EMC TEST REPORT

Product Name: 4G Mobile Phone

Model Name: VTL-202401, SIGNATURE S+

FCC ID: 2BGHD-VTL202401

Issued For : Chengdu Xiaochen Technology Co., Ltd

3rd Floor, Building B15, Ganzhizhongguo Chengdu Center, No. 777 Huafu Avenue Shuangliu County, Chengdu City, Sichuan province, China

Issued By : Shenzhen LGT Test Service Co., Ltd.

Room 205, Building 13, Zone B, Zhenxiong Industrial Park, No.177, Renmin West Road, Jinsha, Kengzi Street, Pingshan District, Shenzhen, Guangdong, China

Report Number:	LGT24J180EM03
Sample Received Date:	Nov. 05, 2024
Date of Test:	Nov. 05, 2024 ~ Dec. 12, 2024
Date of Issue:	Dec. 12, 2024

TEST REPORT CERTIFICATION

Applicant:	Chengdu Xiaochen Technology Co., Ltd
Address:	3rd Floor, Building B15, Ganzhizhongguo Chengdu Center, No. 777 Huafu Avenue Shuangliu County, Chengdu City, Sichuan province, China
Manufacturer:	VERTU INTERNATIONAL CORPORATION LIMITED
Address:	Chase Business Centre 39-41 Chase Side London England N14 5BP
Product Name:	4G Mobile Phone
Trademark:	VERTU
Model Name:	VTL-202401, SIGNATURE S+
Sample Status:	Normal

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC 47 CFR Part 15 Subpart B ANSI C63.4-2014	**PASS**

Prepared by:

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Engineer

Approved by:

Vita Li
Technical Director

SHENZHEN LGT TEST SERVICE CO., LTD. 领冠检测

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Revision History

Rev.	Issue Date	Revisions
00	Dec. 12, 2024	Initial Issue

1. TEST SUMMARY

EMC Emission				
Standard	Test Item	Limit	Judgement	Remark
FCC 47 CFR Part 15 Subpart B ANSI C63.4-2014	Conducted Emissions	Class B	PASS	
	Radiated Emissions Below 1GHz	Class B	PASS	
	Radiated Emissions Above 1GHz	Class B	PASS	Note 2

Note:

1 “N/A” denotes test is not applicable in this Test Report

2 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. 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. If the highest frequency of the internal sources of the EUT is between 500 MHz and 1 GHz, measurement shall only be made up to 5 GHz. 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 40 GHz, whichever is less.

1.1 TEST LABORATORY

Company Name:	Shenzhen LGT Test Service Co., Ltd.
Address:	Room 205, Building 13, Zone B, Zhenxiong Industrial Park, No.177, Renmin West Road, Jinsha, Kengzi Street, Pingshan District, Shenzhen, Guangdong, China
Accreditation Certificate	A2LA Certificate No.: 6727.01
	FCC Registration No.: 746540
	CAB ID: CN0136

1.2 MEASUREMENT UNCERTAINTY

Test Item	Measurement Frequency Range MHz	Uncertainty dB
Conducted Emissions at AC mains power port	0.009 ~ 30	2.80
Radiated Emissions	0.009 ~ 30	2.16
Radiated Emissions	30 ~ 1000	4.40
Radiated Emissions	1000 ~ 18000	5.49
Note: 1. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2. 2. The measurement uncertainty is not included in the test result.		

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF THE EUT

Product Name:	4G Mobile Phone
Trademark:	VERTU
Model Name:	VTL-202401
Series Model:	SIGNATURE S+
Model Difference:	Only the model is different.
Adapter:	Model: A869-200325C-US1 Input: 100-240V 50/60Hz 1.7A Output: 5V 3A, 9V 3A, 12V 3A, 15V 3A, 20V 3.25A, 3.3-21V 3.25A 65W Max
Battery:	Capacity: 1300mAh Rated Voltage: 3.85V
Test Voltage:	AC 120V/60Hz Battery: 3.85V
Hardware Version:	V1.00
Software Version:	V1.00
Connecting I/O Port(s):	Please refer to the Note 1.

Note: For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2.2 DESCRIPTION OF THE 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 possibly have effect on EMI emission level. Each of these EUT operating mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Test Mode	Description
Mode 1	Charging+GSM link+BT+Wi-Fi+GPS
Mode 2	Charging+WCDMA link+BT+Wi-Fi+GPS
Mode 3	Charging+LTE link+BT+Wi-Fi+GPS
Mode 4	USB Data Transmission

Note: Only the data of worst-case was recorded in this report.

2.3 DESCRIPTION OF THE 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.

Accessories Equipment

Description	Manufacturer	Model	S/N	Rating
Adapter	Shenzhen Aoda Power Technology Co., Ltd.	A869-200325C -US1	N/A	Input: 100-240V 50/60Hz 1.7A Output: 5V 3A, 9V 3A, 12V 3A, 15V 3A, 20V 3.25A, 3.3-21V 3.25A 65W Max
USB-C to USB-C Cable	N/A	N/A	N/A	1m

Auxiliary Equipment

Description	Manufacturer	Model	S/N	Rating
Laptop	Lenovo	HKF-16	N/A	N/A

Note:

(1) For detachable type I/O cable should be specified the length in cm in 『Length』 column.

2.4 MEASUREMENT INSTRUMENTS LIST

Conducted Emission					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date**	**Cal. Until**
EMI Test Receiver	R&S	ESU8	100372	2024.03.09	2025.03.08
LISN	COM-POWER	LI-115	02032	2024.03.09	2025.03.08
LISN	SCHWARZBECK	NNLK 8122	00160	2024.03.09	2025.03.08
Transient Limiter	CYBERTEK	EM5010A	E2250100049	2024.03.09	2025.03.08
Temperature & Humidity	KTJ	TA218B	N.A	2024.03.09	2025.03.08
Testing Software	EMC-I_V1.4.0.3_SKET				
Radiated Emission					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date**	**Cal. Until**
EMI Test Receiver	R&S	ESU8	100372	2024.03.09	2025.03.08
Spectrum Analyzer	Keysight	N9020A	MY50530994	2024.03.09	2025.03.08
Spectrum Analyzer	Keysight	N9010B	MY60242508	2024.08.05	2025.08.04
Active loop Antenna	ETS	6502	00049544	2023.10.13	2025.10.12
Bilog Antenna	SCHWARZBECK	VULB 9168	01447	2022.12.12	2025.12.11
Horn Antenna	SCHWARZBECK	3115	10SL0060	2022.06.02	2025.06.01
Pre-amplifier (9kHz-1GHz)	EMtrace	RP01A	02017	2024.03.09	2025.03.08
Pre-amplifier (1-26.5G)	Agilent	8449B	3008A4722	2024.03.09	2025.03.08
Antenna Tower	SAEMC	BK-4AT-BS-D	SK2021093008	N.A	N.A
Temperature & Humidity	JINGCHUANG	BT-3	N.A	2024.03.11	2025.03.10
Testing Software	EMC-I_V1.4.0.3_SKET				

3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 LIMITS

FREQUENCY (MHz)	Conducted Emission Limits (dBuV)			
	Class A		Class B	
	Quasi-peak	Average	Quasi-peak	Average
0.15 ~ 0.5	79.00	66.00	66 - 56 *	56 - 46 *
0.5 ~ 5	73.00	60.00	56.00	46.00
5 ~ 30	73.00	60.00	60.00	50.00

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

(3) The test result calculated as following:
Measurement Value = Reading Level + Correct Factor
Correct Factor = Insertion Loss + Cable Loss + Attenuator Factor
Margin Level = Measurement Value - Limit Value

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

3.1.2 TEST PROCEDURE

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

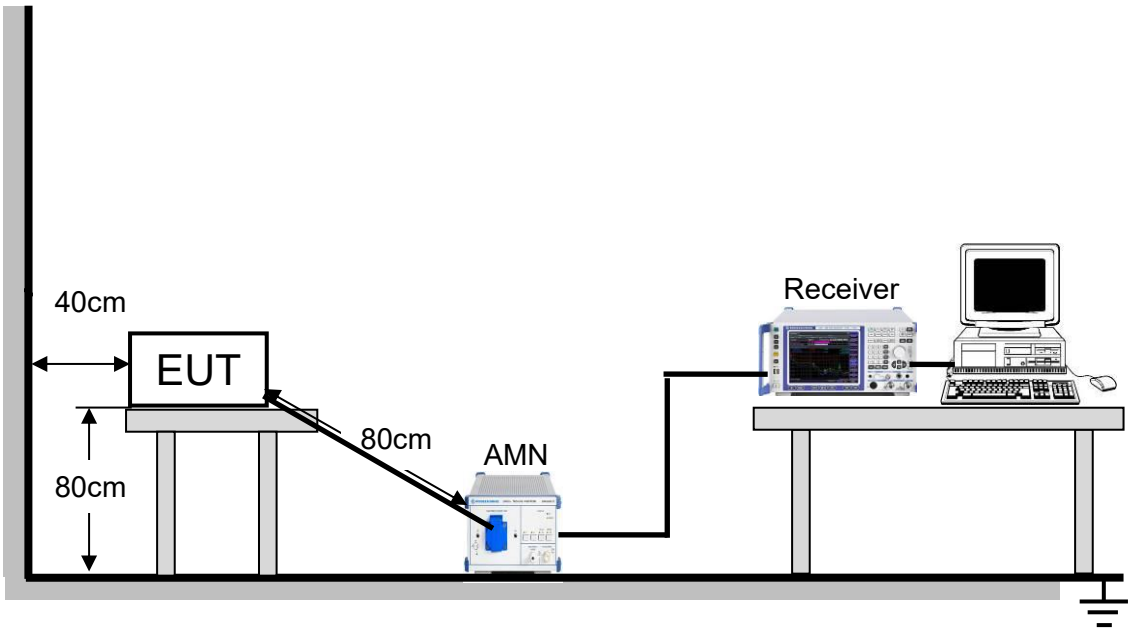
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

d. LISN at least 80 cm from nearest part of EUT chassis.

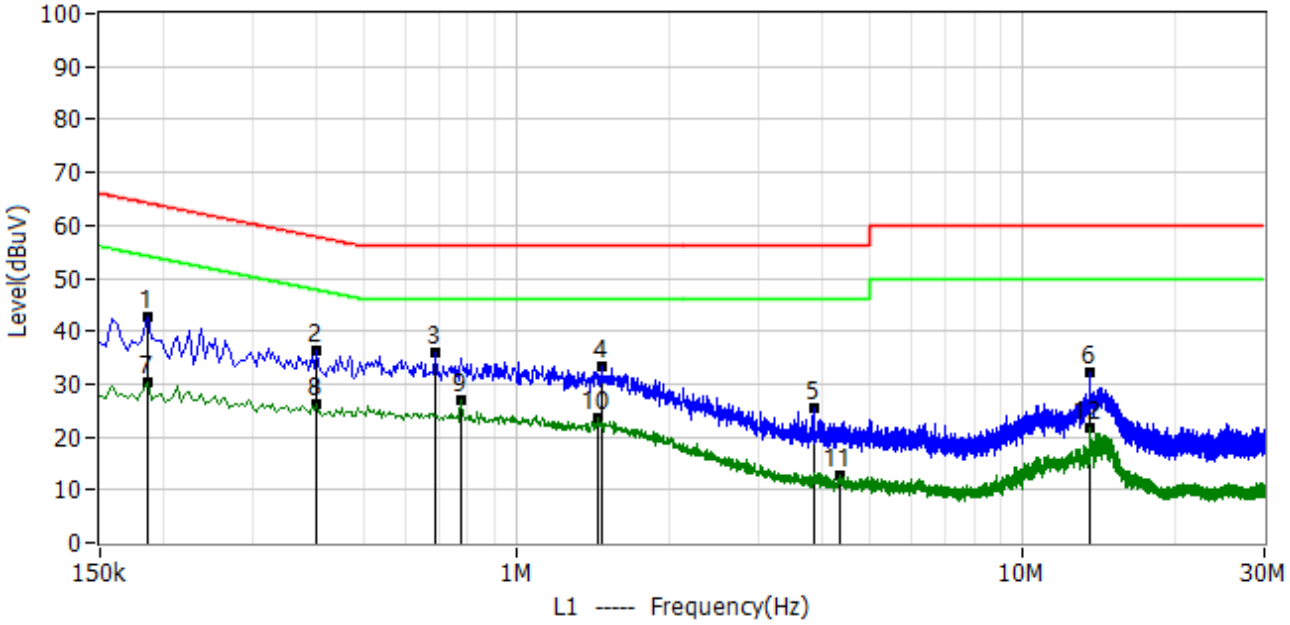
e. For the actual test configuration, please refer to the related Item - EUT Test Photos.

3.1.3 TEST SETUP



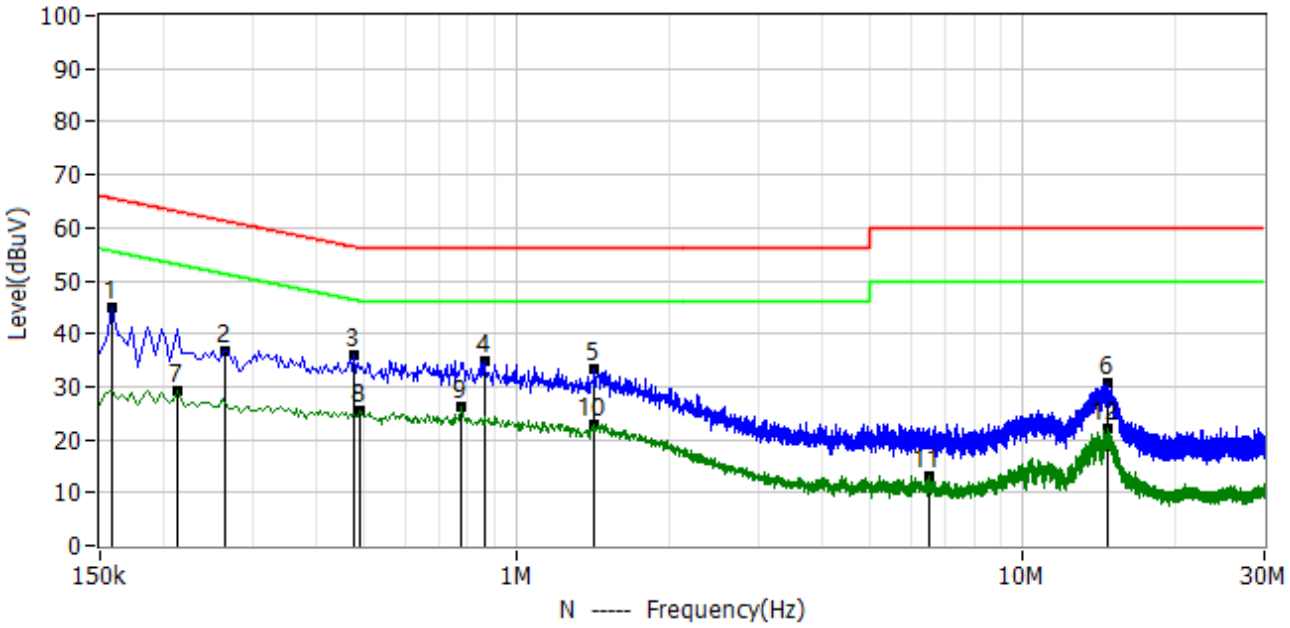
3.1.4 TEST RESULTS

Project: LGT24J180	Test Engineer: LiuH
EUT: 4G Mobile Phone	Temperature: 25.6℃
M/N: VTL-202401	Humidity: 48%RH
Test Voltage: AC 120V/60Hz	Test Data: 2024-11-06
Test Mode: Charging+GSM link+BT+Wi-Fi+GPS	
Note:	



No.	Frequency MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Detector	Polar
1*	0.186	32.06	10.61	42.67	64.21	-21.54	QP	L1
2*	0.402	25.74	10.56	36.30	57.81	-21.52	QP	L1
3*	0.690	25.32	10.57	35.89	56.00	-20.11	QP	L1
4*	1.470	22.46	10.83	33.29	56.00	-22.71	QP	L1
5*	3.854	14.19	11.14	25.33	56.00	-30.67	QP	L1
6*	13.562	20.98	11.28	32.26	60.00	-27.74	QP	L1
7*	0.186	19.54	10.61	30.15	54.21	-24.06	AV	L1
8*	0.402	15.66	10.56	26.22	47.81	-21.60	AV	L1
9*	0.774	16.52	10.60	27.12	46.00	-18.88	AV	L1
10*	1.442	12.69	10.82	23.51	46.00	-22.49	AV	L1
11*	4.354	1.76	11.12	12.88	46.00	-33.12	AV	L1
12*	13.562	10.42	11.28	21.70	50.00	-28.30	AV	L1

Project: LGT24J180	Test Engineer: LiuH
EUT: 4G Mobile Phone	Temperature: 25.6℃
M/N: VTL-202401	Humidity: 48%RH
Test Voltage: AC 120V/60Hz	Test Data: 2024-11-06
Test Mode: Charging+GSM link+BT+Wi-Fi+GPS	
Note:	



No.	Frequency MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Detector	Polar
1*	0.158	34.46	10.57	45.03	65.57	-20.54	QP	N
2*	0.266	26.30	10.58	36.88	61.24	-24.36	QP	N
3*	0.478	25.23	10.55	35.78	56.37	-20.59	QP	N
4*	0.862	24.37	10.55	34.92	56.00	-21.08	QP	N
5*	1.426	22.74	10.63	33.37	56.00	-22.63	QP	N
6*	14.670	19.42	11.35	30.77	60.00	-29.23	QP	N
7*	0.214	18.58	10.57	29.15	53.05	-23.90	AV	N
8*	0.490	14.98	10.54	25.52	46.17	-20.65	AV	N
9*	0.778	15.83	10.56	26.39	46.00	-19.61	AV	N
10*	1.426	12.33	10.63	22.96	46.00	-23.04	AV	N
11*	6.550	2.28	10.82	13.10	50.00	-36.90	AV	N
12*	14.698	10.61	11.36	21.97	50.00	-28.03	AV	N

3.2 RADIATED EMISSION MEASUREMENT

3.2.1 LIMITS

Below 1 GHz

Frequency (MHz)	Class A	Class B
	Field strength (dBuV/m) (at 3m)	Field strength (dBuV/m) (at 3m)
30 - 88	49.5	40
88 - 216	53.9	43.5
216 - 960	56.9	46
Above 960	60	54

Above 1 GHz

Frequency (MHz)	Class A		Class B	
	Field strength (dBuV/m) (at 3m)		Field strength (dBuV/m) (at 3m)	
	Peak	Average	Peak	Average
Above 1000	80	60	74	54

Frequency Range of Radiated Disturbance Measurement

Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 1.705	30
1.705 - 108	1000
108 - 500	2000
500 - 1000	5000
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower

Note:

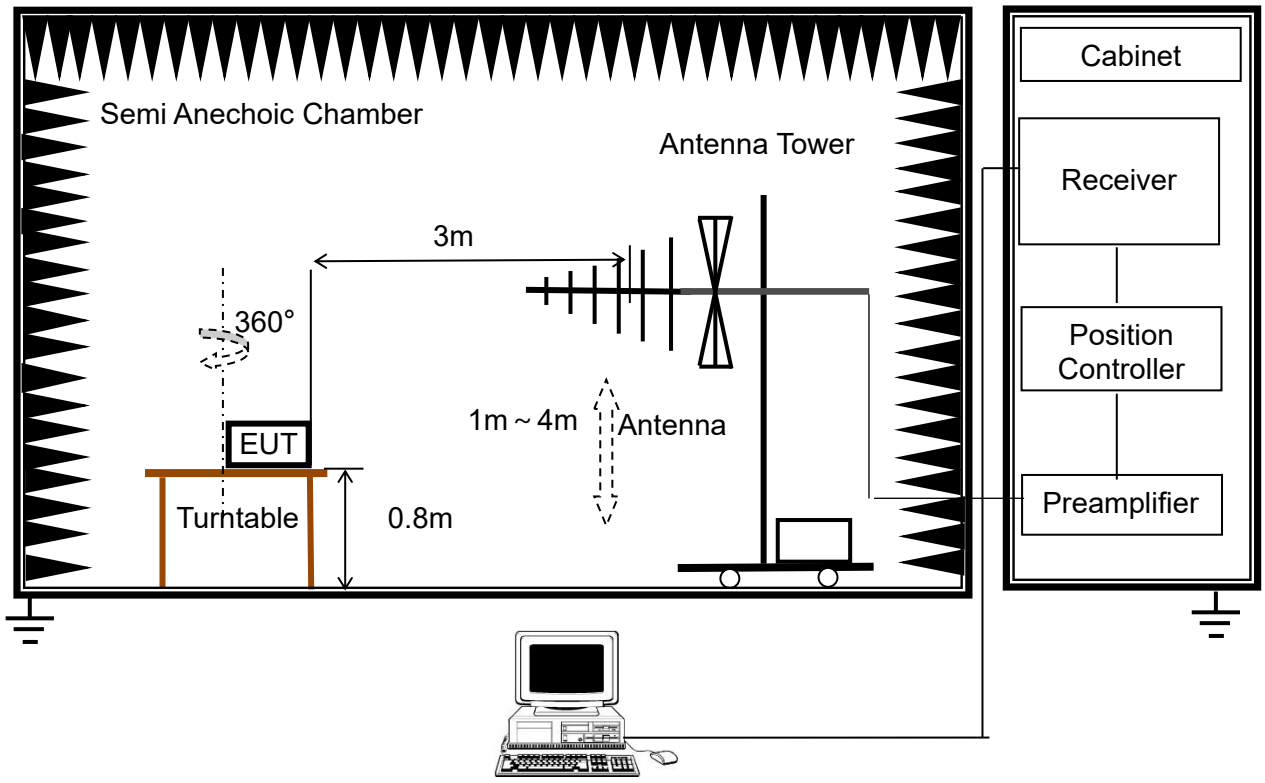
(1) The limit for radiated test was performed according to FCC Part 15, Subpart B;
(2) The tighter limit applies at the band edges;
(3) The test result calculated as following:
Measurement Value = Reading Level + Correct Factor,
Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain(if use),
Margin Level = Measurement Value - Limit Value.

3.2.2 TEST PROCEDURE

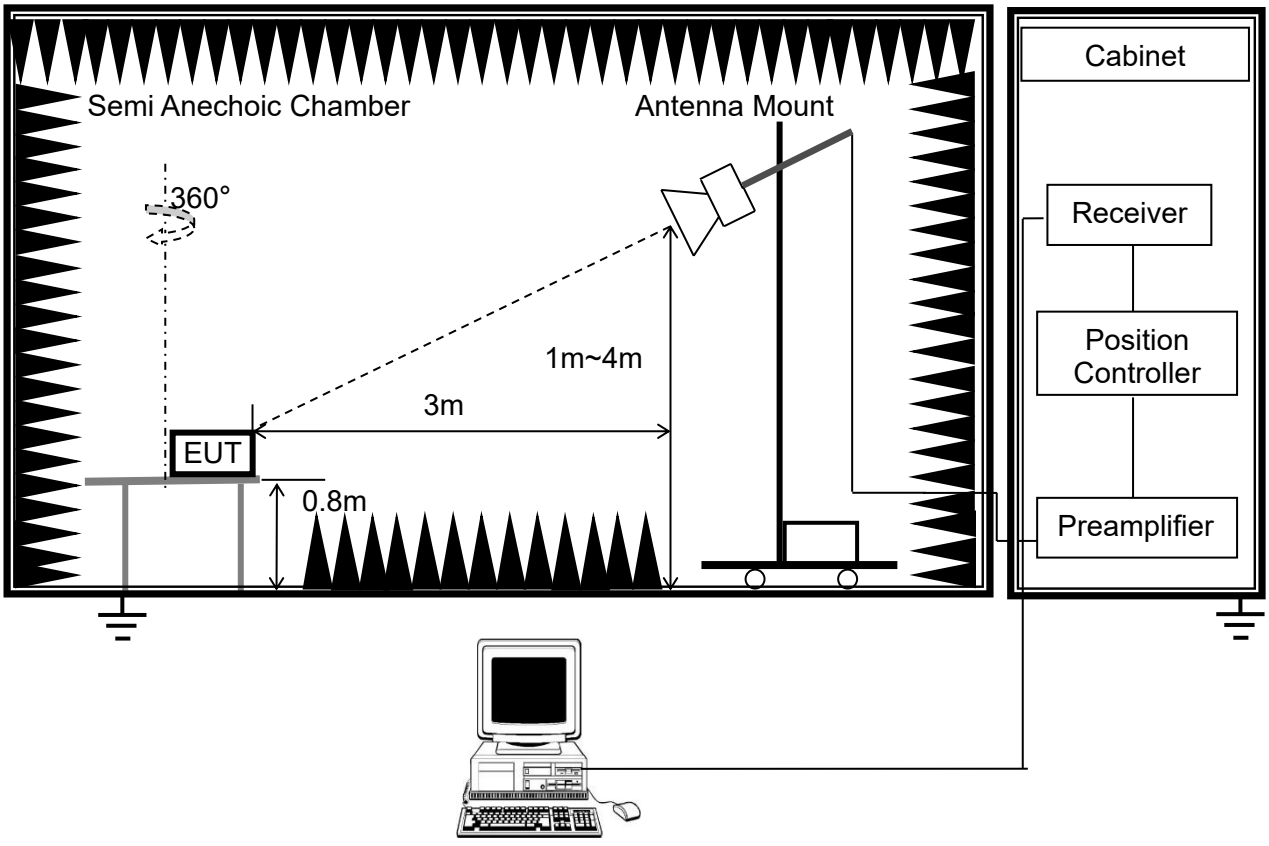
a. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
b. EUT as the center to the edge of the auxiliary device, the distance from the maximum edge to the center of the antenna is 3 meter.
c. The height of antenna is varied from 1 meter to 4 meter above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meter and the rotatable table was turned from 0 degrees to 360 degree to find the maximum reading.
e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1GHz.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.2.3 TEST SETUP

(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



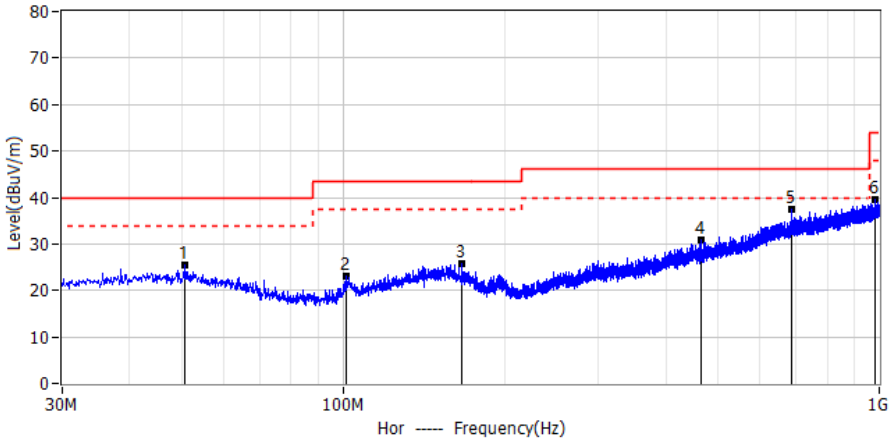
(B) Radiated Emission Test Set-Up Frequency Above 1GHz



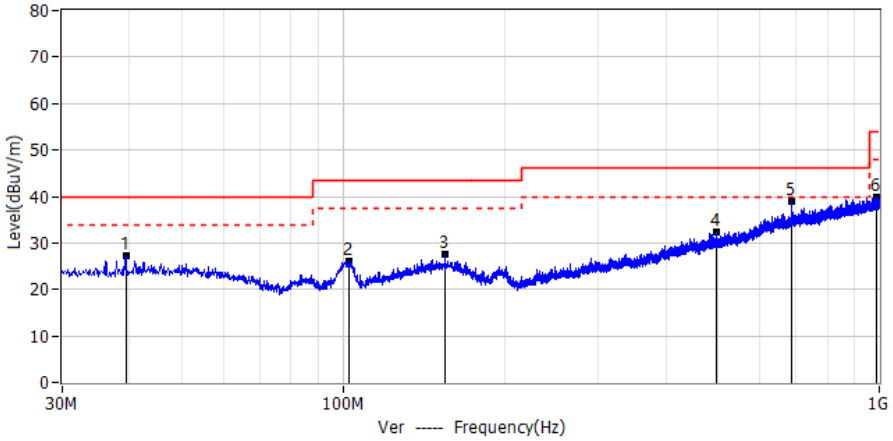
3.2.4 TEST RESULTS

BELOW 1GHZ

Project: LGT24J180	Test Engineer: LiuH
EUT: 4G Mobile Phone	Temperature: 26℃
M/N: VTL-202401	Humidity: 50%RH
Test Voltage: AC 120V/60Hz	Test Data: 2024-11-06
Test Mode: Charging+GSM link+BT+Wi-Fi+GPS	
Note:	

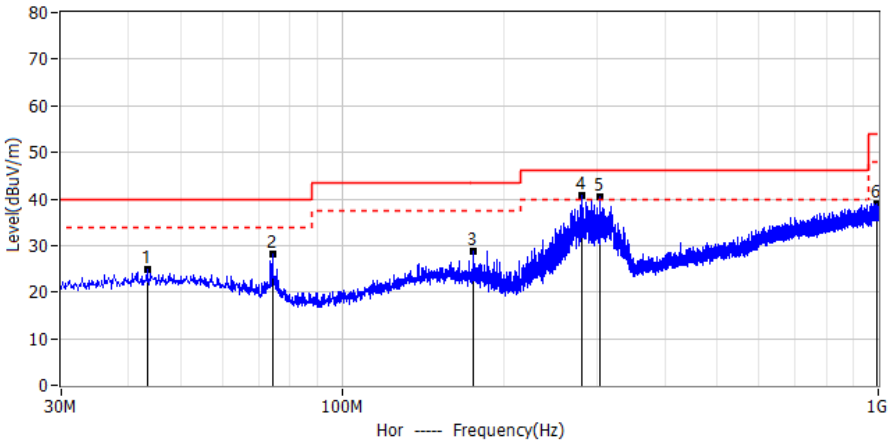


No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	50.855	4.94	20.62	25.56	40.00	-14.44	PK	Hor
2*	101.659	5.70	17.26	22.96	43.50	-20.54	PK	Hor
3*	166.528	4.80	20.86	25.66	43.50	-17.84	PK	Hor
4*	465.409	4.80	25.94	30.74	46.00	-15.26	PK	Hor
5*	687.539	7.35	30.09	37.44	46.00	-8.56	PK	Hor
6*	982.661	5.49	34.07	39.56	54.00	-14.44	PK	Hor

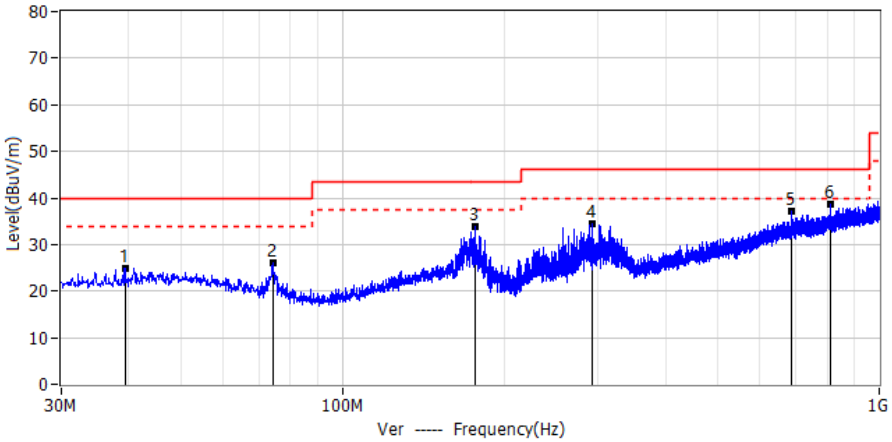


No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	39.458	7.39	19.92	27.31	40.00	-12.69	PK	Ver
2*	102.508	8.85	17.23	26.08	43.50	-17.42	PK	Ver
3*	154.888	6.19	21.35	27.54	43.50	-15.96	PK	Ver
4*	495.843	5.67	26.70	32.37	46.00	-13.63	PK	Ver
5*	687.539	8.86	30.09	38.95	46.00	-7.05	PK	Ver
6*	986.784	5.76	34.09	39.85	54.00	-14.15	PK	Ver

Project: LGT24J180	Test Engineer: LiuH
EUT: 4G Mobile Phone	Temperature: 26℃
M/N: VTL-202401	Humidity: 50%RH
Test Voltage: Battery	Test Data: 2024-11-06
Test Mode: USB Data Transmission	
Note:	



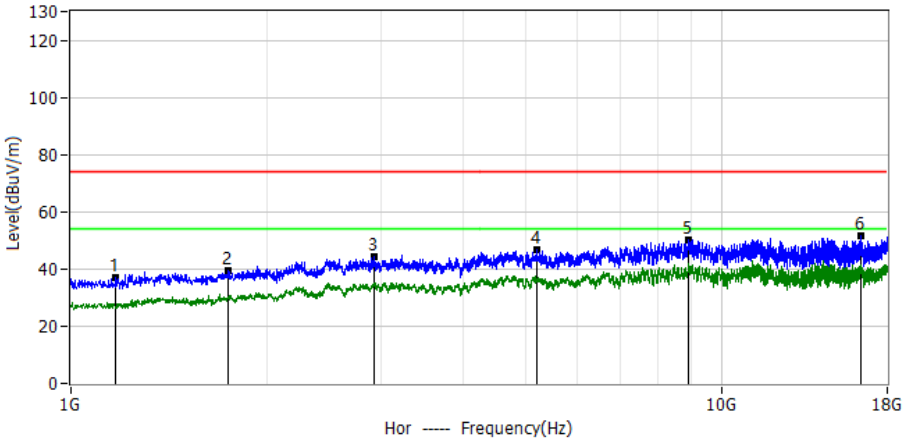
No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	43.338	3.95	20.77	24.72	40.00	-15.28	PK	Hor
2*	74.256	11.09	16.98	28.07	40.00	-11.93	PK	Hor
3*	175.985	9.26	19.61	28.87	43.50	-14.63	PK	Hor
4*	279.775	19.80	20.91	40.71	46.00	-5.29	PK	Hor
5*	303.298	19.03	21.49	40.52	46.00	-5.48	PK	Hor
6*	991.391	5.31	33.77	39.08	54.00	-14.92	PK	Hor



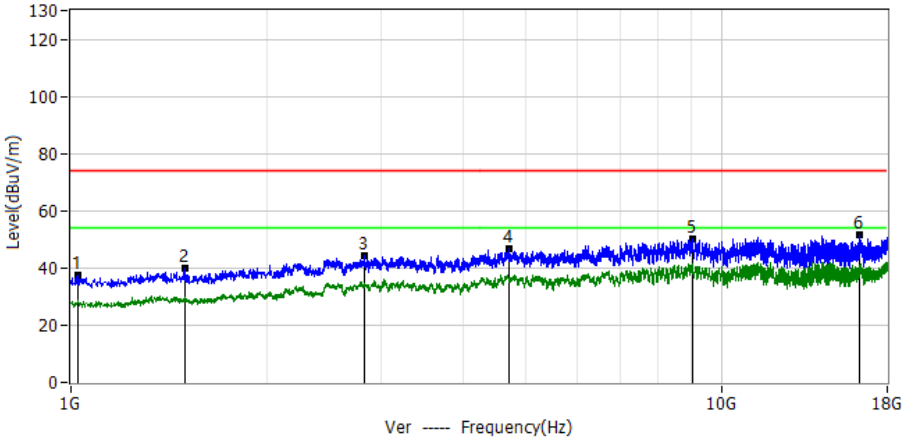
No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	39.458	5.07	19.92	24.99	40.00	-15.01	PK	Ver
2*	74.499	9.03	16.91	25.94	40.00	-14.06	PK	Ver
3*	176.834	14.46	19.45	33.91	43.50	-9.59	PK	Ver
4*	291.779	13.20	21.25	34.45	46.00	-11.55	PK	Ver
5*	687.539	7.19	30.09	37.28	46.00	-8.72	PK	Ver
6*	812.548	6.68	32.09	38.77	46.00	-7.23	PK	Ver

ABOVE 1GHZ

Project: LGT24J180	Test Engineer: LiuH
EUT: 4G Mobile Phone	Temperature: 26℃
M/N: VTL-202401	Humidity: 50%RH
Test Voltage: AC 120V/60Hz	Test Data: 2024-11-06
Test Mode: Charging+GSM link+BT+Wi-Fi+GPS	
Note:	



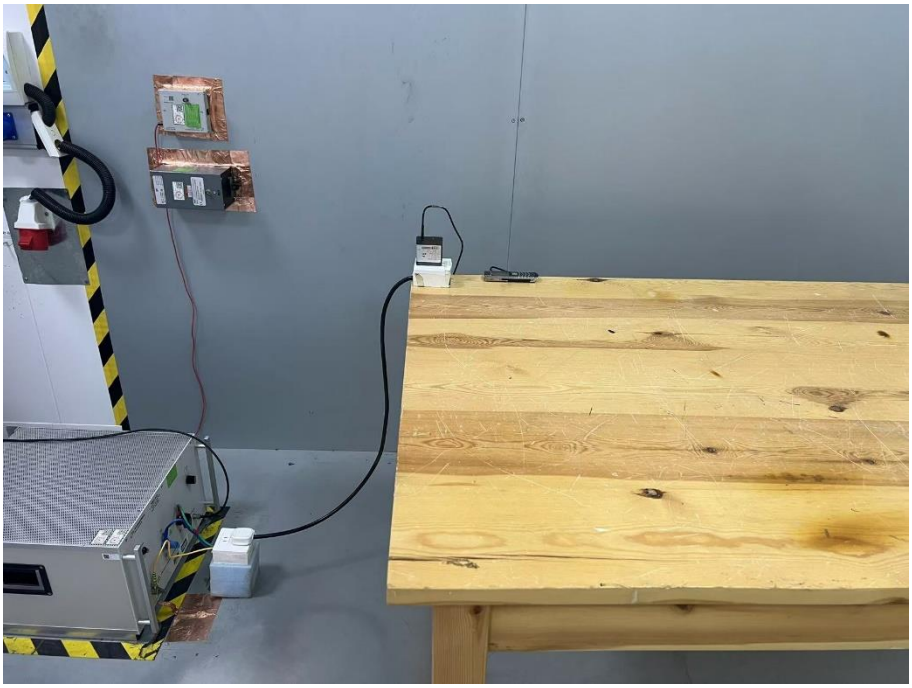
No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	1172.1000	60.08	-23.25	36.83	74.00	-37.17	PK	Hor
2*	1743.7000	58.26	-18.95	39.31	74.00	-34.69	PK	Hor
3*	2918.9000	53.34	-9.18	44.16	74.00	-29.84	PK	Hor
4*	5199.0000	54.26	-7.68	46.58	74.00	-27.42	PK	Hor
5*	8913.5000	54.18	-3.83	50.35	74.00	-23.65	PK	Hor
6*	16385.0000	50.80	0.76	51.56	74.00	-22.44	PK	Hor



No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	1023.4000	62.05	-24.55	37.50	74.00	-36.50	PK	Ver
2*	1495.1000	60.73	-20.97	39.76	74.00	-34.24	PK	Ver
3*	2827.5000	54.13	-9.64	44.49	74.00	-29.51	PK	Ver
4*	4716.6000	53.26	-6.72	46.54	74.00	-27.46	PK	Ver
5*	9017.6000	53.74	-3.68	50.06	74.00	-23.94	PK	Ver
6*	16283.0000	50.77	0.63	51.40	74.00	-22.60	PK	Ver

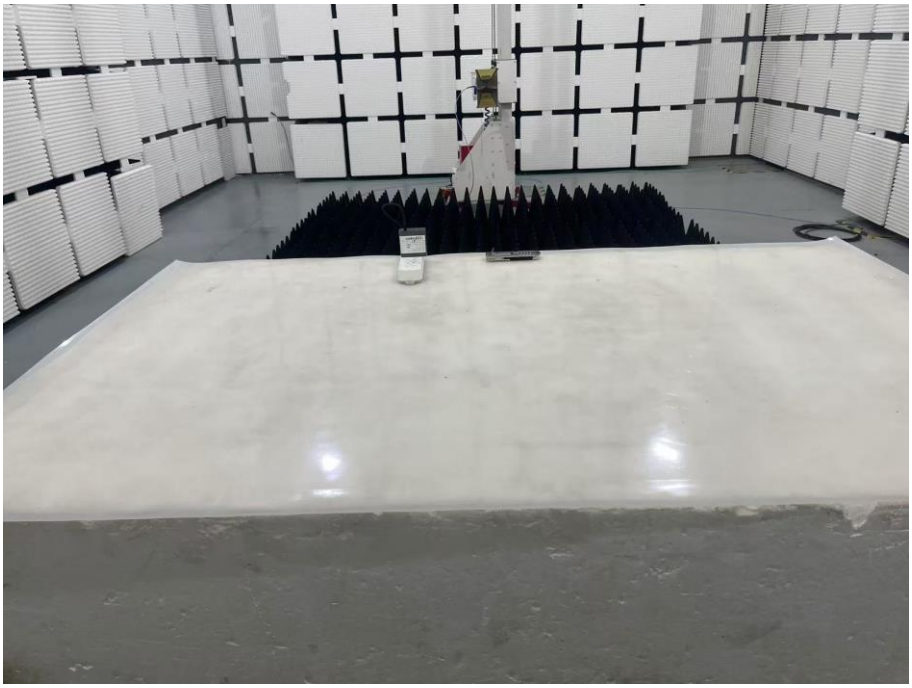
APPENDIX I - TEST SETUP

Set-up for Conducted Emission on AC Mains (CE)



Set-up for Radiated Emission (RE), Below 1GHz

Set-up for Radiated Emission (RE), Above 1GHz



APPENDIX II - PHOTOGRAPHS OF EUT CONSTRUCTIONAL DETAILS

Photo 1

Photo 2

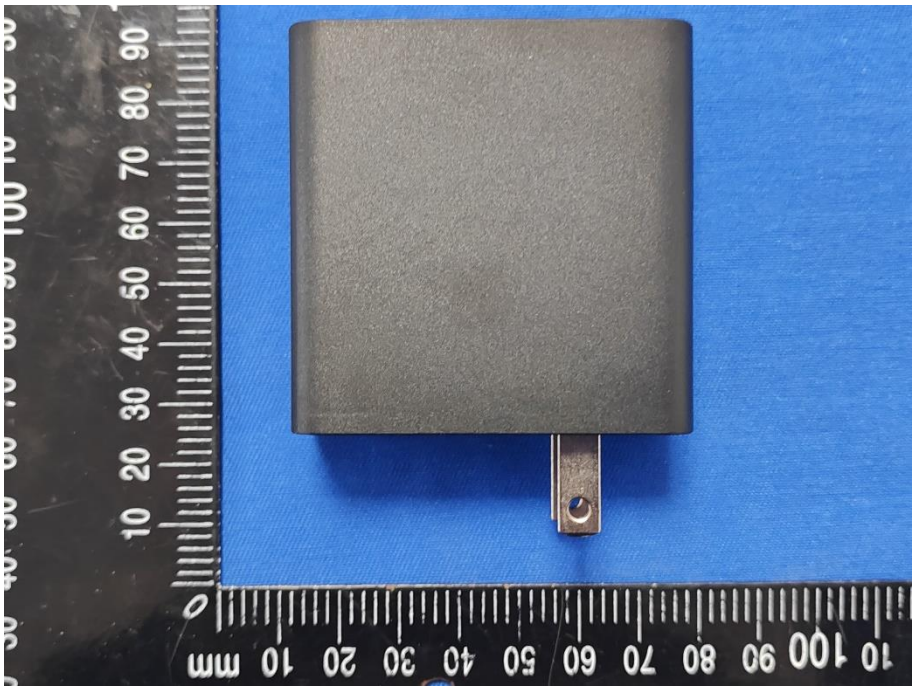


Photo 3

Photo 4

Photo 5

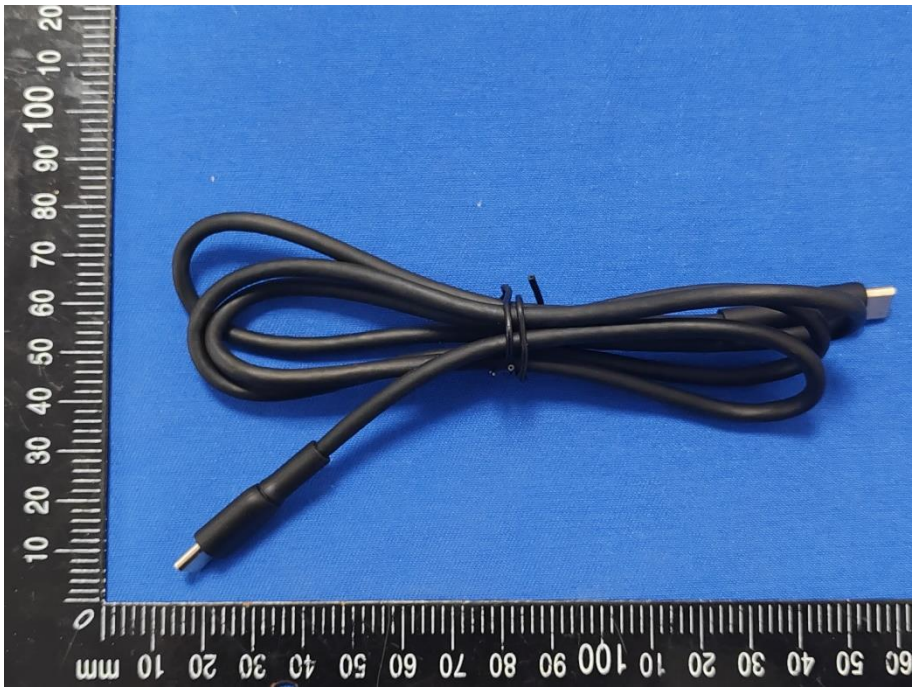


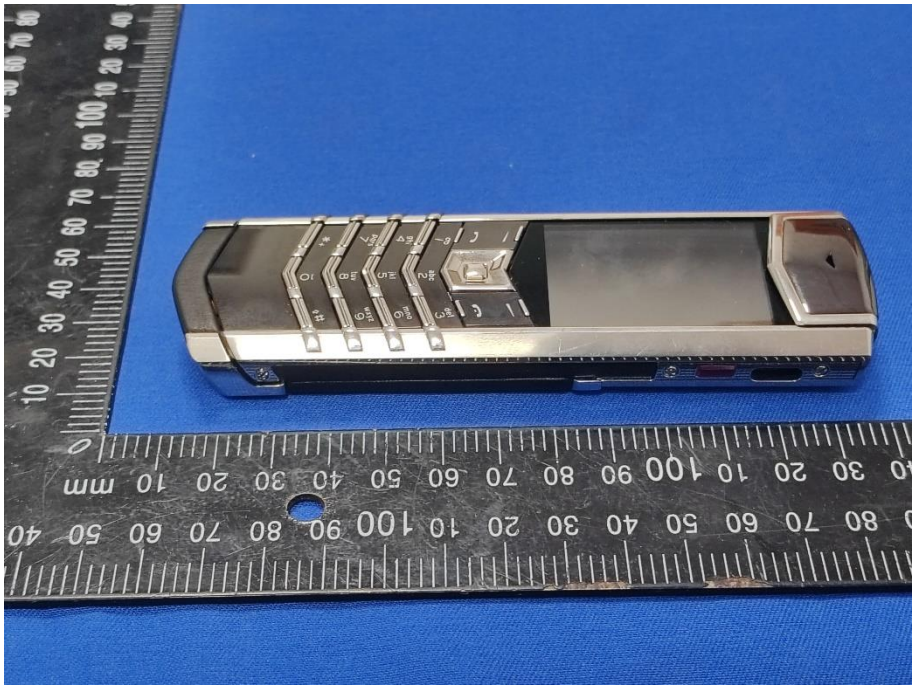
Photo 6

Photo 7

Photo 8

Photo 9

Photo 10



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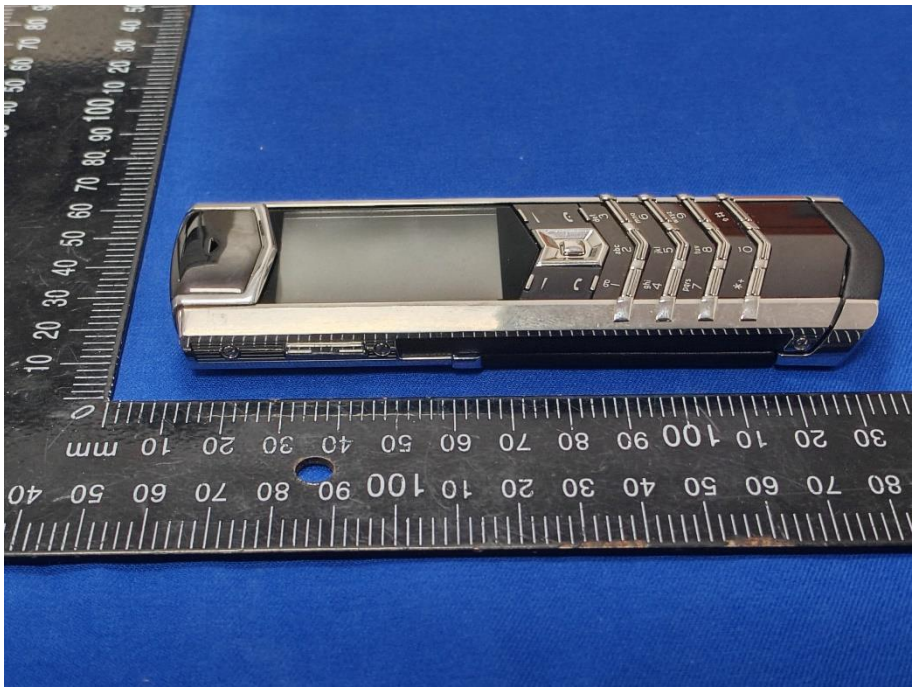
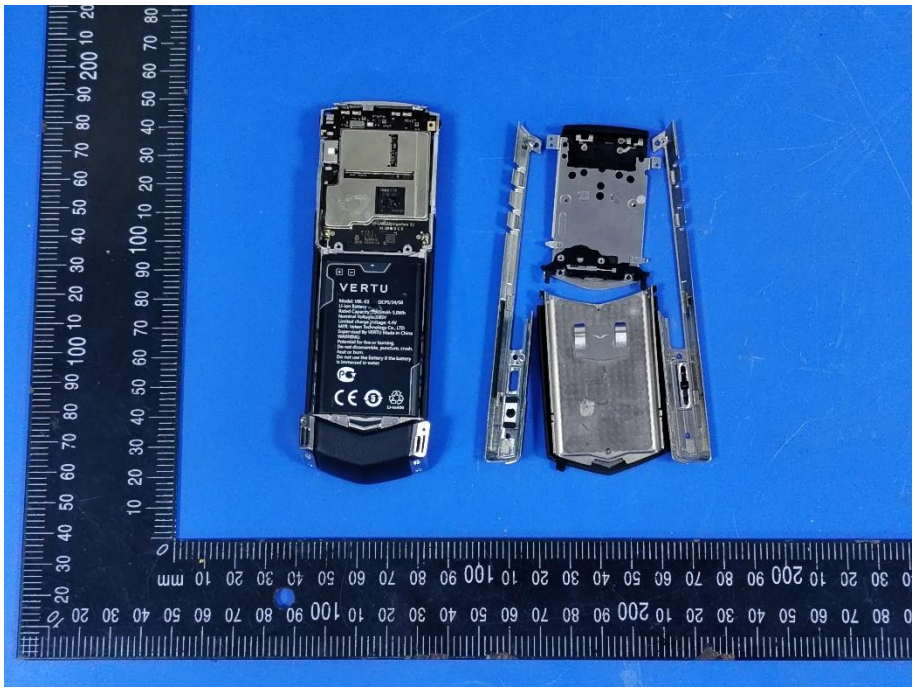


Photo 12

Photo 13



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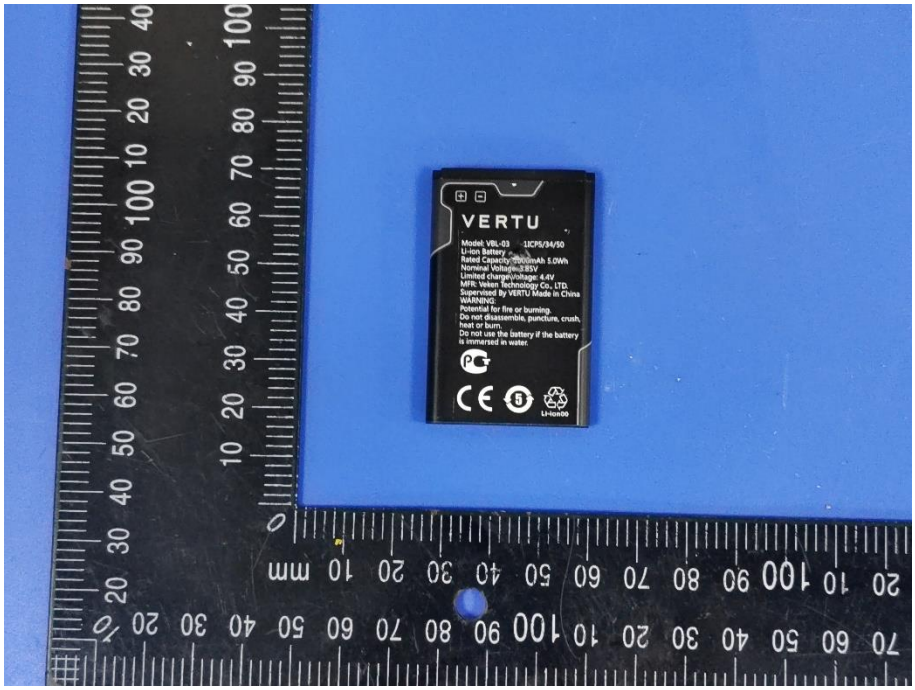

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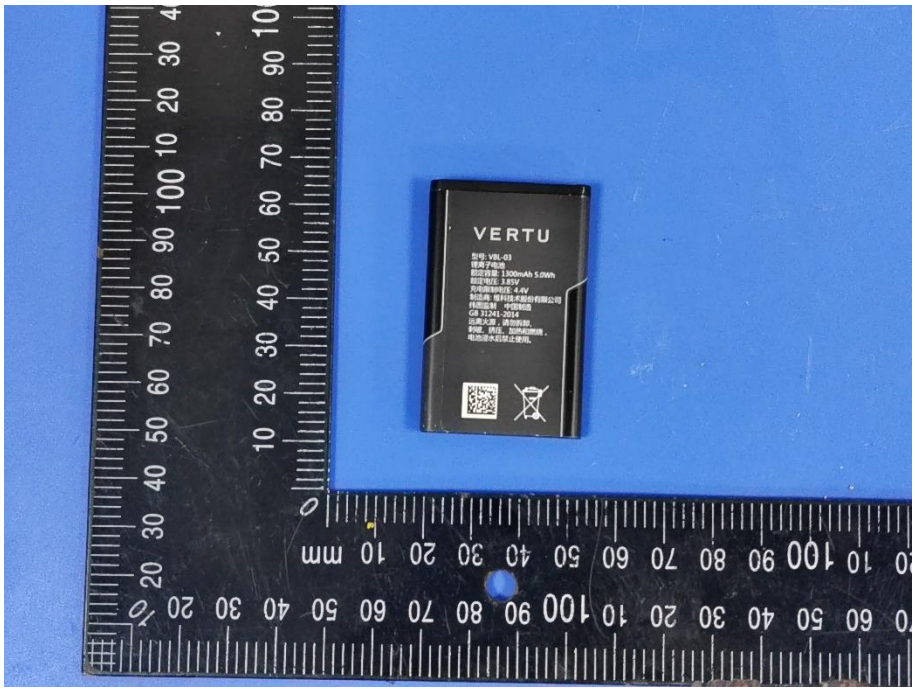
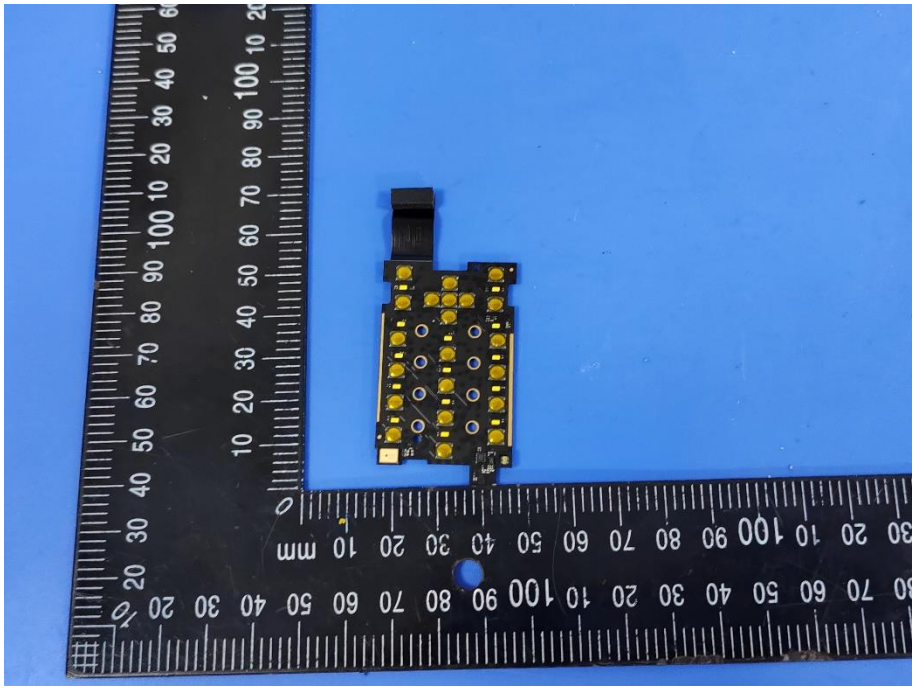


Photo 16



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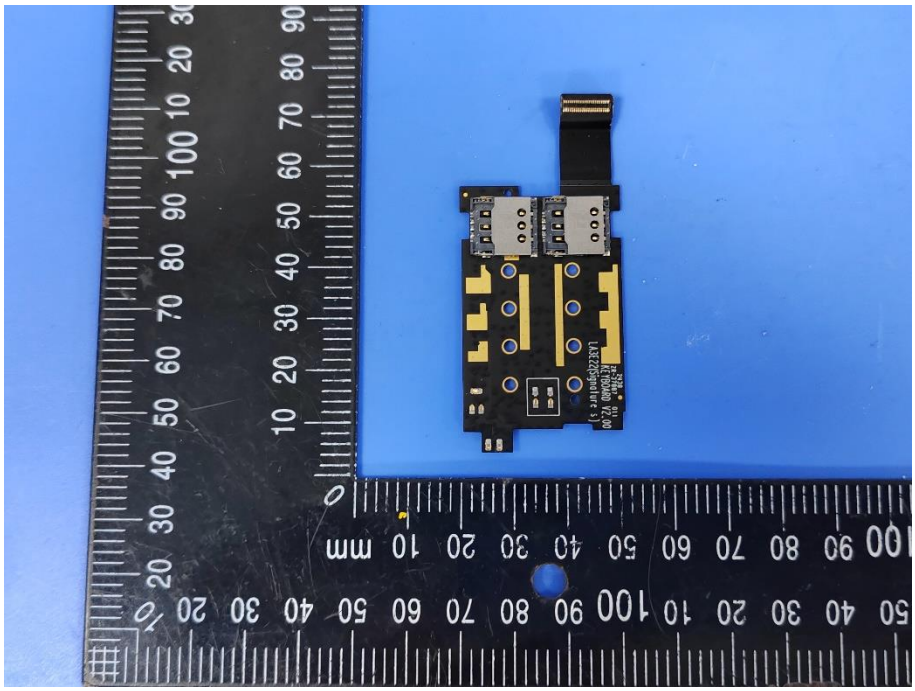

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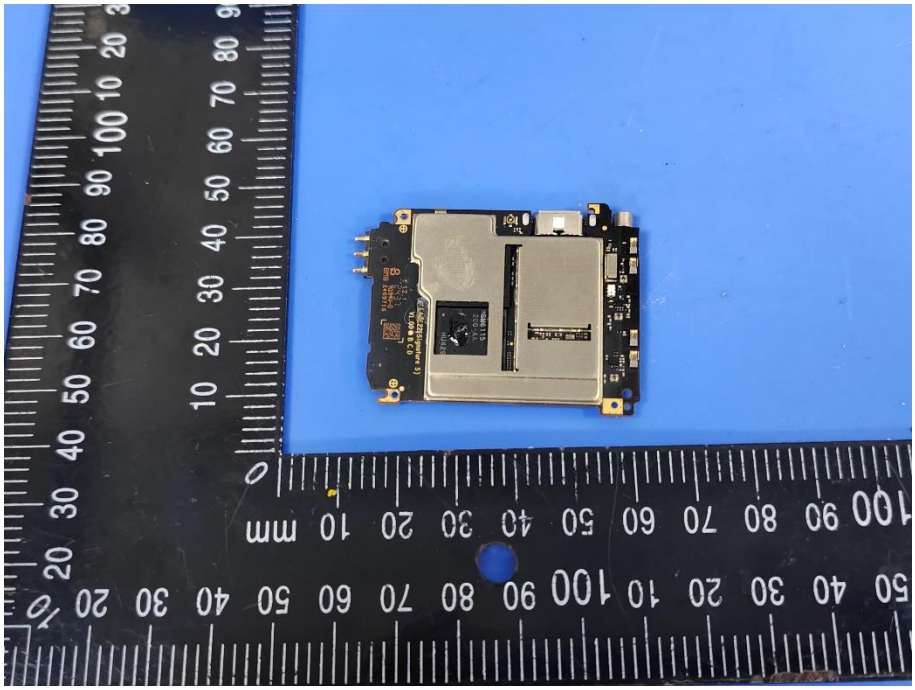

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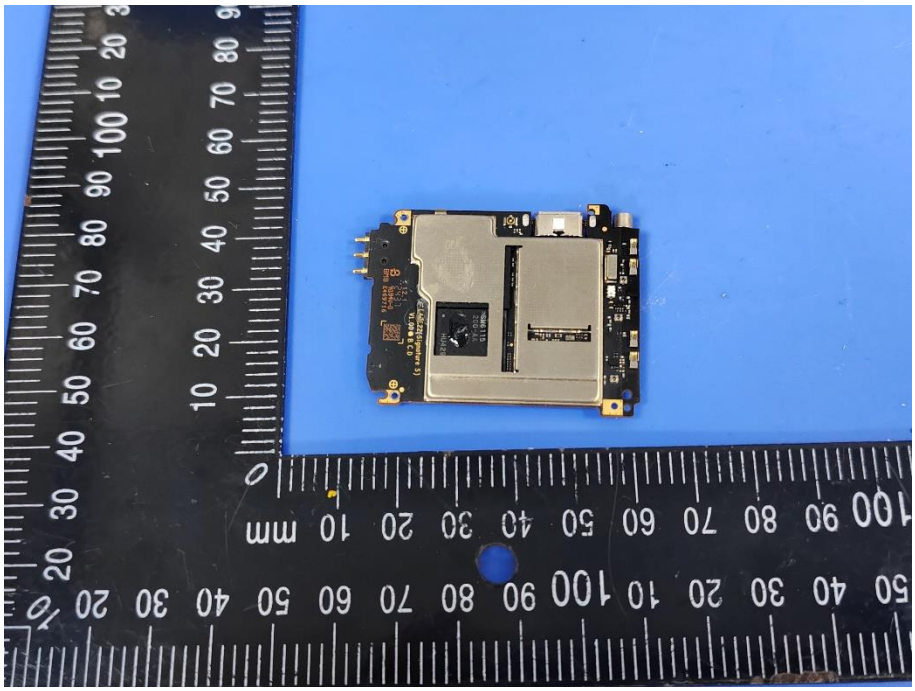

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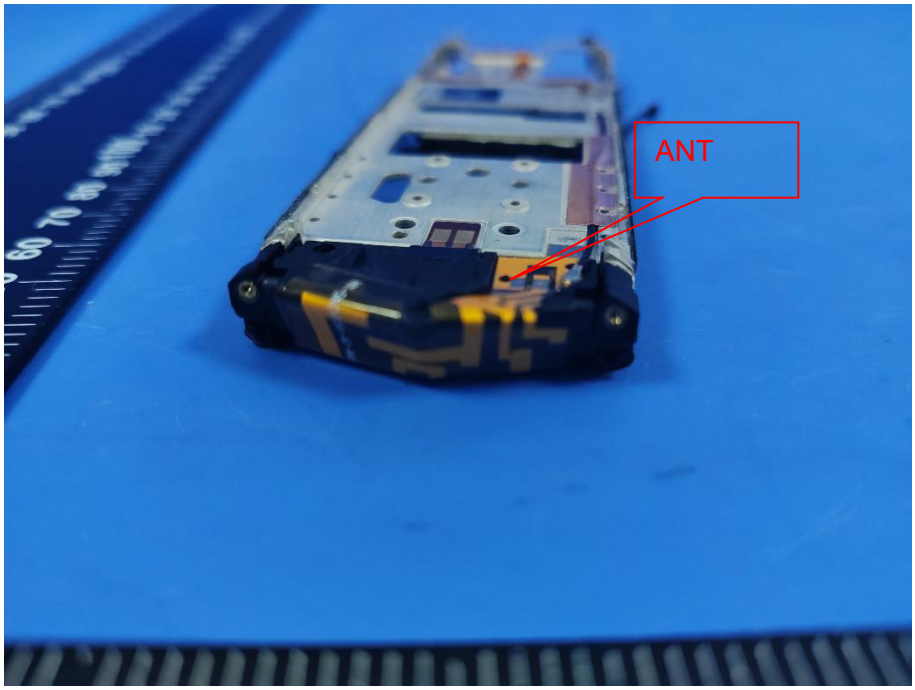

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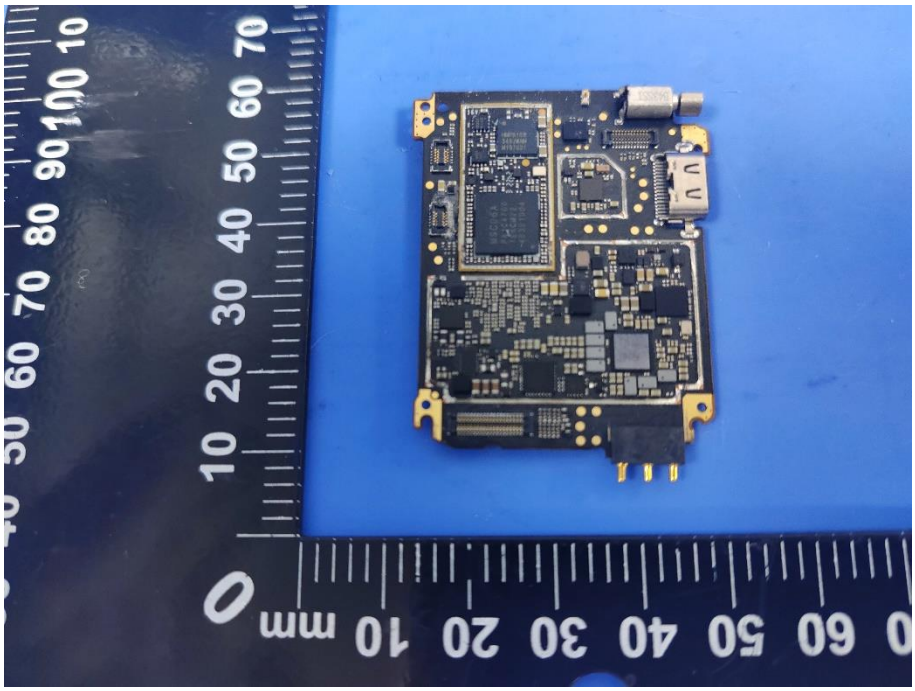


Photo 22

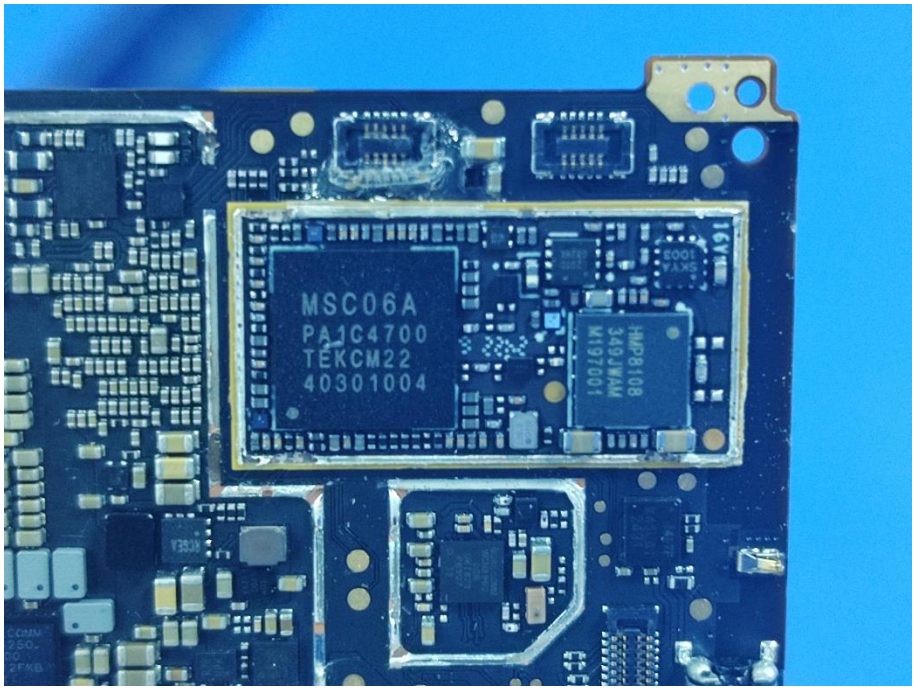


Photo 23

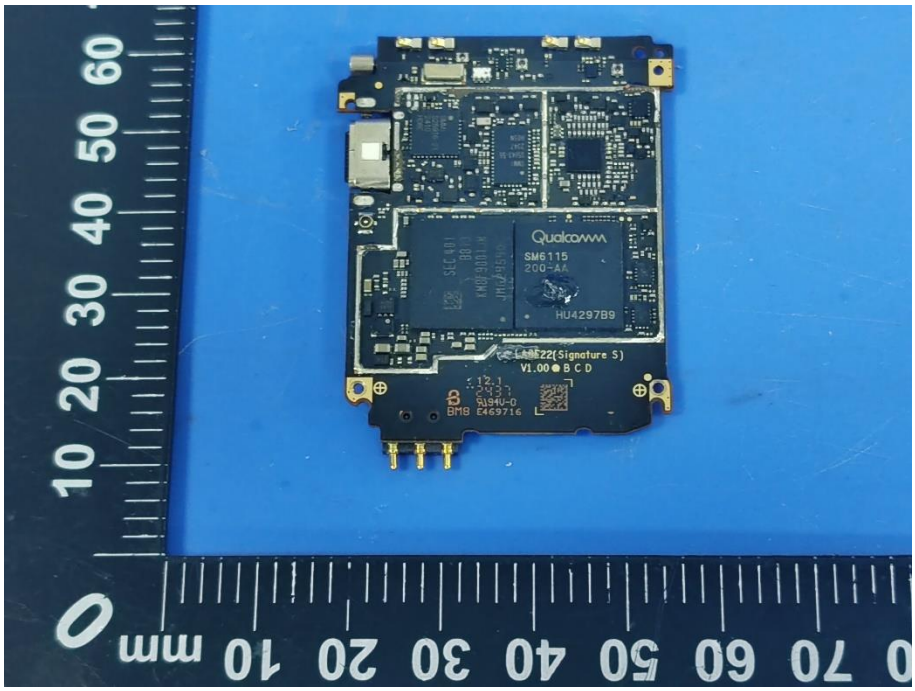
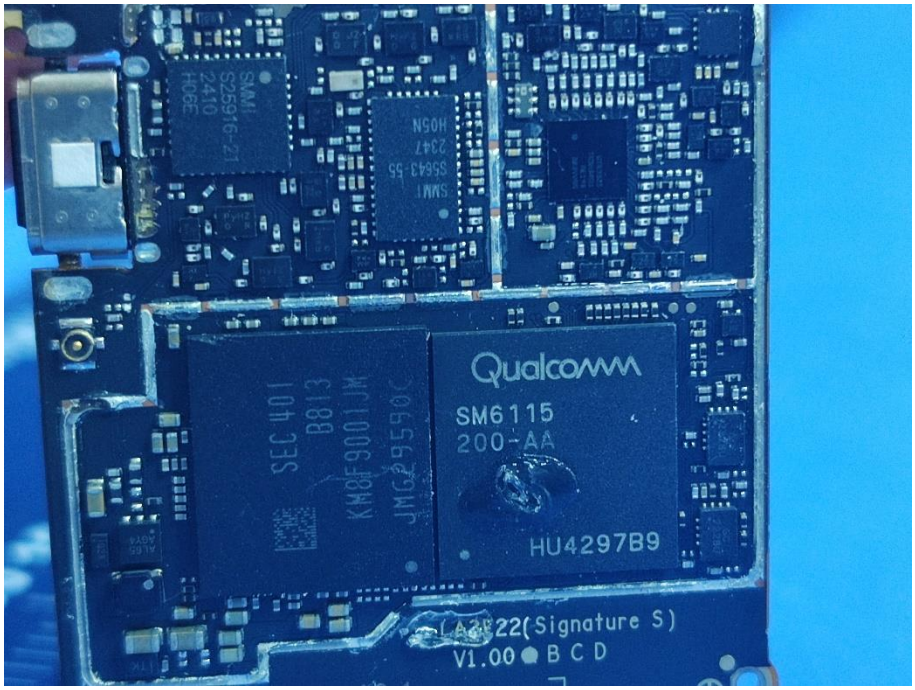


Photo 24



※※※※※END OF THE REPORT※※※※※