Eight Discipline Report (8D Report)

To:	8D report No.:
From:：	RMA claim No.:
CC：	Chicony Power P/N: **W045R127P-AX01**
	Customer P/N:
Submit date: **2020/10/08**	Product description:
Receive date: **2020/10/08**	
Subject：CS fail (CS 測試造成輸出電感跨壓上升影響回授運作) [CS 測試] **雜訊，感抗，跨壓變化，迴授影響**	

D1.) 問題解決成員:Use Team Approach

主持者 (Team Leader)：

內部成員 (Internal Team Members):

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.)

45W Power CS Issue

搭配客戶系統做 CS 測試時，發現在 CS 訊號進入 PSU 後會造成輸出電壓 drop，由 19.6V 掉到 16.6V，由於輸出電壓太低無法對系統電池充電，造成系統端出現 AC mode / Battery mode 反覆切換的現象

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. **FAE of CPT got this PSU from customer for further analysis.**
2. **CPT send 1pc PSU to customer for exchange.**

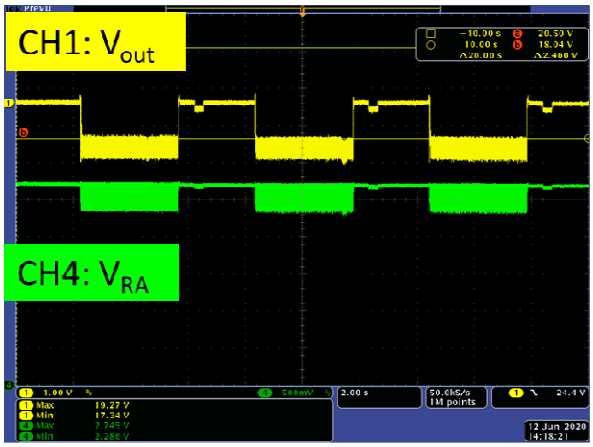
D4.)不良原因確認: Define and Verify Root Causes:

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

1. **確認前一版搭系統驗證 CS 測試結果 PASS.**
2. **此版本為提升 EMI margin 在二次側輸出端新增 common choke(LF51).**
3. **短路 LF51 驗證 CS 測試結果為 PASS.**
4. **偵測輸出回授的電壓源由原本的 LF51 後(cable 端)，改接至 LF51 前，CS 測試結果為 PASS.**

Common choke(LF51)干擾分析：

1. **當高頻雜訊干擾源竄入正迴路時，造成 choke 感抗(Impedance)變大，干擾 TL431 準位異常，造成輸出異常掉電壓。**
2. **Choke 的感抗在越高頻時，感抗會越高，造成跨壓越大；所以在高頻條件下，輸出掉電壓現象會更明顯。**
3. **測試 CS 時，同時量測輸出電壓 與 TL431(R-A)電壓， 由下圖可得知，TL431 被干擾, VRA:2.286V，此時輸出電壓降至 17.24V**

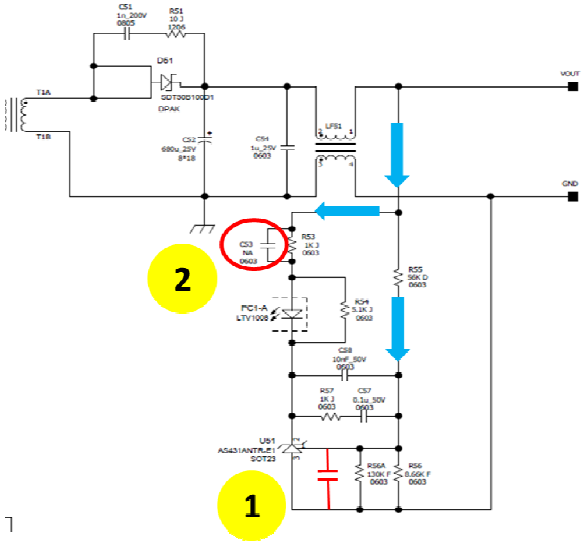


4. **TL431 ref pin 增加旁路電容可降低影響**

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**)**

1. **在 TL431 的對地電阻旁並聯電容，可 bypass 高頻雜訊，降低影響。**
2. **在 C53 上，增加 33pF 濾波電容降低 TL431 被干擾影響。**
3. **偵測電壓回授位置改在 LF51 前**



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**.)**

1. **輸出電壓迴授訊號不要接在輸出 choke 後**
2. **若因 layout 限制，在迴授迴路上就要預留電容**
3. **所有與迴授線路的相關變更，都必須重新驗證 loop gain、CS、EFT 等項目。**

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！！！

Signature **Team Leader**:	
	Name – Title
Signature by Approver:	
	Name-Title