



全漢企業股份有限公司

安規證書

料號 :
Model Name FSP300-50UDB,FSP400-50UDB,FSP500-50UDB,FSP300-50WDB,FSP400-50WDB,FSP500-50WDB,FSP420-50UDB,FSP420-50WDB
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作者 : chow/周懿慧(FSP)
SFA NO. : SFA24041154
Trade mark : FSP
安規種類 : CB 62368 3rd
發行日期 : 2024/05/13 14:13:24
備註 : CB 62368 3rd for FSP300-50UDB series 更正SFA



Test Report issued under the responsibility of:

**TEST REPORT****IEC 62368-1****Audio/video, information and communication technology equipment
Part 1: Safety requirements****Report Number.** : CN23I9JQ 002**Date of issue** : May 08, 2024**Total number of pages** : 8**Name of Testing Laboratory
preparing the Report** : TÜV Rheinland Taiwan Ltd., Taoyuan Testing Laboratories
4F-1, No. 38, Huaya 1st Road, Guishan District, Taoyuan City
333, Taiwan**Applicant's name** : FSP Group Inc.**Address** : No. 22, Jianguo E. Road, Taoyuan 330 Taiwan**Test specification:****Standard** : IEC 62368-1: 2018**Test procedure**..... : CB Scheme**Non-standard test method**..... : N/A**TRF template used** : IECEE OD-2020-F1:2021, Ed.1.4**Test Report Form No.**..... : IEC62368_1E**Test Report Form(s) Originator**.... : UL(US)**Master TRF** : Dated 2022-04-14**Copyright © 2022 IEC System of Conformity Assessment Schemes for Electrotechnical Equipment and Components (IECEE System). All rights reserved.**

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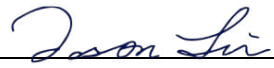
If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.

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

General disclaimer:

The test results presented in this report relate only to the object tested.

This report shall not be reproduced, except in full, without the written approval of the Issuing CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Test item description	Switching Power Supply	
Trade Mark		
Manufacturer	Same as Applicant	
Model/Type reference.....	FSP300-50UDB, FSP300-50WDB, FSP400-50UDB, FSP400-50WDB, FSP420-50UDB , FSP420-50WDB , FSP500-50UDB, FSP500-50WDB	
Ratings.....	See General product information for details.	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
☒	CB Testing Laboratory:	TUV Rheinland Taiwan Ltd., Taoyuan Testing Laboratories 4F-1, No. 38, Huaya 1st Road, Guishan District, Taoyuan City 333, Taiwan
Testing location/ address		CTF stage 1 procedure used. For address of testing location see "Testing procedure: CTF Stage 1" below
Tested by (name, function, signature)		
Approved by (name, function, signature) ..		
☒	Testing procedure: CTF Stage 1:	
Testing location/ address		FSP Group Inc. No. 22, Jianguo E. Road, Taoyuan 330 Taiwan
Tested by (name, function, signatue).....		Jason Liu / Project handler 
pproved by (name, function, signature).....		Jerry Yang / Reviewer 
☐	Testing procedure: CTF Stage 2:	
Testing location/ address		
Tested by (name + signature).....		
Witnessed by (name, function, signature) .:		
Approved by (name, function, signature) ..:		
☐	Testing procedure: CTF Stage 3:	
☐	Testing procedure: CTF Stage 4:	
Testing location/ address		
Tested by (name, function, signature)		
Witnessed by (name, function, signature) .:		
Approved by (name, function, signature) ..:		
Supervised by (name, function, signature) :		

List of Attachments (including a total number of pages in each attachment): - N/A	
Summary of testing:	
Tests performed (name of test and test clause): • N/A	Testing location: • N/A
Summary of compliance with National Differences (List of countries addressed): EU Group Differences, EU Special National Conditions, US, CA, SA. Explanation of used codes: US=United States of America, CA=Canada, SA = Saudi Arabia ☒ The product fulfils the requirements of EN IEC 62368-1:2020 + A11: 2020 ☒ The product fulfils the requirements of BS EN IEC 62368-1:2020 + A11:2020 For National Differences see corresponding Attachment.	

Use of uncertainty of measurement for decisions on conformity (decision rule) : ☒ No decision rule is specified by the IEC standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty ("simple acceptance" decision rule, previously known as "accuracy method"). ☐ Other:... (to be specified, for example when required by the standard or client, or if national accreditation requirements apply) Information on uncertainty of measurement: The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE. IEC Guide 115 provides guidance on the application of measurement uncertainty principles and applying the decision rule when reporting test results within IECEE scheme, noting that the reporting of the measurement uncertainty for measurements is not necessary unless required by the test standard or customer. Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.
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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.



Switching Power Supply
交換式電源供應器/开关电源供应器

MODEL NO (型號/型号): FSP420-50WDB					
AC INPUT 交流輸入/交流輸入	100-240V~,6-3A,60-50Hz				
DC OUTPUT --- 直流輸出/直流輸出	+3.3V	+5V	+12V	+5Vsb	-12V
	12.0A	14.0A	35.0A	3.0A	0.3A
Max Wattage 最大輸出功率/最大輸出功率	90W Max				
Total output continuous shall not exceed 總輸出不可持續超過/總輸出不可持續超過	420W				

WARNING! HAZARDOUS AREA

SAFETY INSTRUCTIONS:
DO NOT REMOVE THE COVER
NO SERVICEABLE COMPONENTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

WARNUNG! GEFAHRENZONE

SICHERHEITSHINWEISE:
VOR DEM ÖFFNEN DES GERÄTES
NETZSTECKER ZIEHEN,
KEINE SERVICE RELEVANTEN BAUTEILE
ENTHALTEN.
SERVICEARBEITEN SOLLTEN NUR VON
AUTORISIERTEM
FACHPERSONAL DURCHGEFÜHRT WERDEN.

警告! 請勿打開盒蓋, 內有危險高壓,
請退回代理商維修。

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請退回代理商維修。

Attentions :
Pour les équipements de traitement de l'information



製造商: 全漢企業股份有限公司
MADE IN CHINA 中國製造/中國製造

BALL BEARING FAN / ErP 5Vsb <0.5W Input / Active PFC / RoHS

6LL2417701GP



Switching Power Supply
交換式電源供應器/开关电源供应器

MODEL NO (型號/型号): FSP420-50UDB					
AC INPUT 交流輸入/交流輸入	100-240V~,6-3A,60-50Hz				
DC OUTPUT --- 直流輸出/直流輸出	+3.3V	+5V	+12V	+5Vsb	-12V
	12.0A	14.0A	35.0A	3.0A	0.3A
Max Wattage 最大輸出功率/最大輸出功率	90W Max				
Total output continuous shall not exceed 總輸出不可持續超過/總輸出不可持續超過	420W				

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FACHPERSONAL DURCHGEFÜHRT WERDEN.

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警告! 請勿打開盒蓋, 內有危險高壓,
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Attentions :
Pour les équipements de traitement de l'information



製造商: 全漢企業股份有限公司
MADE IN CHINA 中國製造/中國製造

BALL BEARING FAN / ErP 5Vsb <0.5W Input / Active PFC / RoHS

6LL2416501GP

Test item particulars:	
Product group	☐ end product ☒ built-in component
Classification of use by	☒ Ordinary person ☐ Children likely present ☐ Instructed person ☐ Skilled person
Supply connection	☒ AC mains ☐ DC mains ☐ not mains connected: ☐ ES1 ☐ ES2 ☐ ES3
Supply tolerance	☒ +10%/-10% ☐ +20%/-15% ☐ + %/ - % ☐ None
Supply connection – type	☒ pluggable equipment type A - ☐ non-detachable supply cord ☒ appliance coupler ☐ direct plug-in ☐ pluggable equipment type B - ☐ non-detachable supply cord ☐ appliance coupler ☐ permanent connection ☐ mating connector ☐ other:
Considered current rating of protective device	16A, 13A (GB) or 20A (US and Canada); Installation location: ☒ building; ☒ equipment : The fuse used: see table 4.1.2 for details ☐ N/A
Equipment mobility	☐ movable ☐ hand-held ☐ transportable ☐ direct plug-in ☐ stationary ☒ for building-in ☐ wall/ceiling-mounted ☐ SRME/rack-mounted ☐ other:
Overvoltage category (OVC)	☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV ☐ other:
Class of equipment	☒ Class I ☐ Class II ☐ Class III ☐ Not classified ☐
Special installation location	☒ N/A ☐ restricted access area ☐ outdoor location ☐
Pollution degree (PD)	☐ PD 1 ☒ PD 2 ☐ PD 3
Manufacturer's specified T_{ma}	+50 °C ☐ Outdoor: minimum °C
IP protection class	☒ IPX0 ☐ IP__
Power systems	☒ TN ☐ TT ☒ IT - 230 V _{L-L} ☐ not AC mains
Altitude during operation (m)	☐ 2000 m or less ☒ 5000 m
Altitude of test laboratory (m)	☒ 2000 m or less ☐ m
Mass of equipment (kg)	1.47 max.

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 : N/A Date (s) of performance of tests : N/A	
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 IEC62368-1:	
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) ShenZhen HuiLi Electronics CO., LTD Building C4(101~301)-C11, No. 352, LiuTang Rd., County 73, Bu'Xin Village, Xin'an, Bao'an, Shenzhen, Guangdong, P. R. China 2) Wuxi SPI Technology Co., Ltd. No. 96, XinmeiRoad, New District, Wuxi city, Jiangsu, P.R. China 3) Wuxi ZhongHan Technology Co., Ltd. Block 106-D, Wuxi Nation HI-TECH Industrial Development Zone, Wuxi City, Jiangsu Province, P.R. China 4) ShenZhen HuiLi Electronics CO., LTD Building C4-C11, No. 352, LiuTang Rd., County 73, Bu'Xin Village, Xin'an, Bao'an, Shenzhen, Guangdong, P.R. China 5) ShenZhen HuiLi Electronics CO., LTD Building B & G, Peace Hi-tech Industrial Zone, Peace Village, FuHai Town, Bao'an, Shenzhen, Guangdong 518102, P.R. China 6) FSP Technology Inc. Taoyuan Plant 3 5F., No. 6, 4F., No. 6, No.6, Xinglong Rd., Taoyuan Dist., Taoyuan City, 330 Taiwan 7) ZHONGHAN SCIENCE & TECH CO. LTD Building 8 & 9, Section B, JuYuan Industrial Zone, ChiaoTang Rd., TangWei Village, FuHai Town, BaoAn District. ShenZhen City,

TRF No. IEC62368_1E

Guangdong, P.R. China

8) Zhonghan Electronics (Shenzhen) Co., Ltd.

Building 4(101) & Building 4,6,7 in Section C,
JuYuan Industrial Zone, TangWei Village, FuHai
Town, BaoAn Dist., ShenZhen City,
Guangdong, P.R. China

9) FSP TECHNOLOGY VIETNAM CO., LTD.

Factories A5-2, A5-3 and A5-4, Lot 6, Cam Dien
– Luong Dien Industrial Park, Cam Dien
Commune, Cam Giang District, Hai Duong
Province, Vietnam

General product information and other remarks:

- See previous test report for details.
- Rating details:

For FSP300-50UDB and FSP300-50WDB

AC INPUT	100-240V~, 4-2A, 60-50 Hz					
DC OUTPUT (---)	+3.3V	+5V	+12V	+5Vsb	-12V	-5V
	12.0A	14.0A	25.0A	3.0A	0.3A	0.1A
	75W					
Max. output power	300W					

For FSP400-50UDB and FSP400-50WDB

AC INPUT	100-240V~, 6-3A, 60-50Hz					
DC OUTPUT (---)	+3.3V	+5V	+12V	+5Vsb	-12V	-5V
	14.0A	16.0A	33.0A	3.0A	0.3A	0.1A
	85W					
Max. output power	400W					

For FSP420-50UDB and FSP420-50WDB

AC INPUT	100-240V~, 6-3A, 60-50Hz					
DC OUTPUT (---)	+3.3V	+5V	+12V	+5Vsb	-12V	-5V
	12.0A	14.0A	35.0A	3.0A	0.3A	0.1A
	90W					
Max. output power	420W					

For FSP500-50UDB and FSP500-50WDB

AC INPUT	100-240V~, 7-3.5A, 60-50Hz					
DC OUTPUT (---)	+3.3V	+5V	+12V	+5Vsb	-12V	-5V
	14.0A	16.0A	41.0A	3.0A	0.3A	0.1A
	90W					
Max. output power	500W					

<u>Description of change(s):</u> 1. Add new models: FSP420-50UDB, FSP420-50WDB . FSP420-50UDB and FSP420-50WDB are identical to previous tested models FSP500-50UDB and FSP500-50WDB except for decreased input current rating and output de-rating to 420W. 2. Re-list factory.		
For the above described change(s) the following was considered to be necessary:		
Change	Testing	Comments
1.	N/A	- See Copy of marking plate for labels. - The measured input current of 500W models are lower than 420W rated input current; therefore no further test is necessary. See previous report CN23I9JQ 001 for 500W input test result. - No further evaluation required nor changes on the clauses verdict.
2.	N/A	- See Name and address of factory (ies) for details.
The report is not valid without the original CB test report. <u>History of amendments and modifications:</u> Ref. No. CN23I9JQ 001, dated May 25, 2023 (original test report) Ref. No. CN23I9JQ 002, dated May 08, 2024 (amendment)		



Test Report issued under the responsibility of:



TEST REPORT IEC 62368-1 Audio/video, information and communication technology equipment Part 1: Safety requirements	
Report Number.....	CN2319JQ 001
Date of issue.....	2023-05-25
Total number of pages.....	199
Name of Testing Laboratory preparing the Report	TÜV Rheinland Taiwan Ltd., Taoyuan Testing Laboratories 4F-1, No. 38, Huaya 1st Road, Guishan District, Taoyuan City 333, Taiwan, Chinese Taipei
Applicant's name	FSP Group Inc.
Address.....	No. 22, Jianguo E. Road, Taoyuan 330 Taiwan
Test specification:	
Standard.....	IEC 62368-1: 2018
Test procedure.....	CB Scheme
Non-standard test method	N/A
TRF template used	IECEE OD-2020-F1:2021, Ed.1.4
Test Report Form No.....	IEC62368_1E
Test Report Form(s) Originator ...	UL(US)
Master TRF	Dated 2022-04-14
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General disclaimer:	
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Test item description..... :	Switching Power Supply	
Trade Mark(s)	 (trademark of FSP Group Inc.)	
Manufacturer	Same as applicant	
Model/Type reference	FSP300-50UDB, FSP300-50WDB, FSP400-50UDB, FSP400-50WDB, FSP500-50UDB and FSP500-50WDB	
Ratings..... :	See General product information and other remarks table for details.	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
☐	CB Testing Laboratory:	TÜV Rheinland Taiwan Ltd., Taoyuan Testing Laboratories
Testing location/ address		CTF stage 1 procedure used. For address of testing location see "Testing procedure: CTF Stage 1" below
Tested by (name, function, signature)		
Approved by (name, function, signature) . :		
☒	Testing procedure: CTF Stage 1:	See below.
Testing location/ address		FSP Group Inc. No. 22, Jianguo E. Road, Taoyuan 330 Taiwan
Tested by (name, function, signature)		Sean Hsueh Project Handler 
Approved by (name, function, signature) . :		Jason Liu Reviewer 
☐	Testing procedure: CTF Stage 2:	
Testing location/ address		
Tested by (name, function, signature)		
Witnessed by (name, function, signature) :		
Approved by (name, function, signature) . :		
☐	Testing procedure: CTF Stage 3:	
☐	Testing procedure: CTF Stage 4:	
Testing location/ address		
Tested by (name, function, signature)		
Witnessed by (name, function, signature) :		
Approved by (name, function, signature) . :		
Supervised by (name, function, signature):		

TRF No. IEC62368_1E

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

- National Differences (39 pages)
- Other National requirements (34 pages)
- Photo Documentation (27 pages)
- Attachment (included Transformer specifications)

Total number of pages in each attachment is indicated in each individual attachment; except for Attachment is combining with this main test report.

Summary of testing:

This CB standard updated test report is based on the previous IEC 62368-1:2014 (Second Edition) test report issued by NCB TÜV Rheinland Japan, details as below:

Test report number	CB certificate number	Testing procedure	Date of receipt of test item	Date (s) of performance of tests
50307202 001	JPTUV-106476	CTF Stage 1, issued by TÜV Rheinland Japan	2019-10-17	2019-12-06 to 2020-01-14
50307202 002	JPTUV-106476-A1	CTF Stage 1, issued by TÜV Rheinland Japan	N/A	N/A

No technical changes have been found by construction review at the provided sample and/or other administrative modifications except for:

- Update the information list of factories per applicant's request.
- Rearrange appended table 4.1.2 for component approval information and transformer factories information update.
- Correction of typo in previous IEC 62368-1:2014 (Second Edition) test report.

Following additional tests and evaluations per the requirements of the new standard and/or considered necessary were conducted in this report:

- Check and update certificate validity of critical components (Cl. 4.1.2),
- Classification of electrical energy sources measurement (appended table 5.2)
- Solid insulation at frequencies >30 kHz (5.4.4.9)
- Unearthed accessible parts measurement (appended table 5.7.4)
- Power source circuit classifications measurement (appended table 6.2.2)
- : Input test (B.2.5)

Except stated above, all test data are derived from original CB test report.

Tests performed (name of test and test clause):

All applicable tests as described in Test Case and Measurement Sections were performed.

- Specified maximum ambient temperature is 50°C.

Testing location:

All tests as described in Test Case and Measurement Sections were performed at the laboratory described on page 2.

• The correction factors of clearance is 1.48 for altitude 5000 m. • Highest load for this equipment is the operation with the max. specified DC-load. See General product information for details. • All sources of fuse, which mentioned in appended table 4.2.1 are used during fault condition test which all came out with same results. • The all tests have been done in the components side upward position. • This switching power supply provided with one or two internal DC fan. For details see model different table in General product information and appended table 4.1.2 • Unless otherwise specified, all tests were performed with models FSP300-50WDB, FSP400-50WDB and FSP500-50WDB to represent the other similar models. • TMP/CTF Stage 1 laboratory includes all clauses for testing of the IEC 62368-1:2014 (Second Edition). • The test samples are pre-production without serial numbers. • The decision rule of conformity of this test report is following the requirements of the requested standard in this test report, and agreed among testing laboratory and manufacturer (applicant) to exclude the consideration of Measurement Uncertainty.	
Summary of compliance with National Differences (List of countries addressed): EU Group Differences, EU Special National Conditions, US, CA, SG, SA. Explanation of used codes: US=United States of America, CA=Canada, SG = Singapore, SA = Saudi Arabia ☒ The product fulfils the requirements of EN IEC 62368-1:2020 + A11: 2020 ☒ The product fulfils the requirements of BS EN IEC 62368-1:2020 + A11:2020 For National Differences see corresponding Attachment.	
Use of uncertainty of measurement for decisions on conformity (decision rule) : ☒ No decision rule is specified by the IEC standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty ("simple acceptance" decision rule, previously known as "accuracy method"). ☐ Other: ... (to be specified, for example when required by the standard or client, or if national accreditation requirements apply) Information on uncertainty of measurement:	

TRF No. IEC62368_1E

The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE.

IEC Guide 115 provides guidance on the application of measurement uncertainty principles and applying the decision rule when reporting test results within IECEE scheme, noting that the reporting of the measurement uncertainty for measurements is not necessary unless required by the test standard or customer.

Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.

TRF No. IEC62368_1E

Copy of marking plate:

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		Switching Power Supply 交換式電源供應器/开关电源供应器				
MODEL NO (型號/型号): FSP500-50UDB						
AC INPUT 交流輸入/交流輸入	100-240V~, 7-3.5A, 60-50Hz					
DC OUTPUT 直流輸出/直流輸出	+3.3V	+5V	+12V	+5Vsb	-12V	-5V
	14.0A	16.0A	41.0A	3.0A	0.3A	0.1A
Max Wattage 最大輸出功率/最大輸出功率	90W Max					
Total output continuous shall not exceed 總輸出不可持續超過/總輸出不可持續超過				500W		
WARNING! HAZARDOUS AREA SAFETY INSTRUCTIONS: DO NOT REMOVE THE COVER NO SERVICEABLE COMPONENTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL. WARNUNG! GEFÄHRENZONE SICHERHEITSHINWEISE: VOR DEM ÖFFNEN DES GERÄTES NETZSTECKER ZIEHEN. KEINE SERVICEERELEVANTEN BAUTEILE ENTHALTEN. SERVICEARBEITEN SOLLTEN NUR VON AUTORISIERTEM FACHPERSONAL DURCHFÜHRT WERDEN. 警告! 請勿打開盒蓋, 內有危險高壓。 請退回代理商維修。 警告! 請勿打開盒蓋, 內有危險高壓。 請退回代理商維修。						
ATTENTIONS : Pour les équipements de traitement de l'information						
   						
製造商: 全漢企業股份有限公司 MADE IN CHINA 中國製造/中國製造						
BALL BEARING FAN / ErP 5Vsb <0.5W Input / Active PFC / RoHS						
6LL2038701GP						

		Switching Power Supply 交換式電源供應器/开关电源供应器				
MODEL NO (型號/型号): FSP500-50WDB						
AC INPUT 交流輸入/交流輸入	100-240V~, 7-3.5A, 60-50Hz					
DC OUTPUT 直流輸出/直流輸出	+3.3V	+5V	+12V	+5Vsb	-12V	-5V
	14.0A	16.0A	41.0A	3.0A	0.3A	0.1A
Max Wattage 最大輸出功率/最大輸出功率	90W Max					
Total output continuous shall not exceed 總輸出不可持續超過/總輸出不可持續超過				500W		
WARNING! HAZARDOUS AREA SAFETY INSTRUCTIONS: DO NOT REMOVE THE COVER NO SERVICEABLE COMPONENTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL. WARNUNG! GEFÄHRENZONE SICHERHEITSHINWEISE: VOR DEM ÖFFNEN DES GERÄTES NETZSTECKER ZIEHEN. KEINE SERVICEERELEVANTEN BAUTEILE ENTHALTEN. SERVICEARBEITEN SOLLTEN NUR VON AUTORISIERTEM FACHPERSONAL DURCHFÜHRT WERDEN. 警告! 請勿打開盒蓋, 內有危險高壓。 請退回代理商維修。 警告! 請勿打開盒蓋, 內有危險高壓。 請退回代理商維修。						
ATTENTIONS : Pour les équipements de traitement de l'information						
   						
製造商: 全漢企業股份有限公司 MADE IN CHINA 中國製造/中國製造						
BALL BEARING FAN / ErP 5Vsb <0.5W Input / Active PFC / RoHS						
6LL2039001GP						

TRF No. IEC62368_1E

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.

		Switching Power Supply 交換式電源供應器/开关电源供应器				
MODEL NO (型號/型号): FSP300-50UDB						
AC INPUT 交流輸入/交流輸入	100-240V~, 4-2A, 60-50Hz					
DC OUTPUT --- 直流輸出/直流輸出	+3.3V	+5V	+12V	+5Vsb	-12V	-5V
	12.0A	14.0A	25.0A	3.0A	0.3A	0.1A
Max Wattage 最大輸出功率/最大輸出功率	75W Max					
Total output continuous shall not exceed 總輸出不可持續超過/總輸出不可持續超過				300W		
WARNING! HAZARDOUS AREA SAFETY INSTRUCTIONS: DO NOT REMOVE THE COVER NO SERVICEABLE COMPONENTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL. WARNUNG! GEFAHRENZONE SICHERHEITSHINWEISE: VOR DEM ÖFFNEN DES GERÄTES NETZSTECKER ZIEHEN. KEINE SERVICEERELEVANTEN BAUTEILE ENTHALTEN. SERVICEARBEITEN SOLLTEN NUR VON AUTORISIERTEM FACHPERSONAL DURCHFÜHRT WERDEN. 警告! 請勿打開盒蓋, 內有危險高壓。 請退回代理商維修。 警告! 請勿打開盒蓋, 內有危險高壓。 請退回代理商維修。						
BALL BEARING FAN / ErP 5Vsb < 0.5W Input / Active PFC / RoHS						
6LL2038901GP						

		Switching Power Supply 交換式電源供應器/开关电源供应器				
MODEL NO (型號/型号): FSP300-50WDB						
AC INPUT 交流輸入/交流輸入	100-240V~, 4-2A, 60-50Hz					
DC OUTPUT --- 直流輸出/直流輸出	+3.3V	+5V	+12V	+5Vsb	-12V	-5V
	12.0A	14.0A	25.0A	3.0A	0.3A	0.1A
Max Wattage 最大輸出功率/最大輸出功率	75W Max					
Total output continuous shall not exceed 總輸出不可持續超過/總輸出不可持續超過				300W		
WARNING! HAZARDOUS AREA SAFETY INSTRUCTIONS: DO NOT REMOVE THE COVER NO SERVICEABLE COMPONENTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL. WARNUNG! GEFAHRENZONE SICHERHEITSHINWEISE: VOR DEM ÖFFNEN DES GERÄTES NETZSTECKER ZIEHEN. KEINE SERVICEERELEVANTEN BAUTEILE ENTHALTEN. SERVICEARBEITEN SOLLTEN NUR VON AUTORISIERTEM FACHPERSONAL DURCHFÜHRT WERDEN. 警告! 請勿打開盒蓋, 內有危險高壓。 請退回代理商維修。 警告! 請勿打開盒蓋, 內有危險高壓。 請退回代理商維修。						
BALL BEARING FAN / ErP 5Vsb < 0.5W Input / Active PFC / RoHS						
6LL2038601GP						

TRF No. IEC62368_1E

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.

		Switching Power Supply 交換式電源供應器/开关电源供应器				
MODEL NO (型號/型号): FSP400-50UDB						
AC INPUT 交流輸入/交流輸入	100-240V~, 6-3A, 60-50Hz					
DC OUTPUT --- 直流輸出/直流輸出	+3.3V	+5V	+12V	+5Vsb	-12V	-5V
	14.0A	16.0A	33.0A	3.0A	0.3A	0.1A
Max Wattage 最大輸出功率/最大輸出功率	85W Max					
Total output continuous shall not exceed 總輸出不可持續超過/總輸出不可持續超過		400W				
WARNING! HAZARDOUS AREA SAFETY INSTRUCTIONS: DO NOT REMOVE THE COVER NO SERVICEABLE COMPONENTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL. WARNING! GEFAHRENZONE SICHERHEITSHINWEISE: VOR DEM ÖFFNEN DES GERÄTES NETZSTECKER ZIEHEN. KEINE SERVICEERELEVANTEN BAUTEILE ENTHALTEN. SERVICEARBEITEN SOLLTEN NUR VON AUTORISIERTEM FACHPERSONAL DURCHGEFÜHRT WERDEN. 警告! 請勿打開盒蓋, 內有危險高壓, 請退回代理商維修。 警告! 請勿打開盒蓋, 內有危險高壓, 請退回代理商維修。						
ATTENTIONS : Pour les équipements de traitement de l'information						
    製造商: 全漢企業股份有限公司 MADE IN CHINA 中國製造/中國製造						
BALL BEARING FAN / ErP 5Vsb < 0.5W Input / Active PFC / RoHS						
6LL2038801GP						

		Switching Power Supply 交換式電源供應器/开关电源供应器				
MODEL NO (型號/型号): FSP400-50WDB						
AC INPUT 交流輸入/交流輸入	100-240V~, 6-3A, 60-50Hz					
DC OUTPUT --- 直流輸出/直流輸出	+3.3V	+5V	+12V	+5Vsb	-12V	-5V
	14.0A	16.0A	33.0A	3.0A	0.3A	0.1A
Max Wattage 最大輸出功率/最大輸出功率	85W Max					
Total output continuous shall not exceed 總輸出不可持續超過/總輸出不可持續超過		400W				
WARNING! HAZARDOUS AREA SAFETY INSTRUCTIONS: DO NOT REMOVE THE COVER NO SERVICEABLE COMPONENTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL. WARNING! GEFAHRENZONE SICHERHEITSHINWEISE: VOR DEM ÖFFNEN DES GERÄTES NETZSTECKER ZIEHEN. KEINE SERVICEERELEVANTEN BAUTEILE ENTHALTEN. SERVICEARBEITEN SOLLTEN NUR VON AUTORISIERTEM FACHPERSONAL DURCHGEFÜHRT WERDEN. 警告! 請勿打開盒蓋, 內有危險高壓, 請退回代理商維修。 警告! 請勿打開盒蓋, 內有危險高壓, 請退回代理商維修。						
ATTENTIONS : Pour les équipements de traitement de l'information						
    製造商: 全漢企業股份有限公司 MADE IN CHINA 中國製造/中國製造						
BALL BEARING FAN / ErP 5Vsb < 0.5W Input / Active PFC / RoHS						
6LL2038501GP						

TRF No. IEC62368_1E

Test item particulars:	
Product group	☐ end product ☒ built-in component
Classification of use by	☒ Ordinary person ☐ Children likely present ☐ Instructed person ☐ Skilled person
Supply connection	☒ AC mains ☐ DC mains ☐ not mains connected: ☐ ES1 ☐ ES2 ☐ ES3
Supply tolerance	☒ +10%/-10% ☐ +20%/-15% ☐ + %/ - % ☐ None
Supply connection – type	☒ pluggable equipment type A - ☐ non-detachable supply cord ☒ appliance coupler ☐ direct plug-in ☐ pluggable equipment type B - ☐ non-detachable supply cord ☐ appliance coupler ☐ permanent connection ☐ mating connector ☐ other:
Considered current rating of protective device	16A, 13A (GB) or 20A (US and Canada); Installation location: ☒ building; ☒ equipment : The fuse used: see table 4.1.2 for details ☐ N/A
Equipment mobility	☐ movable ☐ hand-held ☐ transportable ☐ direct plug-in ☐ stationary ☒ for building-in ☐ wall/ceiling-mounted ☐ SRME/rack-mounted ☐ other:
Overvoltage category (OVC)	☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV ☐ other:
Class of equipment	☒ Class I ☐ Class II ☐ Class III ☐ Not classified ☐
Special installation location	☒ N/A ☐ restricted access area ☐ outdoor location ☐
Pollution degree (PD)	☐ PD 1 ☒ PD 2 ☐ PD 3
Manufacturer's specified T_{ma}	+50 °C ☐ Outdoor: minimum °C
IP protection class	☒ IPX0 ☐ IP__
Power systems	☒ TN ☐ TT ☒ IT - 230 V _{L-L} ☐ not AC mains
Altitude during operation (m)	☐ 2000 m or less ☒ 5000 m
Altitude of test laboratory (m)	☒ 2000 m or less ☐ m
Mass of equipment (kg)	Approx. 1.27 kg for model FSP300-50UDB; Approx. 1.39 kg for model FSP300-50WDB; Approx. 1.30 kg for model FSP400-50UDB; Approx. 1.39 kg for model FSP400-50WDB; Approx. 1.38 kg for model FSP500-50UDB; Approx. 1.47 kg for model FSP500-50WDB

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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: 2019-10-17 and 2023-02-07 Date (s) of performance of tests.....: 2019-12-06 to 2020-01-14 and 2023-02-07 to 2023-05-24	
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 IEC62368-1:	
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. ShenZhen HuiLi Electronics CO., LTD Building C4(101~301)-C11, No. 352, LiuTang Rd., County 73, Bu'Xin Village, Xin'an, Bao'an, Shenzhen, Guangdong, P. R. China 2. Zhonghan Electronics (Shenzhen) Co., Ltd. Building A2 in Section A, Building 4, 6, 7 in Section C, JuYuan Industrial Zone, TangWei Village, FuHai Town, BaoAn Dist., ShenZhen City, Guangdong, P.R. China 3. Wuxi SPI Technology Co., Ltd. No. 96, Xinmei Road, New District, Wuxi city, Jiangsu, P.R. China 4. Wuxi ZhongHan Technology Co., Ltd. Block 106-D, Wuxi Nation HI-TECH Industrial Development Zone, Wuxi City, Jiangsu Province, P.R. China 5. ShenZhen HuiLi Electronics CO., LTD Building C4-C11, No. 352, LiuTang Rd., County 73, Bu'Xin Village, Xin'an, Bao'an, Shenzhen, Guangdong, P.R. China 6. ShenZhen HuiLi Electronics CO., LTD Building B & G, Peace Hi-tech Industrial Zone,

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Peace Village, FuHai Town, Bao'an, Shenzhen, Guangdong 518102, P.R. China 7. FSP Technology Inc. Taoyuan Plant 3 5F., No. 6, 4F., No. 6, No.6, Xinglong Rd., Taoyuan Dist., Taoyuan City, 330 Taiwan 8. ZHONGHAN SCIENCE & TECH CO. LTD Building 8 & 9, Section B, JuYuan Industrial Zone, ChiaoTang Rd., TangWei Village, FuHai Town, BaoAn District. ShenZhen City, Guangdong, P.R. China 9. Zhonghan Electronics (Shenzhen) Co., Ltd. Building 4(101) & Building 4,6,7 in Section C, JuYuan Industrial Zone, TangWei Village, FuHai Town, BaoAn Dist., ShenZhen City, Guangdong, P.R. China																																								
General product information and other remarks: For other country deviations that request by manufacturer, please refer to attachment file name "other national requirements" and below for detail. AU, NZ Explanation of used codes: AU = Australia, NZ = New Zealand This equipment, models FSP300-50UDB, FSP300-50WDB, FSP400-50UDB, FSP400-50WDB, FSP500-50UDB and FSP500-50WDB are building-in Switching Power Supply, which are used for Audio/video information and communication technology equipment in the scope of this standard. This equipment provided three kinds of bottom metal chassis; Both type A & B are similar except for ventilation openings at rear / output cable side. The dimension of metal chassis type C is bigger than types A & B. See attachment photos for details The power switch is optional used for all models. The equipment employs below PCBs: - ERP BD (type 3BS03720, primary circuit) - MAIN-BOARD (type 3BS04691, primary, secondary and earth circuit) - HK BOARD (type 3BD03282, secondary circuit) - CTRL BOARD (type 3BD03283, primary and secondary circuit) - DC TO DC BOARD (type 3BD03284, primary and secondary circuit) ** Rating list of all models: See below for details For modes FSP300-50UDB and FSP300-50WDB: <table> <tr> <td>AC INPUT</td><td colspan="6">100-240 V~, 4-2 A, 60-50 Hz</td></tr> <tr> <td rowspan="2">DC OUTPUT (---)</td><td>+3.3 V</td><td>+5 V</td><td>+12 V</td><td>+5 Vsb</td><td>-12 V</td><td>-5 V</td></tr> <tr> <td>12.0 A</td><td>14.0 A</td><td>25.0 A</td><td>3.0 A</td><td>0.3 A</td><td>0.1 A</td></tr> <tr> <td>Max. Wattage</td><td colspan="2">75W</td><td>--</td><td>--</td><td>--</td><td>--</td></tr> <tr> <td>Total output power continuous shall not exceed</td><td colspan="6">300W</td></tr> </table>							AC INPUT	100-240 V~, 4-2 A, 60-50 Hz						DC OUTPUT (---)	+3.3 V	+5 V	+12 V	+5 Vsb	-12 V	-5 V	12.0 A	14.0 A	25.0 A	3.0 A	0.3 A	0.1 A	Max. Wattage	75W		--	--	--	--	Total output power continuous shall not exceed	300W					
AC INPUT	100-240 V~, 4-2 A, 60-50 Hz																																							
DC OUTPUT (---)	+3.3 V	+5 V	+12 V	+5 Vsb	-12 V	-5 V																																		
	12.0 A	14.0 A	25.0 A	3.0 A	0.3 A	0.1 A																																		
Max. Wattage	75W		--	--	--	--																																		
Total output power continuous shall not exceed	300W																																							

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For modes FSP400-50UDB and FSP400-50WDB:

AC INPUT	100-240 V~, 6-3 A, 60-50 Hz					
DC OUTPUT (---)	+3.3 V	+5 V	+12 V	+5 Vsb	-12 V	-5 V
	14.0 A	16.0 A	33.0 A	3.0 A	0.3 A	0.1 A
Max. Wattage	85W		--	--	--	--
Total output power continuous shall not exceed	400W					

For modes FSP500-50UDB and FSP500-50WDB:

AC INPUT	100-240 V~, 7-3.5 A, 60-50 Hz					
DC OUTPUT (---)	+3.3 V	+5 V	+12 V	+5 Vsb	-12 V	-5 V
	14.0 A	16.0 A	41.0 A	3.0 A	0.3 A	0.1 A
Max. Wattage	90W		--	--	--	--
Total output power continuous shall not exceed	500W					

Model Different

All models of FSP300-50UDB, FSP300-50WDB, FSP400-50UDB, FSP400-50WDB, FSP500-50UDB and FSP500-50WDB are similar to each other except for below:

Model name	FSP300-50UDB	FSP400-50UDB	FSP500-50UDB
AC input (~)	100-240V~, 4-2A, 60-50Hz	100-240V~, 6-3A, 60-50Hz	100-240V~, 7-3.5A, 60-50Hz
DC output (---)	+3.3V/12A, +5V/14A, +12V/25A, +5Vsb/3A, -12V/0.3A, -5V/0.1A +3.3V & +5V total output not exceed 75W -5V output is option Total output power continuous shall not exceed 300W	+3.3V/14A, +5V/16A, +12V/33A, +5Vsb/3A, -12V/0.3A, -5V/0.1A +3.3V & +5V total output not exceed 85W -5V output is option Total output power continuous shall not exceed 400W	+3.3V/14A, +5V/16A, +12V/41A, +5Vsb/3A, -12V/0.3A, -5V/0.1A +3.3V & +5V total output not exceed 90W -5V output is option Total output power continuous shall not exceed 500W
Fuse (F1)	T6.3A, 250V	T6.3A, 250V	T8.0A, 250V
Electrolytic capacitor (1C2)	180-270μF, min. 420V	220-270μF, min. 420V	270μF, min. 420V
Transistor (1Q1)	N/A	N/A	Min. 26A, min. 600V
Transistor (1Q2)	Min. 18A, min. 600V	Min. 26A, min. 600V	Min. 26A, min. 600V
Transistor (1Q4)	Min. 8A, min. 800V	Min. 10.8A, min. 800V	Min. 16.7A, min. 800V
Current sense resistor (1R1, 1R8)	Min. 0.15 Ω, min. 2W	Min. 0.12 Ω, min. 2W	Min. 0.1 Ω, min. 2W
Transformer (T1)	8TI02219	8TI02219	8TI02218
PFC choke (1L1)	8LM05810	8LM05811	8LM05809
Secondary choke (L601)	8LM05671	8LM05674	8LM05673
Insulation Sheet (for bottom metal chassis used)	5IE04195	5IE04195	5IE04195

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Insulation Sheet (for top metal chassis used)	5IE04194	5IE04194	5IE04194
Heat sink (HS1)	N/A	N/A	5HC00864
Heat sink (HS2)	5HC02226	5HC02226	5HC02226
	5HC02225	5HC02225	5HC02225
Air flow of DC Fan (located at rear side close to output cable)	N/A	Inward, 11.48 CFM min.	Inward, 11.48 CFM min.
Air flow of DC Fan (located at front side close to AC inlet)	Outward, 12.82 CFM min.	Outward, 15.22 CFM min.	Outward, 15.22 CFM min.
Fan guard (close to output cable)	N/A	N/A	N/A
Metal chassis type	A	B	B
Model name	FSP300-50WDB	FSP400-50WDB	FSP500-50WDB
AC input (~)	100-240V~, 4-2A, 60-50Hz	100-240V~, 6-3A, 60-50Hz	100-240V~, 7-3.5A, 60-50Hz
DC output (≡)	+3.3V/12A, +5V/14A, +12V/25A, +5Vsb/3A, -12V/0.3A, -5V/0.1A +3.3V & +5V total output not exceed 75W -5V output is option Total output power continuous shall not exceed 300W	+3.3V/14A, +5V/16A, +12V/33A, +5Vsb/3A, -12V/0.3A, -5V/0.1A +3.3V & +5V total output not exceed 85W -5V output is option Total output power continuous shall not exceed 400W	+3.3V/14A, +5V/16A, +12V/41A, +5Vsb/3A, -12V/0.3A, -5V/0.1A +3.3V & +5V total output not exceed 90W -5V output is option Total output power continuous shall not exceed 500W
Fuse (F1)	T6.3A, 250V	T6.3A, 250V	T8.0A, 250V
Electrolytic capacitor (1C2)	180-270μF, min. 420V	220-270μF, min. 420V	270μF, min. 420V
Transistor (1Q1)	N/A	N/A	Min. 26A, min. 600V
Transistor (1Q2)	Min. 18A, min. 600V	Min. 26A, min. 600V	Min. 26A, min. 600V
Transistor (1Q4)	Min. 8A, min. 800V	Min. 10.8A, min. 800V	Min. 16.7A, min. 800V
Current sense resistor (1R1, 1R8)	Min. 0.15 Ω, min. 2W	Min. 0.12 Ω, min. 2W	Min. 0.1 Ω, min. 2W
Transformer (T1)	8TI02219	8TI02219	8TI02218
PFC choke (1L1)	8LM05813	8LM05815	8LM05814
Secondary choke (L601)	8LM05671	8LM05674	8LM05673
Insulation Sheet (for bottom metal chassis used)	5IE04196	5IE04196	5IE04196
Insulation Sheet (for top metal chassis used)	N/A	N/A	N/A
Heat sink (HS1)	N/A	N/A	5HC00864
Heat sink (HS2)	5HC02227	5HC02227	5HC02227
	N/A	N/A	N/A
Air flow of DC	Inward, 30.62 CFM min.	Inward, 33.32 CFM min.	Inward, 33.32 CFM min.

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Fan (located at rear side close to output cable)			
Air flow of DC Fan (located at front side close to AC inlet)	N/A	N/A	N/A
Fan guard (close to output cable)	5OA01050	5OA01050	5OA01050
Metal chassis type	C	C	C

Notes:

1. The power switch is for optional used.

2. Metal chassis type **A**



Metal chassis type **B**



Metal chassis type **C**



**** Output test load condition: See below for details.**

For models FSP300-50UDB and FSP300-50WDB:

DC Output	+3.3 V	+5 V	+12 V	+5 Vsb	-12 V	-5 V
Load condition A: (A)	12	7.1	17.2	3	0.3	0.1
Load condition B: (A)	1.6	14	17.2	3	0.3	0.1
Load condition C: (A)	0	0	25	0	0	0
Load condition D: (A)	0	0	0	3	0	0

For models FSP400-50UDB and FSP400-50WDB:

DC Output	+3.3 V	+5 V	+12 V	+5 Vsb	-12 V	-5 V
-----------	--------	------	-------	--------	-------	------

Load condition A: (A)	14	7.8	24.7	3	0.3	0.1
Load condition B: (A)	1.6	16	24.7	3	0.3	0.1
Load condition C: (A)	0	0	33	0.8	0	0
Load condition D: (A)	0	0	0	3	0	0

For models FSP500-50UDB and FSP500-50WDB:

DC Output	+3.3 V	+5 V	+12 V	+5 Vsb	-12 V	-5 V
Load condition A: (A)	14	8.8	32.6	3	0.3	0.1
Load condition B: (A)	3.1	16	32.6	3	0.3	0.1
Load condition C: (A)	0	0	41	1.6	0	0
Load condition D: (A)	0	0	0	3	0	0

This equipment is a sub-assembly intended for incorporation in information technology equipment, the overall compliance should be investigated in the complete information technology equipment.

Other comments:

This equipment was submitted and tested for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification is 50 °C.

This label drawing is a draft of an artwork for marking plates pending approval by National Certification Bodies and it shall not be affixed to products prior to such an approval.

Definition of variable(s):

Variable:	Range of variable:	Content:
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Additional application considerations – (Considerations used to test a component or sub-assembly) –

- The power supply cord set was not evaluated together with the apparatus. A suitable certified power supply cord set has to be added in the country where the apparatus is used.
- Tests were repeated with each alternative source of components with identical results unless otherwise specified.

OVERVIEW OF ENERGY SOURCES AND SAFEGUARDS				
Clause	Possible Hazard			
5	Electrically-caused injury			
Class and Energy Source (e.g. ES3: Primary circuit)	Body Part (e.g. Ordinary)	Safeguards		
		B	S	R
ES3: Accessible pins of appliance inlet (X-cap existed)	Ordinary (after disconnection of inlet)	N/A	N/A	A safeguard provided by discharge resistors (ER1//ER3) + discharge IC (EU1) + discharge resistors (ER2//ER4)
ES3: primary circuit	Output circuits assumed to be accessible by ordinary person in end product	N/A	N/A	transformer (T1, T2, optical isolator (CU2, CU3, CU4, CU8) and bridging capacitor (CY5)
ES3: Primary circuits	Ordinary	Certified Y-Capacitors (CY6, CY7, CY3, CY4)	Earthed metal chassis N/A	N/A
ES1: Secondary circuit (Separated from ES3 mains by double or reinforced insulation)	Ordinary (See appended table in "ATTACHMENT" for evaluation of voltage limiting components and corresponding classification (ES))	N/A	N/A	N/A
ES1: output connector	Ordinary	N/A	N/A	N/A
6	Electrically-caused fire			
Class and Energy Source (e.g. PS2: 100 Watt circuit)	Material part (e.g. Printed board)	Safeguards		
		B	1 st S	2 nd S
PS3: >100 Watt circuit (Primary and secondary circuits)	Combustible materials within equipment fire barrier	Equipment safeguards (no ignition occurs and no such temp. attained specified in subclause 6.3.1)	Equipment safeguards (e.g. min rated V-1 PWB, combustible material rated V-2 min., fire metal enclosure or barrier, see 6.4.5 and 6.4.6)	N/A
PS3: >100 Watt circuit	Metal enclosure	Not	Equipment	N/A

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(Primary and secondary circuits)		combustible materials	safeguards (Control of fire spread)	
PS3: >100 Watt circuit (Primary and secondary circuits)	Internal wiring material	See above and subclause 6.3.1	Equipment safeguards (rated VW-1, see 6.5)	N/A
PS3: >100 Watt circuit	Output connector and wiring material of outside enclosure	See above and subclause 6.3.1	Equipment safeguards (rated VW-1, see 6.5)	N/A
PS2: <100 Watt circuit	Output connector and wiring material of outside enclosure	See above and subclause 6.3.1	Equipment safeguards (rated VW-1, see 6.5)	N/A
7	Injury caused by hazardous substances			
Class and Energy Source (e.g. Ozone)	Body Part (e.g., Skilled)	Safeguards		
		B	S	R
N/A	N/A	N/A	N/A	N/A
8	Mechanically-caused injury			
Class and Energy Source (e.g. MS3: Plastic fan blades)	Body Part (e.g. Ordinary)	Safeguards		
		B	S	R
MS1: Sharp edge and corners	Ordinary	N/A	N/A	N/A
MS1: Equipment mass – Max. approx. < 7 kg	Ordinary	N/A	N/A	N/A
MS3: Moving parts (DC fan) (For Client's declaration) The equipment is a building-in type, evaluation is also to be made during the final system approval.	Ordinary	Enclosure with opening as a fan guard	N/A	N/A
9	Thermal burn			
Class and Energy Source (e.g. TS1: Keyboard caps)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
TS1: Metal enclosure (the accessible surfaces of inlet side) (<70°C)	Ordinary	N/A	N/A	N/A
TS1: Metal chassis (the accessible surfaces except for the side of appliance inlet) (< 70 °C)	Ordinary	N/A	N/A	N/A
TS1: Accessible plastic (power switch and inlet) (< 77 °C)	Ordinary	N/A	N/A	N/A
10	Radiation			
Class and Energy Source (e.g. RS1: PMP sound output)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R

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N/A	N/A	N/A	N/A	N/A
Supplementary Information: “B” – Basic Safeguard; “S” – Supplementary Safeguard; “R” – Reinforced Safeguard				

ENERGY SOURCE DIAGRAM
Optional. Manufacturers are to provide the energy sources diagram identify declared energy sources and identifying the demarcations are between power sources. Recommend diagram be provided included in power supply and multipart systems. Insert diagram below. Example diagram designs are; Block diagrams; image(s) with layered data; mechanical drawings ES3 (on the left side of T1 and T2) ES1 (on the right side of T1 and T2) PS3 (all circuits), all area contains PIS sources MS1 for Sharp edges and corners at inlet side TS1 for Power Switch, Label and Enclosure surface ☒ ES ☒ PS ☒ MS ☒ TS ☐ RS

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Clause	Requirement + Test	Result - Remark	Verdict
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	Components which are certified to IEC and/or national standards are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment.	P
4.1.3	Equipment design and construction	Building-in type power supply. However, no accessible output part which could cause injury.	N/A
4.1.4	Specified ambient temperature for outdoor use (°C) :	Not intended for outdoor use.	N/A
4.1.5	Constructions and components not specifically covered	No such cases existed of the equipment's design.	N/A
4.1.8	Liquids and liquid filled components (LFC)	No such components are provided within the equipment. (See G.15)	N/A
4.1.15	Markings and instructions	(See Annex F)	P
4.4.3	Safeguard robustness	See the following details.	P
4.4.3.1	General	See below.	P
4.4.3.2	Steady force tests	The equipment is building-in type. However, the test applied to appliance inlet side. No hazards as result from the steel ball impact test. (See Annex T.5).	P
4.4.3.3	Drop tests	No such consideration for building-in type equipment.	N/A
4.4.3.4	Impact tests	The equipment is building-in type. However, the test applied to appliance inlet side. No hazards as result from the steel ball impact test. (See Annex T.6).	P
4.4.3.5	Internal accessible safeguard tests	Building-in type power supply.	N/A
4.4.3.6	Glass impact tests	No such glass used. (See Clause T.9, Annex U)	N/A
4.4.3.7	Glass fixation tests	See above.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Glass impact test (1J)	See above.	N/A
	Push/pull test (10 N)	See above.	N/A
4.4.3.8	Thermoplastic material tests	For the all sources of insulation material listed in appended table 4.1.2 are tested for a period of 7 hours (See Annex T.8).	P
4.4.3.9	Air comprising a safeguard	The equipment is a building-in type.	N/A
4.4.3.10	Accessibility, glass, safeguard effectiveness	No damaged. Class 3 energy source except PS3 did not become accessible. All other safeguards remain effective during and after above tests.	P
4.4.4	Displacement of a safeguard by an insulating liquid	No such construction.	N/A
4.4.5	Safety interlocks	No safety interlocks. (See Annex K)	N/A
4.5	Explosion		P
4.5.1	General	No explosion occurs during normal/abnormal operation and single fault conditions.	P
4.5.2	No explosion during normal/abnormal operating condition	(See Clause B.2, B.3)	P
	No harm by explosion during single fault conditions	(See Clause B.4)	P
4.6	Fixing of conductors	See the following details.	P
	Fix conductors not to defeat a safeguard	See below.	P
	Compliance is checked by test..... :	10N force test performed for all relevant conductors. No hazards caused hereby. (See Clause T.2)	P
4.7	Equipment for direct insertion into mains socket-outlets		N/A
4.7.2	Mains plug part complies with relevant standard. :	The equipment is not for direct insertion into mains socket-outlets.	N/A
4.7.3	Torque (Nm)..... :	See above.	N/A
4.8	Equipment containing coin/button cell batteries		N/A
4.8.1	General	No lithium coin/button batteries are used.	N/A
4.8.2	Instructional safeguard..... :	See above.	N/A
4.8.3	Battery compartment door/cover construction	See above.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Open torque test	See above.	N/A
4.8.4.2	Stress relief test	See above.	N/A
4.8.4.3	Battery replacement test	See above.	N/A
4.8.4.4	Drop test	See above.	N/A
4.8.4.5	Impact test	See above.	N/A
4.8.4.6	Crush test	See above.	N/A
4.8.5	Compliance	See above.	N/A
	30N force test with test probe	See above.	N/A
	20N force test with test hook	See above.	N/A
4.9	Likelihood of fire or shock due to entry of conductive object		P
4.10	Component requirements		P
4.10.1	Disconnect Device	Applicant AC inlet used. (See Annex L)	P
4.10.2	Switches and relays	(See Annex G)	P

5	ELECTRICALLY-CAUSED INJURY		P
5.2	Classification and limits of electrical energy sources		P
5.2.2	ES1, ES2 and ES3 limits	See below.	P
5.2.2.2	Steady-state voltage and current limits	(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.....	No such single pulse with the equipment.	N/A
5.2.2.5	Limits for repetitive pulses.....	(See appended table 5.2)	P
5.2.2.6	Ringling signals	No such ringling signals with the equipment.	N/A
5.2.2.7	Audio signals	No such ringling signals with the equipment.	N/A
5.3	Protection against electrical energy sources		P
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons	(See appended table "OVERVIEW OF EMPLOYED SAFEGUARDS")	P
5.3.1 a)	Accessible ES1/ES2 derived from ES2/ES3 circuits	Accessible ES1 circuits derived from ES3 circuits are separated from ES3 mains by double or reinforced safeguard.	P
5.3.1 b)	Skilled persons not unintentional contact ES3 bare conductors	No service operation necessary.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.3.2.1	Accessibility to electrical energy sources and safeguards	ES2 or ES3 source cannot access by ordinary persons and ES3 source cannot accessed by instructed persons. Double or reinforced safeguard is provided between ES3 and ordinary persons or instructed persons. However, the equipment is a building-in type.	N/A
	Accessibility to outdoor equipment bare parts	Not apply for outdoor use.	N/A
5.3.2.2	Contact requirements	See below.	P
	Test with test probe from Annex V	The equipment is a building-in type and evaluation is to be made during the final system approval. However per applicant's request the appliance inlet side is evaluated as external ordinary accessible surface. The test probe cannot access the hazardous live parts. (See Annex V).	—
5.3.2.2 a)	Air gap – electric strength test potential (V)..... :		N/A
5.3.2.2 b)	Air gap – distance (mm) :	More than 0.2 mm.	P
5.3.2.3	Compliance		N/A
5.3.2.4	Terminals for connecting stripped wire	No such terminals for connecting stripped wire	N/A
5.4	Insulation materials and requirements		P
5.4.1.2	Properties of insulating material	The choice and application have taken into account as specified in this Clause 5 and Annex T except for natural rubber, hygroscopic materials or asbestos are not used as insulation.	P
5.4.1.3	Material is non-hygroscopic	(See subclause 5.4.8)	P
5.4.1.4	Maximum operating temperature for insulating materials..... :	(See appended table 5.4.1.4, 9.3, B.1.5, B.2.6)	P
5.4.1.5	Pollution degrees..... :	2	P
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound	Pollution degree 2 is applied.	N/A
5.4.1.5.3	Thermal cycling test	See above.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.6	Insulation in transformers with varying dimensions	No such transformers within the equipment.	N/A
5.4.1.7	Insulation in circuits generating starting pulses	No such circuits within the equipment.	N/A
5.4.1.8	Determination of working voltage..... :	(See appended table 5.4.1.8)	P
5.4.1.9	Insulating surfaces	The equipment is a building-in type.	N/A
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted	See below.	P
5.4.1.10.2	Vicat test..... :	See below.	N/A
5.4.1.10.3	Ball pressure test..... :	The bobbin material of transformer and choke is phenolic. No further test considered necessary.	P
5.4.2	Clearances	See the following details.	P
5.4.2.1	General requirements	See below.	P
	Clearances in circuits connected to AC Mains, Alternative method	Alternative method not applied. (See Annex X)	N/A
5.4.2.2	Procedure 1 for determining clearance	(See appended table 5.4.2, 5.4.3)	P
	Temporary overvoltage :	2000 V _{peak}	—
5.4.2.3	Procedure 2 for determining clearance	See below.	P
5.4.2.3.2.2	a.c. mains transient voltage..... :	2500 V _{peak}	—
5.4.2.3.2.3	d.c. mains transient voltage :		—
5.4.2.3.2.4	External circuit transient voltage..... :		—
5.4.2.3.2.5	Transient voltage determined by measurement.... :		—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test :	Not applicable.	N/A
5.4.2.5	Multiplication factors for clearances and test voltages :		N/A
5.4.2.6	Clearance measurement..... :	(See appended table 5.4.2, 5.4.3)	P
5.4.3	Creepage distances	See the following details.	P
5.4.3.1	General	See below.	P
5.4.3.3	Material group..... :	Material group IIIa and IIIb assumed.	—
5.4.3.4	Creepage distances measurement :	(See appended table 5.4.2, 5.4.3)	P
5.4.4	Solid insulation	See the following details.	P

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.4.1	General requirements	See below.	P
5.4.4.2	Minimum distance through insulation :	(See appended table 5.4.4.2)	P
5.4.4.3	Insulating compound forming solid insulation	Certified optocouplers are used. (See appended table 4.1.2)	P
5.4.4.4	Solid insulation in semiconductor devices	Certified optocouplers are used. (See appended table 4.1.2)	P
5.4.4.5	Insulating compound forming cemented joints	(See appended table 5.4.4.2)	P
5.4.4.6	Thin sheet material	See below.	P
5.4.4.6.1	General requirements	See below.	P
5.4.4.6.2	Separable thin sheet material	Insulating tape provided as double/reinforced insulation and each layer passed the electric strength test for reinforced insulation.	P
	Number of layers (pcs) :	2 min.	P
5.4.4.6.3	Non-separable thin sheet material		N/A
	Number of layers (pcs) :		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		N/A
5.4.4.7	Solid insulation in wound components	Approved triple insulated wire is used in transformer, and the insulation on winding wire or other wire complied with G.5 and G.6.	P
5.4.4.9	Solid insulation at frequencies >30 kHz, E_P , K_R , d , V_{PW} (V)..... :	The solid insulations at frequencies ≥ 30 kHz was considered and alternative electric strength test applied. (See appended Table 5.4.4.9)	P
	Alternative by electric strength test, tested voltage (V), K_R :	Alternative electric strength test applied. (See appended Tables 5.4.4.9 and 5.4.9)	P
5.4.5	Antenna terminal insulation	No antenna is used.	N/A
5.4.5.1	General	See above.	N/A
5.4.5.2	Voltage surge test	See above.	N/A
5.4.5.3	Insulation resistance ($M\Omega$)..... :	See above.	N/A
	Electric strength test..... :	See above.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.6	Insulation of internal wire as part of supplementary safeguard	No such insulation of internal wire as part of supplementary safeguard. The equipment is a building-in type and evaluation is to be made during the final system approval.	N/A
5.4.7	Tests for semiconductor components and for cemented joints	Certified optocouplers are used. (See appended table 4.1.2)	P
5.4.8	Humidity conditioning	All sources of optocouplers were performed the test, see appended table 4.1.2 for source details. All sources of transformer were performed the test, see appended transformer construction table in “ ATTACHMENT ” for source details. The transformer manufactured by each factory passed the test.	P
	Relative humidity (%), temperature (°C), duration (h)	95 %, 40 °C, 120h	—
5.4.9	Electric strength test	Electric strength tests were conducted after 5.4.8 Humidity conditioning. All sources of transformer were performed the test with 120 hours, see appended transformer construction table G.5.3.2 in “ ATTACHMENT ” for source details. The transformer manufactured by each factory passed the test. (See appended table 5.4.9)	P
5.4.9.1	Test procedure for type test of solid insulation :	Compliance was checked immediately following temperature test in subclause 5.4.1.4. (See appended table 5.4.9)	P
5.4.9.2	Test procedure for routine test	No routine tests under consideration for this time.	N/A
5.4.10	Safeguards against transient voltages from external circuits	No such external circuits.	N/A
5.4.10.1	Parts and circuits separated from external circuits	See above.	N/A
5.4.10.2	Test methods	See above.	N/A
5.4.10.2.1	General	See above.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.10.2.2	Impulse test	See above.	N/A
5.4.10.2.3	Steady-state test.....	See above.	N/A
5.4.10.3	Verification for insulation breakdown for impulse test	See above.	N/A
5.4.11	Separation between external circuits and earth	No such external circuit within the equipment.	N/A
5.4.11.1	Exceptions to separation between external circuits and earth	See above.	N/A
5.4.11.2	Requirements	See above.	N/A
	SPDs bridge separation between external circuit and earth	See above.	N/A
	Rated operating voltage U_{op} (V)	See above.	—
	Nominal voltage U_{peak} (V)	See above.	—
	Max increase due to variation ΔU_{sp}	See above.	—
	Max increase due to ageing ΔU_{sa}	See above.	—
5.4.11.3	Test method and compliance.....	See above.	N/A
5.4.12	Insulating liquid	No such insulating liquid within the equipment.	N/A
5.4.12.1	General requirements	See above.	N/A
5.4.12.2	Electric strength of an insulating liquid.....	See above.	N/A
5.4.12.3	Compatibility of an insulating liquid	See above.	N/A
5.4.12.4	Container for insulating liquid	See above.	N/A
5.5	Components as safeguards		P
5.5.1	General	See the following details.	P
5.5.2	Capacitors and RC units	X-Capacitors and Y-Capacitors are IEC/EN 60384-14 approval components and complied with Annex G.11.	P
5.5.2.1	General requirement	See below.	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	(See clause G.5.3)	P
5.5.4	Optocouplers	(See sub-clause 5.4 or clause G.12)	P
5.5.5	Relays	(See sub-clause 5.4 or Annex G.2)	P
5.5.6	Resistors	Bleeder resistors are served as a safeguard but not across supplementary or reinforced	P

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Clause	Requirement + Test	Result - Remark	Verdict
		insulations, no energy hazards between appliance inlet access terminal and ordinary person, see clause 5.2.2.3.	
5.5.7	SPDs	The varistor is across mains, not used between the mains and earth. (See clause G.8)	P
5.5.8	Insulation between the mains and an external circuit consisting of a coaxial cable	No such external circuits provided.	N/A
5.5.9	Safeguards for socket-outlets in outdoor equipment	No such socket-outlet provided and the equipment is for indoor used.	N/A
	RCD rated residual operating current (mA)	See above.	—
5.6	Protective conductor		P
5.6.2	Requirement for protective conductors		P
5.6	Protective conductor	See below.	P
5.6.2	Requirement for protective conductors	See below.	P
5.6.2.1	General requirements	No switch, current limiting devices or overcurrent protective devices provided in protective earthing conductors and protective bonding conductors.	P
5.6.2.2	Colour of insulation	The green/yellow wire is used.	P
5.6.3	Requirement for protective earthing conductors	An appliance inlet provided that is connected by an approved appliance coupler serves as main protective earthing conductor terminal.	N/A
	Protective earthing conductor size (mm ²)	No power supply cord is provided.	—
	Protective earthing conductor serving as a reinforced safeguard	See above.	N/A
	Protective earthing conductor serving as a double safeguard	See above.	N/A
5.6.4	Requirements for protective bonding conductors	Reliable connection of the green/yellow wire from earth pin of AC inlet to metal chassis, which fixed in earthing tab of appliance inlet by hooking-in and soldering, and the other end terminated in a ring type crimp which is secured to metal chassis via	P

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Clause	Requirement + Test	Result - Remark	Verdict
		PCB by a screw and star washer.	
5.6.4.1	Protective bonding conductors	See below.	P
	Protective bonding conductor size (mm ²). :	16AWG for protective bonding conductor.	—
5.6.4.2	Protective current rating (A)..... :	20A considered for pluggable equipment type A.	P
5.6.5	Terminals for protective conductors	See below.	P
5.6.5.1	Terminal size for connecting protective earthing conductors (mm)..... :	Protective earthing terminal provided on appliance inlet.	N/A
	Terminal size for connecting protective bonding conductors (mm) :	Protective bonding conductor size 1.0mm ² (16 AWG), nominal thread diameter for screw type 4.0mm.	P
5.6.5.2	Corrosion	No combination above the line in Annex N is used. (See Annex N)	P
5.6.6	Resistance of the protective bonding system	See below.	P
5.6.6.1	Requirements	Compliance checked.	P
5.6.6.2	Test Method :	(See appended table 5.6.6)	P
5.6.6.3	Resistance (Ω) or voltage drop :	(See appended table 5.6.6)	P
5.6.7	Reliable connection of a protective earthing conductor	The equipment is not permanently connected equipment.	N/A
5.6.8	Functional earthing	No such consideration.	N/A
	Conductor size (mm ²). :	See above.	N/A
	Class II with functional earthing marking :	See above.	N/A
	Appliance inlet cl & cr (mm) :	See above.	N/A
5.7	Prospective touch voltage, touch current and protective conductor current		P
5.7.2	Measuring devices and networks		P
5.7.2.1	Measurement of touch current	Figure 4 of IEC 60990 was used in determining of the limit of ES1. Figure 5 of IEC 60990 was used in determining of the limit of ES2.	P
5.7.2.2	Measurement of voltage	(See appended table 5.2)	P
5.7.3	Equipment set-up, supply connections and earth connections	Clause 4, 5.3 and 5.4 of IEC 60990:2016 applied.	P
5.7.4	Unearthed accessible parts :	(See appended table 5.7.4)	P

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Clause	Requirement + Test	Result - Remark	Verdict
5.7.5	Earthed accessible conductive parts	(See appended table 5.7.5)	P
5.7.6	Requirements when touch current exceeds ES2 limits	No external circuits.	N/A
	Protective conductor current (mA)		N/A
	Instructional Safeguard		N/A
5.7.7	Prospective touch voltage and touch current associated with external circuits	No external circuits.	N/A
5.7.7.1	Touch current from coaxial cables		N/A
5.7.7.2	Prospective touch voltage and touch current associated with paired conductor cables		N/A
5.7.8	Summation of touch currents from external circuits	No external circuits.	N/A
	a) Equipment connected to earthed external circuits, current (mA)	See above.	N/A
	b) Equipment connected to unearthed external circuits, current (mA)	See above.	N/A
5.8	Backfeed safeguard in battery backed up supplies		N/A
	Mains terminal ES	No battery backed up supplies.	N/A
	Air gap (mm).....	See above.	N/A

6	ELECTRICALLY- CAUSED FIRE		P
6.2	Classification of PS and PIS		P
6.2.2	Power source circuit classifications	(See appended table 6.2.2)	P
6.2.3	Classification of potential ignition sources	PS (power source) classification determined by measuring the maximum power in Figure 34 and Figure 35 for load and power source circuits.	P
6.2.3.1	Arcing PIS	Except for appliance inlet complied with IEC 60320-1; other components located within the equipment are not considered as arcing PIS.	P
6.2.3.2	Resistive PIS	All components located within the equipment are considered as 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	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials.....	No ignition and such temperature attained within the enclosure.	P

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Clause	Requirement + Test	Result - Remark	Verdict
		(See appended table 5.4.1.4, 9.3, B.1.5, B.2.6)	
	Combustible materials outside fire enclosure..... :		N/A
6.4	Safeguards against fire under single fault conditions		P
6.4.1	Safeguard method	Method by control fire spread and detailed in clause 6.4.4, 6.4.5 and 6.4.6.	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits	See above.	N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits	See above.	N/A
6.4.3.1	Supplementary safeguards	See above.	N/A
6.4.3.2	Single Fault Conditions..... :	(See appended table B.3, B.4)	N/A
	Special conditions for temperature limited by fuse	No such consideration.	N/A
6.4.4	Control of fire spread in PS1 circuits	PS3 circuits inside.	N/A
6.4.5	Control of fire spread in PS2 circuits	See below.	P
6.4.5.2	Supplementary safeguards	Compliance detailed as follows: - <u>Printed board</u>: rated V-1 class material; - <u>Wire insulation and tubing</u>: complying with Clause 6. - <u>All other components</u>: at least V-2 except for mounted on min. V-1 material or small parts of combustible material. - <u>DC fan</u>: complying with G.5.4. - <u>Isolating transformer</u>: complying with G.5.3. - Not ignite during single fault conditions as specified in 6.4.3.3 tested for the primary components located near inlet's side. (see appended tables 4.1.2 and Annex G)	P
6.4.6	Control of fire spread in PS3 circuits	In addition of the compliance of subclause 6.4.5. However, the equipment is a building-in type.	N/A
6.4.7	Separation of combustible materials from a PIS	See the following details.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.7.2	Separation by distance	All components and combustible materials other than small parts are either rated at least V-2 or mounted on material with rated min. V-1.	N/A
6.4.7.3	Separation by a fire barrier	The equipment is a building-in component.	N/A
6.4.8	Fire enclosures and fire barriers	Equipment metal enclosure was evaluated as a fire barrier.	P
6.4.8.2	Fire enclosure and fire barrier material properties	See the following details.	P
6.4.8.2.1	Requirements for a fire barrier	See above.	P
6.4.8.2.2	Requirements for a fire enclosure	Circuit available power does not exceed 4000W. The equipment is a building-in component.	N/A
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier	See the following details.	P
6.4.8.3.1	Fire enclosure and fire barrier openings	See 6.4.8.3.3 to 6.4.8.3.5	P
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top openings and properties	No openings, see 6.4.8.3.5	P
	Openings dimensions (mm)..... :		N/A
6.4.8.3.4	Bottom openings and properties	No openings, see 6.4.8.3.5	P
	Openings dimensions (mm)..... :		N/A
	Flammability tests for the bottom of a fire enclosure		N/A
	Instructional Safeguard..... :		N/A
6.4.8.3.5	Side openings and properties	The equipment is a building-in type, however equipment metal chassis of inlet side was evaluated as a fire enclosure per manufacturer's request (defined as side enclosure at component side upward orientation). No PIS components are located within the portion by the 5 degree angle according to Figure 44 from side openings.	P
	Openings dimensions (mm)..... :	Equipment metal chassis was evaluated as a fire enclosure for located at inlet side (max. 2.91 mm, numerous hexagon shape openings).	P

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.8.3.6	Integrity of a fire enclosure, condition met: a), b) or c)..... :		N/A
6.4.8.4	Separation of a PIS from a fire enclosure and a fire barrier distance (mm) or flammability rating..... :	The metal chassis is considered as a fire barrier. However, the equipment is a building-in type.	N/A
6.4.9	Flammability of insulating liquid :	No such insulating liquid provided.	N/A
6.5	Internal and external wiring		N/A
6.5.1	General requirements	No such interconnection to building wiring.	N/A
6.5.2	Requirements for interconnection to building wiring :	No such interconnection to building wiring.	N/A
6.5.3	Internal wiring size (mm ²) for socket-outlets :	No such internal wiring for socket-outlets.	N/A
6.6	Safeguards against fire due to the connection to additional equipment		N/A

7	INJURY CAUSED BY HAZARDOUS SUBSTANCES		N/A
7.2	Reduction of exposure to hazardous substances		N/A
7.3	Ozone exposure		N/A
7.4	Use of personal safeguards or personal protective equipment (PPE)		N/A
	Personal safeguards and instructions..... :	The equipment is a building-in type.	—
7.5	Use of instructional safeguards and instructions		N/A
	Instructional safeguard (ISO 7010)..... :	No such consideration.	—
7.6	Batteries and their protection circuits		N/A

8	MECHANICALLY-CAUSED INJURY		P
8.2	Mechanical energy source classifications		N/A
8.3	Safeguards against mechanical energy sources		N/A
8.4	Safeguards against parts with sharp edges and comers		P
8.4.1	Safeguards	Accessible edges and corners of the equipment are rounded and are classified as MS1.	P
	Instructional Safeguard..... :		N/A
8.4.2	Sharp edges or corners	Accessible edges and corners of the equipment are rounded and are classified as MS1.	P
8.5	Safeguards against moving parts		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.5.1	Fingers, jewellery, clothing, hair, etc., contact with MS2 or MS3 parts	Safeguard provided in front of DC fan. However, the equipment is a building-in type, evaluation is also to be made during the final system approval.	N/A
	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
	Moving MS3 parts only accessible to skilled person		N/A
8.5.2	Instructional safeguard		N/A
8.5.4	Special categories of equipment containing moving parts		N/A
8.5.4.1	General		N/A
8.5.4.2	Equipment containing work cells with MS3 parts		N/A
8.5.4.2.1	Protection of persons in the work cell		N/A
8.5.4.2.2	Access protection override		N/A
8.5.4.2.2.1	Override system		N/A
8.5.4.2.2.2	Visual indicator		N/A
8.5.4.2.3	Emergency stop system		N/A
	Maximum stopping distance from the point of activation (m).....		N/A
	Space between end point and nearest fixed mechanical part (mm).....		N/A
8.5.4.2.4	Endurance requirements		N/A
	Mechanical system subjected to 100 000 cycles of operation		N/A
	- Mechanical function check and visual inspection		N/A
	- Cable assembly		N/A
8.5.4.3	Equipment having electromechanical device for destruction of media		N/A
8.5.4.3.1	Equipment safeguards		N/A
8.5.4.3.2	Instructional safeguards against moving parts.....		N/A
8.5.4.3.3	Disconnection from the supply		N/A
8.5.4.3.4	Cut type and test force (N)		N/A
8.5.4.3.5	Compliance		N/A
8.5.5	High pressure lamps		N/A
	Explosion test.....		N/A
8.5.5.3	Glass particles dimensions (mm).....		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.6	Stability of equipment		N/A
8.6.1	General	The equipment is a building-in type.	N/A
	Instructional safeguard	See above.	N/A
8.6.2	Static stability	The equipment is a building-in type.	N/A
8.6.2.2	Static stability test.....	See above.	N/A
8.6.2.3	Downward force test	See above.	N/A
8.6.3	Relocation stability	See above.	N/A
	Wheels diameter (mm)	See above.	—
	Tilt test	See above.	N/A
8.6.4	Glass slide test	See above.	N/A
8.6.5	Horizontal force test.....	See above.	N/A
8.7	Equipment mounted to wall, ceiling or other structure		N/A
8.7.1	Mount means type.....	The equipment is a building-in type.	N/A
8.7.2	Test methods	See above.	N/A
	Test 1, additional downwards force (N).....	See above.	N/A
	Test 2, number of attachment points and test force (N).....	See above.	N/A
	Test 3 Nominal diameter (mm) and applied torque (Nm).....	See above.	N/A
8.8	Handles strength		N/A
8.8.1	General	No such handles.	N/A
8.8.2	Handle strength test	See above.	N/A
	Number of handles	See above.	—
	Force applied (N).....	See above.	—
8.9	Wheels or casters attachment requirements		N/A
8.9.2	Pull test	No such wheels or casters within the equipment.	N/A
8.10	Carts, stands and similar carriers		N/A
8.10.1	General	No such devices provided within the equipment.	N/A
8.10.2	Marking and instructions	See above.	N/A
8.10.3	Cart, stand or carrier loading test	See above.	N/A
	Loading force applied (N).....	See above.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.10.4	Cart, stand or carrier impact test	See above.	N/A
8.10.5	Mechanical stability	See above.	N/A
	Force applied (N)..... :	See above.	—
8.10.6	Thermoplastic temperature stability	See above.	N/A
8.11	Mounting means for slide-rail mounted equipment (SRME)		N/A
8.11.1	General	The equipment is not intended to be rack mounted.	N/A
8.11.2	Requirements for slide rails	See above.	N/A
	Instructional Safeguard..... :	See above.	N/A
8.11.3	Mechanical strength test	See above.	N/A
8.11.3.1	Downward force test, force (N) applied :	See above.	N/A
8.11.3.2	Lateral push force test	See above.	N/A
8.11.3.3	Integrity of slide rail end stops	See above.	N/A
8.11.4	Compliance	See above.	N/A
8.12	Telescoping or rod antennas		N/A
	Button/ball diameter (mm)..... :	No such devices provided within the equipment.	—

9	THERMAL BURN INJURY		P
9.2	Thermal energy source classifications		P
9.3	Touch temperature limits		P
9.3.1	Touch temperatures of accessible parts..... :	The equipment is a building-in type. The accessible surfaces of side of appliance inlet is classified as TS1. (See appended table 5.4.1.4, 9.3, B.1.5, B.2.6)	P
9.3.2	Test method and compliance	See above.	P
9.4	Safeguards against thermal energy sources		P
9.5	Requirements for safeguards		P
9.5.1	Equipment safeguard	See above.	P
9.5.2	Instructional safeguard :		N/A
9.6	Requirements for wireless power transmitters		N/A
9.6.1	General	No such wireless power transmitter provide.	N/A
9.6.2	Specification of the foreign objects	See above.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
9.6.3	Test method and compliance	See above.	N/A
10	RADIATION		N/A
10.2	Radiation energy source classification		N/A
10.2.1	General classification	No such radiation generated from the equipment.	N/A
	Lasers		—
	Lamps and lamp systems.....		—
	Image projectors		—
	X-Ray		—
	Personal music player		—
10.3	Safeguards against laser radiation		N/A
	The standard(s) equipment containing laser(s) comply	No such radiation provided.	N/A
10.4	Safeguards against optical radiation from lamps and lamp systems (including LED types)		N/A
10.4.1	General requirements	No such radiation generated from the equipment.	N/A
	Instructional safeguard provided for accessible radiation level needs to exceed	See above.	N/A
	Risk group marking and location	See above.	N/A
	Information for safe operation and installation	See above.	N/A
10.4.2	Requirements for enclosures	See above.	N/A
	UV radiation exposure	See above.	N/A
10.4.3	Instructional safeguard.....	See above.	N/A
10.5	Safeguards against X-radiation		N/A
10.5.1	Requirements	No such radiation provided.	N/A
	Instructional safeguard for skilled persons	See above.	—
10.5.3	Maximum radiation (pA/kg).....	See above.	—
10.6	Safeguards against acoustic energy sources		N/A
10.6.1	General	No such consideration for the purpose of personal music players.	N/A
10.6.2	Classification	See above.	N/A
	Acoustic output $L_{Aeq,T}$, dB(A).....	See above.	N/A
	Unweighted RMS output voltage (mV).....	See above.	N/A
	Digital output signal (dBFS).....	See above.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
10.6.3	Requirements for dose-based systems	See above.	N/A
10.6.3.1	General requirements	See above.	N/A
10.6.3.2	Dose-based warning and automatic decrease	See above.	N/A
10.6.3.3	Exposure-based warning and requirements	See above.	N/A
	30 s integrated exposure level (MEL30)..... :	See above.	N/A
	Warning for MEL ≥ 100 dB(A)..... :	See above.	N/A
10.6.4	Measurement methods	See above.	N/A
10.6.5	Protection of persons	See above.	N/A
	Instructional safeguards..... :	See above.	N/A
10.6.6	Requirements for listening devices (headphones, earphones, etc.)	See above.	N/A
10.6.6.1	Corded listening devices with analogue input	See above.	N/A
	Listening device input voltage (mV)..... :	See above.	N/A
10.6.6.2	Corded listening devices with digital input	See above.	N/A
	Max. acoustic output $L_{Aeq,T}$, dB(A)..... :	See above.	N/A
10.6.6.3	Cordless listening devices	See above.	N/A
	Max. acoustic output $L_{Aeq,T}$, dB(A)..... :	See above.	N/A

B	NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS		P
B.1	General		P
B.1.5	Temperature measurement conditions	(See appended table 5.4.1.4, 9.3, B.1.5, B.2.6)	P
B.2	Normal operating conditions		P
B.2.1	General requirements..... :	(See Test Item Particulars and appended test tables)	P
	Audio Amplifiers and equipment with audio amplifiers..... :	The equipment is not contain audio amplifier (See Annex E).	N/A
B.2.3	Supply voltage and tolerances	(See Test Item Particulars)	P
B.2.5	Input test..... :	(See appended table B.2.5)	P
B.3	Simulated abnormal operating conditions		P
B.3.1	General	See below.	P
B.3.2	Covering of ventilation openings	(See appended table B.3, B.4)	P
	Instructional safeguard..... :		N/A
B.3.3	DC mains polarity test	The equipment is not connected to a D.C. mains.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
B.3.4	Setting of voltage selector	No setting of voltage selector within the equipment.	N/A
B.3.5	Maximum load at output terminals	(See appended table B.3, B.4)	P
B.3.6	Reverse battery polarity	No battery within the equipment.	N/A
B.3.7	Audio amplifier abnormal operating conditions	Not such equipment.	N/A
B.3.8	Safeguards functional during and after abnormal operating conditions	All safeguards remained effectively. (See appended table B.3, B.4)	P
B.4	Simulated single fault conditions		P
B.4.1	General	See below.	P
B.4.2	Temperature controlling device	No such devices.	N/A
B.4.3	Blocked motor test	(See appended table B.3, B.4)	P
B.4.4	Functional insulation	Circuits before fuse are in compliance with clearance and creepage distance requirements, others are verified by short-circuit tests. (See appended table B.3, B.4)	P
B.4.4.1	Short circuit of clearances for functional insulation	See above.	P
B.4.4.2	Short circuit of creepage distances for functional insulation	See above.	P
B.4.4.3	Short circuit of functional insulation on coated printed boards	No coated printed boards within the equipment.	N/A
B.4.5	Short-circuit and interruption of electrodes in tubes and semiconductors	(See appended table B.3, B.4)	P
B.4.6	Short circuit or disconnection of passive components	(See appended table B.3, B.4)	P
B.4.7	Continuous operation of components	The equipment is continuous operating type and no such components intended for short time operation or intermittent operation.	N/A
B.4.8	Compliance during and after single fault conditions	(See appended table B.3, B.4)	P
B.4.9	Battery charging and discharging under single fault conditions	No battery involved in the equipment.	N/A
C	UV RADIATION		N/A
C.1	Protection of materials in equipment from UV radiation		N/A
C.1.2	Requirements	No such UV generated from the equipment.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
C.1.3	Test method	See above.	N/A
C.2	UV light conditioning test		N/A
C.2.1	Test apparatus	No such UV light from the equipment.	N/A
C.2.2	Mounting of test samples	See above.	N/A
C.2.3	Carbon-arc light-exposure test	See above.	N/A
C.2.4	Xenon-arc light-exposure test	See above.	N/A
D	TEST GENERATORS		N/A
D.1	Impulse test generators		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	Electrical energy source classification for audio signals		N/A
	Maximum non-clipped output power (W)	Not such equipment.	—
	Rated load impedance (Ω)	See above.	—
	Open-circuit output voltage (V)	See above.	—
	Instructional safeguard	See above.	—
E.2	Audio amplifier normal operating conditions		N/A
	Audio signal source type	Not such equipment.	—
	Audio output power (W)	See above.	—
	Audio output voltage (V)	See above.	—
	Rated load impedance (Ω)	See above.	—
	Requirements for temperature measurement	See above.	N/A
E.3	Audio amplifier abnormal operating conditions	See above.	N/A
F	EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS		P
F.1	General		P
	Language	English.	—
F.2	Letter symbols and graphical symbols		P
F.2.1	Letter symbols according to IEC60027-1	No such letter symbol provided.	N/A
F.2.2	Graphic symbols according to IEC, ISO or manufacturer specific	Graphical symbols are complied with IEC 60417, ISO 3864-2, ISO 7000 or ISO 7010 or manufacturer specific.	P
F.3	Equipment markings		P

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.1	Equipment marking locations	The power rating marking is in service access area and its location is indicated in the installation instructions.	P
F.3.2	Equipment identification markings	See the following details.	P
F.3.2.1	Manufacturer identification	See copy of marking plate.	P
F.3.2.2	Model identification	See copy of marking plate.	P
F.3.3	Equipment rating markings	See the following details.	P
F.3.3.1	Equipment with direct connection to mains	The equipment is connected to AC mains supply.	P
F.3.3.2	Equipment without direct connection to mains	See above.	N/A
F.3.3.3	Nature of the supply voltage	See copy of marking plate.	P
F.3.3.4	Rated voltage	See copy of marking plate.	P
F.3.3.5	Rated frequency	See copy of marking plate	P
F.3.3.6	Rated current or rated power	See copy of marking plate.	P
F.3.3.7	Equipment with multiple supply connections	Only one supply connection.	N/A
F.3.4	Voltage setting device	Auto range and no voltage selector provide within the equipment.	N/A
F.3.5	Terminals and operating devices	See below.	P
F.3.5.1	Mains appliance outlet and socket-outlet markings	No such devices within the equipment.	N/A
F.3.5.2	Switch position identification marking	(IEC 60417-5007) for "ON" and  (IEC 60417-5008) for "OFF" of the switch.	P
F.3.5.3	Replacement fuse identification and rating markings	The fuse is located within the equipment and not replaceable by an ordinary person or an instructed person. The marking was printed on PCB near fuse: F1 500W: T 8AH/L 250VAC 300/400W: T 6.3AL 250VAC	N/A
	Instructional safeguards for neutral fuse.....	No such fuse provided.	N/A
F.3.5.4	Replacement battery identification marking	No such batteries within the equipment.	N/A
F.3.5.5	Neutral conductor terminal	The equipment is considered not permanently connected equipment.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.5.6	Terminal marking location	See markings specified in F.3.5.5, F.3.6.1 and F.3.6.3 is not placed on removable parts such as screws.	N/A
F.3.6	Equipment markings related to equipment classification	See the following details.	P
F.3.6.1	Class I equipment	See the following details.	P
F.3.6.1.1	Protective earthing conductor terminal..... :	The symbol which complied with IEC 60417-5019  is marked beside protective earthing conductor terminal of appliance inlet.	P
F.3.6.1.2	Protective bonding conductor terminals :	No such terminal is required for wiring by an ordinary person or an instructed person. However, the equipment is a building-in type at component level, the symbol complied with IEC 60417-5019  is marked on metal enclosure to ensure correct assembling in production line.	N/A
F.3.6.2	Equipment class marking :	The equipment is for building-in into a Class I equipment.	N/A
F.3.6.3	Functional earthing terminal marking :	See above.	N/A
F.3.7	Equipment IP rating marking..... :	This equipment is classified as IPX0.	N/A
F.3.8	External power supply output marking :	The equipment is a building-in type.	N/A
F.3.9	Durability, legibility and permanence of marking	See the following details.	P
F.3.10	Test for permanence of markings	The marking plate was subjected to the permanence of marking test. The marking plate was rubbed with cloth soaked with water for 15 s and then again for 15 s with the cloth soaked with petroleum spirit. After each test, there was no damage to the marking plate. The marking on the label did not fade. There was no curling of the marking plate and removed by hand.	P
F.4	Instructions		P

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Clause	Requirement + Test	Result - Remark	Verdict
	a) Information prior to installation and initial use	Relevant safety caution texts and installation instruction are available.	P
	b) Equipment for use in locations where children not likely to be present	The equipment is building-in type.	N/A
	c) Instructions for installation and interconnection	Relevant safety instructions of installation and interconnection are available.	P
	d) Equipment intended for use only in restricted access area	The equipment is not intended for use in restricted access area.	N/A
	e) Equipment intended to be fastened in place	The equipment is building-in type.	N/A
	f) Instructions for audio equipment terminals	Not such audio equipment terminal provided.	N/A
	g) Protective earthing used as a safeguard	No such consideration.	N/A
	h) Protective conductor current exceeding ES2 limits	Not exceeded ES2 limits.	N/A
	i) Graphic symbols used on equipment	No such consideration.	N/A
	j) Permanently connected equipment not provided with all-pole mains switch	The equipment is not a permanently connected equipment.	N/A
	k) Replaceable components or modules providing safeguard function		N/A
	l) Equipment containing insulating liquid	No such insulating liquid provided.	N/A
	m) Installation instructions for outdoor equipment	The equipment is not intended for outdoor use.	N/A
F.5	Instructional safeguards		N/A
G	COMPONENTS		P
G.1	Switches		P
G.1.1	General	See G.1.2.	P
G.1.2	Ratings, endurance, spacing, maximum load	Certified source used. See appended table 4.1.2 for details.	P
G.1.3	Test method and compliance		N/A
G.2	Relays		P
G.2.1	Requirements	Certified component used. See appended table 4.1.2.	P
G.2.2	Overload test	Certified component used. See appended table 4.1.2.	P

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Clause	Requirement + Test	Result - Remark	Verdict
G.2.3	Relay controlling connectors supplying power to other equipment	See above.	N/A
G.2.4	Test method and compliance	See above.	N/A
G.3	Protective devices		P
G.3.1	Thermal cut-offs	No thermal cut-off provided within the equipment.	N/A
	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)	See above.	N/A
	Thermal cut-outs tested as part of the equipment as indicated in c)	See above.	N/A
G.3.1.2	Test method and compliance	See above.	N/A
G.3.2	Thermal links	No thermal link provided within the equipment.	N/A
G.3.2.1	a) Thermal links tested separately according to IEC 60691 with specifics	See above.	N/A
	b) Thermal links tested as part of the equipment	See above.	N/A
G.3.2.2	Test method and compliance	See above.	N/A
G.3.3	PTC thermistors	No PTC thermistor provided within the equipment.	N/A
G.3.4	Overcurrent protection devices	All sources of fuse (F1) complied with IEC/EN 60127.	P
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.4	No such component.	N/A
G.3.5.1	Non-resettable devices suitably rated and marking provided	See above.	N/A
G.3.5.2	Single faults conditions	See above.	N/A
G.4	Connectors		P
G.4.1	Spacings	The appliance inlet complied with IEC 60320-1.	P
G.4.2	Mains connector configuration.....	See above	N/A
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely	No misconnection likely.	P
G.5	Wound components		P
G.5.1	Wire insulation in wound components	Approved TIW used	P
G.5.1.2	Protection against mechanical stress	The Teflon tubing or insulation tape are provided for all winding of isolated transformers to protect against mechanical stress.	P
G.5.2	Endurance test	Approved triple insulated wire is used in windings of isolated	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
		transformers.	
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Test time (days per cycle)..... :		—
	Test temperature (°C)..... :		—
G.5.2.3	Wound components supplied from the mains		N/A
G.5.2.4	No insulation breakdown		N/A
G.5.3	Transformers	See the following details.	P
G.5.3.1	Compliance method..... :	The transformers meet the requirements given in subclauses G.5.3.2 and G.5.3.3.	P
	Position :	(See appended table 4.1.2)	P
	Method of protection :	(See appended table B.3, B.4)	P
G.5.3.2	Insulation	Primary windings and secondary windings are isolated by double/reinforced insulation.	P
	Protection from displacement of windings :	The end-turn of each winding is fixed by insulating tape.	—
G.5.3.3	Transformer overload tests	(See appended table B.3, B.4)	P
G.5.3.3.1	Test conditions	Tested in the complete equipment.	P
G.5.3.3.2	Winding temperatures	(See appended table 5.4.1.4, 9.3, B.1.5, B.2.6)	P
G.5.3.3.3	Winding temperatures - alternative test method	Alternative test method was not considered.	N/A
G.5.3.4	Transformers using FIW	No such FIW provided.	N/A
G.5.3.4.1	General	See above.	N/A
	FIW wire nominal diameter :	See above.	—
G.5.3.4.2	Transformers with basic insulation only		N/A
G.5.3.4.3	Transformers with double insulation or reinforced insulation :		N/A
G.5.3.4.4	Transformers with FIW wound on metal or ferrite core		N/A
G.5.3.4.5	Thermal cycling test and compliance		N/A
G.5.3.4.6	Partial discharge test		N/A
G.5.3.4.7	Routine test		N/A
G.5.4	Motors	See below.	P

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Clause	Requirement + Test	Result - Remark	Verdict
G.5.4.1	General requirements	Approved DC fan sources are used. (See appended table 4.1.2)	P
G.5.4.2	Motor overload test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4.2	Locked-rotor overload test		N/A
	Test duration (days)		—
G.5.4.5	Running overload test for DC motors		N/A
G.5.4.5.2	Tested in the unit		N/A
G.5.4.5.3	Alternative method		N/A
G.5.4.6	Locked-rotor overload test for DC motors		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature		N/A
G.5.4.6.3	Alternative method		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	The triple insulated wire is used as reinforced safeguard in the transformer that complied with Annex J. (See Annex J)	P
G.6.2	Enamelled winding wire insulation	Insulation is not relied on solvent-based enamel.	N/A
G.7	Mains supply cords		N/A
G.7.1	General requirements	AC approved inlet.	N/A
	Type		—
G.7.2	Cross sectional area (mm ² or AWG).....		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)		N/A
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm).....		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.7.3.2.4	Strain relief and cord anchorage 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	Test method and compliance		N/A
	Overall diameter or minor overall dimension, D (mm)..... :		—
	Radius of curvature after test (mm) :		—
G.7.6	Supply wiring space		N/A
G.7.6.1	General requirements		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Requirements		N/A
G.7.6.2.2	Test with 8 mm strand		N/A
G.8	Varistors		P
G.8.1	General requirements	Varistor connected across the mains provided within the equipment (See appended table 4.1.2).	P
G.8.2	Safeguards against fire	Not applicable for the application chosen.	N/A
G.8.2.1	General	See above.	N/A
G.8.2.2	Varistor overload test	The method of “control fire spread” is chosen.	N/A
G.8.2.3	Temporary overvoltage test	See above.	N/A
G.9	Integrated circuit (IC) current limiters		N/A
G.9.1	Requirements	No IC current limiter provided within the equipment.	N/A
	IC limiter output current (max. 5A)..... :	See above.	—
	Manufacturers’ defined drift :	See above.	—
G.9.2	Test Program	See above.	N/A
G.9.3	Compliance	See above.	N/A
G.10	Resistors		N/A
G.10.1	General		N/A
G.10.2	Conditioning		N/A
G.10.3	Resistor test		N/A
G.10.4	Voltage surge test		N/A
G.10.5	Impulse test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.10.6	Overload test		N/A
G.11	Capacitors and RC units		P
G.11.1	General requirements	The X-Capacitor and the Y-Capacitor are used as safeguard and complied with IEC/EN 60384-14:2013+A1:2016. (See appended table 4.1.2)	P
G.11.2	Conditioning of capacitors and RC units	At least 21 days at 40 ± 2 °C and 93 ± 3 % R.H.	P
G.11.3	Rules for selecting capacitors	The selection followed with table G.12.	P
G.12	Optocouplers		P
	Optocouplers comply with IEC 60747-5-5 with specifics	The optocouplers are used in the equipment and complied with IEC/EN 60747-5-5 or the requirements of subclause 5.4. (See appended table 4.1.2)	P
	Type test voltage $V_{ini,a}$:	See above.	—
	Routine test voltage, $V_{ini,b}$:	See above.	—
G.13	Printed boards	See below.	P
G.13.1	General requirements	See the following details.	P
G.13.2	Uncoated printed boards	The insulation between conductors on the outer surfaces of an uncoated printed board complied with the minimum clearance and creepage requirements.	P
G.13.3	Coated printed boards	No coated printed boards are provided within the equipment.	N/A
G.13.4	Insulation between conductors on the same inner surface		N/A
G.13.5	Insulation between conductors on different surfaces	Not multilayer board.	N/A
	Distance through insulation..... :		N/A
	Number of insulation layers (pcs) :		—
G.13.6	Tests on coated printed boards		N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2	Test method and compliance		N/A
G.14	Coating on components terminals		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.14.1	Requirements	No coating on components terminals.	N/A
G.15	Pressurized liquid filled components		N/A
G.15.1	Requirements	No such components are provided within the equipment.	N/A
G.15.2	Test methods and compliance		N/A
G.15.2.1	Hydrostatic pressure test		N/A
G.15.2.2	Creep resistance test		N/A
G.15.2.3	Tubing and fittings compatibility test		N/A
G.15.2.4	Vibration test		N/A
G.15.2.5	Thermal cycling test		N/A
G.15.2.6	Force test		N/A
G.15.3	Compliance		N/A
G.16	IC including capacitor discharge function (ICX)		P
G.16.1	Condition for fault tested is not required	Certified source used. See appended table 4.1.2.	N/A
	ICX with associated circuitry tested in equipment		N/A
	ICX tested separately		N/A
G.16.2	Tests		N/A
	Smallest capacitance and smallest resistance specified by ICX manufacturer for impulse test :		—
	Mains voltage that impulses to be superimposed on		—
	Largest capacitance and smallest resistance for ICX tested by itself for 10000 cycles test..... :		—
G.16.3	Capacitor discharge test..... :		N/A
H	CRITERIA FOR TELEPHONE RINGING SIGNALS		N/A
H.1	General		N/A
H.2	Method A		N/A
H.3	Method B		N/A
H.3.1	Ringing signal	No telephone ringing signals generated within the equipment.	N/A
H.3.1.1	Frequency (Hz)	See above.	—
H.3.1.2	Voltage (V)	See above.	—
H.3.1.3	Cadence; time (s) and voltage (V)	See above.	—
H.3.1.4	Single fault current (mA):	See above.	—

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Clause	Requirement + Test	Result - Remark	Verdict
H.3.2	Tripping device and monitoring voltage	See above.	N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage	See above.	N/A
H.3.2.2	Tripping device	See above.	N/A
H.3.2.3	Monitoring voltage (V) :	See above.	N/A
J	INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION		P
J.1	General		P
	Winding wire insulation :	Certified sources used. (See appended table 4.1.2)	—
	Solid round winding wire, diameter (mm)..... :	See above.	N/A
	Solid square and rectangular (flatwise bending) winding wire, cross-sectional area (mm ²) :	See above.	N/A
J.2/J.3	Tests and Manufacturing	See above.	—
K	SAFETY INTERLOCKS		N/A
K.1	General requirements		N/A
	Instructional safeguard..... :	No safety interlock provided within the equipment.	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
K.5.1	Under single fault condition	No safety interlock provided within the equipment.	N/A
K.6	Mechanically operated safety interlocks		N/A
K.6.1	Endurance requirement	No safety interlock provided within the equipment.	N/A
K.6.2	Test method and compliance :	See above.	N/A
K.7	Interlock circuit isolation		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements	No safety interlock provided within the equipment.	N/A
	In circuit connected to mains, separation distance for contact gaps (mm) :	See above.	N/A
	In circuit isolated from mains, separation distance for contact gaps (mm) :	See above.	N/A
	Electric strength test before and after the test of K.7.2 :	See above.	N/A
K.7.2	Overload test, Current (A)..... :	See above.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
K.7.3	Endurance test	See above.	N/A
K.7.4	Electric strength test	See above.	N/A
L	DISCONNECT DEVICES		P
L.1	General requirements	Appliance coupler is considered as disconnect device.	P
L.2	Permanently connected equipment	The EUT is not permanently connected equipment	N/A
L.3	Parts that remain energized	When the equipment is disconnected from mains, no remaining parts at hazardous voltage in the equipment.	P
L.4	Single-phase equipment	The disconnect device disconnects both poles simultaneously.	P
L.5	Three-phase equipment	The EUT is a Single phase equipment	N/A
L.6	Switches as disconnect devices	No such switch provided on the equipment.	N/A
L.7	Plugs as disconnect devices	See the statement in the instlaa instruction manual.	P
L.8	Multiple power sources	Only one a.c. mains connection.	N/A
	Instructional safeguard..... :	See above.	N/A
M	EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS		N/A
M.1	General requirements		N/A
M.2	Safety of batteries and their cells		N/A
M.2.1	Batteries and their cells comply with relevant IEC standards..... :	No such batteries within the equipment.	N/A
M.3	Protection circuits for batteries provided within the equipment	See above.	N/A
M.3.1	Requirements	See above.	N/A
M.3.2	Test method	See above.	N/A
	Overcharging of a rechargeable battery	See above.	N/A
	Excessive discharging	See above.	N/A
	Unintentional charging of a non-rechargeable battery	See above.	N/A
	Reverse charging of a rechargeable battery	See above.	N/A
M.3.3	Compliance	See above.	N/A
M.4	Additional safeguards for equipment containing a portable secondary lithium		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	battery		
M.4.1	General	No such batteries within the equipment.	N/A
M.4.2	Charging safeguards	See above.	N/A
M.4.2.1	Requirements	See above.	N/A
M.4.2.2	Compliance :	See above.	N/A
M.4.3	Fire enclosure :	See above.	N/A
M.4.4	Drop test of equipment containing a secondary lithium battery	See above.	N/A
M.4.4.2	Preparation and procedure for the drop test	See above.	N/A
M.4.4.3	Drop, Voltage on reference and dropped batteries (V); voltage difference during 24 h period (%): :	See above.	N/A
M.4.4.4	Check of the charge/discharge function	See above.	N/A
M.4.4.5	Charge / discharge cycle test	See above.	N/A
M.4.4.6	Compliance	See above.	N/A
M.5	Risk of burn due to short-circuit during carrying		N/A
M.5.1	Requirement	No such consideration.	N/A
M.5.2	Test method and compliance	See above.	N/A
M.6	Safeguards against short-circuits		N/A
M.6.1	External and internal faults	No such consideration.	N/A
M.6.2	Compliance	See above.	N/A
M.7	Risk of explosion from lead acid and NiCd batteries		N/A
M.7.1	Ventilation preventing explosive gas concentration	No such batteries within the equipment.	N/A
	Calculated hydrogen generation rate :	See above.	N/A
M.7.2	Test method and compliance	See above.	N/A
	Minimum air flow rate, Q (m ³ /h)..... :	See above.	N/A
M.7.3	Ventilation tests	See above.	N/A
M.7.3.1	General	See above.	N/A
M.7.3.2	Ventilation test – alternative 1	See above.	N/A
	Hydrogen gas concentration (%). :	See above.	N/A
M.7.3.3	Ventilation test – alternative 2	See above.	N/A
	Obtained hydrogen generation rate :	See above.	N/A
M.7.3.4	Ventilation test – alternative 3	See above.	N/A
	Hydrogen gas concentration (%). :	See above.	N/A
M.7.4	Marking..... :	See above.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
M.8	Protection against internal ignition from external spark sources of batteries with aqueous electrolyte		N/A
M.8.1	General	No such consideration.	N/A
M.8.2	Test method	See above.	N/A
M.8.2.1	General	See above.	N/A
M.8.2.2	Estimation of hypothetical volume V_z (m ³ /s)..... :	See above.	—
M.8.2.3	Correction factors..... :	See above.	—
M.8.2.4	Calculation of distance d (mm) :	See above.	—
M.9	Preventing electrolyte spillage		N/A
M.9.1	Protection from electrolyte spillage	No such consideration.	N/A
M.9.2	Tray for preventing electrolyte spillage	See above.	N/A
M.10	Instructions to prevent reasonably foreseeable misuse	See above.	N/A
	Instructional safeguard..... :	See above.	N/A
N	ELECTROCHEMICAL POTENTIALS		P
	Material(s) used..... :	Complied, the combined electrochemical potential < 0.6 V.	—
O	MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES		P
	Value of X (mm)..... :	Considered.	—
P	SAFEGUARDS AGAINST CONDUCTIVE OBJECTS		P
P.1	General	The equipment is a building-in type.	N/A
P.2	Safeguards against entry or consequences of entry of a foreign object		P
P.2.1	General	See below.	P
P.2.2	Safeguards against entry of a foreign object	The equipment is building-in type and evaluation is also to be made during the final system approval.	P
	Location and Dimensions (mm) :	- Front (inlet side): Max. 2.91 mm, numerous hexagon shape openings. No bare conductive parts of ES3 or PS3 circuits within the projected volume as depicted in Figure P.3. - Other sides: Shall be evaluated in final system	—

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Clause	Requirement + Test	Result - Remark	Verdict
P.2.3	Safeguards against the consequences of entry of a foreign object	The equipment is a building-in type.	N/A
P.2.3.1	Safeguard requirements		N/A
	The ES3 and PS3 keep-out volume in Figure P.3 not applicable to transportable equipment		N/A
	Transportable equipment with metalized plastic parts		N/A
P.2.3.2	Consequence of entry test		N/A
P.3	Safeguards against spillage of internal liquids		N/A
P.3.1	General	No such consideration.	N/A
P.3.2	Determination of spillage consequences	See above.	N/A
P.3.3	Spillage safeguards	See above.	N/A
P.3.4	Compliance	See above.	N/A
P.4	Metallized coatings and adhesives securing parts		N/A
P.4.1	General	No such construction.	N/A
P.4.2	Tests	See above.	N/A
	Conditioning, T _c (°C)	See above.	—
	Duration (weeks)	See above.	—
Q	CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING		N/A
Q.1	Limited power sources	The outputs are not complying with LPS.	N/A
Q.1.1	Requirements	See above.	N/A
	a) Inherently limited output	See above.	N/A
	b) Impedance limited output	See above.	N/A
	c) Regulating network limited output	See above.	N/A
	d) Overcurrent protective device limited output	See above.	N/A
	e) IC current limiter complying with G.9	See above.	N/A
Q.1.2	Test method and compliance	See above.	N/A
	Current rating of overcurrent protective device (A)	See above.	N/A
Q.2	Test for external circuits – paired conductor cable	No such external circuits provided.	N/A
	Maximum output current (A)	See above.	N/A
	Current limiting method	See above.	—
R	LIMITED SHORT CIRCUIT TEST		N/A
R.1	General		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
R.2	Test setup		N/A
	Overcurrent protective device for test		—
R.3	Test method		N/A
	Cord/cable used for test		—
R.4	Compliance		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		N/A
	Samples, material	The equipment is building-in type.	—
	Wall thickness (mm)	See above.	—
	Conditioning (°C)	See above.	—
	Test flame according to IEC 60695-11-5 with conditions as set out	See above.	N/A
	- Material not consumed completely	See above.	N/A
	- Material extinguishes within 30s	See above.	N/A
	- No burning of layer or wrapping tissue	See above.	N/A
S.2	Flammability test for fire enclosure and fire barrier integrity		N/A
	Samples, material	No such consideration.	—
	Wall thickness (mm)	See above.	—
	Conditioning (°C)	See above.	—
S.3	Flammability test for the bottom of a fire enclosure		N/A
S.3.1	Mounting of samples	The equipment is building-in type.	N/A
S.3.2	Test method and compliance	See above.	N/A
	Mounting of samples	See above.	—
	Wall thickness (mm)	See above.	—
S.4	Flammability classification of materials	See above.	N/A
S.5	Flammability test for fire enclosure materials of equipment with a steady state power exceeding 4 000 W	The equipment does not exceeding 4000W.	N/A
	Samples, material	See above.	—
	Wall thickness (mm)	See above.	—
	Conditioning (°C)	See above.	—
T	MECHANICAL STRENGTH TESTS		P
T.1	General		P

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Clause	Requirement + Test	Result - Remark	Verdict
T.2	Steady force test, 10 N	10 N applied to all components other than the parts serving as an enclosure.	P
T.3	Steady force test, 30 N	Applied on metal chassis except for front inlet side. No hazards. (See appended table T.2, T.3, T.4, T.5).	P
T.4	Steady force test, 100 N	See subclause T.5.	N/A
T.5	Steady force test, 250 N	The equipment is building-in type. However, the test applied to the side of appliance inlet. After subjected 250 N, no energy or other hazards. (See appended table T.2, T.3, T.4, T.5).	P
T.6	Enclosure impact test	The metal chassis was evaluated as a fire barrier. Due to the equipment is building-in type. However, the test applied to the side of appliance inlet. No hazards as result from the steel ball impact test. (See appended table T.6, T.9).	P
	Fall test	See above.	P
	Swing test	See above.	N/A
T.7	Drop test	The equipment is building-in type.	N/A
T.8	Stress relief test	No damage. ES3 cannot become accessible to an ordinary person, and all other safeguards remain effective during and after subjected stress relief test. (See appended table T.8)	P
T.9	Glass Impact Test	No such glass provided within the equipment.	N/A
T.10	Glass fragmentation test		N/A
	Number of particles counted	No such glass provided within the equipment.	N/A
T.11	Test for telescoping or rod antennas		N/A
	Torque value (Nm)	No such antennas provided within the equipment.	N/A

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Clause	Requirement + Test		Verdict
U	MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION		N/A
U.1	General		N/A
	Instructional safeguard :	No CRT provided within the equipment.	N/A
U.2	Test method and compliance for non-intrinsically protected CRTs		N/A
U.3	Protective screen		N/A
V	DETERMINATION OF ACCESSIBLE PARTS		P
V.1	Accessible parts of equipment		P
V.1.1	General	The equipment is a building-in type, evaluation is also to be made during the final system approval. The inlet side was considered to be ordinary person accessible area as declared by manufacturer. Test probe V.1 is applied for determination of accessible parts for the inlet side.	P
V.1.2	Surfaces and openings tested with jointed test probes	See above.	P
V.1.3	Openings tested with straight unjointed test probes		N/A
V.1.4	Plugs, jacks, connectors tested with blunt probe	No such consideration.	N/A
V.1.5	Slot openings tested with wedge probe	See above.	N/A
V.1.6	Terminals tested with rigid test wire	See above.	N/A
V.2	Accessible part criterion		N/A
X	ALTERNATIVE METHOD FOR DETERMINING CLEARANCES FOR INSULATION IN CIRCUITS CONNECTED TO AN AC MAINS NOT EXCEEDING 420 V PEAK (300 V RMS)		N/A
	Clearance..... :	Not applied.	N/A
Y	CONSTRUCTION REQUIREMENTS FOR OUTDOOR ENCLOSURES		N/A
Y.1	General	The equipment is not intended for outdoor use.	N/A
Y.2	Resistance to UV radiation	See above.	N/A
Y.3	Resistance to corrosion	See above.	N/A
Y.3	Resistance to corrosion		N/A
Y.3.1	Metallic parts of outdoor enclosures are resistant to effects of water-borne contaminants by..... :	No such consideration	N/A
Y.3.2	Test apparatus	See above.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
Y.3.3	Water – saturated sulphur dioxide atmosphere	See above.	N/A
Y.3.4	Test procedure :	See above.	N/A
Y.3.5	Compliance	See above.	N/A
Y.4	Gaskets	See above.	N/A
Y.4.1	General	See above.	N/A
Y.4.2	Gasket tests	See above.	N/A
Y.4.3	Tensile strength and elongation tests	See above.	N/A
	Alternative test methods :	See above.	N/A
Y.4.4	Compression test	See above.	N/A
Y.4.5	Oil resistance	See above.	N/A
Y.4.6	Securing means	See above.	N/A
Y.5	Protection of equipment within an outdoor enclosure		N/A
Y.5.1	General	No such consideration	N/A
Y.5.2	Protection from moisture	See above.	N/A
	Relevant tests of IEC 60529 or Y.5.3 :	See above.	N/A
Y.5.3	Water spray test	See above.	N/A
Y.5.4	Protection from plants and vermin	See above.	N/A
Y.5.5	Protection from excessive dust	See above.	N/A
Y.5.5.1	General	See above.	N/A
Y.5.5.2	IP5X equipment	See above.	N/A
Y.5.5.3	IP6X equipment	See above.	N/A
Y.6	Mechanical strength of enclosures	See above.	N/A
Y.6.1	General	See above.	N/A
Y.6.2	Impact test :	See above.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

5.2	TABLE: Classification of electrical energy sources						P	
Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters				ES Class	
			U (V)	I (mA)	Type ¹⁾	Additional Info ²⁾		
Test for all models								
90Vac/ 60Hz	Unearthed accessible conductive parts (Plastic parts with metal foil)	Normal	--	0.01 mApk	SS	--	ES1	
		Abnormal	--	0.01 mApk	SS	--		
		Single fault:	--	0.01 mApk	SS	--		
264Vac/ 60Hz	+3.3Vdc output pin “+” and pin “-“ to earth	Normal	--	0.4mApk	SS	--	ES1	
		Abnormal						
		Unit fuse opened items, unit shutdown or component damaged conditions items in Annex B.3, B4	--	0.4mApk	SS	--		
		Unit cycling protection, all output voltage does not exceed rating conditions items in Annex B.3, B.4	--	0.4mApk	RP	--		
264Vac/ 60Hz	+3.3Vdc output pin “+” to “-“	Normal	3.4Vpk	--	SS	--	ES1	
		Abnormal						
		Unit fuse opened items, unit shutdown or component damaged conditions items	0Vpk	--	SS	--		

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Clause	Requirement + Test			Result - Remark			Verdict
		in Annex B.3, B4					
		Unit cycling protection, all output voltage does not exceed rating conditions items in Annex B.3, B.4	3.4Vpk	--	RP	--	
264Vac/ 60Hz	+5Vdc output pin "+" and pin "-" to earth	Normal	--	0.4mA _{pk}	SS	--	ES1
		Abnormal					
		Unit fuse opened items, unit shutdown or component damaged conditions items in Annex B.3, B4	--	0.4mA _{pk}	SS	--	
		Unit cycling protection, all output voltage does not exceed rating conditions items in Annex B.3, B.4	--	0.4mA _{pk}	RP	--	
264Vac/ 60Hz	+5Vdc output pin "+" to "-"	Normal	5.1Vpk	--	SS	--	ES1
		Single fault:					
		Unit fuse opened items, unit shutdown or component damaged conditions items in Annex B.3, B4	0Vpk	--	SS	--	
		Unit cycling protection, all output voltage does not exceed rating conditions items in Annex B.3, B.4	5.1Vpk	--	RP	--	
264Vac/ 60Hz	+12Vdc output pin "+" and pin "-" to earth	Normal	--	0.4mA _{pk}	SS	--	ES1

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Clause	Requirement + Test				Result - Remark		Verdict	
		Abnormal						
		Unit fuse opened items, unit shutdown or component damaged conditions items in Annex B.3, B4	--	0.4mA _p k	SS	--		
		Unit cycling protection, all output voltage does not exceed rating conditions items in Annex B.3, B.4	--	0.4mA _p k	RP	--		
264Vac/ 60Hz	+12Vdc output pin "+" to "-"	Normal	12.1Vpk	--	SS	--	ES1	
		Single fault:						
		Unit fuse opened items, unit shutdown or component damaged conditions items in Annex B.3, B4	0Vpk	--	SS	--		
		Unit cycling protection, all output voltage does not exceed rating conditions items in Annex B.3, B.4	12.1Vpk	--	RP	--		
264Vac/ 60Hz	+5Vsb output pin "+" and pin "-" to earth	Normal	--	0.4mA _p k	SS	--	ES1	
		Abnormal						
		Unit fuse opened items, unit shutdown or component damaged conditions items in Annex B.3, B4	--	0.4mA _p k	SS	--		
		Unit cycling protection, all output voltage	--	0.4mA _p k	RP	--		

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Clause	Requirement + Test			Result - Remark			Verdict
		does not exceed rating conditions items in Annex B.3, B.4					
264Vac/ 60Hz	-12Vdc output pin “+” to “-”	Normal	-12.1Vpk	--	SS	--	ES1
		Single fault:					
		Unit fuse opened items, unit shutdown or component damaged conditions items in Annex B.3, B.4	0Vpk	--	SS	--	
		Unit cycling protection, all output voltage does not exceed rating conditions items in Annex B.3, B.4	-12.1Vpk	--	RP	--	
264Vac/ 60Hz	-5Vdc output pin “+” to “-”	Normal	-5.1Vpk	--	SS	--	ES1
		Abnormal					
		Unit fuse opened items, unit shutdown or component damaged conditions items in Annex B.3, B.4	0Vpk	--	SS	--	
		Unit cycling protection, all output voltage does not exceed rating conditions items in Annex B.3, B.4	-5.1Vpk	--	RP	--	
264Vac/ 60Hz	+5Vsb output pin “+” to “-”	Normal	5.1Vpk	--	SS	--	ES1
		Single fault:					
		Unit fuse opened items, unit shutdown or component damaged	0Vpk	--	SS	--	

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Clause	Requirement + Test			Result - Remark			Verdict
		conditions items in Annex B.3, B4					
		Unit cycling protection, all output voltage does not exceed rating conditions items in Annex B.3, B.4	5.1Vpk	--	RP	--	
264Vac/ 60Hz	-12Vdc output pin "+" and pin "-" to earth	Normal	--	0.4mA _p k	SS	--	ES1
		Abnormal					
		Unit fuse opened items, unit shutdown or component damaged conditions items in Annex B.3, B4	--	0.4mA _p k	SS	--	
		Unit cycling protection, all output voltage does not exceed rating conditions items in Annex B.3, B.4	--	0.4mA _p k	RP	--	
264Vac/ 60Hz	-5Vdc output pin "+" and pin "-" to earth	Normal	--	0.4mA _p k	SS	--	ES1
		Abnormal					
		Unit fuse opened items, unit shutdown or component damaged conditions items in Annex B.3, B4	--	0.4mA _p k	SS	--	
		Unit cycling protection, all output voltage does not exceed rating conditions items in Annex B.3, B.4	--	0.4mA _p k	RP	--	

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Clause	Requirement + Test			Result - Remark			Verdict
90Vac, 60Hz	1.056μF (with tolernace +20%)	Normal (tested for all models)	Max. 126Vpk	--	CP	--	ES3
264Vac, 60Hz	1.056μF (with tolernace +20%)	Normal (tested for all models)	Max. 369Vpk	--	CP	--	ES3
Supplementary information:							
1) Type: Steady state (SS), Capacitance (CP), Single pulse (SP), Repetitive pulses (RP), etc. 2) Additional Info: Frequency, Pulse duration, Pulse off time, Capacitance value, etc. 3) Only recorded the worst case value. 4) Overall capacity: CY6 = CY7 = 220 pF, CY3 = CY4 = CY5 = 2200 pF 5) All output pin “-” were connected to metal chassis (protective earthing conductor).							

5.4.1.8	TABLE: Working voltage measurement				P
Location	RMS voltage (V)	Peak voltage (V)	Frequency (kHz)	Comments	
For models FSP400-50UDB and FSP400-50WDB					
T1 pin 1 to T1 FA	336	632	69.4	--	
T1 pin 1 to T1 FB	360	650	69.4	--	
T1 pin 2 to T1 FA	344	642	69.4	--	
T1 pin 2 to T1 FB	360	656	69.4	Max. Vpeak and Vrms of T1, Frequency: 69.4k Hz	
T1 pin 3 to T1 FA	132	272	69.4	--	
T1 pin 3 to T1 FB	133	262	69.4	--	
T1 pin 4 to T1 FA	336	632	69.4	--	
T1 pin 4 to T1 FB	354	654	69.4	--	
T1 pin 5 to T1 FA	133	274	69.4	--	
T1 pin 5 to T1 FB	133	274	69.4	--	
T1 pin 6 to T1 FA	133	268	69.4	--	
T1 pin 6 to T1 FB	133	292	69.4	--	
For models FSP500-50UDB and FSP500-50WDB					
T1 pin 1 to T1 FA	336	636	69.4	--	
T1 pin 1 to T1 FB	360	656	69.4	--	
T1 pin 2 to T1 FA	344	644	69.4	--	
T1 pin 2 to T1 FB	368	670	69.4	Max. Vpeak and Vrms of T1, Frequency: 69.4k Hz	

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Clause	Requirement + Test		Result - Remark	Verdict

T1 pin 3 to T1 FA	132	272	69.4	--
T1 pin 3 to T1 FB	133	268	69.4	--
T1 pin 4 to T1 FA	336	636	69.4	--
T1 pin 4 to T1 FB	360	656	69.4	--
T1 pin 5 to T1 FA	133	272	69.4	--
T1 pin 5 to T1 FB	132	272	69.4	--
T1 pin 6 to T1 FA	132	268	69.4	--
T1 pin 6 to T1 FB	135	292	69.4	--
T2 pin 1 to T2 pin 6	226	636	68.5	Max. Vpeak and Vrms of T2, Frequency: 68.5k Hz
T2 pin 1 to T2 pin 9	217	616	68.5	--
T2 pin 2 to T2 pin 6	133	272	68.5	--
T2 pin 2 to T2 pin 9	133	264	68.5	--
T2 pin 3 to T2 pin 6	136	368	68.5	--
T2 pin 3 to T2 pin 9	133	372	68.5	--
T2 pin 4 to T2 pin 6	132	260	68.5	--
T2 pin 4 to T2 pin 9	133	260	68.5	--
1L5 pin 2 to 1L5 pin 1	412	636	68.5	Max. Vpeak and Vrms of 1L5, Frequency: 68.5k Hz
1L5 pin 2 to 1L5 pin 6	411	636	68.5	--
1L5 pin 3 to 1L5 pin 1	170	350	68.5	--
1L5 pin 3 to 1L5 pin 6	170	350	68.5	--
1L5 pin 4 to 1L5 pin 1	171	355	68.5	--
1L5 pin 4 to 1L5 pin 6	170	355	68.5	--
1L5 pin 5 to 1L5 pin 1	411	632	68.5	--
1L5 pin 5 to 1L5 pin 6	411	632	68.5	--
CU2 pin 3 to CU2 pin 1	172	354	0.06	--
CU2 pin 3 to CU2 pin 2	173	353	0.06	--
CU2 pin 4 to CU2 pin 1	172	354	0.06	--
CU2 pin 4 to CU2 pin 2	173	353	0.06	--
CU3 pin 3 to CU3 pin 1	171	353	0.06	--
CU3 pin 3 to CU3 pin 2	171	354	0.06	--
CU3 pin 4 to CU3 pin 1	171	353	0.06	--
CU3 pin 4 to CU3 pin 2	171	354	0.06	--

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Clause	Requirement + Test		Result - Remark	Verdict
CU4 pin 3 to CU4 pin 1	171	352	0.06	--
CU4 pin 3 to CU4 pin 2	172	352	0.06	--
CU4 pin 4 to CU4 pin 1	171	352	0.06	--
CU4 pin 4 to CU4 pin 2	172	352	0.06	--
CU8 pin 3 to CU8 pin 1	170	353	0.06	--
CU8 pin 3 to CU8 pin 2	170	353	0.06	--
CU8 pin 4 to CU8 pin 1	170	353	0.06	--
CU8 pin 4 to CU8 pin 2	170	353	0.06	--
Between CY6	240	350	0.06	--
Between CY3	240	368	0.06	--
Between CY5	178	360	0.06	--
DC to DC board pin 1 to T2 pin 6	227	636	68.5	--
DC to DC board pin 1 to T2 pin 9	218	612	68.5	--
2Z1-2D2 trace to T2 pin 9	133	288	68.5	--
RJ7-1D10 trace to CTRL board secondary pin 2	330	634	0.06	--
1C9-1R28 trace to CTRL board secondary pin 2	331	635	0.06	--
CTRL board primary pin 13 to CTRL board secondary pin 7	145	252	0.06	--
CU4 pin 4 to CR35-CR34 trace	131	250	0.06	--
DC to DC board primary pin 1 to DC to DC board secondary pin 17	143	204	0.06	--
DC to DC board primary pin 5 to DU1 pin 10	143	204	0.06	--
DC to DC board primary pin 5 to DU1 pin 9	143	204	0.06	--
DC to DC board primary pin 5 to DC to DC board secondary pin 18	143	204	0.06	--
DC to DC board primary pin 3 to DC to DC board secondary pin 18	143	208	0.06	--

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:

Test voltage 240Vac, 60Hz.

5.4.1.10.2	TABLE: Vicat softening temperature of thermoplastics			N/A
Method..... :		ISO 306 / B50		—
Object/ Part No./Material	Manufacturer/trademark	Thickness (mm)	T softening (°C)	
--	--	--	--	
--	--	--	--	
Supplementary information:				

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	Thickness (mm)	Test temperature (°C)	Impression diameter (mm)		
Supplementary information:						
Phenolic materials used in L1, L2, T1, T2 and T3 bobbin were accepted without test.						

5.4.2, 5.4.3	TABLE: Minimum Clearances/Creepage distance							P
Clearance (cl) and creepage distance (cr) at/of/between:	U _p (V)	U _{rms} (V)	Freq ¹⁾ (Hz)	Required cl (mm)	cl (mm)	E.S. ²⁾ (V)	Required cr (mm)	cr (mm)
Functional:								
Distance under fuse or Distance before fuse which between Line and neutral	420	250	See below	1.9^{4.5.} (1.27 * 1.48) 2.3^{4.6.} (1.5 * 1.48)	See below	--	2.5	See below
Under CX via trace of ER1 & ER2 (ERP BD)	420	250	60Hz	See above	3.4	--	2.5	3.4
Under fuse (MAIN BOARD solder side)	420	250	60Hz	See above	3.2	--	2.5	3.2
Line trace to Neutral trace before fuse (via fuse trace) (MAIN BOARD solder side)	420	250	60Hz	See above	7.9	--	2.5	7.9

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Clause	Requirement + Test			Result - Remark			Verdict	
HS2 to T1 core (For models FSP300-50UDB, FSP400-50UDB and FSP500-50UDB)	670	368	69.4kHz	See above	5.4	--	3.7	More than 5.4
HS2 to T1 core (For models FSP300-50WDB, FSP400-50WDB and FSP500-50WDB)	670	368	69.4kHz	See above	8.1	--	3.7	More than 8.1
Basic/Supplementary insulation:								
Primary components (with 10N) to earthed component	420	250	See below	1.9^{4.5} (1.27 * 1.48) 2.3^{4.6} (1.5 * 1.48)	See below	--	2.5	See below
DC TO DC BOARD primary trace to top metal chassis	420	250	60Hz	See above	5.0	--	2.5	More than 5.0
Primary trace to earthed trace (MAIN BOARD)	420	250	See below	1.9^{4.5} (1.27 * 1.48) 2.3^{4.6} (1.5 * 1.48)	See below	--	2.5	See below
Under CY4	420	250	60Hz	See above	7.4	--	2.5	7.4
Under CY3	420	250	60Hz	See above	3.3	--	2.5	3.3
PB trace to BD2 trace	420	250	60Hz	See above	3.3	--	2.5	3.3
Reinforced:								
MAIN BOARD solder side								
CCN1 pin 14 trace to 1C17 trace	420	250	60Hz	3.8 ^{4.5} (2.54 * 1.48) 4.5 ^{4.6} (3.0 * 1.48)	10.2	--	5.0	10.2
1R35 trace to 1C17 trace	420	250	60Hz	See above	7.5	--	5.0	7.5
1D10 trace to Q604 trace	420	250	60Hz	See above	6.0	--	5.0	9.0
Under CY5	420	250	60Hz	See above	7.4	--	5.0	7.4
2D2 trace to 2R12 trace	420	250	60Hz	See above	7.2	--	5.0	7.2
2D2 trace to 2C3	420	250	60Hz	See above	7.2	--	5.0	7.2

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Clause	Requirement + Test			Result - Remark			Verdict	
trace								
RJ7-1D10 trace to CTRL board secondary pin 2	634	330	60Hz	See above	7.1	--	6.6	7.1
1C9-1R28 trace to CTRL board secondary pin 2	635	331	60Hz	See above	8.2	--	6.8	8.5
CTRL BOARD component side								
Under CU4, CU2, CU3, CU8	420	250	60Hz	3.8 ^{4.5} (2.54 * 1.48) 4.5 ^{4.6} (3.0 * 1.48)	8.2	--	5.0	8.2
CU8 pin 1 trace to CCN1 pin 14 trace	420	250	60Hz	See above	7.1	--	5.0	7.1
2R18 trace to CCN1 pin 14 trace	420	250	60Hz	See above	7.2	--	5.0	7.2
CTRL BOARD solder side								
2R18 trace to CCN1 pin 14 trace	420	250	60Hz	3.8 ^{4.5} (2.54 * 1.48) 4.5 ^{4.6} (3.0 * 1.48)	7.2	--	5.0	7.2
DC TO DC BOARD component side								
DCN2 pin 5 trace to DCN1 pin 18 trace	420	250	See below	3.8 ^{4.5} (2.54 * 1.48) 4.5 ^{4.6} (3.0 * 1.48)	9.0	--	5.0	9.0
PR3 trace to DCN1 pin 18 trace	420	250	60Hz	See above	9.3	--	5.0	9.3
DCN2 pin 1 trace to DCN1 pin 18 trace	420	250	60Hz	See above	9.9	--	5.0	9.9
DC TO DC BOARD solder side								
DU1 pin 10 trace to PC1 trace	420	250	60Hz	3.8 ^{4.5} (2.54 * 1.48) 4.5 ^{4.6} (3.0 * 1.48)	8.9	--	5.0	8.9
DU1 pin 10 trace to PQ1 trace	420	250	60Hz	See above	8.6	--	5.0	8.6

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Clause	Requirement + Test				Result - Remark			Verdict

DU1 pin 11 trace to PQ1 trace	420	250	60Hz	See above	8.4	--	5.0	8.4
DCN1 pin 17 trace to PQ1 trace	420	250	60Hz	See above	9.7	--	5.0	9.7

Supplementary information:

Note 1: Only for frequency above 30 kHz

Note 2: See table 5.4.2.4 if this is based on electric strength test

Note 3: Provide Material Group

Note 4: The correction factor of clearance is 1.48, according to table 17 for altitude up to 5000m

Note 5: Calculated according to clause 5.4.2.2 (Procedure 1) with table 10.

Note 6: Calculated according to clause 5.4.2.3.4 (Procedure 2) with table 14.

Note 7: Compliance is checked by inspection, by measurement or in case of doubt by applying a force of 10 N in the most unfavorable direction.

Construction details as below:

1) For clearance and creepage did not describe above are far larger than limit above.

2) L/N wires are fixed in PCB reliable by soldered and solder pins.

3) There is one groove (25.5 by 2 mm) provided between T1.

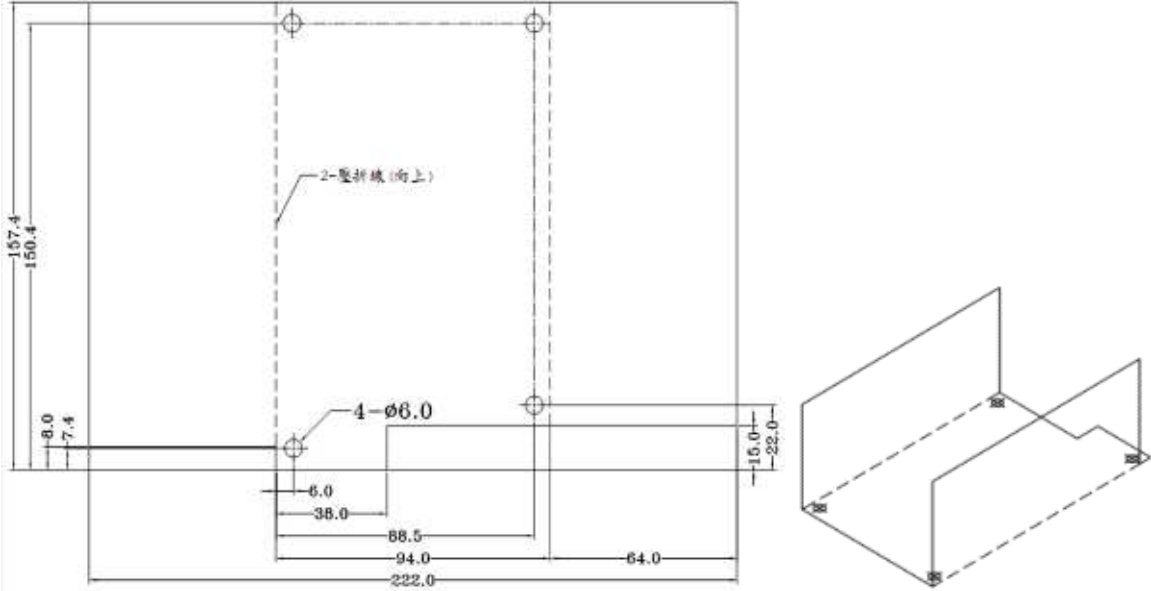
4) There is one “U” shape insulation sheet (178 mm by 157.4 mm) provided between MAIN BOARD and metal chassis. (For models FSP300-50UDB, FSP400-50UDB and FSP500-50UDB)

The drawing shows a U-shaped insulation sheet with the following dimensions: overall width 178.0 mm, overall height 157.4 mm, and a central opening width of 94.0 mm. The sheet has four mounting holes, each with a diameter of 6.0 mm. A label '4-壓折線(向上)' points to the fold lines. Other dimensions include 150.4 mm for the inner width, 8.0 mm and 7.4 mm for the top flange, 6.0 mm for the hole offset, 38.0 mm for the flange width, 88.5 mm for the inner width, and 37.0 mm for the side flange. A 3D perspective view shows the sheet being inserted into a chassis.

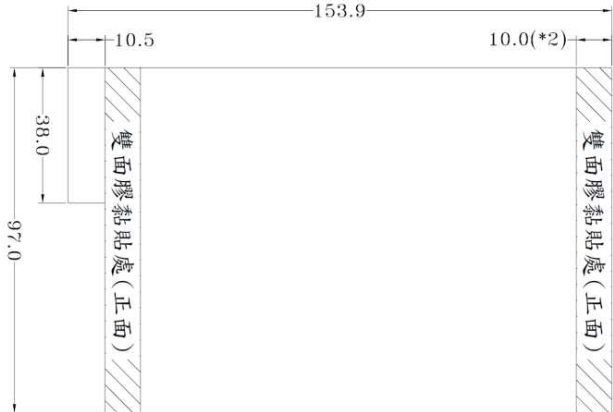
5) There is one “U” shape insulation sheet (222 mm by 157.4 mm) provided between MAIN BOARD and

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Clause	Requirement + Test	Result - Remark	Verdict

metal chassis. (For models FSP300-50WDB, FSP400-50WDB and FSP500-50WDB)



6) There is one insulation sheet (153.9 mm by 97.0 mm) stuck at top metal chasiss bottom side. (For models FSP300-50UDB, FSP400-50UDB and FSP500-50UDB)



7) There is one insulation sheet (120 mm by 41 mm) stuck at EMI shielding, which nearby AC inlet. (For models FSP300-50WDB, FSP400-50WDB and FSP500-50WDB)

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Clause	Requirement + Test	Result - Remark	Verdict

8) There is one layer of insulation tape to wrapped around ERP BD and CX

9) Tubed components: core of L/N wire, CX lead wire, L/N wire at MAIN BOARD, RV1, wires of DC fan, and wires of HTH1 and wires of DC fan.

10) Glue components: FAN1, FAN2 and HTH1 connector on HK BOARD, 1C16 and 1C2.

5.4.4.2	TABLE: Minimum distance through insulation				P
Distance through insulation (DTI) at/of	Peak voltage (V)	Insulation	Required DTI (mm)	Measured DTI (mm)	
Photo coupler ¹⁾	420	RI	0.4	¹⁾	
Heat Shrinkable Tube ¹⁾ (L/N wires solder parts at PCB and core of L/N wires)	420	BI	—	¹⁾	
Heat Shrinkable Tube ¹⁾ (DC fan wires)	420	RI	0.4	¹⁾	
Insulation sheet ¹⁾ (provided between MAIN BOARD solder side and bottom metal chassis; provided on top metal chassis internal side)	420	BI	—	¹⁾	
Insulation tape	670	RI	2 layers min.	—	
Supplementary information:					
¹⁾ See appended table 4.1.2 for details of distance through insulation.					

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Clause	Requirement + Test	Result - Remark	Verdict

5.4.4.9	TABLE: Solid insulation at frequencies >30 kHz					P
Insulation material	E_P	Frequency (kHz)	K_R	Thickness d (mm)	Insulation	V_{PW} (Vpk)
Photo coupler ¹⁾	--	60Hz	--	¹⁾	RI	420
Heat Shrinkable Tube ¹⁾ (L/N wires solder parts at PCB and core of L/N wires)	--	60Hz	--	0.4	BI	420
Heat Shrinkable Tube ¹⁾ (DC fan wires)	--	69.4	0.38	¹⁾	RI	670
Insulation sheet ¹⁾ (provided between MAIN BOARD solder side and bottom metal chassis; provided on top metal chassis internal side)	--	69.4	0.38	¹⁾	BI	670
Insulation tape	--	69.4	0.55	2 layers min.	RI	670
Supplementary information:						
According to clause 5.4.4.9 alternative method: Highest working frequency: 69.4 kHz. $V_{pw} = 670 V_{peak}$ $K_R = 0.38$ - required hi-pot test voltage @ B/I = $1.2 \times V_{pw} / K_R = 2116 V_{peak}$ - required hi-pot test voltage @ R/I = $2 \times 1.2 \times V_{pw} / K_R = 4232 V_{peak}$ $K_R = 0.55$ - required hi-pot test voltage @ B/I = $1.2 \times V_{pw} / K_R = 1462 V_{peak}$ - required hi-pot test voltage @ R/I = $2 \times 1.2 \times V_{pw} / K_R = 2624 V_{peak}$ ¹⁾ For details refer to appended table 4.1.2.						

5.4.9	TABLE: Electric strength tests			P
Test voltage applied between:		Voltage shape (Surge, Impulse, AC, DC, etc.)	Test voltage (V)	Breakdown Yes / No
Functional:				
--		--	--	--
Basic / supplementary:				
Unit: Primary to Earth (tested for each model)		DC	2500	No
T1: Primary to Core (tested for each type)		DC	2500	No

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Clause	Requirement + Test	Result - Remark	Verdict
T1: Secondary to Core (tested for each type)	DC	2500	No
T2: Core to Primary	DC	2500	No
T2: Core to Secondary	DC	2500	No
One layer of insulation tape ⁵⁾ (Provided on CX body)	DC	2500	No
Heat Shrinkable Tube ⁶⁾ (L/N wires solder parts at PCB and core of L/N wires)	DC	2500	No
Insulation sheet ⁶⁾ (provided between MAIN BOARD solder side and bottom metal chassis; provided on top metal chassis internal side)	DC	2500	No
Reinforced:			
Unit: Primary to Secondary (tested for each model)	DC	4232	No
T1: Primary to Secondary	DC	4232	No
T2: Primary to Secondary	DC	4232	No
1L5: Primary to Secondary	DC	4232	No
1L5: Core to Secondary	DC	4232	No
One layer of T1 insulation tape (Mfr. 3M Company Electrical Markets DIV (EMD) type 1351-1)	DC	4000	No
One layer of T2 insulation tape (Mfr. 3M Company Electrical Markets DIV (EMD) types 1350F-1 and 44)	DC	4000	No
One layer of 1L5 insulation tape (Mfr. 3M Company Electrical Markets DIV (EMD) type 1350F-1)	DC	4000	No
Heat Shrinkable Tube ⁶⁾ (DC fan wires)	DC	4232	No
Routine Tests:			
--	--	--	--
Supplementary information:			
¹⁾ The transformer manufactured by each factory passed the test and the result is the same. All sources of optocoupler were performed the test, see appended table 4.1.2 for source details. All sources of transformer were performed the test, see appended transformer construction table G.5.3.2 in "ATTACHMENT" for source details. ²⁾ The test according to 5.4.9 is applied immediately following the temperature test in 5.4.1.4. ³⁾ Electric strength tests were also conducted before and after clause 5.4.5.2 and 5.4.8.			

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4) Electrical strength tests were repeated in reverse polarity when applying a d.c. voltage.

5) Tested with following insulation tape sources:

Manufacturer / trademark	Type / model
3M Company Electrical Markets DIV (EMD)	1350F-1 (b), 1350F-2 (c), 1350B-1 (b), 1388Y-1 (b), 1098-1
3M Taiwan Ltd.	1388Y-1 (a)
3M Company Electrical Markets DIV (EMD)	1318-1 (a), 1218, 92
Bondtec Pacific Co., Ltd.	370S (b), 371F (a)
SYMBIO INC.	35660 (a), 35660Y (e), 35661 (c), MY9YAF, MY9BAF, MY9WAF
SYMBIO INC.	KA180
Jingjiang Yahua Pressure Sensitive Glue Co., Ltd.	CT* (c)(g)
Chyun Yih Tape Co., Ltd.	P(\$)F (g), P2 Black (f),
Chyun Yih Tape Co., Ltd.	PB416F

6) Test sources see appended table 4.1.2 for details.

5.5.2.2	TABLE: Stored discharge on capacitors				P
Location	Supply voltage (V)	Operating and fault condition ¹⁾	Switch position	Measured voltage (Vpk)	ES Class
Test with ICX: Champion Microelectronic Corp. / CM02 series (CM02XISTR SOP8 package)					
Line to Neutral	90 Vac / 60Hz	N	ON	14 V	ES1
Line to Neutral	90 Vac / 60Hz	N; F1 open-circuited	ON	8 V	ES1
Line to Neutral	264Vac / 60Hz	N	ON	33 V	ES1
Line to Neutral	264Vac / 60Hz	N; F1 open-circuited	ON	17 V	ES1
Test with ICX: Monolithic Power systems Inc. / HF81					
Line to Neutral	90 Vac / 60Hz	N	ON	17 V	ES1
Line to Neutral	90 Vac / 60Hz	N; F1 open-circuited	ON	9 V	ES1
Line to Neutral	264Vac / 60Hz	N	ON	35 V	ES1
Line to Neutral	264Vac / 60Hz	N; F1 open-circuited	ON	19 V	ES1
Supplementary information:					
Overall capacity: CX= 0.68μF, CX1 = CX2 = 0.1μF					
[X] bleeding resistor rating: ER1 = ER2 = ER3 = ER4 = 0.91MΩ					
[X] ICX: See above					
¹⁾ Normal operating condition (e.g., normal operation, or open fuse), SC= short circuit, OC= open circuit,					

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N – Normal operating condition (e.g., normal operation, or open fuse); S – Single fault condition.

²⁾ The ES2 limits of sub-clauses 5.2.2.3 Table 5 under single fault conditions for both an ordinary person and an instructed person.

5.6.6	TABLE: Resistance of protective conductors and terminations				P
Location	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (mΩ)	
For model FSP300-50UDB					
Earthing pin of appliance inlet to metal chassis	32	2	0.288	9	
Earthing pin of appliance inlet to metal chassis	40	2	0.4	10	
For model FSP500-50UDB					
Appliance inlet PE pin to metal chassis	32	2	0.288	9	
Appliance inlet PE pin to metal chassis	40	2	0.4	10	
For model FSP500-50WDB					
Appliance inlet PE pin to metal chassis	32	2	0.32	10	
Appliance inlet PE pin to metal chassis	40	2	0.44	11	
Supplementary information:					

5.7.4	TABLE: Unearthed accessible parts					P
Location	Operating and fault conditions	Supply Voltage (V)	Parameters			ES class
			Voltage (V _{rms} or V _{pk})	Current (A _{rms} or A _{pk})	Freq. (Hz)	
Plastic part with metal copper foil to earth	Normal and condition items in Annex B.3, B4	264	--	0.01 Apk	60	1
--	--	--	--	--	--	--
Supplementary information:						
Abbreviation: SC= short circuit; OC= open circuit						

5.7.5	TABLE: Earthed accessible conductive part		P
Supply voltage (V).....:	264 Vac / 60 Hz		—

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Phase(s)	[X] Single Phase; [] Three Phase: [] Delta [] Wye			
Power Distribution System	[X] TN [] TT [] IT			
Location	Fault Condition No in IEC 60990 clause 6.2.2	Touch current (mA)	Comment	
Line to earth/Neutral to earth	1 (e open, normal and reverse polarity)	0.88 mA max.	Switch On	
Line to earth/Neutral to earth	1 (e open, normal and reverse polarity)	0.04 mA max.	Switch Off	
Line to earth/Neutral to earth	2 (e close, normal and reverse polarity)	0.01 mA max.	Switch On	
Line to earth/Neutral to earth	2 (e close, normal and reverse polarity)	0.01 mA max.	Switch Off	
Supplementary Information:				
Capacitance: CY6 = CY7 = 220 pF, CY3 = CY4 = CY5 = 2200 pF				

5.8	TABLE: Backfeed safeguard in battery backed up supplies					N/A
Location	Supply voltage (V)	Operating and fault condition	Time (s)	Open-circuit voltage (V)	Touch current (A)	ES Class
--	--	--	--	--	--	--
Supplementary information:						
Abbreviation: SC= short circuit, OC= open circuit						

6.2.2	TABLE: Power source circuit classifications					P
Location	Operating and fault condition	Voltage (V)	Current (A)	Max. Power ¹⁾ (W)	Time (S)	PS class
For model name: FSP300-50UDB, FSP300-50WDB						
+3.3Vdc output (Load condition A)	overload	3.1	26.5	82.2	5	2
+5V output (Load condition B)	overload	4.8	24.0	115.2	5	3
+12V output (Load condition C)	overload	11.8	32.0	377.6	5	3
+5Vsb output (Load	overload	4.8	6.5	31.2	5	2

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Clause	Requirement + Test	Result - Remark			Verdict	
condition A)						
-12V output (Load condition A)	overload	11.9	0.7	8.4	5	1
-5V output (Load condition A)	overload	4.9	0.5	2.5	5	1
For model name: FSP400-50UDB, FSP400-50WDB						
+3.3Vdc output (Load condition A)	overload	3.1	26.5	82.2	5	2
+5V output (Load condition B)	overload	4.8	24.0	115.2	5	3
+12V output (Load condition C)	overload	11.7	40.0	468.0	5	3
+5Vsb output (Load condition A)	overload	4.8	6.5	31.2	5	2
-12V output (Load condition A)	overload	11.9	0.7	8.4	5	1
-5V output (Load condition A)	overload	4.9	0.5	2.5	5	1
For model name: FSP500-50UDB, FSP500-50WDB						
+3.3Vdc output (Load condition A)	overload	3.1	26.5	82.2	5	2
+5V output (Load condition B)	overload	4.8	24.0	115.2	5	3
+12V output (Load condition C)	overload	11.6	48.0	556.8	5	3
+5Vsb output	overload	4.8	6.5	31.2	5	2

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Clause	Requirement + Test	Result - Remark	Verdict

(Load condition A)						
-12V output (Load condition A)	overload	11.9	0.7	8.4	5	1
-5V output (Load condition A)	overload	4.9	0.5	2.5	5	1
Abbreviation: SC= short circuit; OC= open circuit 1) Measured after 3 s for PS1 and measured after 5 s for PS2 and PS3. 2) For client's declaration, all output were considered as PS3						

6.2.3.1	TABLE: Determination of Arcing PIS				P
Location	Open circuit voltage after 3 s (Vpk)	Measured r.m.s current (A)	Calculated value	Arcing PIS? Yes / No	
--	--	--	--	Yes	
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 resistive PIS			P
Location	Operating and fault condition	Dissipate power (W)	Arcing PIS? Yes / No	
2)	2)	2)	Yes	
Supplementary information:				
1) Abbreviation: SC= short circuit; OC= open circuit				
2) All components located within the EUT are considered as resistive PIS.				

8.5.5	TABLE: High pressure lamp				N/A
Lamp manufacturer	Lamp type	Explosion method	Longest axis of glass particle (mm)	Particle found beyond 1 m Yes / No	
--	--	--	--	--	
Supplementary information:					

9.6	TABLE: Temperature measurements for wireless power transmitters				N/A
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Clause	Requirement + Test	Result - Remark	Verdict

Supply voltage (V)..... :				--				—	
Max. transmit power of transmitter (W)..... :				--				—	
Foreign objects	w/o receiver and direct contact		with receiver and direct contact		with receiver and at distance of 2 mm		with receiver and at distance of 5 mm		
	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)	
--	--	--	--	--	--	--	--	--	
Supplementary information:									

5.4.1.4, 9.3, B.1.5, B.2.6	TABLE: Temperature measurements				P
Supply voltage (V)..... :		See below.			—
Ambient temperature during test Tamb (°C)...		See below.			—
Maximum measured temperature T of part/at:		T (°C)			Allowed T _{max} (°C)
Test model	FSP300-50UDB	FSP300-50UDB	FSP400-50UDB	FSP400-50UDB	--
Test voltage	90Vac, 60Hz	264Vac, 60Hz	90Vac, 60Hz	264Vac, 60Hz	--
Metal chassis type	A	A	B	B	--
Load condition	A	A	A	A	--
CX (soldered on ERP BD)	64.8	60.8	60.4	57.3	100
L wire	62.1	59.1	61.4	58.1	80
RV1	63.1	61.1	62.2	59.8	85
CX1	65.3	62.6	63.1	60.4	100
LF1 coil	71.1	63.5	74.5	62.6	130
CX2	79.6	72.7	74.3	67.3	100
CY4	65.7	61.2	67.2	60.5	125
LF2 coil	83.8	72.1	88.0	72.8	130
BD2 (touch PCB)	104	79.1	129	87.0	130
1C1	72.7	67.1	78.3	69.0	85
1RT1 (touch PCB)	68.5	65.0	75.9	68.2	130
RY1	65.1	64.2	69.2	65.9	85
1L1 coil	89.2	73.9	95.9	75.3	130

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Clause	Requirement + Test		Result - Remark		Verdict
1Q2 (touch PCB)	99.6	82.2	105.0	82.9	130
1C2 (180μF for FSP300-50UDB; 220μF for FSP400-50UDB)	73.5	70.2	73.5	68.7	105
2C1	68.3	67.3	76.3	72.3	105
CU3 (soldered on CTRL BOARD)	57.7	57.7	57.8	57.3	100
CY5	63.3	64.0	68.3	67.5	125
DL301 coil	73.3	73.2	80.4	80.0	105
DL501 coil	64.1	64.1	72.1	71.4	105
2C9	66.2	66.2	62.3	61.6	105
L601 coil	106	107	86.4	86.7	130
C606	62.7	62.9	54.6	54.6	85
T1 coil	103	103	104	102	110
T1 core	85.9	85.5	77.7	76.7	110
T2 coil	88.1	86.8	81.2	78.8	110
T2 core	77.7	77.0	76.8	75.2	110
1L5 coil	63.5	63.4	62.4	62.2	90
1L5 core	66.0	65.9	65.8	65.2	90
L pin of inlet	57.3	54.5	59.1	53.0	70
I/O switch	53.8	52.7	55.0	53.1	85
Metal chassis near appliance inlet	54.4	53.1	57.5	54.6	70
Tma	50.0	50.0	50.0	50.0	--
Tamb	24.7	24.3	27.2	27.5	--
Accessible parts: (Under normal operating)					
Test model	FSP300-50UDB	--	FSP400-50UDB	--	--
Test voltage	90Vac, 60Hz	--	90Vac, 60Hz	--	--
Metal chassis type	A	--	B	--	--
Load condition	A	--	A	--	--
L pin of inlet	32.3	--	36.3	--	77
I/O switch	28.8	--	32.2	--	77
Metal chassis near appliance inlet	29.4	--	34.7	--	60
Tma	25.0	--	27.2	--	--

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Clause	Requirement + Test		Result - Remark		Verdict
Tamb	24.7	--	27.2	--	--
Test model	FSP500-50UDB	FSP500-50UDB	FSP500-50UDB	FSP500-50UDB	--
Test voltage	90Vac, 60Hz	264Vac, 60Hz	90Vac, 60Hz	264Vac, 60Hz	--
Metal chassis type	B	B	B	B	--
Load condition	A	A	D	D	--
CX (soldered on ERP BD)	64.4	59.9	60.9	59.1	100
L wire	61.3	58.1	60.3	58.4	80
RV1	63.2	59.8	61.6	59.5	85
CX1	65.5	61.1	62.6	60.2	100
LF1 coil	79.0	62.9	62.8	60.3	130
CX2	83.2	72.6	65.4	61.8	100
CY4	77.8	64.7	62.1	59.5	125
LF2 coil	101	75.3	66.0	61.7	130
BD2 (touch PCB)	121	82.5	71.8	64.4	130
1C1	84.3	74.8	70.1	63.7	85
1RT1 (touch PCB)	78.0	71.9	75.0	66.0	130
RY1	76.1	72.2	75.8	70.2	85
1L1 coil	122	82.3	71.3	66.8	130
1Q2 (touch PCB)	104	81.9	70.1	66.7	130
1C2 (270μF)	71.1	65.7	64.3	61.9	105
2C1	73.8	72.6	90.4	84.8	105
CU3 (soldered on CTRL BOARD)	57.7	57.0	62.8	61.3	100
CY5	71.3	69.4	75.8	73.2	125
DL301 coil	84.7	90.9	69.4	66.9	105
DL501 coil	75.4	79.0	62.9	61.2	105
2C9	67.5	69.6	87.2	83.6	105
L601 coil	93.7	84.0	64.8	62.9	130
C606	54.9	54.4	61.9	60.5	85
T1 coil	104	91.7	66.1	63.9	110
T1 core	82.8	78.5	65.1	63.0	110
T2 coil	90.7	91.5	109	103	110
T2 core	80.8	81.6	98.4	94.5	110

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Clause	Requirement + Test		Result - Remark		Verdict

1L5 coil	67.1	65.9	63.9	62.0	90
1L5 core	66.1	65.1	64.1	62.2	90
L pin of inlet	62.0	55.3	55.7	54.8	70
I/O switch	55.0	53.3	54.1	53.5	85
Metal chassis near appliance inlet	58.5	56.1	54.7	54.0	70
Tma	50.0	50.0	50.0	50.0	--
Tamb	25.7	24.9	24.0	23.6	--
Accessible parts: (Under normal operating)					
Test model	FSP500-50UDB	--	FSP500-50UDB	--	--
Test voltage	90Vac, 60Hz	--	90Vac, 60Hz	--	--
Metal chassis type	B	--	B	--	--
Load condition	A	--	D	--	--
L pin of inlet	37.7	--	30.7	--	77
I/O switch	30.7	--	29.1	--	77
Metal chassis near appliance inlet	34.2	--	29.7	--	60
Tma	25.7	--	25.0	--	--
Tamb	25.7	--	24.0	--	--
Test model	FSP300-50WDB	FSP300-50WDB	FSP400-50WDB	FSP400-50WDB	--
Test voltage	90Vac, 60Hz	264Vac, 60Hz	90Vac, 60Hz	264Vac, 60Hz	--
Metal chassis type	C	C	C	C	--
Load condition	A	A	A	A	--
CX (soldered on ERP BD)	53.7	53.5	54.7	52.7	100
L wire	75.7	65.3	68.7	61.6	80
RV1	72.5	66.2	70.5	64.8	85
CX1	81.6	69.6	76.1	65.4	100
LF1 coil	84.2	67.8	76.8	61.5	130
CX2	85.9	70.3	81.4	65.0	100
CY4	72.1	64.3	76.9	63.4	125
LF2 coil	73.3	61.6	79.5	61.4	130
BD2 (touch PCB)	94.3	69.4	94.1	68.0	130

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Clause	Requirement + Test		Result - Remark		Verdict
1C1	70.2	62.1	73.5	61.9	85
1RT1 (touch PCB)	63.5	60.2	65.7	59.9	130
RY1	63.0	61.9	62.5	60.2	85
1L1 coil	93.4	71.6	89.1	66.6	130
1Q2 (touch PCB)	107	80.7	112	79.4	130
1C2 (180μF for FSP300-50WDB; 220μF for FSP400-50WDB)	69.3	65.4	75.8	69.4	105
2C1	71.5	69.7	68.5	66.8	105
CU3 (soldered on CTRL BOARD)	61.6	62.1	61.2	60.7	100
CY5	68.5	68.2	64.5	63.9	125
DL301 coil	81.4	82.3	83.3	83.1	105
DL501 coil	58.4	59.0	60.0	60.2	105
2C9	69.0	69.7	64.0	63.9	105
L601 coil	92.9	93.9	73.7	74.2	130
C606	61.5	62.3	55.7	55.7	85
T1 coil	107	106	109	108	110
T1 core	77.7	77.9	85.1	83.9	110
T2 coil	87.3	86.8	82.7	80.0	110
T2 core	76.7	76.7	75.5	74.0	110
1L5 coil	69.8	70.0	68.6	67.6	90
1L5 core	74.5	74.5	67.6	66.7	90
L pin of inlet	59.3	53.6	64.4	52.7	70
I/O switch	54.7	53.2	53.7	51.8	85
Metal chassis near appliance inlet	58.4	55.5	57.0	53.6	70
Tma	50.0	50.0	50.0	50.0	--
Tamb	21.9	21.5	23.6	24.0	--
Accessible parts: (Under normal operating)					
Test model	FSP300-50WDB	--	FSP400-50WDB	--	--
Test voltage	90Vac, 60Hz	--	90Vac, 60Hz	--	--
Metal chassis type	C	--	C	--	--
Load condition	A	--	A	--	--

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Clause	Requirement + Test		Result - Remark		Verdict
L pin of inlet	34.3	--	39.4	--	77
I/O switch	29.7	--	28.7	--	77
Metal chassis near appliance inlet	33.4	--	32.0	--	60
Tma	25.0	--	25.0	--	--
Tamb	21.9	--	23.6	--	--
Test model	FSP500-50WDB	FSP500-50WDB	FSP500-50WDB	FSP500-50WDB	--
Test voltage	90Vac, 60Hz	264Vac, 60Hz	90Vac, 60Hz	264Vac, 60Hz	--
Metal chassis type	C	C	C	C	--
Load condition	A	A	D	D	--
CX (soldered on ERP BD)	57.1	54.7	56.3	53.7	100
L wire	69.9	61.9	55.0	53.0	80
RV1	76.9	67.3	55.7	53.6	85
CX1	84.1	70.4	56.3	54.0	100
LF1 coil	95.9	68.8	56.4	53.9	130
CX2	92.3	70.6	58.1	55.0	100
CY4	82.2	66.5	55.2	53.0	125
LF2 coil	97.5	66.7	58.7	55.0	130
BD2 (touch PCB)	113	73.5	64.6	57.5	130
1C1	70.2	61.9	67.1	58.8	85
1RT1 (touch PCB)	67.8	61.0	69.0	59.8	130
RY1	66.0	61.5	64.0	58.4	85
1L1 coil	104	71.5	65.3	59.8	130
1Q2 (touch PCB)	113	81.3	62.2	58.4	130
1C2 (270μF)	76.1	69.2	59.4	56.3	105
2C1	71.4	66.9	79.8	74.1	105
CU3 (soldered on CTRL BOARD)	53.0	52.2	59.5	57.3	100
CY5	84.4	79.6	74.4	69.9	125
DL301 coil	83.1	81.4	68.2	65.3	105
DL501 coil	64.8	63.6	62.9	60.1	105
2C9	64.5	62.7	86.1	83.0	105
L601 coil	116	113	62.5	59.6	130
C606	63.0	61.2	61.6	59.4	85

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Clause	Requirement + Test		Result - Remark		Verdict
T1 coil	100	96.3	63.5	60.6	110
T1 core	64.3	58.3	61.8	59.2	110
T2 coil	85.3	81.5	105	98.7	110
T2 core	77.5	75.2	95.0	89.9	110
1L5 coil	78.4	75.3	60.8	58.2	90
1L5 core	77.8	74.6	61.1	58.4	90
L pin of inlet	58.5	54.0	54.1	52.5	70
I/O switch	57.9	54.8	52.7	51.5	85
Metal chassis near appliance inlet	60.1	55.3	54.2	52.5	70
Tma	50.0	50.0	50.0	50.0	--
Tamb	20.8	21.1	21.5	21.9	--
Accessible parts: (Under normal operating)					
Test model	FSP500-50WDB	--	FSP500-50WDB	--	--
Test voltage	90Vac, 60Hz	--	90Vac, 60Hz	--	--
Metal chassis type	C	--	C	--	--
Load condition	A	--	D	--	--
L pin of inlet	33.5	--	29.1	--	77
I/O switch	32.9	--	27.7	--	77
Metal chassis near appliance inlet	35.1	--	29.2	--	60
Tma	25.0	--	25.0	--	--
Tamb	20.8	--	21.5	--	--
Annex B.3 - Simulated abnormal operating conditions					
Test model	FSP300-50UDB	FSP400-50UDB	FSP500-50UDB	FSP300-50WDB	--
Test voltage	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	--
Load conditions	A	A	A	A	--
Test condition	Ventilation openings blocked	Ventilation openings blocked	Ventilation openings blocked	Ventilation openings blocked	--
Metal chassis type	A	B	B	C	--
L601 coil	129	--	--	--	300

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IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
1Q2 (touch PCB)	--	142	163	148	300
T1 coil	117	124	127	132	175
T1 core	106	104	114	116	175
T2 coil	120	121	124	127	175
T2 core	111	114	118	132	175
1L5 coil	95.1	103	112	107	150
1L5 core	97.0	103	110	109	150
Tma	50.0	50.0	50.0	50.0	--
Tamb	27.0	26.0	19.9	26.0	--
Accessible parts:					
Test voltage	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	--
Load conditions	A	A	A	A	--
Test condition	Ventilation openings blocked	Ventilation openings blocked	Ventilation openings blocked	Ventilation openings blocked	--
Metal chassis type	A	B	B	C	--
L pin of inlet	47.4	49.0	52.1	53.1	87
I/O SW surface	41.8	45.3	47.7	39.5	87
Metal chassis near appliance inlet	42.8	51.3	54.8	48.2	80
Tamb	27.0	26.0	19.9	26.0	--
Tamb (shift to 25°C)	--	--	25.0	--	--
Test model	FSP400-50WDB	FSP500-50WDB	FSP300-50UDB	FSP300-50UDB	--
Test voltage	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	--
Load conditions	A	A	A	B	--
Test condition	Ventilation openings blocked	Ventilation openings blocked	+3.3 V output overload	+5 V output overload	--
Metal chassis type	C	C	A	A	--
L601 coil	--	--	117	118	300
BD2 (touch PCB)	--	158	--	--	300
1Q2 (touch PCB)	164.1	--	--	--	300

TRF No. IEC62368_1E

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
T1 coil	117	137	114	117	175
T1 core	96.9	127	97.0	96.2	175
T2 coil	93.0	142	115	115	175
T2 core	89.4	134	104	104	175
1L5 coil	87.0	115	83.6	87.9	150
1L5 core	87.2	116	86.0	88.8	150
Tma	50.0	50.0	50.0	50.0	--
Tamb	23.1	23.1	25.3	25.1	--
Accessible parts:					
Test voltage	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	--
Load conditions	A	A	A	B	--
Test condition	Ventilation openings blocked	Ventilation openings blocked	+3.3 V output overload	+5 V output overload	--
Metal chassis type	C	C	A	A	--
L pin of inlet	37.3	54.1	35.5	33.4	87
I/O SW surface	34.8	46.3	31.5	29.2	87
Metal chassis near appliance inlet	37.6	49.4	31.7	31.1	80
Tamb	23.1	23.1	25.3	25.1	--
Tamb (shift to 25°C)	25.0	25.0	--	--	--
Test model	FSP300-50UDB	FSP300-50UDB	FSP300-50UDB	FSP300-50UDB	--
Test voltage	90 Vac, 60Hz	264 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	--
Load conditions	C	C	A	A	--
Test condition	+12 V output overload	+12 V output overload	+5 Vsb output overload	-12 V output overload	--
Metal chassis type	A	A	A	A	--
L601 coil	124	124	--	--	300
BD2 (touch PCB)	--	--	104	103	300
T1 coil	129	128	108	106	175
T1 core	101	99.5	90.1	88.5	175
T2 coil	68.8	67.9	124	110	175

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IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
T2 core	67.3	65.6	106	97.5	175
1L5 coil	86.9	83.0	78.1	80.0	150
1L5 core	89.3	85.9	80.4	82.2	150
Tma	50.0	50.0	50.0	50.0	--
Tamb	23.1	23.1	27.1	29.0	--
Accessible parts:					
Test voltage	90 Vac, 60Hz	--	90 Vac, 60Hz	90 Vac, 60Hz	--
Load conditions	C	--	A	A	--
Test condition	+12 V output overload	--	+5 Vsb output overload	-12 V output overload	--
Metal chassis type	A	--	A	A	--
L pin of inlet	36.7	--	37.0	37.1	87
I/O SW surface	34.9	--	33.8	35.0	87
Metal chassis near appliance inlet	35.0	--	34.7	35.7	80
Tamb	26.8	--	27.1	29.0	--
Test model	FSP300-50UDB	FSP400-50UDB	FSP400-50UDB	FSP400-50UDB	--
Test voltage	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	--
Load conditions	A	A	B	C	--
Test condition	-5 V output overload	+3.3 V output overload	+5 V output overload	+12 V output overload	--
Metal chassis type	A	B	B	B	--
BD2 (touch PCB)	--	129	128	118	300
1Q2 (touch PCB)	105	--	--	--	300
T1 coil	108	111	111	115	175
T1 core	90.2	88.2	88.8	89.7	175
T2 coil	112	108	109	79.4	175
T2 core	98.2	104	104	77.1	175
1L5 coil	77.9	82.8	83.2	84.5	150
1L5 core	80.3	81.9	83.4	83.9	150
Tma	50.0	50.0	50.0	50.0	--
Tamb	26.7	28.3	26.3	25.9	--

TRF No. IEC62368_1E

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

Accessible parts:					
Test voltage	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	--
Load conditions	A	A	B	C	--
Test condition	-5 V output overolad	+3.3 V output overolad	+5 V output overolad	+12 V output overolad	--
Metal chassis type	A	B	B	B	--
L pin of inlet	35.5	37.4	37.3	36.5	87
I/O SW surface	29.9	35.2	35.1	33.0	87
Metal chassis near appliance inlet	32.0	37.7	37.4	35.4	80
Tamb	26.7	28.3	26.3	25.9	--
Test model	FSP400-50UDB	FSP400-50UDB	FSP400-50UDB	FSP400-50UDB	--
Test voltage	264 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	--
Load conditions	B	A	A	A	--
Test condition	+12 V output overolad	+5 Vsb output overolad	-12 V output overolad	-5 V output overolad	--
Metal chassis type	B	B	B	B	--
L601 coil	94.1	--	--	--	300
BD2 (touch PCB)	--	125	117	118	300
1Q2 (touch PCB)	--	--	--	--	300
T1 coil	115	106	103	106	175
T1 core	88.1	86.5	85.9	85.8	175
T2 coil	73.9	107	106	107	175
T2 core	72.0	102	103	102	175
1L5 coil	81.7	81.1	80.3	80.6	150
1L5 core	79.6	81.1	80.3	80.5	150
Tma	50.0	50.0	50.0	50.0	--
Tamb	27.2	25.1	26.2	26.6	--
Accessible parts:					
Test voltage	--	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	--
Load conditions	--	A	A	A	--

TRF No. IEC62368_1E

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Test condition	--	+5 Vsb output overload	-12 V output overload	-5 V output overload	--
Metal chassis type	--	B	B	B	--
L pin of inlet	--	35.2	35.7	35.2	87
I/O SW surface	--	33.3	33.7	33.5	87
Metal chassis near appliance inlet	--	36.0	35.2	35.1	80
Tamb	--	25.1	26.2	26.6	--
Test model	FSP500-50UDB	FSP500-50UDB	FSP500-50UDB	FSP500-50UDB	--
Test voltage	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	264 Vac, 60Hz	--
Load conditions	A	B	C	C	--
Test condition	+3.3 V output overload	+5 V output overload	+12 V output overload	+12 V output overload	--
Metal chassis type	B	B	B	B	--
1L1 coil	--	--	119	--	300
BD2 (touch PCB)	134	134	--	--	300
1Q2 (touch PCB)	--	--	--	92.1	300
T1 coil	105	106	119	117	175
T1 core	89.8	89.3	103	88.7	175
T2 coil	118	119	93.6	73.2	175
T2 core	107	109	87.2	72.0	175
1L5 coil	81.7	83.2	85.5	83.0	150
1L5 core	81.0	82.4	89.3	81.5	150
Tma	50.0	50.0	50.0	50.0	--
Tamb	27.5	26.6	25.3	26.8	--
Accessible parts:					
Test voltage	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	--	--
Load conditions	A	B	C	--	--
Test condition	+3.3 V output overload	+5 V output overload	+12 V output overload	--	--
Metal chassis type	B	B	B	--	--

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IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
L pin of inlet	38.9	37.7	40.3	--	87
I/O SW surface	34.6	33.3	39.2	--	87
Metal chassis near appliance inlet	40.1	39.1	38.6	--	80
Tamb	27.5	26.6	25.3	--	--
Test model	FSP500-50UDB	FSP500-50UDB	FSP500-50UDB	FSP500-50UDB	--
Test voltage	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	--
Load conditions	A	D	A	A	--
Test condition	+5 Vsb output overolad	+5 Vsb output overolad	-12 V output overolad	-5 V output overolad	--
Metal chassis type	B	B	B	B	--
1L1 coil	124	--	115	117	300
2C9	--	95.4	--	--	300
T1 coil	116	66.8	116	113	175
T1 core	96.8	65.4	96.4	96.3	175
T2 coil	121	127	116	117	175
T2 core	104	117	103	103	175
1L5 coil	82.7	63.7	81.4	82.1	150
1L5 core	85.5	63.8	87.1	85.7	150
Tma	50.0	50.0	50.0	50.0	--
Tamb	26.6	24.2	26.8	26.4	--
Accessible parts:					
Test voltage	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	--
Load conditions	A	D	A	A	--
Test condition	+5 Vsb output overolad	+5 Vsb output overolad	-12 V output overolad	-5 V output overolad	--
Metal chassis type	B	B	B	B	--
L pin of inlet	40.9	29.1	40.7	41.9	87
I/O SW surface	40.4	28.3	39.6	40.2	87
Metal chassis near appliance inlet	39.8	28.7	39.4	39.4	80
Tamb	26.6	24.2	26.8	26.4	--

TRF No. IEC62368_1E

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Tamb (shift to 25°C)	--	25.0	--	--	--
Test model	FSP300-50WDB	FSP300-50WDB	FSP300-50WDB	FSP300-50WDB	--
Test voltage	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	264 Vac, 60Hz	--
Load conditions	A	B	C	C	--
Test condition	+3.3 V output overolad	+5 V output overolad	+12 V output overolad	+12 V output overolad	--
Metal chassis type	C	C	C	C	--
L601 coil	--	112	--	118	300
1Q2 (touch PCB)	130	--	127	--	300
T1 coil	118	118	119	128	175
T1 core	95.3	95.4	98.6	97.4	175
T2 coil	113	112	69.2	65.2	175
T2 core	105	105	69.2	65.2	175
1L5 coil	85.0	85.1	85.3	79.9	150
1L5 core	86.8	87.1	79.7	82.7	150
Tma	50.0	50.0	50.0	50.0	--
Tamb	24.3	24.8	27.8	26.2	--
Accessible parts:					
Test voltage	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	--	--
Load conditions	A	B	C	--	--
Test condition	+3.3 V output overolad	+5 V output overolad	+12 V output overolad	--	--
Metal chassis type	C	C	C	--	--
L pin of inlet	34.2	33.8	36.6	--	87
I/O SW surface	29.2	28.5	29.2	--	87
Metal chassis near appliance inlet	33.9	33.0	33.3	--	80
Tamb	24.3	24.8	27.8	--	--
Tamb (shift to 25°C)	25.0	25.0	--	--	--
Test model	FSP300-50WDB	--	FSP300-50WDB	FSP300-50WDB	--
Test voltage	90 Vac,	--	90 Vac,	90 Vac,	--

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IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
	60Hz		60Hz	60Hz	
Load conditions	A	--	A	A	--
Test condition	+5 Vsb output overload	--	-12 V output overload	-5 V output overload	--
Metal chassis type	C	--	C	C	--
1Q2 (touch PCB)	119	--	117	109	300
T1 coil	104	--	109	104	175
T1 core	89.4	--	87.4	87.9	175
T2 coil	118	--	110	108	175
T2 core	111	--	102	98.5	175
1L5 coil	77.6	--	77.2	75.2	150
1L5 core	76.4	--	79.4	76.7	150
Tma	50.0	--	50.0	50.0	--
Tamb	25.3	--	26.3	27.2	--
Accessible parts:					
Test voltage	90 Vac, 60Hz	--	90 Vac, 60Hz	90 Vac, 60Hz	--
Load conditions	A	--	A	A	--
Test condition	+5 Vsb output overload	--	-12 V output overload	-5 V output overload	--
Metal chassis type	C	--	C	C	--
L pin of inlet	34.5	--	34.4	34.2	87
I/O SW surface	28.6	--	31.3	31.1	87
Metal chassis near appliance inlet	32.6	--	33.5	33.9	80
Tamb	25.3	--	26.3	27.2	--
Test model	FSP400- 50WDB	FSP400- 50WDB	FSP400- 50WDB	FSP400- 50WDB	--
Test voltage	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	264 Vac, 60Hz	--
Load conditions	A	B	C	C	--
Test condition	+3.3 V output overload	+5 V output overload	+12 V output overload	+12 V output overload	--
Metal chassis type	C	C	C	C	--

TRF No. IEC62368_1E

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
DL301 coil	138	--	--	--	300
L601 coil	--	124	--	108	300
1Q2 (touch PCB)	--	--	125	--	300
T1 coil	120	119	149	121	175
T1 core	103	100	112	98.9	175
T2 coil	113	111	82.5	74.9	175
T2 core	107	103	78.8	70.9	175
1L5 coil	83.8	80.9	86.9	74.3	150
1L5 core	82.8	79.8	83.8	52.6	150
Tma	50.0	50.0	50.0	50.0	--
Tamb	25.5	26.3	27.1	26.6	--
Accessible parts:					
Test voltage	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	--	--
Load conditions	A	B	C	--	--
Test condition	+3.3 V output overload	+5 V output overload	+12 V output overload	--	--
Metal chassis type	C	C	C	--	--
L pin of inlet	34.8	35.6	37.9	--	87
I/O SW surface	32.0	32.2	31.5	--	87
Metal chassis near appliance inlet	34.4	35.2	36.0	--	80
Tamb	25.5	26.3	27.1	--	--
Test model	FSP400-50WDB	--	FSP400-50WDB	FSP400-50WDB	--
Test voltage	90 Vac, 60Hz	--	90 Vac, 60Hz	90 Vac, 60Hz	--
Load conditions	A	--	A	A	--
Test condition	+5 Vsb output overload	--	-12 V output overload	-5 V output overload	--
Metal chassis type	C	--	C	C	--
BD2 (touch PCB)	115	--	108	--	300
1Q2 (touch PCB)	--	--	--	109	300
T1 coil	116	--	117	104	175

TRF No. IEC62368_1E

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
T1 core	93.0	--	92.9	87.9	175
T2 coil	119	--	107	108	175
T2 core	109	--	101	98.5	175
1L5 coil	75.0	--	76.8	75.2	150
1L5 core	74.5	--	75.9	76.7	150
Tma	50.0	--	50.0	50.0	--
Tamb	26.6	--	26.5	27.2	--
Accessible parts:					
Test voltage	90 Vac, 60Hz	--	90 Vac, 60Hz	90 Vac, 60Hz	--
Load conditions	A	--	A	A	--
Test condition	+5 Vsb output overload	--	-12 V output overload	-5 V output overload	--
Metal chassis type	C	--	C	C	--
L pin of inlet	41.2	--	40.5	34.2	87
I/O SW surface	31.2	--	31.5	31.1	87
Metal chassis near appliance inlet	35.6	--	35.5	33.9	80
Tamb	26.6	--	26.5	27.2	--
Test model	FSP500- 50WDB	FSP500- 50WDB	FSP500- 50WDB	FSP500- 50WDB	--
Test voltage	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	264 Vac, 60Hz	--
Load conditions	A	B	C	C	--
Test condition	+3.3 V output overload	+5 V output overload	+12 V output overload	+12 V output overload	--
Metal chassis type	C	C	C	C	--
DL301 coil	138	--	--	--	300
L601 coil	--	113	125	126	300
T1 coil	112	103	116	113	175
T1 core	101	95.4	102	101	175
T2 coil	116	109	95.4	90.1	175
T2 core	108	100	90.3	86.2	175
1L5 coil	89.5	82.5	88.9	87.5	150
1L5 core	88.9	82.5	88.0	87.3	150

TRF No. IEC62368_1E

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Tma	50.0	50.0	50.0	50.0	--
Tamb	22.0	28.5	29.2	25.9	--
Accessible parts:					
Test voltage	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	--	--
Load conditions	A	B	C	--	--
Test condition	+3.3 V output overolad	+5 V output overolad	+12 V output overolad	--	--
Metal chassis type	C	C	C	--	--
L pin of inlet	41.3	37.9	37.0	--	87
I/O SW surface	35.9	34.1	33.4	--	87
Metal chassis near appliance inlet	38.0	36.0	35.6	--	80
Tamb	22.0	28.5	29.2	--	--
Tamb (shift to 25°C)	25.0	--	--	--	--
Test model	FSP500-50WDB	FSP500-50WDB	FSP500-50WDB	FSP500-50WDB	--
Test voltage	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	--
Load conditions	A	D	A	A	--
Test condition	+5 Vsb output overolad	+5 Vsb output overolad	-12 V output overolad	-5 V output overolad	--
Metal chassis type	C	C	C	C	--
2C9	--	95.4	--	--	300
BD2 (touch PCB)	113	--	111	111	300
T1 coil	99.4	66.8	99.4	101	175
T1 core	89.6	65.4	89.1	90.5	175
T2 coil	111	127	111	111	175
T2 core	103	117	104	104	175
1L5 coil	81.3	63.7	78.0	80.3	150
1L5 core	80.9	63.8	77.6	79.9	150
Tma	50.0	50.0	50.0	50.0	--
Tamb	27.5	24.2	27.9	28.0	--
Accessible parts:					

TRF No. IEC62368_1E

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Test voltage	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	--
Load conditions	A	D	A	A	--
Test condition	+5 Vsb output overlad	+5 Vsb output overlad	-12 V output overlad	-5 V output overlad	--
Metal chassis type	C	C	C	C	--
L pin of inlet	35.5	29.9	36.2	35.3	87
I/O SW surface	31.4	29.1	34.3	33.6	87
Metal chassis near appliance inlet	34.9	29.5	35.1	34.3	80
Tamb	27.5	24.2	27.9	28.0	--
Tamb (shift to 25°C)	--	25.0	--	--	--
Test model	FSP300-50UDB	FSP400-50UDB	FSP500-50UDB	FSP300-50WDB	--
Test voltage	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	--
Load conditions	A	A	A	A	--
Test condition	DC fan stalled	DC fan stalled	DC fan stalled	DC fan stalled	--
Metal chassis type	A	B	B	C	--
BD2 (touch PCB)	--	176	--	--	300
1Q2 (touch PCB)	130	--	172	178	300
T1 coil	120.5	126.0	128.3	130.8	175
T1 core	107.2	101.6	102.0	107.3	175
T2 coil	120.4	119.1	120.2	123.4	175
T2 core	108.0	112.8	114.2	114.1	175
1L5 coil	83.5	96.1	85.5	92.9	150
1L5 core	83.1	96.0	85.4	95.4	150
Tma	50.0	50.0	50.0	50.0	--
Tamb	28.2	26.4	24.3	27.5	--
Accessible parts:					
Test voltage	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	--
Load conditions	A	A	A	A	--
Test condition	DC fan stalled	DC fan stalled	DC fan stalled	DC fan stalled	--

TRF No. IEC62368_1E

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

Metal chassis type	A	B	B	C	--
L pin of inlet	40.6	40.9	39.6	43.4	87
I/O SW surface	37.5	36.8	34.7	35.7	87
Metal chassis near appliance inlet	37.3	39.7	38.9	40.4	80
Tamb	28.2	26.4	24.3	27.5	--
Tamb (shift to 25°C)	--	--	25.0	--	--
Test model	FSP400-50WDB	FSP500-50WDB	--	--	--
Test voltage	90 Vac, 60Hz	90 Vac, 60Hz	--	--	--
Load conditions	A	A	--	--	--
Test condition	DC fan stalled	DC fan stalled	--	--	--
Metal chassis type	C	C	--	--	--
1Q2 (touch PCB)	167	190	--	--	300
T1 coil	131	129	--	--	175
T1 core	110	115	--	--	175
T2 coil	124	127	--	--	175
T2 core	111	120	--	--	175
1L5 coil	86.2	102	--	--	150
1L5 core	52.9	102	--	--	150
Tma	50.0	50.0	--	--	--
Tamb	28.6	25.8	--	--	--
Annex G.5.3.3 - Transformer overload tests					
Test model	FSP300-50UDB	FSP400-50UDB	FSP500-50UDB	FSP500-50UDB	--
Test voltage	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	--
Test condition	T2 pin 9 after 2D5 to T2 pin 6 winding overload	T2 pin 9 after 2D5 to T2 pin 6 winding overload	T2 pin 9 after 2D5 to T2 pin 6 winding overload	T2 pin 9 after 2D5 to T2 pin 6 winding overload	--
Load conditions	A	A	A	D	--
Metal chassis type	A	B	B	B	--
T1 coil	106	105	107	56.8	175

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Clause	Requirement + Test				Result - Remark		Verdict
T1 core	89.5	85.9	85.8	56.1	175		
T2 coil	122	106	104	123	175		
T2 core	104	101	98.8	117	175		
1L5 coil	79.3	80.7	80.6	67.5	175		
1L5 core	80.2	80.6	80.5	56.2	175		
Tma	50.0	50.0	50.0	50.0	--		
Tamb	27.8	27.2	27.0	23.3	--		
Test model	FSP300-50WDB	FSP400-50WDB	FSP500-50WDB	FSP500-50WDB	--		
Test voltage	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	90 Vac, 60Hz	--		
Test condition	T2 pin 9 after 2D5 to T2 pin 6 winding overload	T2 pin 9 after 2D5 to T2 pin 6 winding overload	T2 pin 9 after 2D5 to T2 pin 6 winding overload	T2 pin 9 after 2D5 to T2 pin 6 winding overload	--		
Load conditions	A	A	A	D	--		
Metal chassis type	C	C	C	C	--		
T1 coil	109	116	104	65.9	175		
T1 core	89.2	93.4	91.3	64.7	175		
T2 coil	119	118	113	127	175		
T2 core	112	108	102	116	175		
1L5 coil	77.8	75.5	81.0	63.4	175		
1L5 core	79.7	74.0	80.8	63.4	175		
Tma	50.0	50.0	50.0	50.0	--		
Tamb	26.9	26.7	28.0	24.2	--		
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:							

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Clause	Requirement + Test	Result - Remark	Verdict

Note 1: The apparatus was submitted and evaluated for maximum manufacturer's recommended ambient (Tma) of 50°C.

Note 2: The temperatures were measured under the worse case normal mode defined in table B.2.5.

Note 3: The max. ambient temperature Tma is defined as 50°C. Therefore the maximum temperatures measured are recalculated as follows: $T + (50 - Tamb)$ where T is the maximum temperature measured during test and Tamb is the ambient temperature during test.

Note 4: Temperature limits are calculated as follows:

Winding components providing safety isolation:

Class A: $T_{max} = 100 - 10 = 90^{\circ}\text{C}$ (for normal conditon)
 $T_{max} = 150^{\circ}\text{C}$ (for single fault conditon)

Class B: $T_{max} = 120 - 10 = 110^{\circ}\text{C}$ (for normal conditon)
 $T_{max} = 175^{\circ}\text{C}$ (for single fault conditon)

Note 5. For load conditions, See details in General product information.

B.2.5 TABLE: Input test								P
U (V)	F (Hz)	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No.	I fuse (A)	Condition/status
For model FSP300-50WDB								
90	50	3.90	--	347	--	F1	3.90	Load condition A.
100	50	3.45	4	344	--	F1	3.45	Same as above.
240	50	1.40	2	332	--	F1	1.40	Same as above.
264	50	1.28	--	333	--	F1	1.28	Same as above.
90	60	3.90	--	347	--	F1	3.90	Same as above.
100	60	3.45	4	344	--	F1	3.45	Same as above.
240	60	1.40	2	332	--	F1	1.40	Same as above.
264	60	1.28	--	333	--	F1	1.28	Same as above.
90	50	3.85	--	346	--	F1	3.85	Load condition B.
100	50	3.44	4	343	--	F1	3.44	Same as above.
240	50	1.39	2	332	--	F1	1.39	Same as above.
264	50	1.27	--	331	--	F1	1.27	Same as above.
90	60	3.85	--	346	--	F1	3.85	Same as above.
100	60	3.44	4	343	--	F1	3.44	Same as above.
240	60	1.39	2	332	--	F1	1.39	Same as above.
264	60	1.27	--	331	--	F1	1.27	Same as above.
90	50	3.78	--	340	--	F1	3.78	Load condition C.
100	50	3.37	4	335	--	F1	3.37	Same as above.

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IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
240	50	1.38	2	326	--	F1	1.38	Same as above.
264	50	1.25	--	325	--	F1	1.25	Same as above.
90	60	3.78	--	340	--	F1	3.78	Same as above.
100	60	3.37	4	335	--	F1	3.37	Same as above.
240	60	1.38	2	326	--	F1	1.38	Same as above.
264	60	1.25	--	325	--	F1	1.25	Same as above.
90	50	0.43	--	20.2	--	F1	0.43	Load condition D.
100	50	0.40	4	19.9	--	F1	0.40	Same as above.
240	50	0.22	2	19.5	--	F1	0.22	Same as above.
264	50	0.21	--	19.5	--	F1	0.21	Same as above.
90	60	0.43	--	20.2	--	F1	0.43	Same as above.
100	60	0.40	4	19.9	--	F1	0.40	Same as above.
240	60	0.22	2	19.5	--	F1	0.22	Same as above.
264	60	0.21	--	19.5	--	F1	0.21	Same as above.
For model FSP300-50UDB								
90	50	3.89	--	347	--	F1	3.89	Load condition A.
100	50	3.44	4	342	--	F1	3.44	Same as above.
240	50	1.39	2	332	--	F1	1.39	Same as above.
264	50	1.27	--	332	--	F1	1.27	Same as above.
90	60	3.89	--	347	--	F1	3.89	Same as above.
100	60	3.44	4	342	--	F1	3.44	Same as above.
240	60	1.39	2	332	--	F1	1.39	Same as above.
264	60	1.27	--	332	--	F1	1.27	Same as above.
90	50	3.84	--	345	--	F1	3.84	Load condition B.
100	50	3.43	4	342	--	F1	3.43	Same as above.
240	50	1.38	2	331	--	F1	1.38	Same as above.
264	50	1.26	--	331	--	F1	1.26	Same as above.
90	60	3.84	--	345	--	F1	3.84	Same as above.
100	60	3.43	4	342	--	F1	3.43	Same as above.
240	60	1.38	2	331	--	F1	1.38	Same as above.
264	60	1.26	--	331	--	F1	1.26	Same as above.
90	50	3.77	--	340	--	F1	3.77	Load condition C.
100	50	3.36	4	334	--	F1	3.36	Same as above.

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IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
240	50	1.37	2	326	--	F1	1.37	Same as above.
264	50	1.24	--	325	--	F1	1.24	Same as above.
90	60	3.77	--	340	--	F1	3.77	Same as above.
100	60	3.36	4	334	--	F1	3.36	Same as above.
240	60	1.37	2	326	--	F1	1.37	Same as above.
264	60	1.24	--	325	--	F1	1.24	Same as above.
90	50	0.43	--	20.2	--	F1	0.43	Load condition D.
100	50	0.40	4	19.9	--	F1	0.40	Same as above.
240	50	0.22	2	19.5	--	F1	0.22	Same as above.
264	50	0.21	--	19.5	--	F1	0.21	Same as above.
90	60	0.43	--	20.2	--	F1	0.43	Same as above.
100	60	0.40	4	19.9	--	F1	0.40	Same as above.
240	60	0.22	2	19.5	--	F1	0.22	Same as above.
264	60	0.21	--	19.5	--	F1	0.21	Same as above.
For model FSP400-50WDB								
90	50	5.19	--	466	--	F1	5.19	Load condition A.
100	50	4.62	6	461	--	F1	4.62	Same as above.
240	50	1.87	3	445	--	F1	1.87	Same as above.
264	50	1.71	--	444	--	F1	1.71	Same as above.
90	60	5.19	--	466	--	F1	5.19	Same as above.
100	60	4.62	6	461	--	F1	4.62	Same as above.
240	60	1.87	3	445	--	F1	1.87	Same as above.
264	60	1.71	--	444	--	F1	1.71	Same as above.
90	50	5.18	--	466	--	F1	5.18	Load condition B.
100	50	4.61	6	460	--	F1	4.61	Same as above.
240	50	1.87	3	444	--	F1	1.87	Same as above.
264	50	1.71	--	444	--	F1	1.71	Same as above.
90	60	5.18	--	466	--	F1	5.18	Same as above.
100	60	4.61	6	460	--	F1	4.61	Same as above.
240	60	1.87	3	444	--	F1	1.87	Same as above.
264	60	1.71	--	444	--	F1	1.71	Same as above.
90	50	5.10	--	457	--	F1	5.10	Load condition C.
100	50	4.54	6	453	--	F1	4.54	Same as above.

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IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
240	50	1.84	3	436	--	F1	1.84	Same as above.
264	50	1.68	--	435	--	F1	1.68	Same as above.
90	60	5.10	--	457	--	F1	5.10	Same as above.
100	60	4.54	6	453	--	F1	4.54	Same as above.
240	60	1.84	3	436	--	F1	1.84	Same as above.
264	60	1.68	--	435	--	F1	1.68	Same as above.
90	50	0.43	--	20.2	--	F1	0.43	Load condition D.
100	50	0.40	6	19.9	--	F1	0.40	Same as above.
240	50	0.22	3	19.5	--	F1	0.22	Same as above.
264	50	0.21	--	19.5	--	F1	0.21	Same as above.
90	60	0.43	--	20.2	--	F1	0.43	Same as above.
100	60	0.40	6	19.9	--	F1	0.40	Same as above.
240	60	0.22	3	19.5	--	F1	0.22	Same as above.
264	60	0.21	--	19.5	--	F1	0.21	Same as above.
For model FSP400-50UDB								
90	50	5.18	--	466	--	F1	5.18	Load condition A.
100	50	4.61	6	460	--	F1	4.61	Same as above.
240	50	1.86	3	444	--	F1	1.86	Same as above.
264	50	1.70	--	444	--	F1	1.70	Same as above.
90	60	5.18	--	466	--	F1	5.18	Same as above.
100	60	4.61	6	460	--	F1	4.61	Same as above.
240	60	1.86	3	444	--	F1	1.86	Same as above.
264	60	1.70	--	444	--	F1	1.70	Same as above.
90	50	5.17	--	466	--	F1	5.17	Load condition B.
100	50	4.60	6	459	--	F1	4.60	Same as above.
240	50	1.86	3	444	--	F1	1.86	Same as above.
264	50	1.70	--	444	--	F1	1.70	Same as above.
90	60	5.17	--	466	--	F1	5.17	Same as above.
100	60	4.60	6	459	--	F1	4.60	Same as above.
240	60	1.86	3	444	--	F1	1.86	Same as above.
264	60	1.70	--	444	--	F1	1.70	Same as above.
90	50	5.09	--	457	--	F1	5.09	Load condition C.
100	50	4.53	6	452	--	F1	4.53	Same as above.

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IEC 62368-1								
Clause	Requirement + Test					Result - Remark		Verdict
240	50	1.83	3	436	--	F1	1.83	Same as above.
264	50	1.67	--	435	--	F1	1.67	Same as above.
90	60	5.09	--	457	--	F1	5.09	Same as above.
100	60	4.53	6	452	--	F1	4.53	Same as above.
240	60	1.83	3	436	--	F1	1.83	Same as above.
264	60	1.67	--	435	--	F1	1.67	Same as above.
90	50	0.43	--	20.2	--	F1	0.43	Load condition D.
100	50	0.40	6	19.9	--	F1	0.40	Same as above.
240	50	0.22	3	19.5	--	F1	0.22	Same as above.
264	50	0.21	--	19.5	--	F1	0.21	Same as above.
90	60	0.43	--	20.2	--	F1	0.43	Same as above.
100	60	0.40	6	19.9	--	F1	0.40	Same as above.
240	60	0.22	3	19.5	--	F1	0.22	Same as above.
264	60	0.21	--	19.5	--	F1	0.21	Same as above.
For model FSP500-50WDB								
90	50	6.42	--	577	--	F1	6.42	Load condition A.
100	50	5.71	7	570	--	F1	5.71	Same as above.
240	50	2.30	3.5	547	--	F1	2.30	Same as above.
264	50	2.10	--	546	--	F1	2.10	Same as above.
90	60	6.42	--	577	--	F1	6.42	Same as above.
100	60	5.71	7	570	--	F1	5.71	Same as above.
240	60	2.30	3.5	547	--	F1	2.30	Same as above.
264	60	2.10	--	546	--	F1	2.10	Same as above.
90	50	6.41	--	576	--	F1	6.41	Load condition B.
100	50	5.70	7	569	--	F1	5.70	Same as above.
240	50	2.30	3.5	547	--	F1	2.30	Same as above.
264	50	2.10	--	546	--	F1	2.10	Same as above.
90	60	6.41	--	576	--	F1	6.41	Same as above.
100	60	5.70	7	569	--	F1	5.70	Same as above.
240	60	2.30	3.5	547	--	F1	2.30	Same as above.
264	60	2.10	--	546	--	F1	2.10	Same as above.
90	50	6.34	--	570	--	F1	6.34	Load condition C.
100	50	5.60	7	559	--	F1	5.60	Same as above.

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Clause	Requirement + Test					Result - Remark		Verdict
240	50	2.27	3.5	541	--	F1	2.27	Same as above.
264	50	2.10	--	540	--	F1	2.10	Same as above.
90	60	6.34	--	570	--	F1	6.34	Same as above.
100	60	5.60	7	559	--	F1	5.60	Same as above.
240	60	2.27	3.5	541	--	F1	2.27	Same as above.
264	60	2.10	--	540	--	F1	2.10	Same as above.
90	50	0.43	--	20.2	--	F1	0.43	Load condition D.
100	50	0.40	7	19.9	--	F1	0.40	Same as above.
240	50	0.22	3.5	19.5	--	F1	0.22	Same as above.
264	50	0.21	--	19.5	--	F1	0.21	Same as above.
90	60	0.43	--	20.2	--	F1	0.43	Same as above.
100	60	0.40	7	19.9	--	F1	0.40	Same as above.
240	60	0.22	3.5	19.5	--	F1	0.22	Same as above.
264	60	0.21	--	19.5	--	F1	0.21	Same as above.
For model FSP500-50UDB								
90	50	6.41	--	577	--	F1	6.41	Load condition A.
100	50	5.70	7	569	--	F1	5.70	Same as above.
240	50	2.29	3.5	547	--	F1	2.29	Same as above.
264	50	2.09	--	546	--	F1	2.09	Same as above.
90	60	6.41	--	577	--	F1	6.41	Same as above.
100	60	5.70	7	569	--	F1	5.70	Same as above.
240	60	2.29	3.5	547	--	F1	2.29	Same as above.
264	60	2.09	--	546	--	F1	2.09	Same as above.
90	50	6.40	--	576	--	F1	6.40	Load condition B.
100	50	5.69	7	568	--	F1	5.69	Same as above.
240	50	2.29	3.5	547	--	F1	2.29	Same as above.
264	50	2.09	--	546	--	F1	2.09	Same as above.
90	60	6.40	--	576	--	F1	6.40	Same as above.
100	60	5.69	7	568	--	F1	5.69	Same as above.
240	60	2.29	3.5	547	--	F1	2.29	Same as above.
264	60	2.09	--	546	--	F1	2.09	Same as above.
90	50	6.33	--	570	--	F1	6.33	Load condition C.
100	50	5.59	7	558	--	F1	5.59	Same as above.

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Clause	Requirement + Test					Result - Remark		Verdict
240	50	2.26	3.5	541	--	F1	2.26	Same as above.
264	50	2.09	--	540	--	F1	2.09	Same as above.
90	60	6.33	--	570	--	F1	6.33	Same as above.
100	60	5.59	7	558	--	F1	5.59	Same as above.
240	60	2.26	3.5	541	--	F1	2.26	Same as above.
264	60	2.09	--	540	--	F1	2.09	Same as above.
90	50	0.43	--	20.2	--	F1	0.43	Load condition D.
100	50	0.40	7	19.9	--	F1	0.40	Same as above.
240	50	0.22	3.5	19.5	--	F1	0.22	Same as above.
264	50	0.21	--	19.5	--	F1	0.21	Same as above.
90	60	0.43	--	20.2	--	F1	0.43	Same as above.
100	60	0.40	7	19.9	--	F1	0.40	Same as above.
240	60	0.22	3.5	19.5	--	F1	0.22	Same as above.
264	60	0.21	--	19.5	--	F1	0.21	Same as above.
Supplementary information:								
The measured input current at rated voltage shall be less than or equal to 110 % of rated current.								
- Load condition see "General product information".								

B.3, B.4		TABLE: Abnormal operating and fault condition tests					P
Ambient temperature (°C)				25 °C, if not specified			—
Power source for EUT: Manufacturer, model/type, output rating :				--			—
Component No.	Condition	Supply voltage (V)	Test time	Fuse no.	Fuse current (A)	Observation	
Abnormal operating conditions							
For model FSP300-50WDB							
Ventilation openings (Load Condition A)	Blocked	90	2 hrs, 24 min.	F1	0.43	Unit shut down immediately, except for +5 Vsb output. No damage, no hazard. NB, NC, NT	
Output +3.3 V (Load condition A)	Overload	90	2 hrs, 39 min.	F1	0.43	After increase load to 27A, all output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT.	
Output +3.3 V	overload	264	2 hrs	F1	0.38	Temperature stable with load 22 A and increased to 23 A,	

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IEC 62368-1						
Clause	Requirement + Test				Result - Remark	Verdict
(Load condition A)						unit shut down except for +5 Vsb output. No damage, no hazard. NB, NC, NT.
Output +5 V (Load condition B)	Overload	90	2 hrs, 51 min.	F1	0.43	After increase load to 25A, all output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT.
Output +12 V (Load condition C)	Overload	90	2 hrs, 53 min.	F1	0.43	After increase load to 33A, all output shutdown except for 5+Vsb normal operation. No damage, no hazard. NB, NC, NT.
Output +12 V (Load condition C)	Overload	264	2 hrs, 20 min.	F1	0.21	After increase load to 33A, all output shutdown except for 5+Vsb normal operation. No damage, no hazard. NB, NC, NT.
Output +5Vsb (Load Condition A)	Overload	90	3 hrs, 7 min.	F1	0.05 - 0.06	After increase load to 6.6A, unit cycling protection, all output voltage does not exceed rating. No damage, no hazard. NB, NC, NT.
Output -12 V (Load condition A)	Overload	90	3 hrs, 14 min.	F1	0.43	After increase load to 0.8A, all output shutdown except for 5Vsb normal operation. No damage, no hazard. NB, NC, NT.
Output -5 V (Load condition A)	Overload	90	2 hrs, 47 min.	F1	0.43	After increase load to 0.6A, all output shutdown except for 5Vsb normal operation. No damage, no hazard. NB, NC, NT.
For model FSP300-50UDB						
Ventilation openings (Load Condition A)	Blocked	90	1 hrs, 37 min.	F1	0.43	All output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT
+3.3V output (Load Condition A)	Overload	90	3 hrs, 38 min.	F1	0.43	After increase load to 27A, all output shutdown except for +5Vsb normal operation. No damage, no hazard. NB,

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IEC 62368-1						
Clause	Requirement + Test			Result - Remark		Verdict
						NC, NT.
+5V output (Load Condition B)	Overload	90	3 hrs, 2 min.	F1	0.43	After increase load to 25A, all output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT.
+12V output (Load Condition C)	Overload	90	4 hrs, 12 min.	F1	0.43	After increase load to 33A, all output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT.
+12V output (Load Condition C)	Overload	264	2 hrs, 53 min.	F1	0.21	After increase load to 33A, all output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT.
+5Vsb output (Load Condition A)	Overload	90	3 hrs, 18 min.	F1	0.05 - 0.06	After increase load to 6.6A, unit cycling protection, all output voltage does not exceed rating. No damage, no hazard. NB, NC, NT.
-12V output (Load Condition A)	Overload	90	3 hrs, 23 min.	F1	0.43	After increase load to 0.8A, all output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT.
-5V output (Load Condition A)	Overload	90	3 hrs, 30 min.	F1	0.43	After increase load to 0.6A, all output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT.
For model FSP400-50WDB						
Ventilation openings (Load Condition A)	Blocked	90	1 hr, 36 min.	F1	—	Fuse opened. No hazard. NB, NC, NT
+3.3V output (Load Condition A)	Overload	90	2 hrs 57 min.	F1	0.43	After increase load to 27A, all output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT.

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Clause	Requirement + Test				Result - Remark	Verdict
+5V output (Load Condition B)	Overload	90	3 hrs, 17 min.	F1	0.43	After increase load to 25A, all output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT.
+12V output (Load Condition C)	Overload	90	3 hrs, 1 min.	F1	0.43	After increase load to 41A, all output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT.
+12V output (Load Condition C)	Overload	264	4 hrs, 29 min.	F1	0.21	After increase load to 41A, all output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT.
+5Vsb output (Load Condition A)	Overload	90	3 hrs, 36 min.	F1	0.05 - 0.06	After increase load to 6.6A, unit cycling protection, all output voltage does not exceed rating. No damage, no hazard. NB, NC, NT.
-12V output (Load Condition A)	Overload	90	2 hrs, 45 min.	F1	0.43	After increase load to 0.8A, all output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT.
-5V output (Load Condition A)	Overload	90	3 hrs, 17 min.	F1	0.43	After increase load to 0.6A, all output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT.
For model FSP400-50UDB						
Ventilation openings (Load Condition A)	Blocked	90	1 hr, 34 min.	F1	0.43	All output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT.
+3.3V output (Load Condition A)	Overload	90	3 hrs, 7 min.	F1	0.43	After increase load to 27A, all output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT.
+5V output (Load Condition	Overload	90	3 hrs, 57 min.	F1	0.43	After increase load to 25A, all output shutdown except for

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Clause	Requirement + Test			Result - Remark		Verdict
B)						+5Vsb normal operation. No damage, no hazard. NB, NC, NT.
+12V output (Load Condition C)	Overload	90	2 hrs, 43 min.	F1	0.43	After increase load to 41A, all output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT.
+12V output (Load Condition C)	Overload	264	2 hrs, 52 min.	F1	0.21	After increase load to 41A, all output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT.
+5Vsb output (Load Condition A)	Overload	90	4 hrs, 8 min.	F1	0.05 - 0.06	After increase load to 6.6A, unit cycling protection, all output voltage does not exceed rating. No damage, no hazard. NB, NC, NT.
-12V output (Load Condition A)	Overload	90	2 hrs, 50 min.	F1	0.43	After increase load to 0.8A, all output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT.
-5V output (Load Condition A)	Overload	90	3 hrs, 11 min.	F1	0.43	After increase load to 0.6A, all output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT.
For model FSP500-50WDB						
Ventilation openings (Load Condition A)	Blocked	90	2 hrs, 3 min.	F1	0.43	All output shutdown except for +5Vsb normal operation. No hazard. NB, NC, NT
+3.3V output (Load Condition A)	shorted	90	5 min.	F1	0.43	Unit shut down immediately, except for +5 Vsb output. No damage, no hazard. NB, NC, NT.
3.3V output "+" to +5V output "+" (Load Condition A)	shorted	90	5 min.	F1	0.43	Unit shut down immediately, except for +5 Vsb output. No damage, no hazard. NB, NC, NT.

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Clause	Requirement + Test				Result - Remark	Verdict
+3.3V output “+” to +12V output “+” (Load Condition A)	shorted	90	5 min.	F1	0.43	Unit shut down immediately, except for +5 Vsb output. No damage, no hazard. NB, NC, NT.
+3.3V output “+” to +5Vsb output “+” (Load Condition A)	shorted	90	5 min.	F1	0.05	Unit shut down immediately. No damage, no hazard. NB, NC, NT.
+3.3V output “+” to -12V output “+” (Load Condition A)	shorted	90	5 min.	F1	0.43	Unit shut down immediately, except for +5 Vsb output. No damage, no hazard. NB, NC, NT.
+3.3V output “+” to -5V output “+” (Load Condition A)	shorted	90	5 min.	F1	0.43	Unit shut down immediately, except for +5 Vsb output. No damage, no hazard. NB, NC, NT.
+5V output (Load Condition A)	shorted	90	5 min.	F1	0.43	Unit shut down immediately, except for +5 Vsb output. No damage, no hazard. NB, NC, NT.
+5V output “+” to 12V output “+” (Load Condition A)	shorted	90	5 min.	F1	0.43	Unit shut down immediately, except for +5 Vsb output. No damage, no hazard. NB, NC, NT.
+5V output “+” to +5Vsb output “+” (Load Condition A)	shorted	90	5 min.	F1	0.05	Unit shut down immediately. No damage, no hazard. NB, NC, NT.
+5V output “+” to -12V output “+” (Load Condition A)	shorted	90	5 min.	F1	0.43	Unit shut down immediately, except for +5 Vsb output. No damage, no hazard. NB, NC, NT.
+5V output “+” to -5V output “+” (Load Condition	shorted	90	5 min.	F1	0.43	Unit shut down immediately, except for +5 Vsb output. No damage, no hazard. NB, NC, NT.

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Clause	Requirement + Test			Result - Remark		Verdict
A)						
+12V output (Load Condition A)	shorted	90	5 min.	F1	0.43	Unit shut down immediately, except for +5 Vsb output. No damage, no hazard. NB, NC, NT.
+12V output “+” to +5Vsb output “+” (Load Condition A)	shorted	90	5 min.	F1	0.05	Unit shut down immediately. No damage, no hazard. NB, NC, NT.
+12V output “+” to -12V output “+” (Load Condition A)	shorted	90	5 min.	F1	0.43	Unit shut down immediately, except for +5 Vsb output. No damage, no hazard. NB, NC, NT.
+12V output “+” to -5V output “+” (Load Condition A)	shorted	90	5 min.	F1	0.43	Unit shut down immediately, except for +5 Vsb output. No damage, no hazard. NB, NC, NT.
+5Vsb output “+” to +5Vsb output “-” (Load Condition A)	shorted	90	5 min.	F1	0.05	Unit shut down immediately. No damage, no hazard. NB, NC, NT.
+5Vsb output “+” to -12V output “+” (Load Condition A)	shorted	90	5 min.	F1	0.05	Unit shut down immediately. No damage, no hazard. NB, NC, NT.
+5Vsb output “+” to -5V output “+” (Load Condition A)	shorted	90	5 min.	F1	0.05	Unit shut down immediately. No damage, no hazard. NB, NC, NT.
-12V output “+” to -12V output “-” (Load Condition A)	shorted	90	5 min.	F1	0.43	Unit shut down immediately, except for +5 Vsb output. No damage, no hazard. NB, NC, NT.
-12V output “+” to -5V output “+”	shorted	90	5 min.	F1	0.43	Unit shut down immediately, except for +5 Vsb output. No damage, no hazard. NB, NC,

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Clause	Requirement + Test			Result - Remark		Verdict
(Load Condition A)						NT.
-5V output (Load Condition A)	shorted	90	5 min.	F1	0.43	Unit shut down immediately, except for +5 Vsb output. No damage, no hazard. NB, NC, NT.
+3.3V output (Load Condition A)	Overload	90	2 hrs, 58 min.	F1	0.43	After increase load to 27A, all output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT.
+5V output (Load Condition B)	Overload	90	3 hrs, 14 min.	F1	0.43	After increase load to 25A, all output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT.
+12V output (Load Condition C)	Overload	90	3 hrs, 38 min.	F1	0.43	After increase load to 49A, all output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT.
+12V output (Load Condition C)	Overload	264	2 hrs, 52 min.	F1	0.21	After increase load to 49A, all output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT.
+5Vsb output (Load Condition A)	Overload	90	3 hrs, 46 min.	F1	0.05 - 0.06	After increase load to 6.6A, unit cycling protection, all output voltage does not exceed rating. No damage, no hazard. NB, NC, NT.
+5Vsb output (Load Condition D)	Overload	90	3 hrs, 19 min.	F1	0.05 - 0.06	After increase load to 4.0A, unit cycling protection, all output voltage does not exceed rating. No damage, no hazard. NB, NC, NT.
-12V output (Load Condition A)	Overload	90	2 hrs, 46 min.	F1	0.43	After increase load to 0.8A, all output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT.
-5V output	Overload	90	4 hrs,	F1	0.43	After increase load to 0.6A, all

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Clause	Requirement + Test			Result - Remark		Verdict
(Load Condition A)			12 min.			output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT.
For model FSP500-50UDB						
Ventilation openings (Load Condition A)	Blocked	90	2 hrs, 3 min.	F1	0.43	All output shutdown except for +5Vsb normal operation.
+3.3V output (Load Condition A)	Overload	90	3 hrs, 57 min.	F1	0.43	After increase load to 27A, all output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT.
+5V output (Load Condition B)	Overload	90	4 hrs, 4 min.	F1	0.43	After increase load to 25A, all output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT.
+12V output (Load Condition C)	Overload	90	2 hrs, 48 min.	F1	0.43	After increase load to 49A, all output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT.
+12V output (Load Condition C)	Overload	264	3 hrs, 58 min.	F1	0.21	After increase load to 49A, all output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT.
+5Vsb output (Load Condition A)	Overload	90	2 hrs, 38 min.	F1	0.05 - 0.06	After increase load to 6.6A, unit cycling protection, all output voltage does not exceed rating. No damage, no hazard. NB, NC, NT.
+5Vsb output (Load Condition D)	Overload	90	3 hrs, 6 min.	F1	0.05 - 0.06	After increase load to 4.0A, unit cycling protection, all output voltage does not exceed rating. No damage, no hazard. NB, NC, NT.
-12V output (Load Condition	Overload	90	3 hrs, 31 min.	F1	0.43	After increase load to 0.8A, all output shutdown except for

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Clause	Requirement + Test			Result - Remark		Verdict
A)						+5Vsb normal operation. No damage, no hazard. NB, NC, NT.
-5V output (Load Condition A)	Overload	90	4 hrs, 6 min.	F1	0.43	After increase load to 0.6A, all output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT.
For model FSP300-50UDB						
T2 pin 9 after 2D5 to T2 pin 6 winding (Load Condition A)	Overload	90	2 hrs 59 min.	F1	0.05 - 0.06	After increase load to 3.6A, unit cycling protection, all output voltage does not exceed rating. No damage, no hazard. NB, NC, NT.
For model FSP400-50WDB						
T1 pin 1 to T1 pin 2	shorted	90	5 min.	F1	0.07	Components (1R41, 1R42, 1R39, CR12, 1Q15, 1Q14) damaged, repeat twice with same result. No hazard. NB, NC, NT.
T1 pin 3 to T1 pin 4	shorted	90	5 min.	F1	0.43	Unit shut down immediately, except for +5 Vsb output. No damage, no hazard. NB, NC, NT.
T1 pin 5 to T1 pin 6	shorted	90	5 min.	F1	0.43	Unit shut down immediately, except for +5 Vsb output. No damage, no hazard. NB, NC, NT.
T1 FA to T1 FB	shorted	90	5 min.	F1	0.43	Unit shut down immediately, except for +5 Vsb output. No damage, no hazard. NB, NC, NT.
T2 pin 1 to T2 pin 2	shorted	90	5 min.	F1	0.05	Unit shut down immediately. No damage, no hazard. NB, NC, NT.
T2 pin 3 to T2 pin 4	shorted	90	5 min.	F1	0.05	Unit shut down immediately. No damage, no hazard. NB, NC, NT.
T2 pin 6 to T2 pin 9	shorted	90	5 min.	F1	0.05	Unit shut down immediately. No damage, no hazard. NB, NC, NT.
1L5 pin 1 to 1L5 pin 6	shorted	90	5 min.	F1	5.19	Unit normal operation, no components damage, no

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Clause	Requirement + Test			Result - Remark		Verdict
						hazard. NB, NC, NT.
1L5 pin 2 to 1L5 pin 5	shorted	90	5 min.	F1	5.19	Unit normal operation, no components damage, no hazard. NB, NC, NT.
1L5 pin 3 to 1L5 pin 4	shorted	90	5 min.	F1	5.19	Unit normal operation, no components damage, no hazard. NB, NC, NT.
1L5 pin 1 to 1L5 pin 6 winding	Overload	90	5 min.	F1	0.43	After increase load to 0.1A, all output shutdown except for +5Vsb normal operation. No components damage, no hazard. NB, NC, NT.
T2 pin 9 after 2D5 to T2 pin 6 winding (Load Condition A)	Overload	90	3 hrs, 2 min.	F1	0.05 - 0.06	After increase load to 3.6A, unit cycling protection, all output voltage does not exceed rating. No damage, no hazard. NB, NC, NT.
For model FSP400-50UDB						
T2 pin 9 after 2D5 to T2 pin 6 winding (Load Condition A)	Overload	90	3 hrs, 12 min.	F1	0.05 - 0.06	After increase load to 3.6A, unit cycling protection, all output voltage does not exceed rating. No damage, no hazard. NB, NC, NT.
For model FSP500-50WDB						
T1 pin 1 to T1 pin 2	shorted	90	5 min.	F1	0.07	Components (1R41, 1R42, 1R39, CR12, 1Q15, 1Q14) damaged, repeat twice with same result. No components damage, no hazard. NB, NC, NT.
T1 pin 3 to T1 pin 4	shorted	90	5 min.	F1	0.43	Unit shut down immediately, except for +5 Vsb output. No damage, no hazard. NB, NC, NT.
T1 pin 5 to T1 pin 6	shorted	90	5 min.	F1	0.43	Unit shut down immediately, except for +5 Vsb output. No damage, no hazard. NB, NC, NT.
T1 FA to T1 FB	shorted	90	5 min.	F1	0.43	Unit shut down immediately, except for +5 Vsb output. No damage, no hazard. NB, NC, NT.

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Clause	Requirement + Test			Result - Remark		Verdict
T2 pin 1 to T2 pin 2	shorted	90	5 min.	F1	0.05	Unit shut down immediately. No damage, no hazard. NB, NC, NT.
T2 pin 3 to T2 pin 4	shorted	90	5 min.	F1	0.05	Unit shut down immediately. No damage, no hazard. NB, NC, NT.
T2 pin 6 to T2 pin 9	shorted	90	5 min.	F1	0.05	Unit shut down immediately. No damage, no hazard. NB, NC, NT.
1L5 pin 1 to 1L5 pin 6	shorted	90	5 min.	F1	6.42	Unit normal operation, no components damage, no hazard. NB, NC, NT.
1L5 pin 2 to 1L5 pin 5	shorted	90	5 min.	F1	6.42	Unit normal operation, no components damage, no hazard. NB, NC, NT.
1L5 pin 3 to 1L5 pin 4	shorted	90	5 min.	F1	6.42	Unit normal operation, no components damage, no hazard. NB, NC, NT.
1L5 pin 1 to 1L5 pin 6 winding	Overload	90	5 min.	F1	0.43	After increase load to 0.1A, all output shutdown except for +5Vsb normal operation. No components damage, no hazard. NB, NC, NT.
T2 pin 9 after 2D5 to T2 pin 6 winding (Load Condition A)	Overload	90	3 hrs, 43 min.	F1	0.05 - 0.06	After increase load to 3.6A, unit cycling protection, all output voltage does not exceed rating. No damage, no hazard. No damage, no hazard. NB, NC, NT.
T2 pin 9 after 2D5 to T2 pin 6 winding (Load Condition D)	Overload	90	3 hrs, 6 min.	F1	0.05 - 0.06	After increase load to 1.0A, unit cycling protection, all output voltage does not exceed rating. No damage, no hazard. No damage, no hazard. NB, NC, NT.
T2 pin 9 after 2D5 to T2 pin 6 winding (Load Condition A)	Overload	90	3 hrs, 31 min.	F1	0.05 - 0.06	Temperature Unit cycling protection, all output voltage does not exceed rating. No damage, no hazard. NB, NC, NT.
For model FSP500-50UDB						
T2 pin 9 after	Overload	90	2 hrs,	F1	0.05 -	Unit cycling protection, all

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Clause	Requirement + Test			Result - Remark		Verdict
2D5 to T2 pin 6 winding (Load Condition A)			37 min.		0.06	output voltage does not exceed rating. No damage, no hazard. NB, NC, NT.
T2 pin 9 after 2D5 to T2 pin 6 winding (Load Condition D)	Overload	90	2 hrs, 37 min.	F1	0.05 - 0.06	Unit cycling protection, all output voltage does not exceed rating. No damage, no hazard. NB, NC, NT.
Fault condition						
For model FSP300-50WDB						
1C2 (180μF)	shorted	90	1 sec.	F1	--	Fuse opened immediately, no hazard. NB, NC, NT.
1C2 (270μF)	shorted	90	1 sec.	F1	--	Fuse opened immediately, no hazard. NB, NC, NT.
1Q2 pin G to 1Q2 pin S	shorted	90	5 min.	F1	0.05 - 0.06	Unit cycling protection, all output voltage does not exceed rating. No hazard. NB, NC, NT.
1Q2 pin G to 1Q2 pin D	shorted	90	5 min.	F1	0.05	Component (1R1, 1R8, 1R7, CU1, 1Q2) damaged, repeat twice with the same result. No hazard. NB, NC, NT.
1Q2 pin D to 1Q2 pin S	shorted	90	1 sec.	F1	--	Fuse opened immediately, component (1Q2) damaged. No hazard. NB, NC, NT.
1Q2 pin G to 1Q2 pin S	shorted	264	5 min.	F1	0.05 - 0.06	Unit cycling protection, all output voltage does not exceed rating. No hazard. NB, NC, NT.
1Q4 pin G to 1Q4 pin S	shorted	90	5 min.	F1	0.05 - 0.06	Unit cycling protection, all output voltage does not exceed rating. No hazard. NB, NC, NT.
1Q4 pin G to 1Q4 pin D	shorted	90	5 min.	F1	0.05	Component (1R41, 1R42, 1Q15, 1Q14, CU1, 1Q4) damaged, repeat twice with the same result. No hazard. NB, NC, NT.
1Q4 pin D to 1Q4 pin S	shorted	90	1 sec.	F1	--	Fuse opened immediately, components (1Q4, 1R41, 1R42, 1Q1) damaged. No hazard. NB, NC, NT.
1R1	shorted	90	5 min.	F1	3.90	Unit normal operation, no

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Clause	Requirement + Test			Result - Remark		Verdict
						components damage, no hazard. NB, NC, NT.
For model FSP400-50WDB						
1C2 (220 μ F)	shorted	90	1 sec.	F1	--	Fuse opened immediately, no hazard. NB, NC, NT.
1C2 (270 μ F)	shorted	90	1 sec.	F1	--	Fuse opened immediately, no hazard. NB, NC, NT.
1Q2 pin G to 1Q2 pin S	shorted	90	5 min.	F1	0.05 - 0.06	Unit cycling protection, all output voltage does not exceed rating. No hazard. NB, NC, NT.
1Q2 pin G to 1Q2 pin D	shorted	90	5 min.	F1	0.05	Component (1R1, 1R8, 1R7, CU1, 1Q2) damaged, repeat twice with the same result. No hazard. NB, NC, NT.
1Q2 pin D to 1Q2 pin S	shorted	90	1 sec.	F1	--	Fuse opened immediately, component (1Q2) damaged. No hazard. NB, NC, NT.
1Q2 pin G to 1Q2 pin S	shorted	264	5 min.	F1	0.05 - 0.06	Unit cycling protection, all output voltage does not exceed rating. No hazard. NB, NC, NT.
1Q4 pin G to 1Q4 pin S	shorted	90	5 min.	F1	0.05 - 0.06	Unit cycling protection, all output voltage does not exceed rating. No hazard. NB, NC, NT.
1Q4 pin G to 1Q4 pin D	shorted	90	5 min.	F1	0.05	Component (1R41, 1R42, 1Q15, 1Q14, CU1, 1Q4) damaged, repeat twice with the same result. No hazard. NB, NC, NT.
1Q4 pin D to 1Q4 pin S	shorted	90	1 sec.	F1	--	Fuse opened immediately, components (1Q4, 1R41, 1R42, 1Q1) damaged. No hazard. NB, NC, NT.
1R1	shorted	90	5 min.	F1	5.19	Unit normal operation, no components damage, no hazard. NB, NC, NT.
For model FSP500-50WDB						
BD1 pin L to BD1 pin “+”	shorted	90	1 sec.	F1	--	Fuse opened immediately, no hazard. NB, NC, NT.
1Q1 pin G to 1Q1 pin S	shorted	90	5 min.	F1	0.05 - 0.06	Unit cycling protection, all output voltage does not exceed rating. No hazard. NB,

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Clause	Requirement + Test			Result - Remark		Verdict
						NC, NT.
1Q1 pin G to 1Q1 pin D	shorted	90	5 min.	F1	0.05	Component (1R1, 1R8, 1R7, CU1, 1Q1) damaged, repeat twice with the same result. No hazard. NB, NC, NT.
1Q1 pin D to 1Q1 pin S	shorted	90	1 sec.	F1	--	Fuse opened immediately, component (1Q2) damaged. No hazard. NB, NC, NT.
1Q1 pin G to 1Q1 pin S	shorted	264	5 min.	F1	0.05 - 0.06	Unit cycling protection, all output voltage does not exceed rating. No hazard. NB, NC, NT.
1Q2 pin G to 1Q2 pin S	shorted	90	5 min.	F1	0.05 - 0.06	Unit cycling protection, all output voltage does not exceed rating. No hazard. NB, NC, NT.
1Q2 pin G to 1Q2 pin D	shorted	90	5 min.	F1	0.05	Component (1R1, 1R8, 1R7, CU1, 1Q2) damaged, repeat twice with the same result. No hazard. NB, NC, NT.
1Q2 pin D to 1Q2 pin S	shorted	90	1 sec.	F1	--	Fuse opened immediately, component (1Q2) damaged. No hazard. NB, NC, NT.
1Q2 pin G to 1Q2 pin S	shorted	264	5 min.	F1	0.05 - 0.06	Unit cycling protection, all output voltage does not exceed rating. No hazard. NB, NC, NT.
1R1	shorted	90	5 min.	F1	6.42	Unit normal operation, no components damage, no hazard. NB, NC, NT.
1C2 (270μF)	shorted	90	1 sec.	F1	--	Fuse opened immediately, no hazard. NB, NC, NT.
1Q3 pin G to 1Q3 pin S	shorted	90	5 min.	F1	0.05 - 0.06	Component (1R41, 1R42, 1Q4, 1Q15, 1R39, CR12, CU1, 1Q3) damaged, repeat twice with the same result. No hazard. NB, NC, NT.
1Q3 pin G to 1Q3 pin D	shorted	90	1 sec.	F1	--	Fuse opened immediately, components (1Q3, 1Q4, 1Q15, CR12, CU1) damaged. No hazard. NB, NC, NT.
1Q3 pin D to 1Q3 pin S	shorted	90	5 min.	F1	0.43	Unit shut down immediately, except for +5 Vsb output. No damage, no hazard. NB, NC, NT.

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Clause	Requirement + Test				Result - Remark	Verdict
1Q4 pin G to 1Q4 pin S	shorted	90	5 min.	F1	0.05 - 0.06	Unit cycling protection, all output voltage does not exceed rating. No hazard. NB, NC, NT.
1Q4 pin G to 1Q4 pin D	shorted	90	5 min.	F1	0.05	Component (1R41, 1R42, 1Q15, 1Q14, CU1, 1Q4) damaged, repeat twice with the same result. No hazard. NB, NC, NT.
1Q4 pin D to 1Q4 pin S	shorted	90	1 sec.	F1	--	Fuse opened immediately, components (1Q4, 1R41, 1R42, 1Q1) damaged. No hazard. NB, NC, NT.
CU2 pin 1 to CU2 pin 2	shorted	90	5 min.	F1	0.05	Unit shut down immediately. No damage, no hazard. NB, NC, NT.
CU2 pin 3 to CU2 pin 4	shorted	90	5 min.	F1	0.05	Unit shut down immediately. No damage, no hazard. NB, NC, NT.
CU2 pin 1	opened	90	5 min.	F1	0.05	Unit shut down immediately. No damage, no hazard. NB, NC, NT.
CU2 pin 4	opened	90	5 min.	F1	0.05	Unit shut down immediately. No damage, no hazard. NB, NC, NT.
CU3 pin 1 to CU3 pin 2	shorted	90	5 min.	F1	0.43	Unit shut down immediately, except for +5 Vsb output. No damage, no hazard. NB, NC, NT.
CU3 pin 3 to CU3 pin 4	shorted	90	5 min.	F1	0.05	Unit shut down immediately. No damage, no hazard. NB, NC, NT.
CU3 pin 1	opened	90	5 min.	F1	0.43	Unit shut down immediately, except for +5 Vsb output. No damage, no hazard. NB, NC, NT.
CU3 pin 4	opened	90	5 min.	F1	0.05	Unit shut down immediately. No damage, no hazard. NB, NC, NT.
CU4 pin 1 to CU4 pin 2	shorted	90	5 min.	F1	0.05	Unit shut down immediately. No damage, no hazard. NB, NC, NT.
CU4 pin 3 to CU4 pin 4	shorted	90	5 min.	F1	0.43	Unit shut down immediately, except for +5 Vsb output. No damage, no hazard. NB, NC,

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Clause	Requirement + Test			Result - Remark		Verdict
						NT.
CU4 pin 1	opened	90	5 min.	F1	0.05	Unit shut down immediately. No damage, no hazard. NB, NC, NT.
CU4 pin 4	opened	90	5 min.	F1	0.43	Unit shut down immediately, except for +5 Vsb output. No damage, no hazard. NB, NC, NT.
CU8 pin 1 to CU8 pin 2	shorted	90	5 min.	F1	6.42	Unit normal operation, no components damage, no hazard. NB, NC, NT.
CU8 pin 3 to CU8 pin 4	shorted	90	5 min.	F1	6.42	Unit normal operation, no components damage, no hazard. NB, NC, NT.
CU8 pin 1	opened	90	5 min.	F1	6.42	Unit normal operation, no components damage, no hazard. NB, NC, NT.
CU8 pin 4	opened	90	5 min.	F1	6.42	Unit normal operation, no components damage, no hazard. NB, NC, NT.
CU1 pin 6 to CU1 pin 5	shorted	90	5 min.	F1	0.05	Unit shut down immediately. No damage, no hazard. NB, NC, NT.
CU1 pin 6 to CU1 pin 13	shorted	90	5 min.	F1	0.05	Component damage (CU1), repeat twice with same result. No hazard. NB, NC, NT.
For model FSP300-50WDB						
DC Fan (Load Condition A)	Stalled	90	2 hrs, 29 min.	F1	0.43	All output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT
For model FSP300-50UDB						
DC Fan (Load Condition A)	Stalled	90	2 hrs, 12 min.	F1	0.43	All output All output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT
For model FSP400-50WDB						
DC Fan (Load Condition A)	Stalled	90	2 hrs, 52 min.	F1	0.43	All output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT

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Clause	Requirement + Test	Result - Remark	Verdict

For model FSP400-50UDB

DC Fan (Load Condition A)	Stalled	90	2 hrs, 34 min.	F1	0.43	All output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT
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For model FSP500-50WDB

DC Fan (Load Condition A)	Stalled	90	3 hrs, 14 min.	F1	0.43	All output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT
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For model FSP500-50UDB

DC Fan (Load Condition A)	Stalled	90	2 hrs, 24 min.	F1	0.43	All output shutdown except for +5Vsb normal operation. No damage, no hazard. NB, NC, NT
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Supplementary information:

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) NB - No indication of dielectric breakdown, NC - Cheesecloth remained intact, NT - Tissue paper remained intact.
- 2) The test result shown all safeguards remained effective and didn't lead to a single fault condition during abnormal operating condition; besides, all safeguards complied with applicable requirements in this standard after restoration of normal operating conditions.
- 3) The test result shown no Class 1 or 2 energy source become Class 3 level during and after single fault condition.
- 4) For fuse opened condition, carried out for all sources of fuse.
- 5) The transformer overloaded condition is according to annex G.5.3.3.
- 6) For load conditions and metal chassis type, see General product information for details.
- 7) See appended table 5.4.1.4, 9.3, B.1.5, B.2.6 for details of temperature recorded.

M.3	TABLE: Protection circuits for batteries provided within the equipment		N/A
Is it possible to install the battery in a reverse polarity position? :		--	—
Equipment Specification	Charging		
	Voltage (V)	Current (A)	
	--	--	
Manufacturer/type	Battery specification		
	Non-rechargeable batteries	Rechargeable batteries	

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Clause	Requirement + Test	Result - Remark	Verdict

	Discharging current (A)	Unintentional charging current (A)	Charging		Discharging current (A)	Reverse charging current (A)	
			Voltage (V)	Current (A)			
--	--	--	--	--	--	--	
Note: The tests of M.3.2 are applicable only when above appropriate data is not available.							
Specified battery temperature (oC)				--			
Component No.	Fault condition	Charge/ discharge mode	Test time	Temp. (°C)	Current (A)	Voltage (V)	Observation
--	--	--	--	--	--	--	--
Supplementary information:							
Abbreviation: SC= short circuit; OC= open circuit NL= no chemical leakage; NS= no spillage of liquid; NE= no explosion; NF= no emission of flame or expulsion of molten metal.							

M.4.2	TABLE: Charging safeguards for equipment containing a secondary lithium battery					N/A
Maximum specified charging voltage (V).....:				--	---	
Maximum specified charging current (A)				--	---	
Highest specified charging temperature (oC)				--		
Lowest specified charging temperature (oC)				--		
Battery manufacturer/type	Operating and fault condition	Measurement			Observation	
		Charging voltage (V)	Charging current (A)	Temp. (°C)		
--	--	--	--	--		
Supplementary information:						
Abbreviation: SC= short circuit; OC= open circuit; MSCV= maximum specified charging voltage; MSCC= maximum specified charging current; HSCT= highest specified charging temperature; LSCT= lowest specified charging temperature						

Q.1	TABLE: Circuits intended for interconnection with building wiring (LPS)						N/A
Output Circuit	Condition	U _{oc} (V)	Time (s)	I _{sc} (A)		S (VA)	
				Meas.	Limit	Meas.	Limit
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--
Supplementary Information:							

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

T.2, T.3, T.4, T.5	TABLE: Steady force test						P
Location/Part	Material	Thickness (mm)	Probe	Force (N)	Test Duration (s)	Observation	
For model FSP500-50UDB							
Top metal chassis	Metal	Min. 0.8	--	30	5	No cracking, no hazards. NB. All safeguards remain effective.	
Bottom metal chassis	Metal	Min. 0.8	--	30	5	No cracking, no hazards. NB. All safeguards remain effective.	
Flank side of metal chassis nearby 1L5	Metal	Min. 0.8	--	30	5	No cracking, no hazards. NB. All safeguards remain effective.	
Flank side of metal chassis nearby T2	Metal	Min. 0.8	--	30	5	No cracking, no hazards. NB. All safeguards remain effective.	
Rear side of metal chassis nearby AC inlet	Metal	Min. 0.8	--	30	5	No cracking, no hazards. NB. All safeguards remain effective.	
Front side of metal chassis nearby AC inlet	Metal	Min. 0.8	--	250	5	No cracking, no hazards. NB. All safeguards remain effective.	
For model FSP300-50UDB							
Rear side of metal chassis nearby AC inlet	Metal	Min. 0.8	--	30	5	No cracking, no hazards. NB. All safeguards remain effective.	
For model FSP500-50WDB							
Top metal chassis	Metal	Min. 0.8	--	30	5	No cracking, no hazards. NB. All safeguards remain effective.	
Bottom metal chassis	Metal	Min. 0.8	--	30	5	No cracking, no hazards. NB. All safeguards remain effective.	
Flank side of metal chassis nearby	Metal	Min. 0.8	--	30	5	No cracking, no hazards. NB. All	

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Clause	Requirement + Test			Result - Remark		Verdict
1L5						safeguards remain effective.
Flank side of metal chassis nearby T2	Metal	Min. 0.8	--	30	5	No cracking, no hazards. NB. All safeguards remain effective.
Rear side of metal chassis nearby AC inlet	Metal	Min. 0.8	--	30	5	No cracking, no hazards. NB. All safeguards remain effective.
Front side of metal chassis nearby AC inlet	Metal	Min. 0.8	--	250	5	No cracking, no hazards. NB. All safeguards remain effective.
Supplementary information:						
Supplementary information: Compliance is checked by inspection, by measurement or in case of doubt by applying a force of 10 N in the most unfavorable direction. For the abbreviations as below. NB - No indication of dielectric breakdown						

T.6, T.9	TABLE: Impact test				P
Location/Part	Material	Thickness (mm)	Height (mm)	Observation	
For model FSP500-50UDB					
Ventilation opening of DC fan near appliance inlet	Metal	0.8	1300	No cracking, no hazards. NB. All safeguards remain effective.	
For model FSP500-50WDB					
Ventilation opening of DC fan near appliance inlet	Metal	0.8	1300	No cracking, no hazards. NB. All safeguards remain effective.	
Supplementary information:					
For the abbreviations as below. NB - No indication of dielectric breakdown					

T.7	TABLE: Drop test				N/A
Location/Part	Material	Thickness (mm)	Height (mm)	Observation	
--	--	--	--	--	
Supplementary information:					

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Clause	Requirement + Test	Result - Remark	Verdict

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T.8	TABLE: Stress relief test					P
Location/Part	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation	
Heat Shrinkable Tube ¹⁾ (L/N wires solder parts at PCB and core of L/N wires)	¹⁾	¹⁾	140	7	No damage, No softening.	
Heat Shrinkable Tube ¹⁾ (DC fan wires)	¹⁾	¹⁾	140	7	No damage, No softening.	
Insulation sheet ¹⁾ (provided between MAIN BOARD solder side and bottom metal chassis; provided on top metal chassis internal side)	¹⁾	¹⁾	140	7	No damage, No softening.	
Supplementary information:						
¹⁾ Containing all sources during the test. For detailed sources refer to appended table 4.1.2.						

X	TABLE: Alternative method for determining minimum clearances distances			N/A
Clearance distanced between:	Peak of working voltage (V)	Required cl (mm)	Measured cl (mm)	
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Supplementary information:				

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Clause	Requirement + Test	Result - Remark	Verdict

4.1.2	TABLE: Critical components information					P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹	
Critical components						
Appliance Inlet	Solteam Electronics Co. Ltd.	ST-01	10 A, 250 Vac, 70 °C (VDE), 15 A, 250 Vac, 75 °C (UL)	IEC 60320-1: 2015, EN 60320-1: 2015, ANSI/UL 60320-1, CAN/CSA- C22.2 No. 60320-1	ENEC 16 (ENEC16/FI/20/ 10036), UL/cUL (E200241)	
	Rong Feng Industrial Co., Ltd.	SS-120	10 A, 250 Vac, 70 °C (VDE), 15 A, 250 Vac, 75 °C (UL)	IEC 60320-1: 2015, EN 60320-1: 2015, ANSI/UL 60320-1, CAN/CSA- C22.2 No. 60320-1	VDE (40028101), UL/cUL (E102641)	
	Rong Feng Industrial Co., Ltd.	SS-7B	10 A, 250 Vac, 70 °C (VDE), 15 A, 250 Vac, 75 °C (UL)	IEC 60320-1: 2015, EN 60320-1: 2015, ANSI/UL 60320-1, CAN/CSA- C22.2 No. 60320-1	VDE (40028101), UL (E102641), CSA (065612_0_000)	
	HCR Electronics Co., Ltd.	SK01	10 A, 250 Vac, 70 °C (VDE), 15 A, 250 Vac, 75 °C (UL)	IEC 60320-1: 2015, EN 60320-1: 2015, ANSI/UL 60320-1, CAN/CSA- C22.2 No. 60320-1	ENEC 17 (NO4296), UL/cUL (E344254)	
	Rich Bay Co., Ltd.	R-301, R-301SN	10 A, 250 Vac, 70 °C (VDE), 15 A, 250 Vac, 75 °C (UL)	IEC 60320-1: 2015, EN 60320-1: 2015, ANSI/UL 60320-1, CAN/CSA- C22.2 No.	VDE (40030228), UL/cUL (E184638)	

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IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
				60320-1	
	Tecx-Unions Technology Corp.	TU-301-A, TU-301-AP, TU-301-S, TU-301-SP series	10 A, 250 Vac, 70 °C (VDE), 15 A, 250 Vac, 75 °C (UL)	IEC 60320-1: 2015, EN 60320-1: 2015, ANSI/UL 60320-1, CAN/CSA-C22.2 No. 60320-1	ENEC 15 (ENEC-01898-M1), UL (E220004), CSA (098476_0_000)
	Zhe Jiang Bei Er Jia Electronic Co., Ltd.	ST-A01-001L, ST-A01-002L, ST-A01-003J, ST-A01-003K	10 A, 250 Vac, 70 °C (VDE), 15 A, 250 Vac, 75 °C (UL)	IEC 60320-1: 2015, EN 60320-1: 2015, ANSI/UL 60320-1, CAN/CSA-C22.2 No. 60320-1	VDE (40013388), UL/cUL (E225980)
	Canal Electronic Co., Ltd.	KS-101, KS-201, KS-202, KS-303, KS-406	10 A, 250 Vac, 70 °C (VDE), 15 A, 250 Vac, 75 °C (UL)	IEC 60320-1: 2015, EN 60320-1: 2015, ANSI/UL 60320-1, CAN/CSA-C22.2 No. 60320-1	ENEC 15 (ENEC-02192), UL/cUL (E250015)
	Inalways Corporation (ENEC 16); INALWAYS ELECTRONICS INC. (UL/cUL)	0711-.-...Series	10 A, 250 Vac, 70 °C (VDE), 15 A, 250 Vac, 75 °C (UL)	IEC 60320-1: 2015, EN 60320-1: 2015, ANSI/UL 60320-1, CAN/CSA-C22.2 No. 60320-1	ENEC 16 (ENEC16/FI/21/01034), UL (E94191), CSA (063196_0_000)
	Inalways Corporation (ENEC 16); INALWAYS ELECTRONICS INC. (UL/cUL)	0714-.-... Series (ENEC 16); 0714 (UL)	10 A, 250 Vac, 70 °C (VDE), 15 A, 250 Vac, 75 °C (UL)	IEC 60320-1: 2015, EN 60320-1: 2015, ANSI/UL 60320-1, CAN/CSA-C22.2 No. 60320-1	ENEC 16 (ENEC16/FI/21/1004), UL (E94191), CSA (063196_0_000)
Y-Cap. (CY6, CY7)	Success Electronics Co.,	SB	220 pF max., 250 V min.,	DIN EN 60384-14/A1 (VDE	VDE (40037221),

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IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
(Y1 type only) (Soldered on appliance inlet) (Optional)	Ltd.		125 °C min.	0565-1- 1/A1):2017-04; EN 60384-14: 2013 /A1:2016, IEC 60384- 14:2013/AMD1: 2016; ANSI/UL 60384-14 CAN/CSA- E60384-14	UL/cUL (E114280)
	TDK Corporation.	CD, CD (miniature series)	220 pF max., 250 V min., 125 °C min.	DIN EN 60384- 14/A1 (VDE 0565-1- 1/A1):2017-04; EN 60384-14: 2013 /A1:2016, IEC 60384- 14:2013/AMD1: 2016; ANSI/UL 60384-14 CAN/CSA- E60384-14	VDE (40017931, 40029780), UL (E37861), CSA
	Walsin Technology Corp.	AH, Series AS (VDE, ENEC 10), AH Series (#)(&), AS Series (&) (UL)	220 pF max., 250 V min., 125 °C min.	DIN EN 60384- 14/A1 (VDE 0565-1- 1/A1):2017-04; EN 60384-14: 2013 /A1:2016, IEC 60384- 14:2013/AMD1: 2016; ANSI/UL 60384-14 CAN/CSA- E60384-14	ENEC 10 (40001804, 40039265), VDE (40001804, 40039265), UL/cUL (E146544)
	Murata Mfg Co., Ltd.	KX (VDE, CSA), KX \$\$ (UL)	220 pF max., 250 V min., 125 °C min.	DIN EN 60384- 14/A1 (VDE 0565-1- 1/A1):2017-04; EN 60384-14: 2013 /A1:2016, IEC 60384- 14:2013/AMD1: 2016; ANSI/UL 60384-14 CAN/CSA-	VDE (40002831), UL (E37921), CSA (1343810 (LR 44559))

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IEC 62368-1					
Clause	Requirement + Test			Result - Remark	Verdict
				E60384-14	
	Murata Mfg Co., Ltd.	RA-series (VDE, ENEC), RA (\$) (UL)	220 pF max., 250 V min., 125 °C min.	DIN EN 60384-14/A1 (VDE 0565-1-1/A1):2017-04; EN 60384-14:2013 /A1:2016, IEC 60384-14:2013/AMD1:2016; ANSI/UL 60384-14 CAN/CSA-E60384-14	VDE (40043033), ENEC 10 (40043033), UL/cUL (E37921)
	Yinan Don's Electronic Component Co., Ltd.	CT81	220 pF max., 250 V min., 125 °C min.	IEC/EN 60384-14: 2013+A1, ANSI/UL 60384-14, CAN/CSA-E60384-14	VDE, UL/cUL (E145038)
	Guangdong Huiwan Electronics Technology Co., Ltd.	AR	220 pF max., 250 V min., 125 °C min.	DIN EN 60384-14/A1 (VDE 0565-1-1/A1):2017-04; EN 60384-14:2013 /A1:2016, IEC 60384-14:2013/AMD1:2016; ANSI/UL 60384-14 CAN/CSA-E60384-14	ENEC 10 (40043989), VDE (40043989), UL/cUL (E480105)
X-Cap. (CX) (X1 or X2 type) (CX soldered on ERP BD) (Optional)	Hua Jung Components Co., Ltd.	MKP	0.68 μ F max. 250 V min., 100 °C min.	IEC/EN 60384-14: 2013+A1:2016 ANSI/UL 60384-14 CAN/CSA-E60384-14	ENEC 14 (SE-ENEC-2002895R1), UL/cUL (E149075)
	Ultra Tech Xiphi Enterprise Co., Ltd.	HQX	0.68 μ F max. 250 V min., 100 °C min.	DIN EN 60384-14/A1 (VDE 0565-1-1/A1):2017-04; EN 60384-14:2013 /A1:2016, IEC 60384-14:2013/AMD1:2016;	VDE (40024534), UL/cUL (E183780), ENEC 15 (40024534)

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IEC 62368-1					
Clause	Requirement + Test			Result - Remark	Verdict
				ANSI/UL 60384-14 CAN/CSA-E60384-14	
	Carli Electronics Co., Ltd.	MPX	0.68 μ F max. 250 V min., 100 °C min.	IEC/EN 60384-14: 2013+A1:2016 ANSI/UL 60384-14 CAN/CSA-E60384-14	ENEC 16 (ENEC16/FI/19/10077); UL/cUL (E120045)
	ZhuHai Sung Ho Electronics Co., Ltd.	CMPP Series (For ENEC15), CMPP (For UL/cUL)	0.68 μ F max. 250 V min., 100 °C min.	DIN EN 60384-14/A1 (VDE 0565-1-1/A1):2017-04; EN 60384-14: 2013 /A1:2016, IEC 60384-14:2013/AMD1: 2016; ANSI/UL 60384-14 CAN/CSA-E60384-14	ENEC 10 (40026078), ENEC 15 (ENEC-02976), VDE (40026078), UL/cUL (E327138)
	Okaya Electric Industries Co., Ltd.	LE-(*) (For ENEC 14), LE Series (For UL/cUL)	0.68 μ F max. 250 V min., 100 °C min.	IEC/EN 60384-14: 2013+A1:2016 ANSI/UL 60384-14 CAN/CSA-E60384-14	ENEC 14 (SE/0142-1AF), UL/cUL (E47474)
	Okaya Electric Industries Co., Ltd.	RE -Series	0.68 μ F max. 250 V min., 100 °C min.	DIN EN 60384-14/A1 (VDE 0565-1-1/A1):2017-04; EN 60384-14: 2013 /A1:2016, IEC 60384-14:2013/AMD1: 2016; ANSI/UL 60384-14 CAN/CSA-E60384-14	VDE (40040190), UL/cUL (E47474)
	Okaya Electric Industries Co., Ltd.	PA Series	0.68 μ F max. 250 V min., 100 °C min.	IEC/EN 60384-14: 2013+A1, ANSI/UL 60384-14, CAN/CSA-	VDE, UL/cUL (E47474)

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IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
				E60384-14	
	Iskra, d d	KNB1530	0.68 μ F max. 250 V min., 100 °C min.	IEC/EN 60384-14: 2013+A1, ANSI/UL 60384-14, CAN/CSA-E60384-14	VDE, UL/cUL (E145156)
	Iskra, d d	KNB1560, KNB1562, KNB1563	0.68 μ F max. 250 V min., 100 °C min.	IEC/EN 60384-14: 2013+A1, ANSI/UL 60384-14, CAN/CSA-E60384-14	VDE, UL/cUL (E145156)
	Kemet Electronics Italia SRL (UL); Kemet Electronics Corporation (ENEC)	R.46	0.68 μ F max. 250 V min., 100 °C min.	IEC/EN 60384-14: 2013+A1:2016 ANSI/UL 60384-14 CAN/CSA-E60384-14	ENEC 03 (V4413), UL/cUL (E97797)
	Kemet Electronics Italia SRL (UL); Kemet Electronics Corporation (ENEC)	R.47	0.68 μ F max. 250 V min., 100 °C min.	IEC/EN 60384-14: 2013+A1:2016 ANSI/UL 60384-14 CAN/CSA-E60384-14	ENEC 03 (CA08.00101), UL/cUL (E97797)
	Wuxi Jiyang Electron Co., Ltd.	MKP	0.68 μ F max. 250 V min., 100 °C min.	DIN EN 60384-14/A1 (VDE 0565-1-1/A1):2017-04; EN 60384-14:2013 /A1:2016, IEC 60384-14:2013/AMD1: 2016, ANSI/UL 60384-14 CAN/CSA-E60384-14	VDE (40033053), UL/cUL (E346670)
	Shiny Space Enterprise Co., Ltd.	SX1	0.68 μ F max. 250 V min., 100 °C min.	IEC/EN 60384-14: 2013+A1:2016 ANSI/UL 60384-14 CAN/CSA-E60384-14	ENEC 15 (ENEC-01199-M1), UL/cUL (E186561)

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IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
IC Including capacitor discharge function (EU1) (Soldered on ERP BD)	Champion Microelectronic Corp.	CM02 series (CM02XISTR SOP8 package)	Tested for rated 90-270 Vac, 47-63 Hz, equivalent capacity for group of X-cap.: 0.1 - 8 μ F, Resistor under capacitive discharge path: 20k Ω - 6M Ω	IEC 62368-1: 2018	Tested by UL (DK-110045-UL)
	Monolithic Power Systems Inc.	HF81	100-240V~, 50-60Hz (tested for 85-265V~, 47-63Hz) Total X capacitance: 0.1 μ F-5.0 μ F, Total Series Resistance: Min. 150 k Ω , 1/4W	IEC 62368-1: 2018	Tested by Nemko
Primary Switch (SW) (Optional)	Chily Precision Industrial Co., Ltd.	3024 series	16 A, 250 Vac, glow wire: 850 $^{\circ}$ C	IEC 61058-1: 2018, EN 61058-1: 2016, ANSI/UL 61058-1, CAN/CSA-C22.2 No. 61058-1	ENEC 15 (ENEC-02556), UL/cUL (E68037)
	Rong Feng Industrial Co., Ltd.	RF-1004	16 A, 250 Vac, glow wire: 850 $^{\circ}$ C	EN 61058-1-1: 2016, EN IEC 61058-1: 2018 ANSI/UL 61058-1, CAN/CSA-C22.2 No. 61058-1	ENEC 18 (HN 69290229 0006), TÜV, UL/cUL (E94138)
	Rong Feng Industrial Co., Ltd.	RF-1003	10 A, 250 Vac, glow wire: 850 $^{\circ}$ C	EN 61058-1-1: 2016, EN IEC 61058-1: 2018 ANSI/UL 61058-1, CAN/CSA-C22.2 No. 61058-1	ENEC 18 (HN 69290230 0006), TÜV, UL/cUL (E94138)

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IEC 62368-1					
Clause	Requirement + Test			Result - Remark	Verdict
	Canal Electronic Co., Ltd.	MR6 series	16 A, 250 Vac, glow wire: 850 °C	EN 61058-1-1:2016, EN IEC 61058-1:2018; ANSI/UL 61058-1, CAN/CSA-C22.2 No. 61058-1	ENEC 15 (ENEC-02389-M2), UL/cUL (E81103)
	Canal Electronic Co., Ltd.	R Series	16A, 250Vac, glow wire 850°C	IEC 61058-1: 2018, EN 61058-1: 2016, ANSI/UL 61058-1, CAN/CSA-C22.2 No. 61058-1	ENEC 15 (ENEC-02664-M1), UL (E81103)
	Canal Electronic Co., Ltd.	MR Series	12A, 250Vac, 16A, 250Vac, glow wire: 850°C	IEC 61058-1: 2018, EN 61058-1: 2016, ANSI/UL 61058-1, CAN/CSA-C22.2 No. 61058-1	ENEC 15 (ENEC-02295-M2), UL/cUL (E81103)
	Canal Electronic Co., Ltd.	MR2 Series	10 A, 250 Vac, glow wire: 850 °C	DIN EN 61058-1-1 (VDE 0630-1-1):2017-02; EN 61058-1-1: 2016; IEC 61058-1:2016; IEC 61058-1-1: 2016; DIN EN IEC 61058-1 (VDE 0630-1):2018-08; EN IEC 61058-1:2018; ANSI/UL 61058-1, CAN/CSA-C22.2 No. 61058-1	ENEC 10 (40007433), VDE (40007433), UL/cUL (E81103)
	Canal Electronic Co., Ltd.	MR-2 series	10 A, 250 Vac, glow wire: 850	DIN EN 61058-1-1 (VDE 0630-1-1):2017-02;	ENEC 15 (40007433), VDE

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IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
			°C	EN 61058-1-1: 2016; IEC 61058-1:2016; IEC 61058-1-1: 2016; DIN EN IEC 61058-1 (VDE 0630-1):2018-08; EN IEC 61058-1:2018; ANSI/UL 61058-1, CAN/CSA-C22.2 No. 61058-1	(40007433), UL/cUL (E81103)
Fuse (F1) (For models FSP500-50UDB and FSP500-50WDB used)	Conquer Electronics Co., Ltd.	MST, MET	T8 AL, 250 Vac	IEC 60127-1:2006+A1+A2, IEC 60127-3:2015, EN 60127-1:2006+A1+A2, EN 60127-3:2015, ANSI/UL 248-1, ANSI/UL 248-14, CSA C22.2 NO.235/248.14	TUV, UL/cUL (E82636)
	Suzhou Walter Electronic Co. Ltd.	2010	T8 AL, 250 Vac	IEC 60127-1:2006+A1+A2, IEC 60127-3:2015, EN 60127-1:2006+A1+A2, EN 60127-3:2015, ANSI/UL 248-1, ANSI/UL 248-14, CSA C22.2 NO.235/248.14	TUV, UL/cUL (E56092)
	Littelfuse, Inc. Wickmann - Werke (VDE) Littelfuse Wickmann Werke (UL)	215-Serie(s)	T8 AH, 250 Vac	IEC 60127-1:2006+A1+A2, IEC 60127-2:2014, EN 60127-1:2006+A1+A2, EN 60127-2:2015,	VDE, UL/cUL (E10480)

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IEC 62368-1					
Clause	Requirement + Test			Result - Remark	Verdict
				ANSI/UL 248-1, ANSI/UL 248-14, CSA C22.2 NO.235/248.14	
	Walter Electronic Co. Ltd.	TSC-Serie(s)	T8 AH, 250 Vac	IEC 60127-1: 2006+A1+A2, IEC 60127-2: 2014, EN 60127-1: 2006+A1+A2, EN 60127-2:2015, ANSI/UL 248-1, ANSI/UL 248-14, CSA C22.2 NO.235/248.14	VDE, UL/cUL (E56092)
	Cooper Bussmann LLC	S505-8A-R , S505-V-8A-R	T8 AH, 250 Vac	IEC 60127-1: 2006+A1+A2, IEC 60127-2: 2014, EN 60127-1: 2006+A1+A2, EN 60127-2:2015, ANSI/UL 248-1, ANSI/UL 248-14, CSA C22.2 NO.235/248.14	VDE, UL/cUL (E19180)
	Conquer Electronics Co., Ltd.	UDA, UDA-A	T8 AH, 250 Vac	IEC 60127-1: 2006+A1+A2, IEC 60127-2: 2014, EN 60127-1: 2006+A1+A2, EN 60127-2:2015, ANSI/UL 248-1, ANSI/UL 248-14, CSA C22.2 NO.235/248.14	TUV, UL/cUL (E82636)
	Bel Fuse Ltd.	5HT8A-R	T8 AH, 250 Vac	IEC 60127-1: 2006+A1+A2, IEC 60127-2: 2014, EN 60127-1:	VDE, UL/cUL (E20624)

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IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
				2006+A1+A2, EN 60127-2:2015, ANSI/UL 248-1, ANSI/UL 248-14, CSA C22.2 NO.235/248.14	
	Hollyland Company Limited	50CT	T8 AH, 250 Vac	IEC 60127-1: 2006+A1+A2, IEC 60127-2: 2014, EN 60127-1: 2006+A1+A2, EN 60127-2:2015, ANSI/UL 248-1, ANSI/UL 248-14, CSA C22.2 NO.235/248.14	TUV, UL/cUL (E156471)
Fuse (F1) (For models FSP300-50UDB, FSP300-50WDB, FSP400-50UDB and FSP400-50WDB used)	Suzhou Walter Electronic Co. Ltd.	2010	T6.3 AL, 250 Vac	IEC 60127-1: 2006+A1+A2, IEC 60127-3: 2015, EN 60127-1: 2006+A1+A2, EN 60127-3:2015, ANSI/UL 248-1, ANSI/UL 248-14, CSA C22.2 NO.235/248.14	VDE, UL/cUL (E56092)
	Conquer Electronics Co., Ltd.	MST	T6.3 AL, 250 Vac	IEC 60127-1: 2006+A1+A2, IEC 60127-3: 2015, EN 60127-1: 2006+A1+A2, EN 60127-3:2015, ANSI/UL 248-1, ANSI/UL 248-14, CSA C22.2 NO.235/248.14	VDE, UL/cUL (E82636)
	Bel Fuse Ltd.	RST-Serie(s)	T6.3 AL, 250 Vac	IEC 60127-1: 2006+A1+A2,	VDE, UL/cUL (E20624)

TRF No. IEC62368_1E

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
				IEC 60127-3: 2015, EN 60127-1: 2006+A1+A2, EN 60127-3:2015, ANSI/UL 248-1, ANSI/UL 248-14, CSA C22.2 NO.235/248.14	
	Cooper Bussmann LLC	SS-5	T6.3 AL, 250 Vac	IEC 60127-1: 2006+A1+A2, IEC 60127-3: 2015, EN 60127-1: 2006+A1+A2, EN 60127-3:2015, ANSI/UL 248-1, ANSI/UL 248-14, CSA C22.2 NO.235/248.14	VDE, UL/cUL (E19180)
	Littelfuse, Inc. Wickmann Werke	392	T6.3 AL, 250 Vac	IEC 60127-1: 2006+A1+A2, IEC 60127-3: 2015, EN 60127-1: 2006+A1+A2, EN 60127-3:2015, ANSI/UL 248-1, ANSI/UL 248-14, CSA C22.2 NO.235/248.14	VDE, UL/cUL (E67006)
	Littelfuse, Inc. Wickmann - Werke (VDE) Littelfuse Wickmann Werke (UL)	215 series	T6.3AH, 250Vac	IEC 60127-1: 2006+A1+A2, IEC 60127-2: 2014, EN 60127-1: 2006+A1+A2, EN 60127-2:2015, ANSI/UL 248-1, ANSI/UL 248-14, CSA C22.2 NO.235/248.14	VDE, UL/cUL (E10480)

TRF No. IEC62368_1E

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
	Walter Electronic Co. Ltd.	TSC-Serie(s)	T6.3AH, 250Vac	IEC 60127-1: 2006+A1+A2, IEC 60127-2: 2014, EN 60127-1: 2006+A1+A2, EN 60127-2:2015, ANSI/UL 248-1, ANSI/UL 248-14, CSA C22.2 NO.235/248.14	VDE, UL/cUL (E56092)
	Cooper Bussmann LLC	S505	T6.3AH, 250Vac	IEC 60127-1: 2006+A1+A2, IEC 60127-2: 2014, EN 60127-1: 2006+A1+A2, EN 60127-2:2015, ANSI/UL 248-1, ANSI/UL 248-14, CSA C22.2 NO.235/248.14	VDE, UL/cUL (E19180)
	Littelfuse, Inc. Wickmann - Werke (VDE) Littelfuse Wickmann Werke (UL)	215 series	T6.3AH, 250Vac	IEC 60127-1: 2006+A1+A2, IEC 60127-2: 2014, EN 60127-1: 2006+A1+A2, EN 60127-2:2015, ANSI/UL 248-1, ANSI/UL 248-14, CSA C22.2 NO.235/248.14	VDE, UL/cUL (E10480)
	Conquer Electronics Co., Ltd.	UDA, UDA-A	T6.3AH, 250Vac	IEC 60127-1: 2006+A1+A2, IEC 60127-2: 2014, EN 60127-1: 2006+A1+A2, EN 60127-2:2015, ANSI/UL 248-1, ANSI/UL 248-14,	TUV, UL/cUL(E8 2636)

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IEC 62368-1					
Clause	Requirement + Test			Result - Remark	Verdict
				CSA C22.2 NO.235/248.14	
	Bel Fuse Ltd.	5HTP	T6.3AH, 250Vac	IEC 60127-1: 2006+A1+A2, IEC 60127-2: 2014, EN 60127-1: 2006+A1+A2, EN 60127- 2:2015, ANSI/UL 248-1, ANSI/UL 248- 14, CSA C22.2 NO.235/248.14	VDE, UL/cUL (E20624)
	Hollyland Company Limited	50CT	T6.3AH, 250Vac	IEC 60127-1: 2006+A1+A2, IEC 60127-2: 2014, EN 60127-1: 2006+A1+A2, EN 60127- 2:2015, ANSI/UL 248-1, ANSI/UL 248- 14, CSA C22.2 NO.235/248.14	TUV,UL/cUL(E1 56471)
Y-Cap. (CY3, CY4) (Y1 type only) (Soldered on MAIN BOARD) (Optional)	Success Electronics Co., Ltd.	SB	2200 pF max., 250 V min., 125 °C min.	DIN EN 60384- 14/A1 (VDE 0565-1- 1/A1):2017-04; EN 60384-14: 2013 /A1:2016, IEC 60384- 14:2013/AMD1: 2016; ANSI/UL 60384-14 CAN/CSA- E60384-14	VDE (40037221), UL/cUL (E114280)
	Success Electronics Co., Ltd.	SE, SF	2200 pF max., 250 V min., 125 °C min.	DIN EN 60384- 14/A1 (VDE 0565-1- 1/A1):2017-04; EN 60384-14: 2013 /A1:2016, IEC 60384- 14:2013/AMD1:	VDE (40037211, 40040181), UL/cUL (E114280)

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IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
				2016; ANSI/UL 60384-14 CAN/CSA- E60384-14	
	TDK Corporation.	CD, CD (miniature series)	2200 pF max., 250 V min., 125 °C min.	DIN EN 60384-14/A1 (VDE 0565-1-1/A1):2017-04; EN 60384-14:2013 /A1:2016, IEC 60384-14:2013/AMD1:2016; ANSI/UL 60384-14 CAN/CSA-E60384-14	VDE (40017931, 40029780), UL (E37861), CSA
	Walsin Technology Corp.	AH, Series AS (VDE, ENEC 10), AH Series (#)(&), AS Series (&) (UL)	2200 pF max., 250 V min., 125 °C min.	DIN EN 60384-14/A1 (VDE 0565-1-1/A1):2017-04; EN 60384-14:2013 /A1:2016, IEC 60384-14:2013/AMD1:2016; ANSI/UL 60384-14 CAN/CSA-E60384-14	ENEC 10 (40001804, 40039265), VDE (40001804, 40039265), UL/cUL (E146544)
	Murata Mfg Co., Ltd.	KX (VDE, CSA), KX \$\$ (UL)	2200 pF max., 250 V min., 125 °C min.	DIN EN 60384-14/A1 (VDE 0565-1-1/A1):2017-04; EN 60384-14:2013 /A1:2016, IEC 60384-14:2013/AMD1:2016; ANSI/UL 60384-14 CAN/CSA-E60384-14	VDE (40002831), UL (E37921), CSA (1343810 (LR 44559))
	Yinan Don's Electronic Component Co., Ltd.	CT81	2200 pF max., 250 V min., 125 °C min.	IEC/EN 60384-14: 2013+A1, ANSI/UL 60384-14, CAN/CSA-	VDE, UL/cUL (E145038)

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IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
				E60384-14	
	Guangdong Huiwan Electronics Technology Co., Ltd.	AR	2200 pF max., 250 V min., 125 °C min.	DIN EN 60384-14/A1 (VDE 0565-1-1/A1):2017-04; EN 60384-14:2013 /A1:2016, IEC 60384-14:2013/AMD1:2016; ANSI/UL 60384-14 CAN/CSA-E60384-14	ENEC 10 (40043989), VDE (40043989), UL/cUL (E480105)
	Murata Mfg Co., Ltd.	RA-series (VDE, ENEC), RA (\$) (UL)	2200 pF max., 250 V min., 125 °C min.	DIN EN 60384-14/A1 (VDE 0565-1-1/A1):2017-04; EN 60384-14:2013 /A1:2016, IEC 60384-14:2013/AMD1:2016; ANSI/UL 60384-14 CAN/CSA-E60384-14	VDE (40043033), ENEC 10 (40043033), UL/cUL (E37921)
X-Capacitor (CX1, CX2) (X1 or X2 type) (Soldered on Main board) (Optional)	Hua Jung Components Co., Ltd.	MKP	0.1 µF max. 250 V min., 100 °C min.	IEC/EN 60384-14:2013+A1:2016 ANSI/UL 60384-14 CAN/CSA-E60384-14	ENEC 14 (SE-ENEC-2002895R1), UL/cUL (E149075)
	Ultra Tech Xiphi Enterprise Co., Ltd.	HQX	0.1 µF max. 250 V min., 100 °C min.	DIN EN 60384-14/A1 (VDE 0565-1-1/A1):2017-04; EN 60384-14:2013 /A1:2016, IEC 60384-14:2013/AMD1:2016; ANSI/UL 60384-14 CAN/CSA-E60384-14	VDE (40024534), UL/cUL (E183780), ENEC 15 (40024534)
	Carli Electronics Co., Ltd.	MPX	0.1 µF max. 250 V min.,	IEC/EN 60384-14:	ENEC 16 (ENEC16/FI/19/

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IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
			100 °C min.	2013+A1:2016 ANSI/UL 60384-14 CAN/CSA- E60384-14	10077); UL/cUL (E120045)
	ZhuHai Sung Ho Electronics Co., Ltd.	CMPP Series (For ENEC15), CMPP (For UL/cUL)	0.1 μF max. 250 V min., 100 °C min.	DIN EN 60384- 14/A1 (VDE 0565-1- 1/A1):2017-04; EN 60384-14: 2013 /A1:2016, IEC 60384- 14:2013/AMD1: 2016; ANSI/UL 60384-14 CAN/CSA- E60384-14	ENEC 10 (40026078), ENEC 15 (ENEC-02976), VDE (40026078), UL/cUL (E327138)
	Okaya Electric Industries Co., Ltd.	LE-(*) (For ENEC 14), LE Series (For UL/cUL)	0.1 μF max. 250 V min., 100 °C min.	IEC/EN 60384- 14: 2013+A1:2016 ANSI/UL 60384-14 CAN/CSA- E60384-14	ENEC 14 (SE/0142-1AF), UL/cUL (E47474)
	Okaya Electric Industries Co., Ltd.	RE -Series	0.1 μF max. 250 V min., 100 °C min.	DIN EN 60384- 14/A1 (VDE 0565-1- 1/A1):2017-04; EN 60384-14: 2013 /A1:2016, IEC 60384- 14:2013/AMD1: 2016; ANSI/UL 60384-14 CAN/CSA- E60384-14	VDE (40040190), UL/cUL (E47474)
	Okaya Electric Industries Co., Ltd.	PA Series	0.1 μF max. 250 V min., 100 °C min.	IEC/EN 60384- 14: 2013+A1, ANSI/UL 60384-14, CAN/CSA- E60384-14	VDE, UL/cUL (E47474)
	Iskra, d d	KNB1530	0.1 μF max. 250 V min., 100 °C min.	IEC/EN 60384- 14: 2013+A1, ANSI/UL 60384-14, CAN/CSA-	VDE, UL/cUL (E145156)

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IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
				E60384-14	
	Iskra, d d	KNB1560, KNB1562, KNB1563	0.1 μ F max. 250 V min., 100 °C min.	IEC/EN 60384-14: 2013+A1, ANSI/UL 60384-14, CAN/CSA-E60384-14	VDE, UL/cUL (E145156)
	Kemet Electronics Italia SRL (UL); Kemet Electronics Corporation (ENEC)	R.46	0.1 μ F max. 250 V min., 100 °C min.	IEC/EN 60384-14: 2013+A1:2016 ANSI/UL 60384-14 CAN/CSA-E60384-14	ENEC 03 (V4413), UL/cUL (E97797)
	Kemet Electronics Italia SRL (UL); Kemet Electronics Corporation (ENEC)	R.47	0.1 μ F max. 250 V min., 100 °C min.	IEC/EN 60384-14: 2013+A1:2016 ANSI/UL 60384-14 CAN/CSA-E60384-14	ENEC 03 (CA08.00101), UL/cUL (E97797)
	Wuxi Jiyang Electron Co., Ltd.	MKP	0.1 μ F max. 250 V min., 100 °C min.	DIN EN 60384-14/A1 (VDE 0565-1-1/A1):2017-04; EN 60384-14:2013 /A1:2016, IEC 60384-14:2013/AMD1: 2016, ANSI/UL 60384-14 CAN/CSA-E60384-14	VDE (40033053), UL/cUL (E346670)
	Shiny Space Enterprise Co., Ltd.	SX1	0.1 μ F max. 250 V min., 100 °C min.	IEC/EN 60384-14: 2013+A1:2016 ANSI/UL 60384-14 CAN/CSA-E60384-14	ENEC 15 (ENEC-01199-M1), UL/cUL (E186561)
Varistor (RV1) (Optional)	Thinking Electronic Industrial Co., Ltd.	TVR10471-D, TVR10471-V, TVR10471-M, TVR14471, TVR14471-D, TVR14471-V,	300 Vac, 385 Vdc (Flame class of body coating complied with V-0)	EN 61051-1: 2008, IEC 61051-1: 2007, IEC 61051-2: 1991/AMD1:	TUV RH (J 50411760, J 50259116, J 50405420, J 50411784, J 50411758), VDE

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IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
		TVR14471-M, TVR20471, TVR20471-D, TVR20471-V, TVR20471-M		2009, IEC 61051-2-2: 1991, IEC 62368-1 annex G.8, ANSI/UL 1449, CSA-C22.2 No. 269.5	(5944, 40021243, 40036061), UL/cUL (E314979)
	Thinking Electronic Industrial Co., Ltd.	TVR10511-D, TVR10511-V, TVR10511-M, TVR14511, TVR14511-D, TVR14511-V, TVR14511-M, TVR20511, TVR20511-D, TVR20511-V, TVR20511-M	320 Vac, 410 Vdc (Flame class of body coating complied with V- 0)	EN 61051-1: 2008, IEC 61051-1: 2007, IEC 61051-2: 1991/AMD1: 2009, IEC 61051-2-2: 1991, IEC 62368-1 annex G.8, ANSI/UL 1449, CSA-C22.2 No. 269.5	TUV RH (J 50411760, J 50259116, J 50405420, J 50411784, J 50411758), VDE (5944, 40021243, 40036061), UL/cUL (E314979)
	Thinking Electronic Industrial Co., Ltd.	TVR10561-D, TVR10561-V, TVR10561-M, TVR14561, TVR14561-D, TVR14561-V, TVR14561-M, TVR20561, TVR20561-D, TVR20561-V, TVR20561-M	350 Vac, 450 Vdc (Flame class of body coating complied with V- 0)	EN 61051-1: 2008, IEC 61051-1: 2007, IEC 61051-2: 1991/AMD1: 2009, IEC 61051-2-2: 1991, IEC 62368-1 annex G.8, ANSI/UL 1449, CSA-C22.2 No. 269.5	TUV RH (J 50411760, J 50259116, J 50405420, J 50411784, J 50411758), VDE (5944, 40021243, 40036061), UL/cUL (E314979)
	Thinking Electronic Industrial Co., Ltd.	TVR10621-D, TVR10621-V, TVR10621-M, TVR14621, TVR14621-D, TVR14621-V, TVR14621-M, TVR20621, TVR20621-D, TVR20621-V, TVR20621-M	395 Vac, 510 Vdc (Flame class of body coating complied with V- 0)	EN 61051-1: 2008, IEC 61051-1: 2007, IEC 61051-2: 1991/AMD1: 2009, IEC 61051-2-2: 1991, IEC 62368-1 annex G.8, ANSI/UL 1449,	TUV RH (J 50411760, J 50259116, J 50405420, J 50411784, J 50411758), VDE (5944, 40021243, 40036061), UL/cUL (E314979)

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IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
				CSA-C22.2 No. 269.5	
	Thinking Electronic Industrial Co., Ltd.	TVR10681-D, TVR10681-V, TVR10681-M, TVR14681, TVR14681-D, TVR14681-V, TVR14681-M, TVR20681, TVR20681-D, TVR20681-V, TVR20681-M	420 Vac, 560 Vdc (Flame class of body coating complied with V-0)	EN 61051-1: 2008, IEC 61051-1: 2007, IEC 61051-2: 1991/AMD1: 2009, IEC 61051-2-2: 1991, IEC 62368-1 annex G.8, ANSI/UL 1449, CSA-C22.2 No. 269.5	TUV RH (J 50411760, J 50259116, J 50405420, J 50411784, J 50411758), VDE (5944, 40021243, 40036061), UL/cUL (E314979)
	Thinking Electronic Industrial Co., Ltd.	TVR10751-D, TVR10751-V, TVR10751-M, TVR14751, TVR14751-D, TVR14751-V, TVR14751-M, TVR20751, TVR20751-D, TVR20751-V, TVR20751-M	465 Vac, 615 Vdc (Flame class of body coating complied with V-0)	EN 61051-1: 2008, IEC 61051-1: 2007, IEC 61051-2: 1991/AMD1: 2009, IEC 61051-2-2: 1991, IEC 62368-1 annex G.8, ANSI/UL 1449, CSA-C22.2 No. 269.5	TUV RH (J 50411760, J 50259116, J 50405420, J 50411784, J 50411758), VDE (5944, 40021243, 40036061), UL/cUL (E314979)
	Guangxi New Future Information Industry Co., Ltd.	10D471K, 14D471K, 20D471K	300 Vac, 385 Vdc (Flame class of body coating complied with V-0)	IEC 61051-2: 1991/AMD1: 2009, IEC 61051-2-2: 1991, IEC 61051-1: 2007; IEC 62368-1: 2018 / G.8.1; ANSI/UL 1449	VDE (40030322), UL/cUL (E323753)
	Guangxi New Future Information Industry Co., Ltd.	10D511K, 14D511K, 20D511K	320 Vac, 415 Vdc (Flame class of body coating complied with V-0)	IEC 61051-2: 1991/AMD1: 2009, IEC 61051-2-2: 1991, IEC 61051-1: 2007; IEC 62368-	VDE (40030322), UL/cUL (E323753)

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IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
				1:2018 / G.8.1; ANSI/UL 1449	
	Guangxi New Future Information Industry Co., Ltd.	10D561K, 14D561K, 20D561K	350 Vac, 460 Vdc (Flame class of body coating complied with V-0)	IEC 61051-2:1991/AMD1:2009, IEC 61051-2-2:1991, IEC 61051-1:2007; IEC 62368-1:2018 / G.8.1; ANSI/UL 1449	VDE (40030322), UL/cUL (E323753)
	Guangxi New Future Information Industry Co., Ltd.	10D621K, 14D621K, 20D621K	385 Vac, 505 Vdc (Flame class of body coating complied with V-0)	IEC 61051-2:1991/AMD1:2009, IEC 61051-2-2:1991, IEC 61051-1:2007; IEC 62368-1:2018 / G.8.1; ANSI/UL 1449	VDE (40030322), UL/cUL (E323753)
	Guangxi New Future Information Industry Co., Ltd.	10D681K, 14D681K, 20D681K	420 Vac, 560 Vdc (Flame class of body coating complied with V-0)	IEC 61051-2:1991/AMD1:2009, IEC 61051-2-2:1991, IEC 61051-1:2007; IEC 62368-1:2018 / G.8.1; ANSI/UL 1449	VDE (40030322), UL/cUL (E323753)
	Guangxi New Future Information Industry Co., Ltd.	14D751K	460 Vac, 615 Vdc (Flame class of body coating complied with V-0)	IEC 61051-2:1991/AMD1:2009, IEC 61051-2-2:1991, IEC 61051-1:2007; IEC 62368-1:2018 / G.8.1; ANSI/UL 1449	VDE (40030322), UL/cUL (E323753)
	TDK Electronics GmbH & Co OG (VDE) TDK (ZHUHAI	S10K300E2K1, S14K300, S14K300E2, S14K300E2K1,	300 Vac, 385 Vdc (Flame class of body coating	IEC 61051-1:2018, IEC 61051-2:1991/AMD1:	VDE (40027582), UL/cUL (E321126)

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IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
	FTZ) CO., LTD. (US)	S20K300, S20K300E2, S20K300E3K1	complied with V-0)	2009, IEC 62368-1:2018 Anhang/Annex G.8.1, IEC 61051-2-2 AT 0001 Issue 12:2021-09; ANSI/UL 1449, CSA-C22.2 No. 269.5	
	TDK Electronics GmbH & Co OG (VDE) TDK (ZHUHAI FTZ) CO., LTD. (US)	S10K320E2K1, S14K320, S14K320E2, S14K320E2K1, S20K320, S20K320E2, S20K320E3K1	320 Vac, 420 Vdc (Flame class of body coating complied with V-0)	IEC 61051-1:2018, IEC 61051-2:1991/AMD1: 2009, IEC 62368-1:2018 Anhang/Annex G.8.1, IEC 61051-2-2 AT 0001 Issue 12:2021-09; ANSI/UL 1449, CSA-C22.2 No. 269.5	VDE (40027582), UL/cUL (E321126)
	TDK Electronics GmbH & Co OG (VDE) TDK (ZHUHAI FTZ) CO., LTD. (US)	S10K350E2K1, S14K350E2K1, S20K350E3K1	350 Vac, 460 Vdc (Flame class of body coating complied with V-0)	IEC 61051-1:2018, IEC 61051-2:1991/AMD1: 2009, IEC 62368-1:2018 Anhang/Annex G.8.1, IEC 61051-2-2 AT 0001 Issue 12:2021-09; ANSI/UL 1449, CSA-C22.2 No. 269.5	VDE (40027582), UL/cUL (E321126)
	TDK Electronics GmbH & Co OG (VDE) TDK (ZHUHAI FTZ) CO., LTD. (US)	S10K385E2K1, S14K385, S14K385E2, S14K385E2K1, S20K385, S20K385E2, S20K385E3K1	385 Vac, 505 Vdc (Flame class of body coating complied with V-0)	IEC 61051-1:2018, IEC 61051-2:1991/AMD1: 2009, IEC 62368-1:2018 Anhang/Annex	VDE (40027582), UL/cUL (E321126)

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IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
				G.8.1, IEC 61051-2-2 AT 0001 Issue 12:2021-09; ANSI/UL 1449, CSA-C22.2 No. 269.5	
	TDK Electronics GmbH & Co OG (VDE) TDK (ZHUHAI FTZ) CO., LTD. (US)	S10K420E2K1, S14K420, S14K420E2, S14K420E2K1, S20K420, S20K420E2, S20K420E3K1	420 Vac, 560 Vdc (Flame class of body coating complied with V- 0)	IEC 61051- 1:2018, IEC 61051- 2:1991/AMD1: 2009, IEC 62368- 1:2018 Anhang/Annex G.8.1, IEC 61051-2-2 AT 0001 Issue 12:2021-09; ANSI/UL 1449, CSA-C22.2 No. 269.5	VDE (40027582), UL/cUL (E321126)
	TDK Electronics GmbH & Co OG (VDE) TDK (ZHUHAI FTZ) CO., LTD. (US)	S14K440, S20K440	440 Vac, 585 Vdc (Flame class of body coating complied with V- 0)	IEC 61051- 1:2018, IEC 61051- 2:1991/AMD1: 2009, IEC 62368- 1:2018 Anhang/Annex G.8.1, IEC 61051-2-2 AT 0001 Issue 12:2021-09; ANSI/UL 1449, CSA-C22.2 No. 269.5	VDE (40027582), UL/cUL (E321126)
	TDK Electronics GmbH & Co OG (VDE) TDK (ZHUHAI FTZ) CO., LTD. (US)	S10K460E2K1, S14K460, S14K460E2, S14K460E2K1, S20K460, S20K460E2, S20K460E3K1	460 Vac, 615 Vdc (Flame class of body coating complied with V- 0)	IEC 61051- 1:2018, IEC 61051- 2:1991/AMD1: 2009, IEC 62368- 1:2018 Anhang/Annex G.8.1, IEC 61051-2-2 AT 0001 Issue	VDE (40027582), UL/cUL (E321126)

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IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
				12:2021-09; ANSI/UL 1449, CSA-C22.2 No. 269.5	
Relay (RY1)	Xiamen Hongfa Electroacoustics Co., Ltd.	HF32F-G012- HT(101) (For VDE), HF32F-G/012- HT(101) (For UL)	10 A, 250 Vac, Coil: 12 Vdc, glow wire: 750°C	DIN EN 61810- 1/A1 (VDE 0435- 201/A1):2020- 08; EN 61810- 1:2015/A1:202 0, IEC 61810-1: 2015 / AMD1:2019 Tested acc. to IEC 62368-1, G.2.1 & G.2.2; ANSI/UL 508, ANSI/UL 60947-1, ANSI/UL 60947-4-1A	VDE (40012204), UL/cUL (E134517)
	Xiamen Hongfa Electroacoustic Co., Ltd.	HF32FV-G/12- HTF(335) (For VDE), HF32FV-G12- HTF(335) (For UL)	10 A, 250 Vac, Coil: 12 Vdc, glow wire: 750°C	DIN EN 61810- 1/A1 (VDE 0435- 201/A1):2020- 08; EN 61810- 1:2015/A1:202 0, IEC 61810-1: 2015 / AMD1:2019 Tested acc. to IEC 62368-1, G.2.1 & G.2.2; ANSI/UL 508, ANSI/UL 60947-1, ANSI/UL 60947-4-1A	VDE (40012204), UL/cUL (E134517)
	Xiamen Hongfa Electroacoustic Co., Ltd.	HF32FV-G/12- HTF(590)(101) (For VDE), HF32FV-G12- HTF(590)(101)	10 A, 250 Vac, Coil: 12 Vdc, glow wire: 750°C	DIN EN 61810- 1/A1 (VDE 0435- 201/A1):2020- 08; EN 61810- 1:2015/A1:202	VDE (40012204), UL/cUL (E134517)

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IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
		(For UL)		0, IEC 61810-1: 2015 / AMD1:2019 Tested acc. to IEC 62368-1, G.2.1 & G.2.2; ANSI/UL 508, ANSI/UL 60947-1, ANSI/UL 60947-4-1A	
	Xiamen Hongfa Electroacoustic Co., Ltd.	HF32FV-G/12- HLTF(590)(101) (For VDE), HF32FV-G12- HLTF(590)(101) (For UL)	10 A, 250 Vac, Coil: 12 Vdc, glow wire: 750°C	DIN EN 61810- 1/A1 (VDE 0435- 201/A1):2020- 08; EN 61810- 1:2015/A1:202 0, IEC 61810-1: 2015 / AMD1:2019 Tested acc. to IEC 62368-1, G.2.1 & G.2.2; ANSI/UL 508, ANSI/UL 60947-1, ANSI/UL 60947-4-1A	VDE (40012204), UL/cUL (E134517)
	Tyco Electronics (Shenzhen) Co., Ltd.	OJE-SS- 112HMF	10 A, 250 Vac, Coil: 12 Vdc, glow wire: 750°C	IEC/EN 61810- 1: 2015+A1, Overload and endurance test in accordance with annex G.2 of IEC 62368- 1:2014; ANSI/UL 508, ANSI/UL 60947-1, ANSI/UL 60947-4-1A	TÜV RH (R 50139166), UL/cUL (E82292), TUV Tested by TUV Rheinland acc. to IEC 62368-1, G.2
	Tyco Electronics (Shenzhen) Co., Ltd.	OJE-SH- 112HMF	10 A, 250 Vac, Coil: 12 Vdc, glow wire: 750°C	IEC/EN 61810- 1: 2015+A1, Overload and endurance test in accordance	TÜV RH (R 50139166), UL/cUL (E82292), TUV

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IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
				with annex G.2 of IEC 62368-1:2014; ANSI/UL 508, ANSI/UL 60947-1, ANSI/UL 60947-4-1A	Tested by TUV Rheinland acc. to IEC 62368-1, G.2
	Tyco Electronics (Shenzhen) Co., Ltd.	OJ-SH-112LMH	8 A, 250 Vac, Coil: 12 Vdc, glow wire: 750°C	IEC/EN 61810-1: 2015+A1, Overload and endurance test in accordance with annex G.2 of IEC 62368-1:2014; ANSI/UL 508, ANSI/UL 60947-1, ANSI/UL 60947-4-1A	TÜV RH (R 50139166), UL/cUL (E82292), TUV Tested by TUV Rheinland acc. to IEC 62368-1, G.2
	Tyco Electronics (Shenzhen) Co., Ltd.	OJE-SH-112HM	10A, 250 Vac, Coil: 12 Vdc, glow wire: 750°C	IEC/EN 61810-1: 2015+A1, Overload and endurance test in accordance with annex G.2 of IEC 62368-1:2014; ANSI/UL 508, ANSI/UL 60947-1, ANSI/UL 60947-4-1A	TÜV RH (R 50139166), UL/cUL (E82292), TUV Tested by TUV Rheinland acc. to IEC 62368-1, G.2
	Song Chuan Precision Co, Ltd.	307HN-1AH-F-C	10 A, 250 Vac, Coil: 12 Vdc, glow wire: 750°C; UL: 8A, 250A	DIN EN 61810-1/A1 (VDE 0435-201/A1):2020-08; EN 61810-1:2015/A1:2020, IEC 61810-1: 2015 / AMD1:2019 DIN EN 61810-1 (VDE 0435-201):2015-10; Tested acc. to	VDE (40028236), UL/cUL (E74321)

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IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
				IEC 62368-1, G.2.1 & G.2.2; ANSI/UL 508, ANSI/UL 60947-1, ANSI/UL 60947-4-1A	
	Song Chuan Precision Co, Ltd.	835-1A-B-C	10 A, 277 Vac, Coil: 12 Vdc, glow wire: 750°C; UL: 8A, 250A	IEC/EN 61810- 1: 2015+A1, Additional test for relays according to EN 62368- 1:2018 / IEC 62368-1:2014 annex G.2; ANSI/UL 508, ANSI/UL 60947-1, ANSI/UL 60947-4-1A	TÜV RH (R 09552647), UL/cUL (E74321)
Bridge-Cap. (CY5) (Y1 type only) (Optional)	Success Electronics Co., Ltd.	SB	2200 pF max., 250 V min., 125 °C min.	DIN EN 60384- 14/A1 (VDE 0565-1- 1/A1):2017-04; EN 60384-14: 2013 /A1:2016, IEC 60384- 14:2013/AMD1: 2016; ANSI/UL 60384-14 CAN/CSA- E60384-14	VDE (40037221), UL/cUL (E114280)
	Success Electronics Co., Ltd.	SE, SF	2200 pF max., 250 V min., 125 °C min.	DIN EN 60384- 14/A1 (VDE 0565-1- 1/A1):2017-04; EN 60384-14: 2013 /A1:2016, IEC 60384- 14:2013/AMD1: 2016; ANSI/UL 60384-14 CAN/CSA- E60384-14	VDE (40037211, 40040181), UL/cUL (E114280)
	Murata Mfg Co.,	KX (VDE, CSA),	2200 pF max.,	DIN EN 60384-	VDE

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IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
	Ltd.	KX \$\$ (UL)	250 V min., 125 °C min.	14/A1 (VDE 0565-1- 1/A1):2017-04; EN 60384-14: 2013 /A1:2016, IEC 60384- 14:2013/AMD1: 2016; ANSI/UL 60384-14 CAN/CSA- E60384-14	(40002831), UL (E37921), CSA (1343810 (LR 44559))
	Murata Mfg Co., Ltd.	RA-series (VDE, ENEC), RA (\$) (UL)	2200 pF max., 250 V min., 125 °C min.	DIN EN 60384- 14/A1 (VDE 0565-1- 1/A1):2017-04; EN 60384-14: 2013 /A1:2016, IEC 60384- 14:2013/AMD1: 2016; ANSI/UL 60384-14 CAN/CSA- E60384-14	VDE (40043033), ENEC 10 (40043033), UL/cUL (E37921)
	TDK Corporation.	CD, CD (miniature series)	2200 pF max., 250 V min., 125 °C min.	DIN EN 60384- 14/A1 (VDE 0565-1- 1/A1):2017-04; EN 60384-14: 2013 /A1:2016, IEC 60384- 14:2013/AMD1: 2016; ANSI/UL 60384-14 CAN/CSA- E60384-14	VDE (40017931, 40029780), UL (E37861), CSA
	Walsin Technology Corp.	AH, Series AS (VDE, ENEC 10), AH Series (#)(&), AS Series (&) (UL)	2200 pF max., 250 V min., 125 °C min.	DIN EN 60384- 14/A1 (VDE 0565-1- 1/A1):2017-04; EN 60384-14: 2013 /A1:2016, IEC 60384- 14:2013/AMD1: 2016; ANSI/UL 60384-14 CAN/CSA-	ENEC 10 (40001804, 40039265), VDE (40001804, 40039265), UL/cUL (E146544)

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IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
				E60384-14	
	Yinan Don's Electronic Component Co., Ltd.	CT81	2200 pF max., 250 V min., 125 °C min.	IEC/EN 60384-14: 2013+A1, ANSI/UL 60384-14, CAN/CSA-E60384-14	VDE, UL/cUL (E145038)
	Guangdong Huiwan Electronics Technology Co., Ltd.	AR	2200 pF max., 250 V min., 125 °C min.	DIN EN 60384-14/A1 (VDE 0565-1-1/A1):2017-04; EN 60384-14: 2013 /A1:2016, IEC 60384-14:2013/AMD1: 2016; ANSI/UL 60384-14 CAN/CSA-E60384-14	ENEC 10 (40043989), VDE (40043989), UL/cUL (E480105)
Photo Coupler (CU2, CU3 ,CU4 CU8) (soldered on CTRL BOARD)	Lite-On Technology Corporation	LTV-1007, LTV-1008, LTV-1009	Dti = 0.4 mm min., Int. dcr = thermal cycling test, Ext. dcr = 8.0 mm, 115 °C	IEC 60747-5-5: 2007, IEC 60747-5-5: 2007/AMD1:2013, DIN EN 60747-5-5 (VDE 0884-5): 2015-11, EN 60747-5-5: 2011+A1:2015, UL 1577, CSA Component Acceptance Service Notice No. 5A	VDE (138213), UL/cUL (E113898)
	Lite-On Technology Corporation	LTV-817, LTV-817M	Dti=0.4 mm, Ext. dcr= 7.0 mm, Vini,a / Vini,b = 6000 Vpeak, 115 °C	IEC 60747-5-5: 2007, IEC 60747-5-5: 2007/AMD1:2013, DIN EN 60747-5-5 (VDE 0884-5): 2015-11, EN 60747-5-5: 2011+A1:2015, UL 1577, CSA Component	VDE (40015248), FI, UL/cUL (E113898)

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IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
				Acceptance Service Notice No. 5A	
	Everlight Electronics Co., Ltd.	EL817.	Dti=0.5mm, Int. dcr=6.0mm, Ext. dcr= 7.6mm, 110°C, thermal cycling test.	DIN EN IEC 60747-5-5 (VDE 0884- 5):2021-10; EN IEC 60747- 5-5:2020 DIN EN IEC 62368-1 (VDE 0868-1):2021- 05 ; EN IEC 62368-1:2020 + A11:2020; IEC 62368- 1:2018 Abschnitt / Clause: 5.4.3; 5.4.4.2; 5.4.4.4; G.12; 5.4.9 UL 1577, CSA Component Acceptance Service Notice No. 5A	VDE (132249), UL/cUL (E214129)
	Everlight Electronics Co., Ltd.	EL1018, EL1019 (For VDE), EL101 (For UL)	Dti= min. 0.4 mm, Int. dcr=thermal cycling test, Ext. dcr = 8.1mm, 110°C,	IEC 60747-5- 5:2007, IEC 60747-5-5: 2007/AMD1:20 13, DIN EN 60747- 5-5 (VDE 0884- 5):2015-11; EN 60747-5- 5:2011+A1:201 5, UL 1577, CSA Component Acceptance Service Notice No. 5A	VDE (40028391), UL (E214129)
	Everlight Electronics Co., Ltd.	EL817S1 (VDE), EL817 (UL)	Dti = min. 0.4mm, Ext. dcr= 7.6mm, Vini,a / Vini,b = 4000	EN 60747-5-5: 2011+A1, (EN 62368- 1:2014 / A11: 2017 Clauses	VDE (132249), UL/cUL (E214129)

TRF No. IEC62368_1E

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
			Vpeak, 110°C	5.4.2, 5.4.3, 5.4.4.2, 5.4.4.4 (G.12) & 5.4.9) UL 1577, CSA Component Acceptance Service Notice No. 5A	
	Everlight Electronics Co., Ltd.	EL817S2 (VDE) EL817 (UL)	Dti = min. 0.4 mm, Ext. dcr= 8.0 mm, Vini,a / Vini,b = 4000 Vpeak, 110 °C	EN 60747-5-5: 2011+A1, (EN 62368- 1:2014 / A11: 2017 Clauses 5.4.2, 5.4.3, 5.4.4.2, 5.4.4.4 (G.12) & 5.4.9), UL 1577, CSA Component Acceptance Service Notice No. 5A	VDE (132249), UL/cUL (E214129)
	Cosmo Electronics Corp	KT10XX (XX=00-ZZ)	Dti=0.7mm, Int. dcr= thermal cycling test, Ext. dcr=8.6mm, 115°C	DIN EN 60747- 5-5 (VDE 0884- 5):2015-11; EN 60747-5-5: 2011+A1:2015; UL 1577, CSA Component Acceptance Service Notice No. 5A	VDE (40031267), UL/cUL (E169586)
	Vishay Semiconductor GmbH (VDE) Vishay Infrared Components Inc. (UL)	SFH617A-..	Dti=0.6mm, Int. dcr= thermal cycling test, Ext. dcr= 7.0mm, 110°C	DIN EN IEC 60747-5-5 (VDE 0884- 5):2021-10; EN IEC 60747-5- 5:2020; UL 1577, CSA Component Acceptance Service Notice No. 5A	VDE (091888), UL/cUL (E52744)
	Vishay Semiconductor	TCLT1008	Dti = 0.4 mm min., Int. dcr =	DIN EN 60747- 5-5 (VDE 0884-	VDE (132473), UL/cUL

TRF No. IEC62368_1E

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
	GmbH		thermal cycling test, Ext. dcr = 8.0 mm, 110 °C	5):2015-11; EN 60747-5-5:2011+A1:2015; UL 1577, CSA Component Acceptance Service Notice No. 5A	(E76222)
	Vishay Semiconductor GmbH	VOL617A	Dti = 0.43 mm, Int. dcr = thermal cycling test, Ext. dcr = 8.25 mm, 100 °C min.	IEC/EN 60950-1, EN 60747-5-5:2011+A1, UL 1577, CSA Component Acceptance Service Notice No. 5A	VDE, Fimko, UL/cUL (E76222)
	China Resources Semiconductor (ShenZhen) Ltd.	PC817 (A-Z) (blank;M;S) (For VDE) PC817x (x - Where suffix x indicates one capital letter A to Z) (For UL)	Dti = 0.4 mm, Int. dcr = thermal cycling test, Ext. dcr = 7.62 mm, 100 °C min.	IEC/EN 60950-1, EN 60747-5-5:2011+A1, UL 1577, CSA Component Acceptance Service Notice No. 5A	VDE, UL/cUL (E465130)
	CRM ICBG (Wuxi) Co., Ltd.	PC817x (blank; M; S) (x=A-Z) (For VDE) PC817x (x - Where suffix x indicates one capital letter A to Z) (For UL)	Dti = 0.4mm min., Ext. dcr = 7.62 mm, Vini,a / Vini,b = 7000 Vpeak, 110 °C	DIN EN 60747-5-5 (VDE 0884-5):2015-11; EN 60747-5-5:2011+A1:2015; UL 1577, CSA Component Acceptance Service Notice No. 5A	VDE (40042139), UL/cUL (E465130)
	CT Micro International Corporation (VDE) CT Microelectronics	CT1017, CT1018, CT1019 (VDE); CT101X@ (UL)	Dti = 0.4 mm min., Ext. dcr = 8.0 mm, Vini,a / Vini,b = 4000 Vpeak, 110 °C	DIN EN 60747-5-5 (VDE 0884-5):2015-11; EN 60747-5-5:2011+A1:2015	VDE (40039590), UL/cUL (E364000)

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IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
	Far East Ltd (UL)			EN 62368-1:2014 + AC:2015, IEC 62368-1:2014, modified + Cor.:2015, Abschnitt / Clause : 5.4.2 ; 5.4.3 ; 5.4.4.2 ; 5.4.4.4 (G.12) ; 5.4.9, UL 1577, CSA Component Acceptance Service Notice No. 5A	
	Renesas Electronics Corporation	PS2381-1	Dti=0.4mm, Int. dcr = thermal cycling test, Ext. dcr= 8.0mm, 100°C	DIN EN IEC 60747-5-5 (VDE 0884-5):2021-10; EN IEC 60747-5-5:2020, IEC 60747-5-5:2020; UL 1577, CSA Component Acceptance Service Notice No. 5A	VDE (40028917), FI, UL/cUL (E72422)
	Renesas Electronics Corporation	PS2561L-1, PS2561AL2-1	Dti=0.4mm, Int. dcr = thermal cycling test, Ext. dcr= 7.0mm, 100°C	DIN EN IEC 60747-5-5 (VDE 0884-5):2021-10; EN IEC 60747-5-5:2020, IEC 60747-5-5:2020; UL 1577, CSA Component Acceptance Service Notice No. 5A	VDE (40028917), FI, UL/cUL (E72422)
Choke (LF1) (Optional)	FSP/SPI	8LM05783	130 °C min.	--	--

TRF No. IEC62368_1E

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Choke (LF2) (Optional)	FSP/SPI	8LM05806	130 °C min.	--	--
PFC Choke (1L1) (For model FSP300-50UDB used)	FSP/SPI	8LM05810	130 °C min.	--	--
PFC Choke (1L1) (For model FSP300-50WDB used)	FSP/SPI	8LM05813	130 °C min.	--	--
PFC Choke (1L1) (For model FSP400-50UDB used)	FSP/SPI	8LM05811	130 °C min.	--	--
PFC Choke (1L1) (For model FSP400-50WDB used)	FSP/SPI	8LM05815	130 °C min.	--	--
PFC Choke (1L1) (For model FSP500-50UDB used)	FSP/SPI	8LM05809	130 °C min.	--	--
PFC Choke (1L1) (For model FSP500-50WDB used)	FSP/SPI	8LM05814	130 °C min.	--	--
Isolation choke (1L5)	FSP/SPI	8LM00104	Class A	Applicable part according to IEC 62368-1 and IEC 60085	Accepted by TÜV Rheinland
- Bobbin used in 1L5	Chang Chun Plastics Co., Ltd.	T375J	V-0, 150°C min., phenolic, 0.45mm thickness min.	UL 94	UL (E59481)
- Triple Insulation Wire for 1L5	Great Leoflon Industrial Co., Ltd.	TRW(B)	130°C	DIN EN 62368- 1/A11 (VDE 0868- 1/A11):2017- 11; EN 62368-	VDE (136581), UL (E211989)

TRF No. IEC62368_1E

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
				1:2014/A11:2017, IEC 62368-1:2014, DIN EN 62368-1 (VDE 0868-1):2016-05; EN 62368-1:2014 UL 2353	
Transformer (T1) (For models FSP300-50UDB, FSP300-50WDB, FSP400-50UDB, FSP400-50WDB used)	FSP/SPI	8TI02219	Class B, UL Insulation system type GH-130	Applicable part according to IEC 62368-1 and IEC 60085	Accepted by TÜV Rheinland
Transformer (T1) (For models FSP500-50UDB, FSP500-50WDB used)	FSP/SPI	8TI02218	Class B, UL Insulation system type GH-130	Applicable part according to IEC 62368-1 and IEC 60085	Accepted by TÜV Rheinland
- Bobbin used in T1	Chang Chun Plastics Co., Ltd.	T375J	V-0, 150 °C min., phenolic, min. 0.45 mm thickness	ANSI/UL 94	UL (E59481)
	Chang Chun Plastics Co., Ltd.	T200HF	V-0, 150°C min., phenolic, min. 0.45mm thickness	ANSI/UL 94	UL (E59481)
	Sumitomo Bakelite Co., Ltd.	PM-9630	V-0, 150°C min., phenolic, 0.4mm thickness min.	ANSI/UL 94	UL (E41429)
- Triple Insulation Wire for T1	Great Leoflon Industrial Co., Ltd.	TRW(B)	130°C	DIN EN 62368-1/A11 (VDE 0868-1/A11):2017-11; EN 62368-1:2014/A11:2017, IEC 62368-1:2014, DIN EN 62368-	VDE (136581), UL (E211989)

TRF No. IEC62368_1E

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
				1 (VDE 0868-1):2016-05; EN 62368-1:2014 UL 2353	
- Thermistor (HTH1)	Thinking Electronic Industrial Co., Ltd.	NTSE0103	10 kΩ max. at 25 °C.	IEC/EN 60539-1, IEC/EN 60730-1 UL1434	TUV, UL (E138827)
Transformer (T2)	FSP/SPI	8TC00680	Class B, UL Insulation system type DASH 2 B-5	Applicable part according to IEC 62368-1 and IEC 60085	Accepted by TÜV Rheinland
- Bobbin used in T2	Chang Chun Plastics Co., Ltd.	T375J	V-0, 150 °C min., phenolic, min. 0.45 mm thickness	ANSI/UL 94	UL (E59481)
Secondary choke (L601) (For model FSP300-50UDB, FSP300-50WDB used)	FSP/SPI	8LM05671	130 °C min.	--	--
Secondary choke (L601) (For model FSP400-50UDB, FSP400-50WDB used)	FSP/SPI	8LM05674	130 °C min.	--	--
Secondary choke (L601) (For model FSP500-50UDB, FSP500-50WDB used)	FSP/SPI	8LM05673	130 °C min.	--	--
DC Fan (located at front side close to AC inlet) (For model FSP300-50UDB used)	Dongguan Protechnic Electric Co., Ltd.	MGA4012XB-O28	12 Vdc, 0.25A, 12.82 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E187236)
	Sunonwealth Electric Machine Industry Co., Ltd.	PF40281B3-XXXX	12 Vdc, 0.198 A, 13.3 CFM min.	EN IEC 62368-1:2020+A11:2020,	TÜV RH, UL/cUL (E77551)

TRF No. IEC62368_1E

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
				ANSI/UL 507, CSA-C22.2 No. 113	
	Dongguan Protechnic Electric Co., Ltd.	MGA4012YB- O28	12 Vdc, 0.38A, 15.22 CFM min.	EN IEC 62368- 1:2020+A11:20 20, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E187236)
	DONGGUAN HONGHUA ELECTRON TECHNOLOGIC AL CO LTD	HA4028M12B-Z	12 Vdc, 0.65A, 15.49 CFM min.	EN IEC 62368- 1:2020+A11:20 20, ANSI/UL 507, CSA-C22.2 No. 113	TÜV RH, UL/cUL (E255983)
	Sunonwealth Electric Machine Industry Co., Ltd.	PF40281B2- XXXX	12 Vdc, 0.28 A, 16 CFM min.	EN IEC 62368- 1:2020+A11:20 20, ANSI/UL 507, CSA-C22.2 No. 113	TÜV RH, UL/cUL (E77551)
	POWER LOGIC TECHNOLOGY INC	PLA04028B12H H	12 Vdc, 0.65A, 16.58 CFM min.	EN IEC 62368- 1:2020+A11:20 20, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E192307)
	Dongguan Protechnic Electric Co., Ltd.	MGA4012ZB- O28	12 Vdc, 0.4A, 17.49 CFM min.	EN IEC 62368- 1:2020+A11:20 20, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E187236)
	YEN SUN TECHNOLOGY CORP	FD124028EB-P	12 Vdc, 0.78A, 19.3 CFM min.	EN IEC 62368- 1:2014+A11, ANSI/UL 507, CSA-C22.2 No. 113	TÜV RH, UL/cUL (E187205)
	DELTA ELECTRONICS INC	FFB0412SHN-A	12 Vdc, 0.6A, 20.746 CFM min.	EN IEC 62368- 1:2020+A11:20 20, ANSI/UL 507, CSA-C22.2 No. 113	VDE, UL/cUL (E132003)
DC Fan (located at rear side close to output cable)	Dongguan Protechnic Electric Co., Ltd.	MGA7012YB- O15	12 Vdc, 0.28 A, 30.62 CFM min.	EN IEC 62368- 1:2020+A11:20 20,	TÜV SÜD, UL/cUL (E187236)

TRF No. IEC62368_1E

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
(For model FSP300-50WDB used)				ANSI/UL 507, CSA-C22.2 No. 113	
	Dongguan Protechnic Electric Co., Ltd.	MGA7012YS-O15	12 Vdc, 0.28 A, 30.62 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E187236)
	Dongguan Protechnic Electric Co., Ltd.	MGA7012YF-O15	12 Vdc, 0.28 A, 30.62 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E187236)
	Dongguan Protechnic Electric Co., Ltd.	MGA7012YR-O15	12 Vdc, 0.28 A, 30.62 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E187236)
	POWER LOGIC TECHNOLOGY INC	PLA07015B12H H-1	12 Vdc, 0.3 A, 32.81 CFM min.	EN IEC 62368-1:2014+A11, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E192307)
	POWER LOGIC TECHNOLOGY INC	PLA07015S12H H-1	12 Vdc, 0.3 A, 32.81 CFM min.	EN IEC 62368-1:2014+A11, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E192307)
	Dongguan Protechnic Electric Co., Ltd.	MGA7012ZB-O15	12 Vdc, 0.41 A, 33.32 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E187236)
	Dongguan Protechnic Electric Co., Ltd.	MGA7012ZF-O15	12 Vdc, 0.41 A, 33.32 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E187236)
	Dongguan Protechnic Electric Co., Ltd.	MGA7012ZR-O15	12 Vdc, 0.41 A, 33.32 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507,	TÜV SÜD, UL/cUL (E187236)

TRF No. IEC62368_1E

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
				CSA-C22.2 No. 113	
	DELTA ELECTRONICS INC	AFB0712HHB	12 Vdc, 0.45 A, 33.8 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	VDE, UL/cUL (E132003)
	YEN SUN TECHNOLOGY CORP	FD127015EB	12 Vdc, 0.5A, 35.6 CFM min.	EN IEC 62368-1:2014+A11, ANSI/UL 507, CSA-C22.2 No. 113	TÜV RH, UL/cUL (E187205)
	Dongguan Protechnic Electric Co., Ltd.	MGA7012UF-O15	12 Vdc, 0.58 A, 40.24 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E187236)
	Dongguan Protechnic Electric Co., Ltd.	MGA7012UR-O15	12 Vdc, 0.58 A, 40.24 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E187236)
	Dongguan Protechnic Electric Co., Ltd.	MGA7012UB-O15	12 Vdc, 0.58 A, 40.24 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E187236)
	DELTA ELECTRONICS INC	AFB0712VHB	12 Vdc, 0.55 A, 40.9 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	VDE, UL/cUL (E132003)
	POWER LOGIC TECHNOLOGY INC	PLA07015B12V H-1	12 Vdc, 0.5 A, 43.74 CFM min.	EN IEC 62368-1:2014+A11, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E192307)
DC Fan (located at front side close to AC inlet) (For models	Dongguan Protechnic Electric Co., Ltd.	MGA4012YB-O28	12 Vdc, 0.38A, 15.22 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No.	TÜV SÜD, UL/cUL (E187236)

TRF No. IEC62368_1E

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
FSP400-50UDB & FSP500-50UDB used)				113	
	DONGGUAN HONGHUA ELECTRON TECHNOLOGICAL CO LTD	HA4028M12B-Z	12 Vdc, 0.65A, 15.49 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	TÜV RH, UL/cUL (E255983)
	Sunonwealth Electric Machine Industry Co., Ltd.	PF40281B2-XXXX	12 Vdc, 0.28 A, 16 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	TÜV RH, UL/cUL (E77551)
	POWER LOGIC TECHNOLOGY INC	PLA04028B12HH	12 Vdc, 0.65A, 16.58 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E192307)
	Dongguan Protechnic Electric Co., Ltd.	MGA4012ZB-O28	12 Vdc, 0.4A, 17.49 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E187236)
	YEN SUN TECHNOLOGY CORP	FD124028EB-P	12 Vdc, 0.78A, 19.3 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	TÜV RH, UL/cUL (E187205)
	DELTA ELECTRONICS INC	FFB0412SHN-A	12 Vdc, 0.6A, 20.746 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	VDE, UL/cUL (E132003)
DC Fan (located at rear side close to output cable) (For models FSP400-50UDB & FSP500-50UDB used)	Dongguan Protechnic Electric Co., Ltd.	MGA4012ZR-O15	12 Vdc, 0.2 A, 11.48 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E187236)

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IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
	Dongguan Protechnic Electric Co., Ltd.	MGA4012ZR-A15	12 Vdc, 0.2 A, 11.48 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E187236)
	Dongguan Protechnic Electric Co., Ltd.	MGA4012ZB-A15	12 Vdc, 0.2 A, 11.48 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E187236)
	Dongguan Protechnic Electric Co., Ltd.	MGA4012ZB-O15	12 Vdc, 0.2 A, 11.48 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E187236)
	Dongguan Protechnic Electric Co., Ltd.	MGA4012ZF-A15	12 Vdc, 0.2 A, 11.48 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E187236)
	Dongguan Protechnic Electric Co., Ltd.	MGA4012ZF-O15	12 Vdc, 0.2 A, 11.48 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E187236)
	Dongguan Protechnic Electric Co., Ltd.	MGA4012ZS-A15	12 Vdc, 0.2 A, 11.48 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E187236)
	Dongguan Protechnic Electric Co., Ltd.	MGA4012ZS-O15	12 Vdc, 0.2 A, 11.48 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E187236)
	YEN SUN TECHNOLOGY CORP	FD124015EB-N	12 Vdc, 0.29 A, 11.5 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No.	TÜV RH, UL/cUL (E187205)

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IEC 62368-1					
Clause	Requirement + Test			Result - Remark	Verdict
				113	
	DELTA ELECTRONICS INC	AFB0412VHB	12 Vdc, 0.24 A, 11.69 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	VDE, UL/cUL (E132003)
	POWER LOGIC TECHNOLOGY INC	PLA0415B12HH	12 Vdc, 0.21 A, 11.88 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E192307)
	DELTA ELECTRONICS INC	AFB0412VB-A	12 Vdc, 0.3 A, 12.726 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	TUV RH, UL/cUL (E132003)
	DELTA ELECTRONICS INC	AFB0412SHB	12 Vdc, 0.35 A, 13.35 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	VDE, UL/cUL (E132003)
	Dongguan Protechnic Electric Co., Ltd.	MGA4012UB-O15	12 Vdc, 0.3 A, 13.36 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E187236)
	Dongguan Protechnic Electric Co., Ltd.	MGA4012UB-A15	12 Vdc, 0.3 A, 13.36 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E187236)
	Dongguan Protechnic Electric Co., Ltd.	MGA4012UR-O15	12 Vdc, 0.3 A, 13.36 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E187236)
	Dongguan Protechnic Electric Co., Ltd.	MGA4012US-O15	12 Vdc, 0.3 A, 13.36 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507,	TÜV SÜD, UL/cUL (E187236)

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IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
				CSA-C22.2 No. 113	
	Sunonwealth Electric Machine Industry Co., Ltd.	PSD1204PHB1-A	12 Vdc, 0.24A, 14 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	TÜV RH, UL/cUL (E77551)
	Dongguan Protechnic Electric Co., Ltd.	MGA4012VB-O15	12 Vdc, 0.4 A, 15.13 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E187236)
	Dongguan Protechnic Electric Co., Ltd.	MGA4012VB-O15	12 Vdc, 0.4 A, 16.39 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E187236)
DC Fan (located at rear side close to output cable) (For models FSP400-50WDB & FSP500-50WDB used)	Dongguan Protechnic Electric Co., Ltd.	MGA7012ZB-O15	12 Vdc, 0.41 A, 33.32 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E187236)
	Dongguan Protechnic Electric Co., Ltd.	MGA7012ZF-O15	12 Vdc, 0.41 A, 33.32 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E187236)
	Dongguan Protechnic Electric Co., Ltd.	MGA7012ZR-O15	12 Vdc, 0.41 A, 33.32 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E187236)
	DELTA ELECTRONICS INC	AFB0712HHB	12 Vdc, 0.45 A, 33.8 CFM min.	EN IEC 62368-1:2020+A11:2020, ANSI/UL 507, CSA-C22.2 No. 113	VDE, UL/cUL (E132003)
	YEN SUN TECHNOLOGY	FD127015EB	12 Vdc, 0.5A,	EN IEC 62368-	TÜV RH, UL/cUL

TRF No. IEC62368_1E

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
	CORP		35.6 CFM min.	1:2014+A11, ANSI/UL 507, CSA-C22.2 No. 113	(E187205)
	Dongguan Protechnic Electric Co., Ltd.	MGA7012UF- O15	12 Vdc, 0.58 A, 40.24 CFM min.	EN IEC 62368- 1:2020+A11:20 20, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E187236)
	Dongguan Protechnic Electric Co., Ltd.	MGA7012UR- O15	12 Vdc, 0.58 A, 40.24 CFM min.	EN IEC 62368- 1:2020+A11:20 20, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E187236)
	Dongguan Protechnic Electric Co., Ltd.	MGA7012UB- O15	12 Vdc, 0.58 A, 40.24 CFM min.	EN IEC 62368- 1:2020+A11:20 20, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E187236)
	DELTA ELECTRONICS INC	AFB0712VHB	12 Vdc, 0.55 A, 40.9 CFM min.	EN IEC 62368- 1:2020+A11:20 20, ANSI/UL 507, CSA-C22.2 No. 113	VDE, UL/cUL (E132003)
	POWER LOGIC TECHNOLOGY INC	PLA07015B12V H-1	12 Vdc, 0.5 A, 43.74 CFM min.	EN IEC 62368- 1:2014+A11, ANSI/UL 507, CSA-C22.2 No. 113	TÜV SÜD, UL/cUL (E192307)
Insulation tape (Provided on CX body) (One layer)	3M Company Electrical Markets DIV (EMD)	1350F-1 (b), 1350F-2 (c), 1350B-1 (b), 1388Y-1 (b), 1098-1	130 °C min.	UL 510	UL (E17385)
	3M Taiwan Ltd.	1388Y-1 (a)	130 °C min.	UL 510	UL (E305006)
	3M Company Electrical Markets DIV (EMD)	1318-1 (a), 1218, 92	180 °C min.	UL 510	UL (E17385)
	Bondtec Pacific Co., Ltd.	370S (b), 371F-1 (h)	130 °C min.	UL 510	UL (E175868)
	SYMBIO INC.	35660 (a),	130 °C min.	UL 510	UL (E50292)

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IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
		35660Y (e), 35661 (c), MY9YAF, MY9BAF, MY9WAF			
	SYMBIO INC.	KA180	200 °C min.	UL 510	UL (E50292)
	Jingjiang Yahua Pressure Sensitive Glue Co., Ltd.	CT* (c)(g)	130 °C min.	UL 510	UL (E165111)
	Chyun Yih Tape Co., Ltd.	P(\$)F (g), P2 Black (f),	130 °C min.	UL 510	UL (E81174)
	Chyun Yih Tape Co., Ltd.	PB416F	180 °C min.	UL 510	UL (E81174)
Insulation sheet (provided between MAIN BOARD solder side and bottom metal chassis; provided on top metal chassis internal side)	Sichuan Longhua Film Co., Ltd.	PP-(i)(j)	VTM-0 or V-0 or better, 100 °C min., 0.25 mm thick. min.	ANSI/UL 94	UL (E254551)
	Formex, Div of Illinois Tool Works Inc.	FORMEXGK-(a)(d)(f2)	VTM-0 or V-0 or better, 115 °C min., 0.25 mm thick. min.	ANSI/UL 94	UL (E121855)
	Sabic Innovative Plastics US L L C	FR60 (GG), FR700 (GG)	VTM-0 or V-0 or better, 125 °C min., 0.25 mm thick. min.	ANSI/UL 94	UL (E121562)
	RP TOPLA LIMITED.	VS120a, VS520a	VTM-0 or V-0 or better, 120 °C min., 0.25 mm thick. min.	ANSI/UL 94	UL (E301813)
	3M Taiwan Ltd.	IS-250-a	VTM-0 or V-0 or better, 130 °C min., 0.23-0.25 mm thick., three layers, polyester.	UL 94, Test for Clause 2.10.5.8 & 2.10.5.9 & Annex AA of IEC 60950-1	UL (E305006), Tested by TÜV
	ltw Electronics Components/ Products (Shanghai) Co., Ltd.	Formex N3-(b)(d)(e)(k)(L)	VTM-0 or V-0 or better, 130 °C min., 0.18 or 0.25 mm thick., three layers,	UL 94, Test for Clause 2.10.5.8 & 2.10.5.9 & Annex AA of	UL (E256266), Tested by TÜV

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IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
			polyester.	IEC 60950-1	
Heat Shrinkable Tubing (DC fan wires)	Tyco Electronics Corp.	Versafit, Versafit V2	VW-1, 300 Vac min., 125 °C min., 0.4 mm thick. min.	ANSI/UL 224	UL (E35586)
	Changyuan Electronics Group Co., Ltd.	CB-HFT, CYG-ZHP	VW-1, 300 Vac min., 125 °C min., 0.4 mm thick. min.	ANSI/UL 224	UL (E180908)
	Well One Co., Ltd.	GT-2, GH-2	VW-1, 300 Vac min., 125 °C min., 0.4 mm thick. min.	ANSI/UL 224	UL (E257529)
	Dongguan Salipt Co., Ltd.	SALIPT S-901-300, SALIPT S-901-600	VW-1, 300 Vac min., 125 °C min., 0.4 mm thick. min.	ANSI/UL 224	UL (E209436)
	Dongguan Quantai Industrial Co., Ltd.	T-2	VW-1, 300 Vac min., 125 °C min., 0.4 mm thick. min.	ANSI/UL 224	UL (E227336)
	Sumitomo Electric Fine Polymer Inc.	Sumitube F32, Sumitube F32(Z), Sumitube HF2	VW-1, 300 Vac min., 125 °C min., 0.4 mm thick. min.	ANSI/UL 224	UL (E48762)
	Shenzhen Woer Heat-Shrinkable Material Co., Ltd.	RSFR-HPF	VW-1, 300 Vac min., 125 °C min., 0.4 mm thick. min.	ANSI/UL 224	UL (E203950)
	Hamburg Industries Co., Ltd.	H-2, H-2(CB)	VW-1, 300 Vac min., 125 °C min., 0.4 mm thick. min.	ANSI/UL 224	UL (E255394)
Heat Shrinkable Tubing (L/N wires solder parts at PCB and core of L/N wires)	Tyco Electronics Corp.	Versafit, Versafit V2	VW-1, 300 Vac min., 125 °C min., 0.25 mm thick. min.	ANSI/UL 224	UL (E35586)
	Changyuan Electronics Group Co., Ltd.	CB-HFT, CYG-ZHP	VW-1, 300 Vac min., 125 °C min., 0.25 mm thick. min.	ANSI/UL 224	UL (E180908)
	Well One Co., Ltd.	GT-2, GH-2	VW-1, 300 Vac min., 125 °C	ANSI/UL 224	UL (E257529)

TRF No. IEC62368_1E

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
			min., 0.25 mm thick. min.		
	Dongguan Salipt Co., Ltd.	SALIPT S-901-300, SALIPT S-901-600	VW-1, 300 Vac min., 125 °C min., 0.25 mm thick. min.	ANSI/UL 224	UL (E209436)
	Dongguan Quantai Industrial Co., Ltd.	T-2	VW-1, 300 Vac min., 125 °C min., 0.25 mm thick. min.	ANSI/UL 224	UL (E227336)
	Sumitomo Electric Fine Polymer Inc.	Sumitube F32, Sumitube F32(Z), Sumitube HF2	VW-1, 300 Vac min., 125 °C min., 0.25 mm thick. min.	ANSI/UL 224	UL (E48762)
	Shenzhen Woer Heat-Shrinkable Material Co., Ltd.	RSFR-HPF	VW-1, 300 Vac min., 125 °C min., 0.25 mm thick. min.	ANSI/UL 224	UL (E203950)
	Hamburg Industries Co., Ltd.	H-2, H-2(CB)	VW-1, 300 Vac min., 125 °C min., 0.25 mm thick. min.	ANSI/UL 224	UL (E255394)
Functional Components					
Metal Chassis	Interchangeable	Interchangeable	0.8 mm thick. min.	--	--
PCB	Interchangeable	Interchangeable	V-1 min., 130 °C min.	UL 94	UL
Bleeder Resistor (ER1, ER2, ER3, ER4) (Soldered on ERP BD)	Interchangeable	Interchangeable	Each 910 k Ω , 1/4 W min., Each 1.3 mm min. between terminal	--	--
Bridge Diode (BD1, BD2)	Interchangeable	Interchangeable	Each 10 A min., 600 V min.	--	--
Thermistor (1RT1) (Optional)	Interchangeable	Interchangeable	5 Ω max. at 25°C.	--	--
Transistor (1Q2) (For model FSP300-50UDB, FSP300-50WDB used)	Interchangeable	Interchangeable	18 A min., 600 V min.	--	--
Transistor (1Q2) (For model	Interchangeable	Interchangeable	26 A min., 600 V min.	--	--

TRF No. IEC62368_1E

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
FSP400-50UDB, FSP400-50WDB used)					
Transistor (1Q1, 1Q2) (For model FSP500-50UDB, FSP500-50WDB used)	Interchangeable	Interchangeable	Each 26 A min., 600 V min.	--	--
Transistor (1Q3)	Interchangeable	Interchangeable	3 A min., 800 V min.	--	--
Transistor (1Q4) (For model FSP300-50UDB, FSP300-50WDB used)	Interchangeable	Interchangeable	8A min., 800 V min.	--	--
Transistor (1Q4) (For model FSP400-50UDB, FSP400-50WDB used)	Interchangeable	Interchangeable	10.8A min., 800 V min.	--	--
Transistor (1Q4) (For model FSP500-50UDB, FSP500-50WDB used)	Interchangeable	Interchangeable	16.7A min., 800 V min.	--	--
Electrolytic capacitor (1C2) (For model FSP300-50UDB, FSP300-50WDB used)	Interchangeable	Interchangeable	180-270 μ F, 420 V min., 105 °C min.	--	--
Electrolytic capacitor (1C2) (For model FSP400-50UDB, FSP400-50WDB used)	Interchangeable	Interchangeable	220-270 μ F, 420 V min., 105 °C min.	--	--
Electrolytic capacitor (1C2)	Interchangeable	Interchangeable	270 μ F, 420 V min.,	--	--

TRF No. IEC62368_1E

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
(For model FSP500-50UDB, FSP500-50WDB used)			105 °C min.		
Current resistor (1R1, 1R8) (For model FSP300-50UDB, FSP300-50WDB used)	Interchangeable	Interchangeable	0.15 Ω min., 2 W min.	--	--
Current resistor (1R1, 1R8) (For model FSP400-50UDB, FSP400-50WDB used)	Interchangeable	Interchangeable	0.12 Ω min., 2 W min.	--	--
Current resistor (1R1, 1R8) (For model FSP500-50UDB, FSP500-50WDB used)	Interchangeable	Interchangeable	0.1 Ω min., 2 W min.	--	--
Line/Neutral wires	Interchangeable	Interchangeable	20 AWG min., 80 °C min.	UL 758	UL
Green/Yellow wires	Interchangeable	Interchangeable	16 AWG min., 80 °C min.	UL 758	UL
Electrolytic capacitor (2C1)	Interchangeable	Interchangeable	105 °C min.	--	--
Electrolytic capacitor (2C9)	Interchangeable	Interchangeable	105 °C min.	--	--
Supplementary information:					
1. Provided evidence ensures the agreed level of compliance. See OD-CB2039. 2. For photocoupler, Dti = inside distance through insulation, Int. dcr = internal creepage distance, Ext. dcr = external creepage distance. The transformer used in below factories is identical in electrical characteristics, physical construction in clearance, creepage and distance through insulation. Transformer manufacturing plants (factories) list as below: - FRESCO FACTORY (SHENZHEN) CO., LTD. - FORTRON/SOURCE (CHINA) CORP. - HAOHAN ELECTRONIC TECHNOLOGY (JIAN) CO LTD - FSP Technology Inc., Kaohsiung Branch - PROTEK ELECTRONICS (CHINA) CORP.					

TRF No. IEC62368_1E

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
- DONG GUAN LIGHTION ELECTRONICS CO LTD. - FRIENDSHIP ELECTRONIC (DONGGUAN) CO., LTD - FSP Group Inc. - SPI Electronics Co., Ltd. - Quanzhou Heng Tai Sheng Intelligent Technology Co., Ltd. - Dong Guan Top Nation Electronic Limited - Haining Lianfeng Dongjin Electronics Co., Ltd. - SHENZHEN PEISHENG SCIENCE TECHNOLOGY CO LTD - Xinyi Hanpe Electronics Co Ltd - DONGGUAN JINGCHENG ELECTRONICS CO LTD - Dongguan Ten Well Industrial Co Ltd. - FRIENDSHIP NANO CRYSTAL TECHNOLOGY CO LTD			

List of test equipment used:

A completed list of used test equipment shall be provided in the Test Reports when a Customer's Testing Facility according to CTF stage 1 or CTF stage 2 procedure has been used.

Note: This page may be removed when CTF stage 1 or CTF stage 2 are not used. See also clause 4.8 in OD 2020 for more details.

Test duration: 2019-12-06 to 2020-01-14

FSP GROUP INC.									
INSTRUMENT RECODE DATA SHEET									
TEST INSTRUMENTS									
Latest Revision Date: 2019-12-24									
The following instruments were used in tests recorded on the attached data sheets.									
Test Equipments	Electrical Rating	Calibration Range	Manufacturer	Model No.	Serial No. (FSP)	Serial No.	Date Last calibrated	Calibration Due Date	NO.
							MM/DD/YY	MM/DD/YY	
Digital Power Meter	300V/20A	For 50, 60 Hz Vac: 30-290V Iac: 0.2-20A P: 4.8-1950W Vdc: 1-50V	Protronix	1201	0003002	5H903049	07/16/19	07/15/20	22
Active Load	300W/60A	Vac: 1-50V	Chroma	63030	0001719	6300006381	07/23/19	07/22/20	23
Active Load	300W/60A	Vac: 1-50V	Chroma	63030	0001678	6300006007	07/23/19	07/22/20	24
Active Load	300W/60A	Vac: 1-50V	Chroma	63030	0001721	6300006466	07/23/19	07/21/20	28
Active Load	300W/60A	Vdc: 1-60V Iac: 0.1-40A	Chroma	63030	0003007	6300005598	07/23/19	07/22/20	29
Humidity Chamber	0%~100%/10-98RH	0°C-50°C 50-95 %RH Vdc: 1-80V Iac: 0.1-60A	Kson	THS-62H	0001724	2292	03/06/19	03/05/20	32
Active Load	600W	Vac: 1-80V Iac: 0.1-60A	Chroma	63106	0003932-02	631060003502	07/24/19	07/23/20	36
Ground Bond Tester	60A	Iac: 1-60A; Rise: 100m Ohm; 0-12V : 0-120Sec	Extech	7316	0008967	1370009	07/23/19	07/22/20	37
Active Load	300W/60A	Vdc: 1-60V	Chroma	63030	0001608	6300010048	03/06/19	03/05/20	41
Active Load	300W/60A	Vdc: 1-60V	Chroma	63030	0001603-05	6300010068	03/06/19	03/05/20	44
Active Load	300W/60A	Vdc: 1-60V	Chroma	63030	0001606-08	6300010080	03/06/19	03/05/20	45
Active Load	300W/60A	Vdc: 1-60V	Chroma	63030	0001603-14	6300010107	03/06/19	03/05/20	46
Active Load	300W/60A	Vdc: 1-60V	Chroma	63030	0001605-21	6300010051	03/06/19	03/05/20	47
Active Load	300W/60A	Vdc: 1-60V	Chroma	63030	0001605-26	6300010082	03/06/19	03/05/20	48
AC Power Source	30VA	---	Extech	6130	0009123	1130075	---	---	54
AC Power Source	30VA	---	Extech	6130	0009128	1130086	---	---	56
AC Power Source	30VA	---	Extech	6130	0004546	1130082	---	---	57
Hybrid Temperature Recorder	-200~+400°C	TYPE T: 0-200 degree C	Yokogawa	DR230	0009143	270116267	03/06/19	03/05/20	67
Hybrid Temperature Recorder	-200~+400°C	TYPE T: 0-200 degree C	Yokogawa	DR230	0009144	270116264	03/06/19	03/05/20	68
Hybrid Temperature Recorder	-200~+400°C	TYPE T: 0-200 degree C	Yokogawa	DR230	0009142	270116265	03/07/19	03/06/20	73
Caliper	0-200 mm	20-200 mm	Mitutoyo	CMF CX-50A-0F	0001686	105213	07/24/19	07/23/20	75
Scope	300M Hz	Deflections: 20mV/Div-10V/Div Timing: 100ns/Div-15/Div Vdc: 0-60V, 50Hz: 15-600V Iac: 0-60Hz, 50Hz: 0.5-20 A Power: Hz: 50~14Hz PF: 0.2~1.0 (0.120V, 1A, 50/60Hz) Vdc: 0-60V, 50Hz: 15-600V Iac: 0-60Hz, 50Hz: 0.5-20 A Power: Hz: 50~14Hz PF: 0.2~1.0 (0.120V, 1A, 50/60Hz)	Tektronix	TD63032B	0009147	8028333	07/24/19	07/23/20	79
Digital Power Meter	1000V/20A	Vac: 0-60V, 50Hz: 15-600V Iac: 0-60Hz, 50Hz: 0.5-20 A Power: Hz: 50~14Hz PF: 0.2~1.0 (0.120V, 1A, 50/60Hz)	Yokogawa	WT210	0004596-06	270116226	02/26/19	02/25/20	80
Digital Power Meter	1000V/20A	Vac: 0-60V, 50Hz: 15-600V Iac: 0-60Hz, 50Hz: 0.5-20 A Power: Hz: 50~14Hz PF: 0.2~1.0 (0.120V, 1A, 50/60Hz)	Yokogawa	WT210	0004596-01	270116221	03/07/19	03/06/20	82
Digital Power Meter	1000V/20A	Vac: 0-60V, 50Hz: 15-600V Iac: 0-60Hz, 50Hz: 0.5-20 A Power: Hz: 50~14Hz PF: 0.2~1.0 (0.120V, 1A, 50/60Hz)	Yokogawa	WT210	0004596-03	270116223	03/06/19	03/05/20	83
Pull/Push Gauge	250 N	0-250N Vac: 0-60V, 50Hz: 15-600V Iac: 0-60Hz, 50Hz: 0.5-20 A Power: Hz: 50~14Hz PF: 0.2~1.0 (0.120V, 1A, 50/60Hz)	ALGOL	NK-300	0001998	33101	02/26/19	02/25/20	87
Digital Power Meter	1000V/20A	Vac: 0-60V, 50Hz: 15-600V Iac: 0-60Hz, 50Hz: 0.5-20 A Power: Hz: 50~14Hz PF: 0.2~1.0 (0.120V, 1A, 50/60Hz)	Yokogawa	WT210	0004596-05	270116225	02/26/19	02/25/20	89
Digital Stopwatch	9H/59M/59S/59S	In 32768 Hz, Time deviation as below: +/-1 ppm +/-44 s/day +13 s/month	Casio	HS-3	---	009Q08	07/24/19	07/23/20	101
Hardwood		13 mm thick, mounted on two layers of plywood each 19 mm to 20 mm thick							108
Rolling Ruler	5.5 m	0~300 cm	永75	永75 1.5m	---	HM-5519	03/16/18	03/14/20	114
AC Power Source	5KV	---	Extech	6750	0006570	1450193	---	---	115
Clock	23H/59M/59S/59S	In 32768 Hz, Time deviation as below: +/-3 ppm +/-45 s/day +13 s/month	SEIKO	QXA414G	---	---	07/24/19	07/23/20	124
Sphere (metal / 50mm / 500g)	---	---	---	---	---	---	---	---	125
IEC 60065 7th Figure 6 Dielectric strength test instrument	---	Standard For IEC 62368-1	Asia Qtech	HP A-1	---	2041203	03/15/18	03/13/20	136
Scope	200MHz	Deflection: 20mV/Div-10V/Div Timing: 100fS/Div-15/Div	Yokogawa	DLM2024	0010437	91P811759	07/24/19	07/23/20	144
Electrical Safety Compliance Analyzer	5KVdc/500Vdc	Vac: 0-50V, 50Hz: 15-600V Iac: 0-60Hz, 50Hz: 0.5-20 A Power: Hz: 50~14Hz PF: 0.2~1.0 (0.120V, 1A, 50/60Hz)	sec	ESA-450	0011286	1670264	03/06/19	03/05/20	150
Thermo hygro logger	0~50°C, 1~99%RH	10~40°C 30~80%RH	TFA	30.3039 IT	0011671	---	02/25/19	02/24/20	156
Touch current tester	115V / 230	Voltage: 90-270Vrms; Current: 0.1-30mA IEC60950:1999 Figure 4 U1; Table L.1 IEC60950:1999 Figure 4 U2; Table L.2 IEC60950:1999 Figure 5 U3; Table L.3 60950 Figure 4=60950 Annex D.1=60065 Annex D.1=60558 Figure G.2=61010 Figure A.1=61010 Figure A.2=60035 Figure 1 Location C=60035 Figure 2 Location C=61558 Figure J.1 60950 Figure 5=60558 Figure G.3 60601 Figure 12	sec	7630	0011876	1332020	07/30/19	07/28/20	160
AC Power Source	9KVA	---	Extech	EAC-306	---	1700118	---	---	161
High Voltage Probe	1000Vac	Vac: 20V-12KV Vdc: 8KV-15KV	W O Tektronik	P6015A	0006491	8058790	07/23/19	07/22/20	166

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List of test equipment used:

A completed list of used test equipment shall be provided in the Test Reports when a Customer's Testing Facility according to CTF stage 1 or CTF stage 2 procedure has been used.

Note: This page may be removed when CTF stage 1 or CTF stage 2 are not used. See also clause 4.8 in OD 2020 for more details.

Test duration: 2023-02-07 to 2023-05-24



全漢企業股份有限公司
FSP TECHNOLOGY INC.

文件名稱	EQUIPMENT LIST					類別	表單				
文件編號	B02P-0202					頁別	--				
Test Equipments	Electrical Rating	Calibration Range	Manufacturer	Model No.	software firmware	Serial No.	Serial No.	Date Last Calibrated MM/DD/YY	Calibration Due Date MM/DD/YY	NO	Use
Digital Power Meter	300V/20A	for 50 / 60 HZ: Vac:30-290V Iac:0.2-20A P: 4.8-1980W Vdc:1-30V Idc:n 1-60A	Protronix	1201	--	0001693	SN1908052	07/28/22	07/27/23	21	X
Active Load	300W/60A	Vdc:1-30V Idc:n 1-60A	Chroma	63030	3.44-C	0001719	6300006381	07/19/22	07/18/23	23	X
Active Load	300W/60A	Vdc:1-30V Idc:0.1-60A	Chroma	63030	3.44-C	0001678	6300006007	07/19/22	07/18/23	24	X
Digital Power Meter	1000V/20A	Vac @ 60Hz,50Hz: 15-600V Iac @ 60Hz,50Hz: 0.5-20A Power : Hz:50-1kHz PF:0.2-1.0(@ 120V,1A,50/60Hz)	Yokogawa	WT210	--	0004596-03	27D116223	03/03/22	03/02/23	83	X
Digital Stopwatch	9H/59MINS/59S	in 32768 Hz. Time deviation as below: +5.1 ppm +0.44 s/day +13 s/month	Casio	HS-3	--	--	009Q08	07/20/22	07/19/23	101	X
AC Power Source	5KV	--	Extech	6750	1.17	0006570	1490193	--	--	115	X
Electric strength test instrument for solid insulation	--	62368-1 第二版 Figure 29	Asia Qtech	HP A-1	--	--	2041203	03/07/22	03/05/24	136	X
Electrical Safety Compliance Analyzer	5KVac/500Vdc	Vdc:0.5-6KV Vac: 0.5-5KV@60Hz R: 1M-10G Ohm Bonding resistance: 開路電壓6V時 10~40A / 100m Ohm 40A / 160m Ohm 6H/20Sec	eec	ESA-150	3.04	0011286	1670264	03/03/23	03/02/24	150	X
Touch current tester	115V / 230	Voltage: 50-270Vac Current: 0.1-20mA IEC60950:1999 Figure 4 U1, Table L.1 IEC60950:1999 Figure 4 U2, Table L.2 IEC60950:1999 Figure 5 U3, Table L.3 60990 Figure 4+60950 Annex D.1+60065 Annex D.1+60598 Figure G.2+61010 Figure A.1+61010 Figure A.3+60335 Figure 1 Location C+60335 Figure 2 Location C+61558 Figure J.1 60990 Figure 5+60598 Figure G.3 60601 Figure 12	eec	7630	2.23	0011876	1332020	07/29/22	07/28/23	160	X
AC Power Source	6KVA	--	Extech	EAC-306	2.01.00	--	1700118	--	--	161	X
Thermo hygro logger	0~50℃,1~99%RH	10~40℃ 30~80%RH	TFA	30.3039 IT	1.3.2	0011671	--	03/08/23	03/07/24	167	X

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--	TABLE: evaluation of voltage limiting components in secondary circuits			P
Component (measured between)	max. voltage (V) (normal operation)		Voltage Limiting Components	
	V peak	V d.c.		
For models FSP400-50UDB and FSP400-50WDB				
T1 FA to RTN2	28.6	--	--	
T1 FB to RTN2	38.0	--	--	
T2 pin 9 to T2 pin 6	37.4	--	--	
1L5 pin 1 to 1L5 pin 6	5.5	--	--	
For models FSP500-50UDB and FSP500-50WDB				
T1 FA to RTN2	28.6	--	--	
T1 FB to RTN2	41.2	--	--	
T2 pin 9 to T2 pin 6	38.6	--	--	
1L5 pin 1 to 1L5 pin 6	5.5	--	--	
Fault test performed on voltage limiting components	Voltage measured (V) in secondary circuits (V peak or V d.c.)			
No test was considered necessary.	--			
Supplementary information:				
- Tested voltage: 240 Vac, 60 Hz				

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G.5.3.2	TABLE: transformers (type 8TI02218)						P
Loc.	Tested insulation	Working voltage peak / V (5.4.1.8)	Working voltage rms / V (5.4.1.8)	Required electric strength (5.4.9)	Required clearance / mm (5.4.2)	Required creepage distance / mm (5.4.3)	Required distance thr. insul. (5.4.4)
T1	Primary / input winding and secondary / output winding	670	368	4000Vdc	3.8 ^{1), 2)} (1.48 * 2.54) 4.5 ^{1), 3)} (3.0 * 1.48)	7.4	Min. two insulation tapes.
T1	Primary / input winding and core	670	368	2500Vdc	1.9 ^{1), 2)} (1.48 * 1.27) 2.3 ^{1), 3)} (1.5*1.48)	3.7	Min. one insulation tapes.
T1	Secondary / output winding and core	670	368	2500Vdc	1.9 ^{1), 2)} (1.48 * 1.27) 2.3 ^{1), 3)} (1.5*1.48)	3.7	Min. one insulation tapes.
Loc.	Tested insulation			Test voltage/ V	Measured clearance / dist./ mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers
T1	Primary/input winding and secondary/output winding (internal)			4000Vdc	9.5	9.5	Min. two insulation tapes.
T1	Primary/input winding and core (internal)			2500Vdc	4.5	4.5	Min. one insulation tape.
T1	Secondary/output winding and core (internal)			2500Vdc	5.0	5.0	Min. one insulation tape.
T1	Primary/input part and secondary/output part (external)			4000Vdc	25.2	25.2	Min. two insulation tapes.
T1	Primary/input part and core (external)			2500Vdc	5.9	5.9	Min. one insulation tape.
T1	Secondary/output winding and primary/input part (external)			4000Vdc	8.8	8.8	Min. two insulation tapes.
T1	Secondary/output part and core (external)			2500Vdc	4.9	4.9	Min. one insulation tape.
T1	Secondary/output part and primary/input winding (external)			4000Vdc	10.3	10.3	Min. two insulation tapes.
Supplementary information:							

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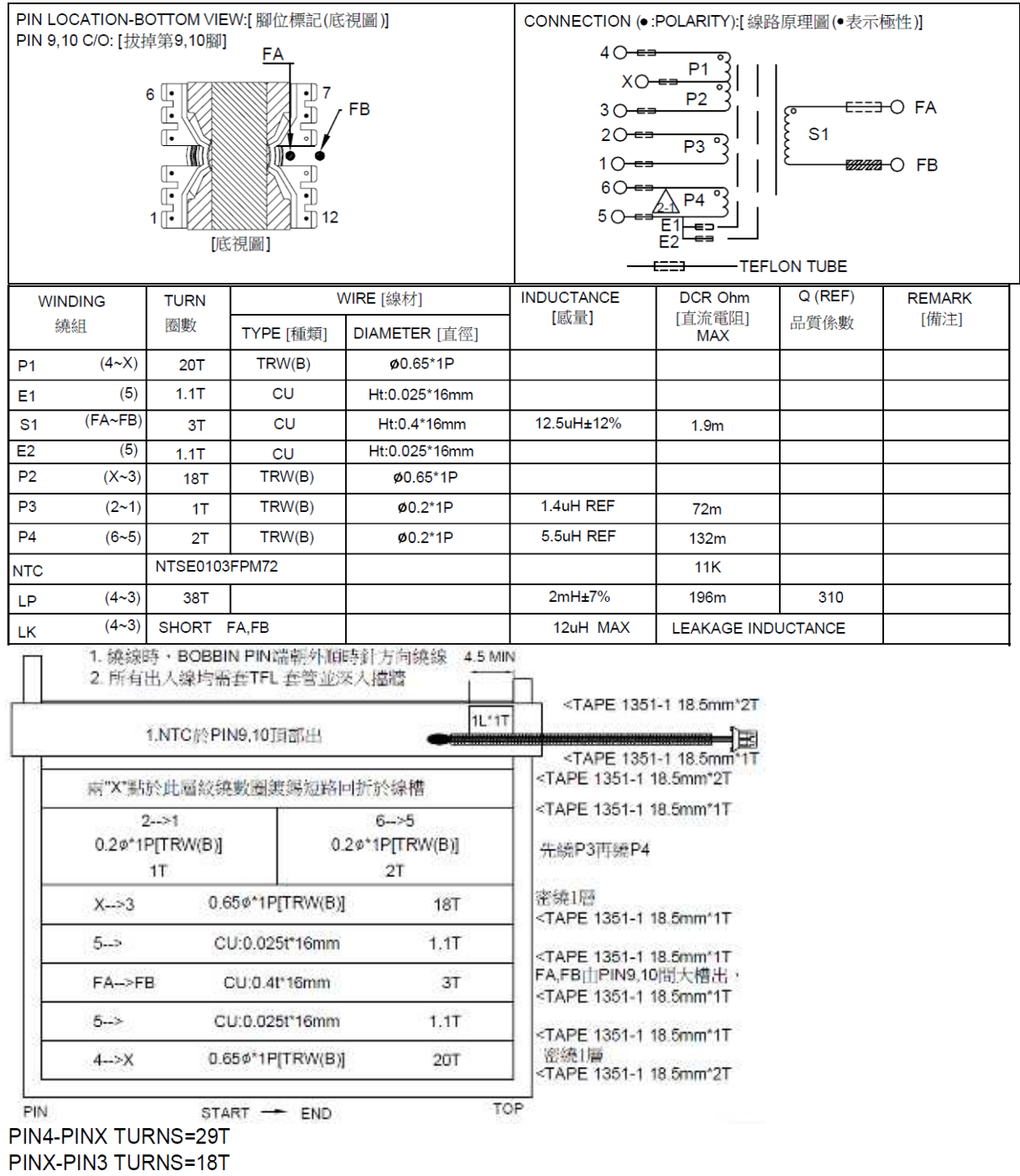
- 1) The correction factors of clearance is 1.48, specified in table 17 for altitude 5000 m.
- 2) Calculated according to clause 5.4.2.2 (Procedure 1) with table 12.
- 3) Calculated according to clause 5.4.2.3 (Procedure 2) with table 15.
- 4) The transformer manufactured by each factory is the same. All sources transformer were performed the test, see appended table 4.2.1 for source details.
- 5) The transformer produced by each factory is the same material and construction. The transformer will be produced by below factories:
 - FRESCO FACTORY (SHENZHEN) CO., LTD.
 - FORTRON/SOURCE (CHINA) CORP.
 - HAOHAN ELECTRONIC TECHNOLOGY (JIAN) CO LTD
 - FSP Technology Inc., Kaohsiung Branch
 - PROTEK ELECTRONICS (CHINA) CORP.
 - DONG GUAN LIGHTION ELECTRONICS CO LTD.
 - FRIENDSHIP ELECTRONIC (DONGGUAN) CO., LTD
 - FSP Group Inc.
 - SPI Electronics Co., Ltd.
 - Quanzhou Heng Tai Sheng Intelligent Technology Co., Ltd.
 - Dong Guan Top Nation Electronic Limited
 - Haining Lianfeng Dongjin Electronics Co., Ltd.
 - SHENZHEN PEISHENG SCIENCE TECHNOLOGY CO LTD
 - HUAIHUA YAXIN ELECTRNICS CO LTD

G.5.3.2	TABLE: transformers (type 8TI02218)	P
	Concentric windings on Phenolic material bobbin (Vertical orientation), core is considered as floating parts, transformer construction as below. - Before winding wrapped around two layers of insulation tape one turn on bobbin. - Two layers of insulation tape provided between primary windings and secondary copper foil. - There is one layer insulation tape provided between NTC and primary coil. - All windings exit ends additionally with tubing or tape for protection against winding tension mechanical stress. - Those copper foils (S1) is considered as secondary. There is one layer of insulation tape provided and fold back min. 5 mm at each side. The lead wire fixed by solder and additional tubing. - Those inner copper shieldings (E1, E2) are considered as primary. There are two layers of insulation tape provided and fold back min. 5 mm at each side. The lead wire fixed by solder and additional tubing. - There is margin tape (width 4.5 mm) provide at topside for NTC used. - There is one layer of insulation tape to covered bottom core. And add additional insulation tape (8 mm by 27 mm) at central parts. - There is one layer of insulation tape (width 18.5 mm) wrapped around transformer outside two turns. Primary winding/pins: 4 – X, inner shielding (E1) – 5, inner shielding (E2) – 5, X – 3, 2 – 1, 6 – 5; Secondary winding/pins: FA – FB Bobbin Material (manufacturer, type, ratings, thickness): - Mfr. Chang Chun Plastics Co., Ltd., phenolic, type T375J, V-0, 150°C, min. 0.45mm thickness. - Mfr. Chang Chun Plastics Co., Ltd., phenolic, type T200HF, 150°C, min. 0.45mm thickness. - Mfr. Sumitomo Bakelite Co., Ltd., phenolic, type PM-9630, 150°C, min. 0.4mm thickness.	

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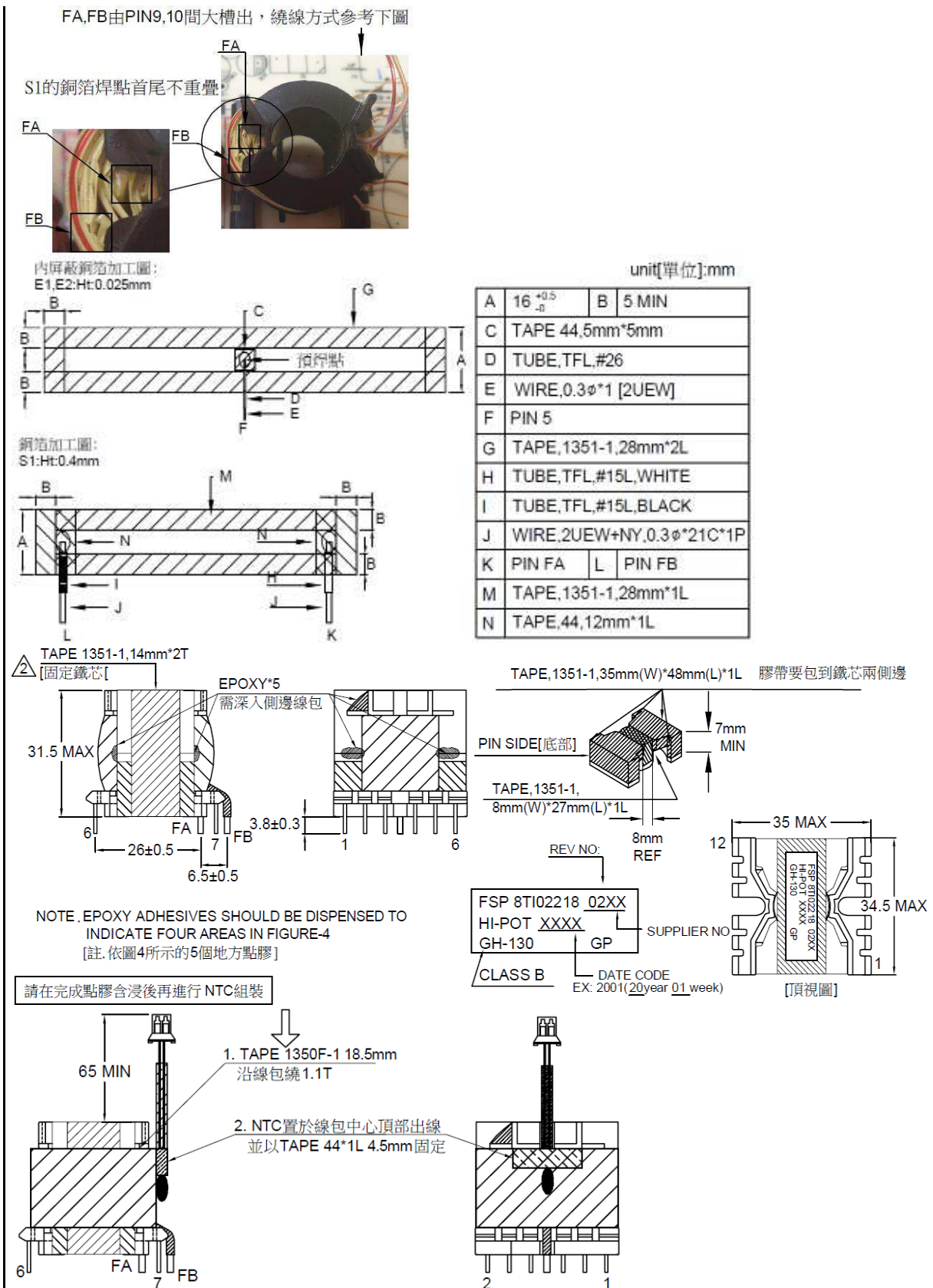
Detailed illustration of Transformer construction:



ATTACHMENT

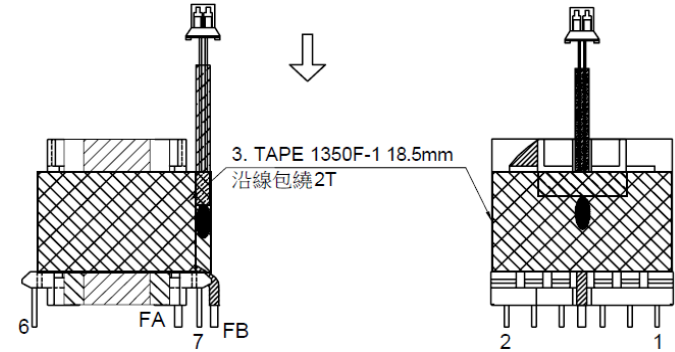
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熱敏電阻 (NTC)

NTC MATERIAL:
Temperature 125°C ; NTSE0103FPM72(ROHS)
1.COATING RESIN:BLACK EPOXY ;
2.LEAD WIRE:UL3302#30 TS 黑色線
3.TERMINAL:I20001PS-2 (WST) OR A2001T0P-2(JWT)
4.HOUSING: P2-I20001 (WST)OR A2001H02-2P(JWT)
5.TUBE:黑色熱縮套管 (ZHP) (熱縮后壁厚大于 0.4mm)

項次	品名	材質	規格	UL NO.
1.	BOBBIN[線架]	PM-9630	SUMITOMO CHEMICAL CO LTD	E54705
		T375J,T200HF	CHANG CHUN PLASTICS CO LTD	E59481
2.	CORE[鐵芯]	PC95	TDK CO., LTD	
		JPP-95	A-OCRE ELECTRICAL CO.	
		P45	ACME ELECTRONIC CORPORATION	
		TPW33	TDG HOLDING CO., LTD	
3.	WIRE[線材]	MW75C	TA YA ELECTRIC WIRE & CABLE CO LTD	E84201
			HENG YA ELECTRIC (DONGGUAN)LTD	E197768
			SIAM PACIFIC ELECTRIC WIRE & CABLE CO LTD	E142108
4.	TRIPLE WIRE [三層絕緣線]	TRW(B)	GREAT LEOFLON INDUSTRIAL CO LTD	E211989
5.	VARNISH [凡立水]	V1630FS	ELANTAS ELECTRICAL INSULATION ELANTAS PDG INC	E75225
		BC-346A	JOHN C DOLPH CO	E317427
6.	EPOXY [固定樹脂]	G-9008-HF	GU DAK CHEMISTRY TECH (DING GUAN)LTD	
7.	MYLAY TAPE [馬拉膠帶]	1351-1	3M COMPANY ELECTRICAL MARKETS DIV(EMD)	E17385
8.	MARGIN TAPE [擋牆膠帶]	44,44T-A	3M COMPANY ELECTRICAL MARKETS DIV(EMD)	E17385
		35661	SYMBIO INC	E50292
9.	TUBE[套管]	TFL	GREAT LEOFLON INDUSTRIAL CO LTD	E156256
10.	COPPER FOIL [銅箔]	CU	Dongguan Lianyong Hardqare and Electronic Materials Co.,Ltd	
			CHEIZM INTERPRIST CO.,LTD	
11.	Themistor [熱敏電阻]	NTSE0103	THINKING ELECTRONIC INDUSTRIAL CO LTD	E138827

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G.5.3.2	TABLE: transformers (type 8TI02219)						P
Loc.	Tested insulation	Working voltage peak / V (5.4.1.8)	Working voltage rms / V (5.4.1.8)	Required electric strength (5.4.9)	Required clearance / mm (5.4.2)	Required creepage distance / mm (5.4.3)	Required distance thr. insul. (5.4.4)
T1	Primary / input winding and secondary / output winding	656	360	4000Vdc	3.8 ^{1), 2)} (1.48 * 2.54) 4.5 ^{1), 3)} (3.0 * 1.48)	7.2	Min. two insulation tapes.
T1	Primary / input winding and core	656	360	2500Vdc	1.9 ^{1), 2)} (1.48 * 1.27) 2.3 ^{1), 3)} (1.5*1.48)	3.6	Min. one insulation tapes.
T1	Secondary / output winding and core	656	360	2500Vdc	1.9 ^{1), 2)} (1.48 * 1.27) 2.3 ^{1), 3)} (1.5*1.48)	3.6	Min. one insulation tapes.
Loc.	Tested insulation			Test voltage/ V	Measured clearance / dist./ mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers
T1	Primary/input winding and secondary/output winding (internal)			4000Vdc	9.5	9.5	Min. two insulation tapes.
T1	Primary/input winding and core (internal)			2500Vdc	4.5	4.5	Min. one insulation tape.
T1	Secondary/output winding and core (internal)			2500Vdc	5.0	5.0	Min. one insulation tape.
T1	Primary/input part and secondary/output part (external)			4000Vdc	25.4	25.4	Min. two insulation tapes.
T1	Primary/input part and core (external)			2500Vdc	6.4	6.4	Min. one insulation tape.
T1	Secondary/output winding and primary/input part (external)			4000Vdc	7.9	7.9	Min. two insulation tapes.
T1	Secondary/output part and core (external)			2500Vdc	4.5	4.5	Min. one insulation tape.
T1	Secondary/output part and primary/input winding (external)			4000Vdc	9.5	9.5	Min. two insulation tapes.
Supplementary information:							

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- 1) The correction factors of clearance is 1.48, specified in table 17 for altitude 5000 m.
- 2) Calculated according to clause 5.4.2.2 (Procedure 1) with table 12.
- 3) Calculated according to clause 5.4.2.3 (Procedure 2) with table 15.
- 4) The transformer manufactured by each factory is the same. All sources transformer were performed the test, see appended table 4.2.1 for source details.
- 5) The transformer produced by each factory is the same material and construction. The transformer will be produced by below factories:
 - FRESCO FACTORY (SHENZHEN) CO., LTD.
 - FORTRON/SOURCE (CHINA) CORP.
 - HAOHAN ELECTRONIC TECHNOLOGY (JIAN) CO LTD
 - FSP Technology Inc., Kaohsiung Branch
 - PROTEK ELECTRONICS (CHINA) CORP.
 - DONG GUAN LIGHTION ELECTRONICS CO LTD.
 - FRIENDSHIP ELECTRONIC (DONGGUAN) CO., LTD
 - FSP Group Inc.
 - SPI Electronics Co., Ltd.
 - Quanzhou Heng Tai Sheng Intelligent Technology Co., Ltd.
 - Dong Guan Top Nation Electronic Limited
 - Haining Lianfeng Dongjin Electronics Co., Ltd.
 - SHENZHEN PEISHENG SCIENCE TECHNOLOGY CO LTD
 - HUAIHUA YAXIN ELECTRNICS CO LTD

G.5.3.2	TABLE: transformers (type 8TI02219)	P
	Concentric windings on Phenolic material bobbin (Vertical orientation), core is considered as floating parts, transformer construction as below. - Before winding wrapped around one layer of insulation tape one turn on bobbin. - Two layers of insulation tape provided between primary windings and secondary copper foil. - There is one layer insulation tape provided between NTC and primary coil. - All windings exit ends additionally with tubing or tape for protection against winding tension mechanical stress. - The copper foils (S1) is considered as secondary. There is one layer of insulation tape provided and fold back min. 5 mm at each side. The lead wire fixed by solder and additional tubing. - Those inner copper shieldings (E1, E2) are considered as primary. There is one layer of insulation tape provided and fold back min. 5 mm at each side. The lead wire fixed by solder and additional tubing. - There is margin tape (width 4.5 mm) provide at both top and bottom side of primary windings (P1 & P2). - There is margin tape (width 4.5 mm) provide for NTC at topside of bobbin. - There is one layer of insulation tape to covered top and bottom core. And add additional insulation tape (8 mm by 27 mm) at central parts. - There is one layer of insulation tape (width 18.5 mm) wrapped around transformer outside two turns. Primary winding/pins: 4 – X, inner shielding (E1) – 5, inner shielding (E2) – 5, X– 3, 2 – 1, 6 – 5; Secondary winding/pins: FA – FB Bobbin Material (manufacturer, type, ratings, thickness): - Mfr. Chang Chun Plastics Co., Ltd., phenolic, type T375J, V-0, 150°C, min. 0.45mm thickness. - Mfr. Chang Chun Plastics Co., Ltd., phenolic, type T200HF, 150°C, min. 0.45mm thickness. - Mfr. Sumitomo Bakelite Co., Ltd., phenolic, type PM-9630, 150°C, min. 0.4mm thickness.	

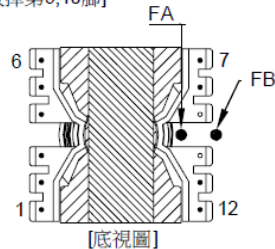
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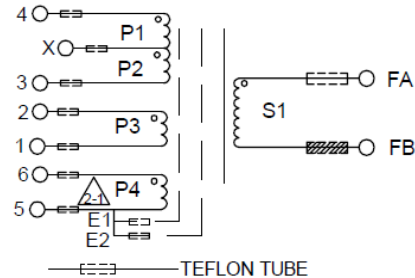
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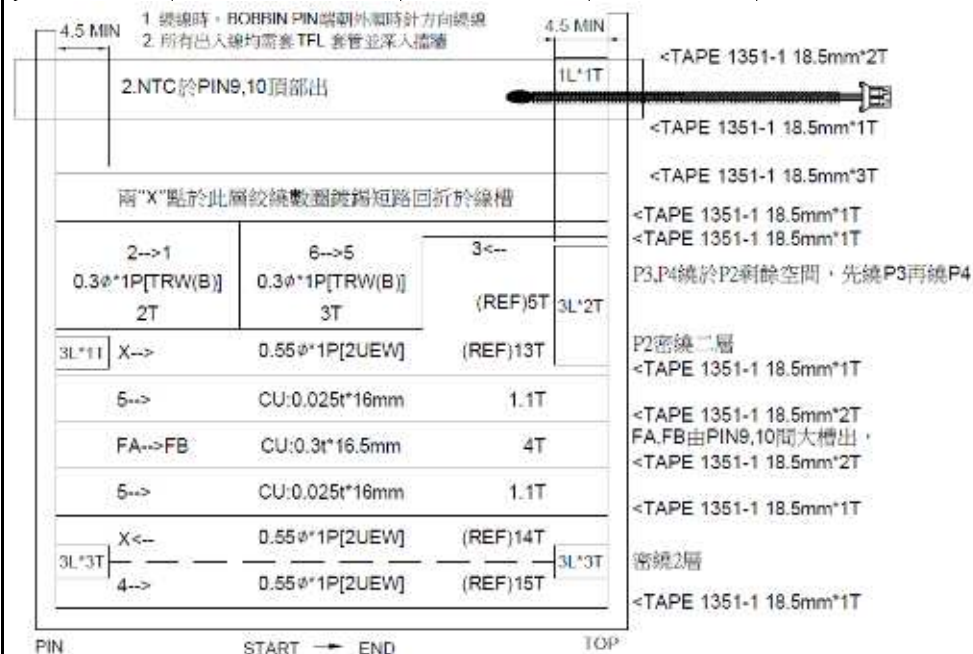
Detailed illustration of Transformer construction:

PIN LOCATION-BOTTOM VIEW:[腳位標記(底視圖)]
PIN 9,10 C/O:[拔掉第9,10腳]

CONNECTION (●:POLARITY):[線路原理圖(●表示極性)]



WINDING 繞組	TURN 圈數	WIRE [線材]		INDUCTANCE [感量]	DCR Ohm [直流電阻] MAX	Q (REF) 品質係數	REMARK [備注]
		TYPE [種類]	DIAMETER [直徑]				
P1	(4~X)	29T	2UEW	∅0.55*1P			
E1	(5)	1.1T	CU	Ht:0.025*16mm			
S1	(FA~FB)	4T	CU	Ht:0.3*16.5mm	14.5uH±25%	2.35m	
E2	(5)	1.1T	CU	Ht:0.025*16mm			
P2	(X~3)	18T	2UEW	∅0.55*1P			
P3	(2~1)	2T	TRW(B)	∅0.3*1P	3.6uH REF	48.5m	
P4	(6~5)	3T	TRW(B)	∅0.3*1P	8.1uH REF	90m	
NTC		NTSE0103FPM72				11K	
LP	(4~3)	47T			2mH±7%	291m	
LK	(4~3)	SHORT FA,FB			20uH MAX	LEAKAGE INDUCTANCE	



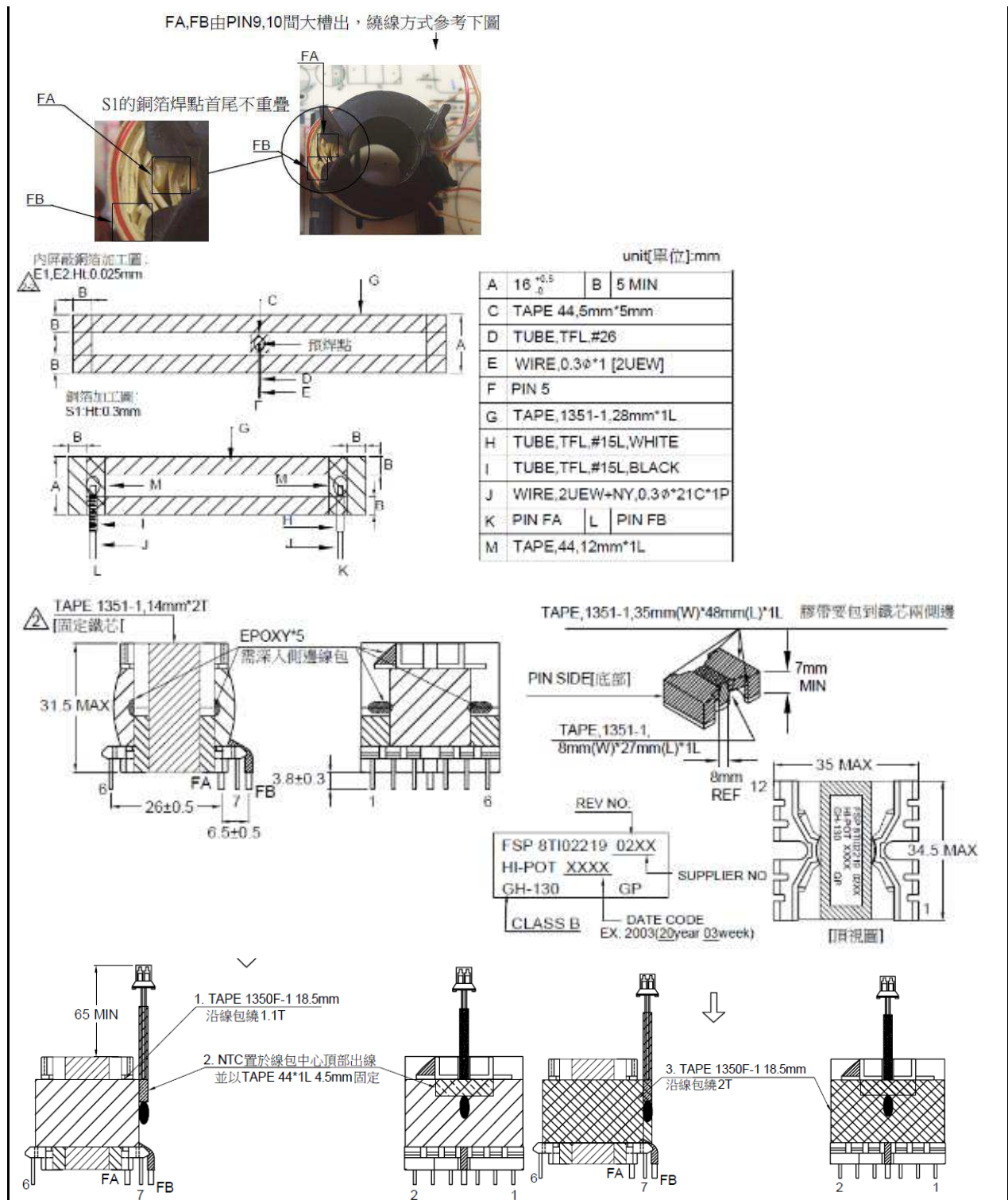
PIN4-PINX TURNS=29T

PINX-PIN3 TURNS=18T

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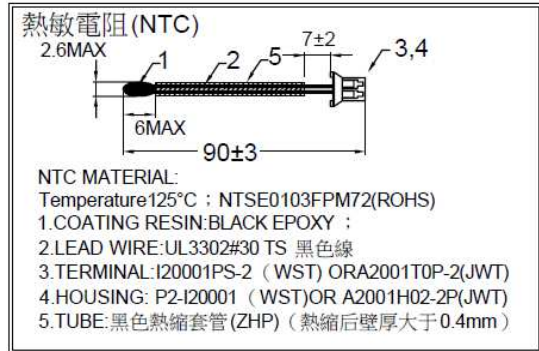
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項次	品名	材質	規格	UL NO.
1.	BOBBIN[線架]	PM-9630	SUMITOMO CHEMICAL CO LTD	E54705
		T375J,T200HF	CHANG CHUN PLASTICS CO LTD	E59481
2.	CORE[鐵芯]	PC95	TDK CO., LTD	
		JPP-95	A-OCRE ELECTRICAL CO.	
		P45	ACME ELECTRONIC CORPORATION	
		TPW33	TDG HOLDING CO., LTD	
3.	WIRE[線材]	MW75C	TA YA ELECTRIC WIRE & CABLE CO LTD	E84201
			HENG YA ELECTRIC (DONGGUAN)LTD	E197768
			SIAM PACIFIC ELECTRIC WIRE & CABLE CO LTD	E142108
4.	TRIPLE WIRE [三層絕緣線]	TRW(B)	GREAT LEOFLON INDUSTRIAL CO LTD	E211989
5.	VARNISH [凡立水]	V1630FS	ELANTAS ELECTRICAL INSULATION ELANTAS PDG INC	E75225
		BC-346A	JOHN C DOLPH CO	E317427
6.	EPOXY [固定樹脂]	G-9008-HF	GU DAK CHEMISTRY TECH (DING GUAN)LTD	
7.	MYLAY TAPE [馬拉膠帶]	1351-1	3M COMPANY ELECTRICAL MARKETS DIV(EMD)	E17385
8.	MARGIN TAPE [擋牆膠帶]	44,44T-A	3M COMPANY ELECTRICAL MARKETS DIV(EMD)	E17385
		35661	SYMBIO INC	E50292
9.	TUBE[套管]	TFL	GREAT LEOFLON INDUSTRIAL CO LTD	E156256
10.	COPPER FOIL [銅箔]	CU	Dongguan Lianyong Hardqare and Electronic Materials Co.,Ltd	
			CHEIZM INTERPRIST CO.,LTD	
11.	Themistor [熱敏電阻]	NTSE0103	THINKING ELECTRONIC INDUSTRIAL CO LTD	E138827

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G.5.3.2	TABLE: transformers (type 8TC00680)						P
Loc.	Tested insulation	Working voltage peak / V (5.4.1.8)	Working voltage rms / V (5.4.1.8)	Required electric strength (5.4.9)	Required clearance / mm (5.4.2)	Required creepage distance / mm (5.4.3)	Required distance thr. insul. (5.4.4)
T2	Primary / input winding and secondary / output winding	636	250 (226)	4000Vdc	3.8 ^{1), 2)} (1.48 * 2.54) 4.5 ^{1), 3)} (3.0 * 1.48)	5.0	Min. two insulation tapes.
T2	Primary / input winding and core	636	250 (226)	2500Vdc	1.9 ^{1), 2)} (1.48 * 1.27) 2.3 ^{1), 3)} (1.5*1.48)	2.5	Min. one insulation tapes.
T2	Secondary / output winding and core	636	250 (226)	2500Vdc	1.9 ^{1), 2)} (1.48 * 1.27) 2.3 ^{1), 3)} (1.5*1.48)	2.5	Min. one insulation tapes.
Loc.	Tested insulation			Test voltage/ V	Measured clearance / dist./ mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers
T2	Primary/input winding and secondary/output winding (internal)			4000Vdc	8.0	8.0	Min. two insulation tapes.
T2	Primary/input winding and core (internal)			2500Vdc	4.0	4.0	Min. one insulation tape.
T2	Secondary/output winding and core (internal)			2500Vdc	4.0	4.0	Min. one insulation tape.
T2	Primary/input part and secondary/output part (external)			4000Vdc	11.4	11.4	Min. two insulation tapes.
T2	Primary/input part and core (external)			2500Vdc	6.2	6.2	Min. one insulation tape.
T2	Secondary/output winding and primary/input part (external)			4000Vdc	8.4	8.4	Min. two insulation tapes.
T2	Secondary/output part and core (external)			2500Vdc	6.2	6.2	Min. one insulation tape.
T2	Secondary/output part and primary/input winding (external)			4000Vdc	8.4	8.4	Min. two insulation tapes.
Supplementary information:							

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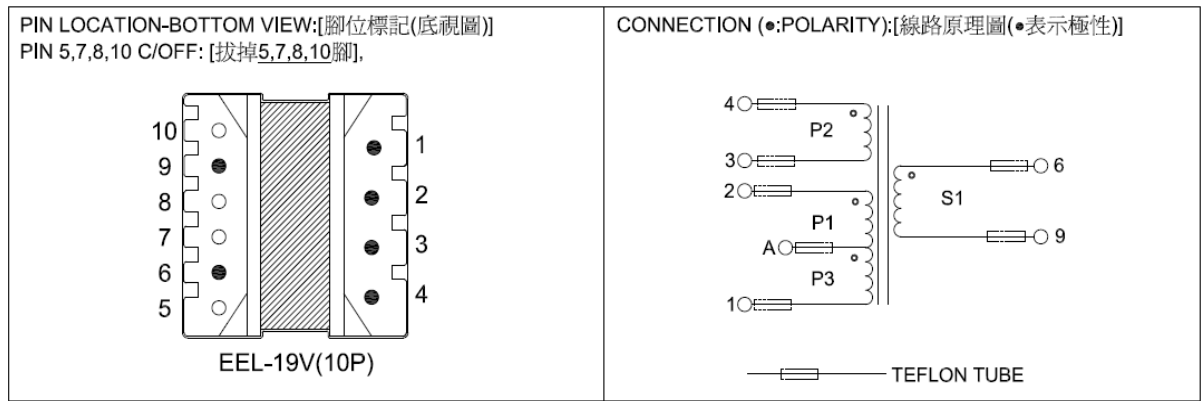
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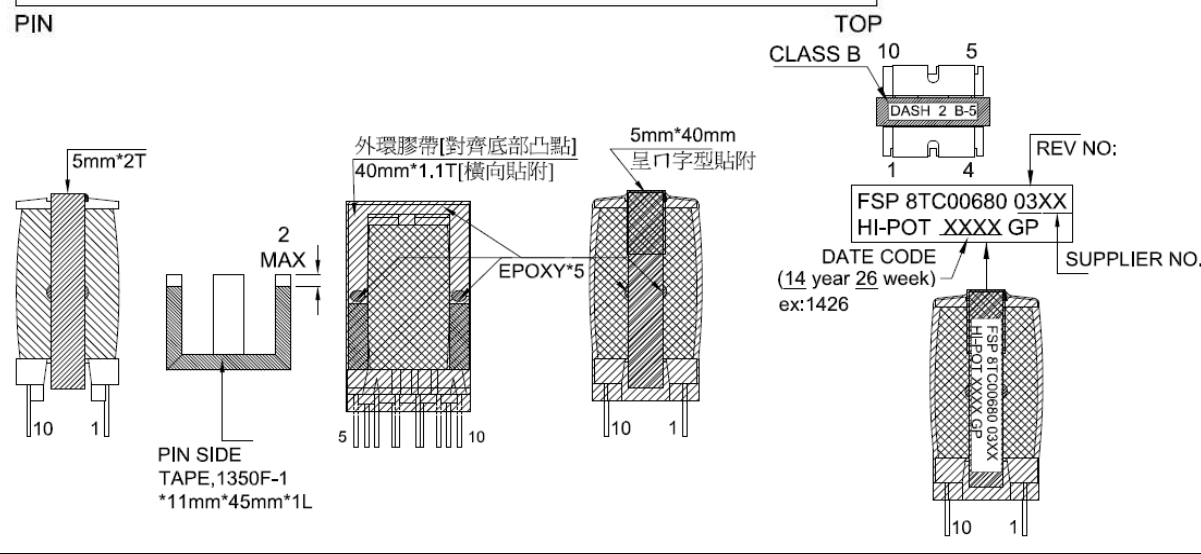
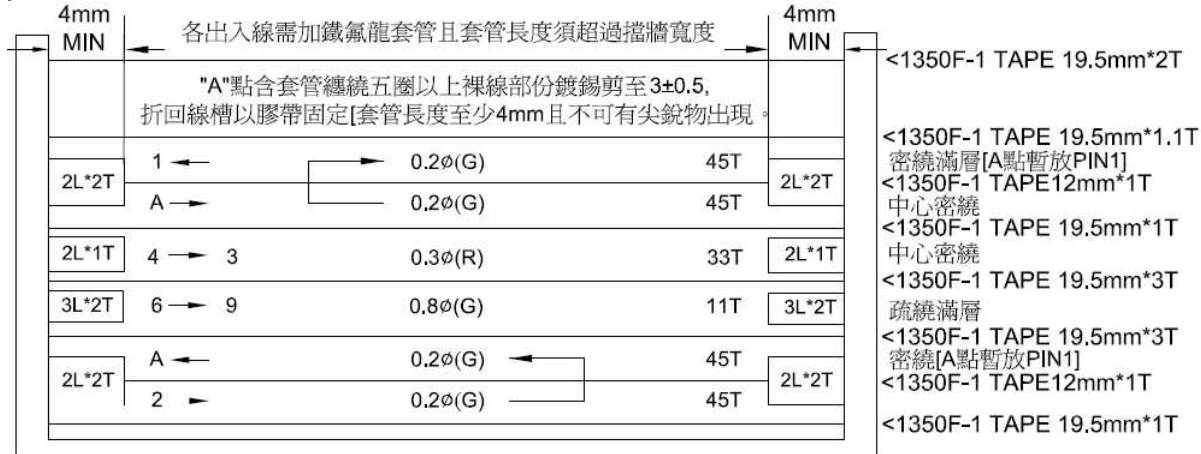
1)	The correction factors of clearance is 1.48, specified in table 17 for altitude 5000 m.
2)	Calculated according to clause 5.4.2.2 (Procedure 1) with table 12.
3)	Calculated according to clause 5.4.2.3 (Procedure 2) with table 15.
4)	The transformer manufactured by each factory is the same. All sources transformer were performed the test, see appended table 4.2.1 for source details.
5)	The transformer produced by each factory is the same material and construction. The transformer will be produced by below factories: - FRESCO FACTORY (SHENZHEN) CO., LTD. - FORTRON/SOURCE (CHINA) CORP. - HAOHAN ELECTRONIC TECHNOLOGY (JIAN) CO LTD - FSP Technology Inc., Kaohsiung Branch - PROTEK ELECTRONICS (CHINA) CORP. - DONG GUAN LIGHTION ELECTRONICS CO LTD. - FRIENDSHIP ELECTRONIC (DONGGUAN) CO., LTD - FSP Group Inc. - SPI Electronics Co., Ltd. - Quanzhou Heng Tai Sheng Intelligent Technology Co., Ltd. - Dong Guan Top Nation Electronic Limited - Haining Lianfeng Dongjin Electronics Co., Ltd. - SHENZHEN PEISHENG SCIENCE TECHNOLOGY CO LTD - HUAIHUA YAXIN ELECTRNICS CO LTD

G.5.3.2	TABLE: transformers (type 8TC00680)	P
Concentric windings on Phenolic material bobbin (Vertical orientation), core is considered as floating parts, transformer construction as below. - Before winding wrapped around one layer of insulation tape two turns on bobbin. - Three layers of insulation tape provided between primary windings and secondary winding. - All windings exit ends additionally with tubing or tape for protection against winding tension mechanical stress. - There are margin tape (width 4 mm) provided fro all windings at both top and bottom sides. - There is one layer of insulation tape to cover bottom core. - There is one layer of insulation tape (width 40 mm) wrapped around transformer outside 1.1 turns and add insulation tape (5 mm by 40 mm) to fixed at topside. Primary winding/pins: 2 – A, 4 – 3, A – 1; Secondary winding/pins: 6 – 9 Bobbin Material (manufacturer, type, ratings, thickness): - Mfr. Chang Chun Plastics Co., Ltd., phenolic, type T375J, V-0, 150°C, min. 0.45mm thickness. <u>Detailed illustration of Transformer construction:</u>		

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WINDING 繞組	TURN 圈數	WIRE [線材]		INDUCTANCE [感量]	DCR mOhm [直流電阻] MAX	Q REF 品質係數	REMARK [備注]
		TYPE [種類]	DIAMETER [直徑]				
P1	(2-A)	90T	2UEW	ø0.2(G)			
S1	(6-9)	11T	2UEW	ø0.8(G)	7.47uH (REF)	17.27	
P2	(4-3)	33T	2UEW	ø0.3(R)	67.2uH ± 12%	377	
P3	(A-1)	90T	2UEW	ø0.2(G)			
LP	(2-1)	180T			2mH ± 8%	4150	50
LK	(2-1)	SHORT PIN 6,9			87uH MAX	LEAKAGE INDUCTANCE	



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NO	ITEM[品名]	MATERIAL[材質]	SUPPLIER[供應商]	UL NO.
1.	BOBBIN	T375J	CHANG CHUN PLASTICS CO.,LTD.	E59481
2.	CORE	TP4	TDG HOLDING CO.,LTD.	
		P4	ACME ELECTRONICS CO.,LTD.	
3.	WIRE	MW-75C	SIAM PACIFIC ELECTRIC WIRE&CABLE CO., LTD.	E142108
		MW 75-C	TA YA ELECTRIC WIRE & CABLE CO LTD.	E84201
		MW 75-C#	TA YA ELECTRIC WIRE & CABLE CO LTD.	E84201
4.	TAPE	1350F-1,44	3M COMPANY ELECTRICAL MARKETS DIV (EMD).	E17385
5.	VARNISH	468-2	ELANTAS ELECTRICAL INSULATION ELANTAS PDG INC	E75225
6.	TEFLON TUBE	TFL	GREAT HOLDING INDUSTRIAL CO.,LTD.	E156256
7.	EPOXY	AD-3	JASDI RESIN ENGINEERING CO.,LTD.	
8.	COPPER FOIL	CU	MINCHALI METAL INDUSTRY CO.,LTD.	
		CU	CHEI LIM INTERPRIST CO.,LTD.	

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G.5.3.2	TABLE: transformers (type 8LM00104)						P
Loc.	Tested insulation	Working voltage peak / V (5.4.1.8)	Working voltage rms / V (5.4.1.8)	Required electric strength (5.4.9)	Required clearance / mm (5.4.2)	Required creepage distance / mm (5.4.3)	Required distance thr. insul. (5.4.4)
1L5	Primary / input winding and secondary / output winding	636	412	4000Vdc	3.8 ^{1), 2)} (1.48 * 2.54) 4.5 ^{1), 3)} (3.0 * 1.48)	8.4	Min. two insulation tapes.
1L5	Primary / input winding and core	--	--	--	--	--	--
1L5	Secondary / output winding and core	636	412	4000Vdc	3.8 ^{1), 2)} (1.48 * 2.54) 4.5 ^{1), 3)} (3.0 * 1.48)	8.4	Min. two insulation tapes.
Loc.	Tested insulation			Test voltage/ V	Measured clearance / dist./ mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers
1L5	Primary/input winding and secondary/output winding (internal)			4000Vdc	Triple insulation wire used for all windings	Triple insulation wire used for all windings	Min. two insulation tapes.
1L5	Primary/input winding and core (internal)			--	--	--	--
1L5	Secondary/output winding and core (internal)			4000Vdc	Triple insulation wire used for all windings	Triple insulation wire used for all windings	Min. one insulation tape.
1L5	Primary/input part and secondary/output part (external)			4000Vdc	13.2	13.2	Min. two insulation tapes.
1L5	Primary/input part and core (external)			--	--	--	--
1L5	Secondary/output winding and primary/input part (external)			4000Vdc	Triple insulation wire used for all windings	Triple insulation wire used for all windings	Min. two insulation tapes.
1L5	Secondary/output part and core (external)			4000Vdc	12.2	12.2	Min. one insulation tape.
1L5	Secondary/output part and primary/input winding (external)			4000Vdc	13.2 (via base to	13.2 (via base	Min. two insulation

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			input part)	to input part)	tapes.
Supplementary information: 1) The correction factors of clearance is 1.48, specified in table 17 for altitude 5000 m. 2) Calculated according to clause 5.4.2.2 (Procedure 1) with table 12. 3) Calculated according to clause 5.4.2.3 (Procedure 2) with table 15. 4) The transformer manufactured by each factory is the same. All sources transformer were performed the test, see appended table 4.2.1 for source details. 5) The transformer produced by each factory is the same material and construction. The transformer will be produced by below factories: - FRESCO FACTORY (SHENZHEN) CO., LTD. - FORTRON/SOURCE (CHINA) CORP. - HAOHAN ELECTRONIC TECHNOLOGY (JIAN) CO LTD - FSP Technology Inc., Kaohsiung Branch - PROTEK ELECTRONICS (CHINA) CORP. - DONG GUAN LIGHTION ELECTRONICS CO LTD. - FRIENDSHIP ELECTRONIC (DONGGUAN) CO., LTD - FSP Group Inc. - SPI Electronics Co., Ltd. - Quanzhou Heng Tai Sheng Intelligent Technology Co., Ltd. - Dong Guan Top Nation Electronic Limited - Haining Lianfeng Dongjin Electronics Co., Ltd. - SHENZHEN PEISHENG SCIENCE TECHNOLOGY CO LTD - HUAIHUA YAXIN ELECTRNICS CO LTD					

G.5.3.2	TABLE: transformers (8LM00104)	P
Concentric windings on Phenolic material base, core is considered as primary parts, transformer construction as below. - All windings are triple insulation wire. Primary winding/pins: 3 – 4, 2 – 5; Secondary winding/pins: 1 – 6 Base Material (manufacturer, type, ratings, thickness): - Mfr. Chang Chun Plastics Co., Ltd., phenolic, type T375J, V-0, 150°C, min. 0.45 mm thickness. <u>Detailed illustration of Transformer construction:</u>		

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位置	內容
A.CORE SPEC[鐵芯規格] T10*5*3+C	
OD [外徑A]	10.8 MAX
ID [內徑B]	4.27 MIN
Ht [厚度C]	3.73 MAX
AL值	2800 ± 25%(A07)
B.WINDING SPEC[繞線規格]	
TYPE [線種]	TRW(B)
DIAMETER [線徑D]	0.3 ϕ*1[BLUE]
TURN [圈數N1]	8.5 T(3~4)
DIAMETER [線徑E]	0.3ϕ*1[YELLOW]
TURN [圈數N2]	8.5 T(2 - 5)
DIAMETER [線徑F]	0.3ϕ*1[BLACK]
TURN [圈數N3]	8.5 T(1-6)

C.OUTLINE DIMENSION [外觀尺寸]	
G	12.5 MAX
H	20.5 MAX
I	7 MAX
J	4.0 ± 0.3
K	2.1 MIN

D.BASE DIMENSION[基座尺寸]	
O	T375J
	SW-U181[SWARM] 19.4*5.4*6 [RD/3.4,PD/13.6/3.8,HD6.0]
基座圖面請參照最後一頁	
E.TAPE DIMENSION[膠帶尺寸]	
P	1350F-1
	23mm*2.1T

N1=0.3ϕ(TRWB-BLUE)*8.5T
N2=0.3ϕ(TRWB-YELLOW)*8.5T
N3=0.3ϕ(TRWB-BLACK)*8.5T
[三線並繞]總圈數8.5T[5+3.5T]

剝皮的部分
不可露出此線

PIN 1

PIN 3

EPOXY

P

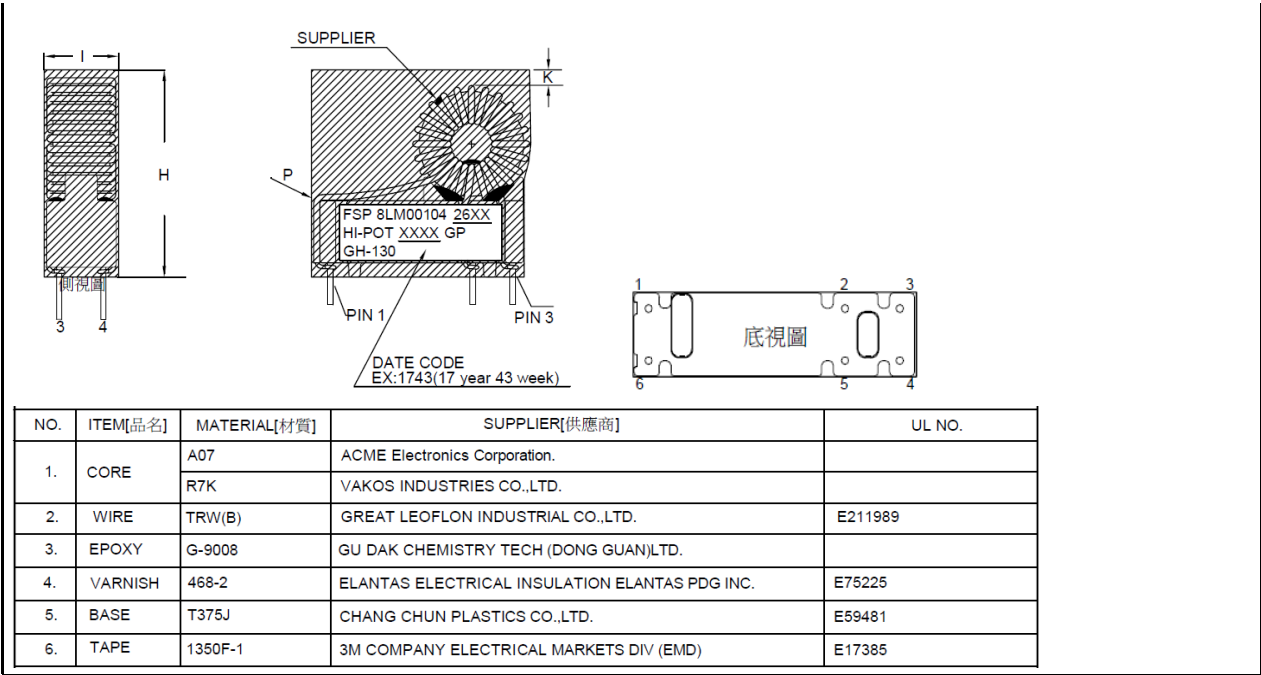
3

4

J

註:1.所有脚距依基座脚距&誤差值，PIN脚需盡量筆直。
2.貼外圍膠帶(P)23mm*2.1T，對齊底部凸點，頂部膠帶需超出(K)2.1mm
3.初級對次級需加打耐壓 4200VAC 0.5mA 3Sec.
4.初級對鐵芯需加打耐壓 1600VAC 0.5mA 3Sec.
5.次級對鐵芯需加打耐壓 2600VAC 0.5mA 3Sec.
4.產品需加貼料號標籤。
5.各組線顏色可不依規格繞製，但需依各組對應的腳位，
裝配不可接錯腳。
6.各出入線不可相互交叉(如下圖為NG範例)

ATTACHMENT





IEC62368_1E - 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 IEC 62368-1:2020+A11:2020	
Attachment Form No.....	EU_GD_IEC62368_1E	
Attachment Originator	UL(Demko)	
Master Attachment	2021-02-04	
Copyright © 2021 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.		
	CENELEC COMMON MODIFICATIONS (EN)	P
	Clause numbers in the cells that are shaded light grey are clause references in EN IEC 62368-1:2020+A11:2020. All other clause numbers in that column, except for those in the paragraph below, refers to IEC 62368-1:2018. Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2018 are prefixed “Z”.	P
	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
1	Modification to Clause 3 .	N/A
3.3.19	Sound exposure Replace 3.3.19 of IEC 62368-1 with the following definitions:	N/A
3.3.19.1	momentary exposure level, MEL metric for estimating 1 s sound exposure level from the HD 483-1 S2 test signal applied to both channels, based on EN 50332-1:2013, 4.2. Note 1 to entry: MEL is measured as A-weighted levels in dB. Note 2 to entry: See B.3 of EN 50332-3:2017 for additional information.	N/A



IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
3.3.19.3	sound exposure, E A-weighted sound pressure (p) squared and integrated over a stated period of time, T Note 1 to entry: The SI unit is Pa ² s. $E = \int_0^T p(t)^2 dt$		N/A
3.3.19.4	sound exposure level, SEL logarithmic measure of sound exposure relative to a reference value, E_0 , typically the 1 kHz threshold of hearing in humans. Note 1 to entry: SEL is measured as A-weighted levels in dB. $SEL = 10 \lg \left(\frac{E}{E_0} \right) \text{ dB}$ Note 2 to entry: See B.4 of EN 50332-3:2017 for additional information.		N/A
3.3.19.5	digital signal level relative to full scale, dBFS levels reported in dBFS are always r.m.s. Full scale level, 0 dBFS, is the level of a dc-free 997-Hz sine wave whose undithered positive peak value is positive digital full scale, leaving the code corresponding to negative digital full scale unused Note 1 to entry: It is invalid to use dBFS for non-r.m.s. levels. Because the definition of full scale is based on a sine wave, the level of signals with a crest factor lower than that of a sine wave may exceed 0 dBFS. In particular, square wave signals may reach +3,01 dBFS.		N/A
2	Modification to Clause 10		N/A
10.6	Safe guards against acoustic energy sources Replace 10.6 of IEC 62368-1 with the following:		N/A
10.6.1.1	Introduction		N/A

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IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	Safeguard requirements for protection against long-term exposure to excessive sound pressure levels from personal music players closely coupled to the ear are specified below. Requirements for earphones and headphones intended for use with personal music players are also covered. A personal music player is a portable equipment intended for use by an ordinary person, that: – is designed to allow the user to listen to audio or audiovisual content / material; and – uses a listening device, such as headphones or earphones that can be worn in or on or around the ears; and – has a player that can be body worn (of a size suitable to be carried in a clothing pocket) and is intended for the user to walk around with while in continuous use (for example, on a street, in a subway, at an airport, etc.). EXAMPLES Portable CD players, MP3 audio players, mobile phones with MP3 type features, PDAs or similar equipment. Personal music players shall comply with the requirements of either 10.6.2 or 10.6.3. NOTE 1 Protection against acoustic energy sources from telecom applications is referenced to ITU-T P.360. NOTE 2 It is the intention of the Committee to allow the alternative methods for now, but to only use the dose measurement method as given in 10.6.5 in future. Therefore, manufacturers are encouraged to implement 10.6.5 as soon as possible. Listening devices sold separately shall comply with the requirements of 10.6.6. These requirements are valid for music or video mode only. The requirements do not apply to: – professional equipment; NOTE 3 Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be		

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IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	professional equipment – hearing aid equipment and other devices for assistive listening; – the following type of analogue personal music players: • long distance radio receiver (for example, a multiband radio receiver or world band radio receiver, an AM radio receiver), and • cassette player/recorder; NOTE 4 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies. – a player while connected to an external amplifier that does not allow the user to walk around while in use. For equipment that is clearly designed or intended primarily for use by children, the limits of the relevant toy standards may apply. The relevant requirements are given in EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.		
10.6.1.2	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
10.6.2	Classification of devices without the capacity to estimate sound dose		N/A

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IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
10.6.2.1	General This standard is transitioning from short-term based (30 s) requirements to long-term based (40 hour) requirements. These clauses remain in effect only for devices that do not comply with sound dose estimation as stipulated in EN 50332-3. For classifying the acoustic output $L_{Aeq, T}$, measurements are based on the A-weighted equivalent sound pressure level over a 30 s period. For music where the average sound pressure (long term $L_{Aeq, T}$) measured over the duration of the song is lower than the average produced by the programme simulation noise, measurements may be done over the duration of the complete song. In this case, T becomes the duration of the song. NOTE Classical music, acoustic music and broadcast typically has an average sound pressure (long term $L_{Aeq, T}$) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the content and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song does not exceed the required limit. For example, if the player is set with the programme simulation noise to 85 dB, but the average music level of the song is only 65 dB, there is no need to give a warning or ask an acknowledgement as long as the average sound level of the song is not above the basic limit of 85 dB.		N/A



IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
10.6.2.2	RS1 limits (to be superseded, see 10.6.3.2) RS1 is a class 1 acoustic energy source that does not exceed the following: – for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the $L_{Aeq,T}$ acoustic output shall be ≤ 85 dB when playing the fixed “programme simulation noise” described in EN 50332-1. – for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 27 mV (analogue interface) or -25 dBFS (digital interface) when playing the fixed “programme simulation noise” described in EN 50332-1. – The RS1 limits will be updated for all devices as per 10.6.3.2.		N/A
10.6.2.3	RS2 limits (to be superseded, see 10.6.3.3) RS2 is a class 2 acoustic energy source that does not exceed the following: – for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or when the combination of player and listening device is known by other means such as setting or automatic 130 detection, the $L_{Aeq,T}$ acoustic output shall be ≤ 100 dB(A) when playing the fixed “programme simulation noise” as described in EN 50332-1. – for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 150 mV (analogue interface) or -10 dBFS (digital interface) when playing the fixed “programme simulation noise” as described in EN 50332-1.		N/A



IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
10.6.2.4	RS3 limits RS3 is a class 3 acoustic energy source that exceeds RS2 limits.		N/A
10.6.3	Classification of devices (new)		N/A
10.6.3.1	General Previous limits (10.6.2) created abundant false negative and false positive PMP sound level warnings. New limits, compliant with The Commission Decision of 23 June 2009, are given below.		N/A
10.6.3.2	RS1 limits (new) RS1 is a class 1 acoustic energy source that does not exceed the following: – for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the $L_{Aeq,T}$ acoustic output shall be ≤ 80 dB when playing the fixed “programme simulation noise” described in EN 50332-1. – for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 15 mV (analogue interface) or -30 dBFS (digital interface) when playing the fixed “programme simulation noise” described in EN 50332-1.		N/A



IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
10.6.3.3	RS2 limits (new) RS2 is a class 2 acoustic energy source that does not exceed the following: – for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the weekly sound exposure level, as described in EN 50332-3, shall be ≤ 80 dB when playing the fixed "programme simulation noise" described in EN 50332-1. – for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output level, integrated over one week, as described in EN50332-3, shall be ≤ 15 mV (analogue interface) or -30 dBFS (digital interface) when playing the fixed "programme simulation noise" described in EN 50332-1.		N/A
10.6.4	Requirements for maximum sound exposure		N/A
10.6.4.1	Measurement methods All volume controls shall be turned to maximum during tests. Measurements shall be made in accordance with EN 50332-1 or EN 50332-2 as applicable.		N/A
10.6.4.2	Protection of persons Except as given below, protection requirements for parts accessible to ordinary persons, instructed persons and skilled persons are given in 4.3. NOTE 1 Volume control is not considered a safeguard . Between RS2 and an ordinary person , the basic safeguard may be replaced by an instructional safeguard in accordance with Clause F.5, except that the instructional safeguard shall be placed on the equipment, or on the packaging, or in the instruction manual.		N/A

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IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	Alternatively, the instructional safeguard may be given through the equipment display during use. The elements of the instructional safeguard shall be as follows: – element 1a: the symbol , IEC 60417-6044 (2011-01) – element 2: “High sound pressure” or equivalent wording – element 3: “Hearing damage risk” or equivalent wording – element 4: “Do not listen at high volume levels for long periods.” or equivalent wording An equipment safeguard shall prevent exposure of an ordinary person to an RS2 source without intentional physical action from the ordinary person and shall automatically return to an output level not exceeding what is specified for an RS1 source when the power is switched off. The equipment shall provide a means to actively inform the user of the increased sound level when the equipment is operated with an output exceeding RS1. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an output exceeding RS1. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time. NOTE 2 Examples of means include visual or audible signals. Action from the user is always needed. NOTE 3 The 20 h listening time is the accumulative listening time, independent of how often and how long the personal music player has been switched off. A skilled person shall not be unintentionally exposed to RS3.		
10.6.5	Requirements for dose-based systems		N/A



IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
10.6.5.1	General requirements Personal music players shall give the warnings as provided below when tested according to EN 50332-3, using the limits from this clause. The manufacturer may offer optional settings to allow the users to modify when and how they wish to receive the notifications and warnings to promote a better user experience without defeating the safeguards. This allows the users to be informed in a method that best meets their physical capabilities and device usage needs. If such optional settings are offered, an administrator (for example, parental restrictions, business/educational administrators, etc.) shall be able to lock any optional settings into a specific configuration. The personal music player shall be supplied with easy to understand explanation to the user of the dose management system, the risks involved, and how to use the system safely. The user shall be made aware that other sources may significantly contribute to their sound exposure, for example work, transportation, concerts, clubs, cinema, car races, etc.		N/A
10.6.5.2	Dose-based warning and requirements When a dose of 100 % <i>CSD</i> is reached, and at least at every 100 % further increase of <i>CSD</i>, the device shall warn the user and require an acknowledgement. In case the user does not acknowledge, the output level shall automatically decrease to compliance with class RS1. The warning shall at least clearly indicate that listening above 100 % <i>CSD</i> leads to the risk of hearing damage or loss.		N/A



IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
10.6.5.3	Exposure-based requirements With only dose-based requirements, cause and effect could be far separated in time, defying the purpose of educating users about safe listening practice. In addition to dose-based requirements, a PMP shall therefore also put a limit to the short-term sound level a user can listen at. The exposure-based limiter (EL) shall automatically reduce the sound level not to exceed 100 dB(A) or 150 mV integrated over the past 180 s, based on methodology defined in EN 50332-3. The EL settling time (time from starting level reduction to reaching target output) shall be 10 s or faster. Test of EL functionality is conducted according to EN 50332-3, using the limits from this clause. For equipment provided as a package (player with its listening device), the level integrated over 180 s shall be 100 dB or lower. For equipment provided with a standardized connector, the unweighted level integrated over 180 s shall be no more than 150 mV for an analogue interface and no more than -10 dBFS for a digital interface. NOTE In case the source is known not to be music (or test signal), the EL may be disabled.		N/A
10.6.6	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.6.1	Corded listening devices with analogue input With 94 dB L_{Aeq} acoustic pressure output of the listening device, and with the volume and sound settings in the listening device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output, the input voltage of the listening device when playing the fixed "programme simulation noise" as described in EN 50332-1 shall be ≥ 75 mV. NOTE The values of 94 dB and 75 mV correspond with 85 dB and 27 mV or 100 dB and 150 mV.		N/A

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IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
10.6.6.2	Corded listening devices with digital input With any playing device playing the fixed "programme simulation noise" described in EN 50332-1, and with the volume and sound settings in the listening device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output, the $L_{Aeq,\tau}$ acoustic output of the listening device shall be ≤ 100 dB with an input signal of -10 dBFS.		N/A
10.6.6.3	Cordless listening devices In cordless mode, – with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and – respecting the cordless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and – with volume and sound settings in the receiving device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output for the above mentioned programme simulation noise, the $L_{Aeq,\tau}$ acoustic output of the listening device shall be ≤ 100 dB with an input signal of -10 dBFS.		N/A
10.6.6.4	Measurement method <i>Measurements shall be made in accordance with EN 50332-2 as applicable.</i>		N/A
3	Modification to the whole document		P

IEC62368_1E - ATTACHMENT							
Clause	Requirement + Test			Result - Remark		Verdict	
	Delete all the “country” notes in the reference document according to the following list:					P	
	0.2.1	Note 1 and 2	1	Note 4 and 5	3.3.8.1		Note 2
	3.3.8.3	Note 1	4.1.15	Note	4.7.3		Note 1 and 2
	5.2.2.2	Note	5.4.2.3.2.2 Table 12	Note c	5.4.2.3.2.4		Note 1 and 3
	5.4.2.3.2.4 Table 13	Note 2	5.4.2.5	Note 2	5.4.5.1		Note
	5.4.10.2.1	Note	5.4.10.2.2	Note	5.4.10.2.3		Note
	5.5.2.1	Note	5.5.6	Note	5.6.4.2.1		Note 2 and 3 and 4
	5.6.8	Note 2	5.7.6	Note	5.7.7.1		Note 1 and Note 2
	8.5.4.2.3	Note	10.2.1 Table 39	Note 3 and 4 and 5	10.5.3		Note 2
	10.6.1	Note 3	F.3.3.6	Note 3	Y.4.1		Note
	Y.4.5	Note					
4	Modification to Clause 1					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.			Added.		P	
5	Modification to 4.Z1						



IEC62368_1E - ATTACHMENT			
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.	Complied.	P
6	Modification to 5.4.2.3.2.4		N/A
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.		N/A
7	Modification to 10.2.1		N/A
10.2.1	Add the following to ^{c)} and ^{d)} in table 39: For additional requirements, see 10.5.1.		N/A
8	Modification to 10.5.1		N/A

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IEC62368_1E - ATTACHMENT			
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 pre-sets 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
9	Modification to G.7.1		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
10	Modification to Bibliography		N/A



IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	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
11	ADDITION OF ANNEXES		P
ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		P



IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
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: "Laitte on liitettävä suojakoskettimilla varustettuun pistorasiaan" In Norway: "Apparatet må tilkoples jordet stikkontakt" In Sweden: "Apparaten skall anslutas till jordat uttag"		N/A
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		N/A
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.		N/A
5.4.11.1 and	Finland and Sweden		N/A

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IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex G	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 1,5 kV. 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:		

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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.		
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.		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. <i>Justification:</i> In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
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.		N/A
5.6.4.2.1	France After the indent for pluggable equipment type A , the following is added: – in certain cases, the protective current rating of the circuit supplied from the mains is taken as 20 A instead of 16 A.		N/A
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
5.6.8	Norway To the end of the subclause the following is added: Equipment connected with an earthed mains plug is classified as class I equipment . See the Norway marking requirement in 4.1.15. The symbol IEC 60417-6092, as specified in F.3.6.2, is accepted.		N/A
5.7.6	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



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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 .		N/A
5.7.7.1	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		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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 jordtilkoplede utstyr – og er tilkoplede 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.”.		
8.5.4.2.3	United Kingdom Add the following after the 2nd dash bullet in 3rd paragraph: An emergency stop system complying with the requirements of IEC 60204-1 and ISO 13850 is required where there is a risk of personal injury.		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		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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 polyphase 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 <i>Justification:</i> Heavy Current Regulations, Section 6c		N/A



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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.		N/A
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



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Clause	Requirement + Test	Result - Remark	Verdict
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. <i>Justification:</i> 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		N/A
ZD	IEC and CENELEC CODE DESIGNATIONS FOR FLEXIBLE CORDS (EN)		N/A

IEC62368_1E - ATTACHMENT								
Clause	Requirement + Test	Result - Remark	Verdict					
	<table><tr><th rowspan="2">Type of flexible cord</th><th colspan="2">Code designations</th></tr><tr><th>IEC</th><th>CENELEC</th></tr></table>		Type of flexible cord	Code designations		IEC	CENELEC	N/A
	Type of flexible cord	Code designations						
		IEC	CENELEC					
	PVC insulated cords							
	Flat twin tinsel cord	60227 IEC 41	H03VH-Y					
	Light polyvinyl chloride sheathed flexible cord	60227 IEC 52	H03VV-F H03VVH2-F					
	Ordinary polyvinyl chloride sheathed flexible cord	60227 IEC 53	H05VV-F H05VVH2-F					
	Rubber insulated cords							
	Braided cord	60245 IEC 51	H03RT-F					
	Ordinary tough rubber sheathed flexible cord	60245 IEC 53	H05RR-F					
	Ordinary polychloroprene sheathed flexible cord	60245 IEC 57	H05RN-F					
	Heavy polychloroprene sheathed flexible cord	60245 IEC 66	H07RN-F					
	Cords having high flexibility							
	Rubber insulated and sheathed cord	60245 IEC 86	H03RR-H					
	Rubber insulated, crosslinked PVC sheathed cord	60245 IEC 87	H03RV4-H					
	Crosslinked PVC insulated and sheathed cord	60245 IEC 88	H03V4V4-H					
	Cords insulated and sheathed with halogen-free thermoplastic compounds							
	Light halogen-free thermoplastic insulated and sheathed flexible cords		H03Z1Z1-F H03Z1Z1H2-F					
	Ordinary halogen-free thermoplastic insulated and sheathed flexible cords		H05Z1Z1-F H05Z1Z1H2-F					

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ATTACHMENT TO TEST REPORT IEC 62368-1 U.S.A. AND CANADA NATIONAL DIFFERENCES (Audio/video, information and communication technology equipment – Part 1: Safety requirements)			
Differences according to : CSA/UL 62368-1:2019			
TRF template used: : IECEE OD-2020-F3, Ed. 1.1			
Attachment Form No. : US_CA_ND_IEC62368_1E			
Attachment Originator : UL(US)			
Master Attachment : Dated 2022-03-04			
Copyright © 2022 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.			
IEC 62368-1 - US and Canadian National Differences Special National Conditions based on Regulations and Other National Differences			
1 (1DV.1) (1.3)	All equipment is to be designed to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part 1, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. Also, for such equipment marked or otherwise identified, installation is allowed per the Standard for the Protection of Information Technology Equipment, ANSI/NFPA 75.	In accordance with the National Electrical Code (NEC) and the Canadian Electrical Code (CEC) part 1 CAN/CSA C22.1, ANSI/NFPA 70, and unless marked or otherwise identified, the Standard for Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75.	P
1 (1DV.2.1)	This standard includes additional requirements for equipment used for entertainment purposes intended for installation in general patient care areas of health care facilities. See Annex DVB.	No such application.	N/A
1 (1DV.2.2)	This standard includes additional requirements for equipment intended for mounting under cabinets. See Annex DVC.	No such application.	N/A
1 (1DV.2.3)	IEC 62368-3 clause 5 for DC power transfer at ES1 or ES2 voltage levels is considered informative. IEC 62368-3 clause 6 for remote power feeding telecommunication (RFT) circuits is considered normative (see ITU K.50). Alternatively, equipment with RFT circuits are given in either UL 2391 or CSA/UL 60950-21. RFT-C circuits are not permitted unless the RFT-C circuit complies with RFT-V limits ($\leq 200V$ per conductor to earth).		N/A

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IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
1 (1DV.3)	For protection against direct lightning strikes, reference is made to NFPA 780 and CAN/CSA-B72 for additional requirements.		N/A
1 (DV.5)	Additional requirements apply to some forms of power distribution equipment, including sub-assemblies.	Considered.	P
4.1 (4.1.17)	For lengths exceeding 3.05 m, external interconnecting cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the NEC.	Not exceeding 3.05 m.	N/A
	For lengths 3.05 m or less, external interconnecting cable assemblies that are not types specified in the NEC generally are required to have special construction features and identification markings.		N/A
4.6 (4.6.2)	Wire-wrap terminals have special construction and performance requirements.		N/A
4.8 (4.8.3, 4.8.4.5, 4.8.5)	Coin / button cell batteries have modified special construction and performance requirements.	No such parts.	N/A
5.4.2.3.2 (5.4.2.3.2.1)	Surge Arrestors and Transient Voltage Surge Suppressors installed external to the equipment are required to comply with the appropriate NEC and CEC requirements.		N/A
5.5.9	Receptacles, rated 125-V, single phase, 15- or 20-A accessible to either ordinary, instructed, or skilled persons are required to be provided with GFCI Protection for Personnel if the equipment containing the receptacles is installed outdoors. The protection devices are required to comply with UL 943, and CAN/CSA C22.2 No.144.		N/A
5.6.3	Protective earthing conductors comply with the minimum conductor sizes in Table G.7, except as required by Table G.7ADV.1 for cord connected equipment, or Annex DVH for permanently connected equipment.		N/A
5.7.8 (5.7.8.1)	Equipment intended to receive telecommunication ringing signals is required to comply with a special touch current measurement tests.		N/A
6.5.1	PS3 wiring outside a fire enclosure is required to comply with single fault testing in B.4, or be current limited per one of the permitted methods.		N/A

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Annex F (F.3.3.9)	Output terminals provided for supply of other equipment, except mains supply, are required to be marked with a maximum rating or reference to equipment permitted to be connected.	The DC output connector is provided. See copy of marking plate.	P
Annex F (F.3.7)	Outdoor Enclosures are required to be classified and marked in accordance with UL 50 or 50E, or CAN/CSA C22.2 No. 94.1 or 94.2.	Not outdoor enclosures.	N/A
Annex G (G.7)	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.	Not permanently connected equipment.	N/A
	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.		N/A
	Flexible power supply cords are required to be compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC.		N/A
	Minimum cord length is required to be 1.5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement. Power supply cords are required to be no longer than 4.5 m in length if used in ITE Rooms.		N/A
	Power supply cords for outdoor equipment are required to be suitable outdoor use type as required by Section 400.4 of the NEC and Rule 4-012 of the CEC, i.e., marked "W."		N/A
Annex H.2	Continuous ringing signals under normal operating conditions up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.	No TNV circuits within the equipment.	N/A
Annex H.4	For circuits with other than ringing signals and with voltages exceeding 42.4 V _{peak} or 60 V _{d.c.} , the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions.	No TNV circuits within the equipment.	N/A
Annex Q (Q.3)	Equipment with paired conductor and/or coax communications cables/wiring connected to building wiring are required to have special voltage, current, power and marking requirements.		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
Annex DVA (1)	Equipment that is designed such that it may be powered from a separate electrical service, is required to meet applicable requirements for service equipment for control and protection of services and their installation and complies with Article 230 of the National Electrical Code (NEC), NFPA 70 and Section 6 of the Canadian Electrical Code, Part I, CSA C22.1.		N/A
	Equipment intended for use in spaces used for environmental air (plenums) are subjected to special flammability requirements for heat and visible smoke release.		N/A
	For ITE room applications, automated information storage systems with combustible media greater than 0.76 m ³ (27 cu ft) are required to have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.		N/A
	Consumer products designed or intended primarily for children 12 years of age or younger are subject to additional requirements in accordance with U.S. and Canadian Regulations.		N/A
	Baby monitors are required to additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors.		N/A
	Storage batteries and battery management equipment, other than associated with lead-acid batteries, and including battery backup systems that are not an integral part of stationary AV and ICT equipment, such as provided in separate cabinets, are required to be certified (listed) to the appropriate standard(s) for such storage batteries and equipment.		N/A
Annex DVA (5.6)	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.		N/A
Annex DVA (6.3)	The maximum quantity of flammable liquid stored in equipment is required to comply with NFPA 30.	No flammable liquids within the equipment.	N/A

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Annex DVA (6.4.8)	For ITE room applications, enclosures with combustible material measuring greater than 0.9 m ² (10 sq ft) or a single dimension greater than 1.8 m (6 ft) are required to have a flame spread rating of 50 or less. For equipment with the same dimensions for other applications, an external surface that is not a fire enclosure requires a minimum flammability classification of V-1.	No such application.	N/A
Annex DVA (10.3)	Equipment with lasers is required to meet the U.S. Code of Federal Regulations 21 CFR 1040 (and the Canadian Radiation Emitting Devices Act, REDR C1370).	No such parts.	N/A
Annex DVA (10.5)	Equipment that produces ionizing radiation is required to comply with the U.S. Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370).	No such parts.	N/A
Annex DVA (F.3.3.4)	Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings. Additional considerations apply for voltage ratings that exceed the attachment cap rating or that are lower than the "Normal Operating Condition" in Table 2 of CAN/CSA C22.2 No. 235."	Single phase only.	N/A
Annex DVA (F.3.3.6)	Equipment identified for ITE (computer) room installation is required to be marked with the rated current.	Not such application.	N/A
Annex DVA (G.1)	Vertically-mounted disconnect switches and circuit breakers are required to have the "on" position indicated by the handle in the up position, where mounted in an enclosure, vertically mounted disconnect switches and circuit breakers with vertical operating means extending outside the enclosure are required to indicate in a location visible when accessing the external operating means whether the switch or circuit breaker is in the open (off) or closed (on) position.		N/A
Annex DVA (G.3.4)	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable.	No standard supply outlets, receptacles, medium-base or smaller lampholders are provided.	N/A

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	Where a fuse is used to provide Class 2 or Class 3 current limiting, it is not operator-accessible unless it is non-interchangeable.		N/A
Annex DVA (G.4.2)	Equipment with isolated ground (earthing) receptacles is required to comply with NEC 250.146(D) and CEC 10-400 and 10-612.	No such parts.	N/A
Annex DVA (G.4.3)	Interconnection of units by conductors supplied by a limited power source, or a Class 2 circuit defined in the NEC/CEC may have field wiring connections other than specified in DVH.3, such as wire-wrap and crimp-on types, if the limited power source and Class 2 circuits are separated from all other circuits by barriers, routing or fixing.	No such parts.	N/A
Annex DVA (G.5.3)	Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection.	No such parts.	N/A
Annex DVA (G.5.4)	Motor control devices are required for cord-connected equipment with a mains-connected motor if the equipment is rated more than 12 A, or if the equipment has a nominal voltage rating greater than 120 V, or if the motor is rated more than 1/3 hp (locked rotor current over 43 A).	No such parts.	N/A
Annex DVA (G.7)	Flexible cords used outdoors are required to have the suffix "W" marked on the flexible cord.	No outdoors application.	N/A
Annex DVA (M)	For ITE room applications, equipment with battery systems capable of supplying 750 VA for five minutes are required to have a battery disconnect means that may be connected to the ITE room remote power-off circuit.	No such application.	N/A
Annex DVA (Q)	If applicable per NEC 725.121(C), some limited power sources supplied from AV/ICT equipment are required to have a label indicating the maximum voltage and rated current output for per conductor for each connection point. Where multiple connection points have the same rating, a single label is permitted to be used.		N/A
	Wiring terminals intended to supply Class 2 outputs in accordance with the NEC or CEC Part 1 are required to be marked with the voltage rating and "Class 2" or equivalent. The marking is located adjacent to the terminals and visible during wiring.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Applicable parts of Chapter 8 of the NEC, and Rules 54 and 60 of the CEC, may be applicable to ITE installed outdoors with connections to communication systems.		N/A
Annex DVB (1)	Additional requirements apply for equipment used for entertainment purposes intended for installation in general patient care areas of health care facilities.	No such application.	N/A
Annex DVC (1)	Additional requirements apply for equipment intended for mounting under kitchen cabinets.	No such application.	N/A
Annex DVE (4.1.1)	Some equipment, components, sub-assemblies and materials associated with the risk of fire, electric shock, or personal injury are required to have component or material ratings in accordance with the applicable national (U.S. and Canadian) component or material requirements. These equipment and components include: appliance couplers, attachment plugs, battery backup systems, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), direct plug-in equipment, electrochemical capacitor modules (energy storage modules with ultracapacitors), enclosures (outdoor), flexible cords and cables, fuses (branch circuit), ground-fault current interrupters, interconnecting cables, modular data centres, power supply cords, some power distribution equipment, printed wiring, protectors for communications circuits, receptacles, surge protective devices, vehicle battery adapters, wire connectors, and wire and cables.	UL approved components used. Refer to table 4.1.2 of IEC 62368-1 test report for details.	P
Annex DVH	Equipment for permanent connection to the mains supply is subjected to additional requirements.	The equipment is not permanently connected equipment.	N/A
Annex DVH (DVH.1)	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains are required to be in accordance with the NEC/CEC.	The equipment is pluggable equipment type A.	N/A
Annex DVH (DVH.2.1)	For safe and reliable connection to a mains, permanently connected equipment is to be provided.		N/A
Annex DVH (DVH.2.2)	Additional considerations for D.C. mains.		N/A



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Annex DVH (DVH.3.2.1)	Terminals for permanent wiring, including protective earthing terminals, are required to be suitable for U.S./Canadian wire gauge sizes, rated 125 percent of the equipment rating, and be specially marked when specified.		N/A
Annex DVH (DVH.3.2.3)	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm ²).		N/A
Annex DVH (DVH.3.2.4)	All associated mains supply terminals are located in proximity to each other and to the main protective earthing terminal, if any.		N/A
Annex DVH (DVH.3.2.5)	Terminals are located, guarded or insulated so that, should a strand of a conductor escape when the conductor is fitted, there is no likelihood of accidental contact between such a strand and accessible conductive parts or unearthed conductive parts separated from accessible conductive parts by supplementary insulation only.		N/A
Annex DVH (DVH.3.3)	When field connection to an external circuit is via wires (example, free conductors), the wires are not smaller than 18 AWG (0.82 mm ²) and the free length of the wire inside an outlet box or wiring compartment is 150 mm or more.		N/A
Annex DVH (DVH.3.4)	Size of protective earthing conductors and terminals		N/A
Annex DVH (DVH.4)	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.	The equipment is not permanently connected equipment.	N/A
Annex DVH (DVH.4.1)	Wire bending space		N/A
Annex DVH (DVH.4.2)	Volume of wiring compartment		N/A
Annex DVH (DVH.4.3)	Separation of circuits		N/A
Annex DVH (DVH.5)	Equipment markings and instructional safeguards		N/A
Annex DVH (DVH.5.1)	Identification of protective earthing terminal		N/A
Annex DVH (DVH.5.2)	Identification of terminal for earthed conductor (neutral)		N/A
Annex DVH (DVH.5.3)	Identification of terminals for aluminium conductors		N/A
Annex DVH (DVH.5.4)	Wire temperature ratings		N/A

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IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVH (DVH 5.5)	Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, is required to comply with special earthing, wiring, marking and installation instruction requirements.	The equipment not connected to a centralized d.c. power system.	N/A
Annex DVI (6.7)	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses.	No TNV circuits within the equipment.	N/A
Annex DVJ (10.6.1)	Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure requirements.	No TNV circuits within the equipment.	N/A



IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 62368-1 SINGAPORE NATIONAL DIFFERENCES Audio/video, information and communication technology equipment - Part 1: Safety requirements			
Differences according to : Special National Conditions			
TRF template used : IECEE OD-2020-F3, Ed. 1.1			
Attachment Form No. : SG_ND_IEC62368_1E			
Attachment Originator : Intertek Testing Services (Singapore) Pte Ltd			
Master Attachment : 2022-07-08			
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	National Differences		P
	Not Applicable		N/A
			--
Chapter 4.2	Special national conditions (if any) Controlled goods under the Consumer Protection (Safety Requirements) Registration Scheme (CPS) are required to be tested to additional requirements stipulated by the Consumer Product Safety Office (CPSO) of Enterprise Singapore in Chapter 7 of the CPS information booklet. The CPS information booklet is updated on an ongoing basis. At the point of testing, refer to the latest copy of the CPS information booklet for the minimum edition of standard to apply for testing of products under the CPS scheme and any new requirements. Link to CPS information booklet: https://www.consumerproductsafety.gov.sg/files/cps-info-booklet.pdf		P
<u>Clause</u> 1	All appliances must be tested to 230 VAC, 50 Hz.	Input rate: 100-240Vac, 50-60Hz is include 230Vac, 50Hz.	P
4	Appliance fitted with voltage selector shall be tested as follows: Connect appliance to 230 VAC mains with voltage selector switch to settings not suitable for operation at 230 VAC.	No voltage selector.	N/A

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IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5	All appliances (with tropical test requirements in applicable Standards) shall comply with the tropical condition test as stated in the relevant IEC Standards.	Complied with the tropical condition test.	P
7	All Class I appliances must be fitted with 3-pin mains plugs that are registered with the CPSO.		N/A
8	a) All Class II appliances must be fitted with 2-pin mains plug complying with EN 50075. b) Class II appliances that are fitted with 3-pin mains plugs must use plugs that are registered with the CPSO.	Class I appliance.	N/A
9	Detachable power cord set must be listed in the test report critical component list.	No power cord provided.	N/A
14	AC Adaptor incorporated with 13A socket-outlet to be tested to additional tests clauses 13, 17 and 18 of SS 145 Part 3: 2020.	No socket-outlet.	N/A
15	Supplier who is supplying AC adaptors with detachable interchangeable plug pins must include with its products, written instructions to inform customer on the type of detachable interchangeable plug pins that are approved and suitable to use in Singapore. These instructions are to be submitted to the Conformity Assessment Body for verification when applying for Certificate of Conformity.	No detachable interchangeable plug pins.	N/A
16	For AC Adaptors supplied together with Personal Mobility Devices: 1. Registered Supplier to declare the model of the AC adaptor that is to be used with/ bundled together with the PMDs; 2. Registered Supplier to provide valid IEC 60950-1 or IEC 62368-1 test reports for certification and registration of the declared AC adaptor under the CPS scheme; and 3. Registered Supplier to provide the UL 2272 test report as supporting document, showing that the listed AC adaptor in the UL 2272 test report is the model declared to be used with/ bundled together with the PMDs.	No Personal Mobility Devices.	N/A
18	CD/ DVD ROMs (used in personal computers) to have test certificate showing that CD/DVD ROM drive has complied with IEC 60825- 1.	No CD/ DVD ROMs .	N/A

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IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
19	Modem card incorporated in the personal computer must be tested at set level (sub-clauses 5.1 & 6 of IEC 60950) or at component level.	No Modem card.	N/A
20	Powerline Ethernet Adaptor incorporated with 13A socket-outlet, to be tested to additional test clauses 13, 17 & 18 of SS 145 Part 3: 2020.	No socket-outlet.	N/A
	Other additional requirements which may be included in Chapter 7 of the information booklet in ongoing basis at the time of testing.		N/A

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IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 62368-1:2018 SAUDI ARABIA NATIONAL DIFFERENCES (Audio/video, information and communication technology equipment Part 1: Safety requirements)			
Differences according to..... : National standard SASO-IEC 62368-1:2020			
TRF template used:..... : IECEE OD-2020-F3, Ed. 1.1			
Attachment Form No. : SA_ND_IEC62368_1E			
Attachment Originator..... : SASO			
Master Attachment..... : 2022-12-22			
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	National Differences		P
	Plugs used for pluggable equipment comply with standard SASO-2203.		N/A
--	Frequency (Hz)	Input rate: 100-240Vac, 50-60Hz is include 60Hz.	P
	60 Hz	See above.	P
--	Rated voltage (V)	Input rate: 100-240Vac, 50-60Hz is include 230Vac.	P
	Single phase 230 V Three phase 400 V	See above.	P

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Other National Requirements

IEC 62368-1 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ATTACHMENT TO TEST REPORT			
IEC 62368-1 (AUSTRALIA / NEW ZEALAND) NATIONAL DIFFERENCES (Audio/video, information and communication technology equipment)			
Differences according to..... : AS/NZS 62368.1:2022			
TRF template used:..... : IEC EE OD-2020-F3, Ed. 1.1			
Attachment Form No. : AU_NZ_ND_IEC62368_1E			
Attachment Originator..... : JAS-ANZ			
Master Attachment..... : 2022-07-01			
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	National Differences		P
Appendix ZZ	Variations to IEC 62368-1:2018 (ED. 3.0) for Australia and New Zealand		P
ZZ1 Scope	This Appendix lists the normative variations to IEC 62368-1:2018 (ED. 3.0)		P
ZZ2 Variations	The following modifications are required for Australian/New Zealand conditions:		P
2	After the first paragraph, add the following: The Australian or Australian/New Zealand Standards listed below are modified adoptions of, or not equivalent to, the IEC normative references and are required for the application of this Standard. All references in the source text to those IEC normative references shall be replaced by references to the corresponding Australian or Australian/New Zealand Standards. Australian or Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably -AS/NZS 3112, Approval and test specification—Plugs and socket-outlets -AS/NZS 3123, Approval and test specification—Plugs, socket-outlets and couplers for general industrial application -AS/NZS 3191, Electric flexible cords -AS/NZS 60884.1.Plugs and socket-outlets for household and similar purposes, Part 1: General requirements -IEC 60086-2 Primary batteries — Part 2: Physical and electrical specifications -AS/NZS 60065, Audio, video and similar	Added.	P

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IEC 62368-1 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<i>electronic apparatus—Safety requirements (IEC 60065:2015 (ED.8.0) MOD)</i> -AS/NZS 60320.1, <i>Appliance couplers for household and similar general purposes, Part 1: General requirements (IEC 60320-1, Ed.2.1 (2007) MOD)</i> -AS/NZS 60320.2.2, <i>Appliance couplers for household and similar general purposes Part 2.2: Interconnection couplers for household and similar equipment (IEC 60320-2-2, Ed.2.0 (1998) MOD)</i> -AS/NZS 60695.2.11, <i>Fire hazard testing, Part 2.11: Glowing/hot wire based test methods—Glow-wire flammability test method for end-products</i> -AS/NZS 60695.11.5, <i>Fire hazard testing, Part 11.5: Test flames—Needle-flame test method—Apparatus, confirmatory test arrangement and guidance</i> -AS/NZS 60695.11.10, <i>Fire hazard testing, Part 11.10: Test flames—50 W horizontal and vertical flame test methods</i> -AS/NZS 60884.1, <i>Plugs and socket-outlets for household and similar purposes, Part 1: General requirements</i> -AS/NZS 60950.1, <i>Information technology equipment—Safety, Part 1: General requirements (IEC 60950-1, Ed.2.2 (2013), MOD)</i> IEC 61032:1997, <i>Protection of persons and equipment by enclosures—Probes for verification</i> -AS/NZS 61558.1, <i>Safety of Power Transformers, Power Supplies, Reactors and Similar Products, Part 1: General requirements and tests (IEC 61558-1 Ed 3, MOD)</i> -AS/NZS 61558.2.16, <i>Safety of transformers, reactors, power supply units and similar products for voltages up to 1 100 V, Part 2.16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units.</i>		

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IEC 62368-1 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
4.7.2	Requirements <i>Delete</i> the text of the second paragraph and <i>replace</i> with the following: Equipment with a plug portion, suitable for insertion into a 10 A 3-pin flat-pin socket-outlet conforming to AS/NZS 3112, shall conform to the requirements in AS/NZS 3112 for equipment with integral pins for insertion into socket-outlets. Conformity is checked by inspection and, if necessary, by the tests in AS/NZS 3112. NOTE: Equipment with plug portions for use in countries other than Australia and New Zealand will need to conform to other countries' requirements Note Additional AS/NZS 3112 Appendix J, TRF is appended to end of this TRF.		N/A
4.7.3	Compliance Criteria <i>Delete</i> this clause		N/A
4.8.1	General After second list, <i>add</i> the following: NOTE: Refer to the Consumer Goods (Products Containing Button/Coin Batteries) Safety Standard 2020 and Consumer Goods (Products Containing Button/Coin Batteries) Information Standard 2020 for more information on button cell batteries in Australia..		N/A
5.4.10.2.1	General <i>Delete</i> the first paragraph and <i>replace</i> with the following: In Australia, the separation is checked by the test given in both Clause 5.4.10.2.2 and Clause 5.4.10.2.3. In New Zealand, the separation is checked by the test given in either 5.4.10.2.2 or 5.4.10.2.3..		N/A
Table 28	<i>Delete</i> Table 28 and <i>replace</i> with the following:		N/A

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IEC 62368-1 - ATTACHMENT				
Clause	Requirement + Test		Result - Remark	Verdict
Parts	Impulse test		Steady state test	
	New Zealand	Australia	New Zealand	Australia
Parts indicated in Clause 5.4.10.1 a) ^a	2.5 kV	7.0 kV for hand-held telephones and headsets, 2.5 kV for other equipment.	1.5 kV	3 kV
Parts indicated in Clause 5.4.10.1 b) and c) ^b	1.5 kV ^c		1.0 kV	1.5 kV
^a Surge suppressors shall not be removed.				
^b Surge suppressors may be removed, provided that such devices pass the impulse test of Clause 5.4.10.2.2 when tested as components outside the equipment.				
^c During this test, it is allowed for a surge suppressor to operate and for a sparkover to occur in a GDT.				
5.4.10.2.2	Delete "NOTE" and replace with "NOTE 1". After NOTE 1, add the following: NOTE 2: For Australia, the 7 kV impulse simulates lightning surges on typical rural and semi-rural network lines. NOTE 3: For Australia, the value of 2.5 kV for Clause 5.4.10.1 a) was chosen to ensure the adequacy of the insulation concerned and does not necessarily simulate likely overvoltages.			N/A
5.4.10.2.3	Delete "NOTE" and replace with "NOTE 1". After NOTE 1, add the following: NOTE 2: For Australia, where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used. NOTE 3: The 3 kV and 1.5 kV values for Australia have been determined considering the low frequency induced voltages from the power supply distribution system.			N/A
6	Electrically-caused fire			N/A
6.6	After Clause 6.6, add the new Clauses 6.201 as follows: 6.201 External power supplies, docking stations and other similar devices (see special national conditions)			N/A
8.6	Stability of equipment			N/A
Table 36	Footnote ^a , after first sentence, add the following: Equipment having displays with moving images shall include "television sets and display devices".			N/A

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IEC 62368-1 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
8.6.1	After Clause 8.6.1 <i>add</i> the following new clauses: 8.6.201 Restraining Device fixing point (see special national conditions) 8.6.202 Restraining device (see special national conditions)		N/A
Annex F Paragraph F.3.3.4	Rated Voltage <i>Delete</i> "NOTE" and <i>replace</i> with NOTE 1" After NOTE 1, <i>add</i> the following Equipment that is intended for connection to the supply mains in Australia and New Zealand shall be marked with: (a) A rated voltage of: • 230 V for single phase equipment • 400 V for poly phase equipment Or (b) A rated voltage range that includes: • 230 V for single phase equipment • 400 V for poly phase equipment NOTE 2: equipment that is not rated as above is not suitable for direct connection to the supply mains in Australia or new Zealand.	Input rate: 100-240Vac, 50-60Hz is include 230Vac, 50Hz.	P
Annex F.3.3.5	After the list, <i>add</i> the following Equipment that is intended for connection to supply mains in Australia or New Zealand shall be marked with a rated frequency of 50 Hz or a rated frequency range or nominal value which includes 50Hz	Input rate: 100-240Vac, 50-60Hz is include 230Vac, 50Hz.	P
Annex F.3.8	After "The DC output of an external power supply", insert "or docking stations and other similar external devices"		N/A
Annex G Paragraph G.4.2	Mains connectors 1 After "IEC 60320", insert "or AS/NZS 60320 series". 2 After "IEC 60906-1", insert "or AS/NZS 3123" 3 <i>After</i> first paragraph <i>add</i> the following: 10 A or 15 A 250 V flat pin plugs for the connection of equipment to mains-powered socket-outlets for household or similar general use shall comply with AS/NZS 3112 or AS/NZS 60884.1.	The appliance inlet complied with IEC 60320-1. No power cord provided.	P

Other National Requirements

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IEC 62368-1 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Paragraph G.5.3.1	Transformers, General 1 Third dashed point <i>replace</i> 'IEC 61558-1 and the relevant parts of IEC 61558-2' with 'AS/NZS 61558-1 and the relevant parts of AS/NZS 61558.2' 2 Fourth dashed point <i>replace</i> 'IEC 61558-2-16' with 'AS/NZS 61558.2.16'.		N/A
Annex G.7.1	Mains supply cords, General Fourth dashed paragraph, <i>replace</i> 'IEC 60320-1' with 'AS/NZS 60320.1'		N/A
Table G.7	Sizes of conductors 1 First column, second row, <i>delete</i> "6" and <i>replace</i> with "7.5" 2 Second column, second row, <i>delete</i> '0,75' and <i>replace</i> with '0.75 ^b 3 <i>Delete</i> NOTE 1. 4 <i>Replace</i> 'NOTE 2' with 'NOTE:'. 5 <i>Delete</i> 'Footnote b' and <i>replace</i> with the following: ^b This nominal cross-sectional area is only allowed for Class II appliances if the length of the power supply cord, measured between the point where the cord, or cord guard, enters the appliance, and the entry to the plug does not exceed 2 m (0.5 mm ² three-core supply flexible cords are not permitted; see AS/NZS 3191). 6 Footnote c <i>replace</i> 'IEC 60320-1' with 'AS/NZS 60320.1' 7 Footnote d <i>replace</i> 'IEC 60320-1' with 'AS/NZS 60320.1'		N/A
Annex M M 2.1	<i>Add</i> "IEC 60086-2" to the list		N/A
Annex M Paragraph M.3.2	Test method Delete "NOTE" and replace with "NOTE 1" After NOTE 1 <i>add</i> the following: NOTE 2: In cases where the voltage source is provided by power from an unassociated power source, consideration should be given to the effects of possible single fault conditions in the unassociated equipment. If the power source is unknown then it should be assumed that the maximum limit of ES1 may be applied to the source input under assumed single fault conditions in the source when assessing the charging circuit in the equipment under test.		N/A
	Special national conditions (if any)		N/A

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IEC 62368-1 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
6.201	External power supplies, docking stations and other similar devices For external power supplies, docking stations and other similar devices, during and after abnormal operating conditions and during single fault conditions the output voltage— (a) at all ES1 outlets or connectors shall not increase by more than 10 % of the output rated voltage under normal operating conditions, measured after 3 s of introducing a single fault condition and after 3 s of introducing abnormal operating conditions; and (b) of a USB outlet or connector shall not increase by more than 3 V or 10 % of the output rated voltage under normal operating conditions, whichever is higher, measured after 3 seconds of introducing a single fault condition and after 3 s of introducing abnormal operating conditions For equipment with multiple rated voltages at the output, the requirements apply with the equipment configured for each output rated voltage in turn NOTE: This is intended to reduce the possibility of battery fire or explosion in attached equipment or accessories when charging secondary lithium batteries. The 3 s measurement delay is based on IEC document 108/742/INF, <i>TC 108, Standards Interpretation Panel Question 15 — Output voltage</i>, in relation to similar requirements in IEC 62368-3:2017. Conformity shall be checked by measurement, taking into account the abnormal operating conditions of Annex B.3 and the simulated single fault conditions of Annex B.4.	Added. Compliance checked. The output voltage not increase by more than 10% during and after abnormal operating conditions and during single fault conditions. See appended table 5.2 of IEC 62368-1 test report.	P

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IEC 62368-1 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
8.6.201	Restraining device fixing point Freestanding-capable MS2 and MS3 television sets and display devices shall be provided with a fixing point to facilitate the anchoring of the equipment from toppling The fixing point shall conform to Clause 8.7 where the fixing point uses a wall, ceiling or other structure mount. Alternatively, the fixing point shall be capable of withstanding a pull equal to the mass of the equipment in all directions without damage Instructions for installation or instructions for use shall be provided to specify correct use of the fixing point		N/A
8.6.202	Restraining device MS2 and MS3 television sets and display devices shall be provided with a restraining device and associated hardware to attach to the television set or display device. The restraining device shall be capable of withstanding a pull equal to the mass of the equipment in all directions. Instructions for installation or instructions for use shall be provided to specify correct use of the fixing point.		N/A

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IEC 62368-1 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT AS_NZS_3112:2017_+A1:2021 Appendix J AUSTRALIAN / NEW ZEALAND NATIONAL DIFFERENCES (Approval and test specification—Plugs and socket-outlets)			
Differences according to : AS_NZS_3112:2017_Amendment 1:2021_Appendix J			
TRF template used :..... : IEC EE OD-2020-F3, Ed. 1.1			
Attachment Form No. : AS_NZS_3112:2017_Appendix J			
Attachment Originator : JAS-ANZ			
Master Attachment : 2022-06			
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	Note: AS/NZS 3112 is NOT covered by IECEE Accreditation for Testing / Reporting Please State Laboratory Accreditation for this Standard		N/A
	Accreditation		N/A
	Accreditation Stamp		N/A
J1 SCOPE	General: This Appendix specifies additional dimensional and constructional requirements for detachable plug portions, or equipment incorporating integral supply pins or equipment incorporating detachable plug portions. This Appendix shall be read in conjunction with Section 2 of this Standard. For the purposes of this Appendix, where the term 'plug' is used in Section 2 it shall be taken to mean the plug portion of equipment or the detachable plug portion. The equipment shall comply with the relevant product Standard. The tests and requirements specified in this Appendix are in addition to any test and requirements of the relevant product Standard for the equipment. (AS/NZS 3112:2017/A1:2021)		N/A
J2	DEFINITION		N/A

Other National Requirements

IEC 62368-1 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
J2.1	Detachable plug portion A plug portion that is detachable from the equipment and with connections including the following standardized outputs and other contacts (a) Type A (see Figure J1): A detachable plug portion with a connection intended for plugging directly into equipment. The connection being via the equipment group 1 appliance inlet within the scope of AS/NZS 60320.1. (b) Type B (see Figure J2): A detachable plug portion with a non-standardized connection intended for plugging directly into equipment (c) Type C (see Figure J3): A detachable plug portion with a connection intended for use with an adaptor connected to a flexible cord so as to replicate a supply plug and flexible cord configuration. The connection being via a group 1 appliance outlet within scope of AS/NZS 60320.2.2, which is integral with the plug portion (AS/NZS 3112:2017)		N/A
J2.2	Integral plug portion A plug portion that is integral to the equipment enclosure and is not detachable (AS/NZS 3112:2017)		N/A
J2.3	Plug portion A plug portion is that portion of equipment with pins for insertion into a socket-outlet, including the plug pins, terminals of the plug pins, external dimensions of the 'maximum projection' and any connections of a detachable plug portion. (AS/NZS 3112:2017/A1:2021)		N/A
J3	REQUIREMENTS FOR THE PLUG PORTION		N/A
J3.1	General The following provisions apply to the dimensional and constructional requirements of plug portions of equipment and any detachable connection between the plug portion and the equipment:		N/A

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IEC 62368-1 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

(a)	For detachable plug portions intended for connection to the equipment in multiple orientations, the relevant tests are performed in the most onerous orientation.		N/A
(b)	For Type A detachable plug portion, the relevant requirements of AS/NZS 3105:2014 are applicable, in addition to conformance with relevant clauses of this Appendix		N/A
(c)	For Type B detachable plug portions, the conformance is shown by the relevant clauses of this Appendix.		N/A
(d)	For Type C detachable plug portions, conformance is shown by assessment to Section 2 of this Standard (plugs) and relevant clauses of this Appendix (AS/NZS 3112:2017)		N/A

J3.2	Plug pins of plug portions The requirements of Clause 2.2 are applicable for plug pins.		N/A
2.2	PLUG PINS		
2.2.1	Current carrying parts of plug pins of metal having sufficient mechanical strength, electrical conductivity and resistance to corrosion adequate for the intended use		N/A
	Plug pin material?		N/A

2.2.3	Plug pins adequately proportioned throughout and portion adjacent to the connection designed to not introduce a stress concentration which may lead to a fracture of the pin, and suitably shaped to prevent abrasion or cutting of conductor strands due to flexure in normal use		N/A
	Exposed ends of plug pins have a lead-in, bevel or radius to facilitate entry into socket-outlets and to operate shutters		N/A
	Flat-pins with the following profile are deemed to comply:		N/A
(a)	Flat-pins with a radius on the end with side bevels may have a width and thickness profile as specified in Figure 2.1(h)		N/A
(b)	Flat-pins square on the end with corner and side bevels may have a width and thickness profile as specified in Figure 2.1(i)		N/A

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IEC 62368-1 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

(c)	Flat-pins square on the end with corner bevels and a radius on the sides may have a width and thickness profile as specified in Figure 2.1(j)		N/A
	Contact portion of the pins smooth and free from openings or indentations		N/A
	Flat pin plugs having a longitudinal seam or opening in the contact portion of one face; width not exceeding 0.3 mm and		N/A
	Thickness not exceeding 1.58 mm		N/A
	Exposed portion of earthing pins and pins other than insulated pins free from any non-metallic coverings or coatings (AS/NZS 3112:2017)		N/A
2.2.4	Live parts of insulated pin plugs not exposed when plug is partially or fully engaged with associated socket		N/A
	Compliance by measurement to Figure 2.4	(see appended table)	N/A
	Lacquer, enamel or sprayed insulating coating not considered to be insulation material		N/A
	All live pins on low voltage plugs except for those shown in Figure 2.1 (a2), (b) and (g) of the insulated pin type		N/A
	Colour green or green / yellow not used for insulation of insulated pins (AS/NZS 3112:2017)		N/A

J3.3	Ratings and dimensions for low-voltage plug portions Requirements of clauses 2.8.1 and 2.8.4 apply for rating and dimensions		N/A
------	--	--	-----

2.8	Ratings and Dimensions of Low Voltage Plugs		N/A
2.8.1	Plugs with ratings up to and including 20A; shall conform to the appropriate dimensions shown in Figure 2.1	(see appended results)	N/A
	Rating of plug	___A	N/A
	Nominal dimensions covering disposition of pins checked by gauge of Appendix A		N/A
	Distance between live pin and edge of moulding to not less than 9 mm		N/A
	Measured distance	___mm	N/A

Other National Requirements

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IEC 62368-1 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

	No point on plug face protrudes more than 0.5 mm		N/A
	Measured protrusion	___mm	N/A
	Dimensional requirements of Figure 2.1(e2) did not applied to plugs with greater than three pins (AS/NZS 3112:2017)		N/A
2.8.4	Low voltage plugs comply with dimensions of Figure 2.1	(see appended table 2.8.1)	N/A
	Disposition of pins checked by gauge complying with Appendix A, B or F as appropriate		N/A
	Low voltage plug having rating up to 15A and of the Figure 2.1 (a1), (c), (d), (f) or (g) type; comply with dimensional requirements of Figure 2.1 (e1 and e2)		N/A
	20A plug of Figure 2.1 (a2) type complies with dimensional requirements of Figure 2.1 (e2)		N/A
	Plugs with insulated pins need not comply with dimension $R20.0 \pm 1$ mm requirement of Figure 2.1 (e3) provided there is at least 9mm from the edge of the live pins to the edge of the plug face Figure 2.1(e3). (AS/NZS 3112:2017)		N/A

J3.4	Internal connections for plug portions Requirements of clause 2.9 apply for internal connections, unless requirements contained in the relevant product standard (AS/NZS 3112:2017)		N/A
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2.9	INTERNAL CONNECTIONS		N/A
	Plug provided with earthing connections designed and constructed so that when plug is correctly wired and assembled:		N/A
(a)	Loose terminal screw or conductive material cannot bridge any live or earthed parts		N/A
(b)	Earthing parts effectively isolated from contact with live conductor which may become detached		N/A
(c)	Live parts effectively isolated from contact with any earthing conductor which may become detached		N/A
	Any connections for auxiliary devices comply with above requirements (AS/NZS 3112:2017)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
J3.5	Arrangement of earthing connections for plug portions Requirements of clause 2.10 apply for arrangement of earthing connections		N/A
2.10	Arrangement of earthing connections		N/A
	Earthing pin radial to the circle embracing the pins (AS/NZS 3112:2017)		N/A
J3.6	Configuration of plug portions Requirements of clause 2.12.6 apply for configuration of the plug portion (AS/NZS 3112:2017)		N/A
2.12	Marking		N/A
2.12.6	Configuration of plugs		N/A
	Pins disposed so that configuration, as viewed from the pins, is earth, neutral and active in a clockwise direction		N/A
	Where there is no earthing pin; live pins conform to this configuration (AS/NZS 3112:2017)		N/A
J4	Tests		N/A
J4.1	General Plug portions of equipment shall be subjected to the following tests and unless stated otherwise, shall comply with the requirements specified in Section 2 for each test. The number of test samples shall be in accordance with Table J1 For equipment with a detachable plug portion, the assessment(s) of Table J1 tests 2, 3, 5, 10 and 11 shall be conducted on the— (a) assembled equipment with the detachable plug portion connected; and (b) the detachable plug portion after it has been separated from the equipment (AS/NZS 3112:2017/A1:2021)		N/A

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IEC 62368-1 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
J4.2	High voltage test The requirements of Clause 2.13.3 are applicable unless requirements are contained in the relevant product standard (AS/NZS 3112:2017)		N/A
2.13.3	Test No.1 - High voltage test		N/A
	Plug withstands without failure electric strength test as specified (AS/NZS 3112:2017)	(see appended table)	N/A
J4.3	Mechanical strength		N/A
J4.3.1	Tumbling barrel test The tumbling barrel test is applied to determine the mechanical strength of the plug portions and equipment having integral or detachable plug portions. For equipment with a detachable plug portion, the detachable plug portion may become detached during the test. If this occurs the detachable plug portion shall be reassembled with the equipment when the pins are straightened as per (a) and (b) below. Three samples (Samples BCD in Table J1) that have not been subjected to any previous test are tested as specified in Clause 2.13.7.1 , however the test is modified as follows:		N/A
	They are tested in a tumbling barrel as described in AS 60068.2.32 or test Free fall repeated – Procedure 2 in IEC 60068-2.31. The samples shall be dropped from a height of 500 mm onto a steel plate, 3 mm thick. The barrel shall be turned at a rate of 5 r/min, to yield 10 falls per minute. Only one sample shall be tested at a time. A sample is dropped— (a) 500 times if the mass of the specimen does not exceed 250 g. The pins being straightened after each 100 drops and at the completion of the test to pass through the appropriate gauge of Figure A1 , Figure B1 or Figure F1 ; and (b) 250 times if the mass of the specimen exceeds 250 g. The pins being straightened after each 25 drops and at the completion of the test to pass through the appropriate gauge of Figures A1 , Figure B1 or Figure F1 . (AS/NZS 3112:2017/A1:2021)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

	Mass of sample	_____Grams	N/A
	Number of drops	500 / 250	N/A
	Compliance shall be checked by Paragraph J4.3.3	(See appended table)	N/A

J4.3.2	Test No.3 Impact test. Plug portions and equipment having integral plug portions or detachable plug portions shall withstand lateral impact forces. All samples that were subjected to the tests in Paragraph J4.3.1 (Samples BCD in Table J1) shall be tested as follows:		N/A
	(a) The sample shall be positioned at the centre of a steel plate with a thickness of at least 6 mm. Apertures in the steel plate for the plug pins to pass through shall conform to the corresponding socket Standard. The sample shall be held against the steel plate by clamping all the pins.		N/A
	(b) Samples shall be subjected to blows, with an impact energy of 1.0 ± 0.05 J by any means having the same performance as the spring-operated impact-test apparatus of AS/NZS 3100.		N/A
	(c) Three blows shall be applied to every point that is most likely to directly or indirectly stress the enclosure joints of the sample		N/A
	Compliance shall be checked by Paragraph J4.3.3		N/A

J4.3.3	Specific compliance criteria This Paragraph provides the common compliance assessment criteria for tests specified in Paragraphs J4.3.1 and J4.3.2 .		N/A
	Following each test, the samples shall comply with Clause 2.13.7.1		N/A
(a)	assembled equipment with the detachable plug portion connected;		N/A
	After the test, samples show no damage	(See appended table)	N/A
(b)	the detachable plug portion after it has been separated from the equipment.		N/A
	After the test, samples show no damage	(See appended table)	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

4.3.4	Pin bending test The pins of the plug portion of three samples (Samples EFG in Table J1) not subjected to any previous tests shall be tested for compliance with the pin bending test of Clause 2.13.7.2 (AS/NZS 3112:2017/A1:2021)		N/A
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2.13.7.2	Test No.4 – Pin bending test		N/A
	All flat-pin plugs rated up to and including 15 A shall be subjected to the pin bending test		N/A
	Three samples are subjected by clamping the plug in a rigid holding block and applying the bending force as specified		N/A
	After the test the pins shall not be broken off. (AS/NZS 3112:2017)		N/A

J4.8.3	Test No.5 Plug portion detachment requirements		N/A
	For all Type B or C devices and for Type A devices where the outlet of the detachable plug portion is parallel to the plug supply pins, disengagement of the detachable plug portion from the equipment shall require at least two simultaneous independent actions or the use of a tool.		N/A
	The plug portion and the equipment/adaptor shall be connected and disconnected 50 times (100 strokes).		N/A
	Compliance is verified by the plugging test, a force which, over a period of 10 s, shall be increased steadily to 60 ± 0.6 N and held at this value for a further 10 s, shall be applied evenly at the connecting equipment in a direction parallel to the pins. This procedure shall be conducted three times on the same plug portion, at intervals of 5 min, without disturbing the plug portions between tests		N/A
	During the test the plug portion shall not separate		N/A
	The test of AS/NZS 3112 'temperature rise test' for plugs shall be conducted immediately after the above test without disturbing the sample. Test No 6 Temperature Rise test J4.4 (AS/NZS 3112:2017/A1:2021)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

J4.4	Temperature rise test The relevant requirements of Clause 2.13.8 are applicable for the temperature rise test, except that the test current shall be that specified in the relevant product standard		N/A
	The temperature rise of the pins shall not exceed 45 K irrespective of the temperature rise of parts specified in end-product standards.		N/A
	For detachable plug portions the temperature rise of terminals and contacts shall not exceed 45 K. (AS/NZS 3112:2017)		N/A

2.13.8	Test No.6 – Temperature rise test		N/A
	Plug tested in draught free environment as specified using clamping units as specified in Figure 2.10		N/A
	Test Current Relevant Product Standard	_____ Amps _____ (Standard?)	N/A
	Temperature of terminals and contacts of detachable plug portion not exceeding 45 K (AS/NZS 3112:2017)	(see appended table)	N/A

J4.5	Securement of pins of the plug portion The requirements of Clause 2.13.9 are applicable for the securement of pins. (AS/NZS 3112:2017)		N/A
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2.13.9	Test No.7. Securement of pins		N/A
2.13.9.1	Movement of pins		N/A
	Plug pins clamped 5 ± 0.5 mm from pin face; test equipment and sample pre-conditioning for 1 h at $40 \pm 1^\circ\text{C}$		N/A
	Force of 18 ± 1 N applied to pin 14 ± 0.5 mm from plug face; applied gradually over 10 s and maintained for 10 s; applied in four directions		N/A
	Maximum deflection during test not exceeding 2.0 mm	(see appended results)	N/A
	Any distortion 5 minutes after test does not prevent insertion of plug into standard gauge(s) (AS/NZS 3112:2017 + A1:2021)		N/A
2.13.9.2	Fixing of pins		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

	Plug heated to $50 \pm 2^{\circ}\text{C}$ for 1h		N/A
	Force of $60 \pm 0.6\text{ N}$ applied to each pin over 10 s and maintained for 10 minutes; applied in two directions along length of pin		N/A
	Maximum displacement during test not exceeding 2.4 mm		N/A
	Maximum measured displacement		N/A
	Pin returns to within 0.8 mm of nominal length within 5 minutes of removal of test force (AS/NZS 3112:2017)		N/A

J4.6	Tests on the insulation material of insulated pin-plug portions The requirements of Clause 2.13.13 are applicable for insulating material of insulated plug pins. (AS/NZS 3112:2017)		N/A
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2.13.13	Test No.8 Tests for insulation material of insulated pin plugs		N/A
2.13.13.1	Material of pin-insulation resistant to stresses at temperature likely to occur		N/A

2.13.13	Test No.8 Tests for insulation material of insulated pin plugs		N/A
2.13.13.1	Material of pin-insulation resistant to stresses at temperature likely to occur		N/A
2.13.13.2	Pressure test at high temperature		N/A
	Specimen tested as per Figure 2.5 with force of 2.5 N applied as specified; maintained for 2 h at $160 \pm 5^{\circ}\text{C}$; removed and cooled by immersion in water within 10 s		N/A
	Thickness of insulation at point of impression not reduced by more than 50%		N/A
	Initial thickness	mm	N/A
	Thickness after test	mm	N/A
	No visible cracks on insulation material		N/A
	Dimension of insulating material not below minimum size in Figure 2.4 (AS/NZS 3112:2017)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
2.13.13.3	Static damp heat test		N/A
	Specimen subjected to two damp heat cycles in accordance with IEC 60068-2-30; Db (12 + 12h), 95% RH, 25 ± 3°C; 40°C		N/A
	After this treatment and recovery to room temperature; specimen subjected to:		N/A
(a)	Insulation resistance test in accordance with clause 2.13.2 (e)	(see appended table)	N/A
(b)	High voltage test in accordance with clause 2.13.3	(see appended table)	N/A
(c)	Abrasion test in accordance with clause 2.13.13.6		N/A
2.13.13.4	Low temperature test		N/A
	Plug maintained at -15 ± 2°C for minimum of 24 h and returned to room temperature; after which specimen subjected to:		N/A
(a)	Insulation resistance test in accordance with clause 2.13.2 (e)	(see appended table)	N/A
(b)	High voltage test in accordance with clause 2.13.3	(see appended table)	N/A
(c)	Abrasion test in accordance with clause 2.13.13.6		N/A
2.13.13.5	Impact test at low temperature		N/A
	Specimen maintained at -15 ± 2°C for 24 h		N/A
	Specimen placed in position and subjected to impact test as per Figure 2.6; mass of 100 ± 1 g falling through 100 mm		N/A
	Four impacts applied; specimen rotated through 90° between impacts		N/A
	After return to room temperature; no visible cracks of insulating material		N/A
2.13.13.6	Abrasion test		N/A
	Plug held in clamp and tested as per Figure 2.7; pin loaded at 4 N; 20 000 movements		N/A
	After test; pins show no damage affecting safety or impairing further use of the plug		N/A
	Insulating sleeve not punctured or rucked up (AS/NZS 3112:2017)		N/A
J4.7	Test no.9 Equipment with a plug portion intended to be supported by the contacts of a socket-outlet		N/A
	Equipment with pins intended to be introduced into fixed socket-outlets not imposing undue strain on socket-outlet		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Applied torque not exceeding 0.25 Nm		N/A
	Measured torque (AS/NZS 3112:2017)	____Nm	N/A
J4.8	Additional requirements for detachable plug portions		N/A
J4.8.1	Test no.10 Access to live parts		N/A
	Small test finger of Figure 13 of IEC 61032 was not possible to contact live parts with the force of 20N		N/A
	incorrectly assemble the plug portion was not possible (AS/NZS 3112:2017)		N/A
J4.8.2	Test No.11 Construction of detachable contacts where the input current of the equipment exceeds 0.2 A		N/A
	Contacts of the equipment shall be such that they make and maintain, under normal service conditions, satisfactory electrical and mechanical contact with the corresponding contact of the detachable plug portion.		N/A
	For connections intended to accommodate pins, contact shall be made on two surfaces diametrically opposite, except if a single spring-assisted contact is used. (AS/NZS 3112:2017/A1:2021)		N/A
	Contacts shall not rely exclusively on the resilience of the contact material and shall have an opposite face of material other than thermoplastic or resilient insulating material. (AS/NZS 3112:2017/ A1:2021)		N/A
	The alignment and contact-making properties of contacts shall be independent of terminal screws		N/A
	The effectiveness of the contacts shall be independent of pressure from any thermoplastic or resilient moulding.		N/A
	A visual inspection is conducted to determine the existence of interference between the metal contacts and the thermoplastic or resilient moulding to provide supplementary contact pressure to the metal contacts.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

	Conformance of the effectiveness of the contacts is checked by inspection and by the inspection and tests in J4.8.3 (AS/NZS 3112:2017)		N/A
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J4.8.4	Resistance of insulating material to heat and fire		N/A
J4.8.4.1	Test no.12 Resistance to heat For Type B detachable plug portions parts of non-metallic material, parts of insulating material supporting live parts including connections, and parts of thermoplastic material providing supplementary insulation or reinforced insulation, shall be sufficiently resistant to heat if their deterioration could cause the appliance to fail to comply with this Standard.		N/A
	Ball pressure test conducted in accordance with IEC 60695-10-2		N/A
(a)	75°C ± 2°C, for external parts;		N/A
(b)	125°C ± 2°C, for parts supporting live parts.		N/A

J4.8.4.2	Test no.13 Resistance to fire		N/A
	Plug portions comply with resistance to fire requirements of AS/NZS 3100 Annex A as follows:		N/A
	The glow wire test temperature 'T' for 'retaining parts' of fixed socket outlets shall be 750 C (AS/NZS 3112:2017)		N/A

TABLES OF RESULTS

2.2.4	TABLE: Dimensions of insulation on insulated pin plugs		N/A
Dimension (Figure 2.1 designation)		Measured (mm)	Allowed (mm)
Phase pin			8.7 ± 0.5
Neutral pin			8.7 ± 0.5

2.8.1	TABLE: Dimensions of plugs- 10A (a1)		N/A
Dimension (Figure 2.1 designation)		Measured (mm)	Allowed (mm)
Phase and neutral pin width (A)			6.35 ± 0.15
Earth pin width (B)			6.35 ± 0.15
Pin thickness (C)			1.63 + 0.15, -0.05

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Clause	Requirement + Test	Result - Remark	Verdict
	Pin disposition (D)		checked by test gauge
	Pin disposition (E)		checked by test gauge
	Phase and neutral pin length (F)		17.06 ± 0.4
	Earth pin length (G)		19.94 ± 0.8
	Pin boss radius - maximum		21.0 max
	Pin boss height		8.6 min

2.8.1	TABLE: Dimensions of plugs- 15A (a1)		N/A
Dimension (Figure 2.1 designation)		Measured (mm)	Allowed (mm)
Phase and neutral pin width (A)			6.35 ± 0.15
Earth pin width (B)			9.08 ± 0.15
Pin thickness (C)			1.63 + 0.15, -0.05
Pin disposition (D)			checked by test gauge
Pin disposition (E)			checked by test gauge
Phase and neutral pin length (F)			17.06 ± 0.4
Earth pin length (G)			19.94 ± 0.8
Pin boss radius - maximum			21.0 max
Pin boss height			8.6 min

2.8.1	TABLE: Dimensions of plugs-20A (a2)		N/A
Dimension (Figure 2.1 designation)		Measured (mm)	Allowed (mm)
Phase and neutral pin width (A)			9.08 ± 0.15
Earth pin width (B)			9.08 ± 0.15
Pin thickness (C)			1.63 + 0.15, -0.05
Pin disposition (D)			checked by test gauge
Pin disposition (E)			checked by test gauge
Phase and neutral pin length (F)			17.06 ± 0.4
Earth pin length (G)			19.94 ± 0.8
Pin boss radius - maximum			21.0 max
Pin boss height			8.6 min

2.8.1	TABLE: Projection from plug face centroid		N/A
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Clause	Requirement + Test	Result - Remark	Verdict

Direction of projection	Measured (mm)	Allowed (mm)
Left		≤ 21.9 or ≥ 27.0
Right		≤ 21.9 or ≥ 27.0
Up		≤ 21.9 or ≥ 27.0
Down		≤ 21.9 or ≥ 27.0

2.13.3	TABLE: Test No. 1 – High voltage test		N/A
Test voltage applied between:		Test voltage (V)	Breakdown
All poles of the plug; taken in pairs		1000	Yes / No
Live poles of the plug and any external metal		3500	Yes / No
Live poles of the plug and the earthing terminal		1000	Yes / No
Live poles of the plug and a flexible electrode		3500	Yes / No
Live poles and metal foil applied around insulation on pins		1250	Yes / No

2.13.7.1	Test No.2 – Tumbling barrel test		N/A
	Following the test, the samples shall comply with Clause 2.13.7.1(a..e)		N/A
	(a) Live parts shall not have become exposed to the standard test finger		N/A
	(b) For earth pins, the resistance of the plug/socket-outlet circuit shall be such that conformance with Clause 3.14.7 is maintained. AS/NZS 3100 Cl 8.5 The resistance shall not exceed 0.1 Ω	___ Ω .	N/A
	(c) Any other function affecting safety shall not be impaired		N/A
	(d) No live part shall have become detached or loosened, to the extent that a hazardous situation is created (see Clause 2.9)		N/A
	(e) The pins shall be inspected with normal, or corrected to normal, vision. Insulation may be removed if necessary. Pins shall not be broken or show cracking		N/A

	Test No.3 Impact test for assembled equipment with the detachable plug portion connected and for equipment with an integral plug portion.	N/A
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Clause	Requirement + Test	Result - Remark	Verdict
	Following the test, the samples shall comply with Clause 2.13.7.1 (a..e) as follows:		N/A
	(a) Live parts shall not have become exposed to the standard test finger (Figure 8.10 in AS/NZS 3100 or Test Probe B in IEC 61032)		N/A
	(b) For earth pins, the resistance of the plug/socket-outlet circuit shall be such that conformance with Clause 3.14.7 is maintained so that the resistance between the earthing terminal of any socket-outlet provided with an earthing contact and the earthing terminal of the plug used for testing shall be of a low resistance. Compliance is by the test of earthing connection in AS/NZS 3100 Clause 8.5. The resistance shall not exceed 0.1 Ω	___ Ω .	N/A
	(c) Any other function affecting safety shall not be impaired		N/A
	(d) No live part shall have become detached or loosened, to the extent that a hazardous situation is created		N/A
	(e) The pins shall be inspected with normal, or corrected to normal, vision. Insulation may be removed if necessary. Pins shall not be broken or show cracking.		N/A
	Following the test, the samples shall conform to the 'Guarding of live parts' requirements of AS/NZS 3100:2015 cl 5.1 as follows:		N/A
	Except for equipment intended for use only in a position not accessible to unauthorized persons, all equipment shall be so designed and constructed that, when the equipment is standing, supported, or fixed, in a normal manner, no person can inadvertently come into contact with any live part		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	If a hole giving access to preset controls is marked as such on the enclosure or reference made to it in the instructions and the setting of this control requires a screwdriver or other tool, the adjustment of the control shall not allow contact with any live parts. A metal test pin having a diameter of 2 mm and a length of 100 mm shall not become live when it is inserted through the hole in every position with a force of 10 N.		N/A
	In addition, the opening or removal of any cover or component, with or without tools, where such opening or removal is necessary as a normal operation of the equipment as distinct from maintenance, repairs, or adjustment, shall not expose live parts to inadvertent personal contact.		N/A
	Any metal cover or casing enclosing live parts shall be of a strength sufficient to ensure that it cannot be deformed readily so as to come into contact with live parts.		N/A
	Compliance is checked by inspection, test and checking that live parts shall not have become exposed to the standard test finger (Figure 8.10 in AS/NZS 3100 or Test Probe B in IEC 61032)		N/A
	Class II equipment and class II constructions shall be constructed and enclosed so that there is adequate protection against accidental contact with basic insulation and metal parts separated from live parts by basic insulation only.		N/A
	It shall only be possible to touch parts which are separated from live parts by double insulation or reinforced insulation.		N/A
	Compliance is checked by application of the standard test finger (Figure 8.10 in AS/NZS 3100 or Test Probe B in IEC 61032)		N/A
	Following the test, the samples shall conform to the 'Separation of live parts from non-current-carrying conductive parts' requirements of AS/NZS 3100.CI 5.2.2 as follows:		N/A
	The support and insulation of every live part shall be such as will ensure that no live part can make contact with any non-current-carrying conductive part exposed to personal contact.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

	In respect of terminals of components such as switches, adequate clearances shall be maintained or insulation shall be provided to prevent contact of the terminals, or loose strands of flexible cords intended to be terminated therein, with exposed conductive parts. Where necessary, provision shall be made to ensure that conductors protruding through terminals, when normally connected, will not contact exposed conductive parts.		N/A
	Compliance is checked by inspection.		N/A

	Test No.3 Impact test for the detachable plug portion after it has been separated from the equipment		N/A
	Following the test, the samples shall comply with Clause 2.13.7.1 (a..e)		N/A
	(a) Live parts shall not have become exposed to the standard test finger (Figure 8.10 in AS/NZS 3100 or Test Probe B in IEC 61032)		N/A
	(b) For earth pins, the resistance of the plug/socket-outlet circuit shall be such that conformance with Clause 3.14.7 is maintained so that the resistance between the earthing terminal of any socket-outlet provided with an earthing contact and the earthing terminal of the plug used for testing shall be of a low resistance. Compliance is by the test of earthing connection in AS/NZS 3100 Clause 8.5. The resistance shall not exceed 0.1 Ω	___ Ω .	N/A
	(c) Any other function affecting safety shall not be impaired		N/A
	(d) No live part shall have become detached or loosened, to the extent that a hazardous situation is created		N/A
	(e) The pins shall be inspected with normal, or corrected to normal, vision. Insulation may be removed if necessary. Pins shall not be broken or show cracking.		N/A
	Following the test, the samples shall conform to the 'Guarding of live parts' requirements of AS/NZS 3100:2015 cl 5.1 as follows:		N/A

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IEC 62368-1 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	Except for equipment intended for use only in a position not accessible to unauthorized persons, all equipment shall be so designed and constructed that, when the equipment is standing, supported, or fixed, in a normal manner, no person can inadvertently come into contact with any live part		N/A
	If a hole giving access to preset controls is marked as such on the enclosure or reference made to it in the instructions and the setting of this control requires a screwdriver or other tool, the adjustment of the control shall not allow contact with any live parts. A metal test pin having a diameter of 2 mm and a length of 100 mm shall not become live when it is inserted through the hole in every position with a force of 10 N.		N/A
	In addition, the opening or removal of any cover or component, with or without tools, where such opening or removal is necessary as a normal operation of the equipment as distinct from maintenance, repairs, or adjustment, shall not expose live parts to inadvertent personal contact.		N/A
	Any metal cover or casing enclosing live parts shall be of a strength sufficient to ensure that it cannot be deformed readily so as to come into contact with live parts.		N/A
	Compliance is checked by inspection, test and checking that live parts shall not have become exposed to the standard test finger (Figure 8.10 in AS/NZS 3100 or Test Probe B in IEC 61032)		N/A
	Class II equipment and class II constructions shall be constructed and enclosed so that there is adequate protection against accidental contact with basic insulation and metal parts separated from live parts by basic insulation only.		N/A
	It shall only be possible to touch parts which are separated from live parts by double insulation or reinforced insulation.		N/A
	Compliance is checked by application of the standard test finger (Figure 8.10 in AS/NZS 3100 or Test Probe B in IEC 61032)		N/A
	Following the test, the samples shall conform to the 'Separation of live parts from non-current-carrying conductive parts' requirements of AS/NZS 3100. Cl 5.2.2 as follows:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

	The support and insulation of every live part shall be such as will ensure that no live part can make contact with any non-current-carrying conductive part exposed to personal contact.		N/A
	In respect of terminals of components such as switches, adequate clearances shall be maintained or insulation shall be provided to prevent contact of the terminals, or loose strands of flexible cords intended to be terminated therein, with exposed conductive parts. Where necessary, provision shall be made to ensure that conductors protruding through terminals, when normally connected, will not contact exposed conductive parts.		N/A
	Compliance is checked by inspection.		N/A

2.13.8	TABLE: Test No. 6 - Temperature rise test		N/A
	Ambient temperature	°C	
	Test current	A	
Measured part		dT measured (K)	dT allowed (K)
Active (phase) terminal			45
Neutral terminal			45
Earthing terminal			45

2.13.9.1	TABLE: Movement of pins		N/A
	Earth and neutral pins clamped – phase pin loaded		
Force direction		Measured deflection (mm)	Allowed deflection (mm)
Force towards neutral plane parallel to pin plane			2.0
Force from neutral plane parallel to pin plane			2.0
Force outwards at 90° to pin plane			2.0
Force inwards at 90° to pin plane			2.0

2.13.9.1	TABLE: Movement of pins		N/A
	Phase and neutral pins clamped – earth pin loaded		
Force direction		Measured deflection (mm)	Allowed deflection (mm)

Other National Requirements

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Clause	Requirement + Test	Result - Remark	Verdict
	Force inwards parallel to pin plane		2.0
	Force outwards parallel to pin plane		2.0
	Force towards neutral		2.0
	Force towards phase		2.0
2.13.9.1	TABLE: Movement of pins		N/A
	Phase and earth pins clamped – neutral pin loaded		
	Force direction	Measured deflection (mm)	Allowed deflection (mm)
	Force towards phase plane parallel to pin plane		2.0
	Force from phase plane parallel to pin plane		2.0
	Force outwards at 90° to pin plane		2.0
	Force inwards at 90° to pin plane		2.0
2.13.13.3	TABLE: Test No.13(b) – Insulation resistance test after static damp heat test		N/A
	Applied between:	Insulation resistance (MΩ)	Minimum required (MΩ)
	Live poles and metal foil applied around insulation on pins		5
2.13.13.3	TABLE: Test No.1 – High voltage test after static damp heat test		N/A
	Test voltage applied between:	Test voltage (V)	Breakdown
	Live poles and metal foil applied around insulation on pins	1250	Yes / No
2.13.13.4	TABLE: Test No.1 – Insulation resistance test after low temperature test		N/A
	Applied between:	Insulation resistance (MΩ)	Minimum required (MΩ)
	Live poles and metal foil applied around insulation on pins		5
2.13.13.4	TABLE: Test No.1 – High voltage test after low temperature test		N/A
	Test voltage applied between:	Test voltage (V)	Breakdown
	Live poles and metal foil applied around insulation on pins	1250	Yes / No

Other National Requirements

IEC 62368-1 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

J4.8.4.1	TABLE: Test no.12 Resistance to heat		N/A
Component tested		Temperature (°C)	Diameter of impression (mm)

Conformance is checked by subjecting the relevant part to the ball pressure test of IEC 60695-10-2.

J4.8.4.2	TABLE: Test no.13 Resistance to Fire	N/A
	Plug portions shall comply with the requirements for resistance to fire in accordance with AS/NZS 3100:2017 Annex A. The glow-wire test temperature 'T' shall be 750°C.	N/A

Glow-wire testing was conducted in accordance with IEC 60695-2-11.
Test specimens arranged so that the surface in contact with the tip of the glow-wire was vertical and glow wire tip applied to surface of the specimen likely to be subjected to thermal stresses in normal use.
A layer of white pine board and wrapping tissue was placed beneath the sample at 200mm ± 5mm distance.

SPECIMEN NUMBER	1	2	3	4	5	6	7	8
SPECIMEN DESCRIPTION								
Material								
Colour								
Test specimen								
Glow wire tip temperature (°C)	750	750	750	750	750	750	750	750
Duration of glow wire application (t _a) (s)	30	30	30	30	30	30	30	30
OBSERVATIONS								
Duration from beginning of glow-wire tip application to ignition of specimen or layer (t _i) (s)								
Duration from beginning of glow-wire tip application to when flames extinguish (t _e) (s)								

Other National Requirements

IEC 62368-1 - ATTACHMENT								
Clause	Requirement + Test				Result - Remark			Verdict
Maximum height of flames after initial 1s (to nearest 5 mm) (mm)								
Flame impingement on other parts								
Degree of tip penetration								
Degree of specimen distortion								
Scorching of pinewood board								
EVALUATION CRITERIA								
Visible flame or sustained glowing								
Visible Flame Duration in Seconds during test.								
Duration of flaming or glowing after tip removal (max. allowable 30 s) (s)								
Surrounding parts burned away completely (not permitted)								
Ignition of wrapping tissue layer (not permitted)								
RESULTS If parts tested withstand the glow-wire test, but during the test produce a flame that persists for longer than 2 s, then the consequential needle flame test of AS/NZS 3100:2017 Annex A 6.1.5 applies.								

LEGEND:	CE	Complete Equipment	SA	Sub Assembly	SE	Self Extinguished
	EBD	Emitted Burning Droplets	SBD	Specimen Burned and Distorted	SMD	Specimen Melted and Distorted
	ME	Manually Extinguished	SC	Separate Component	SS	Specimen Scorched
	NA	Not Applicable	SCC	Specimen Completely Consumed	WPNI	Wall Penetrated but no Ignition
	NI	No Ignition	X	Flame Appeared for an Instant		

Other National Requirements

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Clause	Requirement + Test	Result - Remark	Verdict

TABLE: Needle- flame test (NFT)					N/A
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
Supplementary information: - NFT not relevant (or applicable) for Parts of material classified as V-0 or V-1 - NFT not relevant (or applicable) for Base material of PCBs classified as V-0 or if relevant VTM-0					

Other National Requirements

IEC 62368-1 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	PHOTOGRAPHS		N/A

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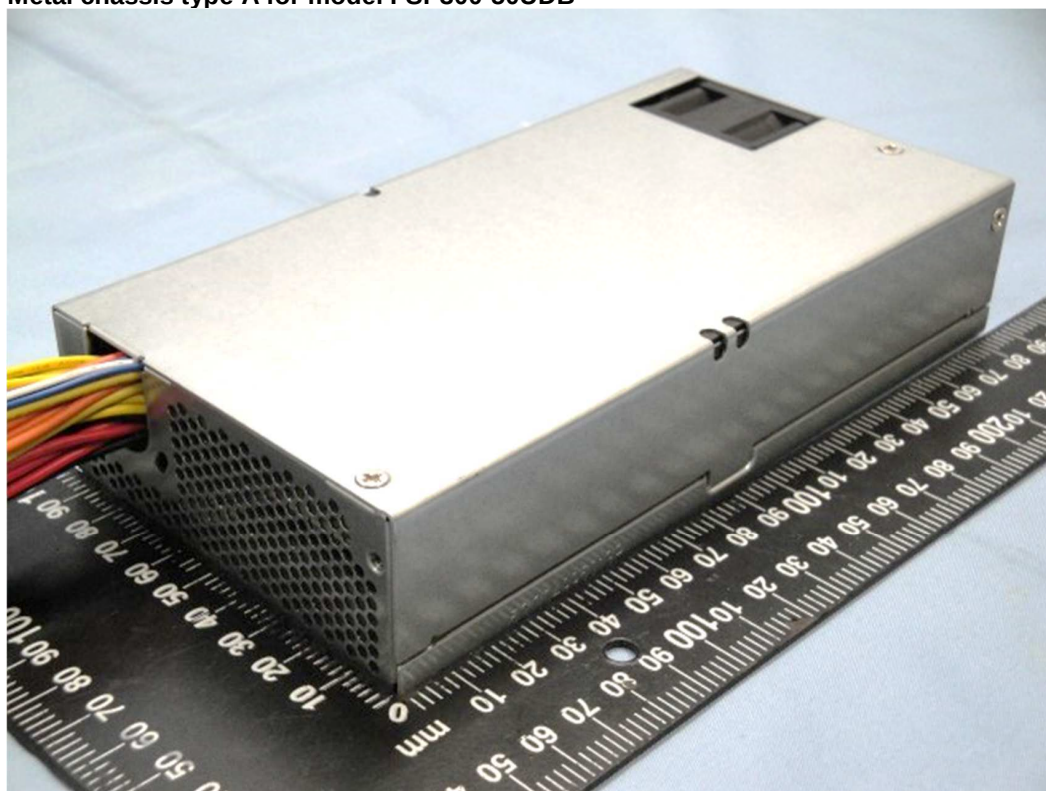
Product: Switching Power Supply

Type Designation: FSP300-50UDB, FSP300-50WDB, FSP400-50UDB, FSP400-50WDB, FSP500-50UDB and FSP500-50WDB

Metal chassis type A for model FSP300-50UDB



Metal chassis type A for model FSP300-50UDB



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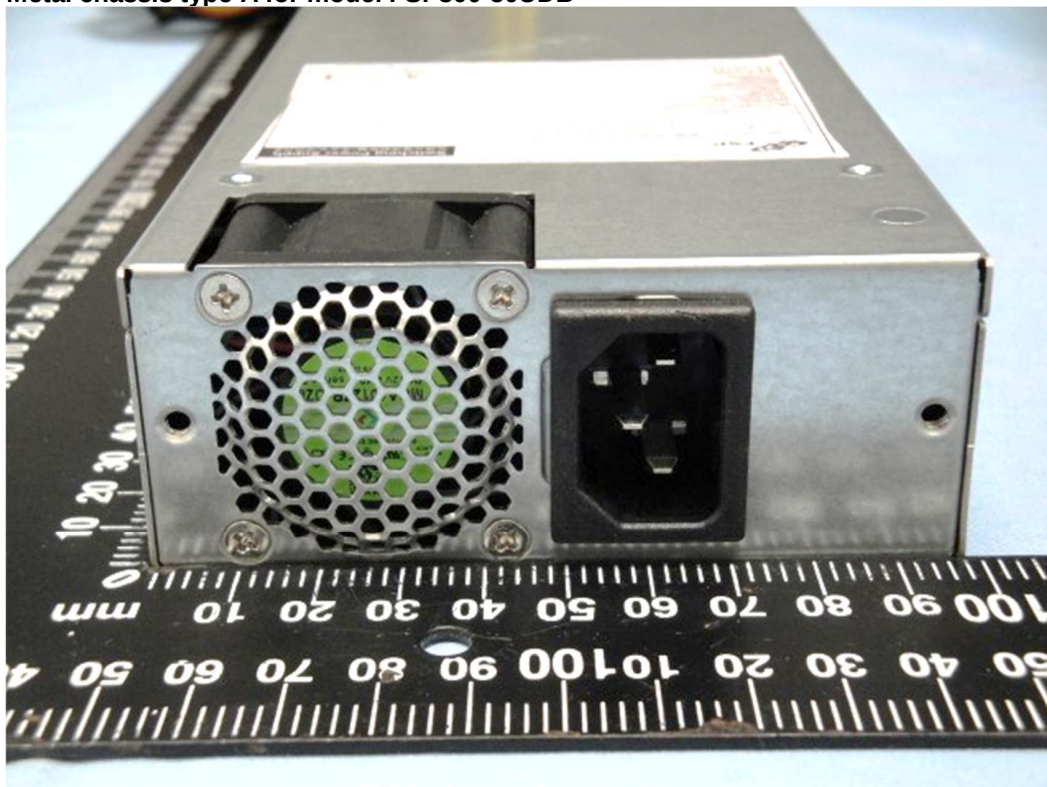
Product: Switching Power Supply

Type Designation: FSP300-50UDB, FSP300-50WDB, FSP400-50UDB, FSP400-50WDB, FSP500-50UDB and FSP500-50WDB

Metal chassis type A for model FSP300-50UDB



Metal chassis type A for model FSP300-50UDB



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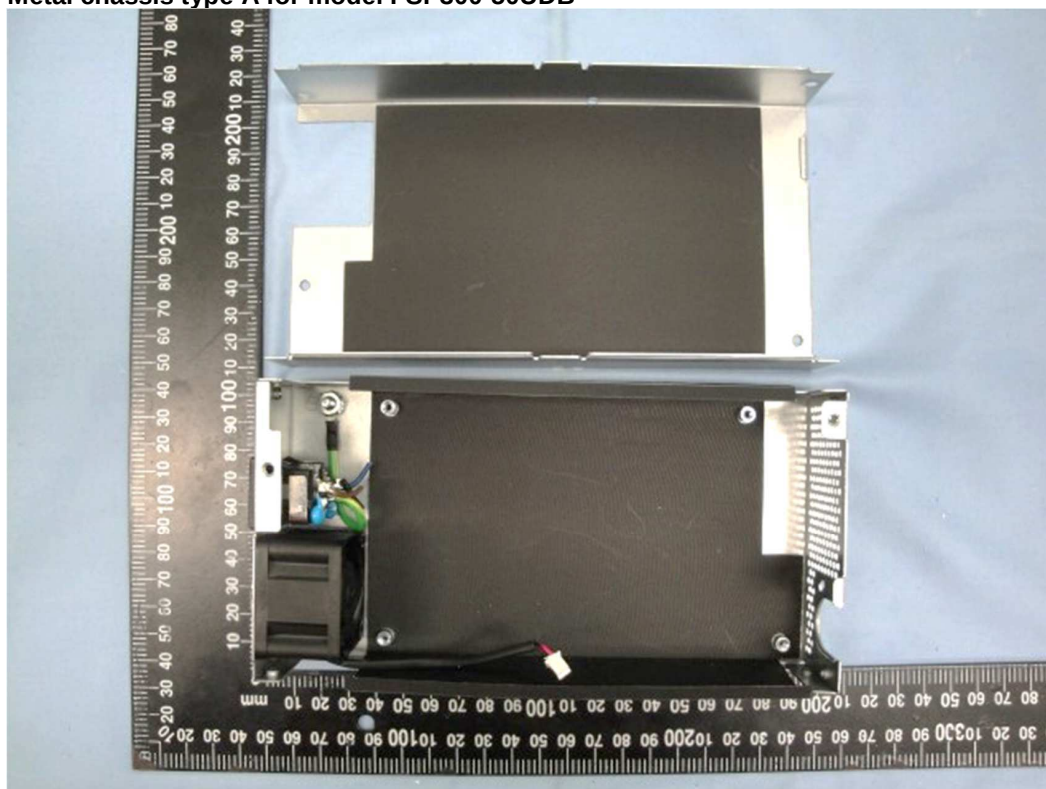
Product: Switching Power Supply

Type Designation: FSP300-50UDB, FSP300-50WDB, FSP400-50UDB, FSP400-50WDB, FSP500-50UDB and FSP500-50WDB

Metal chassis type A for model FSP300-50UDB



Metal chassis type A for model FSP300-50UDB



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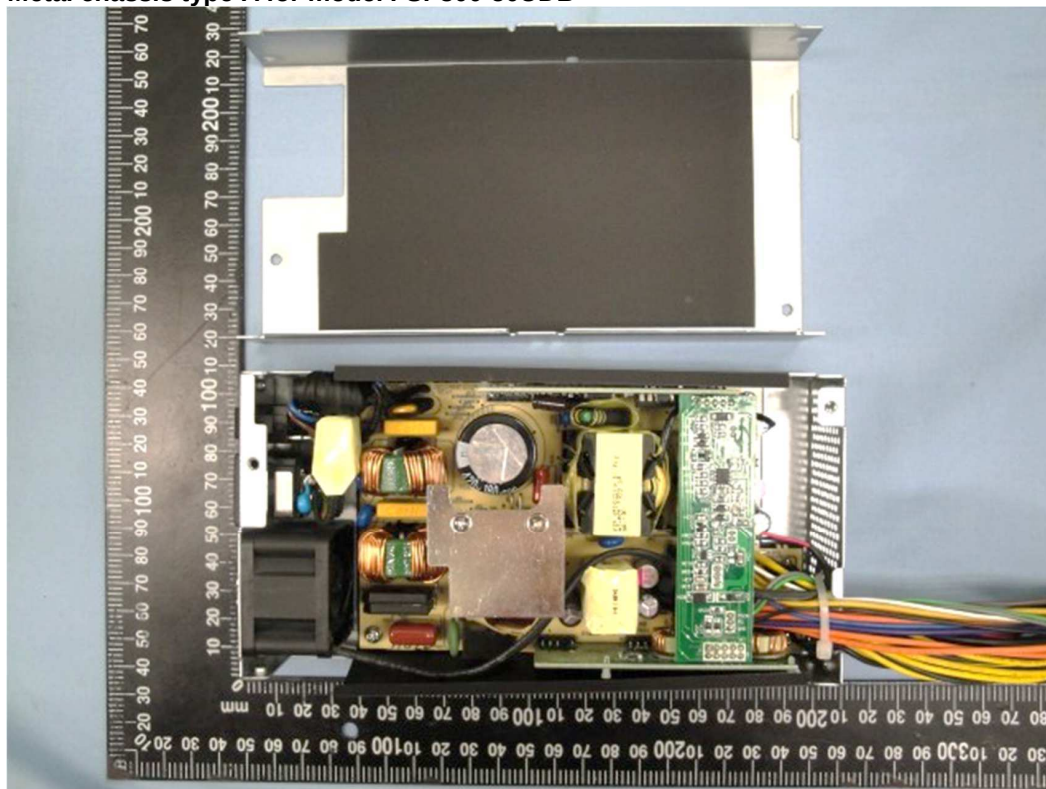
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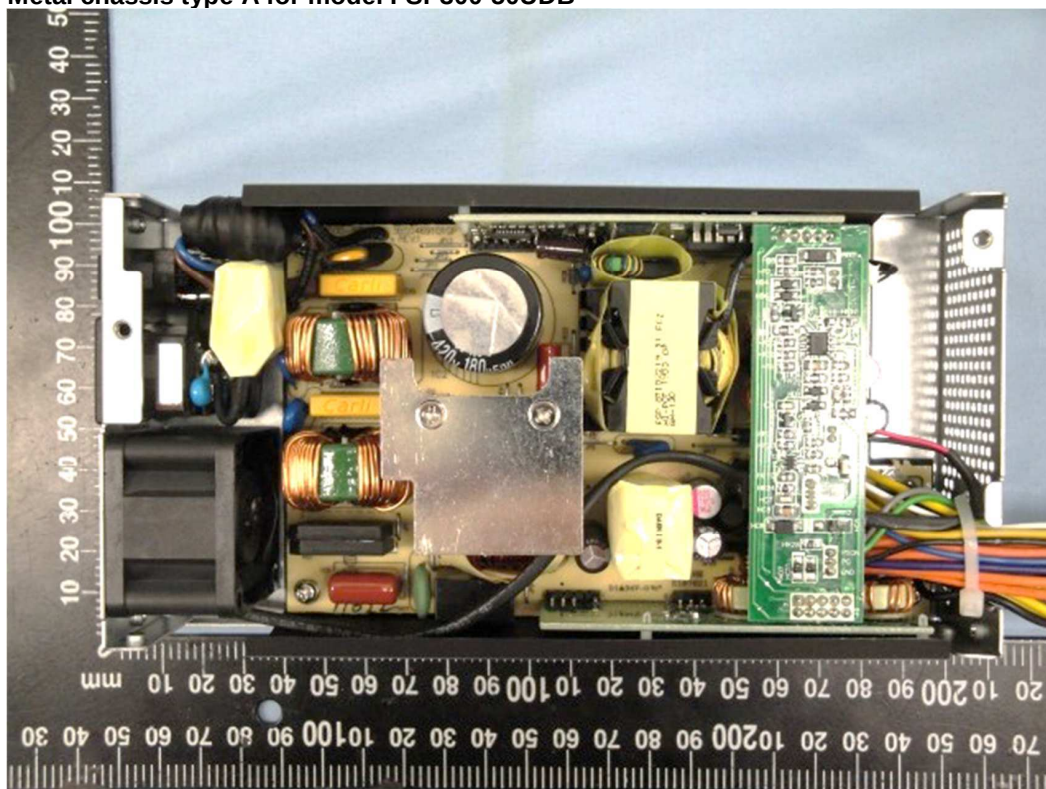
Product: Switching Power Supply

Type Designation: FSP300-50UDB, FSP300-50WDB, FSP400-50UDB, FSP400-50WDB, FSP500-50UDB and FSP500-50WDB

Metal chassis type A for model FSP300-50UDB



Metal chassis type A for model FSP300-50UDB



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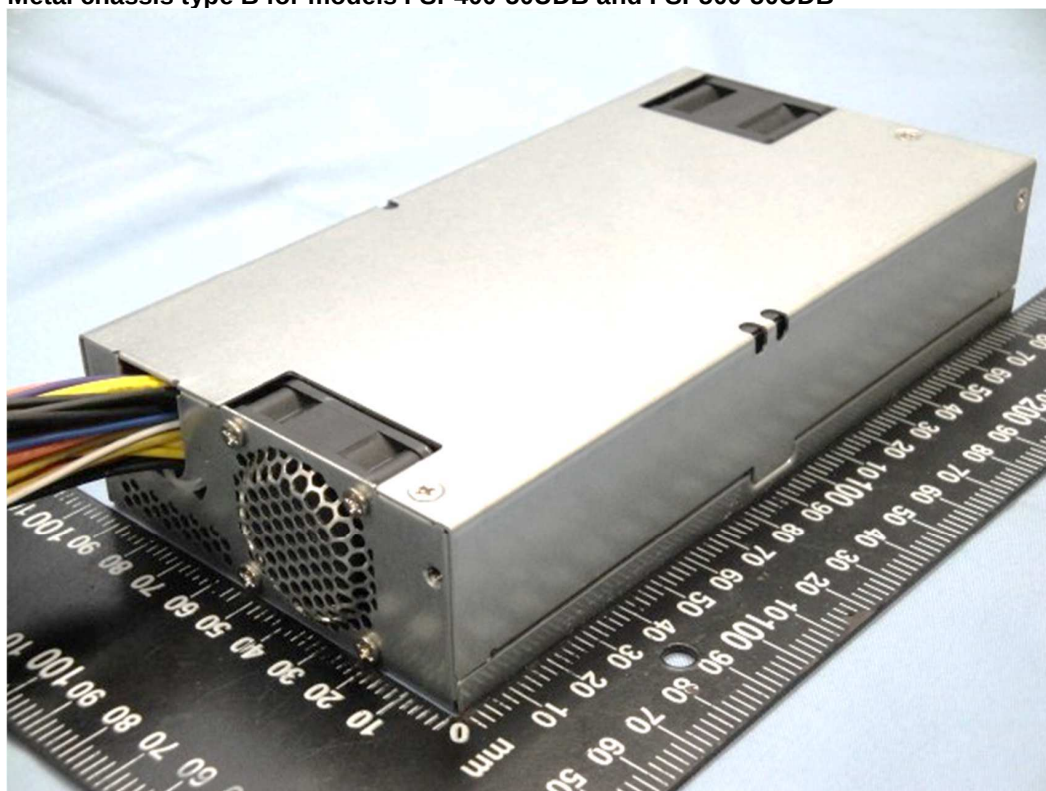
Product: Switching Power Supply

Type Designation: FSP300-50UDB, FSP300-50WDB, FSP400-50UDB, FSP400-50WDB, FSP500-50UDB and FSP500-50WDB

Metal chassis type B for models FSP400-50UDB and FSP500-50UDB



Metal chassis type B for models FSP400-50UDB and FSP500-50UDB



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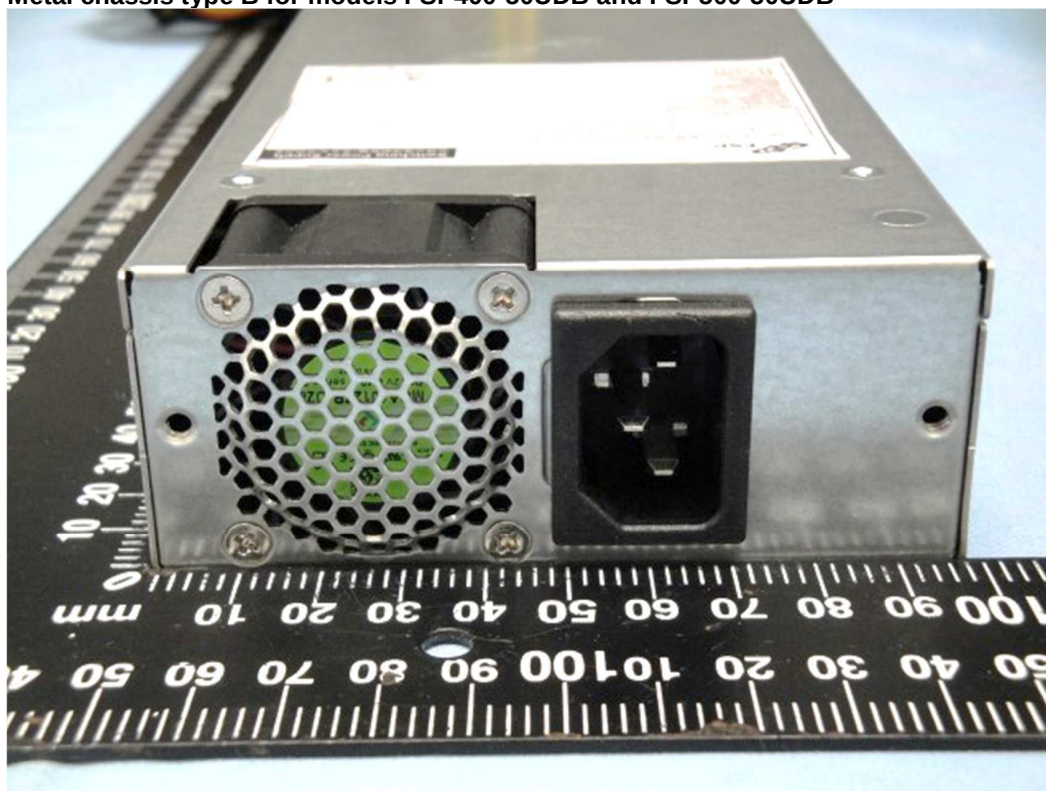
Product: Switching Power Supply

Type Designation: FSP300-50UDB, FSP300-50WDB, FSP400-50UDB, FSP400-50WDB, FSP500-50UDB and FSP500-50WDB

Metal chassis type B for models FSP400-50UDB and FSP500-50UDB



Metal chassis type B for models FSP400-50UDB and FSP500-50UDB



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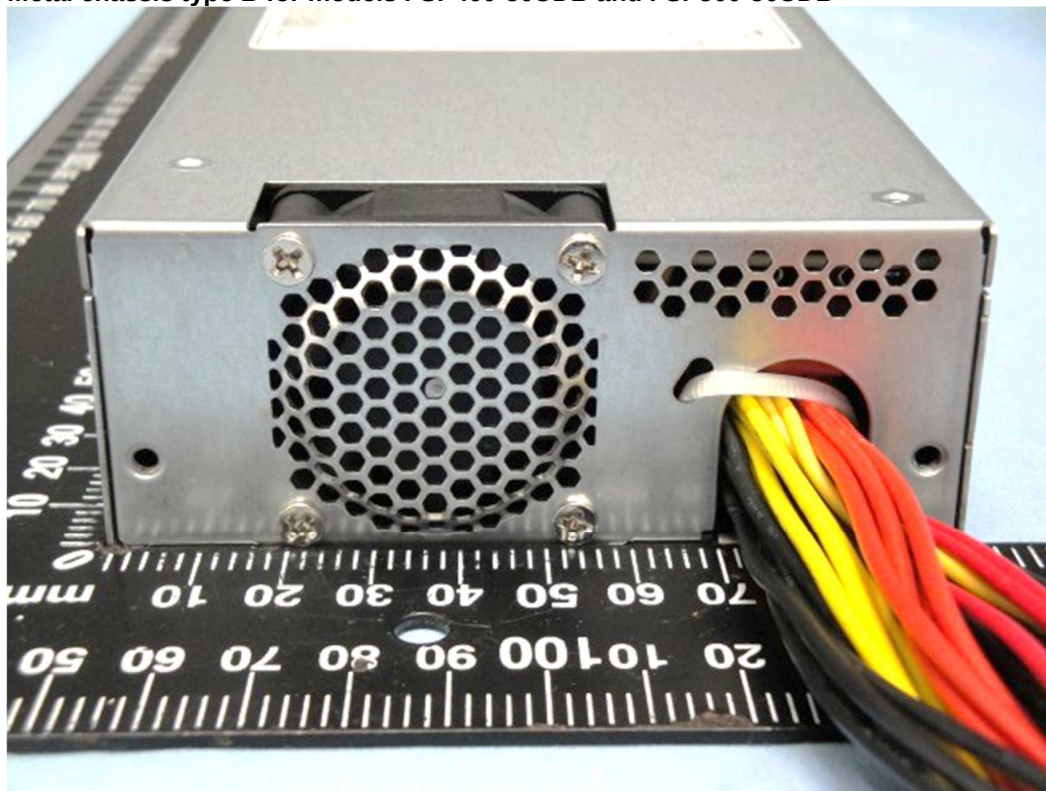
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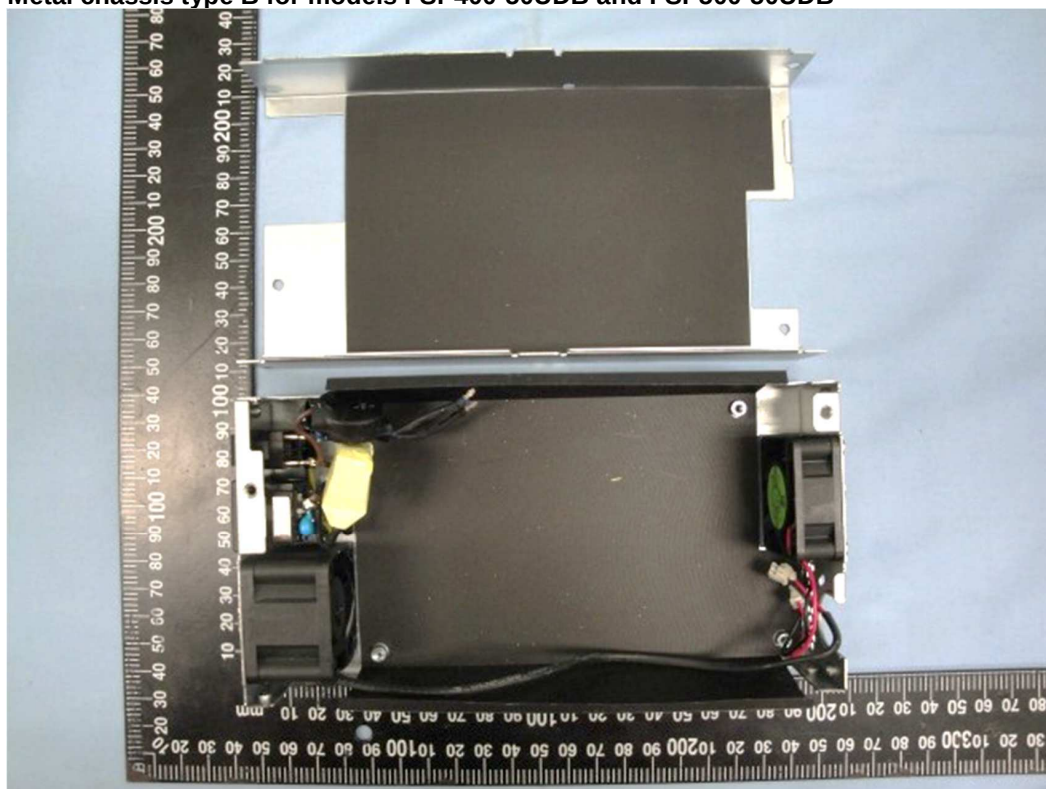
Product: Switching Power Supply

Type Designation: FSP300-50UDB, FSP300-50WDB, FSP400-50UDB, FSP400-50WDB, FSP500-50UDB and FSP500-50WDB

Metal chassis type B for models FSP400-50UDB and FSP500-50UDB



Metal chassis type B for models FSP400-50UDB and FSP500-50UDB



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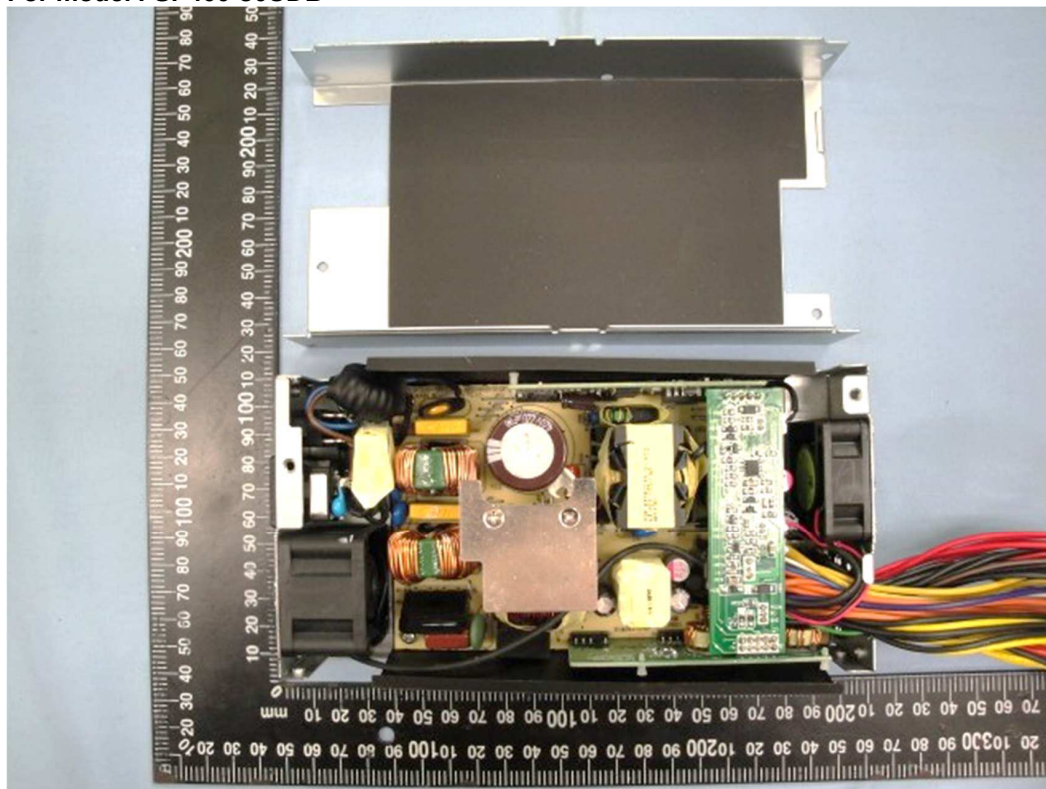
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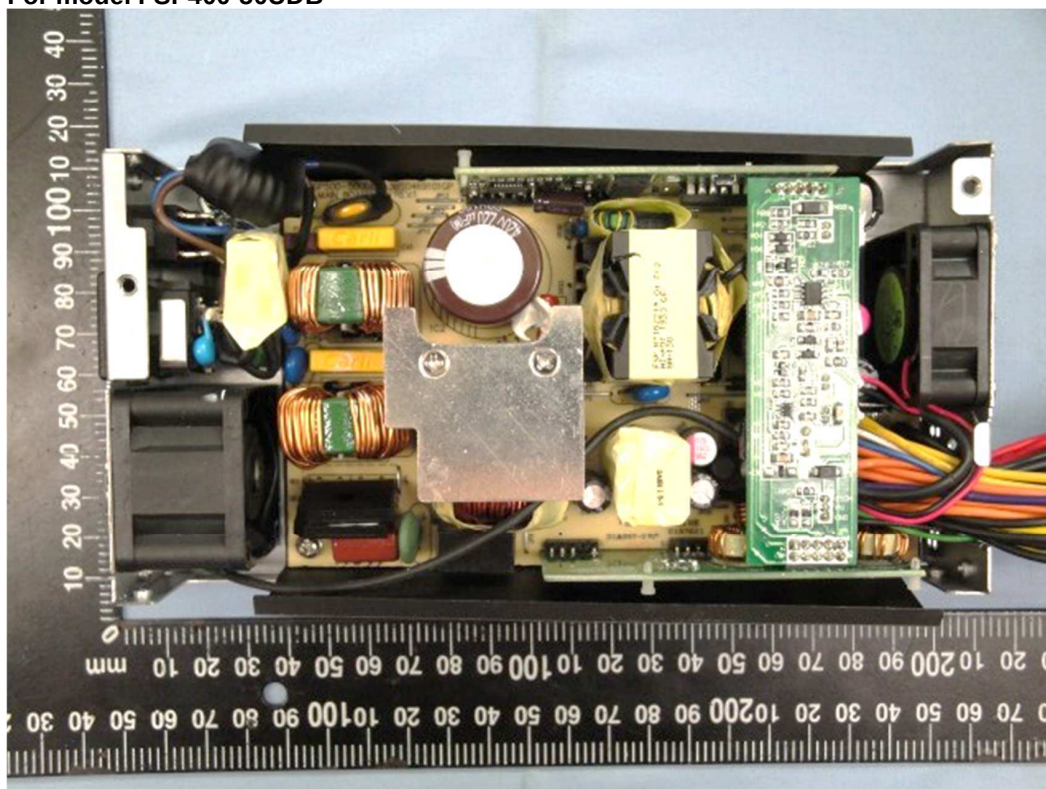
Product: Switching Power Supply

Type Designation: FSP300-50UDB, FSP300-50WDB, FSP400-50UDB, FSP400-50WDB, FSP500-50UDB and FSP500-50WDB

For model FSP400-50UDB



For model FSP400-50UDB



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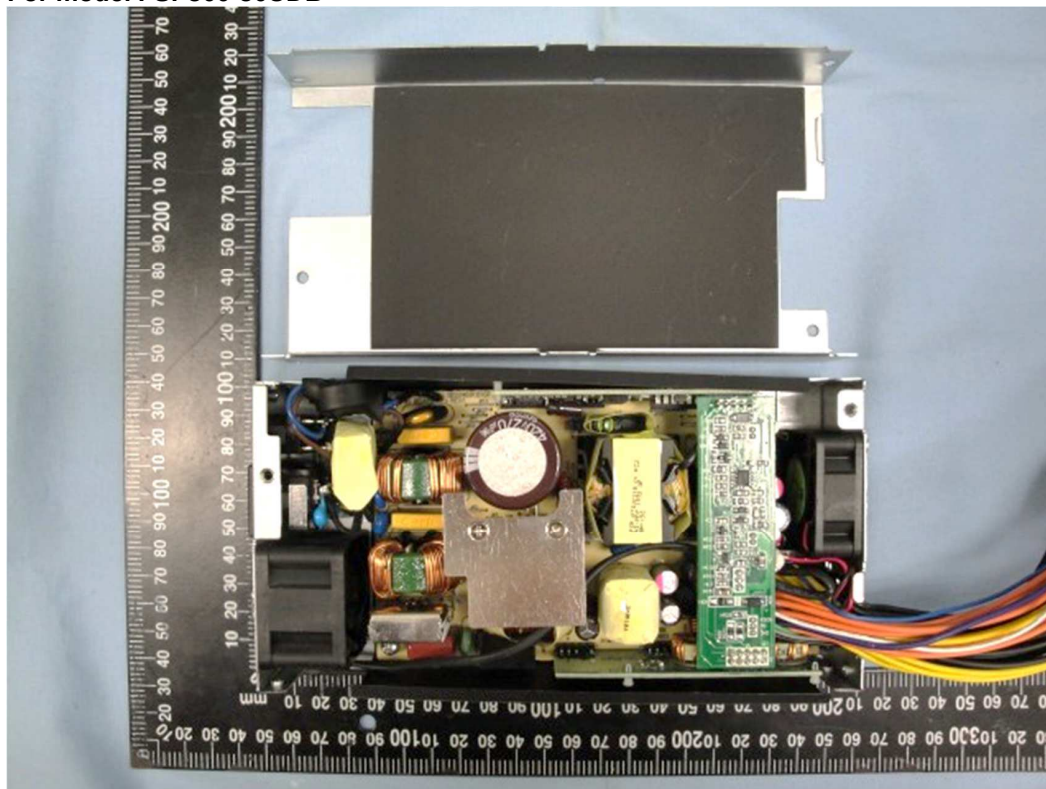
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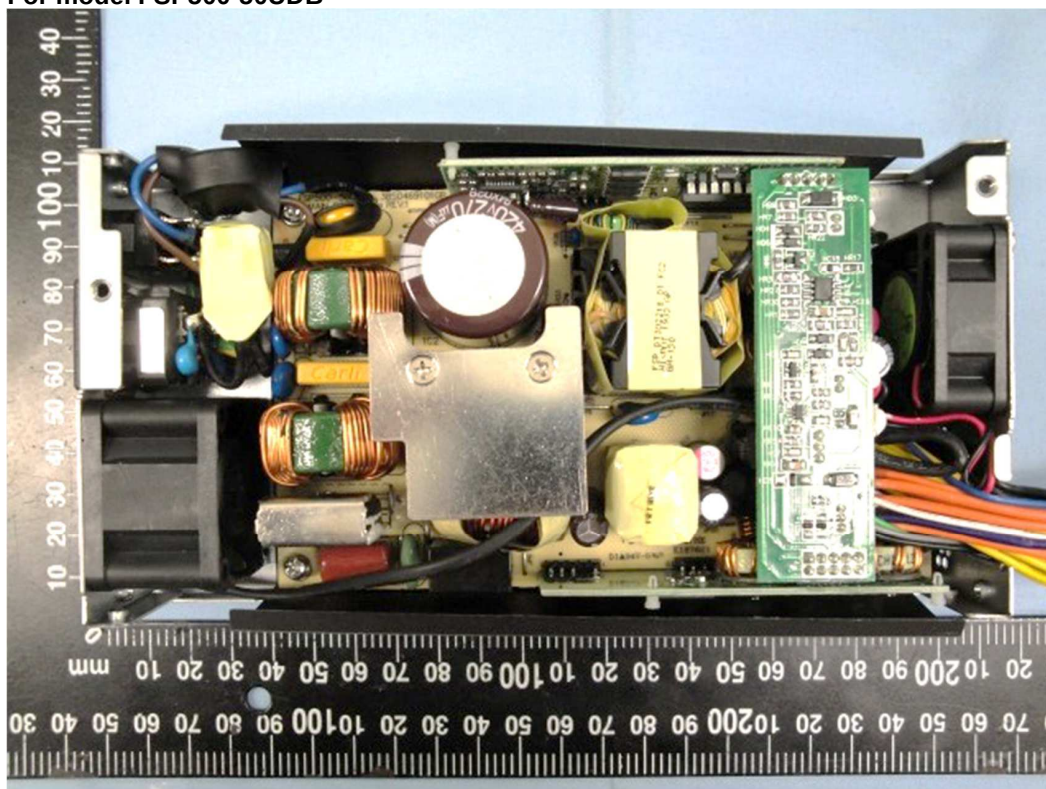
Product: Switching Power Supply

Type Designation: FSP300-50UDB, FSP300-50WDB, FSP400-50UDB, FSP400-50WDB, FSP500-50UDB and FSP500-50WDB

For model FSP500-50UDB



For model FSP500-50UDB



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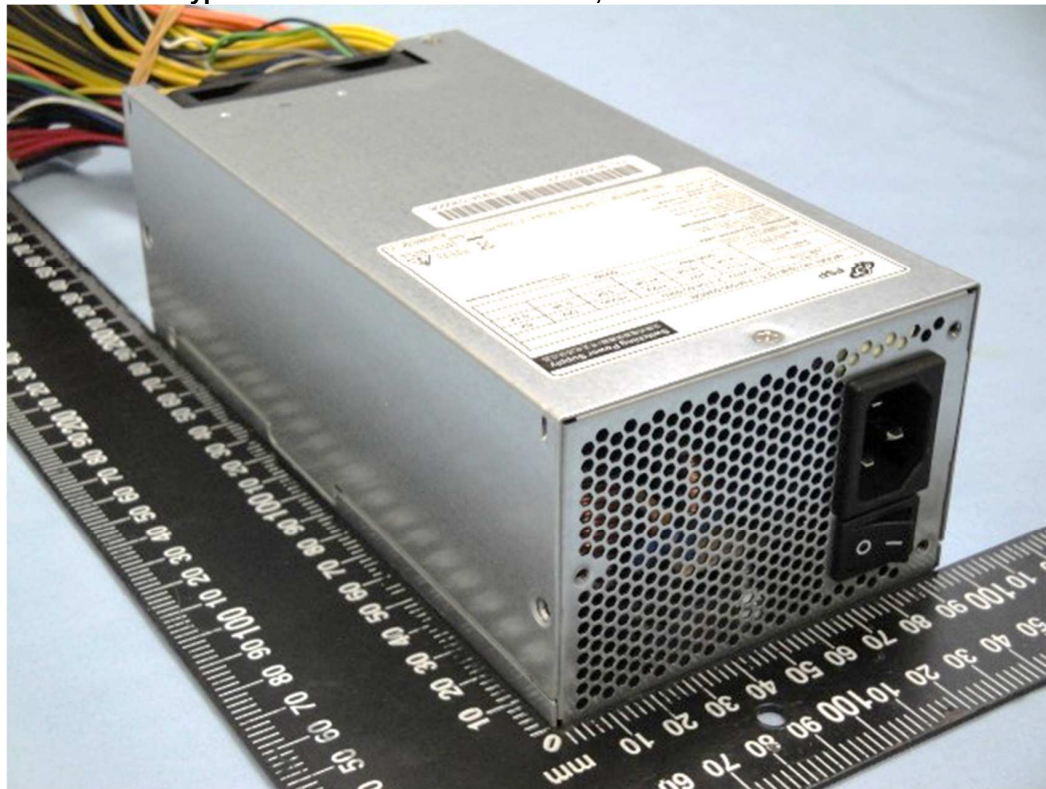
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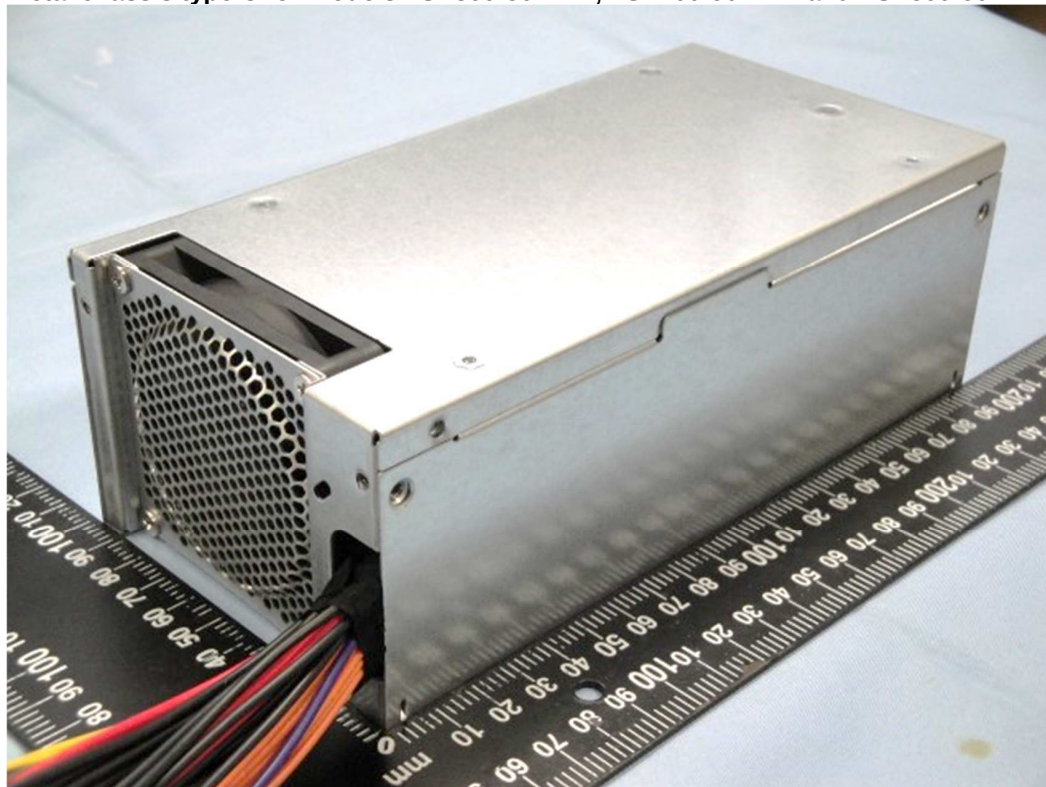
Product: Switching Power Supply

Type Designation: FSP300-50UDB, FSP300-50WDB, FSP400-50UDB, FSP400-50WDB, FSP500-50UDB and FSP500-50WDB

Metal chassis type C for models FSP300-50WDB, FSP400-50WDB and FSP500-50WDB



Metal chassis type C for models FSP300-50WDB, FSP400-50WDB and FSP500-50WDB



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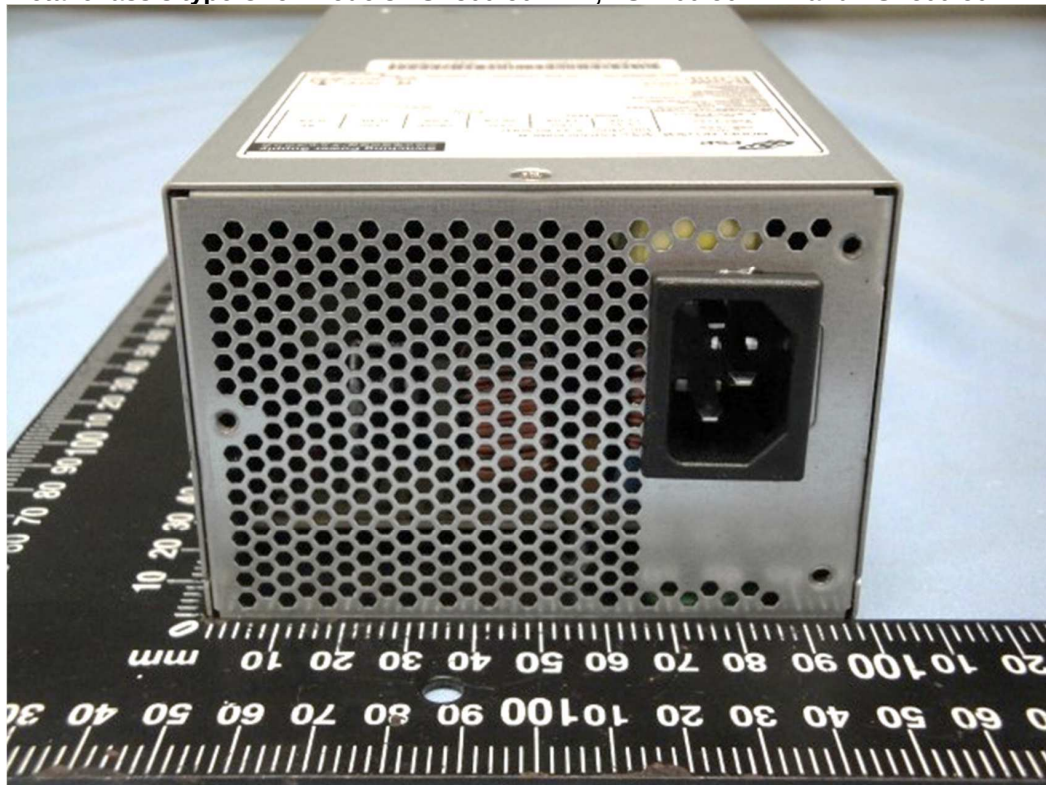
Product: Switching Power Supply

Type Designation: FSP300-50UDB, FSP300-50WDB, FSP400-50UDB, FSP400-50WDB, FSP500-50UDB and FSP500-50WDB

Metal chassis type C for models FSP300-50WDB, FSP400-50WDB and FSP500-50WDB



Metal chassis type C for models FSP300-50WDB, FSP400-50WDB and FSP500-50WDB



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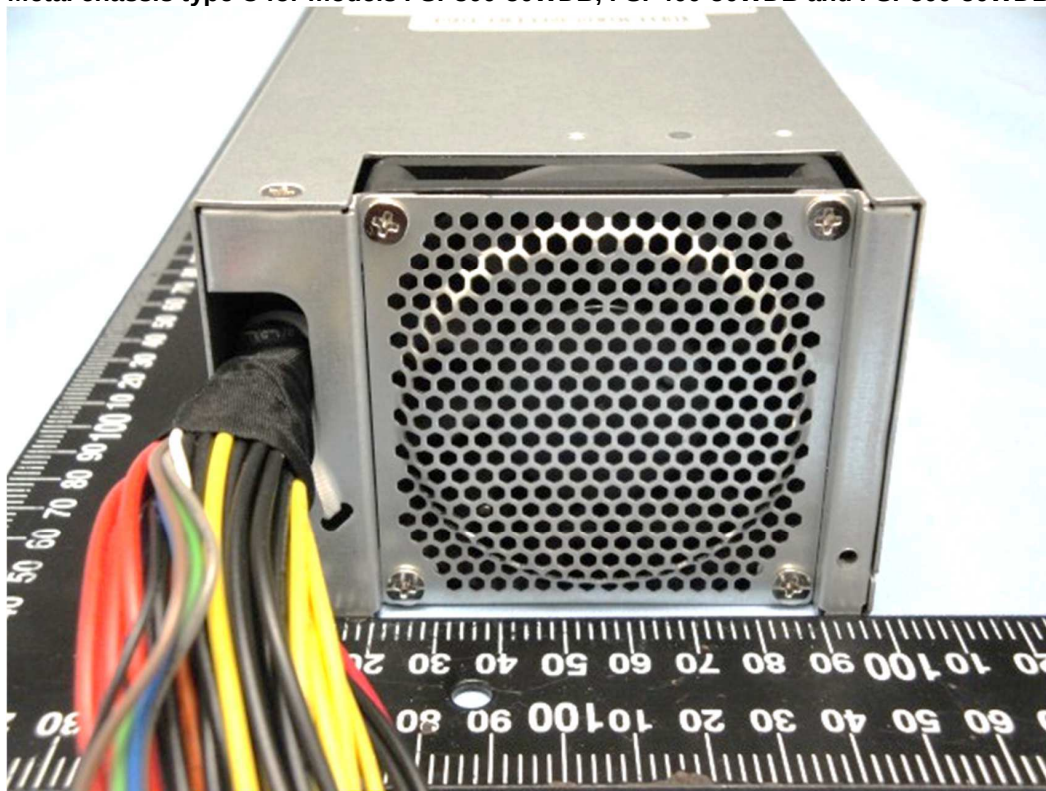
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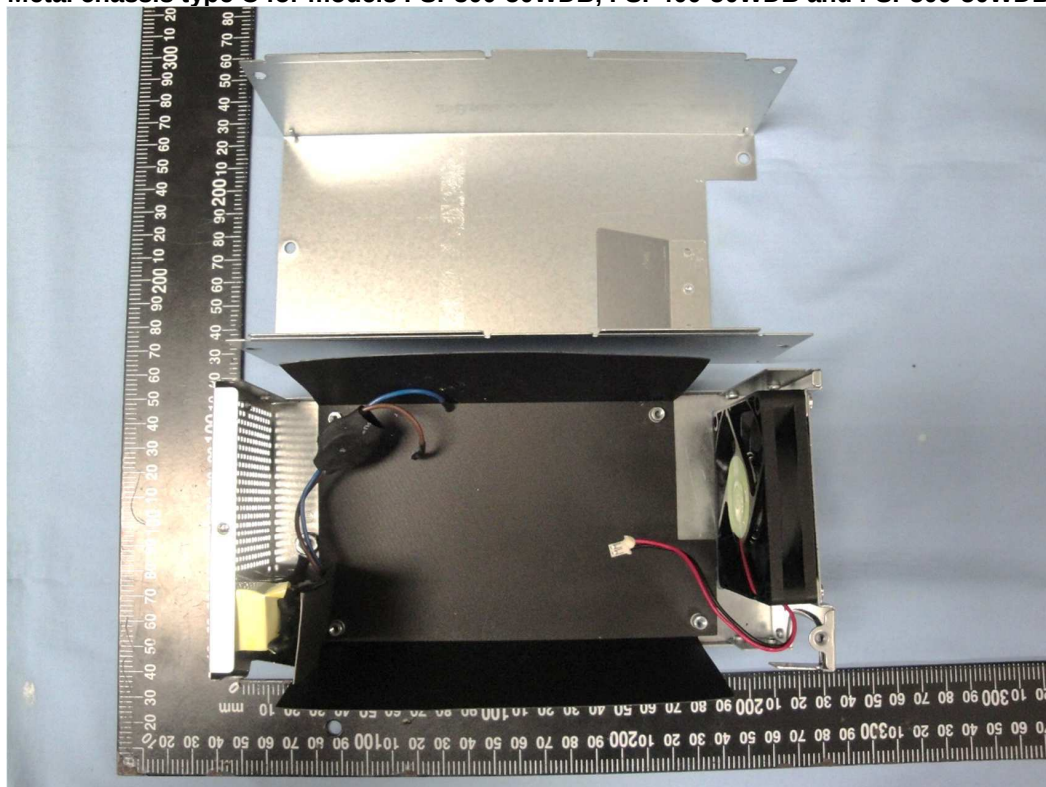
Product: Switching Power Supply

Type Designation: FSP300-50UDB, FSP300-50WDB, FSP400-50UDB, FSP400-50WDB, FSP500-50UDB and FSP500-50WDB

Metal chassis type C for models FSP300-50WDB, FSP400-50WDB and FSP500-50WDB



Metal chassis type C for models FSP300-50WDB, FSP400-50WDB and FSP500-50WDB



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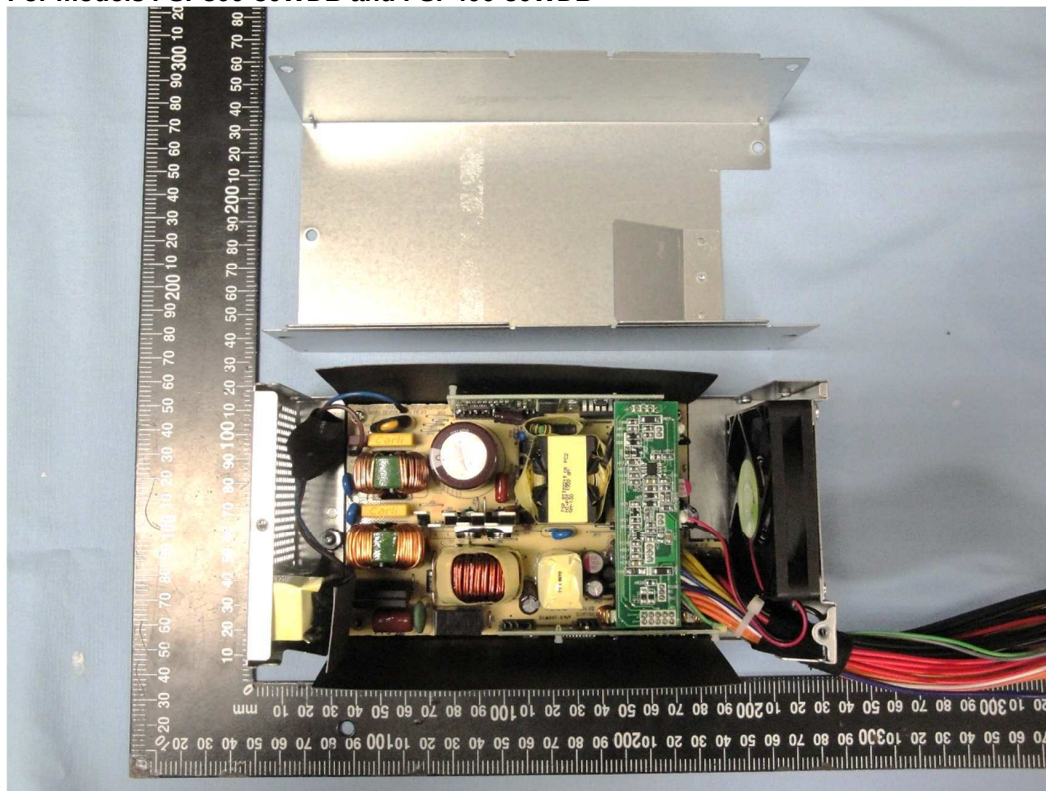
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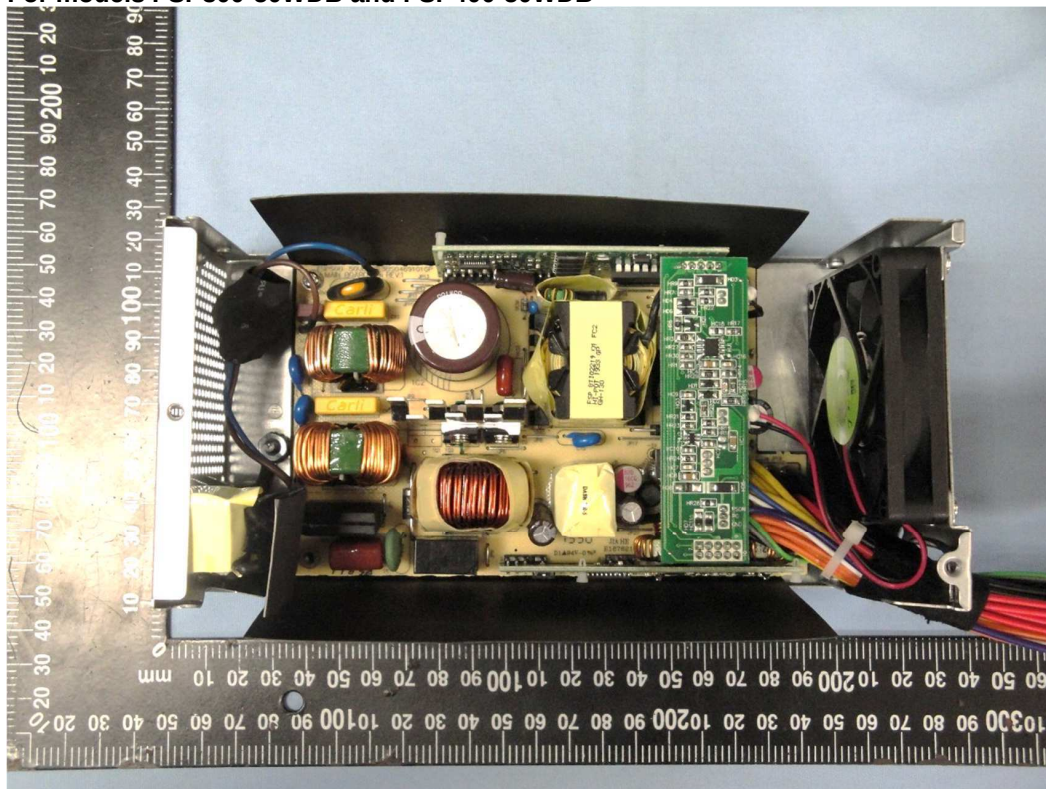
Product: Switching Power Supply

Type Designation: FSP300-50UDB, FSP300-50WDB, FSP400-50UDB, FSP400-50WDB, FSP500-50UDB and FSP500-50WDB

For models FSP300-50WDB and FSP400-50WDB



For models FSP300-50WDB and FSP400-50WDB



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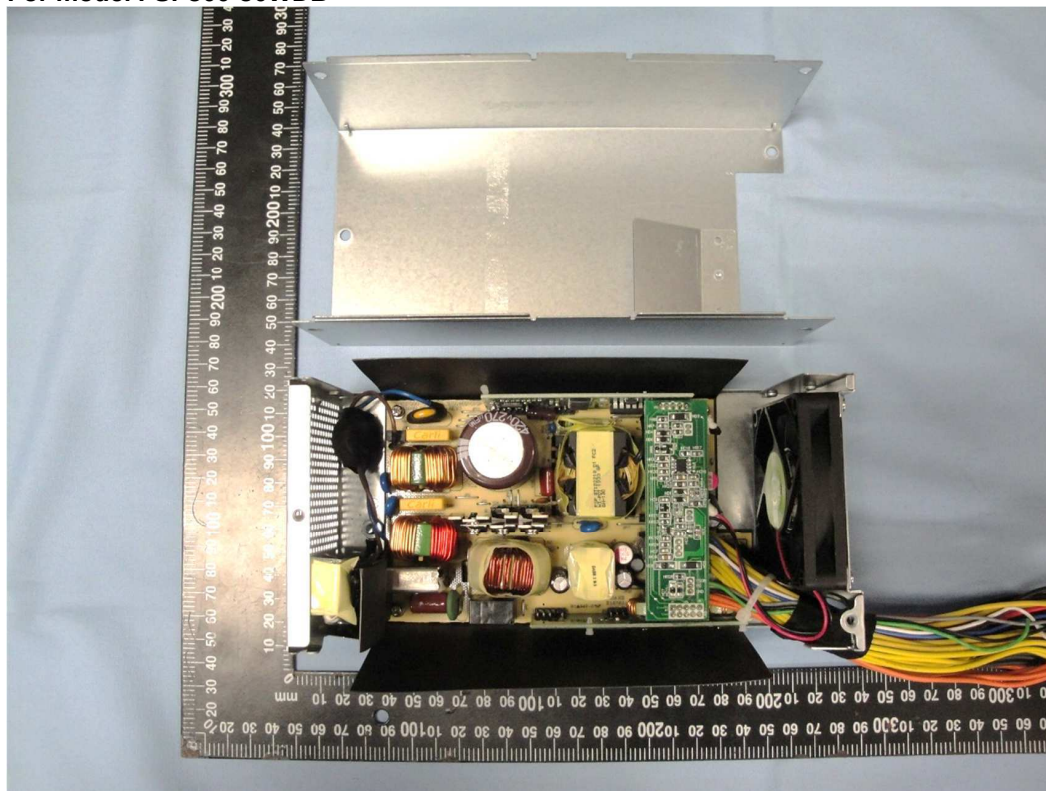
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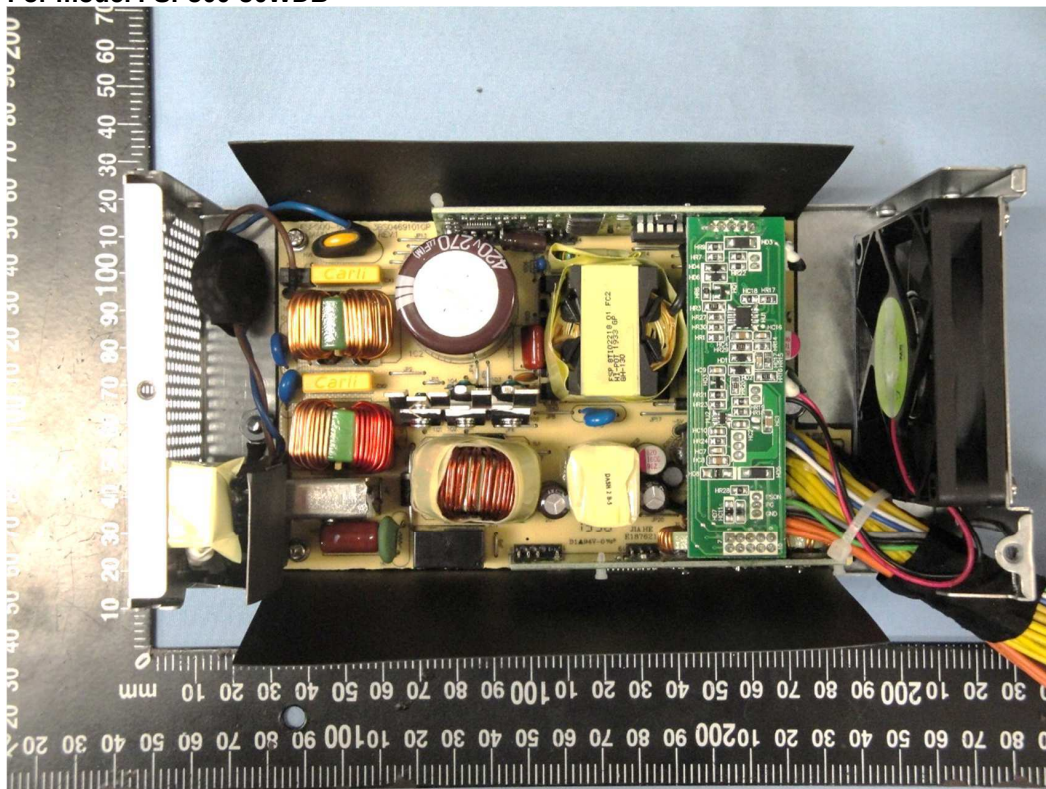
Product: Switching Power Supply

Type Designation: FSP300-50UDB, FSP300-50WDB, FSP400-50UDB, FSP400-50WDB, FSP500-50UDB and FSP500-50WDB

For model FSP500-50WDB



For model FSP500-50WDB



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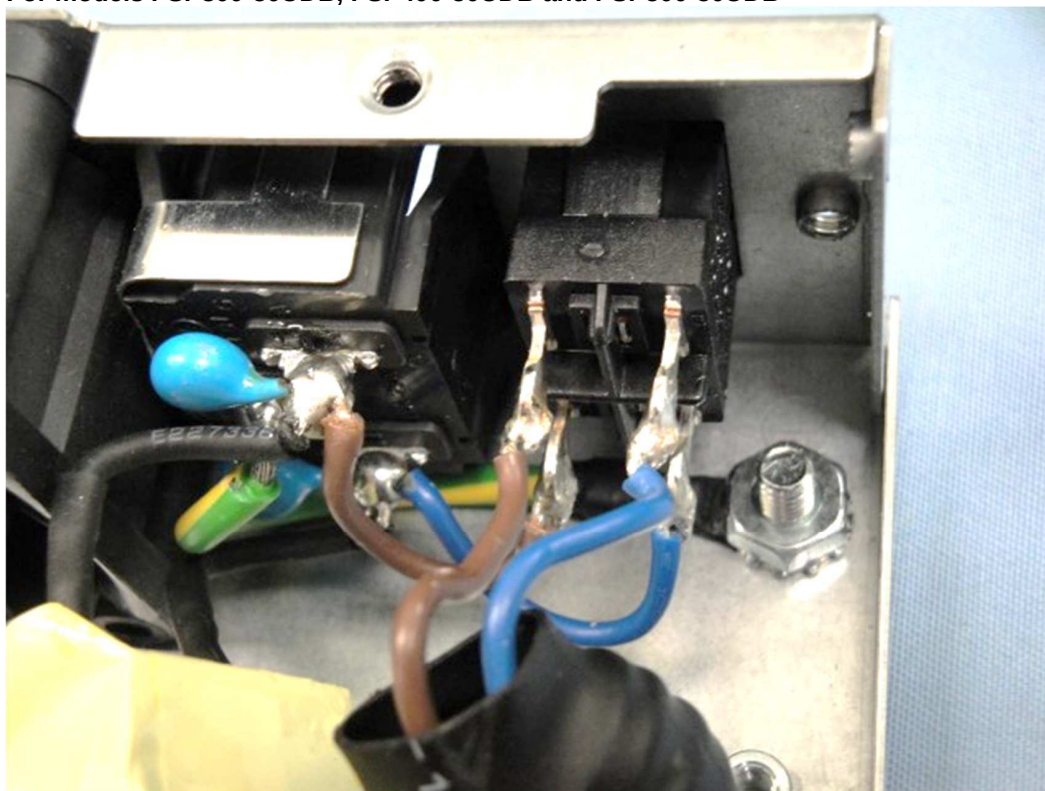
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Product: Switching Power Supply

Type Designation: FSP300-50UDB, FSP300-50WDB, FSP400-50UDB, FSP400-50WDB, FSP500-50UDB and FSP500-50WDB

For models FSP300-50UDB, FSP400-50UDB and FSP500-50UDB



For models FSP300-50WDB, FSP400-50WDB and FSP500-50WDB



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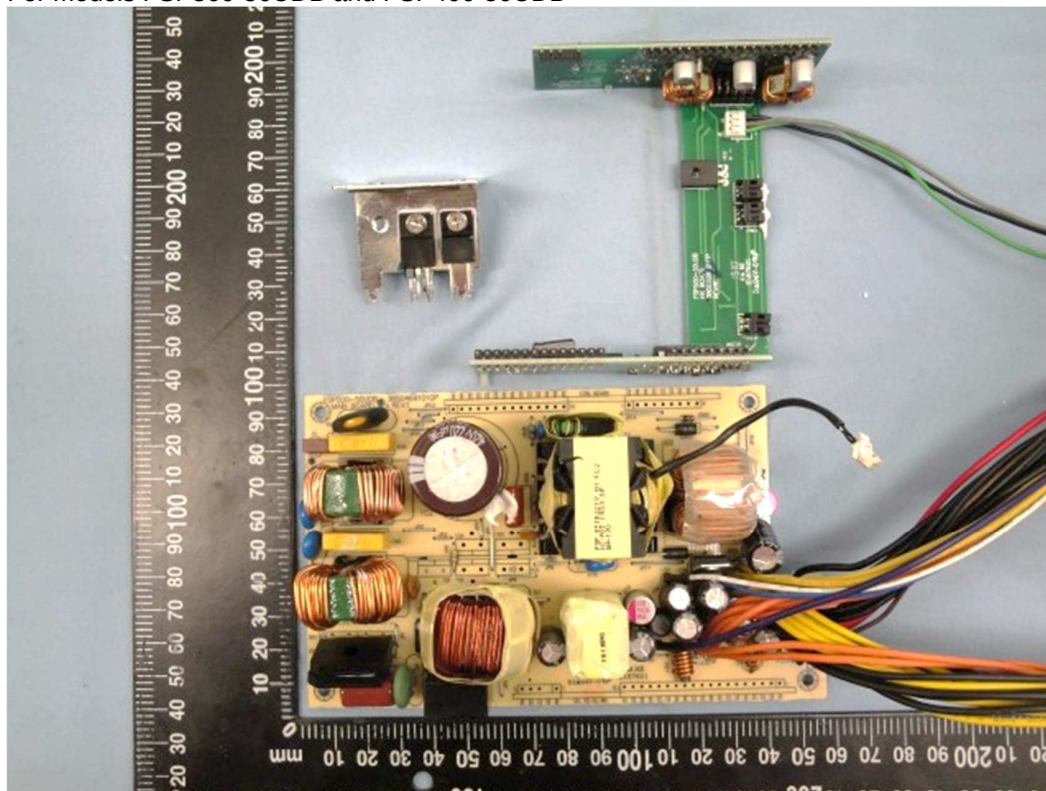
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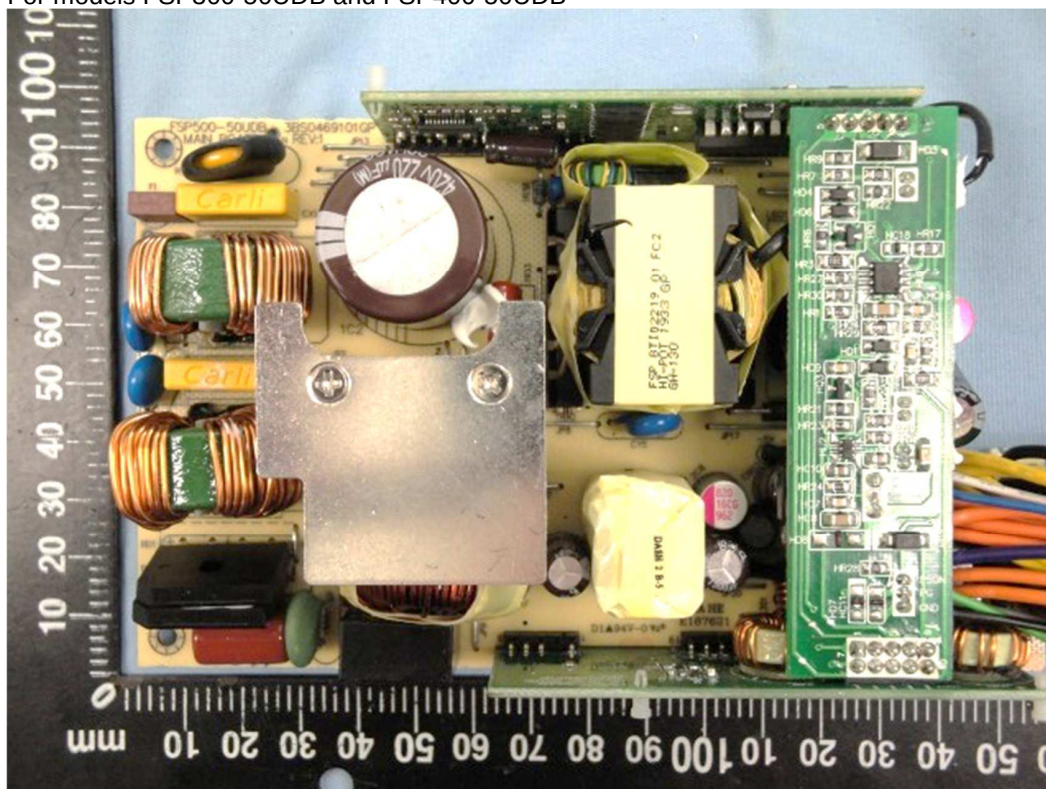
Product: Switching Power Supply

Type Designation: FSP300-50UDB, FSP300-50WDB, FSP400-50UDB, FSP400-50WDB, FSP500-50UDB and FSP500-50WDB

For models FSP300-50UDB and FSP400-50UDB



For models FSP300-50UDB and FSP400-50UDB



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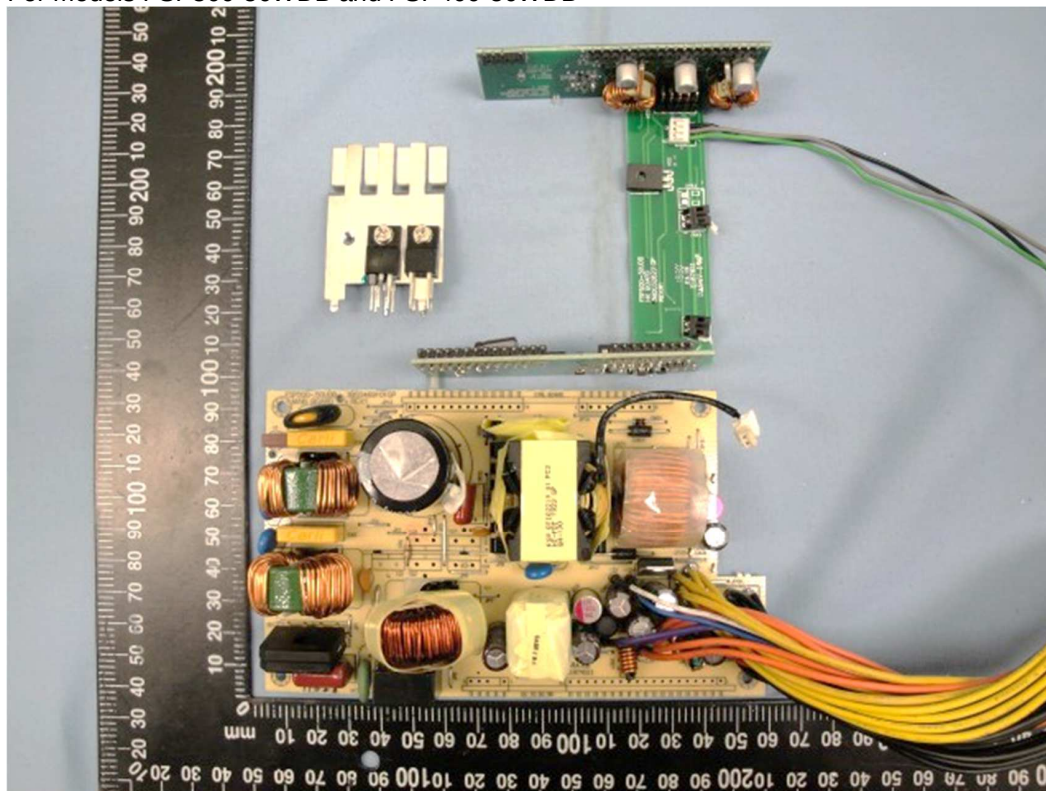
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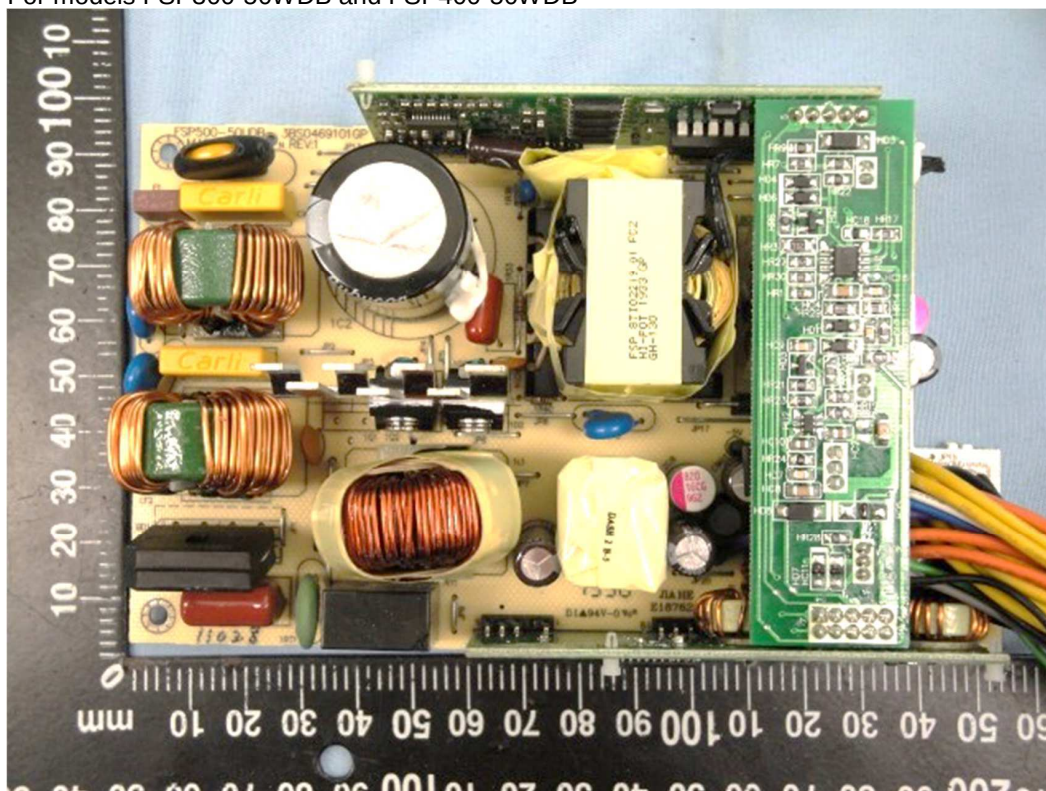
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Type Designation: FSP300-50UDB, FSP300-50WDB, FSP400-50UDB, FSP400-50WDB, FSP500-50UDB and FSP500-50WDB

For models FSP300-50WDB and FSP400-50WDB



For models FSP300-50WDB and FSP400-50WDB



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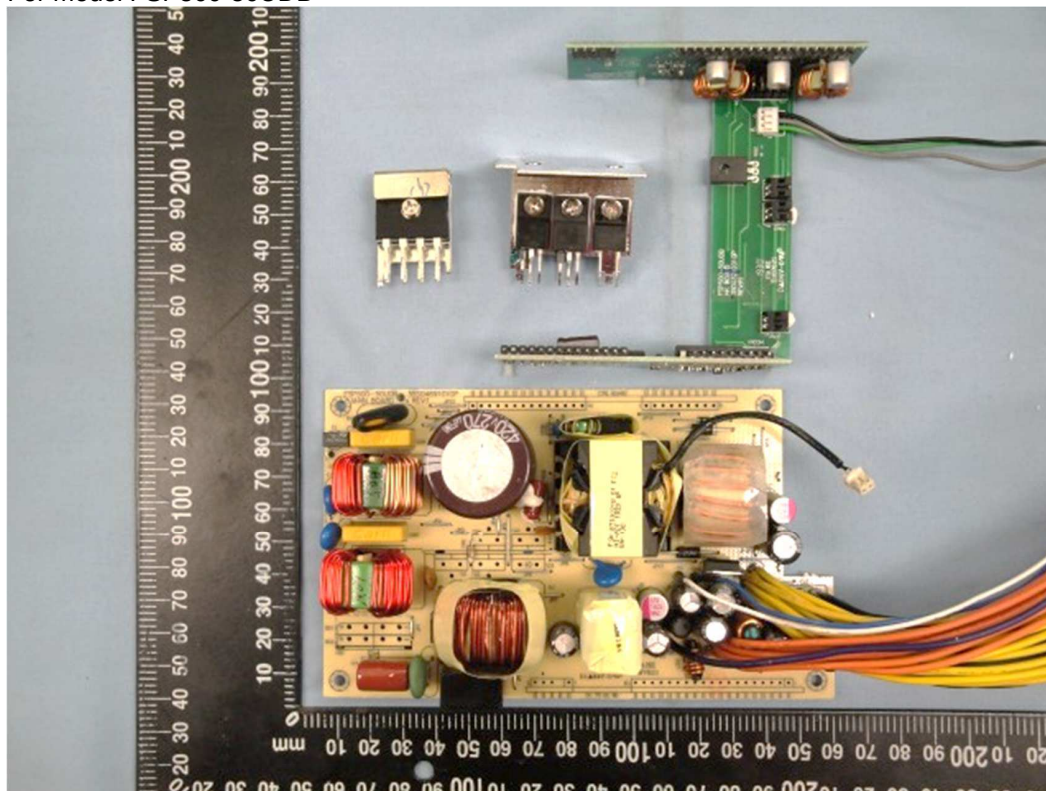
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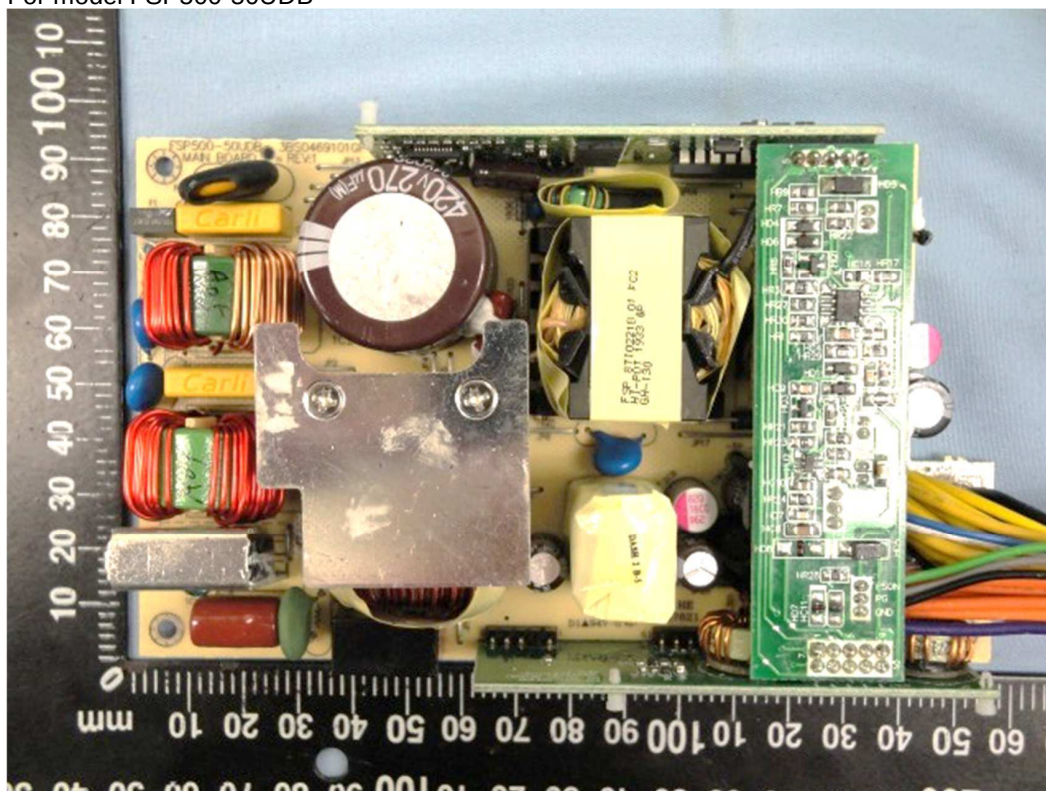
Product: Switching Power Supply

Type Designation: FSP300-50UDB, FSP300-50WDB, FSP400-50UDB, FSP400-50WDB, FSP500-50UDB and FSP500-50WDB

For model FSP500-50UDB



For model FSP500-50UDB



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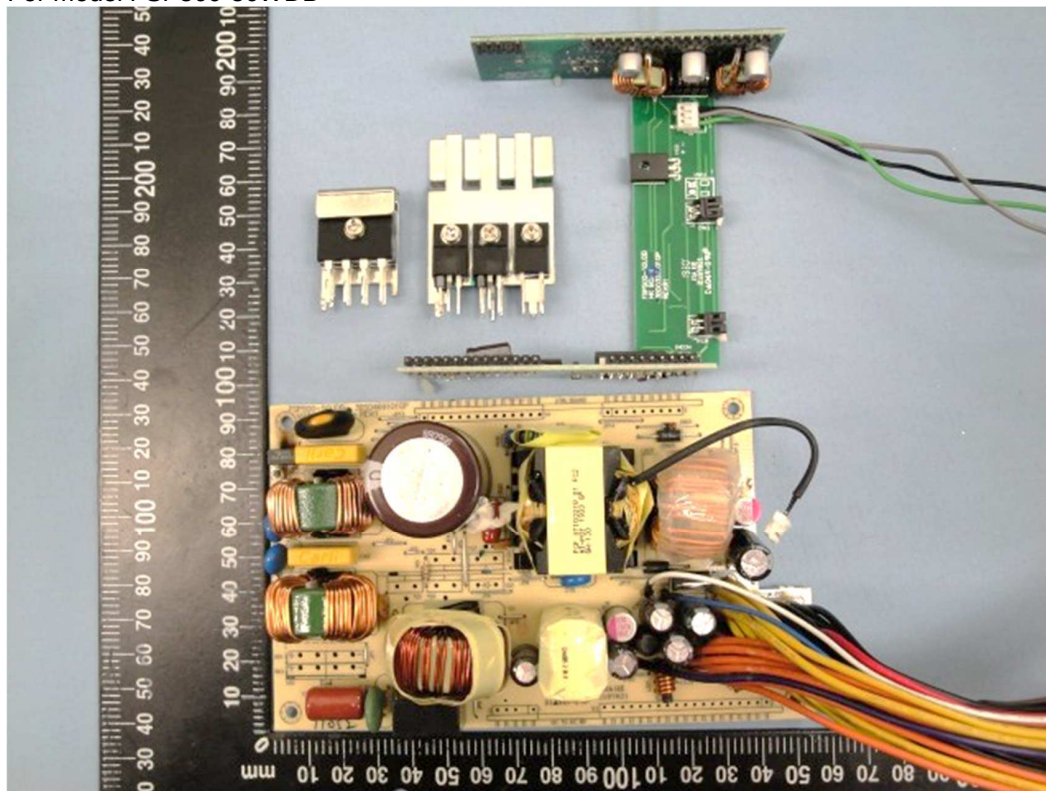
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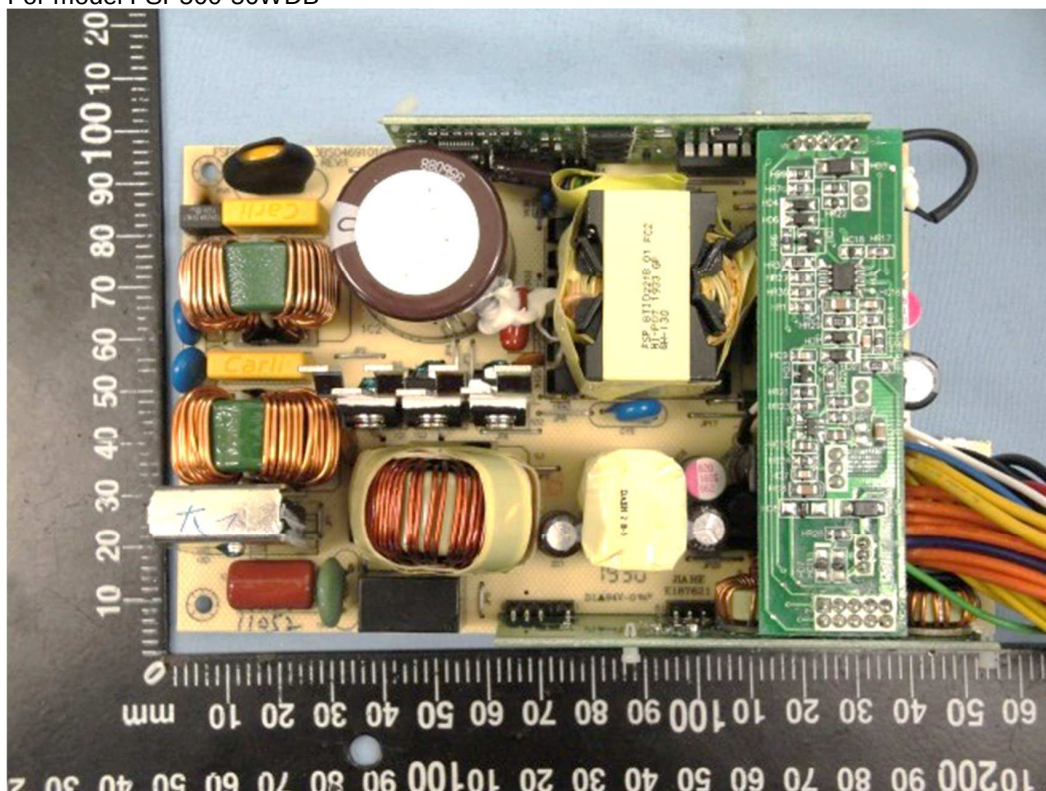
Product: Switching Power Supply

Type Designation: FSP300-50UDB, FSP300-50WDB, FSP400-50UDB, FSP400-50WDB, FSP500-50UDB and FSP500-50WDB

For model FSP500-50WDB



For model FSP500-50WDB



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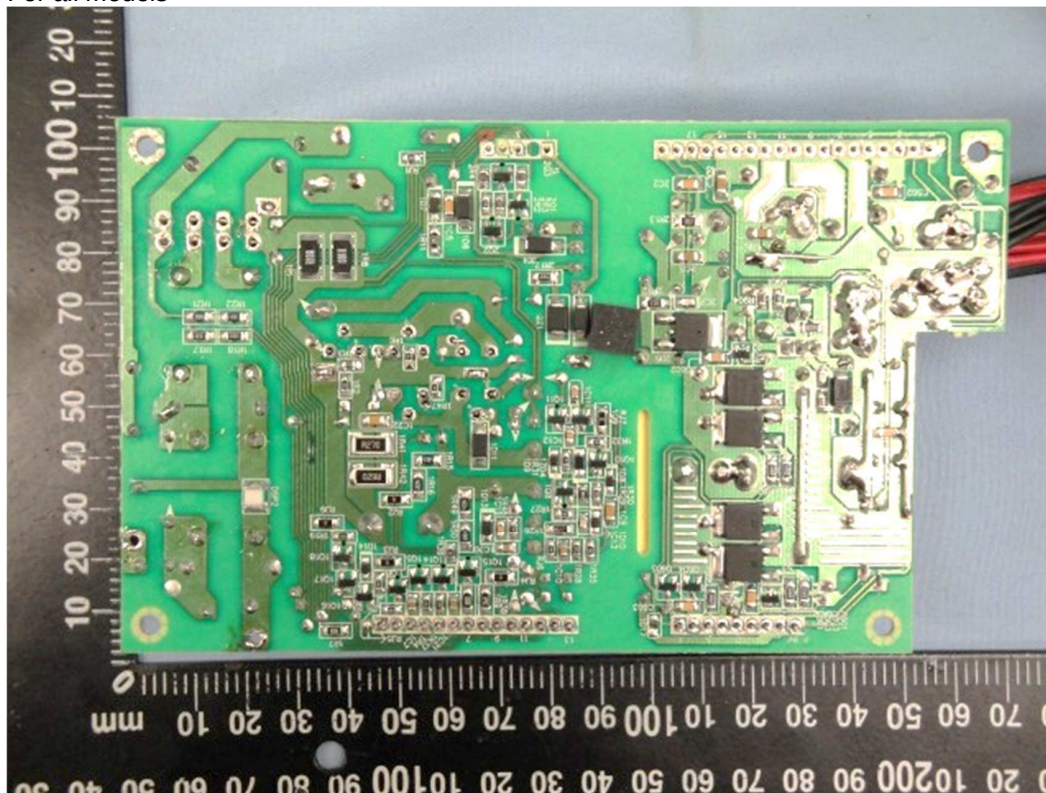
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Product: Switching Power Supply

Type Designation: FSP300-50UDB, FSP300-50WDB, FSP400-50UDB, FSP400-50WDB, FSP500-50UDB and FSP500-50WDB

For all models



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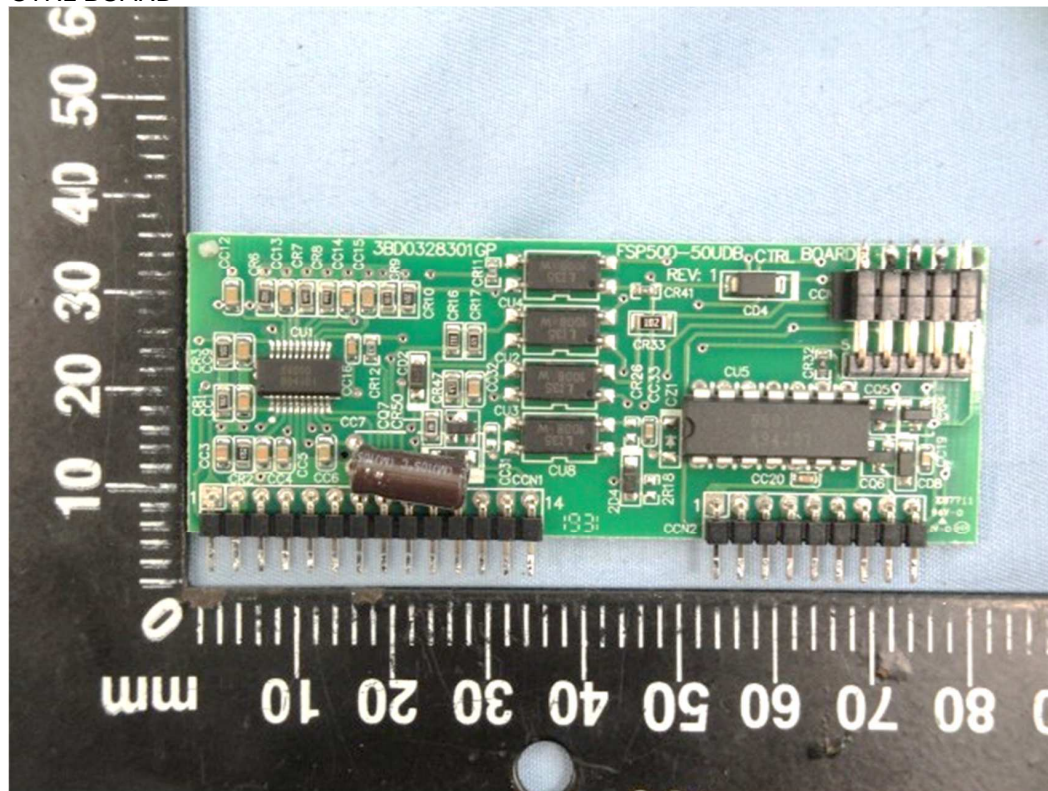
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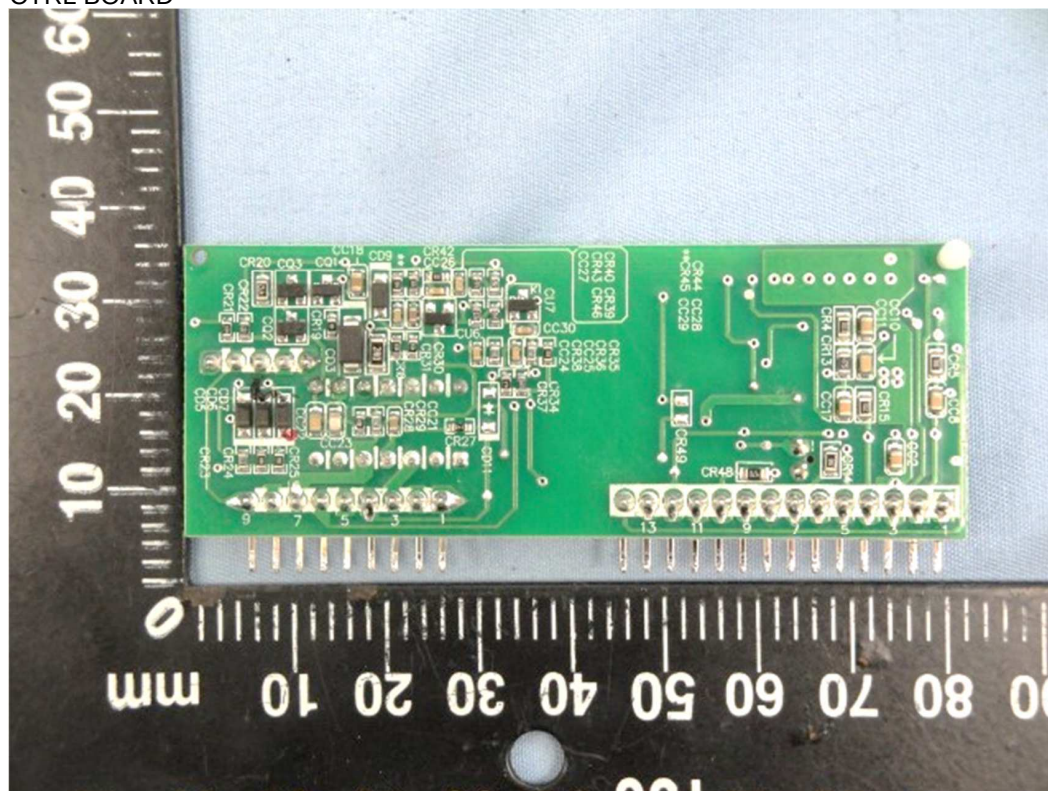
Product: Switching Power Supply

Type Designation: FSP300-50UDB, FSP300-50WDB, FSP400-50UDB, FSP400-50WDB, FSP500-50UDB and FSP500-50WDB

CTRL BOARD



CTRL BOARD



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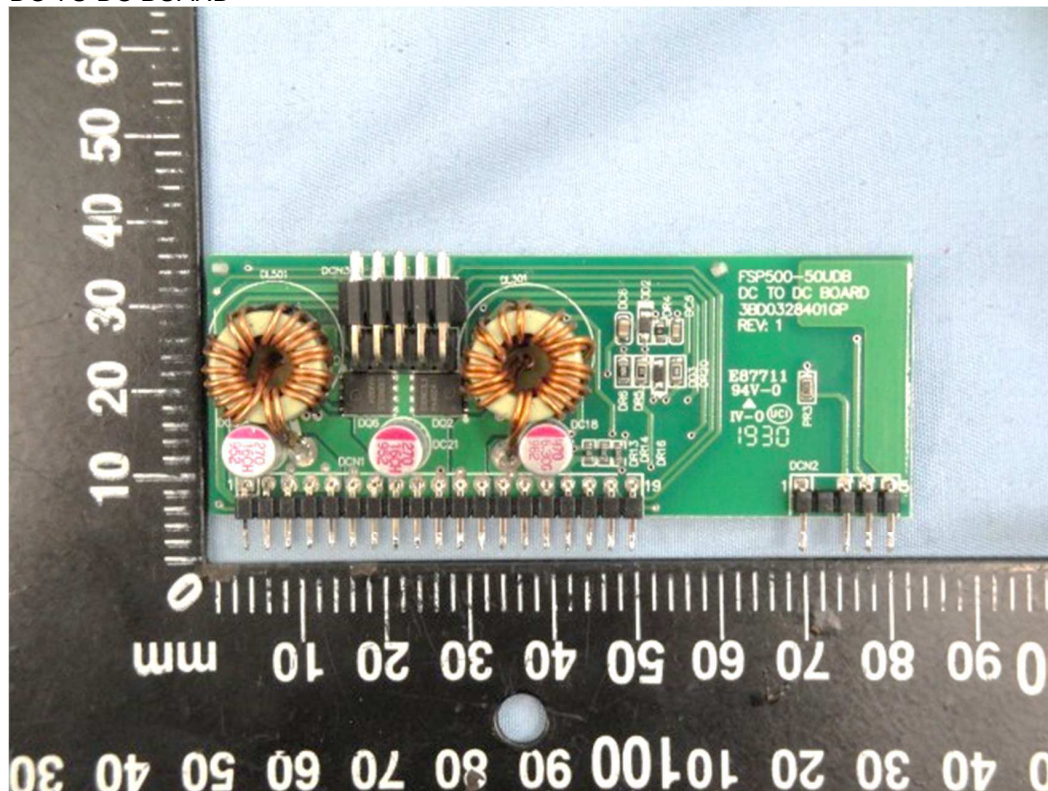
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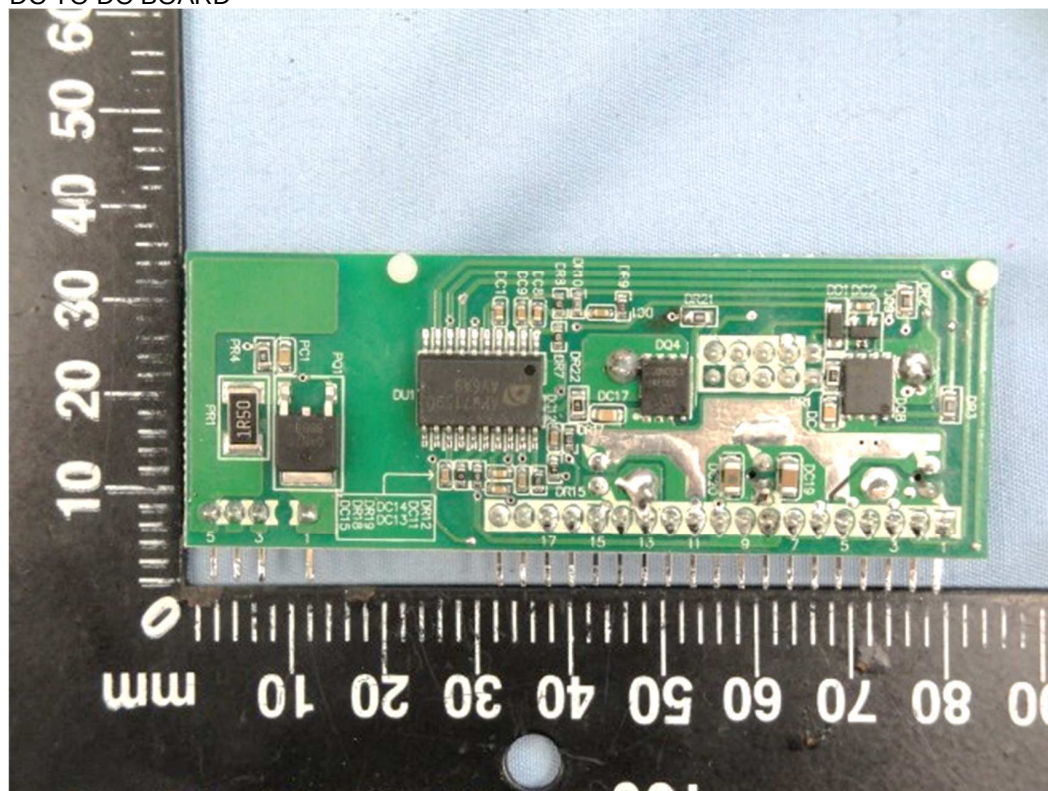
Product: Switching Power Supply

Type Designation: FSP300-50UDB, FSP300-50WDB, FSP400-50UDB, FSP400-50WDB, FSP500-50UDB and FSP500-50WDB

DC TO DC BOARD



DC TO DC BOARD



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ATTACHMENT

Photo Documentation



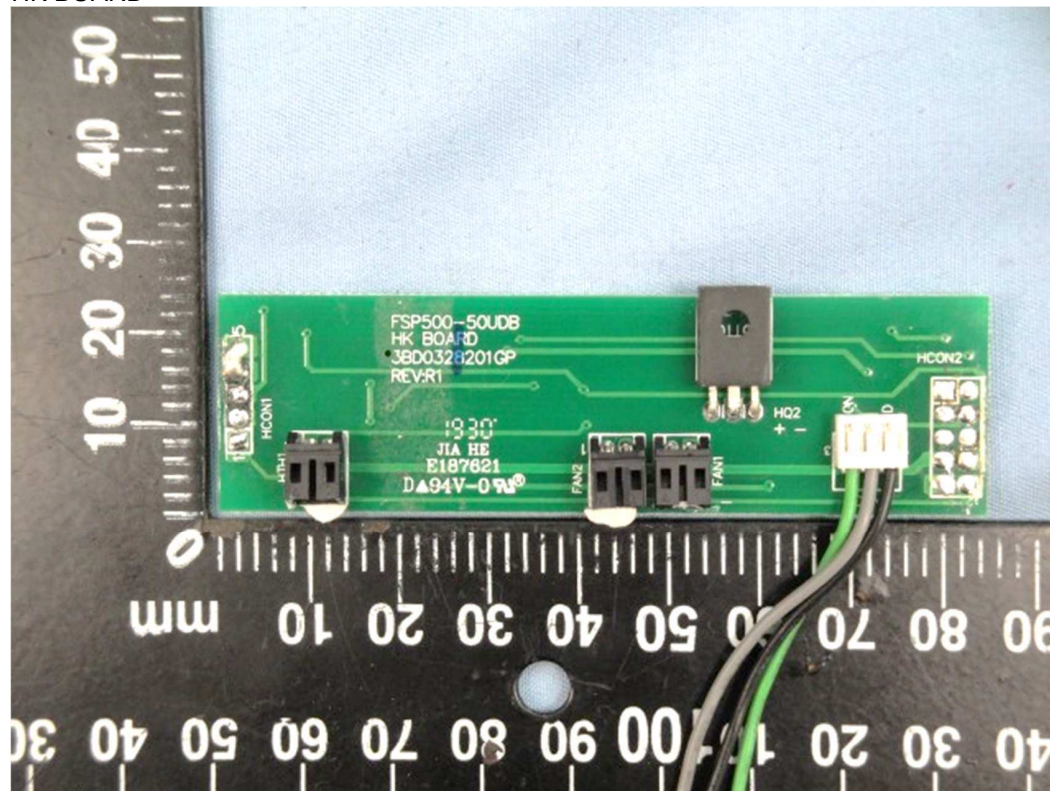
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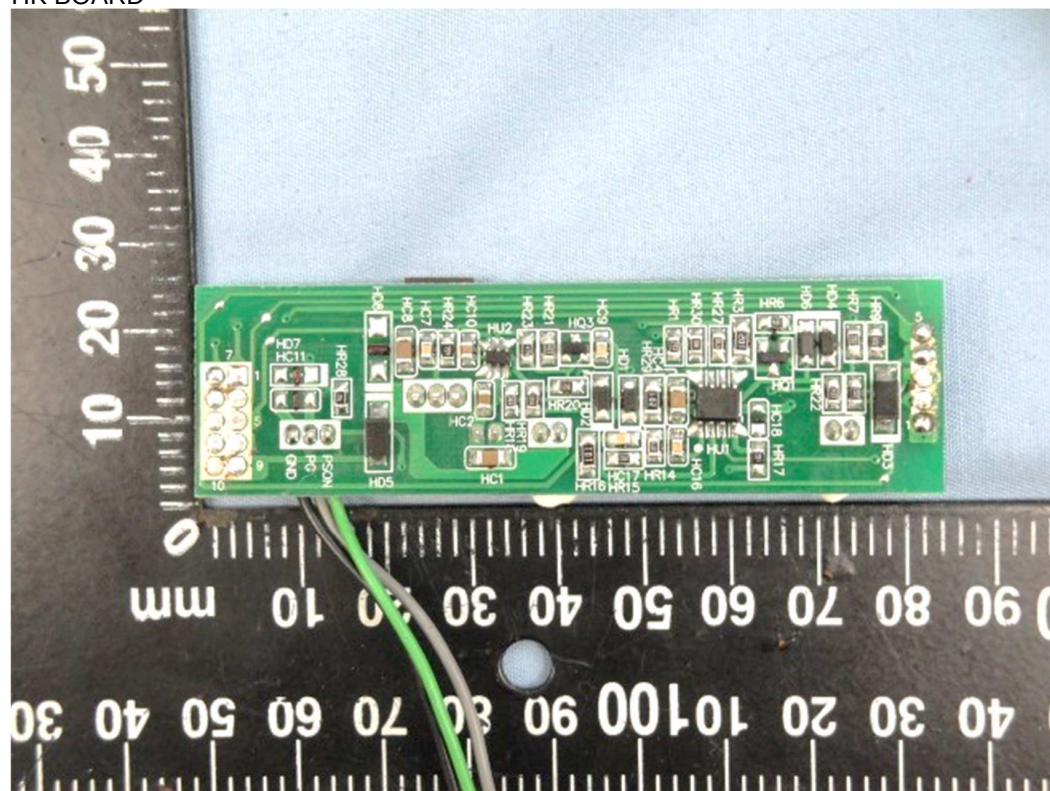
Product: Switching Power Supply

Type Designation: FSP300-50UDB, FSP300-50WDB, FSP400-50UDB, FSP400-50WDB, FSP500-50UDB and FSP500-50WDB

HK BOARD



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Rev. 0

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Photo Documentation

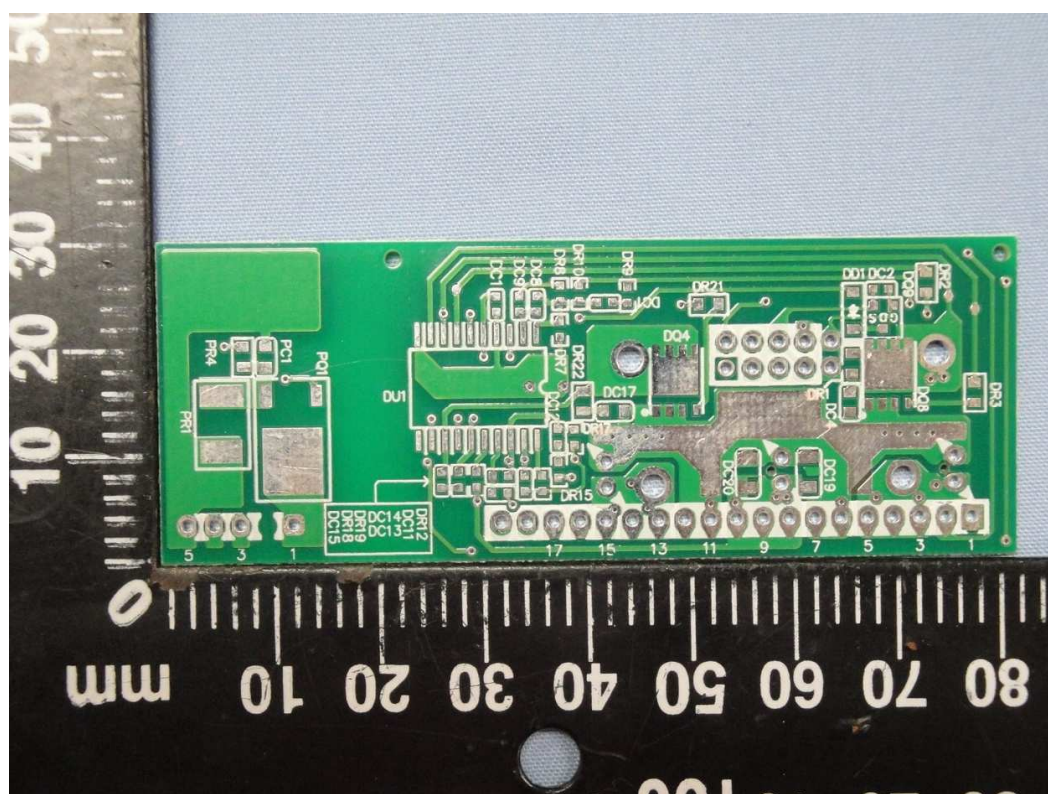
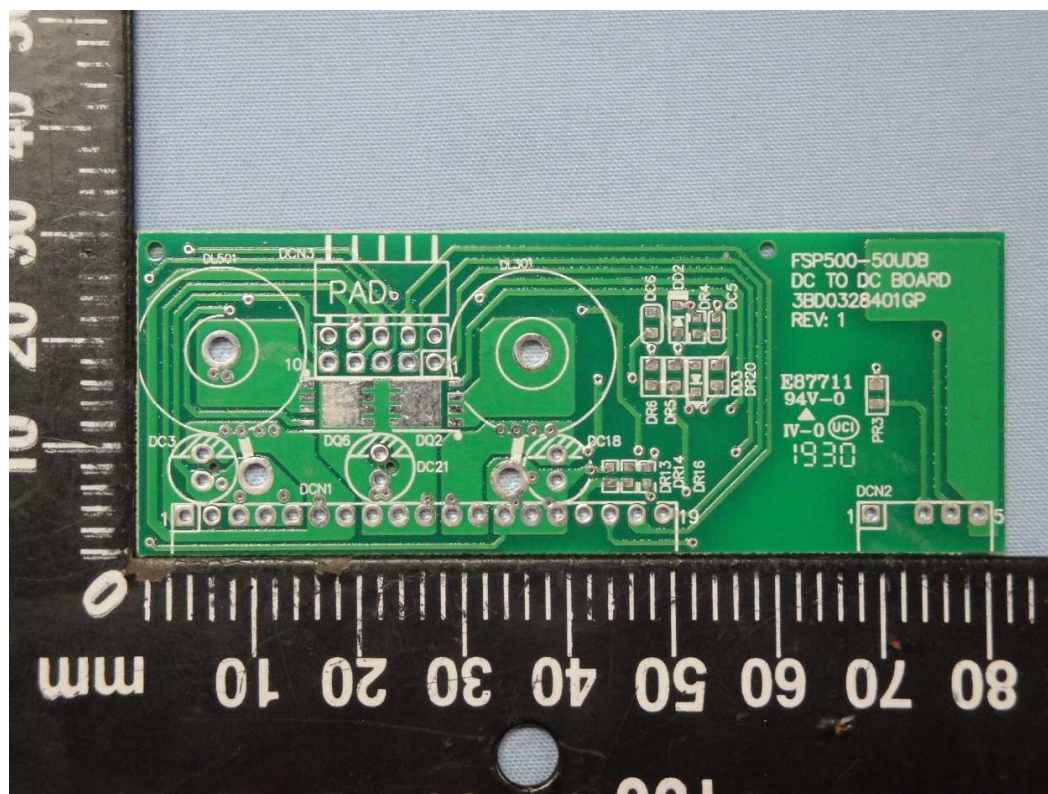


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Report No.: CN2319JQ 001

Product: Switching Power Supply

Type Designation: FSP300-50UDB, FSP300-50WDB, FSP400-50UDB, FSP400-50WDB, FSP500-50UDB and FSP500-50WDB



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Photo Documentation

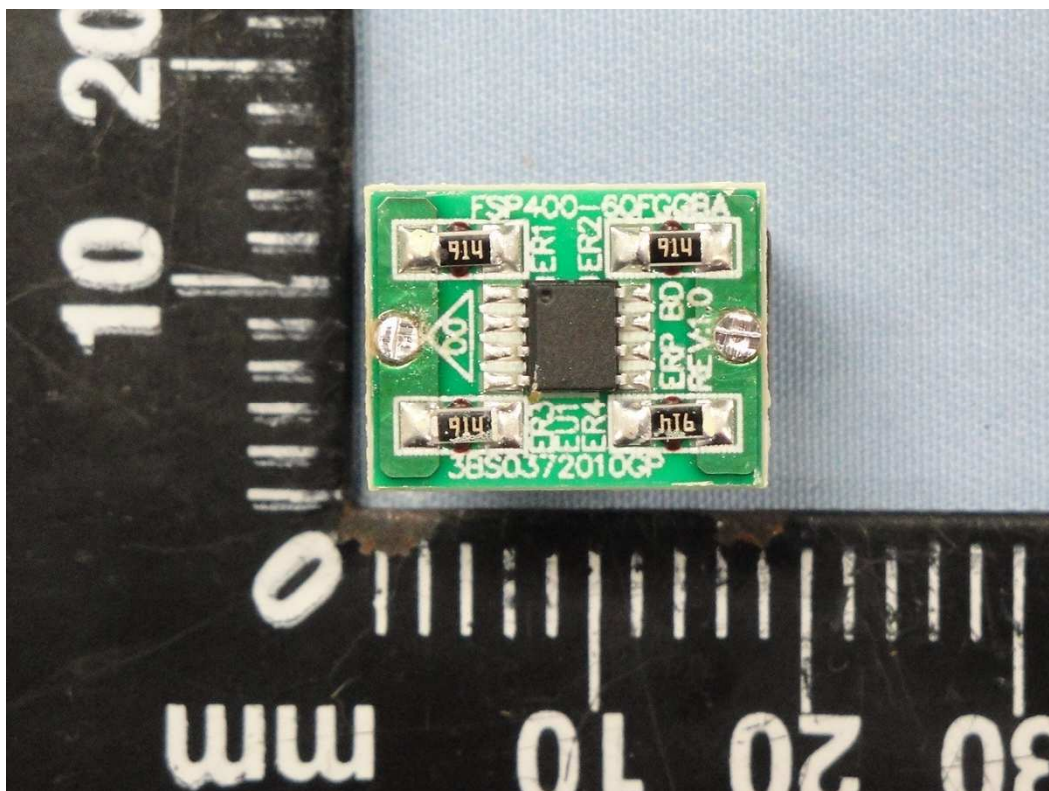
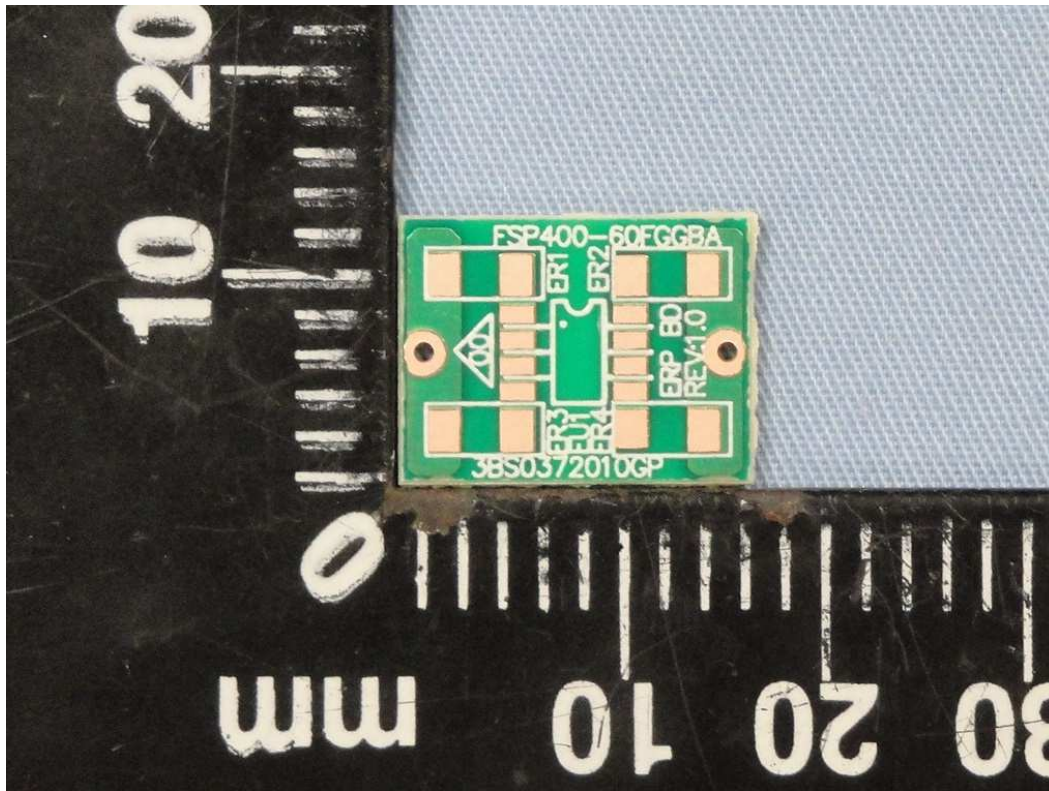


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Report No.: CN2319JQ 001

Product: Switching Power Supply

Type Designation: FSP300-50UDB, FSP300-50WDB, FSP400-50UDB, FSP400-50WDB, FSP500-50UDB and FSP500-50WDB



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ATTACHMENT

Photo Documentation

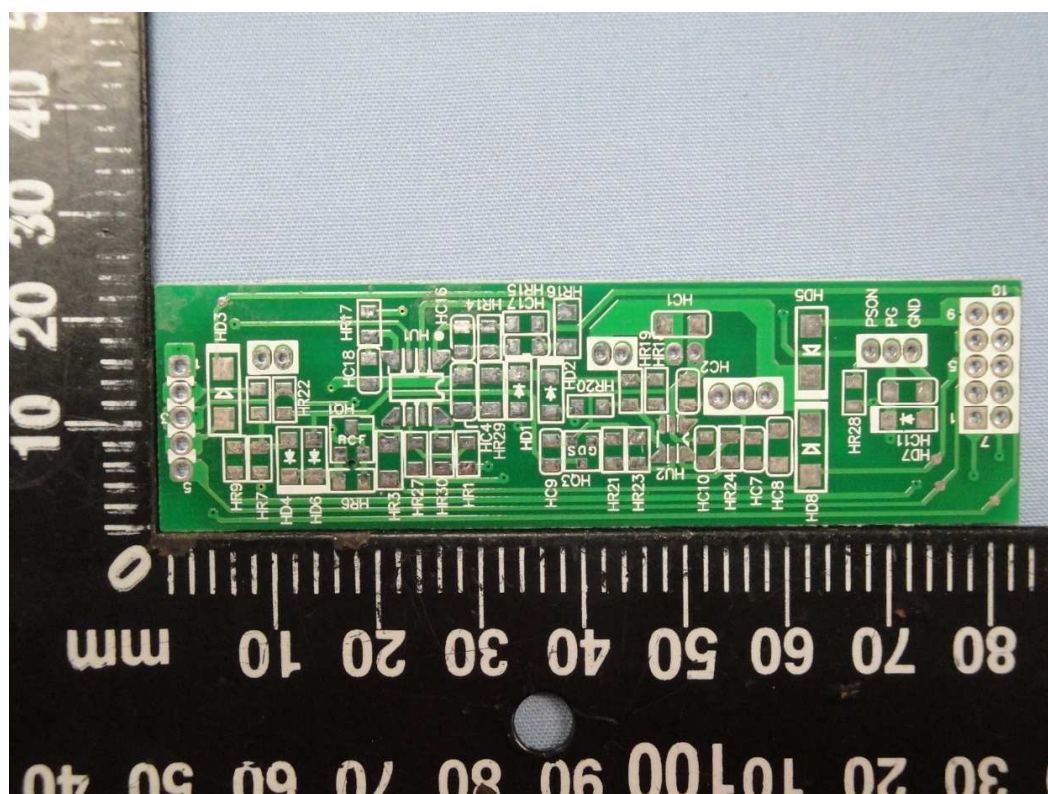
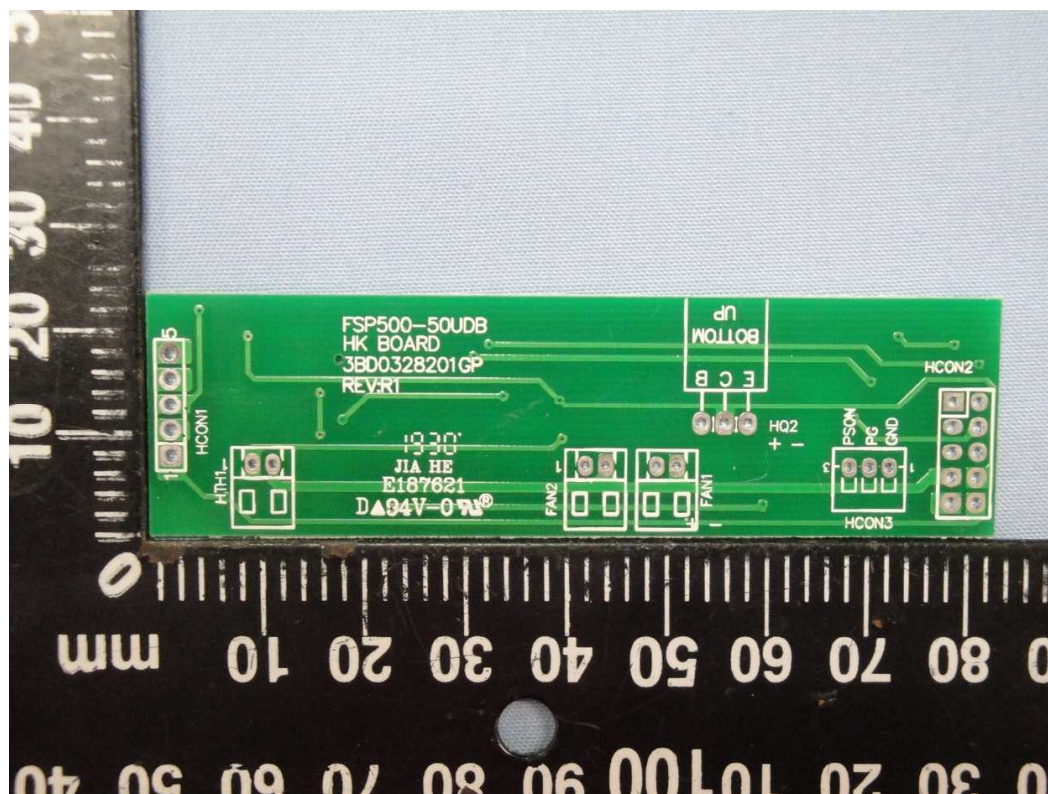


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Report No.: CN2319JQ 001

Product: Switching Power Supply

Type Designation: FSP300-50UDB, FSP300-50WDB, FSP400-50UDB, FSP400-50WDB, FSP500-50UDB and FSP500-50WDB



Rev. 0

ATTACHMENT

Photo Documentation

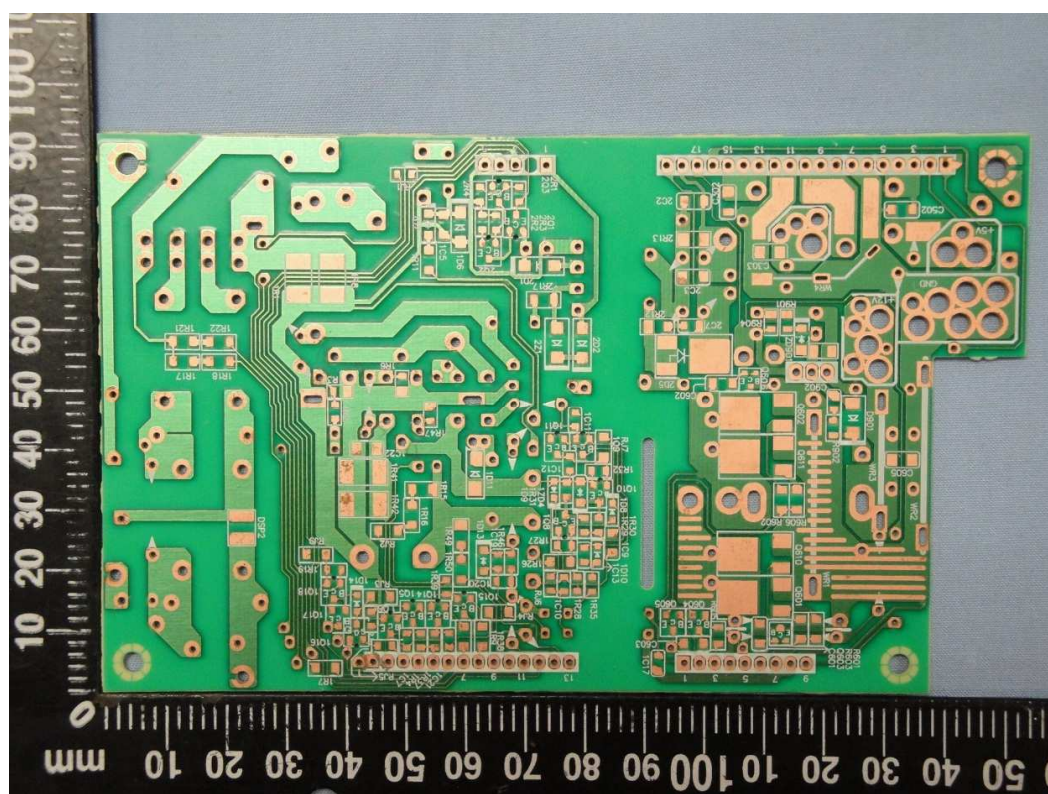
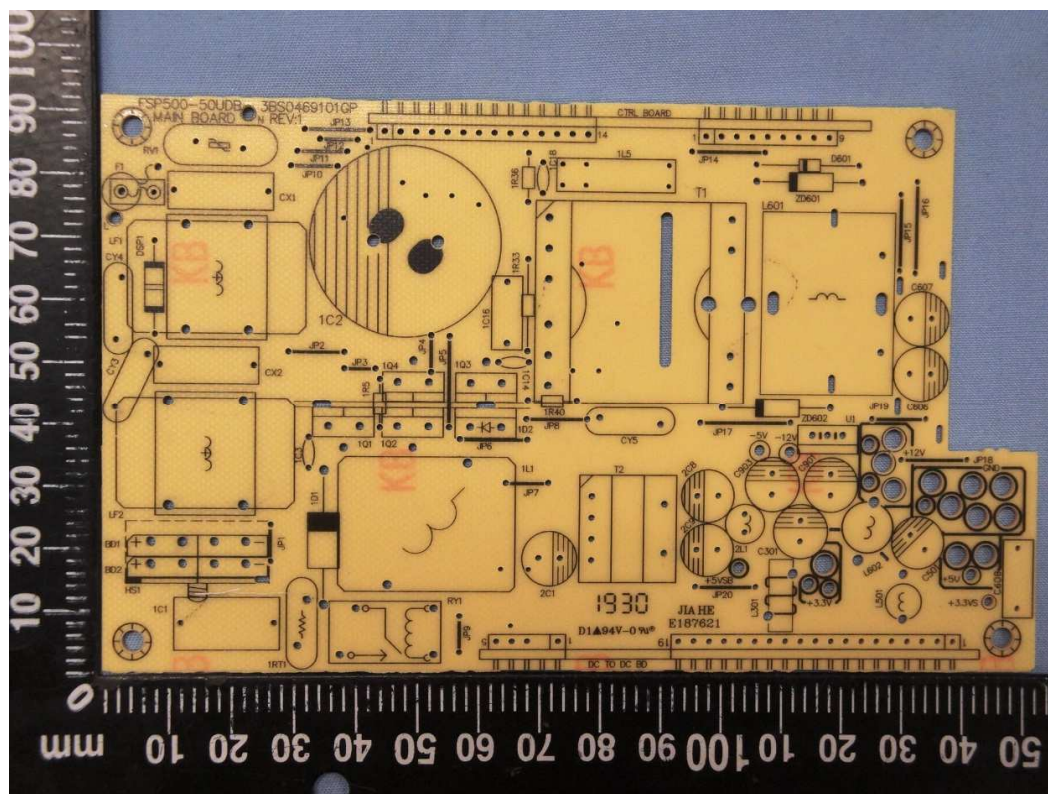


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Report No.: CN2319JQ 001

Product: Switching Power Supply

Type Designation: FSP300-50UDB, FSP300-50WDB, FSP400-50UDB, FSP400-50WDB, FSP500-50UDB and FSP500-50WDB



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