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Report No.: GZEM190801519903  
Page: 1 of 29  
FCC ID: 2ATCB-SF-T7970R

## TEST REPORT

**Application No.:** GZEM1908015199CR  
**Applicant:** Sunny Distributor Inc. DBA Sunny Health & Fitness  
**Address of Applicant:** 218 Tumbull Canyon Rd, City of industry, CA 91745  
**Manufacturer:** SUNLINK(XIAMEN) SPORTS EQUIPMENTS INDUSTRIAL CO.,LTD  
**Address of Manufacturer:** No.32 Bannan Road, Dongfu, Haicang District, Xiamen City, Fujian Province  
**Factory:** SUNLINK(XIAMEN) SPORTS EQUIPMENTS INDUSTRIAL CO.,LTD  
**Address of Factory:** No.32 Bannan Road, Dongfu, Haicang District, Xiamen City, Fujian Province  
**Equipment Under Test (EUT):**  
**FCC ID: 2ATCB-SF-T7970R**  
**EUT Name:** 2.4G remote controller  
**Model No.:** SF-T7970R  
**Standard(s) :** 47 CFR Part 15, Subpart C 15.249  
**Date of Receipt:** 2019-08-20  
**Date of Test:** 2019-08-30 to 2019-10-15  
**Date of Issue:** 2019-10-16

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

Kobe Jian

EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.



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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2019-10-16		Original

<b>Authorized for issue by:</b>			
<b>Tested By</b>			2019-08-30 to 2019-10-15
	<b>Jackson_Yuan /Project Engineer</b>		<b>Date</b>
<b>Checked By</b>			2019-10-16
	<b>Ricky_Liu /Reviewer</b>		<b>Date</b>



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## 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
20dB Bandwidth	47 CFR Part 15, Subpart C 15.249	ANSI C63.10 (2013) Section 6.9	47 CFR Part 15, Subpart C 15.215	Pass
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	47 CFR Part 15, Subpart C 15.249	ANSI C63.10 (2013) Section 6.4&6.5&6.6	47 CFR Part 15, Subpart C 15.205 & 15.249(d) & 15.209	Pass
Radiated Emissions	47 CFR Part 15, Subpart C 15.249	ANSI C63.10 (2013) Section 6.4&6.5&6.6	47 CFR Part 15, Subpart C 15.209 & 15.249 (a),(d)	Pass



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## 4 General Information

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

Power Supply:	DC 3 V (2*AAA size battery)
Test Voltage:	DC 3 V
Cable:	None
Antenna Gain:	0 dBi
Antenna Type:	PCB antenna
Modulation Type	GFSK
Number of Channels	1
Operation Frequency	2450MHz

### 4.2 Description of Support Units

The EUT has been tested as an independent unit.

### 4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	$\pm 5.5 \times 10^{-8}$
2	Duty cycle	$\pm 0.57\%$
3	Occupied Bandwidth	$\pm 3\%$
4	RF Conducted power	$\pm 0.68\text{dB}$
5	RF Power Density	$\pm 1.50\text{dB}$
6	Conducted Spurious Emissions	$\pm 1.04\text{dB}$
7	RF Radiated Power	$\pm 4.5\text{dB}$ (below 1GHz)
		$\pm 4.8\text{dB}$ (above 1GHz)
8	Radiated Spurious Emission Test	$\pm 4.5\text{dB}$ (30MHz-1GHz)
		$\pm 4.8\text{dB}$ (1GHz-18GHz)
9	Temperature	$\pm 0.4^\circ\text{C}$
10	Humidity	$\pm 1.3\%$
11	Supply Voltages	$\pm 1.5\%$
12	Time	$\pm 3\%$



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#### 4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,  
198 Kezhu Road, Sciencetech Park, Guangzhou Economic & Technology Development District,  
Guangzhou, China 510663

Tel: +86 20 82155555

Fax: +86 20 82075059

No tests were sub-contracted.



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#### 4.5 Test Facility

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

● **NVLAP (Lab Code: 200611-0)**

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

● **ACMA**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.

● **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.

● **CNAS (Lab Code: L0167)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2018 accreditation criteria for testing laboratories (identical to

ISO/IEC 17025:2017 General Requirements) for the Competence of Testing Laboratories.

● **FCC Recognized 2.948 Listed Test Firm(Registration No.: 282399)**

SGS-CSTC Standards Technical Services Co., Ltd., 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 our files. Registration 282399, May 31, 2002.

● **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, Jul 13, 2017.

● **Industry Canada (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-10449 and T-11179)**

The 10m Semi-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-10449 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 17025:2005, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.



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#### 4.6 Deviation from Standards

None

#### 4.7 Abnormalities from Standard Conditions

None



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## 5 Equipment List

20dB Bandwidth					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EXA Signal Analyzer	AgilentTechnologies	N9010A	EMC2138	2018-11-19	2019-11-18
6dB Attenuator	HP	8491A	EMC2062	2018-04-04	2020-04-03
Test Software JS1120-3	HangTianXing	V2.6	GZE100-69	N/A	N/A
MI CABLE	SGS	0.8M	EMC2136	2017-11-02	2019-11-01
MI CABLE	SGS	0.8M	EMC2137	2017-11-02	2019-11-01

Field Strength of the Fundamental Signal (15.249(a))					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI Test Receiver	Rohde & Schwarz	ESIB26	EMC0522	2019-01-20	2020-01-19
EMI Test Receiver	Rohde & Schwarz	ESCI	EMC0056	2019-01-20	2020-01-19
Chamber cable	HangTianXing	N/A	EMC0542	2019-06-28	2021-06-27
Trilog Broadband Antenna 25MHz-1GHz	SCHWARZBECKME SS-ELEKTRONIK	VULB 9168	EMC2174	2018-09-06	2021-09-05
Bi-log Type Antenna	Schaffner -Chase	CBL6143	EMC0519	2017-05-04	2020-05-03
Horn Antenna 1GHz-18GHz	R& S	HF906	EMC0518	2018-09-02	2021-09-01
1GHz-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2019-01-07	2020-01-08
Amplifier	HP	8447F	EMC2065	2019-05-29	2020-05-28
Pre-Amplifier MH648A	ANRITSU CORP	MH648A	EMC2086	2018-11-19	2019-11-18
Active Loop Antenna	EMCO	6502	EMC0523	2018-03-05	2020-03-04
High Pass Filter(915MHz)	FSY MICROWAVE	HM1465-9SS	EMC2079	2019-01-11	2020-01-10
2.4GHz Filter	Micro-Tronics	BRM 50702	EMC2069	2019-01-11	2020-01-10
10m Semi-Anechoic Chamber	ETS	N/A	EMC0530	2018-12-08	2019-12-07
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2017-12-19	2019-12-18
MXE EMI Receiver	Keysight	N9038A	EMC2139	2018-11-19	2019-11-18
EXA Signal Analyzer	Keysight	N9010A	EMC2138	2018-11-19	2019-11-18
Trilog Broadband Antenna 30MHz-1GHz	SCHWARZBECKME SS-ELEKTRONIK	VULB 9168	SEM003-18	2019-02-22	2022-02-22
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A



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<b>Restricted Band Around Fundamental Frequency</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
EMI Test Receiver	Rohde & Schwarz	ESIB26	EMC0522	2019-01-20	2020-01-19
EMI Test Receiver	Rohde & Schwarz	ESCI	EMC0056	2019-01-20	2020-01-19
Chamber cable	HangTianXing	N/A	EMC0542	2019-06-28	2021-06-27
Trilog Broadband Antenna 25MHz-1GHz	SCHWARZBECKME SS-ELEKTRONIK	VULB 9168	EMC2174	2018-09-06	2021-09-05
Bi-log Type Antenna	Schaffner -Chase	CBL6143	EMC0519	2017-05-04	2020-05-03
Horn Antenna 1GHz-18GHz	R& S	HF906	EMC0518	2018-09-02	2021-09-01
1GHz-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2019-01-07	2020-01-08
Amplifier	HP	8447F	EMC2065	2019-05-29	2020-05-28
Pre-Amplifier MH648A	ANRITSU CORP	MH648A	EMC2086	2018-11-19	2019-11-18
Active Loop Antenna	EMCO	6502	EMC0523	2018-03-05	2020-03-04
High Pass Filter(915MHz)	FSY MICROWAVE	HM1465-9SS	EMC2079	2019-01-11	2020-01-10
2.4GHz Filter	Micro-Tronics	BRM 50702	EMC2069	2019-01-11	2020-01-10
10m Semi-Anechoic Chamber	ETS	N/A	EMC0530	2018-12-08	2019-12-07
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2017-12-19	2019-12-18
MXE EMI Receiver	Keysight	N9038A	EMC2139	2018-11-19	2019-11-18
EXA Signal Analyzer	Keysight	N9010A	EMC2138	2018-11-19	2019-11-18
Trilog Broadband Antenna 30MHz-1GHz	SCHWARZBECKME SS-ELEKTRONIK	VULB 9168	SEM003-18	2019-02-22	2022-02-22
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A

<b>Radiated Emissions</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
EMI Test Receiver	Rohde & Schwarz	ESIB26	EMC0522	2019-01-20	2020-01-19
EMI Test Receiver	Rohde & Schwarz	ESCI	EMC0056	2019-01-20	2020-01-19
Chamber cable	HangTianXing	N/A	EMC0542	2019-06-28	2021-06-27
Trilog Broadband Antenna 25MHz-1GHz	SCHWARZBECKME SS-ELEKTRONIK	VULB 9168	EMC2174	2018-09-06	2021-09-05
Bi-log Type Antenna	Schaffner -Chase	CBL6143	EMC0519	2017-05-04	2020-05-03
Horn Antenna 1GHz-18GHz	R& S	HF906	EMC0518	2018-09-02	2021-09-01
1GHz-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2019-01-07	2020-01-08
Amplifier	HP	8447F	EMC2065	2019-05-29	2020-05-28
Pre-Amplifier MH648A	ANRITSU CORP	MH648A	EMC2086	2018-11-19	2019-11-18
Active Loop Antenna	EMCO	6502	EMC0523	2018-03-05	2020-03-04



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High Pass Filter(915MHz)	FSY MICROWAVE	HM1465-9SS	EMC2079	2019-01-11	2020-01-10
2.4GHz Filter	Micro-Tronics	BRM 50702	EMC2069	2019-01-11	2020-01-10
10m Semi-Anechoic Chamber	ETS	N/A	EMC0530	2018-12-08	2019-12-07
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2017-12-19	2019-12-18
MXE EMI Receiver	Keysight	N9038A	EMC2139	2018-11-19	2019-11-18
EXA Signal Analyzer	Keysight	N9010A	EMC2138	2018-11-19	2019-11-18
Trilog Broadband Antenna 30MHz-1GHz	SCHWARZBECKME SS-ELEKTRONIK	VULB 9168	SEM003-18	2019-02-22	2022-02-22
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A

General used equipment					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
DMM	Fluke	73	EMC0006	2019-07-16	2020-07-15
DMM	Fluke	73	EMC0007	2019-07-16	2020-07-15



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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

Limit:

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.

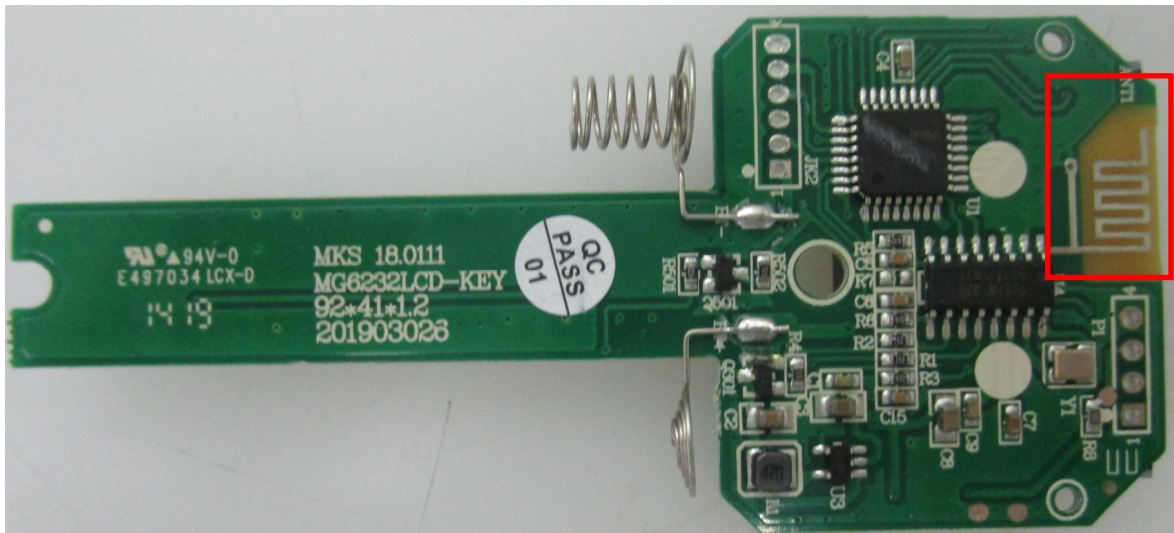
#### 6.1.2 Conclusion

Standard 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. The best case gain of the antenna is 0 dBi.



**Test result: The unit does meet the FCC requirements.**



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## 7 Radio Spectrum Matter Test Results

### 7.1 20dB Bandwidth

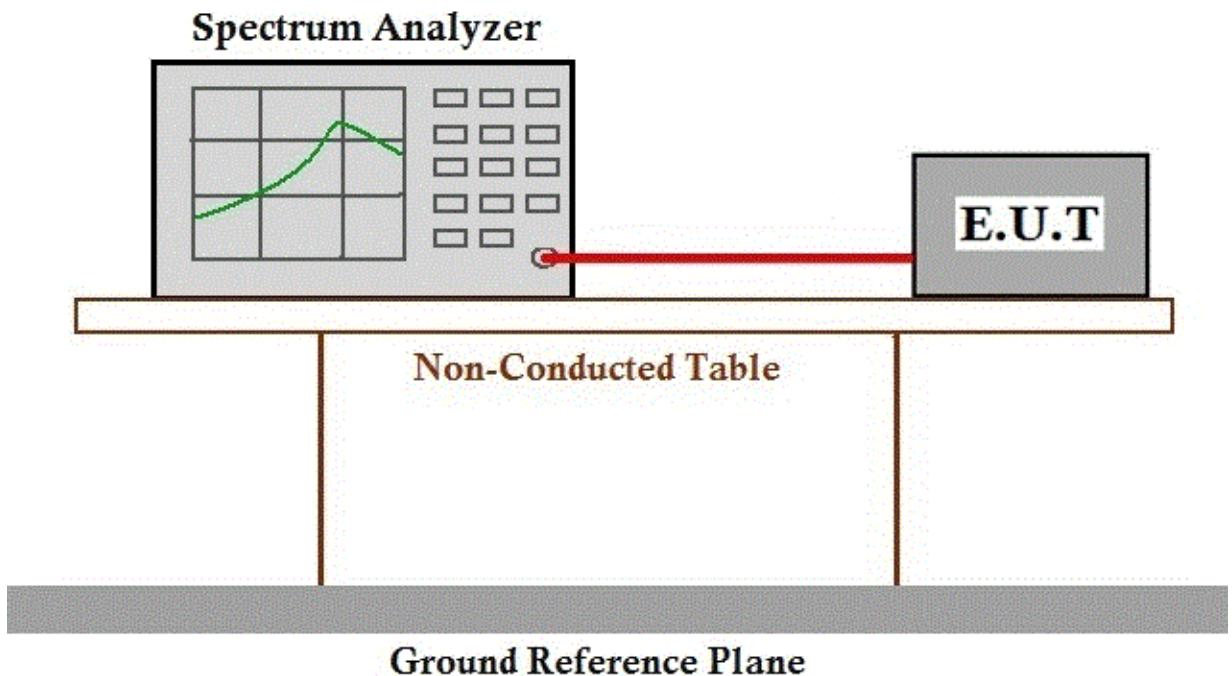
Test Requirement 47 CFR Part 15, Subpart C 15.215  
 Test Method: ANSI C63.10 (2013) Section 6.9  
 Limit: N/A

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

Operating Environment:

Temperature: 25.4 °C Humidity: 64.6 % RH Atmospheric Pressure: 1020 mbar  
 Test mode c:TX mode\_Keep the EUT in transmitting with modulation mode.

#### 7.1.2 Test Setup Diagram



#### 7.1.3 Measurement Procedure and Data



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Mode:c;



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**7.2 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  
 Measurement Distance: 3m  
 Limit:

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.



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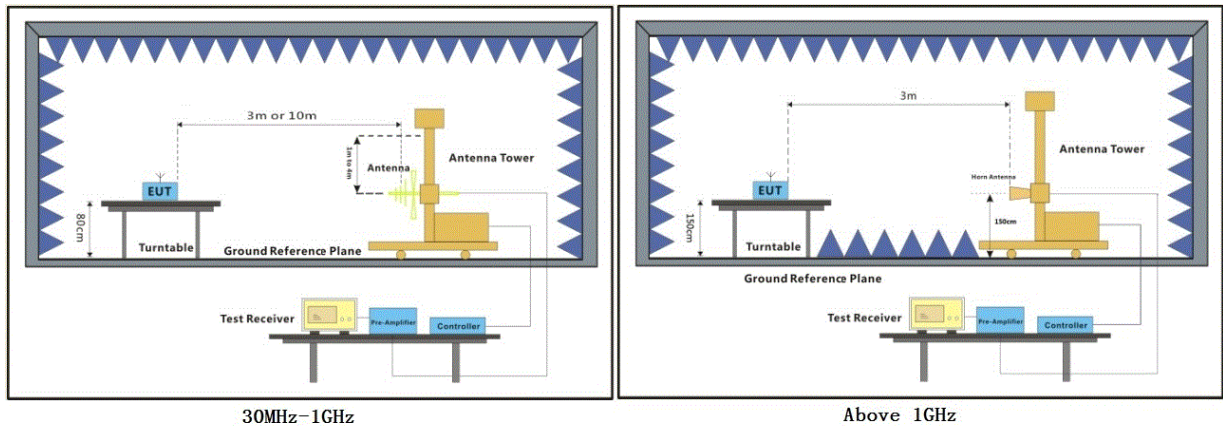
**7.2.1 E.U.T. Operation**

Operating Environment:

Temperature: 23 °C Humidity: 51 % RH Atmospheric Pressure: 1020 mbar

Test mode c:TX mode\_Keep the EUT in transmitting with modulation mode.

**7.2.2 Test Setup Diagram**



**7.2.3 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.

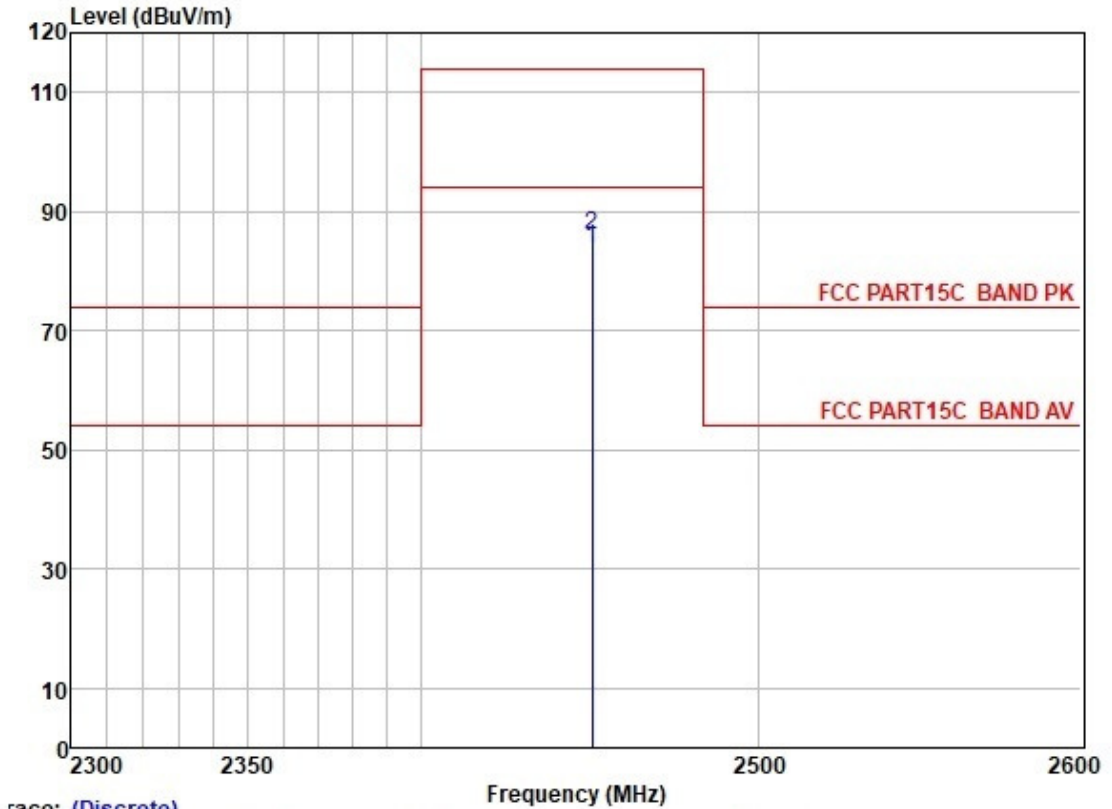
Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor



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Mode:c; Polarization:Horizontal; Modulation:GFSK;



Trace: (Discrete)

	Read	Antenna	Cable	Preamp	Limit	Over		
Freq	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2450.206	91.38	26.53	3.40	37.41	83.90	94.00	-10.10 HORIZONTAL Average
2	2450.206	93.44	26.53	3.40	37.41	85.96	114.00	-28.04 HORIZONTAL Peak

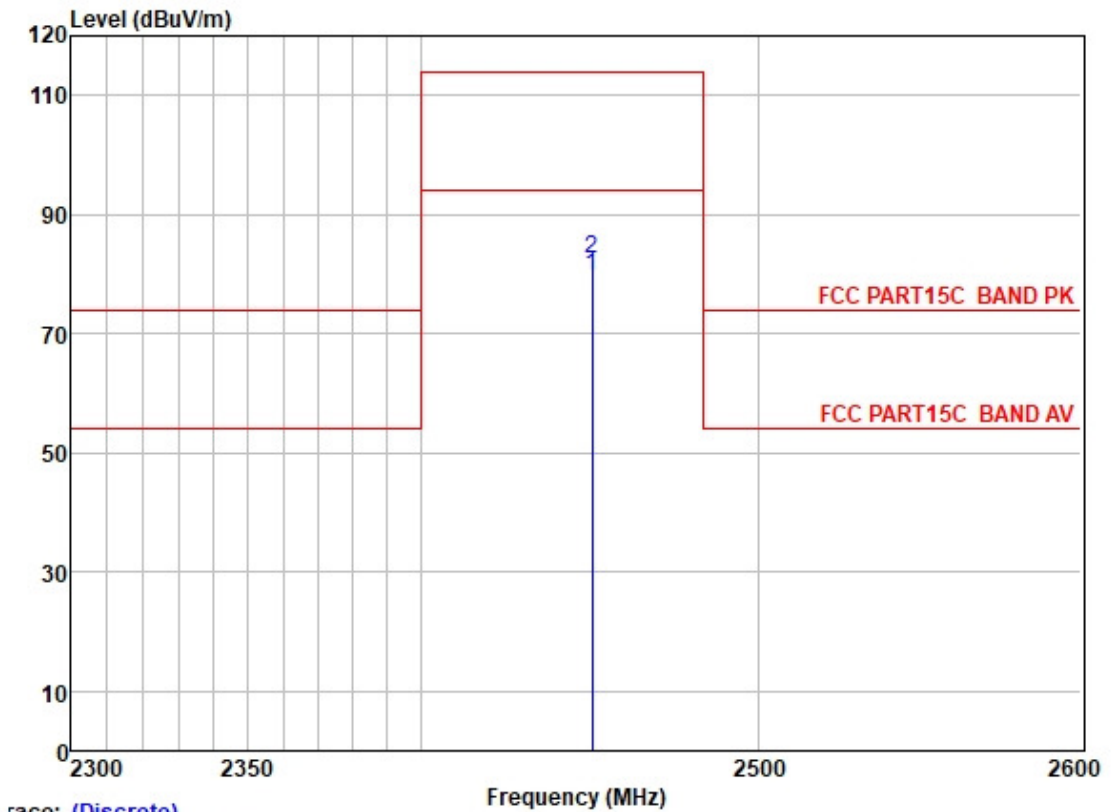


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Mode:c; Polarization:Vertical; Modulation:GFSK;



Trace: (Discrete)

	Read Freq	Antenna Level	Cable Loss	Preamp Factor	Level	Limit	Over	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dB		
1	2450.206	87.25	26.53	3.40	37.41	79.77	94.00	-14.23	VERTICAL Average
2	2450.206	89.98	26.53	3.40	37.41	82.50	114.00	-31.50	VERTICAL Peak



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**7.3 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 6.4&6.5&6.6  
 Measurement 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.



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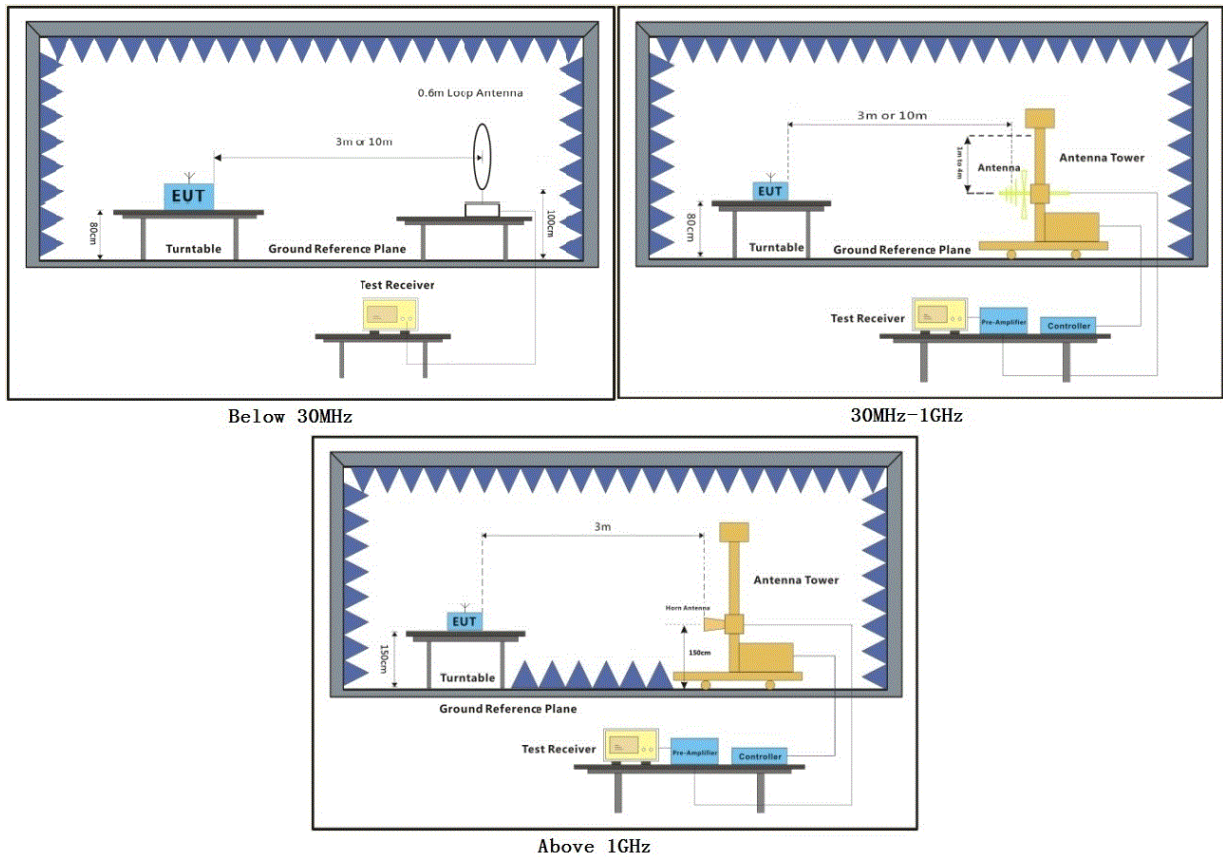
**7.3.1 E.U.T. Operation**

Operating Environment:

Temperature: 23 °C Humidity: 51 % RH Atmospheric Pressure: 1020 mbar

Test mode c:TX mode\_Keep the EUT in transmitting with modulation mode.

**7.3.2 Test Setup Diagram**



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**7.3.3 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.

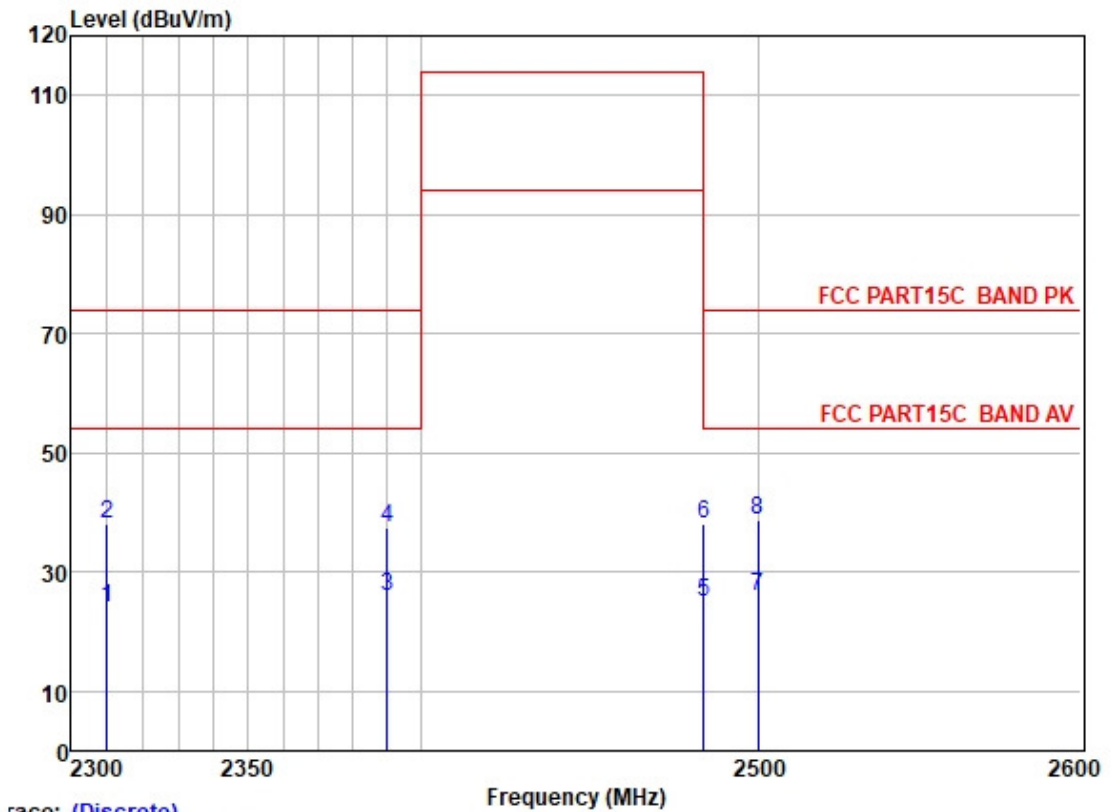
Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor



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Mode:c; Polarization:Vertical; Modulation:GFSK;



Trace: (Discrete)

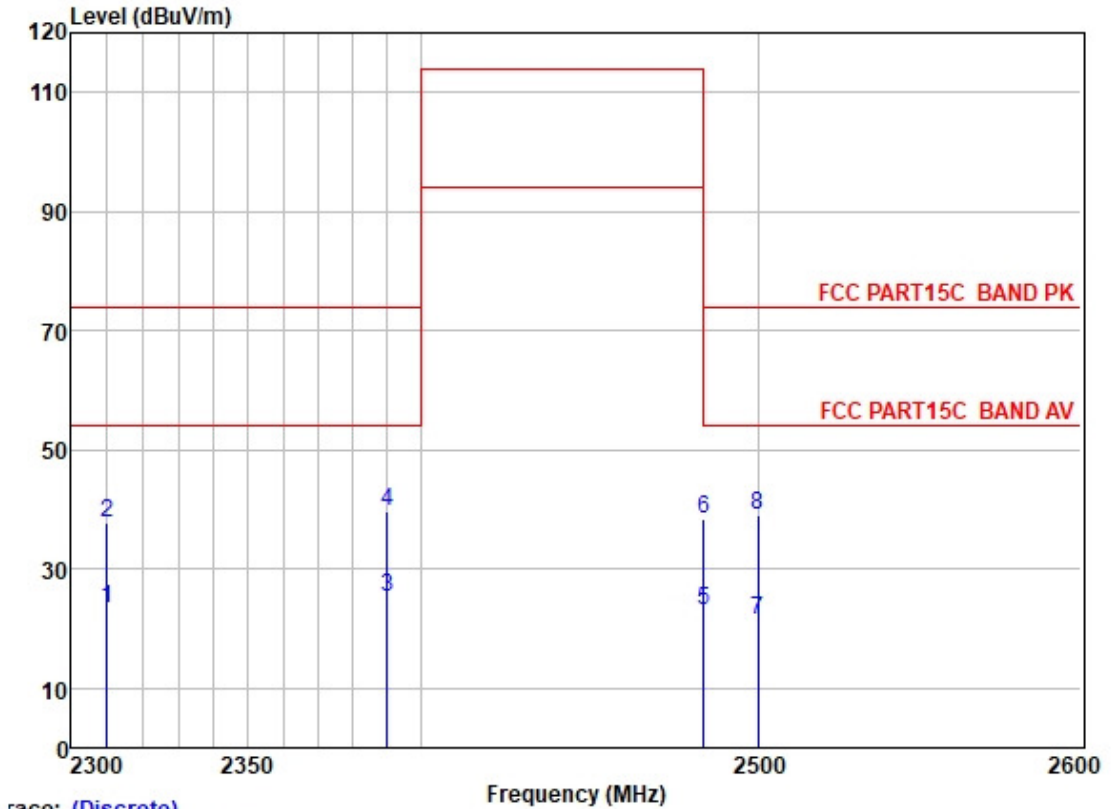
	ReadAntenna	Cable	Preamp	Limit	Over				
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	31.74	26.25	3.32	37.44	23.87	54.00	-30.13	VERTICAL Average
2	2310.000	46.07	26.25	3.32	37.44	38.20	74.00	-35.80	VERTICAL Peak
3	2390.000	33.58	26.43	3.48	37.42	26.07	54.00	-27.93	VERTICAL Average
4	2390.000	45.04	26.43	3.48	37.42	37.53	74.00	-36.47	VERTICAL Peak
5	2483.500	32.38	26.58	3.53	37.40	25.09	54.00	-28.91	VERTICAL Average
6	2483.500	45.43	26.58	3.53	37.40	38.14	74.00	-35.86	VERTICAL Peak
7	2500.000	33.21	26.60	3.40	37.39	25.82	54.00	-28.18	VERTICAL Average
8	2500.000	46.11	26.60	3.40	37.39	38.72	74.00	-35.28	VERTICAL Peak



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Mode:c; Polarization:Horizontal; Modulation:GFSK;



Trace: (Discrete)

	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	2310.000	31.21	26.25	3.32	37.44	23.34	54.00	-30.66	HORIZONTAL Average
2	2310.000	45.74	26.25	3.32	37.44	37.87	74.00	-36.13	HORIZONTAL Peak
3	2390.000	32.79	26.43	3.48	37.42	25.28	54.00	-28.72	HORIZONTAL Average
4	2390.000	47.21	26.43	3.48	37.42	39.70	74.00	-34.30	HORIZONTAL Peak
5	2483.500	30.44	26.58	3.53	37.40	23.15	54.00	-30.85	HORIZONTAL Average
6	2483.500	45.56	26.58	3.53	37.40	38.27	74.00	-35.73	HORIZONTAL Peak
7	2500.000	28.85	26.60	3.40	37.39	21.46	54.00	-32.54	HORIZONTAL Average
8	2500.000	46.49	26.60	3.40	37.39	39.10	74.00	-34.90	HORIZONTAL Peak



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**7.4 Radiated Emissions**

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&6.6  
 Measurement Distance: 3m  
 Limit:

Frequency(MHz)	Field strength (microvolts/meter)	Limit (dBuV/m)	Detector	Measurement Distance (meters)
0.009-0.490	2400/F(kHz)	-	-	300
0.490-1.705	24000/F(kHz)	-	-	30
1.705-30	30	-	-	30
30-88	100	40.0	QP	3
88-216	150	43.5	QP	3
216-960	200	46.0	QP	3
960-1000	500	54.0	QP	3
Above 1000	500	54.0	AV	3



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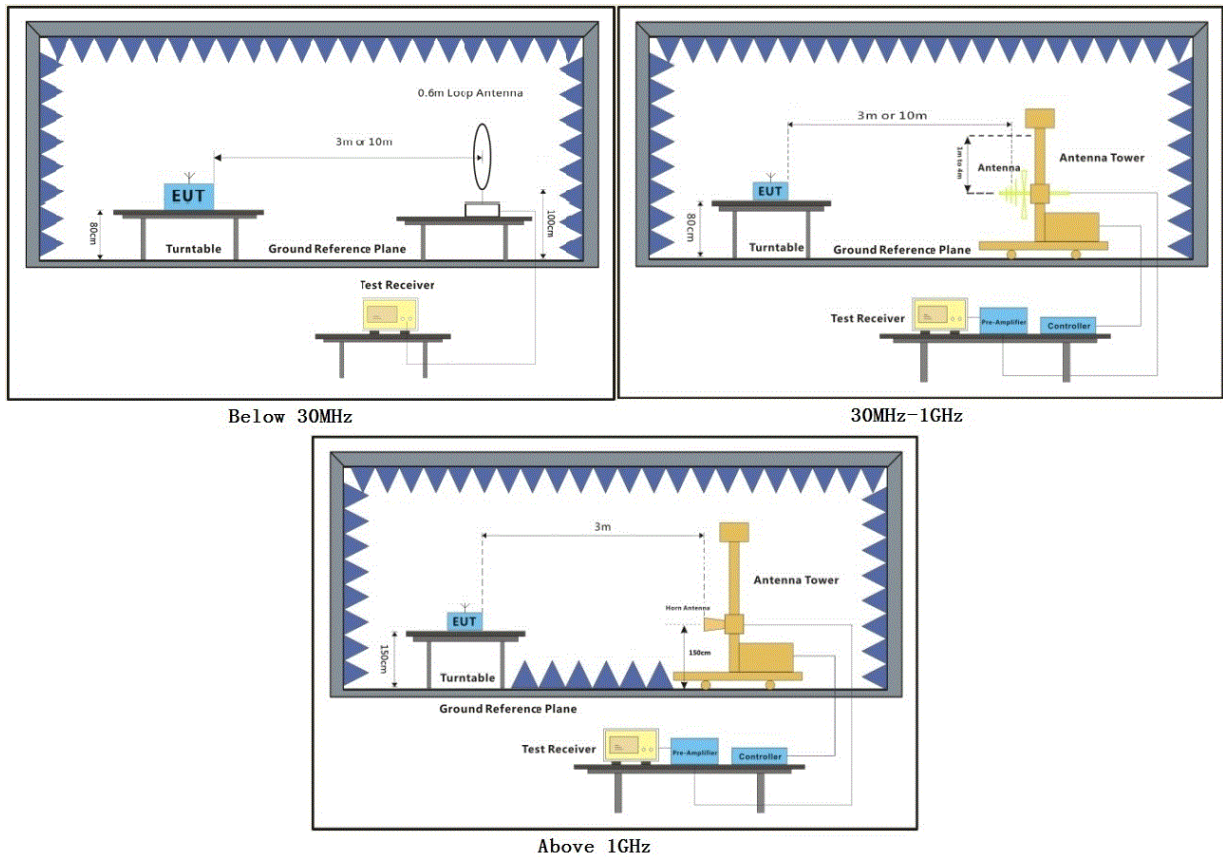
**7.4.1 E.U.T. Operation**

Operating Environment:

Temperature: 23 °C Humidity: 51 % RH Atmospheric Pressure: 1020 mbar

Test mode c:TX mode\_Keep the EUT in transmitting with modulation mode.

**7.4.2 Test Setup Diagram**



**7.4.3 Measurement Procedure and Data**

For testing performed with the loop antenna, the center of the loop was positioned 1 m above the ground and positioned with its plane vertical at the specified distance from the EUT. During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane. Only the worst position of vertical was shown in the report.

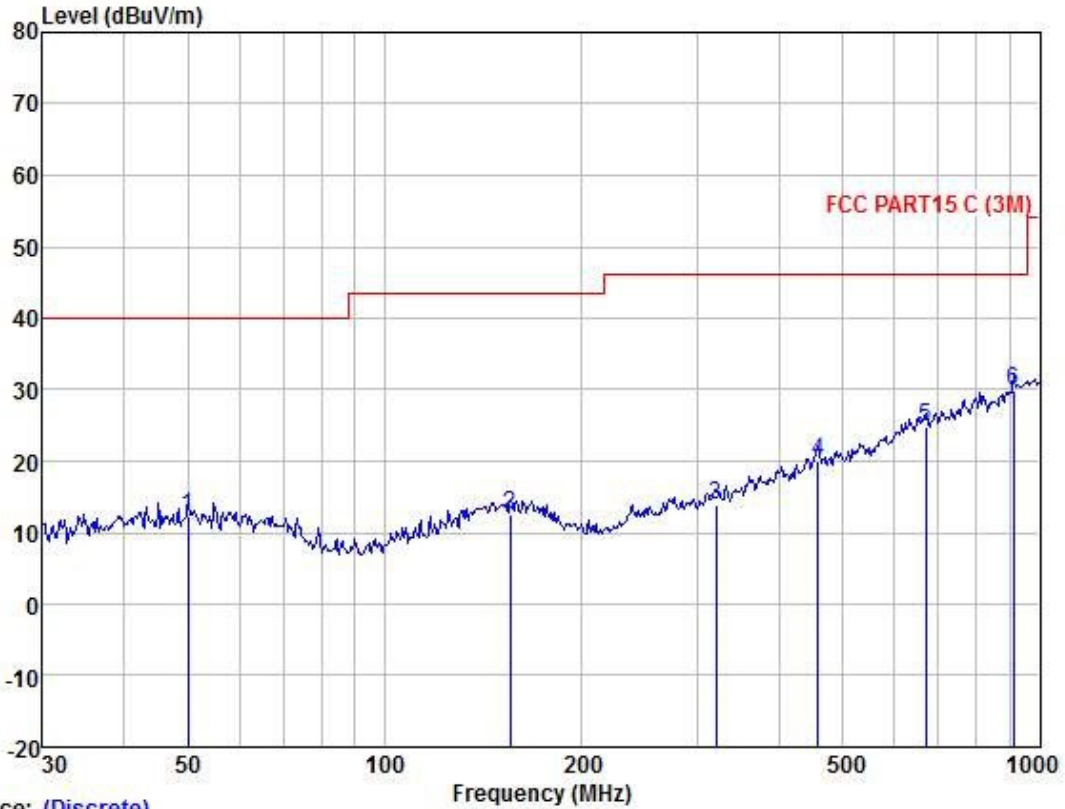
Measured Level I=Read Level + Antenna Factor + Cable Loss - Preamp Factor



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 No.198 Kazhu Road, Sciencetech Park, Guangzhou Economic & Technology Development District, Guangzhou, China 510663 t (86-20) 82155555 f (86-20) 82075058 www.sgs.com.cn  
 中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075058 sgs.china@sgs.com

Mode:c; Polarization:Horizontal; Modulation:GFSK



Trace: (Discrete)

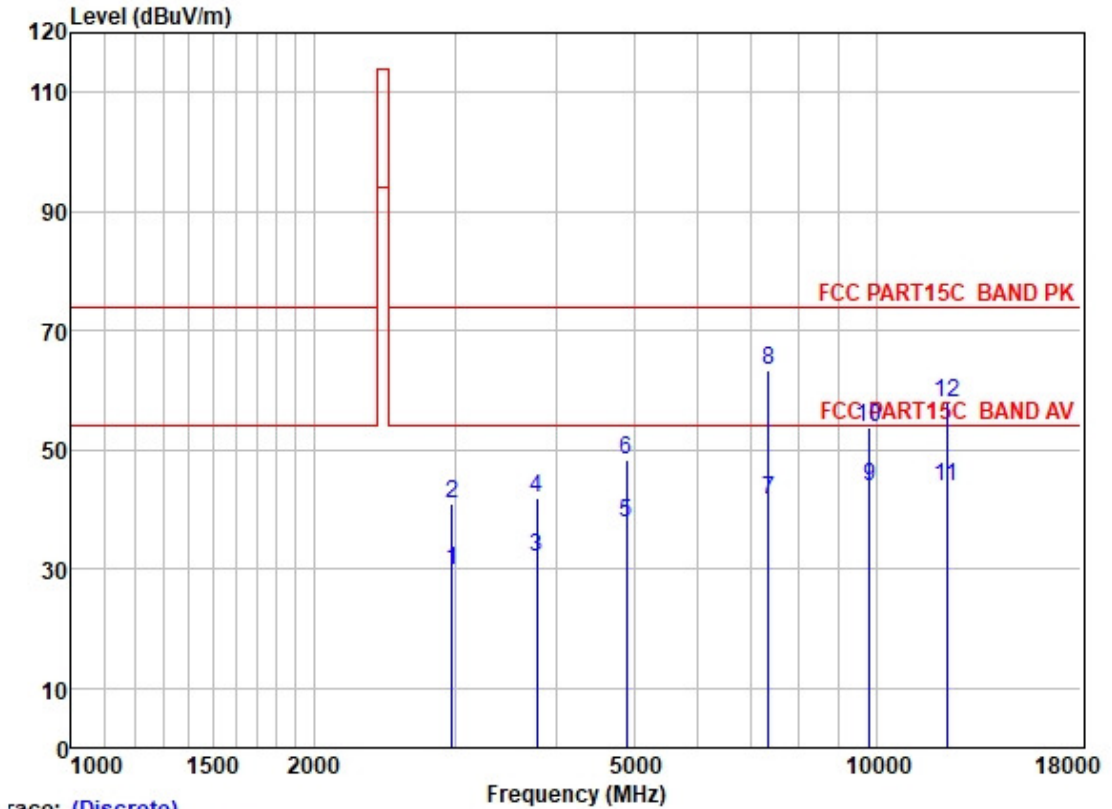
	Read	Cable	Preamp	Limit	Over				
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	50.057	23.75	13.90	1.19	26.50	12.34	40.00	-27.66	HORIZONTAL QP
2	155.364	23.27	13.72	2.10	26.44	12.65	43.50	-30.85	HORIZONTAL QP
3	319.937	23.66	14.30	3.01	27.01	13.96	46.00	-32.04	HORIZONTAL QP
4	459.114	25.78	17.48	4.18	27.43	20.01	46.00	-25.99	HORIZONTAL QP
5	670.489	26.42	20.70	4.89	27.34	24.67	46.00	-21.33	HORIZONTAL QP
6	912.862	27.06	23.47	6.44	26.99	29.98	46.00	-16.02	HORIZONTAL QP



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Mode:c; Polarization:Horizontal; Modulation:GFSK;



Trace: (Discrete)

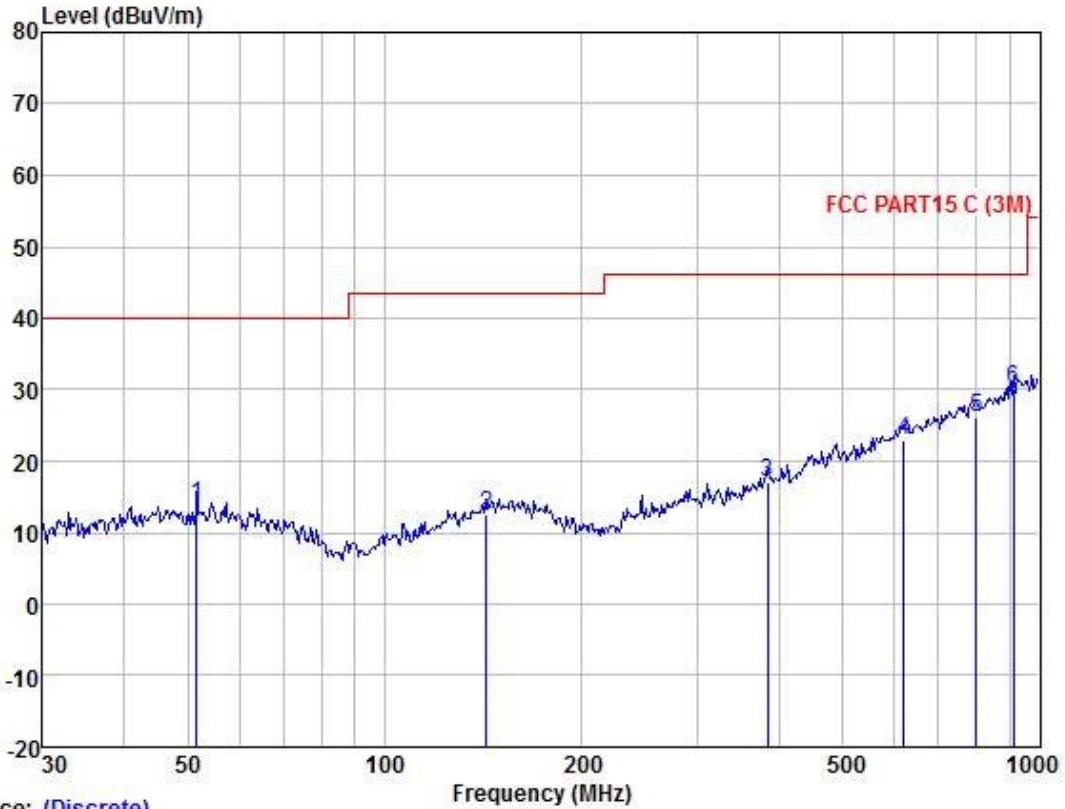
	Read	Antenna	Cable	Preamp	Limit	Over			
Freq	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark	
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2973.293	35.28	27.87	3.78	37.09	29.84	54.00	-24.16	HORIZONTAL Average
2	2973.293	46.26	27.87	3.78	37.09	40.82	74.00	-33.18	HORIZONTAL Peak
3	3790.361	35.27	28.97	4.60	36.92	31.92	54.00	-22.08	HORIZONTAL Average
4	3790.361	45.25	28.97	4.60	36.92	41.90	74.00	-32.10	HORIZONTAL Peak
5	4900.151	38.25	30.97	5.55	36.95	37.82	54.00	-16.18	HORIZONTAL Average
6	4900.151	48.87	30.97	5.55	36.95	48.44	74.00	-25.56	HORIZONTAL Peak
7	7350.270	36.70	35.78	6.15	36.92	41.71	54.00	-12.29	HORIZONTAL Average
8	7350.270	58.37	35.78	6.15	36.92	63.38	74.00	-10.62	HORIZONTAL Peak
9	9800.230	36.16	37.79	7.00	37.09	43.86	54.00	-10.14	HORIZONTAL Average
10	9800.230	46.01	37.79	7.00	37.09	53.71	74.00	-20.29	HORIZONTAL Peak
11	12250.080	33.63	39.15	8.06	37.01	43.83	54.00	-10.17	HORIZONTAL Average
12	12250.080	47.75	39.15	8.06	37.01	57.95	74.00	-16.05	HORIZONTAL Peak



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Mode:c; Polarization:Vertical; Modulation:GFSK



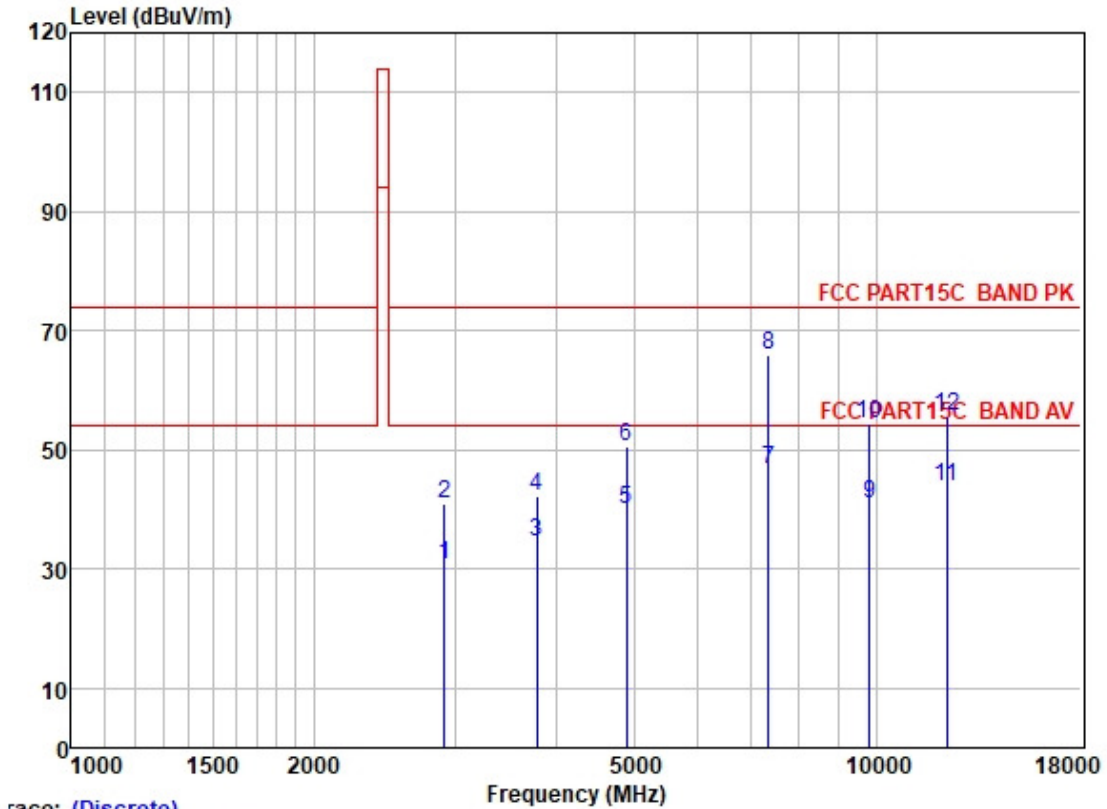
Trace: (Discrete)

	Read	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	51.481	25.10	13.97	1.22	26.50	13.79	40.00	-26.21	VERTICAL QP
2	142.824	23.45	13.55	1.99	26.43	12.56	43.50	-30.94	VERTICAL QP
3	383.932	25.20	15.50	3.57	27.32	16.95	46.00	-29.05	VERTICAL QP
4	620.710	25.04	20.40	4.91	27.40	22.95	46.00	-23.05	VERTICAL QP
5	798.980	24.90	22.60	5.99	27.29	26.20	46.00	-19.80	VERTICAL QP
6	912.862	27.10	23.47	6.44	26.99	30.02	46.00	-15.98	VERTICAL QP



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Mode:c; Polarization:Vertical; Modulation:GFSK;



Trace: (Discrete)

	Read	Antenna	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	2905.331	36.51	27.76	3.71	37.13	30.85	54.00	-23.15	VERTICAL	Average
2	2905.331	46.62	27.76	3.71	37.13	40.96	74.00	-33.04	VERTICAL	Peak
3	3790.361	37.88	28.97	4.60	36.92	34.53	54.00	-19.47	VERTICAL	Average
4	3790.361	45.54	28.97	4.60	36.92	42.19	74.00	-31.81	VERTICAL	Peak
5	4900.490	40.37	30.97	5.55	36.95	39.94	54.00	-14.06	VERTICAL	Average
6	4900.490	50.83	30.97	5.55	36.95	50.40	74.00	-23.60	VERTICAL	Peak
7	7350.900	41.71	35.78	6.15	36.92	46.72	54.00	-7.28	VERTICAL	Average
8	7350.900	61.01	35.78	6.15	36.92	66.02	74.00	-7.98	VERTICAL	Peak
9	9800.230	33.34	37.79	7.00	37.09	41.04	54.00	-12.96	VERTICAL	Average
10	9800.230	46.83	37.79	7.00	37.09	54.53	74.00	-19.47	VERTICAL	Peak
11	12250.970	33.70	39.15	8.06	37.01	43.90	54.00	-10.10	VERTICAL	Average
12	12250.970	45.54	39.15	8.06	37.01	55.74	74.00	-18.26	VERTICAL	Peak

--End of Report--



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