

# Test Report

**FCC Applicant:** Amino Communications Ltd

**FCC Address of Applicant:** 1010 Cambourne Business Park Cambourne, Cambridge  
CB23 6DP, United Kingdom

**IC Applicant:** AMINO COMMUNICATIONS LTD.

**IC Address of Applicant:** 1010 Cambourne Business Park Cambourne, Cambridge  
CB23 6DP United Kingdom Of Great Britain And Northern  
Ireland

**Manufacturer:** Shenzhen SDMC Technology Co., Ltd

**Address of Manufacturer:** 7/F, W2-A Bld., Gaoxin S. Av. 4, Hi-tech. Industrial Park,  
Nanshan District, Shenzhen,China, 518027

**Equipment Under Test (EUT)**

Product Name: IPTV Receiver

Model No.: See Section 5.1

Trade Mark: AMINO

**FCC ID:** XVG50-0100-AP-BT

**IC:** 6800A-500100APBT

**Applicable standards:** FCC CFR Title 47 Part 15 Subpart E Section 15.407  
RSS-Gen Issue 5: April 2018  
RSS-247 Issue 2: February 2017

**Date of sample receipt:** September 12, 2019

**Date of Test:** September 13-26, 2019

**Date of report issued:** September 26, 2019

**Test Result :** PASS \*

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

Authorized Signature:




**Robinson Lo**  
**Laboratory Manager**

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

## 2 Version

Version No.	Date	Description
00	September 26, 2019	Original

**Prepared By:**



**Date:**

September 26, 2019

\_\_\_\_\_  
**Project Engineer**

**Check By:**

  
**Reviewer**

**Date:**

September 26, 2019

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## 4 Test Summary

Test Item	Section	Result
Antenna requirement	FCC part 15.203 & RSS-Gen 6.8	Pass
AC Power Line Conducted Emission	FCC part 15.207 & RSS-Gen 8.8	Pass
Conducted Peak Output Power	FCC part 15.407(a)(3) & RSS-247	Pass
Channel Bandwidth	FCC part 15.247 (a)(2) RSS-247 Section 5.2(a) & RSS-Gen 6.7	Pass
Power Spectral Density	FCC part 15.407(a)(3) & RSS-247 6.2.4.1	Pass
Band Edge	FCC part 15.407(b)(4) RSS-Gen 8.10 & RSS-247 section 6	Pass
Spurious Emission	FCC part 15.205/15.209/15.407(b)(4) RSS-247 section 6 & RSS-Gen 8.9 & 8.10	Pass
Frequency Stability	FCC part 15.407(g) & RSS-Gen 8.11	Pass

*Remarks:*

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

### 4.1 Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	9kHz ~ 30MHz	± 4.34dB	(1)
Radiated Emission	30MHz ~ 1000MHz	± 4.24dB	(1)
Radiated Emission	1GHz ~ 40GHz	± 4.68dB	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	± 3.45dB	(1)

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

## 5 General Information

### 5.1 General Description of EUT

Product Name:	IPTV Receiver
FCC Model No.:	Amigo 7X V2, Amigo 7Xzzzzzzzz (zzzzzzzz can be combination of A~Z, a~z, 0~9, "-", "/", "blank" for marketing purpose)
IC Model No.:	Amigo 7X V2
Test Model No.:	Amigo 7X V2
<i>Remark: All above models are identical in the same PCB layout, interior structure and electrical circuits. The differences are color and model name for commercial purpose.</i>	
Serial No.:	190700250117
Hardware Version:	V2
Software Version:	Android 9
Test sample(s) ID:	GTS201909000082-1
Sample(s) Status:	Engineer sample
Operation Frequency:	802.11a/802.11n(HT20)/802.11ac(HT20): 5745MHz ~ 5825MHz 802.11n(HT40)/ 802.11ac(HT40): 5755MHz ~ 5795MHz 802.11ac(HT80): 5775MHz
Channel numbers:	802.11a/802.11n(HT20)/802.11ac(HT20): 5 802.11n(HT40)/ 802.11ac(HT40): 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:	Orthogonal Frequency Division Multiplexing (OFDM) MIMO: 802.11n/ac SISO: 802.11a
Antenna Type:	PIFA Antenna
Antenna gain:	ANT 1: 3.84dBi(declare by applicant) ANT 2: 3.69dBi(declare by applicant)
Power supply:	Adapter MODEL:SA12V-050200U INPUT: AC 100-240V, 50/60Hz,0.4A OUTPUT: DC 5V, 2 A

Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
149	5745MHz	151	5755MHz	153	5765MHz	155	5775MHz
157	5785MHz	159	5795MHz	161	5805MHz	163	5815MHz
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)		
	802.11 a/n/ac(HT20)	802.11 n/ac(HT40)	802.11ac(HT80)
Lowest channel	5745	5755	<del>5765</del>
Middle channel	5785	<del>5795</del>	5775
Highest channel	5825	5795	<del>5805</del>

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

## 5.3 Description of Support Units

Manufacturer	Description	Model	Serial Number
PHILIPS	LCD monitor	19PFL3120/T3	AU1A1212002906

## 5.4 Test Facility

<p>The test facility is recognized, certified, or accredited by the following organizations:</p> <ul style="list-style-type: none"> <li> <b>● FCC —Registration No.: 381383</b>                      Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 381383.                 </li> <li> <b>● IC —Registration No.: 9079A</b>                      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.                 </li> <li> <b>● NVLAP (LAB CODE:600179-0)</b>                      Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP). LAB CODE:600179-0                 </li> </ul>
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## 5.5 Test Location

All tests were performed at:
Global United Technology Services Co., Ltd. No. 123-128, Tower A, Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China Tel: 0755-27798480 Fax: 0755-27798960

## 5.6 Additional Instructions

Test Software	RFTestTool
Software name	Ampark
Software version	V5.2
Power level setup	Default

## 6 Test Instruments list

Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	July. 03 2015	July. 02 2020
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	June. 26 2019	June. 25 2020
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	June. 26 2019	June. 25 2020
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	GTS208	June. 26 2019	June. 25 2020
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	June. 26 2019	June. 25 2020
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Coaxial Cable	GTS	N/A	GTS213	June. 26 2019	June. 25 2020
9	Coaxial Cable	GTS	N/A	GTS211	June. 26 2019	June. 25 2020
10	Coaxial cable	GTS	N/A	GTS210	June. 26 2019	June. 25 2020
11	Coaxial Cable	GTS	N/A	GTS212	June. 26 2019	June. 25 2020
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	June. 26 2019	June. 25 2020
13	Amplifier(2GHz-20GHz)	HP	84722A	GTS206	June. 26 2019	June. 25 2020
14	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June. 26 2019	June. 25 2020
15	Band filter	Amindeon	82346	GTS219	June. 26 2019	June. 25 2020
16	Power Meter	Anritsu	ML2495A	GTS540	June. 26 2019	June. 25 2020
17	Power Sensor	Anritsu	MA2411B	GTS541	June. 26 2019	June. 25 2020
18	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS575	June. 26 2019	June. 25 2020
19	Splitter	Agilent	11636B	GTS237	June. 26 2019	June. 25 2020
20	Loop Antenna	ZHINAN	ZN30900A	GTS534	June. 26 2019	June. 25 2020
21	Breitband hornantenne	SCHWARZBECK	BBHA 9170	GTS579	Oct. 20 2018	Oct. 19 2019
22	Amplifier	TDK	PA-02-02	GTS574	Oct. 20 2018	Oct. 19 2019
23	Amplifier	TDK	PA-02-03	GTS576	Oct. 20 2018	Oct. 19 2019
24	PSA Series Spectrum Analyzer	Rohde & Schwarz	FSP	GTS578	June. 26 2019	June. 25 2020



Conducted Emission						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Shielding Room	ZhongYu Electron	7.3(L)x3.1(W)x2.9(H)	GTS252	May.15 2019	May.14 2022
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June. 26 2019	June. 25 2020
3	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	June. 26 2019	June. 25 2020
4	Artificial Mains Network	SCHWARZBECK MESS	NSLK8127	GTS226	June. 26 2019	June. 25 2020
5	Coaxial Cable	GTS	N/A	GTS227	N/A	N/A
6	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
7	Thermo meter	KTJ	TA328	GTS233	June. 26 2019	June. 25 2020
8	Absorbing clamp	Elektronik-Feinmechanik	MDS21	GTS229	June. 26 2019	June. 25 2020
9	ISN	SCHWARZBECK	NTFM 8158	GTD565	June. 26 2019	June. 25 2020

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

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

## 7 Test results and Measurement Data

### 7.1 Antenna requirement

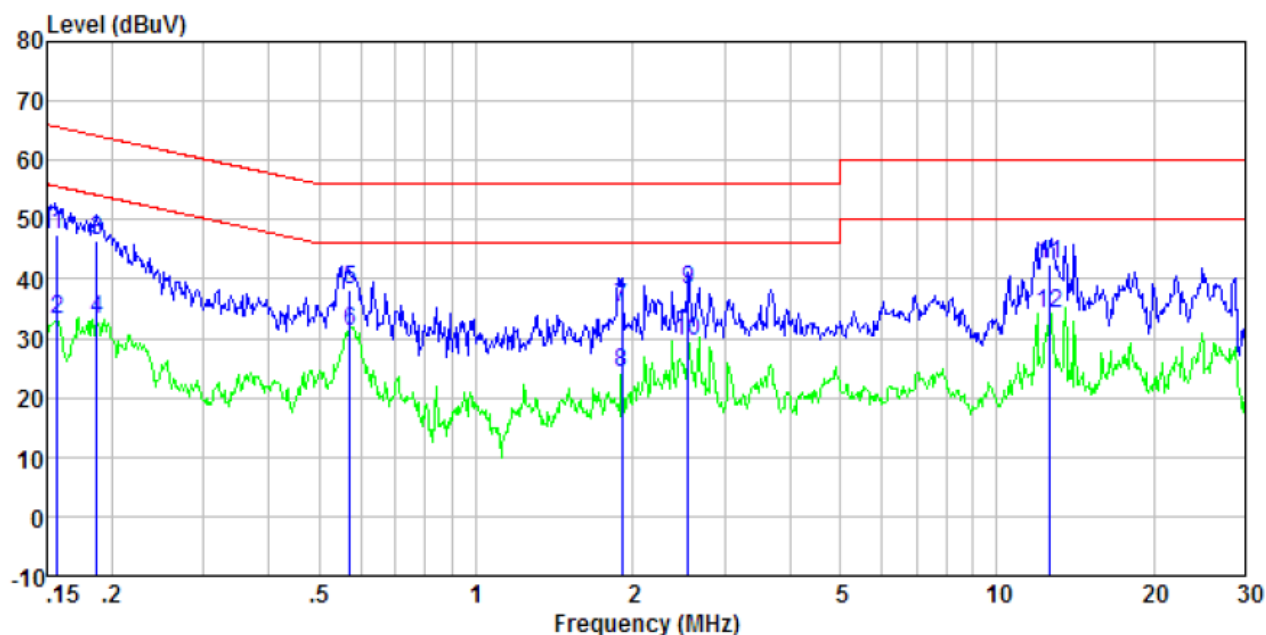
<b>Standard requirement:</b>	FCC Part15 C Section 15.203
<p><i>15.203 requirement:</i></p> <p>An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.</p>	
<b>Standard requirement:</b>	RSS-Gen 6.8
<p>A transmitter can only be sold or operated with antennas with which it was approved.</p> <p>When a measurement at the antenna connector is used to determine RF output power, the effective gain of the device's antenna shall be stated, based on measurement or on data from the antenna manufacturer. For transmitters of RF output power of 10 milliwatts or less, only the portion of the antenna gain that is in excess of 6 dBi (6 dB above isotropic gain) shall be added to the measured RF output power to demonstrate compliance with the radiated power limits specified in the applicable standard. For transmitters of output power greater than 10 milliwatts, the total antenna gain shall be added to the measured RF output power to demonstrate compliance to the specified radiated power</p>	
<b>E.U.T Antenna:</b>	
<p><i>The antenna is PIFA antenna, the best case gain of the ANT refer to section 5.1, reference to the appendix II for details</i></p>	

## 7.2 Conducted Emissions

Test Requirement:	FCC Part15 C Section 15.207 RSS-Gen 8.8					
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:	Frequency range (MHz)		Limit (dBuV)			
			Quasi-peak		Average	
	0.15-0.5		66 to 56*		56 to 46*	
	0.5-5		56		46	
5-30		60		50		
* Decreases with the logarithm of the frequency.						
Test setup:	<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"> <li>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.</li> <li>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).</li> <li>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.</li> </ol>					
Test Instruments:	Refer to section 6.0 for details					
Test mode:	Refer to section 5.2 for details					
Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:	1012mbar
Test results:	Pass					

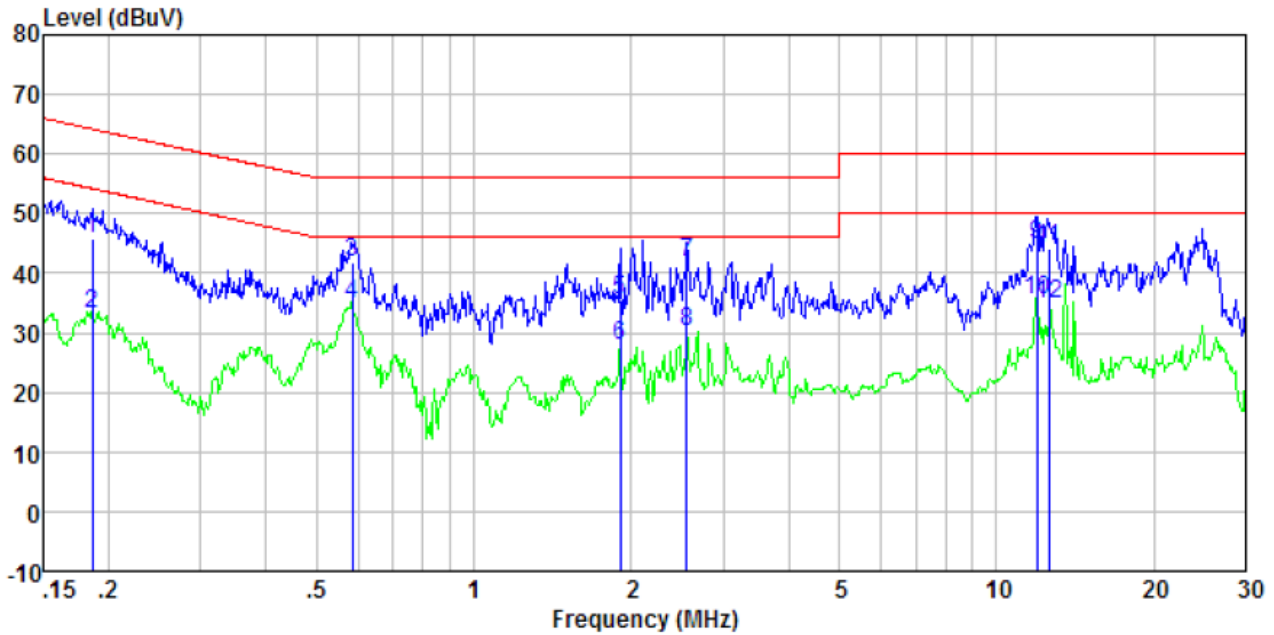
**Measurement data**

Line:



Freq MHz	Reading level dBuV	LISN/ISN factor dB/m	Cable loss dB	Level dBuV	Limit level dBuV	Over limit dB	Remark
0.16	46.97	0.40	0.08	47.45	65.60	-18.15	QP
0.16	32.73	0.40	0.08	33.21	55.60	-22.39	Average
0.19	45.83	0.40	0.10	46.33	64.15	-17.82	QP
0.19	32.57	0.40	0.10	33.07	54.15	-21.08	Average
0.57	37.79	0.29	0.12	38.20	56.00	-17.80	QP
0.57	30.75	0.29	0.12	31.16	46.00	-14.84	Average
1.91	34.94	0.20	0.17	35.31	56.00	-20.69	QP
1.91	23.84	0.20	0.17	24.21	46.00	-21.79	Average
2.55	37.64	0.20	0.18	38.02	56.00	-17.98	QP
2.55	29.11	0.20	0.18	29.49	46.00	-16.51	Average
12.65	42.06	0.20	0.21	42.47	60.00	-17.53	QP
12.65	33.73	0.20	0.21	34.14	50.00	-15.86	Average

**Neutral:**

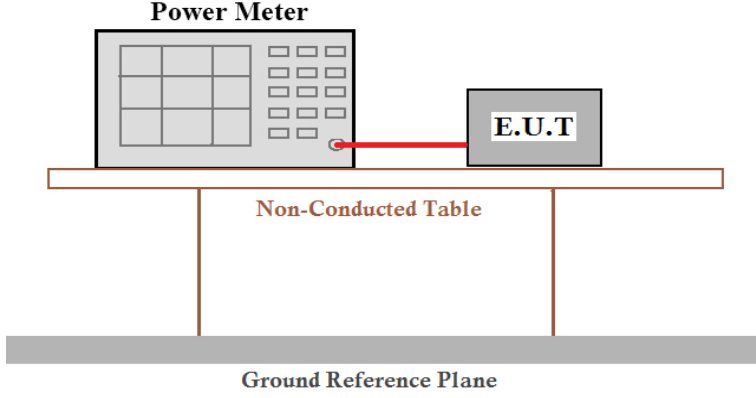


Freq MHz	Reading level dBuV	LISN/ISN factor dB/m	Cable loss dB	Level dBuV	Limit level dBuV	Over limit dB	Remark
0.19	45.17	0.40	0.10	45.67	64.20	-18.53	QP
0.19	32.55	0.40	0.10	33.05	54.20	-21.15	Average
0.59	41.37	0.29	0.12	41.78	56.00	-14.22	QP
0.59	34.45	0.29	0.12	34.86	46.00	-11.14	Average
1.91	35.25	0.20	0.17	35.62	56.00	-20.38	QP
1.91	27.46	0.20	0.17	27.83	46.00	-18.17	Average
2.55	41.46	0.20	0.18	41.84	56.00	-14.16	QP
2.55	29.74	0.20	0.18	30.12	46.00	-15.88	Average
11.93	44.32	0.20	0.20	44.72	60.00	-15.28	QP
11.93	35.01	0.20	0.20	35.41	50.00	-14.59	Average
12.58	43.69	0.20	0.21	44.10	60.00	-15.90	QP
12.58	34.43	0.20	0.21	34.84	50.00	-15.16	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) RSS-247 6.2.4.1
Test Method:	ANSI C63.10:2013 and KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 & RSS-Gen
Limit:	30dBm
Test setup:	
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

### Measurement Data

#### ANT 1:

Test CH	Peak Output Power (dBm)						Limit(dBm)	Result
	802.11a	802.11n (HT20)	802.11ac (HT20)	802.11n (HT40)	802.11ac (HT40)	802.11ac (HT80)		
Lowest	14.33	15.89	16.10	15.67	16.93	---	30.00	Pass
Middle	16.47	14.81	16.63	---	---	15.99		
Highest	14.50	15.53	14.59	14.51	16.39	---		

#### ANT 2:

Test CH	Peak Output Power (dBm)						Limit(dBm)	Result
	802.11a	802.11n (HT20)	802.11ac (HT20)	802.11n (HT40)	802.11ac (HT40)	802.11ac (HT80)		
Lowest	14.87	14.06	15.13	14.33	14.90	---	30.00	Pass
Middle	14.73	16.68	16.28	---	---	15.56		
Highest	14.24	14.52	14.54	16.73	16.11	---		

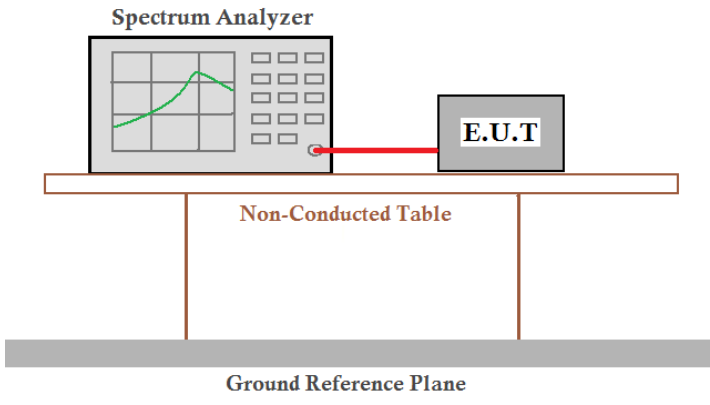
Remark: "---"is not applicable

**MIMO:**

Test mode	Channel	ANT 1 power (dBm)	ANT 2 power (dBm)	MIMO power (dBm)	Limit (dBm)	Result
802.11n(HT20)	Lowest	15.89	14.06	18.08	30	Pass
	Middle	14.81	16.68	18.98		
	Highest	15.53	14.52	18.06		
802.11ac(HT20)	Lowest	16.10	15.13	18.65		
	Middle	16.63	16.28	19.47		
	Highest	14.59	14.54	17.58		
802.11n(HT40)	Lowest	15.67	14.33	18.06		
	Highest	14.51	16.73	18.77		
802.11ac(HT40)	Lowest	16.93	14.90	19.04		
	Highest	16.39	16.11	19.26		
802.11ac(HT80)	Middle	15.99	15.56	18.79		

**Note:** transmit signals are completely *uncorrelated*,  
 Directional gain= $10 \times \log [(10^{3.84/10} + 10^{3.69/10})/2]=3.77\text{dBi}$

## 7.4 Channel Bandwidth

Test Requirement:	FCC Part15 E Section 15.407(e) RSS-247 Section 5.2 & RSS-Gen Section 6.2.4.1
Test Method:	ANSI C63.10:2013 and KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 & RSS-Gen
Limit:	>500KHz
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected via a red cable to an E.U.T. (Equipment Under Test). Both are placed on a Non-Conducted Table. This table is supported by two vertical legs and sits on a Ground Reference Plane, which is represented by a grey shaded area at the bottom.</p>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

### Measurement Data

#### ANT 1:

Test CH	Channel Bandwidth (MHz)						Limit (KHz)	Result
	802.11a	802.11n (HT20)	802.11ac (HT20)	802.11n (HT40)	802.11ac (HT40)	802.11ac (HT80)		
Lowest	16.491	17.594	17.626	36.366	36.346	---	>500	Pass
Middle	16.366	17.641	17.620	---	---	75.810		
Highest	16.389	17.660	17.666	36.361	36.404	---		

#### ANT 2:

Test CH	Channel Bandwidth (MHz)						Limit (KHz)	Result
	802.11a	802.11n (HT20)	802.11ac (HT20)	802.11n (HT40)	802.11ac (HT40)	802.11ac (HT80)		
Lowest	16.416	17.739	17.638	36.480	36.390	---	>500	Pass
Middle	16.405	17.626	17.678	---	---	76.118		
Highest	16.403	17.641	17.638	36.367	36.362	---		

Remark: "---" is not applicable



**ANT 1:**

Test CH	99% Channel Bandwidth (MHz)						Limit (KHz)	Result
	802.11a	802.11n (HT20)	802.11ac (HT20)	802.11n (HT40)	802.11ac (HT40)	802.11ac (HT80)		
Lowest	16.6880	17.8858	17.8587	36.3051	36.2673	---	>500	Pass
Middle	16.7793	17.8678	17.8433	---	---	75.7490		
Highest	16.7008	17.9009	17.7403	36.2948	36.2746	---		

Remark: "---" is not applicable

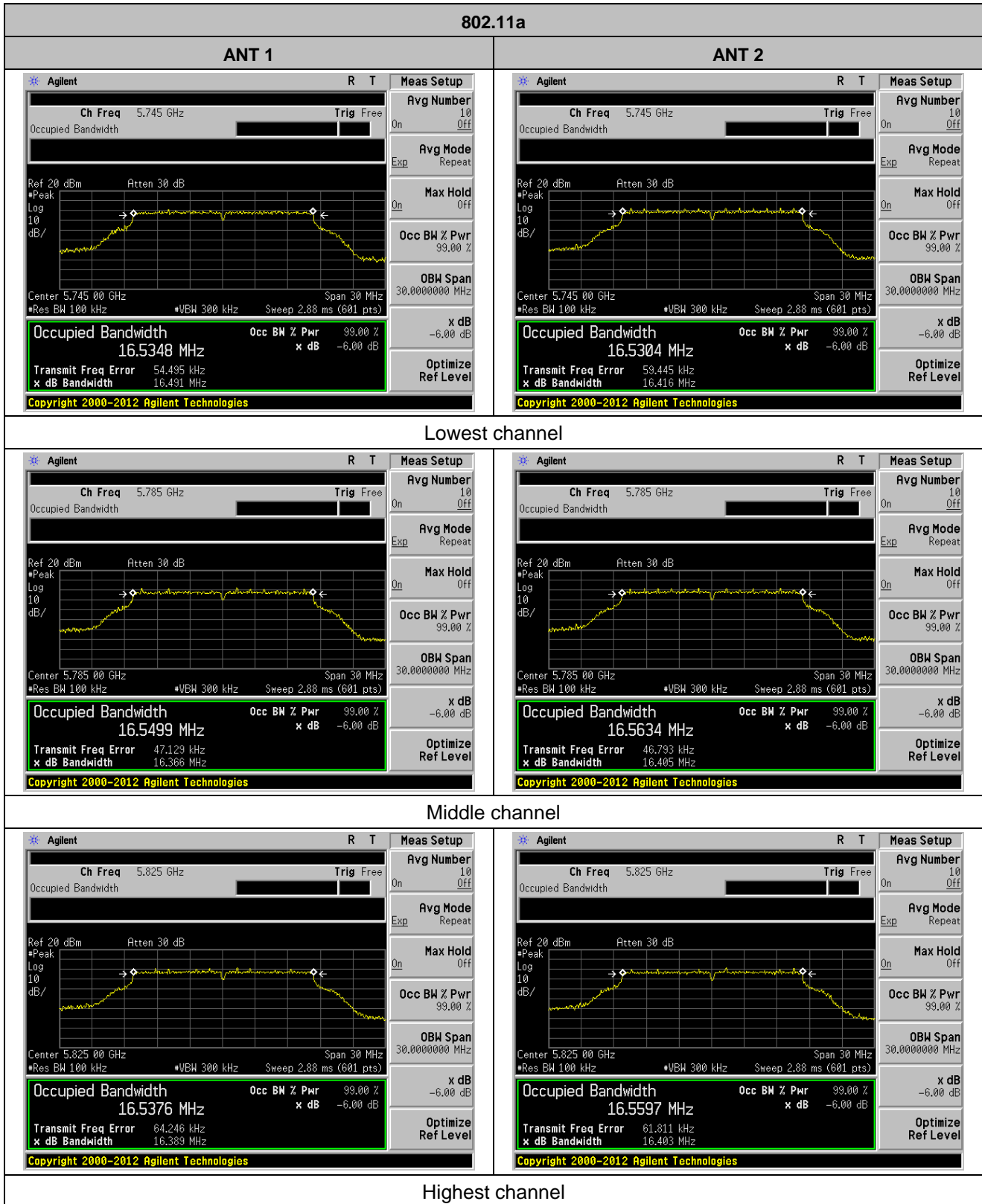
**ANT 2:**

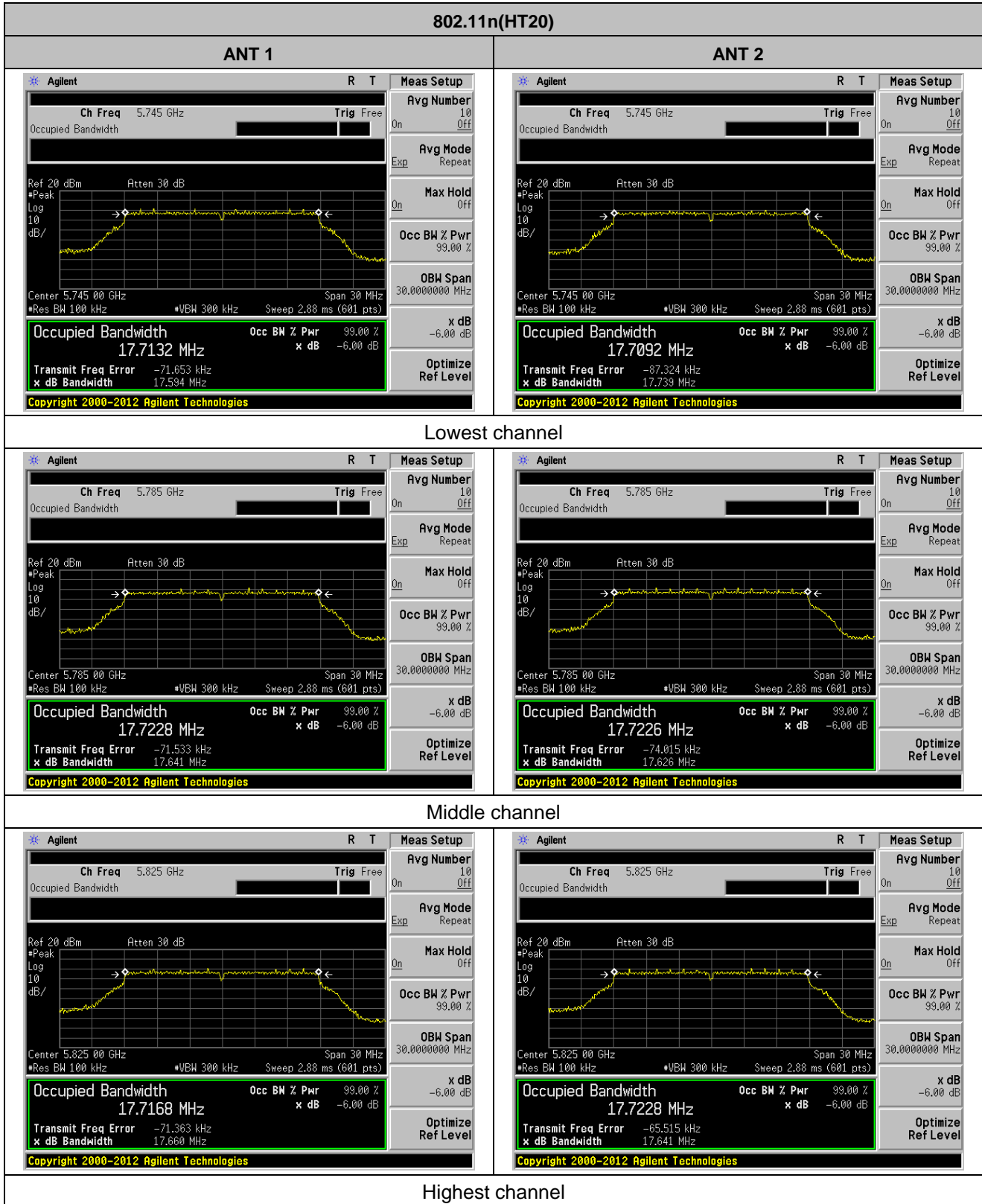
Test CH	99% Channel Bandwidth (MHz)						Limit (KHz)	Result
	802.11a	802.11n (HT20)	802.11ac (HT20)	802.11n (HT40)	802.11ac (HT40)	802.11ac (HT80)		
Lowest	16.7320	17.8351	17.8816	36.2884	36.2904	---	>500	Pass
Middle	16.7117	17.8890	17.8662	---	---	75.7155		
Highest	16.7560	17.8669	17.8851	36.4214	36.2910	---		

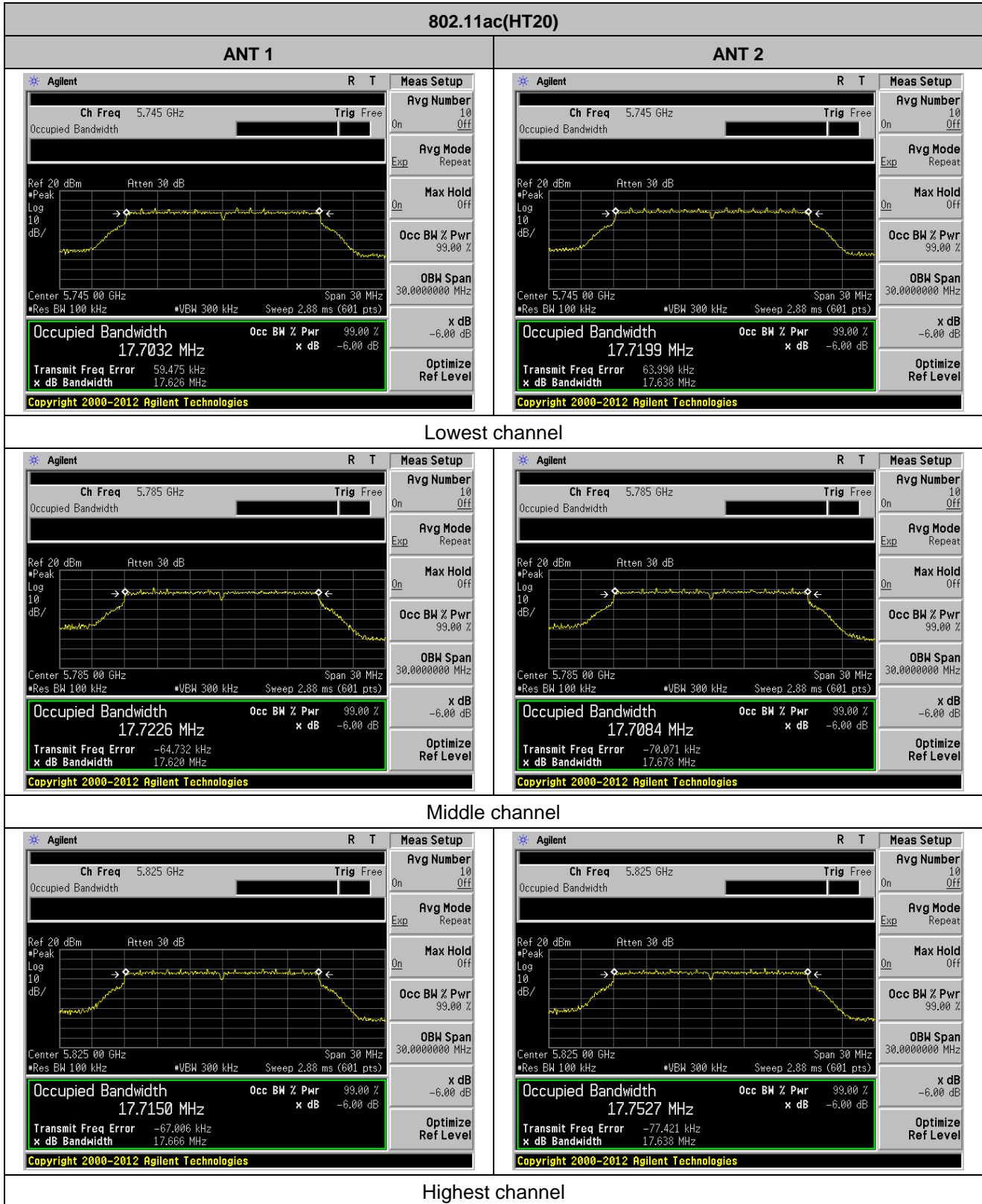
Remark: "---" is not applicable

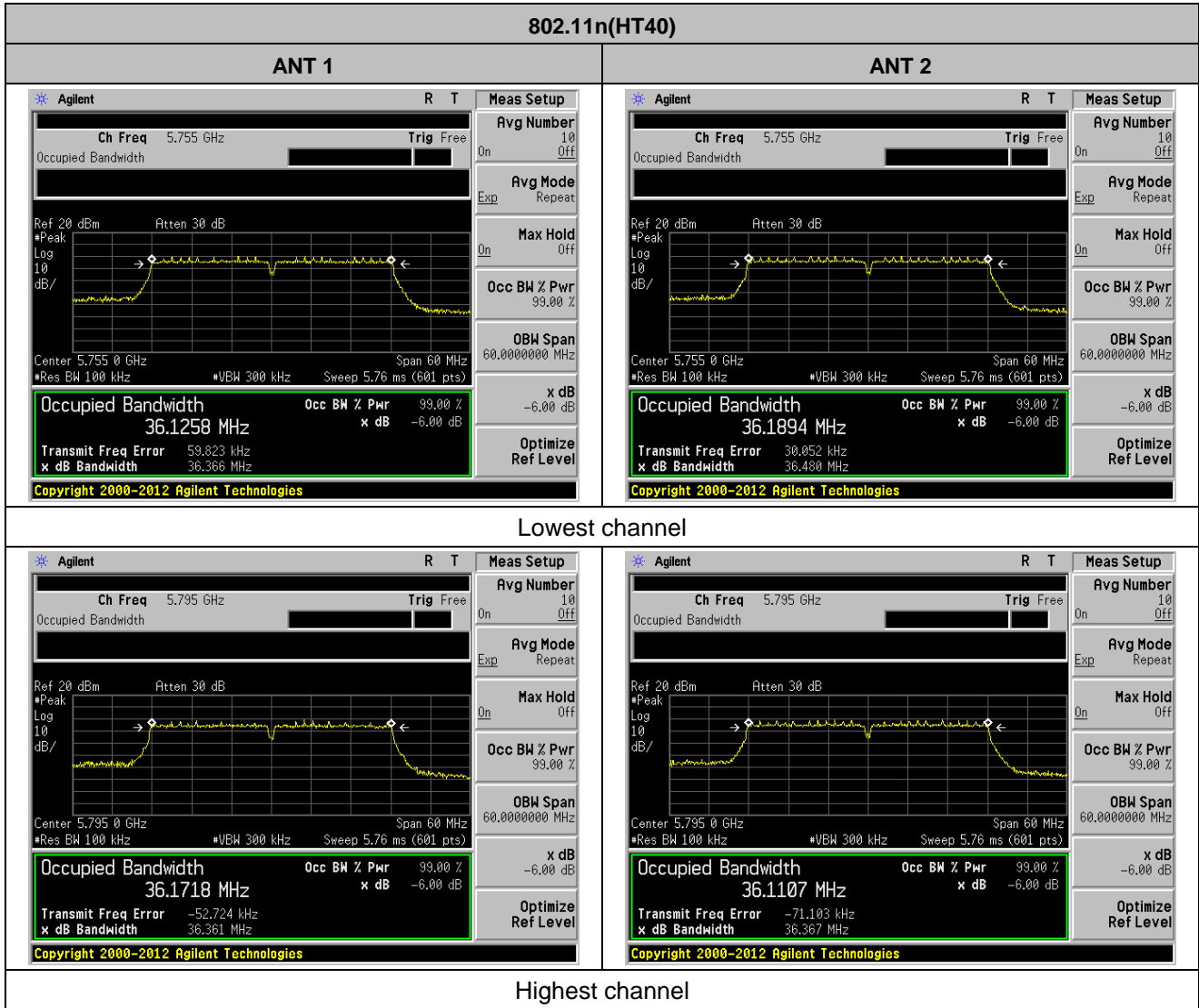
**Test plot as follows:**

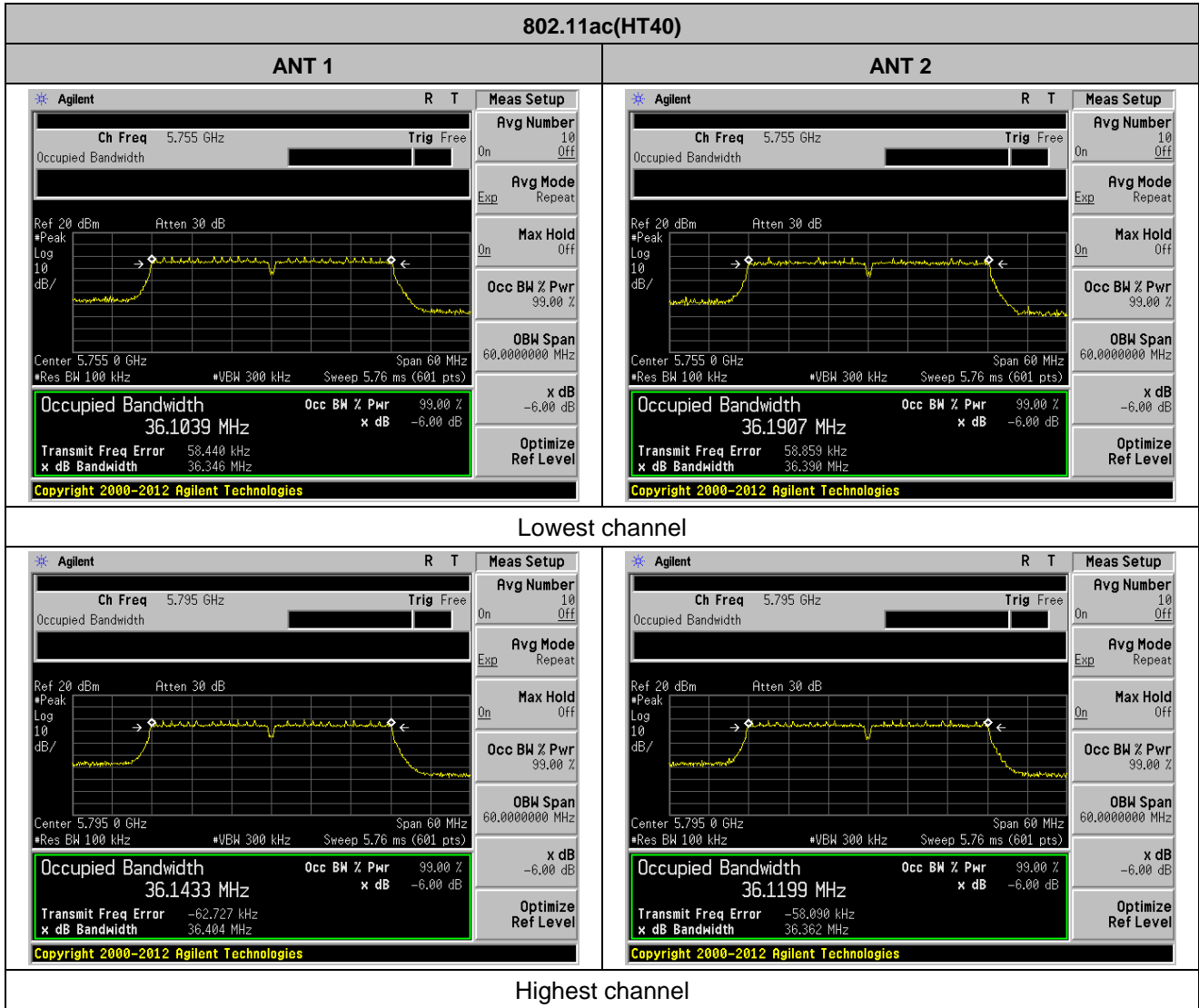
**Channel Bandwidth:**

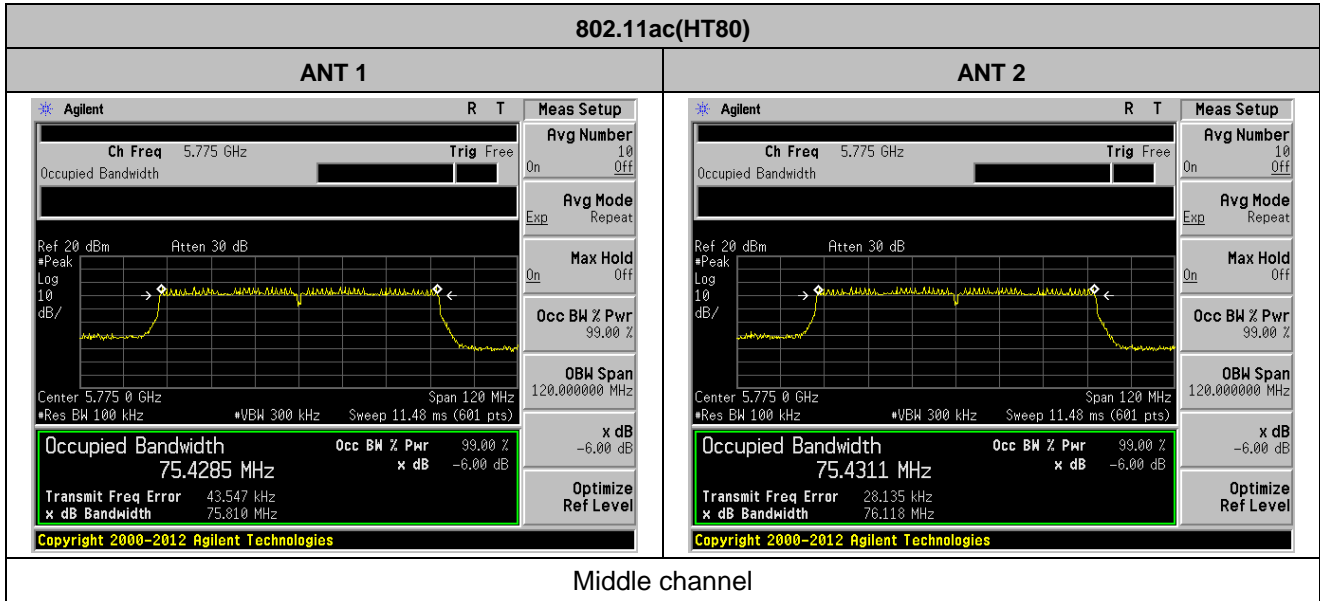




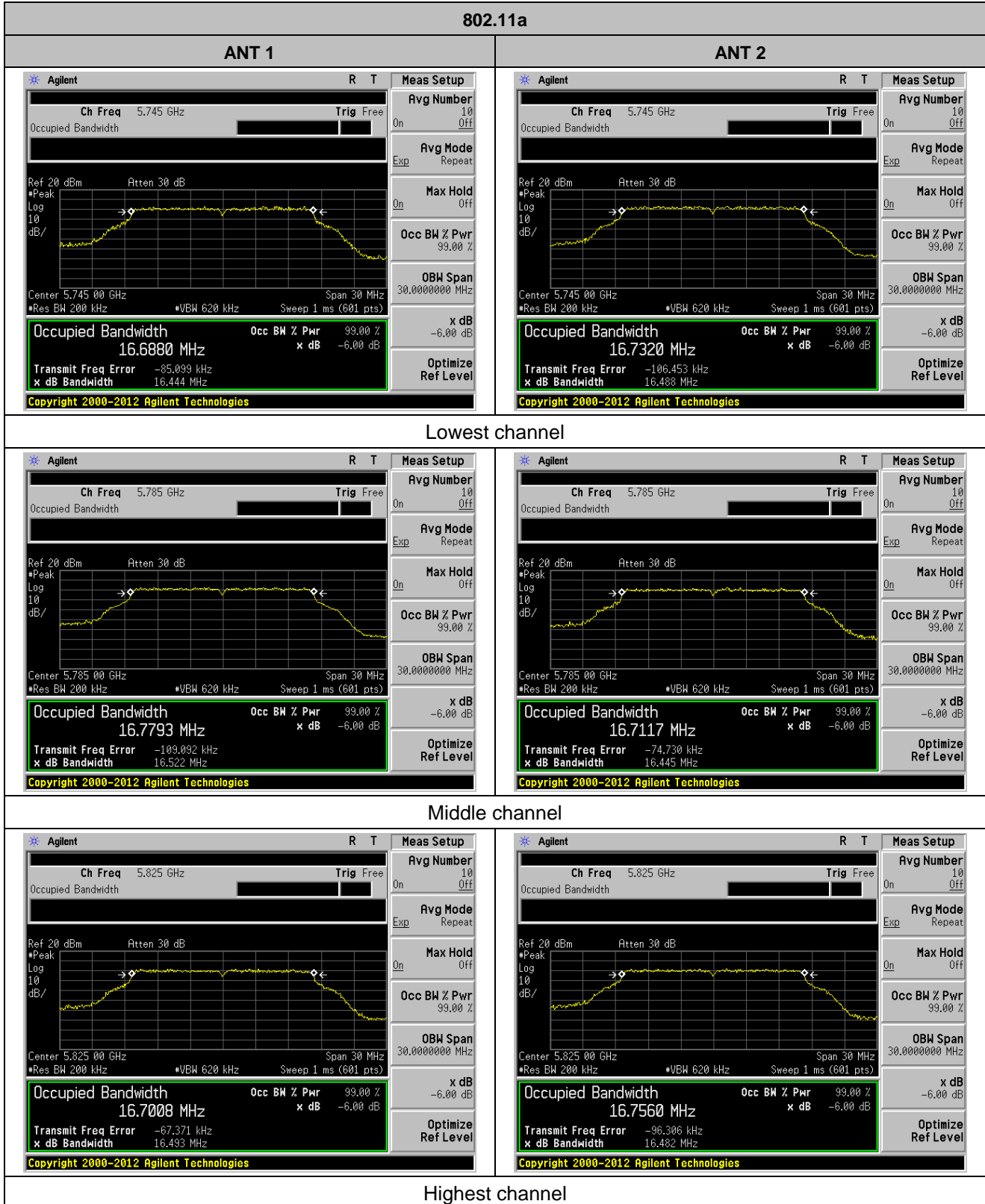




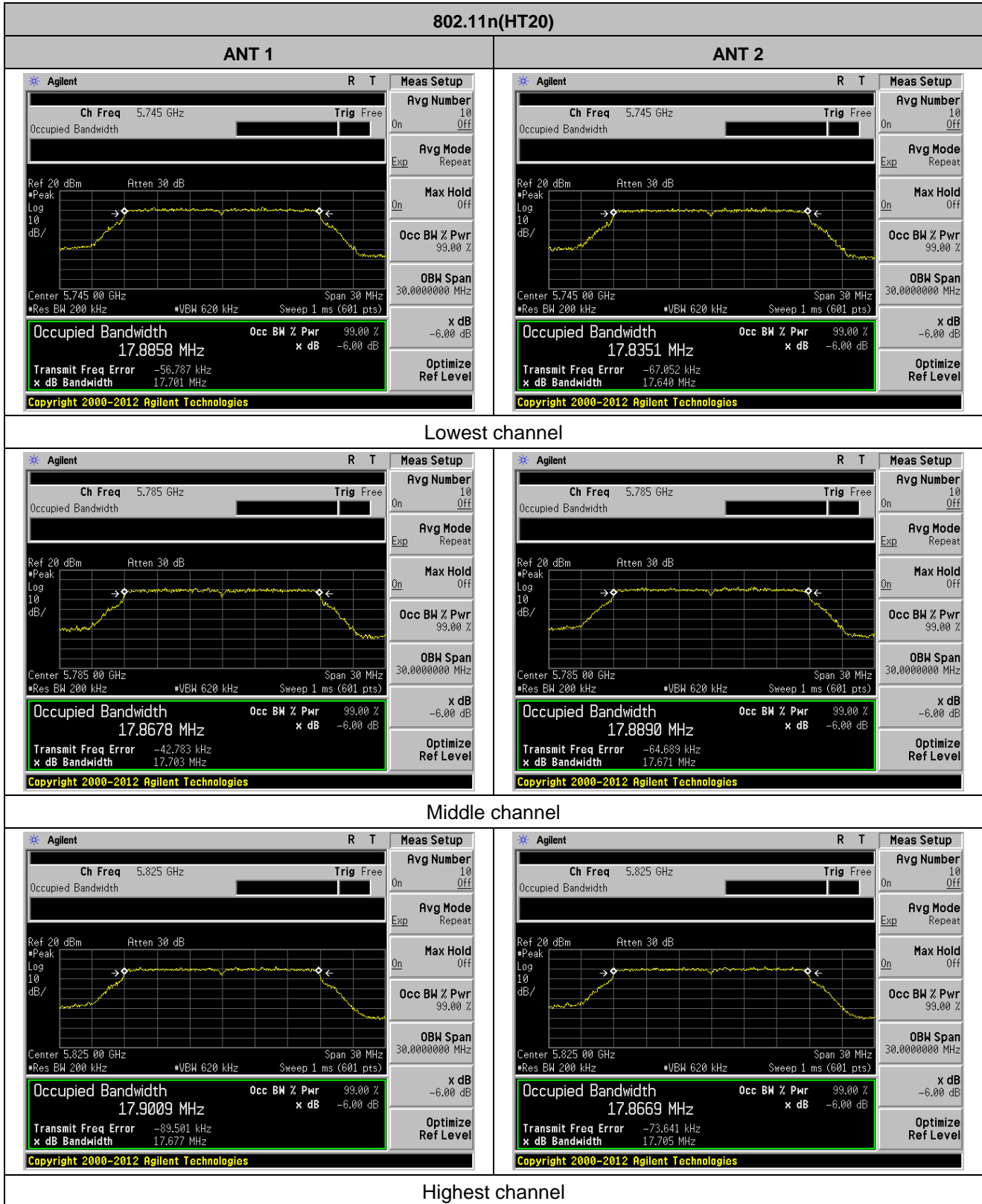


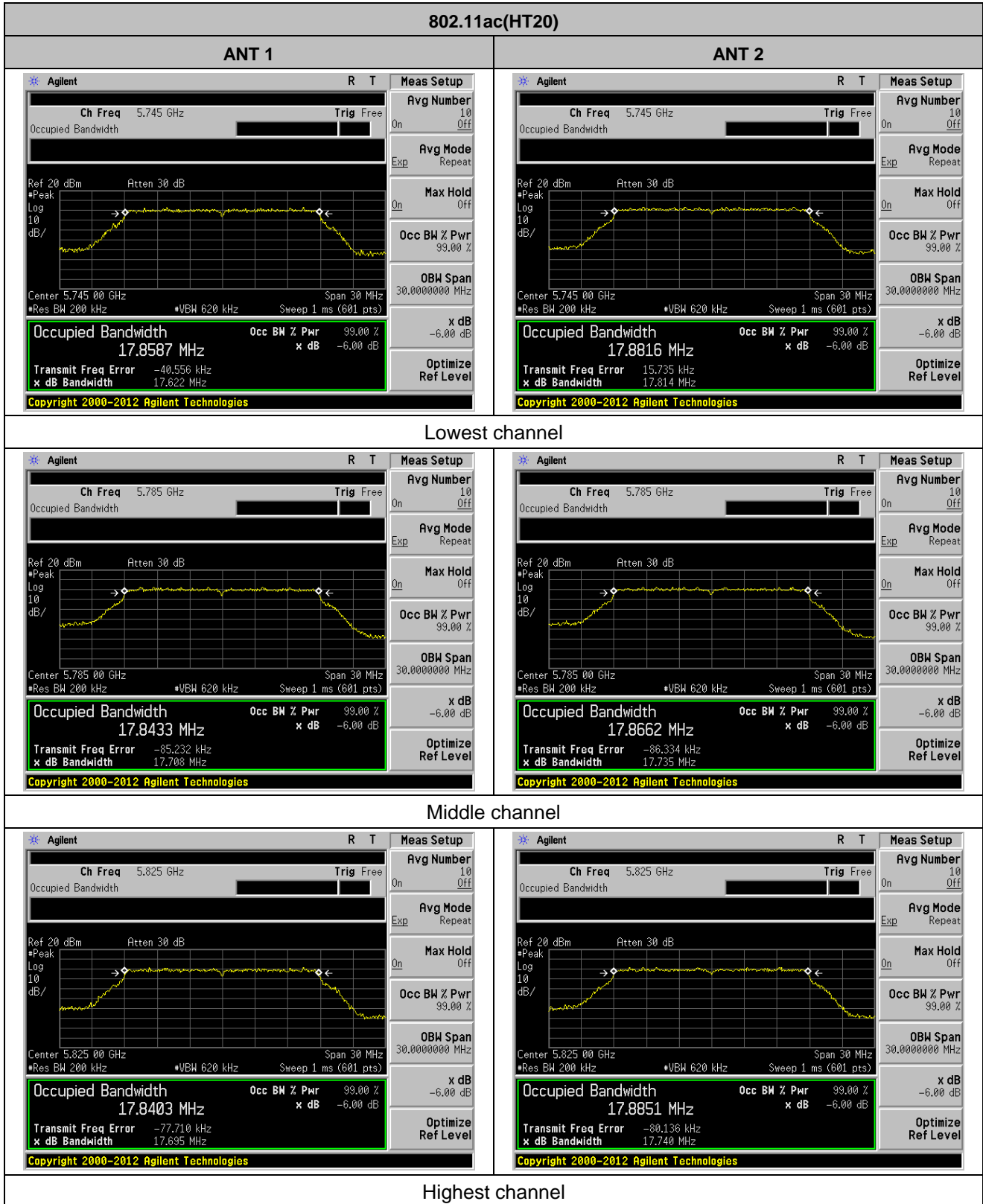


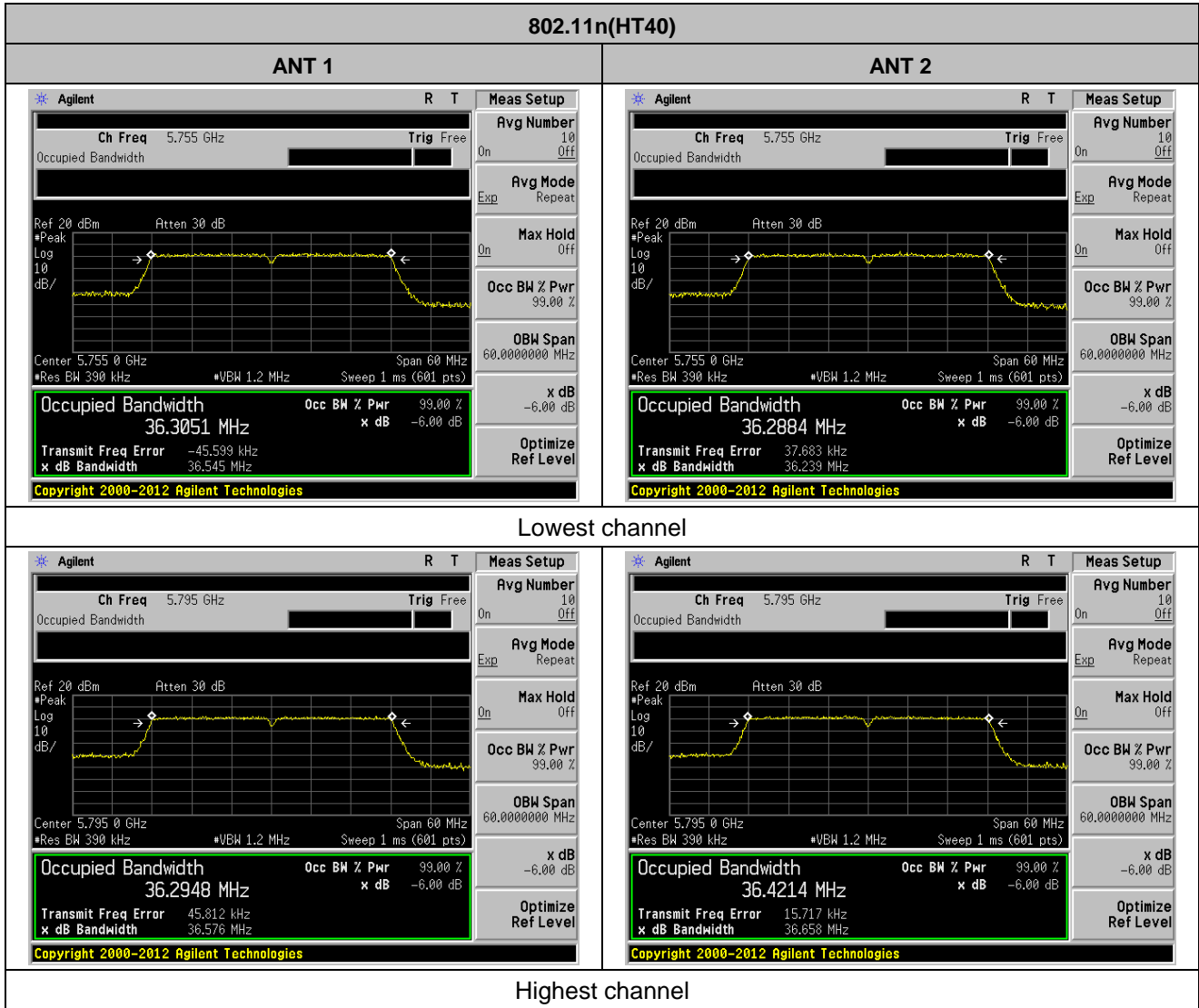
**99% Channel Bandwidth:**

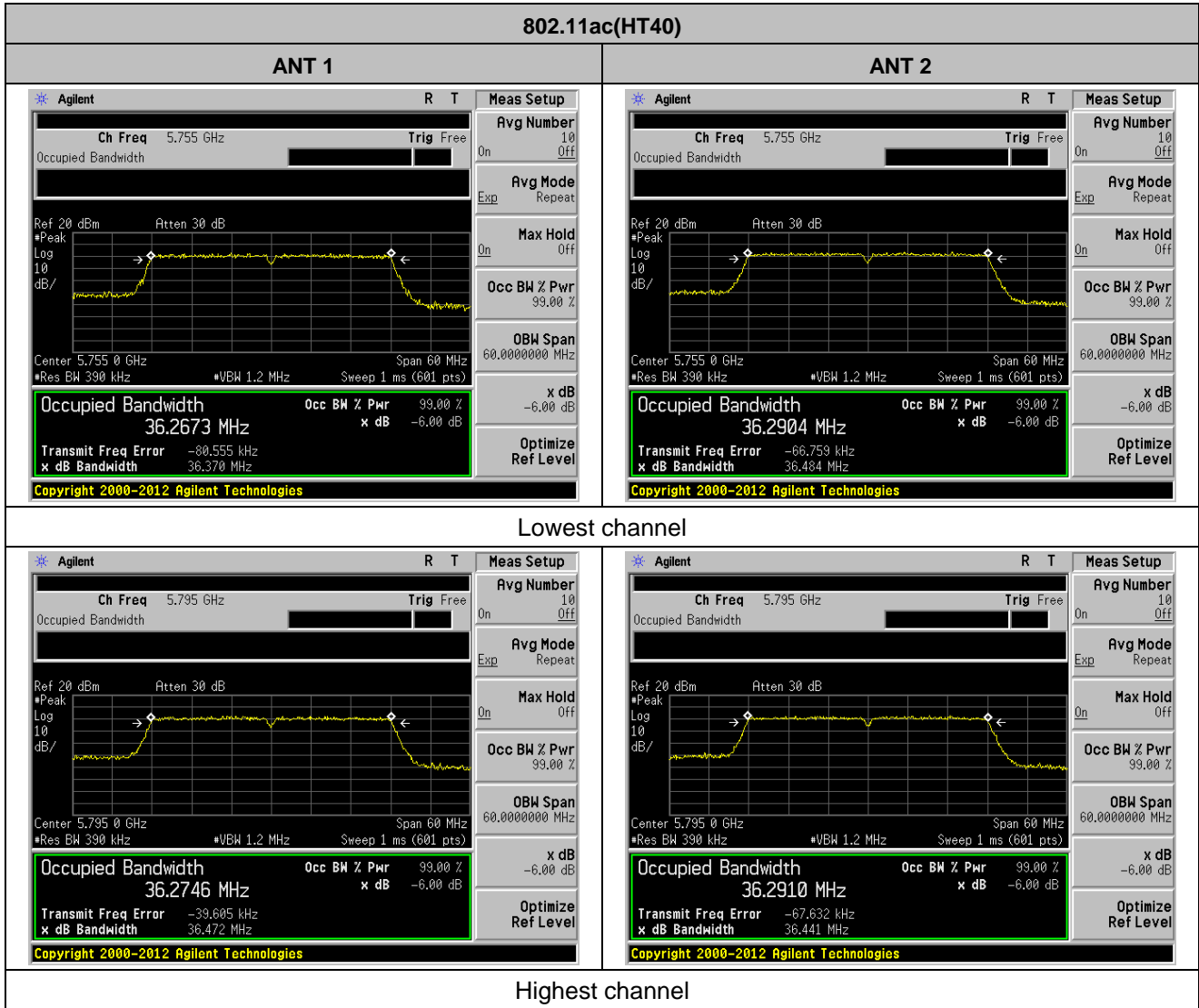


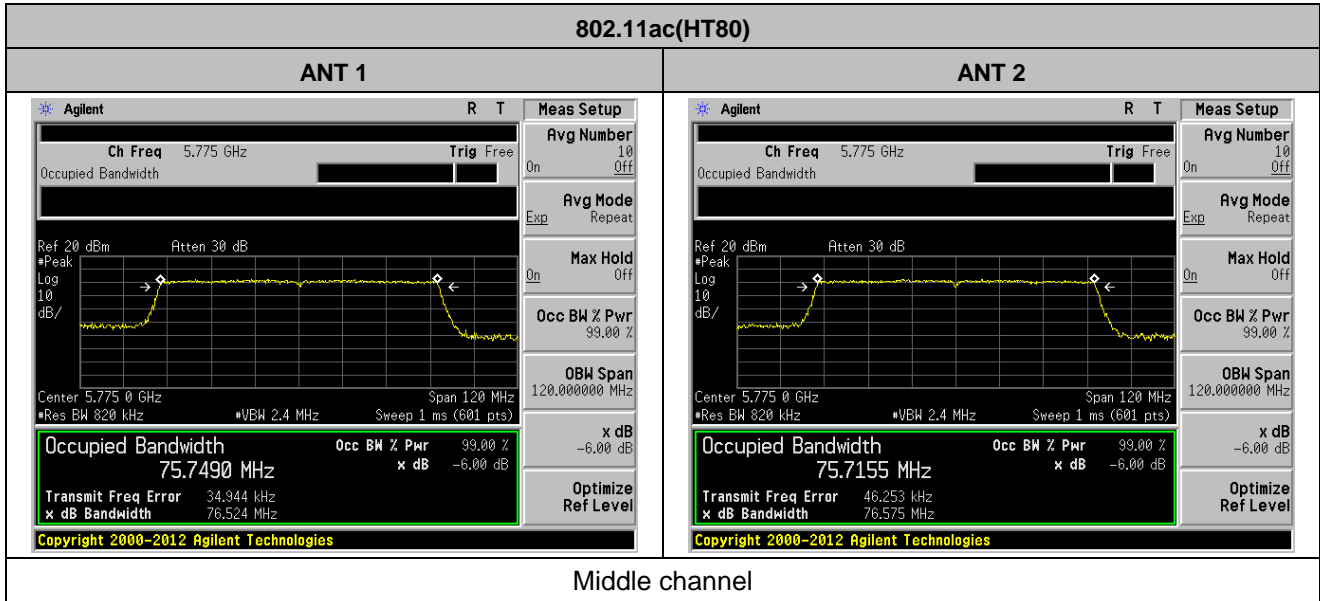




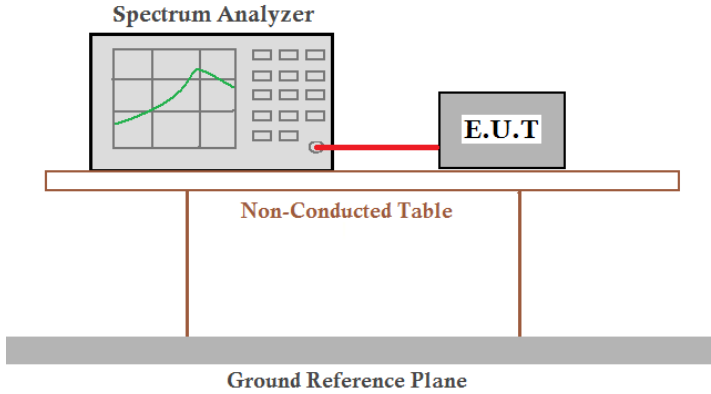








## 7.5 Power Spectral Density

Test Requirement:	FCC Part15 E Section 15.407(a)(3) RSS-247 Section 6.2.4.1
Test Method:	ANSI C63.10:2013 and KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 & RSS-Gen
Limit:	30dBm/500kHz
Test setup:	
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

### Measurement Data

#### ANT 1:

Test CH	Power Spectral Density (dBm/500kHz)						Limit (dBm/500k Hz)	Result
	802.11a	802.11n (HT20)	802.11ac (HT20)	802.11n (HT40)	802.11ac (HT40)	802.11ac (HT80)		
Lowest	6.60	5.62	5.91	3.34	4.58	---	30.00	Pass
Middle	5.49	5.46	5.16	---	---	-2.51		
Highest	4.54	5.07	4.16	2.80	3.42	---		

#### ANT 2:

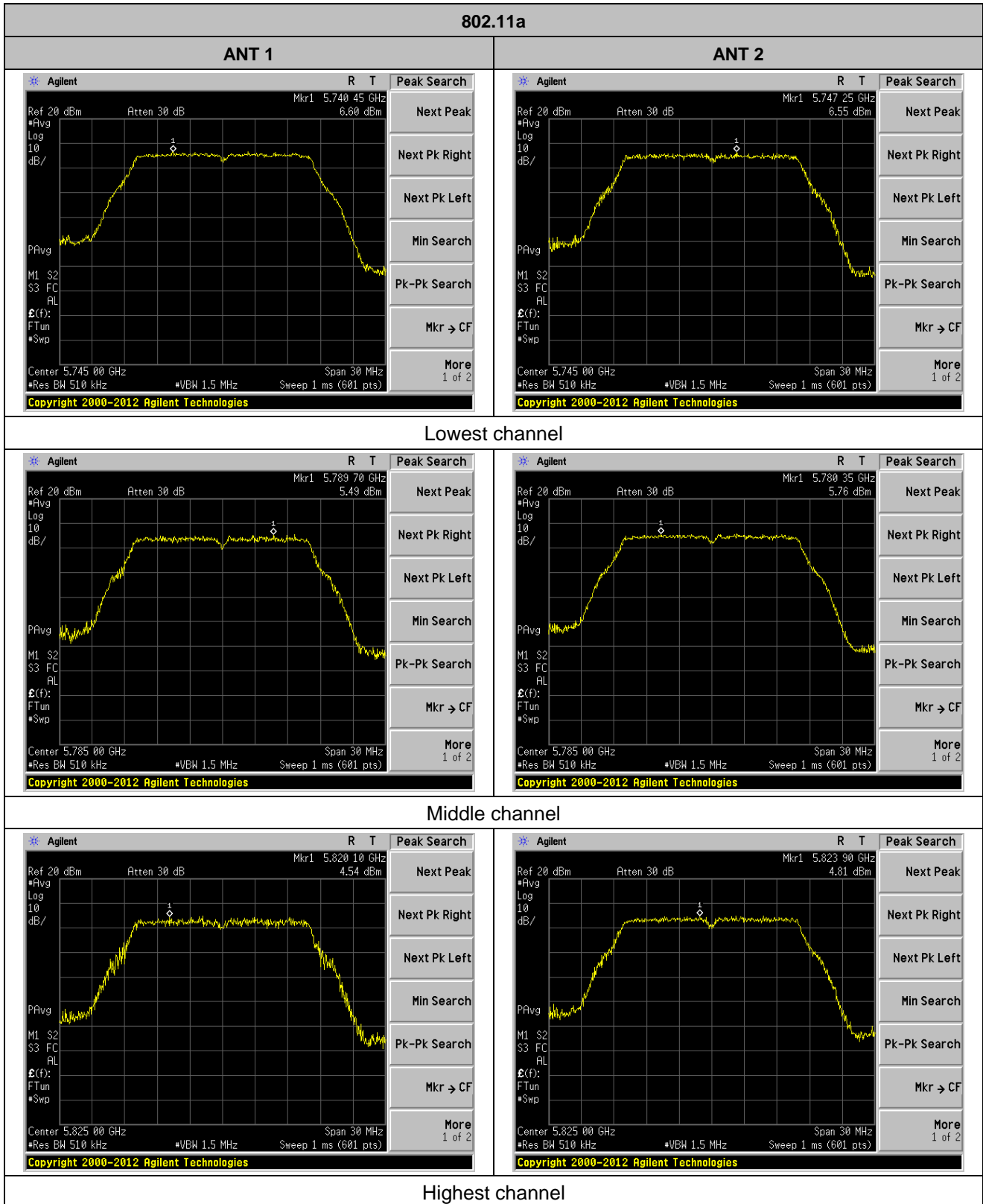
Test CH	Power Spectral Density (dBm/500kHz)						Limit (dBm/500k Hz)	Result
	802.11a	802.11n (HT20)	802.11ac (HT20)	802.11n (HT40)	802.11ac (HT40)	802.11ac (HT80)		
Lowest	6.55	5.98	6.10	3.47	4.58	---	30.00	Pass
Middle	5.76	5.96	5.80	---	---	-1.83		
Highest	4.81	4.73	4.57	2.65	2.57	---		

Remark: "---" is not applicable

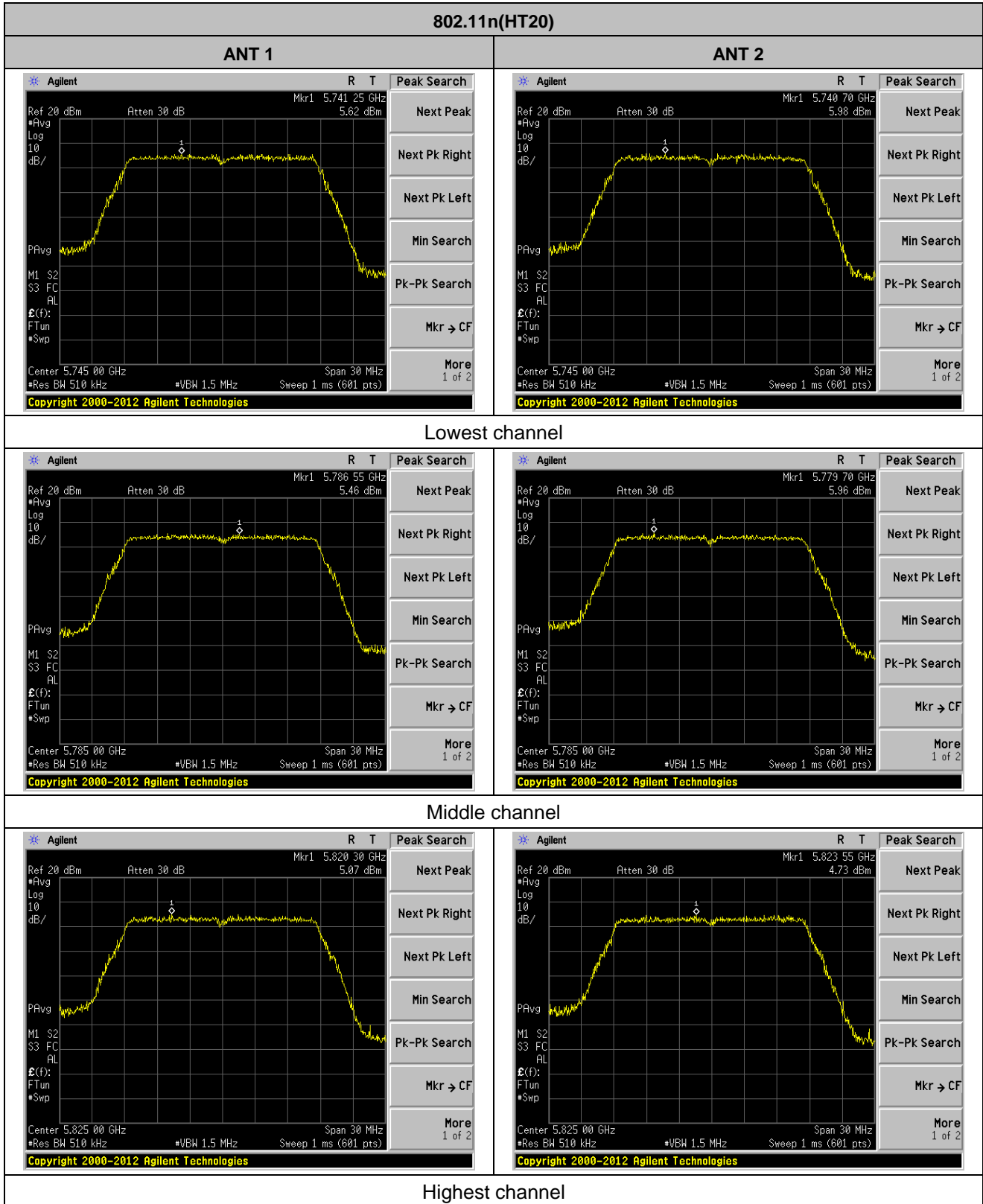
**MIMO:**

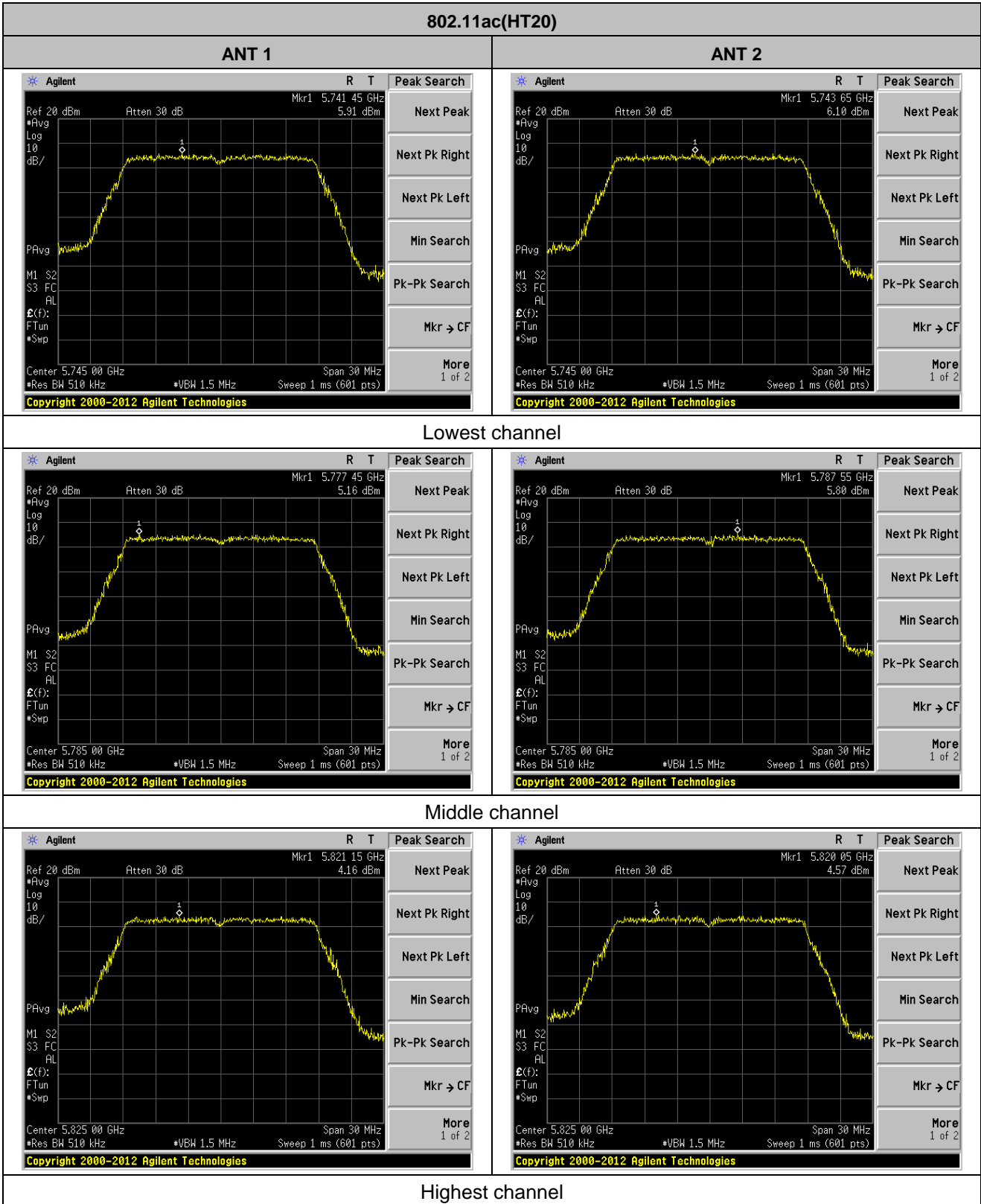
Test mode	Channel	ANT 1 power (dBm/500kHz)	ANT 2 power (dBm/500kHz)	MIMO power (dBm/500kHz)	Limit dBm/500kHz	Result
<b>802.11n(HT20)</b>	Lowest	5.62	5.98	8.81	30	Pass
	Middle	5.46	5.96	8.73		
	Highest	5.07	4.73	7.91		
<b>802.11ac(HT20)</b>	Lowest	5.91	6.10	9.02		
	Middle	5.16	5.80	8.50		
	Highest	4.16	4.57	7.38		
<b>802.11n(HT40)</b>	Lowest	3.34	3.47	6.42		
	Highest	2.80	2.65	5.74		
<b>802.11ac(HT40)</b>	Lowest	4.58	4.58	7.59		
	Highest	3.42	2.57	6.03		
<b>802.11ac(HT80)</b>	Middle	-2.51	-1.83	0.85		

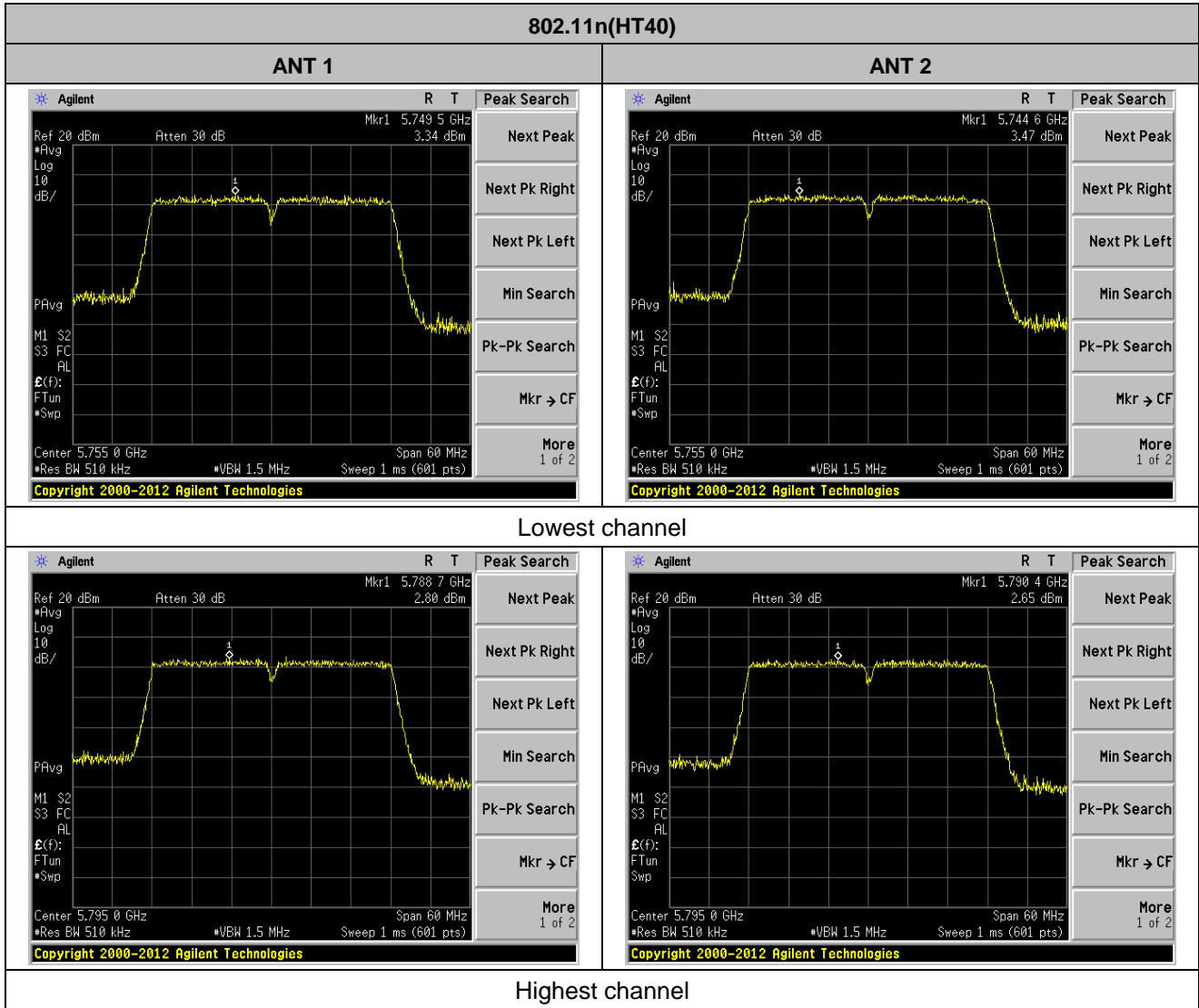
Test plot as follows:

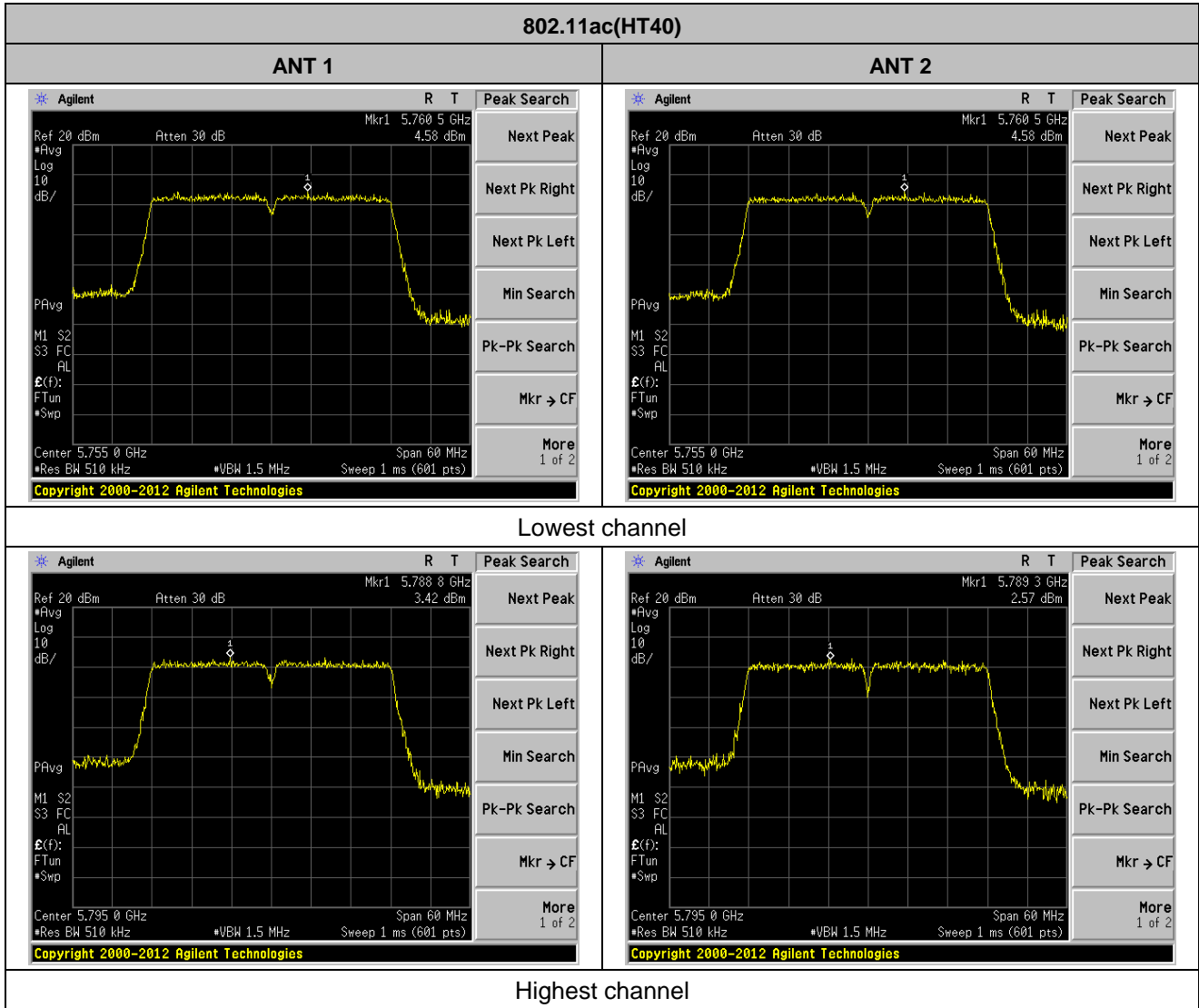


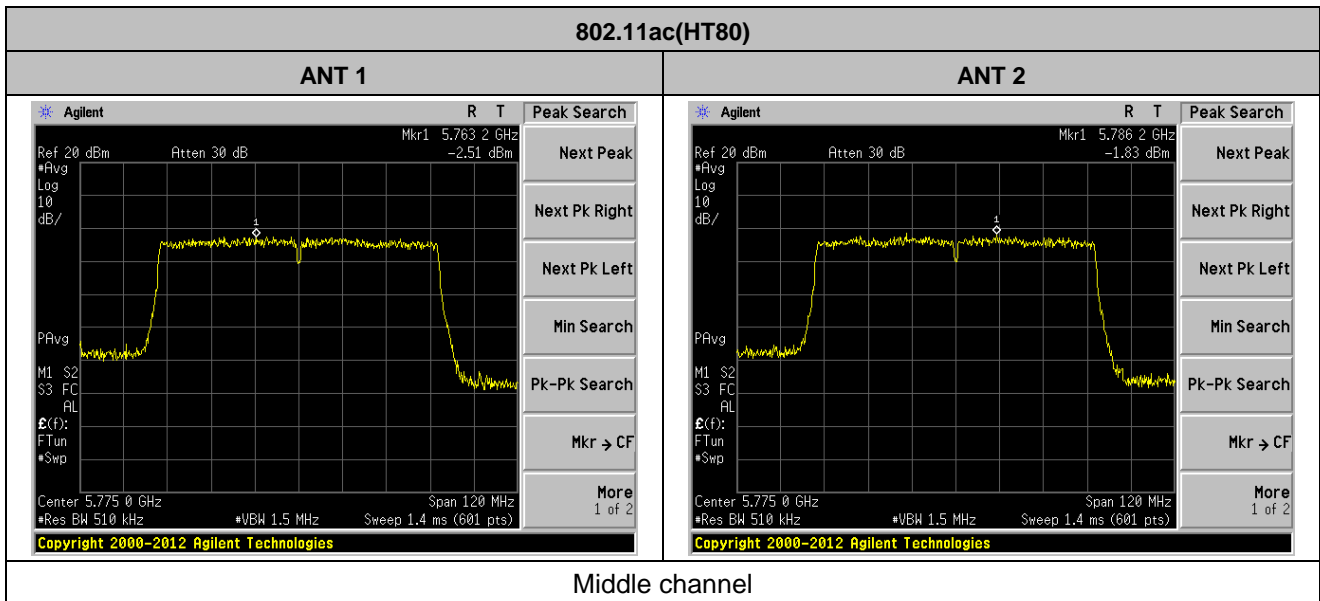












## 7.6 Band edge

### 7.6.1 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209 and 15.205 RSS-247 Section 6.2.4.2 & RSS-Gen 8.10														
Test Method:	ANSI C63.10: 2013 & RSS-Gen														
Test Frequency Range:	9kHz to 40GHz, only worse case is reported														
Test site:	Measurement Distance: 3m														
Receiver setup:	<table border="1"> <thead> <tr> <th>Frequency</th> <th>Detector</th> <th>RBW</th> <th>VBW</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Above 1GHz</td> <td>Peak</td> <td>1MHz</td> <td>3MHz</td> <td>Peak</td> </tr> <tr> <td>RMS</td> <td>1MHz</td> <td>3MHz</td> <td>RMS</td> </tr> </tbody> </table>	Frequency	Detector	RBW	VBW	Value	Above 1GHz	Peak	1MHz	3MHz	Peak	RMS	1MHz	3MHz	RMS
Frequency	Detector	RBW	VBW	Value											
Above 1GHz	Peak	1MHz	3MHz	Peak											
	RMS	1MHz	3MHz	RMS											
Limit:	All emissions shall be limited to a level of $-27$ dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.														
Test setup:															
Test Procedure:	<ol style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>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.</li> <li>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.</li> <li>5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li> <li>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-</li> </ol>														

	<p>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 5.2 for details
Test results:	Pass

*Remarks:*

1. Only the worst case Main Antenna test data..
2. Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
3. The emission levels of other frequencies are very lower than the limit and not show in test report.
4. The pre-test were performed on lowest, middle and highest frequencies, only the worst case's (lowest and highest frequencies) data was showed.
5. According to KDB 789033 D02v02r01 section G) 1) d),for measurements above 1000 MHz @3m distance, the limit of field strength is computed as follows:  
 $E[\text{dBuV/m}] = \text{EIRP}[\text{dBm}] + 95.2;$   
 $E[\text{dBuV/m}] = -27 + 95.2 = 68.2\text{dBuV/m}.$   
 $E[\text{dBuV/m}] = 10 + 95.2 = 105.2\text{dBuV/m}.$   
 $E[\text{dBuV/m}] = 15.6 + 95.2 = 110.8\text{dBuV/m}.$   
 $E[\text{dBuV/m}] = 27 + 95.2 = 122.2\text{dBuV/m}$

**Measurement data:**

<b>IEEE 802.11a</b>								
<b>Peak value:</b>								
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
5650.00	25.86	32.36	9.72	23.83	44.11	68.2	-24.09	Horizontal
5700.00	25.07	32.5	9.79	23.84	43.52	105.2	-61.68	Horizontal
5720.00	25.78	32.53	9.81	23.85	44.27	110.8	-66.53	Horizontal
5725.00	26.29	32.53	9.83	23.86	44.79	122.2	-77.41	Horizontal
5850.00	25.95	32.7	9.99	23.87	44.77	122.2	-77.43	Horizontal
5855.00	28.94	32.72	9.99	23.88	47.77	110.8	-63.03	Horizontal
5875.00	26.26	32.74	10.04	23.89	45.15	105.2	-60.05	Horizontal
5925.00	27.97	32.8	10.11	23.9	46.98	68.2	-21.22	Horizontal
5650.00	26.48	32.36	9.72	23.83	44.73	68.2	-23.47	Vertical
5700.00	29.25	32.5	9.79	23.84	47.7	105.2	-57.5	Vertical
5720.00	27.84	32.53	9.81	23.85	46.33	110.8	-64.47	Vertical
5725.00	25.71	32.53	9.83	23.86	44.21	122.2	-77.99	Vertical
5850.00	29.68	32.7	9.99	23.87	48.5	122.2	-73.7	Vertical
5855.00	25.07	32.72	9.99	23.88	43.9	110.8	-66.9	Vertical
5875.00	28.91	32.74	10.04	23.89	47.8	105.2	-57.4	Vertical
5925.00	27.87	32.8	10.11	23.9	46.88	68.2	-21.32	Vertical



IEEE 802.11n HT20								
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
5650.00	25.99	32.36	9.72	23.83	44.24	68.2	-23.96	Horizontal
5700.00	27.42	32.5	9.79	23.84	45.87	105.2	-59.33	Horizontal
5720.00	25.02	32.53	9.81	23.85	43.51	110.8	-67.29	Horizontal
5725.00	27.24	32.53	9.83	23.86	45.74	122.2	-76.46	Horizontal
5850.00	26.17	32.7	9.99	23.87	44.99	122.2	-77.21	Horizontal
5855.00	27.25	32.72	9.99	23.88	46.08	110.8	-64.72	Horizontal
5875.00	28.59	32.74	10.04	23.89	47.48	105.2	-57.72	Horizontal
5925.00	29.57	32.8	10.11	23.9	48.58	68.2	-19.62	Horizontal
5650.00	27.82	32.36	9.72	23.83	46.07	68.2	-22.13	Vertical
5700.00	29.23	32.5	9.79	23.84	47.68	105.2	-57.52	Vertical
5720.00	29.45	32.53	9.81	23.85	47.94	110.8	-62.86	Vertical
5725.00	28.36	32.53	9.83	23.86	46.86	122.2	-75.34	Vertical
5850.00	27.89	32.7	9.99	23.87	46.71	122.2	-75.49	Vertical
5855.00	28.09	32.72	9.99	23.88	46.92	110.8	-63.88	Vertical
5875.00	28.90	32.74	10.04	23.89	47.79	105.2	-57.41	Vertical
5925.00	28.25	32.8	10.11	23.9	47.26	68.2	-20.94	Vertical

<b>IEEE 802.11ac HT20</b>								
<b>Peak value:</b>								
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
5650.00	29.22	32.36	9.72	23.83	47.47	68.2	-20.73	Horizontal
5700.00	25.29	32.5	9.79	23.84	43.74	105.2	-61.46	Horizontal
5720.00	26.26	32.53	9.81	23.85	44.75	110.8	-66.05	Horizontal
5725.00	27.93	32.53	9.83	23.86	46.43	122.2	-75.77	Horizontal
5850.00	27.12	32.7	9.99	23.87	45.94	122.2	-76.26	Horizontal
5855.00	25.31	32.72	9.99	23.88	44.14	110.8	-66.66	Horizontal
5875.00	28.91	32.74	10.04	23.89	47.8	105.2	-57.4	Horizontal
5925.00	29.96	32.8	10.11	23.9	48.97	68.2	-19.23	Horizontal
5650.00	27.17	32.36	9.72	23.83	45.42	68.2	-22.78	Vertical
5700.00	25.03	32.5	9.79	23.84	43.48	105.2	-61.72	Vertical
5720.00	26.21	32.53	9.81	23.85	44.7	110.8	-66.1	Vertical
5725.00	28.47	32.53	9.83	23.86	46.97	122.2	-75.23	Vertical
5850.00	27.09	32.7	9.99	23.87	45.91	122.2	-76.29	Vertical
5855.00	28.30	32.72	9.99	23.88	47.13	110.8	-63.67	Vertical
5875.00	26.33	32.74	10.04	23.89	45.22	105.2	-59.98	Vertical
5925.00	28.40	32.8	10.11	23.9	47.41	68.2	-20.79	Vertical

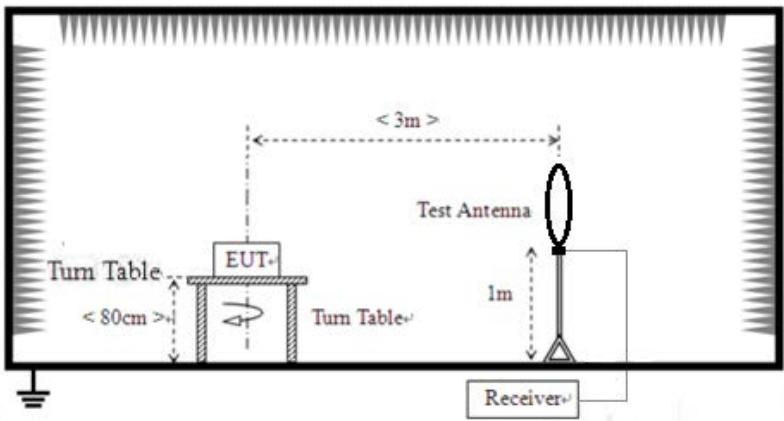
<b>IEEE 802.11n HT40</b>								
<b>Peak value:</b>								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5650.00	27.58	32.36	9.72	23.83	45.83	68.2	-22.37	Horizontal
5700.00	28.67	32.5	9.79	23.84	47.12	105.2	-58.08	Horizontal
5720.00	28.90	32.53	9.81	23.85	47.39	110.8	-63.41	Horizontal
5725.00	25.51	32.53	9.83	23.86	44.01	122.2	-78.19	Horizontal
5850.00	25.96	32.7	9.99	23.87	44.78	122.2	-77.42	Horizontal
5855.00	28.13	32.72	9.99	23.88	46.96	110.8	-63.84	Horizontal
5875.00	25.35	32.74	10.04	23.89	44.24	105.2	-60.96	Horizontal
5925.00	27.74	32.8	10.11	23.9	46.75	68.2	-21.45	Horizontal
5650.00	29.65	32.36	9.72	23.83	47.9	68.2	-20.3	Vertical
5700.00	27.39	32.5	9.79	23.84	45.84	105.2	-59.36	Vertical
5720.00	25.88	32.53	9.81	23.85	44.37	110.8	-66.43	Vertical
5725.00	28.66	32.53	9.83	23.86	47.16	122.2	-75.04	Vertical
5850.00	26.90	32.7	9.99	23.87	45.72	122.2	-76.48	Vertical
5855.00	25.71	32.72	9.99	23.88	44.54	110.8	-66.26	Vertical
5875.00	27.82	32.74	10.04	23.89	46.71	105.2	-58.49	Vertical
5925.00	25.09	32.8	10.11	23.9	44.1	68.2	-24.1	Vertical

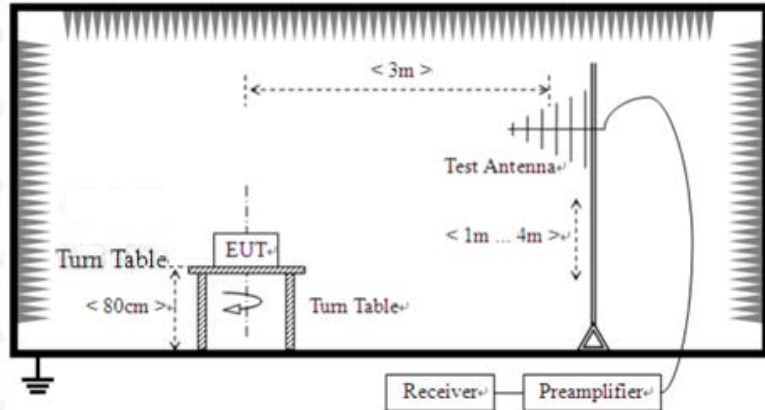
<b>IEEE 802.11ac HT40</b>								
<b>Peak value:</b>								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5650.00	29.28	32.36	9.72	23.83	47.53	68.2	-20.67	Horizontal
5700.00	27.64	32.5	9.79	23.84	46.09	105.2	-59.11	Horizontal
5720.00	27.90	32.53	9.81	23.85	46.39	110.8	-64.41	Horizontal
5725.00	29.38	32.53	9.83	23.86	47.88	122.2	-74.32	Horizontal
5850.00	27.59	32.7	9.99	23.87	46.41	122.2	-75.79	Horizontal
5855.00	25.58	32.72	9.99	23.88	44.41	110.8	-66.39	Horizontal
5875.00	28.18	32.74	10.04	23.89	47.07	105.2	-58.13	Horizontal
5925.00	29.68	32.8	10.11	23.9	48.69	68.2	-19.51	Horizontal
5650.00	25.27	32.36	9.72	23.83	43.52	68.2	-24.68	Vertical
5700.00	26.02	32.5	9.79	23.84	44.47	105.2	-60.73	Vertical
5720.00	28.38	32.53	9.81	23.85	46.87	110.8	-63.93	Vertical
5725.00	25.23	32.53	9.83	23.86	43.73	122.2	-78.47	Vertical
5850.00	28.24	32.7	9.99	23.87	47.06	122.2	-75.14	Vertical
5855.00	27.16	32.72	9.99	23.88	45.99	110.8	-64.81	Vertical
5875.00	25.63	32.74	10.04	23.89	44.52	105.2	-60.68	Vertical
5925.00	27.02	32.8	10.11	23.9	46.03	68.2	-22.17	Vertical

<b>IEEE 802.11ac HT80</b>								
<b>Peak value:</b>								
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
5650.00	27.73	32.36	9.72	23.83	45.98	68.2	-22.22	Horizontal
5700.00	28.61	32.5	9.79	23.84	47.06	105.2	-58.14	Horizontal
5720.00	25.76	32.53	9.81	23.85	44.25	110.8	-66.55	Horizontal
5725.00	28.73	32.53	9.83	23.86	47.23	122.2	-74.97	Horizontal
5850.00	25.57	32.7	9.99	23.87	44.39	122.2	-77.81	Horizontal
5855.00	26.94	32.72	9.99	23.88	45.77	110.8	-65.03	Horizontal
5875.00	25.68	32.74	10.04	23.89	44.57	105.2	-60.63	Horizontal
5925.00	26.36	32.8	10.11	23.9	45.37	68.2	-22.83	Horizontal
5650.00	28.48	32.36	9.72	23.83	46.73	68.2	-21.47	Vertical
5700.00	28.41	32.5	9.79	23.84	46.86	105.2	-58.34	Vertical
5720.00	27.01	32.53	9.81	23.85	45.5	110.8	-65.3	Vertical
5725.00	27.25	32.53	9.83	23.86	45.75	122.2	-76.45	Vertical
5850.00	25.19	32.7	9.99	23.87	44.01	122.2	-78.19	Vertical
5855.00	27.08	32.72	9.99	23.88	45.91	110.8	-64.89	Vertical
5875.00	28.55	32.74	10.04	23.89	47.44	105.2	-57.76	Vertical
5925.00	27.66	32.8	10.11	23.9	46.67	68.2	-21.53	Vertical

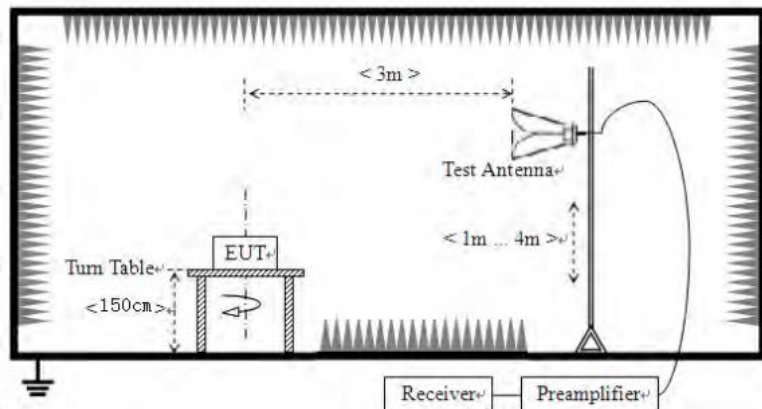
## 7.7 Spurious Emission

### 7.7.1 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209, Part 15E Section 15.407(b)(4) RSS-247 Section 6.2.4.2 & RSS-Gen Section 8.9				
Test Method:	ANSI C63.10:2013 & RSS-Gen				
Test Frequency Range:	9kHz to 40GHz				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Value
	9kHz-150KHz	Quasi-peak	200Hz	1kHz	Quasi-peak Value
	150kHz-30MHz	Quasi-peak	9kHz	30kHz	Quasi-peak Value
	30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
AV		1MHz	3MHz	Average Value	
Limit:	Frequency	Limit (uV/m)	Value	Measurement Distance	
	0.009MHz-0.490MHz	2400/F(KHz)	QP	300m	
	0.490MHz-1.705MHz	24000/F(KHz)	QP	300m	
	1.705MHz-30MHz	30	QP	30m	
	30MHz-88MHz	100	QP	3m	
	88MHz-216MHz	150	QP		
	216MHz-960MHz	200	QP		
	960MHz-1GHz	500	QP		
	Frequency	Limit (dBm/MHz)	Remark		
	Above 1GHz	-27.0	Peak Value		
Test setup:	<p>For radiated emissions from 9kHz to 30MHz</p>  <p>For radiated emissions from 30MHz to 1GHz</p>				



For radiated emissions above 1GHz



**Test Procedure:**

1. The EUT was placed on the top of a rotating table (0.8m for below 1GHz and 1.5 meters for above 1GHz) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-

	peak or average method as specified and then reported in a data sheet. 7. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, only the test worst case mode is recorded in the report.					
Test Instruments:	Refer to section 6.0 for details					
Test mode:	Refer to section 5.2 for details					
Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:	1012mbar
Test results:	Pass					

*Remarks:*

1. Only the worst case Main Antenna test data.
2. 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:**

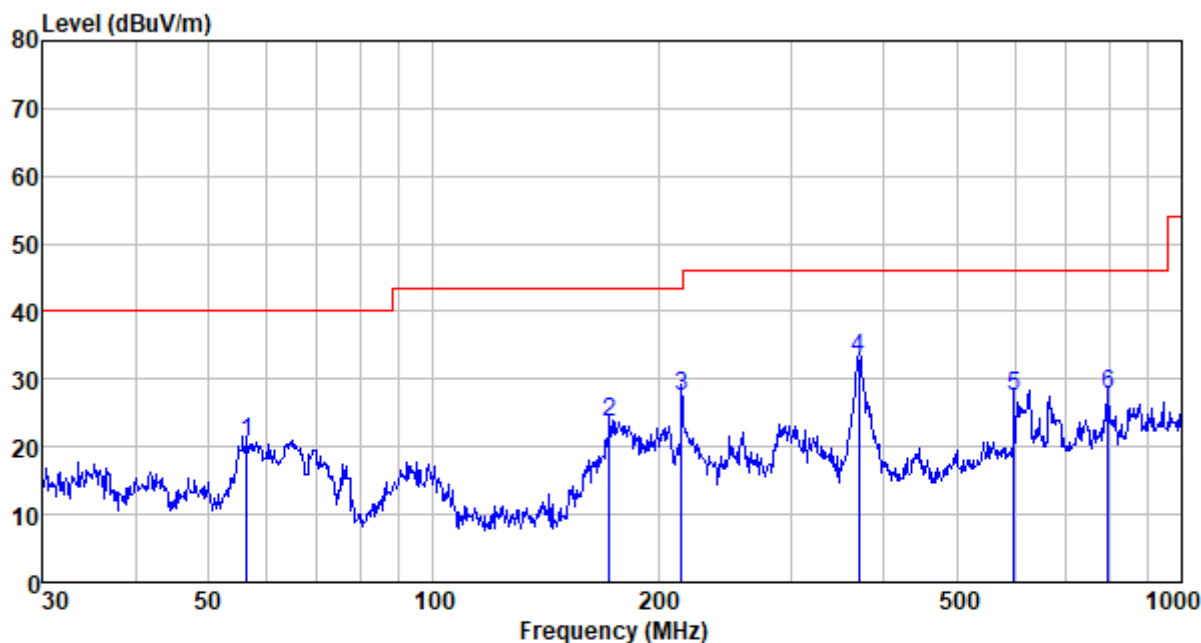
**9 kHz ~ 30 MHz**

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



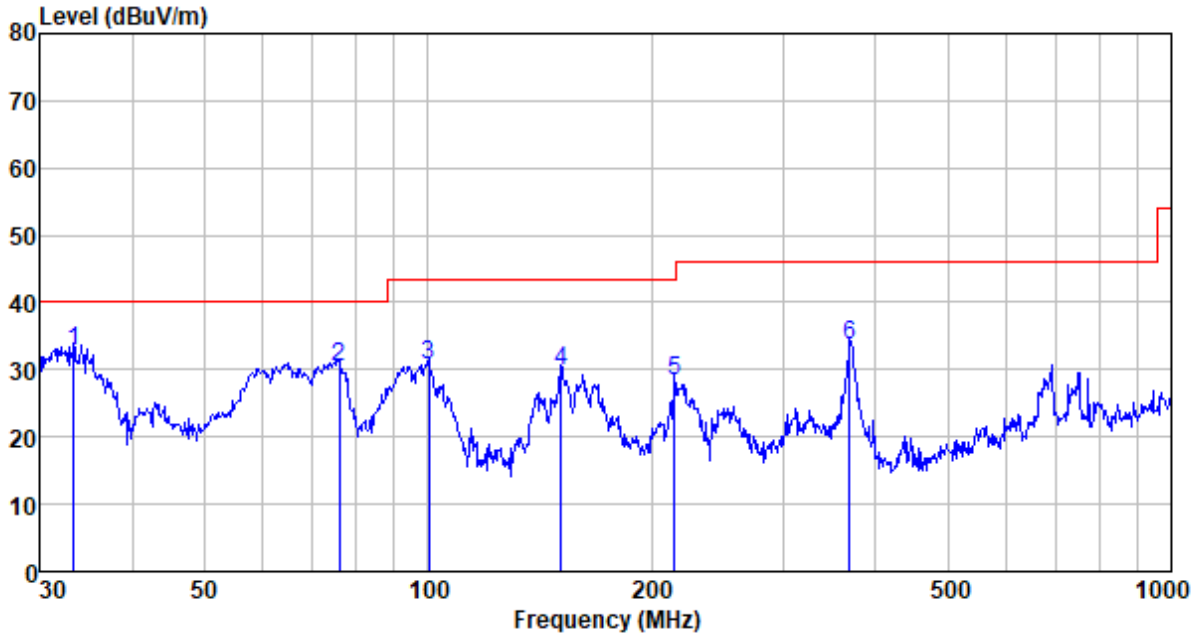
**Below 1GHz**

Horizontal:



Freq MHz	Reading level dBUV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBUV	Limit level dBUV/m	Over limit dB	Remark
56.395	44.43	11.65	0.83	36.27	20.64	40.00	-19.36	QP
171.995	50.58	8.57	1.70	37.20	23.65	43.50	-19.85	QP
214.514	51.82	10.95	1.93	37.35	27.35	43.50	-16.15	QP
370.702	52.93	14.86	2.72	37.49	33.02	46.00	-12.98	QP
597.223	41.98	19.44	3.71	37.54	27.59	46.00	-18.41	QP
796.183	39.62	21.34	4.45	37.62	27.79	46.00	-18.21	QP

Vertical:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
33.328	56.23	11.27	0.59	35.24	32.85	40.00	-7.15	QP
75.977	58.57	7.44	0.99	36.51	30.49	40.00	-9.51	QP
100.229	54.06	12.15	1.19	36.72	30.68	43.50	-12.82	QP
151.067	57.47	7.70	1.58	37.08	29.67	43.50	-13.83	QP
214.514	52.67	10.95	1.93	37.35	28.20	43.50	-15.30	QP
369.405	53.73	14.83	2.72	37.49	33.79	46.00	-12.21	QP

## Above 1GHz:

802.11a,11n(HT20),11ac(HT20),11n(HT40),11ac(HT40),11ac(HT80) all have been tested,  
Only the data of worst case(ANT1) at each channel plan report

Test mode:		802.11a		Test channel:		lowest	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	11490	25.23	21.64	46.87	54	-7.13	PK
V	17235	23.85	21.8	45.65	54	-8.35	PK
H	11490	19.92	21.83	41.75	54	-12.25	PK
H	17235	25.92	21.67	47.59	54	-6.41	PK

Test mode:		802.11a		Test channel:		Middle	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	11570	25.23	21.64	46.87	54	-7.13	PK
V	17355	19.24	21.8	41.04	54	-12.96	PK
H	11570	21.10	21.83	42.93	54	-11.07	PK
H	17355	19.29	21.67	40.96	54	-13.04	PK

Test mode:		802.11a		Test channel:		Highest	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	11650	23.71	21.64	45.35	54	-8.65	PK
V	17475	19.48	21.8	41.28	54	-12.72	PK
H	11650	23.16	21.83	44.99	54	-9.01	PK
H	17475	20.11	21.67	41.78	54	-12.22	PK

Test mode:		802.11ac(HT40)		Test channel:		Lowest	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	11510	22.70	21.67	44.37	54	-9.63	PK
V	17265	25.97	21.83	47.8	54	-6.2	PK
H	11510	21.74	21.67	43.41	54	-10.59	PK
H	17265	22.96	21.83	44.79	54	-9.21	PK

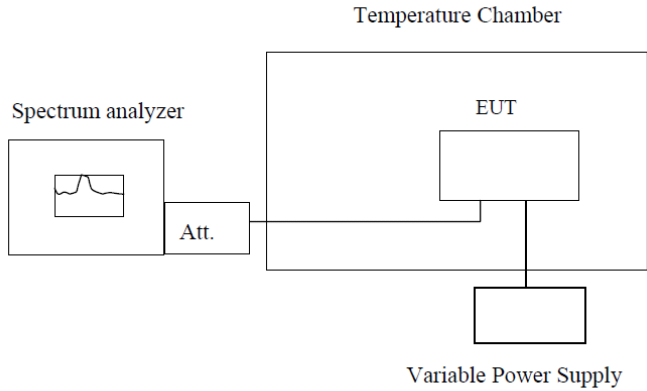
Test mode:		802.11ac(HT40)		Test channel:		Highest	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	11590	19.25	21.67	40.92	54	-13.08	PK
V	17385	21.74	21.83	43.57	54	-10.43	PK
H	11590	25.19	21.67	46.86	54	-7.14	PK
H	17385	20.27	21.83	42.1	54	-11.9	PK

Test mode:		802.11ac(HT80)		Test channel:		Middle	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	11550	21.59	21.65	43.24	54	-10.76	PK
V	17325	25.88	21.81	47.69	54	-6.31	PK
H	11550	24.65	21.65	46.3	54	-7.7	PK
H	17325	25.64	21.81	47.45	54	-6.55	PK

Notes:

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) RSS-Gen Section 8.11
Test Method:	ANSI C63.10:2013, FCC Part 2.1055 & RSS-Gen
Limit:	Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified
Test Procedure:	The EUT was setup to ANSI C63.4, 2003; tested to 2.1055 for compliance to FCC Part 15.407(g) requirements.
Test setup:	 <p style="text-align: center;"><b>Note :</b> Measurement setup for testing on Antenna connector</p>
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

**Measurement data:**

Frequency stability versus Temp.					
Power Supply: AC 120V					
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	5745	5745.551	5745.396	5745.133	5745.855
	5775	5775.371	5775.385	5775.894	5775.452
	5795	5795.096	5795.968	5795.034	5795.22
-20	5745	5745.427	5745.672	5745.84	5745.965
	5775	5775.07	5775.525	5775.635	5775.076
	5795	5795.333	5795.573	5795.351	5795.452
-10	5745	5745.168	5745.207	5745.665	5745.475
	5775	5775.358	5775.245	5775.839	5775.77
	5795	5795.703	5795.008	5795.433	5795.287
0	5745	5745.816	5745.052	5745.506	5745.783
	5775	5775.416	5775.559	5775.395	5775.469
	5795	5795.069	5795.185	5795.659	5795.1
10	5745	5745.353	5745.205	5745.969	5745.237
	5775	5775.435	5775.221	5775.482	5775.116
	5795	5795.165	5795.604	5795.724	5795.318
20	5745	5745.519	5745.323	5745.329	5745.398
	5775	5775.275	5775.255	5775.158	5775.323
	5795	5795.207	5795.57	5795.67	5795.672
30	5745	5745.323	5745.132	5745.348	5745.671
	5775	5775.967	5775.18	5775.754	5775.279
	5795	5795.482	5795.57	5795.016	5795.708
40	5745	5745.997	5745.032	5745.548	5745.809
	5775	5775.782	5775.724	5775.733	5775.209
	5795	5795.922	5795.428	5795.983	5795.607
50	5745	5745.457	5745.271	5745.548	5745.73
	5775	5775.261	5775.953	5775.481	5775.998
	5795	5795.484	5795.594	5795.702	5795.612

Frequency stability versus Voltage					
Temperature: 25°C					
Power Supply (VAC)	Operating Frequency (MHz)	0 minute	2 minute	5 minute	10 minute
		Measured Frequency (MHz)	Measured Frequency (MHz)	Measured Frequency (MHz)	Measured Frequency (MHz)
108	5745	5745.073	5745.053	5745.754	5745.137
	5775	5775.387	5775.023	5775.937	5775.291
	5795	5795.961	5795.882	5795.095	5795.9
120	5745	5745.126	5745.321	5745.159	5745.334
	5775	5775.434	5775.155	5775.486	5775.116
	5795	5795.735	5795.709	5795.699	5795.383
132	5745	5745.603	5745.996	5745.037	5745.56
	5775	5775.912	5775.91	5775.377	5775.779
	5795	5795.796	5795.061	5795.869	5795.426

## 8 Test Setup Photo

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

## 9 EUT Constructional Details

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

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