



MODEL NO : 2AA012F 12.0V/1.0A (standard)
ENGINEERING SPECIFICATION SHEET

Purpose: This specification document represents the design criteria of the product identified herein, for the approval of the designated recipient (customer). Prior to production and delivery of this product by CWT, the customer shall endorse its approval of this specification document, upon review of the detailed information provided herein. The customer's endorsement (approval) verifies that the product description is determined to be fully compliant to the customer's design requirements. If one or more samples are included with this specification, the customer's endorsement (approval) further verifies that the product has been tested by the customer, for which the product satisfactorily meets all aesthetic, mechanical, electrical, and operating requirements for its intended usage with the customer's suitable indoor equipment or applications.

To Approve: An authorized employee or agent of the customer shall endorse approval of this specification. Please sign & date this cover-page, and initial each subsequent page in the lower left corner to signify all sections have been read and found to be acceptable. A completed, original copy (signed, dated, initialed) of this specification must be returned to CWT to record the approved customer design. The customer shall keep one or more copies for its records. Upon receipt, CWT shall manufacture the product to the approved customer design. If design revisions are otherwise required, a revised specification and/or modified samples shall be provided by CWT for the endorsement (approval) by the customer.

CHANNEL WELL TECHNOLOGY (CWT)
CWT KOREA

VERSION: UPDATED	2AAJ012F	12V/1A
Specification No.: 20210923	5.5x2.1x9.5(S.H)*1,200	



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1 SCOPE

This document describes basic electrical characteristics and mechanical characteristic of 12W class II power adapter.

2 ELECTRICAL SPECIFICATION

2.1 INPUT REQUIREMENT

2.1.1 INPUT VOLTAGE AND FREQUENCY RANGE

Input Range	Minimum	Nominal	Maximum	Unit
	90	100-240	264	Vac, rms
	47	50 & 60	63	Hz

2.1.2 AC INRUSH CURRENT

Test Conditions:

1. Inrush current to be measured with bulk Caps discharged.
2. Ambient Temperature =25°C
3. The AC source to be a minimum 3KVA
4. AC input starting phase angle=90°
5. Vin=Vin(max),Frequency=Fin(min.)
6. Current to be measured using a non-saturating current probe or transformer.

Nominal Output Power	Peak Inrush Current (I-peak)
≅ 12 Watt nominal	≅ 50A

2.1.3 INPUT CURRENT

Input Voltage	Input Current (Iin)
90-264Vac	≅ 0.35A

2.1.4 LEAKAGE CURRENT

Input Voltage	Leakage Current
230Vac/50Hz	≅ 0.25mA

2.1.5 INSULATION RESISTANCE

between primary and secondary	Insulation Resistance
500Vdc	≅ 50MΩ

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2.1.6 LOW POWER CONSUMPTION

Vin	Load	Power consumption
230Vac/50Hz	0A	$\cong 0.075$ W
115Vac/60Hz		

2.1.7 HI-POT TEST

Primary to Secondary	Current
4242Vdc/3000Vac,60Secs	≤ 10 mA

2.2 INPUT PROTECTION

2.2.1 INPUT CURRENT PROTECTION

A fuse shall be installed on the input line side near the input connector.

2.3 OUTPUT REQUIREMENT

2.3.1 OUTPUT VOLTAGE AND CURRENT AND OUTPUT POWER

Peak load for AC start up.

Vout(nom)	Voltage Range	Current Range			Watt(Max)
		Minimum Load	Full load	Peak load	
+12.0V	$\pm 10\%$	0A	1.0A	1.2A	13.2W

2.3.2 RIPPLE AND NOISE

Measurements shall be made with an oscilloscope with minimum of 20MHz bandwidth. Output shall be bypassed at the connector with a 0.1 μ F ceramic disk capacitor and a 10 μ F electrolytic capacitor for general testing purpose.

Output Voltage	Ripple & Noise(Vp-p)
+12V	≤ 240 mV

2.3.3 OVER VOLTAGE PROTECTION

Test Conditions:

1. Vin=Vin(nominal)
2. No load.

Over voltage protection	$\leq 180\%$ Vout Max.
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2.3.4 OVER CURRENT PROTECTION

Test Conditions:

1. $V_{in}=V_{in}(\text{nominal})$; Frequency= $F_{in}(\text{nominal})$
2. I_{out} is ramped using a CC mode load form 0A until current fold back..

Over current protection	Min	Max
	120%	400%

2.3.5 OVERSHOOT AND UNDERSHOOT

Overshoot and Undershoot	10% Max.
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2.3.6 SHORT CIRCUIT PROTECTION

Test Conditions:

1. Short is defined as a load resistance $<0.1\Omega$.
2. A short circuit load is applied for 10 seconds.

Requirement:

1. At the end of the test cycle, the short is replaced with a load equal to $I_{out}(\text{max})$. Output voltage must return to limits defined in section 2.3.1.
2. Output must recover automatically within 3 seconds when short is removed.
3. While the output is shorted, output current must not exceed $I_{out}(\text{max}) \times 4$.

2.4 PERFORMANCE REQUIREMENT

2.4.1 EFFICIENCY

Meet: Level VI

Active average efficiency	83.26% min.
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2.4.2 TURN ON DELAY TIME

Test Conditions:

1. CC mode load = $120\% I_{out}(\text{max})$.
2. Power adapter is connected to load before AC power is applied.

Turn on delay time	3secs max.
Rise time	50ms max.

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2.4.3 HOLD-UP TIME

Test Conditions:

1. CC mode load =100% Iout(max) .
2. Vin 115V/60Hz & 230Vac/50Hz.

Hold up time	Vin 115Vac/60Hz	Vin 230Vac/50Hz
	8ms min.	16ms min.

2.4.4 DYNAMIC LOAD (LOAD TRANSIENT)

Test Conditions:

1. CC Load cycling between 100% Iout(max) and 50% Iout(max.).
2. Cycling frequency is 120Hz
3. Load slew rate is 250mA/uS $\pm 5\%$.

Dynamic	$\pm 10\%$ (Vout)
---------	-------------------

3 ENVIRONMENTAL SPECIFICATION

3.1 TEMPERATURE

PARAMETER	OPERATING	NON-OPERATING
Ambient temp	0 to 40°C	-40 to 70°C

3.2 HUMIDITY

PARAMETER	OPERATING	NON-OPERATING
Humidity	5-95% non condensing	0-95% non condensing

3.3 VIBRATION AND SHOCK

PARAMETER	OPERATING	NON-OPERATING
VIBRATION	0.25G RMS, 1Hour	MIL-STD-810D, method 514 and procedure X1
SHOCK	0.5G RMS, 5 repetitions	30G 1/2 sine, 30mS, 6sides

3.4 ALTITUDE

PARAMETER	OPERATING	NON-OPERATING
Altitude	Sea level to 3100M	Sea level to 12,300M

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3.5 CALCULATED MEAN TIME BETWEEN FAILURES (MTBF)

Test Conditions:

1. Operational temperature=25°C
2. Altitude=3100m
3. Confidence level =90%
4. Predictive standard=MIL-HDBK-217F
5. Load current is =0.8*Iout(max)
6. Vin(nom)

MTBF	100,000 hours min.
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3.6 DROP TEST

PARAMETER	OPERATING	NON-OPERATING
Drop test	N/A	IEC-60068-2-32 ED, 100cm UNBOXED

4 APPLICATION STANDARD & RELATED SPECIFICATION

4.1 STANDARD & SAFETY CERTIFICATION

4.1.1 SAFETY STANDARD

COUNTRY CODE	STANDARD	TEST REPORTS
NA	UL60950	UL60950
GE	EN60950-1:2006	CB,LVD
JP	J60950	CB,PSE
AU	AS/NZS 60950-1	CB
UK	EN 60950-1:2006	CB,LVD
KO	IEC60950-1:2006	CB
PR	IEC 60950-1:2006	CB,CCC
BZ	IEC 60950-1:2006	CB
NJ	J60950,UL60950	CB,PSE,UL60950

4.1.2 EMI

FCC CFR 47 Part 15, Subpart J, Class B, resistive load.

EN55022/CISPR 22, Class B , resistive load.

Criteria: Class B emissions, resistive load.

	QP and Average (Conducted)	QP (Radiated)
For Qualification samples	Minimum 6dB margin	Minimum 6dB margin
For Mass Production	Minimum 3dB margin	Minimum 3dB margin

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4.1.3 EMS

The Supplier must confirm compliance to the following standards:

EN55024: Immunity

EN61000-3-2: Harmonic Current Emission.

EN61000-3-3: Voltage fluctuations and Flicker.

EN61000-4-2: Electrostatic Discharge, level 4: $\geq 8\text{KV}$, contact $\geq 15\text{KV}$ air discharge.

EN61000-4-3: Radiated Electromagnetic field, 3V/m.

EN61000-4-4: Electrical Fast Transient, $\geq 2\text{KV}$ differential, $\geq 4\text{kv}$ common mode. Criterion B.

EN61000-4-5: Surge $\geq 4\text{KV}$ common mode (Class I only), $\geq 2\text{KV}$ differential mode. Criterion B.

EN61000-4-6: Conducted Immunity, 3A/m

EN61000-4-11: Voltage dips and interruption.

4.1.4 LPS

Meet IEC60950-1

4.1.5 ENVIRONMENT STANDARDS

RoHS & REACH regulation

4.1.6 ENERGY SAVING

EuP & CEC standards Level VI

5 MECHANICAL

5.1 INPUT CONNECTOR AND OUTPUT CABLE

5.1.1 INPUT CONNECTOR

Wall mount.

5.1.2 OUTPUT JACK AND CABLE

See mechanical drawing

5.2 AC ADAPTER EXTERNAL DIMENSION

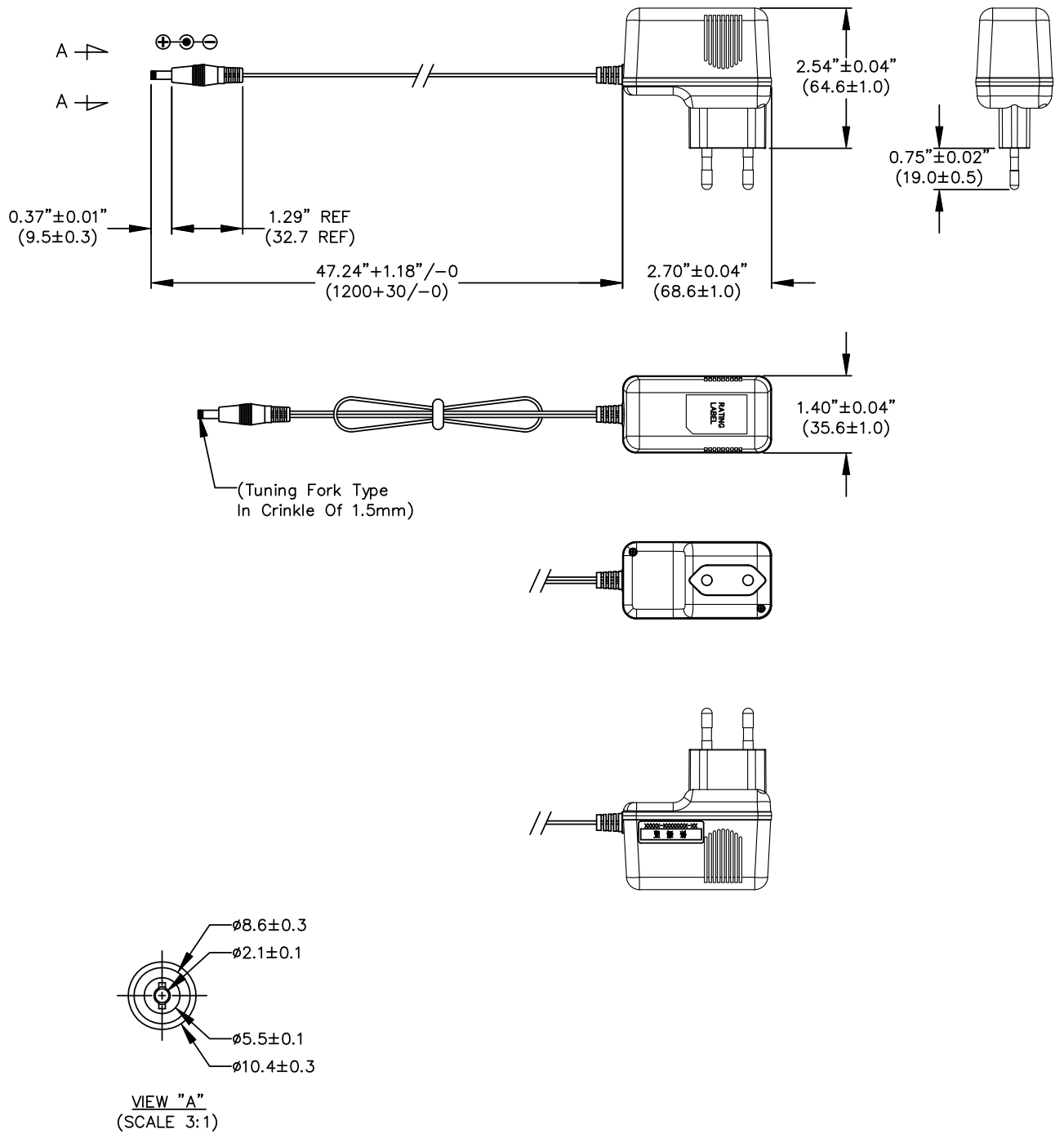
See mechanical drawing

5.3 LABEL DRAWING

See mechanical drawing

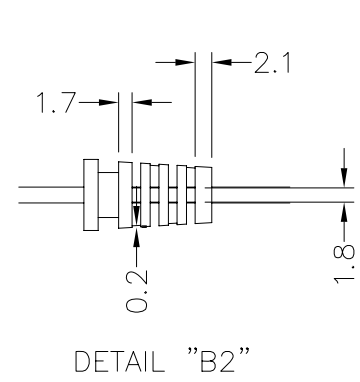
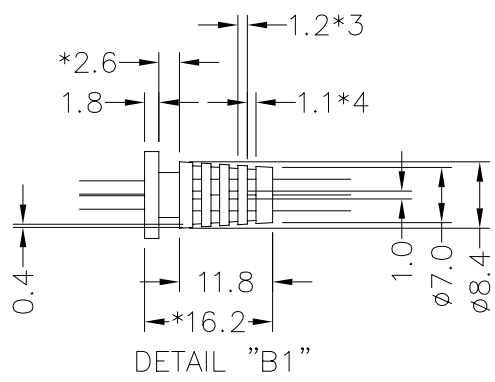
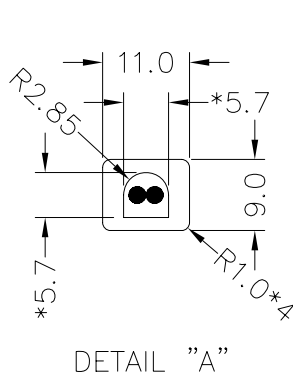
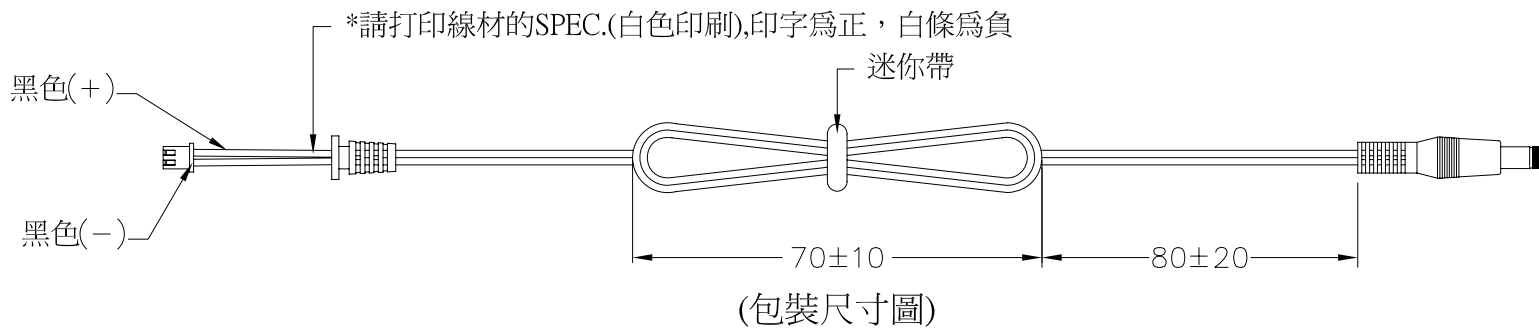
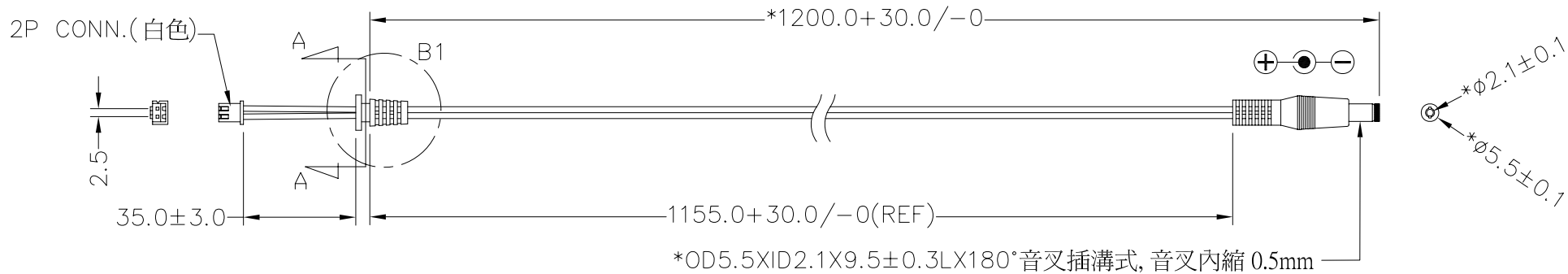
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版本	修订内容	修订者	日期
X01	NEW DRAWING	Lilac	2016-01-28



- NOTES:
- CASE & CABLE COLOR : BLACK
 - CABLE SPEC.: UL2468 24AWG 80°C 300V

	APPROVED	DATE	DRAWING NO.	UNIT	REV.
	ANDY LEE	2016-01-28		INCHES (MM)	X01
TITLE	DESIGNED	DRAWING	MODEL NO.	TOLERANCES:	SHEET
Switching Power Supply	ALEX LEE	LILAC	2AAJ-F0001	.XX = ± .10 .XXX = ± .010	1/1



- NOTES:
- 1.WIRE SPEC.:UL 2468 SINGLE CONDUCTOR SHIELDED WIRE 24AWG 2芯 80°C 300V.
 - 2.THE WIRE COLOR IS "BLACK".
 - 3.標示 "*" 為重點檢查尺寸.
 - 4.2P CONN.: WST P2-I25002 or EQU.(白色)

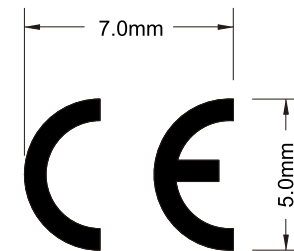
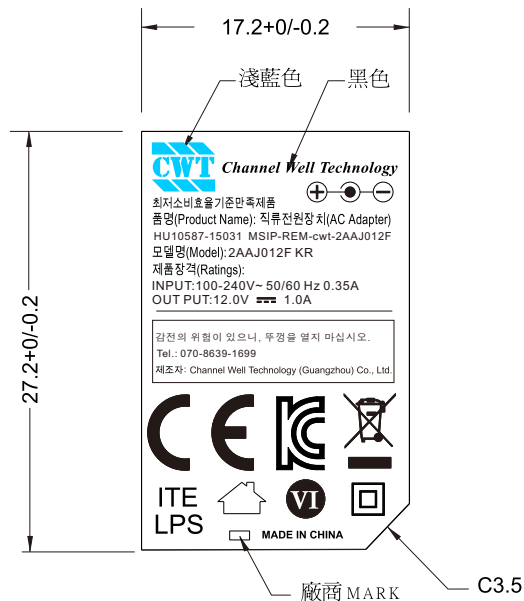
環保材料標準:

No	有害物質名稱	含量標準	SHEET METAL TOLERANCE (UNLESS OTHERWISE SPECIFIED)			
			DIMENSION	PIERCING	BENDING	ANGULAR
1	鎳 (Ni)	<75ppm				
2	鉛 (Pb)	<800ppm	X < 8	±0.1	±0.15	±0.3°
3	汞 (Hg)	<800ppm	8 ≤ X < 25	±0.1	±0.2	±0.5°
4	六價鉻 (Cr ⁶⁺)	<800ppm	25 ≤ X < 100	±0.15	±0.25	±0.5°
5	多溴聯苯 (PBB)	<800ppm	100 ≤ X < 300	±0.2	±0.3	±1°
6	多溴二苯醚 (PBDE)	<800ppm	300 < X < 800	±0.3	±0.5	±1.5°
7	銅,鉛,汞,六價鉻(包裝材料)	總含量<100ppm				

D01 新製	REV.		DESCRIPTION	
僑威科技		UNIT: mm	MODEL NO.: 2AAJ012F	
		MATERIAL	PART NO.: G18-B18612A-MD00	
APPROVED		CHECKED	DESIGNED	DRAWING NO.: 2468-24-1155-01-16
Andy Lee	Alex Lee	<i>Pilac</i>	SCALE: $\frac{1}{1}$	SHEET 1 OF 1
DATE: 2014-08-29	DATE: 2014-08-29	DATE: 2014-08-29	THIRD ANGLE PROJECTION	A4



1:1



MIN. DIMENSIONS OF MARKS ON LABEL

備註:

- 1.MATERIAL :50#消銀龍+0PP (UL安規) +背膠
- 2.表面處理 :+OPP
- 3.COLOR : 銀底,黑字, CWT LOGO 為淺藍色.
- 4.總厚度 :0.12~0.15mm
- 5.高溫測試 :需耐溫 80度C 2 小時,不可翹皮或皺摺.
- 6.安規標誌請按安規標準來製作.

環保材料標準:

No	有害物質名稱	含量標準	SHEET METAL TOLERANCE (UNLESS OTHERWISE SPECIFIED)				D01 新製				
			DIMENSION	PIERCING	BENDING	ANGULAR	REV.	DESCRIPTION			
1	銅 (Cd)	< 75 ppm					CWT 僑威科技	UNIT: mm	MODEL NO.:	2AAJ012F	
2	鉛 (Pb)	< 800 ppm						MATERIAL	PART NO.:	G35-D017981-P100	
3	汞 (Hg)	< 800 ppm	X < 8	± 0.1	± 0.15	± 0.3°		DRAWING NO.:			
4	六價鉻 (Cr ⁶⁺)	< 800 ppm	8 ≤ X < 20	± 0.1	± 0.2	± 0.5°	APPROVED	SAFETY	CHECKED	DESIGNED	
5	多溴聯苯 (PBB)	< 800 ppm	25 ≤ X < 100	± 0.15	± 0.25	± 0.5°	zy.huang		zy.huang	yl.wang	SCALE:
6	多溴二苯醚 (PBDE)	< 800 ppm	100 ≤ X < 300	± 0.2	± 0.3	± 1°	DATE:Dec.07.15	DATE:	DATE:Dec.07.15	DATE:Dec.07.15	THIRD ANGLE PROJECTION
7	銅,鉛,汞,六價鉻(包裝材料)	總含量 < 100 ppm	300 ≤ X < 800	± 0.3	± 0.5	± 1.5°					SHEET M / 1 OF 1 / A4 L

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4

5

6

A

B

C

D



→此行文字不属于条码内容且需和前行保持2-3个空位

→ 条码扫描仅显示此行文字

工作要點:

- 1.材質:網格底50#啞白PET(厚度:0.1~0.15mm)
- 2.印刷必須清晰可見,不能有斷線,模糊不清等不良
- 3.貼紙的印刷油墨,紙張材質及背膠覆膜都必須符合RoHS要求
- 4.背膠必須耐溫80°C不會翹起
- 5.條碼類型:128碼,條碼編碼為固定碼.
- 6.尺寸:25*9mm(公差:+/-0.3)
- 7.條形碼及文字居中對齊.

Material standard of environmental protection:

No	Hazardous Substances	Content Standards
1	鎘 (Cd)	< 56 ppm
2	鉛 (Pb)	< 700 ppm
3	汞 (Hg)	< 700 ppm
4	六價鉻 (Cr ⁶⁺)	< 700 ppm
5	多環聯苯 (PBB)	< 700 ppm
6	多環二苯類 (PBDE)	< 700 ppm
7	鄰苯二甲酸二(四)甲(DEHP)	< 700 ppm
8	鄰苯二甲酸丁(四)甲(BBP)	< 700 ppm
9	鄰苯二甲酸二(四)甲(DDP)	< 700 ppm
10	鄰苯二甲酸二(四)甲(DDP)	< 700 ppm
11	包裝材料(Packaging materials)	總含量 < 100 ppm
12	多環芳香族化合物(PAHs)	NA

SHEET METAL TOLERANCE (UNLESS OTHERWISE SPECIFIED)			
DIMENSION	PIERCING	BENDING	ANGULAR
X < 8	± 0.1	± 0.15	± 0.3°
8 ≤ X < 20	± 0.1	± 0.2	± 0.5°
25 ≤ X < 100	± 0.15	± 0.25	± 0.5°
100 ≤ X < 300	± 0.2	± 0.3	± 1°
300 ≤ X < 800	± 0.3	± 0.5	± 1.5°

D02 20191015 管典鋒, 增加客戶型号文字			
D01			
REV.			
			DESCRIPTION
			UNIT: mm
			MODEL NO.: 字視專用條碼
			MATERIAL
			PART NO.: G35-DF00432-P200
			DRAWING NO.:
APPROVED	SAFETY	CHECKED	DESIGNED
鄭斌	宋書軍	易檢華	管典鋒
DATE: 20191015	DATE: 20191015	DATE: 20191015	DATE: 20191015
THIRD ANGLE PROJECTION			1 OF 1
			M/A4 L

1

2

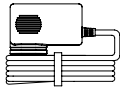
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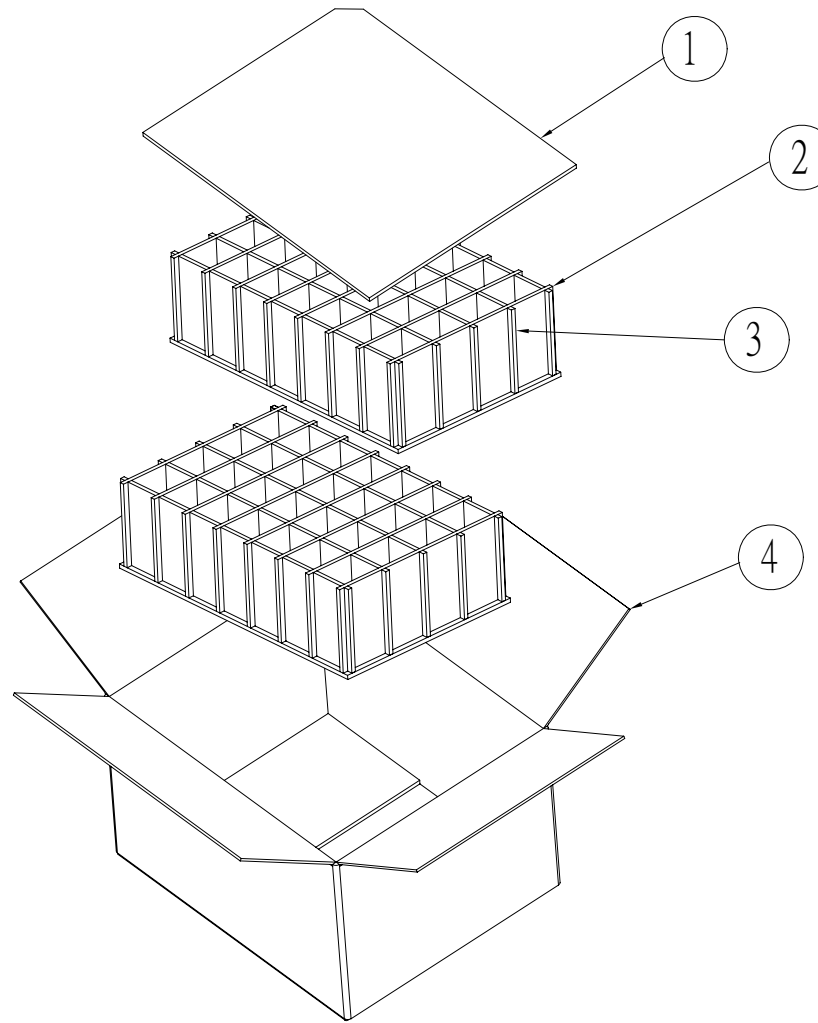
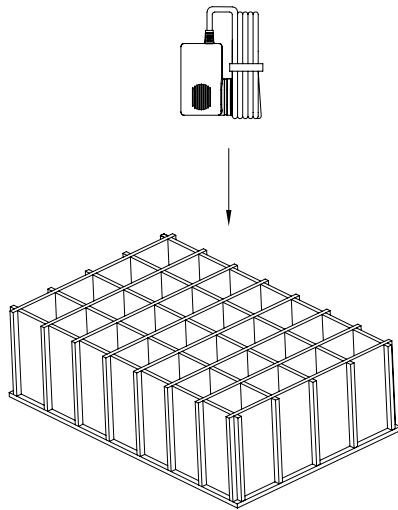
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6

STEP1:將成品及線材整理如下圖



STEP2:將成品如圖般放入格板內



1.組件:

1.1.:平卡:538*353mm
用量:3PCS1.2.:五刀卡:353*114mm
用量:16PCS1.3.: 八刀卡:538*114mm
用量:10PCS1.4.:外箱:
用量:1PCS外箱尺寸 550*365*270mm
Q'TY.: 56 PCS

環保材料標準:

No	有害物質名稱	含量標準	SHEET METAL TOLERANCE (UNLESS OTHERWISE SPECIFIED)				0.1	DESCRIPTION		
			DIMENSION	PIERCING	BENDING	ANGULAR	REV.			
1	鎘 (Cd)	<75ppm					CWT 僑威科技	UNIT: mm	MODEL NO.: 2AAJ	
2	鉛 (Pb)	<800ppm						MATERIAL	PART NO.:	
3	汞 (Hg)	<800ppm	X < 8	±0.1	±0.15	±0.3°		*****	DRAWING NO.:	
4	六價鉻 (Cr)	<800ppm	8 ≤ X < 25	±0.1	±0.2	±0.5°		APPROVED	CHECKED	DESIGNED
5	多溴聯苯 (PBB)	<800ppm	25 ≤ X < 100	±0.15	±0.25	±0.5°		q.liu	l.wang	m.zhong
6	多溴二苯醚 (PBDE)	<800ppm	100 ≤ X < 300	±0.2	±0.3	±1°		DATE: 14-06-14	DATE: 14-06-14	DATE: 14-06-14
7	鎘,鉛,汞,六價鉻(包裝材料)	總含量<100ppm	300 ≤ X < 800	±0.3	±0.5	±1.5°		DATE: 14-06-14	DATE: 14-06-14	DATE: 14-06-14

SCALE: SHEET 1 OF 1 M/A4L
THIRD ANGLE PROJECTION