



安規測試報告

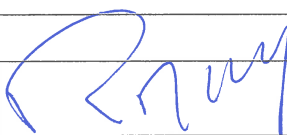
料號 :
Model Name : FSP090-AFAN2,FSP090-AFBN2,FSP090-AWAN2,FSP090-AWBN2,FSP090-ABAN2,FSP090-AAAN2,FSP090-ABBN2,FSP090-AABN2,PUP91-13-2,PUP91-14,PUP91-18,PUP91-19,PUP91S-13-2,PUP91S-14,PUP91S-18,PUP91S-19,HPE090-AWAN2,FSP090-ABBN2-M
版次 : 04
文件編號 : SFR14041622-R8
作者 : jillyuan/元玉珍(FSP)
Model No/Type : FSP090-AFAN2,FSP090-AFBN2,FSP090-AWAN2,FSP090-AWBN2,FSP090-ABAN2,FSP090-AAAN2,FSP090-ABBN2,FSP090-AABN2,PUP91-13-2,PUP91-14,PUP91-18,PUP91-19,PUP91S-13-2,PUP91S-14,PUP91S-18,PUP91S-
SFA NO. : SFA18081006
Trade mark : FSP,HPE,H3C
安規種類 : CB/資訊類
發行日期 : 2018/10/01 14:32:46
備註 : Add trade mark Verifone



Test Report issued under the responsibility of:



TEST REPORT IEC 60950-1 Information technology equipment – Safety – Part 1: General requirements	
Report Number.:	50157059 002
Date of issue	August 27, 2018
Total number of pages	9
Applicant's name	FSP Group Inc.
Address	No. 22, Jianguo E. Road, Taoyuan 330 Taiwan
Test specification:	
Standard	IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013
Test procedure.....	CB Scheme
Non-standard test method.....	N/A
Test Report Form No.....	IEC60950_1F
Test Report Form(s) Originator.....	SGS Fimko Ltd
Master TRF	Dated 2014-02
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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 Adapter	
Trade Mark :	1, 2, 3, 4, 5)  (Trademark of FSP) 6) Verifone	
Manufacturer	Same as applicant	
Model/Type reference :	1) FSP090-AFAN2, FSP090-AFBN2 2) FSP090-AWAN2 3) FSP090-AWBN2 4) FSP090-ABAN2, FSP090-ABBN2, FSP090-ABBN2-M 5) FSP090-AAAN2, FSP090-AABN2 6) FSP090-AAAN2	
Ratings :	AC Input: 100-240Vac~, 1.2A, 50-60Hz DC output: 1) 48Vdc, 1.88A 2, 3) 54Vdc, 1.67A 4) 19Vdc, 4.74A 5, 6) 24Vdc, 3.75A	
Testing procedure and testing location:		
☒	CB Testing Laboratory:	TÜV Rheinland Taiwan Ltd., Taichung Branch
Testing location/ address		No. 9, Ln. 36, Sec. 3, Minsheng Road, Daya District Taichung City 428 Taiwan Chinese Taipei
☐	Associated CB Testing Laboratory:	
Testing location/ address		
Tested by (name + signature) :		Robert Kong / Project Handler 
Approved by (name + signature) :		Fenix Yang Reviewer 
☐	Testing procedure: TMP/CTF Stage 1:	
Testing location/ address		
Tested by (name + signature) :		
Approved by (name + signature) :		
☐	Testing procedure: WMT/CTF Stage 2:	
Testing location/ address		
Tested by (name + signature) :		
Witnessed by (name + signature)		
Approved by (name + signature) :		

TRF No. IEC60950_1F

☐	Testing procedure: SMT/CTF Stage 3 or 4:		
Testing location/ address			
Tested by (name + signature)			
Witnessed by (name + signature)			
Approved by (name + signature)			
Supervised by (name + 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, AU, CA, US, JP.

Explanation of used codes: AU = Australia, CA = Canada, US = United States of America, JP = Japan.

*(DE, DK, FI, GB, IL, KR, SE, SI), **(CN, CH, ES, IE, NO), ***(BY)

Explanation of used codes:

* (DE = Germany, DK=Denmark, FI = Finland, GB = United Kingdom, IL = Israel, KR = Republic of Korea, SE = Sweden, SI = Slovenia)

**(CN = China, CH = Switzerland, ES = Spain, IE = Ireland, NO = Norway),

*** (BY = Belarus)

* National differences to IEC 60950-1:2005+A1:2009 evaluated.

** National differences to IEC 60950-1:2005 evaluated.

*** National differences to IEC 60950-1:2001 evaluated.

☒ **The product fulfils the requirements of EN 60950-1:2006+A11:2009+A1:2010+A12:2011+ A2:2013.**

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.



Test item particulars :	
Equipment mobility	☒ movable ☐ hand-held ☒ transportable ☐ stationary ☐ for building-in ☐ direct plug-in
Connection to the mains	☒ pluggable equipment ☒ type A ☐ type B ☐ permanent connection ☒ detachable power supply cord ☐ non-detachable power supply cord ☐ not directly connected to the mains
Operating condition	☒ continuous ☐ rated operating / resting time:
Access location	☒ operator accessible ☐ restricted access location
Over voltage category (OVC)	☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV ☐ other:
Mains supply tolerance (%) or absolute mains supply values : ± 10	
Tested for IT power systems	☒ Yes ☐ No
IT testing, phase-phase voltage (V)	230V (For Norway)
Class of equipment	☒ Class I ☐ Class II ☐ Class III ☐ Not classified
Considered current rating of protective device as part of the building installation (A) : 16A (20A for North American)	
Pollution degree (PD)	☐ PD 1 ☒ PD 2 ☐ PD 3
IP protection class	IPX0
Altitude during operation (m)	Not over 5000m
Altitude of test laboratory (m)	Not over 2000m
Mass of equipment (kg)	Approx. 0.36kg
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 IEC60950-1:

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
Block C, Building 4,6,7,8,9,10,11, County 73,
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. ZHONGHAN SCIENCE & TECH CO. LTD
Building 9, Section B, JuYuan Industrial Zone,
TangWei Village, FuYong Town, BaoAn District,
ShenZhen City, Guangdong, P.R. China
5. Wuxi ZhongHan Technology Co., Ltd.
Block 106-E, Wuxi Nation HI-TECH Industrial,
Development Zone, Wuxi City, Jiangsu,
Province, P.R. China
6. ShenZhen HuiLi Electronics CO., LTD
Block A, Building 3, No. 5185, YeeYuan Rd.,
County 74, Xin'an, Bao'an, Shenzhen,
Guangdong 518102, P.R. China
7. 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

General product information:

Description of change(s):

1. Add a new model FSP090-AAAN2 (Verifone) which is identical to model FSP090-AAAN2 (FSP) except for trademark different.

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. • See appended sub-clause 1.7.1 and 1.7.8.

TRF No. IEC60950_1F

History of amendments and modifications:

Ref. No. 50157059 001, dated 26 June, 2018 (original test report)

Ref. No. 50157059 002, dated 27 August, 2018 (amendment)

Abbreviations used in the report:

- normal conditions	N.C.	- single fault conditions	S.F.C
- functional insulation	OP	- basic insulation	BI
- double insulation	DI	- supplementary insulation	SI
- between parts of opposite polarity	BOP	- reinforced insulation	RI

Indicate used abbreviations (if any)

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.1.1	Power rating marking	See copy of marking plate.	P
	Multiple mains supply connections.....:		N/A
	Rated voltage(s) or voltage range(s) (V)	See copy of marking plate.	P
	Symbol for nature of supply, for d.c. only		N/A
	Rated frequency or rated frequency range (Hz)	See copy of marking plate.	P
	Rated current (mA or A)	See copy of marking plate.	P
1.7.1.2	Identification markings	See below.	P
	Manufacturer's name or trade-mark or identification mark	See copy of marking plate.	P
	Model identification or type reference	See copy of marking plate.	P
	Symbol for Class II equipment only		N/A
	Other markings and symbols	Additional symbols or markings do not give rise to misunderstanding.	P

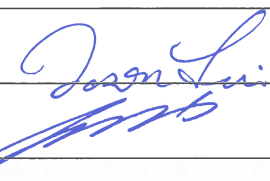
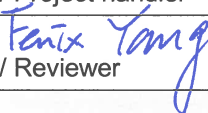
TRF No. IEC60950_1F



Test Report issued under the responsibility of:



TEST REPORT IEC 60950-1 Information technology equipment – Safety – Part 1: General requirements	
Report Number.:	50157059 001
Date of issue	26 June, 2018
Total number of pages	103
Applicant's name	FSP Group Inc.
Address	No. 22, Jianguo E. Road, Taoyuan 330 Taiwan
Test specification:	
Standard	IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013
Test procedure.....	CB Scheme
Non-standard test method.....	N/A
Test Report Form No.....	IEC60950_1F
Test Report Form(s) Originator.....	SGS Fimko Ltd
Master TRF	Dated 2014-02
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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 Adapter		
Trade Mark..... :	1, 2, 3, 4, 5)  (Trademark of FSP) 2)  (Trademark of H3C) 6)  (Trademark of Hewlett Packard Enterprise)		
Manufacturer	Same as applicant		
Model/Type reference..... :	1) FSP090-AFAN2, FSP090-AFBN2 2) FSP090-AWAN2 3) FSP090-AWBN2 4) FSP090-ABAN2, FSP090-ABBN2, FSP090-ABBN2-M 5) FSP090-AAAN2, FSP090-AABN2 6) HPE090-AWAN2		
Ratings..... :	AC Input: 100-240Vac~, 1.2A, 50-60Hz DC output: 1) 48Vdc, 1.88A 2, 3, 6) 54Vdc, 1.67A 4) 19Vdc, 4.74A 5) 24Vdc, 3.75A		
Testing procedure and testing location:			
☒	CB Testing Laboratory:	TÜV Rheinland Taiwan Ltd., Taichung Branch	
Testing location/ address		No. 9, Ln. 36, Sec. 3, Minsheng Road, Daya District Taichung City 428 Taiwan Chinese Taipei	
☐	Associated CB Testing Laboratory:		
Testing location/ address			
Tested by (name + signature)..... :		 / Project handler	
Approved by (name + signature)..... :		 / Reviewer	
☐	Testing procedure: TMP/CTF Stage 1:		
Testing location/ address			
Tested by (name + signature)..... :			
Approved by (name + signature)..... :			
☐	Testing procedure: WMT/CTF Stage 2:		
Testing location/ address			

Tested by (name + signature)..... :			
Witnessed by (name + signature) :			
Approved by (name + signature)..... :			
☐	Testing procedure: SMT/CTF Stage 3 or 4:		
Testing location/ address :			
Tested by (name + signature)..... :			
Witnessed by (name + signature) :			
Approved by (name + signature)..... :			
Supervised by (name + signature)..... :			

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

- Photo Documentation
- National Differences
- Measurement Section

Total number of pages in each attachment is indicated in each individual attachment; except for Measurement Section is combining with this main test report in the last two pages.

Summary of testing:**Tests performed (name of test and test clause):**

All applicable tests as described in Test Case were performed.

- The test samples are pre-production without serial numbers.
- Specified maximum ambient temperature is +40°C.
- Highest load according to 1.2.2.1 for this equipment is the operation of the equipment at maximum specified DC load.
- The correction factors of clearance is 1.48, specified in table A. 2 of IEC 60664-1 for altitude 5000m.
- Unless otherwise specified, all tests have been performed on model FSP090-AWAN2 to represent other similar model.

Testing location:

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

Summary of compliance with National Differences**List of countries addressed:**

EU Group Differences, EU Special National Conditions, AU, CA, US, JP.

Explanation of used codes: AU = Australia, CA = Canada, US = United States of America, JP = Japan.

*(DE, DK, FI, GB, IL, KR, SE, SI), ** (CN, CH, ES, IE, NO), ***(BY)

Explanation of used codes:

* (DE = Germany, DK=Denmark, FI = Finland, GB = United Kingdom, IL = Israel, KR = Republic of Korea, SE = Sweden, SI = Slovenia)

** (CN = China, CH = Switzerland, ES = Spain, IE = Ireland, NO = Norway),

*** (BY = Belarus)

* National differences to IEC 60950-1:2005+A1:2009 evaluated.

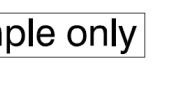
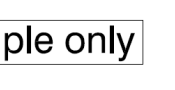
** National differences to IEC 60950-1:2005 evaluated.

*** National differences to IEC 60950-1:2001 evaluated.

☒ **The product fulfils the requirements of** EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013.

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.

 FSP GROUP INC. 全漢企業股份有限公司/全汉企业股份有限公司 Switching Power Adapter (電源供應器/电源适配器) Model No (型號/型号): FSP090-AWBN2 AC Input (輸入/输入): 100-240V~, 1.2A, 50-60Hz DC Output (輸出/输出): 54V --- 1.67A CAUTION(警告/警告): For use with Information Technology Equipment. (適用於資訊類產品/适用于资讯类产品) ATTENTIONS: Pour les équipements de traitement de l'information. ATTENTION: Nur zur Verwendung mit informationstechnischen Einrichtungen.	This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.      EFFICIENCY LEVEL VI MADE IN CHINA (中國製造/中国制造)
 FSP GROUP INC. 全漢企業股份有限公司/全汉企业股份有限公司 Switching Power Adapter (電源供應器/电源适配器) Model No (型號/型号): FSP090-AFBN2 AC Input (輸入/输入): 100-240V~, 1.2A, 50-60Hz DC Output (輸出/输出): 48V --- 1.88A CAUTION(警告/警告): For use with Information Technology Equipment. (適用於資訊類產品/适用于资讯类产品) ATTENTIONS: Pour les équipements de traitement de l'information. ATTENTION: Nur zur Verwendung mit informationstechnischen Einrichtungen.	This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.      EFFICIENCY LEVEL VI MADE IN CHINA (中國製造/中国制造)
 FSP GROUP INC. 全漢企業股份有限公司/全汉企业股份有限公司 Switching Power Adapter (電源供應器/电源适配器) Model No (型號/型号): FSP090-AWAN2 AC Input (輸入/输入): 100-240V~, 1.2A, 50-60Hz DC Output (輸出/输出): 54V --- 1.67A CAUTION(警告/警告): For use with Information Technology Equipment. (適用於資訊類產品/适用于资讯类产品) Attentions : Pour les équipements de traitement de l'information. ATTENTION: Nur zur Verwendung mit informationstechnischen Einrichtungen.	     EFFICIENCY LEVEL VI MADE IN CHINA (中國製造/中国制造) Sample only
 FSP GROUP INC. 全漢企業股份有限公司/全汉企业股份有限公司 Switching Power Adapter (電源供應器/电源适配器) Model No (型號/型号): FSP090-AFAN2 AC Input (輸入/输入): 100-240V~, 1.2A, 50-60Hz DC Output (輸出/输出): 48V --- 1.88A CAUTION(警告/警告): For use with Information Technology Equipment. (適用於資訊類產品/适用于资讯类产品) Attentions : Pour les équipements de traitement de l'information. ATTENTION: Nur zur Verwendung mit informationstechnischen Einrichtungen.	     EFFICIENCY LEVEL VI MADE IN CHINA (中國製造/中国制造) Sample only

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.

 **FSP GROUP INC.**
 全漢企業股份有限公司/全漢企業股份有限公司
 Switching Power Adapter (電源供應器/電源适配器)
 Model No (型號/型号): FSP090-AAAN2
 AC Input (輸入/輸入): 100-240V~, 1.2A, 50-60Hz
 DC Output (輸出/輸出): 24V $\equiv$ 3.75A
 CAUTION(警告/警告):
 For use with Information Technology Equipment.
 (適用於資訊類產品/適用於資訊类产品)
ATTENTIONS:
 Pour les équipements de traitement de l'information.
ATTENTION:
 Nur zur Verwendung mit informationstechnischen
 Einrichtungen.

  **EFFICIENCY LEVEL VI**
MADE IN CHINA ~
 (中國製造/中国制造)

 **FSP GROUP INC.**
 全漢企業股份有限公司/全漢企業股份有限公司
 Switching Power Adapter (電源供應器/電源适配器)
 Model No (型號/型号): FSP090-AABN2
 AC Input (輸入/輸入): 100-240V~, 1.2A, 50-60Hz
 DC Output (輸出/輸出): 24V $\equiv$ 3.75A
 CAUTION(警告/警告):
 For use with Information Technology Equipment.
 (適用於資訊類產品/適用於資訊类产品)
ATTENTIONS:
 Pour les équipements de traitement de l'information.
ATTENTION:
 Nur zur Verwendung mit informationstechnischen
 Einrichtungen.

  **EFFICIENCY LEVEL VI**
MADE IN CHINA ~
 (中國製造/中国制造)

 **FSP GROUP INC.**
 全漢企業股份有限公司/全漢企業股份有限公司
 Switching Power Adapter (電源供應器/電源适配器)
 Model No (型號/型号): FSP090-ABAN2
 AC Input (輸入/輸入): 100-240V~, 1.2A, 50-60Hz
 DC Output (輸出/輸出): 19V $\equiv$ 4.74A
 CAUTION(警告/警告):
 For use with Information Technology Equipment.
 (適用於資訊類產品/適用於資訊类产品)
ATTENTIONS:
 Pour les équipements de traitement de l'information.
ATTENTION:
 Nur zur Verwendung mit informationstechnischen
 Einrichtungen.

  **EFFICIENCY LEVEL VI**
MADE IN CHINA ~
 (中國製造/中国制造)

 **FSP GROUP INC.**
 全漢企業股份有限公司/全漢企業股份有限公司
 Switching Power Adapter (電源供應器/電源适配器)
 Model No (型號/型号): FSP090-ABBN2
 AC Input (輸入/輸入): 100-240V~, 1.2A, 50-60Hz
 DC Output (輸出/輸出): 19V $\equiv$ 4.74A
 CAUTION(警告/警告):
 For use with Information Technology Equipment.
 (適用於資訊類產品/適用於資訊类产品)
ATTENTIONS:
 Pour les équipements de traitement de l'information.
ATTENTION:
 Nur zur Verwendung mit informationstechnischen
 Einrichtungen.

  **EFFICIENCY LEVEL VI**
MADE IN CHINA ~
 (中國製造/中国制造)

TRF No. IEC60950_1F

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.



Test item particulars.....:	
Equipment mobility.....:	☒ movable ☐ hand-held ☒ transportable ☐ stationary ☐ for building-in ☐ direct plug-in
Connection to the mains.....:	☒ pluggable equipment ☒ type A ☐ type B ☐ permanent connection ☒ detachable power supply cord ☐ non-detachable power supply cord ☐ not directly connected to the mains
Operating condition.....:	☒ continuous ☐ rated operating / resting time:
Access location	☒ operator accessible ☐ restricted access location
Over voltage category (OVC)	☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV ☐ other:
Mains supply tolerance (%) or absolute mains supply values ±10	
Tested for IT power systems	☒ Yes ☐ No
IT testing, phase-phase voltage (V)	230V (For Norway)
Class of equipment	☒ Class I ☐ Class II ☐ Class III ☐ Not classified
Considered current rating of protective device as part of the building installation (A)	16A (20A for North American)
Pollution degree (PD)	☐ PD 1 ☒ PD 2 ☐ PD 3
IP protection class	IPX0
Altitude during operation (m)	Not over 5000m
Altitude of test laboratory (m)	Not over 2000m
Mass of equipment (kg)	Approx. 0.36kg
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.....:	June 07, 2018
Date(s) of performance of tests	June 07, 2018 – June 26, 2018
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 IECCE 02:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided.....:

☒ **Yes**☐ **Not applicable**

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies) :

1. ShenZhen HuiLi Electronics CO., LTD
Block C, Building 4,6,7,8,9,10,11, County 73,
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. ZHONGHAN SCIENCE & TECH CO. LTD
Building 9, Section B, JuYuan Industrial Zone,
TangWei Village, FuYong Town, BaoAn District,
ShenZhen City, Guangdong, P.R. China
5. Wuxi ZhongHan Technology Co., Ltd.
Block 106-E, Wuxi Nation HI-TECH Industrial,
Development Zone, Wuxi City, Jiangsu,
Province, P.R. China
6. ShenZhen HuiLi Electronics CO., LTD
Block A, Building 3, No. 5185, YeeYuan Rd.,
County 74, Xin'an, Bao'an, Shenzhen,
Guangdong 518102, P.R. China
7. 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

General product information:**Product Description**

The equipment models FSP090-AFAN2, FSP090-AFBN2 FSP090-AWAN2, FSP090-AWBN2, FSP090-ABAN2, FSP090-ABBN2, FSP090-ABBN2-M, FSP090-AAAN2, FSP090-AABN2 and HPE090-AWAN2 are switching power adapter for used with information technology equipment.

The switching power adapter's bottom enclosure is secured to top enclosure by ultrasonic.

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 sold.

Class I product and class II construction within the equipment.

Components (J201, J202, C214 and R229) are for optional used.

All models are similar except for below table,

Model Name	FSP090-AFAN2	FSP090-AFBN2	FSP090-AWAN2, HPE090-AWAN2	FSP090-AWBN2
I/P	100-240V~, 50-60Hz, 1.2A			
O/P	48Vdc/1.88A		54Vdc/1.67A	
T101	8TV00287	8TV00287	8TV00287	8TV00287
R121	0.15Ω	0.15Ω	0.15Ω	0.15Ω
Q601	500V,9A	500V,9A	500V,9A	500V,9A
Q101	650V,8A	650V,8A	650V,8A	650V,8A
AC Inlet	C14	C6	C14	C6

Model Name	FSP090-ABAN2	FSP090-ABBN2, FSP090-ABBN2-M	FSP090-AAAN2	FSP090-AABN2
I/P	100-240V~, 50-60Hz, 1.2A			
O/P	19Vdc/4.74A		24Vdc/3.75A	
T101	8TV00294	8TV00294	8TV00295	8TV00295
R121	0.13Ω	0.13Ω	0.13Ω	0.13Ω
Q601	500V,12A	500V,12A	500V,12A	500V,12A
Q101	650V,8A	650V,8A	650V,8A	650V,8A
AC Inlet	C14	C6	C14	C6

Components (J201, J202, C214 and R229) are for optional used.

Model FSP090-ABBN2-M, which is identical to approved model FSP090-ABBN2 except for model designation

Model HPE090-AWAN2, which identical to approved model FSP090-AWAN2 except for model designation and trademark is "HPE"

Engineering Considerations

- The product was submitted and tested for use at the **maximum ambient temperature (Tma)** permitted by the manufacturer's specification of: 40°C
- The means of connection to the mains supply is **Pluggable Type A**.
- The product is intended for use on the following **power systems**: TN / IT (for Norway).
- The equipment **disconnect device** is considered to be: appliance inlet.
- The following **transformers** are provided (See subclause 1.5.4):
 - Double/Reinforced insulation: T101.
 - Functional insulation: None.
- The following **capacitors** bridging insulation (See subclause 1.5.6):
 - Double/Reinforced insulation: CY103 and CY104.
 - Basic insulation: CY101.
 - Across mains conductors: CX101.
 - Functional insulation: other than above mentioned.
- The following **resistors** bridging insulation (See subclause 1.5.7):
 - Across mains conductors: R101 and R102 in series.
 - Double/Reinforced insulation: None.
 - Functional insulation: other than above mentioned.
- The following **VDRs** are bridging insulation (See subclause 1.5.9):
 - Across mains conductors: VA101 (provided with F101 together), VA102.

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- Functional insulation: None.
- The following **solid insulation** are provided (See subclause 2.10.5):
 - Reinforced insulation: Plastic Enclosure, PC101, mylar sheet which provided between main board solder side and primary metal shielding.
 - Basic insulation: None.
 - Functional insulation: None.
- The following parts consist of the protective earthing (see subclause 2.6):
 - Protective earthing conductor: Earthed pin of Appliance Inlet.
 - Protective bonding conductor: None.
- The following parts are **protective earthing terminals** (See subclause 2.6.4): Earthed pin of appliance Inlet.
- The following parts are **protective bonding terminals** (See subclause 2.6.4): None.

Additional Information

- Tests were repeated with each alternative source of components with identical results unless otherwise specified.
- The following enclosures are provided:
 - Fire enclosure: Plastic enclosure
 - Mechanical enclosure: Plastic enclosure
 - Electrical enclosure: Plastic enclosure
- Model FSP090-AFBN2 is equivalent to Cisco P/N (CPN) 341-0414-XX XX, where X may be any alphanumeric characters or blank.
- Model FSP090-ABAN2 is equivalent to Cisco P/N (CPN) 34-100217-XX, where X may be 0-9 or blank.

MARKINGS AND INSTRUCTIONS

- The user's manual states "**The socket-outlet shall be installed near the equipment and shall be easily accessible.**" (See subclause 1.7.2.2).
- Fuse Identification (See sub-clause 1.7.6):
F101 T6.3A L/250V (provided with VA101 together)
F102 T2.5A L/250V

Abbreviations used in the report:

- normal conditions	N.C.	- single fault conditions	S.F.C
- functional insulation	OP	- basic insulation	BI
- double insulation	DI	- supplementary insulation	SI
- between parts of opposite polarity	BOP	- reinforced insulation	RI

Indicate used abbreviations (if any)

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1	GENERAL	See below.	P
1.5	Components	See below.	P
1.5.1	General	See below.	P
	Comply with IEC 60950-1 or relevant component standard	See appended table 1.5.1.	P
1.5.2	Evaluation and testing 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
1.5.3	Thermal controls		N/A
1.5.4	Transformers	Transformers used are suitable for the intended application and comply with the relevant requirements of the standard and particularly with those of Annex C.	P
1.5.5	Interconnecting cables	Interconnection output cable to other unit is carrying only SELV voltages, LCC and currents on an energy level below 240VA.	P
1.5.6	Capacitors bridging insulation	Capacitors used in accordance with their rating. Between lines: min. X2 capacitor according to IEC 60384-14 with 21 days damp heat test. Between Primary and secondary: min. Y1 capacitor according to IEC 60384-14 with 21 days damp heat test. The accessible circuit complied with the requirement of limited current circuit in 2.4 after electric strength testing of the insulation with the bridging capacitor in place.	P
1.5.7	Resistors bridging insulation	See below.	P

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Clause	Requirement + Test	Result - Remark	Verdict
1.5.7.1	Resistors bridging functional, basic or supplementary insulation	Two bleeder resistors located after fuse, the fuse as providing protective device while short circuit.	P
1.5.7.2	Resistors bridging double or reinforced insulation between a.c. mains and other circuits		N/A
1.5.7.3	Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable		N/A
1.5.8	Components in equipment for IT power systems	Phase to earth designed according to phase-to phase working voltage. No capacitor used between phase-to-earth	P
1.5.9	Surge suppressors	See below.	P
1.5.9.1	General	Approved Varistor comply with Annex Q used in primary circuit.	P
1.5.9.2	Protection of VDRs	A fuse is connected in series with VDR.	P
1.5.9.3	Bridging of functional insulation by a VDR	Complied. Approved Varistor located between mains lines.	P
1.5.9.4	Bridging of basic insulation by a VDR		N/A
1.5.9.5	Bridging of supplementary, double or reinforced insulation by a VDR		N/A
1.6	Power interface	See below.	P
1.6.1	AC power distribution systems	TN power system and IT power system (for Norway).	P
1.6.2	Input current	See table 1.6.2.	P
1.6.3	Voltage limit of hand-held equipment		N/A
1.6.4	Neutral conductor	The neutral is not identified in the equipment. Reinforced insulation for rated voltage between secondary parts and primary phases.	P
1.7	Marking and instructions	See below.	P
1.7.1	Power rating and identification markings	The power rating and identification marking are on copy of marking plate or printed on enclosure by laser engraving.	P
1.7.1.1	Power rating marking	See copy of marking plate.	P
	Multiple mains supply connections.....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Rated voltage(s) or voltage range(s) (V)	See copy of marking plate.	P
	Symbol for nature of supply, for d.c. only		N/A
	Rated frequency or rated frequency range (Hz)	See copy of marking plate.	P
	Rated current (mA or A)	See copy of marking plate.	P
1.7.1.2	Identification markings	See below.	P
	Manufacturer's name or trade-mark or identification mark	See copy of marking plate.	P
	Model identification or type reference	See copy of marking plate.	P
	Symbol for Class II equipment only		N/A
	Other markings and symbols	Additional symbols or markings do not give rise to misunderstanding.	P
1.7.1.3	Use of graphical symbols		N/A
1.7.2	Safety instructions and marking	See below.	P
1.7.2.1	General	User's manual provided.	P
1.7.2.2	Disconnect devices	Approved appliance inlet used.	P
1.7.2.3	Overcurrent protective device		N/A
1.7.2.4	IT power distribution systems	For Norway compliance has to be evaluated during the national approval.	N/A
1.7.2.5	Operator access with a tool	No operator access area with tool.	N/A
1.7.2.6	Ozone		N/A
1.7.3	Short duty cycles	Equipment is designed for continuous operation.	N/A
1.7.4	Supply voltage adjustment	No necessary adjustment.	N/A
	Methods and means of adjustment; reference to installation instructions	See above.	N/A
1.7.5	Power outlets on the equipment		N/A
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference)	See General product information - Markings and Instructions	P
1.7.7	Wiring terminals	See below.	P
1.7.7.1	Protective earthing and bonding terminals	Appliance inlet used and symbol for Protective Earthing Conductor (IEC 60417-5019) provided on PCB.	P

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Clause	Requirement + Test	Result - Remark	Verdict
1.7.7.2	Terminals for a.c. mains supply conductors	The equipment with appliance inlet, which is intended to use the detachable type power supply cord.	N/A
1.7.7.3	Terminals for d.c. mains supply conductors	AC supplied equipment.	N/A
1.7.8	Controls and indicators		N/A
1.7.8.1	Identification, location and marking		N/A
1.7.8.2	Colours		N/A
1.7.8.3	Symbols according to IEC 60417		N/A
1.7.8.4	Markings using figures		N/A
1.7.9	Isolation of multiple power sources	Only one supply from the mains.	N/A
1.7.10	Thermostats and other regulating devices	Neither thermostats nor other regulating devices provided.	N/A
1.7.11	Durability	The label was subjected to the permanence of marking test. The label was rubbed with cloth soaked with water for 15 s and then again for 15 s with the cloth soaked with petroleum spirit. After this test there was no damage to the label. The marking on the label did not fade. There was no curling nor lifting of the label edge.	P
1.7.12	Removable parts		N/A
1.7.13	Replaceable batteries		N/A
	Language(s)		—
1.7.14	Equipment for restricted access locations		N/A

2	PROTECTION FROM HAZARDS		P
2.1	Protection from electric shock and energy hazards		P
2.1.1	Protection in operator access areas	See below.	P
2.1.1.1	Access to energized parts	No access with test finger and test pin to any parts with only basic insulation to ELV or hazardous voltage. Any hazardous parts accessible are unlikely.	P
	Test by inspection	Complied.	P
	Test with test finger (Figure 2A)	Complied.	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Test with test pin (Figure 2B)	Complied.	P
	Test with test probe (Figure 2C)	No TNV circuit.	N/A
2.1.1.2	Battery compartments		N/A
2.1.1.3	Access to ELV wiring	No ELV wiring in operator accessible area.	N/A
	Working voltage (V_{peak} or V_{rms}); minimum distance through insulation (mm)	See above.	—
2.1.1.4	Access to hazardous voltage circuit wiring		N/A
2.1.1.5	Energy hazards	Energy dose not exceed 240VA between any two points in o/p connector of secondary circuit. Results see appended table 2.1.1.5.	P
2.1.1.6	Manual controls	No manual controls.	N/A
2.1.1.7	Discharge of capacitors in equipment	No risk of electric shock, see below.	P
	Measured voltage (V); time-constant (s)	See attachment measurement section table 2.1.1.7.	—
2.1.1.8	Energy hazards – d.c. mains supply		N/A
	a) Capacitor connected to the d.c. mains supply ...:		N/A
	b) Internal battery connected to the d.c. mains supply		N/A
2.1.1.9	Audio amplifiers		N/A
2.1.2	Protection in service access areas	No maintenance work in operation mode necessary.	N/A
2.1.3	Protection in restricted access locations	The unit is not limited to be used in restricted access locations.	N/A
2.2	SELV circuits		P
2.2.1	General requirements	See below, the secondary circuits were tested as SELV.	P
2.2.2	Voltages under normal conditions (V)	42.4V _{peak} or 60V _{dc} are not exceeded between any conductor of the SELV circuits under normal operation. See appended table 2.2.	P

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Clause	Requirement + Test	Result - Remark	Verdict
2.2.3	Voltages under fault conditions (V)	Single fault did not cause excessive voltage in accessible SELV circuits. Limits of 71V peak and 120V d.c. was not exceeded within 0.2s and limits 42.4V peak and 60V d.c. was not exceeded for longer than 0.2s. See appended table 2.2.	P
2.2.4	Connection of SELV circuits to other circuits	See sub-clauses 1.5.6, 2.2.2, 2.2.3 and 2.4.3.	P

2.3	TNV circuits		N/A
2.3.1	Limits		N/A
	Type of TNV circuits		—
2.3.2	Separation from other circuits and from accessible parts		N/A
2.3.2.1	General requirements		N/A
2.3.2.2	Protection by basic insulation		N/A
2.3.2.3	Protection by earthing		N/A
2.3.2.4	Protection by other constructions		N/A
2.3.3	Separation from hazardous voltages		N/A
	Insulation employed		—
2.3.4	Connection of TNV circuits to other circuits		N/A
	Insulation employed		—
2.3.5	Test for operating voltages generated externally		N/A

2.4	Limited current circuits		P
2.4.1	General requirements	The output connector is accessible to the user and connected to the primary circuit by two Y1 type bridging capacitors.	P
2.4.2	Limit values	See attachment measurement section table 2.4.2.	P
	Frequency (Hz)	Same as above.	—
	Measured current (mA)	Same as above.	—
	Measured voltage (V)	Same as above.	—
	Measured circuit capacitance (nF or μ F)	Same as above.	—

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Clause	Requirement + Test	Result - Remark	Verdict
2.4.3	Connection of limited current circuits to other circuits	Output circuit as limited current circuit connected to other circuits.	P
2.5	Limited power sources		N/A
	a) Inherently limited output		N/A
	b) Impedance limited output		N/A
	c) Regulating network or IC current limiter, limits output under normal operating and single fault condition		N/A
	Use of integrated circuit (IC) current limiters		N/A
	d) Overcurrent protective device limited output		N/A
	Max. output voltage (V), max. output current (A), max. apparent power (VA).....:		—
	Current rating of overcurrent protective device (A):.		—
2.6	Provisions for earthing and bonding		P
2.6.1	Protective earthing	The PE pin of approved appliance inlet was considered as Protective earthing. See General product information - Engineering Considerations	P
2.6.2	Functional earthing	Functional earthing circuit is separated from parts at hazardous voltages by double insulation.	P
	Use of symbol for functional earthing	See below.	N/A
2.6.3	Protective earthing and protective bonding conductors	See below.	N/A
2.6.3.1	General	See sub-clause 2.6.3.4, rated current below 20A.	N/A
2.6.3.2	Size of protective earthing conductors	See sub-clause 2.6.1, rated current below 20A.	N/A
	Rated current (A), cross-sectional area (mm ²), AWG		—
2.6.3.3	Size of protective bonding conductors	Only Protective earthing provided.	N/A
	Rated current (A), cross-sectional area (mm ²), AWG		—
	Protective current rating (A), cross-sectional area (mm ²), AWG		

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Clause	Requirement + Test	Result - Remark	Verdict
2.6.3.4	Resistance of earthing conductors and their terminations; resistance (Ω), voltage drop (V), test current (A), duration (min)	The PE pin of approved appliance inlet was considered as Protective earthing and without test.	P
2.6.3.5	Colour of insulation		N/A
2.6.4	Terminals	See below.	P
2.6.4.1	General	See below.	P
2.6.4.2	Protective earthing and bonding terminals	The appliance inlet considered as main protective earthing terminal and no protective bonding conductors provided.	P
	Rated current (A), type, nominal thread diameter (mm)		—
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors	Only Protective earthing provided.	P
2.6.5	Integrity of protective earthing	See below.	P
2.6.5.1	Interconnection of equipment	This unit has its own earthing connection. Any other units connected via the DC output connector shall provide SELV only.	P
2.6.5.2	Components in protective earthing conductors and protective bonding conductors	No switch or overcurrent protective device in protective earthing.	P
2.6.5.3	Disconnection of protective earth	It is not possible to disconnect earth without disconnecting mains as an appliance inlet is used.	P
2.6.5.4	Parts that can be removed by an operator	Appliance inlet used.	P
2.6.5.5	Parts removed during servicing	It is not necessary to disconnect protective earth except for the removing of the earthed part itself.	P
2.6.5.6	Corrosion resistance	All protective earthing and bonding connections in compliance with Annex J.	P
2.6.5.7	Screws for protective bonding		N/A
2.6.5.8	Reliance on telecommunication network or cable distribution system	No TNV.	N/A
2.7	Overcurrent and earth fault protection in primary circuits		P

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Clause	Requirement + Test	Result - Remark	Verdict
2.7.1	Basic requirements	Equipment relies on a rated fuse or 16 A (20A for North America) circuit breaker of the wall outlet installation protection of the building installation in regard to L to N short-circuits. Over current protection is provided by the built-in fuse.	P
	Instructions when protection relies on building installation	Not applicable for pluggable equipment type A.	N/A
2.7.2	Faults not simulated in 5.3.7	The protection device is well dimensioned and mounted.	P
2.7.3	Short-circuit backup protection	Pluggable equipment type A. The building installation is considered as providing short-circuit backup protection.	P
2.7.4	Number and location of protective devices :	Over current protection by one built-in fuse. Protection devices in the building installation will provide sufficient protection against earth faults.	P
2.7.5	Protection by several devices	Only one fuse provided.	N/A
2.7.6	Warning to service personnel :	No service work necessary.	N/A
2.8	Safety interlocks		N/A
2.8.1	General principles		N/A
2.8.2	Protection requirements		N/A
2.8.3	Inadvertent reactivation		N/A
2.8.4	Fail-safe operation		N/A
	Protection against extreme hazard		N/A
2.8.5	Moving parts		N/A
2.8.6	Overriding		N/A
2.8.7	Switches, relays and their related circuits		N/A
2.8.7.1	Separation distances for contact gaps and their related circuits (mm) :		N/A
2.8.7.2	Overload test		N/A
2.8.7.3	Endurance test		N/A
2.8.7.4	Electric strength test		N/A
2.8.8	Mechanical actuators		N/A
2.9	Electrical insulation		P

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Clause	Requirement + Test	Result - Remark	Verdict
2.9.1	Properties of insulating materials	Natural rubber, asbestos or hygroscopic materials are not used. However, humidity test performed on equipment with all sources of insulating materials (See appended tables 1.5.1, 2.10.5 and 5.2 for sources) then subjected to the electric strength test of 5.2.2, which results see appended tables 2.10.5 and 5.2.	P
2.9.2	Humidity conditioning	Tested for 120hrs.	P
	Relative humidity (%), temperature (°C) :	95%, 40°C.	—
2.9.3	Grade of insulation	The adequate levels of safety insulation is provided and maintained to comply with the requirements of this standard.	P
2.9.4	Separation from hazardous voltages	See below.	P
	Method(s) used :	Method 1.	—

2.10	Clearances, creepage distances and distances through insulation		P
2.10.1	General	See below.	P
2.10.1.1	Frequency :	The frequency does not exceeding 30kHz.	P
2.10.1.2	Pollution degrees :	Pollution degree 2.	P
2.10.1.3	Reduced values for functional insulation	See sub-clause 5.3.4.	P
2.10.1.4	Intervening unconnected conductive parts	No such conductive parts.	N/A
2.10.1.5	Insulation with varying dimensions	Not applicable.	N/A
2.10.1.6	Special separation requirements	No TNV circuit.	N/A
2.10.1.7	Insulation in circuits generating starting pulses	No lamps.	N/A
2.10.2	Determination of working voltage	See below.	P
2.10.2.1	General	The rms and the peak voltage were measured on the switching power supply. The unit was connected to a 240V TN power system.	P
2.10.2.2	RMS working voltage	See appended table 2.10.2.	P
2.10.2.3	Peak working voltage	See appended table 2.10.2.	P

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Clause	Requirement + Test	Result - Remark	Verdict
2.10.3	Clearances	See below and alternative method of annex G is not considered.	P
2.10.3.1	General	Annex F and minimum clearances considered.	P
2.10.3.2	Mains transient voltages	Normal transient voltage considered.	P
	a) AC mains supply	Overvoltage category II for primary circuit and transient voltage 2500V _{peak} .	P
	b) Earthed d.c. mains supplies		N/A
	c) Unearthed d.c. mains supplies		N/A
	d) Battery operation		N/A
2.10.3.3	Clearances in primary circuits	See table 2.10.3 and 2.10.4.	P
2.10.3.4	Clearances in secondary circuits	Refer to sub-clause 5.3.4.	N/A
2.10.3.5	Clearances in circuits having starting pulses	No lamps.	N/A
2.10.3.6	Transients from a.c. mains supply	See sub-clause 2.10.3.2.	P
2.10.3.7	Transients from d.c. mains supply		N/A
2.10.3.8	Transients from telecommunication networks and cable distribution systems		N/A
2.10.3.9	Measurement of transient voltage levels	See sub-clause 2.10.3.6.	N/A
	a) Transients from a mains supply		N/A
	For an a.c. mains supply		N/A
	For a d.c. mains supply		N/A
	b) Transients from a telecommunication network :		N/A
2.10.4	Creepage distances	See below.	P
2.10.4.1	General	See appended table 2.10.3 and 2.10.4.	P
2.10.4.2	Material group and comparative tracking index	Material group IIIb min. used.	P
	CTI tests	CTI rating for all materials are min. 100.	—
2.10.4.3	Minimum creepage distances	See table 2.10.3 and 2.10.4.	P
2.10.5	Solid insulation	Complied with 2.10.5.2 to 2.10.5.14 and 5.2.	P
2.10.5.1	General	See below.	P
2.10.5.2	Distances through insulation	See table 2.10.5.	P
2.10.5.3	Insulating compound as solid insulation	Certified sources of photo coupler used. See sub-clause 2.10.5.2 and 2.10.10.	P

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Clause	Requirement + Test	Result - Remark	Verdict
2.10.5.4	Semiconductor devices	For photo coupler see sub-clause 2.10.5.3.	P
2.10.5.5.	Cemented joints		N/A
2.10.5.6	Thin sheet material – General	Considered.	P
2.10.5.7	Separable thin sheet material	See appended tables C.2 and appended table 2.10.5, 2.10.3 and 2.10.4 for detail applicable.	P
	Number of layers (pcs)	See above.	—
2.10.5.8	Non-separable thin sheet material	See appended table 1.5.1 for details.	P
2.10.5.9	Thin sheet material – standard test procedure	For Non-separable thin sheet material.	P
	Electric strength test	See appended table 2.10.5.	—
2.10.5.10	Thin sheet material – alternative test procedure	See below.	P
	Electric strength test	See appended table 2.10.5 and 5.2.	—
2.10.5.11	Insulation in wound components	See below.	P
2.10.5.12	Wire in wound components	Triple insulation wire used in T101 transformer.	P
	Working voltage	See appended table 2.10.2.	P
	a) Basic insulation not under stress		N/A
	b) Basic, supplementary, reinforced insulation		N/A
	c) Compliance with Annex U	Reinforced insulation, Compliance with Annex U, certified triple insulated wire used.	P
	Two wires in contact inside wound component; angle between 45° and 90°	Mechanical stress reduced by tubing.	P
2.10.5.13	Wire with solvent-based enamel in wound components		N/A
	Electric strength test		—
	Routine test		N/A
2.10.5.14	Additional insulation in wound components		N/A
	Working voltage		N/A
	- Basic insulation not under stress		N/A
	- Supplementary, reinforced insulation		N/A
2.10.6	Construction of printed boards	See below.	P
2.10.6.1	Uncoated printed boards	See appended table 2.10.3 and 2.10.4.	P

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Clause	Requirement + Test	Result - Remark	Verdict
2.10.6.2	Coated printed boards		N/A
2.10.6.3	Insulation between conductors on the same inner surface of a printed board	Single layer PCB used.	N/A
2.10.6.4	Insulation between conductors on different layers of a printed board	No insulation for conductors across difference surface.	N/A
	Distance through insulation		N/A
	Number of insulation layers (pcs):		N/A
2.10.7	Component external terminations	See appended table 2.10.3 and 2.10.4.	P
2.10.8	Tests on coated printed boards and coated components		N/A
2.10.8.1	Sample preparation and preliminary inspection		N/A
2.10.8.2	Thermal conditioning		N/A
2.10.8.3	Electric strength test		N/A
2.10.8.4	Abrasion resistance test		N/A
2.10.9	Thermal cycling	No insulation breakdown. Certified sources of optical isolators used.	P
2.10.10	Test for Pollution Degree 1 environment and insulating compound	No cracks or voids in the insulating material. optical isolators inside was considered as pollution degree 1. Certified sources of optical isolators used. Refer to appended table 1.5.1 for details of component information.	P
2.10.11	Tests for semiconductor devices and cemented joints		N/A
2.10.12	Enclosed and sealed parts		N/A

3	WIRING, CONNECTIONS AND SUPPLY		P
3.1	General		P
3.1.1	Current rating and overcurrent protection	All internal wires are UL recognized wiring which is PVC insulated, rated 300V, VW-1, min. 105°C and output cable were rated 300V, VW-1, 60°C min., Internal wiring is PVC insulated, the wiring gauge is suitable for current intended to be carried.	P

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Clause	Requirement + Test	Result - Remark	Verdict
3.1.2	Protection against mechanical damage	Wires do not touch sharp edges. Where they touch heatsinks additional tubing or cable tie is provided so that the heatsink cannot damage the insulation and cause hazard.	P
3.1.3	Securing of internal wiring	The wiring is so routed and fixed that there is not excessive strength on the wire and terminal connections. Damage of the conductor insulation or loosening of the terminal connection is unlikely.	P
3.1.4	Insulation of conductors	The insulation of the individual conductors is suitable for the application and the working voltage. For the insulation material see sub-clause 3.1.1.	P
3.1.5	Beads and ceramic insulators	Not used.	N/A
3.1.6	Screws for electrical contact pressure	Not used.	N/A
3.1.7	Insulating materials in electrical connections	All connections are metal to metal.	N/A
3.1.8	Self-tapping and spaced thread screws	No self tapping screws are used.	N/A
3.1.9	Termination of conductors	All conductors are reliable secured.	P
	10 N pull test	10N pull test performed for all relevant conductors. No hazards caused hereby.	P
3.1.10	Sleeving on wiring	Heat shrinkable sleeving provided for function wire from PE pin of inlet to secondary trace of "FG".	P

3.2	Connection to a mains supply		P
3.2.1	Means of connection	See below.	P
3.2.1.1	Connection to an a.c. mains supply	Appliance inlet provided.	P
3.2.1.2	Connection to a d.c. mains supply	Only a.c. mains supply.	N/A
3.2.2	Multiple supply connections	Only for one mains connection.	N/A
3.2.3	Permanently connected equipment	Unit is not a permanently connected equipment.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Number of conductors, diameter of cable and conduits (mm)		—
3.2.4	Appliance inlets	The appliance inlet complies with IEC/EN 60320-1. The connector of the power cord can be inserted without difficulties and does not support the unit.	P
3.2.5	Power supply cords	The power supply cord is not provided with this unit.	N/A
3.2.5.1	AC power supply cords	No power supply cords provided.	N/A
	Type		—
	Rated current (A), cross-sectional area (mm ²), AWG		—
3.2.5.2	DC power supply cords	AC mains supply.	N/A
3.2.6	Cord anchorages and strain relief	For each output cable for applicant's request.	P
	Mass of equipment (kg), pull (N)	0.36kg, 30N	—
	Longitudinal displacement (mm)	No any displacement (0 mm).	—
3.2.7	Protection against mechanical damage	There are no parts of this equipment that may damage the power supply cord.	N/A
3.2.8	Cord guards	Appliance inlet used.	N/A
	Diameter or minor dimension D (mm); test mass (g)		—
	Radius of curvature of cord (mm)		—
3.2.9	Supply wiring space	Appliance inlet used.	N/A
3.3	Wiring terminals for connection of external conductors <i>Appliance inlet used. No wiring terminals.</i>		N/A
3.3.1	Wiring terminals		N/A
3.3.2	Connection of non-detachable power supply cords		N/A
3.3.3	Screw terminals		N/A
3.3.4	Conductor sizes to be connected		N/A
	Rated current (A), cord/cable type, cross-sectional area (mm ²)		—
3.3.5	Wiring terminal sizes		N/A
	Rated current (A), type, nominal thread diameter (mm)		—

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Clause	Requirement + Test	Result - Remark	Verdict
3.3.6	Wiring terminal design		N/A
3.3.7	Grouping of wiring terminals		N/A
3.3.8	Stranded wire		N/A
3.4	Disconnection from the mains supply		P
3.4.1	General requirement	See below.	P
3.4.2	Disconnect devices	Approved appliance inlet used.	P
3.4.3	Permanently connected equipment	Not permanently connected equipment.	N/A
3.4.4	Parts which remain energized	When appliance inlet is disconnected, no remaining parts at hazardous voltage within the equipment.	P
3.4.5	Switches in flexible cords		N/A
3.4.6	Number of poles - single-phase and d.c. equipment	The disconnect device disconnects both poles simultaneously.	P
3.4.7	Number of poles - three-phase equipment		N/A
3.4.8	Switches as disconnect devices	No switches as disconnect device.	N/A
3.4.9	Plugs as disconnect devices	Appliance inlet as disconnect device.	N/A
3.4.10	Interconnected equipment	No interconnected equipment.	N/A
3.4.11	Multiple power sources	Only one supply connection.	N/A
3.5	Interconnection of equipment		P
3.5.1	General requirements	The power supply is not considered for connection to TNV.	P
3.5.2	Types of interconnection circuits :	Interconnection circuits of SELV and LCC via secondary output connector.	P
3.5.3	ELV circuits as interconnection circuits	No ELV interconnection.	N/A
3.5.4	Data ports for additional equipment		N/A
4	PHYSICAL REQUIREMENTS		P
4.1	Stability		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Angle of 10°	No overbalancing due to equipment design and mass less than 7kg (length and width by far exceeding the height).	N/A
	Test force (N) :		N/A

4.2	Mechanical strength		P
4.2.1	General	See below. After tests, unit complies with the requirements of sub-clause 2.1.1, 2.6.1 and 2.10.	P
	Rack-mounted equipment.		N/A
4.2.2	Steady force test, 10 N	10N applied to all components other than enclosure.	P
4.2.3	Steady force test, 30 N	No internal enclosure.	N/A
4.2.4	Steady force test, 250 N	250N on top/right side/left side/bottom of enclosure, enclosure near AC inlet, enclosure near output cable and no damaged. (test with all mentioned sources in appended table 1.5.1)	P
4.2.5	Impact test	See below.	P
	Fall test	No hazard as result from steel sphere ball impact test applied for top/right side/left side/bottom of enclosure, enclosure near AC inlet and enclosure near output cable. (test with all mentioned sources in appended table 1.5.1)	P
	Swing test	No hazard as result from steel sphere ball impact test for top/right side/left side/bottom enclosure, enclosure near AC inlet and enclosure near output cable. (test with all mentioned sources in appended table 1.5.1)	P

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Clause	Requirement + Test	Result - Remark	Verdict
4.2.6	Drop test; height (mm)	The adapter has been subjected to min. 3 drops which for top/right side/left side/bottom enclosure, enclosure near AC inlet and enclosure near output cable from 1 m height on a hard wooden surface. (test with all mentioned sources in appended table 1.5.1)	P
4.2.7	Stress relief test	After the test at temperature of 105°C for each material source of enclosure by client requested, no shrinkage, distortion or loosening of any enclosure part was noticeable on the equipment.	P
4.2.8	Cathode ray tubes	No CRT in the unit.	N/A
	Picture tube separately certified		N/A
4.2.9	High pressure lamps		N/A
4.2.10	Wall or ceiling mounted equipment; force (N)		N/A

4.3	Design and construction		P
4.3.1	Edges and corners	Edges and corners of the enclosure are rounded.	P
4.3.2	Handles and manual controls; force (N)		N/A
4.3.3	Adjustable controls	No adjustable controls.	N/A
4.3.4	Securing of parts	Mechanical fixings in such a way designed that they will withstand mechanical stress occurring in normal use.	P
4.3.5	Connection by plugs and sockets	Mismatching of connectors neither possible nor result in any hazards.	P
4.3.6	Direct plug-in equipment	Not direct plug-in type.	N/A
	Torque		—
	Compliance with the relevant mains plug standard		N/A
4.3.7	Heating elements in earthed equipment	No heating elements.	N/A
4.3.8	Batteries		N/A
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
4.3.9	Oil and grease	Insulation in intended use not considered to be exposed to oil or grease.	N/A
4.3.10	Dust, powders, liquids and gases	Equipment in intended use not considered to be exposed to these.	N/A
4.3.11	Containers for liquids or gases	No container for liquid or gas provided.	N/A
4.3.12	Flammable liquids	No flammable liquids provided.	N/A
	Quantity of liquid (l)		N/A
	Flash point (°C)		N/A
4.3.13	Radiation		N/A
4.3.13.1	General		N/A
4.3.13.2	Ionizing radiation		N/A
	Measured radiation (pA/kg)		—
	Measured high-voltage (kV)		—
	Measured focus voltage (kV)		—
	CRT markings		—
4.3.13.3	Effect of ultraviolet (UV) radiation on materials		N/A
	Part, property, retention after test, flammability classification		N/A
4.3.13.4	Human exposure to ultraviolet (UV) radiation		N/A
4.3.13.5	Lasers (including laser diodes) and LEDs		N/A
4.3.13.5.1	Lasers (including laser diodes)		N/A
	Laser class		—
4.3.13.5.2	Light emitting diodes (LEDs)		N/A
4.3.13.6	Other types		N/A
4.4	Protection against hazardous moving parts		N/A
4.4.1	General	No hazardous moving parts.	N/A
4.4.2	Protection in operator access areas		N/A
	Household and home/office document/media shredders		N/A
4.4.3	Protection in restricted access locations		N/A
4.4.4	Protection in service access areas		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.4.5	Protection against moving fan blades		N/A
4.4.5.1	General		N/A
	Not considered to cause pain or injury. a) :		N/A
	Is considered to cause pain, not injury. b) :		N/A
	Considered to cause injury. c) :		N/A
4.4.5.2	Protection for users		N/A
	Use of symbol or warning :		N/A
4.4.5.3	Protection for service persons		N/A
	Use of symbol or warning :		N/A

4.5	Thermal requirements		P
4.5.1	General	No exceeding temperature.	P
4.5.2	Temperature tests	See appended table 4.5.	P
	Normal load condition per Annex L :	(See Annex L)	—
4.5.3	Temperature limits for materials	See appended table 4.5.	P
4.5.4	Touch temperature limits	See appended table 4.5.	P
4.5.5	Resistance to abnormal heat :	Phenolic type bobbin material used in T101 and L601 which is acceptable without test.	P

4.6	Openings in enclosures		P
4.6.1	Top and side openings	No opening.	P
	Dimensions (mm) :	See above.	—
4.6.2	Bottoms of fire enclosures	No opening.	P
	Construction of the bottom, dimensions (mm) .. :	See above.	—
4.6.3	Doors or covers in fire enclosures		N/A
4.6.4	Openings in transportable equipment	No opening.	P
4.6.4.1	Constructional design measures		N/A
	Dimensions (mm) :		—
4.6.4.2	Evaluation measures for larger openings		N/A
4.6.4.3	Use of metallized parts		N/A
4.6.5	Adhesives for constructional purposes		N/A
	Conditioning temperature (°C), time (weeks) :		—

4.7	Resistance to fire		P
4.7.1	Reducing the risk of ignition and spread of flame	See below.	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Method 1, selection and application of components wiring and materials	Use of materials with the required flammability classes.	P
	Method 2, application of all of simulated fault condition tests		N/A
4.7.2	Conditions for a fire enclosure	See below.	P
4.7.2.1	Parts requiring a fire enclosure	With having the following parts: 1. Components in primary 2. Components in secondary not supplied by LPS 3. Insulated wiring The fire enclosure is required.	P
4.7.2.2	Parts not requiring a fire enclosure	Fire enclosure is required. Refer to 4.7.2.1.	N/A
4.7.3	Materials		P
4.7.3.1	General	PCB is rated accordingly. See appended table 1.5.1 for details.	P
4.7.3.2	Materials for fire enclosures	See appended table 1.5.1 for details.	P
4.7.3.3	Materials for components and other parts outside fire enclosures		N/A
4.7.3.4	Materials for components and other parts inside fire enclosures	The material is made of V-2 material.	P
4.7.3.5	Materials for air filter assemblies		N/A
4.7.3.6	Materials used in high-voltage components		N/A

5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		P
5.1	Touch current and protective conductor current		P
5.1.1	General	See sub-clauses 5.1.2 to 5.1.6.	P
5.1.2	Configuration of equipment under test (EUT)	See below.	P
5.1.2.1	Single connection to an a.c. mains supply	EUT has only single AC mains connection.	P
5.1.2.2	Redundant multiple connections to an a.c. mains supply		N/A
5.1.2.3	Simultaneous multiple connections to an a.c. mains supply		N/A
5.1.3	Test circuit	Equipment of figure 5A used.	P
5.1.4	Application of measuring instrument	Measuring instruments as in annex D used.	P

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Clause	Requirement + Test	Result - Remark	Verdict
5.1.5	Test procedure	The touch current was measured from mains to DC output connector and to a 10 cm × 20 cm metal foil wrapped on accessible non-conductive parts (plastic enclosure).	P
5.1.6	Test measurements	See below.	P
	Supply voltage (V)	See table 5.1.	—
	Measured touch current (mA)	See table 5.1.	—
	Max. allowed touch current (mA)	See table 5.1.	—
	Measured protective conductor current (mA)		—
	Max. allowed protective conductor current (mA) ...		—
5.1.7	Equipment with touch current exceeding 3,5 mA	Not exceeded.	N/A
5.1.7.1	General		N/A
5.1.7.2	Simultaneous multiple connections to the supply		N/A
5.1.8	Touch currents to telecommunication networks and cable distribution systems and from telecommunication networks	No TNV circuit connection.	N/A
5.1.8.1	Limitation of the touch current to a telecommunication network or to a cable distribution system		N/A
	Supply voltage (V)		—
	Measured touch current (mA)		—
	Max. allowed touch current (mA)		—
5.1.8.2	Summation of touch currents from telecommunication networks		N/A
	a) EUT with earthed telecommunication ports		N/A
	b) EUT whose telecommunication ports have no reference to protective earth		N/A
5.2	Electric strength		P
5.2.1	General	See appended table 5.2.	P
5.2.2	Test procedure	Table 5B used.	P
5.3	Abnormal operating and fault conditions		P
5.3.1	Protection against overload and abnormal operation	(see appended table 5.3)	P
5.3.2	Motors		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.3.3	Transformers	With the shorted o/p of the transformer, no high temperature of the transformer was recorded. Results of the short-circuit tests see appended table 5.3 and Annex C.	P
5.3.4	Functional insulation	Method c). See appended table 5.3	P
5.3.5	Electromechanical components	No electromechanical component provided.	N/A
5.3.6	Audio amplifiers in ITE		N/A
5.3.7	Simulation of faults	See table 5.3.	P
5.3.8	Unattended equipment		N/A
5.3.9	Compliance criteria for abnormal operating and fault conditions	See below.	P
5.3.9.1	During the tests	Neither fire burns the equipment nor molten metal.	P
5.3.9.2	After the tests	Electric strength test primary to secondary, primary to earth and primary to accessible enclosure wrapped with metal foil were passed.	P

6	CONNECTION TO TELECOMMUNICATION NETWORKS		N/A
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		N/A
6.1.1	Protection from hazardous voltages		N/A
6.1.2	Separation of the telecommunication network from earth		N/A
6.1.2.1	Requirements		N/A
	Supply voltage (V)		—
	Current in the test circuit (mA)		—
6.1.2.2	Exclusions		N/A

6.2	Protection of equipment users from overvoltages on telecommunication networks		N/A
6.2.1	Separation requirements		N/A
6.2.2	Electric strength test procedure		N/A
6.2.2.1	Impulse test		N/A
6.2.2.2	Steady-state test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
6.2.2.3	Compliance criteria		N/A
6.3	Protection of the telecommunication wiring system from overheating		N/A
	Max. output current (A)		—
	Current limiting method		—
7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		N/A
7.1	General		N/A
7.2	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment		N/A
7.3	Protection of equipment users from overvoltages on the cable distribution system		N/A
7.4	Insulation between primary circuits and cable distribution systems		N/A
7.4.1	General		N/A
7.4.2	Voltage surge test		N/A
7.4.3	Impulse test		N/A
A	ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE		P
A.1	Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2)		N/A
A.1.1	Samples.....		—
	Wall thickness (mm).....		—
A.1.2	Conditioning of samples; temperature (°C)		N/A
A.1.3	Mounting of samples		N/A
A.1.4	Test flame (see IEC 60695-11-3)		N/A
	Flame A, B, C or D		—
A.1.5	Test procedure		N/A
A.1.6	Compliance criteria		N/A
	Sample 1 burning time (s)		—
	Sample 2 burning time (s)		—
	Sample 3 burning time (s)		—
A.2	Flammability test for fire enclosures of movable equipment having a total mass not exceeding 18 kg, and for material and components located inside fire enclosures (see 4.7.3.2 and 4.7.3.4)		P

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Clause	Requirement + Test	Result - Remark	Verdict
A.2.1	Samples, material.....:		—
	Wall thickness (mm).....:		—
A.2.2	Conditioning of samples; temperature (°C)		N/A
A.2.3	Mounting of samples		N/A
A.2.4	Test flame (see IEC 60695-11-4)		N/A
	Flame A, B or C		—
A.2.5	Test procedure		N/A
A.2.6	Compliance criteria		N/A
	Sample 1 burning time (s)		—
	Sample 2 burning time (s)		—
	Sample 3 burning time (s)		—
A.2.7	Alternative test acc. to IEC 60695-11-5, cl. 5 and 9		N/A
	Sample 1 burning time (s)		—
	Sample 2 burning time (s)		—
	Sample 3 burning time (s)		—
A.3	Hot flaming oil test (see 4.6.2)		N/A
A.3.1	Mounting of samples		N/A
A.3.2	Test procedure		N/A
A.3.3	Compliance criterion		N/A

B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)		N/A
B.1	General requirements		N/A
	Position		—
	Manufacturer		—
	Type		—
	Rated values		—
B.2	Test conditions		N/A
B.3	Maximum temperatures		N/A
B.4	Running overload test		N/A
B.5	Locked-rotor overload test		N/A
	Test duration (days)		—
	Electric strength test: test voltage (V)		—
B.6	Running overload test for d.c. motors in secondary circuits		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
B.6.1	General		N/A
B.6.2	Test procedure		N/A
B.6.3	Alternative test procedure		N/A
B.6.4	Electric strength test; test voltage (V)		N/A
B.7	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
B.7.1	General		N/A
B.7.2	Test procedure		N/A
B.7.3	Alternative test procedure		N/A
B.7.4	Electric strength test; test voltage (V)		N/A
B.8	Test for motors with capacitors		N/A
B.9	Test for three-phase motors		N/A
B.10	Test for series motors		N/A
	Operating voltage (V)		—

C	ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)		P
	Position	Refer to appended table 1.5.1	—
	Manufacturer	See above.	—
	Type	See above.	—
	Rated values	See above.	—
	Method of protection	Over current protection by circuit design.	—
C.1	Overload test	(see appended table 5.3)	P
C.2	Insulation	(see appended table 5.2)	P
	Protection from displacement of windings	See appended table C.2.	P

D	ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)		P
D.1	Measuring instrument	Figure D.1 used.	P
D.2	Alternative measuring instrument		N/A

E	ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)		N/A
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F	ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10 and Annex G)		P
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Clause	Requirement + Test	Result - Remark	Verdict
G	ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES		N/A
G.1	Clearances		N/A
G.1.1	General		N/A
G.1.2	Summary of the procedure for determining minimum clearances		N/A
G.2	Determination of mains transient voltage (V)		N/A
G.2.1	AC mains supply		N/A
G.2.2	Earthed d.c. mains supplies		N/A
G.2.3	Unearthed d.c. mains supplies		N/A
G.2.4	Battery operation		N/A
G.3	Determination of telecommunication network transient voltage (V)		N/A
G.4	Determination of required withstand voltage (V)		N/A
G.4.1	Mains transients and internal repetitive peaks		N/A
G.4.2	Transients from telecommunication networks		N/A
G.4.3	Combination of transients		N/A
G.4.4	Transients from cable distribution systems		N/A
G.5	Measurement of transient voltages (V)		N/A
	a) Transients from a mains supply		N/A
	For an a.c. mains supply		N/A
	For a d.c. mains supply		N/A
	b) Transients from a telecommunication network		N/A
G.6	Determination of minimum clearances		N/A
H	ANNEX H, IONIZING RADIATION (see 4.3.13)		P
J	ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)		P
	Metal(s) used	Complied.	—
K	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.8)		N/A
K.1	Making and breaking capacity		N/A
K.2	Thermostat reliability; operating voltage (V)		N/A
K.3	Thermostat endurance test; operating voltage (V)		N/A
K.4	Temperature limiter endurance; operating voltage (V)		N/A

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K.5	Thermal cut-out reliability		N/A
K.6	Stability of operation		N/A
L	ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2)		P
L.1	Typewriters		N/A
L.2	Adding machines and cash registers		N/A
L.3	Erasers		N/A
L.4	Pencil sharpeners		N/A
L.5	Duplicators and copy machines		N/A
L.6	Motor-operated files		N/A
L.7	Other business equipment	The equipment is operated according to the most unfavorable way of operation given in the operating instructions.	P
M	ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)		N/A
M.1	Introduction		N/A
M.2	Method A		N/A
M.3	Method B		N/A
M.3.1	Ringing signal		N/A
M.3.1.1	Frequency (Hz)		—
M.3.1.2	Voltage (V)		—
M.3.1.3	Cadence; time (s), voltage (V)		—
M.3.1.4	Single fault current (mA)		—
M.3.2	Tripping device and monitoring voltage		N/A
M.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N/A
M.3.2.2	Tripping device		N/A
M.3.2.3	Monitoring voltage (V)		N/A
N	ANNEX N, IMPULSE TEST GENERATORS (see 1.5.7.2, 1.5.7.3, 2.10.3.9, 6.2.2.1, 7.3.2, 7.4.3 and Clause G.5)		N/A
N.1	ITU-T impulse test generators		N/A
N.2	IEC 60065 impulse test generator		N/A
P	ANNEX P, NORMATIVE REFERENCES		—

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Q	ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)		P
	- Preferred climatic categories	Complied.	P
	- Maximum continuous voltage	Complied.	P
	- Combination pulse current	Complied.	P
	Body of the VDR Test according to IEC60695-11-5		N/A
	Body of the VDR. Flammability class of material (min V-1)	Complied. Details see appended table 1.5.1.	P
R	ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES		N/A
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6.2)		N/A
R.2	Reduced clearances (see 2.10.3)		N/A
S	ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)		N/A
S.1	Test equipment		N/A
S.2	Test procedure		N/A
S.3	Examples of waveforms during impulse testing		N/A
T	ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)		N/A
			—
U	ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)		P
		Certified triple insulated wire used. See table 1.5.1.	—
V	ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)		P
V.1	Introduction	See below.	P
V.2	TN power distribution systems	Single-phase TN power system considered and used for the testing.	P
W	ANNEX W, SUMMATION OF TOUCH CURRENTS		N/A
W.1	Touch current from electronic circuits		N/A

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W.1.1	Floating circuits		N/A
W.1.2	Earthed circuits		N/A
W.2	Interconnection of several equipments		N/A
W.2.1	Isolation		N/A
W.2.2	Common return, isolated from earth		N/A
W.2.3	Common return, connected to protective earth		N/A
X	ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)		N/A
X.1	Determination of maximum input current		N/A
X.2	Overload test procedure		N/A
Y	ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)		N/A
Y.1	Test apparatus		N/A
Y.2	Mounting of test samples		N/A
Y.3	Carbon-arc light-exposure apparatus		N/A
Y.4	Xenon-arc light exposure apparatus		N/A
Z	ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2)		P
AA	ANNEX AA, MANDREL TEST (see 2.10.5.8)		P
BB	ANNEX BB, CHANGES IN THE SECOND EDITION		—
CC	ANNEX CC, Evaluation of integrated circuit (IC) current limiters		N/A
CC.1	General		N/A
CC.2	Test program 1		N/A
CC.3	Test program 2		N/A
CC.4	Test program 3		N/A
CC.5	Compliance		N/A
DD	ANNEX DD, Requirements for the mounting means of rack-mounted equipment		N/A
DD.1	General		N/A
DD.2	Mechanical strength test, variable N.....		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
DD.3	Mechanical strength test, 250 N, including end stops.....:		N/A
DD.4	Compliance.....:		N/A
EE	ANNEX EE, Household and home/office document/media shredders		N/A
EE.1	General		N/A
EE.2	Markings and instructions		N/A
	Use of markings or symbols.....:		N/A
	Information of user instructions, maintenance and/or servicing instructions.....:		N/A
EE.3	Inadvertent reactivation test.....:		N/A
EE.4	Disconnection of power to hazardous moving parts:		N/A
	Use of markings or symbols.....:		N/A
EE.5	Protection against hazardous moving parts		N/A
	Test with test finger (Figure 2A)		N/A
	Test with wedge probe (Figure EE1 and EE2)		N/A

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1.5.1	TABLE: List of critical components					P
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity ¹⁾	
Appliance Inlet (SC101) (for models FSP090-AFAN2, FSP090-AWAN2, HPE090-AWAN2, FSP090-ABAN2, FSP090-AAAN2) (C14 type)	Rong Feng Industrial Co., Ltd.	SS-120	10A, 250Vac, 70°C	IEC/EN 60320-1, ANSI/UL 60320-1, CAN/CSA-C22.2 No. 60320-1	VDE, UL (E102641), CSA	
	Tecx-Unions Technology Corp.	TU-301-SP	10A, 250Vac, 70°C	IEC/EN 60320-1, ANSI/UL 60320-1, CAN/CSA-C22.2 No. 60320-1	ENEC 15, UL/cUL (E220004)	
	Solteam Electronics Co., Ltd.	ST-01	10A, 250Vac, 70°C	IEC/EN 60320-1, ANSI/UL 60320-1, CAN/CSA-C22.2 No. 60320-1	VDE, UL/cUL (E200241), CSA	
	HCR Electronics Co., Ltd.	SK01	10A, 250Vac, 70°C	IEC/EN 60320-1, ANSI/UL 60320-1, CAN/CSA-C22.2 No. 60320-1	ENEC 17, UL/cUL (E344254)	
	Rich Bay Co., Ltd.	R-301SN	10A, 250Vac, 70°C	IEC/EN 60320-1, ANSI/UL 60320-1, CAN/CSA-C22.2 No. 60320-1	VDE, UL/cUL (E184638)	
	Zhe Jiang Bei Er Jia Electronic Co., Ltd.	ST-A01-001L, ST-A01-002L, ST-A01-003J, ST-A01-003K	10A, 250Vac, 70°C	IEC/EN 60320-1, ANSI/UL 60320-1, CAN/CSA-C22.2 No. 60320-1	VDE, UL/cUL (E225980)	
	Canal Electronic Co., Ltd.	KS series	10A, 250Vac, 70°C	IEC/EN 60320-1, ANSI/UL 60320-1, CAN/CSA-C22.2 No. 60320-1	ENEC 10, UL/cUL (E250015)	
Appliance Inlet (SC101) (for models FSP090-AFBN2, FSP090-AWBN2, FSP090-ABBN2, FSP090-ABBN2-M,	Rong Feng Industrial Co., Ltd.	RF-190	250Vac, 2.5A	IEC/EN 60320-1, ANSI/UL 60320-1, CAN/CSA-C22.2 No. 60320-1	VDE, UL (E102641), CSA	

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IEC 60950-1					
Clause	Requirement + Test		Result - Remark		Verdict
FSP090-AABN2) (C6 type)					
	Tecx-Unions Technology Corp.	TU-333	250Vac, 2.5A	IEC/EN 60320-1, ANSI/UL 60320-1, CAN/CSA-C22.2 No. 60320-1	ENEC 15, UL/cUL (E220004)
	Solteam Electronics Co., Ltd.	ST-03	250Vac, 2.5A	IEC/EN 60320-1, ANSI/UL 60320-1, CAN/CSA-C22.2 No. 60320-1	VDE, UL/cUL (E200241), CSA
	HCR Electronics Co., Ltd.	SK03	250Vac, 2.5A	IEC/EN 60320-1, ANSI/UL 60320-1, CAN/CSA-C22.2 No. 60320-1	ENEC 17, UL/cUL (E344254)
Fuse (F101) (optional) (provided with VA101 together)	Littelfuse, Inc. Wickmann - Werke (VDE) Littelfuse Wickmann Werke (UL)	382-Serie(s), 392	T6.3AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3 ANSI/UL 248-1, ANSI/UL 248-14, CSA C22.2 NO.235/248.14	VDE, UL/cUL (E67006)
	Cooper Bussmann L L C	SS-5, SR-5	T6.3AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3 ANSI/UL 248-1, ANSI/UL 248-14, CSA C22.2 NO.235/248.14	VDE, UL/cUL (E19180)
	Walter Electronic Co., Ltd.	2000, 2010 Serie(s)	T6.3AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14, CSA C22.2 NO.235/248.14	TUV, UL/cUL (E56092)
	Ever Island Electric Co Ltd & Walter Electric Co., Ltd.	2000, 2010 Serie(s)	T6.3AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3 ANSI/UL 248-1, ANSI/UL 248-14, CSA C22.2 NO.235/248.14	VDE, UL/cUL (E220181)
	Bel Fuse Ltd.	MRT, RST-Serie(s)	T6.3AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3 ANSI/UL 248-1, ANSI/UL 248-14, CSA C22.2 NO.235/248.14	VDE, UL/cUL (E20624)
	Conquer Electronics Co.,	MET series,	T6.3AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3	VDE, UL/cUL

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IEC 60950-1					
Clause	Requirement + Test			Result - Remark	Verdict
	Ltd.	MST-series		ANSI/UL 248-1, ANSI/UL 248-14, CSA C22.2 NO.235/248.14	(E82636)
Fuse (F102)	Littelfuse, Inc. Wickmann - Werke (VDE) Littelfuse Wickmann Werke (UL)	382-Serie(s), 392	T2.5AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3 ANSI/UL 248-1, ANSI/UL 248-14, CSA C22.2 NO.235/248.14	VDE, UL/cUL (E67006)
	Cooper Bussmann L L C	SS-5, SR-5	T2.5AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3 ANSI/UL 248-1, ANSI/UL 248-14, CSA C22.2 NO.235/248.14	VDE, UL/cUL (E19180)
	Walter Electronic Co., Ltd.	2000, 2010 Serie(s)	T2.5AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14, CSA C22.2 NO.235/248.14	TUV, UL/cUL (E56092)
	Ever Island Electric Co Ltd & Walter Electric Co., Ltd.	2000, 2010 Serie(s)	T2.5AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3 ANSI/UL 248-1, ANSI/UL 248-14, CSA C22.2 NO.235/248.14	VDE, UL/cUL (E220181)
	Bel Fuse Ltd.	MRT, RST-Serie(s)	T2.5AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3 ANSI/UL 248-1, ANSI/UL 248-14, CSA C22.2 NO.235/248.14	VDE, UL/cUL (E20624)
	Conquer Electronics Co., Ltd.	MET series, MST-series	T2.5AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3 ANSI/UL 248-1, ANSI/UL 248-14, CSA C22.2 NO.235/248.14	VDE, UL/cUL (E82636)
Varistors (VA101, VA102) (Optional) (VA101 provided with F101 together)	Thinking Electronic Industrial Co., Ltd.	TVR10471-D, TVR10471-V	300Vac, 385Vdc (Flame class of body coating complied with V-0)	IEC/EN 61051-1 IEC 61051-2 IEC 61051-2-2 IEC 60950-1: 2013 annex Q CSA-C22.2 No. 8, CSA Electrical	VDE, UL/cUL (E314979)

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IEC 60950-1					
Clause	Requirement + Test			Result - Remark	Verdict
				Certification, Notice No. 516 ANSI/UL 1449 approved	
	Thinking Electronic Industrial Co., Ltd.	TVR10561-D, TVR10561-V	350Vac, 450Vdc (Flame class of body coating complied with V-0)	IEC/EN 61051-1 IEC 61051-2 IEC 61051-2-2 IEC 60950-1: 2013 annex Q CSA-C22.2 No. 8, CSA Electrical Certification, Notice No. 516 ANSI/UL 1449 approved	VDE, UL/cUL (E314979)
	Thinking Electronic Industrial Co., Ltd.	TVR10621-D, TVR10621-V	395Vac, 510Vdc (Flame class of body coating complied with V-0)	IEC/EN 61051-1 IEC 61051-2 IEC 61051-2-2 IEC 60950-1: 2013 annex Q CSA-C22.2 No. 8, CSA Electrical Certification, Notice No. 516 ANSI/UL 1449 approved	VDE, UL/cUL (E314979)
	Thinking Electronic Industrial Co., Ltd.	TVR10681-D, TVR10681-V	420Vac, 560Vdc (Flame class of body coating complied with V-0)	IEC/EN 61051-1 IEC 61051-2 IEC 61051-2-2 IEC 60950-1: 2013 annex Q CSA-C22.2 No. 8, CSA Electrical Certification, Notice No. 516 ANSI/UL 1449 approved	VDE, UL/cUL (E314979)
	Thinking Electronic Industrial Co., Ltd.	TVR10751-D, TVR10751-V	465Vac, 615Vdc (Flame class of body coating complied with V-0)	IEC/EN 61051-1 IEC 61051-2 IEC 61051-2-2 IEC 60950-1: 2013 annex Q CSA-C22.2 No. 8, CSA Electrical Certification, Notice No. 516 ANSI/UL 1449 approved	VDE, UL/cUL (E314979)

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Clause	Requirement + Test			Result - Remark	Verdict
	Thinking Electronic Industrial Co., Ltd.	TVR14471, TVR14471-D	300Vac, 385Vdc (Flame class of body coating complied with V-0)	IEC/EN 61051-1 IEC 61051-2 IEC 61051-2-2 IEC 60950-1: 2013 annex Q CSA-C22.2 No. 8, CSA Electrical Certification, Notice No. 516 ANSI/UL 1449 approved	VDE, UL/cUL (E314979)
	Thinking Electronic Industrial Co., Ltd.	TVR14621, TVR14621-D	395Vac, 510Vdc (Flame class of body coating complied with V-0)	IEC/EN 61051-1 IEC 61051-2 IEC 61051-2-2 IEC 60950-1: 2013 annex Q CSA-C22.2 No. 8, CSA Electrical Certification, Notice No. 516 ANSI/UL 1449 approved	VDE, UL/cUL (E314979)
	Thinking Electronic Industrial Co., Ltd.	TVR14681, TVR14681-D	420Vac, 560Vdc (Flame class of body coating complied with V-0)	IEC/EN 61051-1 IEC 61051-2 IEC 61051-2-2 IEC 60950-1: 2013 annex Q CSA-C22.2 No. 8, CSA Electrical Certification, Notice No. 516 ANSI/UL 1449 approved	VDE, UL/cUL (E314979)
	Thinking Electronic Industrial Co., Ltd.	TVR14751, TVR14751-D	465Vac, 615Vdc (Flame class of body coating complied with V-0)	IEC/EN 61051-1 IEC 61051-2 IEC 61051-2-2 IEC 60950-1: 2013 annex Q CSA-C22.2 No. 8, CSA Electrical Certification, Notice No. 516 ANSI/UL 1449 approved	VDE, UL/cUL (E314979)
Line Choke (LF102) (Optional)	FSP /SPI	8LM04537	130°C	--	--
X-Capacitor	Ultra Tech Xiphi	HQX	Max. 0.33μF,	IEC/EN 60384-14:	VDE, UL/cUL

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Clause	Requirement + Test			Result - Remark	Verdict
(CX101) (optional)	Enterprise Co., Ltd.		min. 250Vac, 100°C	2013 ANSI/UL 60384-14 CAN/CSA-E60384-14	(E183780), ENEC 15
	Carli Electronics Co., Ltd.	MPX	Max. 0.33μF, min. 250Vac, 100°C	IEC/EN 60384-14: 2013 ANSI/UL 60384-14 CAN/CSA-E60384-14	UL/cUL (E120045), ENEC 16
	Okaya Electric Industries Co., .Ltd	LE(-*)	Max. 0.33μF, min. 250Vac, min. 100°C	IEC/EN 60384-14: 2013 ANSI/UL 60384-14 CAN/CSA-E60384-14	ENEC 14, UL/cUL (E47474)
	Okaya Electric Industries Co., .Ltd	RE-Series	Max. 0.33μF, min. 250Vac, 100°C	IEC/EN 60384-14: 2013 ANSI/UL 60384-14 CAN/CSA-E60384-14	VDE, UL/cUL (E47474)
	ZhuHai Sung Ho Electronics Co., Ltd.	CMPP	Max. 0.33μF, min. 250Vac, 105°C	IEC/EN 60384-14: 2013 ANSI/UL 60384-14 CAN/CSA-E60384-14	ENEC 10, UL/cUL (E327138)
	Okaya Electric Industries Co., .Ltd	PA Series	Max. 0.33μF, min. 250Vac, 100°C	IEC/EN 60384-14: 2013 ANSI/UL 60384-14 CAN/CSA-E60384-14	VDE, UL/cUL (E47474)
	Iskra, d d	KNB1530	Max. 0.33μF, min. 250Vac, 100°C	IEC/EN 60384-14: 2013 ANSI/UL 60384-14 CAN/CSA-E60384-14	VDE, UL/cUL (E145156)
	Iskra, d d	KNB1560, KNB1563, KNB1562	Max. 0.33μF, min. 250Vac, min. 110°C	IEC/EN 60384-14: 2013 ANSI/UL 60384-14 CAN/CSA-E60384-14	VDE, UL/cUL (E145156)

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Clause	Requirement + Test			Result - Remark	Verdict
	Hua Jung Components Co., Ltd.	MKP	Max. 0.33μF, min. 250Vac, min. 100°C	IEC/EN 60384-14: 2013 ANSI/UL 60384-14 CAN/CSA-E60384-14	ENEC 14, UL/cUL (E149075)
	Chiefcon Electronics Co., Ltd.	CKX	Max. 0.33μF, min. 250Vac, 100°C	IEC/EN 60384-14: 2013 ANSI/UL 60384-14 CAN/CSA-E60384-14	ENEC 14, UL/cUL (E209251)
Choke (L603) (optional)	FSP /SPI	8LM04536	130°C	--	--
PFC Choke (L601)	FSP /SPI	8TI01526	130°C	--	--
	TDK	8TI01515	130°C	--	--
Transformer (T101) For models FSP090-AFAN2, FSP090-AFBN2, FSP090-AWAN2, HPE090-AWAN2, FSP090-AWBN2	FSP /SPI	8TV00287	Class B, UL Insulation system type GH-130	Applicable part according to IEC 60950-1 and IEC 60085	Accepted by TÜV Rheinland
-Triple Insulation Wire Used in T101	Great Leoflon Industrial Co., Ltd.	TRW(B)	130°C	IEC/EN 60950-1, UL 2353	VDE, UL (E211989)
	Great Leoflon Industrial Co., Ltd.	TRW(F)	155°C	IEC/EN 60950-1, UL 2353	VDE, UL (E211989)
- Bobbin used in T101	Sumitomo Bakelite Co., Ltd.	PM-9820	V-0, phenolic, min. 1.0 mm, 150°C	ANSI/UL 94	UL (E41429)
- Base used in T101	Sumitomo Bakelite Co., Ltd.	PM-9820	V-0, phenolic, min. 1.0 mm, 150°C	ANSI/UL 94	UL (E41429)
Transformer (T101) (Alternate) For models FSP090-AFAN2, FSP090-AFBN2, FSP090-AWAN2, HPE090-AWAN2,	FSP /SPI	8TV00316	Class B, UL Insulation system type SBI4.2	Applicable part according to IEC 60950-1 and IEC 60085	Accepted by TÜV Rheinland

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Clause	Requirement + Test			Result - Remark	Verdict
FSP090-AWBN2					
-Triple Insulation Wire Used in T101	Furukawa Electric Co., Ltd.	TEX-E	130°C	IEC/EN 60950-1 UL 2353	VDE, UL (E206440)
	Totoku Electric Co., Ltd.	TIW-2, TIW-3	155°C	IEC/EN 60950-1, UL 2353	VDE, UL (166483)
- Bobbin used in T101	Sumitomo Bakelite Co., Ltd.	PM-9820	V-0, phenolic, min. 1.0 mm, 150°C	ANSI/UL 94	UL (E41429)
- Base used in T101	Sumitomo Bakelite Co., Ltd.	PM-9820	V-0, phenolic, min. 1.0 mm, 150°C	ANSI/UL 94	UL (E41429)
Transformer (T101) For models FSP090-ABAN2, FSP090-ABBN2, FSP090-ABBN2-M	FSP /SPI	8TV00294	Class B, UL Insulation system type GH-130	Applicable part according to IEC 60950-1 and IEC 60085	Accepted by TÜV Rheinland
-Triple Insulation Wire Used in T101	Great Leoflon Industrial Co., Ltd.	TRW(B)	130°C	IEC/EN 60950-1, UL 2353	VDE, UL (E211989)
	Great Leoflon Industrial Co., Ltd.	TRW(F)	155°C	IEC/EN 60950-1, UL 2353	VDE, UL (E211989)
- Bobbin used in T101	Sumitomo Bakelite Co., Ltd.	PM-9820	V-0, phenolic, min. 1.0 mm, 150°C	ANSI/UL 94	UL (E41429)
- Base used in T101	Sumitomo Bakelite Co., Ltd.	PM-9820	V-0, phenolic, min. 1.0 mm, 150°C	ANSI/UL 94	UL (E41429)
Transformer (T101) (Alternative) For models FSP090-ABAN2, FSP090-ABBN2, FSP090-ABBN2-M	FSP /SPI	8TV00313	Class B, UL Insulation system type SBI4.2	Applicable part according to IEC 60950-1 and IEC 60085	Accepted by TÜV Rheinland
-Triple Insulation Wire Used in T101	Furukawa Electric Co., Ltd.	TEX-E	130°C	IEC/EN 60950-1 UL 2353	VDE, UL (E206440)
	Totoku Electric	TIW-2,	155°C	IEC/EN 60950-1,	VDE, UL

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IEC 60950-1					
Clause	Requirement + Test		Result - Remark		Verdict
	Co., Ltd.	TIW-3		UL 2353	(166483)
- Bobbin used in T101	Sumitomo Bakelite Co., Ltd.	PM-9820	V-0, phenolic, min. 1.0 mm, 150°C	ANSI/UL 94	UL (E41429)
- Base used in T101	Sumitomo Bakelite Co., Ltd.	PM-9820	V-0, phenolic, min. 1.0 mm, 150°C	ANSI/UL 94	UL (E41429)
Transformer (T101) For models FSP090-AAAN2, FSP090-AABN2	FSP /SPI	8TV00295	Class B, UL Insulation system type GH-130	Applicable part according to IEC 60950-1 and IEC 60085	Accepted by TÜV Rheinland
-Triple Insulation Wire Used in T101	Great Leoflon Industrial Co., Ltd.	TRW(B)	130°C	IEC/EN 60950-1, UL 2353	VDE, UL (E211989)
	Great Leoflon Industrial Co., Ltd.	TRW(F)	155°C	IEC/EN 60950-1, UL 2353	VDE, UL (E211989)
- Bobbin used in T101	Sumitomo Bakelite Co., Ltd.	PM-9820	V-0, phenolic, min. 1.0 mm, 150°C	ANSI/UL 94	UL (E41429)
- Base used in T101	Sumitomo Bakelite Co., Ltd.	PM-9820	V-0, phenolic, min. 1.0 mm, 150°C	ANSI/UL 94	UL (E41429)
Transformer (T101) (Alternative) For models FSP090-AAAN2, FSP090-AABN2	FSP /SPI	8TV00314	Class B, UL Insulation system type SBI4.2	Applicable part according to IEC 60950-1 and IEC 60085	Accepted by TÜV Rheinland
-Triple Insulation Wire Used in T101	Furukawa Electric Co., Ltd.	TEX-E	130°C	IEC/EN 60950-1 UL 2353	VDE, UL (E206440)
	Totoku Electric Co., Ltd.	TIW-2, TIW-3	155°C	IEC/EN 60950-1, UL 2353	VDE, UL (166483)
- Bobbin used in T101	Sumitomo Bakelite Co., Ltd.	PM-9820	V-0, phenolic, min. 1.0 mm, 150°C	ANSI/UL 94	UL (E41429)
- Base used in T101	Sumitomo Bakelite Co., Ltd.	PM-9820	V-0, phenolic, min. 1.0 mm, 150°C	ANSI/UL 94	UL (E41429)
Y Cap. (CY101) (Used for model	Walsin Technology Corp.	AH	Max. 470pF, min. 250V,	IEC/EN 60384-14: 2013 ANSI/UL 60384-	ENEC 10, VDE, UL/cUL (E146544)

TRF No. IEC60950_1F

IEC 60950-1					
Clause	Requirement + Test			Result - Remark	Verdict
FSP090-AWBN2)			125°C	14 CAN/CSA- E60384-14	
	TDK Corporation	CD, CS	Max. 470pF, min. 250V, 125°C	IEC/EN 60384-14: 2013 ANSI/UL 60384-14 CAN/CSA- E60384-14	VDE, UL/cUL (E37861)
	TDK Corporation	CD (miniature series), CS (miniature series)	Max. 470pF, min. 250V, 125°C	IEC/EN 60384-14: 2013 ANSI/UL 60384-14 CAN/CSA- E60384-14	VDE, UL/cUL (E37861)
	Murata Mfg Co., Ltd.	KX	Max. 470pF, min. 250V, 125°C	IEC/EN 60384-14: 2013 ANSI/UL 60384-14 CAN/CSA- E60384-14	VDE, UL/cUL (E37921)
	Success Electronics Co., Ltd.	SB, SE	Max. 470pF, min. 250V, 125°C	IEC/EN 60384-14: 2013 ANSI/UL 60384-14 CAN/CSA- E60384-14	VDE, UL/cUL (E114280)
Bridge Cap. (CY103) (Y1 type only)	Walsin Technology Corp.	AH	Max. 1500pF, min. 250V, 125°C	IEC/EN 60384-14: 2013 ANSI/UL 60384-14 CAN/CSA- E60384-14	ENEC 10, VDE, UL/cUL (E146544)
	TDK Corporation	CD	Max. 1500pF, min. 250V, 125°C	IEC/EN 60384-14: 2013 ANSI/UL 60384-14 CAN/CSA- E60384-14	VDE, UL/cUL (E37861)
	TDK Corporation	CD (miniature series)	Max. 1500pF, min. 250V, 125°C	IEC/EN 60384-14: 2013 ANSI/UL 60384-14 CAN/CSA- E60384-14	VDE, UL/cUL (E37861)
	Murata Mfg Co.,	KX	Max. 1500pF, min. 250V,	IEC/EN 60384-14: 2013	VDE, UL/cUL

TRF No. IEC60950_1F

IEC 60950-1					
Clause	Requirement + Test			Result - Remark	Verdict
	Ltd.		125°C	ANSI/UL 60384-14 CAN/CSA-E60384-14	(E37921)
	Success Electronics Co., Ltd.	SB	Max. 1500pF, min. 250V, 125°C	IEC/EN 60384-14: 2013 ANSI/UL 60384-14 CAN/CSA-E60384-14	VDE, UL/cUL (E114280)
Bridge Cap. (CY104) (Y1 type only)	Walsin Technology Corp.	AH	Max. 1000pF, min. 250V, 125°C	IEC/EN 60384-14: 2013 ANSI/UL 60384-14 CAN/CSA-E60384-14	ENEC 10, VDE, UL/cUL (E146544)
	TDK Corporation	CD	Max. 1000pF, min. 250V, 125°C	IEC/EN 60384-14: 2013 ANSI/UL 60384-14 CAN/CSA-E60384-14	VDE, UL/cUL (E37861)
	TDK Corporation	CD (miniature series)	Max. 1000pF, min. 250V, 125°C	IEC/EN 60384-14: 2013 ANSI/UL 60384-14 CAN/CSA-E60384-14	VDE, UL/cUL (E37861)
	Murata Mfg Co., Ltd.	KX	Max. 1000pF, min. 250V, 125°C	IEC/EN 60384-14: 2013 ANSI/UL 60384-14 CAN/CSA-E60384-14	VDE, UL/cUL (E37921)
	Success Electronics Co., Ltd.	SB	Max. 1000pF, min. 250V, 125°C	IEC/EN 60384-14: 2013 ANSI/UL 60384-14 CAN/CSA-E60384-14	VDE, UL/cUL (E114280)
Optical Isolators (PC101)	Lite-On Technology Corporation	LTV-817	Dti=0.6mm, Ext. cr=7.6mm, thermal cycling test, 4800Vac, 115°C	IEC/EN 60747-5-5+A1, IEC/EN 60950-1, UL 1577, CSA Component Acceptance Service Notice	VDE, FI, UL/cUL (E113898)

TRF No. IEC60950_1F

IEC 60950-1					
Clause	Requirement + Test			Result - Remark	Verdict
				No. 5A	
	Renesas Electronics Corporation	PS2561DL1-1	Dti=0.4mm, thermal cycling test, Ext. dcr =8.0mm, 5000Vac, 110°C	IEC/EN 60747-5-5+A1, IEC/EN 60950-1, UL 1577, CSA Component Acceptance Service Notice No. 5A	VDE, FI, UL/cUL (E72422)
	Renesas Electronics Corporation	PS2561BL1-1	Dti=0.4mm, thermal cycling test, Ext. dcr=7.0mm, 5000Vac, 110°C	IEC/EN 60747-5-5+A1, IEC/EN 60950-1, UL 1577, CSA Component Acceptance Service Notice No. 5A	VDE, FI, UL/cUL (E72422)
	Everlight Electronics Co., Ltd.	EL817.	Dti=0.5mm, thermal cycling test, Ext. dcr=7.7mm, 3000Vac, 110°C	IEC/EN 60747-5-5+A1, IEC/EN 60950-1, UL 1577, CSA Component Acceptance Service Notice No. 5A	VDE, Nemko, UL/cUL (E214129), CSA
	Cosmo Electronics Corp.	K1010	Dti=0.6mm, thermal cycling test, Ext. dcr=8.0mm, 4800Vac, 115°C	IEC/EN 60747-5-5+A1, IEC/EN 60950-1, UL 1577, CSA Component Acceptance Service Notice No. 5A	VDE, Semko, UL/cUL (E169586)
	Sharp Corp. Electronic Components and Devices Group	PC123	Dti=0.4mm, thermal cycling test, Ext. dcr=8.0mm, 4800Vac, 110°C	IEC/EN 60747-5-5+A1, IEC/EN 60950-1, UL 1577, CSA Component Acceptance Service Notice No. 5A	VDE, Semko, UL/cUL (E64380)
	Vishay Semiconductor GmbH (VDE) Vishay Infrared Components Inc. (UL)	TCET1114G	Dti=0.5mm, Int. dcr =6.0mm, Ext. dcr=7.7mm, 5000Vac, 110°C	IEC/EN 60747-5-5+A1, IEC/EN 60950-1, UL 1577, CSA Component Acceptance Service Notice	VDE, FI, UL/cUL (E52744)

TRF No. IEC60950_1F

IEC 60950-1					
Clause	Requirement + Test		Result - Remark		Verdict
				No. 5A	
Thermistor (TH102) (Optional)	Thinking Electronic Industrial Co., Ltd.	TSM1A474	Max.470kΩ at 25°C	IEC/EN 60539-1, IEC/EN 60539-2, EN/IEC 60730-1 UL 1434, CSA-C22.2 No. 72	TUV, UL/cUL (E138827)
	Murata MFG Co., Ltd.	NCP18WB474	Max.470kΩ at 25°C	EN/IEC 60539-2, EN/IEC 60730-1 UL 1434, CSA-C22.2 No. 72	TUV, UL/cUL (E137188)
Insulation Tape (used for top primary Shielding, two layers provided)	3M Company Electrical Markets DIV (EMD)	1350F-1	130°C	UL 510A	UL (E17385)
	3M Company Electrical Markets DIV (EMD)	1350F-2(c)*	130°C	UL 510A	UL (E17385)
	3M Company Electrical Markets DIV (EMD)	1218	180°C	UL 510A	UL (E17385)
	3M Company Electrical Markets DIV (EMD)	92	155°C	UL 510A	UL (E17385)
	3M Taiwan Ltd.	1388Y-1	130°C	UL 510A	UL (E305006)
	Bondtec Pacific Co., Ltd.	370S+\$	130°C	UL 510A	UL (E175868)
	Bondtec Pacific Co., Ltd.	371F+@	130°C	UL 510A	UL (E175868)
	Symbio Inc.	35660*@	130°C	UL 510A	UL (E50292)
	Symbio Inc.	35660Y*(%)	130°C	UL 510A	UL (E50292)
	Symbio Inc.	35661\$	130°C	UL 510A	UL (E50292)
Mylar sheet (provided between PCB solder side and primary shielding)	Formex, Div of IL Tool Works Inc., Frmrly Fastex, Div of IL Tool Works Inc.	FORMEX GK-(a)(b)(f2)	V-0 or better, min. 115°C, min. 0.4mm	UL 746C	UL (E121855)
	Sabic	FR60	V-0 or better,	UL 746C	UL (E121562)

TRF No. IEC60950_1F

IEC 60950-1					
Clause	Requirement + Test		Result - Remark		Verdict
	Innovative Plastics US L L C		min. 125°C, min. 0.4mm		
	Sun Delta Corp.	VS(f)	V-0 or better, min. 120°C, Min. 0.4mm	UL 746C	UL (E301813)
	Sabic Innovative Plastics US L L C	FR700	V-0 or better, min. 125°C, min. 0.4mm	UL 746C	UL (E121562)
	3M Taiwan Ltd.	IS-250-a	V-0 or better, min. 125°C, min. 0.25mm, three layers, polyester	UL 94, Test for Clause 2.10.5.8 & 2.10.5.9 & Annex AA of IEC 60950-1	UL (E305006), test by TUV
Plastic Enclosure	Lotte Advanced Materials Co., Ltd.	EN-1052	V-1 or better, min. 1.9mm, 130°C	UL 94	UL (E115797)
	Sabic Innovative Plastics US L L C	945(GG)	V-1 or better, Min. 1.9mm, 120°C	UL 94	UL (E121562)
Functional Components					
Bleeder Resistors (R101, R102)	Interchangeable	Interchangeable	Max. 2MΩ, 1/4W	--	--
Bridge Diode (BD101)	Interchangeable	Interchangeable	Min. 800V Min. 3 A	--	--
MOSFET for L601 (Q601) For models FSP090-AFAN2, FSP090-AFBN2, FSP090-AWAN2, HPE090-AWAN2, FSP090-AWBN2	Interchangeable	Interchangeable	Min. 9A, min. 500V	--	--
MOSFET for L601 (Q601) For models FSP090-ABAN2, FSP090-ABBN2, FSP090-ABBN2-M, FSP090-AAAN2, FSP090-AABN2	Interchangeable	Interchangeable	Min. 12A, min. 500V	--	--

TRF No. IEC60950_1F

IEC 60950-1					
Clause	Requirement + Test			Result - Remark	Verdict
Current Resistors For L601 (R621)	Interchangeable	Interchangeable	Min. 0.12Ω, min. 1W	--	--
Electrolytic Cap. (C601)	Interchangeable	Interchangeable	82μF, min. 420V, 105°C	--	--
MOSFET for T101 (Q101)	Interchangeable	Interchangeable	Min. 8A, min. 650V	--	--
Current Resistor (R121) For models FSP090-AFAN2, FSP090-AFBN2, FSP090-AWAN2, HPE090-AWAN2, FSP090-AWBN2	Interchangeable	Interchangeable	Min. 0.15Ω, Min. 1W	--	--
Current Resistor (R121) For models FSP090-ABAN2, FSP090-ABBN2, FSP090-ABBN2-M, FSP090-AAAN2 FSP090-AABN2	Interchangeable	Interchangeable	Min. 0.13Ω, Min. 1W	--	--
Metal shielding	Interchangeable	Interchangeable	Metal, min. 0.5mm	--	--
Primary Caps. (C105, C111, C606, C607) (Optional)	Interchangeable	Interchangeable	105°C	--	--
Primary Caps. (C108) (Optional)	Interchangeable	Interchangeable	125°C	--	--
Secondary Caps. (C201, C202) (Optional)	Interchangeable	Interchangeable	105°C	--	--
PCB	Interchangeable	Interchangeable	V-1 or better, min. 130°C	UL 94	UL
Heat shrink tube of function earth wire	Interchangeable	Interchangeable	V-0 or better, min. 0.4mm	UL 224	UL
Supplementary information:					

TRF No. IEC60950_1F

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
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. 3. The transformer used in below factories is identical in electrical characteristics, physical construction in clearance, creepage and distance through insulation. Transformer manufacturing plants (factories) of FSP/SPI 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. - DONG GUAN LIGHTION ELECTRONICS CO LTD. - NANJING SHENNING MAGNETIC & 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 - HUAHUA YAXIN ELECTRONICS CO LTD			

1.5.1	TABLE: Opto Electronic Devices	P
Manufacturer : See appended table 1.5.1.		
Type..... : See appended table 1.5.1.		
Separately tested..... : See appended table 1.5.1.		
Bridging insulation : RI		
External creepage distance : See appended table 1.5.1.		
Internal creepage distance : See appended table 1.5.1.		
Distance through insulation : See appended table 1.5.1.		
Tested under the following conditions : RI		
Input..... :		
Output..... :		
Supplementary information:		

1.6.2	TABLE: Electrical data (in normal conditions)	P
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TRF No. IEC60950_1F

IEC 60950-1						
Clause	Requirement + Test			Result - Remark		Verdict
U (Vac)/ Freq. (Hz)	I (A)	I _{rated} (A)	P (W)	Fuse #	I _{fuse} (A)	Condition/status
For model FSP090-AFAN2						
90/50	1.11	--	99.2	F102	1.11	Max. normal load condition (48Vdc, 1.88A)
100/50	0.99	1.2	98.2	F102	0.99	Same as above
240/50	0.429	1.2	96.0	F102	0.429	Same as above
264/50	0.395	--	95.8	F102	0.395	Same as above
90/60	1.11	--	99.2	F102	1.11	Same as above
100/60	0.99	1.2	98.2	F102	0.99	Same as above
240/60	0.432	1.2	96.0	F102	0.432	Same as above
264/60	0.399	--	95.8	F102	0.399	Same as above
For model FSP090-AWAN2						
90/50	1.094	--	97.5	F102	1.094	Max. normal load condition (54Vdc, 1.67A)
100/50	0.973	1.2	96.5	F102	0.973	Same as above
240/50	0.422	1.2	94.5	F102	0.422	Same as above
264/50	0.389	--	94.3	F102	0.389	Same as above
90/60	1.094	--	97.5	F102	1.094	Same as above
100/60	0.973	1.2	96.6	F102	0.973	Same as above
240/60	0.426	1.2	94.5	F102	0.426	Same as above
264/60	0.393	--	94.4	F102	0.393	Same as above
For model FSP090-ABAN2						
90/50	1.120	--	100.09	F102	1.120	Max. normal load condition (19Vdc/4.74A)
100/50	0.990	1.2	99.19	F102	0.990	Same as above
240/50	0.442	1.2	97.10	F102	0.442	Same as above
264/50	0.405	--	96.91	F102	0.405	Same as above
90/60	1.120	--	100.10	F102	1.120	Same as above
100/60	1.000	1.2	99.19	F102	1.000	Same as above
240/60	0.447	1.2	97.19	F102	0.447	Same as above
264/60	0.410	--	96.91	F102	0.410	Same as above
For model FSP090-AAAN2						
90/50	1.124	--	100.50	F102	1.124	Max. normal load condition

TRF No. IEC60950_1F

IEC 60950-1						
Clause	Requirement + Test				Result - Remark	Verdict
						(24Vdc/3.75A)
100/50	1.000	1.2	99.67	F102	1.000	Same as above
240/50	0.445	1.2	97.90	F102	0.445	Same as above
264/50	0.408	--	97.88	F102	0.408	Same as above
90/60	1.125	--	100.52	F102	1.125	Same as above
100/60	1.000	1.2	99.67	F102	1.000	Same as above
240/60	0.449	1.2	98.00	F102	0.449	Same as above
264/60	0.414	--	97.88	F102	0.414	Same as above
Supplementary information:						

2.1.1.5 c) 1)	TABLE: max. V, A, VA test				P
Voltage (rated) (V)	Current (rated) (A)	Voltage (max.) (V)	Current (max.) (A)	VA (max.) (VA)	
For model FSP090-AFAN2					
48Vdc	1.88	48.04	2.46	116.8	
For model FSP090-AWAN2					
54Vdc	1.67	53.4	2.35	124.8	
For model FSP090-ABAN2					
19Vdc	4.74	18.92	6.33	114.9	
For model FSP090-AAAN2					
24Vdc	3.75	23.98	5.05	117.4	
Supplementary information:					
- Tested voltage: 240Vac, 60Hz					

2.1.1.5 c) 2)	TABLE: stored energy			N/A
Capacitance C (μF)		Voltage U (V)	Energy E (J)	
Supplementary information:				

TRF No. IEC60950_1F

IEC 60950-1					
Clause	Requirement + Test		Result - Remark		Verdict
2.2	TABLE: evaluation of voltage limiting components in SELV circuits				P
Component (measured between)		max. voltage (V) (normal operation)		Voltage Limiting Components	
		V peak	V d.c.		
For model FSP090-AWAN2					
T101 pin A to pin B		134	--	--	
T101 pin A after R212 to pin B		128	--	R212	
T101 pin A after C207 to pin B		--	54.2	C207	
T101 pin A after D201 to pin B		--	54.2	D201	
For model FSP090-AAAN2					
T101 pin A to pin B		77.5	--		
T101 pin A after R212 to pin B		77.0	--	R212	
T101 pin A after C207 to pin B		--	23.7	C207	
T101 pin A after D201 to pin B		--	23.7	D201	
For model FSP090-ABAN2					
T101 pin A to pin B		65.0	--		
T101 pin A after R212 to pin B		64.5	--	R212	
T101 pin A after C207 to pin B		--	18.5	C207	
T101 pin A after D201 to pin B		--	18.5	D201	
Fault test performed on voltage limiting components		Voltage measured (V) in SELV circuits (V peak or V d.c.)			
For model FSP090-AWAN2					
R212 shorted		T101 pin A after R212 to pin B: 124V			
C207 shorted		T101 pin A after C207 to pin B: 54.2Vdc			
D201 shorted		T101 pin A after D201 to pin B: Unit shut down			
For model FSP090-AAAN2					
R212 shorted		T101 pin A after R212 to pin B: 23.7V			
C207 shorted		T101 pin A after C207 to pin B: 23.7Vdc			
D201 shorted		T101 pin A after D201 to pin B: Unit shut down			
For model FSP090-ABAN2					
R212 shorted		T101 pin A after R212 to pin B:18.5V			
C207 shorted		T101 pin A after C207 to pin B: 18.5Vdc			
D201 shorted		T101 pin A after D201 to pin B: Unit shut down			

TRF No. IEC60950_1F

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
Supplementary information:			

2.5	TABLE: Limited power sources					N/A	
Circuit output tested:							
Note: Measured Uoc (V) with all load circuits disconnected:							
Components	Sample No.	Uoc (V)	I _{sc} (A)		VA		
			Meas.	Limit	Meas.	Limit	
Supplementary information:							

2.10.2	Table: working voltage measurement			P
Location		RMS voltage (V)	Peak voltage (V)	Comments
For model FSP090-AFAN2				
T101 pin 1 to pin A		212	415	
T101 pin 1 to pin B		224	530	
T101 pin 2 to pin A		213	455	
T101 pin 2 to pin B		236	575	
T101 pin 4 to pin A		285	480	
T101 pin 4 to pin B		326	555	
T101 pin 5 to pin A		258	360	
T101 pin 5 to pin B		270	420	
T101 pin 6 to pin A		353	590	
T101 pin 6 to pin B		407	655	Max. Vrms and Vpk of T101
PC101 pin 1 to pin 3		190	385	
PC101 pin 1 to pin 4		187	380	
PC101 pin 2 to pin 3		191	385	
PC101 pin 2 to pin 4		187	380	
Under CY103		173	360	
Under CY104		173	360	
D106 trace to R206 trace		192	425	

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IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
For model FSP090-AAAN2			
T101 pin 1 to pin A	193	455	
T101 pin 1 to pin B	189	380	
T101 pin 2 to pin A	203	510	
T101 pin 2 to pin B	191	440	
T101 pin 4 to pin A	326	525	
T101 pin 4 to pin B	310	500	
T101 pin 5 to pin A	295	425	
T101 pin 5 to pin B	293	400	
T101 pin 6 to pin A	387	625	Max. Vrms and Vpk of T101
T101 pin 6 to pin B	361	595	
PC101 pin 1 to pin 3	189	380	
PC101 pin 1 to pin 4	186	380	
PC101 pin 2 to pin 3	188	380	
PC101 pin 2 to pin 4	185	380	
Under CY103	172	355	
Under CY104	172	355	
D106 trace to R206 trace	192	445	
For model FSP090-ABAN2			
T101 pin 1 to pin A	188	440	
T101 pin 1 to pin B	184	375	
T101 pin 2 to pin A	198	500	
T101 pin 2 to pin B	188	435	
T101 pin 4 to pin A	325	530	
T101 pin 4 to pin B	312	505	
T101 pin 5 to pin A	297	425	
T101 pin 5 to pin B	296	400	
T101 pin 6 to pin A	380	630	* Max. Vrms and Vpk of T101
T101 pin 6 to pin B	360	600	
PC101 pin 1 to pin 3	184	375	
PC101 pin 1 to pin 4	181	370	
PC101 pin 2 to pin 3	183	370	

TRF No. IEC60950_1F

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
PC101 pin 2 to pin 4	180	370	
Under CY103	171	355	
Under CY104	171	355	
D106 trace to R206 trace	187	475	
Supplementary information:			
- Tested voltage: 240Vac ,60Hz			

2.10.3 and 2.10.4	TABLE: Clearance and creepage distance measurements						P
Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)	
Functional:							
Trace between L and N (via trace of fuse F101)	420	250	2.3 ¹⁾	6.3	2.5	6.3	
Trace between L and N (F101 used jumper)	420	250	2.3 ¹⁾	3.0	2.5	3.0	
Trace under Fuse (F101) ⁴⁾	420	250	2.3 ¹⁾	3.0	2.5	3.1	
Trace under Fuse (F102) ⁵⁾	420	250	2.3 ¹⁾	2.6	2.5	3.4	
Reinforced:							
Primary shielding to plastic enclosure surface	420	250	6.0 ¹⁾	6.8	6.0 ²⁾	6.8	
Primary trace to secondary trace	420	250	6.0 ¹⁾	See below	6.0 ²⁾	See below	
- under CY104	420	250	6.0 ¹⁾	7.9	6.0 ²⁾	7.9	
- PC101 pin 4 to ZD201	420	250	6.0 ¹⁾	8.1	6.0 ²⁾	8.1	
- under PC101	420	250	6.0 ¹⁾	8.2	6.0 ²⁾	8.2	
- under CY103	420	250	6.0 ¹⁾	7.9	6.0 ²⁾	7.9	
Primary components to secondary components (with 10N) ⁷⁾	420	250	6.0 ¹⁾	See below	6.0 ²⁾	See below	
- Primary shielding to C201	420	250	6.0 ¹⁾	12.6	6.0 ²⁾	12.6	
- Primary shielding to HS201	420	250	6.0 ¹⁾	7.9	6.0 ²⁾	7.9	
- Primary shielding to CY104 secondary trace	420	250	6.0 ¹⁾	7.5	6.0 ²⁾	7.5	
- T101 core to C202	420	250	6.0 ¹⁾	6.5	6.0 ²⁾	More than 6.5	

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Supplementary information: 1) The correction factors of clearance is 1.48, specified in table A. 2 of IEC 60664-1 for altitude 5000m. 2) The min. creepage distance derived from Table 2N is less than the applicable min. clearance, that value of min. clearance shall be applied as the min. creepage distance. 3) Functional insulation short circuited, see 5.3.4. 4) There is one groove (3.9 mm, width 1.2 mm) provided under Fuse (F101). 5) There is one groove (3.9 mm, width 1.2 mm) provided under Fuse (F102). 6) Two layers of insulation tape (119.5 mm by 55 mm) provided on top primary shielding and fold back to primary min. 10 mm min. at secondary side. 7) Two turns of insulation tape wrapped around core of function ground wire and over than 6 mm at both primary and secondary side. 8) There is one mylar sheet (129.5 mm by 105.2 mm) provided between PCB solder side and primary shielding. 9) Tubed components: function wire (from PE pin of AC inlet to FG). 10) Two turns of insulation tape wrapped around core of function wire and over than 6 mm at both primary side and secondary side. 11) For clearance and creepage did not describe above are far larger than limit above.						

2.10.5	TABLE: Distance through insulation measurements					P
Distance through insulation (DTI) at/of:	U peak (V)	U rms (V)	Test voltage (V)	Required DTI (mm)	DTI (mm)	
Photo coupler ¹⁾	420	250	3000Vac	0.4	¹⁾	
Enclosure ¹⁾	420	250	3000Vac	0.4	¹⁾	
Heat shrink tube of function earth wire ²⁾	420	250	3000Vac	0.4	¹⁾	
Mylar sheet (non-separated type three layer)(reinforced insulation) ³⁾	420	250	5000Vac	--	¹⁾	
Mylar sheet (non-separated type three layer)(reinforced insulation) ⁴⁾	420	250	3000Vac	0.4	¹⁾	
Bobbin and base of T101 ¹⁾	420	250	3000Vac	0.4	¹⁾	

Supplementary information:

Above all sources were tested with equipment before humidity test and after humidity test, for sources see below.

- 1) For all sources details refer to table 1.5.1.
- 2) Tested material list as below,
 - Mfr. Sumitomo Electric Fine Polymer Inc. types Sumitube F32, Sumitube F32(Z), Sumitube F32 a, Sumitube HF2
 - Mfr. Dongguan Salipt Co., Ltd. types SALIPT S-901-300 and SALIPT S-901-600
 - Mfr. Tyco Electronics Corp. types Versafit V, Versafit V4 and Versafit V2
 - Mfr. Changyuan Electronics (Shenzhen) Co., Ltd. types CB-HFT
 - Mfr. Dongguan Quantai Electronics Co., Ltd. type T-2

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- Mfr. Hamburg Industries Co., Ltd. types H-2 and H-2(CB) - Mfr. Well One Co., Ltd. types GT-2 and GH-2			
3)	Tested material list as below, - Mfr. 3M TAIWAN Ltd. type IS-250-a		
4)	Test were performed on below insulation sheet sources: - Mfr. Formex, Div of IL Tool Works Inc., Frmrly Fastex, Div of IL Tool Works Inc. type FORMEX GK-(a)(b)(f2) - Mfr. Sabic Innovative Plastics US LLC types FR60 and FR700 - Mfr. Sun Delta Corp. type VS(f)		

4.3.8	TABLE: Batteries								N/A	
The tests of 4.3.8 are applicable only when appropriate battery data is not available										
Is it possible to install the battery in a reverse polarity position?										
	Non-rechargeable batteries			Rechargeable batteries						
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging		
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	
Max. current during normal condition										
Max. current during fault condition										
Test results:									Verdict	
- Chemical leaks										
- Explosion of the battery										
- Emission of flame or expulsion of molten metal										
- Electric strength tests of equipment after completion of tests										
Supplementary information:										

4.3.8	TABLE: Batteries	N/A
Battery category..... :		
Manufacturer :		
Type / model..... :		
Voltage :		
Capacity..... :		

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Tested and Certified by (incl. Ref. No.) :			
Circuit protection diagram:			

MARKINGS AND INSTRUCTIONS (1.7.13)	
Location of replaceable battery	
Language(s)	
Close to the battery	
In the servicing instructions	
In the operating instructions	

4.5	TABLE: Thermal requirements				P	
	Supply voltage (V)	A. 90Vac, 60Hz, label side downward B. 264Vac, 50Hz, label side downward C. 90Vac, 60Hz, label side upward D. 264Vac, 50Hz, label side upward			—	
	Ambient T _{min} (°C)	--			—	
	Ambient T _{max} (°C)	--			—	
Maximum measured temperature T of part/at.....:		T (°C)			Allowed T _{max} (°C)	
For model FSP090-AWAN2						
Test voltage and position		A.	B.	C.	D.	--
L pin of inlet		62.9	54.9	58.9	51.0	70
LF102 coil		86.4	67.2	87.8	68.3	130
L603 coil		94.9	70.4	95.6	71.2	130
L601 core		87.8	70.3	89.1	71.5	130
L601 coil		95.4	73.3	96.2	74.2	130
C606		86.3	69.3	87.3	70.3	105
C601		92.6	74.9	94.0	76.4	105
C105		94.8	79.8	96.5	81.6	105
C108		101.3	85.2	101.8	86.1	125
C111		87.0	72.4	87.5	73.2	105
C202		79.8	71.0	80.9	72.5	85

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Clause	Requirement + Test		Result - Remark		Verdict
LF201 coil	72.2	64.6	73.2	65.8	105
T101 core	83.8	72.7	85.2	74.2	110
T101 coil	91.4	78.4	92.5	79.7	110
L Wire	75.0	62.4	77.1	62.5	105
N Wire	80.9	65.6	82.0	65.7	105
CX101	87.6	70.6	88.9	71.3	100
BD101 (touch PCB)	102.0	75.5	102.9	76.4	130
HS101 (touch PCB)	98.9	74.2	99.7	74.9	130
HS102 (touch PCB)	103.5	87.1	104.1	87.7	130
HS201 (touch PCB)	99.3	89.5	100.9	91.2	130
CY103	92.5	80.7	94.0	82.0	125
CY104	80.3	70.2	81.4	71.2	125
PC101	91.8	79.5	93.3	81.0	100
Top Case Inside	77.8	68.8	82.7	72.4	120
Top Case Outside	68.5	62.1	76.6	67.8	95
Bottom Case Inside	81.3	70.8	79.3	69.7	120
Bottom Case Outside	77.1	67.7	71.4	64.2	95
Output Wire	44.6	44.6	46.5	46.2	80
Tamb (°C)	41.3	40.8	39.7	35.5	--
Tma (°C)	40.0	40.0	40.0	40.0	--
For model FSP090-AFAN2					
Test voltage and position	A.	B.	C.	D.	--
L pin of inlet	62.7	53.6	59.9	51.2	70
LF102 coil	87.4	70.0	86.9	69.2	130
L603 coil	103.4	73.0	101.9	71.7	130
L601 core	89.2	72.1	88.5	71.2	130
L601 coil	97.2	75.8	95.7	74.4	130
C606	90.2	71.9	89.0	70.7	105
C601	93.3	76.2	92.7	75.5	105
C105	97.1	82.3	95.4	80.9	105
C108	108.3	91.8	106.1	89.9	125
C111	89.8	75.0	87.7	73.3	105

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Clause	Requirement + Test		Result - Remark		Verdict
C202	79.3	70.6	77.8	69.6	85
LF201 coil	75.3	67.1	73.6	66.1	105
T101 core	86.4	74.8	85.5	74.0	110
T101 coil	95.1	81.7	93.7	80.4	110
L Wire	86.8	67.1	86.6	66.9	105
N Wire	86.2	68.9	85.9	68.7	105
CX101	88.8	70.9	88.4	70.6	100
BD101 (touch PCB)	99.7	75.4	98.5	74.5	130
HS101 (touch PCB)	97.9	74.9	96.8	73.9	130
HS102 (touch PCB)	106.0	88.2	104.1	86.8	130
HS201 (touch PCB)	105.4	94.7	104.3	93.8	130
CY103	96.1	83.1	94.8	82.1	125
CY104	83.7	72.4	81.9	71.3	125
PC101	95.4	82.0	94.2	81.2	100
Top Case Inside	81.5	71.3	83.3	72.5	120
Top Case Outside	72.5	64.6	76.8	67.7	95
Bottom Case Inside	85.5	73.7	79.9	69.9	120
Bottom Case Outside	80.7	70.2	71.8	64.1	95
Output Wire	47.6	46.0	44.1	43.9	80
Tamb (°C)	38.2	35.0	38.8	35.2	--
Tma (°C)	40.0	40.0	40.0	40.0	--
For model FSP090-ABAN2					
Test voltage and position	A.	B.	C.	D.	--
L pin of inlet	53.4	52.4	59.8	52.3	70
LF102	83.5	71.1	90.0	71.3	130
CX101	83.5	72.8	89.8	72.8	100
L603	97.9	75.1	103.7	74.9	130
L601 core	84.8	74.8	92.5	75.9	130
L601 coil	91.4	79.3	98.0	79.5	130
C606	83.9	74.1	91.1	75.0	105
C601	88.5	79.6	95.3	80.1	105
C111	85.7	78.6	91.9	78.6	105

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Clause	Requirement + Test		Result - Remark		Verdict
C202	79.9	78.1	86.4	78.1	105
LF201	80.2	79.5	86.2	78.6	105
T101 core	84.0	79.6	90.5	79.8	110
T101 coil	91.7	86.0	97.7	85.8	110
L Wire	81.8	71.0	87.1	71.4	105
N Wire	85.5	74.2	90.9	74.7	105
BD101	98.6	81.3	102.7	80.9	130
HS101	95.4	80.2	99.7	79.9	130
HS102	105.7	94.7	108.4	94.0	130
HS201	104.4	96.5	107.7	96.0	130
CY103	97.4	88.6	101.2	88.1	125
CY104	87.6	81.4	91.1	80.6	125
PC101	97.0	88.0	91.1	87.4	105
Top Case Inside	84.2	78.3	92.2	80.9	120
Top Case Outside	72.1	69.1	85.1	75.1	95
Bottom Case Inside	90.8	82.9	90.3	79.5	120
Bottom Case Outside	83.2	77.1	77.9	70.5	95
Output Wire	47.4	50.9	53.5	51.9	80
Tamb (°C)	40.0	36.4	40.0	35.3	--
Tma (°C)	40.0	40.0	40.0	40.0	--
For model FSP090-AAAN2					
Test voltage and position	A.	B.	C.	D.	--
L pin of inlet	59.2	56.6	63.8	56.0	70
LF102	86.1	73.9	93.5	75.2	130
CX101	86.5	75.7	93.8	77.0	100
L603	102.2	79.6	108.7	80.4	130
L601 core	91.5	79.7	99.0	81.2	130
L601 coil	99.3	83.2	105.7	83.9	130
C606	93.1	79.7	99.7	80.7	105
C601	89.6	80.3	98.0	82.4	105
C111	91.7	82.8	97.5	83.3	105
C202	81.6	79.7	88.8	80.5	105

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IEC 60950-1							
Clause	Requirement + Test		Result - Remark		Verdict		
LF201	80.6	79.1	88.1	80.0	105		
T101 core	88.2	83.1	95.7	84.7	110		
T101 coil	96.2	90.3	103.0	91.2	110		
L Wire	79.5	70.7	85.7	71.6	105		
N Wire	78.5	70.1	85.0	71.2	105		
BD101	93.4	78.6	98.6	78.7	130		
HS101	89.9	77.1	95.3	77.2	130		
HS102	99.3	92.5	105.0	92.9	130		
HS201	101.8	97.8	106.7	97.8	130		
CY103	90.9	85.5	96.2	85.7	125		
CY104	81.1	78.4	87.9	79.4	125		
PC101	90.4	84.8	95.6	85.0	105		
Top Case Inside	79.0	76.2	87.7	78.8	120		
Top Case Outside	67.2	66.9	80.2	69.3	95		
Bottom Case Inside	83.5	79.4	85.6	77.4	120		
Bottom Case Outside	76.7	73.8	74.4	68.9	95		
Output Wire	44.3	48.9	50.7	48.9	80		
Tamb (°C)	40.0	35.6	36.5	33.6	--		
Tma (°C)	40.0	40.0	40.0	40.0	--		
Supplementary information:							
Temperature T of winding:	t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	Allowed T _{max} (°C)	Insulation class
Supplementary information:							
1. The temperatures were measured under worst case normal mode defined in 1.2.2.1 and as described in 1.6.2 at voltage as above.							
2. With a specified ambient temperature of +40 °C. Therefore the maximum temperatures measured are recalculated as follows: T + (40 – Tamb), where T is the maximum temperature measured during test and Tamb is the ambient temperature during the test.							
- Winding components (providing safety isolation): Class 130 material (B) - Tmax = 120°C - 10°C = 110°C							
- User accessible areas which may be touched during normal use:							
- Plastic enclosure - Tmax = 95°C							

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Clause	Requirement + Test	Result - Remark	Verdict
4.5.5	TABLE: Ball pressure test of thermoplastic parts		N/A
	Allowed impression diameter (mm)	≤ 2 mm	—
Part		Test temperature (°C)	Impression diameter (mm)
Supplementary information:			
- Phenolic type bobbin material used in T101 and L601 which is acceptable without test.			

4.7	TABLE: Resistance to fire				P
Part	Manufacturer of material	Type of material	Thickness (mm)	Flammability class	Evidence
Enclosure	1)	1)	1)	1)	1)
Supplementary information:					
1) See appended table 1.5.1 for details.					

5.1	TABLE: touch current measurement			P
Measured between:		Measured (mA)	Limit (mA)	Comments/conditions
For model FSP090-AWAN2				
Fuse in, Line/Neutral to plastic enclosure with metal foil		0.01 / 0.01	0.25	Switch “e” closed. Components (CY103, CY104, C214 and R229 provided)
Fuse in, Line/Neutral to output “+”		0.16 / 0.16	0.25	Switch “e” closed. Components (CY103, CY104, C214 and R229 provided)
Fuse in, Line/ Neutral to output RTN (-)		0.15 / 0.15	0.25	Switch “e” closed. Components (CY103, CY104, C214 and R229 provided)
Fuse in, Line/Neutral to plastic enclosure with metal foil		0.01 / 0.01	0.25	Switch “e” closed. Components (CY103, CY104 provided and R229, C214 replace by jumper)
Fuse in, Line/ Neutral to output RTN (-)		0.17 / 0.17	3.5	Switch “e” opened. Components (CY103, CY104 provided and R229, C214 replace by jumper)
Fuse in, Line/Neutral to plastic enclosure with metal foil		0.01 / 0.01	0.25	Switch “e” closed. Components (CY103, CY104 and R229 provided; without C214)

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Clause	Requirement + Test	Result - Remark	Verdict
Fuse in, Line/Neutral to output “+”	0.16 / 0.16	0.25	Switch “e” closed. Components (CY103, CY104 and R229 provided; without C214)
Fuse in, Line/ Neutral to output RTN (-)	0.16 / 0.16	0.25	Switch “e” closed. Components (CY103, CY104 and R229 provided; without C214)
For model FSP090-AWBN2			
Fuse in, Line/Neutral to plastic enclosure with metal foil	0.01 / 0.01	0.25	Switch “e” closed. Components (CY101, CY103, CY104, C214 and R229 provided)
Fuse in, Line/Neutral to output “+”	0.16 / 0.16	0.25	Switch “e” closed. Components (CY101, CY103, CY104, C214 and R229 provided)
Fuse in, Line/ Neutral to output RTN (-)	0.15 / 0.15	0.25	Switch “e” closed. Components (CY101, CY103, CY104, C214 and R229 provided)
Fuse in, Line/Neutral to plastic enclosure with metal foil	0.01 / 0.01	0.25	Switch “e” closed. Components (CY101, CY103, CY104 provided and R229, C214 replace by jumper)
Fuse in, Line/ Neutral to output GND	0.23 / 0.23	3.5	Switch “e” opened. Components (CY101, CY103, CY104 provided and R229, C214 replace by jumper)
Supplementary information:			
1. Test voltage: 264V/60Hz			
2. Overall capacity: CY101 = 470 pF, CY103 = 1500pF, CY104 = 1000pF			

5.2	TABLE: Electric strength tests, impulse tests and voltage surge tests			P
Test voltage applied between:		Voltage shape (AC, DC, impulse, surge)	Test voltage (V)	Breakdown Yes / No
Basic/supplementary:				
Unit: primary and earth		DC	3000	No
Reinforced:				
Unit: primary and secondary		DC	4242	No
Unit: primary and plastic enclosure with copper foil		AC	3000	No
T101: primary winding and secondary winding ¹⁾		AC	3000	No
T101: core and secondary winding ¹⁾		AC	3000	No
One layer insulation tape of T101 ²⁾		AC	3000	No

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Clause	Requirement + Test	Result - Remark	Verdict
	Triple insulation tape of T101 ³⁾	AC 3000	No
	Tube of T101 ⁴⁾	AC 3000	No
	Margin tape of T101 ⁵⁾	AC 3000	No
	Mylar ⁶⁾ (provided between PCB solder side and primary shielding)	AC 5000	No
	One layer of Insulation tape ⁷⁾ (used for top primary Shielding)	AC 3000	No
	Mylar ⁸⁾ (provided between PCB solder side and primary shielding)	AC 3000	No
Supplementary information:			
Above all sources were tested with equipment before humidity test and after humidity test, for sources see below, 1) The transformer used in below factories is identical in electrical characteristics, physical construction in clearance, creepage and distance through insulation. Transformer manufacturing plants (factories) of FSP/SPI 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. - DONG GUAN LIGHTION ELECTRONICS CO LTD. - NANJING SHENNING MAGNETIC & 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 - HUAHUA YAXIN ELECTRONICS CO LTD 2) Tests were performed on below insulation tape sources: - Mfr. 3M, type 1350F-1. - Mfr. Symbio Inc. type 35660Y* 3) Tests were performed on below sources: - Mfr. Great Leoflon Industrial Co., Ltd. types TRW(B) and TRW(F) - Mfr. Frukawa Electric Co., Ltd, Types TEX-E - Mfr. Totoku Electric Co., Ltd, Types TIW-2, TIW-3 4) Tests were performed on below sources: - Mfr. Great Holding Industrial Co., Ltd., type TFL. 5) Tests were performed on below sources: - Mfr. 3M Company Electrical Markets DIV (EMD), type 44. - Mfr. Symbio Inc., type 35661. 6) Tests were performed on below insulation sheet sources: - Mfr. 3M Taiwan Ltd. type IS-250-a 7) Tests were performed on below insulation tape sources:			

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- Mfr. 3M Company Electrical Markets DIV (Emd) types 1218, 92, 1350F-1 and 1350F-2. - Mfr. 3M Taiwan Ltd. type 1388Y-1. - Mfr. Bondtec Pacific Co., Ltd. types 370S and 371F - Mfr. Symbio Inc. Types 35660, 35660Y and 35661 8) Test were performed on below insulation sheet sources: - Mfr. Formex, Div of IL Tool Works Inc., Frmrly Fastex, Div of IL Tool Works Inc. type FORMEX GK-(a)(b)(f2) - Mfr. Sabic Innovative Plastics US LLC types FR60 and FR700 - Mfr. Sun Delta Corp. type VS(f)			
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5.3	TABLE: Fault condition tests						P
	Ambient temperature (°C)				25°C, if no otherwise state.		—
	Power source for EUT: Manufacturer, model/type, output rating				--		—
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation	
For model FSP090-AWAN2							
BD101 pin “~” to “+”	shorted	240Vac	1 sec.	F102	--	Fuse (F102) opened immediately, BD101 damaged. No hazards.	
C601	shorted	240Vac	1 sec.	F102	--	Fuse (F102) opened immediately, BD101 damaged. No hazards.	
Q601 pin G to pin S	shorted	240Vac	5 min.	F102	0.04	Unit shut down, no hazards.	
Q601 pin D to pin S	shorted	240Vac	1 sec.	F102	--	Fuse (F102) opened immediately, components (BD101, D603, Q606, R623 and R621) damaged. No hazards.	
Q601 pin G to pin D	shorted	240Vac	1 sec.	F102	--	Fuse (F102) opened immediately, components (BD101, Q601, R136, U101, R624, Q606 and R622) damaged. No hazards.	
R621	shorted	240Vac	5 min.	F102	0.426	Unit normal operation. No hazards.	
Q101 pin G to pin S	shorted	240Vac	5 min.	F102	0.04	Unit shut down, no hazards.	
Q101 pin D to pin S	shorted	240Vac	1 sec.	F102	--	Fuse (F102) opened immediately, components (Q101, R121 and D107) damaged. No hazards.	
Q101 pin G to pin D	shorted	240Vac	1 sec.	F102	--	Fuse (F102) opened immediately, components (BD101, Q101, U101, R123, R126, Q102 and D107) damaged. No hazards.	

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Clause	Requirement + Test				Result - Remark	Verdict
R121	shorted	240Vac	5 min.	F102	0.426	Unit normal operation. No hazards.
PC101 Pin 1 to Pin 2	shorted	240Vac	5 min.	F102	0.04	Unit shut down, no hazards.
PC101 Pin 3 to Pin 4	shorted	240Vac	5 min.	F102	0.03	Unit shut down, no hazards.
PC101 Pin 1	opened	240Vac	5 min.	F102	0.03	Unit shut down, no hazards.
PC101 Pin 4	opened	240Vac	5 min.	F102	0.03	Unit shut down, no hazards.
U101 Pin 16 to Pin 12	shorted	240Vac	1 sec.	F102	--	Fuse (F102) opened immediately, components (U101, Q601, R136, C612 and BD101 and R621) damaged. No hazards.
U101 Pin 16 to Pin 13	shorted	240Vac	1 sec.	F102	--	Fuse (F102) opened immediately, components (BD101, Q101, R137, R136, U101 and Q102) damaged. No hazards.
U101 Pin 16 to Pin 7	shorted	240Vac	1 sec.	F102	--	Fuse (F102) opened immediately, components (BD101, U101, D107, Q101, Q601, R126, Q102 and D105) damaged. No hazards.
U101 Pin 16 to Pin 3	shorted	240Vac	1 sec.	F102	--	Fuse (F102) opened immediately, components (U101, ZD102, R136, R123, Q102, BD101, D107, Q101, D105 and R121) damaged. No hazards.
U101 Pin 13 to Pin 3	shorted	240Vac	10 min.	F102	0.04	Unit shut down, no hazards.
U101 Pin 13 to Pin 7	shorted	240Vac	10 min.	F102	0.04	Unit shut down, no hazards.
U101 Pin 12 to Pin 3	shorted	240Vac	10 min.	F102	0.03	Unit shut down, no hazards.
U101 Pin 12 to Pin 7	shorted	240Vac	10 min.	F102	0.03	Unit shut down, no hazards.
U101 Pin 16 to Pin 9	shorted	240Vac	1 sec.	F102	--	Fuse (F102) opened immediately, components (R123, Q101, Q102, BD101, R136 and U101) damaged. No hazards.
T101 Pin 6 to Pin 4	shorted	240Vac	5 min.	F102	0.13	Unit shut down, no hazards.
T101 Pin 6 to Pin 5	shorted	240Vac	5 min.	F102	0.14	Unit shut down, no hazards.

TRF No. IEC60950_1F

IEC 60950-1						
Clause	Requirement + Test				Result - Remark	
T101 Pin 5 to pin 4	shorted	240Vac	5 min.	F102	0.14	Unit shut down, no hazards.
T101 Pin 1 to Pin 2	shorted	240Vac	5 min.	F102	0.11	Unit shut down, no hazards.
T101 Pin A to Pin B	shorted	240Vac	5 min.	F102	0.07	Unit shut down, no hazards.
T101 Pin A after D201 to pin B (Label side downward position)	Overload	240Vac	7 hrs, 27 min.	F102	Max. 0.54	When load increase to 0.68A, output shut down. Max temperature of T1 coil = 90.5°C, T1 core = 80.9°C, Tamb = 37.7°C. No hazards.
Output	shorted	240Vac	5 min.	F102	0.07	Unit shut down, no hazards.
Output (Label side downward position)	Overload	240Vac	6 hrs, 9 min.	F102	Max. 0.54A	When load increase to 2.35A, output shut down. Max temperature of T1 coil = 90.5°C, T1 core = 81.3°C, Tamb = 39.7°C. No hazards.
For model FSP090-AFAN2						
T101 Pin A after D201 to pin B (Label side upward position)	Overload	240Vac	7 hrs, 27 min.	F102	Max. 0.6	When load increase to 0.58A, output shut down. Max temperature of T1 coil = 92.4°C, T1 core = 81.7°C, Tamb = 37.9°C. No hazards.
Output	shorted	240Vac	5 min.	F102	0.10	Unit shut down, no hazards.
Output (Label side downward position)	Overload	240Vac	6 hrs, 9 min.	F102	Max. 0.6A	When load increase to 2.46A, output shut down. Max temperature of T1 coil = 88.4°C, T1 core = 79.1°C, Tamb = 39.6°C. No hazards.
For model FSP090-ABAN2						
T101 Pin6 to Pin4	shorted	240Vac	5 min.	F102	0.15	Unit shut down, no hazards.

TRF No. IEC60950_1F

IEC 60950-1						
Clause	Requirement + Test				Result - Remark	
T101 Pin6 to Pin5	shorted	240Vac	5 min.	F102	0.17	Unit shut down, no hazards.
T101 Pin5 to T101 pin4	shorted	240Vac	5 min.	F102	0.12	Unit shut down, no hazards.
T101 Pin1 to Pin2	shorted	240Vac	5 min.	F102	0.11	Unit shut down, no hazards.
T101 PinA to PinB	shorted	240Vac	5 min.	F102	0.10	Unit shut down, no hazards.
T101 Pin A after D201 to pin B (Label side upward position)	Overload	240Vac	7 hrs 58 mins	F102	Max. 0.58	When load increase to 1.59A, output shutdown Max temperature of T101 core=94°C T101 coil=99.3°C Amb=38.6°C No hazards.
Output	shorted	240Vac	5 min.	F102	0.1	Unit shut down, no hazards.
Output (Label side upward position)	Overload	240Vac	22 hrs 28mins	F102	Max. 0.583A	When load increase to 6.33A, output shut down. Max temperature of T101 coil=105.5°C T101 core=97.5°C Amb=42.2°C No hazards.
For model FSP090-AAAN2						
T101 Pin6 to Pin4	shorted	240Vac	5 min.	F102	0.17	Unit shut down, no hazards.
T101 Pin6 to Pin5	shorted	240Vac	5 min.	F102	0.19	Unit shut down, no hazards.
T101 Pin5 to T101 pin4	shorted	240Vac	5 min.	F102	0.13	Unit shut down, no hazards.
T101 Pin1 to Pin2	shorted	240Vac	5 min.	F102	0.11	Unit shut down, no hazards.
T101 PinA to PinB	shorted	240Vac	5 min.	F102	0.12	Unit shut down, no hazards.
T101 Pin A after D201 to pin B (Label side upward position)	Overload	240Vac	7 hrs 58 mins	F102	Max. 0.59	When load increase to 1.3A, output shutdown Max temperature of T101 core=91.8°C T101 coil=98.6°C Amb = 38.5° No hazards.
Output	shorted	240Vac	5 min.	F102	0.1	Unit shut down, no hazards.

TRF No. IEC60950_1F

IEC 60950-1						
Clause	Requirement + Test				Result - Remark	
Output (Label side upward position)	Overload	240Vac	22 hrs 28mins	F102	Max. 0.56A	When load increase to 5.05A, output shut down. Max temperature of T101 coil=102.7°C T101 core=94.3°C Amb=42.3°C No hazards.
Supplementary information:						

C.2	TABLE: transformers							P
Loc.	Tested insulation	Working voltage peak / V (2.10.2)	Working voltage rms / V (2.10.2)	Required electric strength (5.2)	Required clearance / mm (2.10.3)	Required creepage distance / mm (2.10.4)	Required distance thr. insul. (2.10.5)	
For models FSP090-AWAN2, HPE090-AWAN2, FSP090-AFAN2								
T101	Primary to secondary (reinforced)	655	407	See appende d table 5.2	7.2	8.2	0.4mm or 2 layers min. or TIW	
T101	Primary to core (functional)	--	--	--	--	--	--	
T101	Secondary to core (reinforced)	655	407	See appende d table 5.2	7.2	8.2	0.4mm or 2 layers min. or TIW	
Loc.	Tested insulation			Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers	
T101	Primary/input winding and secondary/output winding (internal)			See appende d table 5.2	Triple insulation wire used	Triple insulation wire used	See below table C.2	
T101	Primary/input winding and core (internal)			--	--	--	--	
T101	Secondary/output winding and core (internal)			See appende d table 5.2	Triple insulation wire used	Triple insulation wire used	See below table C.2	

TRF No. IEC60950_1F

IEC 60950-1					
Clause	Requirement + Test	Result - Remark			Verdict
T101	Primary/input part and secondary/output part (external)	See appende d table 5.2	8.8 (via primary coil)	8.8 (via primary coil)	See below table C.2
T101	Primary/input part and core (external)	--	--	--	--
T101	Secondary/output winding and primary/input part (external)	See appende d table 5.2	Triple insulation wire used	Triple insulation wire used	See below table C.2
T101	Secondary/output part and core (external)	See appende d table 5.2	8.8 (via primary coil)	8.8 (via primary coil)	See below table C.2
T101	Secondary/output part and primary/input winding (external)	See appende d table 5.2	8.8	8.8	See below table C.2
Supplementary information: The transformer used in below factories is identical in electrical characteristics, physical construction in clearance, creepage and distance through insulation. Transformer manufacturing plants (factories) of FSP/SPI 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. - DONG GUAN LIGHTION ELECTRONICS CO LTD. - NANJING SHENNING MAGNETIC & 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					

C.2	TABLE: transformers	
Concentric windings on Phenolic top bobbin type CC33/18 (SW-3318A) and Phenolic base type CC33/18 (SW-3318A-1) (Vertical orientation), core is considered as primary parts, transformer construction as below. - Before winding wrapped around two layers of insulation tape on bobbin. - Min. one layer of insulation tape provided between primary and secondary windings. - All secondary windings exit ends additionally with tubing for protection against winding tension		

TRF No. IEC60950_1F

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
4-1.	此變壓器外觀及GAP Core皆需點膠，不含浸凡立水。		
4-2.	此變壓器外觀尺寸圖如下。		

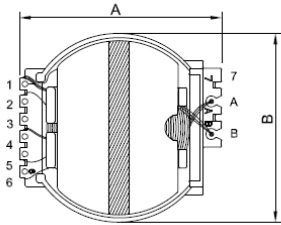


FIGURE-4

A = 40.5 MAX
B = 36.8 MAX
C1 = 16.2 MAX
C2 = 19.7 MAX
D = 3.6 ± 0.2
E = 35.85 ± 0.3
F1 = 3.8 TPY
F2 = 6.2 TPY
G1 = Ø0.8
G2(A,B) = Ø1.6 MAX

UNIT:mm

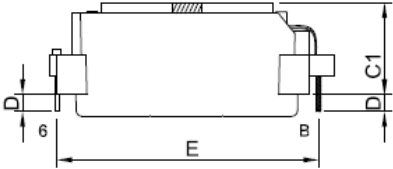


FIGURE-5

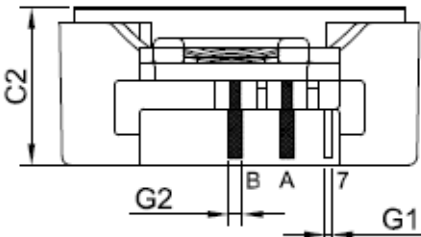


FIGURE-6

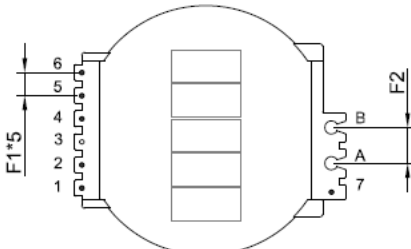


FIGURE-7

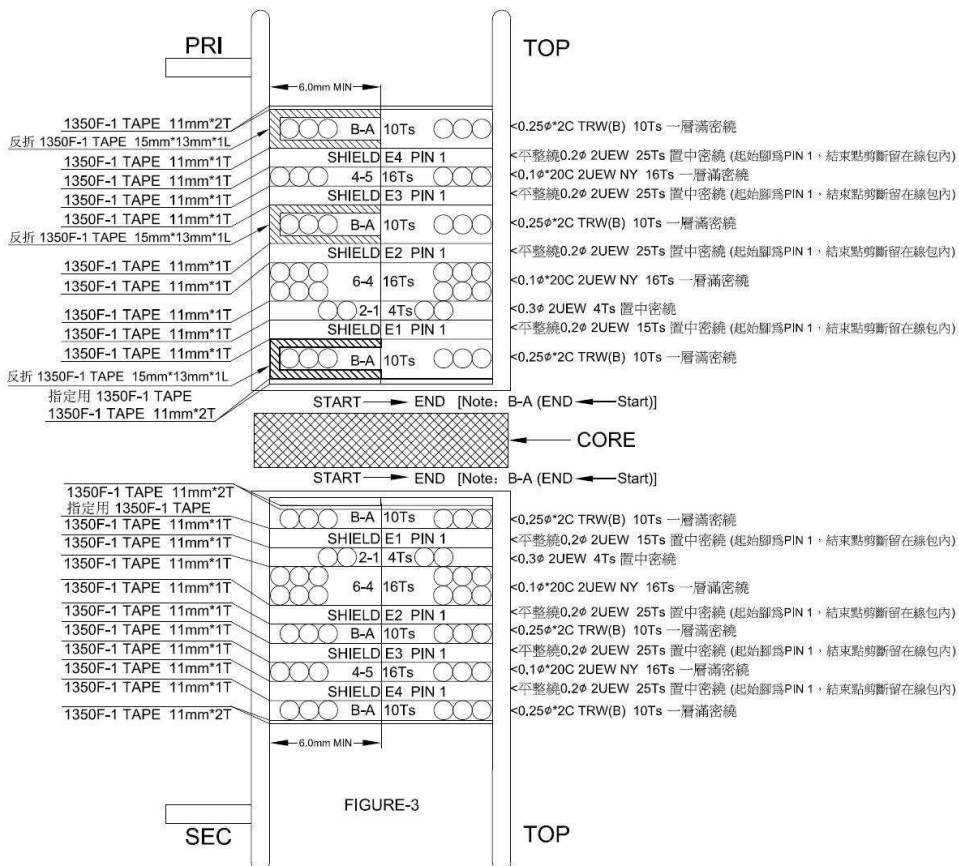
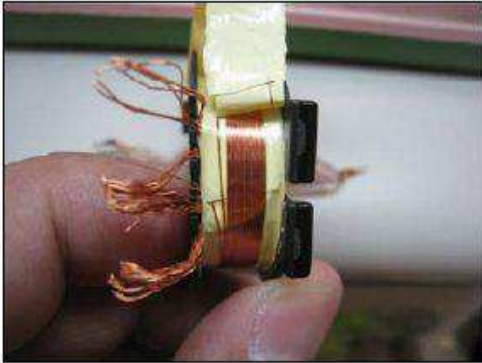
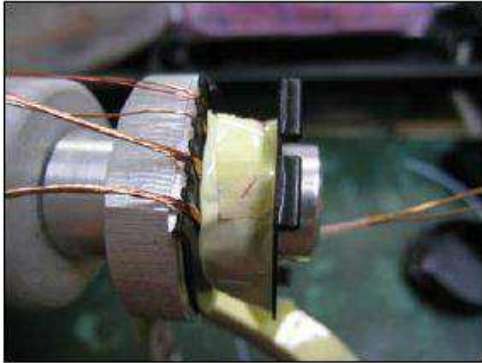
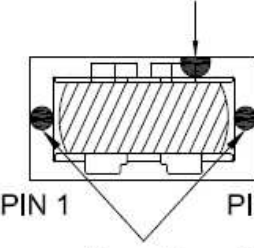
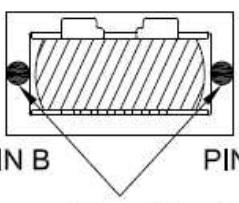
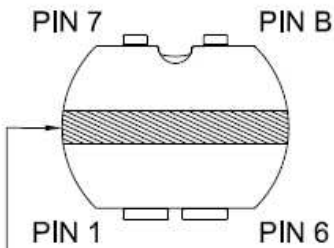
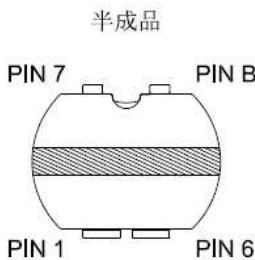
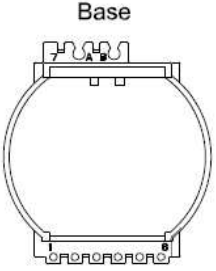
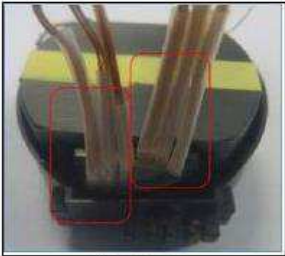
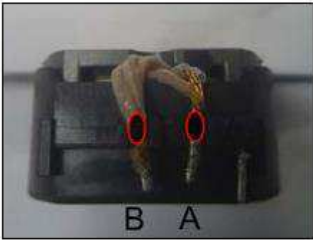


FIGURE-3

TRF No. IEC60950_1F

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	生產注意事項: 9-1. 繞線: 9-1-1. 所有繞組繞線方向需保持一致. 9-1-2. S1,S2,S3 所有出入腳都要加TEFLON TUBE. 9-1-3. A、B飛線進出線: B線由頂部進線, A線底部出線. 9-1-4. AUX Wire OK與NG照片. OK  FIGURE-11 NG  FIGURE-12 FIGURE-9 FIGURE-10		
	9-1-5. Shield Wire需平整密繞.  SHIELD起繞先加1350F-1膠帶, 抓取適當距離再反折膠帶固定住後再繞線. FIGURE-13  SHIELD結尾將線頭扭向中央位置, 再加上一片5.0*5.0mm #44膠帶, 貼住線頭位置, 防止刺破層間絕緣膠帶. FIGURE-14		
	OK  FIGURE-15 NG  FIGURE-16		

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
9-3.	外觀點膠製程： 9-3-1. 線包與鐵心組裝後，然後包兩圈1350F-1 11.0mm 膠帶固定，再點5點EPOXY膠(指定用 G-9008)，如下示意圖。 9-3-2. 烘烤完成後，需將固定用膠帶拆除，再包1.1Ts自黏性銅箔(厚0.025mm*寬8.0mm)側邊焊引線0.3ϕ下腳於PIN 1，如下示意圖。 注意事項：頂部Core及Bobbin的點膠，需確實點在Bobbin與Core之間，防止Bobbin與Core鬆動。(如下圖所示). 頂部PIN6側Core與Bobbin的连接處 EPOXY膠(G-9008)*1  PIN 1 PIN 6 PIN 1-PIN6 側Core與Core的连接處 EPOXY膠(G-9008)*2 FIGURE-21  PIN B PIN 7 PIN 7、A、B側Core與Core的连接處 EPOXY膠(G-9008)*2 FIGURE-22  PIN 7 PIN B PIN 1 PIN 6 一包1.1Ts自黏性銅箔 (厚0.025mm*寬8.0mm) 側邊焊引線0.3ϕ下腳於PIN 1 FIGURE-23 9-3-3. Cover裡面底部需先點EPOXY膠(G-9008)，才可將半成品(線包與鐵心)組裝於Cover，組裝時半成品務必完全與Cover平貼，切勿傾斜或浮高。  EPOXY膠(G-9008)*2 FIGURE-24  FIGURE-25 9-4. 半成品(指完成所有點膠、烘烤製程後)與Base組裝注意事項，示意圖如下：  半成品 PIN 7 PIN B PIN 1 PIN 6 FIGURE-26  Base FIGURE-27		

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
半成品組裝在Base前，A、B飛線要理線整齊，如下示意圖。  FIGURE-28 半成品組裝在Base後，要注意半成品要置中在Base (避免半成品偏向PIN1-PIN6側或PIN7,A,B側)，如下示意圖。  FIGURE-29 9-4-1. A組飛線需從底端直接拉出彎折，不能直接拉出很長再彎折，避免影響EMI與組裝問題，如下示意圖。 9-4-2. 三層絕緣線銅線不可裸露太多，與套管太短造成安規距離不足，如下示意圖。 套管務必延伸到PIN腳掛線處。 OK  FIGURE-30 NG  FIGURE-31 9-4-3. 飛線A的三層絕緣線，線腳需全部扭在一起，再放進Cover槽中(壓至最底)，然後點膠(G-9008)最後加焊(φ1.9 MAX)。 飛線B的三層絕緣線，線腳需全部扭在一起，再放進Cover槽中(壓至最底)，然後點膠(G-9008)最後加焊(φ1.9 MAX)。  FIGURE-32			

IEC 60950-1							
Clause	Requirement + Test			Result - Remark			Verdict

C.2	TABLE: transformers						P
Loc.	Tested insulation	Working voltage peak / V (2.10.2)	Working voltage rms / V (2.10.2)	Required electric strength (5.2)	Required clearance / mm (2.10.3)	Required creepage distance / mm (2.10.4)	Required distance thr. insul. (2.10.5)
For models FSP090-AAAN2, FSP090-AABN2							
T101	Primary to secondary (reinforced)	625	387	See appended table 5.2	7.0	7.8	0.4mm or 2 layers min. or TIW
T101	Primary to core (functional)	--	--	--	--	--	--
T101	Secondary to core (reinforced)	625	387	See appended table 5.2	7.0	7.8	0.4mm or 2 layers min. or TIW
Loc.	Tested insulation			Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers
T101	Primary/input winding and secondary/output winding (internal)			See appended table 5.2	Triple insulation wire used	Triple insulation wire used	See below table C.2
T101	Primary/input winding and core (internal)			--	--	--	--
T101	Secondary/output winding and core (internal)			See appended table 5.2	Triple insulation wire used	Triple insulation wire used	See below table C.2
T101	Primary/input part and secondary/output part (external)			See appended table 5.2	9.0 (via core)	9.0 (via core)	See below table C.2
T101	Primary/input part and core (external)			--	--	--	--
T101	Secondary/output winding and primary/input part (external)			See appended table 5.2	Triple insulation wire used	Triple insulation wire used	See below table C.2
T101	Secondary/output part and core (external)			See appended table 5.2	9.0	9.0	See below table C.2

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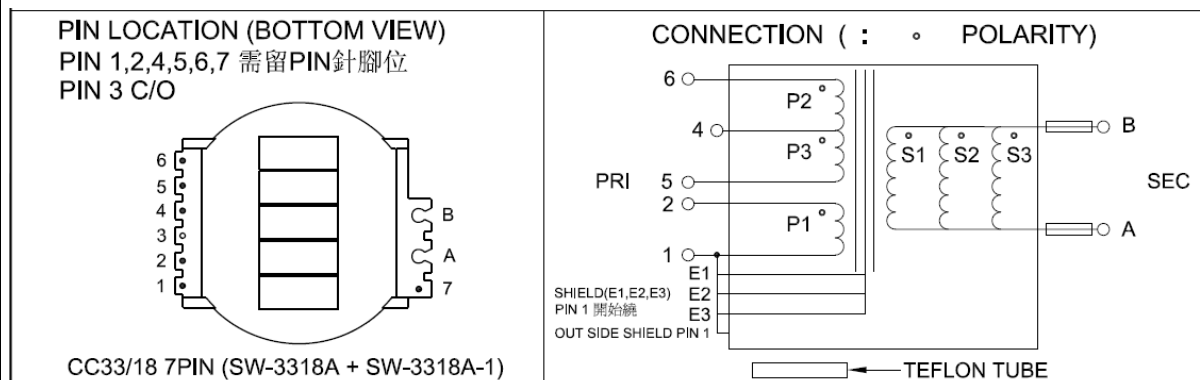
IEC 60950-1					
Clause	Requirement + Test	Result - Remark			Verdict
T101	Secondary/output part and primary/input winding (external)	See appended table 5.2	9.0	9.0	See below table C.2
Supplementary information: The transformer used in below factories is identical in electrical characteristics, physical construction in clearance, creepage and distance through insulation. Transformer manufacturing plants (factories) of FSP/SPI 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. - DONG GUAN LIGHTION ELECTRONICS CO LTD. - NANJING SHENNING MAGNETIC & 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 - HUAHUA YAXIN ELECTRONICS CO LTD					

C.2	TABLE: transformers	
Concentric windings on Phenolic top bobbin type CC33/18 (SW-3318A) and Phenolic base type CC33/18 (SW-3318A-1) (Vertical orientation), core is considered as primary parts, transformer construction as below. - Before winding wrapped around two layers of insulation tape on bobbin. - Min. one layer of insulation tape provided between primary and secondary windings. - All secondary windings exit ends additionally with tubing for protection against winding tension mechanical stress. - All secondary windings were provided one layer of "U" shape insulation tape (15 mm by 13 mm) at primary bottom side and fold back 6.0 mm for protection against winding tension mechanical stress. - The inner copper shielding (E1, E2 and E3) are considered as primary. - Secondary wires are triple insulation wire, for details see appended table 1.5.1 and subclause 2.10.5.12, Annex U. Primary winding/pins: shielding (E1), 2-1, 6-4, shielding (E2), shielding (E3), 4-5 Secondary winding/pins: B-A, B-A, B-A (S1, S2 and S3) Bobbin Material (manufacturer, type, ratings, thickness): - Sumitomo Bakelite, phenolic, type PM-9820, V-0, 150°C, min. 0.51mm thickness.		

TRF No. IEC60950_1F

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

Detailed illustration of Transformer construction:



Type no. 8TV00295

WINDING	TURNS	WIRE		INDUCTANCE	DCR m ohms	Q值 MIN
		TYPE	DIAMETER			
S1 (B-A)	6Ts	TRW(B)	0.3 ϕ *3C			
P1 (2-1)	5Ts	2UEW	0.3 ϕ	15uH MAX	90 MAX	
P2 (6-4)	16Ts	2UEW NY	0.1 ϕ *20C			
SHIELD(E1)	0.2 ϕ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)					
S2 (B-A)	6Ts	TRW(B)	0.3 ϕ *3C			
SHIELD(E2)	0.2 ϕ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)					
P3 (4-5)	16Ts	2UEW NY	0.1 ϕ *20C			
SHIELD(E3)	0.2 ϕ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)					
S3 (B-A)	6Ts	TRW(B)	0.3 ϕ *3C	21uH MAX	15 MAX	
LP (6-5)	32Ts	2UEW NY	0.1 ϕ *20C	500uH $\pm$ 5%	295 MAX	65
LK (6-5)	SHORT PIN A, B			2.8uH MAX		

Type no. 8TV00314

WINDING	TURNS	WIRE		INDUCTANCE	DCR m ohms	Q值 MIN
		TYPE	DIAMETER			
S1 (B-A)	6Ts	TEX-E	0.3 ϕ *3C			
P1 (2-1)	5Ts	2UEW	0.3 ϕ	15uH MAX	90 MAX	
P2 (6-4)	16Ts	2UEW NY	0.1 ϕ *20C			
SHIELD(E1)	0.2 ϕ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)					
S2 (B-A)	6Ts	TEX-E	0.3 ϕ *3C			
SHIELD(E2)	0.2 ϕ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)					
P3 (4-5)	16Ts	2UEW NY	0.1 ϕ *20C			
SHIELD(E3)	0.2 ϕ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)					
S3 (B-A)	6Ts	TEX-E	0.3 ϕ *3C	21uH MAX	15 MAX	
LP (6-5)	32Ts	2UEW NY	0.1 ϕ *20C	500uH $\pm$ 5%	295 MAX	65
LK (6-5)	SHORT PIN A, B			2.8uH MAX		

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IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

生產注意事項:

9-1. 繞線:

9-1-1. 所有繞組繞線方向需保持一致.

9-1-2. S1,S2,S3 所有出入腳都要加TEFLON TUBE.

9-1-3. A、B飛線進出線:B線由頂部進線,A線底部出線.

9-1-4. AUX Wire OK與NG照片.



FIGURE-11



FIGURE-12

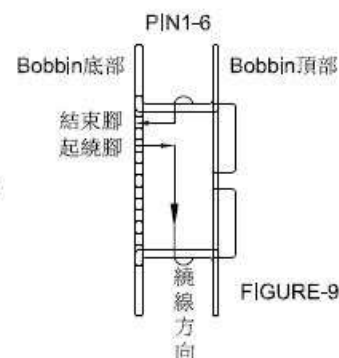


FIGURE-9

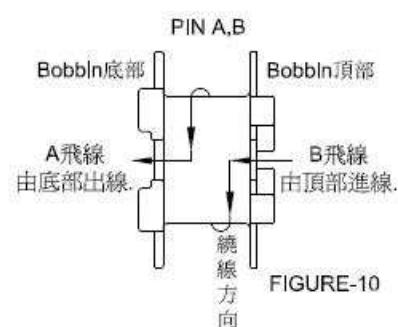
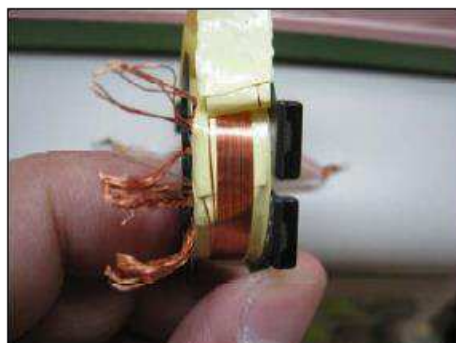


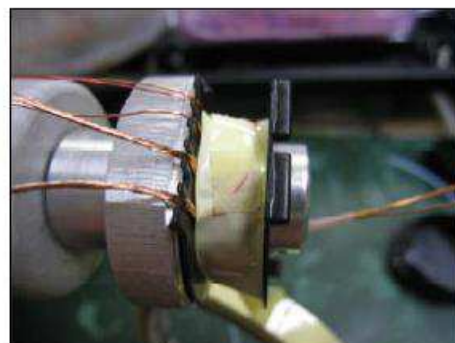
FIGURE-10

9-1-5. Shield Wire需平整密繞.



SHIELD起繞先加1350F-1膠帶, 抓取適當距離再反折膠帶固定住後再繞線.

FIGURE-13



SHIELD結尾將線頭扭向中央位置, 再加上一片5.0*5.0mm #44膠帶, 貼住線頭位置, 防止刺破層間絕緣膠帶.

FIGURE-14



FIGURE-15

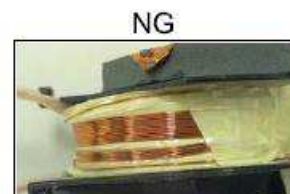


FIGURE-16

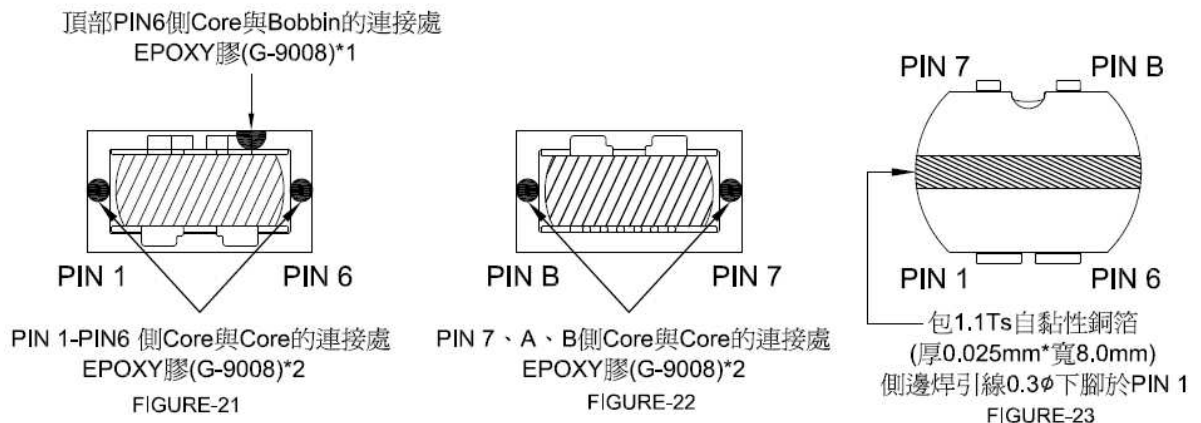
IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

9-3. 外觀點膠製程：

9-3-1. 線包與鐵心組裝後，然後包兩圈1350F-1 11.0mm 膠帶固定，再點5點EPOXY膠(指定用 G-9008)，如下示意圖。

9-3-2. 烘烤完成後，需將固定用膠帶拆除，再包1.1Ts自黏性銅箔(厚0.025mm*寬8.0mm)側邊焊引線0.3 ϕ 下腳於PIN 1，如下示意圖。

注意事項：頂部Core及Bobbin的點膠，需確實點在Bobbin與Core之間，防止Bobbin與Core鬆動。(如下圖所示)。

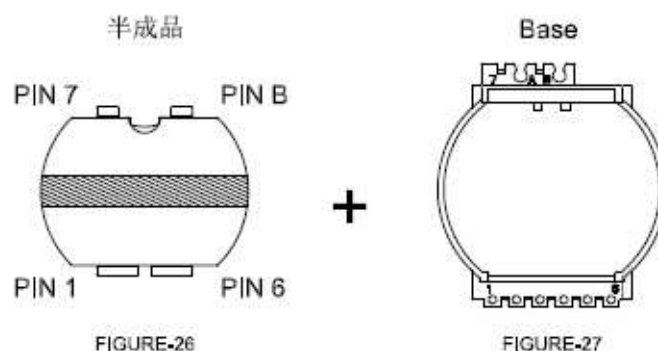


9-3-3. Cover裡面底部需先點EPOXY膠(G-9008)，才可將半成品(線包與鐵心)組裝於Cover，組裝時半成品務必完全與Cover平貼，切勿傾斜或浮高。



IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

9-4. 半成品(指完成所有點膠、烘烤製程後)與Base組裝注意事項，示意圖如下：



半成品組裝在Base前，A、B飛線要理線整齊，如下示意圖。

半成品組裝在Base前，A、B飛線要理線整齊，如下示意圖。 半成品組裝在Base後，要注意半成品要置中在Base (避免半成品偏向PIN1-PIN6側或PIN7,A,B側)，如下示意圖。



FIGURE-28



FIGURE-29

9-4-1. A組飛線需從底端直接拉出彎折，不能直接拉出很長再彎折，避免影響EMI與組裝問題，如下示意圖。

9-4-2. 三層絕緣線銅線不可裸露太多，與套管太短造成安規距離不足，如下示意圖。套管務必延伸到PIN腳掛線處。

OK



FIGURE-30

NG



FIGURE-31

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
9-4-3. 飛線A的三層絕緣線，線腳需全部扭在一起，再放進Cover槽中(壓至最底)，然後點膠(G-9008)最後加焊(φ1.6 MAX)。 飛線B的三層絕緣線，線腳需全部扭在一起，再放進Cover槽中(壓至最底)，然後點膠(G-9008)最後加焊(φ1.6 MAX)。			
 FIGURE-32			

C.2	TABLE: transformers							P
Loc.	Tested insulation	Working voltage peak / V (2.10.2)	Working voltage rms / V (2.10.2)	Required electric strength (5.2)	Required clearance / mm (2.10.3)	Required creepage distance / mm (2.10.4)	Required distance thr. insul. (2.10.5)	
For models FSP090-ABAN2, FSP090-ABBN2, FSP090-ABBN2-M								
T101	Primary to secondary (reinforced)	630	380	See appended table 5.2	7.0	7.6	0.4mm or 2 layers min. or TIW	
T101	Primary to core (functional)	--	--	--	--	--	--	
T101	Secondary to core (reinforced)	630	380	See appended table 5.2	7.0	7.6	0.4mm or 2 layers min. or TIW	
Loc.	Tested insulation			Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers	
T101	Primary/input winding and secondary/output winding (internal)			See appended table 5.2	Triple insulation wire used	Triple insulation wire used	See below table C.2	
T101	Primary/input winding and core (internal)			--	--	--	--	
T101	Secondary/output winding and core (internal)			See appended table 5.2	Triple insulation wire used	Triple insulation wire used	See below table C.2	

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IEC 60950-1					
Clause	Requirement + Test	Result - Remark			Verdict
T101	Primary/input part and secondary/output part (external)	See appended table 5.2	9.0 (via core)	9.0 (via core)	See below table C.2
T101	Primary/input part and core (external)	--	--	--	--
T101	Secondary/output winding and primary/input part (external)	See appended table 5.2	Triple insulation wire used	Triple insulation wire used	See below table C.2
T101	Secondary/output part and core (external)	See appended table 5.2	9.0	9.0	See below table C.2
T101	Secondary/output part and primary/input winding (external)	See appended table 5.2	9.0	9.0	See below table C.2
Supplementary information: The transformer used in below factories is identical in electrical characteristics, physical construction in clearance, creepage and distance through insulation. Transformer manufacturing plants (factories) of FSP/SPI 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. - DONG GUAN LIGHTION ELECTRONICS CO LTD. - NANJING SHENNING MAGNETIC & 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 ELECTRONICS CO LTD					

TRF No. IEC60950_1F

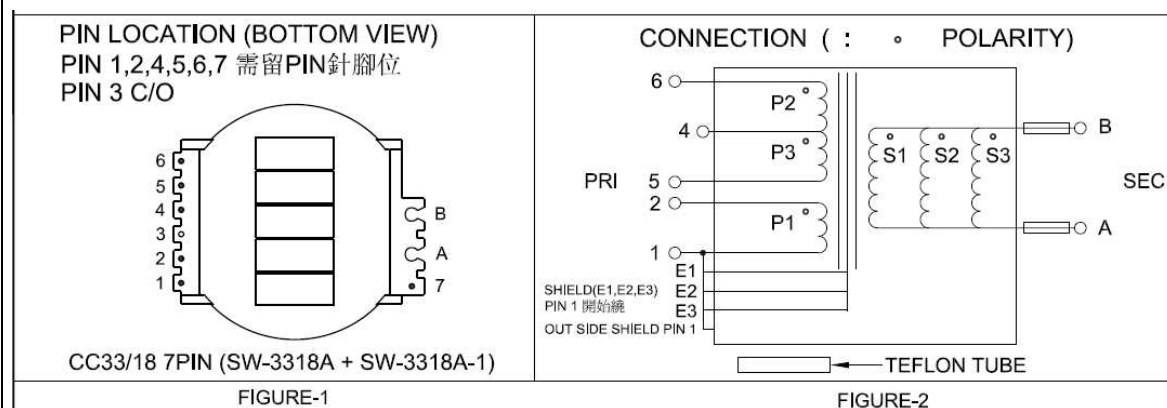
IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
C.2	TABLE: transformers		
Concentric windings on Phenolic top bobbin type CC33/18 (SW-3318A) and Phenolic base type CC33/18 (SW-3318A-1) (Vertical orientation), core is considered as primary parts, transformer construction as below. - Before winding wrapped around two layers of insulation tape on bobbin. - Min. one layer of insulation tape provided between primary and secondary windings. - All secondary windings exit ends additionally with tubing for protection against winding tension mechanical stress. - All secondary windings were provided one layer of "U" shape insulation tape (15 mm by 13 mm) at primary bottom side and fold back 6.0 mm for protection against winding tension mechanical stress. - The inner copper shielding (E1, E2 and E3) are considered as primary. - Secondary wires are triple insulation wire, for details see appended table 1.5.1 and subclause 2.10.5.12, Annex U. Primary winding/pins: shielding (E1), 2-1, 6-4, shielding (E2), shielding (E3), 4-5 Secondary winding/pins: B-A, B-A, B-A (S1, S2 and S3) Bobbin Material (manufacturer, type, ratings, thickness): - Sumitomo Bakelite, phenolic, type PM-9820, V-0, 150°C, min. 0.51mm thickness			

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IEC 60950-1

Clause	Requirement + Test	Result - Remark	Verdict
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Detailed illustration of Transformer construction:



Type no. 8TV00294

WINDING	TURNS	WIRE		INDUCTANCE	DCR m ohms	Q值 MIN
		TYPE	DIAMETER			
S1 (B-A)	5Ts	TRW(B)	0.35 ϕ *3C			
P1 (2-1)	5Ts	2UEW	0.3 ϕ	15uH MAX	90 MAX	
P2 (6-4)	16Ts	2UEW NY	0.1 ϕ *20C			
SHIELD(E1)	0.2 ϕ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)					
S2 (B-A)	5Ts	TRW(B)	0.35 ϕ *3C			
SHIELD(E2)	0.2 ϕ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)					
P3 (4-5)	16Ts	2UEW NY	0.1 ϕ *20C			
SHIELD(E3)	0.2 ϕ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)					
S3 (B-A)	5Ts	TRW(B)	0.35 ϕ *3C	15uH MAX	10 MAX	
LP (6-5)	32Ts	2UEW NY	0.1 ϕ *20C	500uH $\pm$ 5%	305 MAX	60
LK (6-5)	SHORT PIN A, B			3.6uH MAX		

Type no. 8TV00313

WINDING	TURNS	WIRE		INDUCTANCE	DCR m ohms	Q值 MIN
		TYPE	DIAMETER			
S1 (B-A)	5Ts	TEX-E	0.35 ϕ *3C			
P1 (2-1)	5Ts	2UEW	0.3 ϕ	15uH MAX	90 MAX	
P2 (6-4)	16Ts	2UEW NY	0.1 ϕ *20C			
SHIELD(E1)	0.2 ϕ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)					
S2 (B-A)	5Ts	TEX-E	0.35 ϕ *3C			
SHIELD(E2)	0.2 ϕ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)					
P3 (4-5)	16Ts	2UEW NY	0.1 ϕ *20C			
SHIELD(E3)	0.2 ϕ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)					
S3 (B-A)	5Ts	TEX-E	0.35 ϕ *3C	15uH MAX	10 MAX	
LP (6-5)	32Ts	2UEW NY	0.1 ϕ *20C	500uH $\pm$ 5%	305 MAX	60
LK (6-5)	SHORT PIN A, B			3.6uH MAX		

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IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
4-1.	此變壓器外觀及GAP Core皆需點膠，不含浸凡立水。		
4-2.	此變壓器外觀尺寸圖如下。		

FIGURE-4

A = 40,5 MAX
 B = 36,8 MAX
 C1 = 16,2 MAX
 C2 = 19,7 MAX
 D = 3,6 ± 0,2
 E = 35,85 ± 0,3
 F1 = 3,8 TPY
 F2 = 6,2 TPY
 G1 = Ø0,8
 G2(A,B) = Ø1,6 MAX

UNIT:mm

FIGURE-6

FIGURE-6

FIGURE-7

FIGURE-3: Cross-section of the transformer core showing layers and dimensions.

PRI

1350F-1 TAPE 11mm*2T

反折 1350F-1 TAPE 15mm*13mm*1L

1350F-1 TAPE 11mm*1T

1350F-1 TAPE 11mm*1T

1350F-1 TAPE 11mm*1T

反折 1350F-1 TAPE 15mm*13mm*1L

1350F-1 TAPE 11mm*1T

1350F-1 TAPE 11mm*1T

1350F-1 TAPE 11mm*1T

反折 1350F-1 TAPE 15mm*13mm*1L

指定用 1350F-1 TAPE

1350F-1 TAPE 11mm*2T

SEC

TOP

6.0mm MIN

B-A 5Ts

SHIELD E3 PIN 1

4-5 16Ts

SHIELD E2 PIN 1

B-A 5Ts

SHIELD E1 PIN 1

6-4 16Ts

2-1 5Ts

B-A 5Ts

START → END [Note: B-A (END ← Start)]

CORE

START → END [Note: B-A (END ← Start)]

B-A 5Ts

2-1 5Ts

6-4 16Ts

SHIELD E1 PIN 1

B-A 5Ts

SHIELD E2 PIN 1

4-5 16Ts

SHIELD E3 PIN 1

B-A 5Ts

6.0mm MIN

TOP

Legend:

- <0.35φ*3C TRW(B) 5Ts 一層滿密繞
- <平整繞0.2φ 2UEW 25Ts 置中密繞 (起始腳為PIN 1，結束點剪斷留在線包內)
- <0.1φ*20C 2UEW NY 16Ts 一層滿密繞
- <平整繞0.2φ 2UEW 25Ts 置中密繞 (起始腳為PIN 1，結束點剪斷留在線包內)
- <0.35φ*3C TRW(B) 5Ts 一層滿密繞
- <平整繞0.2φ 2UEW 25Ts 置中密繞 (起始腳為PIN 1，結束點剪斷留在線包內)
- <0.1φ*20C 2UEW NY 16Ts 一層滿密繞
- <0.3φ 2UEW 5Ts 置中密繞
- <0.35φ*3C TRW(B) 5Ts 一層滿密繞
- <0.35φ*3C TRW(B) 5Ts 一層滿密繞
- <0.3φ 2UEW 5Ts 置中密繞
- <0.1φ*20C 2UEW NY 16Ts 一層滿密繞
- <平整繞0.2φ 2UEW 25Ts 置中密繞 (起始腳為PIN 1，結束點剪斷留在線包內)
- <0.35φ*3C TRW(B) 5Ts 一層滿密繞
- <平整繞0.2φ 2UEW 25Ts 置中密繞 (起始腳為PIN 1，結束點剪斷留在線包內)
- <0.1φ*20C 2UEW NY 16Ts 一層滿密繞
- <平整繞0.2φ 2UEW 25Ts 置中密繞 (起始腳為PIN 1，結束點剪斷留在線包內)
- <0.35φ*3C TRW(B) 5Ts 一層滿密繞

TRF No. IEC60950_1F

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

生產注意事項:

9-1. 繞線:

9-1-1. 所有繞組繞線方向需保持一致.

9-1-2. S1,S2,S3 所有出入腳都要加TEFLON TUBE.

9-1-3. A、B飛線進出線:B線由頂部進線,A線底部出線.

9-1-4. AUX Wire OK與NG照片.

OK



FIGURE-11

NG



FIGURE-12

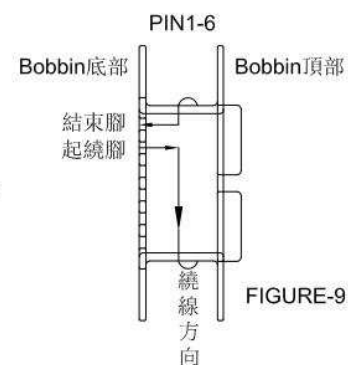


FIGURE-9

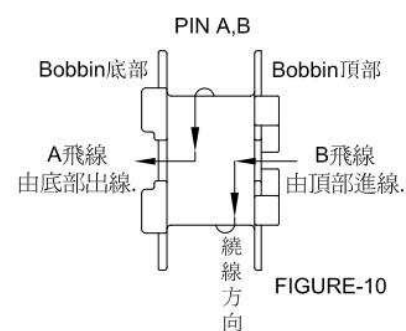
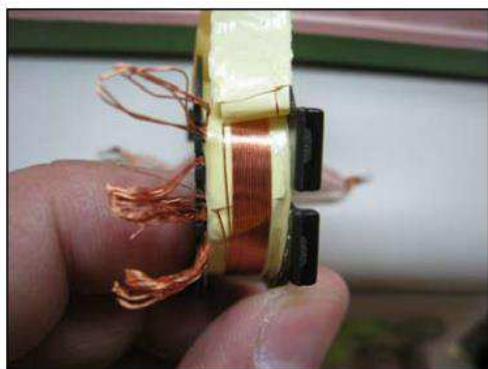


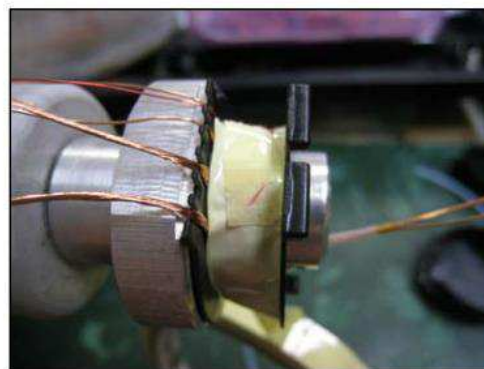
FIGURE-10

9-1-5. Shield Wire需平整密繞.



SHIELD起繞先加1350F-1膠帶, 抓取適當距離再反折膠帶固定住後再繞線.

FIGURE-13



SHIELD結尾將線頭扭向中央位置, 再加上一片5.0*5.0mm #44膠帶, 貼住線頭位置, 防止刺破層間絕緣膠帶.

FIGURE-14

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

OK



FIGURE-15

NG



FIGURE-16

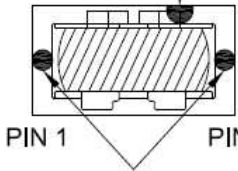
9-3. 外觀點膠製程：

9-3-1. 線包與鐵心組裝後，然後包兩圈1350F-1 11.0mm 膠帶固定，再點5點EPOXY膠(指定用 G-9008)，如下示意圖。

9-3-2. 烘烤完成後，需將固定用膠帶拆除，再包1.1Ts自黏性銅箔(厚0.025mm*寬8.0mm)側邊焊引線0.3 ϕ 下腳於PIN 1，如下示意圖。

注意事項：頂部Core及Bobbin的點膠，需確實點在Bobbin與Core之間，防止Bobbin與Core鬆動。(如下圖所示)。

頂部PIN6側Core與Bobbin的連接處
EPOXY膠(G-9008)*1

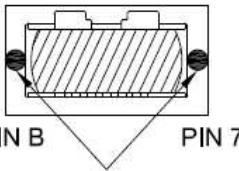


PIN 1 PIN 6

PIN 1-PIN6 側Core與Core的連接處
EPOXY膠(G-9008)*2

FIGURE-21

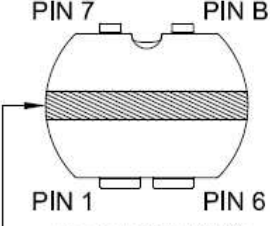
PIN 7、A、B側Core與Core的連接處
EPOXY膠(G-9008)*2



PIN B PIN 7

FIGURE-22

PIN 7 PIN B



PIN 1 PIN 6

包1.1Ts自黏性銅箔
(厚0.025mm*寬8.0mm)
側邊焊引線0.3 ϕ 下腳於PIN 1

FIGURE-23

9-3-3. Cover裡面底部需先點EPOXY膠(G-9008)，才可將半成品(線包與鐵心)組裝於Cover，組裝時半成品務必完全與Cover平貼，切勿傾斜或浮高。

EPOXY膠(G-9008)*2

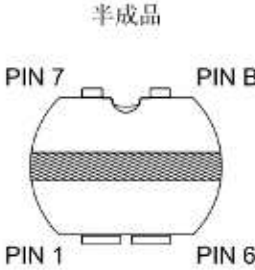
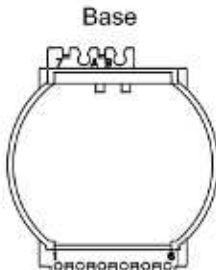
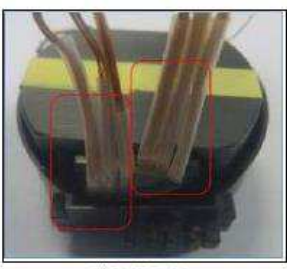
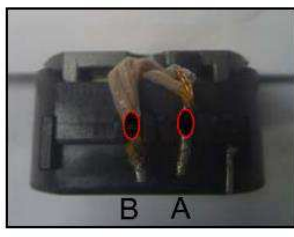


FIGURE-24



FIGURE-25

TRF No. IEC60950_1F

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
9-4. 半成品(指完成所有點膠、烘烤製程後)與Base組裝注意事項，示意圖如下： 半成品  FIGURE-26 + Base  FIGURE-27 半成品組裝在Base前，A、B飛線要理線整齊，如下示意圖。  FIGURE-28 半成品組裝在Base後，要注意半成品要置中在Base (避免半成品偏向PIN1-PIN6側或PIN7,A,B側)，如下示意圖。  FIGURE-29 9-4-1. A組飛線需從底端直接拉出彎折，不能直接拉出很長再彎折，避免影響EMI與組裝問題，如下示意圖。 9-4-2. 三層絕緣線銅線不可裸露太多，與套管太短造成安規距離不足，如下示意圖。 OK  FIGURE-30 NG  FIGURE-31 9-4-3. 飛線A的三層絕緣線，線腳需全部扭在一起，再放進Cover槽中(壓至最底)，然後點膠(G-9008)最後加焊(φ1.6 MAX)。 飛線B的三層絕緣線，線腳需全部扭在一起，再放進Cover槽中(壓至最底)，然後點膠(G-9008)最後加焊(φ1.6 MAX)。  FIGURE-32			

ATTACHMENT

Measurement Section



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Clause	Requirement + Test	Result - Remark	Verdict
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2.1.1.7	TABLE: Discharge test			P
Condition	τ calculated (s)	τ measured (s)	t u→0V (s)	Comments
Unit on (fuse in)	1.32	0.36	--	Vo = 364V, 37% of Vo = 134.68V, measured voltage after 1 sec = 4V
Supplementary information:				
Overall capacity: 0.33 μ F (CX101 = 0.33 μ F)				
Discharge resistor: R101 = R102 = 2M Ω				

2.4.2	TABLE: Limited current circuit measurement				P
Location	Voltage (V)	Current (mA)	Freq. (kHz)	Limit (mA)	Comments
Secondary pin of CY103/CY104 to earth, normal	24	12	96	67.2	Measuring with a 2k Ω non-inductive resistor. (CY103, CY104, C214 and R229 provided)
Secondary pin of CY103/CY104 to earth, normal	296mV	0.592	--	0.7	Measuring instrument of figure D.1 used. (CY103, CY104, C214 and R229 provided)
Secondary pin of CY103/CY104 to earth, normal	24	12	88	61.6	Measuring with a 2k Ω non-inductive resistor. (CY103 and CY104 provided; C214 and R229 replace by jumper)
Secondary pin of CY103/CY104 to earth, normal	250mV	0.5	--	0.7	Measuring instrument of figure D.1 used. (CY103 and CY104 provided; C214 and R229 replace by jumper)
Secondary pin of CY103/CY104 to earth, normal	22.4	11.2	88	61.6	Measuring with a 2k Ω non-inductive resistor. (CY103, CY104 and R229 provided; without C214)
Secondary pin of CY103/CY104 to earth, normal	312mV	0.624	--	0.7	Measuring instrument of figure D.1 used. (CY103, CY104 and R229 provided; without C214)
Supplementary information:					
Test voltage: 264Vac, 60Hz					
Overall capacity: CY103 = 1500pF, CY104 = 1000pF					

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Measurement Section



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Clause	Requirement + Test	Result - Remark	Verdict
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2.6.3.4	TABLE: Resistance of earthing measurement		N/A
Location		Resistance measured (mΩ)	Comments
Supplementary information:			

4.6.1, 4.6.2	Table: Enclosure opening measurements		P
Location		Size (mm)	Comments
--		--	No opening provided.
Supplementary information:			

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IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 60950-1 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES Information technology equipment – Safety – Part 1: General requirements	
Differences according to.....	EN 60950-1:2006/A11:2009/A1:2010/A12:2011/A2:2013
Attachment Form No.....	EU_GD_IEC60950_1F
Attachment Originator	SGS Fimko Ltd
Master Attachment	Date 2014-02
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EN 60950-1:2006/A11:2009/A1:2010/A12:2011/A2:2013 – CENELEC COMMON MODIFICATIONS

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)		
	Clauses, subclauses, notes, tables and figures which are additional to those in IEC60950-1 and its amendments are prefixed "Z"	P
Contents (A2:2013)	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZD (informative) IEC and CENELEC code designations for flexible cords	P
General	Delete all the "country" notes in the reference document (IEC 60950-1:2005) according to the following list: 1.4.8 Note 2 1.5.1 Note 2 & 3 1.5.7.1 Note 1.5.8 Note 2 1.5.9.4 Note 1.7.2.1 Note 4, 5 & 6 2.2.3 Note 2.2.4 Note 2.3.2 Note 2.3.2.1 Note 2 2.3.4 Note 2 2.6.3.3 Note 2 & 3 2.7.1 Note 2.10.3.2 Note 2 2.10.5.13 Note 3 3.2.1.1 Note 3.2.4 Note 3. 2.5.1 Note 2 4.3.6 Note 1 & 2 4.7 Note 4 4.7.2.2 Note 4.7.3.1 Note 2 5.1.7.1 Note 3 & 4 5.3.7 Note 1 6 Note 2 & 5 6.1.2.1 Note 2 6.1.2.2 Note 6.2.2 Note 6.2.2.1 Note 2 6.2.2.2 Note 7.1 Note 3 7.2 Note 7.3 Note 1 & 2 G.2.1 Note 2 Annex H Note 2	P

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IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
General (A1:2010)	Delete all the "country" notes in the reference document (IEC 60950-1:2005/A1:2010) according to the following list: 1.5.7.1 Note 6.1.2.1 Note 2 6.2.2.1 Note 2 EE.3 Note		P
General (A2:2013)	Delete all the "country" notes in the reference document (IEC 60950-1:2005/A2:2013) according to the following list: 2.7.1 Note * 2.10.3.1 Note 2 6.2.2. Note * Note of secretary: Text of Common Modification remains unchanged.		P
1.1.1 (A1:2010)	Replace the text of NOTE 3 by the following. NOTE 3 The requirements of EN 60065 may also be used to meet safety requirements for multimedia equipment. See IEC Guide 112, Guide on the safety of multimedia equipment. For television sets EN 60065 applies.		N/A
1.3.Z1	Add the following subclause: 1.3.Z1 Exposure to excessive sound pressure The apparatus shall be so designed and constructed as to present no danger when used for its intended purpose, either in normal operating conditions or under fault conditions, particularly providing protection against exposure to excessive sound pressures from headphones or earphones. NOTE Z1 A new method of measurement is described in EN 50332-1, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 1: General method for "one package equipment", and in EN 50332-2, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 2: Guidelines to associate sets with headphones coming from different manufacturers.	Not such equipment.	N/A
(A12:2011)	In EN 60950-1:2006/A12:2011 Delete the addition of 1.3.Z1 / EN 60950-1:2006 Delete the definition 1.2.3.Z1 / EN 60950-1:2006 /A1:2010	Not portable sound system.	N/A
1.5.1 (Added info*)	Add the following NOTE: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC. New Directive 2011/65/11 *	Added.	P

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IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
1.7.2.1 (A1:2010)	In addition, for a PORTABLE SOUND SYSTEM, the instructions shall include a warning that excessive sound pressure from earphones and headphones can cause hearing loss.	Not such equipment.	N/A
1.7.2.1 (A12:2011)	In EN 60950-1:2006/A12:2011 Delete NOTE Z1 and the addition for Portable Sound System. Add the following clause and annex to the existing standard and amendments.	Same as above.	N/A
	Zx Protection against excessive sound pressure from personal music players		N/A

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IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
	Zx.1 General This sub-clause specifies requirements for protection against excessive sound pressure from personal music players that are closely coupled to the ear. It also specifies requirements for earphones and headphones intended for use with personal music players. A personal music player is a portable equipment for personal use, that: – is designed to allow the user to listen to recorded or broadcast sound or video; and – primarily uses headphones or earphones that can be worn in or on or around the ears; and – allows the user to walk around while in use. NOTE 1 Examples are hand-held or body-worn portable CD players, MP3 audio players, mobile phones with MP3 type features, PDA's or similar equipment. A personal music player and earphones or headphones intended to be used with personal music players shall comply with the requirements of this sub-clause. The requirements in this sub-clause are valid for music or video mode only. The requirements do not apply: – while the personal music player is connected to an external amplifier; or – while the headphones or earphones are not used. NOTE 2 An external amplifier is an amplifier which is not part of the personal music player or the listening device, but which is intended to play the music as a standalone music player. The requirements do not apply to: – hearing aid equipment and 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 professional equipment.	Not such equipment.	N/A

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IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
	– analogue personal music players (personal music players without any kind of digital processing of the sound signal) that are brought to the market before the end of 2015. 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. For equipment which is clearly designed or intended for use by young children, the limits of EN 71-1 apply.		
	Zx.2 Equipment requirements No safety provision is required for equipment that complies with the following: – equipment provided as a package (personal music player with its listening device), where the acoustic output $L_{Aeq,T}$ is ≤ 85 dBA measured while playing the fixed “programme simulation noise” as described in EN 50332-1; and – a personal music player provided with an analogue electrical output socket for a listening device, where the electrical output is ≤ 27 mV measured as described in EN 50332-2, while playing the fixed “programme simulation noise” as described in EN 50332-1. NOTE 1 Wherever the term acoustic output is used in this clause, the 30 s A-weighted equivalent sound pressure level $L_{Aeq,T}$ is meant. See also Zx.5 and Annex Zx. All other equipment shall: a) protect the user from unintentional acoustic outputs exceeding those mentioned above; and b) have a standard acoustic output level not exceeding those mentioned above, and automatically return to an output level not exceeding those mentioned above when the power is switched off; and	Same as above.	N/A



IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
	c) provide a means to actively inform the user of the increased sound pressure when the equipment is operated with an acoustic output exceeding those mentioned above. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an acoustic output exceeding those mentioned above. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time; and NOTE 2 Examples of means include visual or audible signals. Action from the user is always required. NOTE 3 The 20 h listening time is the accumulative listening time, independent how often and how long the personal music player has been switched off. d) have a warning as specified in Zx.3; and e) not exceed the following: 1) equipment provided as a package (player with its listening device), the acoustic output shall be ≤ 100 dBA measured while playing the fixed "programme simulation noise" described in EN 50332-1; and 2) a personal music player provided with an analogue electrical output socket for a listening device, the electrical output shall be ≤ 150 mV measured as described in EN 50332-2, while playing the fixed "programme simulation noise" described in EN 50332-1. 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, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA. In this case T becomes the duration of the song. NOTE 4 Classical music 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 song 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 is below the basic limit of 85 dBA. For example, if the player is set with the programme simulation noise to 85 dBA, but the average music level of the song is only 65 dBA, 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 dBA.		

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IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
	Zx.3 Warning The warning shall be placed on the equipment, or on the packaging, or in the instruction manual and shall consist of the following: – the symbol of Figure 1 with a minimum height of 5 mm; and – the following wording, or similar: “To prevent possible hearing damage, do not listen at high volume levels for long periods.”  Figure 1 – Warning label (IEC 60417-6044) Alternatively, the entire warning may be given through the equipment display during use, when the user is asked to acknowledge activation of the higher level.	Same as above.	N/A
	Zx.4 Requirements for listening devices (headphones and earphones)		N/A
	Zx.4.1 Wired listening devices with analogue input With 94 dBA sound pressure output $L_{Aeq,T}$, the input voltage of the fixed “programme simulation noise” described in EN 50332-2 shall be ≥ 75 mV. This requirement is applicable in any mode where the headphones can operate (active or passive), including any available setting (for example built-in volume level control). NOTE The values of 94 dBA – 75 mV correspond with 85dBA – 27 mV and 100 dBA – 150 mV.	Same as above.	N/A



IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
	Zx.4.2 Wired listening devices with digital input With any playing device playing the fixed “programme simulation noise” described in EN 50332-1 (and respecting the digital interface standards, where a digital interface standard exists that specifies the equivalent acoustic level), the acoustic output $L_{Aeq,T}$ of the listening device shall be ≤ 100 dBA. This requirement is applicable in any mode where the headphones can operate, including any available setting (for example built-in volume level control, additional sound feature like equalization, etc.). NOTE An example of a wired listening device with digital input is a USB headphone.	Same as above.	N/A
	Zx.4.3 Wireless listening devices In wireless mode: – with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and – respecting the wireless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and – with volume and sound settings in the listening device (for example built-in volume level control, additional sound feature like equalization, etc.) set to the combination of positions that maximize the measured acoustic output for the abovementioned programme simulation noise, the acoustic output $L_{Aeq,T}$ of the listening device shall be ≤ 100 dBA. NOTE An example of a wireless listening device is a Bluetooth headphone.	Same as above.	N/A
	Zx.5 Measurement methods Measurements shall be made in accordance with EN 50332-1 or EN 50332-2 as applicable. Unless stated otherwise, the time interval T shall be 30 s. NOTE Test method for wireless equipment provided without listening device should be defined.	Same as above.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
2.7.1	Replace the subclause as follows: Basic requirements To protect against excessive current, short-circuits and earth faults in PRIMARY CIRCUITS, 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 5.3 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;	Considered.	P
	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.	No PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT.	N/A
2.7.2	This subclause has been declared 'void'.	Void.	P
3.2.3	Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses.	Deleted.	N/A

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IEC60950_1F - ATTACHMENT									
Clause	Requirement + Test	Result - Remark	Verdict						
IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)									
3.2.5.1	Replace "60245 IEC 53" by "H05 RR-F"; "60227 IEC 52" by "H03 VV-F or H03 VVH2-F"; "60227 IEC 53" by "H05 VV-F or H05 VVH2-F2". In Table 3B, replace the first four lines by the following: <table><tr><td>Up to and including 6 </td><td>0,75^{a)} </td></tr><tr><td>Over 6 up to and including 10 </td><td>(0,75)^{b)} 1,0 </td></tr><tr><td>Over 10 up to and including 16 </td><td>(1,0)^{c)} 1,5 </td></tr></table> In the conditions applicable to Table 3B delete the words "in some countries" in condition ^{a)}. In NOTE 1, applicable to Table 3B, delete the second sentence.	Up to and including 6	0,75 ^{a)}	Over 6 up to and including 10	(0,75) ^{b)} 1,0	Over 10 up to and including 16	(1,0) ^{c)} 1,5	No power cord provided.	N/A
Up to and including 6	0,75 ^{a)}								
Over 6 up to and including 10	(0,75) ^{b)} 1,0								
Over 10 up to and including 16	(1,0) ^{c)} 1,5								
3.2.5.1 (A2:2013)	NOTE Z1 The harmonised code designations corresponding to the IEC cord types are given in Annex ZD	Same as above.	N/A						
3.3.4	In Table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following: Over 10 up to and including 16 1,5 to 2,5 1,5 to 4 Delete the fifth line: conductor sizes for 13 to 16 A	Same as above.	N/A						
4.3.13.6 (A1:2010)	Replace the existing NOTE by the following: NOTE Z1 Attention is drawn to: 1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz, and 2006/25/EC: Directive on the minimum health and safety requirements regarding the exposure of workers to risks arising from physical agents (artificial optical radiation).	No such consideration.	N/A						
	Standards taking into account mentioned Recommendation and Directive which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.	Same as above.	N/A						
Annex H	Replace the last paragraph of this annex by: At any point 10 cm from the surface of the OPERATOR ACCESS AREA, the dose rate shall not exceed 1 µSv/h (0,1 mR/h) (see NOTE). Account is taken of the background level. Replace the notes as follows: NOTE These values appear in Directive 96/29/Euratom. Delete NOTE 2.	No ionizing radiation	N/A						
Bibliography	Additional EN standards.		—						

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IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)

ZA	NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS	—
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ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
1.2.4.1	In Denmark , certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.	Appliance inlet used.	N/A
1.2.13.14 (A11:2009)	In Norway and Sweden , for requirements see 1.7.2.1 and 7.3 of this annex.	No cable distribution systems.	N/A
1.5.7.1 (A11:2009)	In Finland, Norway and Sweden , resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.1. In addition when a single resistor is used, the resistor must withstand the resistor test in 1.5.7.2.	No such component provided.	N/A
1.5.8	In Norway , due to the IT power system used (see annex V, Figure V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).	Overall compliance needs to be evaluated during the national approval.	N/A
1.5.9.4	In Finland, Norway and Sweden , the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex.	Not applied for.	N/A
1.7.2.1	In Finland, Norway and Sweden , CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text in the applicable countries shall be as follows: In Finland : "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan" In Norway : "Apparatet må tilkoples jordet stikkontakt" In Sweden : "Apparaten skall anslutas till jordat uttag"	Overall compliance needs to be evaluated during the national approval.	N/A
1.7.2.1	In Norway and Sweden , the screen of the cable		

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Clause	Requirement + Test	Result - Remark	Verdict
(A11:2009)	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 need 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 e.g. a retailer. 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: "Equipment connected to the protective earthing of the building installation through the mains connection or through other equipment with a connection to protective earthing – and to a cable distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a cable distribution system has therefore to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)."		



IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	NOTE In Norway, due to regulation for installations of cable distribution systems, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min. Translation to Norwegian (the Swedish text will also be accepted in Norway): “Utstyr som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av utstyret til kabel-TV nettet installeres en galvanisk isolator mellom utstyret og kabel- TV nettet.” Translation to Swedish: ”Utrustning 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 utrustningen till kabel-TV nät galvanisk isolator finnas mellan utrustningen och kabel-TV nätet.”		
1.7.2.1 (A2:2013)	In Denmark, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text in Denmark shall be as follows: In Denmark: “Apparatets stikprop skal tilsluttes en stikkontakt med jord, som giver forbindelse til stikproppens jord.”	Overall compliance needs to be evaluated during the national approval.	N/A
1.7.5 1.7.5 (A11:2009)	In Denmark, socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For STATIONARY EQUIPMENT the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a. For CLASS II EQUIPMENT the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.	No socket-outlets provided.	N/A

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IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.5 (A2:2013)	In Denmark, socket-outlets for providing power to other equipment shall be in accordance with the DS 60884-2-D1:2011. For class I equipment the following Standard Sheets are applicable: DK 1-3a, DK 1-1c, DK 1-1d, DK 1-5a or DK 1-7a, with the exception for STATIONARY EQUIPMENT where the socket-outlets shall be in accordance with Standard Sheet DK 1-1b, DK 1-1c, DK 1-1d or DK 1-5a. Socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance with DS 60884-2-D1 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with by DS 60884-2-D1 Standard Sheet DKA 1-3a or DKA 1-3b. Justification the Heavy Current Regulations, 6c	Same as above.	N/A
2.2.4	In Norway , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.	No TNV circuits.	N/A
2.3.2	In Finland, Norway and Sweden there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex.	No TNV circuits.	N/A
2.3.4	In Norway , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.	No TNV circuits.	N/A
2.6.3.3	In the United Kingdom , the current rating of the circuit shall be taken as 13 A, not 16 A.	Considered. However, test was performed with 16 A for representative.	P
2.7.1	In the United Kingdom , to protect against excessive currents and short-circuits in the PRIMARY CIRCUIT of DIRECT PLUG-IN EQUIPMENT, tests according to 5.3 shall be conducted, using an external protective device rated 30 A or 32 A. If these tests fail, suitable protective devices shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met.	Not DIRECT PLUG-IN EQUIPMENT.	N/A
2.10.5.13	In Finland, Norway and Sweden , there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.	No TNV circuits.	N/A

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IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	In Switzerland, supply cords of equipment having a RATED CURRENT not exceeding 10 A shall be provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets: SEV 6532-2.1991 Plug Type 15 3P+N+PE 250/400 V, 10 A SEV 6533-2.1991 Plug Type 11 L+N 250 V, 10 A SEV 6534-2.1991 Plug Type 12 L+N+PE 250 V, 10 A In general, EN 60309 applies for plugs for currents exceeding 10 A. However, a 16 A plug and socket-outlet system is being introduced in Switzerland, the plugs of which are according to the following dimension sheets, published in February 1998: SEV 5932-2.1998: Plug Type 25 , 3L+N+PE 230/400 V, 16 A SEV 5933-2.1998: Plug Type 21, L+N, 250 V, 16A SEV 5934-2.1998: Plug Type 23, L+N+PE 250 V, 16 A	No power cord provided.	N/A
3.2.1.1	In Denmark, supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1. 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 poly-phase equipment and single-phase equipment having a RATED CURRENT exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2.	No power cord provided.	N/A



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Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1 (A2:2013)	In Denmark, supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2. Justification the Heavy Current Regulations, 6c	No power cord provided.	N/A
3.2.1.1	In Spain, supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994. Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993. 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 UNE 20315:1994. If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.	No power cord provided.	N/A
3.2.1.1	In the United Kingdom, apparatus 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 and plug, shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1768:1994 - The Plugs and Sockets etc. (Safety) Regulations 1994, 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.	No power cord provided.	N/A

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IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	In Ireland , apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 - National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997.	No power cord provided.	N/A
3.2.4	In Switzerland , for requirements see 3.2.1.1 of this annex.	No power cord provided.	N/A
3.2.5.1	In the United Kingdom , a power supply cord with conductor of 1,25 mm ² is allowed for equipment with a rated current over 10 A and up to and including 13 A.	No power cord provided.	N/A
3.3.4	In the United Kingdom , the range of conductor sizes of flexible cords to be accepted by terminals for equipment with a RATED CURRENT of over 10 A up to and including 13 A is: • 1,25 mm ² to 1,5 mm ² nominal cross-sectional area.	No power cord provided.	N/A
4.3.6	In the United Kingdom , the torque test is performed using a socket outlet complying with BS 1363 part 1:1995, including Amendment 1:1997 and Amendment 2:2003 and 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. UK Application Note: BS 1363-1:1995+A4:2012 has now superseded the previous version (incorporating Amendments 1:1997, 2:2003 and 3:2007) which has been withdrawn. Our recommendation is for users to always identify and follow the latest version of a standard to which a dated reference is made. This is also applicable in the case of BS EN 60950-1 and users would need to refer to the latest version of BS 1363-1:1995+A4:2012 when applying BS EN 60950-1.	Not DIRECT PLUG-IN EQUIPMENT.	N/A

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IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
4.3.6	In Ireland , DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 - National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997.	Not DIRECT PLUG-IN EQUIPMENT.	N/A
5.1.7.1	In Finland, Norway and Sweden TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment: • STATIONARY PLUGGABLE EQUIPMENT TYPE A that is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecommunication centre; and has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and is provided with instructions for the installation of that conductor by a SERVICE PERSON; • STATIONARY PLUGGABLE EQUIPMENT TYPE B; • STATIONARY PERMANENTLY CONNECTED EQUIPMENT.	Not applied for.	N/A
6.1.2.1 (A1:2010)	In Finland, Norway and Sweden , add the following text between the first and second paragraph of the compliance clause: 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. Alternatively for components, there is no distance through insulation requirements 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 2.10.11 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of	No TNV circuits.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	2.10.10 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 an optocoupler complying with 2.10.5.4 b). It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2. A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions: - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 60384-14: - the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.	No TNV circuits.	N/A
6.1.2.2	In Finland, Norway and Sweden , the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON.	No TNV circuits.	N/A
7.2	In Finland, Norway and Sweden , for requirements see 6.1.2.1 and 6.1.2.2 of this annex. The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.	No such consideration.	N/A
7.3 (A11:2009)	In Norway and Sweden , for requirements see 1.2.13.14 and 1.7.2.1 of this annex.	Same as above.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

Annex ZD (informative) IEC and CENELEC code designations for flexible cords		
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	60277 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

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IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 60950-1 CANADA NATIONAL DIFFERENCES Information technology equipment – Safety – Part 1: General requirements			
Differences according to: CAN/CSA-C22.2 NO. 60950-1-07			
Attachment Form No.: CA_ND_IEC60950_1F			
Attachment Originator: --.			
Master Attachment: Date 2017-05			
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	Special national conditions		P
1.1.1	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 I, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2.	Unit was evaluated according to IEC 60950-1. The requirements have to be checked during national approval.	N/A
	Also, unless marked or otherwise identified, installation is allowed per the Standard for the Protection of Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75.	Same as above.	N/A
1.1.2	Baby monitors are required to comply with ASTM F2951, Consumer Safety Specification for Baby Monitors	Not such equipment.	N/A
1.4.14	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.	Considered.	P
1.5.5	For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the CEC/NEC.	No power cord provided. Output cable doesn't exceeding 3.05 m.	N/A
	For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the CEC are required to have special construction features and identification markings.	Same as above.	N/A
1.7.1	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.	Single-phase equipment.	N/A

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IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	A voltage rating that exceeds an attachment plug cap rating is only permitted if it does not exceed the extreme operating conditions in Table 2 of CAN/CSA C22.2 No. 235, and if it is part of a range that extends into the Table 2 "Normal Operating Conditions." Likewise, a voltage rating shall not be lower than the specified "Normal Operating Conditions," unless it is part of a range that extends into the "Normal Operating Conditions."	No such consideration.	N/A
1.7.7	Wiring terminals intended to supply Class 2 outputs in accordance with CEC Part 1 or NEC shall be marked with the voltage rating and "Class 2" or equivalent. Marking shall be located adjacent to the terminals and shall be visible during wiring.	Shall be evaluated during the national approval.	N/A
2.5	Where a fuse is used to provide Class 2, Limited Power Source, or TNV current limiting, it shall not be operator-accessible unless it is not interchangeable.	No such fuse provided.	N/A
2.6	Equipment with isolated ground (earthing) receptacles is required to comply with NEC 250.146(D) and CEC 10-112 and 10-906(8).	The requirements have to be checked during national approval.	N/A
2.7.1	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 such components provided.	N/A
	Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection.		N/A
3.2	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains shall be in accordance with the NEC/CEC.	No such components provided.	N/A
3.2.1	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.	No power supply cord provided.	N/A
3.2.1.2	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.	No connection to DC mains supply power systems.	N/A
3.2.3	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

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IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.5	Power supply cords are required to be no longer than 4.5 m in length.	No power supply cord provided.	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.	Same as above.	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.	Same as above.	N/A
3.2.9	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.	Not permanently connected equipment.	N/A
3.3	Wiring terminals and associated spacings for field wiring connections shall comply with CSA C22.2 No. 0.	Neither wiring terminal nor associated spacings.	N/A
3.3.3	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm ²).	Same as above.	N/A
3.3.4	Terminals for permanent wiring, including protective earthing terminals, are required to be suitable for Canadian/US wire gauge sizes, rated 125 percent of the equipment rating, and be specially marked when specified (1.7.7).	No terminals for permanent wiring.	N/A
3.3.5	First column of Table 3E revised to require "Smaller of the RATED CURRENT of the equipment or the PROTECTIVE CURRENT RATING of the circuit under consideration."		N/A
3.4.2	Motor control devices are required for cord-connected equipment with a motor if the equipment is rated more than 12 A, or if the motor has a nominal voltage rating greater than 120 V, or is rated more than 1/3 hp (locked rotor current over 43 A).	No motor control devices.	N/A
3.4.8	Vertically-mounted disconnect switches and circuit breakers are required to have the "on" position indicated by the handle in the up position.	No such switch provided.	N/A
3.4.11	For computer 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 computer room remote power-off circuit.	No battery system incorporated.	N/A
4.3.12	The maximum quantity of flammable liquid stored in equipment is required to comply with NFPA 30.	No flammable liquid.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.3.13.5.1	Equipment with lasers is required to meet the Canadian Radiation Emitting Devices Act, REDR C1370 and/or Code of Federal Regulations 21 CFR 1040, as applicable.	Overall compliance needs to be evaluated during the national approval.	N/A
4.7	For computer 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.	Not information storage systems.	N/A
4.7.3.1	For computer 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 other applications, enclosures with the same dimensions require a flame spread rating of 200 or less.	No such enclosures.	N/A
Annex H	Equipment that produces ionizing radiation is required to comply with the Canadian Radiation Emitting Devices Act, REDR C1370 and/or Code of Federal Regulations, 21 CFR 1020, as applicable.	No ionizing radiation.	N/A
	Other National Differences		P
1.5.1	Some components 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 (Canadian and/or U.S.) component or material standard requirements. These components include: attachment plugs, battery packs (rechargeable type, used with transportable equipment), cathode ray tubes, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), cord sets and power supply cords, direct plug-in equipment, enclosures (outdoor), flexible cords and cables, fuses (branch circuit), fuseholders, ground-fault current interrupters, industrial control equipment, insulating tape, interconnecting cables, lampholders, limit controls, printed wiring, protectors for communications circuits, receptacles, solid state controls, supplementary protectors, switches (including interlock switches), thermal cutoffs, thermostats, (multi-layer) transformer winding wire, transient voltage surge suppressors, tubing, wire connectors, and wire and cables.	Relevant components are approved by UL, see appended table 1.5.1.	P

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IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
1.6.1.2	A circuit for connection to the DC Mains Supply is classified as a SELV Circuit, TNV-2 Circuit or Hazardous Voltage Circuit depending on the maximum operating voltage of the supply. This maximum operating voltage shall include consideration of the battery charging "float voltage" associated with the intended supply system, regardless of the marked power rating of the equipment.	No connection to DC mains supply.	N/A
2.3.1	For TNV-2 and TNV-3 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.	N/A
2.3.2.1	In the event of a single fault between TNV and SELV circuits, the limits of 2.2.3 apply to SELV Circuits and accessible conductive parts.	No TNV circuits.	N/A
2.6.2	Equipment with functional earthing is required to be marked with the functional earthing symbol (IEC 60417-6092)	No such consideration.	N/A
2.6.3.4	Protective bonding conductors of non-standard protective bonding constructions (e.g., printed circuit traces) may be subjected to the additional limited short circuit test conditions specified.		N/A
4.2.8.1	Enclosures around CRTs with a face diameter of 160 mm or more are required to reduce the risk of injury due to the implosion of the CRT.	No CRT.	N/A
4.3.2	Equipment with handles is required to comply with special loading tests.	No such handle.	N/A
4.3.8	Battery packs for both portable and stationary applications are required to comply with special component requirements.	No battery pack.	N/A
5.1.8.3	Equipment intended to receive telecommunication ringing signals is required to comply with a special touch current measurement tests.	No TNV circuits.	N/A
5.3.7	Internal (e.g., card cage) SELV circuit connectors and printed wiring board connectors that are accessible to the operator and that deliver power are to be overloaded.	See table 5.3 of main report	P
	During abnormal operating testing, if a circuit is interrupted by the opening of a component, the test shall be repeated twice (three tests total) using new components as necessary.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
6.4	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses in accordance with 6.4 and Annex NAC.	No TNV circuits.	N/A
Annex EE	Articulated accessibility probe (Fig EE.3) required for assessing accessibility to document/media shredders instead of the Figure 2A test finger.		N/A
M.2	Continuous ringing signals up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.	No TNV circuits.	N/A
Annex NAD	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.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 60950-1 with A1: 2009 and A2:2013 U.S.A. NATIONAL DIFFERENCES Information technology equipment – Safety – Part 1: General requirements	
Differences according to.....:	UL 60950-1-07(Second Edition) + A1: 2011 + A2: 2014
Attachment Form No.:	US_ND_IEC60950_1F
Attachment Originator.....:	UL
Master Attachment.....:	Date 2014-07
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	Special national conditions		P
1.1.1	All equipment is designed as to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, Canadian Electrical Code (CEC), Part I, CAN/CSA C22.1, and if applicable, the National Electrical Safety Code, IEEE C2	Unit was evaluated according to IEC 60950-1. The requirements have to be checked during national approval.	N/A
	Also, unless marked or otherwise identified, installation is allowed per the Standard for the Protection of Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75	Same as above.	N/A
1.1.2	Baby monitors are required to additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors.	Not such equipment.	N/A
1.4.14	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.	Considered.	P
1.5.5	For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the NEC. For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the NEC are required to have special construction features and identification markings.	No power cord provided. Output cable doesn't exceeding 3.05 m.	N/A
1.7.1	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	Single-phase equipment.	N/A
	A voltage rating that exceeds an attachment plug cap rating is only permitted if it does not exceed the extreme operating conditions in Table 2 of CAN/CSA C22.2 No. 235, and	No such consideration.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- if it is part of a range that extends into the Table 2 "Normal Operating Conditions"	Same as above.	N/A
	Likewise, a voltage rating is not to be lower than the specified "Normal Operating Conditions," unless it is part of a range that extends into the "Normal Operating Conditions"	Same as above.	N/A
1.7.7	Wiring terminals intended to supply Class 2 outputs in accordance with NEC or CEC Part 1 or NEC are marked with the voltage rating and "Class 2" or equivalent	Shall be evaluated during the national approval.	N/A
	- Marking is located adjacent to the terminals	Same as above.	N/A
	- Marking is visible during wiring	Same as above.	N/A
2.5	Fuse providing Class 2, Limited Power Source, or TNV current limiting is not operator-accessible unless it is not interchangeable	No such fuse provided.	N/A
2.6	Equipment with isolated ground (earthing) receptacles are required to comply with NEC 250.146(D) and CEC 10-112 and 10-906(8).	The requirements have to be checked during national approval.	N/A
2.7.1	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is provided for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable.	No such components provided.	N/A
	Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, provided with special transformer overcurrent protection		N/A
3.2	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains shall be in accordance with the NEC/CEC.	No such components provided.	N/A
3.2.1	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.	No power supply cord provided.	N/A
3.2.1.2	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 comply with special earthing, wiring, marking and installation instruction requirements	No connection to DC mains supply power systems.	N/A
3.2.3	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

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IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.5	Power supply cords are no longer than 4.5 m in length	No power supply cord provided.	N/A
	Minimum cord length is 1.5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement	Same as above.	N/A
	Flexible power supply cords are compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC	Same as above.	N/A
3.2.9	Permanently connected equipment has a suitable wiring compartment and wire bending space	Not permanently connected equipment.	N/A
3.3	Wiring terminals and associated spacings for field wiring connections shall comply with CSA C22.2 No. 0.	Neither wiring terminal nor associated spacings.	N/A
3.3.3	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm ²).	Same as above.	N/A
3.3.4	Terminals for permanent wiring, including protective earthing terminals, are suitable for Canadian/US wire gauge sizes, are	No terminals for permanent wiring.	N/A
	- rated 125 per cent of the equipment rating, and		N/A
	- are specially marked when specified (1.7.7)		N/A
3.3.5	Revise first column of Table 3E to "Smaller of the RATED CURRENT of the equipment or the PROTECTIVE CURRENT RATING of the circuit under consideration"		N/A
3.4.2	Motor control devices are provided for cord-connected equipment with a motor if the equipment is rated more than 12 A,	No motor control devices.	N/A
	- or if the motor has a nominal voltage rating greater than 120 V		N/A
	- or is rated more than 1/3 hp (locked rotor current over 43 A)		N/A
3.4.8	Vertically-mounted disconnect switches and circuit breakers are required to have the "on" position indicated by the handle in the up position.	No such switch provided.	N/A
3.4.11	For computer room applications, equipment with battery systems capable of supplying 750 VA for five minutes have a battery disconnect means that may be connected to the computer room remote power-off circuit	No battery system incorporated.	N/A
4.3.12	The maximum quantity of flammable liquid stored in equipment is required to comply with NFPA 30.	No flammable liquid.	N/A

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IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
4.3.13.5.1	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).	Overall compliance needs to be evaluated during the national approval.	N/A
4.7	For computer room applications, automated information storage systems with combustible media greater than 0.76 m ³ (27 cu ft) have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge	Not information storage systems.	N/A
4.7.3.1	For computer 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.	No such enclosures.	N/A
	For other applications, enclosures with the same dimensions require a flame spread rating of 200 or less.	Same as above.	N/A
4.7.3.1	Non-metallic enclosures of equipment for use in spaces used for environmental air (plenums) are required to comply with UL 2043.	No such enclosures.	N/A
Annex H	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 ionizing radiation.	N/A
	OTHER NATIONAL DIFFERENCES		P

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IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
1.5.1	Some components and materials associated with the risk of fire, electric shock, or personal injury have component or material ratings in accordance with the applicable national (Canadian and/or U.S.) component or material standard requirements. These components include: attachment plugs, battery backup systems, battery packs, cathode ray tubes, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), cord sets and power supply cords, direct plug-in equipment, electrochemical capacitor modules (energy storage modules with ultracapacitors), enclosures (outdoor), flexible cords and cables, fuses (branch circuit), fuseholders, ground-fault current interrupters, industrial control equipment, insulating tape, interconnecting cables, lampholders, limit controls, printed wiring, protectors for communications circuits, receptacles, solid state controls, supplementary protectors, switches (including interlock switches), thermal cut-offs, thermostats, (multi-layer) transformer winding wire, surge protective devices, tubing, vehicle battery adapters, wire connectors, and wire and cables	Relevant components are approved by UL, see appended table 1.5.1.	P
1.6.1.2	A circuit for connection to the DC Mains Supply is classified as a SELV Circuit, TNV-2 Circuit or Hazardous Voltage Circuit depending on the maximum operating voltage of the supply	No connection to DC mains supply.	N/A
	This maximum operating voltage includes consideration of the battery charging "float voltage" associated with the intended supply system, regardless of the marked power rating of the equipment	Same as above.	N/A
2.3.1	For TNV-2 and TNV-3 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.	N/A
2.3.2.1	In the event of a single fault between TNV and SELV circuits, the limits of 2.2.3 apply to SELV Circuits and accessible conductive parts.	No TNV circuits.	N/A
2.6.2	Equipment with functional earthing marked with the functional earthing symbol (IEC 60417-6092)	No such consideration.	N/A

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IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
2.6.3.4	Protective bonding conductors of non-standard protective bonding constructions (e.g., printed circuit traces) may be subjected to the additional limited short circuit test conditions specified.		N/A
4.2.8.1	Enclosures around CRTs with a face diameter of 160 mm or more are required to reduce the risk of injury due to the implosion of the CRT.	No CRT.	N/A
4.3.2	Equipment with handles complies with special loading tests	No such handle.	N/A
4.3.8	Battery packs for both portable and stationary applications comply with special component requirements	No battery pack.	N/A
5.1.8.3	Equipment intended to receive telecommunication ringing signals is required to comply with a special touch current measurement tests.	No TNV circuits.	N/A
5.3.7	Internal (e.g., card cage) SELV circuit connectors and printed wiring board connectors that are accessible to the operator and that deliver power are overloaded	See table 5.3 of main report	P
	During abnormal operating testing, if a circuit is interrupted by the opening of a component, the test is repeated twice (three tests total) using new components as necessary		N/A
6.4	Equipment intended for connection to telecommunication network outside plant cable is protected against overvoltage from power line crosses in accordance with 6.4 and Annex NAC	No TNV circuits.	N/A
Annex EE	Articulated accessibility probe (Fig EE.3) is used for assessing accessibility to document/media shredders instead of the Figure 2A test finger		N/A
Annex M.2	Continuous ringing signals up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.	No TNV circuits.	N/A
Annex NAD	Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear comply with special acoustic pressure requirements	No TNV circuits.	N/A

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IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 60950-1 (AUSTRALIA/NEW ZEALAND) NATIONAL DIFFERENCES (Information technology equipment-safety)			
Differences according to: AS/NZS 60950.1:2015			
Attachment Form No.: AU_NZ_ND_IEC60950_1F			
Attachment Originator: JAS-ANZ			
Master Attachment: 2017-06			
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	National Differences		P
Appendix ZZ	Variations to IEC 60950-1, Ed 2.2 (2013) for Australia and New Zealand		P
1.2	DEFINITIONS	See below.	P
	After definition 'PERSON, SERVICE', insert the following new definition: POTENTIAL IGNITION SOURCE.....1.2.12.201	Inserted.	P
1.5	COMPONENTS	See below.	N/A
1.5.1	1.....F irst paragraph, insert the following text after the words 'IEC component standard: or the relevant Australian/New Zealand Standard 2.....I n the Note, insert the following text after the word standard: or the relevant Australian/New Zealand Standard 3.....S econd paragraph, delete the words 'without further evaluation'	Added.	N/A

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IEC60950_1F - ATTACHMENT																	
Clause	Requirement + Test			Result - Remark	Verdict												
1.5.2	1F irst paragraph, insert the following text after the word 'standard' or an Australian/New Zealand Standard 2F irst paragraph, second dash item, second line, insert the following text after the word 'standard' or an Australian/New Zealand Standard 3F irst paragraph, second dash item, last line, insert the following text after the word 'standard': or an Australian/New Zealand Standard			Added.	N/A												
1.7	MARKINGS AND INSTRUCTIONS			See below.	P												
1.7.1.3	Delete existing text and replace with the following: Graphical symbols placed on the equipment as a requirement of this standard, shall be in accordance with IEC 60417 or ISO 3864-2 or ISO 7000, if available. In the absence of suitable symbols, the manufacturer may design specific graphical symbols. Symbols as required by this standard placed on the equipment shall be explained in the user manual			Deleted and replaced.	P												
2.9	ELECTRICAL INSULATION			See below.	P												
2.9.2	Variation Second paragraph, delete the word 'designated'			Deleted.	P												
3.2.5	POWER SUPPLY CORDS				N/A												
Table 3B	Variation 1.D elete the first four rows and replace with the following: <table><tr><td>Over 0.2 up to and including 3</td><td>0.5^a</td><td>18 [0.8]</td></tr><tr><td>Over 3 up to and including 7.5</td><td>0.75</td><td>16 [1.3]</td></tr><tr><td>Over 7.5 up to including 10</td><td>(0.75)^b 1.00</td><td>16 [1.3]</td></tr><tr><td>Over 10 up to including 16</td><td>(1.0)^c 1.5</td><td>14 [2]</td></tr></table>			Over 0.2 up to and including 3	0.5 ^a	18 [0.8]	Over 3 up to and including 7.5	0.75	16 [1.3]	Over 7.5 up to including 10	(0.75) ^b 1.00	16 [1.3]	Over 10 up to including 16	(1.0) ^c 1.5	14 [2]	Deleted and replaced.	N/A
Over 0.2 up to and including 3	0.5 ^a	18 [0.8]															
Over 3 up to and including 7.5	0.75	16 [1.3]															
Over 7.5 up to including 10	(0.75) ^b 1.00	16 [1.3]															
Over 10 up to including 16	(1.0) ^c 1.5	14 [2]															

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Clause	Requirement + Test	Result - Remark	Verdict
	2.D ete NOTE 1 and renumber existing NOTE 2 as 'NOTE'	Deleted.	N/A
	3.D ete Footnote ^a and replace with the following: ^a 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 to the plug does not exceed 2 m (0,5 mm ² three-core supply flexible cords are not permitted; see AS/NZS 3191)	Deleted and replaced.	N/A
4.3	DESIGN AND CONSTRUCTION		P
4.3.6	Variation Delete the third paragraph and replace with the following:	Deleted and replaced.	N/A
	<i>Equipment with a plug portion, suitable for insertion into a 10 A 3-pin flat-pin socket-outlet complying with AS/NZS 3112 shall comply with the requirements in AS/NZS 3112 for equipment with integral pins for insertion into socket-outlets</i>	The equipment is not direct plug-in equipment.	N/A
4.3.8	Addition Eighth paragraph, <i>insert</i> the following new note after the first dash item:	Added. No battery is provided.	N/A
	NOTE 6.201 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 SELV 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
4.3.13.5.1	Variation Delete the first paragraph and replace with the following: Except as permitted below, equipment shall be classified and labelled according to IEC 60825-1 or AS/NZS 60825.1, IEC 60825-2 or AS/NZS 60825.2 and IEC 60825-12, as applicable	Deleted and replaced.	N/A
	Third paragraph, first sentence, after 'IEC 60825-1', <i>insert</i> the following text: or AS/NZS 60825.1	Inserted.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Fourth paragraph, after 'IEC 60825-1', <i>insert</i> the following text: or AS/NZS 60825.1	Inserted.	N/A
4.7	RESISTANCE TO FIRE		N/A
4.7	Addition At the end of Clause 4.7, <i>insert</i> the following text: For alternate tests refer to Clause 4.7.201	Added.	N/A
6	CONNECTION TO TELECOMMUNICATIONS NETWORKS		N/A
6.2.2	Variation For Australia only, <i>delete</i> the first paragraph and Note, and <i>replace</i> with the following: In Australia only, compliance with 6.2.2 shall be checked by the tests of both 6.2.2.1 and 6.2.2.2	Deleted and replaced. No TNV circuits.	N/A
6.2.2.1	Variation For Australia only, <i>delete</i> the first paragraph including the Notes, and <i>replace</i> with the following: In Australia only, the electrical separation is subjected to 10 impulses of alternating polarity, using the impulse test generator Reference 1 of Table N.1. The interval between successive impulses is 60 s and the initial voltage, U_c , is: (i) for 6.2.1 a): 7.0 kV for hand-held telephones and for headsets and 2.5 kV for other equipment; and (ii) For 6.2.1 b) and 6.2.1 c): 1.5kV	Deleted and replaced. No TNV circuits.	N/A
	NOTE 201 The 7 kV impulse simulates lightning surges on typical rural and semi-rural network lines		N/A
	NOTE 202 The value of 2.5 kV for 6.2.1 a) was chosen to ensure the adequacy of the insulation concerned and does not necessarily simulate likely overvoltages		N/A
6.2.2.2	Variation For Australia only, <i>delete</i> the second paragraph including the Note, and <i>replace</i> with the following: In Australia only, the a.c. test voltage is (i)f or 6.2.1 a): 3kV; and (ii)f or 6.2.1b) and 6.2.1c): 1.5kV	Deleted and replaced. No TNV circuits.	N/A
	NOTE 201 Where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	NOTE 202 The 3 kV and 1.5 kV values have been determined considering the low frequency induced voltages from the power supply distribution system.		N/A
7	CONNECTION TO CABLE DISTRIBUTION NETWORK		N/A
7.3	Addition <i>Add the following before the first paragraph:</i> Equipment providing functions that fall only within the scope of AS/NZS 60065 and that incorporate a PSTN interface, are not required to comply with this Clause where the only ports provided on the equipment, in addition to a coaxial cable connection and a PSTN interface, are audio or video ports and analogue or data ports not intended to be used for telecommunications purposes	Added. No such functions.	N/A
Annex P	Addition <i>Add the following Normative References:</i> AS/NZS 3191, Electric flexible cords AS/NZS 3112, Approval and test specification—Plugs and socket-outlets	Added.	N/A

	Special national conditions (if any)		N/A
1.2.12	FLAMMABILITY		N/A
1.2.12.15	Addition After Clause 1.2.12.15, <i>insert</i> the following new clause:	Added.	N/A
1.2.12.201	POTENTIAL IGNITION SOURCE Possible fault which can start a fire if the open-circuit voltage measured across an interruption or faulty contact exceeds a value of 50 V (peak) a.c. or d.c. and the product of the peak value of this voltage and the measured r.m.s. current under normal operating conditions exceeds 15 VA		N/A
	Such a faulty contact or interruption in an electrical connection includes those which may occur in CONDUCTIVE PATTERNS on PRINTED BOARDS		N/A
	NOTE 1 An electronic protection circuit may be used to prevent such a fault from becoming a POTENTIAL IGNITION SOURCE		N/A
	NOTE 2 This definition is from AS/NZS 60065:2012, Clause 2.8.11.		N/A
4	PHYSICAL REQUIREMENTS		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.1	Addition After Clause 4.1, <i>insert</i> new Clause 4.1.201 as follows:	Added.	N/A
4.1.201	Display devices used for television purposes Display devices which may be used for television purposes, with a mass of 7 kg or more, shall comply with the requirements for stability and mechanical hazards, including the additional stability requirements for television receivers, specified in AS/NZS 60065		N/A
4.3	DESIGN AND CONSTRUCTION		N/A
4.3.8	Addition After Clause 4.3.8, <i>add</i> the following new clause as follows	Added.	N/A
4.3.8.201	Products containing coin/button cell batteries and batteries designated R1 The requirements of AS/NZS 60065:2012 Amendment 1:2015, Clause 14.10.201 apply for this Clause.	No battery is provided.	N/A
4.7	RESISTANCE TO FIRE		N/A
4.7.3.6	Addition After Clause 4.7.3.6, <i>add</i> new clauses as follows:	Added.	N/A
4.7.201	Resistance to fire—Alternative tests	See below.	N/A
4.7.201.1	General Parts of non-metallic material shall be resistant to ignition and spread of fire. This requirement does not apply to decorative trims, knobs and other parts unlikely to be ignited or to propagate flames from inside the apparatus, or the following: a) Components that are contained in an enclosure having a flammability category of V-0 according to AS/NZS 60695.11.10 and having openings only for the connecting wires filling the openings completely, and for ventilation not exceeding 1 mm in width regardless of length.	However, equipment under test materials used and components in compliance with requirements of IEC 60950-1. Alternative test methods were not considered.	N/A



IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	b) The following parts which would contribute negligible fuel to a fire: – small mechanical parts, the mass of which does not exceed 4 g, such as mounting parts, gears, cams, belts and bearings; – small electrical components, such as capacitors with a volume not exceeding 1,750 mm ³ , integrated circuits, transistors and optocoupler packages, if these components are mounted on material of flammability category V-1, or better, according to AS/NZS 60695.11.10	See above.	N/A
	NOTE In considering how to minimize propagation of fire and what 'small parts' are, account should be taken of the cumulative effect of small parts adjacent to each other for the possible effect of propagating the fire from one part to another	See above.	N/A
	<i>Compliance shall be checked by the tests of 4.7.201.2, 4.7.201.3, 4.7.201.4 and 4.7.201.5</i>	See above.	N/A
	<i>For the base material of printed boards, compliance shall be checked by the test of 4.7.201.5</i>	See above.	N/A
	The tests shall be carried out on parts of non-metallic material which have been removed from the apparatus. When the glow-wire test is carried out, the parts shall be placed in the same orientation as they would be in normal use. These tests are not carried out on internal wiring	See above.	N/A
4.7.201.2	Testing of non-metallic materials Parts of non-metallic material shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 550°C Parts for which the glow-wire test cannot be carried out, such as those made of soft or foamy material, shall meet the requirements specified in ISO 9772 for category FH-3 material. The glow-wire test shall be not carried out on parts of material classified at least FH-3 according to ISO 9772 provided that the sample tested was not thicker than the relevant part.	See above.	N/A



IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
4.7.201.3	Testing of insulating materials Parts of insulating material supporting POTENTIAL IGNITION SOURCES shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 750°C. The test shall be also carried out on other parts of insulating material which are within a distance of 3 mm of the connection. NOTE Contacts in components such as switch contacts are considered to be connections. For parts which withstand the glow-wire test but produce a flame, other parts above the connection within the envelope of a vertical cylinder having a diameter of 20 mm and a height of 50 mm shall be subjected to the needle-flame test. However, parts shielded by a barrier which meets the needle-flame test shall not be tested. The needle-flame test shall be made in accordance with AS/NZS 60695.11.5 with the following modifications:	See above.	N/A



IEC60950_1F - ATTACHMENT				
Clause	Requirement + Test		Result - Remark	Verdict
	Clause of AS/NZS 60695.11.5		See above.	N/A
	9 Test procedure			
	9.2 Application of Needle-flame	<i>Delete</i> the first and second paragraphs and <i>replace</i> with the following: The specimen shall be arranged so that the flame can be applied to a vertical or horizontal edge as shown in the examples of Figure 1. If possible the flame shall be applied at least 10 mm from a corner. The duration of application of the test flame shall be 30 s ± 1 s		
	9.3 Number of test specimens	<i>Delete</i> existing text and <i>replace</i> with the following: The test shall be made on one specimen. If the specimen does not withstand the test, the test may be repeated on two further specimens, both of which shall withstand the test.		
	11 Evaluation of test results	<i>Delete</i> existing text and <i>replace</i> with the following: The duration of burning (tb) shall not exceed 30 s. However, for printed circuit boards, it shall not exceed 15s		

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IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	The needle-flame test shall not be carried out on parts of material classified as V-0 or V-1 according to AS/NZS 60695.11.10, provided that the sample tested was not thicker than the relevant part	See above.	N/A
4.7.201.4	Testing in the event of non-extinguishing material If parts, other than enclosures, do not withstand the glow wire tests of 4.7.201.3 by failure to extinguish within 30 s after the removal of the glow-wire tip, the needle-flame test detailed in 4.7.201.3 shall be made on all parts of non-metallic material which are within a distance of 50 mm or which are likely to be impinged upon by flame during the tests of 4.7.201.3. Parts shielded by a separate barrier which meets the needle-flame test need not be tested.	See above.	N/A
	NOTE 1 If the enclosure does not withstand the glow-wire test the equipment is considered to have failed to meet the requirements of Clause 4.7.201 without the need for consequential testing.	See above.	N/A
	NOTE 2 If other parts do not withstand the glow-wire test due to ignition of the tissue paper and if this indicates that burning or glowing particles can fall onto an external surface underneath the equipment, the equipment is considered to have failed to meet the requirements of Clause 4.7.201 without the need for consequential testing	See above.	N/A
	NOTE 3 Parts likely to be impinged upon by the flame are considered to be those within the envelope of a vertical cylinder having a radius of 10 mm and a height equal to the height of the flame, positioned above the point of the material supporting, in contact with, or in close proximity to, connections.	See above.	N/A
4.7.201.5	Testing of printed boards The base material of printed boards shall be subjected to the needle-flame test of Clause 4.7.201.3. The flame shall be applied to the edge of the board where the heat sink effect is lowest when the board is positioned as in normal use. The flame shall not be applied to an edge, consisting of broken perforations, unless the edge is less than 3 mm from a POTENTIAL IGNITION SOURCE.	For PCB material refer to appended table 1.5.1 of IEC 60950-1 test report.	N/A

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IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	The test is not carried out if the – Printed board does not carry any POTENTIAL IGNITION SOURCE; – Base material of printed boards, on which the available apparent power at a connection exceeds 15 VA operating at a voltage exceeding 50 V and equal or less than 400 V (peak) a.c. or d.c. under normal operating conditions, is of flammability category V-1 or better according to AS/NZS 60695.11.10, or the printed boards are protected by an enclosure meeting the flammability category V-0 according to AS/NZS 60695.11.10, or made of metal, having openings only for connecting wires which fill the openings completely; or – Base material of printed boards, on which the available apparatus power at a connection exceeds 15 VA operating at a voltage exceeding 400 V (peak) a.c. or d.c. under normal operating conditions, and base material of printed boards supporting spark gaps which provides protection against overvoltages, is of flammability category V-0 according to AS/NZS 60695.11.10 or the printed boards are contained in a metal enclosure, having openings only for connecting wires which fill the openings completely <i>Compliance shall be determined using the smallest thickness of the material.</i>	See above.	N/A
	NOTE Available apparent power is the maximum apparent power which can be drawn from the supplying circuit through a resistive load whose value is chosen to maximise the apparent power for more than 2 m when the circuit supplied is disconnected.	See above.	N/A



IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ATTACHMENT TO TEST REPORT IEC 60950-1 with A1: 2009 and A2:2013 JAPAN NATIONAL DIFFERENCES Information technology equipment – Safety – Part 1: General requirements			
Differences according to: J60950-1 (H29)			
Attachment Form No.: JP_ND_IEC60950_1F			
Attachment Originator: JQA			
Master Attachment: 2017-11			
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1.2.4.1	Add the following new notes. Note: Even if the equipment is designed as Class I, the equipment is regarded as CLASS 0I EQUIPMENT (see 1.2.4.3A) when 2-pin adaptor with earthing lead wire or cord set having 2-pin plug with earthing lead wire is provided or recommended.	Added. The equipment is “Class I”	N/A
1.2.4.3A	Add the following new clause. 1.2.4.3A CLASS 0I EQUIPMENT Equipment having attachment plug without earthing blade, where protection against electric shock is achieved by: - using BASIC INSULATION, and - providing either of the following a) or b) in order to connect those conductive parts that might assume a HAZARDOUS VOLTAGES in the event of BASIC INSULATION fault to the PROTECTIVE EARTHING CONDUCTOR in the building wiring. a) Provision of 2-pin plug with earthing lead including the condition of that 2-pin adaptor with earthing lead wire is provided or recommended. b) Provision of an independent earthing terminal, when 2-core mains cord (without earthing conductor) is used. Note – CLASS 0I EQUIPMENT may have a part constructed with Double Insulation or Reinforced Insulation.	Added. The equipment is “Class I”	N/A

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IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
1.3.2	Add the following notes after the first paragraph: Note 1 Transportable or similar equipment that are relocated frequently for intended usage should not be designed as Class I or CLASS 0I EQUIPMENT unless it is intended to be installed by service personnel. Note 2 Considering wiring circumstance in Japan, equipment intended to be installed where the provision for earthing connection is unlikely should not be designed as Class I or CLASS 0I EQUIPMENT unless it is intended to be installed by service personnel.	Added.	N/A
1.5.1	Replace the first paragraph with the follows: Where safety is involved, components shall comply either with the requirements of this standard, with the safety aspects of the relevant JIS component standard, or IEC component standards, or components shall have equivalent to or better properties than these. Replace Note 1 with the following: Note 1 Components complying with the interpretation of Ministerial Ordinance on stipulating technical requirements for the Electrical Appliance is regarded to have equivalent to or better performance. Note 2 JIS or an IEC component standard is considered relevant only if the component in question clearly falls within its scope. Add the following after the last paragraph: For an appliance connector that is able to fit with appliance inlet compatible with the standard sheet of IEC 60320-1 or JIS C 8283-1, the size of the connector shall comply with relevant standard sheet of IEC 60320-1 or JIS C 8283-1. A power supply cord set complying with JIS C 8286 is regarded to comply with this requirement. Note 3 A power supply cord set provided with appliance connector that is able to fit with appliance inlet compatible with the standard sheet of IEC 60320-1 or JIS C 8283-1 should comply with JIS C 8286.	Added.	P

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IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
1.5.2	Add the following Note 2 after the 4th dashed paragraph: Note 2 See 1.7.5A when Type C.14 appliance coupler rated 10 A per JIS C 8283-1 is used with an equipment rated not more than 125 V and rated more than 10 A.	Added.	P
1.5.5	Add the following Note after the last paragraph: NOTE An interconnection cord sets provided with interconnecting coupler for mains supply complying with JIS C 8283-2-2 should comply with JIS C 8286.		N/A
1.5.9.1	Add the following in the last of NOTE 1. Gas discharge tube connected in series with VDR may be used.		N/A
1.7	Replace EE.2 and EE.4 with the following: JA.1 Shredder warning JA.3 Shredder power disconnection		N/A
1.7.1.2	Replace first and second dashed paragraphs with the followings: - manufacturer's or responsible company's name or trade-mark or identification mark; - manufacturer's or responsible company's model identification or type reference;	Added. The responsible company's name is list on the marking plate. Overall acceptance has to be evaluated during the national approval process.	P
1.7.2.1	Add the following after the second paragraph. Instruction or equipment marking regarding safety shall be written in Japanese unless otherwise permitted in this standard.		N/A
1.7.2.5	Replace the last sentence with the following: An acceptable marking for an electric shock  hazard is (6.2.4 of JIS S 0101).		N/A
1.7.5	Replace the second paragraph with the following. Socket-outlets conforming to JISC8282-1 are examples of standard power supply outlets.		N/A



IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.5A	Add the following new clause after 1.7.5. 1.7.5A Power supply cord set If appliance coupler according to IEC60320-1, C.14(rated current: 10A) is used in equipment whose rated voltage is less than 125V and rated current is over 10A, the following instruction or equivalent shall be described in the operating instruction. “ Use only designated cord set attached in this equipment” <i>Example in Japanese:</i> “この機器に同梱した指定の電源コードセットだけを使用して下さい。” If appliance coupler is used for connection to the mains and if the cord set is not provided within the package for the equipment, suitable information regarding to the cord set shall be described in the operating instruction Note Since the combination of appliance inlet with earthing pin and two-core cord set (without earthing conductor) is special, the cord set should be attached in the equipment and the operating <i>instruction should provide the information that the cord set is exclusively used with the equipment and not allowed to use with other equipment.</i>	Added. Overall acceptance has to be evaluated during the national approval process.	N/A



IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.14A	Add the following new clause after 1.7.14. 1.7.14A Marking for CLASS 0I EQUIPMENT For CLASS 0I EQUIPMENT, the following or equivalent instructions shall be marked. - the following instruction shall be marked on the mains plug or on the visible place of the main body “Provide an earthing connection” <i>Example in Japanese:</i> “必ず接地接続を行ってください。” - the following instruction shall be marked on the visible place of the main body or written in the operating instructions: “Provide an earthing connection before the mains plug is connected to the mains. And, when disconnecting the earthing connection, be sure to disconnect after pulling out the mains plug from the mains.” <i>Example in Japanese:</i> 接地接続は必ず、電源プラグを電源につなぐ前に行ってください。 また、接地接続を外す場合は、必ず電源プラグを電源から切り離してから行ってください。		N/A
1.7.14B	Add the following new clause after 1.7.14A 1.7.14B Protective earthing conductor used for CLASS 0I EQUIPMENT For CLASS 0I EQUIPMENT provided with independent main protective earthing terminal, where the cord for the protective earthing connection is not provided within the package for the equipment, the suitable information for the protective earthing connection shall be provided in the operating instruction. (See 2.6.3.2)		N/A

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IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
2.1.1.1	Replace item b) of 2.1.1.1 with the following. b) A test with the test finger, Figure 2A, which shall not contact parts described above when applied to openings in the ENCLOSURES after removal of parts that can be detached by an OPERATOR, including fuseholders, and with OPERATOR access doors and covers open. It is permitted to leave lamps in place for this test. Connectors that can be separated by an OPERATOR, other than those complying with JIS C 8303 or JIS C 8285 or IEC 60309 series or JIS C 8283 series or IEC 60320 series, shall also be tested during disconnection. But even if the connector does not comply with these standards, the one having equivalent to or better performance need not be tested during disconnection. Note 4 Connectors complying with Appendix 4 of the interpretation of Ministerial Ordinance on stipulating technical requirements for the Electrical Appliance is regarded to have equivalent to or better performance.		N/A
2.5	Replace "IEC 60730-1" with "JIS C 9730-1" (in item b)).		N/A
2.6.2	Delete the following line. • the symbol , IEC 60417-5018 (2011-07);		N/A
2.6.3.2	Add the following after the first paragraph. However where the single core conductor is used for protective earthing lead or earthing cord for CLASS 0I EQUIPMENT, either of the following condition shall be met. - Use of annealed copper wire with 1.6 mm diameter or corrosion-inhibiting metal wire having equivalent to or more strength and thickness. - Single core cord or single core cable with 1.25 mm² or more cross-sectional area	Added. The equipment is "Class I"	N/A
2.6.3.5	Add the following after the first paragraph. However this requirement does not apply to internal conductor of the cord set that is covered by the sheath of mains cord and is formed together with mains plug and appliance connector.		N/A



IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
2.6.4.2	Replace the first paragraph with the following. Equipment required to have protective earthing shall have a main protective earthing terminal. For equipment with a DETACHABLE POWER SUPPLY CORD, the earthing terminal in the appliance inlet is regarded as the main protective earthing terminal. However, for CLASS 0I EQUIPMENT provided with the separate main protective earthing terminal other than appliance inlet, the separate main protective earthing terminal may be treated as mains protective earthing terminal.	Added. The equipment is "Class I"	N/A
2.6.5.4	Replace the first sentence with the following. Protective earthing connections of CLASS I EQUIPMENT shall make earlier and break later than the supply connections in each of the following: Add the following after last paragraph: Note For CLASS 0I EQUIPMENT, 1.7.14A is applied instead of this requirement.	Replaced.	P
2.6.5.8A	Add the following new clause after 2.6.5.8 2.6.5.8A Earthing of CLASS 0I EQUIPMENT Plugs with a lead wire for earthing shall not be used for equipment having a rated voltage exceeding 150V. For plugs with a lead wire for earthing, the lead wire shall not be earthed by a clip. CLASS 0I EQUIPMENT shall be provided with an earthing terminal or lead wire for earthing in the external location where easily visible.	Added. The equipment is "Class I"	N/A
2.7.6	Replace "ISO 3864, No. 5036" with "6.2.4 of JIS S 0101".		N/A

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IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
2.10.3.1	Replace the 8th paragraph with the following The above minimum CLEARANCE for connectors do not apply to connectors that comply with JIS C 8285, IEC60309 series of standards, JIS C 8283 series of standards, IEC60320 series of standards, JIS C 8303, or even if it does not comply with the above standards but the one having equivalent to or better performance and dimension which comply with JIS C 8283 series of standards, JIS C 8303 or IEC 60309-2. Note Connectors complying with Appendix 4 of the interpretation of Ministerial Ordinance on stipulating technical requirements for the Electrical Appliance is regarded to have equivalent to or better performance.		N/A
2.10.3.2 Table 2J	In Japan, the value of the main power supply transient voltage for the nominal ac main power supply voltage of 100 V is determined by applying the row of AC main power supply voltage 150 V.		N/A
2.10.4.3	Replace the 6th paragraph with the following The above minimum CREEPAGE DISTANCE for connectors do not apply to connectors that comply with JIS C 8285, IEC60309 series of standards, JIS C 8283 series of standards, IEC60320 series of standards, JIS C 8303, or even if it does not comply with the above standards but the one having equivalent to or better performance and dimension which comply with JIS C 8283 series of standards, JIS C 8303 or IEC 60309-2. Note Connectors complying with Appendix 4 of the interpretation of Ministerial Ordinance on stipulating technical requirements for the Electrical Appliance is regarded to have equivalent to or better performance.		N/A
2.10.9	Replace "1.4.5" in the third paragraph with "1.4.12".		N/A
3.2.3	Add the following after the third paragraph. Table 3A applies when cables complying JIS C 3662 series of standards or JIS C 3663 series of standards are used. In case of other cables, cable entries shall be so designed that the cable could be fitted in a conduit.	Added.	N/A
3.2.4	Add the following as 4th dashed paragraph. - be so constructed that mechanical stress shall not transmit to the soldering part of inlet terminal		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	during insertion or removal of the connector except that the body of the inlet is secured and is secured not only soldering.		
3.2.5.1	Add the following after Note 3: Note 4 In Japan, mains cords having equivalent to or better electro-mechanical and fire safety performance as above and complying with Appendix 1 of the interpretation of Ministerial Ordinance on stipulating technical requirements for the Electrical Appliance can be used. Replace the paragraph after Note 3 with the following. For equipment required to have protective earthing, a PROTECTIVE EARTHING CONDUCTOR shall be included in the MAINS SUPPLY cord except for CLASS 0I EQUIPMENT having separate protective earthing conductor from mains cord. Add the following after the second paragraph after Note 3: Note 5 For the cross-sectional area of mains cord described in Note 4, relevant Japanese wiring regulation can be applied.	Added.	N/A
3.2.5A	Add the following new clause after 3.2.5 3.2.5A AC mains plug Mains plug for PLUGGABLE EQUIPMENT TYPE A shall comply with JIS C 8282-1 or equivalent to or better performance. Power supply cord set complying with JIS C 8286 is regarded to meet the requirements. Mains plug with fuse link for PLUGGABLE EQUIPMENT TYPE A shall comply with JIS C 8282-2-1 or equivalent to or better performance. Note Mains plug complying with Appendix 4 of the interpretation of Ministerial Ordinance on stipulating technical requirements for the Electrical Appliance is regarded to have equivalent to or better performance.		N/A
3.3.4 Table 3D	Add the following note to Table 3D: Note For cables other than those complying with JIS C 3662 series of standards or JIS C 3663 series of standards, the terminals shall be suitable for the size of the intended cables.	Added.	N/A
3.3.7	Add the following after the first sentence: This requirement is not applicable to the external	Added. The equipment is "Class I"	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	earthing terminal of CLASS 0I EQUIPMENT.		
4.2.8	Add the following after the first paragraph: Note Intrinsically protected picture tube is required to comply with JIS C 6965 in clause 18 of JIS C 6065. No intrinsically protected picture tube which is out of scope of JIS C 6965 is required to test according to sub-clause 18.2 of JIS C 6065.		N/A
4.3.4	Add the following after the first sentence: This requirement also applies to those connections in CLASS 0I EQUIPMENT, where CLEARANCE or CREEPAGE DISTANCES over BASIC INSULATION would be reduced to less than the values specified in 2.10.	Added. The equipment is "Class I"	N/A
4.3.5	Replace the first dashed paragraph with the following. Within a manufacturer's unit or system, plugs and sockets likely to be used by the OPERATOR or by a SERVICE PERSON shall not be employed in a manner likely to create a hazard due to misconnection. In particular, connectors complying with IEC 60320/JIS C 8283 series of standards or JIS C 8303 or JIS C 8358 shall not be used for SELV CIRCUITS or TNV CIRCUITS. Keying, location or, in the case of connectors accessible only to a SERVICE PERSON, clear markings are permitted to meet the requirement.		N/A
4.3.6	Replace the 1st paragraph with the following: DIRECT PLUG-IN EQUIPMENT shall not impose undue stress on the socket-outlet. The mains plug part shall comply with the standard for the relevant mains plug. (see 3.2.5A)		N/A
4.4.2	Replace the paragraph with the following: HOUSEHOLD AND HOME/OFFICE DOCUMENT/MEDIA SHREDDERS shall also comply with Annex JA.		N/A
4.5.3	Add the following note to footnote b) of Table 4B: NOTE In case no data for the material is available, Appendix 4, 1. (1). b. 3 of the Interpretation on the Ministerial Ordinance stipulating Technical Specifications for Electrical Appliances is regarded as maximum temperature limit of the material.		N/A
5.1.3	Add a note after the first paragraph as follows: Note – Attention should be drawn to that majority of three-phase power system in Japan is of delta	Added. Single phase power distribution system used.	N/A

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Clause	Requirement + Test			Result - Remark	Verdict																																								
	connection, and therefore, in that case, test is conducted using the test circuit from IEC 60990, figure 13.																																												
5.1.6	Replace Table 5A. as follows <table><tr><th>Type of equipment</th><th>Terminal A of measuring instrument connected to:</th><th>Maximum TOUCH CURRENT mA r.m.s. ^a</th><th>Maximum PROTECTIVE CONDUCTOR CURRENT</th></tr><tr><td>ALL equipment</td><td>Accessible parts and circuits not connected to protective earth ^b</td><td>0,25</td><td>-</td></tr><tr><td rowspan="2">HAND-HELD</td><td>Main protective earthing terminal of CLASS I EQUIPMENT</td><td>0,75</td><td>-</td></tr><tr><td>Main protective earthing terminal of CLASS 0 I EQUIPMENT</td><td>0,5</td><td>-</td></tr><tr><td rowspan="2">MOVABLE (other than HAND_HELD, but including TRANSPORTABLE EQUIPMENT)</td><td>Main protective earthing terminal of CLASS I EQUIPMENT</td><td>3,5</td><td>-</td></tr><tr><td>Main protective earthing terminal of CLASS 0 I EQUIPMENT</td><td>1.0</td><td>-</td></tr><tr><td rowspan="2">STATIONARY, PLUGGABLE TYPE A</td><td>Main protective earthing terminal of CLASS I EQUIPMENT</td><td>3,5</td><td>-</td></tr><tr><td>Main protective earthing terminal of CLASS 0 I EQUIPMENT</td><td>1,0</td><td>-</td></tr><tr><td rowspan="2">ALL other STATIONARY EQUIPMENT - not subject to the conditions of 5.1.7 - subject to the conditions of 5.1.7</td><td>Main protective earthing terminal of CLASS I EQUIPMENT</td><td>3.5 -</td><td>- 5 % of input current</td></tr><tr><td>Main protective earthing terminal of CLASS 0 I EQUIPMENT</td><td>1.0 -</td><td>- -</td></tr><tr><td colspan="4">a If peak values of TOUCH CURRENT are measured, the maximum values are obtained by multiplying the r.m.s.values in the table by 1,414. b Some unearthed accessible parts are covered in 1.5.6 and 1.5.7 and the requirements of 2.4 apply. These may be different from those in 5.1.6.</td></tr></table>			Type of equipment	Terminal A of measuring instrument connected to:	Maximum TOUCH CURRENT mA r.m.s. ^a	Maximum PROTECTIVE CONDUCTOR CURRENT	ALL equipment	Accessible parts and circuits not connected to protective earth ^b	0,25	-	HAND-HELD	Main protective earthing terminal of CLASS I EQUIPMENT	0,75	-	Main protective earthing terminal of CLASS 0 I EQUIPMENT	0,5	-	MOVABLE (other than HAND_HELD, but including TRANSPORTABLE EQUIPMENT)	Main protective earthing terminal of CLASS I EQUIPMENT	3,5	-	Main protective earthing terminal of CLASS 0 I EQUIPMENT	1.0	-	STATIONARY, PLUGGABLE TYPE A	Main protective earthing terminal of CLASS I EQUIPMENT	3,5	-	Main protective earthing terminal of CLASS 0 I EQUIPMENT	1,0	-	ALL other STATIONARY EQUIPMENT - not subject to the conditions of 5.1.7 - subject to the conditions of 5.1.7	Main protective earthing terminal of CLASS I EQUIPMENT	3.5 -	- 5 % of input current	Main protective earthing terminal of CLASS 0 I EQUIPMENT	1.0 -	- -	a If peak values of TOUCH CURRENT are measured, the maximum values are obtained by multiplying the r.m.s.values in the table by 1,414. b Some unearthed accessible parts are covered in 1.5.6 and 1.5.7 and the requirements of 2.4 apply. These may be different from those in 5.1.6.				Replaced.	P
Type of equipment	Terminal A of measuring instrument connected to:	Maximum TOUCH CURRENT mA r.m.s. ^a	Maximum PROTECTIVE CONDUCTOR CURRENT																																										
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MOVABLE (other than HAND_HELD, but including TRANSPORTABLE EQUIPMENT)	Main protective earthing terminal of CLASS I EQUIPMENT	3,5	-																																										
	Main protective earthing terminal of CLASS 0 I EQUIPMENT	1.0	-																																										
STATIONARY, PLUGGABLE TYPE A	Main protective earthing terminal of CLASS I EQUIPMENT	3,5	-																																										
	Main protective earthing terminal of CLASS 0 I EQUIPMENT	1,0	-																																										
ALL other STATIONARY EQUIPMENT - not subject to the conditions of 5.1.7 - subject to the conditions of 5.1.7	Main protective earthing terminal of CLASS I EQUIPMENT	3.5 -	- 5 % of input current																																										
	Main protective earthing terminal of CLASS 0 I EQUIPMENT	1.0 -	- -																																										
a If peak values of TOUCH CURRENT are measured, the maximum values are obtained by multiplying the r.m.s.values in the table by 1,414. b Some unearthed accessible parts are covered in 1.5.6 and 1.5.7 and the requirements of 2.4 apply. These may be different from those in 5.1.6.																																													
Annex G	Replace the paragraph before Table G.2 with the following The above minimum CLEARANCE for connectors do not apply to connectors that comply with JIS C 8285. IEC60309 series of standards. JIS C 8283				N/A																																								

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	series of standards, IEC60320 series of standards, JIS C 8303, and 1.5.1 of this standard in which dimension is comply with JIS C 8283 series, JIS C 8303 or IEC 60309-2.		
Annex V V.1	Replace "3.1.2" in the first line of V.1 with "312" in the first line.		
Annex W W.1	Replace the third sentence in the first paragraph with the following: Floating circuits can exist in CLASS I EQUIPMENT, CLASS 0I EQUIPMENT and earthed circuits can exist in CLASS II EQUIPMENT.	Replaced.	N/A
Annex BB	This annex is not applicable.		N/A
Annex CC CC.2	Replace the third dashed paragraph with the following: <i>- 10 000 cycles of turning enable on and off with the input connected to a capacitor rated 425 uF ± 10 uF and shorting the output;</i>		N/A
CC.3	Add note at end of CC.3: Note: The fast blow fuse should be the one complying with JIS C 6575-2.		N/A
CC.4	Replace the 2nd dashed paragraph with the following: - 10 000 cycles of turning enable on and off with a 100 Ω ± 5 Ω resistor and a 425 uF ± 10 uF capacitor in parallel with the output; Replace the 4th dashed paragraph with the following: - 10 000 cycles of turning enable on and off with the input connected to a capacitor rated 425 uF ± 10 uF and shorting the output; Replace the 5th dashed paragraph with the following: -10 000 cycles of turning the input pin on and off with a capacitor rated 425 uF ± 10 uF connected to the input supply while keeping enable active and shorting the output; Replace the 6th dashed paragraph with the following: -10 000 cycles of turning the input pin on and off with an ferrite-core inductor having		N/A

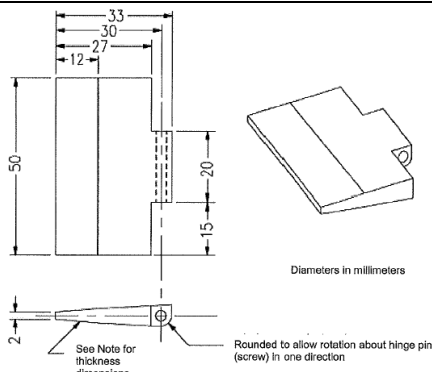
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Clause	Requirement + Test	Result - Remark	Verdict
	350 mH $\pm$ 10 mH inductance at 1 kHz and less than 1 Ω d.c. resistance connected to the input supply and return while keeping enable active and shorting the output; Replace the 10th dashed paragraph with the following: –3 cycles of exposing the device (not energized) to 70 °C $\pm$ 2 °C for 24 h; followed by at least 1 h at room ambient; followed by at least 3 h at -30 °C $\pm$ 2 °C; followed by 3 h at room ambient; Replace the 11th dashed paragraph with the following: –10 cycles of exposing the device (while energized) to 50 °C $\pm$ 2 °C for 10 min; followed by 10 min at 0 °C $\pm$ 2 °C with a 5 min period of transition from one state to the other;		
Annex EE	Replace Annex EE with the following Annex JA. Annex JA (normative) Document shredding machines HOUSEHOLD AND HOME/OFFICE DOCUMENT/MEDIA SHREDDERS shall additionally comply with the requirements of this annex. JA.1 Markings and instructions The symbol  (JIS S 0101:2000, 6.2.1) and the following precautions for use shall be marked on readily visible part adjacent to document feed opening. The marking shall be clearly legible, permanent, and easily discernible; 子供が使用することによって、傷害などの危害が発生するおそれがある。; (that use by infants/children may cause a hazard of injury etc.) 文書投入口に手を触れることによって、細断機構に引き込まれるおそれがある。; (that a hand can be drawn into the mechanical section for shredding when touching the document-slot) 文書投入口に衣類が触れることによって、細断機構に引き込まれるおそれがある。; (that clothing can be drawn into the mechanical section for shredding when touching the		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	document-slot) 文書投入口に髪の毛が触れることによって、細断機構に引き込まれるおそれがある。; (that hairs can be drawn into the mechanical section for shredding when touching the document-slot) - in case of equipment incorporating a commutator motor, 可燃性ガスを噴射することによって引火又は爆発するおそれがある。 (that equipment may catch fire or explode by spraying of flammable gas.) JA.2 Inadvertent reactivation Any safety interlock that can be operated by means of the test finger, Figure JA.1, is considered to be likely to cause inadvertent reactivation of the hazard. Compliance is checked by inspection and, where necessary, by a test with the test finger, Figure JA.1. JA.3 Disconnection from the mains supply Document shredding machines shall incorporate an isolating switch complying with sub-clause 3.4.2 as the device disconnecting the power of hazardous moving parts. For this switch, two-position (single-use) switch or multi-position (multifunction) switch (e.g., slide switch) may be used. If two-position switch, the positions for "ON" and "OFF" shall be indicated in accordance with sub-clause 1.7.8. If multi-position switch, the position for "OFF" shall be indicated in accordance with sub-clause 1.7.8 and other positions shall be indicated with proper terms or symbols. Compliance is checked by inspection.		
	JA.4 Protection against hazardous moving parts Any warning shall not be used instead of the structure for preventing access to hazardous moving parts. Document shredding machines shall comply with the following requirements. Insert the test finger, Figure JA.1, into all openings in MECHANICAL ENCLOSURES without applying appreciable force. It shall not be possible to touch hazardous moving parts with the test finger. This		N/A

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IEC60950_1F - ATTACHMENT											
Clause	Requirement + Test	Result - Remark	Verdict								
	<table><thead><tr><th>Distance from the tip (mm)</th><th>Thickness of probe (mm)</th></tr></thead><tbody><tr><td>0</td><td>2</td></tr><tr><td>12</td><td>4</td></tr><tr><td>180</td><td>24</td></tr></tbody></table> Note 1 - The thickness of the probe varies linearly, with slope changes at the respective points shown in the table. Note 2 –The allowable dimensional tolerance of the probe is; for ≤ 25 mm: +/- 0.13 mm for > 25 mm: +/- 0.3 mm. Figure JA.2 Wedge-probe	Distance from the tip (mm)	Thickness of probe (mm)	0	2	12	4	180	24		
Distance from the tip (mm)	Thickness of probe (mm)										
0	2										
12	4										
180	24										

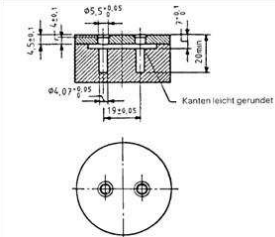
National Differences to IEC 60950-1:2005 + A1:2009			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 60950-1 GERMANY NATIONAL DIFFERENCES

Information technology equipment – Safety –

Part 1: General requirements

Differences according to.....: VDE 0805-1:2011-01: EK1-557-13 (2013-07)

1.5	Bei Steckernetzteilen wird der angeformte Stecker als Komponente betrachtet und in Deutschland generell nach DIN VDE 0620-1:2010 bzw. DIN VDE 0620-1:2013 und DIN VDE 0620-2-1:2013 beurteilt. Nach der Prüfung gemäß DIN VDE 0620-2-1:2013, Abschnitt 24.2 muss der Stecker noch die Prüfung entsprechend DIN VDE 0620-101:1992 Abschnitt 7 Bild 2 „Lehre für die Auswechselbarkeit“ bestehen. Es muss möglich sein, die Stecker in die Lehre ohne übermäßige Kraft so einzuführen, dass ihre Stirnfläche die Oberfläche der Lehre berührt. The moulded plug of plug-in power supplies will be considered as component and will be generally evaluated in Germany according to DIN VDE 0620-1:2010 respectively DIN VDE 0620-1:2013 and DIN VDE 0620-2-1:2013 After the test according to DIN VDE 0620-2-1:2013, sub-clause 24.2, the plug be shall still pass the test according to DIN VDE 0620-101:1992 clause 7, figure 2 “Gauge for interchangeability” It should be possible to insert the plug without applying an excessive force such that the end surface touches the surface of the gauge 	The requirements have to be checked during the national approval.	N/A
Annex ZC, 1.7.2.1	According to GPSG, section 2, clause 4: If certain rules on the use, supplementation or maintenance of an item of technical work equipment or ready-to-use commodity must be observed in order to guarantee safety and health, instructions for use in German must be supplied when it is brought into circulation.	The requirements have to be checked during the national approval.	N/A

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National Differences to IEC 60950-1:2005 + A1:2009			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 60950-1 ISRAEL NATIONAL DIFFERENCES Information technology equipment – Safety – Part 1: General requirements			
Differences according to.....: SI 60950 Part 1			

1.1.1	Replace the the text of Note 3 as follows: The requirements of Israel Standard SI 60065 may also be used to meet safety requirements for multimedia equipment. See IEC Guide 112, Guide on the safety of multimedia equipment.	Replaced.	N/A
1.6	The clause is applicable with the following addition:	Overall acceptance has to be evaluated during the national approval process.	N/A
1.6.1	Add following note: In Israel, this clause is applicable subject to the Electricity Law, 1954, its regulations and revisions.	Overall acceptance has to be evaluated during the national approval process.	N/A
1.7	The clause is applicable with the following additions: Subclause 1.7.201 shall be added at the beginning of the clause as follows:	Overall acceptance has to be evaluated during the national approval process.	N/A
1.7.201	Marking in the Hebrew language The marking in the Hebrew language shall be in accordance with the Consumer Protection Order (Marking of goods), 1983. In addition to the marking required by clause 1.7.1, the following details shall be marked in the Hebrew language. The details shall be marked on the apparatus or on its package, or on a label properly attached to the apparatus or on the package, by bonding or sewing, in a manner that the label cannot be easily removed. 1. Name of the apparatus and it commercial designation; 2. Manufacturer's name and address. If the apparatus is imported, the importer's name and address; 3. Manufacturer's registered trademark, if any; 4. Name of the model and serial number, if any; 5. Country of manufacture.	Overall acceptance has to be evaluated during the national approval process.	N/A

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National Differences to IEC 60950-1:2005 + A1:2009			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.2.1	The following shall be added to the clause: All the instructions and warnings related to safety shall also be written in the Hebrew language.	Overall acceptance has to be evaluated during the national approval process.	N/A
2	The clause is applicable with the following additions:	Overall acceptance has to be evaluated during the national approval process.	N/A
2.9.4	The following shall be added at the beginning of the clause: In Israel, according to the Electricity Law, 1954, and the Electricity Regulations (Earthing and means of protection against electricity of voltages up to 1,000V) 1991, seven means of protection against electrocution are permitted, as follows: 1) TN-S - Network system earthing; TN-C-S - Network system earthing; 2) TT - Network system earthing; 3) IT - Network Insulation Terre; 4) Isolated transformer; 5) Safety extra low voltage (SELV or ELV); 6) Residual current circuit breaker (30 mA = I _Δ); 7) Reinforced insulation; Double insulation (class II)	Added.	P
2.201	Prevention of electromagnetic interference - Prior to carrying out the tests in accordance with the clauses of this Standard, the compliance of the apparatus with the relevant requirements specified in the appropriate part of the Standard series, SI 961, shall be checked. <u>The apparatus shall meet the requirements in the appropriate part of the Standard series, SI 961.</u> - If there are components in the apparatus for the prevention of electromagnetic interference, these components shall not reduce the safety level of the apparatus as required by this Standard.	Overall acceptance has to be evaluated during the national approval process.	N/A
3	The clause is applicable with the following additions:	Added.	N/A
3.2.1.1	Connection to an a.c. mains supply After the note, the following note shall be added: Note: In Israel, the feed plug shall comply with the requirements of Israel Standard SI 32 Part 1.1.	Overall acceptance has to be evaluated during the national approval process.	N/A

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National Differences to IEC 60950-1:2005 + A1:2009			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.2	Connection to a d.c. mains supply At the end of the first paragraph, the following note shall be added: Note: At the time of issue of this Standard, there is no Israel Standard for connection accessories to d.c.		N/A
Annex P	Normative references (List of relevant Israel Standards that have been inserted in place of some of the International Standards)		N/A

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National Differences to IEC 60950-1:2005 + A1:2009			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 60950-1 KOREA NATIONAL DIFFERENCES Information technology equipment – Safety – Part 1: General requirements			
Differences according to.....: K 60950-1			

1.5.101	Plugs for the connection of the apparatus to the supply mains shall comply with the Korean requirement (KSC 8305)	No power cord provided.	N/A
8	EMC The apparatus shall comply with the relevant CISPR standards.	The CISPR requirements have to be considered during national approval.	N/A

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National Differences			
Clause	Requirement + Test	Result - Remark	Verdict
	China National Differences		P
	Corresponding National Standard: GB4943.1-2011		P
1.1.2	Revise the third dashed paragraph as: —equipment intended to be used in vehicles, on board ships or aircraft, at altitudes greater than 5000m;	Unit was applied for tropical climates and operated altitude 5000m.	P
1.4.5	At the end of the third dashed paragraph ,added following paragraph: If the equipment is intended for direct connection to an AC mains supply, the tolerances on RATED VOLTAGE shall be taken as +10%,-10% unless a wider tolerance is declared by the manufacturer. Delete the contents which behind the first dash.	Complied.	P
1.4.12.1	Tma in clause 1.4.12.1 amended as: Tma: is the maximum ambient temperature permitted by the manufacturer's specification, or 35 °C, whichever is greater. Add note 1: for equipment not to be operated at tropical climatic conditions, Tma: is the maximum ambient temperature permitted by the manufacturer's specification, or 25 °C, whichever is greater. Add note 2: for equipment is to be operated at 2000m-5000m above sea leave, its temperature test conditions and temperature limits are considered.	Unit was applied for tropical climates and operated altitude Not over 5000m.	P
1.5.2	Add a note behind the first dash : A component used shall comply with related requirements corresponding altitude of 5000m.	Complied.	P
1.7	Add one paragraph before the last paragraph: The required marking and instruction should be given in normative Chinese unless otherwise specified.	Overall acceptance has to be evaluated during the national approval process.	N/A
1.7.1	Based on the AC mains supply of China, the RATED VOLTAGE should be 220V (single phase) or 380V (three-phases) for single rated voltage, for RATED VOLTAGE RANGE, it should cover 220V or 380V (three-phases), for multiple RATED VOLTAGES, one of them should be 220V or 380V (three-phases) and set on 220V or 380V(three-phases)when manufactured. And the RATED FREQUENCY or RATED FREQUENCY RANGE should be 50Hz or include 50Hz.	Complied.	P

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National Differences			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.2.1	Add requirements of warning for equipment intended to be used at altitudes not exceeding 2000m or at non-tropical climate regions: For equipment intended to be used at altitude not exceeding 2000m, a warning label containing the following or a similar appropriate wording or a symbol as in annex DD shall fixed to the equipment at readily visible place. "Only used at altitude not exceeding 2000m."  If only symbol used, the explanation of the symbol shall be contained in the instruction manual. For equipment intended to be used in not-tropical climate regions, a warning label containing the following or a similar appropriate wording or a symbol as in annex DD shall fixed to the equipment at readily visible place. "Only used in not-tropical climate regions."  If only symbol used, the explanation of the symbol shall be contained in the instruction manual. The above statements shall be given in a language acceptable to the regions where the apparatus is intended to be used.	Unit was applied for tropical climates and operated altitude Not over 5000m.	P
2.7.1	Amended as: Protection in PRIMARY CIRCUITS against overcurrent short-circuits and earth faults shall be provided as an integral part of the equipment except special provisions. And the protective device shall meet the requirement of Clause 5.3. Delete note of Clause 2.7.1.	Complied.	P
2.9	Humidity conditioning This section applies for equipment to be operated at tropical climatic conditions, humidity conditioning dealt with tropical climatic conditions. For equipment not to be operated at tropical climatic conditions, its humidity conditioning complies with rules of CTL 624/07.	Considered.	P

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National Differences			
Clause	Requirement + Test	Result - Remark	Verdict
2.9.2	First section of Clause 2.9.2 amended as two sections: Where required by 2.9.1, 2.10.8.3, 2.10.10 or 2.10.11, humidity conditioning is conducted for 120 h in a cabinet or room containing air with ambient temperature $40\pm 2^{\circ}\text{C}$ and a relative humidity of $(93\pm 3)\%$. During this conditioning the component or subassembly is not energized. For equipment not to be operated at tropical climatic conditions, Where required by 2.9.1, 2.10.8.3, 2.10.10 or 2.10.11, humidity conditioning is conducted for 48 h in a cabinet or room containing air with a relative humidity of $(93\pm 3)\%$. The temperature of the air, at all places where samples can be located, is maintained within 2°C of any convenient value t between 20°C and 30°C such that condensation does not occur. Due to pretreatment of equipment operated at high altitude area is humidity conditioning withstand hot shock, specific requirements are to be considered. Add note: For equipment to be operated at 2000 m - 5000m above sea level, assessment and requirement of humidity conditioning for Insulation material properties are considered.	Unit was applied for tropical climates and operated altitude Not over 5000m.	P
2.10.3.1	Change the third paragraph of Clause 2.10.3.1 to be: These requirements apply for equipment to be operated up to 2000 m above sea level. For equipment to be operated at more than 2000 m above sea level and up to 5000m above sea level, the minimum CLEARANCE shall be multiplied by the factor 1.48 corresponding altitude of 5000m given in Table A.2 of GB/T 16935.1. For equipment to be operated at more than 5000 m above sea level, the minimum CLEARANCE shall be multiplied by the factor given in Table A.2 of GB/T 16935.1. Linear interpolation is permitted between the nearest two points in Table A.2. The calculated minimum CLEARANCE using this multiplication factor shall be rounded up to the next higher 0,1 mm increment.	Unit was applied for tropical climates and operated altitude Not over 5000m.	P
2.10.3.3& 2.10.3.4	Add "(applicable for altitude up to 2000m)" in header of Table 2K、2L and 2M.	Add.	P

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National Differences			
Clause	Requirement + Test	Result - Remark	Verdict
2.10.3.4	Add a new section above Table 2K and in Clause 2.10.3.4: minimum CLEARANCES determined by above rules apply for equipment to be operated up to 2000m above sea level. For equipment to be operated at 2000 m - 5000m above sea level, the minimum CLEARANCE shall be multiplied by the factor 1.48 corresponding altitude of 5000m given in Table A.2 of GB/T 16935.1. For equipment to be operated at more than 5000 m above sea level, the minimum CLEARANCE shall be multiplied by the factor given in Table A.2 of GB/T 16935.1. Add "(apply for up to 2000m)" in header of Table 2K、2L and 2M.	Add.	P
3.2.1.1	Add on paragraph before the last paragraph: Plugs connected to AC mains supply shall comply with GB 1002 or GB 1003 or GB/T 11918 as applicable.	Added.	N/A
4.2.8	Clause 4.2.8 cathode ray tubes quoted Clause 18 of GB8898-2011. Delete note of Clause 4.2.8.	Deleted. No cathode ray tubes provided.	N/A
Annex E	Last section amended as: For comparison of winding temperatures determined by the resistance method of this annex with the temperature limits of Table 4B, 35 °C shall be added to the calculated temperature rise. And add note: for equipment not to be operated at tropical climatic conditions, 25 °C shall be added to the calculated temperature rise to compare with the temperature of Table 4B.	Not apply for.	N/A



National Differences			
Clause	Requirement + Test	Result - Remark	Verdict
G.6	Change the second section of Clause G.6 to be: for equipment to be operated at 2000 m - 5000m above sea level, the minimum CLEARANCE shall be multiplied by the factor 1.48 corresponding altitude of 5000m given in Table A.2 of GB/T 16935.1. For equipment to be operated at more than 5000 m above sea level, the minimum CLEARANCE shall be multiplied by the factor given in Table A.2 of GB/T 16935.1. Linear interpolation is permitted between the nearest two points in Table A.2. The calculated minimum CLEARANCE using this multiplication factor shall be rounded up to the next higher 0,1 mm increment. A component that has been demonstrated to comply with National 、 Industry standards or the relevant national standard shall be subjected to the applicable tests of this standard as part of the equipment.	Changed.	N/A
Annex BB	Amended as : The differences between Chinese national standards GB 4943.1-2011 and GB 4943-2001.	Amended.	P
Annex DD	Added annex DD: Instructions of the new safety warning labels.	Unit was applied for tropical climates and operated altitude Not over 5000m.	P
Other amend-ments	In accordance with the relevant CTL decisions and the amendments of IEC 60950-1, the specific requirements or mistakes in IEC standard are corrected or editorially modified in this part, Including clause 1.7, 2.1.1.7, 2.9.2, Table 2H, Figure 2H, F.8, F.9, M.3 and Annex U.	Added. Overall acceptance has to be evaluated during the national approval process.	N/A

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National Differences			
Clause	Requirement + Test	Result - Remark	Verdict
Quoting standards and reference documents	The principles of quoting and referring to other standards in Annex P and reference documents of IEC 60950-1 are as follows: If the date of the reference document is given, only that edition applies, excluding any subsequent corrigenda and amendments. However, parties to agreements based on this part are encouraged to investigate the possibility of applying the most recent editions of the reference documents. For undated references, the latest edition of the referenced document applies, including any corrigenda and amendments. For the usage of international standards in Chinese national standards and industry standards is various, in the aim of achieving easy operation and based on the requirements of GB/T 1.1 and GB/T 20000.2, when quoting an entire international standard in the normative quoting files and reference documents of Annex P of this part, the principles of quotation are as follows: - If there is no national standard or industry standard corresponding to the international standard, then the international standard is quoted; - If there is national standard or industry standard corresponding to the international standard, then either the national or industry standard is quoted; - If the date of the national standard or industry standard is not given, the latest edition of the standard applies; - The national standard or industry standard number, corresponding international standard number and the consistency level code should be identified in parentheses behind the listed national standard or industry standard. When quoting several chapters or clauses of the international standard, the principles of quotation are as follows:	Overall acceptance has to be evaluated during the national approval process.	N/A

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National Differences			
Clause	Requirement + Test	Result - Remark	Verdict
	- If there is no national standard or industry standard corresponding to the international standard, then the international standard is quoted; - If there is national standard or industry standard corresponding to the international standard, then either the national or industry standard is quoted. Meanwhile, in order to retain the relevant information on international standards, informative annex CC is increased, which gives the table about the comparison of the normative quoting files and reference documents in IEC 60950-1: 2005.		

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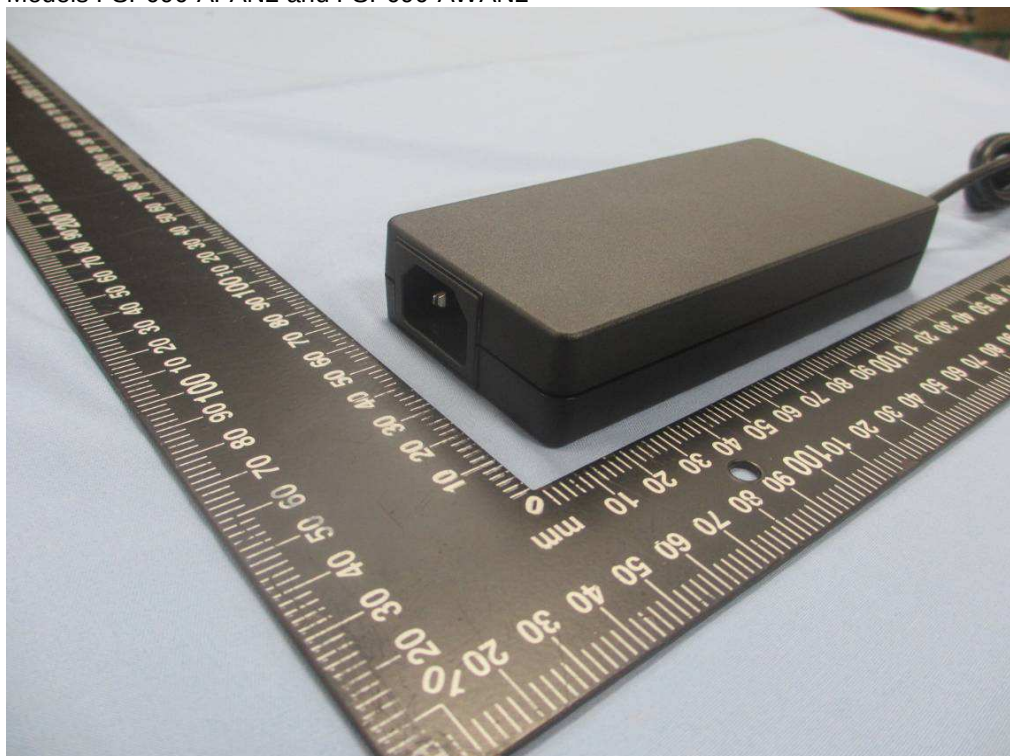
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Report No.: 50157059 001

Product: Switching Power Adapter

Type Designation: FSP090-AFAN2, FSP090-AFBN2 FSP090-AWAN2, FSP090-AWBN2, FSP090-ABAN2, FSP090-ABBN2, FSP090-ABBN2-M, FSP090-AAAN2, FSP090-AABN2, HPE090-AWAN2

Models FSP090-AFAN2 and FSP090-AWAN2



Models FSP090-AFAN2 and FSP090-AWAN2



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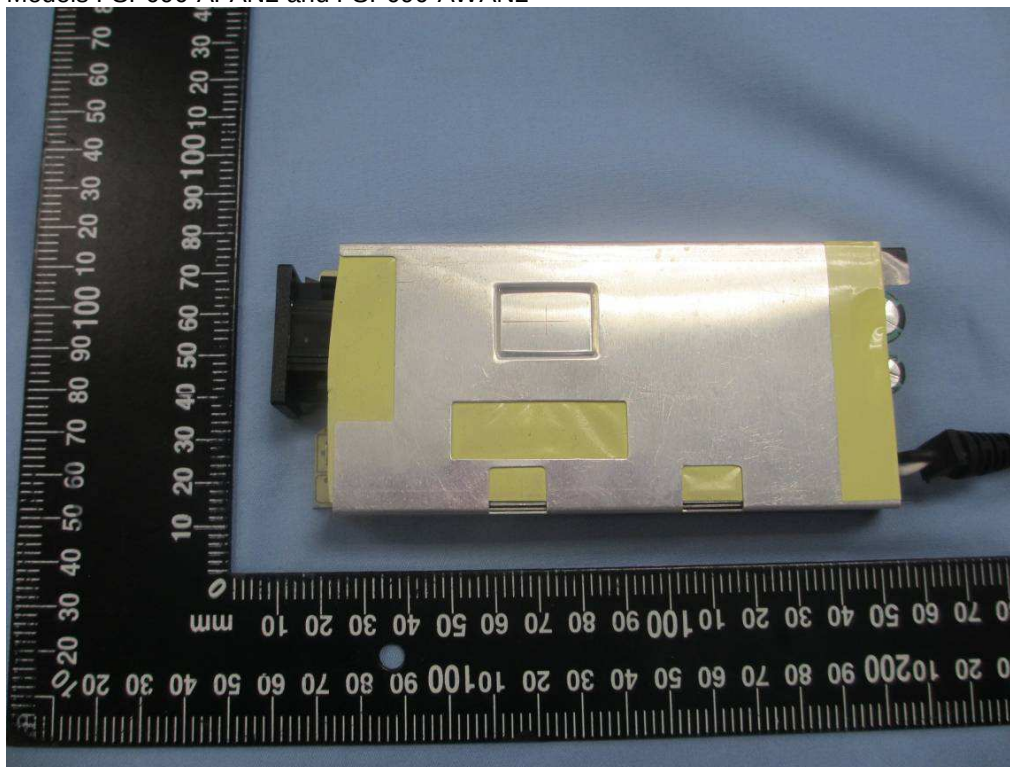
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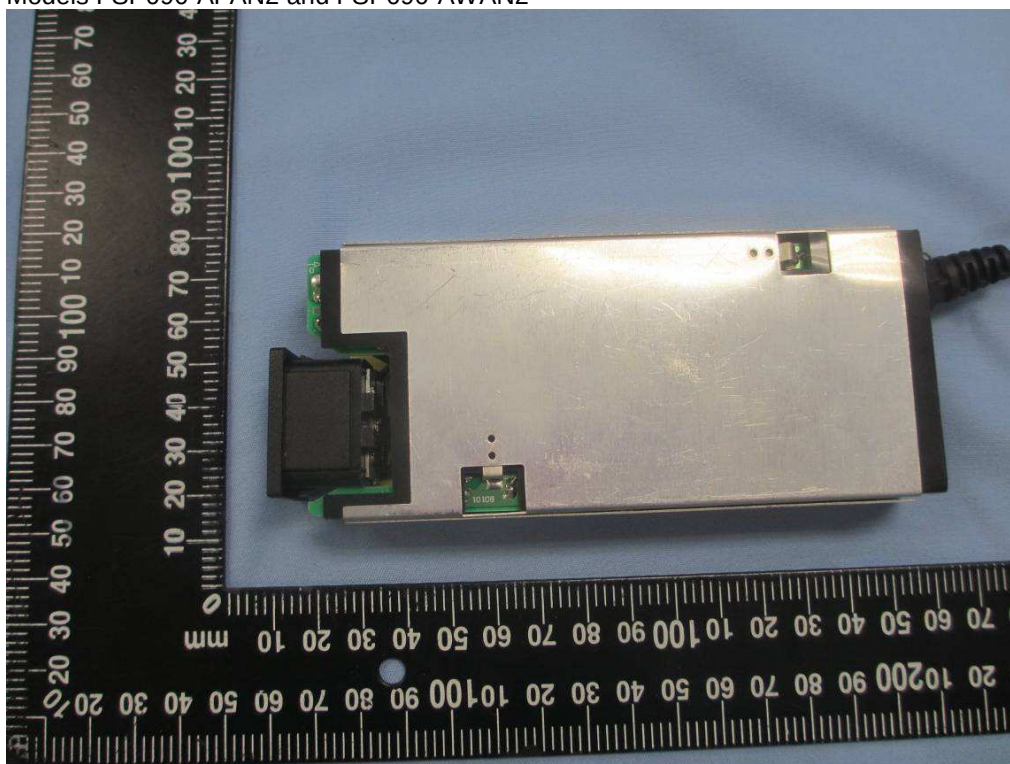
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Models FSP090-AFAN2 and FSP090-AWAN2



Models FSP090-AFAN2 and FSP090-AWAN2



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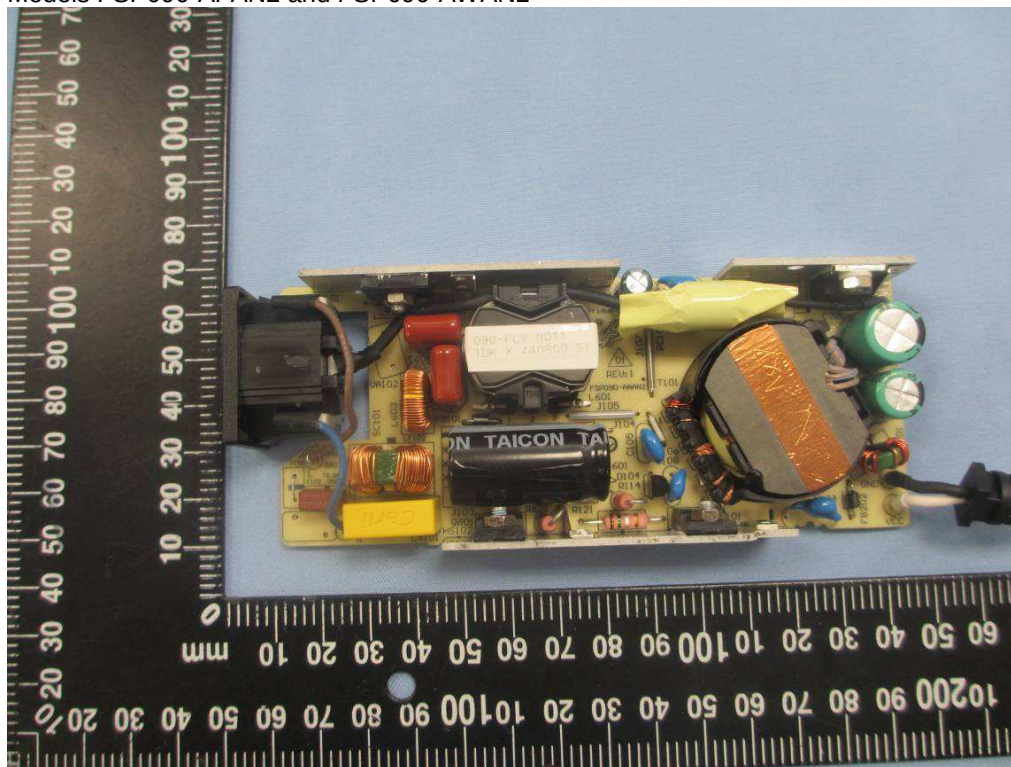
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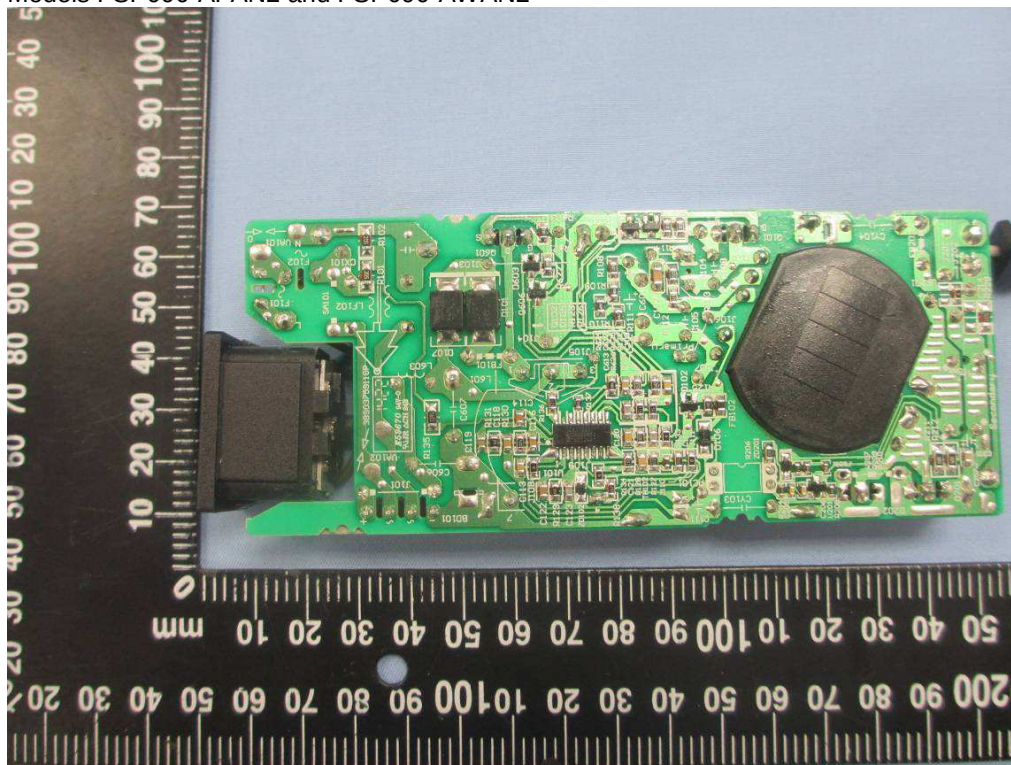
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Models FSP090-AFAN2 and FSP090-AWAN2



Models FSP090-AFAN2 and FSP090-AWAN2



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Type Designation: FSP090-AFAN2, FSP090-AFBN2 FSP090-AWAN2, FSP090-AWBN2, FSP090-ABAN2, FSP090-ABBN2, FSP090-ABBN2-M, FSP090-AAAN2, FSP090-AABN2, HPE090-AWAN2

Models FSP090-AFBN2 and FSP090-AWBN2



Models FSP090-AFBN2 and FSP090-AWBN2



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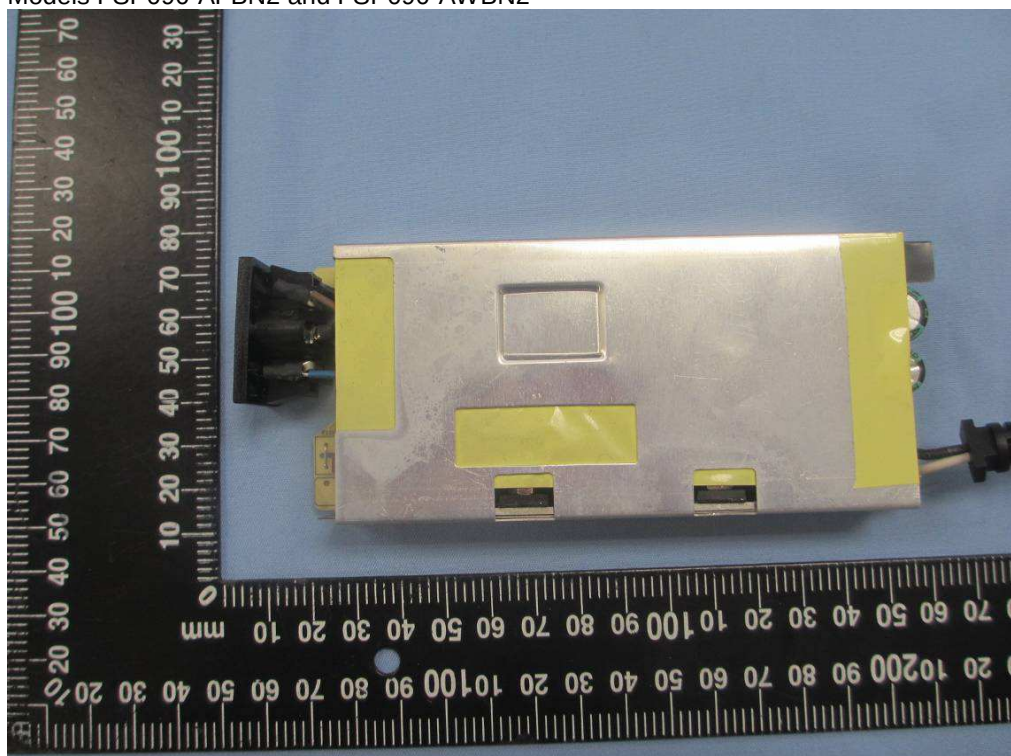
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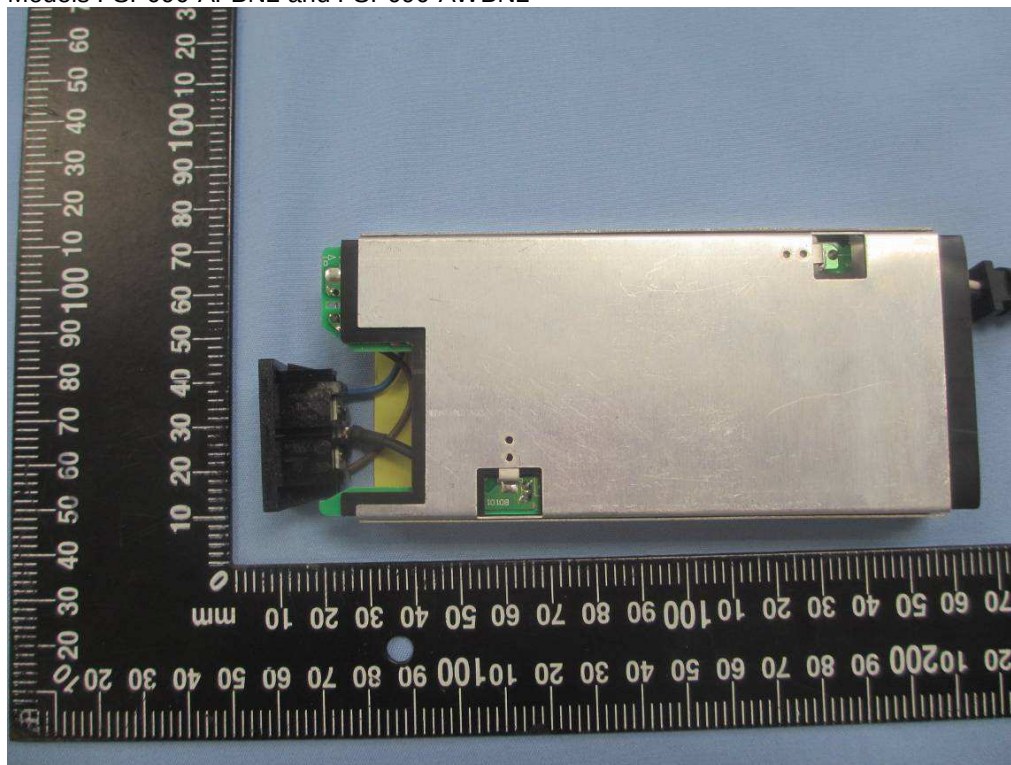
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Type Designation: FSP090-AFAN2, FSP090-AFBN2 FSP090-AWAN2, FSP090-AWBN2, FSP090-ABAN2, FSP090-ABBN2, FSP090-ABBN2-M, FSP090-AAAN2, FSP090-AABN2, HPE090-AWAN2

Models FSP090-AFBN2 and FSP090-AWBN2



Models FSP090-AFBN2 and FSP090-AWBN2



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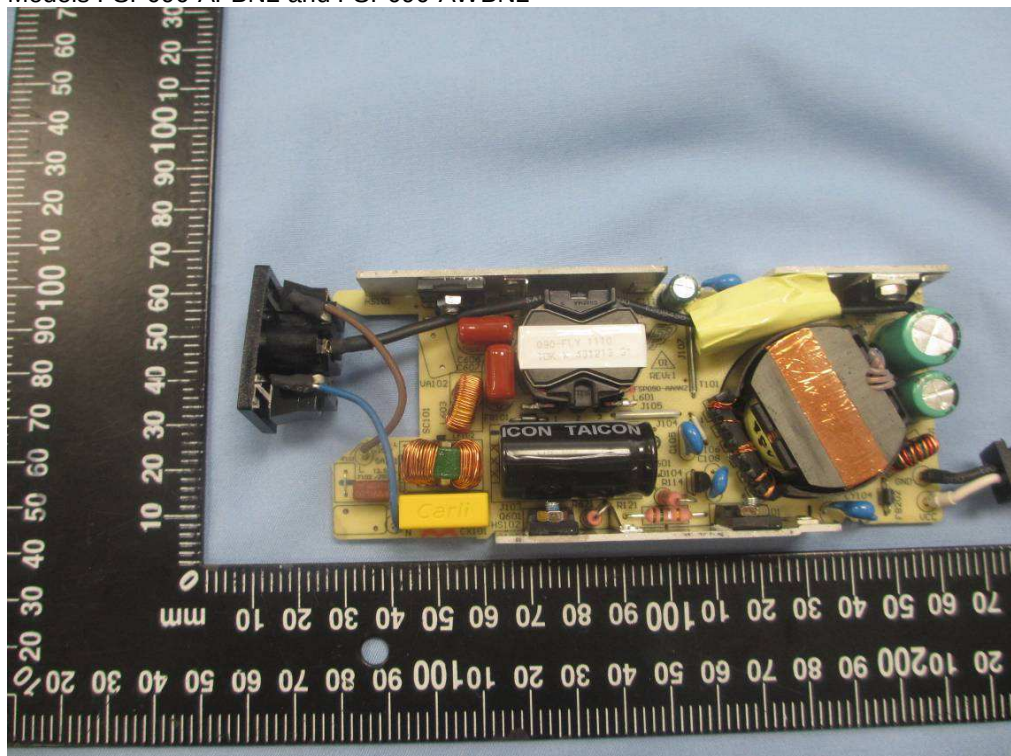
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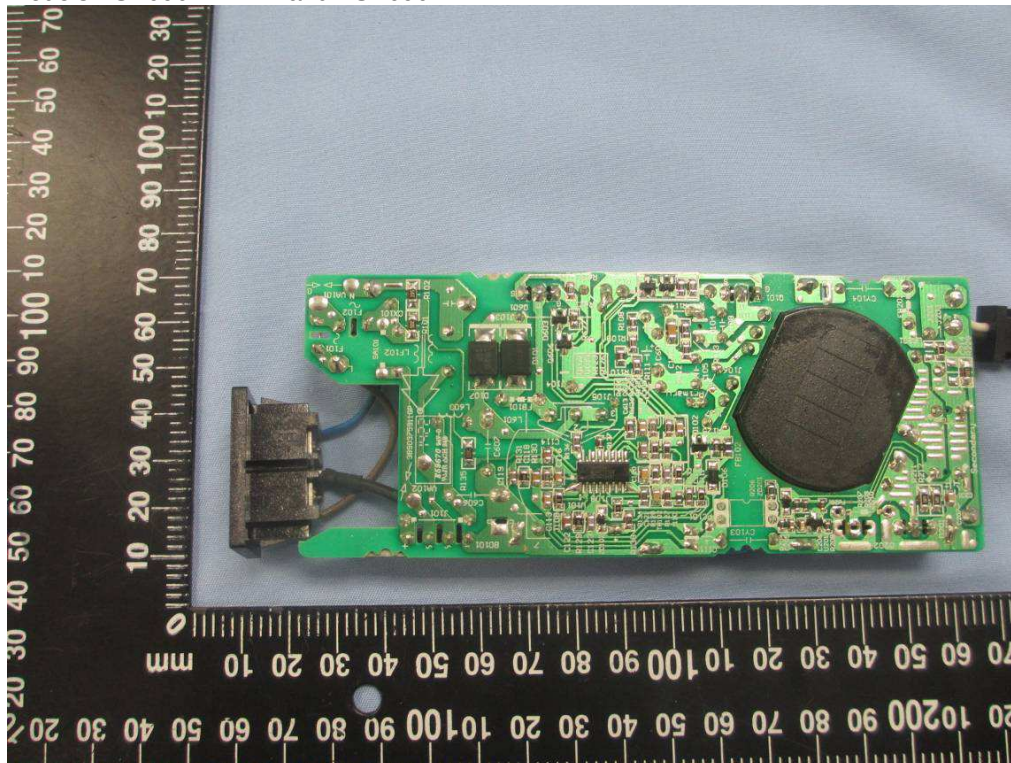
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Models FSP090-AFBN2 and FSP090-AWBN2



Models FSP090-AFBN2 and FSP090-AWBN2



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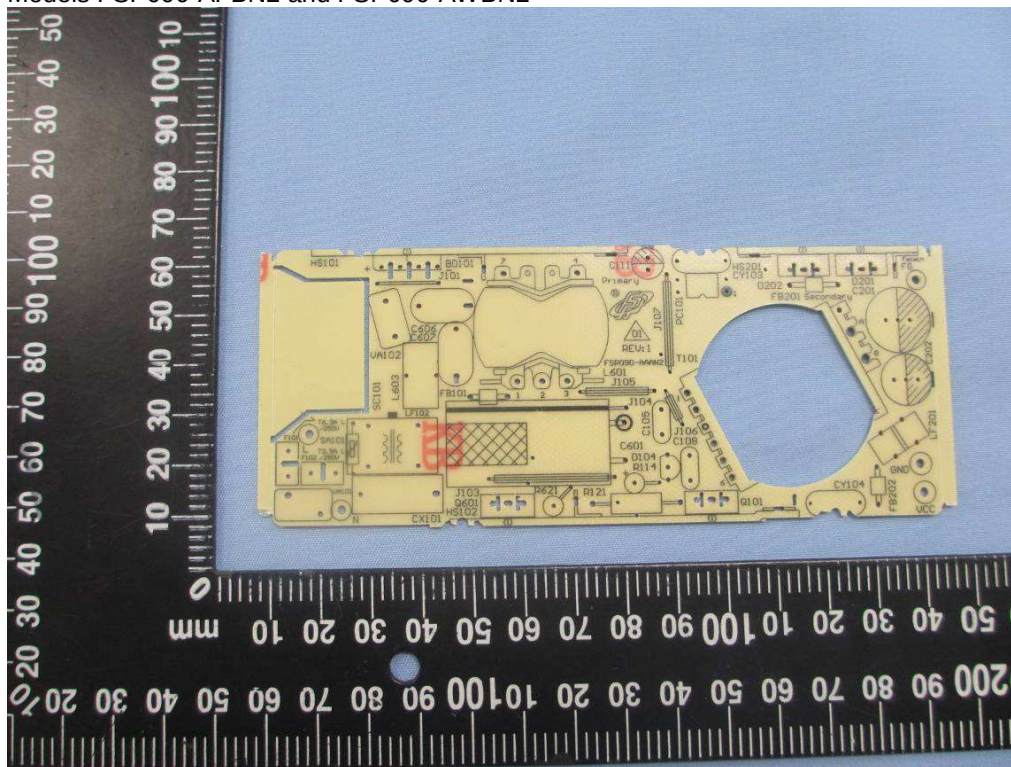
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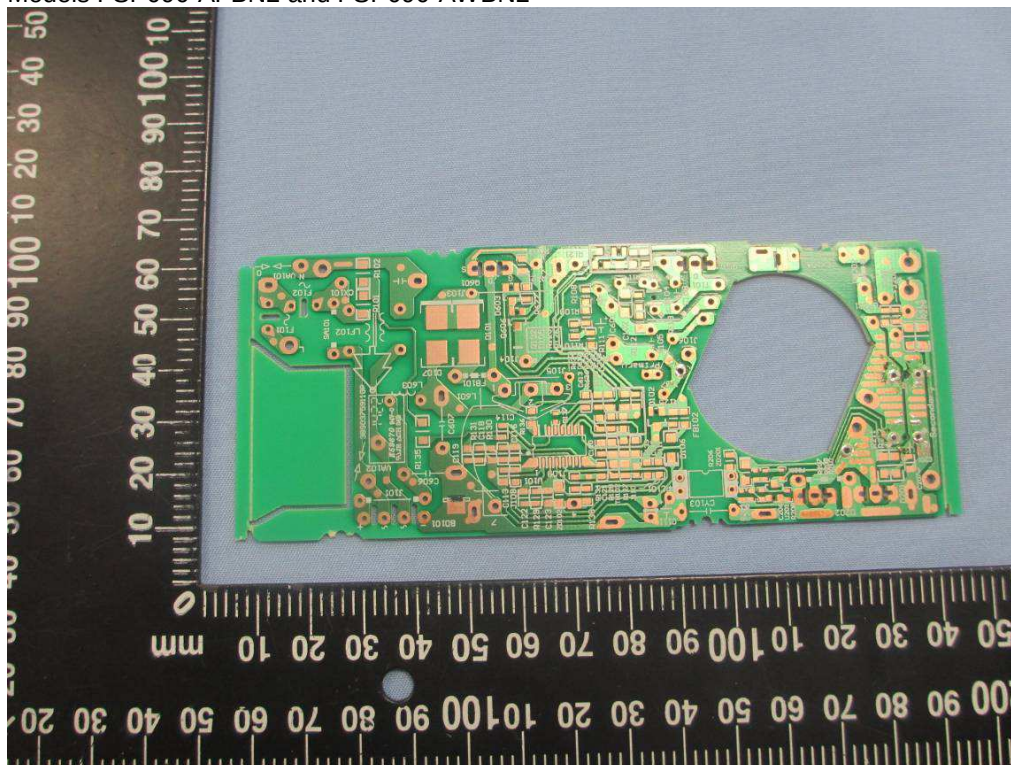
Product: Switching Power Adapter

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Models FSP090-AFBN2 and FSP090-AWBN2



Models FSP090-AFBN2 and FSP090-AWBN2



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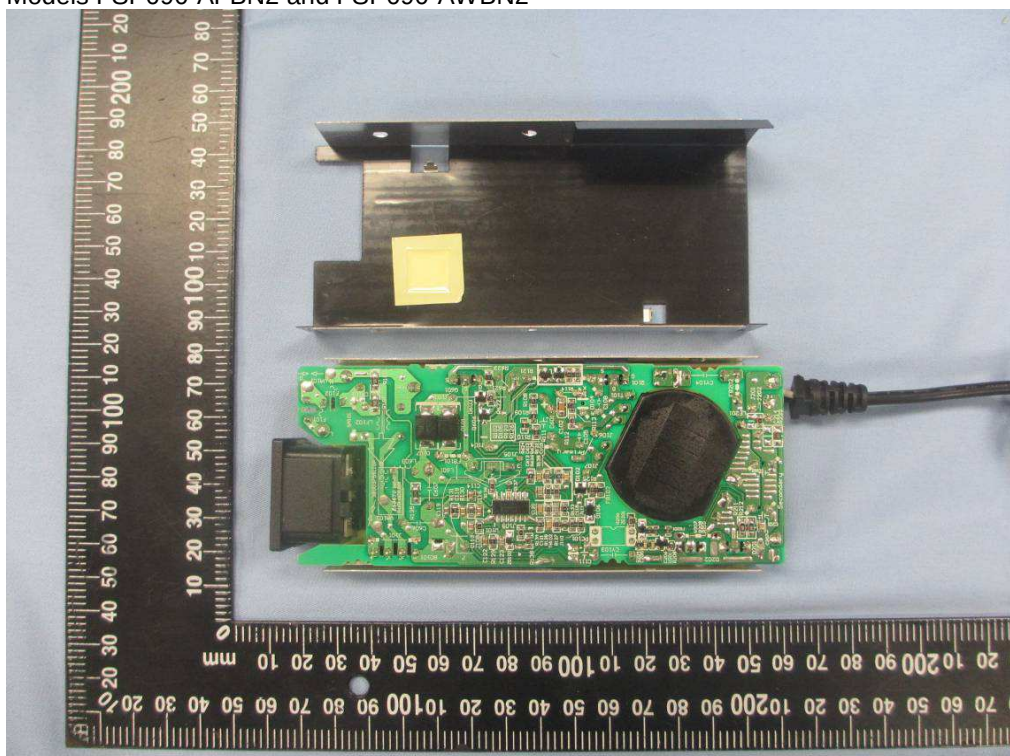
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Models FSP090-AFBN2 and FSP090-AWBN2



Models FSP090-AFBN2 and FSP090-AWBN2



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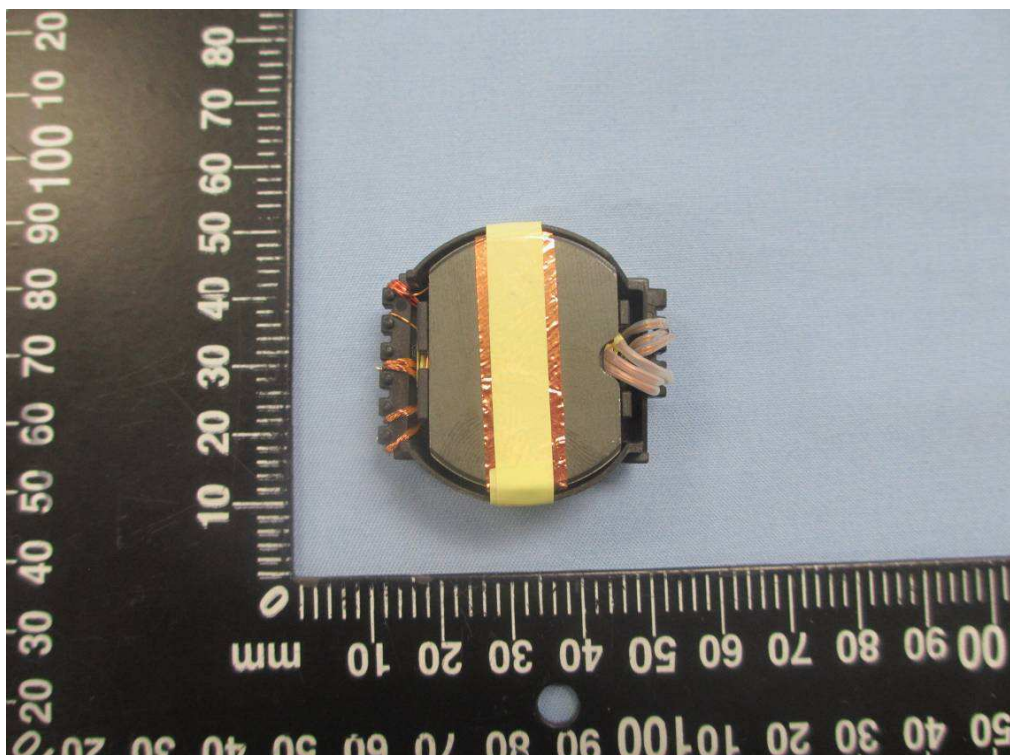
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Report No.: 50157059 001

Product: Switching Power Adapter

Type Designation: FSP090-AFAN2, FSP090-AFBN2 FSP090-AWAN2, FSP090-AWBN2, FSP090-ABAN2, FSP090-ABBN2, FSP090-ABBN2-M, FSP090-AAAN2, FSP090-AABN2, HPE090-AWAN2

Models FSP090-AFBN2 and FSP090-AWBN2



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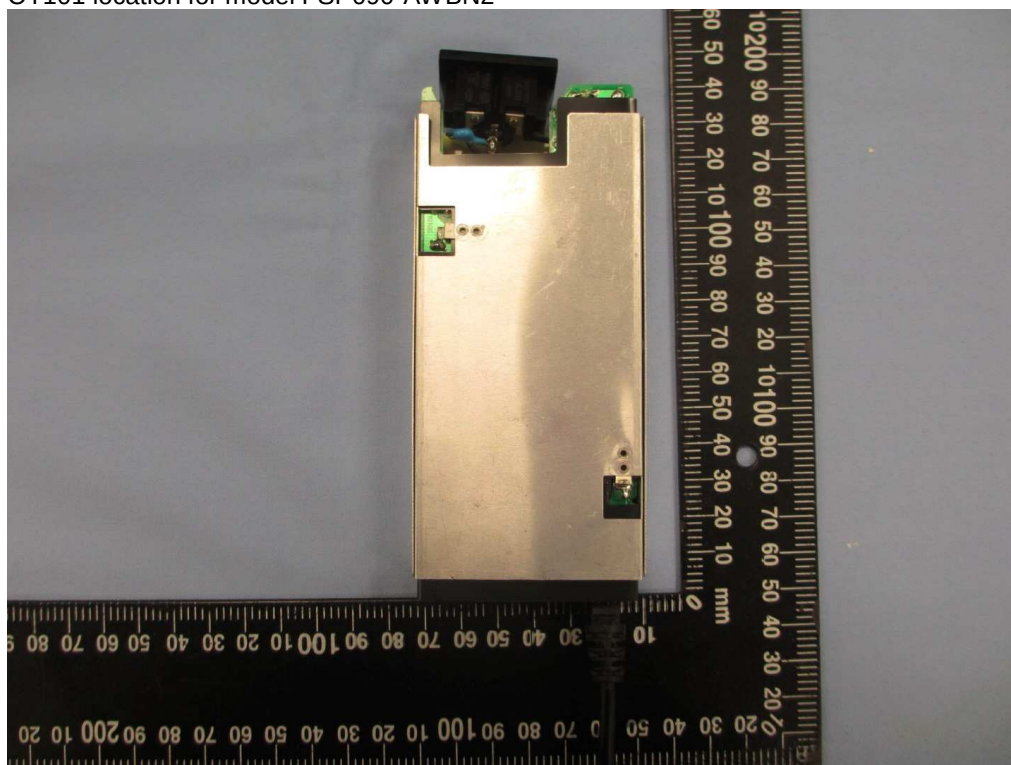
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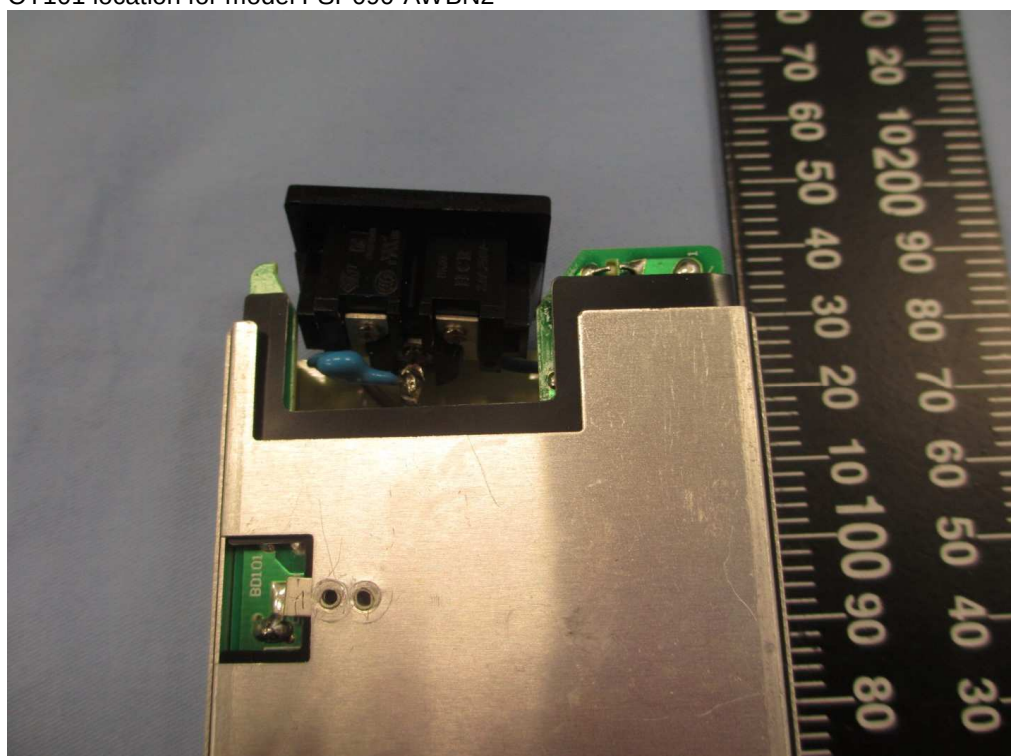
Product: Switching Power Adapter

Type Designation: FSP090-AFAN2, FSP090-AFBN2 FSP090-AWAN2, FSP090-AWBN2, FSP090-ABAN2, FSP090-ABBN2, FSP090-ABBN2-M, FSP090-AAAN2, FSP090-AABN2, HPE090-AWAN2

CY101 location for model FSP090-AWBN2



CY101 location for model FSP090-AWBN2



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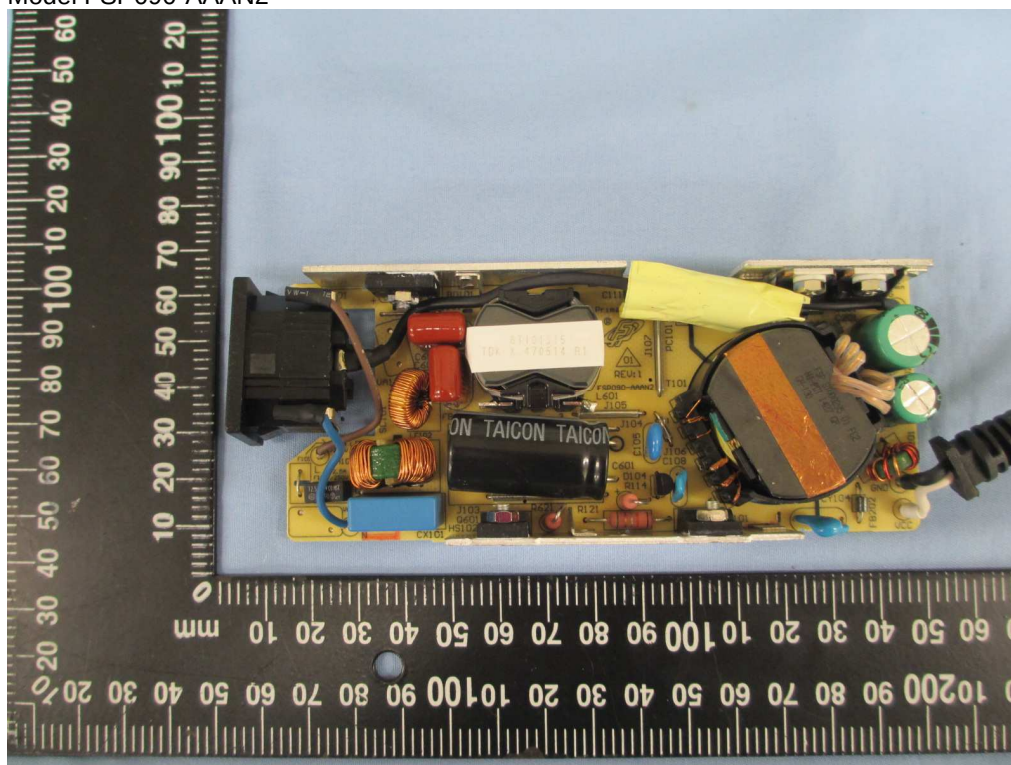
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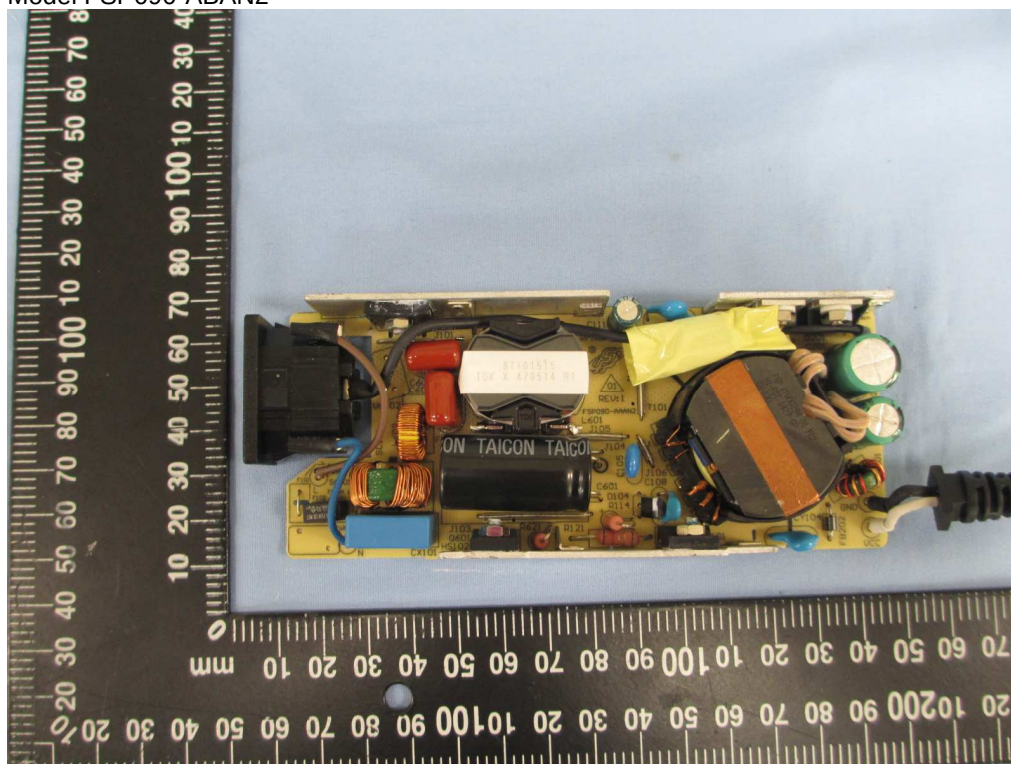
Product: Switching Power Adapter

Type Designation: FSP090-AFAN2, FSP090-AFBN2 FSP090-AWAN2, FSP090-AWBN2, FSP090-ABAN2, FSP090-ABBN2, FSP090-ABBN2-M, FSP090-AAAN2, FSP090-AABN2, HPE090-AWAN2

Model FSP090-AAAN2



Model FSP090-ABAN2



Rev. 0



Test Report issued under the responsibility of:



TEST REPORT IEC 60950-1 Information technology equipment – Safety – Part 1: General requirements	
Report Number.	11037301 010
Date of issue	03 November, 2017
Total number of pages.....	7
Applicant's name	FSP Group Inc.
Address	No. 22, Jianguo E. Road, Taoyuan 330 Taiwan
Test specification:	
Standard	IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013
Test procedure.....	CB Scheme
Non-standard test method.....	N/A
Test Report Form No.....	IEC60950_1F
Test Report Form(s) Originator.....	SGS Fimko Ltd
Master TRF.....	Dated 2014-02
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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 Adapter	
Trade Mark..... :		 (trademark of FSP Group Inc.)	
Manufacturer..... :		Same as applicant	
Model/Type reference..... :		FSP090-ABBN2-M	
Ratings..... :		AC input: 100-240V~, 1.2A, 50-60Hz DC output: 19Vdc, 4.74A	
Testing procedure and testing location:			
☒	CB Testing Laboratory:	TÜV Rheinland Taiwan Ltd., Taichung Laboratory	
Testing location/ address		No. 9, Ln. 36, Sec. 3, Minsheng Rd., Daya District, Taichung City, 428 Taiwan	
☐	Associated CB Testing Laboratory:		
Testing location/ address			
Tested by (name + signature)..... :		Jimmy Lu Project handler	
Approved by (name + signature)..... :		Andy Lin Reviewer	
☐	Testing procedure: TMP/CTF Stage 1:		
Testing location/ address			
Tested by (name + signature)..... :			
Approved by (name + signature)..... :			
☐	Testing procedure: WMT/CTF Stage 2:		
Testing location/ address			
Tested by (name + signature)..... :			
Witnessed by (name + signature)..... :			
Approved by (name + signature)..... :			
☐	Testing procedure: SMT/CTF Stage 3 or 4:		
Testing location/ address			
Tested by (name + signature)..... :			
Witnessed by (name + signature)..... :			
Approved by (name + signature)..... :			
Supervised by (name + signature)			

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

- None

Summary of testing:**Tests performed (name of test and test clause):**

- No test sample request.

Testing location:

No test was considered necessary.

Summary of compliance with National Differences**List of countries addressed:**

EU Group Differences, EU Special National Conditions, US.

Explanation of used codes: US = United States of America.

*(CA, DE, DK, FI, GB, IL, KR, SE, SI), **(AU, CN, CH, ES, IE, NO), ***(BY, JP)

Explanation of used codes:

* (CA = Canada, DE = Germany, DK=Denmark, FI = Finland, GB = United Kingdom, IL = Israel, KR = Republic of Korea, SE = Sweden, SI = Slovenia)

**(AU = Australia, CN = China, CH = Switzerland, ES = Spain, IE = Ireland, NO = Norway),

*** (BY = Belarus, JP = Japan)

* National differences to IEC 60950-1:2005+A1:2009 evaluated.

** National differences to IEC 60950-1:2005 evaluated.

*** National differences to IEC 60950-1:2001 evaluated.

☒ **The product fulfils the requirements of EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013.**
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.



TRF No. IEC60950_1F

Test item particulars.....:	
Equipment mobility.....:	☒ movable ☐ hand-held ☒ transportable ☐ stationary ☐ for building-in ☐ direct plug-in
Connection to the mains.....:	☒ pluggable equipment ☒ type A ☐ type B ☐ permanent connection ☒ detachable power supply cord ☐ non-detachable power supply cord ☐ not directly connected to the mains
Operating condition.....:	☒ continuous ☐ rated operating / resting time:
Access location	☒ operator accessible ☐ restricted access location
Over voltage category (OVC)	☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV ☐ other:
Mains supply tolerance (%) or absolute mains supply values ±10	
Tested for IT power systems	☒ Yes ☐ No
IT testing, phase-phase voltage (V)	230V (For Norway)
Class of equipment	☒ Class I ☐ Class II ☐ Class III ☐ Not classified
Considered current rating of protective device as part of the building installation (A) 16A (20A for North American)	
Pollution degree (PD)	☐ PD 1 ☒ PD 2 ☐ PD 3
IP protection class	IPX0
Altitude during operation (m)	Not over 5000m
Altitude of test laboratory (m)	Not over 2000m
Mass of equipment (kg)	Approx. 0.36kg
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 IECCE 02:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided.....:

☒ **Yes**☐ **Not applicable**

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies)		1. ShenZhen HuiLi Electronics CO., LTD Block C, Building 4,6,7,8,9,10,11, County 73, 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,FuYong Town, BaoAn Dist.,ShenZhen City,Guangdong, P.R. China
		3. Wuxi SPI Technology Co., Ltd. No. 96, XinmeiRoad, New District, Wuxi city, Jiangsu, P.R. China
		4. ZHONGHAN SCIENCE & TECH CO. LTD Building 9, Section B, JuYuan Industrial Zone, TangWei Village, FuYong Town, BaoAn District, ShenZhen City, Guangdong, P.R. China
		5. Wuxi ZhongHan Technology Co., Ltd. Block 106-E, Wuxi Nation HI-TECH Industrial, Development Zone, Wuxi City, Jiangsu, Province, P.R. China
		6. ShenZhen HuiLi Electronics CO., LTD Block C, Building 4,6,7,8,9,10,11, County 73, Xin'an,Bao'an,Shenzhen, Guangdong(Block A,Building 3,No. 5185, YeeYuan Rd., County 74,Bao'an), P.R. China

General product information:

Description of change(s):

1. Add additional model **FSP090-ABBN2-M**, which is identical to approved model FSP090-ABBN2 except for model designation.

For the above described change(s) the following was considered to be necessary:

Change	Testing	Comments
1.	• N/A	For label drawing see copy of marking plates and sub-clauses.

History of amendments and modifications:

Ref. No. 11037301 001, dated 25 June, 2014 (original test report)
Ref. No. 11037301 002, dated 19 Sept., 2014 (modification)

TRF No. IEC60950_1F

Ref. No. 11037301 003, dated 09 Jan., 2015 (amendment)
Ref. No. 11037301 004, dated 26 Aug., 2015 (amendment)
Ref. No. 11037301 005, dated 05 Oct., 2015 (modification)
Ref. No. 11037301 006, dated 19 Nov., 2015 (amendment)
Ref. No. 11037301 007, dated 08 Jan., 2016 (amendment)
Ref. No. 11037301 008, dated 19 May, 2016 (amendment)
Ref. No. 11037301 009, dated 08 Aug., 2016 (modification)
Ref. No. 11037301 010, dated 03 Nov., 2017 (amendment)

Abbreviations used in the report:

- normal conditions	N.C.	- single fault conditions	S.F.C
- functional insulation	OP	- basic insulation	BI
- double insulation	DI	- supplementary insulation	SI
- between parts of opposite polarity	BOP	- reinforced insulation	RI

Indicate used abbreviations (if any)

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.1	Power rating and identification markings	The power rating and identification marking are on copy of marking plate.	P
1.7.1.1	Power rating marking	See copy of marking plate.	P
	Multiple mains supply connections.....:		N/A
	Rated voltage(s) or voltage range(s) (V)	See copy of marking plate.	P
	Symbol for nature of supply, for d.c. only		N/A
	Rated frequency or rated frequency range (Hz)	See copy of marking plate.	P
	Rated current (mA or A)	See copy of marking plate.	P
1.7.1.2	Identification markings	See below.	P
	Manufacturer's name or trade-mark or identification mark	See copy of marking plate.	P
	Model identification or type reference	See copy of marking plate.	P
	Symbol for Class II equipment only		N/A
	Other markings and symbols	Additional symbols or markings do not give rise to misunderstanding.	P
1.7.1.3	Use of graphical symbols	Symbol used complying with IEC 60417.	P

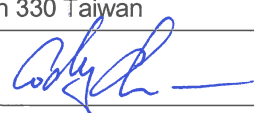
TRF No. IEC60950_1F



Test Report issued under the responsibility of:



TEST REPORT IEC 60950-1 Information technology equipment – Safety – Part 1: General requirements	
Report Number.	11037301 009
Date of issue	08 August, 2016
Total number of pages	8
Applicant's name	FSP Group Inc.
Address	No. 22, Jianguo E. Road, Taoyuan 330 Taiwan
Test specification:	
Standard	IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013
Test procedure	CB Scheme
Non-standard test method	N/A
Test Report Form No.	IEC60950_1F
Test Report Form(s) Originator	SGS Fimko Ltd
Master TRF	Dated 2014-02
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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 Adapter	
Trade Mark :	 (Trademark of FSP)	
Manufacturer :	Same as applicant	
Model/Type reference :	1) FSP090-ABAN2, FSP090-ABBN2 2) FSP090-AAAN2, FSP090-AABN2	
Ratings :	AC input: 100-240V~, 1.2A, 50-60Hz DC output: 1) 19Vdc, 4.74A; 2) 24Vdc, 3.75A	
Testing procedure and testing location:		
☒ CB Testing Laboratory:	TÜV Rheinland Taiwan Ltd., Taichung Laboratory	
Testing location/ address	TMP procedure used. For address of testing location see "Testing procedure: TMP/CTF Stage 1" below	
☐ Associated CB Testing Laboratory:		
Testing location/ address		
Tested by (name + signature)		
Approved by (name + signature)		
☒ Testing procedure: TMP/CTF Stage 1:	See below	
Testing location/ address	FSP Group Inc. No. 22, Jianguo E. Road, Taoyuan 330 Taiwan	
Tested by (name + signature)	Cody Chen	
Approved by (name + signature)	Jason Lin	Jason Lin
☐ Testing procedure: WMT/CTF Stage 2:		
Testing location/ address		
Tested by (name + signature)		
Witnessed by (name + signature)		
Approved by (name + signature)		
☐ Testing procedure: SMT/CTF Stage 3 or 4:		
Testing location/ address		
Tested by (name + signature)		
Witnessed by (name + signature)		
Approved by (name + signature)		
Supervised by (name + 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):**

All applicable tests as described in Test Case were performed.

- The test samples are pre-production without serial numbers.
- Specified maximum ambient temperature is +40°C.
- Unless otherwise specified, all tests have been performed on model FSP090-ABAN2 and FSP090-AAAN2 to represent other similar model.

Testing location:

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

Summary of compliance with National Differences**List of countries addressed:**

EU Group Differences, EU Special National Conditions, US.

Explanation of used codes: US = United States of America.

*(CA, DE, DK, FI, GB, IL, KR, SE, SI), **(AU, CN, CH, ES, IE, NO), ***(BY, JP)

Explanation of used codes:

* (CA = Canada, DE = Germany, DK=Denmark, FI = Finland, GB = United Kingdom, IL = Israel, KR = Republic of Korea, SE = Sweden, SI = Slovenia)

** (AU = Australia, CN = China, CH = Switzerland, ES = Spain, IE = Ireland, NO = Norway),

*** (BY = Belarus, JP = Japan)

* National differences to IEC 60950-1:2005+A1:2009 evaluated.

** National differences to IEC 60950-1:2005 evaluated.

*** National differences to IEC 60950-1:2001 evaluated.

☒ **The product fulfils the requirements of EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013.**

Copy of marking plate

None.

Test item particulars :	
Equipment mobility	: ☒ movable ☐ hand-held ☒ transportable ☐ stationary ☐ for building-in ☐ direct plug-in
Connection to the mains	: ☒ pluggable equipment ☒ type A ☐ type B ☐ permanent connection ☒ detachable power supply cord ☐ non-detachable power supply cord ☐ not directly connected to the mains
Operating condition	: ☒ continuous ☐ rated operating / resting time:
Access location	: ☒ operator accessible ☐ restricted access location
Over voltage category (OVC)	: ☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV ☐ other:
Mains supply tolerance (%) or absolute mains supply values : ± 10	
Tested for IT power systems	: ☒ Yes ☐ No
IT testing, phase-phase voltage (V)	: 230V (For Norway)
Class of equipment	: ☒ Class I ☐ Class II ☐ Class III ☐ Not classified
Considered current rating of protective device as part of the building installation (A) : 16A (20A for North American)	
Pollution degree (PD)	: ☐ PD 1 ☒ PD 2 ☐ PD 3
IP protection class	: IPX0
Altitude during operation (m)	: Not over 5000m
Altitude of test laboratory (m)	: Not over 2000m
Mass of equipment (kg)	: Approx. 0.36kg
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.....	: 01 August, 2016
Date(s) of performance of tests	: 01 – 04 August, 2016
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 IECCE 02:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided..... :

☒ **Yes**☐ **Not applicable**

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies) :

1. ShenZhen HuiLi Electronics CO., LTD.
Block C, Building 4,6,7,8,9,10,11, County 73,
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, FuYong 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. ZHONGHAN SCIENCE & TECH CO. LTD
Building 9, Section B, JuYuan Industrial Zone,
TangWei Village, FuYong Town, BaoAn District,
ShenZhen City, Guangdong, P.R. China
5. Wuxi ZhongHan Technology Co., Ltd.
Block 106-E, Wuxi Nation HI-TECH Industrial,
Development Zone, Wuxi City, Jiangsu,
Province, P.R. China
6. ShenZhen HuiLi Electronics CO., LTD
Block C, Building 4,6,7,8,9,10,11, County 73,
Xin'an, Bao'an, Shenzhen, Guangdong (Block A,
Building 3, No. 5185, YeeYuan Rd., County 74,
Bao'an), P.R. China

General product information:

Description of change(s):

1. Add additional Stress relief test (**105°C**) for models SP090-ABAN2, FSP090-ABBN2, FSP090-AAAN2 and FSP090-AABN2

For the above described change(s) the following was considered to be necessary:

Change	Testing	Comments
1.	• Stress relief test	See sub-clause for test results.

History of amendments and modifications:

Ref. No. 11037301 001, dated 25 June, 2014 (original test report)
 Ref. No. 11037301 002, dated 19 Sept., 2014 (modification)
 Ref. No. 11037301 003, dated 09 Jan., 2015 (amendment)

TRF No. IEC60950_1F

Ref. No. 11037301 004, dated 26 Aug., 2015 (amendment)
Ref. No. 11037301 005, dated 05 Oct., 2015 (modification)
Ref. No. 11037301 006, dated 19 Nov., 2015 (amendment)
Ref. No. 11037301 007, dated 08 Jan., 2016 (amendment)
Ref. No. 11037301 008, dated 19 May, 2016 (amendment)
Ref. No. 11037301 009, dated 08 Aug., 2016 (modification)

Abbreviations used in the report:

- normal conditions	N.C.	- single fault conditions	S.F.C
- functional insulation	OP	- basic insulation	BI
- double insulation	DI	- supplementary insulation	SI
- between parts of opposite polarity	BOP	- reinforced insulation	RI

Indicate used abbreviations (if any)

TRF No. IEC60950_1F

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.2.7	Stress relief test	After the test at temperature of 105°C for each material source of enclosure, no shrinkage, distortion or loosening of any enclosure part was noticeable on the equipment.	P

TRF No. IEC60950_1F

List of test equipment used:

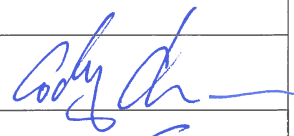
FSP GROUP INC.							
INSTRUMENTION RECODE DATA SHEET							
TEST INSTRUMENTS							
Latest Revision Date: 2016-07-25							
The following instruments were used in tests recorded on the attached data sheets.							
Test Equipments	Electrical	Calibration	Manufacturer	Model No.	Date Last Calibrated	Calibration Due Date	NO
	Rating	Range			MM/DD/YY	MM/DD/YY	
Oven	50-200℃	50-200℃	Terchy	CK-3	03/14/16	03/13/17	1



Test Report issued under the responsibility of:



TEST REPORT IEC 60950-1 Information technology equipment – Safety – Part 1: General requirements	
Report Number.	11037301 008
Date of issue	19 May, 2016
Total number of pages	6
Applicant's name	FSP Group Inc.
Address	No. 22, Jianguo E. Road, Taoyuan 330 Taiwan
Test specification:	
Standard	IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013
Test procedure	CB Scheme
Non-standard test method	N/A
Test Report Form No.	IEC60950_1F
Test Report Form(s) Originator	SGS Fimko Ltd
Master TRF	Dated 2014-02
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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 Adapter	
Trade Mark		 (Trademark of FSP)	
Manufacturer		Same as applicant	
Model/Type reference		FSP090-ABAN2	
Ratings		AC input: 100-240V~, 1.2A, 50-60Hz DC output: 19Vdc, 4.74A	
Testing procedure and testing location:			
☒	CB Testing Laboratory:	TÜV Rheinland Taiwan Ltd., Taichung Laboratory	
Testing location/ address		No. 9, Ln. 36, Sec. 3, Minsheng Rd., Daya District, Taichung City, 428 Taiwan	
☐	Associated CB Testing Laboratory:		
Testing location/ address			
Tested by (name + signature)		Cody Chen	
Approved by (name + signature)		Jean Chen	
☐	Testing procedure: TMP/CTF Stage 1:		
Testing location/ address			
Tested by (name + signature)			
Approved by (name + signature)			
☐	Testing procedure: WMT/CTF Stage 2:		
Testing location/ address			
Tested by (name + signature)			
Witnessed by (name + signature)			
Approved by (name + signature)			
☐	Testing procedure: SMT/CTF Stage 3 or 4:		
Testing location/ address			
Tested by (name + signature)			
Witnessed by (name + signature)			
Approved by (name + signature)			
Supervised by (name + 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):**

- No test request.

Testing location:

No sample request.

Summary of compliance with National Differences**List of countries addressed:**

EU Group Differences, EU Special National Conditions, US.

Explanation of used codes: US = United States of America.

*(CA, DE, DK, FI, GB, IL, KR, SE, SI), **(AU, CN, CH, ES, IE, NO), ***(BY, JP)

Explanation of used codes:

* (CA = Canada, DE = Germany, DK=Denmark, FI = Finland, GB = United Kingdom, IL = Israel, KR = Republic of Korea, SE = Sweden, SI = Slovenia)

**(AU = Australia, CN = China, CH = Switzerland, ES = Spain, IE = Ireland, NO = Norway),

*** (BY = Belarus, JP = Japan)

* National differences to IEC 60950-1:2005+A1:2009 evaluated.

** National differences to IEC 60950-1:2005 evaluated.

*** National differences to IEC 60950-1:2001 evaluated.

☒ **The product fulfils the requirements of EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013.****Copy of marking plate**

None.

Test item particulars :	
Equipment mobility	: ☒ movable ☐ hand-held ☒ transportable ☐ stationary ☐ for building-in ☐ direct plug-in
Connection to the mains	: ☒ pluggable equipment ☒ type A ☐ type B ☐ permanent connection ☒ detachable power supply cord ☐ non-detachable power supply cord ☐ not directly connected to the mains
Operating condition	: ☒ continuous ☐ rated operating / resting time:
Access location	: ☒ operator accessible ☐ restricted access location
Over voltage category (OVC)	: ☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV ☐ other:
Mains supply tolerance (%) or absolute mains supply values : ± 10	
Tested for IT power systems	: ☒ Yes ☐ No
IT testing, phase-phase voltage (V)	: 230V (For Norway)
Class of equipment	: ☒ Class I ☐ Class II ☐ Class III ☐ Not classified
Considered current rating of protective device as part of the building installation (A) : 16A (20A for North American)	
Pollution degree (PD)	: ☐ PD 1 ☒ PD 2 ☐ PD 3
IP protection class	: IPX0
Altitude during operation (m)	: Not over 5000m
Altitude of test laboratory (m)	: Not over 2000m
Mass of equipment (kg)	: Approx. 0.36kg
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 IECCE 02:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided..... :

☒ **Yes**
☐ **Not applicable**

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies) :

1. ShenZhen HuiLi Electronics CO., LTD.
Block C, Building 4,6,7,8,9,10,11, County 73,
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,FuYong Town, BaoAn Dist.,ShenZhen
City,Guangdong, P.R. China
3. Wuxi SPI Technology Co., Ltd.
No. 96, XinmeiRoad, New District, Wuxi city,
Jiangsu, P.R. China
4. ZHONGHAN SCIENCE & TECH CO. LTD
Building 9, Section B, JuYuan Industrial Zone,
TangWei Village, FuYong Town, BaoAn District,
ShenZhen City, Guangdong, P.R. China
5. Wuxi ZhongHan Technology Co., Ltd.
Block 106-E, Wuxi Nation HI-TECH Industrial,
Development Zone, Wuxi City, Jiangsu,
Province, P.R. China
6. ShenZhen HuiLi Electronics CO., LTD
Block C,Building 4,6,7,8,9,10,11, County 73,
Xin'an,Bao'an,Shenzhen, Guangdong(Block A,
Building 3,No. 5185, YeeYuan Rd.,County 74,
Bao'an), P.R. China

General product information:

Description of change(s):

1. Add below additional information in certificate page 2,
Model FSP090-ABAN2 is equivalent to Cisco P/N (CPN) 34-100217-XX, where X may be 0-9 or blank.
2. Correction of typing error in test report 11037301 007. The report no. in the first page shall be correct to **11037301 007**.

For the above described change(s) the following was considered to be necessary:

Change	Testing	Comments
1.	• N/A	For client's request to add additional information in certificate page 2.
2.	• N/A	Correct test report no. as 11037301 007 in the first page of test report 11037301 007.

History of amendments and modifications:

Ref. No. 11037301 001, dated 25 June, 2014 (original test report)
Ref. No. 11037301 002, dated 19 Sept., 2014 (modification)
Ref. No. 11037301 003, dated 09 Jan., 2015 (amendment)
Ref. No. 11037301 004, dated 26 Aug., 2015 (amendment)
Ref. No. 11037301 005, dated 05 Oct., 2015 (modification)
Ref. No. 11037301 006, dated 19 Nov., 2015 (amendment)
Ref. No. 11037301 007, dated 08 Jan., 2016 (amendment)
Ref. No. 11037301 008, dated 19 May, 2016 (amendment)

Abbreviations used in the report:

- normal conditions	N.C.	- single fault conditions	S.F.C
- functional insulation	OP	- basic insulation	BI
- double insulation	DI	- supplementary insulation	SI
- between parts of opposite polarity	BOP	- reinforced insulation	RI

Indicate used abbreviations (if any)

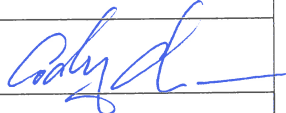
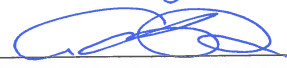
TRF No. IEC60950_1F



Test Report issued under the responsibility of:



TEST REPORT IEC 60950-1 Information technology equipment – Safety – Part 1: General requirements	
Report Number.:	11047301 007
Date of issue	08 Jan., 2016
Total number of pages.....:	7
Applicant's name	FSP Group Inc.
Address	No. 22, Jianguo E. Road, Taoyuan 330 Taiwan
Test specification:	
Standard	IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013
Test procedure.....:	CB Scheme
Non-standard test method.....:	N/A
Test Report Form No.....:	IEC60950_1F
Test Report Form(s) Originator.....:	SGS Fimko Ltd
Master TRF.....:	Dated 2014-02
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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 Adapter	
Trade Mark..... :		 (Trademark of AXIS)	
Manufacturer..... :		Same as applicant	
Model/Type reference..... :		FSP090-AFAN2	
Ratings..... :		AC input: 100-240V~, 1.2A, 50-60Hz DC output: 48Vdc, 1.88A	
Testing procedure and testing location:			
☒	CB Testing Laboratory:	TÜV Rheinland Taiwan Ltd., Taichung Laboratory	
Testing location/ address		No. 9, Ln. 36, Sec. 3, Minsheng Rd., Daya District, Taichung City, 428 Taiwan	
☐	Associated CB Testing Laboratory:		
Testing location/ address			
Tested by (name + signature)		Cody Chen	
Approved by (name + signature)		Andy Liu	
☐	Testing procedure: TMP/CTF Stage 1:		
Testing location/ address			
Tested by (name + signature)			
Approved by (name + signature)			
☐	Testing procedure: WMT/CTF Stage 2:		
Testing location/ address			
Tested by (name + signature)			
Witnessed by (name + signature)			
Approved by (name + signature)			
☐	Testing procedure: SMT/CTF Stage 3 or 4:		
Testing location/ address			
Tested by (name + signature)			
Witnessed by (name + signature)			
Approved by (name + signature)			
Supervised by (name + signature)			

TRF No. IEC60950_1F

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):**

- No test request.

Testing location:

No sample request.

Summary of compliance with National Differences**List of countries addressed:**

EU Group Differences, EU Special National Conditions, US.

Explanation of used codes: US = United States of America.

*(CA, DE, DK, FI, GB, IL, KR, SE, SI), **(AU, CN, CH, ES, IE, NO), **(BY, JP)

Explanation of used codes:

* (CA = Canada, DE = Germany, DK=Denmark, FI = Finland, GB = United Kingdom, IL = Israel, KR = Republic of Korea, SE = Sweden, SI = Slovenia)

**(AU = Australia, CN = China, CH = Switzerland, ES = Spain, IE = Ireland, NO = Norway),

**(BY = Belarus, JP = Japan)

* National differences to IEC 60950-1:2005+A1:2009 evaluated.

** National differences to IEC 60950-1:2005 evaluated.

** National differences to IEC 60950-1:2001 evaluated.

☒ The product fulfils the requirements of EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013.**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.



ART NO. 65779 Mains Adaptor 48V 90W DOE VI
Switching Power Adapter (電源供應器/电源适配器)
Model No (型號/型号): FSP090-AFAN2
AC Input (輸入/輸入): 100-240V~, 1.2A, 50-60Hz
DC Output (輸出/輸出): 48V --- 1.88A
CAUTION(警告/警告):
For use with Information Technology Equipment.
(適用於資訊類產品/适用于资讯类产品)
ATTENTIONS:
Pour les équipements de traitement de l'information.
ATTENTION:
Nur zur Verwendung mit informationstechnischen
Einrichtungen.

This device complies with Part 15 of the FCC Rules.
Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received,
including interference that may cause undesired operation. Axis Communications K.K.




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XXXXXXX

Self Declaration-Conforming
to IS 13252(Part1):2010,
R-XXXXXXX

MADE IN CHINA
(中國製造/中国制造)

TRF No. IEC60950_1F

Test item particulars	
Equipment mobility	☒ movable ☐ hand-held ☒ transportable ☐ stationary ☐ for building-in ☐ direct plug-in
Connection to the mains	☒ pluggable equipment ☒ type A ☐ type B ☐ permanent connection ☒ detachable power supply cord ☐ non-detachable power supply cord ☐ not directly connected to the mains
Operating condition	☒ continuous ☐ rated operating / resting time:
Access location	☒ operator accessible ☐ restricted access location
Over voltage category (OVC)	☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV ☐ other:
Mains supply tolerance (%) or absolute mains supply values : ±10	
Tested for IT power systems	☒ Yes ☐ No
IT testing, phase-phase voltage (V)	230V (For Norway)
Class of equipment	☒ Class I ☐ Class II ☐ Class III ☐ Not classified
Considered current rating of protective device as part of the building installation (A) : 16A (20A for North American)	
Pollution degree (PD)	☐ PD 1 ☒ PD 2 ☐ PD 3
IP protection class	IPX0
Altitude during operation (m)	Not over 5000m
Altitude of test laboratory (m)	Not over 2000m
Mass of equipment (kg)	Approx. 0.36kg
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 IEC60950-1:

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.
Block C, Building 4,6,7,8,9,10,11, County 73,
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,FuYong Town, BaoAn Dist.,ShenZhen
City,Guangdong, P.R. China
3. Wuxi SPI Technology Co., Ltd.
No. 96, XinmeiRoad, New District, Wuxi city,
Jiangsu, P.R. China
4. ZHONGHAN SCIENCE & TECH CO. LTD
Building 9, Section B, JuYuan Industrial Zone,
TangWei Village, FuYong Town, BaoAn District,
ShenZhen City, Guangdong, P.R. China
5. Wuxi ZhongHan Technology Co., Ltd.
Block 106-E, Wuxi Nation HI-TECH Industrial,
Development Zone, Wuxi City, Jiangsu,
Province, P.R. China
6. ShenZhen HuiLi Electronics CO., LTD
Block C,Building 4,6,7,8,9,10,11, County 73,
Xin'an,Bao'an,Shenzhen, Guangdong(Block A,
Building 3,No. 5185, YeeYuan Rd.,County 74,
Bao'an), P.R. China

General product information:

Description of change(s):

1. Add addition OEM model **FSP090-AFAN2**, which identical to approved model FSP090-AFAN2 except for model designation and trademark is "**AXIS**".

For the above described change(s) the following was considered to be necessary:

Change	Testing	Comments
1.	• N/A	For label drawing of new models see copy of marking plates and sub-clauses.

History of amendments and modifications:

Ref. No. 11037301 001, dated 25 June, 2014 (original test report)
Ref. No. 11037301 002, dated 19 Sept., 2014 (modification)
Ref. No. 11037301 003, dated 09 Jan., 2015 (amendment)
Ref. No. 11037301 004, dated 26 Aug., 2015 (amendment)
Ref. No. 11037301 005, dated 05 Oct., 2015 (modification)
Ref. No. 11037301 006, dated 19 Nov., 2015 (amendment)
Ref. No. 11037301 007, dated 08 Jan., 2016 (amendment)

Abbreviations used in the report:

- normal conditions	N.C.	- single fault conditions	S.F.C
- functional insulation	OP	- basic insulation	BI
- double insulation	DI	- supplementary insulation	SI
- between parts of opposite polarity	BOP	- reinforced insulation	RI

Indicate used abbreviations (if any)

TRF No. IEC60950_1F

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7	Marking and instructions	See below.	P
1.7.1	Power rating and identification markings	The power rating and identification marking are on copy of marking plate or printed on enclosure by laser engraving.	P
1.7.1.1	Power rating marking	See copy of marking plate.	P
	Multiple mains supply connections.....:		N/A
	Rated voltage(s) or voltage range(s) (V)	See copy of marking plate.	P
	Symbol for nature of supply, for d.c. only		N/A
	Rated frequency or rated frequency range (Hz)	See copy of marking plate.	P
	Rated current (mA or A)	See copy of marking plate.	P
1.7.1.2	Identification markings	See below.	P
	Manufacturer's name or trade-mark or identification mark	See copy of marking plate.	P
	Model identification or type reference	See copy of marking plate.	P
	Symbol for Class II equipment only		N/A
	Other markings and symbols	Additional symbols or markings do not give rise to misunderstanding.	P

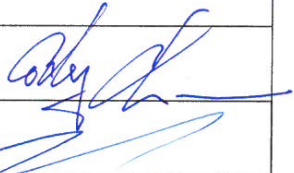
TRF No. IEC60950_1F



Test Report issued under the responsibility of:



TEST REPORT IEC 60950-1 Information technology equipment – Safety – Part 1: General requirements	
Report Number.	11037301 006
Date of issue	19 Nov., 2015
Total number of pages	6
Applicant's name	FSP Group Inc.
Address	No. 22, Jianguo E. Road, Taoyuan 330 Taiwan
Test specification:	
Standard	IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013
Test procedure	CB Scheme
Non-standard test method	N/A
Test Report Form No.	IEC60950_1F
Test Report Form(s) Originator	SGS Fimko Ltd
Master TRF	Dated 2014-02
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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 Adapter	
Trade Mark..... :		 (Trademark of FSP)	
Manufacturer		Same as applicant	
Model/Type reference		FSP090-AFBN2	
Ratings		AC input: 100-240V~, 1.2A, 50-60Hz DC output: 48Vdc, 1.88A	
Testing procedure and testing location:			
☒	CB Testing Laboratory:	TÜV Rheinland Taiwan Ltd., Taichung Laboratory	
Testing location/ address		No. 9, Ln. 36, Sec. 3, Minsheng Rd., Daya District, Taichung City, 428 Taiwan	
☐	Associated CB Testing Laboratory:		
Testing location/ address			
Tested by (name + signature)		Cody Chen	
Approved by (name + signature)		Jean Chen	
☐	Testing procedure: TMP/CTF Stage 1:		
Testing location/ address			
Tested by (name + signature)			
Approved by (name + signature)			
☐	Testing procedure: WMT/CTF Stage 2:		
Testing location/ address			
Tested by (name + signature)			
Witnessed by (name + signature)			
Approved by (name + signature)			
☐	Testing procedure: SMT/CTF Stage 3 or 4:		
Testing location/ address			
Tested by (name + signature)			
Witnessed by (name + signature)			
Approved by (name + signature)			
Supervised by (name + signature)			

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

- None

Summary of testing:**Tests performed (name of test and test clause):**

- No test sample request.

Testing location:

No test considered necessary.

Summary of compliance with National Differences**List of countries addressed:**

EU Group Differences, EU Special National Conditions, US.

Explanation of used codes: US = United States of America.

*(CA, DE, DK, FI, GB, IL, KR, SE, SI), **(AU, CN, CH, ES, IE, NO), ***(BY, JP)

Explanation of used codes:

* (CA = Canada, DE = Germany, DK=Denmark, FI = Finland, GB = United Kingdom, IL = Israel, KR = Republic of Korea, SE = Sweden, SI = Slovenia)

**(AU = Australia, CN = China, CH = Switzerland, ES = Spain, IE = Ireland, NO = Norway),

*** (BY = Belarus, JP = Japan)

* National differences to IEC 60950-1:2005+A1:2009 evaluated.

** National differences to IEC 60950-1:2005 evaluated.

*** National differences to IEC 60950-1:2001 evaluated.

☒ **The product fulfils the requirements of EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013.****Copy of marking plate**

N/A

Test item particulars :	
Equipment mobility	: ☒ movable ☐ hand-held ☒ transportable ☐ stationary ☐ for building-in ☐ direct plug-in
Connection to the mains	: ☒ pluggable equipment ☒ type A ☐ type B ☐ permanent connection ☒ detachable power supply cord ☐ non-detachable power supply cord ☐ not directly connected to the mains
Operating condition	: ☒ continuous ☐ rated operating / resting time:
Access location	: ☒ operator accessible ☐ restricted access location
Over voltage category (OVC)	: ☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV ☐ other:
Mains supply tolerance (%) or absolute mains supply values : ± 10	
Tested for IT power systems	: ☒ Yes ☐ No
IT testing, phase-phase voltage (V)	: 230V (For Norway)
Class of equipment	: ☒ Class I ☐ Class II ☐ Class III ☐ Not classified
Considered current rating of protective device as part of the building installation (A) : 16A (20A for North American)	
Pollution degree (PD)	: ☐ PD 1 ☒ PD 2 ☐ PD 3
IP protection class	: IPX0
Altitude during operation (m)	: Not over 5000m
Altitude of test laboratory (m)	: Not over 2000m
Mass of equipment (kg)	: Approx. 0.36kg
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 IECCE 02:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided..... :

☒ **Yes**☐ **Not applicable**

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies) :

1. ShenZhen HuiLi Electronics CO., LTD.
Block C, Building 4,6,7,8,9,10,11, County 73,
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, FuYong 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. ZHONGHAN SCIENCE & TECH CO. LTD
Building 9, Section B, JuYuan Industrial Zone,
TangWei Village, FuYong Town, BaoAn District,
ShenZhen City, Guangdong, P.R. China
5. Wuxi ZhongHan Technology Co., Ltd.
Block 106-E, Wuxi Nation HI-TECH Industrial,
Development Zone, Wuxi City, Jiangsu,
Province, P.R. China
6. ShenZhen HuiLi Electronics CO., LTD
Block C, Building 4,6,7,8,9,10,11, County 73,
Xin'an, Bao'an, Shenzhen, Guangdong (Block A,
Building 3, No. 5185, YeeYuan Rd., County 74,
Bao'an), P.R. China

General product information:

Description of change(s):

1. Add below additional information in certificate page 2,
Model FSP090-AFBN2 is equivalent to Cisco P/N (CPN) 341-0414-XX XX, where X may be any alphanumeric characters or blank.

For the above described change(s) the following was considered to be necessary:

Change	Testing	Comments
1.	• N/A	For client's request to add additional information in certificate page 2.

History of amendments and modifications:

Ref. No. 11037301 001, dated 25 June, 2014 (original test report)

TRF No. IEC60950_1F

Ref. No. 11037301 002, dated 19 Sept., 2014 (modification)
Ref. No. 11037301 003, dated 09 Jan., 2015 (amendment)
Ref. No. 11037301 004, dated 26 Aug., 2015 (amendment)
Ref. No. 11037301 005, dated 05 Oct., 2015 (modification)
Ref. No. 11037301 006, dated 19 Nov., 2015 (amendment)

Abbreviations used in the report:

- normal conditions	N.C.	- single fault conditions	S.F.C
- functional insulation	OP	- basic insulation	BI
- double insulation	DI	- supplementary insulation	SI
- between parts of opposite polarity	BOP	- reinforced insulation	RI

Indicate used abbreviations (if any)



Test Report issued under the responsibility of:

**TEST REPORT****IEC 60950-1**
**Information technology equipment – Safety –
Part 1: General requirements**

Report Number.: 11037301 005

Date of issue: 05 Oct., 2015

Total number of pages.....: 9

Applicant's name: FSP Group Inc.

Address: No. 22, Jianguo E. Road, Taoyuan 330 Taiwan

Test specification:

Standard: IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013

Test procedure.....: CB Scheme

Non-standard test method.....: N/A

Test Report Form No.....: IEC60950_1F

Test Report Form(s) Originator.....: SGS Fimko Ltd

Master TRF.....: Dated 2014-02

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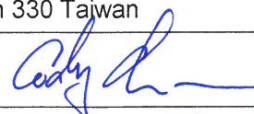
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This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

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 Adapter	
Trade Mark..... :		 (Trademark of FSP)	
Manufacturer..... :		Same as applicant	
Model/Type reference..... :		FSP090-AWBN2	
Ratings..... :		AC input: 100-240V~, 1.2A, 50-60Hz DC output: 54Vdc, 1.67A	
Testing procedure and testing location:			
☒	CB Testing Laboratory:	TÜV Rheinland Taiwan Ltd., Taichung Laboratory	
Testing location/ address		TMP procedure used. For address of testing location see "Testing procedure: TMP/CTF Stage 1" below	
☐	Associated CB Testing Laboratory:		
Testing location/ address			
Tested by (name + signature)..... :			
Approved by (name + signature)..... :			
☐	Testing procedure: TMP/CTF Stage 1:	See below	
Testing location/ address		FSP Group Inc. No. 22, Jianguo E. Road, Taoyuan 330 Taiwan	
Tested by (name + signature)..... :		Cody Chen	
Approved by (name + signature)..... :		Jean Chen	
☐	Testing procedure: WMT/CTF Stage 2:		
Testing location/ address			
Tested by (name + signature)..... :			
Witnessed by (name + signature)..... :			
Approved by (name + signature)..... :			
☐	Testing procedure: SMT/CTF Stage 3 or 4:		
Testing location/ address			
Tested by (name + signature)..... :			
Witnessed by (name + signature)..... :			
Approved by (name + signature)..... :			
Supervised by (name + signature)			

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

- Photo documentation

Summary of testing:**Tests performed (name of test and test clause):**

All applicable tests as described in Test Case were performed.

- The test samples are pre-production without serial numbers.
- Specified maximum ambient temperature is +40°C.
- The correction factors of clearance is 1.48, specified in table A. 2 of IEC 60664-1 for altitude 5000m.
- TMP laboratory includes all clauses for testing of the IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013.

Testing location:

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

Summary of compliance with National Differences**List of countries addressed:**

EU Group Differences, EU Special National Conditions, US.

Explanation of used codes: US = United States of America.

*(CA, DE, DK, FI, GB, IL, KR, SE, SI), **(AU, CN, CH, ES, IE, NO), ***(BY, JP)

Explanation of used codes:

* (CA = Canada, DE = Germany, DK=Denmark, FI = Finland, GB = United Kingdom, IL = Israel, KR = Republic of Korea, SE = Sweden, SI = Slovenia)

** (AU = Australia, CN = China, CH = Switzerland, ES = Spain, IE = Ireland, NO = Norway),

*** (BY = Belarus, JP = Japan)

* National differences to IEC 60950-1:2005+A1:2009 evaluated.

** National differences to IEC 60950-1:2005 evaluated.

*** National differences to IEC 60950-1:2001 evaluated.

☒ **The product fulfils the requirements of EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013.**

Copy of marking plate

N/A

Test item particulars :	
Equipment mobility	☒ movable ☐ hand-held ☒ transportable ☐ stationary ☐ for building-in ☐ direct plug-in
Connection to the mains	☒ pluggable equipment ☒ type A ☐ type B ☐ permanent connection ☒ detachable power supply cord ☐ non-detachable power supply cord ☐ not directly connected to the mains
Operating condition	☒ continuous ☐ rated operating / resting time:
Access location	☒ operator accessible ☐ restricted access location
Over voltage category (OVC)	☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV ☐ other:
Mains supply tolerance (%) or absolute mains supply values : ±10	
Tested for IT power systems	☒ Yes ☐ No
IT testing, phase-phase voltage (V)	230V (For Norway)
Class of equipment	☒ Class I ☐ Class II ☐ Class III ☐ Not classified
Considered current rating of protective device as part of the building installation (A) : 16A (20A for North American)	
Pollution degree (PD)	☐ PD 1 ☒ PD 2 ☐ PD 3
IP protection class	IPX0
Altitude during operation (m)	Not over 5000m
Altitude of test laboratory (m)	Not over 2000m
Mass of equipment (kg)	Approx. 0.36kg
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	15 Sep., 2015
Date(s) of performance of tests	15 Sep. – 01 Oct., 2015
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 IEC60950-1:

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.
Block C, Building 4,6,7,8,9,10,11, County 73,
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, FuYong 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. ZHONGHAN SCIENCE & TECH CO. LTD
Building 9, Section B, JuYuan Industrial Zone,
TangWei Village, FuYong Town, BaoAn District,
ShenZhen City, Guangdong, P.R. China
5. Wuxi ZhongHan Technology Co., Ltd.
Block 106-E, Wuxi Nation HI-TECH Industrial,
Development Zone, Wuxi City, Jiangsu,
Province, P.R. China
6. ShenZhen HuiLi Electronics CO., LTD
Block C, Building 4,6,7,8,9,10,11, County 73,
Xin'an, Bao'an, Shenzhen, Guangdong (Block A,
Building 3, No. 5185, YeeYuan Rd., County 74,
Bao'an), P.R. China

General product information:

Description of change(s):

1. Add addition Y cap. (CY101) at appliance AC inlet for model FSP090-AWBN2 (FSP).

For the above described change(s) the following was considered to be necessary:

Change	Testing	Comments
1.	Touch current measurement	For sources of CY101 see bold part in appended table. Test results see appended table for details.

History of amendments and modifications:

Ref. No. 11037301 001, dated 25 June, 2014 (original test report)
 Ref. No. 11037301 002, dated 19 Sept., 2014 (modification)
 Ref. No. 11037301 003, dated 09 Jan., 2015 (amendment)

Ref. No. 11037301 004, dated 26 Aug., 2015 (amendment)
Ref. No. 11037301 005, dated 05 Oct., 2015 (modification)

Abbreviations used in the report:

- normal conditions	N.C.	- single fault conditions	S.F.C
- functional insulation	OP	- basic insulation	BI
- double insulation	DI	- supplementary insulation	SI
- between parts of opposite polarity	BOP	- reinforced insulation	RI

Indicate used abbreviations (if any)

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: List of critical components					P
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity ¹⁾	
Y Cap. (CY101) (Used for model FSP090-AWBN2 (FSP))	Walsin Technology Corp.	AH	Max. 470pF, min. 250V, 125°C	IEC/EN 60384- 14:2005 UL 60384-14	VDE, UL	
	TDK-EPC Corp.	CD, CS	Max. 470pF, min. 250V, 125°C	IEC/EN 60384- 14:2005 UL 60384-14	VDE, UL	
	TDK-EPC Corp.	CD (miniature series), CS (miniature series)	Max. 470pF, min. 250V, 125°C	IEC/EN 60384- 14:2005 UL 60384-14	VDE, UL	
	Murata Mfg Co., Ltd.	KX	Max. 470pF, min. 250V, 125°C	IEC/EN 60384- 14:2005 UL 60384-14	VDE, UL	
	Success Electronics Co., Ltd.	SB, SE	Max. 470pF, min. 250V, 125°C	IEC/EN 60384- 14:2005 UL 60384-14	VDE, UL	
Supplementary information:						
1. Provided evidence ensures the agreed level of compliance. See OD-CB2039.						

5.1	TABLE: touch current measurement			P
Measured between:		Measured (mA)	Limit (mA)	Comments/conditions
Tested with components (C214 and R229)				
Fuse in, Line/Neutral to plastic enclosure with metal foil		0.01/0.01	0.25	Switch “e” closed.
Fuse in, Line/ Neutral to output “+”		0.18/0.18	0.25	Switch “e” closed.
Fuse in, Line/ Neutral to output GND		0.18/0.18	0.25	Switch “e” closed.
Tested with components (C214 and R229 replace by jumper)				
Fuse in, Line/Neutral to plastic enclosure with metal foil		0.01/0.01	0.25	Switch “e” closed.
Fuse in, Line/ Neutral to output GND		0.23 / 0.23	3.5	Switch “e” closed.

TRF No. IEC60950_1F

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
Supplementary information: 1. Test voltage: 264V/60Hz 2. Overall capacity: CY101 = 470pF, CY103 = 1500pF, CY104 = 1000pF			

FSP GROUP INC.									
INSTRUMENTATION RECODE DATA SHEET									
TEST INSTRUMENTS									
Latest Revision Date: 2015-08-04									
The following instruments were used in tests recorded on the attached data sheets.									
Test Equipments	Electrical	Calibration	Manufacturer	Model No.	Serial No. (FSP)	Serial No.	Date Last Calibrated MM/DD/YY	Calibration Due Date MM/DD/YY	NO
	Rating	Range							
Scope	300M Hz	Deflection: 2mV/Div-10V/Div	Tektronix	TDS3032B	0004603	B028323	03/20/15	03/19/16	88
Leakage Current Meter	10mA	Iac@60Hz, 50Hz: 0.03-10mA; Vac@60Hz, 50Hz: 50-300V	Simpson	228	--	03038-4	03/24/15	03/23/16	97
Digital Power Meter	1000V/20A	Iac @ 60Hz, 50Hz: 0.5-20A; TAF	Yokogawa	WT210	0006530	911-828660	07/31/15	07/30/16	111
AC Power Source	5KV	--	Extech	6750	0006570	1490193	--	--	115
Test Box for IEC 60990	--	Transfer Impedance: 15-1000000Hz;	--	60990	--	60990	03/23/15	03/22/16	139

TRF No. IEC60950_1F

ATTACHMENT

Photo Documentation

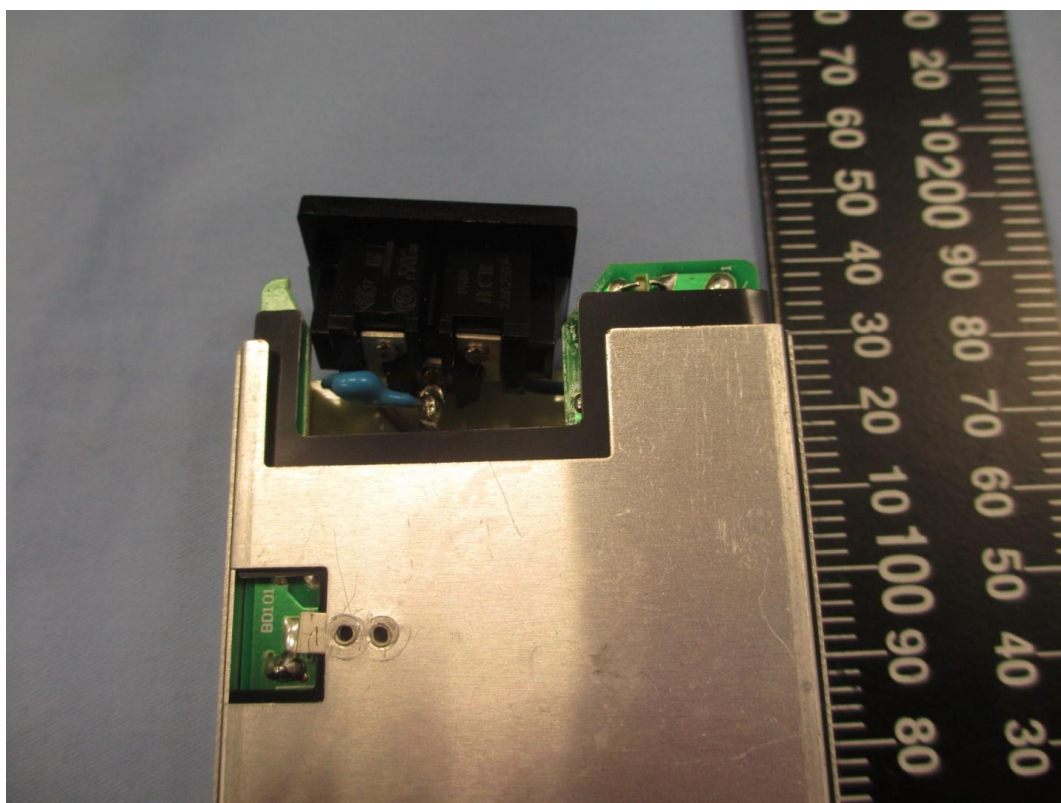
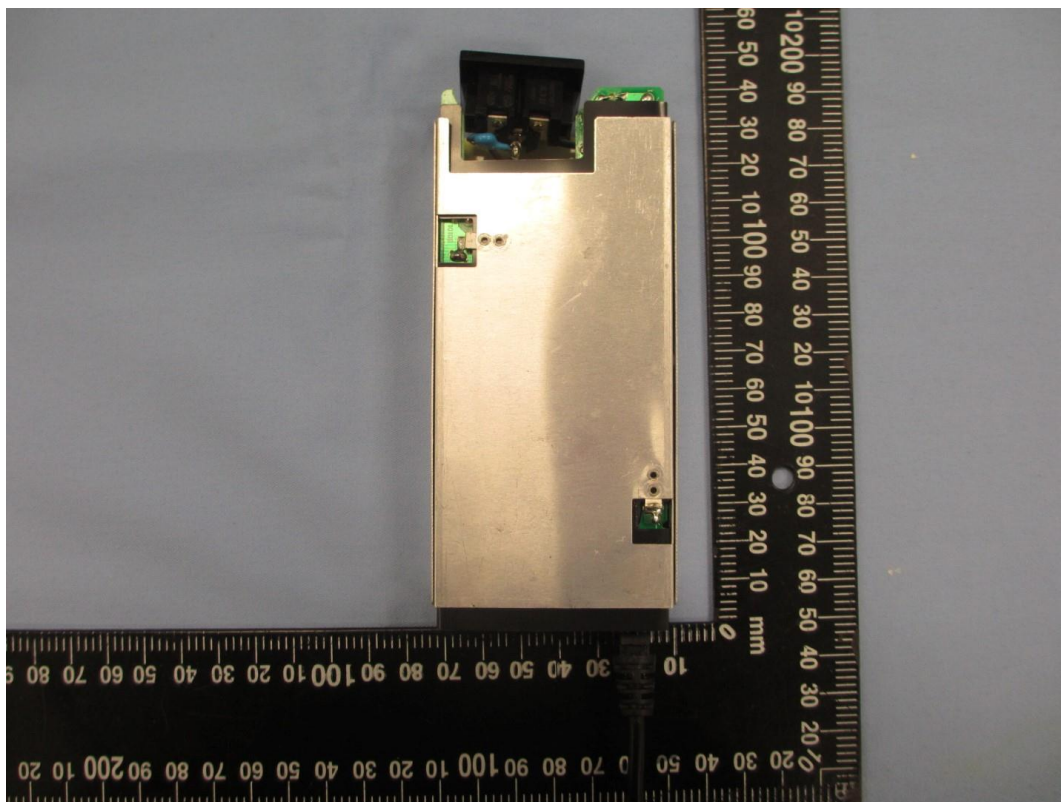


Page 1 of 1

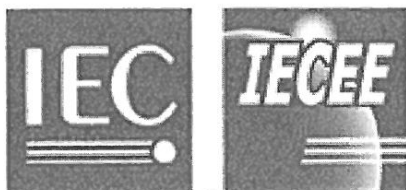
Report No.: 11037301 005

Product: Switching Power Adapter

Type Designation: FSP090-AWBN2 (FSP)



Rev. 0



Test Report issued under the responsibility of:

**TEST REPORT****IEC 60950-1**
**Information technology equipment – Safety –
Part 1: General requirements**

Report Number..... : 11037301 004

Date of issue..... : 26 Aug., 2015

Total number of pages : 7

Applicant's name : FSP Group Inc.

Address..... : No. 22, Jianguo E. Road, Taoyuan 330 Taiwan

Test specification:

Standard : IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013

Test procedure : CB Scheme

Non-standard test method : N/A

Test Report Form No. : IEC60950_1F

Test Report Form(s) Originator : SGS Fimko Ltd

Master TRF : Dated 2014-02

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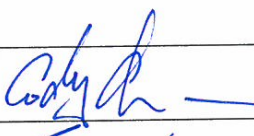
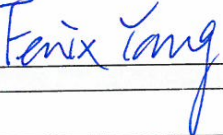
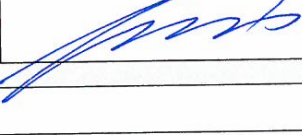
If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.

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 Adapter	
Trade Mark..... :		 HPE (Trademark of Hewlett Packard Enterprise)	
Manufacturer..... :		Same as applicant	
Model/Type reference..... :		HPE090-AWAN2	
Ratings..... :		AC input: 100-240V~, 1.2A, 50-60Hz DC output: 54Vdc, 1.67A	
Testing procedure and testing location:			
☒	CB Testing Laboratory:	TÜV Rheinland Taiwan Ltd., Taichung Laboratory	
Testing location/ address		No. 9, Ln. 36, Sec. 3, Minsheng Rd., Daya District, Taichung City, 428 Taiwan	
☐	Associated CB Testing Laboratory:		
Testing location/ address			
Tested by (name + signature)..... :		Cody Chen	
Approved by (name + signature)..... :			
☐	Testing procedure: TMP/CTF Stage 1:		
Testing location/ address			
Tested by (name + signature)..... :			
Approved by (name + signature)..... :			
☐	Testing procedure: WMT/CTF Stage 2:		
Testing location/ address			
Tested by (name + signature)..... :			
Witnessed by (name + signature)..... :			
Approved by (name + signature)..... :			
☐	Testing procedure: SMT/CTF Stage 3 or 4:		
Testing location/ address			
Tested by (name + signature)..... :			
Witnessed by (name + signature)..... :			
Approved by (name + signature)..... :			
Supervised by (name + 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):**

- No test request.

Testing location:

No sample request.

Summary of compliance with National Differences**List of countries addressed:**

EU Group Differences, EU Special National Conditions, US.

Explanation of used codes: US = United States of America.

*(CA, DE, DK, FI, GB, IL, KR, SE, SI), **(AU, CN, CH, ES, IE, NO), ***(BY, JP)

Explanation of used codes:

* (CA = Canada, DE = Germany, DK=Denmark, FI = Finland, GB = United Kingdom, IL = Israel, KR = Republic of Korea, SE = Sweden, SI = Slovenia)

**(AU = Australia, CN = China, CH = Switzerland, ES = Spain, IE = Ireland, NO = Norway),

*** (BY = Belarus, JP = Japan)

* National differences to IEC 60950-1:2005+A1:2009 evaluated.

** National differences to IEC 60950-1:2005 evaluated.

*** National differences to IEC 60950-1:2001 evaluated.

☒ **The product fulfils the requirements of EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013.****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 Adapter (電源供應器/电源适配器)

Model No (型號/型号): HPE090-AWAN2

AC Input (輸入/输入): 100-240V~, 1.2A, 50-60Hz

DC Output (輸出/输出): 54V --- 1.67A

CAUTION(警告/警告):

For use with Information Technology Equipment.

(適用於資訊類產品/适用于资讯类产品)



RoHS

MADE IN CHINA ~
(中國製造/中国制造)

Test item particulars :	
Equipment mobility	: ☒ movable ☐ hand-held ☒ transportable ☐ stationary ☐ for building-in ☐ direct plug-in
Connection to the mains	: ☒ pluggable equipment ☒ type A ☐ type B ☐ permanent connection ☒ detachable power supply cord ☐ non-detachable power supply cord ☐ not directly connected to the mains
Operating condition	: ☒ continuous ☐ rated operating / resting time:
Access location	: ☒ operator accessible ☐ restricted access location
Over voltage category (OVC)	: ☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV ☐ other:
Mains supply tolerance (%) or absolute mains supply values : ±10	
Tested for IT power systems	: ☒ Yes ☐ No
IT testing, phase-phase voltage (V)	: 230V (For Norway)
Class of equipment	: ☒ Class I ☐ Class II ☐ Class III ☐ Not classified
Considered current rating of protective device as part of the building installation (A) : 16A (20A for North American)	
Pollution degree (PD)	: ☐ PD 1 ☒ PD 2 ☐ PD 3
IP protection class	: IPX0
Altitude during operation (m)	: Not over 5000m
Altitude of test laboratory (m)	: Not over 2000m
Mass of equipment (kg)	: Approx. 0.36kg
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 IEC60950-1:

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.
Block C, Building 4,6,7,8,9,10,11, County 73,
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, FuYong 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. ZHONGHAN SCIENCE & TECH CO. LTD
Building 9, Section B, JuYuan Industrial Zone,
TangWei Village, FuYong Town, BaoAn District,
ShenZhen City, Guangdong, P.R. China
5. Wuxi ZhongHan Technology Co., Ltd.
Block 106-E, Wuxi Nation HI-TECH Industrial,
Development Zone, Wuxi City, Jiangsu,
Province, P.R. China
6. ShenZhen HuiLi Electronics CO., LTD
Block C, Building 4,6,7,8,9,10,11, County 73,
Xin'an, Bao'an, Shenzhen, Guangdong (Block A,
Building 3, No. 5185, YeeYuan Rd., County 74,
Bao'an), P.R. China

General product information:

Description of change(s):

1. Add addition OEM model HPE090-AWAN2, which identical to approved model FSP090-AWAN2 except for model designation and trademark is " **HPE**".

For the above described change(s) the following was considered to be necessary:

Change	Testing	Comments
1.	• N/A	For label drawing of new models see copy of marking plates and sub-clauses.

History of amendments and modifications:

Ref. No. 11037301 001, dated 25 June, 2014 (original test report)

Ref. No. 11037301 002, dated 19 Sept., 2014 (modification)

Ref. No. 11037301 003, dated 09 Jan., 2015 (amendment)

Ref. No. 11037301 004, dated 26 Aug., 2015 (amendment)

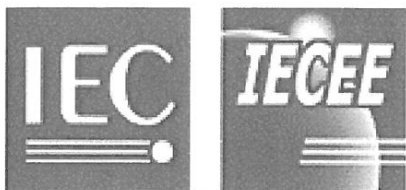
Abbreviations used in the report:

- normal conditions	N.C.	- single fault conditions	S.F.C
- functional insulation	OP	- basic insulation	BI
- double insulation	DI	- supplementary insulation	SI
- between parts of opposite polarity	BOP	- reinforced insulation	RI

Indicate used abbreviations (if any)

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7	Marking and instructions	See below.	P
1.7.1	Power rating and identification markings	The power rating and identification marking are on copy of marking plate or printed on enclosure by laser engraving.	P
1.7.1.1	Power rating marking	See copy of marking plate.	P
	Multiple mains supply connections.....:		N/A
	Rated voltage(s) or voltage range(s) (V)	See copy of marking plate.	P
	Symbol for nature of supply, for d.c. only		N/A
	Rated frequency or rated frequency range (Hz)	See copy of marking plate.	P
	Rated current (mA or A)	See copy of marking plate.	P
1.7.1.2	Identification markings	See below.	P
	Manufacturer's name or trade-mark or identification mark	See copy of marking plate.	P
	Model identification or type reference	See copy of marking plate.	P
	Symbol for Class II equipment only		N/A
	Other markings and symbols	Additional symbols or markings do not give rise to misunderstanding.	P

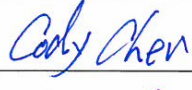
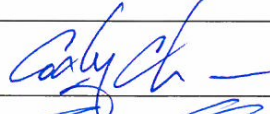
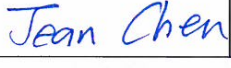
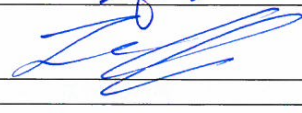
TRF No. IEC60950_1F



Test Report issued under the responsibility of:



TEST REPORT IEC 60950-1 Information technology equipment – Safety – Part 1: General requirements	
Report Number.....	11037301 003
Date of issue.....	09 Jan., 2015
Total number of pages	36
Applicant's name	FSP Group Inc.
Address.....	No. 22, Jianguo E. Road, Taoyuan 330 Taiwan
Test specification:	
Standard	IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013
Test procedure.....	CB Scheme
Non-standard test method	N/A
Test Report Form No.	IEC60950_1F
Test Report Form(s) Originator	SGS Fimko Ltd
Master TRF	Dated 2014-02
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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 Adapter		
Trade Mark..... :	1) – 4)  ; 5) – 8) PROTEK or 		
Manufacturer..... :	Same as applicant		
Model/Type reference..... :	1) FSP090-AFAN2, FSP090-AFBN2 2) FSP090-AWAN2, FSP090-AWBN2 3) FSP090-ABAN2, FSP090-ABBN2 4) FSP090-AAAN2, FSP090-AABN2 5) PUP91-18yyyyyy, PUP91S-18yyyyyy (y = 0-9, A-Z, hyphen or blank) 6) PUP91-19yyyyyy, PUP91S-19yyyyyy (y = 0-9, A-Z, hyphen or blank) 7) PUP91-13-2yyyyyy, PUP91S-13-2yyyyyy (y = 0-9, A-Z, hyphen or blank) 8) PUP91-14yyyyyy, PUP91S-14yyyyyy (y = 0-9, A-Z, hyphen or blank)		
Ratings..... :	AC Input: 100-240Vac~, 1.2A, 50-60Hz DC output: 1) & 5) 48Vdc, 1.88A 2) & 6) 54Vdc, 1.67A 3) & 7) 19Vdc, 4.74A 4) & 8) 24Vdc, 3.75A		
Testing procedure and testing location:			
☒	CB Testing Laboratory:	TÜV Rheinland Taiwan Ltd., Taichung Laboratory	
Testing location/ address		No. 9, Ln. 36, Sec. 3, Minsheng Rd., Daya District, Taichung City, 428 Taiwan	
☐	Associated CB Testing Laboratory:		
Testing location/ address			
Tested by (name + signature)			
Approved by (name + signature)			
☐	Testing procedure: TMP/CTF Stage 1:		
Testing location/ address			
Tested by (name + signature)			
Approved by (name + signature)			
☐	Testing procedure: WMT/CTF Stage 2:		

Testing location/ address :			
Tested by (name + signature)..... :			
Witnessed by (name + signature) :			
Approved by (name + signature)..... :			
☐	Testing procedure: SMT/CTF Stage 3 or 4:		
Testing location/ address :			
Tested by (name + signature)..... :			
Witnessed by (name + signature) :			
Approved by (name + signature)..... :			
Supervised by (name + signature)..... :			

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

- None

Summary of testing:**Tests performed (name of test and test clause):**

- No test sample request.

Testing location:

No test considered necessary.

Summary of compliance with National Differences**List of countries addressed:**

EU Group Differences, EU Special National Conditions, US.

Explanation of used codes: US = United States of America.

*(CA, DE, DK, FI, GB, IL, KR, SE, SI), **(AU, CN, CH, ES, IE, NO), ***(BY, JP)

Explanation of used codes:

* (CA = Canada, DE = Germany, DK=Denmark, FI = Finland, GB = United Kingdom, IL = Israel, KR = Republic of Korea, SE = Sweden, SI = Slovenia)

**(AU = Australia, CN = China, CH = Switzerland, ES = Spain, IE = Ireland, NO = Norway),

*** (BY = Belarus, JP = Japan)

* National differences to IEC 60950-1:2005+A1:2009 evaluated.

** National differences to IEC 60950-1:2005 evaluated.

*** National differences to IEC 60950-1:2001 evaluated.

☒ **The product fulfils the requirements of EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013.**

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.

PROTEK POWER
www.protek.com.tw

Switching Power Adapter (電源供應器/电源适配器)
Model No. (型號/型号): PUP91-13-2
AC Input (輸入/輸入): 100-240V~, 1.2A, 50-60Hz
DC Output (輸出/輸出): 19V = 4.74A
CAUTION (警告/警告):
For use with Information Technology Equipment.
(適用於資訊類產品/适用于资讯类产品)

ATTENTIONS:
Pour les équipements de traitement de l'information.
ATTENTION:
Nur zur Verwendung mit informationstechnischen Einrichtungen.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

CE **UL** **US**
LISTED
I.T.E. POWER SUPPLY
E190414

RoHS **EFFICIENCY LEVEL VI**

MADE IN CHINA
(中國製造/中国制造)

PROTEK POWER
www.protek.com.tw

Switching Power Adapter (電源供應器/电源适配器)
Model No. (型號/型号): PUP91-14
AC Input (輸入/輸入): 100-240V~, 1.2A, 50-60Hz
DC Output (輸出/輸出): 24V = 3.75A
CAUTION (警告/警告):
For use with Information Technology Equipment.
(適用於資訊類產品/适用于资讯类产品)

ATTENTIONS:
Pour les équipements de traitement de l'information.
ATTENTION:
Nur zur Verwendung mit informationstechnischen Einrichtungen.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

CE **UL** **US**
LISTED
I.T.E. POWER SUPPLY
E190414

RoHS **EFFICIENCY LEVEL VI**

MADE IN CHINA
(中國製造/中国制造)

PROTEK POWER
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Switching Power Adapter (電源供應器/电源适配器)
Model No. (型號/型号): PUP91-18
AC Input (輸入/輸入): 100-240V~, 1.2A, 50-60Hz
DC Output (輸出/輸出): 48V = 1.88A
CAUTION (警告/警告):
For use with Information Technology Equipment.
(適用於資訊類產品/适用于资讯类产品)

ATTENTIONS:
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Switching Power Adapter (電源供應器/电源适配器)
Model No. (型號/型号): PUP91-19
AC Input (輸入/輸入): 100-240V~, 1.2A, 50-60Hz
DC Output (輸出/輸出): 54V = 1.67A
CAUTION (警告/警告):
For use with Information Technology Equipment.
(適用於資訊類產品/适用于资讯类产品)

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ATTENTION:
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Switching Power Adapter (電源供應器/电源适配器)
Model No. (型號/型号): PUP91S-13-2
AC Input (輸入/輸入): 100-240V~, 1.2A, 50-60Hz
DC Output (輸出/輸出): 19V = 4.74A
CAUTION (警告/警告):
For use with Information Technology Equipment.
(適用於資訊類產品/适用于资讯类产品)

ATTENTIONS:
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ATTENTION:
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(1) this device may not cause harmful interference, and
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Switching Power Adapter (電源供應器/电源适配器)
Model No. (型號/型号): PUP91S-14
AC Input (輸入/輸入): 100-240V~, 1.2A, 50-60Hz
DC Output (輸出/輸出): 24V = 3.75A
CAUTION (警告/警告):
For use with Information Technology Equipment.
(適用於資訊類產品/适用于资讯类产品)

ATTENTIONS:
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ATTENTION:
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Switching Power Adapter (電源供應器/电源适配器)
Model No. (型號/型号): PUP91S-18
AC Input (輸入/輸入): 100-240V~, 1.2A, 50-60Hz
DC Output (輸出/輸出): 48V = 1.88A
CAUTION (警告/警告):
For use with Information Technology Equipment.
(適用於資訊類產品/适用于资讯类产品)

ATTENTIONS:
Pour les équipements de traitement de l'information.
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Nur zur Verwendung mit informationstechnischen Einrichtungen.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
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RoHS **EFFICIENCY LEVEL VI**

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(中國製造/中国制造)

TRI

Test item particulars.....:	
Equipment mobility.....:	☒ movable ☐ hand-held ☒ transportable ☐ stationary ☐ for building-in ☐ direct plug-in
Connection to the mains.....:	☒ pluggable equipment ☒ type A ☐ type B ☐ permanent connection ☒ detachable power supply cord ☐ non-detachable power supply cord ☐ not directly connected to the mains
Operating condition.....:	☒ continuous ☐ rated operating / resting time:
Access location	☒ operator accessible ☐ restricted access location
Over voltage category (OVC)	☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV ☐ other:
Mains supply tolerance (%) or absolute mains supply values ±10	
Tested for IT power systems	☒ Yes ☐ No
IT testing, phase-phase voltage (V)	230V (For Norway)
Class of equipment	☒ Class I ☐ Class II ☐ Class III ☐ Not classified
Considered current rating of protective device as part of the building installation (A)	16A (20A for North American)
Pollution degree (PD)	☐ PD 1 ☒ PD 2 ☐ PD 3
IP protection class	IPX0
Altitude during operation (m)	Not over 5000m
Altitude of test laboratory (m)	Not over 2000m
Mass of equipment (kg)	Approx. 0.36kg
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 IEC60950:

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.
Block C, Building 4,6,7,8,9,10,11, County 73,
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, FuYong 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. ZHONGHAN SCIENCE & TECH CO. LTD
**Building 9, Section B, JuYuan Industrial
Zone, TangWei Village, FuYong Town, BaoAn
District, ShenZhen City, Guangdong, P.R.
China**
5. Wuxi ZhongHan Technology Co., Ltd.
Block 106-E, Wuxi Nation HI-TECH Industrial,
Development Zone, Wuxi City, Jiangsu,
Province, P.R. China
6. ShenZhen HuiLi Electronics CO., LTD
Block C, Building 4,6,7,8,9,10,11, County 73,
Xin'an, Bao'an, Shenzhen, Guangdong (Block A,
Building 3, No. 5185, YeeYuan Rd., County 74,
Bao'an), P.R. China

General product information:

Description of change(s):

1. Change factory address as below,
 - Zhonghan Electronics (Shenzhen) Co., Ltd.
**Building A2 in Section A, Building 4,6,7 in Section C, JuYuan Industrial Zone, TangWei
Village, FuYong Town, BaoAn Dist., ShenZhen City, Guangdong, P.R. China**
 - ZHONGHAN SCIENCE & TECH CO. LTD
**Building 9, Section B, JuYuan Industrial Zone, TangWei Village, FuYong Town, BaoAn
District, ShenZhen City, Guangdong, P.R. China**
2. Add transformer factory description for client's request.
3. Add addition OEM models **PUP91-13-2yyyyy, PUP91-14yyyyy, PUP91-18yyyyy, PUP91-19yyyyy,
PUP91S-13-2yyyyy, PUP91S-14yyyyy, PUP91S-18yyyyy, PUP91S-19yyyyy (y = 0-9, A-Z, hyphen
or blank)**, which identical to models FSP090-ABAN2, FSP090-AAAN2, FSP090-AFAN2, FSP090-
AWAN2, FSP090-ABBN2, FSP090-AABN2, FSP090-AFBN2 and FSP090-AWBN2 except for model

TRF No. IEC60950_1F

designation and trademark is "PROTEK or  ".																		
For the above described change(s) the following was considered to be necessary:																		
Change	Testing	Comments																
1..	• N/A	See details in " Name and address of factory (ies) " table for factory information.																
2.	• N/A	See bold parts in appended table for details.																
3.	• N/A	For label drawing of new models see copy of marking plates and sub-clauses.																
<u>Definition of variable(s):</u> PUP91-13-2yyyyy, PUP91-14yyyyy, PUP91-18yyyyy, PUP91-19yyyyy, PUP91S-13-2yyyyy, PUP91S-14yyyyy, PUP91S-18yyyyy, PUP91S-19yyyyy																		
Variable:	Range of variable:	Content:																
y	0-9, A-Z, hyphen or blank	For marketing purpose																
<u>History of amendments and modifications:</u> Ref. No. 11037301 001, dated 25 June, 2014 (original test report) Ref. No. 11037301 002, dated 19 Sept., 2014 (modification) Ref. No. 11037301 003, dated 09 January, 2015 (amendment)																		
Abbreviations used in the report: <table border="0"> <tr> <td>- normal conditions</td> <td>N.C.</td> <td>- single fault conditions</td> <td>S.F.C</td> </tr> <tr> <td>- functional insulation</td> <td>OP</td> <td>- basic insulation</td> <td>BI</td> </tr> <tr> <td>- double insulation</td> <td>DI</td> <td>- supplementary insulation</td> <td>SI</td> </tr> <tr> <td>- between parts of opposite polarity</td> <td>BOP</td> <td>- reinforced insulation</td> <td>RI</td> </tr> </table>			- normal conditions	N.C.	- single fault conditions	S.F.C	- functional insulation	OP	- basic insulation	BI	- double insulation	DI	- supplementary insulation	SI	- between parts of opposite polarity	BOP	- reinforced insulation	RI
- normal conditions	N.C.	- single fault conditions	S.F.C															
- functional insulation	OP	- basic insulation	BI															
- double insulation	DI	- supplementary insulation	SI															
- between parts of opposite polarity	BOP	- reinforced insulation	RI															
Indicate used abbreviations (if any)																		

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7	Marking and instructions	See below.	P
1.7.1	Power rating and identification markings	The power rating and identification marking are on copy of marking plate or printed on enclosure by laser engraving.	P
1.7.1.1	Power rating marking	See copy of marking plate.	P
	Multiple mains supply connections.....:		N/A
	Rated voltage(s) or voltage range(s) (V)	See copy of marking plate.	P
	Symbol for nature of supply, for d.c. only		N/A
	Rated frequency or rated frequency range (Hz)	See copy of marking plate.	P
	Rated current (mA or A)	See copy of marking plate.	P
1.7.1.2	Identification markings	See below.	P
	Manufacturer's name or trade-mark or identification mark	See copy of marking plate.	P
	Model identification or type reference	See copy of marking plate.	P
	Symbol for Class II equipment only		N/A
	Other markings and symbols	Additional symbols or markings do not give rise to misunderstanding.	P

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: List of critical components					P
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity ¹⁾	
Transformer (T101) For models FSP090-AFAN2, FSP090-AFBN2, FSP090-AWAN2, FSP090-AWBN2, PUP91-18yyyyy, PUP91S- 18yyyyy, PUP91- 19yyyyy and PUP91S- 19yyyyy (y = 0-9, A-Z, hyphen or blank)	FSP /SPI	8TV00287	Class B, UL Insulation system type GH-130	Applicable part according to IEC 60950-1 and IEC 60085	Accepted by TÜV Rheinland	
-Triple Insulation Wire Used in T101	Great Leoflon Industrial Co., Ltd.	TRW(B) series	130°C	IEC/EN 60950-1 UL 2353	VDE, UL	
	Great Leoflon Industrial Co., Ltd.	TRW(F) series	155°C	IEC/EN 60950-1 UL 2353	VDE, UL	
- Bobbin used in T101	Sumitomo	PM-9820	V-0, phenolic, min. 1.0 mm, 150°C	UL 94	UL	
- Base used in T101	Sumitomo	PM-9820	V-0, phenolic, min. 1.0 mm, 150°C	UL 94	UL	
Transformer (T101) (Alternate) For models FSP090-AFAN2, FSP090-AFBN2, FSP090-AWAN2, FSP090-AWBN2, PUP91-18yyyyy, PUP91S- 18yyyyy, PUP91- 19yyyyy and PUP91S- 19yyyyy (y = 0-9, A-Z, hyphen or blank)	FSP /SPI	8TV00316	Class B, UL Insulation system type SBI4.2	Applicable part according to IEC 60950-1 and IEC 60085	Accepted by TÜV Rheinland	

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IEC 60950-1					
Clause	Requirement + Test			Result - Remark	Verdict
-Triple Insulation Wire Used in T101	Furukawa Electric Co., Ltd.	TEX-E	130°C	IEC/EN 60950-1 UL 2353	VDE, UL
	Totoku Electric Co., Ltd.	TIW-2, TIW-3	155°C	IEC/EN 60950-1 UL 2353	VDE, UL
- Bobbin used in T101	Sumitomo	PM-9820	V-0, phenolic, min. 1.0 mm, 150°C	UL 94	UL
- Base used in T101	Sumitomo	PM-9820	V-0, phenolic, min. 1.0 mm, 150°C	UL 94	UL
Transformer (T101) For models FSP090-ABAN2, FSP090-ABBN2, PUP91-13-2yyyyy and PUP91S-13-2yyyyy (y = 0-9, A-Z, hyphen or blank)	FSP /SPI	8TV00294	Class B, UL Insulation system type GH-130	Applicable part according to IEC 60950-1 and IEC 60085	Accepted by TÜV Rheinland
-Triple Insulation Wire Used in T101	Great Leoflon Industrial Co., Ltd.	TRW(B) series	130°C	IEC/EN 60950-1 UL 2353	VDE, UL
	Great Leoflon Industrial Co., Ltd.	TRW(F) series	155°C	IEC/EN 60950-1 UL 2353	VDE, UL
- Bobbin used in T101	Sumitomo	PM-9820	V-0, phenolic, min. 1.0 mm, 150°C	UL 94	UL
- Base used in T101	Sumitomo	PM-9820	V-0, phenolic, min. 1.0 mm, 150°C	UL 94	UL
Transformer (T101) (Alternative) For models FSP090-ABAN2, FSP090-ABBN2, PUP91-13-2yyyyy and PUP91S-13-2yyyyy (y = 0-9, A-Z, hyphen or	FSP /SPI	8TV00313	Class B, UL Insulation system type SBI4.2	Applicable part according to IEC 60950-1 and IEC 60085	Accepted by TÜV Rheinland

TRF No. IEC60950_1F

IEC 60950-1					
Clause	Requirement + Test			Result - Remark	Verdict
blank)					
-Triple Insulation Wire Used in T101	Furukawa Electric Co., Ltd.	TEX-E	130°C	IEC/EN 60950-1 UL 2353	VDE, UL
	Totoku Electric Co., Ltd.	TIW-2, TIW-3	155°C	IEC/EN 60950-1 UL 2353	VDE, UL
- Bobbin used in T101	Sumitomo	PM-9820	V-0, phenolic, min. 1.0 mm, 150°C	UL 94	UL
- Base used in T101	Sumitomo	PM-9820	V-0, phenolic, min. 1.0 mm, 150°C	UL 94	UL
Transformer (T101) For models FSP090-AAAN2, FSP090-AABN2, PUP91-14yyyyy and PUP91S-14yyyyy (y = 0-9, A-Z, hyphen or blank)	FSP /SPI	8TV00295	Class B, UL Insulation system type GH-130	Applicable part according to IEC 60950-1 and IEC 60085	Accepted by TÜV Rheinland
-Triple Insulation Wire Used in T101	Great Leoflon Industrial Co., Ltd.	TRW(B) series	130°C	IEC/EN 60950-1 UL 2353	VDE, UL
	Great Leoflon Industrial Co., Ltd.	TRW(F) series	155°C	IEC/EN 60950-1 UL 2353	VDE, UL
- Bobbin used in T101	Sumitomo	PM-9820	V-0, phenolic, min. 1.0 mm, 150°C	UL 94	UL
- Base used in T101	Sumitomo	PM-9820	V-0, phenolic, min. 1.0 mm, 150°C	UL 94	UL
Transformer (T101) (Alternative) For models FSP090-AAAN2, FSP090-AABN2, PUP91-14yyyyy and PUP91S-14yyyyy (y = 0-9, A-Z, hyphen or blank)	FSP /SPI	8TV00314	Class B, UL Insulation system type SBI4.2		

TRF No. IEC60950_1F

IEC 60950-1					
Clause	Requirement + Test			Result - Remark	Verdict
-Triple Insulation Wire Used in T101	Furukawa Electric Co., Ltd.	TEX-E	130°C	--	--
	Totoku Electric Co., Ltd.	TIW-2, TIW-3	155°C	IEC/EN 60384-14:2005 UL 60384-14	VDE, UL
- Bobbin used in T101	Sumitomo	PM-9820	V-0, phenolic, min. 1.0 mm, 150°C	IEC/EN 60384-14:2005 UL 60384-14	VDE, UL
- Base used in T101	Sumitomo	PM-9820	V-0, phenolic, min. 1.0 mm, 150°C	IEC/EN 60384-14:2005 UL 60384-14	VDE, UL
Supplementary information:					
1. Provided evidence ensures the agreed level of compliance. See OD-CB2039.					
2. 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.					
- LI YIN TECHNOLOGY LTD.					
- DONG GUAN LIGHTION ELECTRONICS CO LTD.					
- NANJING SHENNING MAGNETIC & ELECTRONICS CO., LTD					
- FRIENDSHIP ELECTRONIC (DONGGUAN) CO., LTD					
- FSP Group Inc.					
- SPI Electronics Co., Ltd.					

2.10.5	TABLE: Distance through insulation measurements					P
Distance through insulation (DTI) at/of:		U peak (V)	U rms (V)	Test voltage (V)	Required DTI (mm)	DTI (mm)
Bobbin and base of T101		420	250	3000Vac	0.4	¹⁾
Supplementary information:						
Above all sources were tested with equipment before humidity test and after humidity test, for sources see below.						
1) For all sources details refer to table 1.5.1.						
2) 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.						

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IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
- FORTRON/SOURCE (CHINA) CORP. - HAOHAN ELECTRONIC TECHNOLOGY (JIAN) CO LTD - FSP Technology Inc., Kaohsiung Branch - PROTEK ELECTRONICS (CHINA) CORP. - LI YIN TECHNOLOGY LTD. - DONG GUAN LIGHTION ELECTRONICS CO LTD. - NANJING SHENNING MAGNETIC & ELECTRONICS CO., LTD - FRIENDSHIP ELECTRONIC (DONGGUAN) CO., LTD - FSP Group Inc. - SPI Electronics Co., Ltd.			

5.2	TABLE: Electric strength tests, impulse tests and voltage surge tests			P
Test voltage applied between:		Voltage shape (AC, DC, impulse, surge)	Test voltage (V)	Breakdown Yes / No
Reinforced:				
T101: primary winding and secondary winding ¹⁾ (Tested for all types of T101)		AC	3000	No
T101: core and secondary winding ¹⁾ (Tested for all types of T101)		AC	3000	No
One layer insulation tape of T101 ²⁾ (Tested for all types of T101)		AC	3000	No
Triple insulation wire of T101 ³⁾ (Tested for all types of T101)		AC	3000	No
Tube of T101 ⁴⁾ (Tested for all types of T101)		AC	3000	No
Margin tape of T101 ⁵⁾ (Tested for all types of T101)		AC	3000	No
Supplementary information:				
Above all sources were tested with equipment before humidity test and after humidity test, for sources see below,				
¹⁾ 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. - LI YIN TECHNOLOGY LTD. - DONG GUAN LIGHTION ELECTRONICS CO LTD. - NANJING SHENNING MAGNETIC & ELECTRONICS CO., LTD - FRIENDSHIP ELECTRONIC (DONGGUAN) CO., LTD - FSP Group Inc.				

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

- SPI Electronics Co., Ltd. 2) Tests were performed on below insulation tape sources: - Mfr. 3M, type 1350F-1. - Mfr. Symbio Inc. type 35660Y* 3) Tests were performed on below sources: - Mfr. Great Leoflon Industrial Co., Ltd. types TRW(B) and TRW(F) - Mfr. Fukawa Electric Co., Ltd, Types TEX-E - Mfr. Totoku Electric Co., Ltd, Types TIW-2, TIW-3 4) Tests were performed on below sources: - Mfr. Great Holding Industrial Co., Ltd., type TFL. 5) Tests were performed on below sources: - Mfr. 3M Company Electrical Markets DIV (EMD), type 44. - Mfr. Symbio Inc., type 35661.			
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C.2	TABLE: transformers (T101 types 8TV00314 and 8TV00295)						P
Loc.	Tested insulation	Working voltage peak / V (2.10.2)	Working voltage rms / V (2.10.2)	Required electric strength (5.2)	Required clearance / mm (2.10.3)	Required creepage distance / mm (2.10.4)	Required distance thr. insul. (2.10.5)
T101	Primary to secondary (reinforced)	625	387	See appended table 5.2	7.0	7.8	0.4mm or 2 layers min. or TIW
T101	Primary to core (functional)	--	--	--	--	--	--
T101	Secondary to core (reinforced)	625	387	See appended table 5.2	7.0	7.8	0.4mm or 2 layers min. or TIW
Loc.	Tested insulation			Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers
T101	Primary/input winding and secondary/output winding (internal)			See appended table 5.2	Triple insulation wire used	Triple insulation wire used	See below table C.2
T101	Primary/input winding and core (internal)			--	--	--	--
T101	Secondary/output winding and core (internal)			See appended table 5.2	Triple insulation wire used	Triple insulation wire used	See below table C.2

TRF No. IEC60950_1F

IEC 60950-1					
Clause	Requirement + Test	Result - Remark			Verdict
T101	Primary/input part and secondary/output part (external)	See appended table 5.2	9.0 (via core)	9.0 (via core)	See below table C.2
T101	Primary/input part and core (external)	--	--	--	--
T101	Secondary/output winding and primary/input part (external)	See appended table 5.2	Triple insulation wire used	Triple insulation wire used	See below table C.2
T101	Secondary/output part and core (external)	See appended table 5.2	9.0	9.0	See below table C.2
T101	Secondary/output part and primary/input winding (external)	See appended table 5.2	9.0	9.0	See below table C.2
Supplementary information: 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. - LI YIN TECHNOLOGY LTD. - DONG GUAN LIGHTION ELECTRONICS CO LTD. - NANJING SHENNING MAGNETIC & ELECTRONICS CO., LTD - FRIENDSHIP ELECTRONIC (DONGGUAN) CO., LTD - FSP Group Inc. - SPI Electronics Co., Ltd.					

C.2	TABLE: transformers	
Concentric windings on Phenolic top bobbin type CC33/18 (SW-3318A) and Phenolic base type CC33/18 (SW-3318A-1) (Vertical orientation), core is considered as primary parts, transformer construction as below. - Before winding wrapped around two layers of insulation tape on bobbin. - Min. one layer of insulation tape provided between primary and secondary windings. - All secondary windings exit ends additionally with tubing for protection against winding tension mechanical stress. - All secondary windings were provided one layer of "U" shape insulation tape (15 mm by 13 mm) at primary bottom side and fold back 6.0 mm for protection against winding tension mechanical stress. - The inner copper shielding (E1, E2 and E3) are considered as primary. - Secondary wires are triple insulation wire, for details see appended table 1.5.1 and subclause 2.10.5.12, Annex U. Primary winding/pins: shielding (E1), 2-1, 6-4, shielding (E2), shielding (E3), 4-5		

TRF No. IEC60950_1F

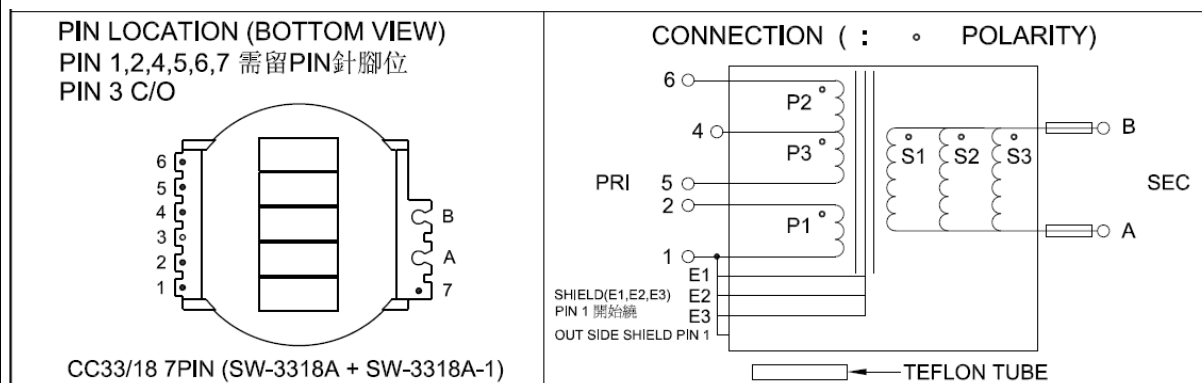
IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

Secondary winding/pins: B-A, B-A, B-A (S1, S2 and S3)

Bobbin Material (manufacturer, type, ratings, thickness):

- Sumitomo Bakelite, phenolic, type PM-9820, V-0, 150°C, min. 0.51mm thickness.

Detailed illustration of Transformer construction:



Type no. 8TV00295

WINDING	TURNS	WIRE		INDUCTANCE	DCR m ohms	Q值 MIN
		TYPE	DIAMETER			
S1 (B-A)	6Ts	TRW(B)	0.3 ϕ *3C			
P1 (2-1)	5Ts	2UEW	0.3 ϕ	15uH MAX	90 MAX	
P2 (6-4)	16Ts	2UEW NY	0.1 ϕ *20C			
SHIELD(E1)	0.2 ϕ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)					
S2 (B-A)	6Ts	TRW(B)	0.3 ϕ *3C			
SHIELD(E2)	0.2 ϕ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)					
P3 (4-5)	16Ts	2UEW NY	0.1 ϕ *20C			
SHIELD(E3)	0.2 ϕ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)					
S3 (B-A)	6Ts	TRW(B)	0.3 ϕ *3C	21uH MAX	15 MAX	
LP (6-5)	32Ts	2UEW NY	0.1 ϕ *20C	500uH $\pm$ 5%	295 MAX	65
LK (6-5)	SHORT PIN A, B			2.8uH MAX		

Type no. 8TV00314

IEC 60950-1						
Clause	Requirement + Test			Result - Remark		Verdict

WINDING	TURNS	WIRE		INDUCTANCE	DCR m ohms	Q值 MIN
		TYPE	DIAMETER			
S1 (B-A)	6Ts	TEX-E	0.3φ*3C			
P1 (2-1)	5Ts	2UEW	0.3φ	15uH MAX	90 MAX	
P2 (6-4)	16Ts	2UEW NY	0.1φ*20C			
SHIELD(E1)	0.2φ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)					
S2 (B-A)	6Ts	TEX-E	0.3φ*3C			
SHIELD(E2)	0.2φ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)					
P3 (4-5)	16Ts	2UEW NY	0.1φ*20C			
SHIELD(E3)	0.2φ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)					
S3 (B-A)	6Ts	TEX-E	0.3φ*3C	21uH MAX	15 MAX	
LP (6-5)	32Ts	2UEW NY	0.1φ*20C	500uH±5%	295 MAX	65
LK (6-5)	SHORT PIN A, B			2,8uH MAX		

4-1. 此變壓器外觀及GAP Core皆需點膠，不含浸凡立水。

4-2. 此變壓器外觀尺寸圖如下。

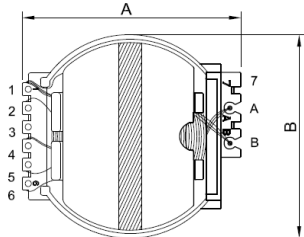


FIGURE-4

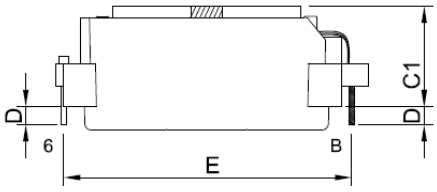


FIGURE-5

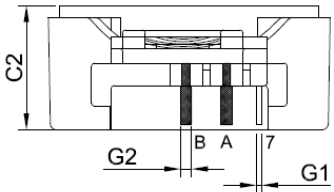


FIGURE-6

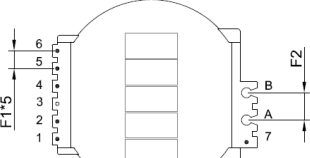


FIGURE-7

A = 40.5 MAX
B = 36.8 MAX
C1 = 16.2 MAX
C2 = 19.7 MAX
D = 3.6 ± 0.2
E = 35.85 ± 0.3
F1 = 3.8 TPY
F2 = 6.2 TPY
G1 = φ0.8
G2(A,B) = φ1.6 MAX

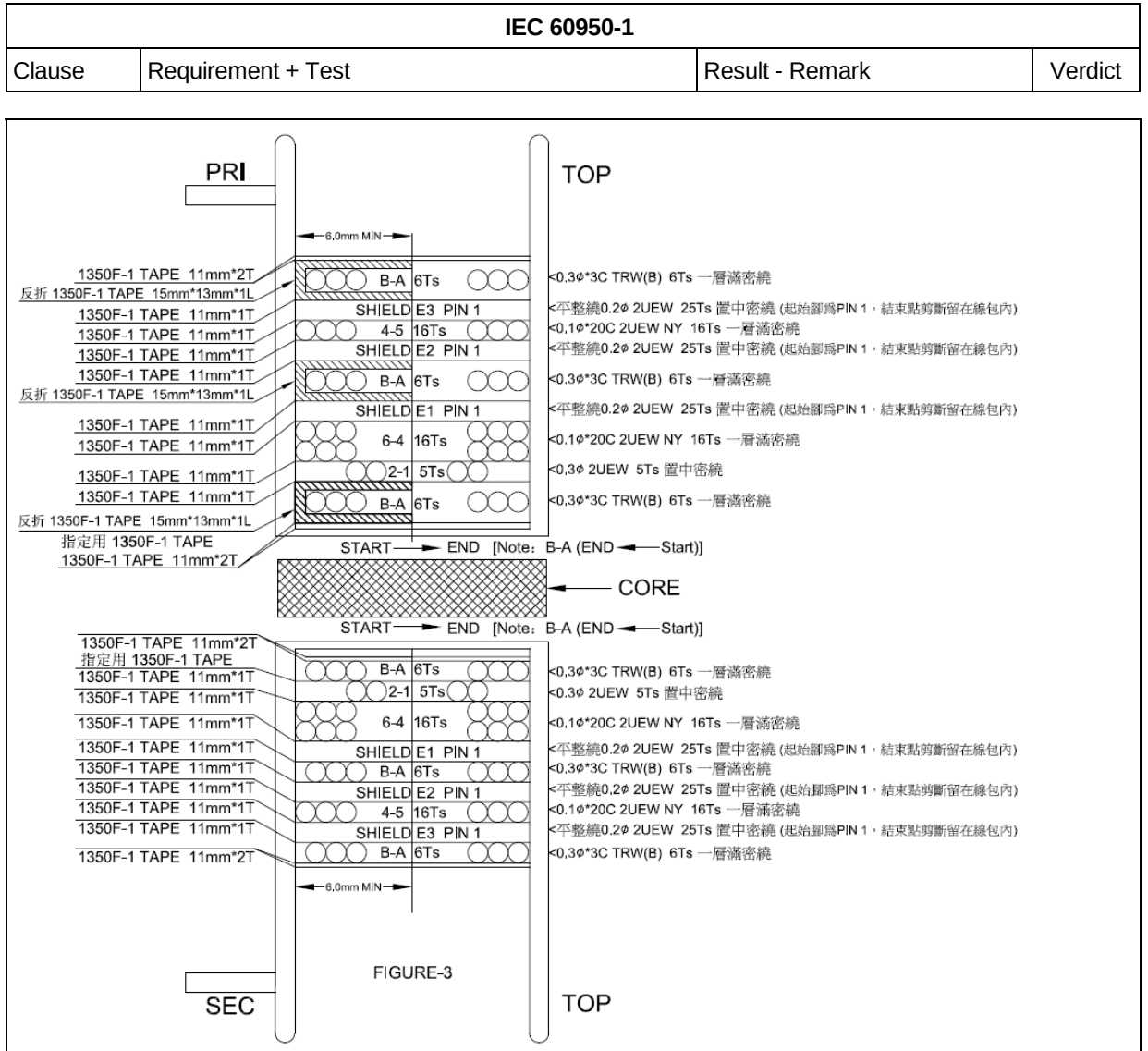
UNIT:mm

TRF No. IEC60950_1F

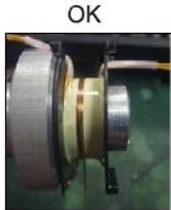
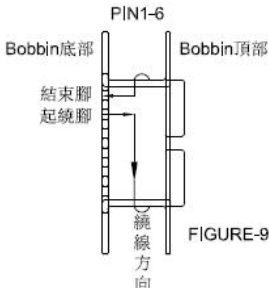
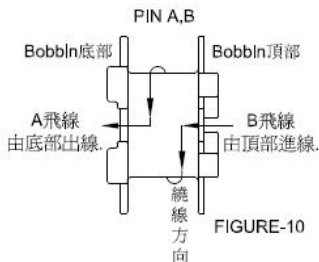
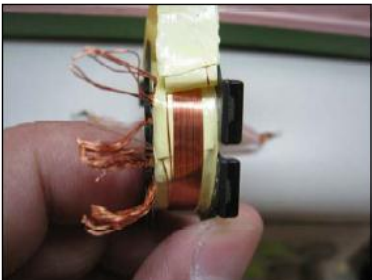
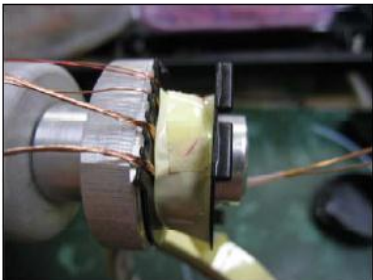
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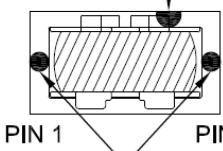
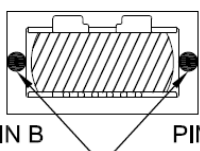
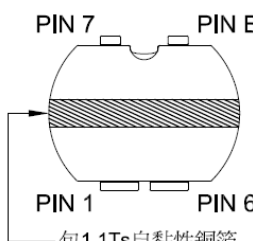
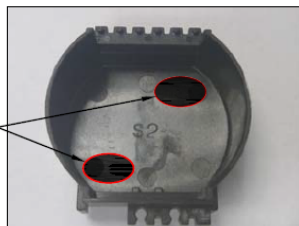
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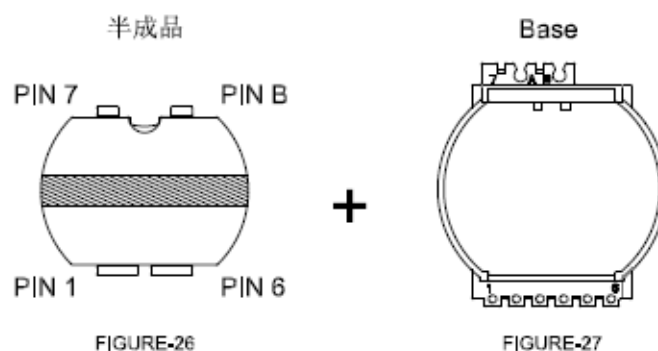
TRF No. IEC60950_1F

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
生產注意事項: 9-1. 繞線: 9-1-1. 所有繞組繞線方向需保持一致. 9-1-2. S1,S2,S3 所有出入腳都要加TEFLON TUBE. 9-1-3. A、B飛線進出線: B線由頂部進線, A線底部出線. 9-1-4. AUX Wire OK與NG照片.  OK FIGURE-11  NG FIGURE-12  FIGURE-9  FIGURE-10 9-1-5. Shield Wire需平整密繞.  SHIELD起繞先加1350F-1膠帶, 抓取適當距離再反折膠帶固定住後再繞線. FIGURE-13  SHIELD結尾將線頭扭向中央位置, 再加上一片5.0*5.0mm #44膠帶, 貼住線頭位置, 防止刺破層間絕緣膠帶. FIGURE-14  OK FIGURE-15  NG FIGURE-16			

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
9-3. 外觀點膠製程：			
9-3-1. 線包與鐵心組裝後，然後包兩圈1350F-1 11.0mm 膠帶固定，再點5點EPOXY膠(指定用 G-9008)，如下示意圖。			
9-3-2. 烘烤完成後，需將固定用膠帶拆除，再包1.1Ts自黏性銅箔(厚0.025mm*寬8.0mm)側邊焊引線0.3 ϕ 下腳於PIN 1，如下示意圖。			
注意事項：頂部Core及Bobbin的點膠，需確實點在Bobbin與Core之間，防止Bobbin與Core鬆動.(如下圖所示).			
頂部PIN6側Core與Bobbin的連接處 EPOXY膠(G-9008)*1  PIN 1 PIN 6 PIN 1-PIN6 側Core與Core的連接處 EPOXY膠(G-9008)*2 FIGURE-21 PIN 7、A、B側Core與Core的連接處 EPOXY膠(G-9008)*2  PIN B PIN 7 PIN 7、A、B側Core與Core的連接處 EPOXY膠(G-9008)*2 FIGURE-22  PIN 7 PIN B PIN 1 PIN 6 包1.1Ts自黏性銅箔 (厚0.025mm*寬8.0mm) 側邊焊引線0.3ϕ下腳於PIN 1 FIGURE-23			
9-3-3. Cover裡面底部需先點EPOXY膠(G-9008)，才可將半成品(線包與鐵心)組裝於Cover，組裝時半成品務必完全與Cover平貼，切勿傾斜或浮高。			
 EPOXY膠(G-9008)*2 FIGURE-24  FIGURE-25			

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

9-4. 半成品(指完成所有點膠、烘烤製程後)與Base組裝注意事項，示意圖如下：



半成品組裝在Base前，A、B飛線要理線整齊，如下示意圖。

半成品組裝在Base前，A、B飛線要理線整齊，如下示意圖。 半成品組裝在Base後，要注意半成品要置中在Base (避免半成品偏向PIN1-PIN6側或PIN7,A,B側)，如下示意圖。

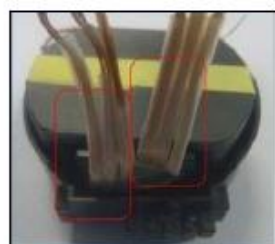


FIGURE-28



FIGURE-29

9-4-1. A組飛線需從底端直接拉出彎折，不能直接拉出很長再彎折，避免影響EMI與組裝問題，如下示意圖。

9-4-2. 三層絕緣線銅線不可裸露太多，與套管太短造成安規距離不足，如下示意圖。套管務必延伸到PIN腳掛線處。

OK



FIGURE-30

NG



FIGURE-31

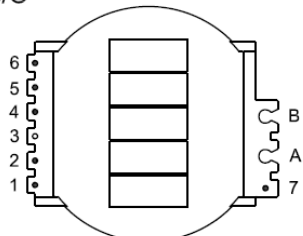
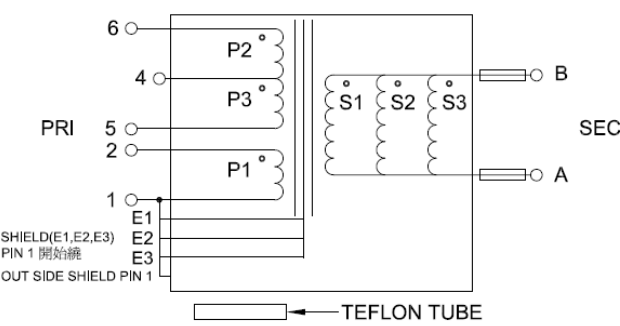
IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
9-4-3. 飛線A的三層絕緣線，線腳需全部扭在一起，再放進Cover槽中(壓至最底)，然後點膠(G-9008)最後加焊($\phi 1.6$ MAX)。 飛線B的三層絕緣線，線腳需全部扭在一起，再放進Cover槽中(壓至最底)，然後點膠(G-9008)最後加焊($\phi 1.6$ MAX)。			
 FIGURE-32			

C.2		TABLE: transformers (For T101 types 8TV00313 and 8TV00294)					P
Loc.	Tested insulation	Working voltage peak / V (2.10.2)	Working voltage rms / V (2.10.2)	Required electric strength (5.2)	Required clearance / mm (2.10.3)	Required creepage distance / mm (2.10.4)	Required distance thr. insul. (2.10.5)
T101	Primary to secondary (reinforced)	630	380	See appended table 5.2	7.0	7.6	0.4mm or 2 layers min. or TIW
T101	Primary to core (functional)	--	--	--	--	--	--
T101	Secondary to core (reinforced)	630	380	See appended table 5.2	7.0	7.6	0.4mm or 2 layers min. or TIW
Loc.	Tested insulation			Test voltage / V	Measured clearance / mm	Measured creepage dist. / mm	Measured distance thr. insul. / mm; number of layers
T101	Primary/input winding and secondary/output winding (internal)			See appended table 5.2	Triple insulation wire used	Triple insulation wire used	See below table C.2
T101	Primary/input winding and core (internal)			--	--	--	--
T101	Secondary/output winding and core (internal)			See appended table 5.2	Triple insulation wire used	Triple insulation wire used	See below table C.2

IEC 60950-1					
Clause	Requirement + Test	Result - Remark			Verdict
T101	Primary/input part and secondary/output part (external)	See appended table 5.2	9.0 (via core)	9.0 (via core)	See below table C.2
T101	Primary/input part and core (external)	--	--	--	--
T101	Secondary/output winding and primary/input part (external)	See appended table 5.2	Triple insulation wire used	Triple insulation wire used	See below table C.2
T101	Secondary/output part and core (external)	See appended table 5.2	9.0	9.0	See below table C.2
T101	Secondary/output part and primary/input winding (external)	See appended table 5.2	9.0	9.0	See below table C.2
Supplementary information: 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. - LI YIN TECHNOLOGY LTD. - DONG GUAN LIGHTION ELECTRONICS CO LTD. - NANJING SHENNING MAGNETIC & ELECTRONICS CO., LTD - FRIENDSHIP ELECTRONIC (DONGGUAN) CO., LTD - FSP Group Inc. - SPI Electronics Co., Ltd.					

C.2	TABLE: transformers	
Concentric windings on Phenolic top bobbin type CC33/18 (SW-3318A) and Phenolic base type CC33/18 (SW-3318A-1) (Vertical orientation), core is considered as primary parts, transformer construction as below. - Before winding wrapped around two layers of insulation tape on bobbin. - Min. one layer of insulation tape provided between primary and secondary windings. - All secondary windings exit ends additionally with tubing for protection against winding tension mechanical stress. - All secondary windings were provided one layer of "U" shape insulation tape (15 mm by 13 mm) at primary bottom side and fold back 6.0 mm for protection against winding tension mechanical stress. - The inner copper shielding (E1, E2 and E3) are considered as primary. - Secondary wires are triple insulation wire, for details see appended table 1.5.1 and subclause 2.10.5.12,		

TRF No. IEC60950_1F

IEC 60950-1																																																																																									
Clause	Requirement + Test	Result - Remark	Verdict																																																																																						
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Detailed illustration of Transformer construction:																																																																																									
PIN LOCATION (BOTTOM VIEW) PIN 1,2,4,5,6,7 需留PIN針腳位 PIN 3 C/O  CC33/18 7PIN (SW-3318A + SW-3318A-1) FIGURE-1		CONNECTION (: • POLARITY)  FIGURE-2																																																																																							
Type no. 8TV00294																																																																																									
<table><tr><th rowspan="2">WINDING</th><th rowspan="2">TURNS</th><th colspan="2">WIRE</th><th rowspan="2">INDUCTANCE</th><th rowspan="2">DCR m ohms</th><th rowspan="2">Q值 MIN</th></tr><tr><th>TYPE</th><th>DIAMETER</th></tr><tr><td>S1 (B-A)</td><td>5Ts</td><td>TRW(B)</td><td>0.35φ*3C</td><td></td><td></td><td></td></tr><tr><td>P1 (2-1)</td><td>5Ts</td><td>2UEW</td><td>0.3φ</td><td>15uH MAX</td><td>90 MAX</td><td></td></tr><tr><td>P2 (6-4)</td><td>16Ts</td><td>2UEW NY</td><td>0.1φ*20C</td><td></td><td></td><td></td></tr><tr><td>SHIELD(E1)</td><td colspan="6">0.2φ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)</td></tr><tr><td>S2 (B-A)</td><td>5Ts</td><td>TRW(B)</td><td>0.35φ*3C</td><td></td><td></td><td></td></tr><tr><td>SHIELD(E2)</td><td colspan="6">0.2φ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)</td></tr><tr><td>P3 (4-5)</td><td>16Ts</td><td>2UEW NY</td><td>0.1φ*20C</td><td></td><td></td><td></td></tr><tr><td>SHIELD(E3)</td><td colspan="6">0.2φ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)</td></tr><tr><td>S3 (B-A)</td><td>5Ts</td><td>TRW(B)</td><td>0.35φ*3C</td><td>15uH MAX</td><td>10 MAX</td><td></td></tr><tr><td>LP (6-5)</td><td>32Ts</td><td>2UEW NY</td><td>0.1φ*20C</td><td>500uH±5%</td><td>305 MAX</td><td>60</td></tr><tr><td>LK (6-5)</td><td colspan="3">SHORT PIN A, B</td><td>3.6uH MAX</td><td></td><td></td></tr></table>				WINDING	TURNS	WIRE		INDUCTANCE	DCR m ohms	Q值 MIN	TYPE	DIAMETER	S1 (B-A)	5Ts	TRW(B)	0.35φ*3C				P1 (2-1)	5Ts	2UEW	0.3φ	15uH MAX	90 MAX		P2 (6-4)	16Ts	2UEW NY	0.1φ*20C				SHIELD(E1)	0.2φ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)						S2 (B-A)	5Ts	TRW(B)	0.35φ*3C				SHIELD(E2)	0.2φ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)						P3 (4-5)	16Ts	2UEW NY	0.1φ*20C				SHIELD(E3)	0.2φ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)						S3 (B-A)	5Ts	TRW(B)	0.35φ*3C	15uH MAX	10 MAX		LP (6-5)	32Ts	2UEW NY	0.1φ*20C	500uH±5%	305 MAX	60	LK (6-5)	SHORT PIN A, B			3.6uH MAX		
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Type no. 8TV00313																																																																																									

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

WINDING	TURNS	WIRE		INDUCTANCE	DCR m ohms	Q值 MIN
		TYPE	DIAMETER			
S1 (B-A)	5Ts	TEX-E	0.35 ϕ *3C			
P1 (2-1)	5Ts	2UEW	0.3 ϕ	15uH MAX	90 MAX	
P2 (6-4)	16Ts	2UEW NY	0.1 ϕ *20C			
SHIELD(E1)	0.2 ϕ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)					
S2 (B-A)	5Ts	TEX-E	0.35 ϕ *3C			
SHIELD(E2)	0.2 ϕ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)					
P3 (4-5)	16Ts	2UEW NY	0.1 ϕ *20C			
SHIELD(E3)	0.2 ϕ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)					
S3 (B-A)	5Ts	TEX-E	0.35 ϕ *3C	15uH MAX	10 MAX	
LP (6-5)	32Ts	2UEW NY	0.1 ϕ *20C	500uH $\pm$ 5%	305 MAX	60
LK (6-5)	SHORT PIN A, B			3.6uH MAX		

4-1. 此變壓器外觀及GAP Core皆需點膠，不含浸凡立水。

4-2. 此變壓器外觀尺寸圖如下。

FIGURE-4

A = 40.5 MAX
 B = 36.8 MAX
 C1 = 16.2 MAX
 C2 = 19.7 MAX
 D = 3.6 $\pm$ 0.2
 E = 35.85 $\pm$ 0.3
 F1 = 3.8 TPY
 F2 = 6.2 TPY
 G1 = ϕ 0.8
 G2(A,B) = ϕ 1.6 MAX

UNIT:mm

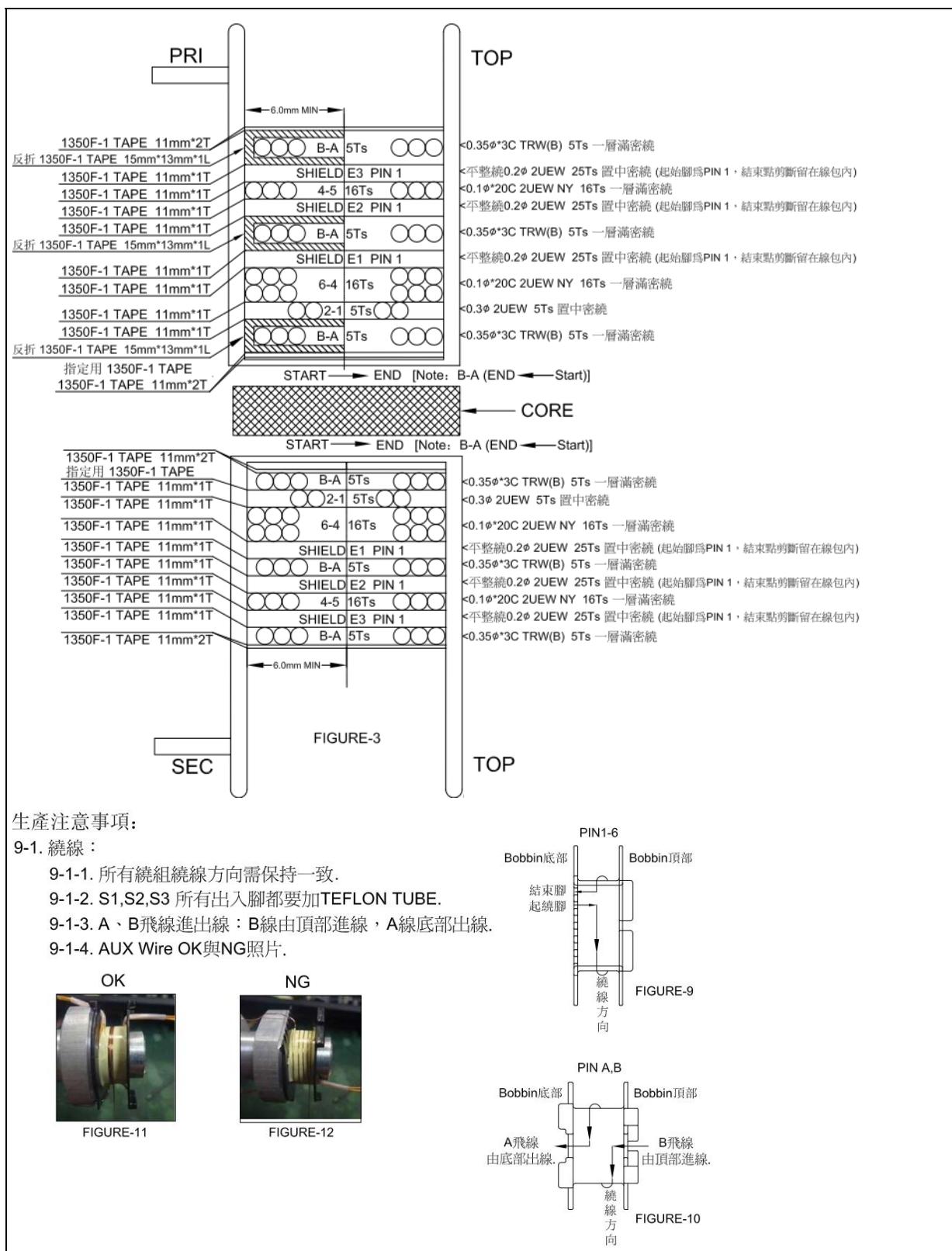
FIGURE-6

FIGURE-6

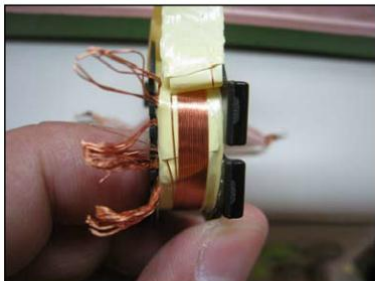
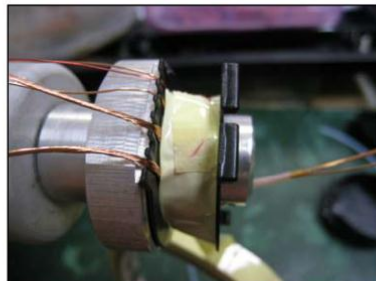
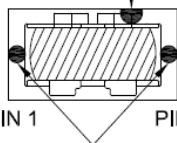
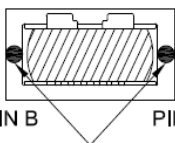
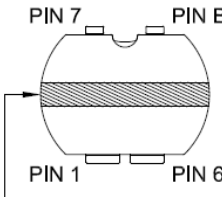
FIGURE-7

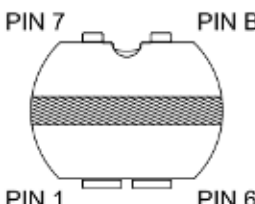
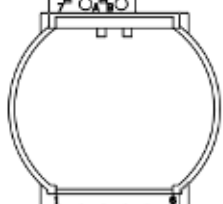
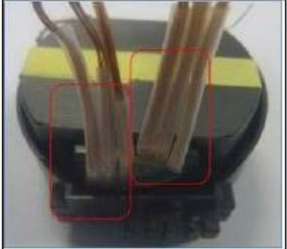
TRF No. IEC60950_1F

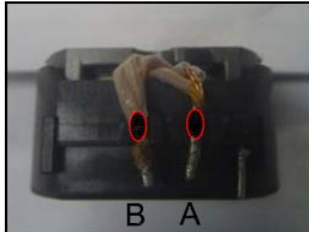
IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict



TRF No. IEC60950_1F

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
9-1-5. Shield Wire需平整密繞.			
			
SHIELD起繞先加1350F-1膠帶，抓取適當距離再反折膠帶固定住後再繞線。		SHIELD結尾將線頭扭向中央位置，再加上一片5.0*5.0mm #44膠帶，貼住線頭位置，防止刺破層間絕緣膠帶。	
FIGURE-13		FIGURE-14	
			
OK		NG	
FIGURE-15		FIGURE-16	
9-3. 外觀點膠製程：			
9-3-1. 線包與鐵心組裝後，然後包兩圈1350F-1 11.0mm 膠帶固定，再點5點EPOXY膠(指定用 G-9008)，如下示意圖。			
9-3-2. 烘烤完成後，需將固定用膠帶拆除，再包1.1Ts自黏性銅箔(厚0.025mm*寬8.0mm)側邊焊引線0.3φ下腳於PIN 1，如下示意圖。			
注意事項：頂部Core及Bobbin的點膠，需確實點在Bobbin與Core之間，防止Bobbin與Core鬆動。(如下圖所示).			
			
頂部PIN6側Core與Bobbin的連接處 EPOXY膠(G-9008)*1			
PIN 1 PIN 6			
PIN 1-PIN6 側Core與Core的連接處 EPOXY膠(G-9008)*2			
FIGURE-21			
			
PIN 7、A、B側Core與Core的連接處 EPOXY膠(G-9008)*2			
PIN B PIN 7			
FIGURE-22			
			
PIN 7 PIN B			
PIN 1 PIN 6			
包1.1Ts自黏性銅箔 (厚0.025mm*寬8.0mm) 側邊焊引線0.3φ下腳於PIN 1			
FIGURE-23			

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
9-3-3. Cover裡面底部需先點EPOXY膠(G-9008)，才可將半成品(線包與鐵心)組裝於Cover，組裝時半成品務必完全與Cover平貼，切勿傾斜或浮高。  FIGURE-24  FIGURE-25 9-4. 半成品(指完成所有點膠、烘烤製程後)與Base組裝注意事項，示意圖如下：  FIGURE-26  FIGURE-27 + 半成品組裝在Base前，A、B飛線要理線整齊，如下示意圖。  FIGURE-28 半成品組裝在Base後，要注意半成品要置中在Base (避免半成品偏向PIN1-PIN6側或PIN7,A,B側)，如下示意圖。  FIGURE-29 9-4-1. A組飛線需從底端直接拉出彎折，不能直接拉出很長再彎折，避免影響EMI與組裝問題，如下示意圖。 9-4-2. 三層絕緣線銅線不可裸露太多，與套管太短造成安規距離不足，如下示意圖。套管務必延伸到PIN腳掛線處。  FIGURE-30  FIGURE-31			

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
9-4-3. 飛線A的三層絕緣線，線腳需全部扭在一起，再放進Cover槽中(壓至最底)，然後點膠(G-9008)最後加焊($\phi 1.6$ MAX)。 飛線B的三層絕緣線，線腳需全部扭在一起，再放進Cover槽中(壓至最底)，然後點膠(G-9008)最後加焊($\phi 1.6$ MAX)。			
 FIGURE-32			

C.2	TABLE: transformers (For T101 types 8TV00287 and 8TV00316)						P
Loc.	Tested insulation	Working voltage peak / V (2.10.2)	Working voltage rms / V (2.10.2)	Required electric strength (5.2)	Required clearance / mm (2.10.3)	Required creepage distance / mm (2.10.4)	Required distance thr. insul. (2.10.5)
T101	Primary to secondary (reinforced)	655	407	See appende d table 5.2	7.2	8.2	0.4mm or 2 layers min. or TIW
T101	Primary to core (functional)	--	--	--	--	--	--
T101	Secondary to core (reinforced)	655	407	See appende d table 5.2	7.2	8.2	0.4mm or 2 layers min. or TIW
Loc.	Tested insulation			Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers
T101	Primary/input winding and secondary/output winding (internal)			See appende d table 5.2	Triple insulation wire used	Triple insulation wire used	See below table C.2
T101	Primary/input winding and core (internal)			--	--	--	--
T101	Secondary/output winding and core (internal)			See appende d table 5.2	Triple insulation wire used	Triple insulation wire used	See below table C.2

IEC 60950-1					
Clause	Requirement + Test	Result - Remark			Verdict
T101	Primary/input part and secondary/output part (external)	See appended table 5.2	8.8 (via primary coil)	8.8 (via primary coil)	See below table C.2
T101	Primary/input part and core (external)	--	--	--	--
T101	Secondary/output winding and primary/input part (external)	See appended table 5.2	Triple insulation wire used	Triple insulation wire used	See below table C.2
T101	Secondary/output part and core (external)	See appended table 5.2	8.8 (via primary coil)	8.8 (via primary coil)	See below table C.2
T101	Secondary/output part and primary/input winding (external)	See appended table 5.2	8.8	8.8	See below table C.2
Supplementary information: 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. - LI YIN TECHNOLOGY LTD. - DONG GUAN LIGHTION ELECTRONICS CO LTD. - NANJING SHENNING MAGNETIC & ELECTRONICS CO., LTD - FRIENDSHIP ELECTRONIC (DONGGUAN) CO., LTD - FSP Group Inc. - SPI Electronics Co., Ltd.					

C.2	TABLE: transformers	
Concentric windings on Phenolic top bobbin type CC33/18 (SW-3318A) and Phenolic base type CC33/18 (SW-3318A-1) (Vertical orientation), core is considered as primary parts, transformer construction as below. - Before winding wrapped around two layers of insulation tape on bobbin. - Min. one layer of insulation tape provided between primary and secondary windings. - All secondary windings exit ends additionally with tubing for protection against winding tension mechanical stress. - All secondary windings were provided one layer of "U" shape insulation tape (15 mm by 13 mm) at primary bottom side and fold back 6.0 mm for protection against winding tension mechanical stress. - The inner copper shielding (E1, E2, E3 and E4) are considered as primary. - Secondary wires are triple insulation wire, for details see appended table 1.5.1 and subclause 2.10.5.12,		

TRF No. IEC60950_1F

IEC 60950-1

Clause	Requirement + Test	Result - Remark	Verdict
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Annex U.

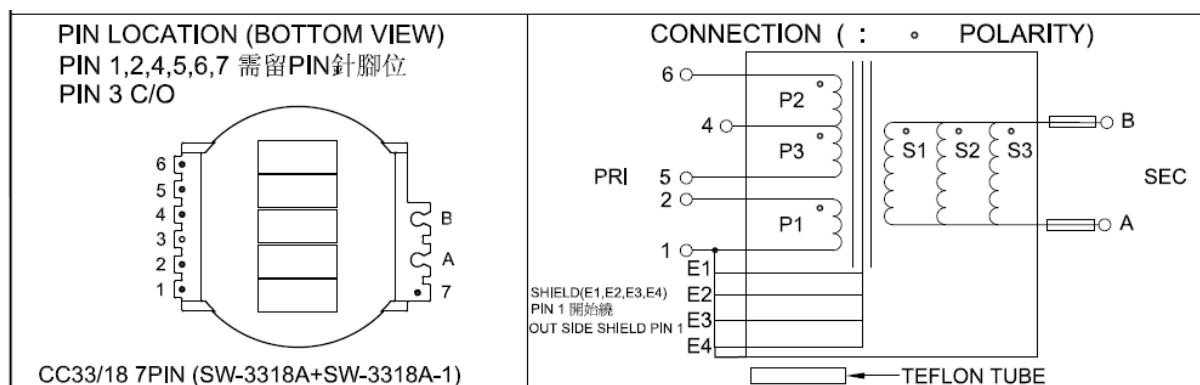
Primary winding/pins: shielding (E1), 2-1, 6-4, shielding (E2), shielding (E3), 4-5, shielding (E4)

Secondary winding/pins: B-A, B-A, B-A (S1, S2 and S3)

Bobbin Material (manufacturer, type, ratings, thickness):

- Sumitomo Bakelite, phenolic, type PM-9820, V-0, 150°C, min. 0.51mm thickness.

Detailed illustration of Transformer construction:



WINDING	TURNS	WIRE		INDUCTANCE
		TYPE	DIAMETER	
S1 (B-A)	10Ts	TRW(B)	0.25 ϕ *2C	
SHIELD(E1)	0.2 ϕ 2UEW 15Ts (起始腳為PIN 1. 結束點剪斷留在線包內)			
P1 (2-1)	4Ts	2UEW	0.3 ϕ	10.7 μ H MAX
P2 (6-4)	16Ts	2UEW NY	0.1 ϕ *20C	
SHIELD(E2)	0.2 ϕ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)			
S2 (B-A)	10Ts	TRW(B)	0.25 ϕ *2C	
SHIELD(E3)	0.2 ϕ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)			
P3 (4-5)	16Ts	2UEW NY	0.1 ϕ *20C	
SHIELD(E4)	0.2 ϕ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)			
S3 (B-A)	10Ts	TRW(B)	0.25 ϕ *2C	65.8 μ H MAX
LP (6-5)	32Ts	2UEW NY	0.1 ϕ *20C	560 μ H $\pm$ 5%
LK (6-5)	SHORT PIN A, B			3.0 μ H MAX

4-1. 此變壓器外觀及GAP Core皆需點膠，不含浸凡立水。

4-2. 此變壓器外觀尺寸圖如下。

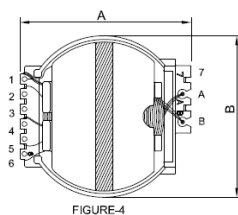


FIGURE-4

A = 40.5 MAX
B = 36.8 MAX
C1 = 16.2 MAX
C2 = 19.7 MAX
D = 3.6 $\pm$ 0.2
E = 35.85 $\pm$ 0.3
F1 = 3.8 TYP
F2 = 6.2 TYP
G1 = ϕ 0.8
G2(A,B) = ϕ 1.6 MAX

UNIT:mm

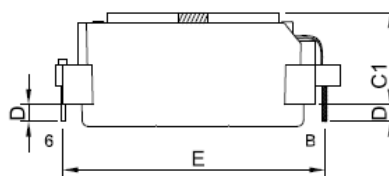
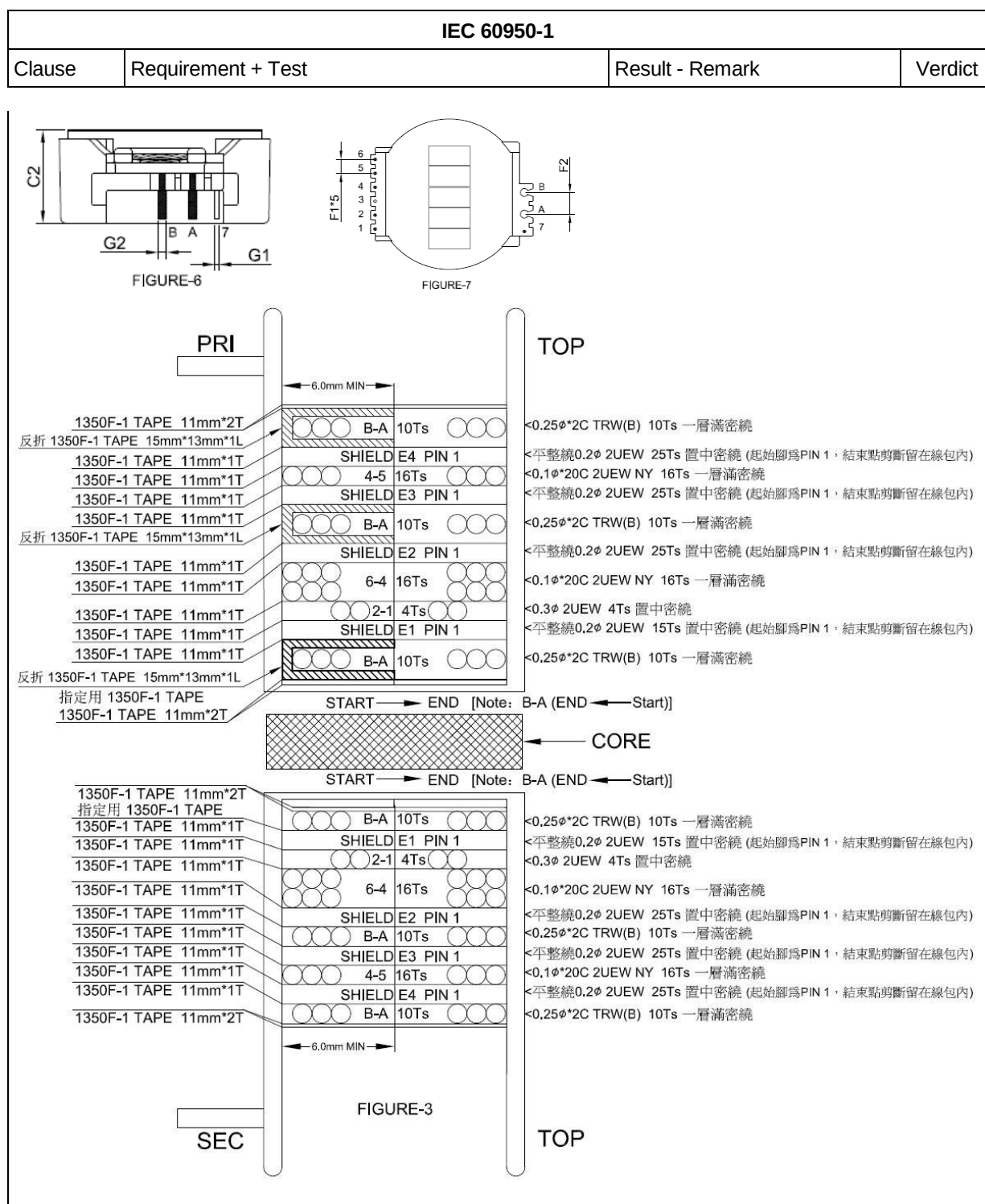
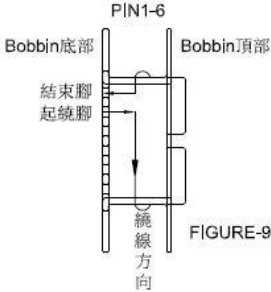
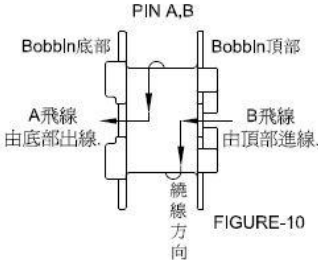
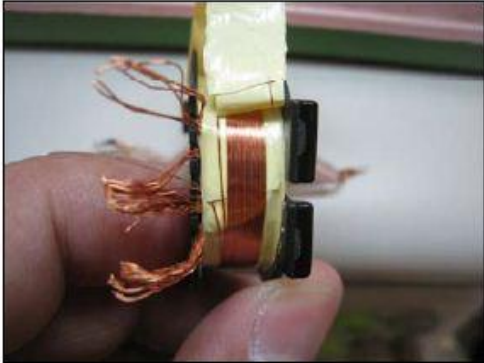
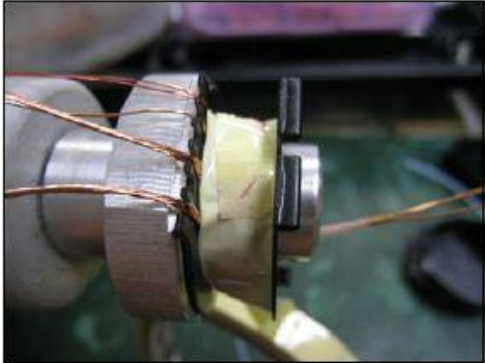
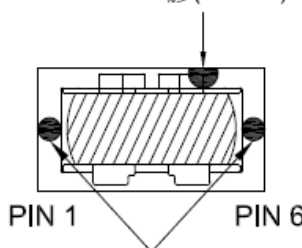
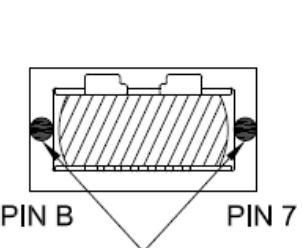
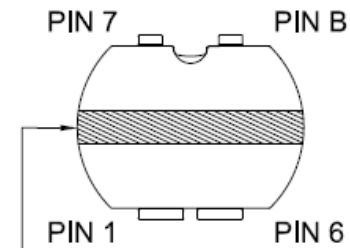
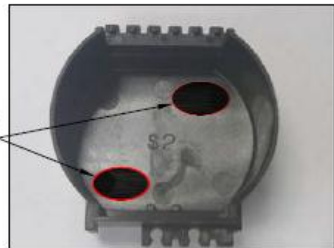
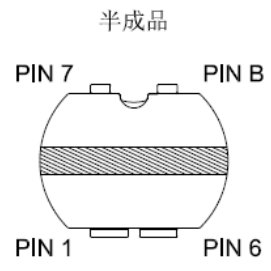
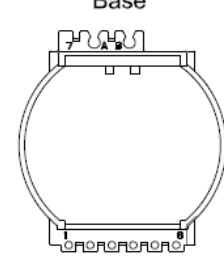


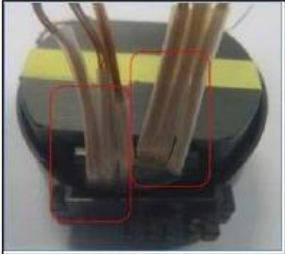
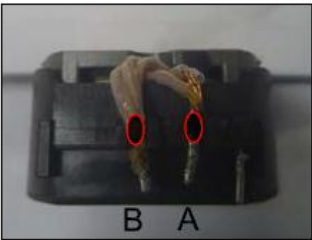
FIGURE-5



TRF No. IEC60950_1F

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	生產注意事項: 9-1. 繞線: 9-1-1. 所有繞組繞線方向需保持一致. 9-1-2. S1,S2,S3 所有出入腳都要加TEFLON TUBE. 9-1-3. A、B飛線進出線: B線由頂部進線, A線底部出線. 9-1-4. AUX Wire OK與NG照片. OK  FIGURE-11 NG  FIGURE-12  FIGURE-9  FIGURE-10		
	9-1-5. Shield Wire需平整密繞.  FIGURE-13  FIGURE-14 OK  FIGURE-15 NG  FIGURE-16		

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
9-3.	外觀點膠製程： 9-3-1. 線包與鐵心組裝後，然後包兩圈1350F-1 11.0mm 膠帶固定，再點5點EPOXY膠(指定用 G-9008)，如下示意圖。 9-3-2. 烘烤完成後，需將固定用膠帶拆除，再包1.1Ts自黏性銅箔(厚0.025mm*寬8.0mm)側邊焊引線0.3ϕ下腳於PIN 1，如下示意圖。 注意事項：頂部Core及Bobbin的點膠，需確實點在Bobbin與Core之間，防止Bobbin與Core鬆動。(如下圖所示). 頂部PIN6側Core與Bobbin的連接處 EPOXY膠(G-9008)*1  PIN 1 PIN 6 PIN 1-PIN6 側Core與Core的連接處 EPOXY膠(G-9008)*2 FIGURE-21  PIN B PIN 7 PIN 7、A、B側Core與Core的連接處 EPOXY膠(G-9008)*2 FIGURE-22  PIN 7 PIN B PIN 1 PIN 6 一包1.1Ts自黏性銅箔 (厚0.025mm*寬8.0mm) 側邊焊引線0.3ϕ下腳於PIN 1 FIGURE-23 9-3-3. Cover裡面底部需先點EPOXY膠(G-9008)，才可將半成品(線包與鐵心)組裝於Cover，組裝時半成品務必完全與Cover平貼，切勿傾斜或浮高。  EPOXY膠(G-9008)*2 FIGURE-24  FIGURE-25 9-4. 半成品(指完成所有點膠、烘烤製程後)與Base組裝注意事項，示意圖如下：  半成品 PIN 7 PIN B PIN 1 PIN 6 FIGURE-26  Base FIGURE-27		

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
半成品組裝在Base前，A、B飛線要理線整齊，如下示意圖。  FIGURE-28 FIGURE-29 9-4-1. A組飛線需從底端直接拉出彎折，不能直接拉出很長再彎折，避免影響EMI與組裝問題，如下示意圖。 9-4-2. 三層絕緣線銅線不可裸露太多，與套管太短造成安規距離不足，如下示意圖。 套管務必延伸到PIN腳掛線處。 OK  FIGURE-30 NG  FIGURE-31 9-4-3. 飛線A的三層絕緣線，線腳需全部扭在一起，再放進Cover槽中(壓至最底)，然後點膠(G-9008)最後加焊(φ1.9 MAX)。 飛線B的三層絕緣線，線腳需全部扭在一起，再放進Cover槽中(壓至最底)，然後點膠(G-9008)最後加焊(φ1.9 MAX)。  FIGURE-32			



Test Report issued under the responsibility of:

**TEST REPORT****IEC 60950-1**
**Information technology equipment – Safety –
Part 1: General requirements**

Report Number..... : 11037301 002

Date of issue..... : 19 Sept., 2014

Total number of pages : 47

Applicant's name : FSP Group Inc.

Address..... : No. 22, Jianguo E. Road, Taoyuan 330 Taiwan

Test specification:

Standard : IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013

Test procedure : CB Scheme

Non-standard test method : N/A

Test Report Form No. : IEC60950_1F

Test Report Form(s) Originator.... : SGS Fimko Ltd

Master TRF : Dated 2014-02

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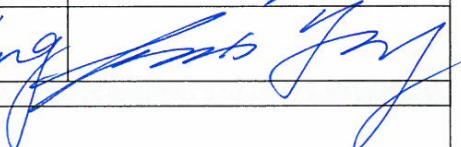
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This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

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Test item description..... :	Switching Power Adapter	
Trade Mark..... :		
Manufacturer..... :	Same as applicant	
Model/Type reference..... :	1) FSP090-AFAN2, FSP090-AFBN2 2) FSP090-AWAN2, FSP090-AWBN2 3) FSP090-ABAN2, FSP090-ABBN2 4) FSP090-AAAN2, FSP090-AABN2	
Ratings..... :	AC Input: 100-240Vac~, 1.2A, 50-60Hz DC output: 1) 48Vdc, 1.88A 2) 54Vdc, 1.67A 3) 19Vdc, 4.74A 4) 24Vdc, 3.75A	
Testing procedure and testing location:		
☒ CB Testing Laboratory:	TÜV Rheinland Taiwan Ltd., Taichung Laboratory	
Testing location/ address	No. 9, Ln. 36, Sec. 3, Minsheng Rd., Daya District, Taichung City, 428 Taiwan	
☐ Associated CB Testing Laboratory:		
Testing location/ address		
Tested by (name + signature)	Jimmy Lu	
Approved by (name + signature)	Felix Yang	
☐ Testing procedure: TMP/CTF Stage 1:		
Testing location/ address		
Tested by (name + signature)		
Approved by (name + signature)		
☐ Testing procedure: WMT/CTF Stage 2:		
Testing location/ address		
Tested by (name + signature)		
Witnessed by (name + signature)		
Approved by (name + signature)		
☐ Testing procedure: SMT/CTF Stage 3 or 4:		
Testing location/ address		

TRF No. IEC60950_1F

Tested by (name + signature)..... :		
Witnessed by (name + signature) :		
Approved by (name + signature)..... :		
Supervised by (name + signature)..... :		

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

- Photo Documentation
- National Differences
- Measurement Section

Total number of pages in each attachment is indicated in each individual attachment; except for Measurement Section is combining with this main test report in the last two pages.

Summary of testing:**Tests performed (name of test and test clause):**

All applicable tests as described in Test Case were performed.

- The test samples are pre-production without serial numbers.
- Specified maximum ambient temperature is +40°C.
- Highest load according to 1.2.2.1 for this equipment is the operation of the equipment at maximum specified DC load.
- The correction factors of clearance is 1.48, specified in table A. 2 of IEC 60664-1 for altitude 5000m.
- Unless otherwise specified, all tests have been performed on model FSP090-ABAN2 and FSP090-AAAN2 to represent other similar model.

Testing location:

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

Summary of compliance with National Differences**List of countries addressed:**

EU Group Differences, EU Special National Conditions, US.

Explanation of used codes: US = United States of America.

*(CA, DE, DK, FI, GB, IL, KR, SE, SI), **(AU, CN, CH, ES, IE, NO), ***(BY, JP)

Explanation of used codes:

* (CA = Canada, DE = Germany, DK=Denmark, FI = Finland, GB = United Kingdom, IL = Israel, KR = Republic of Korea, SE = Sweden, SI = Slovenia)

** (AU = Australia, CN = China, CH = Switzerland, ES = Spain, IE = Ireland, NO = Norway),

*** (BY = Belarus, JP = Japan)

* National differences to IEC 60950-1:2005+A1:2009 evaluated.

** National differences to IEC 60950-1:2005 evaluated.

*** National differences to IEC 60950-1:2001 evaluated.

☒ **The product fulfils the requirements of EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013.**

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.

 **FSP GROUP INC.**
全漢企業股份有限公司/全汉企业股份有限公司
Switching Power Adapter (電源供應器/电源适配器)
Model No (型號/型号): FSP090-AAAN2
AC Input (輸入/输入): 100-240V~, 1.2A, 50-60Hz
DC Output (輸出/输出): 24V $\equiv$ 3.75A
CAUTION(警告/警告):
For use with Information Technology Equipment.
(適用於資訊類產品/适用于资讯类产品)
ATTENTIONS:
Pour les équipements de traitement de l'information.
ATTENTION:
Nur zur Verwendung mit informationstechnischen
Einrichtungen.





EFFICIENCY LEVEL VI
MADE IN CHINA ~
(中國製造/中国制造)

 **FSP GROUP INC.**
全漢企業股份有限公司/全汉企业股份有限公司
Switching Power Adapter (電源供應器/电源适配器)
Model No (型號/型号): FSP090-AABN2
AC Input (輸入/输入): 100-240V~, 1.2A, 50-60Hz
DC Output (輸出/输出): 24V $\equiv$ 3.75A
CAUTION(警告/警告):
For use with Information Technology Equipment.
(適用於資訊類產品/适用于资讯类产品)
ATTENTIONS:
Pour les équipements de traitement de l'information.
ATTENTION:
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 **FSP GROUP INC.**
全漢企業股份有限公司/全汉企业股份有限公司
Switching Power Adapter (電源供應器/电源适配器)
Model No (型號/型号): FSP090-ABAN2
AC Input (輸入/输入): 100-240V~, 1.2A, 50-60Hz
DC Output (輸出/输出): 19V $\equiv$ 4.74A
CAUTION(警告/警告):
For use with Information Technology Equipment.
(適用於資訊類產品/适用于资讯类产品)
ATTENTIONS:
Pour les équipements de traitement de l'information.
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 **FSP GROUP INC.**
全漢企業股份有限公司/全汉企业股份有限公司
Switching Power Adapter (電源供應器/电源适配器)
Model No (型號/型号): FSP090-ABBN2
AC Input (輸入/输入): 100-240V~, 1.2A, 50-60Hz
DC Output (輸出/输出): 19V $\equiv$ 4.74A
CAUTION(警告/警告):
For use with Information Technology Equipment.
(適用於資訊類產品/适用于资讯类产品)
ATTENTIONS:
Pour les équipements de traitement de l'information.
ATTENTION:
Nur zur Verwendung mit informationstechnischen
Einrichtungen.





EFFICIENCY LEVEL VI
MADE IN CHINA ~
(中國製造/中国制造)

TRF No. IEC60950_1F

Test item particulars.....:	
Equipment mobility.....:	☒ movable ☐ hand-held ☒ transportable ☐ stationary ☐ for building-in ☐ direct plug-in
Connection to the mains.....:	☒ pluggable equipment ☒ type A ☐ type B ☐ permanent connection ☒ detachable power supply cord ☐ non-detachable power supply cord ☐ not directly connected to the mains
Operating condition.....:	☒ continuous ☐ rated operating / resting time:
Access location	☒ operator accessible ☐ restricted access location
Over voltage category (OVC)	☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV ☐ other:
Mains supply tolerance (%) or absolute mains supply values ±10	
Tested for IT power systems	☒ Yes ☐ No
IT testing, phase-phase voltage (V)	230V (For Norway)
Class of equipment	☒ Class I ☐ Class II ☐ Class III ☐ Not classified
Considered current rating of protective device as part of the building installation (A)	16A (20A for North American)
Pollution degree (PD)	☐ PD 1 ☒ PD 2 ☐ PD 3
IP protection class	IPX0
Altitude during operation (m)	Not over 5000m
Altitude of test laboratory (m)	Not over 2000m
Mass of equipment (kg)	Approx. 0.36kg
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.....:	9 Sept., 2014
Date(s) of performance of tests	9 Sept., 2014 - 19 Sept., 2014
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 IEC60950-1:

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
Block C, Building 4,6,7,8,9,10,11, County 73,
Xin'an, Bao'an, Shenzhen, Guangdong, P.R.
China
2. Zhonghan Electronics (Shenzhen) Co., Ltd.
Building 2,3,4,10, JuYuan Industrial Zone,
TangWei Village, FuYong Town, BaoAn District,
ShenZhen City, P.R. China
3. Wuxi SPI Technology Co., Ltd.
No. 96, XinmeiRoad, New District, Wuxi city,
Jiangsu, P.R. China
4. ZHONGHAN SCIENCE & TECH CO. LTD
BLD5, JuYuan Industrial, TangWei Village,
FuYong Town, BaoAn, District. ShenZhen City,
P.R. China
5. Wuxi ZhongHan Technology Co., Ltd.
Block 106-E, Wuxi Nation HI-TECH Industrial,
Development Zone, Wuxi City, Jiangsu,
Province, P.R. China
6. **ShenZhen HuiLi Electronics CO., LTD**
Block C,Building 4,6,7,8,9,10,11, County 73,
Xin'an,Bao'an,Shenzhen, Guangdong(Block
A, Building 3,No. 5185, YeeYuan Rd.,County
74, Bao'an), P.R. China

General product information:

Description of change(s):

1. Adding new models FSP090-ABAN2, FSP090-ABBN2, FSP090-AAAN2 and FSP090-AABN2 which are similar to models FSP090-AFAN2, FSP090-AFBN2, FSP090-AWAN2, FSP090-AWBN2 except list as below.

Model Name	FSP090-AFAN2	FSP090-AFBN2	FSP090-AWAN2	FSP090-AWBN2
I/P	100-240V~, 50-60Hz, 1.2A			
O/P	48Vdc/1.88A		54Vdc/1.67A	
T101	8TV00287	8TV00287	8TV00287	8TV00287
R121	0.15Ω	0.15Ω	0.15Ω	0.15Ω
Q601	500V,9A	500V,9A	500V,9A	500V,9A
Q101	650V,8A	650V,8A	650V,8A	650V,8A
AC Inlet	C14	C6	C14	C6
R209	18.2KF	18.2KF	16.2KF	16.2KF

Model Name	FSP090-ABAN2	FSP090-ABBN2	FSP090-AAAN2	FSP090-AABN2
I/P	100-240V~, 50-60Hz, 1.2A			
O/P	19Vdc/4.74A		24Vdc/3.75A	
T101	8TV00294	8TV00294	8TV00295	8TV00295
R121	0.13Ω	0.13Ω	0.13Ω	0.13Ω
Q601	500V,12A	500V,12A	500V,12A	500V,12A
Q101	650V,8A	650V,8A	650V,8A	650V,8A
AC Inlet	C14	C6	C14	C6
R209	--	--	--	--
Components (J201, J202, C214 and R229) are for optional used.				

2.

Add new transformer (T101) part no 8TV00316 for modes FSP090-AFAN2, FSP090-AFBN2, FSP090-AWAN2, FSP090-AWBN2 which are similar to part no 8TV00287 except for triple wire sources.

3.

Add factory “ShenZhen HuiLi Electronics CO., LTD” with additional address.

For the above described change(s) the following was considered to be necessary:

Change	Testing	Comments
1.	• Input • Energy hazard measurement • SELV • Humidity • Working voltage measurement • Electric Strength • Thin sheet material • Heating • Abnormal	See appended table for test results. See bold part in appended table 1.5.1 for component details. The PCB layout is not changed.
2.	• Humidity • Electric Strength	See appended table for test results. See bold part in appended table 1.5.1 for component details.
3.	• N/A	See bold part in page 7 for the factory details.

History of amendments and modifications:

Ref. No. 11037301 001, dated 25 June, 2014 (original test report)

Ref. No. 11037301 002, dated 19 Sept., 2014 (modification)

Abbreviations used in the report:

- normal conditions	N.C.	- single fault conditions	S.F.C
- functional insulation	OP	- basic insulation	BI
- double insulation	DI	- supplementary insulation	SI
- between parts of opposite polarity	BOP	- reinforced insulation	RI

Indicate used abbreviations (if any)

TRF No. IEC60950_1F

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7	Marking and instructions	See below.	P
1.7.1	Power rating and identification markings	The power rating and identification marking are on copy of marking plate or printed on enclosure by laser engraving.	P
1.7.1.1	Power rating marking	See copy of marking plate.	P
	Multiple mains supply connections.....:		N/A
	Rated voltage(s) or voltage range(s) (V)	See copy of marking plate.	P
	Symbol for nature of supply, for d.c. only		N/A
	Rated frequency or rated frequency range (Hz)	See copy of marking plate.	P
	Rated current (mA or A)	See copy of marking plate.	P
1.7.1.2	Identification markings	See below.	P
	Manufacturer's name or trade-mark or identification mark	See copy of marking plate.	P
	Model identification or type reference	See copy of marking plate.	P
	Symbol for Class II equipment only		N/A
	Other markings and symbols	Additional symbols or markings do not give rise to misunderstanding.	P
2.9	Electrical insulation		P
2.9.1	Properties of insulating materials	Natural rubber, asbestos or hygroscopic materials are not used. However, humidity test performed on equipment with all sources of insulating materials (See appended tables 1.5.1, 2.10.5 and 5.2 for sources) then subjected to the electric strength test of 5.2.2, which results see appended tables 2.10.5 and 5.2.	P
2.9.2	Humidity conditioning	Tested for 120hrs.	P
	Relative humidity (%), temperature (°C)	95%, 40°C.	—

TRF No. IEC60950_1F

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: List of critical components					P
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity ¹⁾	
Appliance Inlet (SC101) (for models FSP090-AFAN2, FSP090-AWAN2, FSP090-ABAN2 , FSP090-AAAN2) (C14 type)	Rong Feng Industrial Co., Ltd.	SS-120	10A, 250Vac, 70°C	IEC/EN 60320-1, ANSI/UL 498	VDE, UL	
	Tecx-Unions Technology Corp.	TU-301-SP	10A, 250Vac, 70°C	IEC/EN 60320-1, ANSI/UL 498	VDE, UL	
	Solteam Electronics Co., Ltd.	ST-01	10A, 250Vac, 70°C	IEC/EN 60320-1, ANSI/UL 498	VDE, UL	
	HCR Electronics Co., Ltd.	SK01	10A, 250Vac, 70°C	IEC/EN 60320-1, ANSI/UL 498	ENEC 17, UL	
	Rich Bay Co., Ltd.	R-301SN	10A, 250Vac, 70°C	IEC/EN 60320-1, ANSI/UL 498	VDE, UL	
	Zhe Jiang Bei Er Jia Electronic Co., Ltd.	ST-A01-001L, ST-A01-002L, ST-A01-003J, ST-A01-003K	10A, 250Vac, 70°C	IEC/EN 60320-1, ANSI/UL 498	VDE, UL	
	Canal Electronic Co., Ltd.	KS series	10A, 250Vac, 70°C	IEC/EN 60320-1, ANSI/UL 498	VDE, UL	
Appliance Inlet (SC101) (for models FSP090-AFBN2, FSP090-AWBN2, FSP090-ABBN2 , FSP090-AABN2) (C6 type)	Rong Feng Industrial Co., Ltd.	RF-190	250Vac, 2.5A	IEC/EN 60320-1, ANSI/UL 498	VDE, UL	
	Tecx-Unions Technology Corp.	TU-333	250Vac, 2.5A	IEC/EN 60320-1, ANSI/UL 498	VDE, UL	
	Solteam Electronics Co., Ltd.	ST-03	250Vac, 2.5A	IEC/EN 60320-1, ANSI/UL 498	VDE, UL	

TRF No. IEC60950_1F

IEC 60950-1					
Clause	Requirement + Test			Result - Remark	Verdict
	HCR Electronics Co., Ltd.	SK03	250Vac, 2.5A	IEC/EN 60320-1, UL 498	ENEC 17, UL
Fuse (F101) (optional) (provided with VA101 together)	Littelfuse Wickmann Werke	382-Serie(s), 392	T6.3AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
	Cooper Bussmann L L C	SS-5, SR-5	T6.3AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
	Walter Electronic Co., Ltd.	2000, 2010 Serie(s)	T6.3AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
	Ever Island Electric Co Ltd & Walter Electric Co., Ltd.	2000, 2010 Serie(s)	T6.3AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	TUV, UL
	Bel Fuse Ltd.	MRT, RST-Serie(s)	T6.3AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
	Conquer Electronics Co., Ltd.	MET series, MST-series	T6.3AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
Fuse (F102)	Littelfuse Wickmann Werke	382-Serie(s), 392	T2.5AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
	Cooper Bussmann L L C	SS-5, SR-5	T2.5AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
	Walter Electronic Co., Ltd.	2000, 2010 Serie(s)	T2.5AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
	Ever Island Electric Co Ltd & Walter Electric Co., Ltd.	2000, 2010 Serie(s)	T2.5AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	TUV, UL
	Bel Fuse Ltd.	MRT, RST-Serie(s)	T2.5AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1,	VDE, UL

TRF No. IEC60950_1F

IEC 60950-1					
Clause	Requirement + Test			Result - Remark	Verdict
				ANSI/UL 248-14	
	Conquer Electronics Co., Ltd.	MET series, MST-series	T2.5AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
Varistors (VA101, VA102) (Optional) (VA101 provided with F101 together)	Thinking Electronic Industrial Co., Ltd.	TVR10471-D, TVR10471-V	300Vac, 385Vdc (Flame class of body coating complied with V-0)	IEC/EN 61051-1 IEC/EN 61051-2 IEC/EN 61051-2-2 ANSI/UL 1449 SPD type 3 approved	VDE, UL
	Thinking Electronic Industrial Co., Ltd.	TVR10561-D, TVR10561-V	350Vac, 450Vdc (Flame class of body coating complied with V-0)	IEC/EN 61051-1 IEC/EN 61051-2 IEC/EN 61051-2-2 ANSI/UL 1449 SPD type 3 approved	VDE, UL
	Thinking Electronic Industrial Co., Ltd.	TVR10621-D, TVR10621-V	395Vac, 510Vdc (Flame class of body coating complied with V-0)	IEC/EN 61051-1 IEC/EN 61051-2 IEC/EN 61051-2-2 ANSI/UL 1449 SPD type 3 approved	VDE, UL
	Thinking Electronic Industrial Co., Ltd.	TVR10681-D, TVR10681-V	420Vac, 560Vdc (Flame class of body coating complied with V-0)	IEC/EN 61051-1 IEC/EN 61051-2 IEC/EN 61051-2-2 ANSI/UL 1449 SPD type 3 approved	VDE, UL
	Thinking Electronic Industrial Co., Ltd.	TVR10751-D, TVR10751-V	465Vac, 615Vdc (Flame class of body coating complied with V-0)	IEC/EN 61051-1 IEC/EN 61051-2 IEC/EN 61051-2-2 ANSI/UL 1449 SPD type 3 approved	VDE, UL
	Thinking Electronic Industrial Co., Ltd.	TVR14471, TVR14471-D	300Vac, 385Vdc (Flame class of body coating complied with V-0)	IEC/EN 61051-1 IEC/EN 61051-2 IEC/EN 61051-2-2 ANSI/UL 1449 SPD type 3 approved	VDE, UL

TRF No. IEC60950_1F

IEC 60950-1					
Clause	Requirement + Test			Result - Remark	Verdict
	Thinking Electronic Industrial Co., Ltd.	TVR14621, TVR14621-D	395Vac, 510Vdc (Flame class of body coating complied with V-0)	IEC/EN 61051-1 IEC/EN 61051-2 IEC/EN 61051-2-2 ANSI/UL 1449 SPD type 3 approved	VDE, UL
	Thinking Electronic Industrial Co., Ltd.	TVR14681, TVR14681-D	420Vac, 560Vdc (Flame class of body coating complied with V-0)	IEC/EN 61051-1 IEC/EN 61051-2 IEC/EN 61051-2-2 ANSI/UL 1449 SPD type 3 approved	VDE, UL
	Thinking Electronic Industrial Co., Ltd.	TVR14751, TVR14751-D	465Vac, 615Vdc (Flame class of body coating complied with V-0)	IEC/EN 61051-1 IEC/EN 61051-2 IEC/EN 61051-2-2 ANSI/UL 1449 SPD type 3 approved	VDE, UL
Line Choke (LF102) (Optional)	FSP /SPI	8LM04537	130°C	--	--
X-Capacitor (CX101) (optional)	Ultra Tech Xiphi Enterprise Co Ltd	HQX	Max. 0.33μF, min. 250Vac, 100°C	IEC/EN 60384-14: 2005 ANSI/UL 60384-14 UL 1414	VDE, UL
	Carli Electronics Co., Ltd.	MPX	Max. 0.33μF, min. 250Vac, 100°C	IEC/EN 60384-14: 2005 ANSI/UL 60384-14 UL 1414	VDE, UL
	Okaya Electric Industries Co., .Ltd	LE(-*)	Max. 0.33μF, min. 250Vac, min. 100°C	IEC/EN 60384-14: 2005 ANSI/UL 60384-14 UL 1414	ENEC 14, UL
	Okaya Electric Industries Co., .Ltd	RE-Series	Max. 0.33μF, min. 250Vac, 100°C	IEC/EN 60384-14: 2005 ANSI/UL 60384-14 UL 1414	VDE, UL
	ZhuHai Sung Ho Electronics Co.,	CMPP	Max. 0.33μF, min. 250Vac,	IEC/EN 60384-14: 2005	VDE, UL

TRF No. IEC60950_1F

IEC 60950-1					
Clause	Requirement + Test			Result - Remark	Verdict
	Ltd.		105°C	ANSI/UL 60384-14 UL 1414	
	Okaya Electric Industries Co., Ltd	PA Series	Max. 0.33μF, min. 250Vac, 100°C	IEC/EN 60384-14: 2005 ANSI/UL 60384-14 UL 1414	VDE, UL
	Iskra Sistemi, D D	KNB1530	Max. 0.33μF, min. 250Vac, 100°C	IEC/EN 60384-14: 2005 ANSI/UL 60384-14 UL 1414	VDE, UL
	Iskra Sistemi, D D	KNB1560, KNB1563, KNB1562	Max. 0.33μF, min. 250Vac, min. 110°C	IEC/EN 60384-14: 2005 ANSI/UL 60384-14 UL 1414	VDE, UL
	Hua Jung components Co., Ltd.	MKP	Max. 0.33μF, min. 250Vac, min. 100°C	IEC/EN 60384-14: 2005 ANSI/UL 60384-14 UL 1414	ENEC 14, UL
	Chiefcon Electronics Co Ltd	CKX	Max. 0.33μF, min. 250Vac, 100°C	IEC/EN 60384-14: 2005 ANSI/UL 60384-14 UL 1414	VDE, UL
Choke (L603) (optional)	FSP /SPI	8LM04536	130°C	--	--
PFC Choke (L601)	FSP /SPI	8TI01526	130°C	--	--
	TDK	8TI01515	130°C		
Transformer (T101) For models FSP090-AFAN2, FSP090-AFBN2, FSP090-AWAN2, FSP090-AWBN2	FSP /SPI	8TV00287	Class B, UL Insulation system type GH-130	Applicable part according to IEC 60950-1 and IEC 60085	Accepted by TÜV Rheinland
-Triple Insulation Wire Used in T101	Great Leoflon Industrial Co., Ltd.	TRW(B)	130°C	IEC/EN 60950-1 UL 2353	VDE, UL
	Great Leoflon Industrial Co.,	TRW(F)	155°C	IEC/EN 60950-1 UL 2353	VDE, UL

TRF No. IEC60950_1F

IEC 60950-1					
Clause	Requirement + Test		Result - Remark		Verdict
	Ltd.				
- Bobbin used in T101	Sumitomo	PM-9820	V-0, phenolic, min. 1.0 mm, 150°C	UL 94	UL
- Base used in T101	Sumitomo	PM-9820	V-0, phenolic, min. 1.0 mm, 150°C	UL 94	UL
Transformer (T101) (Alternate) For models FSP090-AFAN2, FSP090-AFBN2, FSP090-AWAN2, FSP090-AWBN2	FSP /SPI	8TV00316	Class B, UL Insulation system type SBI4.2	Applicable part according to IEC 60950-1 and IEC 60085	Accepted by TÜV Rheinland
-Triple Insulation Wire Used in T101	FRUKAWA Electric Co.,LTD	TEX-E	130°C	IEC/EN 60950-1 UL 2353	VDE, UL
	TOTOKU Electric Co., Ltd.	TIW-2 TIW-3	155°C	IEC/EN 60950-1 UL 2353	VDE, UL
- Bobbin used in T101	Sumitomo	PM-9820	V-0, phenolic, min. 1.0 mm, 150°C	UL 94	UL
- Base used in T101	Sumitomo	PM-9820	V-0, phenolic, min. 1.0 mm, 150°C	UL 94	UL
Transformer (T101) For models FSP090-ABAN2, FSP090-ABBN2	FSP /SPI	8TV00294	Class B, UL Insulation system type GH-130	Applicable part according to IEC 60950-1 and IEC 60085	Accepted by TÜV Rheinland
-Triple Insulation Wire Used in T101	Great Leoflon Industrial Co., Ltd.	TRW(B)	130°C	IEC/EN 60950-1 UL 2353	VDE, UL
	Great Leoflon Industrial Co., Ltd.	TRW(F)	155°C	IEC/EN 60950-1 UL 2353	VDE, UL
- Bobbin used in T101	Sumitomo	PM-9820	V-0, phenolic, min. 1.0 mm, 150°C	UL 94	UL
- Base used in T101	Sumitomo	PM-9820	V-0, phenolic, min. 1.0 mm, 150°C	UL 94	UL

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IEC 60950-1					
Clause	Requirement + Test		Result - Remark		Verdict
Transformer (T101) (Alternative) For models FSP090-ABAN2, FSP090-ABBN2	FSP /SPI	8TV00313	Class B, UL Insulation system type SBI4.2	Applicable part according to IEC 60950-1 and IEC 60085	Accepted by TÜV Rheinland
-Triple Insulation Wire Used in T101	FRUKAWA Electric Co.,LTD	TEX-E	130℃	IEC/EN 60950-1 UL 2353	VDE, UL
	TOTOKU Electric Co., Ltd.	TIW-2 TIW-3	155℃	IEC/EN 60950-1 UL 2353	VDE, UL
- Bobbin used in T101	Sumitomo	PM-9820	V-0, phenolic, min. 1.0 mm, 150℃	UL 94	UL
- Base used in T101	Sumitomo	PM-9820	V-0, phenolic, min. 1.0 mm, 150℃	UL 94	UL
Transformer (T101) For models FSP090-AAAN2, FSP090-AABN2	FSP /SPI	8TV00295	Class B, UL Insulation system type GH-130	Applicable part according to IEC 60950-1 and IEC 60085	Accepted by TÜV Rheinland
-Triple Insulation Wire Used in T101	Great Leoflon Industrial Co., Ltd.	TRW(B)	130℃	IEC/EN 60950-1 UL 2353	VDE, UL
	Great Leoflon Industrial Co., Ltd.	TRW(F)	155℃	IEC/EN 60950-1 UL 2353	VDE, UL
- Bobbin used in T101	Sumitomo	PM-9820	V-0, phenolic, min. 1.0 mm, 150℃	UL 94	UL
- Base used in T101	Sumitomo	PM-9820	V-0, phenolic, min. 1.0 mm, 150℃	UL 94	UL
Transformer (T101) (Alternative) For models FSP090-AAAN2, FSP090-AABN2	FSP /SPI	8TV00314	Class B, UL Insulation system type SBI4.2		
-Triple Insulation Wire Used in T101	FRUKAWA Electric Co.,LTD	TEX-E	130℃	--	--

TRF No. IEC60950_1F

IEC 60950-1					
Clause	Requirement + Test			Result - Remark	Verdict
	TOTOKU Electric Co., Ltd.	TIW-2 TIW-3	155°C	IEC/EN 60384-14:2005 UL 60384-14	VDE, UL
- Bobbin used in T101	Sumitomo	PM-9820	V-0, phenolic, min. 1.0 mm, 150°C	IEC/EN 60384-14:2005 UL 60384-14	VDE, UL
- Base used in T101	Sumitomo	PM-9820	V-0, phenolic, min. 1.0 mm, 150°C	IEC/EN 60384-14:2005 UL 60384-14	VDE, UL
Bridge Cap. (CY103) (Y1 type only)	Walsin Technology Corp.	AH	Max. 1500pF, min. 250V, 125°C	IEC/EN 60384-14:2005 UL 60384-14	VDE, UL
	TDK-EPC Corp.	CD	Max. 1500pF, min. 250V, 125°C	IEC/EN 60384-14:2005 UL 60384-14	VDE, UL
	TDK-EPC Corp.	CD (miniature series)	Max. 1500pF, min. 250V, 125°C	IEC/EN 60384-14:2005 UL 60384-14	VDE, UL
	Murata Mfg Co., Ltd.	KX	Max. 1500pF, min. 250V, 125°C	IEC/EN 60384-14:2005 UL 60384-14	VDE, UL
	Success Electronics Co., Ltd.	SB	Max. 1500pF, min. 250V, 125°C	IEC/EN 60384-14:2005 UL 60384-14	VDE, UL
Bridge Cap. (CY104) (Y1 type only)	Walsin Technology Corp.	AH	Max. 1000pF, min. 250V, 125°C	IEC/EN 60384-14:2005 UL 60384-14	VDE, UL
	TDK-EPC Corp.	CD	Max. 1000pF, min. 250V, 125°C	IEC/EN 60384-14:2005 UL 60384-14	VDE, UL
	TDK-EPC Corp.	CD (miniature series)	Max. 1000pF, min. 250V, 125°C	IEC/EN 60384-14:2005 UL 60384-14	VDE, UL
	Murata Mfg Co., Ltd.	KX	Max. 1000pF, min. 250V, 125°C	IEC/EN 60384-14:2005 UL 60384-14	VDE, UL
	Success Electronics Co., Ltd.	SB	Max. 1000pF, min. 250V, 125°C	IEC/EN 60384-14:2005 UL 60384-14	VDE, UL
Optical Isolators (PC101)	Lite-On Technology Corp	LTV-817	Dti=0.6mm, Ext. cr=7.6mm, thermal cycling test, 4800Vac,	DIN EN 60747-5-2, IEC/EN 60950-1, UL 1577	VDE, Fimko, UL

TRF No. IEC60950_1F

IEC 60950-1					
Clause	Requirement + Test		Result - Remark		Verdict
			115°C		
	Renesas Electronics Corporation	PS2561DL1-1	Dti=0.4mm, thermal cycling test, Ext. dcr =8.0mm, 5000Vac, 110°C	IEC/EN 60747-5-2, IEC/EN 60950-1, UL 1577	VDE, Fimko, UL
	Renesas Electronics Corporation	PS2561BL1-1	Dti=0.4mm, thermal cycling test, Ext. dcr=7.0mm, 5000Vac, 110°C	IEC/EN 60747-5-2, IEC/EN 60950-1, UL 1577	VDE, Fimko, UL
	Everlight Electronics Co., Ltd.	EL817	Dti=0.5mm, thermal cycling test, Ext. dcr=7.7mm, 3000Vac, 110°C	IEC/EN 60747-5-2, IEC/EN 60950-1, UL 1577	VDE, Fimko, UL
	Cosmo Electronics Corp.	K1010	Dti=0.6mm, thermal cycling test, Ext. dcr=8.0mm, 4800Vac, 115°C	IEC/EN 60747-5-2, IEC/EN 60950-1, UL 1577	VDE, Semko, UL
	Sharp Corp. Electronic Components and Devices Group	PC123	Dti=0.4mm, thermal cycling test, Ext. dcr=8.0mm, 4800Vac, 110°C	IEC/EN 60747-5-2, IEC/EN 60950-1, UL 1577	VDE, Semko, UL
	Vishay Infrared Components Inc.	TCET1114G	Dti=0.5mm, Int. dcr =6.0mm, Ext. dcr= 7.7mm, 5000Vac, 110°C	IEC/EN 60747-5-2, IEC/EN 60950-1, UL 1577	VDE, Fimko, UL
Thermistor (TH102) (Optional)	Thinking Electronic Industrial Co., Ltd.	TSM1A474	Max.470kΩ at 25°C	EN/IEC 60539-1 EN/IEC 60730-1 UL 1434	UL, TUV

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IEC 60950-1					
Clause	Requirement + Test		Result - Remark		Verdict
	Murata MFG Co., Ltd.	NCP18WB474	Max.470kΩ at 25°C	EN/IEC 60539-1 EN/IEC 60730-1 UL 1434	UL, TUV
Insulation Tape (used for top primary Shielding, two layers provided)	3M Company Electrical Markets DIV (EMD)	1350F-1	130°C	UL 510	UL
	3M Company Electrical Markets DIV (EMD)	1350F-2(c)*	130°C	UL 510	UL
	3M Company Electrical Markets DIV (EMD)	1218	180°C	UL 510	UL
	3M Company Electrical Markets DIV (EMD)	92	155°C	UL 510	UL
	3M Taiwan Ltd.	1388Y-1	130°C	UL 510	UL
	Bondtec Pacific Co., Ltd.	370S+\$	130°C	UL 510	UL
	Bondtec Pacific Co., Ltd.	371F+@	130°C	UL 510	UL
	Symbio Inc.	35660*@	130°C	UL 510	UL
	Symbio Inc.	35660Y*(%)	130°C	UL 510	UL
	Symbio Inc.	35661\$	130°C	UL 510	UL
Mylar sheet (provided between PCB solder side and primary shielding)	Formex, Div of IL Tool Works Inc., Frmrly Fastex, Div of IL Tool Works Inc.	FORMEX GK-(a)(b)(f2)	V-0 or better, min. 115°C, min. 0.4mm	UL 94	UL
	Sabic Innovative Plastics US LLC	FR60	V-0 or better, min. 125°C, min. 0.4mm	UL 94	UL
	Sun Delta Corp.	VS(f)	V-0 or better, min. 120°C, Min. 0.4mm	UL 94	UL
	Sabic Innovative Plastics US L L C	FR700	V-0 or better, min. 125°C, min. 0.4mm	UL 94	UL

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IEC 60950-1					
Clause	Requirement + Test		Result - Remark		Verdict
	3M Taiwan Ltd.	IS-250-a	V-0 or better, min. 125°C, min. 0.25mm, three layers, polyester	UL 94, Test for Clause 2.10.5.8 & 2.10.5.9 & Annex AA of IEC 60950- 1	UL, test by TUV
Top plastic Enclosure	Cheil Industries Inc. Chemicals DIV	EN-1052	V-1 or better, min. 1.9mm, 130°C	UL 94	UL
	Sabic Innovative Plastics US L L C	945(GG)	V-1 or better, Min. 1.9mm, 120°C	UL 94	UL
Bottom plastic Enclosure	Cheil Industries Inc. Chemicals DIV	EN-1052	V-1 or better, min. 1.9mm, 130°C	UL 94	UL
	Sabic Innovative Plastics US L L C	945(GG)	V-1 or better, Min. 1.9mm, 120°C	UL 94	UL
Functional Components					
Bleeder Resistors (R101, R102)	Interchangeable	Interchangeable	Max. 2M Ω , 1/4W	--	--
Bridge Diode (BD101)	Interchangeable	Interchangeable	Min. 800V Min. 3 A	--	--
MOSFET for L601 (Q601) For models FSP090-AFAN2, FSP090-AFBN2, FSP090-AWAN2, FSP090-AWBN2	Interchangeable	Interchangeable	Min. 9A, min. 500V	--	--
MOSFET for L601 (Q601) For models FSP090-ABAN2, FSP090-ABBN2, FSP090-AAAN2 FSP090-AABN2	Interchangeable	Interchangeable	Min. 12A, min. 500V	--	--
Current Resistors For L601 (R621)	Interchangeable	Interchangeable	Min. 0.12 Ω , min. 1W	--	--
Electrolytic Cap. (C601)	Interchangeable	Interchangeable	82 μ F, min. 420V, 105°C	--	--

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IEC 60950-1					
Clause	Requirement + Test			Result - Remark	Verdict
MOSFET for T101 (Q101)	Interchangeable	Interchangeable	Min. 8A, min. 650V	--	--
Current Resistor (R121) For models FSP090-AFAN2, FSP090-AFBN2, FSP090-AWAN2, FSP090-AWBN2	Interchangeable	Interchangeable	Min. 0.15Ω, Min. 1W	--	--
Current Resistor (R121) For models FSP090-ABAN2, FSP090-ABBN2, FSP090-AAAN2 FSP090-AABN2	Interchangeable	Interchangeable	Min. 0.13Ω, Min. 1W	--	--
Top metal shielding	Interchangeable	Interchangeable	Metal, min. 0.5mm	--	--
Bottom metal shielding	Interchangeable	Interchangeable	Metal, min. 0.5mm	--	--
Primary Caps. (C105, C111, C606, C607) (Optional)	Interchangeable	Interchangeable	105°C	--	--
Primary Caps. (C108) (Optional)	Interchangeable	Interchangeable	125°C	--	--
Secondary Caps. (C201, C202) (Optional)	Interchangeable	Interchangeable	105°C	--	--
PCB	Interchangeable	Interchangeable	V-1 or better, min. 130°C	UL 94	UL
Heat shrink tube of function earth wire	Interchangeable	Interchangeable	V-0 or better, min. 0.4mm	UL 94	UL
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.					
3. The transformer used in below factories is identical in electrical characteristics, physical construction in clearance, creepage and distance through insulation. Transformer manufacturing plants (factories) of FSP/SPI as below:					

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IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

- Fresco Factory (Shenzhen) Co., Ltd.
- Haohan Electronic Technology (Jian) Co., Ltd.
- Li Yin Technology Ltd.
- FSP Technology inc., Kaohsiung Branch
- Protek Electronics (China) Corp.
- Dong Guan Lightion Electronics Co., Ltd.
- FSP Group Inc.
- SPI Electronics Co., Ltd.

1.6.2	TABLE: Electrical data (in normal conditions)						P
U (Vac)/ Freq. (Hz)	I (A)	I _{rated} (A)	P (W)	Fuse #	I _{fuse} (A)	Condition/status	
For model FSP090-ABAN2							
90/50	1.120	--	100.09	F102	1.120	Max. normal load condition (19Vdc/4.74A)	
100/50	0.990	1.2	99.19	F102	0.990	Same as above	
240/50	0.442	1.2	97.10	F102	0.442	Same as above	
264/50	0.405	--	96.91	F102	0.405	Same as above	
90/60	1.120	--	100.10	F102	1.120	Same as above	
100/60	1.000	1.2	99.19	F102	1.000	Same as above	
240/60	0.447	1.2	97.19	F102	0.447	Same as above	
264/60	0.410	--	96.91	F102	0.410	Same as above	
For model FSP090-AAAN2							
90/50	1.124	--	100.50	F102	1.124	Max. normal load condition (24Vdc/3.75A)	
100/50	1.000	1.2	99.67	F102	1.000	Same as above	
240/50	0.445	1.2	97.90	F102	0.445	Same as above	
264/50	0.408	--	97.88	F102	0.408	Same as above	
90/60	1.125	--	100.52	F102	1.125	Same as above	
100/60	1.000	1.2	99.67	F102	1.000	Same as above	
240/60	0.449	1.2	98.00	F102	0.449	Same as above	
264/60	0.414	--	97.88	F102	0.414	Same as above	
Supplementary information:							

2.1.1.5 c) 1)	TABLE: max. V, A, VA test	P
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IEC 60950-1				
Clause	Requirement + Test		Result - Remark	Verdict
Voltage (rated) (V)	Current (rated) (A)	Voltage (max.) (V)	Current (max.) (A)	VA (max.) (VA)
For model FSP090-ABAN2				
19Vdc	4.74	18.92	6.33	114.9
For model FSP090-AAAN2				
24Vdc	3.75	23.98	5.05	117.4
Supplementary information:				
- Tested voltage: 240Vac, 60Hz				

2.2	TABLE: evaluation of voltage limiting components in SELV circuits			P
Component (measured between)		max. voltage (V) (normal operation)		Voltage Limiting Components
		V peak	V d.c.	
For model FSP090-AAAN2				
T101 pin A to pin B		77.5	--	
T101 pin A after R212 to pin B		77.0	--	R212
T101 pin A after C207 to pin B		--	23.7	C207
T101 pin A after D201 to pin B		--	23.7	D201
For model FSP090-ABAN2				
T101 pin A to pin B		65.0	--	
T101 pin A after R212 to pin B		64.5	--	R212
T101 pin A after C207 to pin B		--	18.5	C207
T101 pin A after D201 to pin B		--	18.5	D201
Fault test performed on voltage limiting components		Voltage measured (V) in SELV circuits (V peak or V d.c.)		
For model FSP090-AAAN2				
R212 shorted		T101 pin A after R212 to pin B: 23.7V		
C207 shorted		T101 pin A after C207 to pin B: 23.7Vdc		
D201 shorted		T101 pin A after D201 to pin B: Unit shut down		
For model FSP090-ABAN2				
R212 shorted		T101 pin A after R212 to pin B:18.5V		
C207 shorted		T101 pin A after C207 to pin B: 18.5Vdc		
D201 shorted		T101 pin A after D201 to pin B: Unit shut down		
Supplementary information:				

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IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

2.10.2	Table: working voltage measurement			P
Location		RMS voltage (V)	Peak voltage (V)	Comments
For model FSP090-AAAN2				
T101 pin 1 to pin A		193	455	
T101 pin 1 to pin B		189	380	
T101 pin 2 to pin A		203	510	
T101 pin 2 to pin B		191	440	
T101 pin 4 to pin A		326	525	
T101 pin 4 to pin B		310	500	
T101 pin 5 to pin A		295	425	
T101 pin 5 to pin B		293	400	
T101 pin 6 to pin A		387	625	* Max. Vrms and Vpk of T101
T101 pin 6 to pin B		361	595	
PC101 pin 1 to pin 3		189	380	
PC101 pin 1 to pin 4		186	380	
PC101 pin 2 to pin 3		188	380	
PC101 pin 2 to pin 4		185	380	
Under CY103		172	355	
Under CY104		172	355	
D106 trace to R206 trace		192	445	
For model FSP090-AAAN2				
T101 pin 1 to pin A		188	440	
T101 pin 1 to pin B		184	375	
T101 pin 2 to pin A		198	500	
T101 pin 2 to pin B		188	435	
T101 pin 4 to pin A		325	530	
T101 pin 4 to pin B		312	505	
T101 pin 5 to pin A		297	425	
T101 pin 5 to pin B		296	400	
T101 pin 6 to pin A		380	630	* Max. Vrms and Vpk of T101
T101 pin 6 to pin B		360	600	
PC101 pin 1 to pin 3		184	375	

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IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
PC101 pin 1 to pin 4	181	370	
PC101 pin 2 to pin 3	183	370	
PC101 pin 2 to pin 4	180	370	
Under CY103	171	355	
Under CY104	171	355	
D106 trace to R206 trace	187	475	
Supplementary information:			
- Tested voltage: 240Vac ,60Hz			

2.10.5	TABLE: Distance through insulation measurements					P
Distance through insulation (DTI) at/of:		U peak (V)	U rms (V)	Test voltage (V)	Required DTI (mm)	DTI (mm)
Heat shrink tube of function earth wire ²⁾		420	250	3000Vac	0.4	¹⁾
Mylar sheet (non-separated type three layer)(reinforced insulation) ³⁾		420	250	5000Vac	--	¹⁾
Mylar sheet (non-separated type three layer)(reinforced insulation) ⁴⁾		420	250	3000Vac	0.4	¹⁾
Bobbin and base of T101 ¹⁾		420	250	3000Vac	0.4	¹⁾
Supplementary information:						
Above all sources were tested with equipment before humidity test and after humidity test, for sources see below.						
1) For all sources details refer to table 1.5.1.						
2) Tested material list as below,						
- Mfr. Sumitomo Electric Fine Polymer Inc. types Sumitube F32, Sumitube F32(Z), Sumitube F32 a, Sumitube HF2						
- Mfr. Dongguan Salipt Co., Ltd. types SALIPT S-901-300 and SALIPT S-901-600						
- Mfr. Tyco Electronics Corp. types Versafit V, Versafit V4 and Versafit V2						
- Mfr. Changyuan Electronics (Shenzhen) Co., Ltd. types CB-HFT						
- Mfr. Dongguan Quantai Electronics Co., Ltd. type T-2						
- Mfr. Hamburg Industries Co., Ltd. types H-2 and H-2(CB)						
- Mfr. Well One Co., Ltd. types GT-2 and GH-2						
3) Tested material list as below,						
- Mfr. 3M TAIWAN Ltd. type IS-250-a						
4) Test were performed on below insulation sheet sources:						
- Mfr. Formex, Div of IL Tool Works Inc., Fmrly Fastex, Div of IL Tool Works Inc. type FORMEX GK-(a)(b)(f2)						
- Mfr. Sabic Innovative Plastics US LLC types FR60 and FR700						
- Mfr. Sun Delta Corp. type VS(f)						

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IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

4.5	TABLE: Thermal requirements					P
	Supply voltage (V)	A. 90Vac, 60Hz, label side downward B. 264Vac, 60Hz, label side downward C. 90Vac, 60Hz, label side upward D. 264Vac, 60Hz, label side upward				—
	Ambient T _{min} (°C)	--				—
	Ambient T _{max} (°C)	--				—
Maximum measured temperature T of part/at.....:		T (°C)				Allowed T _{max} (°C)
For model FSP090-ABAN2						
Test voltage and position		A.	B.	C.	D.	--
L pin of inlet		53.4	52.4	59.8	52.3	70
LF102		83.5	71.1	90.0	71.3	130
CX101		83.5	72.8	89.8	72.8	100
L603		97.9	75.1	103.7	74.9	130
L601 core		84.8	74.8	92.5	75.9	130
L601 coil		91.4	79.3	98.0	79.5	130
C606		83.9	74.1	91.1	75.0	105
C601		88.5	79.6	95.3	80.1	105
C111		85.7	78.6	91.9	78.6	105
C202		79.9	78.1	86.4	78.1	105
LF201		80.2	79.5	86.2	78.6	105
T101 core		84.0	79.6	90.5	79.8	110
T101 coil		91.7	86.0	97.7	85.8	110
L Wire		81.8	71.0	87.1	71.4	105
N Wire		85.5	74.2	90.9	74.7	105
BD101		98.6	81.3	102.7	80.9	130
HS101		95.4	80.2	99.7	79.9	130
HS102		105.7	94.7	108.4	94.0	130
HS201		104.4	96.5	107.7	96.0	130
CY103		97.4	88.6	101.2	88.1	125
CY104		87.6	81.4	91.1	80.6	125

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IEC 60950-1					
Clause	Requirement + Test		Result - Remark		Verdict
PC101	97.0	88.0	91.1	87.4	105
Top Case Inside	84.2	78.3	92.2	80.9	120
Top Case Outside	72.1	69.1	85.1	75.1	95
Bottom Case Inside	90.8	82.9	90.3	79.5	120
Bottom Case Outside	83.2	77.1	77.9	70.5	95
Output Wire	47.4	50.9	53.5	51.9	80
Tamb (°C)	40.0	36.4	40.0	35.3	--
Tma (°C)	40.0	40.0	40.0	40.0	--
For model FSP090-AAAN2					
Test voltage and position	A.	B.	C.	D.	--
L pin of inlet	59.2	56.6	63.8	56.0	70
LF102	86.1	73.9	93.5	75.2	130
CX101	86.5	75.7	93.8	77.0	100
L603	102.2	79.6	108.7	80.4	130
L601 core	91.5	79.7	99.0	81.2	130
L601 coil	99.3	83.2	105.7	83.9	130
C606	93.1	79.7	99.7	80.7	105
C601	89.6	80.3	98.0	82.4	105
C111	91.7	82.8	97.5	83.3	105
C202	81.6	79.7	88.8	80.5	105
LF201	80.6	79.1	88.1	80.0	105
T101 core	88.2	83.1	95.7	84.7	110
T101 coil	96.2	90.3	103.0	91.2	110
L Wire	79.5	70.7	85.7	71.6	105
N Wire	78.5	70.1	85.0	71.2	105
BD101	93.4	78.6	98.6	78.7	130
HS101	89.9	77.1	95.3	77.2	130
HS102	99.3	92.5	105.0	92.9	130
HS201	101.8	97.8	106.7	97.8	130
CY103	90.9	85.5	96.2	85.7	125
CY104	81.1	78.4	87.9	79.4	125
PC101	90.4	84.8	95.6	85.0	105

TRF No. IEC60950_1F

IEC 60950-1							
Clause	Requirement + Test		Result - Remark		Verdict		
Top Case Inside	79.0	76.2	87.7	78.8	120		
Top Case Outside	67.2	66.9	80.2	69.3	95		
Bottom Case Inside	83.5	79.4	85.6	77.4	120		
Bottom Case Outside	76.7	73.8	74.4	68.9	95		
Output Wire	44.3	48.9	50.7	48.9	80		
Tamb (°C)	40.0	35.6	36.5	33.6	--		
Tma (°C)	40.0	40.0	40.0	40.0	--		
Supplementary information:							
Temperature T of winding:	t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	Allowed T _{max} (°C)	Insulation class
Supplementary information:							
1. The temperatures were measured under worst case normal mode defined in 1.2.2.1 and as described in 1.6.2 at voltage as above.							
2. With a specified ambient temperature of +40 °C. Therefore the maximum temperatures measured are recalculated as follows: T + (40 – Tamb), where T is the maximum temperature measured during test and Tamb is the ambient temperature during the test.							
- Winding components (providing safety isolation): Class 130 material (B) - Tmax = 120°C - 10°C = 110°C							
- User accessible areas which may be touched during normal use:							
- Plastic enclosure - Tmax = 95°C							

5.2	TABLE: Electric strength tests, impulse tests and voltage surge tests			P
Test voltage applied between:		Voltage shape (AC, DC, impulse, surge)	Test voltage (V)	Breakdown Yes / No
Basic/supplementary:				
Unit: primary and earth		DC	3000	No
Reinforced:				
Unit: primary and secondary		DC	4242	No
Unit: primary and plastic enclosure with copper foil		DC	4242	No
T101: primary winding and secondary winding ¹⁾		AC	3000	No
T101: core and secondary winding ¹⁾		AC	3000	No
One layer insulation tape of T101 ²⁾		AC	3000	No
Triple insulation wire of T101 ³⁾		AC	3000	No

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Clause	Requirement + Test	Result - Remark	Verdict
Tube of T101 ⁴⁾		AC 3000	No
Margin tape of T101 ⁵⁾		AC 3000	No
Mylar ⁶⁾ (provided between PCB solder side and primary shielding)		AC 5000 ⁸⁾	No
One layer of Insulation tape ⁷⁾ (used for top primary Shielding)		AC 3000	No
Tube		AC 3000	No
Supplementary information:			
Above all sources were tested with equipment before humidity test and after humidity test, for sources see below,			
¹⁾ The transformer used in below factories is identical in electrical characteristics, physical construction in clearance, creepage and distance through insulation. Transformer manufacturing plants (factories) of FSP/SPI as below: - Fresco Factory (Shenzhen) Co., Ltd. - Haohan Electronic Technology (Jian) Co., Ltd. - Li Yin Technology Ltd. - FSP Technology inc., Kaohsiung Branch - Protek Electronics (China) Corp. - Dong Guan Lightion Electronics Co., Ltd. - FSP Group Inc. - SPI Electronics Co., Ltd.			
²⁾ Tests were performed on below insulation tape sources: - Mfr. 3M, type 1350F-1. - Mfr. Symbio Inc. type 35660Y*			
³⁾ Tests were performed on below sources: - Mfr. Great Leoflon Industrial Co., Ltd. types TRW(B) and TRW(F) - Mfr. Frukawa Electric Co., Ltd. Types TEX-E - Mfr. Totoku Electric Co., Ltd. Types TIW-2, TIW-3			
⁴⁾ Tests were performed on below sources: - Mfr. Great Holding Industrial Co., Ltd., type TFL.			
⁵⁾ Tests were performed on below sources: - Mfr. 3M Company Electrical Markets DIV (EMD), type 44. - Mfr. Symbio Inc., type 35661.			
⁶⁾ Tests were performed on below insulation sheet sources: - Mfr. 3M Taiwan Ltd. type IS-250-a			
⁷⁾ Tests were performed on below insulation tape sources: - Mfr. 3M Company Electrical Markets DIV (Emd) types 1218, 92, 1350F-1 and 1350F-2. - Mfr. 3M Taiwan Ltd. type 1388Y-1. - Mfr. Bondtec Pacific Co., Ltd. types 370S and 371F - Mfr. Symbio Inc. Types 35660, 35660Y and 35661			
⁸⁾ Tests voltage required by client.			

5.3	TABLE: Fault condition tests	P
	Ambient temperature (°C): 25°C, if no otherwise state.	—

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IEC 60950-1						
Clause	Requirement + Test				Result - Remark	
	Power source for EUT: Manufacturer, model/type, output rating				--	—
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
For model FSP090-ABAN2						
T101 Pin6 to Pin4	shorted	240Vac	5 min.	F102	0.15	Unit shut down, no hazards.
T101 Pin6 to Pin5	shorted	240Vac	5 min.	F102	0.17	Unit shut down, no hazards.
T101 Pin5 to T101 pin4	shorted	240Vac	5 min.	F102	0.12	Unit shut down, no hazards.
T101 Pin1 to Pin2	shorted	240Vac	5 min.	F102	0.11	Unit shut down, no hazards.
T101 PinA to PinB	shorted	240Vac	5 min.	F102	0.10	Unit shut down, no hazards.
T101 Pin A after D201 to pin B (Label side upward position)	Overload	240Vac	7 hrs 58 mins	F102	Max. 0.58	When load increase to 1.59A, output shutdown Max temperature of T101 core=94°C T101 coil=99.3°C Amb=38.6°C No hazards.
Output	shorted	240Vac	5 min.	F102	0.1	Unit shut down, no hazards.
Output (Label side upward position)	Overload	240Vac	22 hrs 28mins	F102	Max. 0.583A	When load increase to 6.33A, output shut down. Max temperature of T101 coil=105.5°C T101 core=97.5°C Amb=42.2°C No hazards.
For model FSP090-AAAN2						
T101 Pin6 to Pin4	shorted	240Vac	5 min.	F102	0.17	Unit shut down, no hazards.
T101 Pin6 to Pin5	shorted	240Vac	5 min.	F102	0.19	Unit shut down, no hazards.
T101 Pin5 to T101 pin4	shorted	240Vac	5 min.	F102	0.13	Unit shut down, no hazards.
T101 Pin1 to Pin2	shorted	240Vac	5 min.	F102	0.11	Unit shut down, no hazards.
T101 PinA to PinB	shorted	240Vac	5 min.	F102	0.12	Unit shut down, no hazards.

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IEC 60950-1						
Clause	Requirement + Test				Result - Remark	
T101 Pin A after D201 to pin B (Label side upward position)	Overload	240Vac	7 hrs 58 mins	F102	Max. 0.59	When load increase to 1.3A, output shutdown Max temperature of T101 core=91.8°C T101 coil=98.6°C Amb = 38.5° No hazards.
Output	shorted	240Vac	5 min.	F102	0.1	Unit shut down, no hazards.
Output (Label side upward position)	Overload	240Vac	22 hrs 28mins	F102	Max. 0.56A	When load increase to 5.05A, output shut down. Max temperature of T101 coil=102.7°C T101 core=94.3°C Amb=42.3°C No hazards.
Supplementary information:						

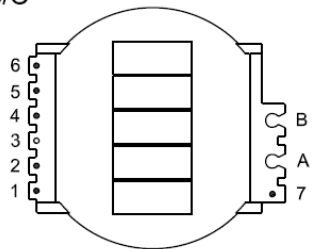
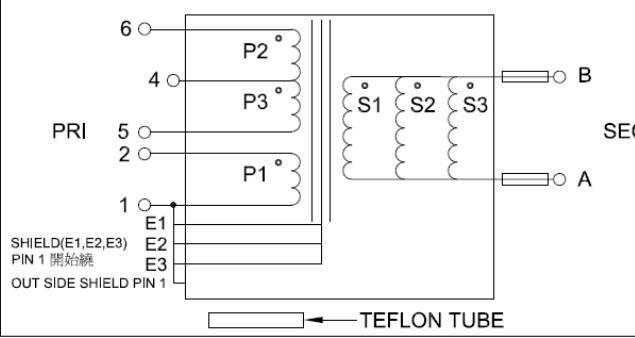
C.2	TABLE: transformers (For Models FSP090-AAAN2, FSP090-AABN2)						P
Loc.	Tested insulation	Working voltage peak / V (2.10.2)	Working voltage rms / V (2.10.2)	Required electric strength (5.2)	Required clearance / mm (2.10.3)	Required creepage distance / mm (2.10.4)	Required distance thr. insul. (2.10.5)
T101	Primary to secondary (reinforced)	625	387	See appended table 5.2	7.0	7.8	0.4mm or 2 layers min. or TIW
T101	Primary to core (functional)	--	--	--	--	--	--
T101	Secondary to core (reinforced)	625	387	See appended table 5.2	7.0	7.8	0.4mm or 2 layers min. or TIW
Loc.	Tested insulation			Test voltage / V	Measured clearance / mm	Measured creepage dist. / mm	Measured distance thr. insul. / mm; number of layers
T101	Primary/input winding and secondary/output winding (internal)			See appended table 5.2	Triple insulation wire used	Triple insulation wire used	See below table C.2

TRF No. IEC60950_1F

IEC 60950-1					
Clause	Requirement + Test	Result - Remark			Verdict
T101	Primary/input winding and core (internal)	--	--	--	--
T101	Secondary/output winding and core (internal)	See appended table 5.2	Triple insulation wire used	Triple insulation wire used	See below table C.2
T101	Primary/input part and secondary/output part (external)	See appended table 5.2	9.0 (via core)	9.0 (via core)	See below table C.2
T101	Primary/input part and core (external)	--	--	--	--
T101	Secondary/output winding and primary/input part (external)	See appended table 5.2	Triple insulation wire used	Triple insulation wire used	See below table C.2
T101	Secondary/output part and core (external)	See appended table 5.2	9.0	9.0	See below table C.2
T101	Secondary/output part and primary/input winding (external)	See appended table 5.2	9.0	9.0	See below table C.2
Supplementary information: The transformer used in below factories is identical in electrical characteristics, physical construction in clearance, creepage and distance through insulation. Transformer manufacturing plants (factories) of FSP/SPI list as below: - Fresco Factory (Shenzhen) Co., Ltd. - Haohan Electronic Technology (Jian) Co., Ltd. - Li Yin Technology Ltd. - FSP Technology inc., Kaohsiung Branch - Protek Electronics (China) Corp. - Dong Guan Lightion Electronics Co., Ltd. - FSP Group Inc. - SPI Electronics Co., Ltd.					

C.2	TABLE: transformers	
Concentric windings on Phenolic top bobbin type CC33/18 (SW-3318A) and Phenolic base type CC33/18 (SW-3318A-1) (Vertical orientation), core is considered as primary parts, transformer construction as below. - Before winding wrapped around two layers of insulation tape on bobbin. - Min. one layer of insulation tape provided between primary and secondary windings. - All secondary windings exit ends additionally with tubing for protection against winding tension mechanical stress.		

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IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- All secondary windings were provided one layer of "U" shape insulation tape (15 mm by 13 mm) at primary bottom side and fold back 6.0 mm for protection against winding tension mechanical stress. - The inner copper shielding (E1, E2 and E3) are considered as primary. - Secondary wires are triple insulation wire, for details see appended table 1.5.1 and subclause 2.10.5.12, Annex U. Primary winding/pins: shielding (E1), 2-1, 6-4, shielding (E2), shielding (E3), 4-5 Secondary winding/pins: B-A, B-A, B-A (S1, S2 and S3) Bobbin Material (manufacturer, type, ratings, thickness): - Sumitomo Bakelite, phenolic, type PM-9820, V-0, 150°C, min. 0.51mm thickness. <u>Detailed illustration of Transformer construction:</u> PIN LOCATION (BOTTOM VIEW) PIN 1,2,4,5,6,7 需留PIN針腳位 PIN 3 C/O  CC33/18 7PIN (SW-3318A + SW-3318A-1) CONNECTION (: • POLARITY)  SHIELD(E1,E2,E3) PIN 1 開始繞 OUT SIDE SHIELD PIN 1 TEFLON TUBE		
	Type no. 8TV00295		

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

WINDING	TURNS	WIRE		INDUCTANCE	DCR m ohms	Q值 MIN
		TYPE	DIAMETER			
S1 (B-A)	6Ts	TRW(B)	0.3 ϕ *3C			
P1 (2-1)	5Ts	2UEW	0.3 ϕ	15uH MAX	90 MAX	
P2 (6-4)	16Ts	2UEW NY	0.1 ϕ *20C			
SHIELD(E1)	0.2 ϕ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)					
S2 (B-A)	6Ts	TRW(B)	0.3 ϕ *3C			
SHIELD(E2)	0.2 ϕ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)					
P3 (4-5)	16Ts	2UEW NY	0.1 ϕ *20C			
SHIELD(E3)	0.2 ϕ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)					
S3 (B-A)	6Ts	TRW(B)	0.3 ϕ *3C	21uH MAX	15 MAX	
LP (6-5)	32Ts	2UEW NY	0.1 ϕ *20C	500uH $\pm$ 5%	295 MAX	65
LK (6-5)	SHORT PIN A, B			2.8uH MAX		

Type no. 8TV00314

WINDING	TURNS	WIRE		INDUCTANCE	DCR m ohms	Q值 MIN
		TYPE	DIAMETER			
S1 (B-A)	6Ts	TEX-E	0.3 ϕ *3C			
P1 (2-1)	5Ts	2UEW	0.3 ϕ	15uH MAX	90 MAX	
P2 (6-4)	16Ts	2UEW NY	0.1 ϕ *20C			
SHIELD(E1)	0.2 ϕ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)					
S2 (B-A)	6Ts	TEX-E	0.3 ϕ *3C			
SHIELD(E2)	0.2 ϕ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)					
P3 (4-5)	16Ts	2UEW NY	0.1 ϕ *20C			
SHIELD(E3)	0.2 ϕ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)					
S3 (B-A)	6Ts	TEX-E	0.3 ϕ *3C	21uH MAX	15 MAX	
LP (6-5)	32Ts	2UEW NY	0.1 ϕ *20C	500uH $\pm$ 5%	295 MAX	65
LK (6-5)	SHORT PIN A, B			2.8uH MAX		

4-1. 此變壓器外觀及GAP Core皆需點膠，不含浸凡立水。

4-2. 此變壓器外觀尺寸圖如下。

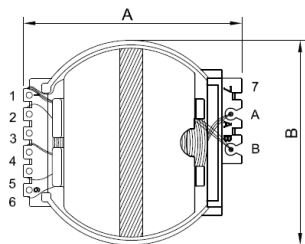


FIGURE-4

A = 40.5 MAX
 B = 36.8 MAX
 C1 = 16.2 MAX
 C2 = 19.7 MAX
 D = 3.6 $\pm$ 0.2
 E = 35.85 $\pm$ 0.3
 F1 = 3.8 TYP
 F2 = 6.2 TYP
 G1 = ϕ 0.8
 G2(A,B) = ϕ 1.6 MAX

UNIT:mm

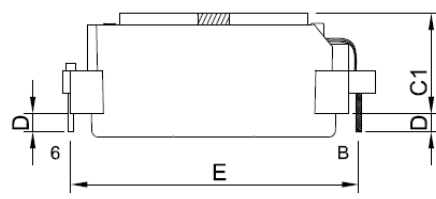


FIGURE-5

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IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

生產注意事項:

9-1. 繞線:

9-1-1. 所有繞組繞線方向需保持一致.

9-1-2. S1,S2,S3 所有出入腳都要加TEFLON TUBE.

9-1-3. A、B飛線進出線：B線由頂部進線，A線底部出線.

9-1-4. AUX Wire OK與NG照片.

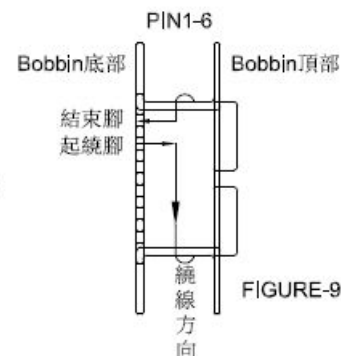


FIGURE-9



FIGURE-11

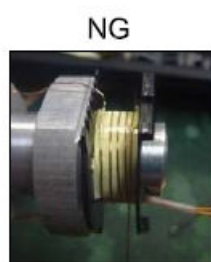


FIGURE-12

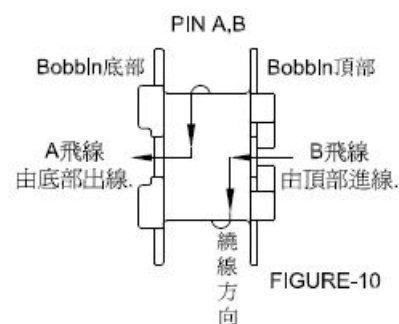
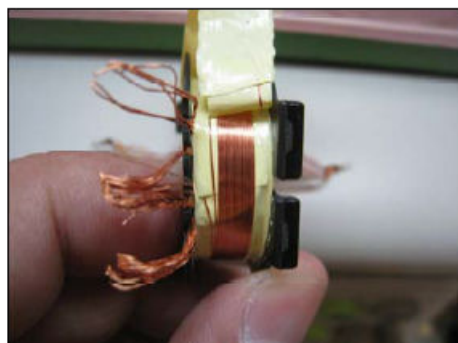


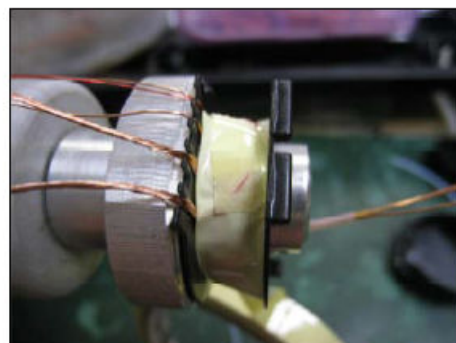
FIGURE-10

9-1-5. Shield Wire需平整密繞.



SHIELD起繞先加1350F-1膠帶，抓取適當距離再反折膠帶固定住後再繞線.

FIGURE-13



SHIELD結尾將線頭扭向中央位置，再加上一片5.0*5.0mm #44膠帶，貼住線頭位置，防止刺破層間絕緣膠帶.

FIGURE-14

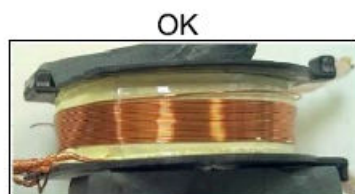


FIGURE-15

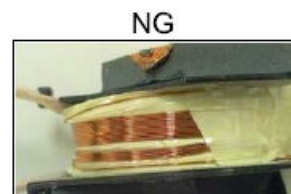


FIGURE-16

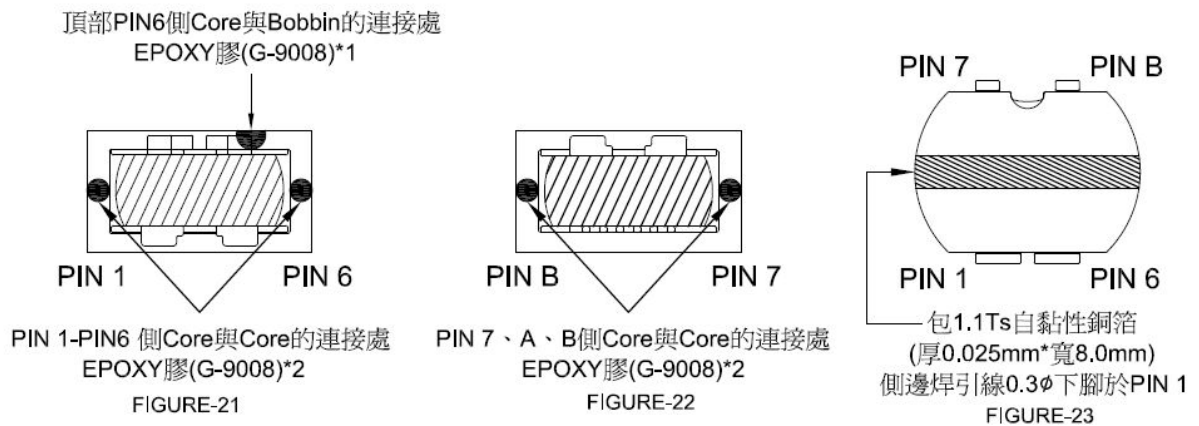
IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

9-3. 外觀點膠製程：

9-3-1. 線包與鐵心組裝後，然後包兩圈1350F-1 11.0mm 膠帶固定，再點5點EPOXY膠(指定用 G-9008)，如下示意圖。

9-3-2. 烘烤完成後，需將固定用膠帶拆除，再包1.1Ts自黏性銅箔(厚0.025mm*寬8.0mm)側邊焊引線0.3 ϕ 下腳於PIN 1，如下示意圖。

注意事項：頂部Core及Bobbin的點膠，需確實點在Bobbin與Core之間，防止Bobbin與Core鬆動。(如下圖所示)。

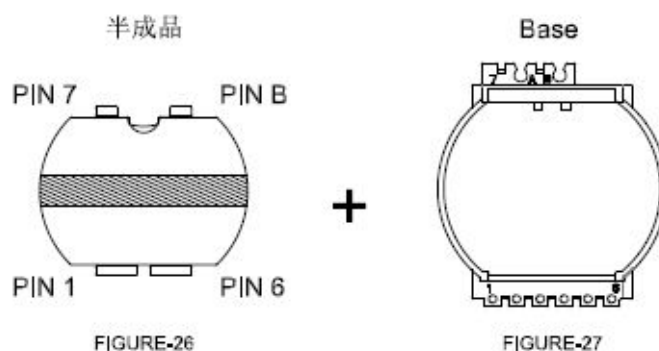


9-3-3. Cover裡面底部需先點EPOXY膠(G-9008)，才可將半成品(線包與鐵心)組裝於Cover，組裝時半成品務必完全與Cover平貼，切勿傾斜或浮高。



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Clause	Requirement + Test	Result - Remark	Verdict

9-4. 半成品(指完成所有點膠、烘烤製程後)與Base組裝注意事項，示意圖如下：



半成品組裝在Base前，A、B飛線要理線整齊，如下示意圖。

半成品組裝在Base前，A、B飛線要理線整齊，如下示意圖。 半成品組裝在Base後，要注意半成品要置中在Base (避免半成品偏向PIN1-PIN6側或PIN7,A,B側)，如下示意圖

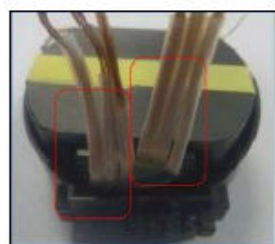


FIGURE-28



FIGURE-29

9-4-1. A組飛線需從底端直接拉出彎折，不能直接拉出很長再彎折，避免影響EMI與組裝問題，如下示意圖。

9-4-2. 三層絕緣線銅線不可裸露太多，與套管太短造成安規距離不足，如下示意圖。套管務必延伸到PIN腳掛線處。

OK



FIGURE-30

NG



FIGURE-31

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

9-4-3. 飛線A的三層絕緣線，線腳需全部扭在一起，再放進Cover槽中(壓至最底)，然後點膠(G-9008)最後加焊($\phi 1.6$ MAX)。
飛線B的三層絕緣線，線腳需全部扭在一起，再放進Cover槽中(壓至最底)，然後點膠(G-9008)最後加焊($\phi 1.6$ MAX)。

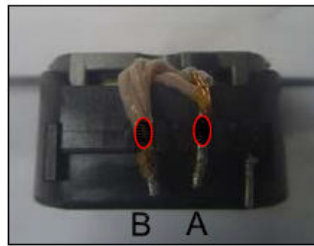


FIGURE-32

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

C.2	TABLE: transformers (For Models FSP090-ABAN2, FSP090-ABBN2)						P
Loc.	Tested insulation	Working voltage peak / V (2.10.2)	Working voltage rms / V (2.10.2)	Required electric strength (5.2)	Required clearance / mm (2.10.3)	Required creepage distance / mm (2.10.4)	Required distance thr. insul. (2.10.5)
T101	Primary to secondary (reinforced)	630	380	See appended table 5.2	7.0	7.6	0.4mm or 2 layers min. or TIW
T101	Primary to core (functional)	--	--	--	--	--	--
T101	Secondary to core (reinforced)	630	380	See appended table 5.2	7.0	7.6	0.4mm or 2 layers min. or TIW
Loc.	Tested insulation			Test voltage / V	Measured clearance / mm	Measured creepage dist. / mm	Measured distance thr. insul. / mm; number of layers
T101	Primary/input winding and secondary/output winding (internal)			See appended table 5.2	Triple insulation wire used	Triple insulation wire used	See below table C.2
T101	Primary/input winding and core (internal)			--	--	--	--
T101	Secondary/output winding and core (internal)			See appended table 5.2	Triple insulation wire used	Triple insulation wire used	See below table C.2
T101	Primary/input part and secondary/output part (external)			See appended table 5.2	9.0 (via core)	9.0 (via core)	See below table C.2
T101	Primary/input part and core (external)			--	--	--	--
T101	Secondary/output winding and primary/input part (external)			See appended table 5.2	Triple insulation wire used	Triple insulation wire used	See below table C.2
T101	Secondary/output part and core (external)			See appended table 5.2	9.0	9.0	See below table C.2

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Clause	Requirement + Test	Result - Remark			Verdict
T101	Secondary/output part and primary/input winding (external)	See appended table 5.2	9.0	9.0	See below table C.2
Supplementary information: The transformer used in below factories is identical in electrical characteristics, physical construction in clearance, creepage and distance through insulation. Transformer manufacturing plants (factories) of FSP/SPI list as below: - Fresco Factory (Shenzhen) Co., Ltd. - Haohan Electronic Technology (Jian) Co., Ltd. - Li Yin Technology Ltd. - FSP Technology inc., Kaohsiung Branch - Protek Electronics (China) Corp. - Dong Guan Lightion Electronics Co., Ltd. - FSP Group Inc. - SPI Electronics Co., Ltd.					

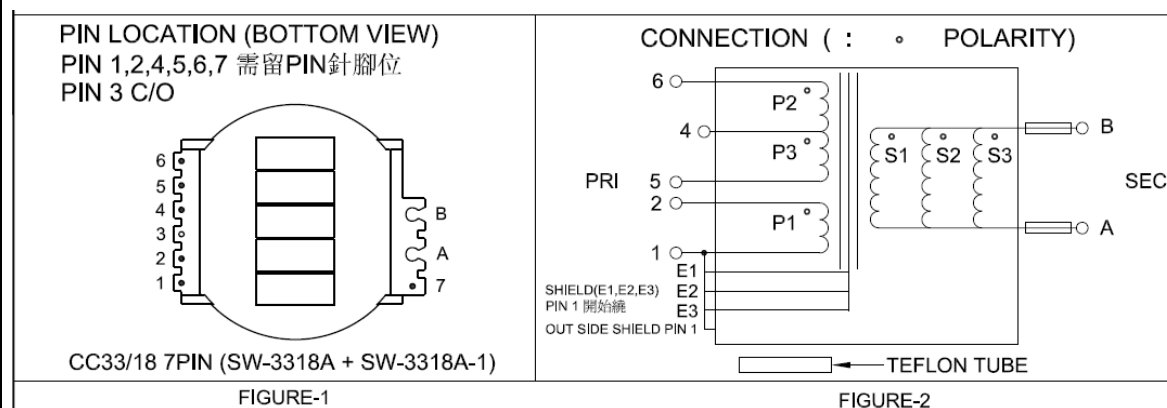
C.2	TABLE: transformers	
Concentric windings on Phenolic top bobbin type CC33/18 (SW-3318A) and Phenolic base type CC33/18 (SW-3318A-1) (Vertical orientation), core is considered as primary parts, transformer construction as below. - Before winding wrapped around two layers of insulation tape on bobbin. - Min. one layer of insulation tape provided between primary and secondary windings. - All secondary windings exit ends additionally with tubing for protection against winding tension mechanical stress. - All secondary windings were provided one layer of "U" shape insulation tape (15 mm by 13 mm) at primary bottom side and fold back 6.0 mm for protection against winding tension mechanical stress. - The inner copper shielding (E1, E2 and E3) are considered as primary. - Secondary wires are triple insulation wire, for details see appended table 1.5.1 and subclause 2.10.5.12, Annex U. Primary winding/pins: shielding (E1), 2-1, 6-4, shielding (E2), shielding (E3), 4-5 Secondary winding/pins: B-A, B-A, B-A (S1, S2 and S3) Bobbin Material (manufacturer, type, ratings, thickness): - Sumitomo Bakelite, phenolic, type PM-9820, V-0, 150°C, min. 0.51mm thickness .		

TRF No. IEC60950_1F

IEC 60950-1

Clause	Requirement + Test	Result - Remark	Verdict
--------	--------------------	-----------------	---------

Detailed illustration of Transformer construction:



Type no. 8TV00294

WINDING	TURNS	WIRE		INDUCTANCE	DCR m ohms	Q值 MIN
		TYPE	DIAMETER			
S1 (B-A)	5Ts	TRW(B)	0.35 ϕ *3C			
P1 (2-1)	5Ts	2UEW	0.3 ϕ	15uH MAX	90 MAX	
P2 (6-4)	16Ts	2UEW NY	0.1 ϕ *20C			
SHIELD(E1)	0.2 ϕ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)					
S2 (B-A)	5Ts	TRW(B)	0.35 ϕ *3C			
SHIELD(E2)	0.2 ϕ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)					
P3 (4-5)	16Ts	2UEW NY	0.1 ϕ *20C			
SHIELD(E3)	0.2 ϕ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)					
S3 (B-A)	5Ts	TRW(B)	0.35 ϕ *3C	15uH MAX	10 MAX	
LP (6-5)	32Ts	2UEW NY	0.1 ϕ *20C	500uH $\pm$ 5%	305 MAX	60
LK (6-5)	SHORT PIN A, B			3.6uH MAX		

Type no. 8TV00313

WINDING	TURNS	WIRE		INDUCTANCE	DCR m ohms	Q值 MIN
		TYPE	DIAMETER			
S1 (B-A)	5Ts	TEX-E	0.35 ϕ *3C			
P1 (2-1)	5Ts	2UEW	0.3 ϕ	15uH MAX	90 MAX	
P2 (6-4)	16Ts	2UEW NY	0.1 ϕ *20C			
SHIELD(E1)	0.2 ϕ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)					
S2 (B-A)	5Ts	TEX-E	0.35 ϕ *3C			
SHIELD(E2)	0.2 ϕ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)					
P3 (4-5)	16Ts	2UEW NY	0.1 ϕ *20C			
SHIELD(E3)	0.2 ϕ 2UEW 25Ts (起始腳為PIN 1. 結束點剪斷留在線包內)					
S3 (B-A)	5Ts	TEX-E	0.35 ϕ *3C	15uH MAX	10 MAX	
LP (6-5)	32Ts	2UEW NY	0.1 ϕ *20C	500uH $\pm$ 5%	305 MAX	60
LK (6-5)	SHORT PIN A, B			3.6uH MAX		

TRF No. IEC60950_1F

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
4-1.	此變壓器外觀及GAP Core皆需點膠，不含浸凡立水。		
4-2.	此變壓器外觀尺寸圖如下。		

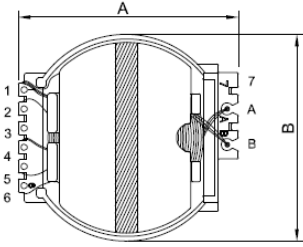


FIGURE-4

A = 40,5 MAX
B = 36,8 MAX
C1 = 16,2 MAX
C2 = 19,7 MAX
D = 3,6 ± 0,2
E = 35,85 ± 0,3
F1 = 3,8 TPY
F2 = 6,2 TPY
G1 = Ø0,8
G2(A,B) = Ø1,6 MAX

UNIT:mm

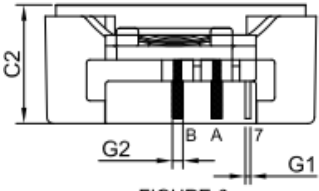


FIGURE-6

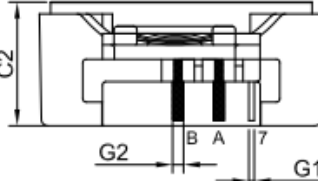


FIGURE-6

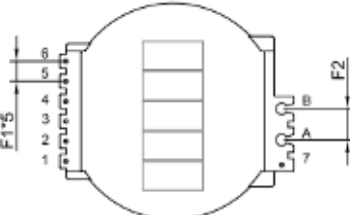


FIGURE-7

FIGURE-3: Cross-section diagram of the transformer core assembly.

The diagram shows a cross-section from PRI (Primary) to SEC (Secondary) with a central CORE. The assembly consists of multiple layers of 1350F-1 TAPE (11mm*1T and 15mm*13mm*1L) and SHIELD (E1, E2, E3 PIN 1). The layers are labeled with their respective dimensions and materials.

Top Section (TOP):

- 1350F-1 TAPE 11mm*2T
- 反折 1350F-1 TAPE 15mm*13mm*1L
- 1350F-1 TAPE 11mm*1T
- 1350F-1 TAPE 11mm*1T
- 1350F-1 TAPE 11mm*1T
- 反折 1350F-1 TAPE 15mm*13mm*1L
- 1350F-1 TAPE 11mm*1T
- 1350F-1 TAPE 11mm*1T
- 1350F-1 TAPE 11mm*1T
- 反折 1350F-1 TAPE 15mm*13mm*1L
- 指定用 1350F-1 TAPE
- 1350F-1 TAPE 11mm*2T

Bottom Section (SEC):

- 指定用 1350F-1 TAPE
- 1350F-1 TAPE 11mm*2T
- 1350F-1 TAPE 11mm*1T
- 1350F-1 TAPE 11mm*1T
- 1350F-1 TAPE 11mm*1T
- 1350F-1 TAPE 11mm*1T
- 1350F-1 TAPE 11mm*1T
- 1350F-1 TAPE 11mm*1T
- 1350F-1 TAPE 11mm*1T
- 1350F-1 TAPE 11mm*2T

Dimensions and Materials:

- 6.0mm MIN
- B-A 5Ts
- SHIELD E3 PIN 1
- 4-5 16Ts
- SHIELD E2 PIN 1
- B-A 5Ts
- SHIELD E1 PIN 1
- 6-4 16Ts
- 2-1 5Ts
- B-A 5Ts
- START → END [Note: B-A (END ← Start)]
- CORE
- START → END [Note: B-A (END ← Start)]
- 6.0mm MIN

Notes:

- <0.35φ*3C TRW(B) 5Ts 一層滿密繞
- <平整繞0.2φ 2UEW 25Ts 置中密繞 (起始腳為PIN 1，結束點剪斷留在線包內)
- <0.1φ*20C 2UEW NY 16Ts 一層滿密繞
- <平整繞0.2φ 2UEW 25Ts 置中密繞 (起始腳為PIN 1，結束點剪斷留在線包內)
- <0.35φ*3C TRW(B) 5Ts 一層滿密繞
- <平整繞0.2φ 2UEW 25Ts 置中密繞 (起始腳為PIN 1，結束點剪斷留在線包內)
- <0.1φ*20C 2UEW NY 16Ts 一層滿密繞
- <0.3φ 2UEW 5Ts 置中密繞
- <0.35φ*3C TRW(B) 5Ts 一層滿密繞
- <0.35φ*3C TRW(B) 5Ts 一層滿密繞
- <0.3φ 2UEW 5Ts 置中密繞
- <0.1φ*20C 2UEW NY 16Ts 一層滿密繞
- <平整繞0.2φ 2UEW 25Ts 置中密繞 (起始腳為PIN 1，結束點剪斷留在線包內)
- <0.35φ*3C TRW(B) 5Ts 一層滿密繞
- <平整繞0.2φ 2UEW 25Ts 置中密繞 (起始腳為PIN 1，結束點剪斷留在線包內)
- <0.1φ*20C 2UEW NY 16Ts 一層滿密繞
- <平整繞0.2φ 2UEW 25Ts 置中密繞 (起始腳為PIN 1，結束點剪斷留在線包內)
- <0.35φ*3C TRW(B) 5Ts 一層滿密繞

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

生產注意事項:

9-1. 繞線:

9-1-1. 所有繞組繞線方向需保持一致.

9-1-2. S1,S2,S3 所有出入腳都要加TEFLON TUBE.

9-1-3. A、B飛線進出線:B線由頂部進線,A線底部出線.

9-1-4. AUX Wire OK與NG照片.

OK

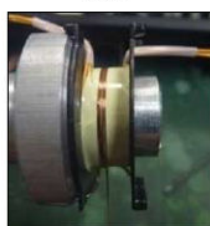


FIGURE-11

NG



FIGURE-12

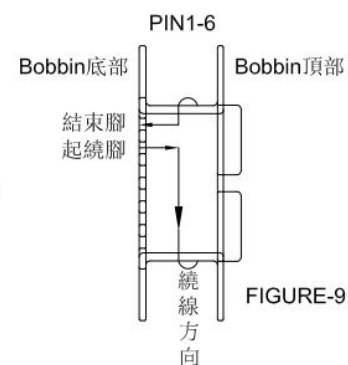


FIGURE-9

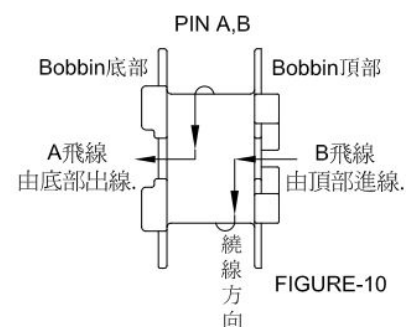
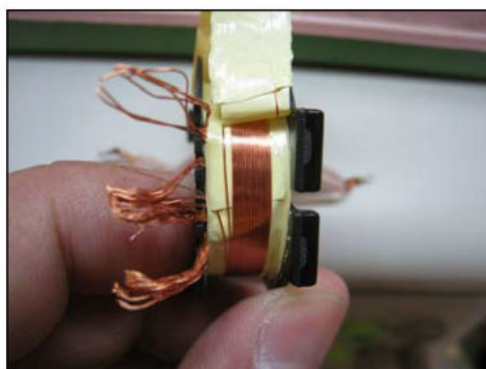


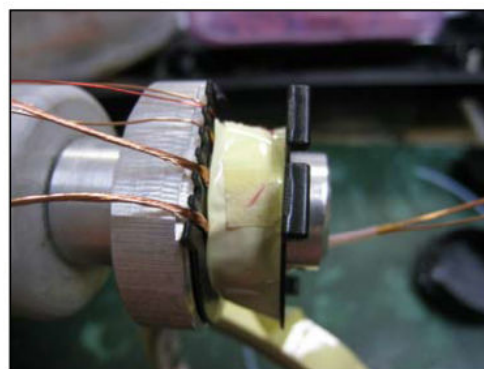
FIGURE-10

9-1-5. Shield Wire需平整密繞.



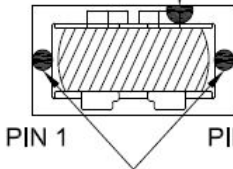
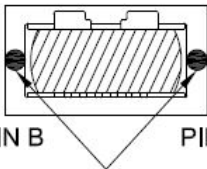
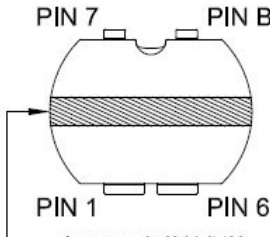
SHIELD起繞先加1350F-1膠帶, 抓取適當距離再反折膠帶固定住後再繞線.

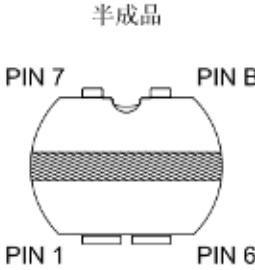
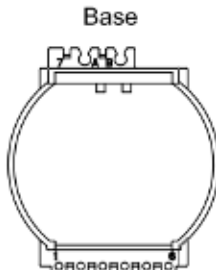
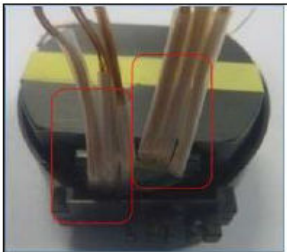
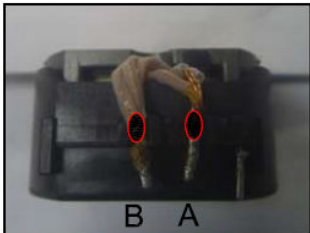
FIGURE-13



SHIELD結尾將線頭扭向中央位置, 再加上一片5.0*5.0mm #44膠帶, 貼住線頭位置, 防止刺破層間絕緣膠帶.

FIGURE-14

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
OK  FIGURE-15 NG  FIGURE-16 9-3. 外觀點膠製程： 9-3-1. 線包與鐵心組裝後，然後包兩圈1350F-1 11.0mm 膠帶固定，再點5點EPOXY膠(指定用 G-9008)，如下示意圖。 9-3-2. 烘烤完成後，需將固定用膠帶拆除，再包1.1Ts自黏性銅箔(厚0.025mm*寬8.0mm)側邊焊引線0.3ϕ下腳於PIN 1，如下示意圖。 注意事項：頂部Core及Bobbin的點膠，需確實點在Bobbin與Core之間，防止Bobbin與Core鬆動。(如下圖所示). 頂部PIN6側Core與Bobbin的連接處 EPOXY膠(G-9008)*1  PIN 1 PIN 6 PIN 1-PIN6 側Core與Core的連接處 EPOXY膠(G-9008)*2 FIGURE-21 PIN 7、A、B側Core與Core的連接處 EPOXY膠(G-9008)*2  PIN B PIN 7 FIGURE-22 PIN 7 PIN B  PIN 1 PIN 6 包1.1Ts自黏性銅箔 (厚0.025mm*寬8.0mm) 側邊焊引線0.3ϕ下腳於PIN 1 FIGURE-23 9-3-3. Cover裡面底部需先點EPOXY膠(G-9008)，才可將半成品(線包與鐵心)組裝於Cover，組裝時半成品務必完全與Cover平貼，切勿傾斜或浮高。 EPOXY膠(G-9008)*2  FIGURE-24  FIGURE-25			

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
9-4.	半成品(指完成所有點膠、烘烤製程後)與Base組裝注意事項，示意圖如下： 半成品  FIGURE-26 + Base  FIGURE-27		
	半成品組裝在Base前，A、B飛線要理線整齊，如下示意圖。  FIGURE-28 半成品組裝在Base後，要注意半成品要置中在Base (避免半成品偏向PIN1-PIN6側或PIN7,A,B側)，如下示意圖。  FIGURE-29		
	9-4-1. A組飛線需從底端直接拉出彎折，不能直接拉出很長再彎折，避免影響 EMI與組裝問題，如下示意圖。 9-4-2. 三層絕緣線銅線不可裸露太多，與套管太短造成安規距離不足，如下示意圖。套管務必延伸到PIN腳掛線處。 OK  FIGURE-30 NG  FIGURE-31		
	9-4-3. 飛線A的三層絕緣線，線腳需全部扭在一起，再放進Cover槽中(壓至最底)，然後點膠(G-9008)最後加焊(φ1.6 MAX)。飛線B的三層絕緣線，線腳需全部扭在一起，再放進Cover槽中(壓至最底)，然後點膠(G-9008)最後加焊(φ1.6 MAX)。  FIGURE-32		

List of test equipment used:

Clause	Measurement / testing	Testing / measuring equipment / material used	Range used	Calibration date

"No listing of test equipment used necessary for chosen test procedure".

ATTACHMENT

Photo Documentation



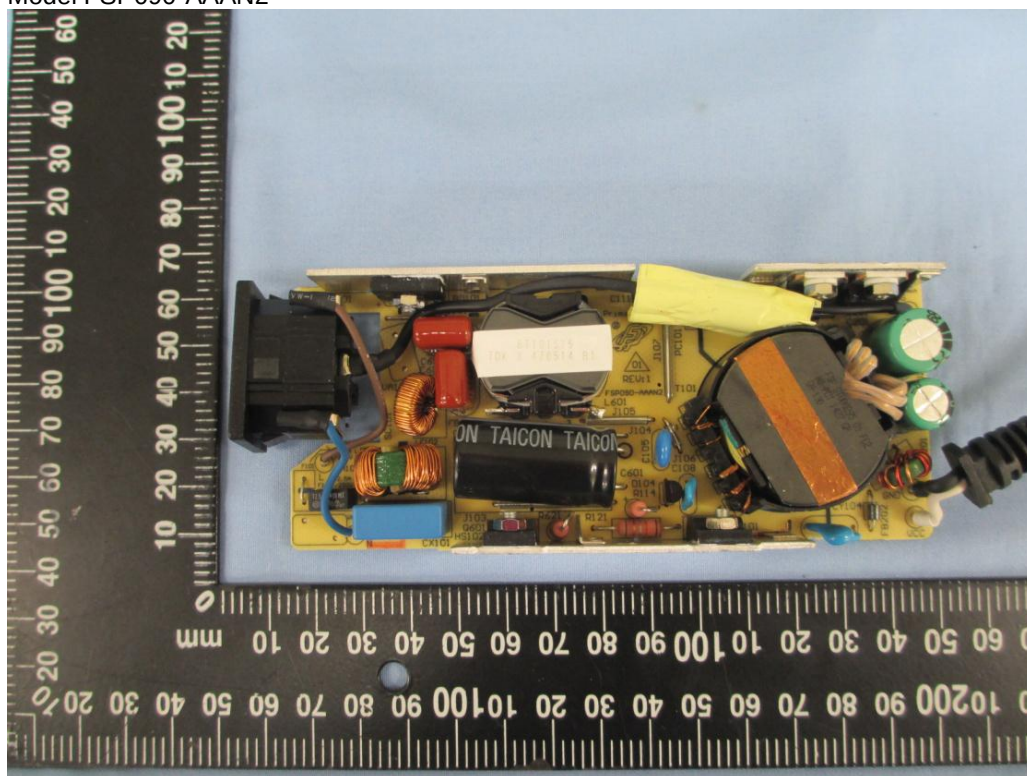
Page 1 of 1

Report No.: 11037301 002

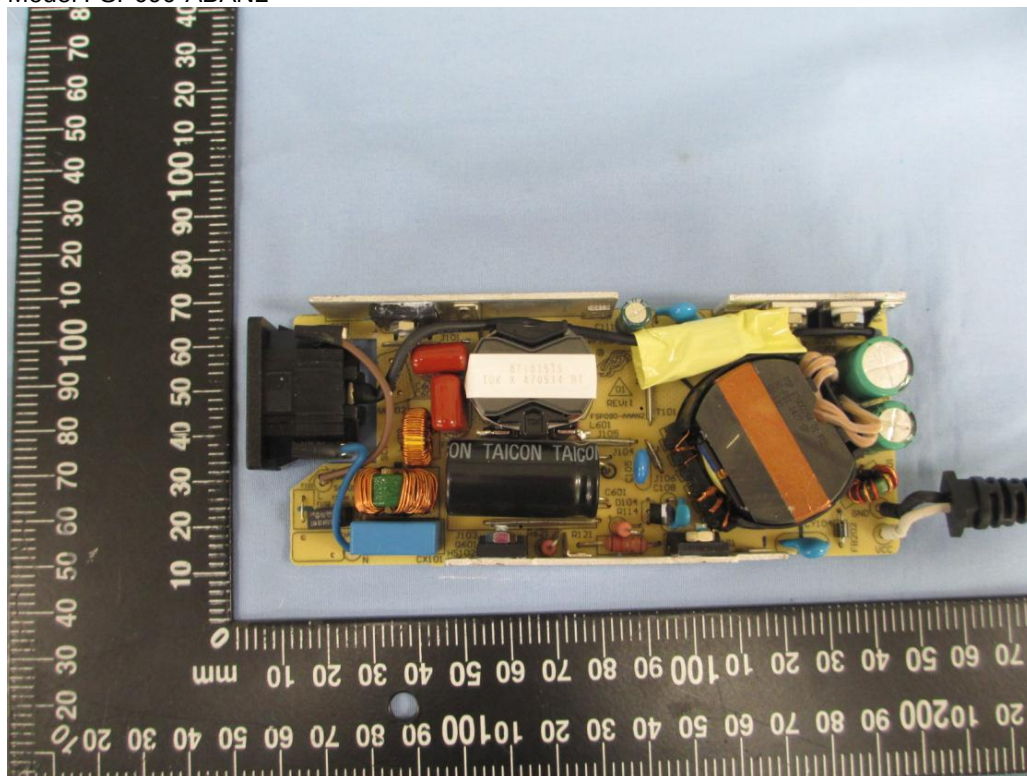
Product: Switching Power Adapter

Type Designation: FSP090-AFAN2, FSP090-AFBN2, FSP090-AWAN2, FSP090-AWBN2, FSP090-ABAN2, FSP090-ABBN2, FSP090-AAAN2 and FSP090-AABN2

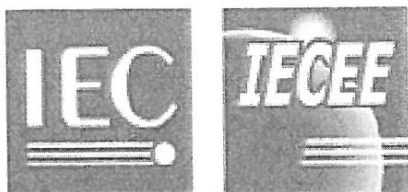
Model FSP090-AAAN2



Model FSP090-ABAN2



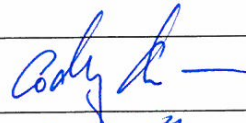
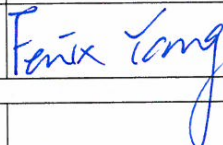
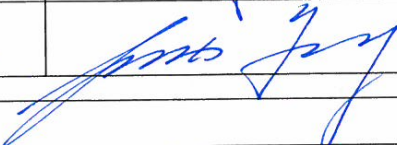
Rev. 0



Test Report issued under the responsibility of:



TEST REPORT IEC 60950-1 Information technology equipment – Safety – Part 1: General requirements	
Report Number.....	11037301 001
Date of issue.....	25 June, 2014
Total number of pages	74
Applicant's name	FSP Group Inc.
Address.....	No. 22, Jianguo E. Road, Taoyuan 330 Taiwan
Test specification:	
Standard	IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013
Test procedure.....	CB Scheme
Non-standard test method	N/A
Test Report Form No.	IEC60950_1F
Test Report Form(s) Originator....	SGS Fimko Ltd
Master TRF	Dated 2014-02
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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 Adapter	
Trade Mark..... :		
Manufacturer..... :	Same as applicant	
Model/Type reference..... :	1) FSP090-AFAN2, FSP090-AFBN2 2) FSP090-AWAN2, FSP090-AWBN2	
Ratings..... :	AC Input: 100-240Vac~, 1.2A, 50-60Hz DC output: 1) 48Vdc, 1.88A 2) 54Vdc, 1.67A	
Testing procedure and testing location:		
☒ CB Testing Laboratory:	TÜV Rheinland Taiwan Ltd., Taichung Laboratory	
Testing location/ address	No. 9, Ln. 36, Sec. 3, Minsheng Rd., Daya District, Taichung City, 428 Taiwan	
☐ Associated CB Testing Laboratory:		
Testing location/ address		
Tested by (name + signature)..... :	Cody Chen	
Approved by (name + signature)..... :		
☐ Testing procedure: TMP/CTF Stage 1:		
Testing location/ address		
Tested by (name + signature)..... :		
Approved by (name + signature)..... :		
☐ Testing procedure: WMT/CTF Stage 2:		
Testing location/ address		
Tested by (name + signature)..... :		
Witnessed by (name + signature)..... :		
Approved by (name + signature)..... :		
☐ Testing procedure: SMT/CTF Stage 3 or 4:		
Testing location/ address		
Tested by (name + signature)..... :		

TRF No. IEC60950_1F

Witnessed by (name + signature) :		
Approved by (name + signature)..... :		
Supervised by (name + signature)..... :		

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

- Photo Documentation
- National Differences
- Measurement Section

Total number of pages in each attachment is indicated in each individual attachment; except for Measurement Section is combining with this main test report in the last two pages.

Summary of testing:**Tests performed (name of test and test clause):**

All applicable tests as described in Test Case were performed.

- The test samples are pre-production without serial numbers.
- Specified maximum ambient temperature is +40°C.
- Highest load according to 1.2.2.1 for this equipment is the operation of the equipment at maximum specified DC load.
- The correction factors of clearance is 1.48, specified in table A. 2 of IEC 60664-1 for altitude 5000m.
- Unless otherwise specified, all tests have been performed on model FSP090-AWAN2 to represent other similar model.

Testing location:

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

Summary of compliance with National Differences**List of countries addressed:**

EU Group Differences, EU Special National Conditions, US.

Explanation of used codes: US = United States of America.

*(CA, DE, DK, FI, GB, IL, KR, SE, SI), **(AU, CN, CH, ES, IE, NO), ***(BY, JP)

Explanation of used codes:

* (CA = Canada, DE = Germany, DK=Denmark, FI = Finland, GB = United Kingdom, IL = Israel, KR = Republic of Korea, SE = Sweden, SI = Slovenia)

** (AU = Australia, CN = China, CH = Switzerland, ES = Spain, IE = Ireland, NO = Norway),

*** (BY = Belarus, JP = Japan)

* National differences to IEC 60950-1:2005+A1:2009 evaluated.

** National differences to IEC 60950-1:2005 evaluated.

*** National differences to IEC 60950-1:2001 evaluated.

☒ **The product fulfils the requirements of EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013.**

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.



Test item particulars:	
Equipment mobility:	☒ movable ☐ hand-held ☒ transportable ☐ stationary ☐ for building-in ☐ direct plug-in
Connection to the mains:	☒ pluggable equipment ☒ type A ☐ type B ☐ permanent connection ☒ detachable power supply cord ☐ non-detachable power supply cord ☐ not directly connected to the mains
Operating condition:	☒ continuous ☐ rated operating / resting time:
Access location	☒ operator accessible ☐ restricted access location
Over voltage category (OVC)	☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV ☐ other:
Mains supply tolerance (%) or absolute mains supply values	
.....: ± 10	
Tested for IT power systems	☒ Yes ☐ No
IT testing, phase-phase voltage (V)	230V (For Norway)
Class of equipment	☒ Class I ☐ Class II ☐ Class III ☐ Not classified
Considered current rating of protective device as part of the building installation (A)	
.....: 16A (20A for North American)	
Pollution degree (PD)	☐ PD 1 ☒ PD 2 ☐ PD 3
IP protection class	IPX0
Altitude during operation (m)	Not over 5000m
Altitude of test laboratory (m)	Not over 2000m
Mass of equipment (kg)	Approx. 0.36kg
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:	03 June, 2014
Date(s) of performance of tests	03 June, 2014 - 25 June, 2014
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 IEC60950-1:

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.
Block C, Building 4、6、7、8、9、10、11,
County 73, Xin'an, Bao'an, Shenzhen,
Guangdong, P.R. China
2. Zhonghan Electronics (Shenzhen) Co., Ltd.
Building 2,3,4,10, JuYuan Industrial Zone,
TangWei Village, FuYong Town, BaoAn District,
ShenZhen City, P.R. China
3. Wuxi SPI Technology Co., Ltd.
No. 96, XinmeiRoad, New District, Wuxi city,
Jiangsu, P.R. China
4. ZHONGHAN SCIENCE & TECH CO. LTD
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General product information:**Product Description**

The equipment models FSP090-AFAN2, FSP090-AFBN2, FSP090-AWAN2 and FSP090-AWBN2 are switching power adapter for used with information technology equipment.

The switching power adapter's bottom enclosure is secured to top enclosure by ultrasonic.

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 sold.

Class I product and class II construction within the equipment.

Components (J201, J202, C214 and R229) are for optional used.

All models are similar except for below table,

Model	FSP090-AFAN2	FSP090-AFBN2	FSP090-AWAN2	FSP090-AWBN2
DC Output	48Vdc, 1.88A		54Vdc, 1.67A	
R209	18.2kΩ		16.2kΩ	
AC inlet	C14 type	C6 type	C14 type	C6 type

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Engineering Considerations

- The product was submitted and tested for use at the **maximum ambient temperature (Tma)** permitted by the manufacturer's specification of: 40°C
- The means of connection to the mains supply is **Pluggable Type A**.
- The product is intended for use on the following **power systems**: TN / IT (for Norway).
- The equipment **disconnect device** is considered to be: appliance inlet.
- The following **transformers** are provided (See subclause 1.5.4):
 - Double/Reinforced insulation: T101.
 - Functional insulation: None.
- The following **capacitors** bridging insulation (See subclause 1.5.6):
 - Double/Reinforced insulation: CY103 and CY104.
 - Basic insulation: None.
 - Across mains conductors: CX101.
 - Functional insulation: other than above mentioned.
- The following **resistors** bridging insulation (See subclause 1.5.7):
 - Across mains conductors: R101 and R102 in series.
 - Double/Reinforced insulation: None.
 - Functional insulation: other than above mentioned.
- The following **VDRs** are bridging insulation (See subclause 1.5.9):
 - Across mains conductors: VA101 (provided with F101 together), VA102.
 - Functional insulation: None.
- The following **solid insulation** are provided (See subclause 2.10.5):
 - Reinforced insulation: Plastic Enclosure, PC101, mylar sheet which provided between main board solder side and primary metal shielding.
 - Basic insulation: None.
 - Functional insulation: None.
- The following parts consist of the protective earthing (see subclause 2.6):
 - Protective earthing conductor: Earthed pin of Appliance Inlet.
 - Protective bonding conductor: None.
- The following parts are **protective earthing terminals** (See subclause 2.6.4): Earthed pin of appliance Inlet.
- The following parts are **protective bonding terminals** (See subclause 2.6.4): None.

Additional Information

- Tests were repeated with each alternative source of components with identical results unless otherwise specified.
- The following enclosures are provided:
 - Fire enclosure: Plastic enclosure
 - Mechanical enclosure: Plastic enclosure
 - Electrical enclosure: Plastic enclosure

MARKINGS AND INSTRUCTIONS

- The user's manual states "**The socket-outlet shall be installed near the equipment and shall be**

easily accessible.” (See subclause 1.7.2.2).

- Fuse Identification (See sub-clause 1.7.6):
F101 T6.3A L/250V (provided with VA101 together)
F102 T2.5A L/250V

Abbreviations used in the report:

- normal conditions	N.C.	- single fault conditions	S.F.C
- functional insulation	OP	- basic insulation	BI
- double insulation	DI	- supplementary insulation	SI
- between parts of opposite polarity	BOP	- reinforced insulation	RI

Indicate used abbreviations (if any)

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1	GENERAL	See below.	P
1.5	Components	See below.	P
1.5.1	General	See below.	P
	Comply with IEC 60950-1 or relevant component standard	See appended table 1.5.1.	P
1.5.2	Evaluation and testing 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
1.5.3	Thermal controls		N/A
1.5.4	Transformers	Transformers used are suitable for the intended application and comply with the relevant requirements of the standard and particularly with those of Annex C.	P
1.5.5	Interconnecting cables	Interconnection output cable to other unit is carrying only SELV voltages, LCC and currents on an energy level below 240VA.	P
1.5.6	Capacitors bridging insulation	Capacitors used in accordance with their rating. Between lines: min. X2 capacitor according to IEC 60384-14 with 21 days damp heat test. Between Primary and secondary: min. Y1 capacitor according to IEC 60384-14 with 21 days damp heat test. The accessible circuit complied with the requirement of limited current circuit in 2.4 after electric strength testing of the insulation with the bridging capacitor in place.	P
1.5.7	Resistors bridging insulation	See below.	P

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Clause	Requirement + Test	Result - Remark	Verdict
1.5.7.1	Resistors bridging functional, basic or supplementary insulation	Two bleeder resistors located after fuse, the fuse as providing protective device while short circuit.	P
1.5.7.2	Resistors bridging double or reinforced insulation between a.c. mains and other circuits		N/A
1.5.7.3	Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable		N/A
1.5.8	Components in equipment for IT power systems	Phase to earth designed according to phase-to phase working voltage. No capacitor used between phase-to-earth	P
1.5.9	Surge suppressors	See below.	P
1.5.9.1	General	Approved Varistor comply with Annex Q used in primary circuit.	P
1.5.9.2	Protection of VDRs	A fuse is connected in series with VDR.	P
1.5.9.3	Bridging of functional insulation by a VDR	Complied. Approved Varistor located between mains lines.	P
1.5.9.4	Bridging of basic insulation by a VDR		N/A
1.5.9.5	Bridging of supplementary, double or reinforced insulation by a VDR		N/A
1.6	Power interface	See below.	P
1.6.1	AC power distribution systems	TN power system and IT power system (for Norway).	P
1.6.2	Input current	See table 1.6.2.	P
1.6.3	Voltage limit of hand-held equipment		N/A
1.6.4	Neutral conductor	The neutral is not identified in the equipment. Reinforced insulation for rated voltage between secondary parts and primary phases.	P
1.7	Marking and instructions	See below.	P
1.7.1	Power rating and identification markings	The power rating and identification marking are on copy of marking plate or printed on enclosure by laser engraving.	P
1.7.1.1	Power rating marking	See copy of marking plate.	P
	Multiple mains supply connections.....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Rated voltage(s) or voltage range(s) (V)	See copy of marking plate.	P
	Symbol for nature of supply, for d.c. only		N/A
	Rated frequency or rated frequency range (Hz)	See copy of marking plate.	P
	Rated current (mA or A)	See copy of marking plate.	P
1.7.1.2	Identification markings	See below.	P
	Manufacturer's name or trade-mark or identification mark	See copy of marking plate.	P
	Model identification or type reference	See copy of marking plate.	P
	Symbol for Class II equipment only		N/A
	Other markings and symbols	Additional symbols or markings do not give rise to misunderstanding.	P
1.7.1.3	Use of graphical symbols		N/A
1.7.2	Safety instructions and marking	See below.	P
1.7.2.1	General	User's manual provided.	P
1.7.2.2	Disconnect devices	Approved appliance inlet used.	P
1.7.2.3	Overcurrent protective device		N/A
1.7.2.4	IT power distribution systems	For Norway compliance has to be evaluated during the national approval.	N/A
1.7.2.5	Operator access with a tool	No operator access area with tool.	N/A
1.7.2.6	Ozone		N/A
1.7.3	Short duty cycles	Equipment is designed for continuous operation.	N/A
1.7.4	Supply voltage adjustment	No necessary adjustment.	N/A
	Methods and means of adjustment; reference to installation instructions	See above.	N/A
1.7.5	Power outlets on the equipment		N/A
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference)	See General product information - Markings and Instructions	P
1.7.7	Wiring terminals	See below.	P
1.7.7.1	Protective earthing and bonding terminals	Appliance inlet used and symbol for Protective Earthing Conductor (IEC 60417-5019) provided on PCB.	P

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Clause	Requirement + Test	Result - Remark	Verdict
1.7.7.2	Terminals for a.c. mains supply conductors	The equipment with appliance inlet, which is intended to use the detachable type power supply cord.	N/A
1.7.7.3	Terminals for d.c. mains supply conductors	AC supplied equipment.	N/A
1.7.8	Controls and indicators		N/A
1.7.8.1	Identification, location and marking		N/A
1.7.8.2	Colours		N/A
1.7.8.3	Symbols according to IEC 60417		N/A
1.7.8.4	Markings using figures		N/A
1.7.9	Isolation of multiple power sources	Only one supply from the mains.	N/A
1.7.10	Thermostats and other regulating devices	Neither thermostats nor other regulating devices provided.	N/A
1.7.11	Durability	The label was subjected to the permanence of marking test. The label was rubbed with cloth soaked with water for 15 s and then again for 15 s with the cloth soaked with petroleum spirit. After this test there was no damage to the label. The marking on the label did not fade. There was no curling nor lifting of the label edge.	P
1.7.12	Removable parts		N/A
1.7.13	Replaceable batteries		N/A
	Language(s)		—
1.7.14	Equipment for restricted access locations		N/A

2	PROTECTION FROM HAZARDS		P
2.1	Protection from electric shock and energy hazards		P
2.1.1	Protection in operator access areas	See below.	P
2.1.1.1	Access to energized parts	No access with test finger and test pin to any parts with only basic insulation to ELV or hazardous voltage. Any hazardous parts accessible are unlikely.	P
	Test by inspection	Complied.	P
	Test with test finger (Figure 2A)	Complied.	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Test with test pin (Figure 2B)	Complied.	P
	Test with test probe (Figure 2C)	No TNV circuit.	N/A
2.1.1.2	Battery compartments		N/A
2.1.1.3	Access to ELV wiring	No ELV wiring in operator accessible area.	N/A
	Working voltage (V_{peak} or V_{rms}); minimum distance through insulation (mm)	See above.	—
2.1.1.4	Access to hazardous voltage circuit wiring		N/A
2.1.1.5	Energy hazards	Energy dose not exceed 240VA between any two points in o/p connector of secondary circuit. Results see appended table 2.1.1.5.	P
2.1.1.6	Manual controls	No manual controls.	N/A
2.1.1.7	Discharge of capacitors in equipment	No risk of electric shock, see below.	P
	Measured voltage (V); time-constant (s)	See attachment measurement section table 2.1.1.7.	—
2.1.1.8	Energy hazards – d.c. mains supply		N/A
	a) Capacitor connected to the d.c. mains supply ...		N/A
	b) Internal battery connected to the d.c. mains supply		N/A
2.1.1.9	Audio amplifiers		N/A
2.1.2	Protection in service access areas	No maintenance work in operation mode necessary.	N/A
2.1.3	Protection in restricted access locations	The unit is not limited to be used in restricted access locations.	N/A
2.2	SELV circuits		P
2.2.1	General requirements	See below, the secondary circuits were tested as SELV.	P
2.2.2	Voltages under normal conditions (V)	42.4V _{peak} or 60V _{dc} are not exceeded between any conductor of the SELV circuits under normal operation. See appended table 2.2.	P

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Clause	Requirement + Test	Result - Remark	Verdict
2.2.3	Voltages under fault conditions (V)	Single fault did not cause excessive voltage in accessible SELV circuits. Limits of 71V peak and 120V d.c. was not exceeded within 0.2s and limits 42.4V peak and 60V d.c. was not exceeded for longer than 0.2s. See appended table 2.2.	P
2.2.4	Connection of SELV circuits to other circuits	See sub-clauses 1.5.6, 2.2.2, 2.2.3 and 2.4.3.	P

2.3	TNV circuits		N/A
2.3.1	Limits		N/A
	Type of TNV circuits		—
2.3.2	Separation from other circuits and from accessible parts		N/A
2.3.2.1	General requirements		N/A
2.3.2.2	Protection by basic insulation		N/A
2.3.2.3	Protection by earthing		N/A
2.3.2.4	Protection by other constructions		N/A
2.3.3	Separation from hazardous voltages		N/A
	Insulation employed		—
2.3.4	Connection of TNV circuits to other circuits		N/A
	Insulation employed		—
2.3.5	Test for operating voltages generated externally		N/A

2.4	Limited current circuits		P
2.4.1	General requirements	The output connector is accessible to the user and connected to the primary circuit by two Y1 type bridging capacitors.	P
2.4.2	Limit values	See attachment measurement section table 2.4.2.	P
	Frequency (Hz)	Same as above.	—
	Measured current (mA)	Same as above.	—
	Measured voltage (V)	Same as above.	—
	Measured circuit capacitance (nF or μ F)	Same as above.	—

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Clause	Requirement + Test	Result - Remark	Verdict
2.4.3	Connection of limited current circuits to other circuits	Output circuit as limited current circuit connected to other circuits.	P
2.5	Limited power sources		N/A
	a) Inherently limited output		N/A
	b) Impedance limited output		N/A
	c) Regulating network or IC current limiter, limits output under normal operating and single fault condition		N/A
	Use of integrated circuit (IC) current limiters		N/A
	d) Overcurrent protective device limited output		N/A
	Max. output voltage (V), max. output current (A), max. apparent power (VA).....:		—
	Current rating of overcurrent protective device (A):.		—
2.6	Provisions for earthing and bonding		P
2.6.1	Protective earthing	The PE pin of approved appliance inlet was considered as Protective earthing. See General product information - Engineering Considerations	P
2.6.2	Functional earthing	Functional earthing circuit is separated from parts at hazardous voltages by double insulation.	P
	Use of symbol for functional earthing	See below.	N/A
2.6.3	Protective earthing and protective bonding conductors	See below.	N/A
2.6.3.1	General	See sub-clause 2.6.3.4, rated current below 16A.	N/A
2.6.3.2	Size of protective earthing conductors	See sub-clause 2.6.1, rated current below 16A.	N/A
	Rated current (A), cross-sectional area (mm ²), AWG		—
2.6.3.3	Size of protective bonding conductors	Only Protective earthing provided.	N/A
	Rated current (A), cross-sectional area (mm ²), AWG		—
	Protective current rating (A), cross-sectional area (mm ²), AWG		

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Clause	Requirement + Test	Result - Remark	Verdict
2.6.3.4	Resistance of earthing conductors and their terminations; resistance (Ω), voltage drop (V), test current (A), duration (min)	The PE pin of approved appliance inlet was considered as Protective earthing and without test.	P
2.6.3.5	Colour of insulation		N/A
2.6.4	Terminals	See below.	P
2.6.4.1	General	See below.	P
2.6.4.2	Protective earthing and bonding terminals	The appliance inlet considered as main protective earthing terminal and no protective bonding conductors provided.	P
	Rated current (A), type, nominal thread diameter (mm)		—
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors	Only Protective earthing provided.	P
2.6.5	Integrity of protective earthing	See below.	P
2.6.5.1	Interconnection of equipment	This unit has its own earthing connection. Any other units connected via the DC output connector shall provide SELV only.	P
2.6.5.2	Components in protective earthing conductors and protective bonding conductors	No switch or overcurrent protective device in protective earthing.	P
2.6.5.3	Disconnection of protective earth	It is not possible to disconnect earth without disconnecting mains as an appliance inlet is used.	P
2.6.5.4	Parts that can be removed by an operator	Appliance inlet used.	P
2.6.5.5	Parts removed during servicing	It is not necessary to disconnect protective earth except for the removing of the earthed part itself.	P
2.6.5.6	Corrosion resistance	All protective earthing and bonding connections in compliance with Annex J.	P
2.6.5.7	Screws for protective bonding		N/A
2.6.5.8	Reliance on telecommunication network or cable distribution system	No TNV.	N/A
2.7	Overcurrent and earth fault protection in primary circuits		P

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Clause	Requirement + Test	Result - Remark	Verdict
2.7.1	Basic requirements	Equipment relies on a rated fuse or 16 A (20A for North America) circuit breaker of the wall outlet installation protection of the building installation in regard to L to N short-circuits. Over current protection is provided by the built-in fuse.	P
	Instructions when protection relies on building installation	Not applicable for pluggable equipment type A.	N/A
2.7.2	Faults not simulated in 5.3.7	The protection device is well dimensioned and mounted.	P
2.7.3	Short-circuit backup protection	Pluggable equipment type A. The building installation is considered as providing short-circuit backup protection.	P
2.7.4	Number and location of protective devices :	Over current protection by one built-in fuse. Protection devices in the building installation will provide sufficient protection against earth faults.	P
2.7.5	Protection by several devices	Only one fuse provided.	N/A
2.7.6	Warning to service personnel :	No service work necessary.	N/A
2.8	Safety interlocks		N/A
2.8.1	General principles		N/A
2.8.2	Protection requirements		N/A
2.8.3	Inadvertent reactivation		N/A
2.8.4	Fail-safe operation		N/A
	Protection against extreme hazard		N/A
2.8.5	Moving parts		N/A
2.8.6	Overriding		N/A
2.8.7	Switches, relays and their related circuits		N/A
2.8.7.1	Separation distances for contact gaps and their related circuits (mm) :		N/A
2.8.7.2	Overload test		N/A
2.8.7.3	Endurance test		N/A
2.8.7.4	Electric strength test		N/A
2.8.8	Mechanical actuators		N/A
2.9	Electrical insulation		P

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Clause	Requirement + Test	Result - Remark	Verdict
2.9.1	Properties of insulating materials	Natural rubber, asbestos or hygroscopic materials are not used. However, humidity test performed on equipment with all sources of insulating materials (See appended tables 1.5.1, 2.10.5 and 5.2 for sources) then subjected to the electric strength test of 5.2.2, which results see appended tables 2.10.5 and 5.2.	P
2.9.2	Humidity conditioning	Tested for 120hrs.	P
	Relative humidity (%), temperature (°C) :	95%, 40°C.	—
2.9.3	Grade of insulation	The adequate levels of safety insulation is provided and maintained to comply with the requirements of this standard.	P
2.9.4	Separation from hazardous voltages	See below.	P
	Method(s) used :	Method 1.	—

2.10	Clearances, creepage distances and distances through insulation		P
2.10.1	General	See below.	P
2.10.1.1	Frequency :	The frequency does not exceeding 30kHz.	P
2.10.1.2	Pollution degrees :	Pollution degree 2.	P
2.10.1.3	Reduced values for functional insulation	See sub-clause 5.3.4.	P
2.10.1.4	Intervening unconnected conductive parts	No such conductive parts.	N/A
2.10.1.5	Insulation with varying dimensions	Not applicable.	N/A
2.10.1.6	Special separation requirements	No TNV circuit.	N/A
2.10.1.7	Insulation in circuits generating starting pulses	No lamps.	N/A
2.10.2	Determination of working voltage	See below.	P
2.10.2.1	General	The rms and the peak voltage were measured on the switching power supply. The unit was connected to a 240V TN power system.	P
2.10.2.2	RMS working voltage	See appended table 2.10.2.	P
2.10.2.3	Peak working voltage	See appended table 2.10.2.	P

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Clause	Requirement + Test	Result - Remark	Verdict
2.10.3	Clearances	See below and alternative method of annex G is not considered.	P
2.10.3.1	General	Annex F and minimum clearances considered.	P
2.10.3.2	Mains transient voltages	Normal transient voltage considered.	P
	a) AC mains supply	Overvoltage category II for primary circuit and transient voltage 2500V _{peak} .	P
	b) Earthed d.c. mains supplies		N/A
	c) Unearthed d.c. mains supplies		N/A
	d) Battery operation		N/A
2.10.3.3	Clearances in primary circuits	See table 2.10.3 and 2.10.4.	P
2.10.3.4	Clearances in secondary circuits	Refer to sub-clause 5.3.4.	N/A
2.10.3.5	Clearances in circuits having starting pulses	No lamps.	N/A
2.10.3.6	Transients from a.c. mains supply	See sub-clause 2.10.3.2.	P
2.10.3.7	Transients from d.c. mains supply		N/A
2.10.3.8	Transients from telecommunication networks and cable distribution systems		N/A
2.10.3.9	Measurement of transient voltage levels	See sub-clause 2.10.3.6.	N/A
	a) Transients from a mains supply		N/A
	For an a.c. mains supply		N/A
	For a d.c. mains supply		N/A
	b) Transients from a telecommunication network :		N/A
2.10.4	Creepage distances	See below.	P
2.10.4.1	General	See appended table 2.10.3 and 2.10.4.	P
2.10.4.2	Material group and comparative tracking index	Material group IIIb min. used.	P
	CTI tests	CTI rating for all materials are min. 100.	—
2.10.4.3	Minimum creepage distances	See table 2.10.3 and 2.10.4.	P
2.10.5	Solid insulation	Complied with 2.10.5.2 to 2.10.5.14 and 5.2.	P
2.10.5.1	General	See below.	P
2.10.5.2	Distances through insulation	See table 2.10.5.	P
2.10.5.3	Insulating compound as solid insulation	Certified sources of photo coupler used. See sub-clause 2.10.5.2 and 2.10.10.	P

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Clause	Requirement + Test	Result - Remark	Verdict
2.10.5.4	Semiconductor devices	For photo coupler see sub-clause 2.10.5.3.	P
2.10.5.5.	Cemented joints		N/A
2.10.5.6	Thin sheet material – General	Considered.	P
2.10.5.7	Separable thin sheet material	See appended tables C.2 and appended table 2.10.5, 2.10.3 and 2.10.4 for detail applicable.	P
	Number of layers (pcs)	See above.	—
2.10.5.8	Non-separable thin sheet material	See appended table 1.5.1 for details.	P
2.10.5.9	Thin sheet material – standard test procedure	For Non-separable thin sheet material.	P
	Electric strength test	See appended table 2.10.5.	—
2.10.5.10	Thin sheet material – alternative test procedure	See below.	P
	Electric strength test	See appended table 2.10.5 and 5.2.	—
2.10.5.11	Insulation in wound components	See below.	P
2.10.5.12	Wire in wound components	Triple insulation wire used in T101 transformer.	P
	Working voltage	See appended table 2.10.2.	P
	a) Basic insulation not under stress		N/A
	b) Basic, supplementary, reinforced insulation		N/A
	c) Compliance with Annex U	Reinforced insulation, Compliance with Annex U, certified triple insulated wire used.	P
	Two wires in contact inside wound component; angle between 45° and 90°	Mechanical stress reduced by tubing.	P
2.10.5.13	Wire with solvent-based enamel in wound components		N/A
	Electric strength test		—
	Routine test		N/A
2.10.5.14	Additional insulation in wound components		N/A
	Working voltage		N/A
	- Basic insulation not under stress		N/A
	- Supplementary, reinforced insulation		N/A
2.10.6	Construction of printed boards	See below.	P
2.10.6.1	Uncoated printed boards	See appended table 2.10.3 and 2.10.4.	P

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Clause	Requirement + Test	Result - Remark	Verdict
2.10.6.2	Coated printed boards		N/A
2.10.6.3	Insulation between conductors on the same inner surface of a printed board	Single layer PCB used.	N/A
2.10.6.4	Insulation between conductors on different layers of a printed board	No insulation for conductors across difference surface.	N/A
	Distance through insulation		N/A
	Number of insulation layers (pcs):		N/A
2.10.7	Component external terminations	See appended table 2.10.3 and 2.10.4.	P
2.10.8	Tests on coated printed boards and coated components		N/A
2.10.8.1	Sample preparation and preliminary inspection		N/A
2.10.8.2	Thermal conditioning		N/A
2.10.8.3	Electric strength test		N/A
2.10.8.4	Abrasion resistance test		N/A
2.10.9	Thermal cycling	No insulation breakdown. Certified sources of optical isolators used.	P
2.10.10	Test for Pollution Degree 1 environment and insulating compound	No cracks or voids in the insulating material. optical isolators inside was considered as pollution degree 1. Certified sources of optical isolators used. Refer to appended table 1.5.1 for details of component information.	P
2.10.11	Tests for semiconductor devices and cemented joints		N/A
2.10.12	Enclosed and sealed parts		N/A

3	WIRING, CONNECTIONS AND SUPPLY		P
3.1	General		P
3.1.1	Current rating and overcurrent protection	All internal wires are UL recognized wiring which is PVC insulated, rated 300V, VW-1, min. 105°C and output cable were rated 300V, VW-1, 60°C min., Internal wiring is PVC insulated, the wiring gauge is suitable for current intended to be carried.	P

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Clause	Requirement + Test	Result - Remark	Verdict
3.1.2	Protection against mechanical damage	Wires do not touch sharp edges. Where they touch heatsinks additional tubing or cable tie is provided so that the heatsink cannot damage the insulation and cause hazard.	P
3.1.3	Securing of internal wiring	The wiring is so routed and fixed that there is not excessive strength on the wire and terminal connections. Damage of the conductor insulation or loosening of the terminal connection is unlikely.	P
3.1.4	Insulation of conductors	The insulation of the individual conductors is suitable for the application and the working voltage. For the insulation material see sub-clause 3.1.1.	P
3.1.5	Beads and ceramic insulators	Not used.	N/A
3.1.6	Screws for electrical contact pressure	Not used.	N/A
3.1.7	Insulating materials in electrical connections	All connections are metal to metal.	N/A
3.1.8	Self-tapping and spaced thread screws	No self tapping screws are used.	N/A
3.1.9	Termination of conductors	All conductors are reliable secured.	P
	10 N pull test	10N pull test performed for all relevant conductors. No hazards caused hereby.	P
3.1.10	Sleeving on wiring	Heat shrinkable sleeving provided for function wire from PE pin of inlet to secondary trace of "FG".	P

3.2	Connection to a mains supply		P
3.2.1	Means of connection	See below.	P
3.2.1.1	Connection to an a.c. mains supply	Appliance inlet provided.	P
3.2.1.2	Connection to a d.c. mains supply	Only a.c. mains supply.	N/A
3.2.2	Multiple supply connections	Only for one mains connection.	N/A
3.2.3	Permanently connected equipment	Unit is not a permanently connected equipment.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Number of conductors, diameter of cable and conduits (mm)		—
3.2.4	Appliance inlets	The appliance inlet complies with IEC/EN 60320-1. The connector of the power cord can be inserted without difficulties and does not support the unit.	P
3.2.5	Power supply cords	The power supply cord is not provided with this unit.	N/A
3.2.5.1	AC power supply cords	No power supply cords provided.	N/A
	Type		—
	Rated current (A), cross-sectional area (mm ²), AWG		—
3.2.5.2	DC power supply cords	AC mains supply.	N/A
3.2.6	Cord anchorages and strain relief	For each output cable for applicant's request.	P
	Mass of equipment (kg), pull (N)	0.36kg, 30N	—
	Longitudinal displacement (mm)	No any displacement (0 mm).	—
3.2.7	Protection against mechanical damage	There are no parts of this equipment that may damage the power supply cord.	N/A
3.2.8	Cord guards	Appliance inlet used.	N/A
	Diameter or minor dimension D (mm); test mass (g)		—
	Radius of curvature of cord (mm)		—
3.2.9	Supply wiring space	Appliance inlet used.	N/A
3.3	Wiring terminals for connection of external conductors <i>Appliance inlet used. No wiring terminals.</i>		N/A
3.3.1	Wiring terminals		N/A
3.3.2	Connection of non-detachable power supply cords		N/A
3.3.3	Screw terminals		N/A
3.3.4	Conductor sizes to be connected		N/A
	Rated current (A), cord/cable type, cross-sectional area (mm ²)		—
3.3.5	Wiring terminal sizes		N/A
	Rated current (A), type, nominal thread diameter (mm)		—

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Clause	Requirement + Test	Result - Remark	Verdict
3.3.6	Wiring terminal design		N/A
3.3.7	Grouping of wiring terminals		N/A
3.3.8	Stranded wire		N/A
3.4	Disconnection from the mains supply		P
3.4.1	General requirement	See below.	P
3.4.2	Disconnect devices	Approved appliance inlet used.	P
3.4.3	Permanently connected equipment	Not permanently connected equipment.	N/A
3.4.4	Parts which remain energized	When appliance inlet is disconnected, no remaining parts at hazardous voltage within the equipment.	P
3.4.5	Switches in flexible cords		N/A
3.4.6	Number of poles - single-phase and d.c. equipment	The disconnect device disconnects both poles simultaneously.	P
3.4.7	Number of poles - three-phase equipment		N/A
3.4.8	Switches as disconnect devices	No switches as disconnect device.	N/A
3.4.9	Plugs as disconnect devices	Appliance inlet as disconnect device.	N/A
3.4.10	Interconnected equipment	No interconnected equipment.	N/A
3.4.11	Multiple power sources	Only one supply connection.	N/A
3.5	Interconnection of equipment		P
3.5.1	General requirements	The power supply is not considered for connection to TNV.	P
3.5.2	Types of interconnection circuits :	Interconnection circuits of SELV and LCC via secondary output connector.	P
3.5.3	ELV circuits as interconnection circuits	No ELV interconnection.	N/A
3.5.4	Data ports for additional equipment		N/A
4	PHYSICAL REQUIREMENTS		P
4.1	Stability		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Angle of 10°	No overbalancing due to equipment design and mass less than 7kg (length and width by far exceeding the height).	N/A
	Test force (N) :		N/A

4.2	Mechanical strength		P
4.2.1	General	See below. After tests, unit complies with the requirements of sub-clause 2.1.1, 2.6.1 and 2.10.	P
	Rack-mounted equipment.		N/A
4.2.2	Steady force test, 10 N	10N applied to all components other than enclosure.	P
4.2.3	Steady force test, 30 N	No internal enclosure.	N/A
4.2.4	Steady force test, 250 N	250N on top/right side/left side/bottom of enclosure, enclosure near AC inlet, enclosure near output cable and no damaged. (test with all mentioned sources in appended table 1.5.1)	P
4.2.5	Impact test	See below.	P
	Fall test	No hazard as result from steel sphere ball impact test applied for top/right side/left side/bottom of enclosure, enclosure near AC inlet and enclosure near output cable. (test with all mentioned sources in appended table 1.5.1)	P
	Swing test	No hazard as result from steel sphere ball impact test for top/right side/left side/bottom enclosure, enclosure near AC inlet and enclosure near output cable. (test with all mentioned sources in appended table 1.5.1)	P

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Clause	Requirement + Test	Result - Remark	Verdict
4.2.6	Drop test; height (mm)	The adapter has been subjected to min. 3 drops which for top/right side/left side/bottom enclosure, enclosure near AC inlet and enclosure near output cable from 1 m height on a hard wooden surface. (test with all mentioned sources in appended table 1.5.1)	P
4.2.7	Stress relief test	After the test at temperature of 96°C for each material source of enclosure by client requested, no shrinkage, distortion or loosening of any enclosure part was noticeable on the equipment.	P
4.2.8	Cathode ray tubes	No CRT in the unit.	N/A
	Picture tube separately certified		N/A
4.2.9	High pressure lamps		N/A
4.2.10	Wall or ceiling mounted equipment; force (N)		N/A

4.3	Design and construction		P
4.3.1	Edges and corners	Edges and corners of the enclosure are rounded.	P
4.3.2	Handles and manual controls; force (N)		N/A
4.3.3	Adjustable controls	No adjustable controls.	N/A
4.3.4	Securing of parts	Mechanical fixings in such a way designed that they will withstand mechanical stress occurring in normal use.	P
4.3.5	Connection by plugs and sockets	Mismatching of connectors neither possible nor result in any hazards.	P
4.3.6	Direct plug-in equipment	Not direct plug-in type.	N/A
	Torque		—
	Compliance with the relevant mains plug standard		N/A
4.3.7	Heating elements in earthed equipment	No heating elements.	N/A
4.3.8	Batteries		N/A
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
4.3.9	Oil and grease	Insulation in intended use not considered to be exposed to oil or grease.	N/A
4.3.10	Dust, powders, liquids and gases	Equipment in intended use not considered to be exposed to these.	N/A
4.3.11	Containers for liquids or gases	No container for liquid or gas provided.	N/A
4.3.12	Flammable liquids	No flammable liquids provided.	N/A
	Quantity of liquid (l)		N/A
	Flash point (°C)		N/A
4.3.13	Radiation		N/A
4.3.13.1	General		N/A
4.3.13.2	Ionizing radiation		N/A
	Measured radiation (pA/kg)		—
	Measured high-voltage (kV)		—
	Measured focus voltage (kV)		—
	CRT markings		—
4.3.13.3	Effect of ultraviolet (UV) radiation on materials		N/A
	Part, property, retention after test, flammability classification		N/A
4.3.13.4	Human exposure to ultraviolet (UV) radiation		N/A
4.3.13.5	Lasers (including laser diodes) and LEDs		N/A
4.3.13.5.1	Lasers (including laser diodes)		N/A
	Laser class		—
4.3.13.5.2	Light emitting diodes (LEDs)		N/A
4.3.13.6	Other types		N/A
4.4	Protection against hazardous moving parts		N/A
4.4.1	General	No hazardous moving parts.	N/A
4.4.2	Protection in operator access areas		N/A
	Household and home/office document/media shredders		N/A
4.4.3	Protection in restricted access locations		N/A
4.4.4	Protection in service access areas		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.4.5	Protection against moving fan blades		N/A
4.4.5.1	General		N/A
	Not considered to cause pain or injury. a) :		N/A
	Is considered to cause pain, not injury. b) :		N/A
	Considered to cause injury. c) :		N/A
4.4.5.2	Protection for users		N/A
	Use of symbol or warning :		N/A
4.4.5.3	Protection for service persons		N/A
	Use of symbol or warning :		N/A

4.5	Thermal requirements		P
4.5.1	General	No exceeding temperature.	P
4.5.2	Temperature tests	See appended table 4.5.	P
	Normal load condition per Annex L :	(See Annex L)	—
4.5.3	Temperature limits for materials	See appended table 4.5.	P
4.5.4	Touch temperature limits	See appended table 4.5.	P
4.5.5	Resistance to abnormal heat :	Phenolic type bobbin material used in T101 and L601 which is acceptable without test.	P

4.6	Openings in enclosures		P
4.6.1	Top and side openings	No opening.	P
	Dimensions (mm) :	See above.	—
4.6.2	Bottoms of fire enclosures	No opening.	P
	Construction of the bottom, dimensions (mm) .. :	See above.	—
4.6.3	Doors or covers in fire enclosures		N/A
4.6.4	Openings in transportable equipment	No opening.	P
4.6.4.1	Constructional design measures		N/A
	Dimensions (mm) :		—
4.6.4.2	Evaluation measures for larger openings		N/A
4.6.4.3	Use of metallized parts		N/A
4.6.5	Adhesives for constructional purposes		N/A
	Conditioning temperature (°C), time (weeks) :		—

4.7	Resistance to fire		P
4.7.1	Reducing the risk of ignition and spread of flame	See below.	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Method 1, selection and application of components wiring and materials	Use of materials with the required flammability classes.	P
	Method 2, application of all of simulated fault condition tests		N/A
4.7.2	Conditions for a fire enclosure	See below.	P
4.7.2.1	Parts requiring a fire enclosure	With having the following parts: 1. Components in primary 2. Components in secondary not supplied by LPS 3. Insulated wiring The fire enclosure is required.	P
4.7.2.2	Parts not requiring a fire enclosure	Fire enclosure is required. Refer to 4.7.2.1.	N/A
4.7.3	Materials		P
4.7.3.1	General	PCB is rated accordingly. See appended table 1.5.1 for details.	P
4.7.3.2	Materials for fire enclosures	See appended table 1.5.1 for details.	P
4.7.3.3	Materials for components and other parts outside fire enclosures		N/A
4.7.3.4	Materials for components and other parts inside fire enclosures	The material is made of V-2 material.	P
4.7.3.5	Materials for air filter assemblies		N/A
4.7.3.6	Materials used in high-voltage components		N/A

5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		P
5.1	Touch current and protective conductor current		P
5.1.1	General	See sub-clauses 5.1.2 to 5.1.6.	P
5.1.2	Configuration of equipment under test (EUT)	See below.	P
5.1.2.1	Single connection to an a.c. mains supply	EUT has only single AC mains connection.	P
5.1.2.2	Redundant multiple connections to an a.c. mains supply		N/A
5.1.2.3	Simultaneous multiple connections to an a.c. mains supply		N/A
5.1.3	Test circuit	Equipment of figure 5A used.	P
5.1.4	Application of measuring instrument	Measuring instruments as in annex D used.	P

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Clause	Requirement + Test	Result - Remark	Verdict
5.1.5	Test procedure	The touch current was measured from mains to DC output connector and to a 10 cm × 20 cm metal foil wrapped on accessible non-conductive parts (plastic enclosure).	P
5.1.6	Test measurements	See below.	P
	Supply voltage (V)	See table 5.1.	—
	Measured touch current (mA)	See table 5.1.	—
	Max. allowed touch current (mA)	See table 5.1.	—
	Measured protective conductor current (mA)		—
	Max. allowed protective conductor current (mA) ...		—
5.1.7	Equipment with touch current exceeding 3,5 mA	Not exceeded.	N/A
5.1.7.1	General		N/A
5.1.7.2	Simultaneous multiple connections to the supply		N/A
5.1.8	Touch currents to telecommunication networks and cable distribution systems and from telecommunication networks	No TNV circuit connection.	N/A
5.1.8.1	Limitation of the touch current to a telecommunication network or to a cable distribution system		N/A
	Supply voltage (V)		—
	Measured touch current (mA)		—
	Max. allowed touch current (mA)		—
5.1.8.2	Summation of touch currents from telecommunication networks		N/A
	a) EUT with earthed telecommunication ports		N/A
	b) EUT whose telecommunication ports have no reference to protective earth		N/A
5.2	Electric strength		P
5.2.1	General	See appended table 5.2.	P
5.2.2	Test procedure	Table 5B used.	P
5.3	Abnormal operating and fault conditions		P
5.3.1	Protection against overload and abnormal operation	(see appended table 5.3)	P
5.3.2	Motors		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.3.3	Transformers	With the shorted o/p of the transformer, no high temperature of the transformer was recorded. Results of the short-circuit tests see appended table 5.3 and Annex C.	P
5.3.4	Functional insulation	Method c). See appended table 5.3	P
5.3.5	Electromechanical components	No electromechanical component provided.	N/A
5.3.6	Audio amplifiers in ITE		N/A
5.3.7	Simulation of faults	See table 5.3.	P
5.3.8	Unattended equipment		N/A
5.3.9	Compliance criteria for abnormal operating and fault conditions	See below.	P
5.3.9.1	During the tests	Neither fire burns the equipment nor molten metal.	P
5.3.9.2	After the tests	Electric strength test primary to secondary, primary to earth and primary to accessible enclosure wrapped with metal foil were passed.	P

6	CONNECTION TO TELECOMMUNICATION NETWORKS		N/A
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		N/A
6.1.1	Protection from hazardous voltages		N/A
6.1.2	Separation of the telecommunication network from earth		N/A
6.1.2.1	Requirements		N/A
	Supply voltage (V)		—
	Current in the test circuit (mA)		—
6.1.2.2	Exclusions		N/A

6.2	Protection of equipment users from overvoltages on telecommunication networks		N/A
6.2.1	Separation requirements		N/A
6.2.2	Electric strength test procedure		N/A
6.2.2.1	Impulse test		N/A
6.2.2.2	Steady-state test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
6.2.2.3	Compliance criteria		N/A
6.3	Protection of the telecommunication wiring system from overheating		N/A
	Max. output current (A)		—
	Current limiting method		—
7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		N/A
7.1	General		N/A
7.2	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment		N/A
7.3	Protection of equipment users from overvoltages on the cable distribution system		N/A
7.4	Insulation between primary circuits and cable distribution systems		N/A
7.4.1	General		N/A
7.4.2	Voltage surge test		N/A
7.4.3	Impulse test		N/A
A	ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE		P
A.1	Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2)		N/A
A.1.1	Samples.....		—
	Wall thickness (mm).....		—
A.1.2	Conditioning of samples; temperature (°C)		N/A
A.1.3	Mounting of samples		N/A
A.1.4	Test flame (see IEC 60695-11-3)		N/A
	Flame A, B, C or D		—
A.1.5	Test procedure		N/A
A.1.6	Compliance criteria		N/A
	Sample 1 burning time (s)		—
	Sample 2 burning time (s)		—
	Sample 3 burning time (s)		—
A.2	Flammability test for fire enclosures of movable equipment having a total mass not exceeding 18 kg, and for material and components located inside fire enclosures (see 4.7.3.2 and 4.7.3.4)		P

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Clause	Requirement + Test	Result - Remark	Verdict
A.2.1	Samples, material.....:		—
	Wall thickness (mm).....:		—
A.2.2	Conditioning of samples; temperature (°C)		N/A
A.2.3	Mounting of samples		N/A
A.2.4	Test flame (see IEC 60695-11-4)		N/A
	Flame A, B or C		—
A.2.5	Test procedure		N/A
A.2.6	Compliance criteria		N/A
	Sample 1 burning time (s)		—
	Sample 2 burning time (s)		—
	Sample 3 burning time (s)		—
A.2.7	Alternative test acc. to IEC 60695-11-5, cl. 5 and 9		N/A
	Sample 1 burning time (s)		—
	Sample 2 burning time (s)		—
	Sample 3 burning time (s)		—
A.3	Hot flaming oil test (see 4.6.2)		N/A
A.3.1	Mounting of samples		N/A
A.3.2	Test procedure		N/A
A.3.3	Compliance criterion		N/A

B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)		N/A
B.1	General requirements		N/A
	Position		—
	Manufacturer		—
	Type		—
	Rated values		—
B.2	Test conditions		N/A
B.3	Maximum temperatures		N/A
B.4	Running overload test		N/A
B.5	Locked-rotor overload test		N/A
	Test duration (days)		—
	Electric strength test: test voltage (V)		—
B.6	Running overload test for d.c. motors in secondary circuits		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
B.6.1	General		N/A
B.6.2	Test procedure		N/A
B.6.3	Alternative test procedure		N/A
B.6.4	Electric strength test; test voltage (V)		N/A
B.7	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
B.7.1	General		N/A
B.7.2	Test procedure		N/A
B.7.3	Alternative test procedure		N/A
B.7.4	Electric strength test; test voltage (V)		N/A
B.8	Test for motors with capacitors		N/A
B.9	Test for three-phase motors		N/A
B.10	Test for series motors		N/A
	Operating voltage (V)		—

C	ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)		P
	Position	Refer to appended table 1.5.1	—
	Manufacturer	See above.	—
	Type	See above.	—
	Rated values	See above.	—
	Method of protection	Over current protection by circuit design.	—
C.1	Overload test	(see appended table 5.3)	P
C.2	Insulation	(see appended table 5.2)	P
	Protection from displacement of windings	See appended table C.2.	P

D	ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)		P
D.1	Measuring instrument	Figure D.1 used.	P
D.2	Alternative measuring instrument		N/A

E	ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)		N/A
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F	ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10 and Annex G)		P
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Clause	Requirement + Test	Result - Remark	Verdict
G	ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES		N/A
G.1	Clearances		N/A
G.1.1	General		N/A
G.1.2	Summary of the procedure for determining minimum clearances		N/A
G.2	Determination of mains transient voltage (V)		N/A
G.2.1	AC mains supply		N/A
G.2.2	Earthed d.c. mains supplies		N/A
G.2.3	Unearthed d.c. mains supplies		N/A
G.2.4	Battery operation		N/A
G.3	Determination of telecommunication network transient voltage (V)		N/A
G.4	Determination of required withstand voltage (V)		N/A
G.4.1	Mains transients and internal repetitive peaks		N/A
G.4.2	Transients from telecommunication networks		N/A
G.4.3	Combination of transients		N/A
G.4.4	Transients from cable distribution systems		N/A
G.5	Measurement of transient voltages (V)		N/A
	a) Transients from a mains supply		N/A
	For an a.c. mains supply		N/A
	For a d.c. mains supply		N/A
	b) Transients from a telecommunication network		N/A
G.6	Determination of minimum clearances		N/A
H	ANNEX H, IONIZING RADIATION (see 4.3.13)		P
J	ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)		P
	Metal(s) used	Complied.	—
K	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.8)		N/A
K.1	Making and breaking capacity		N/A
K.2	Thermostat reliability; operating voltage (V)		N/A
K.3	Thermostat endurance test; operating voltage (V)		N/A
K.4	Temperature limiter endurance; operating voltage (V)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
K.5	Thermal cut-out reliability		N/A
K.6	Stability of operation		N/A
L	ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2)		P
L.1	Typewriters		N/A
L.2	Adding machines and cash registers		N/A
L.3	Erasers		N/A
L.4	Pencil sharpeners		N/A
L.5	Duplicators and copy machines		N/A
L.6	Motor-operated files		N/A
L.7	Other business equipment	The equipment is operated according to the most unfavorable way of operation given in the operating instructions.	P
M	ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)		N/A
M.1	Introduction		N/A
M.2	Method A		N/A
M.3	Method B		N/A
M.3.1	Ringling signal		N/A
M.3.1.1	Frequency (Hz)		—
M.3.1.2	Voltage (V)		—
M.3.1.3	Cadence; time (s), voltage (V)		—
M.3.1.4	Single fault current (mA)		—
M.3.2	Tripping device and monitoring voltage		N/A
M.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N/A
M.3.2.2	Tripping device		N/A
M.3.2.3	Monitoring voltage (V)		N/A
N	ANNEX N, IMPULSE TEST GENERATORS (see 1.5.7.2, 1.5.7.3, 2.10.3.9, 6.2.2.1, 7.3.2, 7.4.3 and Clause G.5)		N/A
N.1	ITU-T impulse test generators		N/A
N.2	IEC 60065 impulse test generator		N/A
P	ANNEX P, NORMATIVE REFERENCES		—

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Clause	Requirement + Test	Result - Remark	Verdict

Q	ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)		P
	- Preferred climatic categories	Complied.	P
	- Maximum continuous voltage	Complied.	P
	- Combination pulse current	Complied.	P
	Body of the VDR Test according to IEC60695-11-5		N/A
	Body of the VDR. Flammability class of material (min V-1)	Complied. Details see appended table 1.5.1.	P

R	ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES		N/A
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6.2)		N/A
R.2	Reduced clearances (see 2.10.3)		N/A

S	ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)		N/A
S.1	Test equipment		N/A
S.2	Test procedure		N/A
S.3	Examples of waveforms during impulse testing		N/A

T	ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)		N/A
			—

U	ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)		P
		Certified triple insulated wire used. See table 1.5.1.	—

V	ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)		P
V.1	Introduction	See below.	P
V.2	TN power distribution systems	Single-phase TN power system considered and used for the testing.	P

W	ANNEX W, SUMMATION OF TOUCH CURRENTS		N/A
W.1	Touch current from electronic circuits		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
W.1.1	Floating circuits		N/A
W.1.2	Earthed circuits		N/A
W.2	Interconnection of several equipments		N/A
W.2.1	Isolation		N/A
W.2.2	Common return, isolated from earth		N/A
W.2.3	Common return, connected to protective earth		N/A
X	ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)		N/A
X.1	Determination of maximum input current		N/A
X.2	Overload test procedure		N/A
Y	ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)		N/A
Y.1	Test apparatus		N/A
Y.2	Mounting of test samples		N/A
Y.3	Carbon-arc light-exposure apparatus		N/A
Y.4	Xenon-arc light exposure apparatus		N/A
Z	ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2)		P
AA	ANNEX AA, MANDREL TEST (see 2.10.5.8)		P
BB	ANNEX BB, CHANGES IN THE SECOND EDITION		—
CC	ANNEX CC, Evaluation of integrated circuit (IC) current limiters		N/A
CC.1	General		N/A
CC.2	Test program 1		N/A
CC.3	Test program 2		N/A
CC.4	Test program 3		N/A
CC.5	Compliance		N/A
DD	ANNEX DD, Requirements for the mounting means of rack-mounted equipment		N/A
DD.1	General		N/A
DD.2	Mechanical strength test, variable N.....		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
DD.3	Mechanical strength test, 250 N, including end stops.....:		N/A
DD.4	Compliance.....:		N/A
EE	ANNEX EE, Household and home/office document/media shredders		N/A
EE.1	General		N/A
EE.2	Markings and instructions		N/A
	Use of markings or symbols.....:		N/A
	Information of user instructions, maintenance and/or servicing instructions.....:		N/A
EE.3	Inadvertent reactivation test.....:		N/A
EE.4	Disconnection of power to hazardous moving parts:		N/A
	Use of markings or symbols.....:		N/A
EE.5	Protection against hazardous moving parts		N/A
	Test with test finger (Figure 2A):		N/A
	Test with wedge probe (Figure EE1 and EE2):		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: List of critical components					P
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity ¹⁾	
Appliance Inlet (SC101) (for models FSP090- AFAN2, FSP090- AWAN2) (C14 type)	Rong Feng Industrial Co., Ltd.	SS-120	10A, 250Vac, 70°C	IEC/EN 60320-1, ANSI/UL 498	VDE, UL	
	Tecx-Unions Technology Corp.	TU-301-SP	10A, 250Vac, 70°C	IEC/EN 60320-1, ANSI/UL 498	VDE, UL	
	Solteam Electronics Co., Ltd.	ST-01	10A, 250Vac, 70°C	IEC/EN 60320-1, ANSI/UL 498	VDE, UL	
	HCR Electronics Co., Ltd.	SK01	10A, 250Vac, 70°C	IEC/EN 60320-1, ANSI/UL 498	ENEC 17, UL	
	Rich Bay Co., Ltd.	R-301SN	10A, 250Vac, 70°C	IEC/EN 60320-1, ANSI/UL 498	VDE, UL	
	Zhe Jiang Bei Er Jia Electronic Co., Ltd.	ST-A01-001L, ST-A01-002L, ST-A01-003J, ST-A01-003K	10A, 250Vac, 70°C	IEC/EN 60320-1, ANSI/UL 498	VDE, UL	
	Canal Electronic Co., Ltd.	KS series	10A, 250Vac, 70°C	IEC/EN 60320-1, ANSI/UL 498	VDE, UL	
Appliance Inlet (SC101) (for models FSP090- AFBN2, FSP090- AWBN2) (C6 type)	Rong Feng Industrial Co., Ltd.	RF-190	250Vac, 2.5A	IEC/EN 60320-1, ANSI/UL 498	VDE, UL	
	Tecx-Unions Technology Corp.	TU-333	250Vac, 2.5A	IEC/EN 60320-1, ANSI/UL 498	VDE, UL	
	Solteam Electronics Co., Ltd.	ST-03	250Vac, 2.5A	IEC/EN 60320-1, ANSI/UL 498	VDE, UL	
	HCR Electronics	SK03	250Vac, 2.5A	IEC/EN 60320-1,	ENEC 17, UL	

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Clause	Requirement + Test			Result - Remark	Verdict
	Co., Ltd.			UL 498	
Fuse (F101) (optional) (provided with VA101 together)	Littelfuse Wickmann Werke	382-Serie(s), 392	T6.3AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
	Cooper Bussmann L L C	SS-5, SR-5	T6.3AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
	Walter Electronic Co., Ltd.	2000, 2010 Serie(s)	T6.3AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
	Ever Island Electric Co Ltd & Walter Electric Co., Ltd.	2000, 2010 Serie(s)	T6.3AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	TUV, UL
	Bel Fuse Ltd.	MRT, RST-Serie(s)	T6.3AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
	Conquer Electronics Co., Ltd.	MET series, MST-series	T6.3AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
Fuse (F102)	Littelfuse Wickmann Werke	382-Serie(s), 392	T2.5AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
	Cooper Bussmann L L C	SS-5, SR-5	T2.5AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
	Walter Electronic Co., Ltd.	2000, 2010 Serie(s)	T2.5AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
	Ever Island Electric Co Ltd & Walter Electric Co., Ltd.	2000, 2010 Serie(s)	T2.5AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	TUV, UL
	Bel Fuse Ltd.	MRT, RST-Serie(s)	T2.5AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL

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IEC 60950-1					
Clause	Requirement + Test			Result - Remark	Verdict
				ANSI/UL 248-14	
	Conquer Electronics Co., Ltd.	MET series, MST-series	T2.5AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, ANSI/UL 248-1, ANSI/UL 248-14	VDE, UL
Varistors (VA101, VA102) (Optional) (VA101 provided with F101 together)	Thinking Electronic Industrial Co., Ltd.	TVR10471-D, TVR10471-V	300Vac, 385Vdc (Flame class of body coating complied with V-0)	IEC/EN 61051-1 IEC/EN 61051-2 IEC/EN 61051-2-2 ANSI/UL 1449 SPD type 3 approved	VDE, UL
	Thinking Electronic Industrial Co., Ltd.	TVR10561-D, TVR10561-V	350Vac, 450Vdc (Flame class of body coating complied with V-0)	IEC/EN 61051-1 IEC/EN 61051-2 IEC/EN 61051-2-2 ANSI/UL 1449 SPD type 3 approved	VDE, UL
	Thinking Electronic Industrial Co., Ltd.	TVR10621-D, TVR10621-V	395Vac, 510Vdc (Flame class of body coating complied with V-0)	IEC/EN 61051-1 IEC/EN 61051-2 IEC/EN 61051-2-2 ANSI/UL 1449 SPD type 3 approved	VDE, UL
	Thinking Electronic Industrial Co., Ltd.	TVR10681-D, TVR10681-V	420Vac, 560Vdc (Flame class of body coating complied with V-0)	IEC/EN 61051-1 IEC/EN 61051-2 IEC/EN 61051-2-2 ANSI/UL 1449 SPD type 3 approved	VDE, UL
	Thinking Electronic Industrial Co., Ltd.	TVR10751-D, TVR10751-V	465Vac, 615Vdc (Flame class of body coating complied with V-0)	IEC/EN 61051-1 IEC/EN 61051-2 IEC/EN 61051-2-2 ANSI/UL 1449 SPD type 3 approved	VDE, UL
	Thinking Electronic Industrial Co., Ltd.	TVR14471, TVR14471-D	300Vac, 385Vdc (Flame class of body coating complied with V-0)	IEC/EN 61051-1 IEC/EN 61051-2 IEC/EN 61051-2-2 ANSI/UL 1449 SPD type 3 approved	VDE, UL

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Clause	Requirement + Test		Result - Remark		Verdict
	Thinking Electronic Industrial Co., Ltd.	TVR14621, TVR14621-D	395Vac, 510Vdc (Flame class of body coating complied with V-0)	IEC/EN 61051-1 IEC/EN 61051-2 IEC/EN 61051-2-2 ANSI/UL 1449 SPD type 3 approved	VDE, UL
	Thinking Electronic Industrial Co., Ltd.	TVR14681, TVR14681-D	420Vac, 560Vdc (Flame class of body coating complied with V-0)	IEC/EN 61051-1 IEC/EN 61051-2 IEC/EN 61051-2-2 ANSI/UL 1449 SPD type 3 approved	VDE, UL
	Thinking Electronic Industrial Co., Ltd.	TVR14751, TVR14751-D	465Vac, 615Vdc (Flame class of body coating complied with V-0)	IEC/EN 61051-1 IEC/EN 61051-2 IEC/EN 61051-2-2 ANSI/UL 1449 SPD type 3 approved	VDE, UL
Line Choke (LF102) (Optional)	FSP /SPI	8LM04537	130°C	--	--
X-Capacitor (CX101) (optional)	Ultra Tech Xiphi Enterprise Co Ltd	HQX	Max. 0.33μF, min. 250Vac, 100°C	IEC/EN 60384-14: 2005 ANSI/UL 60384-14 UL 1414	VDE, UL
	Carli Electronics Co., Ltd.	MPX	Max. 0.33μF, min. 250Vac, 100°C	IEC/EN 60384-14: 2005 ANSI/UL 60384-14 UL 1414	VDE, UL
	Okaya Electric Industries Co., .Ltd	LE(-*)	Max. 0.33μF, min. 250Vac, min. 100°C	IEC/EN 60384-14: 2005 ANSI/UL 60384-14 UL 1414	ENEC 14, UL
	Okaya Electric Industries Co., .Ltd	RE-Series	Max. 0.33μF, min. 250Vac, 100°C	IEC/EN 60384-14: 2005 ANSI/UL 60384-14 UL 1414	VDE, UL
	ZhuHai Sung Ho Electronics Co.,	CMPP	Max. 0.33μF, min. 250Vac,	IEC/EN 60384-14: 2005	VDE, UL

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Clause	Requirement + Test		Result - Remark		Verdict
	Ltd.		105°C	ANSI/UL 60384-14 UL 1414	
	Okaya Electric Industries Co., .Ltd	PA Series	Max. 0.33μF, min. 250Vac, 100°C	IEC/EN 60384-14: 2005 ANSI/UL 60384-14 UL 1414	VDE, UL
	Iskra Sistemi, D D	KNB1530	Max. 0.33μF, min. 250Vac, 100°C	IEC/EN 60384-14: 2005 ANSI/UL 60384-14 UL 1414	VDE, UL
	Iskra Sistemi, D D	KNB1560, KNB1563, KNB1562	Max. 0.33μF, min. 250Vac, min. 110°C	IEC/EN 60384-14: 2005 ANSI/UL 60384-14 UL 1414	VDE, UL
	Hua Jung components Co., Ltd.	MKP	Max. 0.33μF, min. 250Vac, min. 100°C	IEC/EN 60384-14: 2005 ANSI/UL 60384-14 UL 1414	ENEC 14, UL
	Chiefcon Electronics Co Ltd	CKX	Max. 0.33μF, min. 250Vac, 100°C	IEC/EN 60384-14: 2005 ANSI/UL 60384-14 UL 1414	VDE, UL
Bleeder Resistors (R101, R102)	Interchangeable	Interchangeable	Max. 2MΩ, 1/4W	--	--
Choke (L603) (optional)	FSP /SPI	8LM04536	130°C	--	--
Bridge Diode (BD101)	Interchangeable	Interchangeable	Min. 800V Min. 3 A	--	--
PFC Choke (L601)	FSP /SPI	8TI01526	130°C	--	--
	TDK	8TI01515	130°C		
MOSFET for L601 (Q601)	Interchangeable	Interchangeable	Min. 9A, min. 500V	--	--
Current Resistors For L601 (R621)	Interchangeable	Interchangeable	Min. 0.12Ω, min. 1W	--	--
Electrolytic Cap.	Interchangeable	Interchangeable	82μF,	--	--

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Clause	Requirement + Test		Result - Remark		Verdict
(C601)			min. 420V, 105°C		
Transformer (T101)	FSP /SPI	8TV00287	Class B, UL Insulation system type GH-130	Applicable part according to IEC 60950-1 and IEC 60085	Accepted by TÜV Rheinland
-Triple Insulation Wire Used in T101	Great Leoflon Industrial Co., Ltd.	TRW(B)	130°C	IEC/EN 60950-1 UL 2353	VDE, UL
	Great Leoflon Industrial Co., Ltd.	TRW(F)	155°C	IEC/EN 60950-1 UL 2353	VDE, UL
- Bobbin used in T101	Sumitomo	PM-9820	V-0, phenolic, min. 1.0 mm, 150°C	UL 94	UL
- Base used in T101	Sumitomo	PM-9820	V-0, phenolic, min. 1.0 mm, 150°C	UL 94	UL
MOSFET for T101 (Q101)	Interchangeable	Interchangeable	Min. 8A, min. 650V	--	--
Current Resistor (R121)	Interchangeable	Interchangeable	Min. 0.15Ω, Min. 1W	--	--
Bridge Cap. (CY103) (Y1 type only)	Walsin Technology Corp.	AH	Max. 1500pF, min. 250V, 125°C	IEC/EN 60384- 14:2005 UL 60384-14	VDE, UL
	TDK-EPC Corp.	CD	Max. 1500pF, min. 250V, 125°C	IEC/EN 60384- 14:2005 UL 60384-14	VDE, UL
	TDK-EPC Corp.	CD (miniature series)	Max. 1500pF, min. 250V, 125°C	IEC/EN 60384- 14:2005 UL 60384-14	VDE, UL
	Murata Mfg Co., Ltd.	KX	Max. 1500pF, min. 250V, 125°C	IEC/EN 60384- 14:2005 UL 60384-14	VDE, UL
	Success Electronics Co., Ltd.	SB	Max. 1500pF, min. 250V, 125°C	IEC/EN 60384- 14:2005 UL 60384-14	VDE, UL
Bridge Cap. (CY104) (Y1 type only)	Walsin Technology Corp.	AH	Max. 1000pF, min. 250V, 125°C	IEC/EN 60384- 14:2005 UL 60384-14	VDE, UL
	TDK-EPC Corp.	CD	Max. 1000pF, min. 250V, 125°C	IEC/EN 60384- 14:2005 UL 60384-14	VDE, UL

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IEC 60950-1					
Clause	Requirement + Test			Result - Remark	Verdict
	TDK-EPC Corp.	CD (miniature series)	Max. 1000pF, min. 250V, 125°C	IEC/EN 60384-14:2005 UL 60384-14	VDE, UL
	Murata Mfg Co., Ltd.	KX	Max. 1000pF, min. 250V, 125°C	IEC/EN 60384-14:2005 UL 60384-14	VDE, UL
	Success Electronics Co., Ltd.	SB	Max. 1000pF, min. 250V, 125°C	IEC/EN 60384-14:2005 UL 60384-14	VDE, UL
Optical Isolators (PC101)	Lite-On Technology Corp	LTV-817	Dti=0.6mm, Ext. cr=7.6mm, thermal cycling test, 4800Vac, 115°C	DIN EN 60747-5-2, IEC/EN 60950-1, UL 1577	VDE, Fimko, UL
	Renesas Electronics Corporation	PS2561DL1-1	Dti=0.4mm, thermal cycling test, Ext. dcr =8.0mm, 5000Vac, 110°C	IEC/EN 60747-5-2, IEC/EN 60950-1, UL 1577	VDE, Fimko, UL
	Renesas Electronics Corporation	PS2561BL1-1	Dti=0.4mm, thermal cycling test, Ext. dcr=7.0mm, 5000Vac, 110°C	IEC/EN 60747-5-2, IEC/EN 60950-1, UL 1577	VDE, Fimko, UL
	Everlight Electronics Co., Ltd.	EL817	Dti=0.5mm, thermal cycling test, Ext. dcr=7.7mm, 3000Vac, 110°C	IEC/EN 60747-5-2, IEC/EN 60950-1, UL 1577	VDE, Fimko, UL
	Cosmo Electronics Corp.	K1010	Dti=0.6mm, thermal cycling test, Ext. dcr=8.0mm, 4800Vac, 115°C	IEC/EN 60747-5-2, IEC/EN 60950-1, UL 1577	VDE, Semko, UL
	Sharp Corp. Electronic Components and Devices Group	PC123	Dti=0.4mm, thermal cycling test, Ext. dcr=8.0mm, 4800Vac, 110°C	IEC/EN 60747-5-2, IEC/EN 60950-1, UL 1577	VDE, Semko, UL
	Vishay Infrared Components Inc.	TCET1114G	Dti=0.5mm, Int. dcr =6.0mm, Ext. dcr=7.7mm, 5000Vac, 110°C	IEC/EN 60747-5-2, IEC/EN 60950-1, UL 1577	VDE, Fimko, UL

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Clause	Requirement + Test			Result - Remark	Verdict
Thermistor (TH102) (Optional)	Thinking Electronic Industrial Co., Ltd.	TSM1A474	Max.470kΩ at 25°C	EN/IEC 60539-1 EN/IEC 60730-1 UL 1434	UL, TUV
	Murata MFG Co., Ltd.	NCP18WB474	Max.470kΩ at 25°C	EN/IEC 60539-1 EN/IEC 60730-1 UL 1434	UL, TUV
Insulation Tape (used for top primary Shielding, two layers provided)	3M Company Electrical Markets DIV (EMD)	1350F-1	130°C	UL 510	UL
	3M Company Electrical Markets DIV (EMD)	1350F-2	130°C	UL 510	UL
	3M Company Electrical Markets DIV (EMD)	1218	180°C	UL 510	UL
	3M Company Electrical Markets DIV (EMD)	92	155°C	UL 510	UL
	3M Taiwan Ltd.	1388Y-1	130°C	UL 510	UL
	Bondtec Pacific Co., Ltd.	370S	130°C	UL 510	UL
	Bondtec Pacific Co., Ltd.	371F	130°C	UL 510	UL
	Symbio Inc.	35660	130°C	UL 510	UL
	Symbio Inc.	35660Y	130°C	UL 510	UL
	Symbio Inc.	35661	130°C	UL 510	UL
Mylar sheet (provided between PCB solder side and primary shielding)	Formex, Div of IL Tool Works Inc., Frmrly Fastex, Div of IL Tool Works Inc.	FORMEX GK-(a)(b)(f2)	V-0 or better, min. 115°C, min. 0.4mm	UL 94	UL
	Sabic Innovative Plastics US LLC	FR60	V-0 or better, min. 125°C, min. 0.4mm	UL 94	UL
	Sun Delta Corp.	VS(f)	V-0 or better, min. 120°C,	UL 94	UL

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Clause	Requirement + Test		Result - Remark		Verdict
			Min. 0.4mm		
	Sabic Innovative Plastics US L L C	FR700	V-0 or better, min. 125°C, min. 0.4mm	UL 94	UL
	3M Taiwan Ltd.	IS-250-a	V-0 or better, min. 125°C, min. 0.25mm, three layers, polyester	UL 94, Test for Clause 2.10.5.8 & 2.10.5.9 & Annex AA of IEC 60950-1	UL, test by TUV
Top plastic Enclosure	Cheil Industries Inc. Chemicals DIV	EN-1052	V-1 or better, min. 1.9mm, 130°C	UL 94	UL
	Sabic Innovative Plastics US L L C	945(GG)	V-1 or better, Min. 1.9mm, 120°C	UL 94	UL
Bottom plastic Enclosure	Cheil Industries Inc. Chemicals DIV	EN-1052	V-1 or better, min. 1.9mm, 130°C	UL 94	UL
	Sabic Innovative Plastics US L L C	945(GG)	V-1 or better, Min. 1.9mm, 120°C	UL 94	UL
Top metal shielding	Interchangeable	Interchangeable	Metal, min. 0.5mm	--	--
Bottom metal shielding	Interchangeable	Interchangeable	Metal, min. 0.5mm	--	--
Primary Caps. (C105, C111, C606, C607) (Optional)	Interchangeable	Interchangeable	105°C	--	--
Primary Caps. (C108) (Optional)	Interchangeable	Interchangeable	125°C	--	--
Secondary Caps. (C201, C202) (Optional)	Interchangeable	Interchangeable	105°C	--	--
PCB	Interchangeable	Interchangeable	V-1 or better, min. 130°C	UL 94	UL
Heat shrink tube of function earth wire	Interchangeable	Interchangeable	V-0 or better, min. 0.4mm	UL 94	UL

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Clause	Requirement + Test	Result - Remark	Verdict

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.
3. The transformer used in below factories is identical in electrical characteristics, physical construction in clearance, creepage and distance through insulation.
Transformer manufacturing plants (factories) of FSP/SPI as below:
 - Fresco Factory (Shenzhen) Co., Ltd.
 - Haohan Electronic Technology (Jian) Co., Ltd.
 - Li Yin Technology Ltd.
 - FSP Technology inc., Kaohsiung Branch
 - Protek Electronics (China) Corp.
 - Dong Guan Lightion Electronics Co., Ltd.
 - FSP Group Inc.
 - SPI Electronics Co., Ltd.

1.5.1	TABLE: Opto Electronic Devices	P
Manufacturer : See appended table 1.5.1.		
Type..... : See appended table 1.5.1.		
Separately tested..... : See appended table 1.5.1.		
Bridging insulation : RI		
External creepage distance : See appended table 1.5.1.		
Internal creepage distance : See appended table 1.5.1.		
Distance through insulation : See appended table 1.5.1.		
Tested under the following conditions : RI		
Input..... :		
Output..... :		
Supplementary information:		

1.6.2	TABLE: Electrical data (in normal conditions)					P
U (Vac)/ Freq. (Hz)	I (A)	Irated (A)	P (W)	Fuse #	Ifuse (A)	Condition/status
For model FSP090-AFAN2						
90/50	1.11	--	99.2	F102	1.11	Max. normal load condition

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Clause	Requirement + Test				Result - Remark	Verdict
						(48Vdc, 1.88A)
100/50	0.99	1.2	98.2	F102	0.99	Same as above
240/50	0.429	1.2	96.0	F102	0.429	Same as above
264/50	0.395	--	95.8	F102	0.395	Same as above
90/60	1.11	--	99.2	F102	1.11	Same as above
100/60	0.99	1.2	98.2	F102	0.99	Same as above
240/60	0.432	1.2	96.0	F102	0.432	Same as above
264/60	0.399	--	95.8	F102	0.399	Same as above
For model FSP090-AWAN2						
90/50	1.094	--	97.5	F102	1.094	Max. normal load condition (54Vdc, 1.67A)
100/50	0.973	1.2	96.5	F102	0.973	Same as above
240/50	0.422	1.2	94.5	F102	0.422	Same as above
264/50	0.389	--	94.3	F102	0.389	Same as above
90/60	1.094	--	97.5	F102	1.094	Same as above
100/60	0.973	1.2	96.6	F102	0.973	Same as above
240/60	0.426	1.2	94.5	F102	0.426	Same as above
264/60	0.393	--	94.4	F102	0.393	Same as above
Supplementary information:						

2.1.1.5 c) 1)	TABLE: max. V, A, VA test					P
Voltage (rated) (V)		Current (rated) (A)	Voltage (max.) (V)	Current (max.) (A)	VA (max.) (VA)	
For model FSP090-AFAN2						
48Vdc		1.88	48.04	2.46	116.8	
For model FSP090-AWAN2						
54Vdc		1.67	53.4	2.35	124.8	
Supplementary information:						
- Tested voltage: 240Vac, 60Hz						

2.1.1.5 c) 2)	TABLE: stored energy					N/A
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Clause	Requirement + Test	Result - Remark	Verdict
Capacitance C (μF)	Voltage U (V)	Energy E (J)	
Supplementary information:			

2.2	TABLE: evaluation of voltage limiting components in SELV circuits			P
Component (measured between)		max. voltage (V) (normal operation)		Voltage Limiting Components
		V peak	V d.c.	
For model FSP090-AWAN2				
T101 pin A to pin B		134	--	--
T101 pin A after R212 to pin B		128	--	R212
T101 pin A after C207 to pin B		--	54.2	C207
T101 pin A after D201 to pin B		--	54.2	D201
Fault test performed on voltage limiting components		Voltage measured (V) in SELV circuits (V peak or V d.c.)		
For model FSP090-AWAN2				
R212 shorted		T101 pin A after R212 to pin B: 124V		
C207 shorted		T101 pin A after C207 to pin B: 54.2Vdc		
D201 shorted		T101 pin A after D201 to pin B: Unit shut down		
Supplementary information:				

2.5	TABLE: Limited power sources					N/A
Circuit output tested:						
Note: Measured Uoc (V) with all load circuits disconnected:						
Components	Sample No.	Uoc (V)	I _{sc} (A)		VA	
			Meas.	Limit	Meas.	Limit
Supplementary information:						

2.10.2	Table: working voltage measurement	P
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Clause	Requirement + Test	Result - Remark	Verdict

Location	RMS voltage (V)	Peak voltage (V)	Comments
For model FSP090-AFAN2			
T101 pin 1 to pin A	212	415	
T101 pin 1 to pin B	224	530	
T101 pin 2 to pin A	213	455	
T101 pin 2 to pin B	236	575	
T101 pin 4 to pin A	285	480	
T101 pin 4 to pin B	326	555	
T101 pin 5 to pin A	258	360	
T101 pin 5 to pin B	270	420	
T101 pin 6 to pin A	353	590	
T101 pin 6 to pin B	*407	*655	* Max. Vrms and Vpk of T101
PC101 pin 1 to pin 3	190	385	
PC101 pin 1 to pin 4	187	380	
PC101 pin 2 to pin 3	191	385	
PC101 pin 2 to pin 4	187	380	
Under CY103	173	360	
Under CY104	173	360	
D106 trace to R206 trace	192	425	
Supplementary information:			
- Tested voltage: 240Vac ,60Hz			

2.10.3 and 2.10.4		TABLE: Clearance and creepage distance measurements						P
Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)		
Functional:								
Trace between L and N (via trace of fuse F101)	420	250	2.3 ¹⁾	6.3	2.5	6.3		
Trace between L and N (F101 used jumper)	420	250	2.3 ¹⁾	3.0	2.5	3.0		
Trace under Fuse (F101) ⁴⁾	420	250	2.3 ¹⁾	3.0	2.5	3.1		
Trace under Fuse (F102) ⁵⁾	420	250	2.3 ¹⁾	2.6	2.5	3.4		
Reinforced:								

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Clause	Requirement + Test			Result - Remark		Verdict
Primary shielding to plastic enclosure surface	420	250	6.0 ¹⁾	6.8	6.0 ²⁾	6.8
Primary trace to secondary trace	420	250	6.0 ¹⁾	See below	6.0 ²⁾	See below
- under CY104	420	250	6.0 ¹⁾	7.9	6.0 ²⁾	7.9
- PC101 pin 4 to ZD201	420	250	6.0 ¹⁾	8.1	6.0 ²⁾	8.1
- under PC101	420	250	6.0 ¹⁾	8.2	6.0 ²⁾	8.2
- under CY103	420	250	6.0 ¹⁾	7.9	6.0 ²⁾	7.9
Primary components to secondary components (with 10N) ⁷⁾	420	250	6.0 ¹⁾	See below	6.0 ²⁾	See below
- Primary shielding to C201	420	250	6.0 ¹⁾	12.6	6.0 ²⁾	12.6
- Primary shielding to HS201	420	250	6.0 ¹⁾	7.9	6.0 ²⁾	7.9
- Primary shielding to CY104 secondary trace	420	250	6.0 ¹⁾	7.5	6.0 ²⁾	7.5
- T101 core to C202	420	250	6.0 ¹⁾	6.5	6.0 ²⁾	More than 6.5
Supplementary information: 1) The correction factors of clearance is 1.48, specified in table A. 2 of IEC 60664-1 for altitude 5000m. 2) The min. creepage distance derived from Table 2N is less than the applicable min. clearance, that value of min. clearance shall be applied as the min. creepage distance. 3) Functional insulation short circuited, see 5.3.4. 4) There is one groove (3.9 mm, width 1.2 mm) provided under Fuse (F101). 5) There is one groove (3.9 mm, width 1.2 mm) provided under Fuse (F102). 6) Two layers of insulation tape (119.5 mm by 55 mm) provided on top primary shielding and fold back to primary min. 10 mm min. at secondary side. 7) Two turns of insulation tape wrapped around core of function ground wire and over than 6 mm at both primary and secondary side. 8) There is one mylar sheet (129.5 mm by 105.2 mm) provided between PCB solder side and primary shielding. 9) Tubed components: function wire (from PE pin of AC inlet to FG). 10) Two turns of insulation tape wrapped around core of function wire and over than 6 mm at both primary side and secondary side. 11) For clearance and creepage did not describe above are far larger than limit above.						

2.10.5	TABLE: Distance through insulation measurements				P
Distance through insulation (DTI) at/of:	U peak (V)	U rms (V)	Test voltage (V)	Required DTI (mm)	DTI (mm)
Photo coupler ¹⁾	420	250	3000Vac	0.4	¹⁾

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Clause	Requirement + Test			Result - Remark	Verdict
Enclosure ¹⁾	420	250	3000Vac	0.4	¹⁾
Heat shrink tube of function earth wire ²⁾	420	250	3000Vac	0.4	¹⁾
Mylar sheet (non-separated type three layer)(reinforced insulation) ³⁾	420	250	5000Vac	--	¹⁾
Mylar sheet (non-separated type three layer)(reinforced insulation) ⁴⁾	420	250	3000Vac	0.4	¹⁾
Bobbin and base of T101 ¹⁾	420	250	3000Vac	0.4	¹⁾
Supplementary information: Above all sources were tested with equipment before humidity test and after humidity test, for sources see below. 1) For all sources details refer to table 1.5.1. 2) Tested material list as below, - Mfr. Sumitomo Electric Fine Polymer Inc. types Sumitube F32, Sumitube F32(Z), Sumitube F32 a, Sumitube HF2 - Mfr. Dongguan Salipt Co., Ltd. types SALIPT S-901-300 and SALIPT S-901-600 - Mfr. Tyco Electronics Corp. types Versafit V, Versafit V4 and Versafit V2 - Mfr. Changyuan Electronics (Shenzhen) Co., Ltd. types CB-HFT - Mfr. Dongguan Quantai Electronics Co., Ltd. type T-2 - Mfr. Hamburg Industries Co., Ltd. types H-2 and H-2(CB) - Mfr. Well One Co., Ltd. types GT-2 and GH-2 3) Tested material list as below, - Mfr. 3M TAIWAN Ltd. type IS-250-a 4) Test were performed on below insulation sheet sources: - Mfr. Formex, Div of IL Tool Works Inc., Fmrly Fastex, Div of IL Tool Works Inc. type FORMEX GK-(a)(b)(f2) - Mfr. Sabic Innovative Plastics US LLC types FR60 and FR700 - Mfr. Sun Delta Corp. type VS(f)					

4.3.8	TABLE: Batteries								N/A	
The tests of 4.3.8 are applicable only when appropriate battery data is not available										
Is it possible to install the battery in a reverse polarity position?										
	Non-rechargeable batteries			Rechargeable batteries						
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging		
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	
Max. current during normal condition										

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Clause	Requirement + Test					Result - Remark			Verdict
Max. current during fault condition									
Test results:								Verdict	
- Chemical leaks									
- Explosion of the battery									
- Emission of flame or expulsion of molten metal									
- Electric strength tests of equipment after completion of tests									
Supplementary information:									

4.3.8	TABLE: Batteries	N/A
Battery category..... : Manufacturer : Type / model..... : Voltage : Capacity..... : Tested and Certified by (incl. Ref. No.) : Circuit protection diagram:		

MARKINGS AND INSTRUCTIONS (1.7.13)	
Location of replaceable battery	
Language(s)	
Close to the battery	
In the servicing instructions	
In the operating instructions	

4.5	TABLE: Thermal requirements	P
	Supply voltage (V) A. 90Vac, 60Hz, label side downward B. 264Vac, 50Hz, label side downward C. 90Vac, 60Hz, label side upward D. 264Vac, 50Hz, label side upward	—
	Ambient T _{min} (°C)	--

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Clause	Requirement + Test		Result - Remark		Verdict
	Ambient T _{max} (°C)	--			—
Maximum measured temperature T of part/at.....:		T (°C)			Allowed T _{max} (°C)
For model FSP090-AWAN2					
Test voltage and position	A.	B.	C.	D.	--
L pin of inlet	62.9	54.9	58.9	51.0	70
LF102 coil	86.4	67.2	87.8	68.3	130
L603 coil	94.9	70.4	95.6	71.2	130
L601 core	87.8	70.3	89.1	71.5	130
L601 coil	95.4	73.3	96.2	74.2	130
C606	86.3	69.3	87.3	70.3	105
C601	92.6	74.9	94.0	76.4	105
C105	94.8	79.8	96.5	81.6	105
C108	101.3	85.2	101.8	86.1	125
C111	87.0	72.4	87.5	73.2	105
C202	79.8	71.0	80.9	72.5	85
LF201 coil	72.2	64.6	73.2	65.8	105
T101 core	83.8	72.7	85.2	74.2	110
T101 coil	91.4	78.4	92.5	79.7	110
L Wire	75.0	62.4	77.1	62.5	105
N Wire	80.9	65.6	82.0	65.7	105
CX101	87.6	70.6	88.9	71.3	100
BD101 (touch PCB)	102.0	75.5	102.9	76.4	130
HS101 (touch PCB)	98.9	74.2	99.7	74.9	130
HS102 (touch PCB)	103.5	87.1	104.1	87.7	130
HS201 (touch PCB)	99.3	89.5	100.9	91.2	130
CY103	92.5	80.7	94.0	82.0	125
CY104	80.3	70.2	81.4	71.2	125
PC101	91.8	79.5	93.3	81.0	100
Top Case Inside	77.8	68.8	82.7	72.4	120
Top Case Outside	68.5	62.1	76.6	67.8	95
Bottom Case Inside	81.3	70.8	79.3	69.7	120
Bottom Case Outside	77.1	67.7	71.4	64.2	95

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Clause	Requirement + Test		Result - Remark		Verdict
Output Wire	44.6	44.6	46.5	46.2	80
Tamb (°C)	41.3	40.8	39.7	35.5	--
Tma (°C)	40.0	40.0	40.0	40.0	--
For model FSP090-AFAN2					
Test voltage and position	A.	B.	C.	D.	--
L pin of inlet	62.7	53.6	59.9	51.2	70
LF102 coil	87.4	70.0	86.9	69.2	130
L603 coil	103.4	73.0	101.9	71.7	130
L601 core	89.2	72.1	88.5	71.2	130
L601 coil	97.2	75.8	95.7	74.4	130
C606	90.2	71.9	89.0	70.7	105
C601	93.3	76.2	92.7	75.5	105
C105	97.1	82.3	95.4	80.9	105
C108	108.3	91.8	106.1	89.9	125
C111	89.8	75.0	87.7	73.3	105
C202	79.3	70.6	77.8	69.6	85
LF201 coil	75.3	67.1	73.6	66.1	105
T101 core	86.4	74.8	85.5	74.0	110
T101 coil	95.1	81.7	93.7	80.4	110
L Wire	86.8	67.1	86.6	66.9	105
N Wire	86.2	68.9	85.9	68.7	105
CX101	88.8	70.9	88.4	70.6	100
BD101 (touch PCB)	99.7	75.4	98.5	74.5	130
HS101 (touch PCB)	97.9	74.9	96.8	73.9	130
HS102 (touch PCB)	106.0	88.2	104.1	86.8	130
HS201 (touch PCB)	105.4	94.7	104.3	93.8	130
CY103	96.1	83.1	94.8	82.1	125
CY104	83.7	72.4	81.9	71.3	125
PC101	95.4	82.0	94.2	81.2	100
Top Case Inside	81.5	71.3	83.3	72.5	120
Top Case Outside	72.5	64.6	76.8	67.7	95
Bottom Case Inside	85.5	73.7	79.9	69.9	120

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Clause	Requirement + Test		Result - Remark		Verdict		
Bottom Case Outside	80.7	70.2	71.8	64.1	95		
Output Wire	47.6	46.0	44.1	43.9	80		
Tamb (°C)	38.2	35.0	38.8	35.2	--		
Tma (°C)	40.0	40.0	40.0	40.0	--		
Supplementary information:							
Temperature T of winding:	t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	Allowed T _{max} (°C)	Insulation class
Supplementary information:							
1. The temperatures were measured under worst case normal mode defined in 1.2.2.1 and as described in 1.6.2 at voltage as above.							
2. With a specified ambient temperature of +40 °C. Therefore the maximum temperatures measured are recalculated as follows: T + (40 – Tamb), where T is the maximum temperature measured during test and Tamb is the ambient temperature during the test.							
- Winding components (providing safety isolation): Class 130 material (B) - Tmax = 120°C - 10°C = 110°C							
- User accessible areas which may be touched during normal use:							
- Plastic enclosure - Tmax = 95°C							

4.5.5	TABLE: Ball pressure test of thermoplastic parts			N/A
	Allowed impression diameter (mm):		≤ 2 mm	—
Part		Test temperature (°C)	Impression diameter (mm)	
Supplementary information:				
- Phenolic type bobbin material used in T101 and L601 which is acceptable without test.				

4.7	TABLE: Resistance to fire				P
Part	Manufacturer of material	Type of material	Thickness (mm)	Flammability class	Evidence
Enclosure	1)	1)	1)	1)	1)

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:

¹⁾ See appended table 1.5.1 for details.

5.1	TABLE: touch current measurement			P
Measured between:	Measured (mA)	Limit (mA)	Comments/conditions	
Fuse in, Line/Neutral to plastic enclosure with metal foil	0.01 / 0.01	0.25	Switch “e” closed. (CY103, CY104, C214 and R229 provided)	
Fuse in, Line/Neutral to output “+”	0.16 / 0.16	0.25	Switch “e” closed. (CY103, CY104, C214 and R229 provided)	
Fuse in, Line/ Neutral to output RTN (-)	0.15 / 0.15	0.25	Switch “e” closed. (CY103, CY104, C214 and R229 provided)	
Fuse in, Line/Neutral to plastic enclosure with metal foil	0.01 / 0.01	0.25	Switch “e” closed. Components (R229 and C214 replace by jumper)	
Fuse in, Line/ Neutral to output RTN (-)	0.17 / 0.17	3.5	Switch “e” opened. Components (R229 and C214 replace by jumper)	
Fuse in, Line/Neutral to plastic enclosure with metal foil	0.01 / 0.01	0.25	Switch “e” closed. (CY103, CY104 and R229 provided; without C214)	
Fuse in, Line/Neutral to output “+”	0.16 / 0.16	0.25	Switch “e” closed. (CY103, CY104 and R229 provided; without C214)	
Fuse in, Line/ Neutral to output RTN (-)	0.16 / 0.16	0.25	Switch “e” closed. (CY103, CY104 and R229 provided; without C214)	
Supplementary information:				
1. Test voltage: 264V/60Hz				
2. Overall capacity: CY103 = 1500pF, CY104 = 1000pF				

5.2	TABLE: Electric strength tests, impulse tests and voltage surge tests			P
Test voltage applied between:		Voltage shape (AC, DC, impulse, surge)	Test voltage (V)	Breakdown Yes / No
Basic/supplementary:				
Unit: primary and earth		DC	3000	No

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Clause	Requirement + Test	Result - Remark	Verdict
Reinforced:			
Unit: primary and secondary	DC	4242	No
Unit: primary and plastic enclosure with copper foil	AC	3000	No
T101: primary winding and secondary winding ¹⁾	AC	3000	No
T101: core and secondary winding ¹⁾	AC	3000	No
One layer insulation tape of T101 ²⁾	AC	3000	No
Triple insulation tape of T101 ³⁾	AC	3000	No
Tube of T101 ⁴⁾	AC	3000	No
Margin tape of T101 ⁵⁾	AC	3000	No
Mylar ⁶⁾ (provided between PCB solder side and primary shielding)	AC	5000	No
One layer of Insulation tape ⁷⁾ (used for top primary Shielding)	AC	3000	No
Mylar ⁸⁾ (provided between PCB solder side and primary shielding)	AC	3000	No
Supplementary information:			
Above all sources were tested with equipment before humidity test and after humidity test, for sources see below,			
¹⁾ The transformer used in below factories is identical in electrical characteristics, physical construction in clearance, creepage and distance through insulation. Transformer manufacturing plants (factories) of FSP/SPI as below: - Fresco Factory (Shenzhen) Co., Ltd. - Haohan Electronic Technology (Jian) Co., Ltd. - Li Yin Technology Ltd. - FSP Technology inc., Kaohsiung Branch - Protek Electronics (China) Corp. - Dong Guan Lightion Electronics Co., Ltd. - FSP Group Inc. - SPI Electronics Co., Ltd.			
²⁾ Tests were performed on below insulation tape sources: - Mfr. 3M, type 1350F-1. - Mfr. Symbio Inc. type 35660Y*			
³⁾ Tests were performed on below sources: - Mfr. Great Leoflon Industrial Co., Ltd. types TRW(B) and TRW(F)			
⁴⁾ Tests were performed on below sources: - Mfr. Great Holding Industrial Co., Ltd., type TFL.			
⁵⁾ Tests were performed on below sources: - Mfr. 3M Company Electrical Markets DIV (EMD), type 44. - Mfr. Symbio Inc., type 35661.			
⁶⁾ Test were performed on below insulation sheet sources: - Mfr. 3M Taiwan Ltd. type IS-250-a			
⁷⁾ Tests were performed on below insulation tape sources:			

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Clause	Requirement + Test	Result - Remark	Verdict

- Mfr. 3M Company Electrical Markets DIV (Emd) types 1218, 92, 1350F-1 and 1350F-2.
- Mfr. 3M Taiwan Ltd. type 1388Y-1.
- Mfr. Bondtec Pacific Co., Ltd. types 370S and 371F
- Mfr. Symbio Inc. Types 35660, 35660Y and 35661

- 8) Test were performed on below insulation sheet sources:
- Mfr. Formex, Div of IL Tool Works Inc., Frmrly Fastex, Div of IL Tool Works Inc. type FORMEX GK-(a)(b)(f2)
 - Mfr. Sabic Innovative Plastics US LLC types FR60 and FR700
 - Mfr. Sun Delta Corp. type VS(f)

5.3	TABLE: Fault condition tests						P
	Ambient temperature (°C)				25°C, if no otherwise state.		—
	Power source for EUT: Manufacturer, model/type, output rating				--		—
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation	
For model FSP090-AWAN2							
BD101 pin “~” to “+”	shorted	240Vac	1 sec.	F102	--	Fuse (F102) opened immediately, BD101 damaged. No hazards.	
C601	shorted	240Vac	1 sec.	F102	--	Fuse (F102) opened immediately, BD101 damaged. No hazards.	
Q601 pin G to pin S	shorted	240Vac	5 min.	F102	0.04	Unit shut down, no hazards.	
Q601 pin D to pin S	shorted	240Vac	1 sec.	F102	--	Fuse (F102) opened immediately, components (BD101, D603, Q606, R623 and R621) damaged. No hazards.	
Q601 pin G to pin D	shorted	240Vac	1 sec.	F102	--	Fuse (F102) opened immediately, components (BD101, Q601, R136, U101, R624, Q606 and R622) damaged. No hazards.	
R621	shorted	240Vac	5 min.	F102	0.426	Unit normal operation. No hazards.	
Q101 pin G to pin S	shorted	240Vac	5 min.	F102	0.04	Unit shut down, no hazards.	
Q101 pin D to pin S	shorted	240Vac	1 sec.	F102	--	Fuse (F102) opened immediately, components (Q101, R121 and D107) damaged. No hazards.	
Q101 pin G to pin D	shorted	240Vac	1 sec.	F102	--	Fuse (F102) opened immediately, components (BD101, Q101, U101, R123, R126, Q102 and D107) damaged. No hazards.	

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Clause	Requirement + Test				Result - Remark	Verdict
R121	shorted	240Vac	5 min.	F102	0.426	Unit normal operation. No hazards.
PC101 Pin 1 to Pin 2	shorted	240Vac	5 min.	F102	0.04	Unit shut down, no hazards.
PC101 Pin 3 to Pin 4	shorted	240Vac	5 min.	F102	0.03	Unit shut down, no hazards.
PC101 Pin 1	opened	240Vac	5 min.	F102	0.03	Unit shut down, no hazards.
PC101 Pin 4	opened	240Vac	5 min.	F102	0.03	Unit shut down, no hazards.
U101 Pin 16 to Pin 12	shorted	240Vac	1 sec.	F102	--	Fuse (F102) opened immediately, components (U101, Q601, R136, C612 and BD101 and R621) damaged. No hazards.
U101 Pin 16 to Pin 13	shorted	240Vac	1 sec.	F102	--	Fuse (F102) opened immediately, components (BD101, Q101, R137, R136, U101 and Q102) damaged. No hazards.
U101 Pin 16 to Pin 7	shorted	240Vac	1 sec.	F102	--	Fuse (F102) opened immediately, components (BD101, U101, D107, Q101, Q601, R126, Q102 and D105) damaged. No hazards.
U101 Pin 16 to Pin 3	shorted	240Vac	1 sec.	F102	--	Fuse (F102) opened immediately, components (U101, ZD102, R136, R123, Q102, BD101, D107, Q101, D105 and R121) damaged. No hazards.
U101 Pin 13 to Pin 3	shorted	240Vac	10 min.	F102	0.04	Unit shut down, no hazards.
U101 Pin 13 to Pin 7	shorted	240Vac	10 min.	F102	0.04	Unit shut down, no hazards.
U101 Pin 12 to Pin 3	shorted	240Vac	10 min.	F102	0.03	Unit shut down, no hazards.
U101 Pin 12 to Pin 7	shorted	240Vac	10 min.	F102	0.03	Unit shut down, no hazards.
U101 Pin 16 to Pin 9	shorted	240Vac	1 sec.	F102	--	Fuse (F102) opened immediately, components (R123, Q101, Q102, BD101, R136 and U101) damaged. No hazards.
T101 Pin 6 to Pin 4	shorted	240Vac	5 min.	F102	0.13	Unit shut down, no hazards.
T101 Pin 6 to Pin 5	shorted	240Vac	5 min.	F102	0.14	Unit shut down, no hazards.

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IEC 60950-1						
Clause	Requirement + Test				Result - Remark	Verdict
T101 Pin 5 to pin 4	shorted	240Vac	5 min.	F102	0.14	Unit shut down, no hazards.
T101 Pin 1 to Pin 2	shorted	240Vac	5 min.	F102	0.11	Unit shut down, no hazards.
T101 Pin A to Pin B	shorted	240Vac	5 min.	F102	0.07	Unit shut down, no hazards.
T101 Pin A after D201 to pin B (Label side downward position)	Overload	240Vac	7 hrs, 27 min.	F102	Max. 0.54	When load increase to 0.68A, output shut down. Max temperature of T1 coil = 90.5°C, T1 core = 80.9°C, Tamb = 37.7°C. No hazards.
Output	shorted	240Vac	5 min.	F102	0.07	Unit shut down, no hazards.
Output (Label side downward position)	Overload	240Vac	6 hrs, 9 min.	F102	Max. 0.54A	When load increase to 2.35A, output shut down. Max temperature of T1 coil = 90.5°C, T1 core = 81.3°C, Tamb = 39.7°C. No hazards.
For model FSP090-AFAN2						
T101 Pin A after D201 to pin B (Label side upward position)	Overload	240Vac	7 hrs, 27 min.	F102	Max. 0.6	When load increase to 0.58A, output shut down. Max temperature of T1 coil = 92.4°C, T1 core = 81.7°C, Tamb = 37.9°C. No hazards.
Output	shorted	240Vac	5 min.	F102	0.10	Unit shut down, no hazards.
Output (Label side downward position)	Overload	240Vac	6 hrs, 9 min.	F102	Max. 0.6A	When load increase to 2.46A, output shut down. Max temperature of T1 coil = 88.4°C, T1 core = 79.1°C, Tamb = 39.6°C. No hazards.
Supplementary information:						

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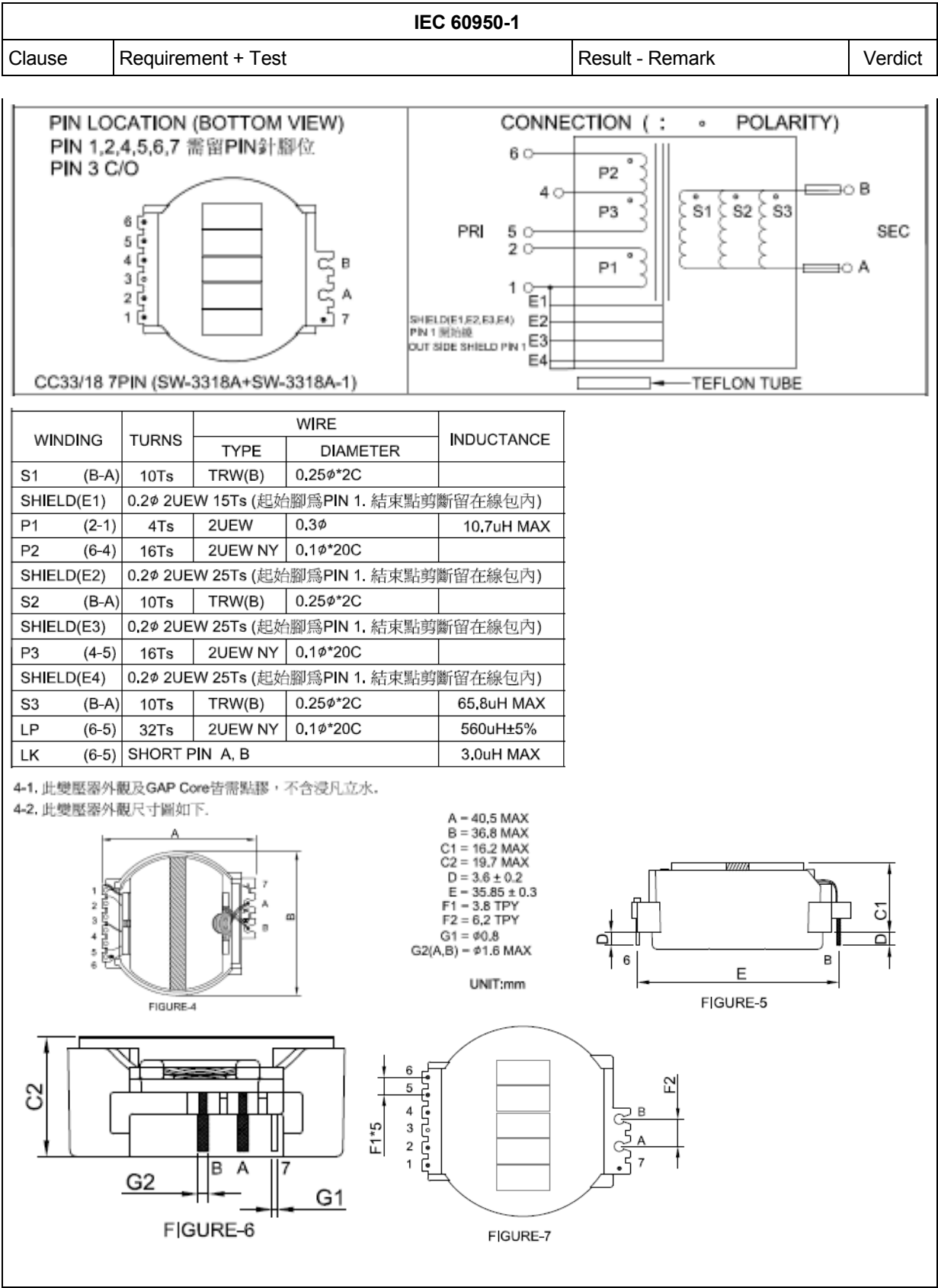
IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

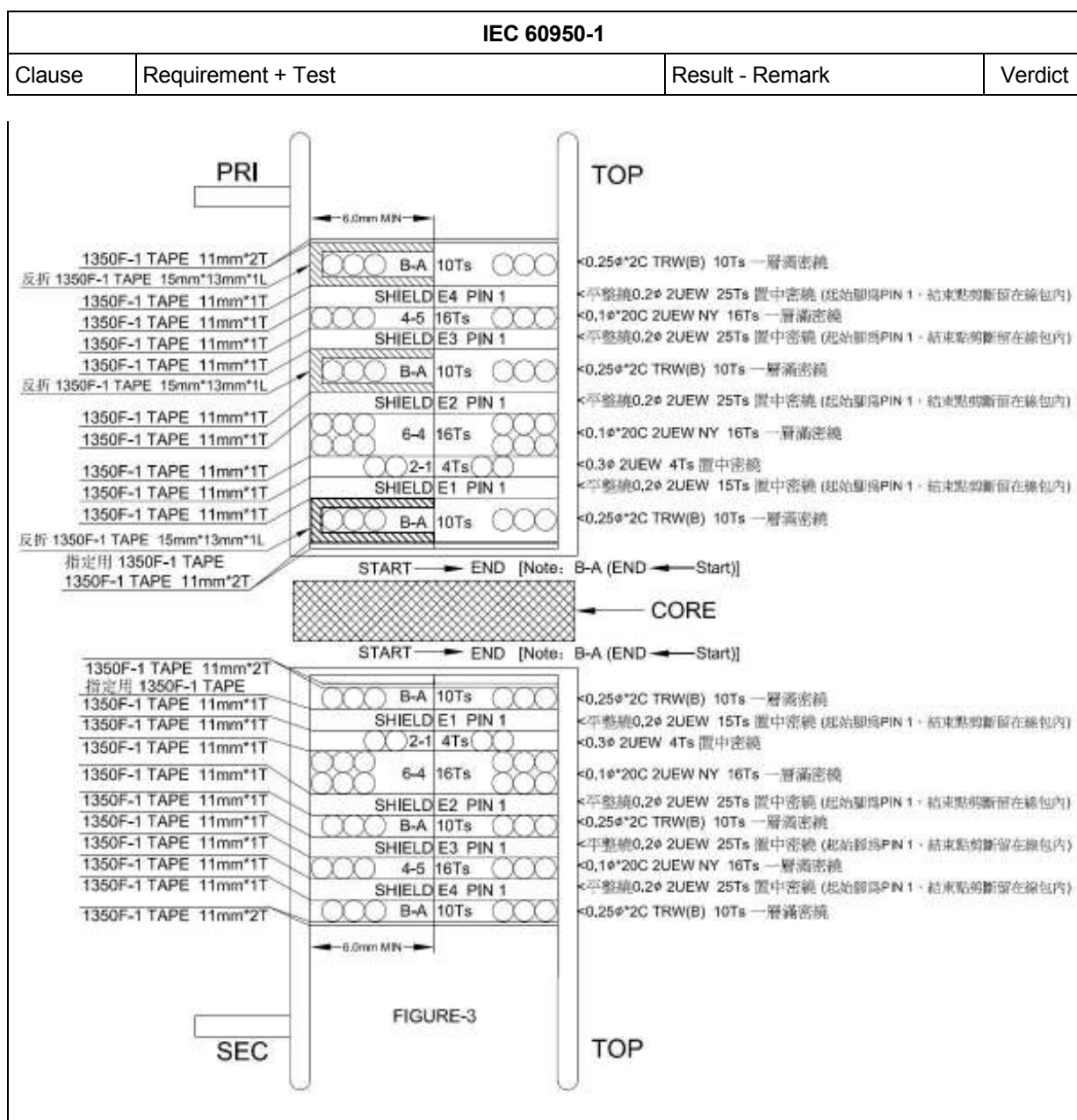
C.2	TABLE: transformers						P
Loc.	Tested insulation	Working voltage peak / V (2.10.2)	Working voltage rms / V (2.10.2)	Required electric strength (5.2)	Required clearance / mm (2.10.3)	Required creepage distance / mm (2.10.4)	Required distance thr. insul. (2.10.5)
T101	Primary to secondary (reinforced)	655	407	See appended table 5.2	7.2	8.2	0.4mm or 2 layers min. or TIW
T101	Primary to core (functional)	--	--	--	--	--	--
T101	Secondary to core (reinforced)	655	407	See appended table 5.2	7.2	8.2	0.4mm or 2 layers min. or TIW
Loc.	Tested insulation			Test voltage / V	Measured clearance / mm	Measured creepage dist. / mm	Measured distance thr. insul. / mm; number of layers
T101	Primary/input winding and secondary/output winding (internal)			See appended table 5.2	Triple insulation wire used	Triple insulation wire used	See below table C.2
T101	Primary/input winding and core (internal)			--	--	--	--
T101	Secondary/output winding and core (internal)			See appended table 5.2	Triple insulation wire used	Triple insulation wire used	See below table C.2
T101	Primary/input part and secondary/output part (external)			See appended table 5.2	8.8 (via primary coil)	8.8 (via primary coil)	See below table C.2
T101	Primary/input part and core (external)			--	--	--	--
T101	Secondary/output winding and primary/input part (external)			See appended table 5.2	Triple insulation wire used	Triple insulation wire used	See below table C.2
T101	Secondary/output part and core (external)			See appended table 5.2	8.8 (via primary coil)	8.8 (via primary coil)	See below table C.2

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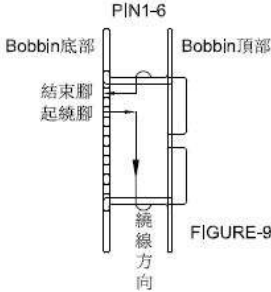
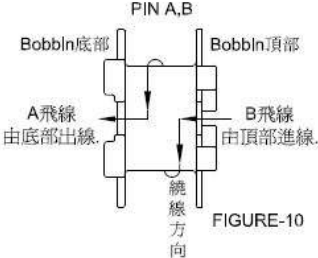
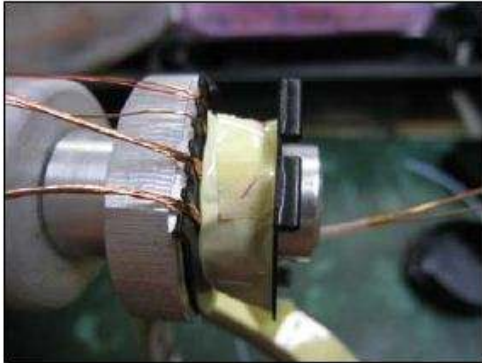
IEC 60950-1					
Clause	Requirement + Test	Result - Remark			Verdict
T101	Secondary/output part and primary/input winding (external)	See appended table 5.2	8.8	8.8	See below table C.2
Supplementary information: The transformer used in below factories is identical in electrical characteristics, physical construction in clearance, creepage and distance through insulation. Transformer manufacturing plants (factories) of FSP/SPI list as below: - Fresco Factory (Shenzhen) Co., Ltd. - Haohan Electronic Technology (Jian) Co., Ltd. - Li Yin Technology Ltd. - FSP Technology inc., Kaohsiung Branch - Protek Electronics (China) Corp. - Dong Guan Lightion Electronics Co., Ltd. - FSP Group Inc. - SPI Electronics Co., Ltd.					

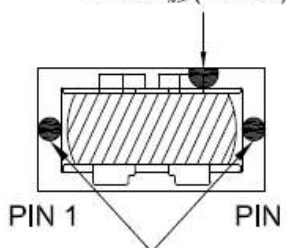
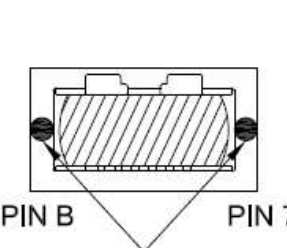
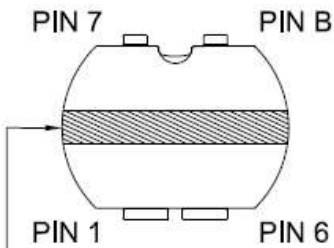
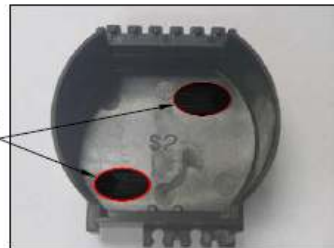
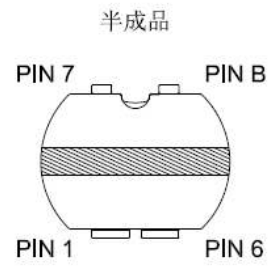
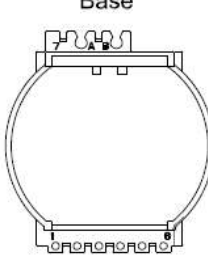
C.2	TABLE: transformers	
Concentric windings on Phenolic top bobbin type CC33/18 (SW-3318A) and Phenolic base type CC33/18 (SW-3318A-1) (Vertical orientation), core is considered as primary parts, transformer construction as below. - Before winding wrapped around two layers of insulation tape on bobbin. - Min. one layer of insulation tape provided between primary and secondary windings. - All secondary windings exit ends additionally with tubing for protection against winding tension mechanical stress. - All secondary windings were provided one layer of "U" shape insulation tape (15 mm by 13 mm) at primary bottom side and fold back 6.0 mm for protection against winding tension mechanical stress. - The inner copper shielding (E1, E2, E3 and E4) are considered as primary. - Secondary wires are triple insulation wire, for details see appended table 1.5.1 and subclause 2.10.5.12, Annex U. Primary winding/pins: shielding (E1), 2-1, 6-4, shielding (E2), shielding (E3), 4-5, shielding (E4) Secondary winding/pins: B-A, B-A, B-A (S1, S2 and S3) Bobbin Material (manufacturer, type, ratings, thickness): - Sumitomo Bakelite, phenolic, type PM-9820, V-0, 150°C, min. 0.51mm thickness. <u>Detailed illustration of Transformer construction:</u>		

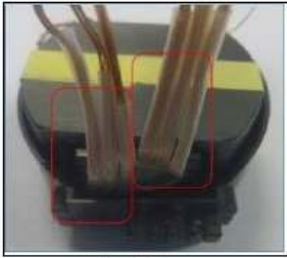
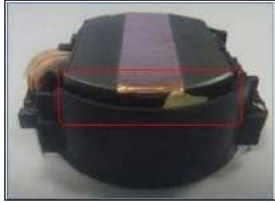




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IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	生產注意事項： 9-1. 繞線： 9-1-1. 所有繞組繞線方向需保持一致. 9-1-2. S1,S2,S3 所有出入腳都要加TEFLON TUBE. 9-1-3. A、B飛線進出線：B線由頂部進線，A線底部出線. 9-1-4. AUX Wire OK與NG照片. OK  FIGURE-11 NG  FIGURE-12  FIGURE-9  FIGURE-10		
	9-1-5. Shield Wire需平整密繞.  SHIELD起繞先加1350F-1膠帶，抓取適當距離再反折膠帶固定住後再繞線. FIGURE-13  SHIELD結尾將線頭扭向中央位置，再加上一片5.0*5.0mm #44膠帶，貼住線頭位置，防止刺破層間絕緣膠帶. FIGURE-14 OK  FIGURE-15 NG  FIGURE-16		

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
9-3.	外觀點膠製程： 9-3-1. 線包與鐵心組裝後，然後包兩圈1350F-1 11.0mm 膠帶固定，再點5點EPOXY膠(指定用 G-9008)，如下示意圖。 9-3-2. 烘烤完成後，需將固定用膠帶拆除，再包1.1Ts自黏性銅箔(厚0.025mm*寬8.0mm)側邊焊引線0.3ϕ下腳於PIN 1，如下示意圖。 注意事項：頂部Core及Bobbin的點膠，需確實點在Bobbin與Core之間，防止Bobbin與Core鬆動。(如下圖所示). 頂部PIN6側Core與Bobbin的连接處 EPOXY膠(G-9008)*1  PIN 1 PIN 6 PIN 1-PIN6 側Core與Core的连接處 EPOXY膠(G-9008)*2  PIN B PIN 7  PIN 7 PIN B PIN 1 PIN 6 一包1.1Ts自黏性銅箔 (厚0.025mm*寬8.0mm) 側邊焊引線0.3ϕ下腳於PIN 1 FIGURE-21 FIGURE-22 FIGURE-23 9-3-3. Cover裡面底部需先點EPOXY膠(G-9008)，才可將半成品(線包與鐵心)組裝於Cover，組裝時半成品務必完全與Cover平貼，切勿傾斜或浮高。  EPOXY膠(G-9008)*2 FIGURE-24  FIGURE-25 9-4. 半成品(指完成所有點膠、烘烤製程後)與Base組裝注意事項，示意圖如下：  半成品 PIN 7 PIN B PIN 1 PIN 6 FIGURE-26  Base FIGURE-27		

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
半成品組裝在Base前，A、B飛線要理線整齊，如下示意圖。  FIGURE-28 半成品組裝在Base後，要注意半成品要置中在Base (避免半成品偏向PIN1-PIN6側或PIN7,A,B側)，如下示意圖。  FIGURE-29 9-4-1. A組飛線需從底端直接拉出彎折，不能直接拉出很長再彎折，避免影響EMI與組裝問題，如下示意圖。 9-4-2. 三層絕緣線銅線不可裸露太多，與套管太短造成安規距離不足，如下示意圖。 OK  FIGURE-30 NG  FIGURE-31 9-4-3. 飛線A的三層絕緣線，線腳需全部扭在一起，再放進Cover槽中(壓至最底)，然後點膠(G-9008)最後加焊(φ1.9 MAX)。 飛線B的三層絕緣線，線腳需全部扭在一起，再放進Cover槽中(壓至最底)，然後點膠(G-9008)最後加焊(φ1.9 MAX)。  FIGURE-32			

List of test equipment used:

Clause	Measurement / testing	Testing / measuring equipment / material used	Range used	Calibration date

"No listing of test equipment used necessary for chosen test procedure".

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Measurement Section



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Clause	Requirement + Test	Result - Remark	Verdict
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2.1.1.7	TABLE: Discharge test			P
Condition	τ calculated (s)	τ measured (s)	t u→0V (s)	Comments
Unit on (fuse in)	1.32	0.36	--	Vo = 364V, 37% of Vo = 134.68V, measured voltage after 1 sec = 4V
Supplementary information:				
Overall capacity: 0.33 μ F (CX101 = 0.33 μ F)				
Discharge resistor: R101 = R102 = 2M Ω				

2.4.2	TABLE: Limited current circuit measurement				P
Location	Voltage (V)	Current (mA)	Freq. (kHz)	Limit (mA)	Comments
Secondary pin of CY103/CY104 to earth, normal	24	12	96	67.2	Measuring with a 2k Ω non-inductive resistor. (CY103, CY104, C214 and R229 provided)
Secondary pin of CY103/CY104 to earth, normal	296mV	0.592	--	0.7	Measuring instrument of figure D.1 used. (CY103, CY104, C214 and R229 provided)
Secondary pin of CY103/CY104 to earth, normal	24	12	88	61.6	Measuring with a 2k Ω non-inductive resistor. (CY103 and CY104 provided; C214 and R229 replace by jumper)
Secondary pin of CY103/CY104 to earth, normal	250mV	0.5	--	0.7	Measuring instrument of figure D.1 used. (CY103 and CY104 provided; C214 and R229 replace by jumper)
Secondary pin of CY103/CY104 to earth, normal	22.4	11.2	88	61.6	Measuring with a 2k Ω non-inductive resistor. (CY103, CY104 and R229 provided; without C214)
Secondary pin of CY103/CY104 to earth, normal	312mV	0.624	--	0.7	Measuring instrument of figure D.1 used. (CY103, CY104 and R229 provided; without C214)
Supplementary information:					
Test voltage: 264Vac, 60Hz					
Overall capacity: CY103 = 1500pF, CY104 = 1000pF					

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Measurement Section



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Clause	Requirement + Test	Result - Remark	Verdict
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2.6.3.4	TABLE: Resistance of earthing measurement		N/A
Location		Resistance measured (mΩ)	Comments
Supplementary information:			

4.6.1, 4.6.2	Table: Enclosure opening measurements		P
Location	Size (mm)	Comments	
--	--	No opening provided.	
Supplementary information:			

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IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 60950-1 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES Information technology equipment – Safety – Part 1: General requirements			
Differences according to: EN 60950-1:2006/A11:2009/A1:2010/A12:2011/A2:2013			
Attachment Form No.: EU_GD_IEC60950_1F			
Attachment Originator: SGS Fimko Ltd			
Master Attachment: Date 2014-02			
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EN 60950-1:2006/A11:2009/A1:2010/A12:2011/A2:2013 – CENELEC COMMON MODIFICATIONS

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	Clauses, subclauses, notes, tables and figures which are additional to those in IEC60950-1 and it's amendmets are prefixed "Z"		P
Contents (A2:2013)	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZD (informative) IEC and CENELEC code designations for flexible cords		P
General	Delete all the "country" notes in the reference document (IEC 60950-1:2005) according to the following list: 1.4.8 Note 2 1.5.1 Note 2 & 3 1.5.7.1 Note 1.5.8 Note 2 1.5.9.4 Note 1.7.2.1 Note 4, 5 & 6 2.2.3 Note 2.2.4 Note 2.3.2 Note 2.3.2.1 Note 2 2.3.4 Note 2 2.6.3.3 Note 2 & 3 2.7.1 Note 2.10.3.2 Note 2 2.10.5.13 Note 3 3.2.1.1 Note 3.2.4 Note 3. 2.5.1 Note 2 4.3.6 Note 1 & 2 4.7 Note 4 4.7.2.2 Note 4.7.3.1 Note 2 5.1.7.1 Note 3 & 4 5.3.7 Note 1 6 Note 2 & 5 6.1.2.1 Note 2 6.1.2.2 Note 6.2.2 Note 6.2.2.1 Note 2 6.2.2.2 Note 7.1 Note 3 7.2 Note 7.3 Note 1 & 2 G.2.1 Note 2 Annex H Note 2		P
General (A1:2010)	Delete all the "country" notes in the reference document (IEC 60950-1:2005/A1:2010) according to the following list: 1.5.7.1 Note 6.1.2.1 Note 2 6.2.2.1 Note 2 EE.3 Note		P

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
General (A2:2013)	Delete all the "country" notes in the reference document (IEC 60950-1:2005/A2:2013) according to the following list: 2.7.1 Note * 2.10.3.1 Note 2 6.2.2. Note * Note of secretary: Text of Common Modification remains unchanged.		P
1.1.1 (A1:2010)	Replace the text of NOTE 3 by the following. NOTE 3 The requirements of EN 60065 may also be used to meet safety requirements for multimedia equipment. See IEC Guide 112, Guide on the safety of multimedia equipment. For television sets EN 60065 applies.		N/A
1.3.Z1	Add the following subclause: 1.3.Z1 Exposure to excessive sound pressure The apparatus shall be so designed and constructed as to present no danger when used for its intended purpose, either in normal operating conditions or under fault conditions, particularly providing protection against exposure to excessive sound pressures from headphones or earphones. NOTE Z1 A new method of measurement is described in EN 50332-1, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 1: General method for "one package equipment", and in EN 50332-2, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 2: Guidelines to associate sets with headphones coming from different manufacturers.	Added.	N/A
(A12:2011)	In EN 60950-1:2006/A12:2011 Delete the addition of 1.3.Z1 / EN 60950-1:2006 Delete the definition 1.2.3.Z1 / EN 60950-1:2006 /A1:2010	Not portable Sound System.	N/A
1.5.1 (Added info*)	Add the following NOTE: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC. New Directive 2011/65/11 *	Added.	P
1.7.2.1 (A1:2010)	In addition, for a PORTABLE SOUND SYSTEM, the instructions shall include a warning that excessive sound pressure from earphones and headphones can cause hearing loss.		N/A
1.7.2.1 (A12:2011)	In EN 60950-1:2006/A12:2011 Delete NOTE Z1 and the addition for Portable Sound System. Add the following clause and annex to the existing standard and amendments.	Not portable Sound System.	N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	Zx Protection against excessive sound pressure from personal music players		N/A
	Zx.1 General This sub-clause specifies requirements for protection against excessive sound pressure from personal music players that are closely coupled to the ear. It also specifies requirements for earphones and headphones intended for use with personal music players. A personal music player is a portable equipment for personal use, that: - is designed to allow the user to listen to recorded or broadcast sound or video; and - primarily uses headphones or earphones that can be worn in or on or around the ears; and - allows the user to walk around while in use. NOTE 1 Examples are hand-held or body-worn portable CD players, MP3 audio players, mobile phones with MP3 type features, PDA's or similar equipment. A personal music player and earphones or headphones intended to be used with personal music players shall comply with the requirements of this sub-clause. The requirements in this sub-clause are valid for music or video mode only. The requirements do not apply: - while the personal music player is connected to an external amplifier; or - while the headphones or earphones are not used. NOTE 2 An external amplifier is an amplifier which is not part of the personal music player or the listening device, but which is intended to play the music as a standalone music player. The requirements do not apply to: - hearing aid equipment and 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 professional equipment.	Not portable Sound System	N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	analogue personal music players (personal music players without any kind of digital processing of the sound signal) that are brought to the market before the end of 2015. 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. For equipment which is clearly designed or intended for use by young children, the limits of EN 71-1 apply.		
	Zx.2 Equipment requirements No safety provision is required for equipment that complies with the following: equipment provided as a package (personal music player with its listening device), where the acoustic output $L_{Aeq,T}$ is ≤ 85 dBA measured while playing the fixed "programme simulation noise" as described in EN 50332-1; and a personal music player provided with an analogue electrical output socket for a listening device, where the electrical output is ≤ 27 mV measured as described in EN 50332-2, while playing the fixed "programme simulation noise" as described in EN 50332-1. NOTE 1 Wherever the term acoustic output is used in this clause, the 30 s A-weighted equivalent sound pressure level $L_{Aeq,T}$ is meant. See also Zx.5 and Annex Zx. All other equipment shall: a) protect the user from unintentional acoustic outputs exceeding those mentioned above; and b) have a standard acoustic output level not exceeding those mentioned above, and automatically return to an output level not exceeding those mentioned above when the power is switched off; and	Not portable Sound System.	N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	c) provide a means to actively inform the user of the increased sound pressure when the equipment is operated with an acoustic output exceeding those mentioned above. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an acoustic output exceeding those mentioned above. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time; and NOTE 2 Examples of means include visual or audible signals. Action from the user is always required. NOTE 3 The 20 h listening time is the accumulative listening time, independent how often and how long the personal music player has been switched off. d) have a warning as specified in Zx.3; and e) not exceed the following: 1) equipment provided as a package (player with its listening device), the acoustic output shall be ≤ 100 dBA measured while playing the fixed "programme simulation noise" described in EN 50332-1; and 2) a personal music player provided with an analogue electrical output socket for a listening device, the electrical output shall be ≤ 150 mV measured as described in EN 50332-2, while playing the fixed "programme simulation noise" described in EN 50332-1. 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, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA. In this case T becomes the duration of the song. NOTE 4 Classical music 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 song 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 is below the basic limit of 85 dBA. For example, if the player is set with the programme simulation noise to 85 dBA, but the average music level of the song is only 65 dBA, 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 dBA.		

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	Zx.3 Warning The warning shall be placed on the equipment, or on the packaging, or in the instruction manual and shall consist of the following: the symbol of Figure 1 with a minimum height of 5 mm; and the following wording, or similar: “To prevent possible hearing damage, do not listen at high volume levels for long periods.”  Figure 1 – Warning label (IEC 60417-6044) Alternatively, the entire warning may be given through the equipment display during use, when the user is asked to acknowledge activation of the higher level.	Not portable Sound System.	N/A
	Zx.4 Requirements for listening devices (headphones and earphones)		N/A
	Zx.4.1 Wired listening devices with analogue input With 94 dBA sound pressure output $L_{Aeq,T}$, the input voltage of the fixed “programme simulation noise” described in EN 50332-2 shall be ≥ 75 mV. This requirement is applicable in any mode where the headphones can operate (active or passive), including any available setting (for example built-in volume level control). NOTE The values of 94 dBA – 75 mV correspond with 85dBA – 27 mV and 100 dBA – 150 mV.	Not portable Sound System.	N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	Zx.4.2 Wired listening devices with digital input With any playing device playing the fixed “programme simulation noise” described in EN 50332-1 (and respecting the digital interface standards, where a digital interface standard exists that specifies the equivalent acoustic level), the acoustic output $L_{Aeq,T}$ of the listening device shall be ≤ 100 dBA. This requirement is applicable in any mode where the headphones can operate, including any available setting (for example built-in volume level control, additional sound feature like equalization, etc.). NOTE An example of a wired listening device with digital input is a USB headphone.	Not portable Sound System.	N/A
	Zx.4.3 Wireless listening devices In wireless mode: with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and respecting the wireless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and with volume and sound settings in the listening device (for example built-in volume level control, additional sound feature like equalization, etc.) set to the combination of positions that maximize the measured acoustic output for the abovementioned programme simulation noise, the acoustic output $L_{Aeq,T}$ of the listening device shall be ≤ 100 dBA. NOTE An example of a wireless listening device is a Bluetooth headphone.	Not portable Sound System.	N/A
	Zx.5 Measurement methods Measurements shall be made in accordance with EN 50332-1 or EN 50332-2 as applicable. Unless stated otherwise, the time interval T shall be 30 s. NOTE Test method for wireless equipment provided without listening device should be defined.	Not portable Sound System.	N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
2.7.1	Replace the subclause as follows: Basic requirements To protect against excessive current, short-circuits and earth faults in PRIMARY CIRCUITS, 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 5.3 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;	Replaced.	P
	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.	No PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT.	N/A
2.7.2	This subclause has been declared 'void'.	Declared.	N/A
3.2.3	Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses.	Deleted.	N/A
3.2.5.1	Replace “60245 IEC 53” by “H05 RR-F”; “60227 IEC 52” by “H03 VV-F or H03 VVH2-F”; “60227 IEC 53” by “H05 VV-F or H05 VVH2-F2”. In Table 3B, replace the first four lines by the following: Up to and including 6 0,75 ^{a)} Over 6 up to and including 10 (0,75) ^{b)} 1,0 Over 10 up to and including 16 (1,0) ^{c)} 1,5 In the conditions applicable to Table 3B delete the words “in some countries” in condition ^{a)} . In NOTE 1, applicable to Table 3B, delete the second sentence.	No power cord provided.	N/A
3.2.5.1 (A2:2013)	NOTE Z1 The harmonised code designations corresponding to the IEC cord types are given in Annex ZD		N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
3.3.4	In Table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following: Over 10 up to and including 16 1,5 to 2,5 1,5 to 4 Delete the fifth line: conductor sizes for 13 to 16 A		N/A
4.3.13.6 (A1:2010)	Replace the existing NOTE by the following: NOTE Z1 Attention is drawn to: 1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz, and 2006/25/EC: Directive on the minimum health and safety requirements regarding the exposure of workers to risks arising from physical agents (artificial optical radiation).	Replaced.	N/A
	Standards taking into account mentioned Recommendation and Directive which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.		N/A
Annex H	Replace the last paragraph of this annex by: At any point 10 cm from the surface of the OPERATOR ACCESS AREA, the dose rate shall not exceed 1 µSv/h (0,1 mR/h) (see NOTE). Account is taken of the background level. Replace the notes as follows: NOTE These values appear in Directive 96/29/Euratom. Delete NOTE 2.	No X-ray radiation.	N/A
Bibliography	Additional EN standards.		—

ZA	NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS	—
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ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
1.2.4.1	In Denmark , certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.	No power cord provided.	N/A
1.2.13.14 (A11:2009)	In Norway and Sweden , for requirements see 1.7.2.1 and 7.3 of this annex.	No cable distribution systems.	N/A
1.5.7.1 (A11:2009)	In Finland , Norway and Sweden , resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.1. In addition when a single resistor is used, the resistor must withstand the resistor test in 1.5.7.2.	No such resistors.	N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
1.5.8	In Norway , due to the IT power system used (see annex V, Figure V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).	Considered.	P
1.5.9.4	In Finland, Norway and Sweden , the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex.	No TNV circuits.	N/A
1.7.2.1	In Finland, Norway and Sweden, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text in the applicable countries shall be as follows: In Finland: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan" In Norway: "Apparatet må tilkoples jordet stikkontakt" In Sweden: "Apparaten skall anslutas till jordat uttag"	The marking text must be provided when marketed in applicable countries.	N/A
1.7.2.1 (A11:2009)	In Norway and Sweden, the screen of the cable 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 need 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 e.g. a retailer. 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: "Equipment connected to the protective earthing of the building installation through the mains connection or through other equipment with a connection to protective earthing – and to a cable distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a cable distribution system has therefore to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)."		

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.5 (A2:2013)	In Denmark, socket-outlets for providing power to other equipment shall be in accordance with the DS 60884-2-D1:2011. For class I equipment the following Standard Sheets are applicable: DK 1-3a, DK 1-1c, DK 1-1d, DK 1-5a or DK 1-7a, with the exception for STATIONARY EQUIPMENT where the socket-outlets shall be in accordance with Standard Sheet DK 1-1b, DK 1-1c, DK 1-1d or DK 1-5a. Socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance with DS 60884-2-D1 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with by DS 60884-2-D1 Standard Sheet DKA 1-3a or DKA 1-3b. Justification the Heavy Current Regulations, 6c	No socket outlet.	N/A
2.2.4	In Norway , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.	No TNV circuits.	N/A
2.3.2	In Finland, Norway and Sweden there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex.	No TNV circuits.	N/A
2.3.4	In Norway , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.	No TNV circuits.	N/A
2.6.3.3	In the United Kingdom , the current rating of the circuit shall be taken as 13 A, not 16 A.	Considered. However, test was performed with 16 A for representative.	P
2.7.1	In the United Kingdom , to protect against excessive currents and short-circuits in the PRIMARY CIRCUIT of DIRECT PLUG-IN EQUIPMENT, tests according to 5.3 shall be conducted, using an external protective device rated 30 A or 32 A. If these tests fail, suitable protective devices shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met.	Not DIRECT PLUG-IN EQUIPMENT.	N/A
2.10.5.13	In Finland, Norway and Sweden , there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.	No TNV circuits.	N/A
3.2.1.1	In Switzerland, supply cords of equipment having a RATED CURRENT not exceeding 10 A shall be provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets: SEV 6532-2.1991 Plug Type 15 3P+N+PE 250/400 V, 10 A	No power cord provided.	N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	SEV 6533-2.1991 Plug Type 11 L+N 250 V, 10 A SEV 6534-2.1991 Plug Type 12 L+N+PE 250 V, 10 A In general, EN 60309 applies for plugs for currents exceeding 10 A. However, a 16 A plug and socket-outlet system is being introduced in Switzerland, the plugs of which are according to the following dimension sheets, published in February 1998: SEV 5932-2.1998: Plug Type 25 , 3L+N+PE 230/400 V, 16 A SEV 5933-2.1998: Plug Type 21, L+N, 250 V, 16A SEV 5934-2.1998: Plug Type 23, L+N+PE 250 V, 16 A		
3.2.1.1	In Denmark, supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1. 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 poly-phase equipment and single-phase equipment having a RATED CURRENT exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2.	No power cord provided.	N/A
3.2.1.1 (A2:2013)	In Denmark, supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2. Justification the Heavy Current Regulations, 6c	No power cord provided.	N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	In Spain, supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994. Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993. 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 UNE 20315:1994. If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.	No power cord provided.	N/A
3.2.1.1	In the United Kingdom, apparatus 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 and plug, shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1768:1994 - The Plugs and Sockets etc. (Safety) Regulations 1994, 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.	No power cord provided.	N/A
3.2.1.1	In Ireland, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 - National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997.	No power cord provided.	N/A
3.2.4	In Switzerland , for requirements see 3.2.1.1 of this annex.	No power cord provided.	N/A
3.2.5.1	In the United Kingdom , a power supply cord with conductor of 1,25 mm ² is allowed for equipment with a rated current over 10 A and up to and including 13 A.	No power cord provided.	N/A
3.3.4	In the United Kingdom, the range of conductor sizes of flexible cords to be accepted by terminals for equipment with a RATED CURRENT of over 10 A up to and including 13 A is: • 1,25 mm² to 1,5 mm² nominal cross-sectional area.	No power cord provided.	N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
4.3.6	In the United Kingdom , the torque test is performed using a socket outlet complying with BS 1363 part 1:1995, including Amendment 1:1997 and Amendment 2:2003 and 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.	Not DIRECT PLUG-IN EQUIPMENT.	N/A
4.3.6	In Ireland , DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 - National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997.	Not DIRECT PLUG-IN EQUIPMENT.	N/A
5.1.7.1	In Finland, Norway and Sweden TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment: • STATIONARY PLUGGABLE EQUIPMENT TYPE A that is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecommunication centre; and has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and is provided with instructions for the installation of that conductor by a SERVICE PERSON; • STATIONARY PLUGGABLE EQUIPMENT TYPE B; • STATIONARY PERMANENTLY CONNECTED EQUIPMENT.		N/A
6.1.2.1 (A1:2010)	In Finland, Norway and Sweden , add the following text between the first and second paragraph of the compliance clause: 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. Alternatively for components, there is no distance through insulation requirements 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	No TNV circuits.	N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	accordance with the compliance clause below and in addition - passes the tests and inspection criteria of 2.10.11 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.10 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 an optocoupler complying with 2.10.5.4 b). It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2. A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions: - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 60384-14: - the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.	No TNV circuits.	N/A
6.1.2.2	In Finland, Norway and Sweden, the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON.	No TNV circuits.	N/A
7.2	In Finland, Norway and Sweden, for requirements see 6.1.2.1 and 6.1.2.2 of this annex. The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.		N/A
7.3 (A11:2009)	In Norway and Sweden, for requirements see 1.2.13.14 and 1.7.2.1 of this annex.		N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

Annex ZD
(informative)

IEC and CENELEC code designations for flexible cords

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	60277 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

National Differences to IEC 60950-1:2005 + A2:2013			
Clause	Requirement + Test	Result - Remark	Verdict

**ATTACHMENT TO TEST REPORT IEC 60950-1
U.S.A. NATIONAL DIFFERENCES**

Information technology equipment – Safety –

Part 1: General requirements

Differences according to : UL 60950-1, Edition 2, Amendment 2

Attachment Form No. : N/A

Attachment Originator : N/A

Master Attachment : N/A

	Special national conditions		
1.1.1	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 I, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2.	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
	Also, unless marked or otherwise identified, installation is allowed per the Standard for the Protection of Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75.	Same as above.	P
1.4.14	Baby monitors are required to additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors.		N/A
1.5.5	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20 A.		N/A
	For lengths exceeding 3.05 m, external interconnecting flexible cord and 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
1.7.1	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.		N/A
	A voltage rating that exceeds an attachment plug cap rating is only permitted if it does not exceed the extreme operating conditions in Table 2 of CAN/CSA C22.2 No. 235, and	Single-phase equipment.	N/A
	- if it is part of a range that extends into the Table 2 "Normal Operating Conditions."	As above.	N/A

National Differences to IEC 60950-1:2005 + A2:2013			
Clause	Requirement + Test	Result - Remark	Verdict
	A voltage rating shall not be lower than the specified "Normal Operating Conditions," unless it is part of a range that extends into the "Normal Operating Conditions."	Considered.	P
1.7.7	Wiring terminals intended to supply Class 2 outputs in accordance with the NEC or CEC Part 1 shall be marked with the voltage rating and "Class 2" or equivalent.	Not applicable.	N/A
	- Marking shall be located adjacent to the terminals	As above.	N/A
	- Marking shall be visible during wiring	As above.	N/A
2.5	Where a fuse is used to provide Class 2, Limited Power Source, or TNV current limiting, it shall not be operator-accessible unless it is not interchangeable.	Not applicable.	N/A
2.6	Equipment with isolated ground (earthing) receptacles are required to comply with NEC 250.146(D) and CEC 10-112 and 10-906(8).	Modified.	P
2.7.1	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.	Not applicable.	N/A
	Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection.	Not applicable.	N/A
3.2	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains shall be in accordance with the NEC/CEC.	No power supply cords provided.	N/A
3.2.1	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.	No power supply cords provided.	N/A
3.2.1.2	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.	Not connection to DC Mains.	N/A
3.2.3	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.	Not permanent connection equipment.	N/A
3.2.5	Power supply cords are required to be no longer than 4.5 m in length.	No power supply cord provided.	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.		N/A

National Differences to IEC 60950-1:2005 + A2:2013			
Clause	Requirement + Test	Result - Remark	Verdict
	Flexible power supply cords are required to be compatible with Article 400 of the NEC, and Tables 11 & 12 of the CEC.		N/A
3.2.9	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.	Not permanent connection equipment.	N/A
3.3	Wiring terminals and associated spacings for field wiring connections shall comply with CSA C22.2 No. 0.	No power supply cord provided.	N/A
3.3.3	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm ²).	No power supply cord provided.	N/A
3.3.4	Terminals for permanent wiring, including protective earthing terminals, are required to be suitable for U.S./Canadian wire gauge sizes,	No power supply cord provided.	N/A
	- rated 125 per cent of the equipment rating, and		N/A
	- are specially marked when specified (1.7.7).		N/A
3.3.5	First column of Table 3E revised to require "Smaller of the RATED CURRENT of the equipment or the PROTECTIVE CURRENT RATING of the circuit under consideration."	No power supply cord provided.	N/A
3.4.2	Motor control devices are required for cord-connected equipment with a motor if the equipment is rated more than 12 A,	Equipment is not such a device.	N/A
	- or if the motor has a nominal voltage rating greater than 120 V		N/A
	- or is rated more than 1/3 hp (locked rotor current over 43 A)		N/A
3.4.8	Vertically-mounted disconnect switches and circuit breakers are required to have the "on" position indicated by the handle in the up position.	Not applicable.	N/A
3.4.11	For computer 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 computer room remote power-off circuit.	Not such application.	N/A
4.3.12	The maximum quantity of flammable liquid stored in equipment is required to comply with NFPA 30.	No liquids provided.	N/A
4.3.13.5.1	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 laser provided.	N/A
4.7	For computer 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.	Shall be investigated with END system.	N/A

National Differences to IEC 60950-1:2005 + A2:2013			
Clause	Requirement + Test	Result - Remark	Verdict
4.7.3.1	For computer 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.	Shall be investigated with END system.	N/A
	For other applications, enclosures with the same dimensions require a flame spread rating of 200 or less.	Shall be investigated with END system.	N/A
	Non-metallic enclosures of equipment for use in spaces used for environmental air (plenums) are required to comply with UL 2043.	Shall be investigated with END system.	N/A
Annex H	Equipment that produces ionizing radiation complies with U.S. Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370).	No ionizing radiation.	N/A
	Other National Differences		
1.5.1	Some components 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 components include: attachment plugs, battery backup systems, battery packs, cathode ray tubes, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), cord sets and power supply cords, direct plug-in equipment, electrochemical capacitor modules (energy storage modules with ultracapacitors), enclosures (outdoor), flexible cords and cables, fuses (branch circuit), fuseholders, ground-fault current interrupters, industrial control equipment, insulating tape, interconnecting cables, lampholders, limit controls, printed wiring, protectors for communications circuits, receptacles, solid state controls, supplementary protectors, switches (including interlock switches), thermal cutoffs, thermostats, (multi-layer) transformer winding wire, surge protective devices, tubing, vehicle battery adapters, wire connectors, and wire and cables.	UL approved components used. Refer to table 1.5.1 of IEC 60950-1 test report for details.	P
1.6.1.2	A circuit for connection to the DC Mains Supply is classified as a SELV Circuit, a TNV-2 Circuit or a Hazardous Voltage Circuit depending on the maximum operating voltage of the supply.	Not connection to DC Mains.	N/A
	This maximum operating voltage shall include consideration of the battery charging "float voltage" associated with the intended supply system, regardless of the marked power rating of the equipment.	As above.	N/A

National Differences to IEC 60950-1:2005 + A2:2013			
Clause	Requirement + Test	Result - Remark	Verdict
2.3.1	For TNV-2 and TNV-3 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.	N/A
2.3.2.1	In the event of a single fault between TNV and SELV circuits, the limits of 2.2.3 apply to SELV Circuits and accessible conductive parts.	No TNV circuits.	N/A
2.6.2	Equipment with functional earthing is required to be marked with the functional earthing symbol (IEC 60417-6092).		N/A
2.6.3.4	Protective bonding conductors of non-standard protective bonding constructions (e.g., printed circuit traces) may be subjected to the additional limited short circuit test conditions specified.	No such protective bonding construction.	N/A
4.2.8.1	Enclosures around CRTs with a face diameter of 160 mm or more are required to reduce the risk of injury due to the implosion of the CRT.	No CRT.	N/A
4.3.2	Equipment with handles is required to comply with special loading tests.	No handle	N/A
4.3.8	Battery packs for both portable and stationary applications are required to comply with special component requirements.		N/A
5.1.8.3	Equipment intended to receive telecommunication ringing signals is required to comply with a special touch current measurement tests.	No TNV circuits.	N/A
5.3.7	Internal (e.g., card cage) SELV circuit connectors and printed wiring board connectors that are accessible to the operator and that deliver power are to be overloaded.	Complied. Refer to table 5.3 of IEC 60950-1 test report for details.	P
	During abnormal operating testing, if a circuit is interrupted by the opening of a component, the test shall be repeated twice (three tests total) using new components as necessary.		N/A
6.4	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses in accordance with 6.4 and Annex NAC.	No TNV circuits.	N/A
Annex EE	UL articulated accessibility probe (Fig EE.3) required for assessing accessibility to document/media shredders instead of the Figure 2A test finger.		N/A
Annex M.2	Continuous ringing signals up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.	No TNV circuits.	N/A

National Differences to IEC 60950-1:2005 + A2:2013			
Clause	Requirement + Test	Result - Remark	Verdict
Annex NAD	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.	N/A

IEC60950_1C - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 60950-1 CANADA NATIONAL DIFFERENCES Information technology equipment – Safety – Part 1: General requirements			
Differences according to: CAN/CSA-C22.2 NO. 60950-1A-07			
Attachment Form No: CA_ND_IEC60950_1C			
Attachment Originator: TÜV SÜD Product Service GmbH			
Master Attachment: Date (2012-08)			
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	Special national conditions		
1.1.1	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 I, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2.	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
	Also, unless marked or otherwise identified, installation is allowed per the Standard for the Protection of Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75.	Same as above.	P
1.4.14	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.	Considered.	P
1.5.5	For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the CEC/NEC.	Not exceeding 3.05 m.	N/A
	For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the CEC are required to have special construction features and identification markings.	Overall acceptance has to be evaluated during the national approval process.	N/A
1.7.1	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.	Single phase.	N/A
	A voltage rating that exceeds an attachment plug cap rating is only permitted if it does not exceed the extreme operating conditions in Table 2 of CAN/CSA C22.2 No. 235, and	No plug provided.	N/A

IEC60950_1C - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	- if it is part of a range that extends into the Table 2 "Normal Operating Conditions."	As above.	N/A
	A voltage rating is not be lower than the specified "Normal Operating Conditions," unless it is part of a range that extends into the "Normal Operating Conditions."	As above.	N/A
1.7.7	Wiring terminals intended to supply Class 2 outputs in accordance with CEC Part 1 or NEC are marked with the voltage rating and "Class 2" or equivalent.	Not applicable.	N/A
	- Marking is located adjacent to the terminals	As above.	N/A
	- Marking is visible during wiring	As above.	N/A
2.5	Fuse providing Class 2, Limited Power Source, or TNV current limiting is not operator-accessible unless it is not interchangeable.	Not applicable.	N/A
2.6.3.3	Modify first column on Table 2D to "Smaller of the RATED CURRENT of the equipment or the PROTECTIVE CURRENT RATING of the circuit under consideration."	Modified.	P
2.7.1	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is provided for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable.	Not applicable.	N/A
	Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, provided with special transformer overcurrent protection.	Not applicable.	N/A
3.2	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains is in accordance with the NEC/CEC.	No power supply cords provided.	N/A
3.2.1	Attachment plugs of power supply cords are rated not less than 125 percent of the rated current of the equipment.	No power supply cords provided.	N/A
3.2.1.2	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 comply with special earthing, wiring, marking and installation instruction requirements.	Not connection to DC Mains.	N/A
3.2.3	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.	Not permanent connection equipment.	N/A
3.2.5	Power supply cords are no longer than 4.5 m in length.	No power supply cord provided.	N/A

IEC60950_1C - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	Minimum cord length is 1.5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement.		N/A
	Flexible power supply cords are compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC.		N/A
3.2.9	Permanently connected equipment have a suitable wiring compartment and wire bending space.	Not permanent connection equipment.	N/A
3.3	Wiring terminals and associated spacings for field wiring connections comply with CSA C22.2 No. 0.	No power supply cord provided.	N/A
3.3.3	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm ²).	No power supply cord provided.	N/A
3.3.4	Terminals for permanent wiring, including protective earthing terminals, are suitable for Canadian/US wire gauge sizes, are	No power supply cord provided.	N/A
	- rated 125 percent of the equipment rating, and		N/A
	- are specially marked when specified (1.7.7).		N/A
3.3.5	Revise first column of Table 3E to "Smaller of the RATED CURRENT of the equipment or the PROTECTIVE CURRENT RATING of the circuit under consideration."	No power supply cord provided.	N/A
3.4.2	Motor control devices are provided for cord-connected equipment with a motor if the equipment is rated more than 12 A,	No such components.	N/A
	- or if the motor has a nominal voltage rating greater than 120 V	As above.	N/A
	- or is rated more than 1/3 hp (locked rotor current over 43 A)	As above.	N/A
3.4.8	Vertically-mounted disconnect switches and circuit breakers have the "on" position indicated by the handle in the up position.	Not applicable.	N/A
3.4.11	For computer room applications, equipment with battery systems capable of supplying 750 VA for five minutes have a battery disconnect means that may be connected to the computer room remote power-off circuit.	Not applicable.	N/A
4.3.12	The maximum quantity of flammable liquid stored in equipment complies with NFPA 30.	Not applicable.	N/A
4.3.13.5	Equipment with lasers meet the Canadian Radiation Emitting Devices Act, REDR C1370 and/or Code of Federal Regulations 21 CFR 1040, as applicable.	Not applicable.	N/A

IEC60950_1C - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
4.7	For computer room applications, automated information storage systems with combustible media greater than 0.76 m ³ (27 cu ft) have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.	Shall be investigated with END system.	N/A
4.7.3.1	For computer 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) have a flame spread rating of 50 or less.	Shall be investigated with END system.	N/A
	For other applications, enclosures with the same dimensions require a flame spread rating of 200 or less.	Shall be investigated with END system.	N/A
Annex H	Equipment that produces ionizing radiation comply with the Canadian Radiation Emitting Devices Act, REDR C1370 and/or Code of Federal Regulations, 21 CFR 1020, as applicable.	Not applicable.	N/A
	Other National Differences		
1.5.1	Some components and materials associated with the risk of fire, electric shock, or personal injury have component or material ratings in accordance with the applicable national (Canadian and/or U.S.) component or material standard requirements.	UL approved components used. Refer to table 1.5.1 of IEC 60950-1 test report for details.	P
1.6.1.2	A circuit for connection to the DC Mains Supply is classified as either a SELV Circuit, TNV-2 Circuit or Hazardous Voltage Circuit depending on the maximum operating voltage of the supply.	Not connection to DC Mains.	N/A
	This maximum operating voltage includes consideration of the battery charging "float voltage" associated with the intended supply system, regardless of the marked power rating of the equipment.	As above.	N/A
2.3.1	For TNV-2 and TNV-3 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 circuit.	N/A
2.3.2.1	In the event of a single fault between TNV and SELV circuits, the limits of 2.2.3 apply to SELV Circuits and accessible conductive parts.	No TNV circuit.	N/A
2.6.3.4	Protective bonding conductors of non-standard protective bonding constructions (e.g., printed circuit traces) may be subjected to the additional limited short circuit test conditions specified.	No such protective bonding construction.	N/A

IEC60950_1C - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
4.2.8.1	Enclosures around CRTs with a face diameter of 160 mm or more reduce the risk of injury due to the implosion of the CRT.	Not applicable.	N/A
4.3.2	Equipment with handles complies with special loading tests.		N/A
5.1.8.3	Equipment intended to receive telecommunication ringing signals comply with a special touch current measurement tests.	No TNV circuit.	N/A
5.3.7	Internal (e.g., card cage) SELV circuit connectors and printed wiring board connectors that are accessible to the operator and that deliver power are overloaded.	Complied. Refer to table 5.3 of IEC 60950-1 test report for details.	P
	During abnormal operating testing, if a circuit is interrupted by the opening of a component, the test shall be repeated twice (three tests total) using new components as necessary		N/A
6.4	Equipment intended for connection to telecommunication network outside plant cable is protected against overvoltage from power line crosses in accordance with 6.4 and Annex NAC.	No TNV circuit.	N/A
Annex EE	Articulated accessibility probe (Fig EE.3) is used for assessing accessibility to document/media shredders instead of the Figure 2A test finger.		N/A
M.2	Continuous ringing signals up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.	No TNV circuit.	N/A
Annex NAD	Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear comply with special acoustic pressure requirements.	No TNV circuit.	N/A

National Differences to IEC 60950-1:2005 + A1:2009			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 60950-1
GERMANY NATIONAL DIFFERENCES

Information technology equipment – Safety –
Part 1: General requirements

Differences according to.....: VDE 0805-1:2011-01

Annex ZC, 1.7.2.1	According to GPSG, section 2, clause 4: If certain rules on the use, supplementation or maintenance of an item of technical work equipment or ready-to-use commodity must be observed in order to guarantee safety and health, instructions for use in German must be supplied when it is brought into circulation.	Shall be evaluated during national approval	N/A
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National Differences to IEC 60950-1:2005 + A1:2009			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 60950-1
ISRAEL NATIONAL DIFFERENCES

Information technology equipment – Safety –
 Part 1: General requirements

Differences according to.....: SI 60950 Part 1

1.1.1	Replace the the text of Note 3 as follows: The requirements of Israel Standard SI 60065 may also be used to meet safety requirements for multimedia equipment. See IEC Guide 112, Guide on the safety of multimedia equipment.	Replaced.	N/A
1.6	The clause is applicable with the following addition:	Overall acceptance has to be evaluated during the national approval process.	N/A
1.6.1	Add following note: In Israel, this clause is applicable subject to the Electricity Law, 1954, its regulations and revisions.	Overall acceptance has to be evaluated during the national approval process.	N/A
1.7	The clause is applicable with the following additions: Subclause 1.7.201 shall be added at the beginning of the clause as follows:	Added.	P
1.7.201	Marking in the Hebrew language The marking in the Hebrew language shall be in accordance with the Consumer Protection Order (Marking of goods), 1983. In addition to the marking required by clause 1.7.1, the following details shall be marked in the Hebrew language. The details shall be marked on the apparatus or on its package, or on a label properly attached to the apparatus or on the package, by bonding or sewing, in a manner that the label cannot be easily removed. 1. Name of the apparatus and its commercial designation; 2. Manufacturer's name and address. If the apparatus is imported, the importer's name and address; 3. Manufacturer's registered trademark, if any; 4. Name of the model and serial number, if any; 5. Country of manufacture.	Overall acceptance has to be evaluated during the national approval process.	N/A
1.7.2.1	The following shall be added to the clause: All the instructions and warnings related to safety shall also be written in the Hebrew language.	Overall acceptance has to be evaluated during the national approval process.	N/A
2	The clause is applicable with the following additions:		P

National Differences to IEC 60950-1:2005 + A1:2009			
Clause	Requirement + Test	Result - Remark	Verdict
2.9.4	The following shall be added at the beginning of the clause: In Israel, according to the Electricity Law, 1954, and the Electricity Regulations (Earthing and means of protection against electricity of voltages up to 1,000V) 1991, seven means of protection against electrocution are permitted, as follows: 1) TN-S - Network system earthing; TN-C-S - Network system earthing; 2) TT - Network system earthing; 3) IT - Network Insulation Terre; 4) Isolated transformer; 5) Safety extra low voltage (SELV or ELV); 6) Residual current circuit breaker (30 mA = I_{Δ}); 7) Reinforced insulation; Double insulation (class II)	Added.	P
2.201	Prevention of electromagnetic interference - Prior to carrying out the tests in accordance with the clauses of this Standard, the compliance of the apparatus with the relevant requirements specified in the appropriate part of the Standard series, SI 961, shall be checked. <u>The apparatus shall meet the requirements in the appropriate part of the Standard series, SI 961.</u> - If there are components in the apparatus for the prevention of electromagnetic interference, these components shall not reduce the safety level of the apparatus as required by this Standard.	Overall acceptance has to be evaluated during the national approval process.	N/A
3	The clause is applicable with the following additions:	Added.	N/A
3.2.1.1	Connection to an a.c. mains supply After the note, the following note shall be added: Note: In Israel, the feed plug shall comply with the requirements of Israel Standard SI 32 Part 1.1.	Overall acceptance has to be evaluated during the national approval process.	N/A
3.2.1.2	Connection to a d.c. mains supply At the end of the first paragraph, the following note shall be added: Note: At the time of issue of this Standard, there is no Israel Standard for connection accessories to d.c.		N/A
Annex P	Normative references (List of relevant Israel Standards that have been inserted in place of some of the International Standards)		P

National Differences to IEC 60950-1:2005 + A1:2009			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 60950-1
KOREA NATIONAL DIFFERENCES

Information technology equipment – Safety –
Part 1: General requirements

Differences according to.....: K 60950-1

1.5.101	Plugs for the connection of the apparatus to the supply mains shall comply with the Korean requirement (KSC 8305)	No power cord provided.	N/A
8	EMC The apparatus shall comply with the relevant CISPR standards.	Shall be evaluated during national approval	N/A

National Differences to IEC 60950-1:2005			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 60950-1
AUSTRALIA and NEW ZEALAND NATIONAL DIFFERENCES

Information technology equipment – Safety –

Part 1: General requirements

Differences according to.....: AS/NZS 60950.1:2011

1.2	Insert the following between 'person, service' and 'range, rated frequency': POTENTIAL IGNITION SOURCE 1.2.12	Inserted.	N/A
1.2.12.201	Insert a new Clause 1.2.12.201 after Clause 1.2.12.15 as follows: 1.2.12.201 POTENTIAL IGNITION SOURCE Possible fault which can start a fire if the open-circuit voltage measured across an interruption or faulty contact exceeds a value of 50 V (peak) a.c. or d.c. and the product of the peak value of this voltage and the measured r.m.s. current under normal operating conditions exceeds 15 VA. Such a faulty contact or interruption in an electrical connection includes those which may occur in CONDUCTIVE PATTERNS on PRINTED BOARDS. NOTE 201 An electronic protection circuit may be used to prevent such a fault from becoming a POTENTIAL IGNITION SOURCE. NOTE 202 This definition is from AS/NZS 60065:2003.	Inserted.	N/A
1.5.1	1. Add the following to the end of the first paragraph: 'or the relevant Australian/New Zealand Standard.' 2. In NOTE 1, add the following after the word 'standard': 'or an Australian/New Zealand Standard'	Added.	P
1.5.2	Add the following to the end of the first and third dash items: 'or the relevant Australian/New Zealand Standard'	Added.	P

National Differences to IEC 60950-1:2005																				
Clause	Requirement + Test	Result - Remark	Verdict																	
3.2.5.1	Modify Table 3B as follows: 1. Delete the first four rows and replace with the following: <table><tr><th rowspan="2">RATED CURRENT of equipment A</th><th colspan="2">Minimum conductor sizes</th></tr><tr><th>Nominal cross-sectional area mm²</th><th>AWG or kcmil [cross-sectional area in mm²] see Note 2</th></tr><tr><td>Over 0.2 up to and including 3</td><td>0,5 ^a</td><td>18 [0,8]</td></tr><tr><td>Over 3 up to and including 7.5</td><td>0,75</td><td>16 [1,3]</td></tr><tr><td>Over 7.5 up to and including 10</td><td>(0,75) ^a 1,00</td><td>16 [1,3]</td></tr><tr><td>Over 10 up to and including 16</td><td>(1,0) ^c 1,5</td><td>14 [2]</td></tr></table> 2. Delete NOTE 1. 3. Delete Footnote ^a and replace with the following: ^a 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 mm² three-core supply flexible cords are not permitted; see AS/NZS 3191).	RATED CURRENT of equipment A	Minimum conductor sizes		Nominal cross-sectional area mm ²	AWG or kcmil [cross-sectional area in mm ²] see Note 2	Over 0.2 up to and including 3	0,5 ^a	18 [0,8]	Over 3 up to and including 7.5	0,75	16 [1,3]	Over 7.5 up to and including 10	(0,75) ^a 1,00	16 [1,3]	Over 10 up to and including 16	(1,0) ^c 1,5	14 [2]	Modified.	N/A
RATED CURRENT of equipment A	Minimum conductor sizes																			
	Nominal cross-sectional area mm ²	AWG or kcmil [cross-sectional area in mm ²] see Note 2																		
Over 0.2 up to and including 3	0,5 ^a	18 [0,8]																		
Over 3 up to and including 7.5	0,75	16 [1,3]																		
Over 7.5 up to and including 10	(0,75) ^a 1,00	16 [1,3]																		
Over 10 up to and including 16	(1,0) ^c 1,5	14 [2]																		
4.1.201	Insert a new Clause 4.1.201 after Clause 4.1 as follows: 4.1.201 Display devices used for television purposes Display devices which may be used for television purposes, with a mass of 7 kg or more, shall comply with the requirements for stability and mechanical hazards, including the additional stability requirements for television receivers, specified in AS/NZS 60065.	Inserted.	N/A																	
4.3.6	Delete the third paragraph and replace with the following: <i>Equipment with a plug portion, suitable for insertion into a 10 A 3-pin flatpin socket-outlet complying with AS/NZS 3112 shall comply with the requirements in AS/NZS 3112 for equipment with integral pins for insertion into socket-outlets.</i>	Deleted.	N/A																	
4.3.16.5	Add the following to the end of the first paragraph: 'or AS/NZS 2211.1'	Added.	N/A																	

National Differences to IEC 60950-1:2005			
Clause	Requirement + Test	Result - Remark	Verdict
4.7	Add the following new paragraph to the end of the clause: 'For alternate tests refer to Clause 4.7.201.'	Added.	N/A
4.7.201	Insert a new Clause 4.7.201 after Clause 4.7.3.6 as follows: 4.7.201 Resistance to fire – Alternative tests	Inserted. However, equipment under test materials used and components in compliance with requirements of IEC 60950-1 Alternative test methods were not considered.	N/A
4.7.201.1	4.7.201.1 General Parts of non-metallic material shall be resistant to ignition and spread of fire. This requirement does not apply to decorative trims, knobs and other parts unlikely to be ignited or to propagate flames from inside the apparatus, or the following: (a) Components that are contained in an enclosure having a flammability category of V-0 according to AS/NZS 60695.11.10 and having openings only for the connecting wires filling the openings completely, and for ventilation not exceeding 1mm in width regardless of length. (b) The following parts which would contribute negligible fuel to a fire: - small mechanical parts, the mass of which does not exceed 4g, such as mounting parts, gears, cams, belts and bearings; - small electrical components, such as capacitors with a volume not exceeding 1,750 mm ³ , integrated circuits, transistors and optocoupler packages, if these components are mounted on material of flammability category V-1, or better, according to AS/NZS 60695.11.10. NOTE In considering how to minimize propagation of fire and what 'small parts' are, account should be taken of the cumulative effect of small parts adjacent to each other for the possible effect of propagating the fire from one part to another. Compliance shall be checked by the tests of 4.7.201.2, 4.7.201.3, 4.7.201.4 and 4.7.201.5. For the base material of printed boards, compliance shall be checked by the test of 4.7.201.5. The tests shall be carried out on parts of non-metallic material which have been removed from the apparatus. When the glow-wire test is carried out, the parts shall be placed in the same orientation as they would be in normal use. These tests are not carried out on internal wiring.	See above.	N/A

National Differences to IEC 60950-1:2005									
Clause	Requirement + Test	Result - Remark	Verdict						
4.7.201.2	4.7.201.2 Testing of non-metallic materials Parts of non-metallic material shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 550 °C. Parts for which the glow-wire test cannot be carried out, such as those made of soft or foamy material, shall meet the requirements specified in ISO 9772 for category FH-3 material. The glow-wire test shall be not carried out on parts of material classified at least FH-3 according to ISO 9772 provided that the sample tested was not thicker than the relevant part.	See above.	N/A						
4.7.201.3	4.7.201.3 Testing of insulating materials Parts of insulating material supporting POTENTIAL IGNITION SOURCES shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 750 °C. The test shall be also carried out on other parts of insulating material which are within a distance of 3 mm of the connection. NOTE Contacts in components such as switch contacts are considered to be connections. For parts which withstand the glow-wire test but produce a flame, other parts above the connection within the envelope of a vertical cylinder having a diameter of 20 mm and a height of 50 mm shall be subjected to the needle-flame test. However, parts shielded by a barrier which meets the needle-flame test shall not be tested. The needle-flame test shall be made in accordance with AS/NZS 60695.11.5 with the following modifications: <table><tr><td>Clause of AS/NZS 60695.11.5</td><td>Change</td></tr><tr><td colspan="2">9 Test procedure</td></tr><tr><td>9.2 Application of needleflame</td><td> Replace the first paragraph with: The specimen shall be arranged so that the flame can be applied to a vertical or horizontal edge as shown in the examples of figure 1. If possible the flame shall be applied at least 10 mm from a corner Replace the second paragraph with: The duration of application of the test flame shall be 30 s </td></tr></table>	Clause of AS/NZS 60695.11.5	Change	9 Test procedure		9.2 Application of needleflame	Replace the first paragraph with: The specimen shall be arranged so that the flame can be applied to a vertical or horizontal edge as shown in the examples of figure 1. If possible the flame shall be applied at least 10 mm from a corner Replace the second paragraph with: The duration of application of the test flame shall be 30 s	See above.	N/A
Clause of AS/NZS 60695.11.5	Change								
9 Test procedure									
9.2 Application of needleflame	Replace the first paragraph with: The specimen shall be arranged so that the flame can be applied to a vertical or horizontal edge as shown in the examples of figure 1. If possible the flame shall be applied at least 10 mm from a corner Replace the second paragraph with: The duration of application of the test flame shall be 30 s								

National Differences to IEC 60950-1:2005				
Clause	Requirement + Test		Result - Remark	Verdict
		±1 s.		
	9.3 Number of test specimens	Replace with: The test shall be made on one specimen. If the specimen does not withstand the test, the test may be repeated on two further specimens, both of which shall withstand the test.		
	11 Evaluation of test results	Replace with: The duration of burning (t_b) shall not exceed 30 s. However, for printed circuit boards, it shall not exceed 15 s.		
	The needle-flame test shall not be carried out on parts of material classified as V-0 or V-1 according to AS/NZS 60695.11.10, provided that the sample tested was not thicker than the relevant part.			
4.7.201.4	4.7.201.4 Testing in the event of non-extinguishing material If parts, other than enclosures, do not withstand the glow wire tests of 4.7.201.3, by failure to extinguish within 30 s after the removal of the glowwire tip, the needle-flame test detailed in 4.7.201.3 shall be made on all parts of non-metallic material which are within a distance of 50 mm or which are likely to be impinged upon by flame during the tests of 4.7.201.3. Parts shielded by a separate barrier which meets the needle-flame test need not be tested. NOTE 1 If the enclosure does not withstand the glow-wire test the equipment is considered to have failed to meet the requirements of Clause 4.7.201 without the need for consequential testing. NOTE 2 If other parts do not withstand the glow-wire test due to ignition of the tissue paper and if this indicates that burning or glowing particles can fall onto an external surface underneath the equipment, the equipment is considered to have failed to meet the requirements of Clause 4.7.201 without the need for consequential testing. NOTE 3 Parts likely to be impinged upon by the flame are considered to be those within the envelope of a vertical cylinder having a radius of 10 mm and a height equal to the height of the flame, positioned above the point of the material supporting, in contact with, or in close proximity to, connections.		See above.	N/A
4.7.201.5	4.7.201.5 Testing of printed boards The base material of printed boards shall be subjected to the needle-flame test of Clause 4.7.201.3. The flame shall be applied to the edge of the board where the heat sink effect is lowest		See above.	N/A

National Differences to IEC 60950-1:2005			
Clause	Requirement + Test	Result - Remark	Verdict
	when the board is positioned as in normal use. The flame shall not be applied to an edge, consisting of broken perforations, unless the edge is less than 3 mm from a POTENTIAL IGNITION SOURCE. The test is not carried out if the — - Printed board does not carry any POTENTIAL IGNITION SOURCE; - Base material of printed boards, on which the available apparent power at a connection exceeds 15 VA operating at a voltage exceeding 50 V and equal or less than 400 V (peak) a.c. or d.c. under normal operating conditions, is of flammability category V-1 or better according to AS/NZS 60695.11.10, or the printed boards are protected by an enclosure meeting the flammability category V-0 according to AS/NZS 60695.11.10, or made of metal, having openings only for connecting wires which fill the openings completely; or - Base material of printed boards, on which the available apparatus power at a connection exceeds 15 VA operating at a voltage exceeding 400 V (peak) a.c. or d.c. under normal operating conditions, and base material of printed boards supporting spark gaps which provides protection against overvoltages, is of flammability category V-0 according to AS/NZS 60695.11.10 or the printed boards are contained in a metal enclosure, having openings only for connecting wires which fill the openings completely. Compliance shall be determined using the smallest thickness of the material. NOTE Available apparent power is the maximum apparent power which can be drawn from the supplying circuit through a resistive load whose value is chosen to maximise the apparent power for more than 2 min when the circuit supplied is disconnected.		
6.2.2	For Australia only, delete the first paragraph and Note, and replace with the following: In Australia only, compliance with 6.2.2 shall be checked by the tests of both 6.2.2.1 and 6.2.2.2.	Not apply for.	N/A

National Differences to IEC 60950-1:2005			
Clause	Requirement + Test	Result - Remark	Verdict
6.2.2.1	For Australia only, delete the first paragraph including the Notes, and replace with the following: <i>In Australia only, the electrical separation is subjected to 10 impulses of alternating polarity, using the impulse test generator reference 1 of Table N.1. The interval between successive impulses is 60 s and the initial voltage, U_c, is:</i> <i>(i) for 6.2.1 a): 7.0 kV for hand-held telephones and for headsets and 2.5 kV for other equipment; and</i> <i>(ii) for 6.2.1 b) and 6.2.1 c): 1.5 kV.</i> NOTE 201 The 7 kV impulse simulates lightning surges on typical rural and semi-rural network lines. NOTE 202 The value of 2.5 kV for 6.2.1 a) was chosen to ensure the adequacy of the insulation concerned and does not necessarily simulate likely overvoltages.	Not apply for.	N/A
6.2.2.2	For Australia only, delete the second paragraph including the Note, and replace with the following: <i>In Australia only, the a.c. test voltage is:</i> <i>(i) for 6.2.1 a): 3 kV; and</i> <i>(ii) for 6.2.1 b) and 6.2.1 c): 1.5 kV.</i> NOTE 201 Where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used. NOTE 202 The 3 kV and 1.5 kV values have been determined considering the low frequency induced voltages from the power supply distribution system.	Not apply for.	N/A
7.3	Add the following before the first paragraph: Equipment providing functions that fall only within the scope of AS/NZS 60065 and that incorporate a PSTN interface, are not required to comply with this Clause where the only ports provided on the equipment, in addition to a coaxial cable connection and a PSTN interface, are audio or video ports and analogue or data ports not intended to be used for telecommunications purposes.	Not apply for.	N/A
Annex P	Normative references (List of relevant Australia/New Zealand Standards that have been inserted in place of some of the International Standards)		P

National Differences to IEC 60950-1:2005			
Clause	Requirement + Test	Result - Remark	Verdict
ATTACHMENT TO TEST REPORT IEC 60950-1 CHINA NATIONAL DIFFERENCES Information technology equipment – Safety – Part 1: General requirements			
Differences according to: GB4943.1-2011			

1.1.2	GB 4943.1-2011 applies to equipment for use at altitudes not exceeding 5000m above sea level, primarily in regions with moderate or tropical climates. Amend the third dashed paragraph of 1.1.2 as: — — equipment intended to be used in vehicles, on board ships or aircraft, at altitudes greater than 5000m;	Unit was applied for tropical climates and operated altitude 5000m.	P
1.4.5	After the third paragraph, add a paragraph: If the equipment is intended for direct connection to an AC mains supply, the tolerances on RATED VOLTAGE shall be taken as +10%,-10% unless a wider tolerance is declared by the manufacturer. The first dash paragraph "-the RATED VOLTAGE is 230V single -phase or 400V three-phase, in which case the tolerance shall be taken as +10% and -10%" of IEC 60950-1:2005 is deleted in GB 4943.1-2011	Complied.	P
1.4.12.1	Tma in clause 1.4.12.1 amended as: Tma: is the maximum ambient temperature permitted by the manufacturer's specification, or 35 °C, whichever is greater. Add note 1: For equipment not to be operated at tropical climatic conditions, Tma: is the maximum ambient temperature permitted by the manufacturer's specification, or 25 °C, whichever is greater. Add note 2: For equipment is to be operated at 2000m-5000m above sea leave, its temperature test conditions and temperature limits are under consideration.	Unit was applied for tropical climates and operated altitude 5000m.	P
1.5. 2	Add a note behind the first break off section in Clause 1.5.2: A component used shall comply with related requirements corresponding altitude of 5000m.	Complied.	P
1.7	Add one paragraph before the last paragraph: The required marking and instruction should be given in normative Chinese unless otherwise specified.	Overall acceptance has to be evaluated during the national approval process.	N/A

National Differences to IEC 60950-1:2005			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.1	Based on the AC mains supply of China, the RATED VOLTAGE should be 220V (single phase) or 380V (three-phases) for single rated voltage, for RATED VOLTAGE RANGE, it should cover 220V or 380V (three-phases), for multiple RATED VOLTAGES, one of them should be 220V or 380V (three-phases) and set on 220V or 380V (three-phases) when manufactured. And the RATED FREQUENCY or RATED FREQUENCY RANGE should be 50Hz or include 50Hz.	Complied.	P
1.7.2.1	Add requirements of warning for equipment intended to be used at altitudes not exceeding 2000m or at non-tropical climate regions: For equipment intended to be used at altitude not exceeding 2000m, a warning label containing the following or a similar appropriate wording, or a symbol as in annex DD shall fixed to the equipment at readily visible place. "Only used at altitude not exceeding 2000m."  For equipment intended to be used in not-tropical climate regions, a warning label containing the following or a similar appropriate wording, or a symbol as in annex DD shall fixed to the equipment at readily visible place. "Only used in not-tropical climate regions."  If only the symbol used, the explanation of the symbol shall be contained in the instruction manual. The above statements shall be given in a language acceptable to the regions where the apparatus is intended to be used.	Unit was applied for tropical climates and operated altitude 5000m.	N/A
2.7.1	Amended the first paragraph as: Protection in PRIMARY CIRCUITS against overcurrent short-circuits and earth faults shall be provided as an integral part of the equipment except special provisions. And the protective device shall meet the requirement of Clause 5.3. Delete note of Clause 2.7.1.	Complied.	P

National Differences to IEC 60950-1:2005			
Clause	Requirement + Test	Result - Remark	Verdict
2.9.2	First section of Clause 2.9.2 amended as two sections: Where required by 2.9.1, 2.10.8.3, 2.10.10 or 2.10.11, humidity conditioning is conducted for 120 h in a cabinet or room containing air with ambient temperature $40\pm 2^{\circ}\text{C}$ and a relative humidity of $(93\pm 3)\%$. During this conditioning the component or subassembly is not energized. For equipment not to be operated at tropical climatic conditions, Where required by 2.9.1, 2.10.8.3, 2.10.10 or 2.10.11, humidity conditioning is conducted for 48 h in a cabinet or room containing air with a relative humidity of $(93\pm 3)\%$. The temperature of the air, at all places where samples can be located, is maintained within 2°C of any convenient value between 20°C and 30°C such that condensation does not occur. Due to pretreatment of equipment operated at high altitude area is humidity conditioning withstand hot shock, specific requirements are to be considered. Add note: For equipment to be operated at 2000 m - 5000m above sea level, assessment and requirement of humidity conditioning for Insulation material properties are considered.	Unit was applied for tropical climates and operated altitude 5000m.	P
2.10.3.1	Amend the third paragraph of Clause 2.10.3.1 to be: These requirements apply for equipment to be operated up to 2000 m above sea level. For equipment to be operated at more than 2000 m above sea level and up to 5000m above sea level, the minimum CLEARANCE shall be multiplied by the factor 1.48 corresponding altitude of 5000m given in Table A.2 of IEC 60664-1. For equipment to be operated at more than 5000 m above sea level, the minimum CLEARANCE shall be multiplied by the factor given in Table A.2 of IEC 60664-1. Linear interpolation is permitted between the nearest two points in Table A.2. The calculated minimum CLEARANCE using this multiplication factor shall be rounded up to the next higher 0,1 mm increment.	Unit was applied for tropical climates and operated altitude 5000m.	P
2.10.3.3& 2.10.3.4	Add "(applicable for altitude up to 2000m)" in header of Table 2K、2L and 2M.	Add.	P

National Differences to IEC 60950-1:2005			
Clause	Requirement + Test	Result - Remark	Verdict
2.10.3.4	Add a new section above Table 2K and in Clause 2.10.3.4: Minimum CLEARANCES determined by above rules apply for equipment to be operated up to 2000m above sea level. For equipment to be operated at 2000 m - 5000m above sea level, the minimum CLEARANCE shall be multiplied by the factor 1.48 corresponding altitude of 5000m given in Table A.2 of GB/T16935.1 (IEC 60664-1). For equipment to be operated at more than 5000 m above sea level, the minimum CLEARANCE shall be multiplied by the factor given in Table A.2 of GB/T16935.1.	Add.	P
3.2.1.1	Add a paragraph before the last paragraph: Plugs connected to AC mains supply shall comply with GB 1002 or GB 1003 or GB/T 11918 as applicable.	Added.	N/A
4.2.8	Clause 4.2.8 cathode ray tubes quoted Clause 18 of GB8898-2011. Delete note of Clause 4.2.8.		N/A
Annex E	Last section of Annex E amended as: For comparison of winding temperatures determined by the resistance method of this annex with the temperature limits of Table 4B, 35 °C shall be added to the calculated temperature rise. And add note: for equipment not to be operated at tropical climatic conditions, 25 °C shall be added to the calculated temperature rise to compare with the temperature of Table 4B.	Not apply for.	N/A
Annex G.6	Change the second section of Clause G.6 to be: For equipment to be operated at 2000 m - 5000m above sea level, the minimum CLEARANCE shall be multiplied by the factor 1.48 corresponding altitude of 5000m given in Table A.2 of GB/T16935.1. For equipment to be operated at more than 5000 m above sea level, the minimum CLEARANCE shall be multiplied by the factor given in Table A.2 of IEC 60664-1. Linear interpolation is permitted between the nearest two points in Table A.2. The calculated minimum CLEARANCE using this multiplication factor shall be rounded up to the next higher 0,1 mm increment.	Not used.	N/A
Annex BB (informative)	Amended as : The differences between Chinese national standards GB 4943.1-2011 and GB 4943-2001.	Amended.	P

National Differences to IEC 60950-1:2005			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DD (normative)	Added annex DD: Instructions for the new safety warning labels. DD.1 Altitude warning label  Meaning of the label: Evaluation for apparatus only based on altitude not exceeding 2000m, therefor it's the only operating condition applied for the equipment .There may be some potential safety hazard if the equipment is used at altitude above 2000m . DD.2 Climate warning label  Meaning of the label: Evaluation for apparatus only based on temperate climate condition, therefor it's the only operating condition applied for the equipment .There may be some potential safety hazard if the equipment is used in tropical climate region.	Unit was applied for tropical climates and operated altitude 5000m.	N/A
Annex EE (informative)	Added annex EE: Illustration relative to safety explanation in normative Chinese, Tibetan, Mongolian, Zhuang Language and Uighu.	Added. Overall acceptance has to be evaluated during the national approval process.	N/A
Other amend-ments	In accordance with the relevant CTL decisions and the amendments of IEC 60950-1, the specific requirements or mistakes in IEC standard are corrected or editorially modified in this part, Including clause 1.7, 2.1.1.7, 2.9.2, Table 2H, Figure 2H, F.8, F.9, M.3 and Annex U.		P
Quoting standards and reference documents	The principles of quoting and referring to other standards in Annex P and reference documents of IEC 60950-1 are as follows: If the date of the reference document is given, only that edition applies, excluding any subsequent corrigenda and amendments. However, parties to agreements based on this part are encouraged to investigate the possibility of applying the most recent editions of the reference documents. For undated references, the latest edition of the referenced document applies, including any corrigenda and amendments. For the usage of international standards in Chinese national standards and industry standards is various, in the aim of achieving easy	Overall acceptance has to be evaluated during the national approval process.	N/A

National Differences to IEC 60950-1:2005			
Clause	Requirement + Test	Result - Remark	Verdict
	operation and based on the requirements of GB/T 1.1 and GB/T 20000.2, when quoting an entire international standard in the normative quoting files and reference documents of Annex P of this part, the principles of quotation are as follows: - If there is no national standard or industry standard corresponding to the international standard, then the international standard is quoted; - If there is national standard or industry standard corresponding to the international standard, then either the national or industry standard is quoted; - If the date of the national standard or industry standard is not given, the latest edition of the standard applies; - The national standard or industry standard number, corresponding international standard number and the consistency level code should be identified in parentheses behind the listed national standard or industry standard. When quoting several chapters or clauses of the international standard, the principles of quotation are as follows: - If there is no national standard or industry standard corresponding to the international standard, then the international standard is quoted; - If there is national standard or industry standard corresponding to the international standard, then either the national or industry standard is quoted. Meanwhile, in order to retain the relevant information on international standards, informative annex CC is increased, which gives the table about the comparison of the normative quoting files and reference documents in IEC 60950-1: 2005 and GB 4943.1-2011.		

National Differences to IEC 60950-1:2001			
Clause	Requirement + Test	Result - Remark	Verdict

J 60950-1 (H22) : 2010 TEST REPORT

(Deviations from IEC 60950-1:2001, first edition)

Special National conditions, National deviation and other information according to MITI Ordinance No. 85.
Japanese unique deviations in J60950-1(H22):2010(=JIS C 6950-1:2009)

1.2.4.1	Add the following new notes. Note: Even if the equipment is designed as Class I, the equipment is regarded as Class 0I equipment when 2-pin adaptor with earthing lead wire or cord set having 2-pin plug with earthing lead wire is provided or recommended.	Added. The equipment is "Class I"	N/A
1.2.4.3A	Add the following new clause. 1.2.4.3A CLASS 0I EQUIPMENT Equipment having attachment plug without earthing blade, where protection against electric shock is achieved by: - using BASIC INSULATION, and - providing externally an earth terminal or a lead wire for earthing in order to connect those conductive parts that might assume a HAZARDOUS VOLTAGES in the event of BASIC INSULATION fault to the PROTECTIVE EARTHING CONDUCTOR in the building wiring. NOTE – Class 0I equipment may have a part constructed with Double Insulation or Reinforced Insulation circuit.	Added. The equipment is "Class I"	N/A
1.3.2	Add the following notes after first paragraph: Note 1 Transportable or similar equipment that are relocated frequently for intended usage should not be designed as Class I or Class 0I equipment unless it is intended to be installed by service personnel. Note 2 Considering wiring circumstance in Japan, equipment intended to be installed where the provision for earthing connection is unlikely should not be designed as Class I or Class 0I equipment unless it is intended to be installed by service personnel.	Added.	N/A
1.5.1	Replace the first paragraph with the follows: Where safety is involved, components shall comply either with the requirements of this standard, with the safety aspects of the relevant JIS component standard, or IEC component standards in case there is no applicable JIS component standard is available. However, a component that falls within the scope of METI Ministerial ordinance No. 85 is properly used in accordance with its marked ratings, requirements of 1.5.4, 2.8.7 and 3.2.5 apply,	Added.	P

Japanese Deviations for J60950-1 (H22):2010 (MITI Ordinance Clause 2)

National Differences to IEC 60950-1:2001			
Clause	Requirement + Test	Result - Remark	Verdict
	and in addition, a cord connector of power supply cord set mating with appliance inlet complying with the standard sheet of IEC 60320-1, shall comply with relevant standard sheet of IEC 60320-1. Replace Note 1 with the following: Note 1 A JIS or an IEC component standard is considered relevant only if the component in question clearly falls within its scope.		
1.5.2	Replace first sentence in the first dashed paragraph with the following: - a component that has been demonstrated to comply with a JIS component standard harmonized with the relevant IEC component standard, or where such JIS component standard is not available, a component that has been demonstrated to comply with the relevant IEC component standard shall be checked for correct application and use in accordance with its rating. Add a note after the first dashed paragraph as follows: Note 1 See 1.7.5A when Type C.14 appliance coupler rated 10 A per IEC 60320-1 is used with an equipment rated not more than 125 V and rated more than 10 A. Replace first sentence in the third dashed paragraph as follows: - where no relevant IEC component standard or JIS component standard harmonized with the relevant IEC component standard exists, or where components are used in circuits not in accordance with their specified rating, the components shall be tested under the conditions occurring in the equipment.	Added.	P
1.7.1	Replace fifth dashed paragraph with the following: - manufacturer's or responsible company's name or trade-mark or identification mark;	Added. The responsible company's name is list on the marking plate.	P

Japanese Deviations for J60950-1 (H22):2010 (MITI Ordinance Clause 2)

National Differences to IEC 60950-1:2001			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.5A	Add the following new clause. after 1.7.5 1.7.5A Appliance Coupler If appliance coupler according to IEC60320-1, C.14(rated current: 10A)is used in equipment whose rated voltage is less than 125V and rated current is over 10A, the following instruction or equivalent shall be described in the user instruction. “ Use only designated cord set attached in this equipment”	Added. Overall acceptance has to be evaluated during the national approval process.	N/A
1.7.12	Replace first sentence with the following: Instructions and equipment marking related to safety shall be in Japanese.	Replaced. Overall acceptance has to be evaluated during the national approval process.	N/A
1.7.17A	Add the following new clause. after 1.7.17 1.7.17A Marking for CLASS 0I EQUIPMENT For CLASS 0I EQUIPMENT, the following instruction shall be marked on the visible place of the mains plug or the main body: “Provide an earthing connection” Moreover, for CLASS 0I EQUIPMENT, the following or equivalent instruction shall be indicated on the visible place of the main body or written in the operating instructions: “Provide an earthing connection before the mains plug is connected to the mains. And, when disconnecting the earthing connection, be sure to disconnect after pulling out the mains plug from the mains.”	Added. The equipment is “Class I”	N/A
2.6.3.2	Add the following after 1st paragraph. This also applies to the conductor of lead wire for protective earthing of CLASS 0I EQUIPMENT.	Added. The equipment is “Class I”	N/A
2.6.4.2	Replace 1st paragraph with the following. Equipment required to have protective earthing shall have a main protective earthing terminal. For equipment with a DETACHABLE POWER SUPPLY CORD, the earthing terminal in the appliance nlet is regarded as the main protective earthing terminal except for CLASS 0I EQUIPMENT providing separate main protective earthing terminal other than appliance inlet.	Added. The equipment is “Class I”	N/A
2.6.5.4	Replace 1st sentence with the following. Protective earthing connections of CLASS I EQUIPMENT shall make earlier and break later than the supply connections in each of the following:	Replaced.	P

Japanese Deviations for J60950-1 (H22):2010 (MITI Ordinance Clause 2)

National Differences to IEC 60950-1:2001			
Clause	Requirement + Test	Result - Remark	Verdict
2.6.5.8A	Add the following new clause. after 2.6.5.8A 2.6.5.8A Earthing of CLASS 0I EQUIPMENT Plugs with a lead wire for earthing shall not be used for equipment having a rated voltage exceeding 150V. For plugs with a lead wire for earthing, the lead wire shall not be earthed by a clip. CLASS 0I EQUIPMENT shall be provided with an earthing terminal or lead wire for earthing in the external location where easily visible.	Added. The equipment is "Class I"	N/A
3.2.3	Add the following after Table 3A: Table 3A applies when cables complying JIS C 3662 or JIS C 3663 are used. In case of other cables, cable entries shall be so designed that a conduit suitable for the cable used can be fitted.	Added.	N/A
3.2.5.1	Add the following to the last of first dashed paragraph. Or mains cords shall be of the sheathed type complying with Appendix 1 of Article 1 of the Ministerial Ordinance on stipulating technical requirements for the Electrical Appliance. Add the following to the last of second dashed paragraph. Or mains cords shall be of the sheathed type complying with Appendix 1 of Article 1 of the Ministerial Ordinance on stipulating technical requirements for the Electrical Appliance.. Delete 1) in Table 3B.	Added.	N/A
3.3.4	Add the following note to Table 3D: Note For cables other than those complying with JIS C 3662 or JIS C 3663, terminals shall be suitable for the size of the intended cables.	Added.	N/A
3.3.7	Add the following after the first sentence: This requirement is not applicable to the external earthing terminal of Class 0I equipment.	Added. The equipment is "Class I"	N/A
4.3.4	Add the following after the first sentence: This requirement also applies to those connections in Class 0I equipment, where CLEARANCE or CREEPAGE DISTANCES over BASIC INSULATION would be reduced to less than the values specified in 2.10.	Added. The equipment is "Class I"	N/A
5.1.3	Add a note after the first paragraph as follows: Note – Attention should be drawn to that majority of three-phase power system in Japan is of delta connection, and therefore, in that case, test is conducted using the test circuit from IEC 60990, figure 13.	Added. Single phase power distribution system used.	N/A

Japanese Deviations for J60950-1 (H22):2010 (MITI Ordinance Clause 2)

National Differences to IEC 60950-1:2001																																				
Clause	Requirement + Test	Result - Remark		Verdict																																
5.1.6	Replace Table 5A. as follows	Replaced.		P																																
	<table><tr><th>Type of equipment</th><th>Terminal A of measuring instrument connected to:</th><th>Maximum TOUCH CURRENT mA r.m.s. 1)</th><th>Maximum PROTECTIVE CONDUCTOR OR CURRENT</th></tr><tr><td>ALL equipment</td><td>ALL equipment Accessible parts and circuits not connected to protective earth</td><td>0,25</td><td>-</td></tr><tr><td>HAND-HELD</td><td rowspan="4">Equipment main protective earthing terminal (if any) CLASS I EQUIPMENT</td><td>0,75</td><td>-</td></tr><tr><td>MOVABLE (other than HAND_HELD, but including TRANSPORTABLE EQUIPMENT</td><td>3,5</td><td>-</td></tr><tr><td>STATIONARY, PLUGGABLE TYPE A</td><td>3,5</td><td>-</td></tr><tr><td>ALL other STATIONARY EQUIPMENT - not subject to the conditions of 5.1.7 - subject to the conditions of 5.1.7</td><td>3.5 -</td><td>- 5 % of input current</td></tr><tr><td>HAND-HELD</td><td rowspan="2">Equipment main protective earthing terminal (if any) CLASS 0I EQUIPMENT</td><td>0,5</td><td>-</td></tr><tr><td>Others</td><td>1.0</td><td>-</td></tr><tr><td colspan="4">1) If peak values of TOUCH-CURRENT are measured, the maximum values obtained by multiplying the r.m.s. values by 1,414.</td></tr></table>				Type of equipment	Terminal A of measuring instrument connected to:	Maximum TOUCH CURRENT mA r.m.s. 1)	Maximum PROTECTIVE CONDUCTOR OR CURRENT	ALL equipment	ALL equipment Accessible parts and circuits not connected to protective earth	0,25	-	HAND-HELD	Equipment main protective earthing terminal (if any) CLASS I EQUIPMENT	0,75	-	MOVABLE (other than HAND_HELD, but including TRANSPORTABLE EQUIPMENT	3,5	-	STATIONARY, PLUGGABLE TYPE A	3,5	-	ALL other STATIONARY EQUIPMENT - not subject to the conditions of 5.1.7 - subject to the conditions of 5.1.7	3.5 -	- 5 % of input current	HAND-HELD	Equipment main protective earthing terminal (if any) CLASS 0I EQUIPMENT	0,5	-	Others	1.0	-	1) If peak values of TOUCH-CURRENT are measured, the maximum values obtained by multiplying the r.m.s. values by 1,414.			
Type of equipment	Terminal A of measuring instrument connected to:	Maximum TOUCH CURRENT mA r.m.s. 1)	Maximum PROTECTIVE CONDUCTOR OR CURRENT																																	
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MOVABLE (other than HAND_HELD, but including TRANSPORTABLE EQUIPMENT		3,5	-																																	
STATIONARY, PLUGGABLE TYPE A		3,5	-																																	
ALL other STATIONARY EQUIPMENT - not subject to the conditions of 5.1.7 - subject to the conditions of 5.1.7		3.5 -	- 5 % of input current																																	
HAND-HELD	Equipment main protective earthing terminal (if any) CLASS 0I EQUIPMENT	0,5	-																																	
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Japanese Deviations for J60950-1 (H22):2010 (MITI Ordinance Clause 2)

National Differences to IEC 60950-1:2001			
Clause	Requirement + Test	Result - Remark	Verdict
7.2	Add the following after the paragraph: However, the separation requirements and tests of 6.2.1 a), b) and c) do not apply to a CABLE DISTRIBUTION SYSTEM if all of the following apply: – the circuit under consideration is a TNV-1 CIRCUIT; and – the common or earthed side of the circuit is connected to the screen of the coaxial cable and to all accessible parts and circuits (SELV, accessible metal parts and LIMITED CURRENT CIRCUITS, if any); and – the screen of the coaxial cable is intended to be connected to earth in the building installation	Added.	N/A
W.1	Replace second and third sentence in the first paragraph with the following: This distinction between earthed and unearthed (floating) circuit is not the same as between CLASS I EQUIPMENT, CLASS 0I EQUIPMENT and CLASS II EQUIPMENT. Floating circuits can exist in CLASS I EQUIPMENT or CLASS 0I EQUIPMENT and earthed circuits in CLASS II EQUIPMENT.	Added.	N/A
Annex JA	Add a new annex JA with the following contents. Annex JA (normative) Document shredding machines Document shredding machines shall also comply with the requirements of this annex except those of STATIONARY EQUIPMENT used by connecting directly to an AC MAINS SUPPLY of three-phase 200V or more.		N/A
JA.1	Markings and instructions The symbol  (JIS S 0101:2000, 6.2.4) and the following precautions for use shall be marked on readily visible part adjacent to document feed opening. The marking shall be clearly legible, permanent, and easily discernible; - that use by an infants/children may cause a hazard of injury etc.; - that a hand can be drawn into the mechanical section for shredding when touching the document-slot; - that clothing can be drawn into the mechanical section for shredding when touching the document-slot;		N/A

Japanese Deviations for J60950-1 (H22):2010 (MITI Ordinance Clause 2)

National Differences to IEC 60950-1:2001			
Clause	Requirement + Test	Result - Remark	Verdict
	- that hairs can be drawn into the mechanical section for shredding when touching the document-slot; - in case of equipment incorporating a commutator motor, that equipment may catch fire or explode by spraying of flammable gas.		
JA.2	Inadvertent reactivation Any safety interlock that can be operated by means of the test finger, Figure JA.1, is considered to be likely to cause inadvertent reactivation of the hazard. Compliance is checked by inspection and, where necessary, by a test with the test finger, Figure JA.1		N/A
JA.3	Disconnection from the mains supply Document shredding machines shall incorporate an isolating switch complying with sub-clause 3.4.2 as the device disconnecting the power of hazardous moving parts. For this switch, two-position (single-use) switch or multi-position (multifunction) switch (e.g., slide switch) may be used. If two-position switch, the positions for "ON" and "OFF" shall be indicated in accordance with sub-clause 1.7.8. If multi-position switch, the position for "OFF" shall be indicated in accordance with sub-clause 1.7.8 and other positions shall be indicated with proper terms or symbols. Compliance is checked by inspection.		N/A
JA.4	Protection against hazardous moving parts Any warning shall not be used instead of the structure for preventing access to hazardous moving parts. Document shredding machines shall comply with the following requirements. Insert the test finger, Figure JA.1, into all openings in MECHANICAL ENCLOSURES without applying appreciable force. It shall not be possible to touch hazardous moving parts with the test finger. This consideration applies to all sides of MECHANICAL ENCLOSURES when the equipment is mounted as intended. Before testing with the test finger, remove the parts detachable without a tool. Insert the wedge-probe, Figure JA.2, into the document-slot. And, against all directions of openings, if straight-cutting type, a force of 45 N shall apply to the probe, and 90 N if cross-cutting type. In this case, the weight of the probe is to be factored into the overall applied force.		N/A

Japanese Deviations for J60950-1 (H22):2010 (MITI Ordinance Clause 2)

National Differences to IEC 60950-1:2001			
Clause	Requirement + Test	Result - Remark	Verdict
	Before testing with the wedge-probe, remove the parts detachable without a tool. It shall not be possible to touch any hazardous moving parts, including the shredding roller or the mechanical section for shedding, with the probe.		

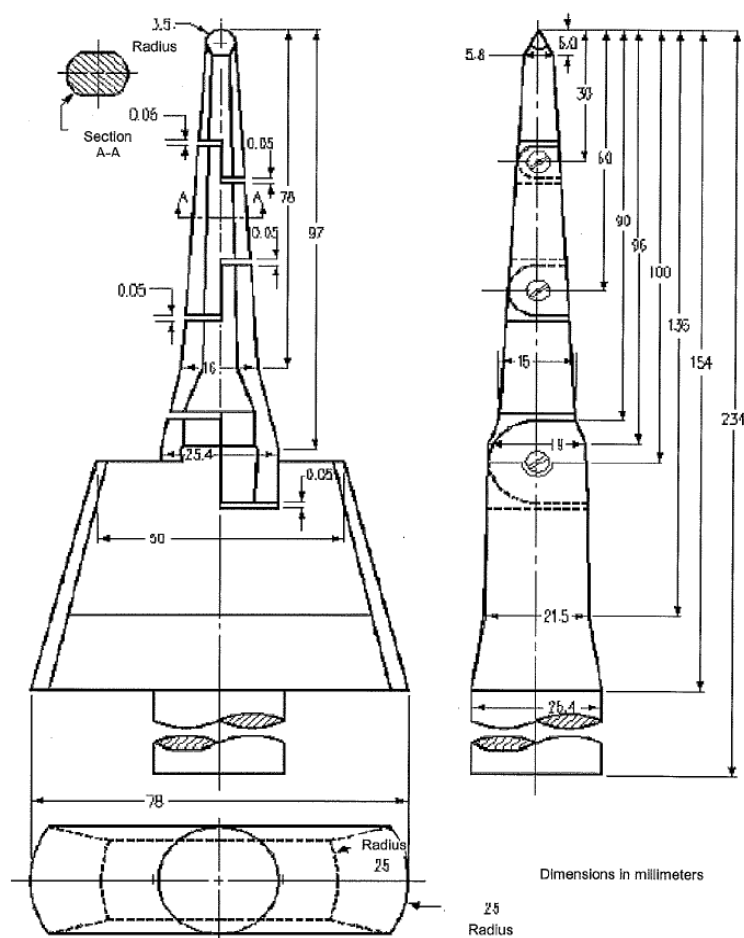
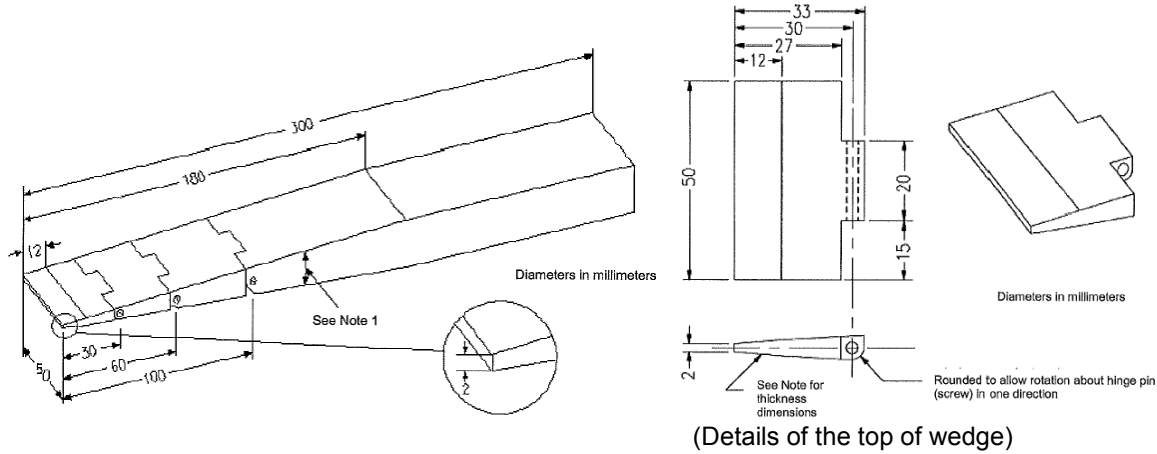


Figure JA.1 Test finger

National Differences to IEC 60950-1:2001			
Clause	Requirement + Test	Result - Remark	Verdict



Distance from the top	Thickness of probe
0	2
12	4
180	24

Note 1 - The thickness of the probe varies linearly, with slope changes at the respective

points shown in the table.

Note 2 –The allowable dimensional tolerance of the probe is +/- 0.127 mm.

ATTACHMENT

Photo Documentation



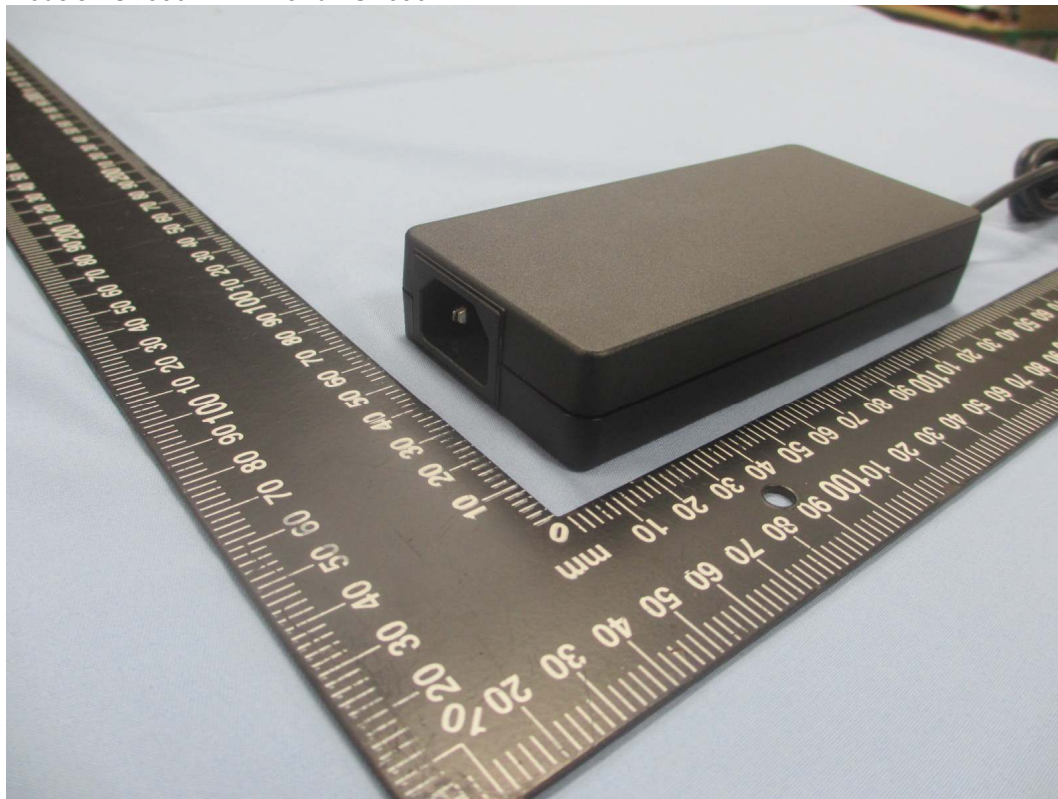
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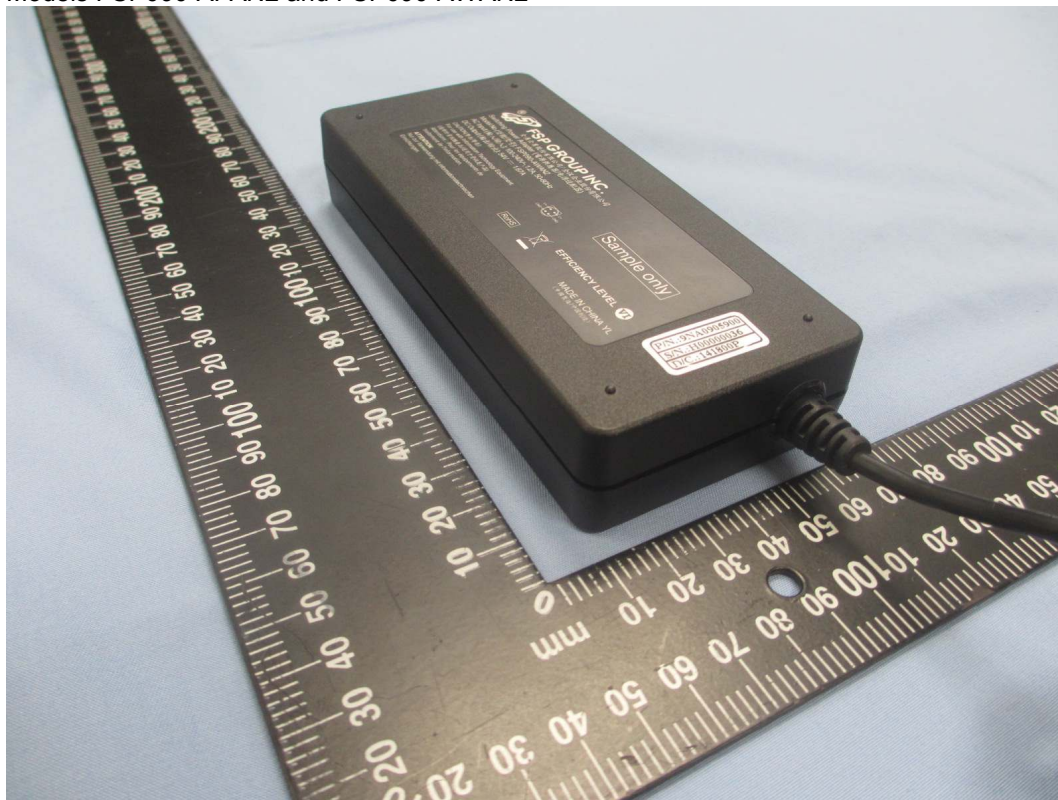
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Models FSP090-AFAN2 and FSP090-AWAN2



Models FSP090-AFAN2 and FSP090-AWAN2



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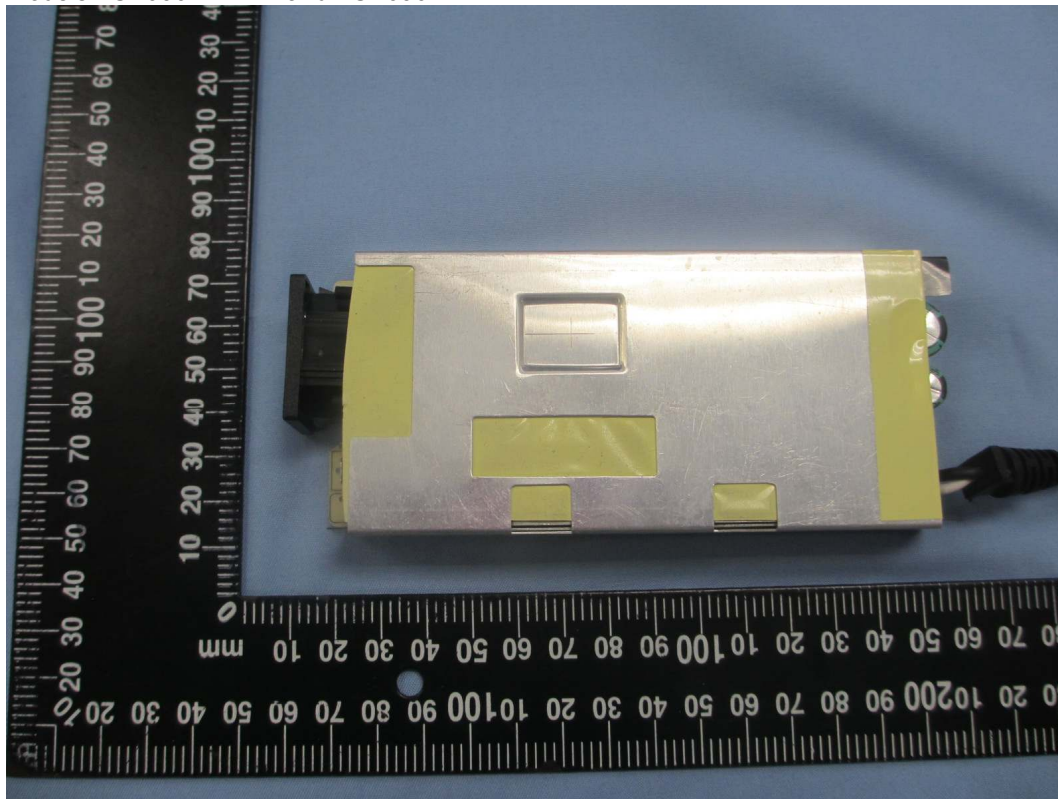
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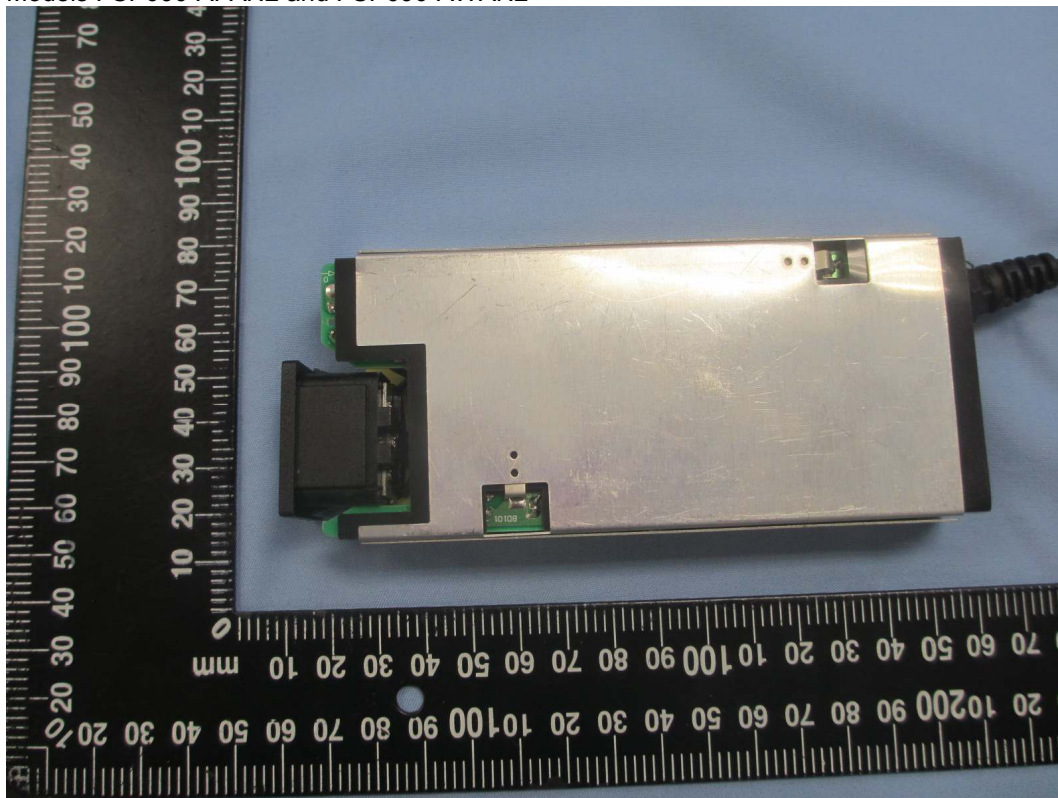
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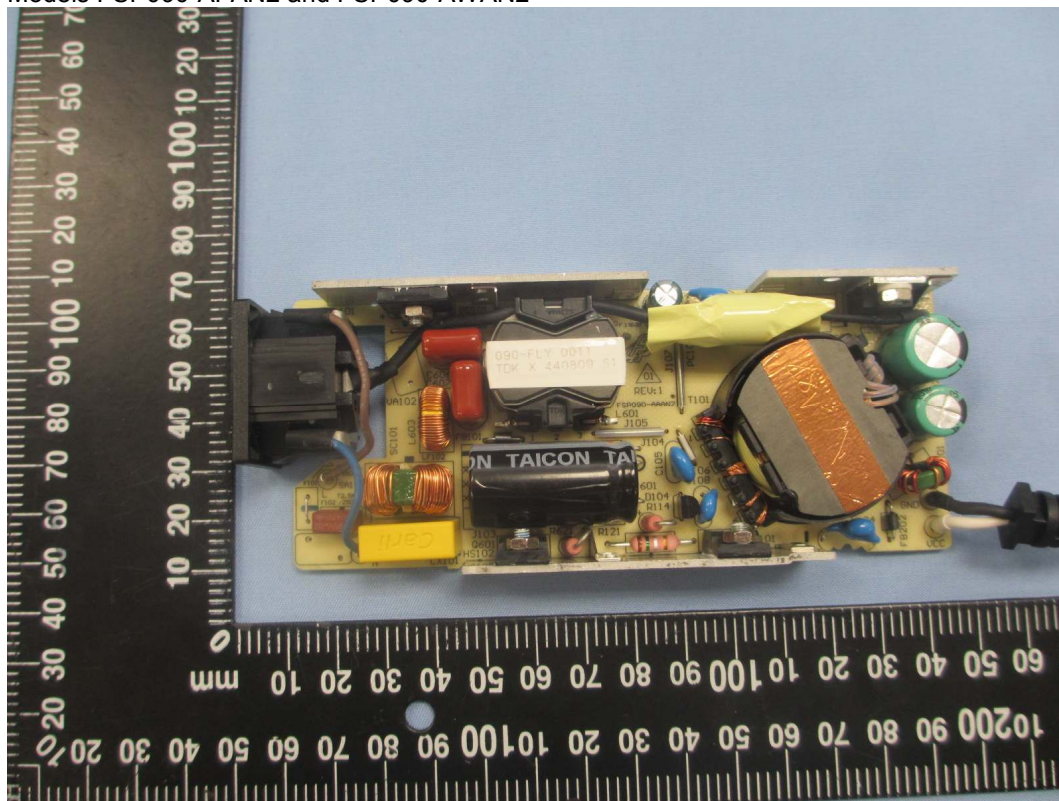
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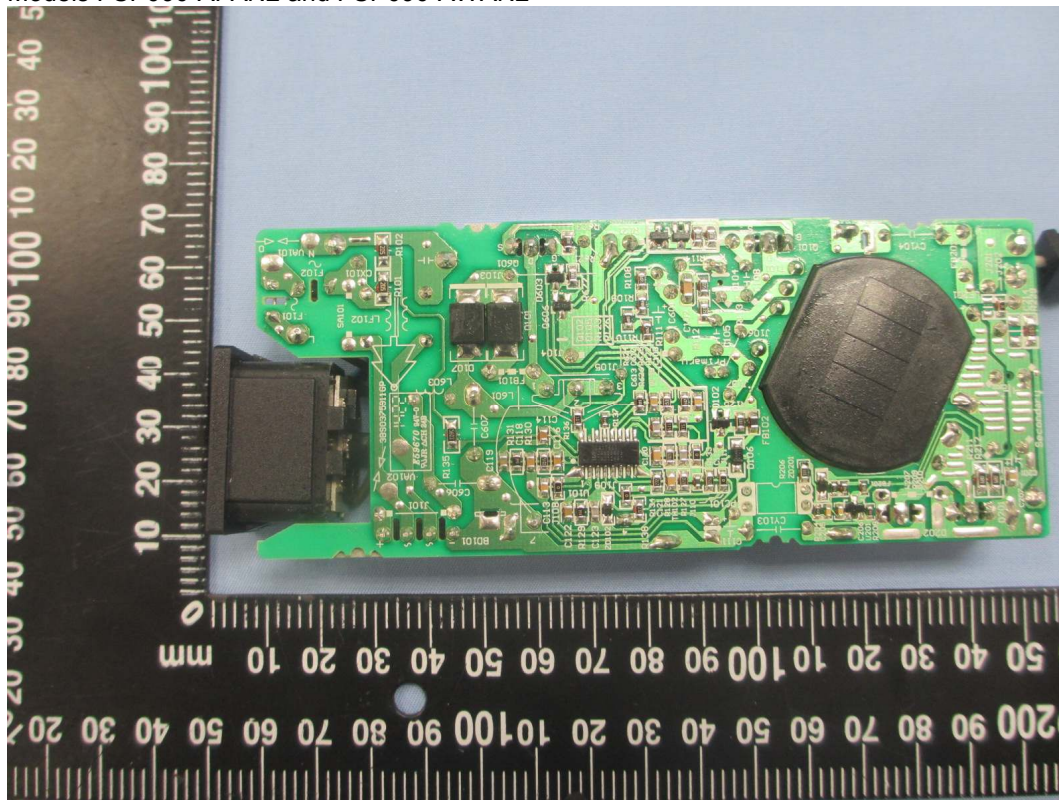
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Models FSP090-AFAN2 and FSP090-AWAN2



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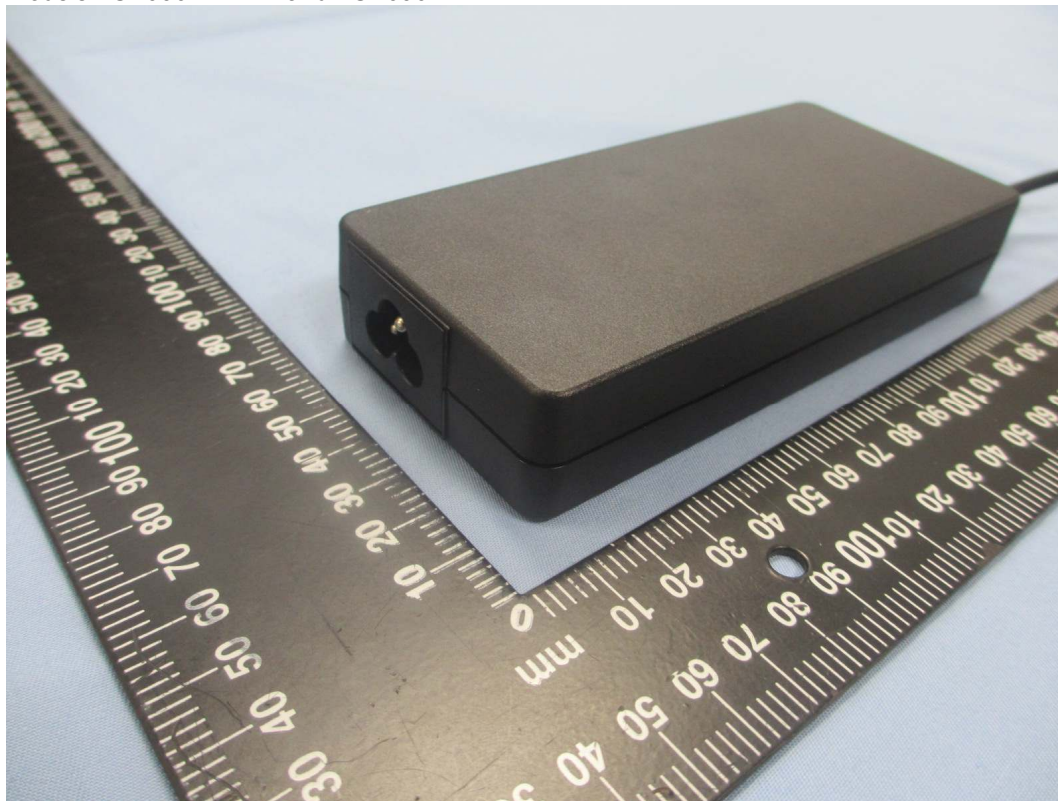
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Models FSP090-AFBN2 and FSP090-AWBN2



Models FSP090-AFBN2 and FSP090-AWBN2



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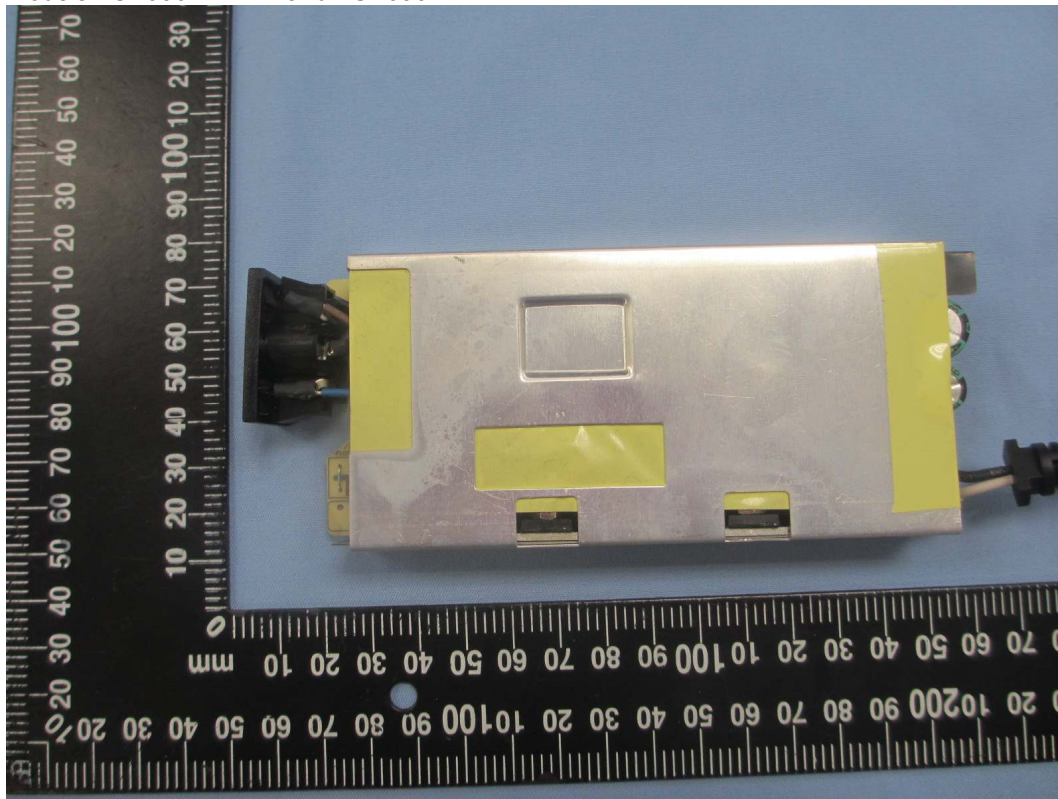
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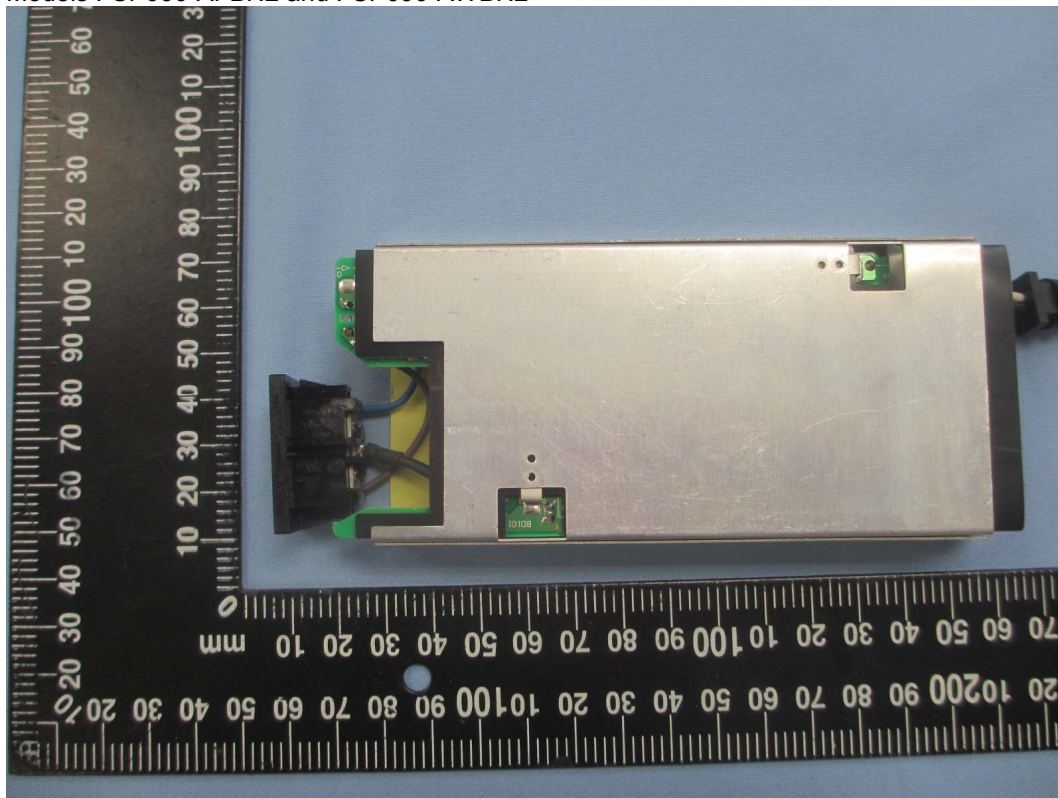
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Models FSP090-AFBN2 and FSP090-AWBN2



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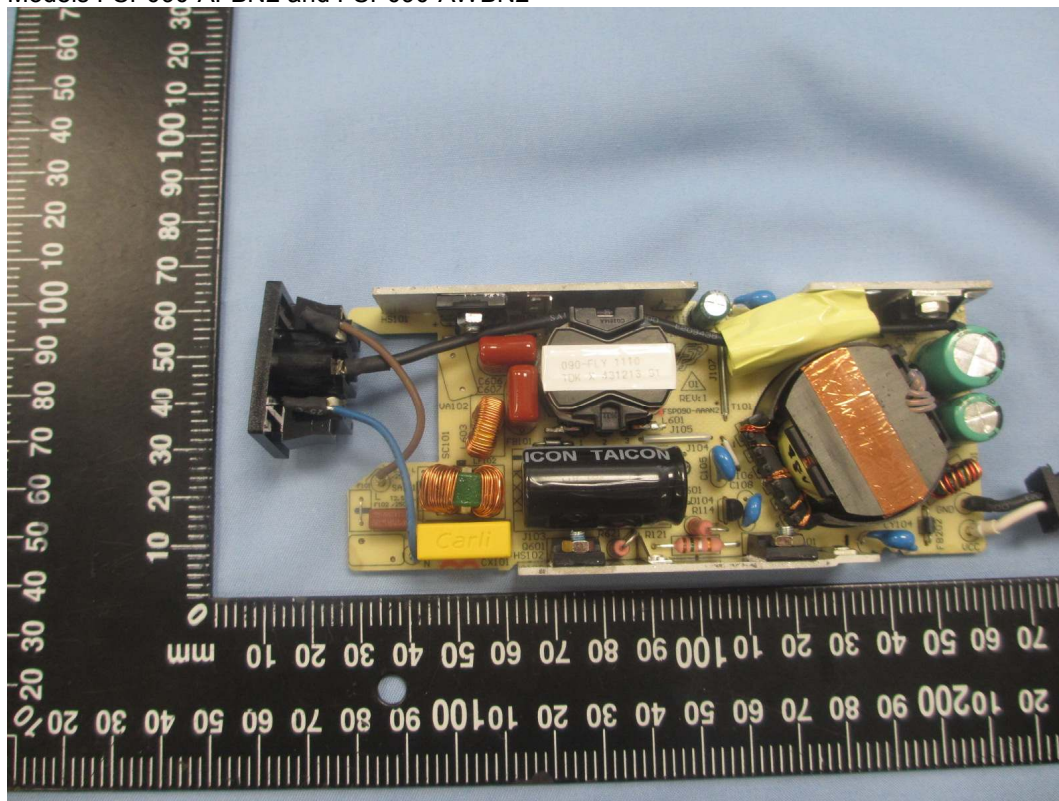
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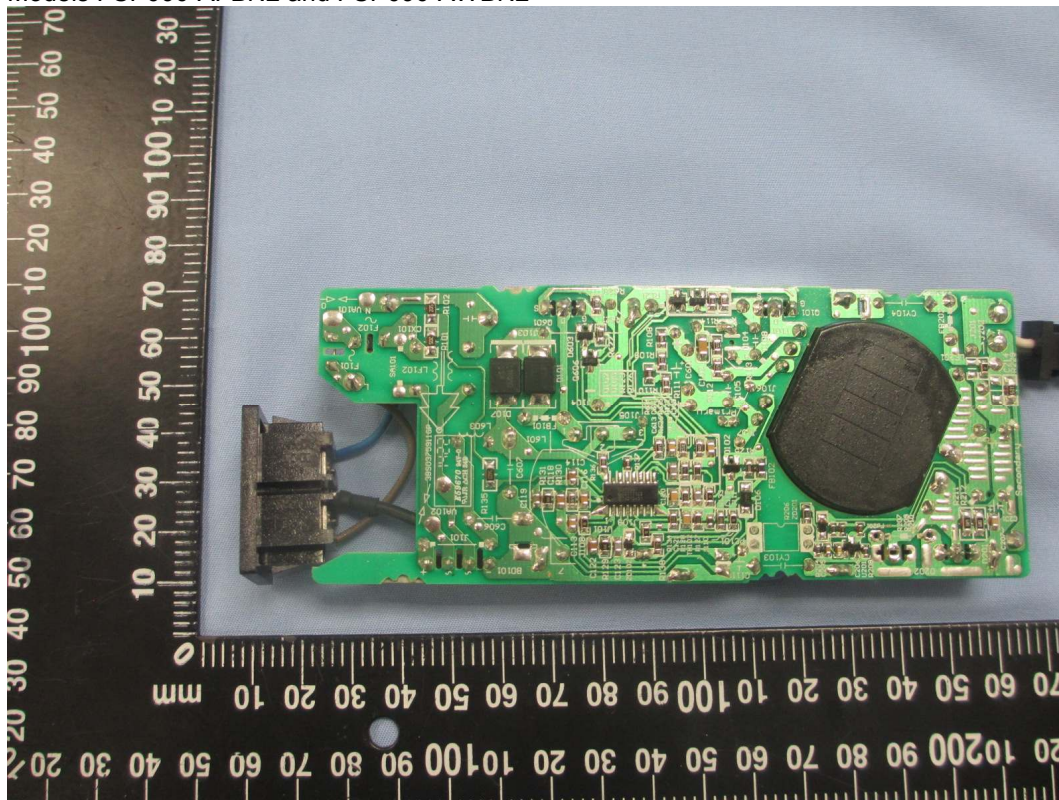
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Models FSP090-AFBN2 and FSP090-AWBN2



Models FSP090-AFBN2 and FSP090-AWBN2



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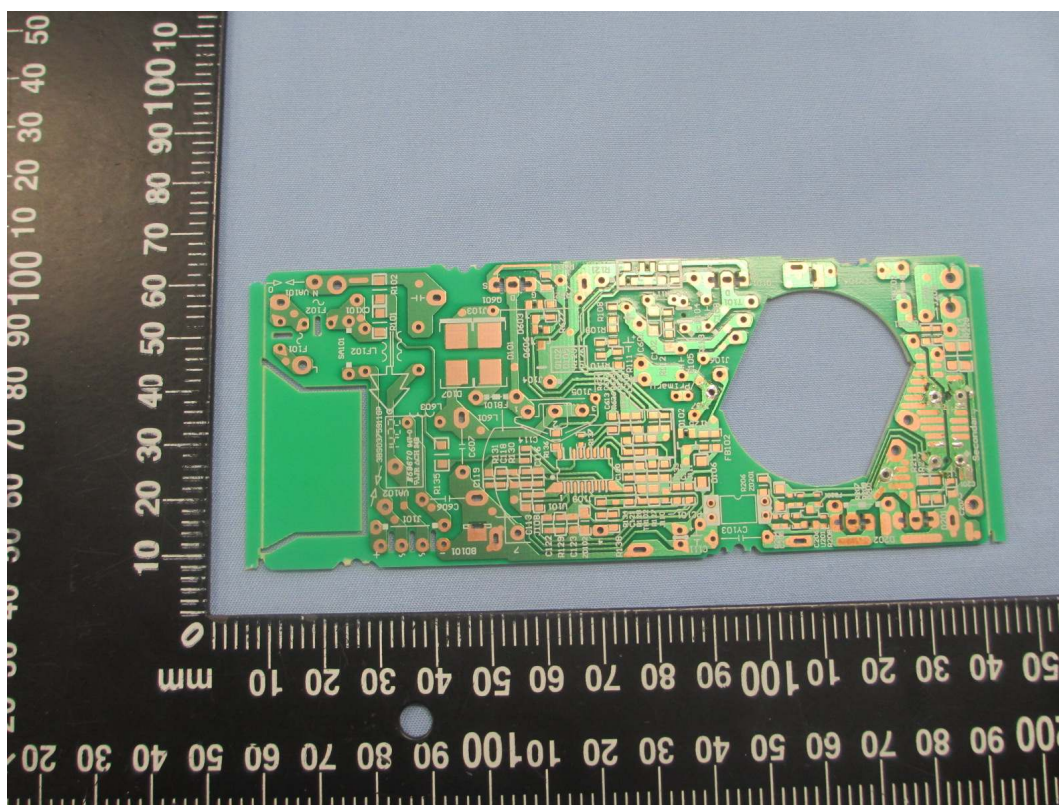
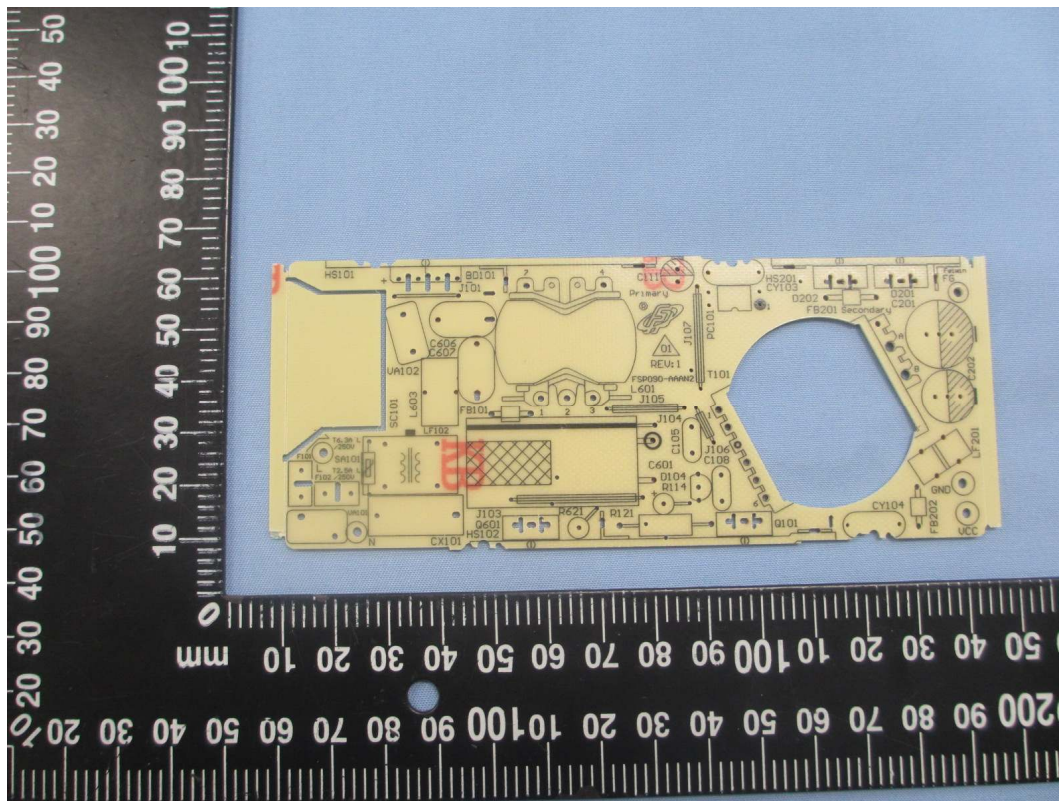


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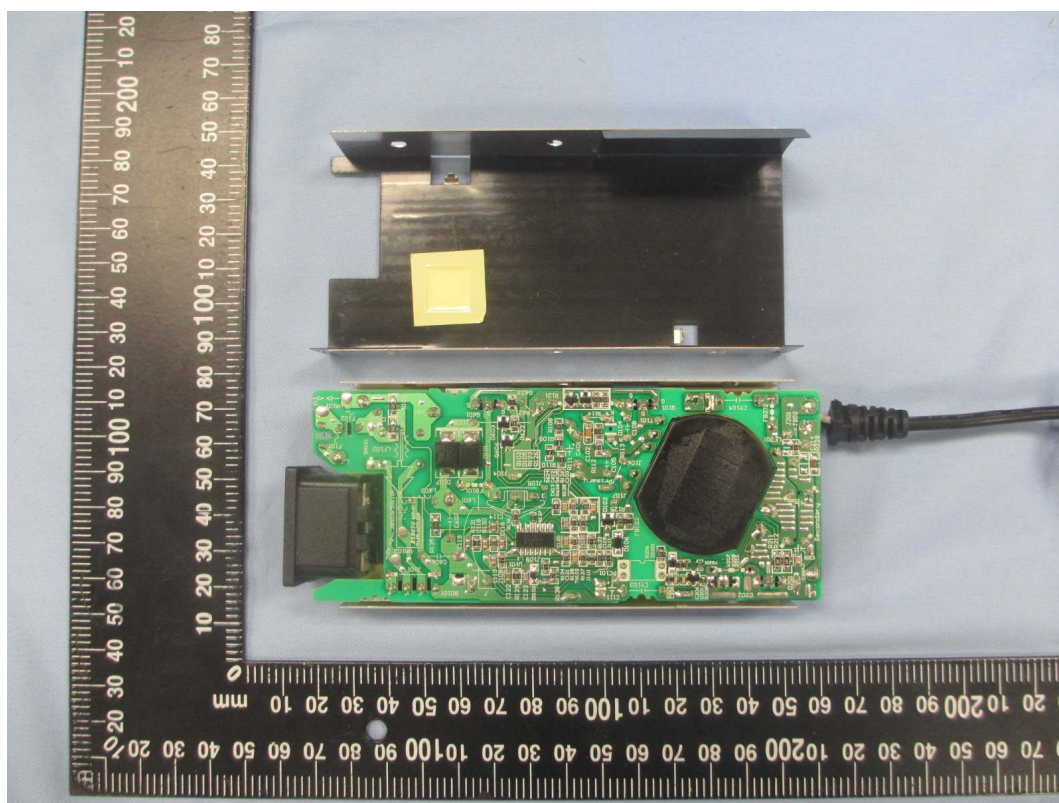
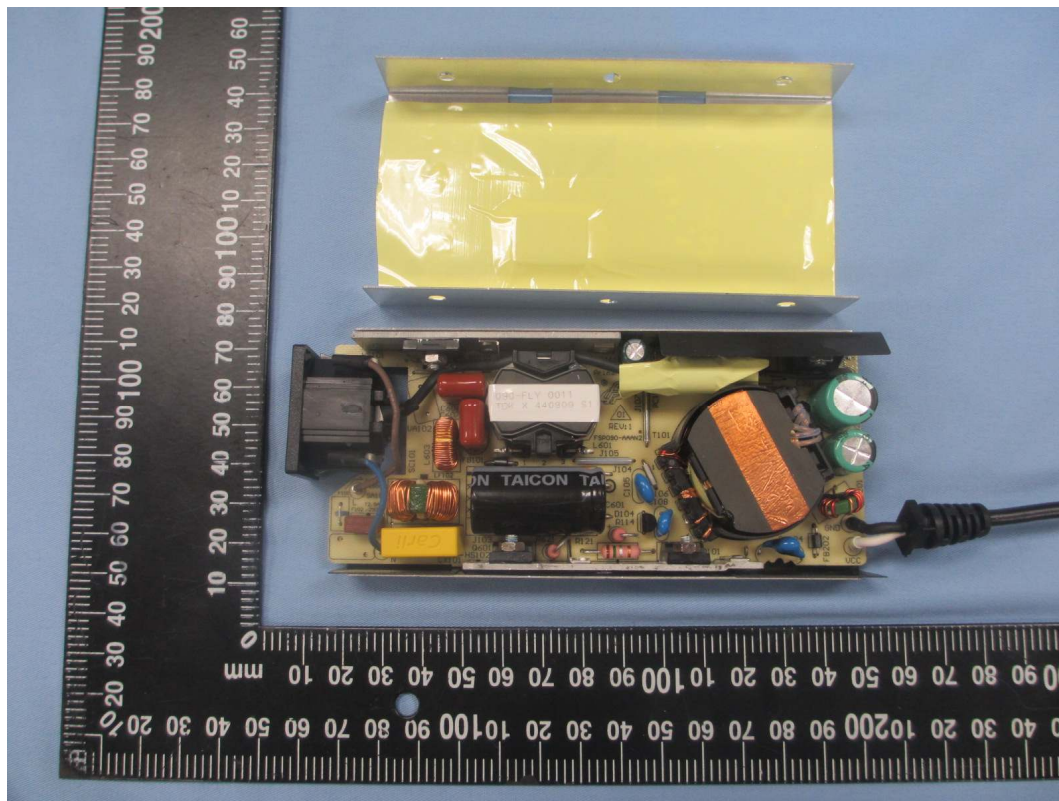


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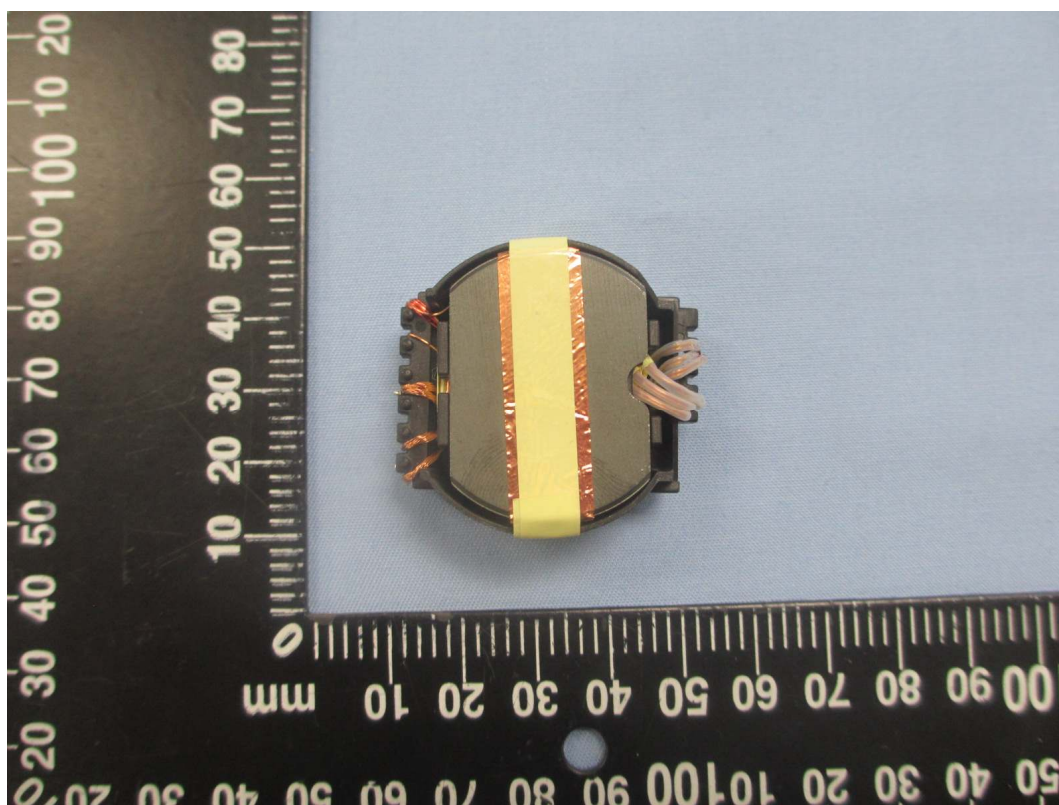
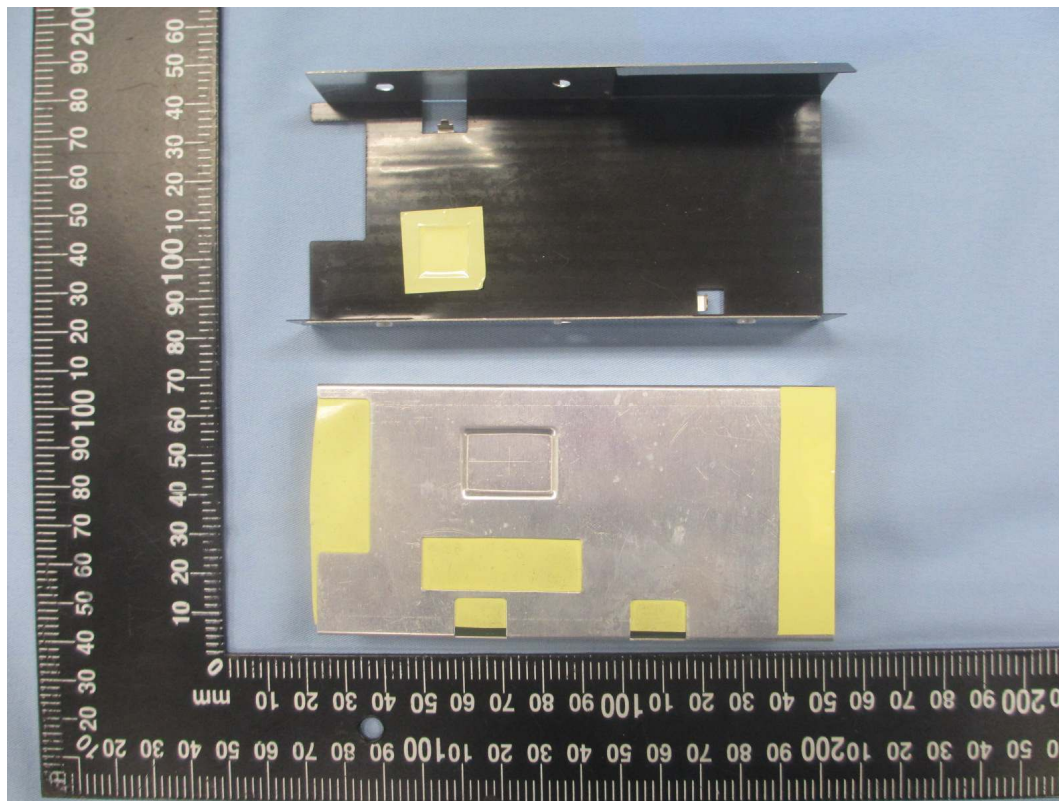


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