Eight Discipline Report (8D Report)

To:	8D report No.:
From:：**Chicony Power Technology**	RMA claim No.: **N/A**
CC： **N/A**	Chicony P/N: **A135A012P-HW01-0A**
	Customer P/N:
Submit date: **2018/5/25**	Product description: **135W adapter**
Receive date: **2018/4/11**	Defect D/C or Lot No.:
Subject： In Q G35N system with Chicony 135W adapter condition, the radiation test margin just 0.56dB (QP) in QCMC lab. **EMI, RE**	

D1.) 問題解決成員:Use Team Approach

主持者 (Team Leader)：

內部成員 (Internal Team Members):

Sales: Tina_Li

PM: Eliza_Wu

RD: Brandon_Lo /Frankly_Chen

SQE: Henry_Zhang

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.)

Customer feedback information:

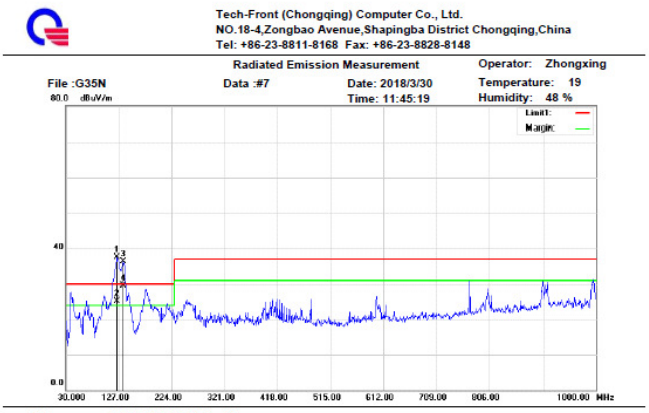
Q claimed that Q G35N system with Chicony 135W adapter failed in radiation test.

CPT P/N: A135A012P-HW01-0A

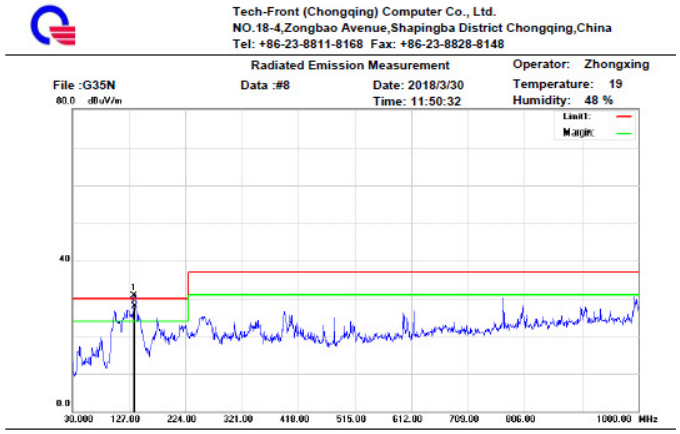
Failed sample S/N: WHAQV0AP6AP0A2

The test data show as below:

The test result is just under 0.56dB (QP) at 135MHz in Q QCMC lab.



Mk.	No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Correction factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	1	124.0900	57.00	peak	-19.41	37.59	30.00	99	250	7.59	
!	2	124.7450	44.49	QP	-19.31	25.18	30.00	99	104	-4.82	
X	3	134.7600	54.38	peak	-18.08	36.30	30.00	99	178	6.30	
!	4	135.2360	47.49	QP	-18.05	29.44	30.00	99	355	-0.56	



Mk.	No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Correction factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	1	135.7300	48.78	peak	-18.02	30.76	30.00	350	47	0.76	
!	2	136.7750	45.71	QP	-17.88	27.83	30.00	350	97	-2.17	

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.**)**

We verified other 3pcs Chicony 135W adapter with Q G35N system & provided the samples to Q QCMC for re-test.

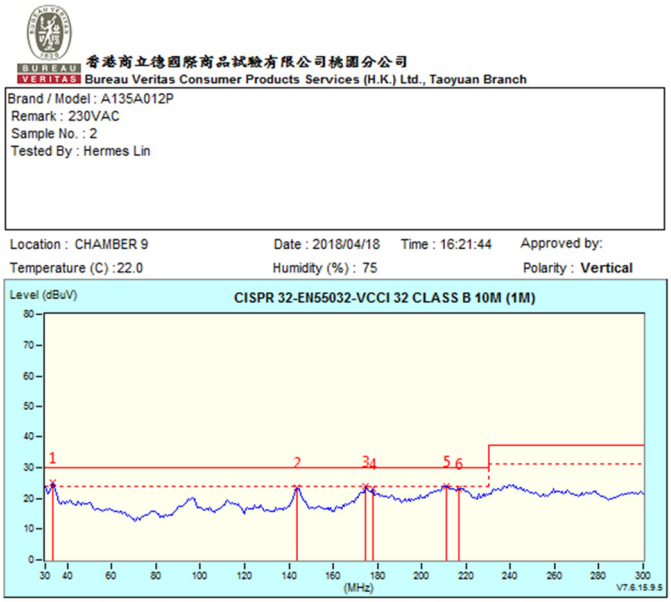
Owner: CPT Date: 2018.5.15

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.**)**

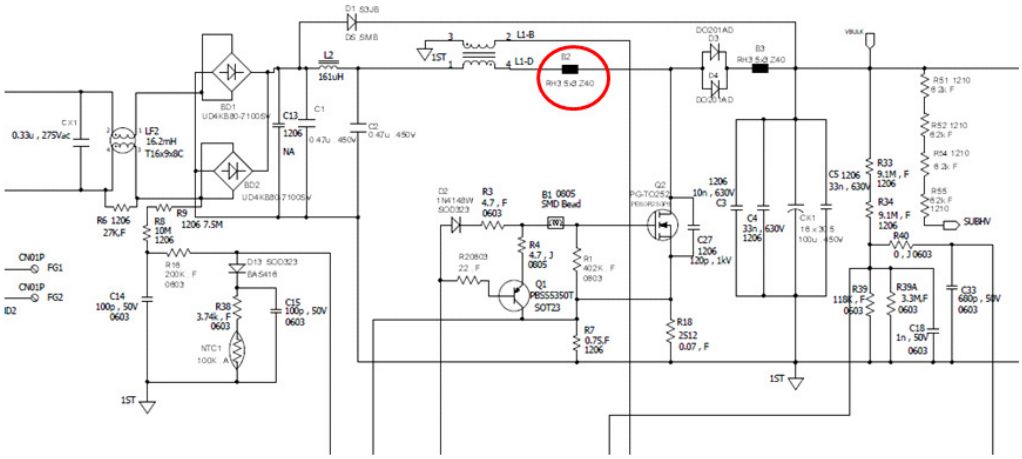
Analysis and findings:

1. **We verified another 135W sample with dummy load in Taipei 3rd party lab. The test result is 5.99dB (PK) at 210MHz.**



No.		Frequency MHz	Emission dBuV	Limit dBuV	Margin dB	No.		Frequency MHz	Emission dBuV	Limit dBuV	Margin dB
*	1	33.37	25.16	30.00	-4.84						
	2	143.40	23.31	30.00	-6.69						
	3	174.45	23.82	30.00	-6.18						
	4	177.82	22.99	30.00	-7.01						
	5	210.90	24.01	30.00	-5.99						
	6	216.97	23.21	30.00	-6.79						

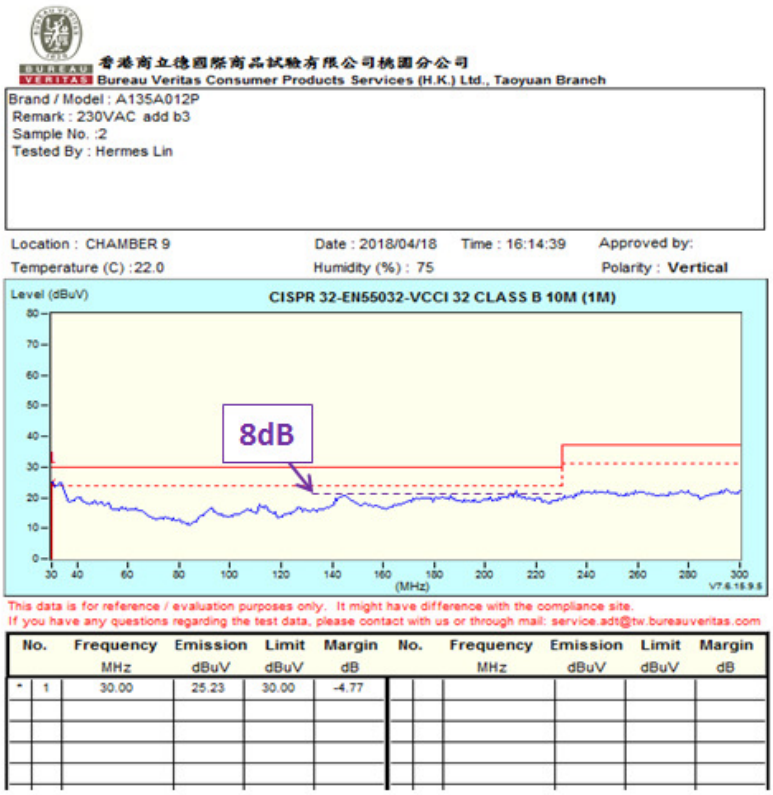
2. **In order to improve the radiation margin during 130MHz to 220MHz, we add a bead B2 between L1& D3/D4 in PFC stage and B2 datasheet is shown as below.**



3142BEAD052FB0HF	BC-S 4x3.1x2.6 Z47±42%	B2	EROCORE	FB403025H

B2
3142BEAD052FB0H

We tested the sample with dummy load, again. The radiation margin became under 8dB (PK) during 130MHz to 220MHz. According to above experiment, we infer B2 can improve the radiation margin during 130MHz to 220MHz.



3. **We verified 3pcs 135W adapter with dummy load & Q G35N system in 10M chamber. The test results are shown in below attachment.**

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When the adapters tested with dummy load, the test margins were more than 8dB (PK). Moreover, when the adapters tested with G35N system, the test margins were 4.84dB, 4.8dB, and 5.38dB, respectively.

After pre-test in 10M chamber in Taipei, we provided 3 pcs samples to Q QCMC.

4. **According to the verified result from QCMC lab, the improved samples can pass in QCMC EMC lab. The test results are shows as below attachments.**

G35N Chicony A135A012P sample 1

G35N Chicony A135A012P sample 2

G35N Chicony A135A012P sample 3

The test margins in 3 samples can be improved to -2.64 dB, -4.11dB and -3.61dB, respectively.

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**)**

Add a bead B2 between L1& D3/D4 in PFC stage. PCB revision of A135A012P will change from X03A to X03B.

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**)**

Due date: New version PCB (X03B) will be expected to introduce into manufacture in June, 2018.

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**.)**

The 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 all members.