TEST REPORT

Product Name	:	Smart Phone
Brand Name	:	ulefone
Model	:	GQ5013TF
Series Model	:	Armor 30, Armor 30 Ultra, Armor 30T Ultra, Armor 30T Pro, Armor 30 Lite, Armor 30s, Armor 30s Pro
FCC ID	:	2AOWK-5013TF
Applicant	:	**Shenzhen Gotron Electronic CO.,LTD.**
Address	:	7B01, Building A, Block 1, Anhongji Tianyao Plaza, Longhua District, Shenzhen City, Guangdong Province China
Manufacturer	:	**Shenzhen Gotron Electronic CO.,LTD.**
Address	:	7B01, Building A, Block 1, Anhongji Tianyao Plaza, Longhua District, Shenzhen City, Guangdong Province China
Standard(s)	:	FCC CFR Title 47 Part 15 Subpart C Section 15.225
Date of Receipt	:	Mar. 23, 2025
Date of Test	:	Mar. 24, 2025~ Apr. 14, 2025
Issued Date	:	Apr. 14, 2025

Issued By: **Guangdong Asia Hongke Test Technology Limited**
B1/F, Building 11, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
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Reviewed by: Leon Yi
Leon.yi

Approved by: Sean She
Sean She

Note: This device has been tested and found to comply with the standard(s) listed, this test report merely corresponds to the test sample. It is not permitted to copy extracts of these test result without the written permission of the test laboratory. This report shall not be reproduced except in full, without the written approval of Guangdong Asia Hongke Test Technology Limited. If there is a need to alter or revise this document, the right belongs to Guangdong Asia Hongke Test Technology Limited, and it should give a prior written notice of the revision document. This test report must not be used by the client to claim product endorsement.

Report Revise Record

Report Version	Issued Date	Notes
M1	Apr. 14, 2025	Initial Release

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1 TEST SUMMARY

1.1 Test Standards

The tests were performed according to following standards:
FCC Rules Part 15.225: Operation within the band 13.110–14.010 MHz

ANSI C63.10: 2013: American National Standard for Testing Unlicensed Wireless Devices

1.2 Test Summary

FCC PART 15 .225		
FCC Part 15.207	AC Power Conducted Emission	PASS
FCC Part 2.1049	20dB Bandwidth	PASS
FCC Part 15.225(a) (b) (c)	In-band Emissions	PASS
FCC Part 15.225(d)/15.207	Out-of-band Emissions	PASS
FCC Part 15.225(e)	Frequency Stability Tolerance	PASS

1.3 Test Facility

Test Laboratory:
Guangdong Asia Hongke Test Technology Limited
B1/F, Building 11, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

The test facility is recognized, certified or accredited by the following organizations:
FCC-Registration No.: 251906 Designation Number: CN1376
Guangdong Asia Hongke Test Technology Limited has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

IC —Registration No.: 31737 CAB identifier: CN0165
The 3m Semi-anechoic chamber of Guangdong Asia Hongke Test Technology Limited has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 31737

A2LA-Lab Cert. No.: 7133.01
Guangdong Asia Hongke Test Technology Limited has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

1.4 Measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report according to CISPR 16 - 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the Guangdong Asia Hongke Test Technology Limited’s quality system according to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.
Hereafter the best measurement capability for Asia Hongke laboratory is reported:

Test	Measurement Uncertainty	Notes
Power Line Conducted Emission	9KHz~30MHz ±1.20 dB	(1)
Radiated Emission	9KHz~30MHz ±3.10dB	(1)
Radiated Emission	30MHz~1GHz ±3.75dB	(1)
Radiated Emission	1GHz~18GHz ±3.88 dB	(1)
Radiated Emission	18GHz-40GHz ±3.88dB	(1)
RF power, conducted	30MHz~6GHz ±0.16dB	(1)
RF power density, conducted	±0.24dB	(1)
Spurious emissions, conducted	±0.21dB	(1)
Temperature	±1℃	(1)
Humidity	±3%	(1)
DC and low frequency voltages	±1.5%	(1)
Time	±2%	(1)
Duty cycle	±2%	(1)

The report uncertainty of measurement y ± U, where expended uncertainty U is based on a standard uncertainty Multiplied by a coverage factor of k=2 , providing a level of confidence of approximately 95%.

2 GENGENERAL INFORMATION

2.1 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Normal Temperature:	25°C
Relative Humidity:	55 %
Air Pressure:	101 kPa

2.2 General Description of EUT

Product Name:	Smart Phone
Model/Type reference:	GQ5013TF
Serial Model:	Armor 30, Armor 30 Ultra, Armor 30T Ultra, Armor 30T Pro, Armor 30 Lite, Armor 30s, Armor 30s Pro
Power Supply:	DC 5-20V from adapter DC 3.87V from Rechargeable Li-ion battery
Adapter information:	Model: HJ-PD66W-US Input: 100-240V AC50/60Hz 1.5A Output: 5.0V⎓3.0A 15.0W or 9.0V⎓3.0A 27W or 12.0V⎓3.0A 36W or 15.0V⎓3.0A 45.0W or 20.0V⎓3.25A 65.0W or 11.0V⎓6.0A 66W MAX
Hardware Version:	N/A
Software Version:	N/A
Sample(s) Status:	AiTSZ-250323007-1(Normal sample) AiTSZ-250323007-2(Engineer sample)
NFC:	
Operation frequency:	13.56MHz
Modulation :	ASK
No. of Channel :	1
Antenna type:	Loop Antenna
Remark: The above DUT's information was declared by manufacturer. For more detailed features description, please refer to the manufacturer's specifications or the User's Manual..	

2.3 Special Accessories

Follow auxiliary equipment(s) test with EUT that provided by the manufacturer or laboratory is listed as follow:

Description	Manufacturer	Model	Serial No.	Provided by	Other
/	/	/	/	/	/
/	/	/	/	/	/

2.4 Equipment List for the Test

No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date
1	EMI Measuring Receiver	R&S	ESR	101160	2024.09.25	2025.09.24
2	Spectrum Analyzer	R&S	FSV40	101470	2024.09.23	2025.09.22
3	Low Noise Pre Amplifier	SCHWARZBECK	BBV 9745	00282	2024.09.25	2025.09.24
4	Low Noise Pre Amplifier	CESHENG	CSKJLNA231016A	CSKJLNA231016A	2024.09.25	2025.09.24
5	Passive Loop	ETS	6512	00165355	2024.08.29	2027.08.28
6	TRILOG Super Broadband test Antenna	SCHWARZBECK	VULB9168	01434	2024.08.29	2027.08.28
7	Broadband Horn Antenna	Schwarzbeck	BBHA 9120D	452	2024.08.29	2027.08.28
8	Horn Antenna 15-40GHz	SCHWARZBECK	BBHA9170	BBHA9170367	2024.08.28	2027.08.27
9	6dB Attenuator	JFW	50FPE-006	4360846-949-1	2024.09.24	2025.09.23
10	EMI Test Receiver	R&S	ESPI	100771	2024.09.25	2025.09.24
11	LISN	R&S	NNLK 8129	8130179	2024.09.24	2025.09.23
12	LISN	R&S	ESH3-Z5	892785/016	2024.09.23	2025.09.22
13	Pulse Limiter	R&S	ESH3-Z2	102789	2024.09.24	2025.09.23
14	RF Automatic Test system	TST	TSTPASS	21033016	2024.09.25	2025.09.24
15	Vector Signal Generator	Agilent	N5182A	MY50143009	2024.09.25	2025.09.24
16	Analog signal generator	Agilent	E8257	MY51554256	2024.09.25	2025.09.24
17	Spectrum Analyzer	Agilent	N9020A	MY51289843	2024.09.25	2025.09.24
18	Spectrum Analyzer	Agilent	N9020A	MY53421570	2024.09.25	2025.09.24
19	Power Sensor	Agilent	8481A	MY41097697	2024.09.25	2025.09.24
20	Wideband Radio communication tester	R&S	CMW500	1201.0002K50	2024.09.24	2025.09.23
21	DC power supply	ZHAOXIN	RXN-305D-2	28070002559	2024.09.24	2025.09.23
22	RE Software	EZ	EZ-EMC_RE	Ver.AIT-03A	N/A	N/A
23	CE Software	EZ	EZ-EMC_CE	Ver.AIT-03A	N/A	N/A

24	RF Software	TST	TSTPASS	Version 2.0	N/A	N/A
25	RF Software	cesheng	WCS-WCN	Version 2024.6.20	N/A	N/A
26	temporary antenna connector(Note)	NTS	R001	N/A	N/A	N/A
Note: The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.						

3 TEST CONDITIONS AND RESULTS

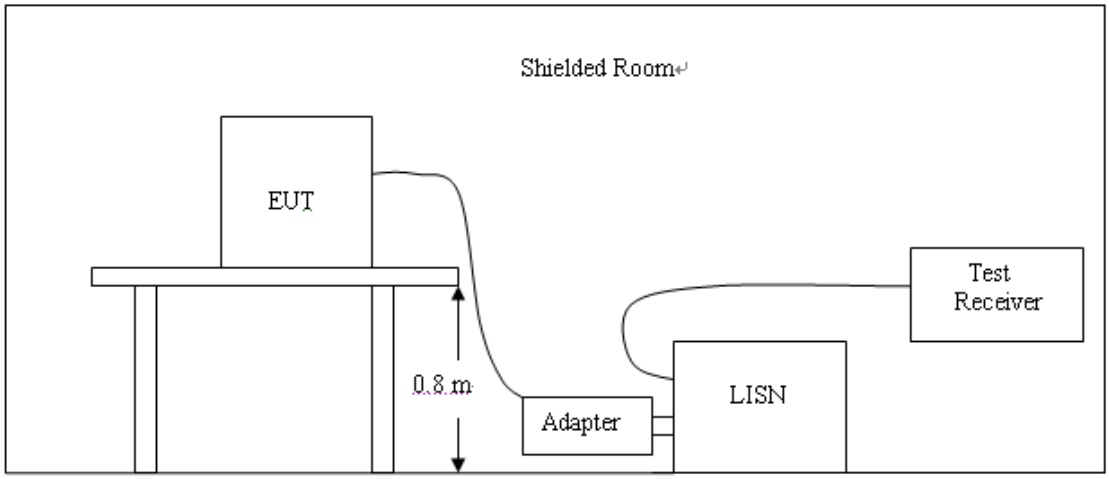
3.1 Conducted Emissions Test

LIMIT

Frequency range (MHz)	Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

TEST CONFIGURATION



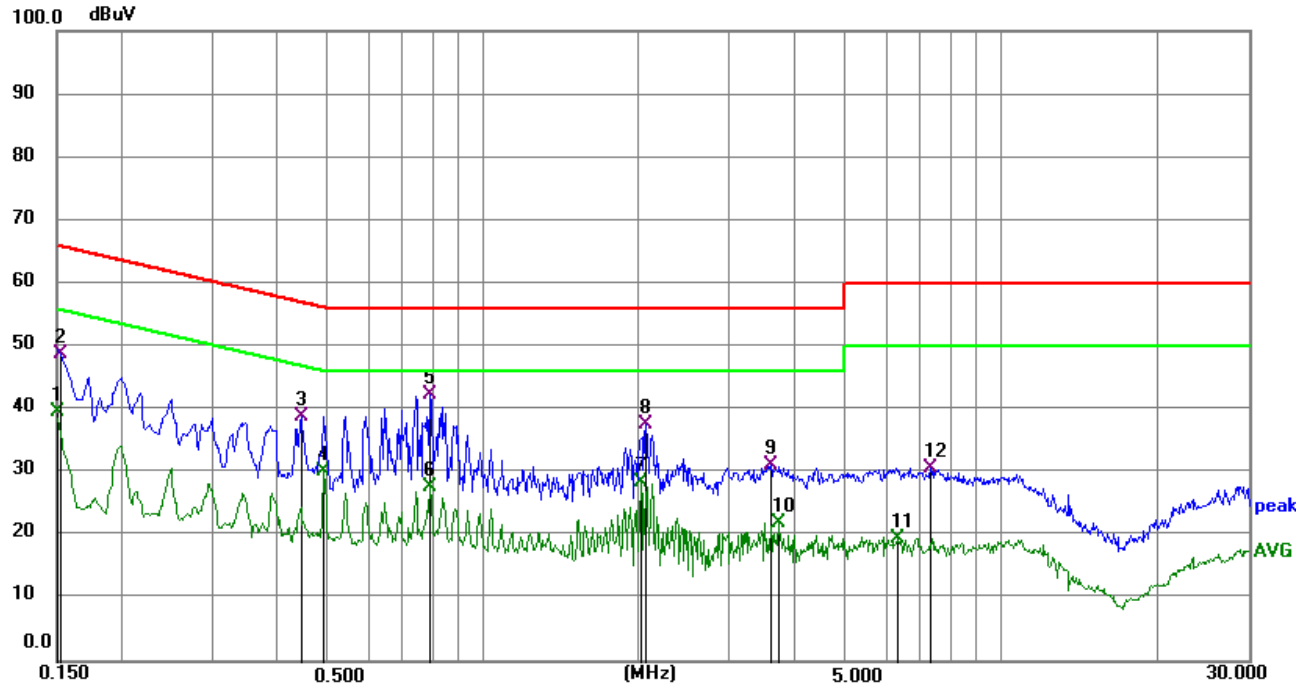
TEST PROCEDURE

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system; a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10:2013.
2. Support equipment, if needed, was placed as per ANSI C63.10:2013.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10:2013.
4. The adapter received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5. All support equipments received AC power from a second LISN, if any.
6. The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
8. During the above scans, the emissions were maximized by cable manipulation.

TEST RESULTS

Remark: Both 120 VAC, 50/60 Hz and 240 VAC, 50/60 Hz power supply have been tested, only the worst result of 120 VAC, 60 Hz was reported as below:

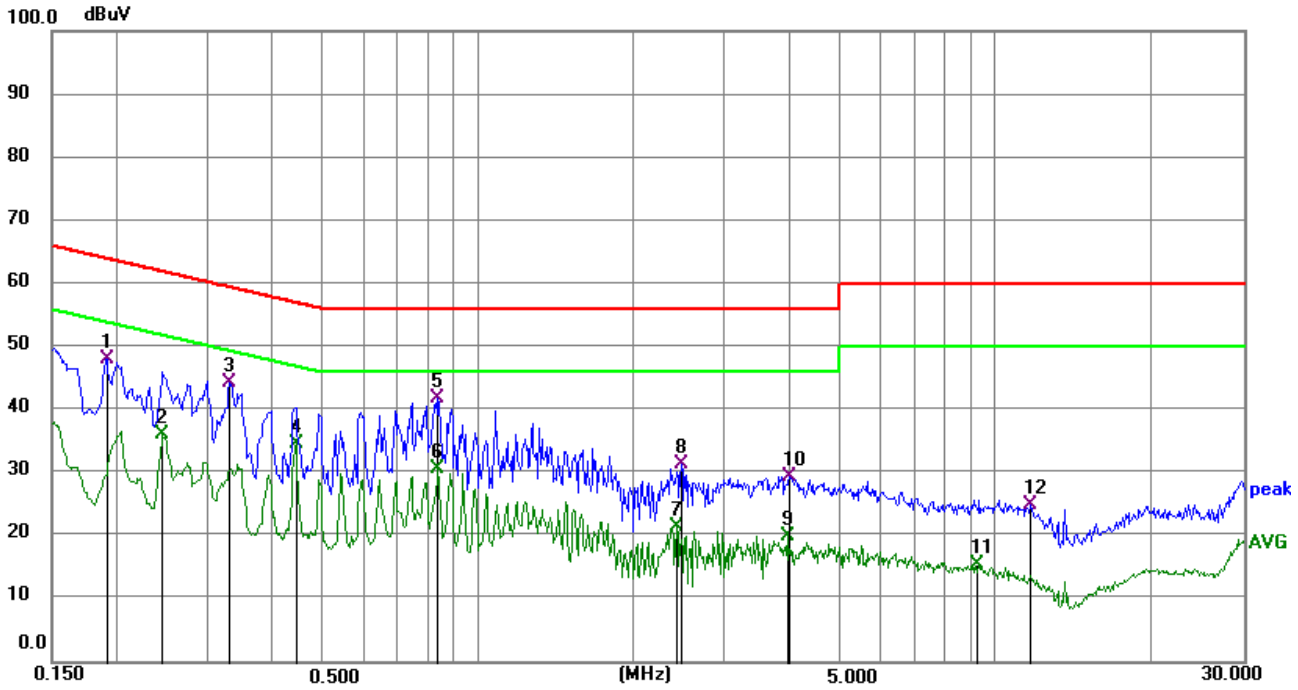
Test Mode	NFC	Line:	L



Remark: Correct Factor = Insertion loss of LISN + Cable loss + Insertion loss of Pulse Limiter;
Measurement Result = Reading Level +Correct Factor;
Margin = Measurement Result- Limit

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1500	27.77	11.84	39.61	56.00	-16.39	AVG
2	0.1524	37.08	11.56	48.64	65.87	-17.23	QP
3	0.4425	28.03	10.69	38.72	57.01	-18.29	QP
4	0.4920	19.50	10.69	30.19	46.13	-15.94	AVG
5	0.7890	31.55	10.67	42.22	56.00	-13.78	QP
6	0.7890	16.91	10.67	27.58	46.00	-18.42	AVG
7	2.0220	17.56	10.78	28.34	46.00	-17.66	AVG
8	2.0625	26.91	10.78	37.69	56.00	-18.31	QP
9	3.5924	20.09	10.98	31.07	56.00	-24.93	QP
10	3.7004	10.95	11.00	21.95	46.00	-24.05	AVG
11	6.3060	8.44	11.03	19.47	50.00	-30.53	AVG
12	7.2960	19.60	11.05	30.65	60.00	-29.35	QP

Test Mode	NFC	Line:	N



Remark: Correct Factor = Insertion loss of LISN + Cable loss + Insertion loss of Pulse Limiter;
Measurement Result = Reading Level +Correct Factor;
Margin = Measurement Result- Limit

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1905	37.43	10.69	48.12	64.01	-15.89	QP
2	0.2444	25.53	10.69	36.22	51.95	-15.73	AVG
3	0.3300	33.50	10.69	44.19	59.45	-15.26	QP
4	0.4425	23.92	10.69	34.61	47.01	-12.40	AVG
5	0.8385	31.27	10.65	41.92	56.00	-14.08	QP
6	0.8385	19.90	10.65	30.55	46.00	-15.45	AVG
7	2.4180	10.79	10.78	21.57	46.00	-24.43	AVG
8	2.4674	20.56	10.78	31.34	56.00	-24.66	QP
9	3.9480	8.93	10.99	19.92	46.00	-26.08	AVG
10	3.9930	18.47	10.99	29.46	56.00	-26.54	QP
11	9.2084	4.51	11.01	15.52	50.00	-34.48	AVG
12	11.6475	13.73	11.21	24.94	60.00	-35.06	QP

3.2 Radiated Emissions

Limit

a The field strength of any emissions within the band 13.553–13.567 MHz shall not exceed 15,848 microvolts/ meter at 30 meters.

b Within the bands 13.410–13.553 MHz and 13.567–13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.

c Within the bands 13.110–13.410 MHz and 13.710–14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.

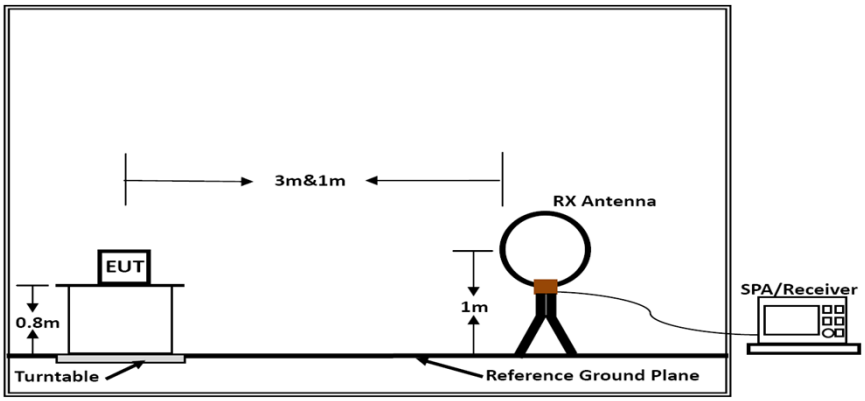
d The field strength of any emissions appearing outside of the 13.110– 14.010 MHz band shall not exceed the general radiated emission limits in §15.209.

Radiated emission limits

Frequency (MHz)	Distance (Meters)	Radiated (dBuV/m)	Radiated (μV/m)
0.009-0.49	3	20log(2400/F(KHz))+40log(300/3)	2400/F(KHz)
0.49-1.705	3	20log(24000/F(KHz))+ 40log(30/3)	24000/F(KHz)
1.705-13.110	3	69.54	30
13.110-13.410	3	80.50	106
13.410-13.553	3	90.47	334
13.553-13.567	3	124.00	15848
13.567-13.710	3	90.47	334
13.710-14.010	3	80.50	106
14.010-30.0	3	69.54	30
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

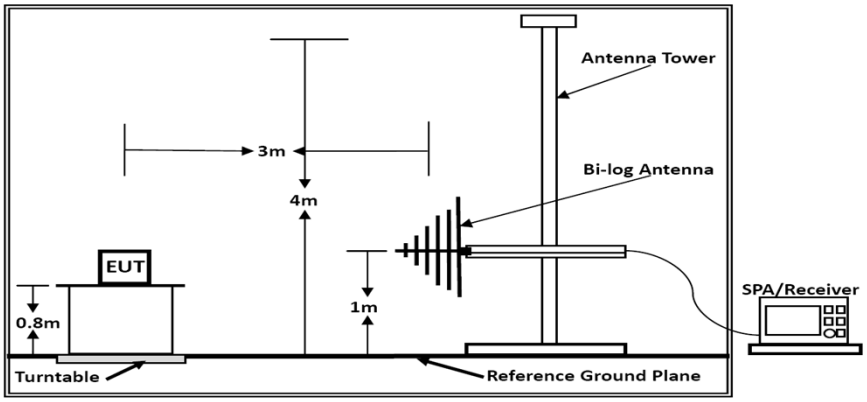
TEST CONFIGURATION

(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



Below 30MHz

(B) Radiated Emission Test Set-Up, Frequency below 1000MHz



Below 1GHz

Test Procedure

1. Below 1GHz measurement the EUT is placed on a turntable which is 0.8m above ground plane, and above 1GHz measurement EUT was placed on a low permittivity and low loss tangent turn table which is 1.5m above ground plane.
2. Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0℃ to 360℃ to acquire the highest emissions from EUT
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measurements have been completed.
5. Radiated emission test frequency band from 9KHz to 1GHz.
6. The distance between test antenna and EUT as following table states:

Test Frequency range	Test Antenna Type	Test Distance
9KHz-30MHz	Active Loop Antenna	3
30MHz-1GHz	Bilog Antenna	3

7. Setting test receiver/spectrum as following table states:

Test Frequency range	Test Receiver/Spectrum Setting	Detector
9KHz-150KHz	RBW=200Hz/VBW=3KHz,Sweep time=Auto	QP
150KHz-30MHz	RBW=9KHz/VBW=100KHz,Sweep time=Auto	QP
30MHz-1GHz	RBW=120KHz/VBW=1000KHz,Sweep time=Auto	QP

TEST RESULTS

Below 30MHz

Frequency(MHz):		13.56MHz		Polarity:	Antenna Position 0	
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	
1.997	13.85	21.61	35.46	69.54	-34.08	PEAK
13.309	22.52	22.57	45.09	80.50	-35.41	PEAK
13.466	33.73	22.6	56.33	90.47	-34.14	PEAK
13.563	40.59	22.62	63.21	124.00	-60.79	PEAK
13.698	31.8	22.64	54.44	90.47	-36.03	PEAK
13.766	21.92	22.66	44.58	80.50	-35.92	PEAK
25.474	13.41	23.14	36.55	69.54	-32.99	PEAK

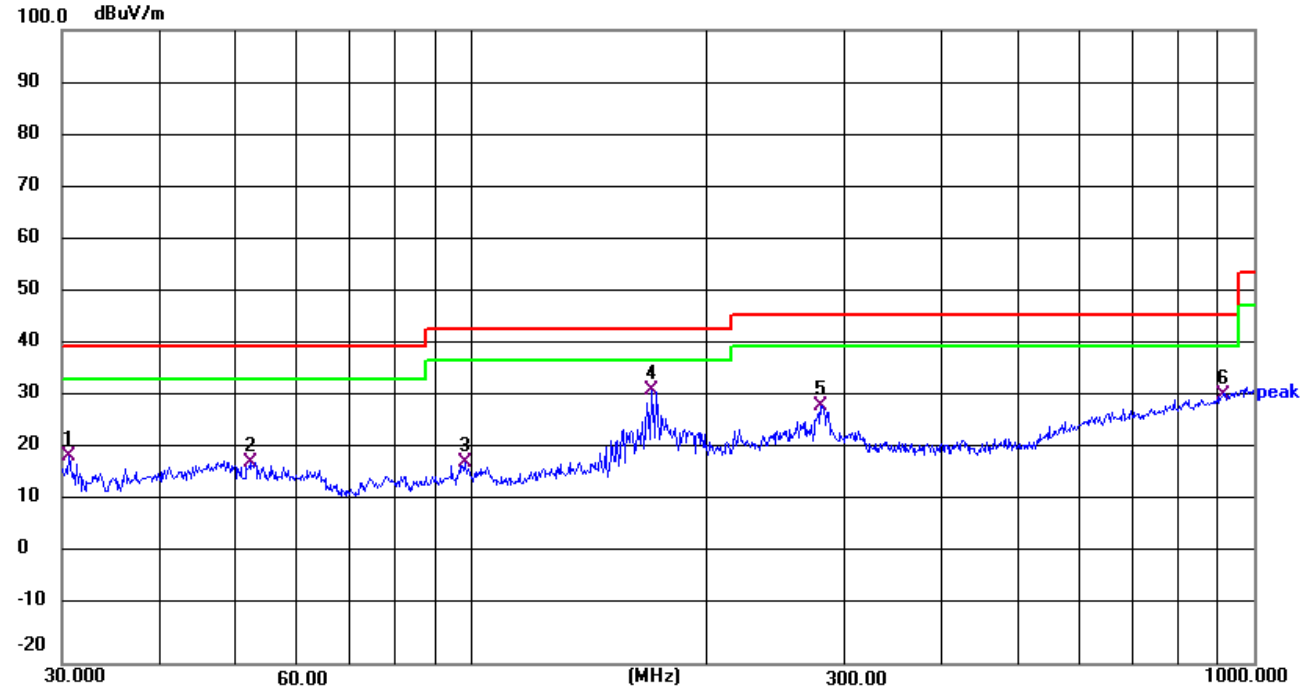
Frequency(MHz):		13.56MHz		Polarity:	Antenna Position 90	
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	
8.731	13.1	22.06	35.16	69.54	-34.38	PEAK
13.292	20.69	22.56	43.25	80.50	-37.25	PEAK
13.479	32.65	22.60	55.25	90.47	-35.22	PEAK
13.563	39.97	22.62	62.59	124.00	-61.41	PEAK
13.634	33.1	22.63	55.73	90.47	-34.74	PEAK
13.916	21.42	22.69	44.11	80.50	-36.39	PEAK

REMARKS:

1. Emission level (dBuV/m) = Reading (dBuV)+ Factor (dB/m)
2. Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)
3. Margin value = Emission level- Limit value.
4. Other emission levels are attenuated 20dB below the limit and not recorded in report.

For 30MHz-1GHz

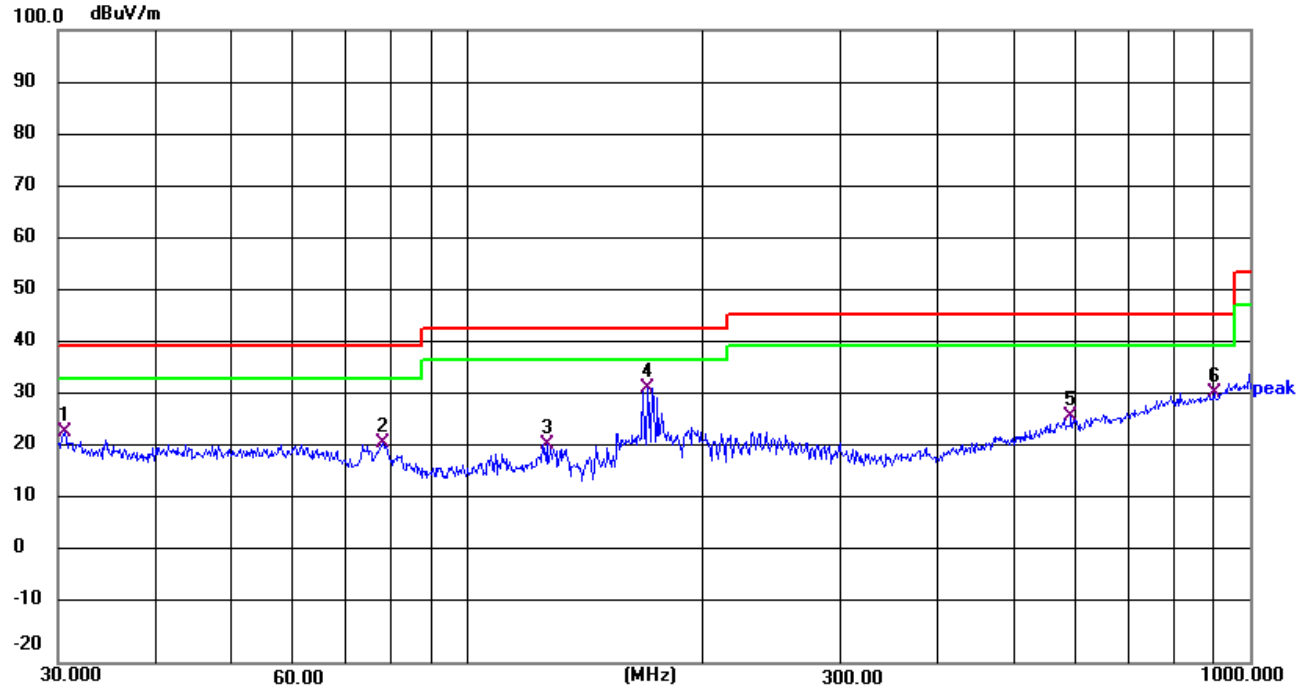
Test mode:	NFC	Polarization:	Horizontal



Remark:
Emission Level = Reading + Factor;
Factor = Antenna Factor + Cable Loss – Pre-amplifier;
Margin= Emission Level - Limit.

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	30.6376	36.83	-17.53	19.30	40.00	-20.70	QP
2	52.2077	34.99	-16.79	18.20	40.00	-21.80	QP
3	98.1418	38.64	-20.44	18.20	43.50	-25.30	QP
4	170.1947	48.63	-16.86	31.77	43.50	-11.73	QP
5	280.0237	46.46	-17.51	28.95	46.00	-17.05	QP
6	912.8620	35.30	-4.48	30.82	46.00	-15.18	QP

Test mode:	NFC	Polarization:	Vertical



Remark:
Emission Level = Reading + Factor;
Factor = Antenna Factor + Cable Loss – Pre-amplifier;
Margin= Emission Level - Limit.

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	30.6376	41.21	-17.53	23.68	40.00	-16.32	QP
2	78.1388	42.30	-20.57	21.73	40.00	-18.27	QP
3	126.3285	39.37	-17.95	21.42	43.50	-22.08	QP
4	170.1947	49.02	-16.86	32.16	43.50	-11.34	QP
5	590.9737	36.82	-9.96	26.86	46.00	-19.14	QP
6	900.1472	36.19	-4.82	31.37	46.00	-14.63	QP

3.3 20dB Bandwidth

Limit

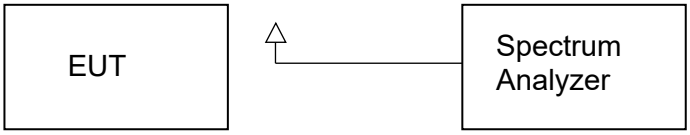
No limit for 20dB bandwidth.

Test Procedure

The 20dB bandwidth is measured with a spectrum analyzer connected via a receive antenna placed near the EUT while the EUT is operating in transmission mode.

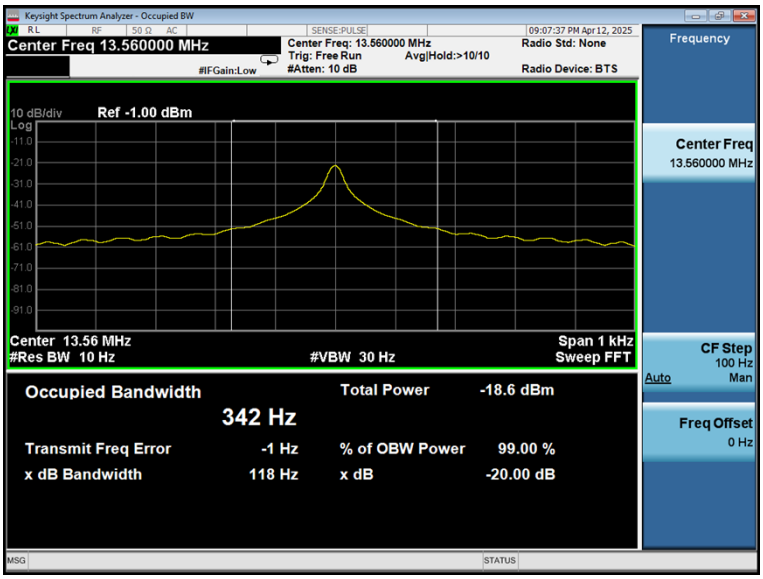
The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

Test Configuration



Test Results

Modulation	Frequency(MHz)	20dB bandwidth (KHz)	99%dB bandwidth (KHz)	Result
ASK	13.56	0.118	0.342	Pass

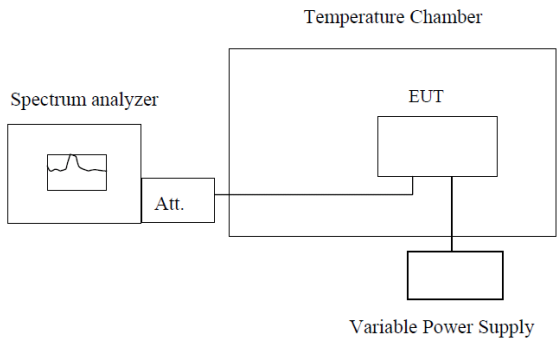


3.4 Frequency Stability

LIMIT

The frequency tolerance of the carrier signal shall be maintained within ±0.01% of the operating frequency over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.

TEST CONFIGURATION



Note : Measurement setup for testing on Antenna connector

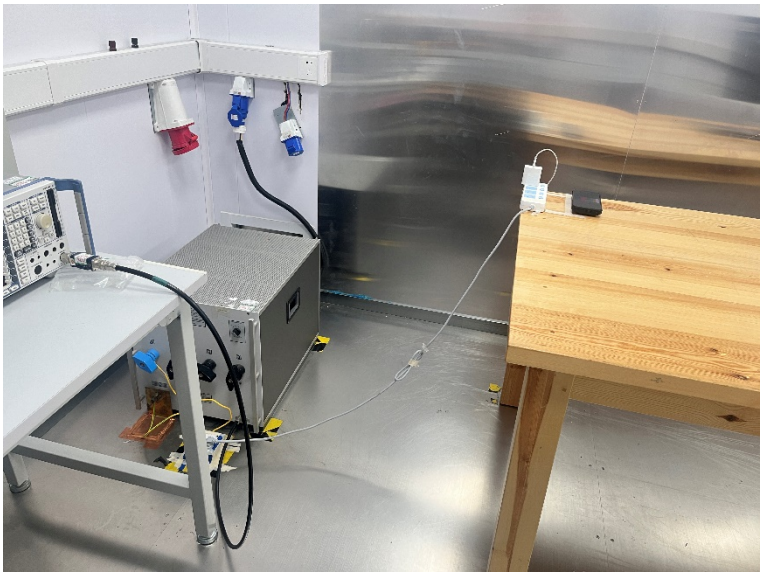
TEST PROCEDURE

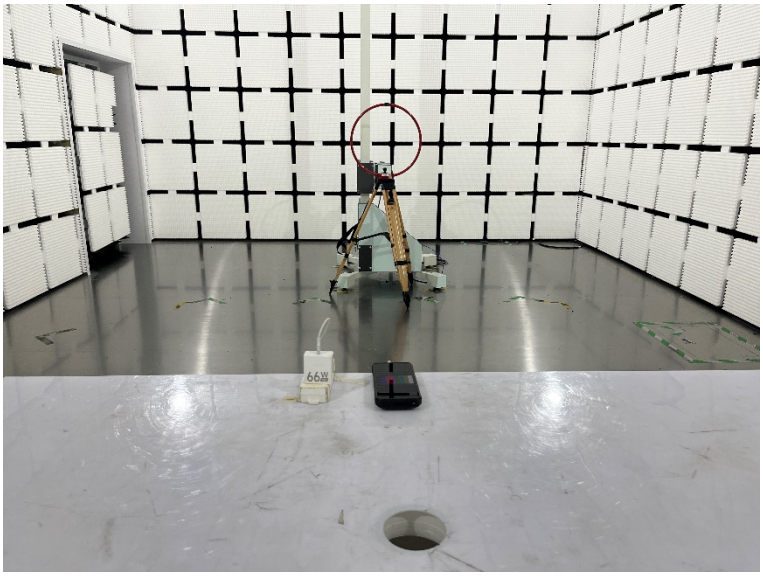
1. The equipment under test was connected to an external DC power supply and input rated voltage.
2. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators.
3. The EUT was placed inside the temperature chamber.
4. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20℃ operating frequency as reference frequency.
5. Turn EUT off and set the chamber temperature to –20℃. After the temperature stabilized for approximately 30 minutes recorded the frequency.
6. Repeat step measure with 10℃ increased per stage until the highest temperature of +50℃ reached.
7. Reduce the input voltage to specified extreme voltage variation (+/- 15%) or endpoint, record the maximum frequency change.

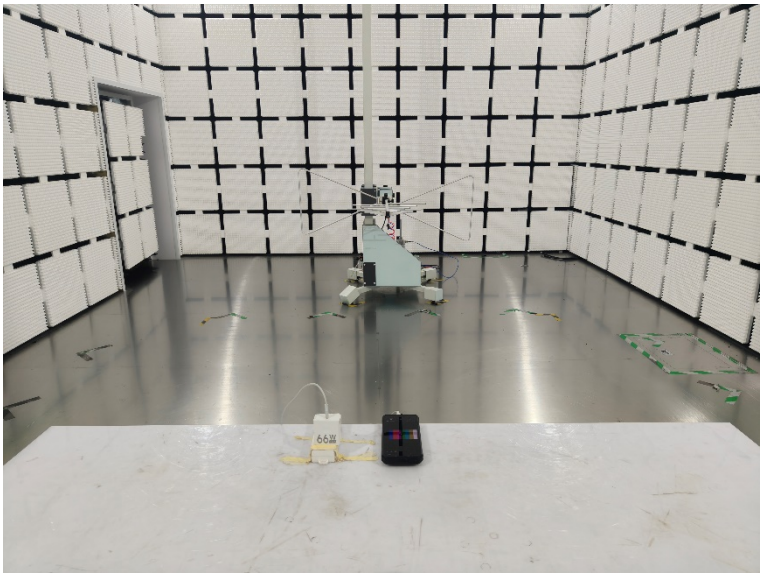
TEST RESULTS

Reference Frequency: 13.56MHz					
Voltage (V)	Temperature (℃)	Frequency (MHz)	Frequency Deviation(Hz)	Deviation (%)	Result
3.87	+20(Ref)	13.56008	75	0.000553%	Pass
	-20	13.5601	101	0.000745%	Pass
	-10	13.56019	185	0.001364%	Pass
	0	13.56005	53	0.000391%	Pass
	+10	13.56008	77	0.000568%	Pass
	+20	13.56005	50	0.000369%	Pass
	+25	13.56019	186	0.001372%	Pass
	+30	13.56018	183	0.001350%	Pass
	+40	13.56014	136	0.001003%	Pass
	+50	13.56009	94	0.000693%	Pass
4.45	+20	13.56009	89	0.000656%	Pass
3.29	+20	13.56013	128	0.000944%	Pass

4 Test Setup Photographs of EUT







5 Photos of EUT

Please refer to test Report No.: AiTSZ-250323007FW1.

********** **End of Report** **********