

FCC REPORT (ZigBee)

Applicant: SALUS North America, Inc.
Address of Applicant: 850 Main Street, Redwood City, California 94063, United States
Manufacturer: SALUS North America, Inc.
Address of Manufacturer: 850 Main Street, Redwood City, California 94063, United States
Factory 1: Computime Electronics (Shenzhen) Company Limited
Address of Factory 1: Yuekengguangyu Industrial Park, Kangqiao Road
88#, Danzhutou Community, Nanwan Street Office, Longgang District, Shenzhen, China
Factory 2: Asia Electronic Dongguan
Address of Factory 2: Zhen' an Science and Technology Industrial Park, Chang' an Dongguan Guangdong , PRC

Equipment Under Test (EUT)

Product Name: Water Leak Sensor
Model No.: SAU2WB1, SS901ZB
FCC ID: 2AG86-SS901ZB
Applicable standards: FCC CFR Title 47 Part 15 Subpart C Section 15.247
Date of sample receipt: June 04, 2018
Date of Test: June 05-13, 2018
Date of report issued: June 14, 2018
Test Result : PASS *

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

Authorized Signature:

A circular logo for GTS Global United Technology Services Co., Ltd. with the text 'GLOBAL TESTING' inside. A handwritten signature in black ink is written over the logo.

Robinson Lo
Laboratory Manager

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

2 Version

Version No.	Date	Description
00	June 14, 2018	Original

Prepared By:

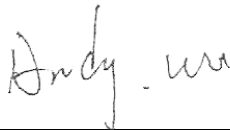


Date:

June 14, 2018

Project Engineer

Check By:



Date:

June 14, 2018

Reviewer

3 Contents

	Page
1 COVER PAGE	1
2 VERSION	2
3 CONTENTS	3
4 TEST SUMMARY	4
4.1 MEASUREMENT UNCERTAINTY	4
5 GENERAL INFORMATION	5
5.1 GENERAL DESCRIPTION OF EUT	5
5.2 TEST MODE	7
5.3 DESCRIPTION OF SUPPORT UNITS	7
5.4 TEST FACILITY	7
5.5 TEST LOCATION	7
5.6 ADDITIONAL INSTRUCTIONS	7
6 TEST INSTRUMENTS LIST	8
7 TEST RESULTS AND MEASUREMENT DATA	9
7.1 ANTENNA REQUIREMENT	9
7.2 CONDUCTED PEAK OUTPUT POWER	10
7.3 CHANNEL BANDWIDTH	12
7.4 POWER SPECTRAL DENSITY	14
7.5 BAND EDGES	16
7.5.1 Conducted Emission Method	16
7.5.2 Radiated Emission Method	18
7.6 SPURIOUS EMISSION	23
7.6.1 Conducted Emission Method	23
7.6.2 Radiated Emission Method	25
8 TEST SETUP PHOTO	36
9 EUT CONSTRUCTIONAL DETAILS	37

4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203/15.247 (c)	Pass
AC Power Line Conducted Emission	15.207	N/A
Conducted Peak Output Power	15.247 (b)(3)	Pass
Channel Bandwidth	15.247 (a)(2)	Pass
Power Spectral Density	15.247 (e)	Pass
Band Edge	15.247(d)	Pass
Spurious Emission	15.205/15.209	Pass

Pass: The EUT complies with the essential requirements in the standard.

Remark : Test according to ANSI C63.4:2014 and ANSI C63.10:2013

N/A means not applicable.

4.1 Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	9kHz ~ 30MHz	± 4.34dB	(1)
Radiated Emission	30MHz ~ 1000MHz	± 4.24dB	(1)
Radiated Emission	1GHz ~ 26.5GHz	± 4.68dB	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	± 3.45dB	(1)

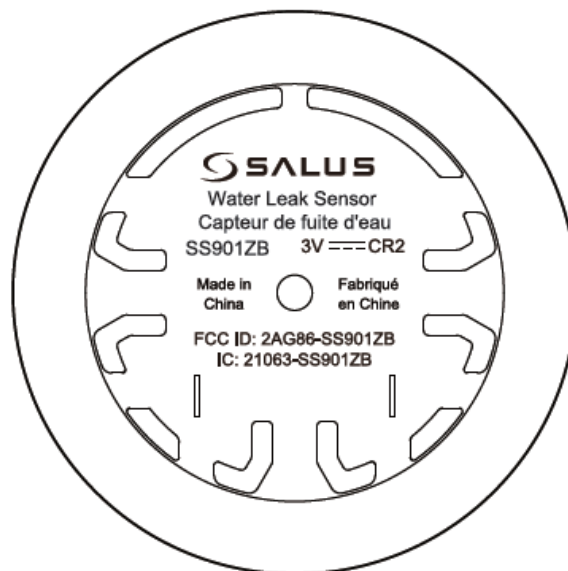
Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.

5 General Information

5.1 General Description of EUT

Product Name:	Water Leak Sensor
Model No.:	SAU2WB1, SS901ZB
Test Model No:	SAU2WB1
<i>Remark: All above models are identical in the same PCB layout, interior structure and electrical circuits. The differences are color and model name for commercial purpose.</i>	
Serial No.:	001E5E09023D915A
Test sample(s) ID:	GTS201806000089-1
Sample(s) Status	Engineer sample
Hardware Version:	SBR20180523
Software Version:	SBR20180601
Operation Frequency:	2405MHz~2480MHz
Channel numbers:	16
Channel separation:	5MHz
Modulation type:	O-QPSK
Antenna Type:	Integral Antenna
Antenna gain:	2.0dBi(declare by manufacturer)
Power supply:	DC 3V by CR2 Lithium battery

Labeling:



Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2405MHz	5	2425MHz	9	2445MHz	13	2465MHz
2	2410MHz	6	2430MHz	10	2450MHz	14	2470MHz
3	2415MHz	7	2435MHz	11	2455MHz	15	2475MHz
4	2420MHz	8	2440MHz	12	2460MHz	16	2480 MHz

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
The lowest channel	2405MHz
The middle channel	2440MHz
The Highest channel	2480MHz

5.2 Test mode

Transmitting mode	Keep the EUT in continuously transmitting mode.
<i>Remark: During the test, new battery was used.</i>	

5.3 Description of Support Units

None

5.4 Test Facility

<p>The test facility is recognized, certified, or accredited by the following organizations:</p> <ul style="list-style-type: none"> ● FCC —Registration No.: 381383 Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 381383, January 08, 2018 ● Industry Canada (IC) —Registration No.: 9079A-2 The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-2, August 15, 2016.

5.5 Test Location

All tests were performed at:
<p>Global United Technology Services Co., Ltd. Address: No. 301-309, 3/F., Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China Tel: 0755-27798480 Fax: 0755-27798960</p>

5.6 Additional instructions

Software (Used for test) from client

Mode	Built-in by manufacturer
------	--------------------------

Channel	Power level
1	Default
8	Default
16	Default

6 Test Instruments list

Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	July 03 2015	July 02 2020
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	Spectrum Analyzer	Agilent	E4440A	GTS533	June 28 2017	June 27 2018
4	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	June 28 2017	June 27 2018
5	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	June 28 2017	June 27 2018
6	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS208	June 28 2017	June 27 2018
7	Horn Antenna	ETS-LINDGREN	3160	GTS217	June 28 2017	June 27 2018
8	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
9	Coaxial Cable	GTS	N/A	GTS213	June 28 2017	June 27 2018
10	Coaxial Cable	GTS	N/A	GTS211	June 28 2017	June 27 2018
11	Coaxial cable	GTS	N/A	GTS210	June 28 2017	June 27 2018
12	Coaxial Cable	GTS	N/A	GTS212	June 28 2017	June 27 2018
13	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	June 28 2017	June 27 2018
14	Amplifier(2GHz-20GHz)	HP	8349B	GTS206	June 28 2017	June 27 2018
15	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June 28 2017	June 27 2018
16	Band filter	Amindeon	82346	GTS219	June 28 2017	June 27 2018
17	Power Meter	Anritsu	ML2495A	GTS540	June 28 2017	June 27 2018
18	Power Sensor	Anritsu	MA2411B	GTS541	June 28 2017	June 27 2018
19	Loop Antenna	ZHINAN	ZN30900A	GTS534	June 28 2017	June 27 2018

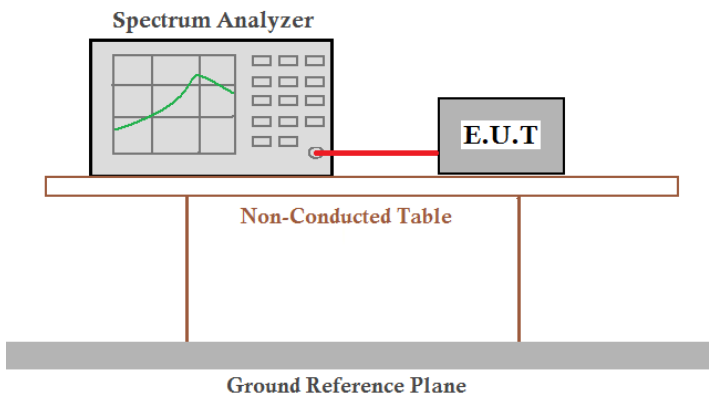
General used equipment:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Barometer	ChangChun	DYM3	GTS257	June 28 2017	June 27 2018

7 Test results and Measurement Data

7.1 Antenna requirement

Standard requirement:	FCC Part15 C Section 15.203 /247(c)
<p>15.203 requirement:</p> <p>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.</p> <p>15.247(c) (1)(i) requirement:</p> <p>(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.</p>	
EUT Antenna:	
<p><i>The antenna is integral antenna, the best case gain of the antenna is 2.0dBi</i></p> 	

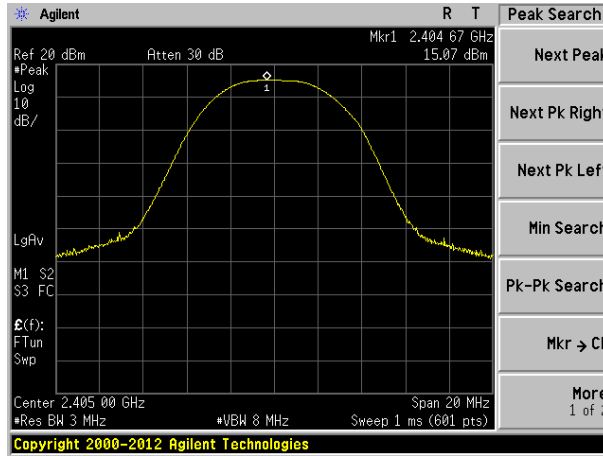
7.2 Conducted Peak Output Power

Test Requirement:	FCC Part15 C Section 15.247 (b)(3)
Test Method:	ANSI C63.10:2013 and KDB558074 D01 DTS Meas Guidance V04
Limit:	30dBm
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both are placed on a Non-Conducted Table, which is supported by a Ground Reference Plane.</p>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2for details
Test results:	Pass

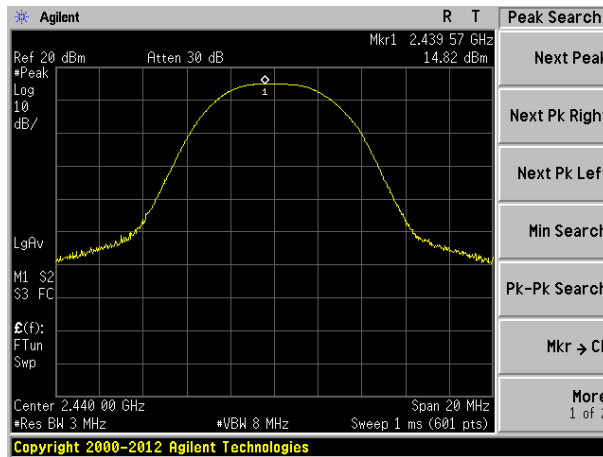
Measurement Data

Frequency (MHz)	Peak Output Power (dBm)	Limit(dBm)	Result
2405	15.07	30	PASS
2440	14.82		
2480	14.80		

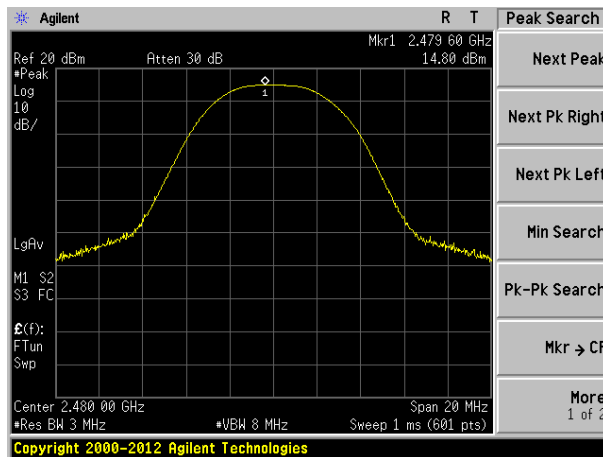
Test plot as follows:



2405MHz

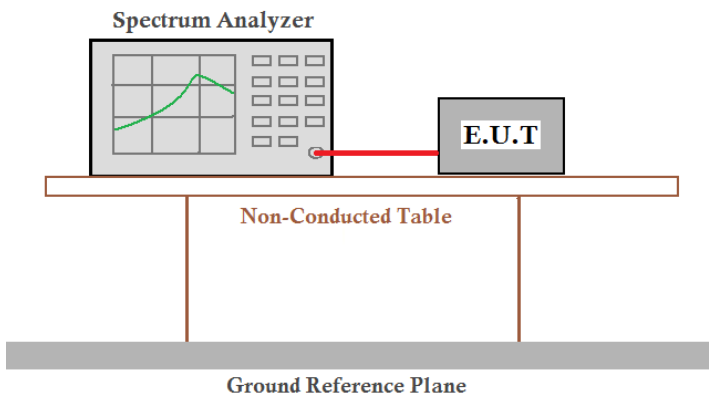


2440MHz



2480MHz

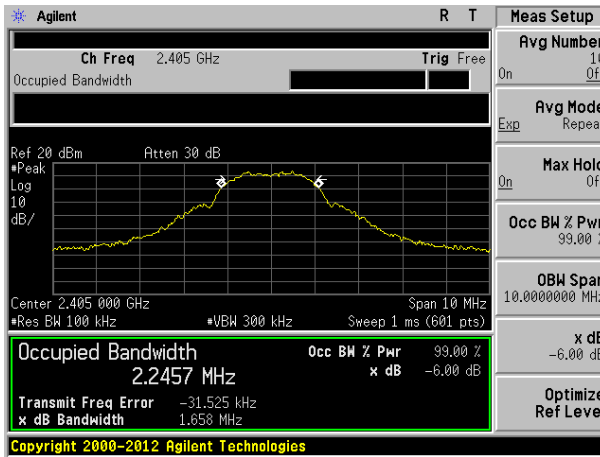
7.3 Channel Bandwidth

Test Requirement:	FCC Part15 C Section 15.247 (a)(2)
Test Method:	ANSI C63.10:2013 and KDB558074 D01 DTS Meas Guidance V04
Limit:	>500KHz
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both are placed on a Non-Conducted Table, which is supported by a Ground Reference Plane.</p>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

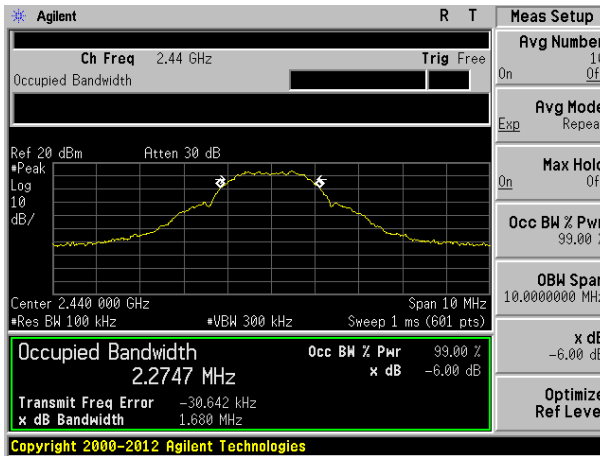
Measurement Data

Frequency (MHz)	Channel Bandwidth (MHz)	Limit(KHz)	Result
2405	1.658	>500	Pass
2440	1.680		
2480	1.847		

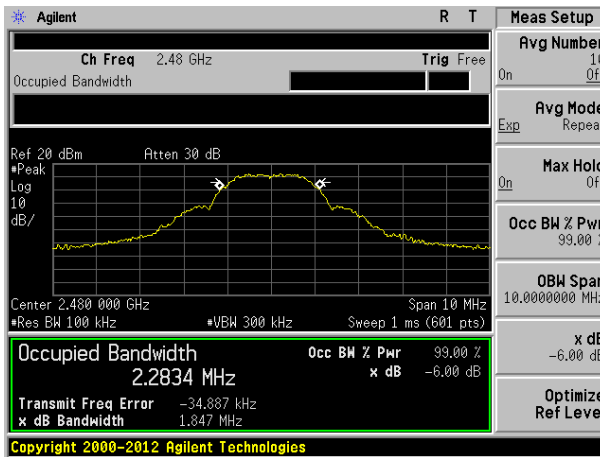
Test plot as follows:



2405MHz

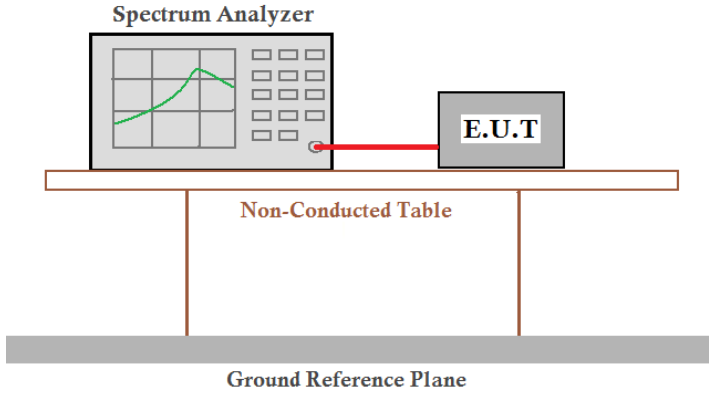


2440MHz



2480MHz

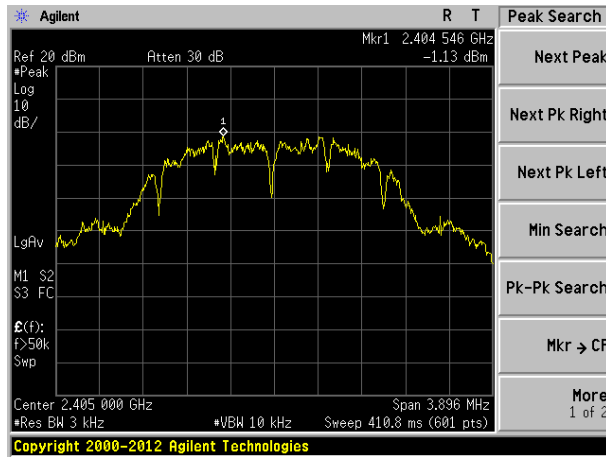
7.4 Power Spectral Density

Test Requirement:	FCC Part15 C Section 15.247 (e)
Test Method:	ANSI C63.10:2013 and KDB558074 D01 DTS Meas Guidance V04
Limit:	8dBm/3kHz
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T. are placed on a Non-Conducted Table. The table is supported by a Ground Reference Plane.</p>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

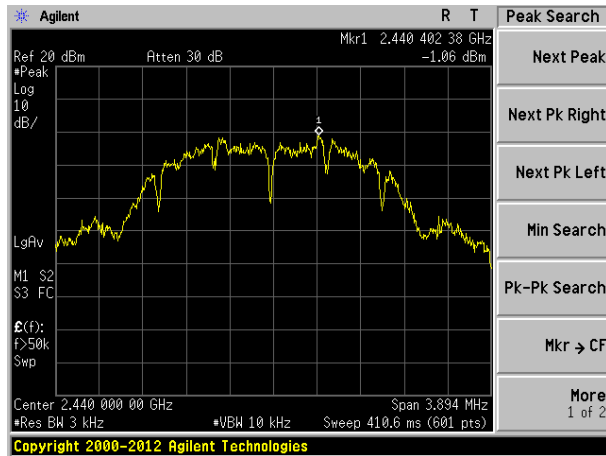
Measurement Data

Frequency (MHz)	Power Spectral Density (dBm)	Limit (dBm/3kHz)	Result
2405	-1.13	8.00	Pass
2440	-1.06		
2480	-0.45		

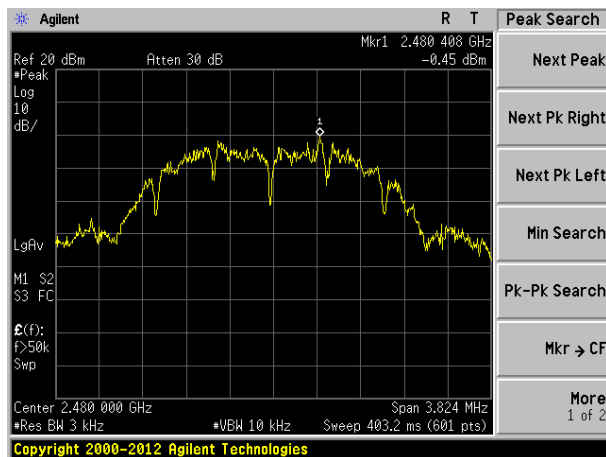
Test plot as follows:



2405MHz



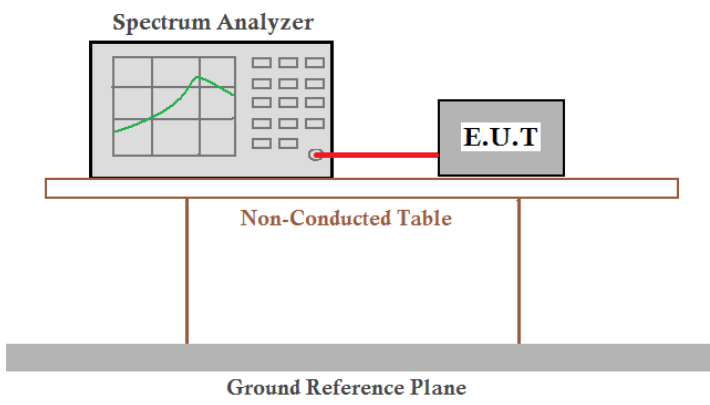
2440MHz



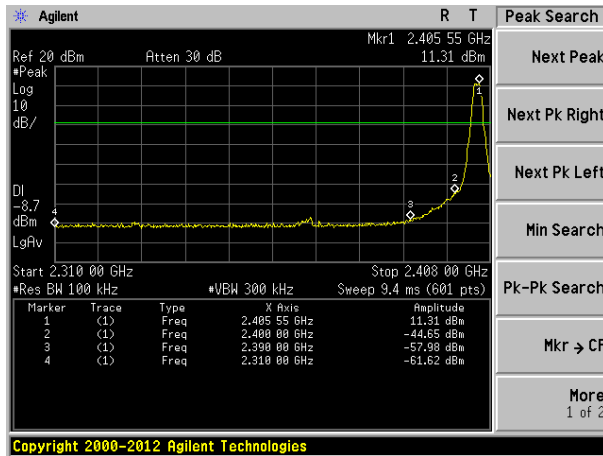
2480MHz

7.5 Band edges

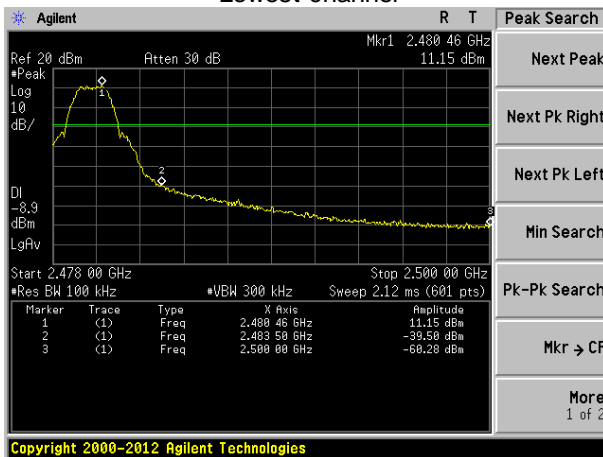
7.5.1 Conducted Emission Method

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	ANSI C63.10:2013 and KDB558074 D01 DTS Meas Guidance V04
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both are placed on a Non-Conducted Table, which is supported by a Ground Reference Plane.</p>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Test plot as follows:

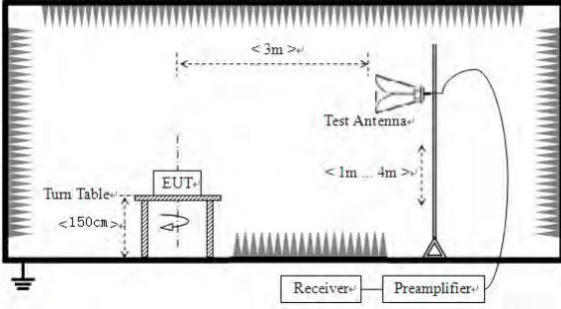


Lowest channel



Highest channel

7.5.2 Radiated Emission Method

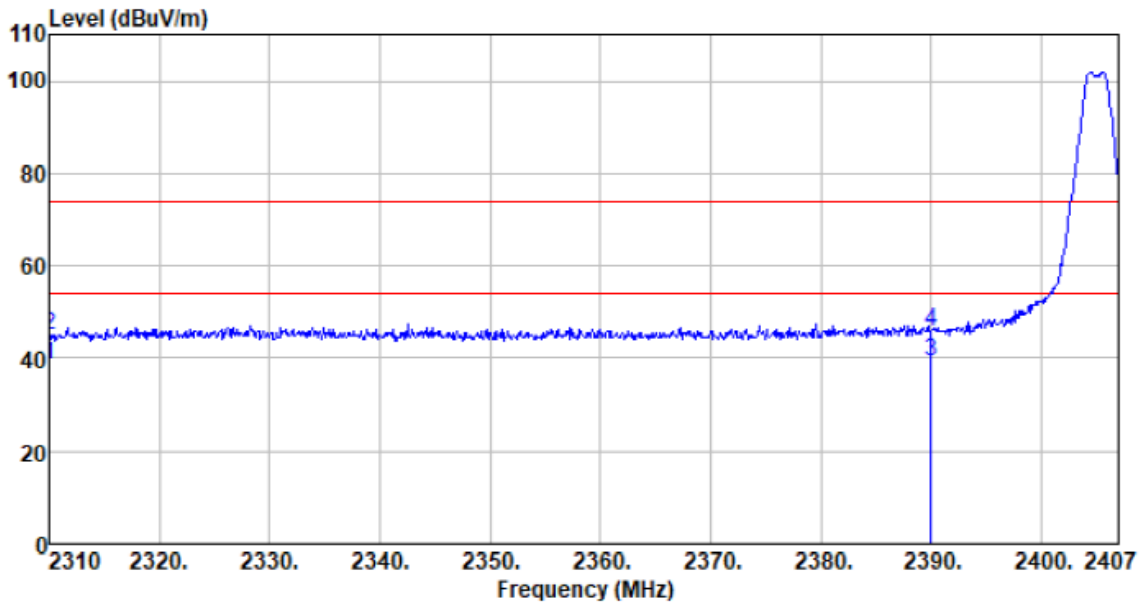
Test Requirement:	FCC Part15 C Section 15.209 and 15.205				
Test Method:	ANSI C63.10:2013				
Test Frequency Range:	All of the restrict bands were tested, only the worst band's (2310MHz to 2500MHz) data was showed.				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Value
	Above 1GHz	Peak	1MHz	3MHz	Peak
		RMS	1MHz	3MHz	Average
Limit:	Frequency		Limit (dBuV/m @3m)		Value
	Above 1GHz		54.00		Average
			74.00		Peak
Test setup:					
Test Procedure:	<ol style="list-style-type: none"> 1. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. 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. 4. 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 and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. 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. 7. The radiation measurements are performed in X, Y, Z axis positioning. And found the Y axis positioning which it is worse case, only the test worst case mode is recorded in the report. 				
Test Instruments:	Refer to section 6.0 for details				
Test mode:	Refer to section 5.2 for details				
Test results:	Pass				

Measurement data:

Remark: The pre-test were performed on lowest, middle and highest frequencies, only the worst case's (lowest and highest frequencies) data was showed.

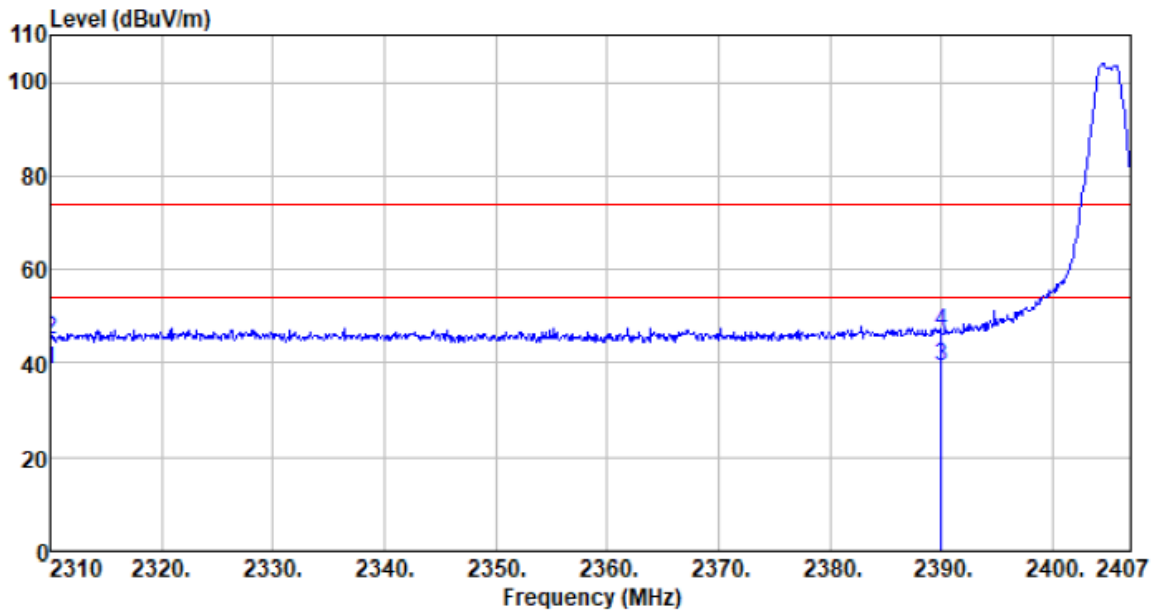
Test channel:	2405MHz
---------------	---------

Horizontal:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
2310.000	30.79	27.14	5.30	24.64	38.59	54.00	-15.41	Average
2310.000	37.08	27.14	5.30	24.64	44.88	74.00	-29.12	Peak
2390.000	31.32	27.37	5.38	24.71	39.36	54.00	-14.64	Average
2390.000	37.97	27.37	5.38	24.71	46.01	74.00	-27.99	Peak

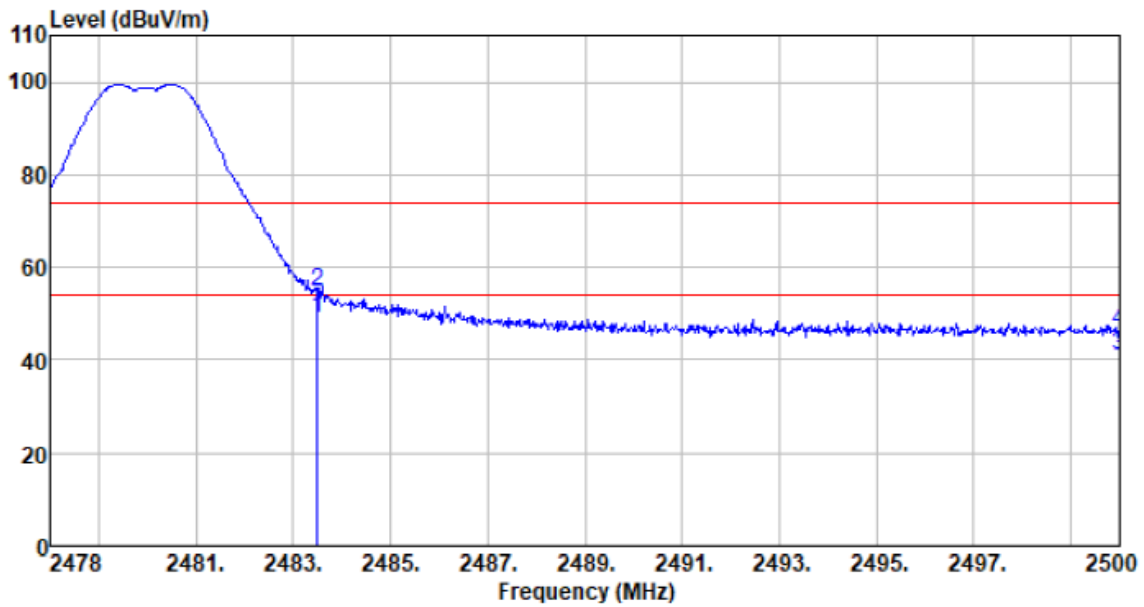
Vertical:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
2310.000	30.76	27.14	5.30	24.64	38.56	54.00	-15.44	Average
2310.000	37.08	27.14	5.30	24.64	44.88	74.00	-29.12	Peak
2390.000	31.36	27.37	5.38	24.71	39.40	54.00	-14.60	Average
2390.000	38.64	27.37	5.38	24.71	46.68	74.00	-27.32	Peak

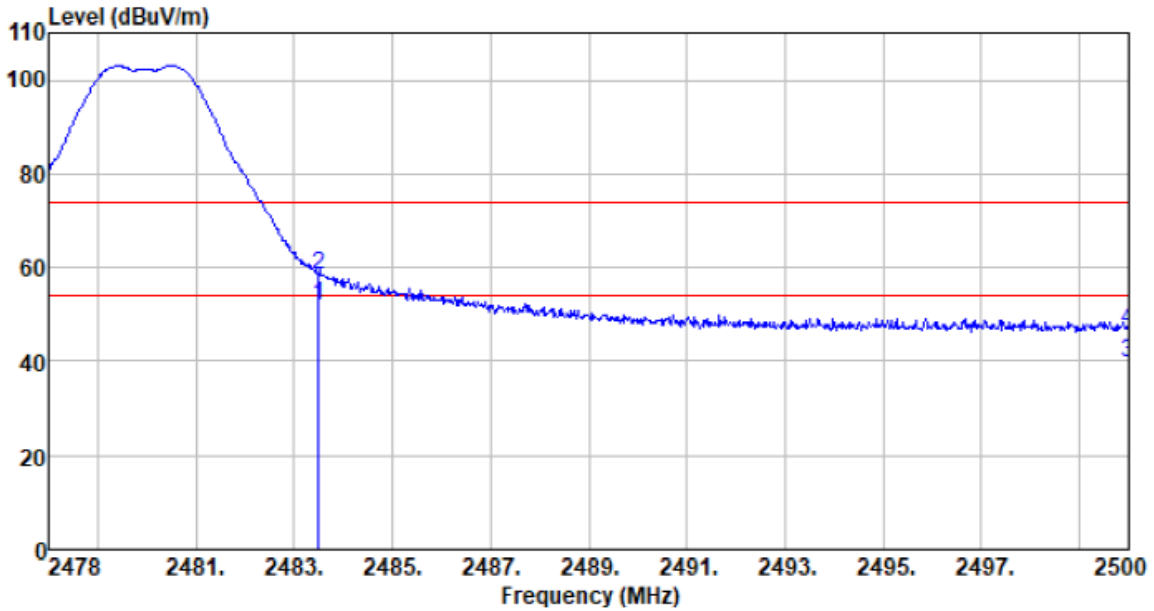
Test channel:	2480MHz
---------------	---------

Horizontal:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
2483.500	40.67	27.66	5.47	24.80	49.00	54.00	-5.00	Average
2483.500	46.39	27.66	5.47	24.80	54.72	74.00	-19.28	Peak
2500.000	32.58	27.70	5.49	24.86	40.91	54.00	-13.09	Average
2500.000	38.08	27.70	5.49	24.86	46.41	74.00	-27.59	Peak

Vertical:



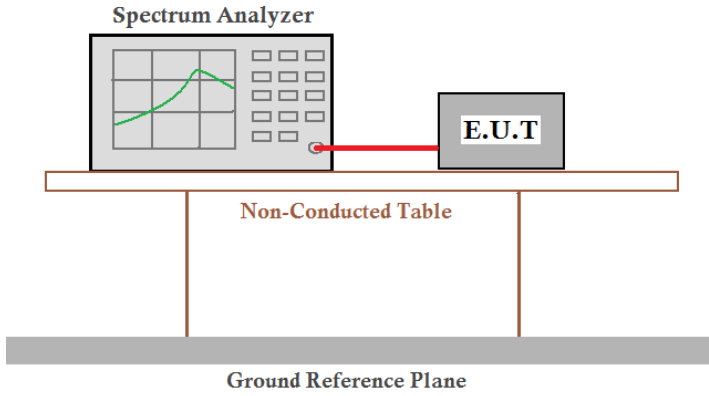
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
2483.500	43.54	27.66	5.47	24.80	51.87	54.00	-2.13	Average
2483.500	50.03	27.66	5.47	24.80	58.36	74.00	-15.64	Peak
2500.000	31.58	27.70	5.49	24.86	39.91	54.00	-14.09	Average
2500.000	38.36	27.70	5.49	24.86	46.69	74.00	-27.31	Peak

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.

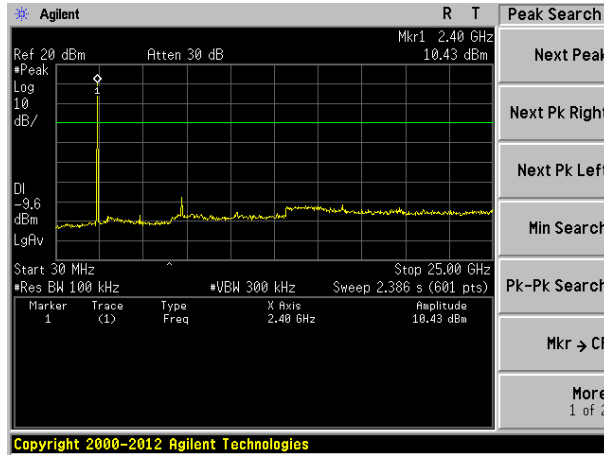
7.6 Spurious Emission

7.6.1 Conducted Emission Method

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	ANSI C63.10:2013 and KDB558074 D01 DTS Meas Guidance V04
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both are placed on a Non-Conducted Table, which is supported by a Ground Reference Plane.</p>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

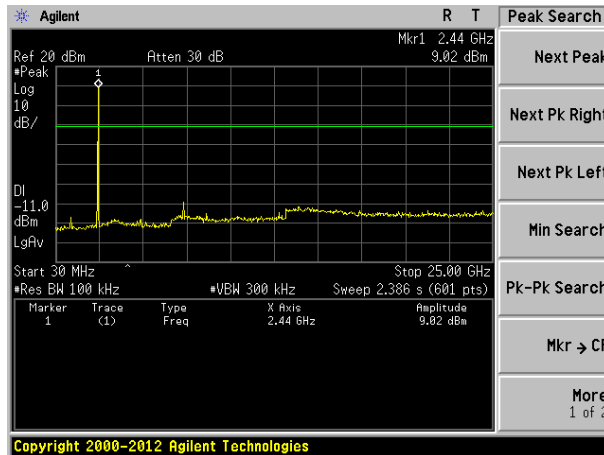
Test plot as follows:

Lowest channel



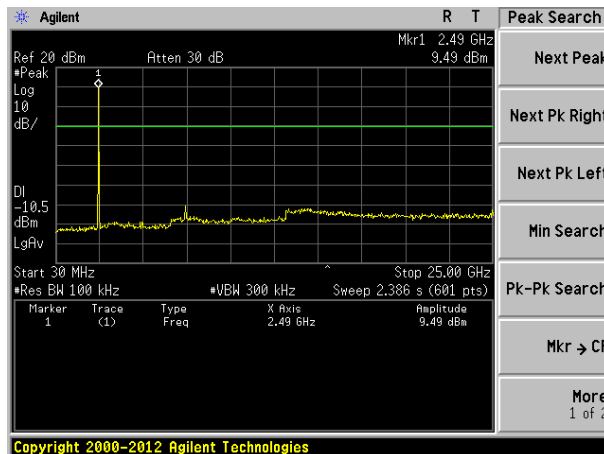
30MHz~25GHz

Middle channel



30MHz~25GHz

Highest channel



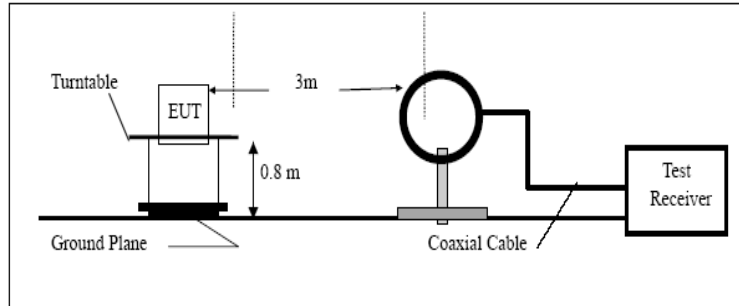
30MHz~25GHz

7.6.2 Radiated Emission Method

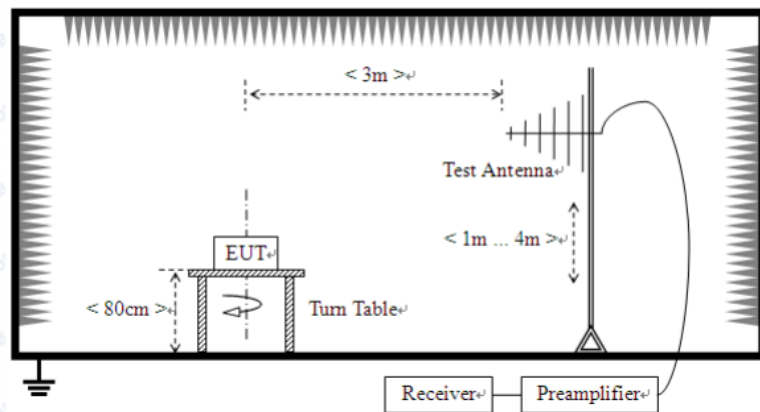
Test Requirement:	FCC Part15 C Section 15.209				
Test Method:	ANSI C63.10:2013				
Test Frequency Range:	9kHz to 25GHz				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Value
	9KHz-150KHz	Quasi-peak	200Hz	600Hz	Quasi-peak
	150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
	30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak
	Above 1GHz	Peak	1MHz	3MHz	Peak
Peak		1MHz	10Hz	Average	
Limit: (Field strength of the fundamental signal)	Frequency	Limit (dBuV/m @3m)		Remark	
	2400MHz-2483.5MHz	94.00		Average Value	
		114.00		Peak Value	
Limit: (Spurious Emissions)	Frequency	Limit (uV/m)	Value	Measurement Distance	
	0.009MHz-0.490MHz	2400/F(KHz)	QP	300m	
	0.490MHz-1.705MHz	24000/F(KHz)	QP	300m	
	1.705MHz-30MHz	30	QP	30m	
	30MHz-88MHz	100	QP	3m	
	88MHz-216MHz	150	QP		
	216MHz-960MHz	200	QP		
	960MHz-1GHz	500	QP		
	Above 1GHz	500	Average		
5000		Peak			
Limit: (band edge)	Emissions 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.				

Test setup:

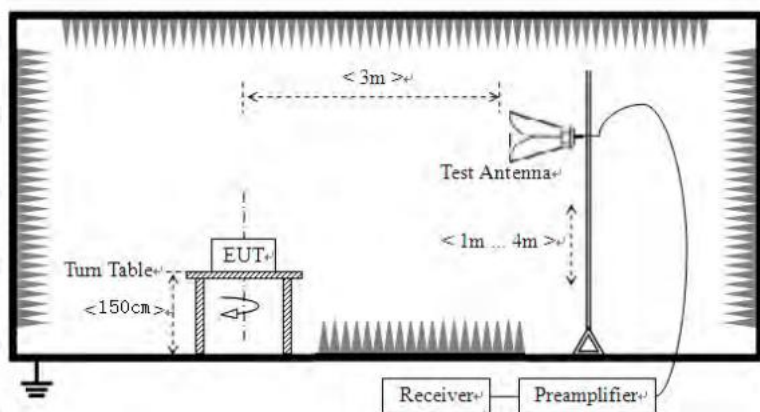
Below 30MHz



Below 1GHz



Above 1GHz



<p>Test Procedure:</p>	<ol style="list-style-type: none"> 1. The EUT was placed on the top of a rotating table (0.8m for below 1G and 1.5m for above 1G) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. 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. 4. 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 and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. 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.
<p>Test Instruments:</p>	<p>Refer to section 6.0 for details</p>
<p>Test mode:</p>	<p>Refer to section 5.2 for details</p>
<p>Test results:</p>	<p>Pass</p>

Measurement data:

9 kHz ~ 30 MHz

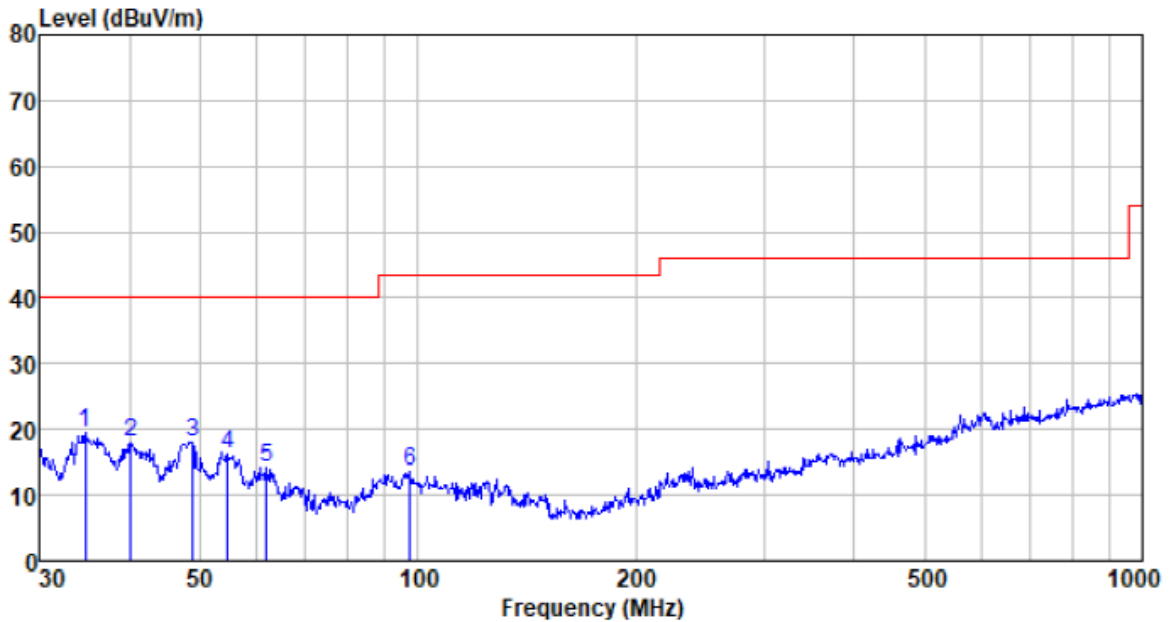
The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

Remark:

Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis which it is worse case.

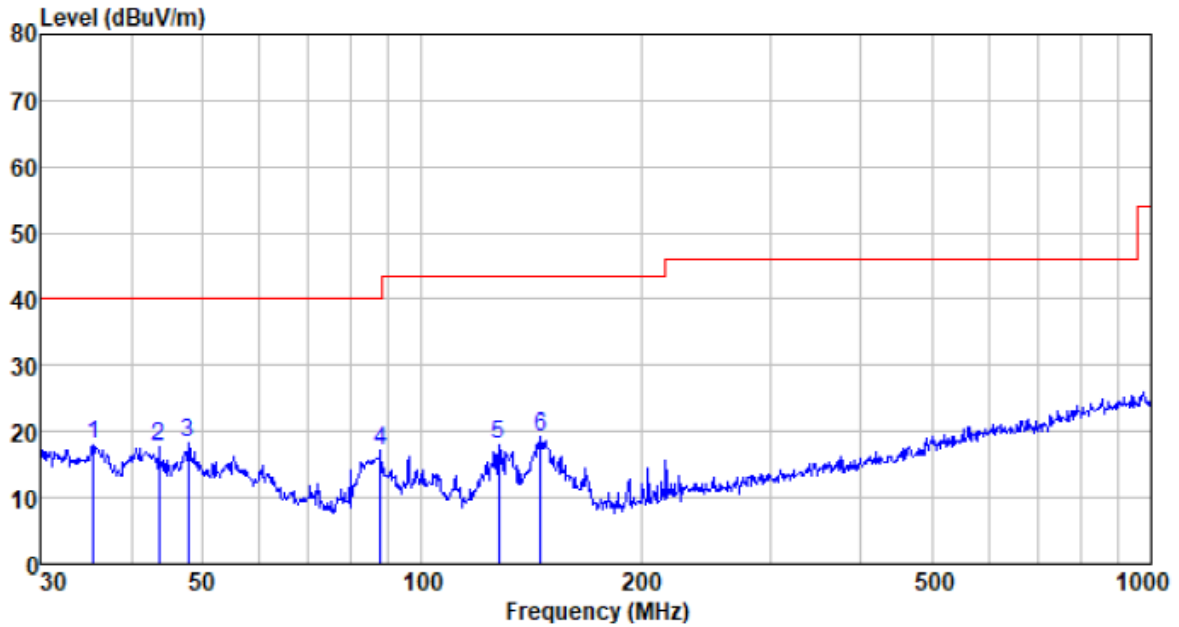
■ Below 1GHz

Horizontal:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
34.760	42.89	11.30	0.61	35.34	19.46	40.00	-20.54	QP
40.135	40.80	12.20	0.66	35.67	17.99	40.00	-22.01	QP
48.843	41.20	12.29	0.76	36.13	18.12	40.00	-21.88	QP
54.643	39.75	11.82	0.81	36.25	16.13	40.00	-23.87	QP
61.778	39.06	10.61	0.87	36.34	14.20	40.00	-25.80	QP
97.456	37.39	11.86	1.17	36.70	13.72	43.50	-29.78	QP

Vertical:

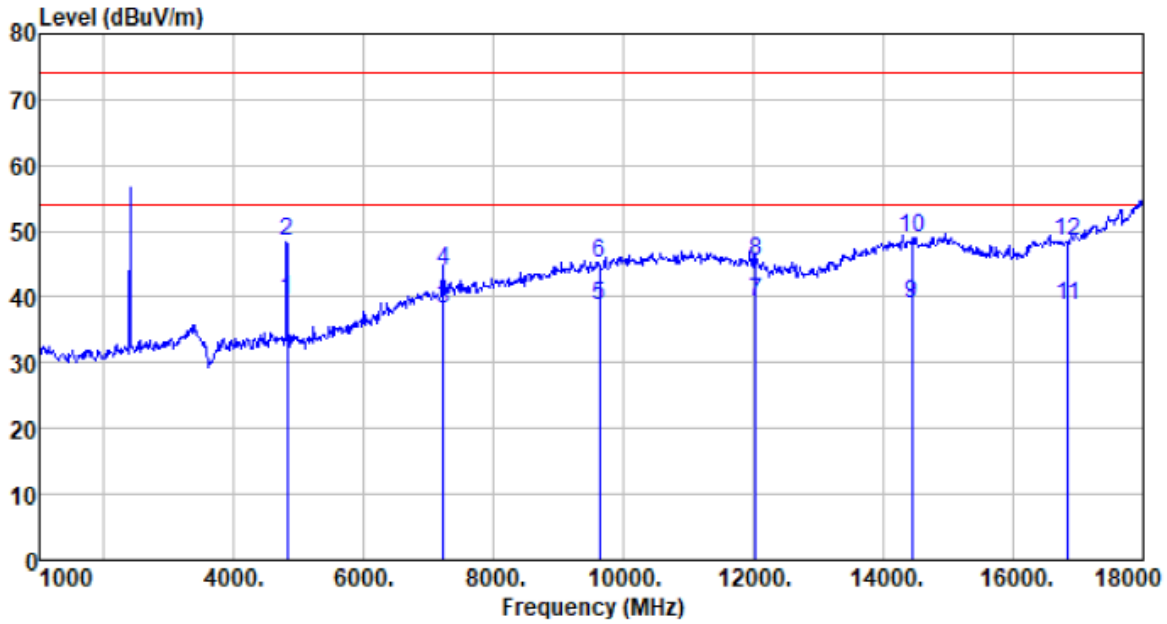


Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
35.499	41.51	11.42	0.61	35.39	18.15	40.00	-21.85	QP
43.659	40.67	12.24	0.70	35.87	17.74	40.00	-22.26	QP
47.826	41.33	12.28	0.75	36.08	18.28	40.00	-21.72	QP
87.725	42.80	9.94	1.09	36.62	17.21	40.00	-22.79	QP
127.665	44.86	8.51	1.42	36.93	17.86	43.50	-25.64	QP
145.351	47.26	7.51	1.54	37.05	19.26	43.50	-24.24	QP

■ Above 1GHz

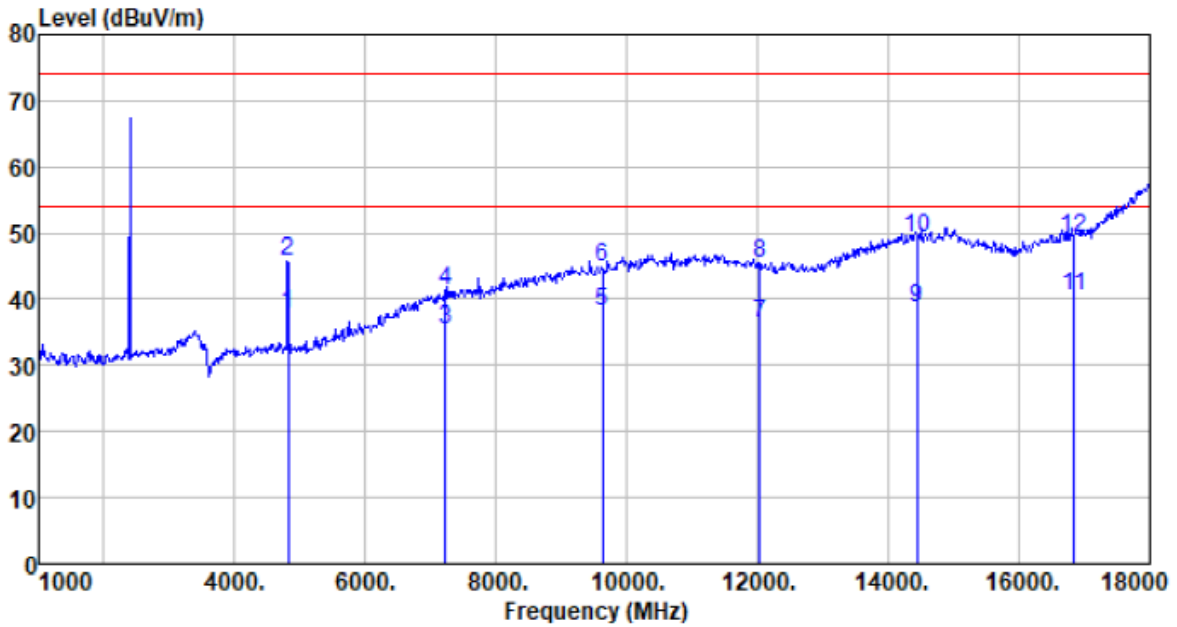
Test channel:	2405MHz
---------------	---------

Horizontal:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
4810.000	37.59	31.20	8.60	37.73	39.66	54.00	-14.34	Average
4810.000	46.21	31.20	8.60	37.73	48.28	74.00	-25.72	Peak
7215.000	25.93	36.20	11.66	35.63	38.16	54.00	-15.84	Average
7215.000	31.71	36.20	11.66	35.63	43.94	74.00	-30.06	Peak
9620.000	21.66	37.93	14.14	34.94	38.79	54.00	-15.21	Average
9620.000	27.97	37.93	14.14	34.94	45.10	74.00	-28.90	Peak
12025.000	21.99	38.50	15.03	36.20	39.32	54.00	-14.68	Average
12025.000	28.16	38.50	15.03	36.20	45.49	74.00	-28.51	Peak
14430.000	16.38	41.49	17.17	36.06	38.98	54.00	-15.02	Average
14430.000	26.48	41.49	17.17	36.06	49.08	74.00	-24.92	Peak
16835.000	16.52	39.58	18.82	36.17	38.75	54.00	-15.25	Average
16835.000	26.14	39.58	18.82	36.17	48.37	74.00	-25.63	Peak

Vertical:



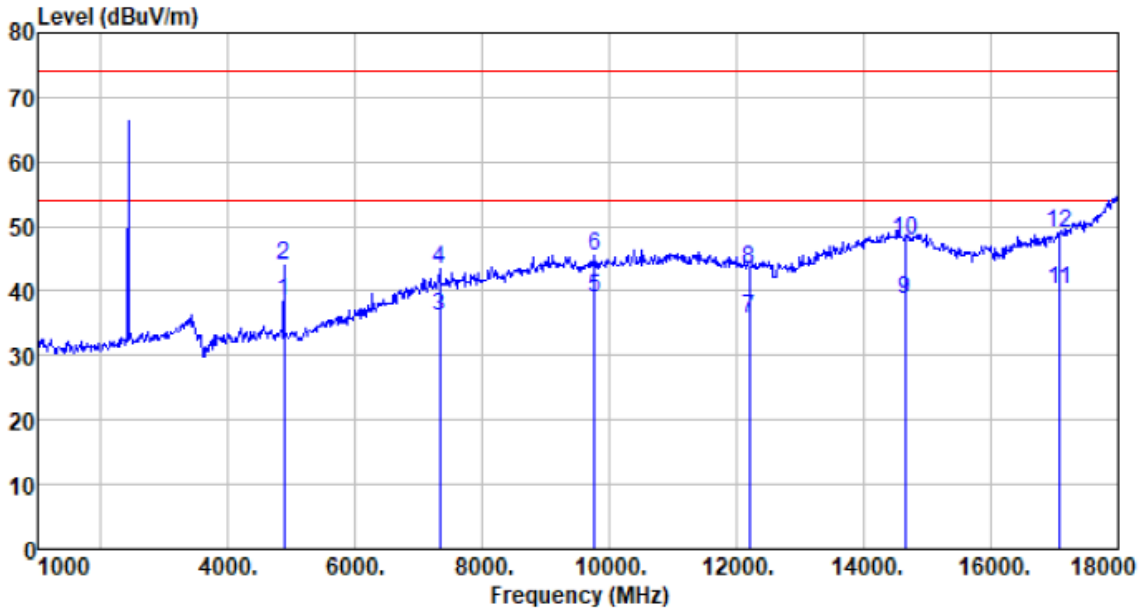
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
4810.000	35.77	31.20	8.60	37.73	37.84	54.00	-16.16	Average
4810.000	43.57	31.20	8.60	37.73	45.64	74.00	-28.36	Peak
7215.000	23.23	36.20	11.66	35.63	35.46	54.00	-18.54	Average
7215.000	29.13	36.20	11.66	35.63	41.36	74.00	-32.64	Peak
9620.000	20.86	37.93	14.14	34.94	37.99	54.00	-16.01	Average
9620.000	27.73	37.93	14.14	34.94	44.86	74.00	-29.14	Peak
12025.000	18.93	38.50	15.03	36.20	36.26	54.00	-17.74	Average
12025.000	28.01	38.50	15.03	36.20	45.34	74.00	-28.66	Peak
14430.000	16.07	41.49	17.17	36.06	38.67	54.00	-15.33	Average
14430.000	26.64	41.49	17.17	36.06	49.24	74.00	-24.76	Peak
16835.000	18.21	39.58	18.82	36.17	40.44	54.00	-13.56	Average
16835.000	27.18	39.58	18.82	36.17	49.41	74.00	-24.59	Peak

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss - Pre-amplifier Factor
2. “*”, means this data is the too weak instrument of signal is unable to test.

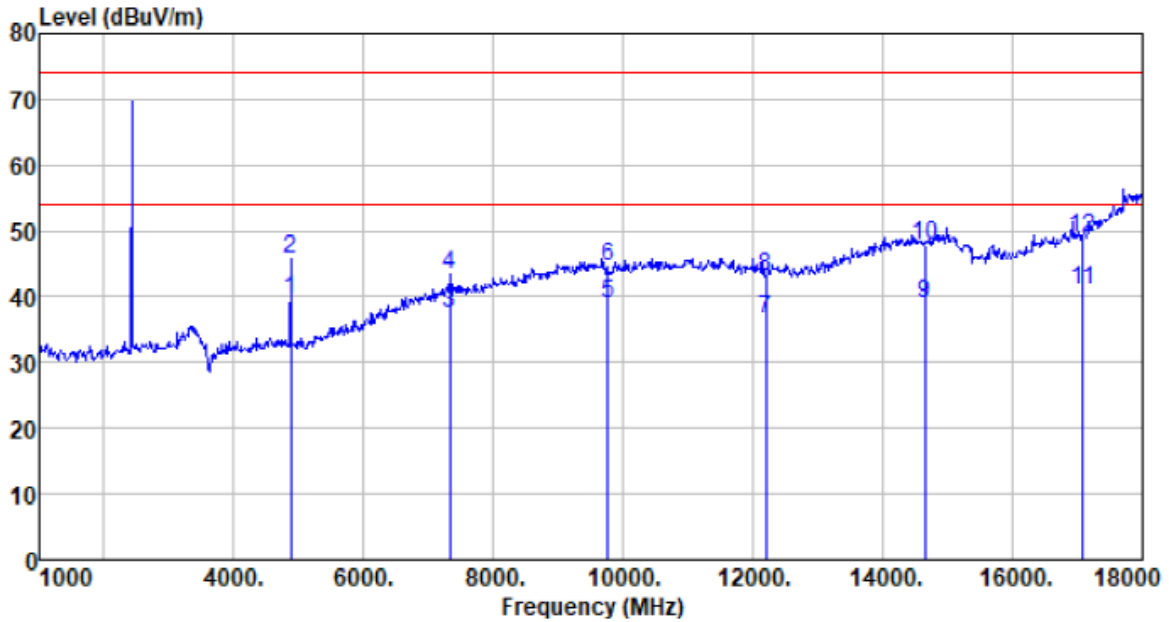
Test channel:	2440MHz
---------------	---------

Horizontal:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
4880.000	36.20	31.31	8.66	37.75	38.42	54.00	-15.58	Average
4880.000	41.81	31.31	8.66	37.75	44.03	74.00	-29.97	Peak
7320.000	23.32	36.43	11.72	35.60	35.87	54.00	-18.13	Average
7320.000	30.91	36.43	11.72	35.60	43.46	74.00	-30.54	Peak
9760.000	21.52	38.10	14.25	35.03	38.84	54.00	-15.16	Average
9760.000	28.27	38.10	14.25	35.03	45.59	74.00	-28.41	Peak
12200.000	18.34	38.57	15.14	36.31	35.74	54.00	-18.26	Average
12200.000	26.02	38.57	15.14	36.31	43.42	74.00	-30.58	Peak
14640.000	16.09	41.10	17.28	35.77	38.70	54.00	-15.30	Average
14640.000	25.17	41.10	17.28	35.77	47.78	74.00	-26.22	Peak
17080.000	17.09	40.22	18.99	36.29	40.01	54.00	-13.99	Average
17080.000	26.03	40.22	18.99	36.29	48.95	74.00	-25.05	Peak

Vertical:



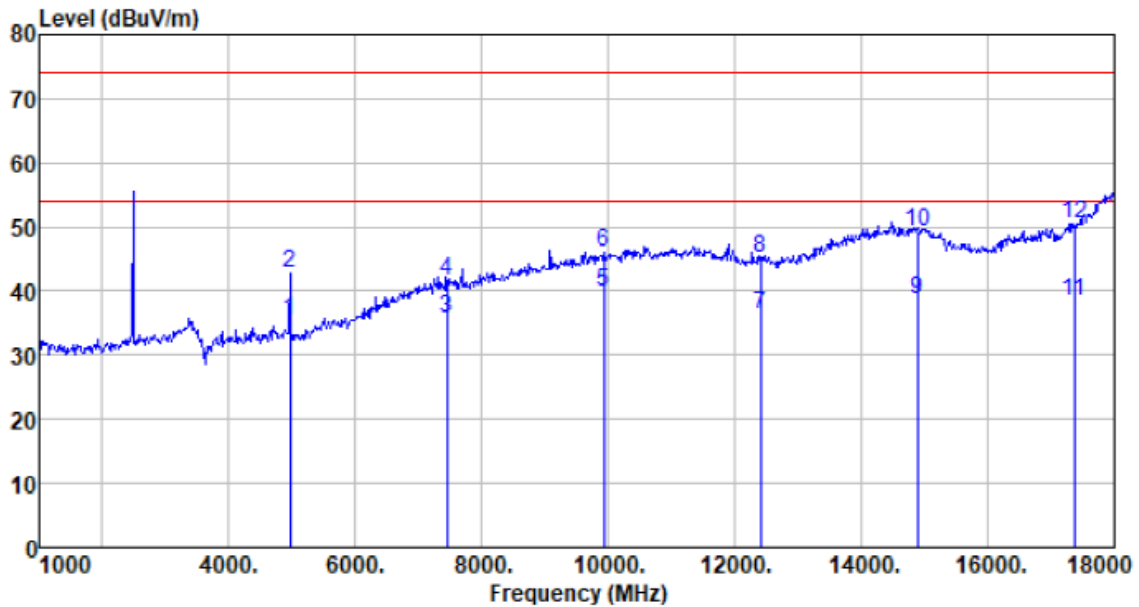
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
4880.000	37.44	31.31	8.66	37.75	39.66	54.00	-14.34	Average
4880.000	43.53	31.31	8.66	37.75	45.75	74.00	-28.25	Peak
7320.000	24.83	36.43	11.72	35.60	37.38	54.00	-16.62	Average
7320.000	30.75	36.43	11.72	35.60	43.30	74.00	-30.70	Peak
9760.000	21.73	38.10	14.25	35.03	39.05	54.00	-14.95	Average
9760.000	27.27	38.10	14.25	35.03	44.59	74.00	-29.41	Peak
12200.000	19.18	38.57	15.14	36.31	36.58	54.00	-17.42	Average
12200.000	25.79	38.57	15.14	36.31	43.19	74.00	-30.81	Peak
14640.000	16.42	41.10	17.28	35.77	39.03	54.00	-14.97	Average
14640.000	25.24	41.10	17.28	35.77	47.85	74.00	-26.15	Peak
17080.000	18.08	40.22	18.99	36.29	41.00	54.00	-13.00	Average
17080.000	26.21	40.22	18.99	36.29	49.13	74.00	-24.87	Peak

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor
2. "*", means this data is the too weak instrument of signal is unable to test.

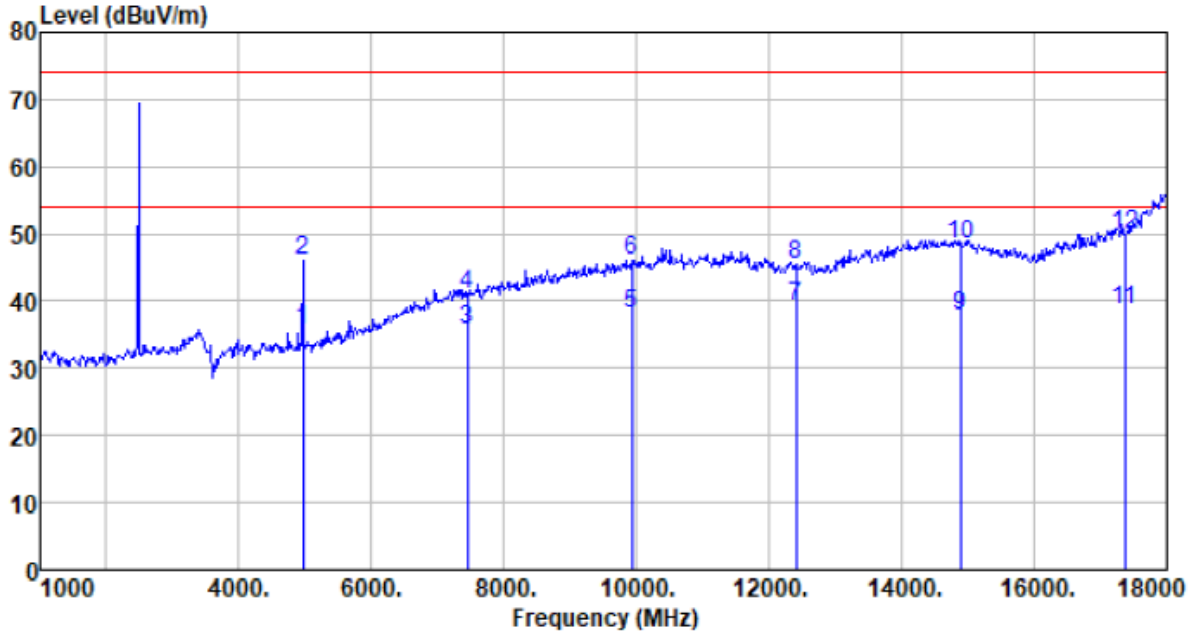
Test channel:	2480MHz
---------------	---------

Horizontal:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
4960.000	33.13	31.44	8.73	37.78	35.52	54.00	-18.48	Average
4960.000	40.50	31.44	8.73	37.78	42.89	74.00	-31.11	Peak
7440.000	22.71	36.66	11.79	35.56	35.60	54.00	-18.40	Average
7440.000	28.67	36.66	11.79	35.56	41.56	74.00	-32.44	Peak
9920.000	22.41	38.30	14.38	35.14	39.95	54.00	-14.05	Average
9920.000	28.41	38.30	14.38	35.14	45.95	74.00	-28.05	Peak
12400.000	18.69	38.66	15.27	36.44	36.18	54.00	-17.82	Average
12400.000	27.68	38.66	15.27	36.44	45.17	74.00	-28.83	Peak
14880.000	16.21	40.60	17.39	35.47	38.73	54.00	-15.27	Average
14880.000	26.72	40.60	17.39	35.47	49.24	74.00	-24.76	Peak
17360.000	14.20	41.52	18.98	36.26	38.44	54.00	-15.56	Average
17360.000	26.12	41.52	18.98	36.26	50.36	74.00	-23.64	Peak

Vertical:



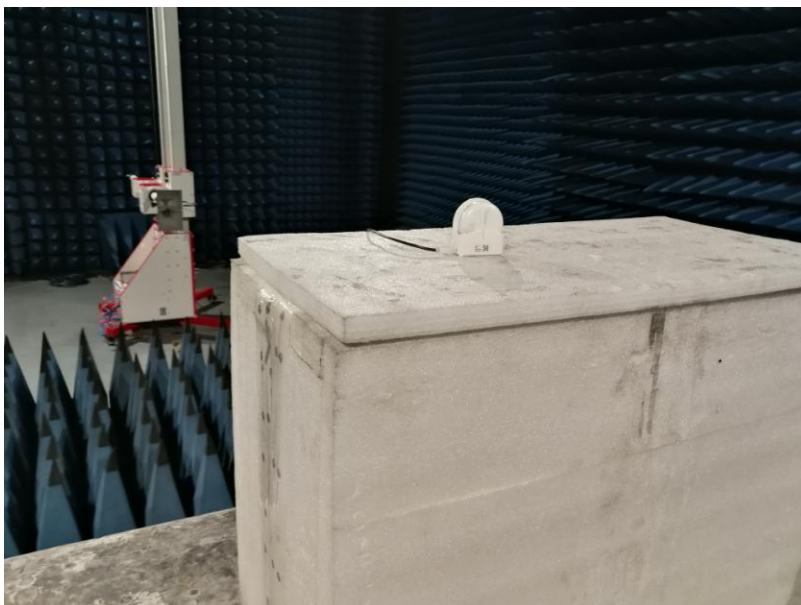
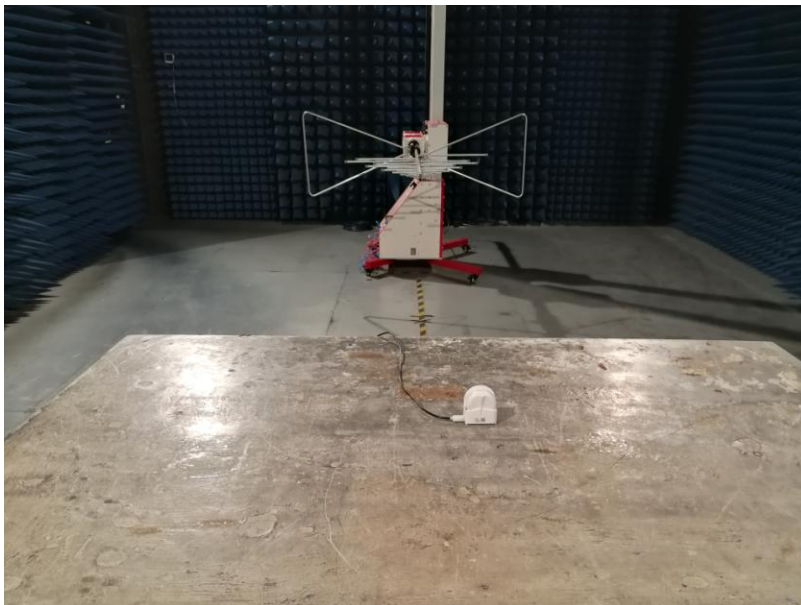
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
4960.000	33.36	31.44	8.73	37.78	35.75	54.00	-18.25	Average
4960.000	43.52	31.44	8.73	37.78	45.91	74.00	-28.09	Peak
7440.000	22.86	36.66	11.79	35.56	35.75	54.00	-18.25	Average
7440.000	28.24	36.66	11.79	35.56	41.13	74.00	-32.87	Peak
9920.000	20.53	38.30	14.38	35.14	38.07	54.00	-15.93	Average
9920.000	28.46	38.30	14.38	35.14	46.00	74.00	-28.00	Peak
12400.000	21.75	38.66	15.27	36.44	39.24	54.00	-14.76	Average
12400.000	28.11	38.66	15.27	36.44	45.60	74.00	-28.40	Peak
14880.000	15.24	40.60	17.39	35.47	37.76	54.00	-16.24	Average
14880.000	25.93	40.60	17.39	35.47	48.45	74.00	-25.55	Peak
17360.000	14.46	41.52	18.98	36.26	38.70	54.00	-15.30	Average
17360.000	25.73	41.52	18.98	36.26	49.97	74.00	-24.03	Peak

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Pre-amplifier Factor
2. “*”, means this data is the too weak instrument of signal is unable to test.

8 Test Setup Photo

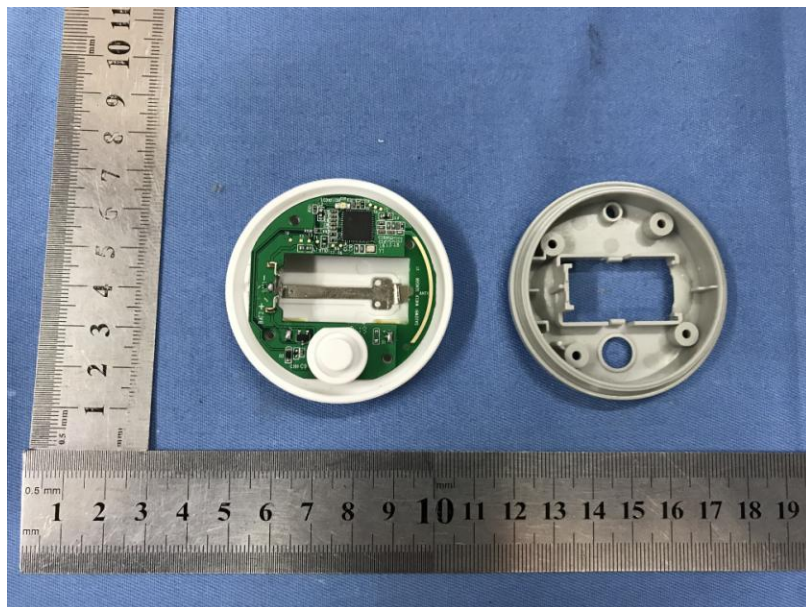
Radiated Emission

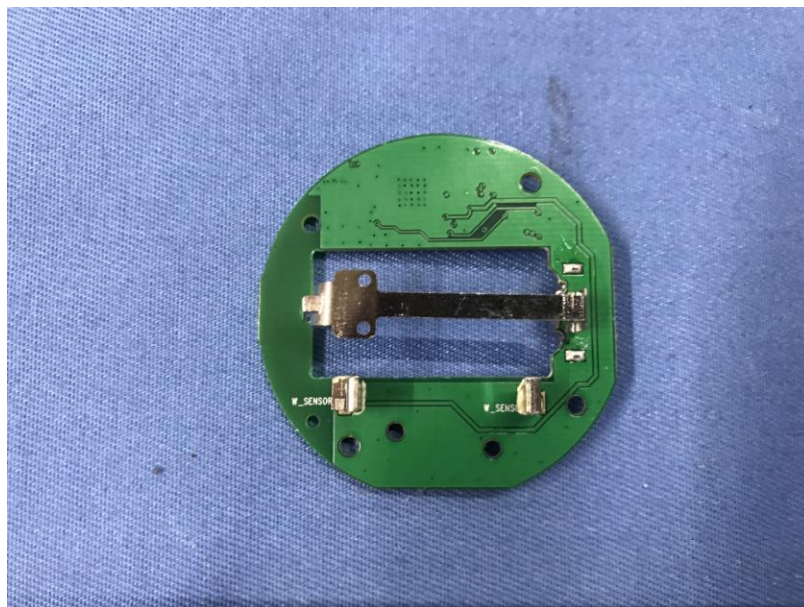
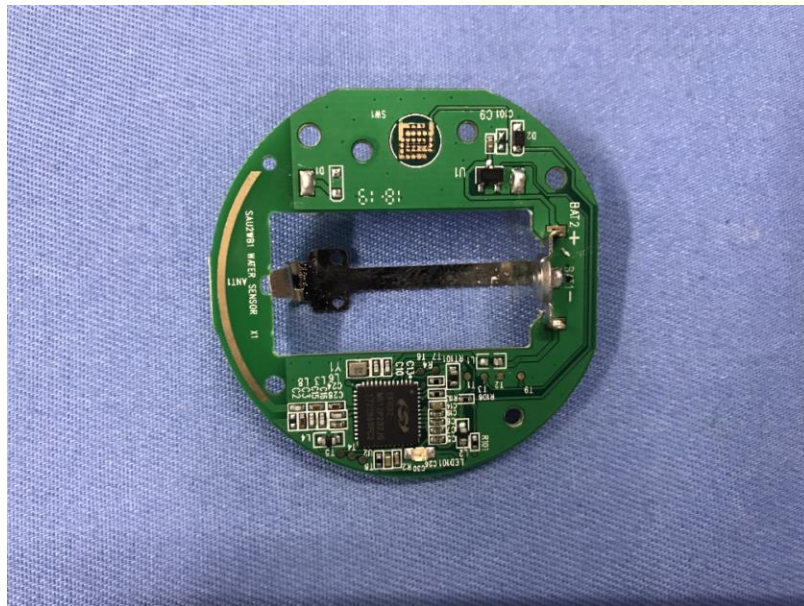


9 EUT Constructional Details









-----End-----