	66.2	54.0	66.6	53.9	115
C2 body (105°C)	65.2	58.1	64.3	57.6	90
T1 coil (Class B)	68.2	67.0	67.8	66.7	95
T1 core (Class B)	63.8	62.8	64.2	63.3	95
PCB under T1 (130°C)	66.2	65.7	63.4	62.9	115
CY1 body (125°C)	66.2	62.2	64.7	61.0	110
IC1 body (110C)	60.8	58.2	60.8	58.4	95
PCB near Q1 (130°C)	75.4	64.7	73.2	63.1	115
PCB near D3 (130C)	52.0	50.5	49.8	48.1	115
C6 body (105°C)	52.5	53.9	55.3	56.7	90
C7 body (105°C)	54.2	55.6	55.7	57.2	90
Internal plastic enclosure above T1	54.6	55.4	58.7	59.6	90
External plastic enclosure above T1	43.9	44.7	51.0	51.6	77
Output cord (80°C)	30.5	30.6	27.5	27.4	65
Ambient	25.0	25.0	25.0	25.0	--
Model: KPL-060I					
Test condition	90V 60Hz	264V 50Hz	90V 60Hz	264V 50Hz	--
--	Label down	Label down	Label up	Label up	--
AC Inlet (70°C)	39.5	36.5	40.2	37.0	55
CX1 body (100°C)	59.3	53.6	60.7	54.6	85
LF1 coil (130°C)	77.0	60.0	76.7	59.7	115
LF2 coil (130°C)	65.8	54.9	65.8	54.8	115
PCB near BD1 (130°C)	83.4	64.3	82.1	63.1	115
C2 body (105°C)	70.7	61.5	72.2	62.7	90
T1 coil (Class B)	72.9	71.3	75.2	73.2	95
T1 core (Class B)	68.7	67.5	71.9	70.3	95
PCB under T1 (130°C)	68.1	65.4	64.7	62.2	115
CY1 body (125°C)	63.9	61.0	64.1	60.9	110
IC1 body (110C)	80.1	76.9	80.3	77.4	95
PCB near Q1 (130°C)	99.7	86.4	98.5	85.8	115
PCB near D3 (130C)	89.3	87.2	90.8	88.7	115
C6 body (105°C)	82.2	80.6	84.1	82.5	90
C7 body (105°C)	77.2	75.5	78.4	76.7	90
Internal plastic enclosure above T1	57.0	54.6	61.6	59.1	90
External plastic enclosure above T1	54.9	52.9	67.9	65.1	77
Output cord (80°C)	36.7	36	37.6	37.4	65
Ambient	25.0	25.0	25.0	25.0	--
Model: KPL-065F					
Test condition	90V 60Hz	264V 50Hz	90V 60Hz	264V 50Hz	--

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Clause	Requirement + Test	Result - Remark	Verdict

--	Label down	Label down	Label up	Label up	--
AC Inlet (70°C)	42.6	38.3	37.9	34.5	55
CX1 body (100°C)	69.3	58.8	67.5	57.5	85
LF1 coil (130°C)	79.5	60.1	79.1	60.8	115
LF2 coil (130°C)	73.5	57.6	71.1	56.4	115
PCB near BD1 (130°C)	78.7	60.0	79.9	61.9	115
C2 body (105°C)	80.8	64.7	80.2	65.0	90
T1 coil (Class B)	85.8	74.2	85.7	73.6	95
T1 core (Class B)	81.8	72.4	80.8	69.8	95
PCB under T1 (130°C)	78.3	68.8	75.1	65.4	115
CY1 body (125°C)	74.3	63.2	74.4	63.4	110
IC1 body (110C)	79.3	69.6	77.8	68.6	95
PCB near Q1 (130°C)	84.7	66.7	86.3	68.6	115
PCB near D3 (130C)	83.1	74.6	82.7	74.1	115
C6 body (105°C)	81.9	74.3	82.0	73.7	90
C7 body (105°C)	76.0	68.8	76.9	68.7	90
Internal plastic enclosure above T1	65.4	55.0	68.5	57.9	90
External plastic enclosure above T1	54.0	46.4	58.5	50.4	77
Output cord (80°C)	35.1	33.5	38.1	36.2	65
Ambient	25.0	25.0	25.0	25.0	--
Model: KPL-065J					
Test condition	90V 60Hz	264V 50Hz	90V 60Hz	264V 50Hz	--
--	Label down	Label down	Label up	Label up	--
AC Inlet (70°C)	48.0	43.1	51.7	46.4	55
CX1 body (100°C)	60.3	56.7	63.9	58.1	85
LF1 coil (130°C)	81.1	66.1	85.4	68.0	115
LF2 coil (130°C)	69.3	60.1	74.2	62.0	115
PCB near BD1 (130°C)	77.2	66.8	82.9	69.5	115
C2 body (105°C)	66.9	61.8	74.0	65.3	90
T1 coil (Class B)	78.4	75.0	84.3	77.2	95
T1 core (Class B)	68.4	66.5	75.9	69.6	95
PCB under T1 (130°C)	70.4	68.0	74.4	68.6	115
CY1 body (125°C)	73.7	69.6	78.4	71.2	110
IC1 body (110C)	69.4	67.6	72.5	67.3	95
PCB near Q1 (130°C)	91.6	82.9	98.0	86.1	115
PCB near D3 (130C)	74.1	73.8	77.3	73.6	115
C6 body (105°C)	68.7	69.4	73.1	69.9	90
C7 body (105°C)	67.2	67.4	70.3	66.6	90
Internal plastic enclosure above T1	54.1	53.2	60.5	56.4	90

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Clause	Requirement + Test	Result - Remark	Verdict

External plastic enclosure above T1	50.8	51.5	62.6	57.9	77
Output cord (80°C)	34.4	35.4	33.8	32.7	65
Ambient	25.0	25.0	25.0	25.0	--
Model: KPL-065M					
Test condition	90V 60Hz	264V 50Hz	90V 60Hz	264V 50Hz	--
--	Label down	Label down	Label up	Label up	--
AC Inlet (70°C)	39.1	35.7	44.2	38.4	55
CX1 body (100°C)	54.2	49.3	57.7	50.2	85
LF1 coil (130°C)	68.0	52.5	74.1	54.4	115
LF2 coil (130°C)	61.6	50.4	66.5	51.5	115
PCB near BD1 (130°C)	72.8	54.8	78.2	56.5	115
C2 body (105°C)	62.6	54.5	68.6	56.7	90
T1 coil (Class B)	66.9	63.2	72.2	65.2	95
T1 core (Class B)	60.9	58.5	66.8	61.4	95
PCB under T1 (130°C)	66.1	61.9	64.6	58.2	115
CY1 body (125°C)	62.7	57.4	67.0	58.8	110
IC1 body (110C)	62.8	59.5	63.9	58.8	95
PCB near Q1 (130°C)	75.7	60.9	80.3	62.4	115
PCB near D3 (130C)	65.1	63.5	67.2	63.8	115
C6 body (105°C)	59.9	58.9	63.4	60.1	90
C7 body (105°C)	57.2	55.6	60.8	56.9	90
Internal plastic enclosure above T1	52.0	48.3	57.3	51.0	90
External plastic enclosure above T1	43.0	41.1	54.7	49.4	77
Output cord (80°C)	30.9	30.9	30.4	29.9	65
Ambient	25.0	25.0	25.0	25.0	--

Supplementary information:

Temperature T of winding:	t_1 (°C)	R_1 (Ω)	t_2 (°C)	R_2 (Ω)	T (°C)	Allowed T_{max} (°C)	Insulation class

Supplementary information:

1. The temperatures were measured under worst case normal mode defined in 1.2.2.1 and as described in 1.6.2 at voltage as above.
2. Having a specified maximum operational ambient temperature of 40°C for KPL-xy (PCB with FUSE1), KPL-xy, KPL-xy-VI (PCB with F1,F2 and x=065,066), GTR, 2ABF, 2ACL(xxx=050,060,065,068); 45°C for KPL-xy,KPL-xy-VI (PCB with F1,F2 and x=030, 040, 048, 050, 060); 50°C for 2ACL(xxx=025, 030), the maximum permitted

temperatures (in °C) are calculated as follows:

Winding components (providing safety isolation):

Class B - Tmax = 120°C - 10°C = 110°C

User accessible areas which may be touched during normal use:

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Clause	Requirement + Test	Result - Remark	Verdict

5.4.1.8	Table: working voltage measurement			P
Location		RMS voltage (V)	Peak voltage (V)	Comments
Model: 2ACL068S				
T1 PIN 1 to PIN 8,9		213	404	
T1 PIN 1 to PIN 11,12		224	518	
T1 PIN 3 to PIN 8,9		214	448	
T1 PIN 3 to PIN 11,12		233	574	
T1 PIN 4 to PIN 8,9		208	302	
T1 PIN 4 to PIN 11,12		218	352	
T1 PIN 6 to PIN 8,9		298	508	
T1 PIN 6 to PIN 11,12		**351**	**556**	Max. Vpeak and Max.Vrms
IC1: Pin 3 — Pin 1		192	378	
IC1: Pin 3 — Pin 2		190	376	
IC1: Pin 4 — Pin 1		191	378	
IC1: Pin 4 — Pin 2		189	378	
Primary to Secondary at CY1		173	352	
supplementary information:				
Input: 240Vac, 50Hz Output: +54V/1.25A, total 68W;				
MODEL: KPL-065A-KV				
T1 PIN 1 to PIN 8		177	350	
T1 PIN 1 to PIN 11,12		184	382	
T1 PIN 3 to PIN 8		236	346	
T1 PIN 3 to PIN 11,12		243	440	
T1 PIN 4 to PIN 8		178	392	
T1 PIN 4 to PIN 11,12		178	374	
T1 PIN 6 to PIN 8		**313**	**516**	Max. Vpeak and Max.Vrms
T1 PIN 6 to PIN 11,12		282	496	
IC1: Pin 3 — Pin 1		176	348	
IC1: Pin 3 — Pin 2		175	342	
IC1: Pin 4 — Pin 1		173	348	
IC1: Pin 4 — Pin 2		175	350	
Primary to Secondary at CY1		175	348	
supplementary information:				
Input: 240Vac, 50Hz Output: +36V/1.81A, total 65W;				
MODEL: 2ACL030B				
T1 PIN 1 to PIN 7		185	376	

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Clause	Requirement + Test	Result - Remark	Verdict

T1 PIN 1 to PIN 8	184	356	
T1 PIN 1 to PIN 11	185	390	
T1 PIN 3 to PIN 7	183	430	
T1 PIN 3 to PIN 8	187	516	
T1 PIN 3 to PIN 11	**191**	**552**	Max. Vpeak and Max.Vrms
T1 PIN 4 to PIN 7	235	408	
T1 PIN 4 to PIN 8	233	340	
T1 PIN 4 to PIN 11	233	346	
T1 PIN 6 to PIN 7	258	452	
T1 PIN 6 to PIN 8	269	476	
T1 PIN 6 to PIN 11	278	484	
IC1: Pin 3 — Pin 1	181	356	
IC1: Pin 3 — Pin 2	180	358	
IC1: Pin 4 — Pin 1	181	356	
IC1: Pin 4 — Pin 2	180	354	
Primary to Secondary at CY1	178	346	
supplementary information:			
Input: 240Vac, 50Hz Output: +5V/6A, total 30W			
MODEL: KPL-065U-VI			
T1 PIN 1 to PIN 8,9	174	358	
T1 PIN 1 to PIN 11,12	189	420	
T1 PIN 3 to PIN 8,9	246	352	
T1 PIN 3 to PIN 11,12	257	478	
T1 PIN 4 to PIN 8,9	176	408	
T1 PIN 4 to PIN 11,12	180	398	
T1 PIN 6 to PIN 8,9	**324**	**544**	Max. Vpeak and Max.Vrms
T1 PIN 6 to PIN 11,12	283	484	
IC1: Pin 3 — Pin 1	198	396	
IC1: Pin 3 — Pin 2	200	398	
IC1: Pin 4 — Pin 1	201	402	
IC1: Pin 4 — Pin 2	201	404	
Primary to Secondary at CY1	174	364	
supplementary information:			
Input: 240Vac, 50Hz Output: +56V/1.16A, total 65W			
MODEL: GTR0382			
T1 PIN 1 to PIN 6	234	330	

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Clause	Requirement + Test	Result - Remark	Verdict

T1 PIN 1 to PIN 7	233	338	
T1 PIN 3 to PIN 6	284	484	
T1 PIN 3 to PIN 7	**298**	500	Max.Vrms
T1 PIN 10 to PIN 6	187	462	
T1 PIN 10 to PIN 7	192	**530**	Max. Vpeak
T1 PIN 12 to PIN 6	182	368	
T1 PIN 12 to PIN 7	183	434	
IC1: Pin 3 — Pin 1	181	370	
IC1: Pin 3 — Pin 2	181	368	
IC1: Pin 4 — Pin 1	181	366	
IC1: Pin 4 — Pin 2	180	364	
Primary to Secondary at CY1	173	350	
supplementary information:			
Input: 240Vac, 50Hz Output: +5.2V/3.8A, +12V/1.5A, total 38W			
MODEL: 2ACL060K			
T1 PIN 1 to PIN 8	173	350	
T1 PIN 1 to PIN 11	177	400	
T1 PIN 3 to PIN 8	188	410	
T1 PIN 3 to PIN 11	194	466	
T1 PIN 4 to PIN 8	228	320	
T1 PIN 4 to PIN 11	230	340	
T1 PIN 6 to PIN 8	306	544	
T1 PIN 6 to PIN 11	**329**	**556**	Max. Vpeak and Max.Vrms
IC1: Pin 3 — Pin 1	186	368	
IC1: Pin 3 — Pin 2	185	364	
IC1: Pin 4 — Pin 1	183	364	
IC1: Pin 4 — Pin 2	184	362	
Primary to Secondary at CY1	172	346	
supplementary information:			
Test voltage: 240V Test frequency: 50Hz			
MODEL: 2ACL060M			
T1 PIN 1 to PIN 8	173	376	
T1 PIN 1 to PIN 11	177	422	
T1 PIN 3 to PIN 8	188	424	
T1 PIN 3 to PIN 11	194	476	
T1 PIN 4 to PIN 8	228	320	

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Clause	Requirement + Test	Result - Remark	Verdict

T1 PIN 4 to PIN 11	230	346	
T1 PIN 6 to PIN 8	306	568	
T1 PIN 6 to PIN 11	**329**	**600**	Max. Vpeak and Max.Vrms
IC1: Pin 3 — Pin 1	186	366	
IC1: Pin 3 — Pin 2	189	370	
IC1: Pin 4 — Pin 1	187	368	
IC1: Pin 4 — Pin 2	189	368	
Primary to Secondary at CY1	169	342	
supplementary information:			
Test voltage: 240V Test frequency: 50Hz			
MODEL: 2ACL065R			
T1 PIN 1 to PIN 8	206	394	
T1 PIN 1 to PIN 11	218	506	
T1 PIN 3 to PIN 8	212	436	
T1 PIN 3 to PIN 11	228	552	
T1 PIN 4 to PIN 8	206	296	
T1 PIN 4 to PIN 11	213	340	
T1 PIN 6 to PIN 8	292	500	
T1 PIN 6 to PIN 11	**341**	**552**	Max. Vpeak and Max.Vrms
IC1: Pin 3 — Pin 1	189	376	
IC1: Pin 3 — Pin 2	188	374	
IC1: Pin 4 — Pin 1	189	374	
IC1: Pin 4 — Pin 2	189	374	
Primary to Secondary at CY1	173	352	
supplementary information:			
Test voltage: 240V Test frequency: 50Hz			
MODEL: 2ACL065S			
T1 PIN 1 to PIN 8	210	400	
T1 PIN 1 to PIN 11	223	516	
T1 PIN 3 to PIN 8	212	446	
T1 PIN 3 to PIN 11	233	566	
T1 PIN 4 to PIN 8	209	298	
T1 PIN 4 to PIN 11	217	350	
T1 PIN 6 to PIN 8	299	532	
T1 PIN 6 to PIN 11	**353**	**576**	Max. Vpeak and Max.Vrms
IC1: Pin 3 — Pin 1	188	372	

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Clause	Requirement + Test	Result - Remark	Verdict

IC1: Pin 3 — Pin 2	187	372	
IC1: Pin 4 — Pin 1	188	372	
IC1: Pin 4 — Pin 2	187	372	
Primary to Secondary at CY1	169	344	
supplementary information:			
Test voltage: 240V Test frequency: 50Hz			
MODEL: 2ACL065U			
T1 PIN 1 to PIN 8	215	412	
T1 PIN 1 to PIN 11	225	524	
T1 PIN 3 to PIN 8	216	452	
T1 PIN 3 to PIN 11	237	564	
T1 PIN 4 to PIN 8	205	294	
T1 PIN 4 to PIN 11	216	354	
T1 PIN 6 to PIN 8	298	548	
T1 PIN 6 to PIN 11	**354**	**596**	Max. Vpeak and Max.Vrms
IC1: Pin 3 — Pin 1	196	384	
IC1: Pin 3 — Pin 2	195	380	
IC1: Pin 4 — Pin 1	194	382	
IC1: Pin 4 — Pin 2	193	380	
Primary to Secondary at CY1	170	348	
Primary to primary before fuse	240	352	
L to ground before fuse	240	352	
N to ground before fuse	0.402	1.00	
supplementary information:			
Test voltage: 240V Test frequency: 50Hz			
MODEL: 2ABF065F			
T1 pin 1 to pin 8,9	211	400	
T1 pin 1 to pin 11,12	213	452	
T1 pin 3 to pin 8,9	214	468	
T1 pin 3 to pin 11,12	221	520	
T1 pin 4 to pin 8,9	240	356	
T1 pin 4 to pin 11,12	245	368	
T1 pin 6 to pin 8,9	311	552	
T1 pin 6 to pin 11,12	**325**	**560**	Max. Vpeak and Max.Vrms
CY1 primary to secondary	203	392	
U4 pin 1 to pin 3	206	396	

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Clause	Requirement + Test	Result - Remark	Verdict

U4 pin 1 to pin 4		207	398	
U4 pin 2 to pin 3		206	396	
U4 pin 2 to pin 4		207	398	
supplementary information:				
Test voltage: 240V Test frequency: 50Hz				
MODEL: 2ABF065R				
T1 pin 1 to pin 8,9		239	436	
T1 pin 1 to pin 11,12		251	560	
T1 pin 3 to pin 8,9		241	480	
T1 pin 3 to pin 11,12		258	612	
T1 pin 4 to pin 8,9		220	332	
T1 pin 4 to pin 11,12		232	384	
T1 pin 6 to pin 8,9		309	528	
T1 pin 6 to pin 11,12		**362**	**568**	Max. Vpeak and Max.Vrms
CY1 primary to secondary		203	392	
U4 pin 1 to pin 3		206	396	
U4 pin 1 to pin 4		207	398	
U4 pin 2 to pin 3		206	396	
U4 pin 2 to pin 4		207	398	
supplementary information:				
Test voltage: 240V Test frequency: 50Hz				
Model: KPL-060I-VI				
T1 Pin 1	T1 Pin 8, 9	139	172	
T1 Pin 1	T1 Pin 11, 12	170	194	
T1 Pin 3	T1 Pin 8, 9	269	280	
T1 Pin 3	T1 Pin 11, 12	273	318	
T1 Pin 4	T1 Pin 8, 9	170	224	
T1 Pin 4	T1 Pin 11, 12	158	182	
T1 Pin 6	T1 Pin 8, 9	**317**	**510**	Max. Vpeak and Max.Vrms
T1 Pin 6	T1 Pin 11, 12	317	490	
CY1 Pin 1	CY1 Pin 2	136	176	
IC1 Pin 1	IC1 Pin 3	150	190	
IC1 Pin 1	IC1 Pin 4	154	188	
IC1 Pin 2	IC1 Pin 3	155	188	
IC1 Pin 2	IC1 Pin 4	154	186	
supplementary information:				
Test voltage: 240V				

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Clause	Requirement + Test	Result - Remark	Verdict

Test frequency: 50Hz				
Model: KPL-066F-VI				
T1 Pin 1	T1 Pin 8, 9	116	172	
T1 Pin 1	T1 Pin 11, 12	141	184	
T1 Pin 3	T1 Pin 8, 9	236	282	
T1 Pin 3	T1 Pin 11, 12	277	322	
T1 Pin 4	T1 Pin 8, 9	162	220	
T1 Pin 4	T1 Pin 11, 12	117	180	
T1 Pin 6	T1 Pin 8, 9	**288**	**490**	Max. Vpeak and Max.Vrms
T1 Pin 6	T1 Pin 11, 12	274	472	
CY1 Pin 1	CY1 Pin 2	117	174	
IC1 Pin 1	IC1 Pin 3	180	196	
IC1 Pin 1	IC1 Pin 4	139	198	
IC1 Pin 2	IC1 Pin 3	184	200	
IC1 Pin 2	IC1 Pin 4	174	196	
supplementary information:				
Test voltage: 240V Test frequency: 50Hz				
Model: KPL-065J-VI				
T1 Pin 1	T1 Pin 8, 9	116	172	
T1 Pin 1	T1 Pin 11, 12	153	190	
T1 Pin 3	T1 Pin 8, 9	247	280	
T1 Pin 3	T1 Pin 11, 12	264	334	
T1 Pin 4	T1 Pin 8, 9	146	216	
T1 Pin 4	T1 Pin 11, 12	121	184	
T1 Pin 6	T1 Pin 8, 9	**312**	**442**	Max. Vpeak and Max.Vrms
T1 Pin 6	T1 Pin 11, 12	304	416	
CY1 Pin 1	CY1 Pin 2	117	174	
IC1 Pin 1	IC1 Pin 3	148	204	
IC1 Pin 1	IC1 Pin 4	194	208	
IC1 Pin 2	IC1 Pin 3	189	206	
IC1 Pin 2	IC1 Pin 4	143	200	
supplementary information:				
Test voltage: 240V Test frequency: 50Hz				
Model: KPL-065M-VI				
T1 Pin 1	T1 Pin 8, 9	137	174	
T1 Pin 1	T1 Pin 11, 12	169	200	
T1 Pin 3	T1 Pin 8, 9	266	276	

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Clause	Requirement + Test	Result - Remark	Verdict

T1 Pin 3	T1 Pin 11, 12	261	332	
T1 Pin 4	T1 Pin 8, 9	163	214	
T1 Pin 4	T1 Pin 11, 12	168	184	
T1 Pin 6	T1 Pin 8, 9	**338**	**468**	Max. Vpeak and Max.Vrms
T1 Pin 6	T1 Pin 11, 12	320	436	
CY1 Pin 1	CY1 Pin 2	141	176	
IC1 Pin 1	IC1 Pin 3	165	198	
IC1 Pin 1	IC1 Pin 4	161	194	
IC1 Pin 2	IC1 Pin 3	156	198	
IC1 Pin 2	IC1 Pin 4	162	194	
supplementary information:				
Test voltage: 240V Test frequency: 50Hz				
Model: KPL-065S-VI				
T1 Pin 1	T1 Pin 8, 9	137	172	
T1 Pin 1	T1 Pin 11, 12	177	226	
T1 Pin 3	T1 Pin 8, 9	258	270	
T1 Pin 3	T1 Pin 11, 12	270	390	
T1 Pin 4	T1 Pin 8, 9	165	216	
T1 Pin 4	T1 Pin 11, 12	162	204	
T1 Pin 6	T1 Pin 8, 9	**328**	**466**	Max. Vpeak and Max.Vrms
T1 Pin 6	T1 Pin 11, 12	293	406	
CY1 Pin 1	CY1 Pin 2	134	176	
IC1 Pin 1	IC1 Pin 3	165	218	
IC1 Pin 1	IC1 Pin 4	191	214	
IC1 Pin 2	IC1 Pin 3	207	224	
IC1 Pin 2	IC1 Pin 4	192	202	
supplementary information:				
Test voltage: 240V Test frequency: 50Hz				
Model: KPL-060I				
T1 Pin 1	T1 Pin 8, 9	172	344	
T1 Pin 1	T1 Pin 11, 12	173	360	
T1 Pin 3	T1 Pin 8, 9	245	348	
T1 Pin 3	T1 Pin 11, 12	246	384	
T1 Pin 4	T1 Pin 8, 9	173	392	
T1 Pin 4	T1 Pin 11, 12	171	352	
T1 Pin 6	T1 Pin 8, 9	**317**	**556**	Max. Vpeak and Max.Vrms

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Clause	Requirement + Test	Result - Remark	Verdict

T1 Pin 6	T1 Pin 11, 12	304	532	
CY1 Pin 1	CY1 Pin 2	171	344	
IC1 Pin 1	IC1 Pin 3	180	360	
IC1 Pin 1	IC1 Pin 4	184	364	
IC1 Pin 2	IC1 Pin 3	182	360	
IC1 Pin 2	IC1 Pin 4	180	358	
supplementary information:				
Test voltage: 240V Test frequency: 50Hz				
Model: KPL-065F				
T1 Pin 1	T1 Pin 8, 9	170	340	
T1 Pin 1	T1 Pin 11, 12	171	352	
T1 Pin 3	T1 Pin 8, 9	246	346	
T1 Pin 3	T1 Pin 11, 12	248	386	
T1 Pin 4	T1 Pin 8, 9	172	390	
T1 Pin 4	T1 Pin 11, 12	170	358	
T1 Pin 6	T1 Pin 8, 9	**316**	**532**	Max. Vpeak and Max.Vrms
T1 Pin 6	T1 Pin 11, 12	304	512	
CY1 Pin 1	CY1 Pin 2	172	344	
IC1 Pin 1	IC1 Pin 3	180	350	
IC1 Pin 1	IC1 Pin 4	180	356	
IC1 Pin 2	IC1 Pin 3	172	358	
IC1 Pin 2	IC1 Pin 4	176	358	
supplementary information:				
Test voltage: 240V Test frequency: 50Hz				
Model: KPL-065J				
T1 Pin 1	T1 Pin 8, 9	170	340	
T1 Pin 1	T1 Pin 11, 12	174	360	
T1 Pin 3	T1 Pin 8, 9	246	348	
T1 Pin 3	T1 Pin 11, 12	248	406	
T1 Pin 4	T1 Pin 8, 9	172	380	
T1 Pin 4	T1 Pin 11, 12	171	354	
T1 Pin 6	T1 Pin 8, 9	**316**	**512**	Max. Vpeak and Max.Vrms
T1 Pin 6	T1 Pin 11, 12	304	492	
CY1 Pin 1	CY1 Pin 2	171	344	
IC1 Pin 1	IC1 Pin 3	183	360	
IC1 Pin 1	IC1 Pin 4	181	356	

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Clause	Requirement + Test	Result - Remark	Verdict

IC1 Pin 2	IC1 Pin 3	181	362	
IC1 Pin 2	IC1 Pin 4	180	366	
supplementary information:				
Test voltage: 240V Test frequency: 50Hz				
Model: KPL-065M				
T1 Pin 1	T1 Pin 8, 9	172	344	
T1 Pin 1	T1 Pin 11, 12	176	372	
T1 Pin 3	T1 Pin 8, 9	244	348	
T1 Pin 3	T1 Pin 11, 12	248	412	
T1 Pin 4	T1 Pin 8, 9	174	388	
T1 Pin 4	T1 Pin 11, 12	172	356	
T1 Pin 6	T1 Pin 8, 9	**324**	**540**	Max. Vpeak and Max.Vrms
T1 Pin 6	T1 Pin 11, 12	302	520	
CY1 Pin 1	CY1 Pin 2	172	348	
IC1 Pin 1	IC1 Pin 3	188	368	

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Clause	Requirement + Test	Result - Remark	Verdict

IC1 Pin 1	IC1 Pin 4	185	364	
IC1 Pin 2	IC1 Pin 3	186	364	
IC1 Pin 2	IC1 Pin 4	184	360	
supplementary information:				
Test voltage: 240V Test frequency: 50Hz				

5.4.1.10.2	TABLE: Vicat softening temperature of thermoplastics			N/A
Penetration (mm) ..... :				—
Object/ Part No./Material		Manufacturer/trademark	T softening (°C)	
Supplementary information: See Table 5.4.1.10.3.				

5.4.1.10.3	TABLE: Ball pressure test of thermoplastics			N/A
Allowed impression diameter (mm) ..... :		≤ 2 mm		—
Object/Part No./Material	Manufacturer/trademark	Test temperature (°C)	Impression diameter (mm)	
Supplementary information:				

5.4.2.2, 5.4.2.4 and 5.4.3	TABLE: Minimum Clearances/Creepage distance						P
Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	U r.m.s. (V)	Frequency (kHz)[1]	Required cl (mm)	cl (mm)[2]	Required[3] cr (mm)	cr (mm)
GTR							
Functional:							
L/N before fuse	420	250	--	1.9	6.9	2.5	6.9
Trace under fuse	420	250	--	1.9	3.0	2.5	3.0
Basic:							
Primary trace to earthed trace	420	250	--	1.9	4.5.	2.5	4.5
Between L/N to earth pin in AC inlet	420	250	--	1.9	4.5	2.5	4.5

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Clause	Requirement + Test	Result - Remark	Verdict

Reinforced:							
PCB trace under T1	530	298	--	3.8	8.1	6.0	8.1
Primary to Secondary at CY1	420	250	--	3.8	6.9	5.0	6.9
Primary to Secondary at Optos	420	250	--	3.8	7.3	5.0	7.3
Supplementary information: 1. Functional insulation shorted, see Annex B.							

Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	U r.m.s. (V)	Frequency (kHz)[1]	Required cl (mm)	cl (mm)[2]	Required[3] cr (mm)	cr (mm)
2ACL							
Functional:							
Line to Neutral before fuse	420	250	--	2.3	4.1	2.5	4.1
Trace under fuse	420	250	--	2.3	2.8	2.5	2.8
Basic:							
Primary trace to earthed trace	420	250	--	2.3	3.0	2.5	3.0
Between L/N to earth pin in AC inlet	420	250	--	2.3	3.0	2.5	3.0
Reinforced:							
PCB trace under T1	600	354	--	4.5	7.3	7.1	7.3
Primary to Secondary at CY1	420	250	--	4.5	7.2	4.5	7.2
Primary to Secondary at Optos	420	250	--	4.5	6.7	4.5	6.7
Supplementary information: 1. Functional insulation shorted, see Annex B. 2. Two layers of insulation tape wrapped around the heatsink for Q2 (near secondary side).							

Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	U r.m.s. (V)	Frequency (kHz)[1]	Required cl (mm)	cl (mm)[2]	Required[3] cr (mm)	cr (mm)
2ABF							
Functional:							
L/N before fuse	420	250	--	2.3	4.1	2.5	4.1
Trace under fuse	420	250	--	2.3	2.8	2.5	2.8
Basic:							
Primary trace to earthed trace	420	250	--	2.3	3.0	2.5	3.0
-Between L/N to earth pin in AC inlet	420	250	--	2.3	3.0	2.5	3.0

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Clause	Requirement + Test	Result - Remark	Verdict

Reinforced:							
Primary components (with 10N) to user accessible part	420	250	--	4.5	6.0	5.0	6.0
-Primary components to enclosure outer	420	250	--	4.5	6.0	5.0	6.0
Primary components (with 10N) to secondary components (with 10N)	420	250	--	4.5	6.0	5.0	6.0
-T1 to C6	420	250	--	4.5	6.0	5.0	6.0
-T1 to C5	420	250	--	4.5	7.0	5.0	7.0
-C1 to secondary heat sink	420	250	--	4.5	6.3	5.0	6.3
Primary trace to secondary trace	420	250	--	4.5	6.0	5.0	6.0
-Under CY1	420	250	--	4.5	6.5	5.0	6.5
-Under U4	420	250	--	4.5	6.7	5.0	6.7
-Under T1 (12V)	560	325	--	4.5	7.3	6.6	7.3
-Under T1 (48V)	612	362	--	4.5	7.3	7.3	7.3
-Under C9 o CY1 primary pin	420	250	--	4.5	7.1	5.0	7.1
Supplementary information: 1. Functional insulation shorted, see Annex B. 2. Glued components: None. 3. Two layers of insulation tape wrapped around the heatsink for Q1 (near secondary side).							

Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	U r.m.s. (V)	Frequency (kHz)[1]	Required cl (mm)	cl (mm)[2]	Required[3] cr (mm)	cr (mm)
KPL PCB with F1,F2							
Functional:							
L/N before fuse	420	250	--	2.3	3.2	2.5	3.2
Basic/supplementary:							
LF1 to inlet GND pin (with 10N)	420	250	--	2.3	5.2	2.5	5.3

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Clause	Requirement + Test	Result - Remark	Verdict

Reinforced:							
C5 (with 10N) to D3 heat-sink	420	250	--	4.5	7.6	5.0	7.6
T1 top heat-sink to C6 or C7	544	338	--	4.5	7.6	6.8	7.6
T1 top heat-sink to D3 heat-sink	544	338	--	4.5	9.3	6.8	9.3
Q1 heat-sink to CY1 secondary leg	420	250	--	4.5	6.5	5.0	6.5
Under CY1	420	250	--	4.5	7.8	5.0	7.8
Under IC1	420	250	--	4.5	7.0	5.0	7.0
Under T1	544	338	--	4.5	7.8	6.8	7.8
Supplementary information: 1. The specified maximum altitude of operation by the manufacturer for this product is 5000 meters. Therefore, the altitude correction factor for clearance is calculated and used with linear interpolation 1.48 according to IEC 60664-1 Table A.2 2. Output cable is fixed in PCB reliable by solder pins and glue. 3. Glued components (safety relevant): T1 top heat-sink, C2, C5 and output cable. 4. For clearance and creepage did not describe above are far larger than limit above.							

Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	U r.m.s. (V)	Frequency (kHz)[1]	Required cl (mm)	cl (mm)[2]	Required[3] cr (mm)	cr (mm)
KPL PCB with FUSE1							
Functional:							
L/N before fuse	420	250	--	2.3	3.2	2.5	3.2
Trace under fuse	420	250	--	2.3	2.6	2.5	2.6
Basic/supplementary:							
Primary components to Earth	420	250	--	2.3	4.0	2.5	4.0
LF1 to inlet GND pin (with 10N)	420	250	--	2.3	3.8	2.5	5.2
EMI shielding to primary component/trace	420	250	--	2.3	7.0	2.5	7.0
Reinforced:							
Primary components (with 10N) to secondary components (with 10N)	420	250	--	4.5	10.0	5.0	10.0
T1 top heat-sink to C6 or C7	556	346	--	4.5	7.0	7.0	--
T1 top heat-sink to external enclosure surface	556	346	--	4.5	7.0	7.0	7.0
Q1 heat-sink to CY1 secondary leg	420	250	--	4.5	6.4	5.0	6.4
Primary trace to secondary	420	250	--	4.5	7.0	5.0	7.0

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Clause	Requirement + Test	Result - Remark	Verdict

trace							
trace N to trace of D3 heatsink	420	250	--	4.5	6.7	5.0	6.7
Under CY1	420	250	--	4.5	6.7	5.0	6.7
Under IC1	420	250	--	4.5	7.0	5.0	7.0
Under T1	556	346	--	4.5	7.0	7.0	7.0
Secondary EMI shielding to primary component/trace	420	250	--	4.5	7.0	5.0	7.0

Supplementary information:
1. Functional insulation shorted, see Annex B
2. Output cable is fixed in PCB reliable by solder pins and glue.
3. The clearance insulation distance of primary components to enclosure surface with mechanical construction is kept at least 5.0 mm.
4. Glued components (safety relevant): FUSE1, T1 top heat-sink, C2, C18 and output cable.
5. One insulator sheet is place between PCB and EMI shielding to keep sufficient creepage and clearance distance for reinforced insulation request.
6. There is two layers of insulation tape was fixed on D3 heat-sink and Q1 heat-sink to keep sufficient creepage and clearance distance for reinforced insulation request.
7. For clearance and creepage did not describe above are far larger than limit above.

5.4.2.3	TABLE: Minimum Clearances distances using required withstand voltage	P
	Overvoltage Category (OV):	II
	Pollution Degree:	2

Clearance distanced between:	Required withstand voltage	Required cl (mm)	Measured cl (mm)
See table 5.4.2.2, 5.4.2.4 and 5.4.3 above.	2500Vpk	1.5 for BI/SI 3.0 for RI	See table 5.4.2.2, 5.4.2.4 and 5.4.3 above.
Supplementary information: Limits in previous table for clearance selected based on Table 15 for Required Withstand Voltage 2.5kV (mains transient voltage 2.5kV).			

5.4.2.4	TABLE: Clearances based on electric strength test	N/A

Test voltage applied between:	Required cl (mm)	Test voltage (kV) peak/ r.m.s. / d.c.	Breakdown Yes / No
Supplementary information: See Table 5.4.2.2, 5.4.2.4 and 5.4.3			

5.4.4.2, 5.4.4.5 c) 5.4.4.9	TABLE: Distance through insulation measurements	P

Distance through insulation di at/of:	Peak voltage (V)	Frequency (kHz)	Material	Required DTI (mm)	DTI (mm)
Plastic enclosure	612	--	See appended table 4.1.2	0.4	See appended table 4.1.2

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Insulation sheet	420	--	See appended table 4.1.2	0.4	See appended table 4.1.2
Supplementary information: 1) Minimum DTI. Refer to table 4.1.2 for additional information. 2) Refer to table 4.1.2 for details.					

5.4.9	TABLE: Electric strength tests		P
Test voltage applied between:	Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes / No
2ABF			
Basic/supplementary:			
Unit: Primary to PE(basic)	DC	2718	No
Reinforced:			
Unit: Primary to Secondary (reinforce)	AC	3000	No
One layer of insulation tape used in T1 (reinforce)	AC	3000	No

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Clause	Requirement + Test	Result - Remark	Verdict

T1 primary winding to secondary winding (reinforce)	AC	3000	No
T1 core to secondary winding (reinforce)	AC	3000	No
Supplementary information: The electric strength test has been applied for all transformer sources; refer to appended table 4.1.2 for details			

Test voltage applied between:	Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes / No
KPL			
Basic/supplementary:			
L to N (fuse opened)	DC	2500	No
Unit: primary to earth	DC	2500	No
Reinforced:			
Unit: primary to secondary (PB removed)	AC	3000	No
Unit: Primary and enclosure (with metal foil)	AC	3000	No
T1: primary to secondary	AC	3000	No
T1: Secondary to core	AC	3000	No
One layer of insulation tape	AC	3000	No
Insulation sheet (for PCB with fuse: FUSE1 only)	AC	3000	No
Supplementary information: The electric strength test has been applied for all transformer sources; refer to appended table 4.1.2 for details			

Test voltage applied between:	Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes / No
2ACL			
Basic/supplementary:			
Unit: Primary to PE(basic)	DC	2718	No
Reinforced:			
Unit: Primary to Secondary (reinforce)	AC	3000	No
One layer of insulation tape used in T1 (reinforce)	AC	3000	No
T1 primary winding to secondary winding (reinforce)	AC	3000	No
T1 core to secondary winding (reinforce)	AC	3000	No
Supplementary information: The electric strength test has been applied for all transformer sources; refer to appended table 4.1.2 for details			

Test voltage applied between:	Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes / No
GTR			
Basic/supplementary:			
Unit: Primary to PE(basic)	DC	2500	No
Reinforced:			
Unit: Primary to Secondary (reinforce)	AC	3000	No
One layer of insulation tape used in T1 (reinforce)	AC	3000	No

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Clause	Requirement + Test	Result - Remark	Verdict

Test voltage applied between:	Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes / No
T1 primary winding to secondary winding (reinforce)	AC	3000	No
T1 core to secondary winding (reinforce)	AC	3000	No
Supplementary information: The electric strength test has been applied for all transformer sources; refer to appended table 1.5.1 for details			

5.5.2.2	TABLE: Stored discharge on capacitors	P

Supply Voltage (V), Hz	Test Location	Operating Condition (N, S)	Switch position On or off	Measured Voltage (after 2 seconds)	ES Classification
AC 264V, 50Hz	Line to Neutral	N	--	18V	ES1
AC 264V, 50Hz	Line to Neutral	S	--	76V	ES2
Supplementary information: Model GTR Overall capacitance: CX1 = 0.33μF; **Bleeder resistor: R2=R4=R2A=R4A=4MΩ or R2=R4=2MΩ** N-Normal condition, S- Single fault condition.					
Supply Voltage (V), Hz	Test Location	Operating Condition (N, S)	Switch position On or off	Measured Voltage (after 2 seconds)	ES Classification
AC 264V, 50Hz	Line to Neutral	N	--	40V	ES1
AC 264V, 50Hz	Line to Neutral	S	--	96V	ES2
Supplementary information: Model 2ACL Overall capacitance: CX1 = 0.47μF; **Bleeder resistor: R2=R4=R2A=R4A=3MΩ or R2=R4=1.5MΩ** N-Normal condition, S- Single fault condition.					
Supply Voltage (V), Hz	Test Location	Operating Condition (N, S)	Switch position On or off	Measured Voltage (after 2 seconds)	ES Classification
AC 264V, 50Hz	Line to Neutral	N	--	0V	ES1
AC 264V, 50Hz	Line to Neutral	S	--	44V	ES1
Supplementary information: Model 2ABF Overall capacitance: CX1 = 0.33μF; **Bleeder resistor: R14=R21=R14A=R21A=3MΩ or R14=R21=1.5MΩ** N-Normal condition, S- Single fault condition.					
Supply Voltage (V), Hz	Test Location	Operating Condition (N, S)	Switch position On or off	Measured Voltage (after 2 seconds)	ES Classification

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AC 264V, 50Hz	Line to Neutral	N	--	16V	ES1
AC 264V, 50Hz	Line to Neutral	S	--	76V	ES2
Supplementary information: Model KPL PCB with F1,F2 Overall capacitance: CX1 = 0.33μF; Bleeder resistor: R2=R3=R4=R5=3.9MΩ N-Normal condition, S- Single fault condition.					
Supply Voltage (V), Hz	Test Location	Operating Condition (N, S)	Switch position On or off	Measured Voltage (after 2 seconds)	ES Classification
AC 264V, 50Hz	Line to Neutral	N	--	18V	ES1
AC 264V, 50Hz	Line to Neutral	S	--	46V	ES1
Supplementary information: Model KPL PCB with FUSE1 Overall capacitance: CX1 = 0.47μF Bleeder resistor: R2=R3=R4=R5=2.2MΩ N-Normal condition, S- Single fault condition.					

5.6.6.2	TABLE: Resistance of protective conductors and terminations			N/A
Accessible part	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)
KPL [PCB with F1, F2]: Secondary GND disconnected from Earth GND				
Earth pin of AC inlet to PCB trace	32	2	0.064	0.0020
Earth pin of AC inlet to PCB trace	40	2	0.088	0.0022
GTR				
Earth pin of AC inlet to Secondary FG on pad	32	2	0.26	0.008
Earth pin of AC inlet to Secondary FG on pad	40	2	0.4	0.010
2ACL				
Earth pin of AC inlet to Secondary FG on pad	32	2	0.192	0.006
Earth pin of AC inlet to Secondary FG on pad	40	2	0.240	0.006
2ABF				
Earth pin of AC inlet to output V-	32	2	0.32	0.01
Earth pin of AC inlet to output V-	40	2	0.4	0.01
KPL [PCB with F1, F2]				
Earth pin of AC inlet to PCB Trace (CY1 secondary pin)	32	2	0.18	0.006
Earth pin of AC inlet to PCB Trace (CY1 secondary pin)	40	2	0.35	0.009

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Clause	Requirement + Test	Result - Remark	Verdict

KPL [PCB with FUSE1]				
Earth pin of AC inlet to PCB Trace (CY1 secondary pin)	32	2	0.26	0.008
Earth pin of AC inlet to PCB Trace (CY1 secondary pin)	40	2	0.40	0.01
Supplementary information:				

5.7.2.2, 5.7.4	TABLE: Earthed accessible conductive part		P
Supply voltage ..... :			—
Location		Test conditions specified in 6.1 of IEC 60990 or Fault Condition No in IEC 60990 clause 6.2.2.1 through 6.2.2.8, except for 6.2.2.7	Touch current (mA)
Model: KPL-066F-VI (with FG wire)			
Earth Pin terminal		1(e open, normal and reverse polarity p)	0.15
Earth Pin terminal		2*(netural open (switch n), earth intact and normal polarity, again in veverse polarity (switch p)	N/A
Earth Pin terminal		3 (for IT system, each phase conductor faulted to earth, one at a time (switch g)	N/A
Earth Pin terminal		4 (for three-phase, each phase conductor open, one at a time switches I)	N/A
Earth Pin terminal		5 (IT power system or three phase delta system)	N/A
Earth Pin terminal		6 (three-phase for use on centre-earthed dalta supply system)	N/A
Earth Pin terminal		8 (incidental electrically connected to other parts)	N/A
Model: KPL-066F-VI (without FG wire)			
Earth Pin terminal		1(e open, normal and reverse polarity p)	0.15
Earth Pin terminal		2*(netural open (switch n), earth intact and normal polarity, again in veverse polarity (switch p)	N/A
Earth Pin terminal		3 (for IT system, each phase conductor faulted to earth, one at a time (switch g)	N/A
Earth Pin terminal		4 (for three-phase, each phase conductor open, one at a time switches I)	N/A
Earth Pin terminal		5 (IT power system or three phase delta system)	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

Earth Pin terminal	6 (three-phase for use on centre-earthed dalta supply system)	N/A
Earth Pin terminal	8 (incidental electrically connected to other parts)	N/A
Model: KPL-065F		
Earth Pin terminal	1(e open, normal and reverse polarity p)	0.14
Earth Pin terminal	2*(netural open (switch n), earth intact and normal polarity, again in veverse polarity (switch p)	N/A
Earth Pin terminal	3 (for IT system, each phase conductor faulted to earth, one at a time (switch g)	N/A
Earth Pin terminal	4 (for three-phase, each phase conductor open, one at a time switches l)	N/A
Earth Pin terminal	5 (IT power system or three phase delta system)	N/A
Earth Pin terminal	6 (three-phase for use on centre-earthed dalta supply system)	N/A
Earth Pin terminal	8 (incidental electrically connected to other parts)	N/A
Model: GTR0382		
Earth Pin terminal	1(e open, normal and reverse polarity p)	0.58
Earth Pin terminal	2*(netural open (switch n), earth intact and normal polarity, again in veverse polarity (switch p)	N/A
Earth Pin terminal	3 (for IT system, each phase conductor faulted to earth, one at a time (switch g)	N/A
Earth Pin terminal	4 (for three-phase, each phase conductor open, one at a time switches l)	N/A
Earth Pin terminal	5 (IT power system or three phase delta system)	N/A
Earth Pin terminal	6 (three-phase for use on centre-earthed dalta supply system)	N/A
Earth Pin terminal	8 (incidental electrically connected to other parts)	N/A
Model: 2ABF065F		
Earth Pin terminal	1(e open, normal and reverse polarity p)	0.21
Earth Pin terminal	2*(netural open (switch n), earth intact and normal polarity, again in veverse polarity (switch p)	N/A
Earth Pin terminal	3 (for IT system, each phase	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

	conductor faulted to earth, one at a time (switch g)	
Earth Pin terminal	4 (for three-phase, each phase conductor open, one at a time switches l)	N/A
Earth Pin terminal	5 (IT power system or three phase delta system)	N/A
Earth Pin terminal	6 (three-phase for use on centre-earthed dalta supply system)	N/A
Earth Pin terminal	8 (incidental electrically connected to other parts)	N/A
Model: 2ACL068S		
Equipment chassis	1(e open, normal and reverse polarity p)	0.25
Equipment chassis	2*(netural open (switch n), earth intact and normal polarity, again in veverse polarity (switch p)	N/A
Equipment chassis	3 (for IT system, each phase conductor faulted to earth, one at a time (switch g)	N/A
Equipment chassis	4 (for three-phase, each phase conductor open, one at a time switches l)	N/A
Equipment chassis	5 (IT power system or three phase delta system)	N/A
Equipment chassis	6 (three-phase for use on centre-earthed dalta supply system)	N/A
Equipment chassis	8 (incidental electrically connected to other parts)	N/A
Supplementary information: Notes: [1] Supply voltage is the anticipated maximum Touch Voltage [2] Earthed neutral conductor [Voltage differences less than 1% or more] [3] Specify method used for measurement as described in IEC 60990 sub-clause 4.3 [4] IEC60990, sub-clause 6.2.2.7, Fault 7 not applicable. [5] (*) IEC60990, sub-clause 6.2.2.2 is not applicable if switch or disconnect device (e.g., appliance coupler) provided.		

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Clause	Requirement + Test	Result - Remark	Verdict

6.2.2	Table: Electrical power sources (PS) measurements for classification	P

Source	Description	Measurement	Max Power after 3 s	Max Power after 5 s	PS Classification
Model 2ACL068S	Output from power supply	Power (W) :	--	110.1	PS2 (meet Annex Q.1 LPS)
		V_A (V) :	--	52.8	
		I_A (A) :	--	2.11	
Model: KPL-065A-KV	Output from power supply	Power (W) :	--	95.6	PS2
		V_A (V) :	--	37.4	
		I_A (A) :	--	2.78	
Model: 2ACL030B	Output from power supply	Power (W) :	--	39.5	PS2
		V_A (V) :	--	5.193	
		I_A (A) :	--	7.84	
Model: KPL-065U-VI	Output from power supply	Power (W) :	--	98.4	PS2
		V_A (V) :	--	56.598	
		I_A (A) :	--	1.78	
Model: GTR0382	Output from power supply (+5.2V)	Power (W) :	--	24.0	PS2
		V_A (V) :	--	5.403	
		I_A (A) :	--	4.98	
	Output from power supply (+12V)	Power (W) :	--	63.6	PS2
		V_A (V) :	--	12.223	
		I_A (A) :	--	5.64	
Model: 2ACL060K	Output from power supply	Power (W) :	--	82.2	PS2
		V_A (V) :	--	19.19	
		I_A (A) :	--	4.46	
Model: 2ACL060M	Output from power supply	Power (W) :	--	78.8	PS2
		V_A (V) :	--	24.206	
		I_A (A) :	--	3.52	
Model: 2ACL065R	Output from power supply	Power (W) :	--	89.8	PS2
		V_A (V) :	--	47.914	
		I_A (A) :	--	1.95	
Model: 2ACL065S	Output from power supply	Power (W) :	--	96.3	PS2
		V_A (V) :	--	53.876	
		I_A (A) :	--	1.84	
Model: 2ACL065U	Output from power supply	Power (W) :	--	98.6	PS2
		V_A (V) :	--	56.528	
		I_A (A) :	--	1.81	

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Clause	Requirement + Test	Result - Remark	Verdict

Model: 2ABF065F	Output from power supply	Power (W) :	--	88.3	PS2
		V_A (V) :	--	12.2	
		I_A (A) :	--	7.6	
Model: 2ABF060R	Output from power supply	Power (W) :	--	94.9	PS2
		V_A (V) :	--	47.9	
		I_A (A) :	--	2.0	
Model: KPL-060I-VI	Output from power supply	Power (W) :	--	88.55	PS2
		V_A (V) :	--	15.7	
		I_A (A) :	--	5.64	
Model: KPL-066F-VI	Output from power supply	Power (W) :	--	85.11	PS2
		V_A (V) :	--	11.74	
		I_A (A) :	--	7.25	
Model: KPL-065J-VI	Output from power supply	Power (W) :	--	79.38	PS2
		V_A (V) :	--	18.00	
		I_A (A) :	--	4.41	
Model: KPL-065M-VI	Output from power supply	Power (W) :	--	95.13	PS2
		V_A (V) :	--	24.33	
		I_A (A) :	--	3.91	
Model: KPL-065S-VI	Output from power supply	Power (W) :	--	95.09	PS2
		V_A (V) :	--	47.78	
		I_A (A) :	--	1.99	
Model: KPL-060I	Output from power supply	Power (W) :	--	91.7	PS2
		V_A (V) :	--	15.73	
		I_A (A) :	--	5.83	
Model: KPL-065F	Output from power supply	Power (W) :	--	87.9	PS2
		V_A (V) :	--	11.78	
		I_A (A) :	--	7.46	
Model: KPL-065J	Output from power supply	Power (W) :	--	81.2	PS2
		V_A (V) :	--	17.96	
		I_A (A) :	--	4.52	
Model: KPL-065M	Output from power supply	Power (W) :	--	76.3	PS2
		V_A (V) :	--	23.84	
		I_A (A) :	--	3.20	
Supplementary information:					

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Clause	Requirement + Test	Result - Remark	Verdict

6.2.3.1	Table: Determination of Potential Ignition Sources (Arcing PIS)			N/A
Location	Open circuit voltage After 3 s (Vp)	Measured r.m.s current (Irms)	Calculated value (V_p x I_{rms})	Arcing PIS? Yes / No

Supplementary information:

An Arcing PIS requires a minimum of 50 V (peak) a.c. or d.c. An Arcing PIS is established when the product of the open circuit voltage (V_p) and normal operating condition rms current (I_{rms}) is greater than 15.

6.2.3.2	Table: Determination of Potential Ignition Sources (Resistive PIS)				P
Circuit Location (x-y)	Operating Condition (Normal / Describe Single Fault)	Measured wattage or VA During first 30 s (W / VA)	Measured wattage or VA After 30 s (W / VA)	Protective Circuit, Regulator, or PTC Operated? Yes / No (Comment)	Resistive PIS? Yes/No
Output from model Model 2ACL068S	Normal	111.4	111.4	Yes	Yes
	S-C [R9]	92.0	92.0	Yes	Yes
	S-C [IC1]	0	0	No	No
Output from model Model 2ACL065R	Normal	99.2	99.2	Yes	Yes
Output from model Model 2CL065U	Normal	101.5	101.5	Yes	Yes
Output from model Model KPL-065A-KV	Normal	95.6	95.6	No	Yes
	S-C [R9/IC1]	0	0	No	No
	O-C [R9]	65.3	65.3	No	Yes
	O-C [IC1]	0	0	No	No
Output from model Model 2ACL030B	Normal	39.5	39.5	No	Yes
	S-C [IC1/IC2/R9]	0	0	No	No
Output from model Model KPL-065U-VI	Normal	98.4	98.4	No	Yes
	S-C [IC1/R9]	0	0	No	No
Output from model Model GTR0382	Normal(+5.2V)	24.0	24.0	No	Yes
	Normal(+12V)	82.2	82.2	No	Yes
	S-C [R43]	2.68	2.68	No	No
	S-C [R44]	3.1	3.1	No	No
	S-C [R9/U3/IC1]	0	0	No	No
Output from model Model 2ACL060K	Normal	82.2	82.2	No	Yes
	S-C [R9/IC1/IC2]	0	0	No	No
Output from models Model 2ACL060M	Normal	78.8	78.8	No	Yes
	S-C [R9/IC1/IC2]	0	0	No	No
Output from models	Normal	89.8	89.8	No	Yes

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Clause	Requirement + Test	Result - Remark	Verdict

Model 2ACL065R	S-C [R9/IC1/IC2]	0	0	No	No
Output from models Model 2ACL065S	Normal	96.3	96.3	No	Yes
	S-C [R9/IC1/IC2]	0	0	No	No
Output from models Model 2ACL065U	Normal	98.6	98.6	No	Yes
	S-C [R9/IC1/IC2]	0	0	No	No
Output from models Model KPL-060I-VI	Normal	89.96	89.96	No	Yes
	O-C[R9]	69.77	69.77	No	Yes
	O-C[IC1]	0	0	No	No
	S-C [IC1/R9]	0	0	No	No
Output from models Model KPL-066F-VI	Normal	84.96	84.96	No	Yes
	O-C[R9]	71.75	71.75	No	Yes
	O-C[IC1]	0	0	No	No
	S-C [IC1/R9]	0	0	No	No
Output from models Model KPL-065J-VI	Normal	79.2	79.2	No	Yes
	O-C[R9]	61.74	61.74	No	Yes
	O-C[IC1]	0	0	No	No
	S-C [IC1/R9]	0	0	No	No
Output from models Model KPL-065M-VI	Normal	95.5	95.5	No	Yes
	O-C[R9]	68.76	68.76	No	Yes
	O-C[IC1]	0	0	No	No
	S-C [IC1/R9]	0	0	No	No
Output from models Model KPL-065S-VI	Normal	94.44	94.44	No	Yes
	O-C[R9]	61.56	61.56	No	Yes
	O-C[IC1]	0	0	No	No
	S-C [IC1/R9]	0	0	No	No
Output from models Model KPL-060I	Normal	91.65	91.65	No	Yes
	O-C[IC1]	0	0	No	No
	S-C [IC1/R9]	0	0	No	No
Output from models Model KPL-065F	Normal	87.88	87.88	No	Yes
	O-C[IC1]	0	0	No	No
	S-C [IC1/R9]	0	0	No	No
Output from models Model KPL-065J	Normal	81.18	81.18	No	Yes
	O-C[IC1]	0	0	No	No
	S-C [IC1/R9]	0	0	No	No

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Clause	Requirement + Test	Result - Remark	Verdict

Output from models Model KPL-065M	Normal	76.26	76.26	No	Yes
	O-C[IC1]	0	0	No	No
	S-C [IC1/R9]	0	0	No	No

Supplementary information:

S-C: Short Circuit; O-C: Open Circuit

A combination of voltmeter, VA and ammeter IA may be used instead of a wattmeter. If a separate voltmeter and ammeter are used, the product of (VA x IA) is used to determine Resistive PIS classification.

A Resistive PIS: (a) dissipates more than 15 W, measured after 30 s of normal operation, or (b) under single fault conditions has either a power exceeding 100 W measured immediately after the introduction of the fault if electronic circuits, regulators or PTC devices are used, or has an available power exceeding 15 W measured 30 s after introduction of the fault.

8.5.5	TABLE: High Pressure Lamp		N/A
Description		Values	Energy Source Classification
Lamp type ..... :			—
Manufacturer ..... :			—
Cat no. ..... :			—
Pressure (cold) (MPa) ..... :			MS_
Pressure (operating) (MPa) ..... :			MS_
Operating time (minutes)..... :			—
Explosion method..... :			—
Max particle length escaping enclosure (mm). :			MS_
Max particle length beyond 1 m (mm)..... :			MS_
Overall result ..... :			
Supplementary information: No such parts.			

B.2.5	TABLE: Input test						P
U (V)	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
Model : 2ACL068S(54V/1.25A)							
90/60	1.518	--	76.0	--	F1	1.518	Max. Normal Load-54V/1.25A
100/50	1.362	1.7	75.4	--	F1	1.362	Same as above
100/60	1.393	1.7	75.4	--	F1	1.393	Same as above
240/50	0.791	1.7	73.1	--	F1	0.791	Same as above
240/60	0.760	1.7	73.1	--	F1	0.760	Same as above
254/50	0.758	--	73.4	--	F1	0.758	Same as above
264/50	0.737	--	73.8	--	F1	0.737	Same as above
Model : KPL-065A-KV(36V/1.81A)							
90/60	1.520	--	73.8	--	F1,F2	1.520	Max. Normal Load-36V/1.81A

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Clause	Requirement + Test				Result - Remark		Verdict
100/50	1.348	1.7	73.2	--	F1,F2	1.348	Same as above
100/60	1.406	1.7	73.2	--	F1,F2	1.406	Same as above
240/50	0.820	1.7	71.0	--	F1,F2	0.820	Same as above
240/60	0.790	1.7	70.9	--	F1,F2	0.790	Same as above
254/50	0.786	--	71.1	--	F1,F2	0.786	Same as above
264/50	0.764	--	71.2	--	F1,F2	0.764	Same as above
Model : KPL-065T-KV(52V/1.25A)							
90/60	1.497	--	72.4	--	F1,F2	1.497	Max. Normal Load-52V/1.25A
100/50	1.327	1.7	71.9	--	F1,F2	1.327	Same as above
100/60	1.385	1.7	71.9	--	F1,F2	1.385	Same as above
240/50	0.819	1.7	70.8	--	F1,F2	0.819	Same as above
240/60	0.789	1.7	70.8	--	F1,F2	0.789	Same as above
254/50	0.787	--	71.1	--	F1,F2	0.787	Same as above
264/50	0.764	--	71.2	--	F1,F2	0.764	Same as above
Model : KPL-065P-KV(54V/1.20A)							
90/60	0.543	--	72.6	--	F1,F2	0.543	Max. Normal Load-54V/1.2A
100/50	0.546	1.7	71.6	--	F1,F2	0.546	Same as above
100/60	0.524	1.7	71.6	--	F1,F2	0.524	Same as above
240/50	0.364	1.7	70.8	--	F1,F2	0.364	Same as above
240/60	0.376	1.7	70.8	--	F1,F2	0.376	Same as above
254/50	0.362	--	70.9	--	F1,F2	0.362	Same as above
264/50	0.356	--	71.0	--	F1,F2	0.356	Same as above
Model : KPL-066F-KV (12V/5.5A) (LF2: T12.7*7.9*5C)							
90/60	1.582	--	77.5	--	F1,F2	1.582	Max. Normal Load-12V/5.5A
100/50	1.421	1.7	76.9	--	F1,F2	1.421	Same as above
100/60	1.450	1.7	76.8	--	F1,F2	1.450	Same as above
240/50	0.813	1.7	74.3	--	F1,F2	0.813	Same as above
240/60	0.776	1.7	74.3	--	F1,F2	0.776	Same as above
254/50	0.774	--	74.3	--	F1,F2	0.774	Same as above
264/50	0.749	--	74.4	--	F1,F2	0.749	Same as above
Model : 2ACL030B							
90/60	0.727	--	35.7	--	F1	0.727	Max. Normal Load-5V,6A
100/60	0.676	1.7	35.4	--	F1	0.676	Same as above
240/50	0.405	1.7	35.0	--	F1	0.405	Same as above
264/50	0.391	--	35.1	--	F1	0.391	Same as above
Model : 2ACL025B							
90/60	0.619	--	29.4	--	F1	0.619	Max. Normal Load-5V,5A
100/60	0.579	1.7	29.2	--	F1	0.579	Same as above
240/50	0.352	1.7	29.0	--	F1	0.352	Same as above
264/50	0.340	--	29.0	--	F1	0.340	Same as above
Model : KPL-030S-VI							
90/60	0.754	--	33.1	--	F1	0.754	Max. Normal Load-48V,0.63A

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Clause	Requirement + Test				Result - Remark		Verdict

100/60	0.708	1.7	32.8	--	F1	0.708	Same as above
240/50	0.414	1.7	33.1	--	F1	0.414	Same as above
264/50	0.391	--	33.7	--	F1	0.391	Same as above
Model : KPL-065U-VI							
90/60	1.472	--	74.5	--	F1	1.472	Max. Normal Load-56V,1.16A
100/60	1.364	1.7	73.9	--	F1	1.364	Same as above
240/50	0.819	1.7	72.7	--	F1	0.819	Same as above
264/50	0.769	--	72.7	--	F1	0.769	Same as above
Model : KPL-060U-VI							
90/60	1.381	--	68.6	--	F1	1.381	Max. Normal Load-56V,1.07A
100/60	1.276	1.7	67.4	--	F1	1.276	Same as above
240/50	0.765	1.7	66.9	--	F1	0.765	Same as above
264/50	0.710	--	66.5	--	F1	0.710	Same as above
Model : KPL-050U-VI							
90/60	1.174	--	56.7	--	F1	1.174	Max. Normal Load-56V,0.89A
100/60	1.096	1.7	56.4	--	F1	1.096	Same as above
240/50	0.647	1.7	55.1	--	F1	0.647	Same as above
264/50	0.604	--	55.4	--	F1	0.604	Same as above
Model : KPL-030U-VI							
90/60	0.775	--	33.5	--	F1	0.775	Max. Normal Load-56V,0.54A
100/60	0.740	1.7	33.8	--	F1	0.740	Same as above
240/50	0.428	1.7	34.3	--	F1	0.428	Same as above
264/50	0.399	--	34.5	--	F1	0.399	Same as above
Model : GTR0382							
90/60	0.9108	--	46.302	--	F1	0.9108	Max. Normal Load-5.2V/3.8, 12V/1.5A
100/60	0.8510	1.2	46.780	--	F1	0.8510	Same as above
240/50	0.4791	1.2	45.376	--	F1	0.4791	Same as above
264/50	0.4566	--	45.855	--	F1	0.4566	Same as above
Model : 2ABF036F							
90/60	0.9028	--	40.932	--	F1	0.9028	Max. Normal Load-12V,3.0A
100/60	0.8496	1.7	40.668	--	F1	0.8496	Same as above
240/50	0.4546	1.7	40.840	--	F1	0.4546	Same as above
264/50	0.4250	--	40.877	--	F1	0.4250	Same as above
Model : 2ACL060K							
90/60	1.3558	--	68.313	--	F1	1.3558	Max. Normal Load-19V,3.16A
100/60	1.2719	1.7	67.825	--	F1	1.2719	Same as above
240/50	0.7209	1.7	66.901	--	F1	0.7209	Same as above
264/50	0.6873	--	66.895	--	F1	0.6873	Same as above
Model : 2ACL060M							
90/60	1.3613	--	67.518	--	F1	1.3613	Max. Normal Load-24V,2.5A

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Clause	Requirement + Test				Result - Remark		Verdict

100/60	1.2652	1.7	67.803	--	F1	1.2652	Same as above
240/50	0.7264	1.7	66.716	--	F1	0.7264	Same as above
264/50	0.6856	--	67.186	--	F1	0.6856	Same as above
Model : 2ACL060R							
90/60	1.3467	--	68.212	--	F1	1.3467	Max. Normal Load-48V,1.25A
100/60	1.2492	1.7	67.729	--	F1	1.2492	Same as above
240/50	0.7201	1.7	66.908	--	F1	0.7201	Same as above
264/50	0.6763	--	66.754	--	F1	0.6763	Same as above
Model : 2ACL065R							
90/60	1.4264	--	71.619	--	F1	1.4264	Max. Normal Load-48V,1.35A
100/60	1.3103	1.7	71.063	--	F1	1.3103	Same as above
240/50	0.7564	1.7	69.894	--	F1	0.7564	Same as above
264/50	0.7136	--	70.323	--	F1	0.7136	Same as above
Model : 2ACL060S							
90/60	1.3455	--	67.986	--	F1	1.3455	Max. Normal Load-54V,1.1A
100/60	1.2473	1.7	67.487	--	F1	1.2473	Same as above
240/50	0.7192	1.7	66.235	--	F1	0.7192	Same as above
264/50	0.6838	--	67.051	--	F1	0.6838	Same as above
Model : 2ACL065S							
90/60	1.4630	--	73.999	--	F1	1.4630	Max. Normal Load-54V,1.2A
100/60	1.3531	1.7	73.380	--	F1	1.3531	Same as above
240/50	0.7860	1.7	72.148	--	F1	0.7860	Same as above
264/50	0.7383	--	71.864	--	F1	0.7383	Same as above
Model : 2ACL050U							
90/60	1.1619	--	57.647	--	F1	1.1619	Max. Normal Load-56V,0.9A
100/60	1.0829	1.7	57.345	--	F1	1.0829	Same as above
240/50	0.6191	1.7	56.403	--	F1	0.6191	Same as above
264/50	0.5826	--	56.816	--	F1	0.5826	Same as above
Model : 2ACL060U							
90/60	1.3762	--	68.635	--	F1	1.3762	Max. Normal Load-56V,1.07A
100/60	1.2769	1.7	68.133	--	F1	1.2769	Same as above
240/50	0.7377	1.7	67.704	--	F1	0.7377	Same as above
264/50	0.6928	--	67.784	--	F1	0.6928	Same as above
Model : 2ACL065U							
90/60	1.4788	--	75.120	--	F1	1.4788	Max. Normal Load-56V,1.16A
100/60	1.3677	1.7	74.466	--	F1	1.3677	Same as above
240/50	0.7936	1.7	73.129	--	F1	0.7936	Same as above
264/50	0.7461	--	73.083	--	F1	0.7461	Same as above
Model : 2ABF048F							
90/50	1.08	--	53.5	--	F1	1.08	Max. Normal Load: 12V,4A

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Clause	Requirement + Test				Result - Remark		Verdict
90/60	1.12	--	53.5	--	F1	1.12	Same as above
100/50	1.01	1.7	53.5	--	F1	1.01	Same as above
100/60	1.04	1.7	53.5	--	F1	1.04	Same as above
240/50	0.63	1.7	55.3	--	F1	0.63	Same as above
240/60	0.61	1.7	55.3	--	F1	0.61	Same as above
254/50	0.60	--	55.3	--	F1	0.60	Same as above
254/60	0.59	--	55.3	--	F1	0.59	Same as above
264/50	0.58	--	55.3	--	F1	0.58	Same as above
264/60	0.57	--	55.3	--	F1	0.57	Same as above
Model : 2ABF060F							
90/50	1.35	--	67.3	--	F1	1.35	Max. Normal Load: 12V,5A
90/60	1.41	--	67.3	--	F1	1.41	Same as above
100/50	1.26	1.7	67.0	--	F1	1.26	Same as above
100/60	1.30	1.7	67.0	--	F1	1.30	Same as above
240/50	0.76	1.7	65.5	--	F1	0.76	Same as above
240/60	0.73	1.7	65.5	--	F1	0.73	Same as above
254/50	0.72	--	65.5	--	F1	0.72	Same as above
254/60	0.70	--	65.5	--	F1	0.70	Same as above
264/50	0.70	--	65.5	--	F1	0.70	Same as above
264/60	0.68	--	65.5	--	F1	0.68	Same as above
Model : 2ABF065F							
90/50	1.45	--	73.5	--	F1	1.45	Max. Normal Load: 12V,5.4A
90/60	1.51	--	73.6	--	F1	1.51	Same as above
100/50	1.34	1.7	73.0	--	F1	1.34	Same as above
100/60	1.39	1.7	73.1	--	F1	1.39	Same as above
240/50	0.81	1.7	71.0	--	F1	0.81	Same as above
240/60	0.79	1.7	71.0	--	F1	0.79	Same as above
254/50	0.78	--	71.0	--	F1	0.78	Same as above
254/60	0.76	--	71.0	--	F1	0.76	Same as above
264/50	0.76	--	71.0	--	F1	0.76	Same as above
264/60	0.74	--	71.0	--	F1	0.74	Same as above
Model : 2ABF060R							
90/50	1.29	--	65.2	--	F1	1.29	Max. Normal Load: 48V,1.25A
90/60	1.33	--	65.3	--	F1	1.33	Same as above
100/50	1.20	1.7	65.0	--	F1	1.20	Same as above
100/60	1.24	1.7	65.1	--	F1	1.24	Same as above
240/50	0.74	1.7	64.2	--	F1	0.74	Same as above
240/60	0.72	1.7	64.1	--	F1	0.72	Same as above
254/50	0.71	--	64.1	--	F1	0.71	Same as above
254/60	0.68	--	64.1	--	F1	0.68	Same as above
264/50	0.68	--	64.1	--	F1	0.68	Same as above
264/60	0.66	--	64.1	--	F1	0.66	Same as above
Model : KPL-060I-VI (16Vdc / 3.75A)							
90	1.387	--	68.77	--	F1, F2	1.387	Full load, 60Hz

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Clause	Requirement + Test				Result - Remark		Verdict
100	1.291	1.7	68.25	--	F1, F2	1.291	Full load, 60Hz
240	0.740	1.7	66.69	--	F1, F2	0.740	Full load, 50Hz
264	0.700	--	67.02	--	F1, F2	0.700	Full load, 50Hz
Model : KPL-066F-VI (12Vdc / 5.5A)							
90	1.522	--	76.34	--	F1, F2	1.522	Full load, 60Hz
100	1.410	1.7	76.22	--	F1, F2	1.410	Full load, 60Hz
240	0.820	1.7	74.04	--	F1, F2	0.820	Full load, 50Hz
264	0.763	--	75.00	--	F1, F2	0.763	Full load, 50Hz
Model : KPL-065J-VI (18Vdc / 3.61A)							
90	1.491	--	75.03	--	F1, F2	1.491	Full load, 60Hz
100	1.375	1.7	74.35	--	F1, F2	1.375	Full load, 60Hz
240	0.797	1.7	73.05	--	F1, F2	0.797	Full load, 50Hz
264	0.745	--	73.47	--	F1, F2	0.745	Full load, 50Hz
Model : KPL-065M-VI (24Vdc / 2.71A)							
90	1.485	--	75.45	--	F1, F2	1.485	Full load, 60Hz
100	1.380	1.7	74.45	--	F1, F2	1.380	Full load, 60Hz
240	0.796	1.7	72.33	--	F1, F2	0.796	Full load, 50Hz
264	0.746	--	72.63	--	F1, F2	0.746	Full load, 50Hz
Model : KPL-065S-VI (48Vdc / 1.35A)							
90	1.440	--	72.06	--	F1, F2	1.440	Full load, 60Hz
100	1.335	1.7	71.50	--	F1, F2	1.335	Full load, 60Hz
240	0.775	1.7	69.74	--	F1, F2	0.775	Full load, 50Hz
264	0.726	--	70.06	--	F1, F2	0.726	Full load, 50Hz
Model : KPL-060I (14Vdc / 4.29A)							
90	1.263	--	69.3		F1	1.263	Full load, 50Hz
90	1.276	--	69.3		F1	1.276	Full load, 60Hz
100	1.157	1.7	68.6		F1	1.157	Full load, 50Hz
100	1.169	1.7	68.8		F1	1.169	Full load, 60Hz
240	0.532	1.7	67.5		F1	0.532	Full load, 50Hz
240	0.525	1.7	67.5	--	F1	0.525	Full load, 60Hz
254.4	0.509	--	67.4	--	F1	0.509	Full load, 50Hz
254.4	0.502	--	67.4	--	F1	0.502	Full load, 60Hz
264	0.494	--	67.2	--	F1	0.494	Full load, 50Hz
264	0.488	--	67.3	--	F1	0.488	Full load, 60Hz
Model : KPL-065F (12Vdc / 5.42A)							
90	1.359	--	75.3	--	F1	1.359	Full load, 50Hz
90	1.371	--	75.2	--	F1	1.371	Full load, 60Hz
100	1.241	1.7	74.4	--	F1	1.241	Full load, 50Hz
100	1.253	1.7	74.5	--	F1	1.253	Full load, 60Hz
240	0.572	1.7	73.2	--	F1	0.572	Full load, 50Hz
240	0.563	1.7	73.2	--	F1	0.563	Full load, 60Hz
254.4	0.546	--	73.0	--	F1	0.546	Full load, 50Hz
254.4	0.538	--	73.0	--	F1	0.538	Full load, 60Hz
264	0.531	--	73.0	--	F1	0.531	Full load, 50Hz
264	0.524	--	73.0	--	F1	0.524	Full load, 60Hz
Model : KPL-065J (18Vdc / 3.61A)							
90	1.356	--	75.4	--	F1	1.356	Full load, 50Hz

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Clause	Requirement + Test	Result - Remark	Verdict

90	1.369	--	75.3	--	F1	1.369	Full load, 60Hz
100	1.237	1.7	74.5	--	F1	1.237	Full load, 50Hz
100	1.252	1.7	74.6	--	F1	1.252	Full load, 60Hz
240	0.572	1.7	73.3	--	F1	0.572	Full load, 50Hz
240	0.565	1.7	73.4	--	F1	0.565	Full load, 60Hz
254.4	0.549	--	73.3	--	F1	0.549	Full load, 50Hz
254.4	0.542	--	73.5	--	F1	0.542	Full load, 60Hz
264	0.534	--	73.4	--	F1	0.534	Full load, 50Hz
264	0.528	--	73.5	--	F1	0.528	Full load, 60Hz
Model : KPL-065M (24Vdc / 2.71A)							
90	1.333	--	73.7	--	F1	1.333	Full load, 50Hz
90	1.347	--	73.7	--	F1	1.347	Full load, 60Hz
100	1.223	1.7	72.8	--	F1	1.223	Full load, 50Hz
100	1.234	1.7	73.1	--	F1	1.234	Full load, 60Hz
240	0.560	1.7	71.2	--	F1	0.560	Full load, 50Hz
240	0.551	1.7	71.3	--	F1	0.551	Full load, 60Hz
254.4	0.537	--	71.5	--	F1	0.537	Full load, 50Hz
254.4	0.529	--	71.5	--	F1	0.529	Full load, 60Hz
264	0.524	--	72.1	--	F1	0.524	Full load, 50Hz
264	0.518	--	72.3	--	F1	0.518	Full load, 60Hz
Supplementary information:							

B.3 & B.4	TABLE: Abnormal operating and fault condition tests	P
Ambient temperature (°C)	25°C, if no otherwise state.	—
Power source for EUT: Manufacturer, model/type, output rating	--	—

Component No.	Abnormal Condition	Supply voltage, (V)	Test time (hrs)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
Model: 2ACL068S								
BD1	Short (SC)	240V	1 sec	F1,F2	--	--	--	F1, F2 ,BD1 opened No hazardous; Hi-pot passes
C2	Short (SC)	240V	1 sec	F1,F2	--	--	--	F1, F2 ,BD1 opened No hazardous; Hi-pot passes
Q1 (G-S)	Short (SC)	240V	30mins	F1,F2	0.025	--	--	Unit shutdown immediately, recoverable No hazardous; Hi-pot passes

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Clause	Requirement + Test	Result - Remark	Verdict

Q1 (D-S)	Short (SC)	240V	1 sec	F1,F2	--	--	--	F1, F2 , opened R9, R15, R16, R18,R23, Q1 damaged No hazardous; Hi-pot passes
Q1 (D-G)	Short (SC)	240V	1 sec	F1,F2	--	--	--	F1, F2 , opened R9, R15, R16, R18,R23, Q1 damaged No hazardous; Hi-pot passes
R9	Short (SC)	240V	30mins	F1,F2	0.818	--	--	Normal working, PF=0.362 No hazardous; Hi-pot passes
IC3 (1-5)	Short (SC)	240V	30mins	F1,F2	0.025	--	--	Unit shutdown immediately, recoverable No hazardous; Hi-pot passes
IC3 (2-5)	Short (SC)	240V	30mins	F1,F2	0.025	--	--	Unit shutdown immediately, IC3 damaged No hazardous; Hi-pot passes
IC1 (1-2)	Short (SC)	240V	30mins	F1,F2	0.025	--	--	Unit shutdown immediately, recoverable No hazardous; Hi-pot passes
IC1 (3-4)	Short (SC)	240V	30mins	F1,F2	0.025	--	--	Unit shutdown immediately, recoverable No hazardous; Hi-pot passes
Q2 (D-S)	Short (SC)	240V	30mins	F1,F2	0.025	--	--	Unit shutdown immediately, recoverable No hazardous; Hi-pot passes
T1 (1-3)	Short (SC)	240V	30mins	F1,F2	0.025	--	--	Unit shutdown immediately, recoverable No hazardous; Hi-pot passes
T1 (4-6)	Short (SC)	240V	30mins	F1,F2	0.025	--	--	Unit shutdown immediately, recoverable No hazardous; Hi-pot passes

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Clause	Requirement + Test	Result - Remark	Verdict

T1 (8, 9 – 11, 12)	Short (SC)	240V	30mins	F1,F2	0.025	--	--	Unit shutdown immediately, recoverable No hazardous; Hi-pot passes
Output	Short (SC)	240V	30mins	F1,F2	0.025	--	--	Unit shutdown immediately, recoverable No hazardous; Hi-pot passes
Output MODEL: 2ACL0068S	Overload	240V	5.5hr	F1	0.634	--	--	Temp. was stable at load 1.46A, Maximum temperature Ambient=28.7 °C, T1 coil=90.0°C, T1 core=81.7°C, External plastic enclosure above T1=58.4°C, No hazardous; Hi-pot passes
Output MODEL: 2ACL030B	Overload	240V	4hr	F1,F2	0.339	--	--	Temp. was stable at load 7.6A, Maximum temperature Ambient=30.1 °C, T1 coil=83.0°C, T1 core=78.8°C, External plastic enclosure above T1=58.2°C No hazardous; Hi-pot passes

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Clause	Requirement + Test	Result - Remark	Verdict

Output MODEL: 2ACL060K	Overload	240V	4hr	F1,F2	0.651	--	--	Temp. was stable at load 4.3A, Maximum temperature Ambient=24.7 °C, T1 coil=97.8°C, T1 core=92.1°C, External plastic enclosure above T1=63.9°C No hazardous; Hi-pot passes
Output MODEL: 2ACL060M	Overload	240V	4hr	F1,F2	0.676	--	--	Temp. was stable at load 3.3A, Maximum temperature Ambient=26.0 °C, T1 coil=90.5°C, T1 core=87.3°C, External plastic enclosure above T1=58.6°C No hazardous; Hi-pot passes
Output MODEL: 2ACL065R	Overload	240V	4hr	F1,F2	0.756	--	--	Temp. was stable at load 1.9A, Maximum temperature Ambient=25.5 °C, T1 coil= 104.8°C, T1 core=97.5°C, External plastic enclosure above T1=65.0°C No hazardous; Hi-pot passes

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Clause	Requirement + Test	Result - Remark	Verdict

Output MODEL: 2ACL065U	Overload	240V	4hr	F1,F2	0.743	--	--	Temp. was stable at load 1.48A, Maximum temperature Ambient=24.6 °C, T1 coil= 110.4°C, T1 core=103°C External plastic enclosure above T1=72.4°C No hazardous; Hi-pot passes
Model: KPL-065A-KV (F1: T8A, F2:T3.15A)								
LF1 Pin 1-2	Short (SC)	240V	1 sec	F1, F2	--	--	--	F1,F2 opened, No hazardous; Hi-pot passes
LF2 Pin 1-2	Short (SC)	240V	1 sec	F1, F2	--	--	--	F1,F2 opened, No hazardous; Hi-pot passes
BD1 Pin 2-3	Short (SC)	240V	1 sec	F1, F2	--	--	--	F1,F2 opened, No hazardous; Hi-pot passes
C2	Short (SC)	240V	1 sec	F1, F2	--	--	--	F1,F2 opened, No hazardous; Hi-pot passes
Q1 Pin G-S	Short (SC)	240V	30mins	F1, F2	0.023	--	--	Unit shutdown immediately, recoverable No hazardous; Hi-pot passes
Q1 Pin S-D	Short (SC)	240V	1 sec	F1, F2	--	--	--	F1,F2 opened, BD1, R9, R15, R16, R18,R23, Q1 damaged No hazardous; Hi-pot passes
Q1 Pin G-D	Short (SC)	240V	1 sec	F1, F2	--	--	--	F1,F2 opened, BD1, R9, R15, R16, R18,R23, Q1 damaged No hazardous; Hi-pot passes
R6	Open (O-C)	240V	30mins	F1, F2	0.023	--	--	Unit shutdown immediately, recoverable No hazardous; Hi-pot passes

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Clause	Requirement + Test	Result - Remark	Verdict

R23	Short (SC)	240V	1 sec	F1, F2	--	--	--	F1,F2 opened, BD1, Q1 damaged No hazardous; Hi-pot passes
D2	Short (SC)	240V	30mins	F1, F2	0.023	--	--	Unit shutdown immediately, recoverable No hazardous; Hi-pot passes
D3	Short (SC)	240V	30mins	F1, F2	0.023	--	--	Unit shutdown immediately, recoverable No hazardous; Hi-pot passes
IC1 Pin 1-2	Short (SC)	240V	30mins	F1, F2	0.023	--	--	Unit shutdown immediately, recoverable No hazardous; Hi-pot passes
IC1 Pin 3-4	Short (SC)	240V	30mins	F1, F2	0.023	--	--	Unit shutdown immediately, recoverable No hazardous; Hi-pot passes
IC1 Pin 1	Open (OC)	240V	30mins	F1, F2	0.023	--	--	Unit shutdown immediately, recoverable No hazardous; Hi-pot passes
IC1 Pin 3	Open (OC)	240V	30mins	F1, F2	0.023	--	--	Unit shutdown immediately, recoverable No hazardous; Hi-pot passes
IC3 Pin 1-5	Short (SC)	240V	30mins	F1, F2	0.023	--	--	Unit shutdown immediately, recoverable No hazardous; Hi-pot passes
IC3 Pin 2-5	Short (SC)	240V	1 sec	F1, F2	0.023	--	--	Unit shutdown immediately, IC3 damaged No hazardous; Hi-pot passes
T1 Pin 1-4	Short (SC)	240V	30mins	F1, F2	0.023	--	--	Unit shutdown immediately, recoverable No hazardous; Hi-pot passes
T1 Pin 3-6	Short (SC)	240V	30mins	F1, F2	0.023	--	--	Unit shutdown immediately, recoverable No hazardous; Hi-pot passes

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Clause	Requirement + Test	Result - Remark	Verdict

T1 Pin 8 – 11, 12	Short (SC)	240V	30mins	F1, F2	0.023	--	--	Unit shutdown immediately, recoverable No hazardous; Hi-pot passes
Output MODEL: KPL-065A-KV	Short (SC)	240V	30mins	F1, F2	0.023	--	--	Unit shut down No hazardous; Hi-pot passes
Output MODEL: KPL-065A-KV	Overload	240V	6hr	F1, F2	1.03	--	--	Temp. was stable at load 2.47A, Maximum temperature Ambient=28.3 °C, T1 coil=92.4°C, T1 core=83.3°C No hazardous; Hi-pot passes
Model: 2ACL030B								
T1 pin 1 to 3	Short (SC)	240V	30mins	F1	0.025→0.116	--	--	Unit shut down No hazardous; Hi-pot passes
T1 pin 4 to 6	Short (SC)	240V	30mins	F1	0.025→0.185	--	--	Unit shut down No hazardous; Hi-pot passes
T1 pin 7 to 8,9	Short (SC)	240V	30mins	F1	0.025→0.076	--	--	Unit shut down No hazardous; Hi-pot passes
T1 pin 8,9 to 11,12	Short (SC)	240V	30mins	F1	0.025	--	--	Unit shut down No hazardous; Hi-pot passes
Q2 (D-S)	Short (SC)	240V	30mins	F1	0.025	--	--	Unit shut down No hazardous; Hi-pot passes
Output MODEL: 2ACL030B	Short (SC)	240V	30mins	F1	0.025→0.091	--	--	Unit shut down No hazardous; Hi-pot passes

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Clause	Requirement + Test	Result - Remark	Verdict

Output MODEL: 2ACL030B	Overload	240V	4hr	F1	0.339	--	--	Temp. was stable at load 7.6A, Maximum temperature Ambient=30.1 °C, T1 coil=83.0°C, T1 core=78.8°C No hazardous; Hi-pot passes
Model: KPL-065U-VI								
T1 pin 1 to 4	Short (SC)	240V	30mins	F1	0.024	--	--	Unit shut down No hazardous; Hi-pot passes
T1 pin 3 to 6	Short (SC)	240V	30mins	F1	0.024	--	--	Unit shut down No hazardous; Hi-pot passes
T1 pin 8,9 to 11,12	Short (SC)	240V	30mins	F1	0.024	--	--	Unit shut down No hazardous; Hi-pot passes
D3	Short (SC)	240V	30mins	F1	0.024	--	--	Unit shut down No hazardous; Hi-pot passes
Output MODEL: KPL065U	Short (SC)	240V	30mins	F1	0.024	--	--	Unit shut down No hazardous; Hi-pot passes
Output MODEL: KPL065U	Overload	240V	4hr	F1	0.718	--	--	Temp. was stable at load 1.64A, Maximum temperature Ambient=30.8 °C, T1 coil=113.9°C, T1 core=109.8°C No hazardous; Hi-pot passes
Model: GTR0382								
BD1(+ ~ -)	Short (SC)	240V	1 sec	F1	--	--	--	F1 opened,BD1,damaged No hazardous; Hi-pot passes

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Clause	Requirement + Test	Result - Remark	Verdict

C2	Short (SC)	240V	1 sec	F1	--	--	--	F1 opened,BD1,damaged No hazardous; Hi-pot passes
Q1 (G-S)	Short (SC)	240V	30mins	F1	0.025	--	--	Unit shut down No hazardous; Hi-pot passes
Q1 (G-D)	Short (SC)	240V	1 sec	F1	--	--	--	F1 opened, Q1,IC3,BD1,D5,R9,R15,R16 damaged No hazardous; Hi-pot passes
Q1 (D-S)	Short (SC)	240V	1 sec	F1	--	--	--	F1 opened, Q1,IC3,BD1,R9,R15,R16 damaged No hazardous; Hi-pot passes
R9	Short (SC)	240V	30mins	F1	0.025→0.097	--	--	Unit shut down No hazardous; Hi-pot passes
IC1 (1-2)	Short (SC)	240V	30mins	F1	0.025→0.081	--	--	Unit shut down No hazardous; Hi-pot passes
IC1 (3-4)	Short (SC)	240V	30mins	F1	0.025	--	--	Unit shut down No hazardous; Hi-pot passes
IC3 (5-1)	Short (SC)	240V	30mins	F1	0.025	--	--	Unit shut down No hazardous; Hi-pot passes
IC3 (5-2)	Short (SC)	240V	30mins	F1	0.025	--	--	Unit shut down No hazardous; Hi-pot passes
T1 pin 1 to 3	Short (SC)	240V	30mins	F1	0.106→0.178	--	--	Unit shut down No hazardous; Hi-pot passes
T1 pin 6 to 7	Short (SC)	240V	30mins	F1	0.025→0.038	--	--	Unit shut down No hazardous; Hi-pot passes
T1 pin10 to 12	Short (SC)	240V	30mins	F1	0.025→0.073	--	--	Unit shut down No hazardous; Hi-pot passes

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Clause	Requirement + Test	Result - Remark	Verdict

Q2 (D-S)	Short (SC)	240V	30mins	F1	0.025→0.039	--	--	Unit shut down No hazardous; Hi-pot passes
Output +5.2V	Short (SC)	240V	30mins	F1	0.227	--	--	+5.2V output shut down, +12V output normal working No hazardous; Hi-pot passes
Output +12V	Short (SC)	240V	30mins	F1	0.025→0.097	--	--	Unit shut down No hazardous; Hi-pot passes
Output +12V	Overload	240V	9hr	F1	0.510	--	--	Temp. was stable at load 3.3A, Maximum temperature Ambient=33.0 °C, T1 coil=122.8°C, T1 core=118.2°C No hazardous; Hi-pot passes
Model: 2ACL								
BD1(+ ~ -)	Short (SC)	240V	1 sec	F1	--	--	--	F1 opened, BD1,TH1,damaged No hazardous; Hi-pot passes
C2	Short (SC)	240V	1 sec	F1	--	--	--	F1 opened, BD1,TH1,damaged No hazardous; Hi-pot passes
Q1 (G-S)	Short (SC)	240V	30mins	F1	0.025	--	--	Unit shut down No hazardous; Hi-pot passes
Q1 (G-D)	Short (SC)	240V	1 sec	F1	--	--	--	F1 opened, Q1,IC3,BD1,TH1,R9, R15,R16,R18, R23 damaged No hazardous; Hi-pot passes

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Clause	Requirement + Test	Result - Remark	Verdict

Q1 (D-S)	Short (SC)	240V	1 sec	F1	--	--	--	F1 opened, Q1,IC3,BD1,TH1,R9, R15,R16,R18, R23 damaged No hazardous; Hi-pot passes
R9	Short (SC)	240V	30mins	F1	0.025→0.177	--	--	Unit shut down No hazardous; Hi-pot passes
IC1 (1-2)	Short (SC)	240V	30mins	F1	0.025→0.142	--	--	Unit shut down No hazardous; Hi-pot passes
IC1 (3-4)	Short (SC)	240V	30mins	F1	0.025	--	--	Unit shut down No hazardous; Hi-pot passes
IC3 (5-1)	Short (SC)	240V	30mins	F1	0.025	--	--	Unit shut down No hazardous; Hi-pot passes
IC3 (5-2)	Short (SC)	240V	30mins	F1	0.025	--	--	Unit shut down, IC3 damaged No hazardous; Hi-pot passes
T1 pin 1 to 3	Short (SC)	240V	30mins	F1	0.028→0.084	--	--	Unit shut down No hazardous; Hi-pot passes
T1 pin 4 to 6	Short (SC)	240V	30mins	F1	0.027→0.33	--	--	Unit shut down No hazardous; Hi-pot passes
T1 pin 8,9 to 11,12	Short (SC)	240V	30mins	F1	0.025→0.068	--	--	Unit shut down No hazardous; Hi-pot passes
Q2 (D-S)	Short (SC)	240V	30mins	F1	0.025→0.072	--	--	Unit shut down No hazardous; Hi-pot passes
Output MODEL: 2ACL060K	Short (SC)	240V	30mins	F1	0.026→0.094	--	--	Unit shut down No hazardous; Hi-pot passes

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Clause	Requirement + Test	Result - Remark	Verdict

Output MODEL: 2ACL060K	Overload	240V	4hr	F1	0.651	--	--	Temp. was stable at load 4.3A, Maximum temperature Ambient=24.7 °C, T1 coil=97.8°C, T1 core=92.1°C No hazardous; Hi-pot passes
Output MODEL: 2ACL060M	Short (SC)	240V	30mins	F1	0.027→0.092	--	--	Unit shut down No hazardous; Hi-pot passes
Output MODEL: 2ACL060M	Overload	240V	4hr	F1	0.676	--	--	Temp. was stable at load 3.3A, Maximum temperature Ambient=24.7 °C, T1 coil=90.5°C, T1 core=87.3°C No hazardous; Hi-pot passes
Output MODEL: 2ACL065R	Short (SC)	240V	30mins	F1	0.025→0.074	--	--	Unit shut down No hazardous; Hi-pot passes
Output MODEL: 2ACL065R	Overload	240V	4hr	F1	0.756	--	--	Temp. was stable at load 1.9A, Maximum temperature Ambient=25.5 °C, T1 coil=104.8°C, T1 core=97.5°C No hazardous; Hi-pot passes
Output MODEL: 2ACL065U	Short (SC)	240V	30mins	F1	0.034→0.082	--	--	Unit shut down No hazardous; Hi-pot passes

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Clause	Requirement + Test	Result - Remark	Verdict

Output MODEL: 2ACL065U	Overload	240V	4hr	F1	0.743	--	--	Temp. was stable at load 1.48A, Maximum temperature Ambient=24.6 °C, T1 coil=110.4°C, T1 core=103°C No hazardous; Hi-pot passes
Model: 2ABF								
BD1(+ ~ -)	S-C	240	1s	F1	--	--	--	F1 open, no hazards, Hi-pot passes
C1	S-C	240	1s	F1	--	--	--	F1 open, no hazards, Hi-pot passes
Q2(D-G)	S-C	240	1s	F1	--	--	--	F1 open, Q2, R34, R35, R36, R37, R38 damage, no hazards.
Q2(G-S)	S-C	240	30mins	F1	0.79 to 0.03	--	--	Unit shutdown immediately, No damage, no hazards. Hi-pot passes
Q2(D-S)	S-C	240	1s	F1	--	--	--	F1 open, Q2, R34, R35, R36, R37, R38 damage, no hazards. Hi-pot passes
R36	S-C	240	1s	F1	--	--	--	F1 open, Q2, U2, BD1 damage, no hazards. Hi-pot passes
U4(1-2)	S-C	240	10mins	F1	0.79 to 0.03	--	--	Unit shutdown immediately, no damage, no hazards.
U4(3-4)	S-C	240	10mins	F1	0.79 to 0.03	--	--	Unit shutdown immediately, no damage, no hazards.
U4(1)	S-C	240	10mins	F1	0.79 to 0.03	--	--	Unit shutdown immediately, no damage, no hazards.

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Clause	Requirement + Test	Result - Remark	Verdict

U4(3)	S-C	240	10mins	F1	0.79 to 0.03	--	--	Unit shutdown immediately, no damage, no hazards.
T1(1-3)	S-C	240	10mins	F1	0.79 to 0.03	--	--	Unit shutdown immediately, no damage, no hazards.
T1(4-6)	S-C	240	10mins	F1	0.79 to 0.03	--	--	Unit shutdown immediately, no damage, no hazards.
T1(8,9-11,12)	S-C	240	10mins	F1	0.79 to 0.03	--	--	Unit shutdown immediately, no damage, no hazards.
U2(5-2)	S-C	240	10mins	F1	0.79 to 0.03	--	--	Unit shutdown immediately, no damage, no hazards.
U2(5-2)	S-C	240	10mins	F1	0.79 to 0.03	--	--	Unit shutdown immediately, no damage, no hazards.
Output Model: 2ABF065F	O-L	240	5hrs	F1	0.77 to 0.86 to 0.91 to 0.2	--	--	Temp. was stable at load 6.65A, Maximum temperature Ambient=26°C , T1 coil=81.1°C, T1 core=74.5°C, Unit shutdown at load 7.0A, No damage. No hazard.
Output Model: 2ABF065F	S-C	240	30mins	F1	0.77 to 0.03	--	--	Unit shutdown immediately. No damage. No hazard.

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Clause	Requirement + Test	Result - Remark	Verdict

Output Model: 2ABF060R	O-L	240	5hrs	F1	0.83 to 0.93 to 0.98 to 0.2	--	--	Temp. was stable at load 1.9A, Maximum temperature Ambient=25.3 °C, T1 coil=92.9°C, T1 core=79.6°C, Unit shutdown at load 2.0A. No damage. No hazard.
Output Model: 2ABF065F	S-C	240	30 mins	F1	0.83 to 0.03	--	--	Unit shutdown immediately. No damage. No hazard.
Model: KPL-060I-VI								
Output	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
Output	o-l	240V	6 hrs 34 mins	F1, F2	0.928	--	--	Unit shut down. IP(IC3) CT(Max. temp: T1 coil=83.0 °C, T1 core=71.8 °C, Ambient=25.8 °C) Max overload current 4.7 A NC, NT, NB. No hazards
LF1 Pin 1-2	s-c	240V	<1 sec	F1, F2	-	--	--	F1,F2 opened immediately NC, NT, NB. No hazards
LF2 Pin 1-2	s-c	240V	<1 sec	F1, F2	-	--	--	F1,F2 opened immediately NC, NT, NB. No hazards
BD1 Pin 2-3	s-c	240V	<1 sec	F1, F2	-	--	--	F1,F2 opened immediately CD(BD1) NC, NT, NB. No hazards

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Clause	Requirement + Test	Result - Remark	Verdict

C2	s-c	240V	<1 sec	F1, F2	-	--	--	F1, F2 opened immediately NC, NT, NB. No hazards
Q1 Pin G-S	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards.
Q1 Pin S-D	s-c	240V	<1 sec	F1, F2	-	--	--	Fuse opened immediately CD(BD1, R9, R15, R16, R18, R23, Q1) NC, NT, NB. No hazards
Q1 Pin G-D	s-c	240V	<1 sec	F1, F2	-	--	--	Fuse opened immediately CD(BD1, R9, R15, R16, R18, R23, Q1) NC, NT, NB. No hazards
R6	o-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards
R23	s-c	240V	<1 sec	F1, F2	-	--	--	Fuse opened immediately CD(Q1, BD1) NC, NT, NB. No hazards
D2	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards
D3	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards

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Clause	Requirement + Test	Result - Remark	Verdict

IC1 Pin 1-2	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
IC1 Pin 3-4	s-c	240V	10mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
IC1 Pin 1	o-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
IC1 Pin 3	o-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
IC3 Pin 1-5	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards
IC3 Pin 2-5	s-c	240V	<1 sec	F1, F2	-	--	--	RT*, CD(IC3) NC, NT, NB. No hazards
IC3 Pin 3-5	s-c	240V	<1 sec	F1, F2	-	--	--	RT*, CD(IC3) NC, NT, NB. No hazards
IC3 Pin 4-5	s-c	240V	<1 sec	F1, F2	-	--	--	RT*, CD(IC3) NC, NT, NB. No hazards
IC3 Pin 6-5	s-c	240V	<1 sec	F1, F2	-	--	--	Fuse opened immediately CD(IC3, BD1, Q1, R9, R15, R16, R18, R23) NC, NT, NB. No hazards
T1 Pin 1-4	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
T1 Pin 3-6	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards

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Clause	Requirement + Test	Result - Remark	Verdict

T1 Pin 8, 9 – 11, 12	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
Model: KPL-066F-VI								
Output	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
Output	o-l	240V	17Hours 25mins	F1, F2	1.01	--	--	CT(Max. temp: T1 coil=100.8C, T1 core=87.3C, Ambient=26.5 C) Max overload current 7.16 A NC, NT, NB. No hazards
LF1 Pin 1-2	s-c	240V	<1 sec	F1, F2	--	--	--	F1, F2 opened immediately NC, NT, NB. No hazards
LF2 Pin 1-2	s-c	240V	<1 sec	F1, F2	--	--	--	F1, F2 opened immediately NC, NT, NB. No hazards
BD1 Pin 2-3	s-c	240V	<1 sec	F1, F2	--	--	--	F1, F2 opened immediately CD (BD1) NC, NT, NB. No hazards
C2	s-c	240V	<1 sec	F1, F2	--	--	--	F1, F2 opened immediately NC, NT, NB. No hazards
Q1 Pin G-S	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards.

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Clause	Requirement + Test	Result - Remark	Verdict

Q1 Pin S-D	s-c	240V	<1 sec	F1, F2	--	--	--	F1, F2 opened immediately CD(BD1, R9, R15, R16, R18, R23, Q1) NC, NT, NB. No hazards
Q1 Pin G-D	s-c	240V	<1 sec	F1, F2	--	--	--	F1, F2 opened immediately CD(BD1, R9, R15, R16, R18, R23, Q1) NC, NT, NB. No hazards
R6	o-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards
R23	s-c	240V	<1 sec	F1, F2	-	--	--	F1, F2 opened immediately CD(Q1, BD1) NC, NT, NB. No hazards
D2	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards
D3 D6	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
IC1 Pin 1-2	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
IC1 Pin 3-4	s-c	240V	10mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
IC1 Pin 1	o-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards

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Clause	Requirement + Test	Result - Remark	Verdict

IC1 Pin 3	o-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
IC3 Pin 1-5	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards
IC3 Pin 2-5	s-c	240V	<1 sec	F1, F2	-	--	--	RT*, CD(IC3) NC, NT, NB. No hazards
IC3 Pin 3-5	s-c	240V	<1 sec	F1, F2	-	--	--	RT*, CD(IC3) NC, NT, NB. No hazards
IC3 Pin 4-5	s-c	240V	<1 sec	F1, F2	-	--	--	RT*, CD(IC3) NC, NT, NB. No hazards
IC3 Pin 6-5	s-c	240V	<1 sec	F1, F2	-	--	--	Fuse opened immediately CD (IC3, BD1, Q1, R9, R15, R16, R18, R23), NC, NT, NB. No hazards
T1 Pin 1-4	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
T1 Pin 3-6	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
T1 Pin 8, 9 – 11, 12	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
Model: KPL-065J-VI								

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Clause	Requirement + Test	Result - Remark	Verdict

Output	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
Output	o-l	240V	18Hour	F1, F2	0.983	--	--	CT (Max. temp: T1 coil=86.2 °C, T1 core=72.6 °C, Ambient=25.1 °C) Max overload current 4.5 A NC, NT, NB. No hazards
LF1 Pin 1-2	s-c	240V	<1 sec	F1, F2	-	--	--	F1,F2 opened immediately NC, NT, NB. No hazards
LF2 Pin 1-2	s-c	240V	<1 sec	F1, F2	-	--	--	F1,F2 opened immediately NC, NT, NB. No hazards
BD1 Pin 2-3	s-c	240V	<1 sec	F1, F2	-	--	--	F1,F2 opened immediately CD (BD1) NC, NT, NB. No hazards
C2	s-c	240V	<1 sec	F1, F2	-	--	--	F1, F2 opened immediately NC, NT, NB. No hazards
Q1 Pin G-S	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards.
Q1 Pin S-D	s-c	240V	<1 sec	F1, F2	-	--	--	Fuse opened immediately CD(BD1, R9, R15, R16, R18, R23, Q1) NC, NT, NB. No hazards

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Clause	Requirement + Test	Result - Remark	Verdict

Q1 Pin G-D	s-c	240V	<1 sec	F1, F2	-	--	--	Fuse opened immediately CD(BD1, R9, R15, R16, R18, R23, Q1) NC, NT, NB. No hazards
R6	o-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards
R23	s-c	240V	<1 sec	F1, F2	-	--	--	Fuse opened immediately CD(Q1, BD1) NC, NT, NB. No hazards
D2	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards
D3	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
IC1 Pin 1-2	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
IC1 Pin 3-4	s-c	240V	10mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
IC1 Pin 1	o-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
IC1 Pin 3	o-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
IC3 Pin 1-5	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards
IC3 Pin 2-5	s-c	240V	<1 sec	F1, F2	-	--	--	RT*, CD(IC3) NC, NT, NB. No hazards

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Clause	Requirement + Test	Result - Remark	Verdict

IC3 Pin 3-5	s-c	240V	<1 sec	F1, F2	-	--	--	RT*, CD(IC3) NC, NT, NB. No hazards
IC3 Pin 4-5	s-c	240V	<1 sec	F1, F2	-	--	--	RT*, CD(IC3) NC, NT, NB. No hazards
IC3 Pin 6-5	s-c	240V	<1 sec	F1, F2	-	--	--	Fuse opened immediately CD(IC3, BD1, Q1, R9, R15, R16, R18, R23) NC, NT, NB. No hazards
T1 Pin 1-4	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
T1 Pin 3-6	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
T1 Pin 8, 9 – 11, 12	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
Model: KPL-065M-VI								
Output	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
Output	o-l	240V	12 hrs 38 mins	F1, F2	1.067	--	--	CT (Max. temp: T1 coil=112.9 °C, T1 core=100.3 °C , Ambient=22.8 °C) Max overload current 3.41 A NC, NT, NB. No hazards
LF1 Pin 1-2	s-c	240V	<1 sec	F1, F2	-	--	--	F1,F2 opened immediately NC, NT, NB. No hazards

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Clause	Requirement + Test	Result - Remark	Verdict

LF2 Pin 1-2	s-c	240V	<1 sec	F1, F2	-	--	--	F1,F2 opened immediately NC, NT, NB. No hazards
BD1 Pin 2-3	s-c	240V	<1 sec	F1, F2	-	--	--	F1,F2 opened immediately CD(BD1) NC, NT, NB. No hazards
C2	s-c	240V	<1 sec	F1, F2	-	--	--	F1, F2 opened immediately NC, NT, NB. No hazards
Q1 Pin G-S	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards.
Q1 Pin S-D	s-c	240V	<1 sec	F1, F2	-	--	--	Fuse opened immediately CD(BD1, R9, R15, R16, R18, R23, Q1) NC, NT, NB. No hazards
Q1 Pin G-D	s-c	240V	<1 sec	F1, F2	-	--	--	Fuse opened immediately CD(BD1, R9, R15, R16, R18, R23, Q1) NC, NT, NB. No hazards
R6	o-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards
R23	s-c	240V	<1 sec	F1, F2	-	--	--	Fuse opened immediately CD(Q1, BD1) NC, NT, NB. No hazards
D2	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards

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Clause	Requirement + Test	Result - Remark	Verdict

D3 D6	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
IC1 Pin 1-2	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
IC1 Pin 3-4	s-c	240V	10mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
IC1 Pin 1	o-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
IC1 Pin 3	o-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
IC3 Pin 1-5	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards
IC3 Pin 2-5	s-c	240V	<1 sec	F1, F2	-	--	--	RT*, CD(IC3) NC, NT, NB. No hazards
IC3 Pin 3-5	s-c	240V	<1 sec	F1, F2	-	--	--	RT*, CD(IC3) NC, NT, NB. No hazards
IC3 Pin 4-5	s-c	240V	<1 sec	F1, F2	-	--	--	RT*, CD(IC3) NC, NT, NB. No hazards
IC3 Pin 6-5	s-c	240V	<1 sec	F1, F2	-	--	--	Fuse opened immediately CD(IC3, BD1, Q1, R9, R15, R16, R18, R23) NC, NT, NB. No hazards
T1 Pin 1-4	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards

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Clause	Requirement + Test	Result - Remark	Verdict

T1 Pin 3-6	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
T1 Pin 8, 9 – 11, 12	s-c	240V	10 mins	F1, F2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards

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Clause	Requirement + Test	Result - Remark	Verdict

Model: KPL-065S-VI								
Output	s-c	240V	10 mins	Fuse 1 Fuse 2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
Output	o-l	240V	12Hour46mins	Fuse 1 Fuse 2	0.974	--	--	CT(Max. temp: T1 coil=81.2 °C, T1 core=72.2 °C, Ambient=26.2 °C) Max overload current 1.6 A NC, NT, NB. No hazards
LF1 Pin 1-2	s-c	240V	<1 sec	Fuse 1 Fuse 2	-	--	--	F1,F2 opened immediately NC, NT, NB. No hazards
LF2 Pin 1-2	s-c	240V	<1 sec	Fuse 1 Fuse 2	-	--	--	F1,F2 opened immediately NC, NT, NB. No hazards
BD1 Pin 2-3	s-c	240V	<1 sec	Fuse 1 Fuse 2	-	--	--	F1,F2 opened immediately CD(BD1) NC, NT, NB. No hazards
C2	s-c	240V	<1 sec	Fuse 1 Fuse 2	-	--	--	F1, F2 opened immediately NC, NT, NB. No hazards
Q1 Pin G-S	s-c	240V	10 mins	Fuse 1 Fuse 2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards.
Q1 Pin S-D	s-c	240V	<1 sec	Fuse 1 Fuse 2	-	--	--	Fuse opened immediately CD(BD1, R9, R15, R16, R18, R23, Q1) NC, NT, NB. No hazards

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Clause	Requirement + Test	Result - Remark	Verdict

Q1 Pin G-D	s-c	240V	<1 sec	Fuse 1 Fuse 2	-	--	--	Fuse opened immediately CD(BD1, R9, R15, R16, R18, R23, Q1) NC, NT, NB. No hazards
R6	o-c	240V	10 mins	Fuse 1 Fuse 2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards
R23	s-c	240V	<1 sec	Fuse 1 Fuse 2	-	--	--	Fuse opened immediately CD(Q1, BD1) NC, NT, NB. No hazards
D2	s-c	240V	10 mins	Fuse 1 Fuse 2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards
D3	s-c	240V	10 mins	Fuse 1 Fuse 2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
IC1 Pin 1-2	s-c	240V	10 mins	Fuse 1 Fuse 2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
IC1 Pin 3-4	s-c	240V	10mins	Fuse 1 Fuse 2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
IC1 Pin 1	o-c	240V	10 mins	Fuse 1 Fuse 2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
IC1 Pin 3	o-c	240V	10 mins	Fuse 1 Fuse 2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards

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Clause	Requirement + Test	Result - Remark	Verdict

IC3 Pin 1-5	s-c	240V	10 mins	Fuse 1 Fuse 2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards
IC3 Pin 2-5	s-c	240V	<1 sec	Fuse 1 Fuse 2	-	--	--	RT*, CD(IC3) NC, NT, NB. No hazards
IC3 Pin 3-5	s-c	240V	<1 sec	Fuse 1 Fuse 2	-	--	--	RT*, CD(IC3) NC, NT, NB. No hazards
IC3 Pin 4-5	s-c	240V	<1 sec	Fuse 1 Fuse 2	-	--	--	RT*, CD(IC3) NC, NT, NB. No hazards
IC3 Pin 6-5	s-c	240V	<1 sec	Fuse 1 Fuse 2	-	--	--	Fuse opened immediately CD(IC3, BD1, Q1, R9, R15, R16, R18, R23) NC, NT, NB. No hazards
T1 Pin 1-4	s-c	240V	10 mins	Fuse 1 Fuse 2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
T1 Pin 3-6	s-c	240V	10 mins	Fuse 1 Fuse 2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
T1 Pin 8, 9 – 11, 12	s-c	240V	10 mins	Fuse 1 Fuse 2	0.024	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
Model: KPL-065F								
LF1 Pin 1-2	s-c	240V	<1 sec	Fuse 1	--	--	--	Fuse opened immediately NC, NT, NB. No hazards
LF2 Pin 1-2	s-c	240V	<1 sec	Fuse 1	--	--	--	Fuse opened immediately NC, NT, NB. No hazards

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Clause	Requirement + Test	Result - Remark	Verdict

BD1 Pin 2-3	s-c	240V	<1 sec	Fuse 1	--	--	--	Fuse opened immediately CD(BD1) NC, NT, NB. No hazards
C2	s-c	240V	<1 sec	Fuse 1	--	--	--	Fuse opened immediately CD(BD1) NC, NT, NB. No hazards
Q1 Pin G-S	s-c	240V	10 mins	Fuse 1	0.025	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards.
Q1 Pin S-D	s-c	240V	<1 sec	Fuse 1	--	--	--	Fuse opened immediately CD(BD1, C2, R9, R15, R16, R18, R23, Q1) NC, NT, NB. No hazards
Q1 Pin G-D	s-c	240V	<1 sec	Fuse 1	--	--	--	Fuse opened immediately CD(BD1, R9, R15, R16, R18, R23, Q1) NC, NT, NB. No hazards
R6	o-c	240V	10 mins	Fuse 1	0.025	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards
R23	s-c	240V	<1 sec	Fuse 1	--	--	--	Fuse opened immediately CD(Q1, BD1) NC, NT, NB. No hazards
D2	s-c	240V	10 mins	Fuse 1	0.084	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards
D3	s-c	240V	10 mins	Fuse 1	0.136	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards

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Clause	Requirement + Test	Result - Remark	Verdict

IC1 Pin 1-2	s-c	240V	10 mins	Fuse 1	0.025	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
IC1 Pin 3-4	s-c	240V	10 mins	Fuse 1	0.025	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
IC1 Pin 1	o-c	240V	10 mins	Fuse 1	0.025	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
IC1 Pin 3	o-c	240V	10 mins	Fuse 1	0.025	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
IC3 Pin 1-5	s-c	240V	10 mins	Fuse 1	0.025	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
IC3 Pin 2-5	s-c	240V	<1 sec	Fuse 1	--	--	--	RT*, CD(IC3) NC, NT, NB, No hazards.
IC3 Pin 3-5	s-c	240V	10 mins	Fuse 1	0.025	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
IC3 Pin 4-5	s-c	240V	10 mins	Fuse 1	0.025	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
IC3 Pin 6-5	s-c	240V	<1 sec	Fuse 1	--	--	--	Fuse opened immediately CD(IC3, BD1, Q1, R9, R15, R16, R18, R23), NC, NT, NB. No hazards
T1 Pin 1-4	s-c	240V	10 mins	Fuse 1	0.121	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
T1 Pin 3-6	s-c	240V	10 mins	Fuse 1	0.200	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards

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Clause	Requirement + Test	Result - Remark	Verdict

T1 Pin 8, 9 – 11, 12	s-c	240V	10 mins	Fuse 1	0.200	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
Model: KPL-065M								
LF1	s-c	240V	<1 sec	Fuse 1	--	--	--	Fuse opened immediately NC, NT, NB. No hazards.
LF2	s-c	240V	<1 sec	Fuse 1	--	--	--	Fuse opened immediately NC, NT, NB. No hazards.
BD1 Pin 2-3	s-c	240V	<1 sec	Fuse 1	--	--	--	Fuse opened immediately CD(BD1) NC, NT, NB. No hazards.
C2	s-c	240V	<1 sec	Fuse 1	--	--	--	Fuse opened immediately CD(BD1) NC, NT, NB. No hazards.
Q1 Pin G-S	s-c	240V	10 mins	Fuse 1	0.025	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards.
Q1 Pin S-D	s-c	240V	<1 sec	Fuse 1	--	--	--	Fuse opened immediately CD(BD1, R9, R15, R16, R18, R23, Q1) NC, NT, NB. No hazards.
Q1 Pin G-D	s-c	240V	<1 sec	Fuse 1	--	--	--	Fuse opened immediately CD(BD1, R9, R15, R16, R18, R23, Q1) NC, NT, NB. No hazards.

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Clause	Requirement + Test	Result - Remark	Verdict

R6	o-c	240V	10 mins	Fuse 1	0.025	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards
R23	s-c	240V	<1 sec	Fuse 1	--	--	--	Fuse opened immediately CD(Q1, BD1) NC, NT, NB. No hazards.
D2	s-c	240V	10 mins	Fuse 1	0.080	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards
D3	s-c	240V	10 mins	Fuse 1	0.138	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards
IC1 Pin 1-2	s-c	240V	10 mins	Fuse 1	0.025	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards
IC1 Pin 3-4	s-c	240V	10 mins	Fuse 1	0.025	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards
IC1 Pin 1	o-c	240V	10 mins	Fuse 1	0.025	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards
IC1 Pin 3	o-c	240V	10 mins	Fuse 1	0.025	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards
IC3 Pin 1-5	s-c	240V	10 mins	Fuse 1	0.025	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards
IC3 Pin 2-5	s-c	240V	<1 sec	Fuse 1	--	--	--	RT*, CD(IC3) NC, NT, NB, No hazards.
IC3 Pin 3-5	s-c	240V	10 mins	Fuse 1	0.025	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards
IC3 Pin 4-5	s-c	240V	10 mins	Fuse 1	0.025	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards

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Clause	Requirement + Test	Result - Remark	Verdict

IC3 Pin 6-5	s-c	240V	<1 sec	Fuse 1	--	--	--	Fuse opened immediately. CD(IC3, BD1, Q1, R9, R15, R16, R18, R23) NC, NT, NB, No hazards
T1 Pin 1-4	s-c	240V	10 mins	Fuse 1	0.132	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards

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Clause	Requirement + Test	Result - Remark	Verdict

T1 Pin 3-6	s-c	240V	10 mins	Fuse 1	0.118	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards
T1 Pin 8, 9 – 11, 12	s-c	240V	10 mins	Fuse 1	0.142	--	--	Unit shut down. IP(IC3) NC, NT, NB. No hazards
Model: KPL-050F								
Output	s-c	240V	10 mins	Fuse 1	0.102	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
Output	o-l	240V	8 hrs 1min	Fuse 1	0.101	--	--	Unit shut down. IP(IC3) CT(Max. temp: T1 coil=115.7 °C, T1 core=109.6 °C , Ambient=24.7 °C) Max overload current 6.0 A NC, NT, NB. No hazards
Model: KPL-050M								
Output	s-c	240V	10 mins	Fuse 1	0.081	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
Output	o-l	240V	8 hrs 50 mins	Fuse 1	0.080	--	--	Unit shut down. IP(IC3) CT(Max. temp: T1 coil=97.1 °C, T1 core=90.5 °C, Ambient=24.7 °C) Max overload current 3.35 A NC, NT, NB. No hazards
Model: KPL-065F								

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Clause	Requirement + Test	Result - Remark	Verdict

Output	s-c	240V	10 mins	Fuse 1	0.108	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
Output	o-l	240V	9 hrs 47 mins	Fuse 1	0.106	--	--	Unit shut down. IP(IC3) CT(Max. temp: T1 coil=101.1 °C, T1 core=98.7 °C, Ambient=24.9 °C) Max overload current 6.95 A NC, NT, NB. No hazards
Model: KPL-060I								
Output	s-c	240V	10 mins	Fuse 1	0.100	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
Output	o-l	240V	6 hrs 43 mins	Fuse 1	0.100	--	--	Unit shut down. IP(IC3) CT(Max. temp: T1 coil=91.5 °C, T1 core=86.9 °C, Ambient=24.3 °C) Max overload current 5.60 A NC, NT, NB. No hazards
Model: KPL-065J								

EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Output	s-c	240V	10 mins	Fuse 1	0.076	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
Output	o-l	240V	9 hrs 6 mins	Fuse 1	0.086	--	--	Unit shut down. IP(IC3) CT(Max. temp: T1 coil=94.8 °C, T1 core=87.3 °C, Ambient=24.3 °C) Max overload current 4.55 A NC, NT, NB. No hazards

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Clause	Requirement + Test	Result - Remark	Verdict

Model: KPL-065M								
Output	s-c	240V	10 mins	Fuse 1	0.092	--	--	Unit shut down. IP(IC3) NC, NT, NB, No hazards
Output	o-l	240V	6 hrs 22 mins	Fuse 1	0.096	--	--	Unit shut down. IP(IC3) CT(Max. temp: T1 coil=85.0 °C, T1 core=79.5 °C, Ambient=24.0 °C) Max overload current 3.1 A NC, NT, NB. No hazards.
Output +54V MODEL: 2ACL068S	Overload	240V	5.5 hours	F1	0.634	--	--	Temp. was stable at load 1.46A, Maximum temperature Ambient=28.7 °C, T1 coil=90.0 °C, T1 core=81.7 °C, Enclosure outside near T1=58.4 °C unit shutdown at load 1.48A No hazardous; Hi-pot passes

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Clause	Requirement + Test	Result - Remark	Verdict

Output +36V MODEL: KPL065A-KV	Overload	240V	6.5 hours	F1	1.031	--	--	Temp. was stable at load 2.47A, Maximum temperature Ambient=28.3 °C, T1 coil=92.4 °C, T1 core=83.3 °C, Enclosure outside near T1=58.5 °C unit shutdown at load 2.56A No hazardous; Hi-pot passes
Output +12V MODEL: KPL-066F-VI	Overload	100V	4hours	F1	1.494	--	--	Temp. was stable at load 5.72A, Maximum temperature Ambient=26.8 °C, Enclosure outside near T1=72.1 °C unit shutdown at load 5.8A No hazardous; Hi-pot passes
Output +12V MODEL: KPL-066F-VI	Overload	240V	6hours	F1	0.925	--	--	Temp. was stable at load 6.0A, Maximum temperature Ambient=28.1 °C, Enclosure outside near T1=90.5 °C unit shutdown at load 6.1A No hazardous; Hi-pot passes

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Clause	Requirement + Test	Result - Remark	Verdict

Output +5V MODEL: 2ACL030B	Overload	240V	4 hours	F1	0.339	--	--	Temp. was stable at load 7.6A, Maximum temperature Ambient=30.1 °C, T1 coil=83.0 °C, T1 core=78.8 °C, Enclosure outside near T1=58.2 °C unit shutdown at load 7.7A No hazardous; Hi-pot passes
Output +56V MODEL: KPL-065U-VI	Overload	100V	4hours	F1	1.541	--	--	Temp. was stable at load 1.41A, Maximum temperature Ambient=26.7 °C, Enclosure outside near Q1=67.3 °C unit shutdown at load 1.44A No hazardous; Hi-pot passes
Output +56V MODEL: KPL-065U-VI	Overload	240V	6hours	F1	1.007	--	--	Temp. was stable at load 1.55A, Maximum temperature Ambient=27.9 °C, Enclosure outside near Q1=61.6 °C unit shutdown at load 1.58A No hazardous; Hi-pot passes

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Clause	Requirement + Test	Result - Remark	Verdict

Output +12V&+5V MODEL: GTR0382	Overload	240V	9 hours	F1	0.51	--	--	Temp. was stable at load 3.3A, Maximum temperature Ambient=33.0 °C, T1 coil=122.8 °C, T1 core=118.2 °C, Enclosure outside near T1=81.3 °C unit shutdown at load 3.4A No hazardous; Hi-pot passes
Output +12V MODEL: 2BF065F	Overload	100V	5hours	F1	1.514	--	--	Temp. was stable at load 5.6A, Maximum temperature Ambient=33.6 °C, Enclosure outside near T1=81.1 °C unit shutdown at load 5.7A No hazardous; Hi-pot passes
Output +12V MODEL: 2BF065F	Overload	240V	5hours	F1	0.970	--	--	Temp. was stable at load 6.5A, Maximum temperature Ambient=33.2 °C, Enclosure outside near T1=73.3 °C unit shutdown at load 6.6A No hazardous; Hi-pot passes

EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Output +48V MODEL: 2BF060R	Overload	100V	5hours	F1	1.466	--	--	Temp. was stable at load 1.47A, Maximum temperature Ambient=33.3 °C, Enclosure outside near T1=74.9°C unit shutdown at load 1.49A No hazardous; Hi-pot passes
Output +48V MODEL: 2BF060R	Overload	240V	5hours	F1	1.035	--	--	Temp. was stable at load 1.9A, Maximum temperature Ambient=32.9 °C Enclosure outside near T1=76.1 °C unit shutdown at load 1.95A No hazardous; Hi-pot passes
Output +56V MODEL: 2ACL065U	Overload	240V	8hours	F1	0.653	--	--	Temp. was stable at load 1.37A, Maximum temperature Ambient=27.1 °C, T1 coil=109.2 °C, T1 core=102.9 °C, Enclosure outside near T1=67.6 °C unit shutdown at load 1.4A No hazardous; Hi-pot passes

EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Output +48V MODEL: 2ACL065R	Overload	240V	4hours	F1	0.756	--	--	Temp. was stable at load 1.9A, Maximum temperature Ambient=25.5 °C, T1 coil=104.8 °C, T1 core=97.5 °C, Enclosure outside near T1=65.0 °C unit shutdown at load 2.0A No hazardous; Hi-pot passes
Output +24V MODEL: 2ACL060M	Overload	240V	4.5 hours	F1	0.676	--	--	Temp. was stable at load 3.3A, Maximum temperature Ambient=26.0 °C T1 coil=90.5 °C, T1 core=87.3° C, Enclosure outside near T1=58.6 °C unit shutdown at load 3.4A No hazardous; Hi-pot passes

EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Output +19V MODEL: 2ACL060K	Overload	240V	4 hours	F1	0.651	--	--	Temp. was stable at load 4.3A, Maximum temperature Ambient=24.7 °C, T1 coil=97.8 °C, T1 core=92.1 °C, Enclosure outside near T1=63.9 °C unit shutdown at load 4.4A No hazardous; Hi-pot passes
Output +16V MODEL: KPL-060I-VI	Overload	100V	7hours	F1	1.284	--	--	Temp. was stable at load 4.31A, Maximum temperature Ambient=30.2 °C, Enclosure outside near T1=77.5 °C unit shutdown at load 4.4A No hazardous; Hi-pot passes
Output +16V MODEL: KPL-060I-VI	Overload	240V	8hours	F1	0.615	--	--	Temp. was stable at load 4.4A, Maximum temperature Ambient=29.4 °C, Enclosure outside near T1=75.0 °C unit shutdown at load 4.5A No hazardous; Hi-pot passes

EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Output +18V MODEL: KPL-065J-VI	Overload	100V	7hours	F1	1.240	--	--	Temp. was stable at load 3.65A, Maximum temperature Ambient=30.7 °C, Enclosure outside near T1=74.2 °C unit shutdown at load 3.66A No hazardous; Hi-pot passes
Output +18V MODEL: KPL-065J-VI	Overload	240V	8hours	F1	0.652	--	--	Temp. was stable at load 4.26A, Maximum temperature Ambient=29.4 °C, Enclosure outside near T1=74.2 °C unit shutdown at load 4.3A No hazardous; Hi-pot passes
Output +24V MODEL: KPL-065M-VI	Overload	100V	7hours	F1	1.279	--	--	Temp. was stable at load 2.76A, Maximum temperature Ambient=30.4 °C, Enclosure outside near T1=79.3 °C unit shutdown at load 2.82A No hazardous; Hi-pot passes

EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Output +24V MODEL: KPL-065M-VI	Overload	240V	8hours	F1	0.656	--	--	Temp. was stable at load 3.19A, Maximum temperature Ambient=28.9 °C, Enclosure outside near T1=77.3 °C unit shutdown at load 3.24A No hazardous; Hi-pot passes
Output +48V MODEL: KPL-065S-VI	Overload	100V	4hours	F1	1.534	--	--	Temp. was stable at load 1.54A, Maximum temperature Ambient=28.2 °C Enclosure outside near T1=72.6 °C unit shutdown at load 1.57A No hazardous; Hi-pot passes
Output +48V MODEL: KPL-065S-VI	Overload	240V	7hours	F1	1.034	--	--	Temp. was stable at load 1.76A, Maximum temperature Ambient=29.0 °C, Enclosure outside near T1=78.4 °C unit shutdown at load 1.8A No hazardous; Hi-pot passes

EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Output +12V MODEL: KPL-050F	Overload	100V	4hours	F1	1.156	--	--	Temp. was stable at load 5.19A, Maximum temperature Ambient=28.6 °C, Enclosure outside near T1=82.7 °C unit shutdown at load 5.22A No hazardous; Hi-pot passes
Output +12V MODEL: KPL-050F	Overload	240V	7hours	F1	0.843	--	--	Temp. was stable at load 5.56A, Maximum temperature Ambient=32.6 °C, Enclosure outside near T1=92.7 °C unit shutdown at load 5.67A No hazardous; Hi-pot passes
Output +24V MODEL: KPL-050M	Overload	100V	4hours	F1	1.471	--	--	Temp. was stable at load 2.89A, Maximum temperature Ambient=26.8 °C, Enclosure outside near T1=68.3 °C unit shutdown at load 2.92A No hazardous; Hi-pot passes

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Clause	Requirement + Test	Result - Remark	Verdict

Output +24V MODEL: KPL-050M	Overload	240V	6hours	F1	0.891	--	--	Temp. was stable at load 3.15A, Maximum temperature Ambient=28.2 °C, Enclosure outside near T1=70.7 °C unit shutdown at load 3.2A No hazardous; Hi-pot passes
Output +16V MODEL: KPL-060I	Overload	100V	4hours	F1	1.279	--	--	Temp. was stable at load 4.2A, Maximum temperature Ambient=28.4 °C, Enclosure outside near T1=82.5 °C unit shutdown at load 4.3A No hazardous; Hi-pot passes
Output +16V MODEL: KPL-060I	Overload	240V	7hours	F1	0.947	--	--	Temp. was stable at load 4.81A, Maximum temperature Ambient=34.0 °C, Enclosure outside near T1=87.7 °C unit shutdown at load 4.9A No hazardous; Hi-pot passes

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Clause	Requirement + Test	Result - Remark	Verdict

Output +12V MODEL: KPL-065F	Overload	100V	4hours	F1	1.480	--	--	Temp. was stable at load 5.82A, Maximum temperature Ambient=28.5 °C, Enclosure outside near T1=78.0 °C unit shutdown at load 5.9A No hazardous; Hi-pot passes
Output +12V MODEL: KPL-065F	Overload	240V	7hours	F1	0.952	--	--	Temp. was stable at load 6.3A, Maximum temperature Ambient=29.2 °C, Enclosure outside near T1=80.0 °C unit shutdown at load 6.4A No hazardous; Hi-pot passes
Output +18V MODEL: KPL-065J	Overload	100V	4hours	F1	1.277	--	--	Temp. was stable at load 3.75A, Maximum temperature Ambient=31.2 °C, Enclosure outside near T1=77.9 °C unit shutdown at load 3.80A No hazardous; Hi-pot passes

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Clause	Requirement + Test	Result - Remark	Verdict

Output +18V MODEL: KPL-065J	Overload	240V	7hours	F1	0.947	--	--	Temp. was stable at load 4.36A, Maximum temperature Ambient=33.5 °C, Enclosure outside near T1=77.8 °C unit shutdown at load 4.4A No hazardous; Hi-pot passes
Output +24V MODEL: KPL-065M	Overload	100V	4hours	F1	1.539	--	--	Temp. was stable at load 3.09A, Maximum temperature Ambient=28.4 °C, Enclosure outside near T1=73.0 °C unit shutdown at load 3.18A No hazardous; Hi-pot passes
Output +24V MODEL: KPL-065M	Overload	240V	7hours	F1	1.036	--	--	Temp. was stable at load 3.54A, Maximum temperature Ambient=29.2 °C, Enclosure outside near T1=74.8 °C unit shutdown at load 6.67A No hazardous; Hi-pot passes

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information: All values are recalculated from Tamb respectively
Test table is provided to record abnormal and fault conditions for all applicable energy sources including Thermal burn injury. Column “Abnormal/Fault.” Specify if test condition by indicating “Abnormal” then the condition for a Clause B.3 test or “Single Fault” then the condition for Clause B.4.
1. For fuse open condition, same results come out for each source of fuses.
2. For fuse open condition, test was repeated 10 times if resistor was applied.
3. The tests performed with all sources of fuse which mentioned in table 4.1.2.
4. After each single test, the electric strength test was performed and passed.

Annex M	TABLE: Batteries									N/A
The tests of Annex M are applicable only when appropriate battery data is not available										N/A
Is it possible to install the battery in a reverse polarity position?..... :										N/A
	Non-rechargeable batteries			Rechargeable batteries						
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging		
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	
Max. current during normal condition										
Max. current during fault condition										
Test results:										Verdict
- Chemical leaks										N/A
- Explosion of the battery										N/A
- Emission of flame or expulsion of molten metal										N/A
- Electric strength tests of equipment after completion of tests										N/A
Supplementary information:										

Annex M.4	Table: Additional safeguards for equipment containing secondary lithium batteries				N/A
Battery/Cell No.	Test conditions	Measurements			Observation
		U	I (A)	Temp (C)	
Supplementary information:					

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Clause	Requirement + Test	Result - Remark	Verdict

Annex Q.1	TABLE: Circuits intended for interconnection with building wiring (LPS)						P
Note: Measured UOC (V) with all load circuits disconnected:							
Output Circuit	Components	U_{oc} (V)	I_{sc} (A)		S (VA)		
			Meas.	Limit	Meas.	Limit	
Model: 2ACL068S							
Normal condition	Normal	52.8	2.11	18.51 (1000/54)	111.4 (52.8*2.11)	250	
R9	S-C	53.2	1.73	18.51	92.0 (53.2*1.73)	250	
IC1 pin1-2	S-C	0	0	18.51	0	250	
IC1 pin3-4	S-C	0	0	18.51	0	250	
Model: 2ACL065R							
Normal condition	Normal	47.0	2.11	20.83 (1000/48)	99.2 (47.0*2.11)	250	
Model: 2ACL065U							
Normal condition	Normal	56.4	1.80	17.85 (1000/56)	101.5 (56.4*1.80)	250	
Supplementary information: Sc=Short circuit, Oc=Open circuit The fuse (4T, ICP, PDU, PTU, 677) endure 210% current of the rating current, and break down in less than 120s;							

Output Circuit	Components	U_{oc} (V)	I_{sc} (A)		S (VA)	
			Meas.	Limit	Meas.	Limit
Model: KPL-065A-KV						
Normal condition	Normal	37.4	2.73	8	95.6 (35.0*2.73)	100
R9	S-C	0	0	8	0	100
R9	O-C	37.4	1.92	8	65.3 (34.0*1.92)	100
IC1 (A)	S-C	0	0	8	0	100
IC1 (B)	S-C	0	0	8	0	100
IC1 (A)	O-C	0	0	8	0	100
Model: 2ACL030B						
Normal condition	Normal	5.193	7.84	8	39.5 (5.14*7.68)	100
IC2 (2-3)	S-C	0	0	8	0	100
IC1 (1-2) IC1 (3-4)	S-C	0	0	8	0	100

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Clause	Requirement + Test	Result - Remark	Verdict

R9	S-C	0	Unit damaged (no current measured)	8	Unit damaged (no current measured)	100
Model: KPL-065U-VI						
Normal condition	Normal	56.598	1.78	8	98.4 (55.6*1.77)	100
R9	S-C	0	0	8	0	100
R9	O-C	56.598	1.46	8	79.49 (55.2*1.44)	100
IC1(A)	S-C	0	0	8	0	100
IC1(B)	S-C	0	0	8	0	100
IC1(A)	O-C	0	0	8	0	100
Model: GTR0382						
Normal condition	Normal	5.403	4.98	8	24.0 (4.86*4.94)	100
R43	S-C	1.212	4.8	8	2.68 (0.9*2.98)	100
R44	S-C	6.41	4.95	8	3.10 (2.82*1.1)	100
Normal condition	Normal	12.223	5.64	8	82.2 (18.6*4.42)	100
U3 (2-3)	S-C	0	0	8	0	100
IC1 (1-2) IC1 (3-4)	S-C	0	0	8	0	100
R9	S-C	0	Unit shut down (no current measured)	8	Unit shut down (no current measured)	100
Model: 2ACL060K						
Normal condition	Normal	19.19	4.46	8	82.2 (18.6*4.42)	100
IC2 (2-3)	S-C	0	0	8	0	100
IC1 (1-2) IC1 (3-4)	S-C	0	0	8	0	100
R9	S-C	0	Unit damaged (no current measured)	8	Unit damaged (no current measured)	100
Model: 2ACL060M						
Normal condition	Normal	24.21	3.52	8	78.8 (22.5*3.5)	100

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Clause	Requirement + Test			Result - Remark		Verdict

IC2 (2-3)	S-C	0	0	8	0	100
IC1 (1-2) IC1 (3-4)	S-C	0	0	8	0	100
R9	S-C	0	Unit damaged (no current measured)	8	Unit damaged (no current measured)	100
Model: 2ACL065R						
Normal condition	Normal	47.914	1.95	8	89.8 (47.0*1.91)	100
IC2 (2-3)	S-C	0	0	8	0	100
IC1 (1-2) IC1 (3-4)	S-C	0	0	8	0	100
R9	S-C	0	Unit damaged (no current measured)	8	Unit damaged (no current measured)	100
Model: 2ACL065S						
Normal condition	Normal	53.876	1.84	8	96.3 (53.2*1.81)	100
IC2 (2-3)	S-C	0	0	8	0	100
IC1 (1-2) IC1 (3-4)	S-C	0	0	8	0	100
R9	S-C	0	Unit damaged (no current measured)	8	Unit damaged (no current measured)	100
Model: 2ACL065U						
Normal condition	Normal	56.528	1.81	8	98.6 (55.4*1.78)	100
IC2 (2-3)	S-C	0	0	8	0	100
IC1 (1-2) IC1 (3-4)	S-C	0	0	8	0	100
R9	S-C	0	Unit damaged (no current measured)	8	Unit damaged (no current measured)	100
Model: KPL-060I-VI						
	Normal	16.18	5.56	8	89.96	100
R9	Sc	0	0	8	0	100
R9	Oc	16.18	4.41	8	69.77	100

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Clause	Requirement + Test	Result - Remark	Verdict

IC1(A)	Sc	0	0	8	0	100
IC1(B)	Sc	0	0	8	0	100
IC1(A)	Oc	0	0	8	0	100
IC1(B)	Oc	0	0	8	0	100
Model: KPL-066F-VI						
	Normal	12.24	7.20	8	84.96	100
R9	Sc	0	0	8	0	100
R9	Oc	12.23	6.07	8	71.75	100
IC1(A)	Sc	0	0	8	0	100
IC1(B)	Sc	0	0	8	0	100
IC1(A)	Oc	0	0	8	0	100
IC1(B)	Oc	0	0	8	0	100
Model: KPL-065J-VI						
	Normal	18.377	4.40	8	79.20	100
R9	Sc	0	0	8	0	100
R9	Oc	18.32	3.43	8	61.74	100
IC1(A)	Sc	0	0	8	0	100
IC1(B)	Sc	0	0	8	0	100
IC1(A)	Oc	0	0	8	0	100
IC1(B)	Oc	0	0	8	0	100
Model: KPL-065M-VI						
	Normal	24.66	3.93	8	95.5	100
R9	Sc	0	0	8	0	100
R9	Oc	24.67	2.81	8	68.76	100
IC1(A)	Sc	0	0	8	0	100
IC1(B)	Sc	0	0	8	0	100
IC1(A)	Oc	0	0	8	0	100
IC1(B)	Oc	0	0	8	0	100
Model: KPL-065S-VI						
	Normal	47.900	1.98	8	94.44	100
R9	Sc	0	0	8	0	100
R9	Oc	47.85	1.29	8	61.56	100
IC1(A)	Sc	0	0	8	0	100
IC1(B)	Sc	0	0	8	0	100
IC1(A)	Oc	0	0	8	0	100
Model: KPL-060I						
	Normal	15.72	5.83	8	91.65	100
R9	Sc	0.00	0.00	8	0.00	100

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Clause	Requirement + Test	Result - Remark	Verdict

IC1(A)	Sc	0.00	0.00	8	0.00	100
IC1(B)	Sc	0.00	0.00	8	0.00	100
IC1(A)	Oc	0.00	0.00	8	0.00	100
IC1(B)	Oc	0.00	0.00	8	0.00	100
Model: KPL-065F						
	Normal	12.08	7.46	8	87.88	100
R9	Sc	0.00	0.00	8	0.00	100
IC1(A)	Sc	0.00	0.00	8	0.00	100
IC1(B)	Sc	0.00	0.00	8	0.00	100
IC1(A)	Oc	0.00	0.00	8	0.00	100
IC1(B)	Oc	0.00	0.00	8	0.00	100
Model: KPL-065J						
	Normal	18.03	4.52	8	81.18	100
R9	Sc	0.00	0.00	8	0.00	100
IC1(A)	Sc	0.00	0.00	8	0.00	100
IC1(B)	Sc	0.00	0.00	8	0.00	100
IC1(A)	Oc	0.00	0.00	8	0.00	100
IC1(B)	Oc	0.00	0.00	8	0.00	100
Model: KPL-065M						
	Normal	24.02	3.20	8	76.26	100
R9	Sc	0.00	0.00	8	0.00	100
IC1(A)	Sc	0.00	0.00	8	0.00	100
IC1(B)	Sc	0.00	0.00	8	0.00	100
IC1(A)	Oc	0.00	0.00	8	0.00	100
IC1(B)	Oc	0.00	0.00	8	0.00	100
Supplementary information: Sc=Short circuit, Oc=Open circuit						

T.2, T.3, T.4, T.5	TABLE: Steady force test				P
Part/Location	**Material**	**Thickness (mm)**	**Force (N)**	**Test Duration (sec)**	**Observation**
Enclosure top, closed to transformer (T.4)	Plastics*	See table 4.1.2	100	5	Enclosure remained intact, no crack/ opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.

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Clause	Requirement + Test	Result - Remark	Verdict

Enclosure side (T.4)	Plastics*	See table 4.1.2	100	5	Enclosure remained intact, no crack/ opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.
Enclosure bottom, closed to transformer (T.4)	Plastics*	See table 4.1.2	100	5	Enclosure remained intact, no crack/ opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.
Internal components near the gap between primary and secondary (T.2)	--	--	10	5	No reduction the clearances and creepage distances
Supplementary information: *Test were performed on product with each source listed in table 4.1.2					

T.6, T.9	TABLE: Impact tests			N/A
Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation
Supplementary information: See clause 4.4.4.4. Direct plug-in equipment.				

T.7	**TABLE: Drop tests**			**P**
Part/Location	**Material**	**Thickness (mm)**	**Drop Height (mm)**	**Observation**
Three side of enclosure	Plastics*	See table 4.1.2	1000	After the drop test, enclosure remained intact, no cracking/opening developed in the enclosure joint. Internal ES3, TS3 were not accessible after test. No insulation breakdown.

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information: *Test were performed on product with each source listed in table 4.1.2

T.8	TABLE: Stress relief test	P

Part/Location	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation
Enclosure (KPL)	Plastics*	See table 4.1.2	100	7	No safety relevant damages of the enclosure
Enclosure (2ABF)	Plastics*	See table 4.1.2	91	7	No safety relevant damages of the enclosure
Enclosure (2ACL)	Plastics*	See table 4.1.2	93	7	No safety relevant damages of the enclosure
Enclosure (GTR)	Plastics*	See table 4.1.2	98.7	7	No safety relevant damages of the enclosure

Supplementary information: *Test were performed on product with each source listed in table 4.1.2

G.5.3.2	TABLE: Transformers	P

Loc.	Tested insulation	Working voltage peak / V	Working voltage rms / V	Required electric strength	Required clearance / mm	Required creepage distance / mm	Required distance thr. insul.
PQ-2620-36 (T1 for KPL PCB with F1,F2, Y=A)							
T1	Primary to secondary (reinforced)	516	313	3000Vac	4.5	6.3	0.4mm or 3 layers or triple insulated wire
T1	Secondary to core (reinforced)	516	313	3000Vac	4.5	6.3	0.4mm or 3 layers or triple insulated wire

Loc.	Tested insulation	Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers
T1	Primary to secondary (reinforced)	3000Vac	9.3	9.3	Triple insulated wire
T1	Secondary to core (reinforced)	3000Vac	6.8	6.8	Triple insulated wire

supplementary information:

1). Triple insulated wire was applied for secondary winding.

2). Core is considered as primary part.

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Clause	Requirement + Test	Result - Remark	Verdict

G.5.3.2	TABLE: Transformers	P

Loc.	Tested insulation	Working voltage peak / V	Working voltage rms / V	Required electric strength	Required clearance / mm	Required creepage distance / mm	Required distance thr. insul.
PQ2620-05 (T1 for 2ACLxxxY, Y=B)							
T1	Primary to secondary (reinforced)	552	278	3000Vac	4.5	5.6	0.4mm or 3 layers or triple insulated wire
T1	Secondary to core (reinforced)	552	278	3000Vac	4.5	5.6	0.4mm or 3 layers or triple insulated wire
Loc.	Tested insulation			Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers
T1	Primary to secondary (reinforced)			3000Vac	8.0	8.0	Triple insulated wire
T1	Secondary to core (reinforced)			3000Vac	11	11	Triple insulated wire
supplementary information:							
1. Triple insulated wire was applied for secondary winding							

G.5.3.2	TABLE: Transformers

Loc.	Tested insulation	Working voltage peak / V	Working voltage rms / V	Required electric strength	Required clearance / mm	Required creepage distance / mm	Required distance thr. insul.
RM10-12 (T1 for GTR)							
T1	Primary to secondary (reinforced)	530	298	3000Vac	4.5	6.0	0.4mm or 3 layers or triple insulated wire
T1	Secondary to core (reinforced)	530	298	3000Vac	4.5	6.0	0.4mm or 3 layers or triple insulated wire
Loc.	Tested insulation			Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers
T1	Primary to secondary (reinforced)			3000Vac	7.0	7.0	Triple insulated wire

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Clause	Requirement + Test	Result - Remark	Verdict

T1	Secondary to core (reinforced)	3000Vac	15.0	15.0	Triple insulated wire
supplementary information:					
1. Triple insulated wire was applied for secondary winding					

G.5.3.2	TABLE: TRANSFORMERS						
Loc.	Tested insulation	Working voltage peak / V	Working voltage rms / V	Required electric strength	Required clearance / mm	Required creepage distance / mm	Required distance thr. insul.
PQ2620-19 for 2ACL							
T1	Primary to secondary (reinforced)	600	329	3000Vac	4.5	6.6	0.4mm or 3 layers or triple insulated wire
T1	Secondary to core (reinforced)	600	329	3000Vac	4.5	6.6	0.4mm or 3 layers or triple insulated wire
Loc.	Tested insulation			Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers
T1	Primary to secondary (reinforced)			3000Vac	14	14	Triple insulated wire
T1	Secondary to core (reinforced)			3000Vac	9	9	Triple insulated wire
supplementary information:							
1. Triple insulated wire was applied for secondary winding							

G.5.3.2	TABLE: TRANSFORMERS						
Loc.	Tested insulation	Working voltage peak / V	Working voltage rms / V	Required electric strength	Required clearance / mm	Required creepage distance / mm	Required distance thr. insul.
PQ2620-12 (T1 for 2ABF T1)							
T1	Primary to secondary (reinforced)	560	325	3000Vac	4.5	6.5	0.4mm or 3 layers or triple insulated wire
T1	Secondary to core (reinforced)	560	325	3000Vac	4.5	6.5	0.4mm or 3 layers or triple insulated wire

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Clause	Requirement + Test	Result - Remark	Verdict

Loc.	Tested insulation	Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers
T1	Primary to secondary (reinforced)	3000Vac	6.8	6.8	Triple insulated wire
T1	Secondary to core (reinforced)	3000Vac	6.8	6.8	Triple insulated wire
supplementary information:					
1. Triple insulated wire was applied for secondary winding					

G.5.3.2	TABLE: TRANSFORMERS						
Loc.	Tested insulation	Working voltage peak / V	Working voltage rms / V	Required electric strength	Required clearance / mm	Required creepage distance / mm	Required distance thr. insul.
PQ2620-48 (T1 for 2ABF T1)							
T1	Primary to secondary (reinforced)	612	362	3000Vac	4.5	7.3	0.4mm or 3 layers or triple insulated wire
T1	Secondary to core (reinforced)	612	362	3000Vac	4.5	7.3	0.4mm or 3 layers or triple insulated wire
Loc.	Tested insulation			Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers
T1	Primary to secondary (reinforced)			3000Vac	7.6	7.6	Triple insulated wire
T1	Secondary to core (reinforced)			3000Vac	7.6	7.6	Triple insulated wire
supplementary information:							
1. Triple insulated wire was applied for secondary winding							

G.5.3.2	TABLE: TRANSFORMERS						
Loc.	Tested insulation	Working voltage peak / V	Working voltage rms / V	Required electric strength	Required clearance / mm	Required creepage distance / mm	Required distance thr. insul.
PQ-2620-12-VI (T1 for KPL PCB with F1,F2 T1)							
T1	Primary winding to secondary winding	510	338	3000Vac	4.5	6.7	0.4mm or 3 layers or triple insulated wire

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Clause	Requirement + Test	Result - Remark	Verdict

T1	Secondary winding to core	510	338	3000Vac	4.5	6.7	0.4mm or 3 layers or triple insulated wire
T1	Primary winding to secondary pin	510	338	3000Vac	4.5	6.7	0.4mm or 3 layers or triple insulated wire
T1	Core to Secondary pin	510	338	3000Vac	4.5	6.7	0.4mm or 3 layers or triple insulated wire
Loc.	Tested insulation			Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers
T1	Primary winding to secondary winding			3000Vac	Triple insulated wire	Triple insulated wire	Triple insulated wire
T1	Secondary winding to core			3000Vac	Triple insulated wire	Triple insulated wire	Triple insulated wire
T1	Primary winding to secondary pin			3000Vac	7.4	7.4	Triple insulated wire
T1	Core to Secondary pin			3000Vac	12	12	Triple insulated wire
supplementary information:							
1. Triple insulated wire was applied for secondary winding							

G.5.3.2	TABLE: TRANSFORMERS						
Loc.	Tested insulation	Working voltage peak / V	Working voltage rms / V	Required electric strength	Required clearance / mm	Required creepage distance / mm	Required distance thr. insul.
PQ-2620-48 (T1 for KPL PCB with F1,F2 T1)							
T1	Primary winding to secondary winding	510	338	3000Vac	4.5	6.7	0.4mm or 3 layers or triple insulated wire
T1	Secondary winding to core	510	338	3000Vac	4.5	6.7	0.4mm or 3 layers or triple insulated wire

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Clause	Requirement + Test	Result - Remark	Verdict

T1	Primary winding to secondary pin	510	338	3000Vac	4.5	6.7	0.4mm or 3 layers or triple insulated wire
T1	Core to Secondary pin	510	338	3000Vac	4.5	6.7	0.4mm or 3 layers or triple insulated wire
Loc.	Tested insulation			Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers
T1	Primary winding to secondary winding			3000Vac	Triple insulated wire	Triple insulated wire	Triple insulated wire
T1	Secondary winding to core			3000Vac	Triple insulated wire	Triple insulated wire	Triple insulated wire
T1	Primary winding to secondary pin			3000Vac	7.4	7.4	Triple insulated wire
T1	Core to Secondary pin			3000Vac	12	12	Triple insulated wire
supplementary information:							
1. Triple insulated wire was applied for secondary winding							

G.5.3.2	TABLE: TRANSFORMERS						
Loc.	Tested insulation	Working voltage peak / V	Working voltage rms / V	Required electric strength	Required clearance / mm	Required creepage distance / mm	Required distance thr. insul.
PQ-2620-12 (T1 for KPL PCB with FUSE1 T1)							
T1	Primary winding to secondary winding	556	324	3000Vac	4.5	6.5	0.4mm or 3 layers or triple insulated wire
T1	Secondary winding to core	556	324	3000Vac	4.5	6.5	0.4mm or 3 layers or triple insulated wire
T1	Primary winding to secondary pin	556	324	3000Vac	4.5	6.5	0.4mm or 3 layers or triple insulated wire
T1	Core to Secondary pin	556	324	3000Vac	4.5	6.5	0.4mm or 3 layers or triple insulated wire

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Clause	Requirement + Test	Result - Remark	Verdict

Loc.	Tested insulation	Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers
T1	Primary winding to secondary winding	3000Vac	Triple insulated wire	Triple insulated wire	Triple insulated wire
T1	Secondary winding to core	3000Vac	Triple insulated wire	Triple insulated wire	Triple insulated wire
T1	Primary winding to secondary pin	3000Vac	7.4	7.4	Triple insulated wire
T1	Core to Secondary pin	3000Vac	12	12	Triple insulated wire
supplementary information:					
1. Triple insulated wire was applied for secondary winding					

G.5.3.2	TABLE: TRANSFORMERS						
Loc.	Tested insulation	Working voltage peak / V	Working voltage rms / V	Required electric strength	Required clearance / mm	Required creepage distance / mm	Required distance thr. insul.
PQ-2620-17 (T1 for KPL T1)							
T1	Primary winding to secondary winding	556	324	3000Vac	4.5	6.5	0.4mm or 3 layers or triple insulated wire
T1	Secondary winding to core	556	324	3000Vac	4.5	6.5	0.4mm or 3 layers or triple insulated wire
T1	Primary winding to secondary pin	556	324	3000Vac	4.5	6.5	0.4mm or 3 layers or triple insulated wire
T1	Core to Secondary pin	556	324	3000Vac	4.5	6.5	0.4mm or 3 layers or triple insulated wire
Loc.	Tested insulation			Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers
T1	Primary winding to secondary winding			3000Vac	Triple insulated wire	Triple insulated wire	Triple insulated wire
T1	Secondary winding to core			3000Vac	Triple insulated wire	Triple insulated wire	Triple insulated wire

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Clause	Requirement + Test	Result - Remark	Verdict

T1	Primary winding to secondary pin	3000Vac	7.4	7.4	Triple insulated wire
T1	Core to Secondary pin	3000Vac	12	12	Triple insulated wire
supplementary information:					
1. Triple insulated wire was applied for secondary winding					

EN62368_1B ATTACHMENT

Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT

IEC 62368-1

EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES

(Audio/video, information and communication technology equipment - Part 1: Safety requirements)

Differences according to.....: EN 62368-1:2014+A11:2017

Attachment Form No.....: EU_GD_IEC62368_1B_II

Attachment Originator .....: Nemko AS

Master Attachment.....: Date 2017-09-22

	CENELEC COMMON MODIFICATIONS (EN)	P
	Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2014 are prefixed "Z".	P
CONTENTS	**Add** the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations Annex ZD (informative) IEC and CENELEC code designations for flexible cords	P
	Delete all the "country" notes in the reference document (IEC 62368-1:2014) according to the following list:	P

0.2.1	Note	1	Note 3	4.1.15	Note
4.7.3	Note 1 and 2	5.2.2.2	Note	5.4.2.3.2.2 Table 13	Note c
5.4.2.3.2.4	Note 1 and 3	5.4.2.5	Note 2	5.4.5.1	Note
5.5.2.1	Note	5.5.6	Note	5.6.4.2.1	Note 2 and 3
5.7.5	Note	5.7.6.1	Note 1 and 2	10.2.1 Table 39	Note 2, 3 and 4
10.5.3	Note 2	10.6.2.1	Note 3	F.3.3.6	Note 3

	For special national conditions, see Annex ZB.		P
1	**Add** the following note: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.		P

Clause	Requirement + Test	Result - Remark	Verdict
4.Z1	**Add** the following new subclause after 4.9: To protect against excessive current, short-circuits and earth faults in circuits connected to an a.c. **mains**, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c): a) except as detailed in b) and c), protective devices necessary to comply with the requirements of B.3.1 and B.4 shall be included as parts of the equipment; b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation; c) it is permitted for **pluggable equipment type B** or **permanently connected equipment**, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions. If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for **pluggable equipment type A** the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.		P
5.4.2.3.2.4	**Add** the following to the end of this subclause: The requirement for interconnection with **external circuit** is in addition given in EN 50491-3:2009.	No connection to external circuit.	N/A
10.2.1	Add the following to [c] and [d] in table 39: For additional requirements, see 10.5.1.	No radiation.	N/A

Clause	Requirement + Test	Result - Remark	Verdict
10.5.1	**Add** the following after the first paragraph: *For RS 1 compliance is checked by measurement under the following conditions:* *In addition to the normal operating conditions, all controls adjustable from the outside by hand, by any object such as a tool or a coin, and those internal adjustments or presets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made.* NOTE Z1 Soldered joints and paint lockings are examples of adequate locking. *The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm², at any point 10 cm from the outer surface of the apparatus.* *Moreover, the measurement shall be made under fault conditions causing an increase of the high-voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made.* *For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level.* NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.		N/A
10.6.1	**Add** the following paragraph to the end of the subclause: EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.		N/A
10.Z1	**Add** the following new subclause after 10.6.5. **10.Z1 Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz** The amount of non-ionizing radiation is regulated by European Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz). For intentional radiators, ICNIRP guidelines should be taken into account for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz). For hand-held and body-mounted devices, attention is drawn to EN 50360 and EN 50566		N/A
G.7.1	**Add** the following note: NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.		N/A

Clause	Requirement + Test	Result - Remark	Verdict
Bibliography	**Add** the following standards: **Add** the following notes for the standards indicated: IEC 60130-9 NOTE Harmonized as EN 60130-9. IEC 60269-2 NOTE Harmonized as HD 60269-2. IEC 60309-1 NOTE Harmonized as EN 60309-1. IEC 60364 NOTE some parts harmonized in HD 384/HD 60364 series. IEC 60601-2-4 NOTE Harmonized as EN 60601-2-4. IEC 60664-5 NOTE Harmonized as EN 60664-5. IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified). IEC 61508-1 NOTE Harmonized as EN 61508-1. IEC 61558-2-1 NOTE Harmonized as EN 61558-2-1. IEC 61558-2-4 NOTE Harmonized as EN 61558-2-4. IEC 61558-2-6 NOTE Harmonized as EN 61558-2-6. IEC 61643-1 NOTE Harmonized as EN 61643-1. IEC 61643-21 NOTE Harmonized as EN 61643-21. IEC 61643-311 NOTE Harmonized as EN 61643-311. IEC 61643-321 NOTE Harmonized as EN 61643-321. IEC 61643-331 NOTE Harmonized as EN 61643-331.		N/A
ZB	**ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)**		P
4.1.15	**Denmark, Finland, Norway** and **Sweden** To the end of the subclause the following is added: **Class I pluggable equipment type A** intended for connection to other equipment or a network shall, if safety relies on connection to reliable earthing or if surge suppressors are connected between the network terminals and **accessible** parts, have a marking stating that the equipment shall be connected to an earthed **mains** socket-outlet. The marking text in the applicable countries shall be as follows: In **Denmark**: “Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord.” In **Finland**: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan" In **Norway**: “Apparatet må tilkoples jordet stikkontakt” In **Sweden**: “Apparaten skall anslutas till jordat uttag”	Added	P
4.7.3	**United Kingdom** To the end of the subclause the following is added: The torque test is performed using a socket-outlet complying with BS 1363, and the plug part shall be assessed to the relevant clauses of BS 1363. Also see Annex G.4.2 of this annex	For direct plug - in equipment.	P

Clause	Requirement + Test	Result - Remark	Verdict
5.2.2.2	**Denmark** After the 2nd paragraph add the following: A warning (marking **safeguard**) for high **touch current** is required if the **touch current** exceeds the limits of 3,5 mA a.c. or 10 mA d.c.	No high touch current measured.	N/A
5.4.11.1 and Annex G	**Finland and Sweden** To the end of the subclause the following is added: For separation of the telecommunication network from earth the following is applicable: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either • two layers of thin sheet material, each of which shall pass the electric strength test below, or • one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that clearances and creepage distances do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition • passes the tests and inspection criteria of 5.4.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 5.4.9 shall be performed using 1,5 kV), and • is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5kV. It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2. A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions: • the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in 5.4.11; • the additional testing shall be performed on all the test specimens as described in EN 60384-14; the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.	No connection to such a network.	N/A

Clause	Requirement + Test	Result - Remark	Verdict
5.5.2.1	**Norway** After the 3rd paragraph the following is added: Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).		N/A
5.5.6	**Finland, Norway** and **Sweden** To the end of the subclause the following is added: Resistors used as **basic safeguard** or bridging **basic insulation** in **class I pluggable equipment type A** shall comply with G.10.1 and the test of G.10.2.	No such resistor used.	N/A
5.6.1	**Denmark** **Add** to the end of the subclause Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment. *Justification:* In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.		N/A
5.6.4.2.1	**Ireland and United Kingdom** After the indent for **pluggable equipment type A**, the following is added: – the **protective current rating** is taken to be 13 A, this being the largest rating of fuse used in the **mains** plug.		P
5.6.5.1	To the second paragraph the following is added: The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current over 10 A and up to and including 13 A is: 1,25 mm^2 to 1,5 mm^2 in cross-sectional area.		N/A
5.7.5	**Denmark** To the end of the subclause the following is added: The installation instruction shall be affixed to the equipment if the **protective conductor current** exceeds the limits of 3,5 mA a.c. or 10 mA d.c.		N/A

Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.1	**Norway and Sweden** To the end of the subclause the following is added: The screen of the television distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation needs to be isolated from the screen of a cable distribution system. It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by a retailer, for example. The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in: “Apparatus connected to the protective earthing of the building installation through the mains connection or through other apparatus with a connection to protective earthing – and to a television distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a television distribution system therefore has to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)” NOTE In Norway, due to regulation for CATV-installations, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min. Translation to Norwegian (the Swedish text will also be accepted in Norway): “Apparater som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et koaksialbasert kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av apparater til kabel-TV nett installeres en galvanisk isolator mellom apparatet og kabel-TV nettet.” Translation to Swedish: ”Apparater som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av apparaten till kabel-TV nät galvanisk isolator finnas mellan apparaten och kabel-TV nätet.”.		N/A

Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.2	**Denmark** To the end of the subclause the following is added: The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 mA .	See for 5.2.2.2 above.	N/A
B.3.1 and B.4	**Ireland and United Kingdom** The following is applicable: To protect against excessive currents and short-circuits in the primary circuit of **direct plug-in equipment**, tests according to Annexes B.3.1 and B.4 shall be conducted using an external miniature circuit breaker complying with EN 60898-1, Type B, rated 32A. If the equipment does not pass these tests, suitable protective devices shall be included as an integral part of the **direct plug-in equipment**, until the requirements of Annexes B.3.1 and B.4 are met	For direct plug-in equipment.	P
G.4.2	**Denmark** To the end of the subclause the following is added: Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2. Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c. Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a *Justification:* Heavy Current Regulations, Section 6c		N/A

Clause	Requirement + Test	Result - Remark	Verdict
G.4.2	**United Kingdom** To the end of the subclause the following is added: The plug part of direct plug-in equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16, and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.		P
G.7.1	**United Kingdom** To the first paragraph the following is added: Equipment which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord shall be fitted with a 'standard plug' in accordance with the Plugs and Sockets etc (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations. NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		N/A
G.7.1	**Ireland** To the first paragraph the following is added: Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard		N/A
G.7.2	**Ireland and United Kingdom** To the first paragraph the following is added: A power supply cord with a conductor of 1,25 mm^2 is allowed for equipment which is rated over 10 A and up to and including 13 A.		N/A

ZC	**ANNEX ZC, NATIONAL DEVIATIONS (EN)**		**--**
10.5.2	**Germany** The following requirement applies: For the operation of any cathode ray tube intended for the display of visual images operating at an acceleration voltage exceeding 40 kV, authorization is required, or application of type approval (Bauartzulassung) and marking. *Justification:* German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM. **NOTE** Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int +49-531-592-6320, Internet: http://www.ptb.de	Not such equipment.	N/A

Figure 1 Overall view of unit

Figure 2 Overall view of unit

Figure 3 Internal view of unit (Fuse:F1)

Figure 4 Components side view of all unit (Fuse:F1)

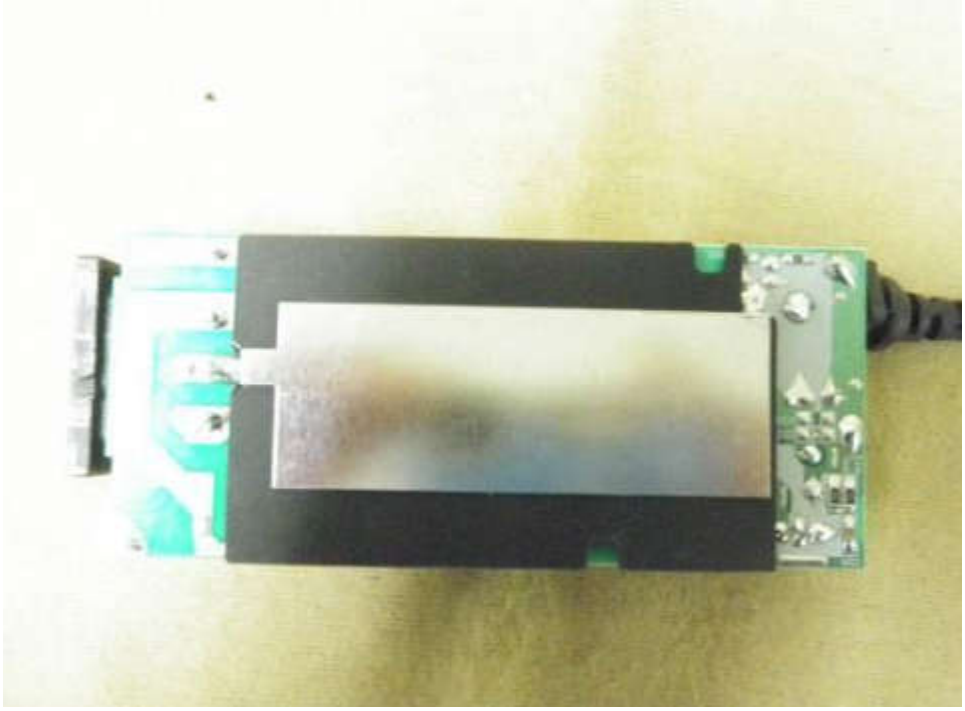


Figure 5 PCB trace side view of all unit (Fuse:F1)

Figure 6 Internal view of unit (Fuse:F1 and F2)

Figure 7 Components side view of all unit (Fuse:F1 and F2)

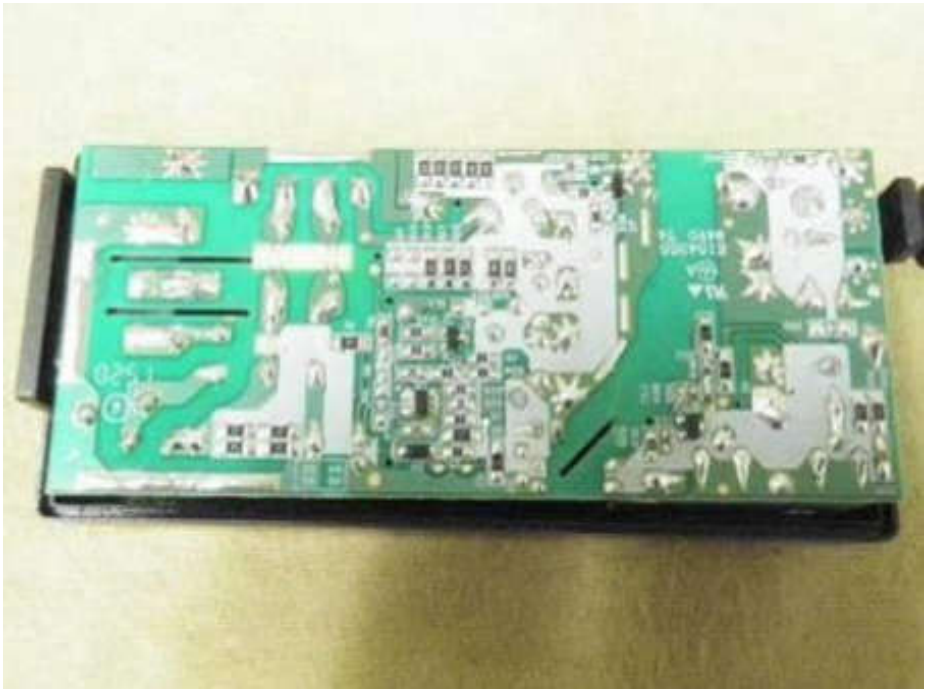


Figure 8 PCB trace side view of all unit (Fuse:F1 and F2)

Figure 9 Internal view of unit (Fuse:F1 and F2 (with TVS2, TVS3, TVS4))

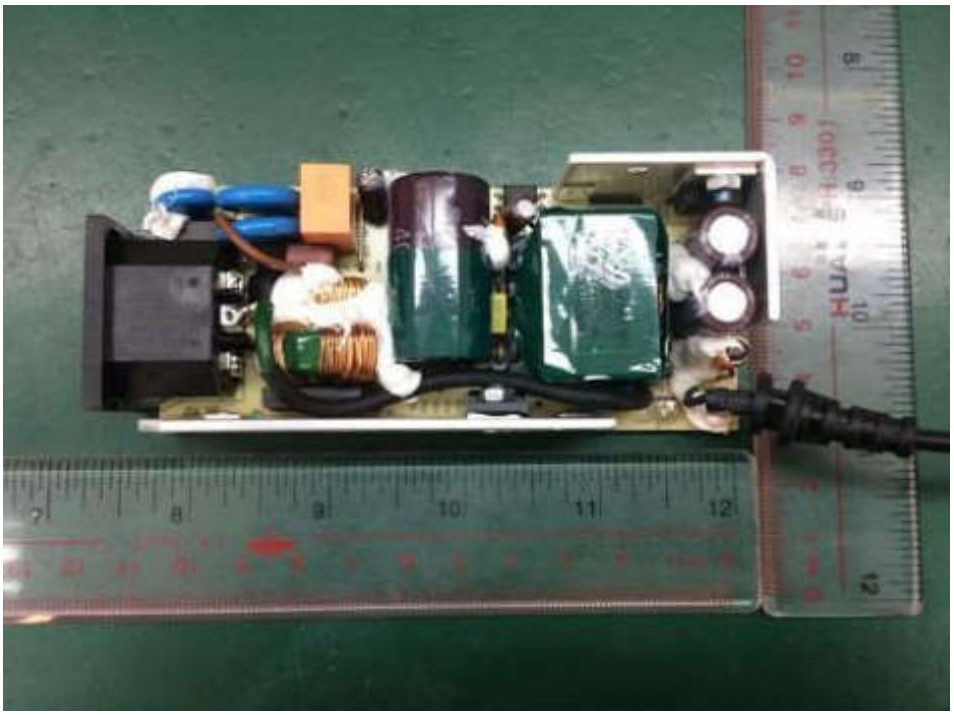


Figure 10 Components side view of all unit (Fuse:F1 and F2(with TVS2, TVS3, TVS4))

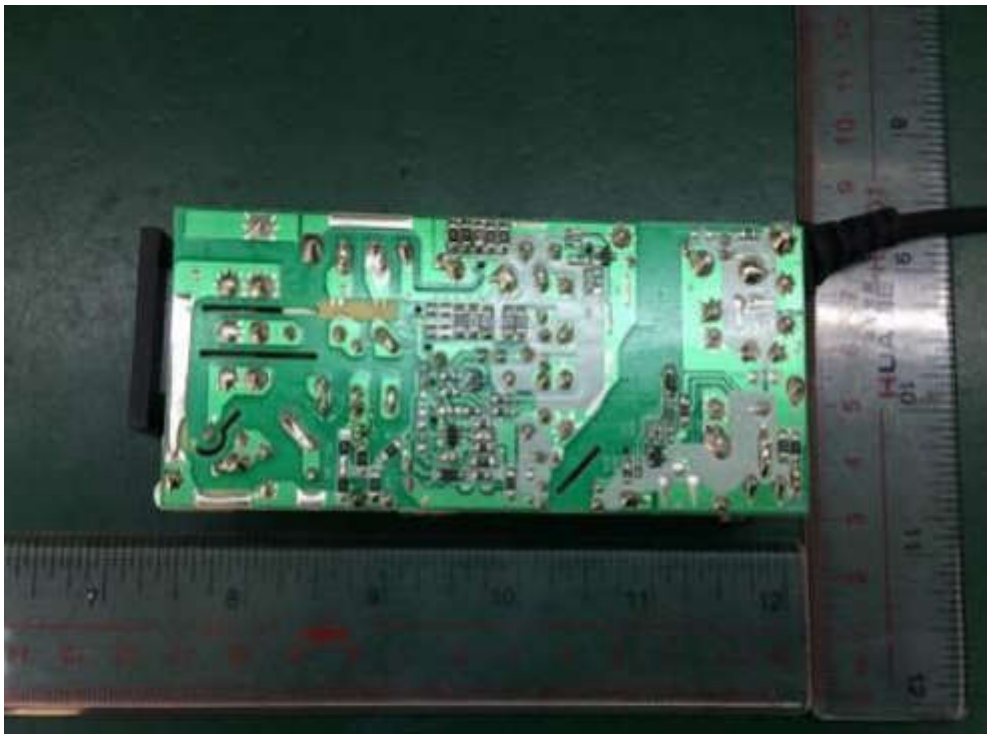


Figure 8 PCB trace side view of all unit (Fuse:F1 and F2(with TVS2, TVS3, TVS4))

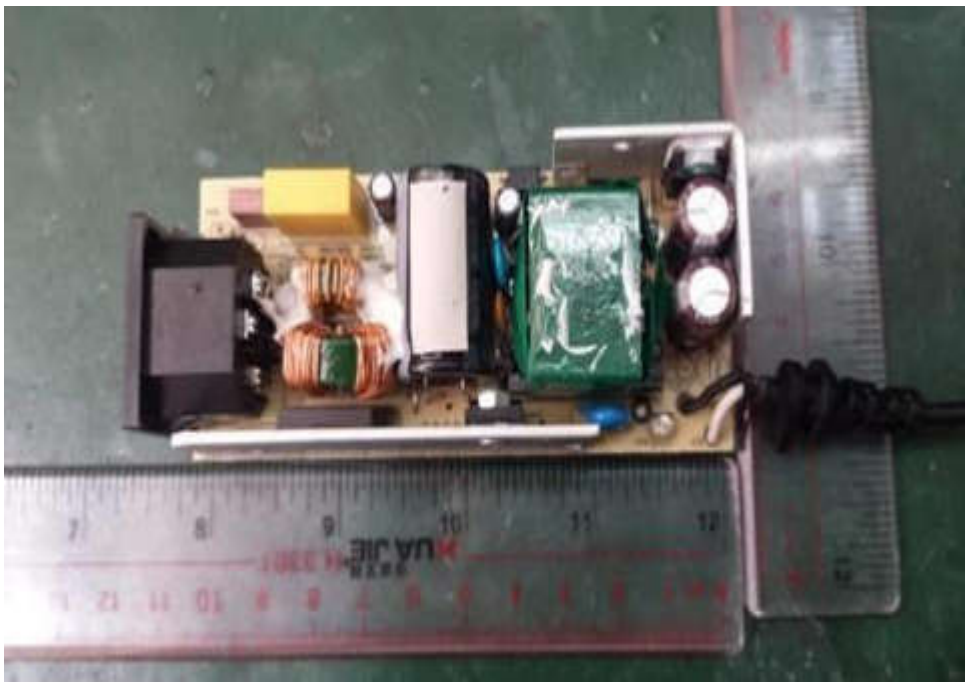


Figure 10 Components side view of all unit (Fuse:F1 and F2 (without green/yellow wire))

Figure 11 Overall view of unit(For trademark Synology)

Figure 12 Overall view of unit(For trademark Synology)

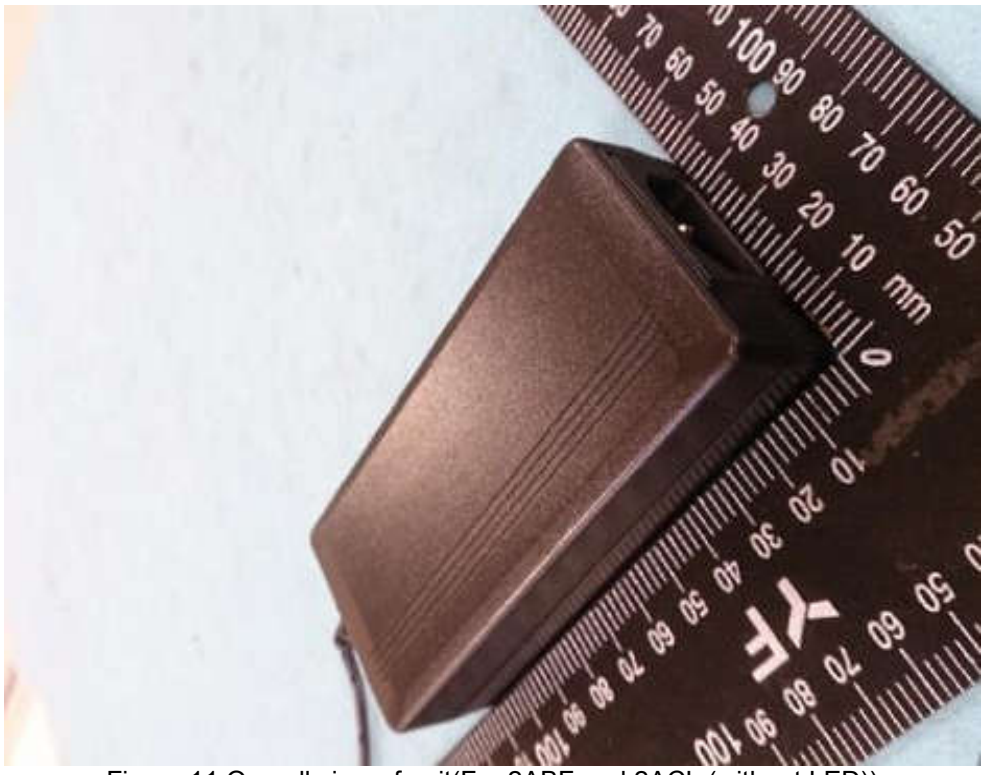


Figure 11 Overall view of unit(For 2ABF and 2ACL (without LED))

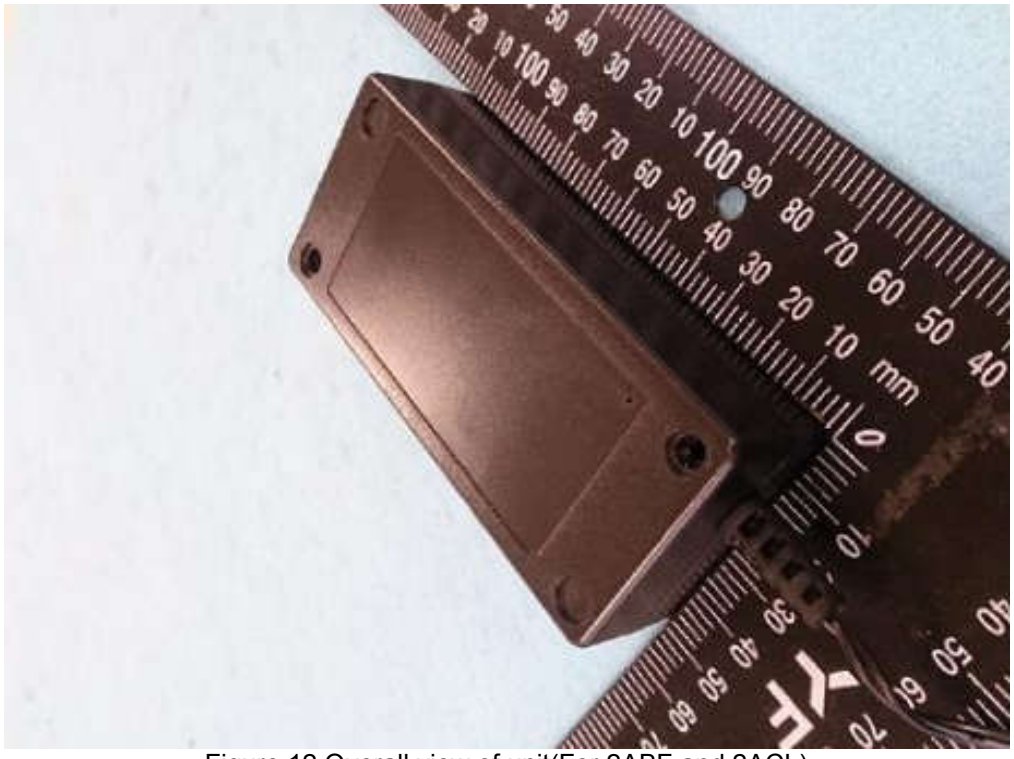


Figure 12 Overall view of unit(For 2ABF and 2ACL)

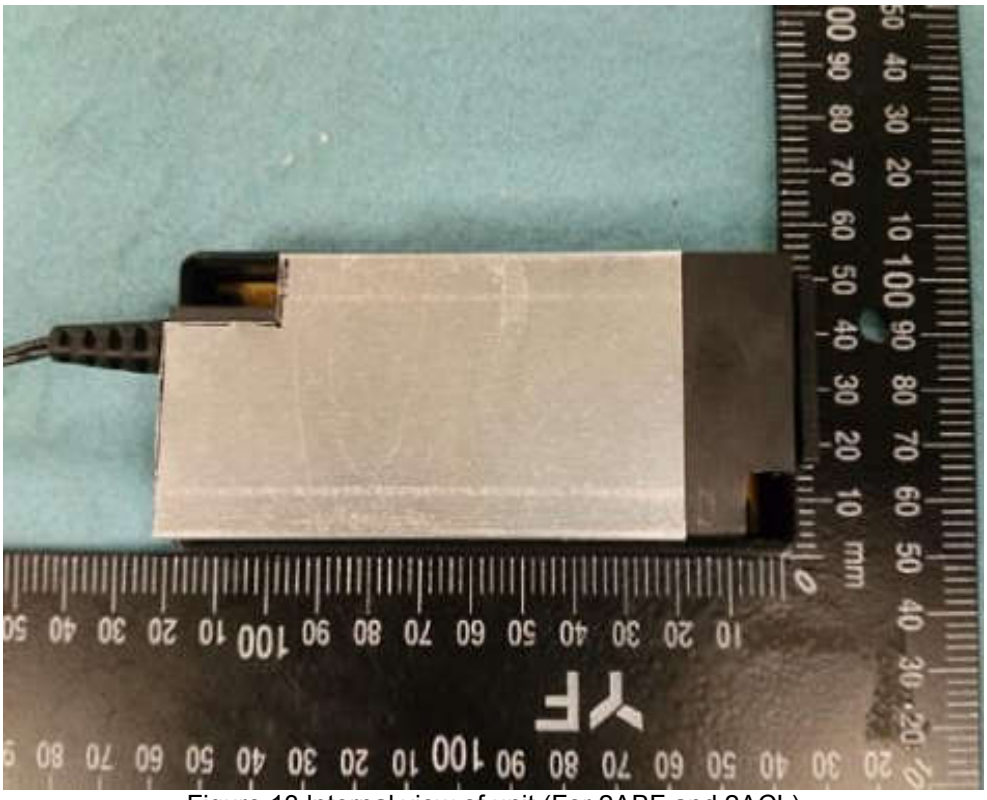


Figure 13 Internal view of unit (For 2ABF and 2ACL)

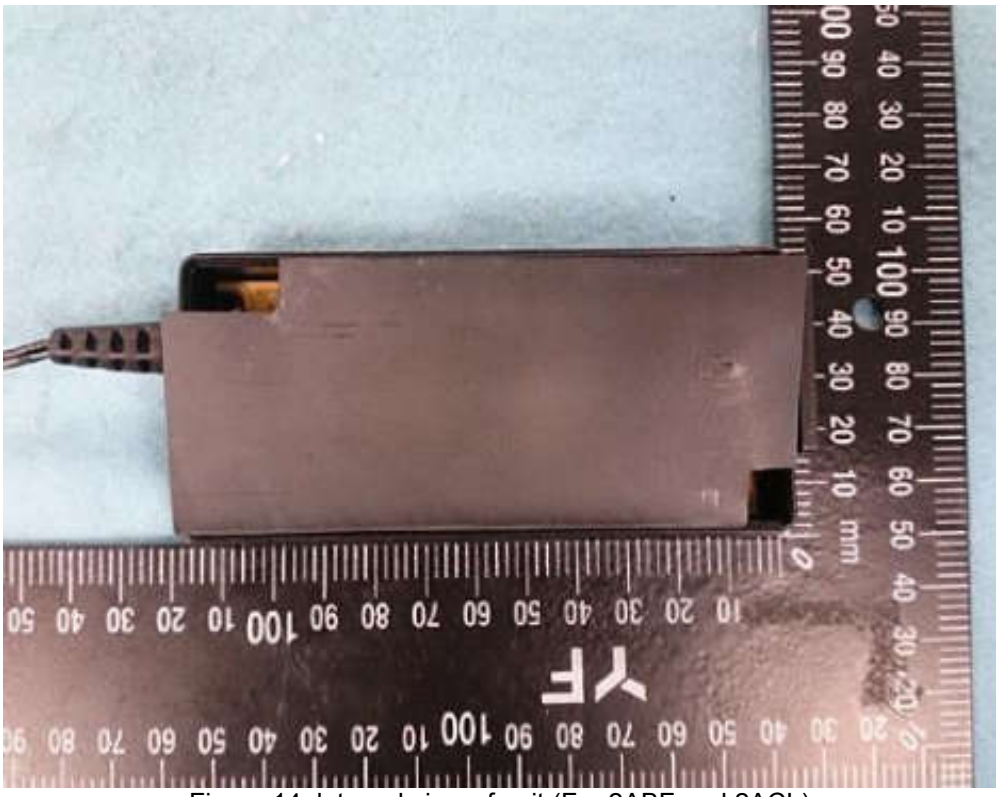


Figure 14 Internal view of unit (For 2ABF and 2ACL)

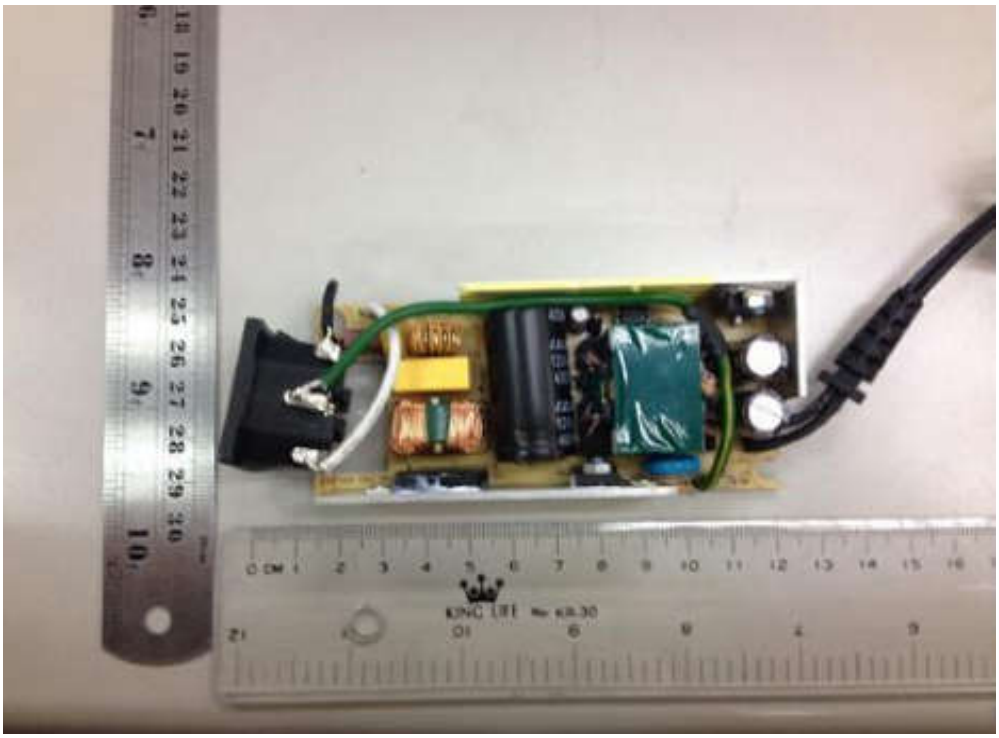


Figure 15 Components side view of all unit (For 2ABF and 2ACL)

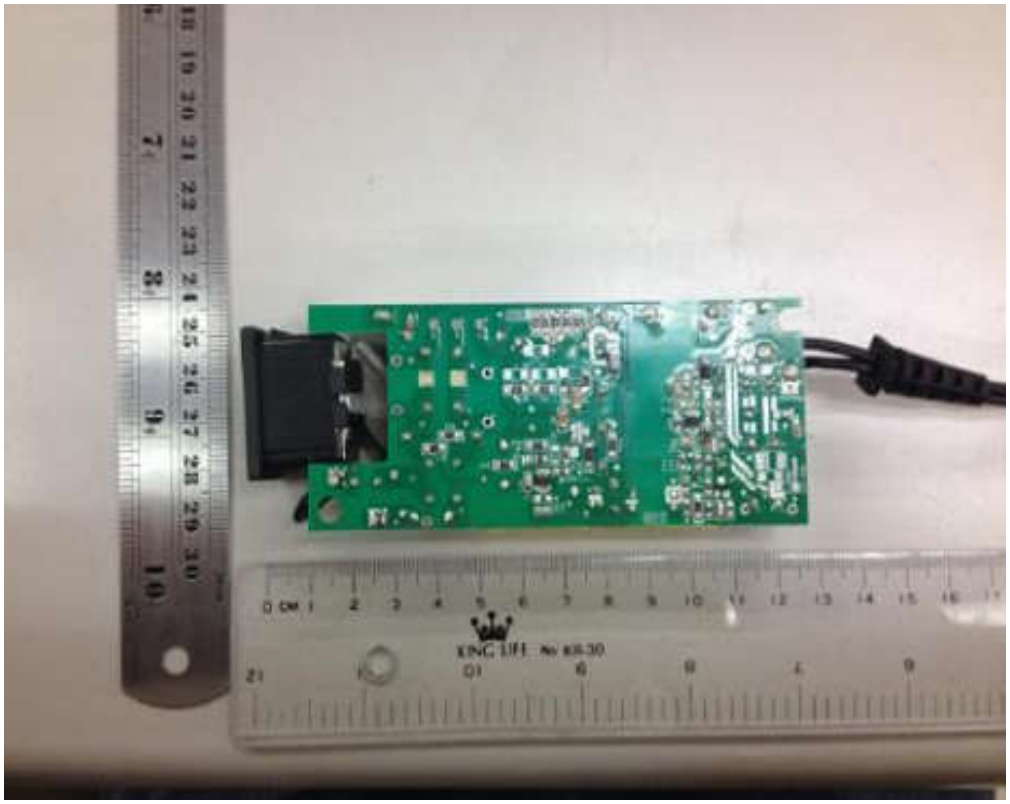


Figure 16 PCB trace side view of all unit (For 2ABF and 2ACL)

Figure 17 Overall view of unit(For 2ABF and 2ACL (with LED))

Figure 14 Internal view of unit (For 2ABF and 2ACL (with LED))

Figure 15 Components side view of all unit (For 2ABF and 2ACL (with LED))

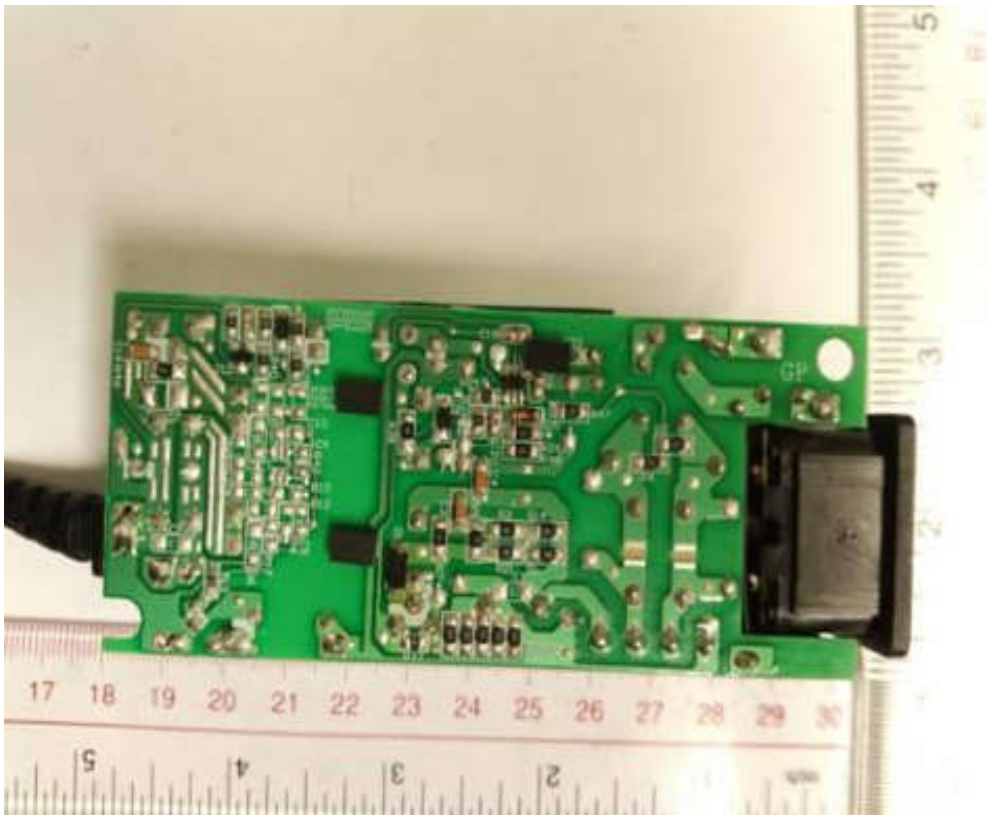


Figure 16 PCB trace side view of all unit (For 2ABF and 2ACL (with LED))

Figure 17 Overall view of unit(For GTRxxxYzzzzz)

Figure 17 Overall view of unit(For GTRxxxYzzzzz)

Figure 14 Internal view of unit (For GTRxxxYzzzzz)

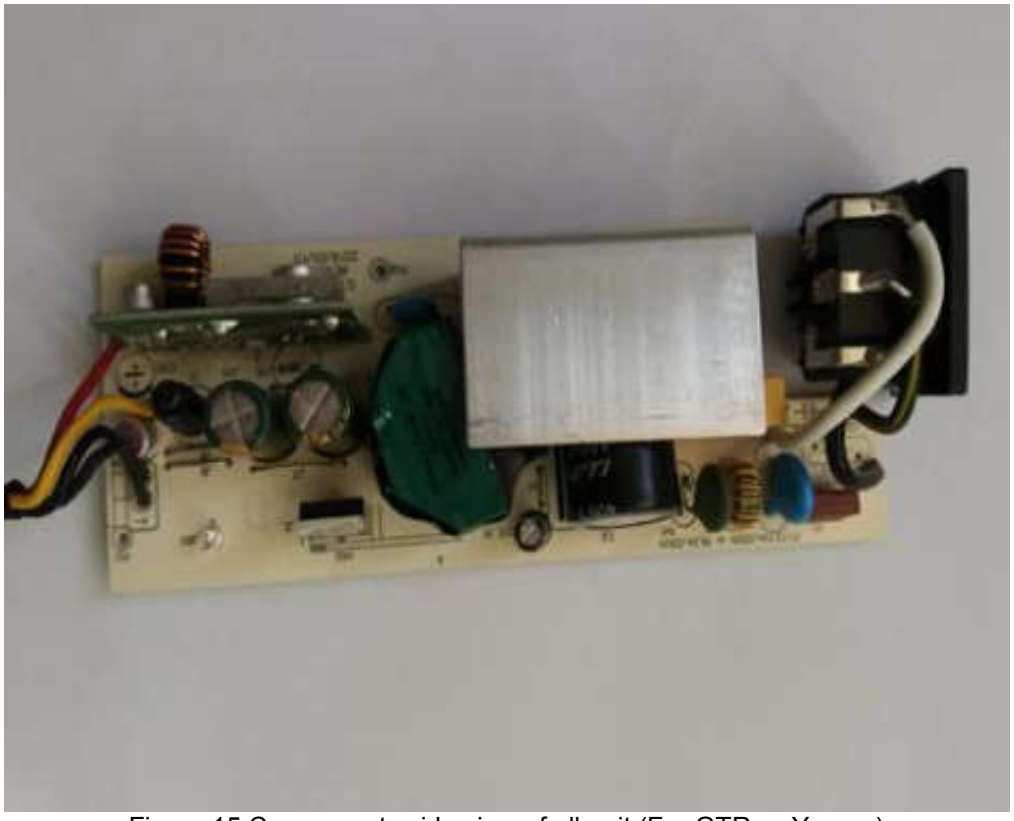


Figure 15 Components side view of all unit (For GTRxxxYzzzzz)

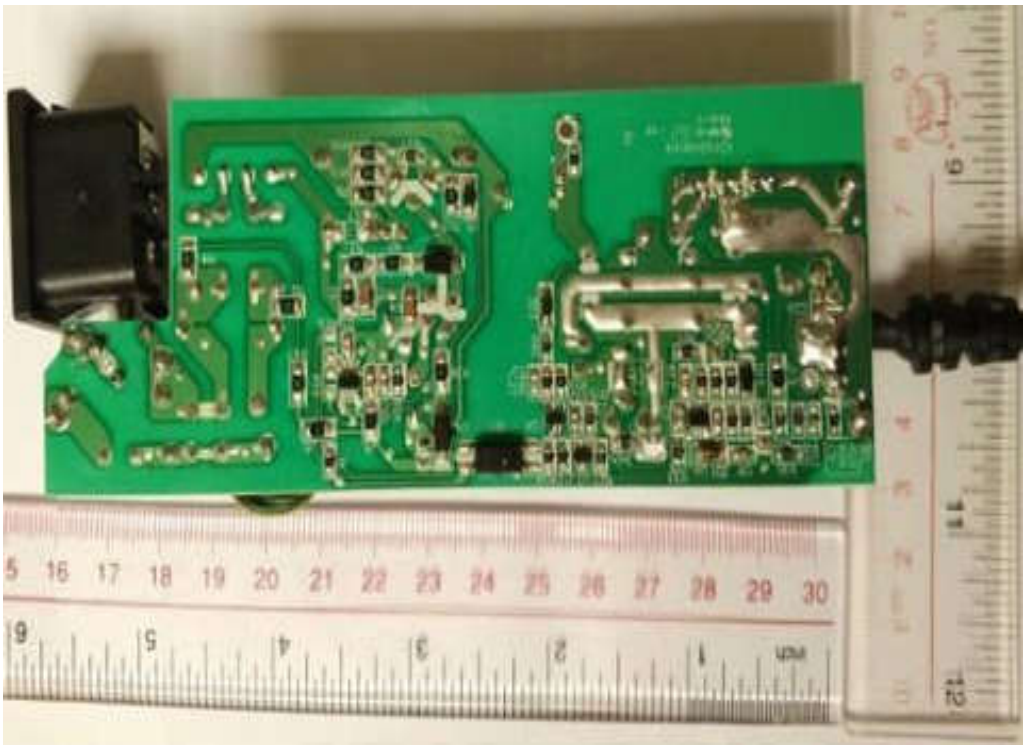
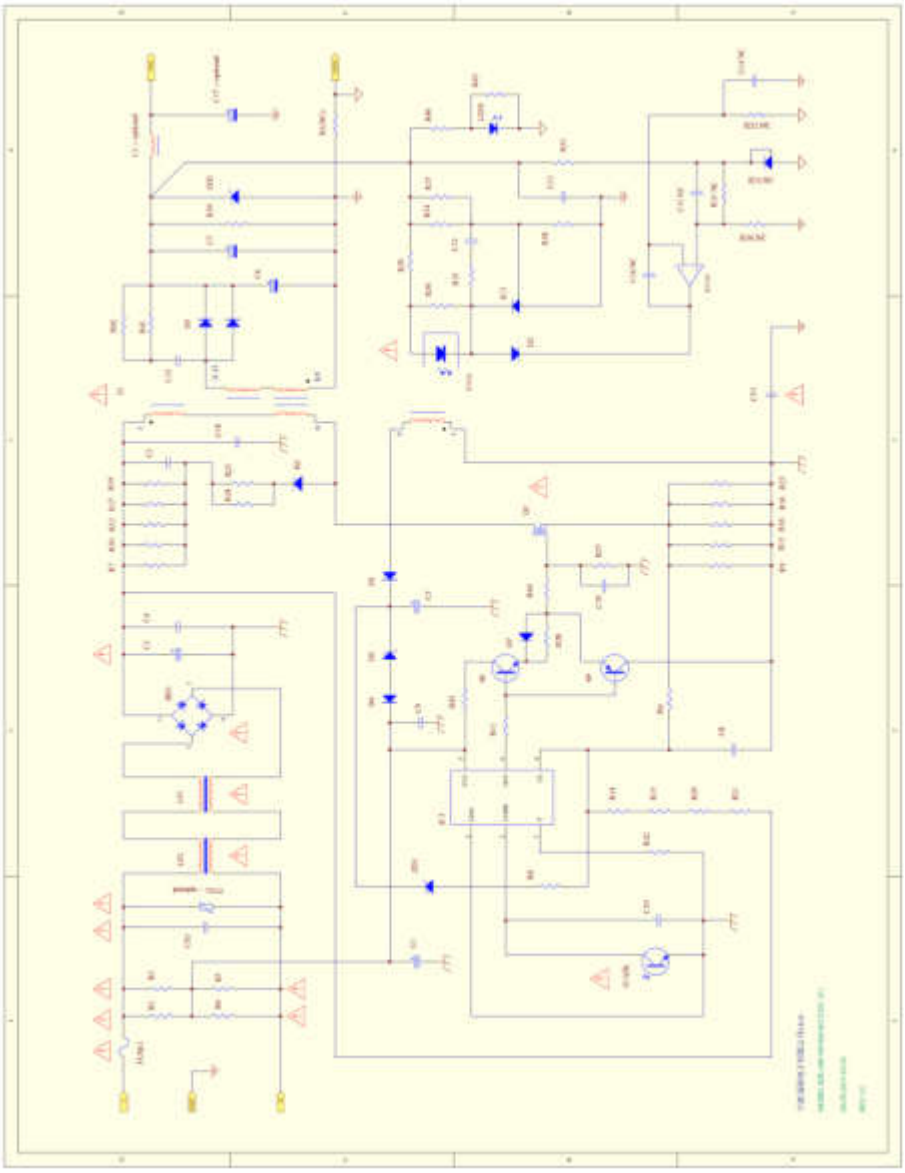
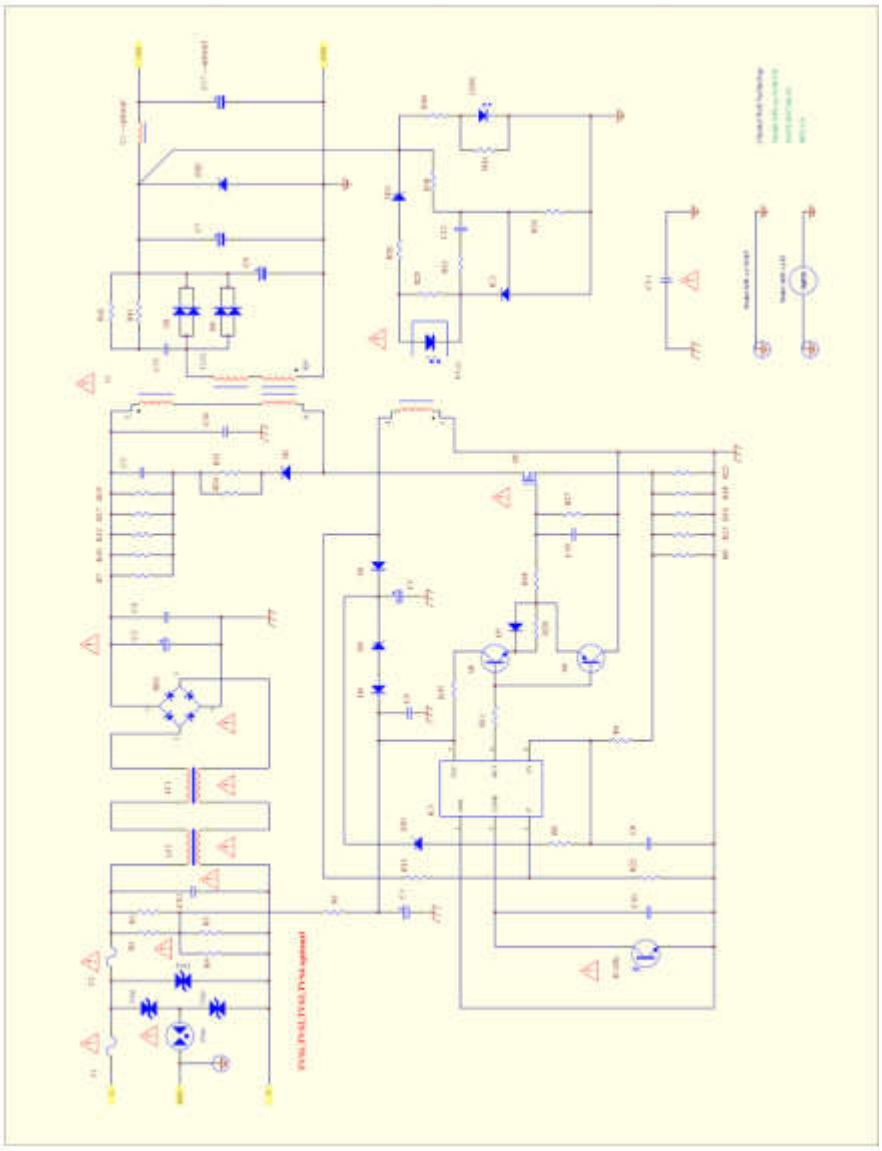


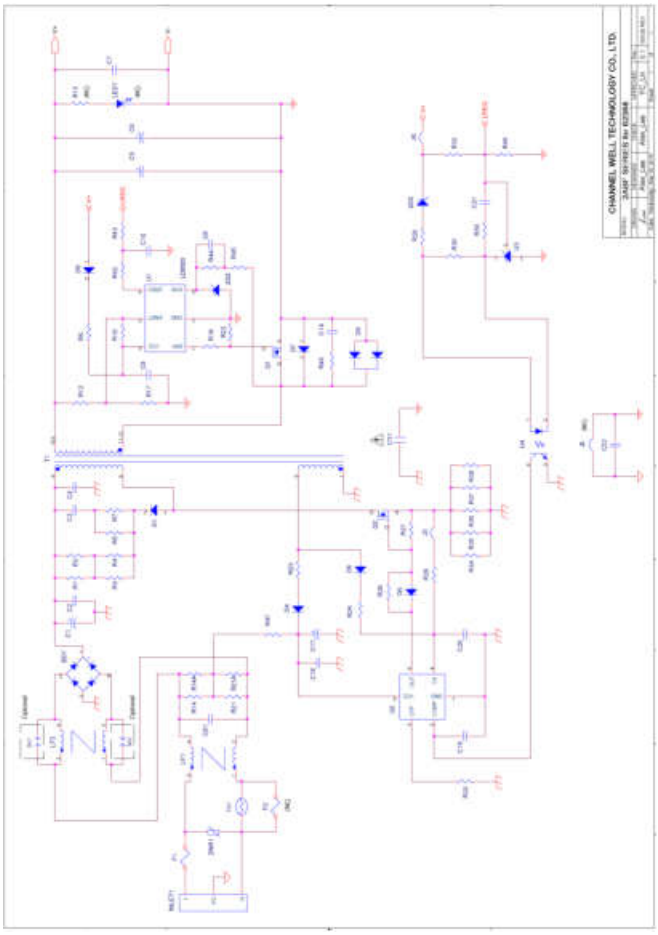
Figure 16 PCB trace side view of all unit (For GTRxxxYzzzzz)



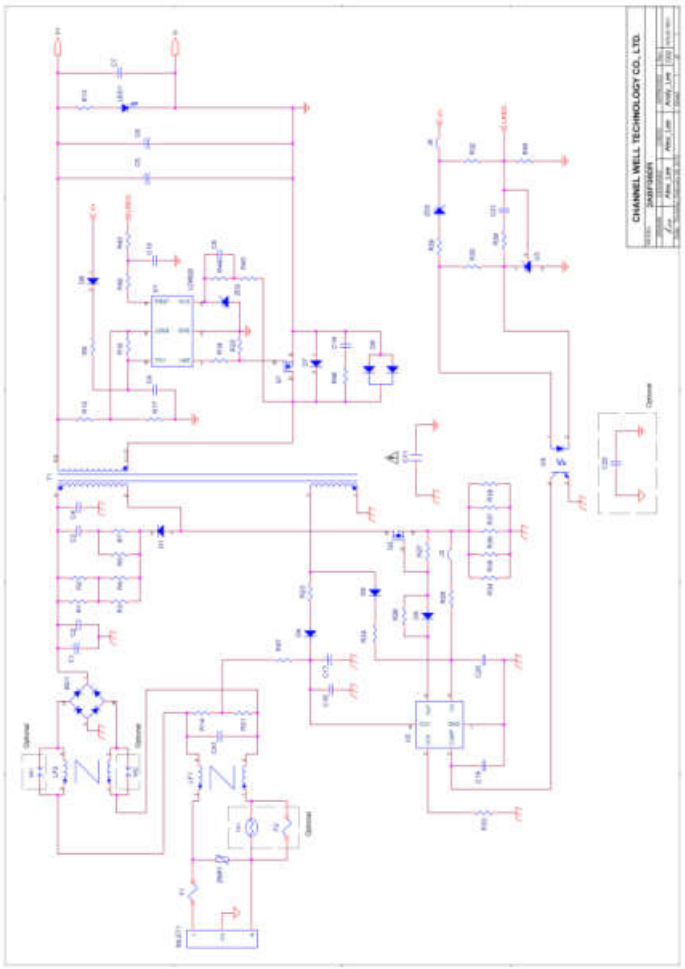
Schematics 1(KPL(PCB with FUSE1))



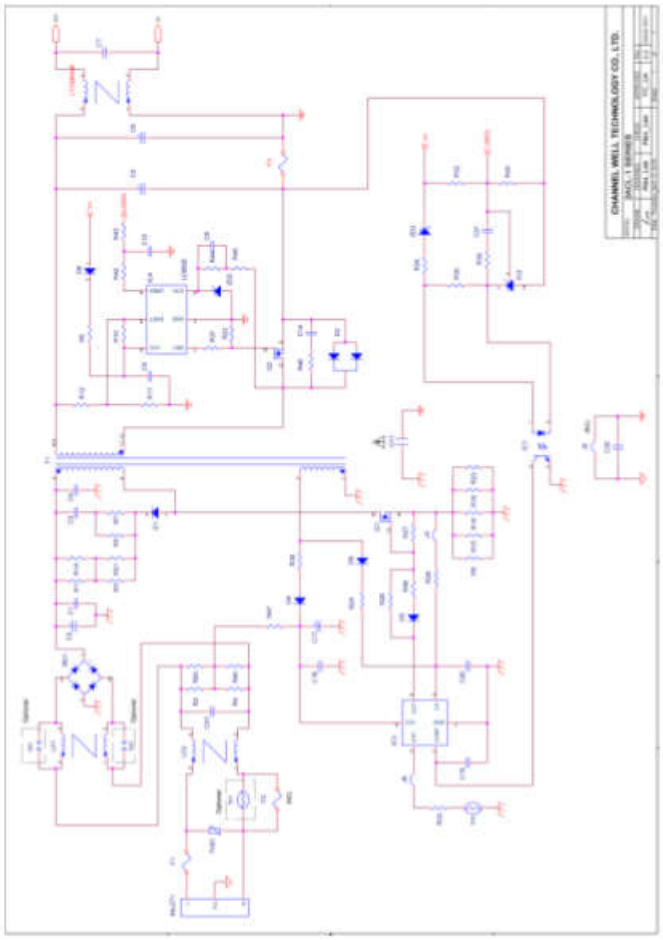
Schematics 2(KPL(PCB with F1,F2))



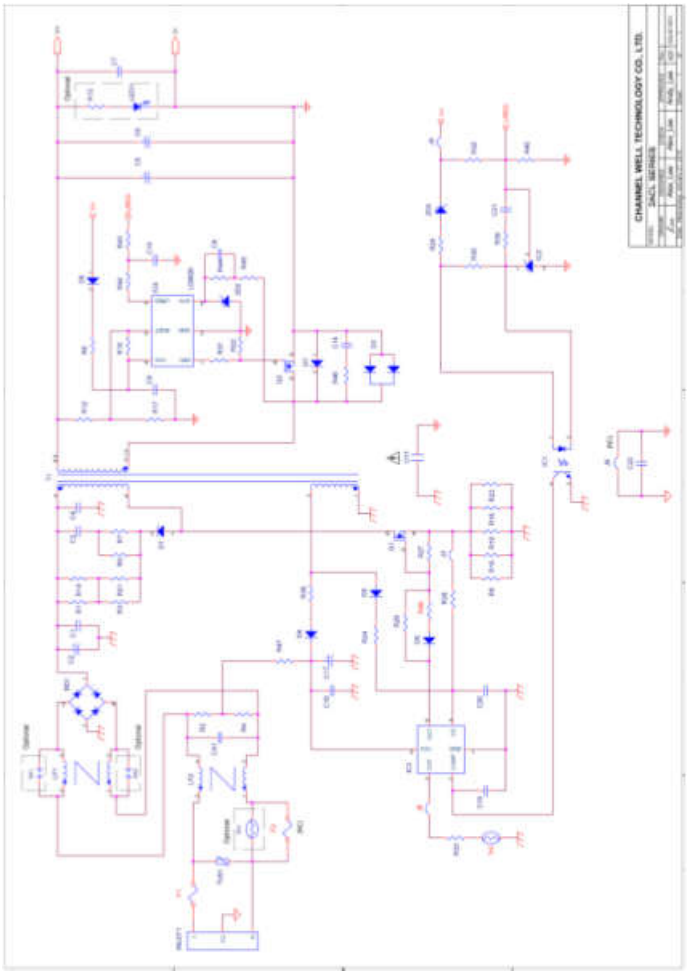
Schematics 3(KPL(2ABF with R14A, R21A)



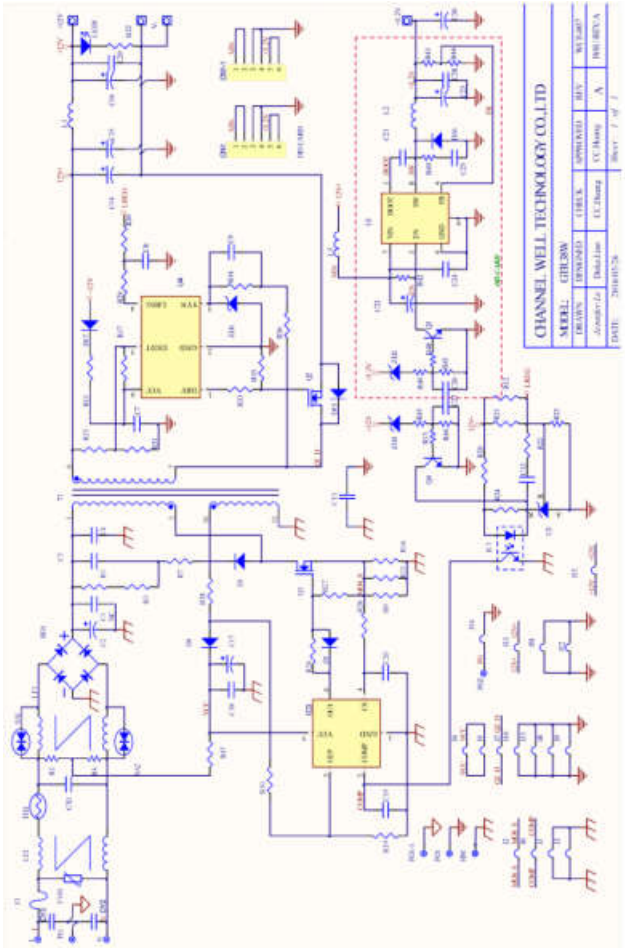
Schematics 4(2ABF without R14A, R21A)



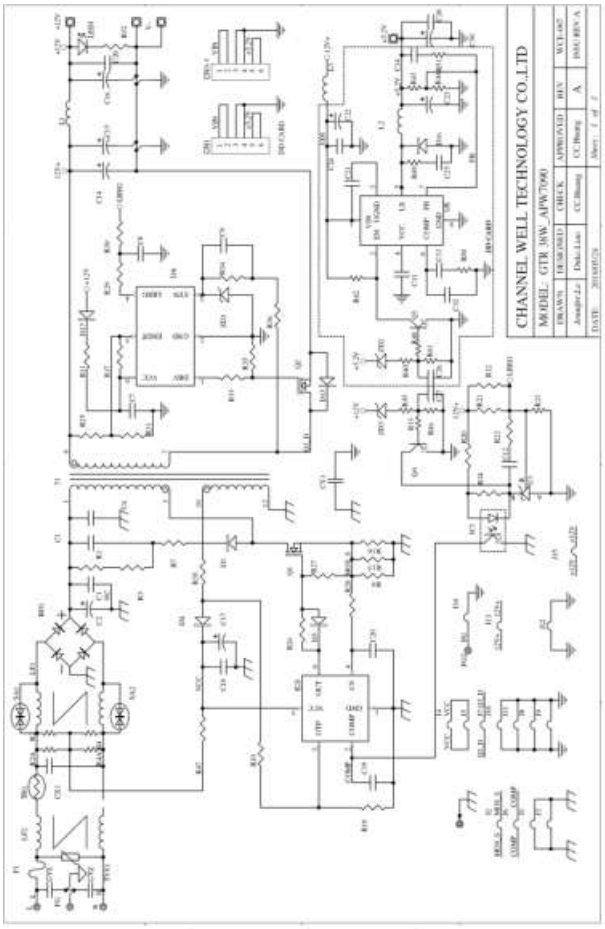
Schematics 5(2ACL (except Y=B) with R2A, R4A)



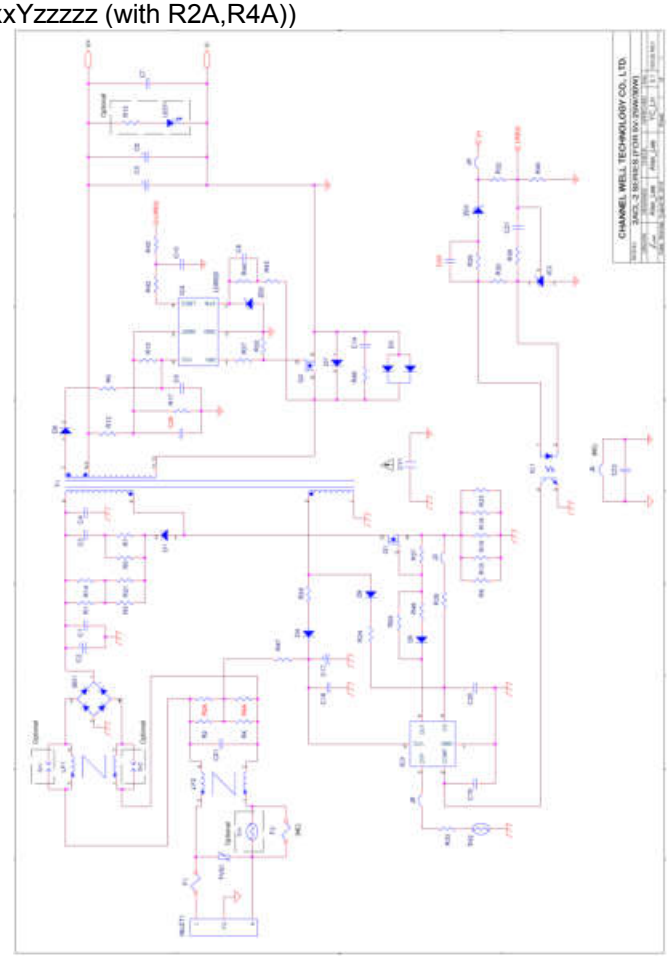
Schematics 6(2ACL (except Y=B) without R2A, R4A)



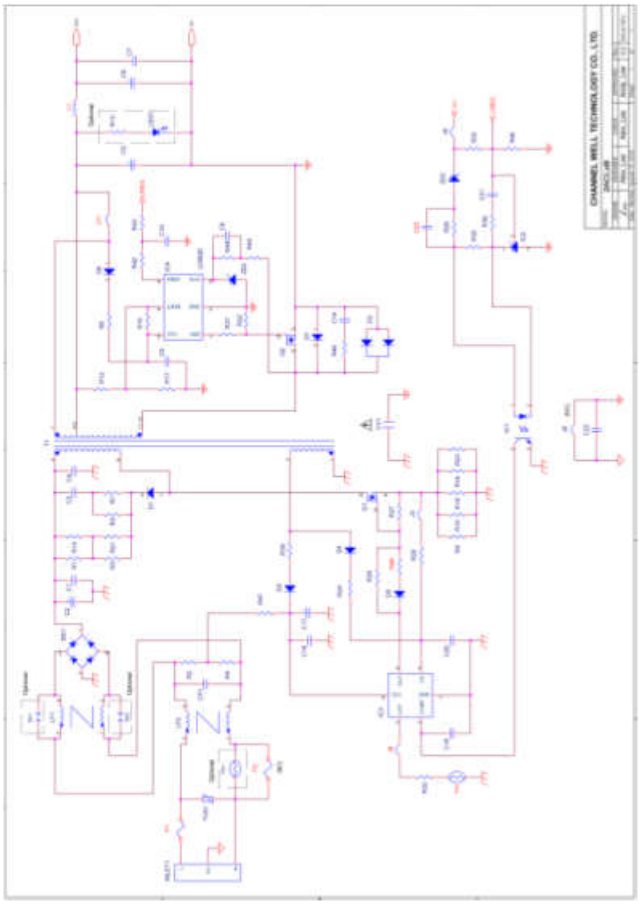
Schematics 7(2ACL (GTRxxxYzzzzz (without R2A,R4A))



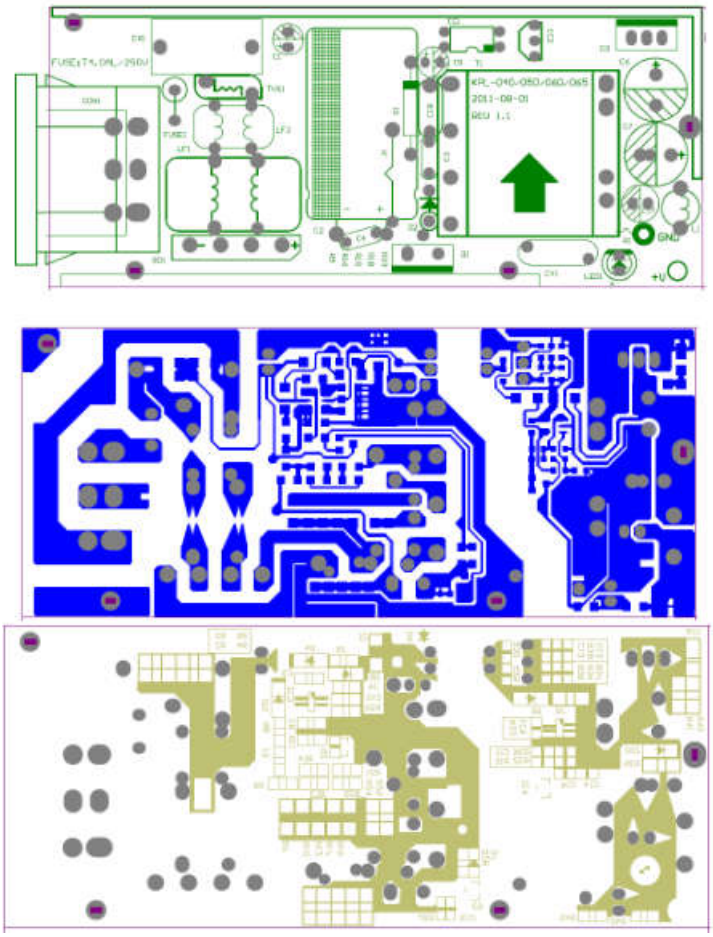
Schematics 8(GTRxxxYzzzzz (with R2A,R4A))



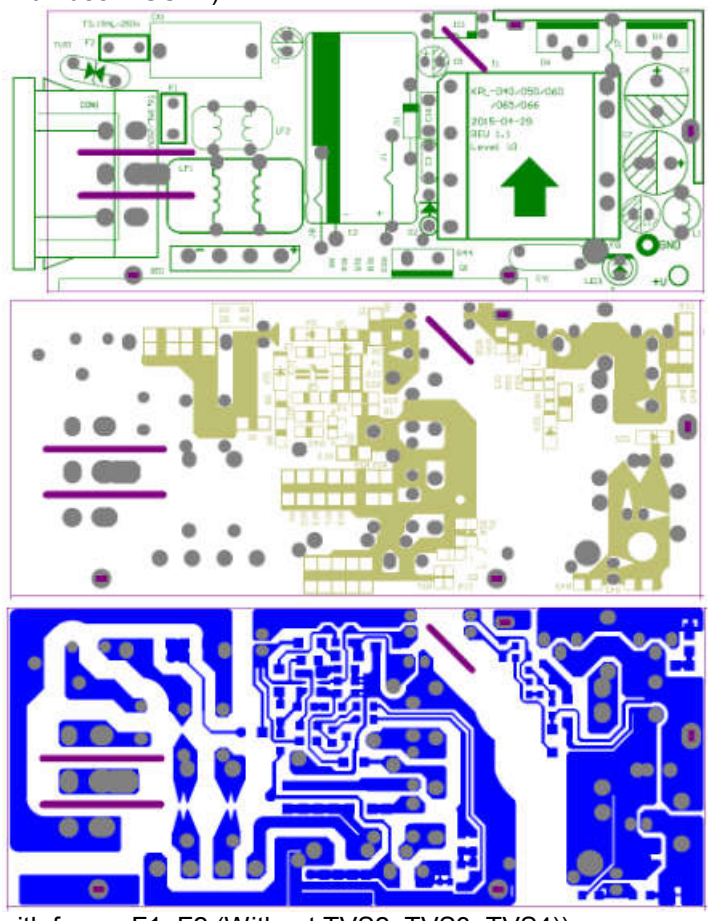
Schematics 9(2ACL, Y=B with R2A, R4A)



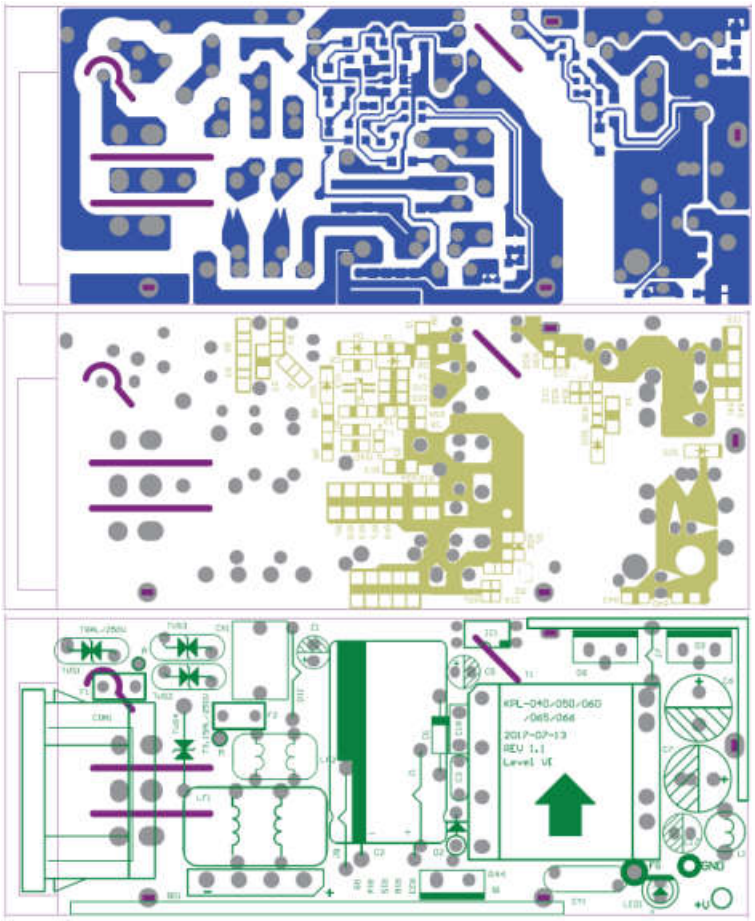
Schematics 9(2ACL, Y=B without R2A, R4A)



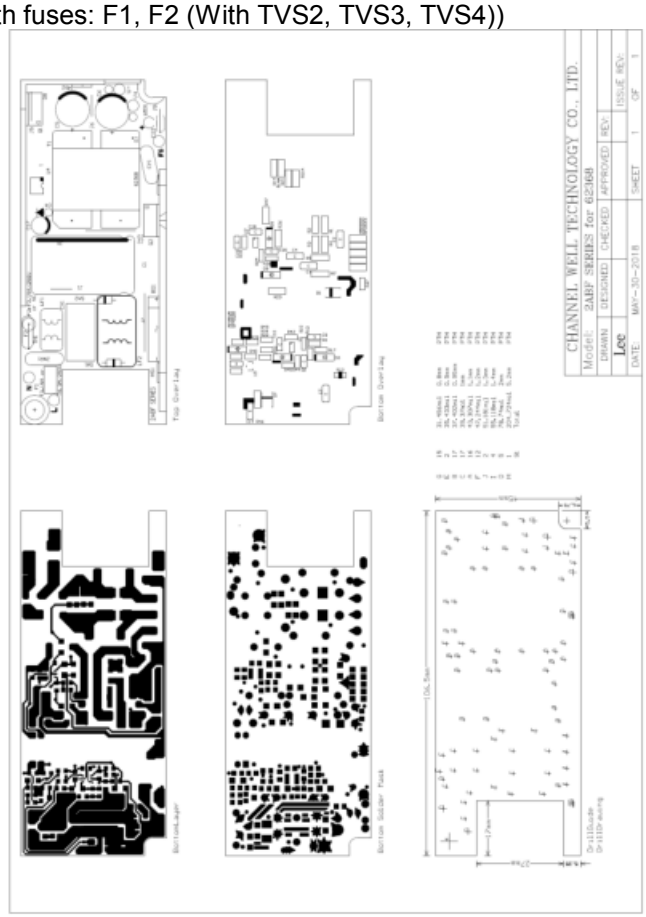
PCB Layout 1(P CB with fuse: FUSE1)



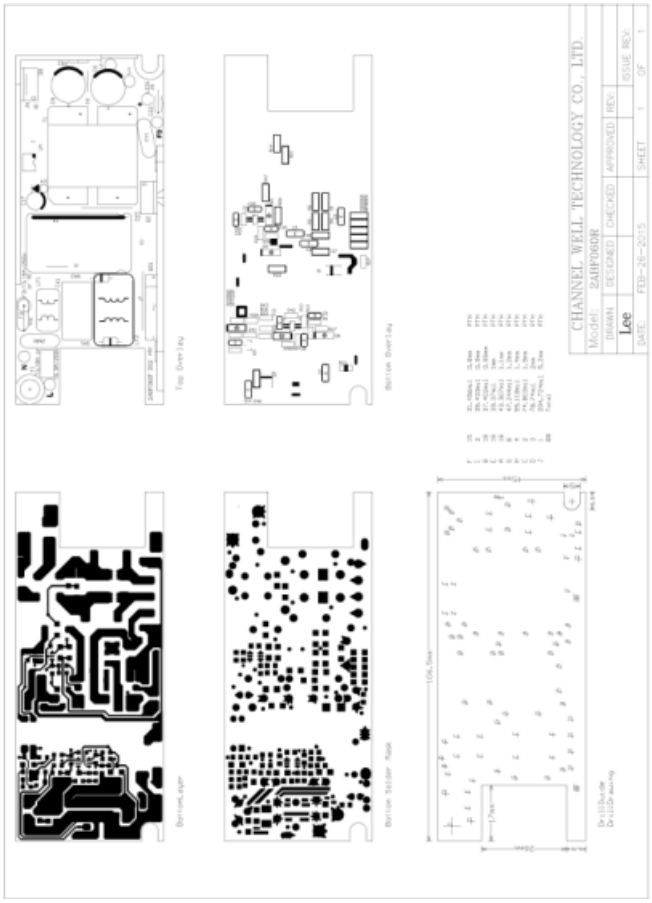
PCB Layout 2(PCB with fuses: F1, F2 (Without TVS2, TVS3, TVS4))



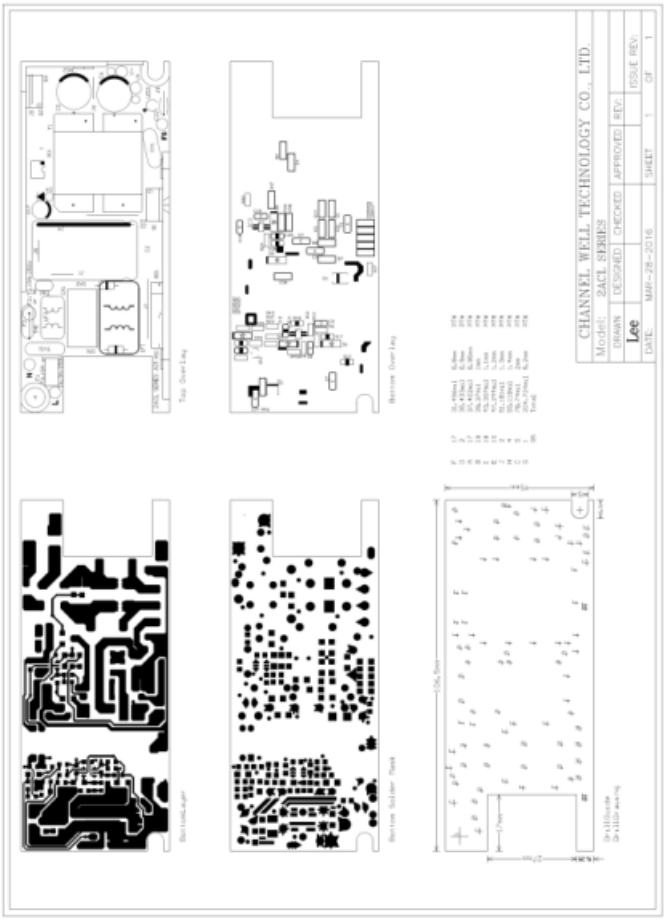
PCB Layout 3(PCB with fuses: F1, F2 (With TVS2, TVS3, TVS4))



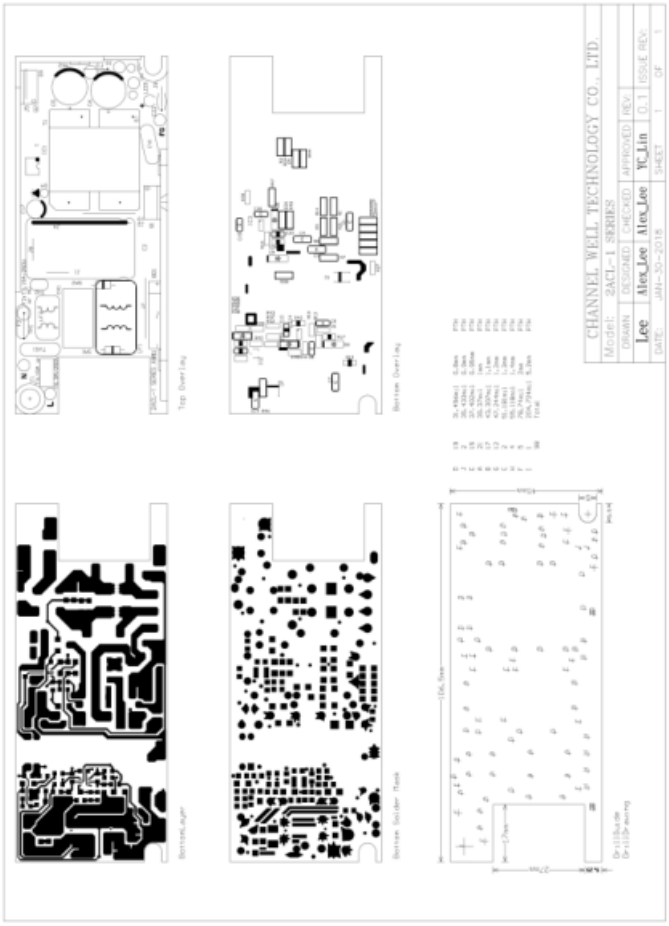
PCB Layout 4(2ABF with R14A, R21A)



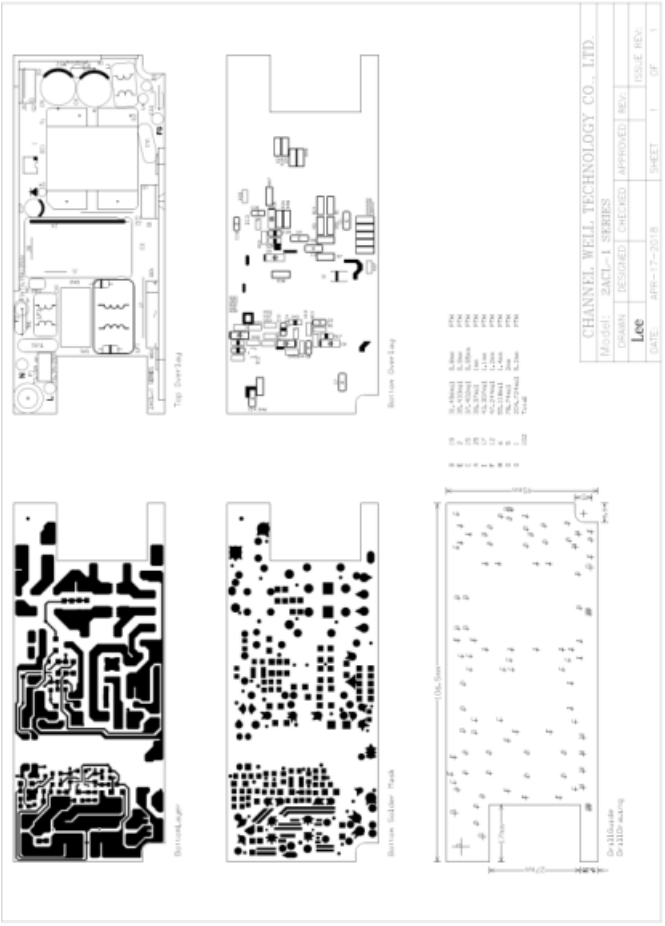
PCB Layout 5(2ABF without R14A, R21A)



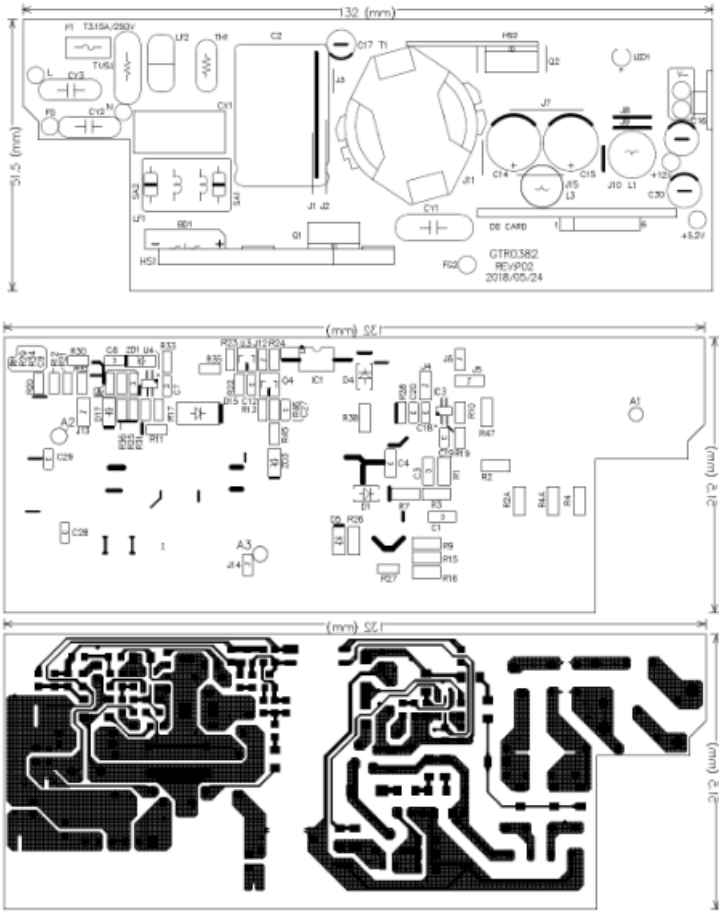
PCB Layout 6(2ACL (except Y=B) without R2A, R4A)



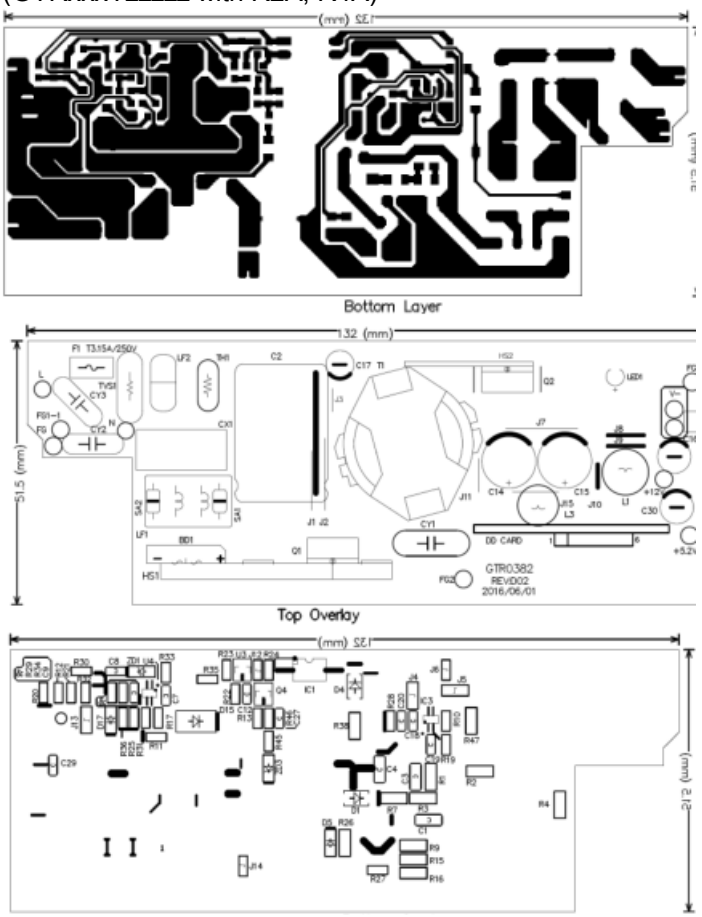
PCB Layout 7(2ACL (except Y=B) (add R2A, R4A, F3) (Alternative))



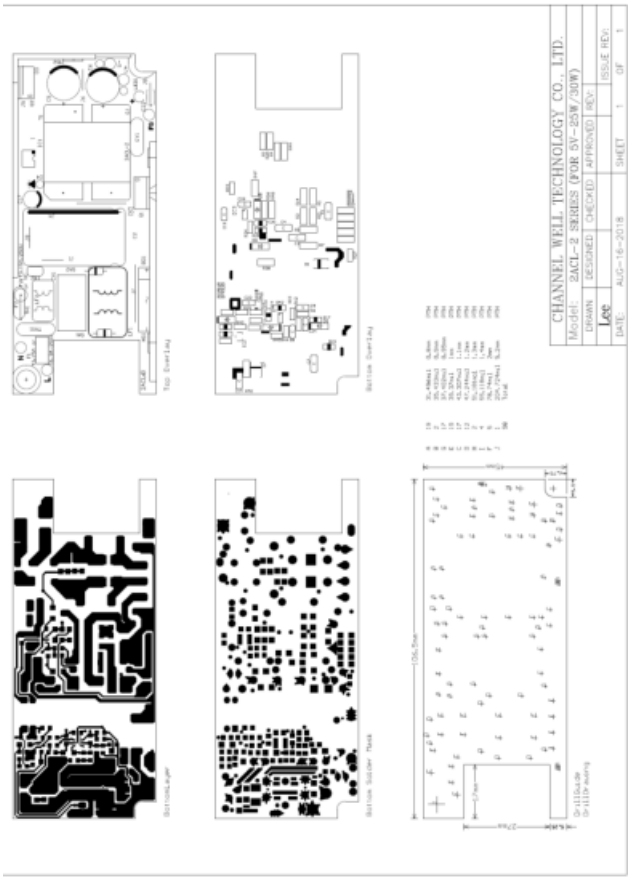
PCB Layout 8(2ACL (except Y=B) (add R2A, R4A, F3, L1) (Alternative))



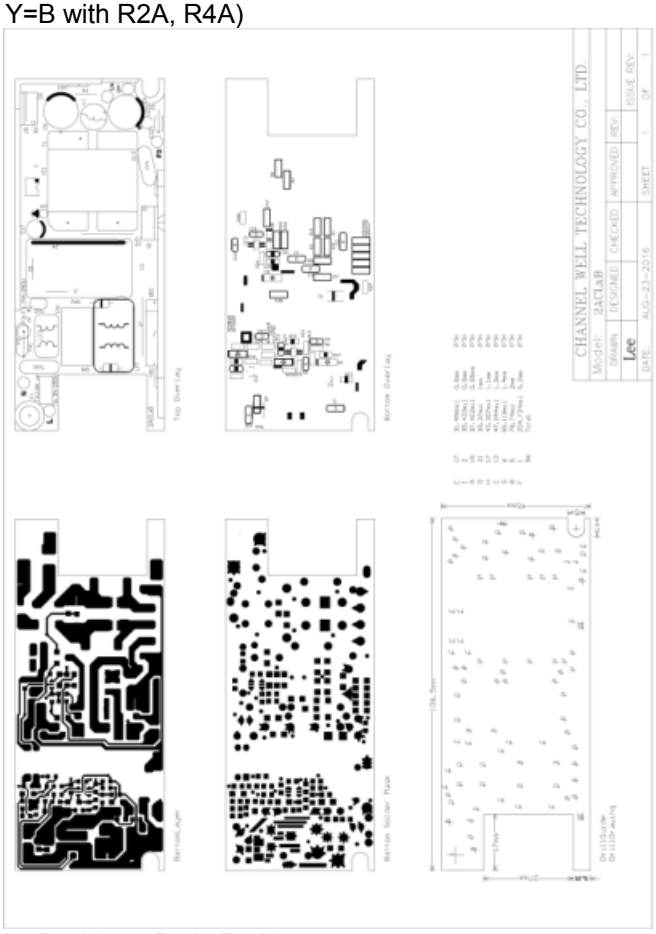
PCB Layout 9(2ACL (GTRxxxYzzzzz with R2A, R4A)



PCB Layout 10(2ACL (GTRxxxYzzzzz without R2A, R4A)

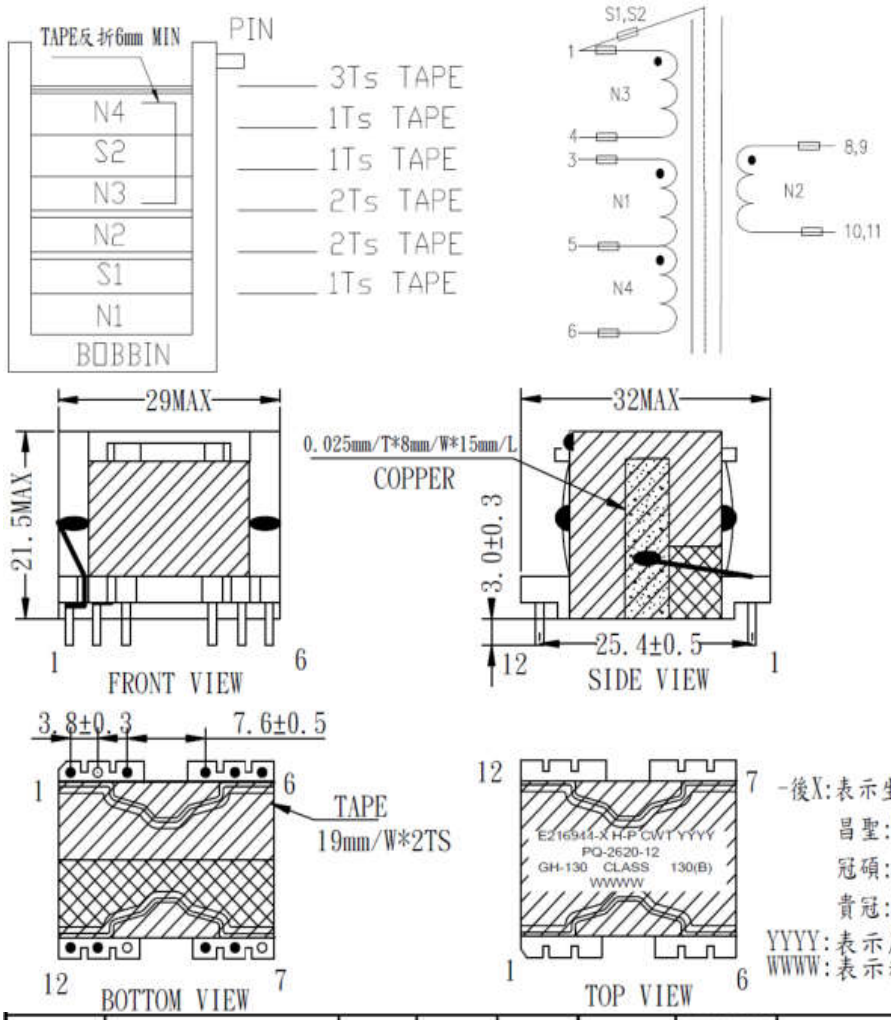


PCB Layout 11(2ACL, Y=B with R2A, R4A)



PCB Layout 13(2ACL, Y=B without R2A, R4A)

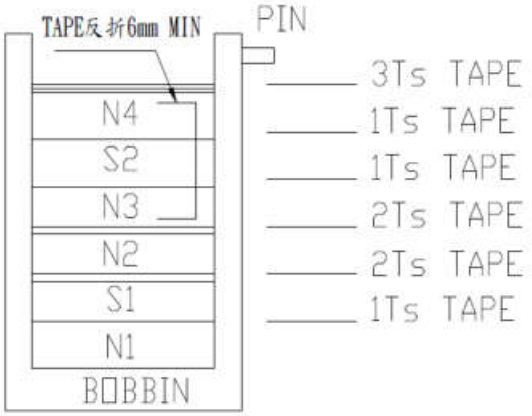
Transformer(T1) (O/P 12-16V) (KPL PCB with FUSE1) :



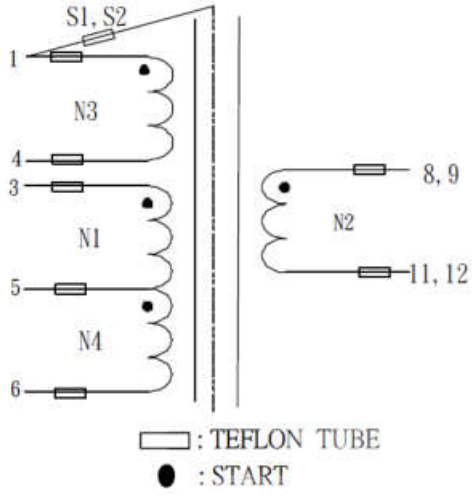
WINDING	WIRE SIZE	START	FINISH	TURNS	UL TAPE	TEFLON		NOTE
						ST	FI	
N1	2UEW Φ0.4mm*2P	3	5	18TS	1TS	V	V	
S1	0.025mm/T*8mm/W	1	-	1TS	2TS	V		
N2	TRW(B) Φ0.8mm*2P	8,9	11,12	4TS	2TS	V	V	
N3	2UEW Φ0.16mm*2P	1	4	5TS	1TS	V	V	疏繞
S2	0.025mm/T*8mm/W	1	-	1TS	1TS	V		
N4	2UEW Φ0.4mm*2P	5	6	18TS	3TS	V	V	

Transformer(T1) (O/P 12-16V) (KPL PCB with F1, F2) :

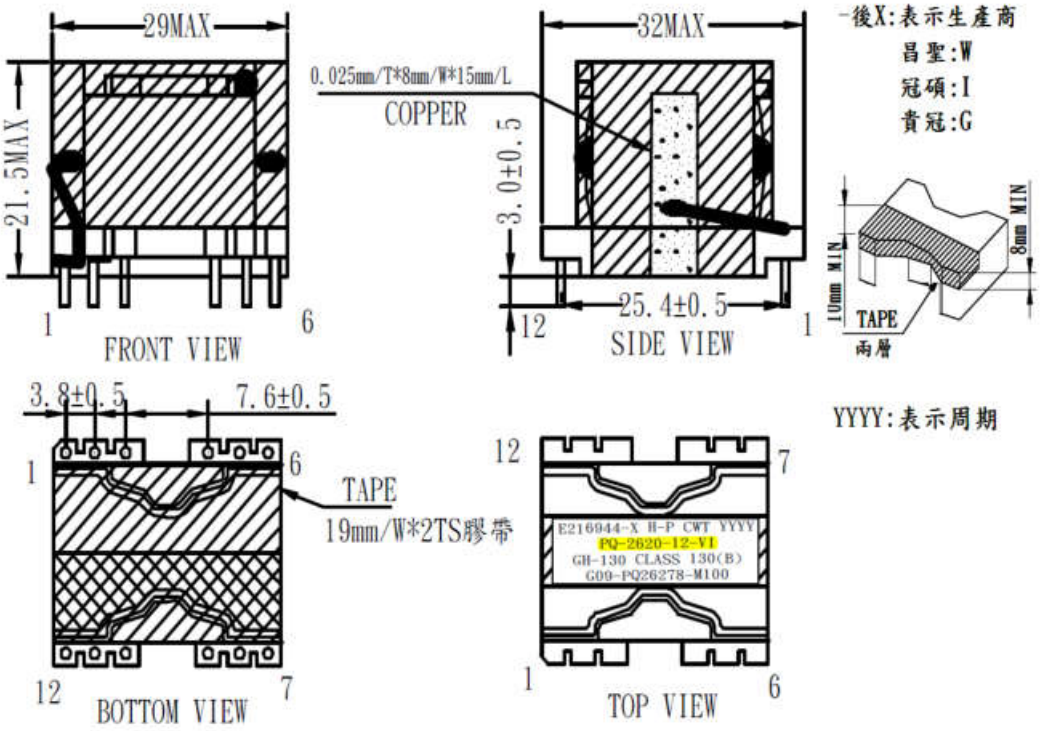
2. CONSTRUCTIONS:



3. SCHEMATIC:



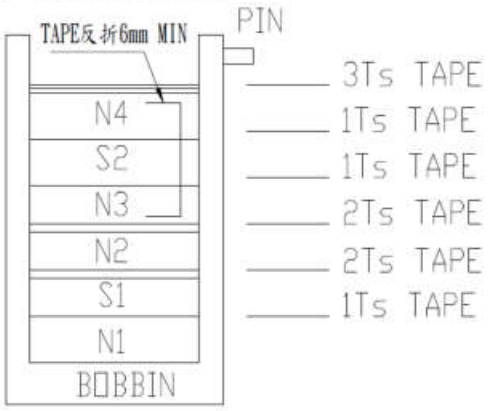
4. WINDING DATA:



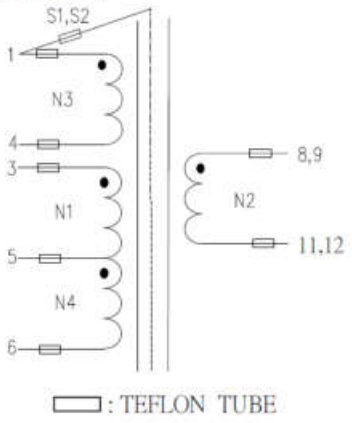
WINDING	WIRE SIZE	START	FINISH	TURNS	UL TAPE	TEFLON		NOTE
						ST	FI	
N1	丝包线 Φ0.1mm*25P	3	5	24TS	1TS	V	V	
S1	0.025mm/T*8mm/W	1	-	1TS	2TS	V		
N2	TRW(B) Φ0.8mm*2P	8,9	11,12	4TS	2TS	V	V	
N3	2UEW Φ0.16mm*2P	1	4	5TS	1TS	V	V	疏繞
S2	0.025mm/T*8mm/W	1	-	1TS	1TS	V		
N4	丝包线 Φ0.1mm*25P	5	6	11TS	3TS	V	V	

Transformer(T1) (O/P 17-24V) (KPL):

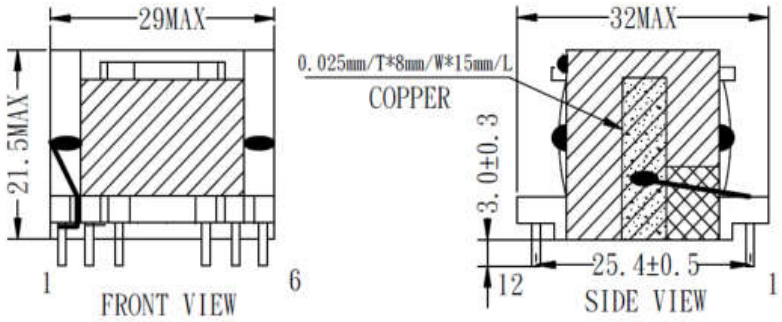
2. CONSTRUCTIONS:

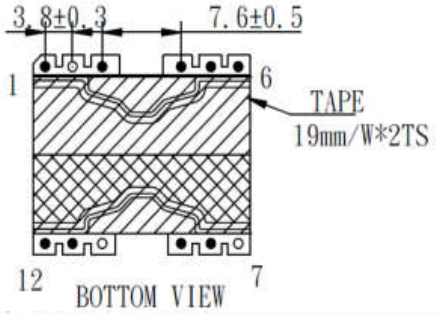


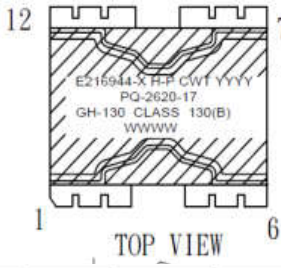
3. SCHEMATIC:



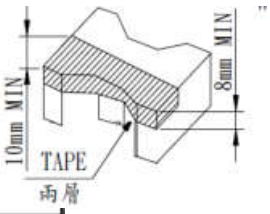
1. MECHANICAL DIMENSIONS:(UNIT :mm)





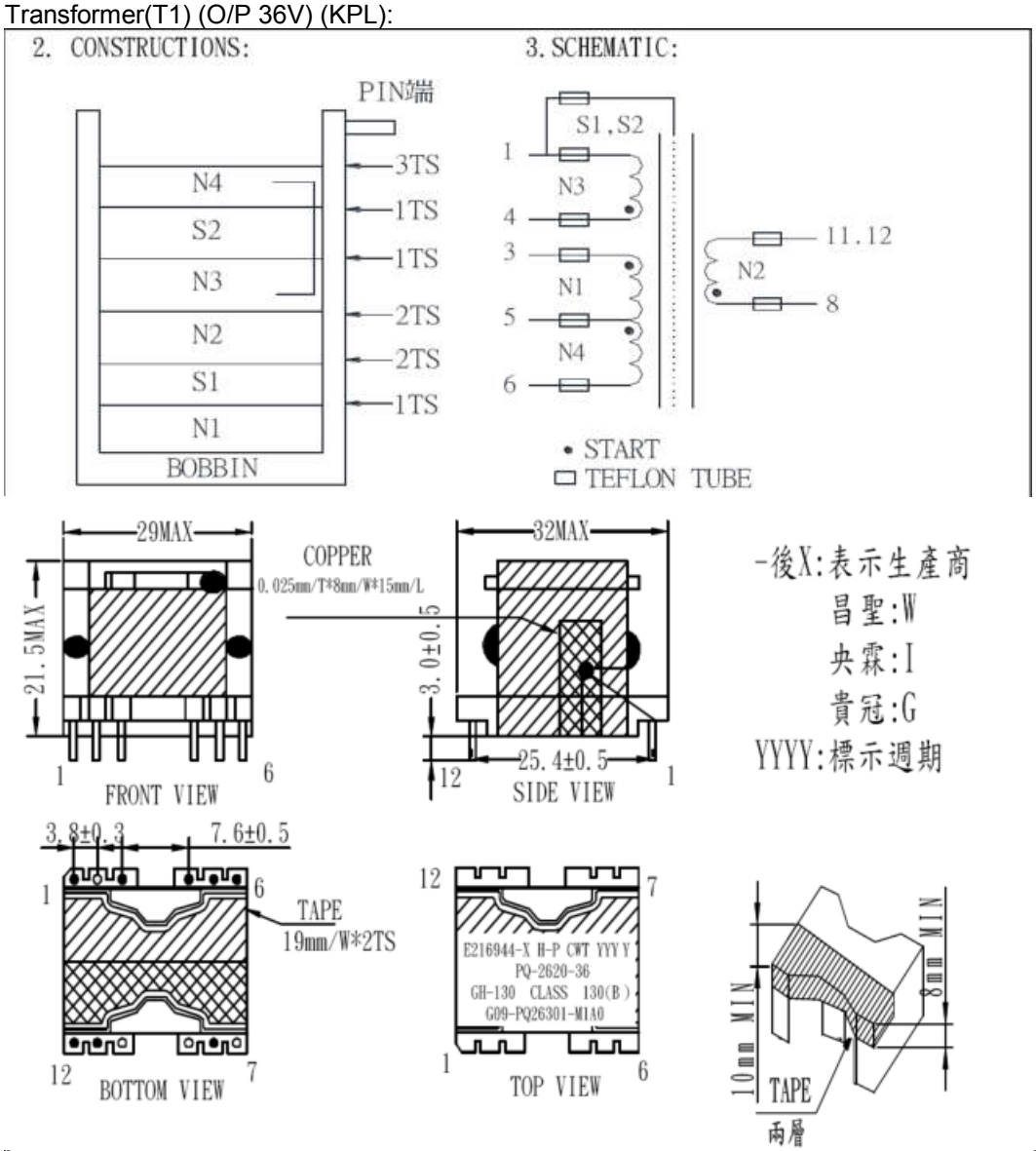


-後X:表示生產商
昌聖:W
冠碩:I
貴冠:G
YYYY:表示周期
WWWW:表示料號



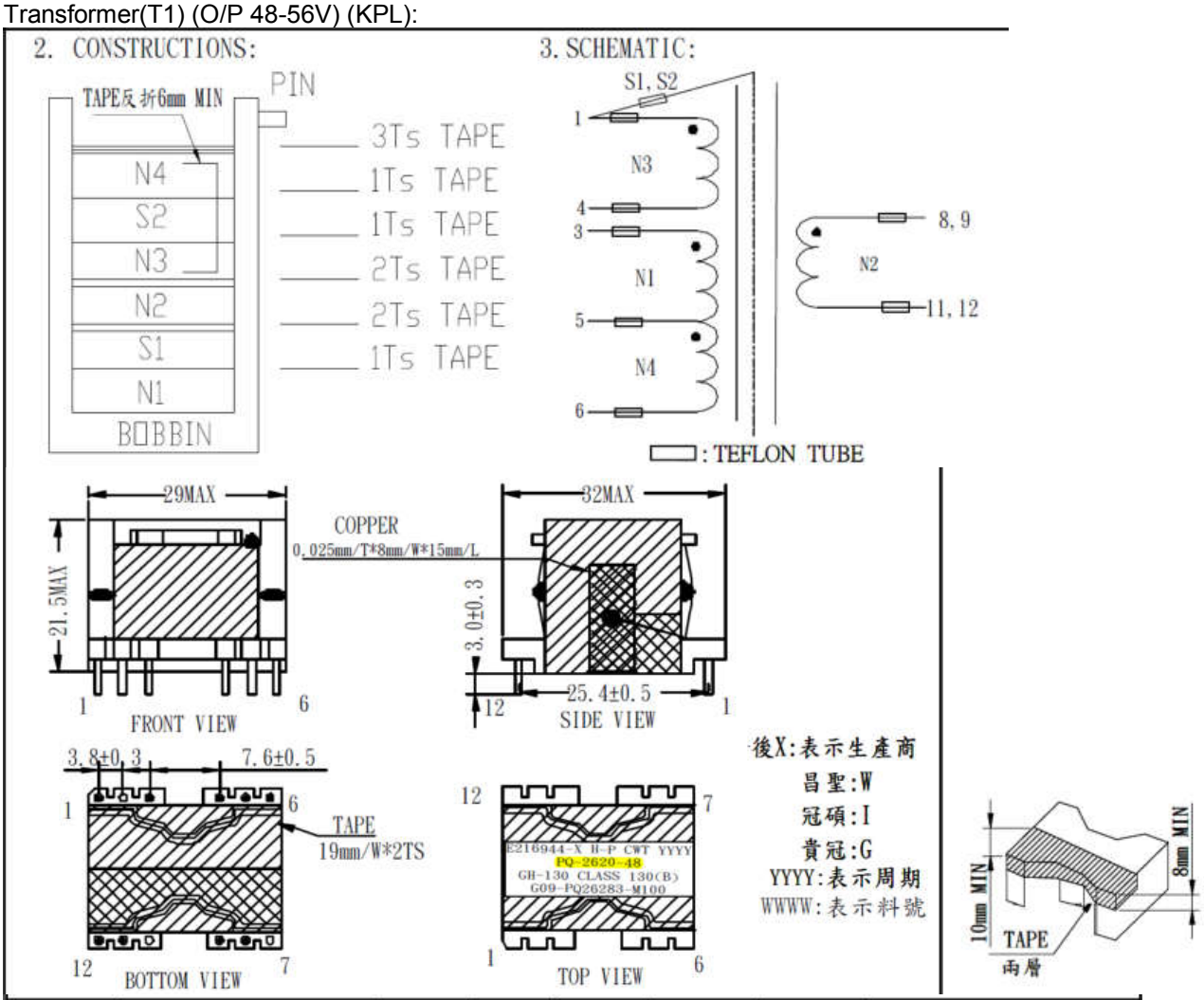
WINDING	WIRE SIZE	START	FINISH	TURNS	UL TAPE	TEFLON		NOTE
						ST	FI	
N1	2UEW Φ0.4mm*2P	3	5	20TS	1TS	V	V	
S1	0.025mm/T*8mm/W	1	-	1TS	2TS	V		
N2	TRW(B) Φ1.0mm	8,9	11,12	7TS	2TS	V	V	
N3	2UEW Φ0.16mm*2P	1	4	5TS	1TS	V	V	疏繞
S2	0.025mm/T*8mm/W	1	-	1TS	1TS	V		
N4	2UEW Φ0.4mm*2P	5	6	20TS	3TS	V	V	

Transformer(T1) (O/P 36V) (KPL):



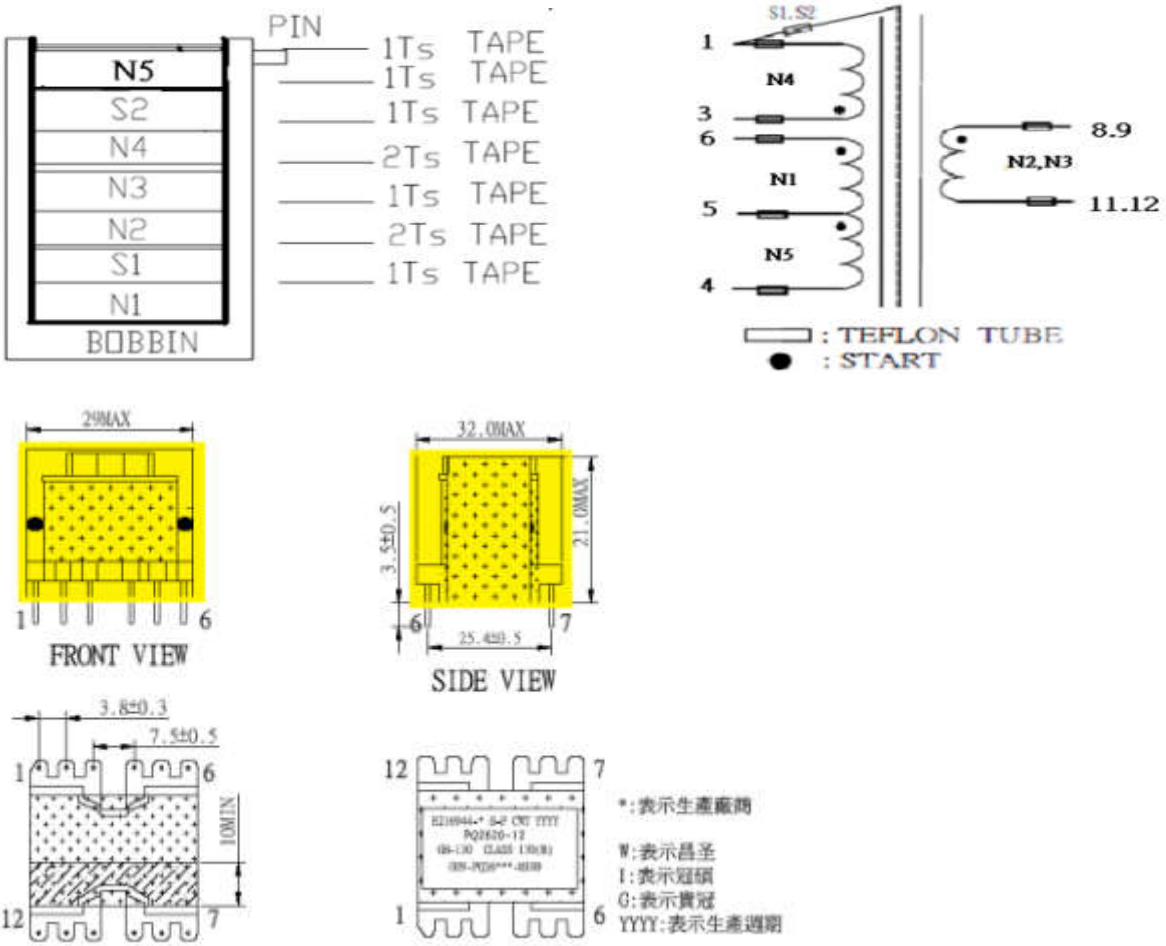
WINDING	WIRE SIZE	START	FINISH	TURNS	UL TAPE	TEFLON		NOTE
						ST	FI	
N1	2UEW Φ0.4mm*2P	3	5	20TS	1TS	V	V	密繞
S1	0.025mm/T*8mm/W	1	--	1TS	2TS	V		
N2	TRW(B) Φ0.5mm*2P	8	11.12	11TS	2TS	V	V	密繞
N3	2UEW Φ0.16mm*2P	1	4	5TS	1TS	V	V	疏繞
S2	0.025mm/T*8mm/W	1	--	1TS	1TS	V		
N4	2UEW Φ0.4mm*2P	5	6	20TS	3TS	V	V	密繞

Transformer(T1) (O/P 48-56V) (KPL):



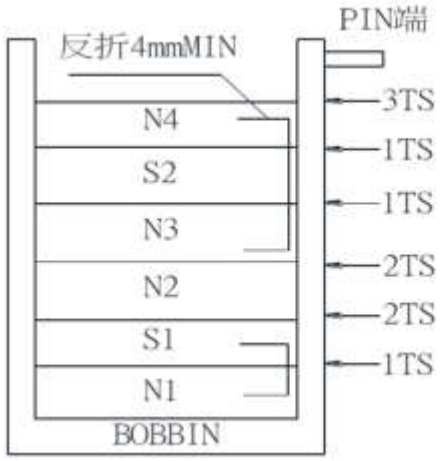
WINDING	WIRE SIZE	START	FINISH	TURNS	UL TAPE	TEFLON		NOTE
						ST	FI	
N1	2UEW Φ0.4mm*2P	3	5	20TS	1TS	V	V	
S1	0.025mm/T*8mm/W	1	-	1TS	2TS	V		
N2	TRW(B) Φ0.4mm*2P	8,9	11,12	14TS	2TS	V	V	
N3	2UEW Φ0.16mm*2P	1	4	5TS	1TS	V	V	疏繞
S2	0.025mm/T*8mm/W	1	-	1TS	1TS	V		
N4	2UEW Φ0.4mm*2P	5	6	20TS	3TS	V	V	

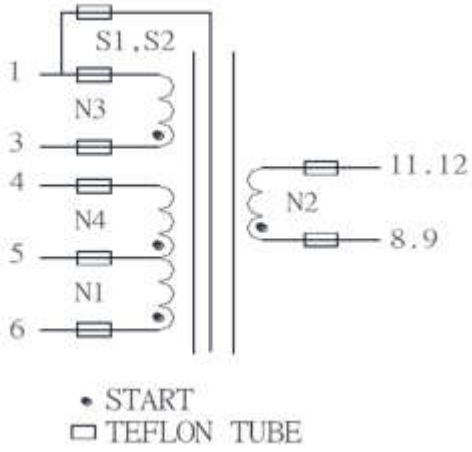
Transformer(T1) (PQ2620-12 for 2ABFxxxYzzzzz, Y=F T1 used):

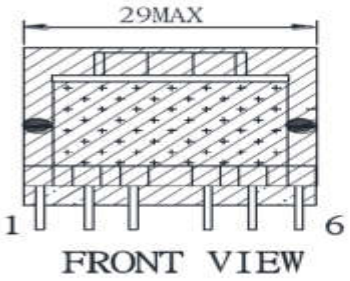


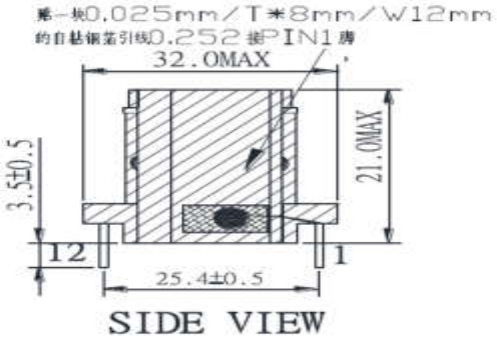
WINDING	WIRE SIZE	START	FINISH	TURNS	UL TAPE	MARGIN TAPE		SLEEVING	NOTE
						PIN	TOP		
N1	Φ0.3mm*2 2UEW	6	5	26TS	1TS	X	X	TFL	/
S1	0.025mm/T*8mm/W	1	/	1TS	2TS	X	X	TFL	引線為 φ0.25
N2	TRW(B) φ0.6mm*2	8.9	11.12	5TS	1TS	X	X	TFL	待 N5 繞完後，反折至 PIN 11，12 腳，線包再包覆兩圈 TYPE
N3	TRW(B) φ0.6mm*2	8.9	11.12	5TS	2TS	X	X	TFL	
N4	Φ0.25mm*2 2UEW	3	1	7TS	1TS	X	X	TFL	靠近 Pin 1 密繞
S2	0.025mmT*8mm/W	1	/	1TS	1TS	X	X	TFL	引線為 Ø0.25
N5	Φ0.3mm*2 2UEW	5	4	12TS	1TS	X	X	TFL	/

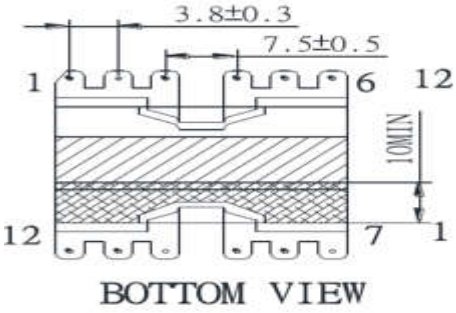
Transformer(T1) (PQ2620-48 for 2ACLxxxYzzzzz, Y= R, S, U T1 used and 2ABFxxxYzzzzz, Y=R T1 used):

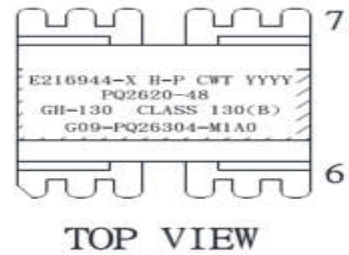




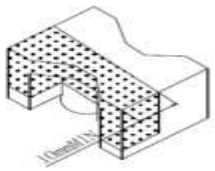








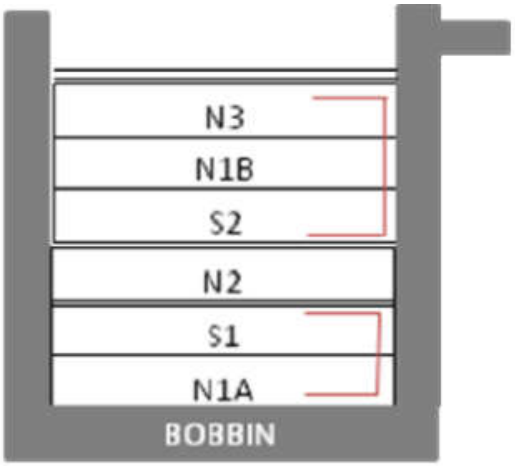
-後*:表示生產商
昌聖:W
央霖:I
貴冠:G
YYYY:標示週期



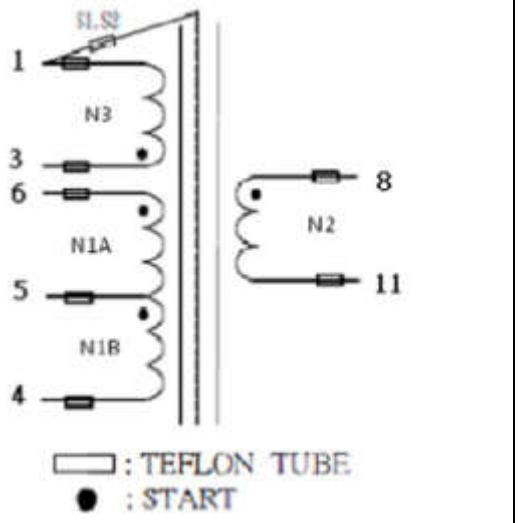
磁芯膏膠示意圖

WINDING	WIRE SIZE	START	FINISH	TURNS	UL TAPE	TEFLON		NOTE
						ST	FI	
N1	2UEW Φ0.3mm*2P	6	5	26TS	1TS	V	V	密繞
S1	0.025mm/T*8mm/W	1	--	0.9TS	2TS	V		
N2	TRW(B) Φ0.5mm	8.9	11.12	12TS	2TS	V	V	密繞
N3	2UEW Φ0.25mm*2P	3	1	5TS	1TS	V	V	靠PIN端密繞
S2	0.025mm/T*8mm/W	1	--	0.9TS	1TS	V		
N4	2UEW Φ0.3mm*2P	5	4	12TS	3TS	V	V	密繞

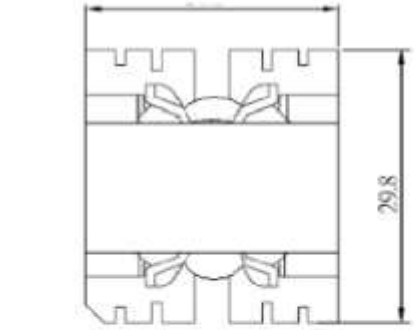
Transformer(T1) (PQ2620-19 for 2ACLxxxYzzzzz, y=K, M T1 used):

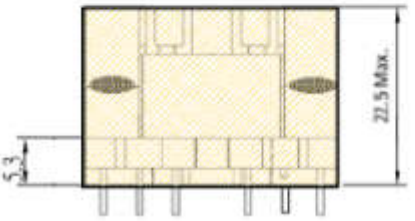


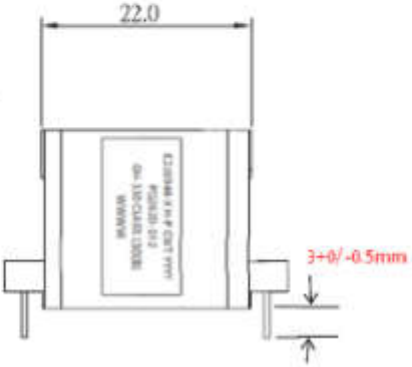
TAPE 3TS
TAPE 1TS
TAPE 1TS
TAPE 2TS
TAPE 2TS
TAPE 1TS



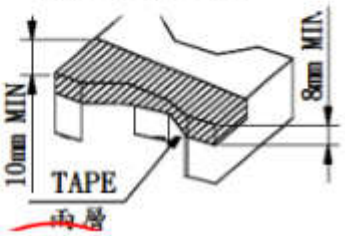
E216944-X H-P CWT YYYY
PQ2620-19 Z
GH-130 CLASS 130(B)
WWWW





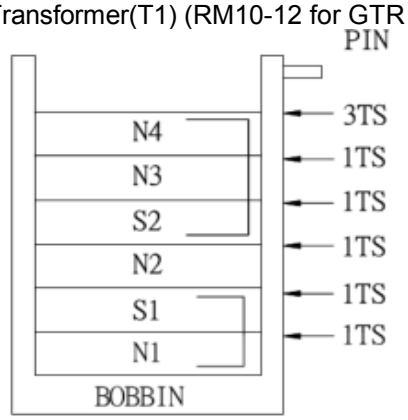


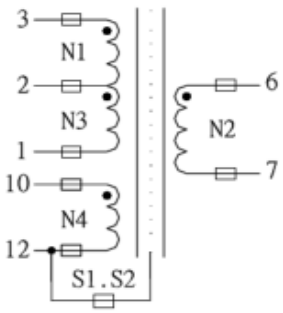
X=生產地(W/D/T)
YYYY=生產週期
Z=A~Z or BLANK
WWWW=PART NO.



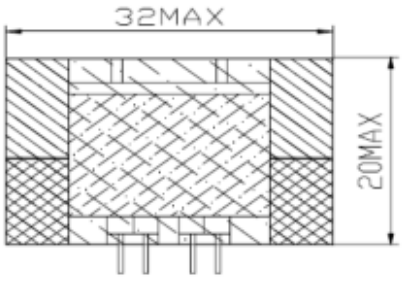
WINDING	WIRE SIZE	START	FINISH	TURNS	UL TAPE	MARGIN TAPE		SLEEVING	NOTE
						PIN	TOP		
N1A	Φ0.32mm*2 2UEW	6	5	23TS	1TS	X	X	TFL	/
S1	Φ0.14mm*2 2UEW	1	/	23TS	2TS	X	X	TFL	圈數為參考值，以鋪平為主
N2	TRW(B) φ0.85mm*1	8	11	7TS	2TS	X	X	TFL	頂部出線，待N3繞完後再折回
S2	Φ0.14mm*2 2UEW	1	/	21TS	1TS	X	X	TFL	圈數為參考值，以鋪平為主
N1B	Φ0.32mm*2 2UEW	5	4	22TS	1TS	X	X	TFL	/
N3	Φ0.25mm*2 2UEW	3	1	6TS	3TS	X	X	TFL	靠近Pin 1密繞

Transformer(T1) (RM10-12 for GTR T1 used):

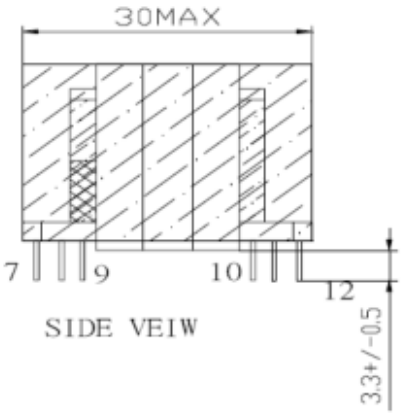




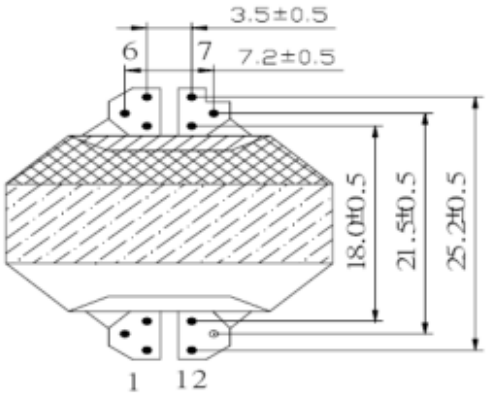
• START
TFLON TUBE



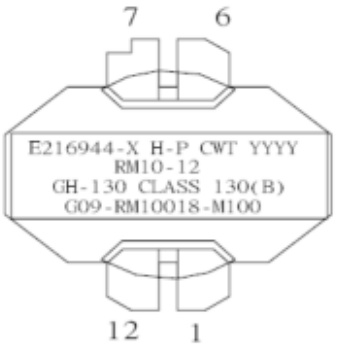
FRONT VEIW



SIDE VEIW



BOTTOM VEIW



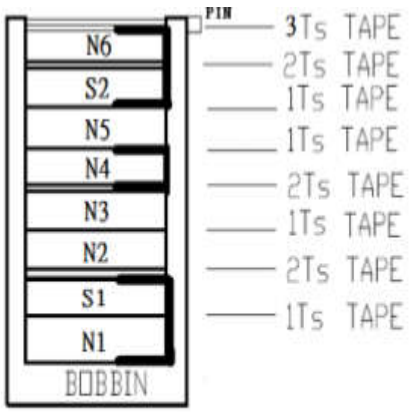
TOP VEIW

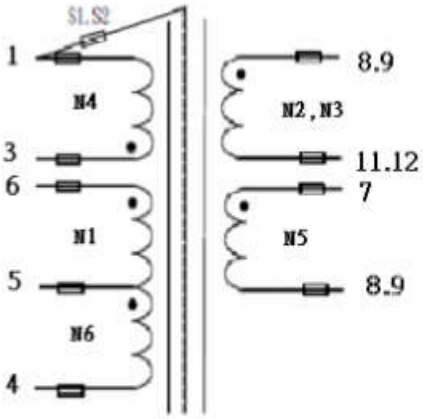
"-X":表示生產廠商
W:表示昌圣
I:表示央霖
G:表示貴冠

"YYYY"表示生產週期

WINDING	WIRE SIZE	START	FINISH	TURNS	UL TAPE	TEFLON		NOTE
						ST	FI	
N1	Φ0.3mm*2P 2UEW	3	2	30Ts	1TS	V	V	密繞
S1	0.025mmT*8mmW	12	/	0.9TS	1TS	V		
N2	Φ0.85mm TRW(B)	6	7	9Ts	1TS	V	V	密繞
S2	0.025mmT*8mmW	12	/	0.9TS	1TS	V		
N3	Φ0.3mm*2P 2UEW	2	1	28Ts	1TS	V	V	密繞
N4	Φ0.2mm 2UEW	10	12	14Ts	3TS	V	V	疏繞

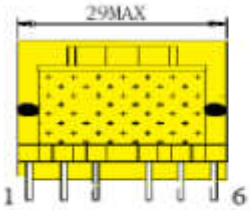
Transformer(T1) (PQ2620-05 for 2ACL Y=B T1 used):



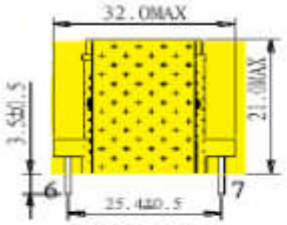


: TEFLON TUBE
● : START

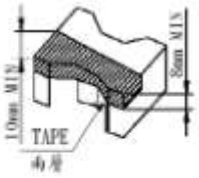
*初級圈數 N1/S1 與 N4/S2/N6 絕緣膠帶需要反折,如附圖

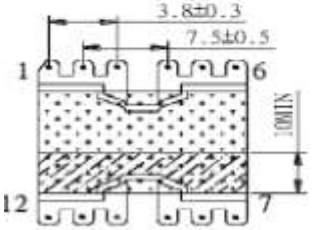


FRONT VIEW

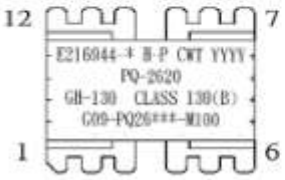


SIDE VIEW





BOTTOM VIEW



TOP VIEW

*:表示生產廠商

YYYY:表示生產週期

WINDING	WIRE SIZE	START	FINISH	TURNS	UL TAPE	MARGIN TAPE		SLEEVING	NOTE
						PIN	TOP		
N1	Φ0.25mm*2 2UEW	6	5	32TS	1TS	X	X	TFL	/
S1	Φ0.14mm*2 2UEW	1	/	26TS	2TS	X	X	TFL	引線為 φ0.14
N2	TRW(B) φ0.6mm*2	8.9	11.12	5TS	1TS	X	X	TFL	待 N6 繞完後,反折至 PIN 11 .12 腳,線包再包覆兩圈 TYPE
N3	TRW(B) φ0.6mm*2	8.9	11.12	5TS	2TS	X	X	TFL	
N4	Φ0.22mm*2 2UEW	3	1	16TS	1TS	X	X	TFL	靠近 Pin 1 密繞
N5	TRW(B) φ0.3mm	7	8.9	9TS	1TS	X	X	TFL	由上而下繞製, 待 N6 繞完後,反折至 PIN 7 腳,線包再包覆兩圈 TYPE
S2	Φ0.14mm*2 2UEW	1	/	23TS	2TS	X	X	TFL	引線為 Ø0.14
N6	Φ0.25mm*2 2UEW	5	4	16TS	3TS	X	X	TFL	/