抽 換

抽換I/O LABEL圖面

送審日期:20200303
承認工程師:FAA
工程師主管:BOY

康舒科技
ACBEL POLYTECH INC.

Approval Sheet

Model No. : FSD049 Option 4QAG
MKT Model No. : EP2A5551A Option B4QA
Hardware Rev. : A00

Customer : AIC INC.
Customer PN : PS-000000120_A01

Approval by : Smith Lu

Prepare by : Sonia Chuang

Date: 05/30/2019

康舒科技
ACBEL POLYTECH INC.

Contents

康舒科技
ACBEL POLYTECH INC.

Specification

ACBEL ELECTRONIC (DONGGUAN) CO., LTD.

ACBEL ELECTRICAL (DONG GUAN) CO.,LTD.
康舒電子(東莞)有限公司
No.17-28,(Hong Yeh Rd)Hong Yeh Industrial District Tang Xia Town ,Dong Guan City Province ,China ,Zipcode:523710.
Tel: 86-769-8791-5950
Fax: 86-769-8772-8464

Specification for EPS 550W

MODEL: FSD049-000G Series

MKT PN: EP2A5551A-B Series

Revision: A

Acbel Polytech Inc.

ACBEL ELECTRONIC (DONG GUAN) CO, Ltd.

DONG GUAN ACBEL TELECOM CO, Ltd.

No. 17-28, (Hong yed rd) Hong yeh industrial district, Tang Xia Town, Dong Guan City. Guang Dong Province, China Zip code: 523710

Tel: +86-769-87915950 EXT: 36634

FAX: +86-769-87913472-36994

Customer:	
Approved By :	
Approved Date :	

RoHS Compliance:
Never use Environment-related Substances to be controlled by customer.
Warranty of Compliance with AcBel Environmental Requirement AW-RD06.

Prepared By : Yangxj **Approved By :** Well_ZH **Prepared Date:** 2014-08-12

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Change. LIST

Revision	Change description	Date
A	Initial	2014-08-12

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1. GENERAL DESCRIPTION AND SCOPE

The specification below is intended to describe as detailed as possible the functions and performance of the subject power supply. Any comment or additional requirements to this specification from our customers will be highly appreciated and treated as a new target for us to approach.

2. REFERENCE DOCUMENTS

The subject power supply will meet the EMI requirements and obtain main safety approvals as following:

2.1. EMI REGULATORY

The power supply shall comply with CISPR22; Class B. Tests shall be conducted using a shielded DC output cable to a shielded load. The load shall be adjusted as follows condition: Test with system load; Tests will be performed at 220VAC/50Hz.

2.2. SAFETY CERTIFICATION

CCC; UL; CUL; CB; TUV; KCC; FCC; CE; BSMI

3. INPUT ELECTRICAL SPECIFICATIONS

3.1. AC INPUT

Parameter	Min.	Nom.	Max.	Unit
V_{in}	90	100~240	264	VAC. $_{rms}$
Frequency	47	--	63	VAC. $_{rms}$
I_{in}		10~5		A. rms

Nominal voltages for test purposes are considered to be within ±1.0V of nominal.

3.2. INRUSH CURRENT

Maximum inrush current from power-on (with power on at any point on the AC sine) and including, but not limited to, three line cycles, shall be limited to a level below the surge rating of the input line cord, AC switch if present, bridge rectifier, fuse, and EMI filter components. Repetitive ON/OFF cycling of the AC input voltage should not damage the power supply or cause the input fuse to blow.

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3.3. INPUT LINE CURRENT & POWER FACTOR (P.F.)

(At Full load)

AC input	Input line current	P.F.@ Full Load	P.F.@ Pin=75W
100V	< 10 Amps – rms	>0.95	>0.7
240V	< 5 Amps – rms	>0.95	

3.4. EFFICIENCY

Efficiency is not less than 82% at 20%, 50%, 80% output load condition.

3.4.1. Standby Power Consumptions (5Vsb)

Input Power < 1W @ 5Vsb/100mA& 230Vac input

PS_ON input signal @ High State

4. OUTPUT ELECTRICAL REQUIREMENTS

4.1. OUTPUT VOLTAGE AND CURRENT RATING

Output	MINIMUM LOAD	NORMAL LOAD	MAXIMUM LOAD	PEAK LOAD	LOAD REG	RIPPLE & NOISE
+3.3V	0.1A	3A	24A		±5%	50mV P-P
+5V	0.1A	5A	30A		±5%	50mV P-P
+12V	0.2A	7A	42A		±5%	120mV P-P
-12V	0A	0.1A	0.3A		±10%	120mV P-P
+5VSB	0.1A	1A	3A		±5%	50mV P-P

(1) +3.3V & +5V total output not exceed 170W.

(2) Total output continuous shall not exceed 550W.

(3) Maximum peak total DC output power should not exceed 700W.

(4) Voltages and ripple are measured at the load side of mating connectors with a 0.1 uF monolithic ceramic capacitor paralleled by a 10 uF electrolytic capacitor across the measuring terminals.

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4.2. LOAD CAPACITY SPECIFICATIONS

The cross regulation defined as follows, the voltage regulation limits DC include DC output ripple & noise.

LOAD	+3.3V	+5V	+12V	-12V	+5VSB	NOTE
condition_1	0.1A	0.1A	0.2A	0A	0.1A	Min load
condition_2	2.0A	4.0A	8.0A	0.1A	1.0A	
condition_3	10.0A	20.0A	33.6A	0.3A	2.0A	Full load
condition_4	24.0A	18.0A	30.0A	0.3A	3.0A	+3.3V Max.
condition_5	5.6A	6.0A	42.0A	0.1A	0.1A	+12V Max.
condition_6	6.1A	30.0A	31.2A	0.3A	0.3A	+5V Max

4.3. Dynamic load

Voltage	Current(A)	Rate(A/uS)	Capacitor load (uF)
+3.3V	30% Max. load	0.5	2200
+5V	30% Max. load	0.5	2200
+12V	60% Max. load	0.5	3300
+5VSB	30% Max. load	0.5	350

4.4. HOLD-UP TIME (80% of full load.)

230V / 50Hz : 10 m sec. minimum.

The output voltage will remain within specification, in the event that the input power is removed or interrupted, for the duration of one cycle of the input frequency. The interruption may occur at any point in the AC voltage cycle. The power good signal shall remain high during this test.

4.5 . OUTPUT RISE TIME

(10% TO 95% OF FINAL OUTPUT VALUE, @FULL LOAD)

115V-rms OR 230V-rms +3.3Vdc: 20ms Maximum
+5Vdc: 20ms Maximum
+12Vdc: 20ms Maximum
+5Vsb: 20ms Maximum

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4.6. POWER SIGNAL

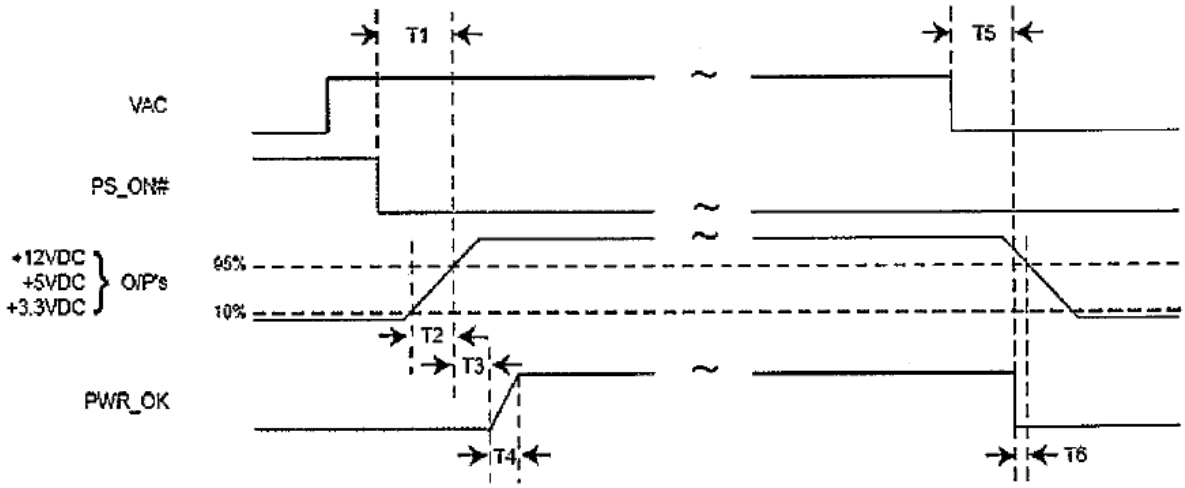

Figure:

T1: Power-on time shall be less than 500 ms (T1 < 500 ms).

T2: Rise time: 0.1 ms to 20 ms (0.1 ms≤ T2 ≤ 20 ms).

T3: Power-ok delay time: 100 ms< T3 < 500 ms

T4: Power-ok rise time: T4 ≦ 10 ms

T5 + T6: AC losses to output hold-up time: T5 + T6 ≥ 17 ms

4.7. The main power supply shall be off when the PS_ON pin is floating (open collector). The ON/STBY pin of P1 must remain off state for 5 Sec (maximum) prior to switching to the ON stare.

4.8. Over shoot

Output voltage	Overshoot Range
+3.3V	10%
+5V	10%
+12V	10%
+5VSB	10%

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4.9. OVP AND OCP

OVP

Output voltage	Protection point (MAX)
+3.3V	4.8V
+5V	7.0V
+12V	16.5V

OCP

Output voltage	Protection point (MAX)
+3.3V	48A
+5V	55A
+12V	59A

4.10. SHORT CIRCUIT PROTECTION

Output short circuit is defined to be a short circuit load of less than 0.1 ohm.
In the event of an output short circuit condition on +3.3V, +5V or +12V output, the power supply will shut down and latch off without damage to the power supply. The power supply shall return to normal operation after the short circuit has been removed and the power switch has been turned off for no more than 2 seconds.

4.11 The main power supply shall be off when the PS_ON pin is floating (open collector). The ON/STBY pin of P1 must remain off state for 5 Sec (maximum) prior to switching to the ON stare.

5. FAN REQUIREMENTS

The subject power supply is cooled by a self-contained, 60*25mm, 12VDC fan.

6. ENVIRONMENTAL REQUIREMENTS

The power supply will be compliant with each item in this specification for the following Environmental conditions.

6.1. TEMPERATURE RANGE

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Operating	0°C to +50°C
Storage	-20°C to +80°C

The maximum continuous power rating of supply is 550W at 50°C.

6.2. HUMIDITY

Operating	5 – 95% RH, Non-condensing
Storage	5 – 95% RH, Non-condensing

6.3. VIBRATION

The subject power supply will withstand the following imposed conditions without experiencing non-recoverable failure or deviation from specified output characteristics.
Vibration Operating – Sine ware excited, 0.25G maximum acceleration, 10-250 Hz swept at one octave / min. Fifteen minute dwell at all resonant points, where resonance is defined as those exciting frequencies at which the device under test experiences excursions two times large than non-resonant excursions.
Plane of vibration to be along three mutually perpendicular axes.

6.4. GROUND LEAKAGE CURRENT

The power supply ground leakage current shall be less than 3.5 mA at 240Vac input.

6.5. RELIABILITY

The power supply reliability, when calculated by BELLCORE SR-332; latest revision, are exceed 100,000 hours with all output at maximum load and an ambient temperature of 25°C.

6.6. DIELECTRIC STRENGTH

Primary to Frame Ground: 1800 Vac for 3 sec.

6.7. INSULATION RESISTANCE

Primary to Frame Ground: 20 Meg.ohms Minimum.
Primary to Secondary: 20 Meg.ohms Minimum.

6.8. Altitude

Operating To 16,404.2 ft (5,000m)
Non operating To 50,000 ft

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7.0. Lightning Surge Immunity

The purpose of lightning surge immunity test is to verify if the power supply can withstand lightning surge wave. This is to follow the norm of IEC61000-4-5 requirements.

Transient Type	Coupling mode	Test level	Phase	Repetition Rate	Acceptance Criteria
Surge immunity (Lightning)	Differential	± 1 KV	0° 90° 180° 270°	10 pulses 60 sec	Operating
	Common	± 2 KV			

8.0 LABELLING

Label marking will be permanent, legible and complied with all agency requirements.

8.1. MODEL NUMBER LABEL

Labels will be affixed to the sides of the power supply showing the following:

- Manufacturer's name and logo.
- Model no., serial no., revision level, location of manufacturer.
- The total power output and the maximum load for each output.
- AC input rating.

9.0 MECHANICAL SPECIFICATIONS

The mechanical drawing of the subject power supply, which indicate the form factor, location of the mounting holes, location, the length of the connectors, and other physical specifications of the subject power supply. Please refer to the attachment drawing.

Dimension: L240 x W100 x H70

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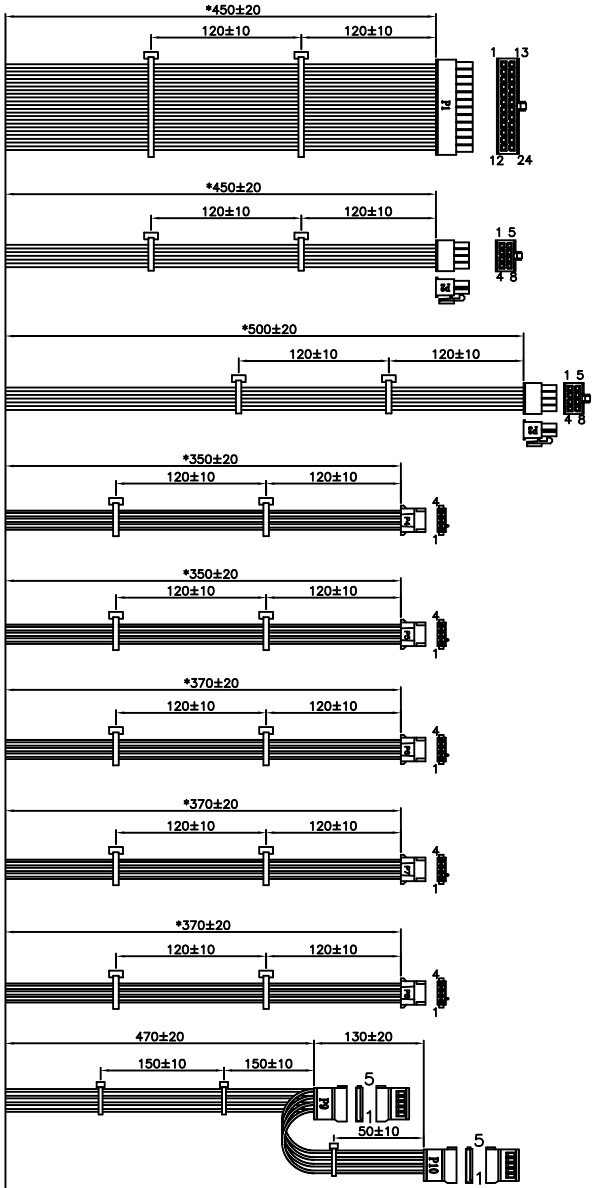
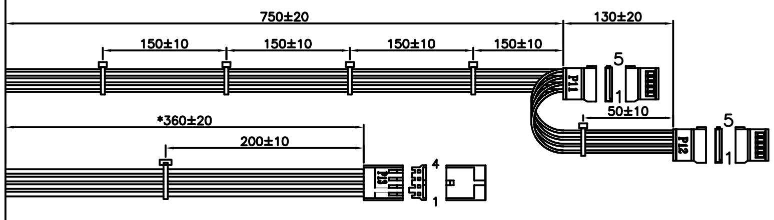
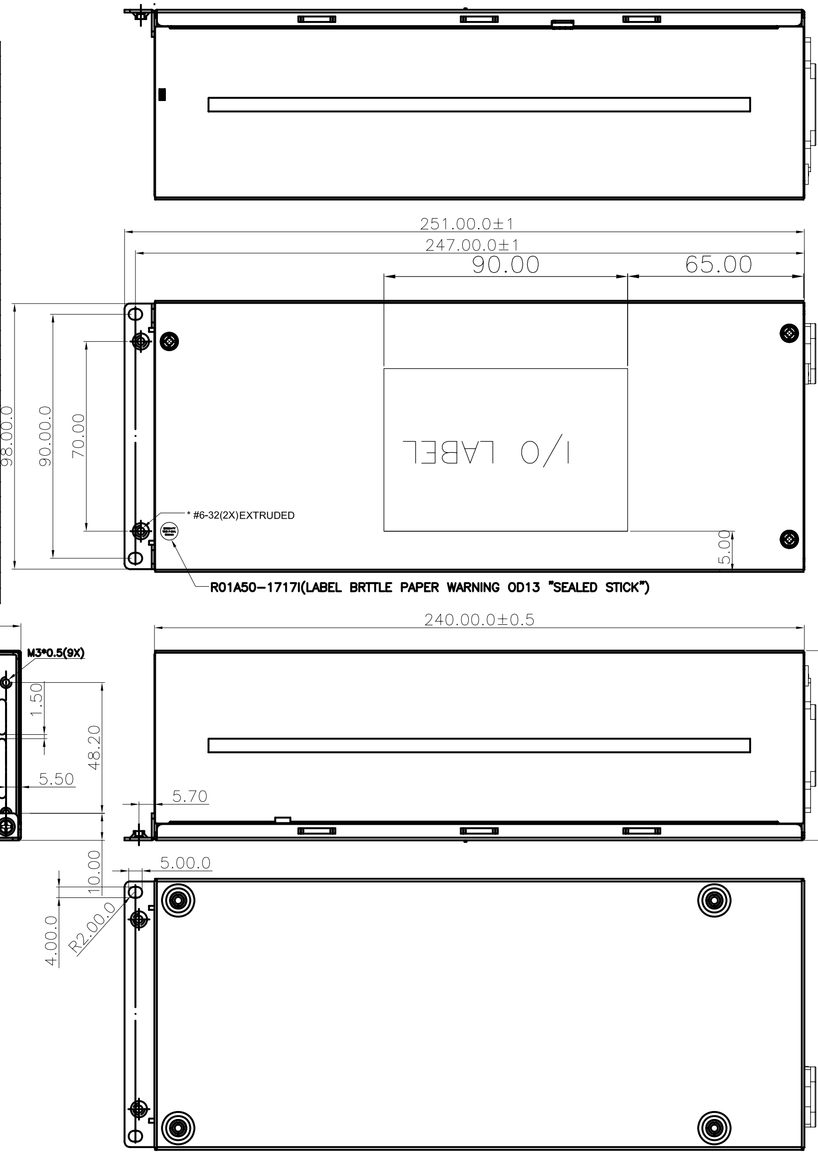
Mechanical Outline Drawing

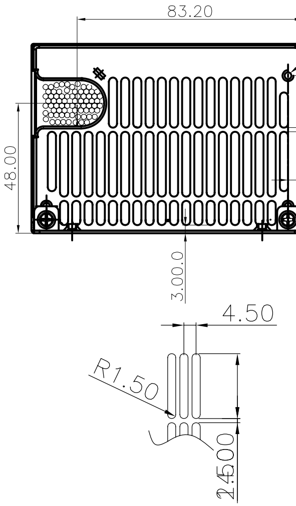




CONN.	PIN	OUTPUT	COLOR	AWG
P1 MINI-FIT 24P	1	+3.3V	ORANGE	18
		+3.3VS	BROWN	22
	2	+3.3V	ORANGE	18
	3	GND	BLACK	18
	4	+5V	RED	18
	5	GND	BLACK	18
	6	+5V	RED	18
	7	GND	BLACK	18
	8	PW-OK	GRAY	22
	9	+5VSB	PURPLE	18
	10	+12V	YELLOW	18
	11	+12V	YELLOW	18
	12	+3.3V	ORANGE	18
	13	+3.3V	ORANGE	18
	14	N/A	N/A	N/A
	15	GND	BLACK	18
	16	PS-ON	GREEN	22
	17	GND	BLACK	18
	18	GND	BLACK	18
	19	GND	BLACK	18
	20	N/A	N/A	N/A
	21	+5V	RED	18
	22	+5V	RED	18
	23	+5V	RED	18
	24	GND	BLACK	18

CONN.	PIN	OUTPUT	COLOR	AWG
P2&P3 MINI-FIT 8P		GND	BLACK	18
		GND	BLACK	18
		GND	BLACK	18
		GND	BLACK	18
		+12V	YELLOW	18
		+12V	YELLOW	18
		+12V	YELLOW	18
		+12V	YELLOW	18

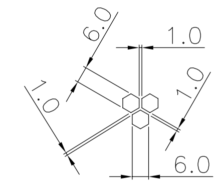


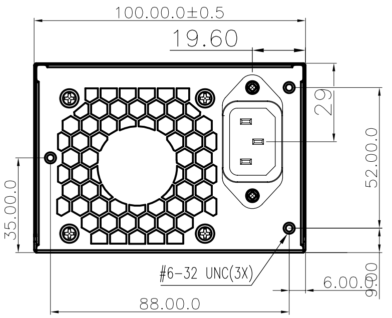


CONN.	PIN	OUTPUT	COLOR	AWG
P4-P8 L4P	1	+12V	YELLOW	18
	2	GND	BLACK	18
	3	GND	BLACK	18
	4	+5V	RED	18

CONN.	PIN	OUTPUT	COLOR	AWG
P9-P12 SATA	1	N/A	N/A	N/A
	2	GND	BLACK	18
	3	+5V	RED	18
	4	GND	BLACK	18
	5	+12V	YELLOW	18

CONN.	PIN	OUTPUT	COLOR	AWG
P13 S4P	1	+5V	RED	22
	2	GND	BLACK	22
	3	GND	BLACK	22
	4	+12V	YELLOW	22





NOTES :

1. OUTLINE DIMENSION L=240.0 W=100.0 H=70.0
2. NET WEIGH = XXX KG ±3%
3. NO BURRS OR SHARP EDGES PERMISSIBLE.
4. OUTPUT CABLE :

	PRIMARLY SOURCE
FAN	API P/N : X90710 CHENG HOME P/N:6025
P1	(YIYI H6657-224M OR EQUIVALENT)
P2/P3	API P/N : R90601-9127IX YIYI P/N : H6657-208MB
P4-P8	R90601-9866IL LCU:601 (94V-2)
P9-P12	(YIYI H6672-1B4P OR EQUIVALENT)
P13	R90601-9864IL LCU P/N : H201-04

NON-RELEASE			
試作圖面		REV:	3
ENG.	NENGZI	APPR.	ARLO
QTY	依據轉廠料數量為準。	DATE	04/02/19"

⚠ 注意:此圖面僅供試產使用,量產請以資料室正式發行圖面爲準。

AcBel

ACBEL POLYTECH INC.

MODEL NO.	FS049-4QAG
PART NO.	MO-FSD049-4QAG
DWG. NO. :	MO-FSD049-4QAG_3
TITLE	MECHANICAL OUTLINE

SI — Metric — A1

TOLERANCES UNLESS OTHERWISE NOTED ~6: ± 0.1, 6~120: ± 0.2, 120~315: ± 0.3, 315~: ± 0.5 ANGLES: ± 0.5°

0 mm 25

THIRD ANGLE PROJECTION

DESIGNER	NENGZI	04/02/19"
CHECKED		
APPROVED	ARLO	04/02/19"

SCALE NTS — SHEET 1 OF 1

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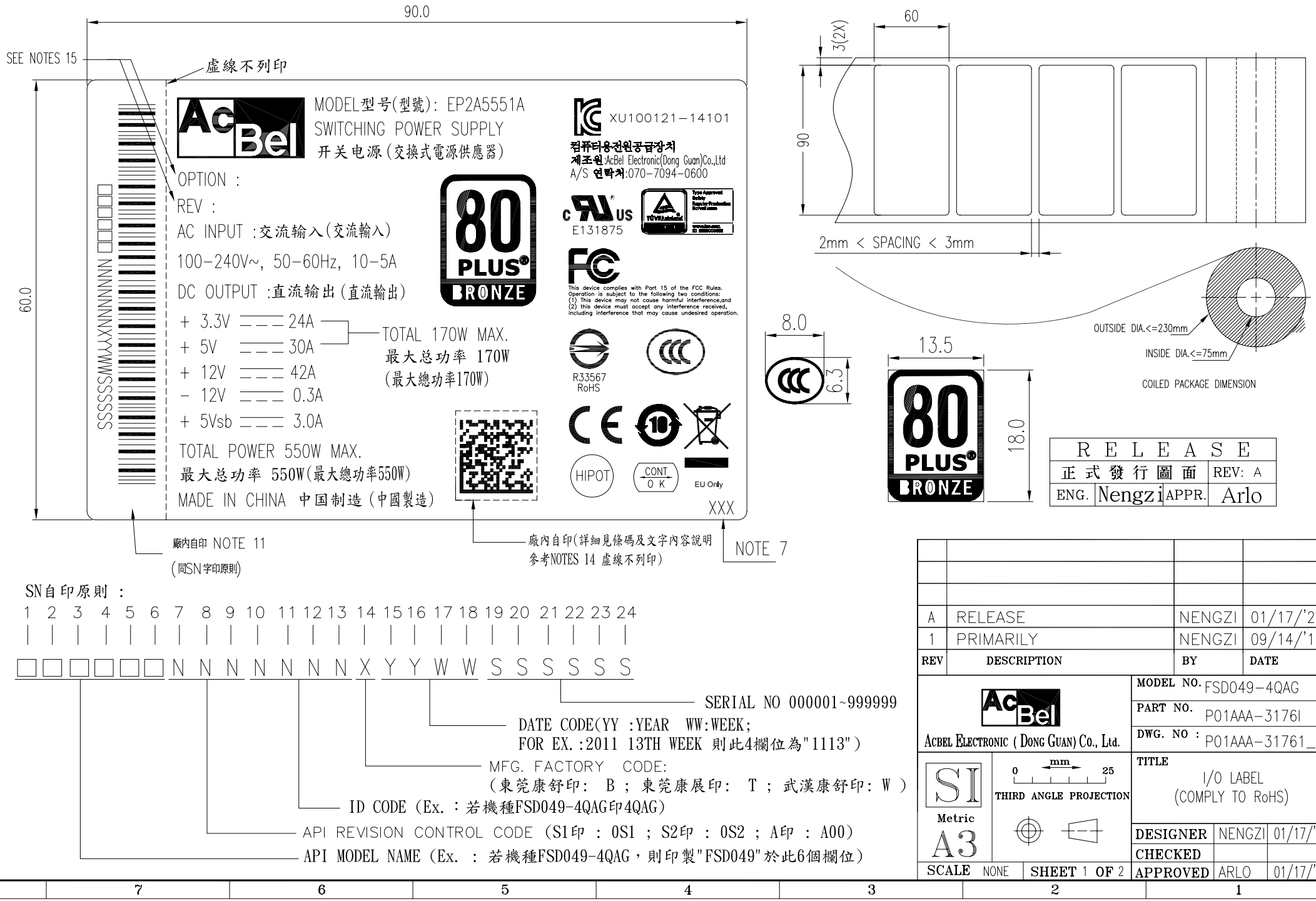
ACBEL POLYTECH INC.

I/O Label Drawing



SN自印原則 :

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
□	□	□	□	□	□	N	N	N	N	N	N	N	X	Y	Y	W	W	S	S	S	S	S	S

- SERIAL NO 000001~999999
- DATE CODE(YY :YEAR WW:WEEK;
  FOR EX.:2011 13TH WEEK 則此4欄位為"1113")
- MFG. FACTORY CODE:
  (東莞康舒印: B ; 東莞康展印: T ; 武漢康舒印: W)
- ID CODE (Ex.:若機種FSD049-4QAG印4QAG)
- API REVISION CONTROL CODE (S1印 : 0S1 ; S2印 : 0S2 ; A印 : A00)
- API MODEL NAME (Ex. : 若機種FSD049-4QAG,則印製"FSD049"於此6個欄位)

RELEASE
正式發行圖面 REV: A
ENG. Nengzi APPR. Arlo

REV	DESCRIPTION	BY	DATE
A	RELEASE	NENGZI	01/17/'20
1	PRIMARILY	NENGZI	09/14/'15

ACBEL ELECTRONIC (DONG GUAN) CO., LTD.

MODEL NO.	FSD049-4QAG
PART NO.	P01AAA-3176I
DWG. NO :	P01AAA-31761_A
TITLE	I/O LABEL (COMPLY TO RoHS)

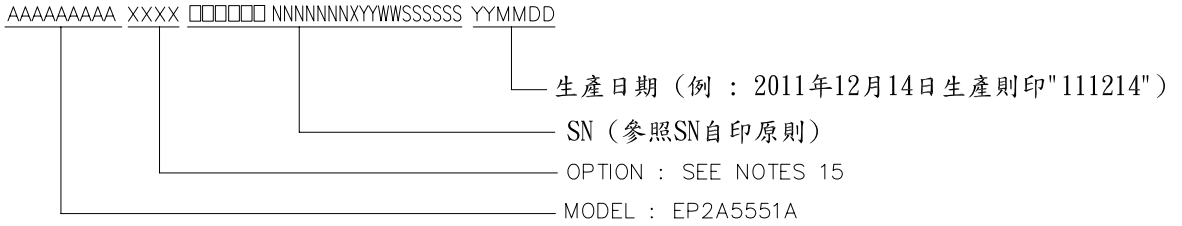
SI Metric A3 | 0 mm 25 | THIRD ANGLE PROJECTION

SCALE NONE | SHEET 1 OF 2

DESIGNER	NENGZI	01/17/'20
CHECKED		
APPROVED	ARLO	01/17/'20

NOTES:

1. UNIT : MM.
   單位 : 毫米.
2. MATERIAL :
   2.1 FACE STOCK 底材:
   WHITE POLYESTER,THICKNESS = 0.05 MM.
   白色麥拉片,厚度= 0.05毫米
   2.2 OVERLAMINATION 保護膜
   □ A TRANSPARENT FILM 透明膠膜☒NONE 無
   2.3 ADHESIVE 背膠 PRESSURE SENSITIVE ACRYLIC 壓克力壓膜膠
   THICKNESS 厚度= 0.025 MM
   2.4 BACKED WITH RELEASE LINER. 背面附離型紙
   2.5 LABEL TO BE AFFIXED TO AND MAXIMUM
   TEMPERATURE RATING 貼紙所貼附之材質與最大耐溫等級
   ☒ GALVANIZED STEEL 鍍鋅鋼 □ ALUMINUM 鋁
   □ NICKEL PLATED METAL 鍍鎳金屬
   □ ZINC PLATED METAL WITH CHROMATE POST
   TREATMENT後處理之鍍鉻酸鋅金屬
   ☒ 100°C 攝氏100度
   2.6 MATERIAL MUST BE UL RECOGNIZED AND COMPLY
   TO UL 969 STANDARD.
   材質必須符合UL 認證,並且遵 UL 969 標準.
3. LABEL MUST BE MADE BY A UL RECOGNIZED AND CSA
   APPROVED VENDOR.
   貼紙之製造商必須是 CSA與 所認證.
4. TOLERANCE : XX = +/- 0.5 XX.X = +/- 0.2
   XX.XX = +/- 0.15
   公差 :XX = +/- 0.5 XX.X = +/- 0.2
   XX.XX = +/- 0.15
5. "*"CRITICAL DIMENSION SYMBOL,SUPPLIER MUST INSPECT
   THIS DIMENSION FOR EVERY SHIPMENT
   "*"表示該(尺寸/位置)為設計之重點尺寸,供應商每次出貨前必須檢驗合格後
   ,方可出貨.
6. ALL PRODUCTS MUST BE THE SAME AS ENGINEERING API
   MECHANICAL ENGINEERING APPROVED SAMPLES,ANY
   MODIFICATION MUST BE APPROVED BY ACBEL MECHANICAL
   ENGINEERING SECTION.
   所有產品必須與認可的樣品一致,任何的修改都必須經由康舒機構工程師同意及認可.
7. LABEL MUST CONTAIN THE VENDOR'S ID MARK LOCATED IN
   THE AREA INDICATED. ID MARK LETTER HEIGHT TO BE
   1.5MM.
   貼紙必須印製廠商代碼,代碼字高為 1.5 毫米.
8. CHARACTER HEIGHT : 1.5 MM ,UNLESS OTHERWISE SPECIFIED.
   圖面未標示之字體高度皆為 1.5 毫米
9. PRINTED COLOR :
   BLACK - TEXT, GRAPHICS, IMAGE, LOGO SURROUND SHAPE.
   WHITE - BACKGROUND.
   列印顏色 :
   黑色 - 文字、圖形、圖像、標誌、外圍圖形 白色 - 背景
10. THESE MATERIAL/PART/ASSEMBLY MUST COMPLY TO ACBEL
    SPEC"CRITERIA FOR ENVIRONMENT-RELATED SUBSTANCES".
    材質/零件/製程均必須符合康舒"環境管理物質規範".
11. BAR CODE FORMAT: CODE 128 / CPI : 13.64
    THE NARROW ELEMENT DIMENSION (X DIMENSION)
    SHOULD BE WITHIN A RANGE OF 0.170MM(0.0067 INCH)
    條碼格式 : CODE 128 / CPI 13.64 寬/窄比 : 0.17毫米(0.0067英吋)
12. REV : XXX (S1印 : 0S1 ; S2印 : 0S2 ; A印 : A00)
13. DATE : XYYWW 為廠內自印，4碼 YYWW為製造週期，X為工廠代碼*
    工廠代碼 : 康舒東莞廠印B，康展東莞廠印T，康舒武漢廠印W
14. 條碼自印原則



15. OPTION 自印原則
    Ex.：若機種 FSD049-4QAG印 B4QA Ex.：若機種 FSD049-4QCG印 B4QC
    REV 自印原則 S1印 : 0S1 ; S2印 : 0S2 ; A印 : A00)
16. USES OF EU RoHS & RoHS 2.0 (HBCDD/DEHP/BBP/DBP) MATERIAL IS PROHIBITED.
    禁止使用EU RoHS & RoHS 2.0 (HBCDD/DEHP/BBP/DBP)物質.
17. USES OF RED PHOSPHORUS MATERIAL IS PROHIBITED.
    禁止使用含紅磷材料.

A	RELEASE	NENGZI	01/17/'20
1	PRIMARLY	NENGZI	09/14/'15
REV	DESCRIPTION	BY	DATE

R E L E A S E			
正 式 發 行 圖 面		REV: A	
ENG.	Nengzi	APPR.	Arlo

ACBEL ELECTRONIC (DONG GUAN) CO., Ltd.

MODEL NO.	FSD049-7ECG
PART NO.	P01AAA-3176I
DWG. NO :	P01AAA-3176I_A
TITLE	I/O LABEL (COMPLY TO RoHS)

SI Metric A3 | 0 mm 25 | THIRD ANGLE PROJECTION

DESIGNER	NENGZI	01/17/'20
CHECKED		
APPROVED	ARLO	01/17/'20

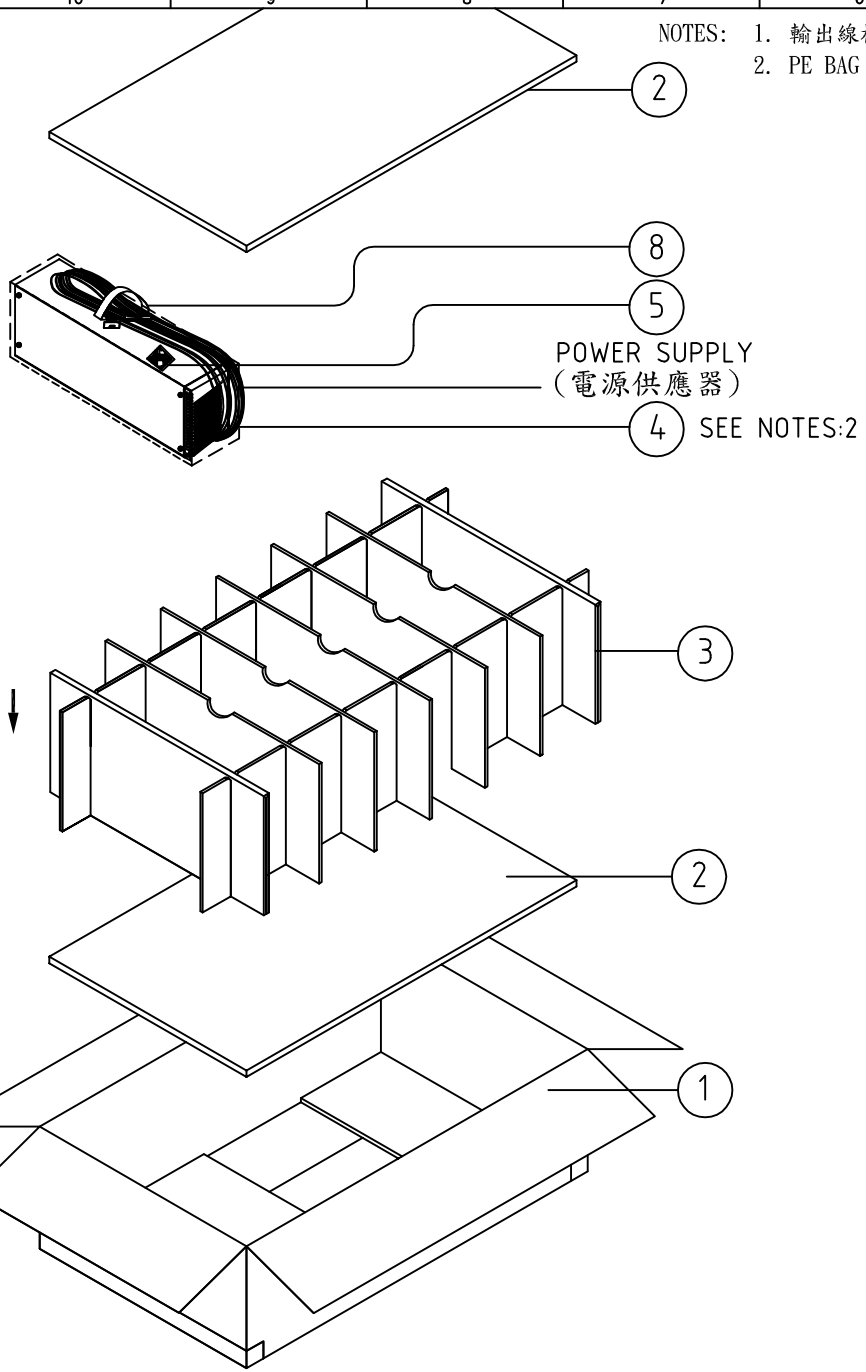
SCALE NONE SHEET 2 OF 2


AcBel
MODEL型号(型號): EP2A5551A
SWITCHING POWER SUPPLY
开关电源(交換式電源供應器)
XU10G121-14101
OPTION : B4QA
REV : A00
AC INPUT :交流輸入(交流輸入)
100-240V~, 50-60Hz, 10-5A
DC OUTPUT :直流输出(直流輸出)
80 PLUS BRONZE
+ 3.3V 24A
+ 5V 30A
TOTAL 170W MAX.
最大总功率 170W
(最大總功率170W)
+ 12V 42A
- 12V 0.3A
+ 5Vsb 3.0A
TOTAL POWER 550W MAX.
最大总功率 550W(最大總功率550W)
MADE IN CHINA 中国制造(中國製造)
E131875
R33567
RoHS
HIPOT
CONT. O K
JL-01
FSD049A004QAGB1921R00036

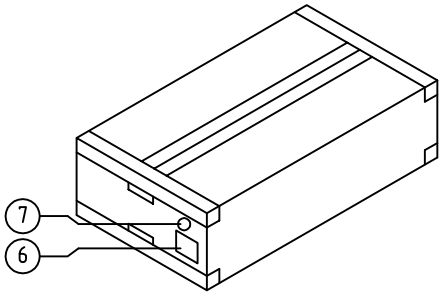
康舒科技
ACBEL POLYTECH INC.

Carton Drawing

NOTES: 1. 輸出線材出理順折疊好後,以束線環(P90841-9599IO)綁束 參考如下圖(A-A)樣式.
2. PE BAG 只包住本體,不封口. 線材於PE BAG外面.



A-A



NO.	Q'TY	PART NO.	DESCRIPTION
8	6	P90841-9599IO	CABLE TIE
7	1	R01951-0204I	CARTON LABEL
6	1	X01H00-1749I	CARTON LABEL
5	6	R1008-6605I	DESICCATIVE
4	6	R1008-B8995I	PE BAG
3	1	R1008-A9798I	PARTITION ASS'Y
2	2	R1008-C3582I	PAPER BOARD
1	1	R1008-C3583I	CARTON

REVISIONS			
REV	DESCRIPTION	BY	DATE
A	RELEASE	WISH	06/15/14

RELEASE			
正式發行圖面			REV: A
ENG.	WISH	APPR.	ARIO

ACBEL ELECTRONIC (DONG GUAN) Co., Ltd.

MODEL NO. FSD049-7LBG
PART NO. CA-FSD049-7LBG
DWG. NO : CA-FSD049-7LBG_A

SI Metric A2

mm 0 25

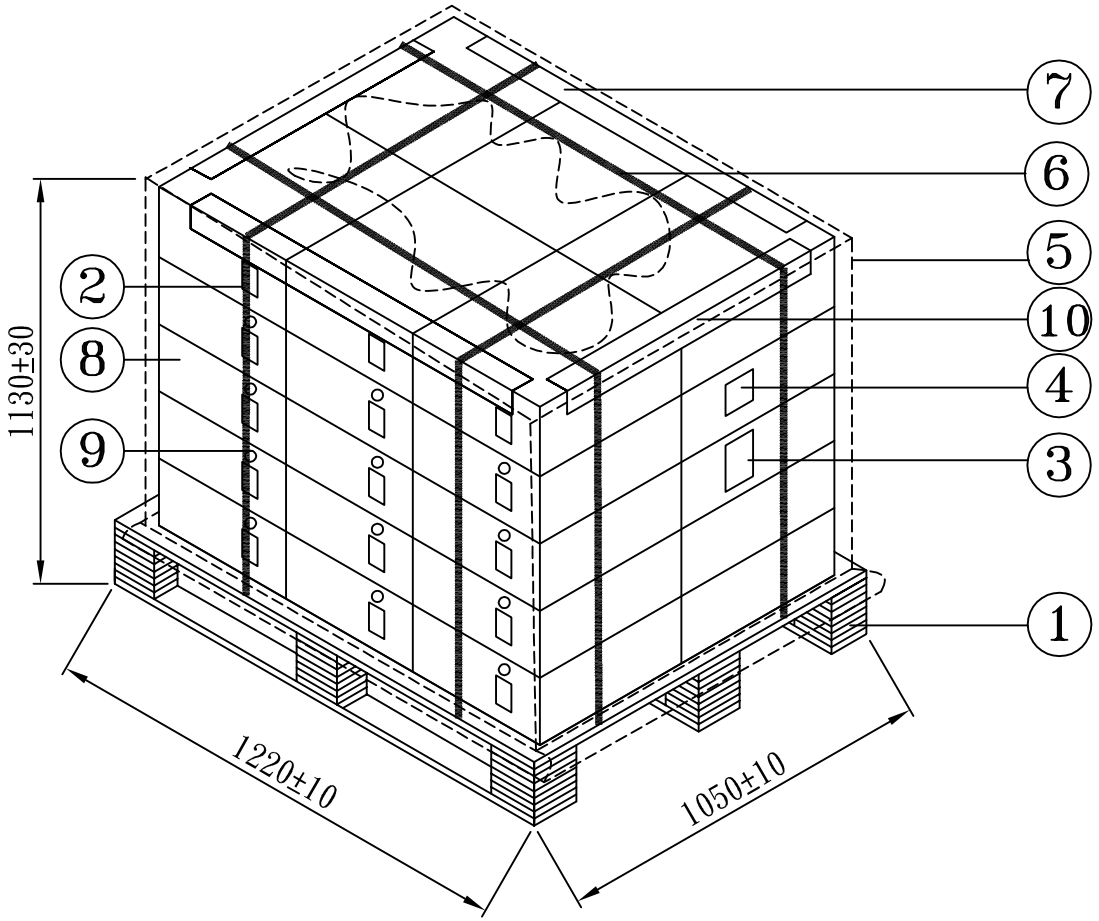
THIRD ANGLE PROJECTION

TITLE : CARTON ASS'Y FOR FSD049-7LBG

DESIGNER	WISH	06/15/'14
CHECKED		
APPROVED	ARIO	06/15/'14

SCALE NONE SHEET 1 OF 1

NOTES: 1. 6 UNITS / CARTON （台 / 箱）
2. 6 CARTONS / LAYER（箱 / 層）
3. 5 LAYERS / PALLET（層 / 板）



NO.	Q'TY	PART NO.	DESCRIPTION
10	2	R1008-C8852I	EDGE PROTECTOR
9	30	R01951-0204I	CARTON LABEL
8	30	R1008-C3583I	CARTON
7	2	R1008-C8850I	EDGE PROTECTOR
6	20M	R1008-T9998I	STRIP PLASTIC
5	30M	R1008-8064I	PE FILM
4	2	R01G50-0012I	WARNING LABEL
3	2	X01C32-1198I	SHIPPING LABEL
2	30	X01H00-1749I	CARTON LABEL
1	1	R1008-P9783I	PALLET

REVISIONS			
REV	DESCRIPTION	BY	DATE
A	RELEASE	WISH	06/15/14

R E L E A S E			
正 式 發 行 圖 面			REV: A
ENG.	WISH	APPR.	ARLO

ACBEL ELECTRONIC (DONG GUAN) Co., Ltd.

MODEL NO. FSD049-7LBG
PART NO. PA-FSD049-7LBG
DWG. NO : PA-FSD049-7LBG_A

SI Metric A3

mm 0 25 THIRD ANGLE PROJECTION

TITLE
PALLET ASS'Y
FOR FSD049-7LBG

DESIGNER	WISH	06/15/'14
CHECKED		
APPROVED	ARLO	06/15/'14

SCALE NONE SHEET 1 OF 1

康舒科技
ACBEL POLYTECH INC.

Safety

中国国家强制性产品认证证书

证书编号：2014010907672181

委托人名称、地址

康舒科技股份有限公司

台北市松山区南京东路5段99号11楼

生产者（制造商）名称、地址

康舒科技股份有限公司

台北市松山区南京东路5段99号11楼

生产企业名称、地址

康舒电子(东莞)有限公司

广东省东莞市塘厦镇宏业工业区宏业大道17-28号

产品名称和系列、规格、型号

开关电源

见附件（不带电线组件销售，仅适用于海拔5000米及以下）

产品标准和技术要求

GB17625.1-2012;GB4943.1-2011;GB/T9254-2008

上述产品符合强制性产品认证实施规则 CNCA-C09-01:2014 的要求，特发此证。

发证日期：2018 年 12 月 20 日　　有效期至：2023 年 12 月 20 日

证书有效期内本证书的有效性依据发证机构的定期监督获得保持。

本证书为变更证书，证书首次颁发日期：2014 年 01 月 23 日

本证书的相关信息可通过国家认监委网站 www.cnca.gov.cn 查询

主　任：

中国质量认证中心

CERTIFICATE FOR CHINA COMPULSORY PRODUCT CERTIFICATION

CERTIFICATE NO.: 2014010907672181

NAME AND ADDRESS OF THE APPLICANT

Acbel Polytech Inc.

11F., No.99, Sec. 5, Nan-King E. Road, Sungshan Chiu, Taipei, Taiwan, Province Of China.

NAME AND ADDRESS OF THE MANUFACTURER

Acbel Polytech Inc.

11F., No.99, Sec. 5, Nan-King E. Road, Sungshan Chiu, Taipei, Taiwan, Province Of China.

NAME AND ADDRESS OF THE FACTORY

Acbel Electronic (Dong Guan) Co., Ltd.

No. 17-28, Horng Yeh Road, Horng Yeh Ind. District, Tang XiaTown, Dongguan, Guangdong 523710 P.R.China

PRODUCT NAME, MODEL AND SPECIFICATION

Switching Power Supply

见附件（不带电线组件销售，仅适用于海拔 5000 米及以下）

THE STANDARDS AND TECHNICAL REQUIREMENTS FOR THE PRODUCTS

GB17625.1-2012;GB4943.1-2011;GB/T9254-2008

This is to certify that the above mentioned product(s) complies with the requirements of implementation rules for compulsory certification(REFNO.CNCA-C09-01:2014).

Valid from: Dec.20,2018 **Valid until:** Dec.20,2023

The validity of the certificate is subject to positive result of the regular follow up inspection by issuing certification body until the expiry date.

Date of original issued: Jan.23,2014

The certificate information is available through CNCA's website: www.cnca.gov.cn

President: 陆梅

Lu Mei

CHINA QUALITY CERTIFICATION CENTRE 中国质量认证中心

CHINA QUALITY CERTIFICATION CENTRE

http://www.cqc.com.cn Section 9, No. 188, Nansihuan Xilu, Beijing 100070 P. R. China Tel: +86 10 83886666

Q 2176482

中国国家强制性产品认证证书

附录：　　第 1 页 共 1 页

证书编号：2014010907672181　　纸号：2176482

1.) FSD036, EU2B650
交流输入;100-240Vac, 50-60Hz, 10-5A;
直流输出: DC+3.3V/24A, +5V/30A, +12V/50A, -12V/0.3A,
+5Vsb/3.0A; +3.3V and +5V 最大总功率170W; 最大总功率650W。
2.) EP2A5651A
交流输入;100-240Vac, 50-60Hz, 10-5A;
直流输出: DC+3.3V/24A, +5V/30A, +12V/50A, -12V/0.3A,
+5Vsb/3.0A; +3.3V and +5V 最大总功率170W; 最大总功率600W 或
650W。
3.) FSD063, EP2A5701A, EU2B700
交流输入;100-240Vac, 50-60Hz, 10-5A;
直流输出: DC+3.3V/24A, +5V/30A, +12V/54A, -12V/0.3A,
+5Vsb/3.0A; +3.3V and +5V 最大总功率170W; 最大总功率700W。
4.) EP2A5551A, FSD049, EU2B550
交流输入;100-240Vac, 50-60Hz, 10-5A;
直流输出: DC+3.3V/24A, +5V/30A, +12V/42A, -12V/0.3A,
+5Vsb/3.0A; +3.3V and +5V 最大总功率 170W; 最大总功率 550W。

注：此附录与证书同时使用时有效。

主　任：

CHINA QUALITY CERTIFICATION CENTRE 中国质量认证中心

中国质量认证中心

http://www.cqc.com.cn　中国·北京·南四环西路188号9区 100070　电话：+86 10 83886666

[별지 제13호서식]

접수번호 : 20140114-0023

자 율 안 전 확 인 신 고 증 명 서
Confirmation Letter of Declaration

신고번호: (Application No.)	XU100121-14101A	유효기간 만료일: (Validity Period)	2019.02.13
신고업체명: (Applicant)	Acbel Electronic (Dongguan) Co.,Ltd.		
대표자명: (President)	David Kao		
소 재 지: (Address)	No.17-28 (Hong Yeh Rd) Hong Yeh Industrial District, Tang Xia Town, Dongguan, Guangdong, China		
제 품 명: (Product)	컴퓨터용 전원공급장치		
기본모델명: (Basic Model)	FSD049		
정격: (Rating)	100-240 V~, 50-60 Hz, 10-5 A		

파생모델명 (Series Model):

EP2A5551A EU2B550

적용기준: K 60950-1(2.0)(2011-12)
(Standard)

본 확인신고는 제 조 국 : 중국
제조업체: Acbel Electronic (Dongguan) Co.,Ltd.
의 제품에 한함

「전기용품안전 관리법 시행규칙」 제19조제3항에 따라 위의 전기용품에 대하여 자율안전확인신고증명서를 발급합니다.
We issue this Confirmation Letter of Declaration of the Self-Regulatory Safety Confirmation for the above electrical appliance in accordance with Article 19(3) of the Enforcement Rule of the Electrical Appliances Safety Control Act.

2014 년 (Year) 02 월 (Month) 14 일 (Day)

한국기계전기전자시험연구원장
Korea Testing Certification

※ 본 신고증명서는 「전기용품안전 관리법」에 따른 전기제품 안전성확인에 한정된 것이며, 그 밖의 다른 법률이 적용되는 제품의 경우에는 해당 법률에 따라 추가적으로 인증·허가 등을 받아야 합니다.

첨부서류 1. 안전관리부품 및 재질목록 (List of Critical Components)
2. 기본모델·파생모델의 내용 (General Descriptions of Certified Products)
3. 자율안전확인신고 내용의 변경현황 (Status of Certificate Revisions)

안전인증시의 조건 : 동 제품의 생산 시 자체검사를 실시하고 안전인증 시 등록된 부품누락 및 임의 변경하지 말 것.
Conditions of Safety Certification : In the production of this product, conduct a self-test and do not miss and change the registered components.

기 술 문 서
Technical Document

안전인증번호: XU100121-14101A
(Certificate No)

접수번호: 20140114 - 0023
(Receipt No)

1.기본모델 · 파생모델의 내용(General Descriptions of Certified Products)

1.1 제품의 설명 (Product description)

인증제품의 개요는 다음과 같다.
(Information on certified basic model product is as follow)

구분(Section)	내 용 (Description)
용도 (Normal use)	Switching Power Supply for Computer(Built-in Type).
내부구조 (Internal construction)	Consisting of the primary and reinforced or double insulated SELV circuit.
외부구조 (External construction)	Provided with metal enclosure and appliance inlet.
기타(Others)	Class I (O/P: DC +3.3V/24A, +5V/30A, +12V/42A, -12V/0.3A, +5Vsb/3A; +3.3V and +5V total ouptput 170W. Total power 550W

1.2 전기용품의 표시: 전기용품안전 관리법 시행규칙 제14조(안전인증의 표시)에 따라 표시한다.
(Marking of KC Mark: Marking shall comply with enforcement rule Article 14 of the Electrical Appliances Safety Control Law)

1.3 등록모델 (Registered Models)

구 분 (Class)	모 델 명 및 정 격 (Model / Rating)		기본모델과의 차이점 (Difference between basic model and series model)
기본모델 (Basic model)	FSD049	100-240 V~, 50-60 Hz, 10-5 A	
파생모델 (Series model)	EP2A5551A		Similar to basic model except for designation of marketing purpose.
	EU2B550		Similar to basic model except for designation of marketing purpose.

안전인증번호: XU100121-14101A
(Certificate No)

접수번호: 20140114 - 0023
(Receipt No)

2.안전관리 부품 및 재질목록(List of Critical Components)

부품명 (Components)	번호 (Part No)	특 성 (Technical Data)	제조자 (Manufacturer)	인증규격 (Certification)
Inlet	001	KS series 10A, 250Vac:15A, 125Vac for UL/CUL	Canal Electronic Co Ltd	IEC
Inlet	002	0707-1 series 10A min., 250Vac	Inalways Corp (International All Ways Ind Co Ltd)	IEC
Inlet	003	SS-7B 10A, 250Vac; 15A, 125Vac for UL/CUL	Rong Feng Industrial Co Ltd	IEC
Inlet	004	TU-301 series (- A/AP/AP- A/S/SP) 10A, 250Vac; 15A, 125Vac for UL/CUL 10A, 250Vac/15A, 125Vac for BSM	Tecx-Unions Technology Corp	IEC
Inlet	005	R-301 10A, 250Vac; 15A, 125Vac for UL/CUL	Rich Bay Co Ltd	IEC
Inlet	006	ST-A01-002L 10A, 250Vac; 15A, 125Vac for UL/CUL	Zhe Jiang Bei Er Jia Electronic Co Ltd	IEC
Inlet	007	NC-174 10A min., 250Vac	Nicoon Industry Co Ltd	IEC
Inlet	008	EAC-327 10A, 250Vac; 15A, 125Vac for UL	Switchcraft Inc	IEC
Inlet	009	S14-101 10A, 250Vac; 15A, 250Vac for UL/CUL	SHENG MING ENTERPRISE CO LTD	IEC
Inlet	010	SK01 10A, 250Vac	HCR Electronics Co., Ltd	IEC
Fuse	011	(F1) 216 F15A, 250Vac	Littelfuse Inc (Littelfuse Ltd, Suzhou Littelfuse OVS Ltd, Littelfuse B V)	UL
Fuse	012	(F1) SP 5x20 F15A, 250Vac	Schurter AG	UL
Fuse	013	(F1) GBM/GBP+/GB M-A F15A, 250Vac	Conquer Electronics Co Ltd	UL
Fuse	014	(F1) FSC F15A, 250Vac	Walter Electronic Co., Ltd.	UL
Fuse	015	(F1) 51FG F15A, 250Vac	Sleetech Enterprise Inc.; Taiwan Electronical Protector Co Ltd (Sleek Co Ltd)	UL

기 술 문 서
Technical Document

안전인증번호: XU100121-14101A
(Certificate No)

접수번호: 20140114 - 0023
(Receipt No)

부품명 (Components)	번호 (Part No)	특 성 (Technical Data)	제조자 (Manufacturer)	인증규격 (Certification)
Fuse	016	(F1) 50CF F15A, 250Vac	Hollyland Co Ltd	IEC
X-Capacitor	017	(C70, C26) C70= 0.68μF, C26 =0.33μF (X1 or X2 type) R.46 250Vac min.,110°C	Kemet Electronics Italia SRL for UL; Arcotronics Italia SPA for IMQ- ENEC	IEC
X-Capacitor	018	(C70, C26) C70= 0.68μF, C26 =0.33μF (X1 or X2 type) F1778 250Vac min., 110°C	Vishay Capacitors Belgium NV	IEC
X-Capacitor	019	(C70, C26) C70= 0.68μF, C26 =0.33μF (X1 or X2 type) MKP 250Vac min., 110°C	Hua Jung Components Co Ltd	IEC
X-Capacitor	020	(C70, C26) C70= 0.68μF, C26 =0.33μF (X1 or X2 type) XF 250Vac min., 110°C	Okaya Electric Industries Co., Ltd	IEC
X-Capacitor	021	(C70, C26) C70= 0.68μF, C26 =0.33μF (X1 or X2 type) CMPP 250Vac min., 105°C	ZHUHAI SUNG HO ELECTRONICS CO LTD	IEC
X-Capacitor	022	(C70, C26) C70= 0.68μF, C26 =0.33μF (X1 or X2 type)CTX 250Vac min., 100°C	Cheng Tung Industrial Co Ltd	IEC
X-Capacitor	023	(C70, C26) C70= 0.68μF, C26 =0.33μF (X1 or X2 type) B3292 series 250Vac min., 100°C	Epcos Electronic Components S.A	IEC
X-Capacitor	024	(C70, C26) C70= 0.68μF, C26 =0.33μF (X1 or X2 type) LE series 250Vac min., 100°C	Okaya Electric Industries Co Ltd	IEC
X-Capacitor	025	(C70, C26) C70= 0.68μF, C26 =0.33μF (X1 or X2 type) F1772 250Vac min., 100°C	Vishay Capacitors Belgium NV	IEC
X-Capacitor	026	(C70, C26) C70= 0.68μF, C26 =0.33μF (X1 or X2 type) PHE840M 250Vac min., 100°C	KEMET ELECTRONICS OY(Evox Rifa Group Oyj)	IEC
X-Capacitor	027	(C70, C26) C70= 0.68μF, C26 =0.33μF (X1 or X2 type) MPX 250Vac min., 100°C	Carli Electronics Co Ltd	IEC
X-Capacitor	028	(C70, C26) C70= 0.68μF, C26 =0.33μF (X1 or X2 type) Type MPX 250Vac min., 100°C	Strong Capacitor Co. Ltd	IEC
X-Capacitor	029	(C70, C26) C70= 0.68μF, C26 =0.33μF (X1 or X2 type)RE series 250Vac min., 100°C	Okaya Electric Industries Co., Ltd	IEC
X-Capacitor	030	(C70, C26) C70= 0.68μF, C26 =0.33μF (X1 or X2 type) ECQUL 250Vac min., 100°C	Panasonic Corporation, Panasonic Corporation of North America for UL; Pansonic Corporation for VDE	IEC

기 술 문 서
Technical Document

안전인증번호: XU100121-14101A (Certificate No)

접수번호: 20140114 - 0023 (Receipt No)

부품명 (Components)	번호 (Part No)	특 성 (Technical Data)	제조자 (Manufacturer)	인증규격 (Certification)
X-Capacitor	031	(C70, C26) C70= 0.68μF, C26 =0.33μF (X1 or X2 type) ECQ-UN 250Vac min., 85°C	Panasonic Corporation, Panasonic Corporation of North America for UL; Pansonic Corporation for VDE	IEC
Y-Capacitor	032	(C71, C72, C45, C48) C71=C72=1000 pF, C45=C48=2200 pF (Y2 or Y1 type) KX 250Vac min., 125°C	Murata Mfg Co Ltd	IEC
Y-Capacitor	033	(C71, C72, C45, C48) C71=C72=1000 pF, C45=C48=2200 pF (Y2 or Y1 type) CD 250Vac min., 125°C	TDK-EPC Corporation for VDE; TDK-EPC Corp. for UL	IEC
Y-Capacitor	034	(C71, C72, C45, C48) C71=C72=1000 pF, C45=C48=2200 pF (Y2 or Y1 type) AH 250Vac min., 125°C	Walsin Technology Corp (Pan Overseas Electronic Co Ltd)	IEC
Y-Capacitor	035	(C71, C72, C45, C48) C71=C72=1000 pF, C45=C48=2200 pF (Y2 or Y1 type) SE 250Vac min., 125°C	Success Electronics Co Ltd	IEC
Y-Capacitor	036	(C71, C72, C45, C48) C71=C72=1000 pF, C45=C48=2200 pF (Y2 or Y1 type) VY1 250Vac min., 125°C	Vishay Electronic GMBH for UL; Vishay Electronic GMBH Draloric for VDE; (Roederstein Electronics Inc)	IEC
Y-Capacitor	037	(C71, C72, C45, C48) C71=C72=1000 pF, C45=C48=2200 pF (Y2 or Y1 type) SDC series 250Vac min., 125°C	Holy Stone Enterprise Co., Ltd.	IEC
Y-Capacitor	038	(C71, C72, C45, C48) C71=C72=1000 pF, C45=C48=2200 pF (Y2 or Y1 type) SB 250Vac min., 125°C	Success Electronics Co Ltd	IEC
Y-Capacitor	039	(C71, C72, C45, C48) C71=C72=1000 pF, C45=C48=2200 pF (Y2 or Y1 type) JX 250Vac min., 125°C	JERRO ELECTRONICS CORP	IEC
Y-Capacitor	040	(C71, C72, C45, C48) C71=C72=1000 pF, C45=C48=2200 pF (Y2 or Y1 type) CT81 250Vac min., 125°C	YINAN DON'S ELECTRONIC COMPONENT CO LTD	IEC
Y-Capacitor	041	(C71, C72, C45, C48) C71=C72=1000 pF, C45=C48=2200 pF (Y2 or Y1 type) KH 250Vac min., 125°C	Murata Mfg Co Ltd	IEC

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(Receipt No)

부품명 (Components)	번호 (Part No)	특 성 (Technical Data)	제조자 (Manufacturer)	인증규격 (Certification)
Y-Capacitor	042	(C71, C72, C45, C48) C71=C72=1000 pF, C45=C48=2200 pF (Y2 or Y1 type) CS 250Vac min., 125°C	TDK-EPC Corporation for VDE; TDK-EPC Corp. for UL	IEC
Y-Capacitor	043	(C71, C72, C45, C48) C71=C72=1000 pF, C45=C48=2200 pF (Y2 or Y1 type) AC 250Vac min., 125°C	Walsin Technology Corp (Pan Overseas Electronic Co Ltd)	IEC
Y-Capacitor	044	(C71, C72, C45, C48) C71=C72=1000 pF, C45=C48=2200 pF (Y2 or Y1 type) SF 250Vac min., 125°C	Success Electronics Co Ltd	IEC
Y-Capacitor	045	(C71, C72, C45, C48) C71=C72=1000 pF, C45=C48=2200 pF (Y2 or Y1 type) VY2 250Vac min., 125°C	Vishay Electronic GMBH for UL; Vishay Electronic GMBH Draloric for VDE; (Roederstein Electronics Inc)	IEC
Y-Capacitor	046	(C71, C72, C45, C48) C71=C72=1000 pF, C45=C48=2200 pF (Y2 or Y1 type)SB 250Vac min., 125°C	Success Electronics Co Ltd	IEC
Y-Capacitor	047	(C71, C72, C45, C48) C71=C72=1000 pF, C45=C48=2200 pF (Y2 or Y1 type)JL 250Vac min., 125°C	JERRO ELECTRONICS CORP	IEC
Y-Capacitor	048	(C71, C72, C45, C48) C71=C72=1000 pF, C45=C48=2200 pF (Y2 or Y1 type) CT81 250Vac min., 125°C	YINAN DON'S ELECTRONIC COMPONENT CO LTD	IEC
Bridge Capacitor	049	(C27) 2200pF (Y1 type) KX 250Vac min., 125°C	Murata Mfg Co., Ltd.	IEC
Bridge Capacitor	050	CD 250Vac min., 125°C	TDK-EPC Corporation for VDE; TDK-EPC Corp. for UL	IEC
Bridge Capacitor	051	AH 250Vac min., 125°C	Walsin Technology Corp (Pan Overseas Electronic Co Ltd)	IEC
Bridge Capacitor	052	SE 250Vac min., 125°C	Success Electronics Co Ltd	IEC
Bridge Capacitor	053	CT81 250Vac min., 125°C	YINAN DON'S ELECTRONIC COMPONENT CO LTD	IEC

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부품명 (Components)	번호 (Part No)	특 성 (Technical Data)	제조자 (Manufacturer)	인증규격 (Certification)
Bridge Capacitor	054	VY1 250Vac min., 125°C	Vishay Electronic GMBH for UL; Vishay Electronic GMBH Draloric for VDE; (Roederstein Electronics Inc)	IEC
Bridge Capacitor	055	SDC series 250Vac min., 125°C	Holy Stone Enterprise Co., Ltd.	IEC
Bridge Capacitor	056	SB 250Vac min., 125°C	Success Electronics Co Ltd	IEC
Bridge Capacitor	057	JX 250Vac min., 125°C	JERRO ELECTRONICS CORP	IEC
Varistor	058	(MOV1) (Optional) xxDyyyK (xx: 14, 20, 25; yyy: 471, 511, 561, 621, 681, 751, 781, 821, 911, 102, 112, 122) 300, 320, 350, 385, 420, 460, 485, 510,	Lien Shun Electronics Co., Ltd. for VDE; Brightking (ShenZhen) Co Ltd for UL	UL
Varistor	058-01	550, 625, 680, 750Vac; (coating V-0)	Lien Shun Electronics Co., Ltd. for VDE; Brightking (ShenZhen) Co Ltd for UL	UL
Varistor	059	TVR10yyy-D series (yyy: 471, 511, 561, 621, 681, 751, 821, 911, 102, 112) 300, 320, 350, 395, 420, 465, 510, 550, 625, 680Vac, (coating V-0)	Thinking Electronic Industrial Co Ltd (Wujin Thinking Electronic Co Ltd)	UL
Varistor	060	TVR10yyy-V series (yyy: 471, 511, 561, 621, 681, 751, 821, 911, 102, 112) 300, 320, 350, 395, 420, 465, 510, 550, 625, 680Vac, (coating V-0)	Thinking Electronic Industrial Co Ltd (Wujin Thinking Electronic Co Ltd)	UL
Varistor	061	TVRxxyyy series (xx: 14, 20; yyy: 471, 511, 561, 621, 681, 751, 821, 911, 102, 112) 300, 320, 350, 395, 420, 465, 510, 550, 625, 680Vac, (coating V-0)	Thinking Electronic Industrial Co Ltd (Wujin Thinking Electronic Co Ltd)	UL
Varistor	062	xxSyyyK(xx: 10, 14, 20; yyy: 471, 511, 561, 621,681, 751, 781, 821,911, 102, 112)300, 320, 350, 385, 420, 460, 485, 510, 550, 625,680Vac; coating V-0	Joyin Co. Ltd	UL
Varistor	063	xxNyyyK (xx: 10, 14, 20; yyy: 471, 511, 561, 621, 681, 751, 781, 821, 911, 102, 112, 182) 300, 320, 350, 385, 420, 460, 485, 510,	Joyin Co. Ltd	UL
Varistor	063-01	550, 625, 680, 1000Vac (coating V-0)	Joyin Co. Ltd	UL

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부품명 (Components)	번호 (Part No)	특 성 (Technical Data)	제조자 (Manufacturer)	인증규격 (Certification)
Varistor	064	CIII series / LA series VxxxLAyy series for UL (xxx:300, 320, 385, 420, 460, 480, 510, 550, 575, 625, 660, 680; yy 10, 20, 40, 50, 80, 100) 300, 320,	Littelfuse Inc. for UL; DongGuan Littelfuse Electronics Co Ltd for VDE	UL
Varistor	064-01	385, 420, 460, 480, 510, 550, 575, 625, 660, 680Vac; (coating V-0)	Littelfuse Inc. for UL; DongGuan Littelfuse Electronics Co Ltd for VDE	UL
Varistor	065	S(NF)xxKyyy (xx: 14, 20; yyy: 300, 320, 350, 385, 420, 440, 460, 510, 550, 625, 680, 1000) 300, 320, 350, 385, 420, 440, 460, 510, 550, 625, 680,	EPCOS (ZHUHAI FTZ) CO LTD (Epcos OHG(Siemens AG))	UL
Varistor	065-01	1100Vac; (coating V-0)	EPCOS (ZHUHAI FTZ) CO LTD (Epcos OHG(Siemens AG))	UL
Varistor	066	Q20Kyyy (yyy: 300, 320) 300, 320Vac, (coating V-0)	EPCOS (ZHUHAI FTZ) CO LTD (Epcos OHG(Siemens AG))	UL
Varistor	067	S(NF)10KyyyE2 K1 (yyy: 300, 320, 350, 385, 420, 460, 510, 550, 625, 680) 300, 320, 350, 385, 420, 440, 460, 510, 550, 625, 680Vac, (coating V-0)	EPCOS (ZHUHAI FTZ) CO LTD (Epcos OHG(Siemens AG))	UL
Varistor	068	yyyKDxx(xx: 10, 14, 20; yyy: 471, 511, 561, 621,681, 751, 781, 821, 911,102, 112)300, 320, 350, 385, 420, 460,485, 510, 550, 625, 680Vac,(coating V-0)	BRIGHTKING (SHENZHEN) CO LTD	UL
Optical Isolator	069	PS2561series Minimum 5000Vac Insulation thickness =0.4mm, thermal cycling tested by FIMKO, external creepage=7mm, 100°C	RENESAS ELECTRONICS CORPORATION (NEC Electronics Corp Compound Semiconductor Device Div)	UL
Optical Isolator	070	K1010 series Minimum 5000Vac Insulation thickness =0.5mm, thermal cycling tested by FIMKO , external creepage=6.5 mm, 115°C	Cosmo Electronics Corporation	UL
Optical Isolator	071	EL817 Minimum 3000Vac thermal cycling test passed by FIMKO, Insulation thickness =0.5mm, external creepage=7.7 mm; 110°C thermal cycling test passed	EVERLIGHT ELECTRONICS CO LTD	UL
Optical Isolator	072	TLP781/TLP781 F Minimum 5000Vac Insulation thickness 0.4mm min., thermal cycling test passed by SEMKO, external creepage 6.5mm, 100°C	Toshiba corp, Semiconductor Co Discrete Semiconductor Div (Toshiba Corp)	UL

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부품명 (Components)	번호 (Part No)	특 성 (Technical Data)	제조자 (Manufacturer)	인증규격 (Certification)
Optical Isolator	073	LTV-817 Minimum 5000Vac Insulation thickness =0.8mm, internal creepage=5.2m m, external creepage=7.8 mm, 100°C	Lite-on Technology Co. (Lite-on Electronic, Inc.)	UL
Optical Isolator	074	EL101 series Minimum 3000Vac, thermal cycling test passed by NEMKO, Insulation thickness =0.4mm, external creepage=8.1 mm; 110°C	EVERLIGHT ELECTRONICS CO LTD	UL
Optical Isolator	075	LTV-100x (x can be 0~9) Minimum 5000Vac Insulation thickness >0.4m m, thermal cycling tested by FIMKO, external creepage=8.3 mm, 100°C	LITE-ON TECHNOLOGY CORP	UL
Thermistor	076	(RT1) Interchangeable 1.5Ω at 25°C ,8A	Interchangeable	UL
Thermistor	077	(RT2) Interchangeable 10kΩ at 25°C, NTC	Interchangeable	UL
Discharge Resistor	078	(R126) WR12 series 1/4W, 360kΩ	Walsin Technology Corp	-
Discharge Resistor	079	RTT06 series 1/4W, 360kΩ	Ralec Electronic Corp	-
Discharge Resistor	080	RM12 series 1/4W, 360kΩ	TA-I Technology Co Ltd	-
Discharge Resistor	081	RC1206 series 1/4W, 360kΩ	Yageo Corp	-
Discharge Resistor	082	WR12 series 1/4W, 270kΩ	Walsin Technology Corp	-
Discharge Resistor	083	RTT06 series 1/4W, 270kΩ	Ralec Electronic Corp	-
Discharge Resistor	084	RM12 series 1/4W, 270kΩ	TA-I Technology Co Ltd	-
Discharge Resistor	085	RC1206 series 1/4W, 270kΩ	Yageo Corp	-
Bridge Diode	086	(BD1, BD2) Interchangeable 800V min., 10A min.	Interchangeable	-
Electrolytic Capacitor	087	(C4) Interchangeable 330μF, 85°C min., 450V min.	Interchangeable	-
Transistor	088	(Q1, Q11) Interchangeable 600V min., 20A min	Interchangeable	-

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부품명 (Components)	번호 (Part No)	특 성 (Technical Data)	제조자 (Manufacturer)	인증규격 (Certification)
Choke	089	(L1) 21L61 130°C min.	AcBel Polytech Inc.(API)	-
Choke	090	(L2) 21F09 130°C min.	AcBel Polytech Inc.(API)	-
Choke	091	(L3) 21Q06 130°C min.	AcBel Polytech Inc.(API)	-
Choke	092	(T3) 25A26 130°C min.	AcBel Polytech Inc.(API)	-
Transformer	093	(T1) 25O06 Class B	AcBel Polytech Inc.(API)	-
Transformer	094	(T2) 25H73 Class B	AcBel Polytech Inc.(API)	-
Triple Insulated Wire	095	(For T2) TIW-M Electric strength: 3000Vrms, 130 °C	Totoku Electric Co Ltd	UL
Insulation Tape	096	CT-280 Electric strength: 5000V, thickness: 0.025mm	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	UL
Insulation Tape	097	1350F-1 Electric strength: 5000V, thickness: 0.025mm	3M COMPANY ELECTRICAL MARKETS DIV (EMD)	UL
Metal enclosure	098	Interchangeable 0.6mm min.	Interchangeable	-
DC Fan	099	MGA6012VB- O25 12V, 0.9A, 46.81CFM	Protechnic co,ltd	UL
DC Fan	100	PVA060G12N 12V,0.55A, 43.14CFM	Foxconn Technology Co,ltd	UL
Insulation Sheet	101	(Between Case and PCB Board) FORMEX-18 min. 0.20mm, VTM-0; min. 0.41mm, V- 0	Formex, Div of Illinois Tool Works Inc, Formerly	UL
Insulation Sheet	102	FORMEX GK- (a)(b) min. 0.05mm, VTM-0; (a) - One to three digit suffix indicating nominal thickness in mils. (b) - May have additional suffix letter(s)	Formex, Div of Illinois Tool Works Inc, Formerly	UL
Insulation Sheet	102-01	indicating color	Formex, Div of Illinois Tool Works Inc, Formerly	UL

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부품명 (Components)	번호 (Part No)	특 성 (Technical Data)	제조자 (Manufacturer)	인증규격 (Certification)
Insulation Sheet	103	FR700/ FR60 min. 0.051mm, VTM-0 (CL); min. 0.13mm, VTM-0 (CL,BK); min. 0.23mm, V- 0 (All)	SABIC INNOVATIVE PLASTICS US L L C / SABIC INNOVATIVE PLASTICS B V (General Electric Co)	UL
Insulation Sheet	104	FR1 Min. 0.08mm, VTM-2 (NC); min. 0.13mm, VTM-0 (NC, BK); min. 0.63mm V-0 (All)	SABIC INNOVATIVE PLASTICS US L L C / SABIC INNOVATIVE PLASTICS B V (General Electric Co)	UL
Insulation Sheet	105	EFR95 min. 0.25mm, VTM-0 (BK) min. 0.38mm, V- 0 (BK) min. 0.43mm, V- 0 (NC)	Sabic Innovative Plastics US L L C	UL
Insulation Sheet	106	VS(f); (f) - May be replaced by any digit 000- 999, except 560 and 160 min. 0.2mm, VTM-0 (NC,BK)	SUN DELTA CORP	UL
Insulation Sheet	107	Lumirror (#) (#) - Followed by F60, F60C, L11, Q55 or (a)(b)(c)(d) , where; (a) can be one letter H,K,S,T or W. (b) denotes a one digit number 0-7.	Toray Industries Inc	UL
Insulation Sheet	107-01	(c) may be one digit number, 0 - 9 or one letter A - M. (d) may be one digit number 0-9 or one letter A,C,E,K,M,V,W or Z. 0.023- 0.23mm, VTM-2 (NC)	Toray Industries Inc	UL
Insulation Sheet	108	YIMEX PP-17 0.43-0.47mm, V- 0 (BK)	Yi-Hsin Plastech Co. Ltd	UL
Insulation Sheet	109	HSINMEX PC - 175 min. 0.25mm, V-0 (BK)	Yi-Hsin Plastech Co. Ltd	UL
Insulation Sheet	110	BN-ZD16 0.41-0.45mm, V- 0 (BK)	Shenzhen Bornsun Industrial Co Ltd	UL
PCB	111	Interchangeable V-1 min., 105 °C min.	Interchangeable	UL

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접수번호: 20140114 - 0023
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3.전기용품안전인증의 변경현황(Status of Certificate Revisions)

일자(Date)	발급현황(Status of issues)
	변경내용(Modification of Contents)
2014/02/14	자율인증(기본+파생)

4.기타(Carefully Informed Note)

1) 안전관리부품 및 재질목록에 기재된 사항은 전기적인 안전에 직접적인 영향을 주는 부분이므로 내용을 변경 또는 복수등재를 원하는 경우 안전인증변경신청을 하여야 합니다. 안전인증변경신청을 하지 않고 제조자가 임의로 변경하는 경우에는 전기용품안전 관리법 제8조제1항제2호에 의거 안전인증이 취소될 수 있습니다.
(Certificate holder should apply for the revision of certificate issued from Issuing Certification Body if registered critical components would be changed, modified or alternated. Should the contents of Certificate are altered without Safety Certification Modification Application by Certificate holder, Safety Certification(KC Mark) may be withdrawn under Section 2, Paragraph 1, Article 8 of the Electrical Appliances Safety Control Law)

2) 공장주소(전화번호포함), 대표자, 상호 및 부품변경 등 전기용품 안전인증서의 내용이 변경되었을 때 제조자가 안전인증변경신청을 하지 않을 경우에는 전기용품안전 관리법 제8조제1항제3호에 의거 안전인증이 중지 또는 취소될 수 있습니다.
(If Safety Certification Modification Application by Certificate holder should not has been made to Issuing Certification Body, when Factory Address, including telephone/facsimile no., Manufacturer Name, Registered Critical Components, etc would be changed, Safety Certification(KC Mark) may be suspended or withdrawn under Section 3, Paragraph 1, Article 8 of the Electrical Appliances Safety Control Law)

3) 조건부 인증사항 (Conditional certification items):

NOTICE OF COMPLETION
AND
AUTHORIZATION TO APPLY THE UL MARK

01/23/2014

Acbel Polytech Inc
Mr. Stan Chen
159 Tam King Rd, Sec 3
Tam-sui Taipei Hsien 251, Tw

Our Reference:	File E131875, Vol. X1	Project Number	13CA51369
Your Reference:	API041111		
Project Scope:	UL/CUL:SWITCHING POWER SUPPLY, MODEL FSD063, EP2A5701A, FSD036, EP2A5651A, FSD049, EP2A5551A (FULL WITH ONE TRANSFORMER)		

Dear Mr. Stan Chen:

Congratulations! UL's investigation of your product(s) has been completed under the above Reference Number and the product was determined to comply with the applicable requirements. This letter temporarily supplements the UL Follow-Up Services Procedure and serves as authorization to apply the UL Mark at authorized factories under UL's Follow-Up Service Program. To provide your manufacturer(s) with the intended authorization to use the UL Mark, you must send a copy of this notice to each manufacturing location currently authorized under File E131875, Vol. X1.

Records in the Follow-Up Services Procedure covering the product are now being prepared and will be sent in the near future. Until then, this letter authorizes application of the UL Mark for 90 days from the date indicated above.

Additional requirements related to your responsibilities as the Applicant can be found in the document “Applicant responsibilities related to Early Authorizations” that can be found at the following web-site:
http://www.ul.com/EAResponsibilities

Any information and documentation provided to you involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL.

We are excited you are now able to apply the UL Mark to your products and appreciate your business. Feel free to contact me or any of our Customer Service representatives if you have any questions.

Very truly yours,

Sigurd Su
+886 2 28967790
Project Engineer
Sigurd.Su@ul.com

Reviewed by:

William R. Carney
847/664-1088
Chief Engineer Director I
William.R.Carney@ul.com

TPIC57D-3232B7

FCC DoC TEST REPORT

REPORT NO.: FD140108D08

MODEL NO.: FSD063 ***– multiple listing see item 3.1***

RECEIVED: Jan. 8, 2014

TESTED: Jan. 13 ~27, 2014

ISSUED: Feb. 5, 2014

APPLICANT: ACBEL POLYTECH INC.

ADDRESS: No.159, Sec. 3, Danjin Rd., Danshui Dist., New Taipei City 251, Taiwan (R.O.C.)

ISSUED BY: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

LAB LOCATION: No. 47, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C)

This report should not be used by the client to claim product certification, approval, or endorsement by TAF, NVLAP, NIST or any government agencies.

LAB CODE: 200836-0

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
FD140108D08	Original release	Feb. 5, 2014

1 CERTIFICATION

PRODUCT:	Switching Power Supply
BRAND NAME:	AcBel, ENERMAX
MODEL NO:	FSD063– ***multiple listing see item 3.1***
APPLICANT:	ACBEL POLYTECH INC.
TEST SAMPLE:	ENGINEERING SAMPLE
TESTED:	Jan. 13 ~27, 2014
STANDARDS:	FCC Part 15, Subpart B, Class B
	ICES-003:2012 Issue 5, Class B
	ANSI C63.4-2009
	CISPR 22:2008, Class B

The above equipment (Model No.: FSD063, FSD049) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : Jessica Cheng , **DATE:** Feb. 5, 2014

(Jessica Cheng / Senior Specialist)

APPROVED BY : Kenny Meng , **DATE:** Feb. 5, 2014

(Kenny Meng / Assistant Manager)

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

Standard	Test Type	Result	Remarks
FCC Part 15, Subpart B, Class B ICES-003:2012 Issue 5, Class B CISPR 22:2008, Class B	Conducted Test	PASS	Meets Class B Limit Minimum passing margin is –1.11 dB at 20.80587 MHz
	Radiated Test (30MHz ~1GHz)	PASS	Meets Class B Limit Minimum passing margin is –6.94 dB at 108.720 MHz

Note: The EUT highest frequency generated below **35-65kHz** and therefore the test frequency range was performed for 30MHz to 1GHz for radiated emission test

2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2.

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

MEASUREMENT	UNCERTAINTY
Conducted emissions	±3.43 dB
Radiated emissions	±3.88 dB

The listed uncertainties are the worst case uncertainty for the entire range of measurement. Please note that the uncertainty values are provided for informational purposes only and are not used in determining the PASS/FAIL results.

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Switching Power Supply
MODEL NO.	FSD063**–** ***multiple listing as below***
POWER SUPPLY	Switching Rating: refer to Note below
DATA CABLE SUPPLIED	N/A

NOTE:

1. The EUT is a Switching Power Supply (AC 3 Pin). It has several models, which are identical to each other except for their rating and marketing differences only, as the following:

Brand	**Model No.**	**AC Input**						
		100-240V, 10-5A, 50-60Hz						
		DC Output						
		+3.3V	+5V	+12V	-12V	+5Vsb	+3.3V and +5V total output	Total power
AcBel	FSD063, EP2A5701A	24A	30A	54A	0.3A	3A	170W	700W
ENERMAX	EU2B700							
AcBel	FSD036, EP2A5651A	24A	30A	50A	0.3A	3A	170W	650W
ENERMAX	EU2B650							
AcBel	FSD049, EP2A5551A	24A	30A	42A	0.3A	3A	170W	550W
ENERMAX	EU2B550							

During the test, the **Model No.: FSD063, FSD049** were selected as representative models and therefore only these test data were recorded in this report.

2. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

3.2 DESCRIPTION OF TEST MODES

1. The EUT is designed with AC power supply of rating 100-240Vac, 50-60Hz. For radiated emission evaluation, 230Vac/50Hz (for EN 55022), 120V/ 60Hz (for FCC Part 15), 110Vac/60Hz & 220Vac/60Hz (for BSMI CNS 13438) had been covered during the pre-test. The worst radiated emission data was founded at **110Vac/ 60Hz** and recorded in the applied test report. Then the other test items were tested at 120Vac/60Hz.

2. Conducted emission has been pre-tested under following test modes, and **test Mode A** was the worst case for final test.

Test Mode	Test Condition
A	FSD049 (550W) +Full Load
B	FSD036 (650W) +Full Load
C	FSD063 (700W) +Full Load

3. Radiated emission has been pre-tested under following test modes, and **test Mode C** was the worst case for final test.

Test Mode	Test Condition
A	FSD049 (550W) +Full Load
B	FSD036 (650W) +Full Load
C	FSD063 (700W) +Full Load

4. Test results are presented in the report as below.

Test Mode	Test Condition
Conducted emission Test	
1	FSD049 (550W) & 120Vac/60Hz +Full Load
Radiated emission Test	
1	FSD063 (700W) & 110Vac/ 60Hz+Full Load

All above test modes were recorded in this report.

3.3 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Product	Brand	Model No.	Serial No.	FCC ID	Remark
A.	EUT	AcBel	FSD063, FSD049	N/A	N/A	-
B.	Dummy Load	N/A	N/A	N/A	N/A	Supplied by client
C.	Metal case	N/A	N/A	N/A	N/A	Supplied by client

NOTE:

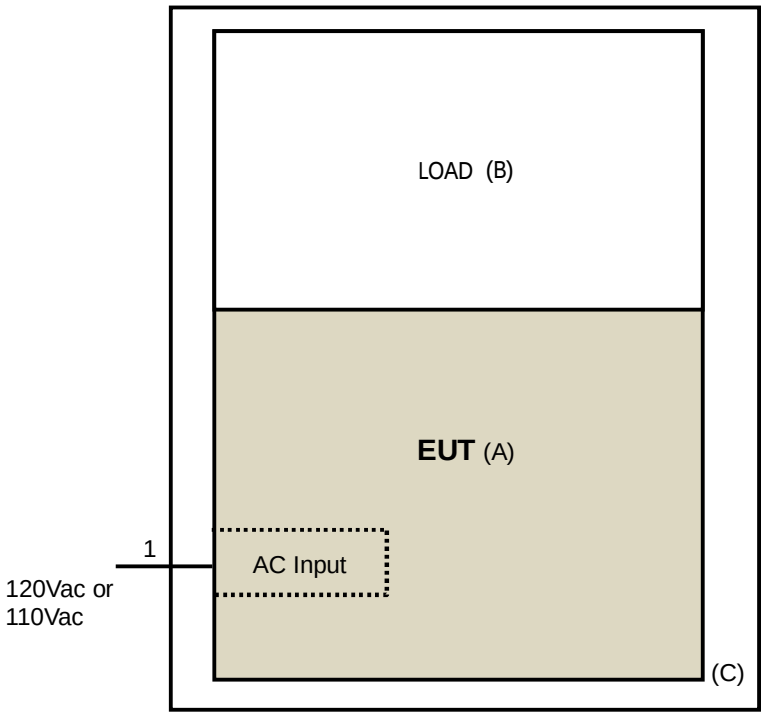
1. All power cords of the above support units are non-shielded (1.8 m).

No.	Cable	Qty.	Length (m)	Shielded (Yes/ No)	Cores (Number)	Remark
1.	AC power cord	1	1.8	N	0	Provided by Lab

NOTE:

1. The core(s) is(are) originally attached to the cable(s).

TEST CONFIGUATION



4 EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

TEST STANDARD:

FCC Part 15, Subpart B (Section: 15.107)

ICES-003:2012 Issue 5 (section: 6.1)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

NOTE: (1) The lower limit shall apply at the transition frequencies.

(2) The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

4.1.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
ROHDE & SCHWARZ TEST RECEIVER	ESCS 30	100290	Dec. 24, 2013	Dec. 23, 2014
ROHDE & SCHWARZ Artificial Mains Network (for EUT)	ESH3-Z5	835239/002	Mar. 08, 2013	Mar. 07, 2014
LISN With Adapter (for EUT)	AD10	C00Ada-001	Mar. 08, 2013	Mar. 07, 2014
EMCO-L.I.S.N. (for peripheral)	3825/2	9204-1964	May 15, 2013	May 14, 2014
Software	ADT_Cond_V7.3.7	NA	NA	NA
Software	ADT_ISN_V7.3.7	NA	NA	NA
RF cable (JYEBAO)	5D-FB	Cable-C02.01	Jan. 02, 2014	Jan. 01, 2015
LYNICS Terminator (For EMCO LISN)	0900510	E1011284	Sep. 24, 2013	Sep. 23, 2014
LYNICS Terminator (For EMCO LISN)	0900510	E1011285	Sep. 24, 2013	Sep. 23, 2014

Notes: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. 2.
3. The VCCI Site Registration No. C-240.
4. Tested Date: Jan. 27, 2014.

4.1.3 TEST PROCEDURE

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

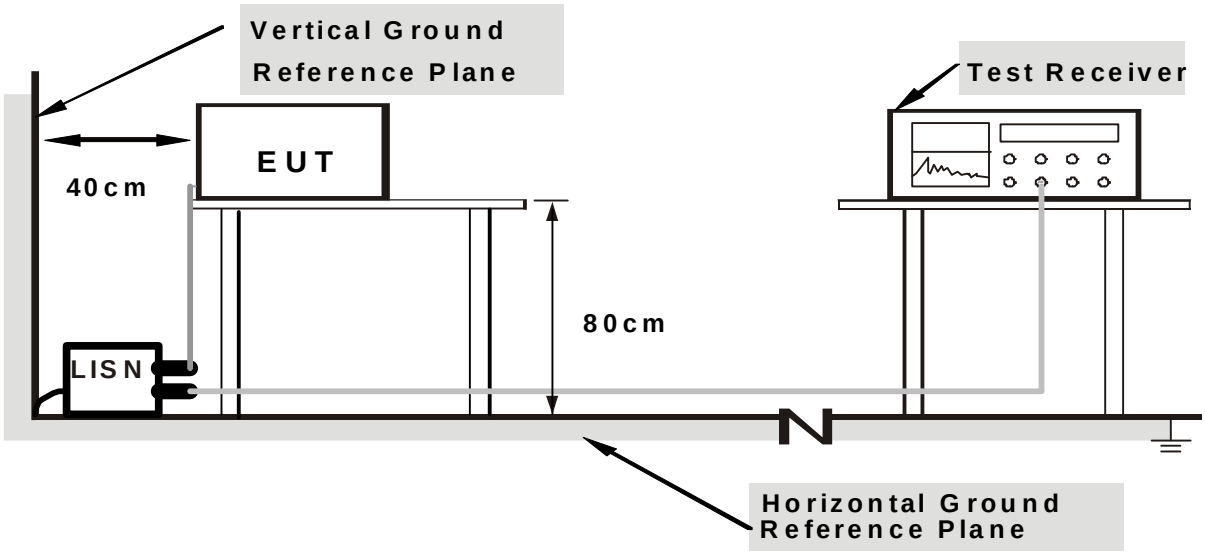
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit - 20dB) were not recorded.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



Note: Support units were connected to second LISN.

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.1.6 EUT OPERATING CONDITIONS

Connected a resister load with EUT and installed load and EUT into a metal case and then set the EUT under full resistor load.

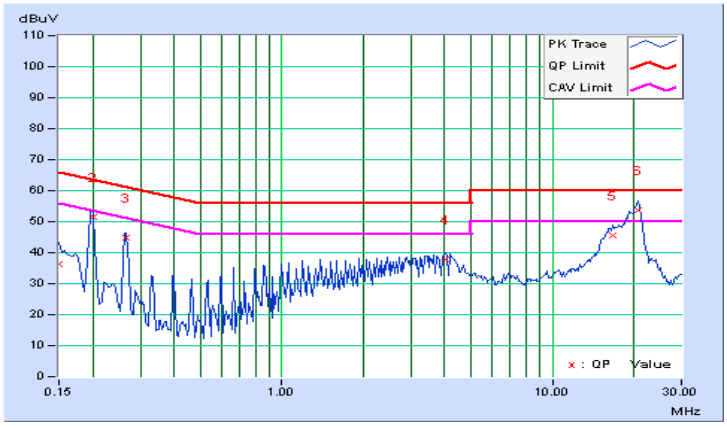
4.1.7 TEST RESULTS

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 9kHz Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	20℃, 62%RH
Tested by	Paul Chen		
Test Mode	Mode 1		

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	0.11	36.09	23.03	36.20	23.14	66.00	56.00	-29.80	-32.86
2	0.20078	0.12	51.19	47.19	51.31	47.31	63.58	53.58	-12.27	-6.27
3	0.26719	0.12	44.52	42.86	44.64	42.98	61.20	51.20	-16.56	-8.22
4	4.04297	0.28	37.59	35.92	37.87	36.20	56.00	46.00	-18.13	-9.80
5	16.76172	1.07	44.32	40.54	45.39	41.61	60.00	50.00	-14.61	-8.39
6	**20.80587**	**1.27**	**52.47**	**47.62**	**53.74**	**48.89**	**60.00**	**50.00**	**-6.26**	**-1.11**

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

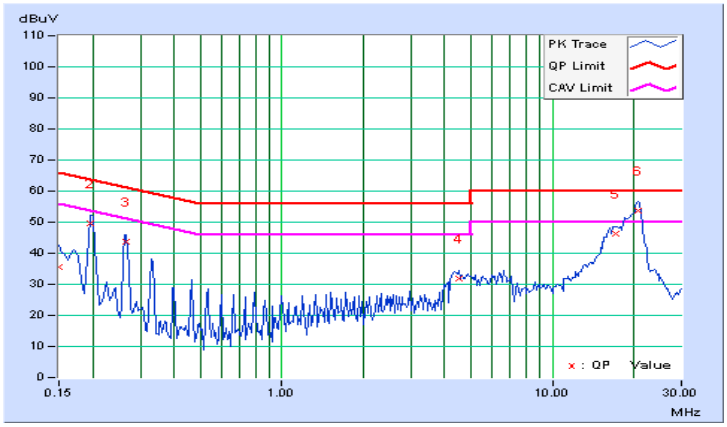


Frequency Range	150kHz ~ 30MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP), 9kHz Average (AV), 9kHz
Input Power	120Vac, 60Hz	**Environmental Conditions**	20℃, 62%RH
Tested by	Paul Chen		
Test Mode	Mode 1		

Phase Of Power : Neutral (N)										
No	**Frequency (MHz)**	**Correction Factor (dB)**	**Reading Value (dBuV)**		**Emission Level (dBuV)**		**Limit (dBuV)**		**Margin (dB)**	
			Q.P.	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**
1	0.15000	0.07	35.40	22.83	35.47	22.90	66.00	56.00	-30.53	-33.10
2	0.19687	0.08	49.64	41.73	49.72	41.81	63.74	53.74	-14.02	-11.93
3	0.26719	0.08	43.70	40.50	43.78	40.58	61.20	51.20	-17.42	-10.62
4	4.50391	0.25	31.50	30.40	31.75	30.65	56.00	46.00	-24.25	-15.35
5	17.16016	0.92	45.40	41.80	46.32	42.72	60.00	50.00	-13.68	-7.28
6	20.67188	1.08	52.68	47.77	53.76	48.85	60.00	50.00	-6.24	-1.15

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

TEST STANDARD:

FCC Part 15, Subpart B (Section: 15.109)

ICES-003:2012 Issue 5 (section: 6.2)

Emissions radiated outside of the specified bands, shall be according to the general radiated limits as following:

Radiated Emissions Limits at 10 meters (dBµV/m)				
Frequencies (MHz)	***FCC 15B/ ICES-003,* Class A**	***FCC 15B / ICES-003,* Class B**	***CISPR 22,* Class A**	***CISPR 22,* Class B**
30-88	39	29.5	40	30
88-216	43.5	33.1		
216-230	46.4	35.6		
230-960			47	37
960-1000	49.5	43.5		
1000-3000	Avg: 49.5 Peak: 69.5	Avg: 43.5 Peak: 63.5	Not defined	Not defined
Above 3000			Not defined	Not defined

Radiated Emissions Limits at 3 meters (dBµV/m)				
Frequencies (MHz)	***FCC 15B / ICES-003,* Class A**	***FCC 15B / ICES-003,* Class B**	***CISPR 22,* Class A**	***CISPR 22,* Class B**
30-88	49.5	40	50.5	40.5
88-216	54	43.5		
216-230	56.9	46		
230-960			57.5	47.5
960-1000	60	54		
1000-3000	Avg: 60 Peak: 80	Avg: 54 Peak: 74	Avg: 56 Peak: 76	Avg: 50 Peak: 70
Above 3000			Avg: 60 Peak: 80	Avg: 54 Peak: 74

NOTE: 1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.
4. QP detector shall be applied if not specified.

FREQUENCY RANGE OF RADIATED MEASUREMENT
(For unintentional radiators)

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705 – 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	5^{th} harmonic of the highest frequency or 40 GHz, whichever is lower

4.2.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
ROHDE & SCHWARZ TEST RECEIVER	ESCS 30	845552/004	Aug. 20, 2013	Aug. 19, 2014
Schaffner Bilog Antenna	CBL6111D	22262	Mar. 19, 2013	Mar. 18, 2014
ADT. Turn Table	TT100	0205	NA	NA
ADT. Tower	AT100	0205	NA	NA
Software	ADT_Radiated_V7.6.15.9.2	NA	NA	NA
ADT RF Switches BOX	EMH-011	1001	Nov. 03, 2013	Nov. 02, 2014
WOKEN RF cable	8D	CABLE-ST2-01	Nov. 03, 2013	Nov. 02, 2014

Notes: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Open Site No. 2.
3. The VCCI Site Registration No. R-237.
4. The FCC Site Registration No. 90424.
5. Tested Date: Jan. 13, 2014.

4.2.3 TEST PROCEDURE

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the turn table was turned from 0 degrees to 360 degrees to find the maximum reading.

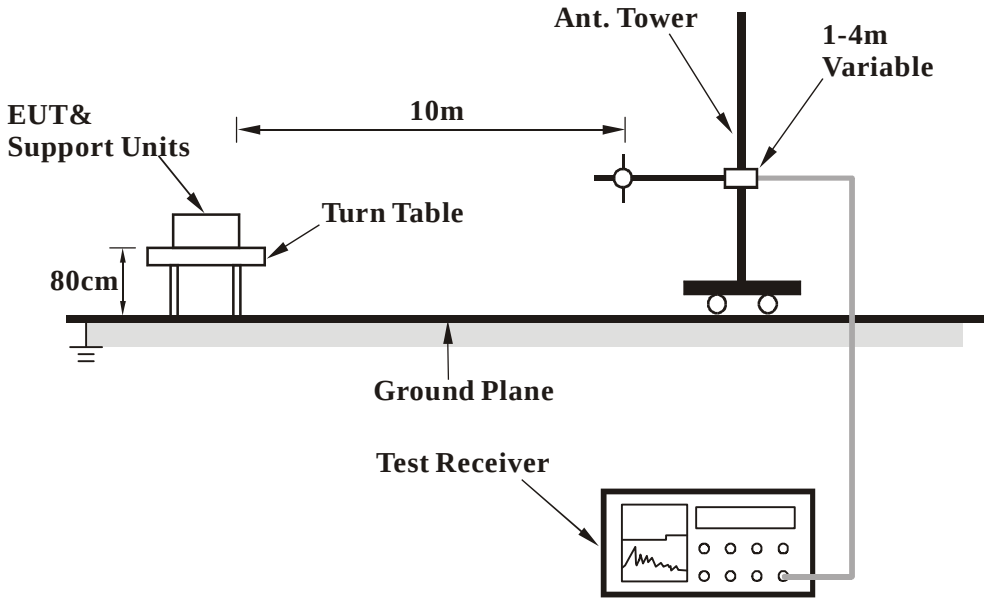
e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

NOTE: The resolution bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.2.6 EUT OPERATING CONDITIONS

Same as item 4.1.6

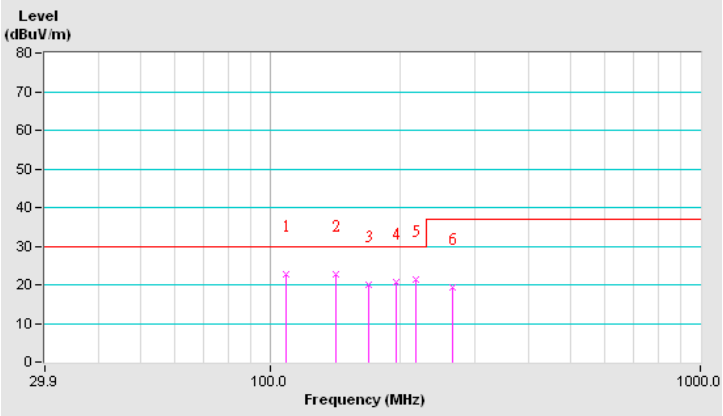
4.2.7 TEST RESULTS

Frequency Range	30MHz ~ 1GHz	Detector Function & Bandwidth	Quasi-Peak (QP), 120kHz
Tested by	Bruce Liao	Environmental Conditions	19℃, 83%RH
Test Mode	Mode 1		

Antenna Polarity & Test Distance : Horizontal at 10 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	108.470	22.76 QP	30.00	-7.24	4.00 H	144	10.19	12.57
2	142.260	22.64 QP	30.00	-7.36	4.00 H	0	9.16	13.48
3	169.850	19.93 QP	30.00	-10.07	4.00 H	77	7.96	11.97
4	195.650	20.74 QP	30.00	-9.26	3.91 H	243	9.29	11.45
5	217.430	21.38 QP	30.00	-8.62	4.00 H	193	9.17	12.21
6	265.530	19.27 QP	37.00	-17.73	4.00 H	82	3.23	16.04

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
   – Pre-Amplifier Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value

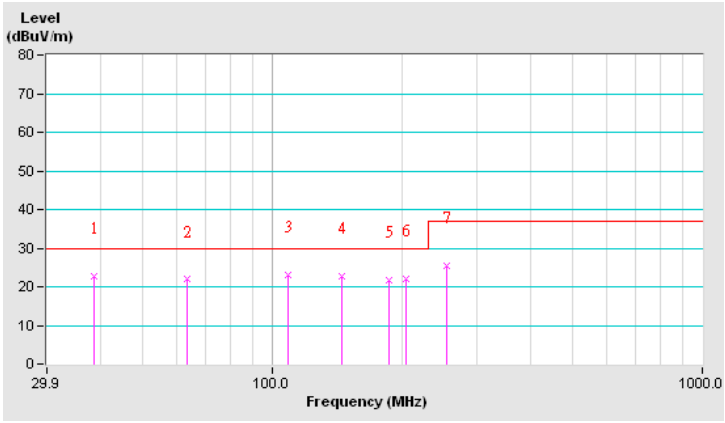


Frequency Range	30MHz ~ 1GHz	**Detector Function & Bandwidth**	Quasi-Peak (QP), 120kHz
Tested by	Bruce Liao	**Environmental Conditions**	19℃, 83%RH
Test Mode	Mode 1		

Antenna Polarity & Test Distance : Vertical at 10 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	38.410	22.87 QP	30.00	-7.13	1.00 V	179	7.88	14.99
2	63.350	21.90 QP	30.00	-8.10	1.00 V	89	14.37	7.53
3	**108.720**	**23.06 QP**	**30.00**	**-6.94**	**1.06 V**	**192**	**10.42**	**12.64**
4	145.130	22.78 QP	30.00	-7.22	1.00 V	98	9.12	13.66
5	186.430	21.72 QP	30.00	-8.28	1.00 V	316	10.38	11.34
6	204.160	22.16 QP	30.00	-7.84	1.00 V	114	10.38	11.78
7	253.630	25.55 QP	37.00	-11.45	1.00 V	110	9.43	16.12

Remarks:

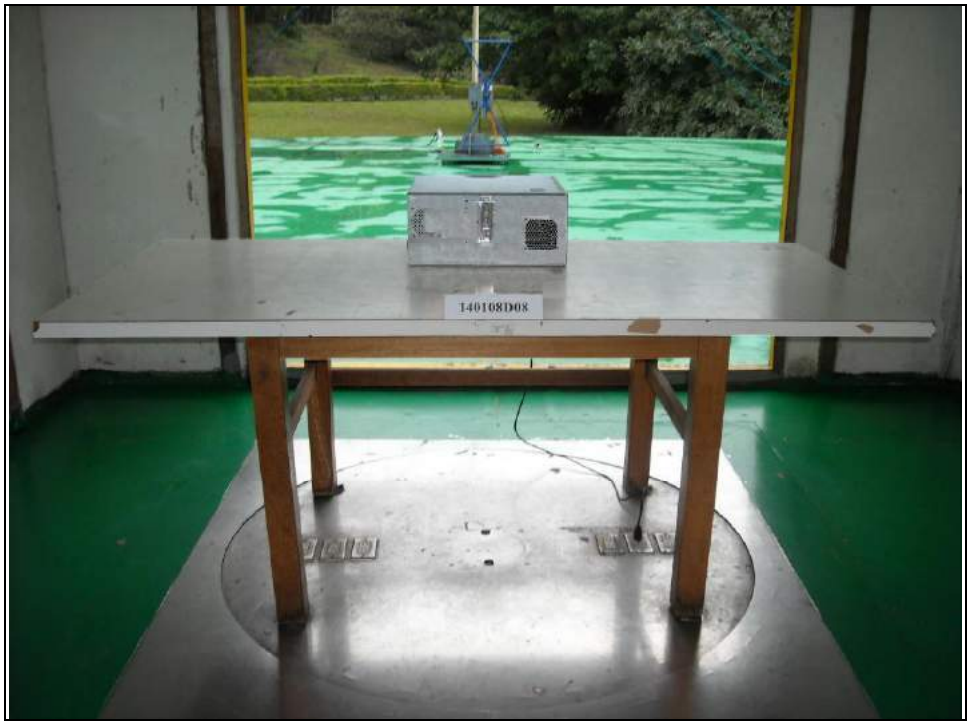
1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value

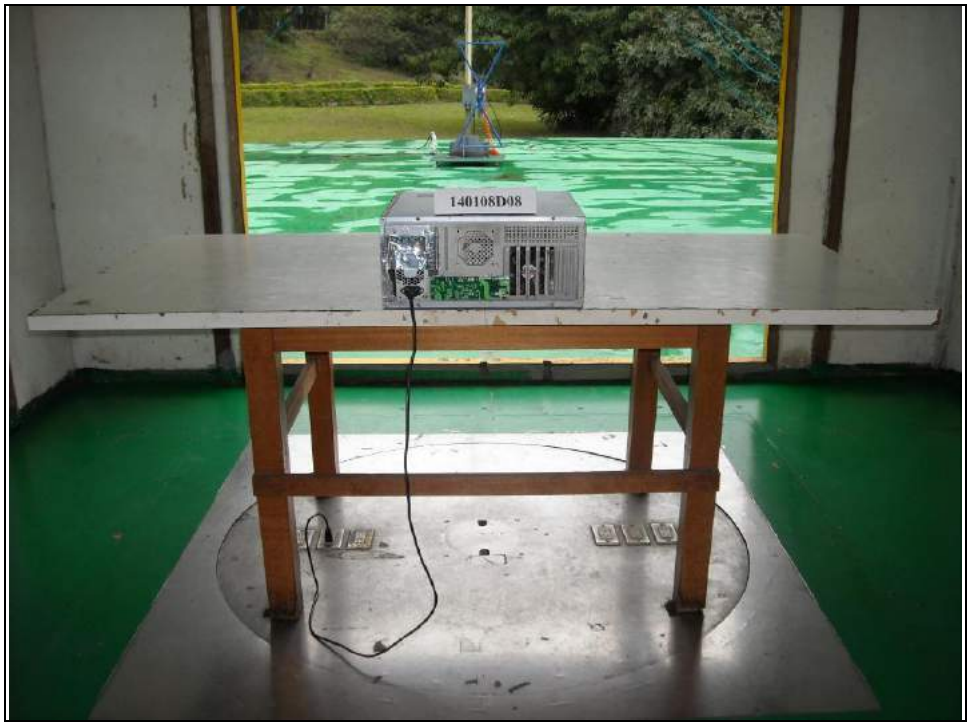


5 PHOTOGRAPHS OF THE TEST CONFIGURATION

CONDUCTED EMISSION TEST

RADIATED EMISSION TEST





6 APPENDIX - INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:
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Hsin Chu EMC/RF Lab:
Tel: 886-3-5935343
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Tel: 886-3-3183232
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Email: service.adt@tw.bureauveritas.com
Web Site: www.bureauveritas-adt.com

The address and road map of all our labs can be found in our web site also.

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