



EUROFINS PRODUCT TESTING SERVICE (SHANGHAI) CO., LTD.

EMC TEST- REPORT

TEST REPORT NUMBER: EFSH15081971-IE-01-E01-A2



Eurofins Product Testing Service (Shanghai) Co., Ltd.
No.395 West Jiangchang Road, Jing'an District, Shanghai,
200436, P.R. China

Phone: +86-21-61819181
Fax: +86-21-61819180
Page 1 of 41

TABLE OF CONTENTS

1 Contents

1	Contents	2
2	General Information	3
2.1	Notes	3
2.2	Testing laboratory	4
2.3	Details of approval holder	5
2.4	Application details	5
2.5	EUT Information	5
2.6	Test standards	6
3	Technical test	7
3.1	Summary of test results	7
3.2	Test environment	7
3.3	Test equipment utilized	8
3.4	Test results	9
4	Emission Test	10
4.1	Conducted Emission	10
4.2	Disturbance power	15
4.3	Harmonic Current Emissions	18
4.4	Voltage Changes, Voltage Fluctuations and Flicker	23
5	Test Setup Photos	25
6	EUT Photos	27
7	Amendment 1	41
8	Amendment 2	41

2 General Information

2.1 Notes

The results of this test report relate exclusively to the item tested as specified in chapter "Description of test item" and are not transferable to any other test items.

Eurofins Product Testing Service (Shanghai) Co., Ltd. is not responsible for any generalisations and conclusions drawn from this report. Any modification of the test item can lead to invalidity of test results and this test report may therefore be not applicable to the modified test item.


The test report may only be reproduced or published in full. Reproducing or publishing extracts of the report requires the prior written approval of the Eurofins Product Testing Service (Shanghai) Co., Ltd.

This document is subject to the General Terms and Conditions and the Testing and Certification System of Eurofins Product Testing Service (Shanghai) Co., Ltd., available on request or accessible at www.pt.eurofins.com.

Operator:

2017-08-01

Perry Li / Testing Engineer



Date

Eurofins-Lab.

Name / Title

Signature

Technical responsibility for area of testing:

2017-08-01

Stefan Zhao / Project Engineer



Date

Eurofins

Name / Title

Signature

Test Report No.: EFSH15081971-IE-01-E01-A2

Eurofins Product Testing Service (Shanghai) Co., Ltd.
No.395 West Jiangchang Road, Jing'an District, Shanghai, 200436, P.R. China

2.2 Testing laboratory

Eurofins Product Testing Service (Shanghai) Co., Ltd.

No.395 West Jiangchang Road, Jing'an District, Shanghai, 200436, P.R. China

Telephone : +86-21-61819181

Telefax : +86-21-61819180

Test location, where different:

2.3 Details of approval holder

Name :
 Address :
 Telephone : ./.
 Fax : ./.
 : 2015-09-07
 : 2015-09-07

2.4 Application details

Date of receipt of application : 2015-09-07 to 2015-09-17
 Date of receipt of test item : 2016-08-15
 Date of test : 2017-08-01 (Date of test: N/A)
 Amendment 1
 Amendment 2

: Hair Care Set (Hair Curling)
 : HT-8000, HT-8100, HT-8200, HT-8300, HT-8400, HT-8500,

2.5 EUT Information

Product name
 Model name
 HT-8600, HT-7000, **HT-8700, HT-1202, HT-1202-I, HT-1203, HT-1203-I**

Brand name : ./.
 Serial number : ./.
 Ratings : 220-240V~, 50/60Hz, Class II for all models
 HT-8000, HT-8100, HT-8200, HT-8300, HT-8400, HT-8500,
 HT-8600, **HT-8700**: 800W;
 HT-7000: 700W;
HT-1202, HT-1202-I, HT-1203, HT-1203-I: 1200W.

Test Voltage : 220-240~, 50/60Hz (the worst voltage data recorded)
 Additional information :

The products covered by this test report are multi-function hair care set (can be used as hair dryers and curling combs) for household and indoor use.

The models HT-8000, HT-8100, HT-8200, HT-8300, HT-8400, HT-8500, HT-8600 are essentially the same except for model name, the appearance and construction shape of air inlet.

After review, HT-8400 was subjected to the full tests and recorded.

See P41 for Amendment 1.

Test No.	Model name
Model 1	HT-8400
Model 2	HT-7000

For HT-8700, HT-1202, HT-1202-I, HT-1203, HT-1203-I:
 See page 41 for Amendment 2.

2.6 Test standards

Technical standard :

EN 55014-1: 2006+A1: 2009+A2: 2011

EN 55014-2: 1997+A1: 2001+A2: 2008

EN 55014-2: 2015

EN 61000-3-2: 2014

EN 61000-3-3: 2013

3 Technical test

3.1 Summary of test results

No deviations from the technical specification(s) were ascertained in the course of the tests performed.



or

The deviations as specified were ascertained in the course of the tests performed.



3.2 Test environment

Temperature	:	20	...	25°C
Relative humidity content	:	30	...	60%
Air pressure	:	100	...	103kPa

3.3 Test equipment utilized

Measurement Equipment List				
No.	Name:	Type:	Manufacturer:	Cal due data:
1	EMI test receiver	ESCI	R&S	2016-11-27
2	Single phase Harmonics & Flicker analyser	PACS-1	California Instruments	2016-11-27
3	AC Power Source	5001ix	California Instruments	2016-11-27
4	Coupling/Decoupling Network	L 801 M2/M3	Luethi	2016-11-27
5	Ultra Compact Simulator	UCS 500N7	EMTEST	2016-11-27
6	ESD Gun	NSG 437	TESEQ	2016-11-27
7	Current transformer	MC2630	EMTEST	2016-11-27
8	Motorized variac	MV2616	EMTEST	2016-11-27
9	Continuous wave simulator	CWS500N1	EMTEST	2016-11-27
10	Magnetic field coil	MS100	EMTEST	2016-11-27
11	Current transformer	MC26100	EMTEST	2016-11-27
12	Artificial mains	ENV216	R&S	2016-11-27
13	Click analyser	CL55C	AFJ	2016-09-03
14	Absorbing clamp	MDS21	Luethi	2016-11-27
15	EM clamp	EM101	Luethi	2016-11-27
16	Oscilloscope	TDS3012C	Tektronix	2016-10-14

3.4 Test results

☒ 1st test

☐ test after modification

☐ production test

Test case	Subclause	Required	Test passed	Test failed
Conducted Emission	Clause 4.1.1 of EN 55014-1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Disturbance power	Clause 4.1.2 of EN 55014-1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Radiated disturbance	Clause 4.1.2 of EN 55014-1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Discontinuous disturbance	Clause 4.2 of EN 55014-1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Harmonic Current Emissions	EN 61000-3-2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Voltage Changes, Voltage Fluctuations and Flicker	EN 61000-3-3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Electrostatic Discharge	Clause 5.1 of EN 55014-2 & IEC 61000-4-2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Electrical Fast Transients	Clause 5.2 of EN 55014-2 & IEC 61000-4-4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Injected currents (RF continues conducted)	Clause 5.3 & 5.4 of EN 55014-2 & IEC 61000-4-6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Radio frequency electromagnetic fields	Clause 5.5 of EN 55014-2 & IEC 61000-4-3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Surge immunity	Clause 5.6 of EN 55014-2 & IEC 61000-4-5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Voltage dips and Interruption	Clause 5.7 of EN 55014-2 & IEC 61000-4-11	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- Note 1: The additional margin(0-10dB) was meet in the frequency range 200MHz to 300MHz in Disturbance power test(absorbing clamp), and the EUT did not contained any circuit with clock frequency more than 30MHz, so the EUT was compliant with the Radiated disturbance test (300MHz-1GHz) without test.
- Note 2: The category I equipment fulfils the immunity requirement without testing.
- Note 3: The click rate was less than 5, and the click duration was less than 10ms. So it is deemed to comply with Discontinuous disturbance test.

Test Report No.: EFSH15081971-IE-01-E01-A2

Eurofins Product Testing Service (Shanghai) Co., Ltd.
No.395 West Jiangchang Road, Jing'an District, Shanghai, 200436, P.R. China

4 Emission Test

4.1 Conducted Emission

This clause lays down the general requirements for the measurement of disturbance voltage produced at the terminals of apparatus.

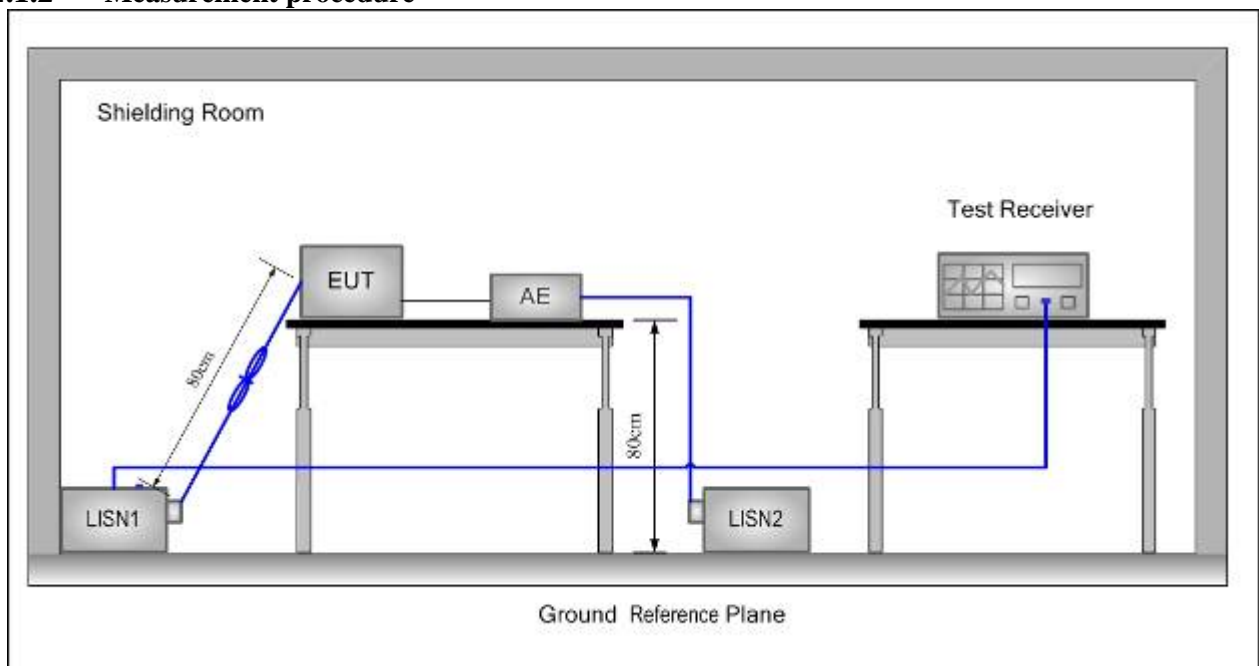
4.1.1 Limits

Frequency range MHz	At mains terminals dB (μV)	
	Quasi-peak Limit	Average Limit
0.15 to 0.50	66 to 56	59 to 46
0.50 to 5	56	46
5 to 30	60	50

Note1: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 30 MHz.

Note2: The lower limit is applicable at the transition frequency.

4.1.2 Measurement procedure



1. The mains terminal disturbance voltage was measured with the EUT in a shielded room.
2. The EUT was connected to AC power source through a LISN (Line Impedance Stabilization Network) which provides a $(50 \mu H + 5 \Omega) \parallel 50 \Omega$ linear impedance. The power cables of all other units of the EUT were connected to a second LISN, which was bonded to the ground reference plane in the same way as the LISN for the unit being measured.
3. The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.

4. According to a pre-test at 160kHz, the worst voltage was selected for final test. Before get the final emission results with quasi-peak(QP) detector and average(AVG) detector, a pre-scan was performed with the peak(PK) and average(AVG) detector to find out the maximum emission data plots of the EUT.

4.1.3 Measurement uncertainty

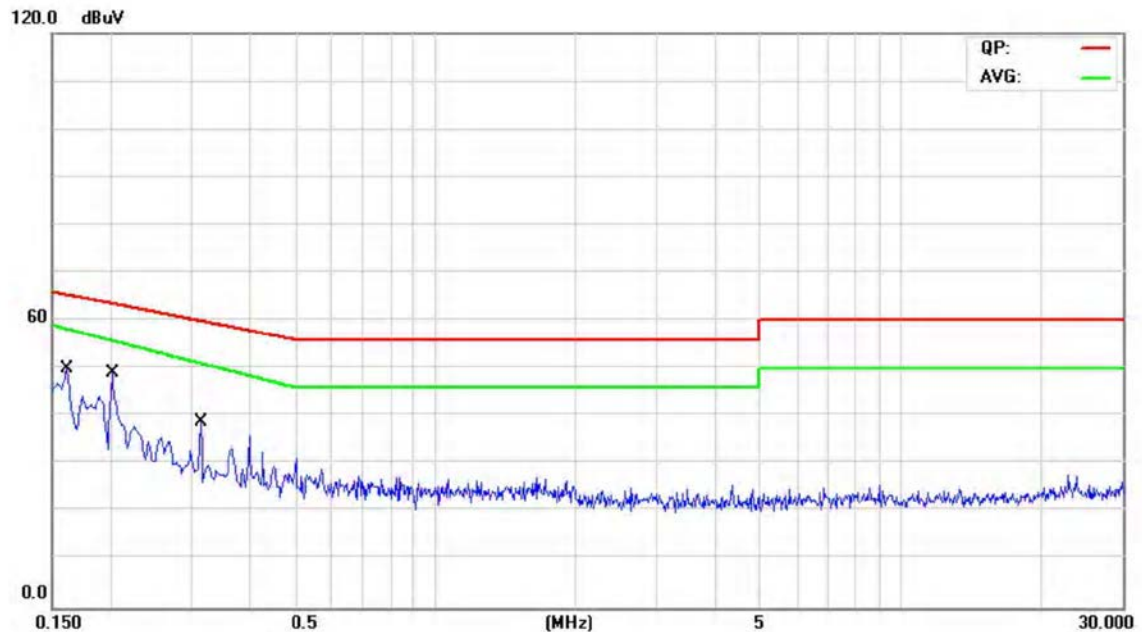
$U_{lab}(cond) = 2.5dB$ at 95% level of confidence, $k=2$

4.1.4 Results -Measurement Data



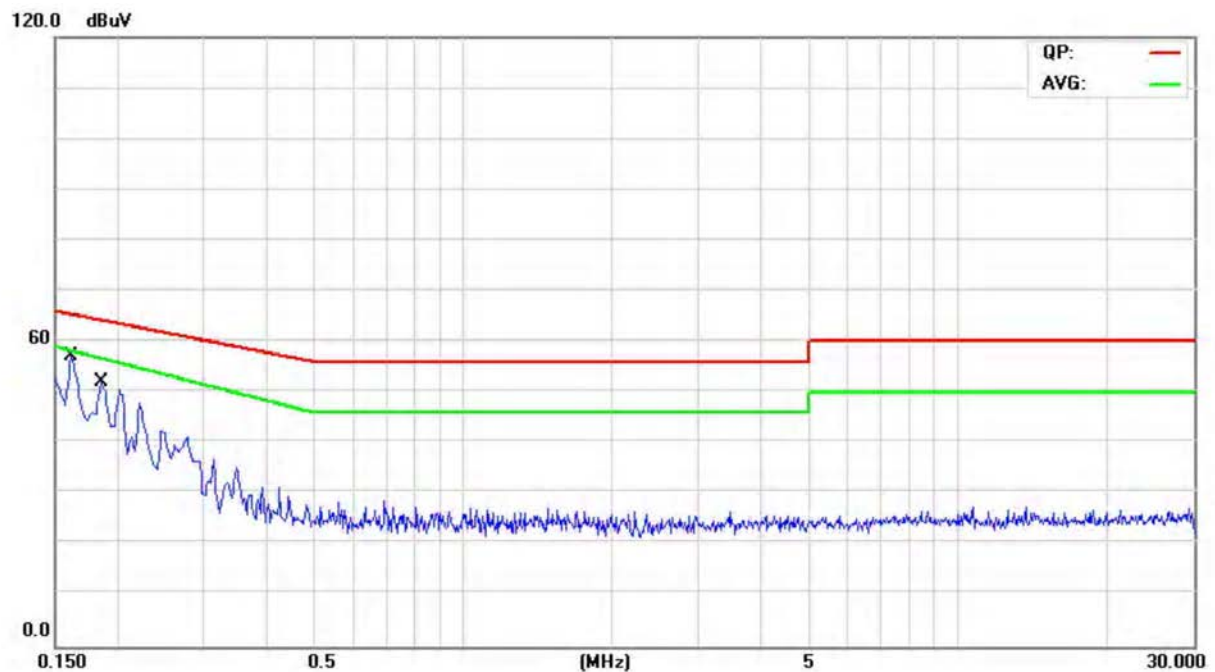
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
		MHz	Level	Factor	ment			Detector
			dBuV	dB	dBuV	dBuV	dB	
1		0.1780	15.22	10.01	25.23	64.57	-39.34	QP
2		0.1780	10.88	10.01	20.89	57.15	-36.26	AVG
3	*	13.5579	19.03	9.90	28.93	60.00	-31.07	QP
4		13.5579	5.36	9.90	15.26	50.00	-34.74	AVG

Neutral Line:
Level



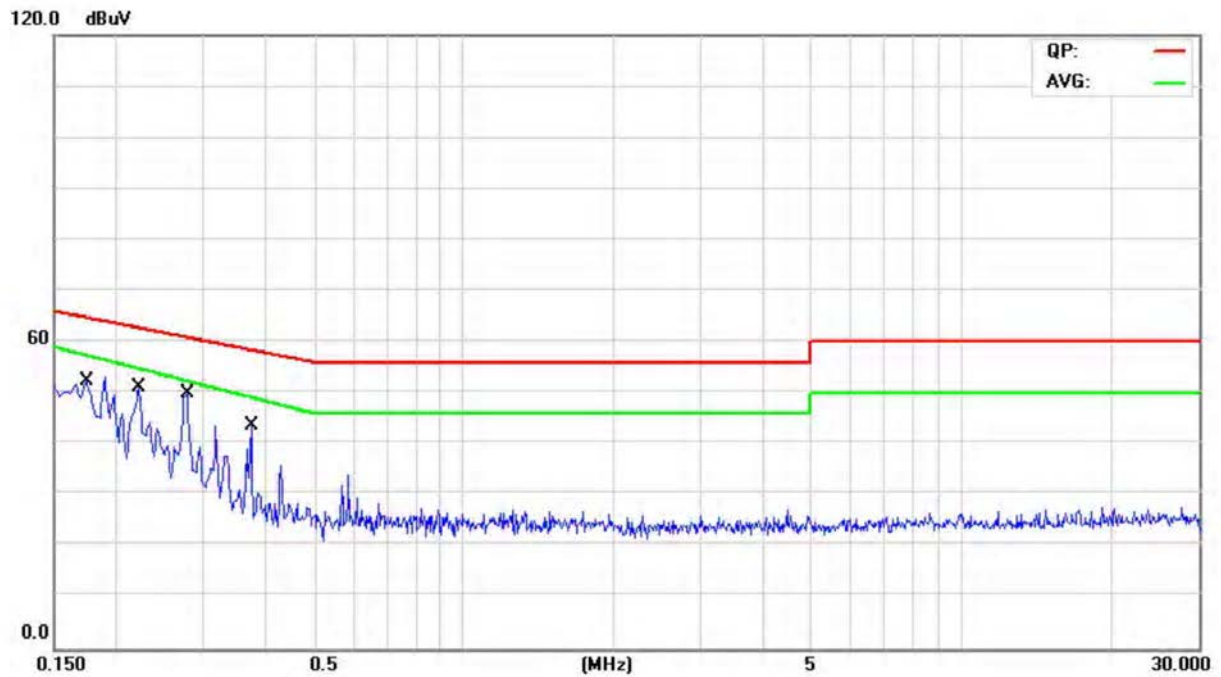
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
		MHz	Level	Factor	ment			Detector
			dBuV	dB	dBuV	dBuV	dB	
1	*	0.1620	36.73	10.11	46.84	65.36	-18.52	QP
2		0.1620	22.84	10.11	32.95	58.17	-25.22	AVG
3		0.2020	30.91	9.87	40.78	63.53	-22.75	QP
4		0.2020	17.73	9.87	27.60	55.79	-28.19	AVG
5		0.3140	21.60	9.81	31.41	59.86	-28.45	QP
6		0.3140	11.57	9.81	21.38	51.02	-29.64	AVG

Model 2
Live Line:
Level



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	*	0.1620	37.98	10.27	48.25	65.36	-17.11	QP
2		0.1620	24.74	10.27	35.01	58.16	-23.15	AVG
3		0.1860	34.33	10.42	44.75	64.21	-19.46	QP
4		0.1860	20.35	10.42	30.77	56.67	-25.90	AVG

Neutral Line:
Level



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
		MHz	Level	Factor	ment			Detector
			dBuV	dB	dBuV	dBuV	dB	
1	*	0.1740	38.42	10.43	48.85	64.76	-15.91	QP
2		0.1740	22.50	10.43	32.93	57.39	-24.46	AVG
3		0.2220	32.23	10.28	42.51	62.74	-20.23	QP
4		0.2220	16.18	10.28	26.46	54.76	-28.30	AVG
5		0.2779	26.09	10.27	36.36	60.88	-24.52	QP
6		0.2779	11.69	10.27	21.96	52.34	-30.38	AVG
7		0.3740	21.17	10.26	31.43	58.41	-26.98	QP
8		0.3740	8.54	10.26	18.80	49.13	-30.33	AVG

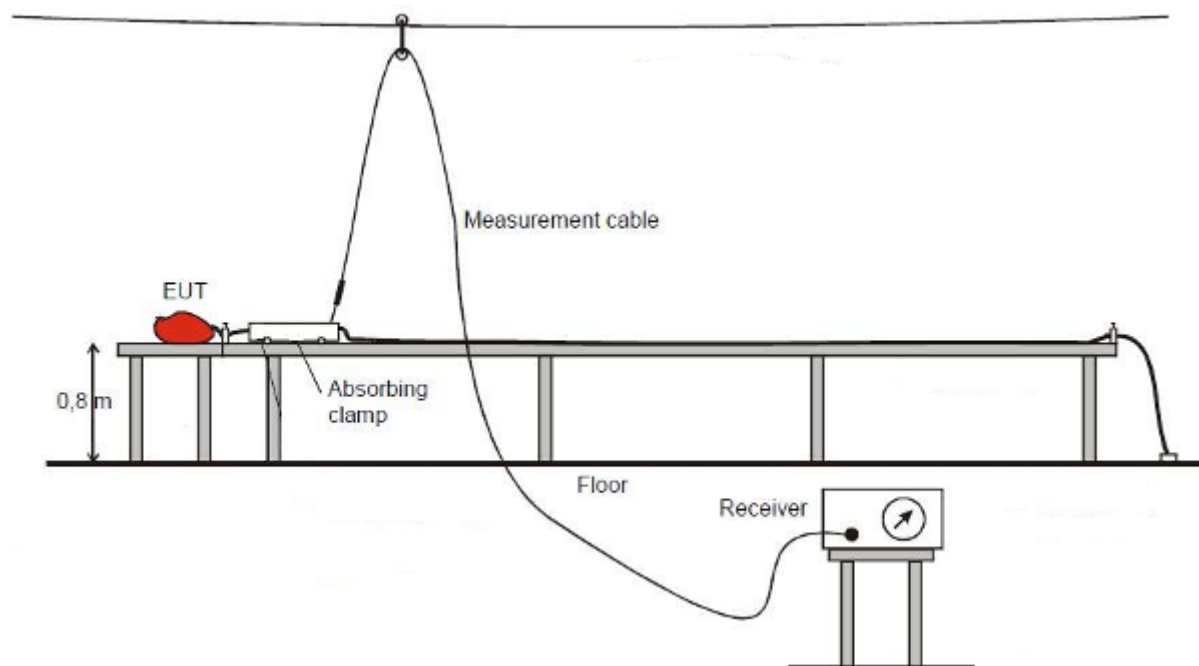
4.2 Disturbance power

This clause lays down the general requirements for the measurement of disturbance power produced at the terminals of apparatus.

4.2.1 limits

Frequency range MHz	Limit dB (pW)	
	Quasi-peak	Average
30 to 300	45 to 55	35 to 45
Note1: Increasing linearly with the frequency from.		

4.2.2 Measurement procedure



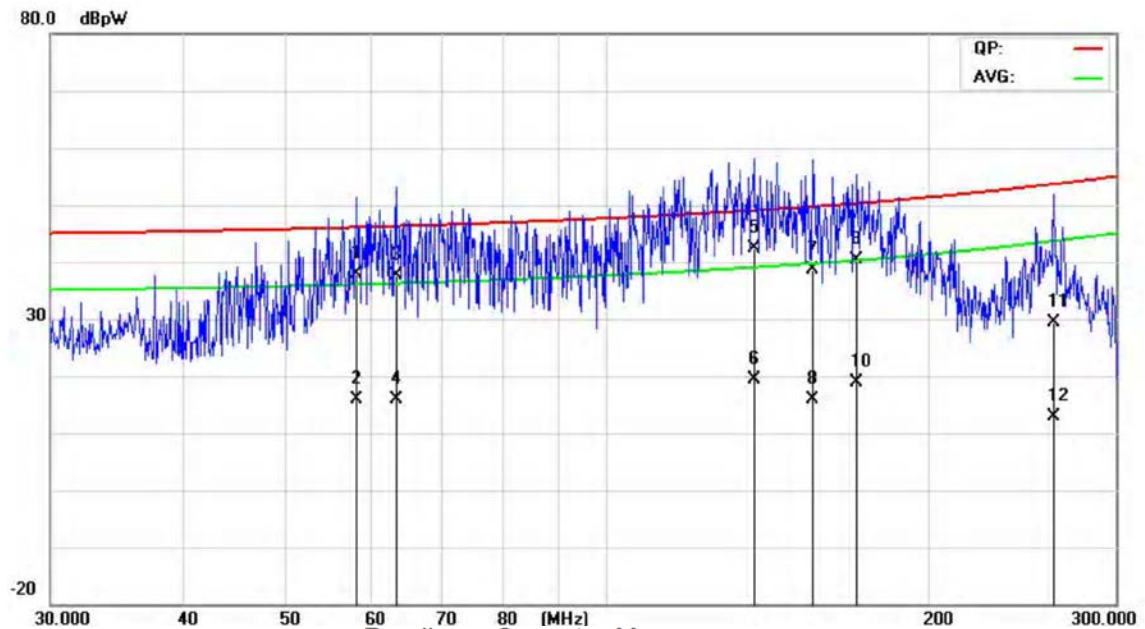
The test configuration corresponds to the standard EN 55014-1. The equipment under test is placed on a non metallic table with 0,8 m high. The lead to be measured is stretched horizontally in a straight line, to permit variation in position of the absorbing clamp along the lead to find the maximum indication. The lead shall be at least length of 6 meter. According to a pre-test at 50MHz, the worst voltage was selected for final test. Before get the final emission results with quasi-peak(QP) detector and average(AVG) detector, a pre-scan was performed with the peak(PK) detector to find out the maximum emission data plots of the EUT. The absorbing clamp is placed around the lead.

4.2.3 Measurement uncertainty

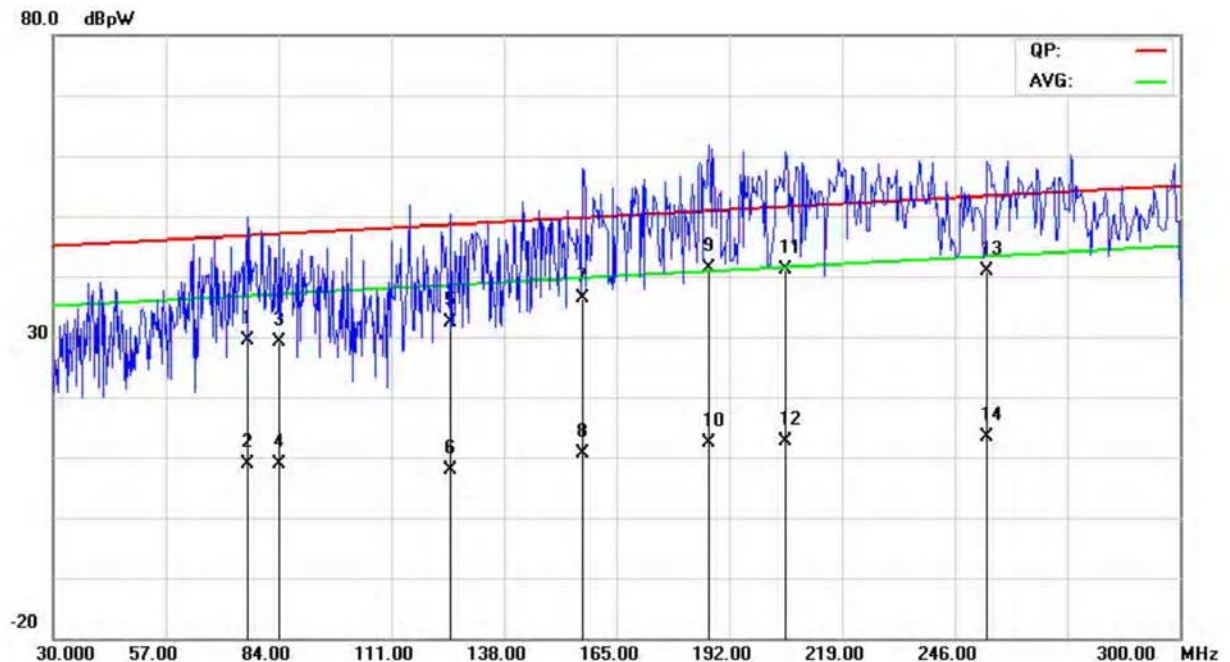
$U_{lab}(cond) = 4.08 \text{ dB}$ at confidence of 95%, $k=2$

4.2.4 Results

Model 1
Level



No.	Mk.	Freq. MHz	Reading Level dBpW	Correct Factor dB	Measure- ment dBpW	Limit dBpW	Over dB	Detector
1		58.2000	15.80	22.00	37.80	46.04	-8.24	QP
2		58.2000	-6.00	22.00	16.00	36.04	-20.04	AVG
3		63.3200	15.95	21.62	37.57	46.23	-8.66	QP
4		63.3200	-5.62	21.62	16.00	36.23	-20.23	AVG
5	*	137.3200	21.11	21.19	42.30	48.97	-6.67	QP
6		137.3200	-1.69	21.19	19.50	38.97	-19.47	AVG
7		155.7200	17.97	20.76	38.73	49.66	-10.93	QP
8		155.7200	-4.76	20.76	16.00	39.66	-23.66	AVG
9		171.7600	20.06	20.31	40.37	50.25	-9.88	QP
10		171.7600	-1.31	20.31	19.00	40.25	-21.25	AVG
11		262.9200	9.61	19.89	29.50	53.63	-24.13	QP
12		262.9200	-6.89	19.89	13.00	43.63	-30.63	AVG

**Model 2
Level**


No.	Mk.	Freq. MHz	Reading Level dBpW	Correct Factor dB	Measure- ment dBpW	Limit dBpW	Over dB	Detector
1		76.4400	12.20	17.24	29.44	46.72	-17.28	QP
2		76.4400	-8.34	17.24	8.90	36.72	-27.82	AVG
3		84.4000	12.21	16.97	29.18	47.01	-17.83	QP
4		84.4000	-8.07	16.97	8.90	37.01	-28.11	AVG
5		125.5600	15.81	16.47	32.28	48.54	-16.26	QP
6		125.5600	-8.67	16.47	7.80	38.54	-30.74	AVG
7		157.1600	19.94	16.44	36.38	49.71	-13.33	QP
8		157.1600	-5.84	16.44	10.60	39.71	-29.11	AVG
9	*	187.1600	24.86	16.41	41.27	50.82	-9.55	QP
10		187.1600	-3.91	16.41	12.50	40.82	-28.32	AVG
11		205.7200	24.67	16.42	41.09	51.51	-10.42	QP
12		205.7200	-3.72	16.42	12.70	41.51	-28.81	AVG
13		253.8000	24.25	16.56	40.81	53.29	-12.48	QP
14		253.8000	-3.06	16.56	13.50	43.29	-29.79	AVG

4.3 Harmonic Current Emissions

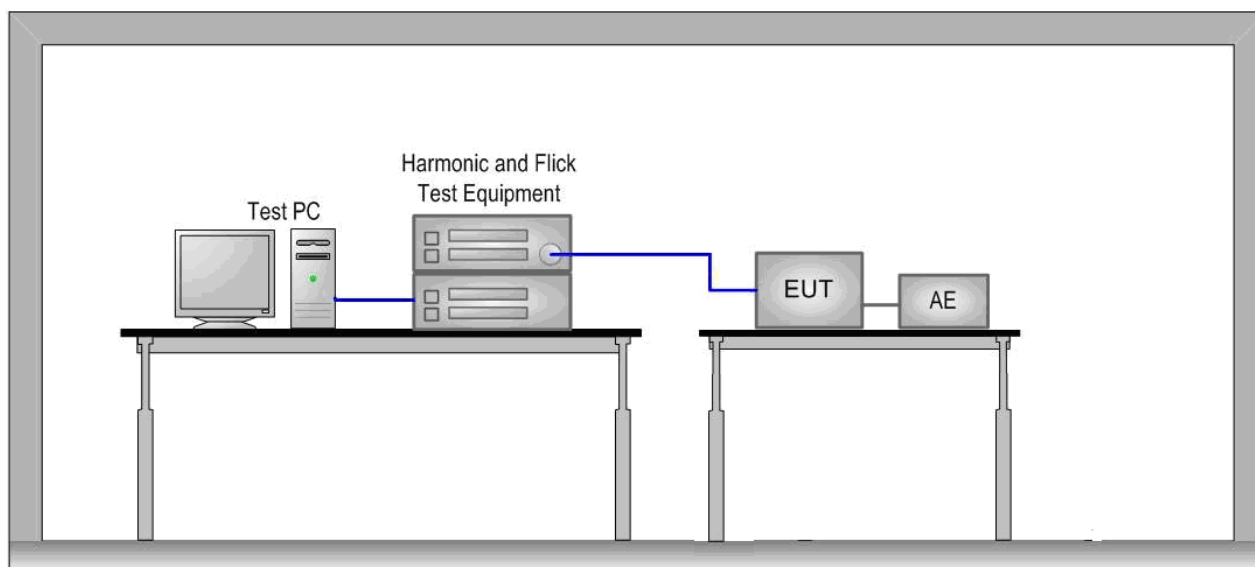
This part deals with the limitation of harmonic currents injected into the public supply system.

4.3.1 Limits

Limit for Class A equipment

Harmonic order n	Maximum permissible harmonic current A
Odd harmonics	
3	2,30
5	1,14
7	0,77
9	0,40
11	0,33
13	0,21
$15 \leq n \leq 39$	$0,15 \frac{15}{n}$
Even harmonics	
2	1,08
4	0,43
6	0,30
$8 \leq n \leq 40$	$0,23 \frac{8}{n}$

4.3.2 Measurement procedure



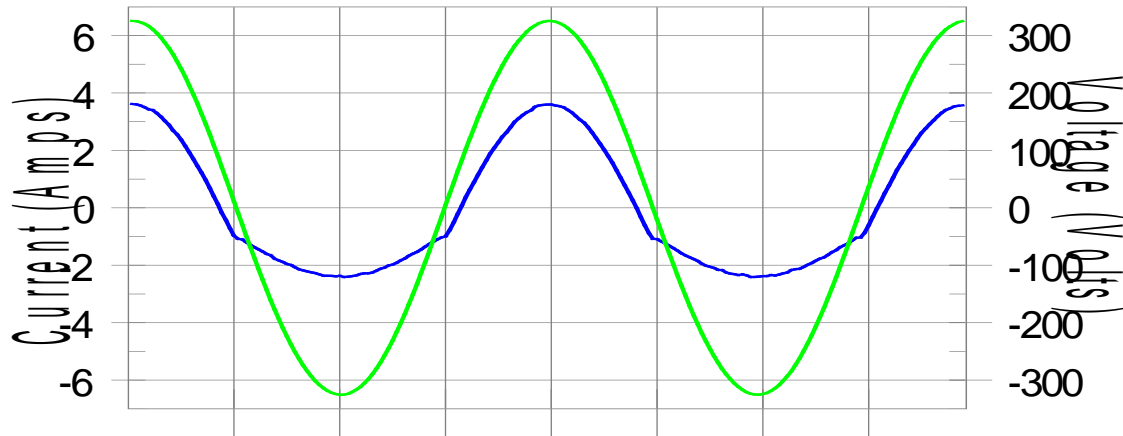
The equipment under test is placed on a wooden table with a height of 0,8 m in the EMC lab. For each harmonic order, measure the 1,5 s smoothed r.m.s. harmonic current in each DFT time window and calculate the arithmetic average of the measured values from the DFT time windows, over the entire observation period. Each harmonic order, all 1.5 s smoothed r.m.s. harmonic current values and the average values for the individual harmonic currents, taken over the entire test observation period shall be less than or equal to the applicable limits.

4.3.3 Results

Model 1 Harmonics

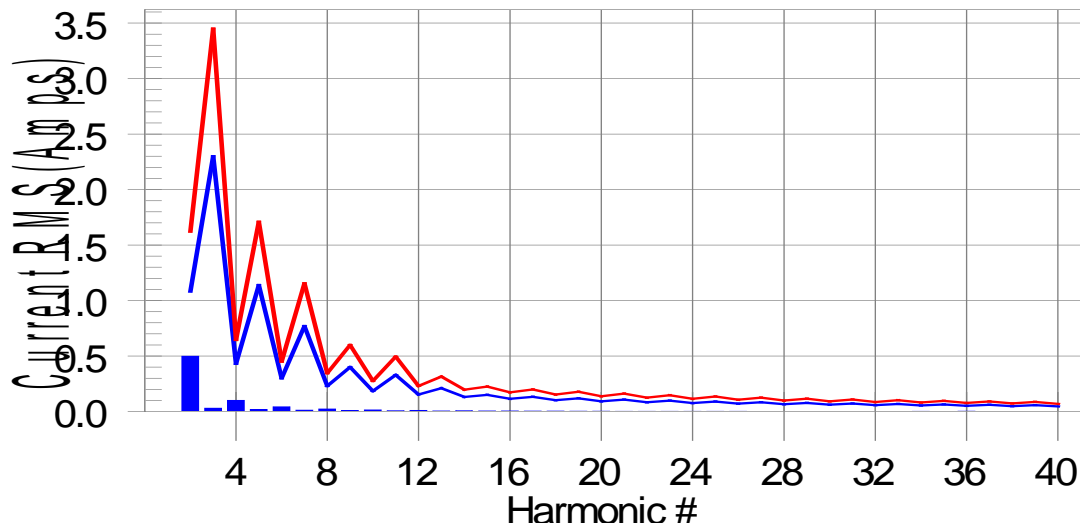
Test Result: Pass Source qualification: Normal

Current & voltage waveforms



Harmonics and Class A limit line

European Limits



Test result: Pass Worst harmonic was #2 with 46.16% of the limit.

Current Test Result Summary

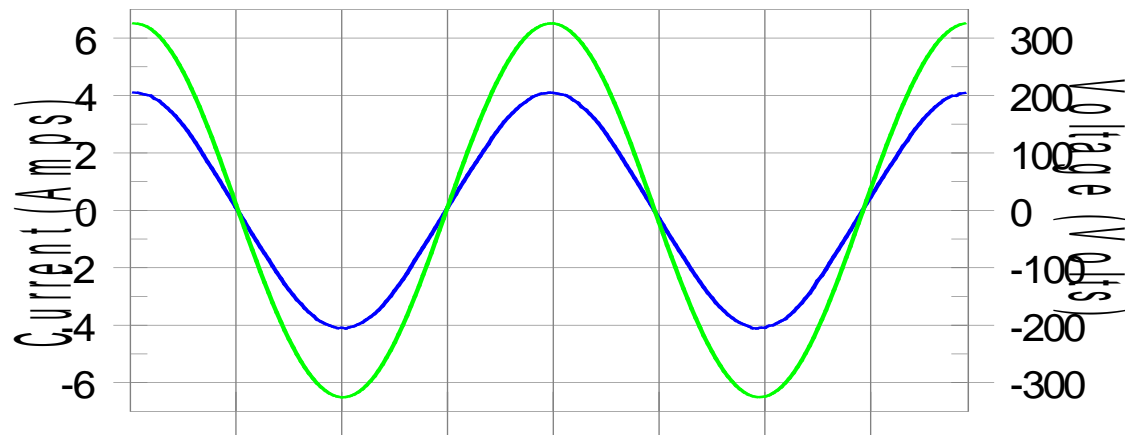
Test Result: Pass Source qualification: Normal
 THC(A): 0.51 I-THD(%): 24.48 POHC(A): 0.000 POHC Limit(A): 0.251
 Highest parameter values during test:
 V_RMS (Volts): 230.11 Frequency(Hz): 50.00
 I_Peak (Amps): 3.625 I_RMS (Amps): 2.160
 I_Fund (Amps): 2.097 Crest Factor: 1.680
 Power (Watts): 482.5 Power Factor: 0.971

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.499	1.080	46.2	0.499	1.620	30.81	Pass
3	0.030	2.300	1.3	0.031	3.450	0.90	Pass
4	0.100	0.430	23.3	0.101	0.645	15.64	Pass
5	0.018	1.140	1.6	0.019	1.710	1.11	Pass
6	0.043	0.300	14.3	0.043	0.450	9.54	Pass
7	0.013	0.770	1.6	0.013	1.155	1.12	Pass
8	0.024	0.230	10.3	0.024	0.345	6.86	Pass
9	0.009	0.400	0.0	0.010	0.600	1.64	Pass
10	0.015	0.184	8.1	0.015	0.276	5.46	Pass
11	0.007	0.330	0.0	0.008	0.495	1.56	Pass
12	0.010	0.153	0.0	0.010	0.230	4.57	Pass
13	0.006	0.210	0.0	0.006	0.315	1.96	Pass
14	0.008	0.131	0.0	0.008	0.197	3.89	Pass
15	0.005	0.150	0.0	0.005	0.225	2.37	Pass
16	0.006	0.115	0.0	0.006	0.173	3.43	Pass
17	0.004	0.132	0.0	0.004	0.199	2.20	Pass
18	0.005	0.102	0.0	0.005	0.153	3.07	Pass
19	0.004	0.118	0.0	0.004	0.178	2.15	Pass
20	0.004	0.092	0.0	0.004	0.138	2.65	Pass
21	0.003	0.107	0.0	0.003	0.161	1.89	Pass
22	0.003	0.084	0.0	0.003	0.125	2.44	Pass
23	0.003	0.098	0.0	0.003	0.147	1.79	Pass
24	0.003	0.077	0.0	0.003	0.115	2.25	Pass
25	0.002	0.090	0.0	0.002	0.135	1.73	Pass
26	0.002	0.071	0.0	0.002	0.106	2.06	Pass
27	0.002	0.083	0.0	0.002	0.125	1.52	Pass
28	0.002	0.066	0.0	0.002	0.099	1.92	Pass
29	0.002	0.078	0.0	0.002	0.116	1.35	Pass
30	0.002	0.061	0.0	0.002	0.092	1.81	Pass
31	0.001	0.073	0.0	0.001	0.109	1.28	Pass
32	0.001	0.058	0.0	0.002	0.086	2.05	Pass
33	0.001	0.068	0.0	0.001	0.102	1.42	Pass
34	0.002	0.054	0.0	0.003	0.081	3.65	Pass
35	0.001	0.064	0.0	0.001	0.096	1.53	Pass
36	0.002	0.051	0.0	0.004	0.077	4.62	Pass
37	0.001	0.061	0.0	0.001	0.091	0.86	Pass
38	0.001	0.048	0.0	0.001	0.073	1.90	Pass
39	0.001	0.058	0.0	0.001	0.087	0.72	Pass
40	0.001	0.046	0.0	0.001	0.069	1.41	Pass

Model 2 Harmonics

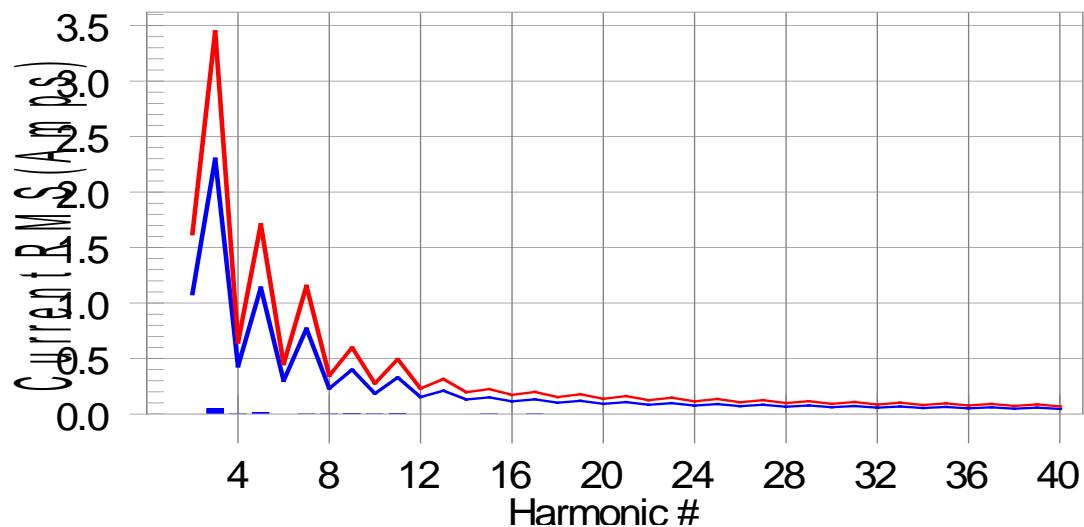
Test Result: Pass Source qualification: Normal

Current & voltage waveforms



Harmonics and Class A limit line

European Limits



Test result: Pass Worst harmonic was #3 with 2.10% of the limit.

Current Test Result Summary

Test Result: Pass Source qualification: Normal
 THC(A): 0.05 I-THD(%): 1.69 POHC(A): 0.000 POHC Limit(A): 0.251
 Highest parameter values during test:

V_RMS (Volts):	230.09	Frequency(Hz):	50.00
I_Peak (Amps):	4.138	I_RMS (Amps):	2.859
I_Fund (Amps):	2.859	Crest Factor:	1.448
Power (Watts):	657.7	Power Factor:	1.000

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001	1.080	0.0	0.001	1.620	0.06	Pass
3	0.048	2.300	2.1	0.050	3.450	1.45	Pass
4	0.001	0.430	0.0	0.001	0.645	0.17	Pass
5	0.012	1.140	0.0	0.013	1.710	0.77	Pass
6	0.000	0.300	0.0	0.000	0.450	0.07	Pass
7	0.001	0.770	0.0	0.001	1.155	0.11	Pass
8	0.000	0.230	0.0	0.001	0.345	0.34	Pass
9	0.004	0.400	0.0	0.004	0.600	0.71	Pass
10	0.000	0.184	0.0	0.001	0.276	0.40	Pass
11	0.003	0.330	0.0	0.003	0.495	0.58	Pass
12	0.000	0.153	0.0	0.000	0.230	0.12	Pass
13	0.000	0.210	0.0	0.000	0.315	0.13	Pass
14	0.000	0.131	0.0	0.000	0.197	0.13	Pass
15	0.001	0.150	0.0	0.001	0.225	0.50	Pass
16	0.000	0.115	0.0	0.000	0.173	0.18	Pass
17	0.001	0.132	0.0	0.001	0.199	0.69	Pass
18	0.000	0.102	0.0	0.000	0.153	0.16	Pass
19	0.001	0.118	0.0	0.001	0.178	0.46	Pass
20	0.000	0.092	0.0	0.000	0.138	0.20	Pass
21	0.000	0.107	0.0	0.000	0.161	0.20	Pass
22	0.000	0.084	0.0	0.000	0.125	0.20	Pass
23	0.000	0.098	0.0	0.000	0.147	0.29	Pass
24	0.000	0.077	0.0	0.000	0.115	0.19	Pass
25	0.000	0.090	0.0	0.000	0.135	0.22	Pass
26	0.000	0.071	0.0	0.000	0.106	0.27	Pass
27	0.000	0.083	0.0	0.000	0.125	0.25	Pass
28	0.000	0.066	0.0	0.000	0.099	0.33	Pass
29	0.000	0.078	0.0	0.000	0.116	0.33	Pass
30	0.000	0.061	0.0	0.000	0.092	0.31	Pass
31	0.000	0.073	0.0	0.000	0.109	0.37	Pass
32	0.000	0.058	0.0	0.000	0.086	0.34	Pass
33	0.000	0.068	0.0	0.000	0.102	0.24	Pass
34	0.000	0.054	0.0	0.000	0.081	0.31	Pass
35	0.000	0.064	0.0	0.000	0.096	0.28	Pass
36	0.000	0.051	0.0	0.000	0.077	0.27	Pass
37	0.000	0.061	0.0	0.000	0.091	0.38	Pass
38	0.000	0.048	0.0	0.000	0.073	0.27	Pass
39	0.000	0.058	0.0	0.001	0.087	0.60	Pass
40	0.000	0.046	0.0	0.000	0.069	0.38	Pass

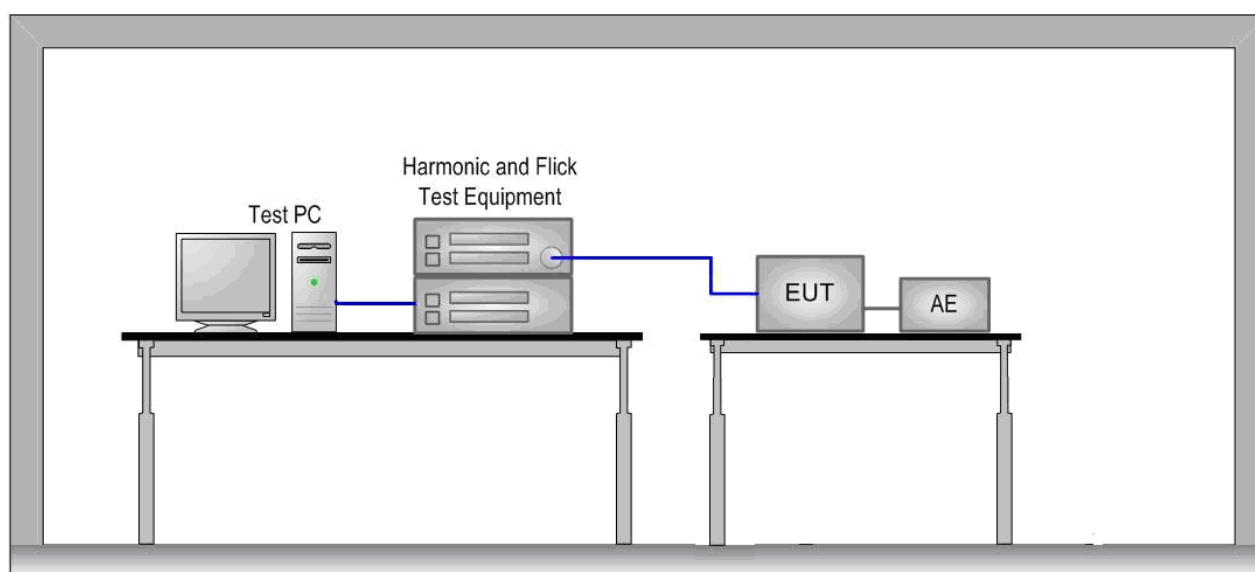
4.4 Voltage Changes, Voltage Fluctuations and Flicker

This part is concerned with the limitation of voltage fluctuations and flicker impressed on the public low-voltage system.

4.4.1 Limits

Value	Limit
Pst	1,0
Plt	0,65
dt	3,3%
dc	3,3%
dmax	4,0%

4.4.2 Measurement test procedure



The equipment under test is placed on a wooden table with a height of 0,8 m in the EMC lab. The voltage fluctuations and flicker were measured at the supply terminals of the EUT.

4.4.3 Results

Model 1

Parameter values recorded during the test:

Vrms at the end of test (Volt): 229.90

Highest dt (%): -0.45

Time(mS) > dt: 0.0

Highest dc (%): 0.65

Highest dmax (%): 0.61

Highest Pst (10 min. period): 0.223

Test limit (%): 3.30 Pass

Test limit (mS): 500.0 Pass

Test limit (%): 3.30 Pass

Test limit (%): 4.00 Pass

Test limit: 1.000 Pass

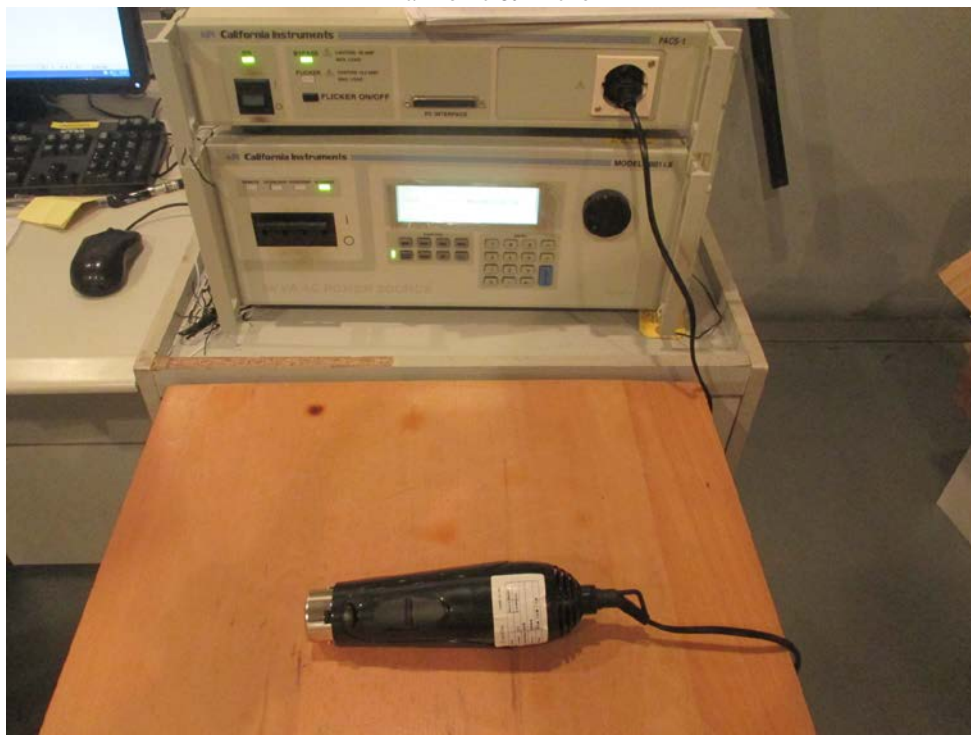
Test Report No.: EFSH15081971-IE-01-E01-A2

Eurofins Product Testing Service (Shanghai) Co., Ltd.
No.395 West Jiangchang Road, Jing'an District, Shanghai, 200436, P.R. China

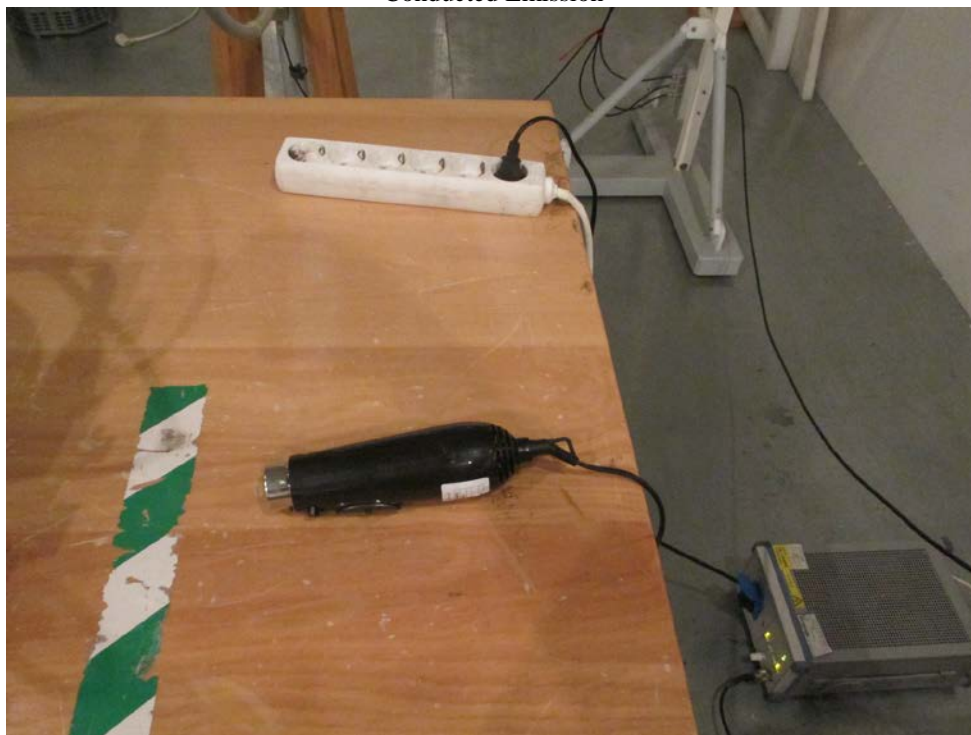
Model 2**Parameter values recorded during the test:****Vrms at the end of test (Volt): 228.84****Highest dt (%): 0.68****Time(mS) > dt: 0.0****Highest dc (%): 0.00****Highest dmax (%): -0.56****Highest Pst (10 min. period): 0.303****Test limit (%): 3.30 Pass****Test limit (mS): 500.0 Pass****Test limit (%): 3.30 Pass****Test limit (%): 4.00 Pass****Test limit: 1.000 Pass**

5 Test Setup Photos

Harmonic & Flicker



Conducted Emission



Disturbance power

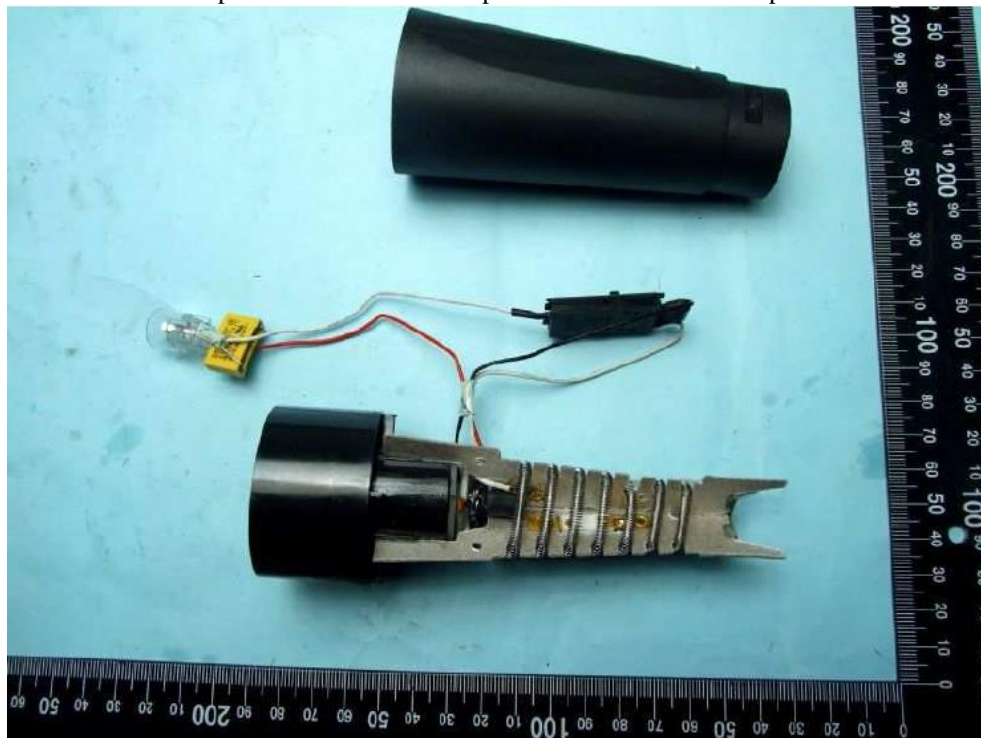


6 EUT Photos

Description: Overall view of HT-8000, HT-8100, HT-8200, HT-8300, HT-8400, HT-8500, HT-8600 (from left to right)



Description: Internal view except for HT-8400 with X2 capacitor



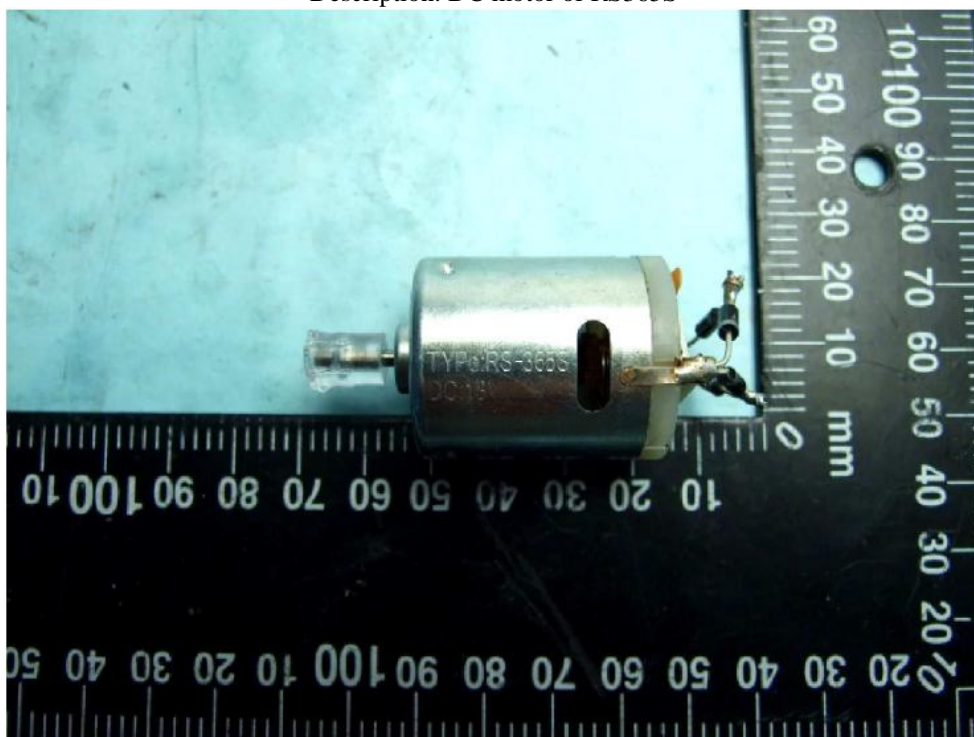
Description: Internal view of HT-8600 with X2 capacitor



Description: Motor fan for all models



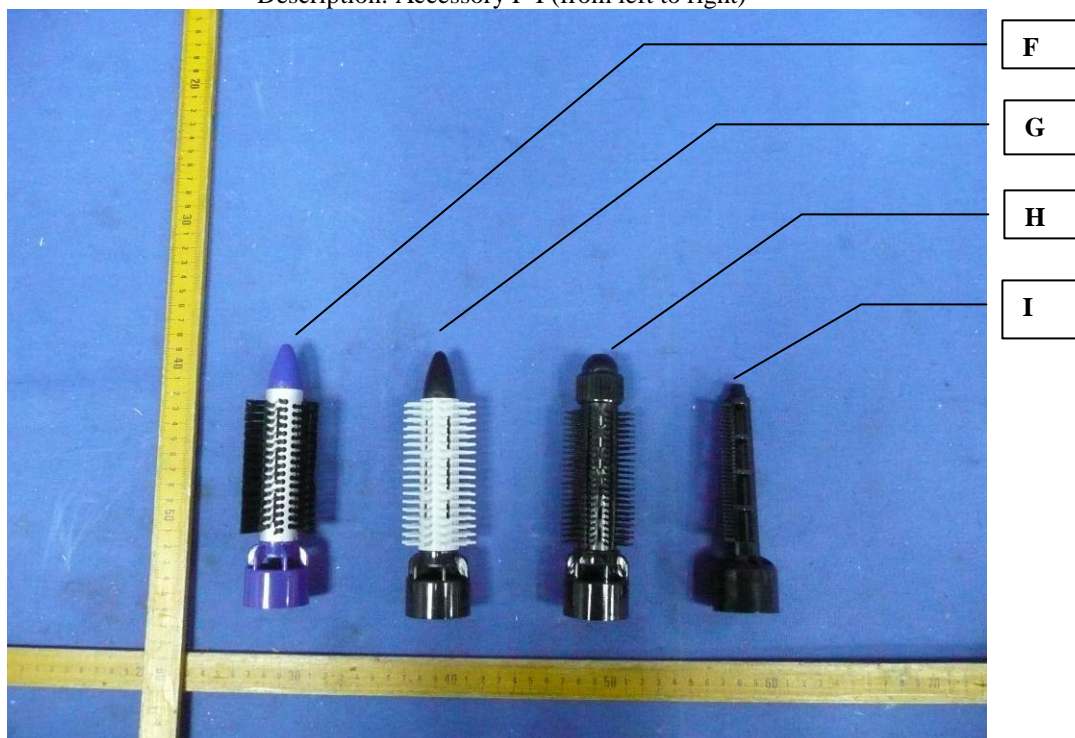
Description: DC motor of RS365S



Description: Accessory A-E (from left to right)



Description: Accessory F-I (from left to right)



Description: Accessory J-M (from left to right)



Description: Overall view of HT-7000



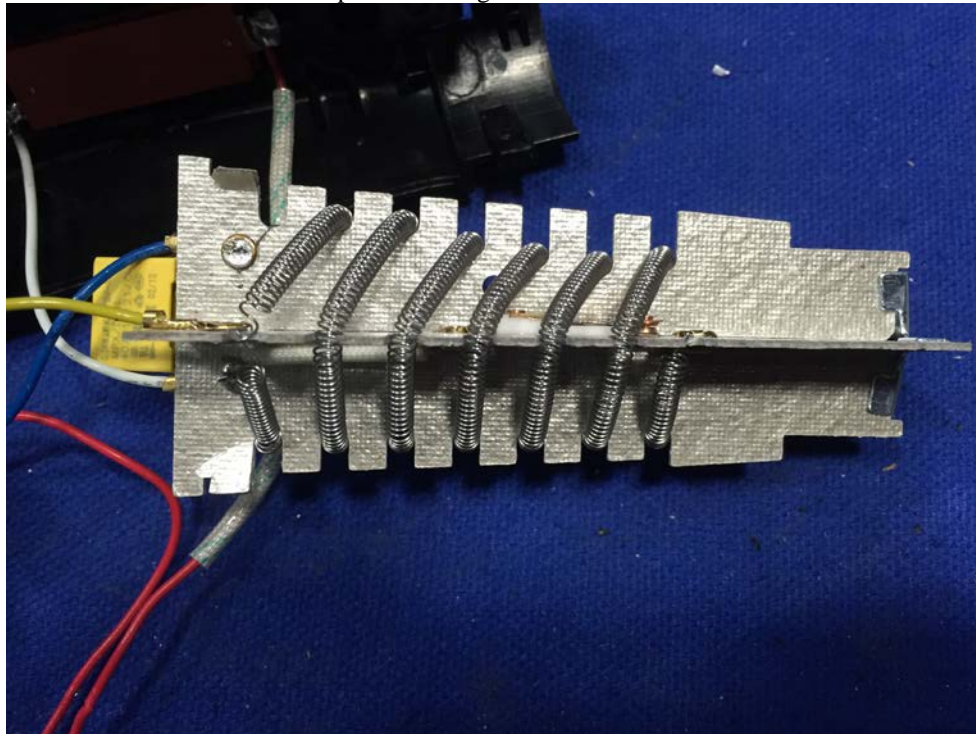
Description: Air outlet of HT-7000



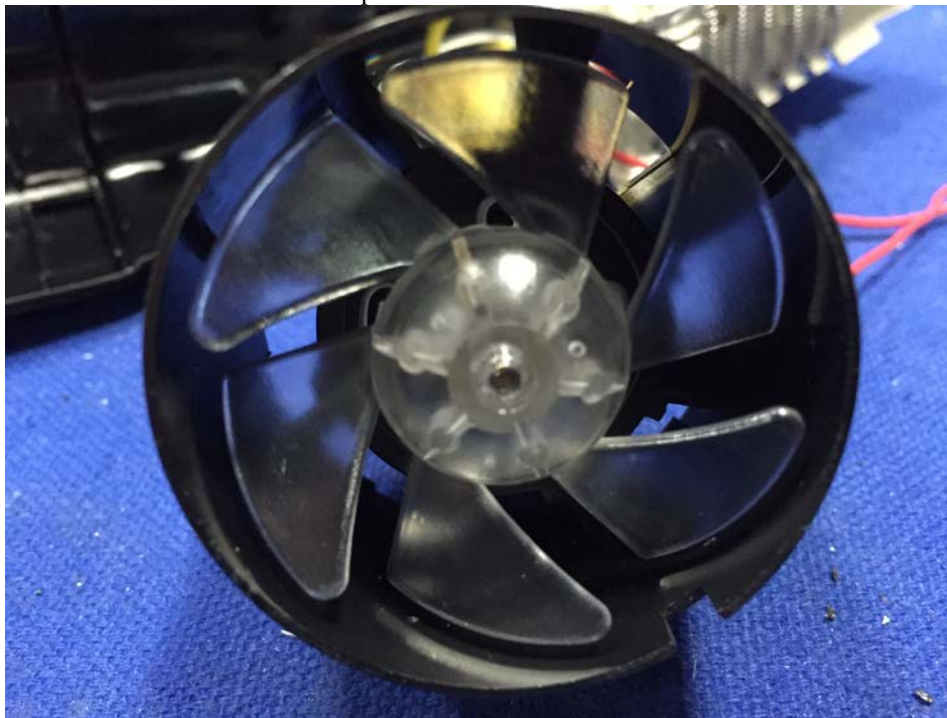
Description: Internal view of HT-7000



Description: Heating element for HT-7000



Description: Motor fan for HT-7000



Description: DC motor for HT-7000



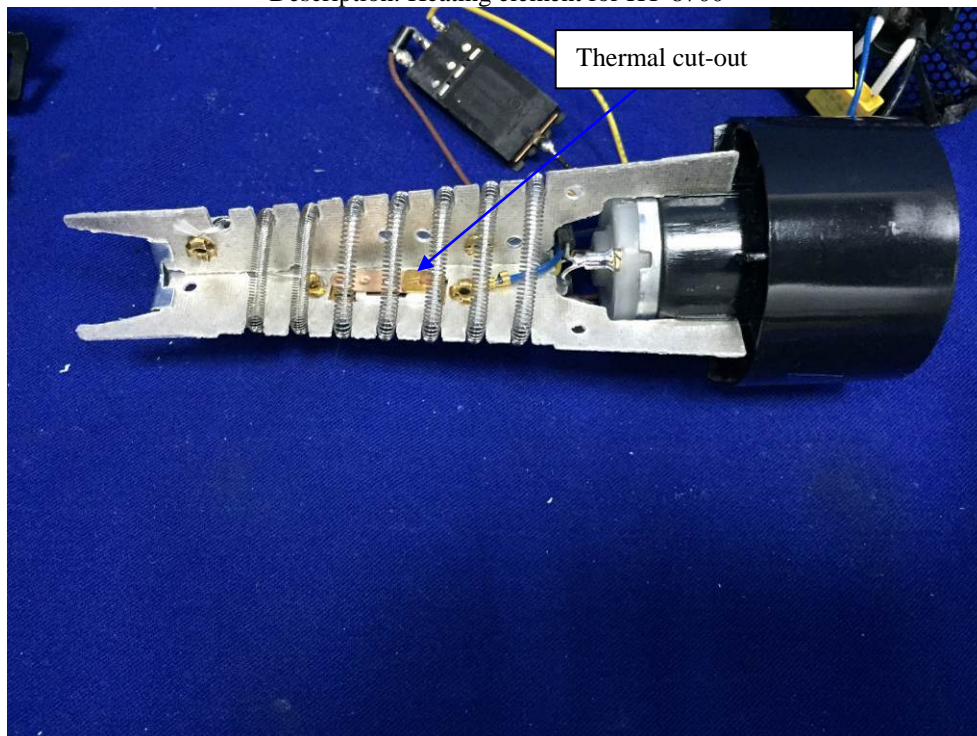
Description: Overall view of HT-8700



Description: Internal view of HT-8700



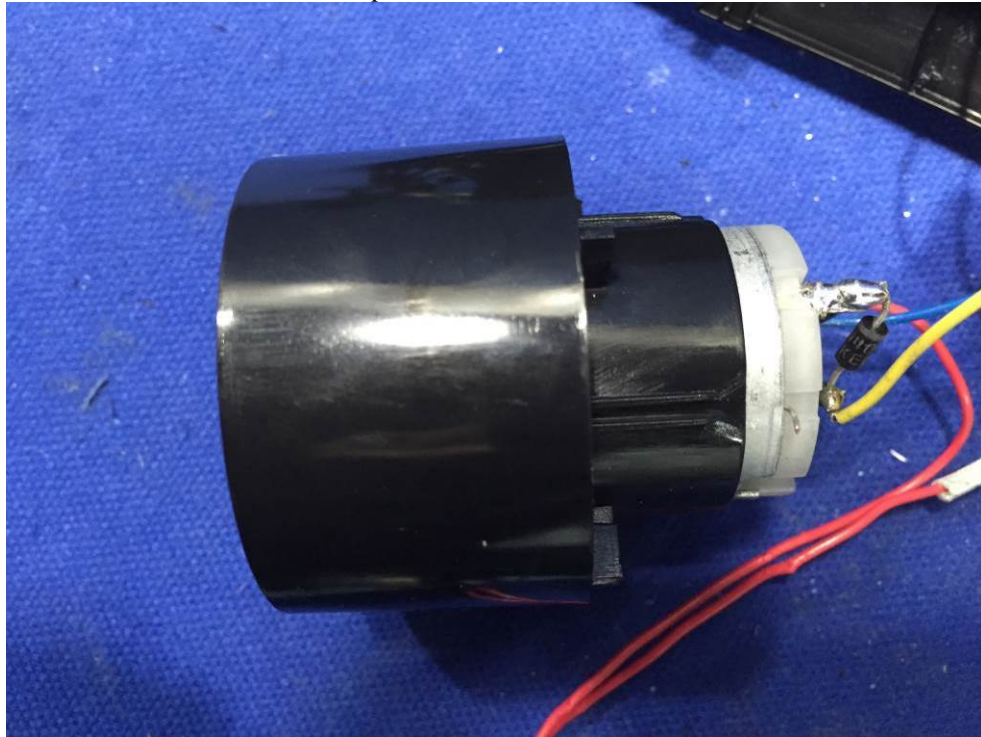
Description: Heating element for HT-8700



Description: Motor fan for HT-8700



Description: DC motor for HT-8700



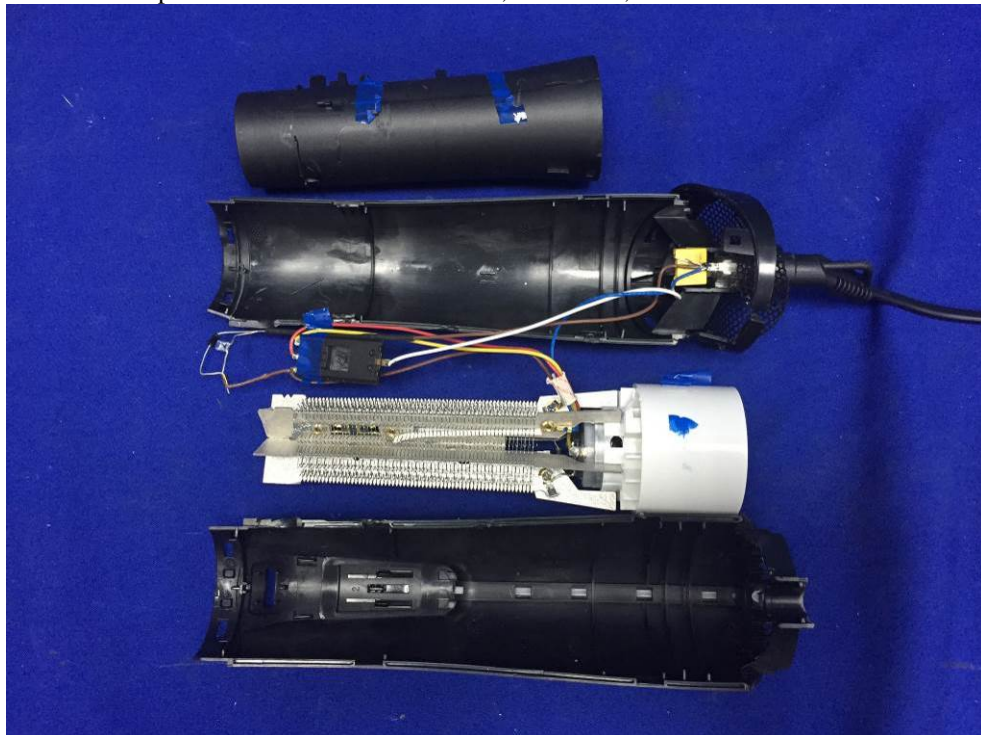
Description: Overall view of HT-1202,HT-1202-I



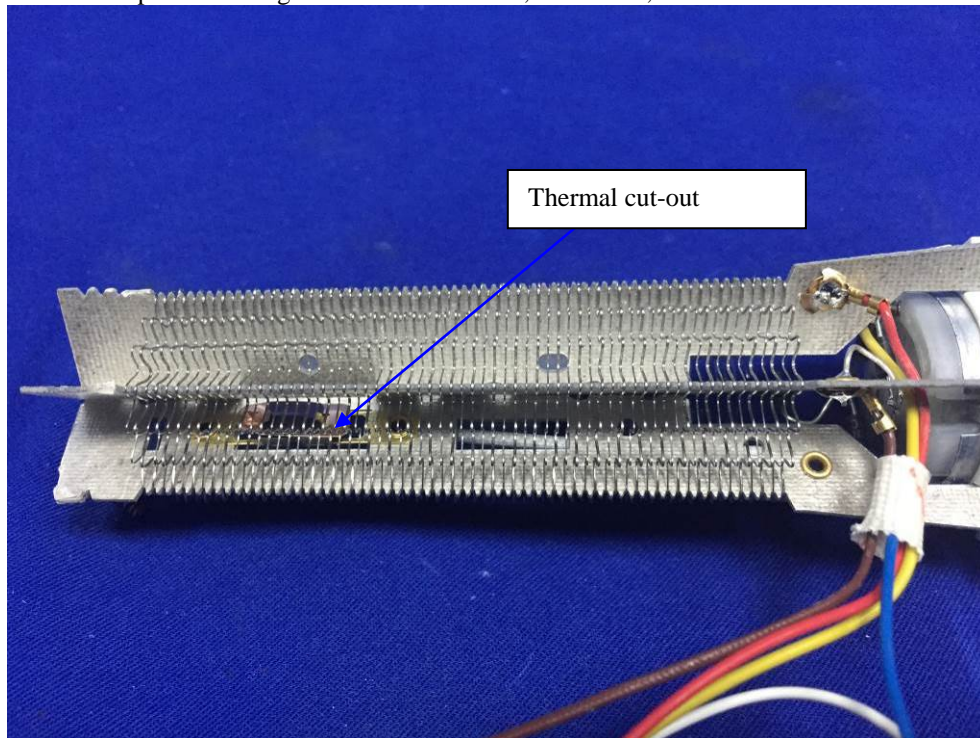
Description: Overall view of HT-1203,HT-1203-I



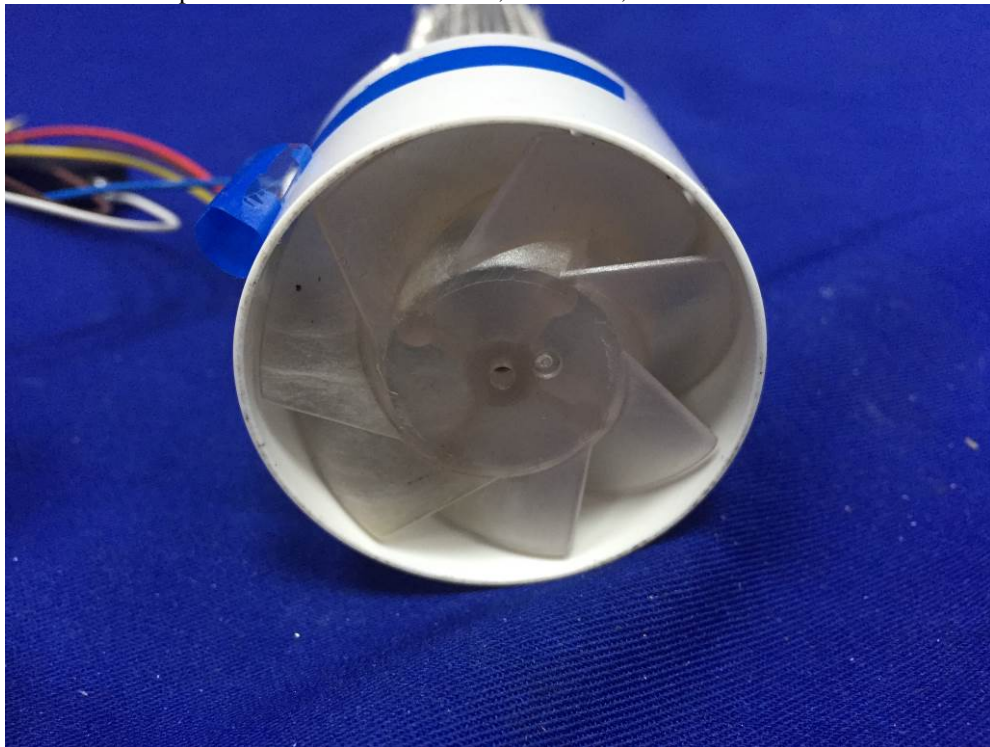
Description: Internal view of HT-1203,HT-1203-I, HT-1202 and HT-1202-I



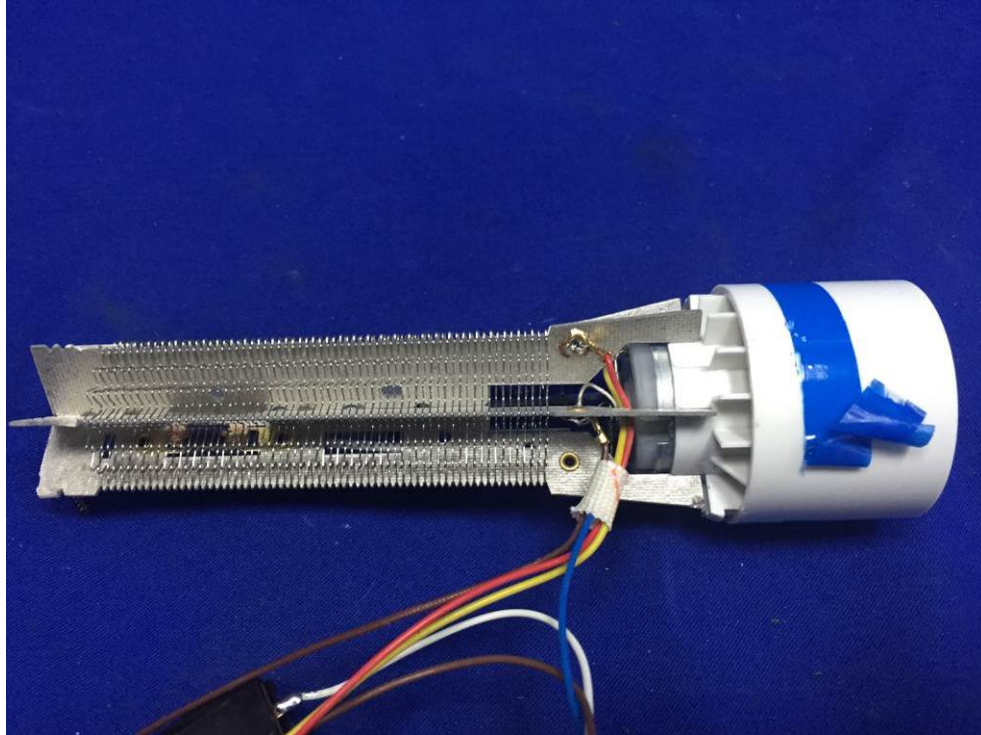
Description: Heating element for HT-1203,HT-1203-I, HT-1202 and HT-1202-I



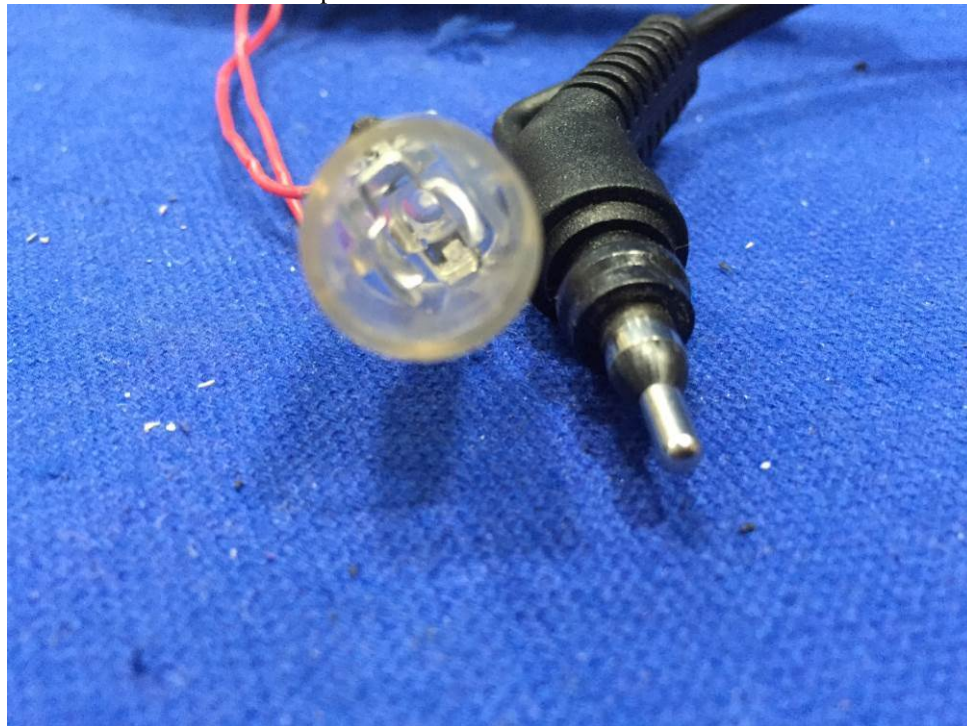
Description: Motor fan for HT-1203,HT-1203-I, HT-1202 and HT-1202-I



Description: DC motor and Heating element for HT-1203,HT-1203-I, HT-1202 and HT-1202-I



Description: Swivel connection for all models



Description: Accessories for all models



Description: Accessories for all models



7 Amendment 1

The original test report ref. No. EFSH15081971-IE-01-E01 dated 2015-09-17, was modified on 2016-08-15 to include the following changes and/or additions:

1. Add a new model: HT-7000.

After review, HT-7000 was subjected to all the tests.

This report replaces the original test report: EFSH15081971-IE-01-E01.

8 Amendment 2

The original test report ref. No. EFSH15081971-IE-01-E01 dated 2015-09-17 and EFSH15081971-IE-01-E01-A1 dated 2016-08-15 were modified on 2017-08-01 to include the following changes and/or additions:

1. Add technical standard "EN 55014-2:2015".
2. Add five new models: HT-1202, HT-1202-I, HT-1203, HT-1203-I and HT-8700.

Similarity:

Model	Appearance	Rated power input	Circuit diagram	Anion generator
HT-1202	HT-1202 type	1200W	HT-1203-I type	No
HT-1202-I	HT-1202 type	1200W	HT-1203-I type	Yes
HT-1203	HT-1203 type	1200W	HT-1203-I type	No
HT-1203-I	HT-1203 type	1200W	HT-1203-I type	Yes

3. HT-8700 is structurally same as HT-8600 except the model name and the appearance.

After review, no additional test needs to be performed.

Test report ref. No. EFSH15081971-IE-01-E01-A1 was replaced by this test report ref. No. EFSH15081971-IE-01-E01-A2.