FCC REPORT

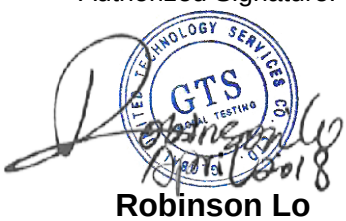
Applicant:	SHENZHEN FCAR TECHNOLOGY CO.,LTD
Address of Applicant:	8th floor, Chuangyi Building, No. 3025 Nanhai Ave., Nanshan, Shenzhen, Guangdong, Shenzhen 518060, China
Manufacturer/Factory:	SHENZHEN FCAR TECHNOLOGY CO.,LTD
Address of Manufacturer/Factory:	8th floor, Chuangyi Building, No. 3025 Nanhai Ave., Nanshan, Shenzhen, Guangdong, Shenzhen 518060, China

Equipment Under Test (EUT)

Product Name:	AUTO DIAGNOSTIC SYSTEM
Model No.:	F7S-W, F7S-D, F7S-G, F7S-E, F7S-R, F7S-M, F7S-P, F7S-N
Trade Mark:	FCAR
FCC ID:	2AJDD-IDIAGSF7SX
Applicable standards:	FCC CFR Title 47 Part 15 Subpart E Section 15.407
Date of sample receipt:	March 01, 2018
Date of Test:	March 02, 2018-April 02, 2018
Date of report issue:	April 03, 2018
Test Result :	PASS *

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

Authorized Signature:



Robinson Lo

Laboratory Manager

2 Version

Version No.	Date	Description
00	*April 03, 2018*	*Original*

Prepared By: Bill. Yuan ***Date:*** *April 03, 2018*

Project Engineer

Check By: Andy. Wu ***Date:*** *April 03, 2018*

Reviewer

3 Contents

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4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203	PASS
AC Power Line Conducted Emission	15.207	PASS
Peak Transmit Power	15.407(a)(1)	PASS
Power Spectral Density	15.407(a)(1)	PASS
Undesirable Emission	15.407(b)(6), 15.205/15.209	PASS
Radiated Emission	15.205/15.209	PASS
Band Edge	15.407(b)(1)	PASS
Frequency Stability	15.407(g)	PASS

Remark:

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

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 ~ 40GHz	± 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%.			
Remark: Test according to ANSI C63.10:2013 and ANSI C63.4:2014			

5 General Information

5.1 General Description of EUT

Product Name:	AUTO DIAGNOSTIC SYSTEM
Model No.:	F7S-W, F7S-D, F7S-G, F7S-E, F7S-R, F7S-M, F7S-P, F7S-N
Test Model No:	F7S-W
Remark: All above models are identical in the same PCB layout, interior structure and electrical circuits. The only differences software version for commercial purpose.	
Serial No.:	EC47-1407-4530-0003
Test sample(s) ID:	GTS201803000169-1
Sample(s) Status:	Engineer sample
Hardware:	V1.2
Software:	V1.2
Operation Frequency:	802.11a/802.11n(HT20)/802.11ac(HT20): 5180MHz ~ 5240MHz; 802.11n(HT40)/ 802.11ac(HT40): 5190MHz ~ 5230MHz 802.11ac(HT80): 5210MHz
Channel numbers:	802.11a/802.11n(HT20)/802.11ac(HT20): 4; 802.11n(HT40)/ 802.11ac(HT40): 2 802.11ac(HT80): 1
Channel separation:	802.11a/802.11n(HT20)/802.11ac(HT20): 20MHz; 802.11n(HT40)/ 802.11ac(HT40): 40MHz 802.11ac(HT80): 80MHz
Modulation technology:	OFDM
Antenna Type:	Integral antenna
Antenna gain:	2.0 dBi(Declared by Applicant)
Power supply:	Adapter: Model: GME24A-120200FXR Input: AC 100-240V, 50/60Hz, 0.8A Output: DC 12V, 2A DC 3.7V, 10000mAh, 37Wh Li-ion battery

Operation Frequency each of channel @ 5G Band							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180MHz	40	5200MHz	44	5220MHz	48	5240MHz
38	5190MHz	46	5230MHz				

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)**	
	5G Band	
	802.11a 802.11n(HT20)	802.11n(HT40)
Lowest channel	5180	5190
Middle channel	5200	
Highest channel	5240	5230

5.2 Test mode

Transmitting mode	Keep the EUT in transmitting with modulation. EUT was test with 99% duty cycle at its maximum power control level.
Remark: During the test, 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.	

5.3 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 fuly 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.

5.4 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

Address: No. 301-309, 3/F., Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, sBaoan District, Shenzhen, Guangdong, China 518102

Tel: 0755-27798480

Fax: 0755-27798960

5.5 Description of Support Units

None.

5.6 Deviation from Standards

None.

5.7 Additional Instructions

EUT Software Settings:

Mode	Special software is used. The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

Test Software Name	Ampak RFTestTool,VER:5.5		
Mode	Channel	Frequency (MHz)	Soft Set
OFDM	CH36	5180	TX level : default
	CH38	5190	
	CH40	5200	
	CH44	5220	
	CH46	5230	
	CH48	5240	

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. 28 2017	June. 27 2018
4	Spectrum analyzer	Agilent	E4447A	GTS516	June. 28 2017	June. 27 2018
5	Spectrum Analyzer	Agilent	E4440A	GTS533	June. 28 2017	June. 27 2018
6	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	June. 28 2017	June. 27 2018
7	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS208	June. 28 2017	June. 27 2018
8	Horn Antenna	ETS-LINDGREN	3160	GTS217	June. 28 2017	June. 27 2018
9	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
10	Coaxial Cable	GTS	N/A	GTS213	June. 28 2017	June. 27 2018
11	Coaxial Cable	GTS	N/A	GTS211	June. 28 2017	June. 27 2018
12	Coaxial cable	GTS	N/A	GTS210	June. 28 2017	June. 27 2018
13	Coaxial Cable	GTS	N/A	GTS212	June. 29 2017	June. 27 2018
14	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	June. 28 2017	June. 27 2018
15	Amplifier(2GHz-20GHz)	HP	8349B	GTS206	June. 28 2017	June. 27 2018
16	Amplifier (18-40GHz)	MITEQ	AMF-6F-18004000-29-8P	GTS534	June. 28 2017	June. 27 2018
17	Band filter	Amindeon	82346	GTS219	June. 28 2017	June. 27 2018
18	Constant temperature and humidity box	Oregon Scientific	BA-888	GTS248	June. 28 2017	June. 27 2018
19	D.C. Power Supply	Instek	PS-3030	GTS232	June. 28 2017	June. 27 2018
20	Universal radio communication tester	Rohde & Schwarz	CMU200	GTS235	June. 28 2017	June. 27 2018
21	Splitter	Agilent	11636B	GTS237	June. 28 2017	June. 27 2018
22	Power Meter	Anritsu	ML2495A	GTS540	June. 28 2017	June. 27 2018
23	Power Sensor	Anritsu	MA2411B	GTS541	June. 28 2017	June. 27 2018

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 16 2014	May 15 2019
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June. 28 2017	June. 27 2018
3	Pulse Limiter	R&S	ESH3-Z2	GTS224	June. 28 2017	June. 27 2018
4	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	June. 28 2017	June. 27 2018
5	Artificial Mains Network	SCHWARZBECK MESS	NSLK8127	GTS226	June. 28 2017	June. 27 2018
6	Coaxial Cable	GTS	N/A	GTS227	June. 28 2017	June. 27 2018
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Thermo meter	KTJ	TA328	GTS233	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:

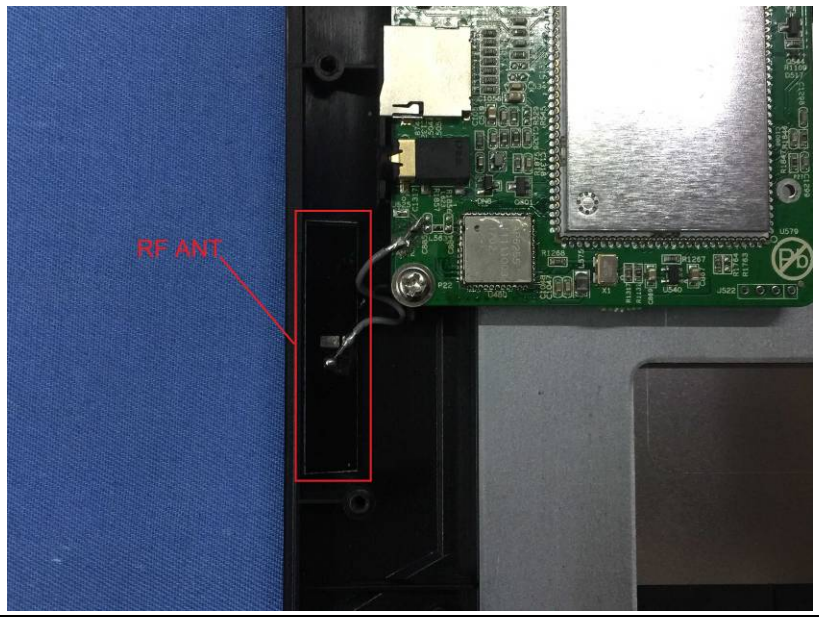
Standard requirement:	FCC Part15 C Section 15.203

15.203 requirement:

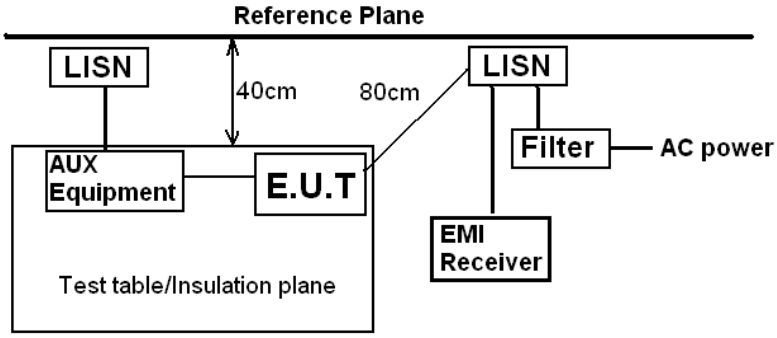
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

E.U.T Antenna:	

The antenna is integral antenna, the best case gain of the main antenna is 2.0dBi



7.2 Conducted Emissions

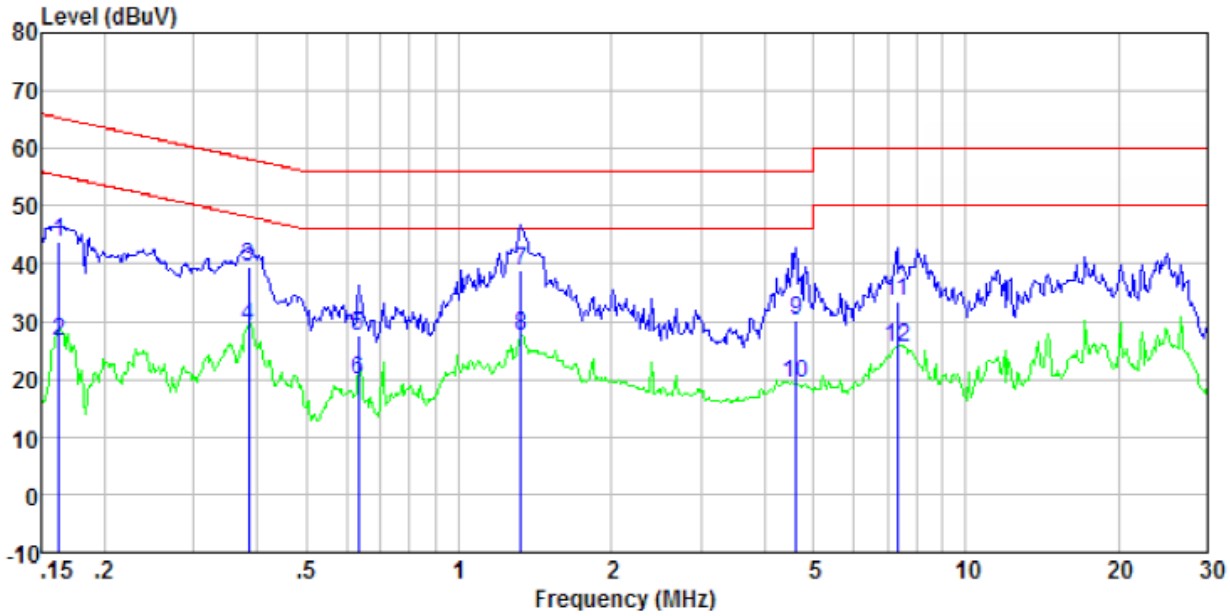
<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.207</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10:2013</td></tr>
<tr><td>Test Frequency Range:</td><td>150KHz to 30MHz</td></tr>
<tr><td>Class / Severity:</td><td>Class B</td></tr>
<tr><td>Receiver setup:</td><td>RBW=9KHz, VBW=30KHz</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><td rowspan="2">Frequency range (MHz)</td><td colspan="2">Limit (dBuV)</td></tr>
<tr><td>Quasi-peak</td><td>Average</td></tr>
<tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr>
<tr><td>0.5-5</td><td>56</td><td>46</td></tr>
<tr><td>5-30</td><td>60</td><td>50</td></tr>
</table>
* Decreases with the logarithm of the frequency.
</td></tr>
<tr><td>Test procedure</td><td>The E.U.T and simulators are connected to the main power through a line impedance stabilization network(L.I.S.N.). The provide a 50ohm/50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs). 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.</td></tr>
<tr><td>Test setup:</td><td> 

Remark:
E.U.T: Equipment Under Test
LISN: Line Impedence Stabilization Network
Test table height=0.8m</td></tr>
<tr><td>Test Instruments:</td><td>Refer to section 5.10 for details</td></tr>
<tr><td>Test mode:</td><td>Refer to section 5.2 for details</td></tr>
<tr><td>Test results:</td><td>Pass</td></tr>
</table>

Measurement Data

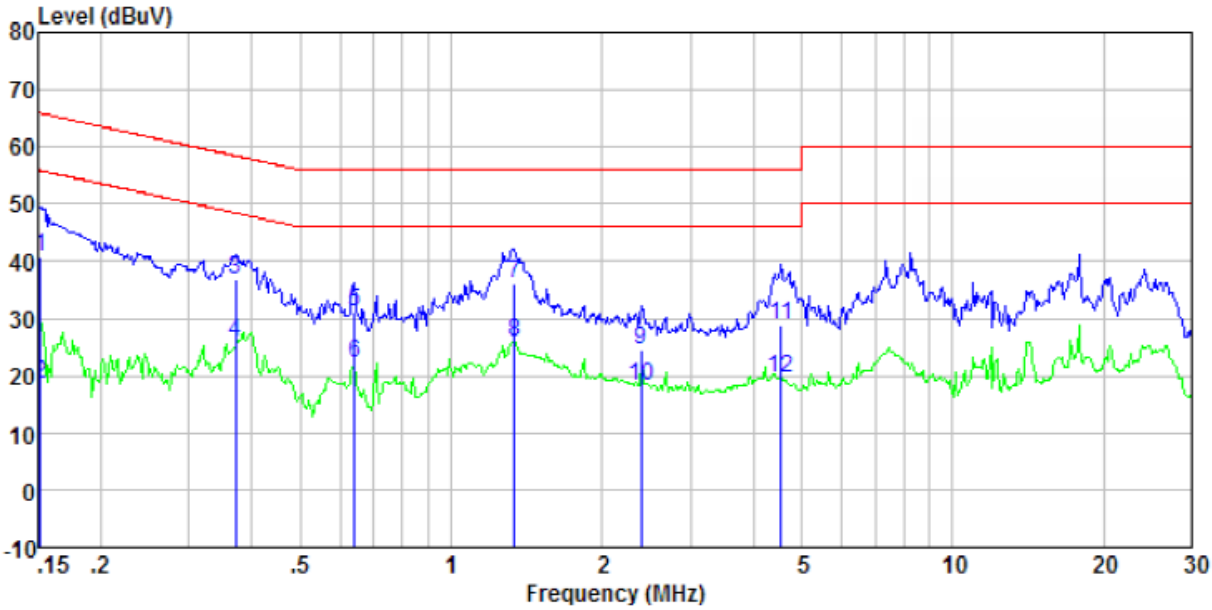
An initial pre-scan was performed on the line and neutral lines with peak detector. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

Line:



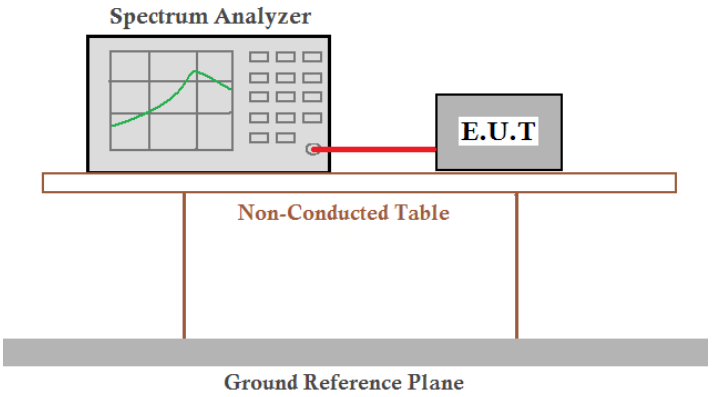
Freq MHz	Reading level dBuV	lISN/ISN factor dB	Cable loss dB	level dBuV	Limit level dBuV	Over limit dB	Remark
0.162	43.31	0.40	0.08	43.79	65.34	-21.55	QP
0.162	26.13	0.40	0.08	26.61	55.34	-28.73	Average
0.385	39.09	0.36	0.10	39.55	58.17	-18.62	QP
0.385	28.82	0.36	0.10	29.28	48.17	-18.89	Average
0.634	27.01	0.28	0.12	27.41	56.00	-28.59	QP
0.634	19.63	0.28	0.12	20.03	46.00	-25.97	Average
1.324	38.61	0.20	0.16	38.97	56.00	-17.03	QP
1.324	27.01	0.20	0.16	27.37	46.00	-18.63	Average
4.622	29.93	0.20	0.17	30.30	56.00	-25.70	QP
4.622	18.79	0.20	0.17	19.16	46.00	-26.84	Average
7.329	33.20	0.20	0.19	33.59	60.00	-26.41	QP
7.329	25.29	0.20	0.19	25.68	50.00	-24.32	Average

Neutral:



Freq MHz	Reading level dBuV	lISN/ISN factor dB	Cable loss dB	level dBuV	Limit level dBuV	Over limit dB	Remark
0.152	40.27	0.40	0.07	40.74	65.91	-25.17	QP
0.152	18.05	0.40	0.07	18.52	55.91	-37.39	Average
0.371	36.47	0.36	0.10	36.93	58.47	-21.54	QP
0.371	25.34	0.36	0.10	25.80	48.47	-22.67	Average
0.641	30.70	0.27	0.12	31.09	56.00	-24.91	QP
0.641	21.96	0.27	0.12	22.35	46.00	-23.65	Average
1.338	35.69	0.20	0.16	36.05	56.00	-19.95	QP
1.338	25.51	0.20	0.16	25.87	46.00	-20.13	Average
2.396	24.10	0.20	0.18	24.48	56.00	-31.52	QP
2.396	17.97	0.20	0.18	18.35	46.00	-27.65	Average
4.549	28.39	0.20	0.17	28.76	56.00	-27.24	QP
4.549	19.19	0.20	0.17	19.56	46.00	-26.44	Average

7.3 Emission Bandwidth and 99% Occupied Bandwidth

Test Requirement:	FCC Part15 E Section 15.407
Test Method:	KDB 789033 D02 General U-NII Test Procedures New Rules v02r01
Limit:	N/A
Test setup:	
Test procedure:	According to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01.
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

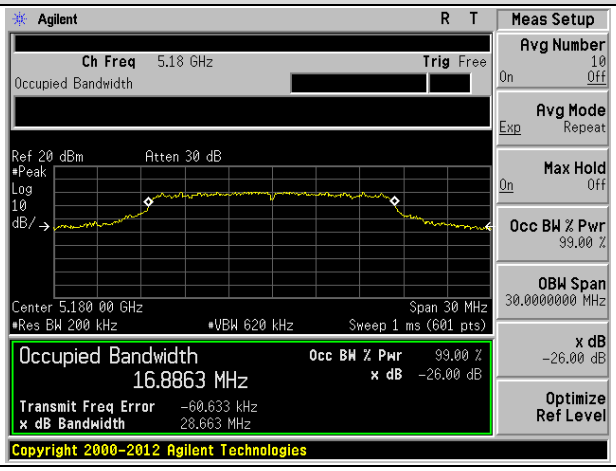
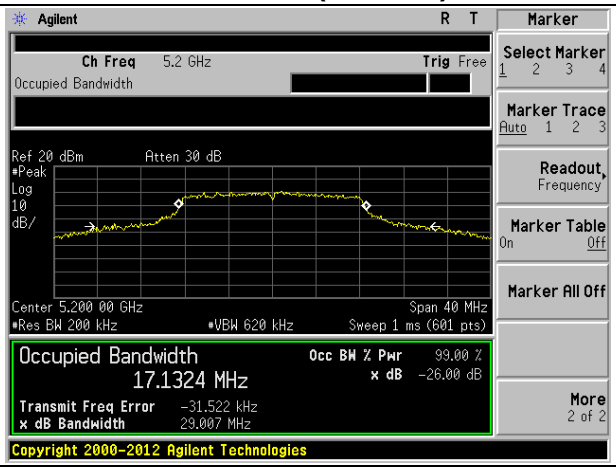
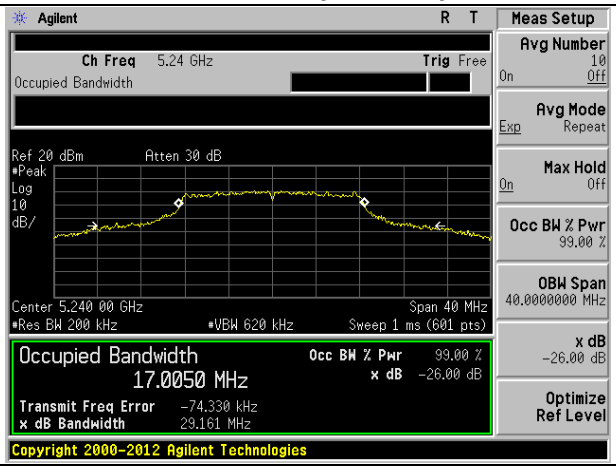
Measurement Data:

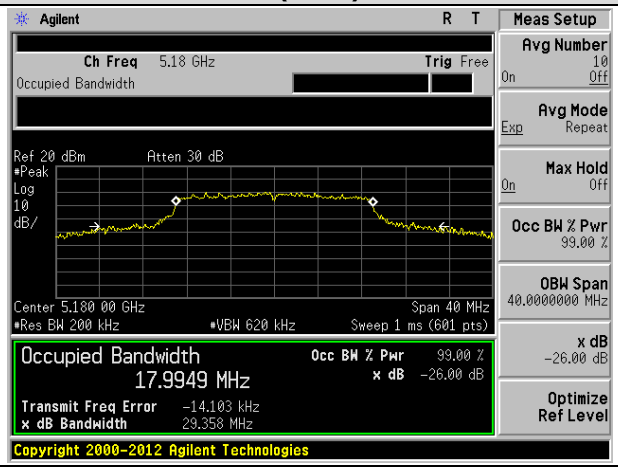
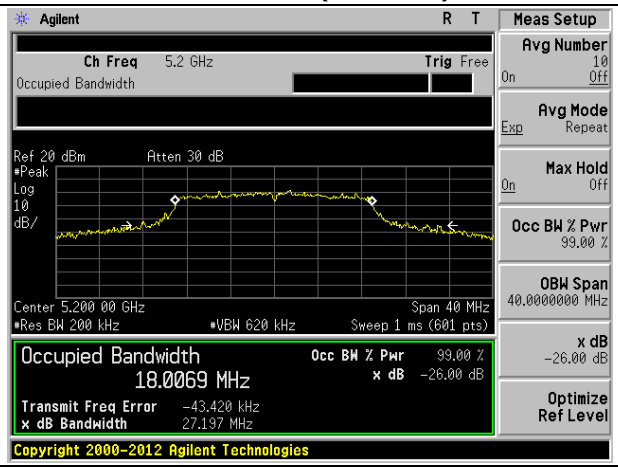
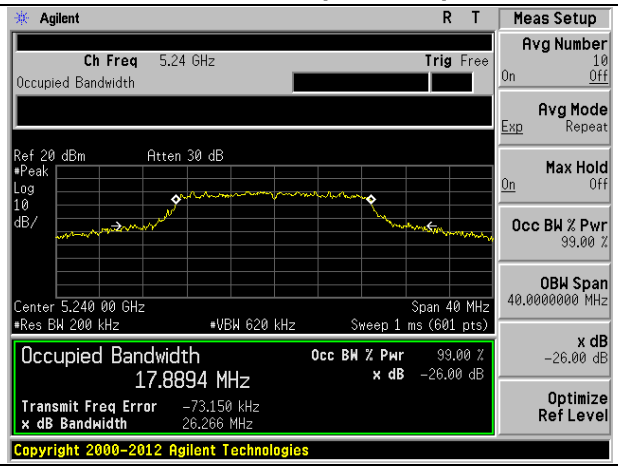
CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)			26dB Occupied Bandwidth (MHz)		
		802.11a	802.11n(HT20)	802.11ac(HT20)	802.11a	802.11n(HT20)	802.11ac(HT20)
36	5180.00	16.8863	17.9949	17.9350	28.663	29.358	26.000
40	5200.00	17.1324	18.0069	17.9855	29.007	27.197	27.175
48	5240.00	17.0050	17.8894	18.0082	29.161	26.266	29.383

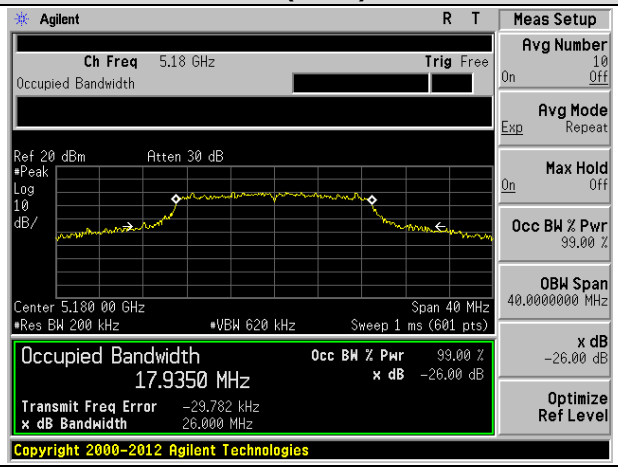
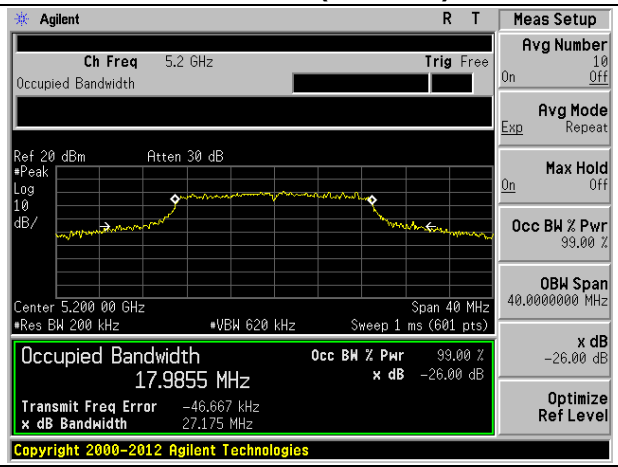
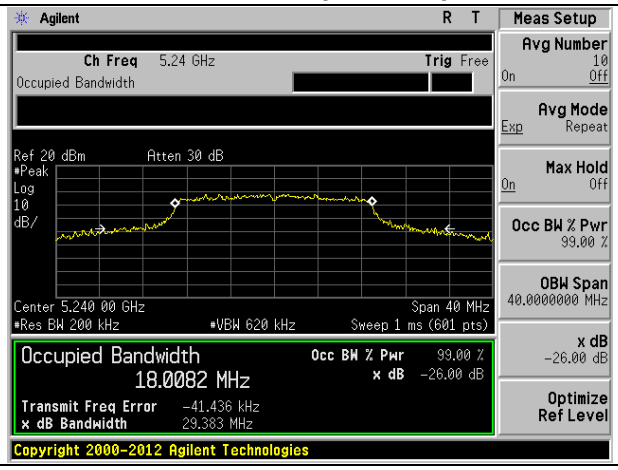
CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)		26dB Occupied Bandwidth (MHz)	
		802.11n(HT40)	802.11ac(HT40)	802.11n(HT40)	802.11ac(HT40)
38	5190.00	36.0922	36.1620	46.836	51.566
46	5230.00	36.1080	36.1540	48.328	49.014

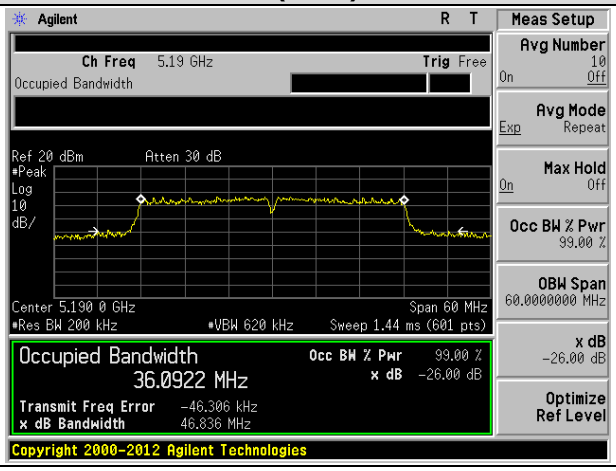
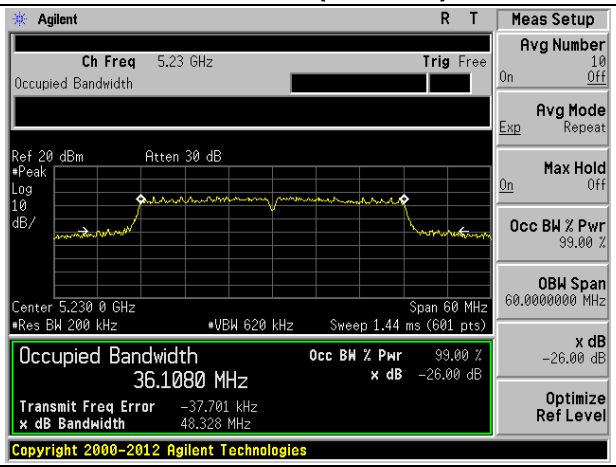
CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26dB Occupied Bandwidth (MHz)
		802.11ac(HT80)	802.11ac(HT80)
42	5210.00	75.3655	83.334

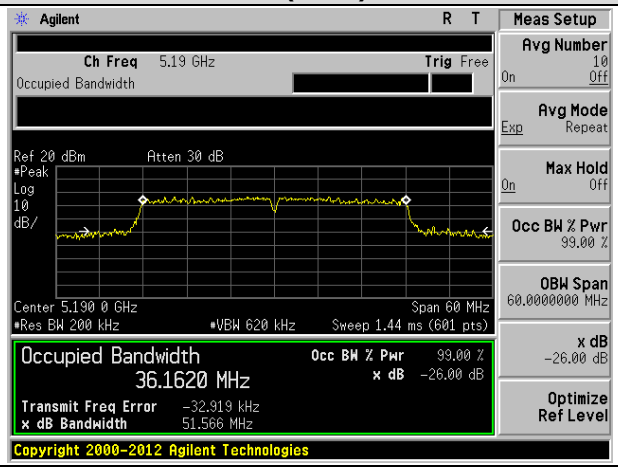
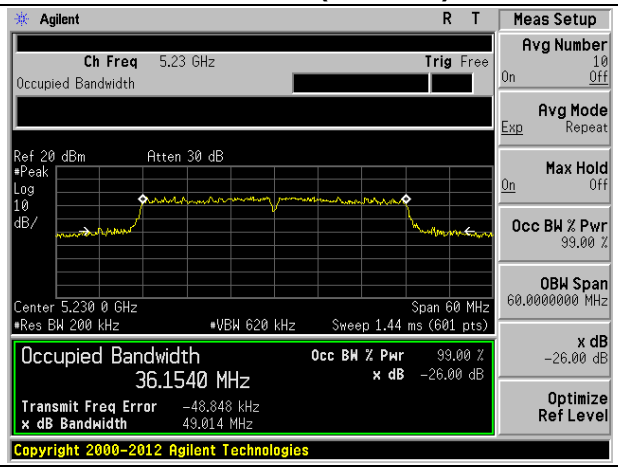
Test plots as followed:

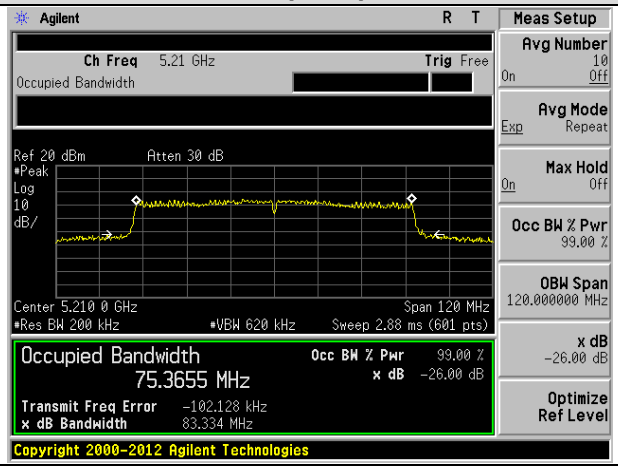
802.11a mode

Channel 36 (5180MHz)

Channel 40 (5200MHz)

Channel 48 (5240MHz)

802.11n(HT20) mode

Channel 36 (5180MHz)

Channel 40 (5200MHz)

Channel 48 (5240MHz)

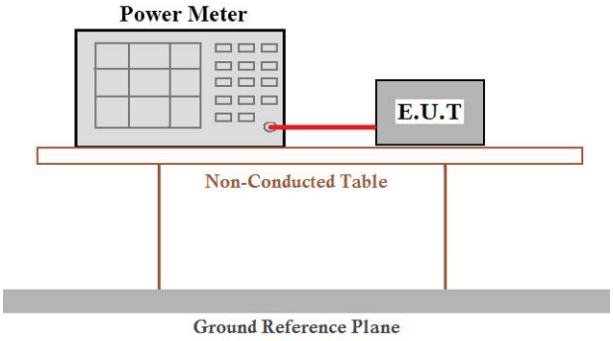
802.11ac(HT20) mode

Channel 36 (5180MHz)

Channel 40 (5200MHz)

Channel 48 (5240MHz)

802.11n(HT40) mode

Channel 38 (5190MHz)

Channel 46 (5230MHz)

802.11ac(HT40) mode

Channel 38 (5190MHz)

Channel 46 (5230MHz)

802.11ac(HT80) mode

Channel 40 (5210MHz)

7.4 Peak Transmit Power

Test Requirement:	FCC Part15 E Section 15.407
Test Method:	KDB 789033 D02 General U-NII Test Procedures New Rules v02r01
Limit:	For the band 5.15-5.25 GHz, the maximum conducted output power over the frequency bands of operation shall not exceed 250mW.
Test setup:	
Test procedure:	**Measurement using an RF average power meter** (i) Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the conditions listed below are satisfied a) The EUT is configured to transmit continuously or to transmit with a constant duty cycle. b) At all times when the EUT is transmitting, it must be transmitting at its maximum power control level. c) The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five. (ii) If the transmitter does not transmit continuously, measure the duty cycle, x, of the transmitter output signal as described in section B). (iii) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter. (iv) Adjust the measurement in dBm by adding 10 log(1/x) where x is the duty cycle (e.g., 10log(1/0.25) if the duty cycle is 25 percent).
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Measurement Data

802.11a mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
36	5180.00	14.04	0.04	14.08	23.98	Pass
40	5200.00	13.96	0.04	14.00	23.98	Pass
48	5240.00	13.87	0.04	13.91	23.98	Pass

802.11n(HT20) mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
36	5180.00	13.62	0.04	13.66	23.98	Pass
40	5200.00	14.08	0.04	14.12	23.98	Pass
48	5240.00	13.74	0.04	13.78	23.98	Pass

802.11ac(HT20) mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
36	5180.00	13.70	0.04	13.74	23.98	Pass
40	5200.00	13.85	0.04	13.89	23.98	Pass
48	5240.00	11.77	0.04	11.81	23.98	Pass

802.11n(HT40) mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
38	5190.00	13.06	0.04	13.10	23.98	Pass
46	5230.00	12.97	0.04	13.01	23.98	Pass

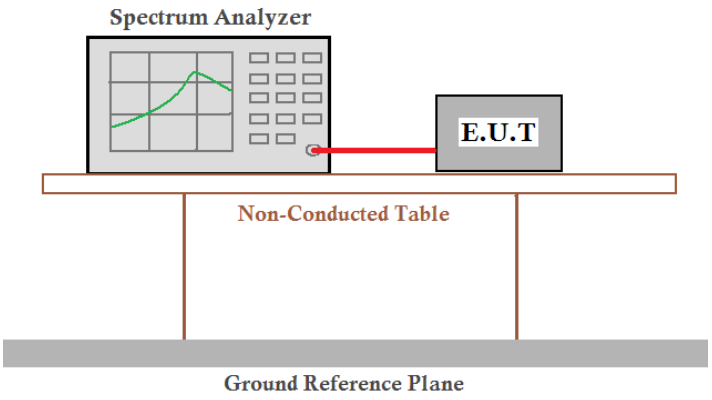
802.11 ac(HT40) mode						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
38	5190.00	12.89	0.04	12.93	23.98	Pass
46	5230.00	12.85	0.04	12.89	23.98	Pass

802.11 ac(HT80)						
CH No.	Frequency (MHz)	Measured Power (dBm)	Duty Factor	Output Power (dBm)	Limit (dBm)	Result
42	5210.00	12.33	0.04	12.37	23.98	Pass

Note: Output Power = Measured Power + Duty Factor

Duty Factor = 10 log (1/Duty Cycle)

7.5 Power Spectral Density

Test Requirement:	FCC Part15 E Section 15.407
Test Method:	KDB 789033 D02 General U-NII Test Procedures New Rules v02r01
Limit:	11dBm/MHz
Test setup:	
Test procedure:	1) Create an average power spectrum for the EUT operating mode being tested by following the instructions in section E)2) for measuring maximum conducted output power using a spectrum analyzer or EMI receiver: select the appropriate test method (SA-1, SA-2, SA-3, or alternatives to each) and apply it up to, but not including, the step labeled, “Compute power…”. 2) Use the peak search function on the instrument to find the peak of the spectrum. 3) Make the following adjustments to the peak value of the spectrum, if applicable: a) If Method SA-2 or SA-2 Alternative was used, add 10 log(1/x), where x is the duty cycle, to the peak of the spectrum. b) If Method SA-3 Alternative was used and the linear mode was used in step E)2)g)(viii), add 1 dB to the final result to compensate for the difference between linear averaging and power averaging. 4) The result is the PSD.
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Measurement Data

802.11a mode						
Channel No.	Frequency (MHz)	Measured PSD (dBm/MHz)	Duty Factor	Total PSD (dBm/MHz)	Limit (dBm/MHz)	Result
36	5180.00	4.73	0.04	4.77	11	Pass
40	5200.00	4.56	0.04	4.60	11	Pass
48	5240.00	4.42	0.04	4.46	11	Pass

802.11n(HT20) mode						
Channel No.	Frequency (MHz)	Measured PSD (dBm/MHz)	Duty Factor	Total PSD (dBm/MHz)	Limit (dBm/MHz)	Result
36	5180.00	3.83	0.04	3.87	11	Pass
40	5200.00	4.29	0.04	4.33	11	Pass
48	5240.00	3.96	0.04	4.00	11	Pass

802.11ac(HT20) mode						
Channel No.	Frequency (MHz)	Measured PSD (dBm/MHz)	Duty Factor	Total PSD (dBm/MHz)	Limit (dBm/MHz)	Result
36	5180.00	4.1	0.04	4.14	11	Pass
40	5200.00	4.22	0.04	4.26	11	Pass
48	5240.00	2.32	0.04	2.36	11	Pass

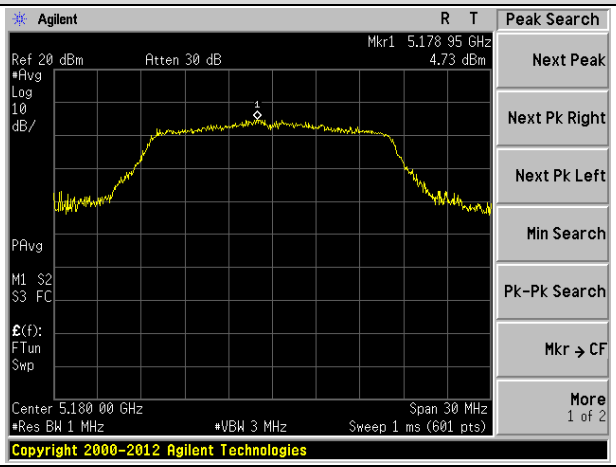
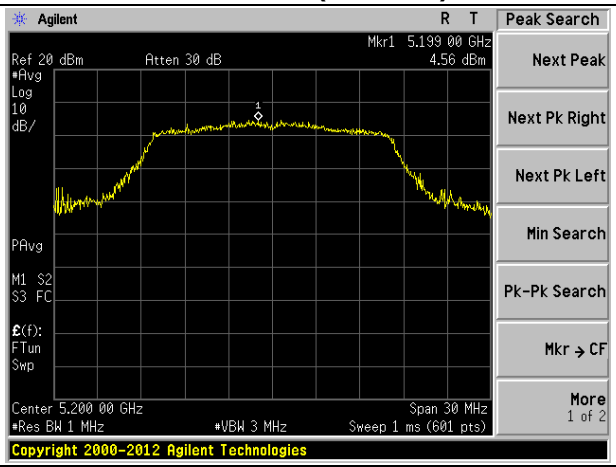
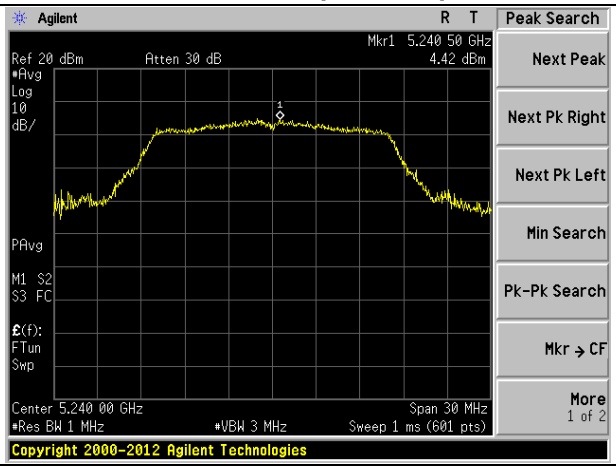
802.11n(HT40) mode						
Channel No.	Frequency (MHz)	Measured PSD (dBm/MHz)	Duty Factor	Total PSD (dBm/MHz)	Limit (dBm/MHz)	Result
38	5190.00	0.26	0.04	0.30	11	Pass
46	5230.00	0.67	0.04	0.71	11	Pass

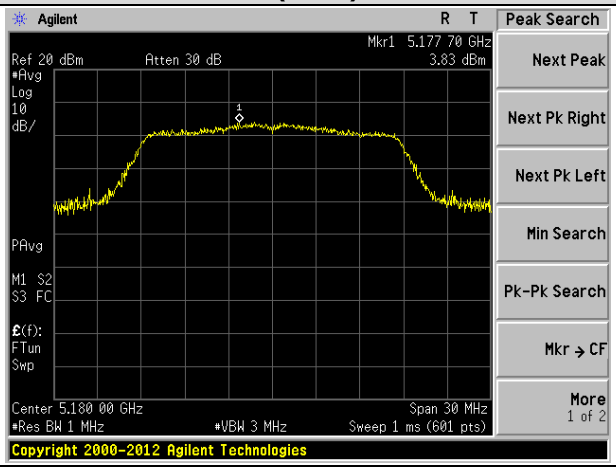
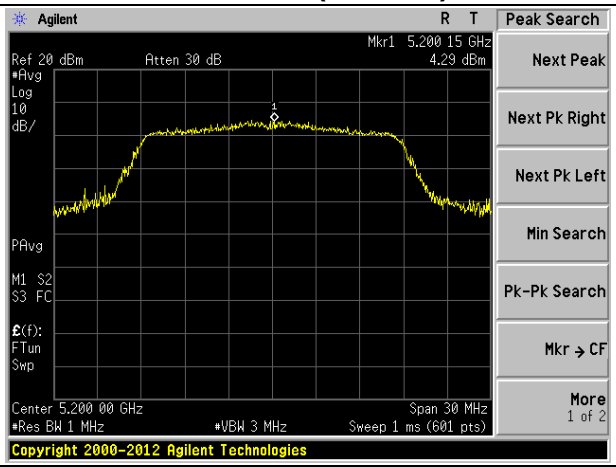
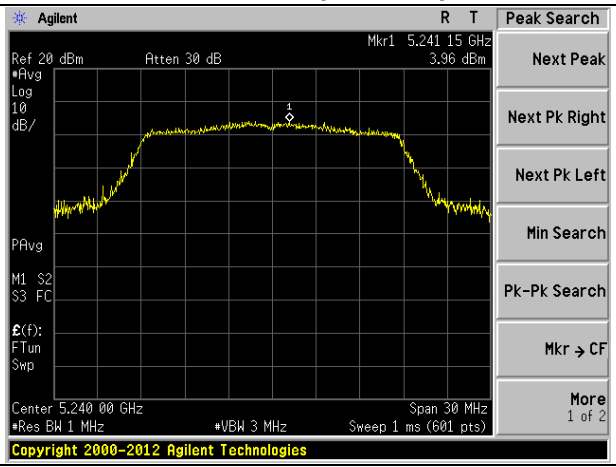
802.11ac(HT40) mode						
Channel No.	Frequency (MHz)	Measured PSD (dBm/MHz)	Duty Factor	Total PSD (dBm/MHz)	Limit (dBm/MHz)	Result
38	5190.00	0.06	0.04	0.10	11	Pass
46	5230.00	0.43	0.04	0.47	11	Pass

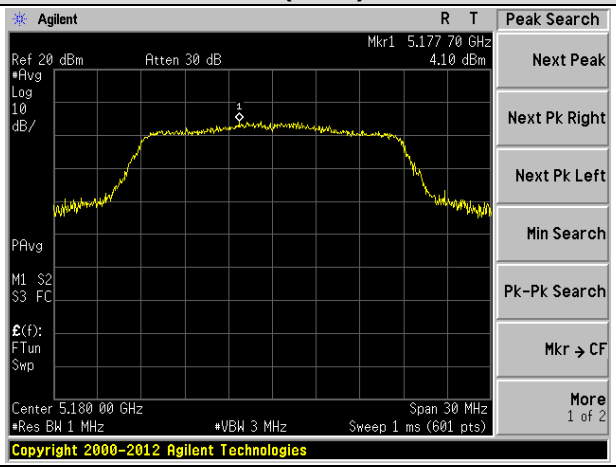
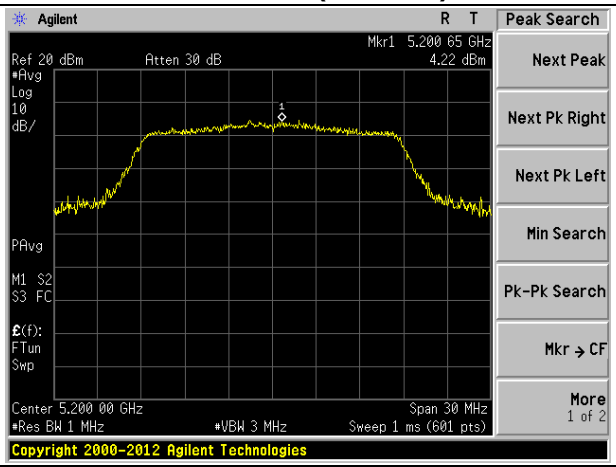
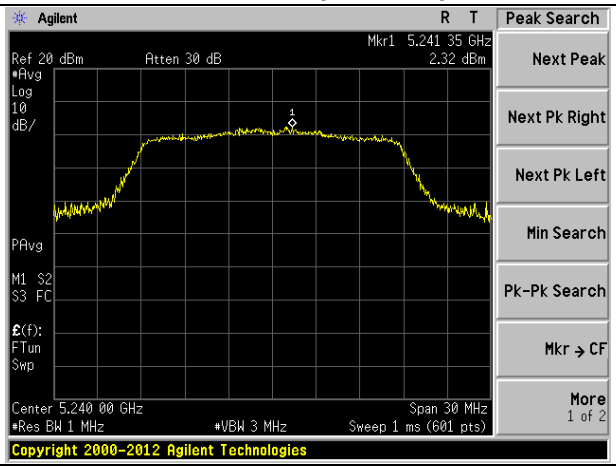
802.11ac(HT80) mode						
Channel No.	Frequency (MHz)	Measured PSD (dBm/MHz)	Duty Factor	Total PSD (dBm/MHz)	Limit (dBm/MHz)	Result
38	5210.00	-2.67	0.04	-2.63	11	Pass

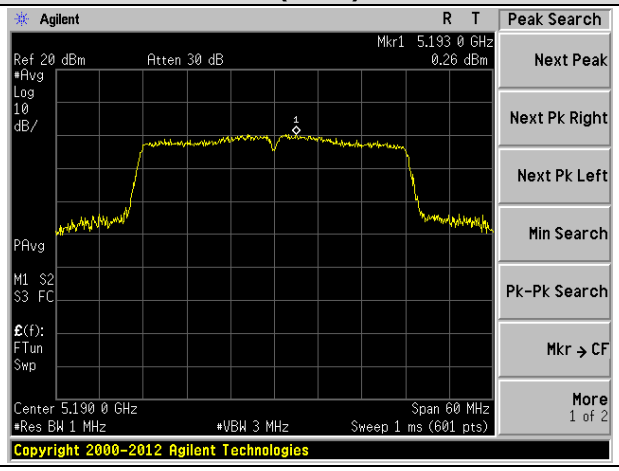
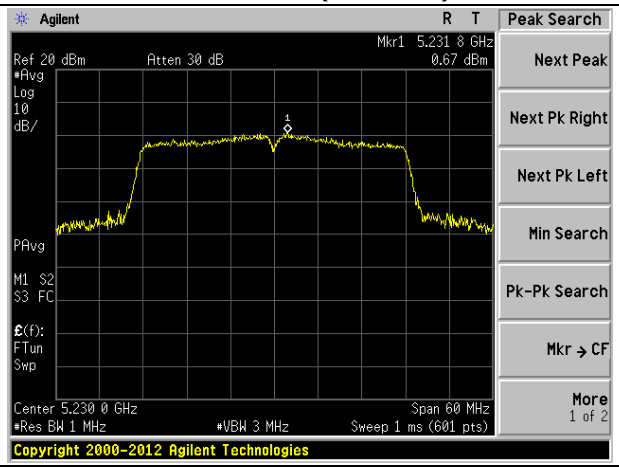
Note: Total PSD = Measured PSD + Duty Factor
Duty Factor = 10 log (1/Duty Cycle)

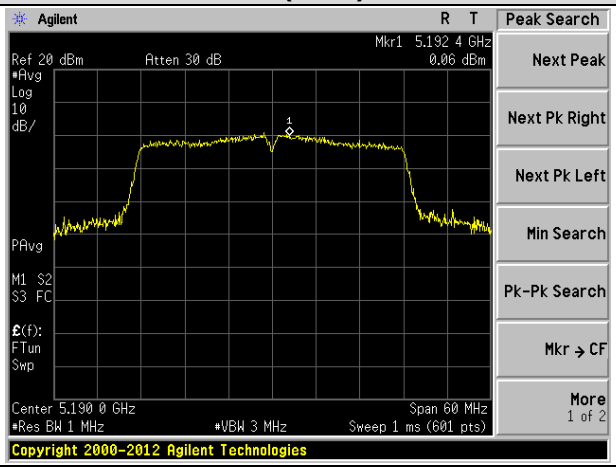
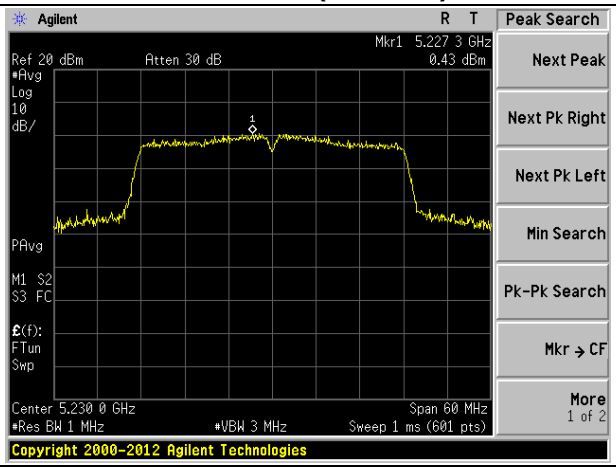
Test plots as followed:

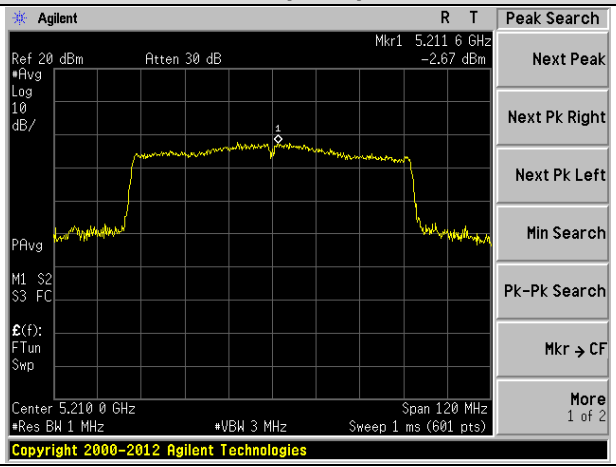
802.11a mode

Channel 36 (5180MHz)

Channel 40 (5200MHz)

Channel 48 (5240MHz)

802.11n(HT20) mode

Channel 36 (5180MHz)

Channel 40 (5200MHz)

Channel 48 (5240MHz)

802.11ac(HT20) mode

Channel 36 (5180MHz)

Channel 40 (5200MHz)

Channel 48 (5240MHz)

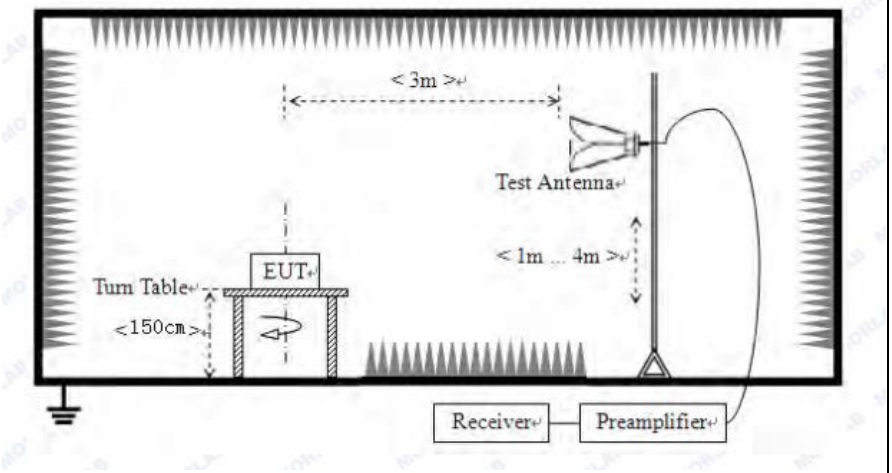
802.11n(HT40) mode

Channel 38 (5190MHz)

Channel 46 (5230MHz)

802.11ac(HT40) mode

Channel 38 (5190MHz)

Channel 46 (5230MHz)

802.11ac(HT80) mode

Channel 40 (5210MHz)

7.6 Band Edge

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 E Section 15.407 and 5.205</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10:2013</td></tr>
<tr><td>Test site:</td><td>Measurement Distance: 3m (Semi-Anechoic Chamber)</td></tr>
<tr><td>Receiver setup:</td><td>
<table>
<tr><th>Frequency</th><th>Detector</th><th>RBW</th><th>VBW</th><th>Remark</th></tr>
<tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>100KHz</td><td>300KHz</td><td>Quasi-peak Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr>
<tr><td>AV</td><td>1MHz</td><td>3MHz</td><td>Average Value</td></tr>
</table>
</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><th>Frequency</th><th>Limit (dBuV/m @3m)</th><th>Remark</th></tr>
<tr><td>30MHz-88MHz</td><td>40.0</td><td>Quasi-peak Value</td></tr>
<tr><td>88MHz-216MHz</td><td>43.5</td><td>Quasi-peak Value</td></tr>
<tr><td>216MHz-960MHz</td><td>46.0</td><td>Quasi-peak Value</td></tr>
<tr><td>960MHz-1GHz</td><td>54.0</td><td>Quasi-peak Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>54.0</td><td>Average Value</td></tr>
<tr><td>68.2</td><td>Peak Value</td></tr>
</table>
Undesirable emission limits:
(1) For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.
(2) For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 GHz band.
(3) For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of −27 dBm/MHz.
</td></tr>
<tr><td>Test Procedure:</td><td>
a. The EUT was placed on the top of a rotating table 1.5 m above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. 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.
d. 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 rotable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
f. 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
</td></tr>
</table>

	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 setup:	Above 1GHz 
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Remark:

According to KDB 789033 D02 v02r01 section G) 1) (d), for For measurements above 1000 MHz @ 3m distance, the limit of field strength is computed as follows:

E[dBuV/m] = EIRP[dBm] + 95.2;

For example, if EIRP = -27dBm

E[dBuV/m] = -27 + 95.2 = 68.2dBuV/m.

Measurement Data:

802.11a(HT20)					Lowest			
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
5150.00	47.16	32.07	8.99	37.49	50.73	68.20	-17.47	Vertical
5150.00	40.14	32.07	8.99	37.49	43.71	54.00	-10.29	Vertical
5150.00	46.27	32.07	8.99	37.49	49.84	68.20	-18.36	Horizontal
5150.00	42.09	32.07	8.99	37.49	45.66	54.00	-8.34	Horizontal

802.11a(HT20)					Highest			
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
5350.00	45.23	31.75	9.29	37.20	49.07	68.20	-19.13	Vertical
5350.00	41.36	31.75	9.29	37.20	45.20	54.00	-8.80	Vertical
5350.00	46.25	31.75	9.29	37.20	50.09	68.20	-18.11	Horizontal
5350.00	42.34	31.75	9.29	37.20	46.18	54.00	-7.82	Horizontal

802.11n(HT20)					Lowest			
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
5150.00	46.74	32.07	8.99	37.49	50.31	68.20	-17.89	Vertical
5150.00	37.94	32.07	8.99	37.49	41.51	54.00	-12.49	Vertical
5150.00	45.90	32.07	8.99	37.49	49.47	68.20	-18.73	Horizontal
5150.00	41.77	32.07	8.99	37.49	45.34	54.00	-8.66	Horizontal

802.11n(HT20)					Highest			
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
5350.00	47.04	31.75	9.29	37.20	50.88	68.20	-17.32	Vertical
5350.00	41.65	31.75	9.29	37.20	45.49	54.00	-8.51	Vertical
5350.00	46.05	31.75	9.29	37.20	49.89	68.20	-18.31	Horizontal
5350.00	41.72	31.75	9.29	37.20	45.56	54.00	-8.44	Horizontal

802.11ac(HT20)					Lowest			
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
5150.00	46.02	32.07	8.99	37.49	49.59	68.20	-18.61	Vertical
5150.00	40.34	32.07	8.99	37.49	43.91	54.00	-10.09	Vertical
5150.00	44.75	32.07	8.99	37.49	48.32	68.20	-19.88	Horizontal
5150.00	37.98	32.07	8.99	37.49	41.55	54.00	-12.45	Horizontal

802.11ac(HT20)					Highest			
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
5350.00	45.67	31.75	9.29	37.20	49.51	68.20	-18.69	Vertical
5350.00	38.43	31.75	9.29	37.20	42.27	54.00	-11.73	Vertical
5350.00	44.37	31.75	9.29	37.20	48.21	68.20	-19.99	Horizontal
5350.00	39.77	31.75	9.29	37.20	43.61	54.00	-10.39	Horizontal

802.11n(HT40)					Lowest			
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
5150.00	45.91	32.07	8.99	37.49	49.48	68.20	-18.72	Vertical
5150.00	37.39	32.07	8.99	37.49	40.96	54.00	-13.04	Vertical
5150.00	45.14	32.07	8.99	37.49	48.71	68.20	-19.49	Horizontal
5150.00	41.12	32.07	8.99	37.49	44.69	54.00	-9.31	Horizontal

802.11n(HT40)					Highest			
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
5350.00	47.51	31.75	9.29	37.20	51.35	68.20	-16.85	Vertical
5350.00	38.85	31.75	9.29	37.20	42.69	54.00	-11.31	Vertical
5350.00	47.28	31.75	9.29	37.20	51.12	68.20	-17.08	Horizontal
5350.00	42.56	31.75	9.29	37.20	46.40	54.00	-7.60	Horizontal

802.11ac(HT40)					Lowest			
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
5150.00	45.44	32.07	8.99	37.49	49.01	68.20	-19.19	Vertical
5150.00	40.81	32.07	8.99	37.49	44.38	54.00	-9.62	Vertical
5150.00	47.55	32.07	8.99	37.49	51.12	68.20	-17.08	Horizontal
5150.00	38.73	32.07	8.99	37.49	42.30	54.00	-11.70	Horizontal

802.11ac(HT40)					Highest			
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
5350.00	44.96	31.75	9.29	37.20	48.80	68.20	-19.40	Vertical
5350.00	42.91	31.75	9.29	37.20	46.75	54.00	-7.25	Vertical
5350.00	44.83	31.75	9.29	37.20	48.67	68.20	-19.53	Horizontal
5350.00	38.19	31.75	9.29	37.20	42.03	54.00	-11.97	Horizontal

802.11ac(HT80)					Lowest			
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
5150.00	44.03	32.07	8.99	37.49	47.60	68.20	-20.60	Vertical
5150.00	39.75	32.07	8.99	37.49	43.32	54.00	-10.68	Vertical
5150.00	46.56	32.07	8.99	37.49	50.13	68.20	-18.07	Horizontal
5150.00	39.49	32.07	8.99	37.49	43.06	54.00	-10.94	Horizontal

802.11ac(HT80)					Highest			
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
5350.00	44.19	31.75	9.29	37.20	48.03	68.20	-20.17	Vertical
5350.00	38.33	31.75	9.29	37.20	42.17	54.00	-11.83	Vertical
5350.00	45.29	31.75	9.29	37.20	49.13	68.20	-19.07	Horizontal
5350.00	40.01	31.75	9.29	37.20	43.85	54.00	-10.15	Horizontal

7.7 Radiated Emission

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.209 and 15.205</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10:2013</td></tr>
<tr><td>Test Frequency Range:</td><td>9kHz to 40GHz</td></tr>
<tr><td>Test site:</td><td>Measurement Distance: 3m (Semi-Anechoic Chamber)</td></tr>
<tr><td>Receiver setup:</td><td>
<table>
<tr><th>Frequency</th><th>Detector</th><th>RBW</th><th>VBW</th><th>Value</th></tr>
<tr><td>9kHz-150KHz</td><td>Quasi-peak</td><td>200Hz</td><td>1kHz</td><td>Quasi-peak Value</td></tr>
<tr><td>150kHz-30MHz</td><td>Quasi-peak</td><td>9kHz</td><td>30kHz</td><td>Quasi-peak Value</td></tr>
<tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>100KHz</td><td>300KHz</td><td>Quasi-peak Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr>
<tr><td>AV</td><td>1MHz</td><td>3MHz</td><td>Average Value</td></tr>
</table>
</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><th>Frequency</th><th>Limit (uV/m)</th><th>Value</th><th>Measurement Distance</th></tr>
<tr><td>0.009MHz-0.490MHz</td><td>2400/F(KHz)</td><td>QP</td><td>300m</td></tr>
<tr><td>0.490MHz-1.705MHz</td><td>24000/F(KHz)</td><td>QP</td><td>300m</td></tr>
<tr><td>1.705MHz-30MHz</td><td>30</td><td>QP</td><td>30m</td></tr>
<tr><td>30MHz-88MHz</td><td>100</td><td>QP</td><td rowspan="6">3m</td></tr>
<tr><td>88MHz-216MHz</td><td>150</td><td>QP</td></tr>
<tr><td>216MHz-960MHz</td><td>200</td><td>QP</td></tr>
<tr><td>960MHz-1GHz</td><td>500</td><td>QP</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>500</td><td>Average</td></tr>
<tr><td>5000</td><td>Peak</td></tr>
</table>
</td></tr>
<tr><td>Test Procedure:</td><td>Substitution method was performed to determine the actual ERP emission levels of the EUT.
The following test procedure as below:

1>.Below 1GHz test procedure:
1. The EUT was placed on the top of a rotating table (0.8m for below 1GHz and 1.5 meters for above 1GHz) 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 rotable 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</td></tr>
</table>

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.

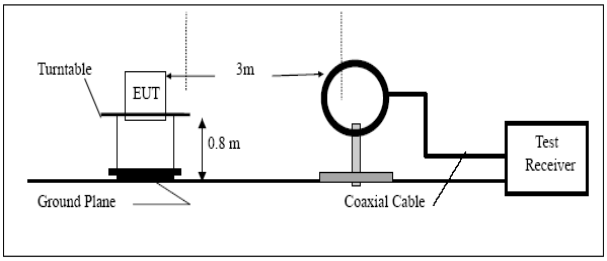
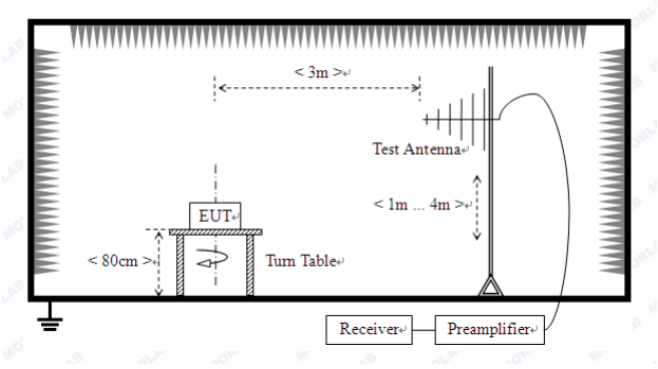
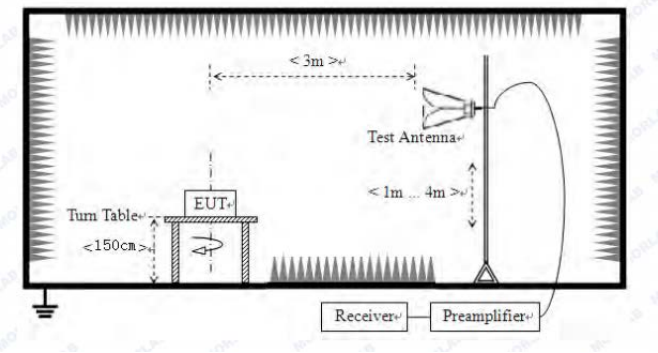
2>.Above 1GHz test procedure:

1. On the test site as test setup graph above,the EUT shall be placed at the 0.8m support on the turntable and in the position closest to normal use as declared by the provider.
2. The test antenna shall be oriented initially for vertical polarization and shall be chosen to correspond to the frequency of the transmitter.The output of the test antenna shall be connected to the measuring receiver.
3. The transmitter shall be switched on, if possible, without modulation and the measuring receiver shall be tuned to the frequency of the transmitter under test.
4. The test antenna shall be raised and lowered from 1m to 4m until a maximum signal level is detected by the measuring receiver. Then the turntable should be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
5. Repeat step 4 for test frequency with the test antenna polarized horizontally.
6. Remove the transmitter and replace it with a substitution antenna
7. Feed the substitution antenna at the transmitter end with a signal generator connected to the antenna by means of a nonradiating cable. With the antennas at both ends vertically polarized, and with the signal generator tuned to a particular test frequency, raise and lower the test antenna to obtain a maximum reading at the spectrum analyzer. Adjust the level of the signal generator output until the previously recorded maximum reading for this set of conditions is obtained. This should be done carefully repeating the adjustment of the test antenna and generator output.
8. Repeat step 7 with both antennas horizontally polarized for each test frequency.
9. Calculate power in dBm into a reference ideal half-wave dipole antenna by reducing the readings obtained in steps 7 and 8 by the power loss in the cable between the generator and the antenna, and further corrected for the gain of the substitution antenna used relative to an ideal half-wave dipole antenna by the following formula:

   EIRP(dBm) = Pg(dBm) – cable loss (dB) + antenna gain (dBi)

   where:

   Pg is the generator output power into the substitution antenna.

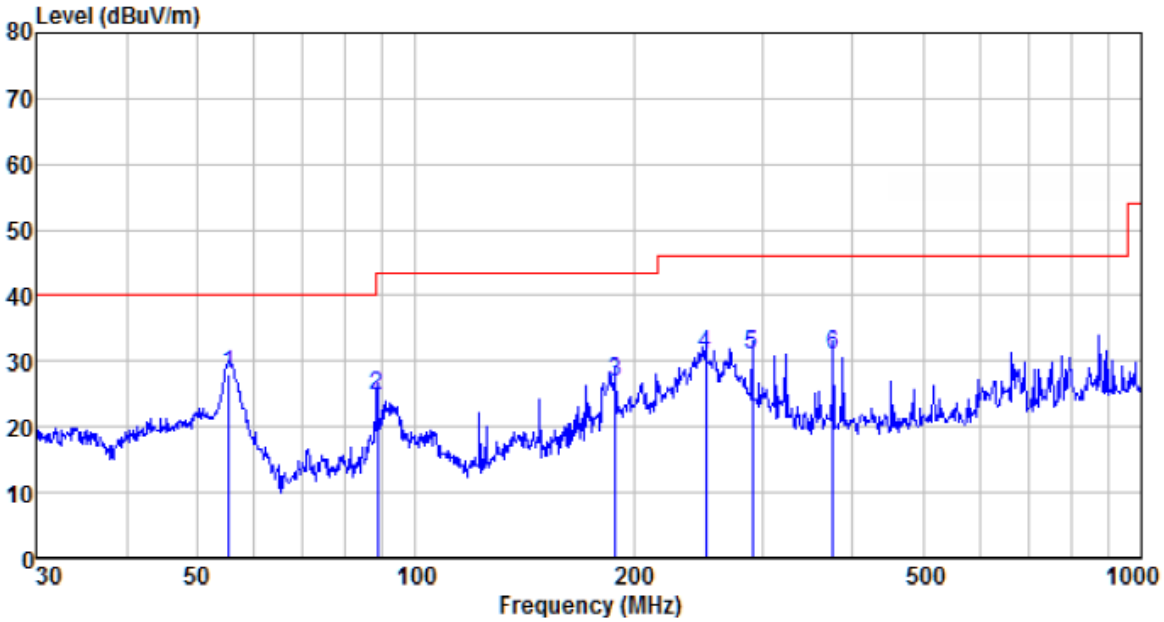
Test setup:	Below 30MHz  Below 1GHz  Above 1GHz 
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Measurement Data:

9 kHz ~ 30 MHz

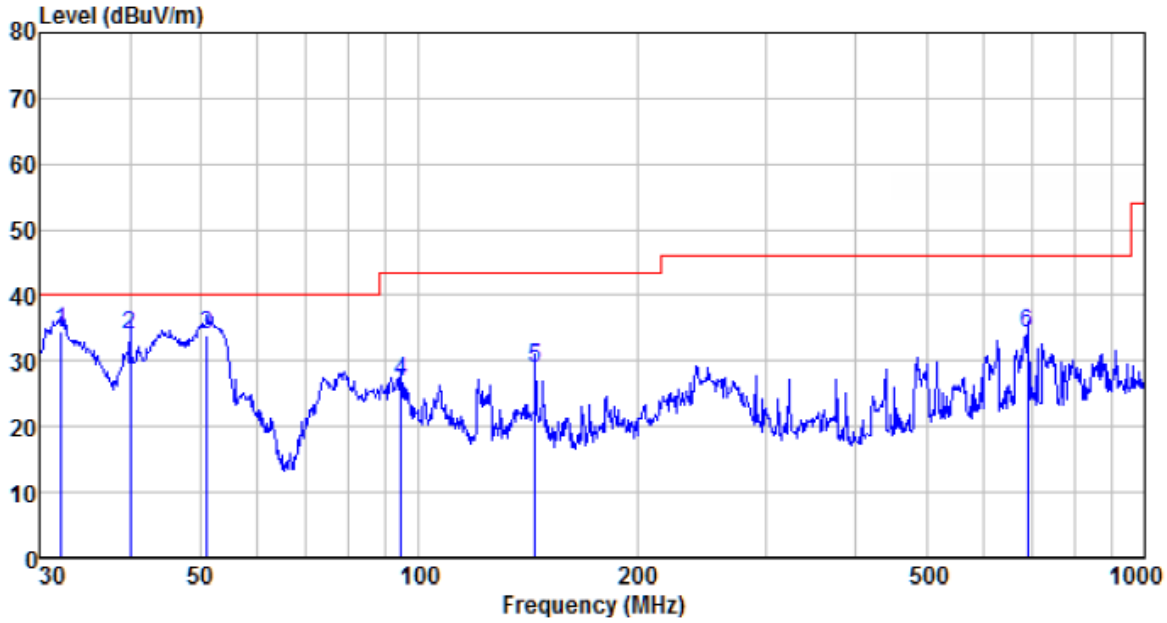
The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

30MHz~ 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
55.221	51.72	11.78	0.82	36.26	28.06	40.00	-11.94	QP
88.652	50.02	10.19	1.10	36.63	24.68	43.50	-18.82	QP
188.413	52.59	9.73	1.78	37.28	26.82	43.50	-16.68	QP
251.180	53.92	12.18	2.13	37.38	30.85	46.00	-15.15	QP
291.036	52.87	13.35	2.32	37.41	31.13	46.00	-14.87	QP
375.939	50.86	14.94	2.75	37.50	31.05	46.00	-14.95	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
32.179	57.94	11.25	0.58	35.16	34.61	40.00	-5.39	QP
39.994	56.85	12.20	0.66	35.66	34.05	40.00	-5.95	QP
51.121	57.05	12.18	0.78	36.20	33.81	40.00	-6.19	QP
94.428	50.92	11.38	1.15	36.68	26.77	43.50	-16.73	QP
144.842	56.88	7.50	1.53	37.05	28.86	43.50	-14.64	QP
689.565	48.13	19.59	4.05	37.62	34.15	46.00	-11.85	QP

Above 1GHz:

802.11a(HT20) 5180MHz

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
10360.00	28.40	39.67	14.62	32.65	50.04	74.00	-23.96	Vertical
15540.00	30.92	38.60	17.66	34.46	50.20	74.00	-23.80	Vertical
10360.00	29.37	39.67	14.62	32.65	50.04	74.00	-23.96	Horizontal
15540.00	29.76	38.60	17.66	34.46	50.20	74.00	-23.80	Horizontal

802.11a(HT20) 5200MHz

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
10400.00	30.44	39.75	14.63	32.71	50.07	74.00	-23.93	Vertical
15600.00	28.13	38.33	17.67	34.17	50.23	74.00	-23.77	Vertical
10400.00	32.84	39.75	14.63	32.71	50.07	74.00	-23.93	Horizontal
15600.00	31.39	38.33	17.67	34.17	50.23	74.00	-23.77	Horizontal

802.11a(HT20) 5240MHz

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
10480.00	32.84	39.82	14.68	32.86	50.04	74.00	-23.96	Vertical
15720.00	29.42	38.09	17.73	33.66	50.56	74.00	-23.44	Vertical
10480.00	30.79	39.82	14.68	32.86	50.04	74.00	-23.96	Horizontal
15720.00	28.29	38.09	17.73	33.66	50.56	74.00	-23.44	Horizontal

802.11n(HT20) 5180MHz

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
10360.00	32.78	39.67	14.62	32.65	50.04	74.00	-23.96	Vertical
15540.00	29.57	38.60	17.66	34.46	50.20	74.00	-23.80	Vertical
10360.00	30.46	39.67	14.62	32.65	50.04	74.00	-23.96	Horizontal
15540.00	28.17	38.60	17.66	34.46	50.20	74.00	-23.80	Horizontal

802.11n(HT20) 5200MHz

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
10400.00	32.24	39.75	14.63	32.71	50.07	74.00	-23.93	Vertical
15600.00	30.44	38.33	17.67	34.17	50.23	74.00	-23.77	Vertical
10400.00	31.56	39.75	14.63	32.71	50.07	74.00	-23.93	Horizontal
15600.00	30.07	38.33	17.67	34.17	50.23	74.00	-23.77	Horizontal

802.11n(HT20) 5240MHz

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
10480.00	32.19	39.82	14.68	32.86	50.04	74.00	-23.96	Vertical
15720.00	29.70	38.09	17.73	33.66	50.56	74.00	-23.44	Vertical
10480.00	28.82	39.82	14.68	32.86	50.04	74.00	-23.96	Horizontal
15720.00	31.51	38.09	17.73	33.66	50.56	74.00	-23.44	Horizontal

802.11ac(HT20) 5180MHz

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
10360.00	30.09	39.71	14.63	32.68	50.06	74.00	-23.94	Vertical
15540.00	29.20	38.46	17.67	34.32	50.21	74.00	-23.79	Vertical
10360.00	31.21	39.71	14.63	32.68	50.06	74.00	-23.94	Horizontal
15540.00	31.08	38.46	17.67	34.32	50.21	74.00	-23.79	Horizontal

802.11ac(HT20) 5200MHz

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
10400.00	28.24	39.75	14.63	32.71	50.07	74.00	-23.93	Vertical
15600.00	28.06	38.33	17.67	34.17	50.23	74.00	-23.77	Vertical
10400.00	28.22	39.75	14.63	32.71	50.07	74.00	-23.93	Horizontal
15600.00	32.07	38.33	17.67	34.17	50.23	74.00	-23.77	Horizontal

802.11ac(HT20) 5240MHz

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
10480.00	31.30	39.82	14.68	32.86	50.04	74.00	-23.96	Vertical
15720.00	31.34	38.09	17.73	33.66	50.56	74.00	-23.44	Vertical
10480.00	31.98	39.82	14.68	32.86	50.04	74.00	-23.96	Horizontal
15720.00	29.42	38.09	17.73	33.66	50.56	74.00	-23.44	Horizontal

802.11nHT40) 5190MHz

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
10380.00	29.36	39.71	14.63	32.68	50.06	74.00	-23.94	Vertical
15570.00	30.28	38.46	17.67	34.32	50.21	74.00	-23.79	Vertical
10380.00	31.00	39.71	14.63	32.68	50.06	74.00	-23.94	Horizontal
15570.00	28.59	38.46	17.67	34.32	50.21	74.00	-23.79	Horizontal

802.11n(HT40) 5230MHz

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
10460.00	30.74	39.82	14.66	32.80	50.08	74.00	-23.92	Vertical
15690.00	29.90	38.09	17.71	33.81	50.39	74.00	-23.61	Vertical
10460.00	31.66	39.82	14.66	32.80	50.08	74.00	-23.92	Horizontal
15690.00	32.22	38.09	17.71	33.81	50.39	74.00	-23.61	Horizontal

802.11ac(HT40) 5190MHz

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
10380.00	30.21	39.71	14.63	32.68	53.32	74.00	-20.68	Vertical
10380.00	28.40	39.71	14.63	32.68	50.06	74.00	-23.94	Vertical
15570.00	29.91	38.46	17.67	34.32	50.21	74.00	-23.79	Horizontal
10380.00	28.34	39.71	14.63	32.68	50.06	74.00	-23.94	Horizontal

802.11ac(HT40) 5230MHz

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
10460.00	28.23	39.75	14.65	32.74	50.06	74.00	-23.94	Vertical
15690.00	32.16	38.33	17.69	34.03	50.39	74.00	-23.61	Vertical
10460.00	32.63	39.75	14.65	32.74	50.06	74.00	-23.94	Horizontal
15690.00	28.08	38.33	17.69	34.03	50.39	74.00	-23.61	Horizontal

802.11ac(HT80) 5210MHz

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
10420.00	28.57	39.82	14.66	32.80	50.08	74.00	-23.92	Vertical
15630.00	32.88	38.09	17.71	33.81	50.39	74.00	-23.61	Vertical
10420.00	30.63	39.82	14.66	32.80	50.08	74.00	-23.92	Horizontal
15630.00	30.10	38.09	17.71	33.81	50.39	74.00	-23.61	Horizontal

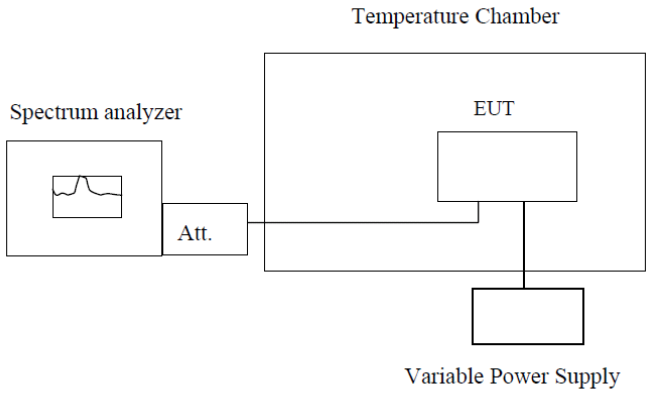
Note:

1. Level = Read Level + Antenna Factor+ Cable loss- Preamp Factor.

2. The test trace is same as the ambient noise (the test frequency range: 18GHz~40GHz), therefore no data appear in the report.

3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

7.8 Frequency stability

Test Requirement:	FCC Part15 C Section 15.407(g)
Test Method:	ANSI C63.10:2013, FCC Part 2.1055
Limit:	Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified
Test Procedure:	The EUT was setup to ANSI C63.4, 2003; tested to 2.1055 for compliance to FCC Part 15.407(g) requirements.
Test setup:	 **Note :** Measurement setup for testing on Antenna connector
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Measurement data:

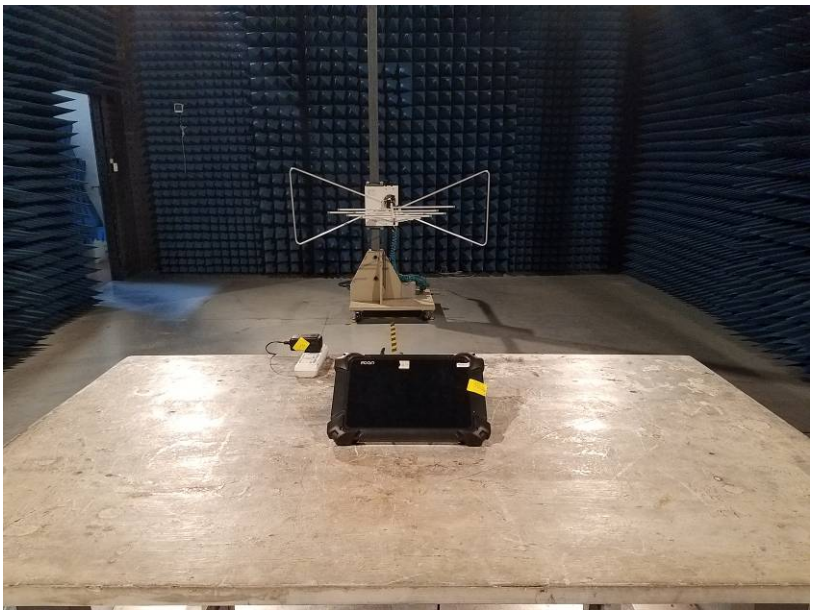
Frequency stability versus Temp.					
Power Supply: DC3.7V					
Temp. (°C)	Operating Frequency (MHz)	0 minute	2 minute	5 minute	10 minute
		Measured Frequency (MHz)	Measured Frequency (MHz)	Measured Frequency (MHz)	Measured Frequency (MHz)
-30	5180	5179.9071	5181.2066	5183.4971	5176.8915
	5200	5199.2173	5200.6263	5200.6336	5199.8484
	5220	5219.8631	5220.2075	5220.2773	5219.6023
	5240	5239.8237	5240.0063	5240.5091	5239.3818
-20	5180	5179.6119	5180.6005	5180.2131	5179.1761
	5200	5199.7061	5200.6164	5200.7538	5199.6633
	5220	5219.2619	5220.2612	5220.3469	5219.2439
	5240	5239.3813	5240.3503	5240.4081	5239.2288
-10	5180	5179.0797	5180.5077	5180.5678	5179.9976
	5200	5199.3539	5200.3014	5200.3894	5199.6439
	5220	5219.6584	5220.0714	5220.2817	5219.2457
	5240	5239.7928	5240.5151	5240.8645	5239.9181
0	5180	5179.7723	5180.6848	5180.2279	5179.8558
	5200	5199.0049	5200.4748	5200.6820	5199.8300
	5220	5219.7879	5220.0312	5220.6553	5219.4313
	5240	5239.8896	5240.1211	5240.4918	5239.0566
10	5180	5179.2419	5180.3130	5180.9196	5179.2041
	5200	5199.9234	5200.9592	5200.0973	5199.3132
	5220	5219.9890	5220.5004	5220.2751	5219.4062
	5240	5239.4474	5240.5015	5240.7730	5239.1955
20	5180	5179.1117	5180.8942	5180.7362	5179.2909
	5200	5199.0500	5200.4044	5200.4639	5199.2931
	5220	5219.5959	5220.8275	5220.8989	5219.3291
	5240	5239.6344	5240.2441	5240.3495	5239.6925
30	5180	5179.0418	5180.3674	5180.6608	5179.0421
	5200	5199.3776	5200.2063	5200.9869	5199.0637
	5220	5219.0725	5220.6334	5220.7570	5219.2189
	5240	5239.1029	5240.2329	5240.1093	5239.3648
40	5180	5179.3084	5180.3991	5180.0040	5179.2598
	5200	5199.1787	5200.9047	5200.5172	5199.5980
	5220	5219.0084	5220.5878	5220.4567	5219.2993
	5240	5239.0932	5240.9758	5240.9383	5239.3283
50	5180	5179.3321	5180.3128	5180.7033	5179.9479
	5200	5199.4114	5200.6892	5200.2219	5199.6958
	5220	5219.2792	5220.2111	5220.0011	5219.0476
	5240	5239.4195	5240.3207	5240.7335	5239.4391

Frequency stability versus Voltage					
Temperature: 25°C					
Power Supply (VDC)	Operating Frequency (MHz)	0 minute	2 minute	5 minute	10 minute
		Measured Frequency (MHz)	Measured Frequency (MHz)	Measured Frequency (MHz)	Measured Frequency (MHz)
3.3	5180	5183.7533	5180.4906	5179.4866	5179.2277
	5200	5201.6523	5200.9077	5199.5552	5199.1810
	5220	5221.1119	5220.8389	5219.0894	5219.6741
	5240	5240.6066	5240.4800	5239.3337	5239.8576
3.7	5180	5180.9759	5180.4416	5179.2070	5179.7415
	5200	5200.0080	5200.6468	5199.1597	5199.9955
	5220	5220.6436	5220.1317	5219.6443	5219.1611
	5240	5240.4941	5240.1454	5239.1701	5239.1954
4.1	5180	5180.9691	5180.2349	5179.9906	5179.7468
	5200	5200.7640	5200.9049	5199.0826	5199.6036
	5220	5220.8190	5220.7826	5219.3947	5219.4573
	5240	5240.6245	5240.1467	5239.2639	5239.0564

Note: The worst case is FL=5176.0081MHz, FH=5240.9986MHz

8 Test Setup Photo

Radiated Emission



Conducted Emission

9 EUT Constructional Details

Reference to the test report No. GTS201803000169E01

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