

# TEST REPORT

**Application No.:** GZCR2412001417HS  
**Applicant:** FKA Distributing Co., LLC  
**Address of Applicant:** 3000 N. Pontiac Trail, Commerce Township, Michigan, 48390, United States  
**Manufacturer:** Shenzhen Yolanda Technology Co., Ltd  
**Address of Manufacturer:** Room 201, jinfulai Building, No.49-1, Dabao Road, Dalang Area, Xinan Street, Baoan, Shenzhen, China  
**Factory:** Shenzhen Yolanda Technology Co., Ltd  
**Address of Factory:** Guangyao industrial plant area - factory building C, No.18, No.4 Industrial Zone, Zhulongtian Road, Shuitian community Shiyan street, Baoan, Shenzhen, China  
**Product Name:** Body Composition Scales  
**Model No.:** SCL-BBC200, SCL-BBC200-BK, SCL-BBC200-WT, SCL-BBC250, SCL-BBC250-BK, SCL-BBC250-WT, SCL-BBC350, SCL-BBC350-BK, SCL-BBC350-WT, SCL-XBC200, SCL-XBC200-BK, SCL-XBC200-WT, SCL-BBC250BK-CA ♣  
♣ Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.  
**Standard(s) :** 47 CFR Part 15, Subpart C 15.249  
**Date of Receipt:** 2024-12-04  
**Date of Test:** 2025-01-17 to 2025-01-20  
**Date of Issue:** 2025-01-21

<b>Test Result:</b>	<b>Pass*</b>
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\* In the configuration tested, the EUT complied with the standards specified above.

*Ricky Liu*

Ricky Liu  
Manager



SGS-CSTC Standards Technical Services Co., Ltd.  
Guangzhou Branch EMC/RF EEC Laboratory

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Revision Record			
Version	Report No.	Date	Remark
01	GZCR241200141703	2025-01-21	Original

Authorized for issue by:			
		Pank Feng	
		Pank Feng/Project Engineer	
		Vico Cui	
		Vico Cui/Reviewer	



## 2 Test Summary

Radio Spectrum Technical Requirement				
Item	Standard	Method	Requirement	Result
Antenna Requirement	47 CFR Part 15, Subpart C 15.249	N/A	47 CFR Part 15, Subpart C 15.203	Pass

Radio Spectrum Matter Part				
Item	Standard	Method	Requirement	Result
Field Strength of the Fundamental Signal (15.249(a))	47 CFR Part 15, Subpart C 15.249	ANSI C63.10 (2013) Section 6.5&6.6	47 CFR Part 15, Subpart C 15.249(a)	Pass
Restricted Band Around Fundamental Frequency		ANSI C63.10 (2013) Section 6.10.5	47 CFR Part 15, Subpart C 15.205 & 15.249(d) & 15.209	Pass
Radiated Emissions Below 1GHz		ANSI C63.10 (2013) Section 6.4&6.5	47 CFR Part 15, Subpart C 15.209 & 15.249 (a),(d)	Pass
Radiated Emissions Above 1GHz		ANSI C63.10 (2013) Section 6.6	47 CFR Part 15, Subpart C 15.209 & 15.249 (a),(d)	Pass
20dB Bandwidth		ANSI C63.10 (2013) Section 6.9	47 CFR Part 15, Subpart C 15.215	Pass

### Note:

E.U.T./EUT means Equipment Under Test.

Pass means the test result passed the test standard requirement, please find the detailed decision rule in the report relative section.

### ♣ Declaration of EUT Family Grouping:

According to the declaration from the applicant, the difference are as below.

SCL-BBC200, SCL-BBC200-BK, SCL-BBC200-WT	SCL-BBC250 SCL-BBC250-BK SCL-BBC250-WT SCL-BBC350 SCL-BBC350-BK SCL-BBC350-WT SCL-BBC250BK-CA	SCL-XBC200, SCL-XBC200-BK, SCL-XBC200-WT
the electrical circuit design, layout, components used and internal wiring were identical for all models, with only difference on model name and appearance.	the electrical circuit design, layout, components used and internal wiring were identical for all models, with only difference on model name and appearance.	the electrical circuit design, layout, components used and internal wiring were identical for all models, with only difference on model name and appearance.

The 5.8G Radar of all models is same.

Therefore model **SCL-BBC250-BK** was performed a full test, **SCL-BBC200-BK** and **SCL-XBC200-BK** were performed Radiated Spurious Emissions Below 1GHz in this report.



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## 4 General Information

### 4.1 Details of E.U.T.

Power supply:	Battery operation:
	M1(SCL-BBC250-BK): DC 6V=1.5V x 4 size AAA Battery.
	M2(SCL-BBC200-BK): DC 6V=1.5V x 4 size AAA Battery.
	M3(SCL-XBC200-BK): DC 4.5V=1.5 x 3 size AAA Battery.
Cable:	None
Test Voltage:	The same as power supply
Operation Frequency:	5725MHz to 5875MHz
Modulation Type:	GFSK
Antenna Type:	PCB Antenna

Remark: The information in this section is provided by the applicant or manufacturer, SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.

### 4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
--	--	--	--
The EUT has been tested as an independent unit.			

### 4.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
Field Strength of the Fundamental Signal (15.249(a))	$\pm 5.14\text{dB}$ (30MHz-1GHz); $\pm 4.88\text{dB}$ (1GHz-6GHz)
Restricted Band Around Fundamental Frequency	$\pm 5.14\text{dB}$ (3m); $\pm 4.90\text{dB}$ (10m); $\pm 4.88\text{dB}$ (1GHz-6GHz); $\pm 5.06\text{dB}$ (6GHz-18GHz); $\pm 5.30\text{dB}$ (18GHz-40GHz)
Radiated Emissions Below 1GHz	$\pm 3.08\text{dB}$ (9kHz to 150kHz); $\pm 3.19\text{dB}$ (150kHz to 30MHz); $\pm 5.14\text{dB}$ (30MHz-1GHz) (3m); $\pm 4.90\text{dB}$ (30MHz-1GHz) (10m)
Radiated Emissions Above 1GHz	$\pm 4.88\text{dB}$ (1GHz-6GHz); $\pm 5.06\text{dB}$ (6GHz-18GHz); $\pm 5.30\text{dB}$ (18GHz-40GHz)
20dB Bandwidth	$\pm 0.274\%$
<p>Remark:</p> <p>The <math>U_{\text{lab}}</math> (lab Uncertainty) is less than <math>U_{\text{CISPR}}</math> (CISPR Uncertainty) or <math>U_{\text{ETSI}}</math> (ETSI Uncertainty).</p> <p>Emission decision rule:</p> <ul style="list-style-type: none"> <li>Compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit, marked as Pass in the report.</li> <li>Non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit, marked as Fail in the report.</li> </ul>	



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## 4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,  
No.198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou,  
Guangdong, China 510663

Tel: +86 20 82155555

No tests were sub-contracted.

## 4.5 Test Facility

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

### ● ACMA

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian/New Zealand Regulatory Compliance Mark (RCM).

### ● SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

### ● FCC Recognized Accredited Test Firm(Registration No.: 486818)

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: CN5016, Test Firm Registration Number: 486818.

### ● ISED (Registration No.: 4620B, CAB identifier: CN0052)

SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Innovation Science and Economic Development Canada for Wireless Device Testing laboratories to test to Canadian radio equipment requirements. Registration No. 4620B, CAB identifier: CN0052.

### ● VCCI (Registration No.: R-12460, C-12584, G-20107 and T-11179)

The 10m Semi-anechoic chamber, 966 Anechoic Chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-12460, C-12584, G-20107 and T-11179 respectively.

### ● CBTL (Lab Code: TL129)

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2017, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.

## 4.6 Deviation from Standards

None

## 4.7 Abnormalities from Standard Conditions

None



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## 5 Equipment List

Field Strength of the Fundamental Signal (15.249(a))					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
1GHz-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2024-10-14	2025-10-13
EMI Test Receiver (10Hz-26.5GHz)	Rohde & Schwarz	ESIB26	EMC0522	2024-09-02	2025-09-01
Chamber cable (Above 1GHz)	Scoflex	KMKM-8.0m	EMC0545	2024-08-19	2026-08-18
Horn Antenna (1GHz-18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	EMC2026	2022-09-23	2025-09-22
EXA Signal Analyzer (10Hz-44GHz)	Keysight	N9010A	EMC2138	2024-08-19	2025-08-18
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2023-12-20	2026-12-19
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A

Restricted Band Around Fundamental Frequency					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
1GHz-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2024-10-14	2025-10-13
EMI Test Receiver (10Hz-26.5GHz)	Rohde & Schwarz	ESIB26	EMC0522	2024-09-02	2025-09-01
Chamber cable (Above 1GHz)	Scoflex	KMKM-8.0m	EMC0545	2024-08-19	2026-08-18
Horn Antenna (1GHz-18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	EMC2026	2022-09-23	2025-09-22
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2023-12-20	2026-12-19
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A

Radiated Spurious Emissions Below 1GHz					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
10m Semi-Anechoic Chamber	ETS	N/A	EMC0530	2022-10-16	2025-10-15
Coaxial cable	Mirco-COAX UTIFLEX	311A	EMC0540	2024-08-19	2026-08-18
Amplifier (9kHz-1.3GHz)	HP	8447F	EMC2065	2024-12-04	2025-12-03
Active Loop Antenna-RED	ETS-Lindgren	6502	EMC2190	2024-04-08	2026-04-07
EMI Test Receiver (9kHz-7GHz)	Rohde & Schwarz	ESR7	EMC2220	2024-12-04	2025-12-03
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A
Trilog Broadband Antenna (25MHz-2GHz)	Schwarzbeck Mess-Elektronik	VULB 9168	EMC2174	2022-06-19	2025-06-18



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Radiated Emissions Above 1GHz					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
1GHz-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2024-10-14	2025-10-13
EMI Test Receiver (10Hz-26.5GHz)	Rohde & Schwarz	ESIB26	EMC0522	2024-09-02	2025-09-01
Chamber cable (Above 1GHz)	Scoflex	KMKM-8.0m	EMC0545	2024-08-19	2026-08-18
Horn Antenna (1GHz-18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	EMC2026	2022-09-23	2025-09-22
Horn Antenna (14-40GHz)	SCHWARZBECK	BBHA 9170	EMC2041	2023-06-18	2026-06-17
EXA Signal Analyzer (10Hz-44GHz)	Keysight	N9010A	EMC2138	2024-08-19	2025-08-18
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2023-12-20	2026-12-19
Notch Filter (5150-5880)	Mico-Tronics	BRM50716	EMC2168	2024-07-17	2025-07-16
Microwave Broadband Preamplifier (18-40GHz)	SCHWARZBECK	BBV 9721	EMC2172	2024-08-19	2025-08-18
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A

RF Conducted Test					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
MI CABLE	SGS-EMC	0.8M	EMC2137	2023-11-02	2025-11-01
MXA Signal Analyzer (10Hz-8.4GHz)	Agilent Technologies	N9020A	SEM004-10	2024-12-03	2025-12-02

General used equipment					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
DMM	Fluke	73	EMC0006	2024-06-13	2025-06-12



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## 6 Radio Spectrum Technical Requirement

### 6.1 Antenna Requirement

#### 6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203

#### 6.1.2 Conclusion

15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement.

Antenna location: Refer to Internal photos

## 7 Radio Spectrum Matter Test Results

### 7.1 Field Strength of the Fundamental Signal (15.249(a))

Test Requirement 47 CFR Part 15, Subpart C 15.249(a)

Test Method: ANSI C63.10 (2013) Section 6.5&6.6

Limit:

Test Distance: 3m

Fundamental frequency (MHz)	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902-928	50	500
2400-2483.5	50	500
5725-5875	50	500
24000-24250	250	2500

Remark: The frequencies above 1000MHz are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

For fundamental frequency in "902-928MHz", the field strength of fundamental is based on Quasi-Peak.

#### 7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 20.8 °C

Humidity: 38.1 % RH

Atmospheric Pressure: 1020 mbar

#### 7.1.2 Test Mode Description

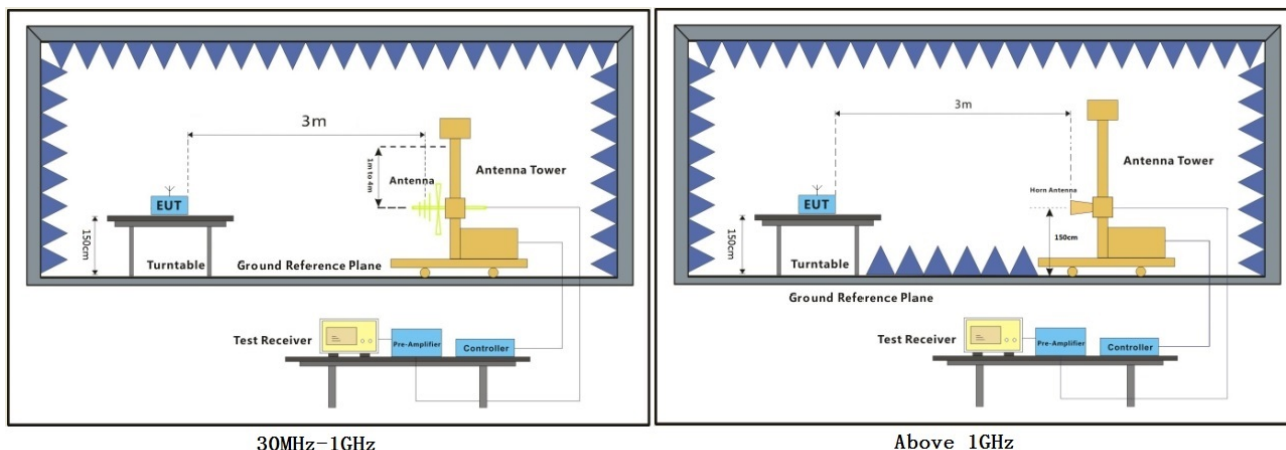
Pre-scan / Mode Description

Final test Code

Final test 04 TX mode\_Keep the EUT in transmitting with modulation mode.



### 7.1.3 Test Setup Diagram



### 7.1.4 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
  - b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
  - c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
  - d. The antenna height is varied from one meter to four meters 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.
  - e. 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 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
  - f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
  - g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
  - h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
  - i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
  - j. Repeat above procedures until all frequencies measured was complete.
- Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor



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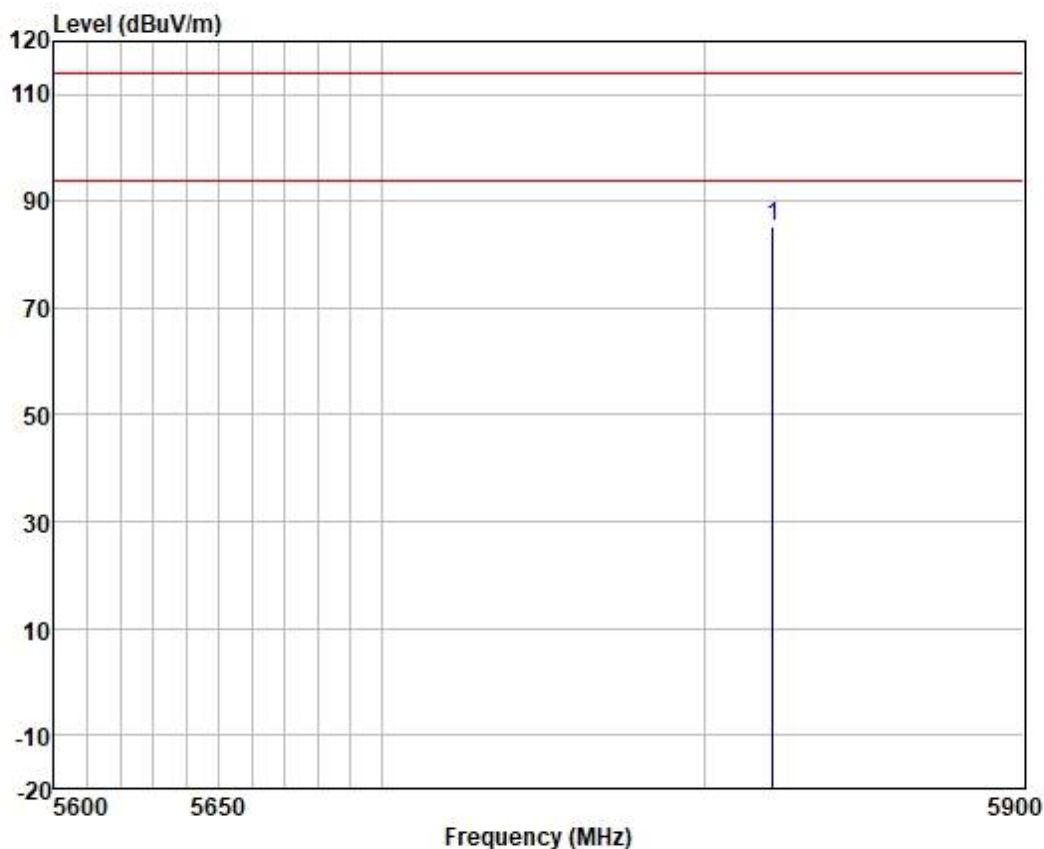
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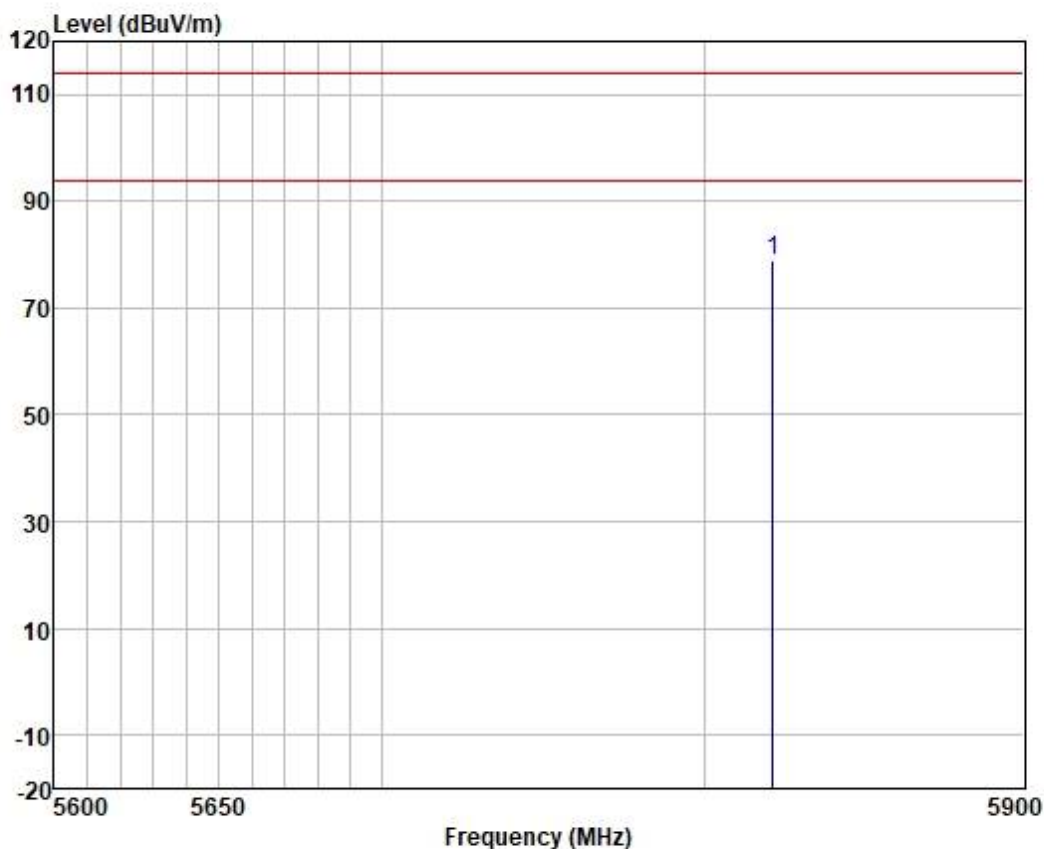
Test Mode: 04; Polarity: Vertical



	ReadAntenna	Cable	Preamp		Limit	Over		
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	5821.095	84.35	32.67	5.35	37.12	85.25	114.00	-28.75 VERTICAL
								Peak



Test Mode: 04; Polarity: Horizontal



	ReadAntenna	Cable	Preamp		Limit	Over		
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	Remark
1	5821.095	78.20	32.67	5.35	37.12	79.10	114.00	-34.90 HORIZONTAL Peak



### 7.2 Restricted Band Around Fundamental Frequency

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.249(d) & 15.209

Test Method: ANSI C63.10 (2013) Section 6.10.5

Test Distance: 3m

Limit:

Frequency	Limit (dBuV/m @3m)	Remark
30MHz-88MHz	40.0	Quasi-peak Value
88MHz-216MHz	43.5	Quasi-peak Value
216MHz-960MHz	46.0	Quasi-peak Value
960MHz-1GHz	54.0	Quasi-peak Value
Above 1GHz	54.0	Average Value
Above 1GHz	74.0	Peak Value

Emission radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

#### 7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 20.8 °C

Humidity: 38.1 % RH

Atmospheric Pressure: 1020 mbar

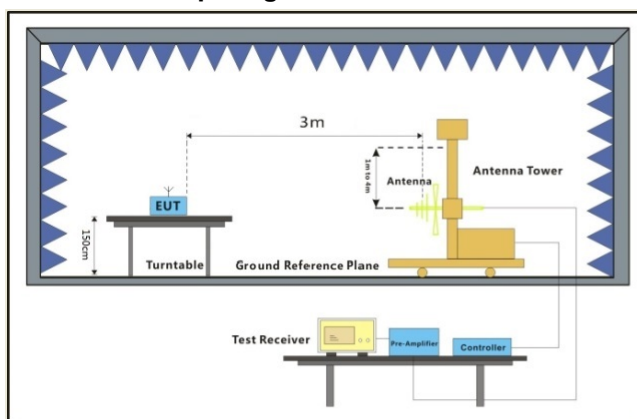
#### 7.2.2 Test Mode Description

Pre-scan / Mode Description

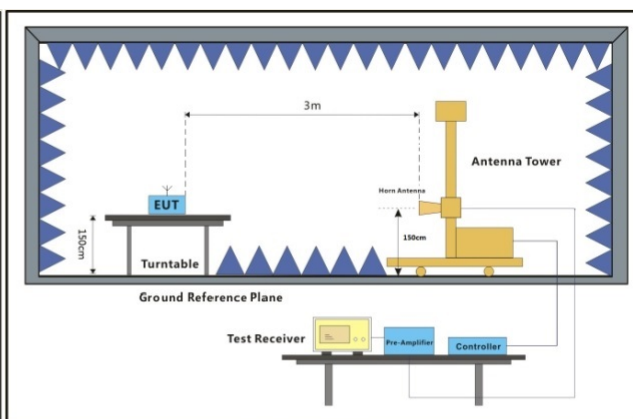
Final test Code

Final test 04 TX mode\_Keep the EUT in transmitting with modulation mode.

#### 7.2.3 Test Setup Diagram



30MHz-1GHz



Above 1GHz



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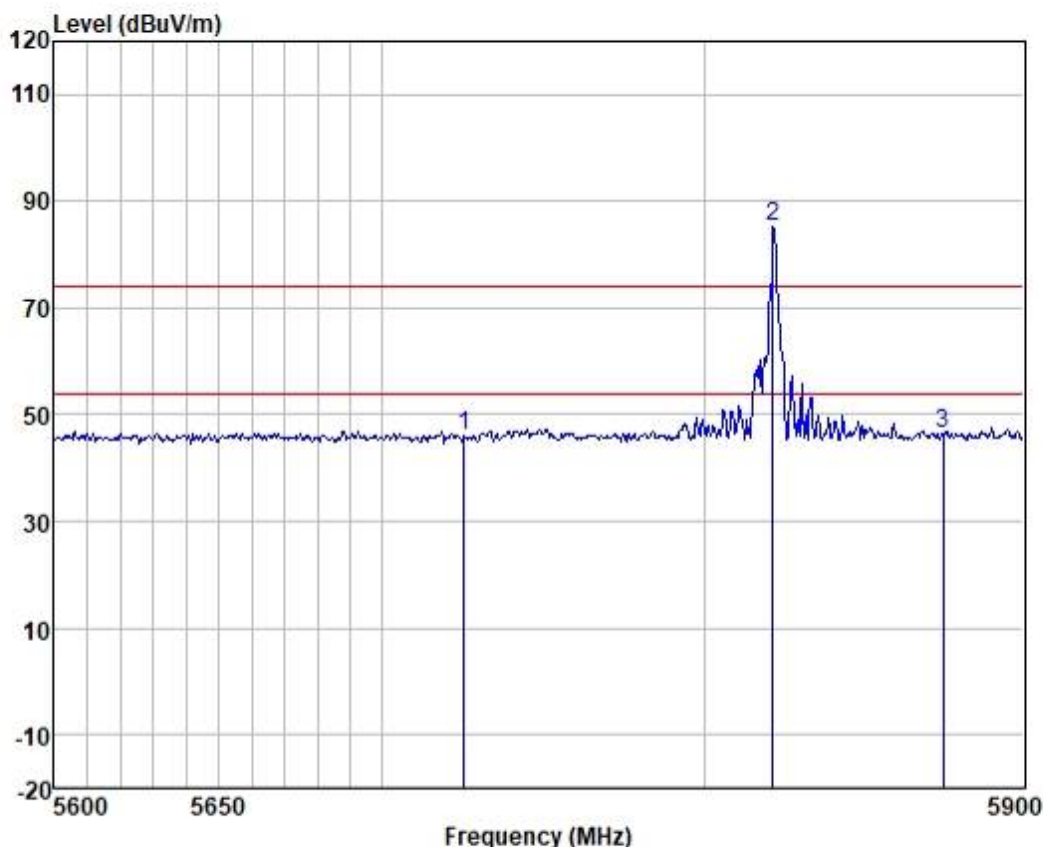
## 7.2.4 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
  - b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
  - c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
  - d. The antenna height is varied from one meter to four meters 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.
  - e. 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 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
  - f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
  - g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
  - h. Test the EUT in the lowest channel, the Highest channel.
  - i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
  - j. Repeat above procedures until all frequencies measured was complete.
- Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor





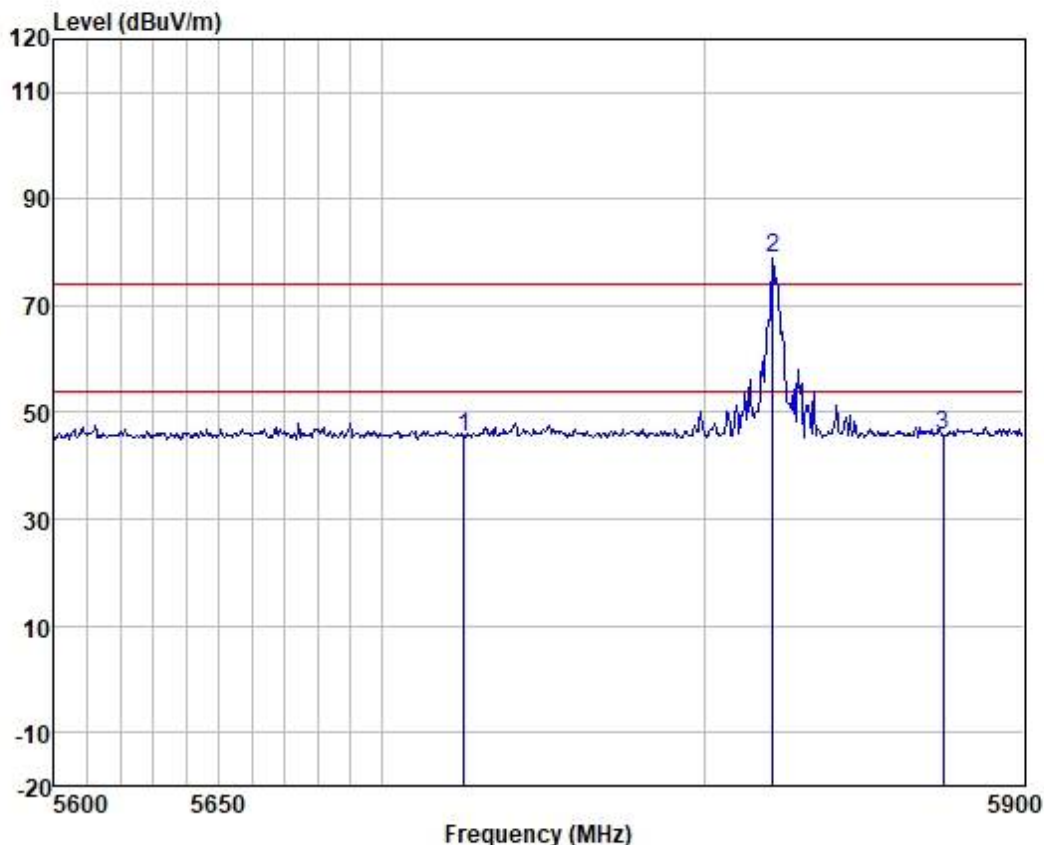
Test Mode: 04; Polarity: Vertical



	Freq	ReadAntenna	Cable	Preamp	Limit	Over			
	MHz	Level	Loss	Factor	Line	Limit	Pol/Phase	Remark	
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	5725.000	45.23	32.65	5.29	37.13	46.04	74.00	-27.96	VERTICAL peak
2 *	5821.095	84.35	32.67	5.35	37.12	85.25	74.00	11.25	VERTICAL Peak
3	5875.000	45.57	32.68	5.39	37.11	46.53	74.00	-27.47	VERTICAL peak



Test Mode: 04; Polarity: Horizontal



	ReadAntenna	Cable	Preamp		Limit	Over			
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1 5725.000	44.58	32.65	5.29	37.13	45.39	74.00	-28.61	HORIZONTAL	peak
2 * 5821.095	78.20	32.67	5.35	37.12	79.10	74.00	5.10	HORIZONTAL	Peak
3 5875.000	44.82	32.68	5.39	37.11	45.78	74.00	-28.22	HORIZONTAL	peak



### 7.3 Radiated Emissions Below 1GHz

Test Requirement 47 CFR Part 15, Subpart C 15.209 & 15.249 (a),(d)

Test Method: ANSI C63.10 (2013) Section 6.4&6.5

Limit:

Test Distance: 10 m above 30MHz, 3 m below 30MHz

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
960-1000	500	3

#### 7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 23.0 °C

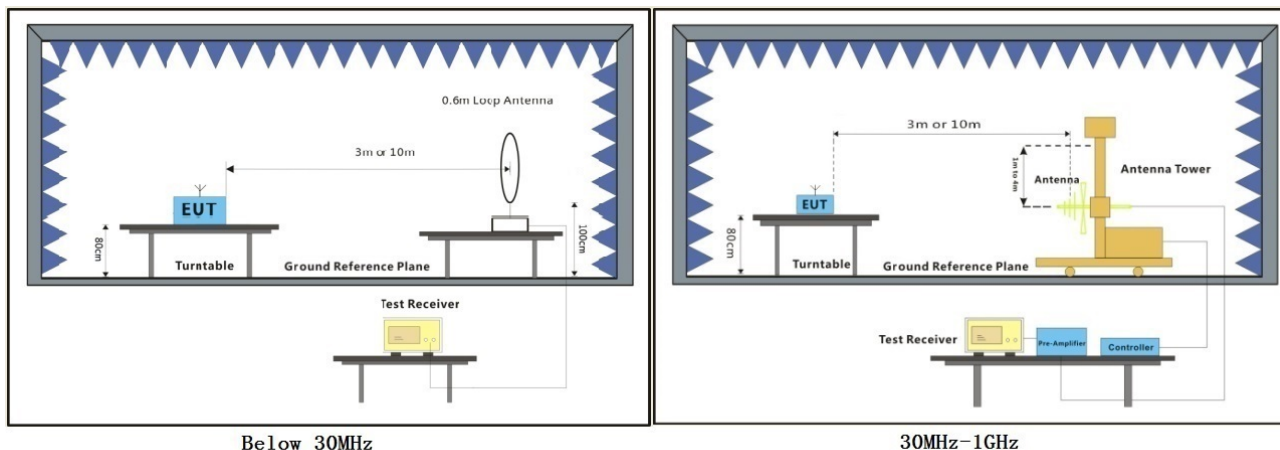
Humidity: 55.9 % RH

Atmospheric Pressure: 1017 mbar

#### 7.3.2 Test Mode Description

Pre-scan / Mode	Description
Final test Code	
Final test 04	TX mode_Keep the EUT in transmitting with modulation mode.

#### 7.3.3 Test Setup Diagram



Below 30MHz

30MHz-1GHz

## 7.3.4 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from one meter to four meters 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 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using quasi-peak method as specified and then reported in a data sheet.
- g. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- i. Repeat above procedures until all frequencies measured was complete.

Remark:

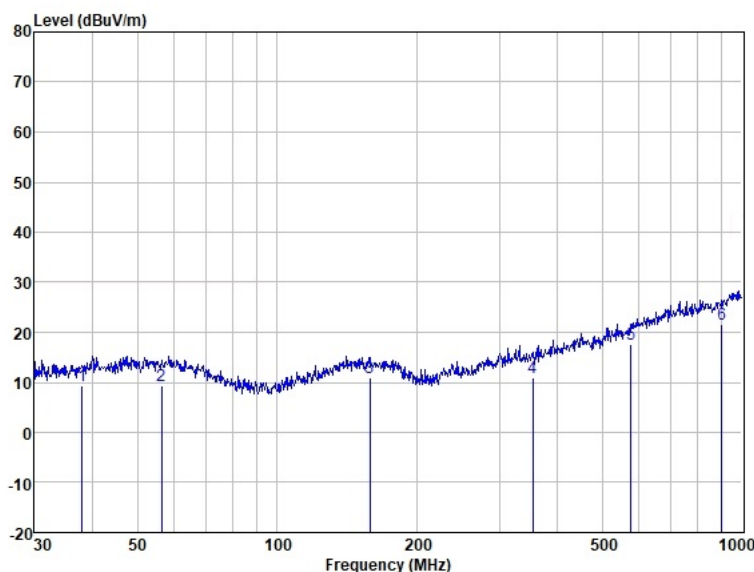
1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

2. Scan from 9kHz to 30MHz, the disturbance below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.





Test Mode: 00; Polarity: Horizontal



Site : SGS  
Job :  
Model : M1  
Power :  
Test Mode : TX

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Measured Level	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m		
1	37.945	23.61	13.31	0.41	27.99	9.34	HORIZONTAL	QP
2	56.395	23.06	13.74	0.51	27.94	9.37	HORIZONTAL	QP
3	158.112	24.19	13.64	0.85	27.71	10.97	HORIZONTAL	QP
4	354.183	22.59	14.49	1.29	27.38	10.99	HORIZONTAL	QP
5	576.644	25.21	19.20	1.64	28.48	17.57	HORIZONTAL	QP
6	903.309	24.30	23.12	2.05	27.97	21.50	HORIZONTAL	QP

Frequency (MHz)	Level @10m (dBuV/m)	Convert Factor (dB)*	Level @ 3m (dBuV/m)	Limit @3m (dBuV/m)	Over limit (dB)	Remark
37.945	9.34	10.46	19.80	40.00	-20.20	QP
56.395	9.37	10.46	19.83	40.00	-20.17	QP
158.112	10.97	10.46	21.43	43.52	-22.09	QP
354.183	10.99	10.46	21.45	46.02	-24.57	QP
576.644	17.57	10.46	28.03	46.02	-17.99	QP
903.309	21.50	10.46	31.96	46.02	-14.06	QP

\*Remark:

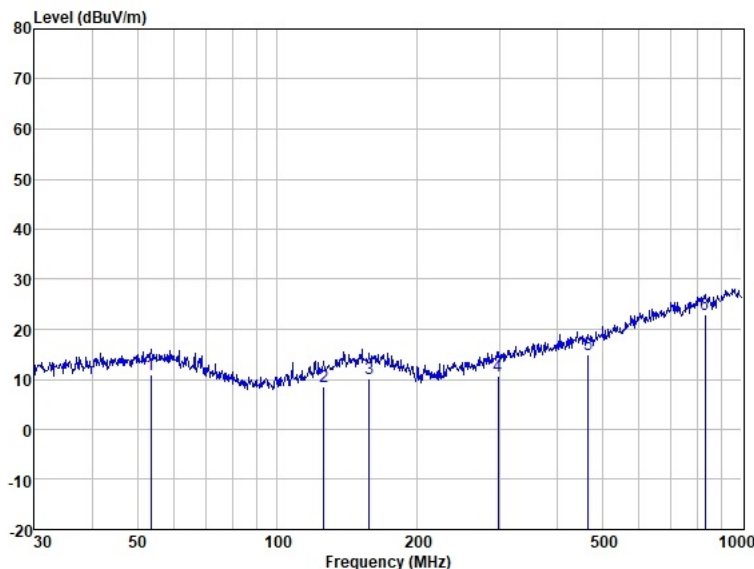
Level (dBuV/m) @3m = Level (dBuV/m) @10m + Convert Factor (dB)

Convert Factor (dB) = 20\*log(Measurement Distance/Specified Distance)

= 20\*log(10/3) = 10.46 dB according to 15.31 (f) (1)



Test Mode: 00; Polarity: Horizontal



Site : SGS  
Job :  
Model : M2  
Power :  
Test Mode : TX

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Measured Level	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m		
1	53.505	24.50	13.90	0.49	27.95	10.94	HORIZONTAL	QP
2	125.886	23.73	11.79	0.75	27.77	8.50	HORIZONTAL	QP
3	157.559	23.37	13.64	0.85	27.71	10.15	HORIZONTAL	QP
4	298.268	23.24	13.38	1.17	27.20	10.59	HORIZONTAL	QP
5	467.235	24.73	17.21	1.48	28.40	15.02	HORIZONTAL	QP
6	833.317	26.11	23.09	1.96	28.26	22.90	HORIZONTAL	QP

Frequency (MHz)	Level @10m (dBuV/m)	Convert Factor (dB)*	Level @ 3m (dBuV/m)	Limit @3m (dBuV/m)	Over limit (dB)	Remark
53.505	10.94	10.46	21.40	40.00	-18.60	QP
125.886	8.50	10.46	18.96	43.52	-24.56	QP
157.559	10.15	10.46	20.61	43.52	-22.91	QP
298.268	10.59	10.46	21.05	46.02	-24.97	QP
467.235	15.02	10.46	25.48	46.02	-20.54	QP
833.317	22.90	10.46	33.36	46.02	-12.66	QP

\*Remark:

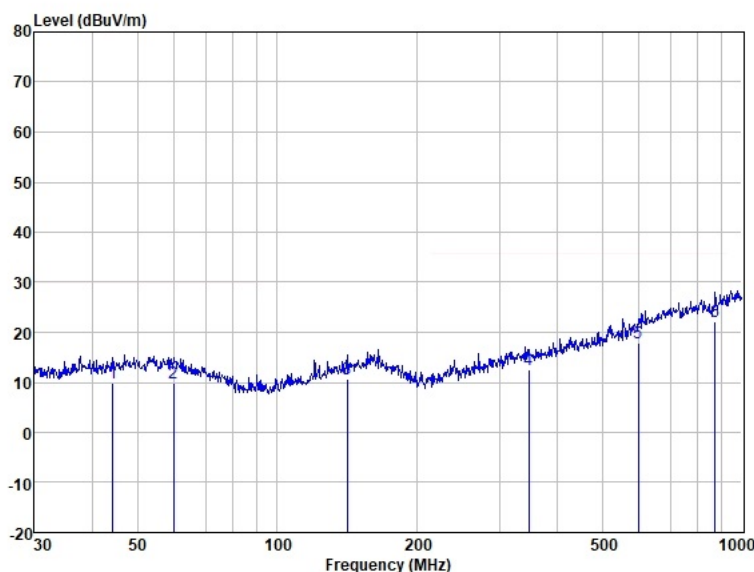
Level (dBuV/m) @3m = Level (dBuV/m) @10m + Convert Factor (dB)

Convert Factor (dB) = 20\*log(Measurement Distance/Specified Distance)

= 20\*log(10/3) = 10.46 dB according to 15.31 (f) (1)



Test Mode: 00; Polarity: Horizontal



Site : SGS  
Job :  
Model : M3  
Power :  
Test Mode : TX

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Measured Level	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m		
1	44.275	23.62	13.88	0.44	27.97	9.97	HORIZONTAL	QP
2	59.859	23.94	13.33	0.52	27.93	9.86	HORIZONTAL	QP
3	141.330	24.40	13.11	0.80	27.74	10.57	HORIZONTAL	QP
4	348.027	24.32	14.39	1.27	27.35	12.63	HORIZONTAL	QP
5	597.223	24.44	20.11	1.66	28.47	17.74	HORIZONTAL	QP
6	875.247	25.63	22.52	2.03	28.16	22.02	HORIZONTAL	QP

Frequency (MHz)	Level @10m (dBuV/m)	Convert Factor (dB)*	Level @ 3m (dBuV/m)	Limit @3m (dBuV/m)	Over limit (dB)	Remark
44.275	9.97	10.46	20.43	40.00	-19.57	QP
59.859	9.86	10.46	20.32	40.00	-19.68	QP
141.330	10.57	10.46	21.03	43.52	-22.49	QP
348.027	12.63	10.46	23.09	46.02	-22.93	QP
597.223	17.74	10.46	28.20	46.02	-17.82	QP
875.247	22.02	10.46	32.48	46.02	-13.54	QP

\*Remark:

Level (dBuV/m) @3m = Level (dBuV/m) @10m + Convert Factor (dB)

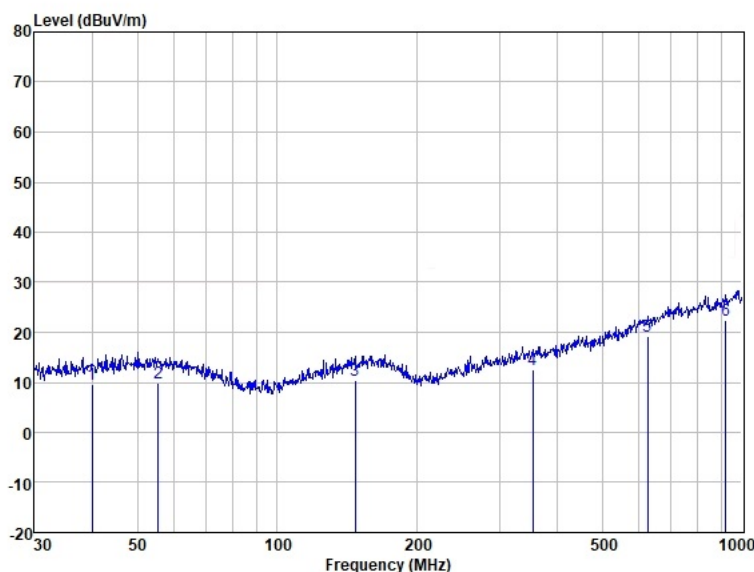
Convert Factor (dB) = 20\*log(Measurement Distance/Specified Distance)

= 20\*log(10/3) = 10.46 dB according to 15.31 (f) (1)





Test Mode: 00; Polarity: Vertical



Site : SGS  
Job :  
Model : M1  
Power :  
Test Mode : TX

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Measured Level	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m		
1	39.994	23.77	13.50	0.42	27.98	9.71	VERTICAL	QP
2	55.415	23.43	13.81	0.50	27.95	9.79	VERTICAL	QP
3	146.888	23.81	13.40	0.81	27.73	10.29	VERTICAL	QP
4	354.183	24.22	14.49	1.29	27.38	12.62	VERTICAL	QP
5	627.274	25.83	20.01	1.70	28.44	19.10	VERTICAL	QP
6	922.516	24.73	23.42	2.07	27.85	22.37	VERTICAL	QP

Frequency (MHz)	Level @10m (dBuV/m)	Convert Factor (dB)*	Level @ 3m (dBuV/m)	Limit @3m (dBuV/m)	Over limit (dB)	Remark
39.994	9.71	10.46	20.17	40.00	-19.83	QP
55.415	9.79	10.46	20.25	40.00	-19.75	QP
146.888	10.29	10.46	20.75	43.52	-22.77	QP
354.183	12.62	10.46	23.08	46.02	-22.94	QP
627.274	19.10	10.46	29.56	46.02	-16.46	QP
922.516	22.37	10.46	32.83	46.02	-13.19	QP

\*Remark:

Level (dBuV/m) @3m = Level (dBuV/m) @10m + Convert Factor (dB)

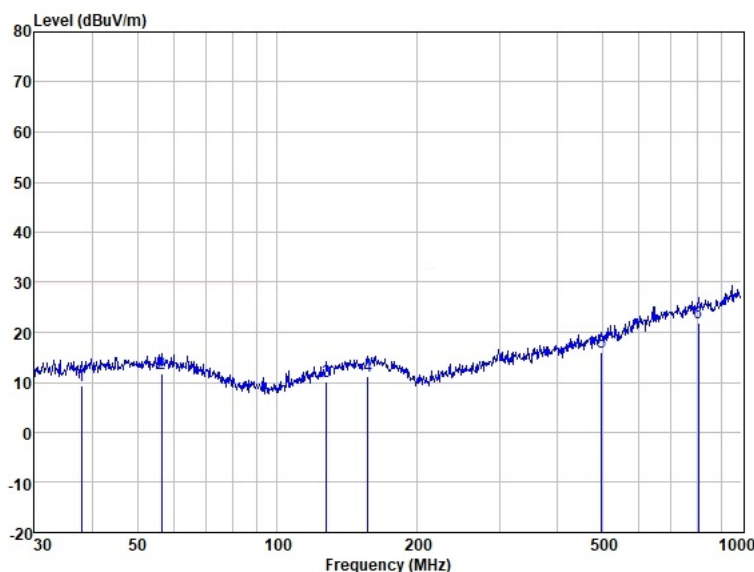
Convert Factor (dB) = 20\*log(Measurement Distance/Specified Distance)

= 20\*log(10/3) = 10.46 dB according to 15.31 (f) (1)





Test Mode: 00; Polarity: Vertical



Site : SGS  
Job :  
Model : M2  
Power :  
Test Mode : TX

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Measured Level	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m		
1	37.812	23.50	13.31	0.41	27.99	9.23	VERTICAL	QP
2	56.395	25.31	13.74	0.51	27.94	11.62	VERTICAL	QP
3	127.665	25.05	11.99	0.75	27.76	10.03	VERTICAL	QP
4	156.458	24.54	13.61	0.84	27.71	11.28	VERTICAL	QP
5	497.677	25.38	17.62	1.52	28.49	16.03	VERTICAL	QP
6	804.603	25.17	23.01	1.93	28.29	21.82	VERTICAL	QP

Frequency (MHz)	Level @10m (dBuV/m)	Convert Factor (dB)*	Level @ 3m (dBuV/m)	Limit @3m (dBuV/m)	Over limit (dB)	Remark
37.812	9.23	10.46	19.69	40.00	-20.31	QP
56.395	11.62	10.46	22.08	40.00	-17.92	QP
127.665	10.03	10.46	20.49	43.52	-23.03	QP
156.458	11.28	10.46	21.74	43.52	-21.78	QP
497.677	16.03	10.46	26.49	46.02	-19.53	QP
804.603	21.82	10.46	32.28	46.02	-13.74	QP

\*Remark:

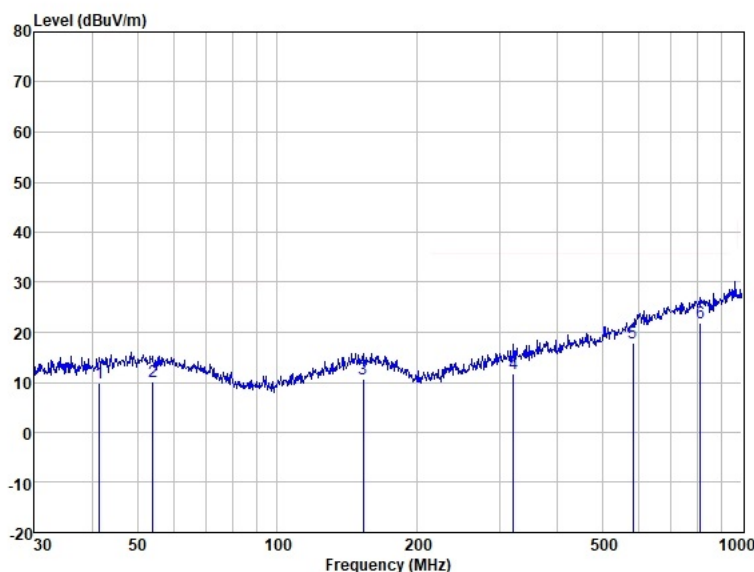
Level (dBuV/m) @3m = Level (dBuV/m) @10m + Convert Factor (dB)

Convert Factor (dB) = 20\*log(Measurement Distance/Specified Distance)

= 20\*log(10/3) = 10.46 dB according to 15.31 (f) (1)



Test Mode: 00; Polarity: Vertical



Site : SGS  
Job :  
Model : M3  
Power :  
Test Mode : TX

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Measured Level	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m		
1	41.422	23.77	13.66	0.43	27.98	9.88	VERTICAL	QP
2	53.882	23.85	13.86	0.49	27.95	10.25	VERTICAL	QP
3	153.200	24.00	13.59	0.84	27.72	10.71	VERTICAL	QP
4	322.189	23.58	14.07	1.21	27.26	11.60	VERTICAL	QP
5	582.743	25.22	19.39	1.65	28.47	17.79	VERTICAL	QP
6	813.112	24.98	23.27	1.94	28.28	21.91	VERTICAL	QP

Frequency (MHz)	Level @10m (dBuV/m)	Convert Factor (dB)*	Level @ 3m (dBuV/m)	Limit @3m (dBuV/m)	Over limit (dB)	Remark
41.422	9.88	10.46	20.34	40.00	-19.66	QP
53.882	10.25	10.46	20.71	40.00	-19.29	QP
153.200	10.71	10.46	21.17	43.52	-22.35	QP
322.189	11.60	10.46	22.06	46.02	-23.96	QP
582.743	17.79	10.46	28.25	46.02	-17.77	QP
813.112	21.91	10.46	32.37	46.02	-13.65	QP

\*Remark:

Level (dBuV/m) @3m = Level (dBuV/m) @10m + Convert Factor (dB)

Convert Factor (dB) = 20\*log(Measurement Distance/Specified Distance)

= 20\*log(10/3) = 10.46 dB according to 15.31 (f) (1)



### 7.4 Radiated Emissions Above 1GHz

Test Requirement 47 CFR Part 15, Subpart C 15.209 & 15.249 (a),(d)

Test Method: ANSI C63.10 (2013) Section 6.6

Limit:

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
Above 1000	500	3

#### 7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 20.8 °C

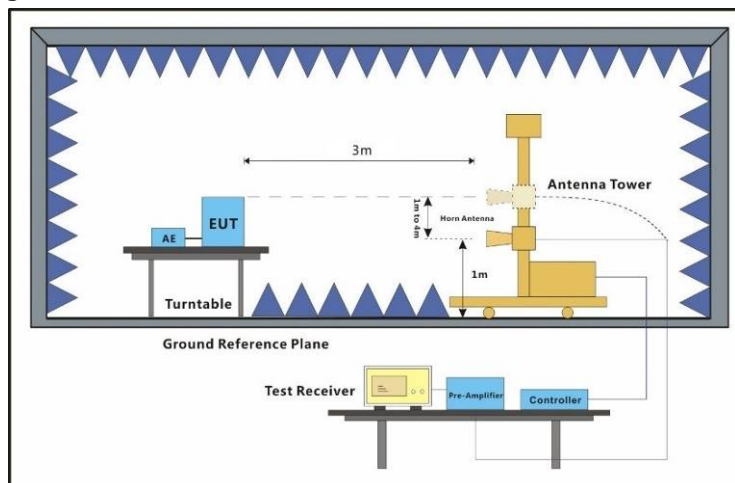
Humidity: 38.1 % RH

Atmospheric Pressure: 1020 mbar

#### 7.4.2 Test Mode Description

Pre-scan / Mode	Description
Final test Code	
Final test 04	TX mode_Keep the EUT in transmitting with modulation mode.

#### 7.4.3 Test Setup Diagram



### 7.4.4 Measurement Procedure and Data

- a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from one meter to four meters 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 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak or average method as specified and then reported in a data sheet.
- g. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- i. Repeat above procedures until all frequencies measured was complete.

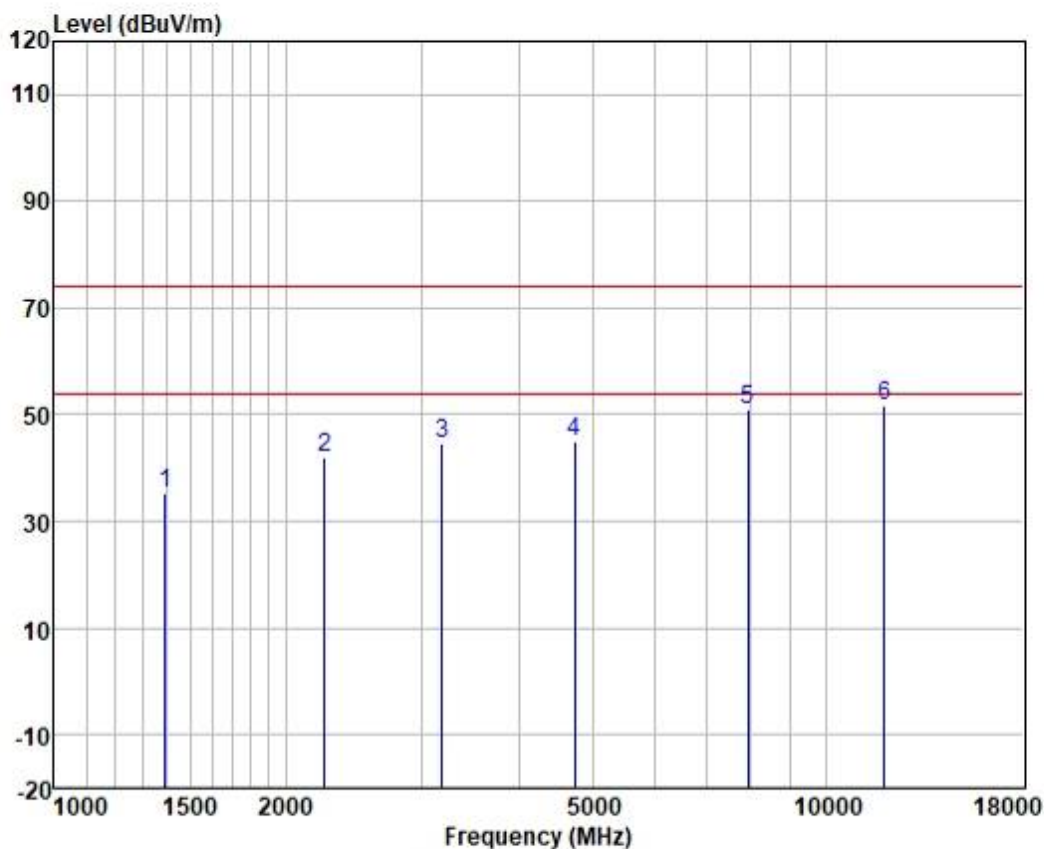
Remark:

1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor
2. Scan from 18GHz to 40GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.
3. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.





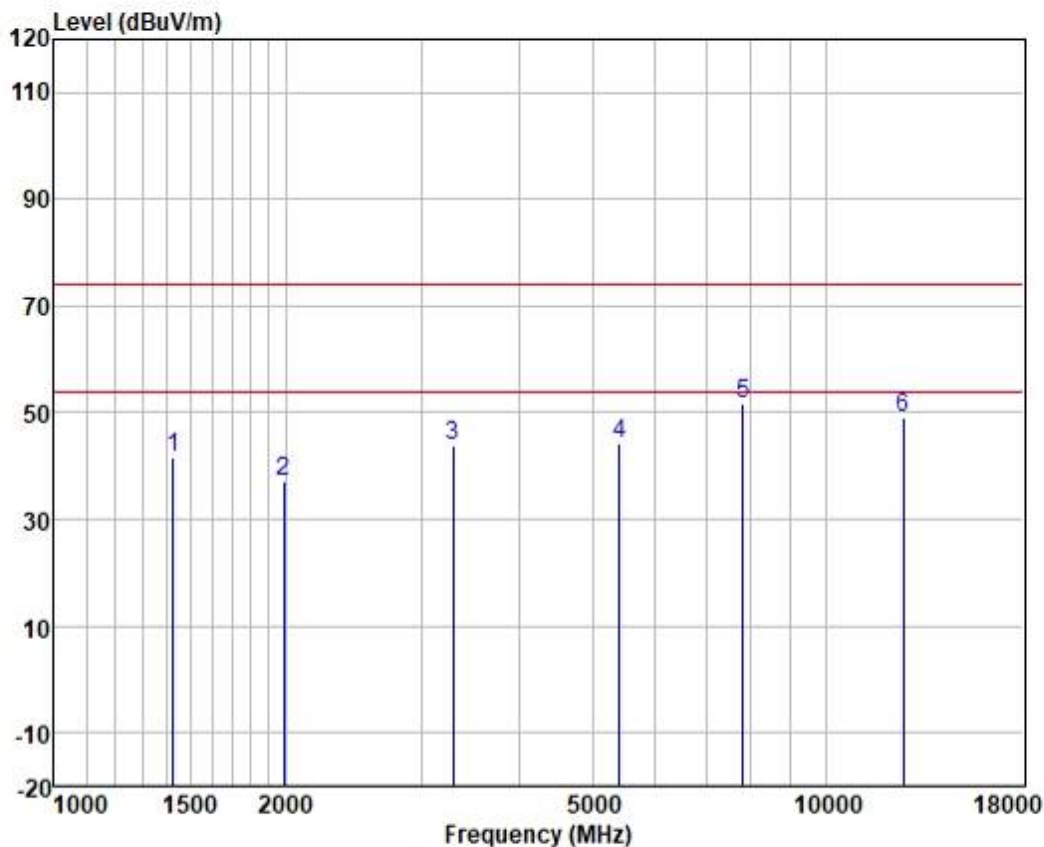
Test Mode: 04; Polarity: Vertical



	Freq	ReadAntenna	Cable	Preamp	Limit	Over			
	MHz	Level	Loss	Factor	Line	Limit	Pol/Phase	Remark	
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dB		
1	1394.300	46.86	24.25	2.66	38.49	35.28	74.00	-38.72	VERTICAL Peak
2	2239.861	49.13	27.17	3.32	37.78	41.84	74.00	-32.16	VERTICAL Peak
3	3186.869	49.52	28.80	3.91	37.59	44.64	74.00	-29.36	VERTICAL Peak
4	4735.181	43.42	34.16	4.76	37.39	44.95	74.00	-29.05	VERTICAL Peak
5	7943.838	44.67	37.09	6.19	37.20	50.75	74.00	-23.25	VERTICAL Peak
6	11940.540	41.71	39.05	7.72	36.90	51.58	74.00	-22.42	VERTICAL Peak



Test Mode: 04; Polarity: Horizontal



	Freq	ReadAntenna	Cable	Preamp	Limit	Over			
	MHz	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1426.916	53.24	24.31	2.67	38.45	41.77	74.00	-32.23	HORIZONTAL Peak
2	1983.808	45.37	26.35	3.11	37.81	37.02	74.00	-36.98	HORIZONTAL Peak
3	3289.821	48.44	28.92	4.00	37.57	43.79	74.00	-30.21	HORIZONTAL Peak
4	5408.529	43.53	32.82	5.12	37.17	44.30	74.00	-29.70	HORIZONTAL Peak
5	7807.262	45.82	36.92	6.15	37.20	51.69	74.00	-22.31	HORIZONTAL Peak
6	12614.610	39.37	38.50	7.99	36.86	49.00	74.00	-25.00	HORIZONTAL Peak



### 7.5 20dB Bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.215

Test Method: ANSI C63.10 (2013) Section 6.9

#### 7.5.1 E.U.T. Operation

Operating Environment:

Temperature: 21.3 °C

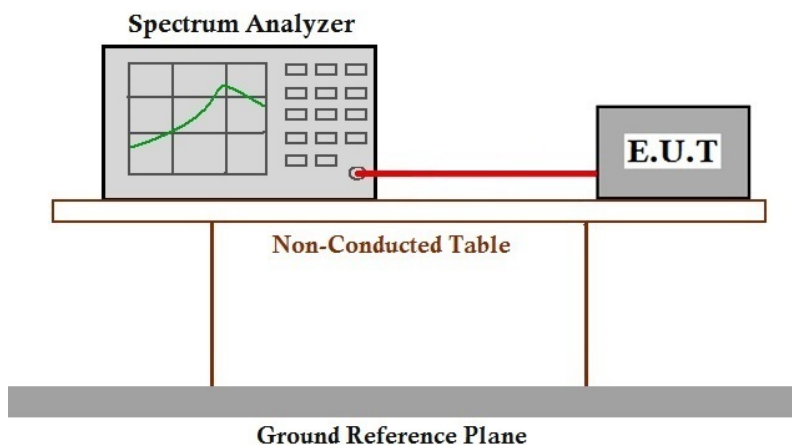
Humidity: 46.4 % RH

Atmospheric Pressure: 1020 mbar

#### 7.5.2 Test Mode Description

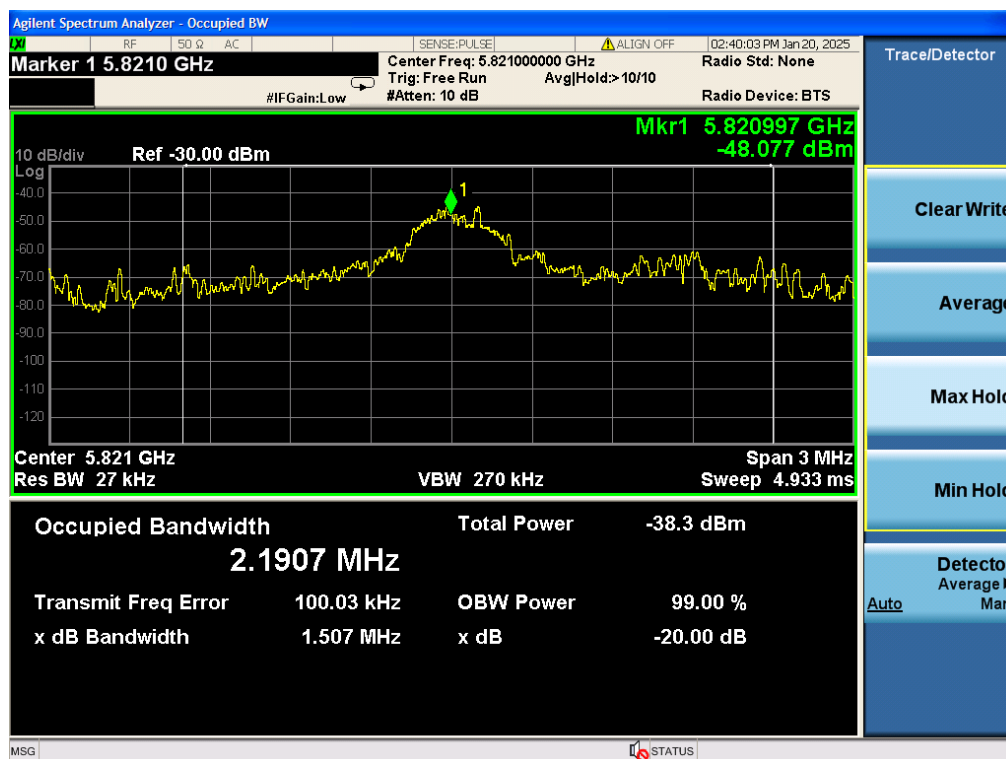
Pre-scan / Mode	Description
Final test Code	
Final test 04	TX mode_Keep the EUT in transmitting with modulation mode.

#### 7.5.3 Test Setup Diagram



### 7.5.4 Measurement Procedure and Data

#### 5821MHz





## 8 Test Setup Photo

Refer to Appendix - Test Setup Photo for GZCR241200141703



SGS-CSTC Standards Technical Services Co., Ltd.  
Guangzhou Branch (EMC Lab) EEC Laboratory

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## 9 EUT Constructional Details (EUT Photos)

Refer to External and Internal Photos for GZCR2412001417HS

- End of the Report -

