

FCC Report (WIFI)

Applicant: Quantum Creations LLC.

Address of Applicant: 16410 NE 19th Avenue Suite 102 North Miami Beach,
FL 33162

Equipment Under Test (EUT)

Product Name: Mini PC Stick

Model No.: A-1054-QALAN, A-1056-QAS, A-1061-QALAN-S,
A-1066-QAL-NOS

Trade Mark: Azulle

FCC ID: 2AFJIQAL20161054

Applicable standards: FCC CFR Title 47 Part 15 Subpart C Section 15.247:2015

Date of sample receipt: May 23, 2016

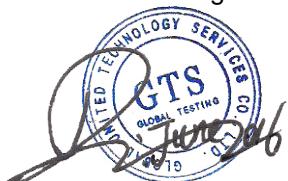
Date of Test: May 24-31, 2016

Date of report issued: June 02, 2016

Test Result : PASS *

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

Authorized Signature:



**Robinson Lo
Laboratory Manager**

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the GTS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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2 Version

Version No.	Date	Description
00	June 02, 2016	Original

Prepared By:

Zedward Pan

Date:

June 02, 2016

Project Engineer

Check By:

Andy Wu

Date:

June 02, 2016

Reviewer

3 Contents

	Page
1 COVER PAGE	1
2 VERSION	2
3 CONTENTS	3
4 TEST SUMMARY	4
4.1 MEASUREMENT UNCERTAINTY	4
5 GENERAL INFORMATION	5
5.1 CLIENT INFORMATION	5
5.2 GENERAL DESCRIPTION OF EUT	5
5.3 TEST MODE	6
5.4 DESCRIPTION OF SUPPORT UNITS	6
5.5 TEST FACILITY.....	7
5.6 TEST LOCATION	7
6 TEST INSTRUMENTS LIST	8
7 TEST RESULTS AND MEASUREMENT DATA.....	9
7.1 ANTENNA REQUIREMENT	9
7.2 CONDUCTED EMISSIONS	10
7.3 CONDUCTED PEAK OUTPUT POWER.....	13
7.4 CHANNEL BANDWIDTH.....	14
7.5 POWER SPECTRAL DENSITY	19
7.6 BAND EDGES	24
7.6.1 Conducted Emission Method.....	24
7.6.2 Radiated Emission Method.....	27
7.7 SPURIOUS EMISSION.....	32
7.7.1 Conducted Emission Method.....	32
7.7.2 Radiated Emission Method.....	37
8 TEST SETUP PHOTO	52
9 EUT CONSTRUCTIONAL DETAILS	54

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

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 ~ 26.5GHz	± 4.68dB	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	± 3.45dB	(1)

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

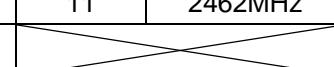
5 General Information

5.1 Client Information

Applicant:	Quantum Creations LLC.
Address of Applicant:	16410 NE 19th Avenue Suite 102 North Miami Beach, FL 33162
Manufacturer:	SHENZHEN MELE STAR TECHNOLOGY LIMITED
Address of Manufacture:	3F,Bldg#1,28 Cuijing Road, Pingshan New District, Shenzhen, PR China.
Factory:	Shenzhen MeLE Precision Technology Limited
Address of Factory:	3F East,Bldg#1,28 Cuijing Road, Pingshan New District, Shenzhen, PR China.

5.2 General Description of EUT

Product Name:	Mini PC Stick
Model No.:	A-1054-QALAN, A-1056-QAS, A-1061-QALAN-S, A-1066-QAL-NOS
Operation Frequency:	802.11b/802.11g/802.11n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz
Channel numbers:	802.11b/802.11g /802.11n(HT20): 11 802.11(HT40): 7
Channel separation:	5MHz
Modulation technology:	802.11b: Direct Sequence Spread Spectrum (DSSS) 802.11g/802.11n(H20)/802.11n(H40): Orthogonal Frequency Division Multiplexing (OFDM)
Antenna Type:	Integral antenna
Antenna gain:	2.0dBi(declare by Applicant)
Power supply:	Adapter Model No.: FJ-SW1260502000DN Input: AC 100-240V, 50/60Hz, 0.4A Max Output: DC 5.0V, 2.0A

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

5.3 Test mode

Transmitting mode	Keep the EUT in continuously transmitting mode (dutycycle>98%)
<i>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.</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:										
Per-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.										
<table border="1"> <tr> <td>Mode</td> <td>802.11b</td> <td>802.11g</td> <td>802.11n(HT20)</td> <td>802.11n(HT40)</td> </tr> <tr> <td>Data rate</td> <td>1Mbps</td> <td>6Mbps</td> <td>6.5Mbps</td> <td>13Mbps</td> </tr> </table>	Mode	802.11b	802.11g	802.11n(HT20)	802.11n(HT40)	Data rate	1Mbps	6Mbps	6.5Mbps	13Mbps
Mode	802.11b	802.11g	802.11n(HT20)	802.11n(HT40)						
Data rate	1Mbps	6Mbps	6.5Mbps	13Mbps						

5.4 Description of Support Units

Manufacturer	Description	Model	Serial Number	FCC ID/DoC
PHILIPS	LCD TV	19PFL3120/T3	AU1A1212002906	DOC
DELL	KEYBOARD	SK-8115	N/A	DoC
DELL	MOUSE	MOC5UO	N/A	DoC

5.5 Test Facility

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

- **FCC —Registration No.: 600491**

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 600491, June 28, 2013.

- **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, June 26, 2013.

5.6 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, Baoan District, Shenzhen, Guangdong, China

Tel: 0755-27798480

Fax: 0755-27798960

6 Test Instruments list

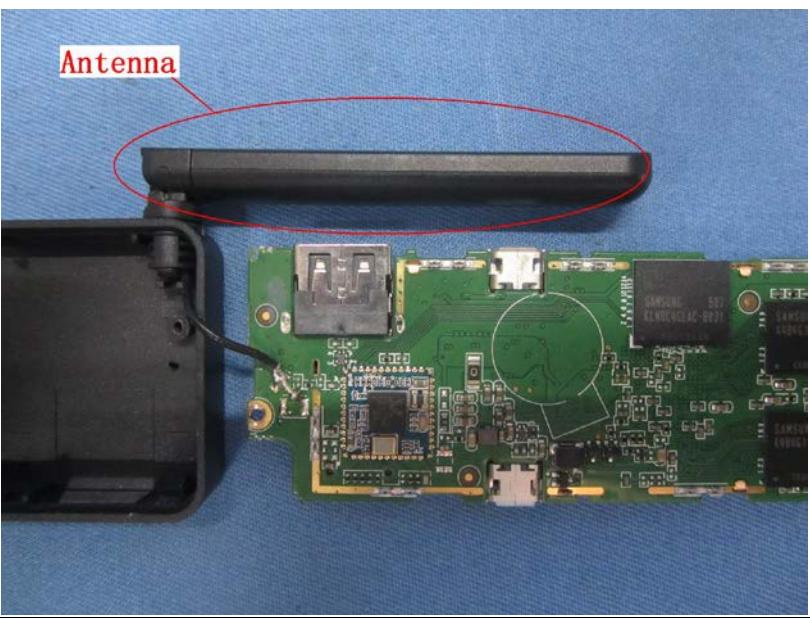
Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	Mar. 26 2016	Mar. 25 2017
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	Spectrum Analyzer	Agilent	E4440A	GTS533	Jun. 30 2015	Jun. 29 2016
4	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	June 30 2015	June 29 2016
5	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	June 30 2015	June 29 2016
6	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS208	June 26 2015	June 25 2016
7	Horn Antenna	ETS-LINDGREN	3160	GTS217	Mar. 26 2016	Mar. 25 2017
8	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
9	Coaxial Cable	GTS	N/A	GTS213	Mar. 27 2016	Mar. 26 2017
10	Coaxial Cable	GTS	N/A	GTS211	Mar. 27 2016	Mar. 26 2017
11	Coaxial cable	GTS	N/A	GTS210	Mar. 27 2016	Mar. 26 2017
12	Coaxial Cable	GTS	N/A	GTS212	Mar. 27 2016	Mar. 26 2017
13	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	June 30 2015	June 29 2016
14	Amplifier(2GHz-20GHz)	HP	8349B	GTS206	June 30 2015	June 29 2016
15	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June 26 2015	June 25 2016
16	Band filter	Aminideon	82346	GTS219	Mar. 27 2016	Mar. 26 2017
17	Power Meter	Anritsu	ML2495A	GTS540	June 30 2015	June 29 2016
18	Power Sensor	Anritsu	MA2411B	GTS541	June 30 2015	June 29 2016

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	7.0(L)x3.0(W)x3.0(H)	GTS264	Jun. 30 2015	Jun. 29 2016
2	EMI Test Receiver	Rohde & Schwarz	ESCS30	GTS223	June 30 2015	June 29 2016
3	10dB Pulse Limita	Rohde & Schwarz	N/A	GTS224	June 30 2015	June 29 2016
4	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	June 30 2015	June 29 2016
5	LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	GTS226	June 30 2015	June 29 2016
6	Coaxial Cable	GTS	N/A	GTS227	June 30 2015	June 29 2016
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A

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	July 07 2015	July 06 2016

7 Test results and Measurement Data

7.1 Antenna requirement

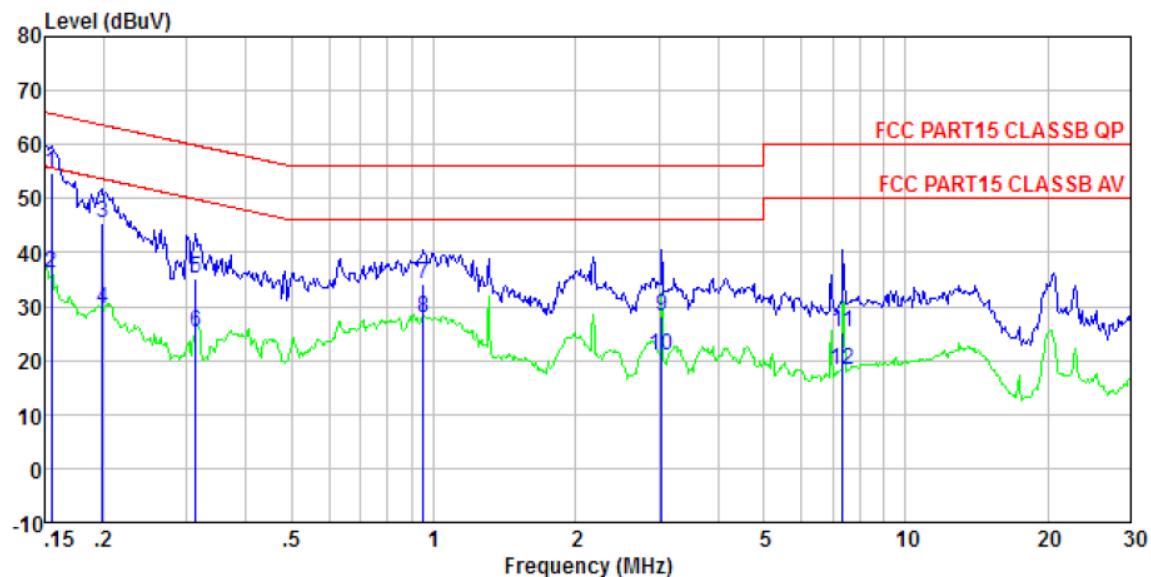
Standard requirement:	FCC Part15 C Section 15.203 /247(c)
15.203 requirement:	
<p>An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.</p>	
15.247(c) (1)(i) requirement:	
<p>(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.</p>	
E.U.T Antenna:	
<p><i>The antenna is Integral antenna, the best case gain of the antenna is 2dBi</i></p>	
	

7.2 Conducted Emissions

Test Requirement:	FCC Part15 C Section 15.207																
Test Method:	ANSI C63.10:2013																
Test Frequency Range:	150KHz to 30MHz																
Class / Severity:	Class B																
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto																
Limit:	<table border="1"> <thead> <tr> <th rowspan="2">Frequency range (MHz)</th> <th colspan="2">Limit (dBuV)</th> </tr> <tr> <th>Quasi-peak</th> <th>Average</th> </tr> </thead> <tbody> <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> </tbody> </table>			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
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															
	<small>* Decreases with the logarithm of the frequency.</small>																
Test setup:	<p>Reference Plane</p> <p>LISN</p> <p>AUX Equipment</p> <p>E.U.T</p> <p>Test table/Insulation plane</p> <p>EMI Receiver</p> <p>Filter</p> <p>AC power</p> <p>40cm</p> <p>80cm</p> <p>Remark E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m</p>																
Test procedure:	<ol style="list-style-type: none"> 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. 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). 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 5.3 for details																
Test results:	Pass																

Measurement data

Line:



Site : Shielded room

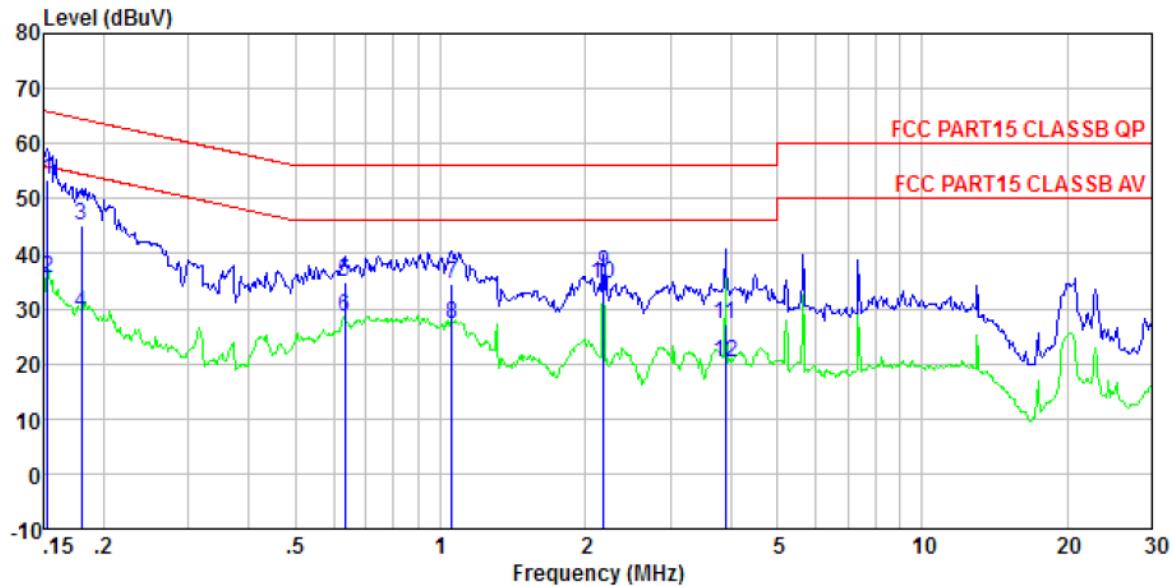
Condition : FCC PART15 CLASSB QP LISN-2013 LINE

Test mode : WiFi mode

Test Engineer: Sky

	Freq	Read Level	LISN Level	Cable Factor	Limit Loss	Over Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.155	54.40	54.67	0.15	0.12	65.74	-11.07	QP
2	0.155	36.02	36.29	0.15	0.12	55.74	-19.45	Average
3	0.199	45.29	45.56	0.14	0.13	63.67	-18.11	QP
4	0.199	29.38	29.65	0.14	0.13	53.67	-24.02	Average
5	0.313	34.80	35.01	0.11	0.10	59.88	-24.87	QP
6	0.313	25.09	25.30	0.11	0.10	49.88	-24.58	Average
7	0.953	33.84	34.11	0.14	0.13	56.00	-21.89	QP
8	0.953	27.43	27.70	0.14	0.13	46.00	-18.30	Average
9	3.041	27.78	28.09	0.16	0.15	56.00	-27.91	QP
10	3.041	20.66	20.97	0.16	0.15	46.00	-25.03	Average
11	7.368	24.73	25.16	0.26	0.17	60.00	-34.84	QP
12	7.368	17.69	18.12	0.26	0.17	50.00	-31.88	Average

Neutral:



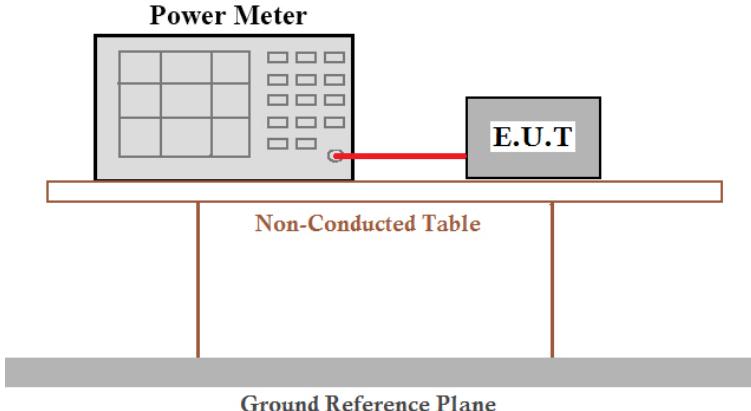
Site : Shielded room
 Condition : FCC PART15 CLASSB QP LISN-2013 NEUTRAL
 Test mode : WiFi mode
 Test Engineer: Sky

Freq	Read	LISN	Cable	Limit	Over	Remark
	Level	Level Factor	Loss	Line	Limit	
MHz	dBuV	dBuV	dB	dB	dBuV	dB
1	0.153	53.14	53.33	0.07	0.12	65.82 -12.49 QP
2	0.153	35.25	35.44	0.07	0.12	55.82 -20.38 Average
3	0.180	44.82	45.02	0.07	0.13	64.50 -19.48 QP
4	0.180	28.95	29.15	0.07	0.13	54.50 -25.35 Average
5	0.634	34.47	34.67	0.07	0.13	56.00 -21.33 QP
6	0.634	28.39	28.59	0.07	0.13	46.00 -17.41 Average
7	1.054	34.22	34.42	0.07	0.13	56.00 -21.58 QP
8	1.054	26.88	27.08	0.07	0.13	46.00 -18.92 Average
9	2.178	36.40	36.64	0.09	0.15	56.00 -19.36 QP
10	2.178	34.27	34.51	0.09	0.15	46.00 -11.49 Average
11	3.901	27.05	27.34	0.14	0.15	56.00 -28.66 QP
12	3.901	19.99	20.28	0.14	0.15	46.00 -25.72 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.

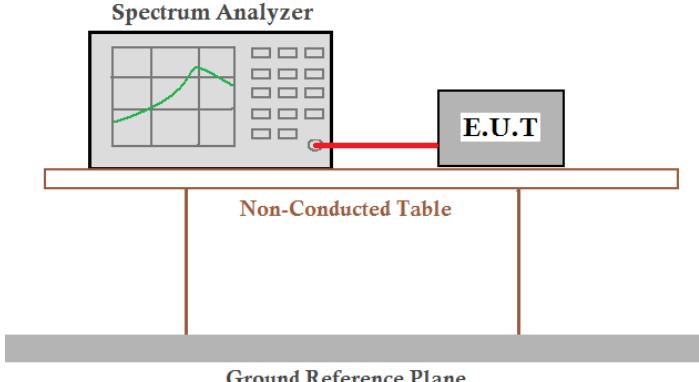
7.3 Conducted Peak Output Power

Test Requirement:	FCC Part15 C Section 15.247 (b)(3)
Test Method:	ANSI C63.10:2013 and KDB558074 D01 DTS Meas Guidance V03
Limit:	30dBm
Test setup:	
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Measurement Data

Test CH	Peak Output Power (dBm)				Limit(dBm)	Result
	802.11b	802.11g	802.11n(HT20)	802.11n(HT40)		
Lowest	14.86	11.68	11.11	8.26	30.00	Pass
Middle	13.74	11.59	11.30	8.35		
Highest	13.35	11.50	11.23	8.00		

7.4 Channel Bandwidth

Test Requirement:	FCC Part15 C Section 15.247 (a)(2)
Test Method:	ANSI C63.10:2013 and KDB558074 D01 DTS Meas Guidance V03
Limit:	>500KHz
Test setup:	 <p>The diagram illustrates the test setup for measuring channel bandwidth. A Spectrum Analyzer is positioned at the top left, displaying a green waveform on its screen. A red horizontal line extends from the analyzer's output port to a gray rectangular box labeled "E.U.T". This entire assembly sits on a light-colored rectangular platform labeled "Non-Conducted Table". Below the table is a thick gray horizontal bar labeled "Ground Reference Plane".</p>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

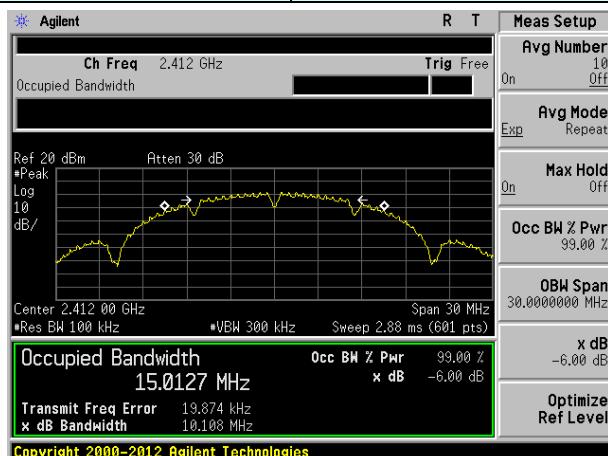
Measurement Data

Test CH	Channel Bandwidth (MHz)				Limit(KHz)	Result
	802.11b	802.11g	802.11n(HT20)	802.11n(HT40)		
Lowest	10.108	16.626	17.849	36.571	>500	Pass
Middle	10.105	16.625	17.854	36.571		
Highest	10.107	16.631	17.858	36.562		

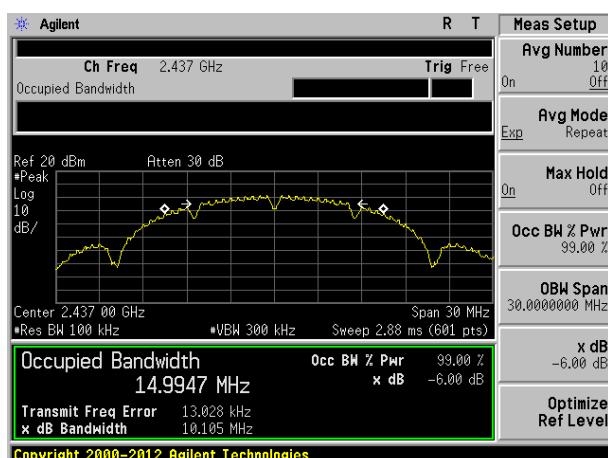
Test plot as follows:

Test mode:

802.11b



Lowest channel



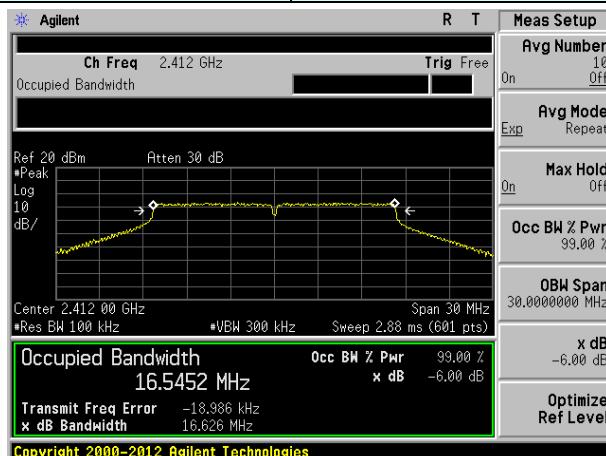
Middle channel



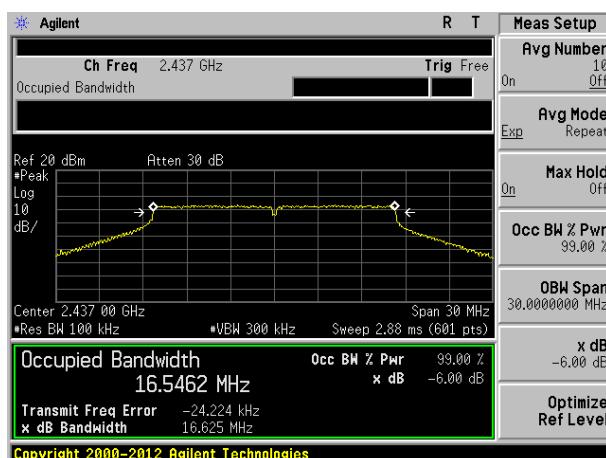
Highest channel

Test mode:

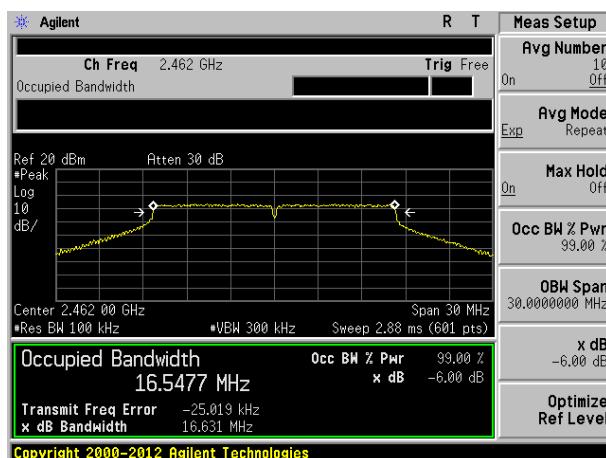
802.11g



Lowest channel



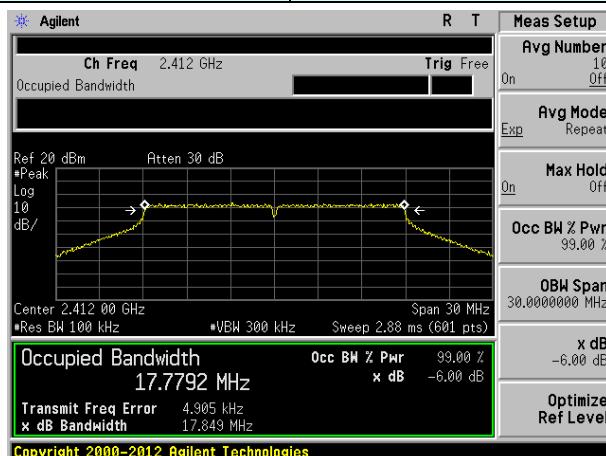
Middle channel



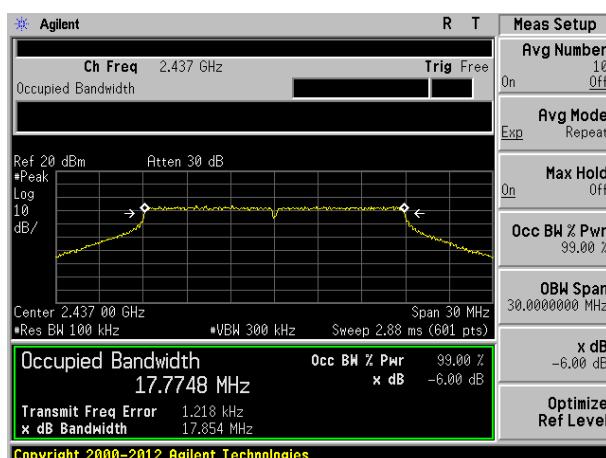
Highest channel

Test mode:

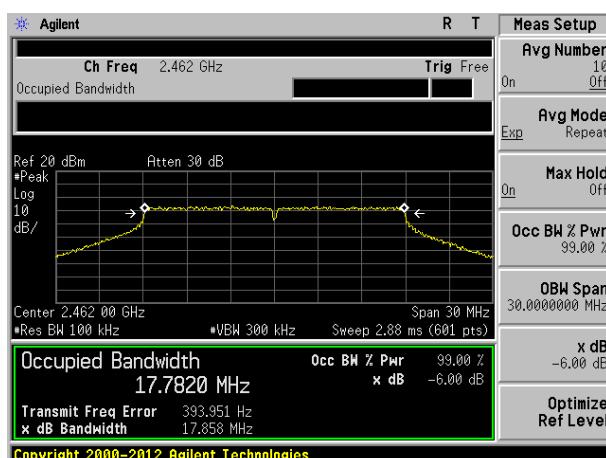
802.11n(HT20)



Lowest channel



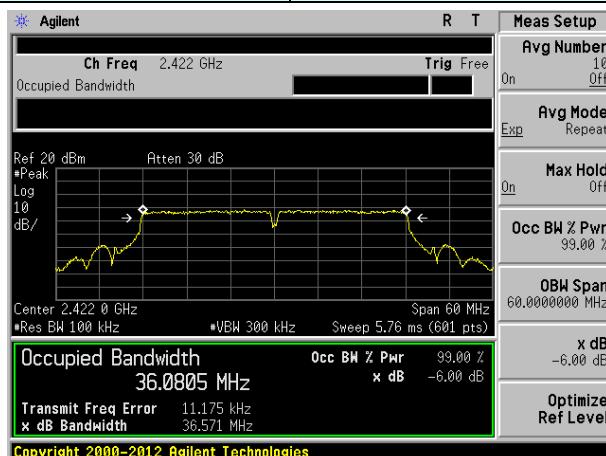
Middle channel



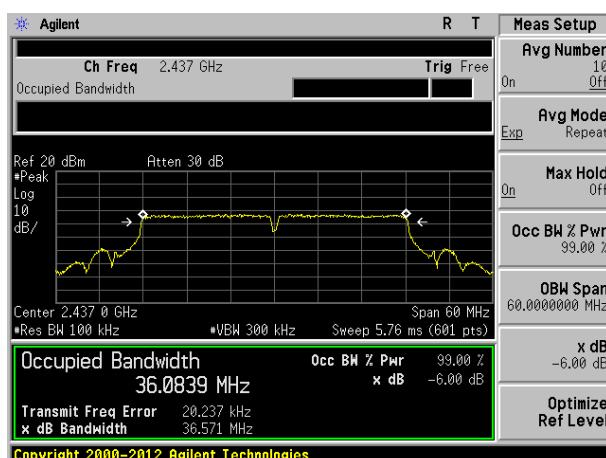
Highest channel

Test mode:

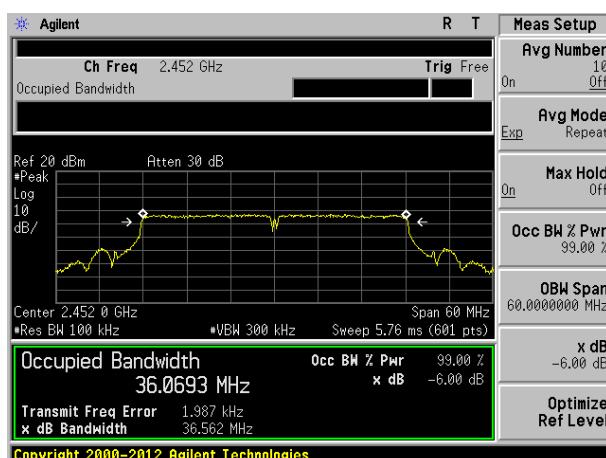
802.11n(HT40)



Lowest channel

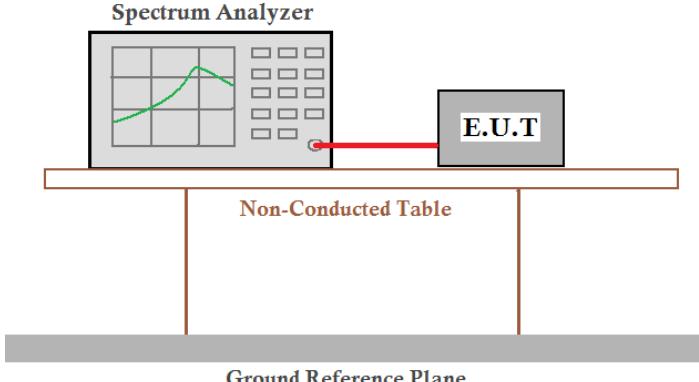


Middle channel



Highest channel

7.5 Power Spectral Density

Test Requirement:	FCC Part15 C Section 15.247 (e)
Test Method:	ANSI C63.10:2013 and KDB558074 D01 DTS Meas Guidance V03
Limit:	8dBm
Test setup:	 <p>The diagram illustrates the test setup. A 'Spectrum Analyzer' is connected to the 'E.U.T' (Equipment Under Test) via a red cable. The E.U.T is placed on a 'Non-Conducted Table'. The entire assembly sits on a 'Ground Reference Plane'.</p>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

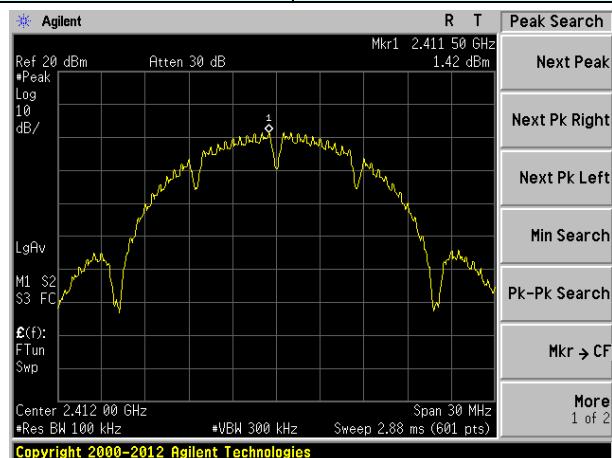
Measurement Data

Test CH	Power Spectral Density (dBm)				Limit(dBm/3kHz)	Result
	802.11b	802.11g	802.11n(HT20)	802.11n(HT40)		
Lowest	1.42	-6.72	-6.64	-11.89	8.00	Pass
Middle	1.23	-6.58	-6.46	-12.77		
Highest	1.00	-6.55	-6.23	-12.84		

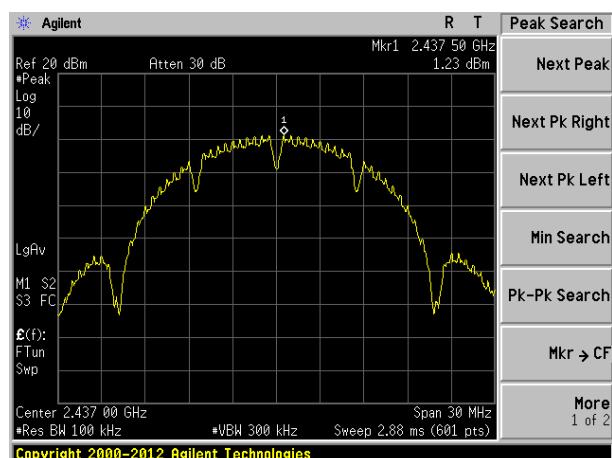
Test plot as follows:

Test mode:

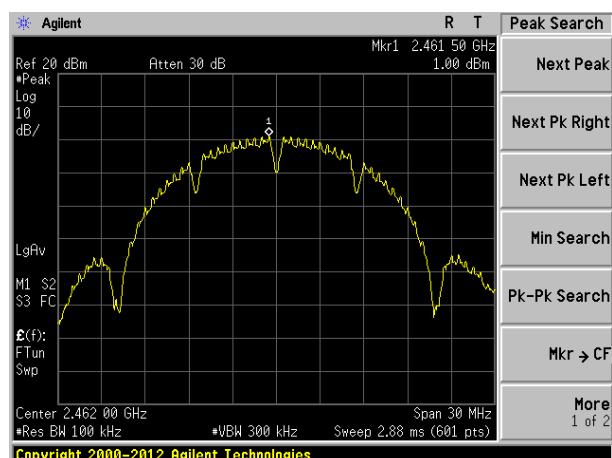
802.11b



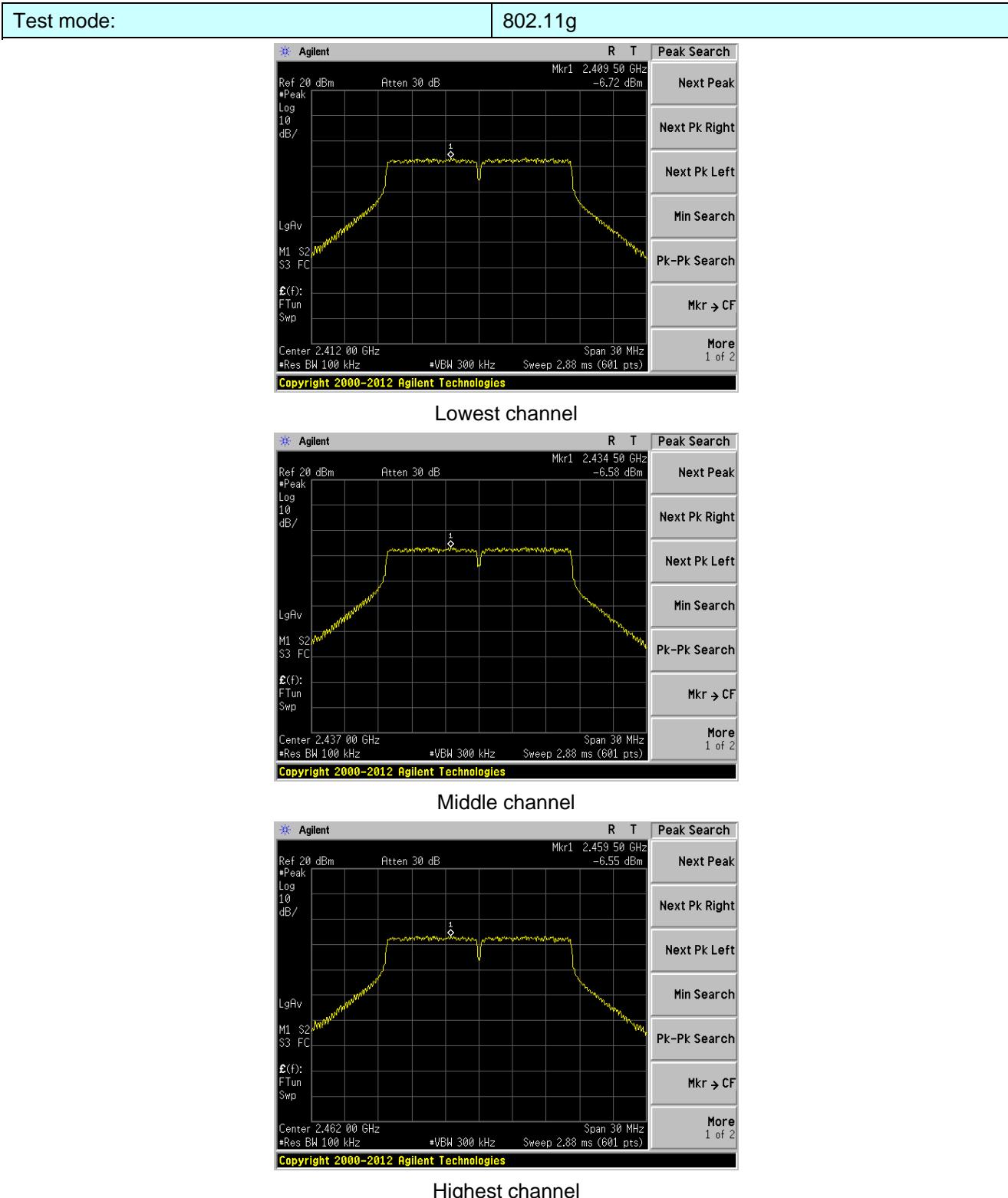
Lowest channel

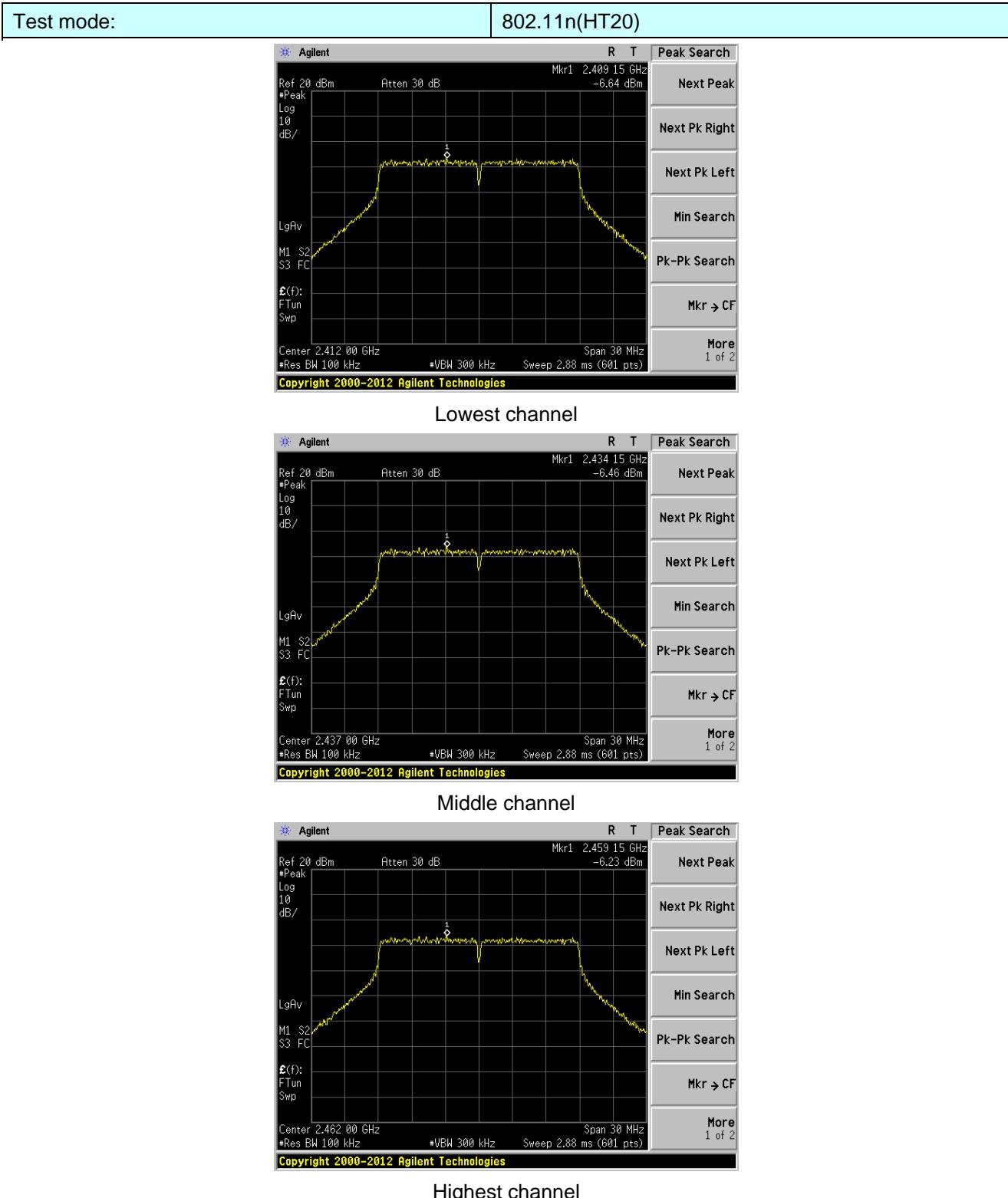


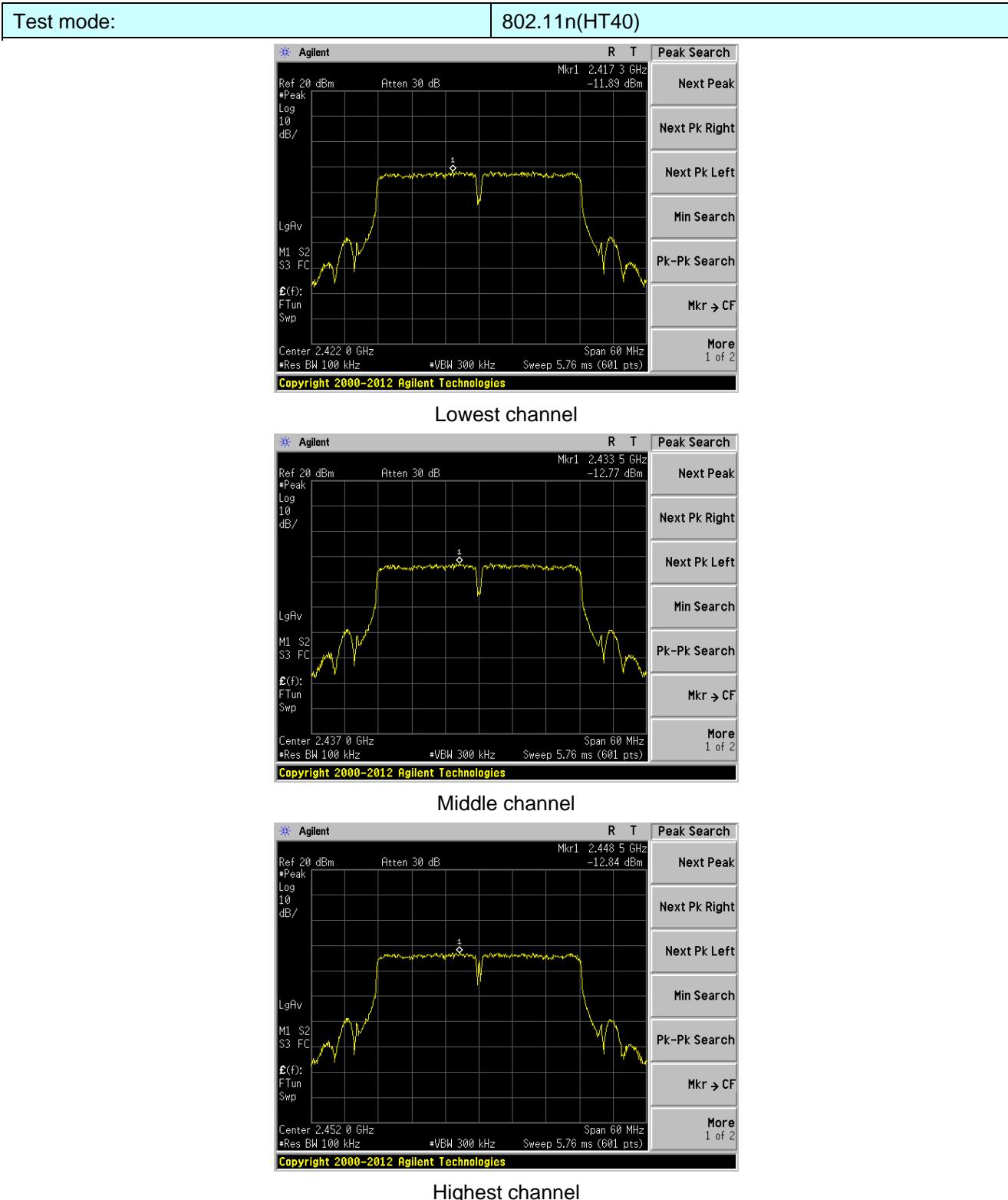
Middle channel



Highest channel

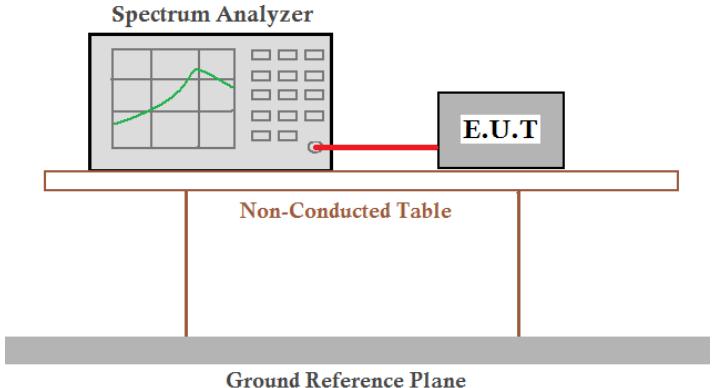


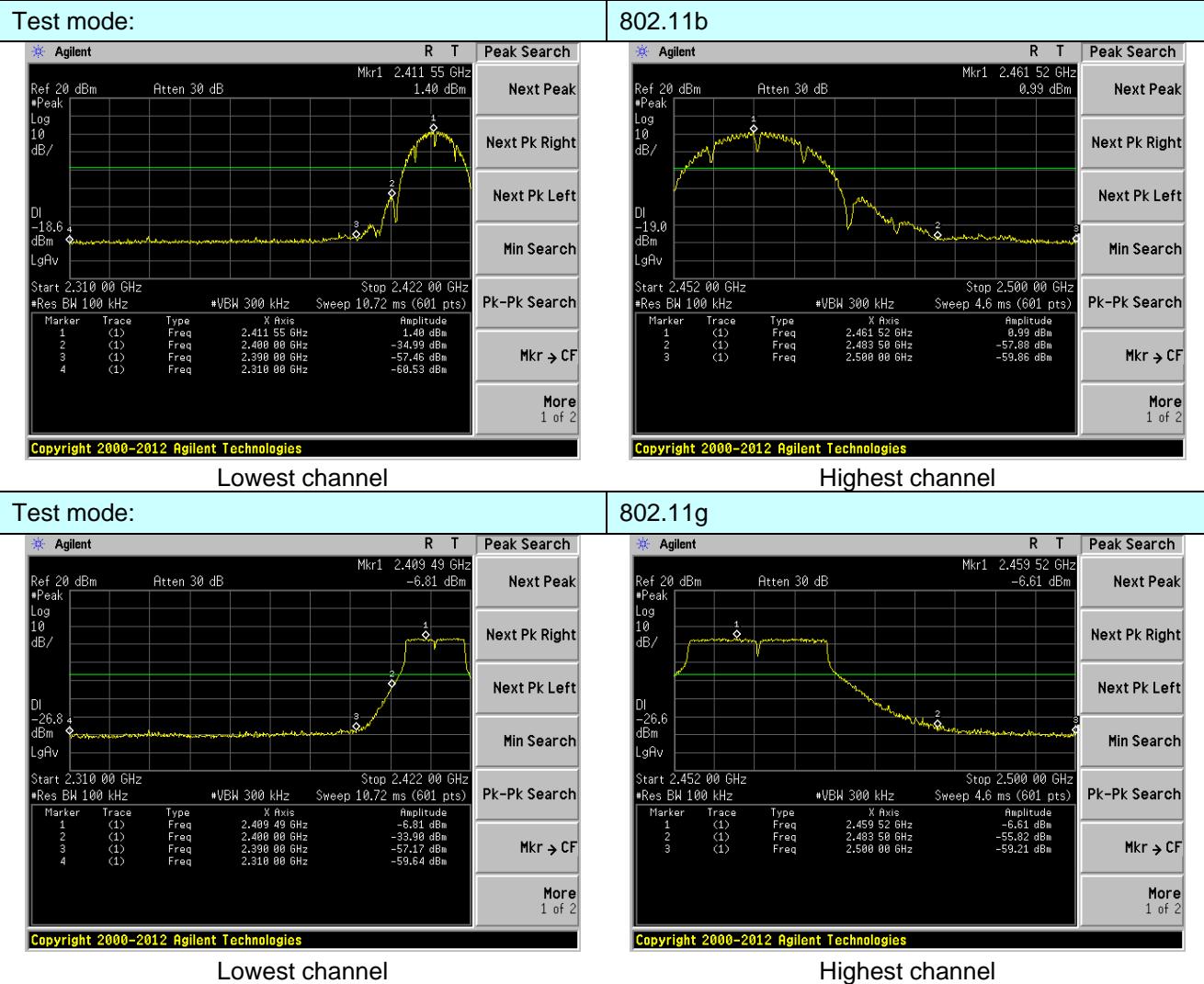




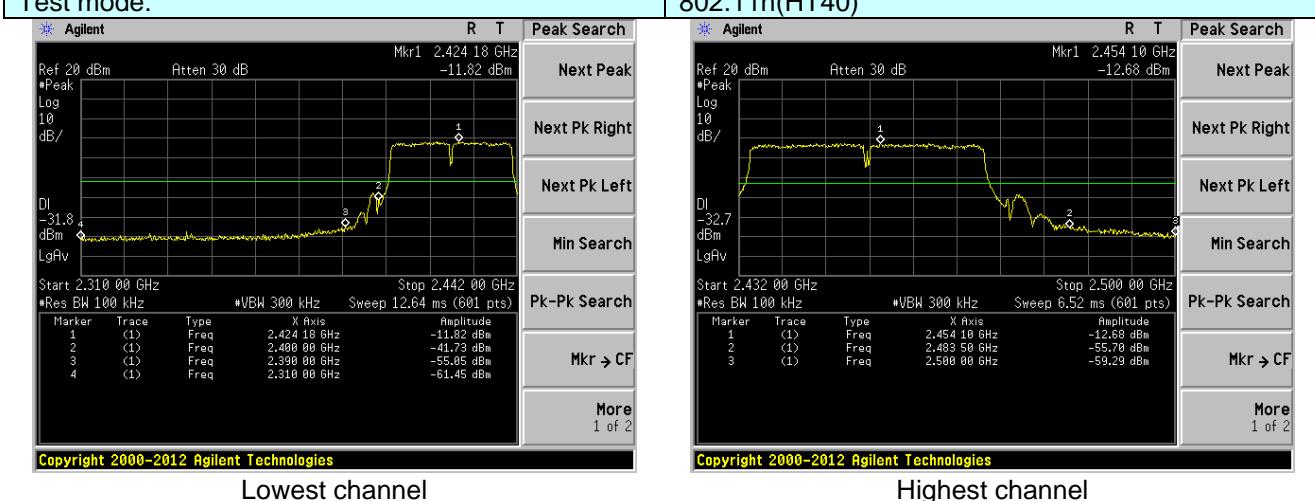
7.6 Band edges

7.6.1 Conducted Emission Method

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	ANSI C63.10:2013 and KDB558074 D01 DTS Meas Guidance V03
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:	
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Test plot as follows:


Test mode:

Test mode:


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				
		RMS	1MHz	3MHz	Average				
Limit:	Frequency	Limit (dBuV/m @3m)		Value					
	Above 1GHz	54.00		Average					
		74.00		Peak					
Test setup:									
Test Procedure:	<ol style="list-style-type: none"> 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. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. 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 5.3 for details								
Test results:	Pass								

Measurement data:

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

Test 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
2390.00	50.36	27.59	5.38	30.18	53.15	74.00	-20.85	Horizontal
2400.00	58.00	27.58	5.39	30.18	60.79	74.00	-13.21	Horizontal
2390.00	51.95	27.59	5.38	30.18	54.74	74.00	-19.26	Vertical
2400.00	60.39	27.58	5.39	30.18	63.18	74.00	-10.82	Vertical

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
2390.00	37.49	27.59	5.38	30.18	40.28	54.00	-13.72	Horizontal
2400.00	42.40	27.58	5.39	30.18	45.19	54.00	-8.81	Horizontal
2390.00	39.21	27.59	5.38	30.18	42.00	54.00	-12.00	Vertical
2400.00	44.68	27.58	5.39	30.18	47.47	54.00	-6.53	Vertical

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
2483.50	50.47	27.53	5.47	29.93	53.54	74.00	-20.46	Horizontal
2500.00	46.71	27.55	5.49	29.93	49.82	74.00	-24.18	Horizontal
2483.50	52.46	27.53	5.47	29.93	55.53	74.00	-18.47	Vertical
2500.00	48.97	27.55	5.49	29.93	52.08	74.00	-21.92	Vertical

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
2483.50	37.66	27.53	5.47	29.93	40.73	54.00	-13.27	Horizontal
2500.00	34.01	27.55	5.49	29.93	37.12	54.00	-16.88	Horizontal
2483.50	39.50	27.53	5.47	29.93	42.57	54.00	-11.43	Vertical
2500.00	35.84	27.55	5.49	29.93	38.95	54.00	-15.05	Vertical

Remark:

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

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
2390.00	49.73	27.59	5.38	30.18	52.52	74.00	-21.48	Horizontal
2400.00	58.10	27.58	5.39	30.18	60.89	74.00	-13.11	Horizontal
2390.00	51.28	27.59	5.38	30.18	54.07	74.00	-19.93	Vertical
2400.00	59.38	27.58	5.39	30.18	62.17	74.00	-11.83	Vertical

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
2390.00	37.05	27.59	5.38	30.18	39.84	54.00	-14.16	Horizontal
2400.00	42.45	27.58	5.39	30.18	45.24	54.00	-8.76	Horizontal
2390.00	38.71	27.59	5.38	30.18	41.50	54.00	-12.50	Vertical
2400.00	43.89	27.58	5.39	30.18	46.68	54.00	-7.32	Vertical

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
2483.50	49.57	27.53	5.47	29.93	52.64	74.00	-21.36	Horizontal
2500.00	46.01	27.55	5.49	29.93	49.12	74.00	-24.88	Horizontal
2483.50	51.43	27.53	5.47	29.93	54.50	74.00	-19.50	Vertical
2500.00	48.16	27.55	5.49	29.93	51.27	74.00	-22.73	Vertical

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
2483.50	37.12	27.53	5.47	29.93	40.19	54.00	-13.81	Horizontal
2500.00	33.59	27.55	5.49	29.93	36.70	54.00	-17.30	Horizontal
2483.50	38.89	27.53	5.47	29.93	41.96	54.00	-12.04	Vertical
2500.00	35.39	27.55	5.49	29.93	38.50	54.00	-15.50	Vertical

Remark:

- Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
- 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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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
2390.00	49.64	27.59	5.38	30.18	52.43	74.00	-21.57	Horizontal
2400.00	57.97	27.58	5.39	30.18	60.76	74.00	-13.24	Horizontal
2390.00	51.18	27.59	5.38	30.18	53.97	74.00	-20.03	Vertical
2400.00	59.23	27.58	5.39	30.18	62.02	74.00	-11.98	Vertical

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
2390.00	36.98	27.59	5.38	30.18	39.77	54.00	-14.23	Horizontal
2400.00	42.99	27.58	5.39	30.18	45.78	54.00	-8.22	Horizontal
2390.00	38.63	27.59	5.38	30.18	41.42	54.00	-12.58	Vertical
2400.00	43.03	27.58	5.39	30.18	45.82	54.00	-8.18	Vertical

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
2483.50	49.43	27.53	5.47	29.93	52.50	74.00	-21.50	Horizontal
2500.00	45.90	27.55	5.49	29.93	49.01	74.00	-24.99	Horizontal
2483.50	51.27	27.53	5.47	29.93	54.34	74.00	-19.66	Vertical
2500.00	48.03	27.55	5.49	29.93	51.14	74.00	-22.86	Vertical

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
2483.50	37.04	27.53	5.47	29.93	40.11	54.00	-13.89	Horizontal
2500.00	33.52	27.55	5.49	29.93	36.63	54.00	-17.37	Horizontal
2483.50	38.80	27.53	5.47	29.93	41.87	54.00	-12.13	Vertical
2500.00	35.32	27.55	5.49	29.93	38.43	54.00	-15.57	Vertical

Remark:

- Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
- 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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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
2390.00	49.15	27.59	5.38	30.18	51.94	74.00	-22.06	Horizontal
2400.00	57.33	27.58	5.39	30.18	60.12	74.00	-13.88	Horizontal
2390.00	50.66	27.59	5.38	30.18	53.45	74.00	-20.55	Vertical
2400.00	58.45	27.58	5.39	30.18	61.24	74.00	-12.76	Vertical

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
2390.00	36.63	27.59	5.38	30.18	39.42	54.00	-14.58	Horizontal
2400.00	42.12	27.58	5.39	30.18	44.91	54.00	-9.09	Horizontal
2390.00	38.25	27.59	5.38	30.18	41.04	54.00	-12.96	Vertical
2400.00	42.45	27.58	5.39	30.18	45.24	54.00	-8.76	Vertical

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
2483.50	48.74	27.53	5.47	29.93	51.81	74.00	-22.19	Horizontal
2500.00	45.37	27.55	5.49	29.93	48.48	74.00	-25.52	Horizontal
2483.50	50.49	27.53	5.47	29.93	53.56	74.00	-20.44	Vertical
2500.00	47.41	27.55	5.49	29.93	50.52	74.00	-23.48	Vertical

Average value:

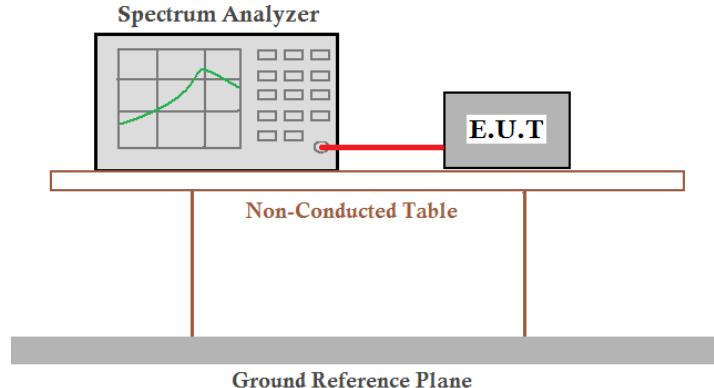
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	36.62	27.53	5.47	29.93	39.69	54.00	-14.31	Horizontal
2500.00	33.20	27.55	5.49	29.93	36.31	54.00	-17.69	Horizontal
2483.50	38.34	27.53	5.47	29.93	41.41	54.00	-12.59	Vertical
2500.00	34.98	27.55	5.49	29.93	38.09	54.00	-15.91	Vertical

Remark:

- Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
- 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

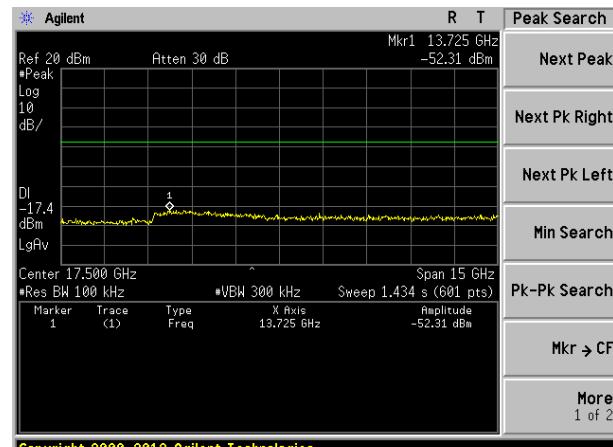
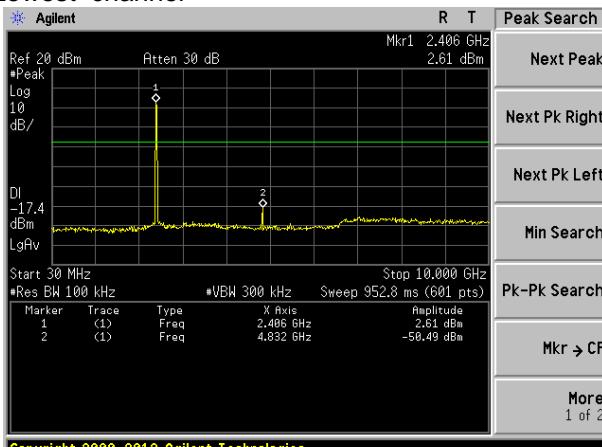
Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	ANSI C63.10:2013 and KDB558074 D01 DTS Meas Guidance V03
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional 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:	
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Test plot as follows:

Test mode:

802.11b

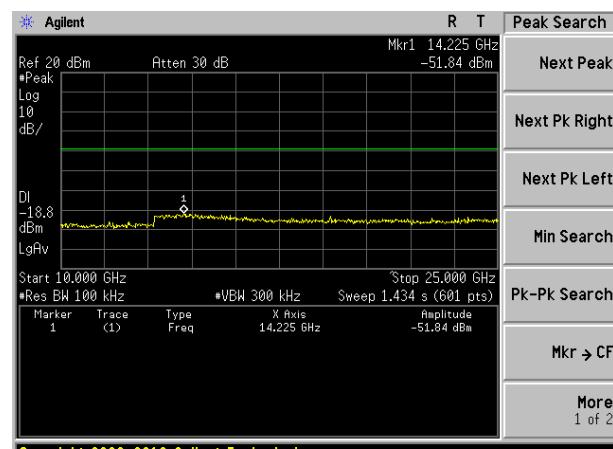
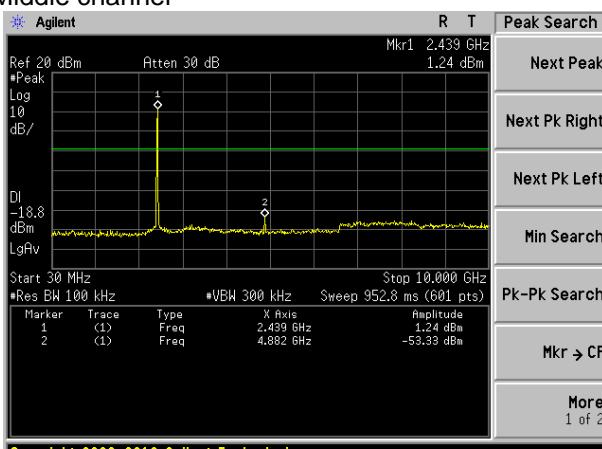
Lowest channel



30MHz~10GHz

10GHz~25GHz

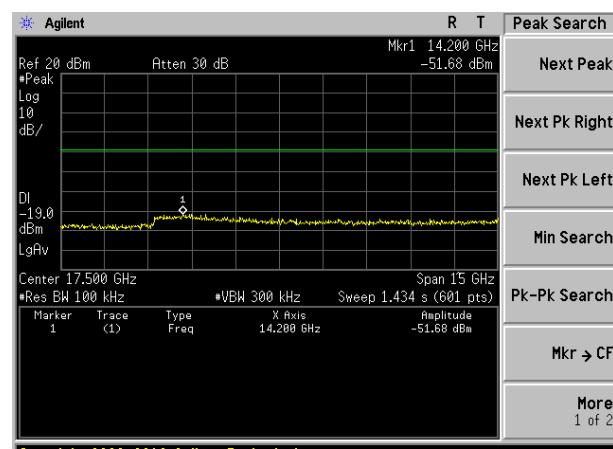
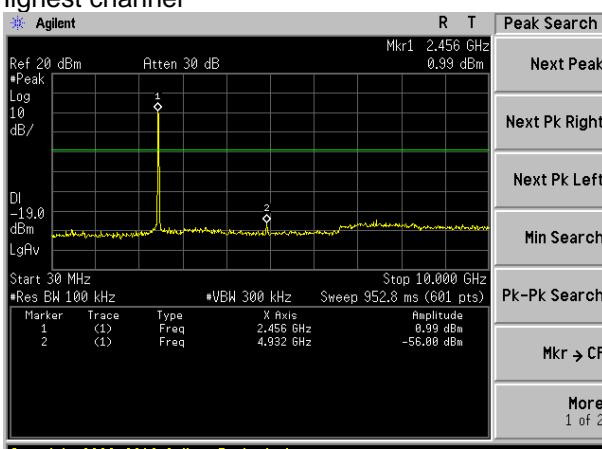
Middle channel



30MHz~10GHz

10GHz~25GHz

Highest channel

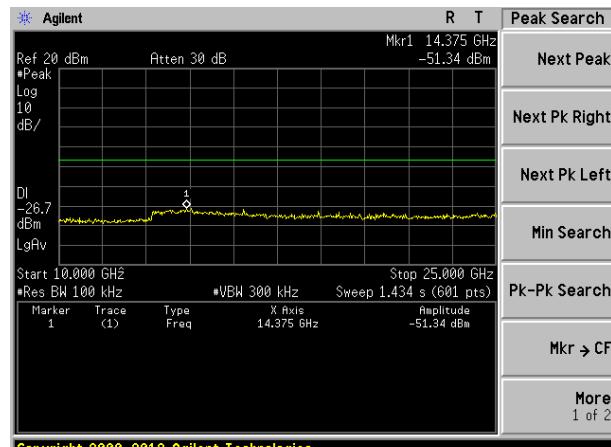
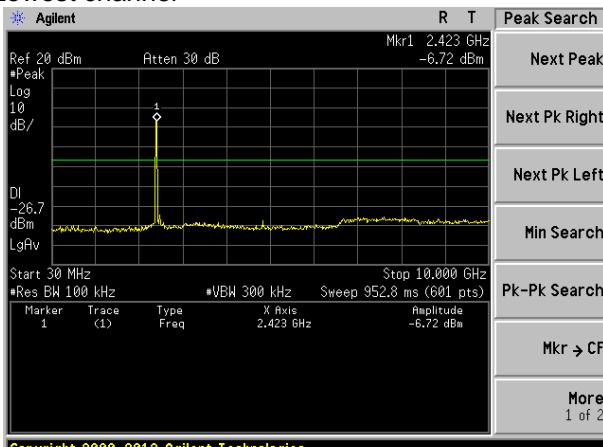


30MHz~10GHz

10GHz~25GHz

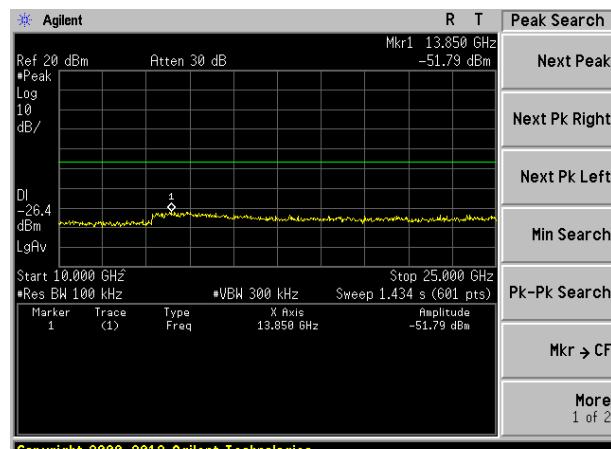
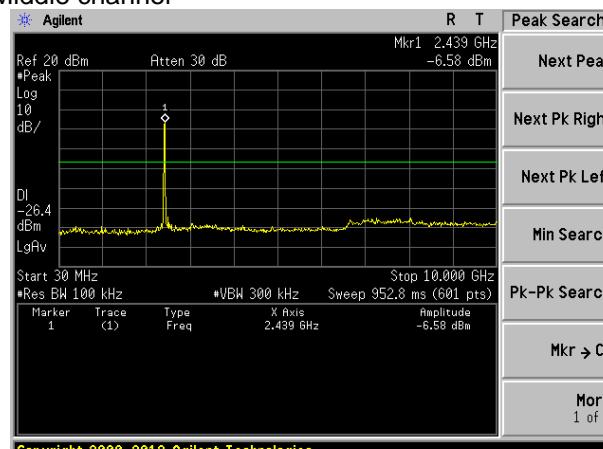
Test mode:

802.11g

Lowest channel


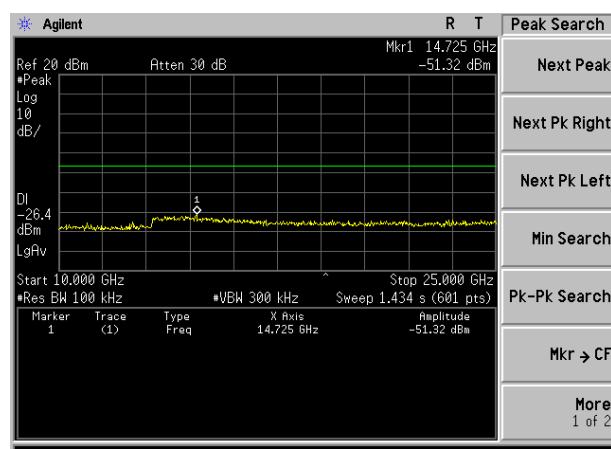
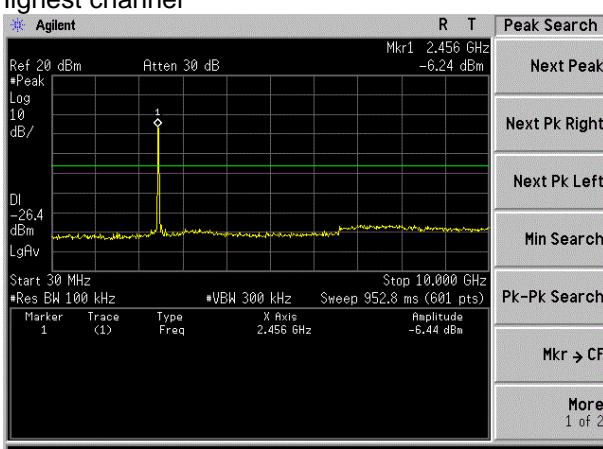
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10GHz~25GHz

Middle channel


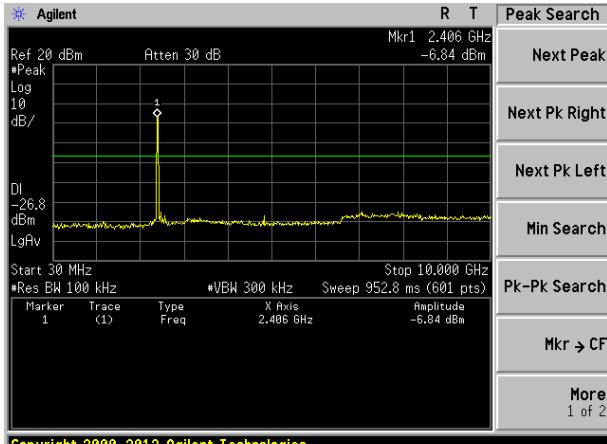
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10GHz~25GHz

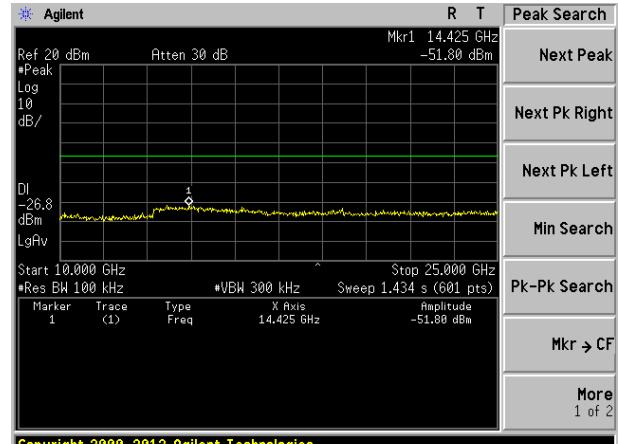
Highest channel


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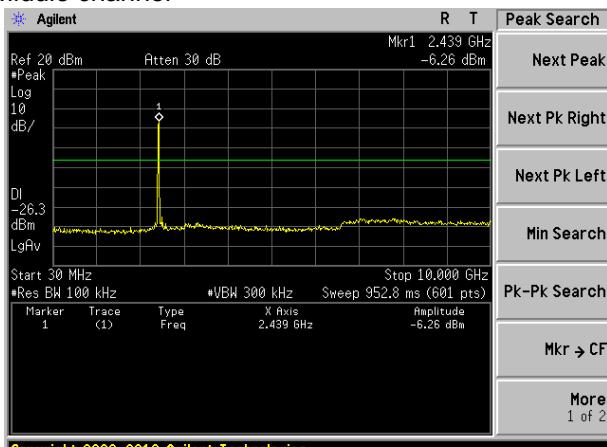
10GHz~25GHz

Test mode:
802.11n(HT20)
Lowest channel


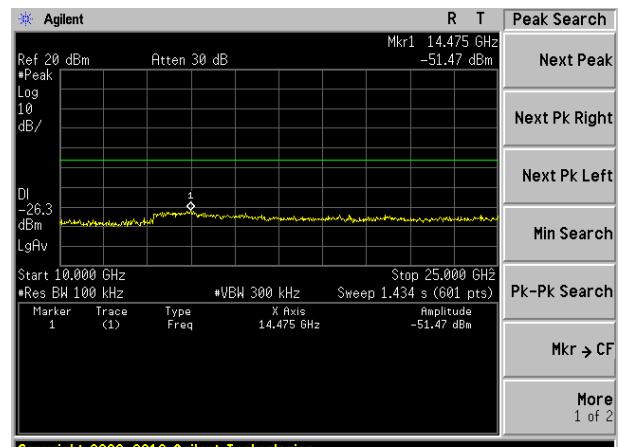
Copyright 2000-2012 Agilent Technologies

30MHz~10GHz


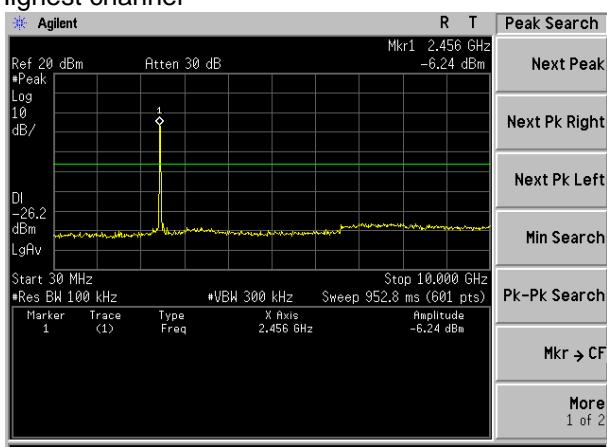
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10GHz~25GHz
Middle channel


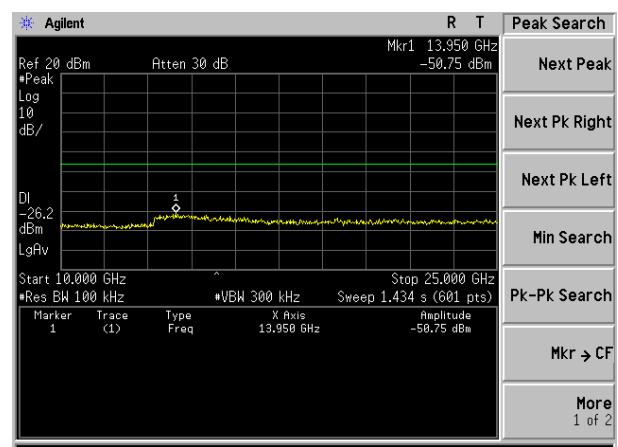
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30MHz~10GHz


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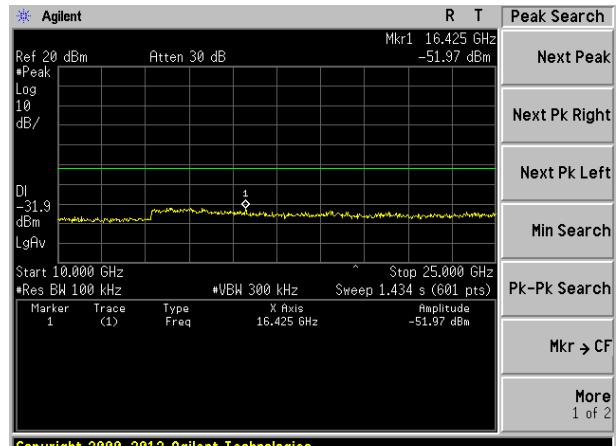
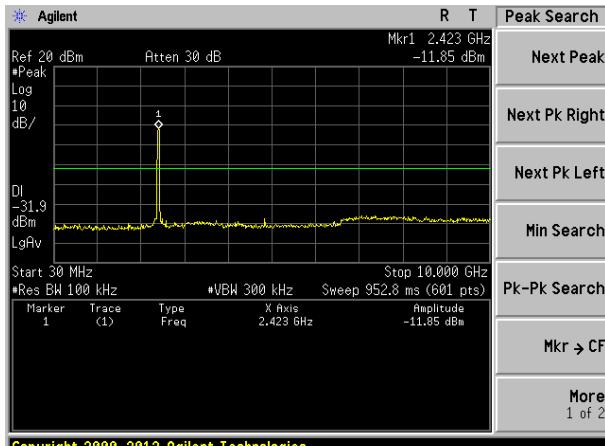
10GHz~25GHz
Highest channel


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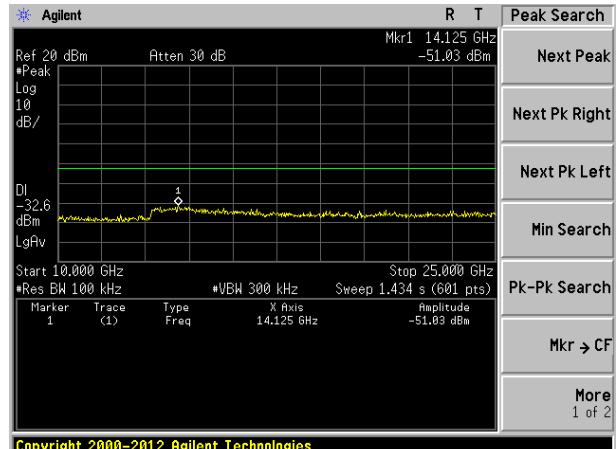
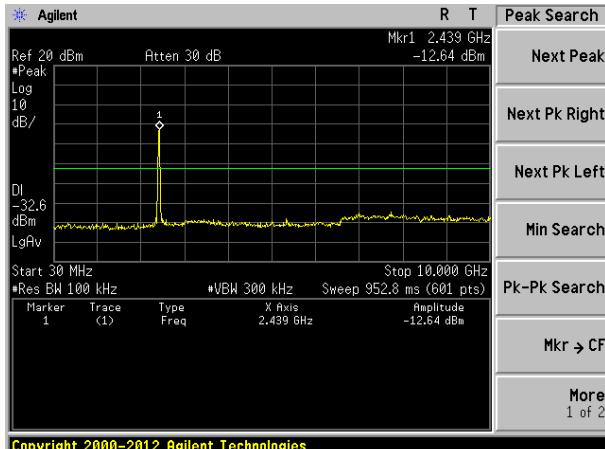
30MHz~10GHz


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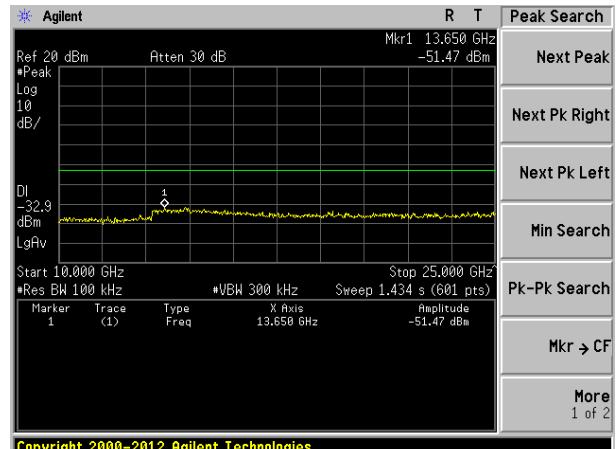
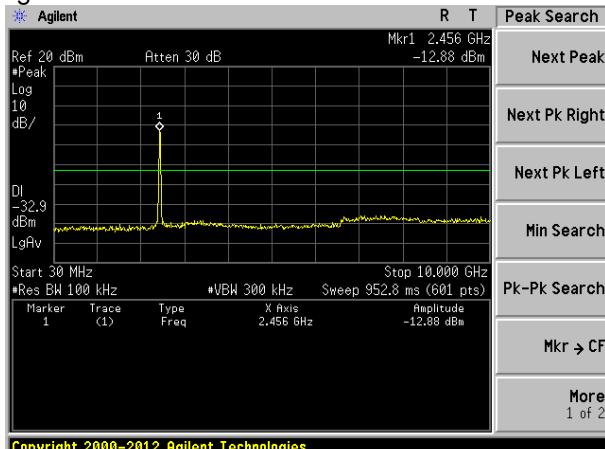
10GHz~25GHz

Test mode:
802.11n(HT40)
Lowest channel


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10GHz~25GHz
Middle channel


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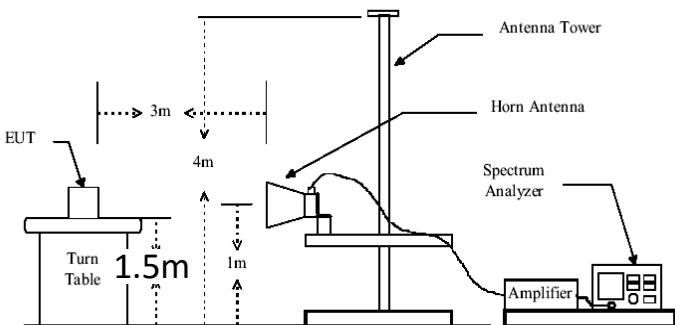
10GHz~25GHz
Highest channel


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10GHz~25GHz

7.7.2 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209								
Test Method:	ANSI C63.10:2013								
Test Frequency Range:	30MHz to 25GHz								
Test site:	Measurement Distance: 3m								
Receiver setup:	Frequency	Detector	RBW	VBW	Value				
	30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak				
	Above 1GHz	Peak	1MHz	3MHz	Peak				
		RMS	1MHz	3MHz	Average				
Limit:	Frequency	Limit (dBuV/m @3m)		Value					
	30MHz-88MHz	40.00		Quasi-peak					
	88MHz-216MHz	43.50		Quasi-peak					
	216MHz-960MHz	46.00		Quasi-peak					
	960MHz-1GHz	54.00		Quasi-peak					
	Above 1GHz	54.00		Average					
		74.00		Peak					
Test setup:	Below 1GHz								
	Above 1GHz								



Test Procedure:	<ol style="list-style-type: none"> 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 highest radiation. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. 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 5.3 for details
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**■ Below 1GHz**

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
35.25	41.77	14.39	0.61	30.07	26.70	40.00	-13.30	Vertical
51.84	43.41	15.16	0.79	29.98	29.38	40.00	-10.62	Vertical
85.30	45.15	12.45	1.07	29.77	28.90	40.00	-11.10	Vertical
159.78	44.51	10.64	1.63	29.36	27.42	43.50	-16.08	Vertical
315.48	43.45	15.28	2.44	29.91	31.26	46.00	-14.74	Vertical
642.86	40.88	20.61	3.88	29.26	36.11	46.00	-9.89	Vertical
40.99	33.27	15.57	0.67	30.04	19.47	40.00	-20.53	Horizontal
54.84	33.49	15.02	0.82	29.96	19.37	40.00	-20.63	Horizontal
85.90	38.89	12.60	1.08	29.77	22.80	40.00	-17.20	Horizontal
181.28	42.63	11.76	1.75	29.27	26.87	43.50	-16.63	Horizontal
315.48	44.17	15.28	2.44	29.91	31.98	46.00	-14.02	Horizontal
556.77	43.82	19.67	3.55	29.30	37.74	46.00	-8.26	Horizontal

■ 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	40.00	31.79	8.62	32.10	48.31	74.00	-25.69	Vertical
7236.00	34.04	36.19	11.68	31.97	49.94	74.00	-24.06	Vertical
9648.00	32.58	38.07	14.16	31.56	53.25	74.00	-20.75	Vertical
12060.00	*					74.00		Vertical
14472.00	*					74.00		Vertical
16884.00	*					74.00		Vertical
4824.00	38.72	31.79	8.62	32.10	47.03	74.00	-26.97	Horizontal
7236.00	33.81	36.19	11.68	31.97	49.71	74.00	-24.29	Horizontal
9648.00	32.17	38.07	14.16	31.56	52.84	74.00	-21.16	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	29.11	31.79	8.62	32.10	37.42	54.00	-16.58	Vertical
7236.00	22.91	36.19	11.68	31.97	38.81	54.00	-15.19	Vertical
9648.00	22.93	38.07	14.16	31.56	43.60	54.00	-10.40	Vertical
12060.00	*					54.00		Vertical
14472.00	*					54.00		Vertical
16884.00	*					54.00		Vertical
4824.00	28.27	31.79	8.62	32.10	36.58	54.00	-17.42	Horizontal
7236.00	22.39	36.19	11.68	31.97	38.29	54.00	-15.71	Horizontal
9648.00	21.92	38.07	14.16	31.56	42.59	54.00	-11.41	Horizontal
12060.00	*					54.00		Horizontal
14472.00	*					54.00		Horizontal
16884.00	*					54.00		Horizontal

Remark:

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

Test 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	39.11	31.85	8.66	32.12	47.50	74.00	-26.50	Vertical
7311.00	34.14	36.37	11.71	31.91	50.31	74.00	-23.69	Vertical
9748.00	33.62	38.27	14.25	31.56	54.58	74.00	-19.42	Vertical
12185.00	*					74.00		Vertical
14622.00	*					74.00		Vertical
17059.00	*					74.00		Vertical
4874.00	39.63	31.85	8.66	32.12	48.02	74.00	-25.98	Horizontal
7311.00	32.80	36.37	11.71	31.91	48.97	74.00	-25.03	Horizontal
9748.00	33.52	38.27	14.25	31.56	54.48	74.00	-19.52	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	29.98	31.85	8.66	32.12	38.37	54.00	-15.63	Vertical
7311.00	22.46	36.37	11.71	31.91	38.63	54.00	-15.37	Vertical
9748.00	22.88	38.27	14.25	31.56	43.84	54.00	-10.16	Vertical
12185.00	*					54.00		Vertical
14622.00	*					54.00		Vertical
17059.00	*					54.00		Vertical
4874.00	29.75	31.85	8.66	32.12	38.14	54.00	-15.86	Horizontal
7311.00	21.89	36.37	11.71	31.91	38.06	54.00	-15.94	Horizontal
9748.00	23.24	38.27	14.25	31.56	44.20	54.00	-9.80	Horizontal
12185.00	*					54.00		Horizontal
14622.00	*					54.00		Horizontal
17059.00	*					54.00		Horizontal

Remark:

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

Test 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	44.47	31.90	8.70	32.15	52.92	74.00	-21.08	Vertical
7386.00	34.70	36.49	11.76	31.83	51.12	74.00	-22.88	Vertical
9848.00	36.84	38.62	14.31	31.77	58.00	74.00	-16.00	Vertical
12310.00	*					74.00		Vertical
14772.00	*					74.00		Vertical
17234.00	*					74.00		Vertical
4924.00	43.84	31.90	8.70	32.15	52.29	74.00	-21.71	Horizontal
7386.00	33.64	36.49	11.76	31.83	50.06	74.00	-23.94	Horizontal
9848.00	33.03	38.62	14.31	31.77	54.19	74.00	-19.81	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	35.41	31.90	8.70	32.15	43.86	54.00	-10.14	Vertical
7386.00	24.63	36.49	11.76	31.83	41.05	54.00	-12.95	Vertical
9848.00	23.35	38.62	14.31	31.77	44.51	54.00	-9.49	Vertical
12310.00	*					54.00		Vertical
14772.00	*					54.00		Vertical
17234.00	*					54.00		Vertical
4924.00	34.22	31.90	8.70	32.15	42.67	54.00	-11.33	Horizontal
7386.00	23.03	36.49	11.76	31.83	39.45	54.00	-14.55	Horizontal
9848.00	22.29	38.62	14.31	31.77	43.45	54.00	-10.55	Horizontal
12310.00	*					54.00		Horizontal
14772.00	*					54.00		Horizontal
17234.00	*					54.00		Horizontal

Remark:

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

Test 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	38.79	31.79	8.62	32.10	47.10	74.00	-26.90	Vertical
7236.00	33.27	36.19	11.68	31.97	49.17	74.00	-24.83	Vertical
9648.00	32.03	38.07	14.16	31.56	52.70	74.00	-21.30	Vertical
12060.00	*					74.00		Vertical
14472.00	*					74.00		Vertical
16884.00	*					74.00		Vertical
4824.00	37.69	31.79	8.62	32.10	46.00	74.00	-28.00	Horizontal
7236.00	33.13	36.19	11.68	31.97	49.03	74.00	-24.97	Horizontal
9648.00	31.66	38.07	14.16	31.56	52.33	74.00	-21.67	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	27.99	31.79	8.62	32.10	36.30	54.00	-17.70	Vertical
7236.00	22.17	36.19	11.68	31.97	38.07	54.00	-15.93	Vertical
9648.00	22.41	38.07	14.16	31.56	43.08	54.00	-10.92	Vertical
12060.00	*					54.00		Vertical
14472.00	*					54.00		Vertical
16884.00	*					54.00		Vertical
4824.00	27.31	31.79	8.62	32.10	35.62	54.00	-18.38	Horizontal
7236.00	21.74	36.19	11.68	31.97	37.64	54.00	-16.36	Horizontal
9648.00	21.43	38.07	14.16	31.56	42.10	54.00	-11.90	Horizontal
12060.00	*					54.00		Horizontal
14472.00	*					54.00		Horizontal
16884.00	*					54.00		Horizontal

Remark:

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

Test 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	38.10	31.85	8.66	32.12	46.49	74.00	-27.51	Vertical
7311.00	33.50	36.37	11.71	31.91	49.67	74.00	-24.33	Vertical
9748.00	33.17	38.27	14.25	31.56	54.13	74.00	-19.87	Vertical
12185.00	*					74.00		Vertical
14622.00	*					74.00		Vertical
17059.00	*					74.00		Vertical
4874.00	38.78	31.85	8.66	32.12	47.17	74.00	-26.83	Horizontal
7311.00	32.24	36.37	11.71	31.91	48.41	74.00	-25.59	Horizontal
9748.00	33.10	38.27	14.25	31.56	54.06	74.00	-19.94	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	29.05	31.85	8.66	32.12	37.44	54.00	-16.56	Vertical
7311.00	21.84	36.37	11.71	31.91	38.01	54.00	-15.99	Vertical
9748.00	22.45	38.27	14.25	31.56	43.41	54.00	-10.59	Vertical
12185.00	*					54.00		Vertical
14622.00	*					54.00		Vertical
17059.00	*					54.00		Vertical
4874.00	28.95	31.85	8.66	32.12	37.34	54.00	-16.66	Horizontal
7311.00	21.35	36.37	11.71	31.91	37.52	54.00	-16.48	Horizontal
9748.00	22.84	38.27	14.25	31.56	43.80	54.00	-10.20	Horizontal
12185.00	*					54.00		Horizontal
14622.00	*					54.00		Horizontal
17059.00	*					54.00		Horizontal

Remark:

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

Test 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	42.73	31.90	8.70	32.15	51.18	74.00	-22.82	Vertical
7386.00	33.61	36.49	11.76	31.83	50.03	74.00	-23.97	Vertical
9848.00	36.06	38.62	14.31	31.77	57.22	74.00	-16.78	Vertical
12310.00	*					74.00		Vertical
14772.00	*					74.00		Vertical
17234.00	*					74.00		Vertical
4924.00	42.37	31.90	8.70	32.15	50.82	74.00	-23.18	Horizontal
7386.00	32.68	36.49	11.76	31.83	49.10	74.00	-24.90	Horizontal
9848.00	32.30	38.62	14.31	31.77	53.46	74.00	-20.54	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	33.82	31.90	8.70	32.15	42.27	54.00	-11.73	Vertical
7386.00	23.57	36.49	11.76	31.83	39.99	54.00	-14.01	Vertical
9848.00	22.60	38.62	14.31	31.77	43.76	54.00	-10.24	Vertical
12310.00	*					54.00		Vertical
14772.00	*					54.00		Vertical
17234.00	*					54.00		Vertical
4924.00	32.85	31.90	8.70	32.15	41.30	54.00	-12.70	Horizontal
7386.00	22.10	36.49	11.76	31.83	38.52	54.00	-15.48	Horizontal
9848.00	21.60	38.62	14.31	31.77	42.76	54.00	-11.24	Horizontal
12310.00	*					54.00		Horizontal
14772.00	*					54.00		Horizontal
17234.00	*					54.00		Horizontal

Remark:

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

Test 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	38.21	31.79	8.62	32.10	46.52	74.00	-27.48	Vertical
7236.00	32.90	36.19	11.68	31.97	48.80	74.00	-25.20	Vertical
9648.00	31.77	38.07	14.16	31.56	52.44	74.00	-21.56	Vertical
12060.00	*					74.00		Vertical
14472.00	*					74.00		Vertical
16884.00	*					74.00		Vertical
4824.00	37.20	31.79	8.62	32.10	45.51	74.00	-28.49	Horizontal
7236.00	32.81	36.19	11.68	31.97	48.71	74.00	-25.29	Horizontal
9648.00	31.42	38.07	14.16	31.56	52.09	74.00	-21.91	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	27.45	31.79	8.62	32.10	35.76	54.00	-18.24	Vertical
7236.00	21.81	36.19	11.68	31.97	37.71	54.00	-16.29	Vertical
9648.00	22.16	38.07	14.16	31.56	42.83	54.00	-11.17	Vertical
12060.00	*					54.00		Vertical
14472.00	*					54.00		Vertical
16884.00	*					54.00		Vertical
4824.00	26.85	31.79	8.62	32.10	35.16	54.00	-18.84	Horizontal
7236.00	21.43	36.19	11.68	31.97	37.33	54.00	-16.67	Horizontal
9648.00	21.20	38.07	14.16	31.56	41.87	54.00	-12.13	Horizontal
12060.00	*					54.00		Horizontal
14472.00	*					54.00		Horizontal
16884.00	*					54.00		Horizontal

Remark:

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

Test 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	37.62	31.85	8.66	32.12	46.01	74.00	-27.99	Vertical
7311.00	33.20	36.37	11.71	31.91	49.37	74.00	-24.63	Vertical
9748.00	32.95	38.27	14.25	31.56	53.91	74.00	-20.09	Vertical
12185.00	*					74.00		Vertical
14622.00	*					74.00		Vertical
17059.00	*					74.00		Vertical
4874.00	38.37	31.85	8.66	32.12	46.76	74.00	-27.24	Horizontal
7311.00	31.98	36.37	11.71	31.91	48.15	74.00	-25.85	Horizontal
9748.00	32.90	38.27	14.25	31.56	53.86	74.00	-20.14	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	28.61	31.85	8.66	32.12	37.00	54.00	-17.00	Vertical
7311.00	21.55	36.37	11.71	31.91	37.72	54.00	-16.28	Vertical
9748.00	22.24	38.27	14.25	31.56	43.20	54.00	-10.80	Vertical
12185.00	*					54.00		Vertical
14622.00	*					54.00		Vertical
17059.00	*					54.00		Vertical
4874.00	28.57	31.85	8.66	32.12	36.96	54.00	-17.04	Horizontal
7311.00	21.09	36.37	11.71	31.91	37.26	54.00	-16.74	Horizontal
9748.00	22.64	38.27	14.25	31.56	43.60	54.00	-10.40	Horizontal
12185.00	*					54.00		Horizontal
14622.00	*					54.00		Horizontal
17059.00	*					54.00		Horizontal

Remark:

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

Test 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	41.91	31.90	8.70	32.15	50.36	74.00	-23.64	Vertical
7386.00	33.08	36.49	11.76	31.83	49.50	74.00	-24.50	Vertical
9848.00	35.68	38.62	14.31	31.77	56.84	74.00	-17.16	Vertical
12310.00	*					74.00		Vertical
14772.00	*					74.00		Vertical
17234.00	*					74.00		Vertical
4924.00	41.67	31.90	8.70	32.15	50.12	74.00	-23.88	Horizontal
7386.00	32.22	36.49	11.76	31.83	48.64	74.00	-25.36	Horizontal
9848.00	31.96	38.62	14.31	31.77	53.12	74.00	-20.88	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	33.05	31.90	8.70	32.15	41.50	54.00	-12.50	Vertical
7386.00	23.07	36.49	11.76	31.83	39.49	54.00	-14.51	Vertical
9848.00	22.24	38.62	14.31	31.77	43.40	54.00	-10.60	Vertical
12310.00	*					54.00		Vertical
14772.00	*					54.00		Vertical
17234.00	*					54.00		Vertical
4924.00	32.19	31.90	8.70	32.15	40.64	54.00	-13.36	Horizontal
7386.00	21.66	36.49	11.76	31.83	38.08	54.00	-15.92	Horizontal
9848.00	21.26	38.62	14.31	31.77	42.42	54.00	-11.58	Horizontal
12310.00	*					54.00		Horizontal
14772.00	*					54.00		Horizontal
17234.00	*					54.00		Horizontal

Remark:

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

Test 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	37.86	31.81	8.63	32.11	46.19	74.00	-27.81	Vertical
7266.00	32.68	36.28	11.69	31.94	48.71	74.00	-25.29	Vertical
9688.00	31.61	38.13	14.21	31.52	52.43	74.00	-21.57	Vertical
12060.00	*					74.00		Vertical
14472.00	*					74.00		Vertical
16884.00	*					74.00		Vertical
4844.00	36.91	31.81	8.63	32.11	45.24	74.00	-28.76	Horizontal
7266.00	32.62	36.28	11.69	31.94	48.65	74.00	-25.35	Horizontal
9688.00	31.28	38.13	14.21	31.52	52.10	74.00	-21.90	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	27.14	31.81	8.63	32.11	35.47	54.00	-18.53	Vertical
7266.00	21.60	36.28	11.69	31.94	37.63	54.00	-16.37	Vertical
9688.00	22.00	38.13	14.21	31.52	42.82	54.00	-11.18	Vertical
12060.00	*					54.00		Vertical
14472.00	*					54.00		Vertical
16884.00	*					54.00		Vertical
4844.00	26.57	31.81	8.63	32.11	34.90	54.00	-19.10	Horizontal
7266.00	21.25	36.28	11.69	31.94	37.28	54.00	-16.72	Horizontal
9688.00	21.06	38.13	14.21	31.52	41.88	54.00	-12.12	Horizontal
12060.00	*					54.00		Horizontal
14472.00	*					54.00		Horizontal
16884.00	*					54.00		Horizontal

Remark:

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

Test 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)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4874.00	37.34	31.85	8.66	32.12	45.73	74.00	-28.27	Vertical
7311.00	33.02	36.37	11.71	31.91	49.19	74.00	-24.81	Vertical
9748.00	32.82	38.27	14.25	31.56	53.78	74.00	-20.22	Vertical
12185.00	*					74.00		Vertical
14622.00	*					74.00		Vertical
17059.00	*					74.00		Vertical
4874.00	38.13	31.85	8.66	32.12	46.52	74.00	-27.48	Horizontal
7311.00	31.82	36.37	11.71	31.91	47.99	74.00	-26.01	Horizontal
9748.00	32.78	38.27	14.25	31.56	53.74	74.00	-20.26	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	28.35	31.85	8.66	32.12	36.74	54.00	-17.26	Vertical
7311.00	21.38	36.37	11.71	31.91	37.55	54.00	-16.45	Vertical
9748.00	22.11	38.27	14.25	31.56	43.07	54.00	-10.93	Vertical
12185.00	*					54.00		Vertical
14622.00	*					54.00		Vertical
17059.00	*					54.00		Vertical
4874.00	28.35	31.85	8.66	32.12	36.74	54.00	-17.26	Horizontal
7311.00	20.94	36.37	11.71	31.91	37.11	54.00	-16.89	Horizontal
9748.00	22.53	38.27	14.25	31.56	43.49	54.00	-10.51	Horizontal
12185.00	*					54.00		Horizontal
14622.00	*					54.00		Horizontal
17059.00	*					54.00		Horizontal

Remark:

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

Test 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	41.41	31.88	8.68	32.13	49.84	74.00	-24.16	Vertical
7356.00	32.77	36.45	11.75	31.86	49.11	74.00	-24.89	Vertical
9808.00	35.46	38.43	14.29	31.68	56.50	74.00	-17.50	Vertical
12310.00	*					74.00		Vertical
14772.00	*					74.00		Vertical
17234.00	*					74.00		Vertical
4904.00	41.26	31.88	8.68	32.13	49.69	74.00	-24.31	Horizontal
7356.00	31.95	36.45	11.75	31.86	48.29	74.00	-25.71	Horizontal
9808.00	31.75	38.43	14.29	31.68	52.79	74.00	-21.21	Horizontal
12310.00	*					74.00		Horizontal
14772.00	*					74.00		Horizontal
17234.00	*					74.00		Horizontal

Average value:

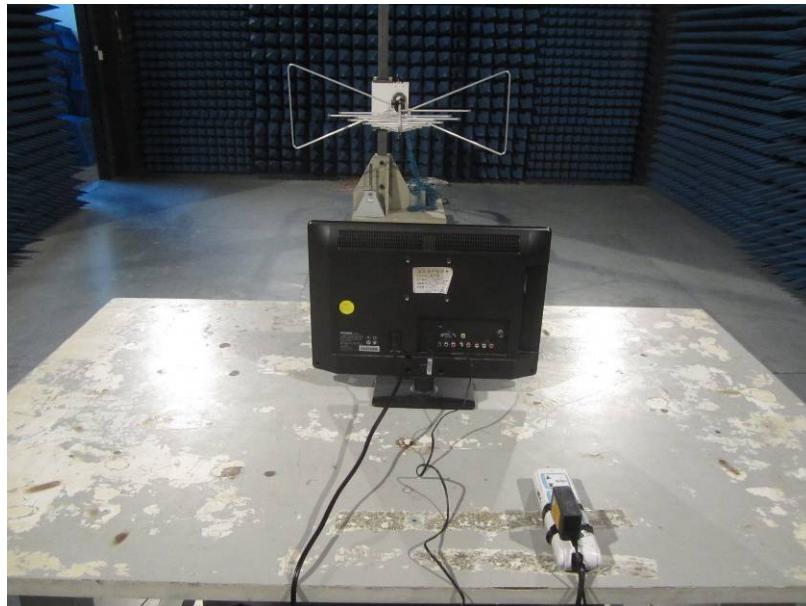
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4904.00	32.60	31.88	8.68	32.13	41.03	54.00	-12.97	Vertical
7356.00	22.76	36.45	11.75	31.86	39.10	54.00	-14.90	Vertical
9808.00	22.03	38.43	14.29	31.68	43.07	54.00	-10.93	Vertical
12310.00	*					54.00		Vertical
14772.00	*					54.00		Vertical
17234.00	*					54.00		Vertical
4904.00	31.80	31.88	8.68	32.13	40.23	54.00	-13.77	Horizontal
7356.00	21.40	36.45	11.75	31.86	37.74	54.00	-16.26	Horizontal
9808.00	21.07	38.43	14.29	31.68	42.11	54.00	-11.89	Horizontal
12310.00	*					54.00		Horizontal
14772.00	*					54.00		Horizontal
17234.00	*					54.00		Horizontal

Remark:

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

8 Test Setup Photo

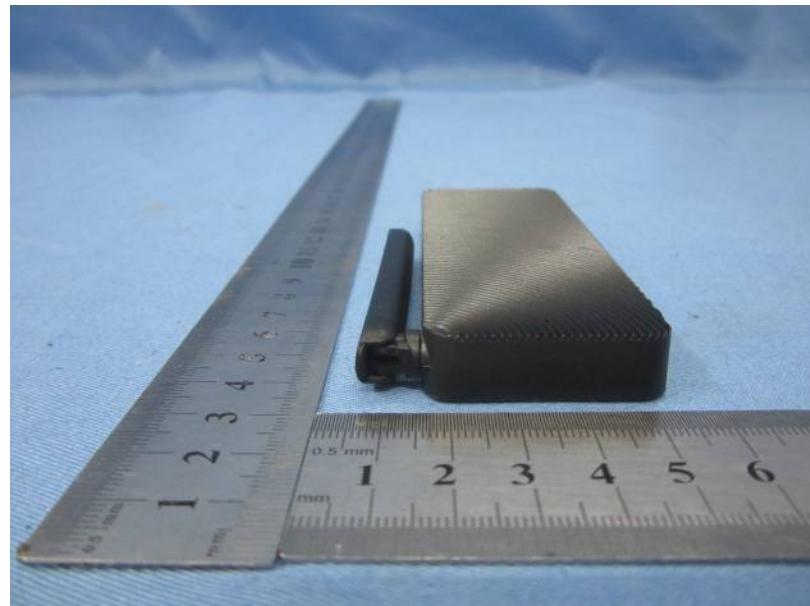
Radiated Emission

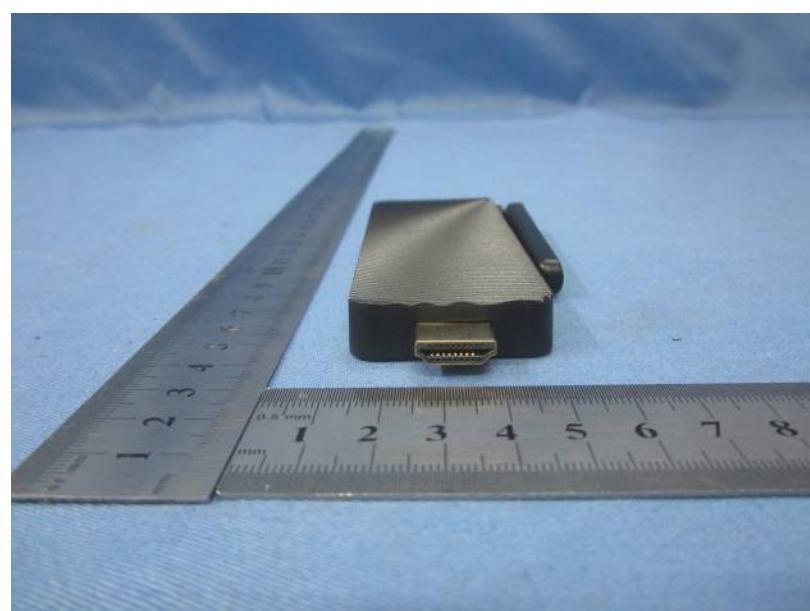
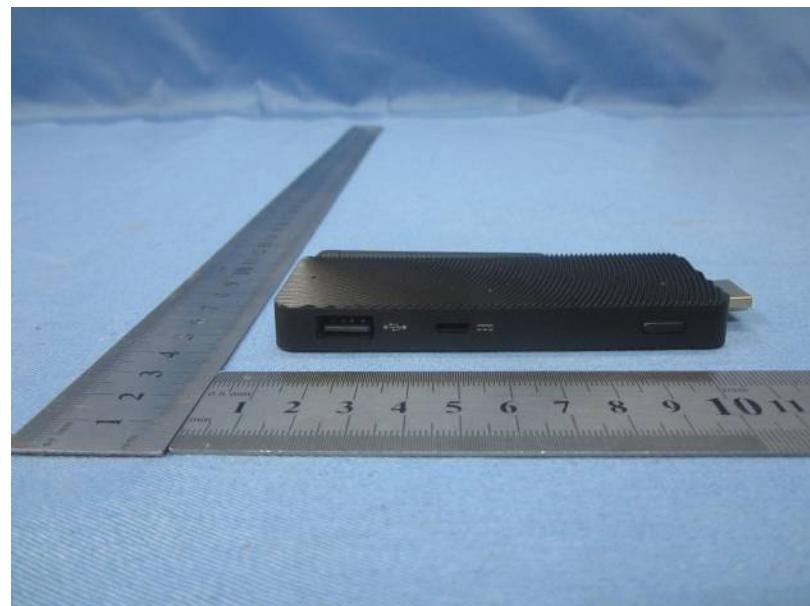


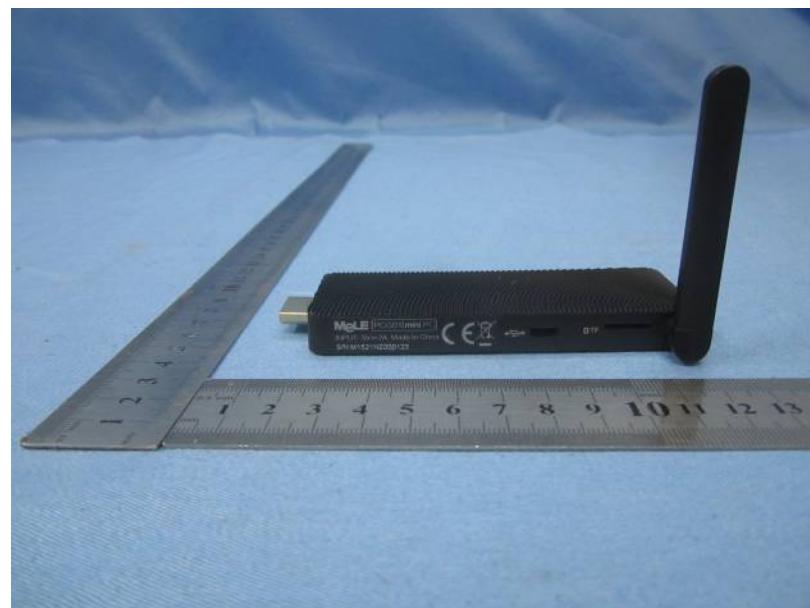
Conducted Emission

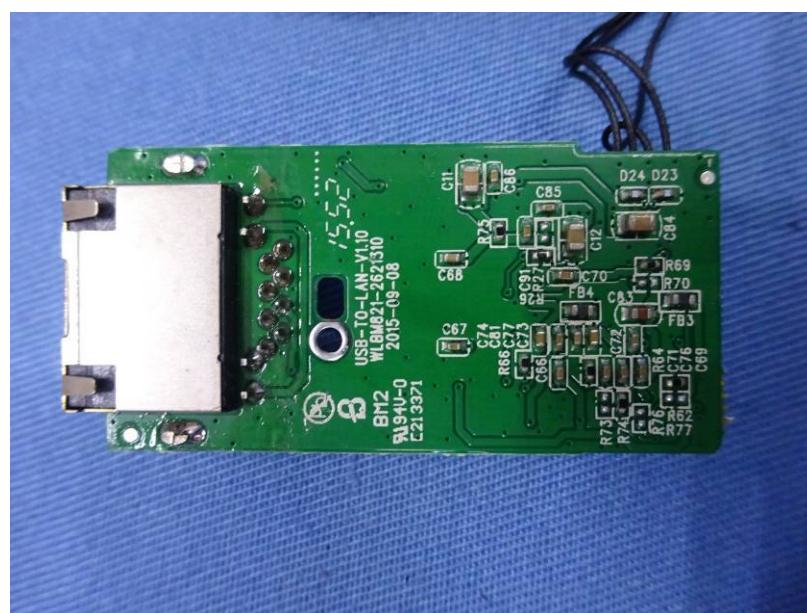


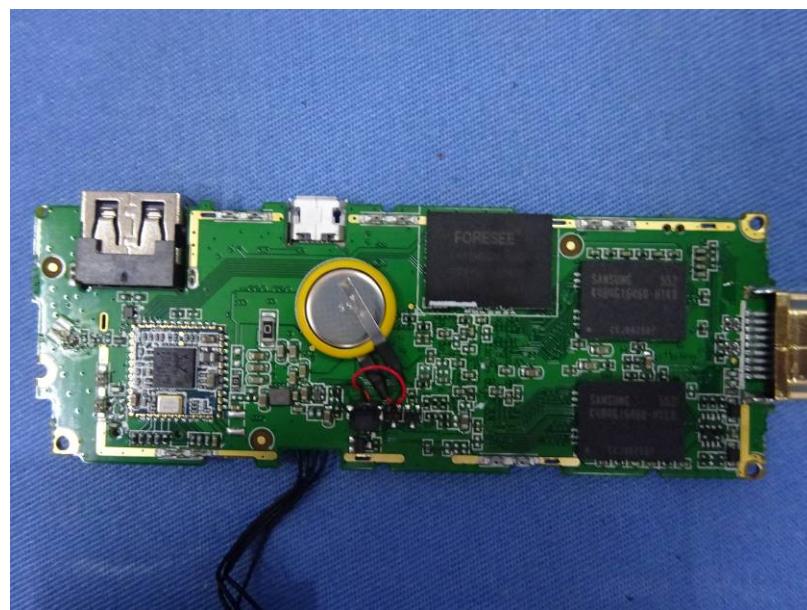
9 EUT Constructional Details

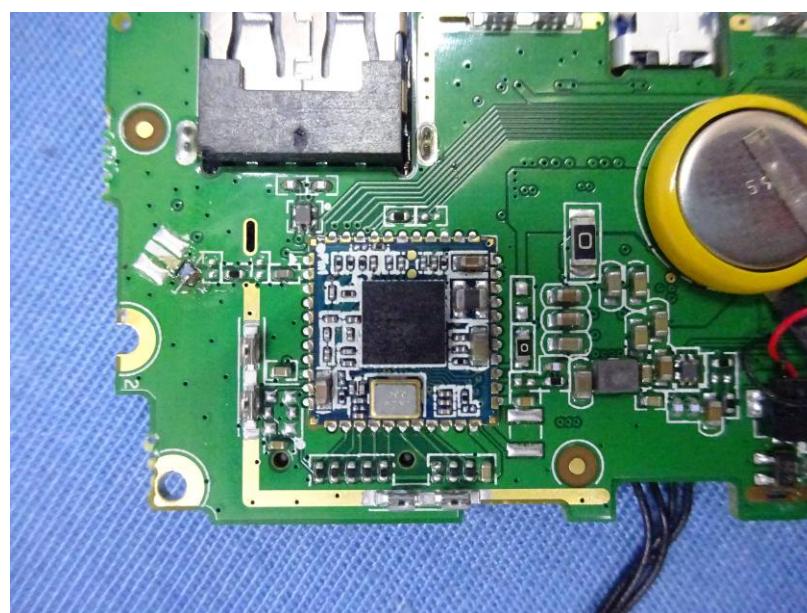














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