

6027479.50

EMC Test report for MAGNETIC CORE DRILL

Models: TP2000, MD500

Shanghai, date of issue: 2018-04-17

Author: Kaiyuan Dai

By order of LEE YEONG INDUSTRIAL CO., LTD.



author : Kaiyuan Dai

reviewed : Zuyan Fan

B 26 pages 0 annexes (sec)

DEKRA Testing and Certification (Shanghai) Ltd.

SH-F-PC4-005 v1.1

DOCUMENT

CONTENTS

1	Conclusion	3
1.1	Model description	3
1.2	Environment.....	5
1.3	Classification.....	5
2	Summary	6
2.1	Applied standards	6
2.2	Overview of results	6
3	General Information	7
3.1	Product Information.....	7
3.2	Customer Information.....	7
3.3	Test data.....	8
3.4	Environmental conditions	8
3.5	Measurement Uncertainty	8
4	Emission test results	9
4.1	Mains conducted disturbance voltage	9
4.2	Radiated emission	14
4.3	Harmonic currents.....	16
4.4	Voltage fluctuations (Flicker).....	18
5	Immunity test results	19
5.1	Electrostatic discharge immunity	19
5.2	Electrical Fast Transient immunity.....	20
5.3	Surge transient immunity	21
5.4	RF Conducted immunity.....	22
5.5	Power supply interruptions and dips.....	23
6	Identification of the equipment under test.....	24

1 CONCLUSION

This report is based on the original DEKRA report 6001527.50 issued date is 2017-01-11, the change is

- Update the standard: EN 55014-2: 2015.

After review, no test is considered necessary.

The conclusion and results stated in this test report are based on a non-recurrent examination of sample provided by the applicant.

The tests described in this report do not result in the right to use any approval mark as conferred by DEKRA. As far as the tests were based on certain specifications, these are mentioned in the report.

1.1 Model description

The apparatus as supplied for the test is a magnetic core drill, model TP2000 intended for residential use. The EUT has electronic control circuit and earth connection.

According to the declaration from manufacturer, models TP2000 and MD500 are identical except the TP2000 rated no-load speed is 550 min⁻¹, MD500 rated no-load speed is 620 min⁻¹.

Due to the similarity between them, model TP2000 was selected for the full tests and the corresponding data is representative for model MD500 as well.



Figure 1 model TP2000



Figure 2 model MD500

1.2 Environment

The requirements and standards apply to equipment intended for use in:

✓	Residential (domestic) environment
✓	Commercial and light-industrial environment
	Industrial environment
	Medical environment

1.3 Classification

The standard EN 55014-2 is subdivided in four categories. For each category, the specific immunity requirements are formulated.

	Category 1	Apparatus containing no electronic control circuitry
✓	Category 2	Apparatus containing electronic control circuitry with no internal clock or oscillator frequency higher than 15 MHz.
	Category 3	Battery powered apparatus containing electronic control circuitry with no internal clock higher than 15 MHz.
	Category 4	All other apparatus.

2 SUMMARY

This chapter presents an overview of standards and results. Refer to the next chapters for details of measured test results and applied test levels.

2.1 Applied standards

Standard	Year	Title
EN 55014-1	2006	Emission – Electrical motor-operated and thermal appliances for household and similar purposes, electrical tools and similar electrical apparatus
A1	2009	
A2	2011	
EN 55014-2	2015	Immunity - Household appliances, electric tools and similar
EN 61000-3-2	2014	Limits for harmonic currents emissions
EN 61000-3-3	2013	Limitation of voltage fluctuations and flicker

2.2 Overview of results

Emission tests	Result
Mains conducted disturbance voltage	PASS
Radiated emission	PASS
Harmonic current emission	PASS
Limitation of voltage fluctuations (flicker)	PASS

Immunity tests	Result
Electrostatic Discharges (ESD)	PASS
Electrical fast transient (EFT)	PASS
Surge transients	PASS
Conducted RF disturbances	PASS
Power supply voltage interruptions & dips	PASS

3 GENERAL INFORMATION

3.1 Product Information

Equipment under test	Magnetic Core Drill
Trade mark	AGP
Tested Type	TP2000
Representative types	MD500
Ratings	110-120 Vac or 220-240 Vac; 50-60 Hz; 1100 W; Class I

3.2 Customer Information

Applicant	LEE YEONG INDUSTRIAL CO., LTD.
Address	No.2, Kejia Rd., Douliu City, Yunlin County 64057, Taiwan

Manufacturer	LEE YEONG INDUSTRIAL CO., LTD.
Address	No.2, Kejia Rd., Douliu City, Yunlin County 64057, Taiwan

Factory	LEE YEONG INDUSTRIAL CO., LTD.
Address	No.2, Kejia Rd., Douliu City, Yunlin County 64057, Taiwan

3.3 Test data

Location	Global Certification Corp.
Address	No.146, Sec. 2, Xiangzhang Rd., Xizhi Dist., New Taipei City 221, Taiwan
Date	Oct. 2011
Supervised by	Zuyao Fan

3.4 Environmental conditions

Tests have been performed in a controlled laboratory environment, where the environmental conditions are maintained within the applicable ranges.

Ambient temperature	15 °C – 35 °C
Relative Humidity air	30% - 60%

3.5 Measurement Uncertainty

Conducted Emission Expanded Uncertainty: $U = 3.38$ dB

Disturbance Power Expanded Uncertainty: $U = 3.92$ dB

4 EMISSION TEST RESULTS

4.1 Mains conducted disturbance voltage

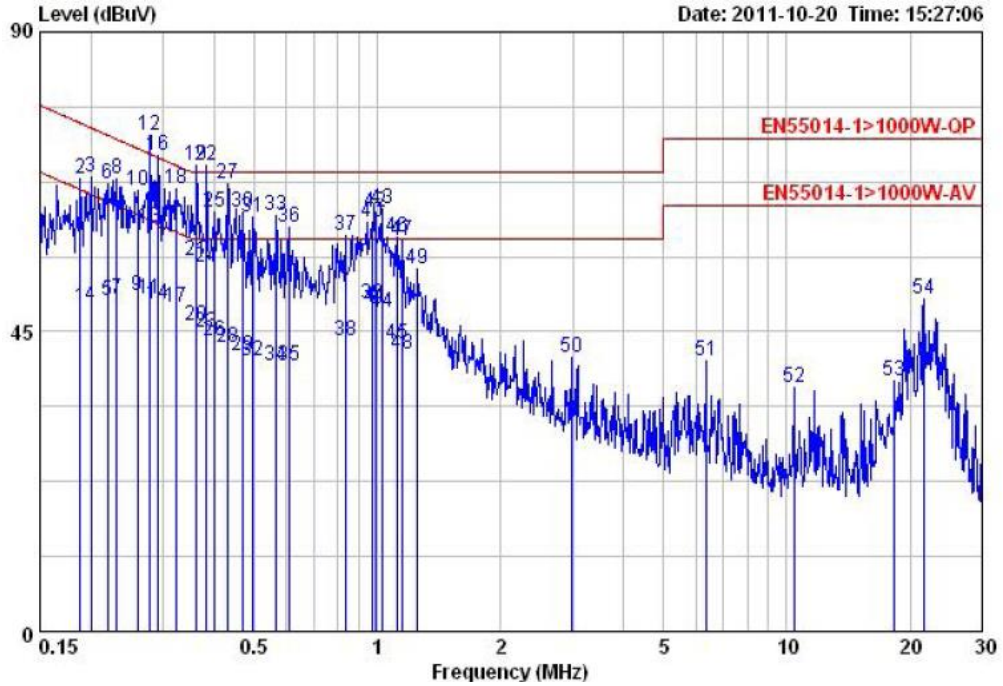
Standard	EN 55014-1 (Tools)					
Frequency [MHz]	QP [dB(μV)]			AV [dB(μV)]		
0,15 – 0,35	66	–	59 *)	59	–	49 *)
0,35 – 5	59			49		
5 – 30	64			54		

*) Limits decreasing linearly with the logarithm of the frequency

	Rated power below 700 W	Limits as above
	Rated power between 700 and 1000 W	Limits +4 dB
✓	Rated power above 1000 W	Limits +10 dB

Port	AC mains
Test method	LISN
Mode	On mode with an artificial hand, no load

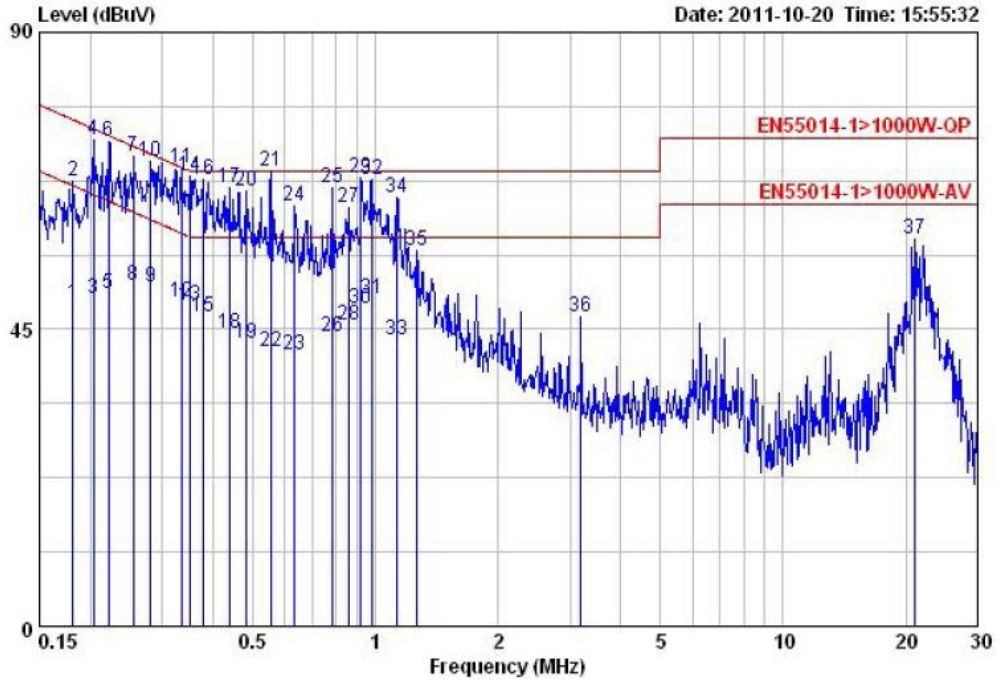
Line



	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.19	38.47	10.24	48.71	66.31	-17.60	Average
2	0.19	57.77	10.24	68.01	76.31	-8.30	Peak
3	0.20	57.99	10.24	68.23	75.62	-7.39	Peak
4	0.20	38.74	10.24	48.98	65.62	-16.64	Average
5	0.22	39.36	10.24	49.60	64.50	-14.90	Average
6	0.22	57.05	10.24	67.29	74.50	-7.21	Peak
7	0.23	39.67	10.24	49.91	63.87	-13.96	Average
8	0.23	57.80	10.24	68.04	73.87	-5.83	Peak
9	0.26	40.21	10.24	50.45	62.50	-12.05	Average
10	0.26	55.87	10.24	66.11	72.50	-6.39	Peak
11	0.28	39.68	10.24	49.92	61.68	-11.76	Average
12 X	0.28	64.34	10.24	74.58	71.68	2.90	Peak
13	0.28	50.46	10.24	60.70	71.68	-10.98	QP
14	0.29	38.99	10.25	49.24	61.12	-11.88	Average
15	0.29	49.22	10.25	59.47	71.12	-11.65	QP
16 X	0.29	61.14	10.25	71.39	71.12	0.27	Peak
17	0.32	38.34	10.25	48.59	60.00	-11.41	Average

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
18	0.32	56.09	10.25	66.34	70.00	-3.66	Peak
19 X	0.36	59.76	10.25	70.01	69.00	1.01	Peak
20	0.36	35.52	10.25	45.77	59.00	-13.23	Average
21	0.36	45.46	10.25	55.71	69.00	-13.29	QP
22 X	0.38	59.73	10.25	69.98	69.00	0.98	Peak
23	0.38	34.69	10.25	44.94	59.00	-14.06	Average
24	0.38	44.42	10.25	54.67	69.00	-14.33	QP
25	0.40	52.69	10.25	62.94	69.00	-6.06	Peak
26	0.40	33.25	10.25	43.50	59.00	-15.50	Average
27	0.43	57.02	10.25	67.27	69.00	-1.73	Peak
28	0.43	32.32	10.25	42.57	59.00	-16.43	Average
29	0.47	31.19	10.25	41.44	59.00	-17.56	Average
30	0.47	52.79	10.25	63.04	69.00	-5.96	Peak
31	0.49	51.99	10.25	62.24	69.00	-6.76	Peak
32	0.49	30.28	10.25	40.53	59.00	-18.47	Average
33	0.57	52.11	10.25	62.36	69.00	-6.64	Peak
34	0.57	29.62	10.25	39.87	59.00	-19.13	Average
35	0.61	29.69	10.25	39.94	59.00	-19.06	Average
36	0.61	50.35	10.25	60.60	69.00	-8.40	Peak
37	0.83	49.23	10.25	59.48	69.00	-9.52	Peak
38	0.83	33.43	10.25	43.68	59.00	-15.32	Average
39	0.97	38.80	10.25	49.05	59.00	-9.95	Average
40	0.97	51.13	10.25	61.38	69.00	-7.62	Peak
41	0.99	38.38	10.25	48.63	59.00	-10.37	Average
42	0.99	52.58	10.25	62.83	69.00	-6.17	Peak
43	1.03	53.14	10.25	63.39	69.00	-5.61	Peak
44	1.03	37.66	10.25	47.91	59.00	-11.09	Average
45	1.12	32.95	10.25	43.20	59.00	-15.80	Average
46	1.12	49.00	10.25	59.25	69.00	-9.75	Peak
47	1.15	48.33	10.26	58.59	69.00	-10.41	Peak
48	1.15	31.43	10.26	41.69	59.00	-17.31	Average
49	1.26	44.19	10.25	54.44	69.00	-14.56	Peak
50	2.98	30.89	10.25	41.14	69.00	-27.86	Peak
51	6.35	30.47	10.25	40.72	74.00	-33.28	Peak
52	10.40	26.35	10.25	36.60	74.00	-37.40	Peak
53	18.33	27.45	10.19	37.64	74.00	-36.36	Peak
54	21.71	39.61	10.19	49.80	74.00	-24.20	Peak

Neutral



	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.18	37.70	11.14	48.84	66.75	-17.91	Average
2	0.18	56.31	11.14	67.45	76.75	-9.30	Peak
3	0.20	38.47	11.14	49.61	65.37	-15.76	Average
4	0.20	62.65	11.14	73.79	75.37	-1.58	Peak
5	0.22	39.21	11.14	50.35	64.37	-14.02	Average
6	0.22	62.31	11.14	73.45	74.37	-0.92	Peak
7	0.25	60.00	11.14	71.14	72.75	-1.61	Peak
8	0.25	40.46	11.14	51.60	62.75	-11.15	Average
9	0.28	40.23	11.14	51.37	61.56	-10.19	Average
10	0.28	59.18	11.14	70.32	71.56	-1.24	Peak
11 X	0.33	58.43	11.13	69.56	69.56	0.00	Peak
12	0.33	37.99	11.13	49.12	59.56	-10.44	Average
13	0.35	37.50	11.13	48.63	59.00	-10.37	Average
14	0.35	56.99	11.13	68.12	69.00	-0.88	Peak
15	0.38	35.82	11.13	46.95	59.00	-12.05	Average
16	0.38	56.51	11.13	67.64	69.00	-1.36	Peak
17	0.44	55.36	11.13	66.49	69.00	-2.51	Peak

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
18	0.44	33.27	11.13	44.40	59.00	-14.60	Average
19	0.48	31.67	11.13	42.80	59.00	-16.20	Average
20	0.48	54.89	11.13	66.02	69.00	-2.98	Peak
21	0.56	57.83	11.13	68.96	69.00	-0.04	Peak
22	0.56	30.42	11.13	41.55	59.00	-17.45	Average
23	0.63	29.93	11.13	41.06	59.00	-17.94	Average
24	0.63	52.50	11.13	63.63	69.00	-5.37	Peak
25	0.78	55.19	11.12	66.31	69.00	-2.69	Peak
26	0.78	32.74	11.12	43.86	59.00	-15.14	Average
27	0.86	52.42	11.12	63.54	69.00	-5.46	Peak
28	0.86	34.61	11.12	45.73	59.00	-13.27	Average
29	0.92	56.76	11.12	67.88	69.00	-1.12	Peak
30	0.92	37.05	11.12	48.17	59.00	-10.83	Average
31	0.98	38.58	11.12	49.70	59.00	-9.30	Average
32	0.98	56.54	11.12	67.66	69.00	-1.34	Peak
33	1.13	32.35	11.13	43.48	59.00	-15.52	Average
34	1.13	53.80	11.13	64.93	69.00	-4.07	Peak
35	1.26	45.86	11.12	56.98	69.00	-12.02	Peak
36	3.19	35.67	11.12	46.79	69.00	-22.21	Peak
37	21.04	47.68	11.04	58.72	74.00	-15.28	Peak

No other significant emissions were measured at the frequency range of interest employing both the QP and AV detectors.

Refer to chapter 6 for the test set-up.

Conclusion:

PASS

4.2 Radiated emission

Standard	EN 55014-1	
Frequency [MHz]	QP [dB(pW)]	AV [dB(pW)]
30 – 300	45 – 55 *)	35 – 45 *)

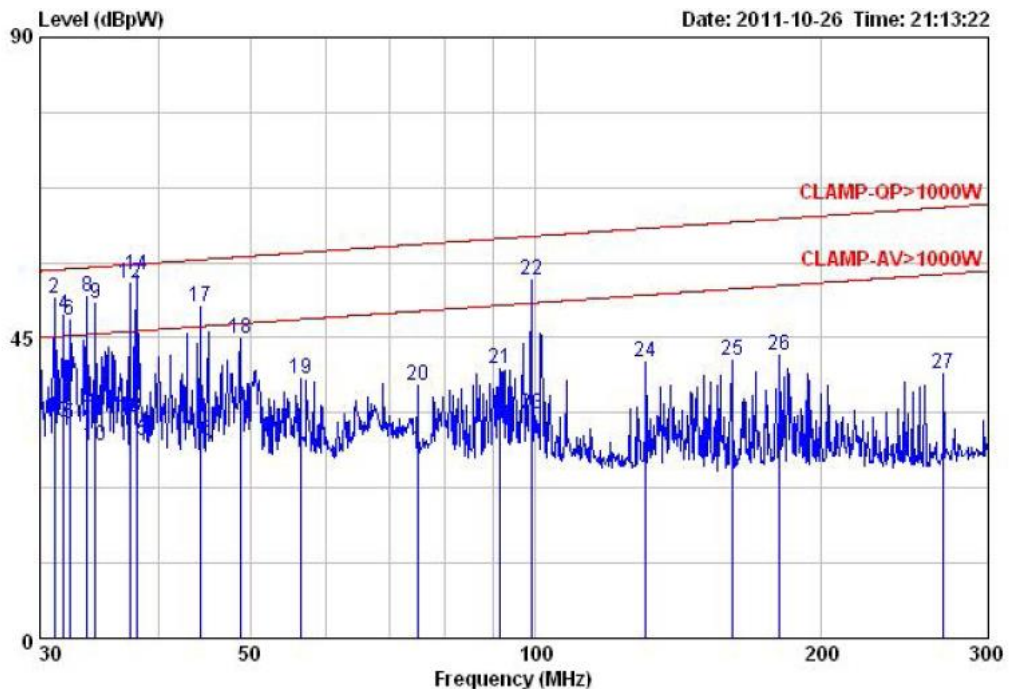
*) Limits increasing linearly with the frequency

For tools the following limits apply to the AC Mains port:

	Rated power below 700 W	Limits as above
	Rated power between 700 and 1000 W	Limits +4 dB
✓	Rated power above 1000 W	Limits +10 dB

Port	AC Mains
Mode	On mode with no load

Results



	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBpW	dB	dBpW	dBpW	dB	
1	31.05	17.24	15.76	33.00	45.16	-12.16	Average
2	31.05	35.09	15.76	50.85	55.16	-4.31	Peak
3	31.78	16.49	15.74	32.23	45.26	-13.03	Average
4	31.78	32.69	15.74	48.43	55.26	-6.83	Peak
5	32.22	16.41	15.72	32.13	45.32	-13.19	Average
6	32.22	31.92	15.72	47.64	55.32	-7.68	Peak
7	33.66	17.01	15.68	32.69	45.51	-12.82	Average
8	33.66	35.34	15.68	51.02	55.51	-4.49	Peak
9	34.37	34.55	15.66	50.21	55.60	-5.39	Peak
10	34.37	13.08	15.66	28.74	45.60	-16.86	Average
11	34.37	51.65	15.66	515.99	45.60	-561.59	Average
12	37.34	37.68	15.58	53.26	55.96	-2.70	Peak
13	37.34	17.55	15.58	33.13	45.96	-12.83	Average
14	38.03	38.75	15.55	54.30	56.04	-1.74	Peak
15	38.03	14.08	15.55	29.63	46.04	-16.41	Average
16	44.27	14.38	15.32	29.70	46.70	-17.00	Average
17	44.27	34.37	15.32	49.69	56.70	-7.01	Peak
18	48.77	29.79	15.15	44.94	57.12	-12.18	Peak
19	56.51	23.88	14.90	38.78	57.76	-18.98	Peak
20	75.01	23.18	14.70	37.88	58.99	-21.11	Peak
21	91.65	25.97	14.29	40.26	59.86	-19.60	Peak
22	98.88	39.55	14.21	53.76	60.19	-6.43	Peak
23	98.88	19.38	14.21	33.59	50.19	-16.60	Average

Refer to chapter 6 for the test set-up.

According to clause 4.1.2.3.2 (EN 55014-1):

Appliances are deemed to comply in the frequency range from 300 MHz to 1 000 MHz if both of the following conditions (1) and 2)) are fulfilled:

- 1) all emission readings from the equipment under test shall be lower than the applicable limits (Table 2a) reduced by the margin (Table 2b);
- 2) the maximum clock frequency shall be less than 30 MHz.

Conclusion:

PASS

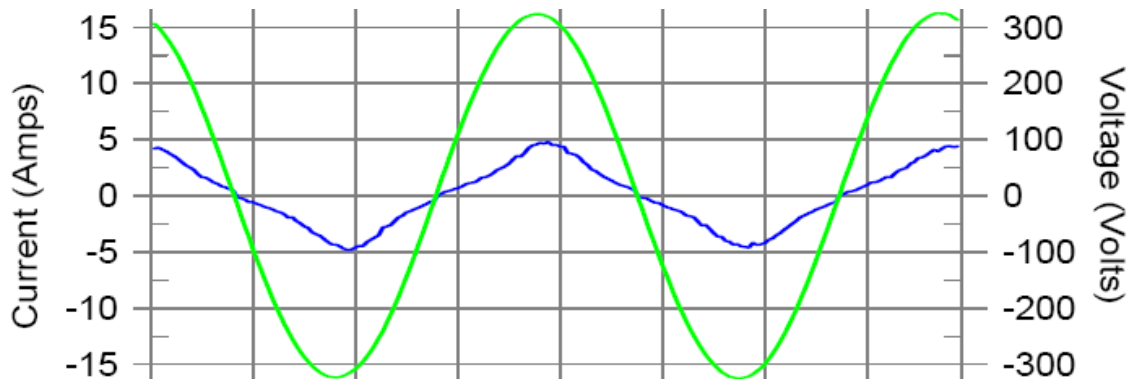
4.3 Harmonic currents

Standard	EN 61000-3-2
Port	AC Mains supply
Rated power	1100 W
Mode	On mode

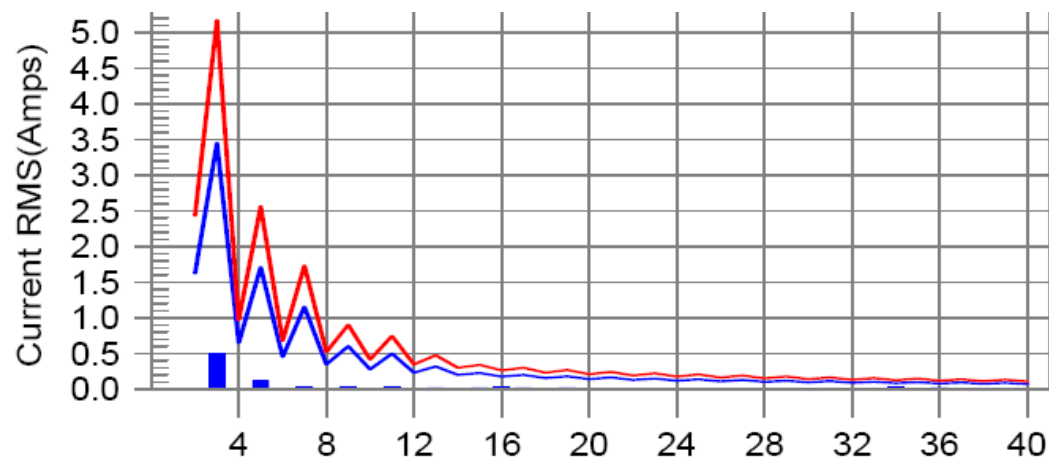
	Class A	All apparatus not classified as Class B, C or D
✓	Class B	Portable tools
	Class C	Lighting equipment
	Class D	Personal computers, television receivers

Results

Current & voltage waveforms



Harmonics and Class B limit line European Limits



Test Result: Pass Source qualification: Normal
 THC(A): 0.42 I-THD(%): 15.90 POHC(A): 0.000 POHC Limit(A): 0.480

Highest parameter values during test:

V_RMS (Volts): 229.44	Frequency(Hz): 50.00
I_Peak (Amps): 8.106	I_RMS (Amps): 2.926
I_Fund (Amps): 2.852	Crest Factor: 2.945
Power (Watts): 648.6	Power Factor: 0.984

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.003	1.620	0.0	0.005	2.430	0.00	Pass
3	0.410	3.450	11.9	0.489	5.175	9.45	Pass
4	0.002	0.645	0.0	0.006	0.968	0.00	Pass
5	0.103	1.710	6.0	0.117	2.565	4.57	Pass
6	0.002	0.450	0.0	0.007	0.675	0.00	Pass
7	0.029	1.155	2.6	0.034	1.733	1.95	Pass
8	0.002	0.345	0.0	0.008	0.518	0.00	Pass
9	0.022	0.600	3.7	0.025	0.900	2.77	Pass
10	0.002	0.276	0.0	0.010	0.414	0.00	Pass
11	0.019	0.495	3.7	0.023	0.743	3.10	Pass
12	0.001	0.230	0.0	0.003	0.344	0.00	Pass
13	0.014	0.315	0.0	0.016	0.473	0.00	Pass
14	0.001	0.197	0.0	0.004	0.296	0.00	Pass
15	0.012	0.225	0.0	0.014	0.338	0.00	Pass
16	0.002	0.173	12.7	0.025	0.259	9.72	Pass
17	0.013	0.199	6.3	0.016	0.297	5.45	Pass
18	0.002	0.153	0.0	0.013	0.230	0.00	Pass
19	0.011	0.178	0.0	0.015	0.266	0.00	Pass
20	0.001	0.138	0.0	0.005	0.207	0.00	Pass
21	0.010	0.161	0.0	0.011	0.241	0.00	Pass
22	0.001	0.125	0.0	0.003	0.188	0.00	Pass
23	0.009	0.147	0.0	0.012	0.220	0.00	Pass
24	0.001	0.115	0.0	0.002	0.173	0.00	Pass
25	0.008	0.135	0.0	0.013	0.203	0.00	Pass
26	0.001	0.106	0.0	0.003	0.159	0.00	Pass
27	0.007	0.125	0.0	0.010	0.188	0.00	Pass
28	0.001	0.099	0.0	0.003	0.148	0.00	Pass
29	0.007	0.116	0.0	0.008	0.175	0.00	Pass
30	0.001	0.092	0.0	0.002	0.138	0.00	Pass
31	0.006	0.110	0.0	0.008	0.163	0.00	Pass
32	0.001	0.086	0.0	0.004	0.129	0.00	Pass
33	0.006	0.102	0.0	0.009	0.153	0.00	Pass
34	0.003	0.081	5.4	0.019	0.122	15.36	Pass
35	0.006	0.096	0.0	0.009	0.145	0.00	Pass
36	0.003	0.077	0.0	0.015	0.115	0.00	Pass
37	0.005	0.092	0.0	0.006	0.137	0.00	Pass
38	0.001	0.073	0.0	0.003	0.109	0.00	Pass
39	0.005	0.087	0.0	0.006	0.130	0.00	Pass
40	0.001	0.069	0.0	0.002	0.104	0.00	Pass

Conclusion:

PASS

4.4 Voltage fluctuations (Flicker)

Standard	EN 61000-3-3
Port	AC Mains supply
Voltage	230 V _{AC}
Mode	On mode

P _{ST}	Not applicable
P _{LT}	Not applicable
T _{max} (dt > 3,3%)	≤ 500 ms
d _C	≤ 3,3%
d _{MAX}	≤ 4%

Results

T _{max} (dt > 3,3%)	0,0 ms
Maximum voltage change d _{MAX}	0,800%
Relative Voltage change d _C	<0,050%
Short term flicker P _{ST}	Not applicable*
Long term flicker P _{LT}	Not applicable*

In addition, this test was conducted in accordance with Annex B of EN 61000-3-3:2008.

* The EUT belongs to hand-held tools (portable tools without heating elements), according to EN 61000-3-3, clause A.9, P_{ST} and P_{LT} shall not be evaluated.

Conclusion:

PASS

5 IMMUNITY TEST RESULTS

5.1 Electrostatic discharge immunity

Electrostatic discharges (ESD) are the result of persons or objects that accumulate static electricity due to for instance walking on synthetic carpets. The ESD can influence the operation of equipment or damage its electronics, either by a direct discharge or indirectly by coupling or radiation. Both effects are simulated during the tests.

Requirements

Standard	EN 55014-2
Basic standard	EN 61000-4-2
Port	Enclosure
Performance criterion	B; During the test degradation is allowed. No change of operating state or stored data is allowed.
Air discharges	8 kV
Contact discharges	4 kV
Mode	On mode

Performed tests

Air discharges	✓	4 kV	✓	8 kV		15 kV	✓	2 kV
Contact discharges		2 kV	✓	4 kV		8 kV		
Via coupling planes	✓	Horizontal			✓	Vertical		
Polarity	✓	Positive			✓	Negative		
Set-up		Table-top			✓	Floor standing		
Ambient temperature	21 °C							
Relative Humidity air	48%							

Observations

During the test no loss of performance was observed. After the test the EUT functioned as intended. No unacceptable loss of performance was observed.

Conclusion:

PASS

5.2 Electrical Fast Transient immunity

The EFT immunity test simulates disturbances by bursts of very short transients caused for example by switching off loads such as an AC motor or bouncing relay contacts. The transients are likely to disturb electronics but less likely to cause damage.

Requirements

Standard	EN 55014-2		
Basic standard	EN 61000-4-4		
Performance criterion	B; During the test degradation is allowed. No change of operating state or stored data is allowed.		
Pulse characteristics	5/50 ns		
Peak Voltage; Port	1 kV; AC input power port		
Repetition frequency	✓	5 kHz	2,5 kHz

Performed tests

Tested Voltage; Port	1 kV; AC input power port		
Mode	On mode		
Injection method	✓	CDN	Capacitive clamp
Polarity	✓	Positive	✓ Negative
Set-up		Table-top	✓ Floor standing

Observations

During the test no loss of performance was observed. After the test the EUT functioned as intended. No unacceptable loss of performance was observed.

Conclusion:

PASS

5.3 Surge transient immunity

The surge transient immunity test simulates the surges that are caused by overvoltage due to indirect (induced) lightning transients. The pulse is a slow transient with high-energy contents and due to its long duration may cause damage to an unprotected EUT.

Requirements

Standard	EN 55014-2
Basic standard	EN 61000-4-5
Performance criterion	B; During the test degradation is allowed. No change of operating state or stored data is allowed.
Pulse characteristics	1,2/50 μ s
Peak Voltage; Port	1 kV; AC input power port (Line to line) 2 kV; AC input power port (Line to earth)

Performed tests

Tested Voltage; Port	1 kV; AC input power port (Line to line) 2 kV; AC input power port (Line to earth)			
Mode	On mode			
Polarity	✓	Positive	✓	Negative

Observations

During the test no loss of performance was observed. After the test the EUT functioned as intended. No unacceptable loss of performance was observed.

Conclusion:

PASS

5.4 RF Conducted immunity

During this test the immunity of the equipment for induced or conducted electromagnetic fields is checked. Fields generated by radio and other transmitters cause RF voltages in long cables like the mains network. This test reproduces these induced disturbing voltages by injecting them to the EUT via the cabling.

Requirements

Standard	EN 55014-2
Basic standard	EN 61000-4-6
Performance criterion	A; Operation as intended
Frequency range	0,15 – 230 MHz
Modulation	1 kHz – 80% AM
Test level; Port	3 V; AC input power port

Performed tests

Tested level; Port	3 V; AC input power port		
Mode	On mode		
Frequency range	0,15 – 230 MHz		
Dwell time	3 seconds		
Injection method	✓	CDN-M3	EM clamp

Observations

During the test no loss of performance was observed. After the test the EUT functioned as intended. No unacceptable loss of performance was observed.

Conclusion:

PASS

5.5 Power supply interruptions and dips

Requirements

Basic standard	EN 61000-4-11
Performance criterion	B; During the test degradation is allowed. No change of operating state or stored data is allowed. C; Temporary, self-recoverable loss of function is allowed.

Standard	EN 55014-2		
AC input power port		50 Hz	60 Hz
	C	$U_{NOM} - 30\%$ (25 periods)	(30 periods)
	C	$U_{NOM} - 60\%$ (10 periods)	(12 periods)
	C	$U_{NOM} - 100\%$ (0,5 period)	(0,5 period)

Performed tests

Tested voltage	AC input power port, 240 V _{AC}	
Mode	On mode	
AC input power port	50 Hz	60 Hz
	$U_{NOM} - 30\%$ (25 periods)	$U_{NOM} - 30\%$ (30 periods)
	$U_{NOM} - 60\%$ (10 periods)	$U_{NOM} - 60\%$ (12 periods)
	$U_{NOM} - 100\%$ (0,5 period)	$U_{NOM} - 100\%$ (0,5 period)

Observations

During the test no loss of performance was observed. After the test the EUT functioned as intended. No unacceptable loss of performance was observed.

Conclusion:

PASS

6 IDENTIFICATION OF THE EQUIPMENT UNDER TEST

The photograph shows the tested device.



Figure 3 Conducted Emission test setup



Figure 4 Disturbance power test setup



Figure 5 Harmonics & Flicker & Surge & DIPS test setup



Figure 6 ESD test setup



Figure 7 EFT test setup



Figure 8 CS test setup

----- END -----