Abbreviated CE EMC Test Report

Project No.	:	2505C045
Equipment	:	5G CPE
Brand Name	:	BROVI
Test Model	:	H153-381
Series Model	:	N/A
Applicant	:	ZOWEE TECHNOLOGY (HEYUAN) CO., LTD.
Address	:	Runye Precision Manufacturing Industrial Park, among the north of Xiangjing Road, the west of Xinpi Road and the south of Yangzi Road, located in the High-tech Zone, Heyuan City, Guangdong Province
Manufacturer	:	ZOWEE TECHNOLOGY (HEYUAN) CO., LTD.
Address	:	Runye Precision Manufacturing Industrial Park, among the north of Xiangjing Road, the west of Xinpi Road and the south of Yangzi Road, located in the High-tech Zone, Heyuan City, Guangdong Province
Date of Receipt	:	May 09, 2025
Date of Test	:	May 09, 2025 ~ May 22, 2025
Issued Date	:	May 26, 2025
Report Version	:	R00
Test Sample	:	Engineering Sample No.: DG20250509127
Standard(s)	:	EN 61000-4-2:2009 EN 61000-4-4:2012 EN 61000-4-5:2014+A1:2017

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc. (Dongguan).

Prepared by : Gerry Zhao

Approved by : Kang Zhang

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Declaration

BTL represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with standards traceable to international standard(s) and/or national standard(s).

BTL's reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. BTL assumes no responsibility for the data provided by the customer, any statements, inferences or generalizations drawn by the customer or others from the reports issued by BTL.

This report is the confidential property of the client. As a mutual protection to the clients, the public and ourselves, the test report shall not be reproduced, except in full, without our written approval.

BTL is not responsible for the sampling stage, so the results only apply to the sample as received.

The information, data and test plan are provided by manufacturer which may affect the validity of results, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements of applied standards and in all the possible configurations as representative of its intended use.

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.
Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.

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REPORT ISSUED HISTORY

Report No.	Version	Description	Issued Date	Note
BTL-TD-1-2505C045	R00	Original Report.	May 26, 2025	Valid

1 TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No.3, Jinshagang 1st Road, Dalang, Dongguan, Guangdong People's Republic of China.

2 TEST ENVIRONMENT CONDITIONS

Test Item	Temperature	Humidity	Pressure	Tested By	Test Date
ESD	25°C	45%	1014hPh	Niko Ning	May 13, 2025
	25°C	45%	1014hPh	Niko Ning	May 21, 2025
EFT	25°C	52%	/	Sean Wan	May 13, 2025
	25°C	52%	/	Sean Wan	May 21, 2025
Surge	25°C	52%	/	Sean Wan	May 13, 2025-May 21, 2025
	26°C	60%	/	Lucian Xie	May 13, 2025-May 21, 2025

1. GENERAL INFORMATION

1.1 GENERAL DESCRIPTION OF EUT

Equipment	5G CPE
Brand Name	BROVI
Test Model	H153-381
Series Model	N/A
Model Difference(s)	N/A
Identification No. of EUT(S/N)	2ZP7S24C17005093
Component unit of EUT	☒Single unit ☐Multiple unit
Sample Status	☐Engineering sample ☒Final shipment prototype
Power Source	DC voltage supplied from AC adapter. 1# Manufacturer / Model: Fuhua / S120200A02(AU), S120200E02(EU), S120200U02(US), S120200B02(UK) 2# Manufacturer / Model: HONOR / S120200A02(AU), S120200E02(EU) S120200U02(US), S120200B02(UK) ● The same Manufacturer has the same board.
Power Rating	1# 2#: Input: 100-240V~ 50/60Hz, 0.7A Output: 12.0V⎓2.0A 24.0W
Connecting I/O Port(s)	1* SIM Card port 1* DC port 1* WAN port 1* TEL port
Classification of EUT	Class B
Highest Internal Frequency(Fx)	Exceeds 108MHz

Note:
1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

1.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	FULL SYSTEM(LTE B1/3/5/7/8/20/28/38/40/41/42/43+2.4G WIFI+5G WIFI)
Mode 2	FULL SYSTEM(5G NR n1/n3/n5/n7/n8/n20/n28/n38/n40/n41/n77/n78/n80/n81/n82/n83/n84+2.4G WIFI+I+5G WIFI)
Mode 3	FULL SYSTEM(WAN +2.4G WIFI+5G WIFI)
Mode 4	FULL SYSTEM(Idle)

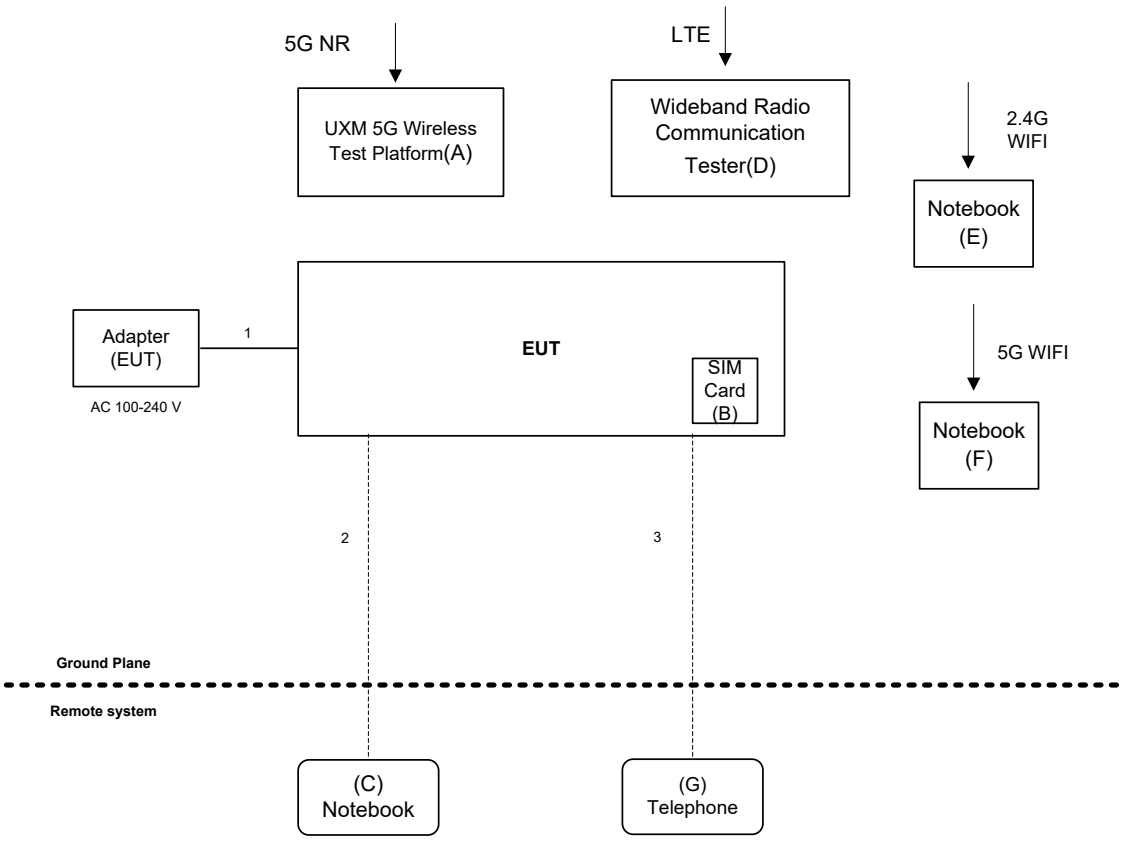
ESD, EFT, SURGE Test	
Final Test Mode	Description
Mode 1	FULL SYSTEM(LTE B1/3/5/7/8/20/28/38/40/41/42/43+2.4G WIFI+5G WIFI)
Mode 2	FULL SYSTEM(5G NR n1/n3/n5/n7/n8/n20/n28/n38/n40/n41/n77/n78/n80/n81/n82/n83/n84+2.4G WIFI+I+5G WIFI)
Mode 3	FULL SYSTEM(WAN +2.4G WIFI+5G WIFI)
Mode 4	FULL SYSTEM(Idle)

1.3 EUT OPERATING CONDITIONS

The EUT exercise program used during radiated and/or conducted emission measurement was designed to exercise the various system components in a manner similar to a typical use.
The standard test signals and output signal as following:

1. EUT connected to Adapter (EUT) via DC Cable.
2. EUT connected to Notebook (C) via RJ45 Cable.
3. EUT connected to Telephone via RJ11 Cable.
4. SIM Card is plugged into EUT.
5. EUT connected to UXM 5G Wireless Test Platform via 5G NR.
6. EUT connected to Wideband Radio Communication Tester via LTE.
7. EUT connected to Notebook (E) via 2.4G WIFI.
8. EUT connected to Notebook (F) via 5G WIFI.

1.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



1.5 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.
A	UXM 5G Wireless Test Platform	KEYSIGHT	E7515B	MY59110295
B	SIM Card	Agilent	N/A	N/A
C	Notebook	Lenovo	V310-14ISK	LR07GZHC
D	Wideband Radio Communication Tester	RS	CMW500	122125
E	Notebook	Lenovo	V310-14IKB	LR07SH58
F	Notebook	Lenovo	V310-14IKB	LR07SH32
G	Telephone	TCL	HCD868(79)TSD	N/A

Item	Cable Type	Shielded Type	Ferrite Core	Length
1	DC Cable	NO	NO	1.5m
2	RJ45 Cable	NO	NO	10m
3	RJ11 Cable	NO	NO	10m

2. EMC IMMUNITY TEST

2.1 CLIENT SPECIAL REQUIREMENTS

Test Standard No.	Test Specification Level	Test Mode Test Port	Performance Criteria
Electrostatic discharge EN 61000-4-2 (ESD)	± 8 kV air discharge	Direct Mode	B
	± 6 kV HCP discharge ± 6 kV VCP discharge	Indirect Mode	B
Fast transients, common mode EN 61000-4-4 (EFT)	± 2 kV(peak) 5/50 ns Tr/Th 5 kHz Repetition Frequency	Signal port, Wired network port, Control port	B
	±4 kV(peak) 5/50ns Tr/Th 5kHz Repetition Frequency	AC mains power ports	B
Surges, line to line and line to Ground EN 61000-4-5 (Surge)	±2 kV(peak) 1.2/50(8/20) Tr/Th μs (line to line)	AC mains power ports	B
	± 4 kV(5P/5N) 1.2/50(8/20) Tr/Th us (line to ground)		B
	±1.5 kV, ±2 kV, ±4kV (5P/5N) 1.2/50(8/20) Tr/Th us **(non-symmetrically line to ground, or shield to ground)**	wired network ports	B

2.2 ELECTROSTATIC DISCHARGE (ESD)

2.2.1 TEST SPECIFICATION

Test Method	EN 61000-4-2
Discharge Impedance	330 ohm / 150 pF
Required Performance	B
Discharge Voltage	Air Discharge: ± 2 kV, ± 4 kV, ± 8 kV Contact Discharge: ± 2 kV, ± 4 kV, ± 6 kV
Polarity	Positive & Negative
Number of Discharge	20 times at each test point
Discharge Mode	Single Discharge
Discharge Period	1 second

2.2.2 TEST PROCEDURE

The test generator necessary to perform direct and indirect application of discharges to the EUT in the following manner:

a. The test shall be performed with single discharges. On each pre-selected point at least 10single discharges (in the most sensitive polarity) shall be applied.
NOTE 1 The minimum number of discharges applied is depending on the EUT; for products with synchronized circuits the number of discharges should be larger.
For the time interval between successive single discharges an initial value of 1 s is recommended. Longer intervals may be necessary to determine whether a system failure has occurred.
NOTE 2 The points to which the discharges should be applied may be selected by means of an explor ation carried out at a repetition rate of 20 discharges per second, or more.
Vertical Coupling Plane (VCP):
The coupling plane, of dimensions 0.5m x 0.5m, is placed parallel to, and positioned at a distance 0.1m from, the EUT, with the Discharge Electrode touching the coupling plane.
The four faces of the EUT will be performed with electrostatic discharge.
Horizontal Coupling Plane (HCP):
The coupling plane is placed under to the EUT. The generator shall be positioned vertically at a distance of 0.1m from the EUT, with the Discharge Electrode touching the coupling plane.
The four faces of the EUT will be performed with electrostatic discharge.

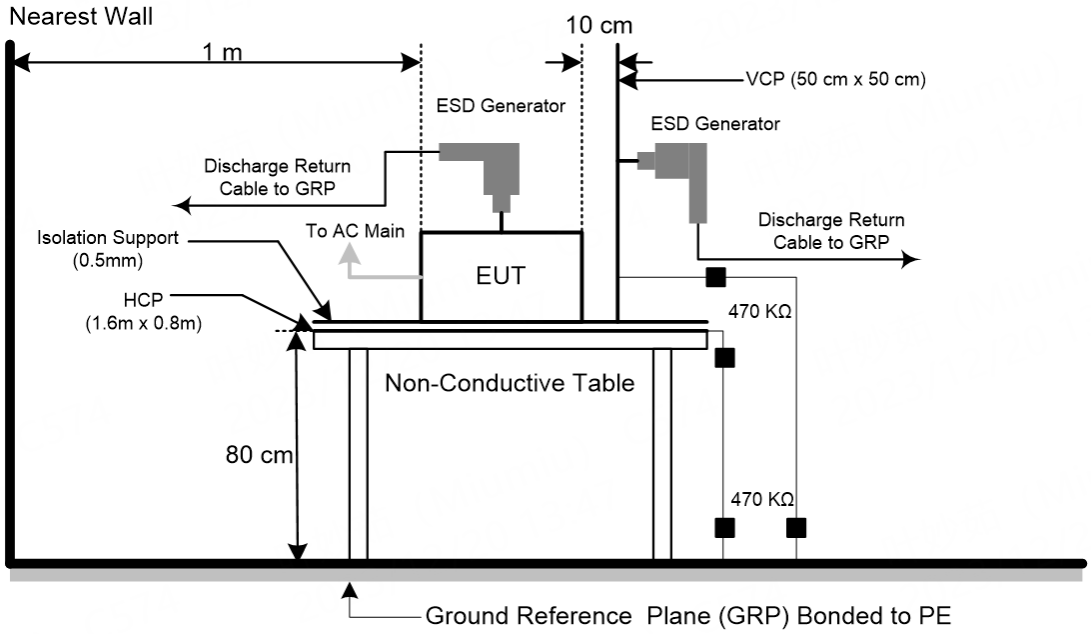
b. Air discharges at insulation surfaces of the EUT.
It was at least ten single discharges with positive and negative at the same selected point.

c. For TABLE-TOP equipment:
The configuration consisted of a wooden table 0.8 meters high standing on the Ground Reference Plane. The GRP consisted of a sheet of aluminum at least 0.25mm thick, and 2.5 meters square connected to the protective grounding system. A Horizontal Coupling Plane (1.6m x 0.8m) was placed on the table and attached to the GRP by means of a cable with 940k total impedance. The equipment under test was installed in a representative system as described in EN 61000-4-2, and its cables were placed on the HCP and isolated by an insulating support of 0.5mm thickness. A distance of1-meter minimum was provided between the EUT and the walls of the laboratory and any other metallic structure.

2.2.3 DEVIATION FROM TEST STANDARD

The requirement followed by the client's specification.

2.2.4 TEST SETUP



2.2.5 TEST RESULTS

Please refer to the Appendix A.

2.3 FAST TRANSIENTS, COMMON MODE (EFT)

2.3.1 TEST SPECIFICATION

Test Method	EN 61000-4-4
Required Performance	B
Test Voltage	AC power port: ±4 kV Signal port, Wired network port, Control port: ±2 kV
Polarity	Positive & Negative
Impulse Frequency	5 kHz
Impulse Wave shape	5/50 ns
Burst Duration	15 ms
Burst Period	300 ms
Test Duration	1 min.

2.3.2 TEST PROCEDURE

For TABLE-TOP equipment:
The configuration consisted of a wooden table (0.8m high) standing on the Ground Reference Plane and should be located 0.1 m+/- 0.01m above the Ground Reference Plane. The GRP consisted of a sheet of aluminum (at least 0.25mm thick and 2.5m square) connected to the protective grounding system. A minimum distance of 0.5m was provided between the EUT and the walls of the laboratory or any other metallic structure.
The other condition as following manner:

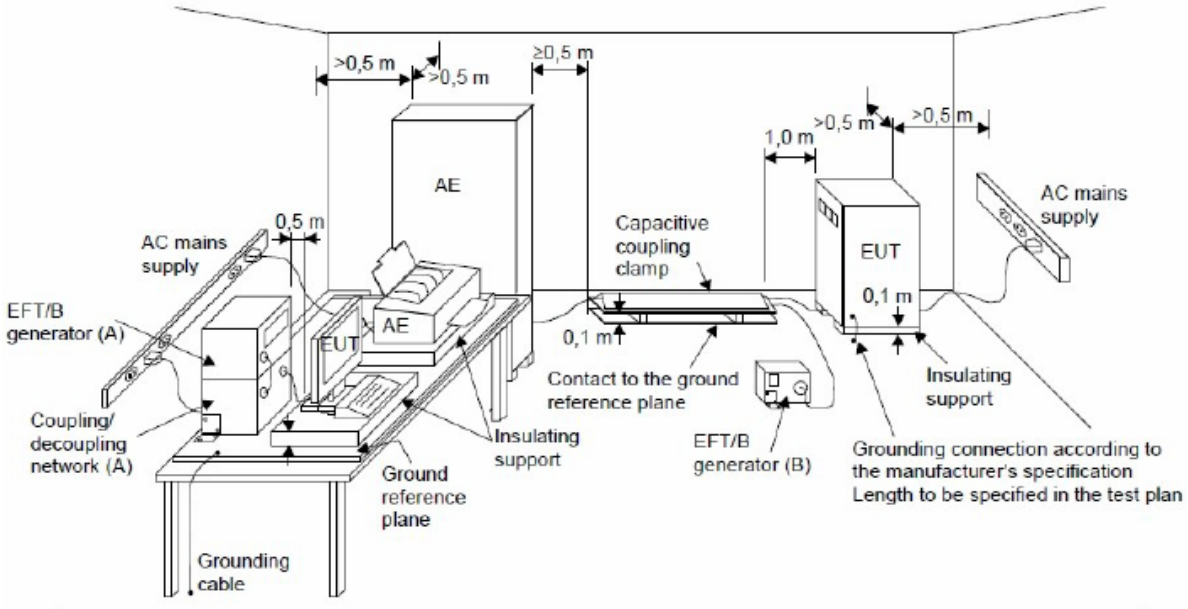
a. Both positive and negative polarity discharges were applied.

b. The duration time of each test sequential was 1 minute

2.3.3 DEVIATION FROM TEST STANDARD

The requirement followed by the client's specification.

2.3.4 TEST SETUP



2.3.5 TEST RESULTS

Please refer to the Appendix B.

2.4 SURGE IMMUNITY TEST (SURGE)

2.4.1 TEST SPECIFICATION

Test Method	EN 61000-4-5
Required Performance	B
Wave-Shape	1.2/50(8/20) Tr/Th μs combination wave
Test Voltage	AC Power Line: ±2 kV, ±4 kV Wired network ports: ±1.5 kV, ±2 kV, ±4 kV □
Generator Source Impedance	2 Ω of the low-voltage power supply network. 12 Ω(10Ω+2Ω) of the low-voltage power supply network and ground. 42 Ω(40Ω+2Ω) between all other signal lines and ground when use 1.2/50(8/20) waveform.
Polarity	5 positive and 5 negative at selected points
Number of Tests & Polarity	AC Power Port: 0°/90°/180°/270°
Pulse Repetition Rate	1 time / min.

2.4.2 TEST PROCEDURE

a. For EUT power supply:

The surge is to be applied to the EUT 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. The power cord between the EUT and the coupling/decoupling networks shall be 2meters in length (or shorter).

b. For test applied to unshielded unsymmetrically operated interconnection lines of EUT:

The surge is applied to the lines via the capacitive coupling. The coupling /decoupling networks shall not influence the specified functional conditions of the EUT. The interconnection line between the EUT and the coupling/decoupling networks shall be 2 meters in length (or shorter).

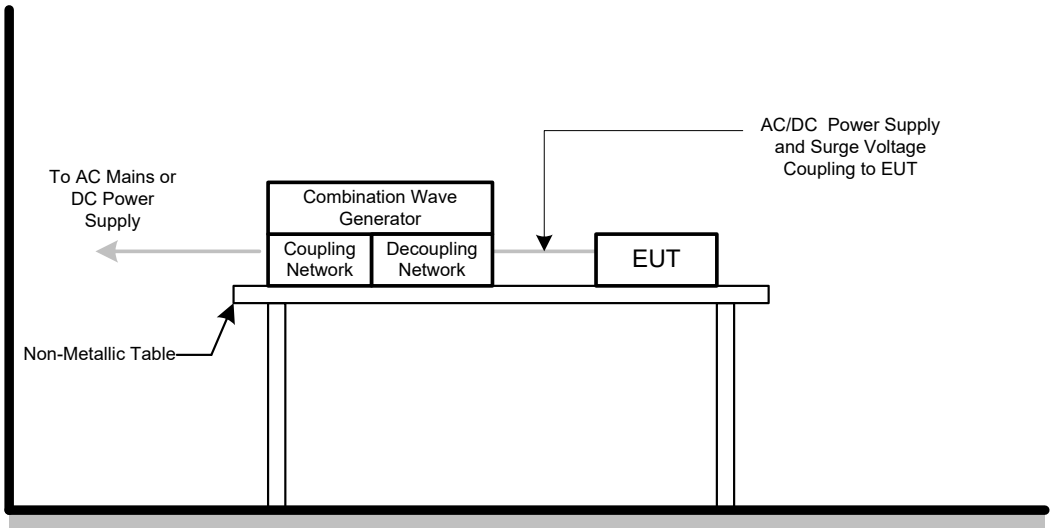
c. For test applied to unshielded symmetrically operated interconnection /telecommunication lines of EUT:

The surge is applied to the lines via gas arrestors coupling. Test levels below the ignition point of the coupling arrestor cannot be specified. The interconnection line between the EUT and the coupling/decoupling networks shall be 2 meters in length (or shorter).

2.4.3 DEVIATION FROM TEST STANDARD

The requirement followed by the client’s specification.

2.4.4 TEST SETUP



2.4.5 TEST RESULTS

Please refer to the Appendix C.

3. MEASUREMENT INSTRUMENTS LIST

Electrostatic discharge					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	ESD Generator	TESEQ AG	NSG 437	450	Nov. 13, 2025

Fast transients, common mode					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Fast Transient Burst Simulator	Prima	EFT61004TA	PR190741004	May 31, 2025
2	Measurement Software	Prima	EFT_Series V1.0.0.0.20180710	N/A	N/A

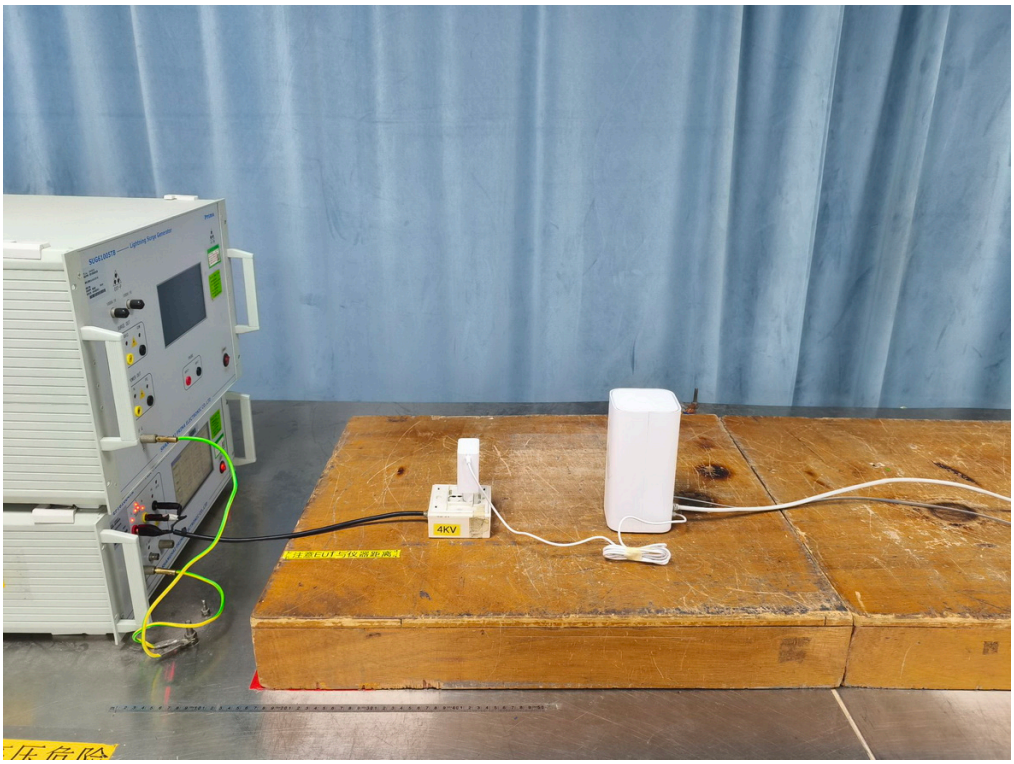
Surge					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Lightning Surge Generator	Prima	SUG61005TB	PR190854067	May 31, 2025
2	Measurement Software	Prima	SUG_Series V1.0.0.7.20190827	N/A	N/A
3	CDN	EMC PARTNER	CDN-UTP8	040	Dec. 06, 2025
4	Lightning Surge Generator	3ctest	CWS 1000N	ES058003022011	Dec. 06, 2025

Remark: “N/A” denotes no model name, serial no. or calibration specified.
All calibration period of equipment list is one year.

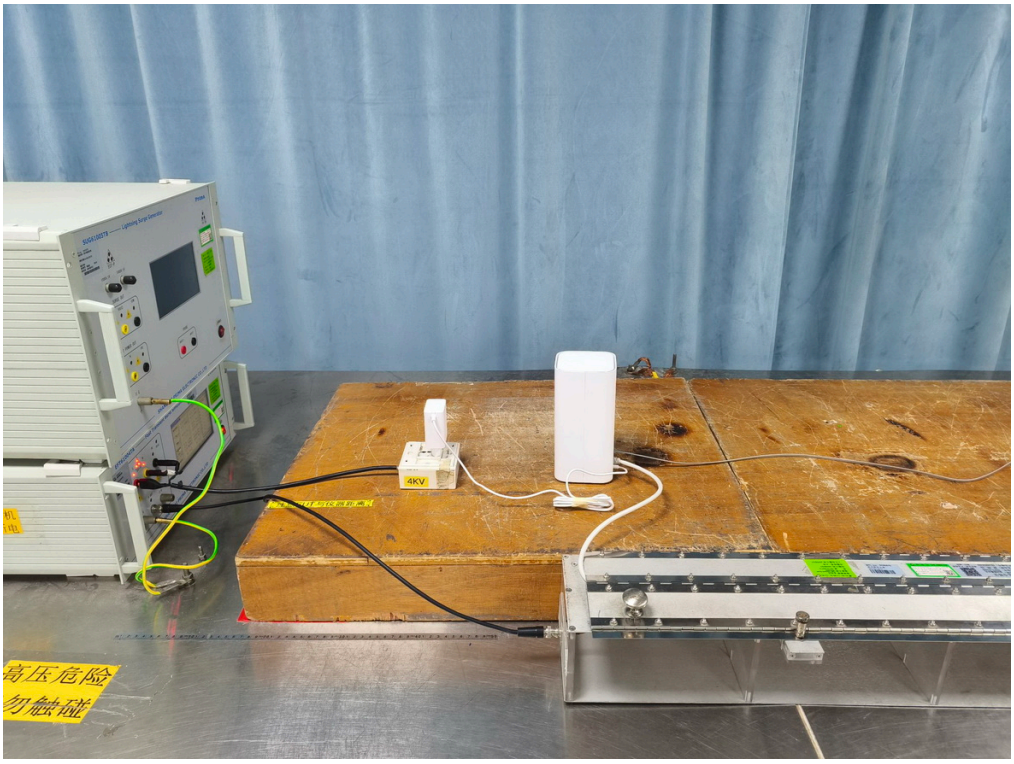
4. EUT TEST PHOTO

Electrostatic discharge immunity

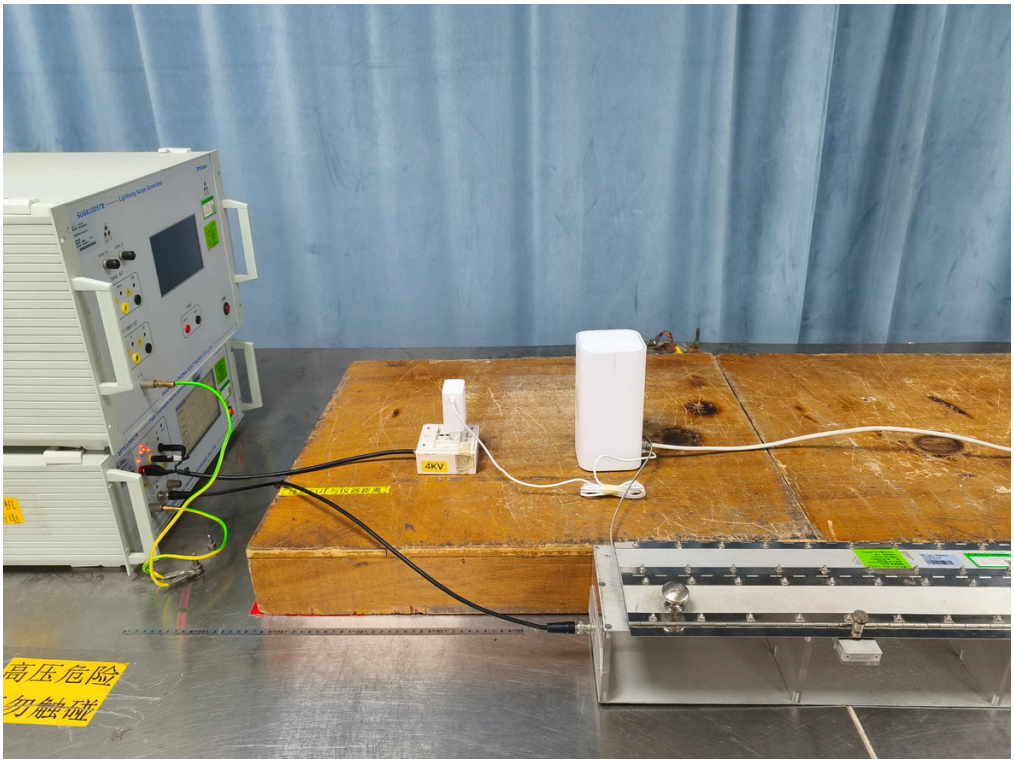
Electrical fast transient/burst - AC



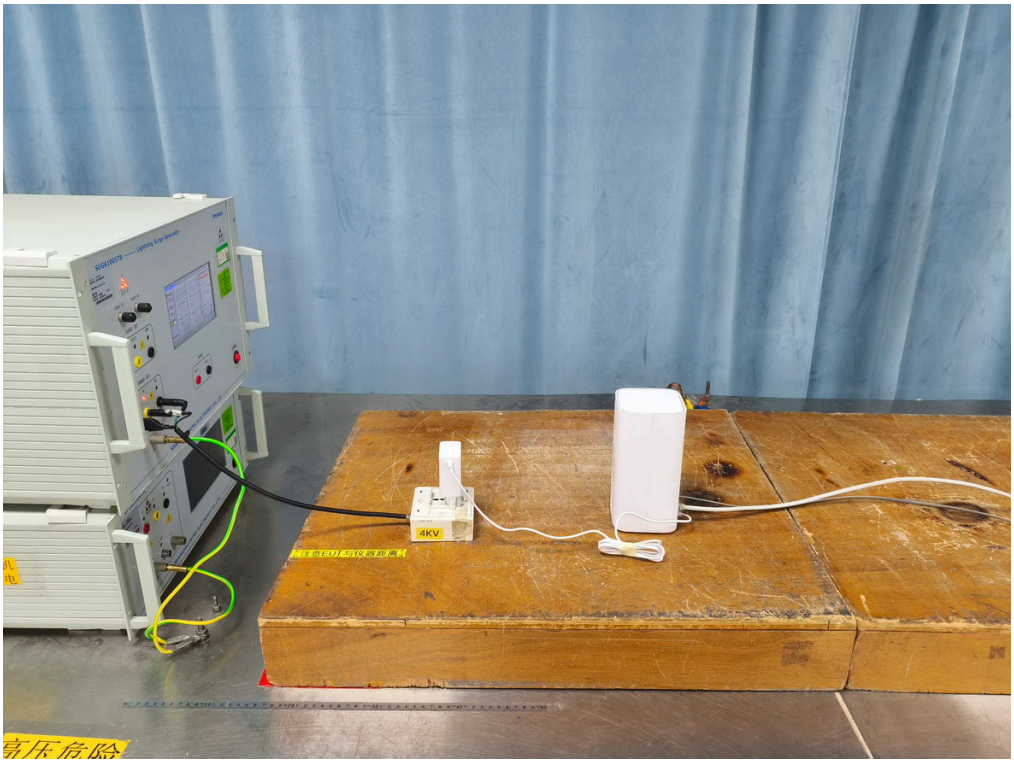
Electrical fast transient/burst (WAN)



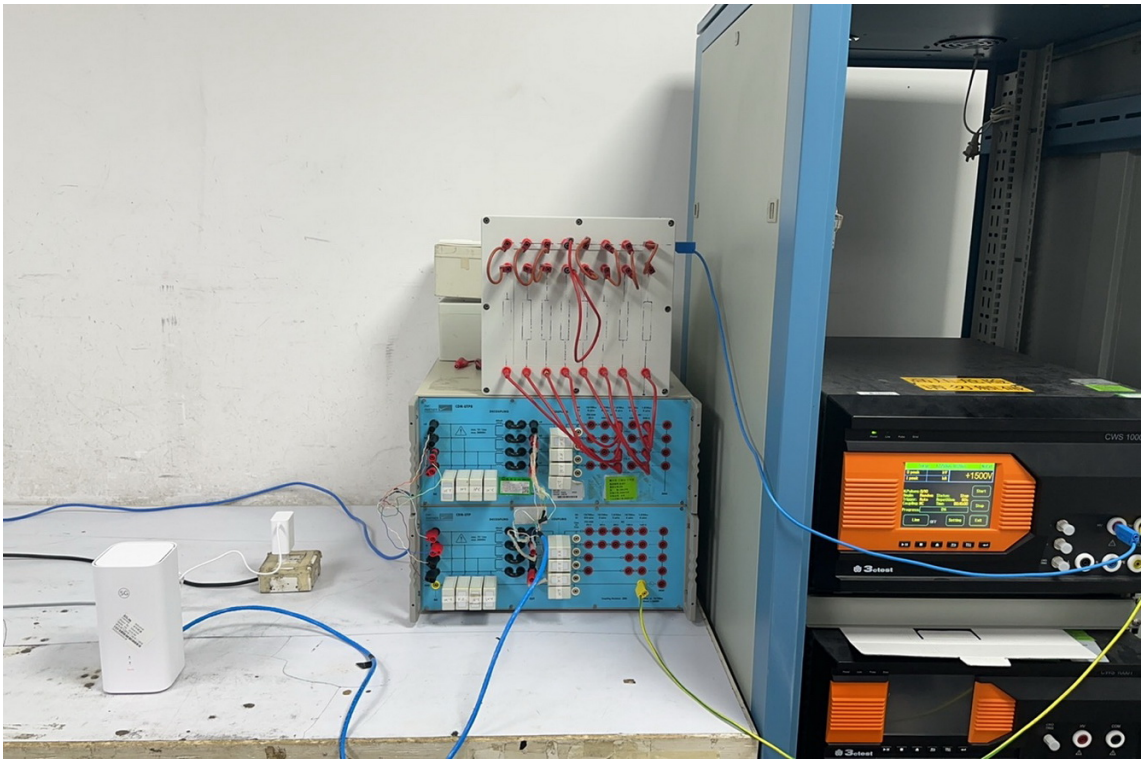
Electrical fast transient/burst (TEL)



Surge immunity - AC



Surge immunity (WAN)



Surge immunity (TEL)

APPENDIX A - ELECTROSTATIC DISCHARGE

Test Voltage	AC 230V/50Hz
Test Mode	Mode 1-4
Adapter	Fuhua / S120200E02(EU); HONOR / S120200E02(EU)

Mode	Air Discharge								Contact Discharge					
Test Level	2kV		4kV		8kV		- kV		- kV		- kV		- kV	
Location	P	N	P	N	P	N	P	N	P	N	P	N	P	N
1	A	A	A	A	B	B	-	-	-	-	-	-	-	-
2	A	A	A	A	A	A	-	-	-	-	-	-	-	-
3	A	A	A	A	A	A	-	-	-	-	-	-	-	-
4	A	A	A	A	A	A	-	-	-	-	-	-	-	-
Criteria	B								B					
Result	B								N/A					

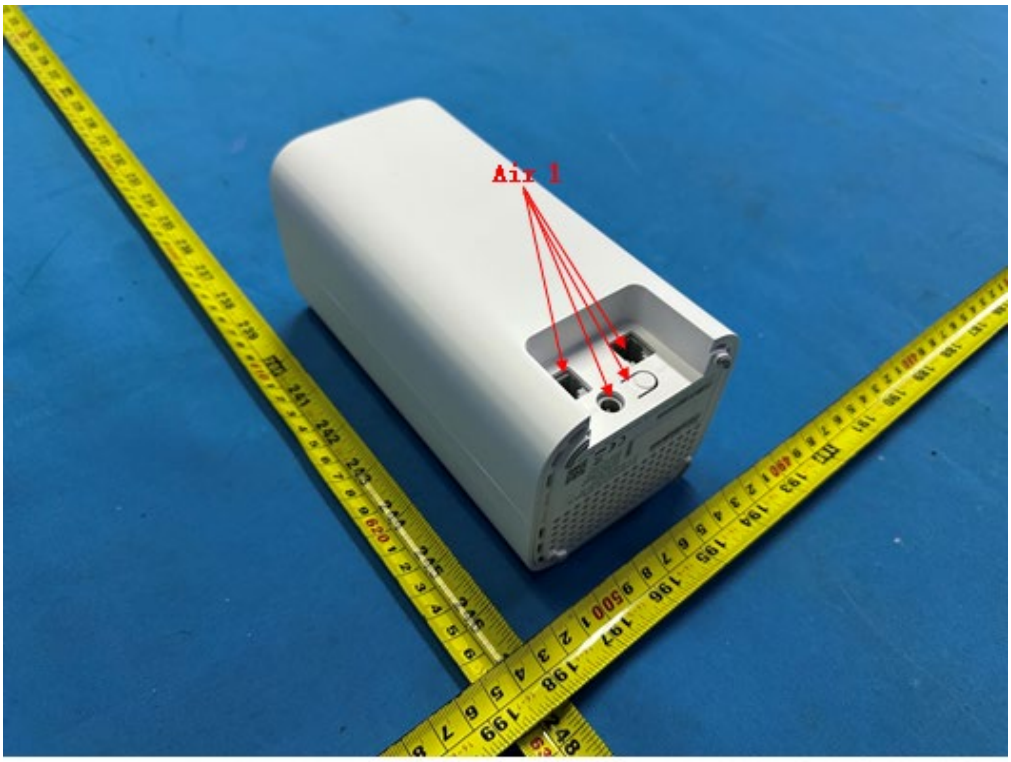
Mode	HCP Contact Discharge						VCP Contact Discharge					
Test Level	2kV		4kV		6kV		2kV		4kV		6kV	
Location	P	N	P	N	P	N	P	N	P	N	P	N
Left side	A	A	A	A	A	A	A	A	A	A	A	A
Right side	A	A	A	A	A	A	A	A	A	A	A	A
Front side	A	A	A	A	A	A	A	A	A	A	A	A
Rear side	A	A	A	A	A	A	A	A	A	A	A	A
Criteria	B						B					
Result	A						A					

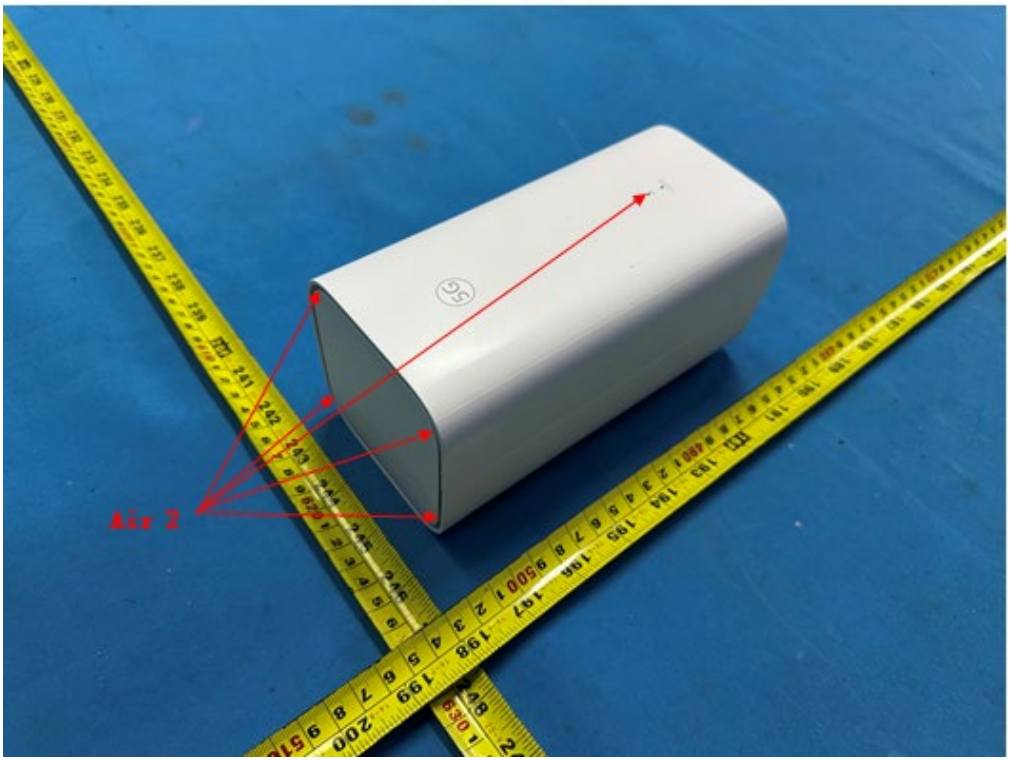
Note:

1) P/N denotes the Positive/Negative polarity of the output voltage.

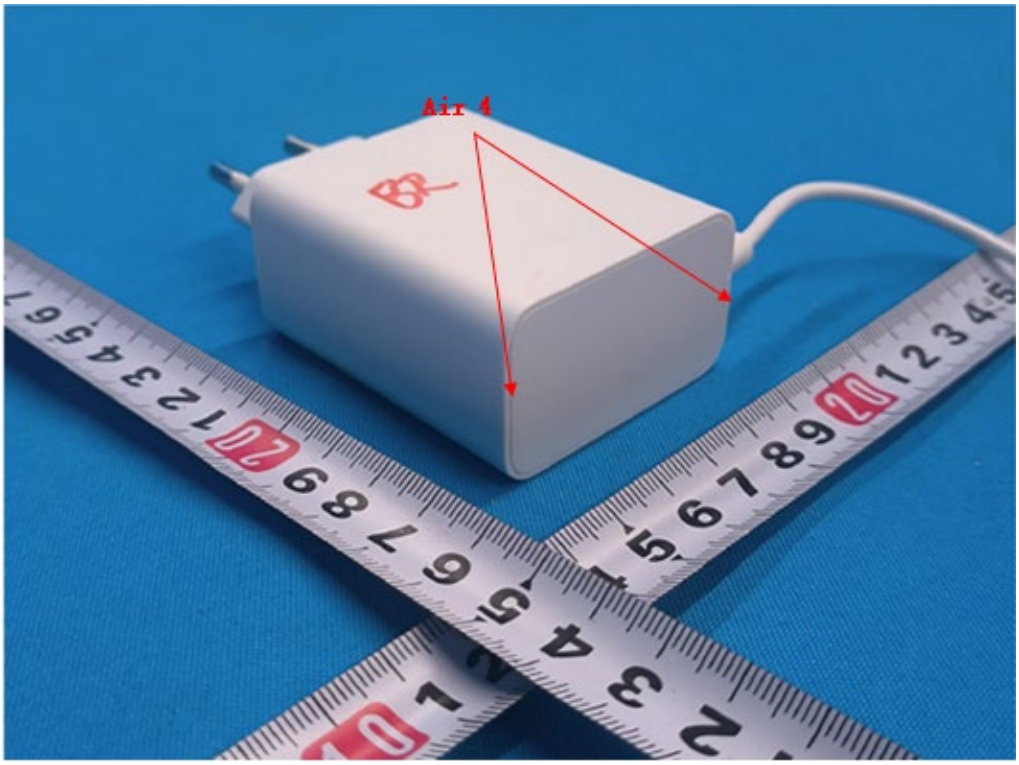
2) N/A - denotes test is not applicable in this test report

PHOTO(S) SHOWN THE LOCATION(S) OF ESD EVALUATED






Air 3


Air 4

APPENDIX B- FAST TRANSIENTS COMMON MODE

Test Voltage	AC 230V/50Hz
Test Mode	Mode 1-4
Adapter	Fuhua / S120200E02(EU); HONOR / S120200E02(EU)

EUT Ports Tested		Polarity	Repetition Frequency	Test Level 4 kV	Criterion	Result
AC Power Port	Line (L)	+	5 kHz	B	B	B
		-	5 kHz	B		
	Neutral (N)	+	5 kHz	B	B	B
		-	5 kHz	B		
	L+N	+	5 kHz	B	B	B
		-	5 kHz	B		

EUT Ports Tested		Polarity	Repetition Frequency	Test Level 2 kV	Criterion	Result
Signal port, Wired network port, Control port	WAN	+	5 kHz	B	B	B
		-	5 kHz	B		
	TEL	+	5 kHz	B	B	B
		-	5 kHz	B		

APPENDIX C - SURGE

Test Voltage	AC 230V/50Hz
Test Mode	Mode 1-4
Adapter	Fuhua / S120200E02(EU); HONOR / S120200E02(EU)

Wave Form EUT Ports Tested		1.2/50(8/20)Tr/Th μs						Criterion	Result
		Polarity	Phase	Voltage					
				2kV	-- kV	-- kV	-- kV		
AC	L – N	+/-	0°	B	-	-	-	B	B
		+/-	90°	B	-	-	-		
		+/-	180°	B	-	-	-		
		+/-	270°	B	-	-	-		

Wave Form EUT Ports Tested		1.2/50(8/20)Tr/Th μs						Criterion	Result
		Polarity	Phase	Voltage					
				4kV	-- kV	-- kV	-- kV		
AC	L – PE	+/-	0°	B	-	-	-	B	B
		+/-	90°	B	-	-	-		
		+/-	180°	B	-	-	-		
		+/-	270°	B	-	-	-		
	N - PE	+/-	0°	B	-	-	-	B	B
		+/-	90°	B	-	-	-		
		+/-	180°	B	-	-	-		
		+/-	270°	B	-	-	-		

Wave Form EUT Ports Tested		1.2/50(8/20)Tr/Th μs					Criterion	Result
		Polarity	Voltage					
			1.5kV	2kV	4kV	-- kV		
Wired network ports	WAN	+/-	B	B	B	-	B	B
	TEL	+/-	B	B	B	-	B	B

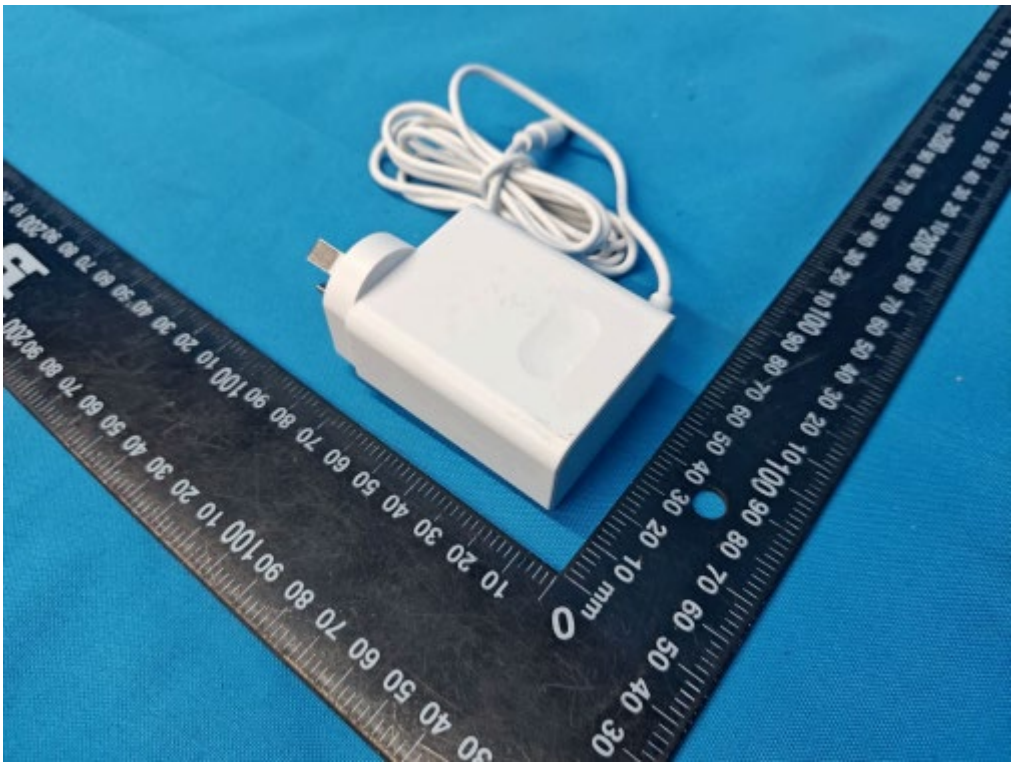
7. EUT PHOTO

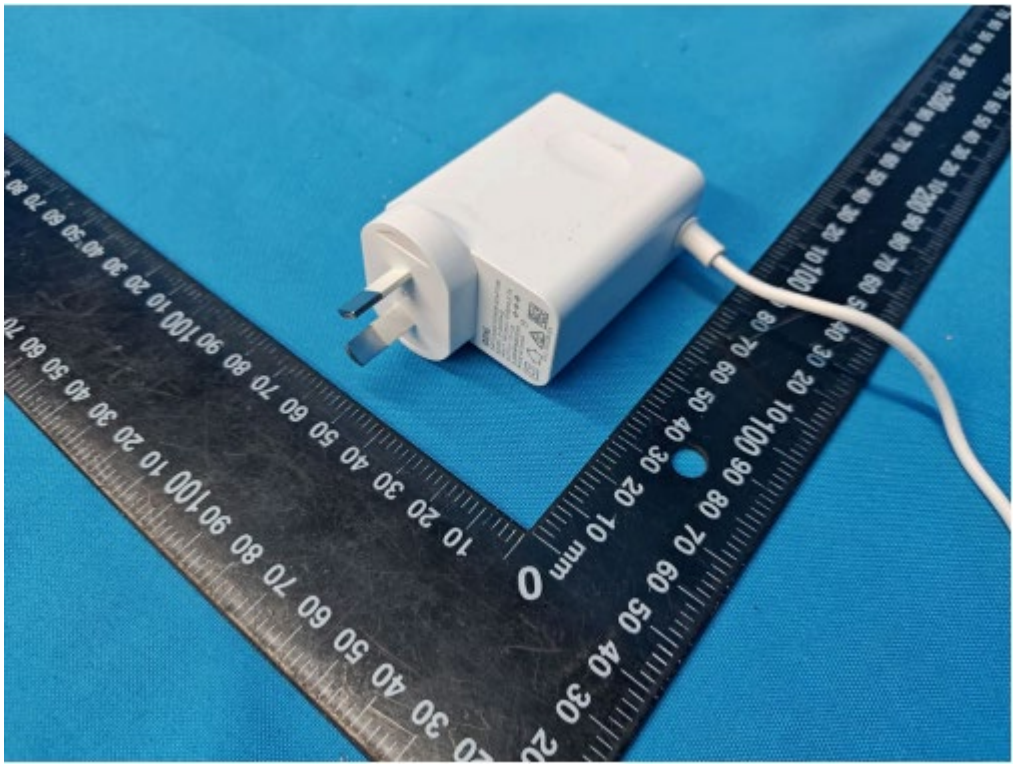

POWER
WPS


BROVI Model:H153-381
IMEI:865840071827342
Wi-Fi Name:H153-381_D56B
Wi-Fi Name(5G):H153-381_D56B_5G
Wi-Fi Password:fxk3tqghu79
IP:192.168.8.1
Password:x4qvttfk
WPS PIN:16740655
INPUT:12V ⎓ 2A
MADE IN CHINA
Nano SIM Card
S/N:2ZP7S24C17005093
ZOWEE TECHNOLOGY (HEYUAN) CO., LTD. HEYUAN 517000 PRC
Wi-Fi QR code

Adapter: Fuhua / S120200E02(EU)

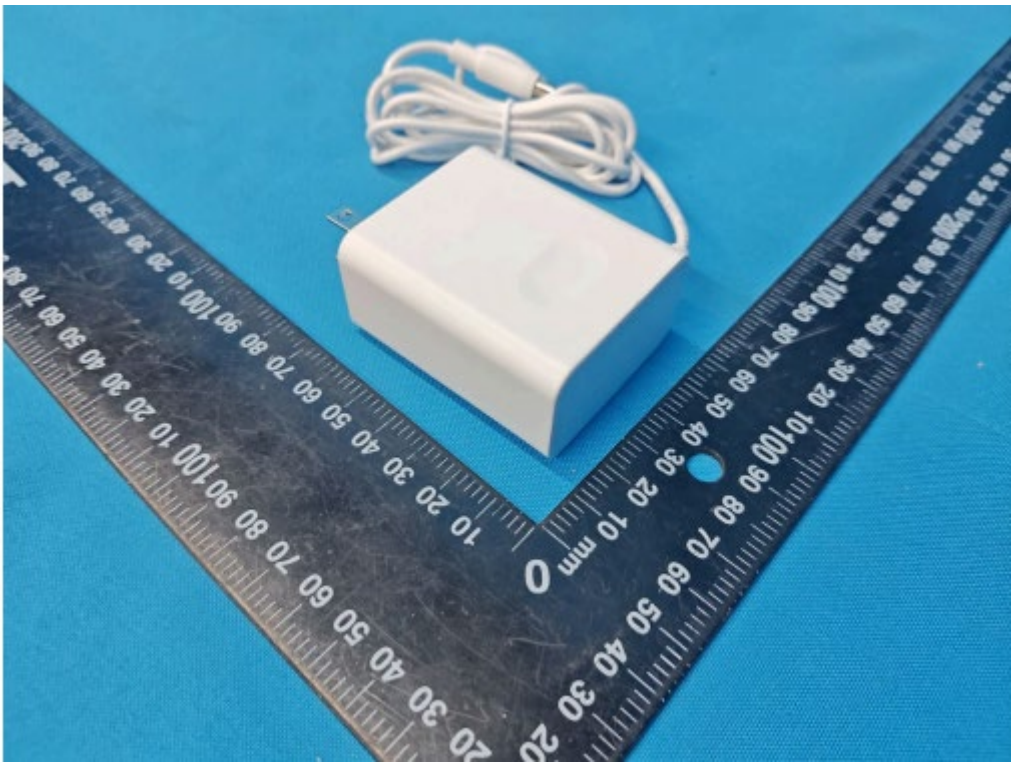
Adapter: HONOR / S120200E02(EU)

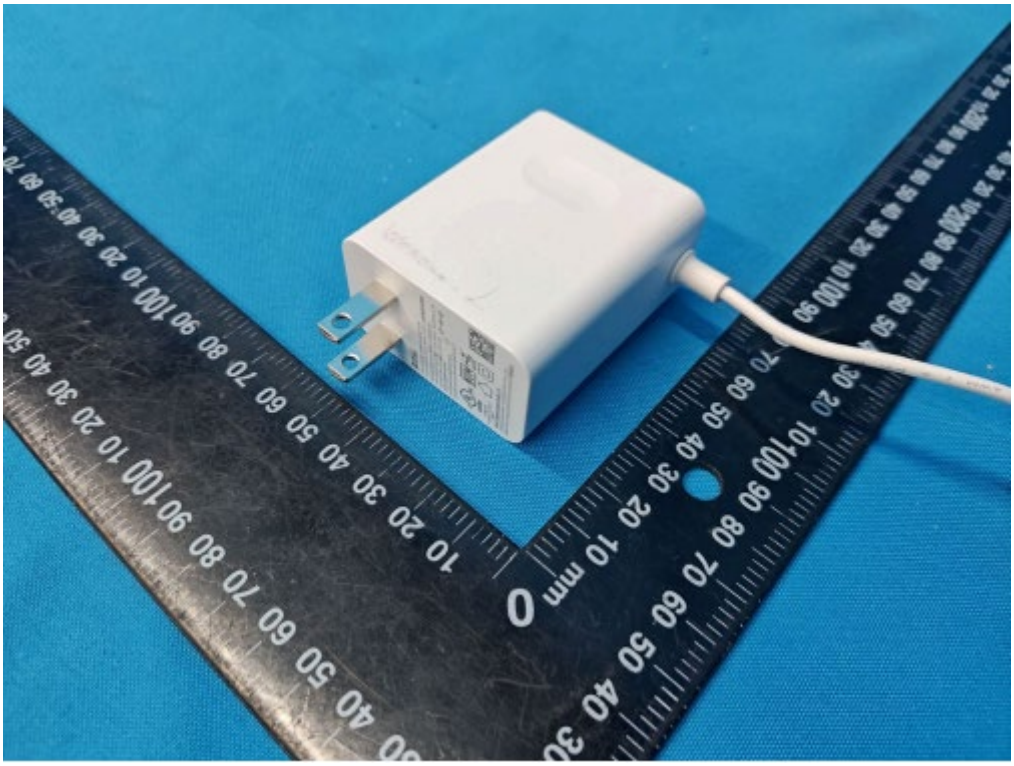




Adapter: Fuhua / S120200A02(AU)

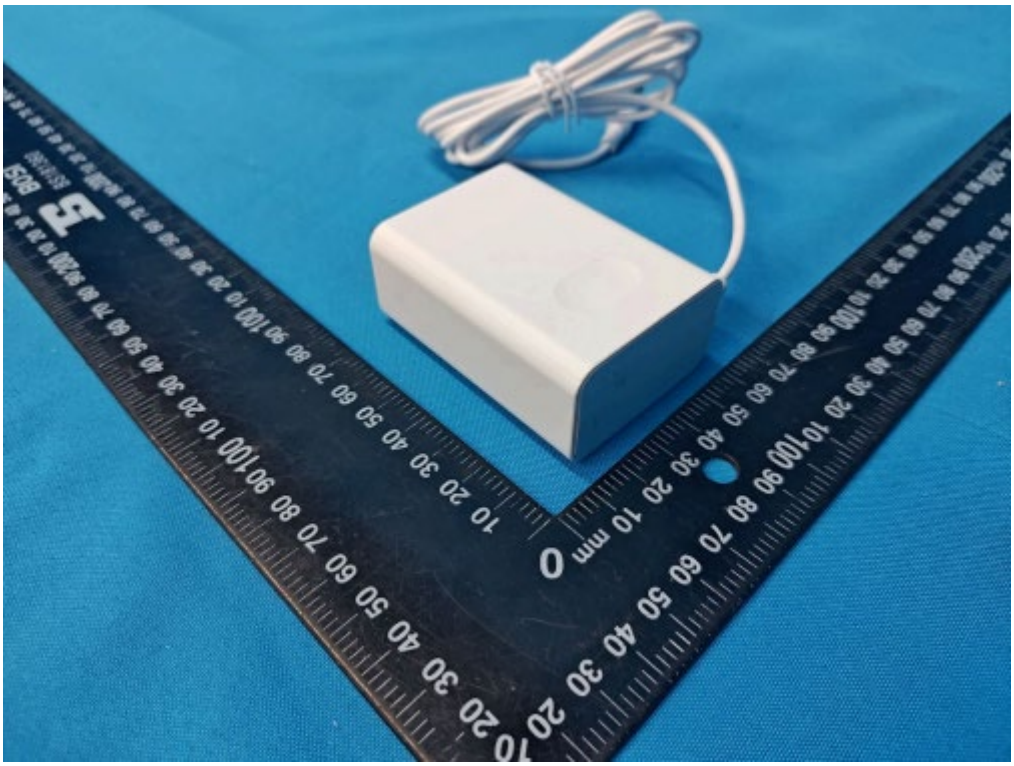
Adapter: HONOR / S120200A02(AU)

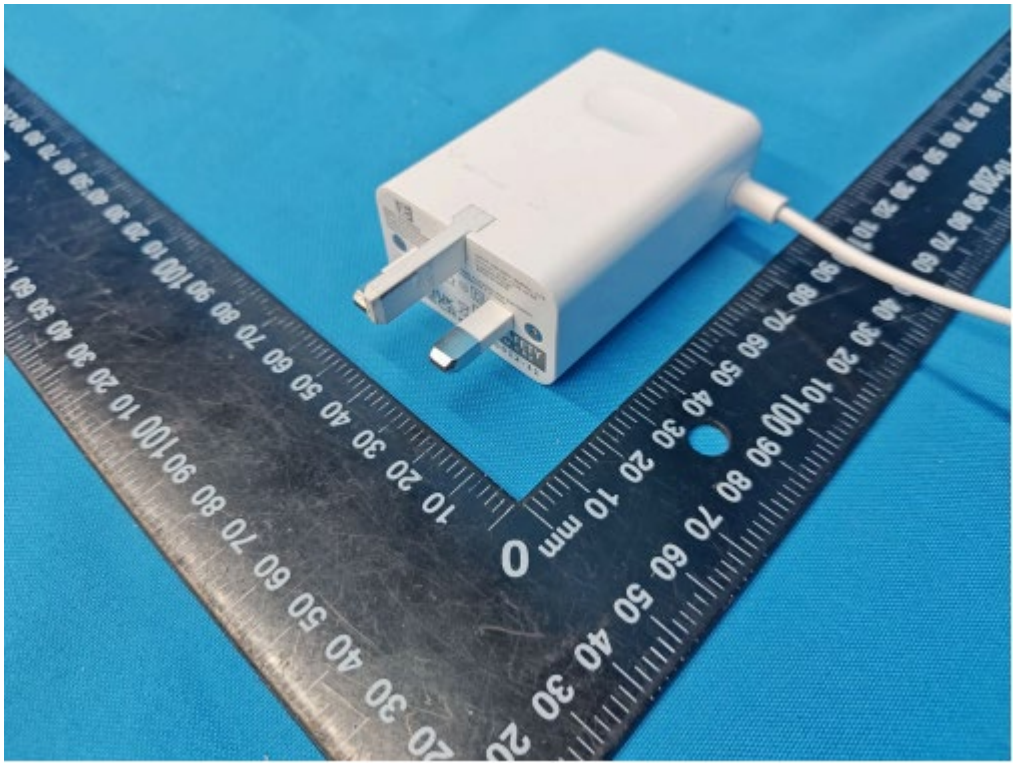




Adapter: Fuhua / S120200U02(US)

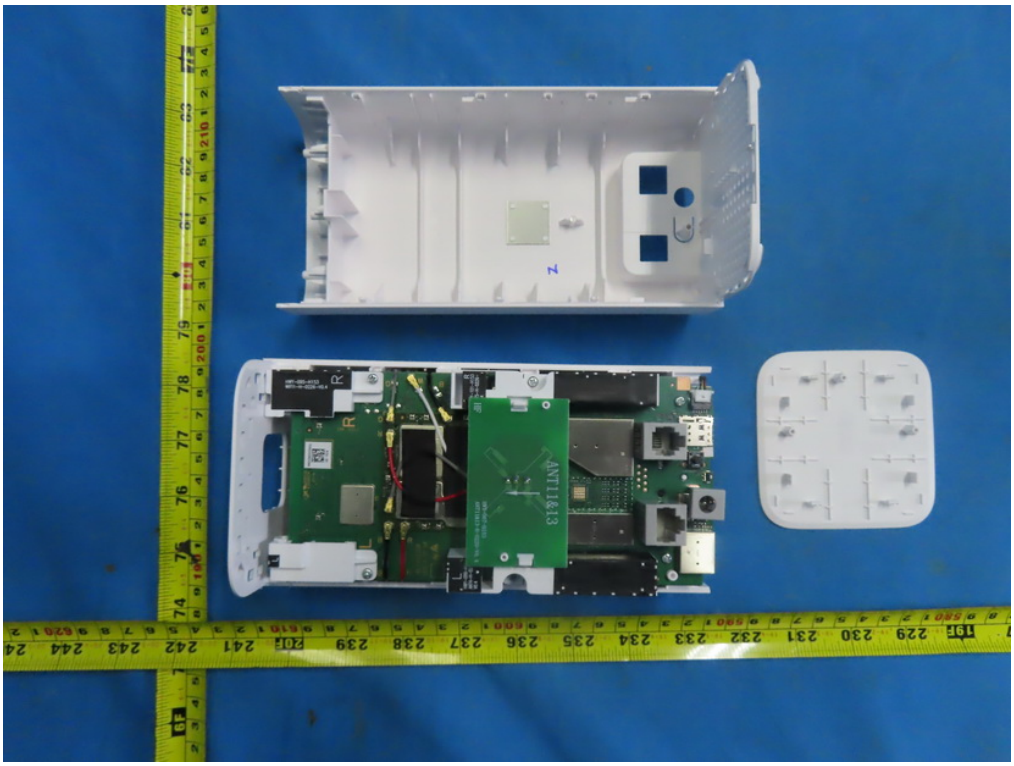
Adapter: HONOR / S120200U02(US)

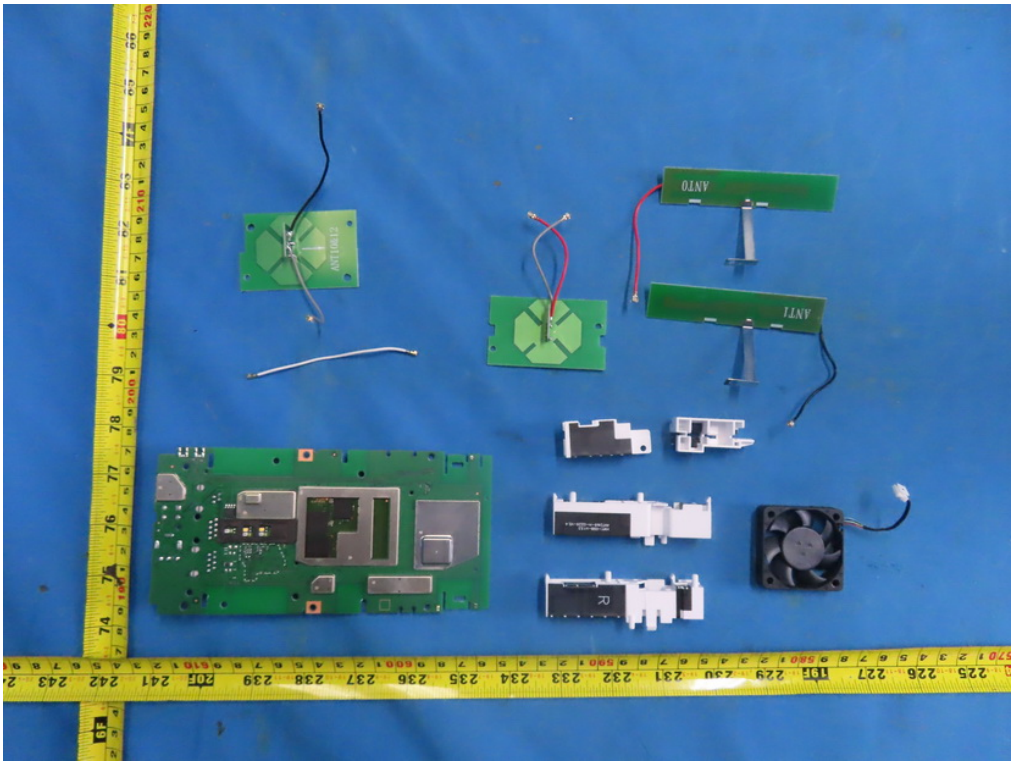




Adapter: Fuhua / S120200B02(UK)

Adapter: HONOR / S120200B02(UK)





End of Test Report