

Eight Discipline Report (8D Report)

To: ASUS	8D report No.:
From: : Chicony Power Technology	RMA claim No.: N/A
CC:	Chicony Power P/N: A065RP31P-AX01
	Customer P/N: 0A001_00896900
Submit date:	Product description: 65W PD
Receive date: 2022/3/31	Defect D/C or Lot No.:

Subject:客戶告知有 A03 版本有 1pcs 單體,搭配系統 ISN 測試,與 A02 版本樣機的測試結果有差異。

修改: ISN 測試, RK 電阻 OPEN, FG 浮接, ESD check RK 阻值

D1.) 問題解決成員:Use Team Approach

主持者 (Team Leader): Edward Ho 內部成員 (Internal Team Members):

RD: Eric Wu

外部成員 (External Team Member):

D2.) 問題說明: Problem Description:

(Note: Use who, what, when, where, why, how, how many to specify the Customer's problem.)

2022/ 客戶告知:

客戶告知有 A03 版本有 1pcs 單體,搭配系統 ISN 測試,與 A02 版本樣機的測試結果有差異。

Sample: A065RP31P-AX01 / Version: A02

S/N:050204760







D3.)內部或客戶的暫時解決辦法及實施日期:Implement and Verify Containment Action:

(Note: Internal / external containment action effectiveness and date.)

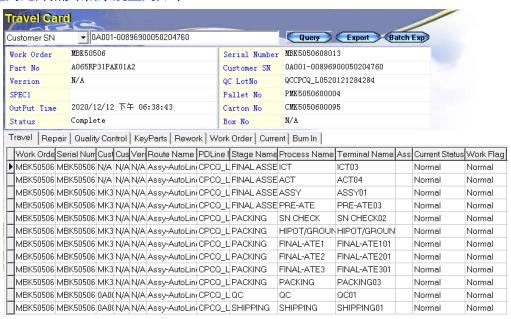
1. 從客戶端拿到了樣機並做進一步分析

Date:2022

D4.)不良原因確認: Define and Verify Root Causes:

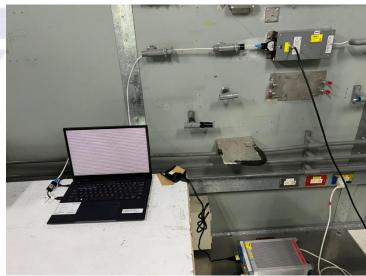
(Note: Identify and verify all suspect causes, which needs explain why the problem occurred.)

1. SFCS 查詢記錄無異常,系統查詢如下:



2. 客戶告知有 A03 版本有 1pcs 單體,搭配系統 ISN 測試,與 A02 版本樣機的測試結果有差異。





ISN - Adapter With PC Only(立德)

Form No.SMQA061 2.0 版 保存期限: 5 年



3. ISN Test with PC only (A02 版本與 A03 版本比較)

A02 比 A03 版本 ISN 測試明顯偏低

A02_050204760(電量 4%)

Brand / Model: A065RP31P
Test Mode: LAN 16bps, Traffic
Power Source: AC 230V/S0Hz
Remark: with system,Burnin(2D/3D/CPU/RAM/Sound,100% loading), PC only, Battery(4%)
Sample No. A02
Tested by: FOX CHANG

Location: HY - Conduction 1

Date: 2022/4/12 Humidity (%): 74

Time: 下午 01:35:15

Approved by:

Phase: X1



	Frequency	Corr. Factor		ading BuV		ission BuV		imit BuV		rgins JB	Notes
No.	MHz	dB	QP	AV	QP	AV	QP	AV	QP	AV	Notes
1	1.91800	9.35	43.71	41.58	53.06	50.93	74.00	64.00	-20.94	-13.07	
2	3.45400	9.28	47.91	43.36	57.19	52.64	74.00	64.00	-16.81	-11.38	
3	6.53000	9.25	47.71	43.42	56.96	52.67	74.00	64.00	-17.04	-11.33	
4	8.06600	9.25	50.24	45.32	59.49	54.57	74.00	64.00	-14.51	-9.43	
5	9.73000	9.26	50.06	44.98	59.32	54.24	74.00	64.00	-14.68	-9.76	
+6	11.74200	9.29	50.99	45.86	60.28	55.15	74.00	64.00	-13.72	-8.85	

A03(電量 4%)

Brand / Model: A065RP31P
Test Mode: LAN 1Gbps, Traffic
Power Source: AC 230V/50Hz
Remark: with system,Burnin(2D/3D/CPU/RAM/Sound,100% loading), PC only, Battery(4%)
Sample No. A03
Tested by: FOX CHANG

Location: HY - Conduction 1 Date: 2022/4/12 Time: 下午 01:39:22

Temperatuer (C): 23 Humidity (%): 74

EN55032-CISPR32-VCCI32 Class B (Telecom port) 100 30 20 10-

	Frequency	Corr. Factor		ading BuV		ission BuV		imit BuV		gins IB	Notes
No.	MHz	dB	QP	AV	QP	AV	QP	AV	QP	AV	Notes
1	0.43599	9.61	53.09	48.67	62.70	56.28	75.14	65.14	-12.44	-8.86	
2	0.48829	9.58	52.62	44.71	62.20	54.29	74.20	64.20	-12.00	-9.91	
3	0.56600	9.55	50.97	43.22	60.52	52.77	74.00	64.00	-13.48	-11.23	
4	0.65800	9.52	50.40	45.30	59.92	54.82	74.00	64.00	-14.08	-9.18	
+5	0.77400	9.48	54.72	50.33	64.20	59.81	74.00	64.00	-9.80	-4.19	
6	0.87580	9.48	53.51	45.40	62.97	54.86	74.00	64.00	-11.03	-9.14	
7	0.99712	9.44	51.68	45.23	61.12	54.67	74.00	64.00	-12.88	-9.33	

ISN 差異與系統電池電量無關

A02_050204760(電量 4%)

Brand / Model: A065RP31P
Test Mode: LAN 1Gbps, Traffic
Power Source: AC 230V/S0Hz
Remark: with system,Burnin(2D/3D/CPU/RAM/Sound,100% loading), PC only, Battery(4%)
Sample No. A02
Tested by: FOX CHANG

Location: HY - Conduction 1

Date: 2022/4/12 Time: 下午 01:35:15 Temperatuer (C): 23 Humidity (%): 74 Approved by



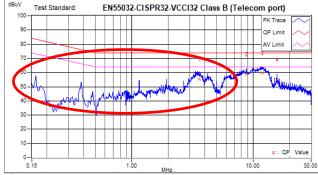
	Frequency	Corr. Factor		ading BuV		ission BuV		imit BuV		rgins IB	Notes
No.	MHz	dB	QP	AV	QP	AV	QP	AV	QP	AV	Notes
1	1.91800	9.35	43.71	41.58	53.06	50.93	74.00	64.00	-20.94	-13.07	
2	3.45400	9.28	47.91	43.36	57.19	52.64	74.00	64.00	-16.81	-11.38	
3	6.53000	9.25	47.71	43.42	56.96	52.67	74.00	64.00	-17.04	-11.33	
4	8.06600	9.25	50.24	45.32	59.49	54.57	74.00	64.00	-14.51	-9.43	
5	9.73000	9.26	50.06	44.98	59.32	54.24	74.00	64.00	-14.68	-9.76	
+6	11.74200	9.29	50.99	45.86	60.28	55.15	74.00	64.00	-13.72	-8.85	

A02_050204760 (電量 17%)

Brand / Model: A065RP31P
Test Mode: LAN 1Gbps , Traffic
Power Source: AC 230V/50Hz
Remark: with system,Burnin(2D/3D/CPU/RAM/Sound,100% loading) , PC only , Battery(17%)
Sample No. A02
Tested by: FOX CHANG

Location: HY - Conduction 1 Date: 2022/4/12 Temperatuer (C): 23

Time: 下午 02:03:34



0.15

1.00

MHz

This data is for evaluation purposes only. It cannot be used for EMC approvals unless it contains the approved signify you have any questions regarding the test data, you can write your comments to service add@tw.bureauveritas

	Frequency	Corr. Factor		ading BuV		ssion BuV		mit BuV		rgins IB	Notes
No.	MHz	dB	QP	AV	QP	AV	QP	AV	QP	AV	Notes
1	3.58600	9.28	46.24	40.51	55.52	49.79	74.00	64.00	-18.48	-14.21	
2	8.83000	9.26	49.57	44.72	58.83	53.98	74.00	64.00	-15.17	-10.02	
+3	11.87800	9.29	50.38	45.48	59.67	54.77	74.00	64.00	-14.33	-9.23	
4	15.74200	9.35	45.65	42.11	55.00	51.48	74.00	64.00	-19.00	-12.54	



4. ISN - Adapter With PC Only(中研)



5. ISN Test with PC only (立德、中研 LAB 比較)

客退品(版本 A02),在立德和中研 LAB 測試 ISN 結果波形差異不大。

A02_050204760(立德)

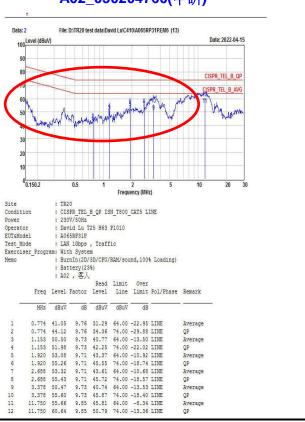
Brand / Model: A065RP31P Test Mode: LAN 1Gbps, Traffic Power Source: AC 230V/50Hz Remark: with system Burnin(2D/3DICPU/RAM/Sound,100% loading), PC only , Battery(17%) Sample No. A02 Tested by: FOX CHANG Location: HY - Conduction 1 Date: 2022/4/12 Time: 下午 02:03:34 Phase: X1



This data is for evaluation purposes only. It cannot be used for EMC approvals unless it contains the approved signature. If you have any questions regarding the test data, you can write your comments to service.adt@tw.bureauveritas.com VYZ3X.

	Frequency	Corr. Factor		ading BuV		ssion BuV		imit BuV		gins IB	Notes
No.	MHz	dB	QP	AV	QP	AV	QP	AV	QΡ	AV	Notes
1	3.58600	9.28	46.24	40.51	55.52	49.79	74.00	64.00	-18.48	-14.21	
2	8.83000	9.26	49.57	44.72	58.83	53.98	74.00	64.00	-15.17	-10.02	
+3	11.87800	9.29	50.38	45.48	59.67	54.77	74.00	64.00	-14.33	-9.23	
4	15.74200	9.35	45.65	42.11	55.00	51.46	74.00	64.00	-19.00	-12.54	

A02_050204760(中研)

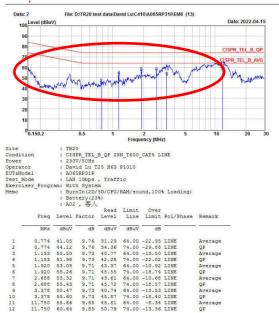




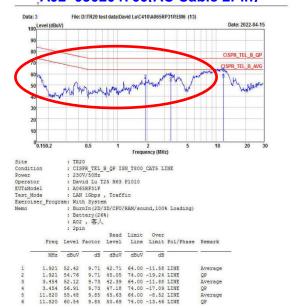
6. ISN Test with PC only (A02_AC Cable 2Pin、3Pin 比較)

客退品(版本 A02),使用 AC Cable 2Pin 與 3Pin, 測試結果波形差異不大。

A02_050204760(AC Cable 3Pin)



A02 050204760(AC Cable 2Pin)

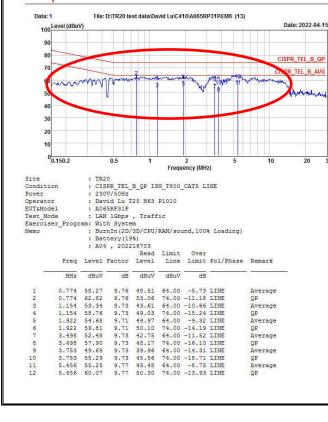


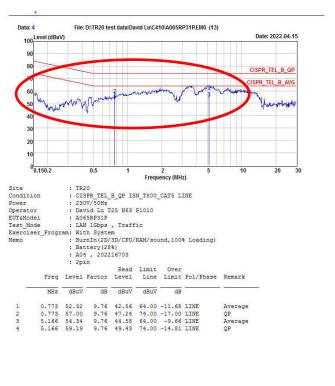
7. ISN Test with PC only (A04_AC Cable 2Pin、3Pin 比較)

樣機(版本 A04) _使用 AC Cable 2Pin 與 3Pin 的測試結果波形有差異。

A04_220216703 (AC Cable 3Pin)

A04_220216703 (AC Cable 2Pin)







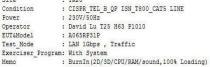
8. ISN Test with PC only (FG 浮接模擬失效狀況)

將 A04 版本的樣機 FG 線浮接,與客退品(A02 版本)比較, ISN 測試結果波形差異不大。

A04_150225447

A04_150225447, Cancel FG 線



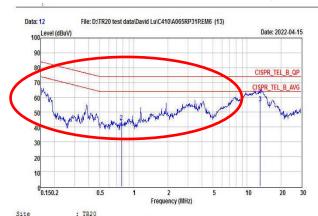


: Battery(26%)
: A04 , 150225447
: 3pin

Read Limit Over

Freq Level Factor Level Line Limit Pol/Phase Remark

	1100000000							
	MHz	dBuV	dB	dBuV	dBuV	dB		
1	2.167	51.51	9.70	41.81	64.00	-12.49	LINE	Average
2	2.167	56.75	9.70	47.05	74.00	-17.25	LINE	QP
3	3.454	53.76	9.73	44.03	64.00	-10.24	LINE	Average
4	2 454	E0 62	0 72	40 00	74 00	15 20	TIME	OD



	MHz	dBuV	dB	dBuV	dBuV	dB		
1	0.775	40.97	9.76	31.21	74.00	-33.03	LINE	QP
2	0.775	43.40	9.76	33.64	74.00	-30.60	LINE	Peak
3	13.026	56.09	9.87	46.22	64.00	-7.91	LINE	Average
4	13.026	61.00	9.87	51.13	74.00	-13.00	LINE	QP

將第2台 A04 的樣機 FG 線浮接,與客退品(A02 版本)比較,ISN 測試結果波形差異不大

A04 150225064

A04_150225064, Cancel FG 線







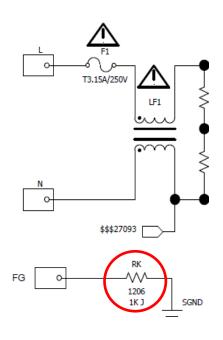
9. A02 版本樣機分析

步驟:

- 1.確認 FG 線有沒有浮接 → 沒有浮接, 參考圖 1。
- 2.確認 FG 線到 SGND 有沒有 1K ohm 阻抗 →電阻 Open, 參考圖 2。





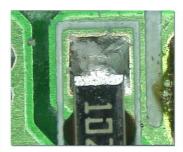


步驟:

- 3.量測 RK 電阻阻值 →電阻 Open,參考圖 3。
- 4.確認 RK 電阻吃錫狀況 →兩端端點吃錫良好,請參考圖 4、5。
- 5.RK 電阻經放大鏡檢視後發現,絲印部份(0)有缺口,請參考圖 6,不良電阻送廠商分析原因。







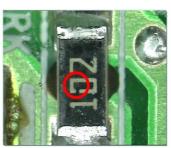


圖 4

圖 1 圖 2 圖 3

Form No.SMQA061 2.0 版

保存期限: 5 年



10.RK 不良品電阻分析結果

不良品經廠商分析結果如下:

- 1.量測 RK 電阻阻值 Open。
- 2.電阻本體有燒毀現象,判定為過載燒毀。
- 3.廠商分析報告請參考附件。



ASUS Brick Type 65W PD Adapter I

45

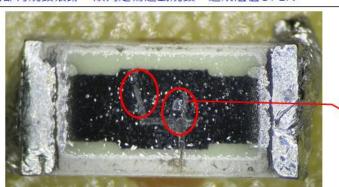
46

47 48

56 57 58 3.2 電性分析: 取不良品使用電錶量測阻值,確認阻值皆OPEN。

SampleSPEC.R-value(Ω)Judge11KΩ,±5%OPENNG

3.3 Decap分析:去除保護層,確認內部有燒毀痕跡,故判定為過載燒毀,造成阻值OPEN。



阻體有燒毀現象

11.Hi POT 測試

Hi-POT 測試: 測試時間 60s,RK 電阻廠商是大毅,阻值沒有變化。

項目	電壓(測試時間 60s)	RK阻值(原始 =1.033K)
Primary to F.G	1500Vac	1.034K
Primary to Secondary	3000Vac	1.035K
Primary to F.G	2000Vac	1.034K
Primary to Secondary	3500Vac	1.034K
Primary to F.G	2500Vac	1.035K
Primary to Secondary	4000Vac	1.034K
Primary to F.G	3000Vac	1.034K
Primary to Secondary	4500Vac	1.034K
Primary to F.G	3500Vac	1.034K
Primary to Secondary	5000Vac(Fail)	1.035K
Primary to F.G	4000Vac	1.035K
Primary to F.G	4500Vac	1.035K
Primary to F.G	5000Vac(機器極限)	1.036K

項目	電壓(測試時間 60s)	RK阻值(原始 =1.033K)
		1.036K
	5000Vac	1.036K
Primary to F.G	(連測5次)	1.036K
	(,, ,	1.036K
		1.036K
		1.036K
Primary to	4500Vac	1.036K
Secondary	(連測5次)	1.036K
occondary	(AEARIOTA)	1.036K
		1.036K



12.ESD 測試

ESD 測試 : 大毅 1/4W 電阻, 經 ESD(Air ±16.5KV) 測試 3000 次後, 結果如下:

16.5K ESD

16.5K E3D							
ESD:1~1000下							
次數(輸入電壓)	RK的阻值(原始阻值998ohm)						
±50下(110V)	937						
±50下(220V)	926						
±50下(110V)	918						
±50下(220V)	919						
±50下(110V)	911						
±50下(220V)	916						
±50下(110V)	916						
±50下(220V)	923						
±50下(110V)	928						
±50下(220V)	926						

ESD:2001~3000下								
次數(輸入電壓)	RK的阻值							
±50下(110V)	1035							
±50 下(220V)	1039							
±50下(110V)	1058							
±50 下(220V)	1072							
±50下(110V)	1079							
±50 下(220V)	1095							
±50下(110V)	1109							
±50 下(220V)	1131							
±50下(110V)	1145							
±50下(220V)	1158							

ESD:1001~2000下	
次數(輸入電壓)	RK的阻值
±50下(110V)	930
±50下(220V)	937
±50下(110V)	945
±50下(220V)	953
±50下(110V)	965
±50下(220V)	980
±50下(110V)	987
±50下(220V)	990
±50下(110V)	1008
±50下(220V)	1012

▶ 結論:

4/13 結論(BV LAB)

- 1.從 ISN 測試:A02 版本樣機比 A03 版本樣機測試結果明顯偏低。
- 2.從交叉比對結果:ISN 測試與系統電池電量無關。

4/18 結論(中研 LAB)

- 1.使用 AC Cable 2pin 測試,客退品(A02 版本)量測結果沒有差異,但 A04 版本樣機測試結果和 A02 客退品測試結 果差不多,認為客退品(A02 版本)的 FG 路徑上有零件損壞。
- 2.A04 版本的 2 台樣機,將 FG 線浮接模擬失效狀況,測試結果與 A02 客退品的 ISN 測試結果相同。
- 3.客退品(A02 版本)分析結果為 RK 電阻損壞,造成 FG 線 Open,導致客退品(A02 版本)的 ISN 測試結果和 A03 有 所差異。

5/03 結論

- 1.不良 RK 電阻廠商分析,廠商分析結果確認內部有燒毀痕跡,故判定為過載燒毀。
- 2.Hi-Pot 測試後,RK 電阻(廠商:TA-I)阻值無變化。
- 3.ESD 測試後,RK 電阻(廠商:TA-I)阻值有變化,但沒有發生 Open 現象。



D5.)改善措施:Corrective Action Verification:

(Note: Be make sure the corrective actions is effective in process as well as able to fix the customer complaint problem)

Date:

D6.)改善措施實施日期:Implement Permanent Corrective Actions:

(Note: Be provide the phase-in date or lot# of corrective actions implementation in process)

Immediately

D7.)預防再發生措施:Prevent Recurrence:

(**Note**: Modified the management, operating systems, practices, and procedures to prevent recurrence for the problems as well as lessons learned cases.)

Same as D5

D8.)確認並感謝問題解決成員:Check and Congratulate the Team:

(Note: Recognize the collective efforts of the team.)

Thanks to you all!!!

CQS: Jack Wang QE: Kitty Zhang MFG: Xiaohui Du PE: Yong Liu Sales: Gordon Wang

RD: Chris Wu

Signature	Cf_Liu
Team Leader:	
	Name – Title
Signature by Approver:	Wade_Lo
	Name-Title