Eight Discipline Report (8D Report)

To: **ODM**	8D report No.: **20140227**
From: : **Chicony Power Technology**	RMA claim No.: **N/A**
CC :	Chicony Power P/N: **W015R004L-PG01**
	Customer P/N: **IPV5K6K**
Submit date:	Product description: **15W adapter**
Receive date: **20140220**	Defect D/C or Lot No.:
Subject : No power*1pcs (EMC / Surge , surge failure, Q1, R1, R1A, ZD5, R16 damaged)	

D1.) 問題解決成員:Use Team Approach

主持者 (Team Leader)： **CF_Liu**

內部成員 (Internal Team Members):

CQS: Power_Zhang **RD: Gin_Lin**

RD Leader: Walt_Ni

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.)

One of three units failed during surge test in customer side. We received the failed unit and do analysis below. The unit failed under the conditions as following :

- **Standard 1.2/50 µsec Combination Wave**
- **Peak Voltages - 4000V**
- **Peak Current 2 KV**
- **Ref Angle 270**
- **Test mode Neutral to Chassis (L2/PE).**

Customer already opened the case while failed unit received.

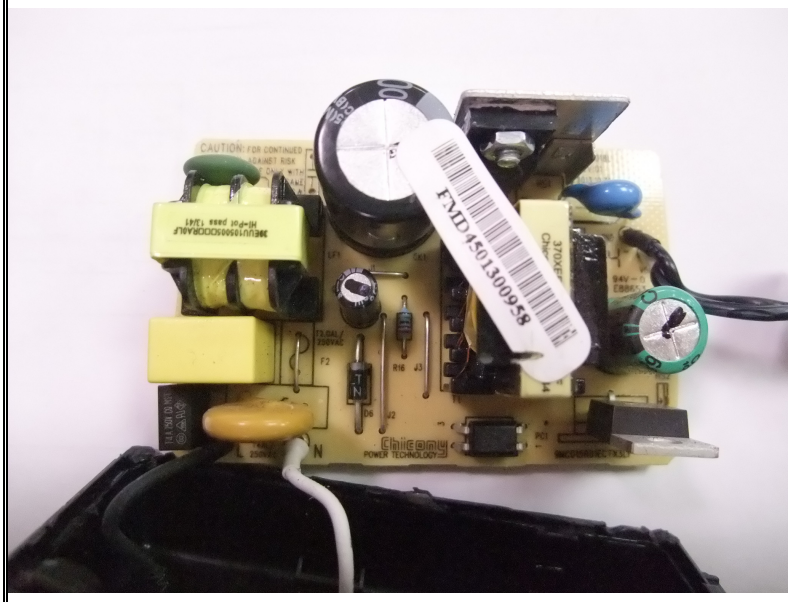
D3.)內部或客戶的暫時解決辦法及實施日期:Implement and Verify Containment Action:

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

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

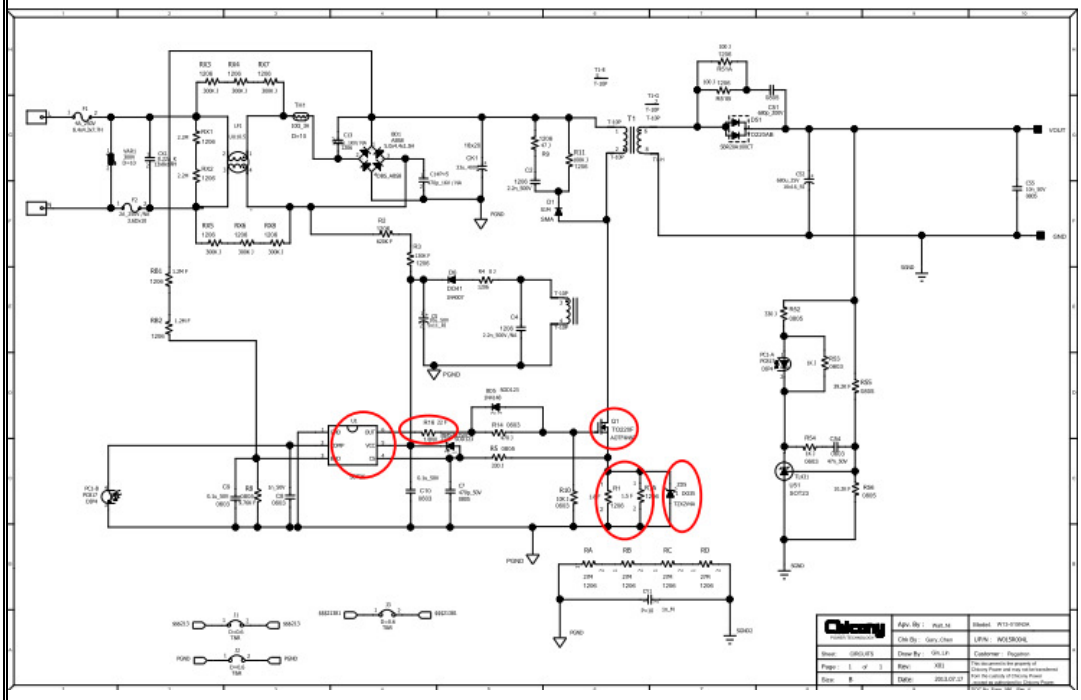
(Note: Identify and verify all suspect causes, which needs explain why the problem occurred.**)**

At component side, there is no burning mark or loose parts.



At solder side, there is no burning mark or loose parts.

After further checking, the damaged components are: Q1, R1, R1A, ZD5, R16,

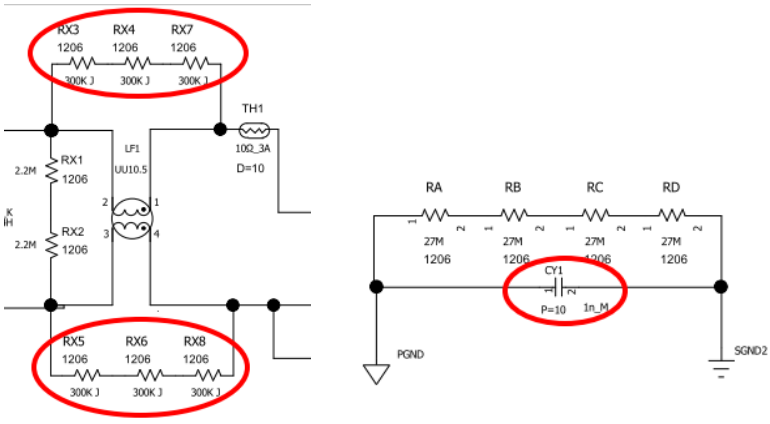


This failure looks like a noise influence →MOSFET blow→ R-sense burnt open and PWM damaged.

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**)**

- **As this failure is common mode, noise has chance to inject into circuit due to LC resonance caused by choke and Y-cap. To help improving surge capability, we can add more damping to the components to enhance the noise immunity.**
- **We are trying to enhance surge capability by changing RX3~RX8 and CY1 value. If the solution is OK, we will double check EMI performance.**



- **We evaluated the solution by test to fail method, applying 4KV→5KV→6KV as step to the units for bi-wave common mode, this test cycles will be much more than standard test condition. We finished 5pcs surge test for common mode, one unit had no output after 6KV and four units still had output after 6KV. Components we changed for evaluation as following.**

	original	solution
RX3~RX8	330K	255K
CY1	1000p	680p

- **Then we prepared 5pcs new samples with solution and did surge test with fully test mode. They passed +10% surge test (4.4KV) with standard test process including common and differential mode. We will continue to do common mode test to fail for these samples.**
- **The result looks comfortable, common mode pass 5KV and margin is 1KV.**
- **As requested, we will provide 30pcs new samples with surge solution for customer evaluation.**

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: Power_Zhang RD: Gin_Lin RD Leader: Walt_Ni

Signature **Team Leader**:	**CF_Liu**
	Name – Title

Signature by Approver:	Roy_Tsai
	Name-Title