RF TEST REPORT

Applicant	:	Shenzhen Gotron Electronic CO.,LTD.
Product Name	:	Smart Phone
Brand Name	:	ulefone
Model Name	:	GQ5012
Series Model	:	Armor 29 Pro, Armor 29 Ultra, Armor 29, Armor 29T Ultra, Armor 29T Pro, Armor 29 Lite, Armor 29s, Armor 29s Pro
FCC ID	:	2AOWK-5012
Test Standard	:	FCC Part 15 Subpart C §15.225
Date of SampleArrival	:	2025.02.11
Date of Test	:	2025.02.11-2025.04.25
Date of Issue	:	2025.04.25

Report Prepared by : Jacob. Cai

(Jacob Cai)

Report Approved by : Jason Wu

(Jason Wu)

Authorized Signatory : Robinson Luo

(Robinson Luo)

Authorized Signature:

Robinson Luo
Laboratory Manager

This results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver

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REVISION HISTORY

Rev.	Issue Date	Revisions	Revised by
A0	2025.04.25	Initial Release	/

DECLARATION OF REPORT

1. The device has been tested by GTS, and the test results show that the equipment under test (EUT)is in compliance with the requirements of FCC Part 15 Subpart C §15.225. And it is applicable only to the tested sample identified in the report.

2. This report shall not be reproduced except in full, without the written approval of GTS, this document only be altered or revised by GTS, personal only, and shall be noted in the revision of the document.

3. The general information of EUT in this report is provided by the customer or manufacture, GTS is only responsible for the test data but not for the information provided by the customer or manufacture.

4. The results in this report is only apply to the sample as tested under conditions. The customer or manufacturer is responsible for ensuring that the additional production units of this model have the same electrical and mechanical components.

1 Test Summary

1.1 Test Standards

The tests were performed according to following standards:

No.	Identity	Document Title
1	FCC 47 CFR Part 2	Frequency allocations and radio treaty matters; general rules and regulations
2	FCC 47 CFR Part 15	Radio Frequency Devices
3	ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices

1.2Requirements for antennas

StandardRequirement
15.203requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by theresponsiblepartyshallbe usedwiththedevice.Theuseof apermanentlyattachedantennaor of anantennathat uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a brokenantenna can be replaced by the user, but the use of a standard antenna jack or electrical connector isprohibited.
EUTAntenna:
The non-detachable antenna inside the device cannot be replaced by the user at will. The gain of the antenna is 0dBi.

1.2 Test Items And The Results

No.	Basic Standard	**Description Of Test**	Test Mode	Result
1	§15.203	Antenna Equipment	TX	Pass
2	15.225(a)(b)(c)	Field Strength of Fundamental	TX	Pass
3	§15.209	Radiated Emission	TX	Pass
4	§15.215(c)	20dB Bandwidth	TX	Pass
5	§15.205(a)	Restricted Bands of Operation	TX	Pass
6	§15.225(e)	Frequency Stability	TX	Pass
7	§15.207	AC Power Line Conducted Emission	TX	Pass
Note: 1.N/A means not applicable.				

1.3 Description of test mode

Summary table of Test Cases	
Test Item	Sepcification / Modulation
	NFC/ ASK
Radiated&Conducted Test Cases	Mode 1: NFC Tx _13.56 MHz
AC Conducted Emission	Mode 2: NFC Link+Changer(by adapter)

Note:
1. Only the result of the worst case was recorded in the report, if no other cases.
2. The battery is full-charged during the test.
3. For Radiated Emission, 3axis were chosen for testing for each applicable mode.
4. For Conducted Test method, a temporary antenna connector is provided by the manufacture.

1.4 Statement of the measurement uncertainty

The reported 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%.

Item	MeasurementUncertainty
Uncertainty of Conducted Emission for AC Port	U_c = ±3.1 dB
Uncertainty of Radiated Emission below 150kHz	U_c = ±4.2dB
Uncertainty of Radiated Emission below 30MHz	U_c = ±3.8 dB
Uncertainty of Radiated Emission below 1GHz	U_c = ±4.0 dB
Uncertainty of total RF power, conducted	U_c = ±0.8 dB
Uncertainty of RF power density, conducted	U_c = ±2.6 dB
Uncertainty ofspurious emissions, conducted	U_c = ±2 %
Uncertainty of Occupied Channel Bandwidth	U_c = ±2 %

1.5 Environmental conditions

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

Temperature	Normal Temperature:	25°C
	High Temperature:	40°C
	Low Temperature:	-20°C
Voltage	Normal Voltage	3.87V
	High Voltage	4.26V
	Low Voltage	3.68V
Other	Relative Humidity	56 %
	Air Pressure	100 kPa

2 General Information

2.1 Applicant

Name	:	Shenzhen Gotron Electronic CO.,LTD.
Address	:	7B01, Building A, Block 1, Anhongji Tianyao Plaza, Longhua District, Shenzhen City, Guangdong Province China

2.2 Manufacturer

Name	:	Shenzhen Gotron Electronic CO.,LTD.
Address	:	7B01, Building A, Block 1, Anhongji Tianyao Plaza, Longhua District, Shenzhen City, Guangdong Province China

2.3 Factory

Name	:	Shenzhen Gotron Electronic CO.,LTD.
Address	:	7B01, Building A, Block 1, Anhongji Tianyao Plaza, Longhua District, Shenzhen City, Guangdong Province China

2.4 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **FCC —Registration No.: 381383**
  Designation Number: CN5029
  Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory 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 files.
- **ISED—Registration No.: 9079A**
  CAB identifier: CN0091
  The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of ISED for radio equipment testing.
- **NVLAP (LAB CODE:600179-0)**
  Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

All tests were performed at:
Global United Technology Services Co., Ltd.
Address: No. 123-128, Tower A, Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102
Tel: 0755-27798480
Fax: 0755-27798960

2.5 EUT Information

Sample No:	202502060001001
Equipment Name:	Smart Phone
Brand Name	ulefone
Model Name	GQ5012
Series Model	Armor 29 Pro, Armor 29 Ultra, Armor 29, Armor 29T Ultra, Armor 29T Pro, Armor 29 Lite, Armor 29s, Armor 29s Pro
Model Difference	All the same except for model name
Power Supply:	DC 7.74V For Battery
Adapter:	Input:100-240V~50/60Hz 1.8AOutput:5.0V⎓ 3.0A 15.0W OR 9.0V⎓ 3.0A 27.0W OR 12.0V⎓ 3.0A 36.0W OR 15.0V⎓ 3.0A 45.0W OR 20.0V⎓ 5.0A 100.0W MAX PPS:3.6V-20.0V⎓ 6.0A 120.0W MAX
Battery parameter:	Rated Voltage:7.74V Charge Limit Voltage:8.9V Capacity:10600mAh
Hardware Version:	N/A
Software Version:	N/A
Permitted Range Of Operating Frequency:	13,553 MHz to 13,567 MHz
Operation frequency:	13.56MHz
Modulation:	ASK
NFC Out Power(ERP)	0.00000402 mW
Number of Channels:	1 Channel
Antenna Gain	0dBi
Antenna Type:	PIFA Antenna
Receiver category	3
Product Class:	1
Equipment type:	Tagging systems

2.6 Measurement Instruments List

For Conducted test

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
1	Spectrum Analyzer	Keysight	N9020A	MY53420874	Aug.19,2024	Aug.18,2025
2	Signal Generator	Agilent	N5173B	MY61250105	Aug.16,2024	Aug.15,2025
3	Signal Generator	Agilent	N5182B	MY57301570	Aug.16,2024	Aug.15,2025
4	Power Sensor	cesheng	SMU-100 3	N/A	Aug.16,2024	Aug.15,2025
5	WIDEBAND RADIO COMMUNICATIO N TESTER	R&S	CMW500	1201.0002K5 0-109925-yZ	Aug.19,2024	Aug.18,2025
Test Software						
Name of Software:		WCS-WCN				
Version:		23.09.07				

For Radiated Test

Test items: Transmitter spurious emissions & Receiver spurious emissions						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
1	Spectrum Analyzer	Keysight	N9020A	MY51285460	Aug.19,2024	Aug.18,2025
2	BiLog Antenna	SCHAFFNE R	CBL6112B	2740	Aug.19,2024	Aug.18,2025
3	Horn Antenna	Schwarzbeck	BBHA 9120D	2800	Aug.14,2024	Aug.13,2025
4	Amplifier (25MHz-1GHz)	Ce Shen	DLNA-20-1000	/	Sep.01.2024	Aug.30,2025
5	Amplifier (1-18GHz)	Ce Shen	DLNA-100 0-18000	CSKJLNA23 0813B	Sep.01.2024	Aug.30,2025
6	Receiver	R&S	ESPI3	100440	Sep.01.2024	Aug.30,2025
7	Loop Antenna	Daze	ZN30900 C	20077	Aug.19,2024	Aug.18,2025
Test software						
Name of Software:			WCS-RSE			
Version:			2021.11.04.01			

3Test Items and Results

3.1 Field Strength of Fundamental

Provisions Applicable

Rules and specifications	FCC CFR 47 Part 15 section 15.225			
Description	Compliance with the spectrum mask is tested with RBW set to 9kHz.			
Freq. of Emission (MHz)	Field Strength (μV/m) at 30m	Field Strength (dBμV/m) at 30m	Field Strength (dBμV/m) at 10m	Field Strength (dBμV/m) at 3m
1.705~13.110	30	29.5	48.58	69.5
13.110~13.410	106	40.5	59.58	80.5
13.410~13.553	334	50.5	69.58	90.5
13.553~13.567	15848	84.0	103.08	124.0
13.567~13.710	334	50.5	69.58	90.5
13.710~14.010	106	40.5	59.58	80.5
14.010~30.000	30	29.5	48.58	69.5

Test Procedure

1.The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2.Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3.The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4.For each suspected emission, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5.Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6.For emissions above 1GHz, use 1MHz RBW and 3MHz VBW for peak reading. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
7.When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.
8.If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not

have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9.For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10.In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High - Low scan is not required in this case.

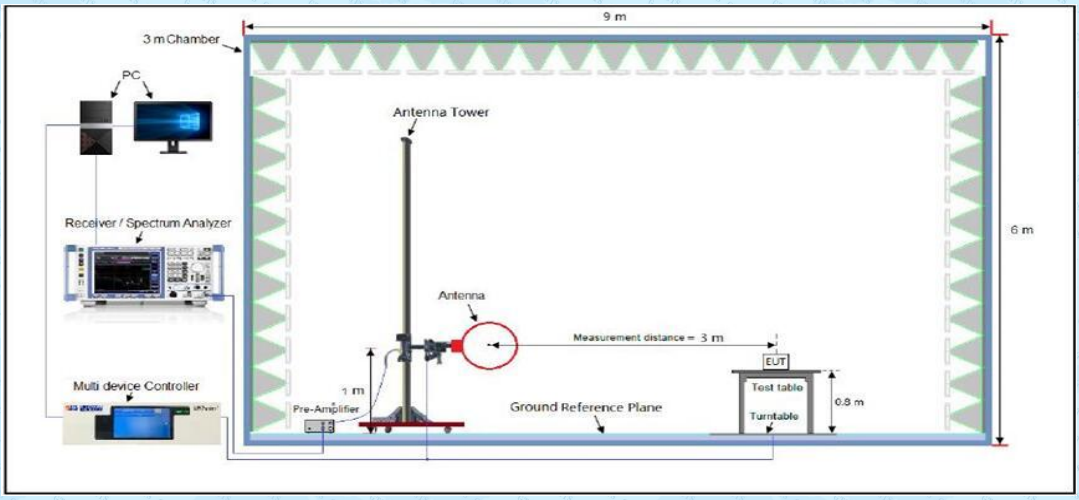
The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP
Start ~Stop Frequency	1GHz~26.5GHz 1MHz/3MHz for Peak, 1MHz/3MHz for Average

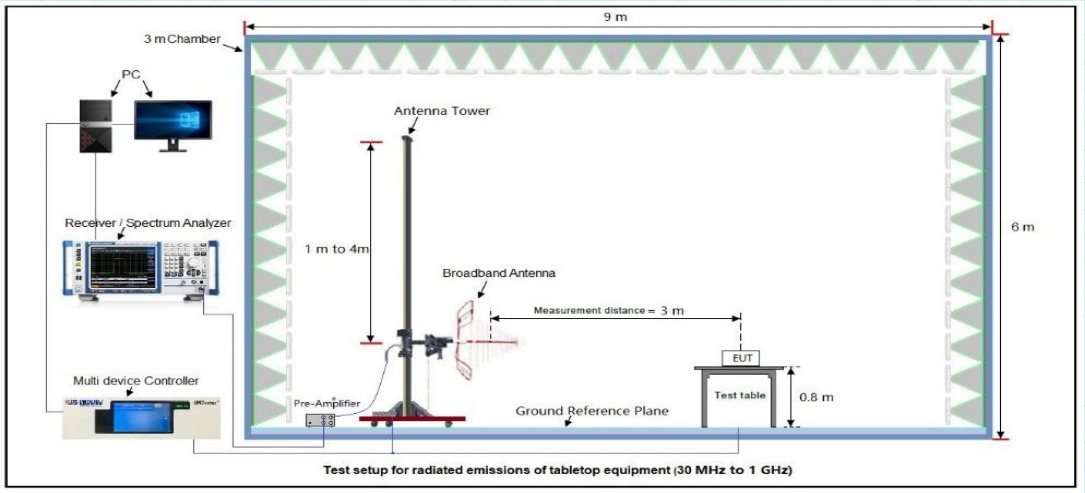
Receiver Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP

Test Setup(Block Diagram of Configuration)

RADIATED EMISSION TEST SETUP 9KHz-30MHz

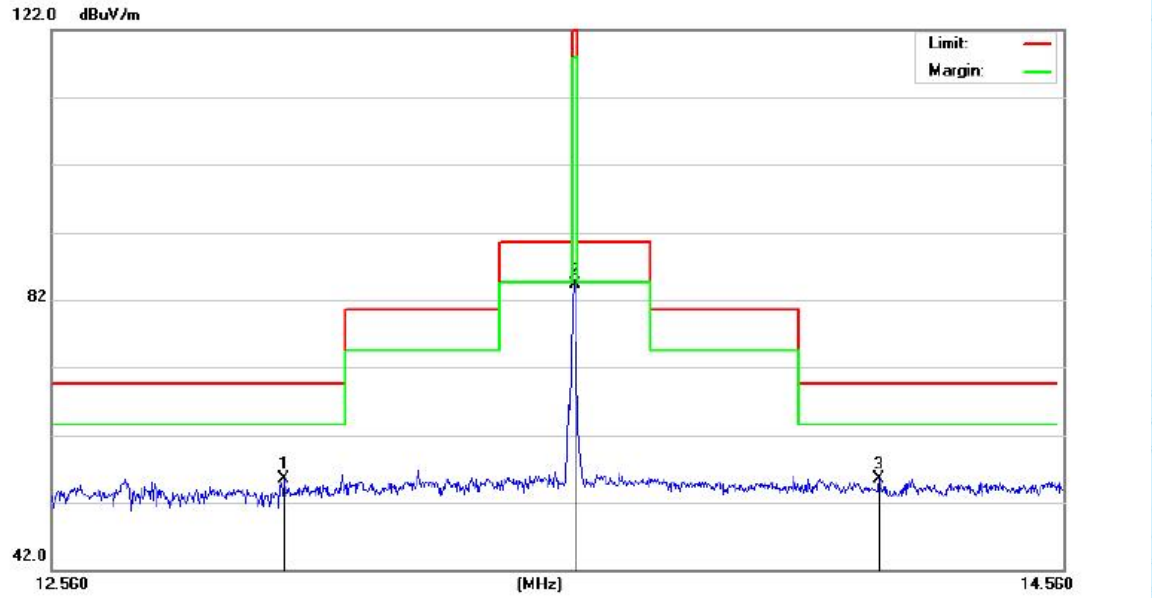


RADIATED EMISSION TEST SETUP 30MHz-1000MHz



Test Results

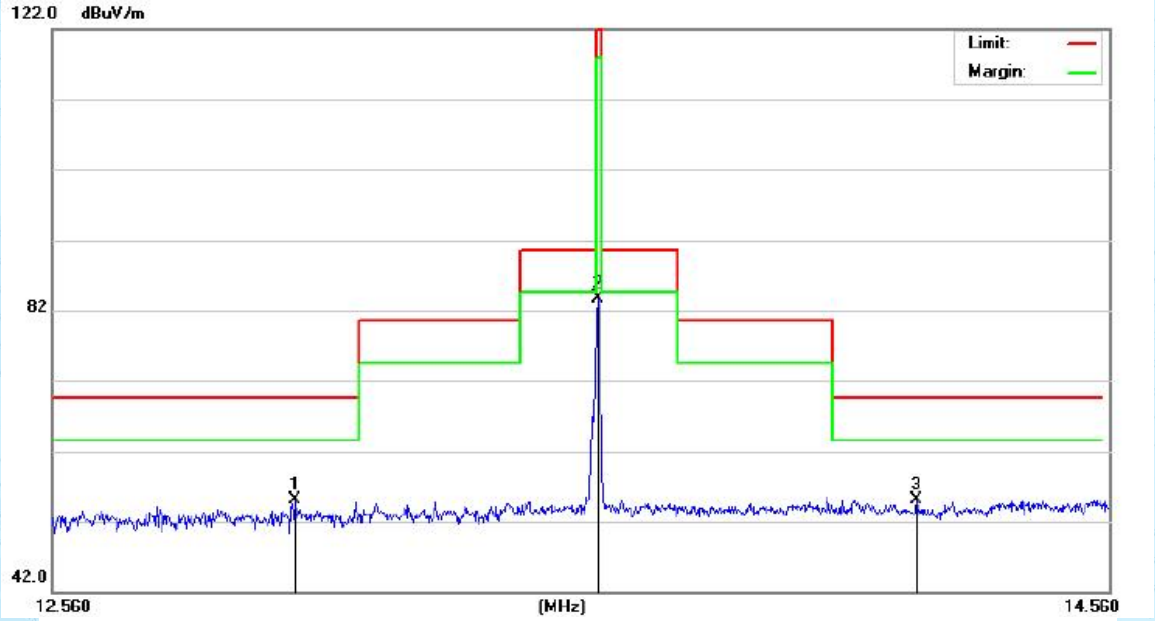
EUT	Smart Phone	**Model Name**	GQ5012
Temperature	25°C	**Relative Humidity**	55.4%
Pressure	101hPa	**Test Voltage**	Normal Voltage
Test Mode	Mode 1	**Antenna**	Face



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	12.9960	0.97	54.60	55.57	69.50	-13.93	peak
2		13.5600	29.70	54.64	84.34	124.0	-39.66	peak
3		14.1740	0.87	54.68	55.55	69.50	-13.95	peak

Results: Pass

EUT	Smart Phone	Model Name	GQ5012
Temperature	25°C	Relative Humidity	55.4%
Pressure	101hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Side



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	12.9960	0.47	54.60	55.07	69.50	-14.43	peak
2		13.5579	29.08	54.64	83.72	124.0	-40.28	peak
3		14.1739	0.37	54.68	55.05	69.50	-14.45	peak

Results: Pass

3.2 Radiated Emission

Limit

According to 15.35, on any frequency or frequencies below or equal to 1000 MHz, the limits Shown are based on measuring equipment employing a CISPR quasi-peak detector function and related measurement bandwidths, unless otherwise specified the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test.

The field strength of any emissions which appear outside of 13.110 ~14.010MHz band shall not exceed the general radiated emissions limits.

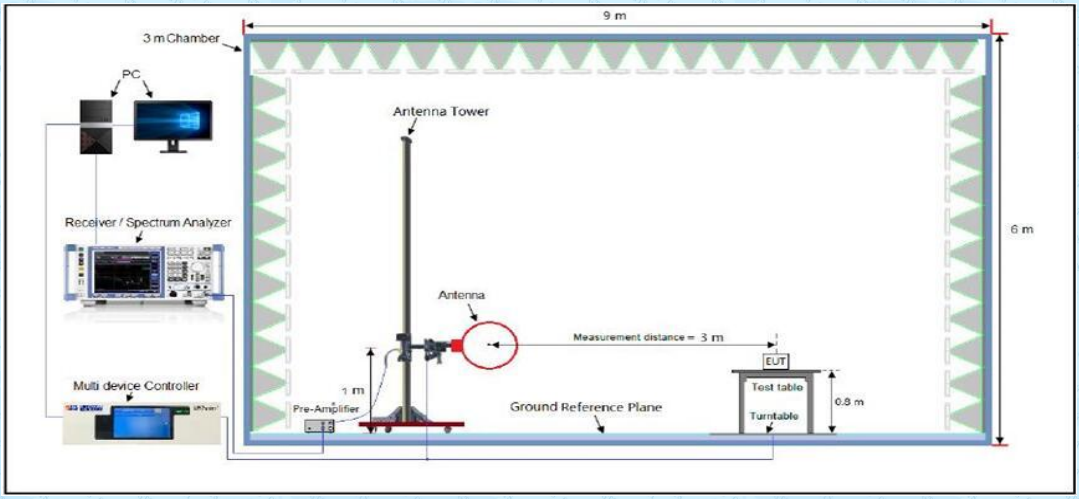
15.209 Limit in the below table has to be followed:

Frequency (MHz)	Distance Meters	Field Strengths Limit	
		μV/m	dB(μV)/m
0.009 ~ 0.490	300	2400/F(kHz)	---
0.490 ~ 1.705	30	24000/F(kHz)	---
1.705 ~ 30	30	30	---
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)	
Remark: (1) Emission level dBμV = 20 log Emission level μV/m (2) The smaller limit shall apply at the cross point between two frequency bands. (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.			

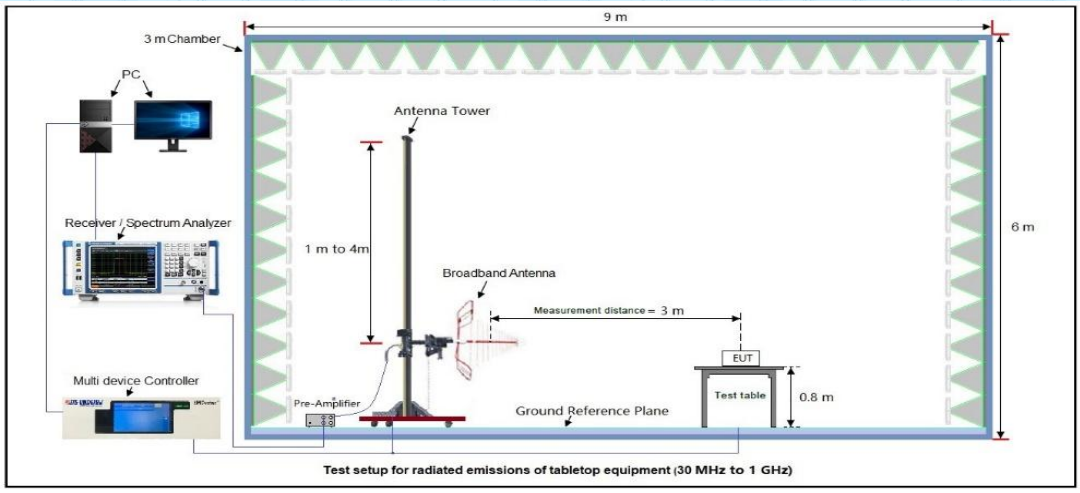
Note: All modes were tested for restricted band radiated emission, the test records reported below are the worst result compared to other modes.

Test Setup:

RADIATED EMISSION TEST SETUP 9KHz-30MHz



RADIATED EMISSION TEST SETUP 30MHz-1000MHz



Test setup for radiated emissions of tabletop equipment (30 MHz to 1 GHz)

Test Procedure

1.The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2.Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3.The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4.For each suspected emission, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5.Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6.For emissions above 1GHz, use 1MHz RBW and 3MHz VBW for peak reading. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
7.When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.
8.If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9.For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10.In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High - Low scan is not required in this case.

The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP
Start ~Stop Frequency	1GHz~26.5GHz 1MHz/3MHz for Peak, 1MHz/3MHz for Average

Receiver Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP

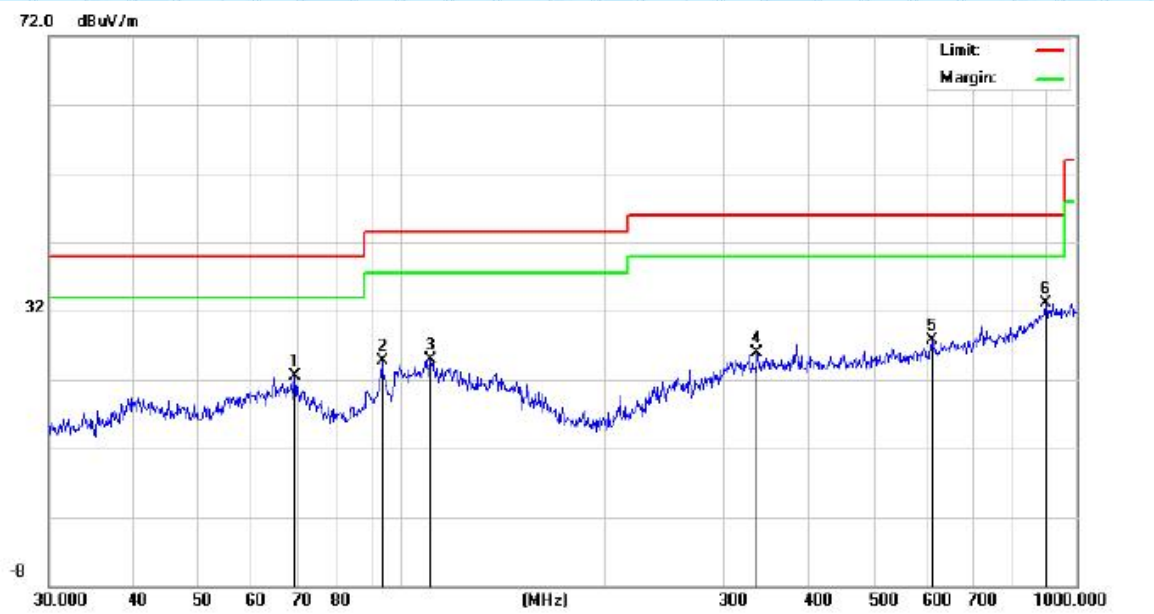
Test Results

BELOW 30MHz

The amplitude of spurious emissions from 9kHzto30MHz which areattenuated more than 20 dB below the permissible value need not be reported.

RADIATED EMISSION FROM 30MHz ~1000MHz

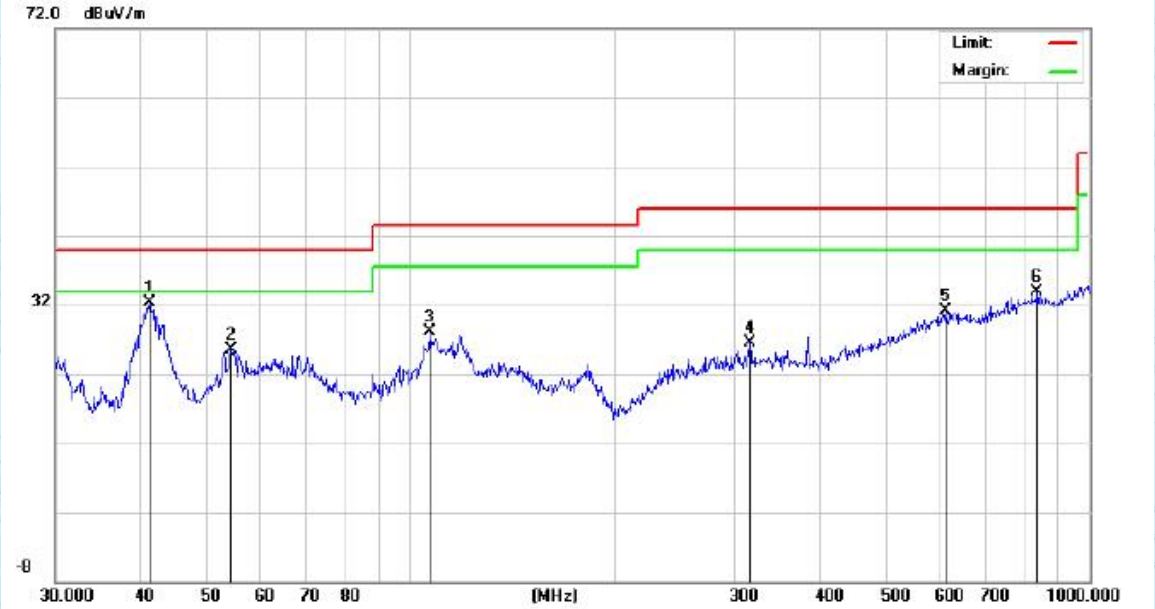
EUT	Smart Phone	**Model Name**	GQ5012
Temperature	25°C	**Relative Humidity**	55.4%
Pressure	101hPa	**Test Voltage**	Normal Voltage
Test Mode	Mode 1	**Antenna**	Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		69.3568	5.36	17.07	22.43	40.00	-17.57	peak
2		93.4402	9.82	14.87	24.69	43.50	-18.81	peak
3		110.1816	8.63	16.35	24.98	43.50	-18.52	peak
4		336.0352	5.29	20.53	25.82	46.00	-20.18	peak
5		609.9217	5.68	22.07	27.75	46.00	-18.25	peak
6	*	900.1474	5.14	27.87	33.01	46.00	-12.99	peak

Result: PASS

EUT	Smart Phone	Model Name	GQ5012
Temperature	25°C	Relative Humidity	55.4%
Pressure	101hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	41.2765	17.41	14.87	32.28	40.00	-7.72	peak
2		54.4516	10.59	14.93	25.52	40.00	-14.48	peak
3		106.7587	13.37	14.69	28.06	43.50	-15.44	peak
4		315.4808	7.09	19.39	26.48	46.00	-19.52	peak
5		612.0642	6.05	24.97	31.02	46.00	-14.98	peak
6		836.2443	6.47	27.49	33.96	46.00	-12.04	peak

Result: PASS

Note: 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.

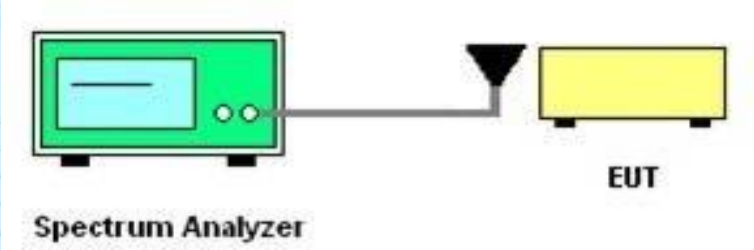
2. All test modes had been pre-tested. The mode 1 is the worst case and recorded in the report.

3.3 20 dB Bandwidth

Limit

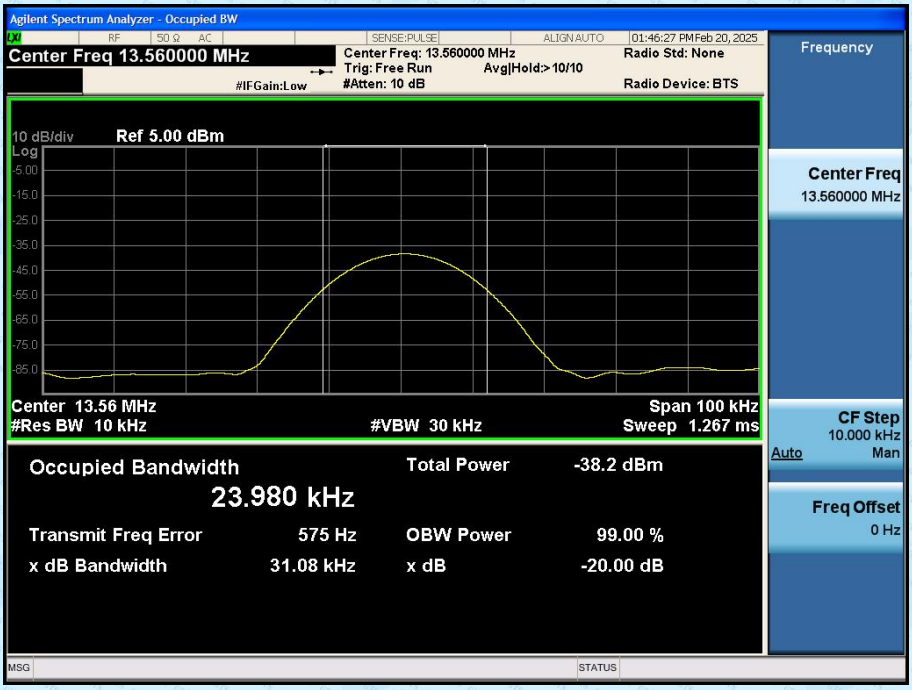
Intentional radiators must be designed to ensure that the 20dB and 99% emission bandwidth in the specific band 13.553~13.567MHz.

Test Setup:



Test Results

Test Data of Occupied Bandwidth and -20dB Bandwidth					
TestMode	TestChannel	99% Occupied Bandwidth(MHz)	-20dBBandwidth(MHz)	Limits (MHz	Pass or Fail
ASK	13.56	0.02398	0.03108	N/A	Pass

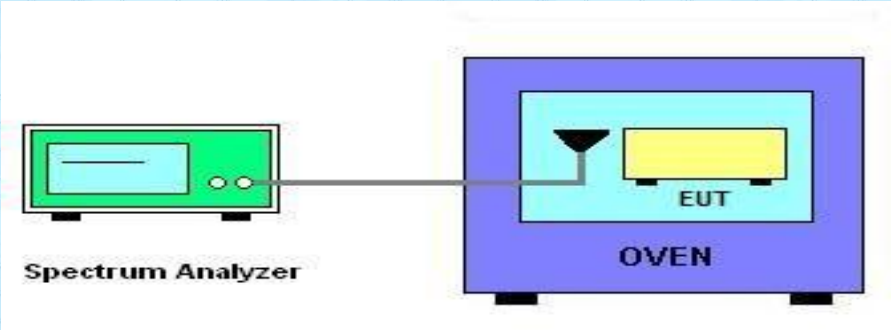


3.4 Ferquency Stability

Limit

The frequency tolerance of the carrier signal shall be maintained within +/- 0.01% (100ppm) of the operating frequency over a temperature variation of -30 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. For battery operated equipment, the equipment tests shall be performed using a new battery.

Test Setup



Test Procedure

1.The spectrum analyzer connected via a receive antenna placed near the EUT.

2.EUT have transmitted signal and fixed channelize.

3.Set the spectrum analyzer span to view the entire emissions bandwidth.

4.Set RBW = 1 kHz, VBW = 3 kHz with peak detector and maxhold settings.

5.The fc is declaring of channel frequency. Then the frequency error formula is (fc-f)/fc × 106 ppm and the limit is less than ±100ppm.

6.Extreme temperature rule is -10°C~40°C.

Test Result and Limit

Operating frequency: 13.56MHz

Voltage vs. Frequency Stability (Test Temperature: 20℃)

Voltage(V)	Measurement Frequency (MHz)	Max. Deviation (ppm)	Limit(ppm)	Conclusion
3.87	13.56046	+41	±100	PASS
3.29	13.56055			
4.45	13.56052			

Temperature vs. Frequency Stability (Test Voltage: 3.87V)

Temperature	Measurement Frequency (MHz)	Max. Deviation (ppm)	Limit(ppm)	Conclusion
-30℃	13.56063	+50	±100	PASS
-20℃	13.56060			
-10℃	13.56059			
0℃	13.56055			
10℃	13.56060			
20℃	13.56061			
30℃	13.56063			
40℃	13.56068			
50℃	13.56064			

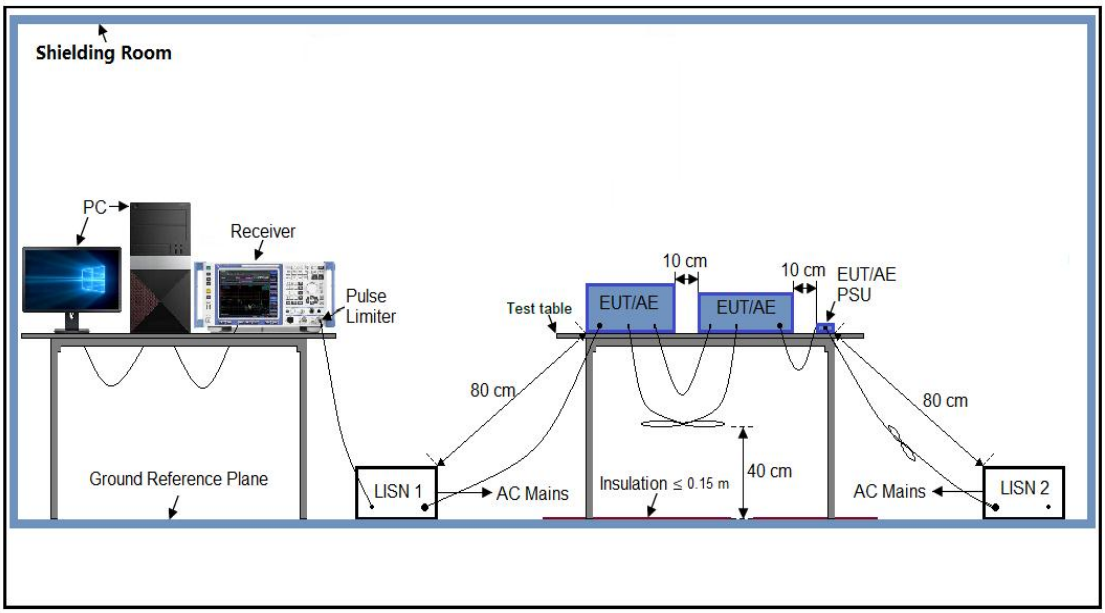
3.5AC Power LINE Conducted Emission Test

Limit

Frequency	Maximum RF Line Voltage	
	Q.P. (dBμV)	Average (dBμV)
150kHz~500kHz	66-56	56-46
500kHz~5MHz	56	46
5MHz~30MHz	60	50

Note:
1. The lower limit shall apply at the transition frequency.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

Test Setup:

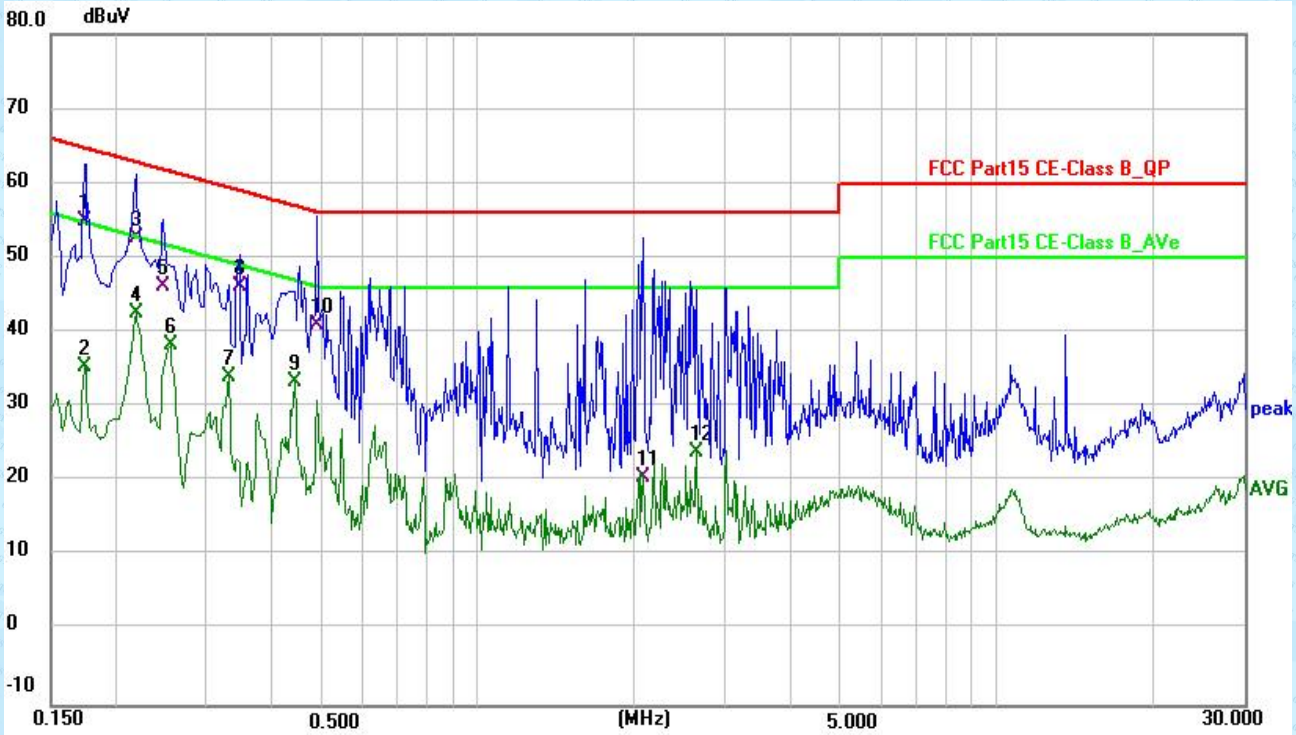


Test Procedure

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When 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 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
2. Support equipment, if needed, was placed as per ANSI C63.10.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
4. All support equipment received AC120V/60Hz power from a LISN, if any.
5. The EUT received DC 5V power from adapter which received AC120V/60Hz power from a LISN.
6. The 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 50ohm 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.
9. The test mode(s) were scanned during the preliminary test.

Test Result

AC LINE CONDUCTED EMISSION TEST			
Test Mode	Mode 2	LISN line	Line of fire



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1740	35.51	19.43	54.94	64.77	-9.83	QP
2	0.1740	16.08	19.43	35.51	54.77	-19.26	AVG
3	0.2180	33.25	19.43	52.68	62.89	-10.21	QP
4	0.2180	23.10	19.43	42.53	52.89	-10.36	AVG
5	0.2460	26.68	19.43	46.11	61.89	-15.78	QP
6	0.2540	18.91	19.44	38.35	51.63	-13.28	AVG
7	0.3300	14.66	19.45	34.11	49.45	-15.34	AVG
8	0.3460	26.65	19.46	46.11	59.06	-12.95	QP
9	0.4420	14.00	19.48	33.48	47.02	-13.54	AVG
10	0.4900	21.64	19.47	41.11	56.17	-15.06	QP
11	2.0780	1.00	19.60	20.60	56.00	-35.40	QP
12	2.6380	4.29	19.63	23.92	46.00	-22.08	AVG

Remark:

1.When the PEAK value conforms to the limit, the QP value also conforms to the limit

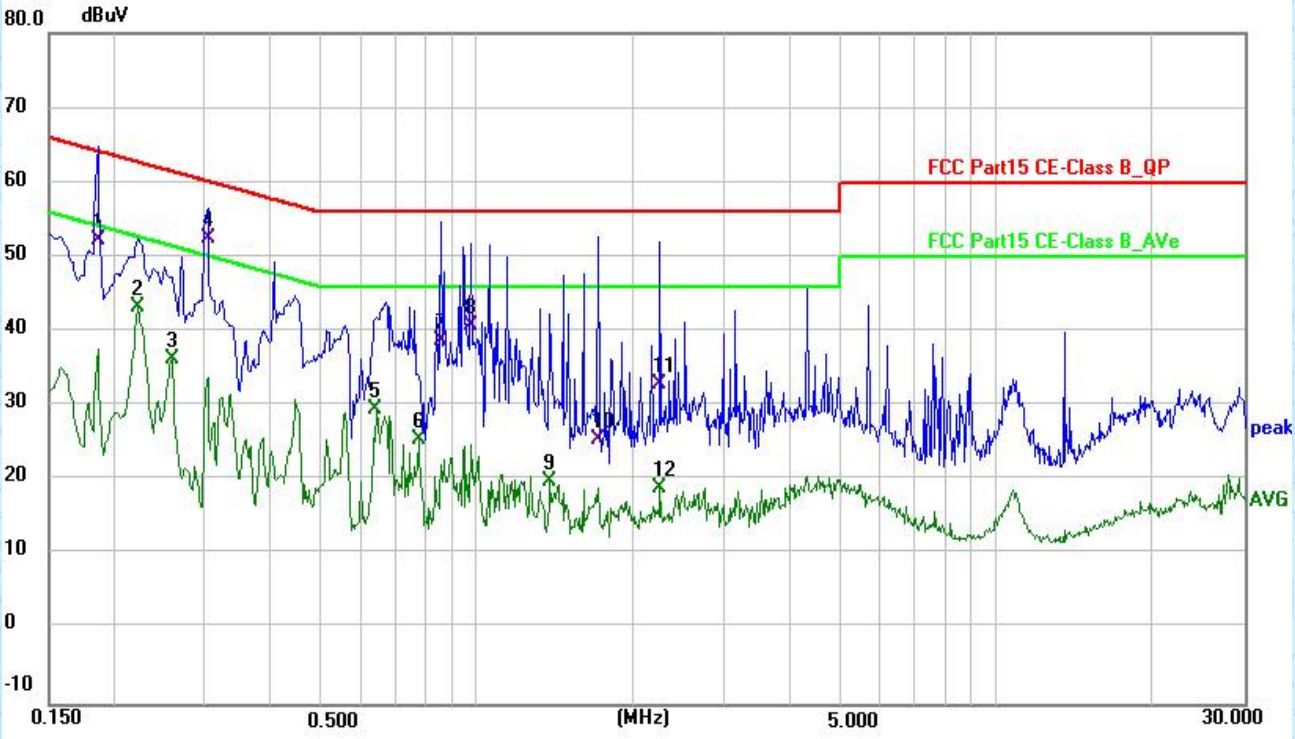
2.The emission level of the six frequencies is marked as the highest level

3.Margin value = Emission level – Limit value

4.Emission Level = Correction Factor + Reading Value

5.CorrectFactor=Cable Loss +AMN Factor

AC LINE CONDUCTED EMISSION TEST			
Test Mode	Mode 2	LISN line	Neutral



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1860	32.95	19.42	52.37	64.21	-11.84	QP
2	0.2220	23.87	19.42	43.29	52.74	-9.45	AVG
3	0.2580	16.97	19.43	36.40	51.50	-15.10	AVG
4	0.3020	33.09	19.43	52.52	60.19	-7.67	QP
5	0.6419	10.04	19.51	29.55	46.00	-16.45	AVG
6	0.7740	6.04	19.50	25.54	46.00	-20.46	AVG
7	0.8540	19.26	19.50	38.76	56.00	-17.24	QP
8	0.9780	21.22	19.51	40.73	56.00	-15.27	QP
9	1.3820	0.49	19.55	20.04	46.00	-25.96	AVG
10	1.7140	6.09	19.56	25.65	56.00	-30.35	QP
11	2.2580	13.40	19.60	33.00	56.00	-23.00	QP
12	2.2580	-0.45	19.60	19.15	46.00	-26.85	AVG

Remark:
1.When the PEAK value conforms to the limit, the QP value also conforms to the limit
2.The emission level of the six frequencies is marked as the highest level
3.Margin value = Emission level – Limit value
4.Emission Level = Correction Factor + Reading Value
5.CorrectFactor=Cable Loss +AMN Factor

4 Test Setup Photos of the EUT

Refer to Appendix F Setup photos of the EUT

5External and Internal Photos of the EUT

Refer to Appendix G,H photos of the EUT

※※※※※END OF THE REPORT※※※※※