

Test Report

Applicant: Omate Limited.

Address of Applicant: Room 1101,11/F San Toi Building, No.139 Connaught Road, HongKong, China

Manufacturer/ Factory: Umeox Innovation Co., Ltd.

Address of Manufacturer/ Factory: 1208-09, Tsinghua IT Port R&D Building, North Area, Hi-Tech Park, Nanshan District, Shenzhen 518057 China

Equipment Under Test (EUT)

Product Name: 4G Video Call Smart Watch

Model No.: O6L, Omate x Nash, O6L, Freedom 2, O6_V1, S6

Trade Mark: Omate

FCC ID: 2ABF5-O6L

Applicable standards: FCC CFR Title 47 Part 15 Subpart C Section 15.247

Date of sample receipt: Mar. 01, 2020

Date of Test: Mar. 01 – Apr. 29, 2020

Date of report issued: Apr. 30, 2020

Test Result : PASS *

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

Authorized Signature:



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	Apr. 30, 2020	Original

Prepared By:

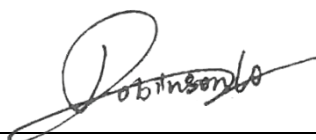


Date:

Apr. 30, 2020

Project Engineer

Check By:



Date:

Apr. 30, 2020

Reviewer

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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	Pass
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

Remarks:

1. Pass: The EUT complies with the essential requirements in the standard.
2. Test according to ANSI C63.10:2013

4.1 Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	30MHz-200MHz	3.8039dB	(1)
Radiated Emission	200MHz-1GHz	3.9679dB	(1)
Radiated Emission	1GHz-18GHz	4.29dB	(1)
Radiated Emission	18GHz-40GHz	3.30dB	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	3.44dB	(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:	4G Video Call Smart Watch
Model No.:	O6L, Omate x Nash, O6L, Freedom 2, O6_V1, S6
Test Model No:	O6L
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.	
Serial No.:	869363030262663
Hardware Version:	O6_MB_V2.0
Software Version:	O6L_V1.0
Test sample(s) ID:	GTS202004000211-1
Sample(s) Status:	Engineer sample
Operation Frequency:	2412MHz~2462MHz(802.11b/g/n(HT20)) 2422MHz~2452MHz(802.11n(HT40))
Channel Numbers:	802.11b/802.11g /802.11n(HT20): 11 802.11n(HT40):7
Channel Separation:	5MHz
Modulation Technology:	802.11b: Direct Sequence Spread Spectrum (DSSS) 802.11g/802.11n(HT20): Orthogonal Frequency Division Multiplexing (OFDM)
Antenna Type:	Integral Antenna
Antenna Gain:	0.41dBi(Declared by applicant)
Power Supply:	DC 3.8V, 620mAh Rechargeable Li-ion Battery

Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2412MHz	4	2427MHz	7	2442MHz	10	2457MHz
2	2417MHz	5	2432MHz	8	2447MHz	11	2462MHz
3	2422MHz	6	2437MHz	9	2452MHz		

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:

Test channel	Frequency (MHz)	
	802.11b/802.11g/802.11n(HT20)	802.11n(HT40)
Lowest channel	2412MHz	2422MHz
Middle channel	2437MHz	2437MHz
Highest channel	2462MHz	2452MHz

5.2 Test mode

Transmitting mode	Keep the EUT in continuously transmitting mode
<i>Remark: During the test, the dutycycle >98%, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.</i>	

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Pre-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.

Mode	802.11b	802.11g	802.11n(HT20)	802.11n(HT40)
Data rate	1Mbps	6Mbps	6.5Mbps	13Mbps

5.3 Description of Support Units

None.

5.4 Deviation from Standards

None.

5.5 Abnormalities from Standard Conditions

None.

5.6 Test Facility

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

- **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.

- **IC —Registration No.: 9079A**

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.

- **NVLAP (LAB CODE:600179-0)**

Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP). LAB CODE:600179-0

5.7 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

Address: No. 123-128, Tower A, Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102

Tel: 0755-27798480

Fax: 0755-27798960

5.8 Additional Instructions

Test Software	Special test command provided by manufacturer
Power level setup	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	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	June. 26 2019	June. 25 2020
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	June. 26 2019	June. 25 2020
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	GTS208	June. 26 2019	June. 25 2020
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	June. 26 2019	June. 25 2020
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Coaxial Cable	GTS	N/A	GTS213	June. 26 2019	June. 25 2020
9	Coaxial Cable	GTS	N/A	GTS211	June. 26 2019	June. 25 2020
10	Coaxial cable	GTS	N/A	GTS210	June. 26 2019	June. 25 2020
11	Coaxial Cable	GTS	N/A	GTS212	June. 26 2019	June. 25 2020
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	June. 26 2019	June. 25 2020
13	Amplifier(2GHz-20GHz)	HP	84722A	GTS206	June. 26 2019	June. 25 2020
14	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June. 26 2019	June. 25 2020
15	Band filter	Amindeon	82346	GTS219	June. 26 2019	June. 25 2020
16	Power Meter	Anritsu	ML2495A	GTS540	June. 26 2019	June. 25 2020
17	Power Sensor	Anritsu	MA2411B	GTS541	June. 26 2019	June. 25 2020
18	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS575	June. 26 2019	June. 25 2020
19	Splitter	Agilent	11636B	GTS237	June. 26 2019	June. 25 2020
20	Loop Antenna	ZHINAN	ZN30900A	GTS534	June. 26 2019	June. 25 2020
21	Breitband hornantenne	SCHWARZBECK	BBHA 9170	GTS579	Oct. 19 2019	Oct. 18 2020
22	Amplifier	TDK	PA-02-02	GTS574	Oct. 19 2019	Oct. 18 2020
23	Amplifier	TDK	PA-02-03	GTS576	Oct. 19 2019	Oct. 18 2020
24	PSA Series Spectrum Analyzer	Rohde & Schwarz	FSP	GTS578	June. 26 2019	June. 25 2020

Conducted Emission						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Shielding Room	ZhongYu Electron	7.3(L)x3.1(W)x2.9(H)	GTS252	May.15 2019	May.14 2022
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June. 26 2019	June. 25 2020
3	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	June. 26 2019	June. 25 2020
4	ENV216 2-L-V-NETZNACHB.DE	ROHDE&SCHWARZ	ENV216	GTS226	June. 26 2019	June. 25 2020
5	Coaxial Cable	GTS	N/A	GTS227	N/A	N/A
6	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
7	Thermo meter	KTJ	TA328	GTS233	June. 26 2019	June. 25 2020
8	Absorbing clamp	Elektronik-Feinmechanik	MDS21	GTS229	June. 26 2019	June. 25 2020
9	ISN	SCHWARZBECK	NTFM 8158	GTD565	June. 26 2019	June. 25 2020

RF Conducted Test:						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	MXA Signal Analyzer	Agilent	N9020A	GTS566	June. 26 2019	June. 25 2020
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June. 26 2019	June. 25 2020
3	Spectrum Analyzer	Agilent	E4440A	GTS533	June. 26 2019	June. 25 2020
4	MXG vector Signal Generator	Agilent	N5182A	GTS567	June. 26 2019	June. 25 2020
5	ESG Analog Signal Generator	Agilent	E4428C	GTS568	June. 26 2019	June. 25 2020
6	USB RF Power Sensor	DARE	RPR3006W	GTS569	June. 26 2019	June. 25 2020
7	RF Switch Box	Shongyi	RFSW3003328	GTS571	June. 26 2019	June. 25 2020
8	Programmable Constant Temp & Humi Test Chamber	WEWON	WHTH-150L-40-880	GTS572	June. 26 2019	June. 25 2020

General used equipment:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Humidity/ Temperature Indicator	KTJ	TA328	GTS243	June. 26 2019	June. 25 2020
2	Barometer	ChangChun	DYM3	GTS255	June. 26 2019	June. 25 2020

7 Test results and Measurement Data

7.1 Antenna requirement

Standard requirement:	FCC Part15 C Section 15.203 /247(c)
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.	
15.247(c) (1)(i) requirement: (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.	
EUT Antenna:	
<i>The antenna is integral antenna, the best case gain of the antenna is 0.41dBi, reference to the appendix II for details</i>	

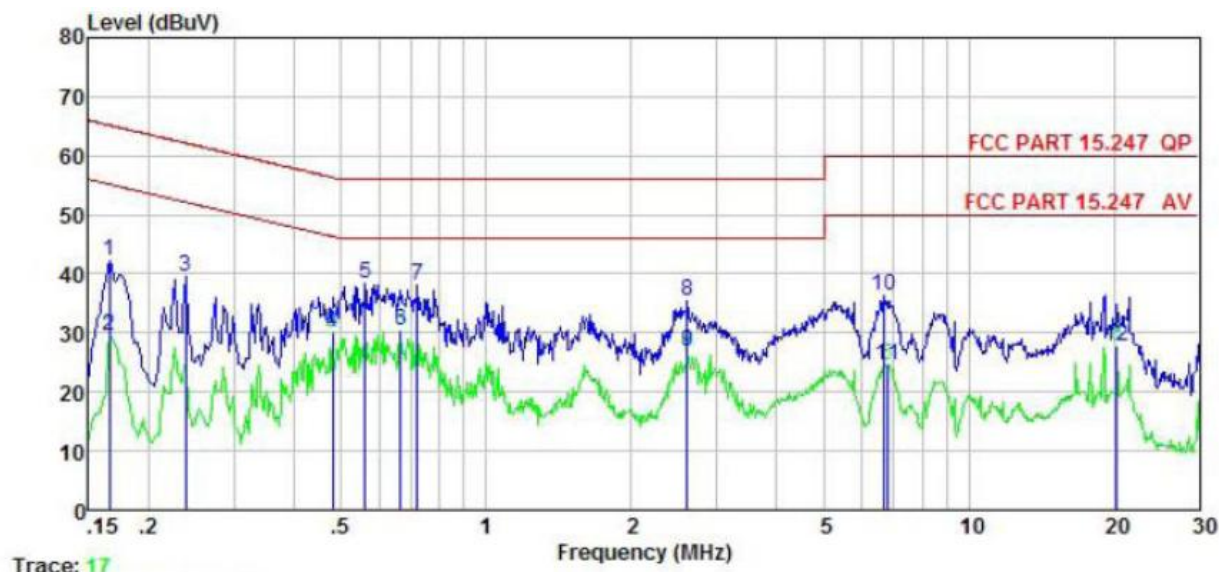
7.2 Conducted Emissions

Test Requirement:	FCC Part15 C Section 15.207					
Test Method:	ANSI C63.10:2013					
Test Frequency Range:	150KHz to 30MHz					
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto					
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.						
Test setup:	Reference Plane <i>Remark: E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m</i>					
Test procedure:	1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10:2013 on conducted measurement.					
Test Instruments:	Refer to section 6.0 for details					
Test mode:	Refer to section 5.2 for details					
Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:	1012mbar
Test voltage:	AC 120V, 60Hz					
Test results:	Pass					

Remark: Both high and low voltages have been tested to show only the worst low voltage test data.

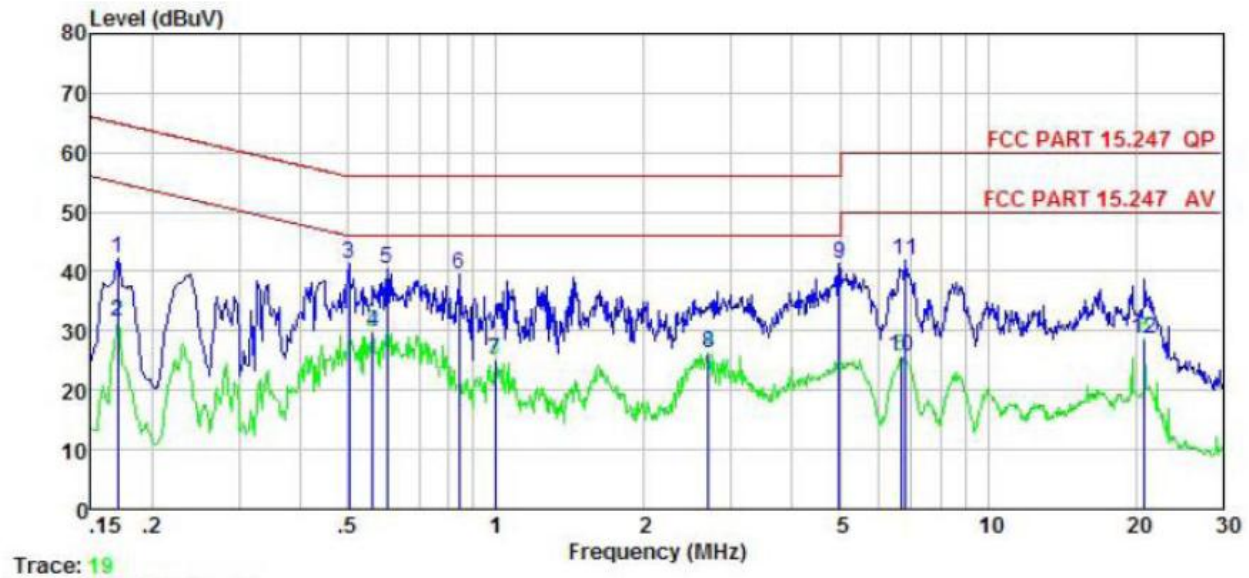
Measurement data

Line:



	Freq	Read	LISN	Cable	Level	Limit	Over	Remark
	MHz	Level	Factor	Loss	Level	Line	Limit	
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.166	31.24	0.17	10.77	42.18	65.16	-22.98	QP
2	0.166	18.71	0.17	10.77	29.65	55.16	-25.51	Average
3	0.238	28.70	0.14	10.75	39.59	62.17	-22.58	QP
4	0.481	19.20	0.12	10.75	30.07	46.32	-16.25	Average
5	0.561	27.58	0.12	10.76	38.46	56.00	-17.54	QP
6	0.665	19.38	0.13	10.77	30.28	46.00	-15.72	Average
7	0.720	27.03	0.13	10.78	37.94	56.00	-18.06	QP
8	2.608	24.41	0.16	10.93	35.50	56.00	-20.50	QP
9	2.608	15.72	0.16	10.93	26.81	46.00	-19.19	Average
10	6.662	25.33	0.24	10.81	36.38	60.00	-23.62	QP
11	6.769	13.47	0.24	10.81	24.52	50.00	-25.48	Average
12	20.270	16.69	0.28	10.93	27.90	50.00	-22.10	Average

Neutral:

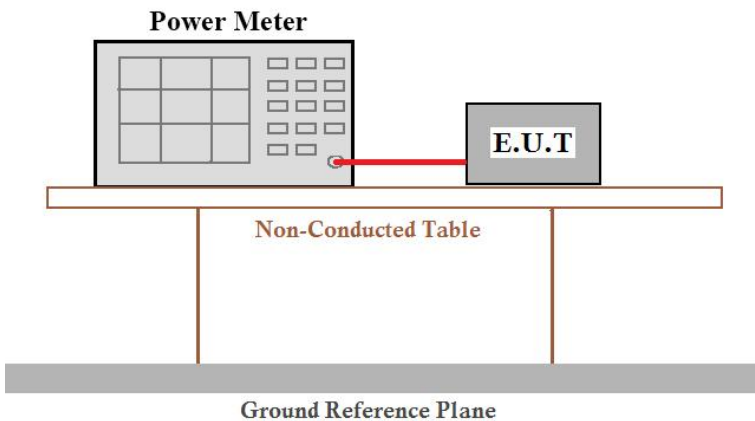


	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.170	30.53	0.96	10.77	42.26	64.94	-22.68	QP
2	0.170	19.77	0.96	10.77	31.50	54.94	-23.44	Average
3	0.502	29.50	0.97	10.76	41.23	56.00	-14.77	QP
4	0.561	17.94	0.97	10.76	29.67	46.00	-16.33	Average
5	0.601	28.84	0.97	10.77	40.58	56.00	-15.42	QP
6	0.839	27.85	0.97	10.82	39.64	56.00	-16.36	QP
7	0.994	13.21	0.97	10.87	25.05	46.00	-20.95	Average
8	2.707	14.32	0.99	10.93	26.24	46.00	-19.76	Average
9	4.978	29.38	1.01	10.85	41.24	56.00	-14.76	QP
10	6.662	13.91	1.02	10.81	25.74	50.00	-24.26	Average
11	6.805	30.13	1.02	10.80	41.95	60.00	-18.05	QP
12	20.814	16.90	0.69	10.92	28.51	50.00	-21.49	Average

Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level = Receiver Read level + LISN Factor + Cable Loss
4. If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both limits and measurement with the average detector receiver is unnecessary.

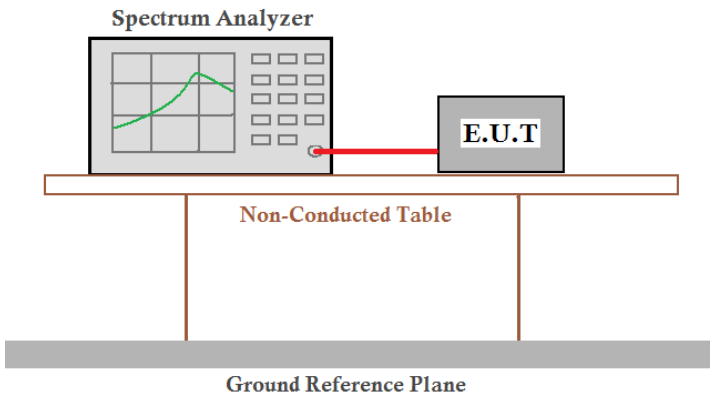
7.3 Conducted Peak Output Power

Test Requirement:	FCC Part15 C Section 15.247 (b)(3)
Test Method:	KDB558074 D01 DTS Meas Guidance v05r02
Limit:	30dBm
Test setup:	 The diagram illustrates the test setup. A Power Meter is connected to an E.U.T. (Equipment Under Test) via a red cable. Both the Power Meter and the E.U.T. are placed on a Non-Conducted Table. The table is supported by a Ground Reference Plane.
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Measurement Data

Type	Test Channel	Peak Output Power (dBm)	Limit (dBm)	Result
802.11b	Lowest	16.55	30.00	Pass
	Middle	16.57		Pass
	Highest	16.44		Pass
802.11g	Lowest	11.96		Pass
	Middle	12.02		Pass
	Highest	12.06		Pass
802.11n(HT20)	Lowest	11.96		Pass
	Middle	12.03		Pass
	Highest	12.04		Pass
802.11n(HT40)	Lowest	13.23		Pass
	Middle	13.25		Pass
	Highest	13.12		Pass

7.4 Channel Bandwidth

Test Requirement:	FCC Part15 C Section 15.247 (a)(2)
Test Method:	KDB558074 D01 DTS Meas Guidance v05r02
Limit:	>500KHz
Test setup:	 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.
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Measurement Data

Test CH	Channel Bandwidth (MHz)				Limit(KHz)	Result
	802.11b	802.11g	802.11n(HT20)	802.11n(HT40)		
Lowest	9.60	16.41	17.67	35.88	>500	Pass
Middle	9.60	16.41	17.64	35.82		
Highest	9.12	16.50	17.64	35.58		

Test plot as follows:

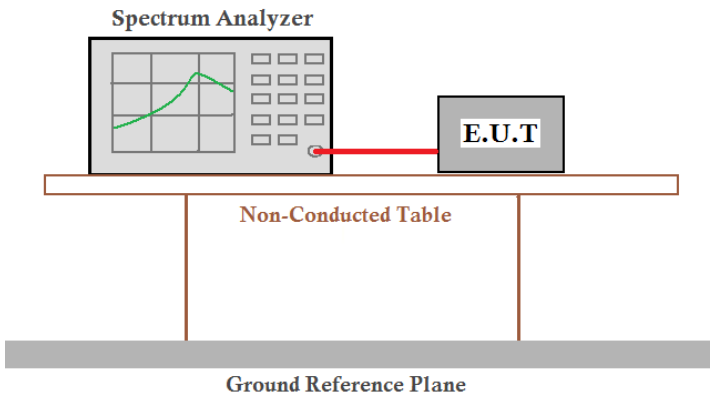
Type:	802.11 b
CH01	Spectrum Ref Level 20.50 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWT 75.9 μs VBW 300 kHz Mode Auto FFT Count 500/500 1Pk View </

Type:		802.11 g																												
CH01	Spectrum Ref Level 20.50 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWT 75.9 μs VBW 300 kHz Mode Auto FFT Count 500/500 1Pk View 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm M1[1] M2[1] D1 D3 -14.45 dBm 2.4038100 GHz -7.36 dBm 2.4170100 GHz CF 2.412 GHz 1001 pts Span 30.0 MHz Marker <table><tr><th>Type</th><th>Ref</th><th>Trc</th><th>X-value</th><th>Y-value</th><th>Function</th><th>Function Result</th></tr><tr><td>M1</td><td>1</td><td></td><td>2.40381 GHz</td><td>-14.45 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.41701 GHz</td><td>-7.36 dBm</td><td></td><td></td></tr><tr><td>D3</td><td>M1</td><td>1</td><td>16.41 MHz</td><td>0.42 dB</td><td></td><td></td></tr></table> Date: 29APR2020 14:10:48		Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		2.40381 GHz	-14.45 dBm			M2	1		2.41701 GHz	-7.36 dBm			D3	M1	1	16.41 MHz	0.42 dB		
Type	Ref	Trc	X-value	Y-value	Function	Function Result																								
M1	1		2.40381 GHz	-14.45 dBm																										
M2	1		2.41701 GHz	-7.36 dBm																										
D3	M1	1	16.41 MHz	0.42 dB																										
CH06	Spectrum Ref Level 20.50 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWT 75.9 μs VBW 300 kHz Mode Auto FFT Count 500/500 1Pk View 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm M1[1] M2[1] D1 D3 -14.32 dBm 2.4288100 GHz -7.32 dBm 2.4420100 GHz CF 2.437 GHz 1001 pts Span 30.0 MHz Marker <table><tr><th>Type</th><th>Ref</th><th>Trc</th><th>X-value</th><th>Y-value</th><th>Function</th><th>Function Result</th></tr><tr><td>M1</td><td>1</td><td></td><td>2.42881 GHz</td><td>-14.32 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.44201 GHz</td><td>-7.32 dBm</td><td></td><td></td></tr><tr><td>D3</td><td>M1</td><td>1</td><td>16.41 MHz</td><td>-0.14 dB</td><td></td><td></td></tr></table> Date: 29APR2020 14:13:01		Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		2.42881 GHz	-14.32 dBm			M2	1		2.44201 GHz	-7.32 dBm			D3	M1	1	16.41 MHz	-0.14 dB		
Type	Ref	Trc	X-value	Y-value	Function	Function Result																								
M1	1		2.42881 GHz	-14.32 dBm																										
M2	1		2.44201 GHz	-7.32 dBm																										
D3	M1	1	16.41 MHz	-0.14 dB																										
CH11	Spectrum Ref Level 20.50 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWT 75.9 μs VBW 300 kHz Mode Auto FFT Count 500/500 1Pk View 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm M1[1] M2[1] D1 D3 -15.12 dBm 2.4537200 GHz -8.36 dBm 2.4607400 GHz CF 2.462 GHz 1001 pts Span 30.0 MHz Marker <table><tr><th>Type</th><th>Ref</th><th>Trc</th><th>X-value</th><th>Y-value</th><th>Function</th><th>Function Result</th></tr><tr><td>M1</td><td>1</td><td></td><td>2.45372 GHz</td><td>-15.12 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.46074 GHz</td><td>-8.36 dBm</td><td></td><td></td></tr><tr><td>D3</td><td>M1</td><td>1</td><td>16.5 MHz</td><td>0.13 dB</td><td></td><td></td></tr></table> Date: 29APR2020 14:17:09		Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		2.45372 GHz	-15.12 dBm			M2	1		2.46074 GHz	-8.36 dBm			D3	M1	1	16.5 MHz	0.13 dB		
Type	Ref	Trc	X-value	Y-value	Function	Function Result																								
M1	1		2.45372 GHz	-15.12 dBm																										
M2	1		2.46074 GHz	-8.36 dBm																										
D3	M1	1	16.5 MHz	0.13 dB																										

Type:		802.11n(HT20)
CH01	Spectrum Ref Level 20.50 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWT 75.9 μs VBW 300 kHz Mode Auto FFT Count 500/500 1Pk View	

Type:		802.11n(HT40)																												
CH03	Spectrum Ref Level 20.50 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWT 132.7 μs VBW 300 kHz Mode Auto FFT Count 500/500 1Pk View 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm M1[1] M2[1] M2 D1 -16.78 dBm 2.4043600 GHz -8.61 dBm 2.4395200 GHz -14.605 dBm CF 2.422 GHz 1001 pts Span 60.0 MHz Marker <table><thead><tr><th>Type</th><th>Ref</th><th>Trc</th><th>X-value</th><th>Y-value</th><th>Function</th><th>Function Result</th></tr></thead><tbody><tr><td>M1</td><td>1</td><td></td><td>2.40436 GHz</td><td>-16.78 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.43952 GHz</td><td>-8.61 dBm</td><td></td><td></td></tr><tr><td>D3</td><td>M1</td><td>1</td><td>35.88 MHz</td><td>1.13 dB</td><td></td><td></td></tr></tbody></table> Date: 29APR2020 14:30:25		Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		2.40436 GHz	-16.78 dBm			M2	1		2.43952 GHz	-8.61 dBm			D3	M1	1	35.88 MHz	1.13 dB		
Type	Ref	Trc	X-value	Y-value	Function	Function Result																								
M1	1		2.40436 GHz	-16.78 dBm																										
M2	1		2.43952 GHz	-8.61 dBm																										
D3	M1	1	35.88 MHz	1.13 dB																										
CH06	Spectrum Ref Level 20.50 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWT 132.7 μs VBW 300 kHz Mode Auto FFT Count 500/500 1Pk View 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm M1[1] M2[1] M2 D1 -16.13 dBm 2.4193600 GHz -8.96 dBm 2.4419800 GHz -14.963 dBm CF 2.437 GHz 1001 pts Span 60.0 MHz Marker <table><thead><tr><th>Type</th><th>Ref</th><th>Trc</th><th>X-value</th><th>Y-value</th><th>Function</th><th>Function Result</th></tr></thead><tbody><tr><td>M1</td><td>1</td><td></td><td>2.41936 GHz</td><td>-16.13 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.44198 GHz</td><td>-8.96 dBm</td><td></td><td></td></tr><tr><td>D3</td><td>M1</td><td>1</td><td>35.82 MHz</td><td>1.11 dB</td><td></td><td></td></tr></tbody></table> Date: 29APR2020 14:32:48		Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		2.41936 GHz	-16.13 dBm			M2	1		2.44198 GHz	-8.96 dBm			D3	M1	1	35.82 MHz	1.11 dB		
Type	Ref	Trc	X-value	Y-value	Function	Function Result																								
M1	1		2.41936 GHz	-16.13 dBm																										
M2	1		2.44198 GHz	-8.96 dBm																										
D3	M1	1	35.82 MHz	1.11 dB																										
CH09	Spectrum Ref Level 20.50 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWT 132.7 μs VBW 300 kHz Mode Auto FFT Count 500/500 1Pk View 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm M1[1] M2[1] M2 D1 -14.96 dBm 2.4340600 GHz -8.91 dBm 2.4494800 GHz -14.906 dBm CF 2.452 GHz 1001 pts Span 60.0 MHz Marker <table><thead><tr><th>Type</th><th>Ref</th><th>Trc</th><th>X-value</th><th>Y-value</th><th>Function</th><th>Function Result</th></tr></thead><tbody><tr><td>M1</td><td>1</td><td></td><td>2.43406 GHz</td><td>-14.96 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.44948 GHz</td><td>-8.91 dBm</td><td></td><td></td></tr><tr><td>D3</td><td>M1</td><td>1</td><td>35.58 MHz</td><td>-0.74 dB</td><td></td><td></td></tr></tbody></table> Date: 29APR2020 14:34:50		Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		2.43406 GHz	-14.96 dBm			M2	1		2.44948 GHz	-8.91 dBm			D3	M1	1	35.58 MHz	-0.74 dB		
Type	Ref	Trc	X-value	Y-value	Function	Function Result																								
M1	1		2.43406 GHz	-14.96 dBm																										
M2	1		2.44948 GHz	-8.91 dBm																										
D3	M1	1	35.58 MHz	-0.74 dB																										

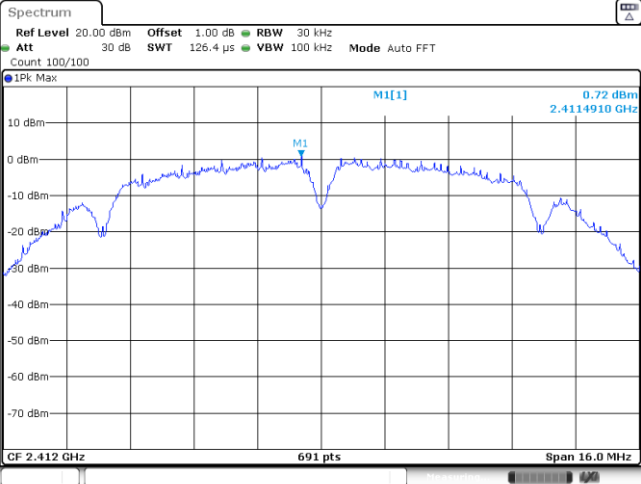
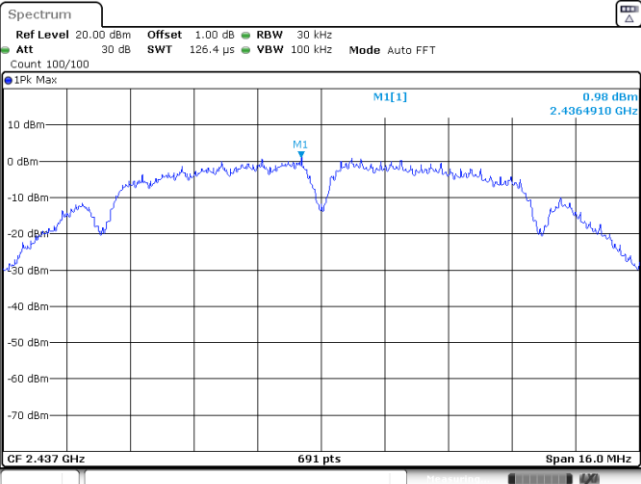
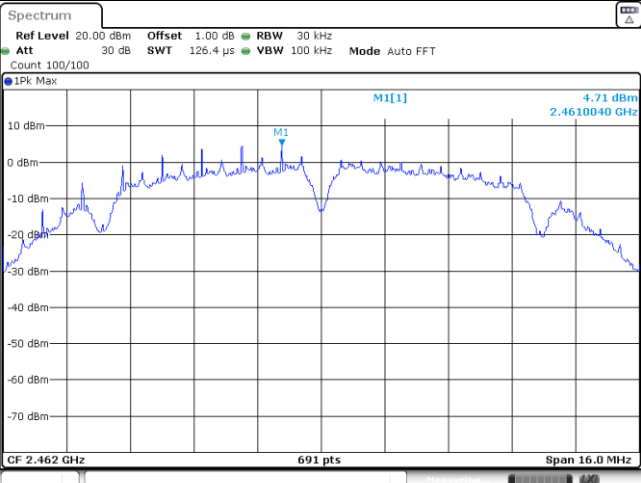
7.5 Power Spectral Density

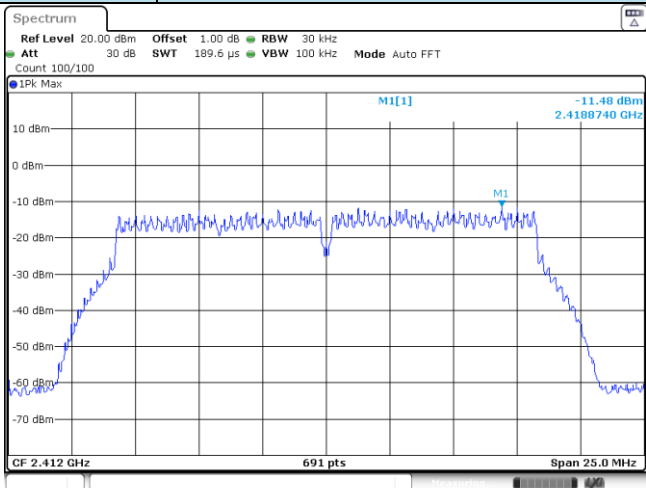
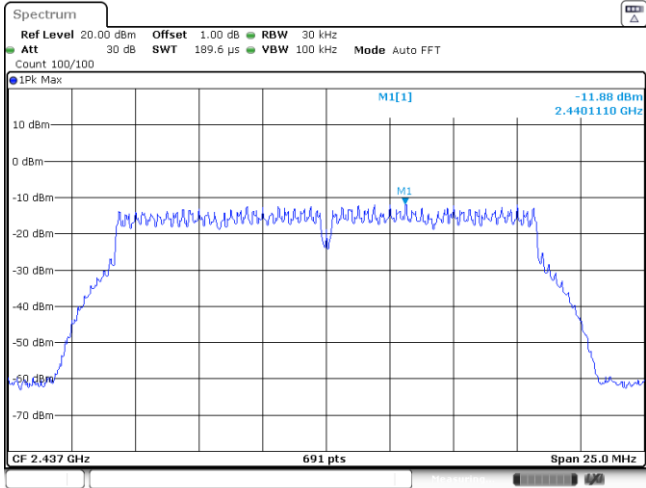
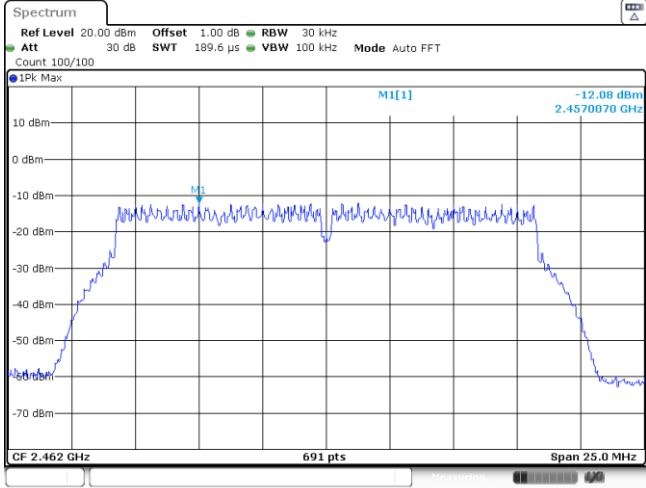
Test Requirement:	FCC Part15 C Section 15.247 (e)
Test Method:	KDB558074 D01 DTS Meas Guidance v05r02
Limit:	8dBm/3kHz
Test setup:	 The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T. are placed on a Non-Conducted Table. The table is supported by a Ground Reference Plane.
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

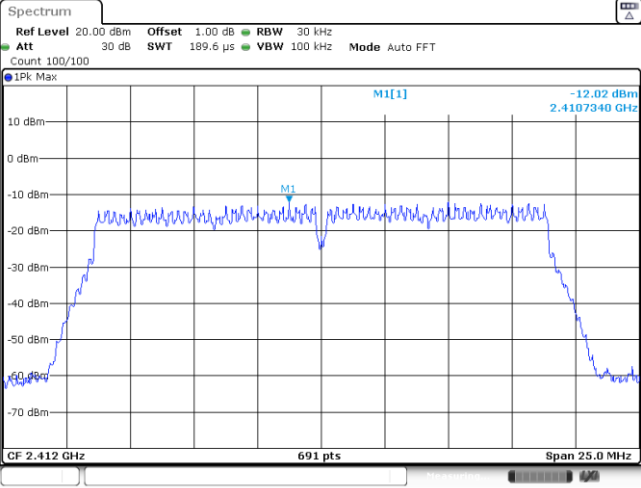
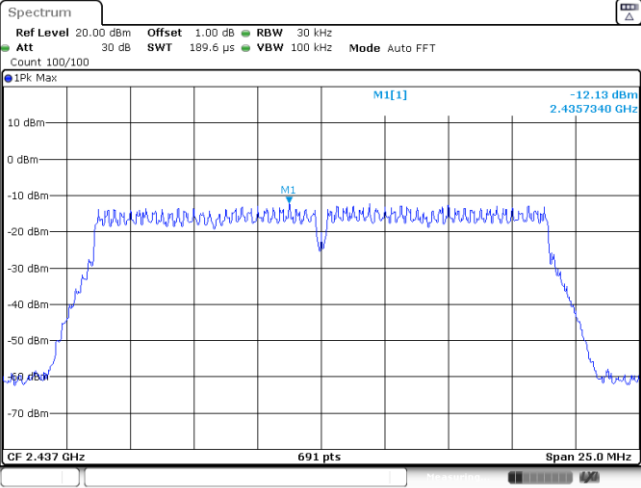
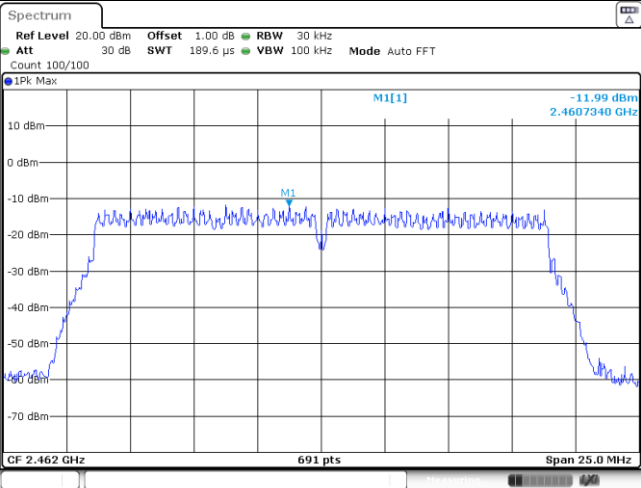
Measurement Data

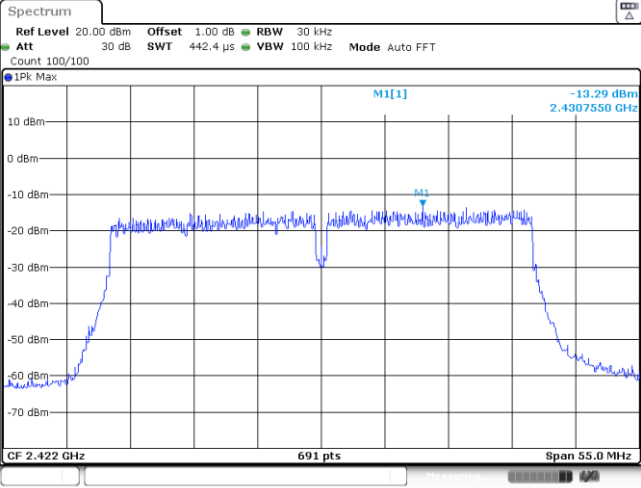
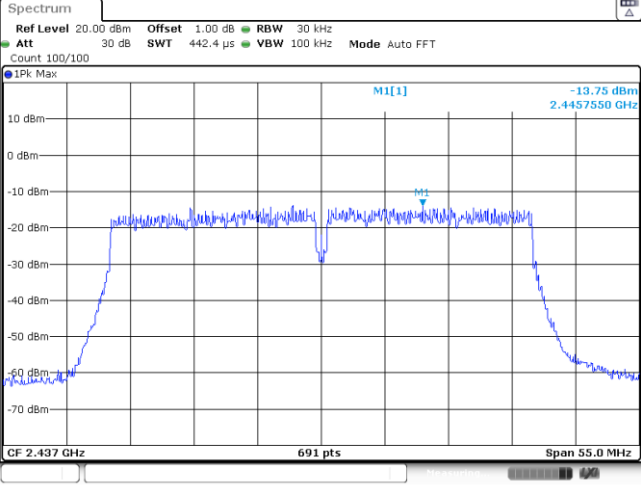
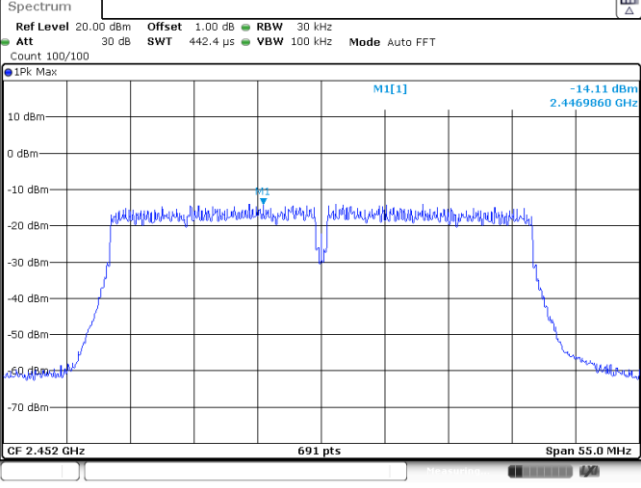
Test CH	Power Spectral Density (dBm/3kHz)				Limit (dBm/3kHz)	Result
	802.11b	802.11g	802.11n(HT20)	802.11n(HT40)		
Lowest	0.72	-11.48	-12.02	-13.29	8.00	Pass
Middle	0.98	-11.88	-12.13	-13.75		
Highest	4.71	-12.08	-11.99	-14.11		

Test plot as follows:

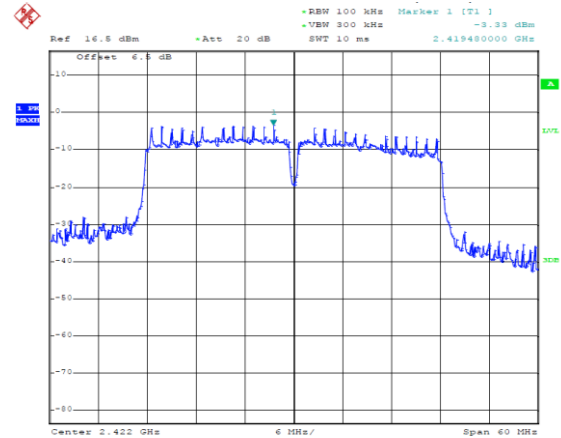
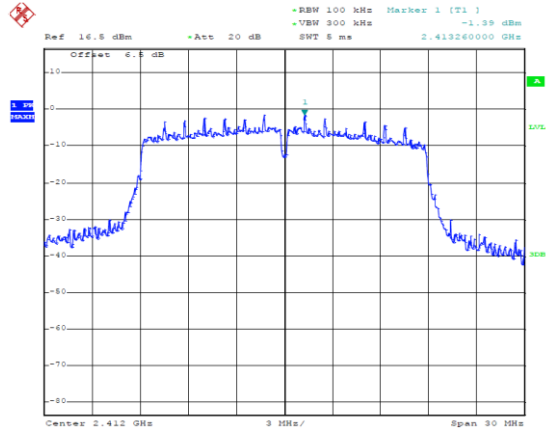
Type:	802.11 b
CH01	 Spectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 30 kHz Att 30 dB SWT 126.4 μs VBW 100 kHz Mode Auto FFT Count 100/100 1Pk Max M1[1] 0.72 dBm 2.4114910 GHz CF 2.412 GHz 691 pts Span 16.0 MHz Date: 29 APR 2020 13:47:27
CH06	 Spectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 30 kHz Att 30 dB SWT 126.4 μs VBW 100 kHz Mode Auto FFT Count 100/100 1Pk Max M1[1] 0.98 dBm 2.4364910 GHz CF 2.437 GHz 691 pts Span 16.0 MHz Date: 29 APR 2020 13:50:34
CH11	 Spectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 30 kHz Att 30 dB SWT 126.4 μs VBW 100 kHz Mode Auto FFT Count 100/100 1Pk Max M1[1] 4.71 dBm 2.4610040 GHz CF 2.462 GHz 691 pts Span 16.0 MHz Date: 29 APR 2020 13:52:12

Type:		802.11 g
CH01	 1Pk Max M1[1] -11.48 dBm 2.418740 GHz CF 2.412 GHz 691 pts Span 25.0 MHz Date: 29/APR/2020 14:11:09	
CH06	 1Pk Max M1[1] -11.88 dBm 2.4401110 GHz CF 2.437 GHz 691 pts Span 25.0 MHz Date: 29/APR/2020 14:13:22	
CH11	 1Pk Max M1[1] -12.08 dBm 2.4570070 GHz CF 2.462 GHz 691 pts Span 25.0 MHz Date: 29/APR/2020 14:17:32	

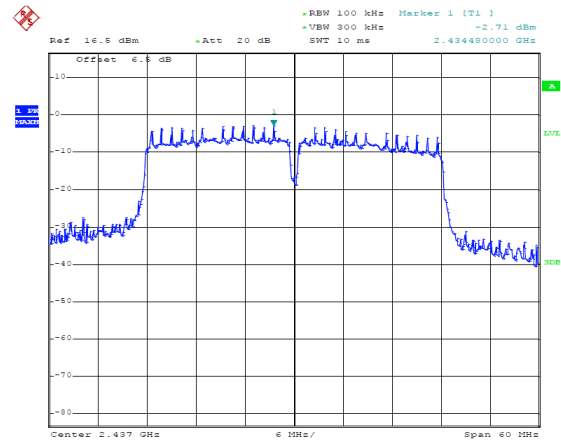
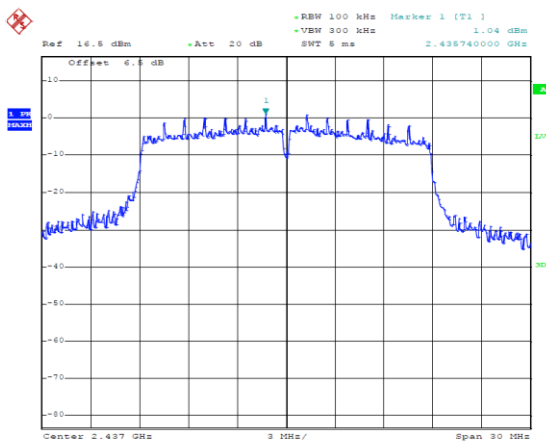
Type:		802.11n(HT20)
CH01	 1Pk Max M1[1] -12.02 dBm 2.4107340 GHz CF 2.412 GHz 691 pts Span 25.0 MHz Date: 29/APR/2020 14:23:50	
CH06	 1Pk Max M1[1] -12.13 dBm 2.4357340 GHz CF 2.437 GHz 691 pts Span 25.0 MHz Date: 29/APR/2020 14:25:44	
CH11	 1Pk Max M1[1] -11.99 dBm 2.4607340 GHz CF 2.462 GHz 691 pts Span 25.0 MHz Date: 29/APR/2020 14:27:32	

Type:		802.11n(HT40)
CH03	 1Pk Max M1[1] -13.29 dBm 2.4307550 GHz CF 2.422 GHz 691 pts Span 55.0 MHz Date: 29/APR/2020 14:30:53	
CH06	 1Pk Max M1[1] -13.75 dBm 2.4457550 GHz CF 2.437 GHz 691 pts Span 55.0 MHz Date: 29/APR/2020 14:33:17	
CH09	 1Pk Max M1[1] -14.11 dBm 2.4469860 GHz CF 2.452 GHz 691 pts Span 55.0 MHz Date: 29/APR/2020 14:35:20	

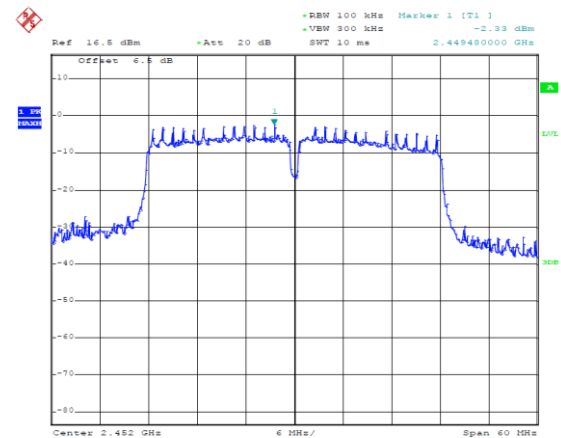
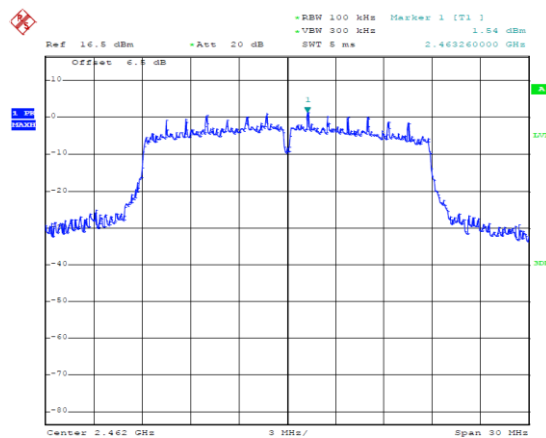
Test mode:	802.11n(HT20)	Test mode:	802.11n(HT40)
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Lowest channel



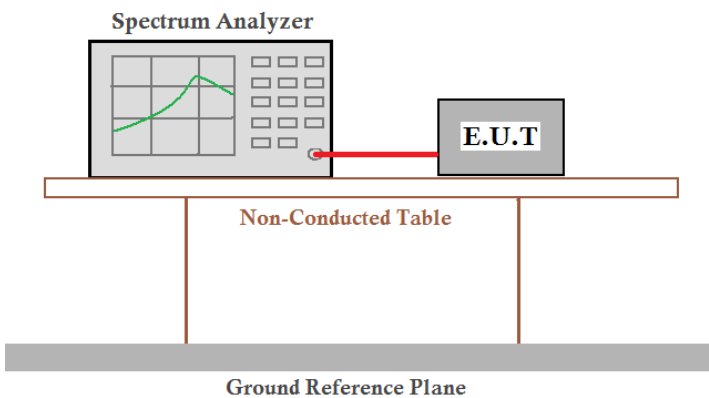
Middle channel



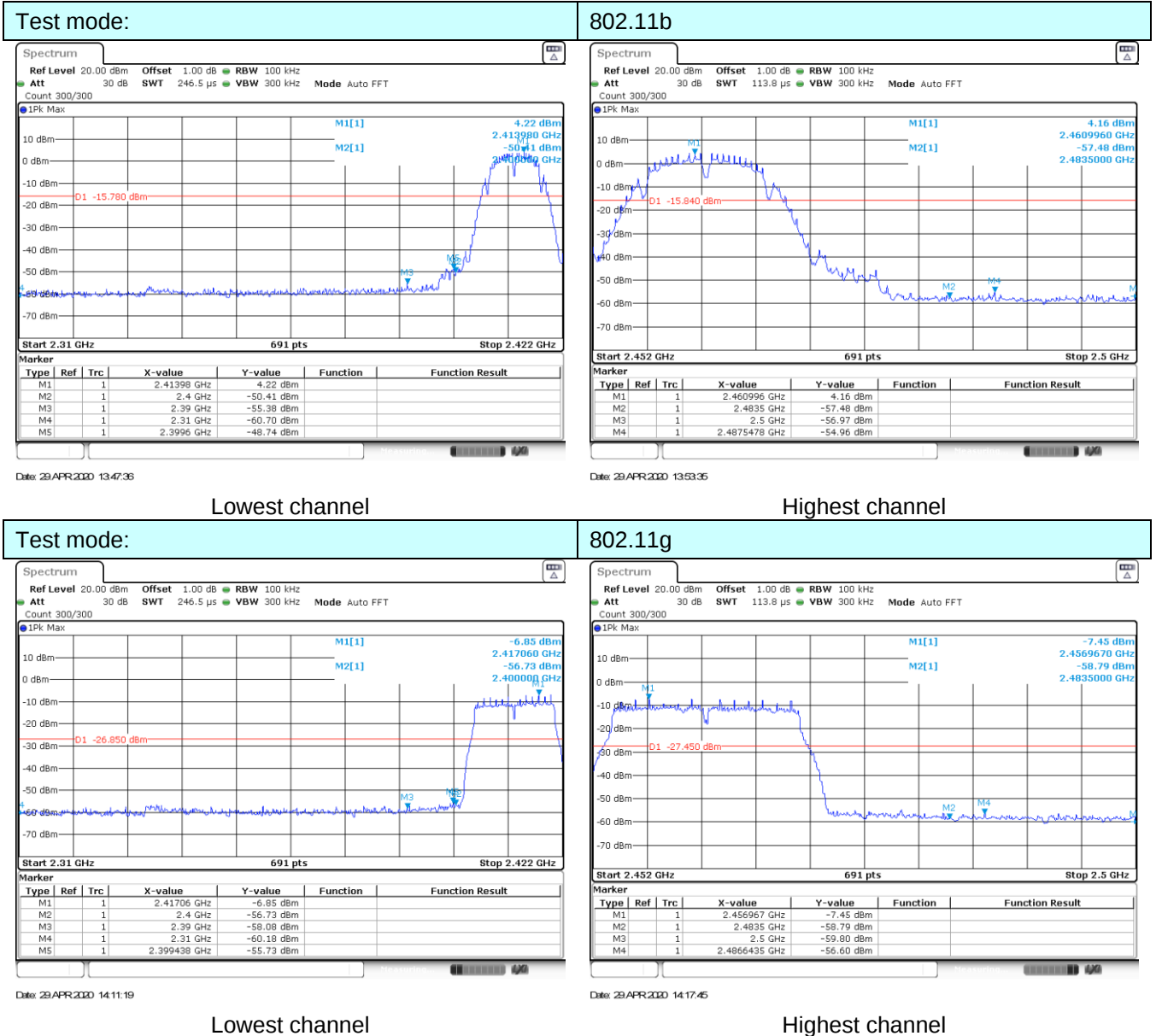
Highest channel

7.6 Band edges

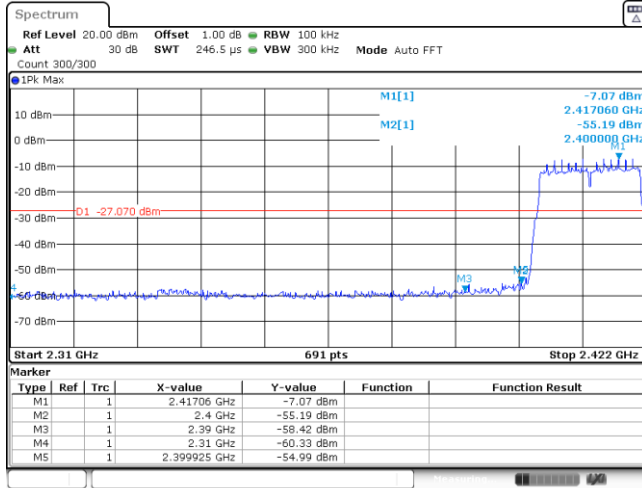
7.6.1 Conducted Emission Method

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	KDB558074 D01 DTS Meas Guidance v05r02
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:	 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 two vertical legs. Below the table is a Ground Reference Plane, represented by a thick grey bar.
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:

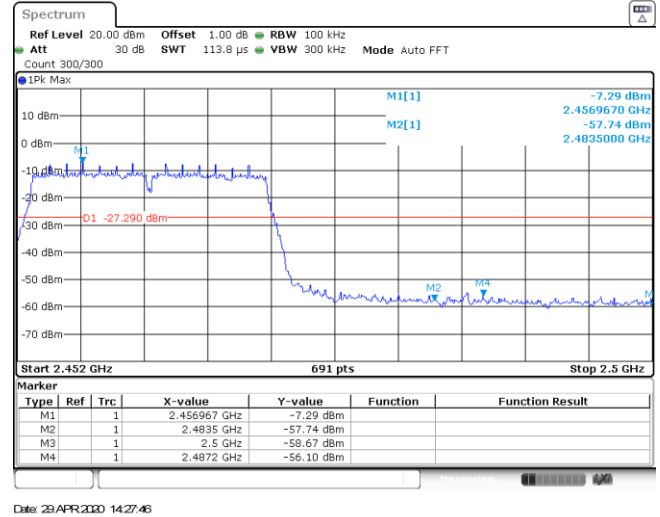


Test mode:



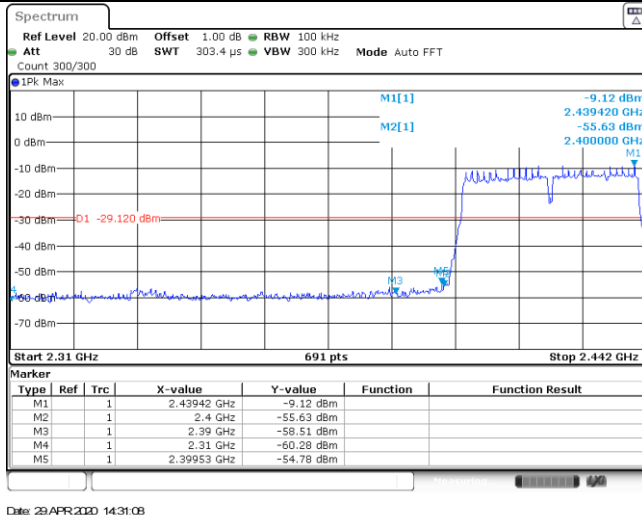
Lowest channel

802.11n(HT20)



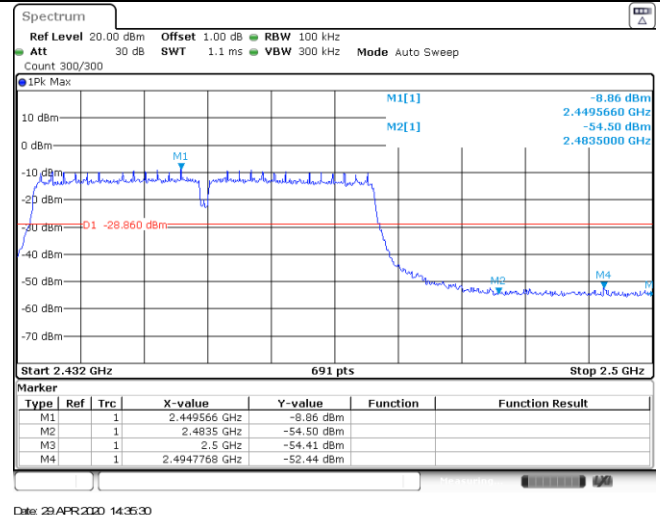
Highest channel

Test mode:



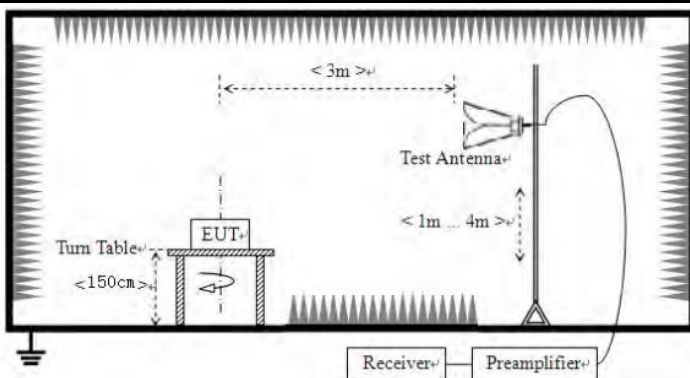
Lowest channel

802.11n(HT40)



Highest channel

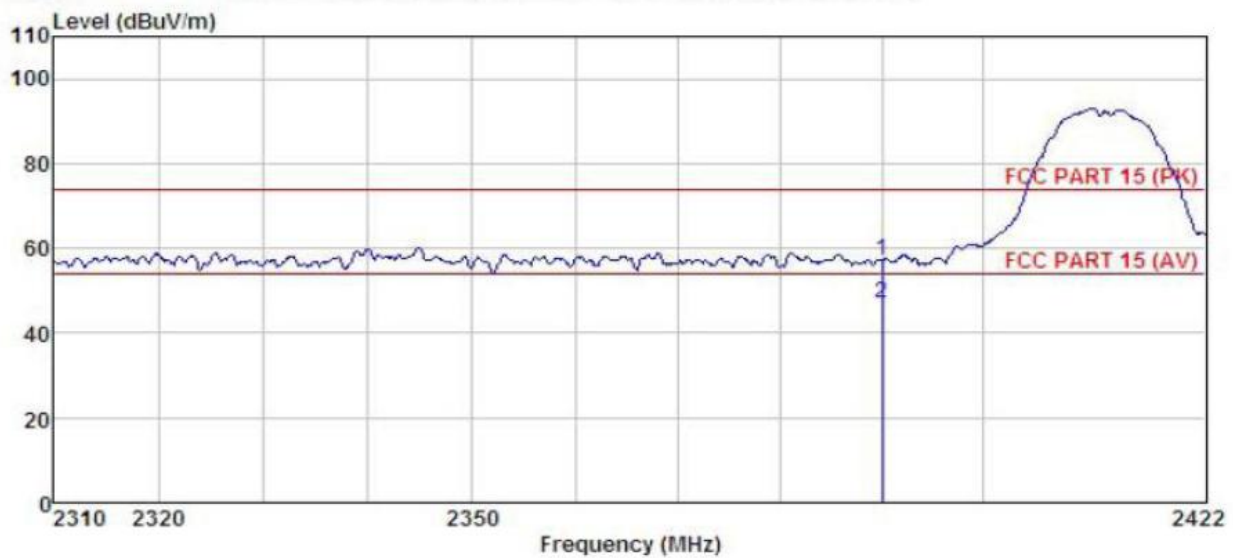
7.6.2 Radiated Emission Method

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
		Average	1MHz	3MHz	Average
Limit:	Frequency		Limit (dBuV/m @3m)		Value
	Above 1GHz		54.00		Average
			74.00		Peak
Test setup:					
Test Procedure:	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 voltage:	AC 120V, 60Hz				
Test results:	Pass				

Measurement data:

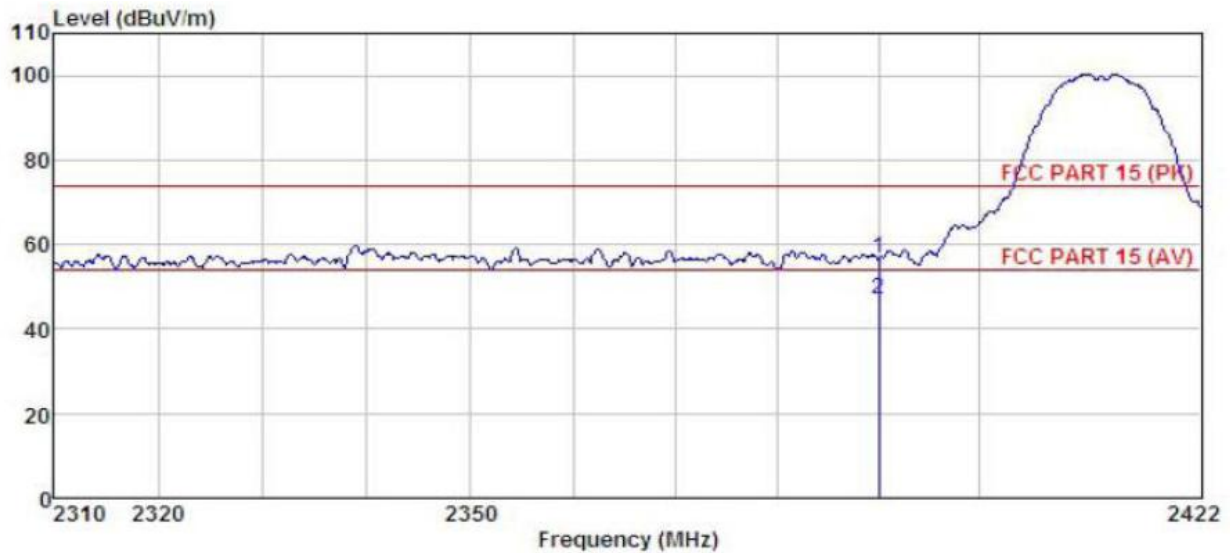
Test mode:	802.11b	Test channel:	Lowest
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Horizontal:



	ReadAntenna	Cable Preamp			Limit	Over	
Freq	Level	Factor	Loss	Factor	Level	Line	Limit Remark
-----	-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1 2390.000	23.61	27.08	4.69	0.00	57.06	74.00	-16.94 Peak
2 2390.000	13.74	27.08	4.69	0.00	47.19	54.00	-6.81 Average

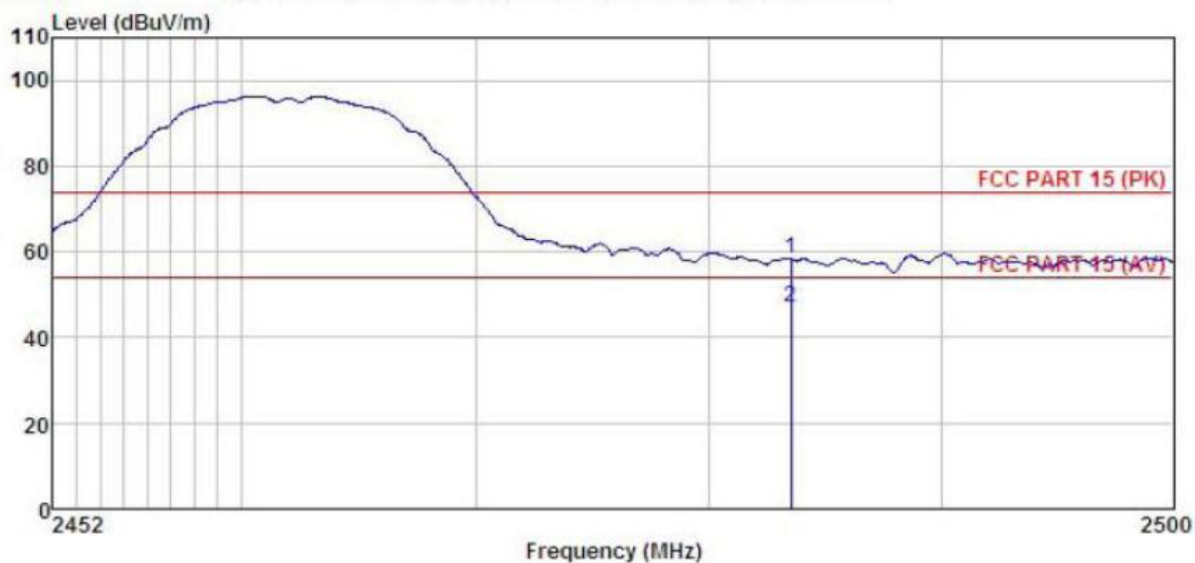
Vertical:



	ReadAntenna	Cable	Preamp		Limit	Over	
Freq	Level	Factor	Loss	Factor	Level	Line	Limit Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	2390.000	23.57	27.07	4.69	0.00	57.01	74.00 -16.99 Peak
2	2390.000	13.81	27.07	4.69	0.00	47.25	54.00 -6.75 Average

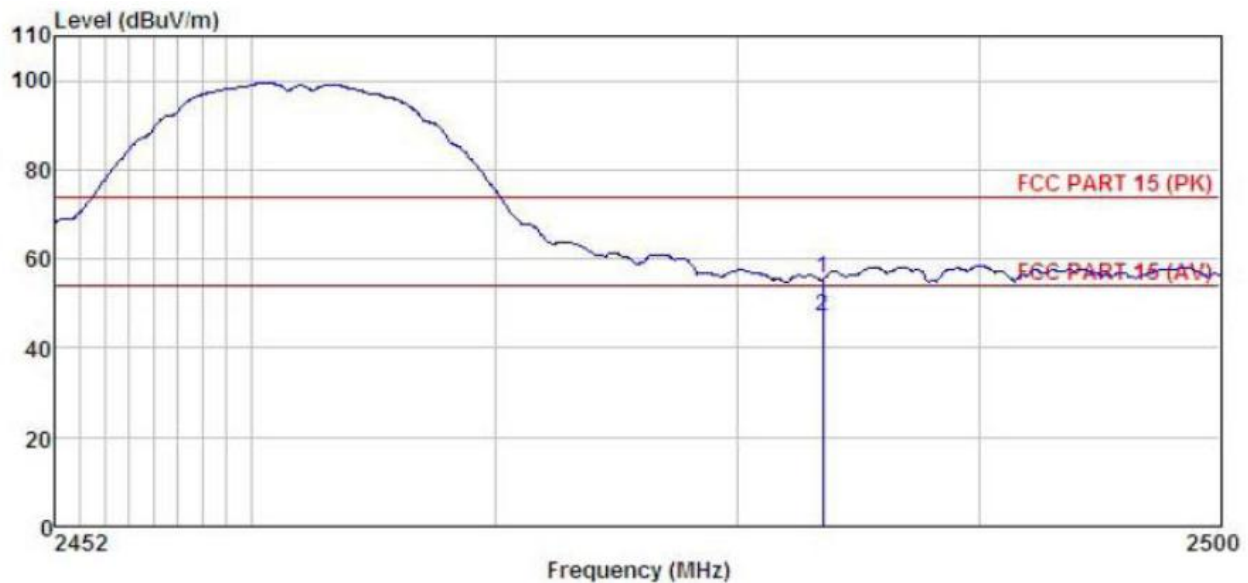
Test mode:	802.11b	Test channel:	Highest
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Horizontal:



	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2483.500	24.54	27.35	4.81	0.00	58.40	74.00	-15.60	Peak
2	2483.500	13.21	27.35	4.81	0.00	47.07	54.00	-6.93	Average

Vertical:



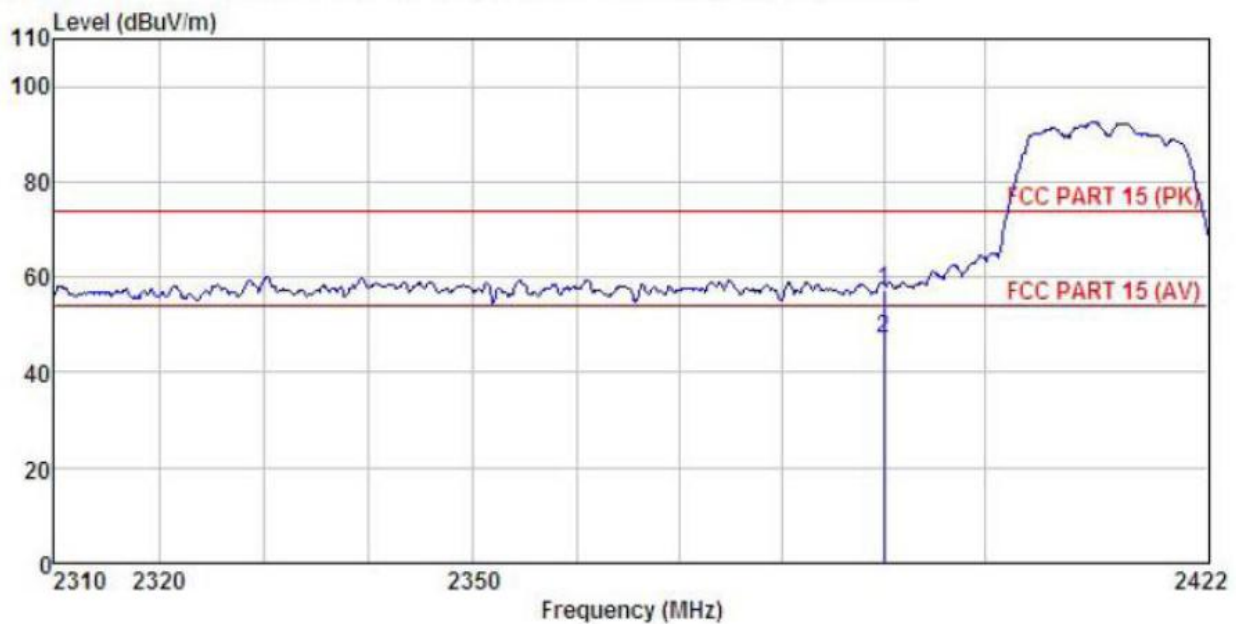
	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2483.500	21.55	27.36	4.81	0.00	55.42	74.00	-18.58	Peak
2	2483.500	13.10	27.36	4.81	0.00	46.97	54.00	-7.03	Average

Notes:

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.

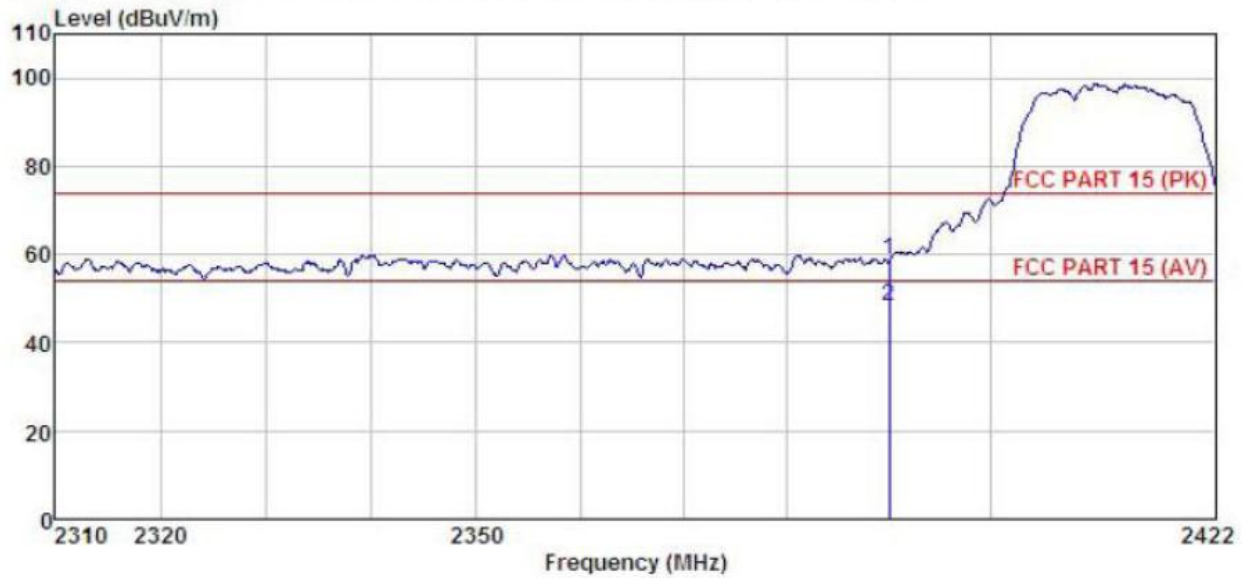
Test mode:	802.11g	Test channel:	Lowest
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Horizontal:



	Read	Antenna	Cable	Preamp		Limit	Over	
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
-----	-----	-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.000	23.78	27.08	4.69	0.00	57.23	74.00	-16.77 Peak
2	2390.000	13.63	27.08	4.69	0.00	47.08	54.00	-6.92 Average

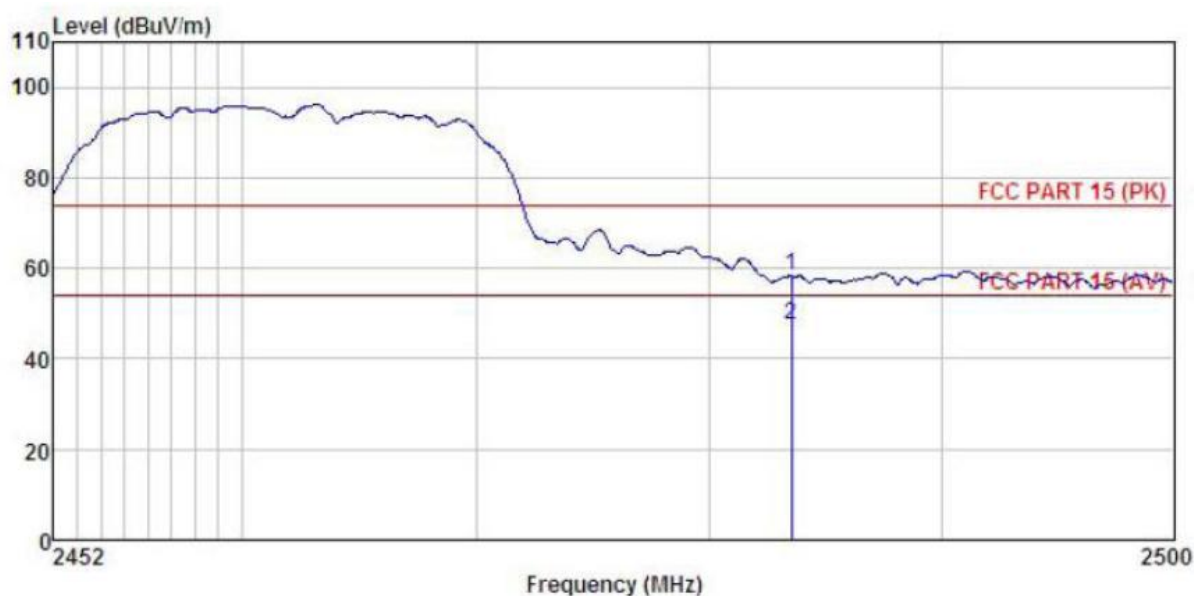
Vertical:



	Read	Antenna	Cable	Preamp	Limit	Over	
Freq	Level	Factor	Loss	Factor	Line	Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	2390.000	25.42	27.07	4.69	0.00	58.86	74.00 -15.14 Peak
2	2390.000	14.79	27.07	4.69	0.00	48.23	54.00 -5.77 Average

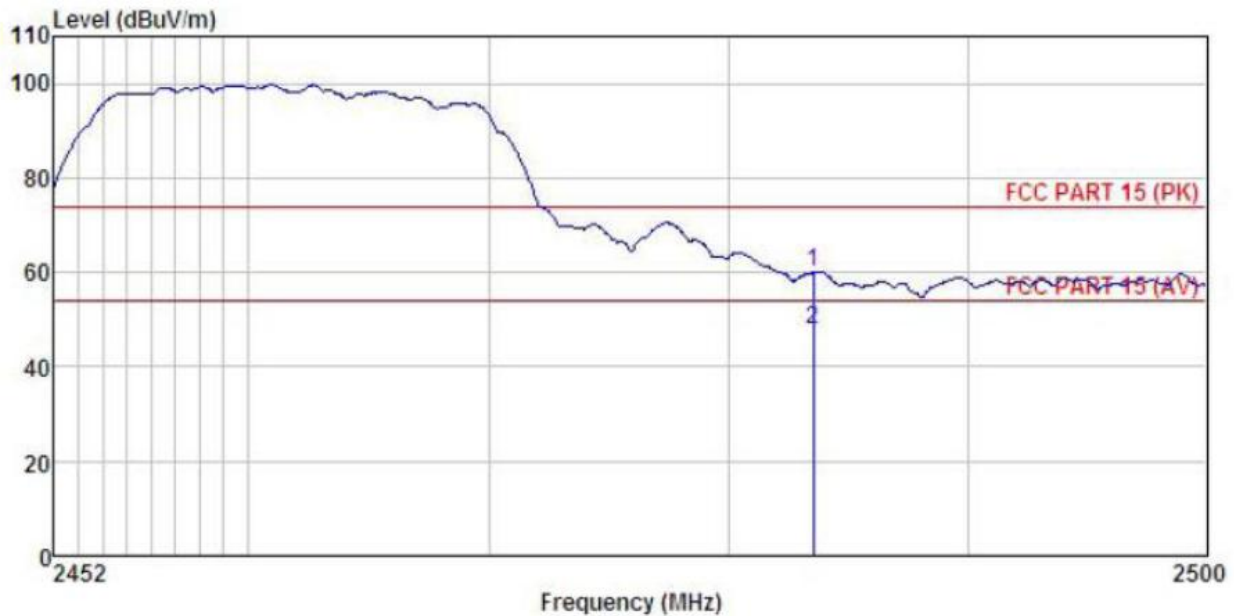
Test mode:	802.11g	Test channel:	Highest
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Horizontal:



	Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2483.500	24.47	27.35	4.81	0.00	58.33	74.00	-15.67	Peak
2	2483.500	13.62	27.35	4.81	0.00	47.48	54.00	-6.52	Average

Vertical:



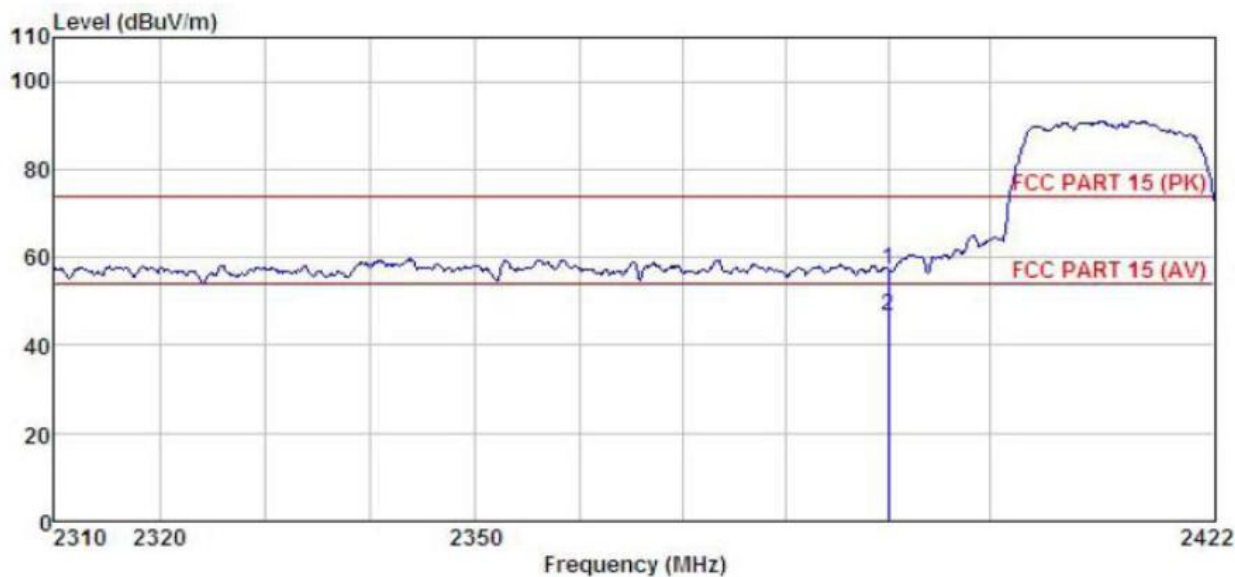
	Read	Antenna	Cable	Preamp		Limit	Over	
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
-----	-----	-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1 2483.500	26.14	27.36	4.81	0.00	60.01	74.00	-13.99	Peak
2 2483.500	13.85	27.36	4.81	0.00	47.72	54.00	-6.28	Average

Notes:

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.

Test mode:	802.11n(HT20)	Test channel:	Lowest
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Horizontal:



	Read	Antenna	Cable	Preamp		Limit	Over	
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
-----	-----	-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.000	23.59	27.08	4.69	0.00	57.04	74.00	-16.96 Peak
2	2390.000	13.25	27.08	4.69	0.00	46.70	54.00	-7.30 Average

Level (dBuV/m)

Frequency (MHz)

FCC PART 15 (PK)

FCC PART 15 (AV)

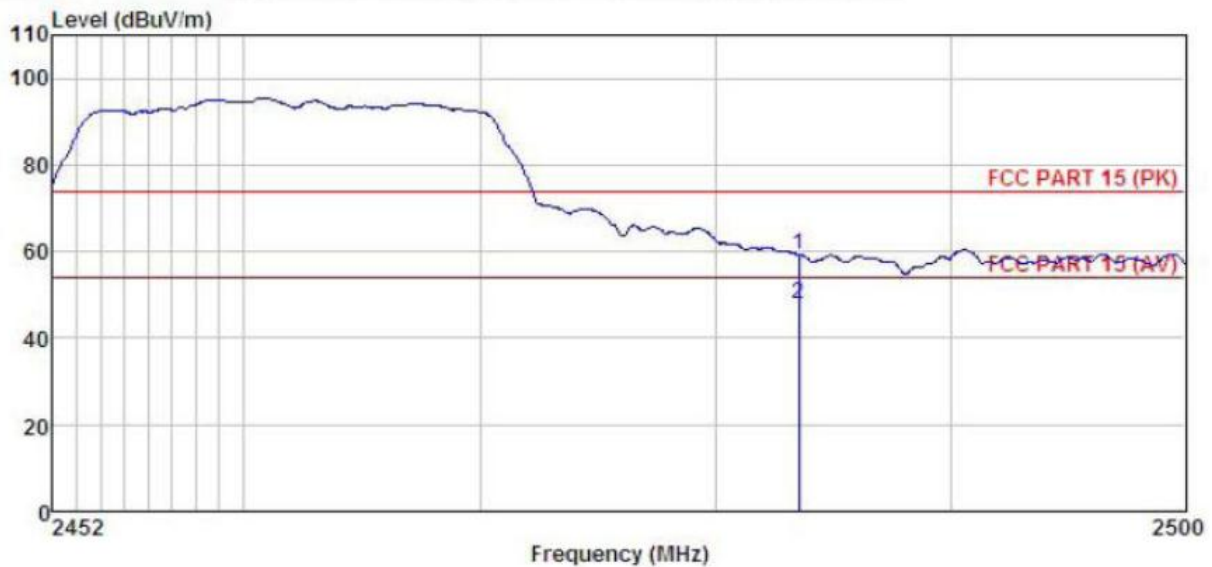
1

2

	Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.000	29.01	27.07	4.69	0.00	62.45	74.00	-11.55	Peak
2	2390.000	14.45	27.07	4.69	0.00	47.89	54.00	-6.11	Average

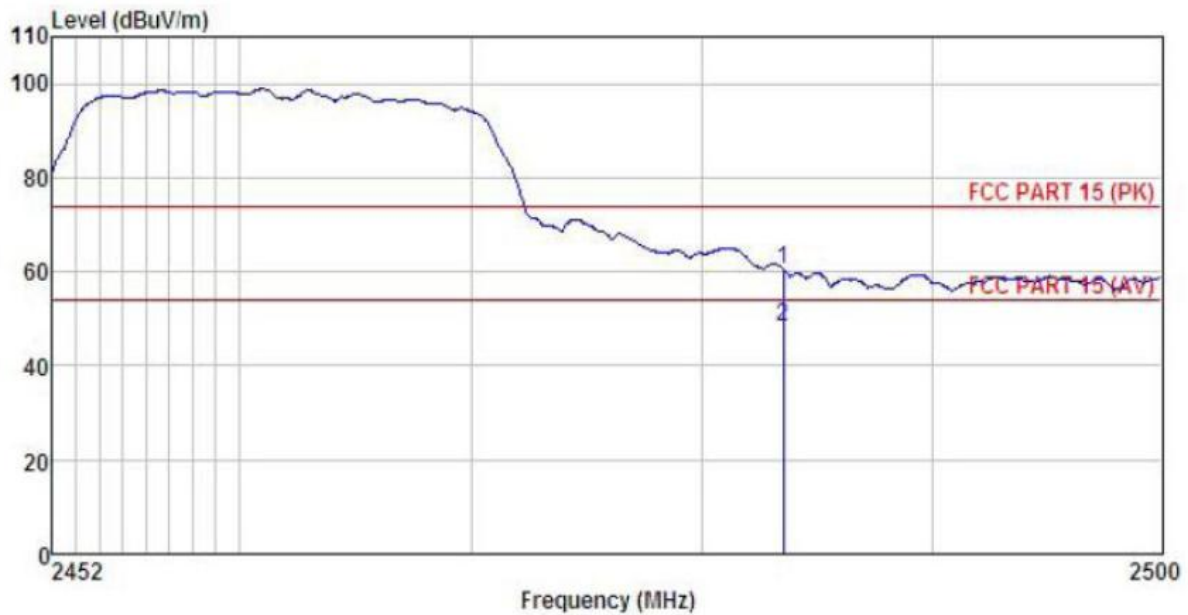
Test mode:	802.11n(HT20)	Test channel:	Highest
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Horizontal:



	Freq	ReadAntenna	Cable	Preamp		Limit	Over	
	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	2483.500	25.45	27.35	4.81	0.00	59.31	74.00	-14.69 Peak
2	2483.500	14.12	27.35	4.81	0.00	47.98	54.00	-6.02 Average

Vertical:



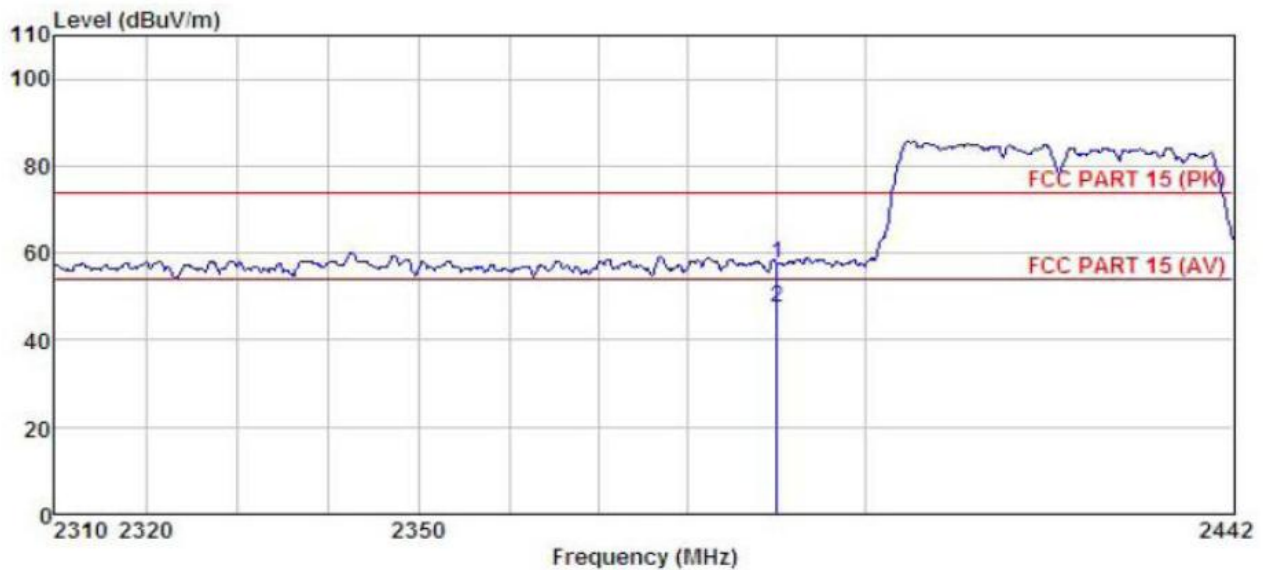
	Read	Antenna	Cable	Preamp		Limit	Over	
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2483.500	26.73	27.36	4.81	0.00	60.60	74.00	-13.40 Peak
2	2483.500	14.42	27.36	4.81	0.00	48.29	54.00	-5.71 Average

Notes:

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.

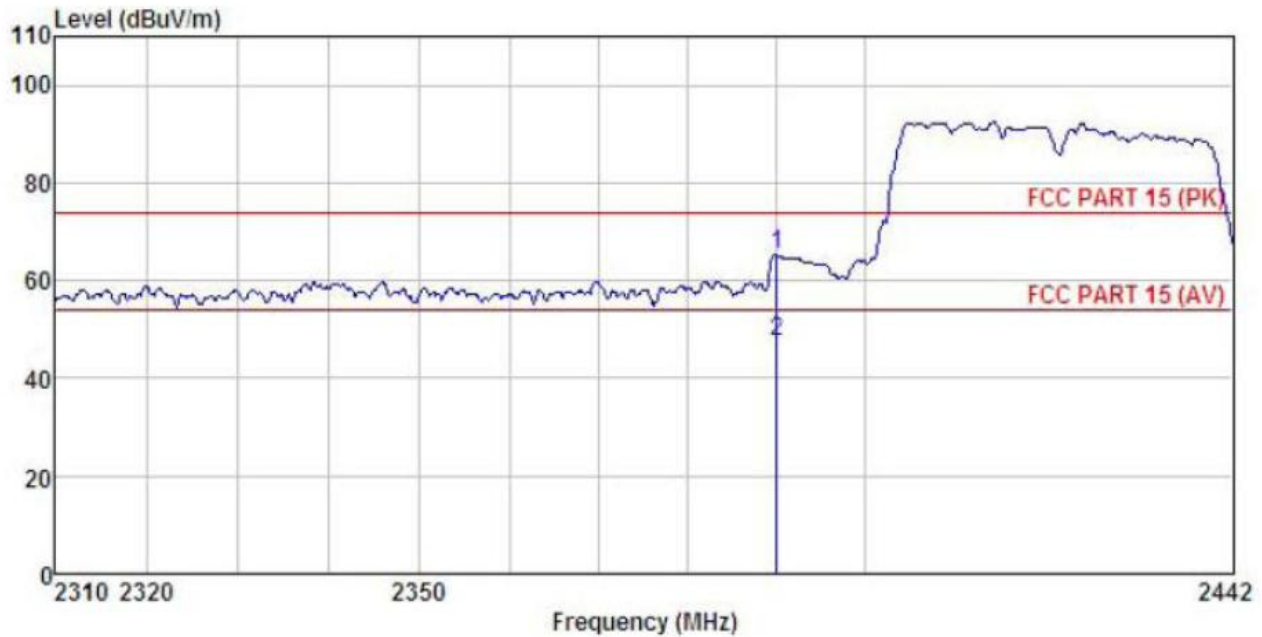
Test mode:	802.11n(HT40)	Test channel:	Lowest
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Horizontal:



	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.000	24.02	27.08	4.69	0.00	57.47	74.00	-16.53	Peak
2	2390.000	13.85	27.08	4.69	0.00	47.30	54.00	-6.70	Average

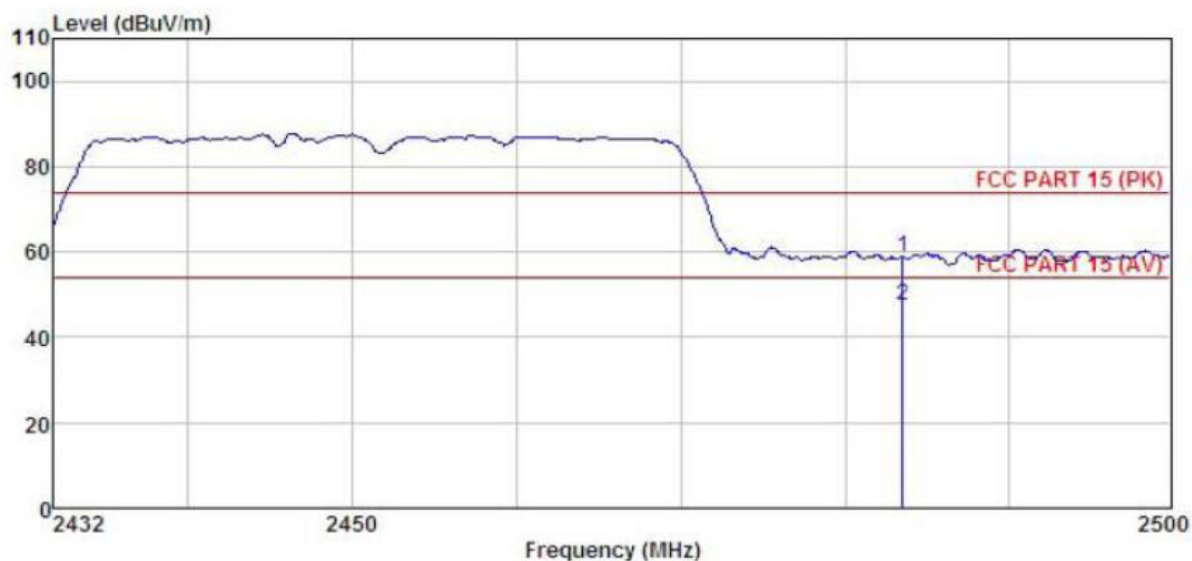
Vertical:



	Freq	ReadAntenna	Cable	Preamp		Limit	Over	
		Level	Factor	Loss	Factor	Level	Line	Limit
								Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	2390.000	31.98	27.07	4.69	0.00	65.42	74.00	-8.58 Peak
2	2390.000	14.09	27.07	4.69	0.00	47.53	54.00	-6.47 Average

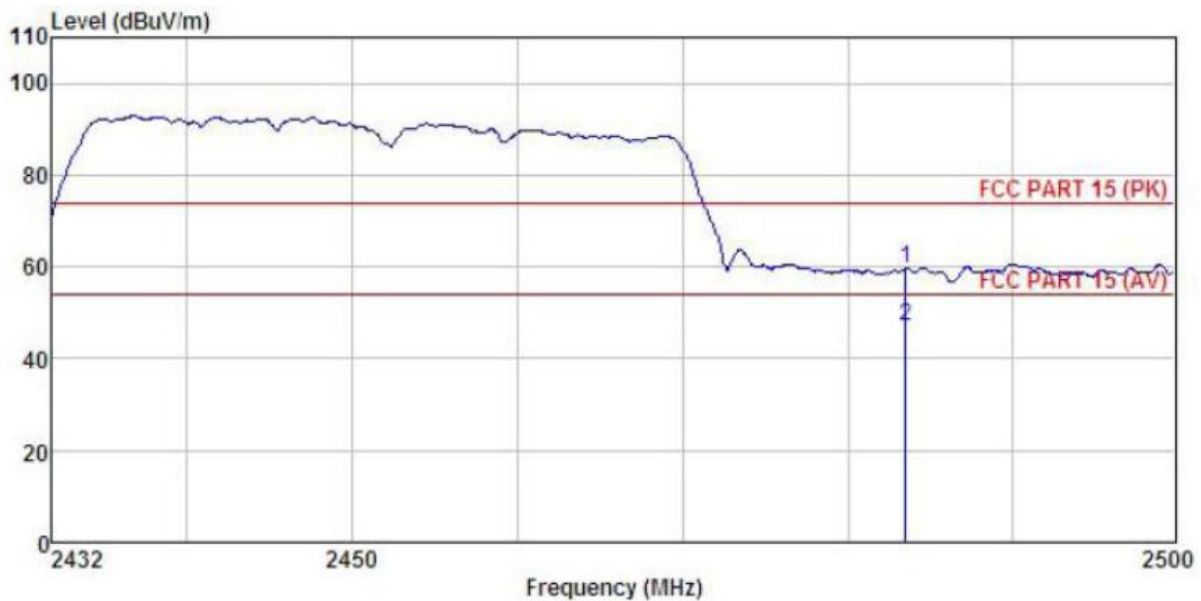
Test mode:	802.11n(HT40)	Test channel:	Highest
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Horizontal:



	Read	Antenna	Cable	Preamp		Limit	Over	
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
-----	-----	-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2483.500	24.88	27.35	4.81	0.00	58.74	74.00	-15.26 Peak
2	2483.500	13.56	27.35	4.81	0.00	47.42	54.00	-6.58 Average

Vertical:



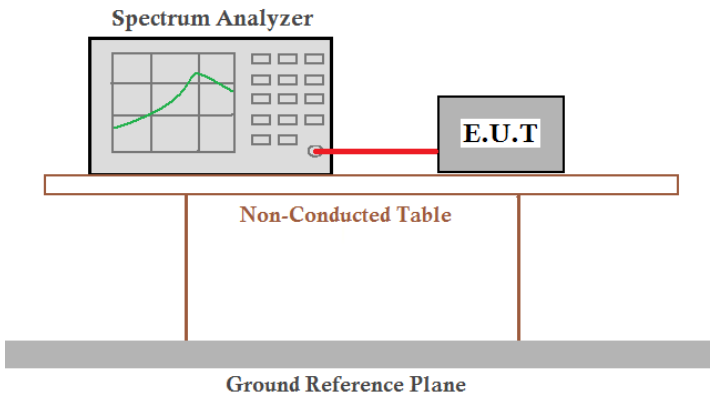
	Read	Antenna	Cable	Preamp		Limit	Over	
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2483.500	25.81	27.36	4.81	0.00	59.68	74.00	-14.32 Peak
2	2483.500	13.13	27.36	4.81	0.00	47.00	54.00	-7.00 Average

Notes:

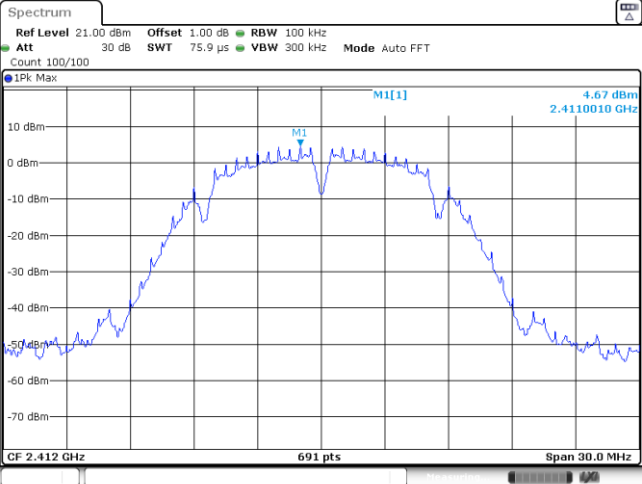
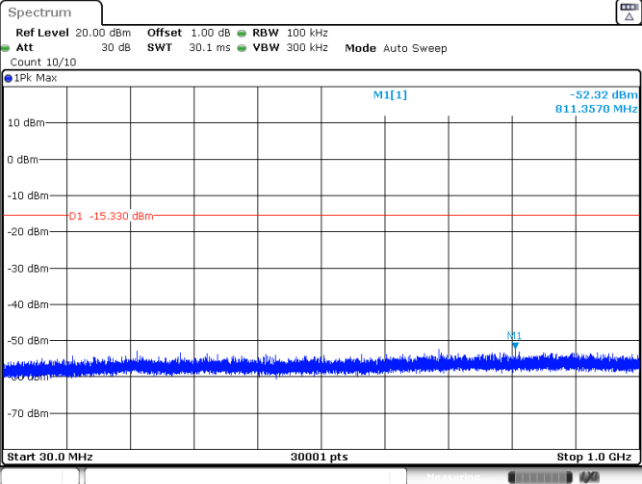
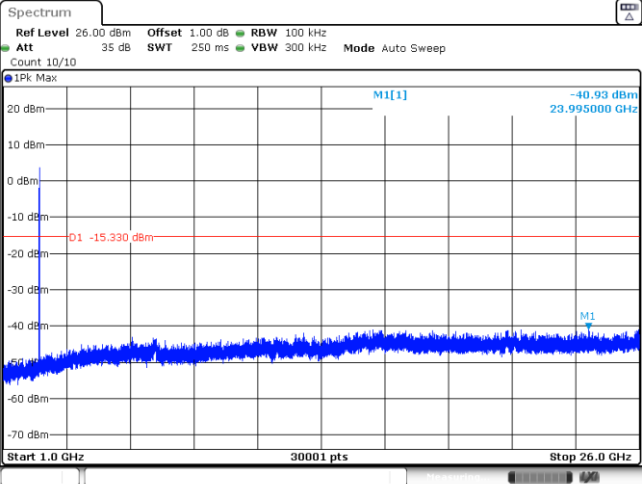
1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.

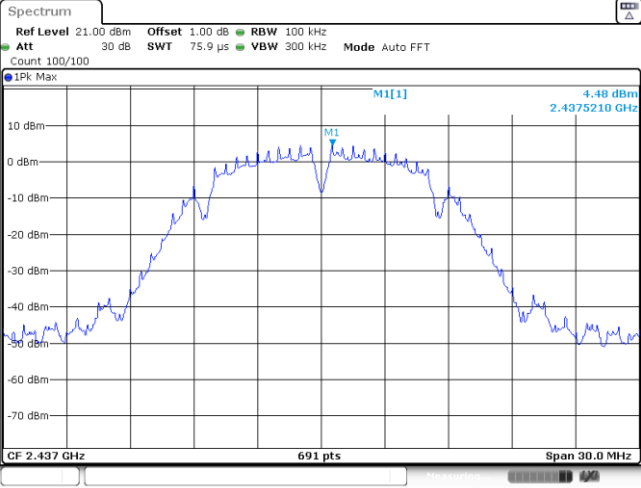
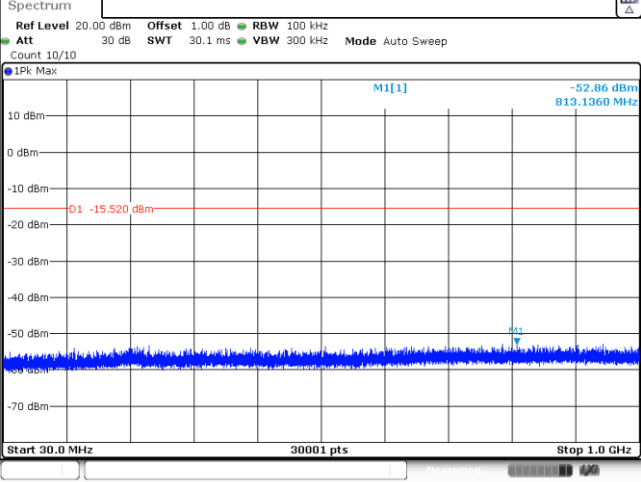
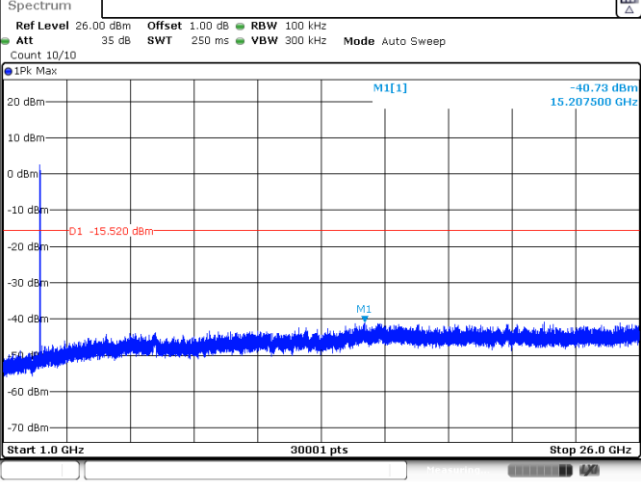
7.7 Spurious Emission

7.7.1 Conducted Emission Method

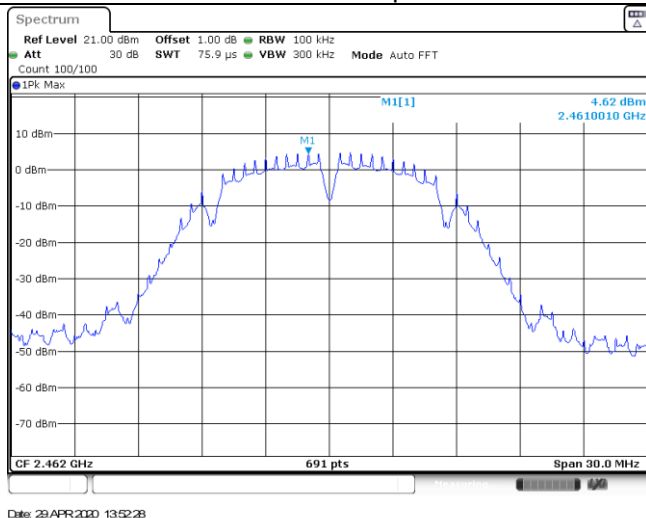
Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	KDB558074 D01 DTS Meas Guidance v05r02
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall 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:	 The diagram illustrates the test setup for conducted emission measurement. A Spectrum Analyzer is connected via a red cable to an E.U.T. (Equipment Under Test). Both are placed on a Non-Conducted Table, which is supported by two vertical legs. Below the table is a Ground Reference Plane, represented by a thick grey bar.
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:

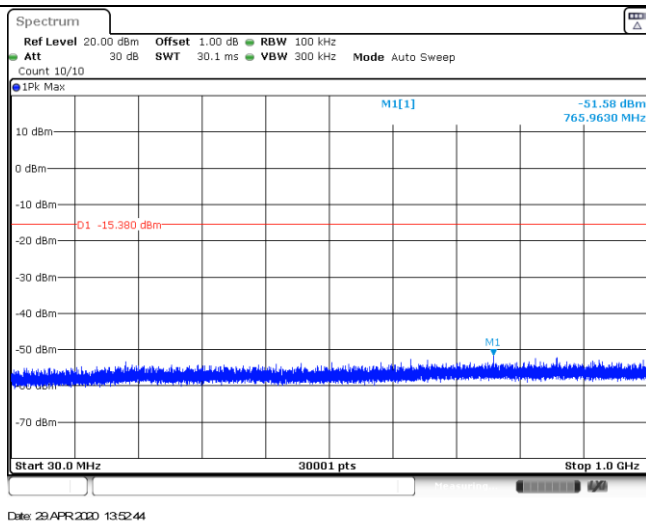
Test Item:	SE	Type:	802.11b
CH01 Reference level		 Spectrum Ref Level 21.00 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWT 75.9 μs VBW 300 kHz Mode Auto FFT Count 100/100 1Pk Max M1[1] 4.67 dBm 2.4110010 GHz CF 2.412 GHz 691 pts Span 30.0 MHz Date: 29 APR 2020 13:47:43	
CH01 30MHz~1000MHz		 Spectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWT 30.1 ms VBW 300 kHz Mode Auto Sweep Count 10/10 1Pk Max M1[1] -52.32 dBm 811.3570 MHz D1 -15.330 dBm Start 30.0 MHz 30001 pts Stop 1.0 GHz Date: 29 APR 2020 13:47:59	
CH01 1GHz~26GHz		 Spectrum Ref Level 26.00 dBm Offset 1.00 dB RBW 100 kHz Att 35 dB SWT 250 ms VBW 300 kHz Mode Auto Sweep Count 10/10 1Pk Max M1[1] -40.93 dBm 23.995000 GHz D1 -15.330 dBm Start 1.0 GHz 30001 pts Stop 26.0 GHz Date: 29 APR 2020 13:48:15	

CH06 Reference level	 4.48 dBm 2.4375210 GHz CF 2.437 GHz 691 pts Span 30.0 MHz Date: 29 APR 2020 13:50:40
CH06 30MHz~1000MHz	 -52.86 dBm 813.1360 MHz Start 30.0 MHz 30001 pts Stop 1.0 GHz Date: 29 APR 2020 13:50:56
CH06 1GHz~26GHz	 -40.73 dBm 15.207500 GHz Start 1.0 GHz 30001 pts Stop 26.0 GHz Date: 29 APR 2020 13:51:12

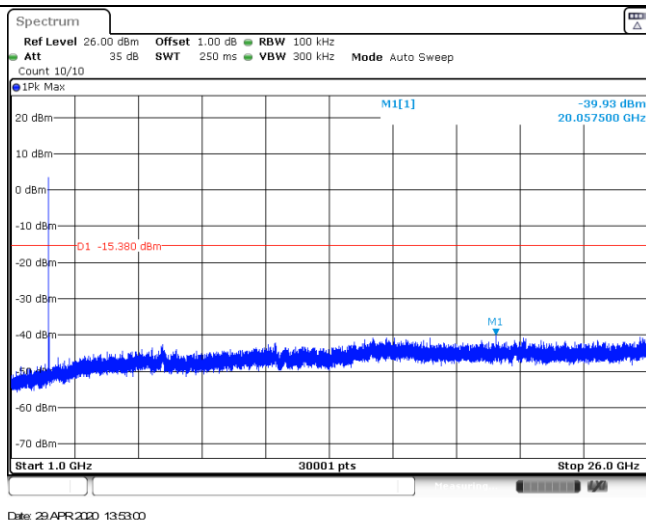
CH11
Reference level

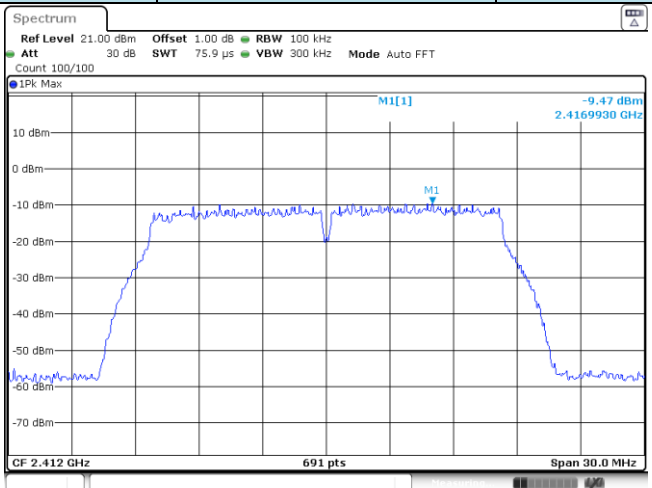
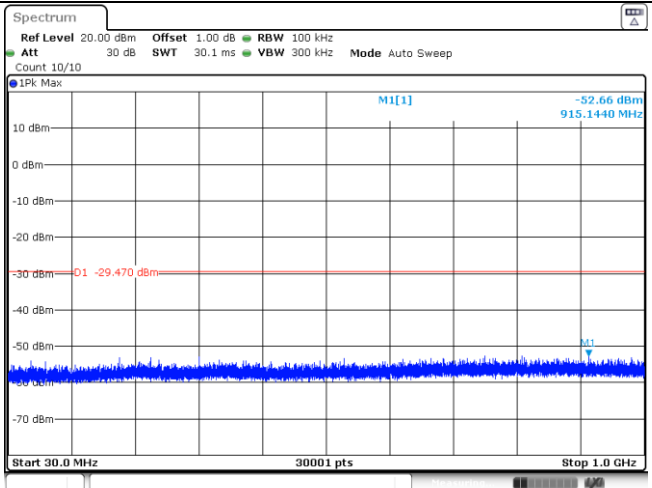
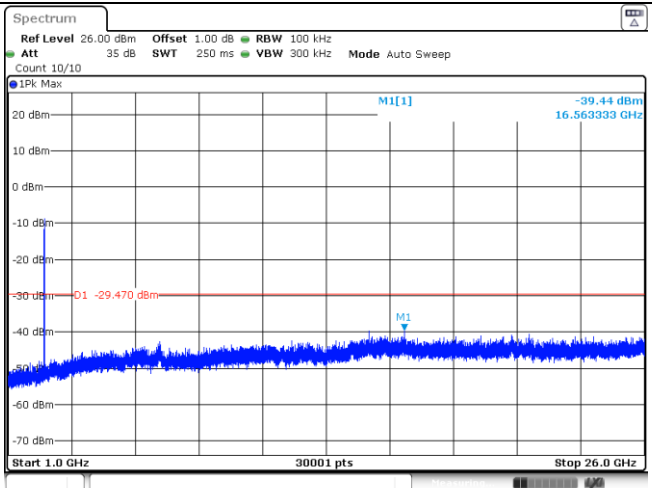


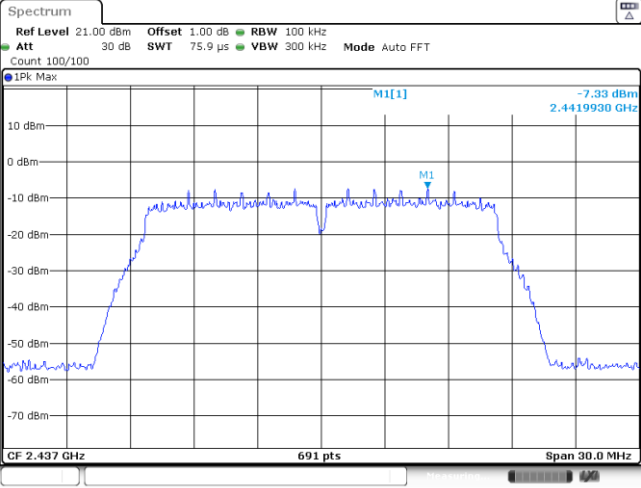
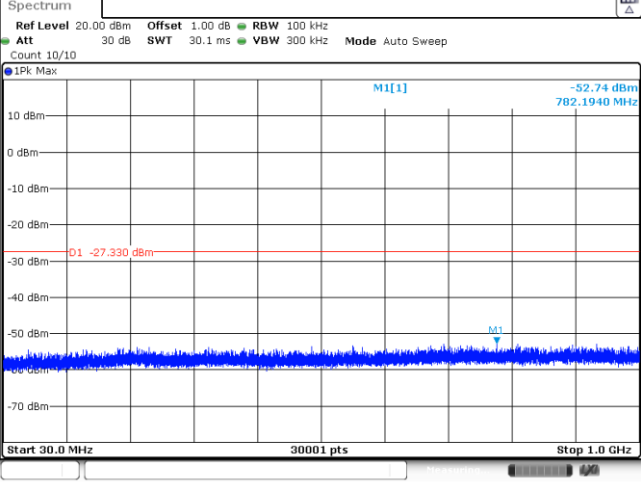
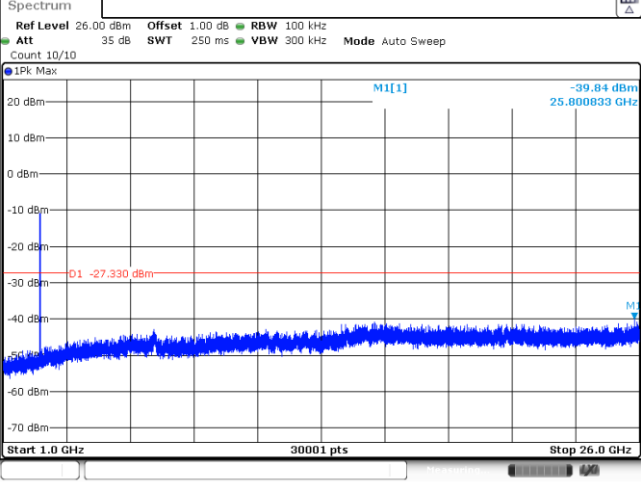
CH11
30MHz~1000MHz



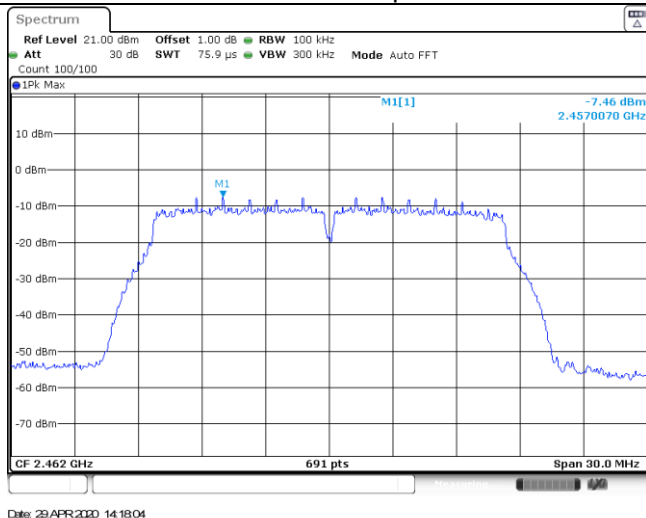
CH11
1GHz~26GHz



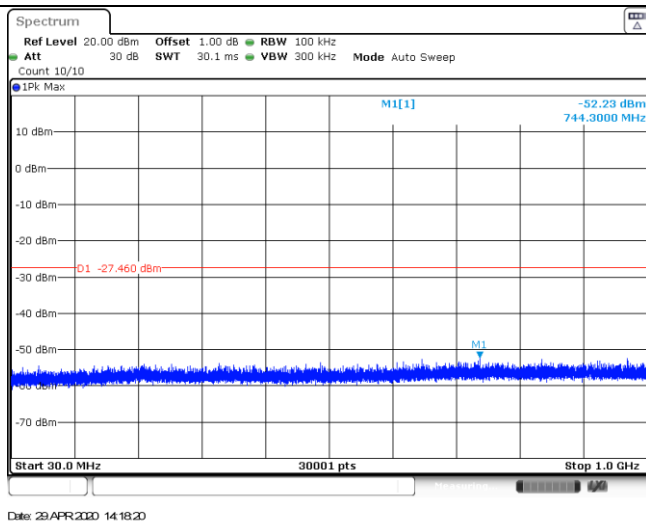
Test Item:	SE	Type:	802.11g
CH01 Reference level		 CF 2.412 GHz 691 pts Span 30.0 MHz Date: 29/APR/2020 14:11:26	
CH01 30MHz~1000MHz		 Start 30.0 MHz 30001 pts Stop 1.0 GHz Date: 29/APR/2020 14:11:41	
CH01 1GHz~26GHz		 Start 1.0 GHz 30001 pts Stop 26.0 GHz Date: 29/APR/2020 14:11:57	

CH06 Reference level	 CF 2.437 GHz 691 pts Span 30.0 MHz Date: 29 APR 2020 14:14:32
CH06 30MHz~1000MHz	 Start 30.0 MHz 30001 pts Stop 1.0 GHz Date: 29 APR 2020 14:14:48
CH06 1GHz~26GHz	 Start 1.0 GHz 30001 pts Stop 26.0 GHz Date: 29 APR 2020 14:15:04

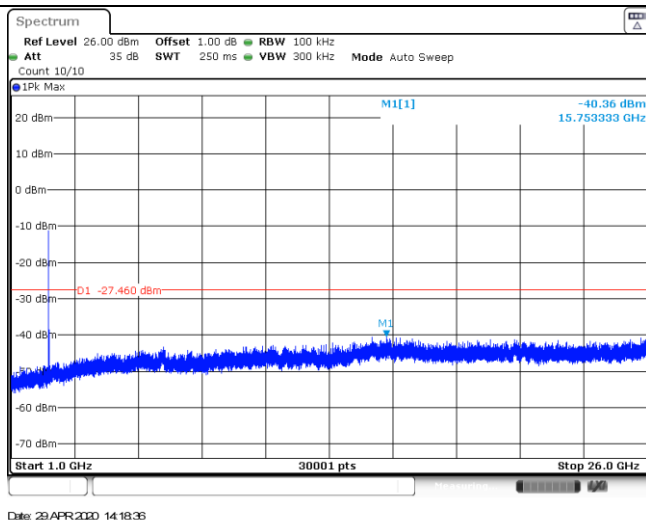
CH11
Reference level

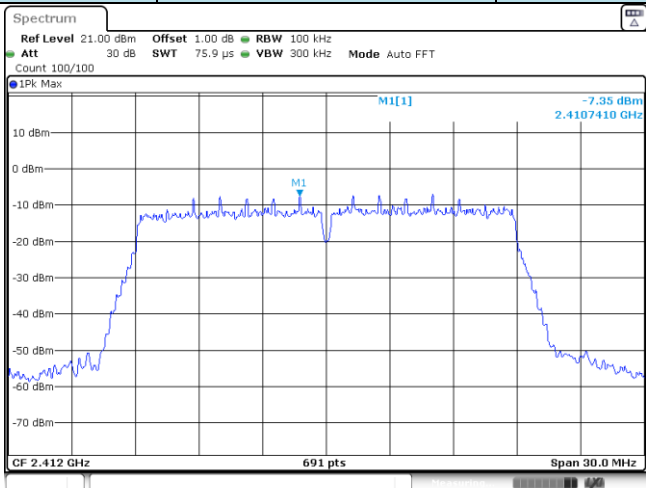
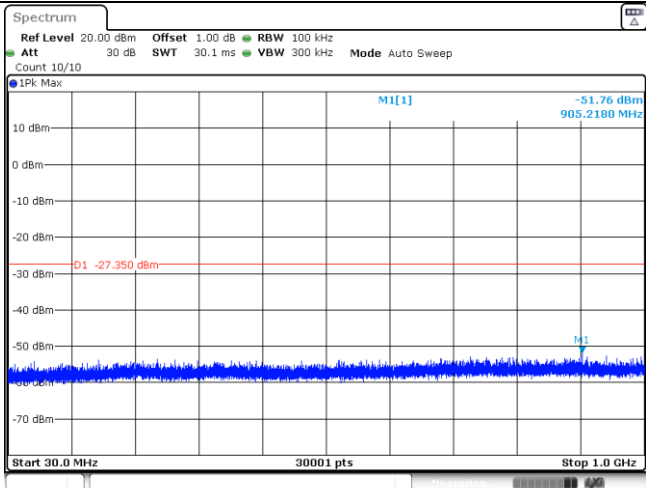
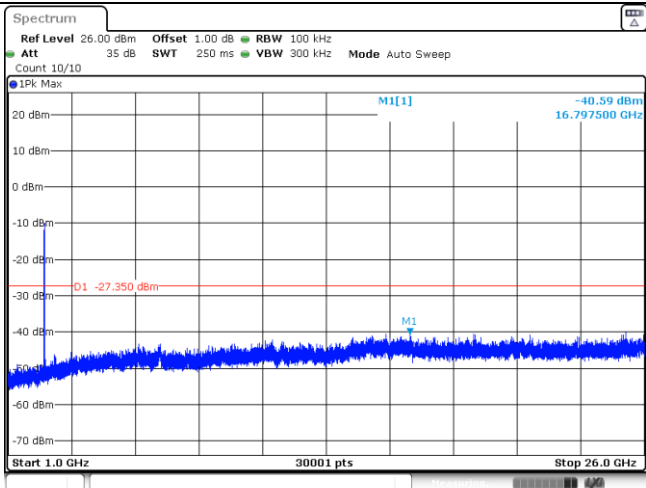


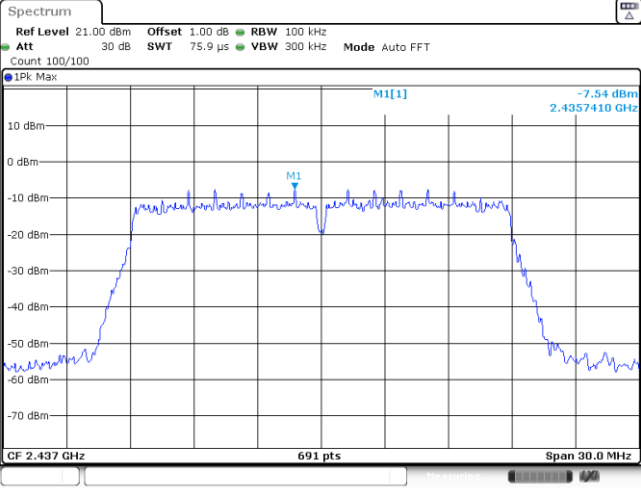
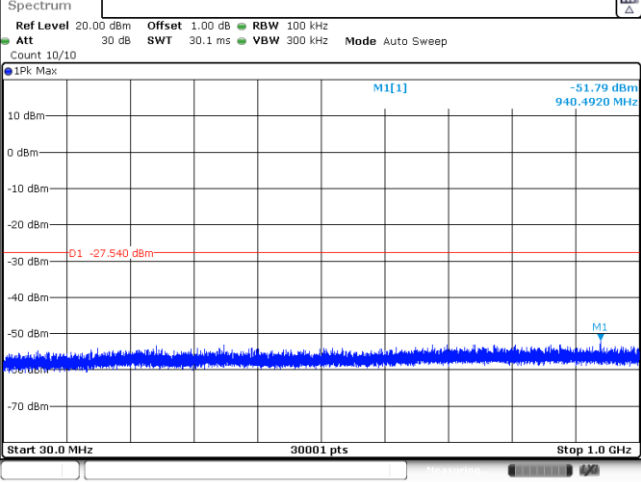
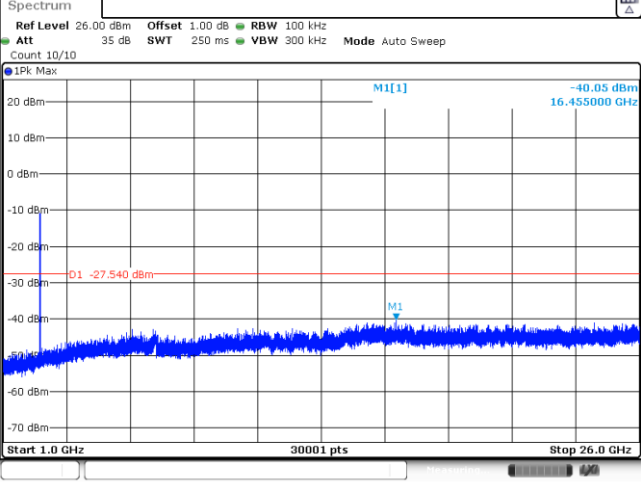
CH11
30MHz~1000MHz



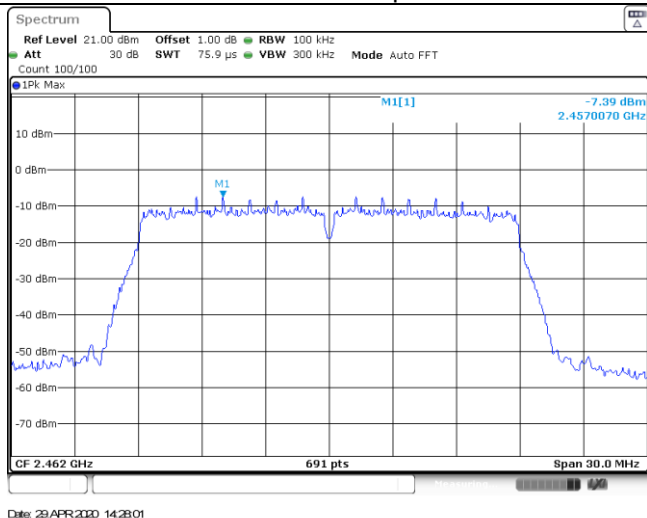
CH11
1GHz~26GHz



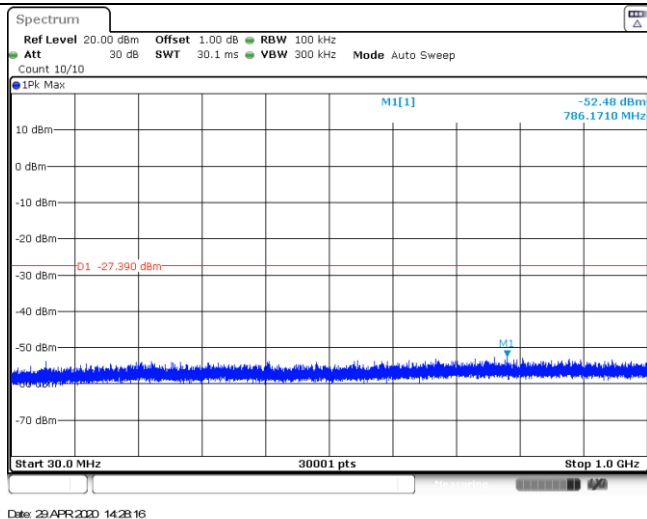
Test Item:	SE	Type:	802.11n(HT20)
CH01 Reference level		 Date: 29/04/2020 14:24:07	
CH01 30MHz~1000MHz		 Date: 29/04/2020 14:24:22	
CH01 1GHz~26GHz		 Date: 29/04/2020 14:24:38	

CH06 Reference level	 Date: 29 APR 2020 14:25:50
CH06 30MHz~1000MHz	 Date: 29 APR 2020 14:26:06
CH06 1GHz~26GHz	 Date: 29 APR 2020 14:26:22

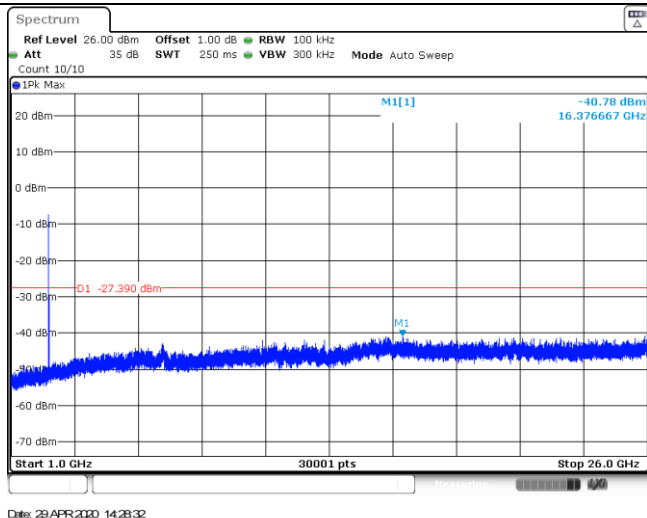
CH11
Reference level

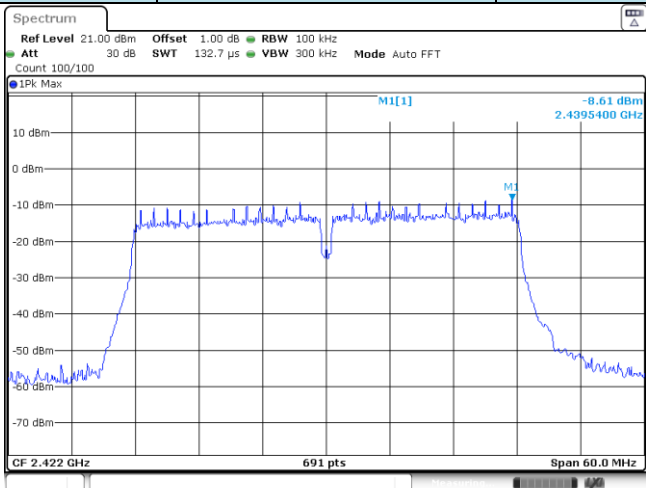
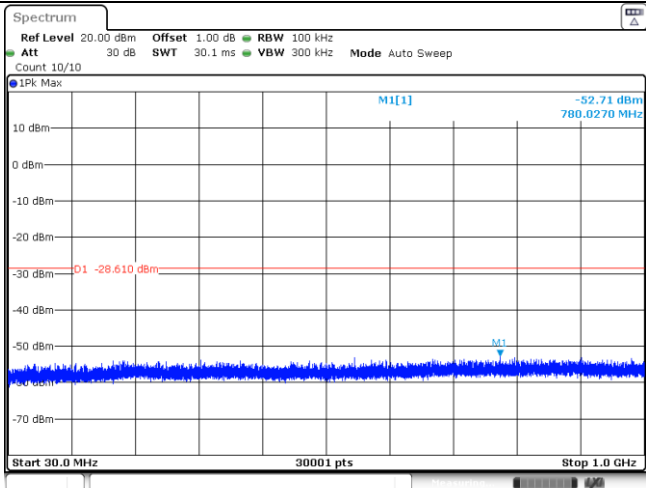
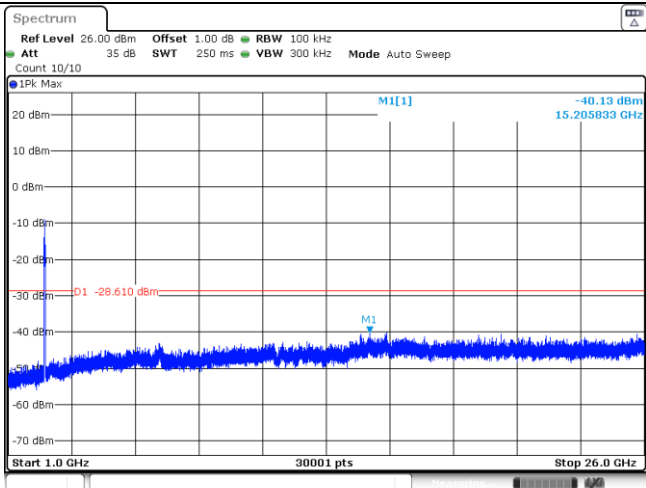


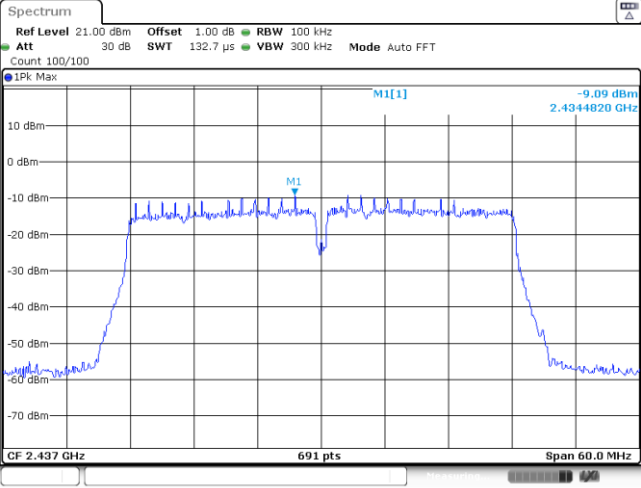
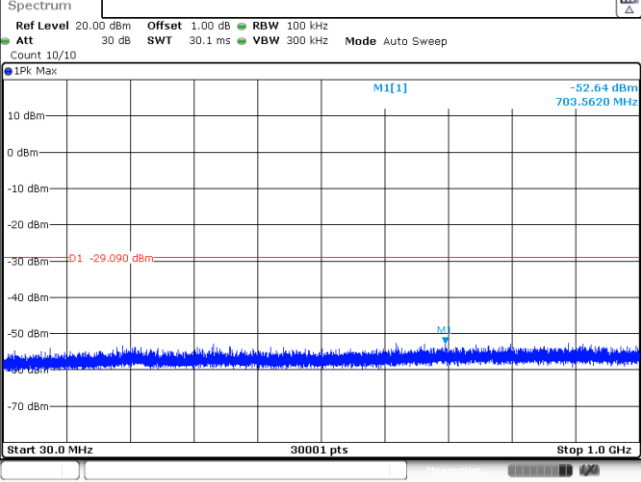
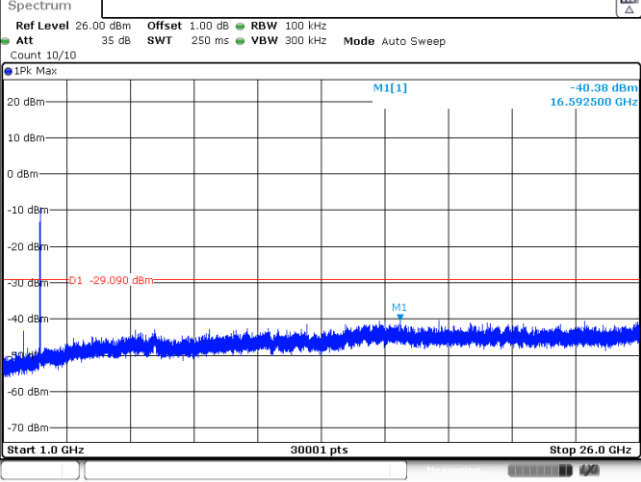
CH11
30MHz~1000MHz

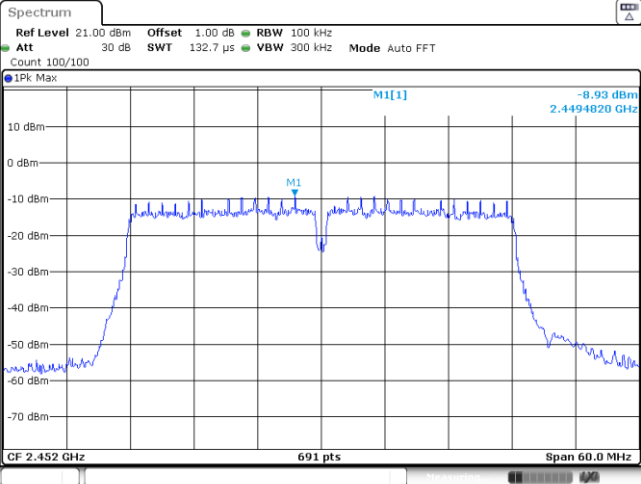
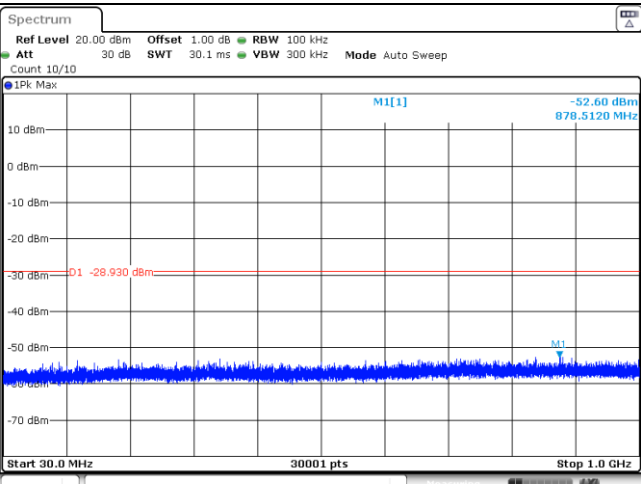
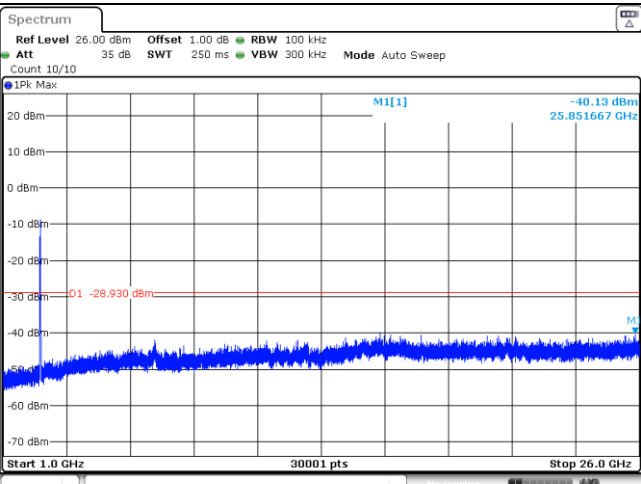


CH11
1GHz~26GHz

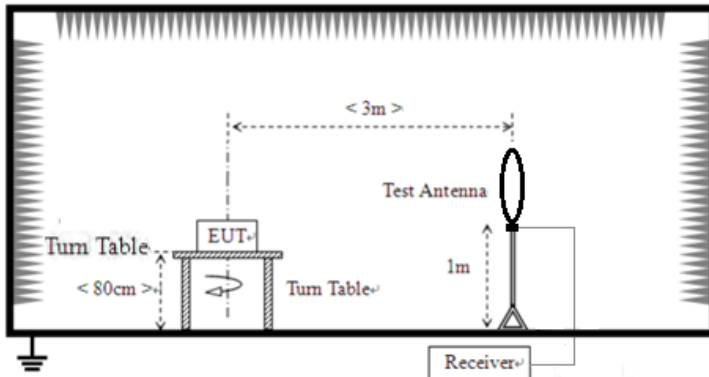


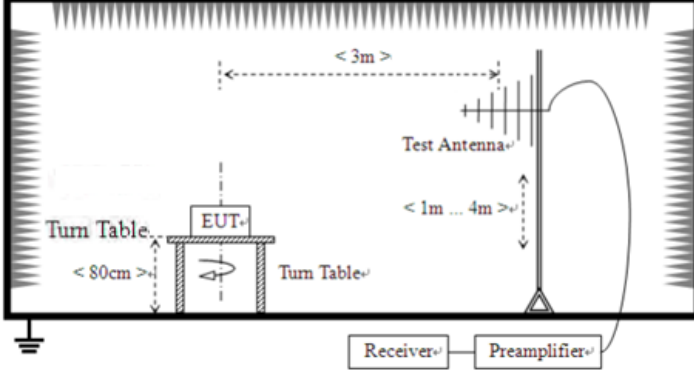
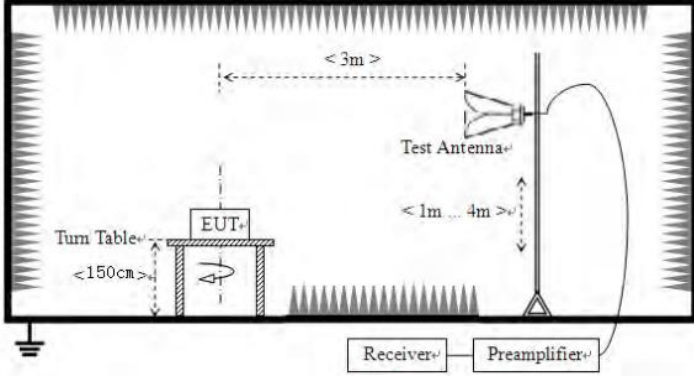
Test Item:	SE	Type:	802.11n(HT40)
CH03 Reference level		 CF 2.422 GHz 691 pts Span 60.0 MHz Date: 29/04/2020 14:31:19	
CH03 30MHz~1000MHz		 Start 30.0 MHz 30001 pts Stop 1.0 GHz Date: 29/04/2020 14:31:35	
CH03 1GHz~26GHz		 Start 1.0 GHz 30001 pts Stop 26.0 GHz Date: 29/04/2020 14:31:51	

CH06 Reference level	
CH06 30MHz~1000MHz	
CH06 1GHz~26GHz	

CH09 Reference level	 Spectrum Ref Level 21.00 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWT 132.7 μs VBW 300 kHz Mode Auto FFT Count 100/100 1Pk Max M1[1] -8.93 dBm 2.4494820 GHz CF 2.452 GHz 691 pts Span 60.0 MHz Date: 29 APR 2020 14:35:42
CH09 30MHz~1000MHz	 Spectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWT 30.1 ms VBW 300 kHz Mode Auto Sweep Count 10/10 1Pk Max M1[1] -52.60 dBm 879.5120 MHz D1 -28.930 dBm Start 30.0 MHz 30001 pts Stop 1.0 GHz Date: 29 APR 2020 14:35:58
CH09 1GHz~26GHz	 Spectrum Ref Level 26.00 dBm Offset 1.00 dB RBW 100 kHz Att 35 dB SWT 250 ms VBW 300 kHz Mode Auto Sweep Count 10/10 1Pk Max M1[1] -40.13 dBm 25.851667 GHz D1 -28.930 dBm Start 1.0 GHz 30001 pts Stop 26.0 GHz Date: 29 APR 2020 14:36:14

7.7.2 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	120KHz	300KHz	Quasi-peak
	Above 1GHz	Peak	1MHz	3MHz	Peak
		Peak	1MHz	10Hz	Average
Limit:	Frequency	Limit (uV/m)		Value	Measurement Distance
	0.009MHz-0.490MHz	2400/F(KHz)		QP	300m
	0.490MHz-1.705MHz	24000/F(KHz)		QP	30m
	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	
Test setup:	For radiated emissions from 9kHz to 30MHz				
					
	For radiated emissions from 30MHz to1GHz				

	 For radiated emissions above 1GHz 
Test Procedure:	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.
Test Instruments:	Refer to section 6.0 for details

Test mode:	Refer to section 5.2 for details					
Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:	1012mbar
Test voltage:	AC 120V, 60Hz					
Test results:	Pass					

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.

Measurement data:

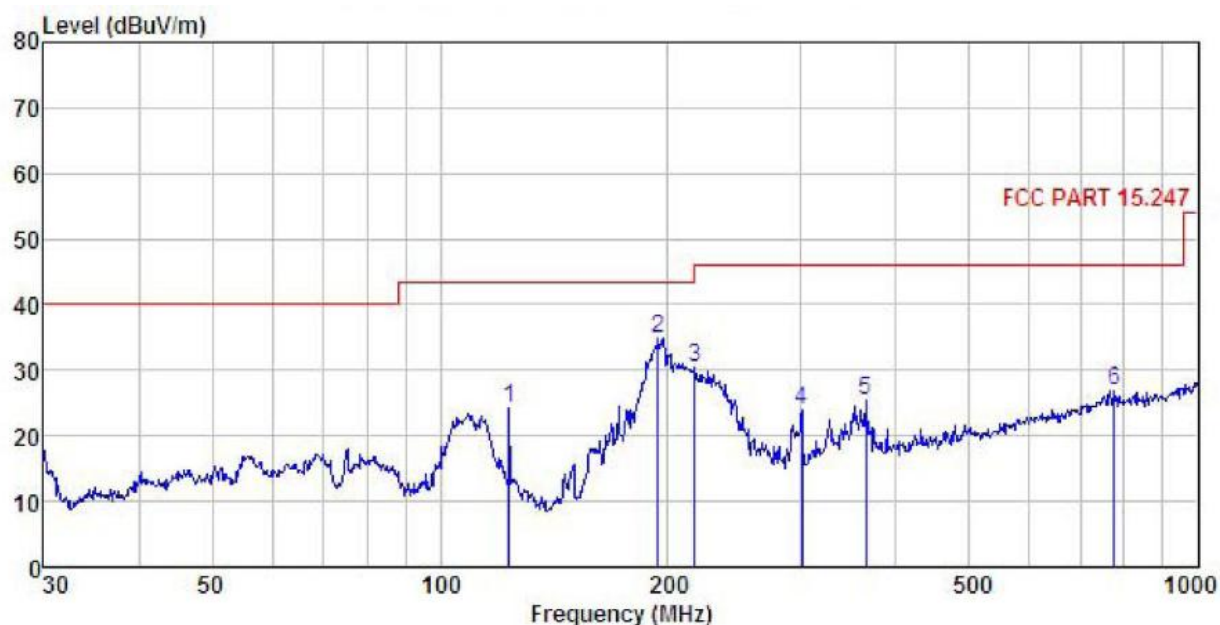
■ 9kHz~30MHz

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.

- **Below 1GHz**

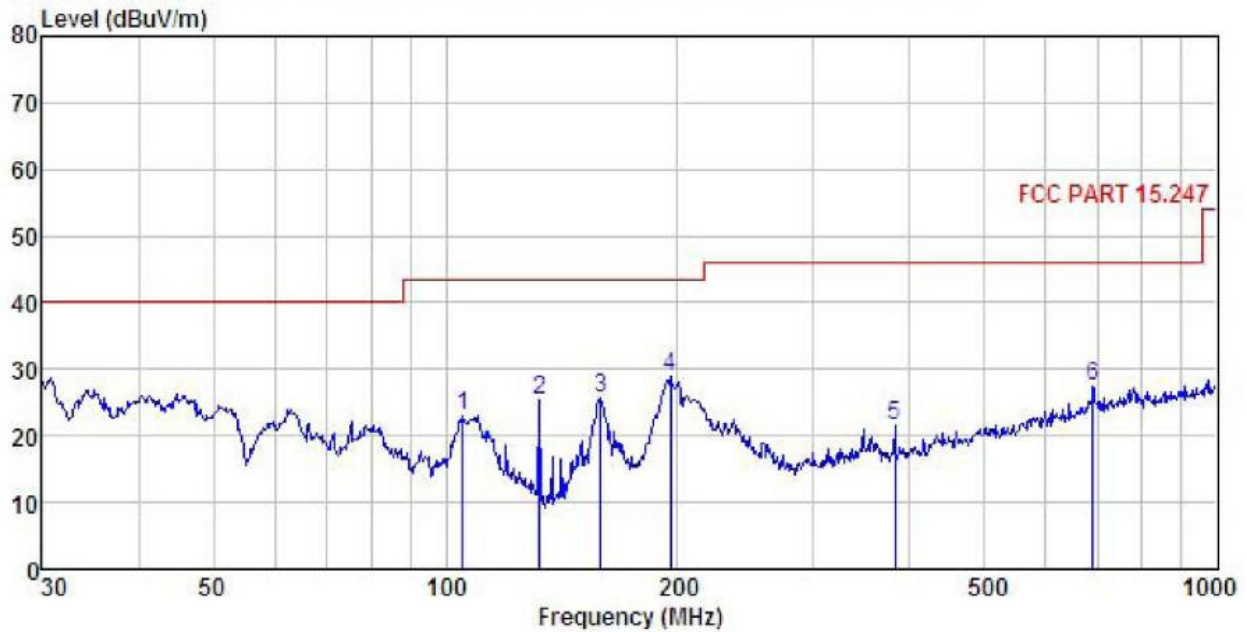
Pre-scan all test modes, found worst case at 802.11b 2462MHz, and so only show the test result of 802.11b 2462MHz

Horizontal:



Freq	ReadAntenna		Cable	Preamp		Limit	Over	Remark
	Level	Factor	Loss	Factor	Level	Line	Limit	
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
123.266	41.74	9.70	2.20	29.37	24.27	43.50	-19.23	QP
193.773	49.63	11.31	2.82	28.87	34.89	43.50	-8.61	QP
216.783	44.19	12.15	2.85	28.73	30.46	46.00	-15.54	QP
300.367	35.68	13.61	2.94	28.45	23.78	46.00	-22.22	QP
364.260	36.02	14.87	3.09	28.62	25.36	46.00	-20.64	QP
776.878	29.83	21.00	4.35	28.32	26.86	46.00	-19.14	QP

Vertical:



	Freq	ReadAntenna	Cable Preamp		Limit	Over		
	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	105.272	38.52	12.02	2.00	29.49	23.05	43.50	-20.45 QP
2	132.221	43.70	8.56	2.32	29.32	25.26	43.50	-18.24 QP
3	158.668	43.31	9.04	2.57	29.14	25.78	43.50	-17.72 QP
4	195.822	43.48	11.38	2.84	28.86	28.84	43.50	-14.66 QP
5	382.588	31.84	15.20	3.09	28.70	21.43	46.00	-24.57 QP
6	689.565	32.15	19.80	4.11	28.69	27.37	46.00	-18.63 QP

■ Above 1GHz

Test mode:	802.11b	Test channel:	Lowest
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4824.00	39.52	31.79	8.62	32.10	47.83	74.00	-26.17	Vertical
7236.00	33.73	36.19	11.68	31.97	49.63	74.00	-24.37	Vertical
9648.00	32.36	38.07	14.16	31.56	53.03	74.00	-20.97	Vertical
12060.00	*					74.00		Vertical
14472.00	*					74.00		Vertical
16884.00	*					74.00		Vertical
4824.00	38.31	31.79	8.62	32.10	46.62	74.00	-27.38	Horizontal
7236.00	33.54	36.19	11.68	31.97	49.44	74.00	-24.56	Horizontal
9648.00	31.97	38.07	14.16	31.56	52.64	74.00	-21.36	Horizontal
12060.00	*					74.00		Horizontal
14472.00	*					74.00		Horizontal
16884.00	*					74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4824.00	28.66	31.79	8.62	32.10	36.97	54.00	-17.03	Vertical
7236.00	22.61	36.19	11.68	31.97	38.51	54.00	-15.49	Vertical
9648.00	22.72	38.07	14.16	31.56	43.39	54.00	-10.61	Vertical
12060.00	*					54.00		Vertical
14472.00	*					54.00		Vertical
16884.00	*					54.00		Vertical
4824.00	27.89	31.79	8.62	32.10	36.20	54.00	-17.80	Horizontal
7236.00	22.13	36.19	11.68	31.97	38.03	54.00	-15.97	Horizontal
9648.00	21.73	38.07	14.16	31.56	42.40	54.00	-11.60	Horizontal
12060.00	*					54.00		Horizontal
14472.00	*					54.00		Horizontal
16884.00	*					54.00		Horizontal

Notes:

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

Test mode:	802.11b	Test channel:	Middle
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4874.00	38.71	31.85	8.66	32.12	47.10	74.00	-26.90	Vertical
7311.00	33.88	36.37	11.71	31.91	50.05	74.00	-23.95	Vertical
9748.00	33.44	38.27	14.25	31.56	54.40	74.00	-19.60	Vertical
12185.00	*					74.00		Vertical
14622.00	*					74.00		Vertical
17059.00	*					74.00		Vertical
4874.00	39.29	31.85	8.66	32.12	47.68	74.00	-26.32	Horizontal
7311.00	32.58	36.37	11.71	31.91	48.75	74.00	-25.25	Horizontal
9748.00	33.36	38.27	14.25	31.56	54.32	74.00	-19.68	Horizontal
12185.00	*					74.00		Horizontal
14622.00	*					74.00		Horizontal
17059.00	*					74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4874.00	29.61	31.85	8.66	32.12	38.00	54.00	-16.00	Vertical
7311.00	22.21	36.37	11.71	31.91	38.38	54.00	-15.62	Vertical
9748.00	22.71	38.27	14.25	31.56	43.67	54.00	-10.33	Vertical
12185.00	*					54.00		Vertical
14622.00	*					54.00		Vertical
17059.00	*					54.00		Vertical
4874.00	29.43	31.85	8.66	32.12	37.82	54.00	-16.18	Horizontal
7311.00	21.68	36.37	11.71	31.91	37.85	54.00	-16.15	Horizontal
9748.00	23.08	38.27	14.25	31.56	44.04	54.00	-9.96	Horizontal
12185.00	*					54.00		Horizontal
14622.00	*					54.00		Horizontal
17059.00	*					54.00		Horizontal

Notes:

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 mode:	802.11b	Test channel:	Highest
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4924.00	43.78	31.90	8.70	32.15	52.23	74.00	-21.77	Vertical
7386.00	34.27	36.49	11.76	31.83	50.69	74.00	-23.31	Vertical
9848.00	36.53	38.62	14.31	31.77	57.69	74.00	-16.31	Vertical
12310.00	*					74.00		Vertical
14772.00	*					74.00		Vertical
17234.00	*					74.00		Vertical
4924.00	43.25	31.90	8.70	32.15	51.70	74.00	-22.30	Horizontal
7386.00	33.26	36.49	11.76	31.83	49.68	74.00	-24.32	Horizontal
9848.00	32.74	38.62	14.31	31.77	53.90	74.00	-20.10	Horizontal
12310.00	*					74.00		Horizontal
14772.00	*					74.00		Horizontal
17234.00	*					74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4924.00	34.78	31.90	8.70	32.15	43.23	54.00	-10.77	Vertical
7386.00	24.21	36.49	11.76	31.83	40.63	54.00	-13.37	Vertical
9848.00	25.05	38.62	14.31	31.77	46.21	54.00	-7.79	Vertical
12310.00	*					54.00		Vertical
14772.00	*					54.00		Vertical
17234.00	*					54.00		Vertical
4924.00	33.68	31.90	8.70	32.15	42.13	54.00	-11.87	Horizontal
7386.00	22.66	36.49	11.76	31.83	39.08	54.00	-14.92	Horizontal
9848.00	22.02	38.62	14.31	31.77	43.18	54.00	-10.82	Horizontal
12310.00	*					54.00		Horizontal
14772.00	*					54.00		Horizontal
17234.00	*					54.00		Horizontal

Notes:

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 mode:	802.11g	Test channel:	lowest
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4824.00	39.23	31.79	8.62	32.10	47.54	74.00	-26.46	Vertical
7236.00	33.55	36.19	11.68	31.97	49.45	74.00	-24.55	Vertical
9648.00	32.23	38.07	14.16	31.56	52.90	74.00	-21.10	Vertical
12060.00	*					74.00		Vertical
14472.00	*					74.00		Vertical
16884.00	*					74.00		Vertical
4824.00	38.07	31.79	8.62	32.10	46.38	74.00	-27.62	Horizontal
7236.00	33.38	36.19	11.68	31.97	49.28	74.00	-24.72	Horizontal
9648.00	31.85	38.07	14.16	31.56	52.52	74.00	-21.48	Horizontal
12060.00	*					74.00		Horizontal
14472.00	*					74.00		Horizontal
16884.00	*					74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4824.00	28.40	31.79	8.62	32.10	36.71	54.00	-17.29	Vertical
7236.00	22.44	36.19	11.68	31.97	38.34	54.00	-15.66	Vertical
9648.00	22.60	38.07	14.16	31.56	43.27	54.00	-10.73	Vertical
12060.00	*					54.00		Vertical
14472.00	*					54.00		Vertical
16884.00	*					54.00		Vertical
4824.00	27.66	31.79	8.62	32.10	35.97	54.00	-18.03	Horizontal
7236.00	21.98	36.19	11.68	31.97	37.88	54.00	-16.12	Horizontal
9648.00	21.61	38.07	14.16	31.56	42.28	54.00	-11.72	Horizontal
12060.00	*					54.00		Horizontal
14472.00	*					54.00		Horizontal
16884.00	*					54.00		Horizontal

Notes:

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 mode:	802.11g	Test channel:	Middle
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4874.00	38.47	31.85	8.66	32.12	46.86	74.00	-27.14	Vertical
7311.00	33.73	36.37	11.71	31.91	49.90	74.00	-24.10	Vertical
9748.00	33.34	38.27	14.25	31.56	54.30	74.00	-19.70	Vertical
12185.00	*					74.00		Vertical
14622.00	*					74.00		Vertical
17059.00	*					74.00		Vertical
4874.00	39.09	31.85	8.66	32.12	47.48	74.00	-26.52	Horizontal
7311.00	32.44	36.37	11.71	31.91	48.61	74.00	-25.39	Horizontal
9748.00	33.26	38.27	14.25	31.56	54.22	74.00	-19.78	Horizontal
12185.00	*					74.00		Horizontal
14622.00	*					74.00		Horizontal
17059.00	*					74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4874.00	29.39	31.85	8.66	32.12	37.78	54.00	-16.22	Vertical
7311.00	22.07	36.37	11.71	31.91	38.24	54.00	-15.76	Vertical
9748.00	22.60	38.27	14.25	31.56	43.56	54.00	-10.44	Vertical
12185.00	*					54.00		Vertical
14622.00	*					54.00		Vertical
17059.00	*					54.00		Vertical
4874.00	29.25	31.85	8.66	32.12	37.64	54.00	-16.36	Horizontal
7311.00	21.55	36.37	11.71	31.91	37.72	54.00	-16.28	Horizontal
9748.00	22.98	38.27	14.25	31.56	43.94	54.00	-10.06	Horizontal
12185.00	*					54.00		Horizontal
14622.00	*					54.00		Horizontal
17059.00	*					54.00		Horizontal

Notes:

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 mode:	802.11g	Test channel:	Highest
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4924.00	43.37	31.90	8.70	32.15	51.82	74.00	-22.18	Vertical
7386.00	34.01	36.49	11.76	31.83	50.43	74.00	-23.57	Vertical
9848.00	36.34	38.62	14.31	31.77	57.50	74.00	-16.50	Vertical
12310.00	*					74.00		Vertical
14772.00	*					74.00		Vertical
17234.00	*					74.00		Vertical
4924.00	42.91	31.90	8.70	32.15	51.36	74.00	-22.64	Horizontal
7386.00	33.03	36.49	11.76	31.83	49.45	74.00	-24.55	Horizontal
9848.00	32.57	38.62	14.31	31.77	53.73	74.00	-20.27	Horizontal
12310.00	*					74.00		Horizontal
14772.00	*					74.00		Horizontal
17234.00	*					74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4924.00	34.40	31.90	8.70	32.15	42.85	54.00	-11.15	Vertical
7386.00	23.96	36.49	11.76	31.83	40.38	54.00	-13.62	Vertical
9848.00	24.87	38.62	14.31	31.77	46.03	54.00	-7.97	Vertical
12310.00	*					54.00		Vertical
14772.00	*					54.00		Vertical
17234.00	*					54.00		Vertical
4924.00	33.35	31.90	8.70	32.15	41.80	54.00	-12.20	Horizontal
7386.00	22.44	36.49	11.76	31.83	38.86	54.00	-15.14	Horizontal
9848.00	21.85	38.62	14.31	31.77	43.01	54.00	-10.99	Horizontal
12310.00	*					54.00		Horizontal
14772.00	*					54.00		Horizontal
17234.00	*					54.00		Horizontal

Notes:

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 mode:	802.11n(HT20)	Test channel:	Lowest
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4824.00	39.20	31.79	8.62	32.10	47.51	74.00	-26.49	Vertical
7236.00	33.53	36.19	11.68	31.97	49.43	74.00	-24.57	Vertical
9648.00	32.22	38.07	14.16	31.56	52.89	74.00	-21.11	Vertical
12060.00	*					74.00		Vertical
14472.00	*					74.00		Vertical
16884.00	*					74.00		Vertical
4824.00	38.04	31.79	8.62	32.10	46.35	74.00	-27.65	Horizontal
7236.00	33.37	36.19	11.68	31.97	49.27	74.00	-24.73	Horizontal
9648.00	31.84	38.07	14.16	31.56	52.51	74.00	-21.49	Horizontal
12060.00	*					74.00		Horizontal
14472.00	*					74.00		Horizontal
16884.00	*					74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4824.00	28.37	31.79	8.62	32.10	36.68	54.00	-17.32	Vertical
7236.00	22.42	36.19	11.68	31.97	38.32	54.00	-15.68	Vertical
9648.00	22.59	38.07	14.16	31.56	43.26	54.00	-10.74	Vertical
12060.00	*					54.00		Vertical
14472.00	*					54.00		Vertical
16884.00	*					54.00		Vertical
4824.00	27.64	31.79	8.62	32.10	35.95	54.00	-18.05	Horizontal
7236.00	21.97	36.19	11.68	31.97	37.87	54.00	-16.13	Horizontal
9648.00	21.60	38.07	14.16	31.56	42.27	54.00	-11.73	Horizontal
12060.00	*					54.00		Horizontal
14472.00	*					54.00		Horizontal
16884.00	*					54.00		Horizontal

Notes:

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 mode:	802.11n(HT20)	Test channel:	Middle
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4874.00	38.45	31.85	8.66	32.12	46.84	74.00	-27.16	Vertical
7311.00	33.72	36.37	11.71	31.91	49.89	74.00	-24.11	Vertical
9748.00	33.33	38.27	14.25	31.56	54.29	74.00	-19.71	Vertical
12185.00	*					74.00		Vertical
14622.00	*					74.00		Vertical
17059.00	*					74.00		Vertical
4874.00	39.07	31.85	8.66	32.12	47.46	74.00	-26.54	Horizontal
7311.00	32.43	36.37	11.71	31.91	48.60	74.00	-25.40	Horizontal
9748.00	33.25	38.27	14.25	31.56	54.21	74.00	-19.79	Horizontal
12185.00	*					74.00		Horizontal
14622.00	*					74.00		Horizontal
17059.00	*					74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4874.00	29.37	31.85	8.66	32.12	37.76	54.00	-16.24	Vertical
7311.00	22.06	36.37	11.71	31.91	38.23	54.00	-15.77	Vertical
9748.00	22.60	38.27	14.25	31.56	43.56	54.00	-10.44	Vertical
12185.00	*					54.00		Vertical
14622.00	*					54.00		Vertical
17059.00	*					54.00		Vertical
4874.00	29.23	31.85	8.66	32.12	37.62	54.00	-16.38	Horizontal
7311.00	21.54	36.37	11.71	31.91	37.71	54.00	-16.29	Horizontal
9748.00	22.97	38.27	14.25	31.56	43.93	54.00	-10.07	Horizontal
12185.00	*					54.00		Horizontal
14622.00	*					54.00		Horizontal
17059.00	*					54.00		Horizontal

Notes:

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 mode:	802.11n(HT20)	Test channel:	Highest
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4924.00	43.33	31.90	8.70	32.15	51.78	74.00	-22.22	Vertical
7386.00	33.98	36.49	11.76	31.83	50.40	74.00	-23.60	Vertical
9848.00	36.33	38.62	14.31	31.77	57.49	74.00	-16.51	Vertical
12310.00	*					74.00		Vertical
14772.00	*					74.00		Vertical
17234.00	*					74.00		Vertical
4924.00	42.87	31.90	8.70	32.15	51.32	74.00	-22.68	Horizontal
7386.00	33.01	36.49	11.76	31.83	49.43	74.00	-24.57	Horizontal
9848.00	32.55	38.62	14.31	31.77	53.71	74.00	-20.29	Horizontal
12310.00	*					74.00		Horizontal
14772.00	*					74.00		Horizontal
17234.00	*					74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4924.00	34.36	31.90	8.70	32.15	42.81	54.00	-11.19	Vertical
7386.00	23.93	36.49	11.76	31.83	40.35	54.00	-13.65	Vertical
9848.00	24.86	38.62	14.31	31.77	46.02	54.00	-7.98	Vertical
12310.00	*					54.00		Vertical
14772.00	*					54.00		Vertical
17234.00	*					54.00		Vertical
4924.00	33.32	31.90	8.70	32.15	41.77	54.00	-12.23	Horizontal
7386.00	22.42	36.49	11.76	31.83	38.84	54.00	-15.16	Horizontal
9848.00	21.83	38.62	14.31	31.77	42.99	54.00	-11.01	Horizontal
12310.00	*					54.00		Horizontal
14772.00	*					54.00		Horizontal
17234.00	*					54.00		Horizontal

Notes:

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 mode:	802.11n(HT40)	Test channel:	Lowest
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4844.00	37.78	31.81	8.63	32.11	46.11	74.00	-27.89	Vertical
7266.00	32.63	36.28	11.69	31.94	48.66	74.00	-25.34	Vertical
9688.00	31.58	38.13	14.21	31.52	52.40	74.00	-21.60	Vertical
12060.00	*					74.00		Vertical
14472.00	*					74.00		Vertical
16884.00	*					74.00		Vertical
4844.00	36.84	31.81	8.63	32.11	45.17	74.00	-28.83	Horizontal
7266.00	32.58	36.28	11.69	31.94	48.61	74.00	-25.39	Horizontal
9688.00	31.25	38.13	14.21	31.52	52.07	74.00	-21.93	Horizontal
12060.00	*					74.00		Horizontal
14472.00	*					74.00		Horizontal
16884.00	*					74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4844.00	27.06	31.81	8.63	32.11	35.39	54.00	-18.61	Vertical
7266.00	21.55	36.28	11.69	31.94	37.58	54.00	-16.42	Vertical
9688.00	21.97	38.13	14.21	31.52	42.79	54.00	-11.21	Vertical
12060.00	*					54.00		Vertical
14472.00	*					54.00		Vertical
16884.00	*					54.00		Vertical
4844.00	26.51	31.81	8.63	32.11	34.84	54.00	-19.16	Horizontal
7266.00	21.20	36.28	11.69	31.94	37.23	54.00	-16.77	Horizontal
9688.00	21.03	38.13	14.21	31.52	41.85	54.00	-12.15	Horizontal
12060.00	*					54.00		Horizontal
14472.00	*					54.00		Horizontal
16884.00	*					54.00		Horizontal

Notes:

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 mode:	802.11n(HT40)	Test channel:	Middle
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4874.00	37.27	31.85	8.66	32.12	45.66	74.00	-28.34	Vertical
7311.00	32.98	36.37	11.71	31.91	49.15	74.00	-24.85	Vertical
9748.00	32.79	38.27	14.25	31.56	53.75	74.00	-20.25	Vertical
12185.00	*					74.00		Vertical
14622.00	*					74.00		Vertical
17059.00	*					74.00		Vertical
4874.00	38.08	31.85	8.66	32.12	46.47	74.00	-27.53	Horizontal
7311.00	31.78	36.37	11.71	31.91	47.95	74.00	-26.05	Horizontal
9748.00	32.76	38.27	14.25	31.56	53.72	74.00	-20.28	Horizontal
12185.00	*					74.00		Horizontal
14622.00	*					74.00		Horizontal
17059.00	*					74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4874.00	28.29	31.85	8.66	32.12	36.68	54.00	-17.32	Vertical
7311.00	21.34	36.37	11.71	31.91	37.51	54.00	-16.49	Vertical
9748.00	22.09	38.27	14.25	31.56	43.05	54.00	-10.95	Vertical
12185.00	*					54.00		Vertical
14622.00	*					54.00		Vertical
17059.00	*					54.00		Vertical
4874.00	28.30	31.85	8.66	32.12	36.69	54.00	-17.31	Horizontal
7311.00	20.91	36.37	11.71	31.91	37.08	54.00	-16.92	Horizontal
9748.00	22.50	38.27	14.25	31.56	43.46	54.00	-10.54	Horizontal
12185.00	*					54.00		Horizontal
14622.00	*					54.00		Horizontal
17059.00	*					54.00		Horizontal

Notes:

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

Test mode:	802.11n(HT40)	Test channel:	Highest
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4904.00	41.30	31.88	8.68	32.13	49.73	74.00	-24.27	Vertical
7356.00	32.70	36.45	11.75	31.86	49.04	74.00	-24.96	Vertical
9808.00	35.41	38.43	14.29	31.68	56.45	74.00	-17.55	Vertical
12310.00	*					74.00		Vertical
14772.00	*					74.00		Vertical
17234.00	*					74.00		Vertical
4904.00	41.17	31.88	8.68	32.13	49.60	74.00	-24.40	Horizontal
7356.00	31.89	36.45	11.75	31.86	48.23	74.00	-25.77	Horizontal
9808.00	31.71	38.43	14.29	31.68	52.75	74.00	-21.25	Horizontal
12310.00	*					74.00		Horizontal
14772.00	*					74.00		Horizontal
17234.00	*					74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4904.00	32.50	31.88	8.68	32.13	40.93	54.00	-13.07	Vertical
7356.00	22.70	36.45	11.75	31.86	39.04	54.00	-14.96	Vertical
9808.00	23.98	38.43	14.29	31.68	45.02	54.00	-8.98	Vertical
12310.00	*					54.00		Vertical
14772.00	*					54.00		Vertical
17234.00	*					54.00		Vertical
4904.00	31.72	31.88	8.68	32.13	40.15	54.00	-13.85	Horizontal
7356.00	21.34	36.45	11.75	31.86	37.68	54.00	-16.32	Horizontal
9808.00	21.02	38.43	14.29	31.68	42.06	54.00	-11.94	Horizontal
12310.00	*					54.00		Horizontal
14772.00	*					54.00		Horizontal
17234.00	*					54.00		Horizontal

Notes:

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.

8 Test Setup Photo

Reference to the **appendix I** for details.

9 EUT Constructional Details

Reference to the **appendix II** for details.

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