FCC Part 15E
Measurement and Test Report

For

Equinox Media, LLC

53 W. 54th st., New York, NY 10019

FCC ID: 2AUTU-SH-1

FCC Rule(s):	FCC Part 15.407
Product Description:	Equinox Media Home Bike Tablet
Tested Model:	SH-1
Report No.:	WTX19X10070127W-1
Sample Receipt Date:	2019-10-12
Tested Date:	2019-10-12 to 2019-11-13
Issued Date:	2019-11-13
Tested By:	Mike Shi/ Engineer
Reviewed By:	Silin Chen / EMC Manager
Approved & Authorized By:	Jandy So / PSQ Manager

Prepared By:

Shenzhen SEM Test Technology Co., Ltd.
1/F, Building A, Hongwei Industrial Park, Liuxian 2nd Road,
Bao'an District, Shenzhen, P.R.C.（518101）
Tel.: +86-755-33663308 Fax.: +86-755-33663309 Website: www.semtest.com.cn

Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by Shenzhen SEM Test Technology Co., Ltd.

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Version No.	Date of issue	Description
Rev.00	2019-11-13	Original
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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: Equinox Media, LLC
Address of applicant: 53 W. 54th st., New York, NY 10019

Manufacturer: Harman Connected Services Inc.
Address of manufacturer: 636 Ellis Street, Mountain View, CA, 94043-0650

General Description of EUT	
Product Name:	Equinox Media Home Bike Tablet
Brand Name:	Equinox Media
Model No.:	SH-1
Adding Model(s):	/
Rated Voltage:	DC19V
Battery Capacity:	/
Power Adapter:	MODEL: AK100WG-1900480W2 INPUT: AC100-240V, 50/60Hz, 1.5A Output: DC 19V, 4.8A
Software Version:	/
Hardware Version:	/
Note: The test data is gathered from a production sample, provided by the manufacturer.	

Technical Characteristics of EUT	
Support Standards:	802.11a, 802.11n(HT20) , 802.11n-HT40, 802.11ac-VH80
Frequency Range:	5150-5250MHz, 5250-5350MHz, 5470-5725MHz, 5725-5850MHz
RF Output Power:	10.93dBm (Conducted)
Type of Modulation:	BPSK, QPSK,16QAM,64QAM, 256QAM
Data Rate:	6-54Mbps, up to 200Mbps
Quantity of Channels:	15
Type of Antenna:	Integral Antenna
Antenna Gain:	2dBi

1.2 Test Standards

The tests were performed according to following standards:

FCC Rules Part 15.407: General technical requirements.
ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.
KDB789033 D02 v02r01: GUIDELINES FOR COMPLIANCE TESTING OF UNLICENSED NATIONAL INFORMATION INFRASTRUCTURE (U-NII) DEVICES PART 15, SUBPART E

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

1.3 Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, KDB789033 D02 v02r01
The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted accordingly in reference to the Operating Instructions.

1.4 Table for parameters of Test Software setting

Enter "3646631+=" into the calculator to enter the engineer mode, you can start to test. During testing, Channel and Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

Mode	Test Frequency (MHz)												
	NCB: 20MHz												
	5180	5200	5240	5260	5300	5320	5500	5580	5700	5720	5745	5785	5825
802.11a 6Mbps	20	20	18	18	17	17	17	16	16	/	16	16	15
802.11n-HT20 MCS0	20	19	18	18	17	17	18	17	16	/	16	16	16

Mode	NCB: 40MHz									
	5190	5230	5270	5310	5510	5550	5670	5710	5755	5795
802.11n-HT40 MCS0	20	19	18	16	18	17	16	/	16	16

Mode	NCB: 80MHz					
	5210	5290	5530	5610	5690	5775
802.11ac-VH80 MCS0/Nss2	20	18	18	17	/	16

1.5 EUT Operating during test

EUT was programmed to be in continuously transmitting mode. During the test, EUT operation to normal function and programs under Android were executed.

1.6 Test Facility

Address of the test laboratory

Laboratory: Shenzhen SEM Test Technology Co., Ltd.

Address: 1/F, Building A, Hongwei Industrial Park, Liuxian 2nd Road, Bao'an District, Shenzhen, P.R.C. (518101）

FCC – Registration No.: 125990

Shenzhen SEM Test Technology Co., Ltd. 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 maintain ed in our files. The Designation Number is CN5010, and Test Firm Registration Number is 125990.

Industry Canada (IC) Registration No.: 11464A

The 3m Semi-anechoic chamber of Shenzhen SEM Test Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A.

1.7 EUT Setup and Test Mode

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements. All testing shall be performed under maximum output power condition, with a duty cycle equal to 100%, and to measure its highest possible emissions level, more detailed description as follows:

Test Mode List		
Test Mode	Description	Remark
TM1	802.11a	5180MHz,5200MHz,5240MHz,5260MHz,5280MHz,5320MHz,5500MHz, 5600MHz,5700MHz,5745MHz, 5785MHz,5825MHz
TM2	802.11n-HT20	5180MHz,5200MHz,5240MHz,5260MHz,5280MHz,5320MHz,5500MHz, 5600MHz,5700MHz,5745MHz, 5785MHz,5825MHz
TM3	802.11n-HT40	5190MHz,5230MHz,5270MHz,5310MHz,5510MHz,5590MHz,5670MHz, 5755MHz,5795MHz
TM4	802.11ac-VH80	5210MHz,5290MHz,5530 MHz,5610 MHz,5775 MHz

Test Conditions	
Temperature:	22~25 °C
Relative Humidity:	50~55 %.
ATM Pressure:	1019 mbar

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
DC Cable	3.5	Unshielded	Without Ferrite
AC Cable	1.1	Unshielded	Without Ferrite

Special Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
Type-C Cable	0.8	Shielded	Without Ferrite

Auxiliary Equipment List and Details			
Description	Manufacturer	Model	Serial Number
/	/	/	/

1.8 Measurement Uncertainty

Measurement uncertainty		
Parameter	Conditions	Uncertainty
RF Output Power	Conducted	±0.42dB
Occupied Bandwidth	Conducted	±1.5%
Power Spectral Density	Conducted	±1.8dB
Conducted Spurious Emission	Conducted	±2.17dB
Conducted Emissions	Conducted	9-150kHz ±3.74dB
		0.15-30MHz ±3.34dB
Transmitter Spurious Emissions	Radiated	30-200MHz ±4.52dB
		0.2-1GHz ±5.56dB
		1-6GHz ±3.84dB
		6-18GHz ±3.92dB

1.9 Test Equipment List and Details

No.	Description	Manufacturer	Model	Serial No.	Cal Date	Due Date
SEMT-1072	Spectrum Analyzer	Agilent	E4407B	MY41440400	2019-04-30	2020-04-29
SEMT-1031	Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2019-04-30	2020-04-29
SEMT-1007	EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2019-04-30	2020-04-29
SEMT-1008	Amplifier	Agilent	8447F	3113A06717	2019-04-30	2020-04-29
SEMT-1043	Amplifier	C&D	PAP-1G18	2002	2019-04-30	2020-04-29
SEMT-1011	Broadband Antenna	Schwarz beck	VULB9163	9163-333	2019-05-05	2021-05-04
SEMT-1042	Horn Antenna	ETS	3117	00086197	2019-05-05	2021-05-04
SEMT-1121	Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170582	2019-05-05	2021-05-04
SEMT-1069	Loop Antenna	Schwarz beck	FMZB 1516	9773	2019-05-05	2021-05-04
SEMT-1001	EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2019-04-30	2020-04-29
SEMT-1003	L.I.S.N	Schwarz beck	NSLK8126	8126-224	2019-04-30	2020-04-29
SEMT-1002	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2019-04-30	2020-04-29
SEMT-1168	Pre-amplifier	Direction Systems Inc.	PAP-0126	14141-12838	2019-04-30	2020-04-29
SEMT-1169	Pre-amplifier	Direction Systems Inc.	PAP-2640	14145-14153	2019-04-30	2020-04-29
SEMT-1163	Spectrum Analyzer	Rohde & Schwarz	FSP40	100612	2019-04-30	2020-04-29
SEMT-1170	DRG Horn Antenna	A.H. SYSTEMS	SAS-574	571	2019-05-05	2021-05-04
SEMT-1166	Power Limiter	Agilent	N9356B	MY45450376	2019-04-30	2020-04-29
SEMT-1048	RF Limiter	ATTEN	AT-BSF-2400~2500	/	2019-04-30	2020-04-29
SEMT-1076	RF Switcher	Top Precision	RCS03-A2	/	2019-04-30	2020-04-29
SEMT-C001	Cable	Zheng DI	LL142-07-07-10M(A)	/	2019-03-18	2020-03-17
SEMT-C002	Cable	Zheng DI	ZT40-2.92J-2.92J-6M	/	2019-03-18	2020-03-17
SEMT-C003	Cable	Zheng DI	ZT40-2.92J-2.92J-2.5M	/	2019-03-18	2020-03-17
SEMT-C004	Cable	Zheng DI	2M0RFC	/	2019-03-18	2020-03-17
SEMT-C005	Cable	Zheng DI	1M0RFC	/	2019-03-18	2020-03-17
SEMT-C006	Cable	Zheng DI	1M0RFC	/	2019-03-18	2020-03-17

Software List			
Description	**Manufacturer**	**Model**	**Version**
EMI Test Software (Radiated Emission)*	Farad	EZ-EMC	RA-03A1
EMI Test Software (Conducted Emission)*	Farad	EZ-EMC	RA-03A1

*Remark: indicates software version used in the compliance certification testing

2. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test Item	Result
§15.203; §15.405	Antenna Requirement	Compliant
§15.207; §15.407(b)(6)	Conducted Emission	Compliant
§15.407(a)(1),(2)	Power Spectral Density	Compliant
§15.407(e)	Emission Bandwidth and Occupied Bandwidth	Compliant
§15.407(a)(1),(2)	Maximum Conducted Output Power	Compliant
§15.407(b)(1),(2),(3),(4)	Undesirable emission	Compliant
§15.205; §15.407(b)(1),(2),(3)	Radiated Emission	Compliant
§15.407(g)	Frequency Stability	Compliant
§15.407(h)	Dynamic Frequency Selection (DFS)	Compliant

N/A: not applicable

3. RF Exposure

3.1 Standard Applicable

According to §1.1307 and §2.1093, the portable transmitter must comply the RF exposure requirements.

3.2 Test Result

This product complied with the requirement of the RF exposure, please see the MPE Report.

4. Antenna Requirement

4.1 Standard Applicable

According to FCC Part 15.203, 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 shall be considered sufficient to comply with the provisions of this section.

4.2 Evaluation Information

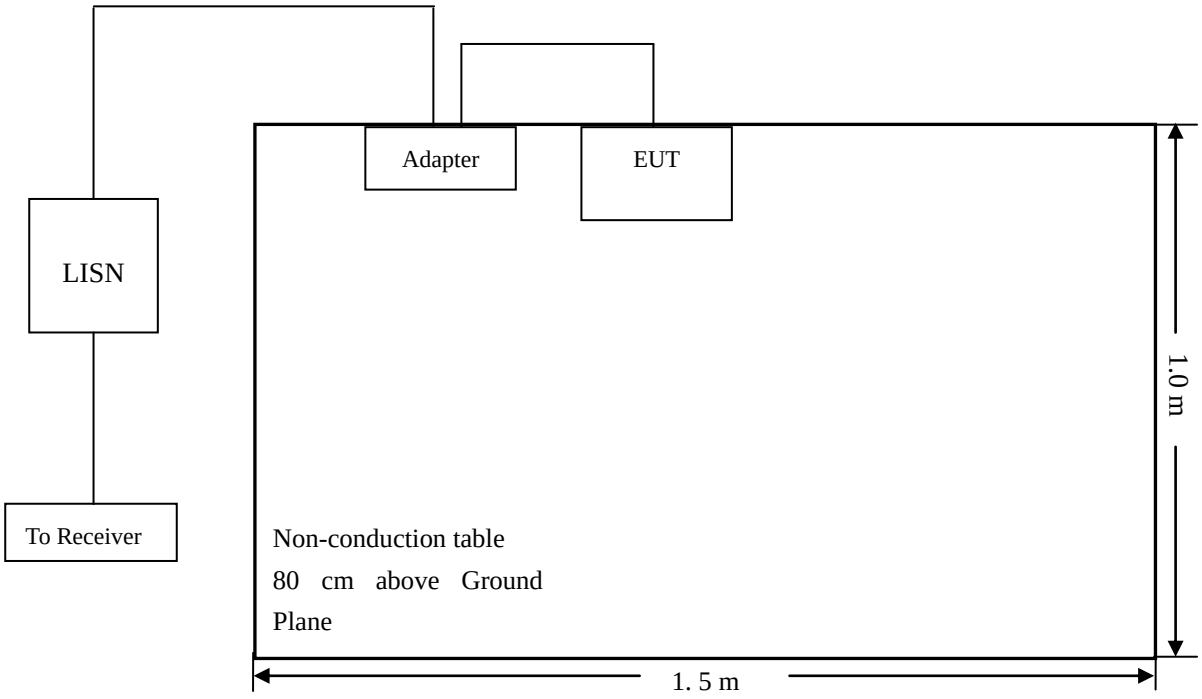
This product has an integral antenna, fulfill the requirement of this section.

5. Conducted Emissions

5.1 Test Procedure

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 Limit.
The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.
The spacing between the peripherals was 10 cm.

5.2 Basic Test Setup Block Diagram



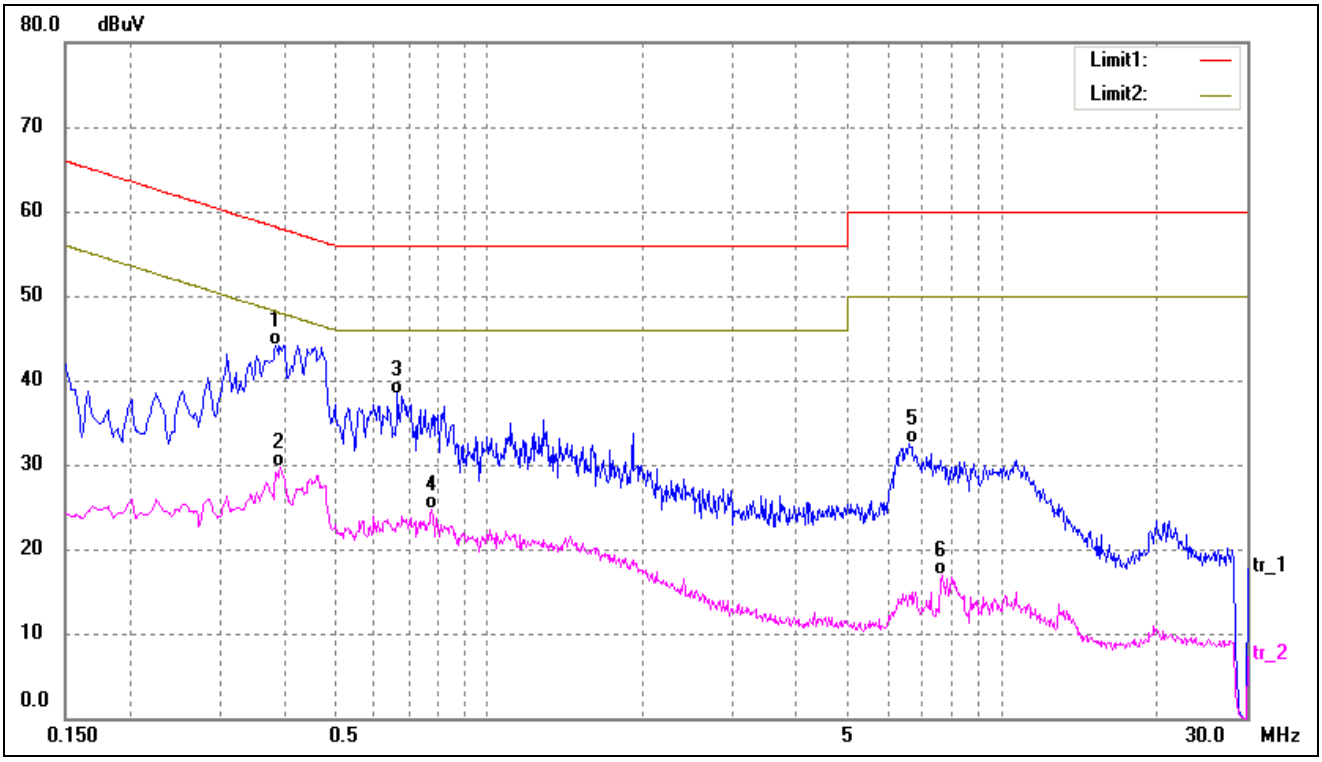
5.3 Test Receiver Setup

During the conducted emission test, the test receiver was set with the following configurations:

Start Frequency ..... 150 kHz
Stop Frequency ..... 30 MHz
Sweep Speed ..... Auto
IF Bandwidth..... 10 kHz
Quasi-Peak Adapter Bandwidth ..... 9 kHz
Quasi-Peak Adapter Mode ..... Normal

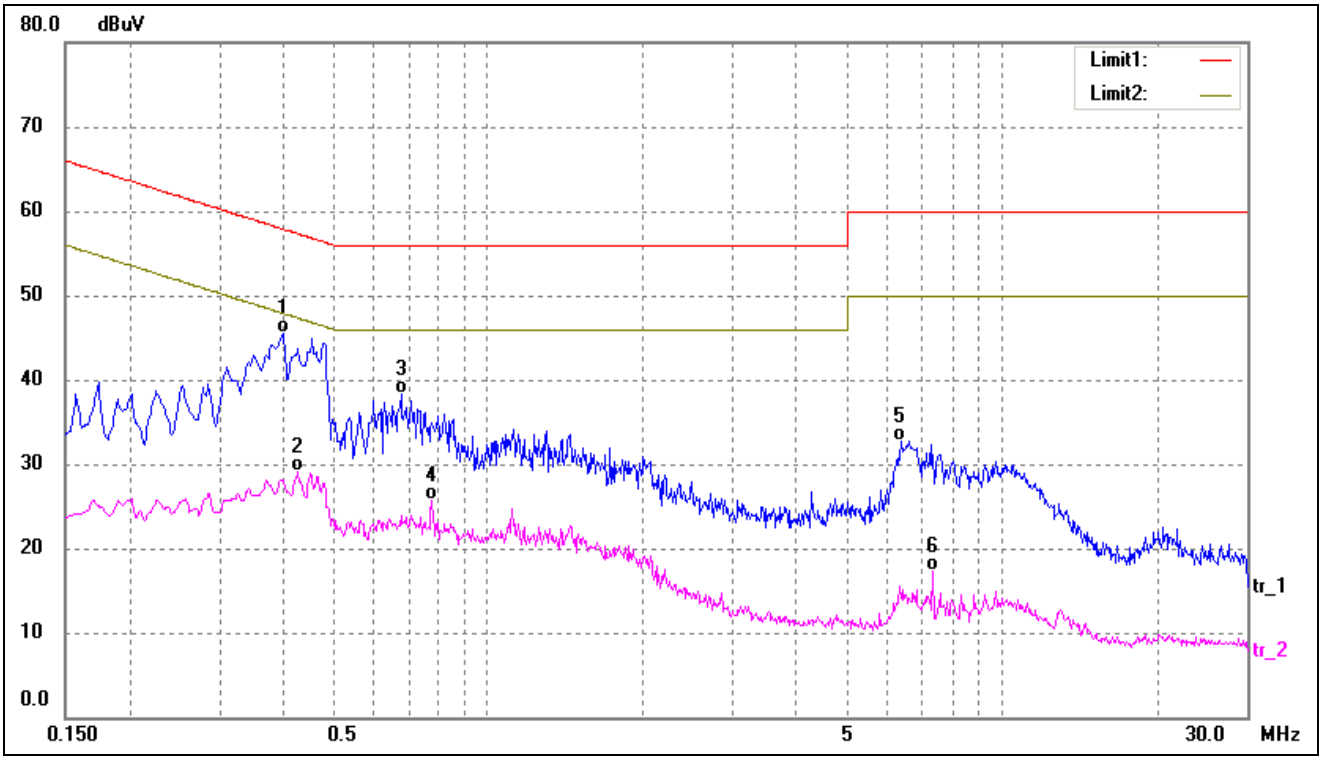
5.4 Summary of Test Results/Plots

Test Mode	Communication	AC120V 60Hz	Polarity:	Neutral



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.3860	34.13	10.02	44.15	58.15	-14.00	QP
2	0.3940	19.60	10.01	29.61	47.98	-18.37	AVG
3	0.6660	28.35	10.05	38.40	56.00	-17.60	QP
4	0.7780	14.56	10.15	24.71	46.00	-21.29	AVG
5	6.6060	22.10	10.49	32.59	60.00	-27.41	QP
6	7.6860	6.41	10.52	16.93	50.00	-33.07	AVG

Test Mode	Communication	AC120V 60Hz	Polarity:	Line



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.3980	35.44	10.01	45.45	57.89	-12.44	QP
2	0.4260	19.13	10.01	29.14	47.33	-18.19	AVG
3	0.6780	28.24	10.05	38.29	56.00	-17.71	QP
4	0.7780	15.51	10.15	25.66	46.00	-20.34	AVG
5	6.3820	22.17	10.48	32.65	60.00	-27.35	QP
6	7.3300	6.79	10.53	17.32	50.00	-32.68	AVG

6. Power Spectral Density

6.1 Standard Applicable

Section 15.407(a) Power limits:

(1) For the band 5.15-5.25 GHz.
(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

6.2 Test Procedure

According to 789033 D02 v02r01 General UNII Test Procedures New Rules v02, the following is the measurement procedure.
For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in § 15.407(a)(5). For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500kHz bandwidth, the following adjustments to the procedures apply:

a) Set RBW ≥ 1/T, where T is defined in section II.B.l.a).
b) Set VBW ≥ 3 RBW.
c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10log(500kHz/RBW) to the measured result, whereas RBW (< 500 kHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add 10log(1MHz/RBW) to the measured result, whereas RBW (< 1 MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement.
e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

Note: As a practical matter, it is recommended to use reduced RBW of 100 kHz for the sections 5.c) and 5.d) above, since RBW=100 kHZ is available on nearly all spectrum analyzers.

6.3 Summary of Test Results/Plots

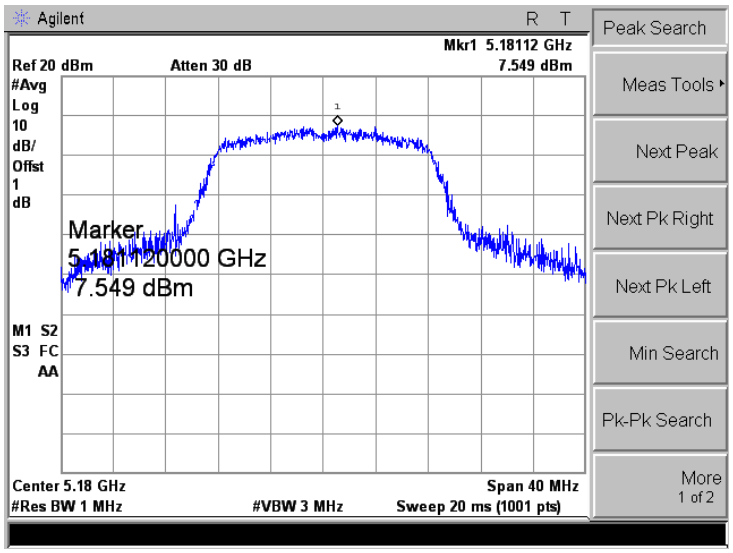
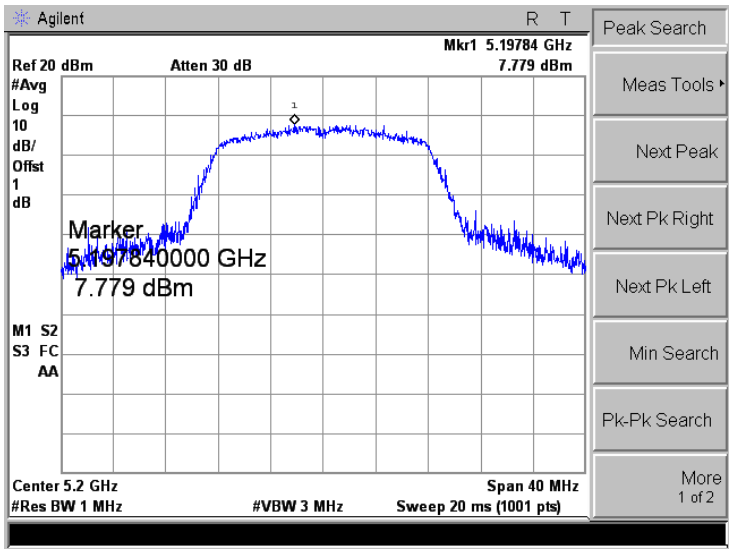
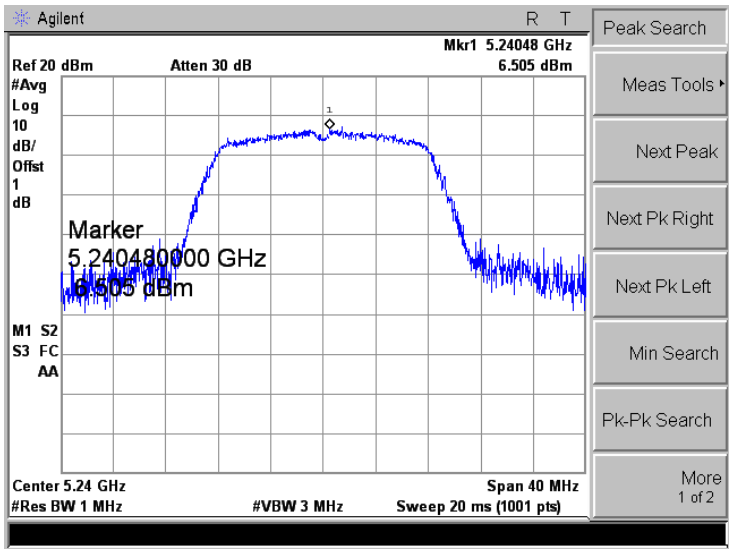
U-NII-1:5150-5250MHz			
Operating mode	Test Channel	Power Spectral Density dBm/MHz	Limit (dBm/MHz)
802.11a	5180	7.55	11
	5200	7.78	11
	5240	6.51	11
802.11n-HT20	5180	7.01	11
	5200	6.49	11
	5240	7.31	11
802.11n-HT40	5190	4.61	11
	5230	3.87	11
802.11ac-HT80	5210	0.93	11

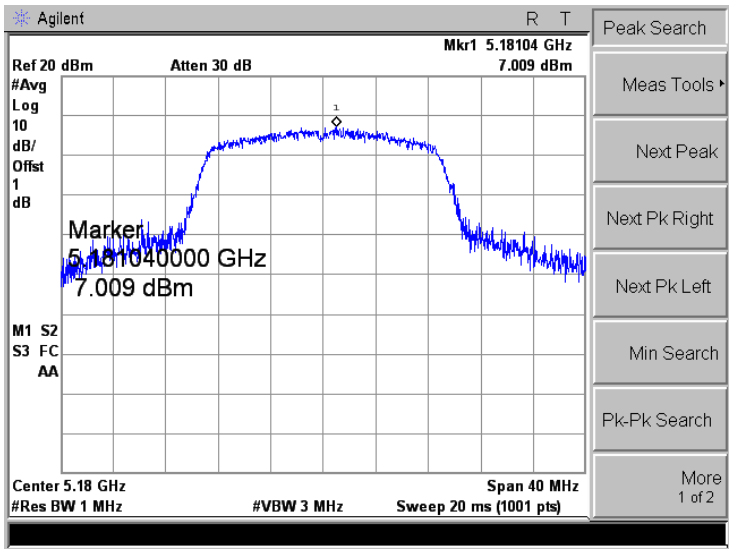
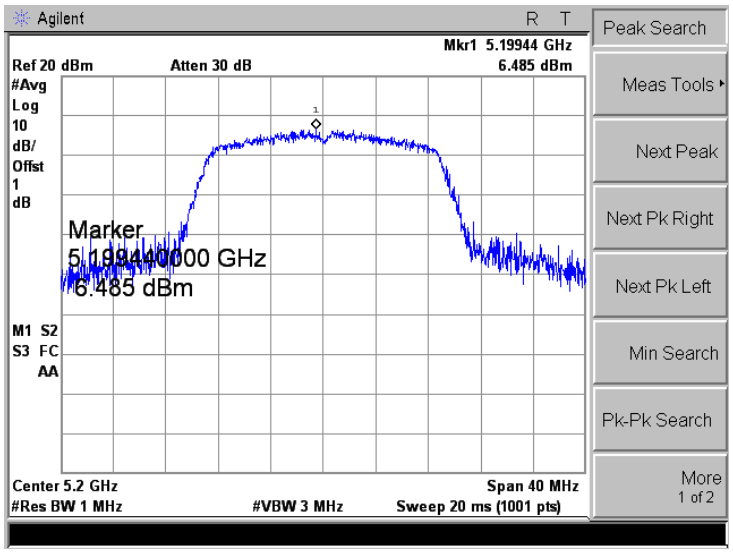
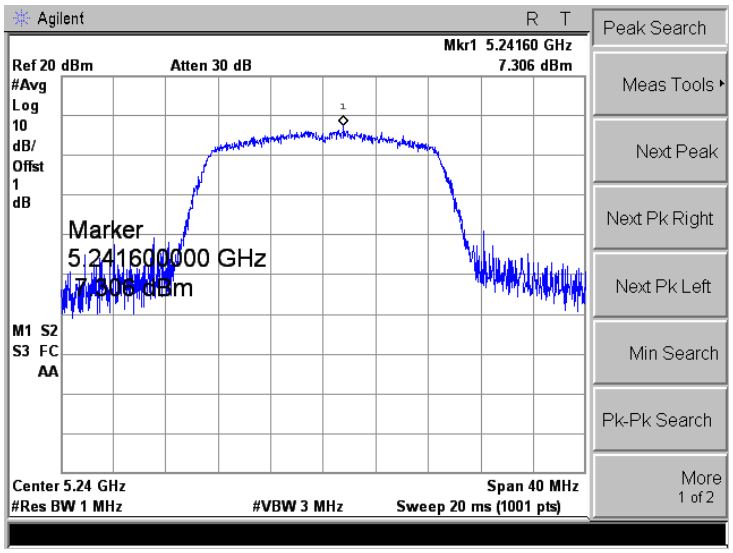
U-NII-2A: 5250-5350MHz			
Operating mode	Test Channel	Power Spectral Density dBm/MHz	Limit (dBm/MHz)
802.11a	5260	7.05	11
	5280	6.91	11
	5320	8.16	11
802.11n-HT20	5260	7.60	11
	5280	6.60	11
	5320	6.41	11
802.11n-HT40	5270	4.72	11
	5310	2.47	11
802.11ac-HT80	5290	1.08	11

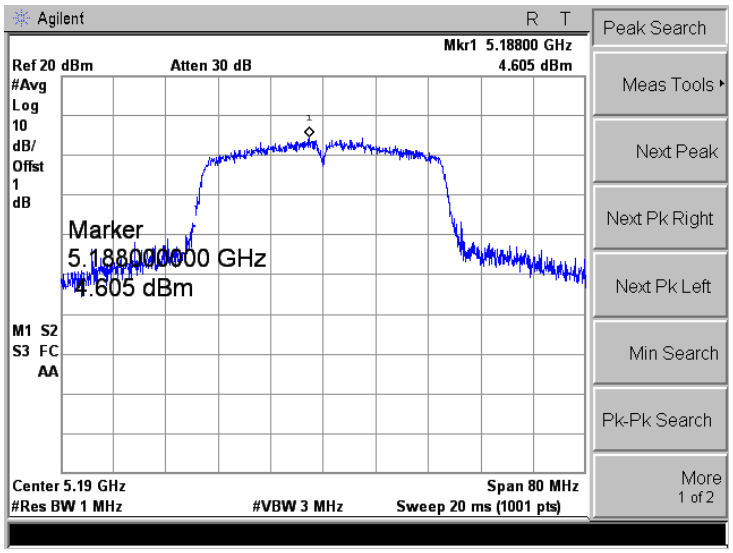
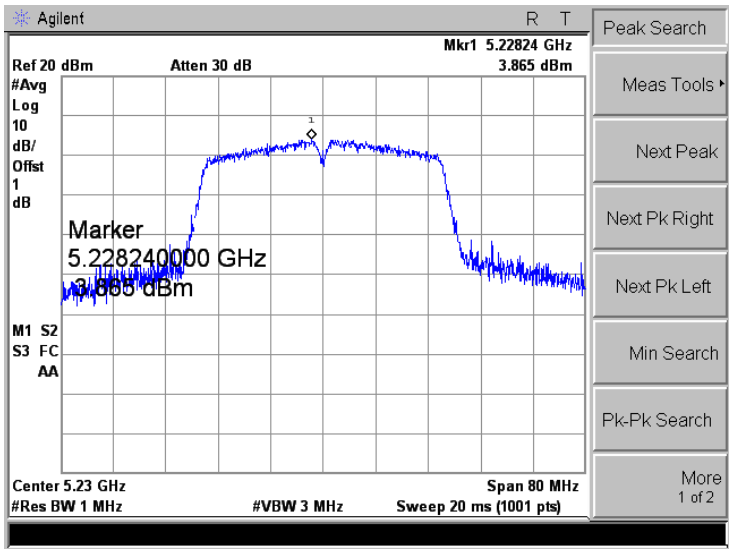
U-NII-2C: 5470-5725MHz			
Operating mode	Test Channel	Power Spectral Density dBm/MHz	Limit (dBm/MHz)
802.11a	5500	6.85	11
	5600	6.36	11
	5700	7.22	11
802.11n-HT20	5500	7.48	11
	5600	6.87	11
	5700	6.26	11
802.11n-HT40	5510	4.41	11
	5590	3.93	11
	5670	4.00	11
802.11ac-HT80	5530	1.13	11
	5610	0.55	11

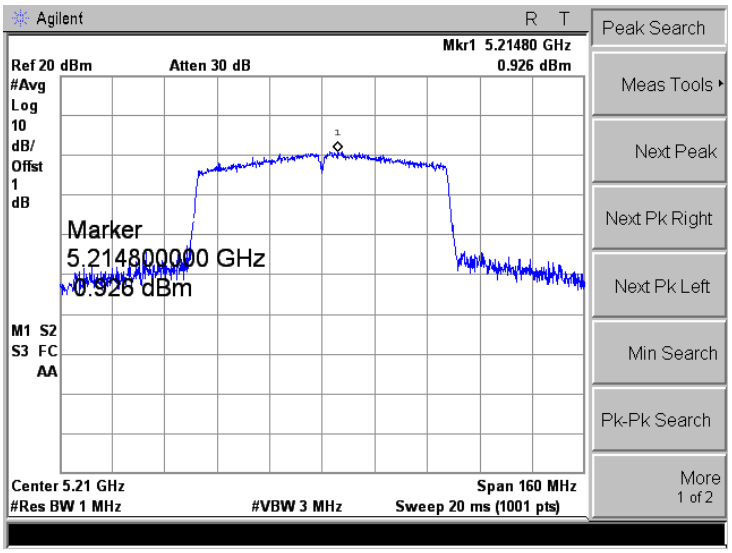
U-NII-3: 5725-5850MHz					
Operating mode	Test Channel	Power Spectral Density dBm/300kHz	Factor	Power Spectral Density* dBm/500kHz	Limit dBm/500kHz
802.11a	5745	6.93	2.22	9.15	30
	5785	6.79	2.22	9.01	30
	5825	6.62	2.22	8.84	30
802.11n-HT20	5745	6.82	2.22	9.04	30
	5785	6.28	2.22	8.50	30
	5825	8.04	2.22	10.26	30
802.11n HT40	5755	3.48	2.22	5.70	30
	5795	4.03	2.22	6.25	30
802.11ac VH80	5775	0.30	2.22	2.52	30
*Note: Maximum PSD=PSD(dBm/300kHz)+10log(500kHz/300kHz)=2.22					

➢ 5150-5250MHz

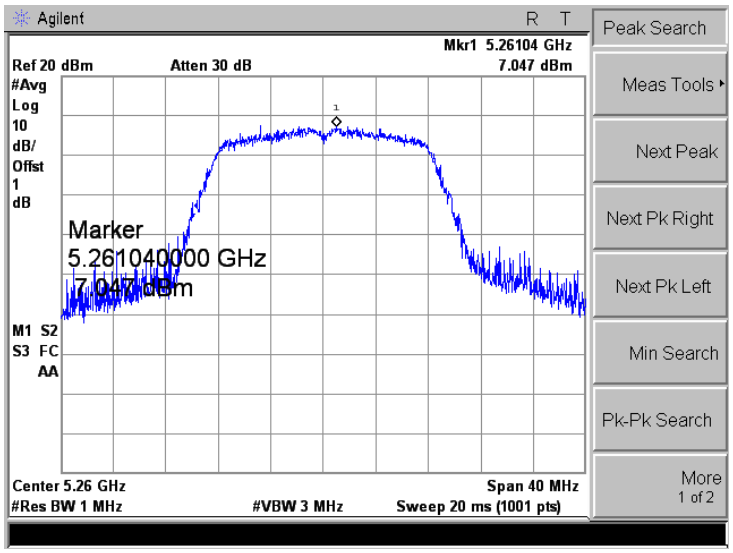
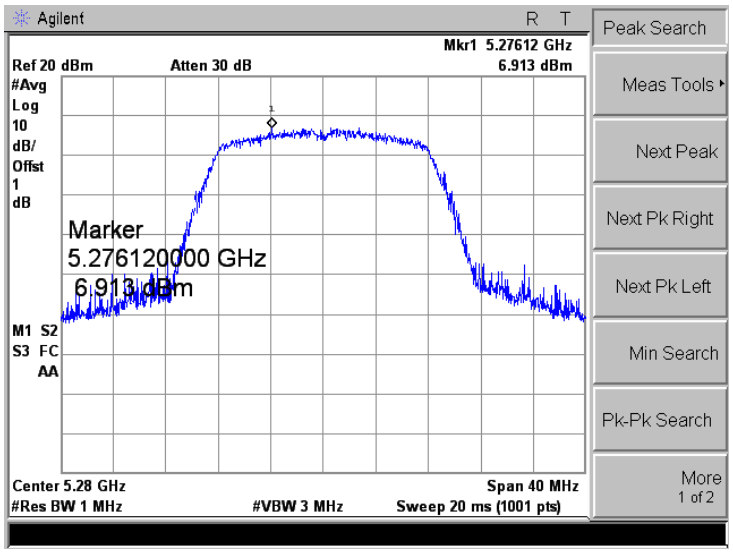
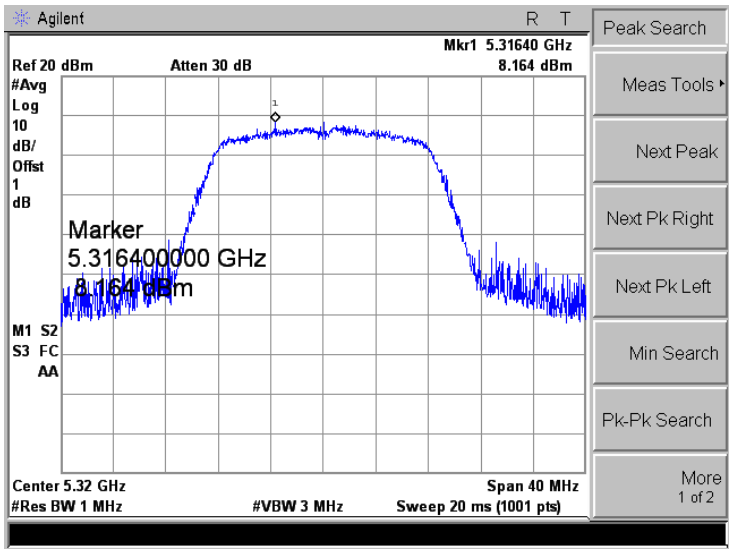
Mode:	**802.11a**
5180MHz	
5200MHz	
5240MHz	

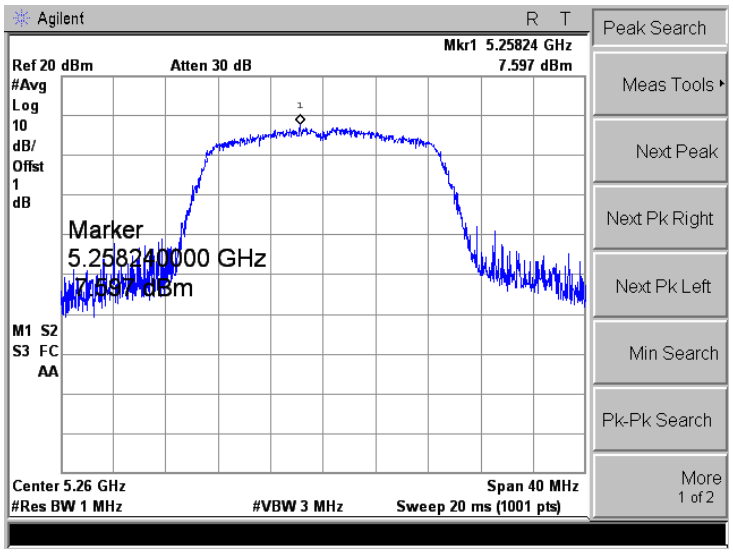
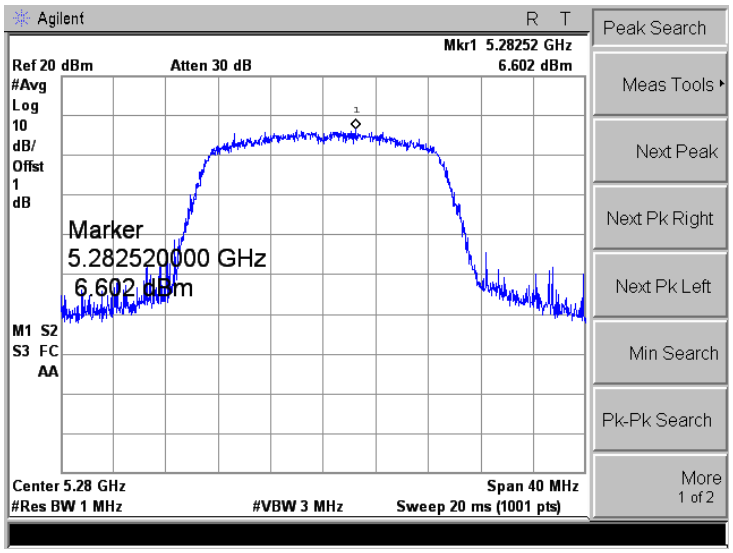
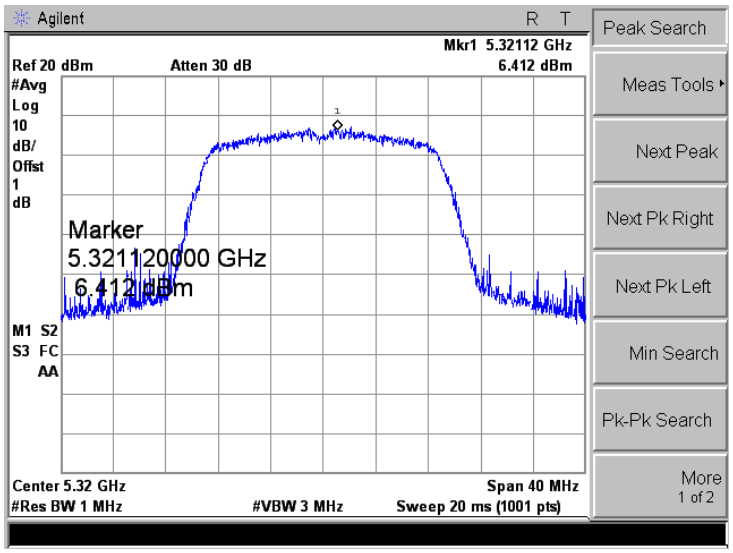
Mode:	802.11n-HT20
5180MHz	
5200MHz	
5240MHz	

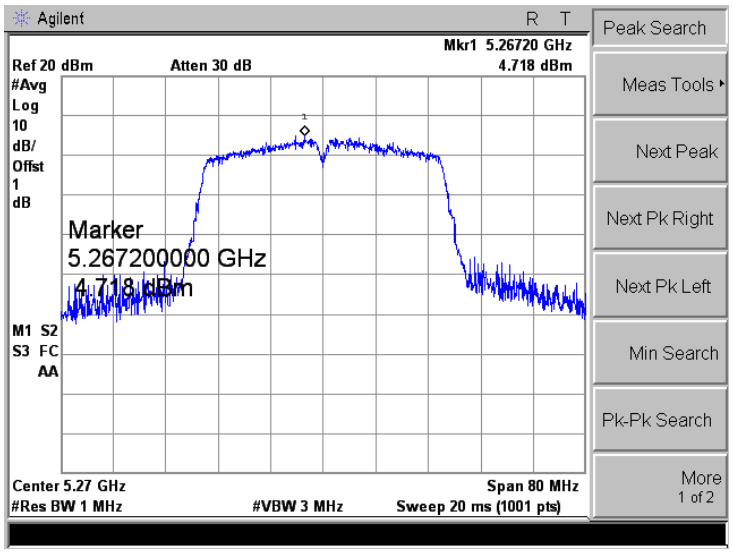
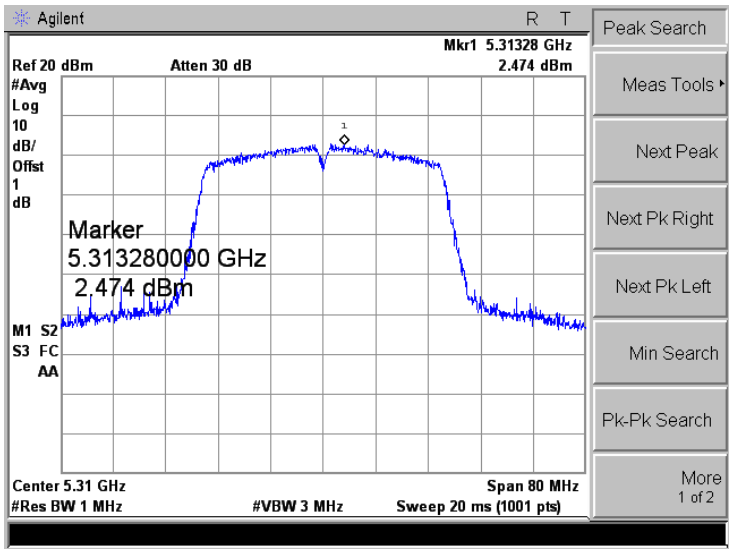
Mode:	802.11n-HT40
5190 MHz	
5230 MHz	

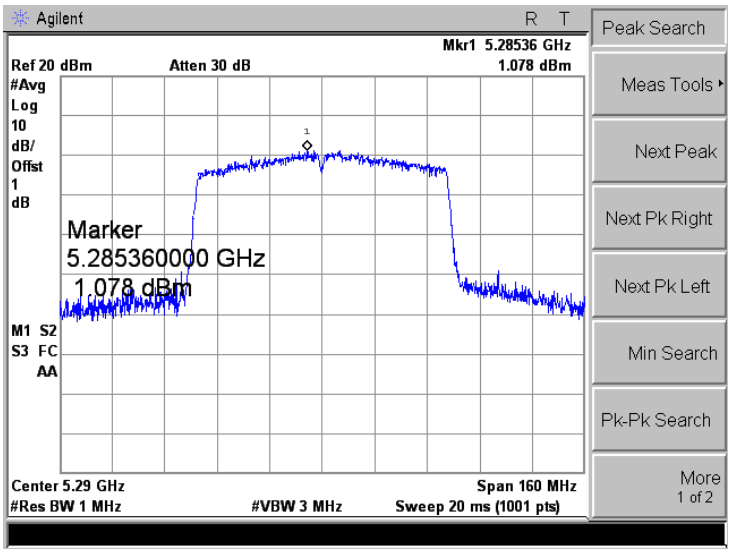
Mode:	802.11ac VH80
5210MHz	

➢ 5250-5350MHz

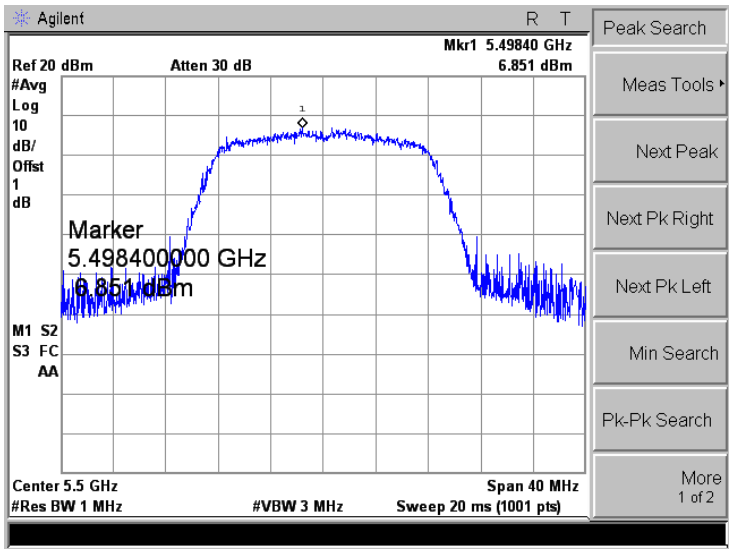
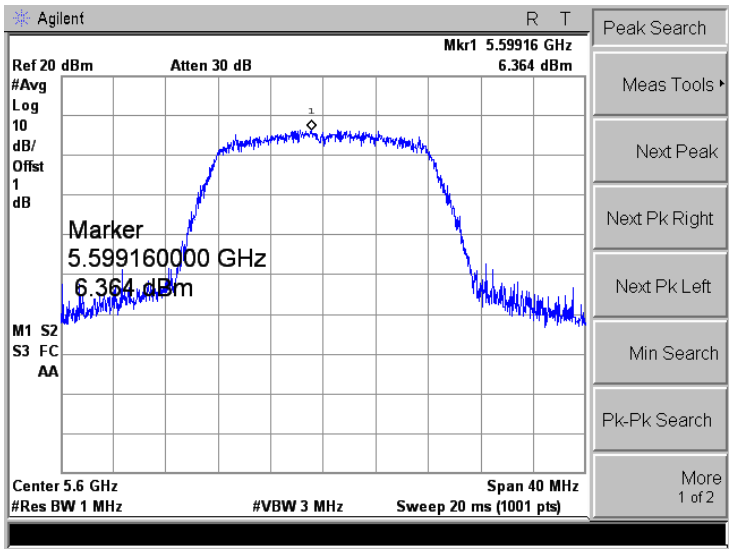
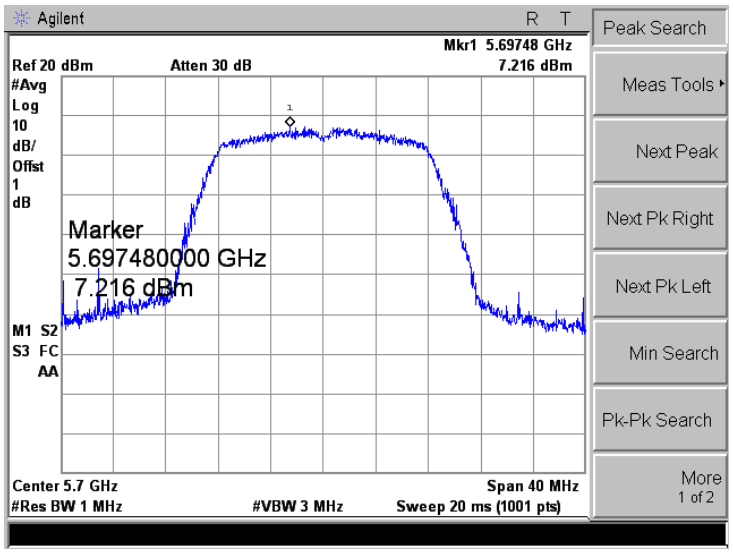
Mode:	802.11a
5260MHz	
5280MHz	
5320MHz	

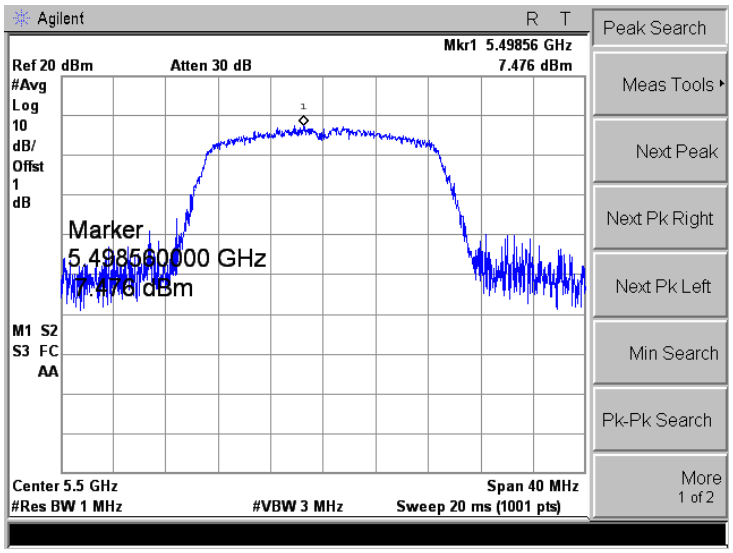
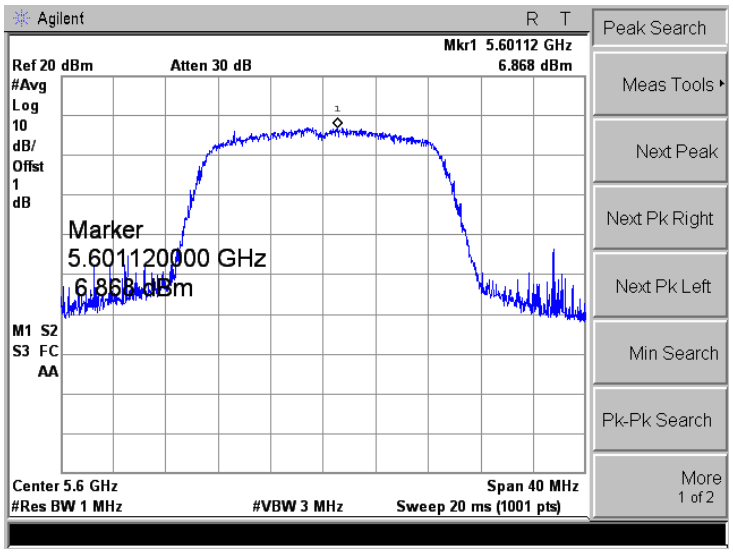
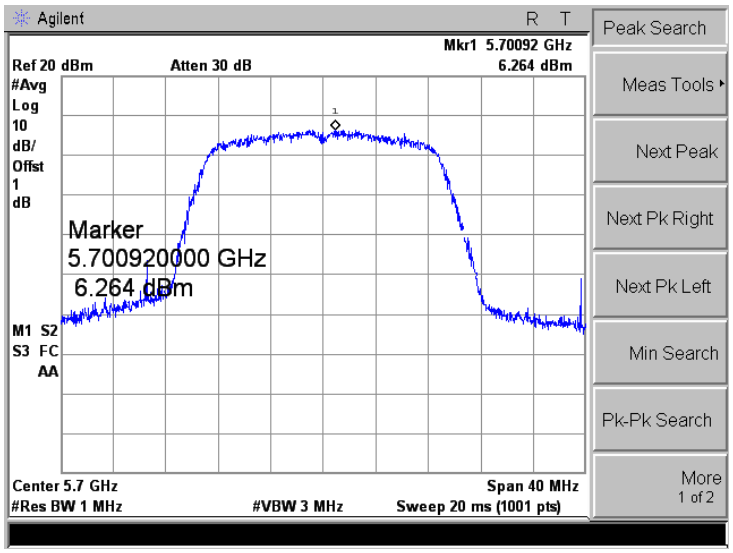
Mode:	802.11n-HT20
5260MHz	
5280MHz	
5320MHz	

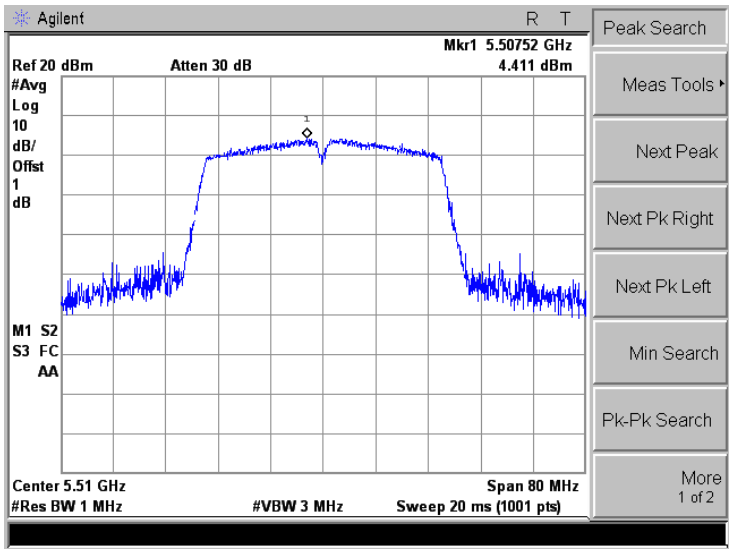
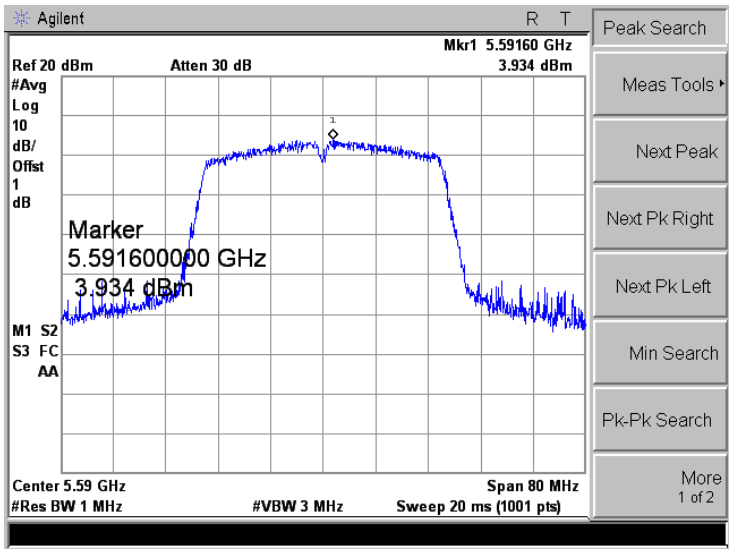
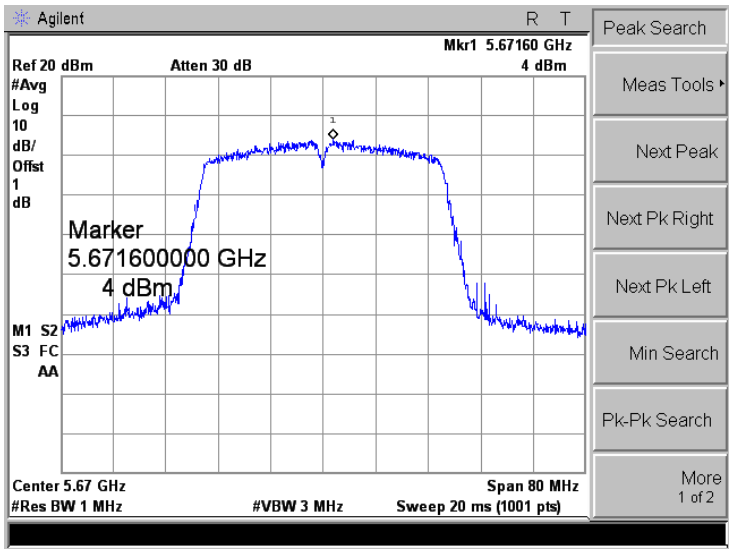
Mode:	802.11n-HT40
5270MHz	
5310MHz	

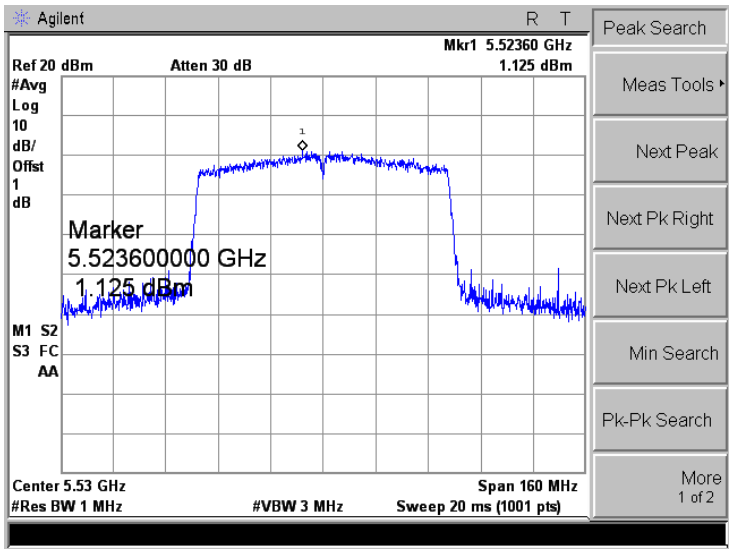
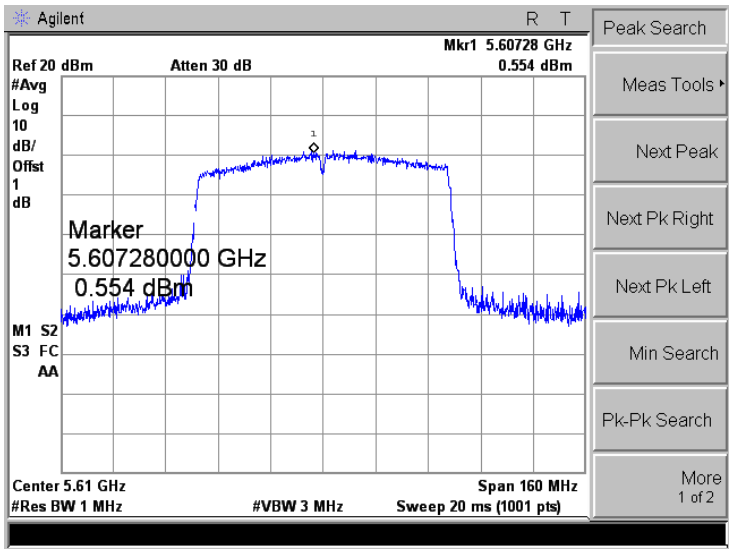
Mode:	802.11ac VH80
5290MHz	

➢ 5470-5725MHz

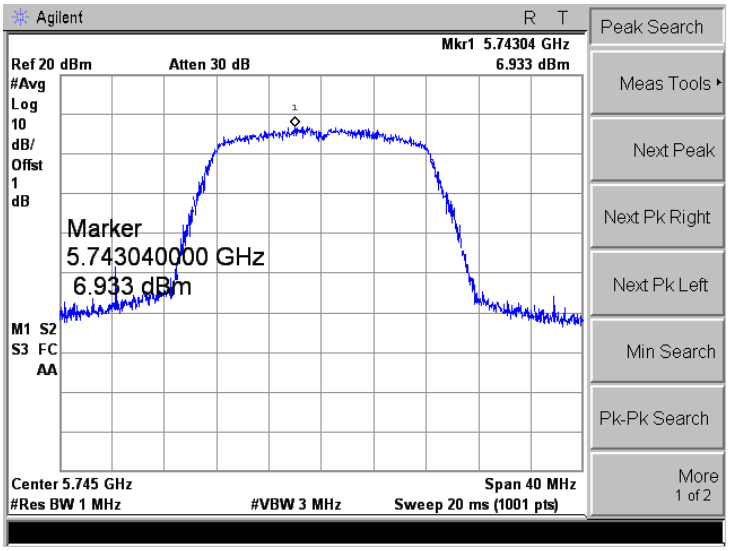
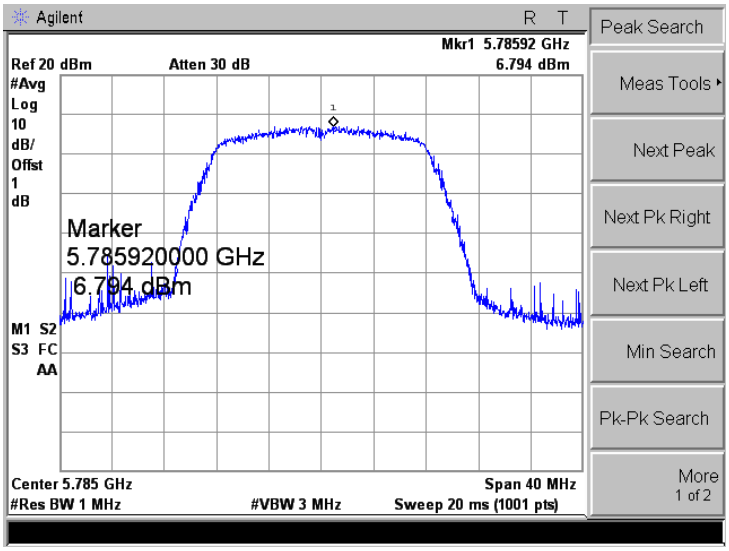
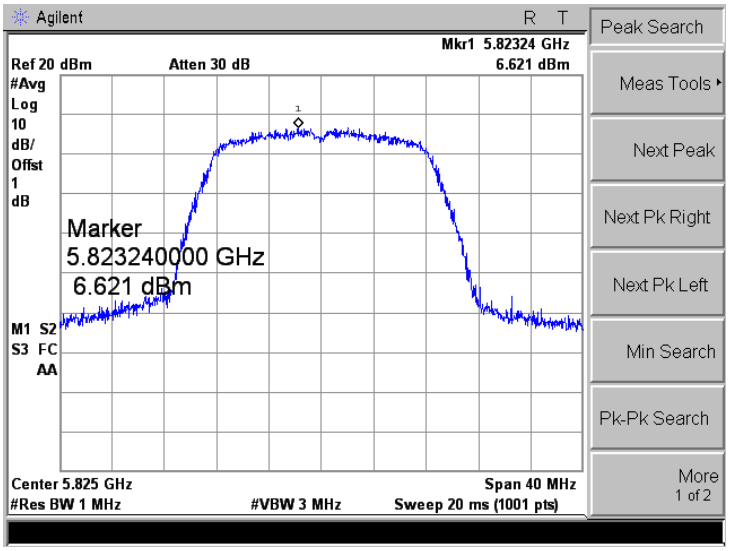
Mode:	802.11a
5500MHz	
5600MHz	
5700MHz	

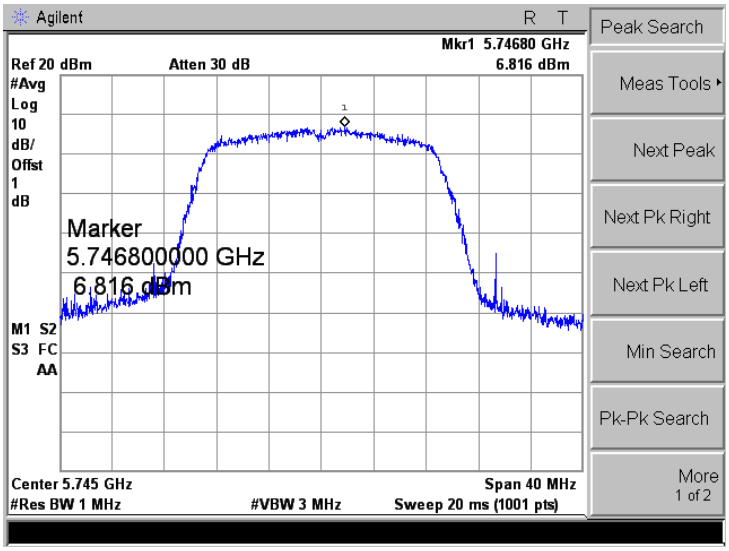
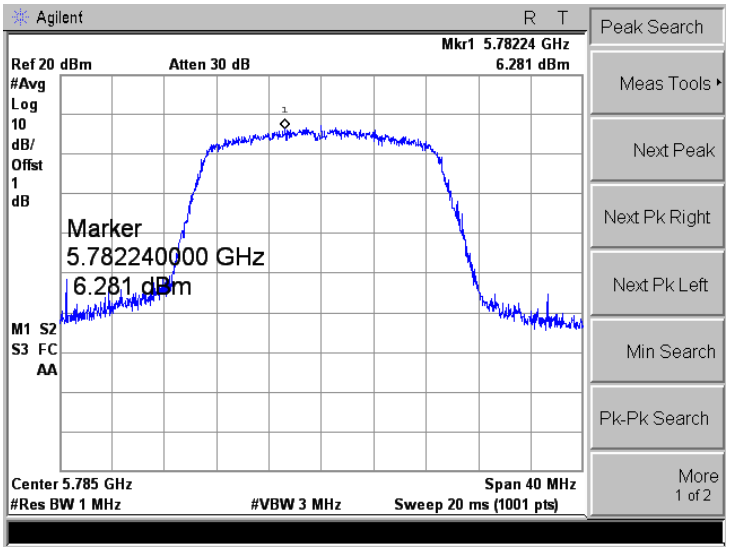
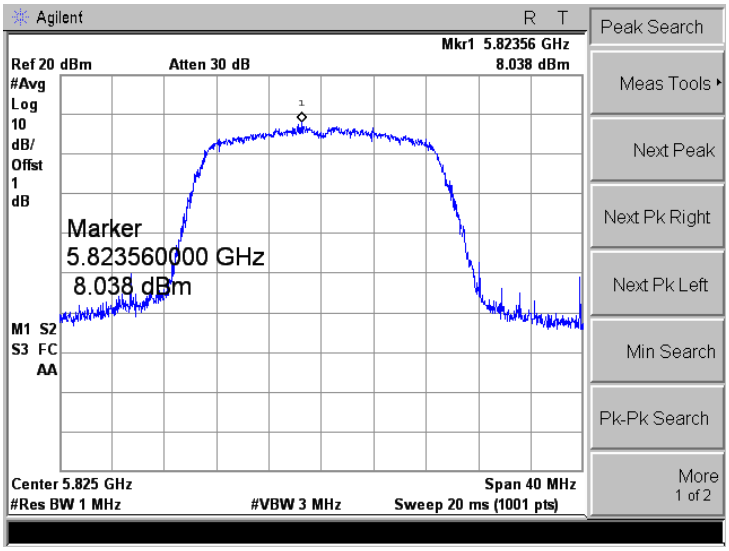
Mode:	802.11n-HT20
5500MHz	
5600MHz	
5700MHz	

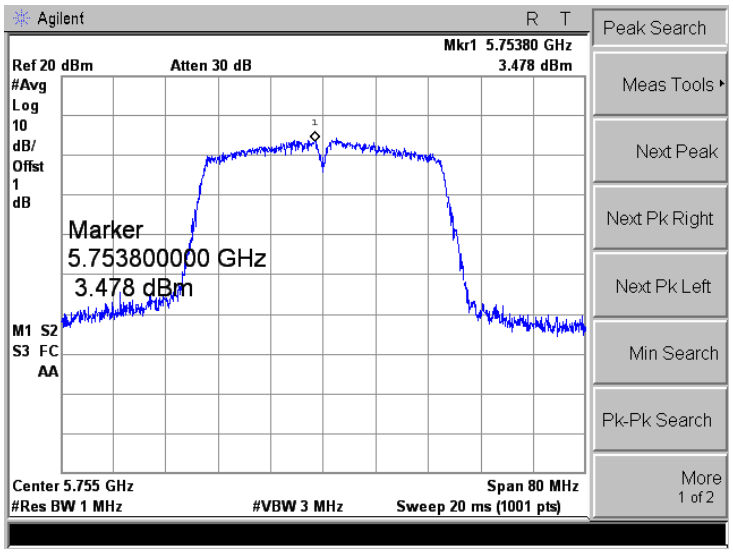
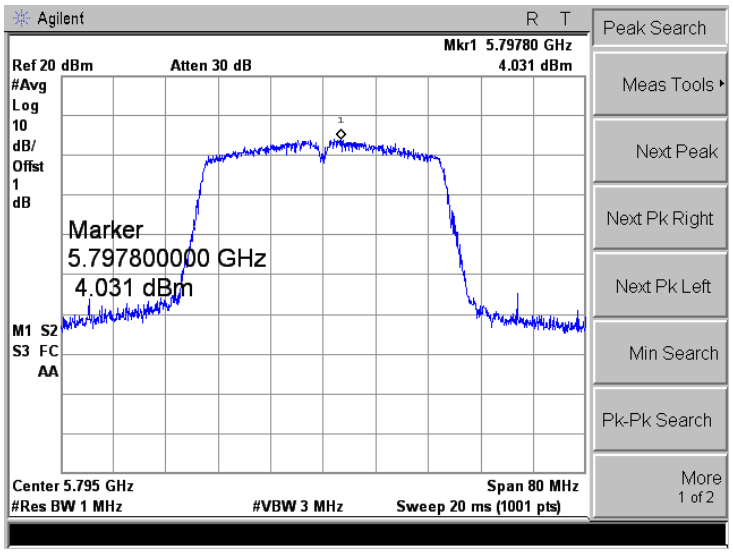
Mode:	802.11n-HT40
5510MHz	
5590MHz	
5670MHz	

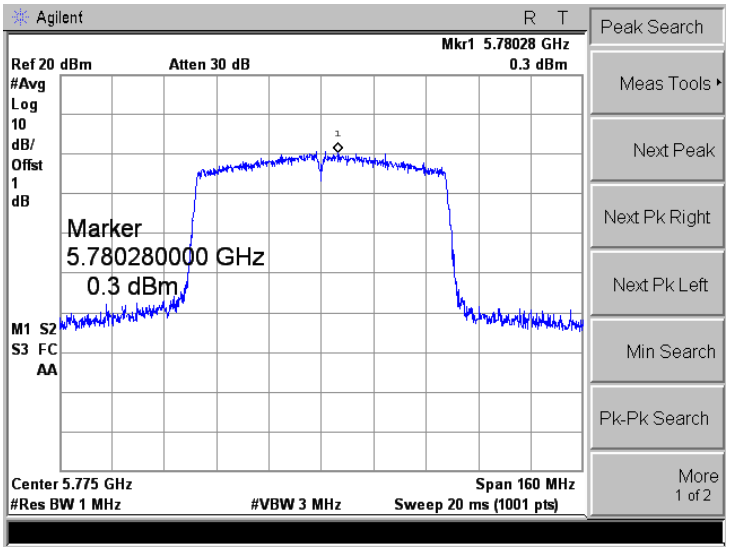
Mode:	802.11ac VH80
5530MHz	
5610MHz	

➢ 5725-5850MHz

Mode:	802.11a
5745MHz	
5785MHz	
5825MHz	

Mode:	802.11n-HT20
5745MHz	
5785MHz	
5825MHz	

Mode:	802.11n-HT40
5755 MHz	
5795 MHz	

Mode:	802.11ac VH80
5775 MHz	

7. Emission Bandwidth and Occupied Bandwidth

7.1 Standard Applicable

According to 15.407(a) and (e):

(1) For the band 5.15-5.25 GHz.
(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(e) Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

7.2 Test Procedure

According to 789033 D02 v02r0r section C&D, the following is the measurement procedure.

1. Emission Bandwidth (EBW)
a) Set RBW = approximately 1% of the emission bandwidth.
b) Set the VBW > RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare

this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

2. Minimum Emission Bandwidth for the band 5.725-5.85 GHz
Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.715-5.85 GHz. The following procedure shall be used for measuring this bandwidth:
a) Set RBW = 100 kHz.
b) Set the video bandwidth (VBW) ≥ 3 × RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.
Note: The automatic bandwidth measurement capability of a spectrum analyzer or EMI receiver may be employed if it implements the functionality described above.

D. 99 Percent Occupied Bandwidth
The 99-percent occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5 % of the total mean power of the given emission. Measurement of the 99-percent occupied bandwidth is required only as a condition for using the optional band-edge measurement techniques described in section II.G.3.d). Measurements of 99-percent occupied bandwidth may also optionally be used in lieu of the EBW to 789033 D02 v02r01 General UNII Test Procedures New Rules v01 define the minimum frequency range over which the spectrum is integrated when measuring maximum conducted output power as described in section II.E. However, the EBW must be measured to determine bandwidth dependent limits on maximum conducted output power in accordance with 15.407(a).

The following procedure shall be used for measuring (99 %) power bandwidth:
1. Set center frequency to the nominal EUT channel center frequency.
2. Set span = 1.5 times to 5.0 times the OBW.
3. Set RBW = 1 % to 5 % of the OBW
4. Set VBW ≥ 3 * RBW
5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
6. Use the 99 % power bandwidth function of the instrument (if available).
7. If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

7.3 Summary of Test Results/Plots

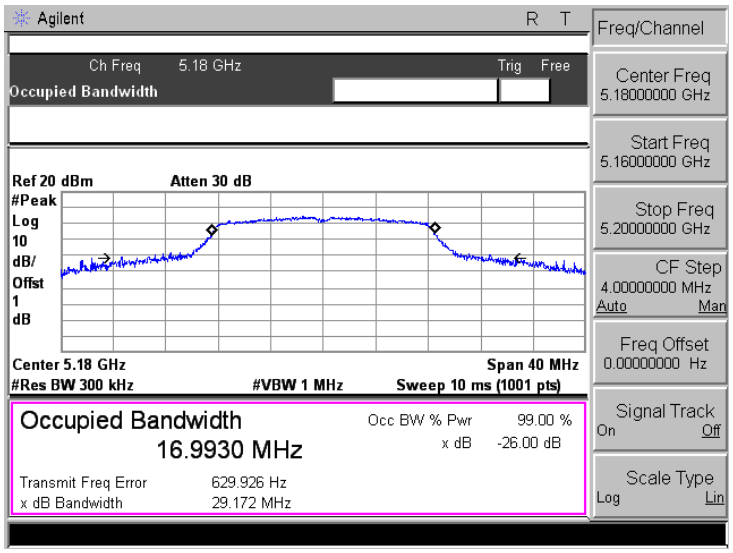
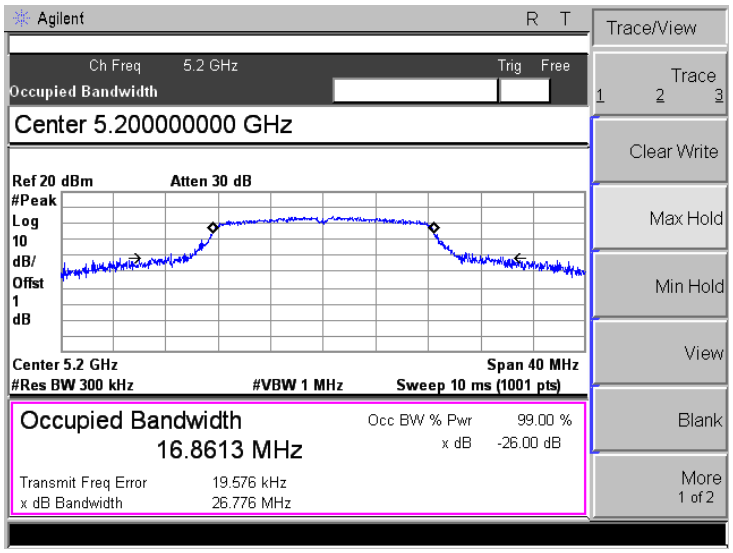
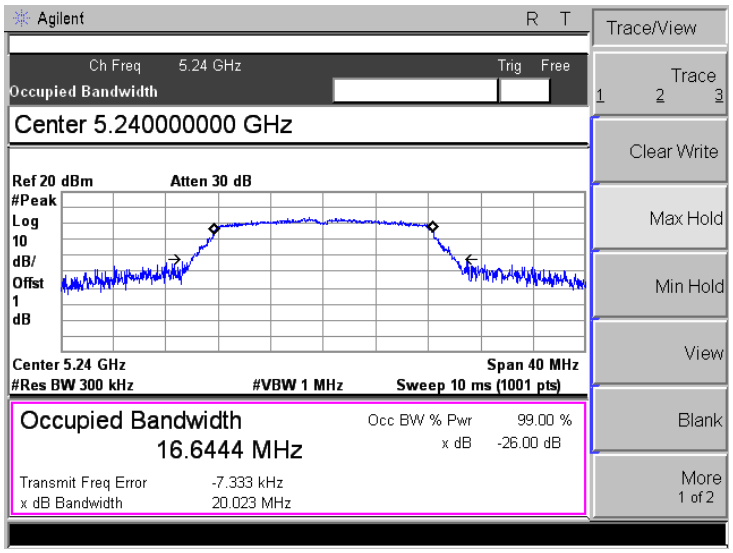
U-NII-1:5150-5250MHz				
Test Mode	**Test Channel MHz**	**26 dB Bandwidth MHz**	**99% Bandwidth MHz**	**Limit MHz**
802.11a	5180	29.172	16.9930	Pass
	5200	26.776	16.8613	Pass
	5240	20.023	16.6444	Pass
802.11n-HT20	5180	20.959	17.7223	Pass
	5200	20.489	17.7263	Pass
	5240	20.433	17.7366	Pass
802.11n-HT40	5190	60.350	36.6214	Pass
	5230	49.210	36.5148	Pass
802.11ac-HT80	5210	119.873	75.4844	Pass

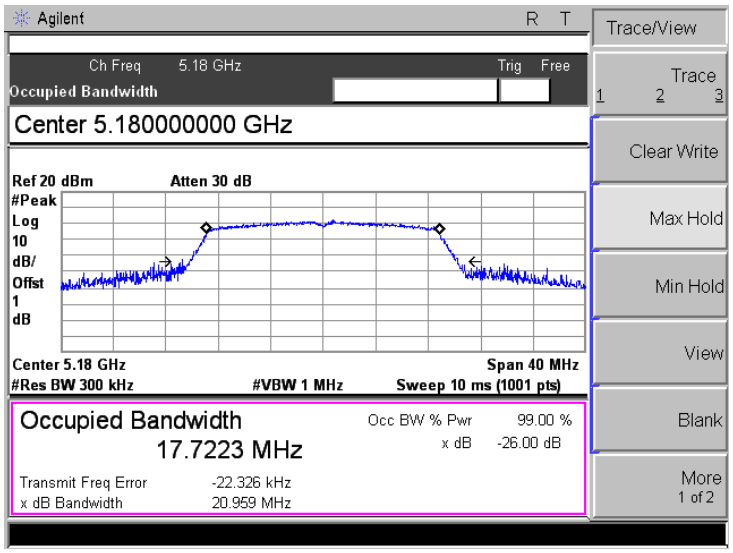
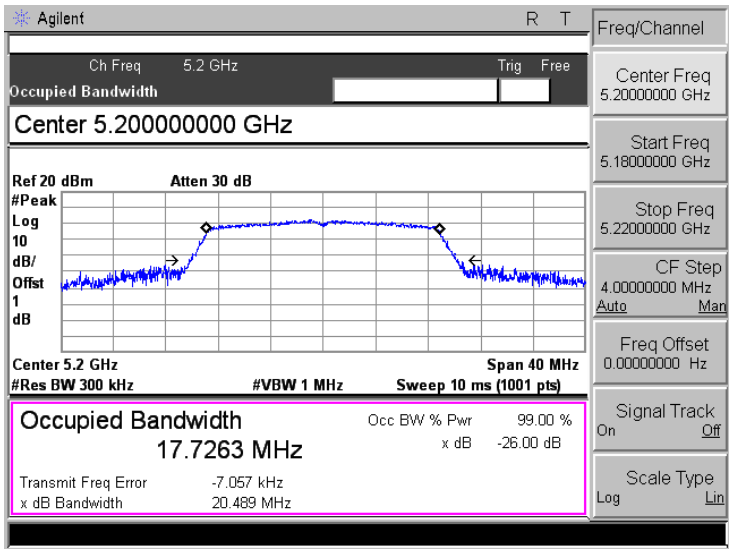
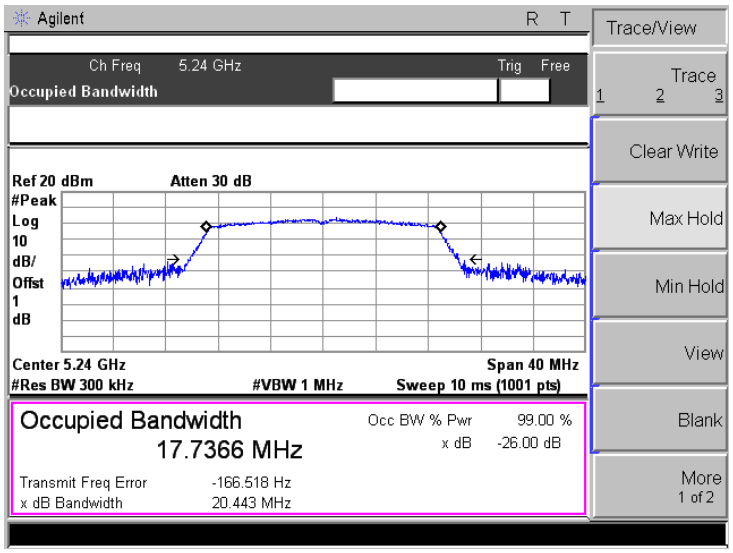
U-NII-2A: 5250-5350MHz				
Test Mode	**Test Channel MHz**	**26 dB Bandwidth MHz**	**99% Bandwidth MHz**	**Limit MHz**
802.11a	5260	20.342	16.7921	Pass
	5280	20.176	16.7181	Pass
	5320	20.055	16.7108	Pass
802.11n-HT20	5260	20.441	17.7073	Pass
	5280	20.357	17.6730	Pass
	5320	20.495	17.7134	Pass
802.11n-HT40	5270	41.502	36.2555	Pass
	5310	41.254	36.2172	Pass
802.11ac-HT80	5290	80.911	75.0812	Pass

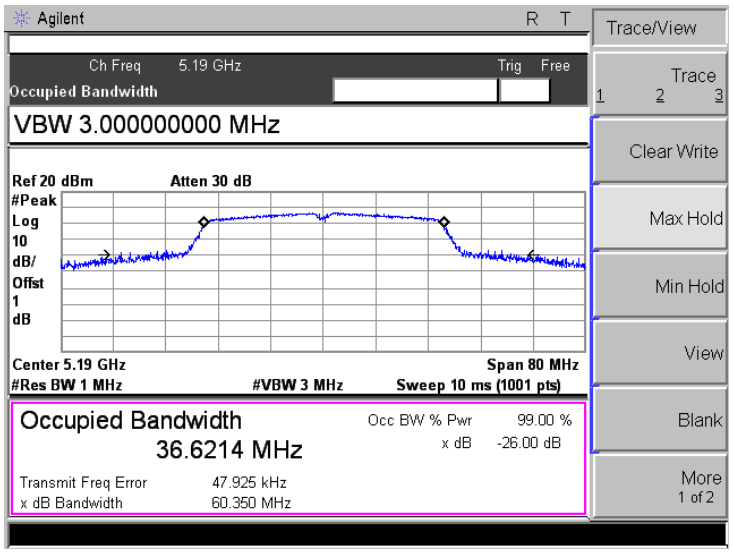
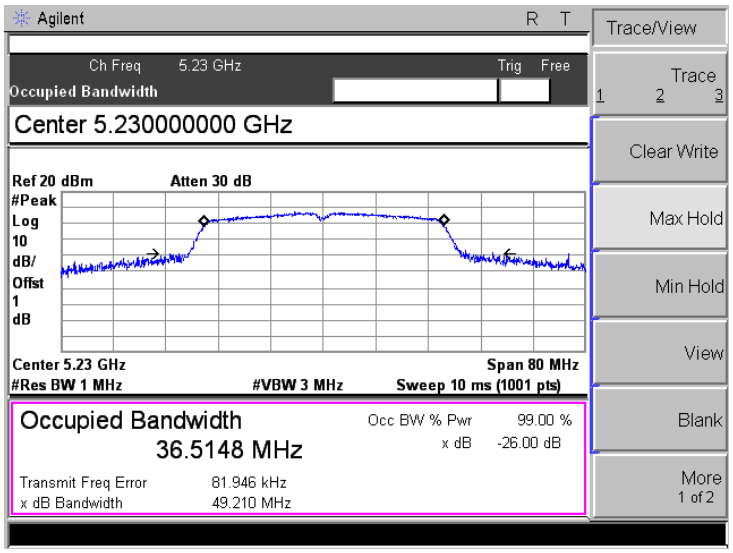
U-NII-2C: 5470-5725MHz				
Test Mode	**Test Channel MHz**	**26 dB Bandwidth MHz**	**99% Bandwidth MHz**	**Limit MHz**
802.11a	5500	20.046	16.6296	Pass
	5600	20.111	16.6319	Pass
	5700	20.249	16.6481	Pass
802.11n-HT20	5500	22.346	17.7396	Pass
	5600	20.343	17.7107	Pass
	5700	20.514	17.6931	Pass
802.11n-HT40	5510	48.402	36.2787	Pass
	5590	41.353	36.3033	Pass
	5670	41.726	36.3188	Pass
802.11ac-HT80	5530	80.781	75.2143	Pass
	5610	81.163	75.0489	Pass

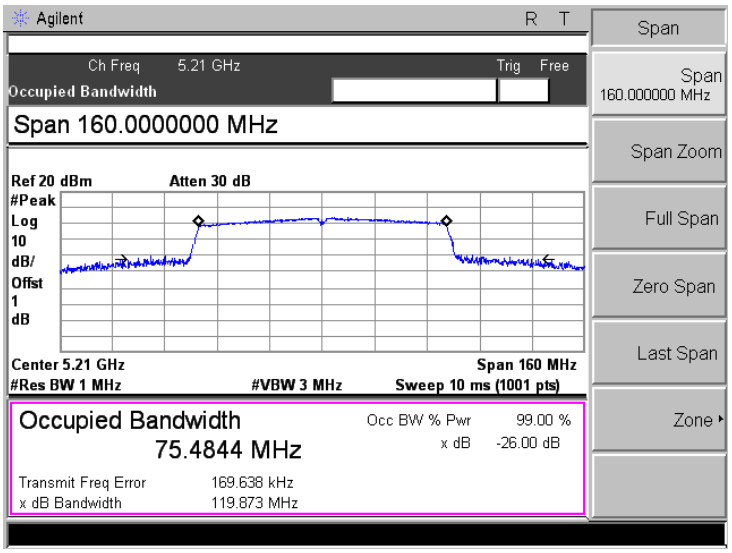
U-NII-3: 5725-5850MHz				
Test Mode	**Test Channel MHz**	**6 dB Bandwidth MHz**	**99% Bandwidth MHz**	**Limit MHz**
802.11a	5745	16.127	16.6560	≥500
	5785	16.054	16.6515	≥500
	5825	15.991	16.6695	≥500
802.11n-HT20	5745	17.119	17.6416	≥500
	5785	17.286	17.6775	≥500
	5825	17.189	17.6655	≥500
802.11n-HT40	5755	35.536	36.1727	≥500
	5795	35.348	36.2449	≥500
802.11ac VH80	5775	75.556	75.1163	≥500

➢ 5150-5250MHz

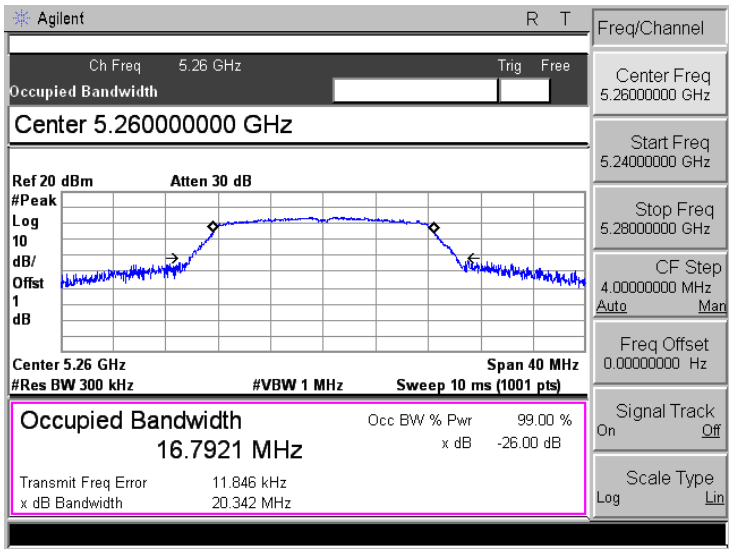
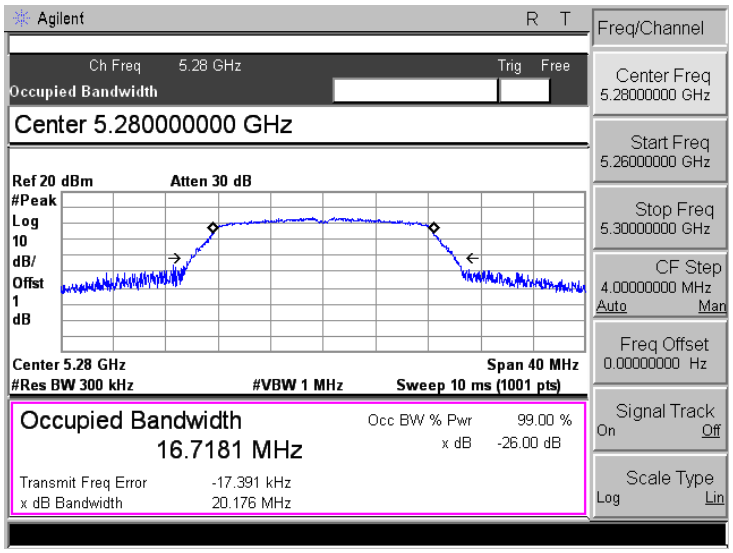
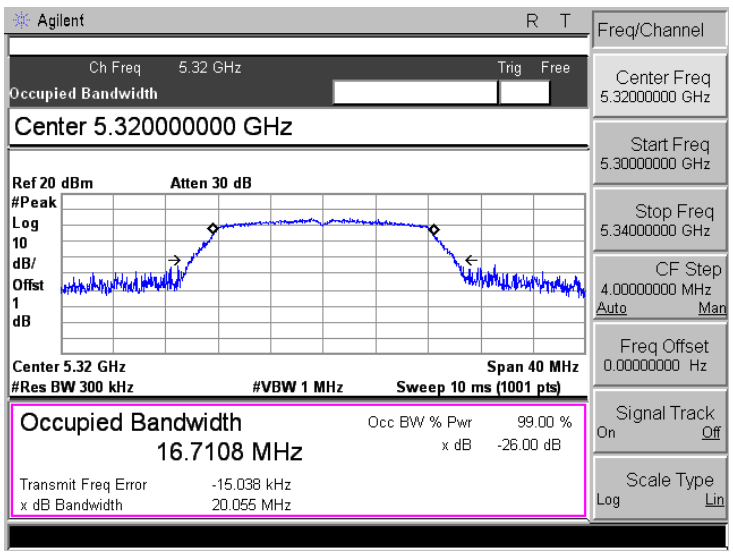
Mode:	**802.11a**
5180MHz	
5200MHz	
5240MHz	

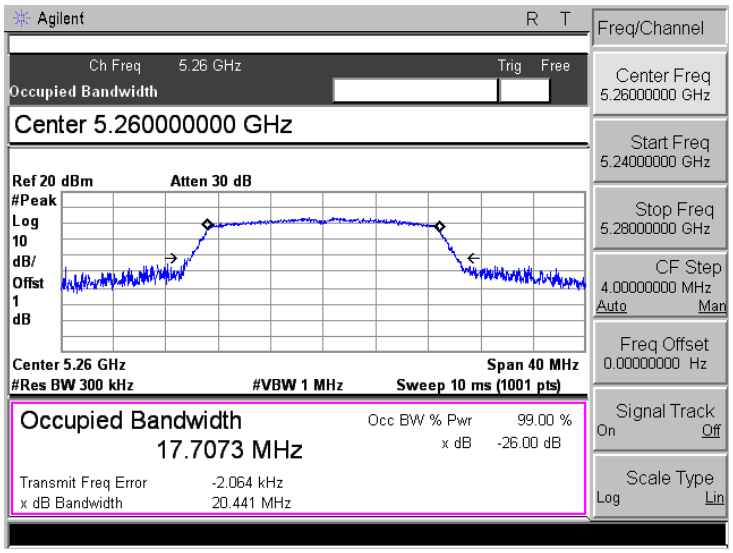
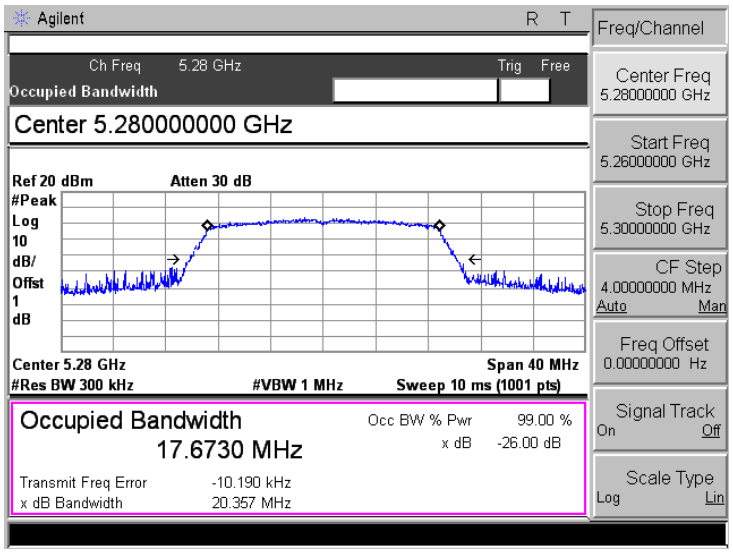
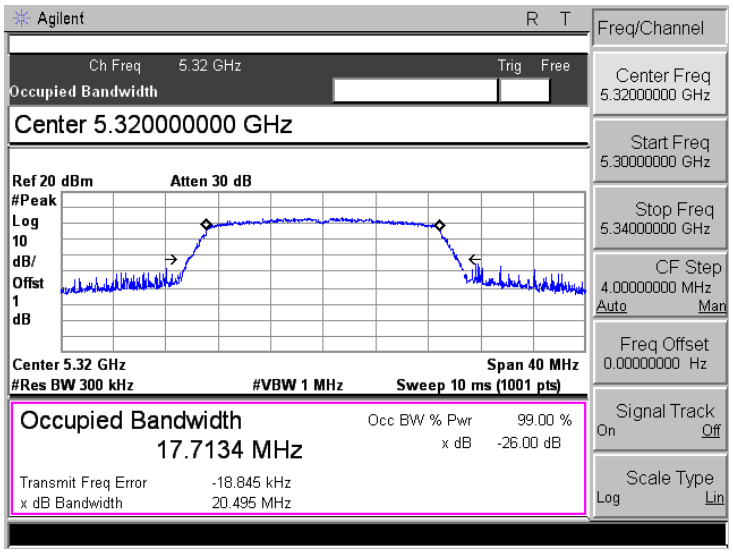
Mode:	802.11n-HT20
5180MHz	
5200MHz	
5240MHz	

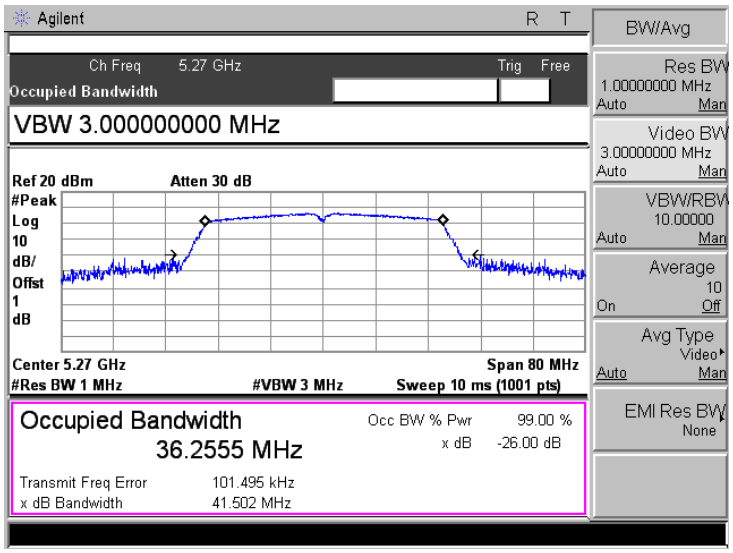
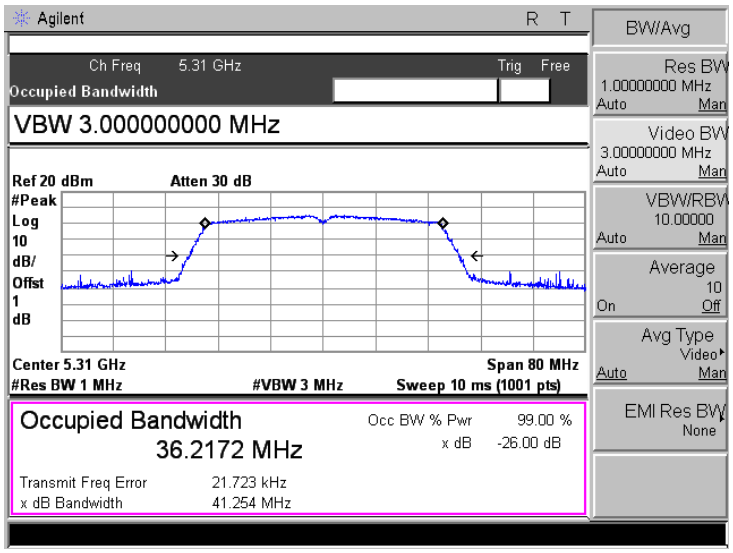
Mode:	802.11n-HT40
5190 MHz	
5230 MHz	

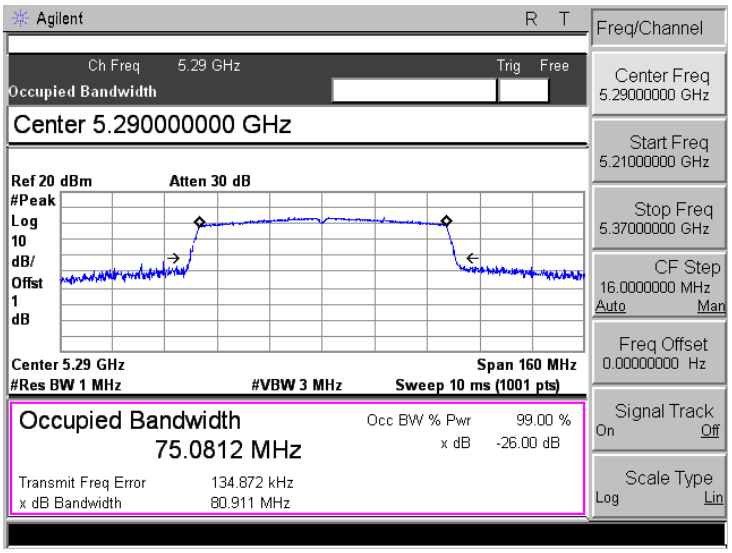
Mode:	802.11ac VH80
5210MHz	

➢ 5250-5350MHz

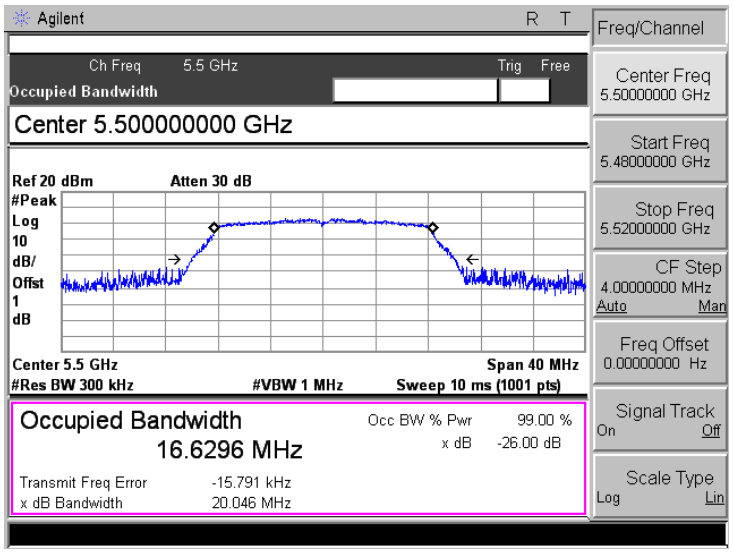
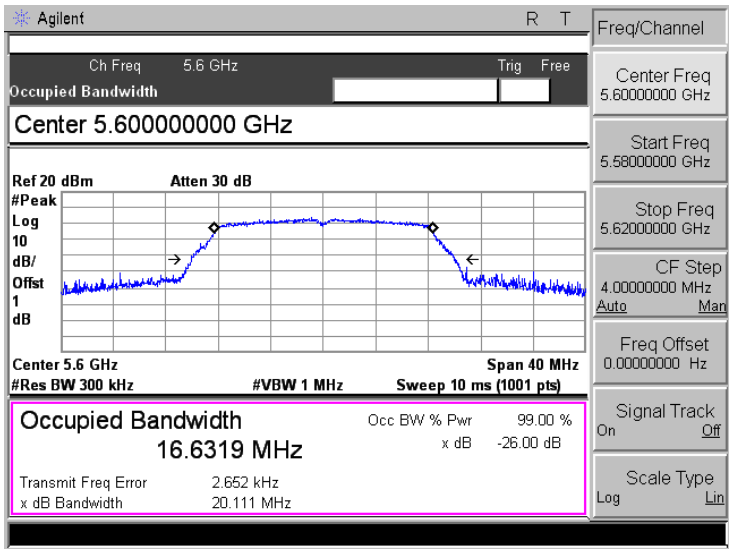
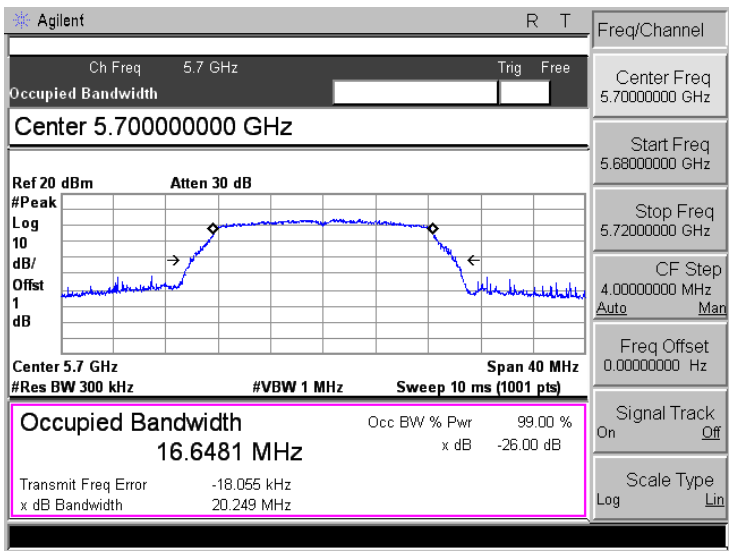
Mode:	**802.11a**
5260MHz	
5280MHz	
5320MHz	

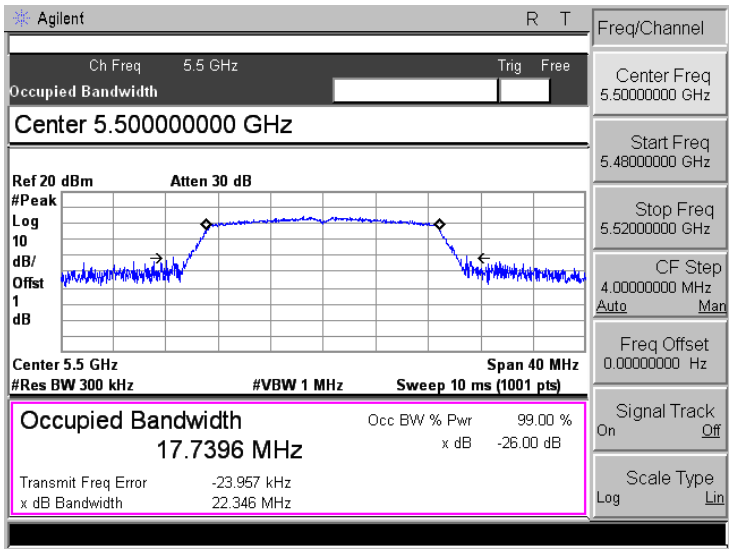
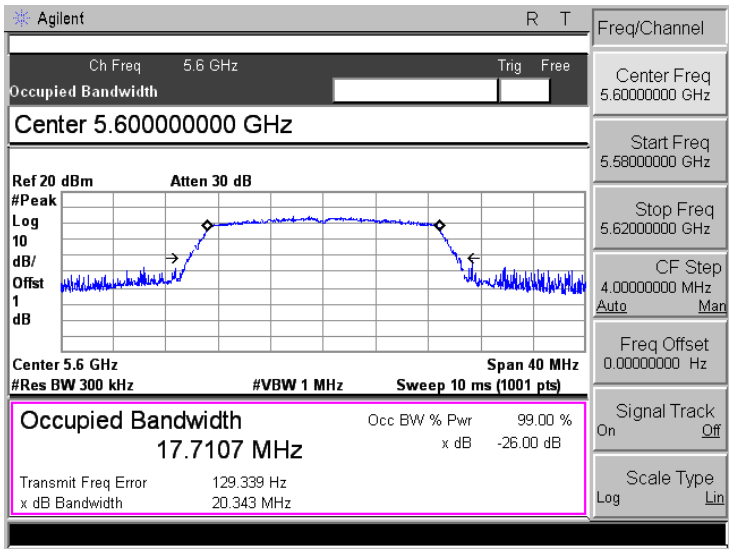
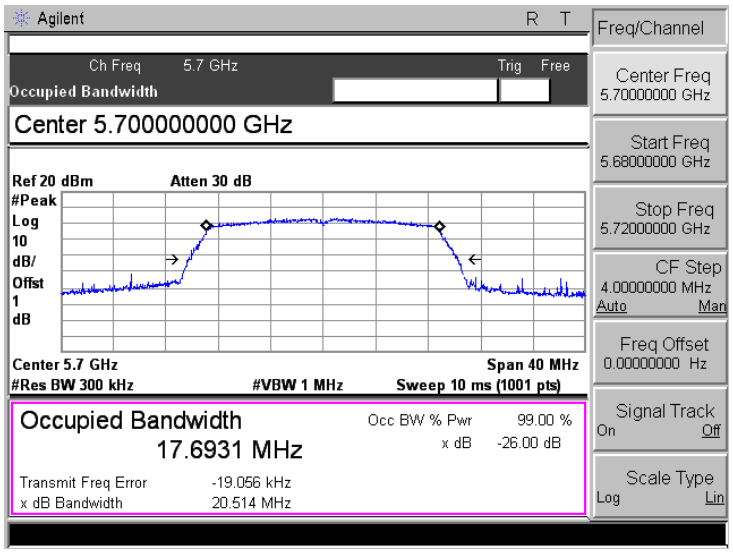
Mode:	802.11n-HT20
5260MHz	
5280MHz	
5320MHz	

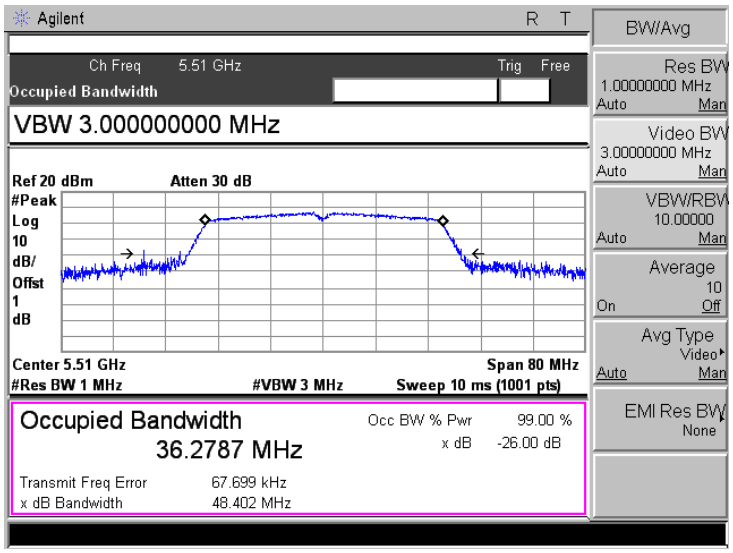
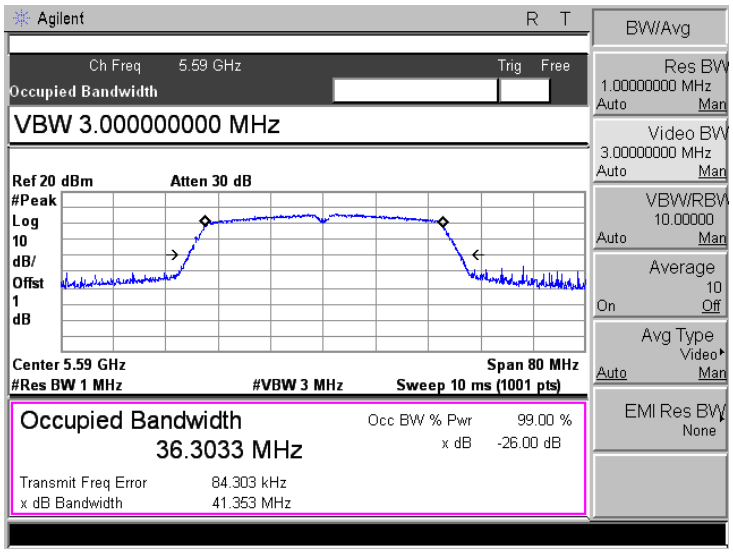
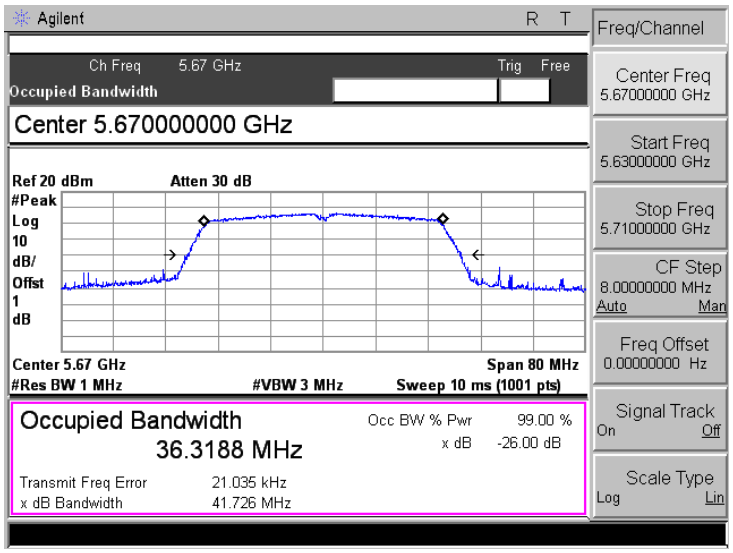
Mode:	802.11n-HT40
5270MHz	
5310MHz	

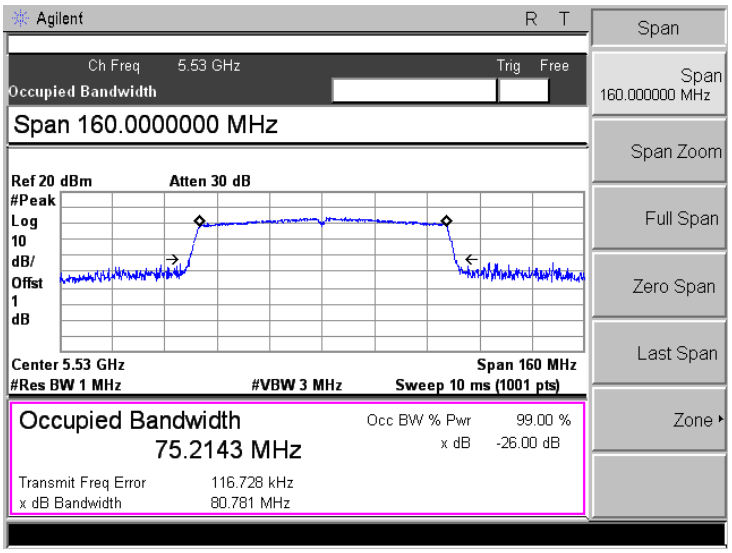
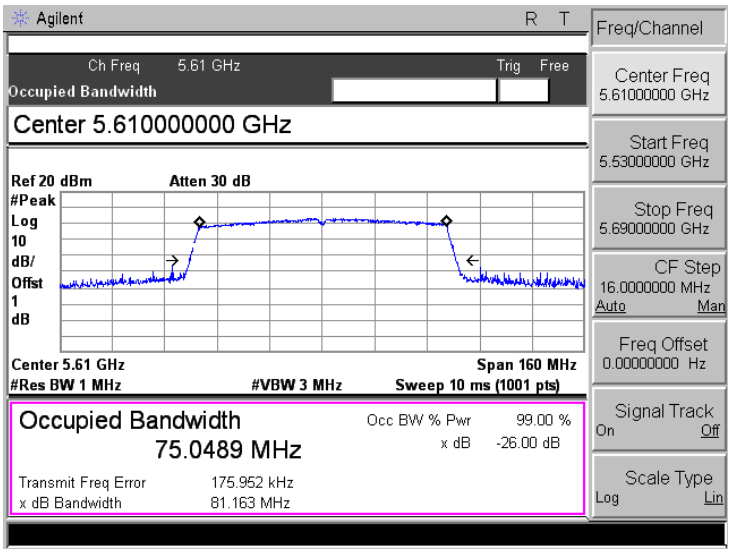
Mode:	802.11ac VH80
5290MHz	

➢ 5470-5725MHz

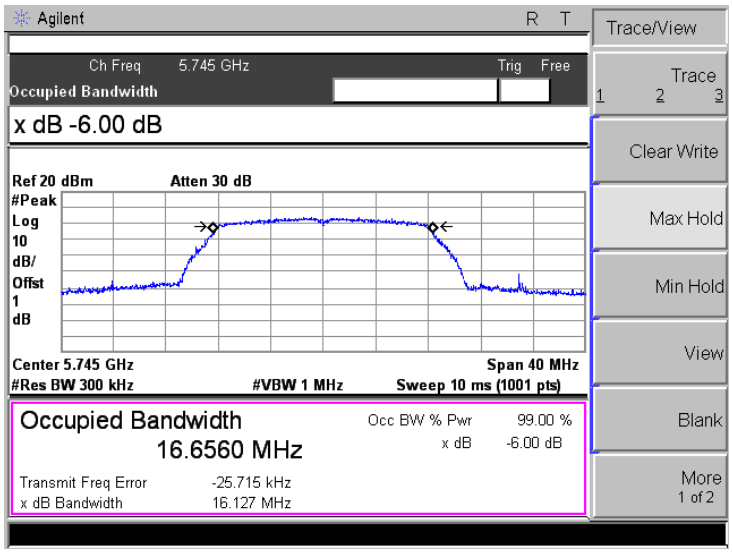
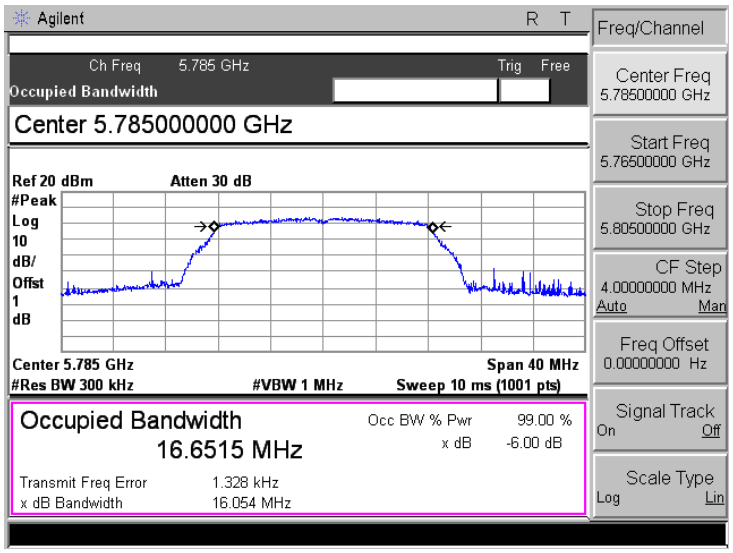
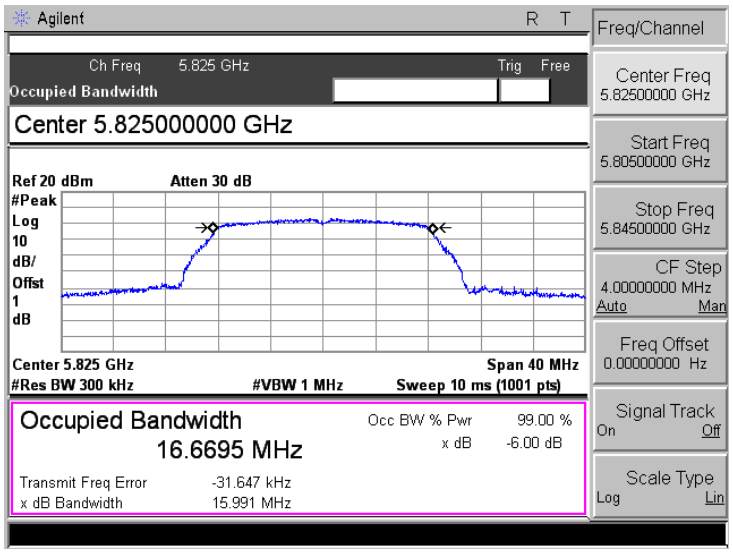
Mode:	**802.11a**
5500MHz	
5600MHz	
5700MHz	

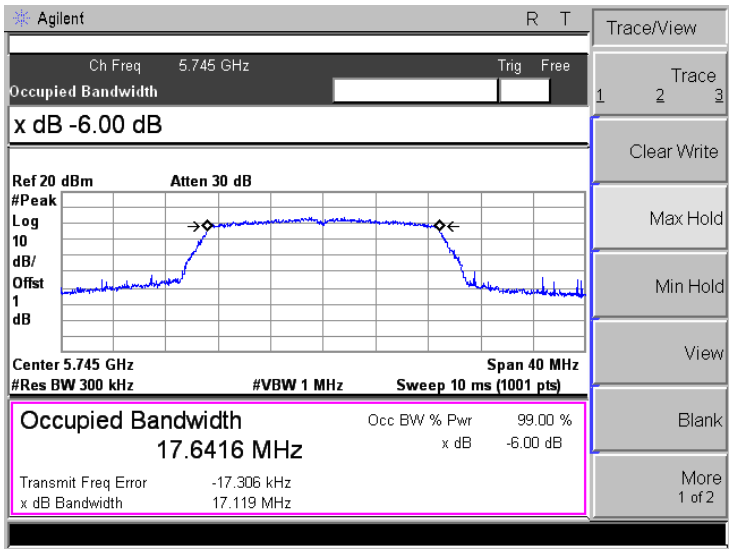
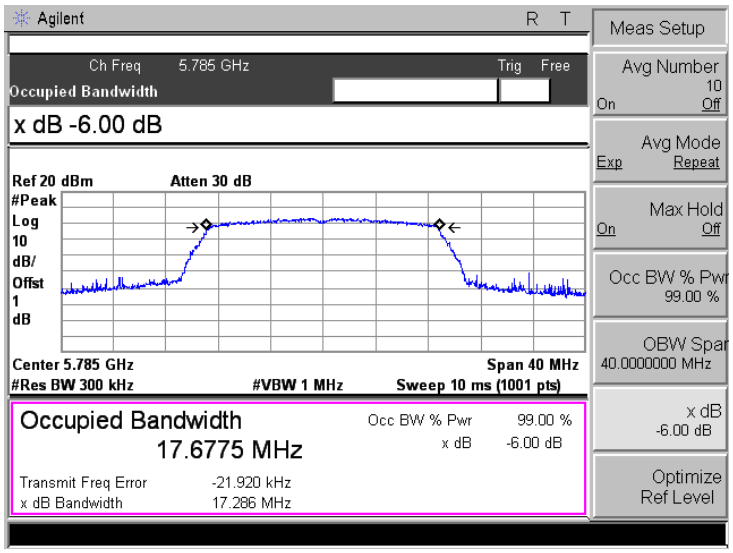
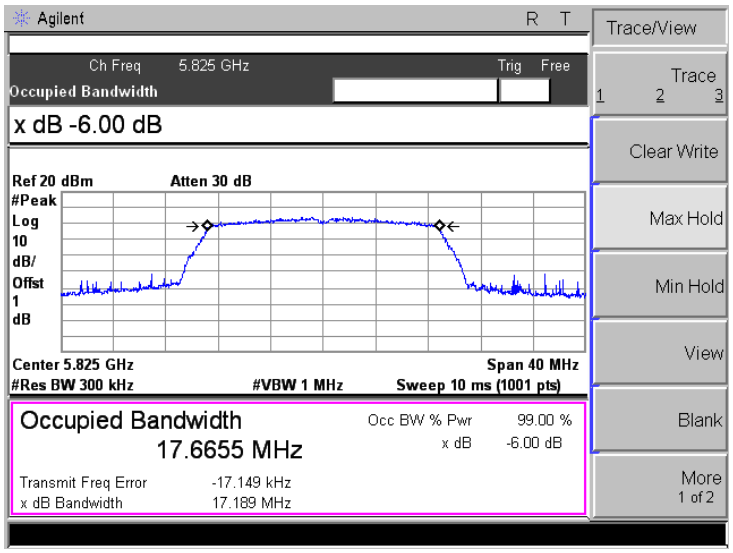
Mode:	802.11n-HT20
5500MHz	
5600MHz	
5700MHz	

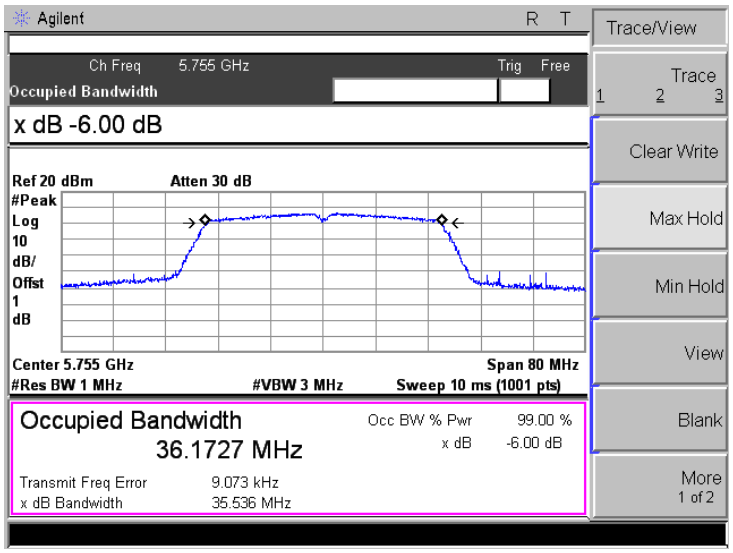
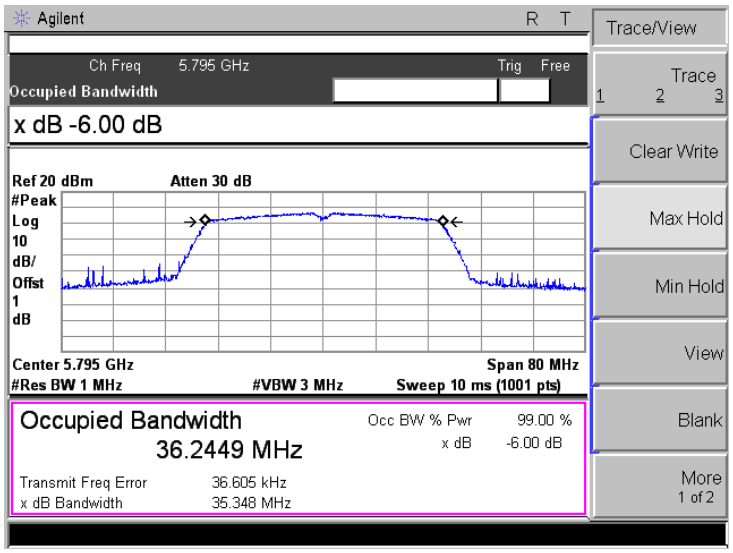
Mode:	802.11n-HT40
5510MHz	
5590MHz	
5670MHz	

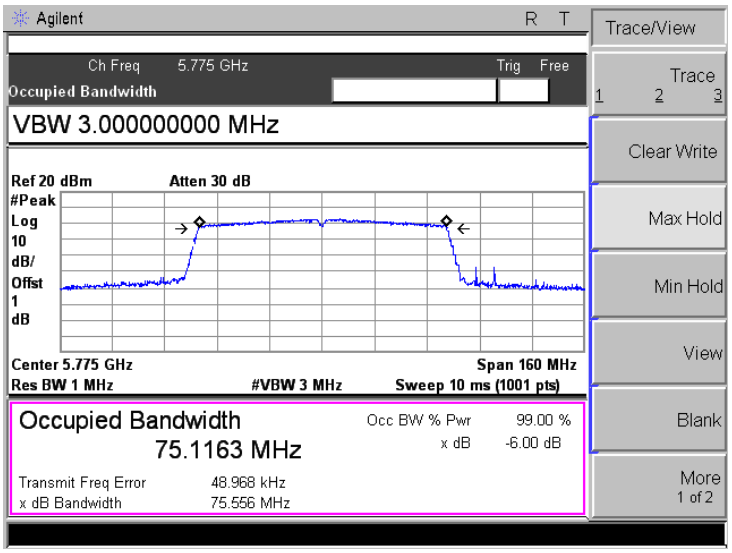
Mode:	802.11ac VH80
5530MHz	
5610MHz	

➢ 5725-5850MHz

Mode:	**802.11a**
5745MHz	
5785MHz	
5825MHz	

Mode:	802.11n-HT20
5745MHz	
5785MHz	
5825MHz	

Mode:	802.11n-HT40
5755 MHz	
5795 MHz	

Mode:	802.11ac VH80
5775 MHz	

8. Maximum Conducted Output Power

8.1 Standard Applicable

Section 15.407(a) Power limits:

(1) For the band 5.15-5.25 GHz.
(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

8.2 Test Procedure

According to KDB789033 D02 v02r01 section E, the following is the measurement procedure.

(i) Set span to encompass the entire emission bandwidth (EBW) (or, alternatively, the entire 99% occupied bandwidth) of the signal.

(ii) Set RBW = 1 MHz.

(iii) Set VBW ≥ 3 MHz.

(iv) Number of points in sweep ≥ 2 Span / RBW. (This ensures that bin-to-bin spacing is ≤ RBW/2, so that narrowband signals are not lost between frequency bins.)

(v) Sweep time = auto.

(vi) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.

(vii) If transmit duty cycle < 98 percent, use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle ≥ 98 percent, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to "free run".

(viii) Trace average at least 100 traces in power averaging (i.e., RMS) mode.

(ix) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument's band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the spectrum.

8.3 Summary of Test Results/Plots

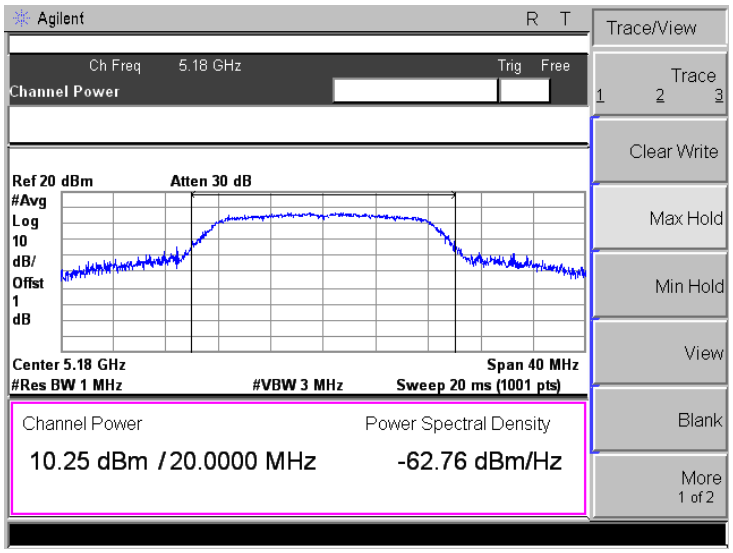
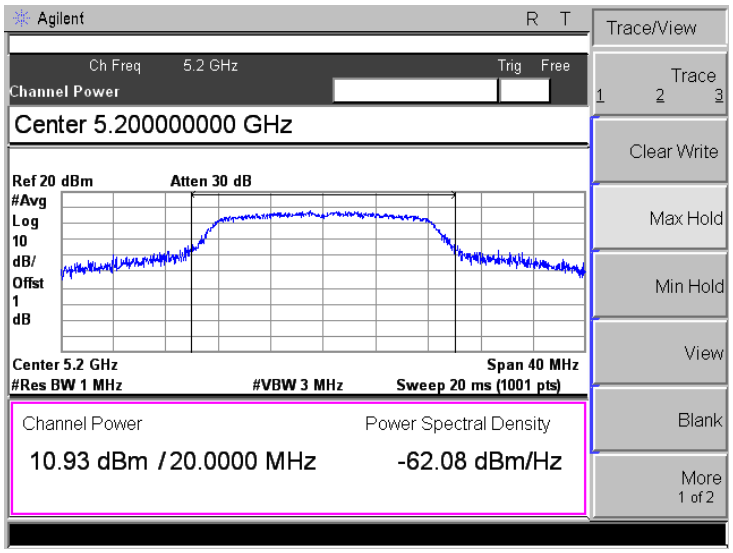
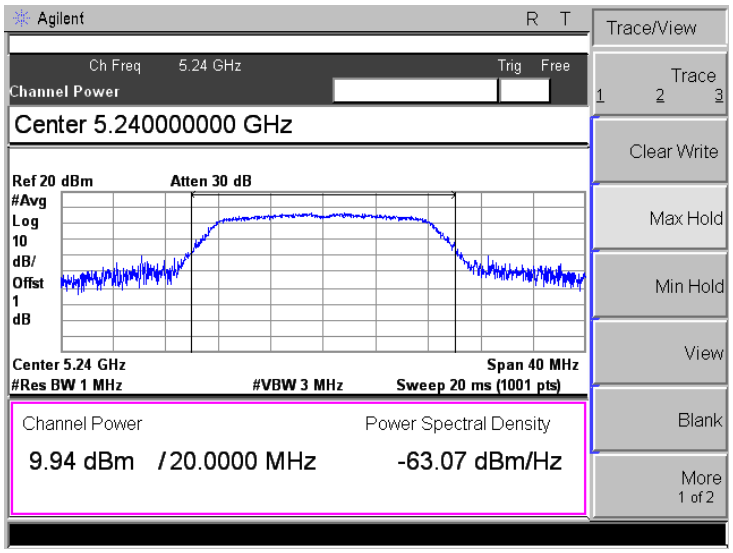
U-NII-1:5150-5250MHz				
Test mode	Frequency MHz	Output Power dBm	Output Power mW	Limit mW
802.11a	5180	10.25	10.59	250
	5200	10.93	12.39	250
	5240	9.94	9.86	250
802.11n-HT20	5180	10.48	11.17	250
	5200	10.02	10.05	250
	5240	10.20	10.47	250
802.11n-HT40	5190	10.66	11.64	250
	5230	10.61	11.51	250
802.11ac VH80	5210	10.85	12.16	250

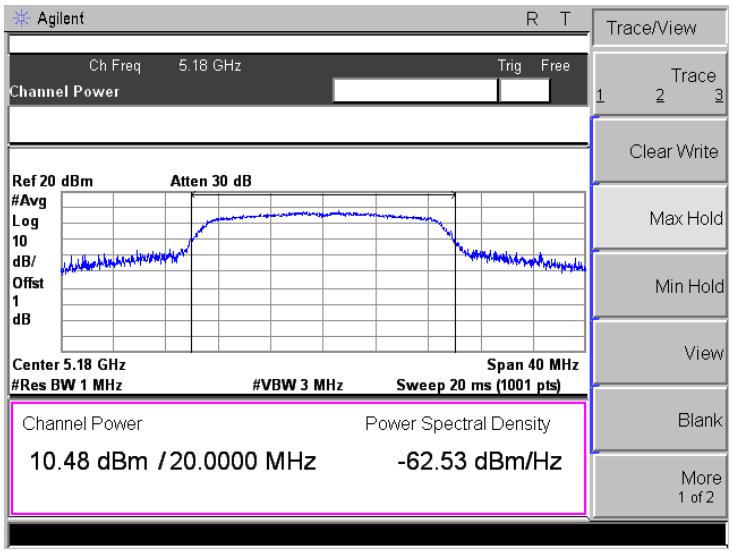
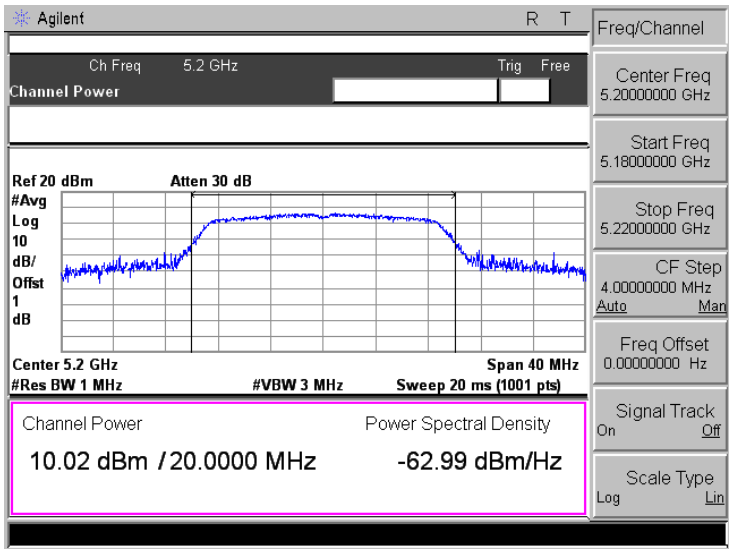
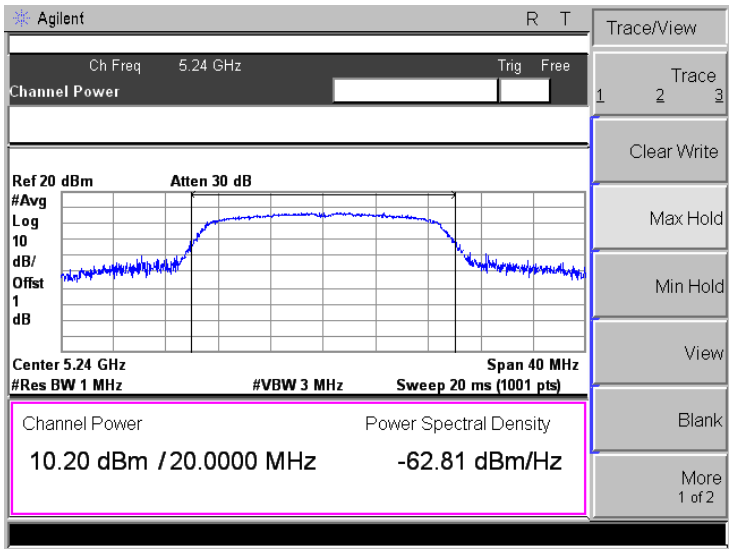
U-NII-2A: 5250-5350MHz				
Test mode	Frequency MHz	Output Power dBm	Output Power mW	Limit mW
802.11a	5260	10.44	11.07	250
	5280	10.35	10.84	250
	5320	10.86	12.19	250
802.11n-HT20	5260	10.57	11.40	250
	5280	10.13	10.30	250
	5320	10.15	10.35	250
802.11n-HT40	5270	10.84	12.13	250
	5310	10.29	10.69	250
802.11ac VH80	5290	10.81	12.05	250

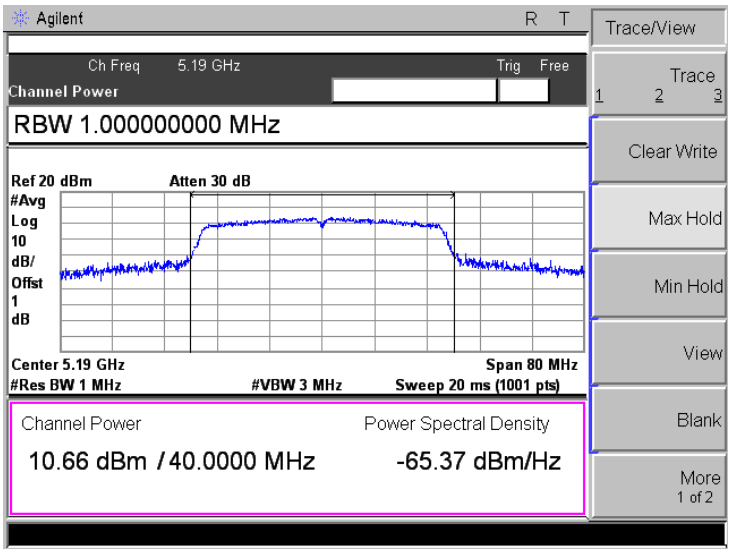
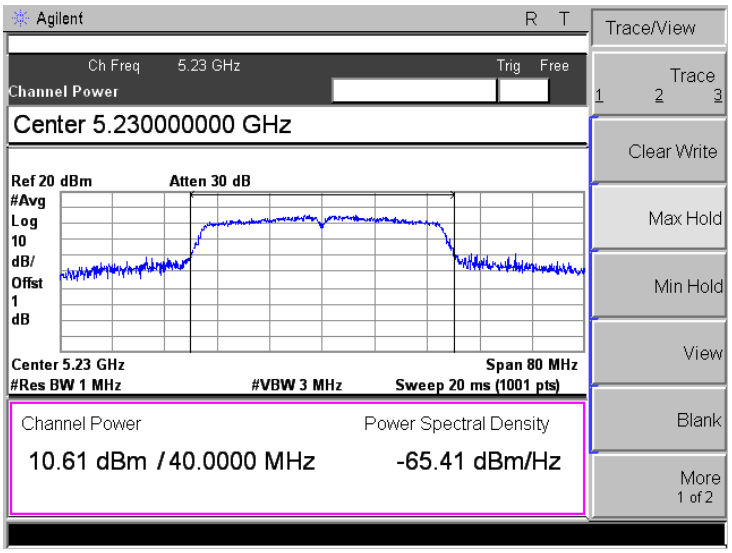
U-NII-2C: 5470-5725MHz				
Test mode	Frequency MHz	Output Power dBm	Output Power mW	Limit mW
802.11a	5500	10.18	10.42	250
	5600	10.17	10.40	250
	5700	10.50	11.22	250
802.11n-HT20	5500	10.82	12.08	250
	5600	10.92	12.36	250
	5700	10.36	10.86	250
802.11n-HT40	5510	10.85	12.16	250
	5590	10.39	10.94	250
	5670	10.45	11.09	250
802.11ac VH80	5530	10.72	11.80	250
	5610	10.70	11.75	250

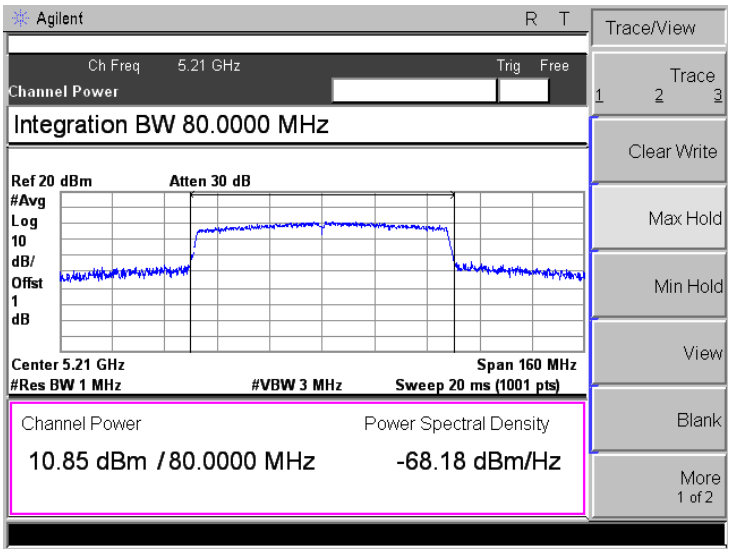
U-NII-3: 5725-5850MHz				
Test mode	Frequency MHz	Output Power dBm	Output Power mW	Limit mW
802.11a	5745	10.57	11.40	1000
	5785	10.51	11.25	1000
	5825	10.11	10.26	1000
802.11n-HT20	5745	10.17	10.40	1000
	5785	10.31	10.74	1000
	5825	10.72	11.80	1000
802.11n-HT40	5755	10.44	11.07	1000
	5795	10.59	11.46	1000
802.11ac VH80	5775	10.33	10.79	1000

➢ 5150-5250MHz

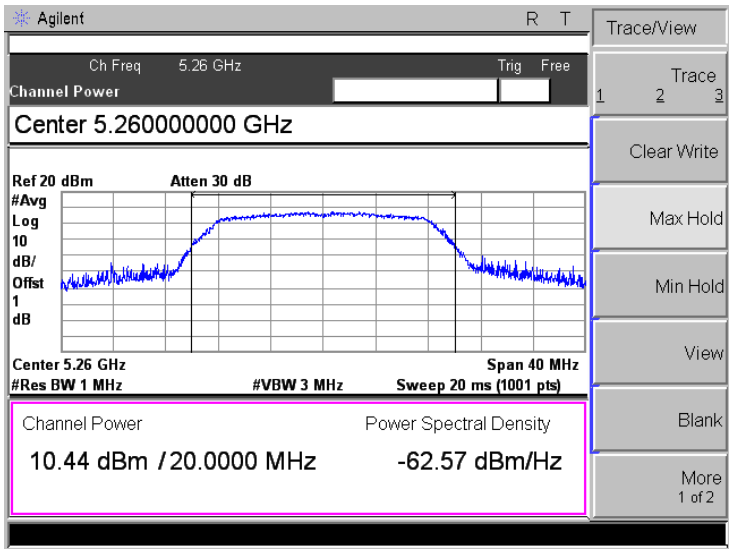
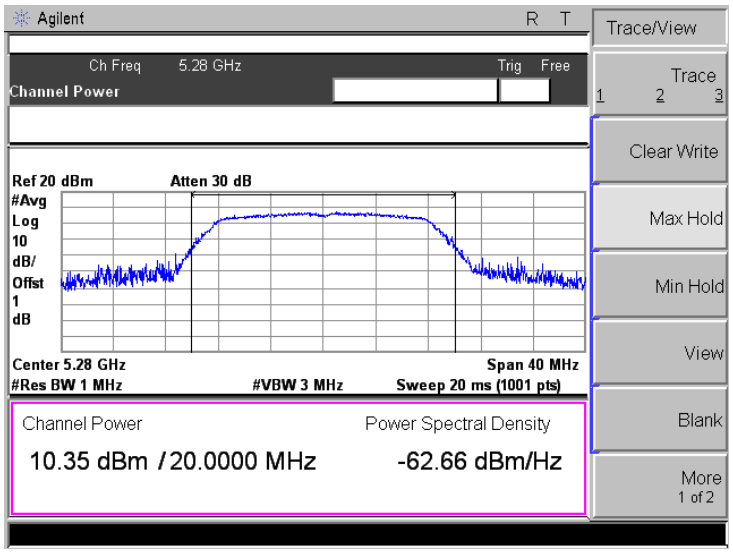
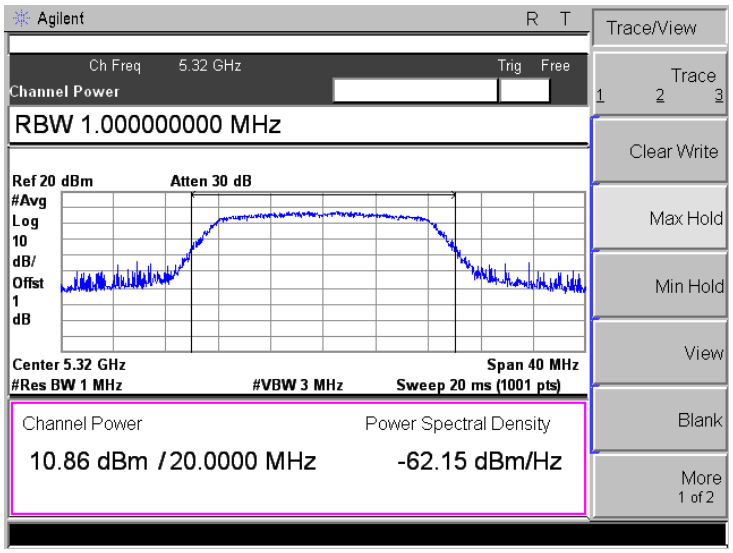
Mode:	**802.11a**
5180MHz	
5200MHz	
5240MHz	

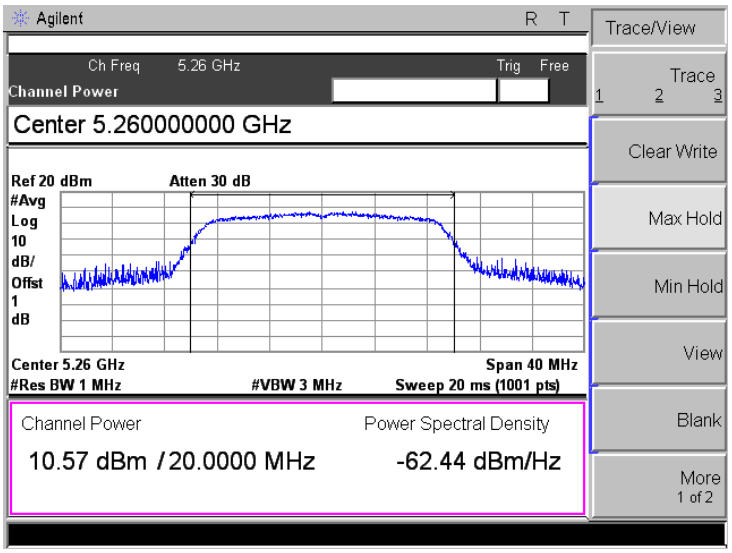
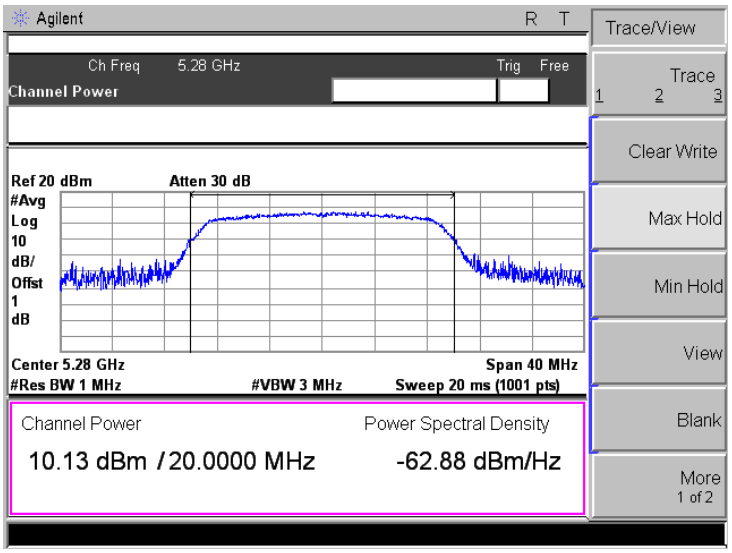
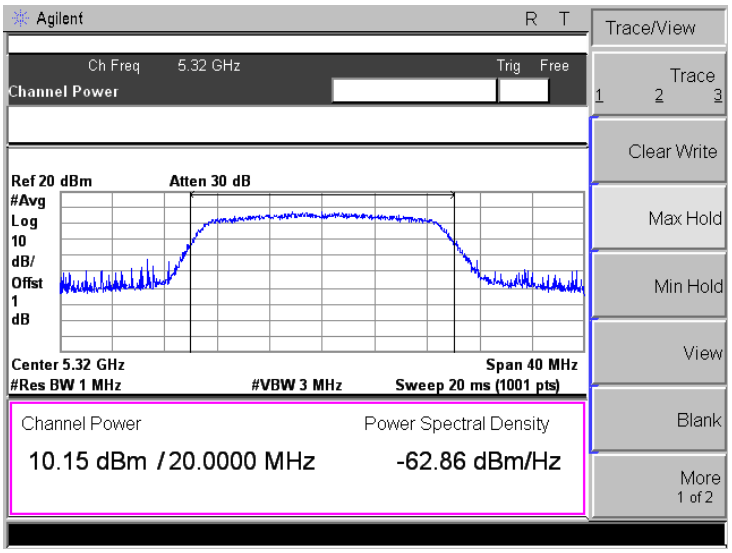
Mode:	802.11n-HT20
5180MHz	
5200MHz	
5240MHz	

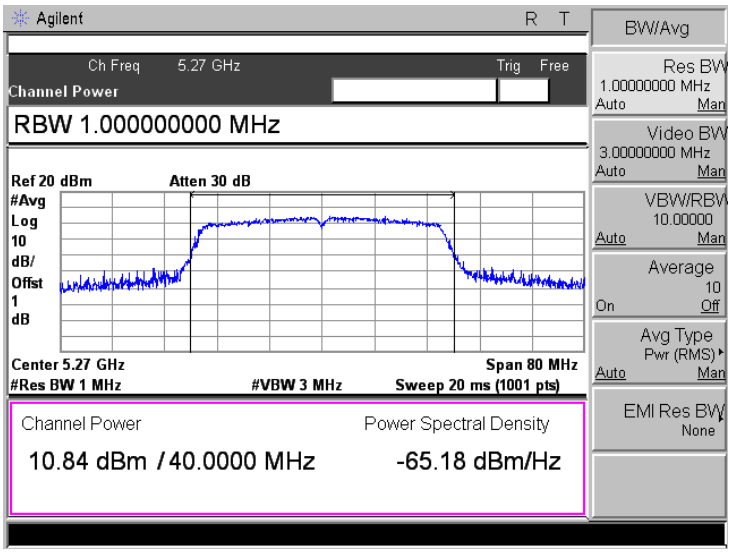
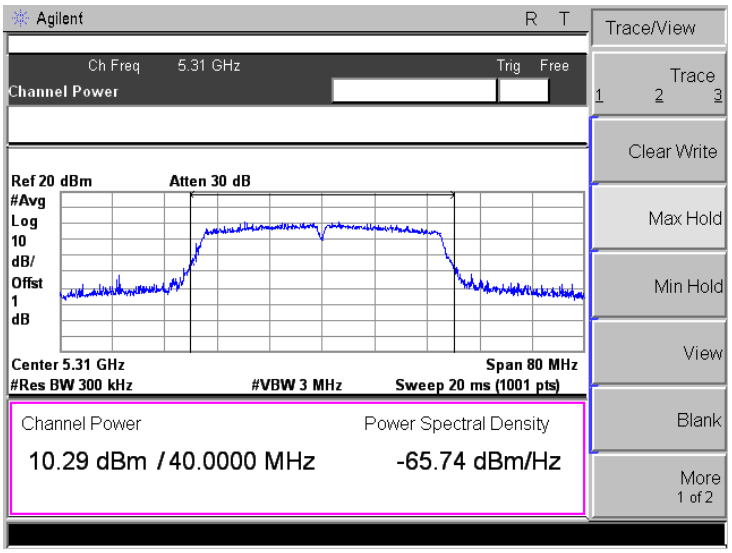
Mode:	802.11n-HT40
5190 MHz	
5230 MHz	

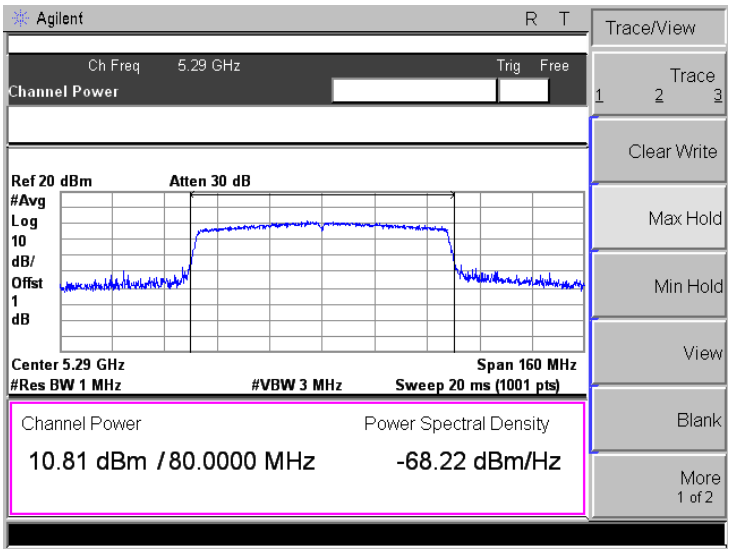
Mode:	802.11ac VH80
5210MHz	

➢ 5250-5350MHz

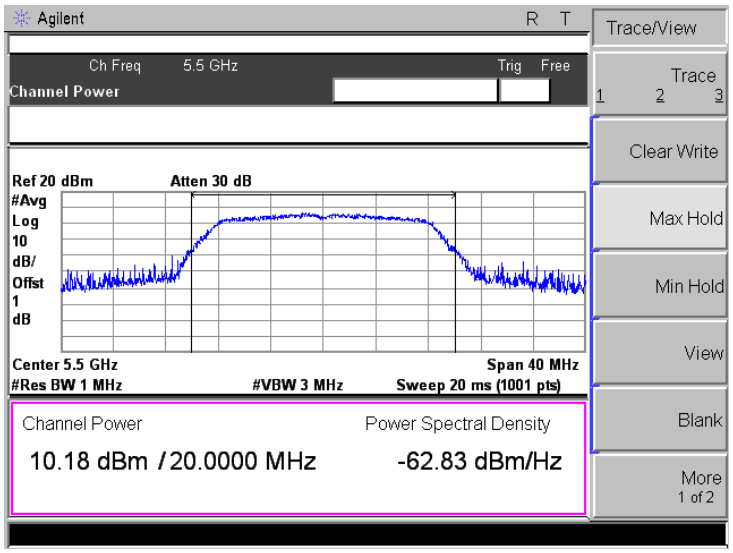
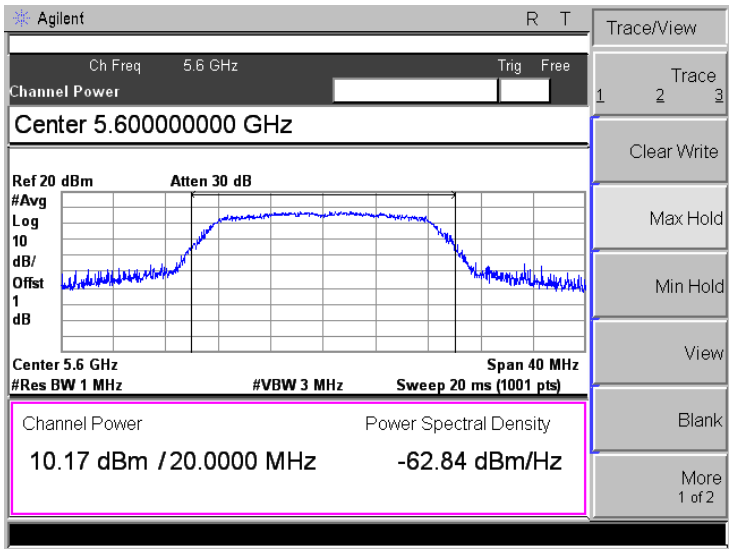
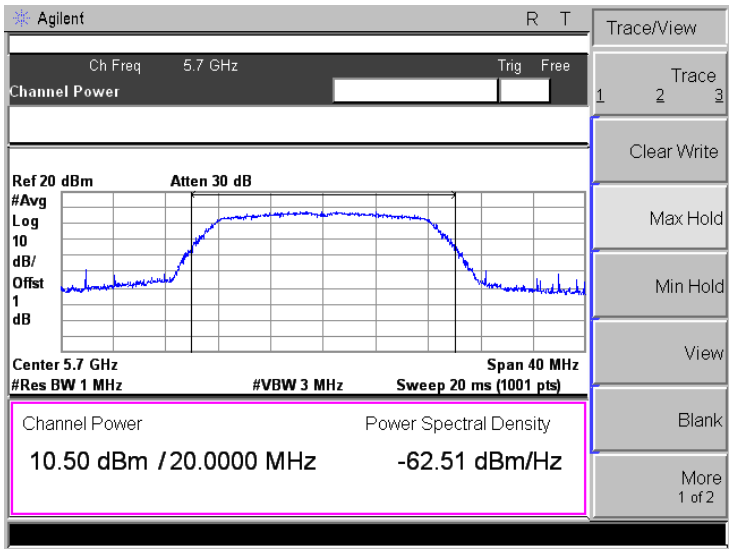
Mode:	**802.11a**
5260MHz	
5280MHz	
5320MHz	

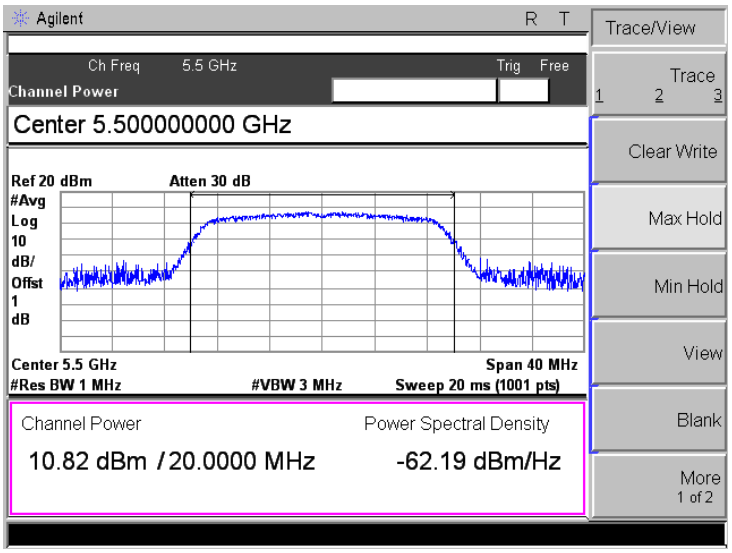
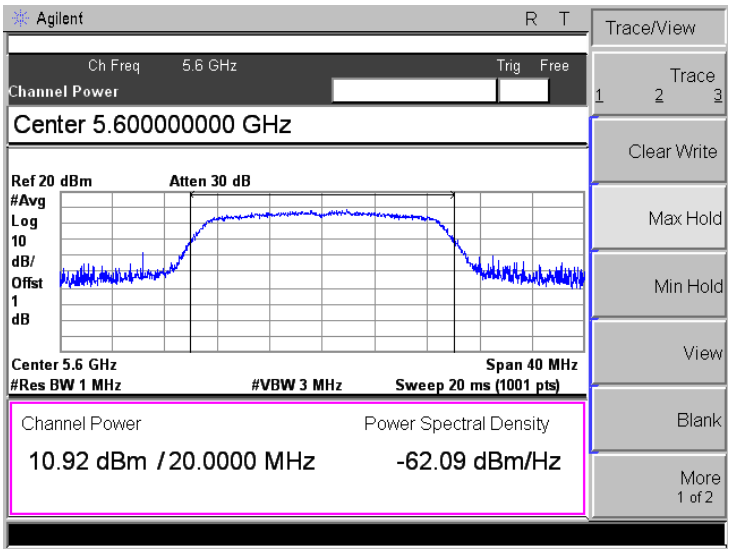
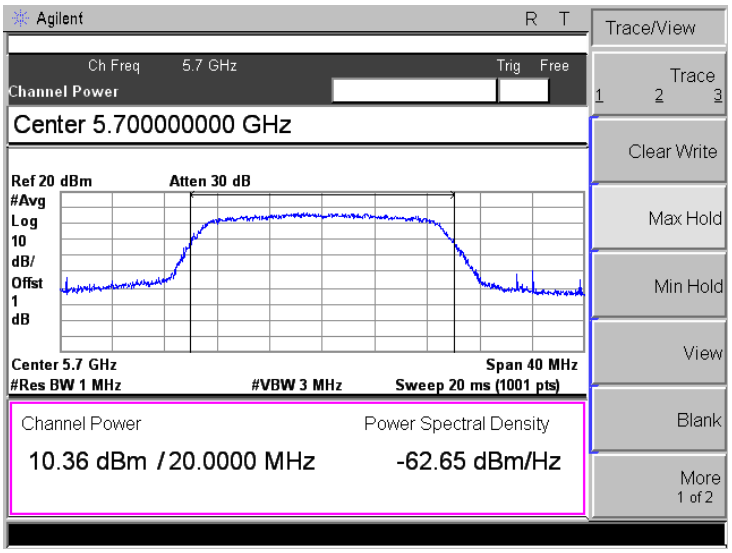
Mode:	802.11n-HT20
5260MHz	
5280MHz	
5320MHz	

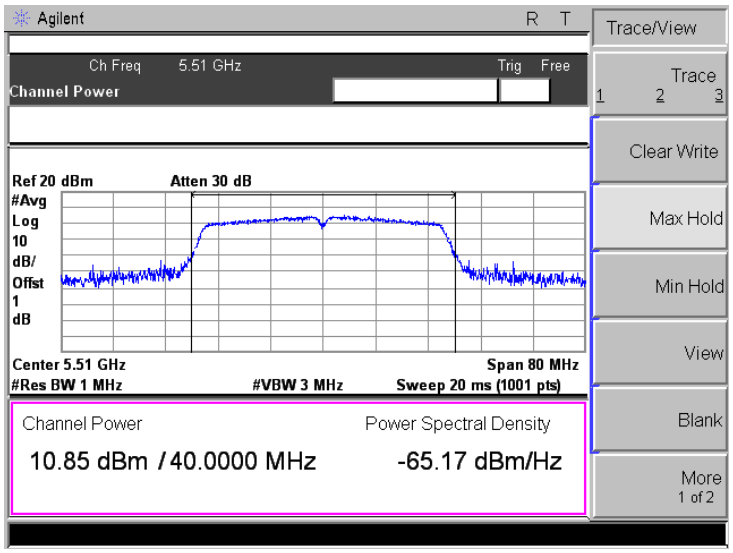
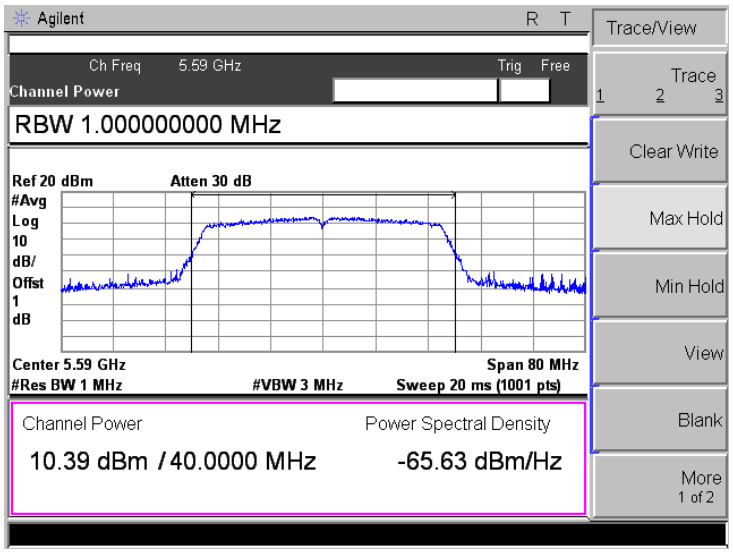
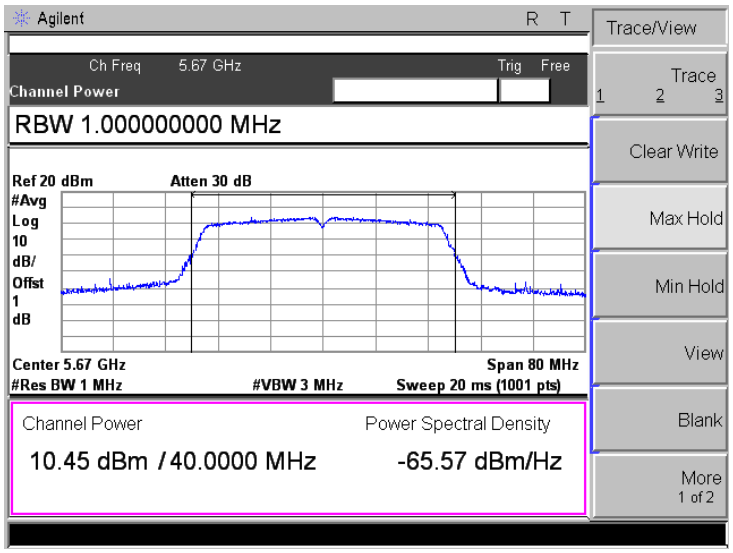
Mode:	802.11n-HT40
5270MHz	
5310MHz	

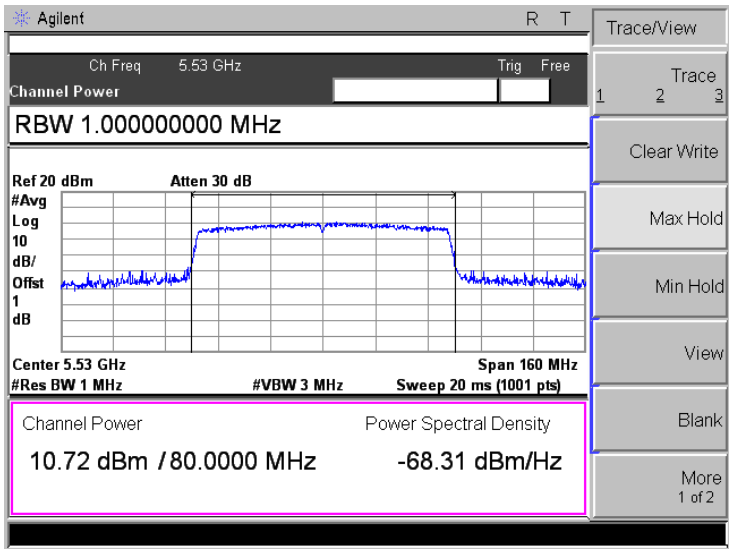
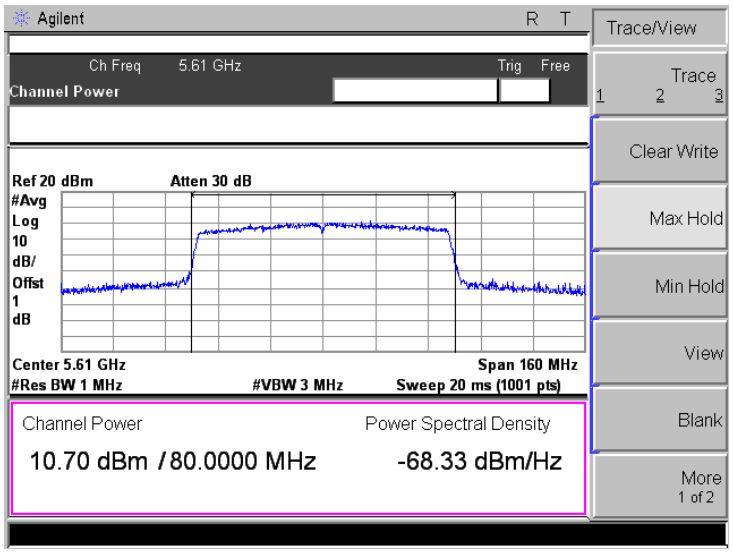
Mode:	802.11ac VH80
5290MHz	

➢ 5470-5725MHz

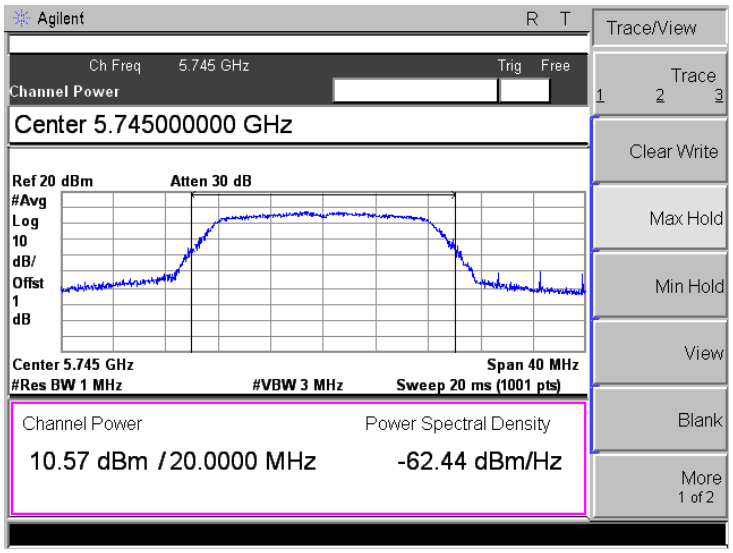
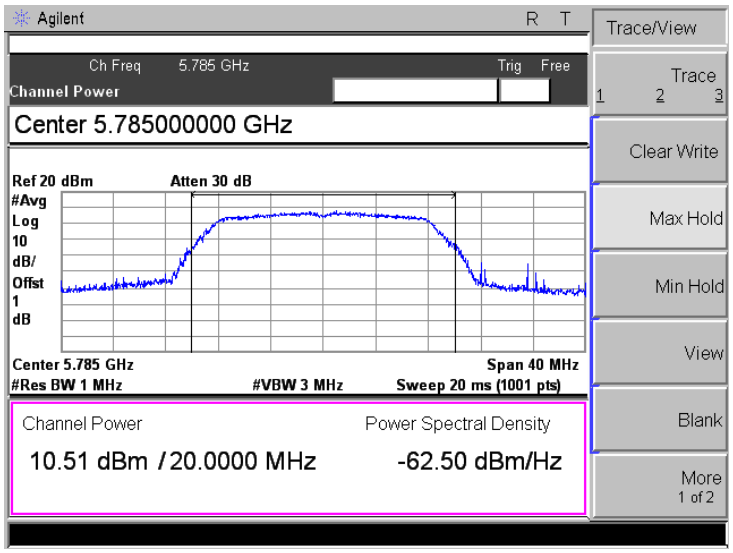
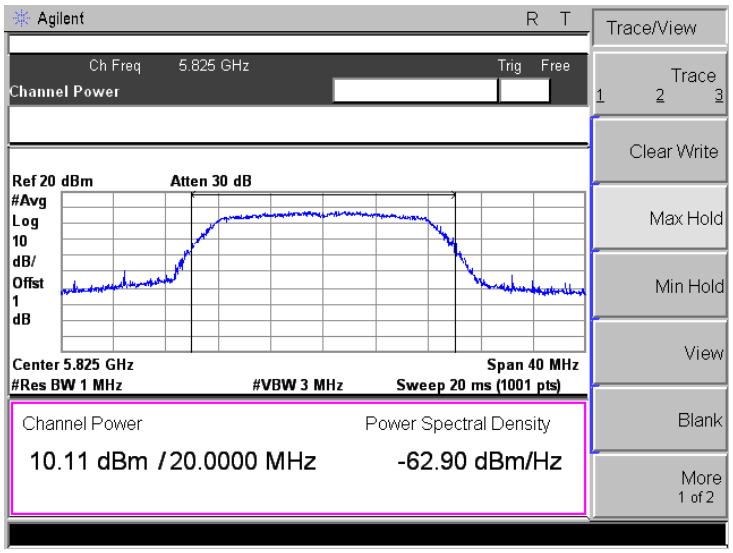
Mode:	**802.11a**
5500MHz	
5600MHz	
5700MHz	

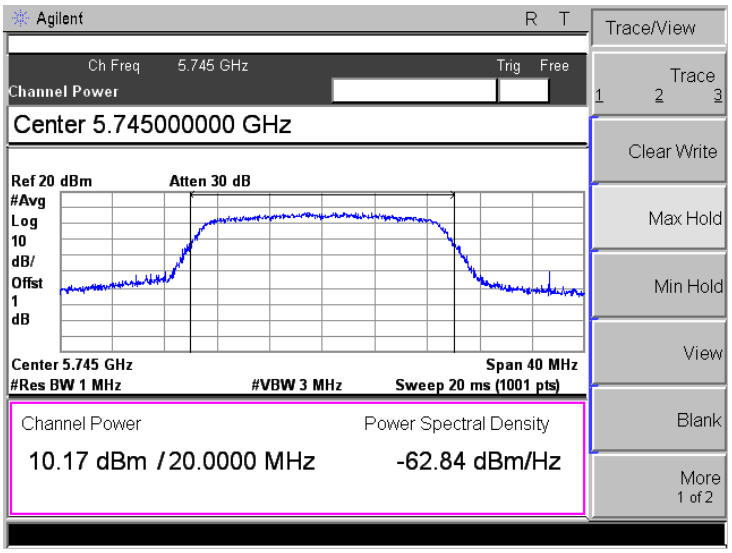
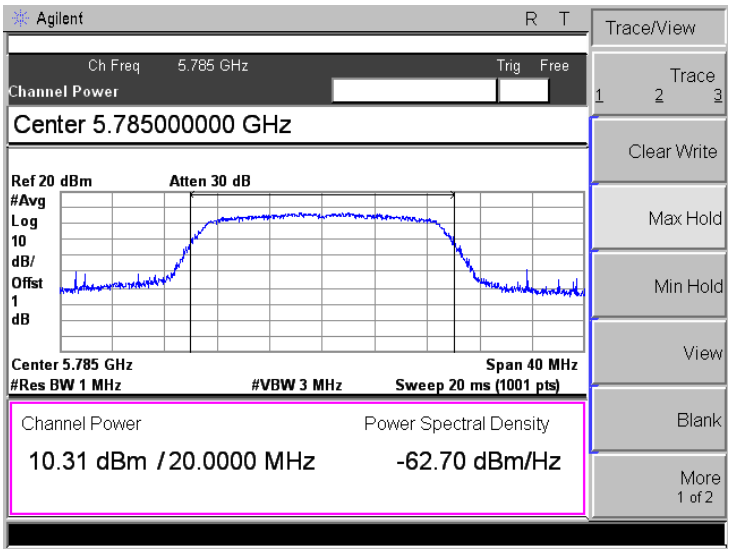
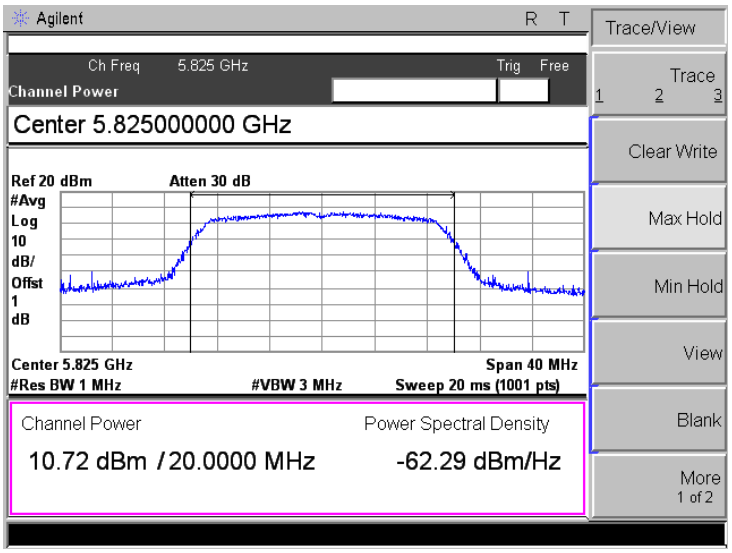
Mode:	802.11n-HT20
5500MHz	
5600MHz	
5700MHz	

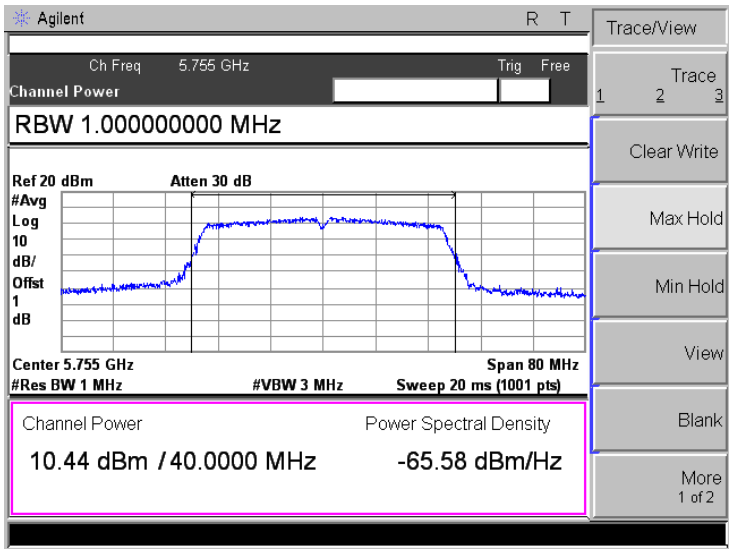
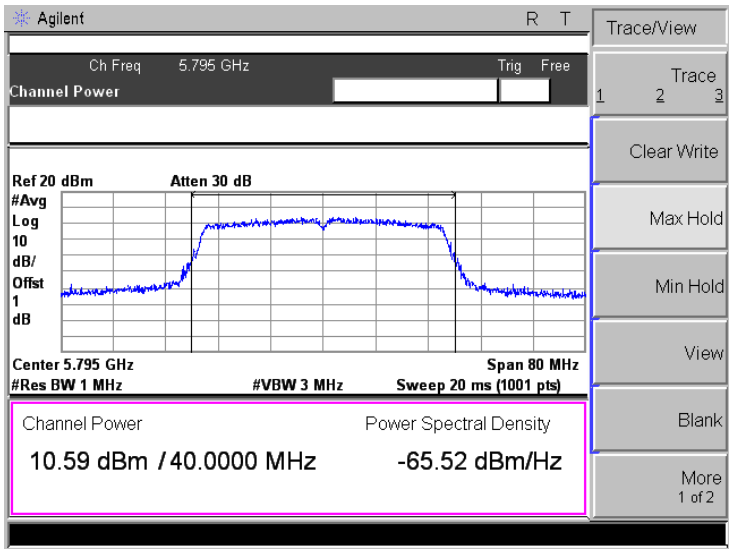
Mode:	802.11n-HT40
5510MHz	
5590MHz	
5670MHz	

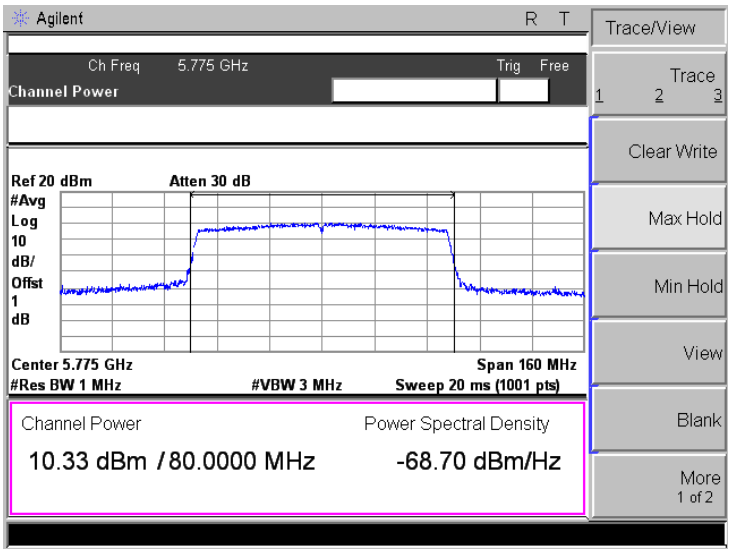
Mode:	802.11ac VH80
5530MHz	
5610MHz	

➢ 5725-5850MHz

Mode:	**802.11a**
5745MHz	
5785MHz	
5825MHz	

Mode:	802.11n-HT20
5745MHz	
5785MHz	
5825MHz	

Mode:	802.11n-HT40
5755 MHz	
5795 MHz	

Mode:	802.11ac VH80
5775 MHz	

9. Radiated Spurious Emissions

9.1 Standard Applicable

According to §15.407(b), undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(4) For transmitters operating in the 5.725-5.85 GHz band:

(i) 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.

According to §15.407(b)(6), Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.

According to §15.407(b)(7), The provisions of §15.205 apply to intentional radiators operating under this section.

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If radiated measurements are performed, field strength is then converted to EIRP as follows:

EIRP = ((E*d)^2) / 30

where:

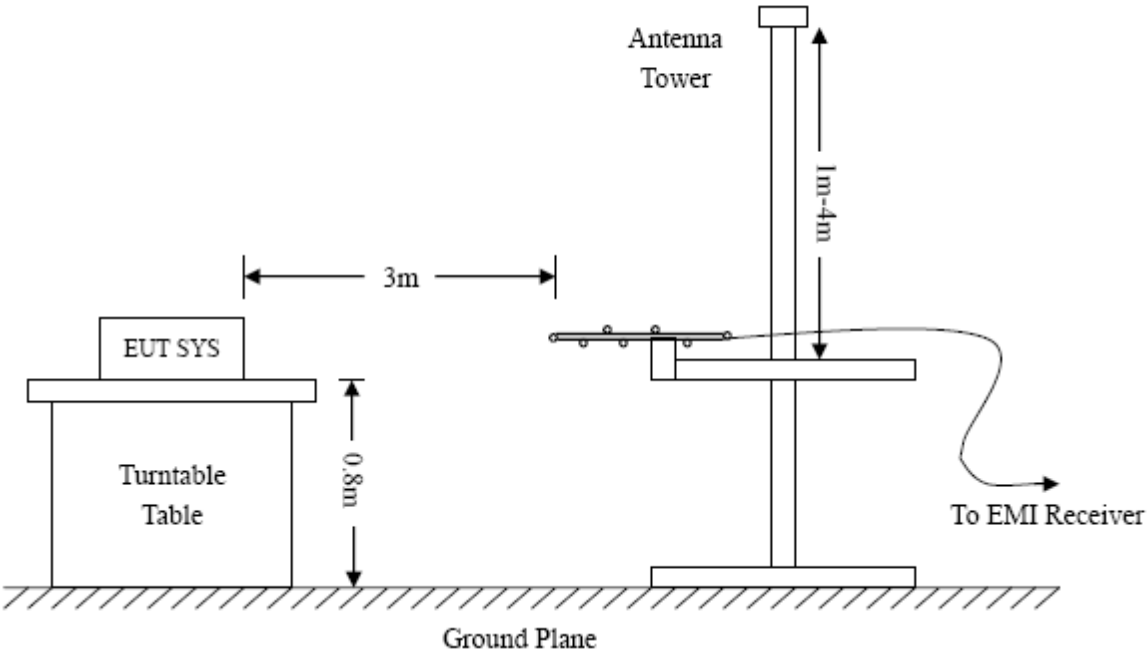
- E is the field strength in V/m;
- d is the measurement distance in meters;
- EIRP is the equivalent isotropically radiated power in watts.

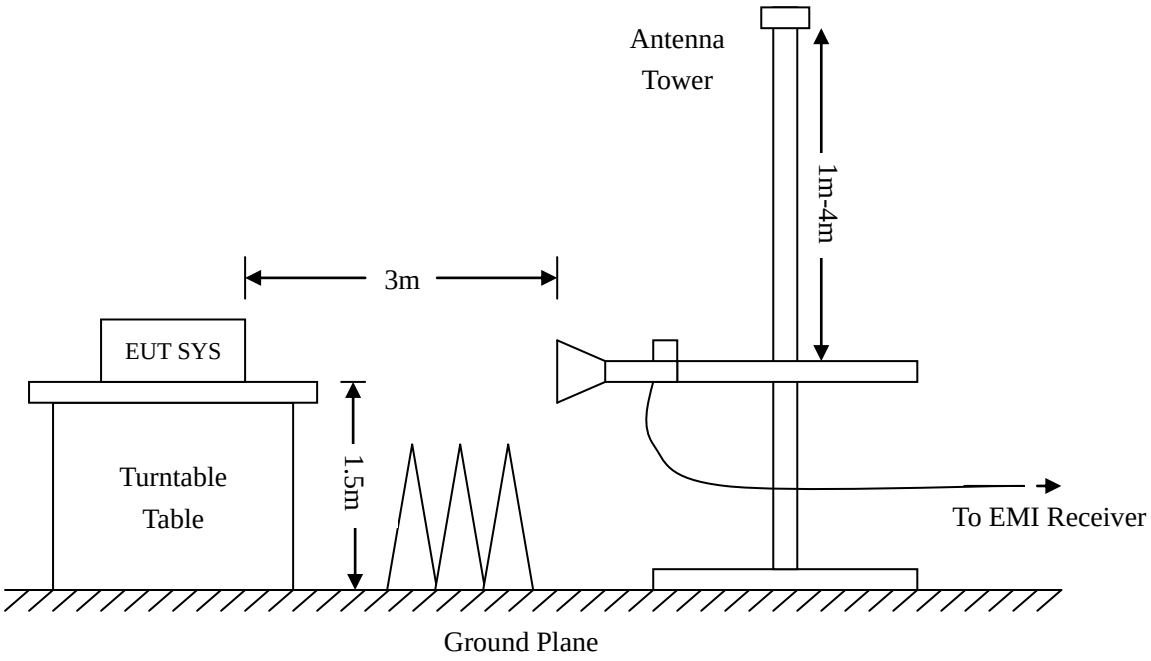
9.2 Test Procedure

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.205 15.407(b)(6) and FCC Part 15.209 Limit..

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.


Antenna
Tower
1m-4m
3m
EUT SYS
Turntable
Table
0.8m
To EMI Receiver
Ground Plane


Antenna
Tower
1m-4m
3m
EUT SYS
Turntable
Table
1.5m
To EMI Receiver
Ground Plane

9.3 Test Receiver Setup

During the radiated emission test for above 1GHz, the test receiver was set with the following configurations:

For peak detector:
RBW = 1000kHz, VBW = 3000kHz, Sweep Time = Auto

For average detector:
RBW = 1000kHz, VBW = 10Hz, Sweep Time = Auto

9.4 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Ant. Factor + Cable Loss – Ampl. Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dBμV means the emission is 6dBμV below the maximum limit for Class B. The equation for margin calculation is as follows:

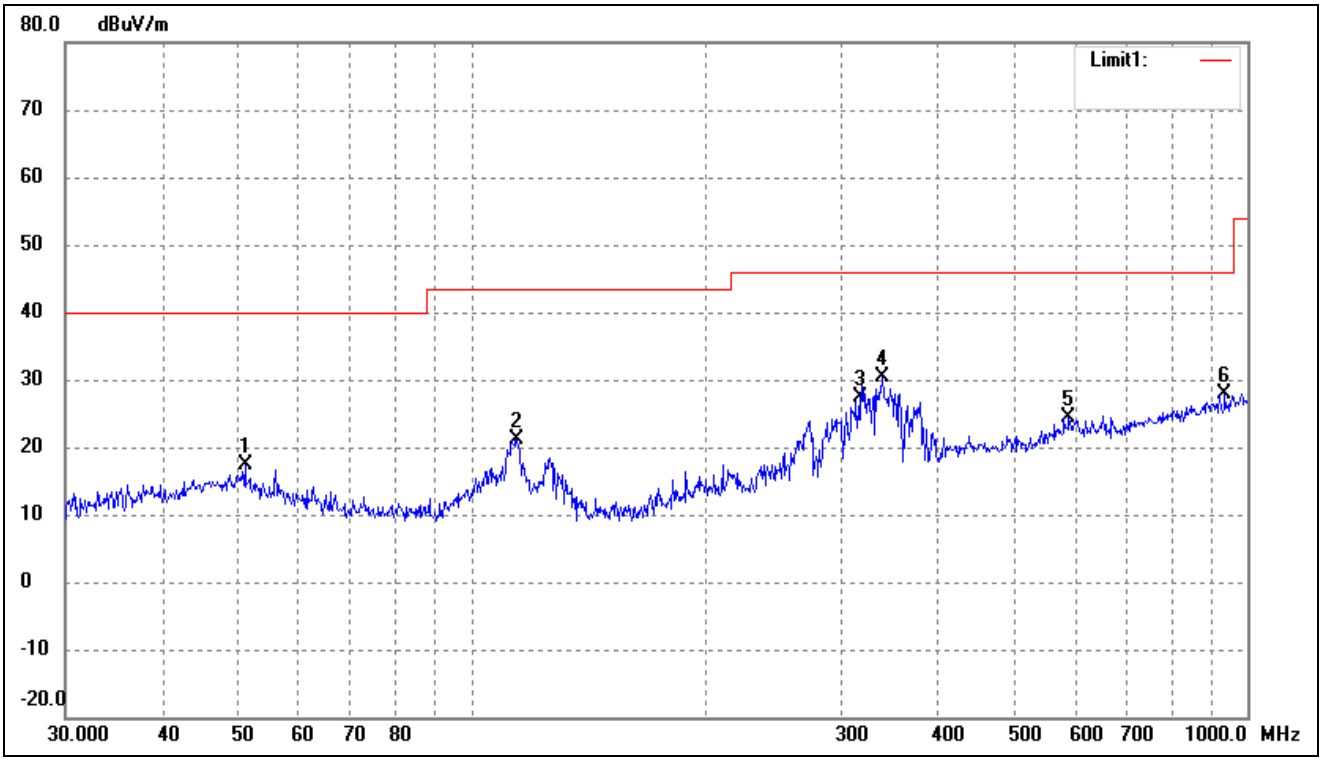
Margin = Corr. Ampl. – FCC Part 15 Limit

9.5 Summary of Test Results/Plots

Note: *this EUT was tested in 3 orthogonal positions and the worst case position data was reported.*

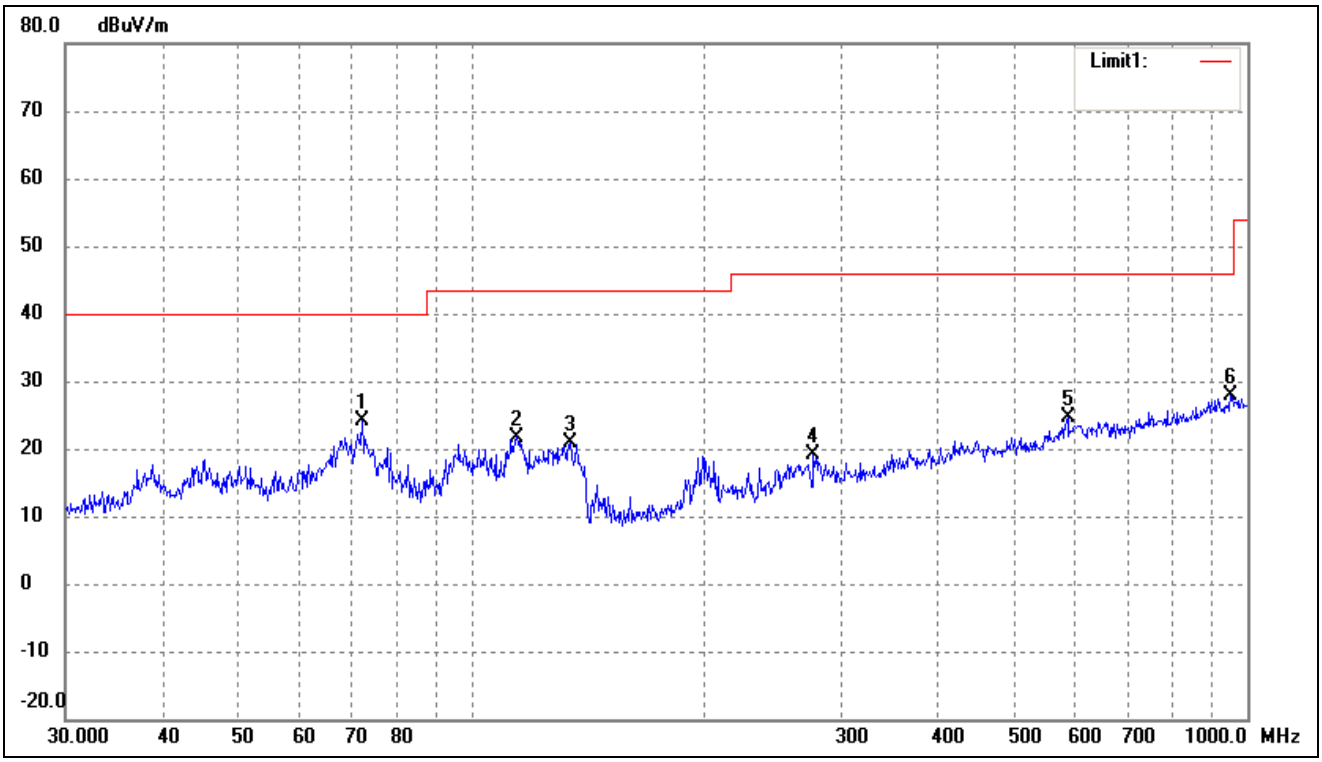
- Spurious Emission From 30 MHz to 1 GHz
- 5150-5250MHz

802.11a(Worst case)			
Test Channel	5180MHz(Worst case)	Polarity:	Horizontal



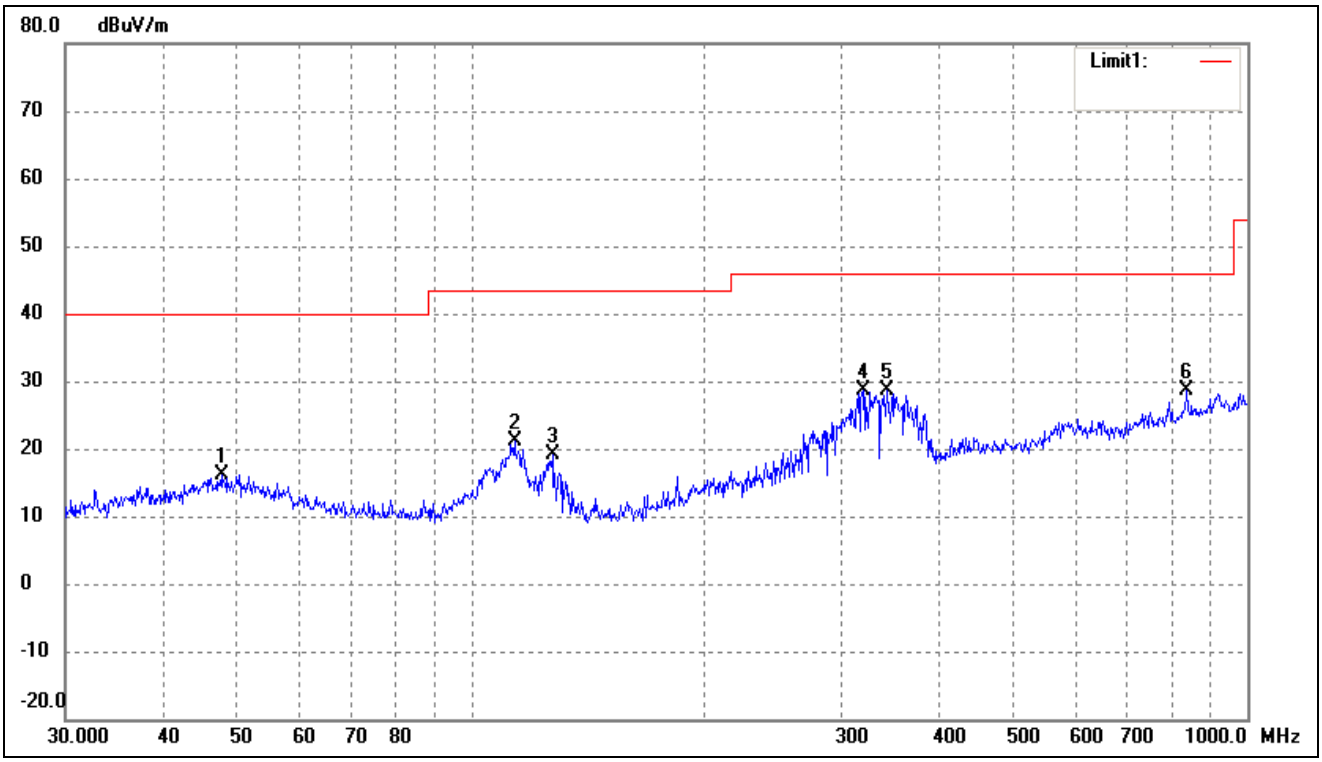
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	51.1209	28.59	-11.25	17.34	40.00	-22.66	276	100	peak
2	114.5146	34.71	-13.53	21.18	43.50	-22.32	99	100	peak
3	316.5890	36.80	-9.32	27.48	46.00	-18.52	139	100	peak
4	338.4001	39.01	-8.71	30.30	46.00	-15.70	96	100	peak
5	588.9051	28.58	-4.13	24.45	46.00	-21.55	292	100	peak
6	935.5463	28.00	-0.08	27.92	46.00	-18.08	333	100	peak

802.11a(Worst case)			
Test Channel	5180MHz(Worst case)	Polarity:	Vertical



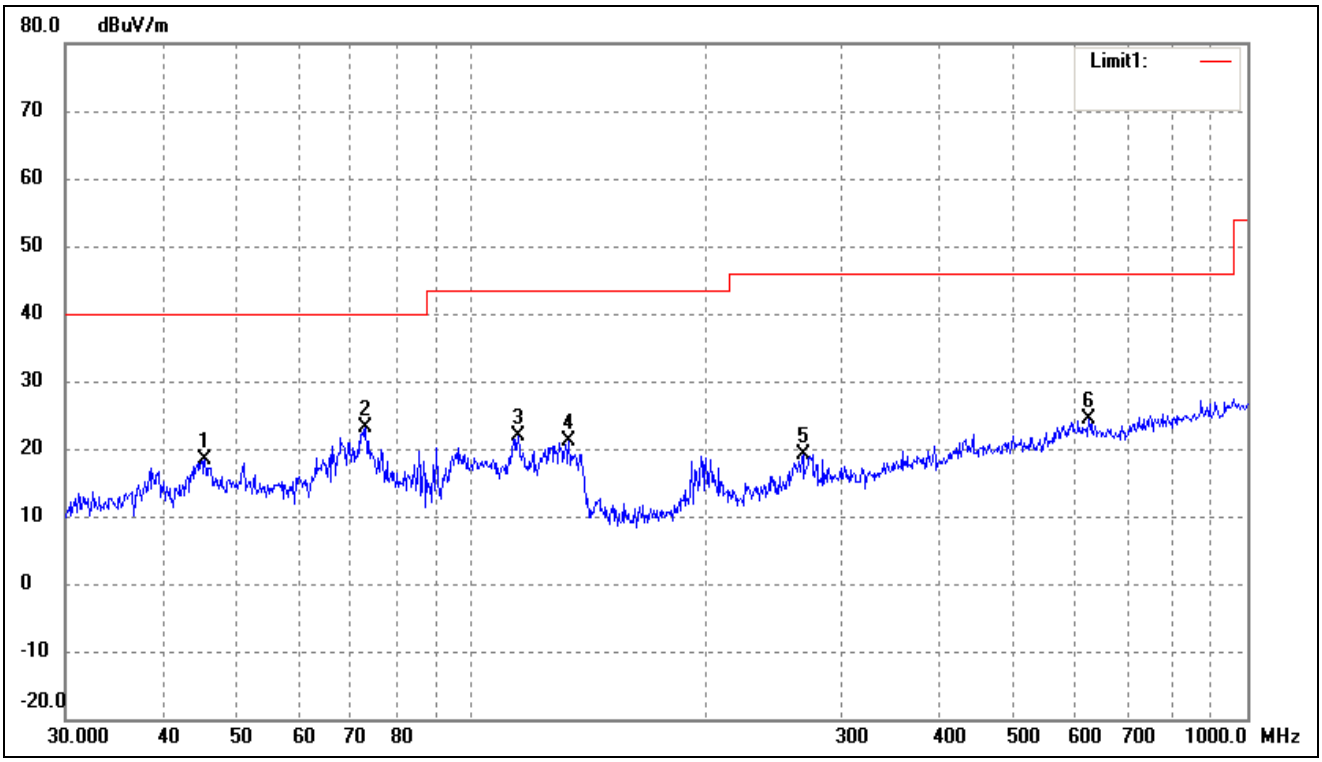
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	72.3376	39.41	-15.17	24.24	40.00	-15.76	86	100	peak
2	114.5146	35.28	-13.53	21.75	43.50	-21.75	118	100	peak
3	134.0882	37.13	-16.30	20.83	43.50	-22.67	104	100	peak
4	276.1236	29.56	-10.50	19.06	46.00	-26.94	112	100	peak
5	586.8437	28.75	-4.15	24.60	46.00	-21.40	124	100	peak
6	952.0937	27.85	0.12	27.97	46.00	-18.03	287	100	peak

802.11a(Worst case)			
Test Channel	5240MHz(worst case)	Polarity:	Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	47.6586	27.37	-11.15	16.22	40.00	-23.78	218	100	peak
2	113.7143	34.50	-13.44	21.06	43.50	-22.44	314	100	peak
3	127.2176	35.24	-16.09	19.15	43.50	-24.35	81	100	peak
4	319.9370	37.90	-9.34	28.56	46.00	-17.44	194	100	peak
5	343.1800	37.13	-8.45	28.68	46.00	-17.32	166	100	peak
6	836.2443	30.08	-1.48	28.60	46.00	-17.40	309	100	peak

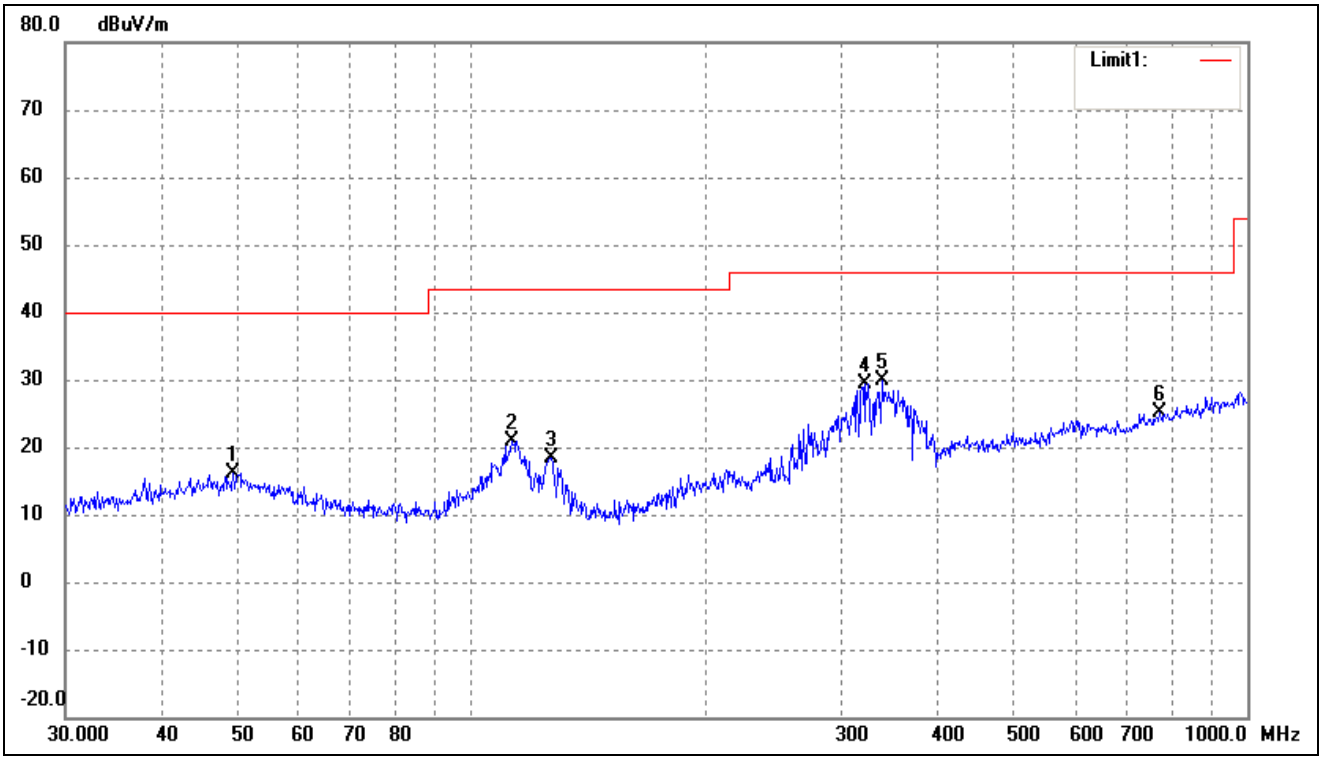
802.11a(Worst case)			
Test Channel	5240MHz(worst case)	Polarity:	Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	45.3755	29.58	-11.32	18.26	40.00	-21.74	89	100	peak
2	73.1025	38.24	-15.16	23.08	40.00	-16.92	170	100	peak
3	114.9169	35.37	-13.58	21.79	43.50	-21.71	116	100	peak
4	133.6188	37.41	-16.36	21.05	43.50	-22.45	92	100	peak
5	267.5455	29.92	-10.69	19.23	46.00	-26.77	118	100	peak
6	625.0780	28.42	-4.12	24.30	46.00	-21.70	330	100	peak

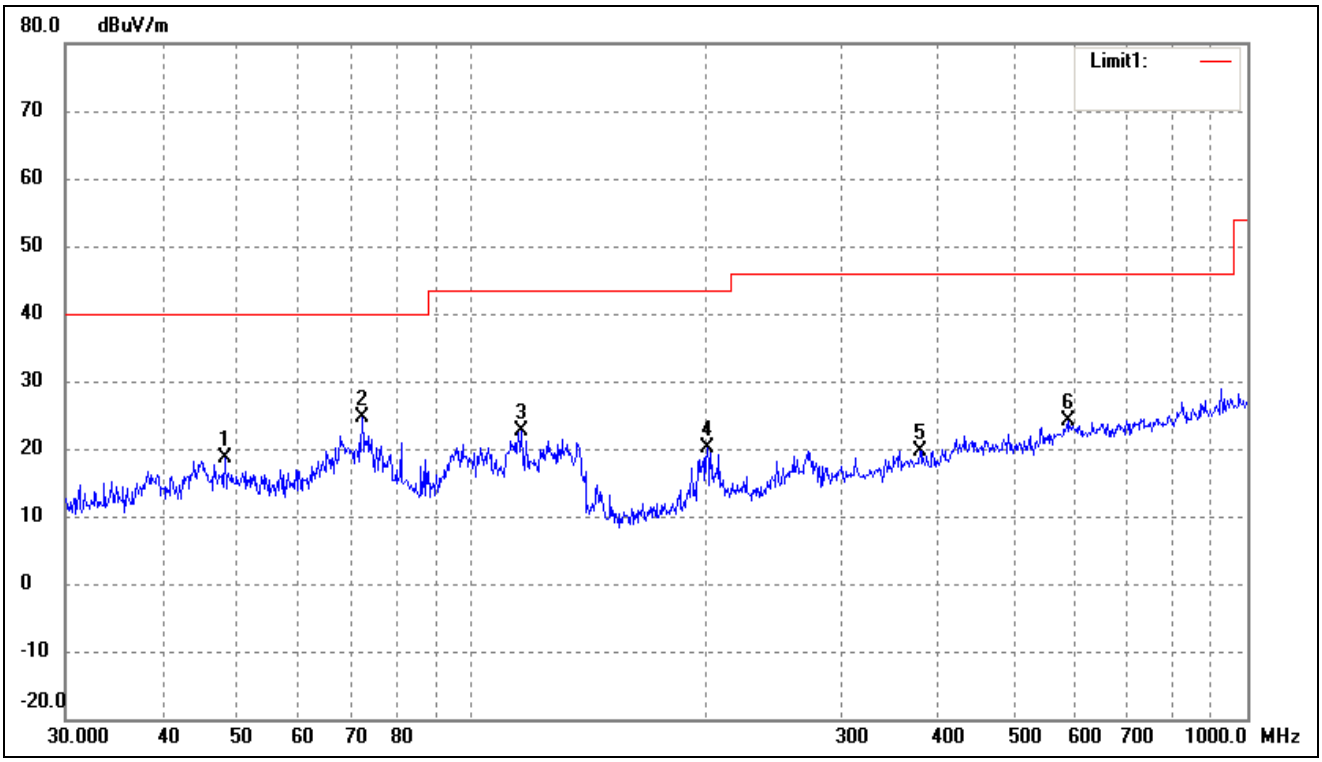
➢ 5250-5350MHz

802.11a(worst case)			
Test Channel	5260MHz(worst case)	Polarity:	Horizontal



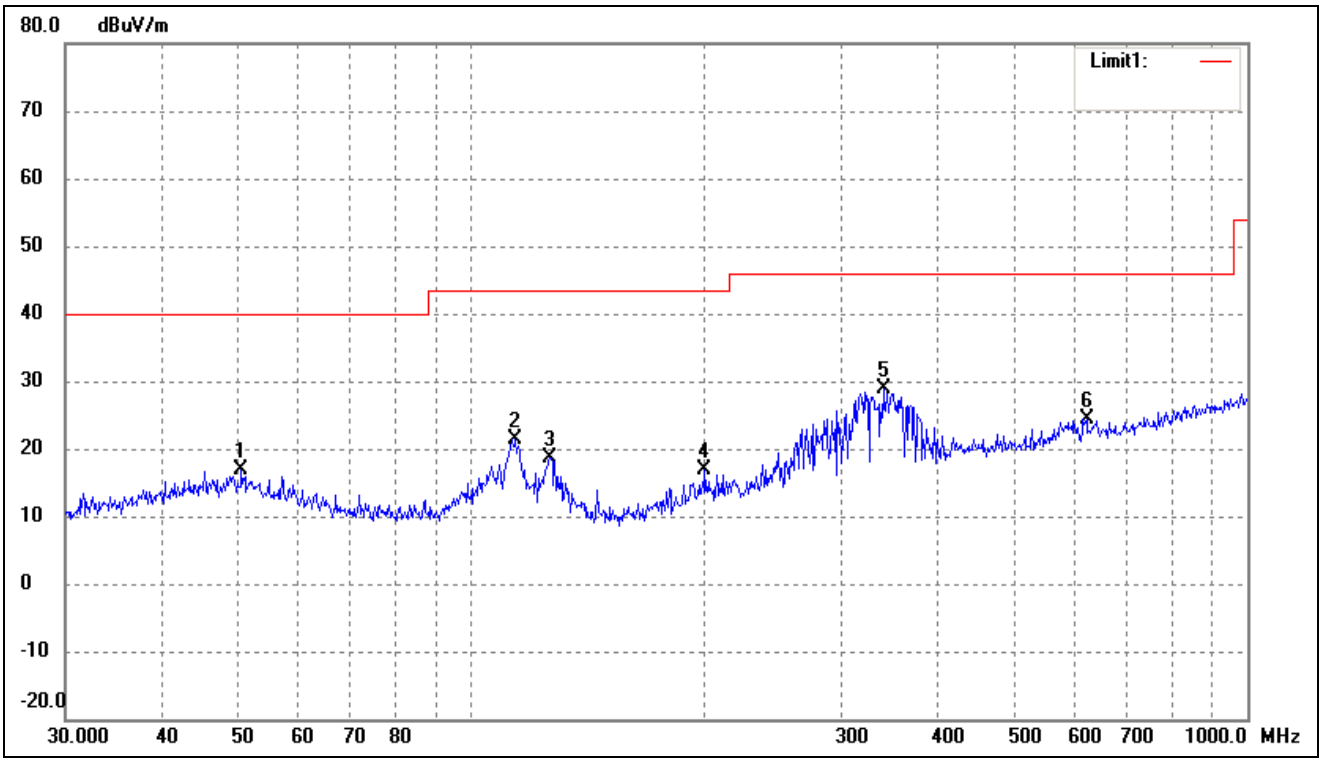
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	49.3594	27.22	-11.04	16.18	40.00	-23.82	355	100	peak
2	112.9196	34.31	-13.34	20.97	43.50	-22.53	331	100	peak
3	126.7723	34.41	-15.97	18.44	43.50	-25.06	51	100	peak
4	322.1886	38.81	-9.36	29.45	46.00	-16.55	261	100	peak
5	338.4001	38.55	-8.71	29.84	46.00	-16.16	145	100	peak
6	771.4486	27.56	-2.43	25.13	46.00	-20.87	314	100	peak

802.11a(worst case)			
Test Channel	5260MHz(worst case)	Polarity:	Vertical



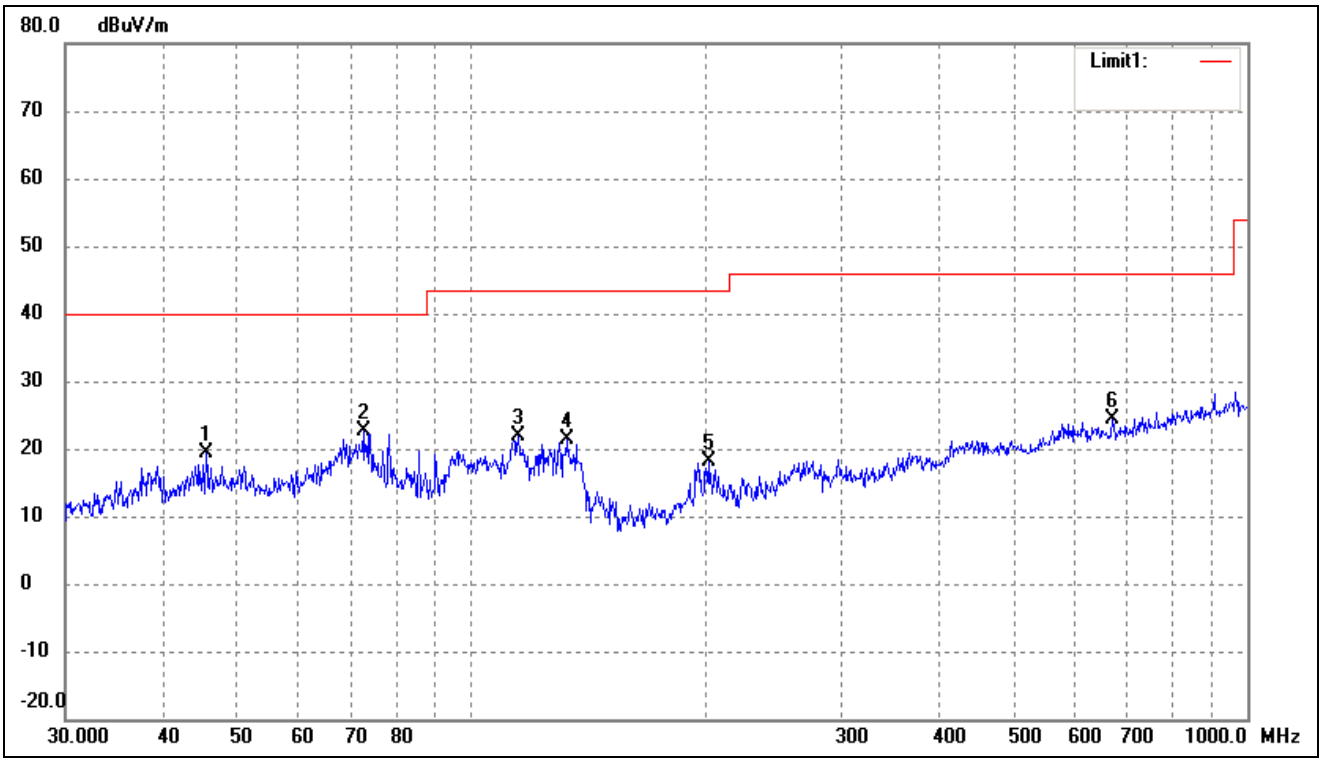
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	48.1626	29.84	-11.12	18.72	40.00	-21.28	348	100	peak
2	72.3376	39.72	-15.17	24.55	40.00	-15.45	98	100	peak
3	116.1321	36.33	-13.71	22.62	43.50	-20.88	284	100	peak
4	201.3930	32.87	-12.68	20.19	43.50	-23.31	97	100	peak
5	378.5843	27.29	-7.56	19.73	46.00	-26.27	345	100	peak
6	586.8437	28.16	-4.15	24.01	46.00	-21.99	285	100	peak

802.11a(worst case)			
Test Channel	5320MHz(worst case)	Polarity:	Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	50.5860	27.92	-11.13	16.79	40.00	-23.21	142	100	peak
2	114.1138	34.95	-13.48	21.47	43.50	-22.03	247	100	peak
3	126.3286	34.39	-15.85	18.54	43.50	-24.96	50	100	peak
4	199.9856	29.65	-12.70	16.95	43.50	-26.55	238	100	peak
5	339.5888	37.50	-8.65	28.85	46.00	-17.15	122	100	peak
6	620.7096	28.61	-4.11	24.50	46.00	-21.50	291	100	peak

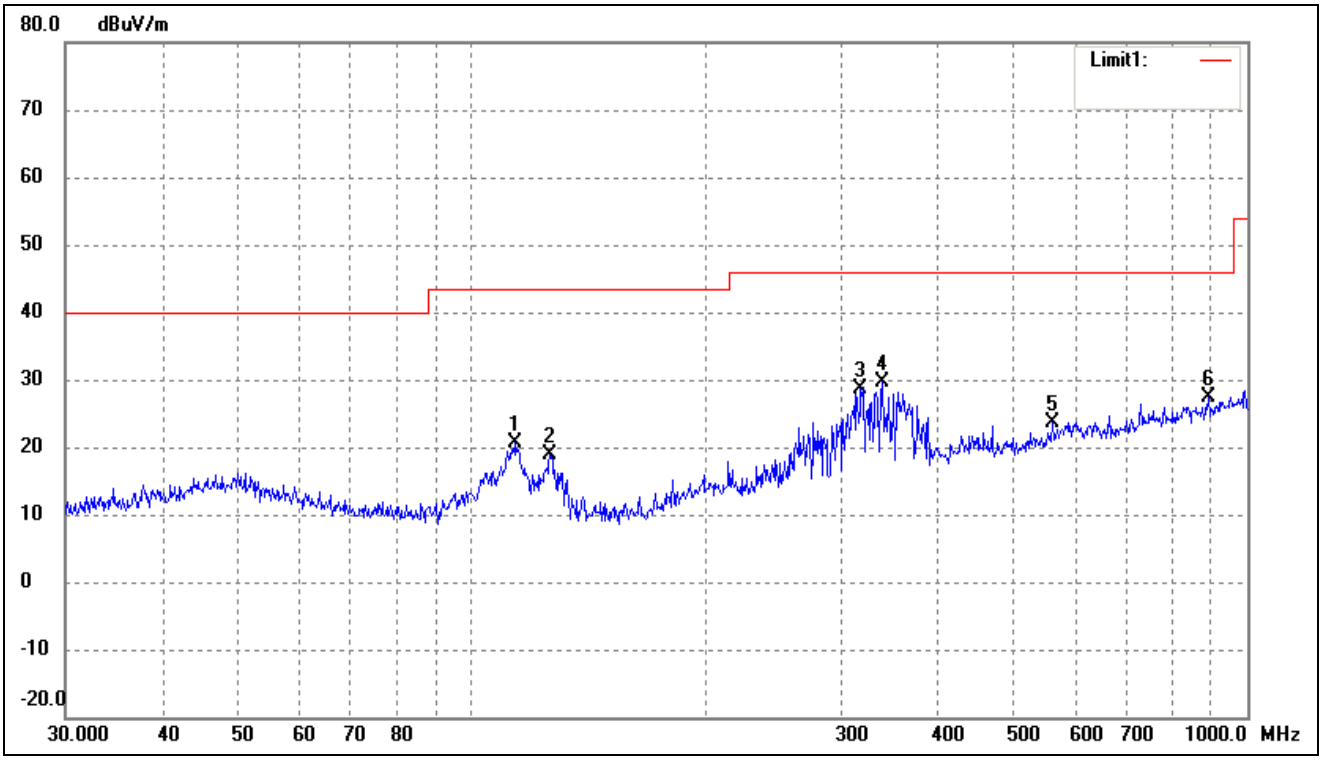
802.11a(worst case)			
Test Channel	5320MHz(worst case)	Polarity:	Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	45.5348	30.56	-11.30	19.26	40.00	-20.74	229	100	peak
2	72.5917	37.73	-15.18	22.55	40.00	-17.45	96	100	peak
3	114.9169	35.47	-13.58	21.89	43.50	-21.61	67	100	peak
4	132.6850	37.89	-16.48	21.41	43.50	-22.09	121	100	peak
5	202.1005	30.86	-12.66	18.20	43.50	-25.30	232	100	peak
6	670.4893	28.67	-4.26	24.41	46.00	-21.59	97	100	peak

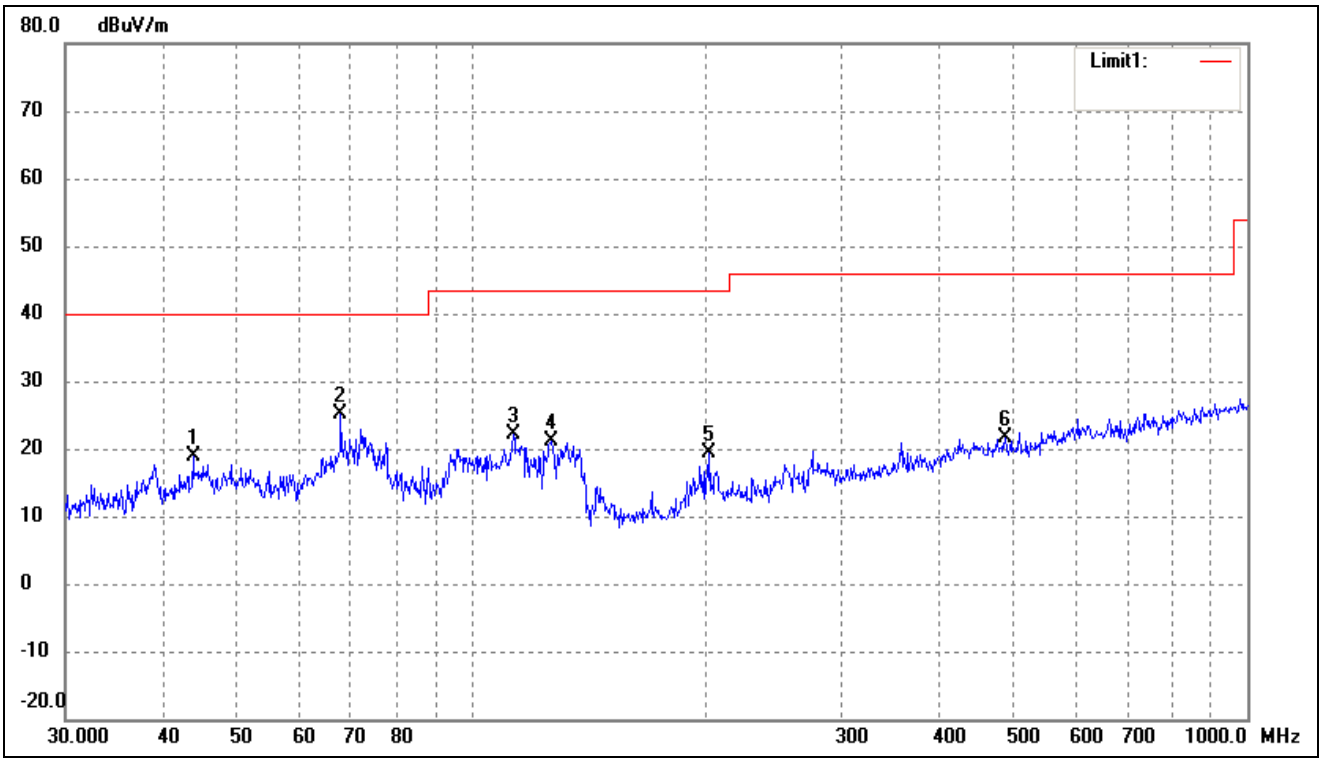
➢ 5470-5725MHz

802.11a(worst case)			
Test Channel	5500MHz(worst case)	Polarity:	Horizontal



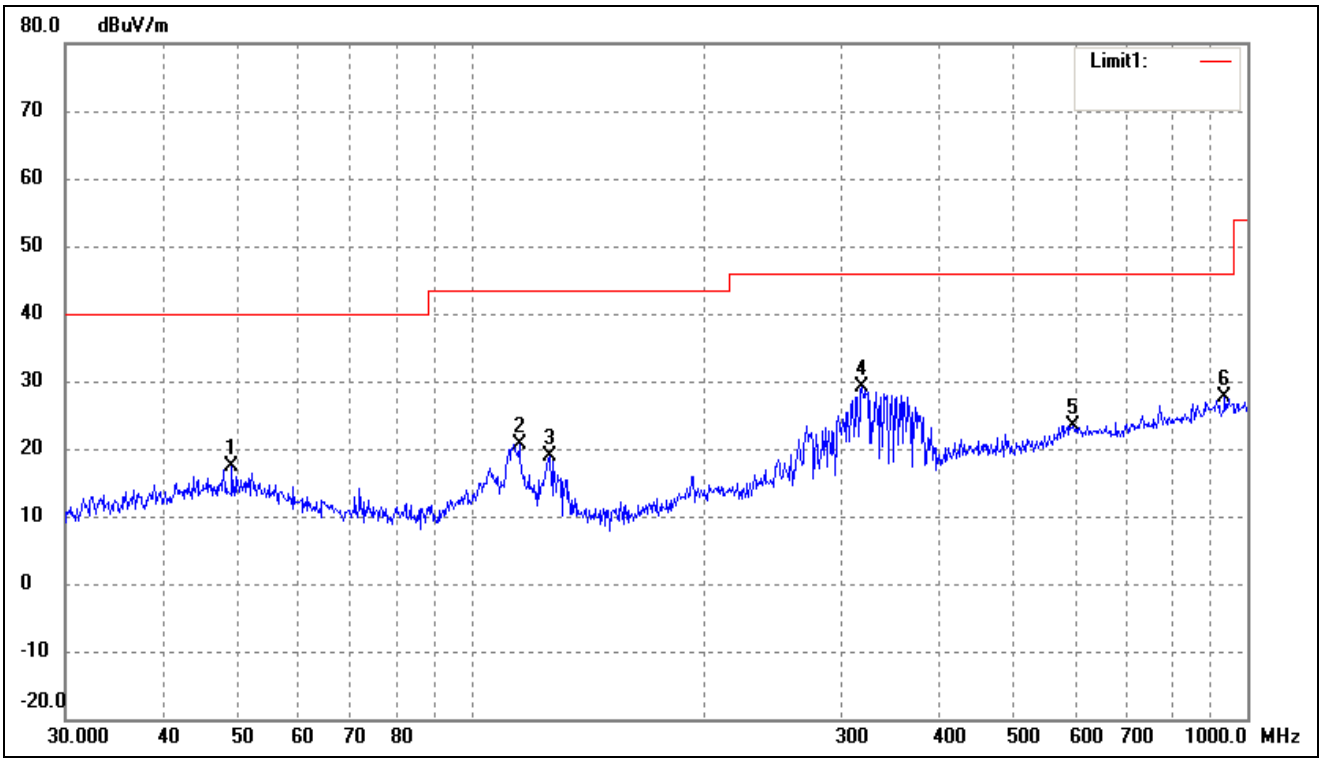
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	114.1138	34.21	-13.48	20.73	43.50	-22.77	146	100	peak
2	126.3286	34.81	-15.85	18.96	43.50	-24.54	105	100	peak
3	317.7011	37.89	-9.33	28.56	46.00	-17.44	50	100	peak
4	338.4001	38.26	-8.71	29.55	46.00	-16.45	332	100	peak
5	560.6928	28.64	-4.98	23.66	46.00	-22.34	93	100	peak
6	890.7278	28.06	-0.72	27.34	46.00	-18.66	124	100	peak

802.11a(worst case)			
Test Channel	5500MHz(worst case)	Polarity:	Vertical



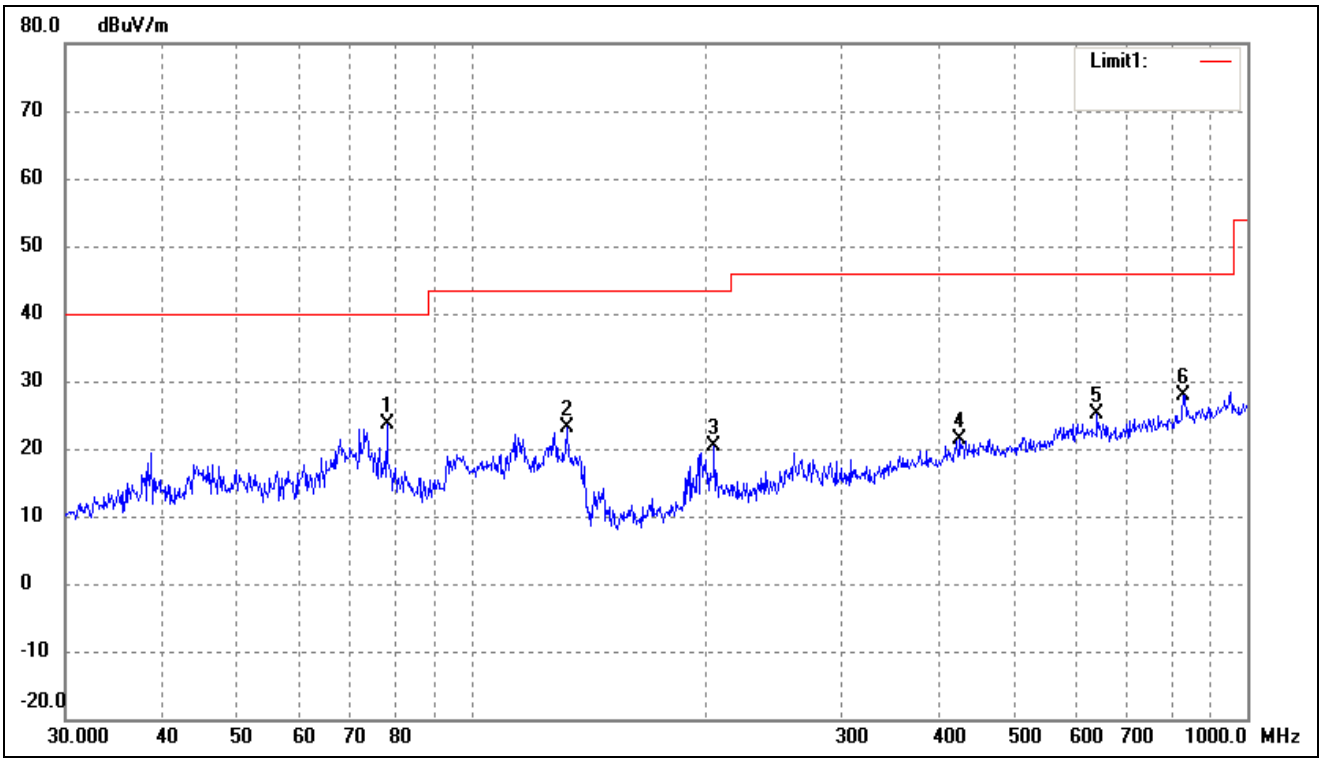
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	43.8119	30.55	-11.61	18.94	40.00	-21.06	67	100	peak
2	67.9129	39.85	-14.72	25.13	40.00	-14.87	166	100	peak
3	113.3163	35.60	-13.39	22.21	43.50	-21.29	123	100	peak
4	126.7723	36.99	-15.97	21.02	43.50	-22.48	90	100	peak
5	202.8104	32.05	-12.66	19.39	43.50	-24.11	115	100	peak
6	487.3151	28.07	-6.36	21.71	46.00	-24.29	285	100	peak

802.11a(worst case)			
Test Channel	5700MHz(worst case)	Polarity:	Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	49.1866	28.34	-11.05	17.29	40.00	-22.71	108	100	peak
2	115.3205	34.28	-13.62	20.66	43.50	-22.84	178	100	peak
3	126.3286	34.74	-15.85	18.89	43.50	-24.61	90	100	peak
4	318.8170	38.51	-9.33	29.18	46.00	-16.82	343	100	peak
5	597.2234	27.47	-4.04	23.43	46.00	-22.57	62	100	peak
6	935.5463	27.61	-0.08	27.53	46.00	-18.47	236	100	peak

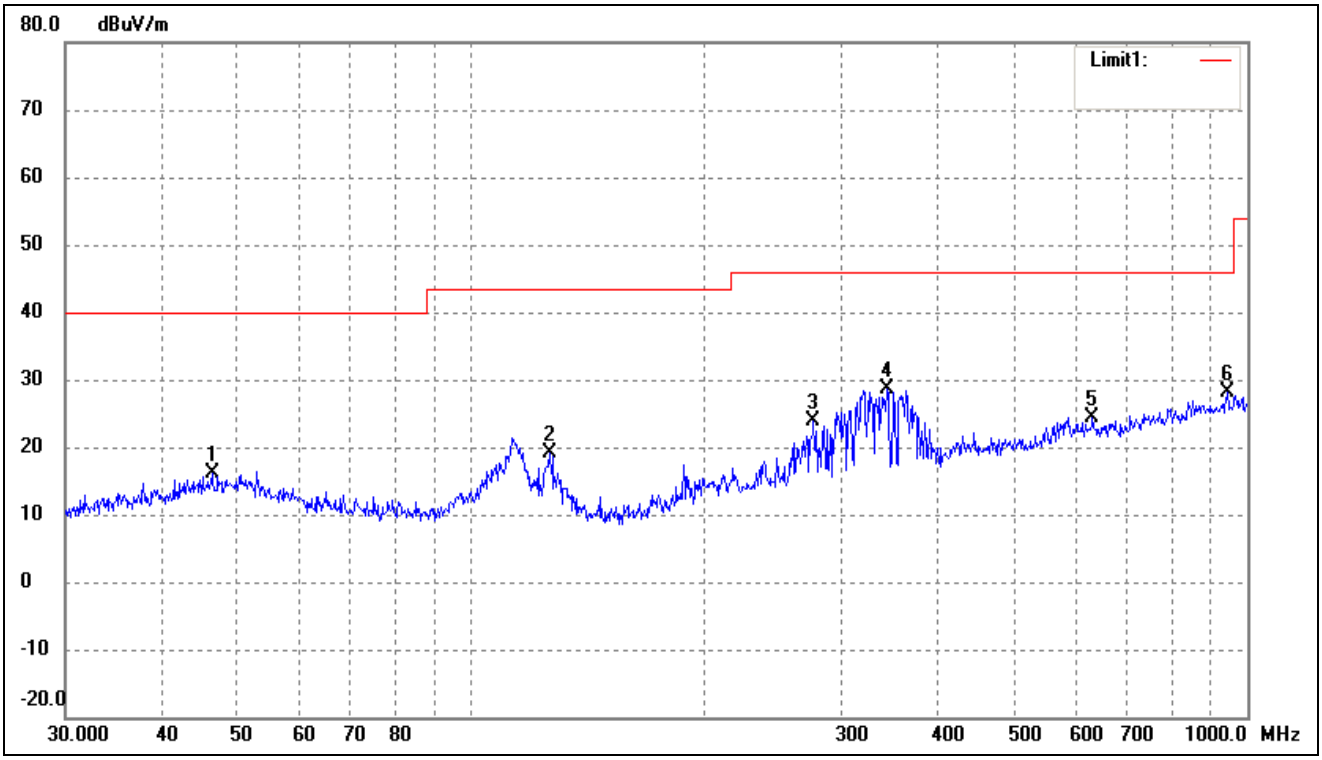
802.11a(worst case)			
Test Channel	5700MHz(worst case)	Polarity:	Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	77.8654	38.88	-15.33	23.55	40.00	-16.45	211	100	peak
2	132.6850	39.58	-16.48	23.10	43.50	-20.40	98	100	peak
3	205.6751	32.94	-12.60	20.34	43.50	-23.16	350	100	peak
4	426.5210	27.49	-6.19	21.30	46.00	-24.70	105	100	peak
5	640.6110	29.42	-4.18	25.24	46.00	-20.76	315	100	peak
6	827.4934	29.57	-1.59	27.98	46.00	-18.02	252	100	peak

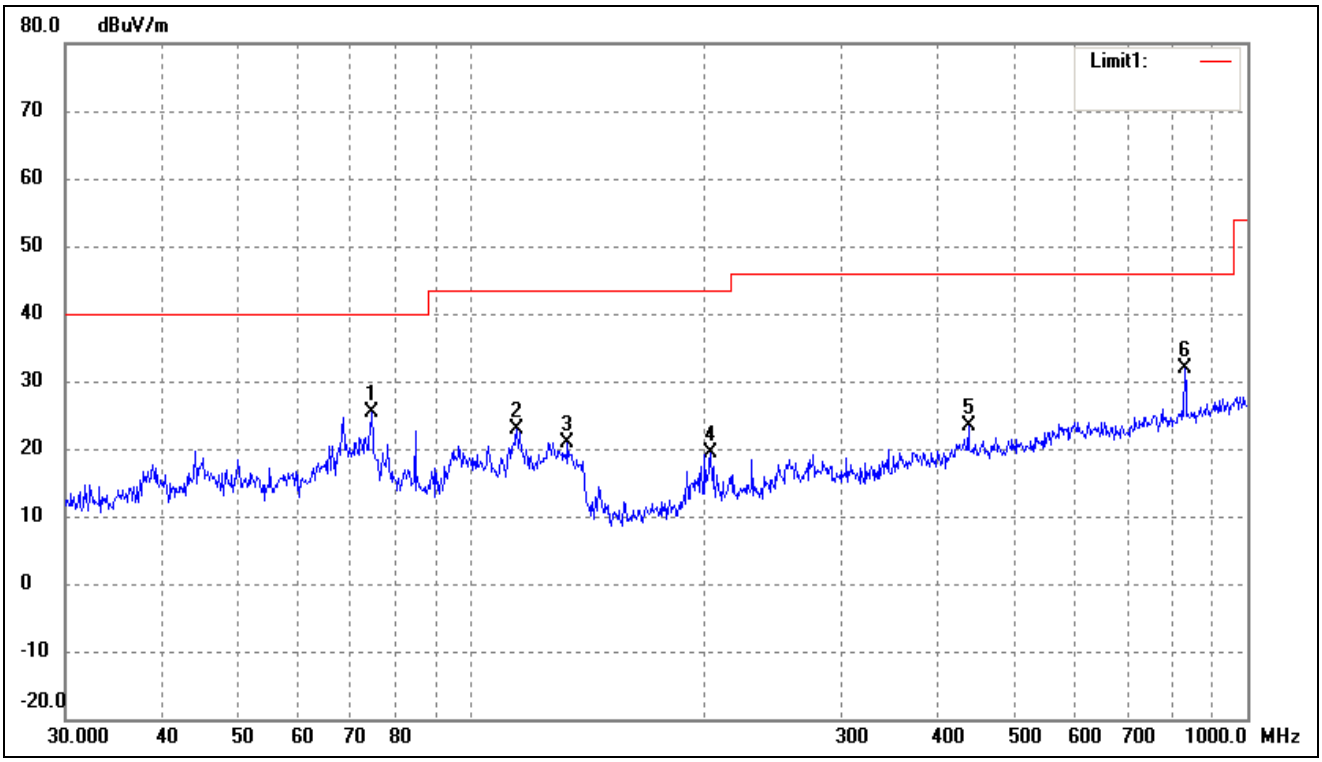
➢ 5725-5850MHz

802.11a(worst case)			
Test Channel	5745MHz(worst case)	Polarity:	Horizontal



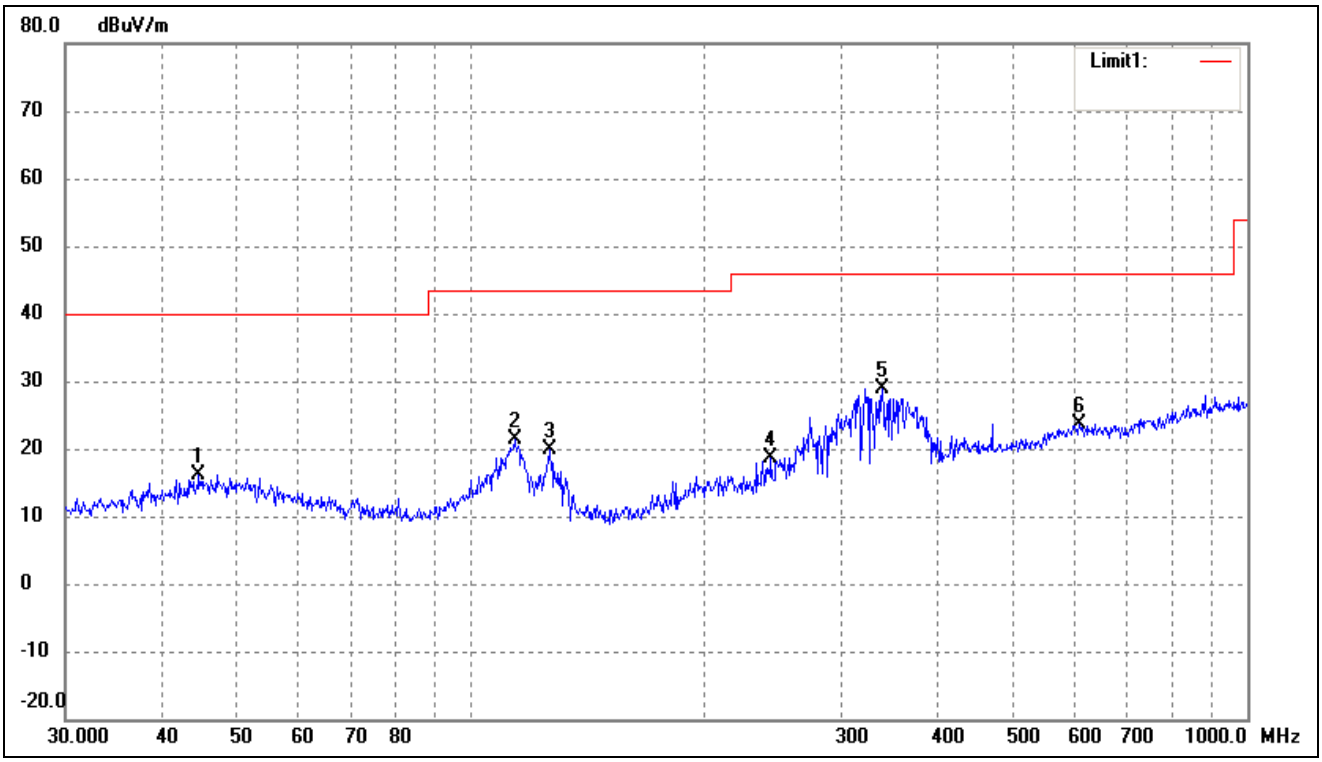
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	46.3402	27.26	-11.25	16.01	40.00	-23.99	184	100	peak
2	126.3286	34.96	-15.85	19.11	43.50	-24.39	224	100	peak
3	276.1236	34.26	-10.50	23.76	46.00	-22.24	72	100	peak
4	343.1800	36.98	-8.45	28.53	46.00	-17.47	282	100	peak
5	631.6884	28.64	-4.14	24.50	46.00	-21.50	179	100	peak
6	942.1305	28.09	0.01	28.10	46.00	-17.90	262	100	peak

802.11a(worst case)			
Test Channel	5745MHz(worst case)	Polarity:	Vertical



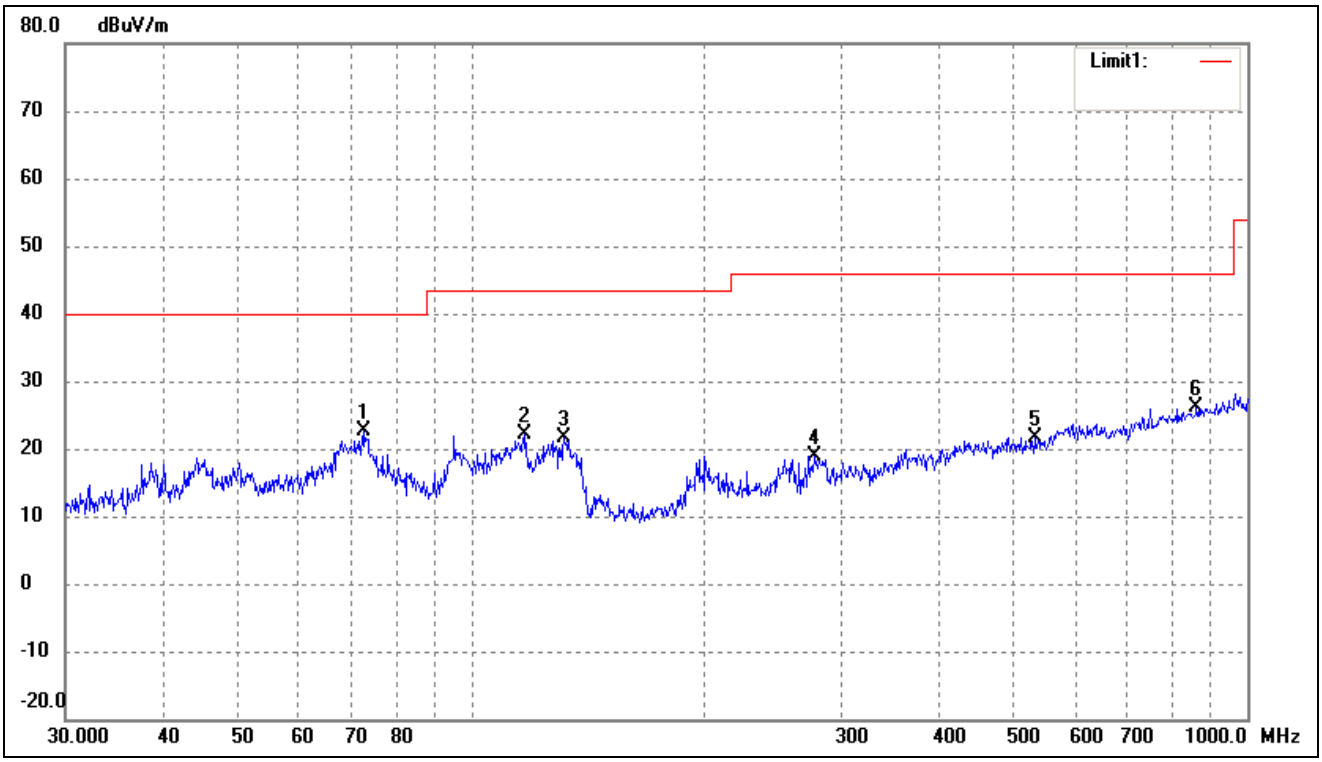
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	74.3955	40.56	-15.14	25.42	40.00	-14.58	360	100	peak
2	114.5146	36.51	-13.53	22.98	43.50	-20.52	128	100	peak
3	133.1511	37.19	-16.42	20.77	43.50	-22.73	75	100	peak
4	203.5228	31.90	-12.64	19.26	43.50	-24.24	132	100	peak
5	437.1199	29.46	-6.19	23.27	46.00	-22.73	122	100	peak
6	830.4002	33.32	-1.55	31.77	46.00	-14.23	209	100	peak

802.11a(worst case)			
Test Channel	5825MHz(worst case)	Polarity:	Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	44.5868	27.64	-11.43	16.21	40.00	-23.79	311	100	peak
2	113.7143	34.79	-13.44	21.35	43.50	-22.15	284	100	peak
3	126.3286	35.66	-15.85	19.81	43.50	-23.69	54	100	peak
4	243.3772	30.04	-11.35	18.69	46.00	-27.31	204	100	peak
5	338.4001	37.71	-8.71	29.00	46.00	-17.00	83	100	peak
6	607.7867	27.61	-4.05	23.56	46.00	-22.44	273	100	peak

802.11a(worst case)			
Test Channel	5825MHz(worst case)	Polarity:	Vertical

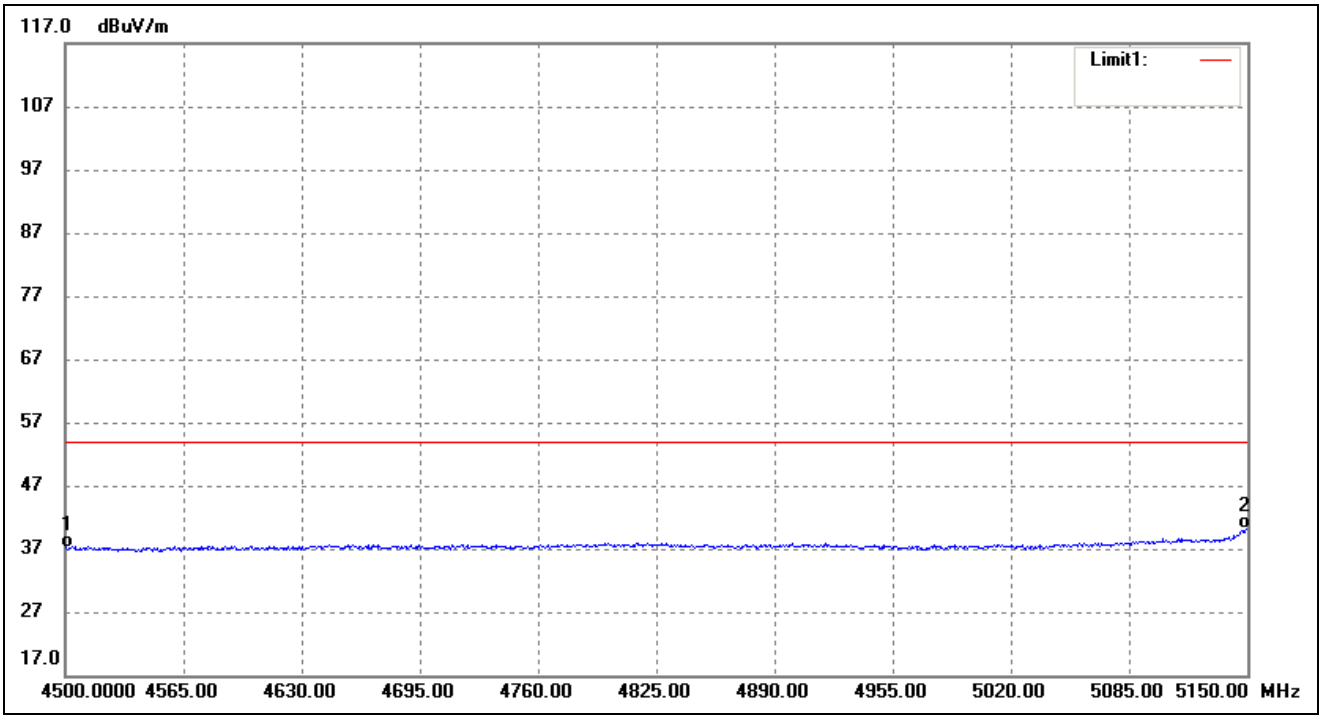


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	72.8466	37.82	-15.17	22.65	40.00	-17.35	282	100	peak
2	117.3603	35.91	-13.85	22.06	43.50	-21.44	95	100	peak
3	131.7577	38.13	-16.60	21.53	43.50	-21.97	216	100	peak
4	277.0935	29.41	-10.45	18.96	46.00	-27.04	110	100	peak
5	531.9635	27.72	-5.97	21.75	46.00	-24.25	212	100	peak
6	860.0352	27.24	-1.18	26.06	46.00	-19.94	347	100	peak

➢ Spurious Emission above 1GHz

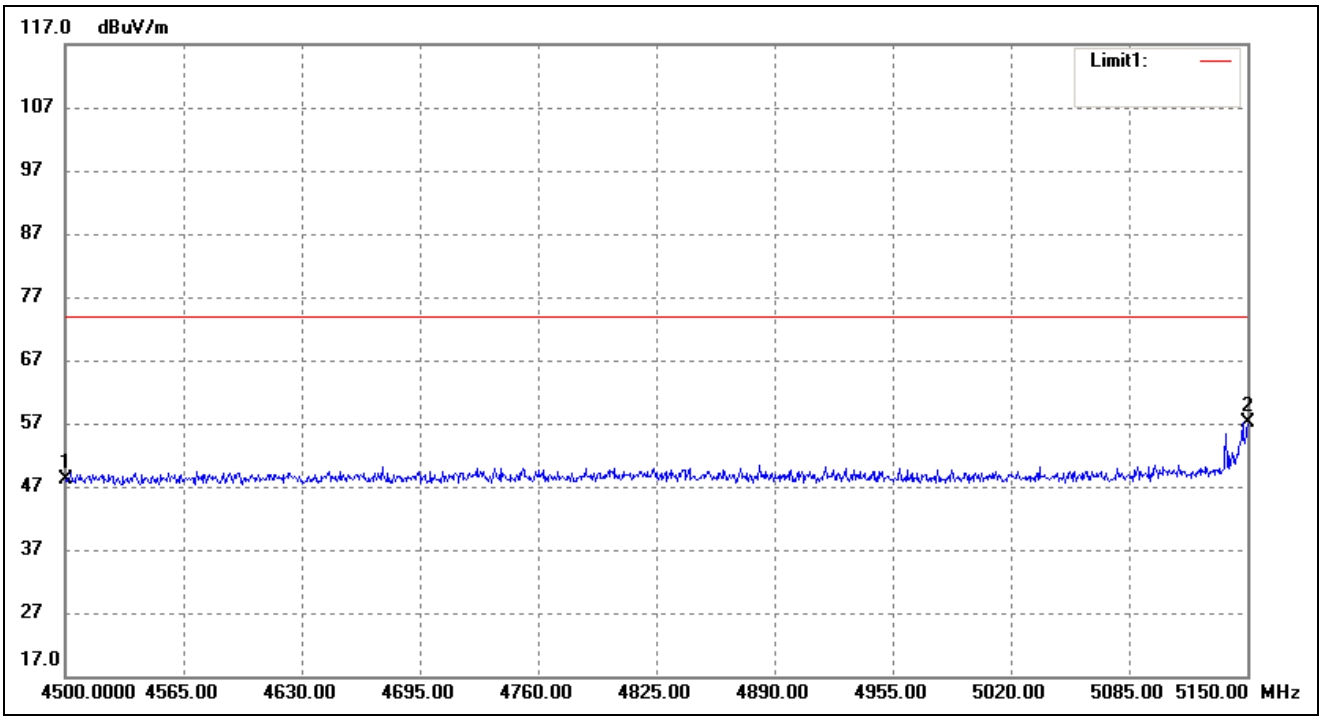
➢ BNAD 1 (worst case)

802.11a- Restricted Bandedge (worst case)			
Test Channel	band 4.5-5.15GHz	Polarity:	Vertical(worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	4500.000	41.93	-4.71	37.22	54.00	-16.78	153	100	AVG
2	5150.000	44.52	-4.32	40.20	54.00	-13.80	245	100	AVG

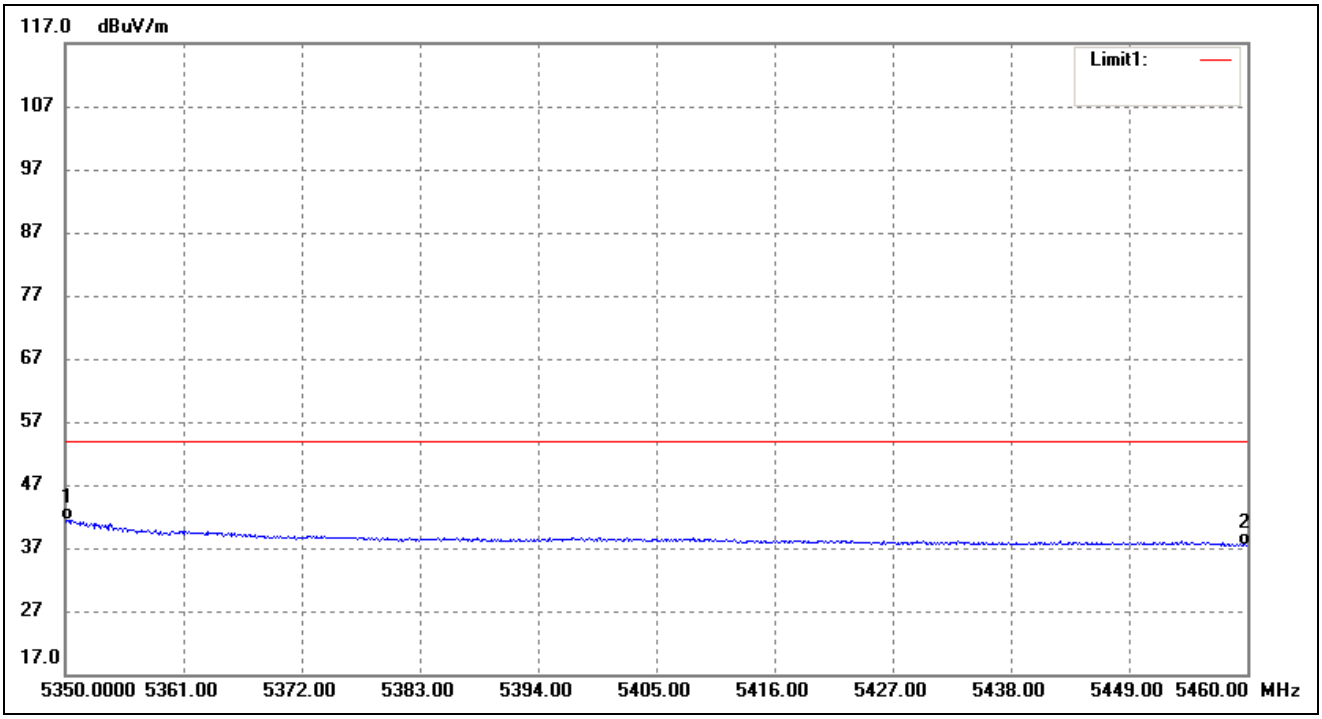
802.11a- Restricted Bandedge (worst case)			
Test Channel	band 4.5-5.15GHz	Polarity:	Vertical(worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	4500.000	52.81	-4.71	48.10	74.00	-25.90	87	100	peak
2	5150.000	61.42	-4.32	57.10	74.00	-16.90	152	100	peak

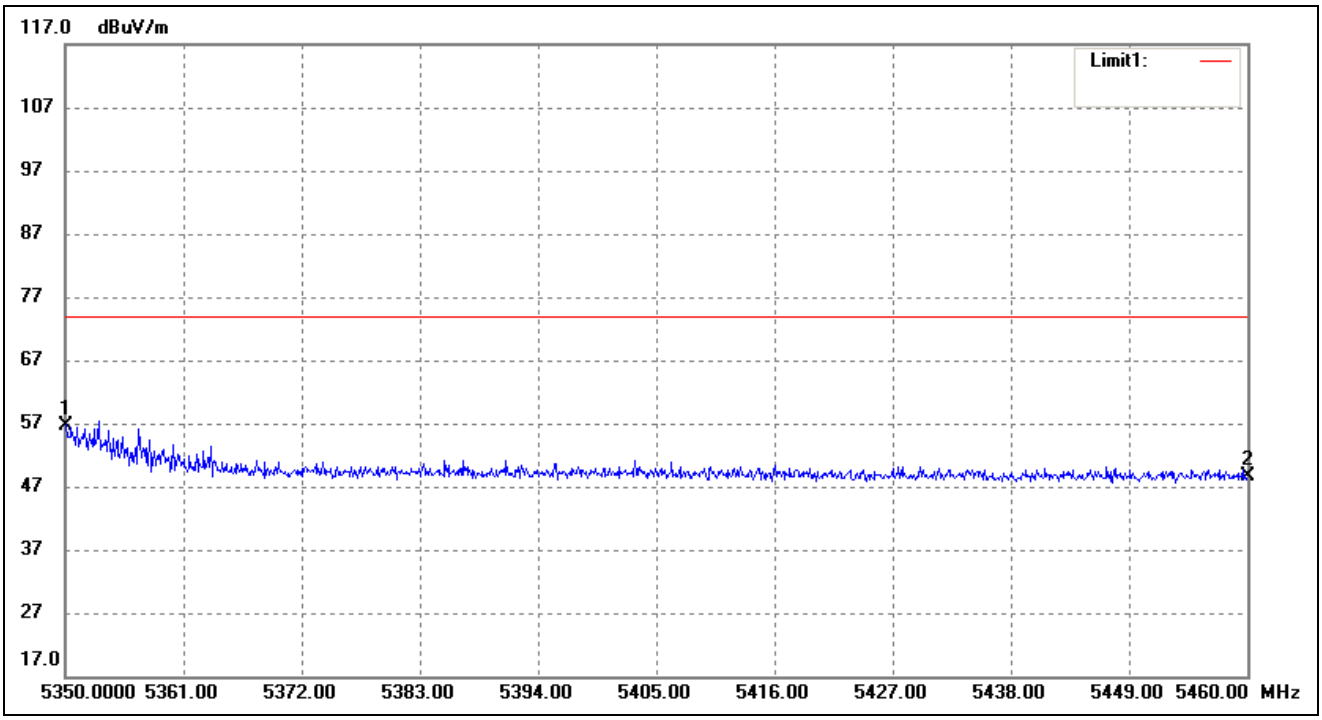
➢ BNAD 2 (worst case)

802.11a- Restricted Bandedge (worst case)			
Test Channel	band 5.35-5.47GHz	Polarity:	Vertical(worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	5350.000	45.47	-4.21	41.26	54.00	-12.74	163	100	AVG
2	5460.000	41.55	-4.16	37.39	54.00	-16.61	116	100	AVG

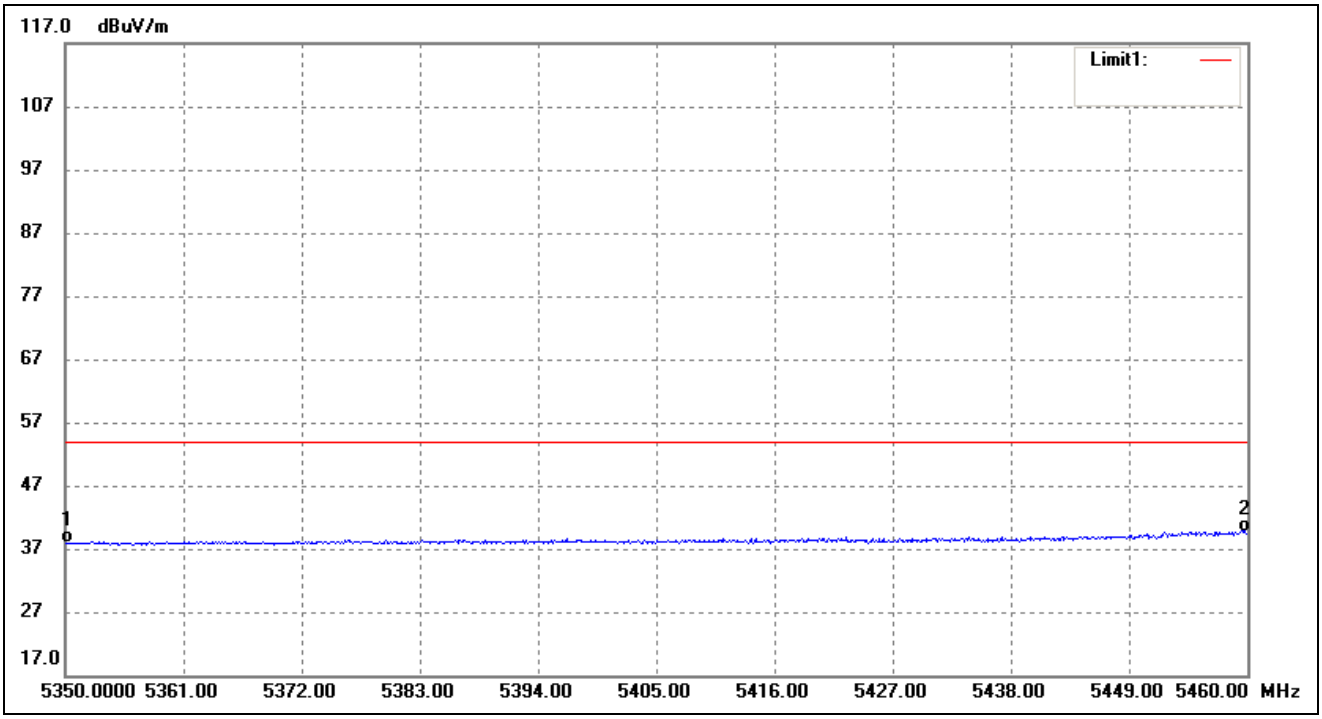
802.11a- Restricted Bandedge (worst case)			
Test Channel	band 5.35-5.47GHz	Polarity:	Vertical(worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	5350.000	60.73	-4.21	56.52	74.00	-17.48	350	100	peak
2	5460.000	52.84	-4.16	48.68	74.00	-25.32	100	100	peak

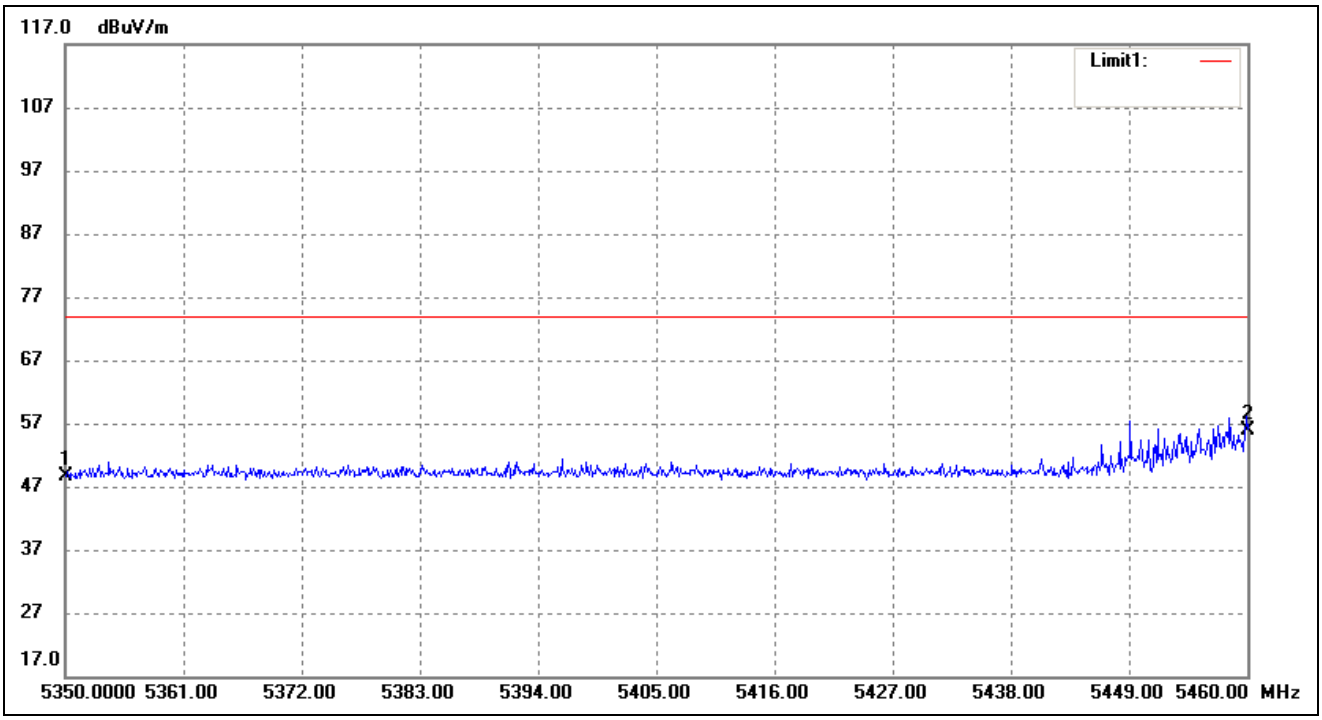
➢ BNAD 3 (worst case)

802.11a- Restricted Bandedge (worst case)			
Test Channel	band 5.35-5.47GHz	Polarity:	Vertical(worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	5350.000	42.12	-4.21	37.91	54.00	-16.09	100	100	AVG
2	5460.000	43.83	-4.16	39.67	54.00	-14.33	69	100	AVG

802.11a- Restricted Bandedge (worst case)			
Test Channel	band 5.35-5.47GHz	Polarity:	Vertical(worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	5350.000	52.87	-4.21	48.66	74.00	-25.34	229	100	peak
2	5460.000	60.04	-4.16	55.88	74.00	-18.12	123	100	peak

Note: The Restricted Bandedge was tested in Horizontal /Vertical and the worst case position data was reported.

- For the frequency band 5.15-5.25GHz, 5.250-5.350GHz, 5.470-5.725GHz, 5.725-5.850GHz (802.11a)
- Harmonics And Spurious Emissions

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel (5180MHz)							
10360	57.80	7.11	64.91	74.00	-9.09	H	PK
15540	37.98	8.22	46.20	54.00	-7.80	H	AV
10360	60.34	7.11	67.45	74.00	-6.55	V	PK
15540	38.99	8.22	47.21	54.00	-6.79	V	AV
Middle Channel (5200MHz)							
10400	58.05	7.22	65.27	74.00	-8.73	H	PK
15600	34.74	8.67	43.41	54.00	-10.59	H	AV
10400	57.84	7.22	65.06	74.00	-8.94	V	PK
15600	37.38	8.67	46.05	54.00	-7.95	V	AV
High Channel (5240MHz)							
10480	56.50	7.69	64.19	74.00	-9.81	H	PK
15720	38.86	8.93	47.79	54.00	-6.21	H	AV
10480	60.48	7.69	68.17	74.00	-5.83	V	PK
15720	38.58	8.93	47.51	54.00	-6.49	V	AV

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel (5260MHz)							
10520	57.30	7.96	65.26	74.00	-8.74	H	PK
15780	35.94	9.02	44.96	54.00	-9.04	H	AV
10520	60.02	7.96	67.98	74.00	-6.02	V	PK
15780	38.73	9.02	47.75	54.00	-6.25	V	AV
Middle Channel (5280MHz)							
10560	57.69	8.02	65.71	74.00	-8.29	H	PK
15840	37.95	9.42	47.37	54.00	-6.63	H	AV
10560	58.47	8.02	66.49	74.00	-7.51	V	PK
15840	36.36	9.42	45.78	54.00	-8.22	V	AV
High Channel (5320MHz)							
10640	58.76	8.35	67.11	74.00	-6.89	H	PK
15960	36.19	9.63	45.82	54.00	-8.18	H	AV
10640	56.80	8.35	65.15	74.00	-8.85	V	PK
15960	34.41	9.63	44.04	54.00	-9.96	V	AV

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel (5500MHz)							
11000	56.87	8.82	65.69	74.00	-8.31	H	PK
16500	37.75	9.88	47.63	54.00	-6.37	H	AV
11000	59.67	8.82	68.49	74.00	-5.51	V	PK
16500	34.33	9.88	44.21	54.00	-9.79	V	AV
Middle Channel (5600MHz)							
11200	59.16	8.92	68.08	74.00	-5.92	H	PK
16800	36.71	10.03	46.74	54.00	-7.26	H	AV
11200	56.99	8.92	65.91	74.00	-8.09	V	PK
16800	38.67	10.03	48.70	54.00	-5.30	V	AV
High Channel (5700MHz)							
11400	55.58	9.36	64.94	74.00	-9.06	H	PK
17100	36.16	10.25	46.41	54.00	-7.59	H	AV
11400	56.61	9.36	65.97	74.00	-8.03	V	PK
17100	35.52	10.25	45.77	54.00	-8.23	V	AV

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel (5745MHz)							
11490	56.12	9.45	65.57	74.00	-8.43	H	PK
17235	36.37	10.36	46.73	54.00	-7.27	H	AV
11490	56.04	9.45	65.49	74.00	-8.51	V	PK
17235	36.25	10.36	46.61	54.00	-7.39	V	AV
Middle Channel (5785MHz)							
11570	56.75	9.62	66.37	74.00	-7.63	H	PK
17355	36.74	10.67	47.41	54.00	-6.59	H	AV
11570	56.46	9.62	66.08	74.00	-7.92	V	PK
17355	35.48	10.67	46.15	54.00	-7.85	V	AV
High Channel (5825MHz)							
11650	57.01	9.84	66.85	74.00	-7.15	H	PK
17475	34.01	10.95	44.96	54.00	-9.04	H	AV
11650	56.33	9.84	66.17	74.00	-7.83	V	PK
17475	36.55	10.95	47.50	54.00	-6.50	V	AV

➢ Out of Band edge for 5150-5250MHz

Test CH.	Test Segment	Result	Limit
	MHz	dBm/MHz	dBm/MHz
Lowest	Below 5150	-36.31	-27
Highest	Above 5350	-42.87	-27
Note: the data just list the worst cases			

➢ Out of Band edge for 5250-5350MHz

Test CH.	Test Segment	Result	Limit
	MHz	dBm/MHz	dBm/MHz
Lowest	Below 5150	-34.41	-27
Highest	Above 5350	-36.83	-27
Note: the data just list the worst cases			

➢ Out of Band edge for 5470-5725MHz

Test CH.	Test Segment	Result	Limit
	MHz	dBm/MHz	dBm/MHz
Lowest	Below 5470	-37.25	-27
Highest	Above 5725	-36.58	-27
Note: the data just list the worst cases			

➢ Out of Band edge for 5725-5850MHz

Test CH.	Test Segment	Result	Limit
	MHz	dBm/MHz	dBm/MHz
Lowest	Below 5715	-37.20	-27
	5715 to 5725	-39.02	-17
Highest	5850 to 5860	-39.53	-17
	Above 5860	-42.40	-27
Note: the data just list the worst cases			

- For the frequency band 5.15-5.25GHz, 5.250-5.350GHz, 5.470-5.725GHz, 5.725-5.850GHz (802.11n HT20)
- Harmonics And Spurious Emissions

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel (5180MHz)							
10360	57.25	7.11	64.36	74.00	-9.64	H	PK
15540	38.62	8.22	46.84	54.00	-7.16	H	AV
10360	61.25	7.11	68.36	74.00	-5.64	V	PK
15540	39.07	8.22	47.29	54.00	-6.71	V	AV
Middle Channel (5200MHz)							
10400	58.64	7.22	65.86	74.00	-8.14	H	PK
15600	35.36	8.67	44.03	54.00	-9.97	H	AV
10400	57.85	7.22	65.07	74.00	-8.93	V	PK
15600	37.66	8.67	46.33	54.00	-7.67	V	AV
High Channel (5240MHz)							
10480	55.73	7.69	63.42	74.00	-10.58	H	PK
15720	38.05	8.93	46.98	54.00	-7.02	H	AV
10480	61.23	7.69	68.92	74.00	-5.08	V	PK
15720	39.23	8.93	48.16	54.00	-5.84	V	AV

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel (5260MHz)							
10520	57.23	7.96	65.19	74.00	-8.81	H	PK
15780	35.25	9.02	44.27	54.00	-9.73	H	AV
10520	60.16	7.96	68.12	74.00	-5.88	V	PK
15780	39.32	9.02	48.34	54.00	-5.66	V	AV
Middle Channel (5280MHz)							
10560	56.96	8.02	64.98	74.00	-9.02	H	PK
15840	38.51	9.42	47.93	54.00	-6.07	H	AV
10560	57.95	8.02	65.97	74.00	-8.03	V	PK
15840	36.81	9.42	46.23	54.00	-7.77	V	AV
High Channel (5320MHz)							
10640	59.12	8.35	67.47	74.00	-6.53	H	PK
15960	36.65	9.63	46.28	54.00	-7.72	H	AV
10640	57.08	8.35	65.43	74.00	-8.57	V	PK
15960	35.07	9.63	44.70	54.00	-9.30	V	AV

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel (5500MHz)							
11000	56.04	8.82	64.86	74.00	-9.14	H	PK
16500	38.50	9.88	48.38	54.00	-5.62	H	AV
11000	58.85	8.82	67.67	74.00	-6.33	V	PK
16500	34.38	9.88	44.26	54.00	-9.74	V	AV
Middle Channel (5600MHz)							
11200	59.98	8.92	68.90	74.00	-5.10	H	PK
16800	37.64	10.03	47.67	54.00	-6.33	H	AV
11200	56.15	8.92	65.07	74.00	-8.93	V	PK
16800	39.15	10.03	49.18	54.00	-4.82	V	AV
High Channel (5700MHz)							
11400	55.72	9.36	65.08	74.00	-8.92	H	PK
17100	36.96	10.25	47.21	54.00	-6.79	H	AV
11400	56.59	9.36	65.95	74.00	-8.05	V	PK
17100	34.90	10.25	45.15	54.00	-8.85	V	AV

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel (5745MHz)							
11490	56.68	9.45	66.13	74.00	-7.87	H	PK
17235	35.94	10.36	46.30	54.00	-7.70	H	AV
11490	56.63	9.45	66.08	74.00	-7.92	V	PK
17235	36.85	10.36	47.21	54.00	-6.79	V	AV
Middle Channel (5785MHz)							
11570	57.51	9.62	67.13	74.00	-6.87	H	PK
17355	36.64	10.67	47.31	54.00	-6.69	H	AV
11570	57.24	9.62	66.86	74.00	-7.14	V	PK
17355	36.43	10.67	47.10	54.00	-6.90	V	AV
High Channel (5825MHz)							
11650	56.38	9.84	66.22	74.00	-7.78	H	PK
17475	33.65	10.95	44.60	54.00	-9.40	H	AV
11650	56.66	9.84	66.50	74.00	-7.50	V	PK
17475	37.14	10.95	48.09	54.00	-5.91	V	AV

➢ Out of Band edge 5150-5250MHz

Test CH.	Test Segment	Result	Limit
	MHz	dBm/MHz	dBm/MHz
Lowest	Below 5150	-32.50	-27
Highest	Above 5350	-37.96	-27
Note: the data just list the worst cases			

➢ Out of Band edge for 5250-5350MHz

Test CH.	Test Segment	Result	Limit
	MHz	dBm/MHz	dBm/MHz
Lowest	Below 5150	-37.45	-27
Highest	Above 5350	-36.37	-27
Note: the data just list the worst cases			

➢ Out of Band edge for 5470-5725MHz

Test CH.	Test Segment	Result	Limit
	MHz	dBm/MHz	dBm/MHz
Lowest	Below 5470	-37.78	-27
Highest	Above 5725	-36.33	-27
Note: the data just list the worst cases			

➢ Out of Band edge for 5725-5850MHz

Test CH.	Test Segment	Result	Limit
	MHz	dBm/MHz	dBm/MHz
Lowest	Below 5715	-45.95	-27
	5715 to 5725	-33.95	-17
Highest	5850 to 5860	-34.23	-17
	Above 5860	-41.56	-27
Note: the data just list the worst cases			

Note: this EUT was tested in the low, high channel and the worst case position data was reported.

- For the frequency band 5.15-5.25GHz, 5.250-5.350GHz, 5.470-5.725GHz, 5.725-5.850GHz (802.11n HT40)
- Harmonics And Spurious Emissions

Frequency (MHz)	Reading (dBuV/m)	Correct dB	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Polar H/V	Detector
Low Channel (5190MHz)							
10380	58.74	7.25	65.99	74.00	-8.01	H	PK
15570	38.71	8.33	47.04	54.00	-6.96	H	AV
10380	60.65	7.25	67.90	74.00	-6.10	H	PK
15570	39.03	8.33	47.36	54.00	-6.64	H	AV
High Channel (5230MHz)							
10460	56.31	7.54	63.85	74.00	-10.15	H	PK
15690	39.24	8.86	48.10	54.00	-5.90	H	AV
10460	59.70	7.54	67.24	74.00	-6.76	H	PK
15690	37.72	8.86	46.58	54.00	-7.42	H	AV

Frequency (MHz)	Reading (dBuV/m)	Correct dB	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Polar H/V	Detector
Low Channel (5270MHz)							
10540	56.08	8.12	64.20	74.00	-9.80	H	PK
15810	36.63	9.24	45.87	54.00	-8.13	H	AV
10540	60.81	8.12	68.93	74.00	-5.07	H	PK
15810	38.92	9.24	48.16	54.00	-5.84	H	AV
High Channel (5310MHz)							
10620	58.63	8.30	66.93	74.00	-7.07	H	PK
15930	35.95	9.45	45.40	54.00	-8.60	H	AV
10620	57.45	8.30	65.75	74.00	-8.25	H	PK
15930	33.48	9.45	42.93	54.00	-11.07	H	AV

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel (5510MHz)							
11020	55.98	8.95	64.93	74.00	-9.07	H	PK
16530	36.15	9.99	46.14	54.00	-7.86	H	AV
11020	57.04	8.95	65.99	74.00	-8.01	H	PK
16530	35.37	9.99	45.36	54.00	-8.64	H	AV
Middle Channel (5590MHz)							
11180	60.59	9.12	69.71	74.00	-4.29	H	PK
16770	36.06	10.12	46.18	54.00	-7.82	H	AV
11180	56.57	9.12	65.69	74.00	-8.31	H	PK
16770	39.79	10.12	49.91	54.00	-4.09	H	AV
High Channel (5670MHz)							
11340	55.65	9.39	65.04	74.00	-8.96	H	PK
17010	35.89	10.22	46.11	54.00	-7.89	H	AV
11340	55.84	9.39	65.23	74.00	-8.77	H	PK
17010	35.75	10.22	45.97	54.00	-8.03	H	AV

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel (5755MHz)							
11510	56.11	9.65	65.76	74.00	-8.24	H	PK
17265	35.45	10.87	46.32	54.00	-7.68	H	AV
11510	57.49	9.65	67.14	74.00	-6.86	V	PK
17265	35.49	10.87	46.36	54.00	-7.64	V	AV
High Channel (5795MHz)							
11590	57.01	9.81	66.82	74.00	-7.18	H	PK
17385	32.41	10.89	43.30	54.00	-10.70	H	AV
11590	57.61	9.81	67.42	74.00	-6.58	V	PK
17385	37.97	10.89	48.86	54.00	-5.14	V	AV

➢ Out of Band edge for 5150-5250MHz

Test CH.	Test Segment	Result	Limit
	MHz	dBm/MHz	dBm/MHz
Lowest	Below 5150	-37.29	-27
Highest	Above 5350	-41.02	-27
Note: the data just list the worst cases			

➢ Out of Band edge for 5250-5350MHz

Test CH.	Test Segment	Result	Limit
	MHz	dBm/MHz	dBm/MHz
Lowest	Below 5150	-37.66	-27
Highest	Above 5350	-39.27	-27
Note: the data just list the worst cases			

➢ Out of Band edge for 5470-5725MHz

Test CH.	Test Segment	Result	Limit
	MHz	dBm/MHz	dBm/MHz
Lowest	Below 5470	-38.08	-27
Highest	Above 5725	-40.57	-27
Note: the data just list the worst cases			

➢ Out of Band edge for 5725-5850MHz

Test CH.	Test Segment	Result	Limit
	MHz	dBm/MHz	dBm/MHz
Lowest	Below 5715	-41.64	-27
	5715 to 5725	-40.63	-17
Highest	5850 to 5860	-42.52	-17
	Above 5860	-40.44	-27
Note: the data just list the worst cases			

- For the frequency band 5.15-5.25GHz, 5.250-5.350GHz, 5.470-5.725GHz, 5.725-5.850GHz (802.11ac VH80)
- Harmonics And Spurious Emissions

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB	(dBuV/m)	(dBuV/m)	(dB)	H/V	
5210MHz							
10420	58.93	7.33	66.26	74.00	-7.74	H	PK
15630	35.55	8.75	44.30	54.00	-9.70	H	AV
10420	58.57	7.33	65.90	74.00	-8.10	V	PK
15630	37.57	8.75	46.32	54.00	-7.68	V	AV

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB	(dBuV/m)	(dBuV/m)	(dB)	H/V	
5290MHz							
10580	56.45	8.15	64.60	74.00	-9.40	H	PK
15870	37.23	9.49	46.72	54.00	-7.28	H	AV
10580	58.81	8.15	66.96	74.00	-7.04	V	PK
15870	35.64	9.49	45.13	54.00	-8.87	V	AV

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel (5530MHz)							
11060	56.04	8.96	65.00	74.00	-9.00	H	PK
16590	36.68	10.03	46.71	54.00	-7.29	H	AV
11060	58.00	8.96	66.96	74.00	-7.04	V	PK
16590	34.43	10.03	44.46	54.00	-9.54	V	AV
High Channel (5610MHz)							
11220	60.53	9.04	69.57	74.00	-4.43	H	PK
16830	36.63	10.35	46.98	54.00	-7.02	H	AV
11220	56.03	9.04	65.07	74.00	-8.93	V	PK
16830	39.46	10.35	49.81	54.00	-4.19	V	AV

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB	(dBuV/m)	(dBuV/m)	(dB)	H/V	
5775MHz							
11550	57.32	9.54	66.86	74.00	-7.14	H	PK
17325	37.78	10.59	48.37	54.00	-5.63	H	AV
11550	58.07	9.54	67.61	74.00	-6.39	V	PK
17325	34.06	10.59	44.65	54.00	-9.35	V	AV

➢ Out of Band edge for 5150-5250MHz

Test CH.	Test Segment	Result	Limit
	MHz	dBm/MHz	dBm/MHz
Lowest	Below 5150	-33.53	-27
Highest	Above 5350	-32.20	-27
Note: the data just list the worst cases			

➢ Out of Band edge for 5250-5350MHz

Test CH.	Test Segment	Result	Limit
	MHz	dBm/MHz	dBm/MHz
Lowest	Below 5150	-36.66	-27
Highest	Above 5350	-35.60	-27
Note: the data just list the worst cases			

➢ Out of Band edge for 5470-5725MHz

Test CH.	Test Segment	Result	Limit
	MHz	dBm/MHz	dBm/MHz
Lowest	Below 5470	-41.31	-27
Highest	Above 5725	-36.00	-27
Note: the data just list the worst cases			

➢ Out of Band edge for 5725-5850MHz

Test CH.	Test Segment	Result	Limit
	MHz	dBm/MHz	dBm/MHz
Lowest	Below 5715	-43.11	-27
	5715 to 5725	-30.29	-17
Highest	5850 to 5860	-31.05	-17
	Above 5860	-40.36	-27
Note: the data just list the worst cases			

Note: Testing is carried out with frequency rang 9kHz to the tenth harmonics, other than listed in the table above are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

10. Frequency Stability

10.1 Standard Applicable

According to §15.407(g), manufacturers 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 in the users manual.

10.2 Test Procedure

According to §2.1055, the following test procedure was performed.
The Frequency Stability is measured directly with a Frequency Domain Analyzer. Frequency Deviation in ppm is calculated from the measured peak to peak value.
The Carrier Frequency Stability over Power Supply Voltage and over Temperature is measured with a Frequency Domain Analyzer in histogram mode.

10.3 Summary of Test Results/Plots

U-NII-1:5150-5250MHz worst case at 802.11a middle channel				
Voltage(%)	Power(VDC)	TEMP(℃)	Freq.Dev(Hz)	Deviation
100%	19	-30	123	0.0237
100%		-20	135	0.0260
100%		-10	147	0.0283
100%		0	138	0.0266
100%		+10	137	0.0264
100%		+20	165	0.0316
100%		+30	104	0.0200
100%		+40	164	0.0316
100%		+50	98	0.0188
Low Battery power	17	+20	170	0.0327
High Battery power	21	+20	152	0.0292

U-NII-1: 5250-5350MHz worst case at 802.11a middle channel				
Voltage(%)	Power(VDC)	TEMP(℃)	Freq.Dev(Hz)	Deviation
100%	19	-30	100	0.0189
100%		-20	133	0.0252
100%		-10	151	0.0286
100%		0	142	0.0270
100%		+10	128	0.0243
100%		+20	157	0.0297
100%		+30	111	0.0210
100%		+40	165	0.0312
100%		+50	94	0.0178
Low Battery power	17	+20	165	0.0313
High Battery power	21	+20	156	0.0295

U-NII-1: 5470-5725MHz worst case at 802.11a middle channel				
Voltage(%)	Power(VDC)	TEMP(℃)	Freq.Dev(Hz)	Deviation
100%	19	-30	99	0.0177
100%		-20	133	0.0237
100%		-10	152	0.0272
100%		0	140	0.0250
100%		+10	130	0.0232
100%		+20	156	0.0278
100%		+30	111	0.0198
100%		+40	167	0.0298
100%		+50	94	0.0168
Low Battery power	17	+20	164	0.0294
High Battery power	21	+20	155	0.0276

U-NII-1:5725-5850MHz worst case at 802.11a middle channel				
Voltage(%)	Power(VDC)	TEMP(℃)	Freq.Dev(Hz)	Deviation
100%	19	-30	100	0.0174
100%		-20	134	0.0231
100%		-10	151	0.0261
100%		0	141	0.0243
100%		+10	128	0.0222
100%		+20	158	0.0274
100%		+30	109	0.0189
100%		+40	167	0.0289
100%		+50	94	0.0162
Low Battery power	17	+20	163	0.0282
High Battery power	21	+20	156	0.0270

******* END OF REPORT *******