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Report No.: SZEM170400354801  
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## **TEST REPORT**

**Application No.:** SZEM1704003548CR  
**Applicant:** Corsair Memory, Inc  
**Address of Applicant:** 47100 Bayside Pkwy, Fremont, CA 94538, USA  
**Manufacturer:** Corsair Memory, Inc  
**Address of Manufacturer:** 47100 Bayside Pkwy, Fremont, CA 94538, USA  
**Factory:** Shenzhen Horn Audio Co., Ltd  
**Address of Factory:** No.6, 4<sup>th</sup> Guihua Rd, Pingshan, Longgang, Shenzhen  
**Equipment Under Test (EUT):**  
**EUT Name:** USB dongle  
**Model No.:** RDA0012  
**Trade mark:** Corsair  
**FCC ID:** 2AAFMRDA0012  
**Standards:** 47 CFR Part 15, Subpart C 15.249  
**Date of Receipt:** 2017-04-21  
**Date of Test:** 2017-04-25 to 2017-05-12  
**Date of Issue:** 2017-05-12

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

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



Jack Zhang  
 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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<b>Revision Record</b>				
<b>Version</b>	<b>Chapter</b>	<b>Date</b>	<b>Modifier</b>	<b>Remark</b>
01		2017-05-12		Original

<b>Authorized for issue by:</b>			
<b>Tested By</b>			2017-05-12
	Jacky Li /Project Engineer		<b>Date</b>
<b>Checked By</b>			2017-05-12
	Eric Fu /Reviewer		<b>Date</b>



## 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
Conducted Disturbance at AC Power Line(150kHz-30MHz)	47 CFR Part 15, Subpart C 15.249	ANSI C63.10 (2013) Section 6.2	47 CFR Part 15, Subpart C 15.207	Pass
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 5.0V, 0.5A by USB  
Cable: USB Cable: 2.0m, shielded

### 4.2 Description of E.U.T.

Product Name:	USB dongle
Model No.:	RDA0012
Trade Mark:	Corsair
Carrier Frequency:	2403.35~2477.35MHz
Channel Spacing:	2MHz
Channel Number:	38
Modulation Type:	Pi/4DQPSK
Sample Type:	Portable production
Test Power Grade:	Default setting(manufacture declare)
Test Software of EUT:	VMI Dev Software(manufacture declare)
Antenna Type:	Chip antenna
Antenna Gain:	0.88dBi
Test voltage:	AC 120V, 60Hz

### 4.3 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Laptop	Lenovo	T430u	REF. No.SEA1800
Router	NETGEAR	DGN2200	REF. No.SEA2200
Mouse	Lenovo	M-U0025-O	REF. No.:SEA2400



#### 4.4 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	7.25 x 10 <sup>-8</sup>
2	Duty cycle	0.37%
3	Occupied Bandwidth	3%
4	RF conducted power	0.75dB
5	Conducted Spurious emissions	0.75dB
6	RF Radiated power	4.5dB (below 1GHz)
		4.8dB (above 1GHz)
7	Radiated Spurious emission test	4.5dB (30MHz-1GHz)
		4.8dB (1GHz-18GHz)
8	Temperature test	1°C
9	Humidity test	3%
10	Supply voltages	1.5%
11	Time	3%



#### **4.5 Test Location**

All tests were performed at:

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

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China.  
518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

#### **4.6 Test Facility**

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

- **CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab 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.

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI**

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.: G-823, R-4188, T-1153 and C-2383 respectively.

- **FCC – Registration No.: 556682**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 556682.

- **Industry Canada (IC)**

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.

#### **4.7 Deviation from Standards**

None

#### **4.8 Abnormalities from Standard Conditions**

None



## 5 Equipment List

RE in Chamber						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (yyyy-mm-dd)	Cal. Due date (yyyy-mm-dd)
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2017-05-10	2018-05-10
2	EMI Test Receiver	Agilent Technologies	N9038A	SEM004-05	2016-10-09	2017-10-09
3	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEM003-01	2014-11-01	2017-11-01
4	Double-ridged horn (1-18GHz)	ETS-LINDGREN	3117	SEM003-11	2015-10-17	2018-10-17
5	Horn Antenna (18-26GHz)	ETS-LINDGREN	3160	SEM003-12	2014-11-24	2017-11-24
6	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEM005-01	2017-04-14	2018-04-14
7	Band filter	Amindeon	Asi 3314	SEM023-01	N/A	N/A
8	DC Power Supply	Zhao Xin	RXN-305D	SEM011-02	2016-10-09	2017-10-09
9	Loop Antenna	Beijing Daze	ZN30401	SEM003-09	2015-05-13	2018-05-13

RE in Chamber						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (yyyy-mm-dd)	Cal. Due date (yyyy-mm-dd)
1	3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2017-05-10	2018-05-10
2	EXA Spectrum Analyzer	Agilent Technologies Inc	N9010A	SEM004-09	2016-07-19	2017-07-19
3	BiConiLog Antenna (26-3000MHz)	ETS-Lindgren	3142C	SEM003-02	2014-11-15	2017-11-15
4	Amplifier (0.1-1300MHz)	HP	8447D	SEM005-02	2016-10-09	2017-10-09
5	Horn Antenna (1-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2015-06-14	2018-06-14
6	Horn Antenna (18-26GHz)	ETS-Lindgren	3160	SEM003-12	2014-11-24	2017-11-24
7	Horn Antenna(26GHz-40GHz)	A.H.Systems, inc.	SAS-573	SEM003-13	2015-02-12	2018-02-12
8	Low Noise Amplifier	Black Diamond Series	BDLNA-0118-352810	SEM005-05	2016-10-09	2017-10-09
9	Band filter	Amindeon	Asi 3314	SEM023-01	N/A	N/A



RF connected test						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (yyyy-mm-dd)	Cal. Due date (yyyy-mm-dd)
1	DC Power Supply	ZhaoXin	RXN-305D	SEM011-02	2016-10-09	2017-10-09
2	Spectrum Analyzer	Rohde & Schwarz	FSP	SEM004-06	2016-10-09	2017-10-09
3	Signal Generator	Rohde & Schwarz	SML03	SEM006-02	2017-04-14	2018-04-14
4	Power Meter	Rohde & Schwarz	NRVS	SEM014-02	2016-10-09	2017-10-09

General used equipment					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-03	2016-10-12	2017-10-12
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2016-10-12	2017-10-12
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2016-10-12	2017-10-12
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2016-05-18	2017-05-18

## 6 Radio Spectrum Technical Requirement

### 6.1 Antenna Requirement

#### 6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.249

#### 6.1.2 Conclusion

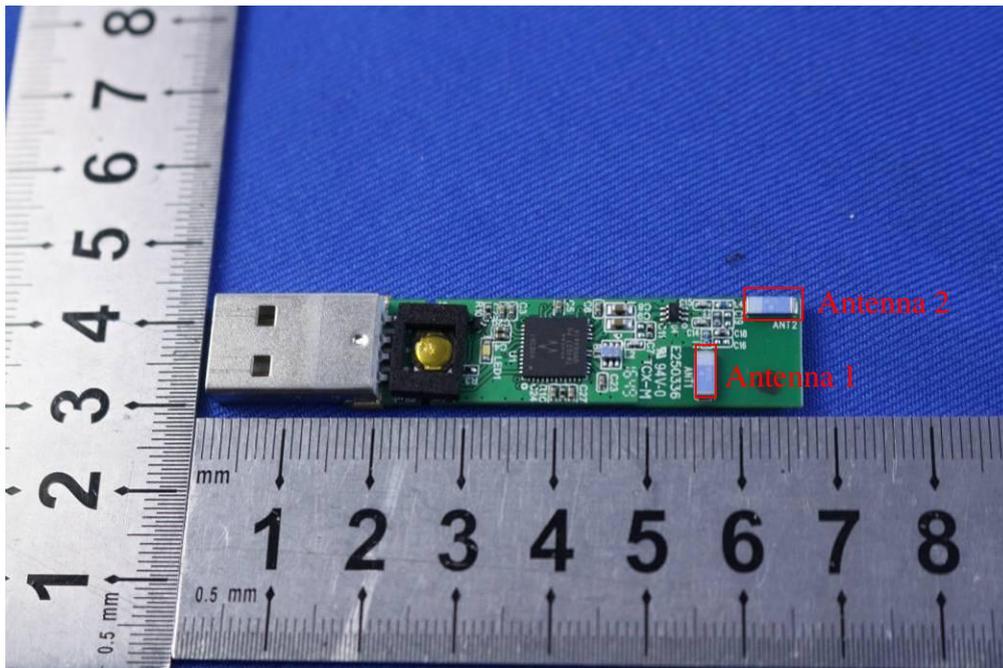
Standard Requirement:

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 a chip antenna on the main PCB and no consideration of replacement. The best case gain of the antenna is 0.88dBi.





## 7 Radio Spectrum Matter Test Results

### 7.1 Conducted Disturbance at AC Power Line(150kHz-30MHz)

Test Requirement 47 CFR Part 15, Subpart C 15.207

Test Method: ANSI C63.10 (2013) Section 6.2

Limit:

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

\* Decreases with the logarithm of the frequency.



### 7.1.1 E.U.T. Operation

Operating Environment:

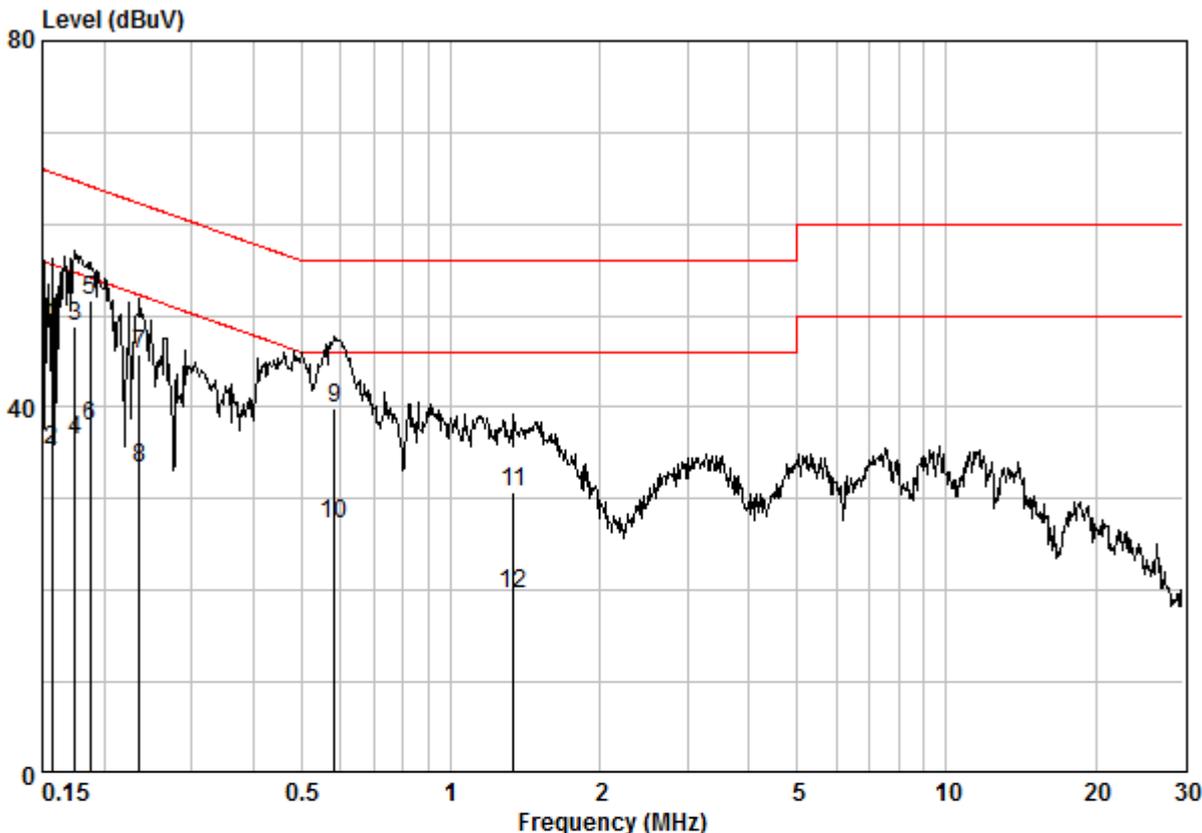
Temperature: 23.0 °C      Humidity: 56 % RH      Atmospheric Pressure: 1015 mbar

Test mode: a:TX mode\_Keep the EUT in transmitting mode

### 7.1.2 Measurement Data

- 1) The mains terminal disturbance voltage test was conducted in a shielded room.
- 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50μH + 5ohm linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
- 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
- 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
- 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

Mode a: Live Line:

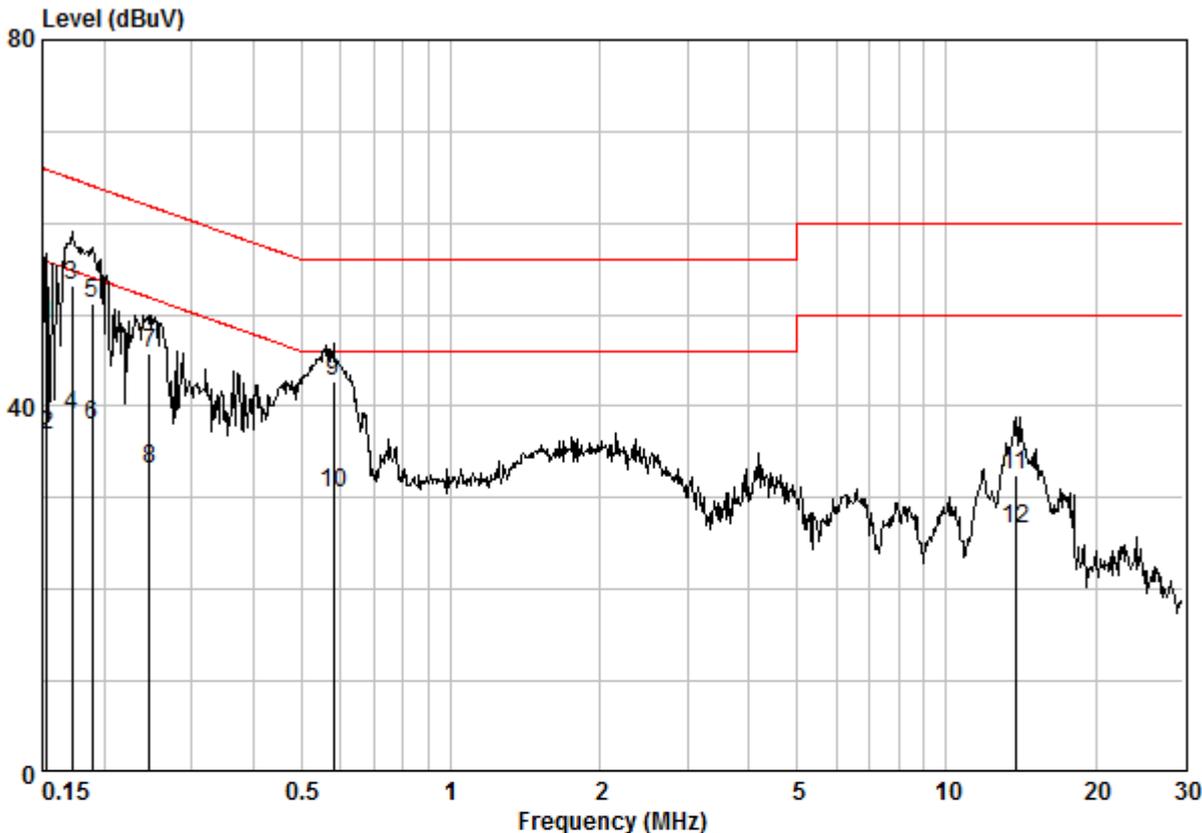


Site : Shielding Room  
 Condition : CE LINE  
 Job No. : 03548CR  
 Test Mode : a

	Freq	Cable Loss	LISN Factor	Read Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dB	
1	0.15649	0.02	9.64	39.24	48.90	65.65	-16.75 QP
2	0.15649	0.02	9.64	25.63	35.29	55.65	-20.36 AVERAGE
3	0.17491	0.02	9.64	39.25	48.91	64.72	-15.82 QP
4	0.17491	0.02	9.64	26.69	36.35	54.72	-18.37 AVERAGE
5 @	0.18738	0.02	9.64	42.05	51.71	64.15	-12.44 QP
6	0.18738	0.02	9.64	28.21	37.87	54.15	-16.29 AVERAGE
7	0.23533	0.02	9.64	36.14	45.80	62.26	-16.46 QP
8	0.23533	0.02	9.64	23.70	33.36	52.26	-18.90 AVERAGE
9	0.58231	0.02	9.65	30.20	39.87	56.00	-16.13 QP
10	0.58231	0.02	9.65	17.47	27.14	46.00	-18.86 AVERAGE
11	1.338	0.03	9.66	21.06	30.75	56.00	-25.25 QP
12	1.338	0.03	9.66	9.84	19.53	46.00	-26.47 AVERAGE



Mode a: Neutral Line:



Site : Shielding Room  
Condition : CE NEUTRAL  
Job No. : 03548CR  
Test Mode : a

	Freq	Cable Loss	LISN Factor	Read Level	Limit Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.15321	0.02	9.64	39.09	48.75	65.82	-17.07	QP
2	0.15321	0.02	9.64	27.19	36.85	55.82	-18.97	AVERAGE
3 @	0.17215	0.02	9.63	43.62	53.27	64.86	-11.59	QP
4	0.17215	0.02	9.63	29.40	39.05	54.86	-15.81	AVERAGE
5 @	0.18938	0.02	9.63	41.49	51.14	64.06	-12.92	QP
6	0.18938	0.02	9.63	28.37	38.02	54.06	-16.05	AVERAGE
7	0.24682	0.02	9.63	36.22	45.87	61.86	-15.99	QP
8	0.24682	0.02	9.63	23.46	33.11	51.86	-18.76	AVERAGE
9	0.57923	0.02	9.63	32.98	42.63	56.00	-13.37	QP
10	0.57923	0.02	9.63	20.95	30.60	46.00	-15.40	AVERAGE
11	13.768	0.15	9.94	22.31	32.41	60.00	-27.59	QP
12	13.768	0.15	9.94	16.56	26.65	50.00	-23.35	AVERAGE



## **7.2 20dB Bandwidth**

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

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

Operating Environment:  
Temperature: 23.0 °C Humidity: 56 % RH Atmospheric Pressure: 1015 mbar  
Test mode: a:TX mode\_Keep the EUT in transmitting mode

### **7.2.2 Measurement Data**

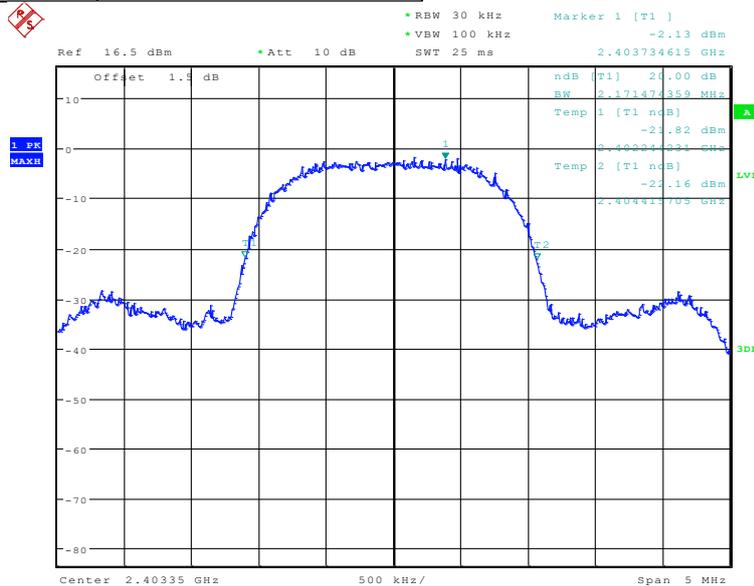


Ant 1:

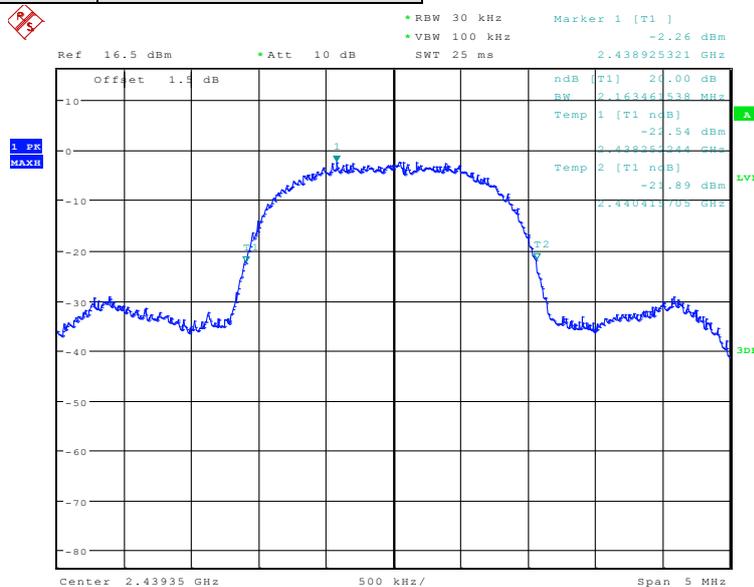
Test channel	20dB bandwidth (MHz)	Results
Lowest	2.171	Pass
Middle	2.163	Pass
Highest	2.155	Pass

Test plot as follows:

Test channel: **Lowest**



Test channel: **Middle**

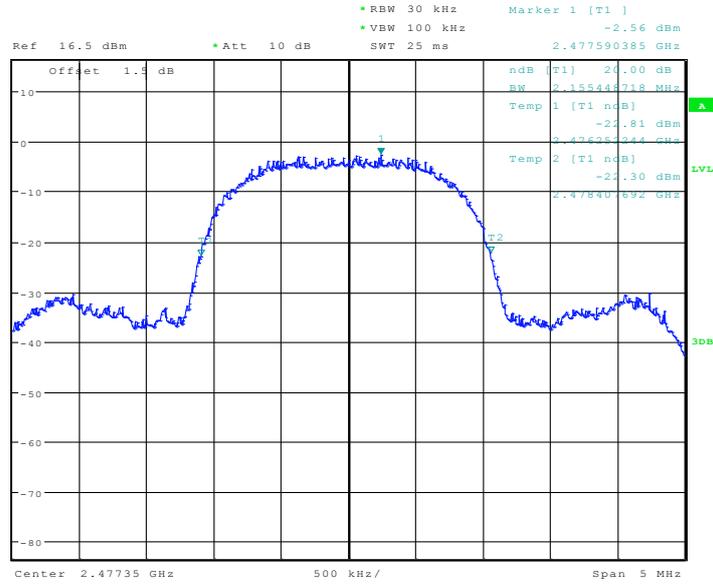




Test channel: Highest



1 PR  
MAX



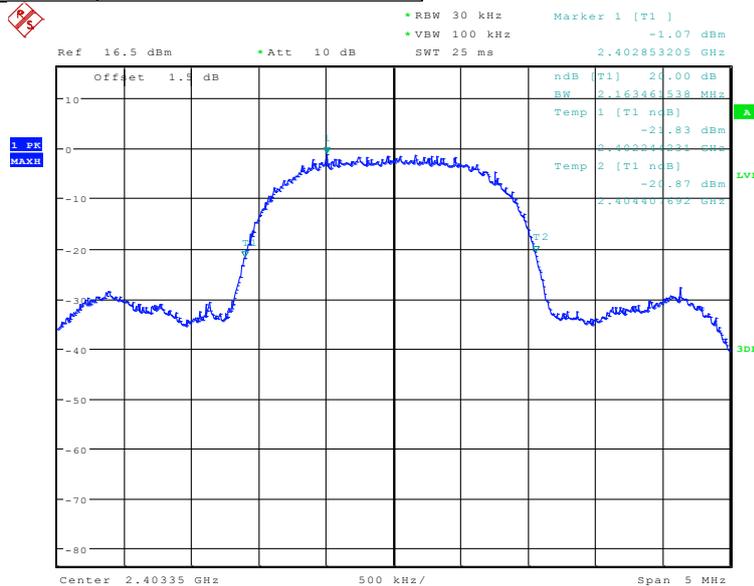


Ant 2:

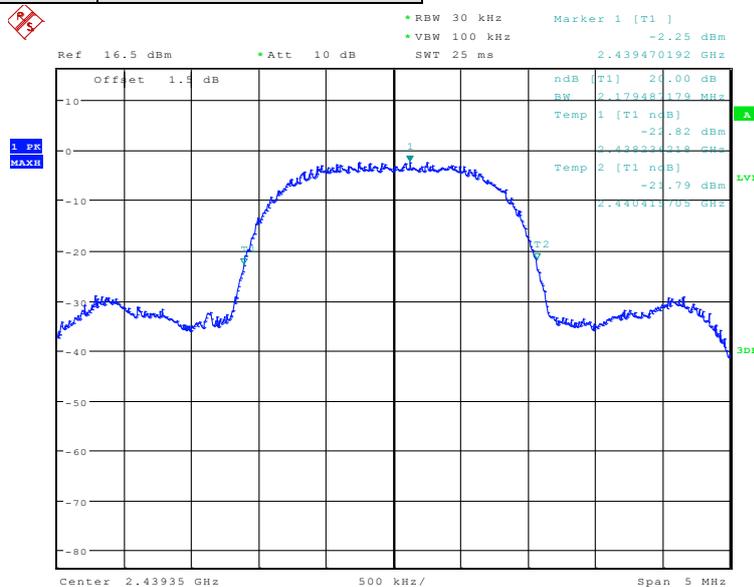
Test channel	20dB bandwidth (MHz)	Results
Lowest	2.163	Pass
Middle	2.179	Pass
Highest	2.163	Pass

Test plot as follows:

Test channel: **Lowest**

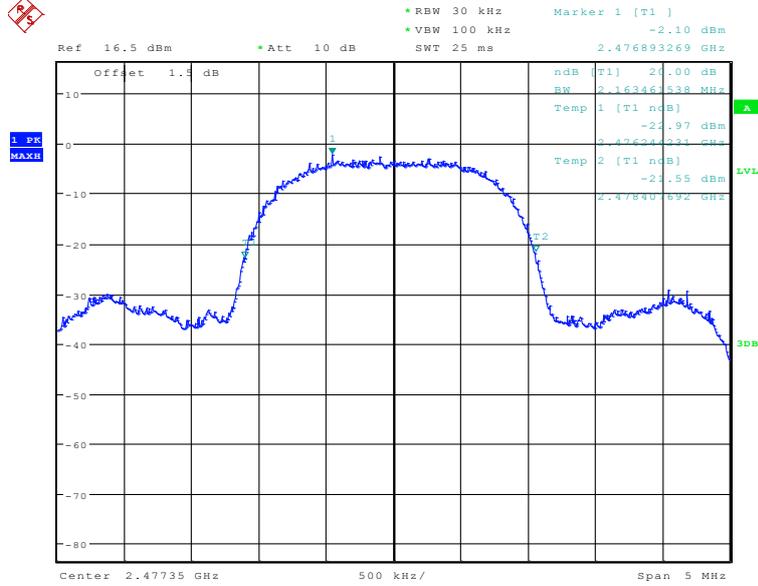


Test channel: **Middle**





Test channel: Highest





### 7.3 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:

Frequency	Limit (dBuV/m @3m)	Remark
2400MHz-2483.5MHz	94.0	Average Value
	114.0	Peak Value



### 7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 23.0 °C      Humidity: 54 % RH      Atmospheric Pressure: 1015 mbar

Test mode: a:TX mode\_Keep the EUT in transmitting mode

### 7.3.2 Measurement 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.



**SGS-CSTC Standards Technical Services Co., Ltd.**  
**Shenzhen Branch**

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**Ant 1:**

Freq (MHz)	Antenna_Factor (dB/m)	Cable_Loss (dB)	Preamp_Gain (dB)	Read_Level (dBuV)	Level (dBuV/m)	Limit_Line (dBuV/m)	Over_Limit (dB)	Remark
2403.35	29.12	5.35	37.96	92.47	88.98	94	-5.02	Average
2403.35	29.12	5.35	37.96	95.66	92.17	114	-21.83	Peak

Freq (MHz)	Antenna_Factor (dB/m)	Cable_Loss (dB)	Preamp_Gain (dB)	Read_Level (dBuV)	Level (dBuV/m)	Limit_Line (dBuV/m)	Over_Limit (dB)	Remark
2441.35	29.23	5.38	37.96	91.32	87.97	94	-6.03	Average
2441.35	29.23	5.38	37.96	94.66	91.31	114	-22.69	Peak

Freq (MHz)	Antenna_Factor (dB/m)	Cable_Loss (dB)	Preamp_Gain (dB)	Read_Level (dBuV)	Level (dBuV/m)	Limit_Line (dBuV/m)	Over_Limit (dB)	Remark
2477.35	29.34	5.4	37.95	91.25	88.04	94	-5.96	Average
2477.35	29.34	5.4	37.95	94.59	91.38	114	-22.62	Peak

**Ant 2:**

Freq (MHz)	Antenna_Factor (dB/m)	Cable_Loss (dB)	Preamp_Gain (dB)	Read_Level (dBuV)	Level (dBuV/m)	Limit_Line (dBuV/m)	Over_Limit (dB)	Remark
2403.35	29.12	5.35	37.96	91.45	87.96	94	-6.04	Average
2403.35	29.12	5.35	37.96	94.72	91.23	114	-22.77	Peak

Freq (MHz)	Antenna_Factor (dB/m)	Cable_Loss (dB)	Preamp_Gain (dB)	Read_Level (dBuV)	Level (dBuV/m)	Limit_Line (dBuV/m)	Over_Limit (dB)	Remark
2441.35	29.23	5.38	37.96	92.16	88.81	94	-5.19	Average
2441.35	29.23	5.38	37.96	95.8	92.45	114	-21.55	Peak

Freq (MHz)	Antenna_Factor (dB/m)	Cable_Loss (dB)	Preamp_Gain (dB)	Read_Level (dBuV)	Level (dBuV/m)	Limit_Line (dBuV/m)	Over_Limit (dB)	Remark
2477.35	29.34	5.4	37.95	90.36	87.15	94	-6.85	Average
2477.35	29.34	5.4	37.95	93.5	90.29	114	-23.71	Peak



#### 7.4 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.



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

Operating Environment:

Temperature: 23.0 °C      Humidity: 54 % RH      Atmospheric Pressure: 1015 mbar

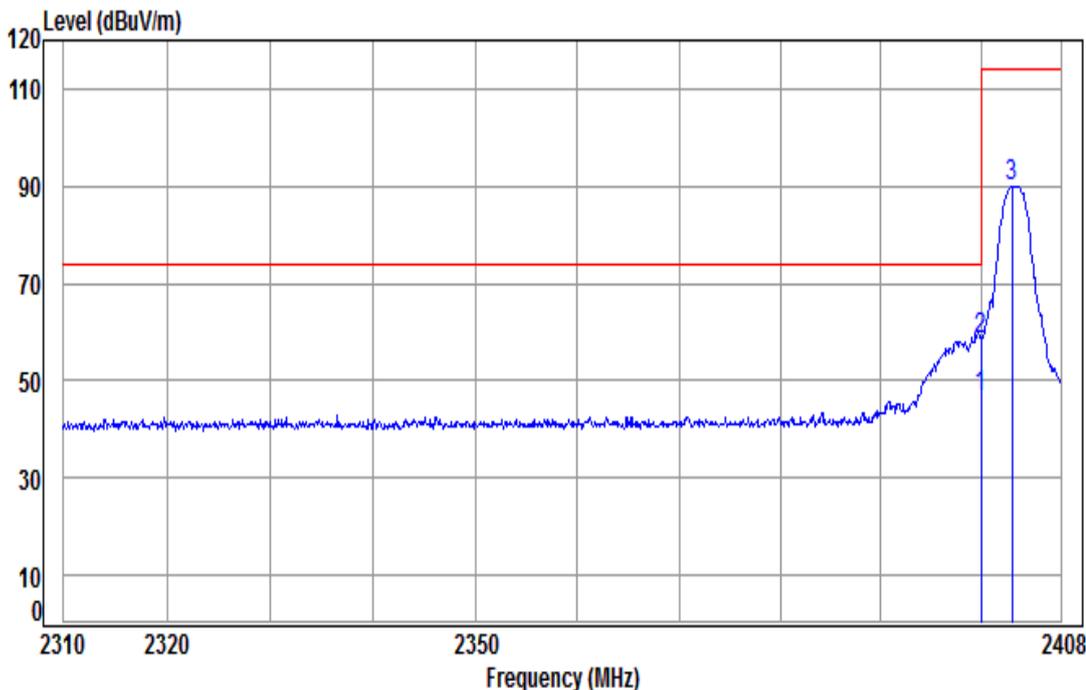
Test mode: a:TX mode\_Keep the EUT in transmitting mode

#### **7.4.2 Measurement 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.

**Ant 1:**

Lowest channel, Horizontal polarity



Condition: 3m HORIZONTAL

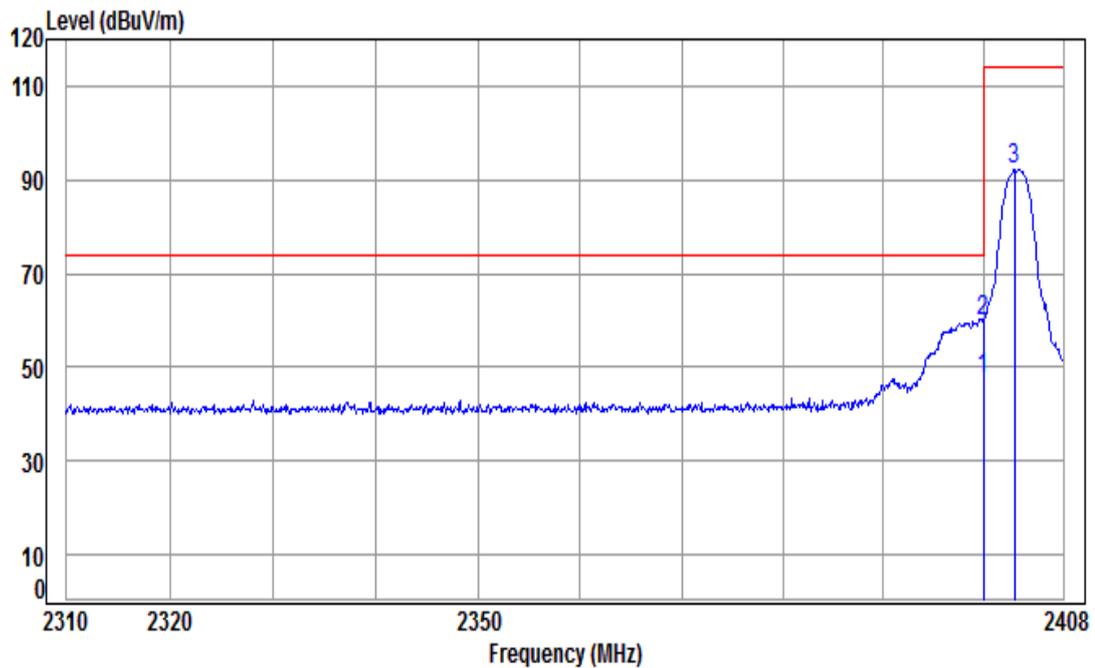
Job No: : 03548CR

Mode: : 2403.35 Band edge

: Dongle Antenna 0

	Cable	Ant	Preamp	Read	Limit	Over		
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 pp 2400.000	5.35	29.11	37.96	49.90	46.40	54.00	-7.60	Average
2 pk 2400.000	5.35	29.11	37.96	61.80	58.30	74.00	-15.70	Peak
3 2403.103	5.35	29.12	37.96	93.47	89.98	114.00	-24.02	Peak

Lowest channel, Vertical polarity



Condition: 3m VERTICAL

Job No: : 03548CR

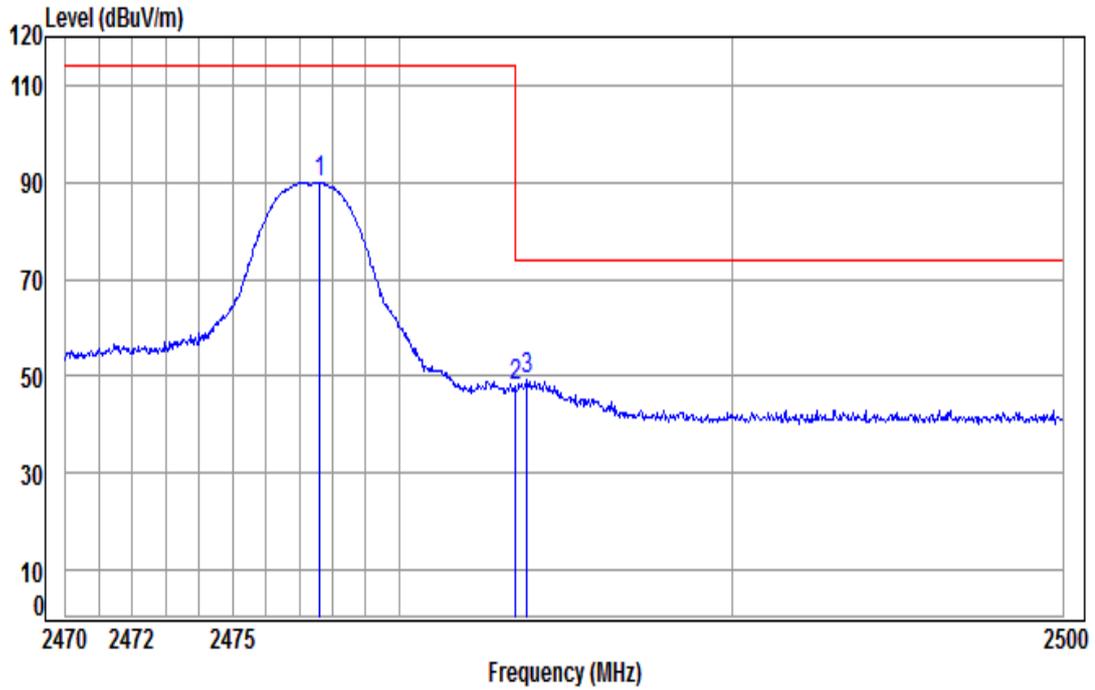
Mode: : 2403.35 Band edge

: Dongle Antenna 0

	Cable	Ant	Preamp	Read	Limit	Over		
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 pp 2400.000	5.35	29.11	37.96	50.94	47.44	54.00	-6.56	Average
2 pk 2400.000	5.35	29.11	37.96	63.49	59.99	74.00	-14.01	Peak
3 2403.103	5.35	29.12	37.96	95.66	92.17	114.00	-21.83	Peak



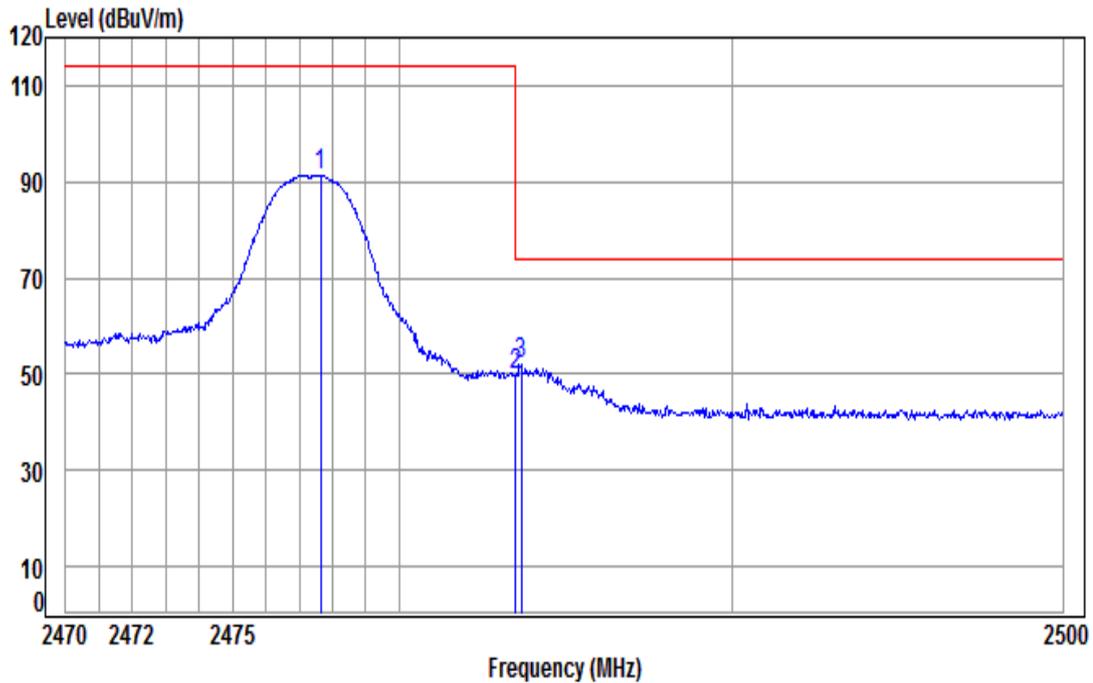
Highest channel, Horizontal polarity



Condition: 3m HORIZONTAL  
Job No: : 03548CR  
Mode: : 2477.35 Band edge  
: Dongle Antenna 0

	Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp 2477.616	5.40	29.34	37.95	93.18	89.97	114.00	-24.03 Peak
2 2483.500	5.41	29.35	37.95	51.18	47.99	114.00	-66.01 Peak
3 2483.845	5.41	29.35	37.95	52.63	49.44	74.00	-24.56 Peak

Highest channel, Vertical polarity



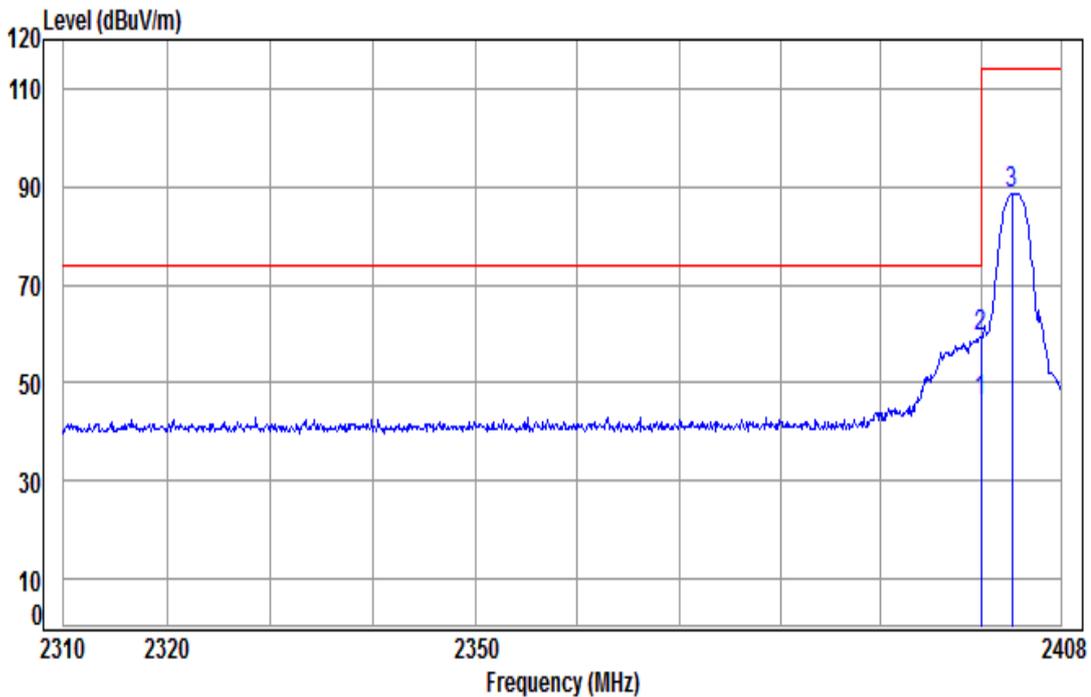
Condition: 3m VERTICAL  
 Job No: : 03548CR  
 Mode: : 2477.35 Band edge  
 : Dongle Antenna 0

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2477.646	5.40	29.34	37.95	94.59	91.38	114.00	-22.62 Peak
2	2483.500	5.41	29.35	37.95	52.90	49.71	74.00	-24.29 Peak
3 pp	2483.665	5.41	29.35	37.95	55.32	52.13	74.00	-21.87 Peak



Ant 2:

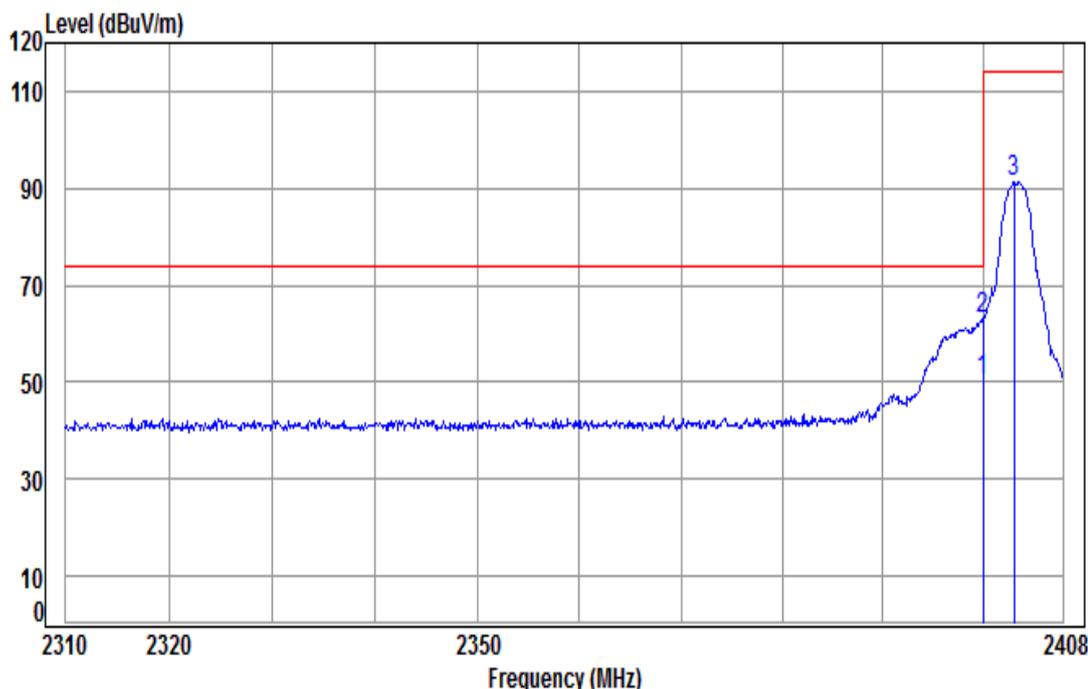
Lowest channel, Horizontal polarity



Condition: 3m HORIZONTAL  
Job No: : 03548CR  
Mode: : 2403.35 Band edge  
: Dongle Antenna 1

	Cable	Ant	Preamp	Read	Limit	Over		
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 pp 2400.000	5.35	29.11	37.96	49.53	46.03	54.00	-7.97	Average
2 pk 2400.000	5.35	29.11	37.96	62.86	59.36	74.00	-14.64	Peak
3 2403.103	5.35	29.12	37.96	92.19	88.70	114.00	-25.30	Peak

Lowest channel, Vertical polarity



Condition: 3m VERTICAL

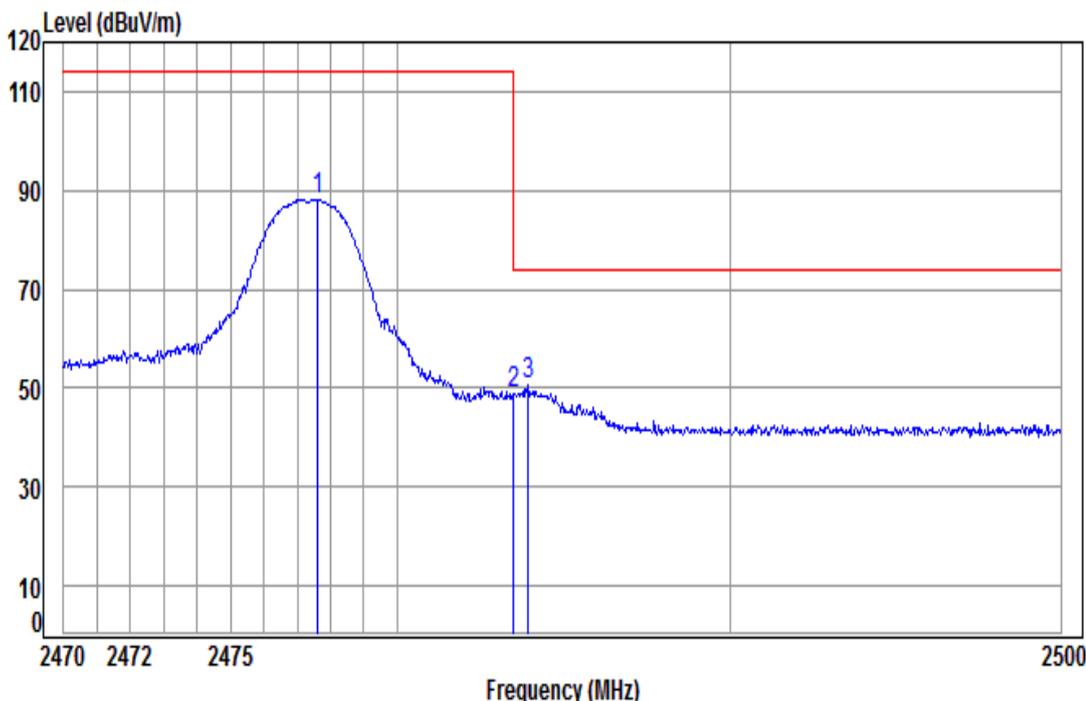
Job No: : 03548CR

Mode: : 2403.35 Band edge

: Dongle Antenna 1

	Cable	Ant	Preamp	Read	Limit	Over		
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 pp 2400.000	5.35	29.11	37.96	53.90	50.40	54.00	-3.60	Average
2 pk 2400.000	5.35	29.11	37.96	66.29	62.79	74.00	-11.21	Peak
3 2403.103	5.35	29.12	37.96	94.72	91.23	114.00	-22.77	Peak

Highest channel, Horizontal polarity



Condition: 3m HORIZONTAL

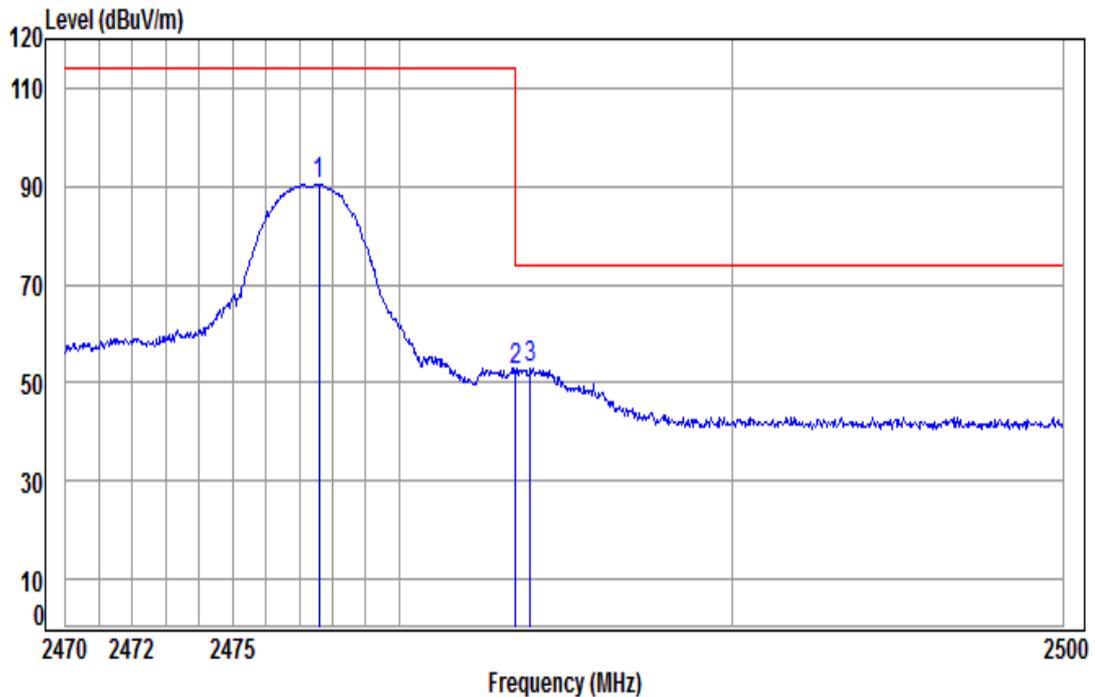
Job No: : 03548CR

Mode: : 2477.35 Band edge

: Dongle Antenna 1

	Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2477.616	5.40	29.34	37.95	91.37	88.16	114.00 -25.84 Peak
2	2483.500	5.41	29.35	37.95	51.91	48.72	74.00 -25.28 Peak
3	pp 2483.935	5.41	29.35	37.95	53.86	50.67	74.00 -23.33 Peak

Highest channel, Vertical polarity



Condition: 3m VERTICAL  
 Job No: : 03548CR  
 Mode: : 2477.35 Band edge  
 : Dongle Antenna 1

	Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2477.586	5.40	29.34	37.95	93.50	90.29	114.00 -23.71 Peak
2	2483.500	5.41	29.35	37.95	55.51	52.32	74.00 -21.68 Peak
3	pp 2483.935	5.41	29.35	37.95	56.31	53.12	74.00 -20.88 Peak

Note:

1. All modes have been tested and we only record the worst test results.
2. When Peak detector value is below the average limit, the average detector value is no need to record.



## 7.5 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

### 7.5.1 E.U.T. Operation

Operating Environment:

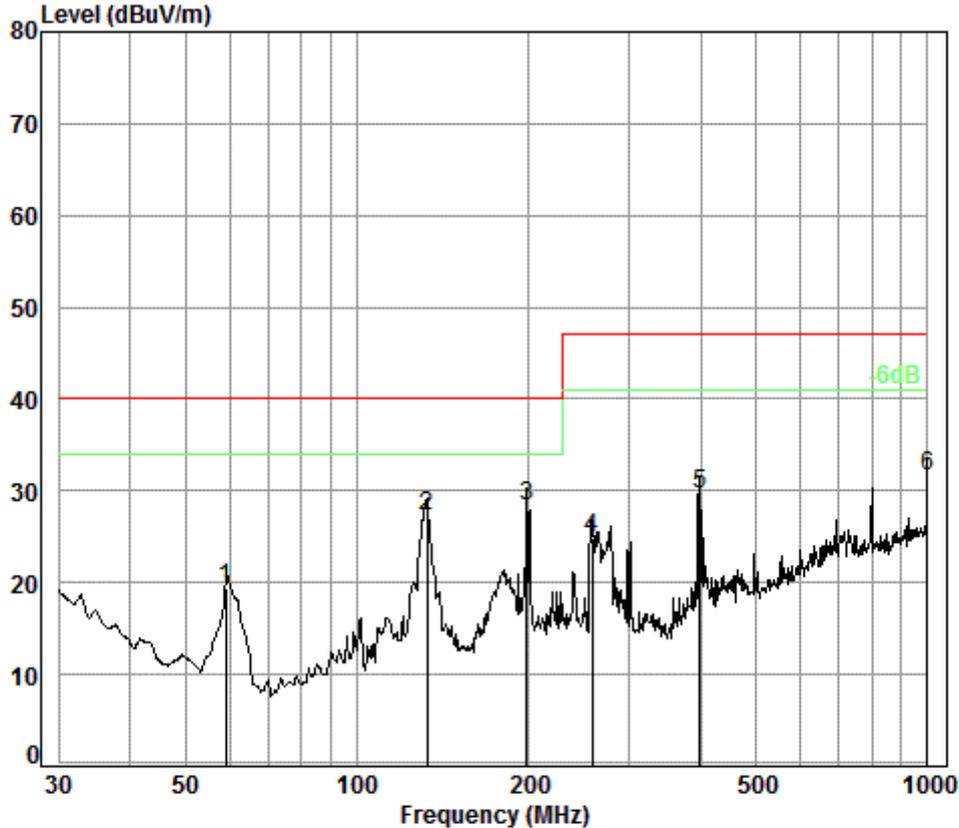
Temperature: 23.0 °C      Humidity: 54 % RH      Atmospheric Pressure: 1015 mbar  
Test mode: a:TX mode\_Keep the EUT in transmitting mode

### 7.5.2 Measurement 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.



30MHz~1GHz (QP)		
Test mode:	a(Antenna 1)	Vertical

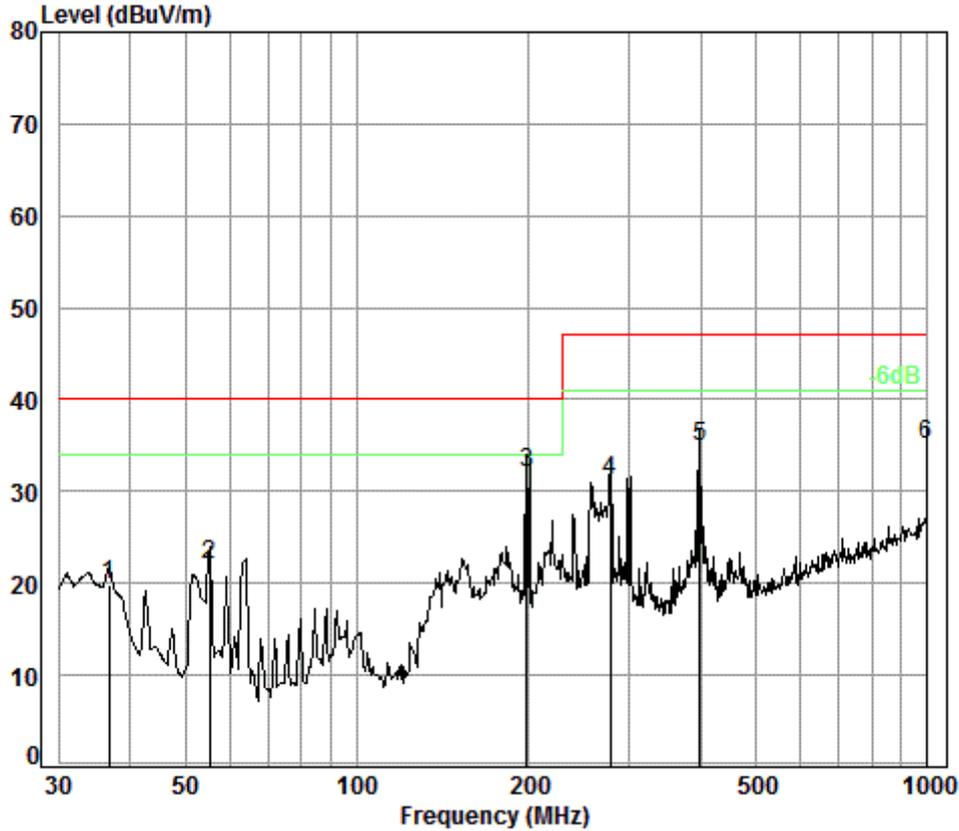


Condition: 3m VERTICAL  
Job No. : 03548CR  
Test mode: TX mode

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	59.03	0.80	7.35	27.27	38.61	19.49	40.00	-20.51
2	132.69	1.28	7.81	26.99	45.10	27.20	40.00	-12.80
3 pp	198.59	1.40	10.19	26.70	43.50	28.39	40.00	-11.61
4	258.33	1.71	12.47	26.51	37.17	24.84	47.00	-22.16
5	399.03	2.20	16.29	27.13	38.29	29.65	47.00	-17.35
6	1000.00	3.70	24.30	26.30	29.97	31.67	47.00	-15.33



Test mode:	a(Antenna 1)	Horizontal
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Condition: 3m HORIZONTAL

Job No. : 03548CR

Test mode: TX mode

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit	Over
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	36.77	0.60	14.91	27.33	31.64	19.82	40.00	-20.18
2	55.22	0.80	7.92	27.28	40.53	21.97	40.00	-18.03
3 pp	198.59	1.40	10.19	26.70	47.19	32.08	40.00	-7.92
4	278.07	1.81	12.93	26.46	42.96	31.24	47.00	-15.76
5	399.03	2.20	16.29	27.13	43.49	34.85	47.00	-12.15
6	996.50	3.70	24.16	26.33	33.53	35.06	47.00	-11.94

Note:

1. All antennas have been tested and we only record the worst test results.



Ant 1:

Lowest channel, Horizontal polarity								
Freq (MHz)	Antenna_Factor (dB/m)	Cable_Loss (dB)	Preamp_Gain (dB)	Read_Level (dBuV)	Level (dBuV/m)	Limit_Line (dBuV/m)	Over_Limit (dB)	Remark
3803.444	33.07	6.55	37.98	43.93	46.07	74	-27.93	Peak
4806.7	34.17	7.73	38.4	43.55	47.44	74	-26.56	Peak
6008.249	34.71	8.76	38.29	43.57	49.07	74	-24.93	Peak
7210.05	36.41	9.66	37.11	42.27	51.49	74	-22.51	Peak
9613.4	37.52	11.07	35.09	38.86	52.81	74	-21.19	Peak
11860.17	38.46	12.38	35.57	37.91	53.95	74	-20.05	Peak

Lowest channel, Vertical polarity								
Freq (MHz)	Antenna_Factor (dB/m)	Cable_Loss (dB)	Preamp_Gain (dB)	Read_Level (dBuV)	Level (dBuV/m)	Limit_Line (dBuV/m)	Over_Limit (dB)	Remark
3507.416	32.22	6.31	37.95	43.39	44.5	74	-29.5	Peak
4806.7	34.17	7.73	38.4	43.88	47.77	74	-26.23	Peak
6008.249	34.71	8.76	38.29	44.31	49.81	74	-24.19	Peak
7210.05	36.41	9.66	37.11	42.69	51.91	74	-22.09	Peak
9613.4	37.52	11.07	35.09	38.81	52.76	74	-21.24	Peak
11389.27	38.01	12.32	35.48	38.27	53.73	74	-20.27	Peak

Middle channel, Horizontal polarity								
Freq (MHz)	Antenna_Factor (dB/m)	Cable_Loss (dB)	Preamp_Gain (dB)	Read_Level (dBuV)	Level (dBuV/m)	Limit_Line (dBuV/m)	Over_Limit (dB)	Remark
3949.255	33.47	6.66	37.99	43.31	45.91	74	-28.09	Peak
4882.7	34.3	7.84	38.44	42.56	46.67	74	-27.33	Peak
6025.661	34.72	8.77	38.27	43.6	49.14	74	-24.86	Peak
7324.05	36.37	9.73	37.01	42.67	51.99	74	-22.01	Peak
9765.4	37.55	11.22	35.02	38.68	52.89	74	-21.11	Peak
12173.12	38.71	12.66	36.02	37.77	53.83	74	-20.17	Peak

Middle channel, Vertical polarity								
Freq (MHz)	Antenna_Factor (dB/m)	Cable_Loss (dB)	Preamp_Gain (dB)	Read_Level (dBuV)	Level (dBuV/m)	Limit_Line (dBuV/m)	Over_Limit (dB)	Remark
3711.03	32.81	6.48	37.97	42.86	44.69	74	-29.31	Peak
4882.7	34.3	7.84	38.44	44.28	48.39	74	-25.61	Peak
5761.355	34.56	8.52	38.35	44.05	49.18	74	-24.82	Peak
7324.05	36.37	9.73	37.01	42.6	51.92	74	-22.08	Peak
9765.4	37.55	11.22	35.02	38.55	52.76	74	-21.24	Peak
11723.67	38.33	12.36	35.54	37.49	53.36	74	-20.64	Peak



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**Shenzhen Branch**

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Highest channel, Horizontal polarity								
Freq (MHz)	Antenna_Factor (dB/m)	Cable_Loss (dB)	Preamp_Gain (dB)	Read_Level (dBuV)	Level (dBuV/m)	Limit_Line (dBuV/m)	Over_Limit (dB)	Remark
3183.356	31.65	6.07	37.92	43.05	43.49	74	-30.51	Peak
4954.7	34.43	7.94	38.48	42.16	46.48	74	-27.52	Peak
6184.658	34.85	8.87	38.12	43.08	48.98	74	-25.02	Peak
7432.05	36.33	9.81	36.91	42.27	51.72	74	-22.28	Peak
9909.4	37.58	11.36	34.94	37.78	52.24	74	-21.76	Peak
11405.76	38.03	12.32	35.48	37.94	53.43	74	-20.57	Peak

Highest channel, Vertical polarity								
Freq (MHz)	Antenna_Factor (dB/m)	Cable_Loss (dB)	Preamp_Gain (dB)	Read_Level (dBuV)	Level (dBuV/m)	Limit_Line (dBuV/m)	Over_Limit (dB)	Remark
3584.372	32.45	6.37	37.96	43.48	44.86	74	-29.14	Peak
4954.7	34.43	7.94	38.48	42.13	46.45	74	-27.55	Peak
6034.386	34.73	8.77	38.27	43.15	48.69	74	-25.31	Peak
7432.05	36.33	9.81	36.91	42.32	51.77	74	-22.23	Peak
9909.4	37.58	11.36	34.94	37.55	52.01	74	-21.99	Peak
11877.34	38.48	12.38	35.58	37.27	53.33	74	-20.67	Peak



Ant 2:

Lowest channel, Horizontal polarity								
Freq (MHz)	Antenna_Factor (dB/m)	Cable_Loss (dB)	Preamp_Gain (dB)	Read_Level (dBuV)	Level (dBuV/m)	Limit_Line (dBuV/m)	Over_Limit (dB)	Remark
3477.098	32.16	6.28	37.95	42.96	43.99	74	-30.01	Peak
4806.7	34.17	7.73	38.4	42.51	46.4	74	-27.6	Peak
5913.378	34.65	8.67	38.32	43.28	48.63	74	-25.37	Peak
7210.05	36.41	9.66	37.11	42.73	51.95	74	-22.05	Peak
9613.4	37.52	11.07	35.09	38.16	52.11	74	-21.89	Peak
11689.79	38.29	12.36	35.54	37.44	53.26	74	-20.74	Peak

Lowest channel, Vertical polarity								
Freq (MHz)	Antenna_Factor (dB/m)	Cable_Loss (dB)	Preamp_Gain (dB)	Read_Level (dBuV)	Level (dBuV/m)	Limit_Line (dBuV/m)	Over_Limit (dB)	Remark
3673.633	32.71	6.45	37.97	42.5	44.2	74	-29.8	Peak
4806.7	34.17	7.73	38.4	43.24	47.13	74	-26.87	Peak
5845.324	34.61	8.6	38.33	44.19	49.44	74	-24.56	Peak
7210.05	36.41	9.66	37.11	43.52	52.74	74	-21.26	Peak
9613.4	37.52	11.07	35.09	38.58	52.53	74	-21.47	Peak
11639.16	38.24	12.35	35.53	37.56	53.31	74	-20.69	Peak

Middle channel, Horizontal polarity								
Freq (MHz)	Antenna_Factor (dB/m)	Cable_Loss (dB)	Preamp_Gain (dB)	Read_Level (dBuV)	Level (dBuV/m)	Limit_Line (dBuV/m)	Over_Limit (dB)	Remark
3743.387	32.9	6.5	37.97	43.67	45.61	74	-28.39	Peak
4882.7	34.3	7.84	38.44	43.43	47.54	74	-26.46	Peak
6025.661	34.72	8.77	38.27	44.04	49.58	74	-24.42	Peak
7324.05	36.37	9.73	37.01	41.07	50.39	74	-23.61	Peak
9765.4	37.55	11.22	35.02	38.03	52.24	74	-21.76	Peak
12208.39	38.73	12.71	36.1	37.82	53.86	74	-20.14	Peak

Middle channel, Vertical polarity								
Freq (MHz)	Antenna_Factor (dB/m)	Cable_Loss (dB)	Preamp_Gain (dB)	Read_Level (dBuV)	Level (dBuV/m)	Limit_Line (dBuV/m)	Over_Limit (dB)	Remark
3776.027	33	6.53	37.98	42.9	44.95	74	-29.05	Peak
4882.7	34.3	7.84	38.44	43.22	47.33	74	-26.67	Peak
5879.252	34.63	8.63	38.32	43.41	48.71	74	-25.29	Peak
7324.05	36.37	9.73	37.01	41.09	50.41	74	-23.59	Peak
9765.4	37.55	11.22	35.02	38.78	52.99	74	-21.01	Peak
11757.65	38.36	12.37	35.55	37.91	53.83	74	-20.17	Peak



Highest channel, Horizontal polarity								
Freq (MHz)	Antenna_Factor (dB/m)	Cable_Loss (dB)	Preamp_Gain (dB)	Read_Level (dBuV)	Level (dBuV/m)	Limit_Line (dBuV/m)	Over_Limit (dB)	Remark
4030.07	33.6	6.74	38.02	43.2	45.95	74	-28.05	Peak
4954.7	34.43	7.94	38.48	43.7	48.02	74	-25.98	Peak
6034.386	34.73	8.77	38.27	43.61	49.15	74	-24.85	Peak
7432.05	36.33	9.81	36.91	41.76	51.21	74	-22.79	Peak
9909.4	37.58	11.36	34.94	38.53	52.99	74	-21.01	Peak
12297.04	38.78	12.84	36.31	37.86	53.84	74	-20.16	Peak

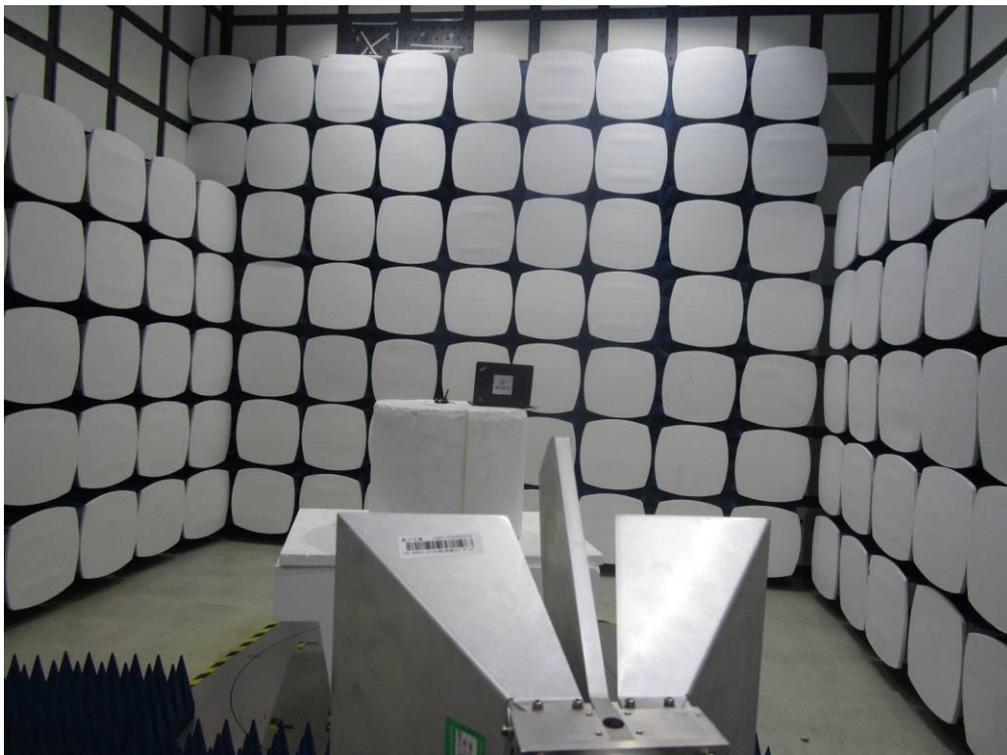
Highest channel, Vertical polarity								
Freq (MHz)	Antenna_Factor (dB/m)	Cable_Loss (dB)	Preamp_Gain (dB)	Read_Level (dBuV)	Level (dBuV/m)	Limit_Line (dBuV/m)	Over_Limit (dB)	Remark
3512.494	32.24	6.31	37.95	42.79	43.92	74	-30.08	Peak
4954.7	34.43	7.94	38.48	43.12	47.44	74	-26.56	Peak
6193.614	34.86	8.87	38.11	42.72	48.64	74	-25.36	Peak
7432.05	36.33	9.81	36.91	42.31	51.76	74	-22.24	Peak
9909.4	37.58	11.36	34.94	38.28	52.74	74	-21.26	Peak
11825.89	38.43	12.38	35.57	37.01	53.01	74	-20.99	Peak

Note:

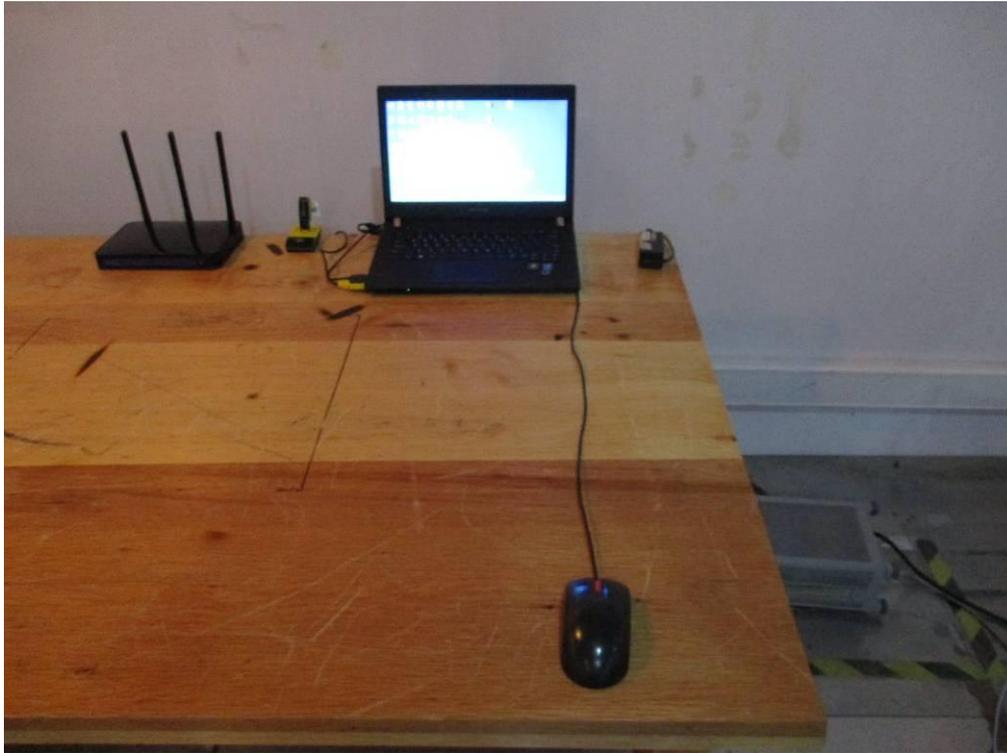
1. All modes have been tested and we only record the worst test results.
2. When Peak detector value is below the average limit, the average detector value is no need to record.

## 8 Photographs

### 8.1 Radiated Emissions Test Setup



## 8.2 Conducted Disturbance at AC Power Line(150kHz-30MHz) Test Setup



## 8.3 EUT Constructional Details

Refer to Appendix A - Photographs of EUT Constructional Details for SZEM1704003548CR.