




REV.	Description	Date
00	SPEC ISSUE (NEW MODEL)	02/08'23
01	102A-232120 1.ITEM 7. Function test (ATS) procedure : (20VDC) -Test Item:Over current protection,change Load to 4.81A,change Spec to 4.81A<OCP <5.1A LATCH for LPS 2. ITEM 6.i. RFI AC 1M change to 1.8M	02/17'23
02	102A-233081 1. ITEM 7. Function test (ATS) procedure : (20VDC) -Test item: Ripple & Noise, Remark add "由於 burst mode 有遲滯問題，此 item 不計 CPK 。" 2. ITEM 8. Function test (ATS) procedure : (15VDC) -Test item: Ripple & Noise, Remark add "由於 burst mode 有遲滯問題，此 item 不計 CPK 。" 3. ITEM 9. Function test (ATS) procedure : (9VDC) -Test item: Ripple & Noise, Remark add "由於 burst mode 有遲滯問題，此 item 不計 CPK 。" 4. ITEM 10. Function test (ATS) procedure : (5VDC) -Test item: Ripple & Noise, Remark add "由於 burst mode 有遲滯問題，此 item 不計 CPK 。" 5. ITEM 7. Function test (ATS) procedure : (20VDC) -Test item: Harmonic Current Power Factor, Remark add "由於 PF 值台跟台差異小，此 item 不須計 CPK 。"	03/13'23

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Date	Drawn	Design (EE)	Design (ME)	DOCUMENT NAME. :	REV.
03/27'24	蘇雲巧	陳嘉佑	曾映澍	TS-130GB B SERIES	13

REV.	Description	Date
03	102A-233137 1.ITEM 7. Function test (ATS) procedure : (20VDC) -Test item: Average efficiency, Remark add "由於 burst mode 有遲滯問題，此 item 不計 CPK 。" 2. ITEM 8. Function test (ATS) procedure : (15VDC) -Test item: Average efficiency, Remark add "由於 burst mode 有遲滯問題，此 item 不計 CPK 。" 3. ITEM 9. Function test (ATS) procedure : (9VDC) -Test item: Average efficiency, Remark add "由於 burst mode 有遲滯問題，此 item 不計 CPK 。" 4. ITEM 10. Function test (ATS) procedure : (5VDC) -Test item: Average efficiency, Remark add "由於 burst mode 有遲滯問題，此 item 不計 CPK 。"	03/17'23
04	102A-234219 ITEM 7. Function test (ATS) procedure : (20VDC) -Test item: Harmonic Current&Power Factor, Remark add "PF 於 Bench 熱機 30mins 規格以 0.88 判定。"	05/02'23
05	102A-235034 1. ITEM 3.k. PVT ORT case 表面溫升測試條件: 修改為"輸入電壓 100V/60Hz，環境溫度 25 度 C，搭配 18mm 木板且不架高，側邊面小於 43 度 C，TOP 面小於 50 度 C，Bottom 面小於 60 度 C。" 2. ITEM 11.4 Surface Temp. test: 修改為"表面溫升測試環境須按照 safety 測試 thermal 之規範，於 AMB 35 度之 chamber 下進行。此條件是 for 安規測試，並作為絕對溫度判定。若要測試 delta T 則 follow ES 測試條件。"	05/05'23

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03/27'24	蘇雲巧	陳嘉佑	曾映澍	TS-130GB B SERIES	13

06	102A-235078 1. 刪除 ITEM 3.k. PVT ORT case 表面溫升測試條件 2. ITEM 11.4 Surface Temp. test: 修改為"表面溫升測試環境須按照 safety 測試 thermal 之規範，於 AMB 35 度之 chamber 下進行。此條件是 for 安規測試，並作為絕對溫度判定。若要測試 delta T 則 follow ES 測試條件，輸入電壓 100V/60Hz，環境溫度 25 度 C。" 3. ITEM 11.1 HI-POT test: -修改"Arcing current = 16mA" -刪除"Hi-pot arcing sense level=5。"	05/09'23
07	102A-237306 1. ITEM 6.i. change to "RFI 測試方式 AC 線與負載直放，follow outside lab，且 AC 線須放置於至少大於等於 2cm 以上且 15cm 以下厚度之絕緣墊，於 DQA 階段中 BU-head 同意以 6db 進行判定，Test setup label down for DELL logo up，Primary follow Delta LAB confirm，若不符合內規，以 DELL 3rd party 進行判斷。"	07/28'23
08	102A-239049 ADD MODEL: ADP-130GB BA9G	09/11'23
09	102A-23A125 ADD MODEL: ADP-130GB BA1B	10/27'23
10	102A-23C201 ADD MODEL: ADP-130GB BA9N	12/20'23
11	102A-241154 ADD MODEL: ADP-130GB BA9F	01/15'24
12	102A-242019 1. Item 7. Over current Protection Spec: change to 4.81A<OCP<5.15A Latch for LPS	02/05'24
13	102A-243237 ADD MODEL: ADP-130GB BA88	03/27'24

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03/27'24	蘇雲巧	陳嘉佑	曾映澍	TS-130GB B SERIES	13

MODEL LIST

ADP-130GB BA	ADP-130GB BA9G	ADP-130GB BA1B	ADP-130GB BA9N
ADP-130GB BA9F	ADP-130GB BA88		

1.測試注意事項內容，未經工程師許可，不可任意變更。

Test Notice contents shall not be changed or revised without engineer permission.

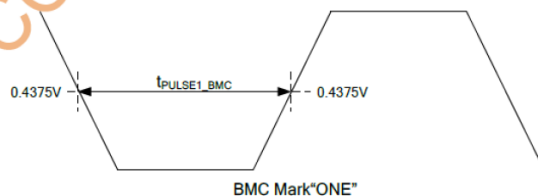
2.此測試規格用於主線測試,所有項目均需被測試,因設備或線速限制無法全數測試時,需測試 **worst case**, QC 需按抽樣標準做抽樣測試。

The production line shall perform all or worst test ITEMS/conditions, and QC shall follow the sampling plan to perform the sampling test.

3.測試注意事項：

- 功能測試時，電子負載需設定 Von 點為 0V。
- 所有 ATS 測試時，須偵測 CONNECTOR 端之電壓。
- 在測試及崩應時，治具上各組輸出須有加系統電容。
- ID 辨識完成後才可進行抽載及變電壓，因此測試程序需調整為開機後才進行 LOADING。
- CC pin pulse width 測試：此 tpulse1_bmc 於 0.4375V level 時需符合 1.4uS ~ 1.8uS 範圍內。

*(1) Pulse width of transmitted BMC "ONE" signal



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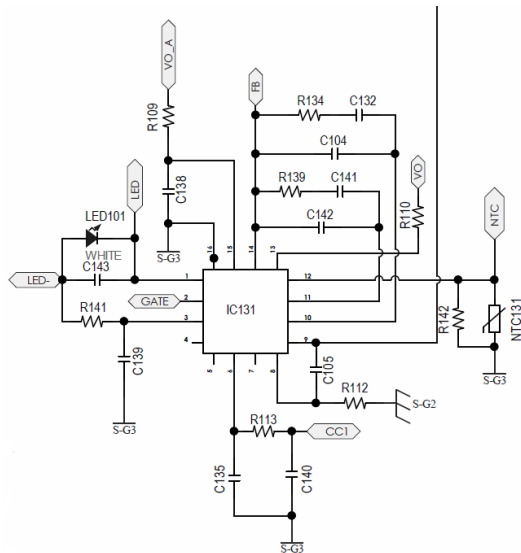
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ADP-130GB B SERIES

Date	Drawn	Design (EE)	Design (ME)	DOCUMENT NAME. :	REV.
03/27'24	蘇雲巧	陳嘉佑	曾映澍	TS-130GB B SERIES	13

- 將 R109 換成 20ohm 電阻，由該 20ohm 電阻進行 loop gain 之量測，線路如下所示:



圖二 . Loop Gain 測試方式

Phase margin $> 45^\circ$

Gain margin >12 dB

擾動電壓: 1.77V

- 內部驗證條件定義為：

測試條件：輸入電壓 110V/220V

輸出電壓/電流 20V/0~6.5A；15V, 9V, 5V/0~3A (20~20kHz 35db)

備註：本機種為薄型筒狀設計

- i. Auto restart 測試時，20V 測試電流值: 3A。

- j. ISN follow DELL request, 需有 1kohm 電阻, 廠內以 under 0dB 以上進行



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ADP-130GB B SERIES

Date	Drawn	Design (EE)	Design (ME)	DOCUMENT NAME. :	REV.
03/27'24	蘇雲巧	陳嘉佑	曾映澍	TS-130GB B SERIES	13

4.燒錄 IC：

4.1 Firmware 燒錄

此機種 IC 入料即已燒好 FW,無須再燒錄 FW.

4.2 PSID 燒錄

ADP-130GB BA 燒錄 PSID,請參考本章節燒錄說明.

4.2.1 此機種需燒錄 PSID,於流完線貼完 LABEL 後燒錄.

4.2.2 燒錄 IC 之 Location Name=IC131,各 Model Name 使用之 IC 種類與對照之 DELL P/N 與 INI File 內容如下表,其中 CheckSum 需與 BOM 中 IC131 之 CRC 相符,IC131 的 Description 中”+”後方由 0~9 或 A~F 組成的 4~6 位字元既為 CRC,在下表中以 4~6 位的”*”為代表.另採用 OB IC 的機種 INI 的 Model Name 資訊須改為 INI 檔之 Delta P/N.在下表中以 10 位的”*”來代表.

MODEL NAME	Dell PN	Vender PN	Vender	INI File
ADP-130GB BA ADP-130GB BA9G	XGHHF	DPD022F-UG16EDL	Weltrend	[FAMILY] CheckSum=**** PN=0XGHHF
ADP-130GB BA1B	XGHHF	OB2623FGPA-DK-001	OB	[Main] ModelName=***** DellPN=0XGHHF Checksum=0X00*****

EE 需編輯燒錄檔 INI 上傳 SAP 申請料號,並將料號附加於 BOM 表中.產線作業人員得於上線前按照 BOM 表所列之料號於 PLM 下載燒錄檔 INI 以進行燒錄作業.燒錄檔內容如下表格所示:



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ADP-130GB B SERIES

Date	Drawn	Design (EE)	Design (ME)	DOCUMENT NAME. :	REV.
03/27'24	蘇雲巧	陳嘉佑	曾映澍	TS-130GB B SERIES	13

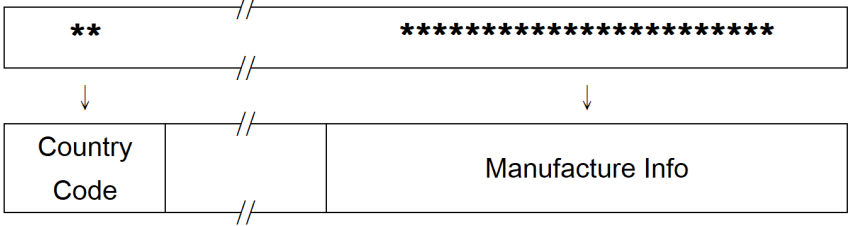
4.2.3 燒錄內容規則與範例如下表格說明:

Table Contents of ID Chip


The contents of the ID memory chip are described in the table below.

Field	Byte Length	Example
Country Code	2	** (See Barcode Printing Format DELTA DOC:10000-0173-3d)
Manufacture Info	21	***** (See Barcode Printing Format DELTA DOC:10000-0173-3d)
Total	23	

EXAMPLE OF CONTENTS



Note that there will be no spaces in between the characters. The spaces shown are for clarification purposes only.

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03/27'24	蘇雲巧	陳嘉佑	曾映澍	TS-130GB B SERIES	13

eld	Description
Country Code	2 Digit Bar code that will contain the country of Origin ISO code. See below for detail explanation. 標示來自 LABEL 條碼的前 2 個 ASCII 字符,為產地 ISO 代碼.範例共列了 2 個*,每個*可為 0~9 或 A~Z 的任一字,全部取決於條碼資訊. 有關條碼的格式與資訊請參考 DELTA DOC:10000-0173-3d
Manufacture	21 Digit Bar code that will contain the DELL Part Number, supplier identification code, date of manufacture, unique sequence number and part revision. See below for detail explanation. 標示來自 LABEL 條碼的 21 個 ASCII 字符,其中包含 DELL part number/Vender 識別碼/生產日期/唯一序列號/零件版本.範例共列了 21 個*,每個*可為 0~9 或 A~Z 的任一字,全部取決於條碼資訊. 有關條碼的格式與資訊請參考 DELTA DOC:10000-0173-3d

5.小板(小板名稱)動態測試：N/A

6.手調測試站：

a. **Full Load Test**：檢查滿載輸出是否符合規格。

b. **Min. Load Test**：檢查輕載輸出是否符合規格。

c. **OTP Test**：Load Condition：5V/3A；9V/3A；15V/3A；20V/6.5A。

測試方法：短路 NTC131，檢查輸出電壓是否 shutdown and Latch off。

d. **OVP Test**：Load Condition：5V/3A；9V/3A；15V/3A；20V/6.5A。

測試方法：短路 IC51，5 秒後檢查輸出電壓是否介於下面表格，OVP 動作模式為 Latch off。

Parameter Description	Min	Typ	Max	Units
Output Over Voltage				Volts
+20VDC	22.0		26.0	Volts
+15VDC	17.0		20.0	Volts
+9VDC	11.0		15.0	Volts
+5VDC	5.8		8.0	Volts


LED 狀態：開機後 LED 必須亮燈，關機後須放電且 LED 會自動熄滅。

e. **AC On/Off**：

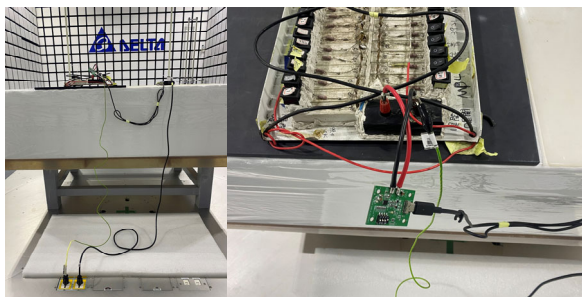
Power supply 連續開關機 On= 3 秒，Off= 1 秒，5 次後，必須無損壞情形。

f. **Safety(EMC, RFI,EMI, Thermal) and Efficiency follow below output condition**：

5V/3A；9V/3A；15V/3A；20V/6.5A。

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Date	Drawn	Design (EE)	Design (ME)	DOCUMENT NAME.：	REV.
03/27'24	蘇雲巧	陳嘉佑	曾映澍	TS-130GB B SERIES	13

- g. DIP TEST ITEM NO DAMAGE 。
- h. EMI use low line warm up，於 DQA 階段中 BU-head 同意以 6db 進行判定。
- i. RFI 測試方式 AC 線與負載直放, follow outside lab，且 AC 線須放置於至少大於等於 2cm 以上且 15cm 以下厚度之絕緣墊，於 DQA 階段中 BU-head 同意以 6db 進行判定, Test setup label down for DELL logo up, Primary follow Delta LAB confirm，若不符合內規，以 DELL 3rd party 進行判斷。



圖三 . RFI 測試擺放方式 。

7. Function test (ATS) procedure : (20VDC)


Input Specification Table :

INPUT VOLTAGE	MINIMUM	MAXIMUM	NOMINAL(RATED)
LOW RANGE	90 VAC	132 VAC	100 VAC
HIGH RANGE	180V AC	264V AC	240V AC

Output Specification Table :

OUTPUT	MINIMUM	MAXIMUM	NOMINAL(RATED)
Voltage (Vdc)	19	21	20
Loading (Amp)	0A	6.5A	6.5A

Test ITEM	Vin	Load	Spec	Remark
Line Regulation	90V/47Hz 264V/63Hz	0A 6.5A	19~21V	
Load/Combine Regulation	90V/47Hz 264V/63Hz	0A, 3.25A, 6.5A	19~21V	
Ripple & Noise	90V/47Hz 264V/63Hz	0A 6.5A	<350mVp-p	Parallel 0.1uF ceramic Cap and 10uF Aluminum Cap, 由於 burst mode 有遲滯問題，此

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03/27'24	蘇雲巧	陳嘉佑	曾映澍	TS-130GB B SERIES	13

Test ITEM	Vin	Load	Spec	Remark
				item 不計 CPK。
Overshoot Voltage	90V/47Hz 264V/63Hz	0A~6.5A	< 21.5V	
Sync Dynamic	90V/47Hz 264V/63Hz	0A~6.5A	Overshoot <1.5V Undershoot<1.5V	S/R: 2.5A/uS, Freq: 50Hz/100Hz/1kHz System Cap: 100uF
Short Circuit Protection	90V/47Hz 264V/63Hz	Min. and Max. Load Turn on then short	Latch after SCP 10 second	N/A
Over Current Protection	90V/47Hz 264V/63Hz	4.81A -Trip for LPS 6.5A -Trip	4.81A< OCP <5.15A Latch for LPS 8A< OCP <10.5A LATCH	Dell Spec follow Auto trimming O/I, 不考量 CPK
Harmonic Current Power Factor	115V/60Hz 230V/50Hz	6.5A	0.9	由於 PF 值台跟台差異小, 此 item 不須計 CPK PF 於 Bench 熱機 30mins 規格以 0.88 判定。
Average Efficiency	115V/60Hz 230V/50Hz	25%, 50%, 75% & 100% Load	>87%(for 產線測試) >89%(for Bench test)	Cold for 產線測試 100V burn-in 20~30min for Bench test, 由於 burst mode 有 遲滯問題, 此 item 不計 CPK。
Full load Efficiency	100V/60Hz	6.5A	>85%(for 產線測試) >87%(for Bench test)	Cold for 產線測試 100V burn-in 20~30min for Bench test
Pin at standby Load	115V/60Hz 230V/50Hz	0.25W 0.5W 1W 2W 5W 10W 15W 20W	>52% >53% >59% >65% >70% >75% >80% >82%	穩定時間 15s, 產線不判定, 以 BENCH 為主。
Transient Load	90V/60Hz 264V/63Hz	6.5A ~13A	>18V	Band width:20MHz S/R: 2.5A/uS, 0.1mS
Capacitive Load	90V/47Hz 264V/63Hz	6.5A	Plugging a live AC Adapter into the system capacitance shall not cause the adapter to shut down.	Parallel 100uF Cap at output
Output rise time	90V/47Hz 264V/63Hz	6.5A	<=275ms	Measure output 10%~90% ,

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Test ITEM	Vin	Load	Spec	Remark
				沒有下限，不考量 CPK
Output discharge time	90V/47Hz 264V/63Hz	6.5A	0~275ms	Discharge time 20V->5V <200ms for no load and full load

8.Function test (ATS) procedure : (15VDC)

Input Specification Table :

INPUT VOLTAGE	MINIMUM	MAXIMUM	NOMINAL(RATED)
LOW RANGE	90 VAC	132 VAC	100 VAC
HIGH RANGE	180V AC	264V AC	240V AC

Output Specification Table :

OUTPUT	MINIMUM	MAXIMUM	NOMINAL(RATED)
Voltage (Vdc)	14.25	15.75	15
Loading (Amp)	0A	3A	3A

Test ITEM	Vin	Load	Spec	Remark
Line Regulation	90V/47Hz 264V/63Hz	0A 3A	14.25~15.75V	
Load/Combine Regulation	90V/47Hz 264V/63Hz	0.A 1.5A 3A	14.25~15.75V	
Ripple & Noise	90V/47Hz 264V/63Hz	0A 3A	<350mVp-p	Parallel 0.1uF ceramic Cap and 10uF Aluminum Ca,由於 burst mode 有遲滯問題,此 item 不計 CPK。
Overshoot Voltage	90V/47Hz 264V/63Hz	0A~3A	< 16.5V	
Sync Dynamic	90V/47Hz 264V/63Hz	0A~3A	Overshoot <1.25V Undershoot<1.25V	S/R: 2.5A/uS, Freq: 50Hz/100Hz/1kHz System Cap: 100uF
Short Circuit Protection	90V/47Hz 264V/63Hz	Min. and Max. Load Turn on then short	Latch after SCP 10 second	N/A
Over Current Protection	90V/47Hz	3.0A-Trip	3.5A< OCP <5.5A	



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MODEL NO. :
ADP-130GB B SERIES

Date	Drawn	Design (EE)	Design (ME)	DOCUMENT NAME. :	REV.
03/27'24	蘇雲巧	陳嘉佑	曾映澍	TS-130GB B SERIES	13

Test ITEM	Vin	Load	Spec	Remark
	264V/63Hz		LATCH	
Average Efficiency	115V/60Hz 230V/50Hz	25%, 50%, 75% & 100% Load	>85.73% (for 產線測試) >87.73% (for Bench test)	Cold for 產線測試 100V burn-in 20~30min for Bench test, 由於 burst mode 有遲滯問題， 此 item 不計 CPK。
Capacitive Load	90V/47Hz 263V/63Hz	3.0A	Plugging a live AC Adapter into the system capacitance shall not cause the adapter to shut down.	Parallel 100uF Cap on output
Output rise time	90V/47Hz 264V/63Hz	3.0A	N/A	Measure output 10%~90%
Output discharge time	90V/47Hz 264V/63Hz	3.0A	<275ms	

9.Function test (ATS) procedure : (9VDC)

Input Specification Table :

INPUT VOLTAGE	MINIMUM	MAXIMUM	NOMINAL(RATED)
LOW RANGE	90 VAC	132 VAC	100 VAC
HIGH RANGE	180V AC	264V AC	240V AC

Output Specification Table :

OUTPUT	MINIMUM	MAXIMUM	NOMINAL(RATED)
Voltage (Vdc)	8.55	9.45	9
Loading (Amp)	0A	3A	3A

Test ITEM	Vin	Load	Spec	Remark
Line Regulation	90V/47Hz, 264V/63Hz	0A 3A	8.55~9.45V	
Load/Combine Regulation	90V/47Hz 264V/63Hz	0.A 1.5A 3A	8.55~9.45V	
Ripple & Noise	90V/47Hz 264V/63Hz	0A 3A	<300mVp-p	Parallel 0.1uF ceramic Cap and 10uF Aluminum Cap, 由於 burst mode 有 遲滯問題，此 item 不計



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Test ITEM	Vin	Load	Spec	Remark
				CPK °
Overshoot Voltage	90V/47Hz 264V/63Hz	0A~3A	< 9.9V	
Sync Dynamic	90V/47Hz 264V/63Hz	0~1.5A & 1.5A~3A	Overshoot <0.9V Undershoot<0.9V	S/R: 2.5A/uS, Freq: 50Hz/100Hz/1kHz System Cap: 100uF
Short Circuit Protection	90V/47Hz 264V/63Hz	Min. and Max. Load Turn on then short	Latch after SCP 10 second	N/A
Over Current Protection	90V/47Hz 264V/63Hz	3.0A-Trip	3.5A< OCP <5.5A LATCH	
Average Efficiency	115V/60Hz 230V/50Hz	25%, 50%, 75% & 100% Load	>84.62% (for 產線測試) >86.62% (for Bench test)	Cold for 產線測試 100V burn-in 20~30min for Bench test, 由於 burst mode 有遲滯問題, 此 item 不計 CPK °
Capacitive Load	90V/47Hz 264V/63Hz	3.0A	Plugging a live AC Adapter into the system capacitance shall not cause the adapter to shut down.	Parallel 100uF Cap on output
Output rise time	90V/47Hz 264V/63Hz	3.0A	N/A	Measure output 10%~90%
Output discharge time	90V/47Hz 264V/63Hz	3.0A	<275ms	

10. Function test (ATS) procedure : (5VDC)

Input Specification Table :

INPUT VOLTAGE	MINIMUM	MAXIMUM	NOMINAL(RATED)
LOW RANGE	90 VAC	132 VAC	100 VAC
HIGH RANGE	180V AC	264V AC	240V AC

Output Specification Table :

OUTPUT	MINIMUM	MAXIMUM	NOMINAL(RATED)
Voltage (Vdc)	4.75	5.5	5
Loading (Amp)	0A	3A	3A



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Test ITEM	Vin	Load	Spec	Remark
Inrush Current	115V/50Hz, 230V/50Hz; Phase 90°	3A	<150A	Cold start
Line Regulation	90V/47Hz 264V/63Hz	0A 3A	4.75V~5.5V	Steadily
Load/Combine Regulation	90V/47Hz 264V/63Hz	0A 1.5A 3A	4.75V~5.5V	Steadily
Ripple & Noise	90V/47Hz 264V/63Hz	0A 3A	<200mVp-p	Parallel 0.1uF ceramic Cap and 10uF Aluminum Cap, 由於 burst mode 有遲滯問題, 此 item 不計 CPK。
Overshoot Voltage	90V/47Hz 264V/63Hz	0A~3A	< 5.6V	
Sync Dynamic	90V/47Hz 264V/63Hz	0~1.5A & 1.5A~3A	Overshoot <1V Undershoot <0.75V	S/R: 0.2A/uS, Freq: 50Hz/100Hz/1kHz System Cap: 100uF
Short Circuit Protection	90V/47Hz 264V/63Hz	Min. and Max. Load Turn on then short	Latch after SCP 10 second	N/A
Over Current Protection	90V/47Hz 264V/63Hz	3.0A-Trip	3.5A<OCP<5.5A LATCH	
Average Efficiency	115V/60Hz 230V/50Hz	25%, 50%, 75% & 100% Load	>79.39% (for 產線測試) >81.39% (for Bench test)	Cold for 產線測試 100V burn-in 20~30min for Bench test, 由於 burst mode 有遲滯問題, 此 item 不計 CPK。
Pin at No Load	115V/60Hz 230V/50Hz	No Load	200mW(for 產線測試) 100mW(for Bench test)	
Pin at standby Load	115V/60Hz 230V/50Hz	0.25W	>55%	穩定時間 15s, 產線不判定, 以 BENCH 為主。
Capacitive Load	90V/47Hz 264V/63Hz	3.0A	Plugging a live AC Adapter into the system capacitance shall not cause the adapter to shut	Parallel 100uF Cap on output



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Test ITEM	Vin	Load	Spec	Remark
			down.	
Start up delay time	90V/47Hz 264V/63Hz	3.0A	<4s	
Output rise time	90V/47Hz 264V/63Hz	3.0A	<275mS	Measure output 10%~90%
Output fall time	90V/47Hz 264V/63Hz	3.0A	0~400ms	

Note 1 : After completes required DVT test matrix, identifies and selects the worst case condition for the Production MTR. It is not required that all test conditions be tested. Example : If worst case condition for Output Ripple is minimum input voltage and maximum dc load, then that is the test condition to be used.

11. Safety

11.1 Hi-POT test :

(L/N 短路) to (Vo/GND/CC pin 短路) use 3000+10% Vac test , Between AC input and secondary AC 3kV , test time 1 minute , and cut off current shall be less than 10mA

Hi-pot1 AC 3kV , test time 1s. Hi-pot2 DC 4242V , test time 1s. In production line

(上昇時間 : DC=1Sec , AC=0.1Sec)。

Test time=1sec。Arcing current=16mA

Hi-Limit current=10mA。Lo-Limit current=0.01mA。

11.2 Insulation Resistance (IR) test :

PRIMARY to SECONDARY use 500Vdc test ; Insulation resistance limit : >30M ohm。

11.3 Leakage current test : 264Vac/50Hz <=50uA。

11.4 Surface Temp. test :

表面溫升測試環境須按照 safety 測試 thermal 之規範，於 AMB 35 度之 chamber 下進行。此條件是 for 安規測試，並作為絕對溫度判定。若要測試 delta T 則 follow ES 測試條件，輸入電壓 100V/60Hz，環境溫度 25 度 C。



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12. Burn-in 測試作業規範：Follow Delta Standard Guideline。

13. I2C 測試作業規範：N/A

14. FRU Data Barcode Read/Write 測試作業規範：N/A

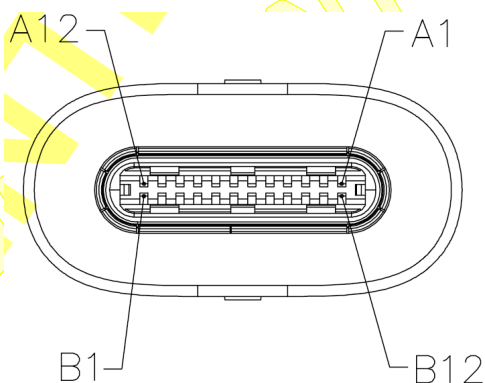
15. Auto trimming 作業指導如附件一。

16. DC Cable Connector pin define and related test request.

(1)Power cord 之 24pin connector，每 pin 皆需作短路導通測試。

(2)各 Pin 功能如下，其他為空 Pin。

USB C TYPE		TERMINAL
NA	V+ID RED	RED
PIN A4 A9	V BUS	WHITE (+)
PIN B4 B9		
PIN A5	CC1	ID BLUE
PIN A1 A12	GND	BLACK (-)
PIN B1 B12		
SHELL		
PIN A6 A7 SHORT	NC	



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