TEST REPORT

Report No.:	BCTC2203635370E
Applicant:	Shenzhen Qinmay Technology Co., Ltd
Product Name:	ELECTRIC TURNTABLE / DISPLAY STAND
Model/Type reference:	QM0104754
Tested Date:	2022-03-22 to 2022-03-24
Issued Date:	2022-03-28

Shenzhen BCTC Testing Co., Ltd.

Product Name:	ELECTRIC TURNTABLE / DISPLAY STAND
Trademark:	N/A
Model/Type reference:	QM0104754 QM0104755, QM0105013, QM0105014, QM0104762, QM0104763, QM0105015, QM0105016, QM0104705, QM0104706, QM0104703, QM0104704
Prepared For:	Shenzhen Qinmay Technology Co., Ltd
Address:	612#, Building A, No.79 Guantian Rd, Niuhu community, Guanlan Street, Longhua District, Shenzhen, Guangdong , China
Manufacturer:	Shenzhen Qinmay Technology Co., Ltd
Address:	612#, Building A, No.79 Guantian Rd, Niuhu community, Guanlan Street, Longhua District, Shenzhen, Guangdong , China
Prepared By:	Shenzhen BCTC Testing Co., Ltd.
Address:	1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Tangwei, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China
Sample Received Date:	2022-03-22
Sample tested Date:	2022-03-22 to 2022-03-24
Issue Date:	2022-03-28
Report No.:	BCTC2203635370E
Test Standards:	EN 55032:2015+A1:2020, EN 55035:2017+A11:2020 EN IEC 61000-3-2:2019, EN 61000-3-3:2013+A1:2019
Test Results:	PASS

Tested by:

Sheldon. Sun

Sheldon Sun/ Project Handler

Approved by:

Zero Zhou/Reviewer

The test report is effective only with both signature and specialized stamp.This result(s) shown in this report refer only to the sample(s) tested. Without written approval of Shenzhen BCTC Testing Co., Ltd, this report can't be reproduced except in full.The tested sample(s) and the sample information are provided by the client.

Table Of Content

Test Report Declaration Page
1. Version 5
2. Test Summary 6
3. Measurement Uncertainty 7
4. Product Information And Test Setup 8
4.1 Product Information 8
4.2 Test Setup Configuration 8
4.3 Support Equipment 8
4.4 Test Mode 9
5. Test Facility And Test Instrument Used 10
5.1 Test Facility 10
5.2 Test Instrument Used 10
6. Conducted Emissions 12
6.1 Block Diagram Of Test Setup 12
6.2 Limit 12
6.3 Test procedure 12
6.4 Test Result 13
7. Radiated Emissions Test 15
7.1 Block Diagram Of Test Setup 15
7.2 Limits 15
7.3 Test Procedure 15
7.4 Test Results 16
8. Voltage Fluctuations & Flicker(F) 18
8.1 Block Diagram of Test Setup 18
8.2 Limit 18
8.3 Test Procedure 18
8.4 Test Results 19
9. Immunity Test Of General The Performance Criteria 20
10. Electrostatic Discharge (ESD) 21
10.1 Test Specification 21
10.2 Block Diagram of Test Setup 21
10.3 Test Procedure 21
10.4 Test Results 22
11. Continuous RF Electromagnetic Field Disturbances (RS) 23
11.1 Test Specification 23
11.2 Block Diagram of Test Setup 23
11.3 Test Procedure 24
11.4 Test Results 24
12. Electrical Fast Transients/Burst (EFT) 25
12.1 Test Specification 25
12.2 Block Diagram of EUT Test Setup 25
12.3 Test Procedure 25
12.4 Test Results 25
13. Surges Immunity Test 26
13.1 Test Specification 26
13.2 Block Diagram of EUT Test Setup 26

13.3 Test Procedure 26
13.4 Test Result.....26
14. Continuous Induced RF Disturbances (CS) 27
14.1 Test Specification.....27
14.2 Block Diagram of EUT Test Setup 27
14.3 Test Procedure 27
14.4 Test Result.....27
15. Voltage Dips And Interruptions (DIPS) 28
15.1 Test Specification.....28
15.2 Block Diagram of EUT Test Setup 28
15.3 Test Procedure 28
15.4 Test Result.....28
16. EUT Photographs.....29
17. EUT Test Setup Photographs.....34

(Note: N/A Means Not Applicable)

1. Version

Report No.	Issue Date	Description	Approved
BCTC2203635370E	2022-03-28	Original	Valid

2. Test Summary

The Product has been tested according to the following specifications:

Emission		
Standard	**Test Item**	**Test result**
EN 55032	Conducted emissions from the AC mains power ports	Pass
EN 55032	Asymmetric mode conducted emissions	N/A[5]
EN 55032	Conducted differential voltage emissions	N/A[1]
EN 55032	Radiated emissions	Pass
EN IEC 61000-3-2	Harmonic current emission(H)	N/A[2]
EN 61000-3-3	Voltage fluctuations & flicker(F)	Pass

Immunity		
Standard	**Test Item**	**Test result**
IEC 61000-4-2	Electrostatic discharge (ESD)	Pass
IEC 61000-4-3	Continuous RF electromagnetic field disturbances(RS)	Pass
IEC 61000-4-4	Electrical fast transients/burst (EFT)	Pass
IEC 61000-4-5	Surges	Pass
IEC 61000-4-6	Continuous induced RF disturbances (CS)	Pass
IEC 61000-4-6	Broadband impulse noise disturbances, repetitive	N/A[3]
IEC 61000-4-6	Broadband impulse noise disturbances, isolated	N/A[3]
IEC 61000-4-8	Power frequency magnetic field (PWorkingF)	N/A[4]
IEC 61000-4-11	Voltage dips and interruptions (DIPS)	Pass

Remark:
1. The Product has no antenna port.
2. The Product belongs to Class A, and its power is less than 75W, so it deems to fulfil this standard without testing.
3. Applicable only to CPE xDSL ports.
4. The Product doesn't contain any device susceptible to magnetic fields.
5. Applicable to ports listed above and intended to connect to cables longer than 3 m.

3. Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Test item	Value (dB)
Conducted Emission (150kHz-30MHz)	3.20
Radiated Emission(30MHz~1GHz)	4.80

4. Product Information And Test Setup

4.1 Product Information

Ratings:	DC 15V From Adapter Adapter: Input: AC100-240V~ 50/60Hz Output: DC 15V2A
Model differences:	All models are identical except for the appearance color, the test model is QM0104754 and the test results are applicable to other tests.
The highest frequency of the internal sources of the EUT is (less than 108)MHz:	☒ less than 108 MHz, the measurement shall only be made up to 1 GHz. ☐ between 108 MHz and 500 MHz, the measurement shall only be made up to 2 GHz. ☐ between 500 MHz and 1 GHz, the measurement shall only be made up to 5 GHz. ☐ above 1 GHz, the measurement shall be made up to 5 times the highest frequency or 6 GHz, whichever is less.

4.2 Test Setup Configuration

See test photographs attached in EUT TEST SETUP PHOTOGRAPHS for the actual connections between Product and support equipment.

4.3 Support Equipment

No.	Device Type	Brand	Model	Series No.	Note
1.	--	--	--	--	--

Notes:
1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

4.4 Test Mode

Test item	Test Mode	Test Voltage
Conducted emissions from the AC mains power ports (150KHz-30MHz) Class B	Working	AC230V/50Hz
Radiated emissions(30MHz-1GHz) Class B	Working	AC230V/50Hz
Voltage fluctuations & flicker(F)	Working	AC230V/50Hz
Electrostatic discharge (ESD) ☒Air Discharge: ±2,4,8kV ☒Contact Discharge: ±2,4kV ☒HCP & VCP: ±2,4kV	Working	AC230V/50Hz
Continuous RF electromagnetic field disturbances(RS) 80MHz-1000MHz, 1800MHz, 2600MHz,3500MHz,5000MHz 3V/m,80% AM Front, Rear, Left, Right H/V	Working	AC230V/50Hz
Electrical fast transients/burst (EFT) ☒1kV AC(Input) ☐0.5kV DC(Input) ☐0.5kV signal,Telec,control	Working	AC230V/50Hz
Surges ☒1kV Line-Line, ☐2kV Line-PE, N-PE ☐0.5kVDC(Input) ☐1KV,☐4KV signal,Telec, control Line-Line:90°+1kV,270°-1kV Line-PE:90°+2kV,270°-2kV N-PE:90°-2kV,270°+2kV	Working	AC230V/50Hz
Continuous induced RF disturbances (CS) 0.15MHz to 80MHz 3V ☒ AC(Input) ☐ DC(Input) ☐ signal,control	Working	AC230V/50Hz
Voltage dips and interruptions (DIPS) Less 5% 0.5P 10ms B 70% 25P 500ms B Voltage Interruptions less5% 250P 5000ms C	Working	AC230V/50Hz

5. Test Facility And Test Instrument Used

5.1 Test Facility

All measurement facilities used to collect the measurement data are located at Shenzhen BCTC Testing Co., Ltd. Address:1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Tangwei, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4 and CISPR 16-1-1 other equivalent standards.

5.2 Test Instrument Used

Conducted Emissions Test					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
Receiver	R&S	ESR3	102075	May 28, 2021	May 27, 2022
LISN	R&S	ENV216	101375	May 28, 2021	May 27, 2022
Software	Frad	EZ-EMC	EMC-CON 3A1	\	\
Attenuator	\	10dB DC-6GHz	1650	May 28, 2021	May 27, 2022

Radiated Emissions Test (966 Chamber#01)					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
966 chamber	ChengYu	966 Room	966	Jun. 06. 2020	Jun. 05, 2023
Receiver	R&S	ESRP	101154	May 28, 2021	May 27, 2022
Receiver	R&S	ESR3	102075	May 28, 2021	May 27, 2022
Amplifier	SKET	LAPA_01G18 G-45dB	\	May 28, 2021	May 27, 2022
Amplifier	Schwarzbeck	BBV9744	9744-0037	May 28, 2021	May 27, 2022
TRILOG Broadband Antenna	schwarzbeck	VULB9163	942	Jun. 01, 2021	May 31, 2022
Horn Antenna	schwarzbeck	BBHA9120D	1541	Jun. 02, 2021	Jun. 01, 2022
Software	Frad	EZ-EMC	FA-03A2 RE	\	\

Harmonic / Flicker Test					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
Harmonic & Flicker Tester	LAPLAEC	AC2000A	439263	May 31, 2021	May 30, 2022
AC Power Supply	KIKUSUI	PCR4000M	UK001879	May 28, 2021	May 27, 2022
Software	HTEC	\	\	\	\

Electrostatic Discharge Test					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
ESD Tester	KIKUSUI	KES4201A	UH002321	May 31, 2021	May 30, 2022

Continuous RF Electromagnetic Field Disturbances Test					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
Power meter	Keysight	E4419	\	May 28, 2021	May 27, 2022
Power sensor	Keysight	E9300A	\	May 28, 2021	May 27, 2022
Power sensor	Keysight	E9300A	\	May 28, 2021	May 27, 2022
Amplifier	SKET	HAP_801000-250W	\	May 28, 2021	May 27, 2022
Amplifier	SKET	HAP_0103-75W	\	May 28, 2021	May 27, 2022
Amplifier	SKET	HAP_0306-50W	\	May 28, 2021	May 27, 2022
Stacked double Log.-Per. Antenna	Schwarzbeck	STLP 9129	\	\	\
Field Probe	Narda	EP-601	\	Jun. 29, 2021	Jun. 28, 2022
Signal Generator	Agilent	N5181A	MY50143748	Jun. 29, 2021	Jun. 28, 2022
Software	SKET	EMC-S	1.2.0.18	\	\

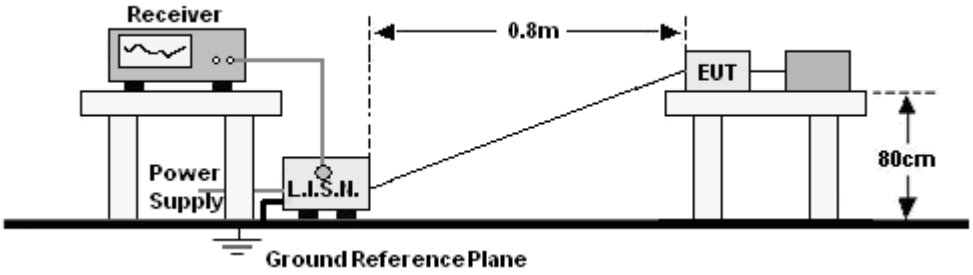
EFT And Surge And Voltage Dips And Interruptions Test					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
Compact Generator	TRANSIENT	TRA2000	646	Jun. 29, 2021	Jun. 28, 2022
Coupling Clamp	PARTNER	CN-EFT1000	CN-EFT1000-1624	May 28, 2021	May 27, 2022

Continuous Induced RF Disturbances Test					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
C/S Test System	SCHLODER	CDG-6000-75	126B1405/2016	May 28, 2021	May 27, 2022
Attenuator	SCHLODER	6DB DC-1G	HA1630	May 28, 2021	May 27, 2022
CDN	SCHLODER	CDN M2+M3	A2210389/2016	May 28, 2021	May 27, 2022
Injection Clamp	SCHLOBER	EMCL-20	132A1272/2016	May 28, 2021	May 27, 2022
Software	HUBERT	HUBERT EN 61000-4-6	1.4.1.0	\	\

6. Conducted Emissions

6.1 Block Diagram Of Test Setup

For mains ports:



6.2 Limit

Limits for Conducted emissions at the mains ports of Class B MME

Frequency range (MHz)	Limits dB(μV)	
	Quasi-peak	Average
0,15 to 0,50	66 to 56*	56 to 46*
0,50 to 5	56	46
5 to 30	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

6.3 Test procedure

For mains ports:

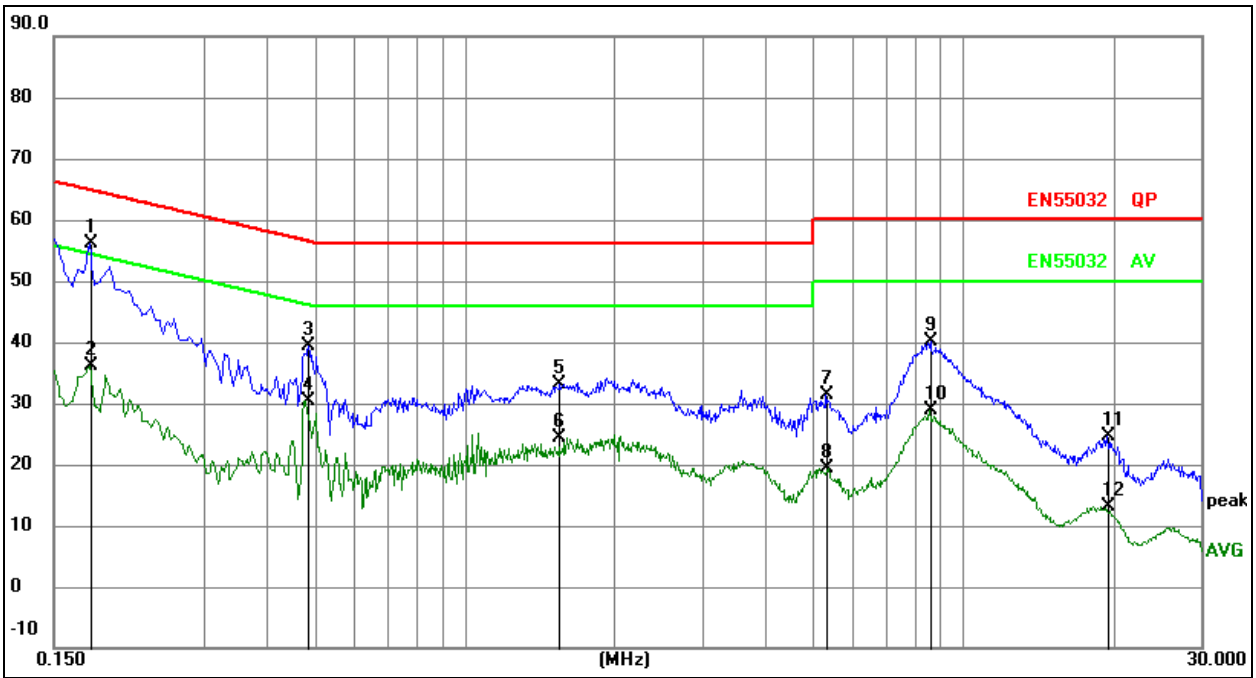
a. The Product was placed on a nonconductive table 0. 8 m above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).

b. The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak and AVG detector in Max Hold mode. Run the receiver's pre-scan to record the maximum disturbance generated from Product in all power lines in the full band.

c. For each frequency whose maximum record was higher or close to limit, measure its QP and AVG values and record.

6.4 Test Result

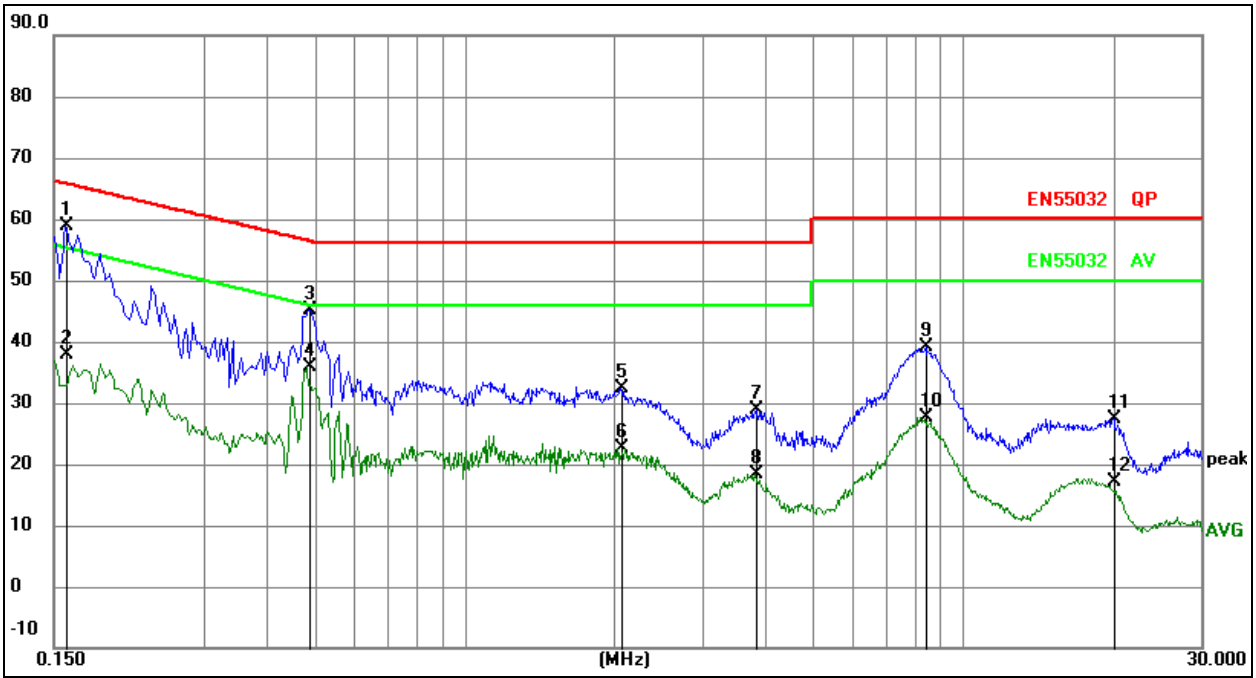
Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101kPa	Phase :	Line
Test Voltage :	AC 230V/50Hz	Test Mode:	Working



Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.
3. Measurement = Reading Level + Correct Factor
4. Over = Measurement - Limit

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz		dB	dBuV	dBuV	dB	Detector
1	*	0.1768	36.42	19.60	56.02	64.63	-8.61	QP
2		0.1768	16.61	19.60	36.21	54.63	-18.42	AVG
3		0.4863	19.81	19.61	39.42	56.23	-16.81	QP
4		0.4863	10.75	19.61	30.36	46.23	-15.87	AVG
5		1.5518	13.63	19.62	33.25	56.00	-22.75	QP
6		1.5518	4.77	19.62	24.39	46.00	-21.61	AVG
7		5.3050	11.67	19.70	31.37	60.00	-28.63	QP
8		5.3050	-0.40	19.70	19.30	50.00	-30.70	AVG
9		8.5917	20.28	19.76	40.04	60.00	-19.96	QP
10		8.5917	9.12	19.76	28.88	50.00	-21.12	AVG
11		19.4284	4.87	19.74	24.61	60.00	-35.39	QP
12		19.4284	-6.64	19.74	13.10	50.00	-36.90	AVG

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101kPa	Phase :	Neutral
Test Voltage :	AC 230V/50Hz	Test Mode:	Working



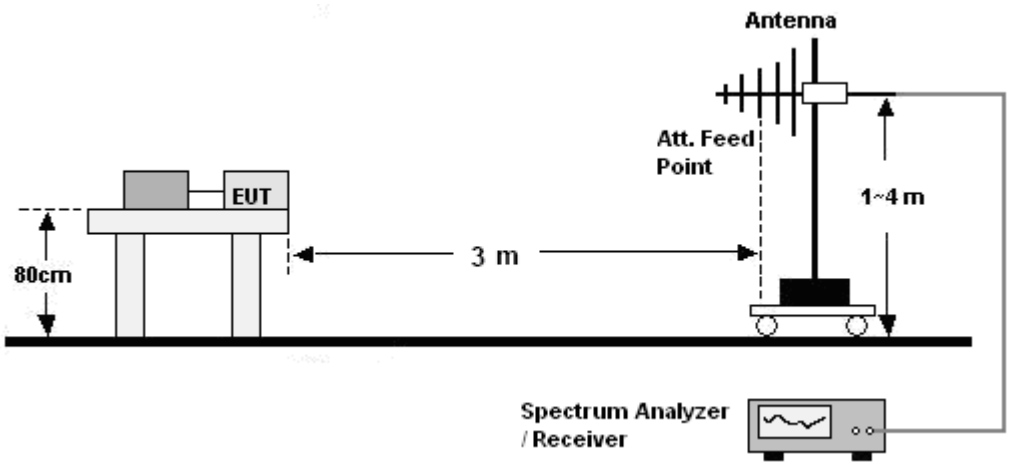
Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.
3. Measurement = Reading Level + Correct Factor
4. Over = Measurement - Limit

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz		dB	dBuV	dBuV	dB	Detector
1	*	0.1590	39.18	19.60	58.78	65.52	-6.74	QP
2		0.1590	18.23	19.60	37.83	55.52	-17.69	AVG
3		0.4875	25.49	19.61	45.10	56.21	-11.11	QP
4		0.4875	16.16	19.61	35.77	46.21	-10.44	AVG
5		2.0625	12.78	19.62	32.40	56.00	-23.60	QP
6		2.0625	3.06	19.62	22.68	46.00	-23.32	AVG
7		3.8445	9.20	19.67	28.87	56.00	-27.13	QP
8		3.8445	-1.25	19.67	18.42	46.00	-27.58	AVG
9		8.4300	19.25	19.76	39.01	60.00	-20.99	QP
10		8.4300	7.96	19.76	27.72	50.00	-22.28	AVG
11		19.9590	7.67	19.74	27.41	60.00	-32.59	QP
12		19.9590	-2.65	19.74	17.09	50.00	-32.91	AVG

7. Radiated Emissions Test

7.1 Block Diagram Of Test Setup

30MHz ~ 1GHz:



7.2 Limits

Limits for radiated disturbance of Class B MME

Frequency (MHz)	Quasi-peak limits at 3m dB(μV/m)
30-230	40
230-1000	47

7.3 Test Procedure

30MHz ~ 1GHz:

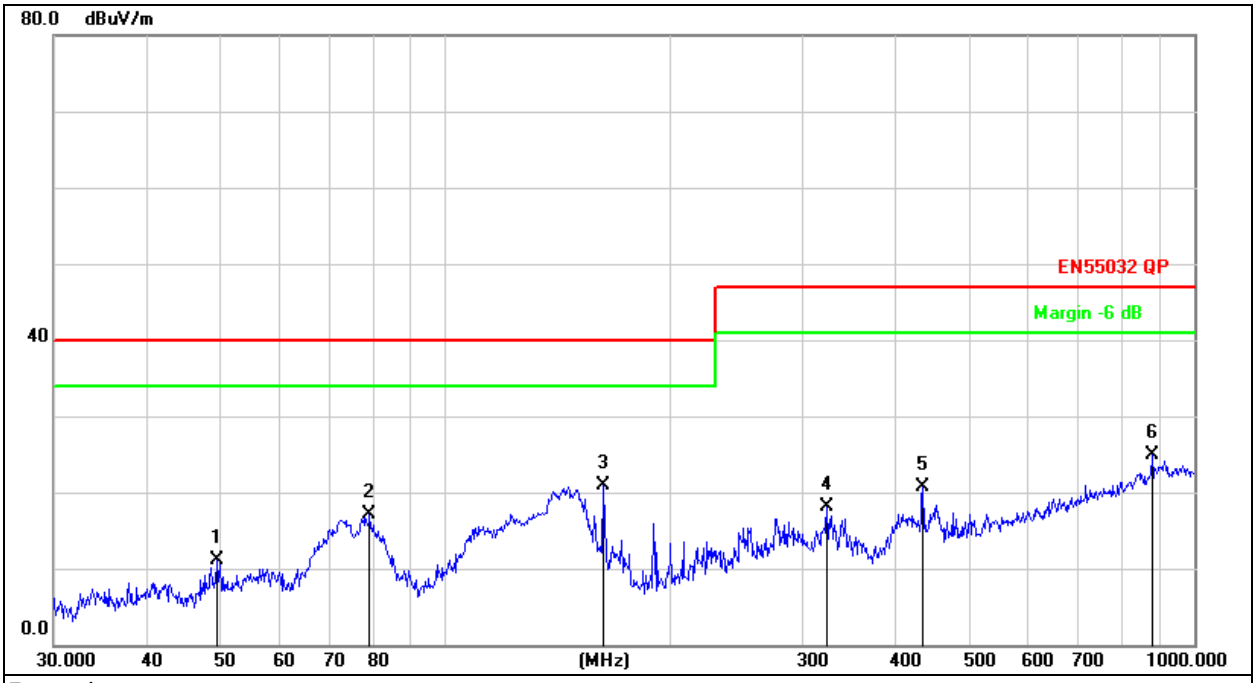
a. The Product was placed on the nonconductive turntable 0.8 m above the ground in a semi anechoic chamber.

b. Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 120 kHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied between 1~4 m in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.

c. For each frequency whose maximum record was higher or close to limit, measure its QP value: vary the antenna's height and rotate the turntable from 0 to 360 degrees to find the height and degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to QP Detector and specified bandwidth with Maximum Hold Mode, and record the maximum value.

7.4 Test Results

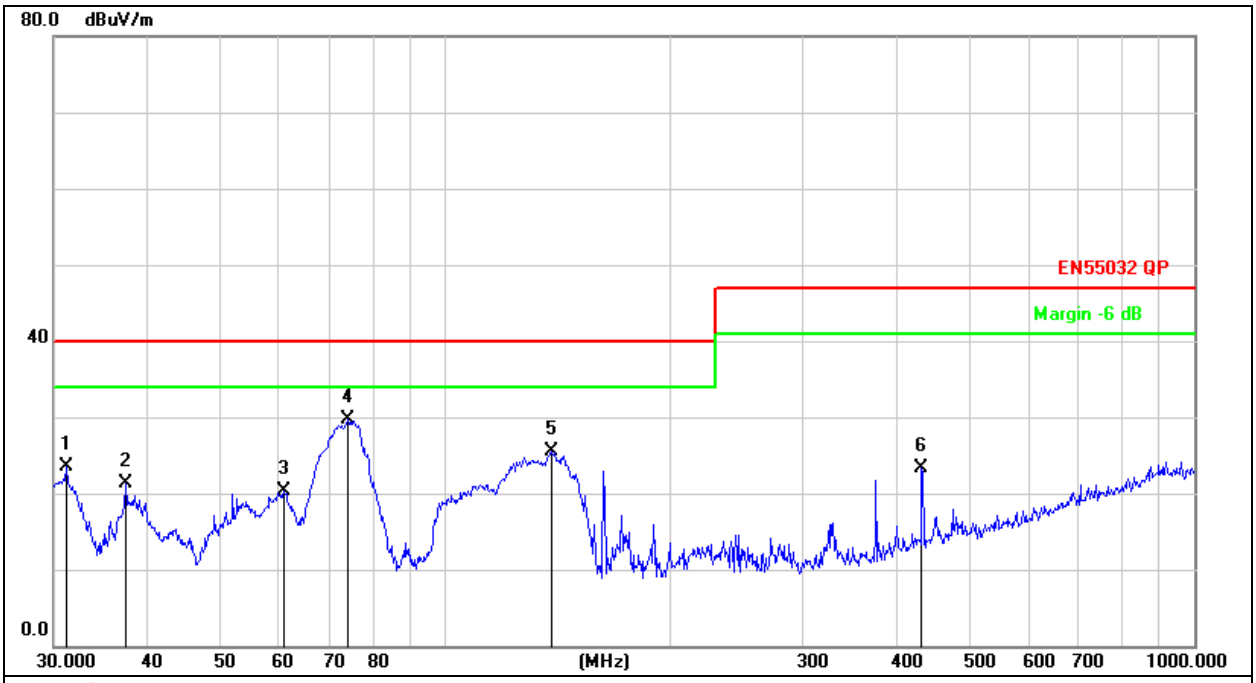
Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Horizontal
Test Voltage :	AC 230V/50Hz	Test Mode:	Working



Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. Measurement = Reading Level + Correct Factor
3. Over = Measurement - Limit

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		49.5328	26.68	-15.50	11.18	40.00	-28.82	QP
2		79.2426	37.26	-20.23	17.03	40.00	-22.97	QP
3	*	162.6106	39.39	-18.47	20.92	40.00	-19.08	QP
4		323.3204	31.12	-13.08	18.04	47.00	-28.96	QP
5		434.0651	30.67	-9.98	20.69	47.00	-26.31	QP
6		878.3214	24.93	-0.08	24.85	47.00	-22.15	QP

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Vertical
Test Voltage :	AC 230V/50Hz	Test Mode:	Working

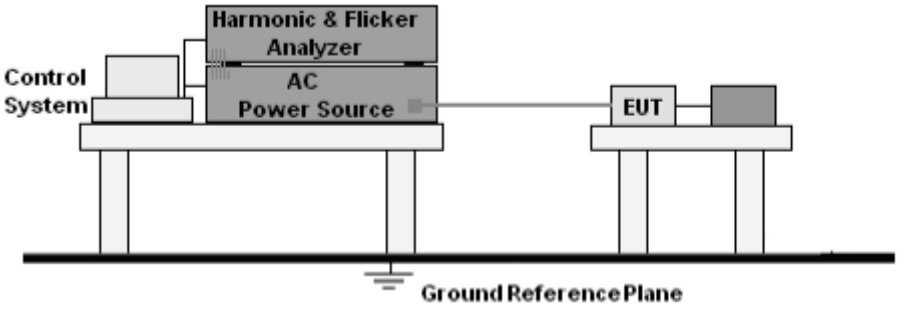


Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. Measurement = Reading Level + Correct Factor
3. Over = Measurement - Limit

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		31.1798	41.82	-18.27	23.55	40.00	-16.45	QP
2		37.4165	38.56	-17.29	21.27	40.00	-18.73	QP
3		60.9176	36.48	-16.25	20.23	40.00	-19.77	QP
4	*	74.1351	49.19	-19.41	29.78	40.00	-10.22	QP
5		138.8735	44.33	-18.74	25.59	40.00	-14.41	QP
6		432.5457	33.24	-10.02	23.22	47.00	-23.78	QP

8. Voltage Fluctuations & Flicker(F)

8.1 Block Diagram of Test Setup



8.2 Limit

EN 61000-3-3:2013+A1:2019 Clause 5.

8.3 Test Procedure

a. The Product was placed on the top of a non-conductive table above the ground and operated to produce the most unfavorable sequence of voltage changes under normal operating conditions.

b. During the flick test, the measure time shall include that part of whole operation cycle in which the Product produce the most unfavorable sequence of voltage changes. The observation period for short-term flicker indicator is 10 minutes and the observation period for long-term flicker indicator is 2 hours.

8.4 Test Results

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Mode:	Working
Test Voltage :	AC 230V/50Hz		

Test duration (sec):600

Describe:

Load Power : 7.000 W **Power Factor:0.348**

Load Current : 86.000 mArms **Crest Factor:4.452**

Nominal Voltage : 229.66 Vrms

Test Result: pass **Status: Test Completed**

Result:

T-max (ms):	0.00	Test limit (ms):	500.00	Pass
Highest dc (%):	0.04	Test limit (%):	3.30	Pass
Highest dmax (%):	0.59	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.00	Test limit:	1.00	Pass

9. Immunity Test Of General The Performance Criteria

Product Standard	EN 55035:2017+A11:2020 clause 8
CRITERION A	The equipment shall continue to operate as intended without operator intervention. No degradation of performance, loss of function or change of operating state is allowed below a performance level specified by the manufacturer when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. 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 by what the user may reasonably expect from the equipment if used as intended.
CRITERION B	During the application of the disturbance, degradation of performance is allowed. However, no unintended change of actual operating state or stored data is allowed to persist after the test. After the test, the equipment shall continue to operate as intended without operator intervention; no degradation of performance or loss of function is allowed, below a performance level specified by the manufacturer, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level (or the permissible performance loss), or recovery time, is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.
CRITERION C	Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions. A reboot or re-start operation is allowed. Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

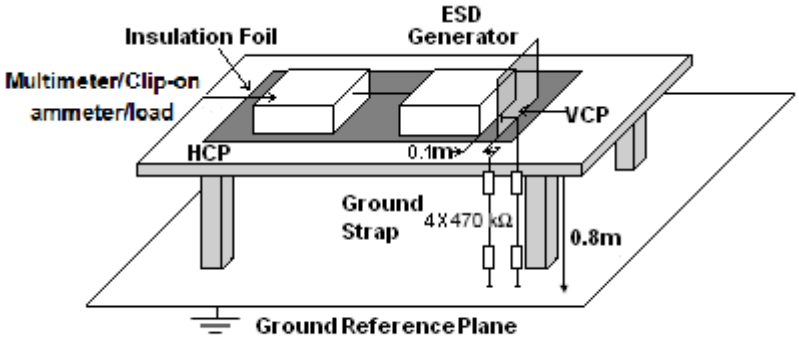
10. Electrostatic Discharge (ESD)

10.1 Test Specification

Test Port	:	Enclosure port
Discharge Impedance	:	330 ohm / 150 pF
Discharge Mode	:	Single Discharge
Discharge Period	:	one second between each discharge

10.2 Block Diagram of Test Setup

For Floor Stand:



10.3 Test Procedure

a. Electrostatic discharges were applied only to those points and surfaces of the Product that are accessible to users during normal operation.
b. The test was performed with at least ten single discharges on the pre-selected points in the most sensitive polarity.
c. The time interval between two successive single discharges was at least 1 second.
d. The ESD generator was held perpendicularly to the surface to which the discharge was applied and the return cable was at least 0.2 meters from the Product.
e. Contact discharges were applied to the non-insulating coating, with the pointed tip of the generator penetrating the coating and contacting the conducting substrate.
f. Air discharges were applied with the round discharge tip of the discharge electrode approaching the Product as fast as possible (without causing mechanical damage) to touch the Product. After each discharge, the ESD generator was removed from the Product and re-triggered for a new single discharge. The test was repeated until all discharges were complete.
g. At least ten single discharges (in the most sensitive polarity) were applied to the center of one vertical edge of the Vertical Coupling Plane in sufficiently different positions that the four faces of the Product were completely illuminated. The VCP (dimensions 0.5m x 0.5m) was placed vertically to and 0.1 meters from the Product.

10.4 Test Results

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Mode:	Working
Test Voltage :	AC 230V/50Hz		

Discharge Method	Discharge Position	Voltage (±kV)	Min. No. of Discharge per polarity (Each Point)	Required Level	Performance Criterion
Contact Discharge	Conductive Surfaces	4	10	B	A
	Indirect Discharge HCP	4	10	B	A
	Indirect Discharge VCP	4	10	B	A
Air Discharge	Slots, Apertures, and Insulating Surfaces	8	10	B	A

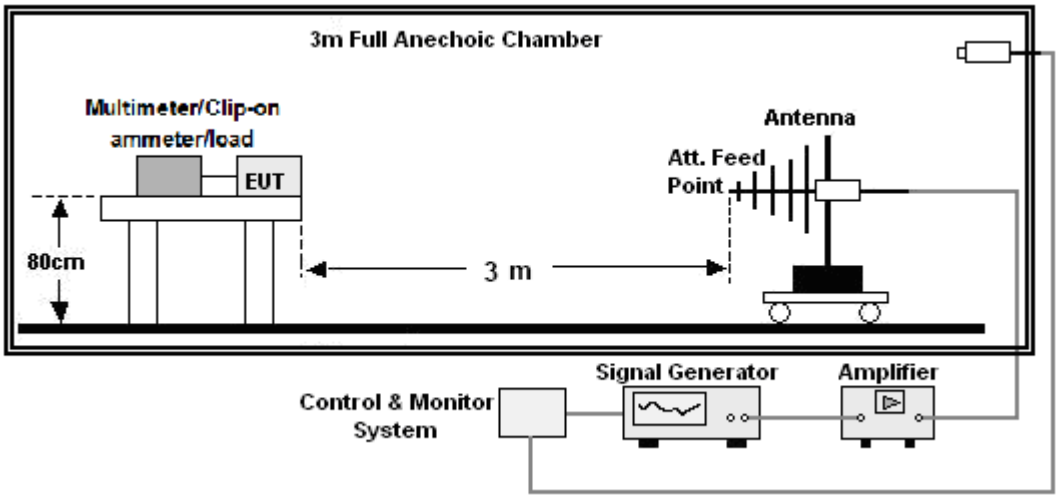
11. Continuous RF Electromagnetic Field Disturbances (RS)

11.1 Test Specification

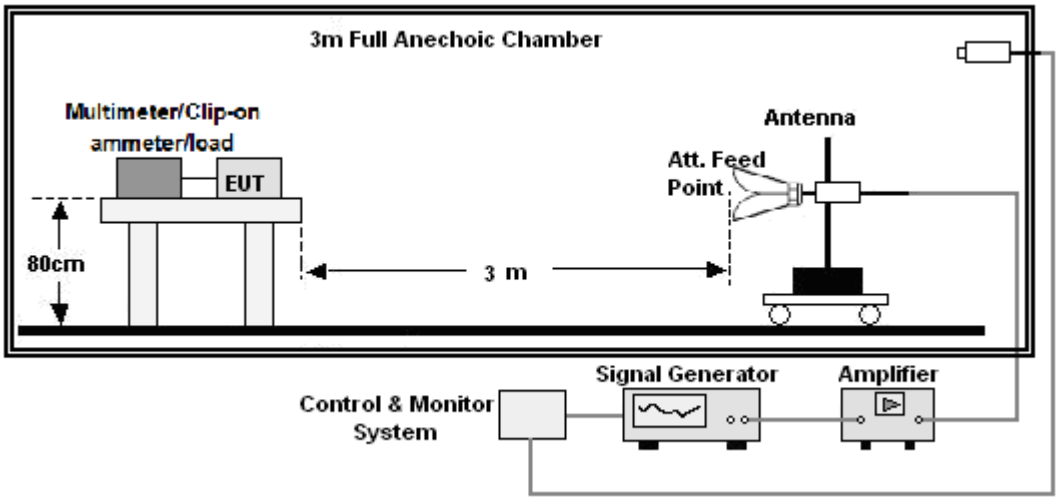
Test Port	:	Enclosure port
Step Size	:	1%
Modulation	:	1kHz, 80% AM
Dwell Time	:	1 second
Polarization	:	Horizontal & Vertical

11.2 Block Diagram of Test Setup

Below 1GHz:



Above 1GHz:



11.3 Test Procedure

a. The testing was performed in a fully-anechoic chamber. The transmit antenna was located at a distance of 3 meters from the Product.

b. The frequency range is swept from 80MHz to 1000MHz, 1800MHz, 2600MHz, 3500MHz, 5000MHz,with the signal 80% amplitude modulated with a 1 kHz sine wave,and the step size was 1%.

c. The dwell time at each frequency shall not be less than the time necessary for the EUT to be exercised and to be able to respond, but should not exceed 5 s at each of the frequencies during the scan.

d. The test was performed with the Product exposed to both vertically and horizontally polarized fields on each of the four sides.

e. For Broadcast reception function:Group 2 not apply in this test.

11.4 Test Results

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Mode:	Working
Test Voltage :	AC 230V/50Hz		

Frequency	Position	Field Strength (V/m)	Required Level	Performance Criterion
80 - 1000MHz, 1800MHz, 2600MHz, 3500MHz, 5000MHz	Front, Right, Back, Left	3	A	A

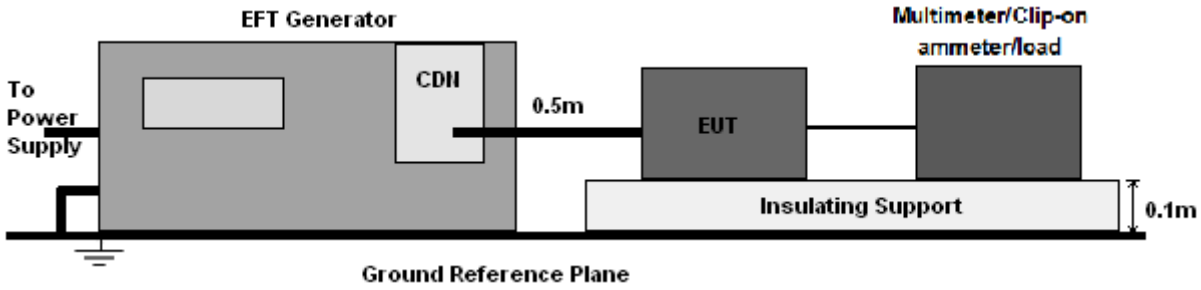
12. Electrical Fast Transients/Burst (EFT)

12.1 Test Specification

Test Port	:	input ac/dc. power port
Impulse Frequency	:	5 kHz
Impulse Wave-shape	:	5/50 ns
Burst Duration	:	15 ms
Burst Period	:	300 ms
Test Duration	:	2 minutes per polarity

12.2 Block Diagram of EUT Test Setup

For input ac/dc. power port:



12.3 Test Procedure

a. The Product and support units were located on a non-conductive table above ground reference plane.
b. A 0.5m-long power cord was attached to Product during the test.

12.4 Test Results

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Mode:	Working
Test Voltage :	AC 230V/50Hz		

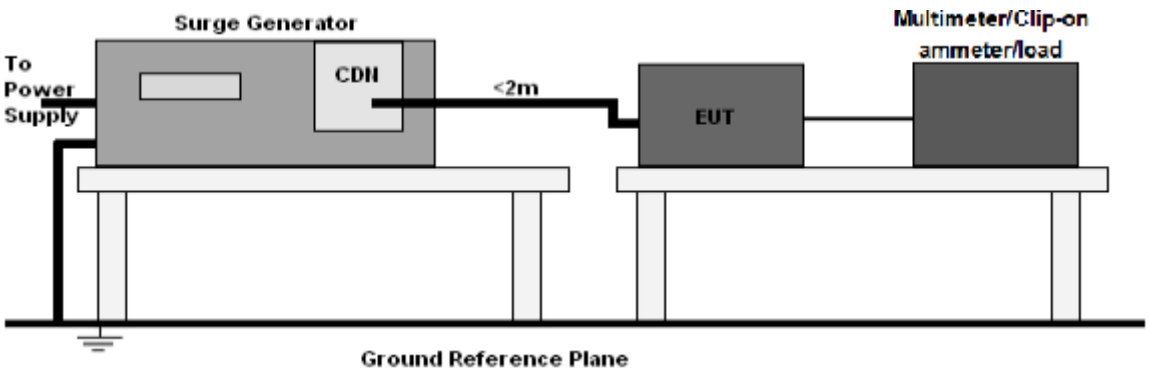
Coupling	Voltage (kV)	Polarity	Required Level	Performance Criterion
AC MainsL-N	1.0	±	B	A

13. Surges Immunity Test

13.1 Test Specification

Test Port	:	input ac/dc. power port
Wave-Shape	:	Open Circuit Voltage - 1.2 / 50 us Short Circuit Current - 8 / 20 us
Pulse Repetition Rate	:	1 pulse / min.
Phase Angle	:	0° / 90° / 180° / 270°
Test Events	:	5 pulses (positive & negative) for each polarity

13.2 Block Diagram of EUT Test Setup



13.3 Test Procedure

a. The surge is to be applied to the Product power supply terminals via the capacitive coupling network. Decoupling networks are required in order to avoid possible adverse effects on equipment not under test that may be powered by the same lines, and to provide sufficient decoupling impedance to the surge wave.
b. The power cord between the Product and the coupling/decoupling networks shall be 2 meters in length (or shorter). Interconnection line between the Product and the coupling/decoupling networks shall be 2 meters in length (or shorter).

13.4 Test Result

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Mode:	Working
Test Voltage :	AC 230V/50Hz		

Coupling Line	Voltage(kV)	Phase Angle	Required Level	Performance Criterion
L + N	+ 1.0	90°	C	A
	- 1.0	270°		

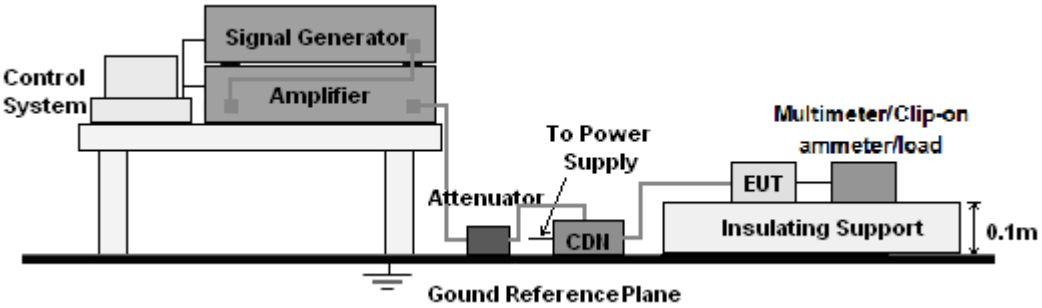
14. Continuous Induced RF Disturbances (CS)

14.1 Test Specification

Test Port	:	input ac/dc. power port
Step Size	:	1%
Modulation	:	1kHz, 80% AM
Dwell Time	:	1 second

14.2 Block Diagram of EUT Test Setup

For input ac/ac. power port:



14.3 Test Procedure

For input ac/dc. power port:
a. The Product and support units were located at a ground reference plane with the interposition of a 0.1 m thickness insulating support and the CDN was located on GRP directly.
b. The frequency range is swept from 150 kHz to 10MHz, 10MHz to 30MHz, 30MHz to 80MHz with the signal 80% amplitude modulated with a 1 kHz sine wave, and the step size was 1% of fundamental.
c. The dwell time at each frequency shall be not less than the time necessary for the Product to be able to respond.

14.4 Test Result

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Mode:	Working
Test Voltage :	AC 230V/50Hz		

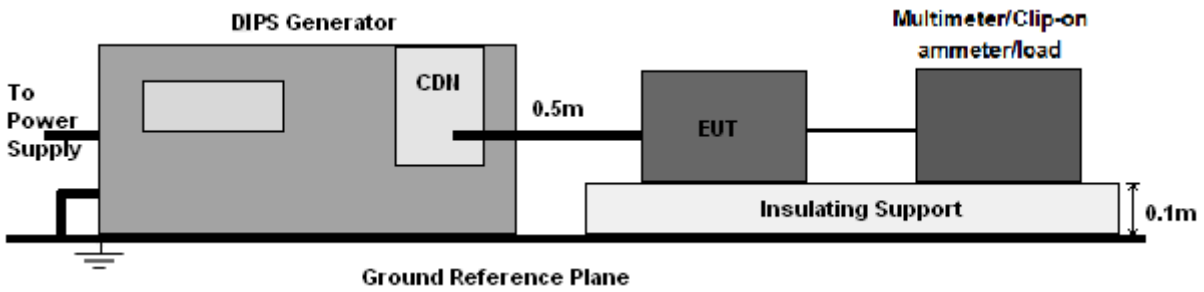
Inject Line	Frequency (MHz)	Voltage Level (V r.m.s.)	Required Level	Performance Criterion
a.c. port	0.15 - 10	3	A	A
	10 to 30	3 to 1	A	A
	30 to 80	1	A	A

15. Voltage Dips And Interruptions (DIPS)

15.1 Test Specification

Test Port	:	input ac. power port
Phase Angle	:	0°, 180°
Test cycle	:	3 times

15.2 Block Diagram of EUT Test Setup



15.3 Test Procedure

a. The Product and support units were located on a non-conductive table above ground floor.
b. Set the parameter of tests and then perform the test software of test simulator.
c. Conditions changes to occur at 0 degree crossover point of the voltage waveform.

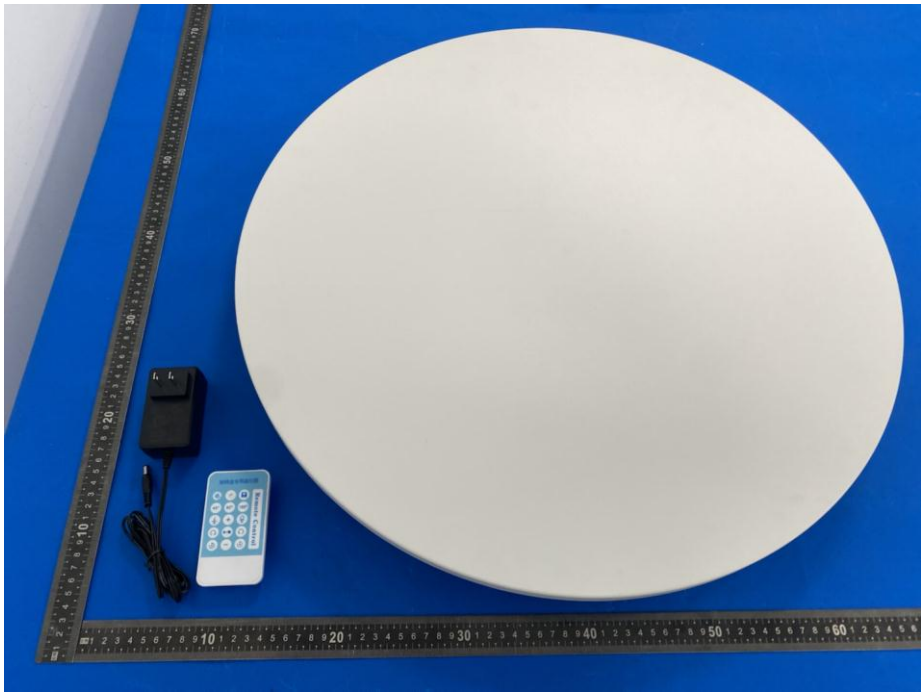
15.4 Test Result

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Mode:	Working / AM
Test Voltage :	AC 230V/50Hz		

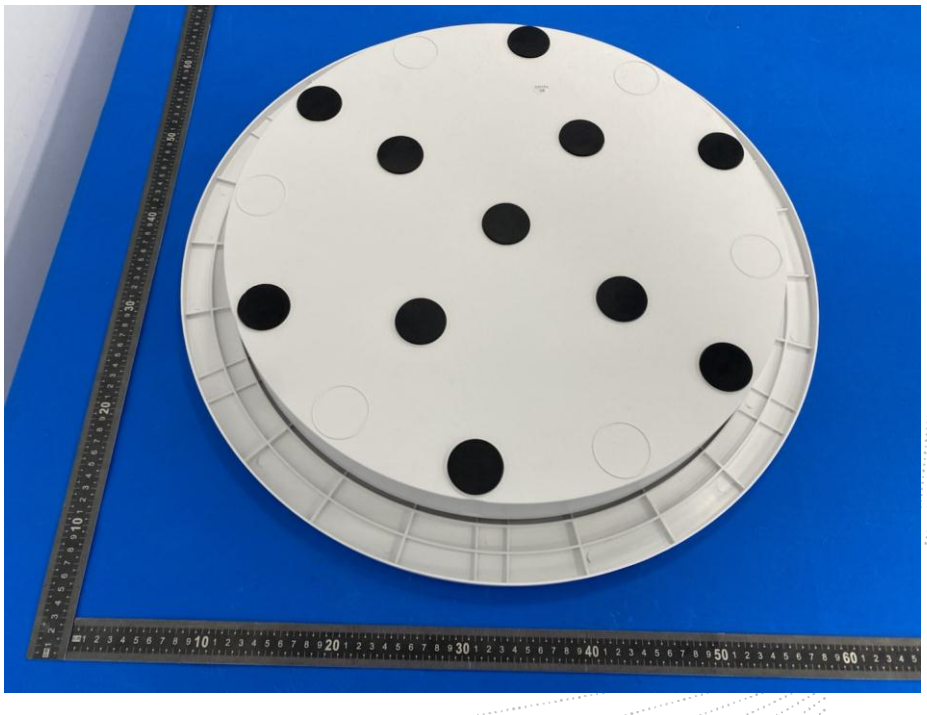
Test Level % U_T	Voltage dips in % U_T	Duration (ms)	Required Level	Performance Criterion
< 5	≥95	10	B	A
70	30	500	B	A
Voltage Interruptions:				
< 5	≥95	5000	C	B*
Note*:During the test, the product disconnects the charging connection, and the charging connection will be restored automatically after the interference end.				

16. EUT Photographs

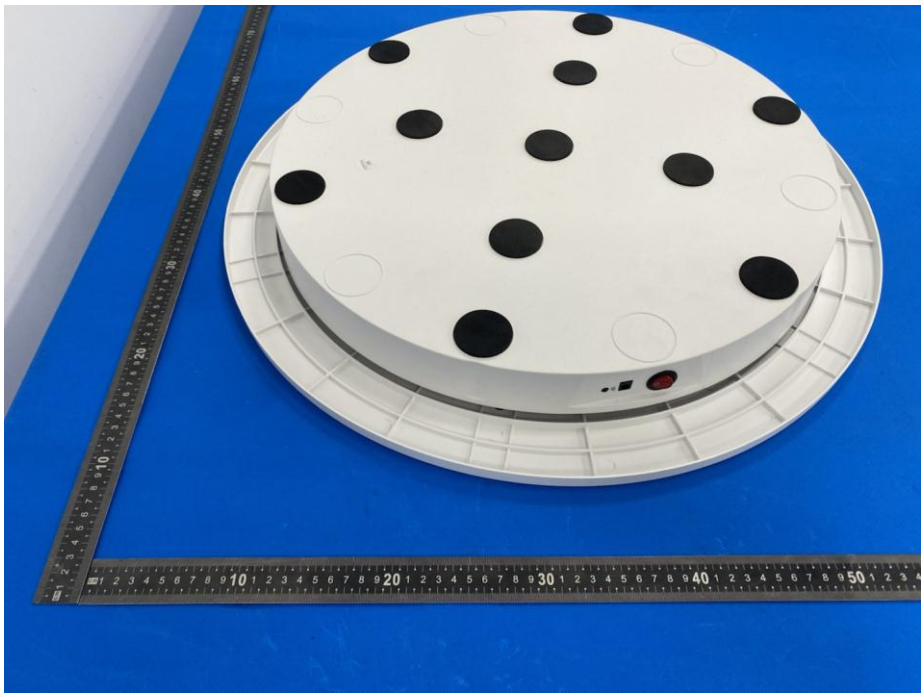
EUT Photo 1



EUT Photo 2



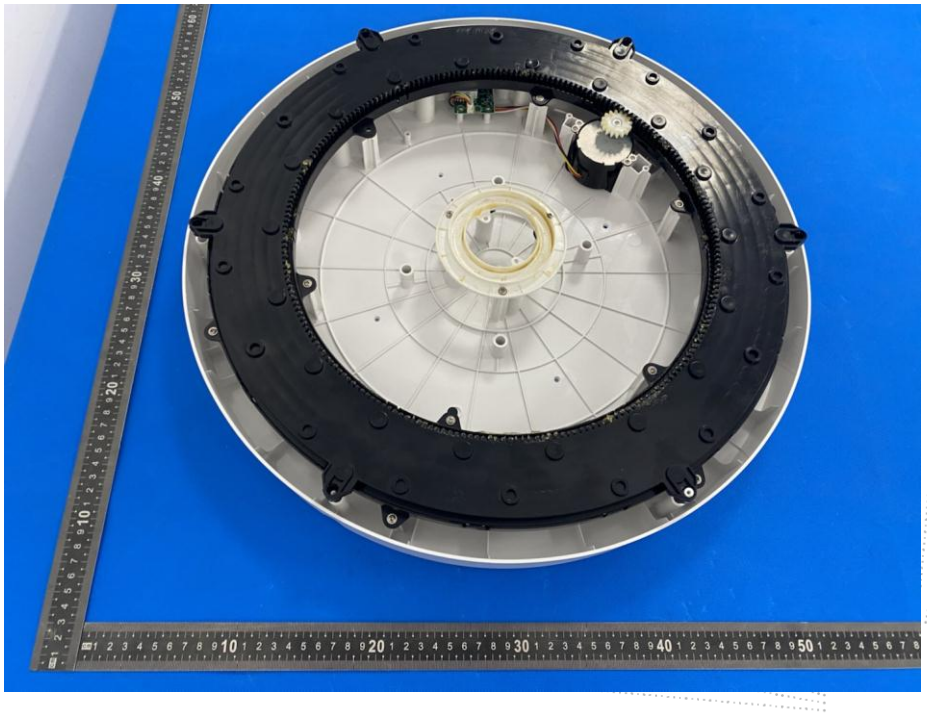
EUT Photo 3



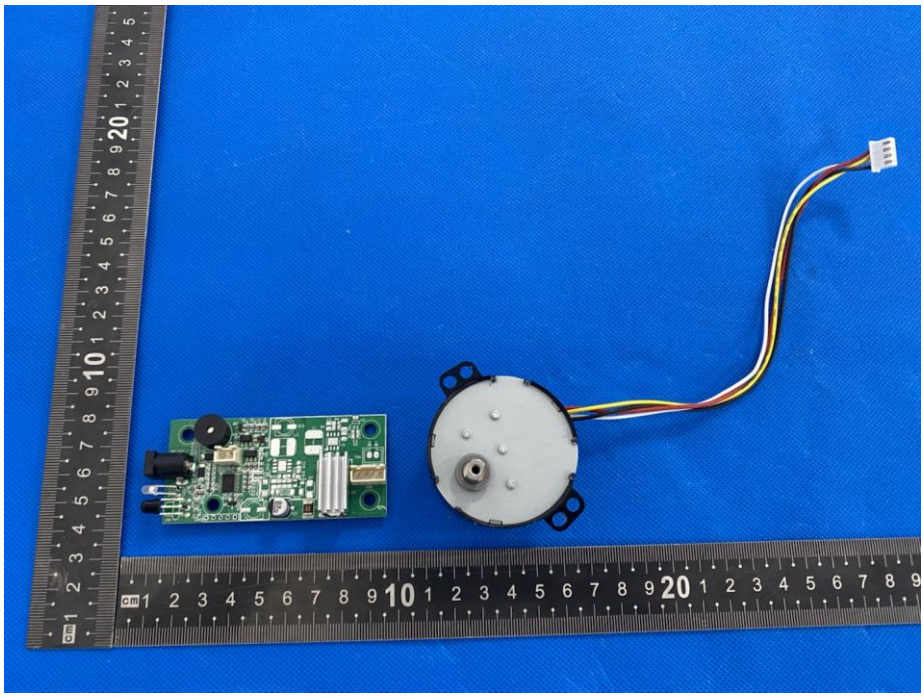
EUT Photo 4

EUT Photo 5

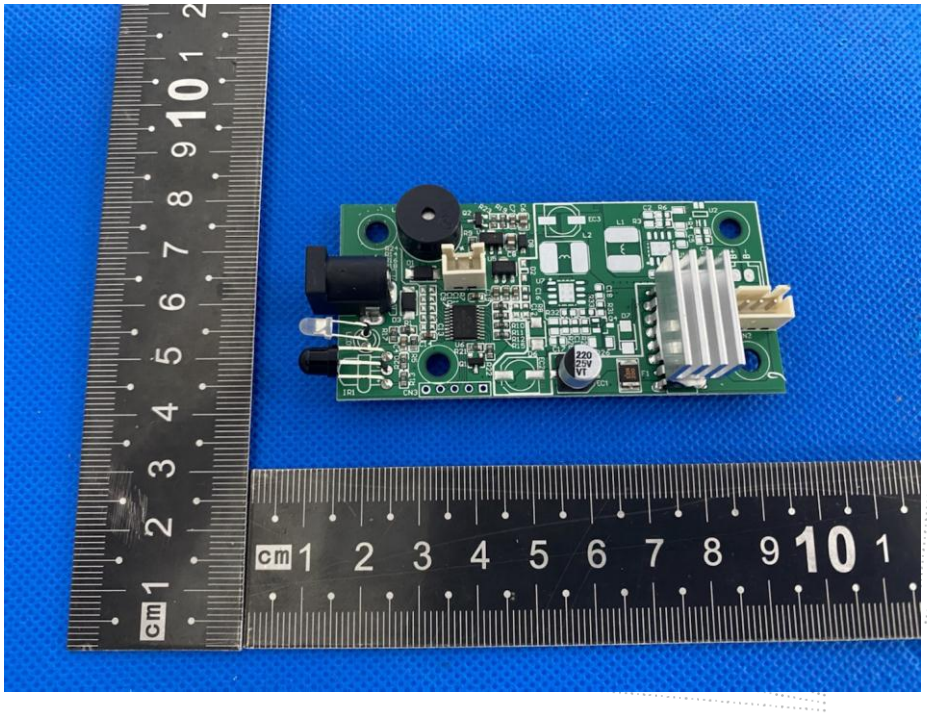
EUT Photo 6



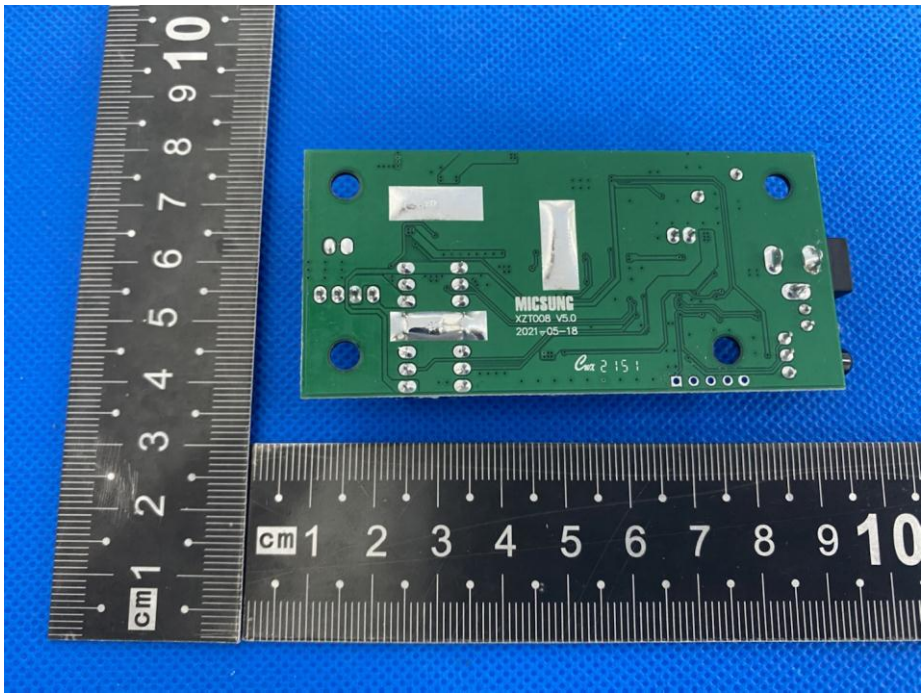
EUT Photo 7



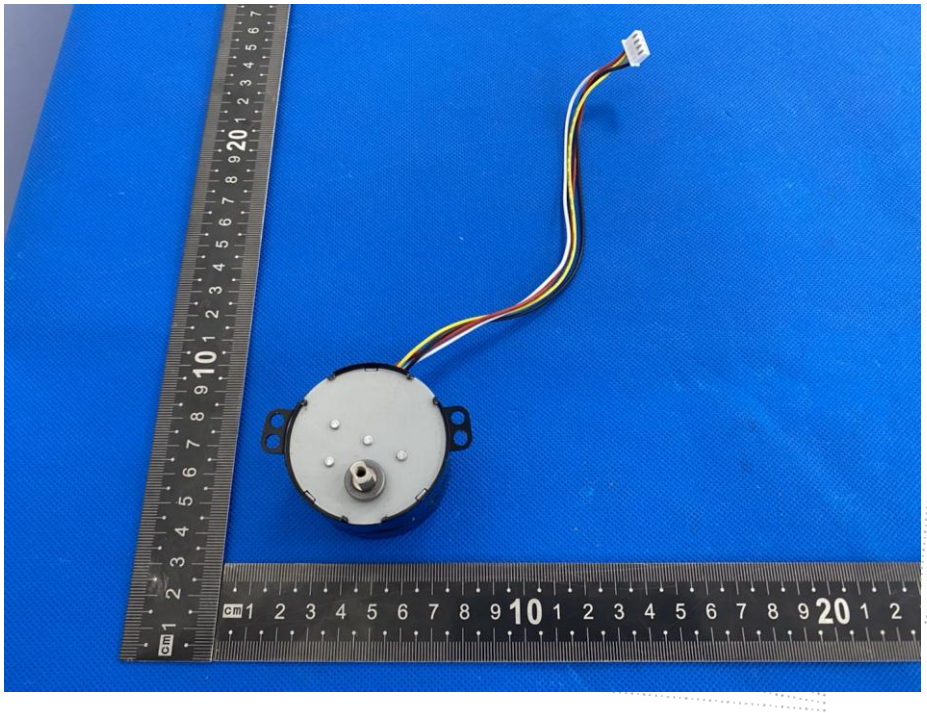
EUT Photo 8



EUT Photo 9



EUT Photo 10



17. EUT Test Setup Photographs

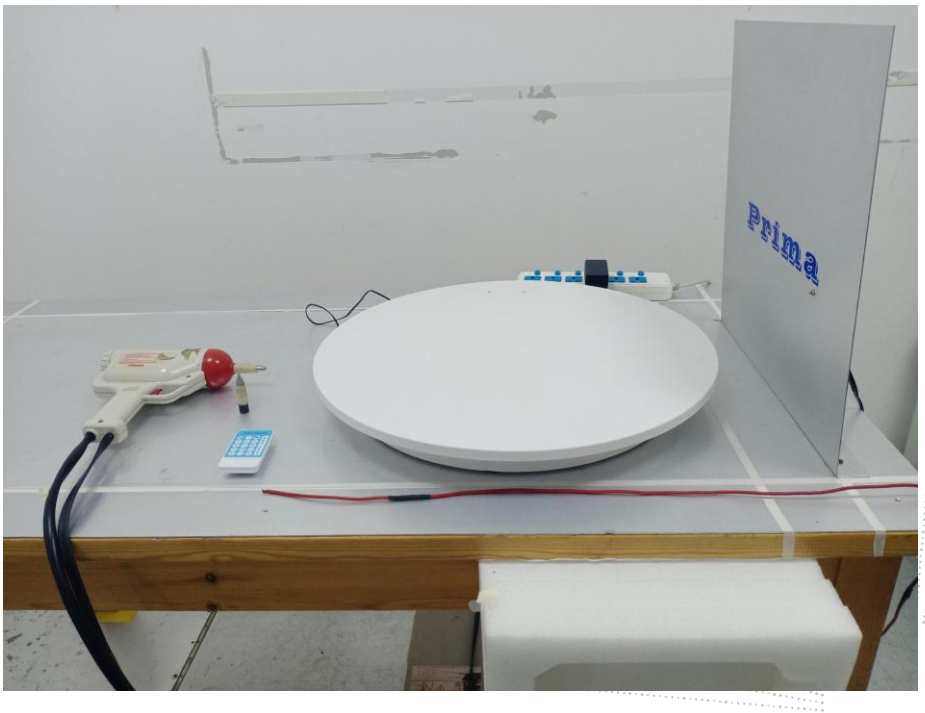
Conducted emissions

Radiated emissions

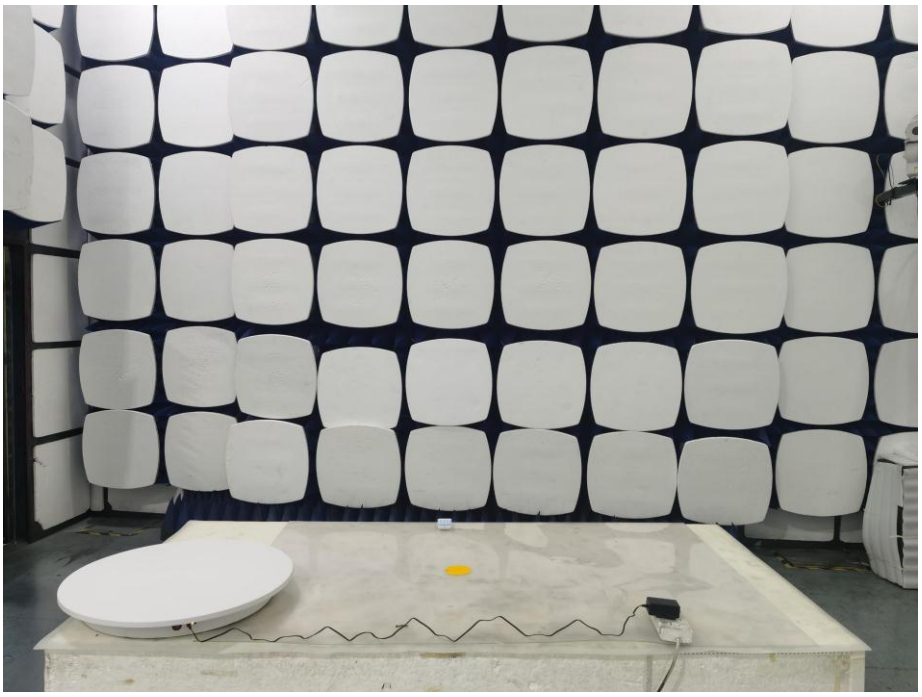
H/F

测试布置图布置
参考标准：
IEC 61000-3-2 IEC 61000-3-3
EN 61000-3-2 EN 61000-3-3
AC Mains
AC Power Source
EUT
LAPLACE INSTRUMENTS LTD

ESD

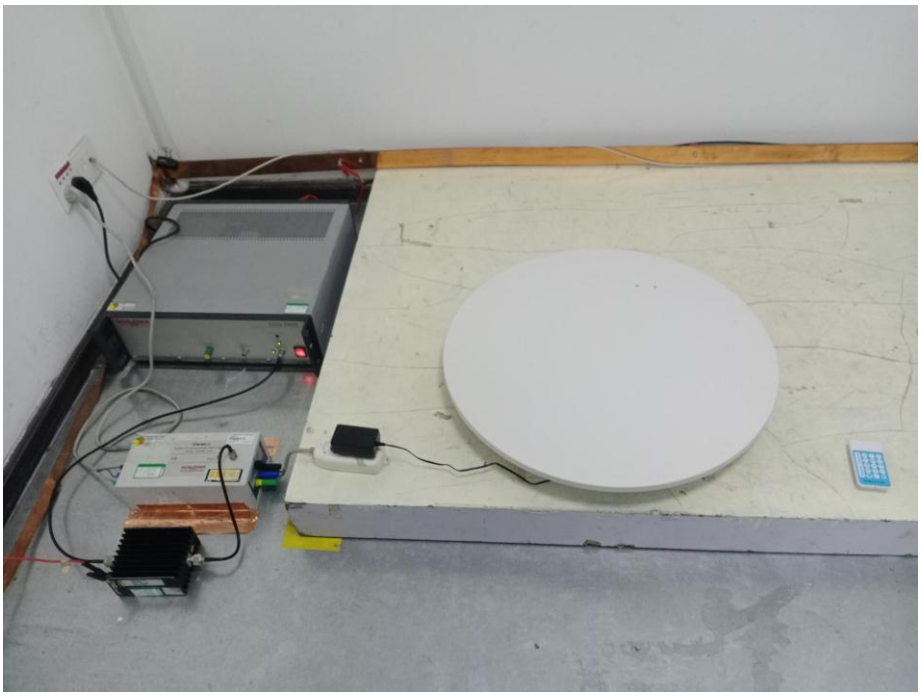

Prima

RS



EFT & Dips & Surge

CS



STATEMENT

1.The equipment lists are traceable to the national reference standards.

2.The test report can not be partially copied unless prior written approval is issued from our lab.

3.The test report is invalid without stamp of laboratory.

4.The test report is invalid without signature of person(s) testing and authorizing.

5.The test process and test result is only related to the Unit Under Test.

6.The quality system of our laboratory is in accordance with ISO/IEC17025.

7.If there is any objection to report, the client should inform issuing laboratory within 15 days from the date of receiving test report.

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FAX：0755-33229357

Website：http://www.chnbctc.com

E-Mail：bctc@bctc-lab.com.cn

※※※※※ **END** ※※※※※