



# EMC TEST REPORT

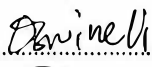
Report No.: SH12120476-001 Amendment1


Applicant:		Address:	
Product: Hair Dryer Brand Name: Model No: RW806*, RW806S*(*=A, B); RW807*, RW862*(*=A, B, AF, BF) Rating(s): 50/60Hz, Class II for all models RW806*: 220-240V~, *=A: 1000W, *=B: 1200W RW806S*: 120/230V~, *=A: 1000W, *=B: 1200W RW807*, RW862*: 220-240V~, *=A: 2000W, *=B: 2200W, *=AF: 2000W, *=BF: 2200W	Related based report No.:	SH12120476-001	
	Base test procedure:	EMC	
	Base testing laboratory:	Intertek Testing Services Shanghai	
Issued by:	Intertek Testing Services Shanghai		Test procedure:
Date of issue:	February 13, 2014		Standard:
			*EN 55014-1:2006/+A1:2009 /+A2:2011 EN 55014-2: 1997/+A1:2001 /+A2:2008 EN 61000-3-2: 2006/+A1:2009/ +A2:2009 EN61000-3-3:2008

Signature

Print Name

Title

Evaluated by: ..... Oswine Li                      Project Engineer

Approved by: ..... Teddy Yin                      Reviewer



# EMC TEST REPORT

**Amendment1 :**

The original test report ref. No. SH12120476-001 dated January 29, 2013, was modified on February 13, 2014 to include the following additions and/or changes:

- (1) Add four new models RW807\* (\*=A, AF, B, BF) and delete two original models RW807 and RW807F. RW807\* (\*=A, B) are same as original model RW807 except the rated power input and circuits are changed, same to RW807\* (\*=AF, BF) and RW807F.

This amendment test report should be read in conjunction with the based test report No. SH12120476-001, SH12120476-001/A1,

<b>Standard: EN 55014-1:2006/+A1:2009/+A2:2011 EN 55014-2: 1997/+A1:2001/ +A2:2008</b>		
<b>EN 61000-3-2: 2006/+A1:2009/ +A2:2009 EN61000-3-3:2008</b>		
<b>No.1</b>	Mains Terminal Continuous Disturbance Voltage	<b>Pass</b>
No.2	Mains terminal discontinuous disturbance voltage/click	NA
<b>No.3</b>	Disturbance Power	<b>Pass</b>
No.4 <sup>(1)</sup>	Radiated Emission	<b>Pass</b>
<b>No.5</b>	Harmonics & Flicker	<b>Pass</b>
No.6	Electrostatic Discharge (ESD)	<b>Pass</b>
No.7	Electric Fast Transient /Burst (EFT/B)	<b>Pass</b>
No.8	Surge	<b>Pass</b>
No.9	Injected current	<b>Pass</b>
No.10	Voltage dips and interruption	<b>Pass</b>

Note: The item(s) in "bold & italic" means the additional tests has been performed, and test result will be listed in the ANNEX of this amendment report.

<sup>(1)</sup> As for in the disturbance power test all emission readings from the EUT are lower than the applicable limits(Table 2a) reduced by the margin(Table 2b) and the maximum clock frequency is less than 30MHz, the EUT is deemed to comply with the Radiated Emission requirement without test.

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## Annex I Instrument list

Selected	Instrument	EC no.	Model	Valid until date
<input checked="" type="checkbox"/>	Shielded room	EC 2838	GB88	2015-1-11
<input checked="" type="checkbox"/>	EMI test receiver	EC 2107	ESCS 30	2014-10-20
<input checked="" type="checkbox"/>	A.M.N.	EC 3119	ESH2-Z5	2015-1-8
<input type="checkbox"/>	A.M.N.	EC 3394	ENV 216	2014-8-10
<input type="checkbox"/>	Absorbing clamp	EC 2108	MDS 21	2015-1-11
<input type="checkbox"/>	Voltage probe	EC 3405	ESH2-Z3	2015-1-11
<input type="checkbox"/>	Voltage probe	EC 4888	TK9420	2014-6-6
<input type="checkbox"/>	Tri-loop	EC 3384	HXYZ 9170	2014-6-18
<input checked="" type="checkbox"/>	Click meter	EC 2253	CL55C	2014-8-19
<input type="checkbox"/>	ISN	EC 3754	FCC-TLISN-T2-02	2015-1-8
<input type="checkbox"/>	ISN	EC 3755	FCC-TLISN-T4-02	2015-1-8
<input type="checkbox"/>	ISN	EC 3756	FCC-TLISN-T8-02	2015-1-8
<input type="checkbox"/>	Current probe	EC 3221	EZ-17	2015-1-11
<input type="checkbox"/>	Attenuator	EC 3043-9	68-6-44	2015-1-8
<input checked="" type="checkbox"/>	Harmonic/Flicker sys.	EC 2110	5001ix/PACS-1	2015-1-9
<input type="checkbox"/>	Shielded room	EC 2839	GB88	2015-1-11
<input type="checkbox"/>	ESD Gun	EC 2956	ditto	2014-5-20
<input checked="" type="checkbox"/>	ESD Gun	EC 4792-4	TESEQ	2014-2-21
<input checked="" type="checkbox"/>	Motorise Variac	EC 2957	MV 2616	Not required
<input checked="" type="checkbox"/>	Immunity system	EC 2958	UCS500M6	2014-4-7
<input type="checkbox"/>	Capacitive clamp	EC 2959	HFK	Not required
<input type="checkbox"/>	Immunity system	EC 2960	TSS500M	2014-9-23
<input type="checkbox"/>	Immunity system	EC 2961	TSS500M4	2015-1-11
<input type="checkbox"/>	DIPs generator	EC 5033	SKS-1130GT	2015-1-6
<input type="checkbox"/>	Ring wave generator	EC 5033-1	SKS-1206GB	2015-1-6
<input type="checkbox"/>	EFT generator	EC 5033-2	SKS-0404IB	2015-1-6
<input type="checkbox"/>	Surge generator	EC 5033-4	SKS-0506GB-30	2014-2-5
<input checked="" type="checkbox"/>	Signal generator	EC 2338	SML 01	2014-4-11
<input checked="" type="checkbox"/>	Power amplifier	EC 3043-1	75A250	2014-8-16
<input checked="" type="checkbox"/>	Attenuator	EC 3043-3	ATT6/75	2015-1-8
<input checked="" type="checkbox"/>	CDN	EC 2113-2	M316	2014-8-03

### Intertek Testing Service Shanghai

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<input type="checkbox"/>	CDN	EC 3043-4	T4	2015-1-8
<input type="checkbox"/>	CDN	EC 4792-6	CDN M1/16A	2014-2-18
<input type="checkbox"/>	CDN	EC 4792-7	CDN M1/16A	2014-2-18
<input type="checkbox"/>	CDN	EC 4792-10	CDN M1/32A	2014-2-18
<input type="checkbox"/>	CDN	EC 4792-12	CDN M3N/16A	2014-2-18
<input type="checkbox"/>	CDN	EC 4792-13	CDN M3N/32A	2014-2-18
<input type="checkbox"/>	CDN	EC 4792-15	CDN T8-RJ45	2014-2-18
<input type="checkbox"/>	EM clamp	EC 3043-6	EM 101	2014-10-20
<input type="checkbox"/>	Fully anechoic chamber	EC 3047	-	2014-5-11
<input type="checkbox"/>	Signal generator	EC 3044-1	SMR20	2014-8-16
<input type="checkbox"/>	Log-periodical antenna	EC 3044-7	AT1080	2015-4-27
<input type="checkbox"/>	Power amplifier	EC 3044-2	150W1000	2014-8-16
<input type="checkbox"/>	DDC	EC 3044-5	DC6180A	2014-8-03
<input type="checkbox"/>	Horn antenna	EC 3044-8	AT4002	2015-4-27
<input type="checkbox"/>	Power amplifier	EC 3044-4	25S1G4	2014-8-16
<input type="checkbox"/>	DDC	EC 3044-6	DC7144A	2015-1-8
<input type="checkbox"/>	Power sensor	EC 3043-7	PH 2000	2014-10-18
<input type="checkbox"/>	Power meter	EC 3043-8	PM 2002	2014-10-18
<input type="checkbox"/>	Field meter	EC 3044-9	FM5004	2014-10-20
<input type="checkbox"/>	Field sensor	EC 3044-3	FP6001	2014-10-20
<input type="checkbox"/>	Semi anechoic chamber	EC 3048	-	2014-5-11
<input type="checkbox"/>	EMI test receiver	EC 3045	ESIB26	2014-10-20
<input type="checkbox"/>	Broadband antenna	EC 4206	CBL 6112D	2015-4-27
<input type="checkbox"/>	Horn antenna	EC 3049	HF906	2015-4-27
<input type="checkbox"/>	Horn antenna	EC 4792-1	3117	2014-4-16
<input type="checkbox"/>	Horn antenna	EC 4792-3	HAP18-26W	2014-4-11
<input type="checkbox"/>	Pre-amplifier	EC 3222	pre-amp 18	2014-4-11
<input type="checkbox"/>	Pre-amplifier	EC 4792-2	TPA0118-40	2014-4-11
<input type="checkbox"/>	DDC	EC 3043-5	DC2600	2015-1-8
<input type="checkbox"/>	Oscilloscope	EC 3515	DPO 4504	2015-1-5
<input type="checkbox"/>	Lum. Meter	EC 2451	TES 1332	2014-6-4

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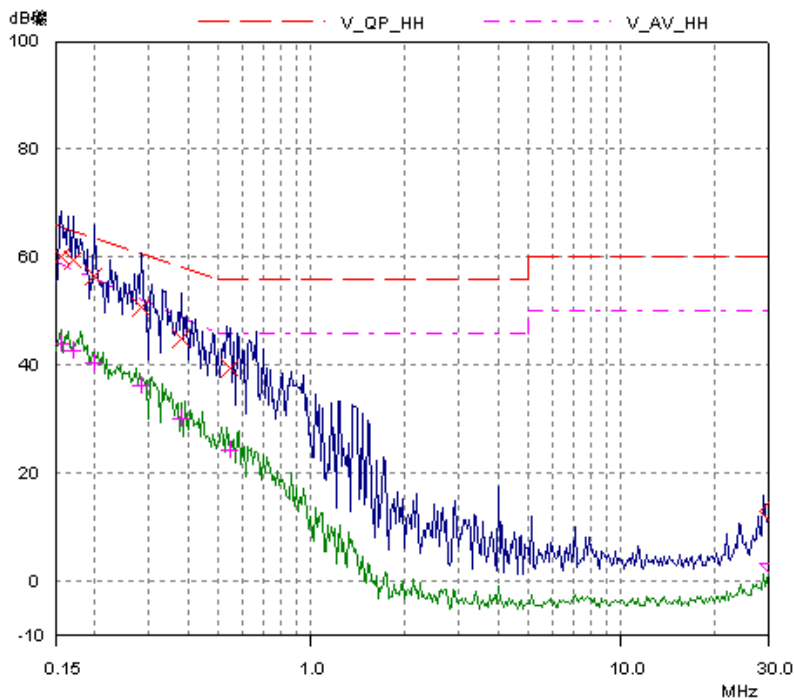
# EMC TEST REPORT

## Annex II Test Result Mains Terminal Continuous Disturbance Voltage

**Test result**                      **Pass**

Temperature                      :            22°C                      Relative Humidity:            45%

**Lline**



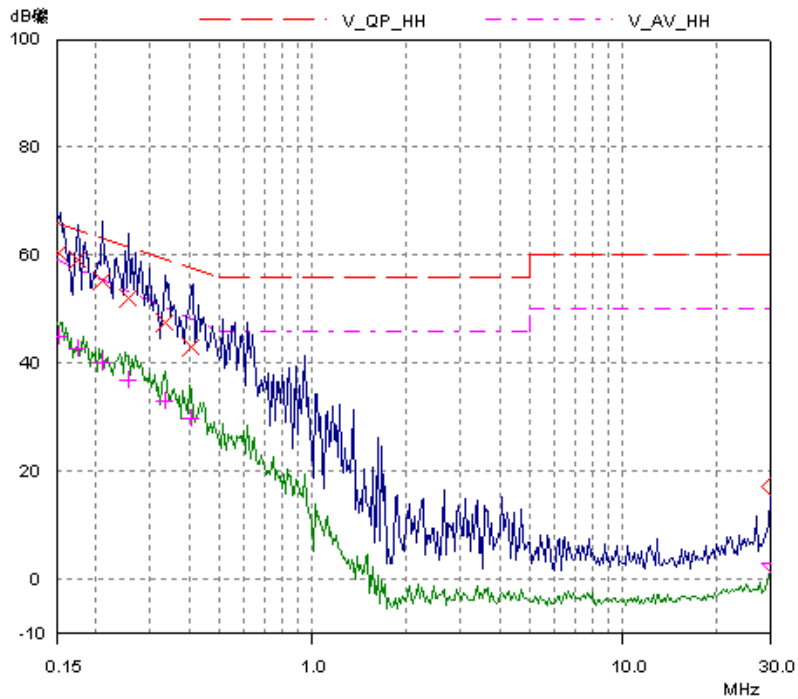
Frequency (MHz)	Quasi-peak		Average	
	Disturbance level dB(μV)	Permitted limit dB(μV)	Disturbance level dB(μV)	Permitted limit dB(μV)
0.15425	60.13	65.77	43.84	58.70
0.16976	59.39	64.97	42.58	57.66
0.19756	56.46	63.71	40.46	56.03
0.2796	50.91	60.83	36.28	52.28
0.37871	44.87	58.31	30.15	49.00
0.54243	39.60	56.00	24.26	46.00

Note: \* means the emission level 20dB below the relevant limit.



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N line



Frequency (MHz)	Quasi-peak		Average	
	Disturbance level dB(μV)	Permitted limit dB(μV)	Disturbance level dB(μV)	Permitted limit dB(μV)
0.1506	60.37	65.97	44.87	58.96
0.17318	59.19	64.81	42.58	57.45
0.20809	55.42	63.28	40.14	55.47
0.25204	52.00	61.69	36.86	53.40
0.33329	47.50	59.37	33.06	50.38
0.40369	42.94	57.78	29.73	48.31

Note: \* means the emission level 20dB below the relevant limit.

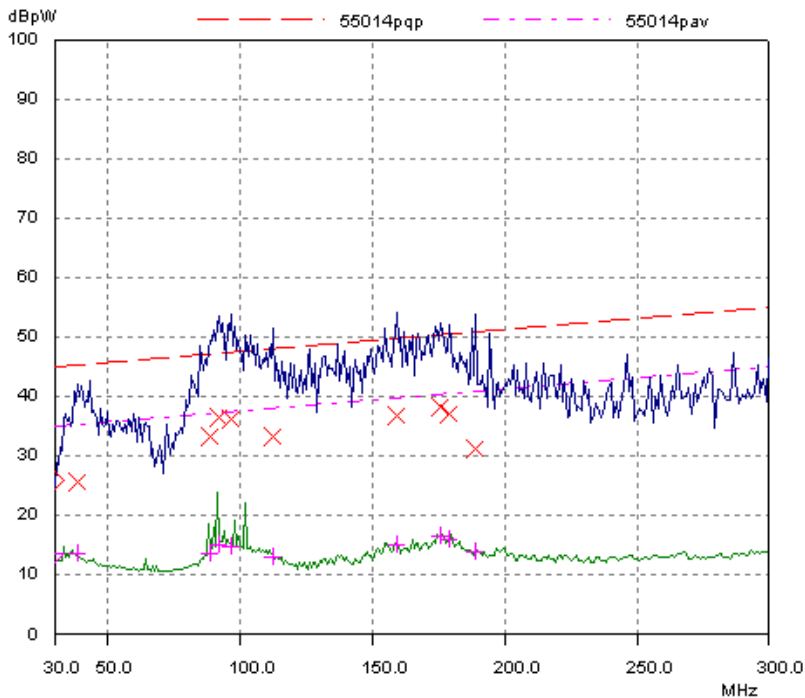


# EMC TEST REPORT

## Disturbance Power

**Test result**                      **Pass**

Temperature                      :            22°C                      Relative Humidity:            45%



Frequency (MHz)	Quasi-peak		Average	
	Disturbance level dB(pW)	Permitted limit dB(pW)	Disturbance level dB(pW)	Permitted limit dB(pW)
125.75467	29.27	48.55	12.42	38.55
38.57848	25.63	45.32	13.52	35.32
88.15028	33.11	47.15	13.43	37.15
91.74044	36.41	47.29	14.99	37.29
96.62713	36.24	47.47	14.77	37.47
112.00733	33.30	48.04	13.01	38.04
159.1524	36.74	49.78	14.94	39.78
175.85552	38.27	50.40	16.47	40.40
178.68614	36.98	50.51	15.97	40.51
188.95694	31.15	50.89	13.68	40.89



# EMC TEST REPORT

## Radiated emission

Test result: Pass

As for in the disturbance power test all emission readings from the EUT are lower than the applicable limits (Table 2a) reduced by the margin (Table 2b) and the maximum clock frequency is less than 30MHz, the EUT is deemed to comply with the Radiated Emission requirement without test.

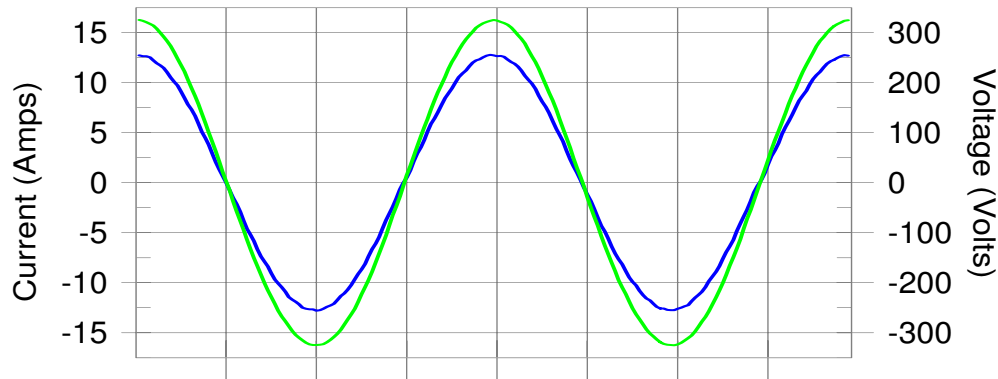
## Harmonics

Temperature : 24°C Relative Humidity: 42%

Measuring instrumentation according to IEC 61000-4-7:1991

Test Result: Pass Source qualification: Normal

## Current & voltage waveforms



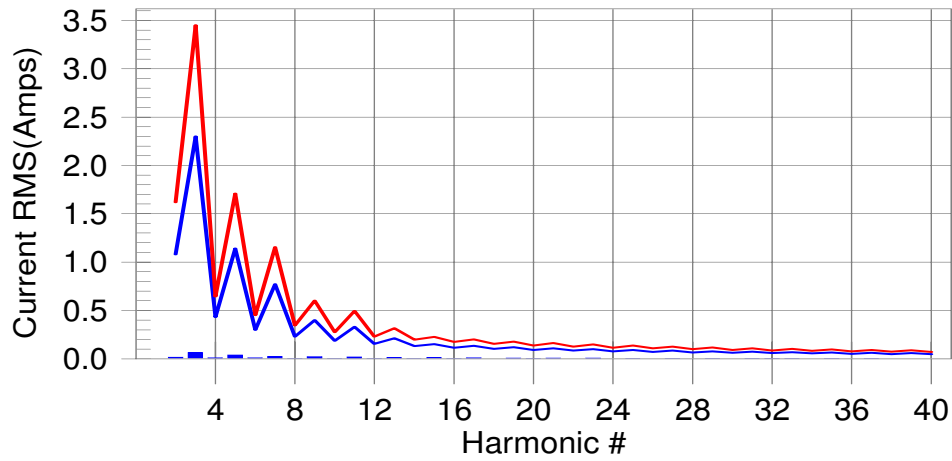
Harmonics and Class A limit line

European Limits



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**Test result: Pass Worst harmonic was #15 with 6.87% of the limit.**



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## Current Test Result Summary (Run time)

Highest parameter values during test:

V_RMS (Volts):	229.59	Frequency(Hz):	50.00
I_Peak (Amps):	12.867	I_RMS (Amps):	8.985
I_Fund (Amps):	8.982	Crest Factor:	1.442
Power (Watts):	2062.0	Power Factor:	1.000

Harm#	Harms(avg)	100% Limit	% of Limit	Harms(max)	150% Limit	% of Limit	Status
2	0.007	1.080	0.6	0.016	1.620	1.00	Pass
3	0.056	2.300	2.4	0.064	3.450	1.87	Pass
4	0.006	0.430	1.3	0.011	0.645	1.70	Pass
5	0.032	1.140	2.8	0.038	1.710	2.20	Pass
6	0.007	0.300	2.2	0.009	0.450	2.05	Pass
7	0.024	0.770	3.1	0.026	1.155	2.23	Pass
8	0.002	0.230	0.0	0.005	0.345	1.43	Pass
9	0.020	0.400	5.1	0.022	0.600	3.69	Pass
10	0.001	0.184	0.0	0.003	0.276	1.16	Pass
11	0.015	0.330	4.6	0.017	0.495	3.51	Pass
12	0.002	0.153	0.0	0.004	0.230	1.58	Pass
13	0.012	0.210	5.6	0.014	0.315	4.30	Pass
14	0.001	0.131	0.0	0.002	0.197	1.12	Pass
15	0.010	0.150	6.9	0.012	0.225	5.18	Pass
16	0.002	0.115	0.0	0.003	0.173	1.76	Pass
17	0.009	0.132	6.7	0.010	0.199	5.09	Pass
18	0.001	0.102	0.0	0.002	0.153	1.24	Pass
19	0.007	0.118	5.9	0.008	0.178	4.54	Pass
20	0.001	0.092	0.0	0.002	0.138	1.56	Pass
21	0.006	0.107	5.6	0.007	0.161	4.30	Pass
22	0.001	0.084	0.0	0.002	0.125	1.49	Pass
23	0.005	0.098	5.0	0.006	0.147	3.80	Pass
24	0.001	0.077	0.0	0.002	0.115	1.78	Pass
25	0.004	0.090	0.0	0.005	0.135	3.38	Pass
26	0.001	0.071	0.0	0.002	0.106	1.67	Pass
27	0.004	0.083	0.0	0.004	0.125	3.35	Pass
28	0.001	0.066	0.0	0.002	0.099	1.89	Pass
29	0.003	0.078	0.0	0.003	0.116	2.76	Pass
30	0.001	0.061	0.0	0.002	0.092	2.23	Pass
31	0.002	0.073	0.0	0.003	0.109	2.30	Pass
32	0.001	0.058	0.0	0.002	0.086	2.55	Pass
33	0.002	0.068	0.0	0.002	0.102	2.09	Pass
34	0.001	0.054	0.0	0.002	0.081	1.96	Pass
35	0.002	0.064	0.0	0.003	0.096	3.15	Pass
36	0.001	0.051	0.0	0.001	0.077	1.89	Pass
37	0.002	0.061	0.0	0.003	0.091	3.34	Pass
38	0.001	0.048	0.0	0.001	0.073	1.81	Pass
39	0.001	0.058	0.0	0.001	0.087	1.48	Pass
40	0.001	0.046	0.0	0.001	0.069	1.78	Pass

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# EMC TEST REPORT

## Voltage Fluctuations-Flicker

### Test result PASS

The tested object operated under the operating condition specified in EN 61000-3-3

The following limits apply

Temperature : 24 °C

Relative Humidity : 42 %

#### Parameter values recorded during the test:

Vrms at the end of test (Volt):	226.38			
Highest dt (%):	-0.21	Test limit (%):	3.30	Pass
Time(mS) > dt:	0.0	Test limit (mS):	500.0	Pass
Highest dc (%):	0.00	Test limit (%):	3.30	Pass
Highest dmax (%):	-0.11	Test limit (%):	7.00	Pass
Average dmax (%):	1.40	Test limit (%):	7.00	Pass

Test Number	Dmax	
1	-1.491	
2	1.533	
3	-1.504	
4	1.630	
5	1.590	
6	-1.487	
7	1.522	
8	1.671	Highest dmax (Disregarded)
9	-1.495	
10	-1.490	
11	-1.512	
12	-1.462	
13	1.474	
14	-1.554	
15	1.639	
16	1.427	
17	-1.563	
18	1.423	
19	1.501	
20	-1.449	
21	-1.503	
22	-0.252	
23	-0.344	
24	-0.229	Lowest dmax (Disregarded)
Average of 22 Dmax	1.402	
Lowest Dmax	-0.229	
Highest Dmax	1.671	



# EMC TEST REPORT

## Immunity Test

### Performance criteria

The performance criteria are based on the general criteria of the standard and derived from the product specification

**Criterion A:** Normal Performance within limits specified by the manufacturer, request or purchaser.

**Criterion B:** Continue to operate as intended after the test .No degradation of performance or loss of function. During the test degradation of performance is allowed, however no change of actual operating state or stored date.

**Criterion C:** Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls.

### Categories of apparatus

Category II (Shall fulfill the tests: ESD, EFT, Inject current, Surge, Dips)

### Electrostatic Discharge (ESD)

Temperature : °C Relative Humidity: %

Direct discharges were applied at the following selected points:

Test point #	Test level [kV]	Air/ Contact	Polarity (+/-)	Pass/ Fail	Comment
A	4	Contact	+/-	Pass	all touchable screws of enclosure
B	4	Contact	+/-	Pass	Accessible metal parts of the EUT
C	8	Air	+/-	Pass	Air gap of the switch, button
D	8	Air	+/-	Pass	The air in-taking opening
E	8	Air	+/-	Pass	Slots around the EUT

For floor standing equipment

Point	Description	Point	Result
VCP f	0,1m from the front of the EUT	Edge of centre,corner on VCP	Pass
VCP b	0,1m from the back of the EUT	Edge of centre,corner on VCP	Pass
VCP r	0,1m from the right of the EUT	Edge of centre,corner on VCP	Pass

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VCP 1	0,1m from the left of the EUT	Edge of centre,corner on VCP	Pass
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**Observation:** All the functions were operated as normal during and after test.

**Conclusion:** The EUT met the requirements of Performance B

### Electric Fast Transient/Burst Immunity Test

**Test result**                      **Pass**

Temperature            :        23°C    Relative Humidity:    45%

Test No. #	Level [kV]	Polarity +/-	Line for test	Pass/ Fail
1	1	+/-	a.c. Mains	Pass
2	X	+/-	X	NA

Notes: "NA" means not applicable.  
"X" is for other available lines.

**Observation:** All the functions were operated as normal during and after test.

**Conclusion:** The EUT met the requirements

### Surge Immunity Test

**Test result**                      **Pass**

Temperature            :        23°C    Relative Humidity:    46%

Test No. #	Level [kV]	Polarity +/-	Line for test	Pass/ Fail
1	1	+/-	a.c. Mains (line to line)	Pass
2	2	+/-	a.c. Mains (line to earth)	NA
3	X	+/-	X	NA

Notes: "NA" means not applicable.  
"X" is for other available lines.



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**Observation:** During the testing, the EUT worked unsteadily. Once the interference is removed, it recovered its normal mode at once.

**Conclusion:** The EUT met the requirements of Performance B

### Immunity to Conducted Disturbances, Induced by Radio-frequency Fields

**Test result**                      **Pass**

Temperature            :        23°C    Relative Humidity:    47%

Test No.	Frequency (MHz)	Level V (e.m.f.)	Amplitude modulation	Injected point	Result
1	0.15~230	3	1kHz 80%	a.c. Mains	Pass
2	0.15~230	1	1kHz 80%	Signal lines	-

**Observation:** All the functions were operated as normal during and after test.

**Conclusion:** The EUT met the requirements of Performance A

### Voltage Dips, Short Interruptions and Voltage Variations Immunity Test

**Test result**                      **Pass**

Temperature            :        22 °C    Relative Humidity:    43 %

Test no.	Test level % UT	Voltage dip and short interruptions % UT	Duration (in periods)	Pass/ Fail	Comment
1	70	30%	50	Pass	-
2	40	60%	10	Pass	-
3	0	100% pos half cycle	0,5	Pass	-
4	0	100% neg half cycle	0,5	Pass	-

**Observation:** At test level of 40% and 70%, the EUT worked unsteadily. Once the interference is removed, it recovered its normal mode at once.

**Conclusion:** The EUT met the requirements of Performance B

# EMC TEST REPORT

## Appendix I Photograph of equipment under test

*Photo 1.*

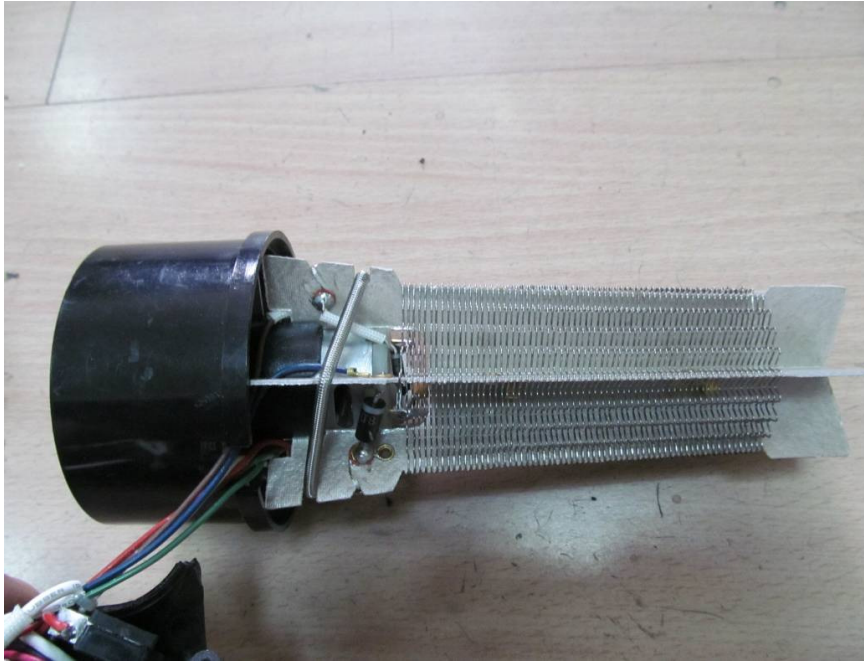
Description: Overall view of RW807\* (\*=A, AF, B, BF)



*Photo 2.*

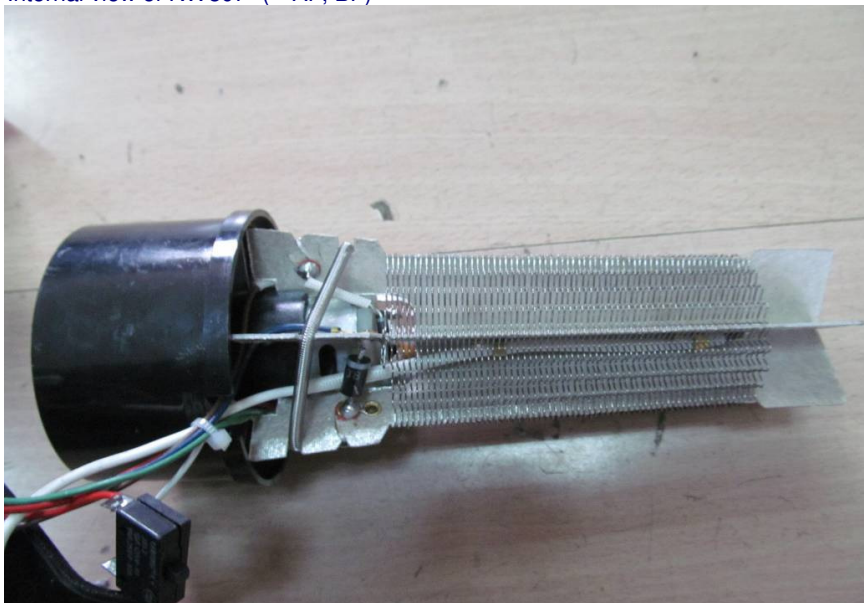
Description: Internal view of RW807\* (\*=A, B)

# EMC TEST REPORT



*Photo 3.*

Description: Internal view of RW807\* (\*=AF, BF)



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