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

EMC TEST- REPORT

TEST REPORT NUMBER: EFSH16040426-IE-01-E01-A4

TABLE OF CONTENTS

1 Contents

2 General Information

2.1 Notes

The results of this test report relate exclusively to the item tested as specified in chapter “EUT Information” 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.

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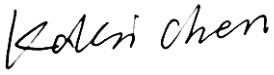
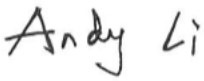
Operator:

2022-01-12		Kalsi Chen / Project Engineer	
Date	Eurofins-Lab.	Name / Title	Signature

Technical responsibility for area of testing:

2022-01-12		Andy Li / Supervisor	
Date	Eurofins	Name / Title	Signature

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	:	S.W ELECTRIC APPLIANCE CO., LTD
Address	:	No.12,16 Hongqiao Road, Yuyao City, 315400, Zhejiang, China
Telephone	:	./.
Fax	:	./.

2.4 Application details

Date of receipt of test item	:	2012-05-22
Date of test	:	2012-05-22 to 2015-04-28
Amendment 1	:	2017-07-06 (Data of test: 2017-06-15 to 2017-06-23)
Amendment 2	:	2018-01-05 (Data of test: N/A)
Amendment 3	:	2020-08-11 (Data of test: N/A)
Amendment 4	:	2022-01-12 (Data of test: N/A)

2.5 EUT information

Product type	:	Hand-held blender
Model name	:	SW-108, SW-108A, SW-128, SW-128A, SW-158, SW-168, SW-168A, SW-208, SW-218, SW-268, SW-268R
Brand name	:	./.
Serial number	:	./.
Ratings	:	220-240V~, 50 Hz, Class II for all models SW-108, SW-128, SW-168: 170-220W; SW-108A, SW-128A, SW-168A: 250-300W; SW-158: 320-400W; SW-208, SW-218: 200-250W SW-268, SW-268R: 500W
Test voltage	:	230V~, 50Hz
Additional information	:	

The appliances covered by this report are stick blender for household and indoor use.
SW-108A, SW-128A, SW-158, SW-168A and SW-208 have additional functions of food processor and whisker.

SW-108, SW-128 and SW-168 have the same accessories of hand-held blender.
SW-108A, SW-128A, SW-158, SW-168A and SW-208 have the same accessories of hand-held blender, food processor and whisker.

SW-108, SW-128, and SW-168A have the same components in motor house and have different motor house appearance.

SW-108 and SW-108A are the same except that SW-108A has the accessories of food processor and whisker more than SW-108.
SW-128 and SW-128A are the same except that SW-128A has the accessories of food processor and whisker more than SW-128.
SW-168 and SW-168A are the same except that SW-168A has the accessories of food processor and whisker more than SW-168.
SW-218 and SW-208 are identical except for the different appearance and switch type.

Three types of motor used for SW-158, SW-108/108A/128/128A/168/168A and SW-208/218.

Model	Function		
	Blender	Food processor	Whisker
SW-108	Yes	No	No
SW-108A	Yes	Yes	Yes
SW-128	Yes	No	No
SW-128A	Yes	Yes	Yes
SW-158	Yes	Yes	Yes
SW-168	Yes	No	No
SW-168A	Yes	Yes	Yes
SW-208	Yes	Yes	Yes
SW-218	Yes	Yes	Yes

After review, SW-108A, SW-158, SW-208 and SW-218 were selected to do all tests.

See page 46 for Amendment 1, Amendment 2, Amendment 3 and Amendment 4.

2.6 Test standards

EN IEC 55014-1: 2021

EN IEC 55014-2: 2021

EN IEC 61000-3-2: 2019+A1: 2021

EN 61000-3-3: 2013+A1: 2019

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 mode

Operating (Max. level)

3.4 Test equipment utilized

(refer to the latest test data: 2017-06-15 to 2017-06-23)

Measurement Equipment List				
No.	**Name:**	**Type:**	**Manufacturer:**	**Cal due date:**
1	EMI test receiver	ESCI	R&S	2017-11-27
2	Single phase Harmonics & Flicker analyser	PACS-1	California Instruments	2017-11-27
3	AC Power Source	5001ix	California Instruments	2017-11-27
4	Coupling/Decoupling Network	L 801 M2/M3	Luethi	2017-11-27
5	Ultra Compact Simulator	UCS 500N7	EMTEST	2017-11-27
6	ESD Gun	NSG 437	TESEQ	2017-11-27
7	Current transformer	MC2630	EMTEST	2017-11-27
8	Motorized variac	MV2616	EMTEST	2017-11-27
9	Continuous wave simulator	CWS500N1	EMTEST	2017-11-27
10	Magnetic field coil	MS100	EMTEST	2017-11-27
11	Current transformer	MC26100	EMTEST	2017-11-27
12	Artificial mains	ENV216	R&S	2017-11-27
13	Click analyser	CL55C	AFJ	2017-09-04
14	Absorbing clamp	MDS21	Luethi	2017-11-27
15	EM clamp	EM101	Luethi	2017-11-27

3.5 Test results

☒ 1st test ☐ test after modification ☐ production test

Test case	Subclause	Required	Test passed	Test failed
Conducted Emission	Clause 4.3.2 & 4.3.3 of EN IEC 55014-1	☒	☒	☐
Disturbance power	Clause 4.3.4 of EN IEC 55014-1	☒	☒	☐
Radiated disturbance	Clause 4.3.4 of EN IEC 55014-1	☐	☐	☐
Radiated disturbance (1GHz to 6GHz)	Clause 4.3.5 of EN IEC 55014-1	☐	☐	☐
Magnetic field (equipment using IPT)	Clause 4.3.2 of EN IEC 55014-1	☐	☐	☐
Discontinuous disturbance	Clause 4.4.2 of EN IEC 55014-1	☐	☐	☐
Harmonic Current Emissions	EN IEC 61000-3-2	☒	☒	☐
Voltage Changes, Voltage Fluctuations and Flicker	EN 61000-3-3	☒	☒	☐
Electrostatic Discharge	Clause 5.1 of EN IEC 55014-2 & IEC 61000-4-2	☐	☐	☐
Electrical Fast Transients	Clause 5.2 of EN IEC 55014-2 & IEC 61000-4-4	☐	☐	☐
Injected currents	Clause 5.3 & 5.4 of EN IEC 55014-2 & IEC 61000-4-6	☐	☐	☐
Radio frequency electromagnetic fields	Clause 5.5 of EN IEC 55014-2 & IEC 61000-4-3	☐	☐	☐
Surges	Clause 5.6 of EN IEC 55014-2 & IEC 61000-4-5	☐	☐	☐
Voltage dips	Clause 5.7 of EN IEC 55014-2 & IEC 61000-4-11	☐	☐	☐

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 click rate was less than 5, and the click duration was less than 10ms. So it is deemed to comply with Discontinuous disturbance test.

Note 3: Radiated disturbance test in the frequency range from 1 GHz to 6 GHz is not required as the highest clock frequency (Fx) of EUT is less than 108MHz.

Note 4: The EUT is deemed to conform to the harmonic current limits without further testing according to Annex B.13 of EN IEC 61000-3-2.

Note 5: Category I apparatus is deemed to fulfil the relevant immunity requirements without testing.

4 Emission Test

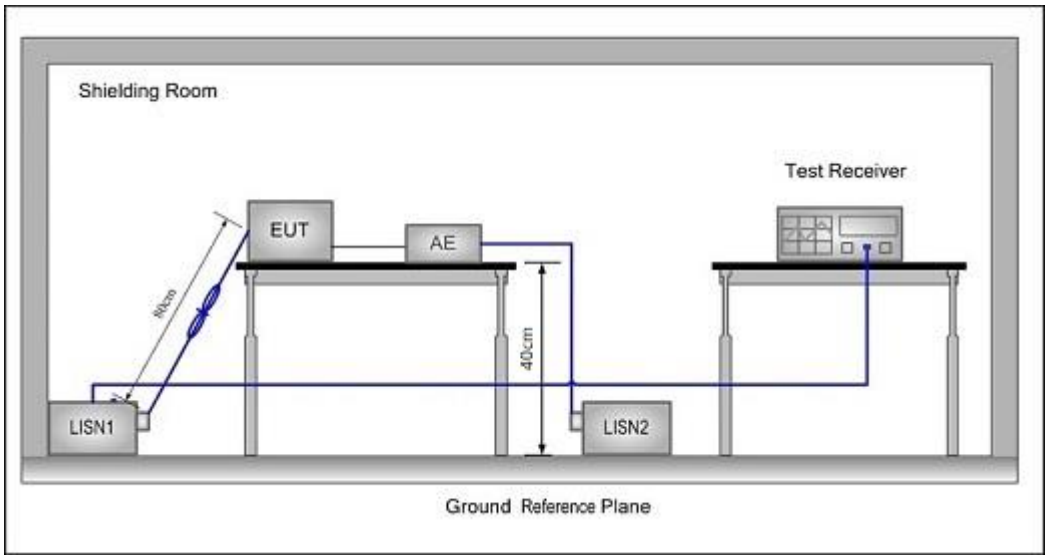
4.1 Conducted Emission

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 μ H + 5 Ω) || 50 Ω 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 0.4m 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.

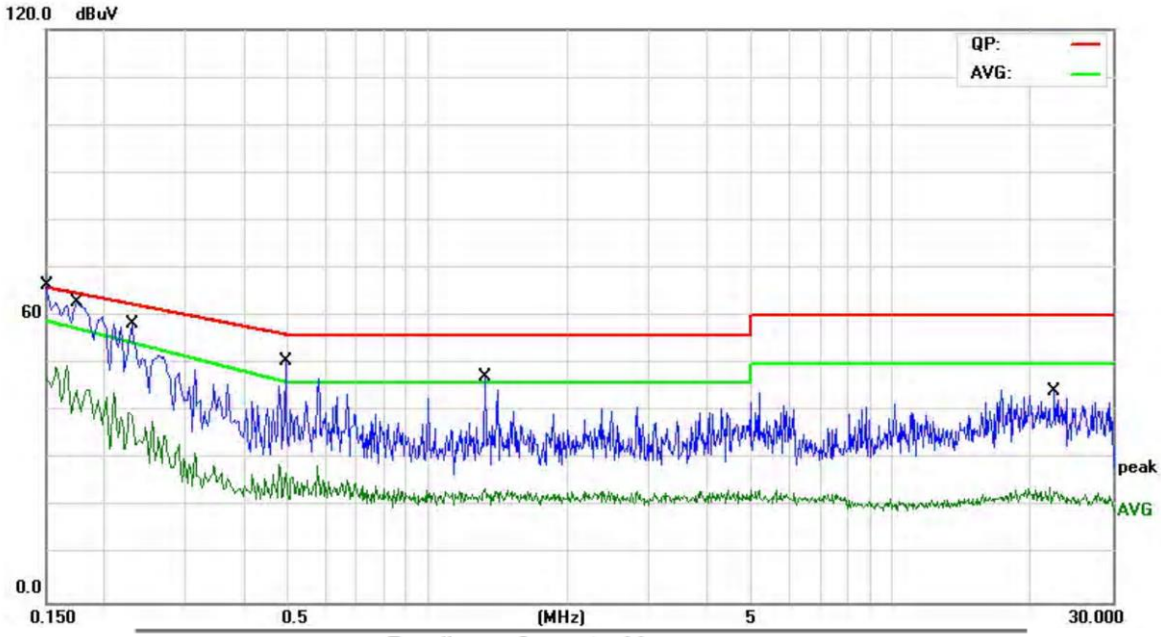
4. Before get the final emission results with quasi-peak(QP) detector and average(AVG) detector, a pre-scan was performed with the peak(PK) and average(AVG) detector to find out the maximum emission data plots of the EUT.

4.1.3 Measurement uncertainty

Ulab(cond) = 2.5dB at 95% level of confidence, k=2

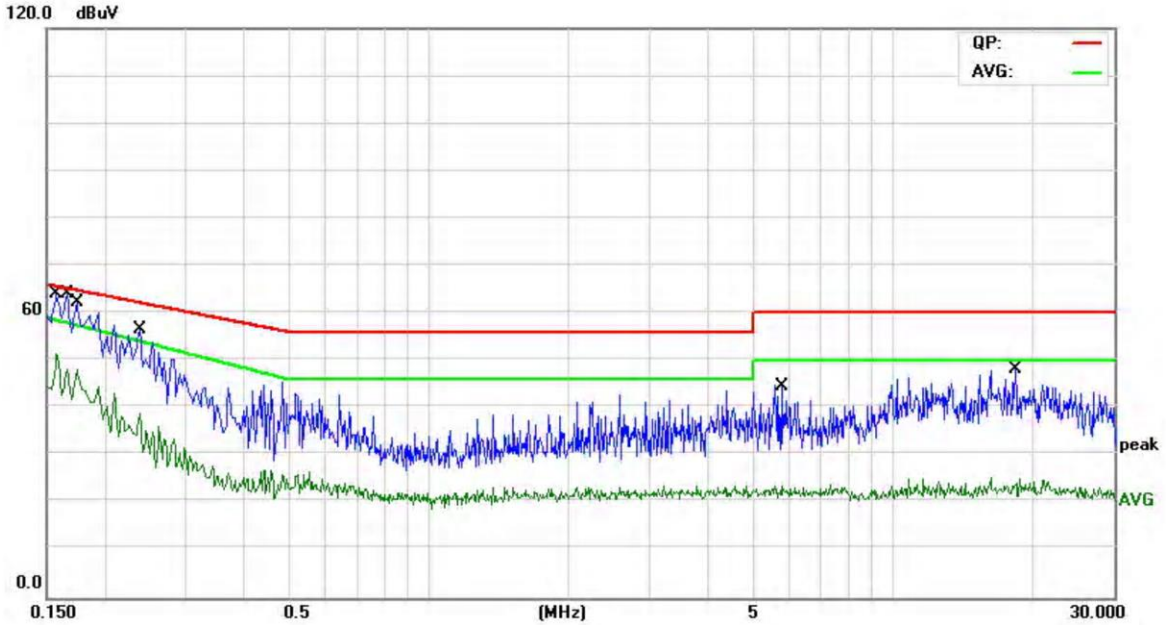
4.1.4 Results -Measurement Data

SW-108A
Live Line:
Level



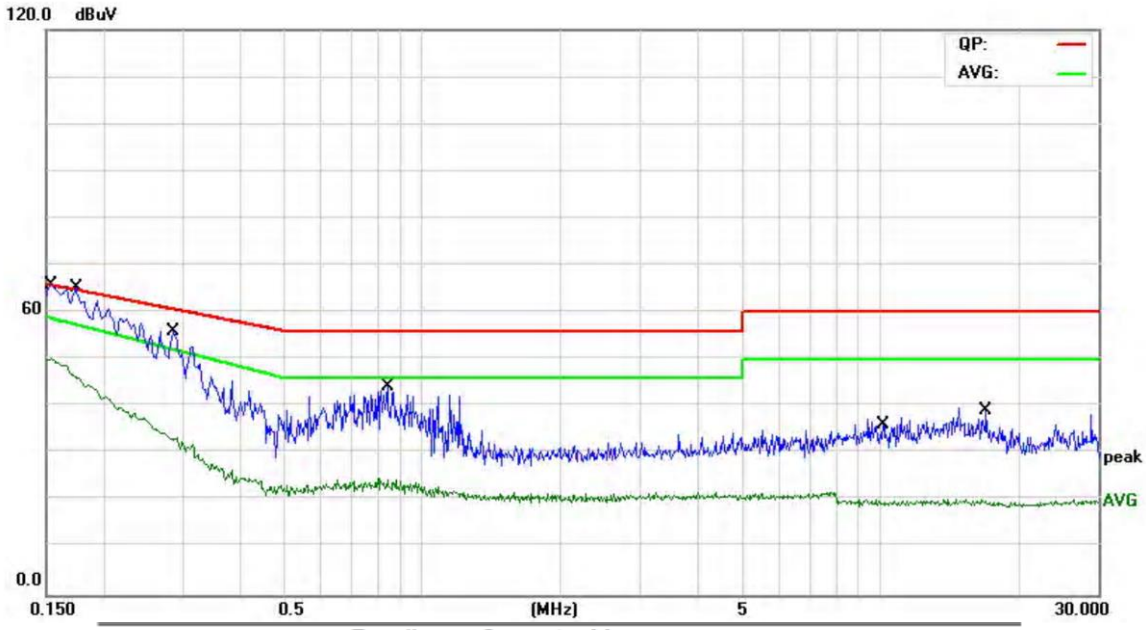
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	*	0.1500	47.89	10.60	58.49	66.00	-7.51	QP
2		0.1500	36.83	10.60	47.43	59.00	-11.57	AVG
3		0.1740	44.35	10.60	54.95	64.77	-9.82	QP
4		0.1740	31.77	10.60	42.37	57.40	-15.03	AVG
5		0.2300	37.74	10.60	48.34	62.45	-14.11	QP
6		0.2300	23.53	10.60	34.13	54.38	-20.25	AVG
7		0.4940	28.53	10.60	39.13	56.10	-16.97	QP
8		0.4940	14.32	10.60	24.92	46.13	-21.21	AVG
9		1.3300	20.36	10.59	30.95	56.00	-25.05	QP
10		1.3300	10.94	10.59	21.53	46.00	-24.47	AVG
11		22.4220	17.61	10.38	27.99	60.00	-32.01	QP
12		22.4220	8.91	10.38	19.29	50.00	-30.71	AVG

Neutral Line:
Level



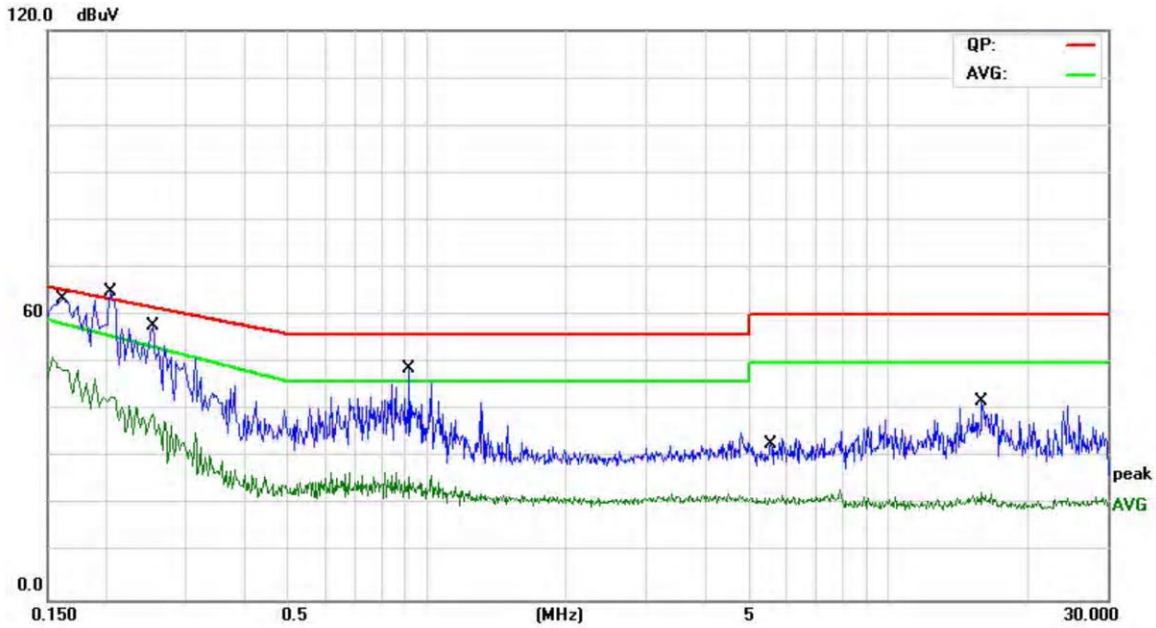
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	*	0.1580	47.22	10.60	57.82	65.56	-7.74	QP
2		0.1580	36.04	10.60	46.64	58.43	-11.79	AVG
3		0.1660	45.89	10.60	56.49	65.15	-8.66	QP
4		0.1660	34.36	10.60	44.96	57.90	-12.94	AVG
5		0.1740	44.40	10.60	55.00	64.76	-9.76	QP
6		0.1740	32.43	10.60	43.03	57.39	-14.36	AVG
7		0.2380	36.32	10.60	46.92	62.16	-15.24	QP
8		0.2380	22.85	10.60	33.45	54.01	-20.56	AVG
9		5.7619	16.47	10.54	27.01	60.00	-32.99	QP
10		5.7619	9.81	10.54	20.35	50.00	-29.65	AVG
11		18.4100	18.12	10.42	28.54	60.00	-31.46	QP
12		18.4100	9.17	10.42	19.59	50.00	-30.41	AVG

SW-158
Live Line:
Level



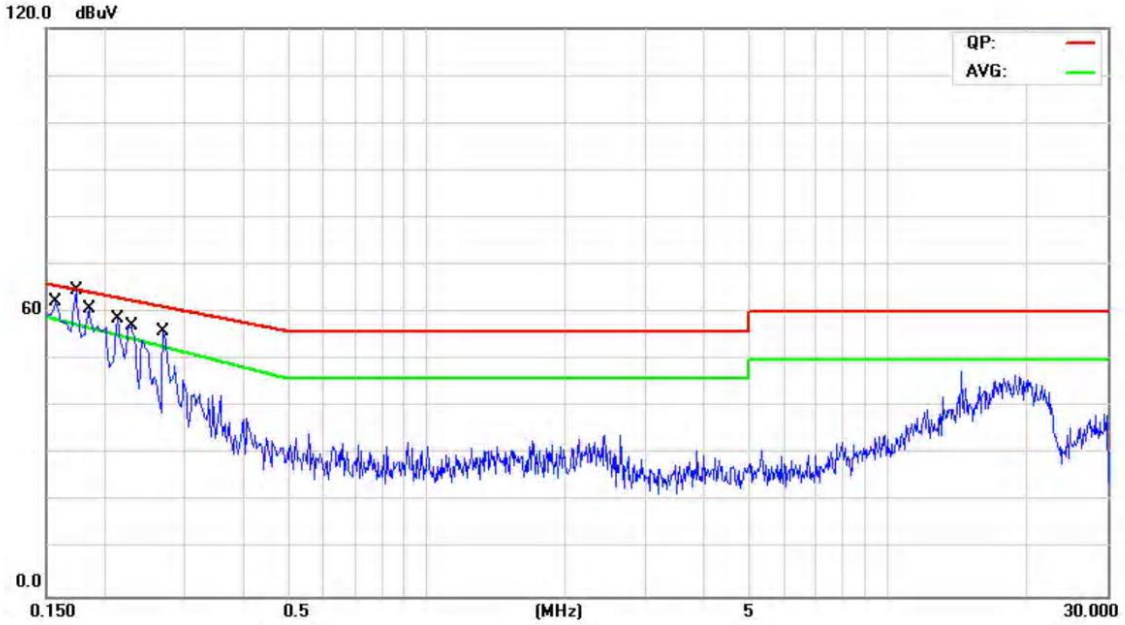
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	*	0.1540	49.80	10.60	60.40	65.78	-5.38	QP
2		0.1540	39.08	10.60	49.68	58.72	-9.04	AVG
3		0.1740	46.01	10.60	56.61	64.77	-8.16	QP
4		0.1740	35.08	10.60	45.68	57.40	-11.72	AVG
5		0.2860	34.71	10.60	45.31	60.64	-15.33	QP
6		0.2860	21.06	10.60	31.66	52.03	-20.37	AVG
7		0.8380	27.77	10.59	38.36	56.00	-17.64	QP
8		0.8380	14.46	10.59	25.05	46.00	-20.95	AVG
9		10.1620	15.34	10.50	25.84	60.00	-34.16	QP
10		10.1620	8.31	10.50	18.81	50.00	-31.19	AVG
11		17.0340	15.13	10.43	25.56	60.00	-34.44	QP
12		17.0340	8.22	10.43	18.65	50.00	-31.35	AVG

Neutral Line:
Level



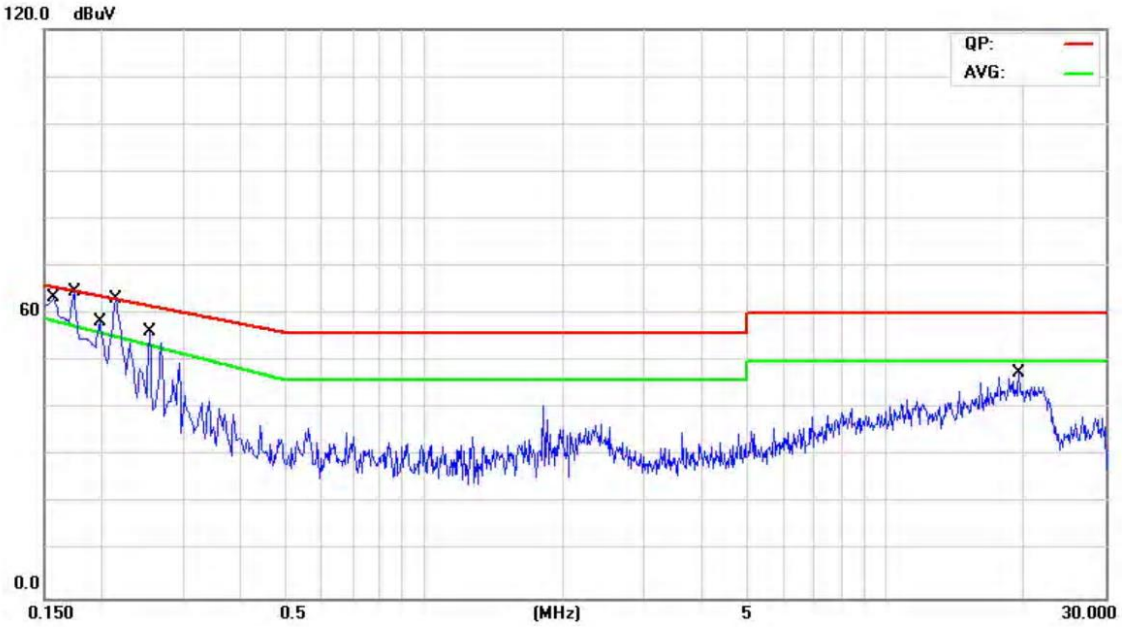
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	*	0.1620	48.30	10.60	58.90	65.36	-6.46	QP
2		0.1620	37.09	10.60	47.69	58.17	-10.48	AVG
3		0.2060	40.42	10.60	51.02	63.37	-12.35	QP
4		0.2060	29.00	10.60	39.60	55.57	-15.97	AVG
5		0.2540	37.47	10.60	48.07	61.63	-13.56	QP
6		0.2540	24.68	10.60	35.28	53.31	-18.03	AVG
7		0.9140	23.47	10.59	34.06	56.00	-21.94	QP
8		0.9140	12.78	10.59	23.37	46.00	-22.63	AVG
9		5.5860	15.44	10.54	25.98	60.00	-34.02	QP
10		5.5860	9.58	10.54	20.12	50.00	-29.88	AVG
11		15.9980	15.40	10.44	25.84	60.00	-34.16	QP
12		15.9980	8.24	10.44	18.68	50.00	-31.32	AVG

SW-208
Live Line:
Level



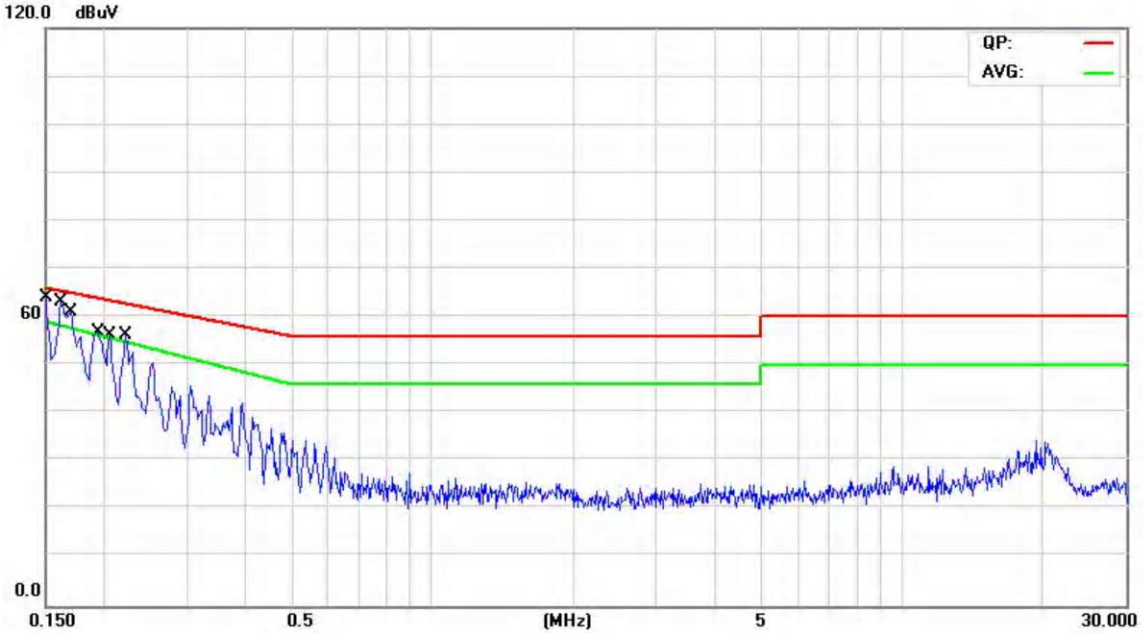
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	*	0.1580	48.66	10.13	58.79	65.57	-6.78	QP
2		0.1580	34.92	10.13	45.05	58.44	-13.39	AVG
3		0.1740	46.37	10.03	56.40	64.77	-8.37	QP
4		0.1740	32.34	10.03	42.37	57.40	-15.03	AVG
5		0.1860	45.57	9.96	55.53	64.21	-8.68	QP
6		0.1860	30.78	9.96	40.74	56.68	-15.94	AVG
7		0.2140	42.89	9.86	52.75	63.05	-10.30	QP
8		0.2140	27.86	9.86	37.72	55.16	-17.44	AVG
9		0.2300	39.48	9.85	49.33	62.45	-13.12	QP
10		0.2300	24.73	9.85	34.58	54.38	-19.80	AVG
11		0.2700	33.63	9.83	43.46	61.12	-17.66	QP
12		0.2700	20.03	9.83	29.86	52.65	-22.79	AVG

Neutral Line:
Level



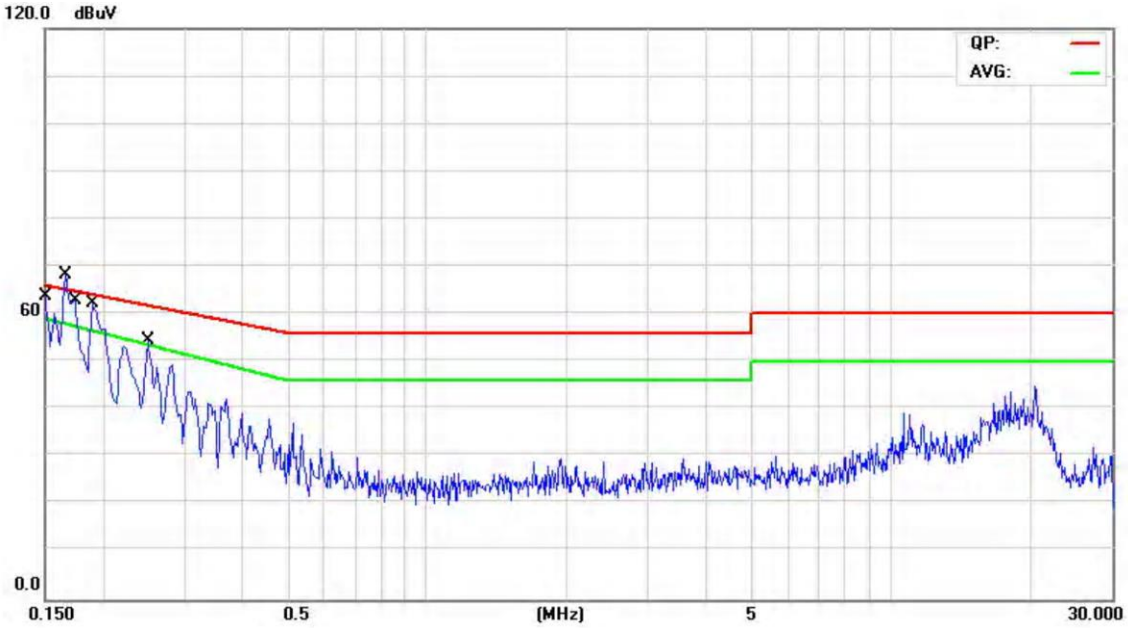
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	*	0.1580	46.53	10.13	56.66	65.57	-8.91	QP
2		0.1580	33.59	10.13	43.72	58.44	-14.72	AVG
3		0.1740	44.02	10.03	54.05	64.77	-10.72	QP
4		0.1740	30.65	10.03	40.68	57.40	-16.72	AVG
5		0.1980	41.05	9.88	50.93	63.69	-12.76	QP
6		0.1980	27.28	9.88	37.16	56.00	-18.84	AVG
7		0.2140	39.57	9.86	49.43	63.05	-13.62	QP
8		0.2140	25.62	9.86	35.48	55.16	-19.68	AVG
9		0.2540	34.44	9.84	44.28	61.63	-17.35	QP
10		0.2540	20.23	9.84	30.07	53.31	-23.24	AVG
11		19.4940	25.23	10.05	35.28	60.00	-24.72	QP
12		19.4940	13.68	10.05	23.73	50.00	-26.27	AVG

SW-218
Live Line:
Level



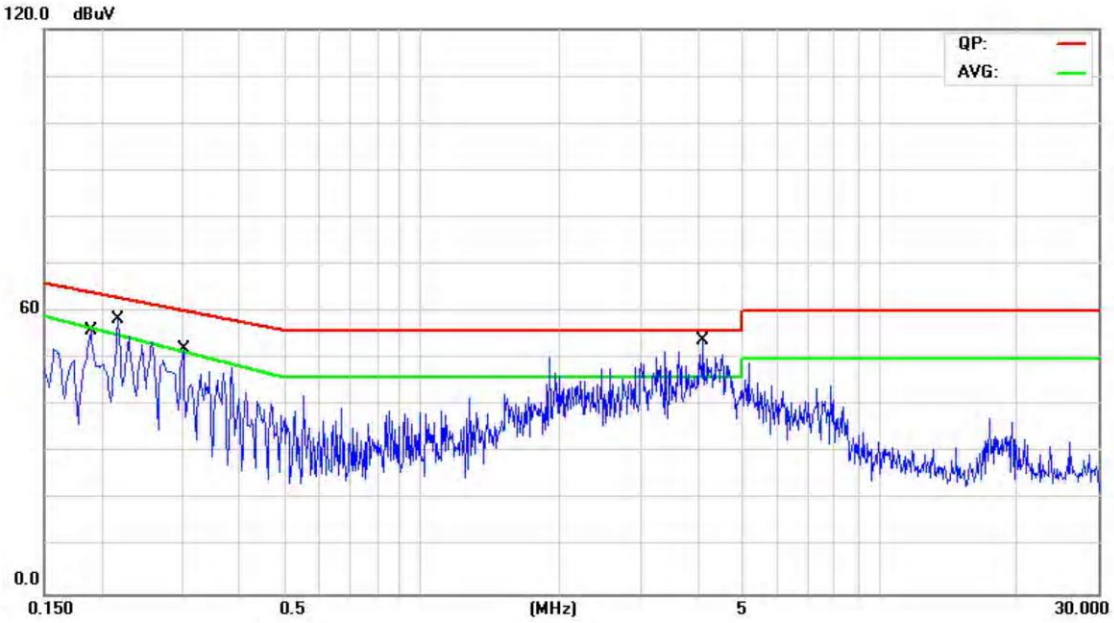
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	*	0.1500	50.92	10.18	61.10	66.00	-4.90	QP
2		0.1500	38.88	10.18	49.06	59.00	-9.94	AVG
3		0.1620	47.95	10.11	58.06	65.36	-7.30	QP
4		0.1620	35.82	10.11	45.93	58.17	-12.24	AVG
5		0.1700	46.75	10.06	56.81	64.96	-8.15	QP
6		0.1700	34.19	10.06	44.25	57.65	-13.40	AVG
7		0.1940	43.19	9.91	53.10	63.86	-10.76	QP
8		0.1940	32.47	9.91	42.38	56.22	-13.84	AVG
9		0.2060	42.65	9.87	52.52	63.37	-10.85	QP
10		0.2060	27.58	9.87	37.45	55.57	-18.12	AVG
11		0.2220	37.77	9.86	47.63	62.74	-15.11	QP
12		0.2220	25.65	9.86	35.51	54.77	-19.26	AVG

Neutral Line:
Level



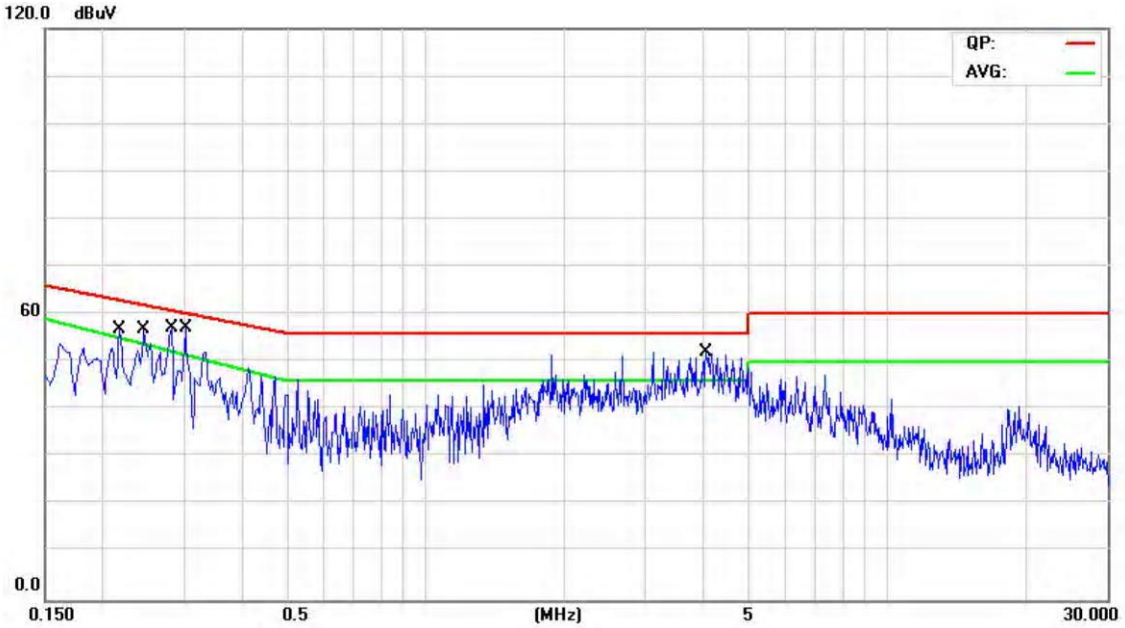
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1500	51.65	10.18	61.83	66.00	-4.17	QP
2		0.1500	39.55	10.18	49.73	59.00	-9.27	AVG
3	*	0.1660	52.05	10.08	62.13	65.16	-3.03	QP
4		0.1660	39.47	10.08	49.55	57.91	-8.36	AVG
5		0.1740	47.37	10.03	57.40	64.77	-7.37	QP
6		0.1740	34.87	10.03	44.90	57.40	-12.50	AVG
7		0.1900	44.25	9.93	54.18	64.04	-9.86	QP
8		0.1900	31.67	9.93	41.60	56.45	-14.85	AVG
9		0.2500	36.73	9.84	46.57	61.76	-15.19	QP
10		0.2500	28.78	9.84	38.62	53.48	-14.86	AVG

SW-268R
Live Line:
Level



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1900	41.51	10.46	51.97	64.03	-12.06	QP
2		0.1900	25.13	10.46	35.59	56.44	-20.85	AVG
3		0.2180	44.20	10.55	54.75	62.89	-8.14	QP
4		0.2180	27.37	10.55	37.92	54.96	-17.04	AVG
5	*	0.3020	43.46	10.55	54.01	60.19	-6.18	QP
6		0.3020	25.97	10.55	36.52	51.44	-14.92	AVG
7		4.1300	31.60	10.48	42.08	56.00	-13.92	QP
8		4.1300	19.32	10.48	29.80	46.00	-16.20	AVG

Neutral Line:
Level



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.2180	23.72	10.28	34.00	62.89	-28.89	QP
2		0.2180	23.52	10.28	33.80	54.96	-21.16	AVG
3	*	0.2460	40.92	10.28	51.20	61.89	-10.69	QP
4		0.2460	24.31	10.28	34.59	53.65	-19.06	AVG
5		0.2819	39.31	10.27	49.58	60.76	-11.18	QP
6		0.2819	23.23	10.27	33.50	52.18	-18.68	AVG
7		0.3035	37.06	10.27	47.33	60.14	-12.81	QP
8		0.3035	21.61	10.27	31.88	51.39	-19.51	AVG
9		4.0540	28.07	10.34	38.41	56.00	-17.59	QP
10		4.0540	14.05	10.34	24.39	46.00	-21.61	AVG

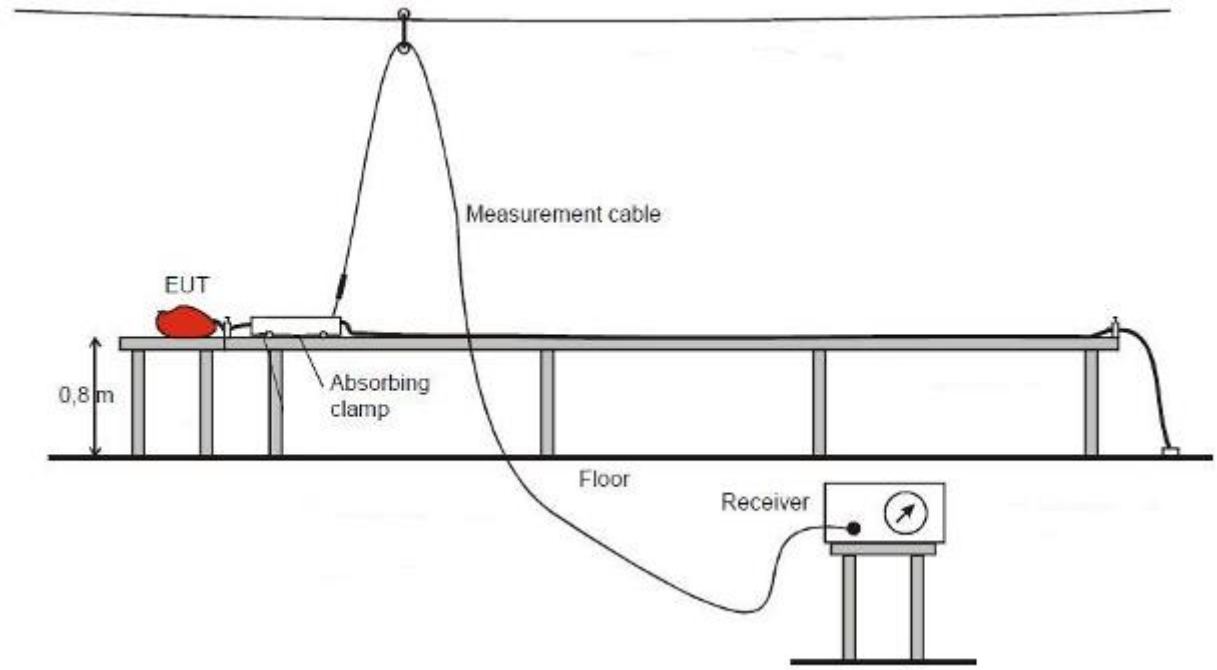
4.2 Disturbance power

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 IEC 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.

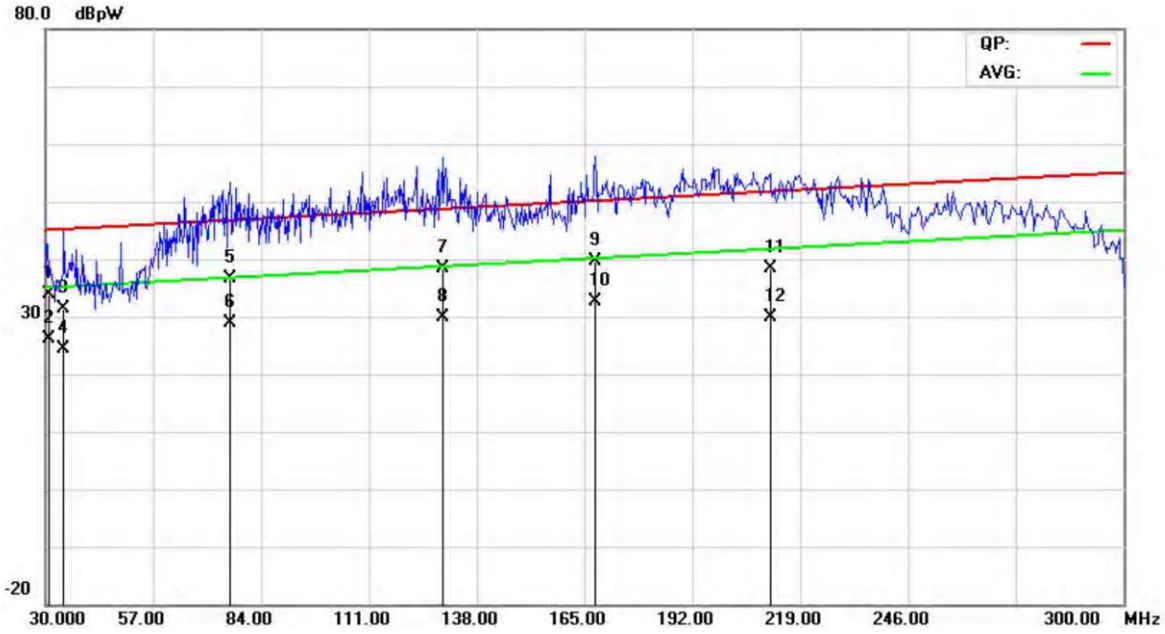
4.2.3 Measurement uncertainty

$U_{lab(cond)}$ = 3.35 dB at confidence of 95%, k=2

4.2.4 Results

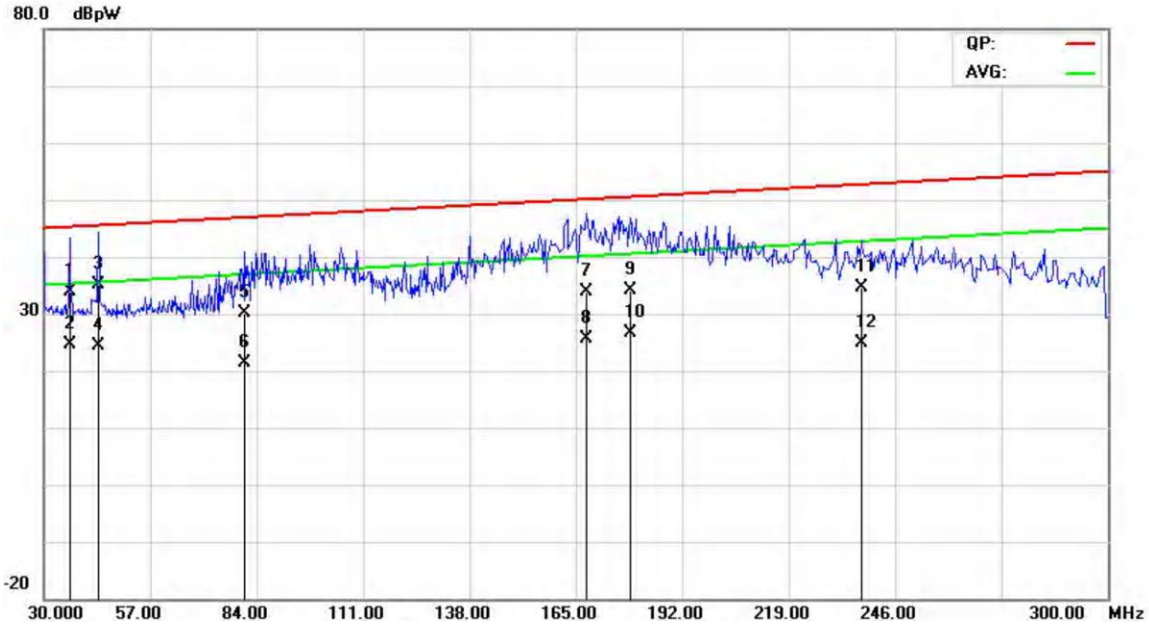
Remark: The waveform is pre-scan using peak detector for reference, not final result.
The final results refer to detailed readings using QP and AVG detector.

SW-108A
Level



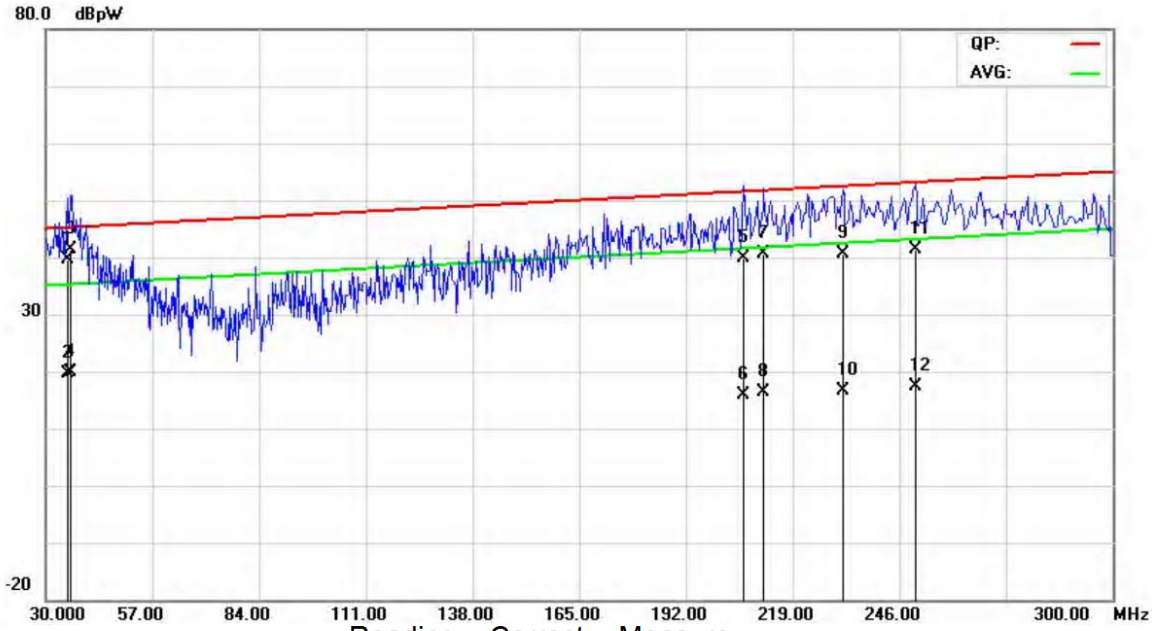
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBpW	dBpW	dB	Detector
1		30.7599	7.97	26.02	33.99	45.03	-11.04	QP
2		30.7599	0.03	26.02	26.05	35.03	-8.98	AVG
3		34.6399	5.95	25.32	31.27	45.17	-13.90	QP
4		34.6399	-0.90	25.32	24.42	35.17	-10.75	AVG
5		76.3600	14.99	21.59	36.58	46.72	-10.14	QP
6		76.3600	7.35	21.59	28.94	36.72	-7.78	AVG
7		129.4800	16.98	21.38	38.36	48.68	-10.32	QP
8		129.4800	8.38	21.38	29.76	38.68	-8.92	AVG
9		167.7200	19.20	20.43	39.63	50.10	-10.47	QP
10	*	167.7200	12.12	20.43	32.55	40.10	-7.55	AVG
11		211.5199	19.05	19.45	38.50	51.72	-13.22	QP
12		211.5199	10.44	19.45	29.89	41.72	-11.83	AVG

SW-158
Level



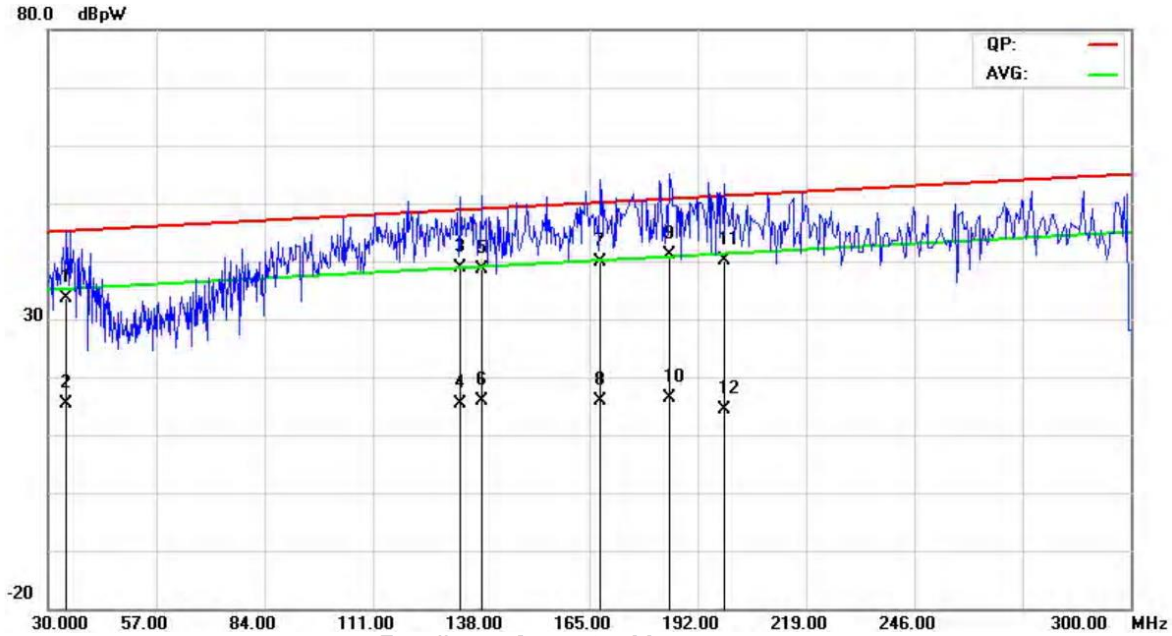
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBpW	dBpW	dB	Detector
1		36.7199	8.82	25.15	33.97	45.25	-11.28	QP
2		36.7199	-0.60	25.15	24.55	35.25	-10.70	AVG
3	*	43.9598	10.35	24.72	35.07	45.52	-10.45	QP
4		43.9598	-0.29	24.72	24.43	35.52	-11.09	AVG
5		81.0799	8.39	21.62	30.01	46.89	-16.88	QP
6		81.0799	-0.15	21.62	21.47	36.89	-15.42	AVG
7		167.8000	13.56	20.43	33.99	50.10	-16.11	QP
8		167.8000	5.19	20.43	25.62	40.10	-14.48	AVG
9		178.8398	13.92	20.09	34.01	50.51	-16.50	QP
10		178.8398	6.42	20.09	26.51	40.51	-14.00	AVG
11		237.4398	15.15	19.42	34.57	52.68	-18.11	QP
12		237.4398	5.58	19.42	25.00	42.68	-17.68	AVG

SW-208
Level



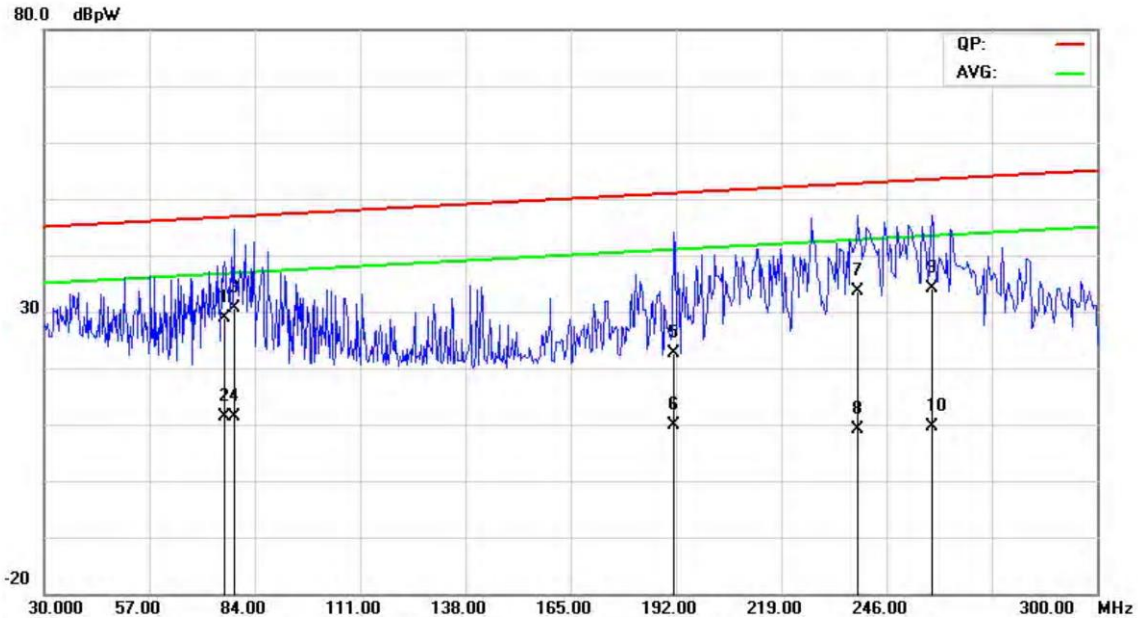
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBpW	dB	dBpW	dBpW	dB	Detector
1		35.6000	14.47	25.22	39.69	45.21	-5.52	QP
2		35.6000	-5.52	25.22	19.70	35.21	-15.51	AVG
3	*	36.4800	16.17	25.17	41.34	45.24	-3.90	QP
4		36.4800	-5.29	25.17	19.88	35.24	-15.36	AVG
5		206.6000	20.50	19.45	39.95	51.54	-11.59	QP
6		206.6000	-3.69	19.45	15.76	41.54	-25.78	AVG
7		211.8800	21.27	19.45	40.72	51.74	-11.02	QP
8		211.8800	-3.05	19.45	16.40	41.74	-25.34	AVG
9		231.9200	21.17	19.43	40.60	52.48	-11.88	QP
10		231.9200	-2.73	19.43	16.70	42.48	-25.78	AVG
11		250.1600	21.75	19.63	41.38	53.15	-11.77	QP
12		250.1600	-2.13	19.63	17.50	43.15	-25.65	AVG

SW-218
Level



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBpW	dB	dBpW	dBpW	dB	Detector
1		34.7600	8.29	25.29	33.58	45.18	-11.60	QP
2		34.7600	-9.89	25.29	15.40	35.18	-19.78	AVG
3		132.8800	17.49	21.30	38.79	48.81	-10.02	QP
4		132.8800	-6.00	21.30	15.30	38.81	-23.51	AVG
5		138.0800	17.33	21.18	38.51	49.00	-10.49	QP
6		138.0800	-5.38	21.18	15.80	39.00	-23.20	AVG
7		167.8400	19.55	20.42	39.97	50.11	-10.14	QP
8		167.8400	-4.62	20.42	15.80	40.11	-24.31	AVG
9	*	185.0000	21.20	19.91	41.11	50.74	-9.63	QP
10		185.0000	-3.41	19.91	16.50	40.74	-24.24	AVG
11		198.8400	20.70	19.49	40.19	51.25	-11.06	QP
12		198.8400	-5.19	19.49	14.30	41.25	-26.95	AVG

SW-268R
Level



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBpW	dB	dBpW	dBpW	dB	Detector
1		76.4000	7.17	21.59	28.76	46.72	-17.96	QP
2		76.4000	-10.19	21.59	11.40	36.72	-25.32	AVG
3	*	78.8000	9.14	21.59	30.73	46.81	-16.08	QP
4		78.8000	-10.29	21.59	11.30	36.81	-25.51	AVG
5		191.6400	3.01	19.71	22.72	50.99	-28.27	QP
6		191.6400	-9.81	19.71	9.90	40.99	-31.09	AVG
7		238.7600	14.29	19.42	33.71	52.73	-19.02	QP
8		238.7600	-10.32	19.42	9.10	42.73	-33.63	AVG
9		257.6800	14.27	19.78	34.05	53.43	-19.38	QP
10		257.6800	-10.18	19.78	9.60	43.43	-33.83	AVG

4.3 Voltage Changes, Voltage Fluctuations and Flicker

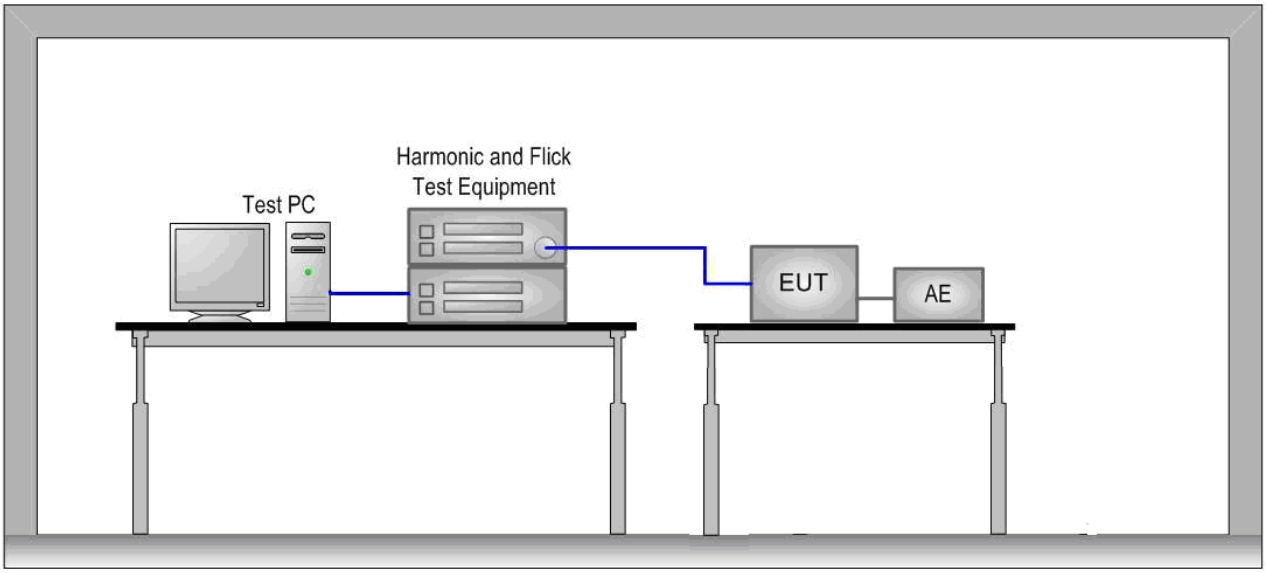
This part is concerned with the limitation of voltage fluctuations and flicker impressed on the public low-voltage system.

4.3.1 Limits

Value	Limit
Pst	1,0
Plt	0,65
dt	3,3%
dc	3,3%
dmax	7,0%

Note: Pst and Plt requirements shall not be applied to voltage changes caused by manual switching. The EUT is an equipment which is attended whilst in use.

4.3.2 Measurementest 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.

4.3.3 Results

SW-108A

Parameter values recorded during the test:

Vrms at the end of test (Volt):	**229.94**			
Time(mS) > dt:	**0**	**Test limit (mS):**	**500.0**	**Pass**
Highest dc (%):	**0.11**	**Test limit (%):**	**3.30**	**Pass**
Highest dmax (%):	**3.44**	**Test limit (%):**	**7.00**	**Pass**

SW-158

Parameter values recorded during the test:				
Vrms at the end of test (Volt):	229.99			
Time(mS) > dt:	0	Test limit (mS):	500.0	Pass
Highest dc (%):	0.13	Test limit (%):	3.30	Pass
Highest dmax (%):	3.35	Test limit (%):	7.00	Pass

SW-208

Parameter values recorded during the test:				
Vrms at the end of test (Volt):	230.00			
Time(mS) > dt:	0	Test limit (mS):	500.0	Pass
Highest dc (%):	0	Test limit (%):	3.30	Pass
Highest dmax (%):	0.42	Test limit (%):	7.00	Pass

SW-218

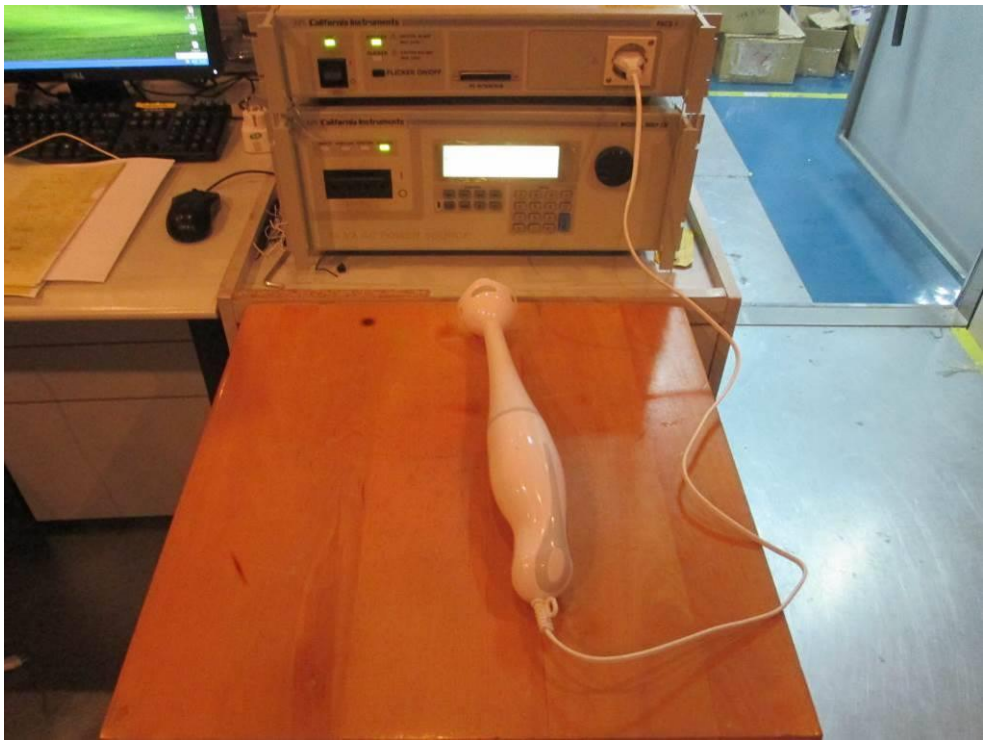
Parameter values recorded during the test:				
Vrms at the end of test (Volt):	229.97			
Time(mS) > dt:	0	Test limit (mS):	500.0	Pass
Highest dc (%):	0	Test limit (%):	3.30	Pass
Highest dmax (%):	2.67	Test limit (%):	7.00	Pass

SW-268R

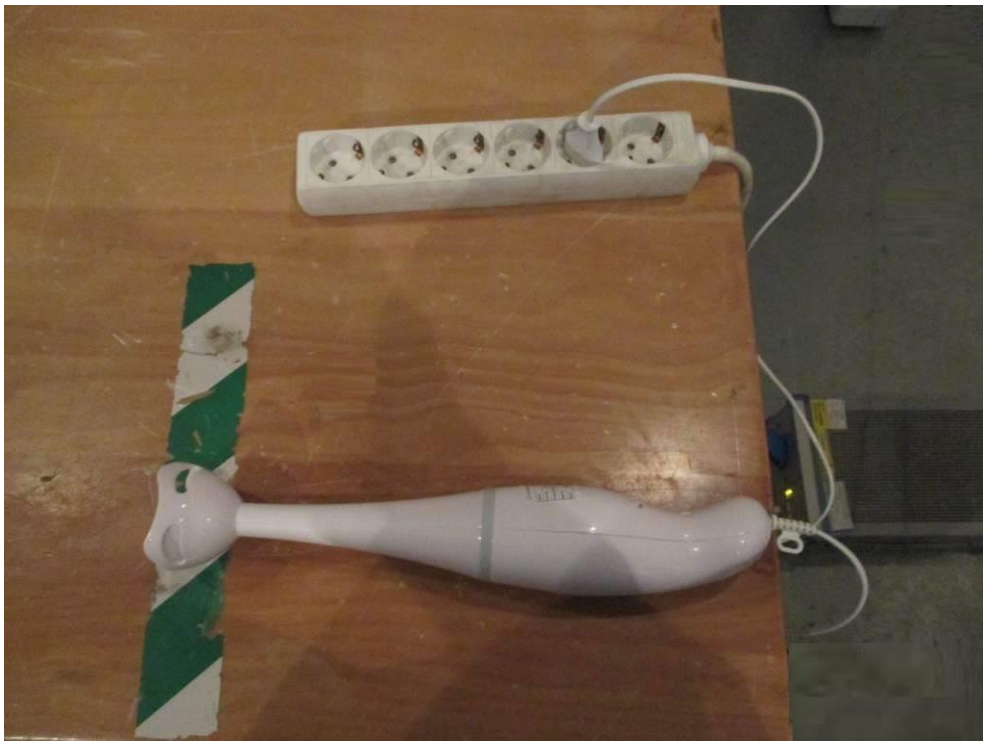
Parameter values recorded during the test:				
Vrms at the end of test (Volt):	229.97			
Time(mS) > dt:	0.0	Test limit (mS):	500.0	Pass
Highest dc (%):	0.00	Test limit (%):	3.30	Pass
Highest dmax (%):	0.58	Test limit (%):	7.00	Pass

5 Test Setup Photos

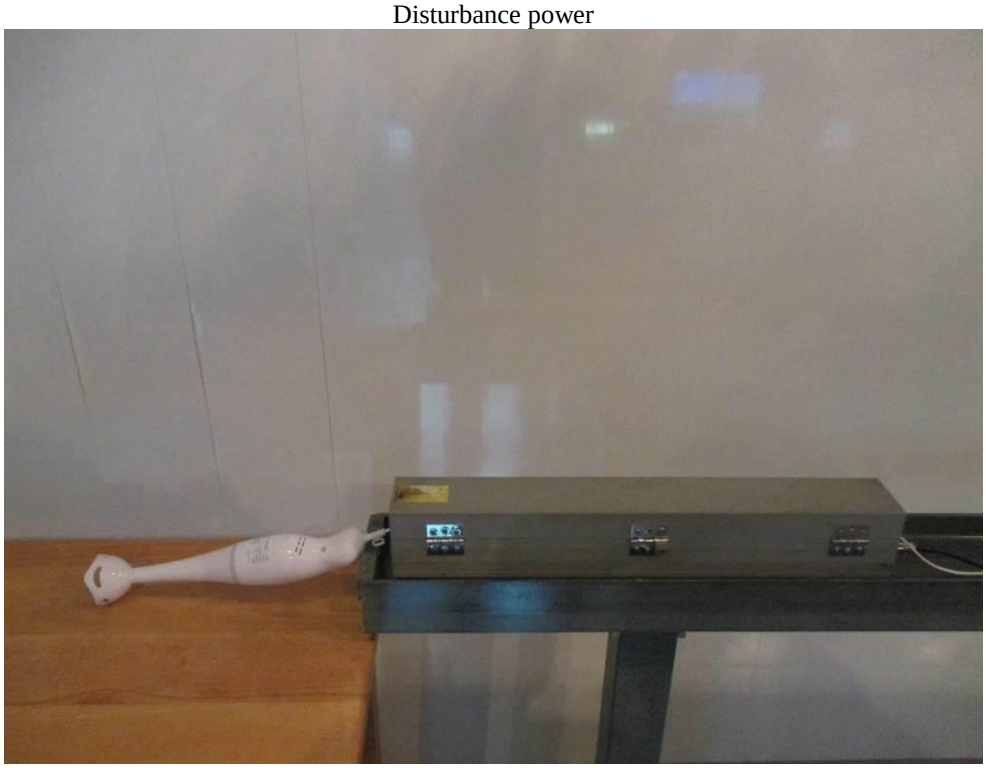
Flicker



Conducted Emission

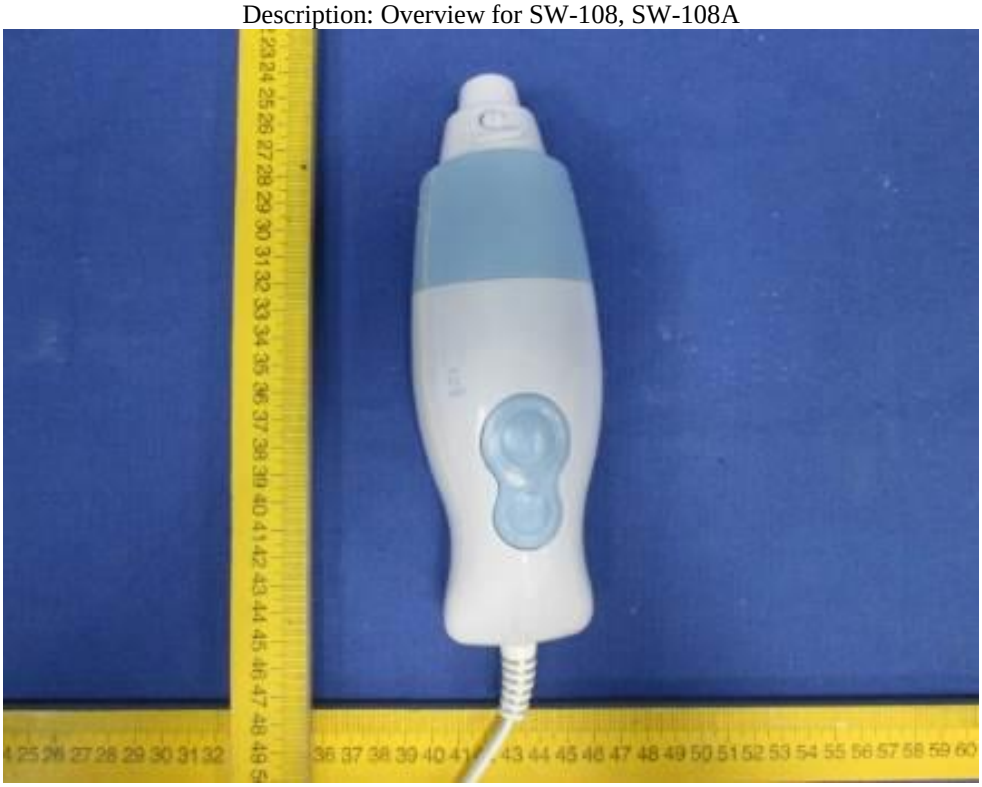


Disturbance power



6 EUT Photos

Description: Overview for SW-108, SW-108A



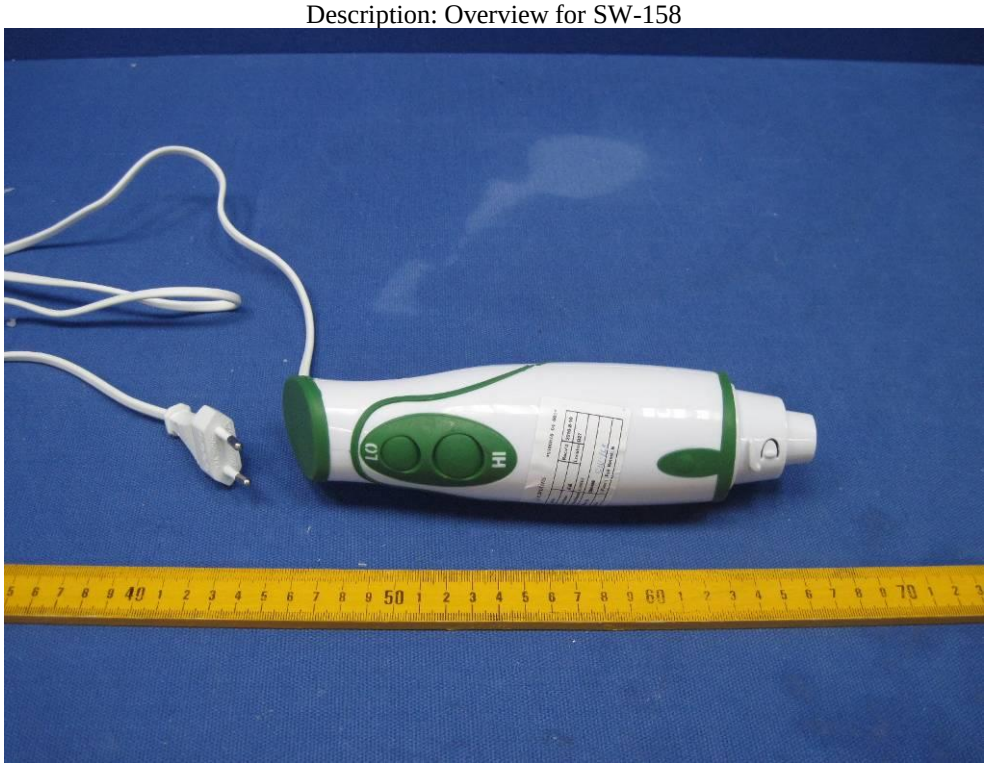
Description: Internal view for SW-108, SW-108A

Description: Overview for SW-128, SW-128A

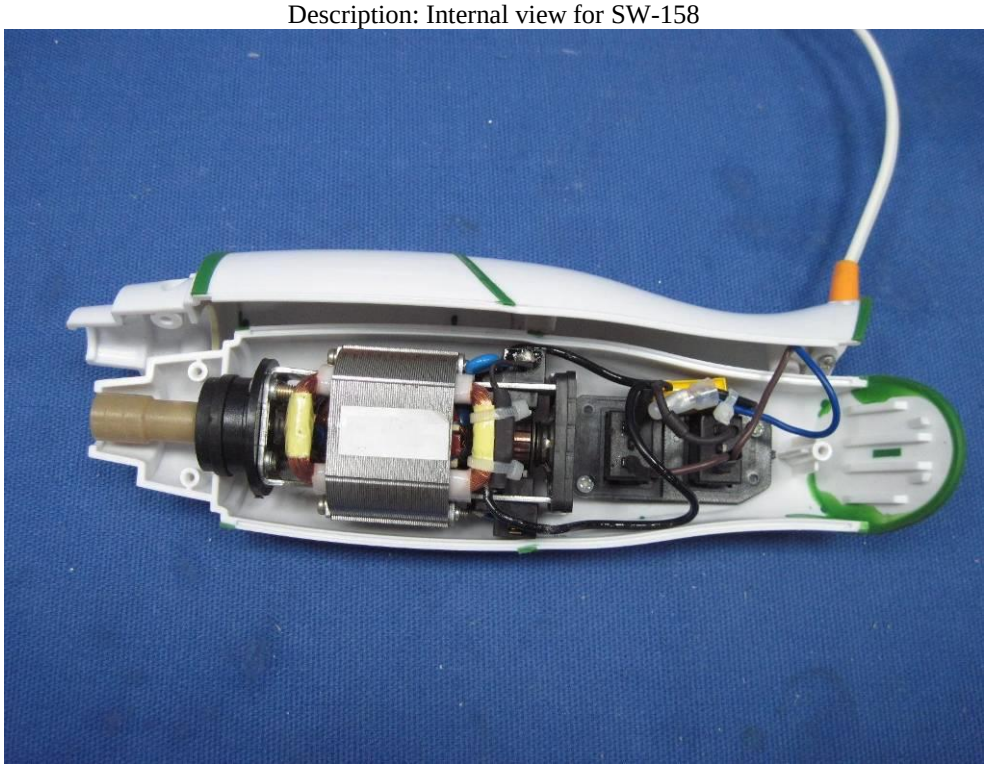
Description: Top view for SW-128, SW-128A

Description: Internal view for SW-128, SW-128A

Description: Overview for SW-158

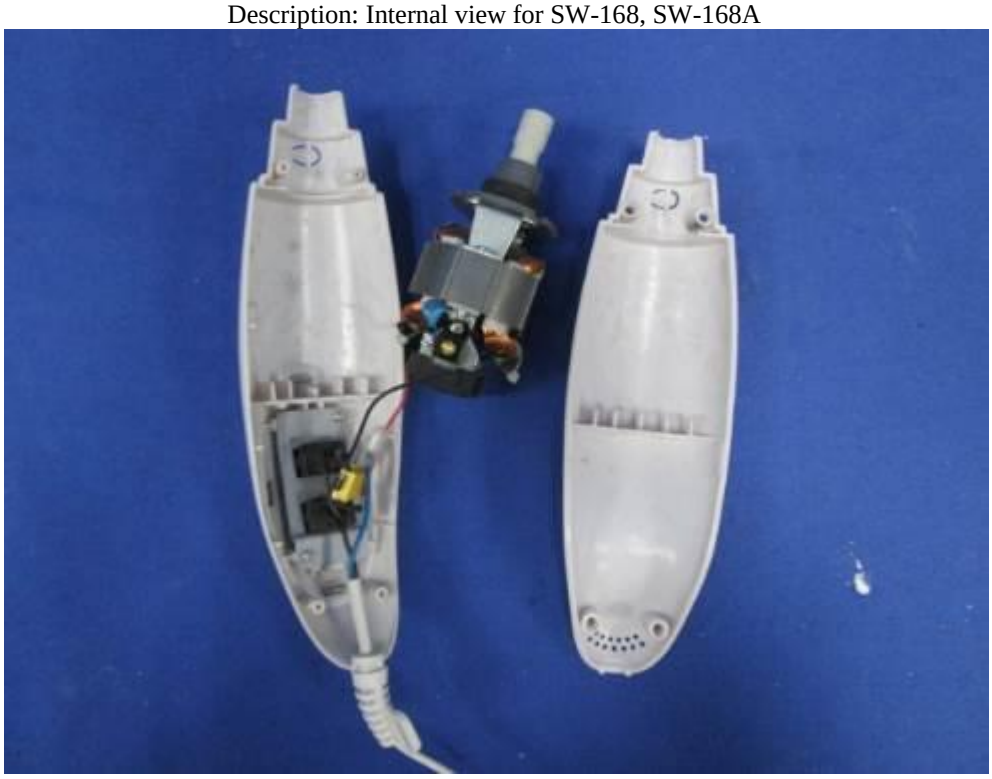


Description: Internal view for SW-158



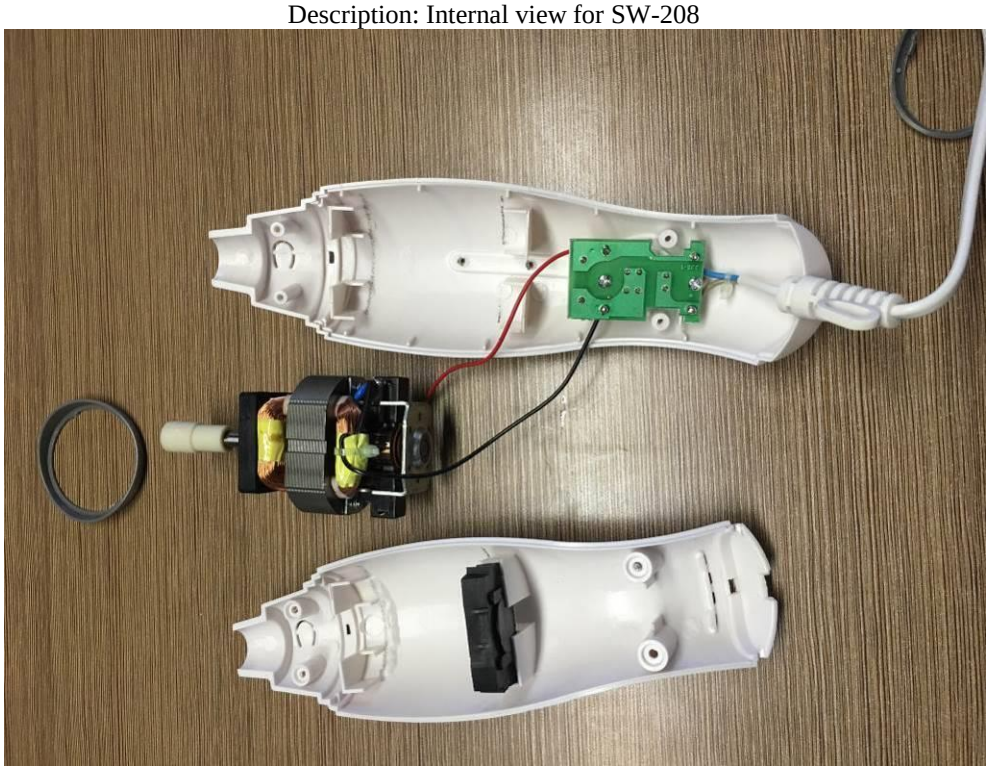
Description: Overview for SW-168, SW-168A

Description: Internal view for SW-168, SW-168A

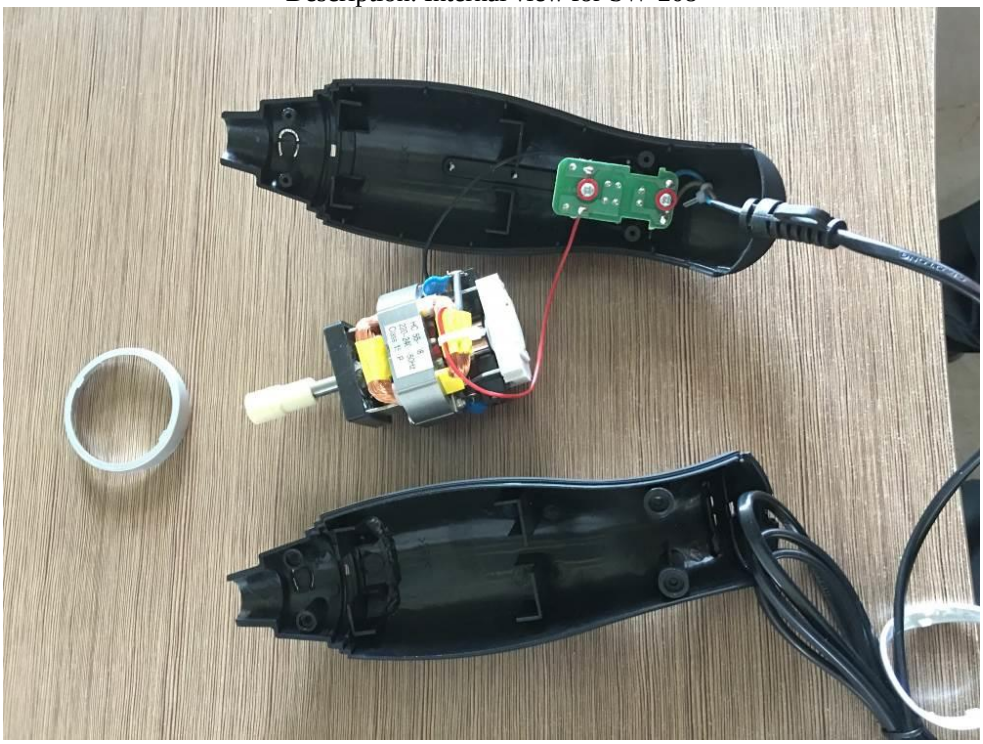


Description: Overview for SW-208

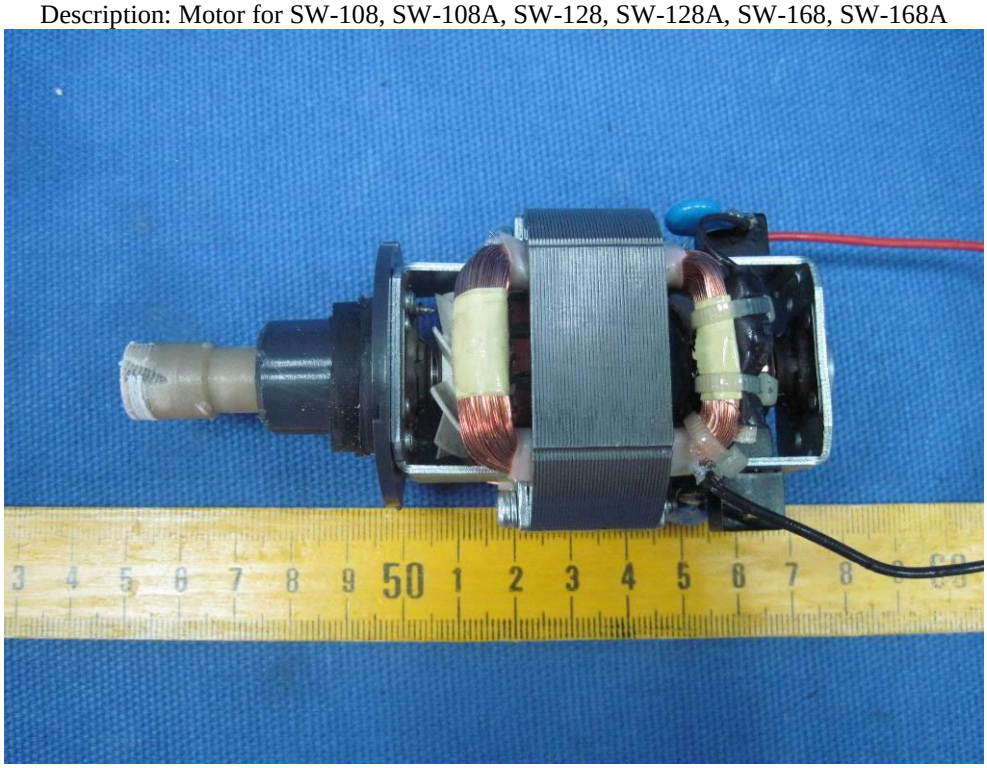
Description: Internal view for SW-208



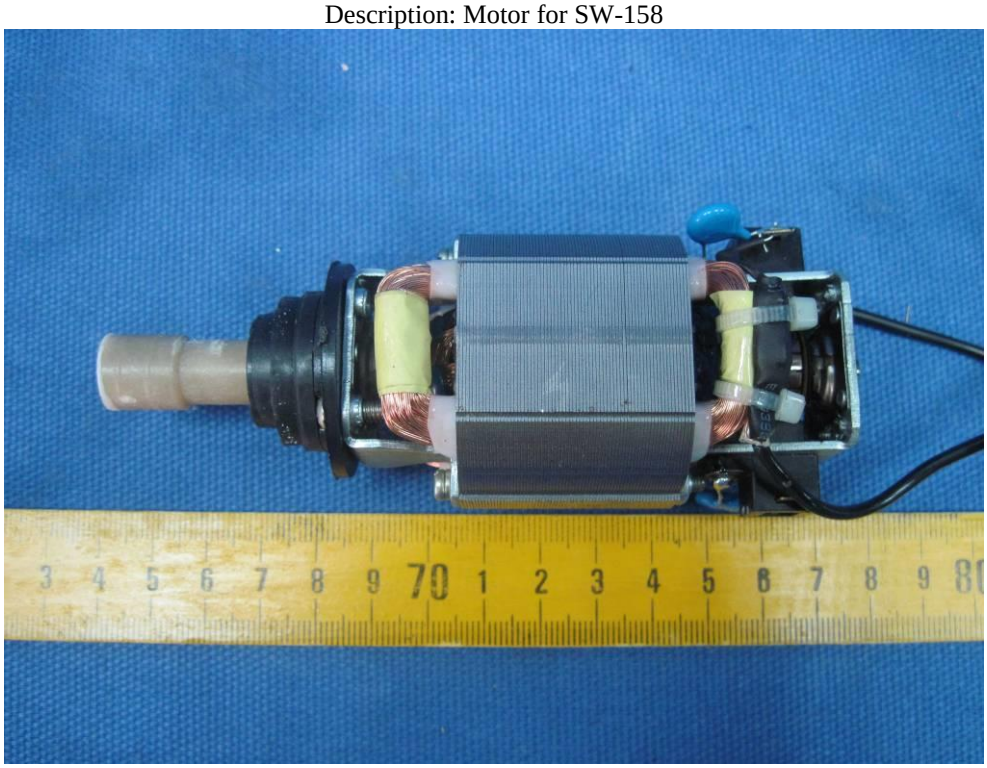
Description: Internal view for SW-208



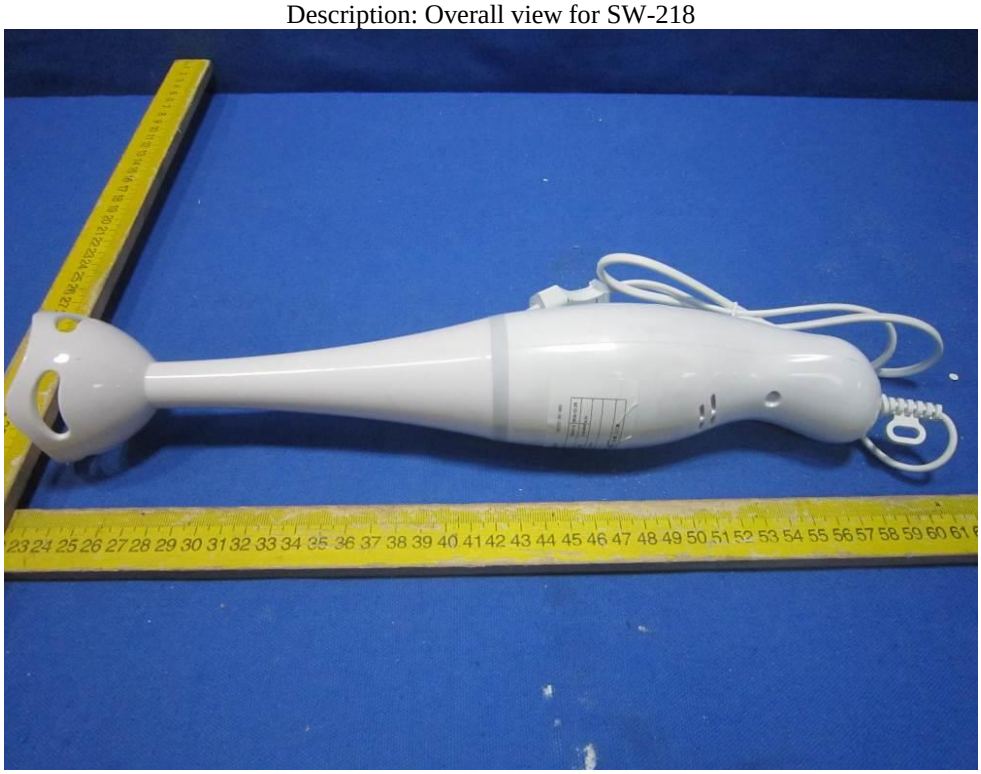
Description: Motor for SW-108, SW-108A, SW-128, SW-128A, SW-168, SW-168A



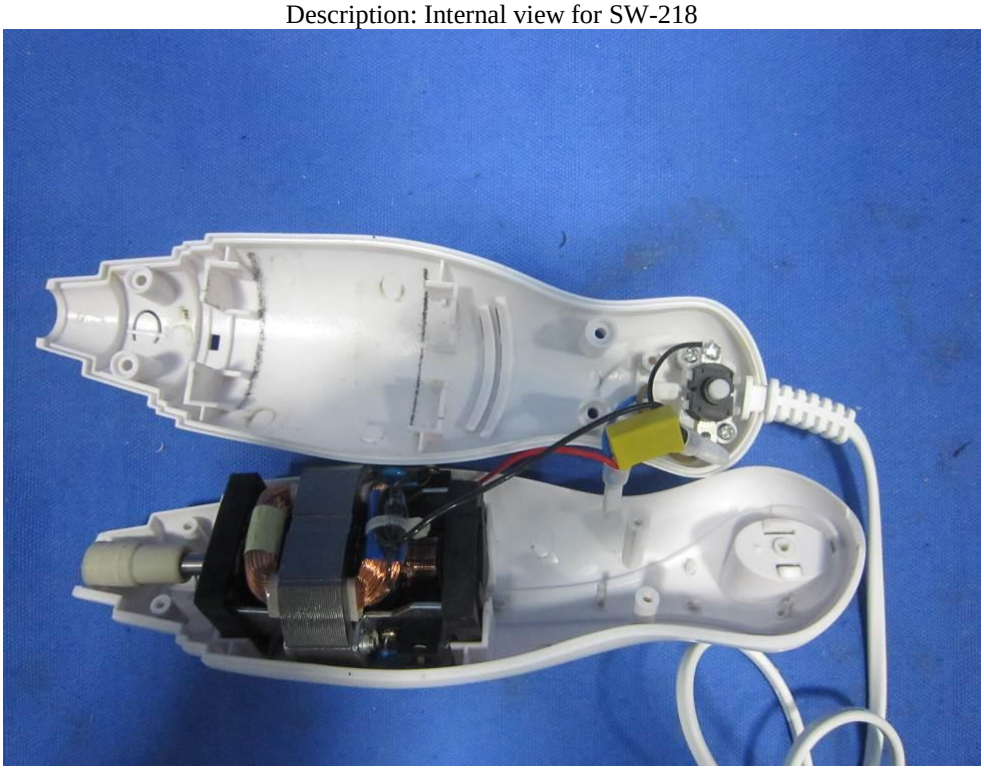
Description: Motor for SW-158



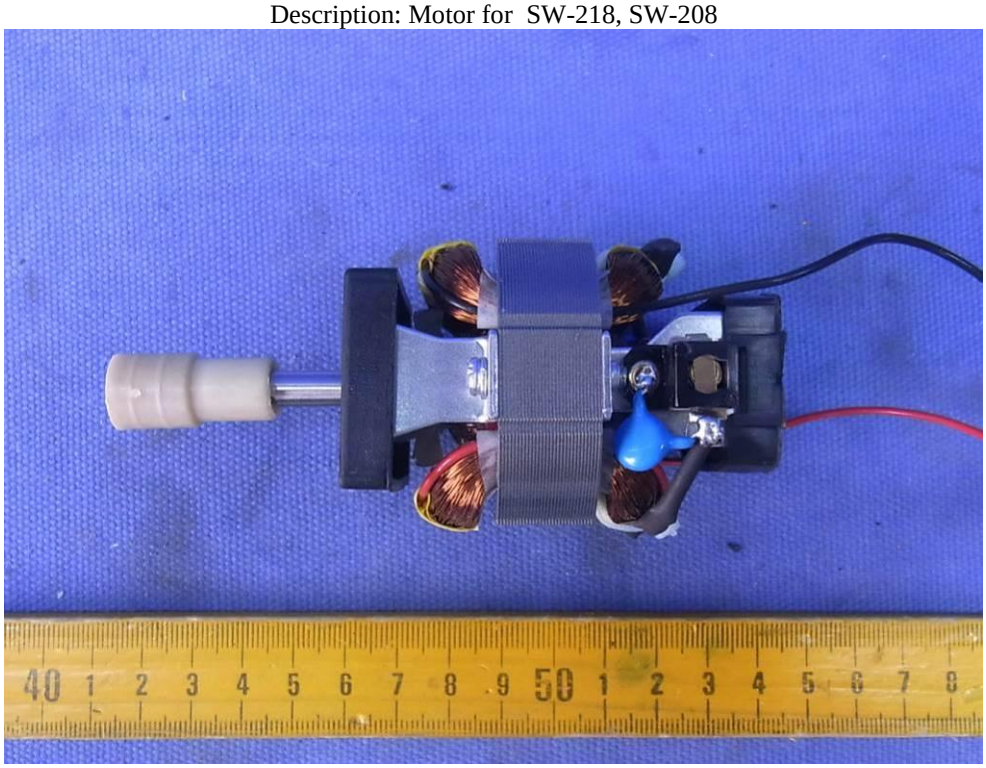
Description: Overall view for SW-218



Description: Internal view for SW-218



Description: Motor for SW-218, SW-208

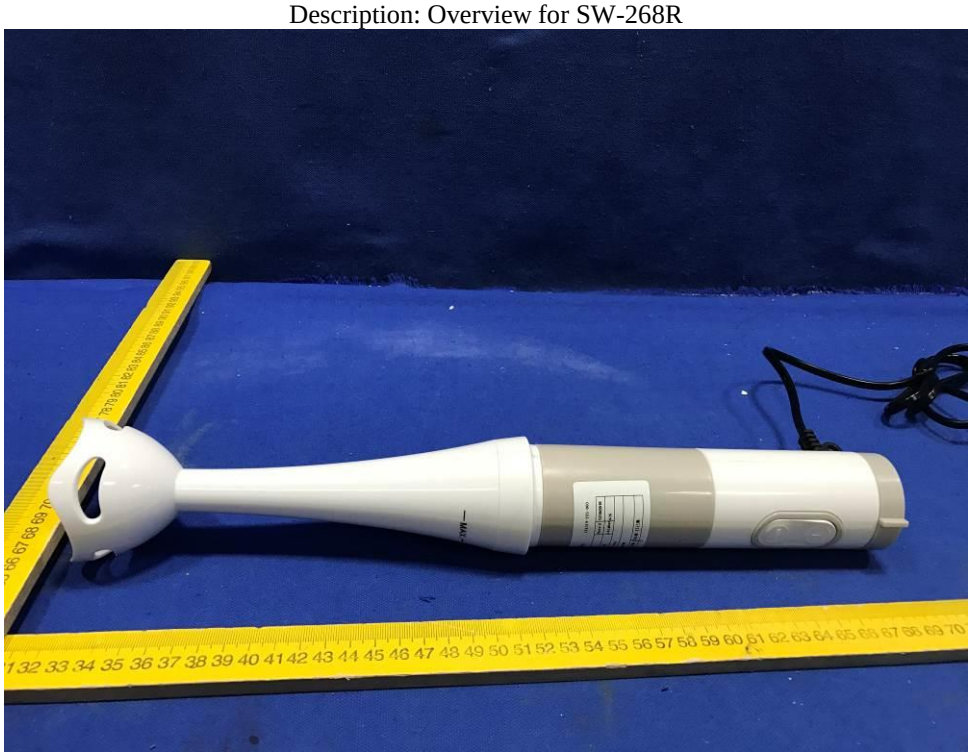


Description: Accessories

Description: Accessories

Description: Accessories

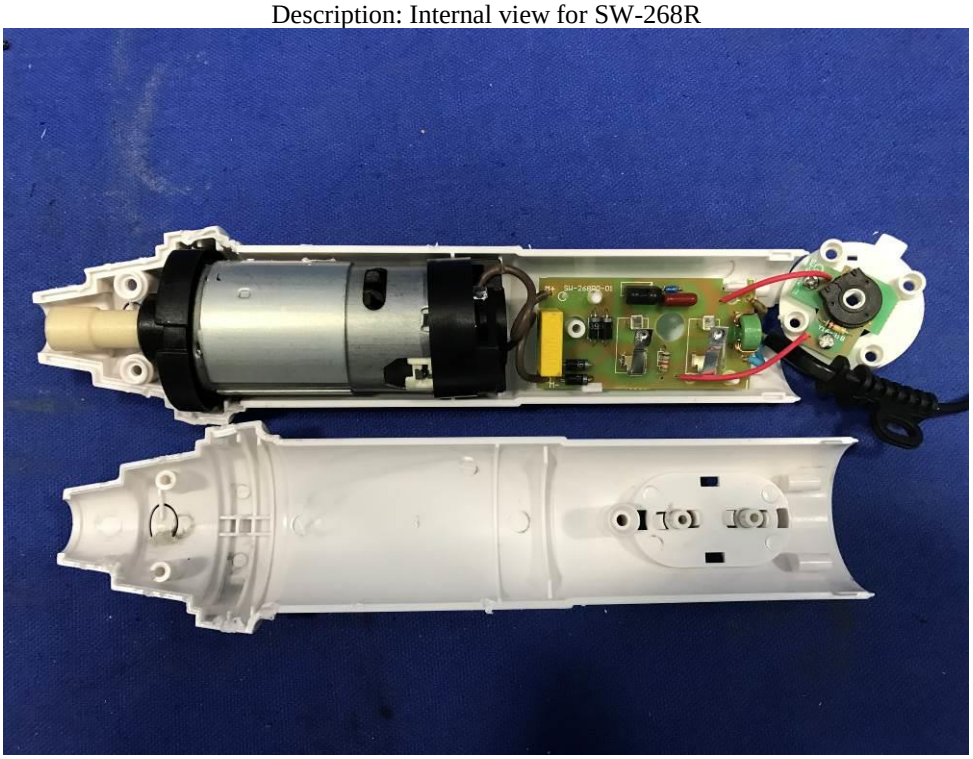
Description: Overview for SW-268R



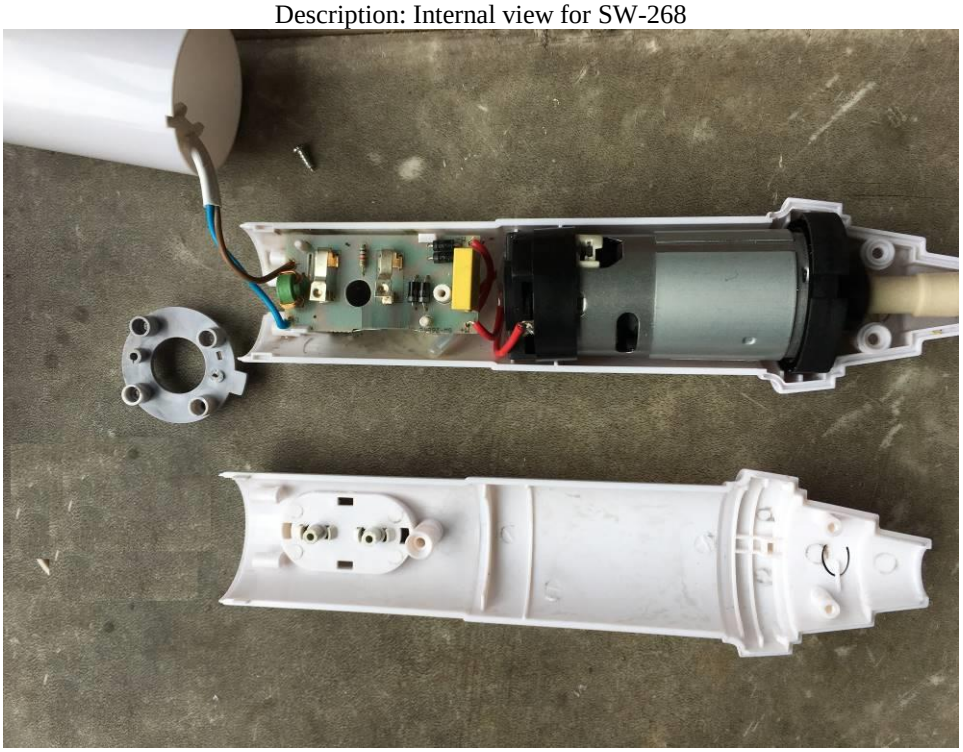
Description: Bottom view for SW-268R

Description: Detachable part view for SW-268R

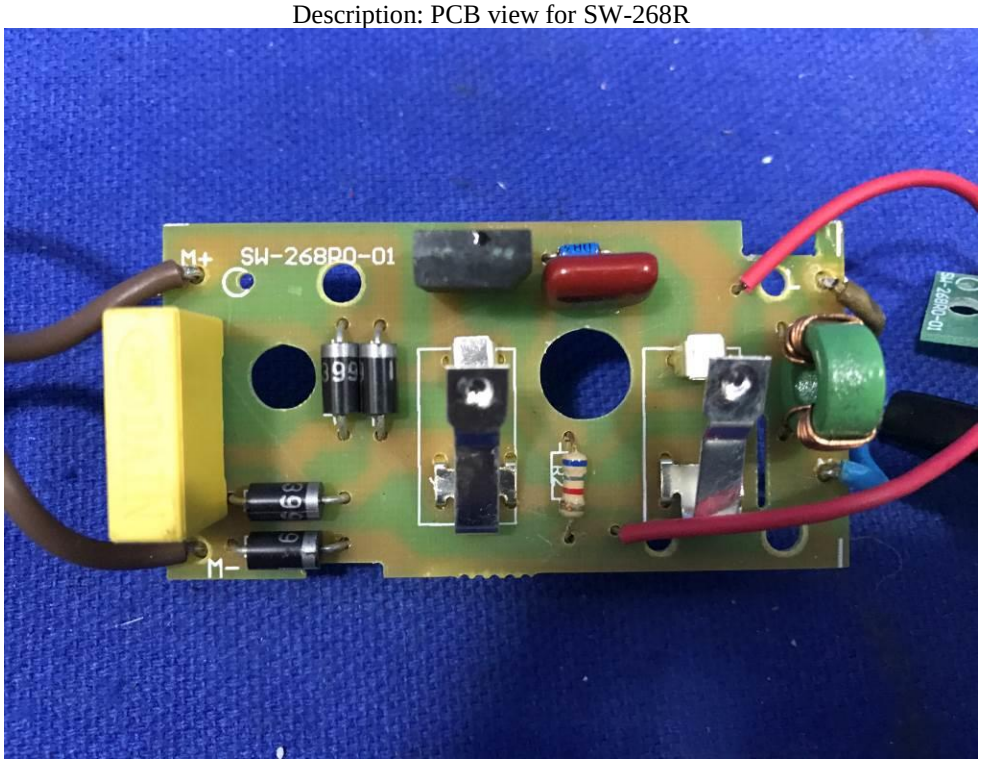
Description: Internal view for SW-268R



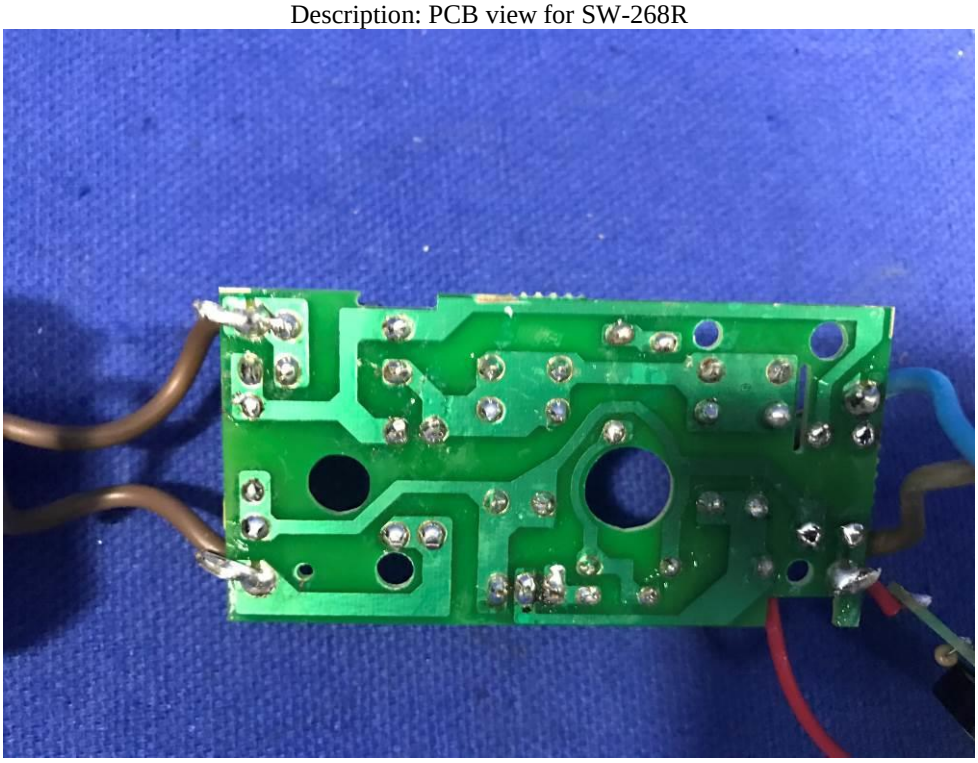
Description: Internal view for SW-268



Description: PCB view for SW-268R



Description: PCB view for SW-268R



Description: PCB view for SW-268

Description: Motor view for SW-268R, SW-268

Description: Accessories view

7 Amendment 1

The test report ref. No. EFSH16040426-IE-01-E01 dated 2015-04-28, was modified on 2017-07-06 to include the following changes and/or additions:
1. Add new models SW-268 and SW-268R.
   SW-268 and SW-268R are identical except SW-268R has speed control function and SW-268 has not.

After review, Model SW-268R was selected to do all the tests.

This test report replaces the original test report ref. No. EFSH16040426-IE-01-E01.

8 Amendment 2

The test report ref. No. EFSH16040426-IE-01-E01-A1 dated 2017-07-06, was modified on 2018-01-05 to include the following changes and/or additions:
1. Add technical standard “EN 55014-2:2015”.

After review, no additional test needs to be performed.

Test report ref. No. EFSH16040426-IE-01-E01-A1 was replaced by this test report ref. No. EFSH16040426-IE-01-E01-A2.

9 Amendment 3

The test report ref. No. EFSH16040426-IE-01-E01-A2 dated 2018-01-05, is modified on 2020-08-11 to include the following changes and/or additions:

1. Update technical standard to “EN 55014-1:2017”.
2. Remove technical standard “EN 55014-2: 1997+A1: 2001+A2: 2008”.
3. Update technical standard to “EN IEC 61000-3-2: 2019”.
4. Update technical standard to “EN 61000-3-3: 2013+A1: 2019”.

After review, no additional test needs to be performed.

Test report ref. No. EFSH16040426-IE-01-E01-A2 is replaced by this test report ref. No. EFSH16040426-IE-01-E01-A3.

10 Amendment 4

The test report Ref. No. EFSH16040426-IE-01-E01-A3 dated 2020-08-11 was modified on 2022-01-12 to include the following changes and/or additions:

1. Update technical standard to “EN IEC 55014-1: 2021”.
2. Update technical standard to “EN IEC 55014-2: 2021”.
3. Update technical standard to “EN IEC 61000-3-2: 2019+A1: 2021”.

After review, no additional test needs to be performed.

Test report ref. No. EFSH16040426-IE-01-E01-A3 is replaced by this test report ref. No. EFSH16040426-IE-01-E01-A4.