Dongguan Hongnuo Product Testing Service Co., Ltd.

No.8, JinQianLing street 5, Huangjiang Town, Dongguan, Guangdong, China.

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Report Template Version: V02
Report Template Revision Date: 2021-06-01

TEST REPORT

Report No. :	D220719012-1
Applicant:	JingZhi International Co.,Ltd (Shenzhen)
Address of Applicant:	1503, Huasheng Commercial Building, 39 Huasheng Road, Langkou Community, Dalang Street.LongHua,Shenzhen,GuangDong.China

Equipment Under Test (EUT):

EUT Name:	USB Charger Camera
Model No.:	S8
Trade Mark:	N/A
Standards:	EN 55032:2015/A11:2020
	EN 55035:2017/A11:2020
	EN IEC 61000-3-2:2019/A1:2021
	EN 61000-3-3:2013/A1:2019
Date of Receipt:	2022-07-19
Date of Test:	2022-07-19 to 2022-07-29
Date of Issue:	2022-07-29
Test Result :	**PASS***

***In the configuration tested, the EUT complied with the standards specified above**

Tested By: _____

(DS Yang)

Reviewed By: _____

(Chivas Zeng)

Approved By: _____

(Victor Meng)

1 Version

Revision History of Report

Report No.	Version	Description	Issue Date
D220719012-1	Rev.01	Initial report	2022-07-29

2 Test Summary

Electromagnetic Compatibility (EMC) Part				
Electromagnetic Interference (EMI)				
Test item	**Test Requirement**	**Test Method**	**Class / Severity**	**Result**
Radiated Emission (30MHz to 6GHz)	EN 55032:2015/A11:2020	EN 55032:2015/A11:2020	Class B	PASS
Conducted Emission (150kHz to 30MHz)	EN 55032:2015/A11:2020	EN 55032:2015/A11:2020	Class B	PASS
Harmonic Emission on AC, 50Hz	EN IEC 61000-3-2:2019/A1:2021	EN IEC 61000-3-2:2019/A1:2021	Table 1 of EN IEC 61000-3-2	N/A
Flicker Emission on AC	EN 61000-3-3:2013/A1:2019	EN 61000-3-3:2013/A1:2019	Clause 5 of EN 61000-3-3	PASS
Electromagnetic Susceptibility (EMS)				
Electrostatic discharges (ESD)	EN 55035:2017/A11:2020	EN 61000-4-2:2009	Clause 5	PASS
Radiated Immunity	EN 55035:2017/A11:2020	EN 61000-4-3:2006 +A1:2008+A2:2010	Clause 5	PASS
Power frequency magnetic field	EN 55035:2017/A11:2020	EN 61000-4-8:2010	Clause 5	N/A
Electrical Fast Transients (EFT)	EN 55035:2017/A11:2020	EN 61000-4-4:2012	Clause 5	PASS
Surge Immunity	EN 55035:2017/A11:2020	EN 61000-4-5:2014	Clause 5	PASS
Injected Currents, 150kHz to 80MHz	EN 55035:2017/A11:2020	EN 61000-4-6:2014	Clause 5	PASS
Voltage Dips and Interruptions	EN 55035:2017/A11:2020	EN 61000-4-11:2004	Clause 5	PASS

Remark:

§ If the highest frequency of the internal sources of the EUT is less than 108 MHz, the measurement shall only be made up to 1 GHz. (Refer to EN 55032:2015/A11:2020 Clause 8 table 1 Conditional testing procedure)

§ If the highest frequency of the internal sources of the EUT is between 108 MHz and 500 MHz, the measurement shall only be made up to 2 GHz. (Refer to EN 55032:2015/A11:2020 Clause 8 table 1 Conditional testing procedure)

§ If the highest frequency of the internal sources of the EUT is between 500 MHz and 1 GHz, the measurement shall only be made up to 5 GHz. (Refer to EN 55032:2015/A11:2020 Clause 8 table 1 Conditional testing procedure)

§ If the highest frequency of the internal sources of the EUT is above 1 GHz, the measurement shall be made up to 5 times the highest frequency or 6 GHz, whichever is less. (Refer to EN 55032:2015/A11:2020 Clause 8 table 1 Conditional testing procedure)

N/A[1)]: Because this test EUT is not belonging to apparatus containing devices susceptible to magnetic fields, therefore, it is not applicable.

N/A[2)]: Because this product is not sold with a power adapter, it is not directly connected to the utility grid.

The tested sample(s) and the sample information are provided by the client.

3 Contents

4 General Information

4.1 Client Information

Applicant:	JingZhi International Co.,Ltd (Shenzhen)
Address of Applicant:	1503, Huasheng Commercial Building, 39 Huasheng Road, Langkou Commu Dalang Street.LongHua,Shenzhen,GuangDong.China
Manufacturer:	JingZhi International Co.,Ltd (Shenzhen)
Address of Manufacturer:	1503, Huasheng Commercial Building, 39 Huasheng Road, Langkou Commu Dalang Street.LongHua,Shenzhen,GuangDong.China
Factory:	JingZhi International Co.,Ltd (Shenzhen)
Address of Factory:	1503, Huasheng Commercial Building, 39 Huasheng Road, Langkou Commu Dalang Street.LongHua,Shenzhen,GuangDong.China

4.2 General Description of EUT

Product Name:	USB Charger Camera
Model No.:	S1,S2,S3,S4,S5,S6,S7,S8,S9,S10,S11,S12,S15,S16,S17,S18,S19,S20
Test Model No.:	S8
Trade Mark:	N/A
Power Supply:	S8 Input: AC 100-240V 50/60Hz, 0.35A Max. USB: 5.0V⎓2A;
Test Voltage:	230Vac 50Hz
Test Mode :	
Full load	1: 5V⎓2A

Note:
/

4.3 Description of Support Units

The EUT has been tested with associated equipment below.

1）support equipment

Description	Manufacturer	Model No.	Certification	Supplied by
Resistor Load	/	/	/	ITL

4.1 Test Location

Conducted Emission, Radiated Emissom, Harmonics/Flicker ESD, EFT, Votage dips and Interruption tests were performed in Dongguan Hongnuo Product Testing Service Co., Ltd. Which is located at No.8, Jinqianling Street 5, Huangjiang, Dongguan, Guangdong, China.

Tel: 0086-769-39001678, Fax: 0086-20-62824387

Conducted immunity and Radiated immunity were performed in GuangZhou ITL Co., Ltd. Which is located at 1-2 floor, South Block, Building A2, No 3 Keyan Lu, Science City, Guangzhou, Guangdong Province, P.R. China

Tel: 0086-20-32209330, Fax: 0086-20-62824387

4.2 Deviation from Standards

None.

4.3 Abnormalities from Standard Conditions

None.

4.4 Other Information Requested by the Customer

None.

4.5 Measurement Uncertainty (95% confidence levels, k=2)

No.	Item	Measurement Uncertainty
1	Conduction emission	2.3dB (9kHz to 150kHz)
		2.34dB (150kHz to 30MHz)
2	Radiated emission	3.35dB (Below 1GHz)
		3.65dB (Above 1GHz)
3	Radiated Immunity	1.61dB
4	Conducted Immunity	0.92dB
5	Temperature test	0.8°C
6	Humidity test	2.0%
7	DC power test	0.5 %

5 Equipment List

Conducted Emission						
No.	**Test Equipment**	**Manufacturer**	**Model**	**Serial No.**	**Last Cal.**	**Cal. Due**
DGITL-303.0A	EMI Test receiver	R&S	ESCI	100910	2021.05.11	2022.05.11
DGITL-304	L.I.S.N.#1	R&S	ESH3-Z5	100272	2021.05.11	2022.05.11
DGITL-302	Shielded Room	ETS•Lindgren	8*4*3	CT09010	2020.08.03	2022.08.03
DGITL-316	Pulse Limiter	R&S	ESH3-Z2	100327	2021.05.11	2022.05.11

Radiated Emission						
No.	**Test Equipment**	**Manufacturer**	**Model**	**Serial No.**	**Last Cal.**	**Cal. Due**
DGITL- 301	Semi-Anechoic chamber	ETS•Lindgren	9*6*6	CT000874-1181	2020.08.03	2022.08.03
DGITL- 307	EMI test receiver	R&S	ESVS10	833616/003	2021.05.11	2022.05.11
DGITL- 306	Spectrum Analyzer	Agilent Technologies	N9010A	MY54200334	2021.05.11	2022.05.11
DGITL- 308	Bilog Antenna	ETS•Lindgren	3142E	156975	2020.06.20	2022.06.20
DGITL- 352	Pre Amplifier	Mlnl-Clrcuits	ZFC-1000HX	SN292801110	2021.05.11	2022.05.11

Harmonics / Flicker test						
No.	**Test Equipment**	**Manufacturer**	**Model**	**Serial No.**	**Last Cal.**	**Cal. Due**
DGITL-341	Harmonics analyzer with flicker meter	LAPLACE INSTRUMENTS	AC2000A	310222	2021.05.11	2022.05.11
DGITL-342	Power source	C.I.	5001iX-400	57491	2021.05.11	2022.05.11

Electrostatic Discharge						
No.	**Test Equipment**	**Manufacturer**	**Model**	**Serial No.**	**Last Cal.**	**Cal. Due**
DGITL-310	Electrostatic Discharge Generator	3ctest	ESD-30G	EC0281414	2021.05.11	2022.05.11

EFT						
No.	**Test Equipment**	**Manufacturer**	**Model**	**Serial No.**	**Last Cal.**	**Cal. Due**
DGITL-312	EFT Generator	3ctest	EFT-4003G	EC0471429	2021.05.11	2022.05.11

Surge						
No.	**Test Equipment**	**Manufacturer**	**Model**	**Serial No.**	**Last Cal.**	**Cal. Due**
DGITL-311	Surge Generator	3ctest	SG5010	EC5531503	2021.05.11	2022.05.11

Conducted Immunity						
No.	**Test Equipment**	**Manufacturer**	**Model**	**Serial No.**	**Last Cal.**	**Cal. Due**
ITL-135	Signal generator	R/S	SML01	100252	2022/01/14	2023/01/14
ITL-136	150k-230MHz 30W amplifier	Schaffner	CBA9425	1019	2022/01/14	2023/01/14
ITL-137	CDN	Schaffner	CDN M016	20054	2022/01/14	2023/01/14
ITL-139	6dB/50W attenuation	Schaffner	ATN6050	16033	2022/01/14	2023/01/14

Radiated Immunity						
No.	**Test Equipment**	**Manufacturer**	**Model**	**Serial No.**	**Last Cal.**	**Cal. Due**
ITL-135	9k-1.1GHz signal generator	R&S	SML01	100252	2022/01/14	2023/01/14
ITL-173	RF power Amplifier(1GHz-6GHz)	Lingde	LDPA1G6G100	202012132	2022/01/14	2023/01/14
ITL-174	RF power Amplifier(80MHz-1000MHz)	Lingde	LDPA80M1G250	202011112	2022/01/14	2023/01/14
ITL-105	Biconilog Antenna	ETS•Lindgren	3142D	00108096	2020/07/03	2022/07/02
ITL-100	Full Anechoic Chamber	ETS•Lindgren	FACT3 2.0	CT09015	2022/01/14	2023/01/14

Voltage dips and Interruption						
No.	**Test Equipment**	**Manufacturer**	**Model**	**Serial No.**	**Last Cal.**	**Cal. Due**
DGITL-342	Power source	C.I.	5001i X-400	57491	2021.05.11	2022.05.11

Software list			
Testing software	**Manufacturer**	**Model**	**Version number**
e3	AUDIX	e3.Ink	Version:6.2009-11-3c(itl)

6 Emission Test Results

6.1 Radiated Emissions

Test Requirement: EN 55032
Test Method: EN 55032
Measurement Distance: 3m
EUT Operation:

Ambient: Temp.: 23°C Humid.:46% Press.: 1010 mbar
Test Mode: Test the EUT in 1 mode

Receive Setup:

Frequency range (MHz)	Detector	RBW	VBW
30-1000	Quasi-peak	120kHz	300kHz
Above 1000	Peak	1MHz	3MHz

Limit:

Table 1：Requirements for radiated emissions for Class B equipment

Frequency	Limit(@3m)	Detector
30MHz-230MHz	40dBμV/m	QP
230MHz-1GHz	47dBμV/m	QP
1GHz-3GHz	50dBμV/m	Average
	70dBμV/m	PK
3GHz-6GHz	54dBμV/m	Average
	74dBμV/m	PK

Test Setup:

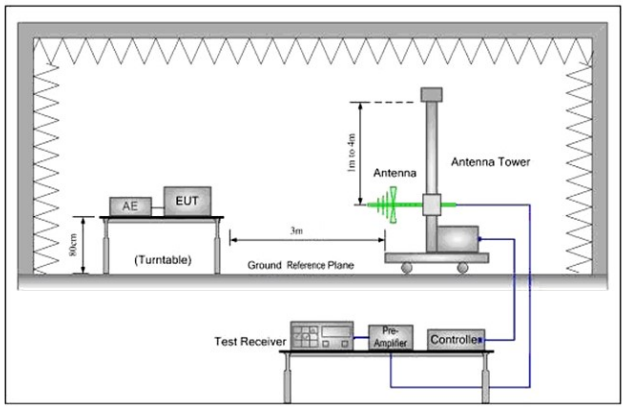


Figure 1. 30MHz to 1GHz

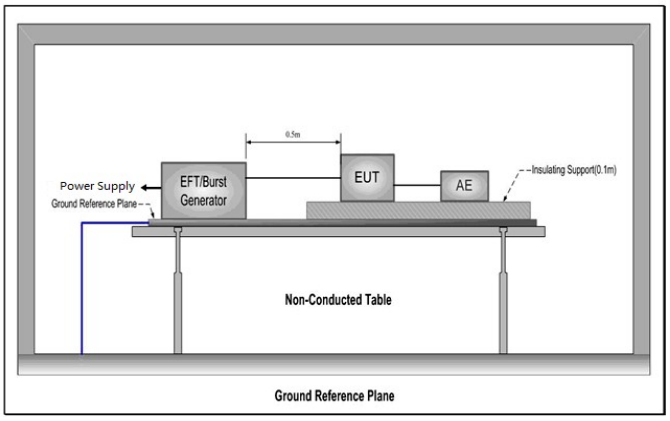


Figure 2. Above 1 GHz

Test Procedure:

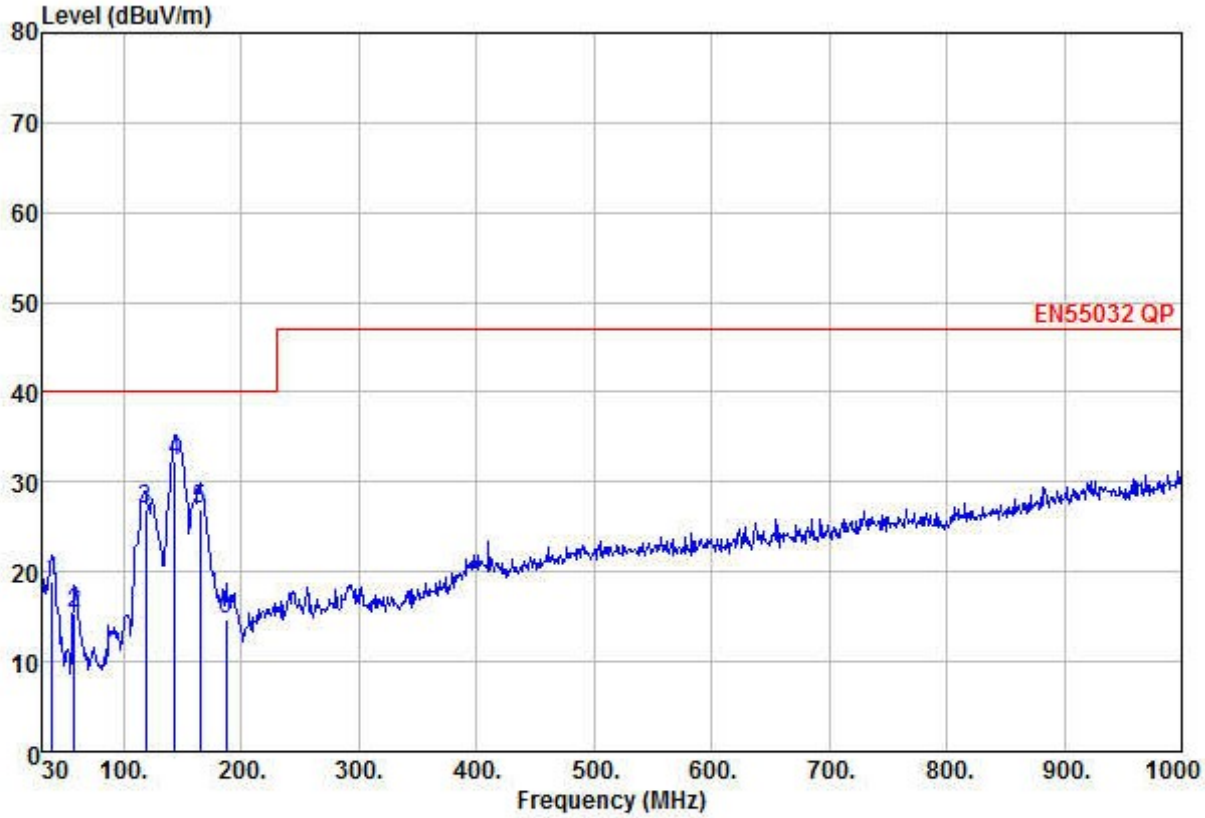
1. From 30 MHz to1GHz test procedure as below:
1) The radiated emissions were tested in a semi-anechoic chamber.
2) The EUT is placed on a turntable, which is 0.8m above ground plane.
3) The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
4) EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions.
5) Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
6) And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
7) Repeat above procedures until the measurements for all frequencies are complete.
2. Above 1GHz test procedure as below:
1) Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber

Equipment Used:	Refer to section 5 for details.
Test result:	PASS
Test Status:	Pretest the EUT at different test mode and found the 2 mode which is worst case, the test worst case mode is recorded in the report.

Measurement Data:

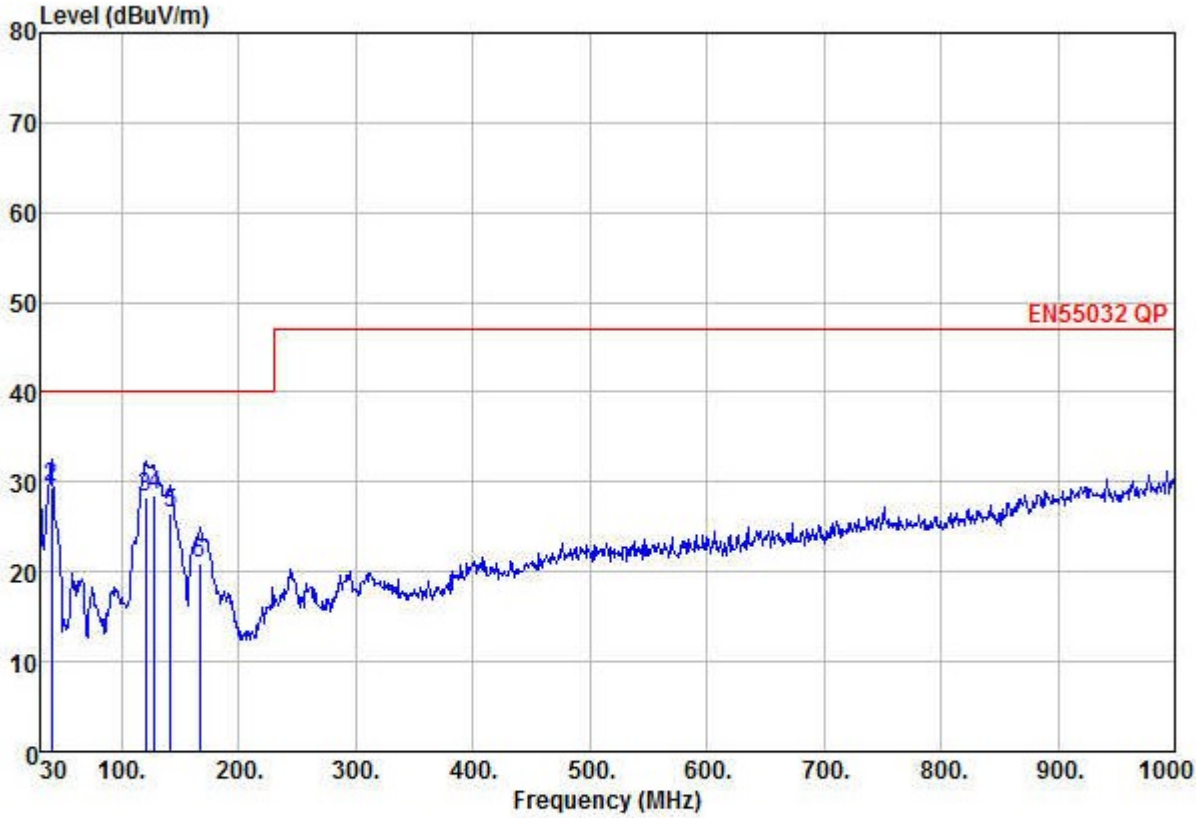
Below 1GHz:

Horizontal:



No.	Freq	Reading	Antenna Factor	Cable Loss	Measured	Limit Line	Preamp Factor	Over limit	Remark
	MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	dB	
1	38.73	38.71	12.57	0.13	18.88	40.00	32.53	-21.12	QP
2	58.13	40.07	7.88	0.15	15.48	40.00	32.62	-24.52	QP
3	118.27	50.58	8.38	0.22	27.02	40.00	32.16	-12.98	QP
4	143.49	54.31	9.81	0.24	32.25	40.00	32.11	-7.75	QP
5	164.83	48.33	10.36	0.27	26.89	40.00	32.07	-13.11	QP
6	187.14	36.02	10.36	0.30	14.65	40.00	32.03	-25.35	QP

Vertical:



No.	Freq	Reading	Antenna Factor	Cable Loss	Measured	Limit Line	Preamp Factor	Over limit	Remark
	MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	dB	
1	30.00	39.39	17.20	0.12	24.31	40.00	32.40	-15.69	QP
2	39.70	49.88	12.06	0.13	29.52	40.00	32.55	-10.48	QP
3	120.21	51.77	8.42	0.22	28.25	40.00	32.16	-11.75	QP
4	127.97	51.39	9.12	0.23	28.60	40.00	32.14	-11.40	QP
5	141.55	48.79	9.69	0.24	26.60	40.00	32.12	-13.40	QP
6	166.77	42.52	10.26	0.27	20.98	40.00	32.07	-19.02	QP

6.2 Radiated Emissions above 1 GHz

Test Requirement:	EN 55032
Frequency Range:	1GHz to 6GHz
Measurement Distance	3m
Class / Limit:	Table A.5
Test Date:	**N/A: See Remark Below**

Remark:

There is no need for Radiated Emissions (above 1G) test to be performed on this product in accordance with EN 55032:2015 because the highest internal source is less than 108 MHz.

For further details, please refer to Clause 6.2 of EN 55032 which states:

If the highest frequency of the internal sources of the EUT is less than 108 MHz, the measurement shall only be made up to 1 GHz.

6.3 Conducted Emission

For AC Main Port

Test Requirement: EN 55032

Test Method: EN 55032

Detector: Peak for pre-scan (9kHz Resolution Bandwidth)

Quasi-Peak if maximized peak within 6dB of Quasi-Peak limit

EUT Operation:

Ambient: Temp.: 25.5°C Humid.: 55% Press.: 1009mbar

Test Mode: Test the EUT in 1 mode

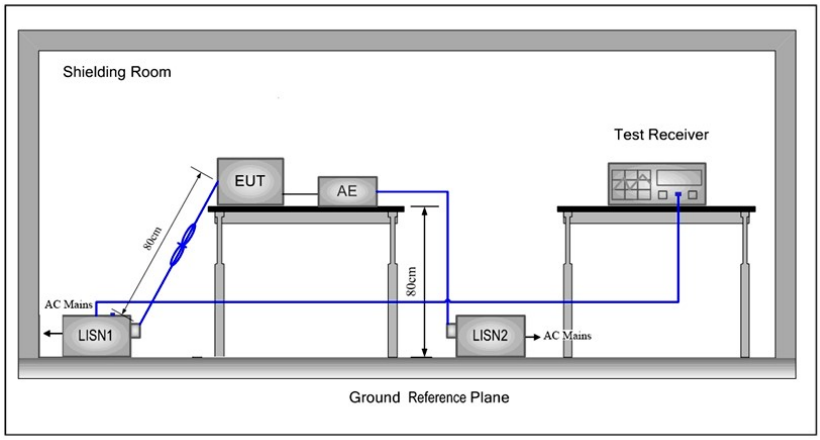
Equipment Used: Refer to section 5 for details.

Limit:

Limits for conducted disturbance at the mains ports of class B

Frequency Range (MHz)	Class B Limit (dBμV)	
	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
NOTE 1: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.		
NOTE 2: The lower limit is applicable at the transition frequency.		

Test Setup:



Test Procedure:

1) The mains terminal disturbance voltage test was conducted in a shielded room.
2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane.
4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.

Test Status: Pretest the EUT at different test mode and found the 2 mode which is worst case, the test worst case mode is recorded in the report.

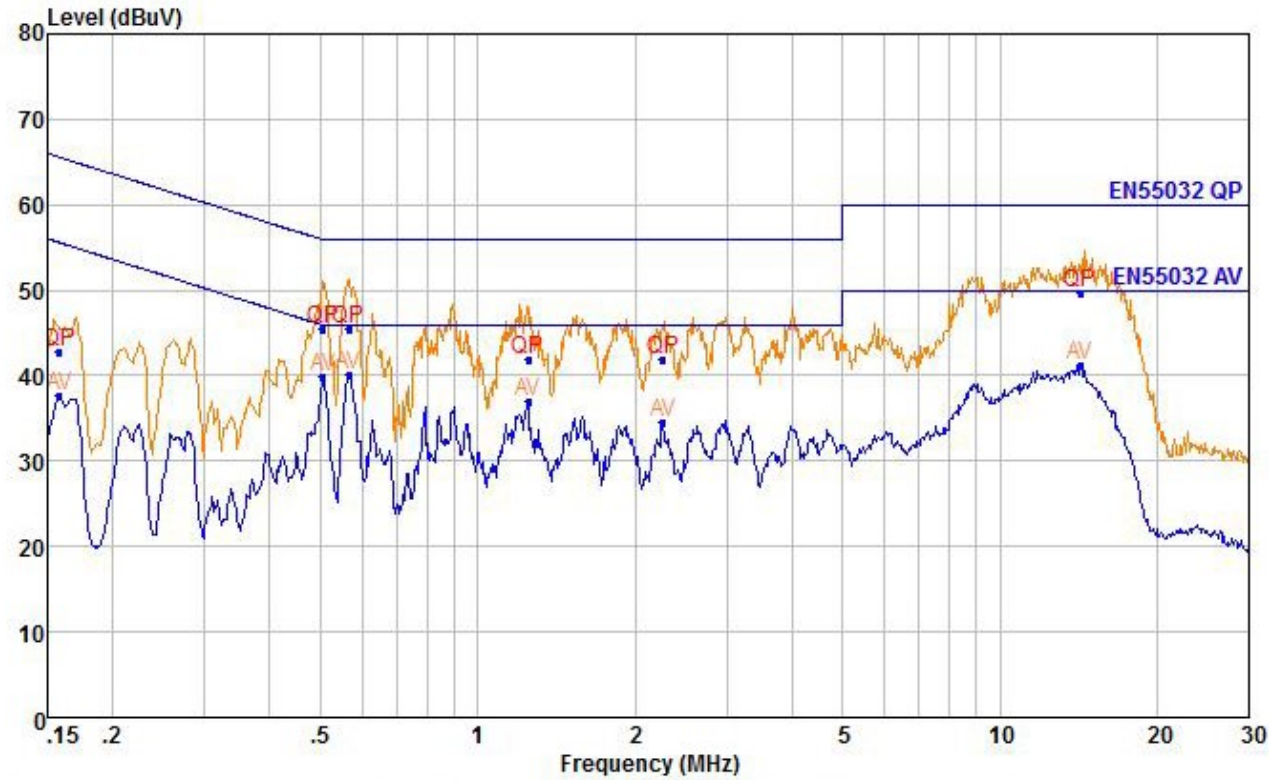
Test Results: Pass

Measurement Data:

An initial pre-scan was performed on the live and neutral lines with peak detector.

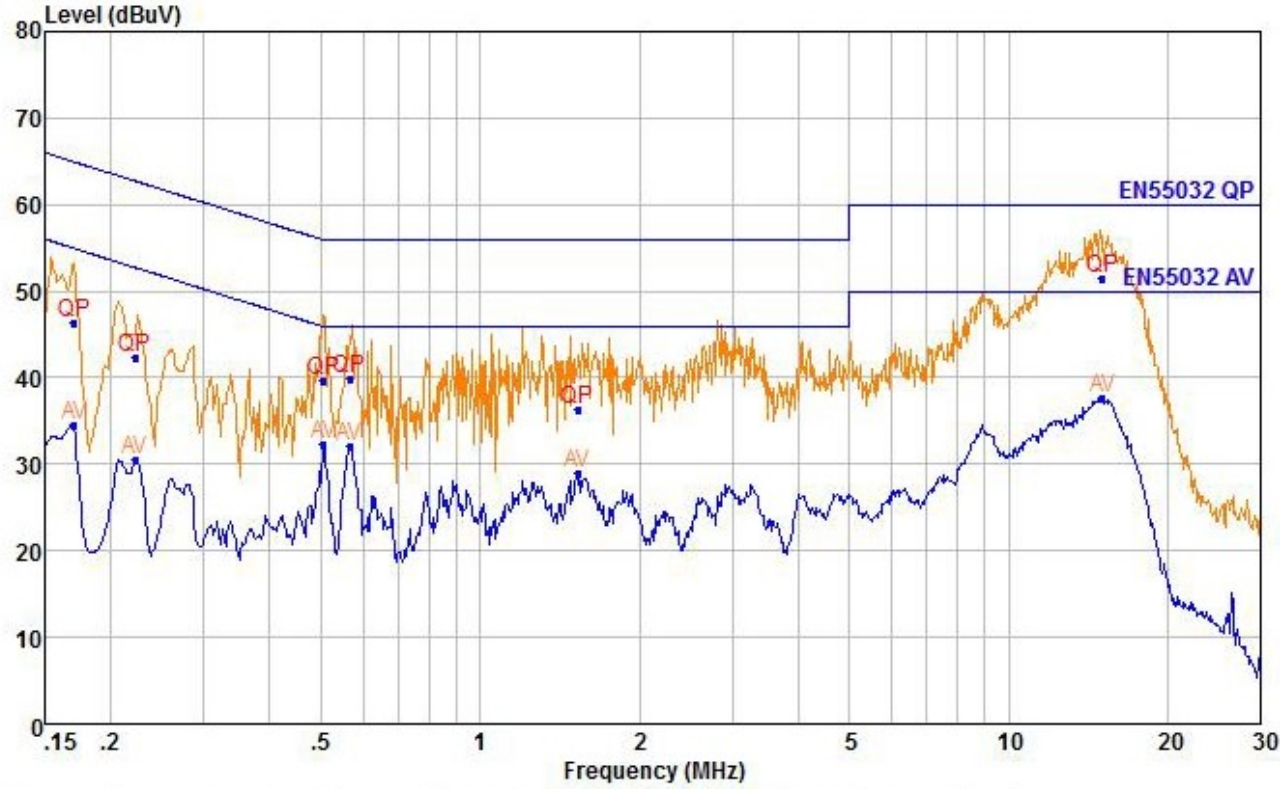
Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

Live Line:



NO.	Freq MHz	Level dBuV	Remark	LISN Factor dB	Cable Loss dB	Limit Line dBuV	Margin dB
1	0.158	37.62	Average	10.32	0.02	55.56	-17.94
2	0.158	42.68	QP	10.32	0.02	65.56	-22.88
3	0.505	39.85	Average	10.37	0.03	46.00	-6.15
4	0.505	45.51	QP	10.37	0.03	56.00	-10.49
5	0.567	40.03	Average	10.36	0.03	46.00	-5.97
6	0.567	45.45	QP	10.36	0.03	56.00	-10.55
7	1.249	36.96	Average	10.34	0.06	46.00	-9.04
8	1.249	41.95	QP	10.34	0.06	56.00	-14.05
9	2.261	34.52	Average	10.42	0.07	46.00	-11.48
10	2.261	41.81	QP	10.42	0.07	56.00	-14.19
11	14.288	41.14	Average	10.81	0.17	50.00	-8.86
12	14.288	49.74	QP	10.81	0.17	60.00	-10.26

Neutral Line:



NO.	Freq MHz	Level dBuV	Remark	LISN Factor dB	Cable Loss dB	Limit Line dBuV	Margin dB
1	0.170	34.53	Average	10.48	0.02	54.94	-20.41
2	0.170	46.28	QP	10.48	0.02	64.94	-18.66
3	0.222	30.45	Average	10.48	0.02	52.74	-22.29
4	0.222	42.27	QP	10.48	0.02	62.74	-20.47
5	0.505	32.33	Average	10.52	0.03	46.00	-13.67
6	0.505	39.62	QP	10.52	0.03	56.00	-16.38
7	0.567	32.12	Average	10.55	0.03	46.00	-13.88
8	0.567	39.87	QP	10.55	0.03	56.00	-16.13
9	1.527	28.88	Average	10.64	0.06	46.00	-17.12
10	1.527	36.35	QP	10.64	0.06	56.00	-19.65
11	15.066	37.63	Average	10.87	0.17	50.00	-12.37
12	15.066	51.40	QP	10.87	0.17	60.00	-8.60

Notes:

1. *The following Quasi-Peak and Average measurements were performed on the EUT:*
2. *Final Test Level =Receiver Reading + LISN Factor + Cable Loss.*

6.4 Harmonics Test Results

Test Requirement: EN IEC 61000-3-2

Test Method: EN IEC 61000-3-2

Measurement Time: 3 mins

Classification: Class A

Remark:

There is no need for Harmonics test to be performed on this product (rated power is less than 75W) in accordance with EN 61000-3-2

For further details, please refer to Clause 6, Note1 of EN 61000-3-2 which states:

"For the following categories of equipment limits are not specified in this edition of the standard.

Note 1: Equipment with a rated power of 75W or less, other than lighting equipment."

6.5 Flicker Test Results

Test Requirement: EN 61000-3-3

Test Method: EN 61000-3-3

Measurement Time: 10 mins

Limit: EN 61000-3-3 Clause 5

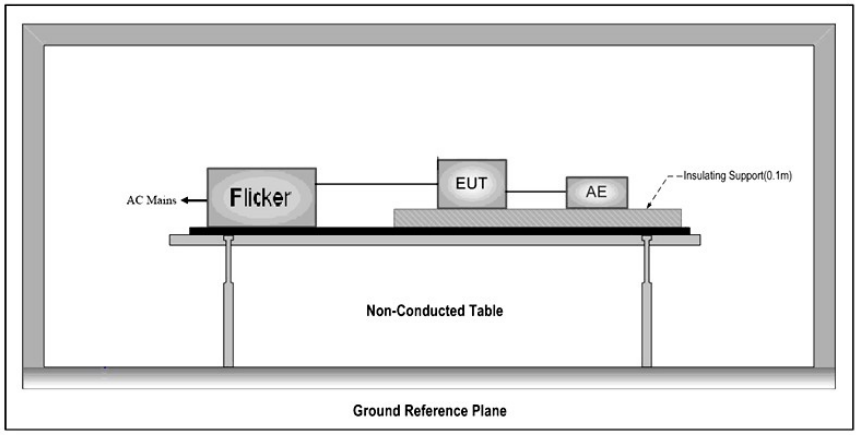
Operating Environment:

Ambient: Temp.: 25.8 °C Humid.: 56% Press.:1009mbar

Test Mode: Test the EUT in 1 mode

Equipment Used: Refer to section 5 for details.

Test Setup:



Test result: Pass

Measurement Data:

Maximum Flicker results			
	EUT values	**Limit**	**Result**
Pst	0.345	1.00	PASS
dc [%]	0.00	3.30	PASS
dmax [%]	0.24	4.00	PASS
dt [s]	0.00	0.50	PASS

7 Immunity Test Results

Performance Criteria Description in Clause 8 of EN 55035

Criterion A:	The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function or change of operation 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 test 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.

7.1 Radiated Immunity

Test Requirement: EN 55035
Test Method: EN 61000-4-3
EUT Operation:

Ambient:	Temp.: 24°C	Humid.:56%	Press.: 1009 mbar
Power	AC 230V, 50Hz		
Test Mode:	Test the EUT in 1 mode		

Criterion Required: A
Equipment Used: Refer to section 5 for details.
Test Setup:

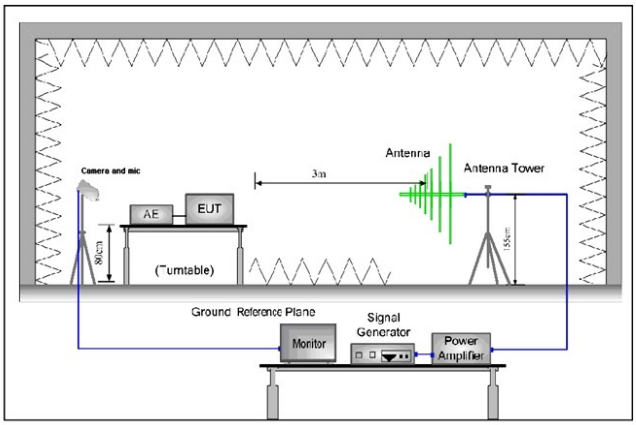


Figure 1. 80MHz to 1GHz

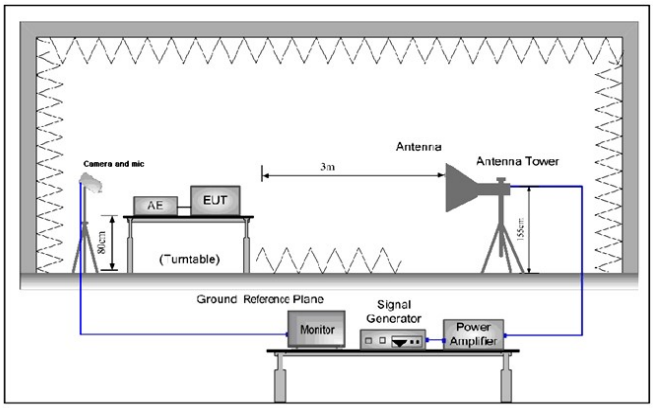


Figure 2. 1GHz to 6GHz

Test Procedure:

1) For table-top equipment, the EUT was placed in the chamber on a non-conductive table 0.8m high. For arrangement of floor-standing equipment, the EUT was mounted on a non-conductive support 0.1m above the supporting plane. For human body-mounted equipment, the EUT may be tested in the same manner as table top items.
2) If possible, a minimum of 1 m of cable is exposed to the electromagnetic field. Excess length of cables interconnecting units of the EUT shall be bundled low-inductively in the approximate center of the cable to form a bundle 30 cm to 40 cm in length.
3) The EUT was initially placed with one face coincident with the calibration plane. The EUT face being illuminated was contained within the UFA (Uniform Field Area).
4) The frequency ranges to be considered were swept with the signal modulated and pausing to adjust the RF signal level or to switch oscillators and antennas as necessary. Where the frequency range was swept incrementally, the step size was not exceed 1 % of the preceding frequency value.
5) The dwell time of the amplitude modulated carrier at each frequency was not be less than the time necessary for the EUT to be exercised and to respond, and was not less than 0.5 s.
6) The test normally was performed with the generating antenna facing each side of the EUT.
7) The polarization of the field generated by each antenna necessitates testing each selected side twice, once with the antenna positioned vertically and again with the antenna positioned horizontally.
8) The EUT was performed in a configuration to actual installation conditions, a video camera and/or an audio monitor were used to monitor the performance of the EUT.

Test result: PASS

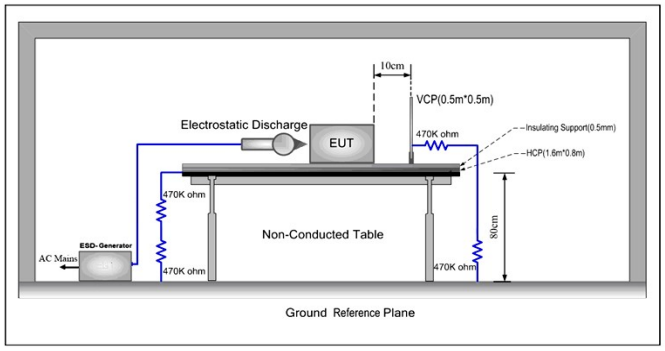
Test result:

Frequency	Level	Modulation	EUT Face	Antenna Polaxis	Result / Observations
80MHz-1GHz, 1800MHz 2600MHz 3500MHz 5000MHz	3V/m	1kHz, 80% Amp. Mod, 1% increment Dwell time: 3 seconds	Front	V	A
				H	A
			Back	V	A
				H	A
			Left	V	A
				H	A
			Right	V	A
				H	A
			Top	V	A
				H	A
			Under	V	A
				H	A

Remarks:
A: No performance degradation during test.

7.2 ESD

Test Requirement:	EN 55035
Test Method:	EN 61000-4-2
EUT Operation:	
Ambient:	Temp.: 25.6°C Humid.:55% Press.: 1009mbar
Test Mode:	Test the EUT in 1 mode
Power	AC 230V, 50Hz
Discharge Impedance:	330 Ω / 150 pF
Polarity:	Positive & Negative
Number of Discharge:	Minimum 10 times at each test point
Discharge Mode:	Single Discharge
Discharge Period:	1 second minimum
Equipment Used:	Refer to section 5 for details.
Test Setup:	



Test set-up for tabletop equipment

Test Procedure:

1) Contact discharges to the conductive surfaces and to coupling planes:
The EUT was exposed to at least 200 discharges, 100 each at negative and positive polarity, at a minimum of four test points (a minimum of 50 discharges at each point). One of the test points was subjected to at least 50 indirect discharges (contact) to the centre of the front edge of the horizontal coupling plane. The remaining three test points shall each receive at least 50 direct contact discharges. If no direct contact test points were available, then at least 200 indirect discharges were applied in the indirect mode. Tests were performed at a maximum repetition rate of one discharge per second.
Air discharge at slots and apertures, and insulating surfaces:
On those parts of the EUT where it was not possible to perform contact discharge testing, the equipment was investigated to identify user accessible points where breakdown may occur. This investigation was restricted to those areas normally handled by the user. A minimum of 10 single air discharges were applied to the selected test point for each such area.
The application of electrostatic discharges to the contacts of open connectors was not required by this standard.
2) The EUT was put on a 0.8m high wooden table for table-top equipment or 0.1m high for floor standing equipment standing on the ground reference plane(GRP).
3) A horizontal coupling plane(HCP) 1.6m by 0.8m in size was placed on the table, and the EUT with its cables were isolated from the HCP by an insulating support thick than 0.5mm. The VCP 0.5m by 0.5m in size & HCP were constructed from the same material type & thinkmess as that of the GRP, and connected to the GRP via a 470kΩ resistor at each end. The distance between EUT and any of the other metallic surfaces accepted the GRP, HCP and VCP was greater than 1m.
4) During the contact discharges, the tip of the discharge electrode was touch the EUT before the discharge switch is operated. During the air discharges, the round discharge tip of the discharge electrode was approached as fast as

possible to touch the EUT.

5) After each discharge, the ESD generator was removed from the EUT, the generator was then retriggered for a new single discharge. For ungrounded product, a discharge cable with two resistances was used after each discharge to remove remnant electrostatic voltage. 10 times of each polarity single discharge were applied to HCP and VCP.

Test result: PASS

Test data:

Observations: Test Point:

1. All insulated enclosure and seams
2. USB port
3. Metallic surface

Direct Application Test Results				
Direct Application			Test Results	
Discharge Level (kV)	Pulse No.	Test Point	Contact Discharge	Air Discharge
± 8	10 for every level	1,2,	N/A	A
± 4	10 for every level	3	A	N/A
Indirect Application for tabletop equipment Test Results				
Indirect Application			Test Results	
Discharge Level (kV)	Pulse No.		Horizontal Coupling	Vertical Coupling
± 4	10 for every level		A	A

Remark:

A: No performance degradation during test.

N/A: Not applicable

7.3 RF Common Mode 0.15MHz to 80MHz

Test Requirement:	EN 55035
Test Method:	EN 61000-4-6
Test level:	3V rms
Modulation:	80%, 1kHz Amplitude Modulation
Test port:	AC port.
Criterion Required:	A
EUT Operation:	
Ambient:	Temp.: 25.8°C Humid.: 56% Press.: 1009 mbar
Power	AC 230V, 50Hz
Test Mode:	Test the EUT in 1 mode
Equipment Used:	Refer to section 5 for details.
Test Setup:	

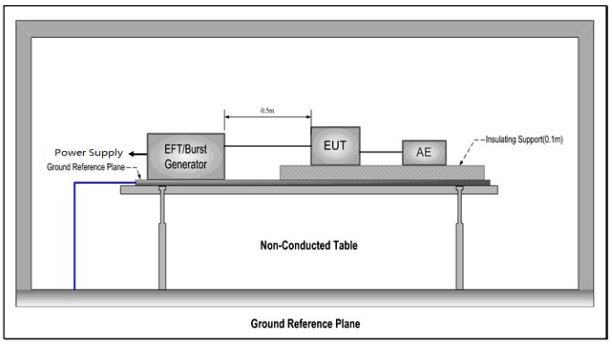


Figure 1. For AC port

Test Procedure:

1) The EUT was placed on an insulating support of 0.1m height above a ground reference Plane, arranged and connected to satisfy its functional requirement. All cables exiting the EUT was supported at a height of at least 30 mm above the ground reference plane.
2) The coupling and decoupling devices were required; they were located between 0.1 m and 0.3 m from the EUT. This distance was to be measured horizontally from the projection of the EUT on to the ground reference plane to the coupling and decoupling device.
3) Each AE, used with clamp injection, shall be placed on an insulating support 0.1 m above the ground reference plane. A decoupling network shall be installed on each cable between the EUT and AE except the cable under test. All cables connected to each AE, other than those being connected to the EUT, shall be provided with decoupling networks. The decoupling networks connected to each AE (except those on cables between the EUT and AE) shall be applied no further than 0.3 m from the AE. The cable(s) between the AE and the decoupling network (s) or in between the AE and the injection clamp shall not be bundled nor wrapped and shall be kept between 30 mm and 50 mm above the ground reference plane
4) The frequency range was swept from 150 kHz to 80 MHz, using the signal levels established during the setting process, and with the disturbance signal 80 % amplitude modulated with a 1 kHz sine wave, pausing to adjust the RF signal level or to change coupling devices as necessary. Where the frequency was swept incrementally, the step size does not exceed 1 % of the preceding frequency value. The dwell time of the amplitude modulated carrier at each frequency was not less than the time necessary for the EUT to be exercised and to respond, and was not less than 0.5 s.

Test result: Pass

Frequency	Line	Test Level	Modulation	Step Size	Observation (Performance Criterion)
150 kHz to 230 MHz	2 Wires AC Supply Cable	3 Vrms	80 %, 1 kHz Amp. Mod.	1%	(A)

A: No loss of performance.

7.4 Electrical Fast Transients (EFT)

Test Requirement:	EN 55035
Test Method:	EN 61000-4-4
Test Level:	± 1.0kV 5/50 ns 5 kHz on AC port.
Polarity:	Positive & Negative
Criterion Required:	A
Repetition Frequency:	5kHz (For CPE xDSL ports repetition frequency is 100kHz)
Burst Period:	300ms
Test Duration:	2 minute per level & polarity
EUT Operation:	
Ambient:	Temp.: 25.8°C Humid.:56% Press.: 1009mbar
Power	AC 230V, 50Hz
Test Mode:	Test the EUT in 1 mode
Equipment Used:	Refer to section 5 for details.
Test Setup:	

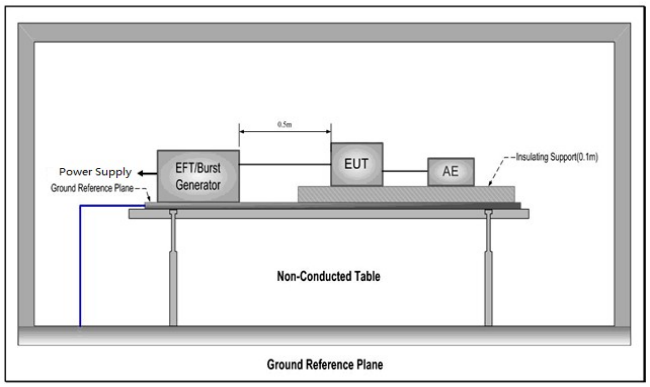


Figure 1. For AC port

Test Procedure:

1) The EUT was placed on a ground reference plane(GRP) insulated by an insulating support 0.1 m thick and the GRP was placed on a 0.8m high wooden table for table-top equipment. For floor standing equipment, the EUT was placed on a 0.1m high wooden support above the GRP.
2) The GRP shall project beyond the EUT and the clamp by at least 0.1m on all sides. The distance between the EUT and any other of the metallic surface except the GRP was greater than 0.5m. All cables to the EUT was placed on the insulation support 0.1m above GRP. A cable not subject to EFT was routed as far as possible from cable under test to minimize the coupling between the cables.
3) The length of signal and power cable between the EUT and EFT generator was 0.5m. If the cable is a non-detachable supply cable more than 0.5m, the excess length of this cable shall be folded to avoid a flat coil and situated at a distance of 0.1m above the GRP.
4) The EUT was conducted the below specified test voltages for line and neutral or line, neutral and earth simultaneously (for telecommunication, single, control and DC port line with capacitive coupling clamp), 120 seconds duration. If the equipment contains identical ports, only one was tested; multicomputer cables, such as a 50-pair telecommunication cable, were tested as a single cable. Cables did not be split or divided into groups of conductors for this test; interface ports, which were intended by the manufacturer to be connected to data cables not longer than 3 m, did not be tested.

Test result: PASS

Lead under Test	Level (±kV)	Coupling Direct/Clamp	EUT operating mode	Observations (Performance Criterion)
Live	±1.0	Direct	All mode	(A)
Neutral	±1.0	Direct	All mode	(A)
Live+ Neutral	±1.0	Direct	All mode	(A)

A: No degradation in the performance of the E.U.T. was observed.

7.5 Surge

Test Requirement:	EN 55035
Test Method:	EN 61000-4-5
Test Level:	For AC port 1) 1kV 1.2/50(8/20) μs Live to Neutral 2) 2kV 1.2/50(8/20) μs Live, Neutral to Earth
Criterion Required:	for AC mains power ports: B
Polarity:	Positive & Negative
Interval:	60s between each surge
EUT Operation:	
Ambient:	Temp.: 25.8°C Humid.:56% Press.: 1009 mbar
Power	AC 230V, 50Hz
Test Mode:	Test the EUT in 1 mode
Equipment Used:	Refer to section 5 for details.
Test Setup:	

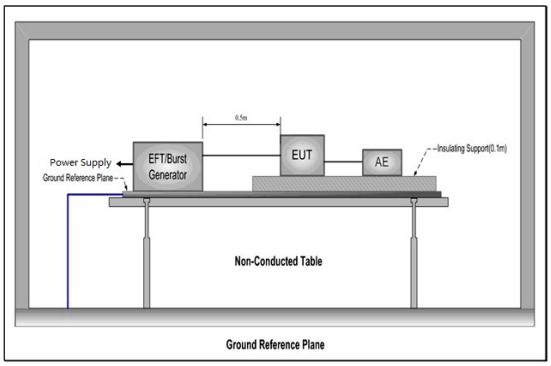


Figure 1. For AC port

Test Procedure:

1) The EUT was placed on a ground reference plane(GRP) insulated by an insulating support 0.1 m thick and the GRP was placed on a 0.8m high wooden table for table-top equipment. For floor standing equipment, the EUT was placed on a 0.1m high wooden support above the GRP.
2) The 1.2/50 μs surge was to be applied to the EUT power supply terminals via the capacitive coupling network. Decoupling networks were 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 so that the specified wave may be applied on the lines under test.
3) The power cord between the EUT and the coupling/decoupling network was not exceed 2 m in length. The interconnection line between the EUT and the coupling/ decoupling network shall not exceed 2 m in length.

The EUT was conducted 1 kV test voltage for line to line and line to neutral and conducted 2 kV test voltage for line to earth and neutral to earth, five positive pulses and five negative pulses each at 90°and 270° for a.c. power ports and five positive pulses and five negative surge pulses for d.c. power ports (for for analogue/digital data ports (unshielded symmetrical) port, It was 1 kV and 4KV for cable longer than 3m line to ground, for analogue/digital data ports (coaxial or shielded), It was 0.5 kV for cable longer than 3m line to ground, five positive pulses and five negative surge pulses), for DC network power ports (outdoor cables, cable lengths greater than 3m), It was 0.5 kV for cable longer than 3m line to reference ground, The test levels were applied on the EUT with a 2 Ω generator source impedance for power supply terminals and 40Ω output impedance for interconnection lines. The tests were done at repetition rate one per minute.

Test Results: Pass

Pulse No	Coupling	Level (kV)	Surge Interval	Phase (deg)	Observation (Performance Criterion)
1-10	L-N	±1	60s	90°	(A)
11-20	L-N	±1	60s	270°	(A)

Remarks:

A: No degradation in the performance of the E.U.T. was observed.

7.6 Voltage Dips and Interruptions

Test Requirement: EN 55035

Test Method: EN 61000-4-11

Test Level:
Voltage dip: >95% reduction voltage for 0.5 period; B
Voltage dip: 30 % reduction voltage for 25 cycles,50Hz and 30 cycles,60Hz; C
Voltage interruption: >95% reduction voltage for 250 cycles,50Hz and 300 cycles,60Hz; C

No. of Dips / Interruptions: 3 per Level

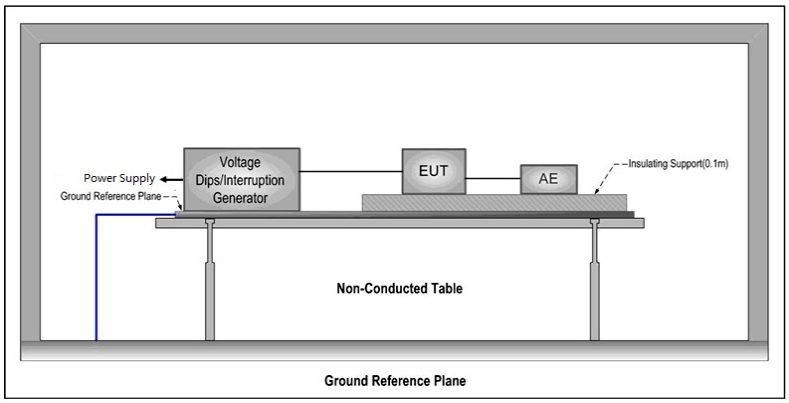
EUT Operation:

Ambient: Temp.: 25.8°C Humid.:56% Press.: 1009 mbar

Power AC 230V, 50Hz

Test Mode: Test the EUT in 1 mode

Test Setup:



Test Procedure:

1) The EUT was placed on a ground reference plane (GRP) insulated by an insulating support 0.1 m thick and the GRP was placed on a 0.8m high wooden table for table-top equipment. For floor standing equipment, the EUT was placed on a 0.1m high wooden support above the GRP.
2) The test was performed with the EUT connected to the test generator with the shortest power supply cable as specified by the EUT manufacturer.
3) The EUT was tested for each selected combination of test level and duration with a sequence of three dips /interruptions with intervals of 10 s minimum. Each representative mode of operation was tested.
4) For EUT with more than one power cord, each power cord was tested individually.

Equipment Used: Refer to section 5 for details.

Test result: Pass

Test result:

AC 120V 50/60Hz

Test Level %U_T	Phase	Duration of drop out in Periods		No of drop out	Time between drop out	Observations (Performance Criterion)
		50Hz	60Hz			
0	0°	0.5		3	10s	A
40	0°	10	12	3	10s	B
70	0°	25	30	3	10s	A

AC 240V 50/60Hz

Test Level %U_T	Phase	Duration of drop out in Periods		No of drop out	Time between drop out	Observations (Performance Criterion)
		50Hz	60Hz			
0	0°	0.5		3	10s	A
40	0°	10	12	3	10s	B
70	0°	25	30	3	10s	A

Remark:

$\mathbf{U_T}$ = the nominal supply voltage

A: No degradation in the performance of the EUT was observed.

B: The EUT was shut down during test, however, it could recover by automatically after test.

Performance B is within the acceptable criterion for Voltage Dips and Interruption test.

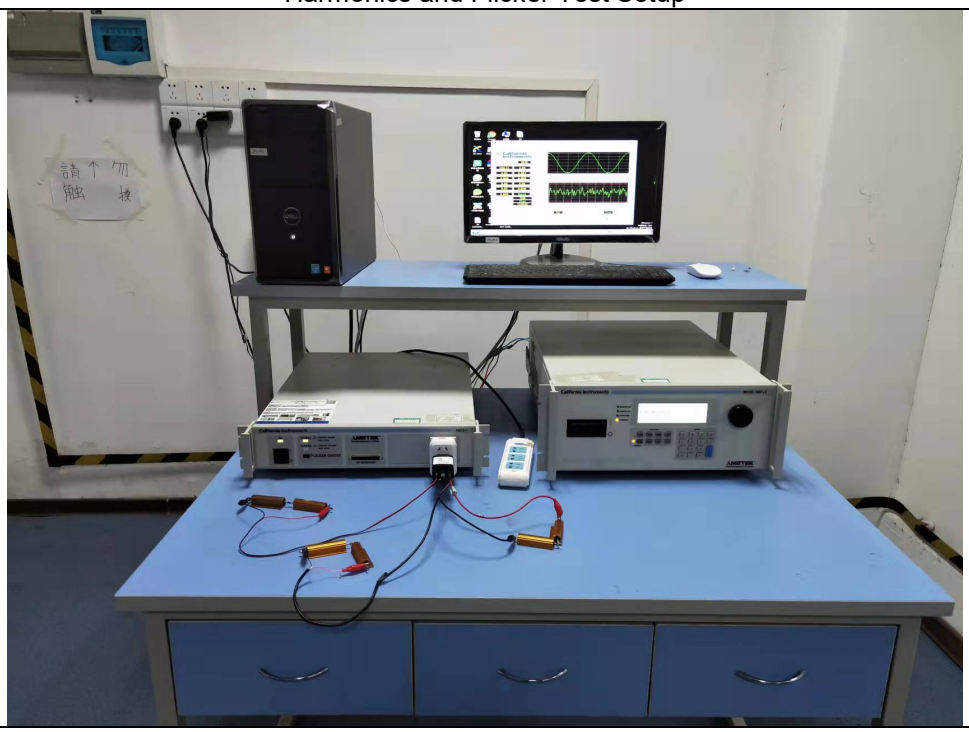
APPENDIX 1 PHOTOGRAPHS OF TEST SETUP

Test Model No.: CCCP17UE

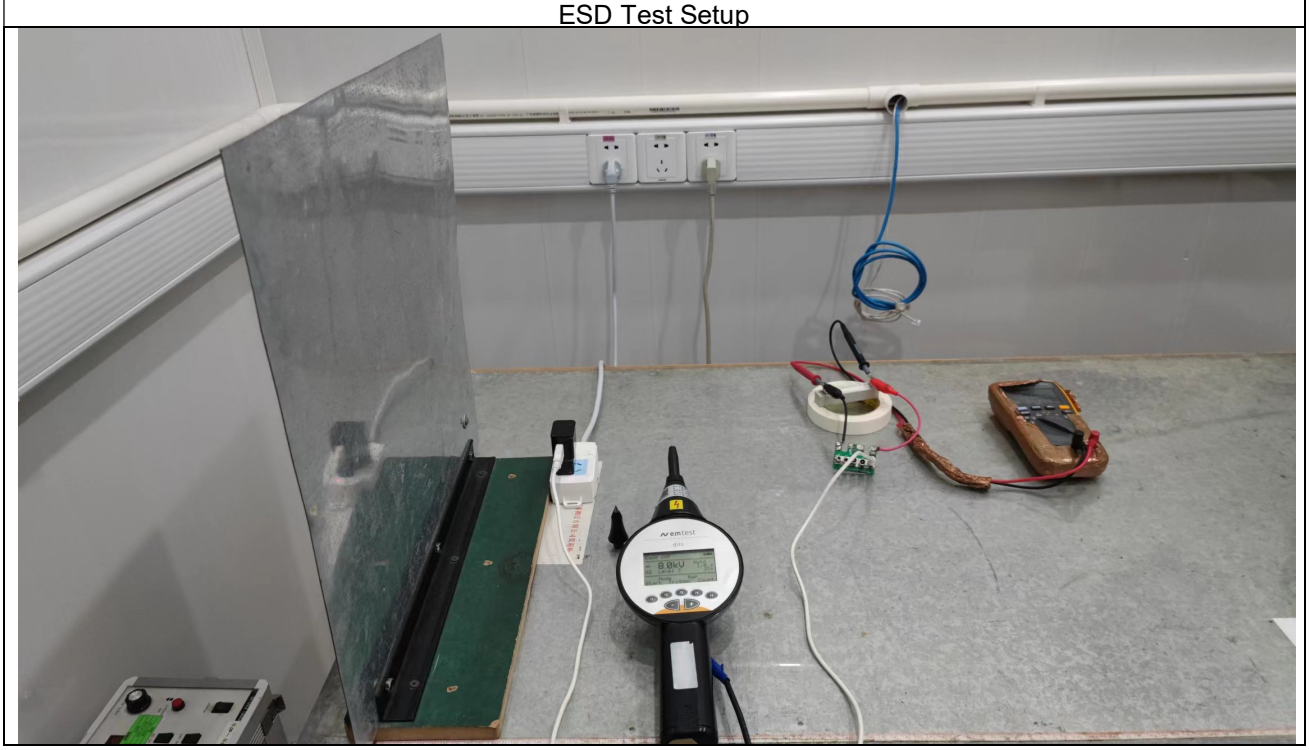
Radiated emission

Conducted emission

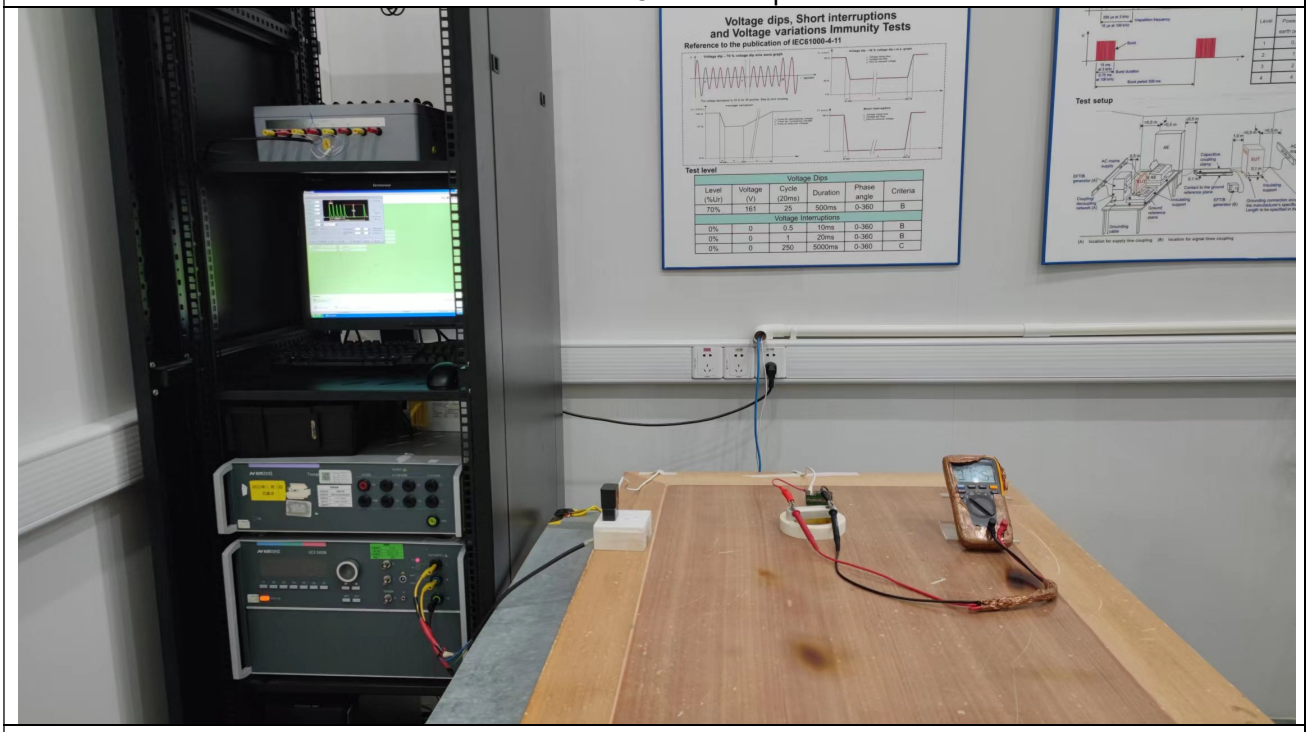
Harmonics and Flicker Test Setup



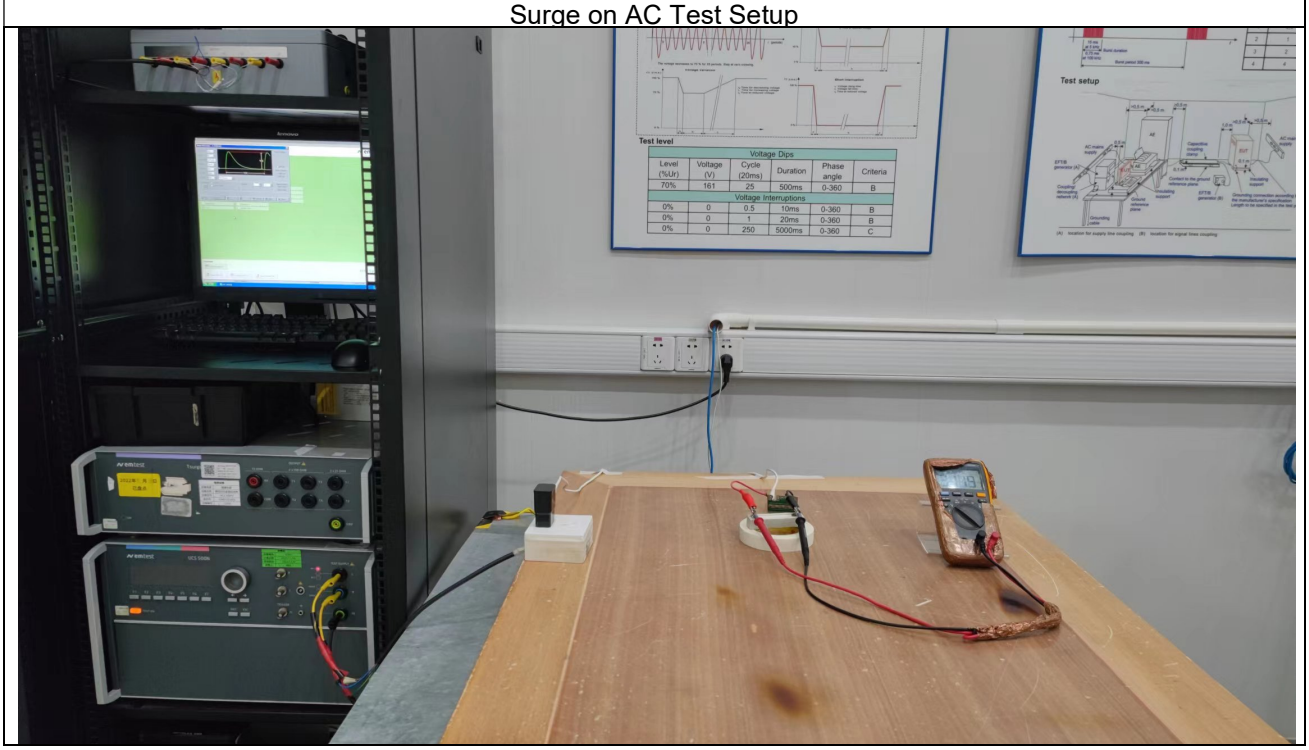
ESD Test Setup



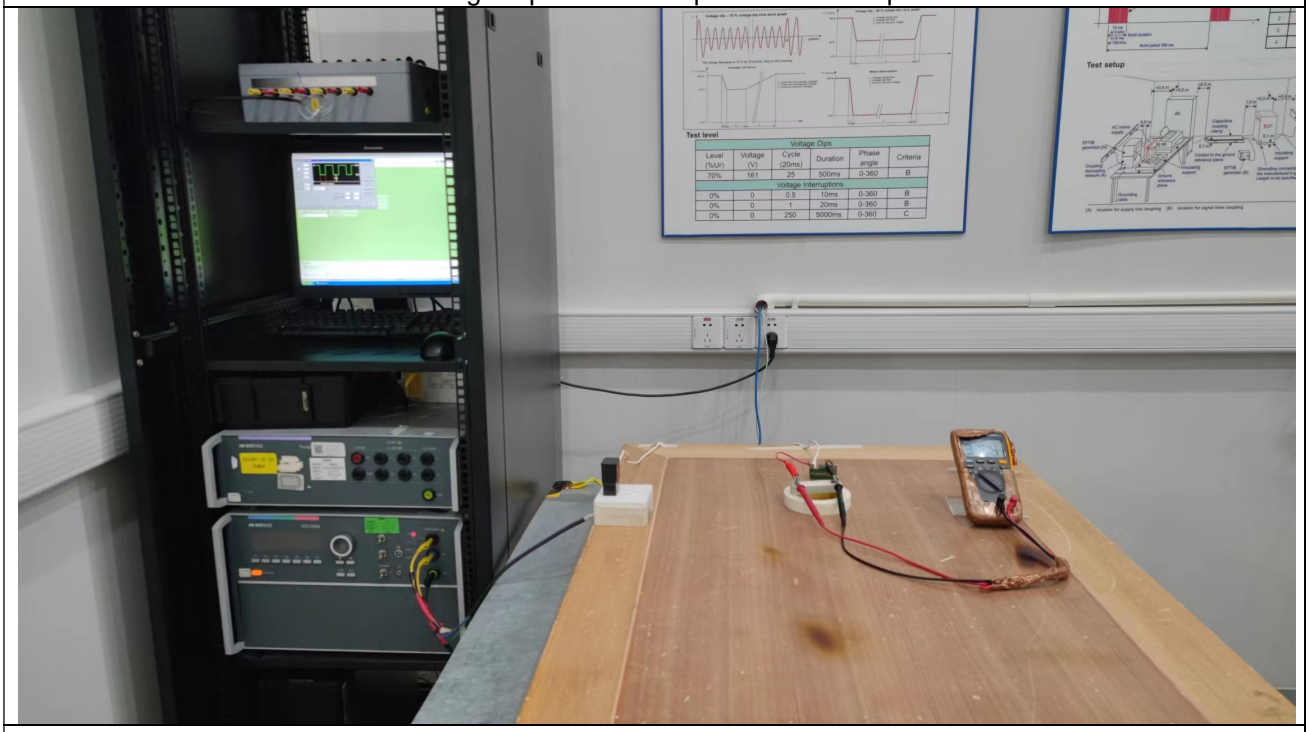
EFT on AC Test Setup



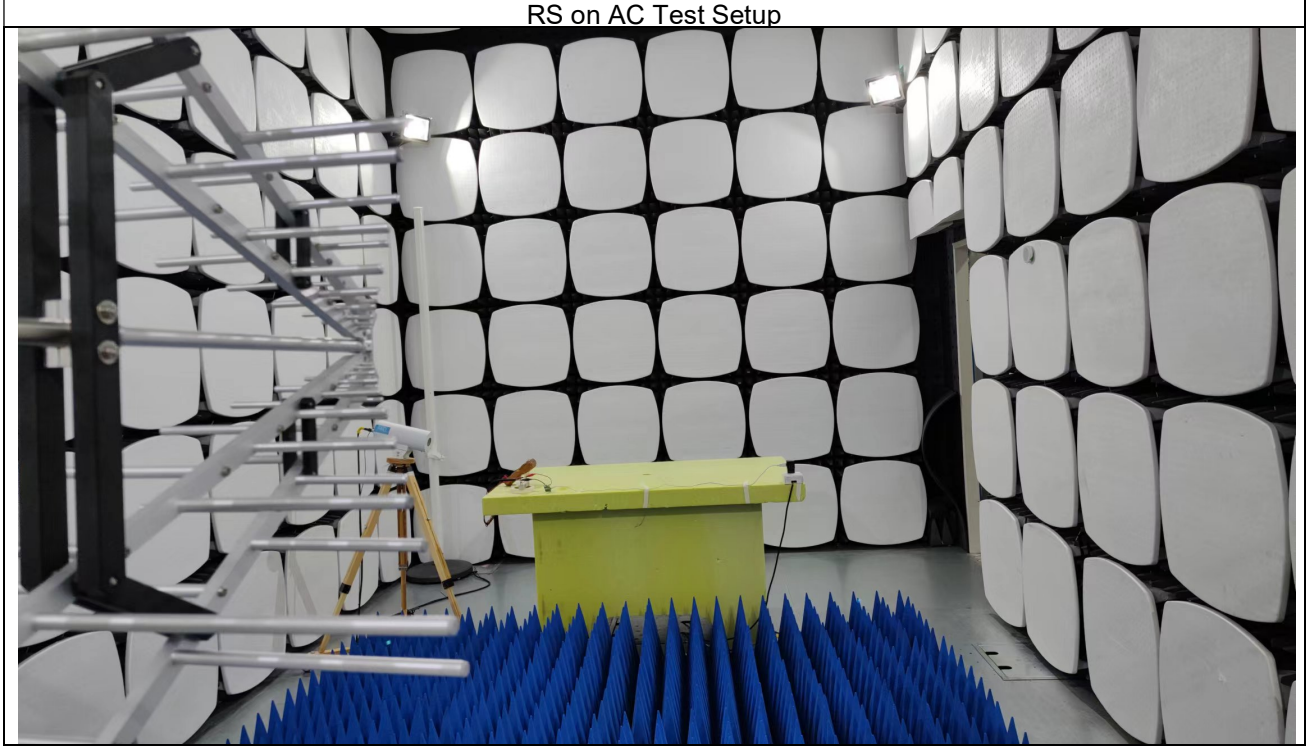
Surge on AC Test Setup

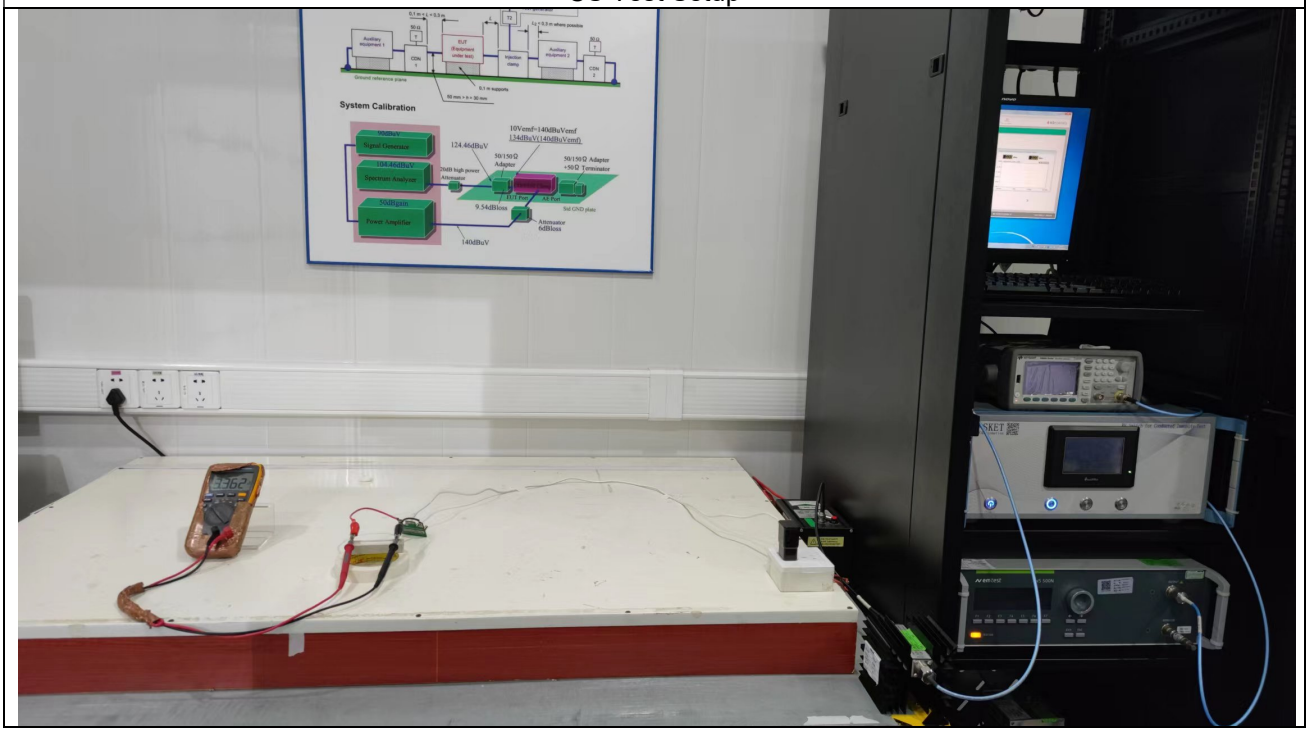


Voltage Dips and Interruptions Test Setup

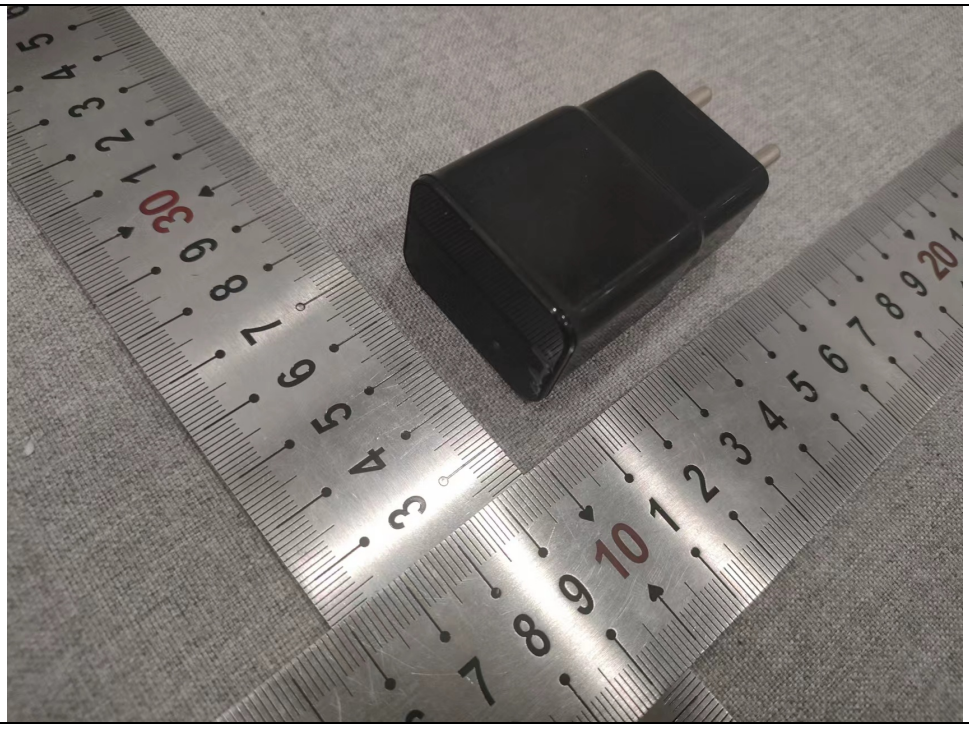
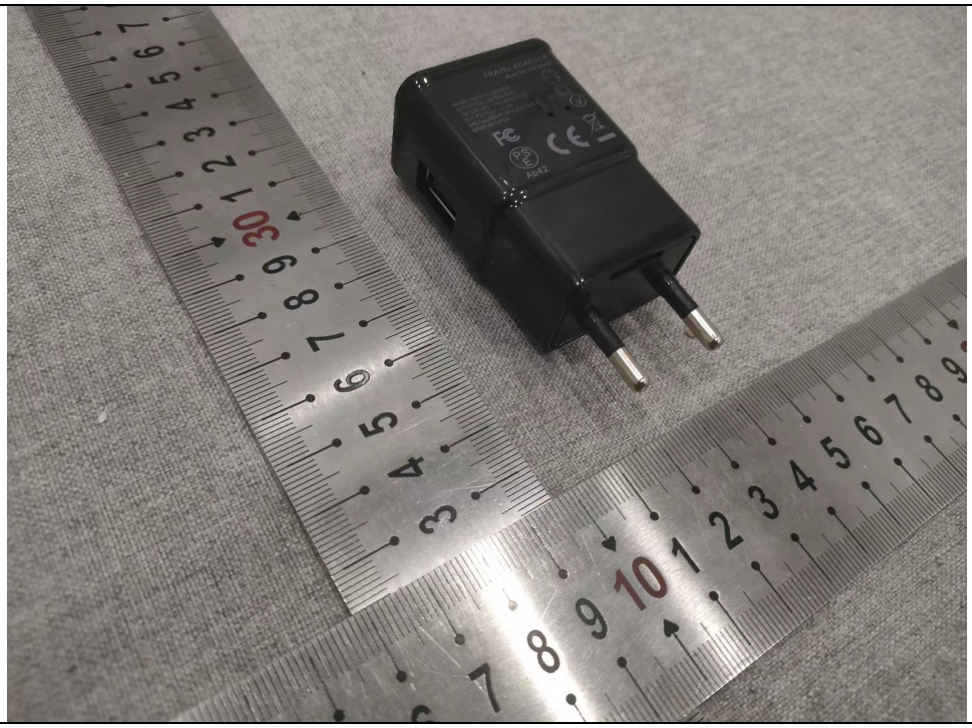


RS on AC Test Setup



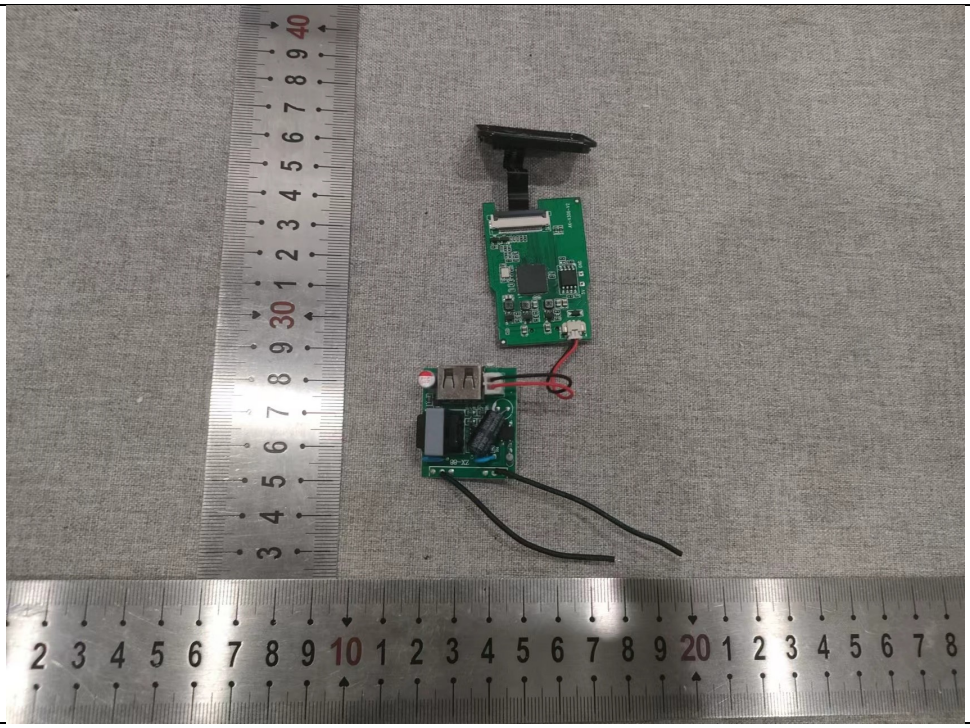
CS Test Setup


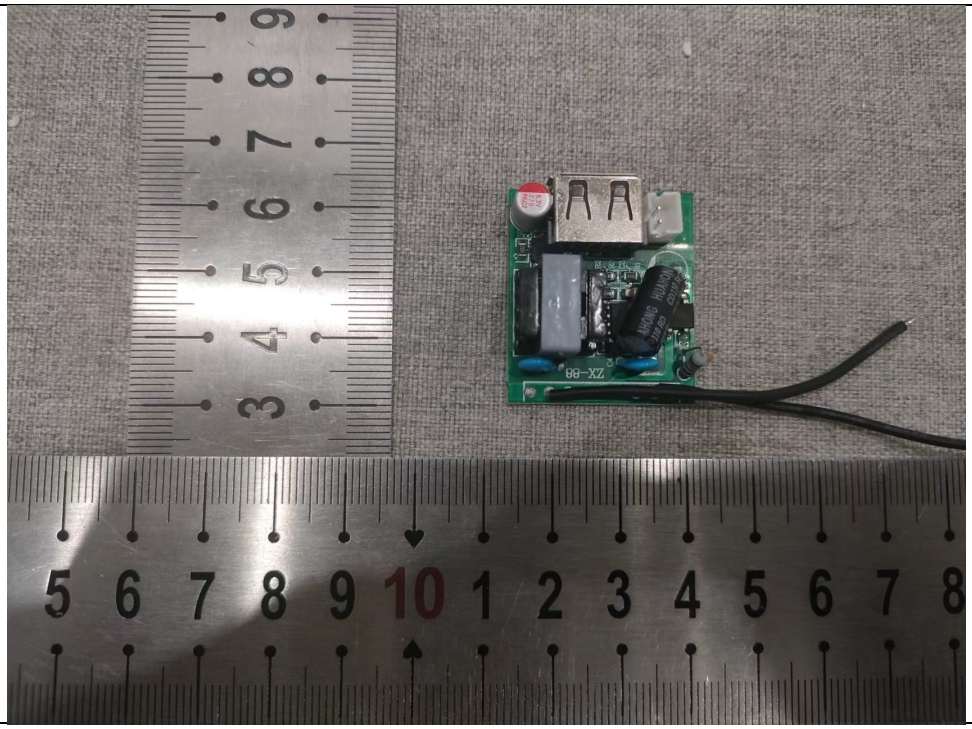
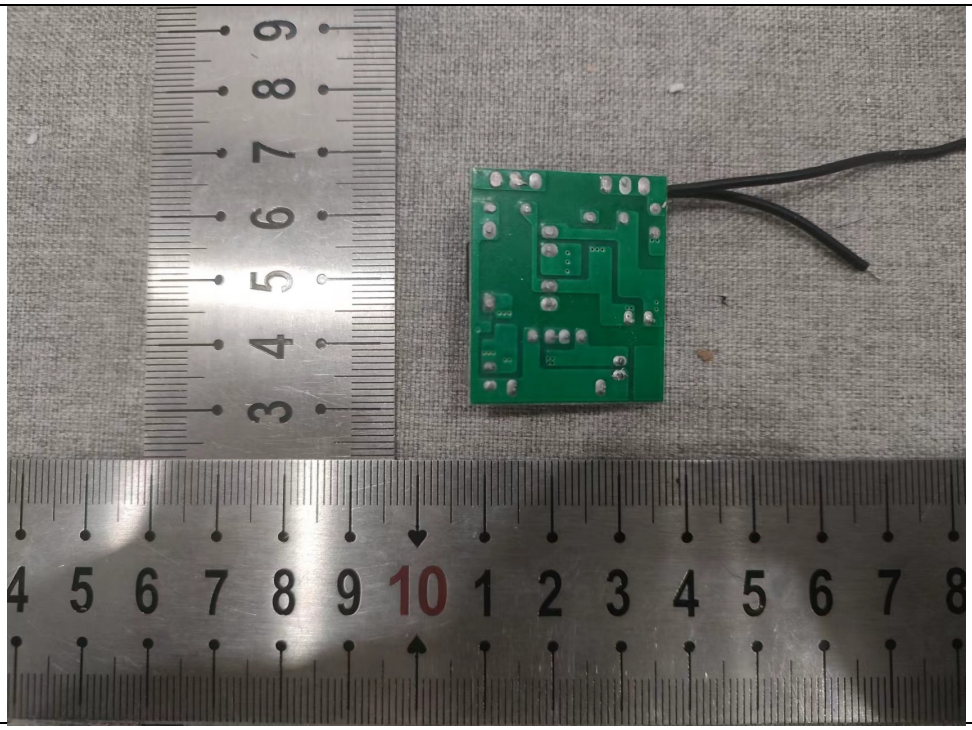
APPENDIX 2 PHOTOGRAPHS OF EUT

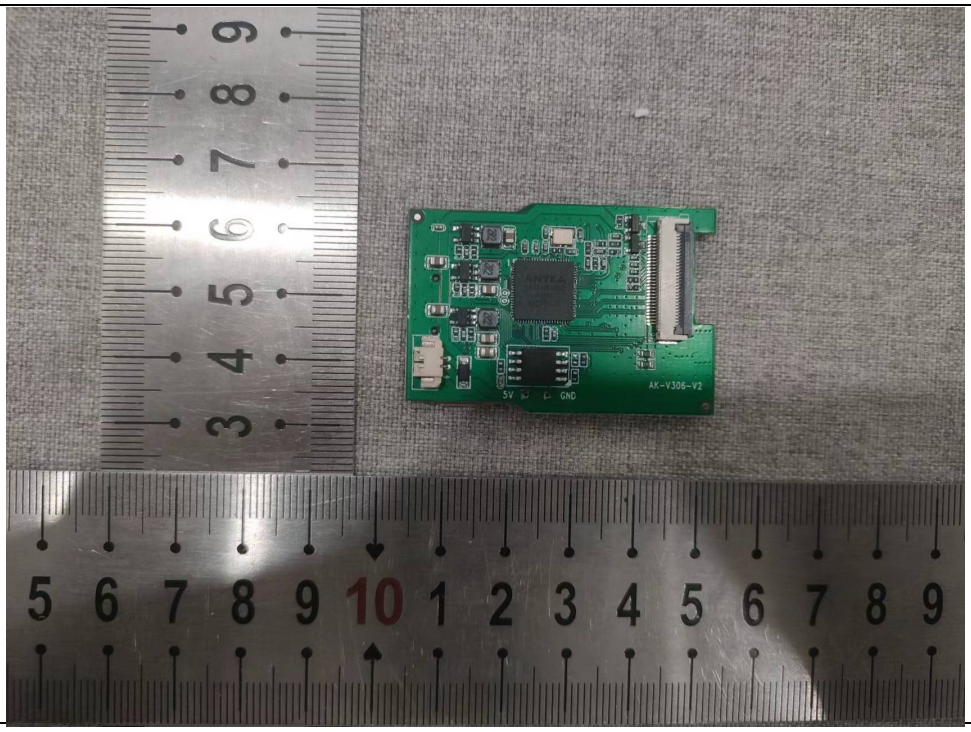
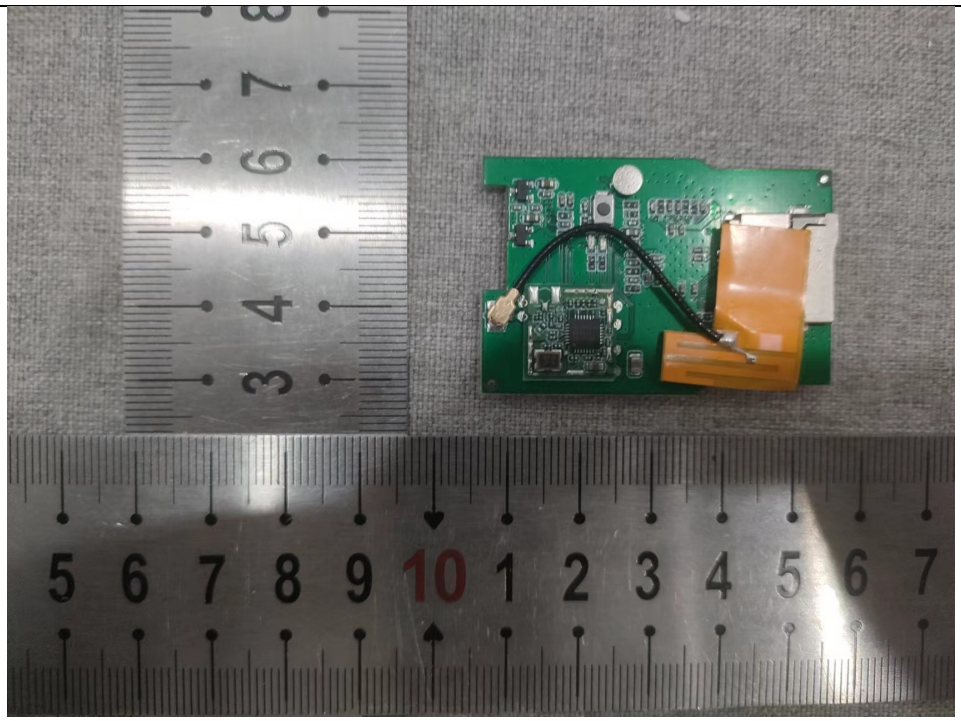
Outlook

Outlook


Outlook

Internal view



Internal view

Internal view


Internal view

Internal view


*** End of Report ***