

TEST REPORT

Report No.: BCTC2301462065E

Applicant: SHENZHEN YUNJI INTELLIGENT TECHNOLOGY
CO.,LTD

Product Name: Smart Phone

Model/Type
reference: WP23

Tested Date: 2023-01-11 to 2023-02-07

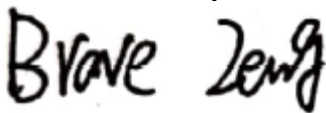
Issued Date: 2023-03-03

Shenzhen BCTC Testing Co., Ltd.



Product Name: Smart Phone
Trademark: OUKITEL
Model/Type reference: WP23
WP23 S, WP23 Pro, WP23 Ultra
Prepared For: SHENZHEN YUNJI INTELLIGENT TECHNOLOGY CO.,LTD
Address: 202, Building A2, Silicon Valley Power Intelligent Terminal Industrial Park, No. 20, Dafu Industrial Zone, Kukeng Community, Guanlan Street, Longhua District, Shenzhen
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Prepared By: Shenzhen BCTC Testing Co., Ltd.
Address: 1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Zhancheng, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China
Sample Received Date: 2023-01-11
Sample tested Date: 2023-01-11 to 2023-02-07
Issue Date: 2023-03-03
Report No.: BCTC2301462065E
Test Standards: EN 55032:2015+A11:2020+A1:2020, EN 55035: 2017+A11:2020
EN IEC 61000-3-2:2019+A1:2021, EN 61000-3-3:2013+A2:2021
Test Results: PASS

Tested by:



Brave Zeng/ Project Handler

Approved by:



Zero Zhou/Reviewer

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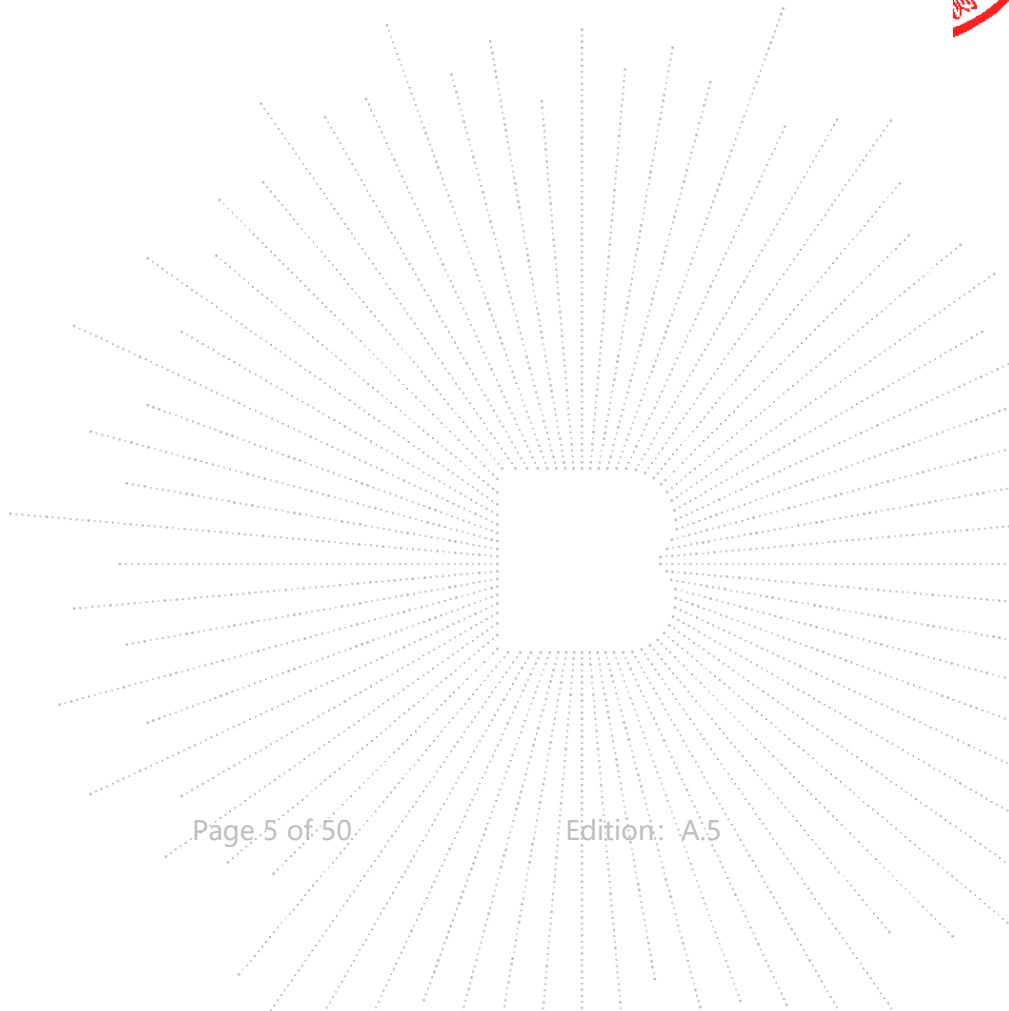
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(Note: N/A Means Not Applicable)



1. Version

Report No.	Issue Date	Description	Approved
BCTC2301462065E	2023-03-03	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 ¹
EN 55032	Conducted differential voltage emissions	N/A ²
EN 55032	Radiated emissions	Pass
EN IEC 61000-3-2	Harmonic current emission(H)	N/A ⁵
EN 61000-3-3	Voltage fluctuations & flicker(F)	N/A ⁶

IMMUNITY		
Standard	Test Item	Test result
EN 55035	Electrostatic discharge (ESD)	Pass
EN 55035	Continuous RF electromagnetic field disturbances(RS)	Pass
EN 55035	Electrical fast transients/burst (EFT)	Pass
EN 55035	Surges	Pass
EN 55035	Continuous induced RF disturbances (CS)	Pass
EN 55035	Broadband impulse noise disturbances, repetitive	N/A ³
EN 55035	Broadband impulse noise disturbances, isolated	N/A ³
EN 55035	Power frequency magnetic field (PFMF)	N/A ⁴
EN 55035	Voltage dips and interruptions (DIPS)	Pass

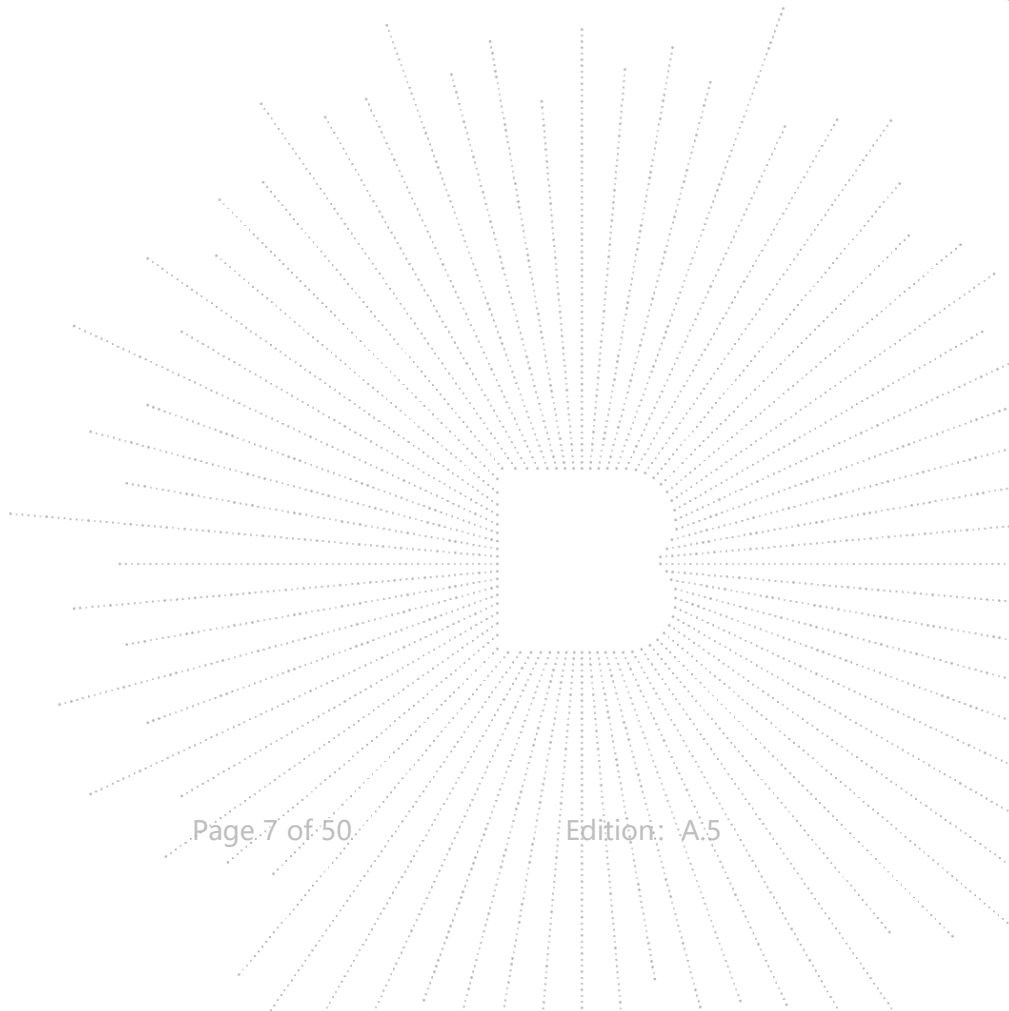
Remark:

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

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: AC230V/50Hz
 Model: HJ-FC017K7-EU
 Input: 100-240V~50/60Hz 0.6A
Adapter Information: Output: DC 5.0V 2.0A
 OR: DC 7.0V 2.0A
 OR: DC 9.0V 2.0A
 OR: DC 12.0V 1.5A 18.0W

Model differences : All models are identical except for the appearance color.
 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.

The highest frequency of the internal sources of the EUT is (less than 108)KHz:

Cable of Product

No.	Cable Type	Quantity	Provider	Length (m)	Shielded	Note
1	--	--	Applicant	---	Yes/No	With a ferrite ring in mid Detachable
2	--	--	BCTC	--	Yes/No	--

4.2 Test Setup Configuration

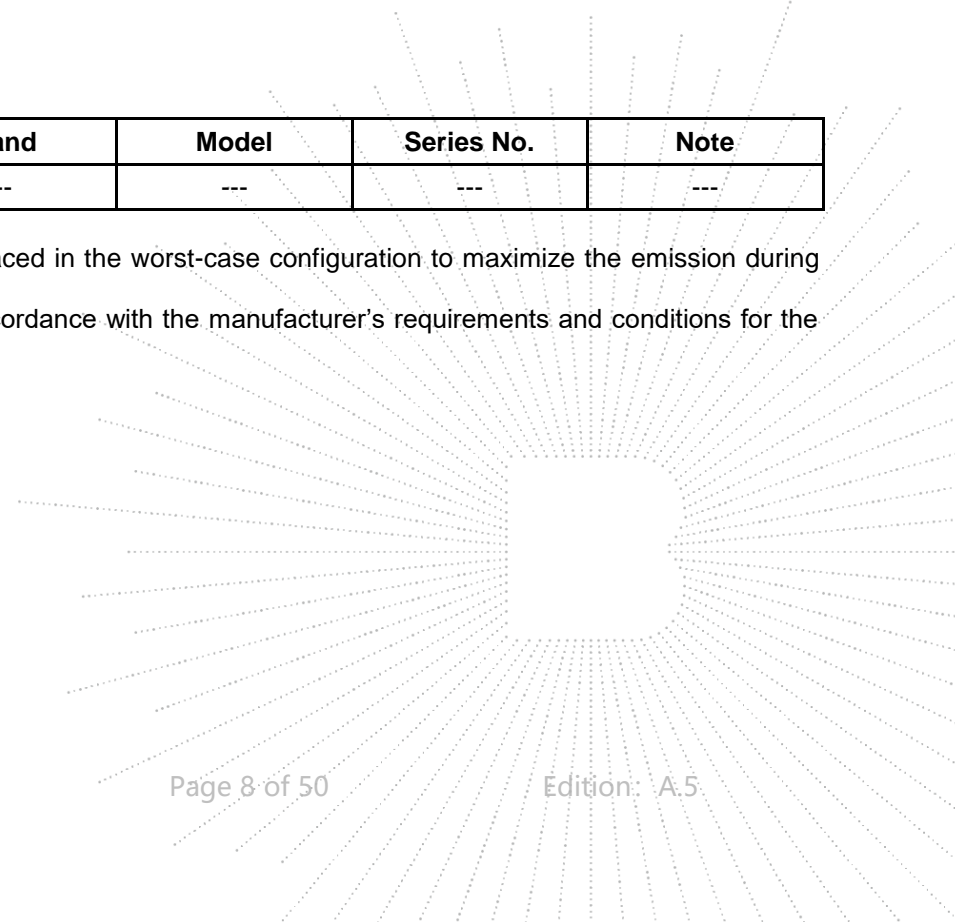
See test photographs attached in EUT TEST SETUP PHOTOGRAPHS for the actual connections between Product and support equipment.

4.3 Support Equipment

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

Notes:

- All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
- 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	Mode 1	AC230V/50Hz
	Mode 2*	AC230V/50Hz
	Mode 3	AC230V/50Hz
	Mode 4	AC230V/50Hz
Radiated emissions(30MHz-1GHz) Class B	Mode 1	AC230V/50Hz
	Mode 2*	AC230V/50Hz
	Mode 3	AC230V/50Hz
	Mode 4	AC230V/50Hz
	Mode 5	AC230V/50Hz
Voltage fluctuations & flicker	Mode 1	AC230V/50Hz
	Mode 2	AC230V/50Hz
	Mode 3	AC230V/50Hz
	Mode 4	AC230V/50Hz
	Mode 5	AC230V/50Hz
Electrostatic discharge (ESD) <input checked="" type="checkbox"/> HCP & VCP: ±4Kv <input checked="" type="checkbox"/> Air Discharge: ±8kV <input checked="" type="checkbox"/> Contact Discharge: ±4kV 10 times each point/	Mode 1	AC230V/50Hz
	Mode 2	AC230V/50Hz
	Mode 3	AC230V/50Hz
	Mode 4	AC230V/50Hz
	Mode 5	AC230V/50Hz
Continuous RF electromagnetic field disturbances(RS) 80MHz-1000MHz, 1800MHz, 2600MHz,3500MHz,5000MHz 3V/m,80% AM Front, Rear, Left, Right H/V	Mode 1	AC230V/50Hz
	Mode 2	AC230V/50Hz
	Mode 3	AC230V/50Hz
	Mode 4	AC230V/50Hz
	Mode 5	AC230V/50Hz
Electrical fast transients/burst (EFT) <input checked="" type="checkbox"/> 1kV AC(Input) <input type="checkbox"/> 0.5kV DC(Input) <input type="checkbox"/> 0.5kV signal,Telec,control	Mode 1	AC230V/50Hz
	Mode 2	AC230V/50Hz
	Mode 3	AC230V/50Hz
	Mode 4	AC230V/50Hz
	Mode 5	AC230V/50Hz
Surges <input checked="" type="checkbox"/> Line-Line, <input type="checkbox"/> 2kV Line-PE, N-PE <input type="checkbox"/> 0.5kVDC(Input) <input type="checkbox"/> 1KV, <input type="checkbox"/> 4KV signal, Telec, control C Line-Line:90°+1kV,270°-1kV Line-PE:90°+2kV,270°-2kV N-PE:90°-2kV,270°+2kV	Mode 1	AC230V/50Hz
	Mode 2	AC230V/50Hz
	Mode 3	AC230V/50Hz
	Mode 4	AC230V/50Hz

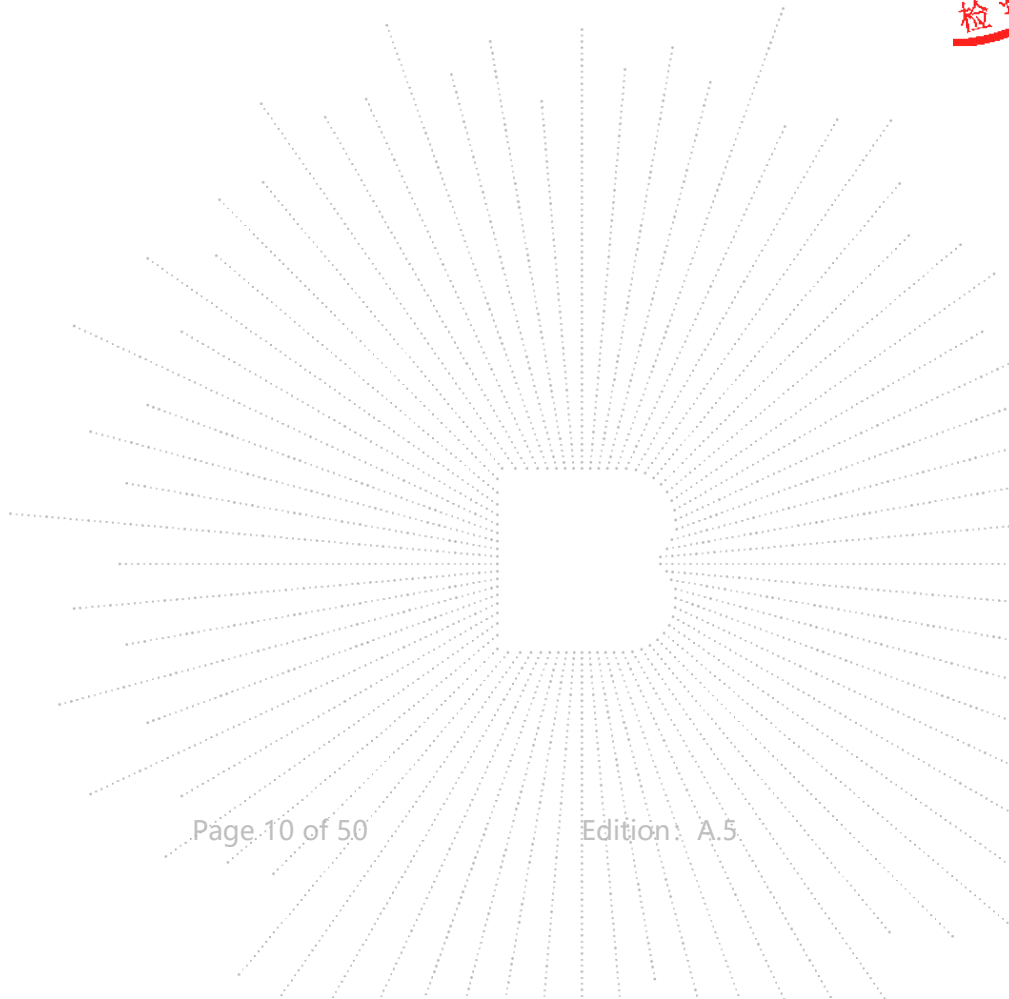
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	Mode 5	AC230V/50Hz
Continuous induced RF disturbances (CS) A 0.15MHz to 10MHz 3V,10MHz-30MHz 3 to 1V, 30MHz-80MHz 1V <input checked="" type="checkbox"/> AC(Input) <input type="checkbox"/> DC(Input) <input type="checkbox"/> signal, Telec, control	Mode 1	AC230V/50Hz
	Mode 2	AC230V/50Hz
	Mode 3	AC230V/50Hz
	Mode 4	AC230V/50Hz
	Mode 5	AC230V/50Hz
Voltage dips and interruptions (DIPS) Less 5% 0.5P 10ms B 70% 25P 500ms B Voltage Interruptions less5% 250P 5000ms C	Mode 1	AC230V/50Hz
	Mode 2	AC230V/50Hz
	Mode 3	AC230V/50Hz
	Mode 4	AC230V/50Hz
	Mode 5	AC230V/50Hz
All test mode were tested and passed, only Conducted Emissions, Radiated Emissions and Voltage fluctuations & flicker shows (*) is the worst case mode which were recorded in this report.		

Remark:

- Mode1: Charging+BT+WiFi+ Camera shooting
- Mode2: Charging+BT+WiFi+ Memory Playing
- Mode3: Charging+BT+WiFi+ TF Card Playing
- Mode4: BT+ Wi-Fi+ GPS+ Data Transmitting
- Mode5: BT+ Wi-Fi+ GPS+ FM Playing+ Earphone

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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, Zhancheng, 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 24, 2022	May 23, 2023
LISN	R&S	ENV216	101375	May 24, 2022	May 23, 2023
Software	Frad	EZ-EMC	EMC-CON 3A1	\	\
Attenuator	\	0dB DC-6GHz	1650	May 24, 2022	May 23, 2023

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 24, 2022	May 23, 2023
Receiver	R&S	ESR3	102075	May 24, 2022	May 23, 2023
Amplifier	SKET	APA_01G18G -45dB	\	May 24, 2022	May 23, 2023
Amplifier	Schwarzbeck	BBV9744	9744-0037	May 24, 2022	May 23, 2023
TRILOG Broadband Antenna	schwarzbeck	VULB9163	942	May 26, 2022	May 25, 2023
Horn Antenna	schwarzbeck	BBHA9120D	1541	Jun. 06, 2022	Jun. 06, 2023
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 24, 2022	May 23, 2023
AC Power Supply	KIKUSUI	PCR4000M	UK001879	May 24, 2022	May 23, 2023
Software	HTEC	H/F	V1.5	\	\



Electrostatic discharge Test					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
ESD Tester	KIKUSUI	KES4201A	UH002321	May 26, 2022	May 25, 2023

Continuous RF electromagnetic field disturbances Test					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
Power meter	Keysight	E4419	A00065	May 24, 2022	May 23, 2023
Power sensor	Keysight	E9300A	US39211659	May 24, 2022	May 23, 2023
Power sensor	Keysight	E9300A	US39211305	May 24, 2022	May 23, 2023
Amplifier	SKET	HAP_801000-2 50W	21201805013	May 24, 2022	May 23, 2023
Amplifier	SKET	HAP_0103-75 W	21201805014	May 24, 2022	May 23, 2023
Amplifier	SKET	HAP_0306-50 W	21201805015	May 24, 2022	May 23, 2023
Stacked double Log.-Per. Antenna	Schwarzbeck	STLP 9129	00077	\	\
Field Probe	Narda	EP-601	611WX80256	May 30, 2022	May 29, 2023
Signal Generator	Agilent	N5181A	MY50143748	May 24, 2022	May 23, 2023
Software	SKET	EMC-S	1.2.0.18	\	\

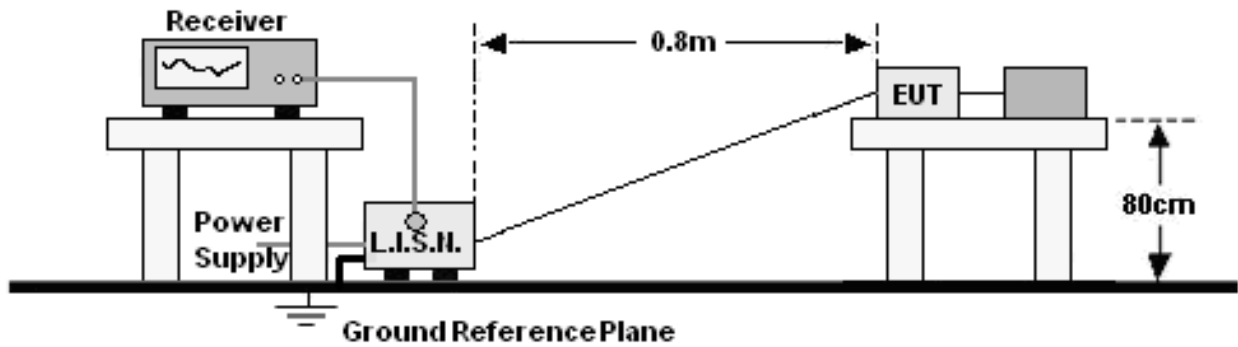
EFT and Surge and Voltage dips and interruptions Test					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
Compact Generator	TRANSIENT	TRA2000	646	May 24, 2022	May 23, 2023
Coupling Clamp	PARTNER	CN-EFT1000	CN-EFT100 0-1624	May 24, 2022	May 23, 2023

Continuous induced RF disturbances Test					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
C/S Test System	SCHLODER	CDG-6000-75	126B1405/2016	Jun 28, 2022	Jun 27, 2023
Attenuator	SCHLODER	6DB DC-1G	HA1630	May 24, 2022	May 23, 2023
CDN	SCHLODER	CDN M2+M3	A2210389/2016	May 24, 2022	May 23, 2023
Injection Clamp	SCHLOBER	EMCL-20	132A1272/2016	May 24, 2022	May 23, 2023
Software	HUBERT	HUBERTEN 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.

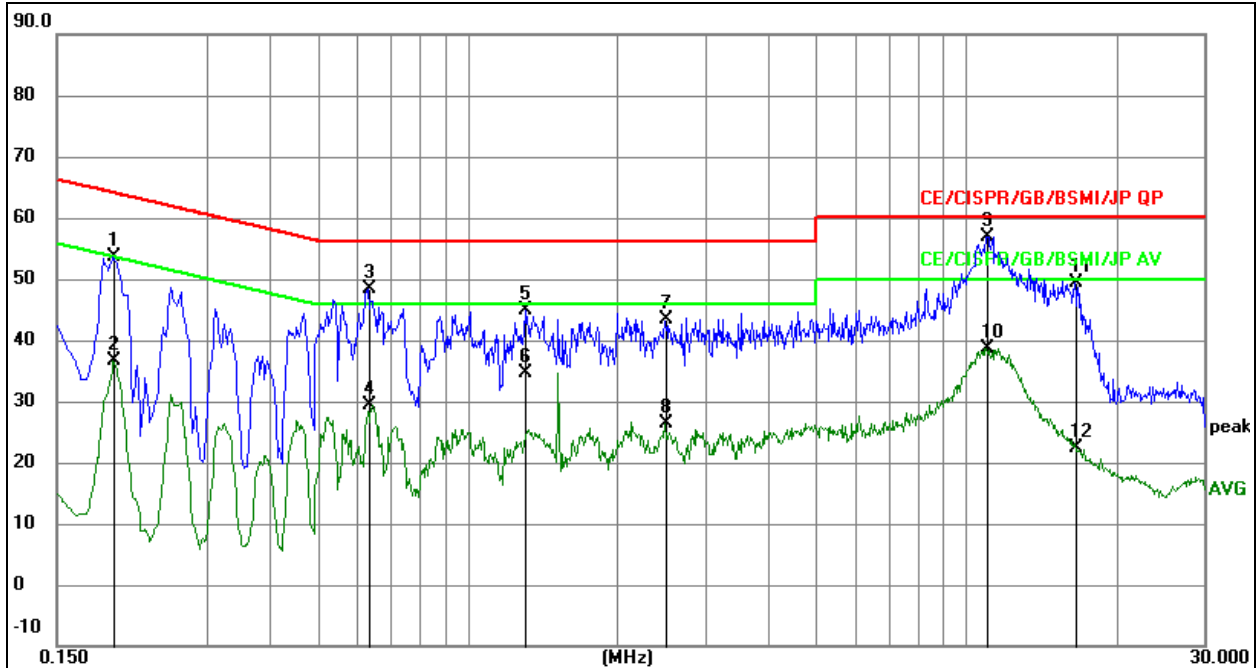
6.3 Test Procedure

F For mains ports:

- 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).
- 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.
- 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 °C	Relative Humidity:	54%
Pressure:	101kPa	Phase :	Line
Test Mode:	The worst data	Remark:	N/A

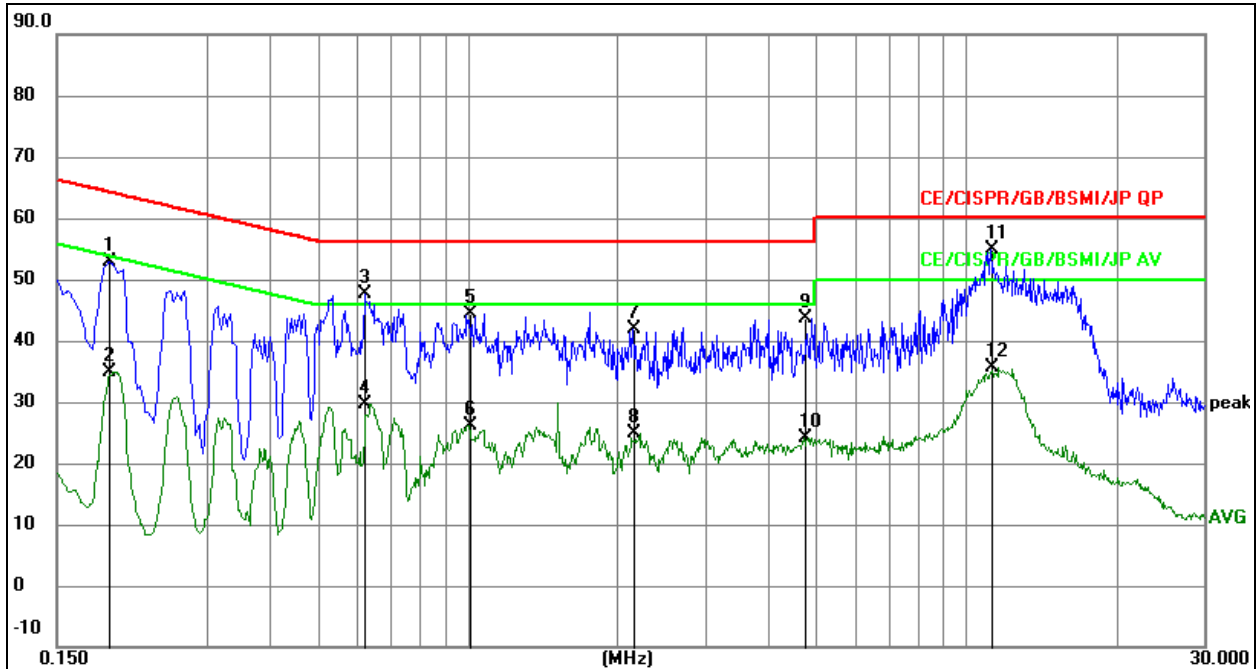


Remark:

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. MHz	Reading Level	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1		0.1949	33.79	19.79	53.58	63.83	-10.25	QP
2		0.1949	16.87	19.79	36.66	53.83	-17.17	AVG
3		0.6315	28.62	19.73	48.35	56.00	-7.65	QP
4		0.6315	9.65	19.73	29.38	46.00	-16.62	AVG
5		1.3065	25.06	19.80	44.86	56.00	-11.14	QP
6		1.3065	14.75	19.80	34.55	46.00	-11.45	AVG
7		2.4945	23.56	19.93	43.49	56.00	-12.51	QP
8		2.4945	6.36	19.93	26.29	46.00	-19.71	AVG
9	*	10.9905	36.70	20.28	56.98	60.00	-3.02	QP
10		10.9905	18.44	20.28	38.72	50.00	-11.28	AVG
11		16.5120	29.00	20.35	49.35	60.00	-10.65	QP
12		16.5120	1.92	20.35	22.27	50.00	-27.73	AVG

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101kPa	Phase :	Neutral
Test Mode:	The worst data	Remark:	N/A


Remark:

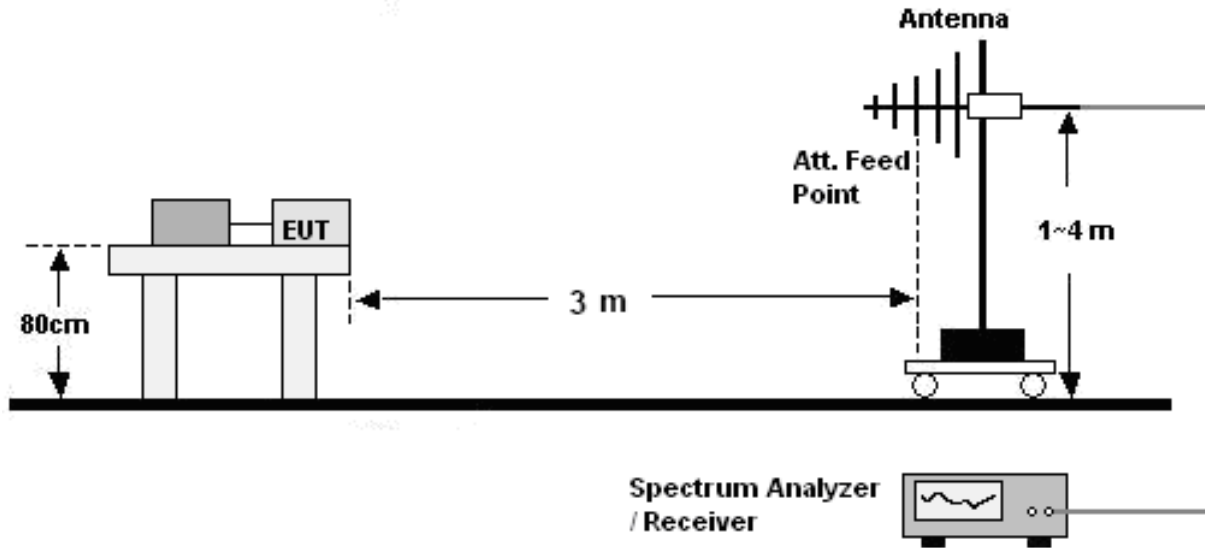
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.
3. Measurement=Reading Level+ Correct Factor
4. Over=Measurement-Limit

No.	Mk.	Freq. MHz	Reading Level	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1		0.1905	33.20	19.78	52.98	64.01	-11.03	QP
2		0.1905	15.01	19.78	34.79	54.01	-19.22	AVG
3		0.6225	27.78	19.73	47.51	56.00	-8.49	QP
4		0.6225	9.96	19.73	29.69	46.00	-16.31	AVG
5		1.0050	24.60	19.76	44.36	56.00	-11.64	QP
6		1.0050	6.45	19.76	26.21	46.00	-19.79	AVG
7		2.1525	21.88	19.90	41.78	56.00	-14.22	QP
8		2.1525	4.89	19.90	24.79	46.00	-21.21	AVG
9		4.7355	23.45	20.12	43.57	56.00	-12.43	QP
10		4.7355	4.10	20.12	24.22	46.00	-21.78	AVG
11	*	11.2425	34.64	20.28	54.92	60.00	-5.08	QP
12		11.2425	15.27	20.28	35.55	50.00	-14.45	AVG

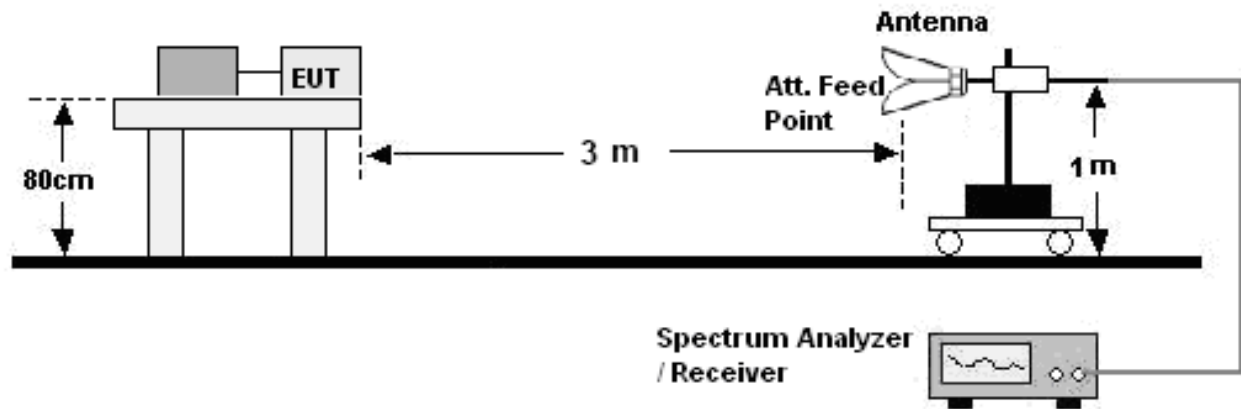
7. Radiated Emissions Test

7.1 Block Diagram Of Test Setup

30MHz ~ 1GHz:



Above 1GHz:



7.2 Limits

Limits for radiated disturbance of Class B MME

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

Frequency (MHz)	limit above 1G at 3m dB(μ V/m)	
	Average	peak
1000-6000	54	74

Note: The lower limit shall apply at the transition frequencies.

7.3 Test Procedure

30MHz ~ 1GHz:

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

Above 1GHz:

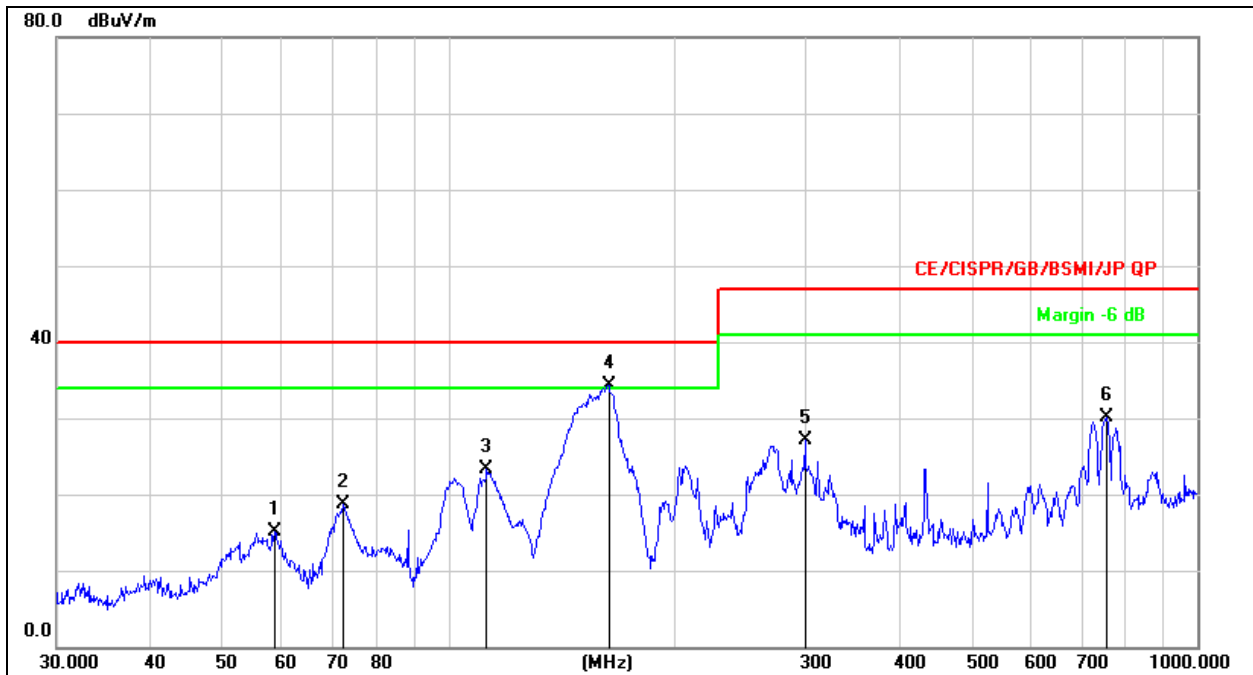
- The Product was placed on the non-conductive turntable 0.8 m above the ground in a full anechoic chamber..
- Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 1MHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.
- For each frequency whose maximum record was higher or close to limit, measure its AV value: rotate the turntable from 0 to 360 degrees to find the degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to AV value and specified bandwidth with Maximum Hold Mode, and record the maximum value.



7.4 Test Results

30MHz ~ 1GHz:

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Horizontal
Test Voltage :	AC 230V/50Hz	Test Mode:	The worst data

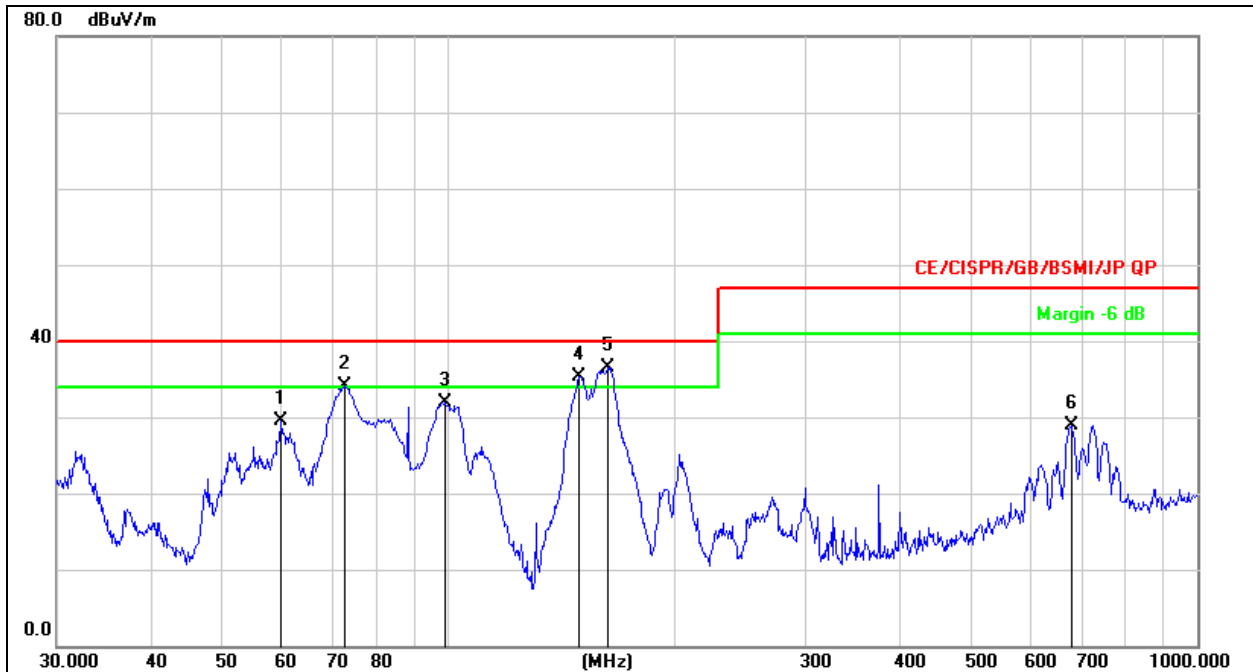


Remark:

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

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector
1		58.6126	31.96	-16.88	15.08	40.00	-24.92	QP
2		72.3376	39.00	-20.33	18.67	40.00	-21.33	QP
3		112.5244	41.84	-18.58	23.26	40.00	-16.74	QP
4	*	163.7550	54.44	-20.04	34.40	40.00	-5.60	QP
5		299.3158	41.78	-14.60	27.18	47.00	-19.82	QP
6		758.0408	36.37	-6.24	30.13	47.00	-16.87	QP

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Vertical
Test Voltage :	AC 230V/50Hz	Test Mode:	The worst data



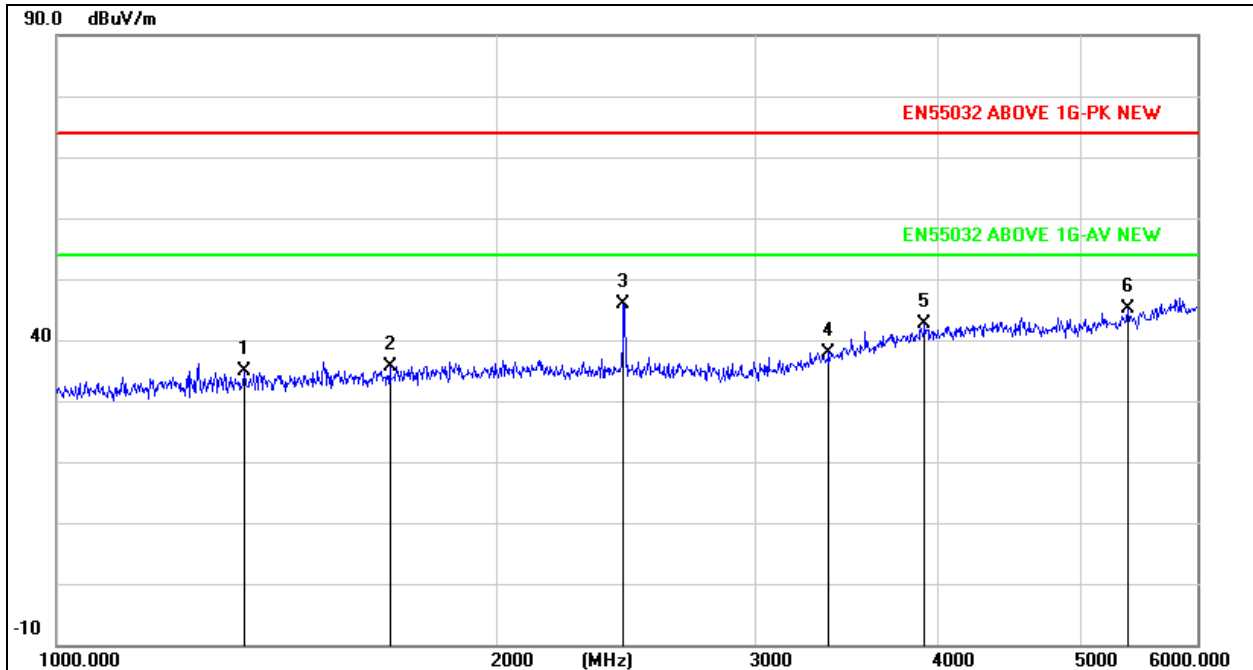
Remark:
 1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
 2. Measurement=Reading Level+ Correct Factor
 3. Over=Measurement-Limit

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector
1		59.6493	46.52	-17.04	29.48	40.00	-10.52	QP
2	!	72.8466	54.57	-20.41	34.16	40.00	-5.84	QP
3		99.1797	49.80	-17.88	31.92	40.00	-8.08	QP
4	!	149.4857	56.29	-21.02	35.27	40.00	-4.73	QP
5	*	163.1818	56.54	-20.08	36.46	40.00	-3.54	QP
6		679.9600	36.31	-7.39	28.92	47.00	-18.08	QP



Above 1GHz:

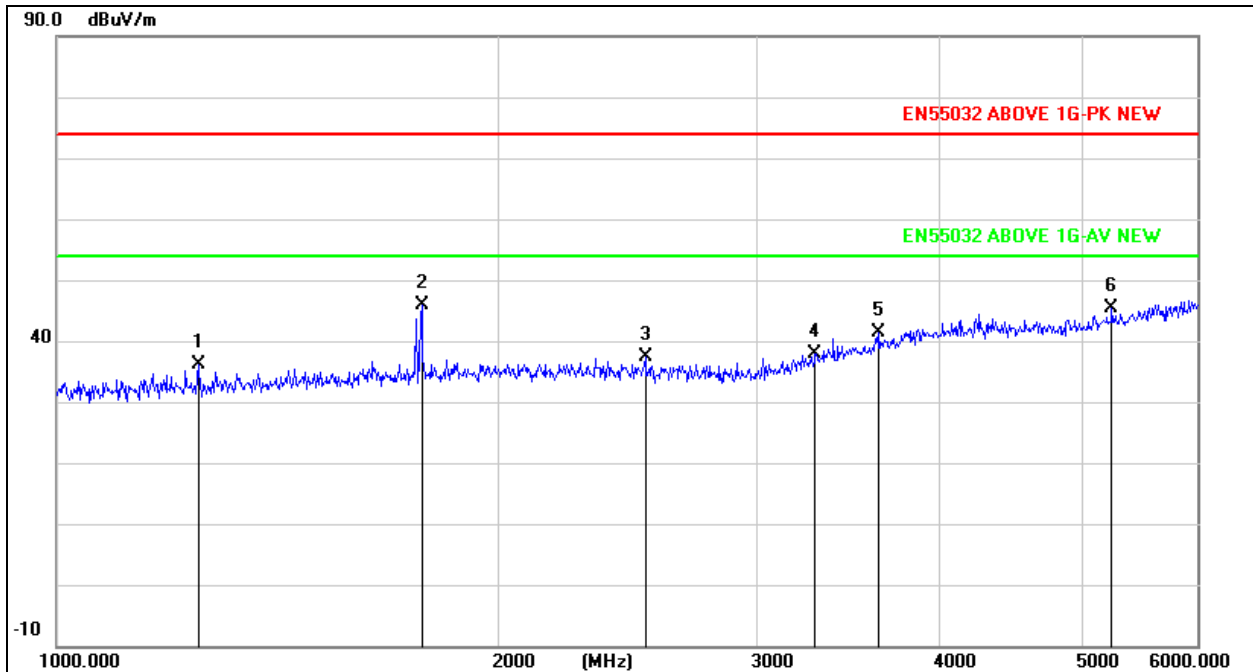
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Horizontal
Test Voltage :	AC 230V/50Hz	Test Mode:	The worst data


Remark:

- Factor = Antenna Factor + Cable Loss – Pre-amplifier.
- Measurement=Reading Level+ Correct Factor
- Over=Measurement-Limit

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
		MHz	dBuV	dB	dBuV/m	dB/m	dB	
1		1343.987	60.77	-25.85	34.92	74.00	-39.08	QP
2		1687.408	60.59	-24.91	35.68	74.00	-38.32	QP
3	*	2436.358	69.87	-24.08	45.79	74.00	-28.21	QP
4		3363.631	59.63	-21.63	38.00	74.00	-36.00	QP
5		3909.967	60.59	-17.89	42.70	74.00	-31.30	QP
6		5378.783	59.17	-13.96	45.21	74.00	-28.79	QP

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Vertical
Test Voltage :	AC 230V/50Hz	Test Mode:	The worst data



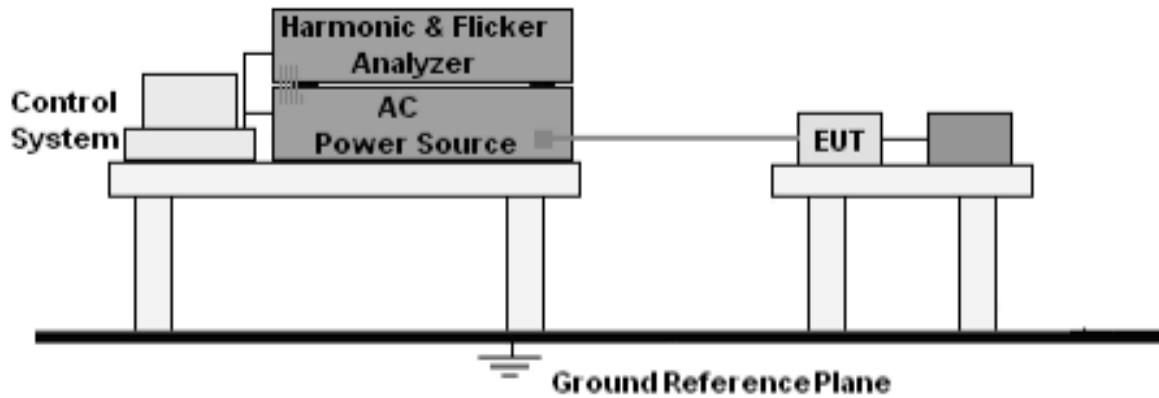
Remark:

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

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector
1		1248.794	62.32	-26.11	36.21	74.00	-37.79	QP
2	*	1774.224	70.53	-24.68	45.85	74.00	-28.15	QP
3		2520.728	61.45	-24.09	37.36	74.00	-36.64	QP
4		3292.081	59.98	-22.11	37.87	74.00	-36.13	QP
5		3639.545	61.21	-19.74	41.47	74.00	-32.53	QP
6		5245.536	59.99	-14.52	45.47	74.00	-28.53	QP

8. Harmonic Current Emission(H)

8.1 Block Diagram Of Test Setup



8.2 Limit

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

8.3 Test Procedure

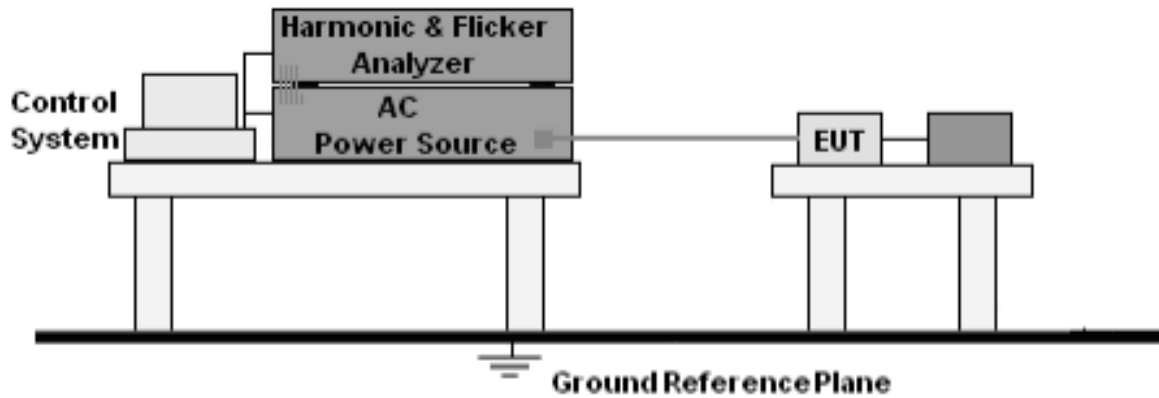
- The Product was placed on the top of a non-conductive table above the ground and operated to produce the maximum harmonic components under normal operating conditions for each successive harmonic component in turn.
- The correspondent test program of test instrument to measure the current harmonics emanated from Product was chosen. The measure time shall be not less than the time necessary for the Product to be exercised.

8.4 Test Results

The Product belongs to Class A, and its power is less than 75W, so it deems to fulfil this standard without testing.

9. Voltage Fluctuations & Flicker(F)

9.1 Block Diagram Of Test Setup



9.2 Limit

EN 61000-3-3:2013+A2:2021 Clause 5.

9.3 Test Procedure

- 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.
- 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.

9.4 Test Results

Test duration (sec):600**Describe:**

Load Power : 0.010 kW
Load Current : 0.116 Arms
Nominal Voltage : 229.01 Vrms

Power Factor:0.385
Crest Factor:4.362

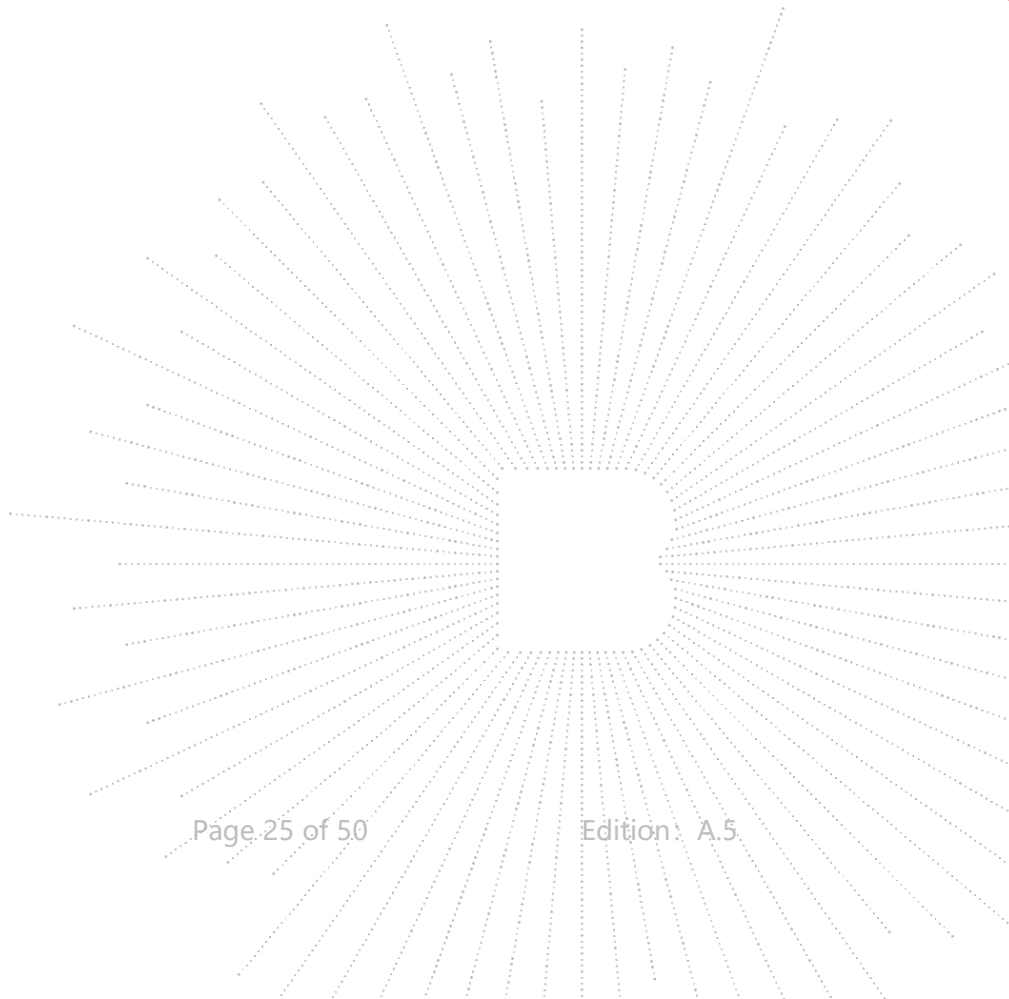
Test Result: pass**Status: Test Completed****Result:**

T-max (ms):	0.00	Test limit (ms):	500.00	Pass
Highest dc (%):	0.02	Test limit (%):	3.30	Pass
Highest dmax (%):	0.62	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.00	Test limit:	1.00	Pass

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10. Immunity Test Of General The Performance Criteria

Product Standard	EN 55035: 2017+A11:2020 clause 8
CRITERION A	<p>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.</p>
CRITERION B	<p>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.</p> <p>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.</p> <p>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.</p>
CRITERION C	<p>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.</p> <p>Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.</p>

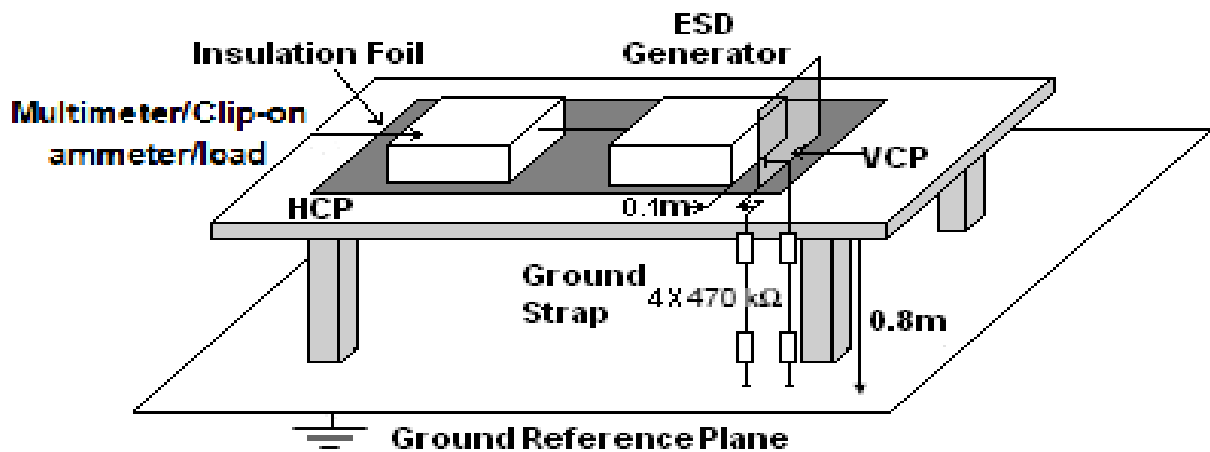
11. Electrostatic Discharge (ESD)

11.1 Test Specification

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

11.2 Block Diagram Of Test Setup

For Floor Stand:



11.3 Test Procedure

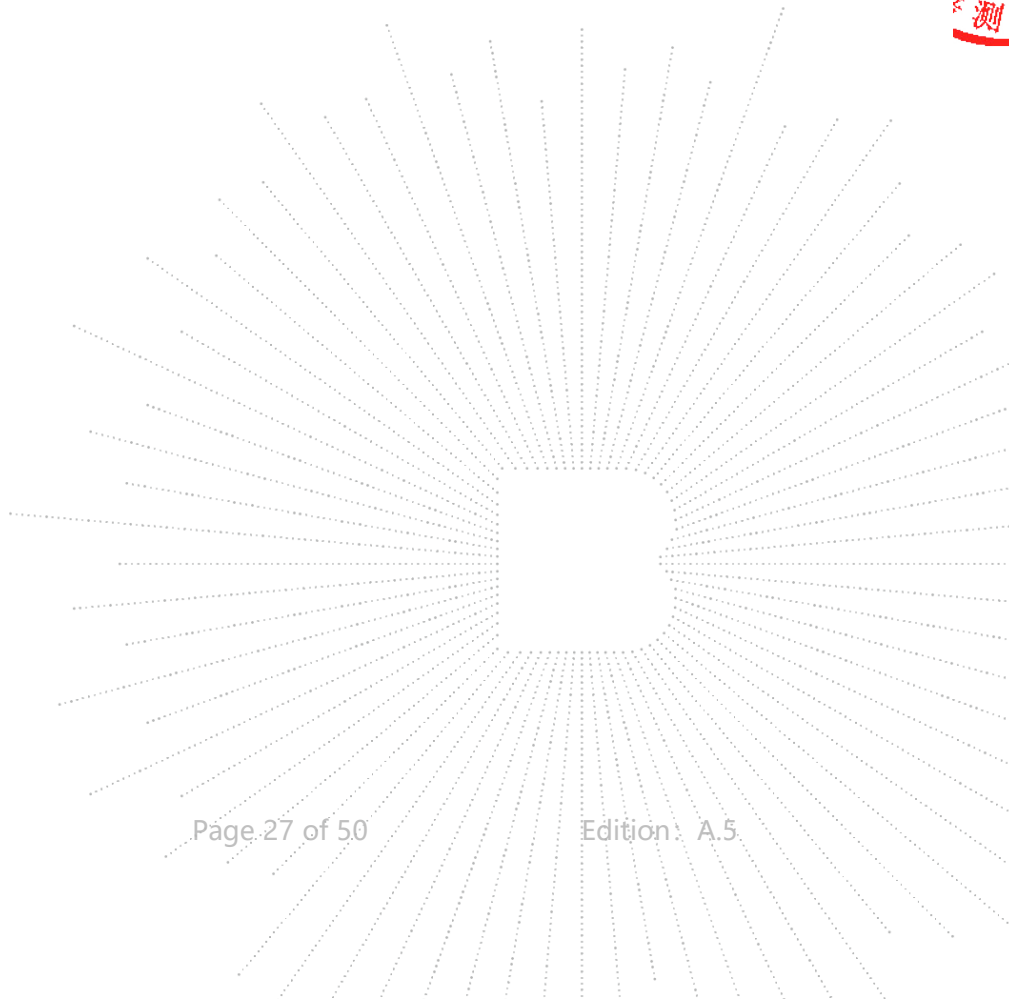
- Electrostatic discharges were applied only to those points and surfaces of the Product that are accessible to users during normal operation.
- The test was performed with at least ten single discharges on the pre-selected points in the most sensitive polarity.
- The time interval between two successive single discharges was at least 1 second.
- 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.
- Contact discharges were applied to the non-insulating coating, with the pointed tip of the generator penetrating the coating and contacting the conducting substrate.
- 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.
- 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.

11.4 Test Results

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101kPa	Test Mode:	Mode 1-5
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

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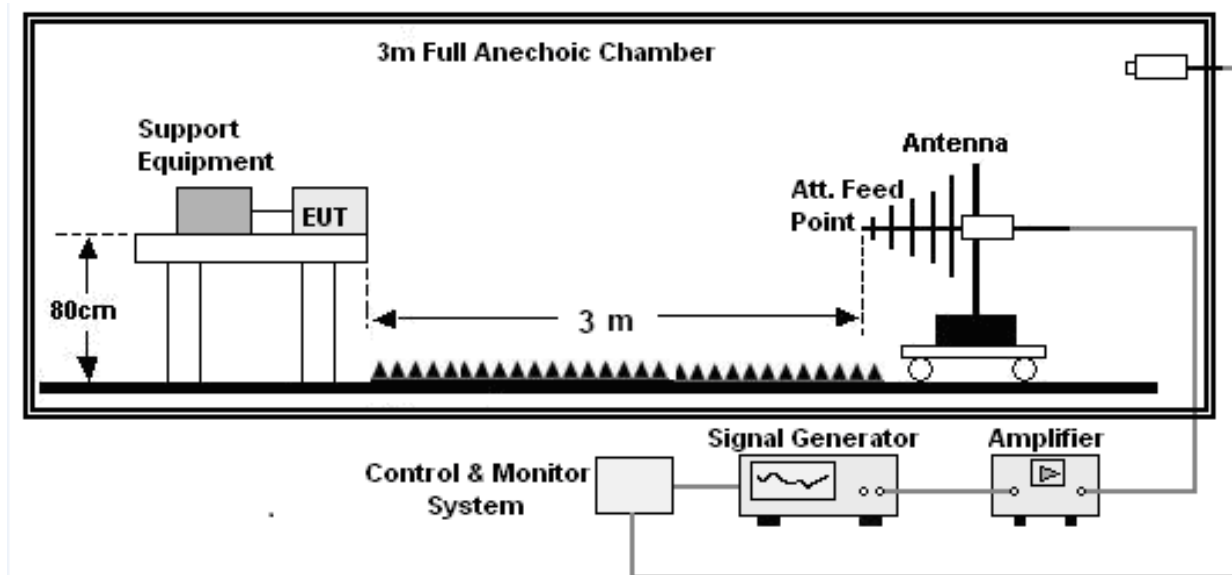
12. Continuous RF Electromagnetic Field Disturbances (RS)

12.1 Test Specification

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

12.2 Block Diagram Of Test Setup

Below 1GHz:



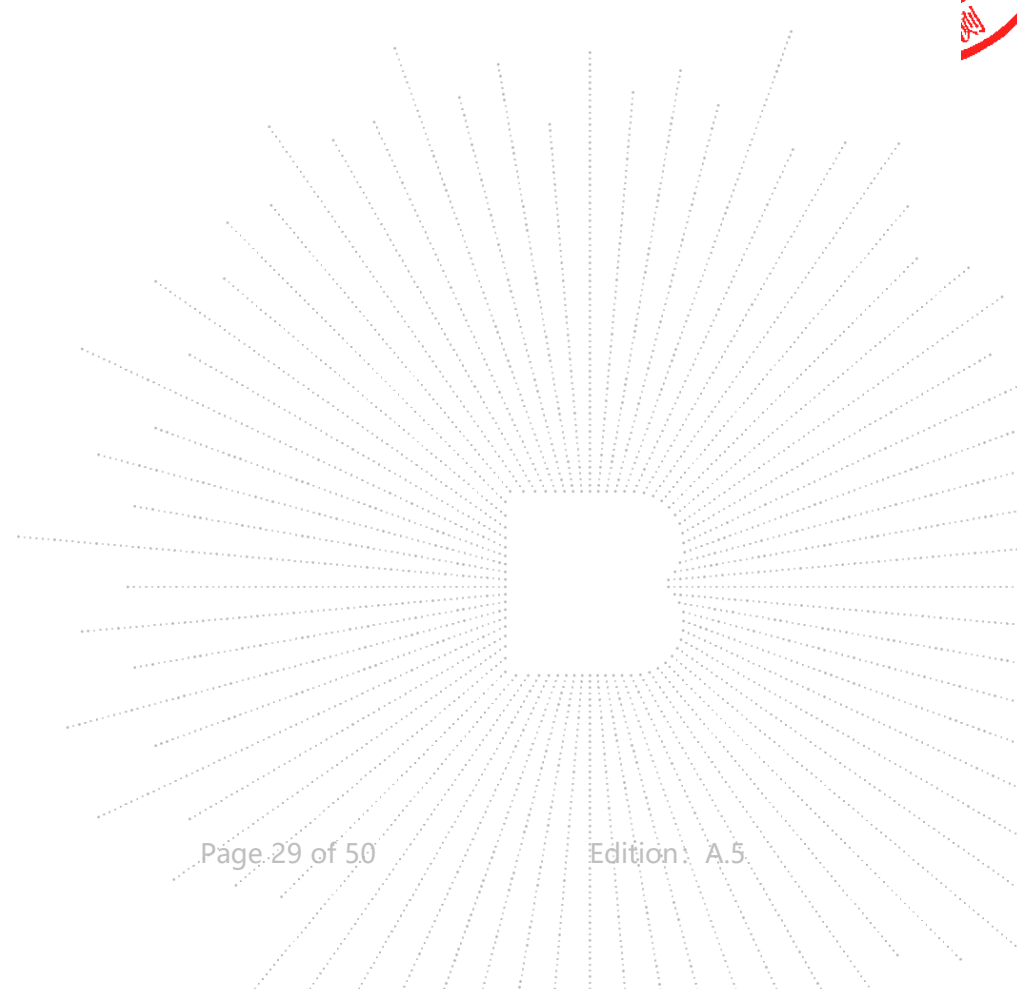
12.3 Test Procedure

- The testing was performed in a fully-anechoic chamber. The transmit antenna was located at a distance of 3 meters from the Product.
- 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%.
- 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.
- The test was performed with the Product exposed to both vertically and horizontally polarized fields on each of the four sides.
- For Broadcast reception function: Group 2 not apply in this test.

12.4 Test Results

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101kPa	Test Mode:	Mode 1-5
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



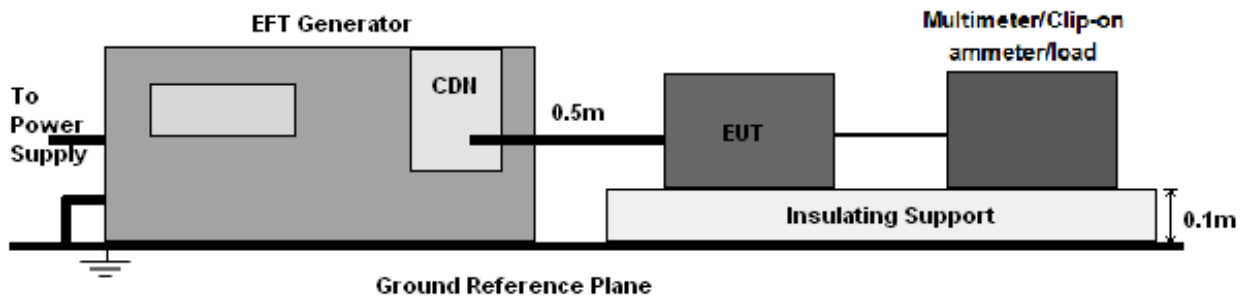
13. Electrical Fast Transients/Burst (EFT)

13.1 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

13.2 Block Diagram Of EUT Test Setup

For input ac/dc. power port:



13.3 Test Procedure

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

13.4 Test Results

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101kPa	Test Mode:	Mode 1-5
Test Voltage :	AC 230V/50Hz		

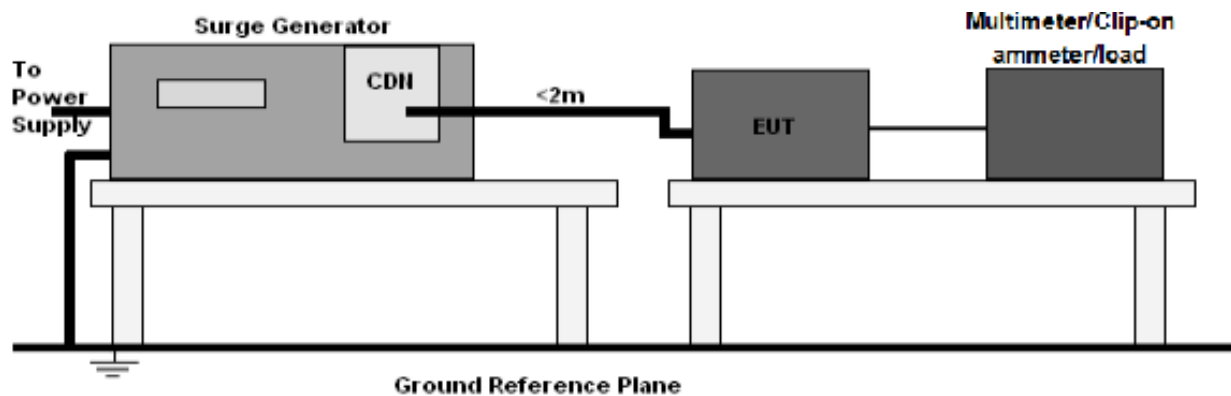
Coupling	Voltage (kV)	Polarity	Required Level	Performance Criterion
AC MainsL-N	1.0	±	B	A

14. Surges Immunity Test

14.1 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

14.2 Block Diagram Of EUT Test Setup



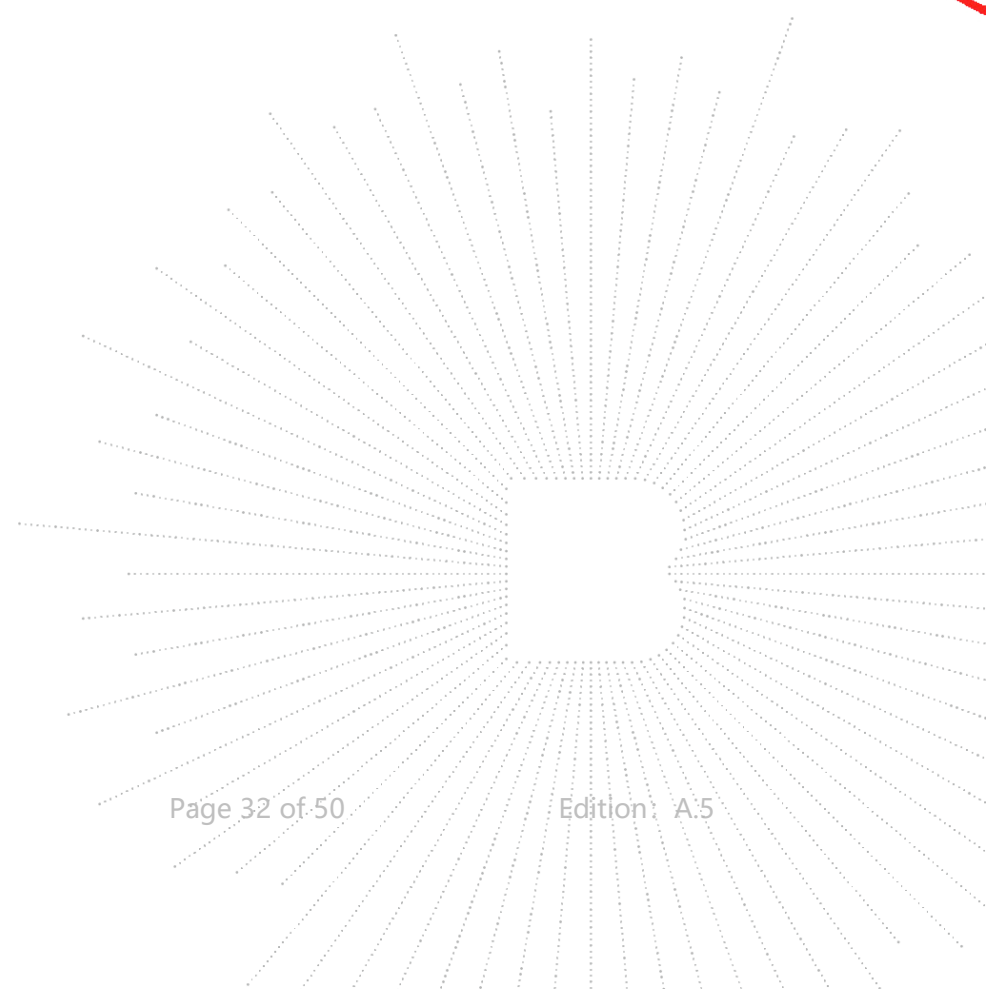
14.3 Test Procedure

- 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).

14.4 Test Result

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101kPa	Test Mode:	Mode 1-5
Test Voltage :	AC 230V/50Hz		

Coupling Line	Voltage (kV)	Phase Angle	Required Level	Performance Criterion
L - N	+ 1	90°	B	A
	- 1	270°		



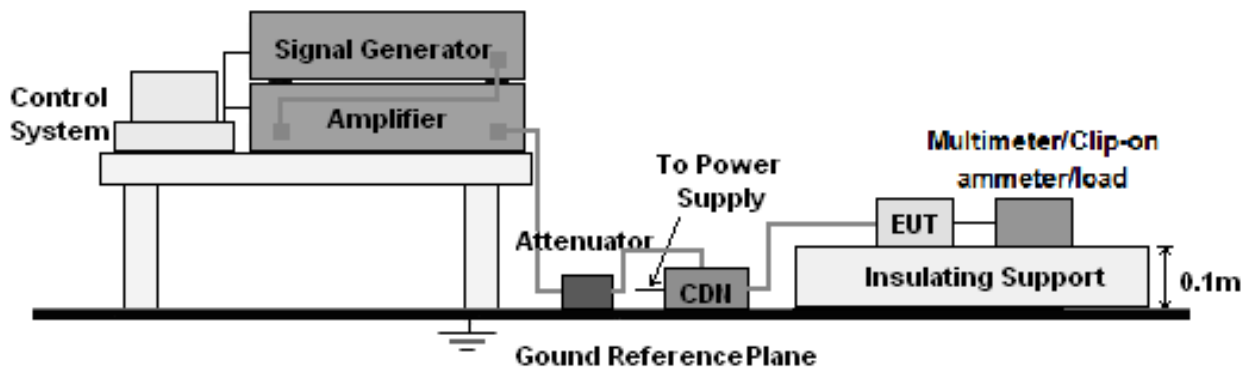
15. Continuous Induced RF Disturbances (CS)

15.1 Test Specification

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

15.2 Block Diagram Of EUT Test Setup

For input ac/ac. power port:



15.3 Test Procedure

For input ac/dc. power port:

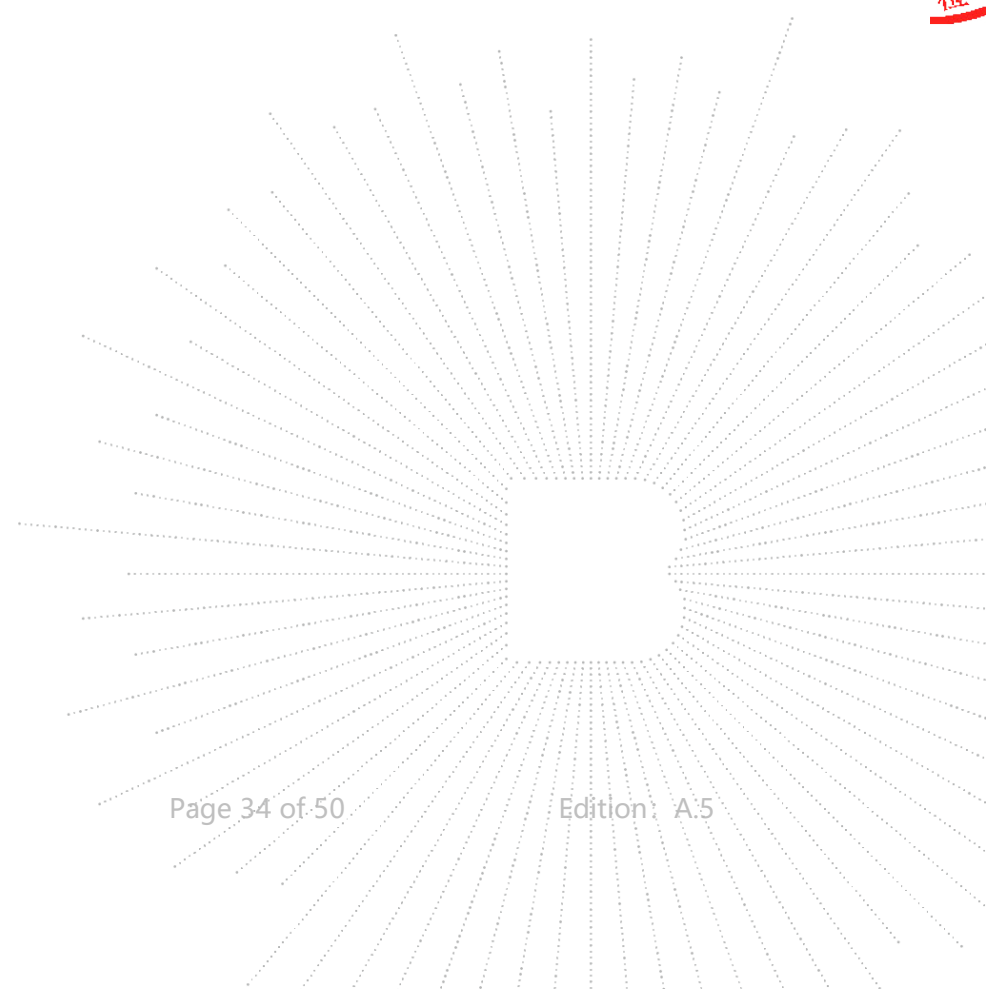
- The Product and support units were located at a ground reference plane with the interposition of a 0.1 m thickness insulating support and the CDN was located on GRP directly.
- The frequency range is swept from 150 kHz to 10MHz, 10MHz to 30MHz, 30MHz to 80MHz with the signal 80% amplitude modulated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

15.4 Test Result

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101kPa	Test Mode:	Mode 1-5
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

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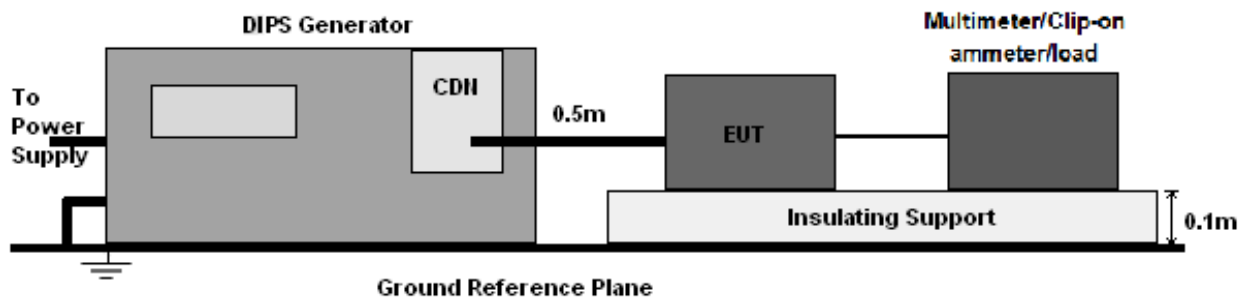


16. Voltage Dips And Interruptions (DIPS)

16.1 Test Specification

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

16.2 Block Diagram Of EUT Test Setup



16.3 Test Procedure

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

16.4 Test Result

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101kPa		
Test Voltage :	AC 230V/50Hz	Test Mode:	Mode 1-5

Test Level % U_T	Voltage dips in % U_T	Duration (ms)	Required Level	Performance Criterion
< 5	≥95	10	B	A
70	30	500	C	A
Voltage Interruptions:				
< 5	≥95	5000	C	A
Remark: $T (s) = 1 / f (Hz)$				

17. EUT Photographs

EUT Photo 1



EUT Photo 2



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EUT Photo 3



EUT Photo 4



SHENZHEN

EUT Photo 5



EUT Photo 6



EUT Photo 7

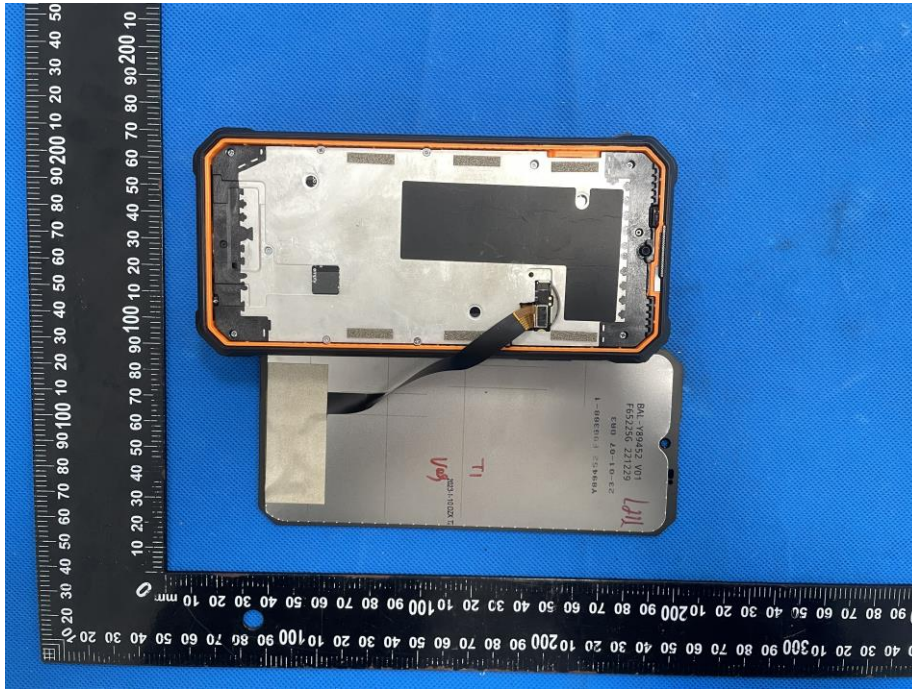


EUT Photo 8

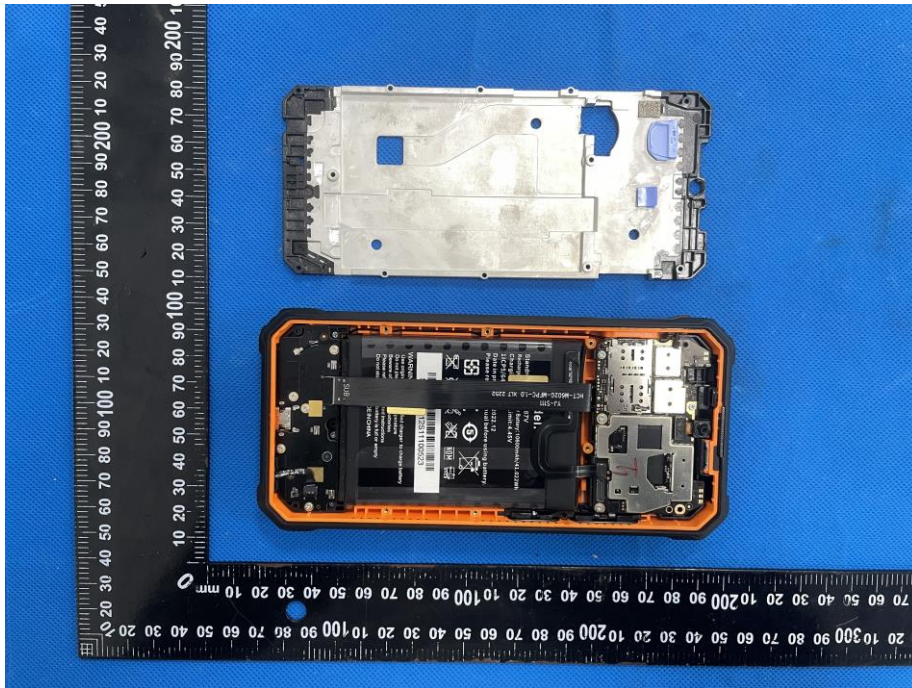


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EUT Photo 9

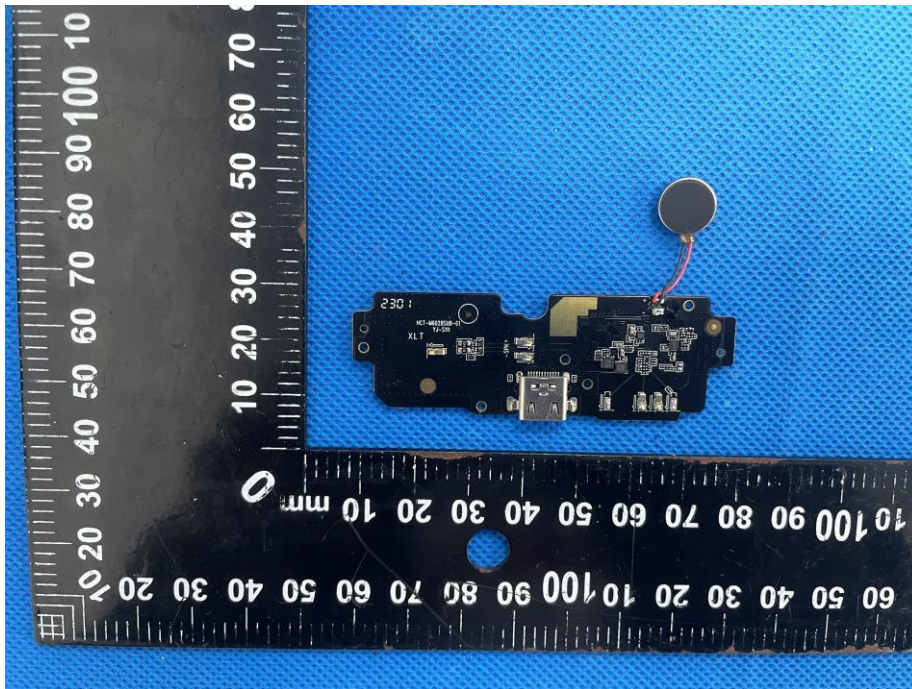


EUT Photo 10

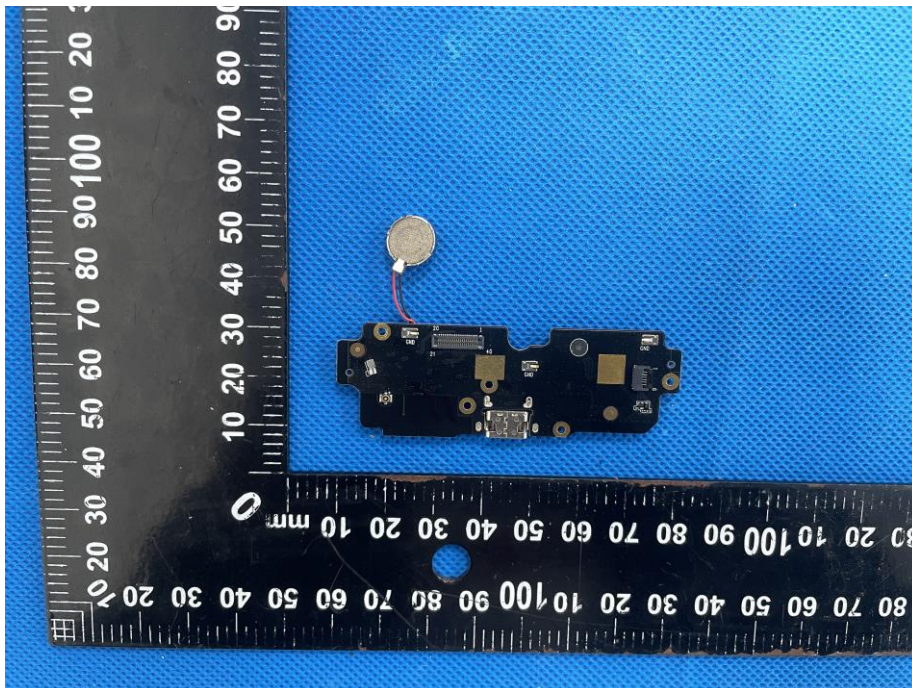


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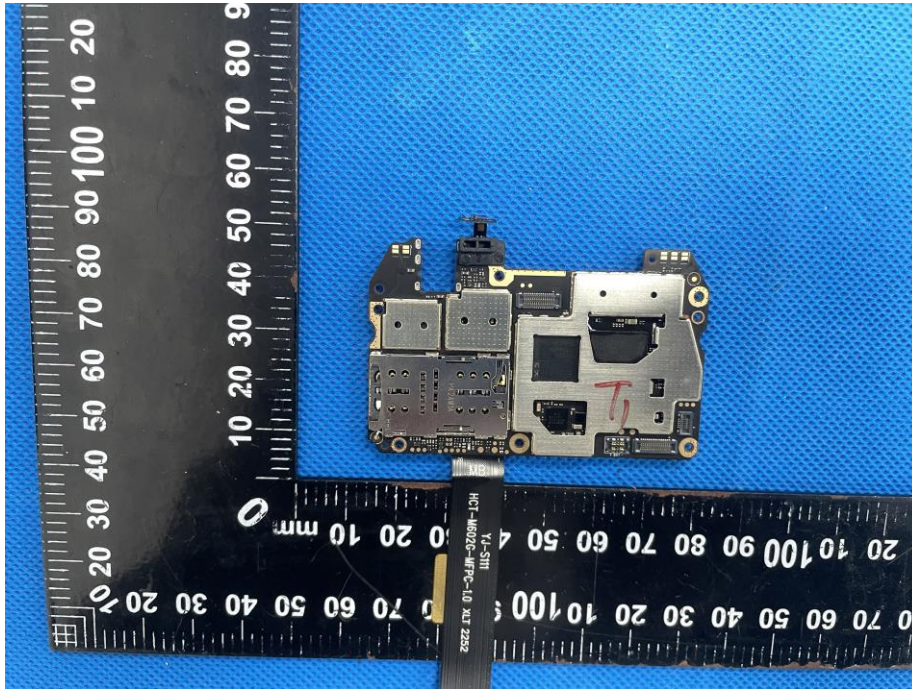
EUT Photo 11



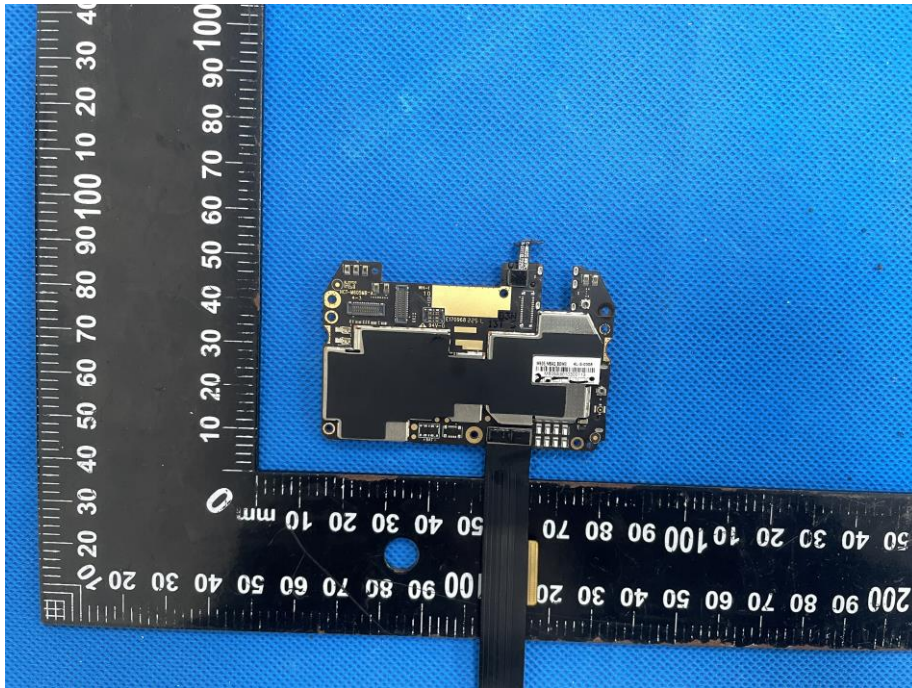
EUT Photo 12



EUT Photo 13

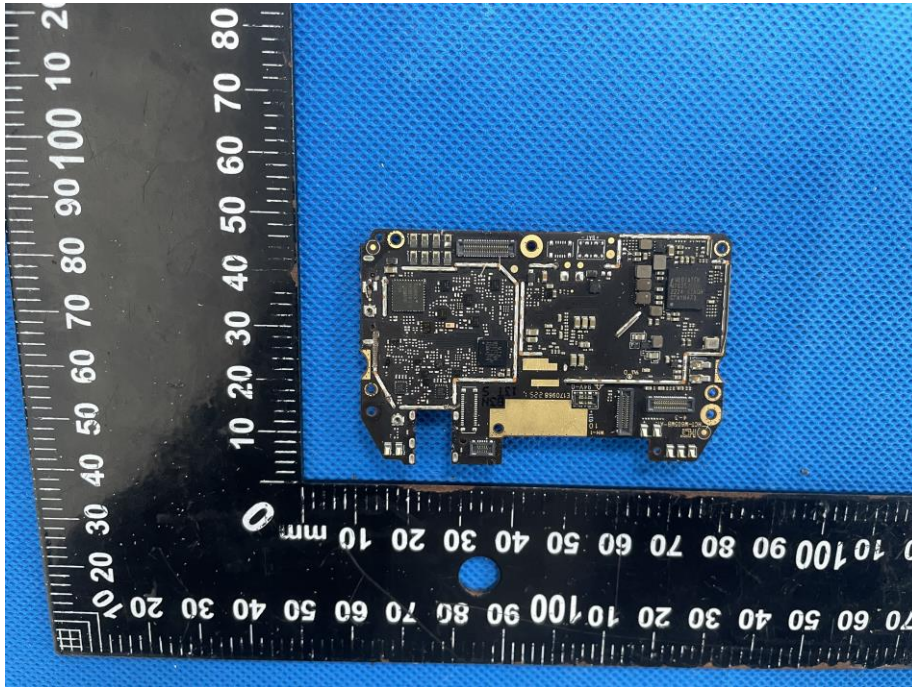


EUT Photo 14

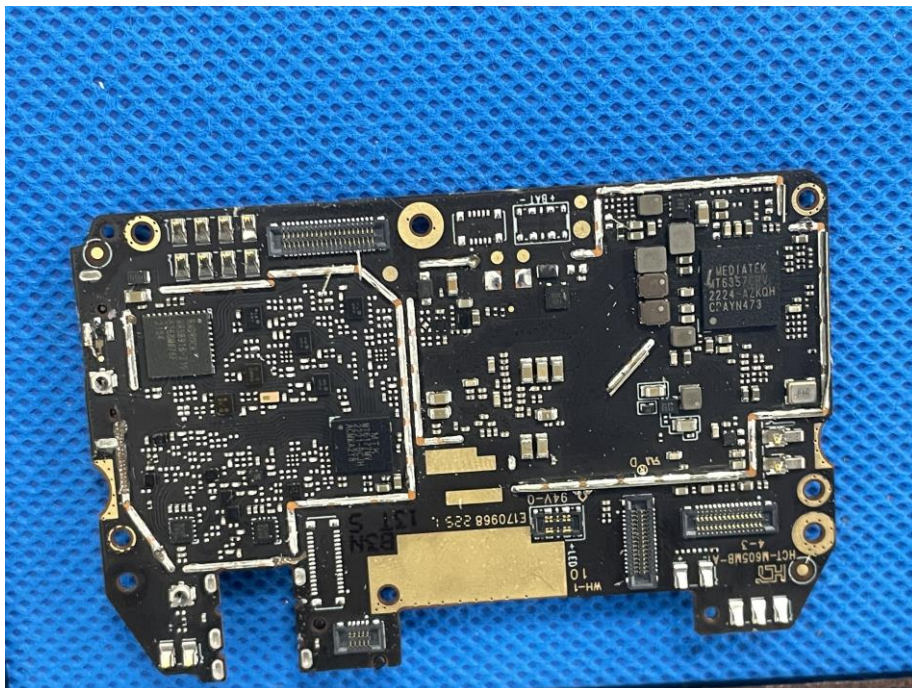


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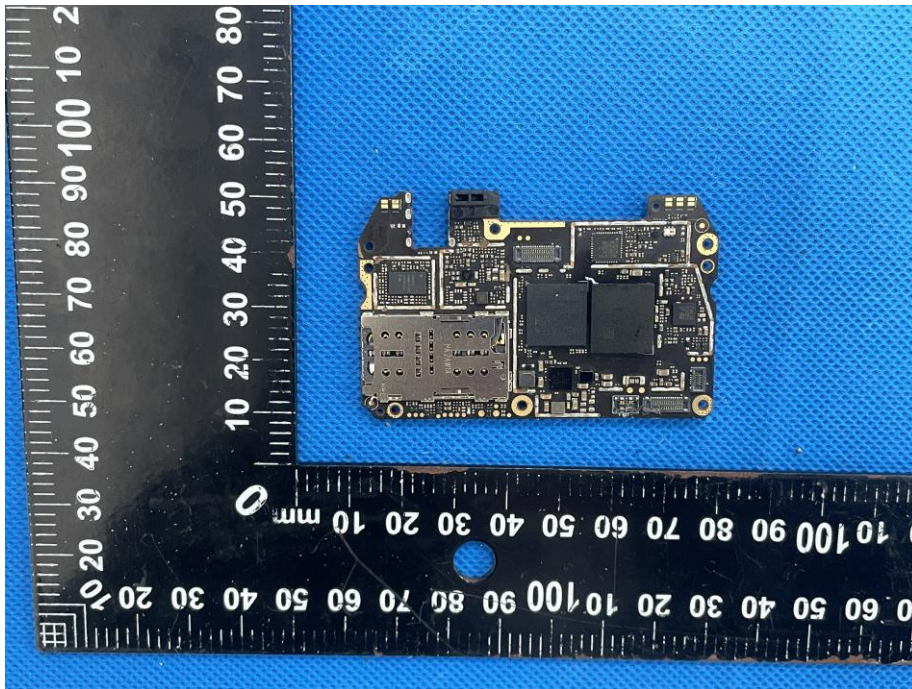
EUT Photo 15



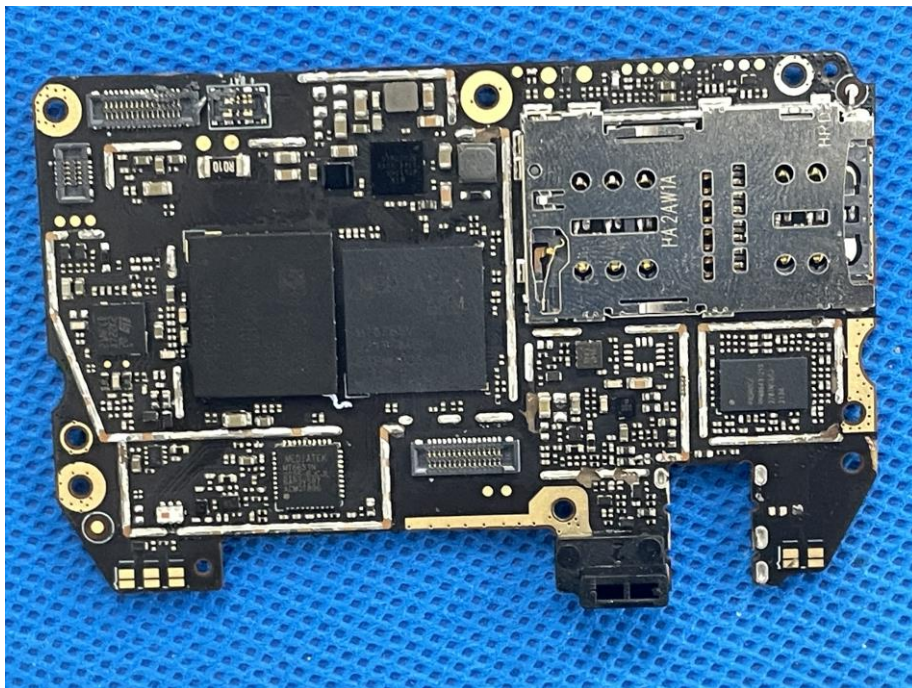
EUT Photo 16



EUT Photo 17

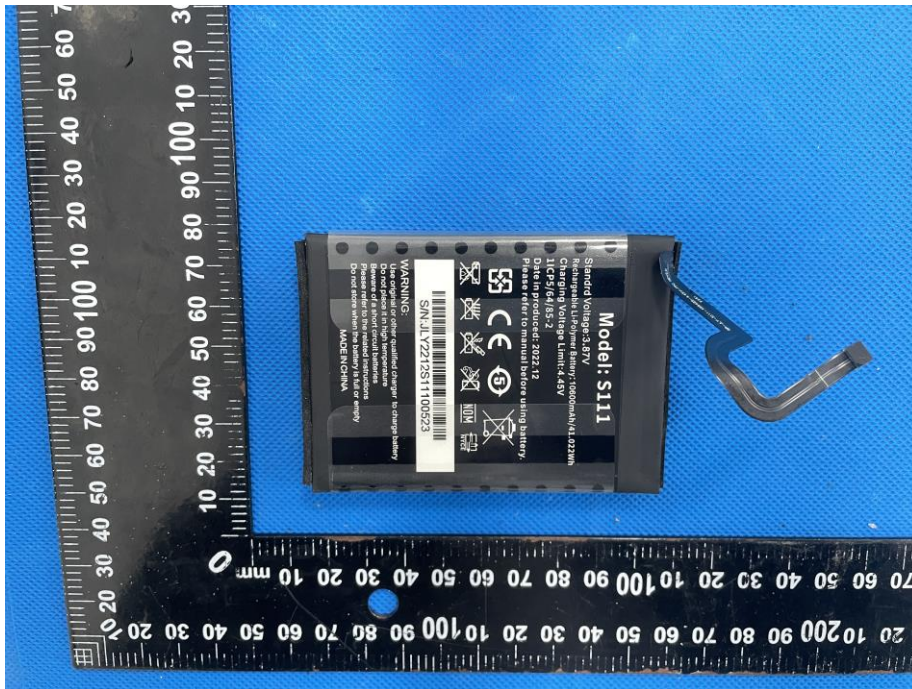


EUT Photo 18



SPRINGEN A

EUT Photo 19



EUT Photo 20



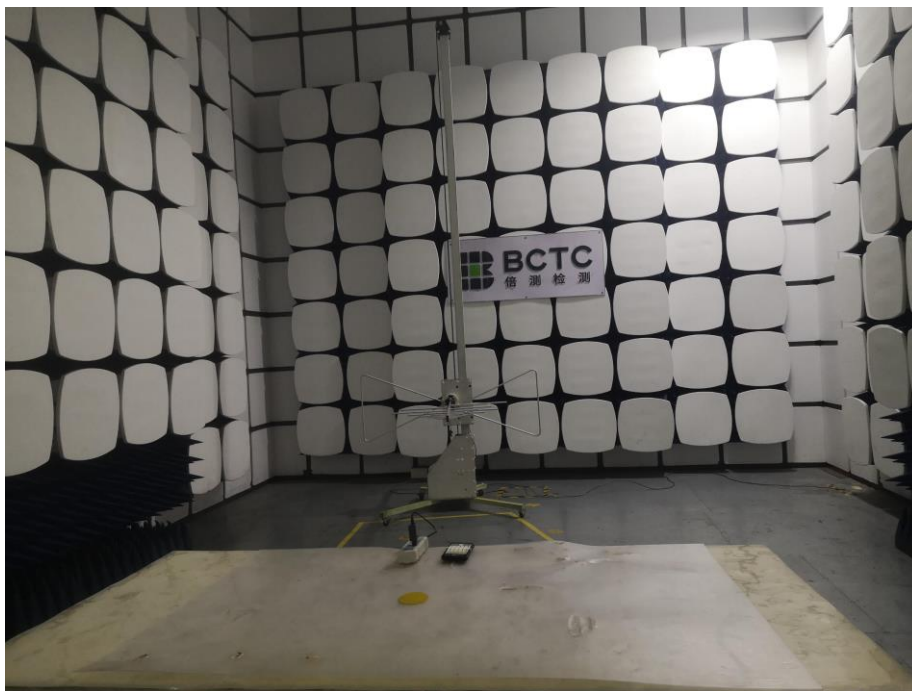
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18. EUT Test Setup Photographs

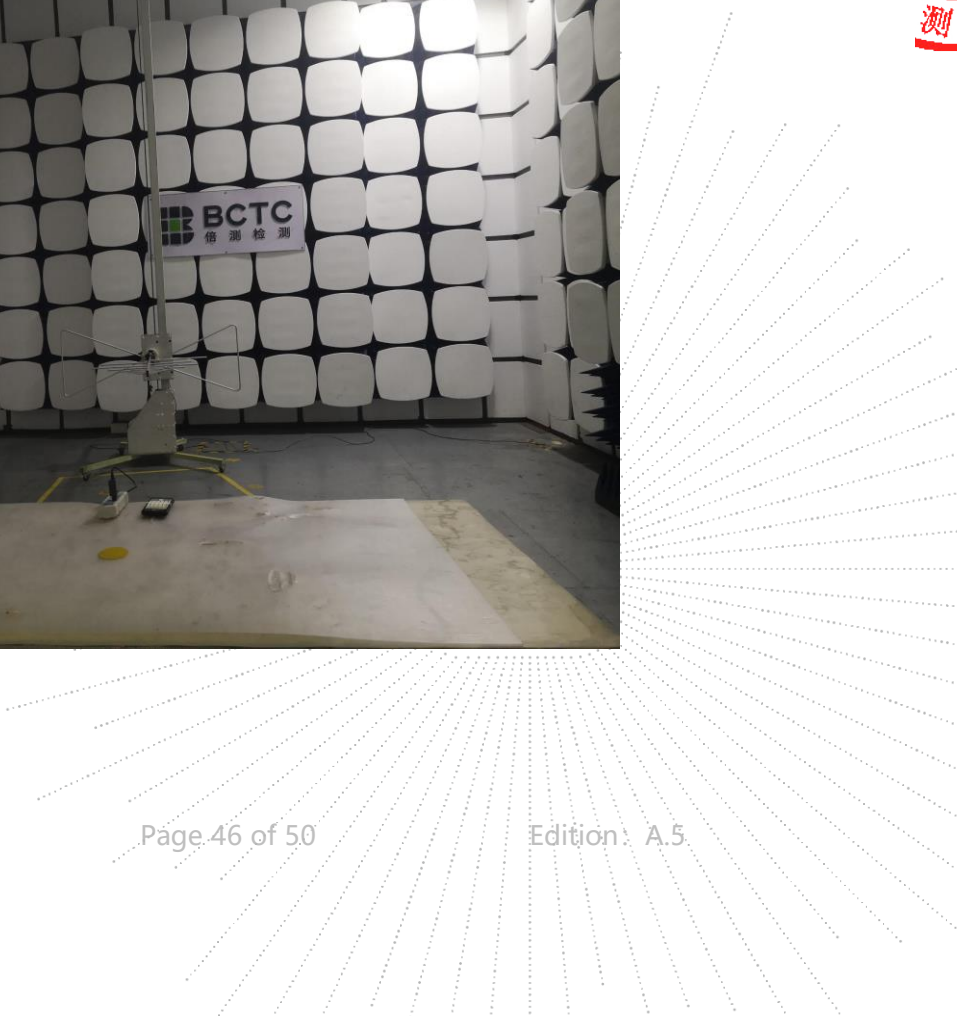
Conducted emissions



Radiated emissions



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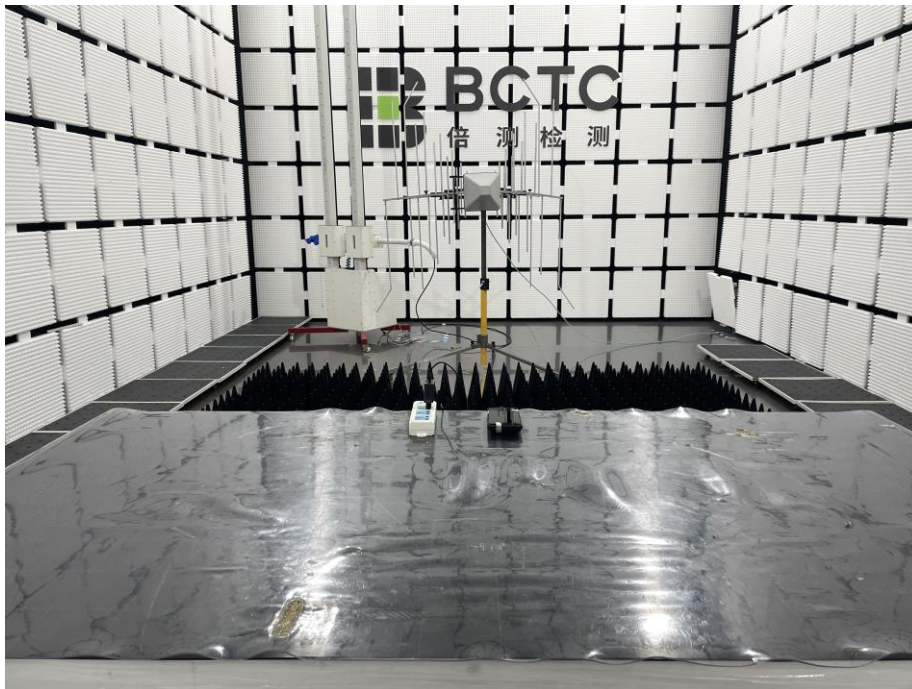


ESD

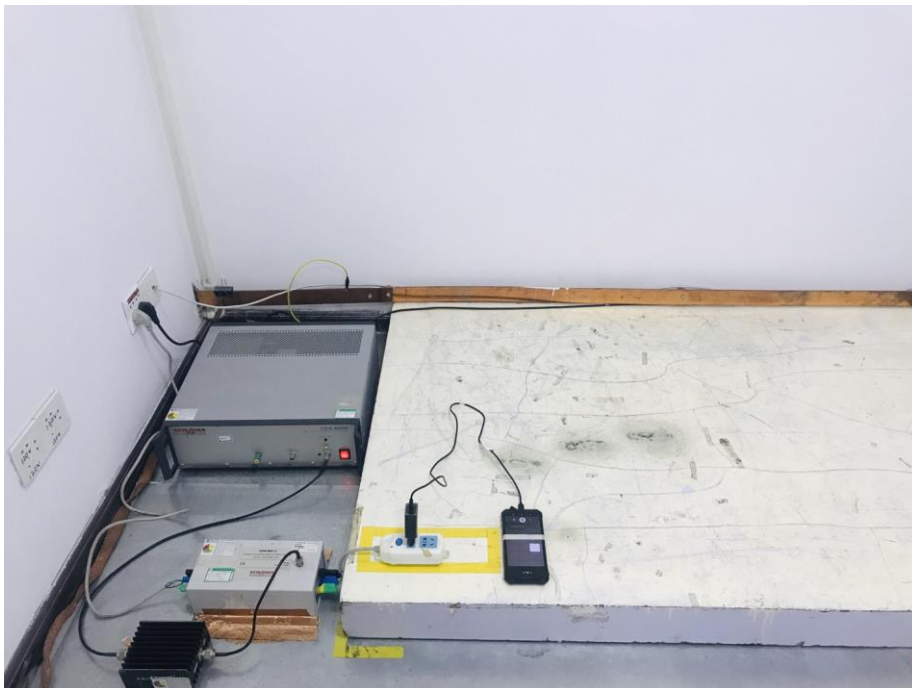


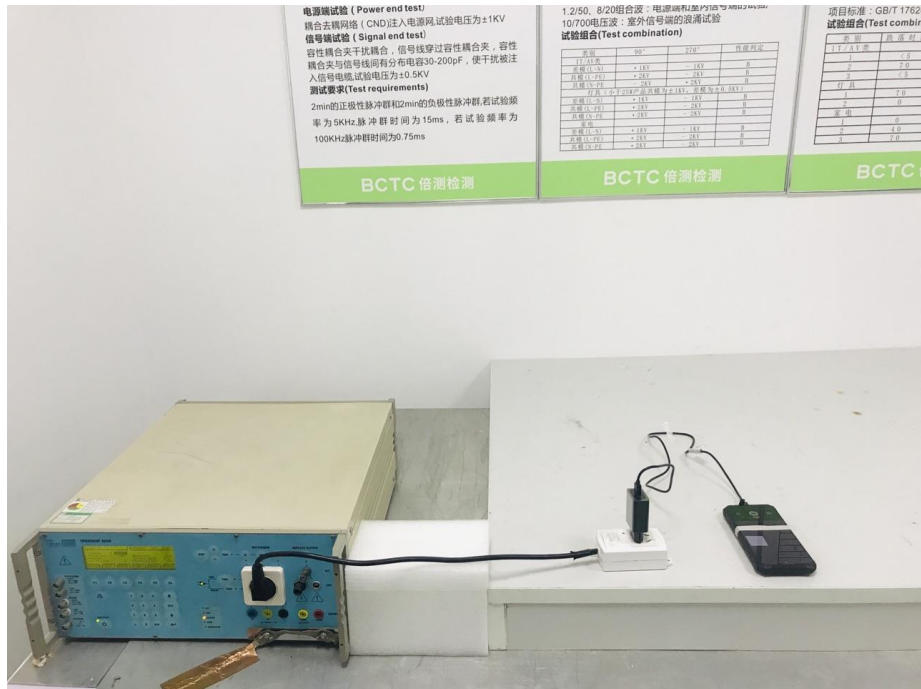
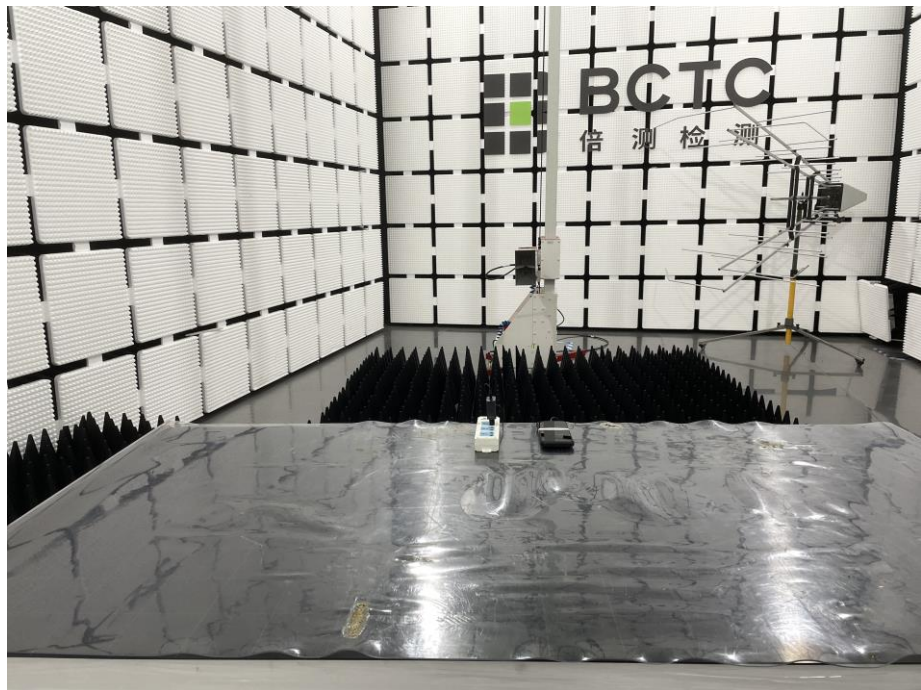
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CS



EFT & Dips & Surge

Radiated emissions


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 the "special seal for inspection and testing".
4. The test report is invalid without the signature of the approver.
5. The test process and test result is only related to the Unit Under Test.
6. Sample information is provided by the client and the laboratory is not responsible for its authenticity.
7. The test report without CMA mark is only used for scientific research, teaching, enterprise product development and internal quality control purposes.
8. The quality system of our laboratory is in accordance with ISO/IEC17025.
9. If there is any objection to this test report, the client should inform issuing laboratory within 15 days from the date of receiving test report.

Address:

1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Zhancheng, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China

TEL: 400-788-9558

P.C.: 518103

FAX: 0755-33229357

Website: <http://www.chnbctc.com>

E-Mail: bctc@bctc-lab.com.cn

******* END *******