Eight Discipline Report (8D Report)

To: **Customer**	8D report No.:
From:：**Chicony Power Technology**	RMA claim No.: **N/A**
CC：	Chicony Power P/N: **A035R001H**
	Customer P/N:
Submit date: **2014/7/9**	Product description: **35W adapter**
Receive date: **2014/6/16**	
Subject：No power*1pcs , (零件 / 磁件, 變壓器的線刺破 tape,導致感量下降)	

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: Jack Wang

QE: Kitty Zhang

MFG: Xiaohui Du

PE: Yong Liu

Sales: Justin Yu

RD: Jay Huang

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.)

2014/6/16 CPT has received 1pc won't power on from customer product team.

SN: 140312003CC7

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.**)**

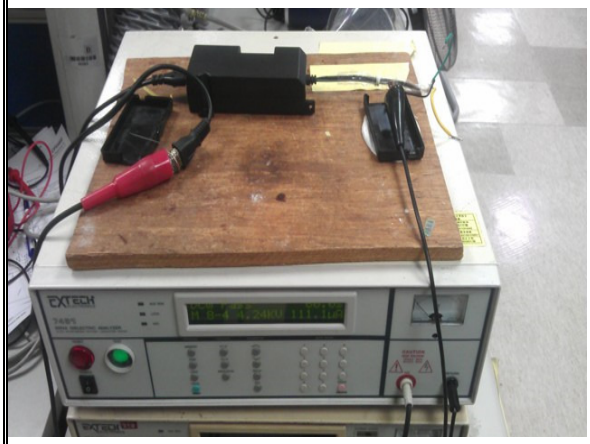
1. Send this defect adapter to Chicony Power for analysis.

Date:2014/6/16

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.**)**

➢ Hi-pot test



The return unit passed Hi-pot 4242VDC 60sec.

➢ CPT measure the output voltage waveform

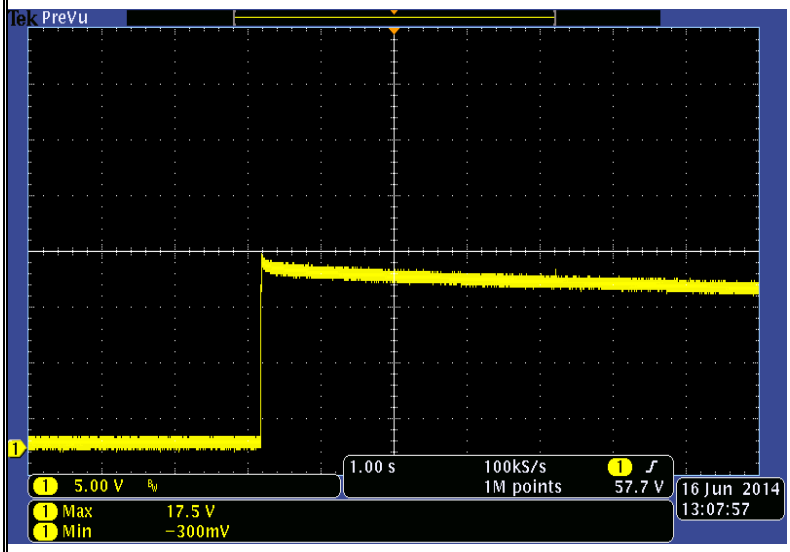


Fig.1

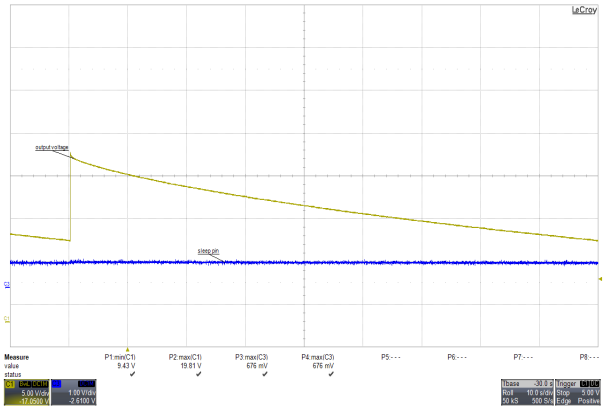
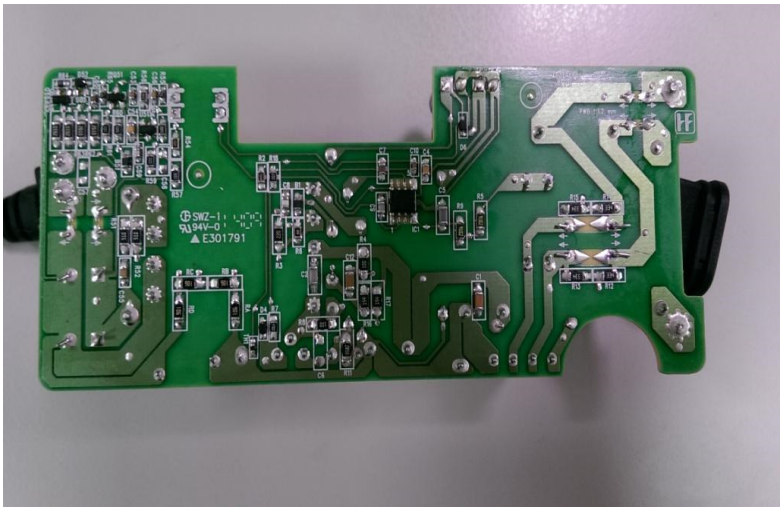


Fig.2 Customer measure the output voltage waveform

- **The fail unit no any damage of case .**
- **We check the power on, the output voltage maximum was 17.5V. It is similar to HP's waveform.**
- **Open case & test.**



- **We found the inductance of transformer no meet spec. 450uH. We measured the inductance of transformer 35.68uH (Fig.3) which is causing the PWM IC trigger the SCP as Fig.4.**

Fig.3

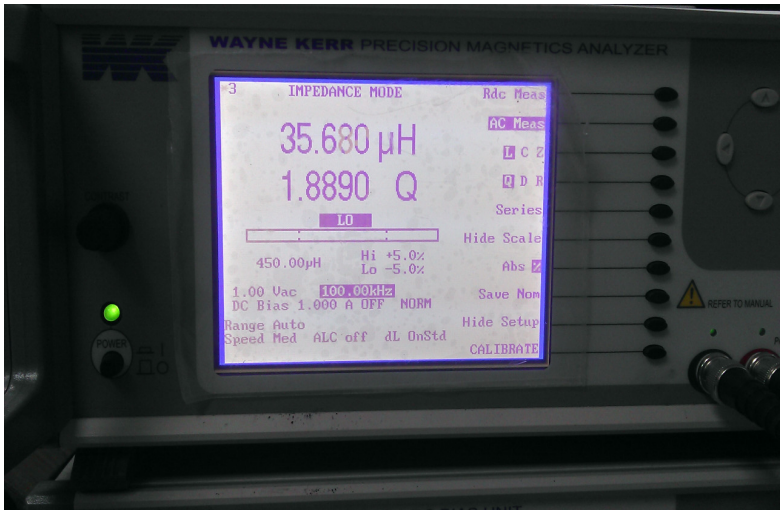
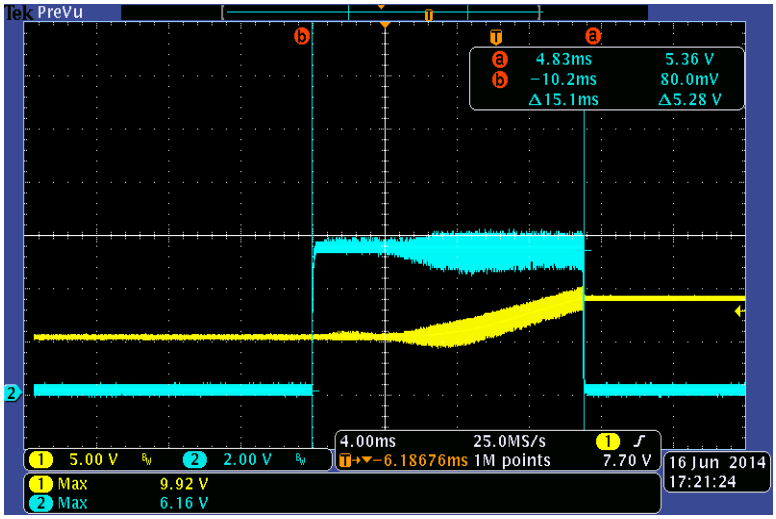


Fig.4 CH1(yellow): Vcc pin; CH2(blue): FB pin



Transformer SPEC.

Item	contain	winding	Pin out	spec	unit	tol	remark
2.1.	Inductance	N1 + N6	5 – 3	450	µH	±5%	@ 100KHz / 1V

IC SPEC.

V_{FB-OLP}	Threshold Voltage for OLP		4.3	4.6	4.9	V

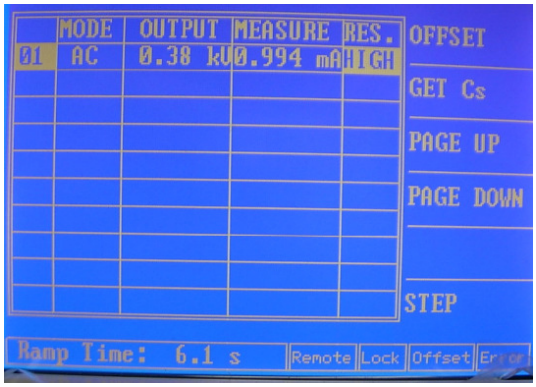
V_{DD-SCP}	Threshold Voltage of VDD Pin for Short-Circuit Protection (SCP)	$V_{FB}>V_{FB-OLP}$	11.0	11.5	12.0	V
t_{D-SCP}	Debounce Time for SCP	$V_{FB}>V_{FB-OLP}$ & $V_{DD}<V_{DD-SCP}$	8	15	22	ms

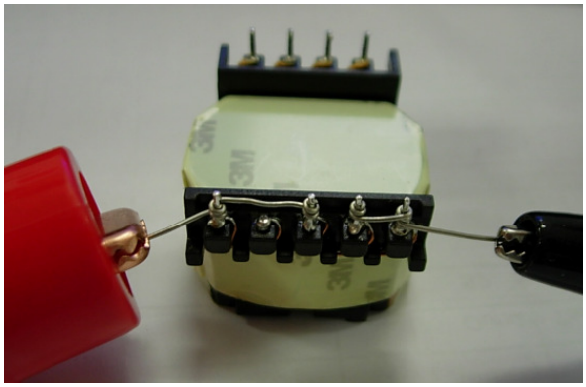
- **Provided failed sample Transformer to supplier to analysis.**

a.Hi-pot test

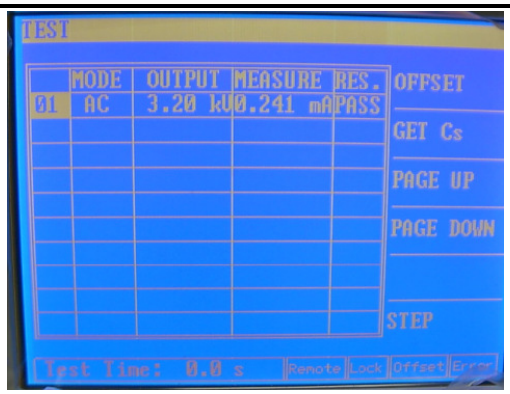
Pri. – Pri.

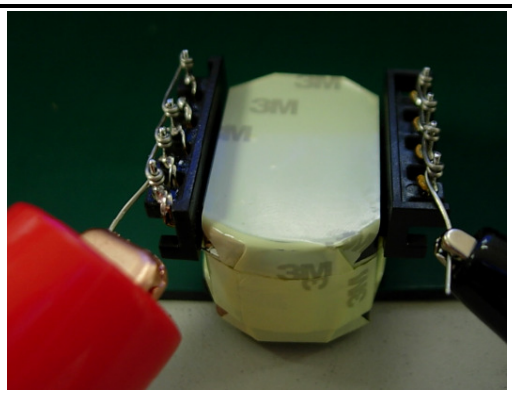
(Because the core and pin1 are connected, thus means measure Pri.- Core)





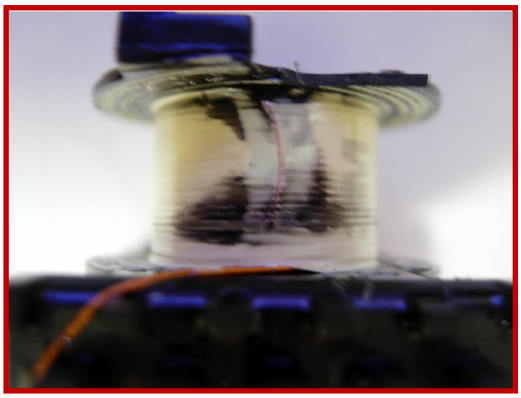
Pri. - Sec.

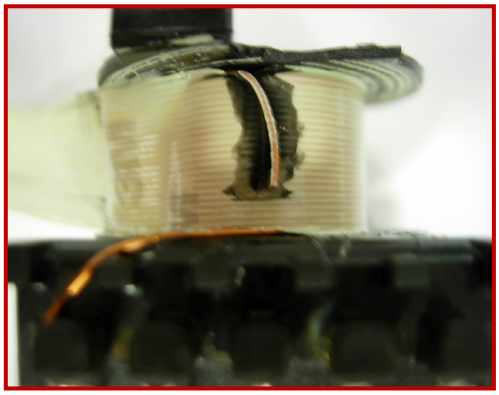


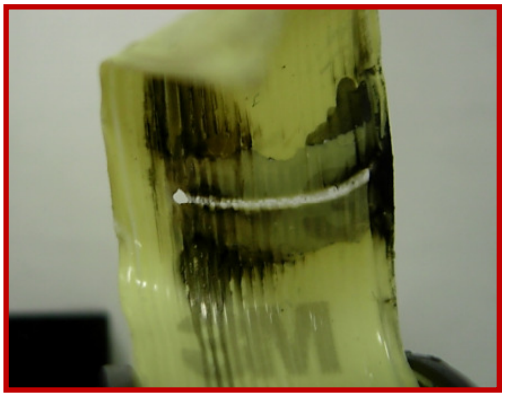


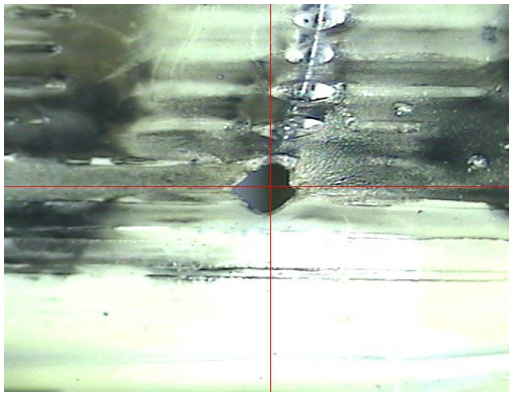
➢ Disassemble

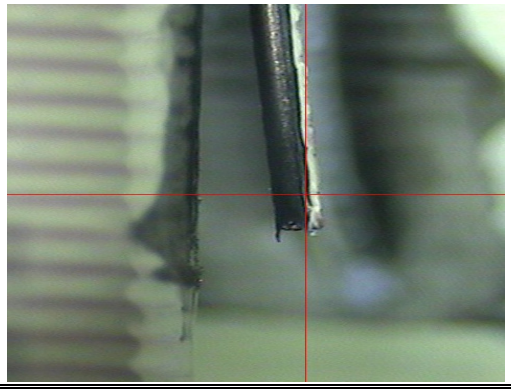
S1

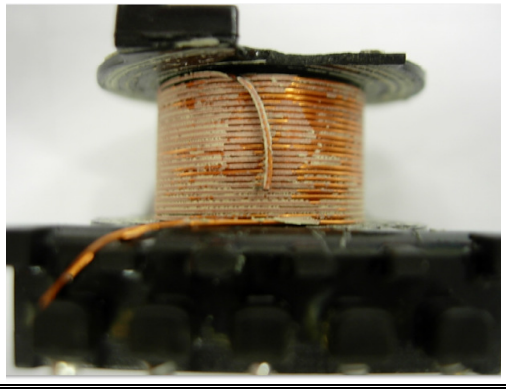


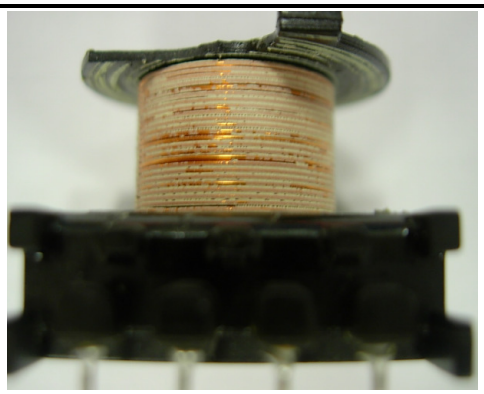






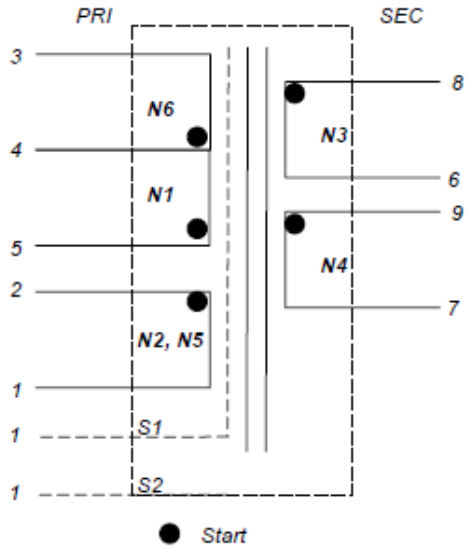




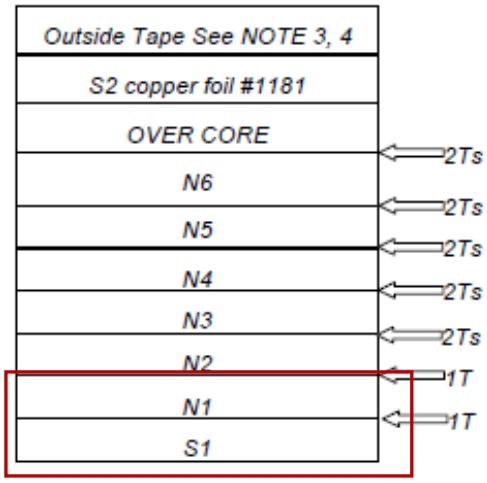


➢ Schematic and Cross Section

Schematic :



Cross Section :



Winding direction: *N6 Pin 4 -3 don't cross*

➢ Conclusion:

***Disassemble Analysis Results:**

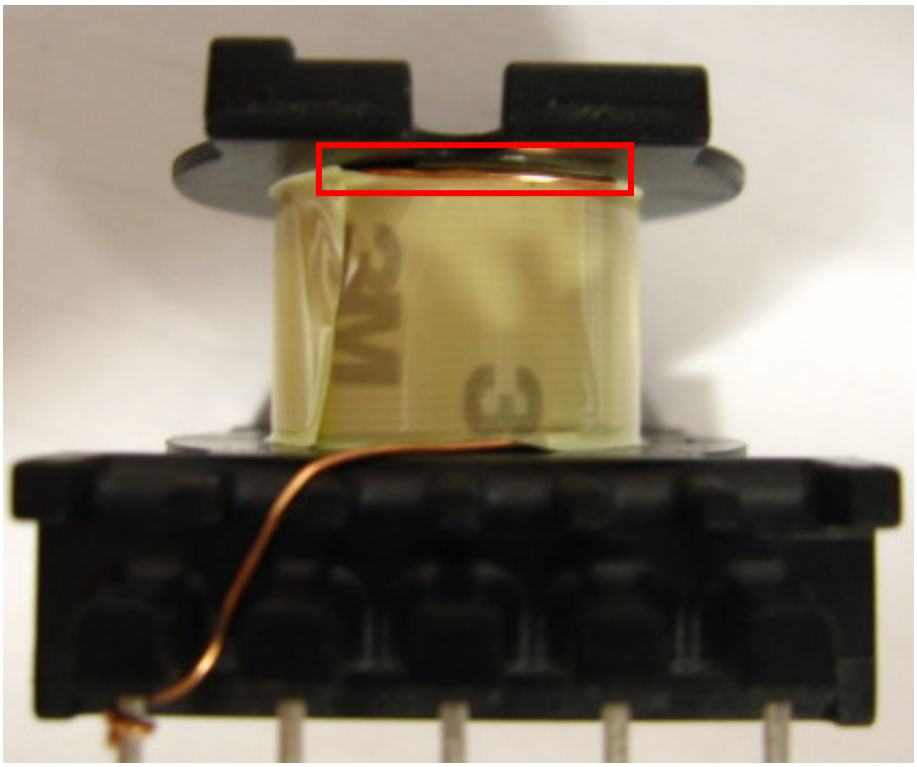
According to the disassemble pictures listed above. The tail of S1 winding wire just ends in the middle of winding area. And in this case, the sharp edge of the ending wire punctured the insulation tape as N1 and other upper windings cover and compress S1. Therefore the tape was damaged and leading to undesirable characteristics.

8D Report.doc

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**)**

Change the tail ending of S1 winding to let it parallel to N1 winding, to prevent the tape damaged.



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: immediately change in June, 2014.

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: Justin Yu

RD: Jacky Hsu

Signature	**Cf_Liu**

群光電能科技股份有限公司　台北縣五股工業區五工六路25號4樓　4F No 25, W-Gong 6th Rd., Wu-Ku Industrial Park, Taipei Hsien, Taiwan
Chicony Power Technology Co., Ltd　TEL: 886-2-22995636　FAX: 886-2-22995635

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

附件資料參考下一頁

Eight Discipline Report (8D Report)

To:	8D report No.:
From:：**Chicony Power Technology**	RMA claim No.:
CC： **N/A**	Chicony P/N:
	Customer P/N:
Submit date: **2014/6/18**	Product description: **35W printer adapter**
Receive date: **2014/6/16**	Defect D/C or Lot No.:
Subject：35W printer adapter sample fails to power up	

D1.) 問題解決成員:Use Team Approach

主持者 (Team Leader)： **Jeffrey_Lin**

內部成員 (Internal Team Members):

RD: Cedric_Wu

PE: Jesee_Wang

MQA: Shelly_Hu / Cary_Che

MFG: Rose_Jiang

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:

Sample fails to power up

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.**)**

Provide 1pcs failed sample for analysis.

Owner: CPT Date: 2014.6.16

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. Transformer function test：

1.1Spec. and Sample test data

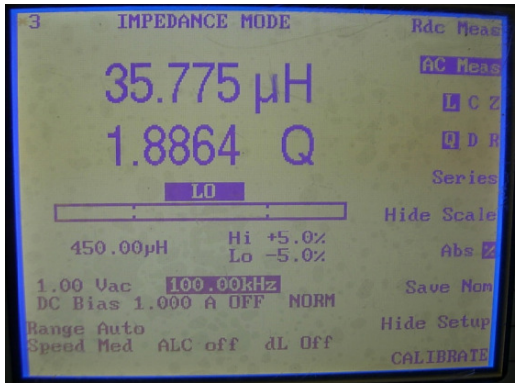
P/N:370POT30012XX0LF

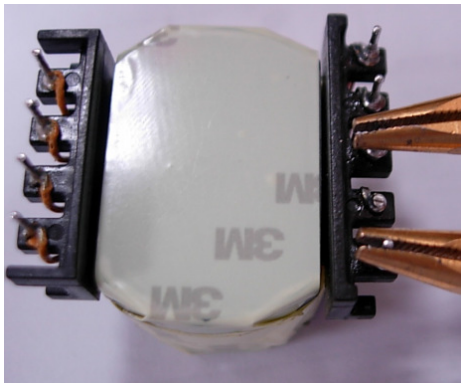
Test Instrument：WK-3260B/Chroma 19053

Item	Pin out	Spec	Sample test	Test condition
L	5-3	450uH±5%	35.775uH	100KHz/1V
L.k	5-3	7.2uH Max	3.2970uH	100KHz/1V
Q	5-3	50 Min	1.8864	100KHz/1V
D.C	5-3	345mΩ Max	301.0mΩ	
	2-1	52mΩ Max	41.5mΩ	
	8-6	77mΩ Max	65.5mΩ	
	9-7	84mΩ Max	71.5mΩ	
Hi-Pot	Pri-Sec	3200Vac	PASS	0.75mA 60SEC(AC)
	Pri-Core	1000Vac	FAIL	0.75mA 60SEC(AC)
	Sec-Core	3200Vac	PASS	0.75mA 60SEC(AC)

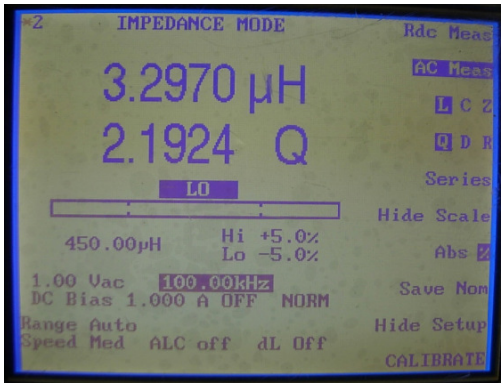
***Test Result : Inductance, Q Factor and Hi-pot Pri.- Core Fail**

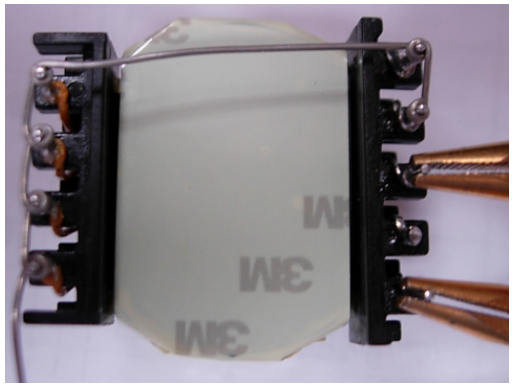
a.) Inductance and Q Factor test :





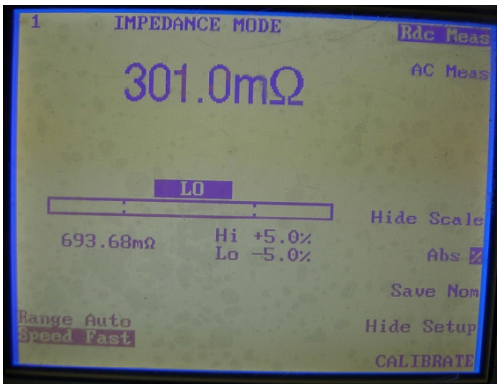
b.) L.K. Inductance test :

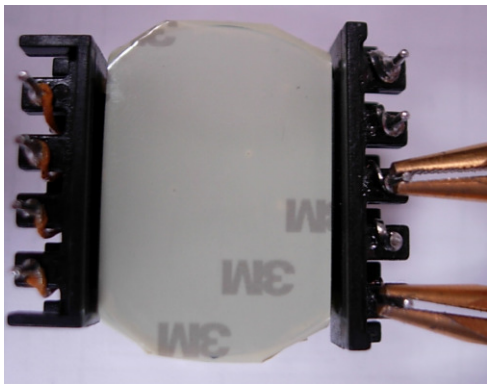




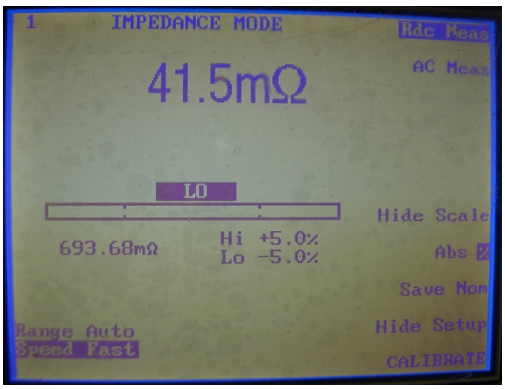
c.) D.C. Resistance test:

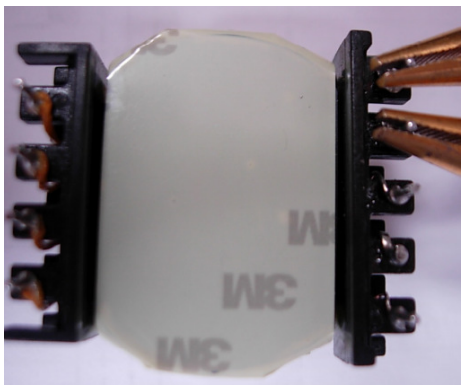
Pin5-3



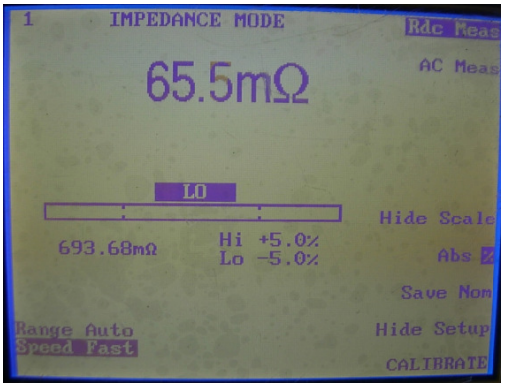


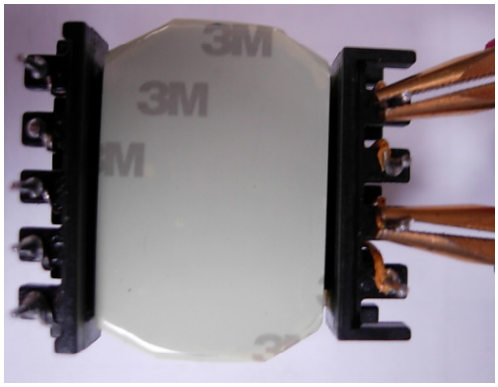
Pin2-1



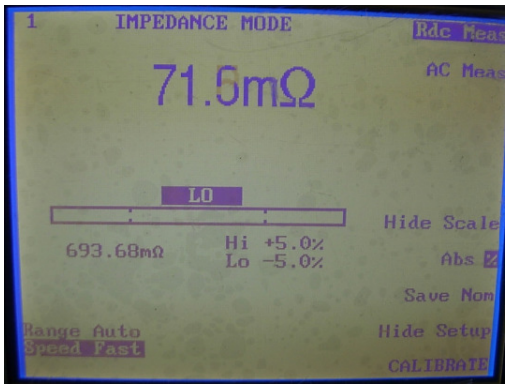


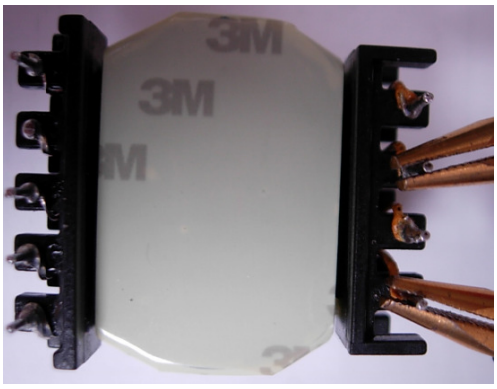
Pin6-8





Pin7-9

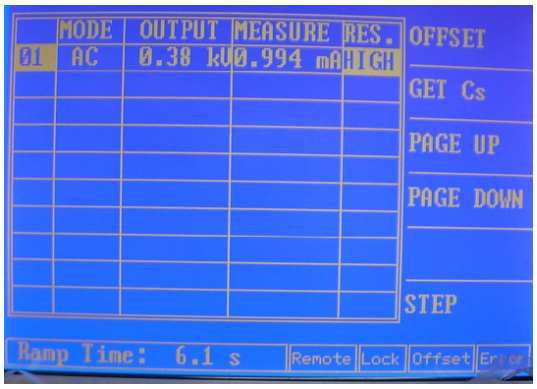


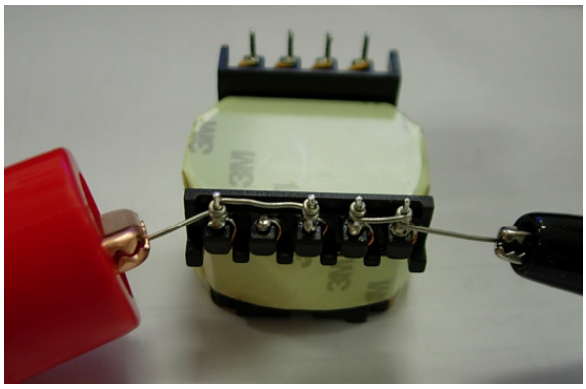


d.) Hi-pot test

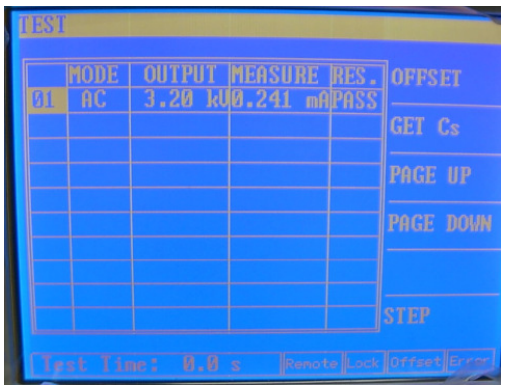
Pri. – Pri.

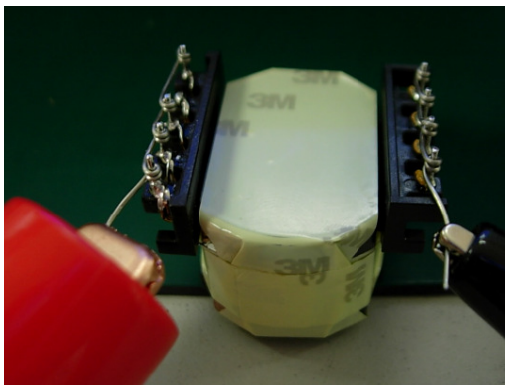
(Because the core and pin1 are connected, thus means measure Pri.- Core)





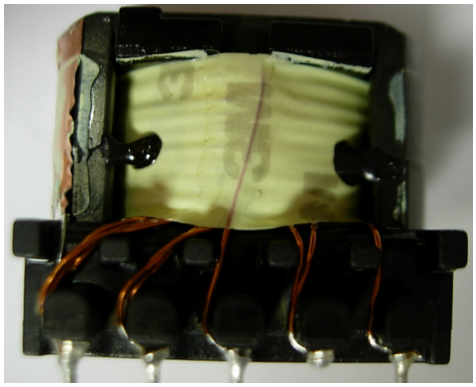
Pri. - Sec.



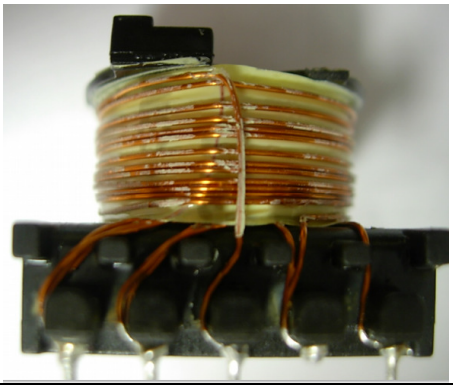


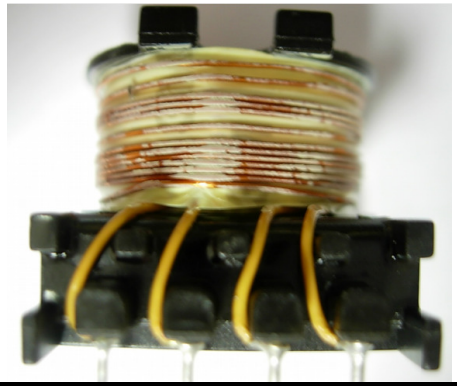
2. Disassemble

Exterior

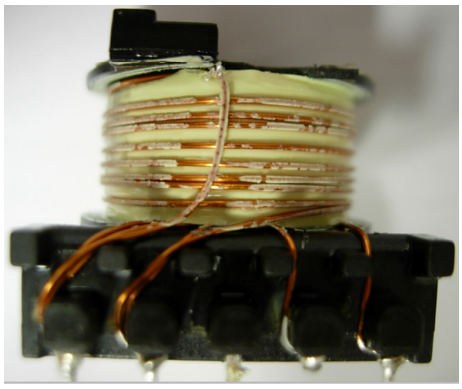
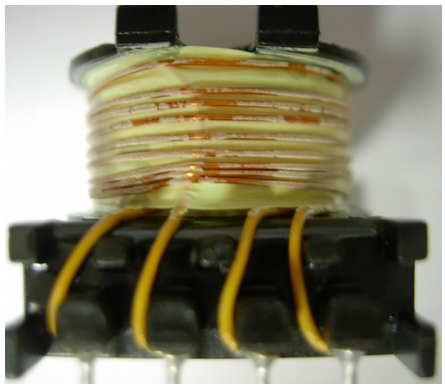


N6

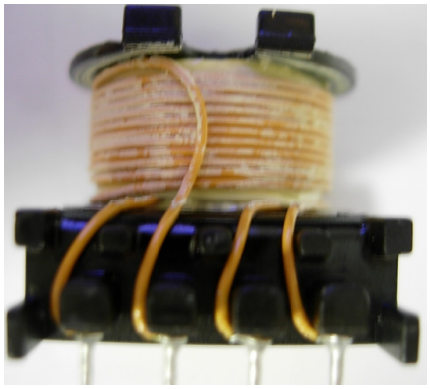
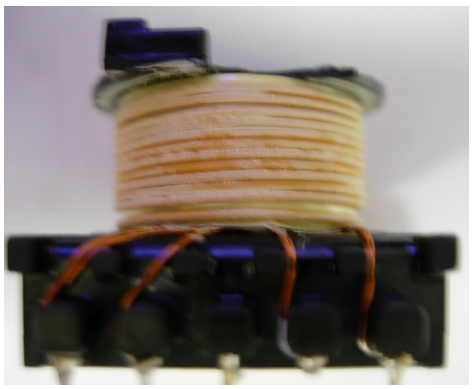




N5

N4

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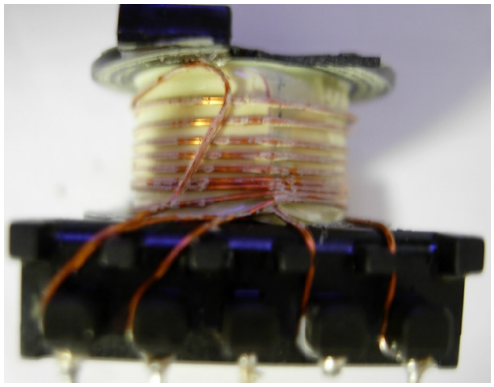
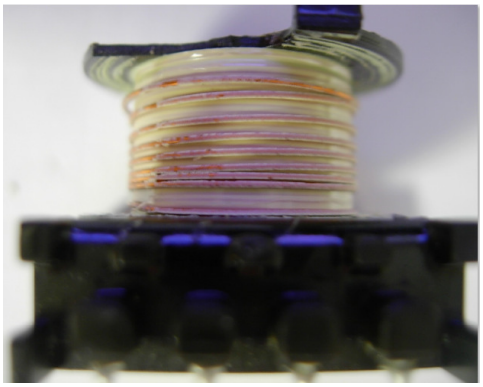
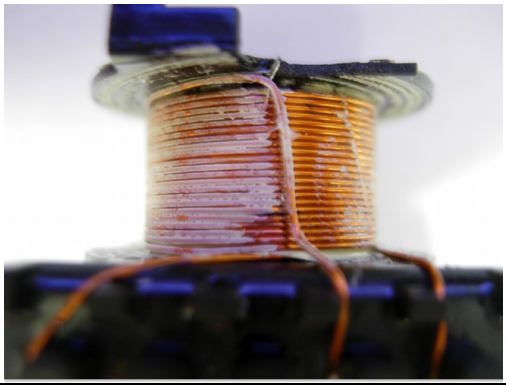
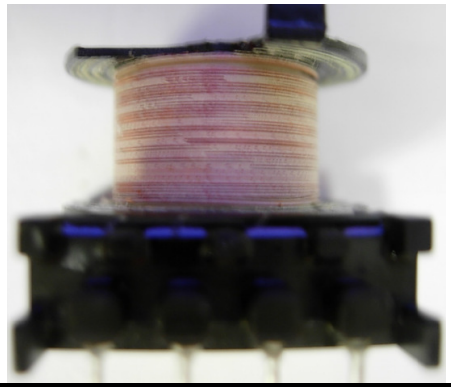



N1

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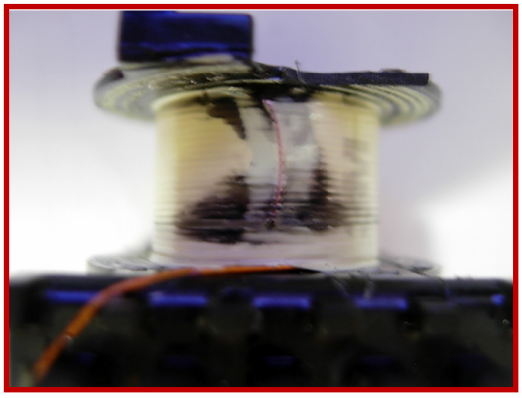
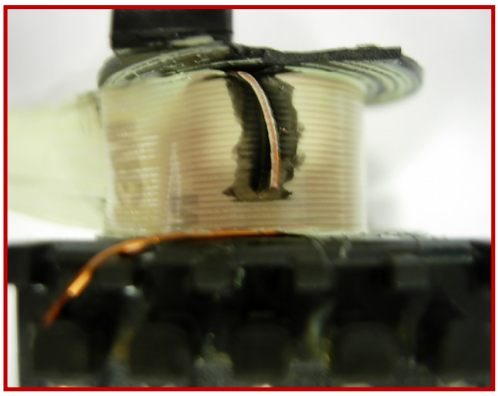
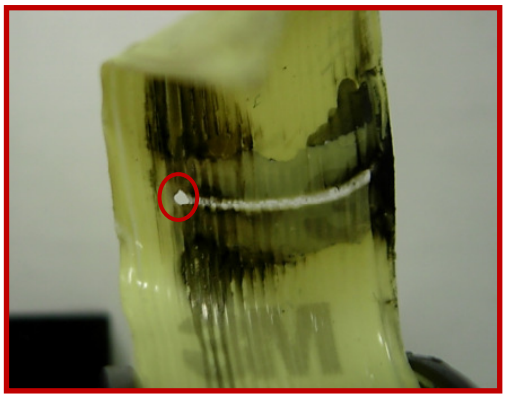
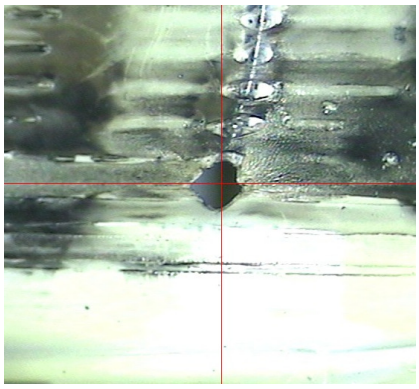
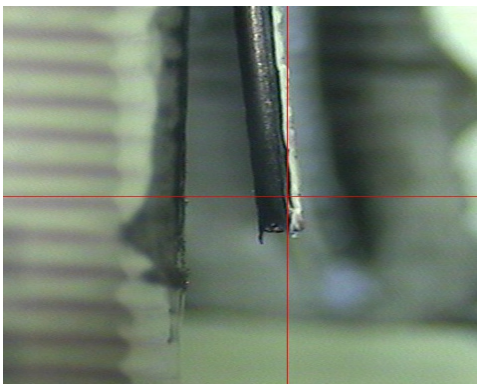
S1

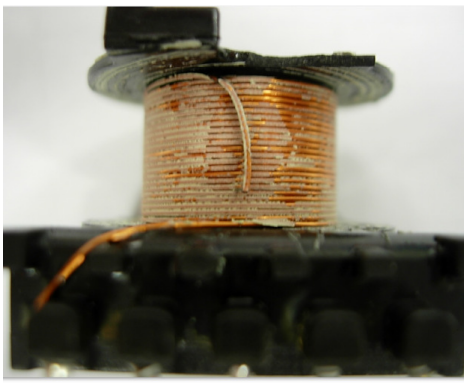


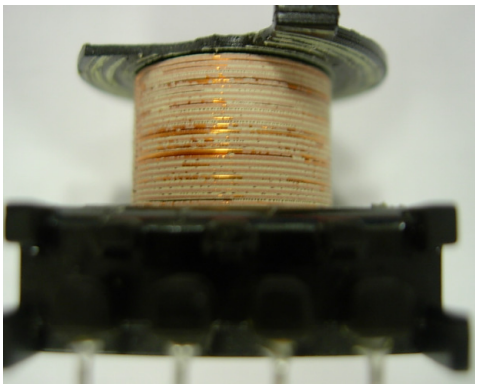






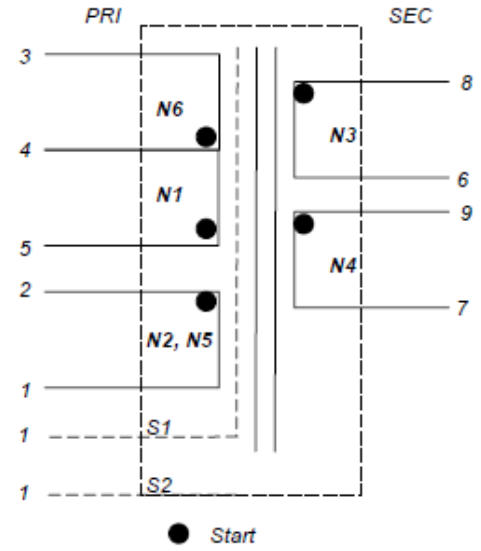




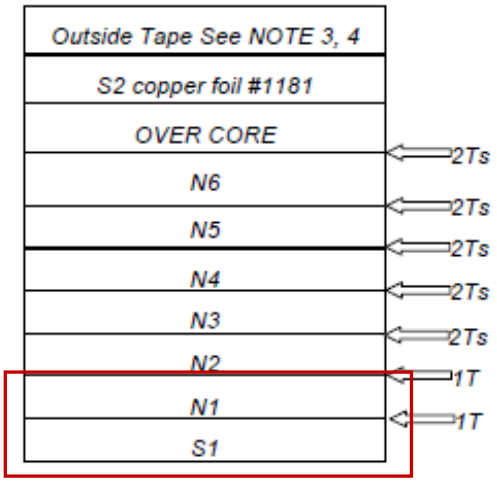


3. Schematic and Cross Section

Schematic :



Cross Section :



Winding direction: *N6 Pin 4 -3 don't cross*

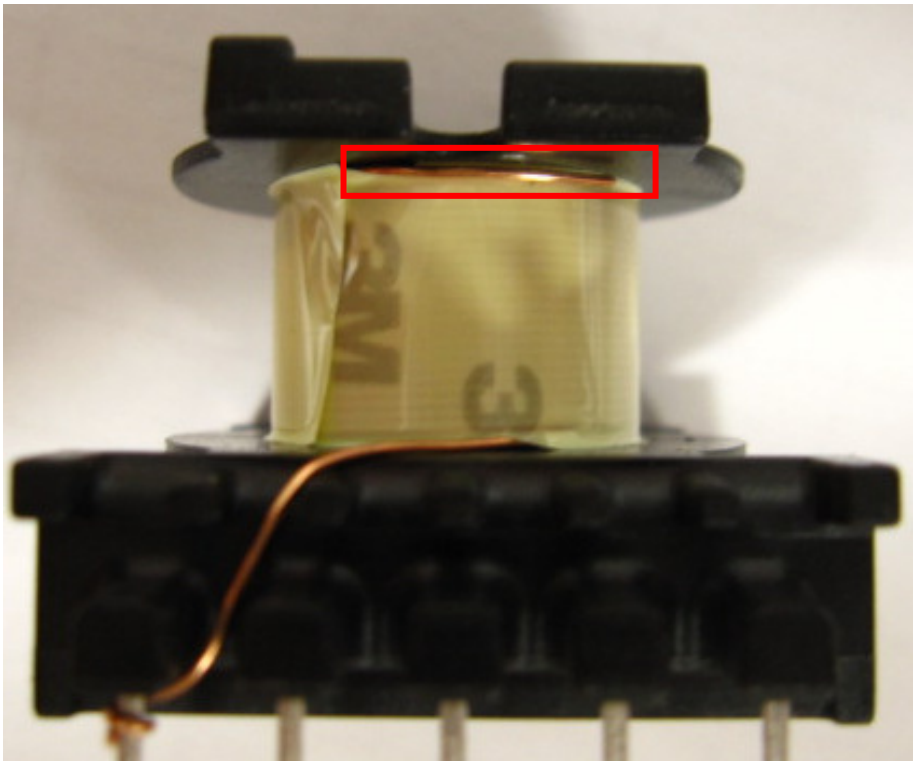
***Disassemble Analysis Results:**

According to the disassemble pictures listed above. The tail of S1winding wire just ends in the middle of winding area. And in this case, the sharp edge of the ending wire punctured the insulation tape as N1 and other upper windings cover and compress S1. Therefore the tape was damaged and leading to undesirable characteristics.

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**)**

Change the tail ending of S1 winding to let it parallel to N1 winding, to prevent the tape damaged.



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: immediately change in June, 2014.

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.

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