


REV.	Description	Date
S00	SPEC ISSUE(NEW MODEL)	03/27/2018
S01	102A-187204 ADD NEW MODEL:ADP-65AE BB	07/30/2018
S02	102A-189026 EMI/RFI setup add 4.EMI/RFI 判定條件為 under 6dB	09/17/2018
00	102A-18A075 轉量產	10/15/2018
01	102A-18A178 ADD ADP-65AE BAA & ADP-65AE BBA	11/02/2018
02	102A-193083 ADD ADP-65AE BC	03/12/2019
03	102A-198039 ADD ADP-65AE BD	09/02/2019
04	102A-199154 CHANGE ITEM 4 (C)	09/26/2019
05	102A-202053 ADD ADP-65AE BE	02/17/2020
06	102A-207025 ADD ITEM 3(j)	07/10/2020
07	102A-208140 ADD ADP-65AE BF	09/07/2020
08	102A-20103 ADD ADP-65AE BB1	11/18/2020
09	102A-20C016 ADD ADP-65AE BG	12/08/2020
10	102A-211004 ADD ITEM 3(k)噪音測試	01/07/2021
11	102A-227121 CHANGE ITEM 3(k)噪音測試	07/27/2022
12	102A-22C059 ADD ADP-65AE BH	12/16/2022
13	102A- ADD ADP-65AE BA2	12/12/2023
14	102A-245346 CHANG ITEM 5	05/30/2024

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Date	Drawn	Design (EE)	Design (ME)	DOCUMENT NAME. :	REV.
05/30/2024	呂翠娥	林建銘/陳新淵	楊基祥/吳岱洋	TS-65AE B SERIES	14

MODEL LIST: ADP-65AE BA/ BAA/BA2 /BB/BBA /BB1/ BC/BD/BE/BF/BG/BH

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：

- a. 所有 ATS 測試時，須偵測 CONNECTOR 端之電壓。
- b. Thermal 測試環境使用電木。
- c. 量測 ID PIN 電壓時，不可使用電子負載，須使用三用電表或示波器。
- d. 測試電容性負載(2200uF)時，電子負載需設定 10V Von 點。
- e. HI-POT 測試時 AC Cable 須使用兩芯線。
- f. Common Mode Noise 只須滿足 HP 規格。

The common mode noise when measure in accordance with IEC 62684 shall not exceed follow below requirement

The peak-to-peak voltage measured in the frequency range of 10KHz to 100KHz shall not exceed 1V peak-to-peak.

The peak-to-peak voltage measured in the frequency range of 100KHz to 400KHz shall not exceed 200mV peak-to-peak

g. ATS 與 Loop gain 測試時，須全程並聯系統電容 2200uF，且需要直接加在治具端上，不可使用電容盒連接。

h. AC on/off 測試必須設定 Von 點為 10V。

i. Surge Load 的測試條件:

輸入電壓：100V / 60Hz.

輸出負載：Surge Load 5A / 0.3S ~ MAX Load 3.33A / 5S。



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ADP-65AE B SERIES

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Current slew rate 1A / usec 。

備註:在 ATS 測試時，抽完 surge load 5A 之後，必須增加切為滿載 3.33A 程式，再進入 UUT off & Load Setup 。

j. 測試表面溫升時，使用#30 點溫線。

k. 噪音測試時需 B/I 30 分鐘，B/I 條件輸入電壓 100Vac/60Hz 輸出負載 20V/3.33A，HP 噪音測試若使用 AC source 測試 Fail 需再用市電驗證，最終以市電測試結果判定。HP acoustic noise 測試，不測試輸出 10%及 20% load 條件。
內規部分以 100Hz~20KHz 的條件判定。

(1). 0~Full Load : < 25dB

(2). No Load - 120Vac/60Hz

(3). No Load - 240Vac/50Hz

(4). Nominal Load - 120Vac/60Hz

(5). Nominal Load - 240Vac/50Hz

(6). Maximum Load - 120Vac/60Hz

(7). Maximum Load - 240Vac/50Hz

Table – AC Adapter Acoustic Noise Levels

Frequency (Hz)	Mag dBA re 20 µPA
630	5.0
800	7.5
1 k	9.0
1.25 k	12.0
1.6 k	11.0
2.0 k	12.0
2.50 k	12.0
3.15 k	12.0

Frequency (Hz)	Mag dBA re 20 µPA
4.00 k	12.0
5.00 k	11.0
6.30 k	10.0
8.00 k	9.0
10.00 k	8.0
12.50 k	7.5
16.00 k	13.0
20.00 k	20.0



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4.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. ID function 測試調整如下:

產品輸出電流在 3.15A 之前，ID 電壓準位為 6.17V~6.81V；產品輸出電流在 3.15A~4A(120%之間，ID 電壓準位為 17V~19V 為正常轉態，轉態時間為 50mS ~ 300mS。

此測試項目需滿足常溫(25℃)條件下。

輸出電流 3.15A 時，其 ID 電壓已經轉態至(17V~19V)，請短路 TR132。

d. **OVP Test :** (量產後不需測試)

Load Condition : 3.33A

測試方法: 短路 R137,檢查輸出電壓是否小於 29V, OVP 動作模式為 Latch off

e. **OTP Test :**


Load Condition : 3.33A

測試方法：NTC31 並聯 10kohm 電阻,檢查輸出電壓是否 shutdown 或 Latch off.

f. **AC On/Off:**

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

g. **抽載測試輸出:** Connector 需掛 10uF & 0.1uF 的輸出電容做為測試。

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05/30/2024	呂翠娥	林建銘/陳新淵	楊基祥/吳岱洋	TS-65AE B SERIES	14

5. Function test (ATS) procedure :

Input Specification Table:

INPUT VOLTAGE	MINIMUM	MAXIMUM	NOMINAL(RATED)
	90Vac	265Vac	120Vac

Output Specification Table:

OUTPUT	MINIMUM	MAXIMUM	NOMINAL(RATED)
Voltage (Vdc)	18.525V	20.475V	19.5V
Loading (Amp)	0A	3.33A	3.33A
ID(V)轉態前	6.17	6.81	6.49
ID(V)轉態後	17	19	18

Test Item	Vin	Load	Spec	Remark
Inrush Current	265V/63Hz; Phase 90°	3.33A	shall be limited to a 29% margin of the I ² T rating of the input fuse and bridge rectifier.	
Turn On Time	90V/47Hz	3.33A	<5000mSec	
Hold up Time	100V/50Hz	3.33A	>5ms	
Rise Time	90V/47Hz& 265V/63Hz	0/0.5/3.33A	Output Voltage: The output shall be in regulation within 40mS at 0 to 500mA condition. (Measured from 10% to 95% regulation)	From 10 to 90% voltage, monotonic
Fall Time	90V/47Hz& 265V/63Hz	3.33A	<NA	From 90 to 10% voltage, monotonic
Line Regulation	90/115/230/265V 47/63Hz	0A	18.525V~20.475V	
Line Regulation	90/115/230/265V 47/63Hz	3.33A	18.525V~20.475V	
Load/Combine Regulation	90/115/230/265V 47/63Hz	3.33A	18.525V~20.475V	
Ripple & Noise	100V/50Hz	0.05A & 3.33A	<380mVp-p	0.1uF/10uF Oscilloscope at 10KHZ to 20MHz bandwidth



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ADP-65AE B SERIES

Date	Drawn	Design (EE)	Design (ME)	DOCUMENT NAME. :	REV.
05/30/2024	呂翠娥	林建銘/陳新淵	楊基祥/吳岱洋	TS-65AE B SERIES	14

Transient Load	90V/47Hz & 265V/63Hz	0.1A--90%Load & 10%--100%load	18.525V~20.475V	Output change from 0.1A to 90 % Load, and from 10 % to 100 % load, slew rate is 1A/us, frequency is 1Hz ~ 5KHz. Remark:不須計算 CPK
Short Circuit Protection	90V/47Hz &	0A & 3.33A Turn on then short	Latch	
Short Circuit Protection	265V/63Hz	0A & 3.33A Turn on then short	Latch	
Over Current Protection	90/110/230/265Vac	3.33A	5A<OCP <11A Latch	
Input Current	90V/47Hz	3.33A	<1.7A	
Harmonic Current Power Factor	120V/60Hz	3.33A	>0.5	The source impedance shall be less than 0.1 ohm.
Average Efficiency	230V/50Hz& 115V/60Hz	25%, 50%, 75% & 100% Load	>87%	Cold
Average Efficiency	230V/50Hz& 115V/60Hz	25%, 50%, 75% & 100% Load	230V/50Hz 需>89% 115V/60Hz 需>88%	hot
Pin at No Load	115V/60Hz& 230V/50Hz	No Load	<150mW	
Pin at standby Load	115V/60Hz& 230V/50Hz	0.25W 0.5W 1.0W 1.5W	0.5W 1.0W 1.7W 2.4W	
Surge Load 1	90V/47Hz~ 265V/63Hz	3.49A (3minutes) 3.7A (1minutes) 3.81A (30seconds)	18.525V~20.475V	Remark:不須計算 CPK
Surge Load 2	100V/50HZ	5A(300ms) 6A(10ms)	Vo allowed to drop to 15V minimun	Current slew rate 1A/usec Remark:不須計算 CPK
Capacitive Load	90/115/240/265 Vac	3.33A		Add cap.2200uF

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.

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6. Safety

6.1 Hi-POT test :

PRIMARY to SECONDARY : Applied 3000 +10%Vac , 60Hz for test . (Rise time : DC=1Sec, AC=0.1Sec).

Cut off current : Hi-Limit 10mA, Lo-Limit 0.02mA ◦

Testing time for production line is 1 minute at EVT/DVT stage and 1 Second at PVT/MP stage.

Following is Arcing sense setting at each stage : EVT1: 5mA, EVT2/DVT: 8mA, PVT/MP: 10mA.

6.2 Insulation Resistance(IR) test :

Primary to Secondary use 500Vdc test, Insulation resistance limit >100Mohm.

6.3 FG connection test

FG 與 Vo GND 之間直流阻抗必須在 0.9~1.1Mohm 之間

6.4 Leakage Current

Class I Equipment (Grounded Equipment)

The total combined leakage current when measure in accordance with IEC 60950-1, 2nd

Edition shall not exceed 30 microamperes when tested at 250 VAC, 50 Hz in a normal

operating condition

7. Burn-in 測試作業規範

Follow Delta Standard Burn-in Condition.

8. Loop/Gain 測試作業規範


Disturbance voltage setting 1.3V

9. EMI/RFI Setup

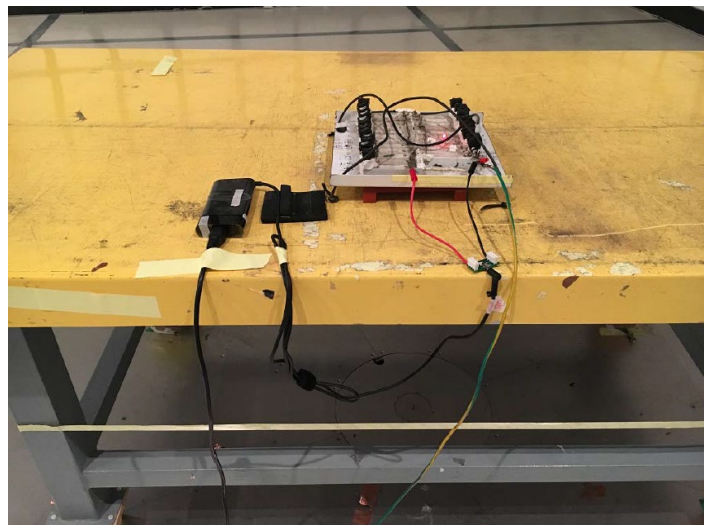
1. AC power cord 使用 1.8m 線

2.樣品 DC cable 放在樣品與 dummy load 之間,不可跨到 AC power cord 與接地線

3.Dummy Load 放置桌面時, 治具與桌沿切齊

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4.EMI/RFI 判定條件為 under 6dB



10. Mechanical 包裝測試條件: 請參照台達規範: 10000-0089

(1) Drop Test

a. 條件

Carton weight

~25kg, 高度 60cm

26~50, 高度 45cm

51~75, 高度 35cm

76~100, 高度 30cm


b. 紙箱測試順序

以紙箱之1個稜角/3個稜線/6個面，每次落下試驗可取任一稜角(傾斜角不得超過10度)

c. 試驗步驟如下

Step1. 垂直落下此角 (Corner 2-3-5)

Step2. 由此角引申之最小稜線 (Edge 3-5)

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05/30/2024	呂翠娥	林建銘/陳新淵	楊基祥/吳岱洋	TS-65AE B SERIES	14

Step3. 由此角引申之次長稜線 (Edge 2-5)

Step4. 由此角引申之最長稜線 (Edge 2-3)

Step5. 最小的面 (Front 5)

Step6. 相對的最小面 (Rear 6)

Step7. 次小的面 (Right 2)

Step8. 相對的次小面 (Left 4)

Step9. 最大的面 (Bottom 3)

Step10. 相對的最大面 (Top 1)

(2) Vibration Test

a. 條件

頻率 5 Hz, 振幅 20 mm, 時間 5 Min.

頻率 10 Hz, 振幅 5 mm, 時間 5 Min.

頻率 15 Hz, 振幅 2.2 mm, 時間 5 Min.

頻率 20 Hz, 振幅 1.25 mm, 時間 5 Min.


* 包裝測試後判定標準:

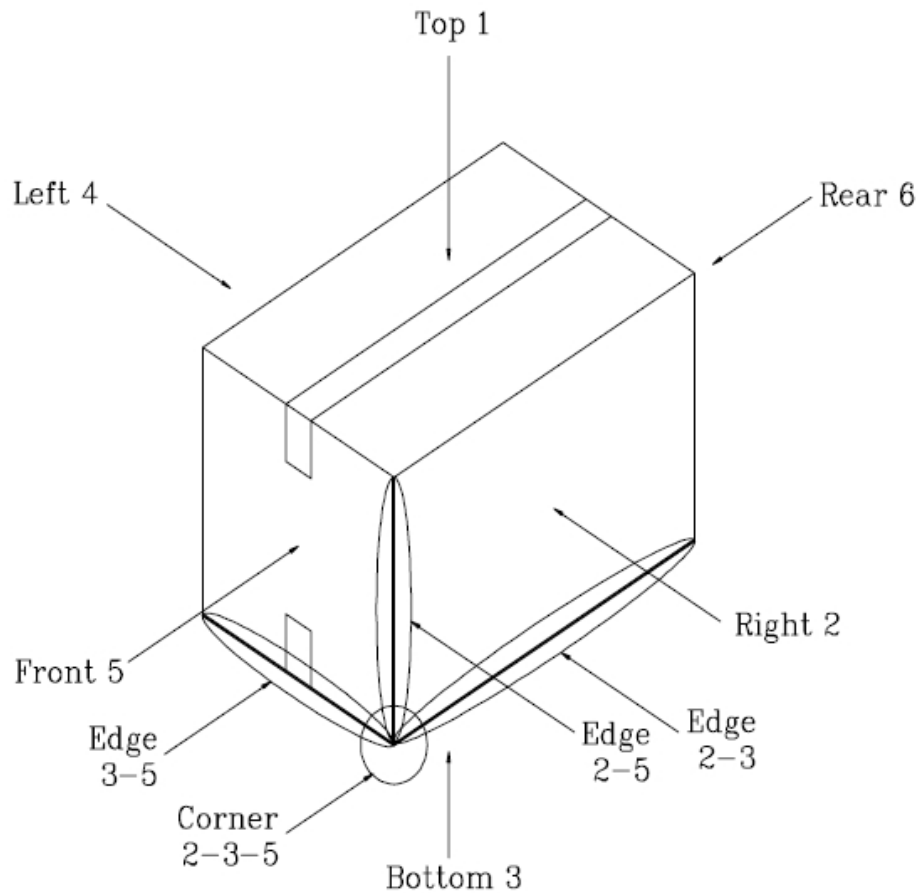
(1) Drop Test --- 產品 --- 外觀無損壞, 輸出正常, Hi-Pot 測試無不良.

--- 包材 --- 外箱可變形, 產品自身之單體包裝 (PE Bag, 彩盒, 吸塑盒.....)
不得有變形及破損.

(2) Vibration Test --- 產品 --- 外觀無損壞, 輸出正常, Hi-Pot 測試無不良, 包裝材料無損壞.

* 如果參考機種已完成包裝測試, 則不需重新測試.

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05/30/2024	呂翠娥	林建銘/陳新淵	楊基祥/吳岱洋	TS-65AE B SERIES	14



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