

FCC REPORT

Applicant: Shenzhen Awood Computer Technology Co., Ltd.

Address of Applicant: 8/F.Huichao technology Building, Jinhai Rd, Xixiang-Baoan District, Shenzhen, China

Equipment Under Test (EUT)

Product Name: Notebook Computer

Model No.: X1

FCC ID: 2AFLU-X1

Applicable standards: FCC CFR Title 47 Part 15 Subpart C Section 15.407:2014

Date of sample receipt: July 20, 2015

Date of Test: July 21-30, 2015

Date of report issued: August 03, 2015

Test Result : PASS *

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

Authorized Signature:

A circular logo for GTS (Global United Technology Services Co., Ltd.) is visible. The logo contains the text "GTS", "GLOBAL TESTING", and "GLOBAL UNITED TECHNOLOGY SERVICES CO., LTD.". Overlaid on the logo is a handwritten signature in black ink.

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	August 03, 2015	Original

Prepared By:

Sam. Gao

Date:

August 03, 2015

Project Engineer

Check By:

hank. yan

Date:

August 03, 2015

Reviewer

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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
Conducted Peak Output Power	15.407(a)(3)	Pass
Channel Bandwidth	15.407(e)	Pass
Power Spectral Density	15.407(a)(3)	Pass
Band Edge	15.407(b)(4)	Pass
Spurious Emission	15.205/15.209/15.407(b)(4)	Pass
Frequency Stability	15.407(g)	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	$\pm 4.34\text{dB}$	(1)
Radiated Emission	30MHz ~ 1000MHz	$\pm 4.24\text{dB}$	(1)
Radiated Emission	1GHz ~ 40GHz	$\pm 4.68\text{dB}$	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	$\pm 3.45\text{dB}$	(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:	Shenzhen Awood Computer Technology Co., Ltd.
Address of Applicant:	8/F.Huichao technology Building, Jinhai Rd, Xixiang-Baoan District, Shenzhen, China
Manufacturer:	Shenzhen Awood Computer Technology Co., Ltd.
Address of Manufacturer:	8/F.Huichao technology Building, Jinhai Rd, Xixiang-Baoan District, Shenzhen, China
Factory:	SHENZHEN IEZO ELECTRONIC TECHNOLOGIES CO., LTD.
Address of Factory:	102 Room for F Buliding 1 Floor, 3 Floor, 2 Floor for Eeast West, 4 Floor for East , 201 Room for E Buliding, New Wood Road 6th, New Wood Community, Pinghu Street, Longgang District, Shenzhen, China

5.2 General Description of EUT

Product Name:	Notebook Computer
Model No.:	X1
Operation Frequency:	802.11a/802.11n(HT20)/802.11ac(HT20) @5.8G Band: 5745MHz ~ 5825MHz 802.11n(HT40)/ 802.11ac(HT40) @ 5.8G Band: 5755MHz ~ 5795MHz 802.11ac(HT80): 5775MHz
Channel numbers:	802.11a/802.11n(HT20)/802.11ac(HT20) @5.8G Band: 5 802.11n(HT40)/ 802.11ac(HT40) @ 5.8G Band: 2 802.11ac(HT80): 1
Channel bandwidth:	802.11a/802.11n(HT20)/802.11ac(HT20) : 20MHz 802.11n(HT40)/802.11ac(HT40) : 40MHz 802.11ac(HT80): 80MHz
Modulation technology:	802.11a/802.11n(H20)/802.11n(H40)/802.11ac(HT20)/802.11ac(HT40) /802.11ac(HT80): Orthogonal Frequency Division Multiplexing (OFDM)
Antenna Type:	Integral Antenna
Antenna gain:	0.85dBi for 5G band(declare by Applicant)
Power supply:	Adapter: Model No.:HKA03619021-6C Input: AC 100~240V~50/60Hz 1.0A Output: DC 19.0V 2.1A

Operation Frequency each of channel @ 5.8G Band							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
149	5745MHz	153	5765MHz	155	5775MHz	157	5785MHz
161	5805MHz	165	5825MHz				

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)		
	5.8G Band		
	802.11a 802.11n(HT20) 802.11ac(HT20)	802.11n(HT40) 802.11ac(HT40)	802.11ac(HT80)
Lowest channel	5745	5755	
Middle channel	5785		5775
Highest channel	5825	5795	

5.3 Test mode

Transmitting mode	Keep the EUT in continuously transmitting mode
<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.

Mode	Data rate
802.11a	6Mbps
802.11n(HT20)	6.5Mbps
802.11n(HT40)	13Mbps
802.11ac(HT20)	6.5Mbps
802.11ac(HT40)	13.5Mbps
802.11ac(HT80)	29.3Mbps

5.4 Description of Support Units

None.

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.

Room 301-309, 3th Floor, Block A, Huafeng Jinyuan Business Building, No. 300 Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, 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. 28 2015	Mar. 27 2016
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 30 2015	June 29 2016
4	Spectrum analyzer	Agilent	E4447A	GTS516	June 30 2015	June 29 2016
5	Spectrum Analyzer	Agilent	E4440A	GTS533	Nov. 19 2014	Nov. 18 2015
6	BiConiLog Antenna	SCHWARZBECK MESS- ELEKTRONIK	VULB9163	GTS214	Feb. 22 2015	Feb. 21 2016
7	Double -ridged waveguide horn	SCHWARZBECK MESS- ELEKTRONIK	9120D-829	GTS208	June 30 2015	June 29 2016
8	Horn Antenna	ETS-LINDGREN	3160	GTS217	Mar. 28 2015	Mar. 27 2016
9	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
10	Coaxial Cable	GTS	N/A	GTS213	Mar. 28 2015	Mar. 27 2016
11	Coaxial Cable	GTS	N/A	GTS211	Mar. 28 2015	Mar. 27 2016
12	Coaxial cable	GTS	N/A	GTS210	Mar. 28 2015	Mar. 27 2016
13	Coaxial Cable	GTS	N/A	GTS212	Mar. 28 2015	Mar. 27 2016
14	Amplifier(100kHz- 3GHz)	HP	8347A	GTS204	June 30 2015	June 29 2016
15	Amplifier(2GHz- 20GHz)	HP	8349B	GTS206	June 30 2015	June 29 2016
16	Amplifier (18-40GHz)	MITEQ	AMF-6F-18004000- 29-8P	GTS534	June 30 2015	June 29 2016
17	Band filter	Amindeon	82346	GTS219	Mar. 28 2015	Mar. 27 2016
18	Constant temperature and humidity box	Oregon Scientific	BA-888	GTS248	Mar. 28 2015	Mar. 27 2016
19	D.C. Power Supply	Instek	PS-3030	GTS232	Mar. 28 2015	Mar. 27 2016
20	Universal radio communication tester	Rohde & Schwarz	CMU200	GTS235	Mar. 28 2015	Mar. 27 2016
21	Splitter	Agilent	11636B	GTS237	Mar. 28 2015	Mar. 27 2016
22	Power Meter	Anritsu	ML2495A	GTS540	June 30 2015	June 29 2016
23	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	June 30 2015	June 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

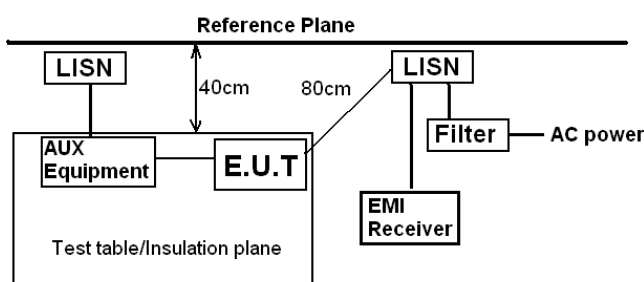
General used equipment:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Barometer	ChangChun	DYM3	GTS257	July 07 2015	July 06 2016

7 Test results and Measurement Data

7.1 Antenna requirement

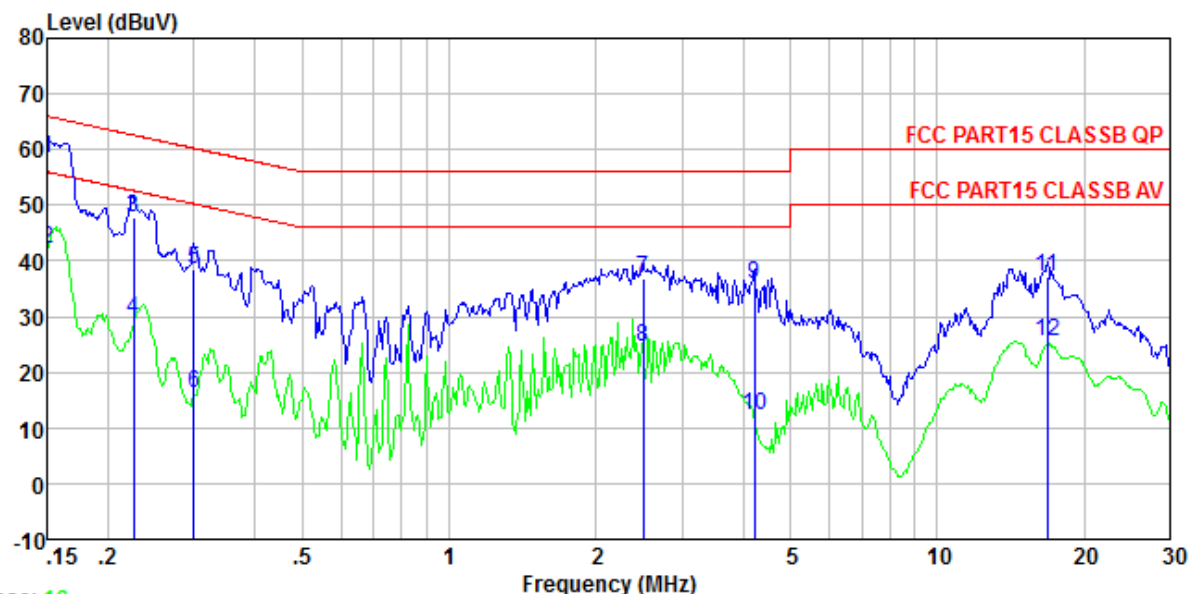
Standard requirement:	FCC Part15 C Section 15.203
<p>15.203 requirement:</p> <p><i>An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses 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.</i></p>	
E.U.T Antenna:	<p>The antenna is Integral antenna. The best case gain of the antenna is 0.85dBi.</p>  <p>Directional Gain Calculations is below:</p> <p>The same digital data are transmitted from the two antennas in a given symbol period, thus the antennas is categorization as correlated.</p> <p>Accroding to KDB 662911 D01 Multiple Transmitter Output v02r01 Section F)2)a)(i), the Directional Gain = $G_{ANT} + 10\log(2)$ dBi = $0.85 + 3.01$ dBi = 3.86dBi.</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><tr><th rowspan="2">Frequency range (MHz)</th><th colspan="2">Limit (dBuV)</th></tr><tr><th>Quasi-peak</th><th>Average</th></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> <p>* Decreases with the logarithm of the frequency.</p>	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													
Test setup:	<div><p style="text-align: center;">Reference Plane</p><p>Remark: E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m</p></div>														
Test procedure:	<div><div>1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment.</div><div>2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).</div><div>3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10:2013 on conducted measurement.</div></div>														
Test Instruments:	Refer to section 6.0 for details														
Test mode:	Refer to section 5.3 for details														
Test results:	Pass														

Measurement data

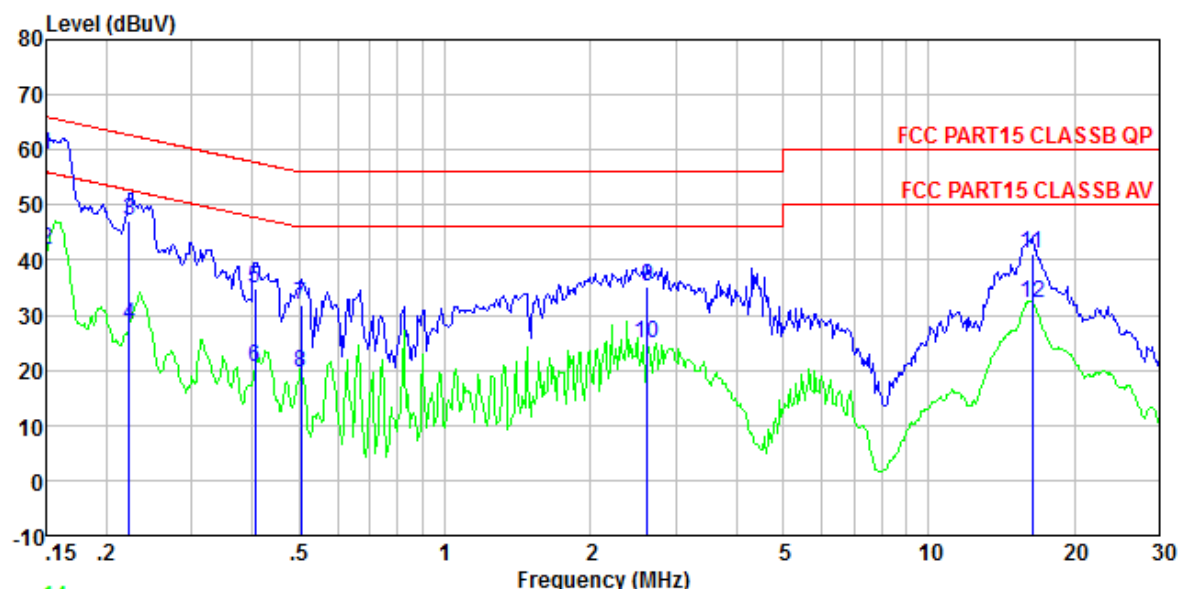
Line:



Site : Shielded room
Condition : FCC PART15 CLASSB QP LISN-2013 LINE
Job No. : 1138RF
Test mode : Wifi mode(5.8G)
Test Engineer: Song

	Freq	Read Level	Level	Cable Loss	LISN Factor	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.150	58.23	58.50	0.12	0.15	66.00	-7.50	QP
2	0.150	41.96	42.23	0.12	0.15	56.00	-13.77	Average
3	0.226	47.50	47.74	0.12	0.12	62.61	-14.87	QP
4	0.226	29.26	29.50	0.12	0.12	52.61	-23.11	Average
5	0.300	38.40	38.61	0.10	0.11	60.24	-21.63	QP
6	0.300	15.86	16.07	0.10	0.11	50.24	-34.17	Average
7	2.500	36.40	36.68	0.15	0.13	56.00	-19.32	QP
8	2.500	24.12	24.40	0.15	0.13	46.00	-21.60	Average
9	4.224	35.37	35.72	0.15	0.20	56.00	-20.28	QP
10	4.224	12.01	12.36	0.15	0.20	46.00	-33.64	Average
11	16.839	36.67	37.32	0.22	0.43	60.00	-22.68	QP
12	16.839	25.02	25.67	0.22	0.43	50.00	-24.33	Average

Neutral:



Trace: 14

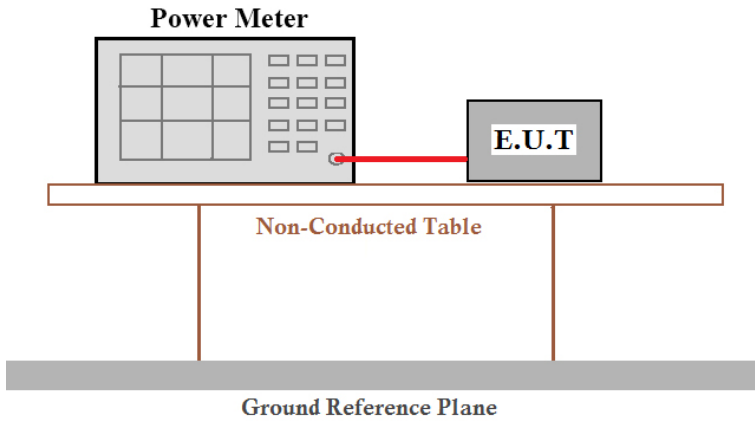
Site : Shielded room
 Condition : FCC PART15 CLASSB QP LISN-2013 NEUTRAL
 Job No. : 1138RF
 Test mode : Wifi mode(5.8G)
 Test Engineer: Song

	Freq	Read Level	Level	Cable Loss	LISN Factor	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.150	58.79	58.98	0.12	0.07	66.00	-7.02	QP
2	0.150	41.60	41.79	0.12	0.07	56.00	-14.21	Average
3	0.223	47.07	47.25	0.12	0.06	62.70	-15.45	QP
4	0.223	27.88	28.06	0.12	0.06	52.70	-24.64	Average
5	0.406	34.62	34.79	0.11	0.06	57.73	-22.94	QP
6	0.406	20.46	20.63	0.11	0.06	47.73	-27.10	Average
7	0.505	31.63	31.80	0.11	0.06	56.00	-24.20	QP
8	0.505	19.33	19.50	0.11	0.06	46.00	-26.50	Average
9	2.622	34.88	35.13	0.15	0.10	56.00	-20.87	QP
10	2.622	24.63	24.88	0.15	0.10	46.00	-21.12	Average
11	16.398	40.45	41.04	0.22	0.37	60.00	-18.96	QP
12	16.398	31.59	32.18	0.22	0.37	50.00	-17.82	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 E Section 15.407(a)(3)
Test Method:	ANSI C63.10:2013 and KDB789033 D02 General UNII Test Procedures New Rules v01
Limit:	30dBm
Test setup:	 <p>The diagram illustrates the test setup. A Power Meter is connected to an E.U.T. (Equipment Under Test) via a red cable. Both the Power Meter and the E.U.T. are placed on a Non-Conducted Table. The table is supported by a Ground Reference Plane.</p>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Measurement Data

5.8G Band

802.11a SISO mode: ANT1

Test CH	Peak Output Power (dBm)	Limit(dBm)	Result
	802.11a (SISO)		
Lowest	15.72	30.00	Pass
Middle	15.87		
Highest	15.63		

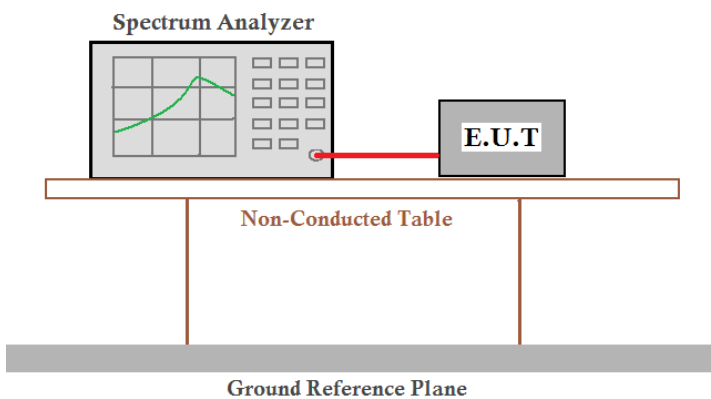
802.11a SISO mode: ANT2

Test CH	Peak Output Power (dBm)	Limit(dBm)	Result
	802.11a (SISO)		
Lowest	15.84	30.00	Pass
Middle	15.74		
Highest	16.00		

802.11n/802.11ac MIMO mode:

Test mode	Channel	Read Level (dBm)		Read Level (mW)	Total Peak Output Power (mW)	Total Peak Output Power (dBm)	Limit (dBm)	Result
802.11n (HT20) (MIMO)	Lowest	ANT1	11.74	14.93	29.75	14.74	30	Pass
		ANT2	11.71	14.83				
	Middle	ANT1	11.73	14.89	29.58	14.71		
		ANT2	11.67	14.69				
	Highest	ANT1	11.75	14.96	29.86	14.75		
		ANT2	11.73	14.89				
802.11a c(HT20) (MIMO)	Lowest	ANT1	11.64	14.59	29.11	14.64		
		ANT2	11.62	14.52				
	Middle	ANT1	11.66	14.66	29.11	14.64		
		ANT2	11.60	14.45				
	Highest	ANT1	11.63	14.55	29.04	14.63		
		ANT2	11.61	14.49				
802.11n (HT40) (MIMO)	Lowest	ANT1	11.67	14.69	29.45	14.69		
		ANT2	11.69	14.76				
	Highest	ANT1	11.76	15.00	29.92	14.76		
		ANT2	11.74	14.93				
802.11a c(HT40) (MIMO)	Lowest	ANT1	11.61	14.49	28.84	14.60		
		ANT2	11.57	14.35				
	Highest	ANT1	11.65	14.62	29.14	14.65		
		ANT2	11.62	14.52				
802.11a c(HT80) (MIMO)	Middle	ANT1	10.86	12.19	24.27	13.85		
		ANT2	10.82	12.08				

7.4 Channel Bandwidth

Test Requirement:	FCC Part15 E Section 15.407(e)
Test Method:	ANSI C63.10:2013 and KDB789033 D02 General UNII Test Procedures New Rules v01
Limit:	>500KHz
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T. are placed on a Non-Conducted Table. The table is supported by a Ground Reference Plane.</p>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Measurement Data

Antenna 1:

5.8G Band								
Test CH	Channel Bandwidth (MHz)						Limit (KHz)	Result
	802.11a	802.11n(H T20)	802.11ac(HT20)	802.11n(H T40)	802.11ac(HT40)	802.11ac(HT80)		
Lowest	16.413	17.651	17.605	35.193	35.167		>500	Pass
Middle	16.393	17.657	17.623			62.865		
Highest	16.564	17.640	17.640	35.107	35.179			

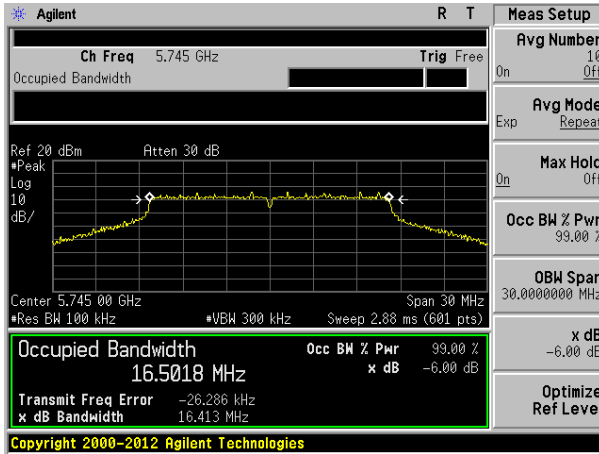
Antenna 2:

5.8G Band								
Test CH	Channel Bandwidth (MHz)						Limit (KHz)	Result
	802.11a	802.11n(H T20)	802.11ac(HT20)	802.11n(H T40)	802.11ac(HT40)	802.11ac(HT80)		
Lowest	16.379	17.608	17.573	35.068	35.052		>500	Pass
Middle	16.410	17.629	17.638			75.079		
Highest	16.355	17.640	17.641	35.096	33.949			

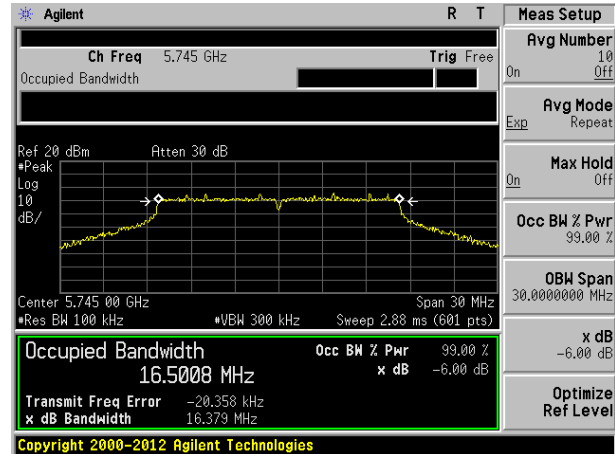
Test plot as follows:

Test mode: 802.11a

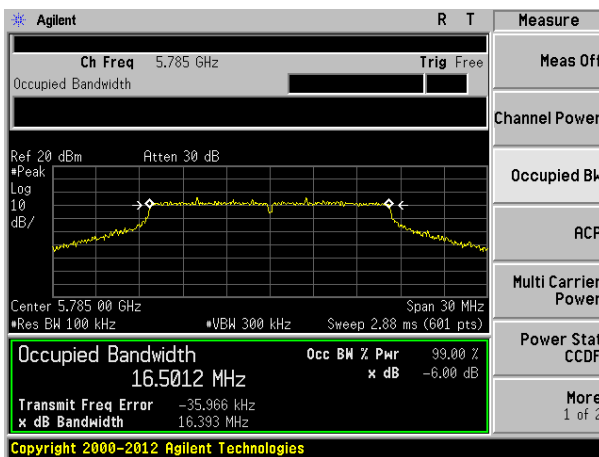
Antenna 1:	Antenna 2:
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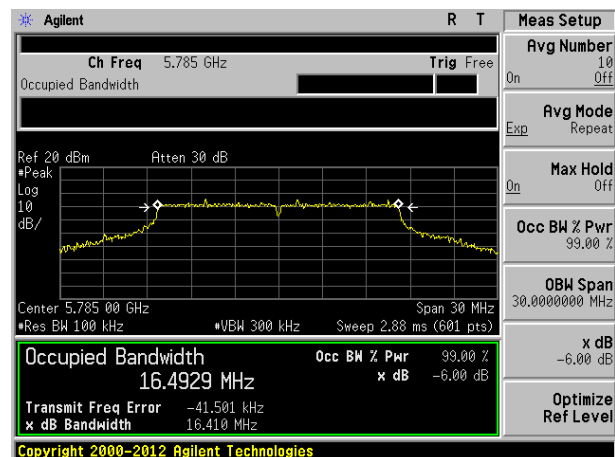
Lowest channel



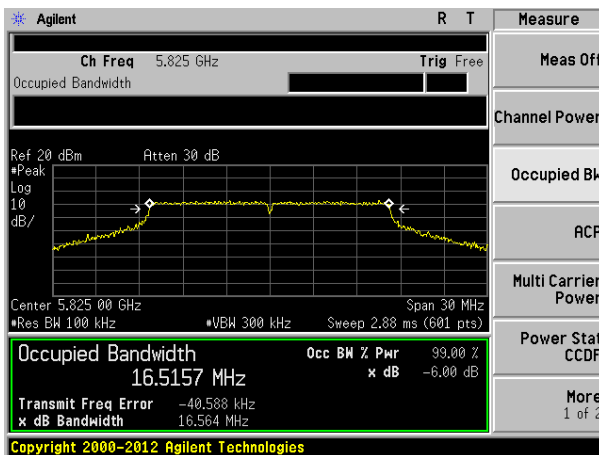
Lowest channel



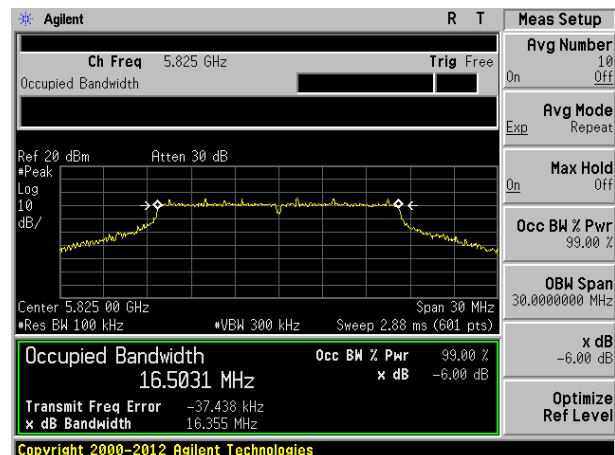
Middle channel



Middle channel



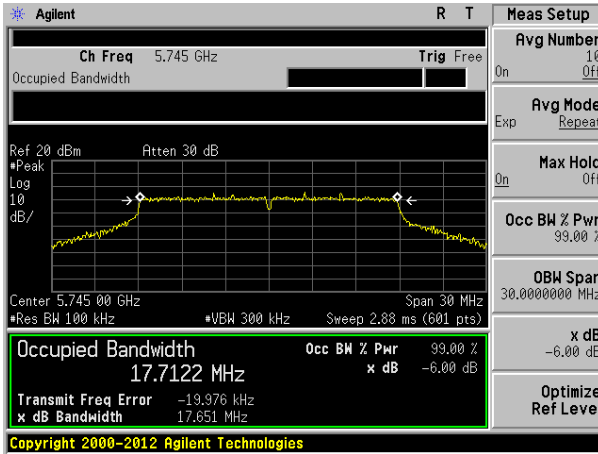
Highest channel



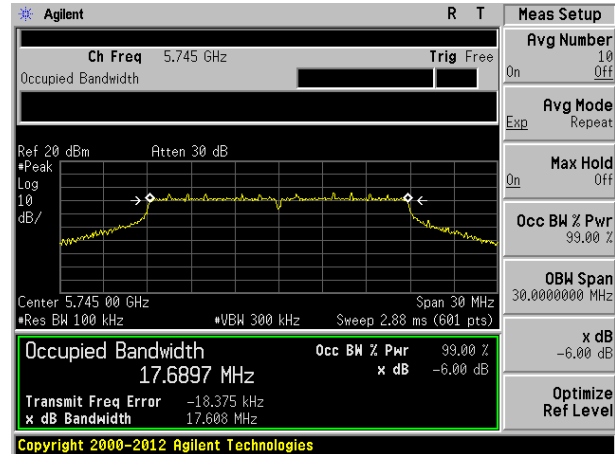
Highest channel

Test mode: 802.11n(HT20) @ 5.8G Band

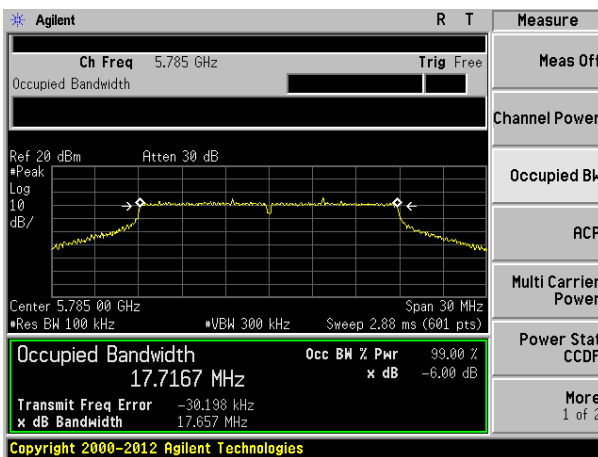
Antenna 1: Antenna 2:



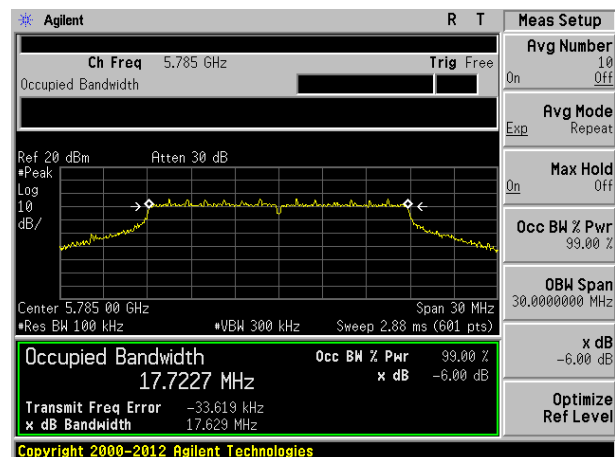
Lowest channel



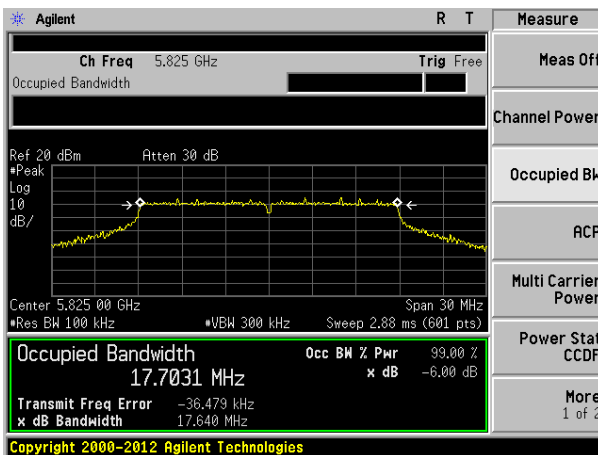
Lowest channel



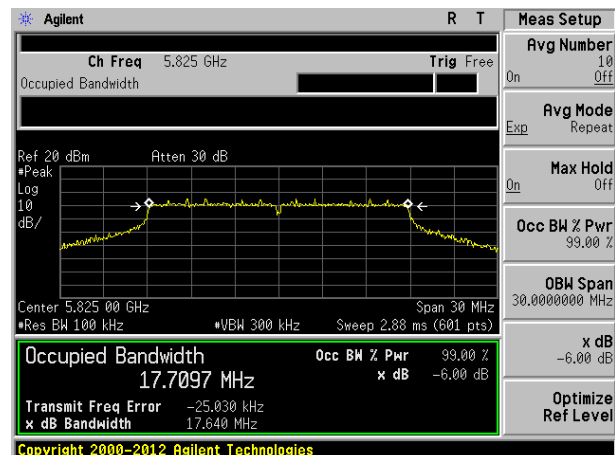
Middle channel



Middle channel



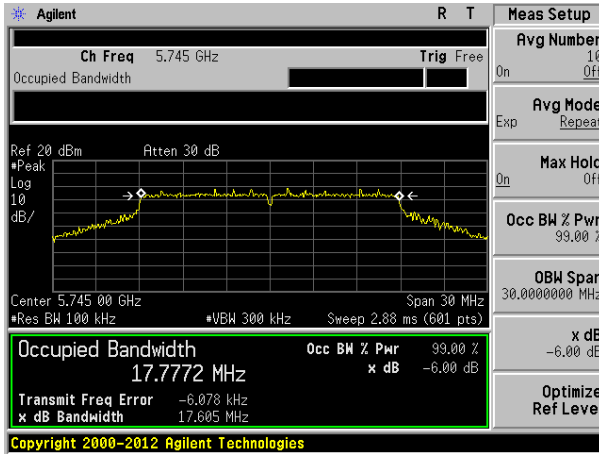
Highest channel



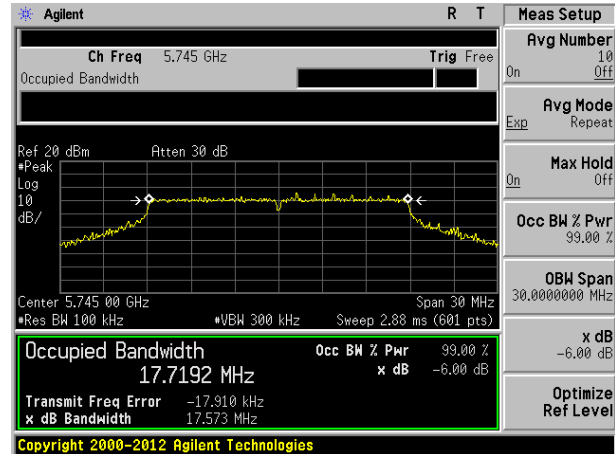
Highest channel

Test mode: 802.11ac(HT20)

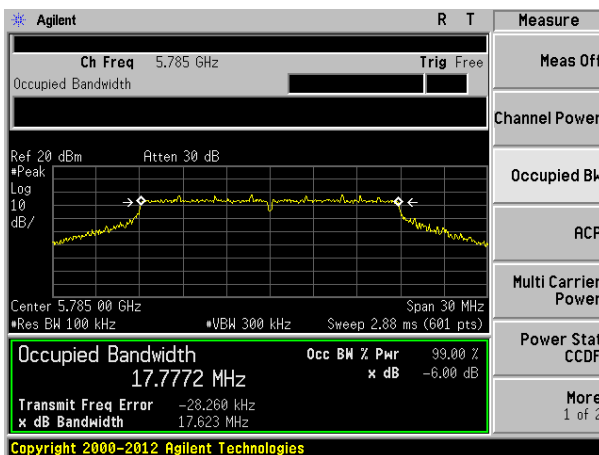
Antenna 1: Antenna 2:



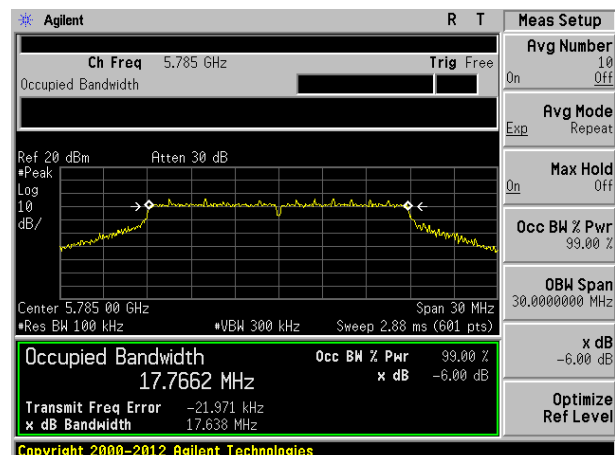
Lowest channel



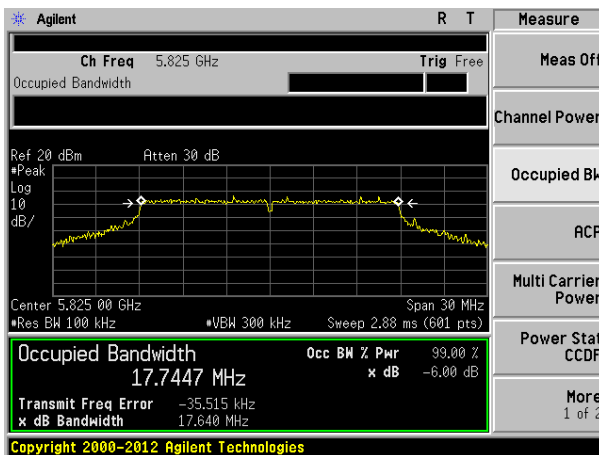
Lowest channel



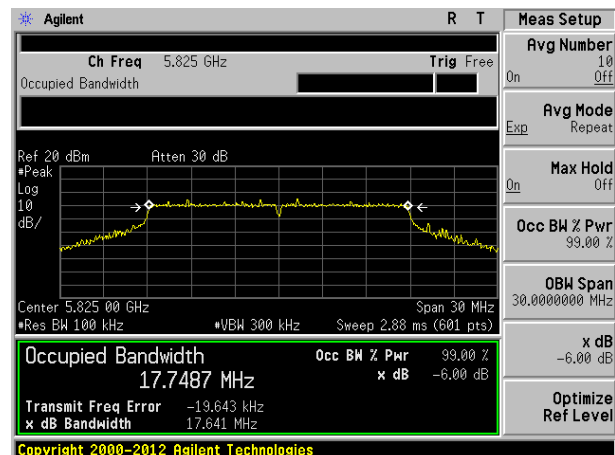
Middle channel



Middle channel



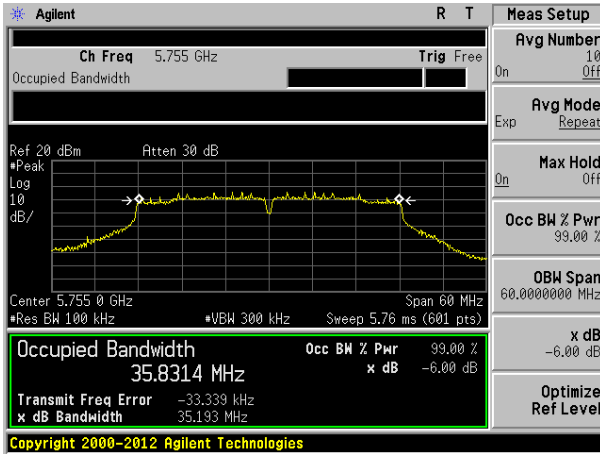
Highest channel



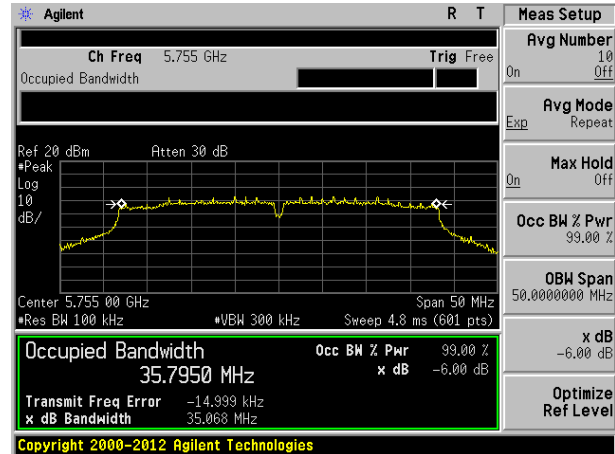
Highest channel

Test mode: 802.11n(HT40) @ 5.8G Band

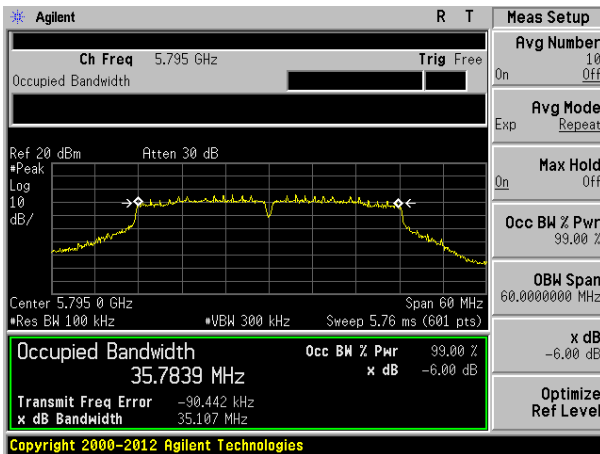
Antenna 1:	Antenna 2:
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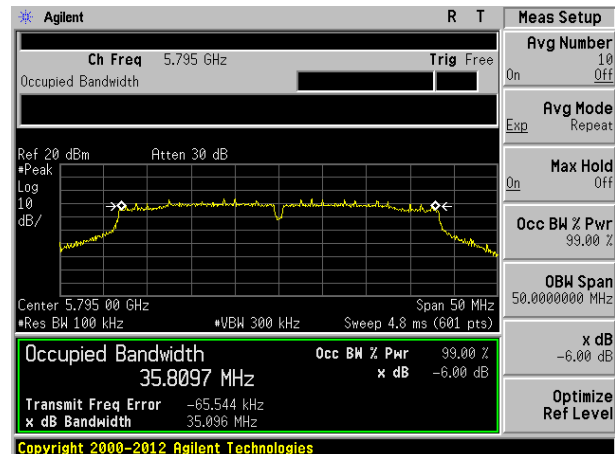
Lowest channel



Lowest channel



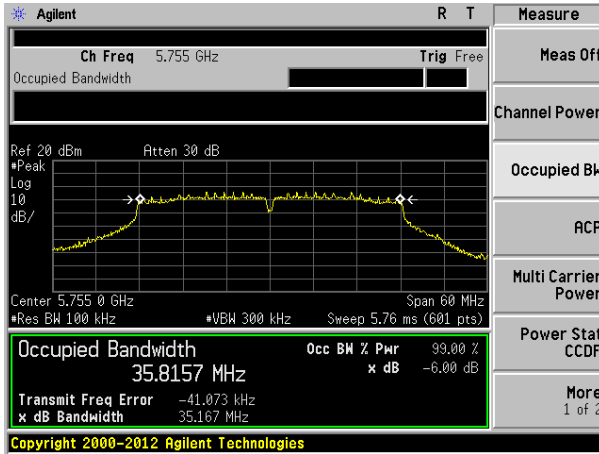
Highest channel



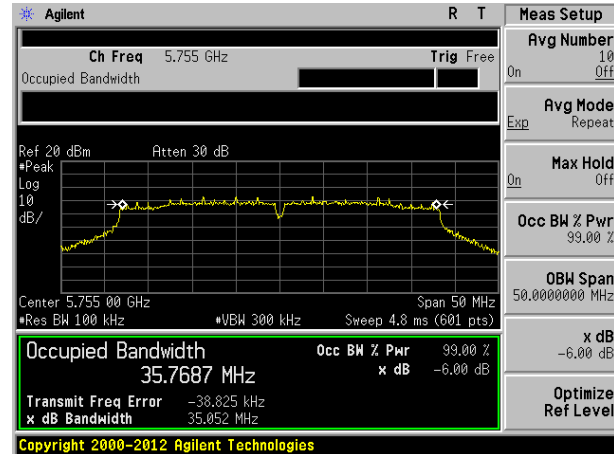
Highest channel

Test mode: 802.11ac(HT40)

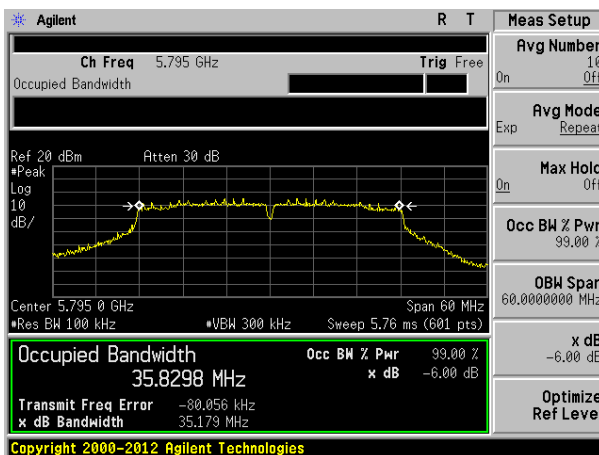
Antenna 1:	Antenna 2:
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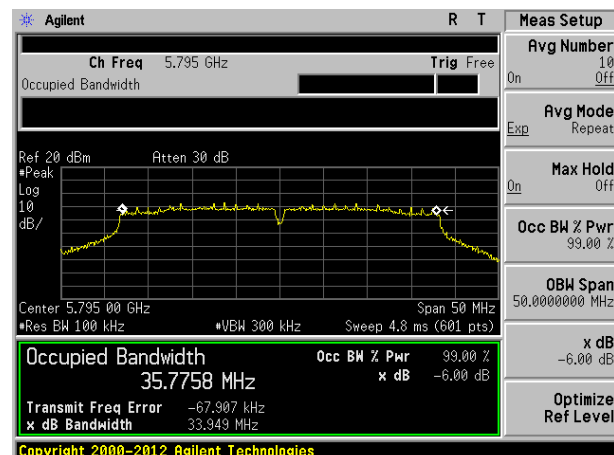
Lowest channel



Lowest channel



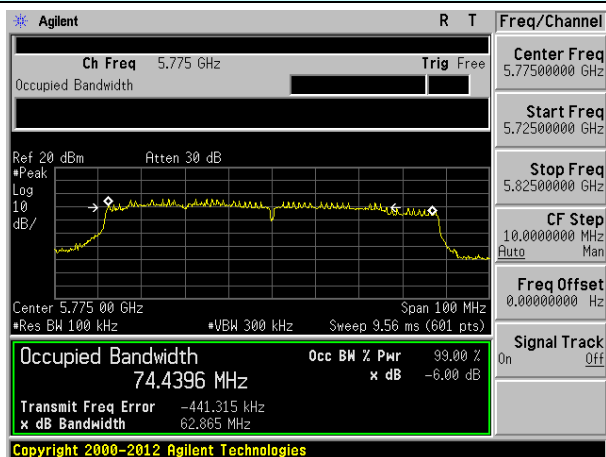
Highest channel



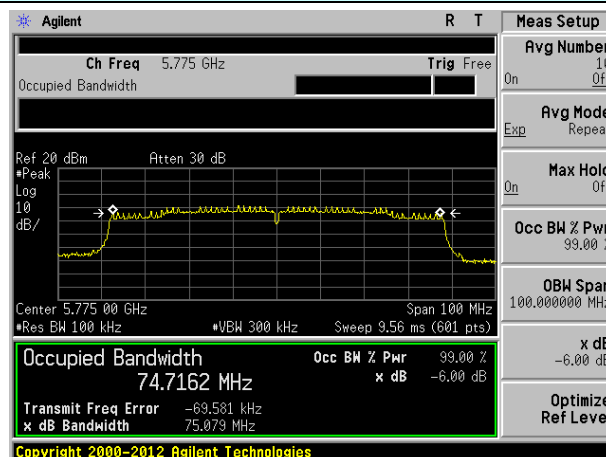
Highest channel

Test mode: 802.11ac(HT80)

Antenna 1:	Antenna 2:
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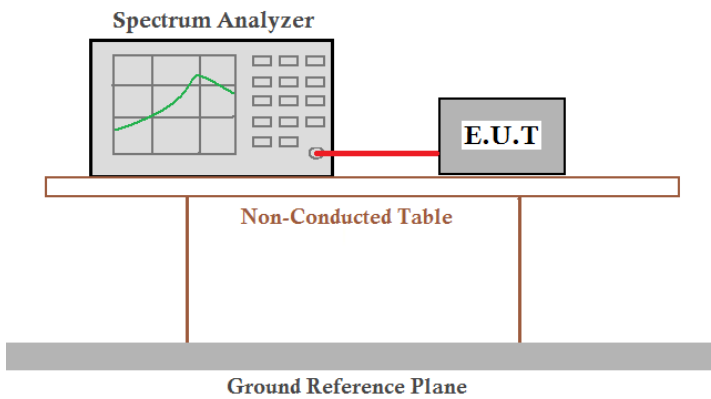


Middle channel



Middle channel

7.5 Power Spectral Density

Test Requirement:	FCC Part15 E Section 15.407(a)(3)
Test Method:	ANSI C63.10:2013 and KDB789033 D02 General UNII Test Procedures New Rules v01
Limit:	30dBm
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T are placed on a Non-Conducted Table. The table is supported by a Ground Reference Plane.</p>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Measurement Data

Antenna 1:

5.8G Band								
Test CH	Power Spectral Density (dBm)						Limit (dBm/500kHz)	Result
	802.11a (SISO)	802.11n(HT20) (MIMO)	802.11ac(HT20) (MIMO)	802.11n(HT40) (MIMO)	802.11ac(HT40) (MIMO)	802.11ac(HT80) (MIMO)		
Lowest	1.51	0.93	1.76	-0.11	-0.36		30.00	Pass
Middle	1.49	1.54	1.38			-2.51		
Highest	1.31	1.08	0.71	-0.61	-1.23			

Antenna 2:

5.8G Band								
Test CH	Power Spectral Density (dBm)						Limit (dBm/500kHz)	Result
	802.11a (SISO)	802.11n(HT20) (MIMO)	802.11ac(HT20) (MIMO)	802.11n(HT40) (MIMO)	802.11ac(HT40) (MIMO)	802.11ac(HT80) (MIMO)		
Lowest	2.57	3.13	2.89	-0.27	-0.88		30.00	Pass
Middle	2.13	2.39	2.92			-2.48		
Highest	2.16	1.77	1.82	-0.11	-0.24			

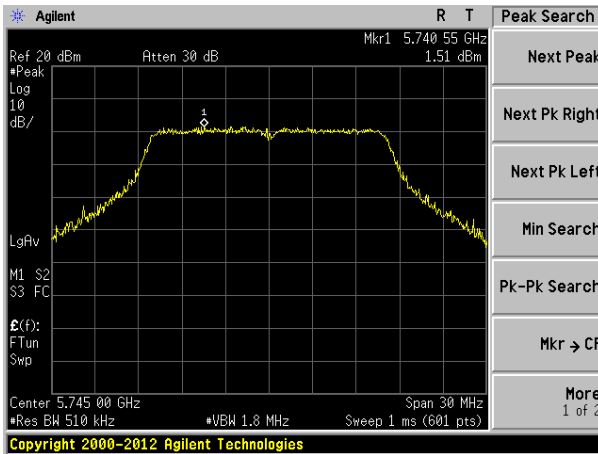
Antenna 1 + Antenna 2:

5.8G Band							
Test CH	Power Spectral Density (dBm)					Limit (dBm/500kHz)	Result
	802.11n(HT20) (MIMO)	802.11ac(HT20) (MIMO)	802.11n(HT40) (MIMO)	802.11ac(HT40) (MIMO)	802.11ac(HT80) (MIMO)		
Lowest	5.18	5.37	2.82	2.40		30.00	Pass
Middle	5.00	5.23			0.52		
Highest	4.45	4.31	2.66	2.30			

Test plot as follows:

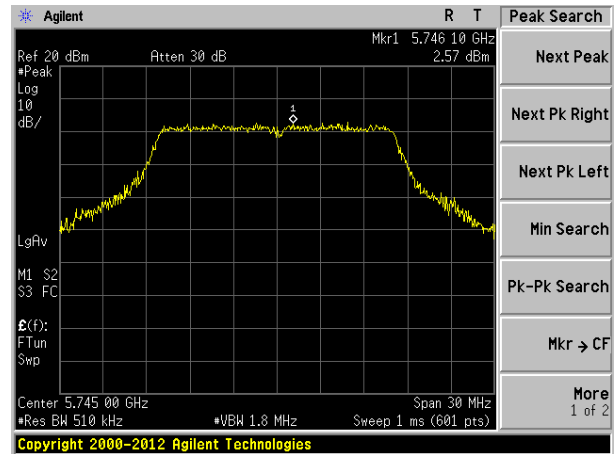
Test mode: 802.11a

Antenna 1:

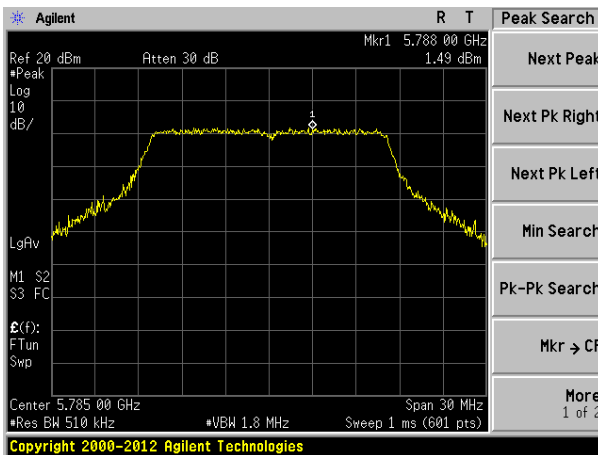


Lowest channel

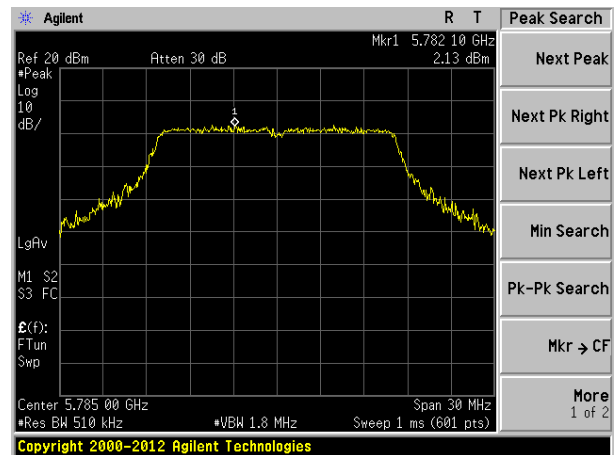
Antenna 2:



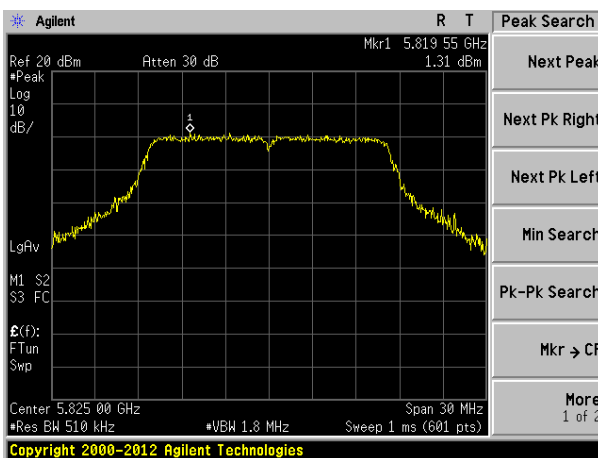
Lowest channel



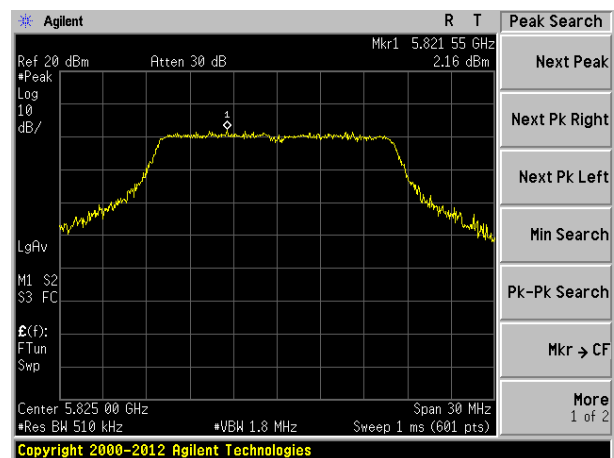
Middle channel



Middle channel



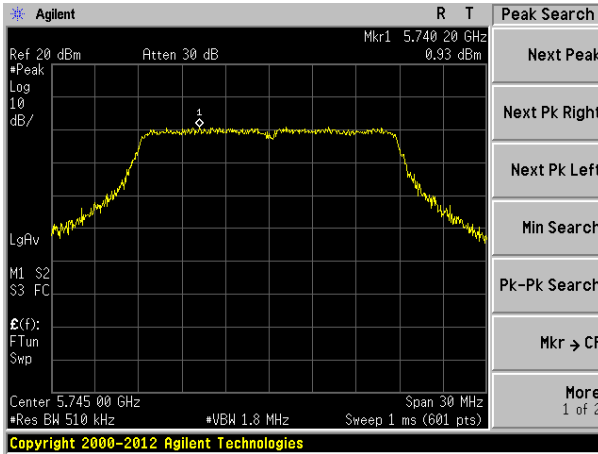
Highest channel



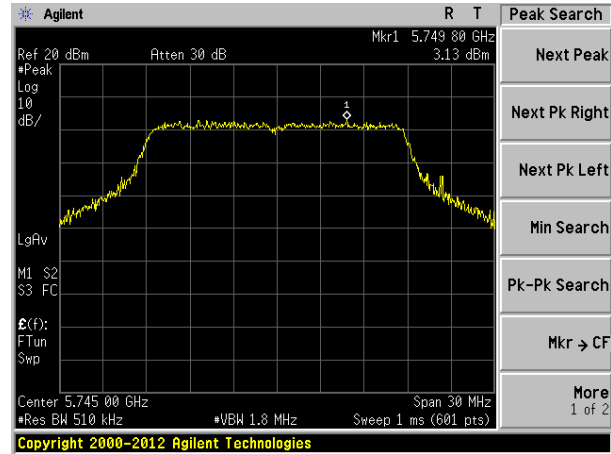
Highest channel

Test mode: 802.11n(HT20) @ 5.8G Band

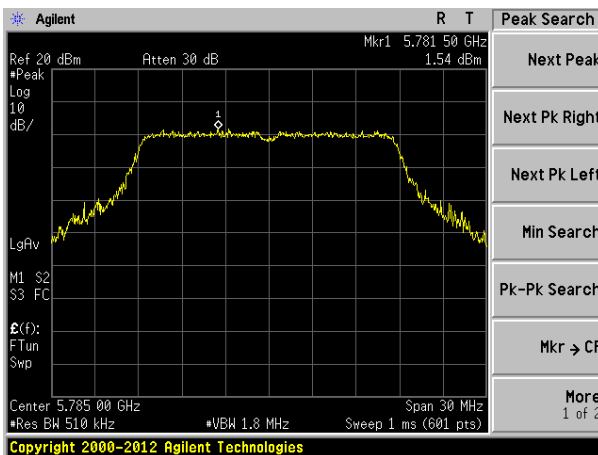
Antenna 1: Antenna 2:



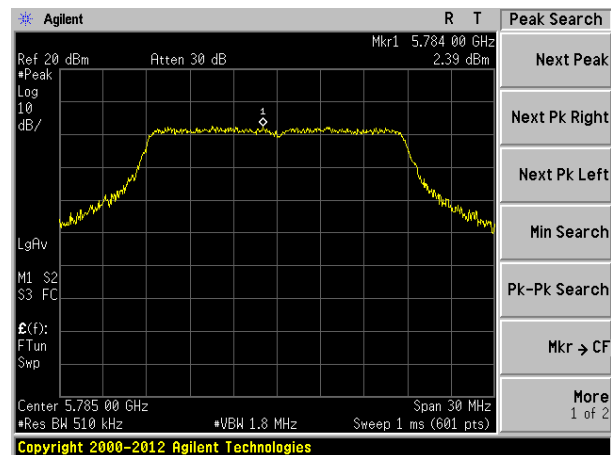
Lowest channel



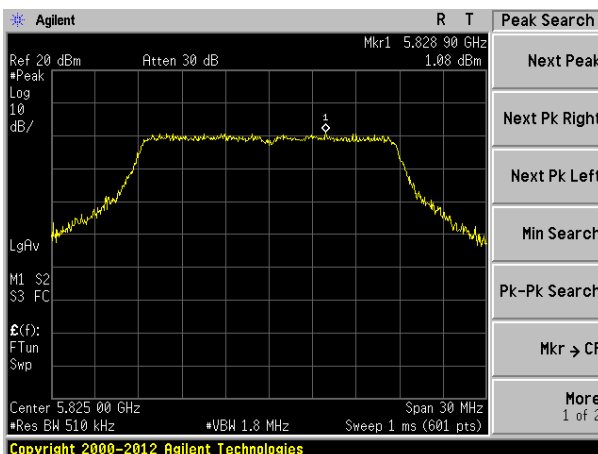
Lowest channel



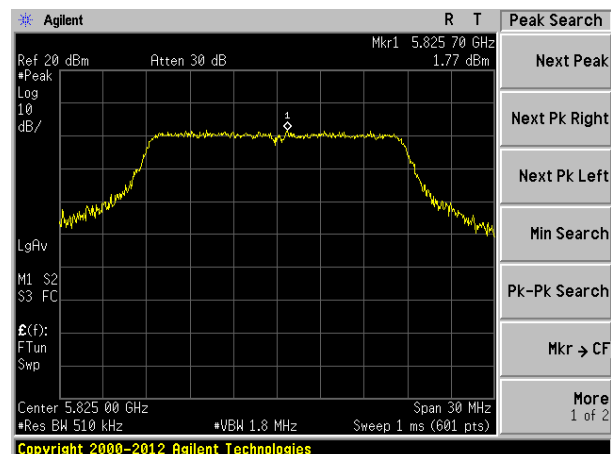
Middle channel



Middle channel



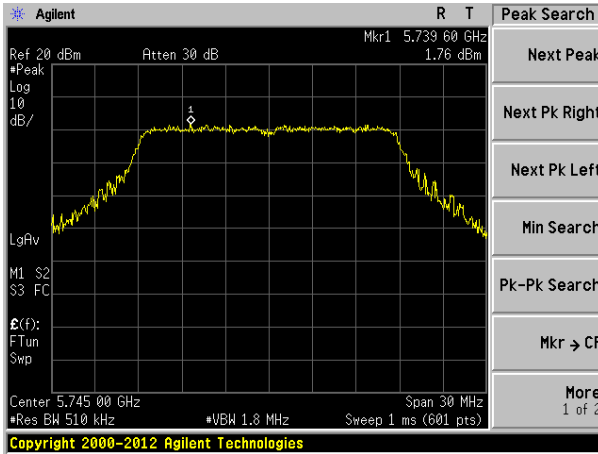
Highest channel



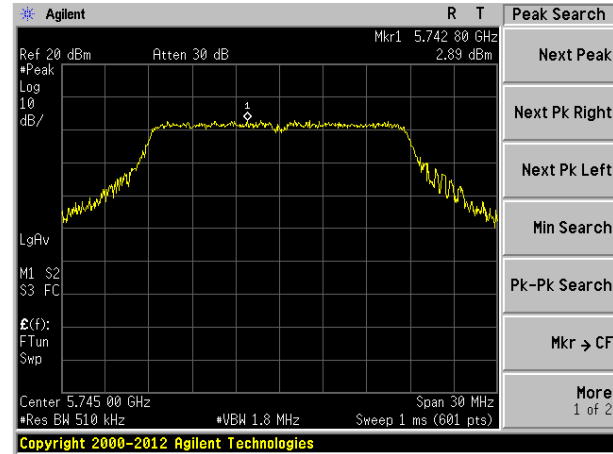
Highest channel

Test mode: 802.11ac(HT20)

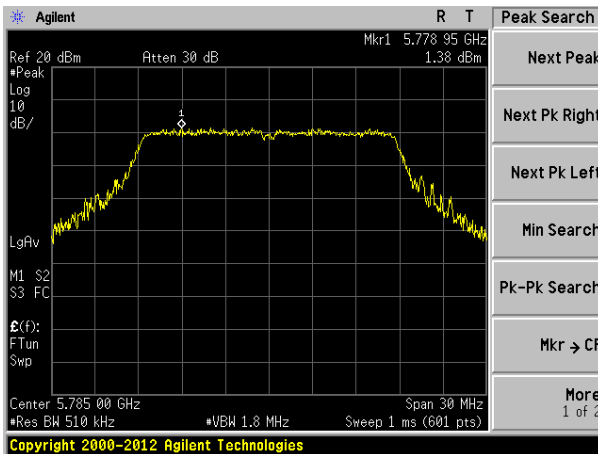
Antenna 1: Antenna 2:



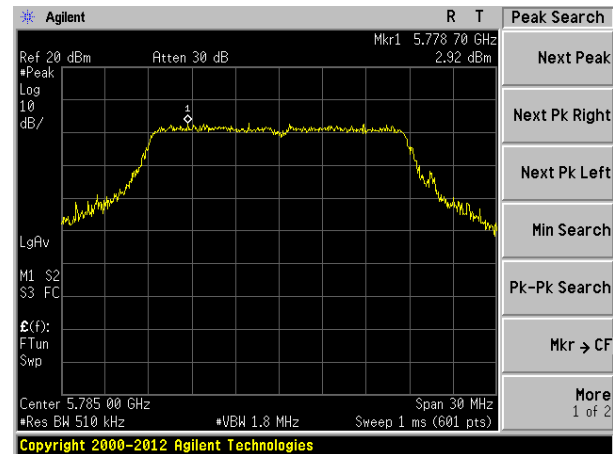
Lowest channel



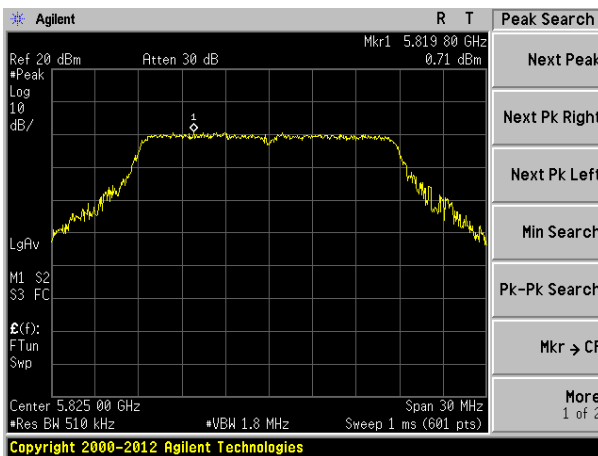
Lowest channel



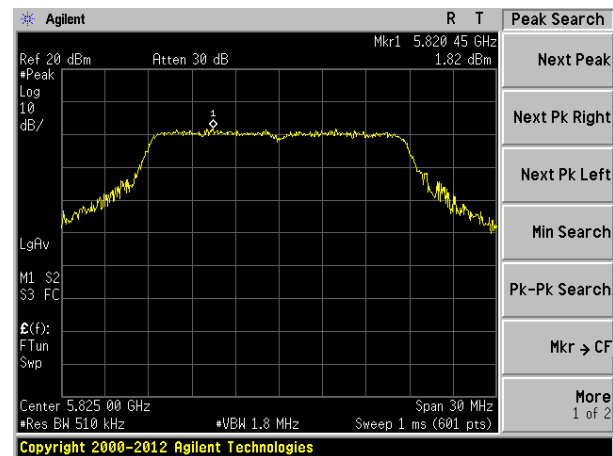
Middle channel



Middle channel



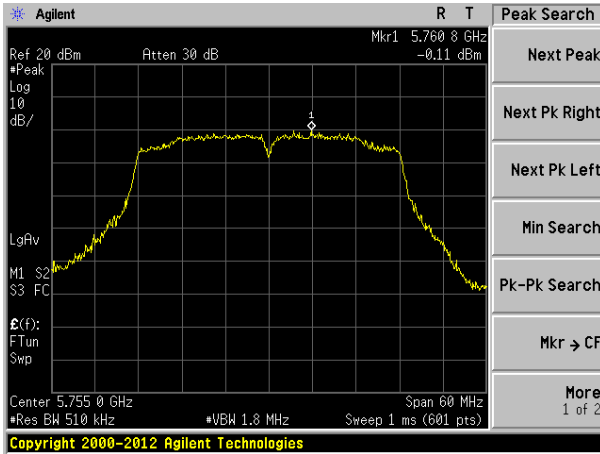
Highest channel



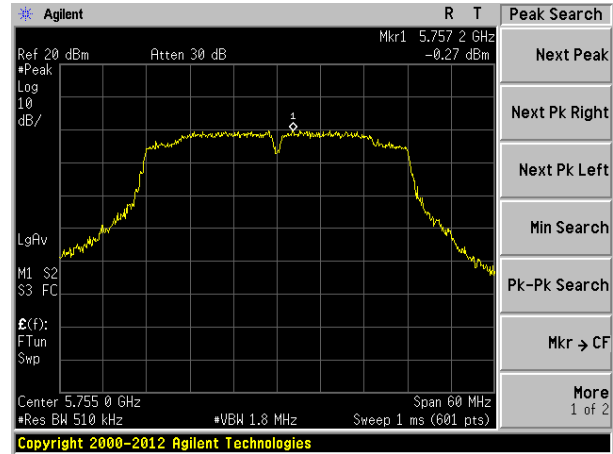
Highest channel

Test mode: 802.11n(HT40) @ 5.8G Band

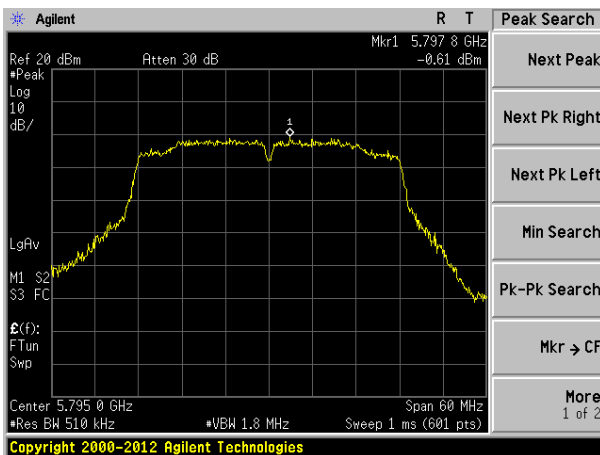
Antenna 1: Antenna 2:



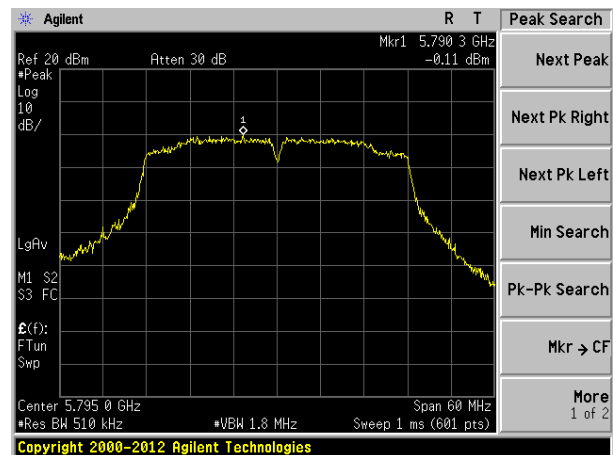
Lowest channel



Lowest channel



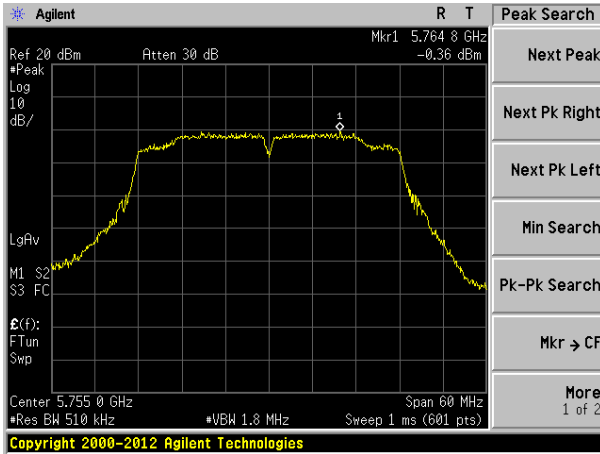
Highest channel



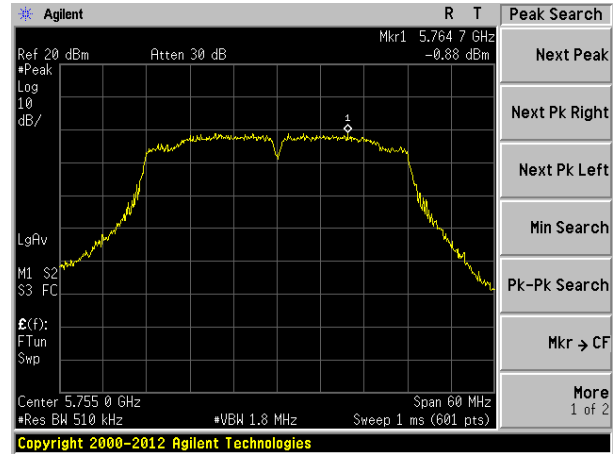
Highest channel

Test mode: 802.11ac(HT40)

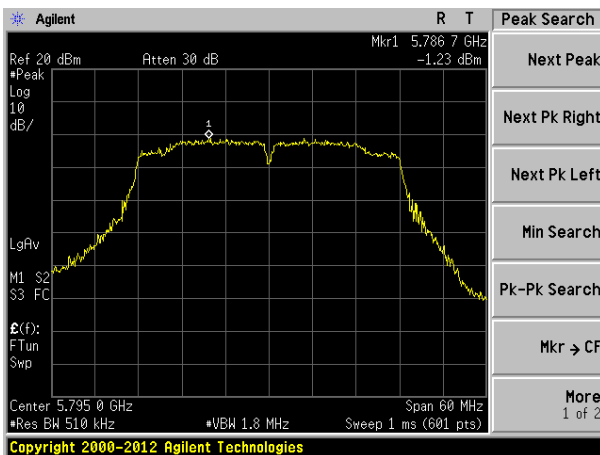
Antenna 1: Antenna 2:



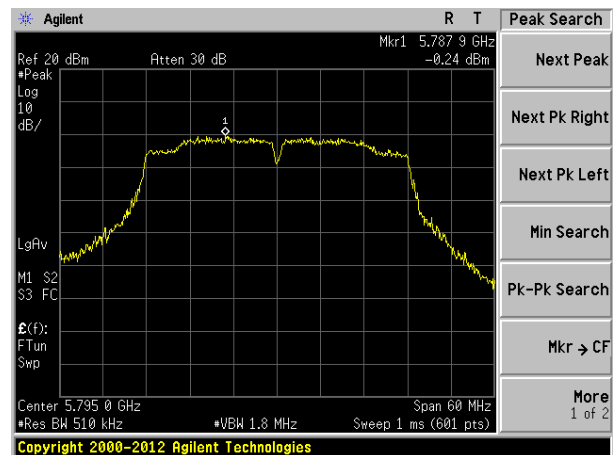
Lowest channel



Lowest channel



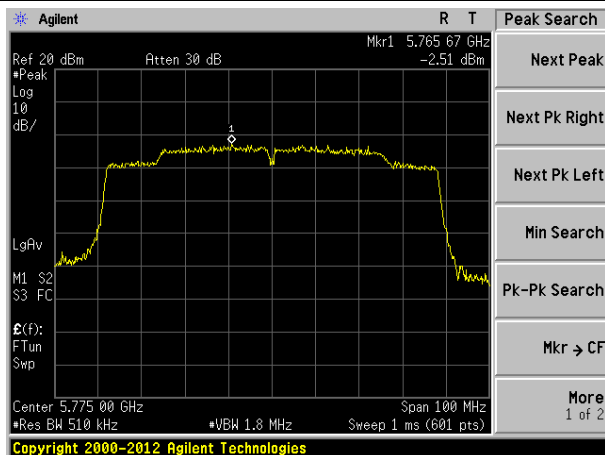
Highest channel



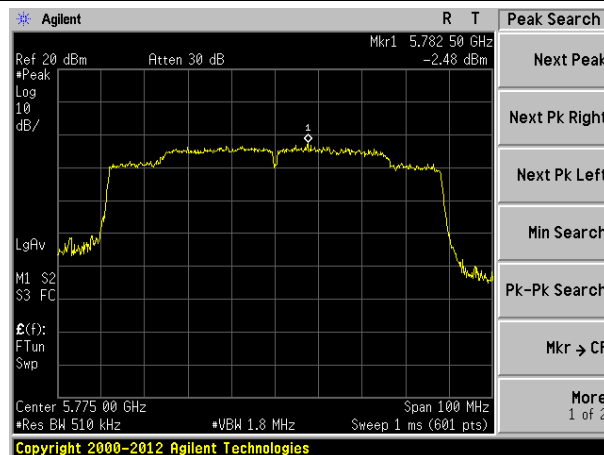
Highest channel

Test mode: 802.11ac(HT80)

Antenna 1:	Antenna 2:
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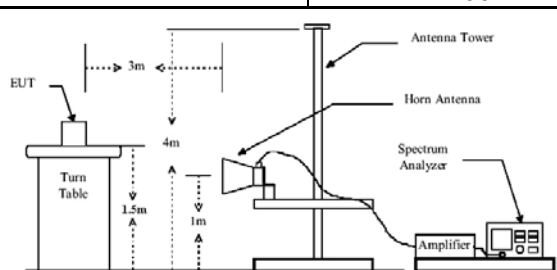
Middle channel



Middle channel

7.6 Band edges

7.6.1 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209 and 15.205				
Test Method:	ANSI C63.10: 2013				
Test Frequency Range:	30MHz to 40GHz, only worse case is reported				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Value
	Above 1GHz	Peak	1MHz	3MHz	Peak
		Peak	1MHz	10Hz	Average
Limit:	Frequency		Limit (dBuV/m @3m)		Value
	Above 1GHz		54.00		Average
			74.00		Peak
Test setup:					
Test Procedure:	<div>1. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.</div> <div>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.</div> <div>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.</div> <div>4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.</div> <div>5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</div> <div>6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.</div> <div>7. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, only the test worst case mode is recorded in the report.</div>				
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.

802.11a SISO mode: ANT1

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

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.00	39.45	32.68	9.97	23.86	58.24	74.00	-15.76	Horizontal
5741.35	80.35	32.56	9.86	23.85	98.92	N/A	N/A	Horizontal
5725.00	41.36	32.68	9.97	23.86	60.15	74.00	-13.85	Vertical
5741.35	85.69	32.56	9.86	23.85	104.26	N/A	N/A	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.00	29.64	32.68	9.97	23.86	48.43	54.00	-5.57	Horizontal
5741.35	71.33	32.56	9.86	23.85	89.90	N/A	N/A	Horizontal
5725.00	30.68	32.68	9.97	23.86	49.47	54.00	-4.53	Vertical
5741.35	76.92	32.56	9.86	23.85	95.49	N/A	N/A	Vertical

Test mode:	802.11a	Test channel:	Highest
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5826.20	78.65	32.68	9.97	23.86	97.44	N/A	N/A	Horizontal
5850.00	38.12	32.70	9.99	23.87	56.94	74.00	-17.06	Horizontal
5826.20	85.35	32.68	9.97	23.86	104.14	N/A	N/A	Vertical
5850.00	40.54	32.70	9.99	23.87	59.36	74.00	-14.64	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5826.20	70.36	32.68	9.97	23.86	89.15	N/A	N/A	Horizontal
5850.00	28.48	32.70	9.99	23.87	47.30	54.00	-6.70	Horizontal
5826.20	76.02	32.68	9.97	23.86	94.81	N/A	N/A	Vertical
5850.00	28.14	32.70	9.99	23.87	46.96	54.00	-7.04	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.

802.11a SISO mode: ANT2

Test mode:	802.11a	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
5725.00	39.95	32.68	9.97	23.86	58.74	74.00	-15.26	Horizontal
5741.35	81.02	32.56	9.86	23.85	99.59	N/A	N/A	Horizontal
5725.00	41.90	32.68	9.97	23.86	60.69	74.00	-13.31	Vertical
5741.35	86.50	32.56	9.86	23.85	105.07	N/A	N/A	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
5725.00	30.00	32.68	9.97	23.86	48.79	54.00	-5.21	Horizontal
5741.35	71.74	32.56	9.86	23.85	90.31	N/A	N/A	Horizontal
5725.00	31.08	32.68	9.97	23.86	49.87	54.00	-4.13	Vertical
5741.35	77.37	32.56	9.86	23.85	95.94	N/A	N/A	Vertical

Test mode:	802.11a	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
5826.20	79.37	32.68	9.97	23.86	98.16	N/A	N/A	Horizontal
5850.00	38.68	32.70	9.99	23.87	57.50	74.00	-16.50	Horizontal
5826.20	86.18	32.68	9.97	23.86	104.97	N/A	N/A	Vertical
5850.00	41.20	32.70	9.99	23.87	60.02	74.00	-13.98	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
5826.20	70.80	32.68	9.97	23.86	89.59	N/A	N/A	Horizontal
5850.00	28.82	32.70	9.99	23.87	47.64	54.00	-6.36	Horizontal
5826.20	76.50	32.68	9.97	23.86	95.29	N/A	N/A	Vertical
5850.00	28.50	32.70	9.99	23.87	47.32	54.00	-6.68	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.

802.11n/802.11ac MIMO mode: ANT1+ANT2

Test mode:	802.11n(HT20) @ 5.8G Band	Test channel:	Lowest
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.00	37.64	32.68	9.97	23.86	56.43	74.00	-17.57	Horizontal
5742.19	77.85	32.56	9.86	23.85	96.42	N/A	N/A	Horizontal
5725.00	40.45	32.68	9.97	23.86	59.24	74.00	-14.76	Vertical
5742.19	84.25	32.56	9.86	23.85	102.82	N/A	N/A	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.00	28.62	32.68	9.97	23.86	47.41	54.00	-6.59	Horizontal
5742.19	69.38	32.56	9.86	23.85	87.95	N/A	N/A	Horizontal
5725.00	29.50	32.68	9.97	23.86	48.29	54.00	-5.71	Vertical
5742.19	75.65	32.56	9.86	23.85	94.22	N/A	N/A	Vertical

Test mode:	802.11n(HT20) @ 5.8G Band	Test channel:	Highest
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5826.20	76.88	32.68	9.97	23.86	95.67	N/A	N/A	Horizontal
5850.00	37.65	32.70	9.99	23.87	56.47	74.00	-17.53	Horizontal
5826.20	84.59	32.68	9.97	23.86	103.38	N/A	N/A	Vertical
5850.00	39.20	32.70	9.99	23.87	58.02	74.00	-15.98	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5826.20	67.54	32.68	9.97	23.86	86.33	N/A	N/A	Horizontal
5850.00	27.59	32.70	9.99	23.87	46.41	54.00	-7.59	Horizontal
5826.20	75.35	32.68	9.97	23.86	94.14	N/A	N/A	Vertical
5850.00	28.12	32.70	9.99	23.87	46.94	54.00	-7.06	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:	802.11ac(HT20)	Test channel:	Lowest
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.00	37.98	32.68	9.97	23.86	56.77	74.00	-17.23	Horizontal
5742.19	77.42	32.56	9.86	23.85	95.99	N/A	N/A	Horizontal
5725.00	39.32	32.68	9.97	23.86	58.11	74.00	-15.89	Vertical
5742.19	84.05	32.56	9.86	23.85	102.62	N/A	N/A	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.00	27.62	32.68	9.97	23.86	46.41	54.00	-7.59	Horizontal
5742.19	69.08	32.56	9.86	23.85	87.65	N/A	N/A	Horizontal
5725.00	28.42	32.68	9.97	23.86	47.21	54.00	-6.79	Vertical
5742.19	75.36	32.56	9.86	23.85	93.93	N/A	N/A	Vertical

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

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5827.44	77.05	32.68	9.97	23.86	95.84	N/A	N/A	Horizontal
5850.00	37.34	32.74	10.04	23.87	56.25	74.00	-17.75	Horizontal
5827.44	83.61	32.68	9.97	23.86	102.40	N/A	N/A	Vertical
5850.00	39.15	32.74	10.04	23.87	58.06	74.00	-15.94	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5827.44	67.24	32.68	9.97	23.86	86.03	N/A	N/A	Horizontal
5850.00	27.68	32.74	10.04	23.87	46.59	54.00	-7.41	Horizontal
5827.44	75.18	32.68	9.97	23.86	93.97	N/A	N/A	Vertical
5850.00	28.34	32.74	10.04	23.87	47.25	54.00	-6.75	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:	802.11n(HT40) @ 5.8G Band	Test channel:	Lowest
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.00	38.02	32.53	9.83	23.84	56.54	74.00	-17.46	Horizontal
5745.00	75.35	32.56	9.86	23.85	93.92	N/A	N/A	Horizontal
5725.00	37.65	32.53	9.83	23.84	56.17	74.00	-17.83	Vertical
5745.00	83.27	32.56	9.86	23.85	101.84	N/A	N/A	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.00	26.99	32.53	9.83	23.84	45.51	54.00	-8.49	Horizontal
5745.00	67.15	32.56	9.86	23.85	85.72	N/A	N/A	Horizontal
5725.00	27.51	32.53	9.83	23.84	46.03	54.00	-7.97	Vertical
5745.00	74.82	32.56	9.86	23.85	93.39	N/A	N/A	Vertical

Test mode:	802.11n(HT40) @ 5.8G Band	Test channel:	Highest
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5784.88	79.84	32.63	9.90	23.85	98.52	N/A	N/A	Horizontal
5850.00	38.62	32.70	9.99	23.87	57.44	74.00	-16.56	Horizontal
5784.88	84.02	32.63	9.90	23.85	102.70	N/A	N/A	Vertical
5850.00	42.50	32.70	9.99	23.87	61.32	74.00	-12.68	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5784.88	70.65	32.63	9.90	23.85	89.33	N/A	N/A	Horizontal
5850.00	27.65	32.70	9.99	23.87	46.47	54.00	-7.53	Horizontal
5784.88	73.04	32.63	9.90	23.85	91.72	N/A	N/A	Vertical
5850.00	27.39	32.70	9.99	23.87	48.23	54.00	-5.77	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:	802.11ac(HT40)	Test channel:	Lowest
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.00	36.45	32.53	9.83	23.84	54.97	74.00	-19.03	Horizontal
5748.00	76.90	32.56	9.86	23.85	95.47	N/A	N/A	Horizontal
5725.00	38.25	32.53	9.83	23.84	56.77	74.00	-17.23	Vertical
5748.00	83.64	32.56	9.86	23.85	102.21	N/A	N/A	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.00	26.78	32.53	9.83	23.84	45.30	54.00	-8.70	Horizontal
5748.00	68.26	32.56	9.86	23.85	86.83	N/A	N/A	Horizontal
5725.00	28.14	32.53	9.83	23.84	46.66	54.00	-7.34	Vertical
5748.00	74.33	32.56	9.86	23.85	92.90	N/A	N/A	Vertical

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

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5784.88	78.64	32.63	9.90	23.85	97.32	N/A	N/A	Horizontal
5850.00	37.20	32.70	9.99	23.87	56.02	74.00	-17.98	Horizontal
5784.88	83.45	32.63	9.90	23.85	102.13	N/A	N/A	Vertical
5850.00	40.09	32.70	9.99	23.87	58.91	74.00	-15.09	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5784.88	69.35	32.63	9.90	23.85	88.03	N/A	N/A	Horizontal
5850.00	27.65	32.70	9.99	23.87	46.47	54.00	-7.53	Horizontal
5784.88	74.82	32.63	9.90	23.85	93.50	N/A	N/A	Vertical
5850.00	29.18	32.70	9.99	23.87	48.00	54.00	-6.00	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:	802.11ac(HT80)	Test channel:	Middle
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.00	36.45	32.53	9.83	23.84	54.97	74.00	-19.03	Horizontal
5771.88	76.88	32.61	9.88	23.85	95.52	N/A	N/A	Horizontal
5850.00	36.08	32.70	9.99	23.87	54.90	74.00	-19.10	Horizontal
5725.00	37.68	32.53	9.83	23.84	56.20	74.00	-17.80	Vertical
5771.88	82.48	32.61	9.88	23.85	101.12	N/A	N/A	Vertical
5850.00	36.10	32.70	9.99	23.87	54.92	74.00	-19.08	Vertical

Average value:

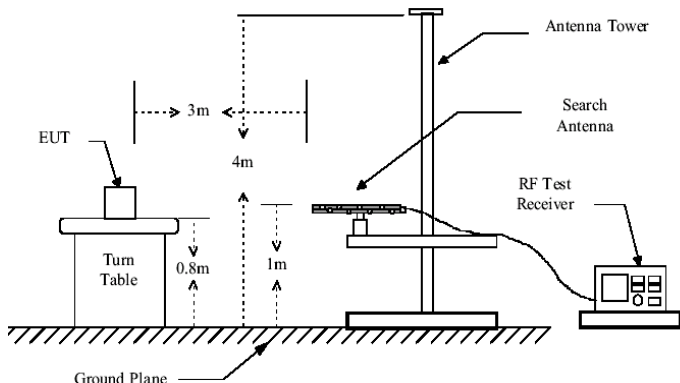
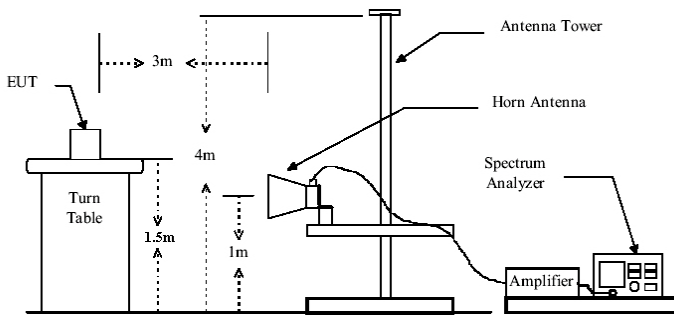
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.00	26.56	32.53	9.83	23.84	45.08	54.00	-8.92	Horizontal
5771.88	67.65	32.61	9.88	23.85	86.29	N/A	N/A	Horizontal
5850.00	26.18	32.70	9.99	23.87	45.00	54.00	-9.00	Horizontal
5725.00	27.60	32.53	9.83	23.84	46.12	54.00	-7.88	Vertical
5771.88	73.08	32.61	9.88	23.85	91.72	N/A	N/A	Vertical
5850.00	27.15	32.70	9.99	23.87	45.97	54.00	-8.03	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.*

7.7 Spurious Emission

7.7.1 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209, Part 15E Section 15.407(b)(4)				
Test Method:	ANSI C63.10:2013				
Test Frequency Range:	30MHz to 40GHz				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Value
	30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
		Peak	1MHz	3MHz	Average Value
Limit:	Frequency		Limit (dBuV/m @3m)		Remark
	30MHz-88MHz		40.0		Quasi-peak Value
	88MHz-216MHz		43.5		Quasi-peak Value
	216MHz-960MHz		46.0		Quasi-peak Value
	960MHz-1GHz		54.0		Quasi-peak Value
	Frequency		Limit (dBm/MHz)		Remark
	Above 1GHz		-27.0		Peak Value
Test setup:	Below 1GHz				
					
Test setup:	Above 1GHz				
					
Test Procedure:	1. The EUT was placed on the top of a rotating table (0.8m for below				

	<p>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.</p> <p>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.</p> <p>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.</p> <p>4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.</p> <p>5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</p> <p>6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.</p> <p>7. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, only the test worst case mode is recorded in the report.</p>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Remark:

According to KDB 789033 D02V01 section G) 1) (d), for For measurements above 1000 MHz @ 3m distance, the limit of field strength is computed as follows:

$$E[\text{dBuV/m}] = \text{EIRP}[\text{dBm}] + 95.2;$$

For example, if EIRP = -27dBm

$$E[\text{dBuV/m}] = -27 + 95.2 = 68.2\text{dBuV/m}.$$

Measurement Data

■ Below 1GHz

Only the data of worst case at each channel plan (nominal bandwidth =20MHz, 40MHz, 80MHz) is reported.

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
37.55	34.24	14.96	0.64	30.06	19.78	40.00	-20.22	Vertical
56.20	31.93	14.93	0.83	29.95	17.74	40.00	-22.26	Vertical
100.23	39.41	15.11	1.19	29.70	26.01	43.50	-17.49	Vertical
218.31	32.93	13.13	1.95	29.38	18.63	46.00	-27.37	Vertical
423.54	24.15	17.49	2.96	29.45	15.15	46.00	-30.85	Vertical
768.75	23.83	21.68	4.35	29.20	20.66	46.00	-25.34	Vertical
47.66	26.68	15.39	0.75	30.01	12.81	40.00	-27.19	Horizontal
69.36	26.93	10.92	0.94	29.86	8.93	40.00	-31.07	Horizontal
100.23	35.42	15.11	1.19	29.70	22.02	43.50	-21.48	Horizontal
145.35	37.48	10.23	1.54	29.43	19.82	43.50	-23.68	Horizontal
225.31	34.76	13.41	1.99	29.44	20.72	46.00	-25.28	Horizontal
724.26	24.14	21.10	4.18	29.20	20.22	46.00	-25.78	Horizontal

■ Above 1GHz

802.11a SISO mode: ANT1

Test mode:		802.11a			Test channel:		lowest	
Antenna Pol.	Frequency (MHz)	Reading Level	Factor	Measure Level	Limit (dBuV/m)	Margin (dB)	Detector	
V	11510.00	26.52	21.64	48.16	54(Note3)	-5.84	PK	
V	17265.00	24.25	21.80	46.05	54(Note3)	-7.95	PK	
H	11510.00	24.32	21.83	46.15	54(Note3)	-7.85	PK	
H	17265.00	23.20	21.67	44.87	54(Note3)	-9.13	PK	

Test mode:		802.11a			Test channel:		Middle	
Antenna Pol.	Frequency (MHz)	Reading Level	Factor	Measure Level	Limit (dBuV/m)	Margin (dB)	Detector	
V	11570.00	25.30	21.64	46.94	54(Note3)	-7.06	PK	
V	17355.00	23.29	21.80	45.09	54(Note3)	-8.91	PK	
H	11570.00	22.80	21.83	44.63	54(Note3)	-9.37	PK	
H	17355.00	22.05	21.67	43.72	54(Note3)	-10.28	PK	

Test mode:		802.11a			Test channel:		Highest	
Antenna Pol.	Frequency (MHz)	Reading Level	Factor	Measure Level	Limit (dBuV/m)	Margin (dB)	Detector	
V	11650.00	24.79	21.64	46.43	54(Note3)	-7.57	PK	
V	17475.00	22.87	21.80	44.67	54(Note3)	-9.33	PK	
H	11650.00	22.73	21.83	44.56	54(Note3)	-9.44	PK	
H	17475.00	21.72	21.67	43.39	54(Note3)	-10.61	PK	

802.11a SISO mode: ANT2

Test mode:		802.11a		Test channel:		lowest	
Antenna Pol.	Frequency (MHz)	Reading Level	Factor	Measure Level	Limit (dBuV/m)	Margin (dB)	Detector
V	11510.00	26.71	21.64	48.35	54(Note3)	-5.65	PK
V	17265.00	24.51	21.80	46.31	54(Note3)	-7.69	PK
H	11510.00	24.56	21.64	46.20	54(Note3)	-7.80	PK
H	17265.00	23.42	21.80	45.22	54(Note3)	-8.78	PK

Test mode:		802.11a		Test channel:		Middle	
Antenna Pol.	Frequency (MHz)	Reading Level	Factor	Measure Level	Limit (dBuV/m)	Margin (dB)	Detector
V	11570.00	25.60	21.67	47.27	54(Note3)	-6.73	PK
V	17355.00	23.57	21.83	45.40	54(Note3)	-8.60	PK
H	11570.00	23.04	21.67	44.71	54(Note3)	-9.29	PK
H	17355.00	22.40	21.83	44.23	54(Note3)	-9.77	PK

Test mode:		802.11a		Test channel:		Highest	
Antenna Pol.	Frequency (MHz)	Reading Level	Factor	Measure Level	Limit (dBuV/m)	Margin (dB)	Detector
V	11650.00	25.00	21.64	46.64	54(Note3)	-7.36	PK
V	17475.00	23.10	22.16	45.26	54(Note3)	-8.74	PK
H	11650.00	22.94	21.64	44.58	54(Note3)	-9.42	PK
H	17475.00	22.02	22.16	44.18	54(Note3)	-9.82	PK

802.11ac MIMO mode: ANT1+ANT2

Test mode:		802.11ac(HT40)		Test channel:		Lowest	
Antenna Pol.	Frequency (MHz)	Reading Level	Factor	Measure Level	Limit (dBuV/m)	Margin (dB)	Detector
V	11510.00	26.52	21.67	48.19	54(Note3)	-5.81	PK
V	17265.00	24.25	21.83	46.08	54(Note3)	-7.92	PK
H	11510.00	24.32	21.67	45.99	54(Note3)	-8.01	PK
H	17265.00	23.20	21.83	45.03	54(Note3)	-8.97	PK

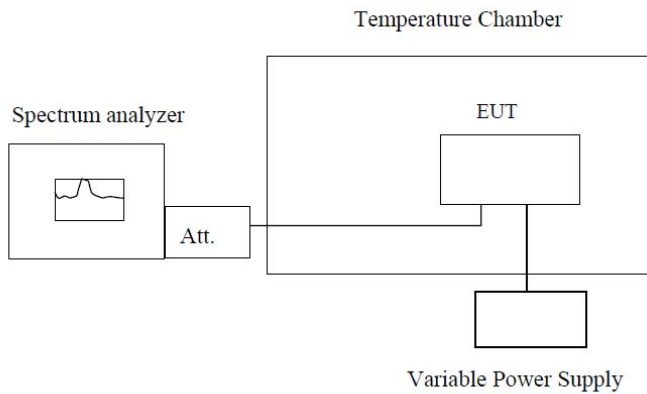
Test mode:		802.11ac(HT40)		Test channel:		Highest	
Antenna Pol.	Frequency (MHz)	Reading Level	Factor	Measure Level	Limit (dBuV/m)	Margin (dB)	Detector
V	11590.00	28.60	21.67	50.27	54(Note3)	-3.73	PK
V	17385.00	26.29	21.83	48.12	54(Note3)	-5.88	PK
H	11590.00	26.45	21.67	48.12	54(Note3)	-5.88	PK
H	17385.00	25.27	21.83	47.10	54(Note3)	-6.90	PK

Test mode:		802.11ac(HT80)		Test channel:		Middle	
Antenna Pol.	Frequency (MHz)	Reading Level	Factor	Measure Level	Limit (dBuV/m)	Margin (dB)	Detector
V	11550.00	25.46	21.65	47.11	54(Note3)	-6.89	PK
V	17325.00	23.42	21.81	45.23	54(Note3)	-8.77	PK
H	11550.00	23.56	21.65	45.21	54(Note3)	-8.79	PK
H	17325.00	22.36	21.81	44.17	54(Note3)	-9.83	PK

Note:

1. Measure Level = Reading Level + 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, 2014; tested to 2.1055 for compliance to FCC Part 15.407(g) requirements.
Test setup:	 <p>Note : Measurement setup for testing on Antenna connector</p>
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Measurement data:
ANT:1

802.11a					
Frequency stability versus Temp.					
Power Supply: DC 3.7V					
Temp. (°C)	Operating Frequency (MHz)	0 minute Measured Frequency (MHz)	2 minute Measured Frequency (MHz)	5 minute Measured Frequency (MHz)	10 minute Measured Frequency (MHz)
-30	5745	5744.9877	5744.9883	5744.9892	5744.9897
	5785	5784.9880	5784.9886	5784.9895	5784.9900
	5825	5824.9884	5824.9889	5824.9898	5824.9903
-20	5745	5744.9887	5744.9892	5744.9901	5744.9906
	5785	5784.9890	5784.9896	5784.9904	5784.9909
	5825	5824.9894	5824.9899	5824.9907	5824.9911
-10	5745	5744.9897	5744.9902	5744.9909	5744.9914
	5785	5784.9900	5784.9904	5784.9912	5784.9916
	5825	5824.9903	5824.9907	5824.9915	5824.9919
0	5745	5744.9905	5744.9910	5744.9917	5744.9921
	5785	5784.9908	5784.9913	5784.9919	5784.9924
	5825	5824.9911	5824.9915	5824.9922	5824.9926
10	5745	5744.9880	5744.9886	5744.9895	5744.9900
	5785	5784.9884	5784.9889	5784.9898	5784.9903
	5825	5824.9887	5824.9892	5824.9901	5824.9906
20	5745	5744.9890	5744.9896	5744.9904	5744.9909
	5785	5784.9893	5784.9899	5784.9907	5784.9911
	5825	5824.9897	5824.9902	5824.9909	5824.9914
30	5745	5744.9900	5744.9904	5744.9912	5744.9916
	5785	5784.9903	5784.9907	5784.9914	5784.9919
	5825	5824.9905	5824.9910	5824.9917	5824.9921
40	5745	5744.9908	5744.9913	5744.9919	5744.9923
	5785	5784.9911	5784.9915	5784.9922	5784.9926
	5825	5824.9913	5824.9918	5824.9924	5824.9928
50	5745	5744.9875	5744.9881	5744.9891	5744.9896
	5785	5784.9879	5784.9885	5784.9894	5784.9899
	5825	5824.9883	5824.9888	5824.9897	5824.9902

Frequency stability versus Voltage					
Temperature: 25°C					
Power Supply (VDC)	Operating Frequency (MHz)	0 minute Measured Frequency (MHz)	2 minute Measured Frequency (MHz)	5 minute Measured Frequency (MHz)	10 minute Measured Frequency (MHz)
3.3	5745	5744.9883	5744.9889	5744.9898	5744.9903
	5785	5784.9886	5784.9891	5784.9900	5784.9905
	5825	5824.9888	5824.9893	5824.9902	5824.9907
3.7	5745	5744.9890	5744.9895	5744.9904	5744.9909
	5785	5784.9892	5784.9897	5784.9906	5784.9910
	5825	5824.9894	5824.9899	5824.9907	5824.9912
4.1	5745	5744.9897	5744.9901	5744.9909	5744.9914
	5785	5784.9899	5784.9903	5784.9911	5784.9916
	5825	5824.9901	5824.9905	5824.9913	5824.9917

802.11n(HT20)					
Frequency stability versus Temp.					
Power Supply: DC 3.7V					
Temp. (°C)	Operating Frequency (MHz)	0 minute Measured Frequency (MHz)	2 minute Measured Frequency (MHz)	5 minute Measured Frequency (MHz)	10 minute Measured Frequency (MHz)
-30	5745	5744.9881	5744.9886	5744.9895	5744.9901
	5785	5784.9884	5784.9890	5784.9898	5784.9903
	5825	5824.9887	5824.9893	5824.9901	5824.9906
-20	5745	5744.9891	5744.9896	5744.9904	5744.9909
	5785	5784.9894	5784.9899	5784.9907	5784.9912
	5825	5824.9897	5824.9902	5824.9910	5824.9914
-10	5745	5744.9900	5744.9905	5744.9912	5744.9917
	5785	5784.9903	5784.9908	5784.9915	5784.9919
	5825	5824.9906	5824.9910	5824.9917	5824.9922
0	5745	5744.9908	5744.9913	5744.9920	5744.9924
	5785	5784.9911	5784.9915	5784.9922	5784.9926
	5825	5824.9914	5824.9918	5824.9924	5824.9928
10	5745	5744.9884	5744.9890	5744.9898	5744.9903
	5785	5784.9887	5784.9893	5784.9901	5784.9906
	5825	5824.9891	5824.9896	5824.9904	5824.9909
20	5745	5744.9894	5744.9899	5744.9907	5744.9912
	5785	5784.9897	5784.9902	5784.9910	5784.9914
	5825	5824.9900	5824.9905	5824.9912	5824.9917
30	5745	5744.9903	5744.9907	5744.9915	5744.9919
	5785	5784.9906	5784.9910	5784.9917	5784.9921
	5825	5824.9908	5824.9913	5824.9920	5824.9924
40	5745	5744.9911	5744.9915	5744.9922	5744.9926
	5785	5784.9914	5784.9918	5784.9924	5784.9928
	5825	5824.9916	5824.9920	5824.9926	5824.9930
50	5745	5744.9879	5744.9885	5744.9894	5744.9900
	5785	5784.9883	5784.9889	5784.9897	5784.9903
	5825	5824.9886	5824.9892	5824.9900	5824.9905

Frequency stability versus Voltage					
Temperature: 25°C					
Power Supply (VDC)	Operating Frequency (MHz)	0 minute Measured Frequency (MHz)	2 minute Measured Frequency (MHz)	5 minute Measured Frequency (MHz)	10 minute Measured Frequency (MHz)
3.3	5745	5744.9881	5744.9887	5744.9896	5744.9901
	5785	5784.9884	5784.9889	5784.9898	5784.9903
	5825	5824.9886	5824.9891	5824.9900	5824.9905
3.7	5745	5744.9888	5744.9894	5744.9902	5744.9907
	5785	5784.9890	5784.9896	5784.9904	5784.9909
	5825	5824.9893	5824.9898	5824.9906	5824.9911
4.1	5745	5744.9895	5744.9900	5744.9908	5744.9912
	5785	5784.9897	5784.9902	5784.9909	5784.9914
	5825	5824.9899	5824.9904	5824.9911	5824.9916

802.11ac(HT20)					
Frequency stability versus Temp.					
Power Supply: DC 3.7V					
Temp. (°C)	Operating Frequency (MHz)	0 minute Measured Frequency (MHz)	2 minute Measured Frequency (MHz)	5 minute Measured Frequency (MHz)	10 minute Measured Frequency (MHz)
-30	5745	5744.9869	5744.9875	5744.9885	5744.9891
	5785	5784.9872	5784.9879	5784.9888	5784.9894
	5825	5824.9876	5824.9882	5824.9891	5824.9897
-20	5745	5744.9880	5744.9886	5744.9895	5744.9900
	5785	5784.9883	5784.9889	5784.9898	5784.9903
	5825	5824.9887	5824.9892	5824.9901	5824.9906
-10	5745	5744.9890	5744.9895	5744.9904	5744.9908
	5785	5784.9893	5784.9898	5784.9906	5784.9911
	5825	5824.9896	5824.9901	5824.9909	5824.9914
0	5745	5744.9899	5744.9904	5744.9912	5744.9916
	5785	5784.9902	5784.9907	5784.9914	5784.9919
	5825	5824.9905	5824.9910	5824.9917	5824.9921
10	5745	5744.9872	5744.9878	5744.9888	5744.9894
	5785	5784.9876	5784.9882	5784.9891	5784.9897
	5825	5824.9880	5824.9885	5824.9894	5824.9900
20	5745	5744.9883	5744.9889	5744.9898	5744.9903
	5785	5784.9887	5784.9892	5784.9901	5784.9906
	5825	5824.9890	5824.9895	5824.9903	5824.9908
30	5745	5744.9893	5744.9898	5744.9906	5744.9911
	5785	5784.9896	5784.9901	5784.9909	5784.9914
	5825	5824.9899	5824.9904	5824.9912	5824.9916
40	5745	5744.9902	5744.9907	5744.9914	5744.9919
	5785	5784.9905	5784.9910	5784.9917	5784.9921
	5825	5824.9908	5824.9912	5824.9919	5824.9923
50	5745	5744.9867	5744.9874	5744.9884	5744.9890
	5785	5784.9871	5784.9877	5784.9887	5784.9893
	5825	5824.9875	5824.9881	5824.9890	5824.9896

Frequency stability versus Voltage					
Temperature: 25°C					
Power Supply (VDC)	Operating Frequency (MHz)	0 minute Measured Frequency (MHz)	2 minute Measured Frequency (MHz)	5 minute Measured Frequency (MHz)	10 minute Measured Frequency (MHz)
3.3	5745	5744.9885	5744.9891	5744.9900	5744.9905
	5785	5784.9888	5784.9893	5784.9901	5784.9906
	5825	5824.9890	5824.9895	5824.9903	5824.9908
3.7	5745	5744.9892	5744.9897	5744.9905	5744.9910
	5785	5784.9894	5784.9899	5784.9907	5784.9912
	5825	5824.9896	5824.9901	5824.9909	5824.9914
4.1	5745	5744.9898	5744.9903	5744.9911	5744.9915
	5785	5784.9900	5784.9905	5784.9913	5784.9917
	5825	5824.9902	5824.9907	5824.9914	5824.9919

802.11n(HT40)					
Frequency stability versus Temp.					
Power Supply: DC 3.7V					
Temp. (°C)	Operating Frequency (MHz)	0 minute Measured Frequency (MHz)	2 minute Measured Frequency (MHz)	5 minute Measured Frequency (MHz)	10 minute Measured Frequency (MHz)
-30	5755	5754.9863	5754.9869	5754.9880	5754.9886
	5795	5794.9867	5794.9873	5794.9883	5794.9889
-20	5755	5754.9871	5754.9877	5754.9886	5754.9892
	5795	5794.9874	5794.9880	5794.9890	5794.9895
-10	5755	5754.9878	5754.9884	5754.9893	5754.9898
	5795	5794.9882	5794.9887	5794.9896	5794.9901
0	5755	5754.9885	5754.9891	5754.9899	5754.9904
	5795	5794.9888	5794.9894	5794.9902	5794.9907
10	5755	5754.9892	5754.9897	5754.9905	5754.9910
	5795	5794.9895	5794.9900	5794.9908	5794.9912
20	5755	5754.9898	5754.9903	5754.9910	5754.9915
	5795	5794.9901	5794.9906	5794.9913	5794.9917
30	5755	5754.9867	5754.9873	5754.9883	5754.9889
	5795	5794.9870	5794.9877	5794.9886	5794.9892
40	5755	5754.9874	5754.9880	5754.9890	5754.9895
	5795	5794.9878	5794.9884	5794.9893	5794.9898
50	5755	5754.9881	5754.9887	5754.9896	5754.9901
	5795	5794.9885	5794.9890	5794.9899	5794.9904

Frequency stability versus Voltage					
Temperature: 25°C					
Power Supply (VDC)	Operating Frequency (MHz)	0 minute Measured Frequency (MHz)	2 minute Measured Frequency (MHz)	5 minute Measured Frequency (MHz)	10 minute Measured Frequency (MHz)
3.3	5755	5754.9883	5754.9889	5754.9898	5754.9903
	5795	5794.9886	5794.9891	5794.9900	5794.9905
3.7	5755	5754.9888	5754.9893	5754.9902	5754.9907
	5795	5794.9890	5794.9895	5794.9904	5794.9909
4.1	5755	5754.9892	5754.9897	5754.9906	5754.9910
	5795	5794.9894	5794.9899	5794.9907	5794.9912

802.11ac(HT40)					
Frequency stability versus Temp.					
Power Supply: DC 3.7V					
Temp. (°C)	Operating Frequency (MHz)	0 minute Measured Frequency (MHz)	2 minute Measured Frequency (MHz)	5 minute Measured Frequency (MHz)	10 minute Measured Frequency (MHz)
-30	5755	5754.9857	5754.9864	5754.9874	5754.9881
	5795	5794.9861	5794.9868	5794.9878	5794.9884
-20	5755	5754.9865	5754.9871	5754.9882	5754.9888
	5795	5794.9869	5794.9875	5794.9885	5794.9891
-10	5755	5754.9873	5754.9879	5754.9888	5754.9894
	5795	5794.9876	5794.9882	5794.9892	5794.9897
0	5755	5754.9880	5754.9886	5754.9895	5754.9900
	5795	5794.9884	5794.9889	5794.9898	5794.9903
10	5755	5754.9887	5754.9892	5754.9901	5754.9906
	5795	5794.9890	5794.9895	5794.9904	5794.9909
20	5755	5754.9893	5754.9898	5754.9906	5754.9911
	5795	5794.9896	5794.9901	5794.9909	5794.9914
30	5755	5754.9861	5754.9867	5754.9878	5754.9884
	5795	5794.9865	5794.9871	5794.9881	5794.9887
40	5755	5754.9869	5754.9875	5754.9885	5754.9891
	5795	5794.9873	5794.9879	5794.9888	5794.9894
50	5755	5754.9876	5754.9882	5754.9891	5754.9897
	5795	5794.9880	5794.9886	5794.9895	5794.9900

Frequency stability versus Voltage					
Temperature: 25°C					
Power Supply (VDC)	Operating Frequency (MHz)	0 minute Measured Frequency (MHz)	2 minute Measured Frequency (MHz)	5 minute Measured Frequency (MHz)	10 minute Measured Frequency (MHz)
3.3	5755	5754.9881	5754.9887	5754.9896	5754.9901
	5795	5794.9884	5794.9889	5794.9898	5794.9903
3.7	5755	5754.9886	5754.9891	5754.9900	5754.9905
	5795	5794.9888	5794.9894	5794.9902	5794.9907
4.1	5755	5754.9890	5754.9896	5754.9904	5754.9909
	5795	5794.9893	5794.9898	5794.9906	5794.9911

802.11ac(HT80)					
Frequency stability versus Temp.					
Power Supply: DC 3.7V					
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	5775	5774.9857	5774.9864	5774.9874	5774.9881
-20	5775	5774.9861	5774.9868	5774.9878	5774.9884
-10	5775	5774.9865	5774.9871	5774.9882	5774.9888
0	5775	5774.9869	5774.9875	5774.9885	5774.9891
10	5775	5774.9873	5774.9879	5774.9888	5774.9894
20	5775	5774.9876	5774.9882	5774.9892	5774.9897
30	5775	5774.9880	5774.9886	5774.9895	5774.9900
40	5775	5774.9884	5774.9889	5774.9898	5774.9903
50	5775	5774.9887	5774.9892	5774.9901	5774.9906

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	5775	5774.9891	5774.9897	5774.9905	5774.9910
3.7	5775	5774.9894	5774.9899	5774.9907	5774.9911
4.1	5775	5774.9896	5774.9901	5774.9909	5774.9913

ANT:2

802.11a					
Frequency stability versus Temp.					
Power Supply: DC 3.7V					
Temp. (°C)	Operating Frequency (MHz)	0 minute Measured Frequency (MHz)	2 minute Measured Frequency (MHz)	5 minute Measured Frequency (MHz)	10 minute Measured Frequency (MHz)
-30	5745	5744.9873	5744.9879	5744.9888	5744.9894
	5785	5784.9876	5784.9882	5784.9892	5784.9897
	5825	5824.9880	5824.9886	5824.9895	5824.9900
-20	5745	5744.9883	5744.9889	5744.9898	5744.9903
	5785	5784.9887	5784.9892	5784.9901	5784.9906
	5825	5824.9890	5824.9895	5824.9904	5824.9909
-10	5745	5744.9893	5744.9898	5744.9906	5744.9911
	5785	5784.9896	5784.9901	5784.9909	5784.9914
	5825	5824.9899	5824.9904	5824.9912	5824.9916
0	5745	5744.9902	5744.9907	5744.9914	5744.9919
	5785	5784.9905	5784.9910	5784.9917	5784.9921
	5825	5824.9908	5824.9912	5824.9919	5824.9923
10	5745	5744.9876	5744.9882	5744.9891	5744.9897
	5785	5784.9880	5784.9886	5784.9895	5784.9900
	5825	5824.9883	5824.9889	5824.9898	5824.9903
20	5745	5744.9887	5744.9892	5744.9901	5744.9906
	5785	5784.9890	5784.9895	5784.9904	5784.9908
	5825	5824.9893	5824.9898	5824.9906	5824.9911
30	5745	5744.9896	5744.9901	5744.9909	5744.9914
	5785	5784.9899	5784.9904	5784.9912	5784.9916
	5825	5824.9902	5824.9907	5824.9914	5824.9919
40	5745	5744.9905	5744.9910	5744.9917	5744.9921
	5785	5784.9908	5784.9912	5784.9919	5784.9923
	5825	5824.9911	5824.9915	5824.9922	5824.9926
50	5745	5744.9871	5744.9878	5744.9887	5744.9893
	5785	5784.9875	5784.9881	5784.9890	5784.9896
	5825	5824.9879	5824.9885	5824.9894	5824.9899

Frequency stability versus Voltage					
Temperature: 25°C					
Power Supply (VDC)	Operating Frequency (MHz)	0 minute Measured Frequency (MHz)	2 minute Measured Frequency (MHz)	5 minute Measured Frequency (MHz)	10 minute Measured Frequency (MHz)
3.3	5745	5744.9877	5744.9883	5744.9892	5744.9898
	5785	5784.9880	5784.9886	5784.9895	5784.9900
	5825	5824.9882	5824.9888	5824.9897	5824.9902
3.7	5745	5744.9884	5744.9890	5744.9899	5744.9904
	5785	5784.9887	5784.9892	5784.9901	5784.9906
	5825	5824.9889	5824.9894	5824.9903	5824.9908
4.1	5745	5744.9891	5744.9896	5744.9905	5744.9909
	5785	5784.9893	5784.9898	5784.9906	5784.9911
	5825	5824.9895	5824.9900	5824.9908	5824.9913

802.11n(HT20)					
Frequency stability versus Temp.					
Power Supply: DC 3.7V					
Temp. (°C)	Operating Frequency (MHz)	0 minute Measured Frequency (MHz)	2 minute Measured Frequency (MHz)	5 minute Measured Frequency (MHz)	10 minute Measured Frequency (MHz)
-30	5745	5744.9863	5744.9869	5744.9880	5744.9886
	5785	5784.9867	5784.9873	5784.9883	5784.9889
	5825	5824.9871	5824.9877	5824.9886	5824.9892
-20	5745	5744.9874	5744.9880	5744.9890	5744.9895
	5785	5784.9878	5784.9884	5784.9893	5784.9898
	5825	5824.9882	5824.9887	5824.9896	5824.9901
-10	5745	5744.9885	5744.9891	5744.9899	5744.9904
	5785	5784.9888	5784.9894	5784.9902	5784.9907
	5825	5824.9892	5824.9897	5824.9905	5824.9910
0	5745	5744.9895	5744.9900	5744.9908	5744.9912
	5785	5784.9898	5784.9903	5784.9910	5784.9915
	5825	5824.9901	5824.9906	5824.9913	5824.9917
10	5745	5744.9867	5744.9873	5744.9883	5744.9889
	5785	5784.9870	5784.9877	5784.9886	5784.9892
	5825	5824.9874	5824.9880	5824.9890	5824.9895
20	5745	5744.9878	5744.9884	5744.9893	5744.9898
	5785	5784.9881	5784.9887	5784.9896	5784.9901
	5825	5824.9885	5824.9890	5824.9899	5824.9904
30	5745	5744.9888	5744.9894	5744.9902	5744.9907
	5785	5784.9892	5784.9897	5784.9905	5784.9910
	5825	5824.9895	5824.9900	5824.9908	5824.9912
40	5745	5744.9898	5744.9903	5744.9910	5744.9915
	5785	5784.9901	5784.9905	5784.9913	5784.9917
	5825	5824.9904	5824.9908	5824.9915	5824.9920
50	5745	5744.9861	5744.9868	5744.9878	5744.9885
	5785	5784.9865	5784.9872	5784.9882	5784.9888
	5825	5824.9869	5824.9876	5824.9885	5824.9891

Frequency stability versus Voltage					
Temperature: 25°C					
Power Supply (VDC)	Operating Frequency (MHz)	0 minute Measured Frequency (MHz)	2 minute Measured Frequency (MHz)	5 minute Measured Frequency (MHz)	10 minute Measured Frequency (MHz)
3.3	5745	5744.9889	5744.9895	5744.9903	5744.9908
	5785	5784.9892	5784.9897	5784.9905	5784.9910
	5825	5824.9894	5824.9899	5824.9907	5824.9912
3.7	5745	5744.9896	5744.9901	5744.9909	5744.9913
	5785	5784.9898	5784.9903	5784.9910	5784.9915
	5825	5824.9900	5824.9905	5824.9912	5824.9917
4.1	5745	5744.9902	5744.9907	5744.9914	5744.9918
	5785	5784.9904	5784.9908	5784.9916	5784.9920
	5825	5824.9906	5824.9910	5824.9917	5824.9921

802.11ac(HT20)					
Frequency stability versus Temp.					
Power Supply: DC 3.7V					
Temp. (°C)	Operating Frequency (MHz)	0 minute Measured Frequency (MHz)	2 minute Measured Frequency (MHz)	5 minute Measured Frequency (MHz)	10 minute Measured Frequency (MHz)
-30	5745	5744.9867	5744.9873	5744.9883	5744.9889
	5785	5784.9871	5784.9877	5784.9886	5784.9892
	5825	5824.9874	5824.9880	5824.9890	5824.9895
-20	5745	5744.9878	5744.9884	5744.9893	5744.9898
	5785	5784.9882	5784.9887	5784.9896	5784.9901
	5825	5824.9885	5824.9890	5824.9899	5824.9904
-10	5745	5744.9888	5744.9894	5744.9902	5744.9907
	5785	5784.9892	5784.9897	5784.9905	5784.9910
	5825	5824.9895	5824.9900	5824.9908	5824.9912
0	5745	5744.9898	5744.9903	5744.9910	5744.9915
	5785	5784.9901	5784.9906	5784.9913	5784.9917
	5825	5824.9904	5824.9908	5824.9916	5824.9920
10	5745	5744.9870	5744.9877	5744.9886	5744.9892
	5785	5784.9874	5784.9880	5784.9890	5784.9895
	5825	5824.9878	5824.9884	5824.9893	5824.9898
20	5745	5744.9881	5744.9887	5744.9896	5744.9901
	5785	5784.9885	5784.9890	5784.9899	5784.9904
	5825	5824.9888	5824.9894	5824.9902	5824.9907
30	5745	5744.9892	5744.9897	5744.9905	5744.9910
	5785	5784.9895	5784.9900	5784.9908	5784.9912
	5825	5824.9898	5824.9903	5824.9910	5824.9915
40	5745	5744.9901	5744.9905	5744.9913	5744.9917
	5785	5784.9904	5784.9908	5784.9915	5784.9920
	5825	5824.9906	5824.9911	5824.9918	5824.9922
50	5745	5744.9865	5744.9872	5744.9882	5744.9888
	5785	5784.9869	5784.9876	5784.9885	5784.9891
	5825	5824.9873	5824.9879	5824.9889	5824.9894

Frequency stability versus Voltage					
Temperature: 25°C					
Power Supply (VDC)	Operating Frequency (MHz)	0 minute Measured Frequency (MHz)	2 minute Measured Frequency (MHz)	5 minute Measured Frequency (MHz)	10 minute Measured Frequency (MHz)
3.3	5745	5744.9894	5744.9899	5744.9907	5744.9911
	5785	5784.9896	5784.9901	5784.9908	5784.9913
	5825	5824.9898	5824.9903	5824.9910	5824.9915
3.7	5745	5744.9900	5744.9904	5744.9912	5744.9916
	5785	5784.9902	5784.9906	5784.9914	5784.9918
	5825	5824.9904	5824.9908	5824.9915	5824.9920
4.1	5745	5744.9905	5744.9910	5744.9917	5744.9921
	5785	5784.9907	5784.9912	5784.9919	5784.9923
	5825	5824.9909	5824.9913	5824.9920	5824.9924

802.11n(HT40)					
Frequency stability versus Temp.					
Power Supply: DC 3.7V					
Temp. (°C)	Operating Frequency (MHz)	0 minute Measured Frequency (MHz)	2 minute Measured Frequency (MHz)	5 minute Measured Frequency (MHz)	10 minute Measured Frequency (MHz)
-30	5755	5754.9877	5754.9883	5754.9892	5754.9897
	5795	5794.9880	5794.9886	5794.9895	5794.9900
-20	5755	5754.9884	5754.9889	5754.9898	5754.9903
	5795	5794.9887	5794.9892	5794.9901	5794.9906
-10	5755	5754.9890	5754.9896	5754.9904	5754.9909
	5795	5794.9894	5794.9899	5794.9907	5794.9911
0	5755	5754.9897	5754.9902	5754.9909	5754.9914
	5795	5794.9900	5794.9904	5794.9912	5794.9916
10	5755	5754.9903	5754.9907	5754.9915	5754.9919
	5795	5794.9905	5794.9910	5794.9917	5794.9921
20	5755	5754.9908	5754.9913	5754.9919	5754.9924
	5795	5794.9911	5794.9915	5794.9922	5794.9926
30	5755	5754.9880	5754.9886	5754.9895	5754.9900
	5795	5794.9884	5794.9889	5794.9898	5794.9903
40	5755	5754.9887	5754.9892	5754.9901	5754.9906
	5795	5794.9890	5794.9896	5794.9904	5794.9909
50	5755	5754.9893	5754.9899	5754.9907	5754.9911
	5795	5794.9897	5794.9902	5794.9909	5794.9914

Frequency stability versus Voltage					
Temperature: 25°C					
Power Supply (VDC)	Operating Frequency (MHz)	0 minute Measured Frequency (MHz)	2 minute Measured Frequency (MHz)	5 minute Measured Frequency (MHz)	10 minute Measured Frequency (MHz)
3.3	5755	5754.9885	5754.9891	5754.9900	5754.9905
	5795	5794.9888	5794.9893	5794.9901	5794.9906
3.7	5755	5754.9890	5754.9895	5754.9903	5754.9908
	5795	5794.9892	5794.9897	5794.9905	5794.9910
4.1	5755	5754.9894	5754.9899	5754.9907	5754.9912
	5795	5794.9896	5794.9901	5794.9909	5794.9914

802.11ac(HT40)					
Frequency stability versus Temp.					
Power Supply: DC 3.7V					
Temp. (°C)	Operating Frequency (MHz)	0 minute Measured Frequency (MHz)	2 minute Measured Frequency (MHz)	5 minute Measured Frequency (MHz)	10 minute Measured Frequency (MHz)
-30	5755	5754.9875	5754.9881	5754.9890	5754.9896
	5795	5794.9878	5794.9884	5794.9893	5794.9899
-20	5755	5754.9882	5754.9887	5754.9896	5754.9902
	5795	5794.9885	5794.9891	5794.9899	5794.9904
-10	5755	5754.9889	5754.9894	5754.9902	5754.9907
	5795	5794.9892	5794.9897	5794.9905	5794.9910
0	5755	5754.9895	5754.9900	5754.9908	5754.9913
	5795	5794.9898	5794.9903	5794.9911	5794.9915
10	5755	5754.9901	5754.9906	5754.9913	5754.9918
	5795	5794.9904	5794.9909	5794.9916	5794.9920
20	5755	5754.9907	5754.9911	5754.9918	5754.9922
	5795	5794.9909	5794.9914	5794.9921	5794.9925
30	5755	5754.9878	5754.9884	5754.9893	5754.9899
	5795	5794.9882	5794.9887	5794.9896	5794.9902
40	5755	5754.9885	5754.9891	5754.9899	5754.9904
	5795	5794.9889	5794.9894	5794.9902	5794.9907
50	5755	5754.9892	5754.9897	5754.9905	5754.9910
	5795	5794.9895	5794.9900	5794.9908	5794.9912

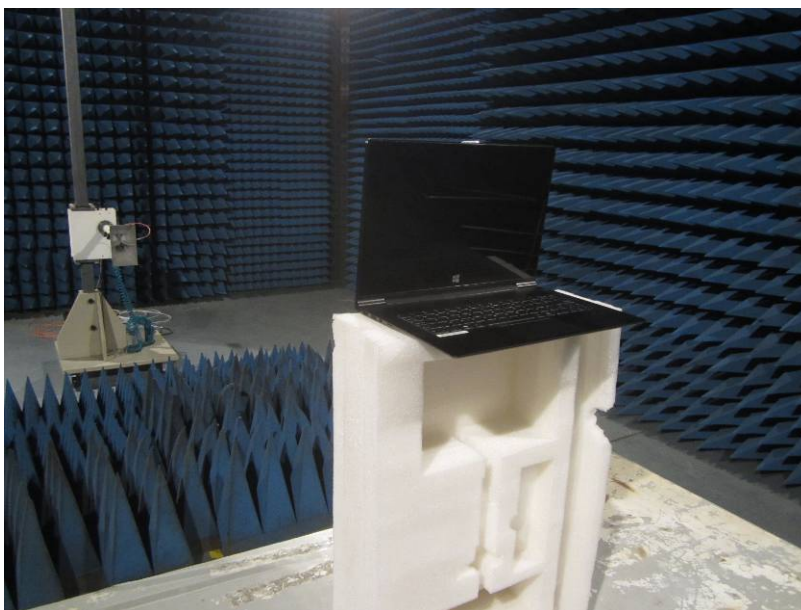
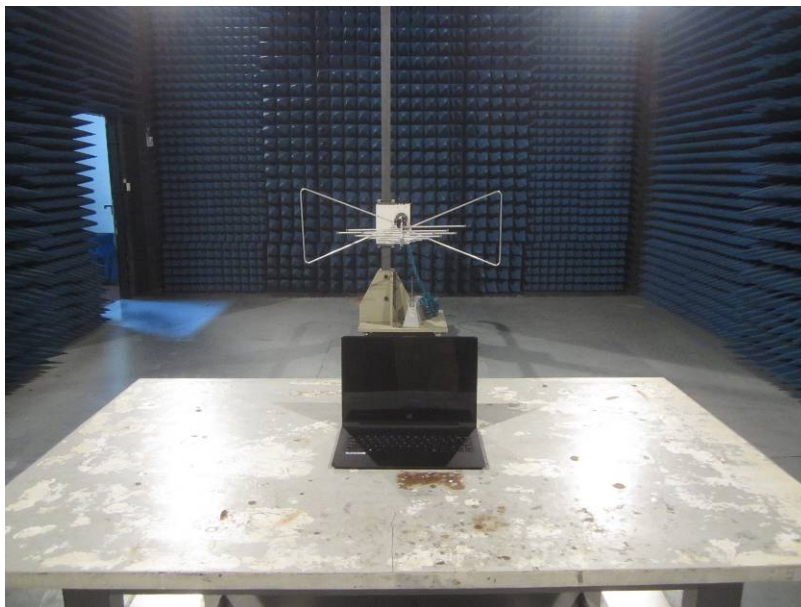
Frequency stability versus Voltage					
Temperature: 25°C					
Power Supply (VDC)	Operating Frequency (MHz)	0 minute Measured Frequency (MHz)	2 minute Measured Frequency (MHz)	5 minute Measured Frequency (MHz)	10 minute Measured Frequency (MHz)
3.3	5755	5754.9891	5754.9897	5754.9905	5754.9910
	5795	5794.9894	5794.9899	5794.9907	5794.9911
3.7	5755	5754.9896	5754.9901	5754.9909	5754.9913
	5795	5794.9898	5794.9903	5794.9910	5794.9915
4.1	5755	5754.9900	5754.9905	5754.9912	5754.9917
	5795	5794.9902	5794.9906	5794.9914	5794.9918

802.11ac(HT80)					
Frequency stability versus Temp.					
Power Supply: DC 3.7V					
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	5775	5774.9855	5774.9862	5774.9873	5774.9879
-20	5775	5774.9859	5774.9866	5774.9876	5774.9883
-10	5775	5774.9863	5774.9870	5774.9880	5774.9886
0	5775	5774.9867	5774.9873	5774.9883	5774.9889
10	5775	5774.9871	5774.9877	5774.9887	5774.9893
20	5775	5774.9875	5774.9881	5774.9890	5774.9896
30	5775	5774.9878	5774.9884	5774.9893	5774.9899
40	5775	5774.9882	5774.9888	5774.9896	5774.9902
50	5775	5774.9885	5774.9891	5774.9899	5774.9905

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	5775	5774.9887	5774.9893	5774.9901	5774.9906
3.7	5775	5774.9890	5774.9895	5774.9903	5774.9908
4.1	5775	5774.9892	5774.9897	5774.9905	5774.9910

8 Test Setup Photo

Radiated Emission



Conducted Emission



9 EUT Constructional Details

Reference to the test report No. GTSE15060113801

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