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Report No.: SHEM180600516201

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## TEST REPORT

**Application No.:** SHEM1806005162CR  
**FCC ID:** 2AGU6005  
**IC:** 21056-005  
**Applicant:** RAZOR USA LLC  
**Address of Applicant:** P.O. Box 3610 Cerritos, CA 90703 United States  
**Manufacturer:** 1. ZHEJIANG JINBANG SPORTS EQUIPMENT CO., LTD.  
2. Rolley Sports Products (Kunshan) Co., Ltd.  
**Address of Manufacturer:** 1. No. 36 Juxian Road, Huzhen Town, Jinyun Zhejiang 321404 China  
2. No. 270, Zhongjie Road, QianDeng Town, Kunshan, Jiangsu, China  
**Equipment Under Test (EUT):**  
**EUT Name:** Remote Control (Electric Skateboard DLX)  
**Model No.:** R005  
**Standard(s) :** 47 CFR Part 15, Subpart C 15.249  
RSS-247 Issue 2, February 2017  
RSS-Gen Issue 5, April 2018  
**Date of Receipt:** 2018-06-28  
**Date of Test:** 2018-07-12 to 2018-07-13  
**Date of Issue:** 2018-07-30

<b>Test Result:</b>	<b>Pass*</b>
---------------------	--------------

\* In the configuration tested, the EUT complied with the standards specified above.



Parlam Zhan  
E&E Section 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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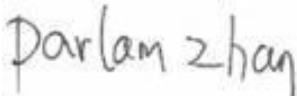


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Revision Record			
Version	Description	Date	Remark
00	Original	2018-07-30	/

Authorized for issue by:			
			
		<hr/>	
		Vincent Zhu/ Project Engineer	
			
		<hr/>	
		Parlam Zhan / 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
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
99% Bandwidth	RSS-247 Issue 2, February 2017	ANSI C63.10 Section 6.9.3	RSS-Gen Section 6.6	Pass



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## 4 General Information

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

Power supply:	DC 3V by 2*AAA size battery
Modulation Type	GFSK
Number of Channels	18
Channel List:	2405MHz, 2408MHz, 2413MHz, 2415MHz, 2418MHz, 2425MHz, 2428MHz, 2430MHz, 2434MHz, 2440MHz, 2446MHz, 2450MHz, 2456MHz, 2460MHz, 2461MHz, 2465MHz, 2470MHz, 2473MHz,
Operation Frequency	2405MHz-2473MHz
Antenna Type	PCB Antenna
Antenna Gain	1dBi

### 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	7.25 x 10 <sup>-8</sup>
2	Timeout	2s
3	Duty cycle	0.37%
4	Occupied Bandwidth	3%
5	RF conducted power	0.75dB
6	RF power density	2.84dB
7	Conducted Spurious emissions	0.75dB
8	RF Radiated power	4.5dB (Below 1GHz) 4.8dB (Above 1GHz)
9	Radiated Spurious emission test	4.2dB (Below 30MHz) 4.4dB (30MHz-1GHz) 4.6dB (1GHz-18GHz) 5.2dB (Above 18GHz)
10	Temperature test	1°C
11	Humidity test	3%
12	Supply voltages	1.5%
13	Time	3%

Note: The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.



#### **4.4 Test Location**

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd. Shanghai Branch

588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China

Tel: +86 21 6191 5666

Fax: +86 21 6191 5678

No tests were sub-contracted.

#### **4.5 Test Facility**

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

- **CNAS (No. CNAS L0599)**

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **NVLAP (Certificate No. 201034-0)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP). Certificate No. 201034-0.

- **FCC –Designation Number: CN5033**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.

Designation Number: CN5033. Test Firm Registration Number: 479755.

- **Industry Canada (IC) – IC Assigned Code: 8617A**

The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 8617A-1.

- **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-13868, C-14336, T-12221, G-10830 respectively.

#### **4.6 Deviation from Standards**

None

#### **4.7 Abnormalities from Standard Conditions**

None



## 5 Equipment List

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
<b>Conducted Test</b>					
Spectrum Analyzer	R&S	FSP-30	SHEM002-1	2017-12-20	2018-12-19
Spectrum Analyzer	Agilent	N9020A	SHEM181-1	2017-09-26	2018-09-25
Power meter	R&S	NRP	SHEM057-1	2017-12-26	2018-12-25
Power Sensor	R&S	NRP-Z22	SHEM136-1	2018-07-21	2019-07-20
Power Sensor	R&S	NRP-Z91	SHEM057-2	2017-12-26	2018-12-25
Signal Generator	R&S	SMR40	SHEM058-1	2018-07-02	2019-07-01
Signal Generator	Agilent	N5182A	SHEM182-1	2017-09-26	2018-09-25
Communication Tester	R&S	CMW270	SHEM183-1	2017-10-22	2018-10-21
Switcher	Tonscend	JS0806	SHEM184-1	2017-09-26	2018-09-25
Splitter	Anritsu	MA1612A	SHEM185-1	/	/
Coupler	e-meca	803-S-1	SHEM186-1	/	/
High-low Temp Cabinet	Suzhou Zhihe	TL-40	SHEM087-1	2017-09-26	2018-09-25
AC Power Stabilizer	WOCEN	6100	SHEM045-1	2017-12-26	2018-12-25
DC Power Supply	QJE	QJ30003SII	SHEM046-1	2017-12-26	2018-12-25
Conducted test Cable	/	RF01, RF 02	/	2017-12-26	2018-12-25
<b>Radiated Test</b>					
EMI test receiver	R&S	ESU40	SHEM051-1	2017-12-20	2018-12-19
Spectrum Analyzer	R&S	FSP-30	SHEM002-1	2017-12-20	2018-12-19
Loop Antenna (9kHz-30MHz)	Schwarzbeck	FMZB1519	SHEM135-1	2017-04-10	2020-04-09
Antenna (25MHz-2GHz)	Schwarzbeck	VULB9168	SHEM048-1	2017-02-28	2020-02-27
Antenna (25MHz-3GHz)	Schwarzbeck	HL562	SHEM010-1	2017-02-28	2020-02-27
Horn Antenna (1-8GHz)	Schwarzbeck	HF906	SHEM009-1	2017-10-24	2020-10-23
Horn Antenna (1-18GHz)	Schwarzbeck	BBHA9120D	SHEM050-1	2017-01-14	2020-01-13
Horn Antenna (14-40GHz)	Schwarzbeck	BBHA 9170	SHEM049-1	2017-12-03	2020-12-02
Pre-amplifier (9KHz-2GHz)	CLAVIIO	LNA-0001-412010	SHEM164-1	2017-08-22	2018-08-21
Pre-amplifier (1-18GHz)	CLAVIIO	BDLNA-0118-352810	SHEM050-2	2017-08-22	2018-08-21
High-amplifier (14-40GHz)	Schwarzbeck	10001	SHEM049-2	2017-12-20	2018-12-19
Band filter	LORCH	9BRX-875/X150-SR	SHEM156-1	/	/
Band filter	LORCH	13BRX-1950/X500-SR	SHEM083-2	/	/
Band filter	LORCH	5BRX-2400/X200-SR	SHEM155-1	/	/
Band filter	LORCH	5BRX-5500/X1000-SR	SHEM157-2	/	/
High pass Filter	Wainwright	WHK3.0/18G-100SS	SHEM157-1	/	/
High pass Filter	Wainwright	WHKS1700-3SS	SHEM157-3	/	/
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2017-07-22	2020-07-21
RE test Cable	/	RE01, RE02, RE06	/	2017-12-26	2018-12-25



## 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.

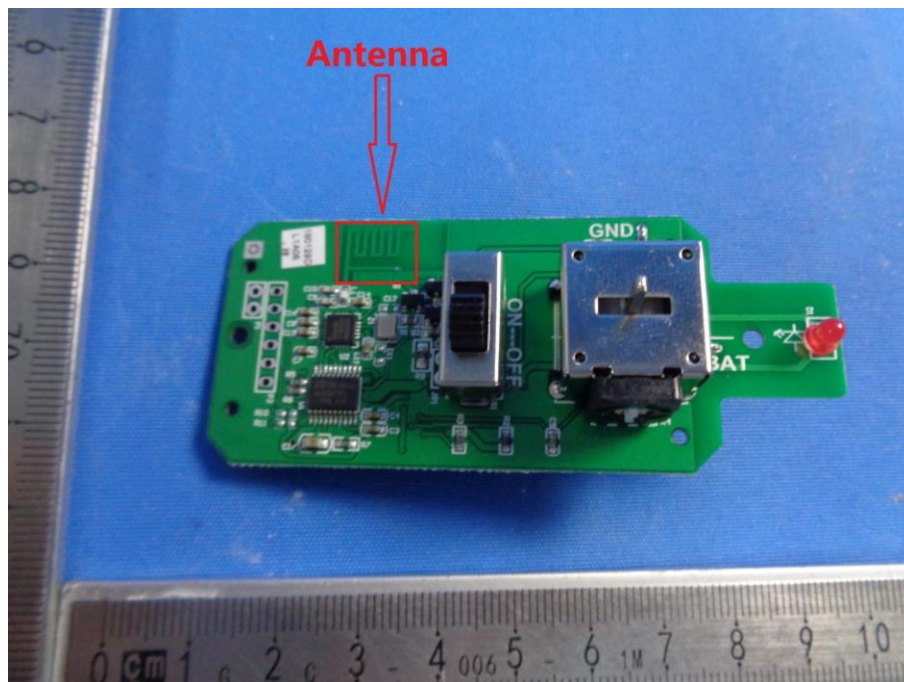
#### 6.1.2 Conclusion

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 PCB antenna and no consideration of replacement. The best case gain of the antenna is 1dBi.







## 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: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

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

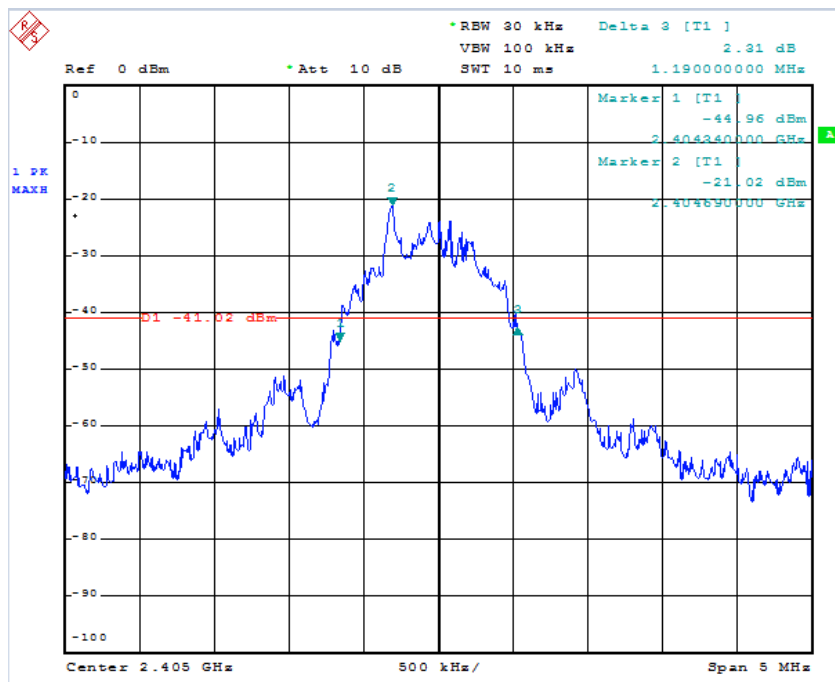
#### 7.1.2 Measurement Procedure and Data

CH	Frequency (MHz)	Bandwidth (MHz)	Result
Low	2405	1.19	PASS
Mid	2440	1.16	PASS
High	2473	1.16	PASS

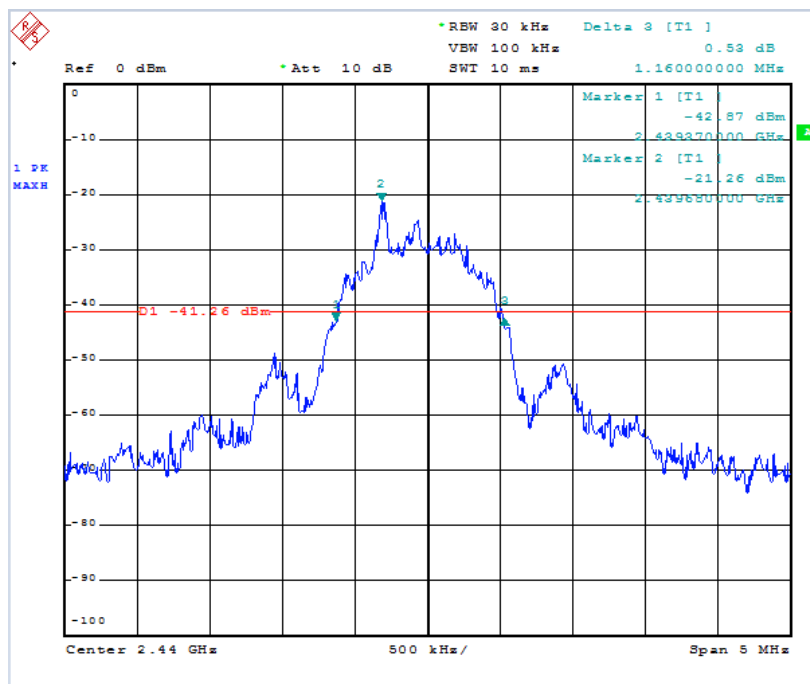


Test plot as follows:

Channel: Lowest



Channel: Middle



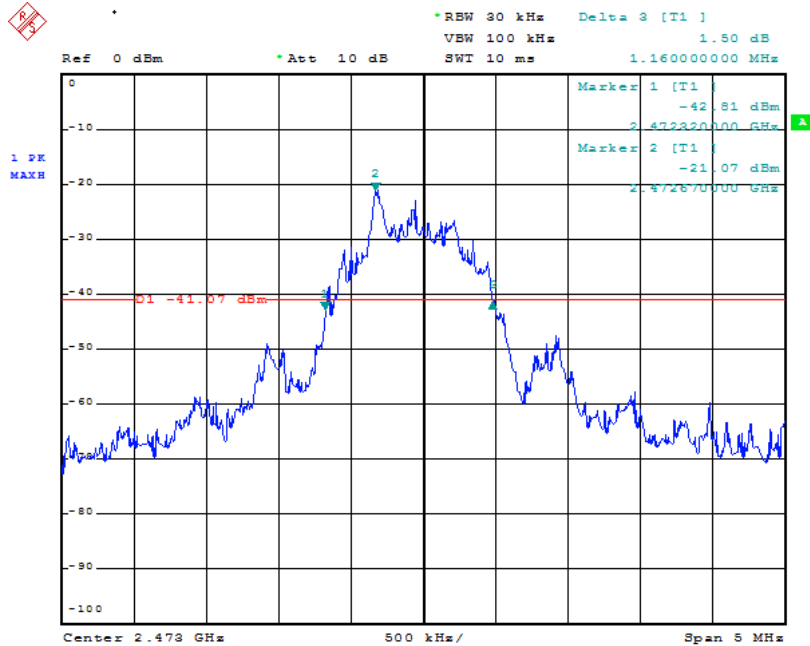


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Channel: Highest



## 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

Limit:

Fundamental frequency(MHz)	Field strength of fundamental(microvolts/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.

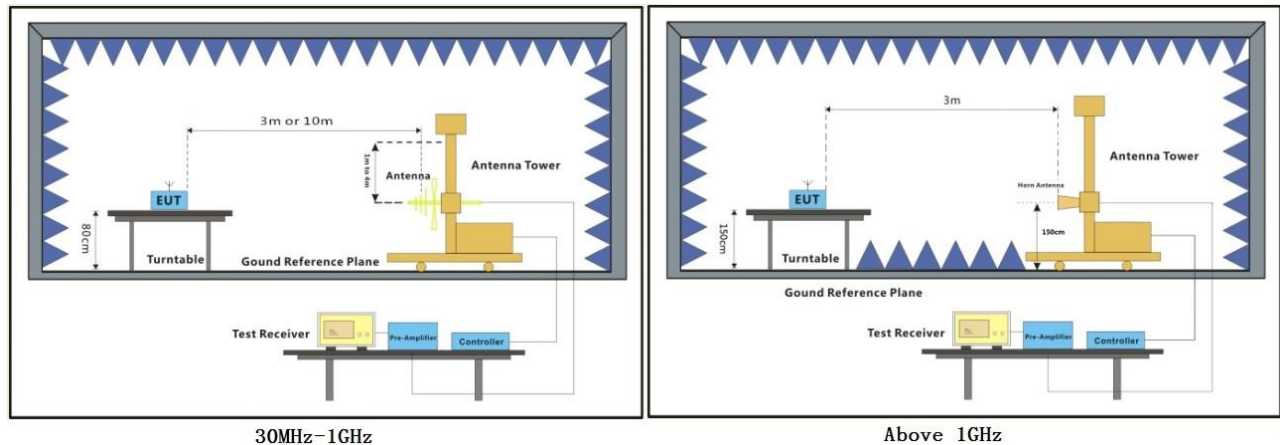
### 7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

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

### 7.2.2 Test Setup Diagram





### 7.2.3 Measurement Procedure and Data

- 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.
- 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.
- 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.
- 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.
- 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.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- 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.
- Test the EUT in the lowest channel, the middle channel, the Highest channel.
- 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.
- Repeat above procedures until all frequencies measured was complete.

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

Peak value:

Channel	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
Lowest	94.68	-3.92	90.76	94	-3.24	Horizontal
	90.68	-3.92	86.76	94	-7.24	Vertical
Middle	95.34	-3.96	91.38	94	-2.62	Horizontal
	90.39	-3.97	86.42	94	-7.58	Vertical
Highest	97.34	-4	93.34	94	-0.66	Horizontal
	90.39	-4	86.39	94	-7.61	Vertical

Remark:

- The basic equation with a sample calculation is as follows: Level = Read Level + Factor.  
(The Factor is calculated by adding the Antenna Factor, Cable Loss and Preamp Factor)
- If the Peak value below the AV Limit, the AV test doesn't perform for this submission.

### 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

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.

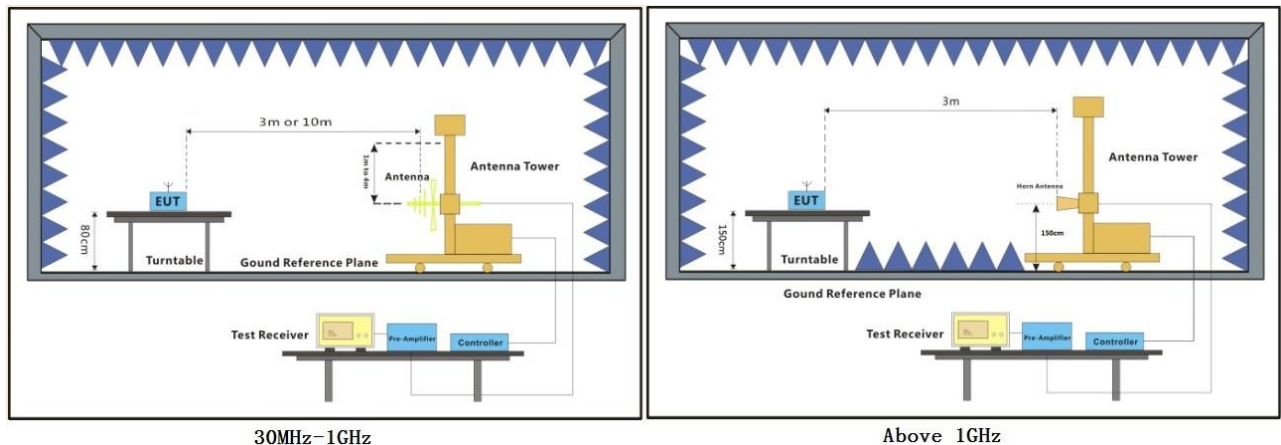
#### 7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

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

#### 7.3.2 Test Setup Diagram





### **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



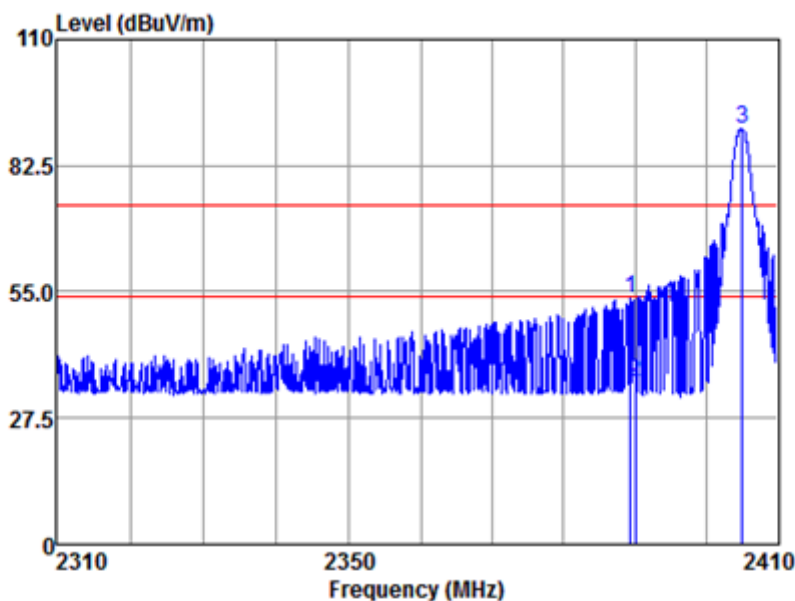


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Mode:a; Polarization:Horizontal; Modulation:GFSK; ; Channel:Low



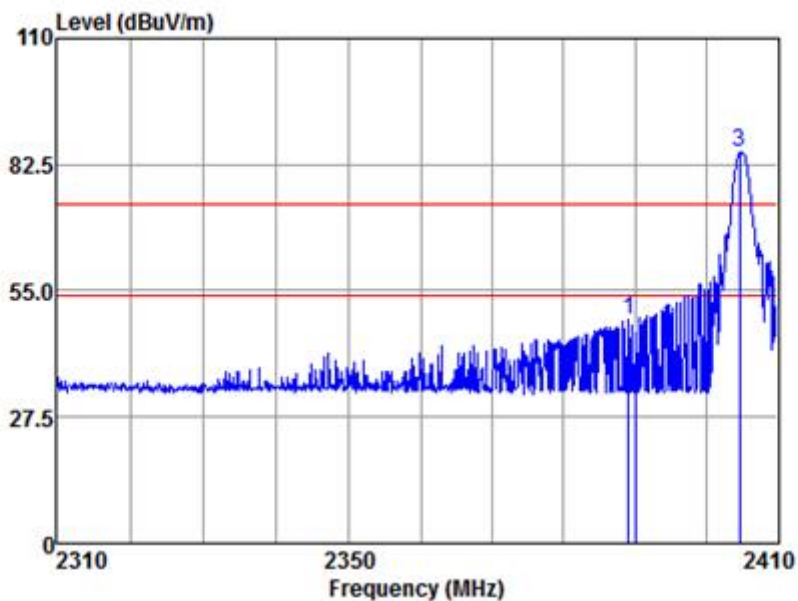
Antenna Polarity :HORIZONTAL

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
2389.36	58.35	26.03	6.47	37.36	53.49	74.00	-20.51	Peak
2390.00	40.25	26.03	6.47	37.36	35.39	74.00	-38.61	Peak
2405.21	95.43	26.06	6.50	37.35	90.64	74.00	16.64	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor



Mode:a; Polarization:Vertical; Modulation:GFSK; ; Channel:Low



Antenna Polarity :VERTICAL

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
-----	-----	-----	-----	-----	-----	-----	-----	-----
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
2389.15	53.40	26.03	6.47	37.36	48.54	74.00	-25.46	Peak
2390.00	39.07	26.03	6.47	37.36	34.21	74.00	-39.79	Peak
2404.80	89.96	26.06	6.50	37.35	85.17	74.00	11.17	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

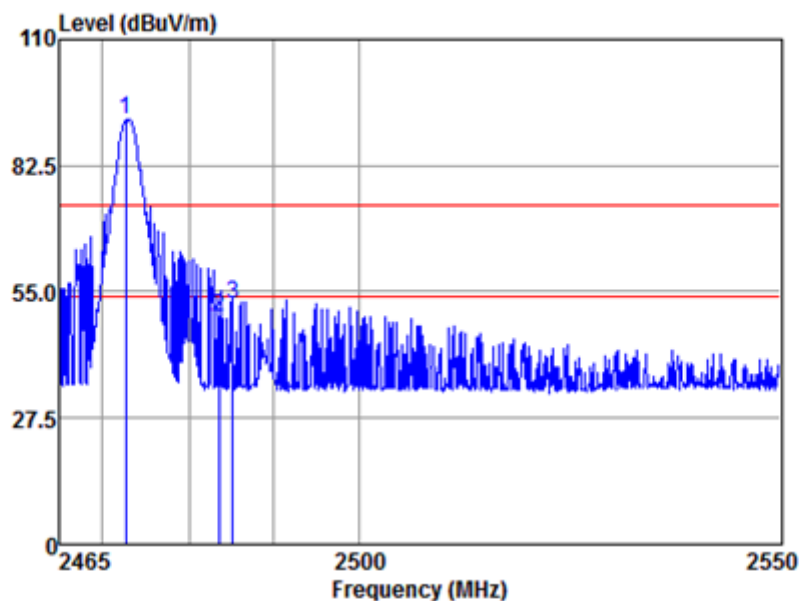


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Mode:a; Polarization:Horizontal; Modulation:GFSK; ; Channel:High



Antenna Polarity :HORIZONTAL

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
2472.70	97.00	26.16	6.74	37.48	92.42	74.00	18.42	Peak
2483.50	54.19	26.18	6.80	37.51	49.66	74.00	-24.34	Peak
2485.14	57.02	26.18	6.80	37.51	52.49	74.00	-21.51	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

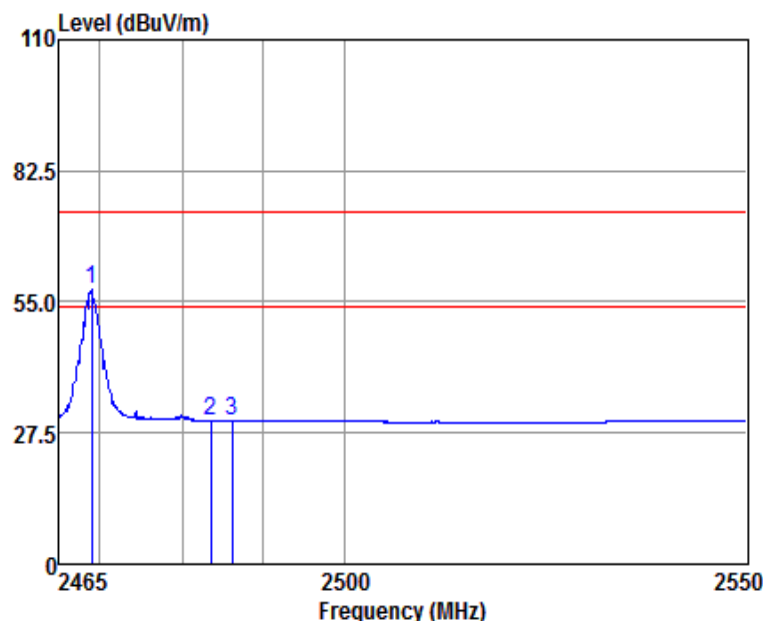


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Mode:a; Polarization:Horizontal; Modulation:GFSK; ; Channel:High



Antenna Polarity :HORIZONTAL

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
2468.93	62.07	26.16	6.74	37.48	57.49	54.00	3.49	Average
2483.50	34.54	26.18	6.80	37.51	30.01	54.00	-23.99	Average
2486.15	34.56	26.18	6.80	37.51	30.03	54.00	-23.97	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

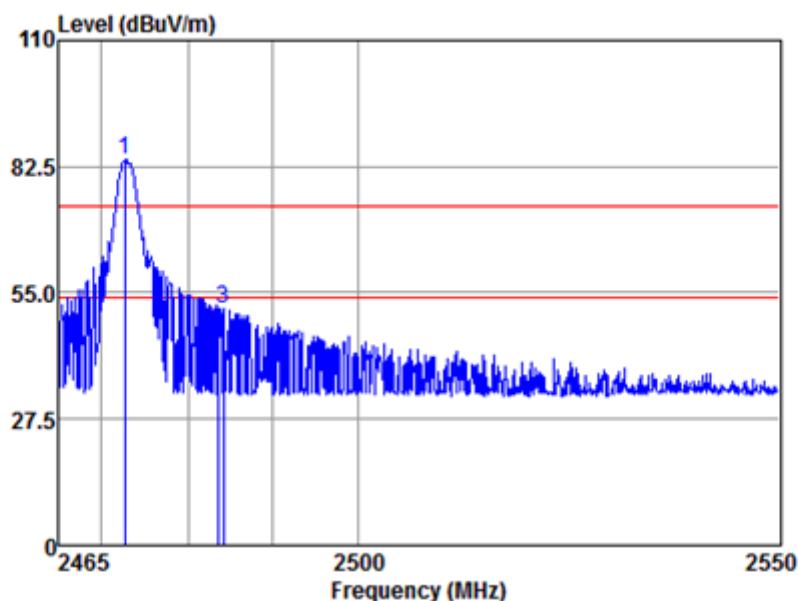


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Mode:a; Polarization:Vertical; Modulation:GFSK; ; Channel:High



Antenna Polarity :VERTICAL

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
-----	-----	-----	-----	-----	-----	-----	-----	-----
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
2472.62	88.65	26.16	6.74	37.48	84.07	74.00	10.07	Peak
2483.50	51.07	26.18	6.80	37.51	46.54	74.00	-27.46	Peak
2484.21	55.95	26.18	6.80	37.51	51.42	74.00	-22.58	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

## 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

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

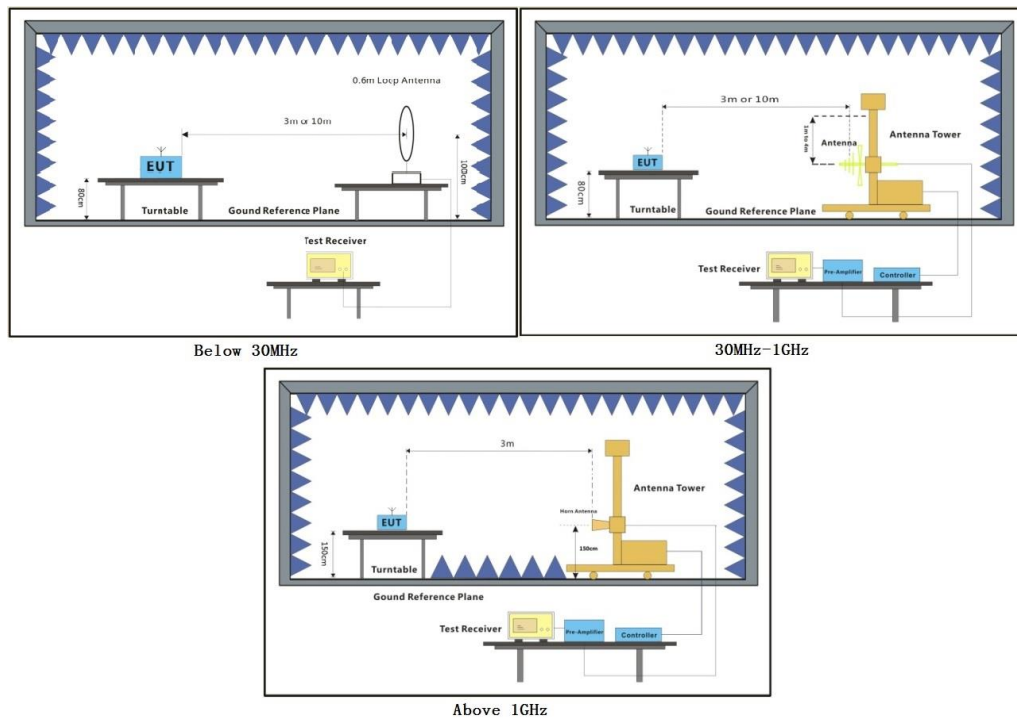
### 7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

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

### 7.4.2 Test Setup Diagram





#### **7.4.3 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 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:**

- 1) For emission below 1GHz, through pre-scan found the worst case is the lowest channel. Only the worst case is recorded in the report.
- 2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:  
$$\text{Final Test Level} = \text{Receiver Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Preamplifier Factor}$$
- 3) Scan from 9kHz to 25GHz, the disturbance above 18GHz and 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.
- 4) 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





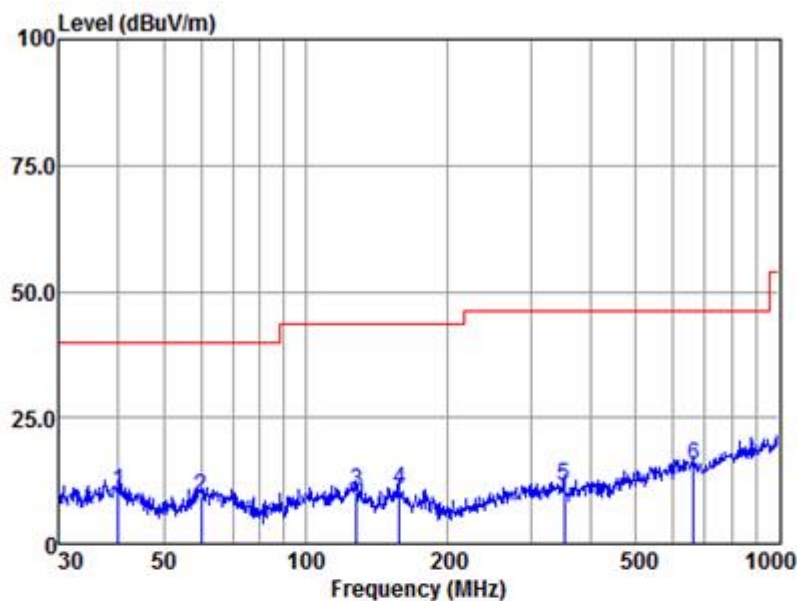
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Below 1GHz

Mode:a; Polarization:Horizontal



Antenna Polarity :HORIZONTAL

Test mode :a

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	40.13	36.70	16.21	0.22	42.62	10.51	40.00	-29.49	QP
2	60.07	38.81	12.60	0.30	42.65	9.06	40.00	-30.94	QP
3	128.11	40.24	12.31	0.57	42.66	10.46	43.50	-33.04	QP
4	157.56	40.00	12.83	0.63	42.60	10.86	43.50	-32.64	QP
5	351.71	38.56	14.24	0.92	42.23	11.49	46.00	-34.51	QP
6	661.15	36.24	19.91	1.55	42.29	15.41	46.00	-30.59	QP

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

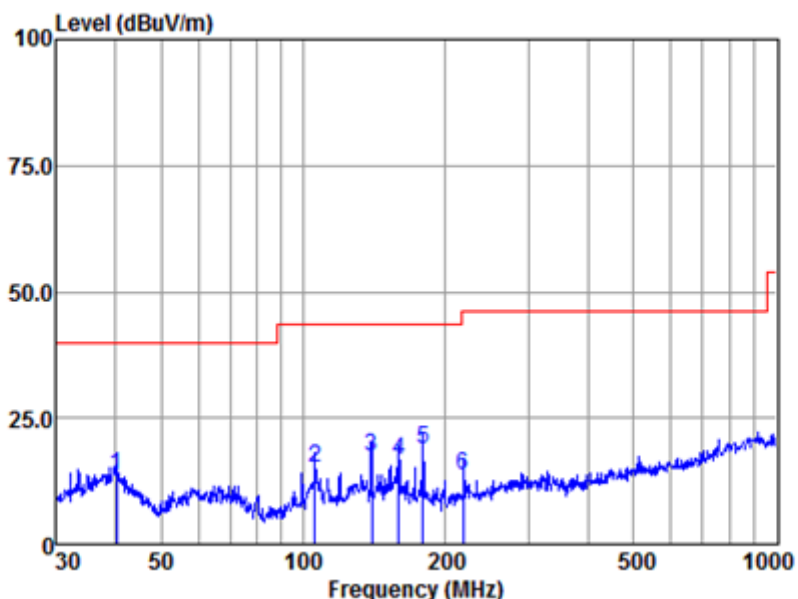


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Mode:a; Polarization:Vertical



Antenna Polarity :VERTICAL

Test mode :a

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	40.28	40.07	16.12	0.22	42.62	13.79	40.00	-26.21	QP
2	106.01	47.89	9.56	0.48	42.70	15.23	43.50	-28.27	QP
3	139.36	48.08	11.37	0.60	42.63	17.42	43.50	-26.08	QP
4	159.23	45.48	13.03	0.63	42.59	16.55	43.50	-26.95	QP
5	179.39	48.81	11.88	0.66	42.56	18.79	43.50	-24.71	QP
6	218.31	45.08	10.22	0.72	42.50	13.52	46.00	-32.48	QP

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor



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Above 1GHz

Mode:a; Polarization:Horizontal; Modulation:GFSK; ; Channel:Low

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
4804	39.55	6.18	45.73	54	-8.27	peak
7206	36.51	10.63	47.14	54	-6.86	peak
9608	36.21	14.38	50.59	54	-3.41	peak

Mode:a; Polarization:Vertical; Modulation:GFSK; ; Channel:Low

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
4804	36.62	6.18	42.8	54	-11.2	peak
7206	36.3	10.63	46.93	54	-7.07	peak
9608	36.16	14.38	50.54	54	-3.46	peak

Mode:a; Polarization:Horizontal; Modulation:GFSK; ; Channel:middle

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
4880	35.33	6.97	42.3	54	-11.7	peak
7320	34.85	11.12	45.97	54	-8.03	peak
9760	31.57	14.35	45.92	54	-8.08	peak

Mode:a; Polarization:Vertical; Modulation:GFSK; ; Channel:middle

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
4880	38.73	6.97	45.7	54	-8.3	peak
7320	34.77	11.12	45.89	54	-8.11	peak
9760	34.6	14.35	48.95	54	-5.05	peak

Mode:a; Polarization:Horizontal; Modulation:GFSK; ; Channel:High

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
4960	40.82	7.49	48.31	54	-5.69	peak
7440	39.42	11.65	51.07	54	-2.93	peak
9920	34.23	14.4	48.63	54	-5.37	peak

Mode:a; Polarization:Vertical; Modulation:GFSK; ; Channel:High

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
4960	38.47	7.49	45.96	54	-8.04	peak
7440	35.73	11.65	47.38	54	-6.62	peak
9920	33.79	14.4	48.19	54	-5.81	peak

## 7.5 99% Bandwidth

Test Requirement RSS-Gen Section 6.6

Test Method: ANSI C63.10 Section 6.9.3

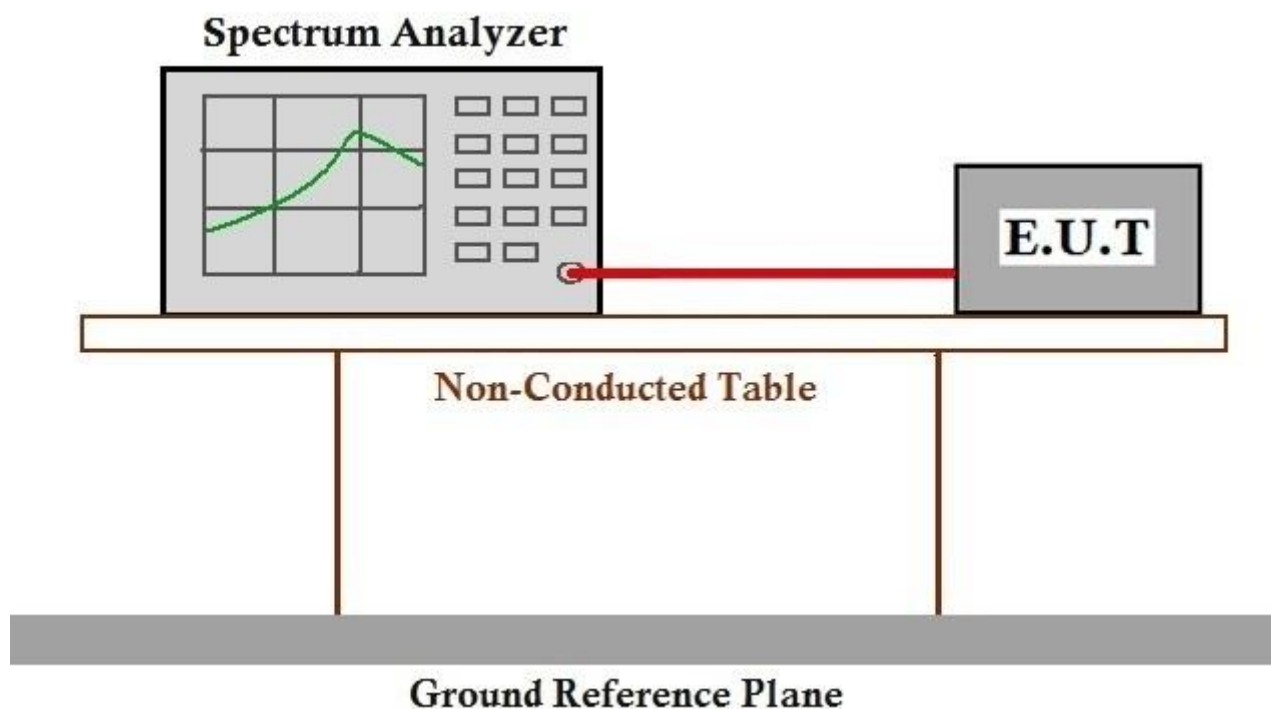
### 7.5.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

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

### 7.5.2 Test Setup Diagram



### 7.5.3 Measurement Procedure and Data

CH	Frequency (MHz)	Bandwidth (MHz)
Low	2405	1.092
Mid	2440	1.062
High	2475	1.080

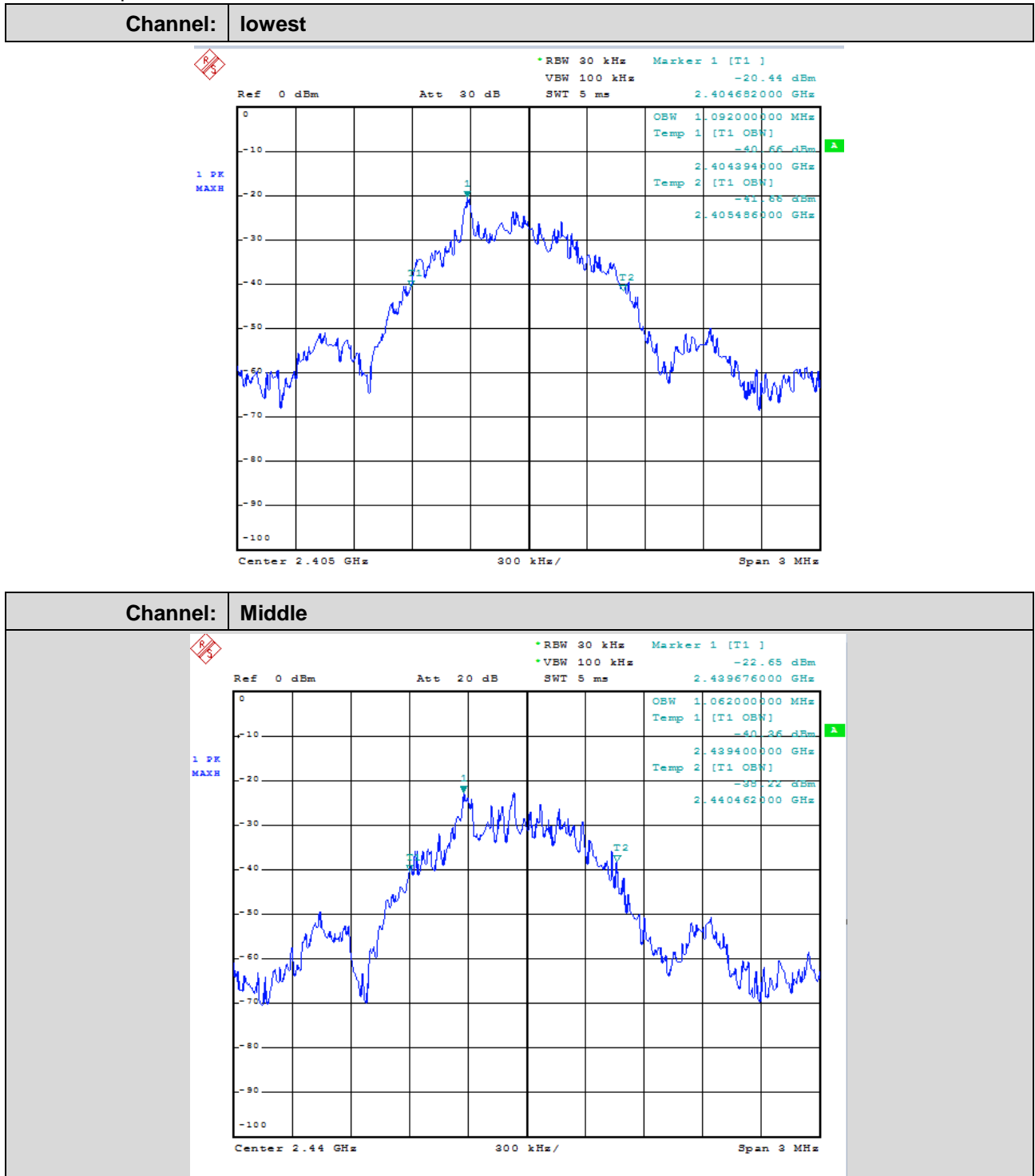


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Test plot as follows:

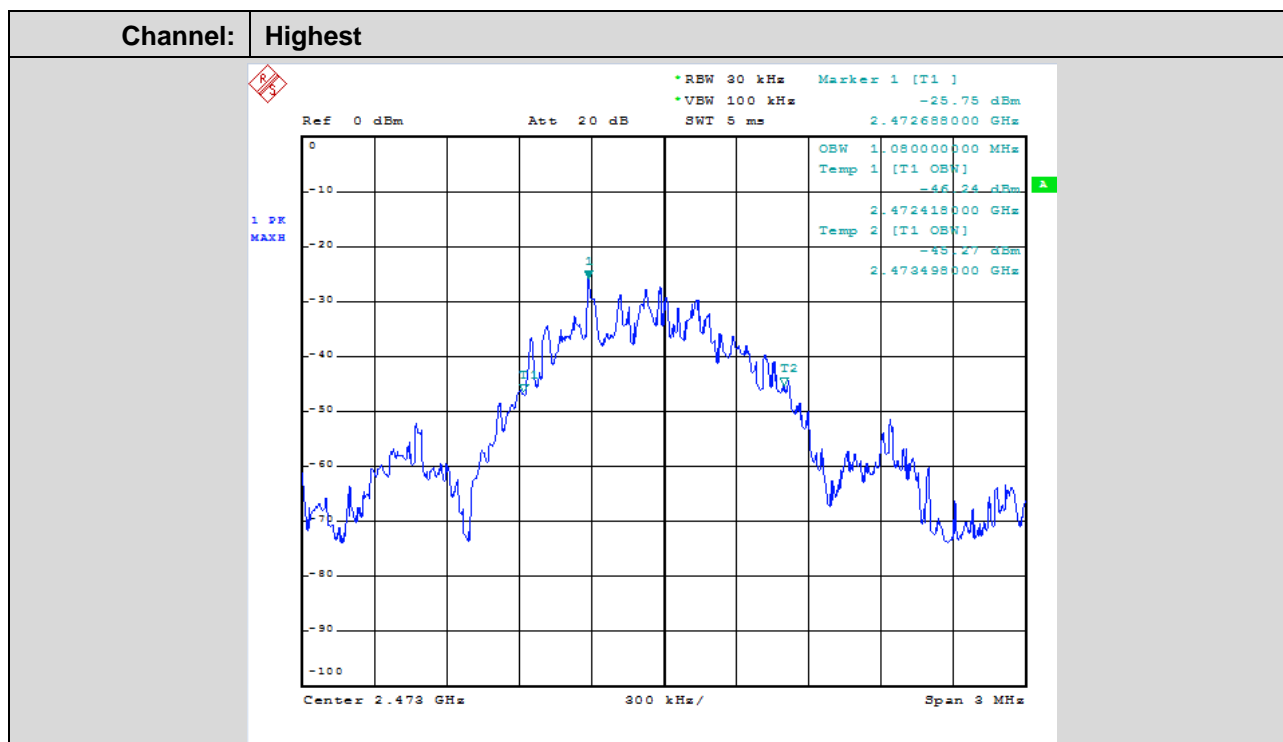




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## **8 Test Setup Photographs**

Refer to the <Test Setup photos FCC>.

## **9 EUT Constructional Details**

Refer to the < External Photos > & < Internal Photos >.

**- End of the Report -**