Shenzhen CTL Testing Technology Co., Ltd.
Tel:+86-755-89486194 E-Mail:ctl@ctl-lab.com

TEST REPORT

EN 55014-1 / EN 55014-2

Electromagnetic compatibility – Requirements for household appliances, electric tools and similar apparatus.

Part 1: Emission / Part 2: Immunity – Product family standard

Report Reference No..... :	**CTL2008281092-E**
Compiled by (position+printed name+signature).. :	File administrators Youd Wei
Supervised by (position+printed name+signature).. :	Test Engineer Ivan Xie
Approved by (position+printed name+signature).. :	Manager Tracy Qi
Date of issue..... :	Sep. 10, 2020
Testing Laboratory Name..... :	**Shenzhen CTL Testing Technology Co., Ltd**
Address..... :	Floor 1-A, Baisha Technology Park, No.3011, Shahexi Road, Nanshan District, Shenzhen, China 518055
Web..... :	www.ctl-lab.com
Testing location/ procedure..... :	Full application of Harmonised standards ☒ Partial application of Harmonised standards ☐ Other standard testing methods ☐
Applicant's name..... :	**Shenzhenshi Ruisixiang Technology limited**
Address..... :	4/F, Block E, Guancheng Hi-Tech Park, NO.37 Zhen Xing Road, Lou Village, Gong Ming Town, Guang Ming new District, Shenzhen, China
Test specification:	
Standard..... :	**EN 55014-1: 2017** **EN 55014-2: 2015** **EN 61000-3-2: 2019** **EN 61000-3-3: 2013+A1: 2019**
Non-standard test method..... :	/
TRF Originator..... :	Shenzhen CTL Testing Technology Co., Ltd
Master TRF..... :	Dated 2011-01

Test item description..... :	**MASSAGER GUN**
Trade Mark..... :	JETBUS
Test voltage..... :	DC 16.8V from adapter AC 230V/50Hz
Result..... :	**Pass**

E M C -- T E S T R E P O R T

Test Report No. :	CTL2008281092-E	Sep. 10, 2020 Date of issue

Equipment under Test	:	MASSAGER GUN
Model No.	:	L1
Listed Models	:	SM-420
Applicant	:	**Shenzhenshi Ruisixiang Technology limited**
Address	:	4/F, Block E, Guancheng Hi-Tech Park, NO.37 Zhen Xing Road, Lou Village, Gong Ming Town, Guang Ming new District, Shenzhen, China
Manufacturer	:	**Shenzhenshi Ruisixiang Technology limited**
Address		4/F, Block E, Guancheng Hi-Tech Park, NO.37 Zhen Xing Road, Lou Village, Gong Ming Town, Guang Ming new District, Shenzhen, China

Test Result	**Pass**

The test report merely corresponds to the test sample.

History of this test report

Report No.	Version	Description	Issued Date
CTL2008281092-E	V1.0	Initial Issued Report	Sep. 10, 2020

Contents

1 TEST STANDARDS

The tests were performed according to following standards:

EN 55014-1: 2017 Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus -- Part 1: Emission
EN 55014-2: 2015 Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus -- Part 2: Immunity - Product family standard
EN 61000-3-2: 2019 Electromagnetic compatibility (EMC) -- Part 3-2: Limits - Limits for harmonic current emissions (equipment input current up to and including 16 A per phase)
EN 61000-3-3: 2013+A1: 2019 Electromagnetic compatibility (EMC) -- Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection

2 SUMMARY

2.1 General Remarks

Date of receipt of test sample : Sep. 03, 2020

Sampling and Testing commenced on : Sep. 03, 2020

Testing concluded on : Sep. 10, 2020

2.2 Equipment Under Test

Power supply system utilised

Power supply voltage : ■ 230V / 50 Hz o 115V / 60Hz
■ 16.8 V DC o 24 V DC
o Other (specified in blank below)

DC 16.8V from adapter AC 230V/50Hz

Description of test modes

The EUT were tested under the following modes, the final worst mode was marked in bold face and recorded in this report.

RADIATED EMISSION TEST:

Description of Test Mode	Test Voltage
Charging	**AC 230V**
WORKING	DC 16.8V

Note:
For the test results, the EUT had been tested with all conditions. But only the worst case was showed in test report.

2.3 Short description of the Equipment under Test (EUT)

The EUT is a MASSAGER GUN

For more details, refer to the user's manual of the EUT.

EUT operation mode

The equipment under test was operated during the measurement under the following conditions:

Test program (customer specific)

Emissions tests…….: According to EN 55014-1, searching for the highest disturbance.

Immunity tests ……..: According to EN 55014-2, searching for the highest susceptivity.

Harmonic current……. : According to EN 61000-3-2, searching for the highest disturbance.

Voltage fluctuation……. : According to EN 61000-3-3, searching for the highest disturbance.

EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

■ - supplied by the manufacturer

o - supplied by the lab

2.4 Performance level

The test results shall be classified in terms of the loss of function or degradation of performance of the equipment under test, relative to a performance level defined by its manufacturer or the requestor of the test, or agreed between the manufacturer and the purchaser of the product.

Definition related to the performance level:

■ based on the used product standard

o based on the declaration of the manufacturer, requestor or purchaser

Criterion A:
Definition: normal performance within limits specified by the manufacturer, requestor or purchaser:

The apparatus shall continue to operate as intended during the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.

Criterion B:
Definition: temporary loss of function or degradation of performance which ceases after the disturbance ceases, and from which the equipment under test recovers its normal performance, without operator intervention:

The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. During the test, degradation of performance is allowed, however. No change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.

Criterion C:
Definition: temporary loss of function or degradation of performance, the correction of which requires operator intervention:

Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls, or by any operation specified in the instructions for use.

3 TEST ENVIRONMENT

3.1 Address of the test laboratory

Shenzhen CTL Testing Technology Co., Ltd.
Floor 1-A, Baisha Technology Park, No. 3011, Shahexi Road, Nanshan, Shenzhen 518055 China

3.2 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

IC Registration No.: 9618B

The 3m alternate test site of Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration No.: 9618B on November 13, 2013.

FCC-Registration No.: 399832

Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 399832, December 08, 2017.

Certificated by A2LA, USA
Registration No.:4343.01
Date of registration: December 27, 2017

3.3 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15-35 ° C
Humidity:	30-60 %
Atmospheric pressure:	950-1050mbar

3.4 Test Description

Emission Measurement		
Radiation Emission(30~1000MHz)	EN 55014-1:2017	PASS
Conducted Disturbance	EN 55014-1:2017	PASS
Power Clamp Radiation	EN 55014-1:2017	PASS
Harmonic Current	EN 61000-3-2: 2019	N/A
Voltage Fluctuation and Flicker	EN 61000-3-3: 2013+A1: 2019	PASS
Immunity Measurement		
Electrostatic Discharge	EN 55014-2: 2015 EN 61000-4-2:2009	PASS
Electrical Fast Transient/Burst Test	EN 55014-2: 2015 EN 61000-4-4:2012	PASS
Surge Test	EN 55014-2: 2015 EN 61000-4-5:2014	PASS
Conducted Susceptibility Test	EN 55014-2: 2015 EN 61000-4-6:2014	PASS
Voltage Dips and Interruptions Test	EN 55014-2: 2015 EN 61000-4-11:2004	PASS

Remark:
1. The test result PASS and /or FAIL has no relationship with the measurement uncertainty.

3.5 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the Shenzhen CTL Testing Technology Co., Ltd. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for CTL laboratory is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission(chamber1)	30~1000MHz	±3.20dB	(1)
Radiated Emission(chamber2)	30~1000MHz	±3.53dB	(1)
Conducted Emission	0.15~30MHz	±2.66dB	(1)
Disturbance Power	30~300MHz	±2.90dB	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3.6 Equipments Used during the Test

Radiated Emission(chamber 1)						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	ULTRA-BROADBAND ANTENNA	Sunol Sciences Corp.	JB1 Antenna	A061713	2020/04/08	2023/04/07
2	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	1166.5950.03	2020/05/18	2021/05/17
Software:						
Name of Software:			Version:			
ES-L1(Below 1GHz)			V1.71			

Conducted Emission						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	1166.5950.03	2020/05/18	2021/05/17
2	LISN	ROHDE & SCHWARZ	ESH2-Z5	860014/010	2020/05/15	2021/05/14
3	Limitator	HP	11947A	N/A	2020/05/15	2021/05/14
Software:						
Name of Software:			Version:			
ES-L1			V1.71			

Harmonic Current/ Voltage Fluctuation and Flicker						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	Harmonic And Flicker Analyzer	Voltech	PM6000	N/A	2020/05/15	2021/05/14
Software:						
Name of Software:			Version:			
IEC61000-3 for PM6000			Release 1.24.12			

Electrostatic Discharge						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	ESD Simulator	TESEQ AG	NSG 437	1058	2019/09/24	2020/09/23

Electrical Fast Transient/Surge/Dips						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	Ultra Compact Simulator	HAEFELY	ECOMPACT4	174887	2019/09/23	2020/09/22
Software:						
Name of Software:			Version:			
EMV Check 2000			V1.27b			

Conducted Susceptibility (CS) :						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	Conducted Disturbances test system	SCHLODER	CDG 6000	N/A	2020/05/15	2021/05/14
2	Amplifier	SCHLODER	4N100W-6DB	N/A	2020/05/15	2021/05/14
3	CDN	SCHLODER	CDN M2+M3	A2210225/2013	2020/05/15	2021/05/14
Software:						
Name of Software:			Version:			
IEC/EN61000-4-6 Application software 10KHz Version			1.2.0(25.03.2013)			

Disturbance Power						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	1166.5950.03	2020/05/18	2021/05/17
2	Absorbing Clamp	Luthi	MDS 21	4035	2020/05/30	2021/05/29
Software:						
Name of Software:			Version:			
ES-L1			V1.71			

4 TEST CONDITIONS AND RESULTS

4.1 Radiated Emission

For test instruments and accessories used see section 3.6.

4.1.1 Description of the test location

Test location: Radiation Lab

4.1.2 Limits of disturbance

Frequency (MHz)	Distance (Meters)	Field Strengths Limits (dBμV/m)
30 ~ 230	3	40
230 ~ 1000	3	47

Note: (1) The tighter limit shall apply at the edge between two frequency bands.

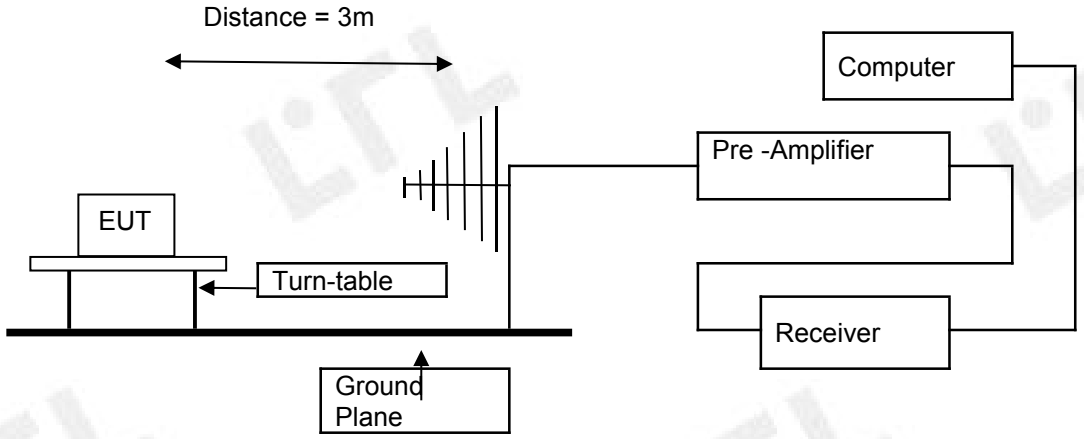
(2) Distance refers to the distance in meters between the test instrument antenna and the closest point of any part of the E.U.T.

4.1.3 Description of the test set-up

4.1.3.1 Operating Condition

The EUT is set to work shall be carried out with full load mode during the test, and the maximum emanating results are recorded.

4.1.3.2 Configuration of test setup



4.1.4 Test result

The requirements are **Fulfilled**

Band Width: 120KHz

Frequency Range: 30MHz to 1000MHz

Remarks: The limits are kept. For detailed results, please see the following page(s).

Shenzhen CTL Testing Technology Co.,Ltd

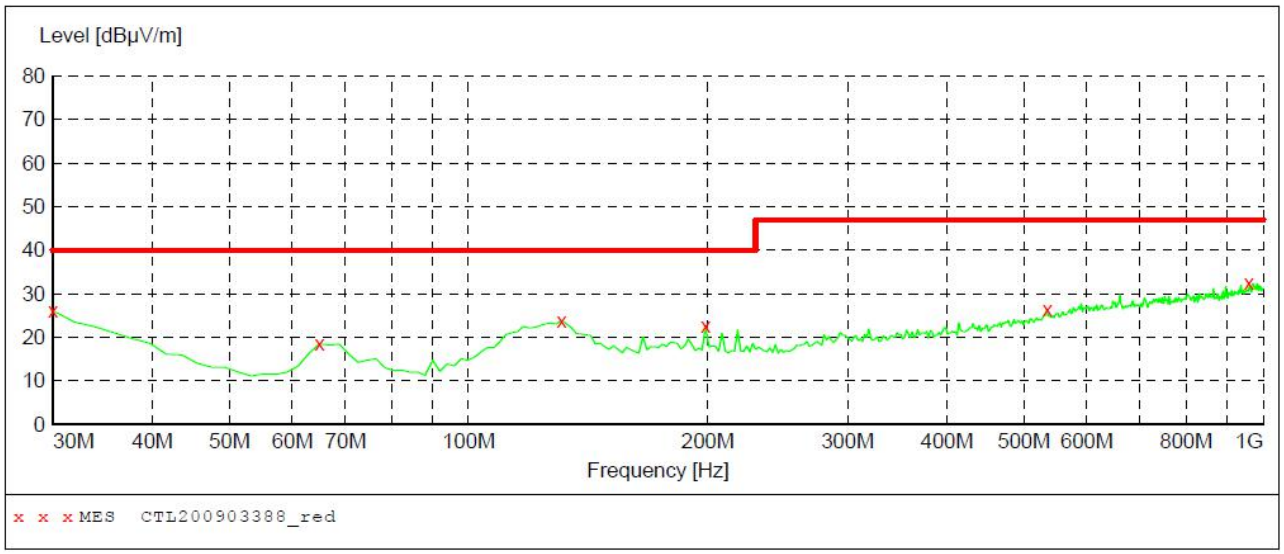
Radiation Emission Test EN 55014-1

EUT:	L1
Manufacturer:	Shenzhenshi Ruisixiang Technology limited
Operating Condition:	CHARGING
Test Site:	3m Chamber 1
Operator:	DC
Test Specification:	AC 230V/50Hz
Comment:	/
Start of Test:	03/09/2020 / 23:22:25

SWEEP TABLE: "test (30M-1G)"

Short Description: Field Strength

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	300.0 ms	100 kHz	JB1



MEASUREMENT RESULT: "CTL200903388_red"

03/09/2020 23:24

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
30.000000	26.10	22.2	40.0	13.9	---	0.0	0.00	HORIZONTAL
64.920000	18.50	8.4	40.0	21.5	---	0.0	0.00	HORIZONTAL
130.880000	23.90	15.3	40.0	16.1	---	0.0	0.00	HORIZONTAL
198.780000	22.60	14.6	40.0	17.4	---	0.0	0.00	HORIZONTAL
534.400000	26.40	21.5	47.0	20.6	---	0.0	0.00	HORIZONTAL
959.260000	32.50	27.5	47.0	14.5	---	0.0	0.00	HORIZONTAL

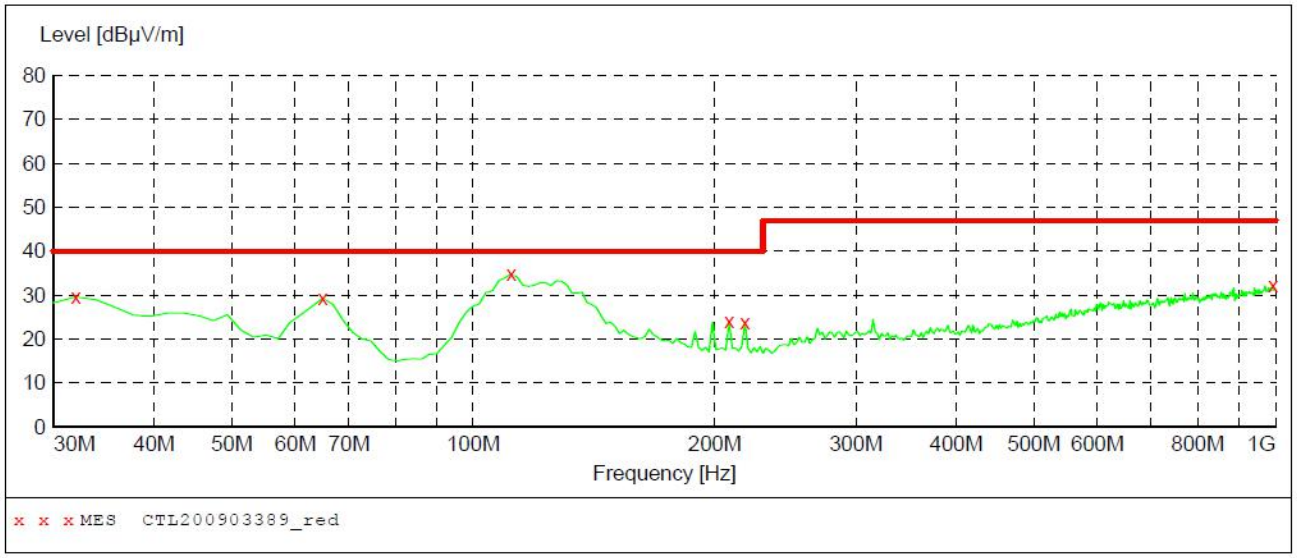
Shenzhen CTL Testing Technology Co.,Ltd

Radiation Emission Test EN 55014-1

```
EUT:                    L1
Manufacturer:           Shenzhenshi  Ruisixiang  Technology limited
Operating Condition:    CHARGING
Test Site:              3m Chamber 1
Operator:               DC
Test Specification:     AC 230V/50Hz
Comment:                /
Start of Test:          03/09/2020 / 23:24:28
```

SWEEP TABLE: "test (30M-1G)"

Short Description:			Field Strength		
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	300.0 ms	100 kHz	JB1



MEASUREMENT RESULT: "CTL200903389_red"

03/09/2020 23:25

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
31.940000	29.60	20.9	40.0	10.4	---	0.0	0.00	VERTICAL
64.920000	29.30	8.4	40.0	10.7	---	0.0	0.00	VERTICAL
111.480000	34.80	13.7	40.0	5.2	---	0.0	0.00	VERTICAL
208.480000	24.00	14.5	40.0	16.0	---	0.0	0.00	VERTICAL
218.180000	23.90	14.3	40.0	16.1	---	0.0	0.00	VERTICAL
992.240000	32.40	28.1	47.0	14.6	---	0.0	0.00	VERTICAL

4.2 Conducted disturbance

For test instruments and accessories used see section 3.6.

4.2.1 Description of the test location

Test location: Conduction Lab

4.2.2 Limits of disturbance

Frequency Range (MHz)	Limits (dBuV)	
	Quasi-Peak	Average
0.150 ~ 0.500	66~56	59~46
0.500 ~ 5.000	56	46
5.000~30.000	60	50

Note: (1) The tighter limit shall apply at the edge between two frequency bands.

4.2.3 Description of the test set-up

According to clause 5.2.2.2 in EN 55014-1:2017 “the general principle to be followed in the application of the artificial hand is that the metal foil shall be wrapped around all handles” and “when the casing of the appliance is of insulating material, metal foil shall be wrapped round the handles”, application of the artificial hand is used.

4.1.3.1 Operating Condition

The EUT is turned on during the test, and the maximum emanating results are recorded.

4.2.4 Test result

The requirements are **Fulfilled**

Band Width: 9 KHz

Frequency Range: 0.15MHz to 30 MHz

Remarks: The limits are kept. For detailed results, please see the following page(s).

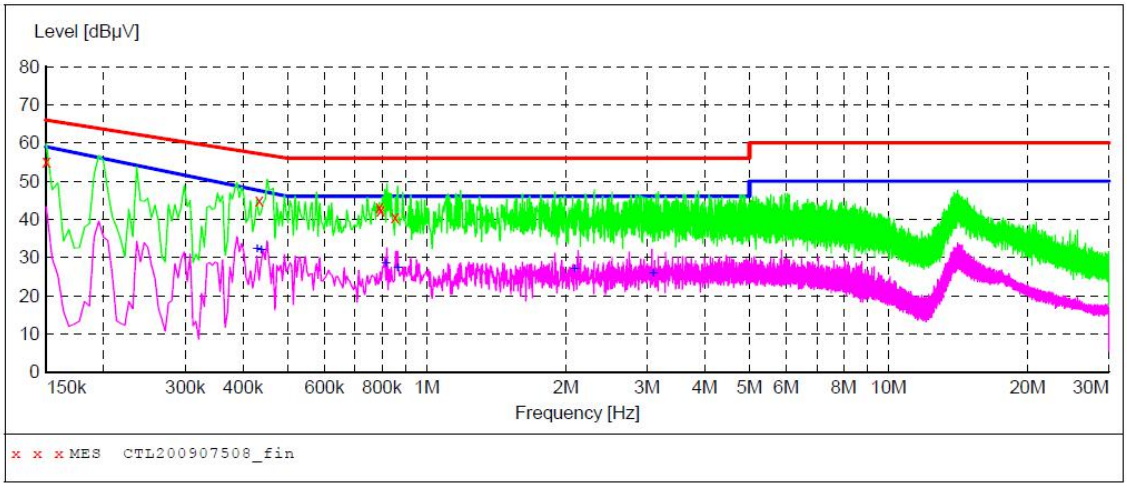
Shenzhen CTL Testing Technology Co., Ltd.

Voltage Mains Test EN 55014-1

```
EUT:                  L1
Manufacturer:         Shenzhenshi Ruisixiang Technology limited
Operating Condition:  WORKING
Test Site:            /
Operator:             ZGH
Test Specification:   AC 230V/50Hz
Comment:              /
Start of Test:        2020-9-7 / 17:00:28
```

SCAN TABLE: "Voltage (9K-30M)FIN"

Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "CTL200907508_fin"

2020-9-7 17:03

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	55.10	11.2	66	10.9	QP	L1	GND
0.433500	45.00	11.2	57	12.2	QP	L1	GND
0.789000	43.30	11.2	56	12.7	QP	L1	GND
0.793500	42.20	11.2	56	13.8	QP	L1	GND
0.852000	40.70	11.2	56	15.3	QP	L1	GND

MEASUREMENT RESULT: "CTL200907508_fin2"

2020-9-7 17:03

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.429000	32.00	11.2	48	15.7	AV	L1	GND
0.438000	31.80	11.2	47	15.6	AV	L1	GND
0.816000	28.30	11.2	46	17.7	AV	L1	GND
0.865500	27.10	11.2	46	18.9	AV	L1	GND
2.094000	26.80	11.3	46	19.2	AV	L1	GND
3.093000	25.60	11.3	46	20.4	AV	L1	GND

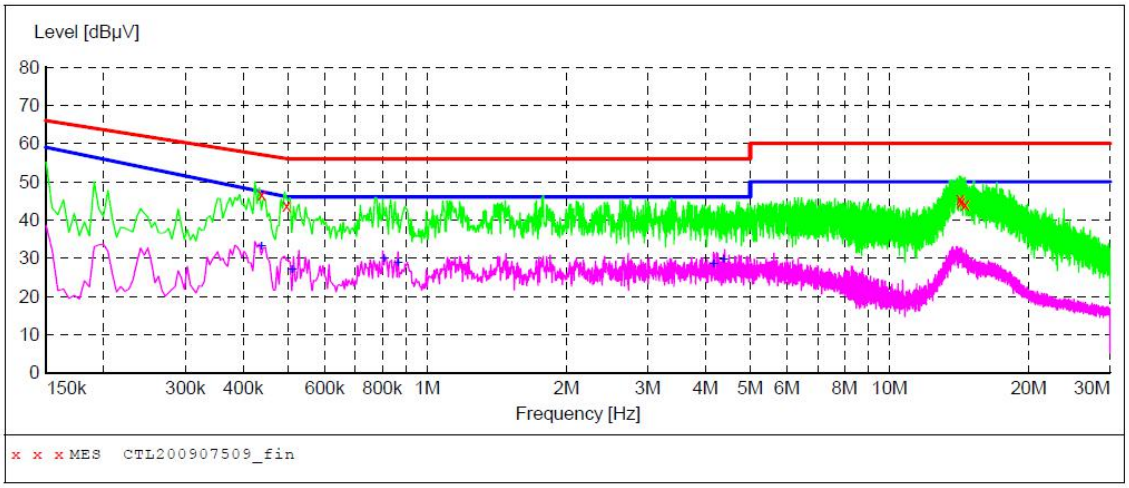
Shenzhen CTL Testing Technology Co., Ltd.

Voltage Mains Test EN 55014-1

```
EUT:                  L1
Manufacturer:         Shenzhenshi Ruisixiang Technology limited
Operating Condition:  WORKING
Test Site:            /
Operator:             ZGH
Test Specification:   AC 230V/50Hz
Comment:              /
Start of Test:        2020-9-7 / 17:08:45
```

SCAN TABLE: "Voltage (9K-30M)FIN"

Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "CTL200907509_fin"

2020-9-7 17:11

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.438000	46.60	11.2	57	10.5	QP	N	GND
0.496500	43.90	11.2	56	12.2	QP	N	GND
14.226000	45.40	10.9	60	14.6	QP	N	GND
14.275500	44.80	11.0	60	15.2	QP	N	GND
14.572500	44.10	11.0	60	15.9	QP	N	GND

MEASUREMENT RESULT: "CTL200907509_fin2"

2020-9-7 17:11

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.438000	33.00	11.2	47	14.4	AV	N	GND
0.510000	27.00	11.2	46	19.0	AV	N	GND
0.807000	29.90	11.2	46	16.1	AV	N	GND
0.865500	28.70	11.2	46	17.3	AV	N	GND
4.164000	28.30	11.3	46	17.7	AV	N	GND
4.380000	29.40	11.3	46	16.6	AV	N	GND

4.3 Disturbance power

For test instruments and accessories used see section 3.6.

4.3.1 Description of the test location

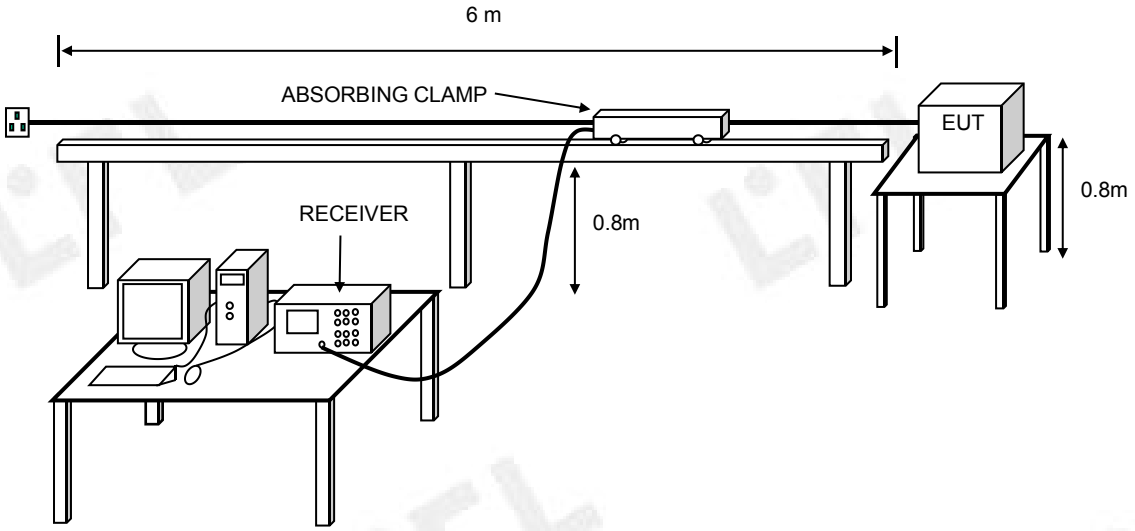
Test location: Conduction Lab

4.3.2 Limits of disturbance

Frequency Range (MHz)	Limits (dBpW)	
	Quasi-Peak	Average
30 ~ 300	45 ~ 55	35 ~ 45

Note: (1) The limit line is a linear line.

4.3.3 Description of the test set-up



4.3.4 Test result

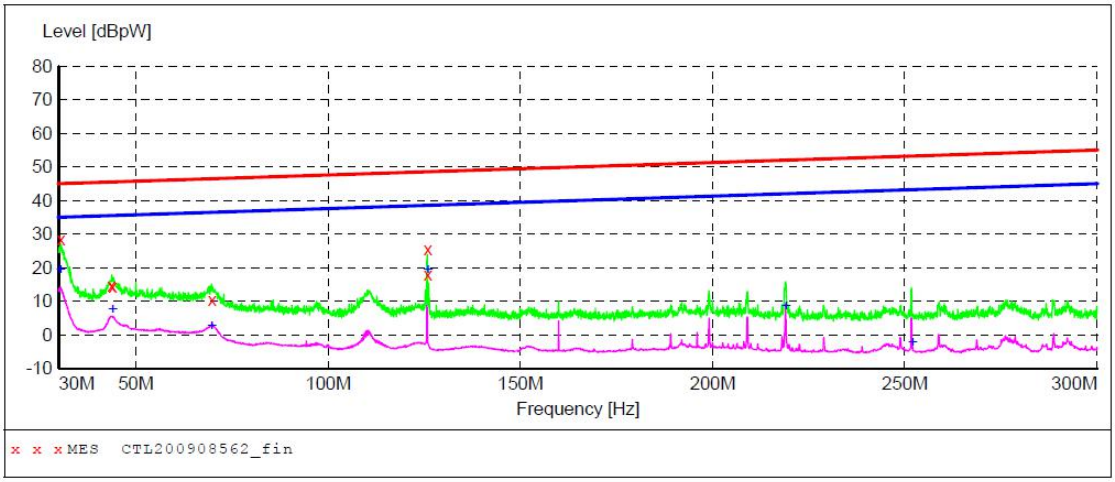
Shenzhen CTL Testing Technology Co., Ltd

Power Clamp Test EN 55014-1

```
EUT:                  L1
Manufacturer:         Shenzhenshi Ruisixiang Technology limited
Operating Condition:  WORKING
Test Site:            /
Operator:             ZGH
Test Specification:   AC 230V/50Hz
Comment:              /
Start of Test:        2020-9-8 / 10:48:38
```

SCAN TABLE: "POWER(30M-300M)FIN"

Short Description: EN 55013 Power



MEASUREMENT RESULT: "CTL200908562_fin"

2020-9-8 10:51

Frequency MHz	Level dBpW	Transd dB	Limit dBpW	Margin dB	Det.	Position cm
30.540000	28.30	0.8	45	16.7	QP	0.0
43.740000	14.50	3.8	46	31.0	QP	0.0
43.980000	14.40	3.8	46	31.1	QP	0.0
69.900000	10.40	1.7	47	36.1	QP	0.0
125.940000	17.90	-1.8	49	30.7	QP	0.0
126.000000	25.50	-1.8	49	23.1	QP	0.0

MEASUREMENT RESULT: "CTL200908562_fin2"

2020-9-8 10:51

Frequency MHz	Level dBpW	Transd dB	Limit dBpW	Margin dB	Det.	Position cm
30.480000	19.40	0.8	35	15.6	AV	0.0
44.040000	7.30	3.8	36	28.2	AV	0.0
69.780000	2.50	1.7	37	34.0	AV	0.0
126.000000	19.30	-1.8	39	19.3	AV	0.0
219.060000	8.60	-2.7	42	33.4	AV	0.0
252.000000	-2.50	-2.4	43	45.7	AV	0.0

4.4 Harmonic current

For test instruments and accessories used see section 3.6.

4.4.1 Description of the test location

Test location: Harmonic & Flicker Room

4.4.2 Limits of Harmonic Current

Test configuration and procedure see clause 7.1 of standard EN 61000-3-2:2019.

4.4.3 Description of the test set-up

4.4.3.1 Operating Condition

The EUT shall operate in the mode of operation described in Section 2.3, and the maximum emanating results are recorded

4.4.3.2 Test Configuration and Procedure

Test configuration and procedure see clause 6.2.2 and Appendix C of standard EN 61000-3-2:2019.

4.4.4 Test result

The test is not applicable.

4.5 Voltage fluctuations and flicker

For test instruments and accessories used see section 3.6.

4.6.1 Description of the test location

Test location: Harmonic & Flicker Test Room

4.6.2 Limits of Voltage Fluctuation and Flicker

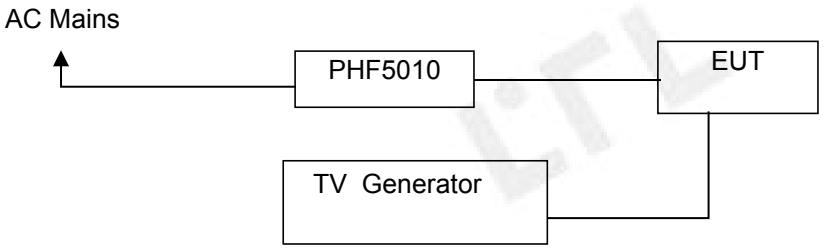
Test configuration and procedure see clause 5 of standard EN 61000-3-3: 2013+A1: 2019.

4.6.3 Description of the test set-up

4.6.3.1 Operating Condition

The EUT is set to work shall be carried out with Play mode during the test, and the maximum emanating results are recorded.

4.6.3.2 Configuration of test setup



4.6.4 Test result

The requirements are **Fulfilled**

Remarks: The limits are kept. For detailed results, please see the following page(s).

CTL

Product:	L1	2020 Sep 8 14:06
Serial no:		Page 1 of 1
Description:		
Result Name:		

Voltech IEC61000-3 Windows Software 1.24.12	Test Date: 2020 Sep 8 11:58

Type of Test: Flickermeter Test - Table

Power Analyzer: Voltech PM6000 SN: 200006700717 Firmware Version: v1.22.07RC6

Channel(s):

1. SN: 090015502540, 28 Adjusted Date: 20 JUN 2013. 2. SN:None Adjusted Date:None

3. SN:None Adjusted Date:None 4. SN:None Adjusted Date:None

5. SN:None Adjusted Date:None 6. SN:None Adjusted Date:None

Shunt(s):

1. SN: 091024303148, 4 Adjusted Date: 20 JUN 2013. 2. SN:None Adjusted Date:None

3. SN:None Adjusted Date:None 4. SN:None Adjusted Date:None

5. SN:None Adjusted Date:None 6. SN:None Adjusted Date:None

AC Source: Mains / Manual Source

Overall Result: **PASS**

Notes:
Plt test duration 120 minutes
Measurement method - Voltage

	Plt
Limit	0.650
Reading	0.090

	Pst	dc (%)	dmax (%)	d(t) > 3.3%(ms)
Limit	1.000	3.300	4.000	500
Reading 1	0.088	0.000	0.883	0
Reading 2	0.089	0.000	0.909	0
Reading 3	0.089	0.000	0.931	0
Reading 4	0.090	0.000	0.946	0
Reading 5	0.090	0.000	0.951	0
Reading 6	0.090	0.000	0.958	0
Reading 7	0.091	0.000	0.964	0
Reading 8	0.091	0.000	0.970	0
Reading 9	0.091	0.000	0.972	0
Reading 10	0.091	0.000	0.975	0
Reading 11	0.091	0.000	0.983	0
Reading 12	0.091	0.000	0.987	0

4.6 Electrostatic discharge

For test instruments and accessories used see section 3.6.

4.6.1 Description of the test location and date

Test location: 1# EMC Test Room

Date of test: Sep. 07, 2020

Operator: Wei

4.6.2 Severity levels of electrostatic discharge

4.6.2.1 Severity level: Contact Discharge at ±4KV Air Discharge at±8KV

Level	Test Voltage Contact Discharge (KV)	Test Voltage Air Discharge (KV)
1	2	2
2	4	4
3	6	8
4	8	15
X	Special	Special

4.6.2.2 Performance criterion: **B**

4.6.3 Description of the test set-up

4.6.3.1 Operating Condition

The EUT is on mode during the test, and the results of the maximum susceptivity are recorded.

4.6.3.2 Test Configuration and Procedure:

Air Discharge:

－This test is done on a non-conductive surfaces. The round discharge tip of the Electrostatic Discharge simulator shall be approached as fast as possible then to touch the EUT. After each discharge, the simulator shall be removed from the EUT. The simulator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed

Contact Discharge**:**

－All the procedure shall be same as air discharge, except using the acute discharge tip. The top end of the Electrostatic Discharge simulator is touch the EUT all the time when the simulator is re-triggered for a new single discharge and repeated 10 times for each pre-selected test point.

Indirect Discharge:

－The vertical coupling plane(VCP) is placed 0.1m away from EUT. The top end of Electrostatic Discharge simulator should aim at the center of one border of the VCP for at least 10 times discharge.

－The top end of Electrostatic Discharge simulator should place at the point 0.1m away from EUT on the horizontal coupling plane(HCP). At least 10 times discharge should be done for every pre-selected point around EUT.

Record any performance degradation of the EUT during the test and judge the test result according to performance criterion.

4.6.4 Test specification:

Contact discharge voltage:	■ 2 kV	■ 4 kV	
Air discharge voltage:	■ 2 kV	■ 4 kV	■ 8 kV
Events(every polarity) /per point:	■ 10		
Time between events:	■ 1 s		
Type of discharge:	Direct discharge	■ Air discharge ■ Contact discharge	
	Indirect discharge	■ Contact discharge	
Polarity:	■ Positive	■ Negative	
Discharge location:	■ all external locations accessible by hand		
	■ horizontal coupling plane (HCP)		
	■ vertical coupling plane (VCP)		

4.6.5 Test result

The requirements are **Fulfilled** Performance Criterion: **B**

Remarks: During the test no deviation was detected to the selected operation mode(s).

4.7 Electrical fast transients / Burst

For test instruments and accessories used see section 3.6.

4.7.1 Description of the test location and date

Test location: 2# EMC Test Room

Date of test: Sep. 07, 2020

Operator: Wei

4.7.2 Severity levels of electrical fast transients / Burst

4.9.2.1 Severity level: ±1000V for AC power supply lines

Open circuit output test voltage and repetition rate of the impulses		
Level	On power port, PE	
	V peak(KV)	Repetition rate (KHz)
1.	0.5	5 or 100
2.	1	5 or 100
3.	2	5 or 100
4.	4	5 or 100
X	Special	Special

4.9.2.2 Performance criterion: B

4.7.3 Description of the test set-up

4.7.3.1 Operating Condition

The EUT is ON during the test, and the results of the maximum susceptive results are recorded.

4.7.3.2 Test Configuration and Procedure

For AC power input ports**:**

—The EUT is connected to coupling/decoupling network which couples the EFT signal to power input lines. During the test, both polarities of the test voltage should be applied and the duration of the test can't be less than 1mins.

Without signal / control lines and DC power lines, The EUT is unnecessary to test on these mentioned ports.

Record any performance degradation of the EUT during the test and judge the test result according to performance criterion.

4.7.4 Test specification:

Coupling network: ■ 0.5 kV ■ 1 kV □ 2 kV

Coupling clamp: □ 0.5 kV □ 1 kV

Burst frequency: ■ 5.0 kHz

Coupling duration: ■ 120 s

Polarity: ■ positive ■ negative

4.7.5 Coupling points

Cable description: AC power line : L, N, L+N

Screening:	o screened	■ unscreened
Status:	o passive	■ active
Signal transmission:	■ analogue	o digital
Length:	■ 0.8 m	

4.7.6 Test result

The requirements are **Fulfilled** Performance Criterion: **B**

Remarks: During the test no deviation was detected to the selected operation mode(s).

4.8 Surge

For test instruments and accessories used see section 3.6.

4.8.1 Description of the test location and date

Test location: 2# EMC Test Room

Date of test: Sep. 07, 2020

Operator: Wei

4.8.2 Severity levels of surge

4.10.2.1 Severity level: line to line +/-1KV ;

Level	Test Voltage (KV)
1	0.5
2	1.0
3	2.0
4	4.0
*	Special

4.10.2.2 Performance criterion: **B**

4.8.3 Description of the test set-up

4.8.3.1 Operating Condition

The EUT is ON during the test, and the results of the maximum susceptive results are recorded.

4.8.3.2 Test Configuration and Procedure

In this test, the 1.2/50us& 8/20us surge generator must be used for AC power ports. The voltage for line to earth coupling mode is 1 time more than that for line to line. At least 5 positive and 5 negative (polarity) surge signal with a maximum 1/min repetition rate are injected to AC power lines from 2 different phase angle(90°, 270°) during the test.

Record any performance degradation of the EUT during the test and judge the test result according to performance criterion.

4.8.4 Test specification:

Pulse amplitude-Power line sym.: Source impedance: 2 Ω	■ 0.5 kV ■ 1 kV □ 2 kV □ 4 kV
Pulse amplitude-Power line unsym: Source impedance: 12 Ω	□ 0.5 kV □ 1 kV □ 2 kV □ 4 kV
Number of surges:	■ 5 Surges/Phase angle
Phase angle:	□ 0 ° ■ 90 ° □ 180 ° ■ 270 °
Repetition rate:	■ 60 s
Polarity:	■ positive ■ negative

4.8.5 Coupling points

Cable description: AC power line: L+N

Screening:	o screened	■ unscreened
Status:	o passive	■ active
Signal transmission:	■ analogue	o digital
Length:	■ 0.8 m	

4.8.6 Test result

The requirements are **Fulfilled** Performance Criterion: **B**

Remarks: During the test no deviation was detected to the selected operation mode(s).

4.9 Conducted disturbances induced by radio-frequency fields

For test instruments and accessories used see section 3.6.

4.9.1 Description of the test location date

Test location: 3# EMC Test Room

Date of test: Sep. 07, 2020

Operator: Wei

4.9.2 Severity levels of conducted disturbances induced by radio-frequency fields

4.11.2.1 Severity Level: 3V

Level	Field Strength (V)
1.	1
2.	3
3.	10
X	Special

4.11.2.2 Performance criterion: **A**

4.9.3 Description of the test set-up

4.9.3.1 Operating Condition

The EUT is ON during the test, and the results of the maximum susceptive results are recorded.

4.9.3.2 Test Configuration and Procedure

EUT is placed on an insulating support of 0.1m high above a ground reference plane. It must be 0.3m away the CDN (coupling and decoupling network) of which the bottom is made of metallic material and placed directly on the ground plane. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible). The disturbance signal amplified by amplifier is injected to EUT through CDN.

Record any performance degradation of the EUT during the test and judge the test result according to performance criterion.

4.9.4 Test specification:

Frequency range: ■ 0.15 MHz to 230 MHz

Test voltage: ■ 3 V

Modulation: ■ AM: 80 %
■ sinusoidal 1000Hz

Frequency step: ■ 1 % with 1 s dwell time

4.9.5 Coupling points

Cable description (Port1): AC power line

Screening:	o screened	■ unscreened
Status:	o passive	■ active
Signal transmission:	■ analogue	o digital
Length:	■ 0.8 m	

4.9.6 Test result

The requirements are **Fulfilled** Performance Criterion: **A**

Remarks: During the test no deviation was detected to the selected operation mode(s).

4.10 Voltage dips and short interruptions

For test instruments and accessories used see section 3.6.

4.10.1 Description of the test location and date

Test location: 2# EMC Test Room

Date of test: Sep. 07, 2020

Operator: Wei

4.10.2 Severity levels of voltage Dips and Interruptions

Test Level (%Ut)	Voltage Dip And Short Interruptions (%Ut)	Performance Criterion	Duration (In Period)
0	100	C	0.5
70	30	C	25
40	60	C	10

4.10.3 Description of the test set-up

4.10.3.1 Operating Condition

The EUT is ON during the test, and the results of the maximum susceptive results are recorded.

4.10.3.2 Test Configuration and Procedure

EUT is connected to the simulator according to the setup outline of 12.3. When conducting the test level of 0.5 period duration, make sure that it shall start at the phase angle of 0°and 180°

4.10.4 Test specification:

Nominal Mains Voltage (V_N): ■ 230 V AC

Number of voltage fluctuations: ■ 3

Level of reduction(dip) / duration: ■ 100 % / 10ms ■ 30 % / 500ms ■ 60 % / 200ms

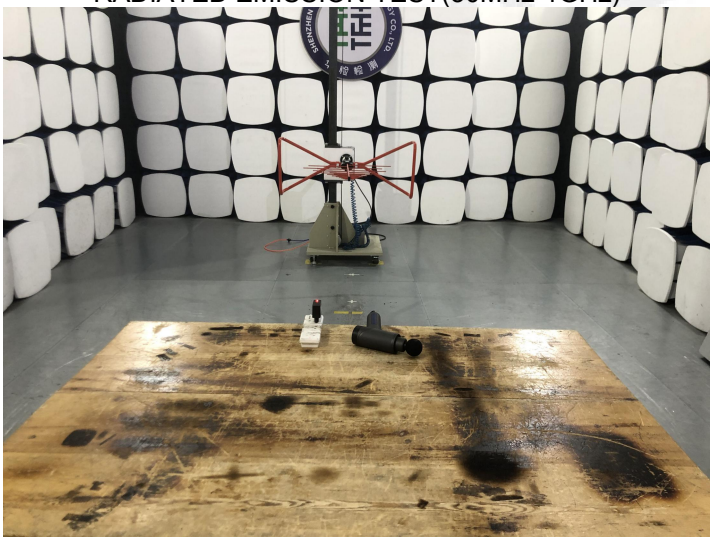
4.10.5 Test result

The requirements are **Fulfilled**
Performance Criterion **See section 4.11.2**

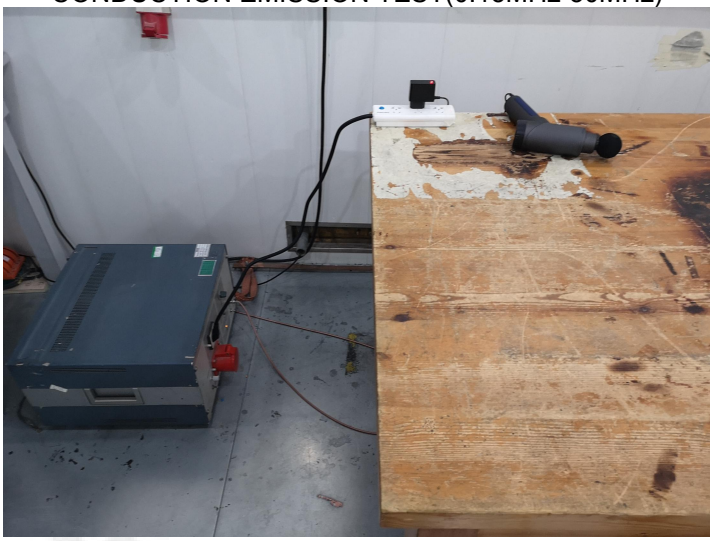
Remarks: During the test no deviation was detected to the selected operation mode(s).

5 Test Setup Photos

RADIATED EMISSION TEST(30MHz-1GHz)

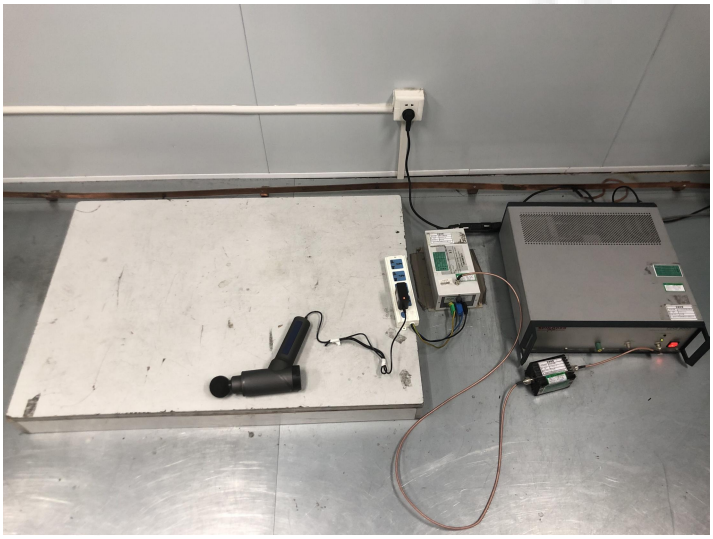


CONDUCTION EMISSION TEST(0.15MHz-30MHz)

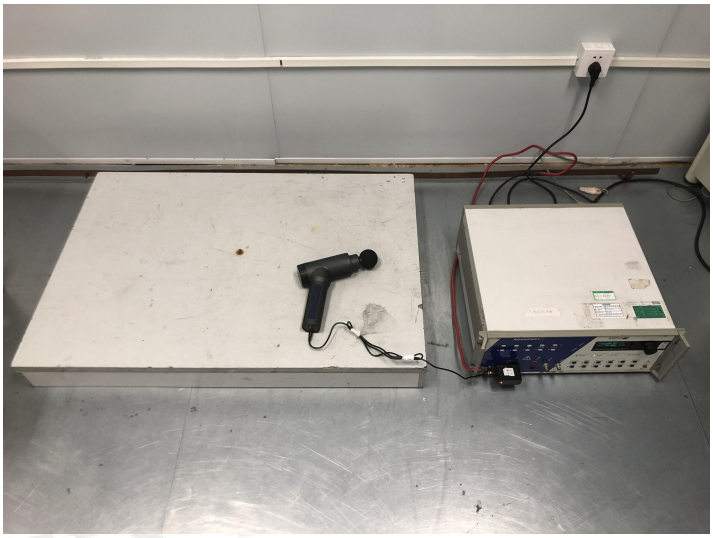


HARMONIC & FLICKER TEST

CONDUCTED SUSCEPTIBILITY TEST

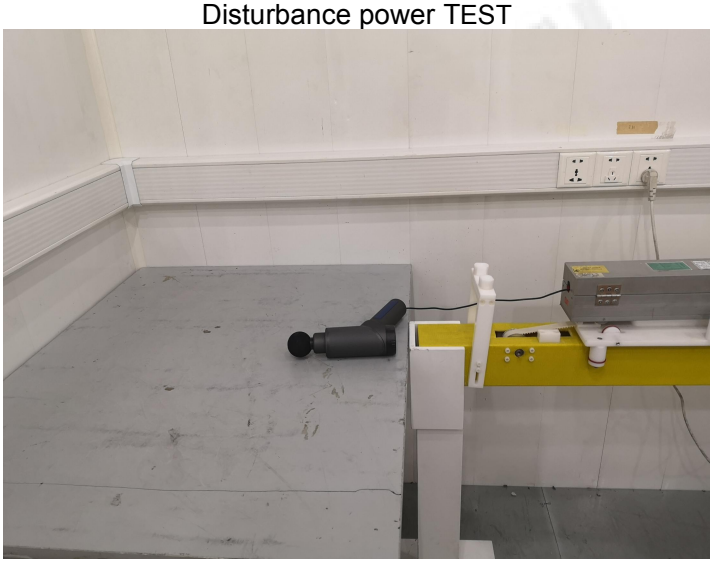


EFT TEST&SURGE TEST&VOLTAGE DIPS AND INTERRUPTIONS TEST

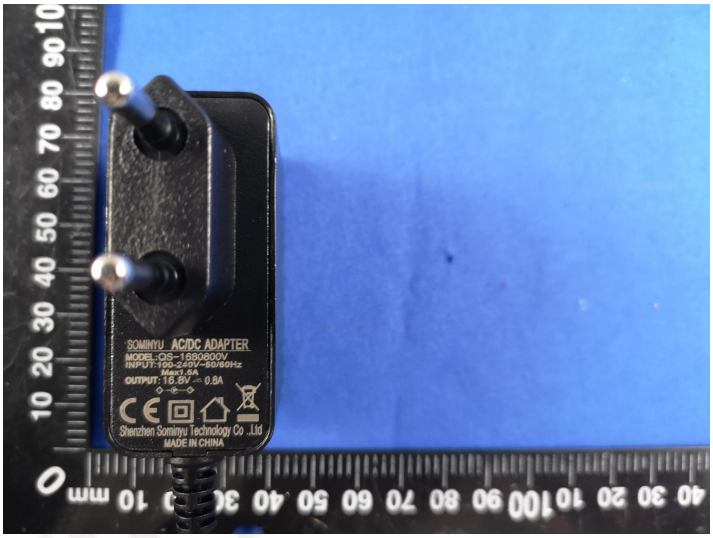


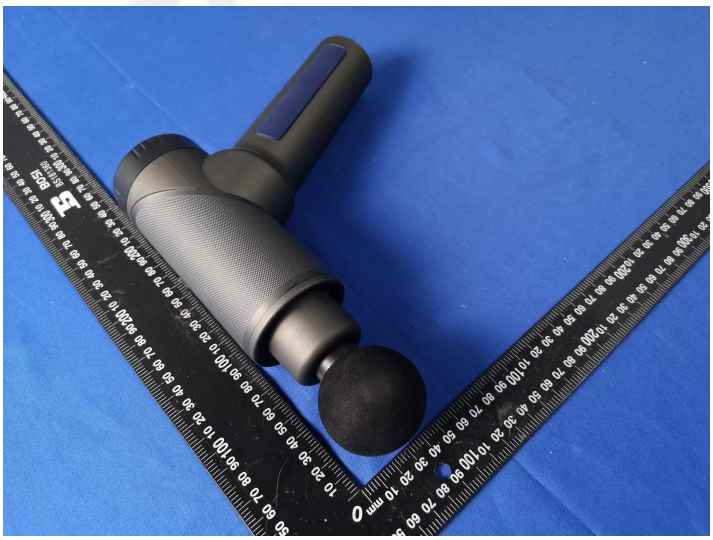
ESD TEST

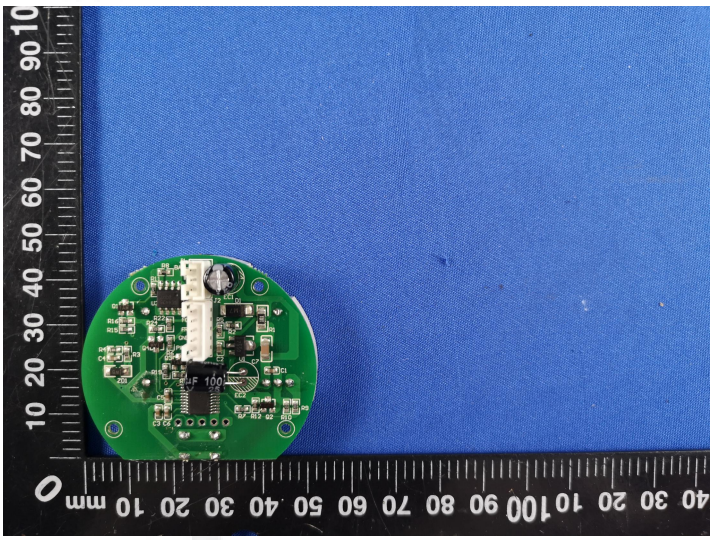
Disturbance power TEST

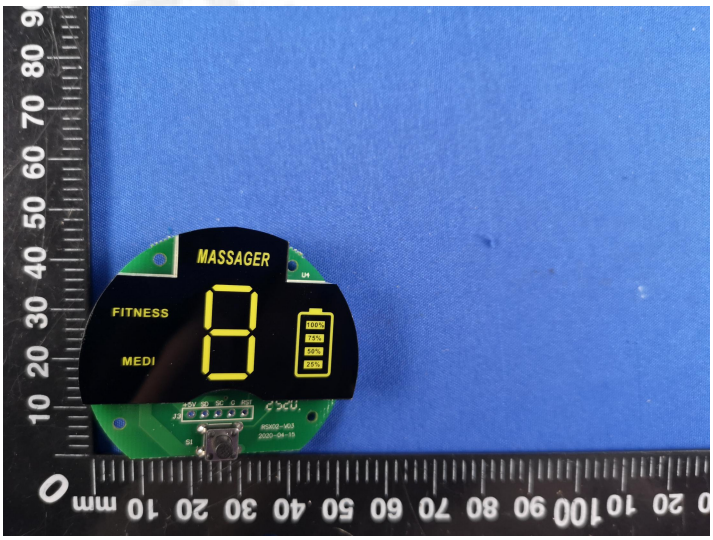


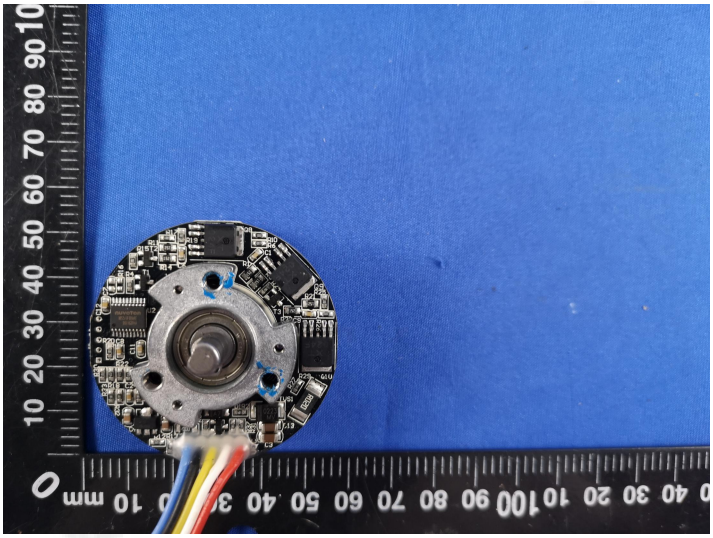
6 Photos of the EUT

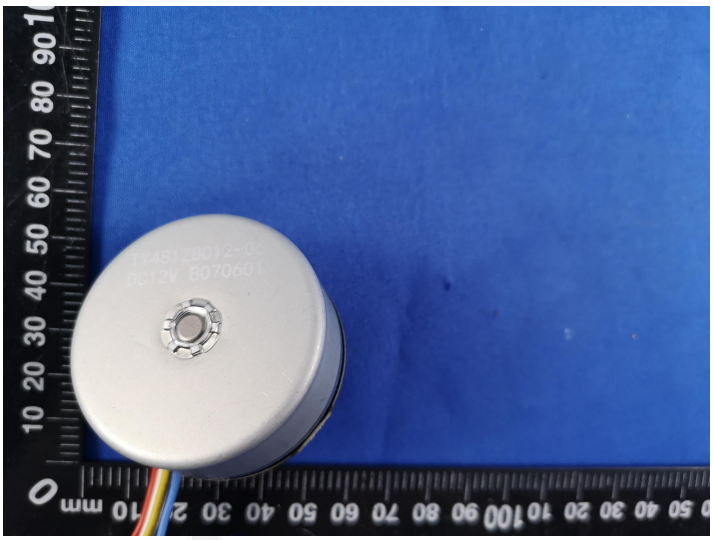


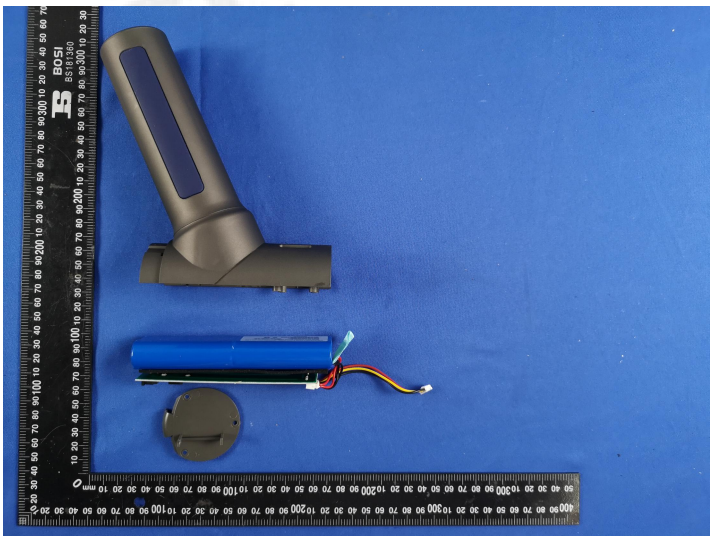


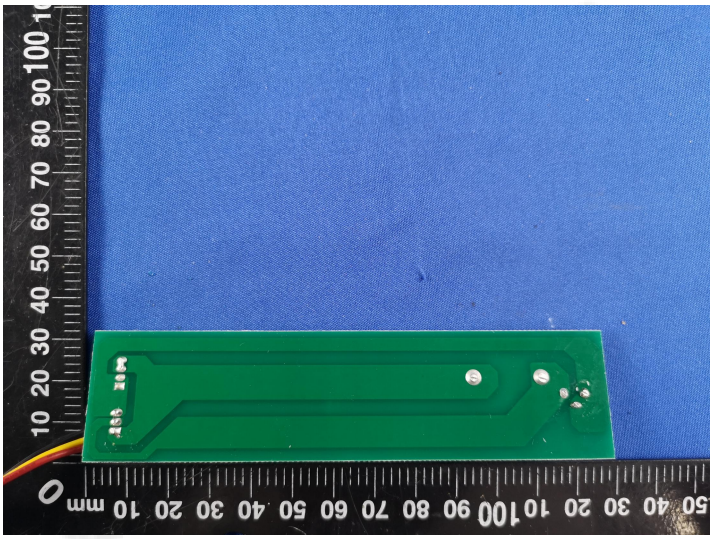


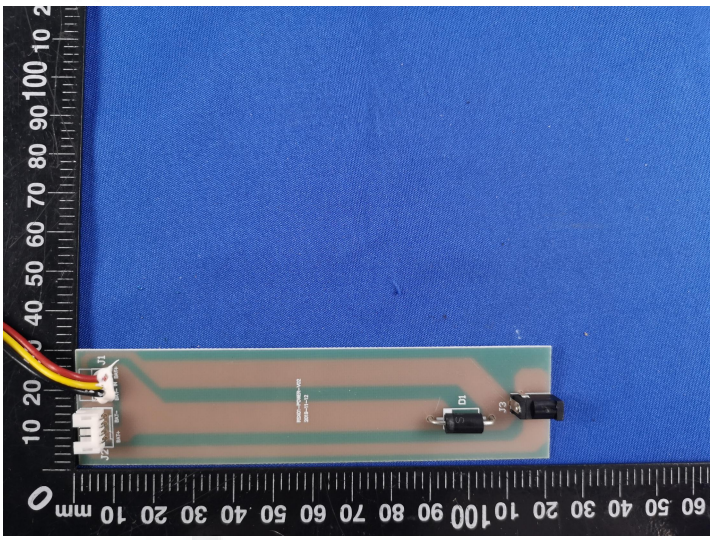

MASSAGER
FITNESS
MEDI











.....End of Report.....