FCC Part 15E
Measurement and Test Report

For

Intracom Asia. Co., Ltd.

4F., No. 77, Sec. 1, Xintai 5th Rd., Xizhi Dist., New Taipei City 221, Taiwan

FCC ID: 2ADQY-525824

FCC Rule(s):	FCC Part 15E
Product Description:	High-Power Wireless AC600 Outdoor Access Point / Repeater
Tested Model:	525824
Report No.:	STR16018037I-2
Tested Date:	2016-01-07 to 2016-01-20
Issued Date:	2018-06-09
Tested By:	Jong Wang / 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

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History of this report		
Version	**Description**	**Date**
1.0	First Edition	2016-01-20
Rev1	Second Edition	2016-01-28
Rev2	Third Edition	2016-02-18
Rev3	Fourth Edition	2016-02-24
Rev4	Fifth Edition	2018-06-09

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	Intracom Asia. Co., Ltd.
Address of applicant:	4F., No. 77, Sec. 1, Xintai 5th Rd., Xizhi Dist., New Taipei City 221, Taiwan
Manufacturer:	Intracom Asia. Co., Ltd.
Address of manufacturer:	4F., No. 77, Sec. 1, Xintai 5th Rd., Xizhi Dist., New Taipei City 221, Taiwan

General Description of EUT	
Product Name:	High-Power Wireless AC600 Outdoor Access Point / Repeater
Trade Name:	Intellinet
Model No.:	525824
Adding Model(s):	/
Rated Voltage:	DC 24V Adapter
Power Adapter Model:	TDX-2400500 I/P: 100~240VAC; O/P: DC 24V/0.5A
Note: The test data is gathered from a production sample provided by the manufacturer.	

Technical Characteristics of EUT	
Wi-Fi(5G/5.8G)	
Support Standards:	802.11a, 802.11n(HT20), 802.11n(HT40), 802.11ac(HT80)
Frequency Range:	5180-5240MHz, 5745-5825MHz
RF Output Power:	15.64dBm (Conducted)
Type of Modulation:	OFDM, 64-QAM,16-QAM, QPSK, BPSK, 256-QAM
Data Rate:	6-54Mbps, up to 600Mbps
Channel Separation:	20/40/80MHz
Type of Antenna:	SMA-reverse Antenna
Antenna Gain:	7dBi
Lowest Internal Frequency	40MHz

1.2 Test Standards

The following report is prepared on behalf of the Intracom Asia. Co., Ltd. in accordance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209 and 15.407 of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209 and 15.407 of the Federal Communication Commissions rules.

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 C63.4-2014, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz. The measurement guide KDB 789033 D02 v01 for Unlicensed National Information Infrastructure (U-NII) Devices and KDB 662911 D01 Multiple Transmitter Output v02r01 shall be performed also.

1.4 Table for parameters of Test Software setting

The test utility software used during testing was “RPTA1-71W.M4300.01.GD.2015Sep1”. 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	19	19	19	/	/	/	/	/	/	/	15	15	15
802.11n-HT20 MCS0	19	19	19	/	/	/	/	/	/	/	15	15	15
Mode	NCB: 40MHz												
	5190	5230	5270	5310	5510	5550	5670	5710	5755	5795			
802.11n-HT40 MCS0	19	19	/	/	/	/	/	/	15	15			
Mode	NCB: 80MHz												
	5210		5290		5530		5610		5690		5775		
802.11ac-HT80 MCS0/Nss2	19		/		/		/		/		15		

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 WIN XP were executed.

1.6 Test Facility

FCC – Registration No.: 934118

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 maintained in our files and the Registration is 934118.

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.

CNAS Registration No.: L4062

Shenzhen SEM.Test Technology Co., Ltd. is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L4062. All measurement facilities used to collect the measurement data are located at 1/F, Building A, Hongwei Industrial Park, Liuxian 2nd Road, Bao'an District, Shenzhen, P.R.C (518101).

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, 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, 5745MHz,5785MHz,5825MHz
TM2	802.11n-HT20	5180MHz,5200MHz,5240MHz, 5745MHz,5785MHz,5825MHz
TM3	802.11n-HT40	5190MHz,5230MHz, 5755MHz,5795MHz
TM4	802.11ac-HT80	5210MHz, 5775MHz

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Core
DC Cable	1.0	Unshielded	Without Ferrite
RJ45 Cable	1.0	Unshielded	Without Ferrite

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

Auxiliary Equipment List and Details			
Description	Manufacturer	Model	Serial Number
Notebook	Lenovo	E10	LR-63C8R

1.8 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal Date	Due Date
Spectrum Analyzer	Agilent	E4407B	MY41440400	2015-06-17	2016-06-16
Spectrum Analyzer	Rohde & Schwarz	FSP	836079/035	2015-06-17	2016-06-16
EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2015-06-17	2016-06-16
Amplifier	Agilent	8447F	3113A06717	2015-06-17	2016-06-16
Amplifier	C&D	PAP-1G18	2002	2015-06-17	2016-06-16
Broadband Antenna	Schwarz beck	VULB9163	9163-333	2015-06-17	2016-06-16
Horn Antenna	ETS	3117	00086197	2015-06-17	2016-06-16
Horn Antenna	ETS	3116B	00088203	2015-06-17	2016-06-16
Loop Antenna	Schwarz beck	FMZB 1516	9773	2015-06-17	2016-06-16
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2015-06-17	2016-06-16
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2015-06-17	2016-06-16
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2015-06-17	2016-06-16

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)	Conducted Spurious 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)	N/A

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 RF Exposure 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 a SMA-reverse antenna, fulfill the requirement of this section.

5. Power Spectral Density

5.1 Standard Applicable

Section 15.407(a) Power limits:

(1) For the band 5.15-5.25 GHz.
(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 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. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(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.

5.2 Test Procedure

According to 789033 D02 v01 section F, 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 500 KHz 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.

5.3 Environmental Conditions

Temperature:	20° C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

5.4 Summary of Test Results/Plots

5150-5250MHz

Operating mode	Test Channel	Power Spectral Density dBm/MHz	Limit * (dBm/MHz)
802.11a	5180	15.134	16
	5200	15.502	16
	5240	15.531	16
802.11n-HT20	5180	15.225	16
	5200	15.231	16
	5240	15.062	16
802.11n-HT40	5190	12.785	16
	5230	13.112	16
802.11ac-HT80	5210	9.705	16

5725-5850MHz

Operating mode	Test Channel	Power Spectral Density dBm/500kHz	Limit * dBm/500kHz
802.11a	5745	11.872	29
	5785	11.625	29
	5825	10.348	29
802.11n-HT20	5745	11.977	29
	5785	11.248	29
	5825	10.871	29
802.11n-HT40	5755	8.563	29
	5795	8.438	29
802.11ac-HT80	5775	5.303	29

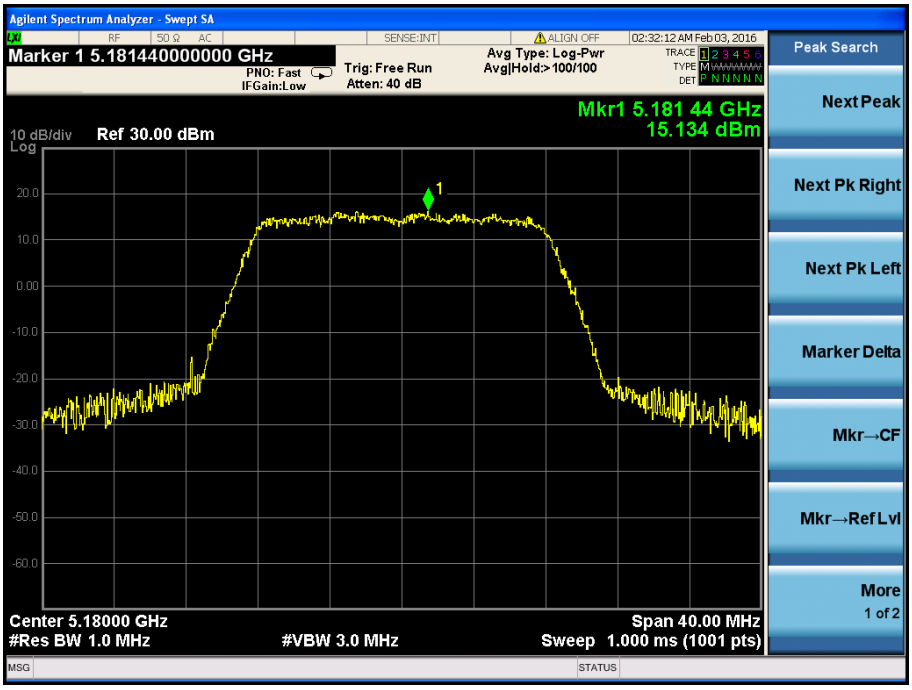
*For 5150-5250MHz: Limit=17-(7-6)=16dBm/MHz

For 5725-5850MHz: Limit=30-(7-6)=29dBm/500kHz

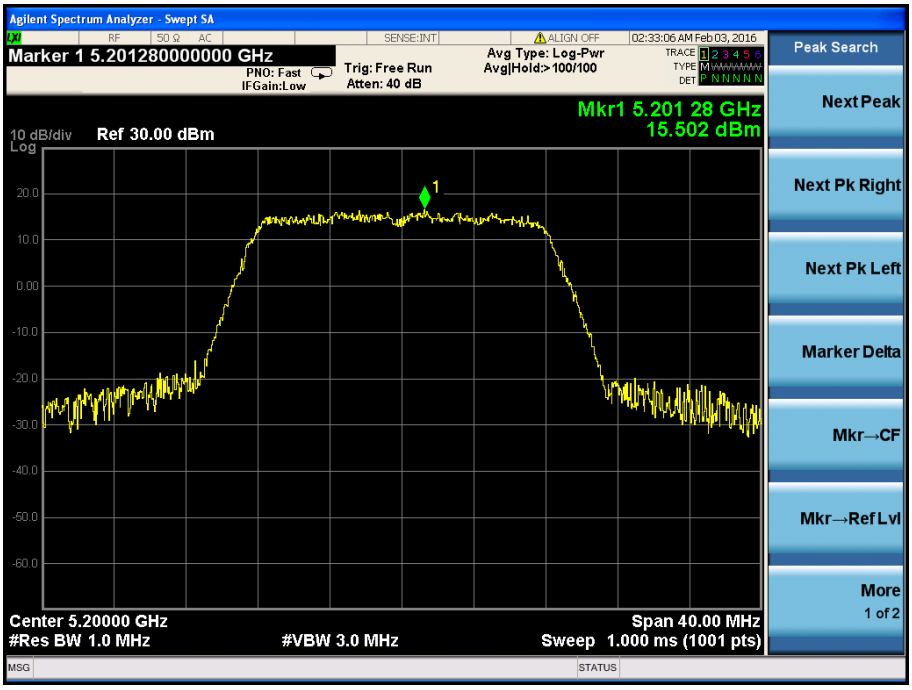
Note: If measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10log(500kHz/RBW) to the measured result, whereas RBW (< 500 KHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.

Test Mode: 802.11a

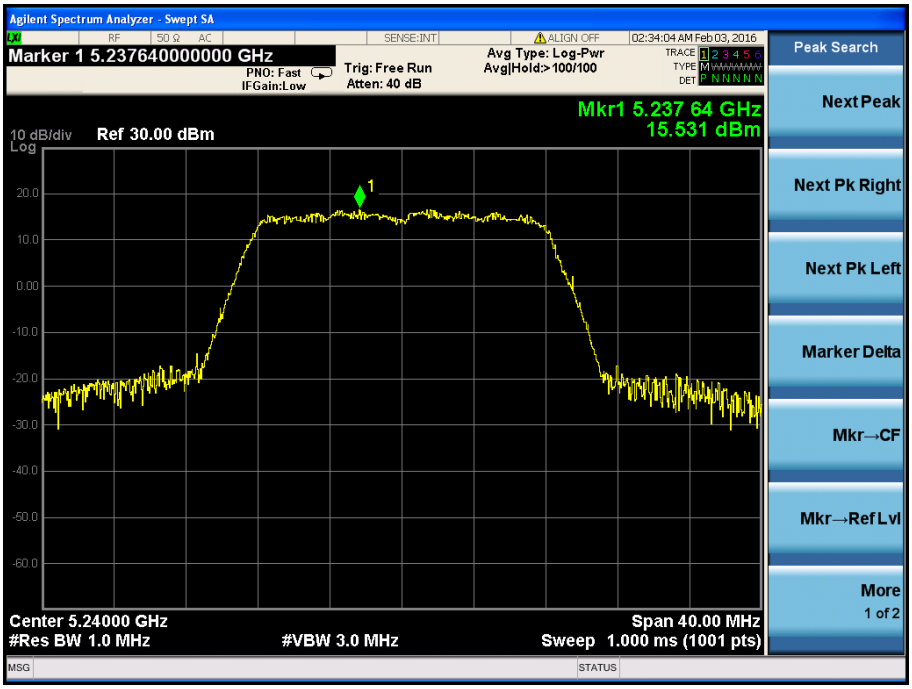
5180MHz



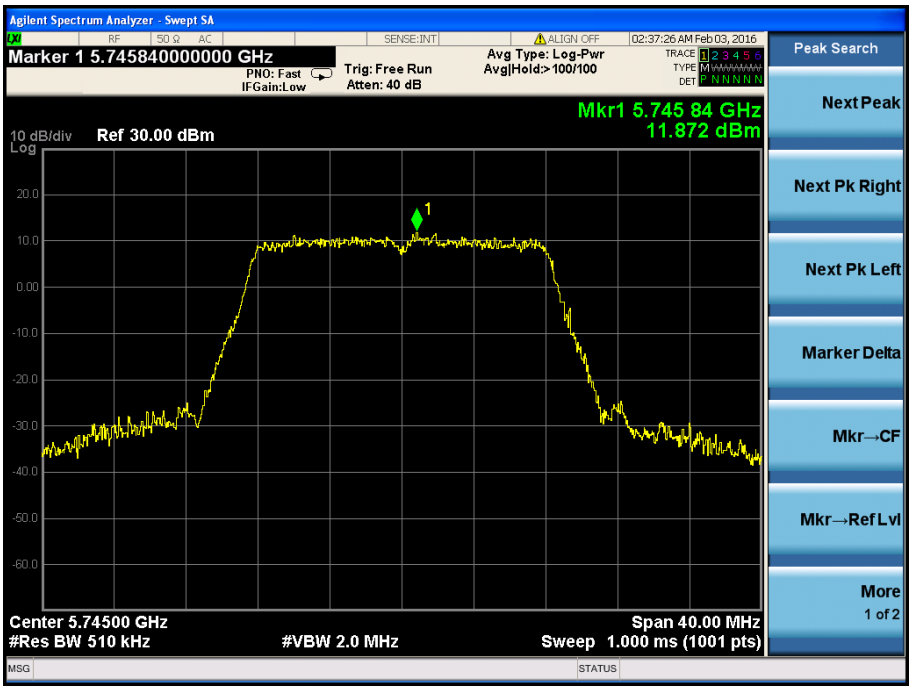
5200MHz



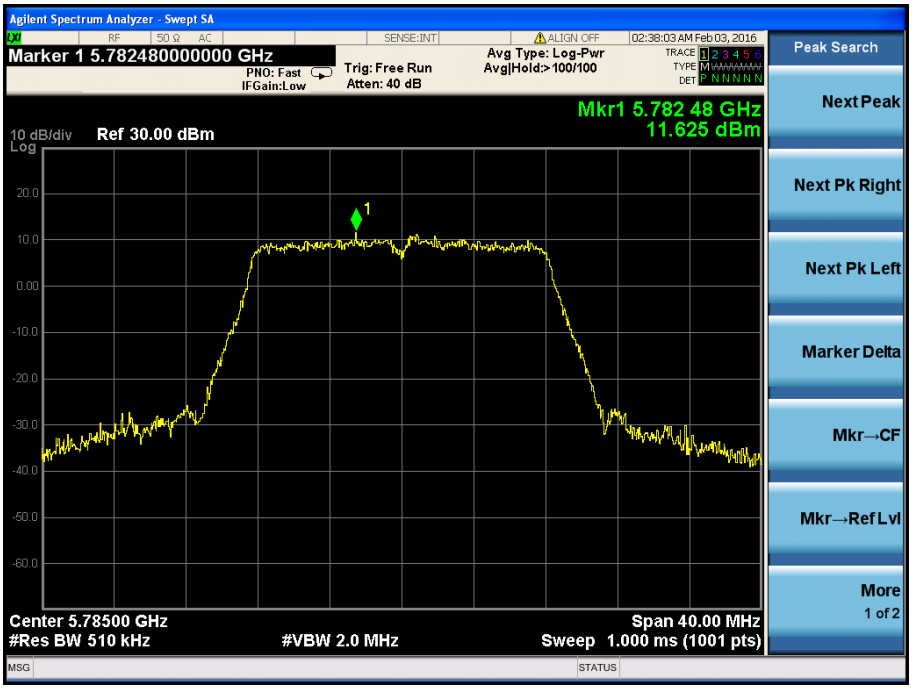
5240MHz



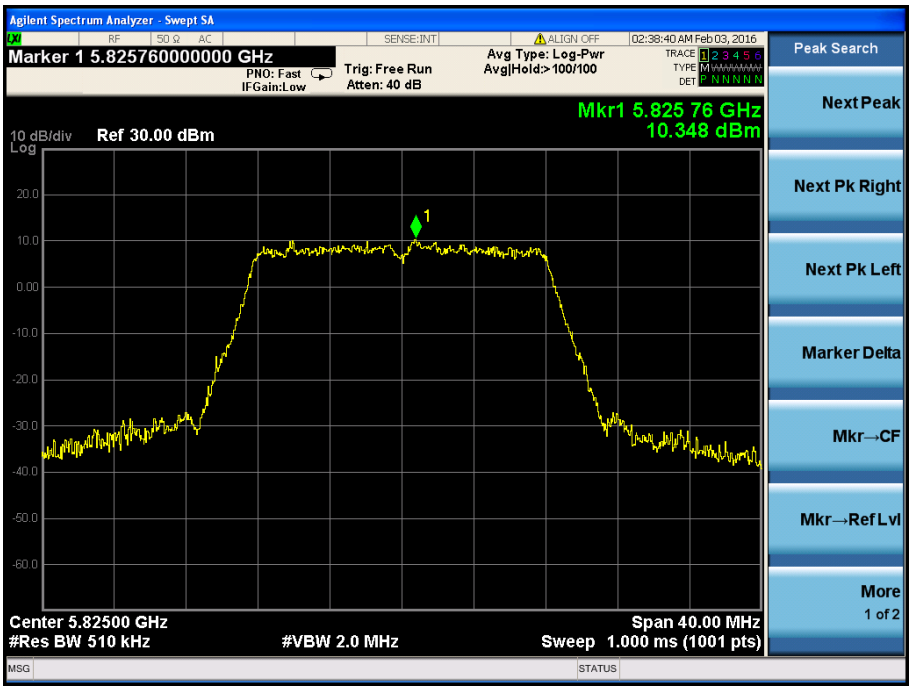
5745MHz



5785MHz

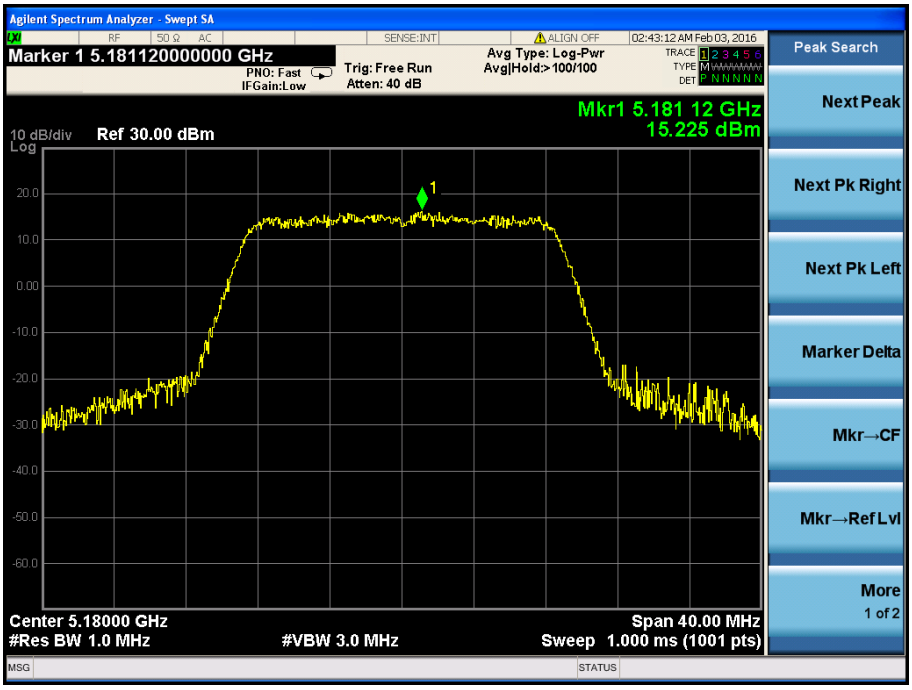


5825MHz

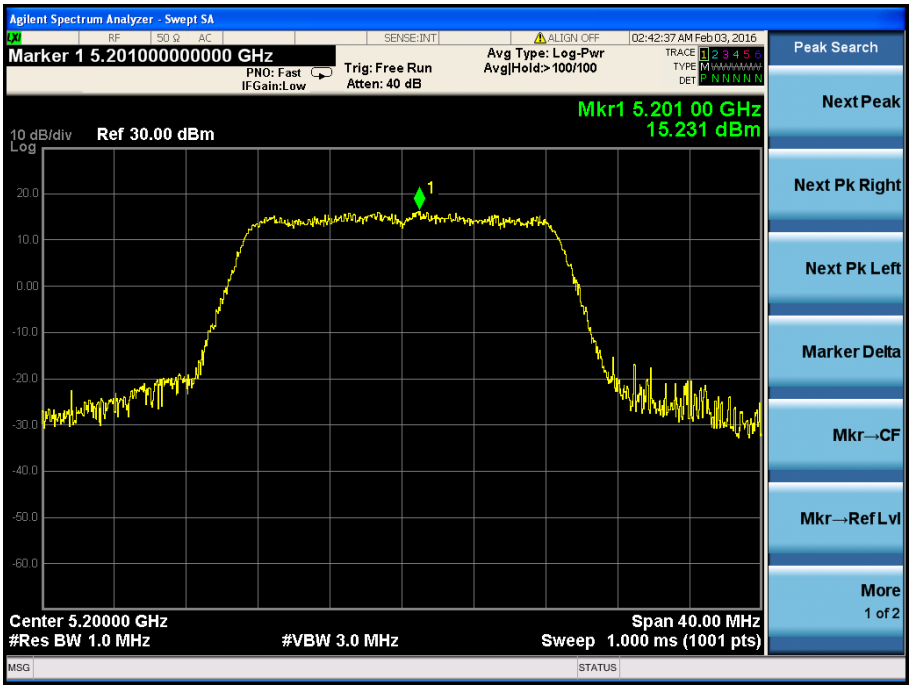


Test Mode: 802.11n-HT20

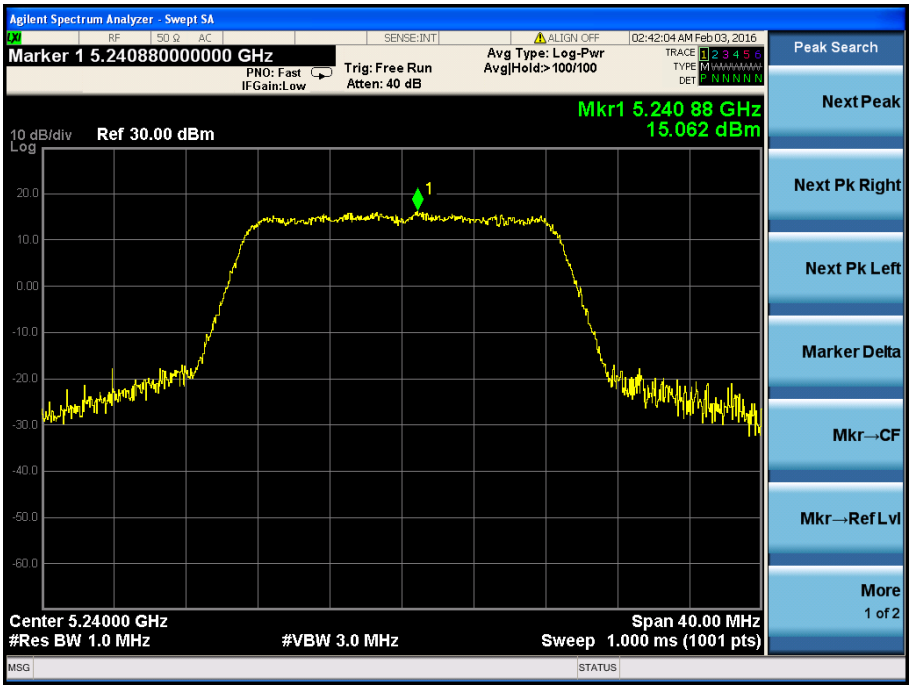
5180MHz



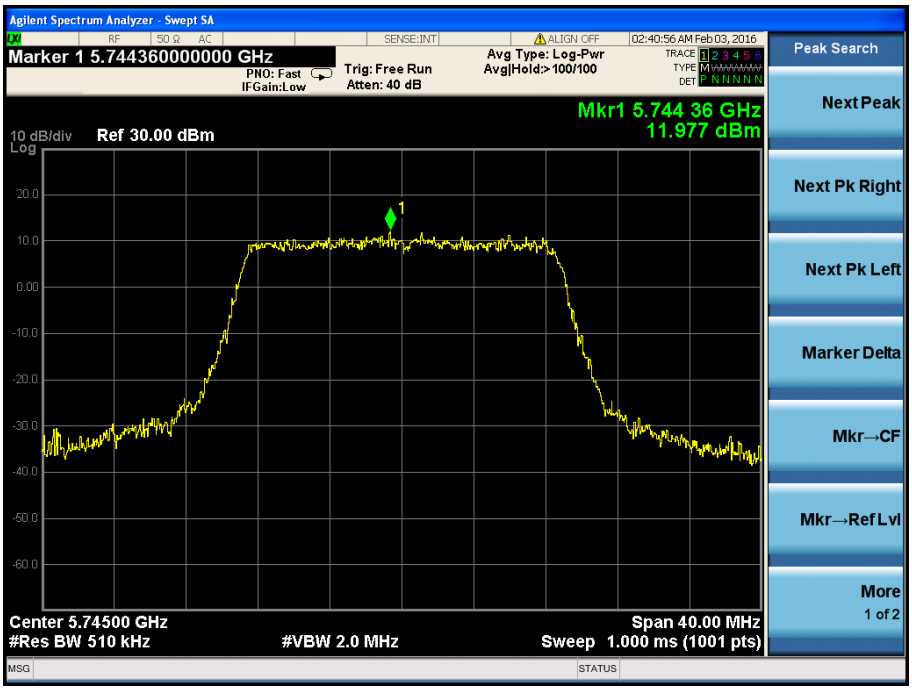
5200MHz



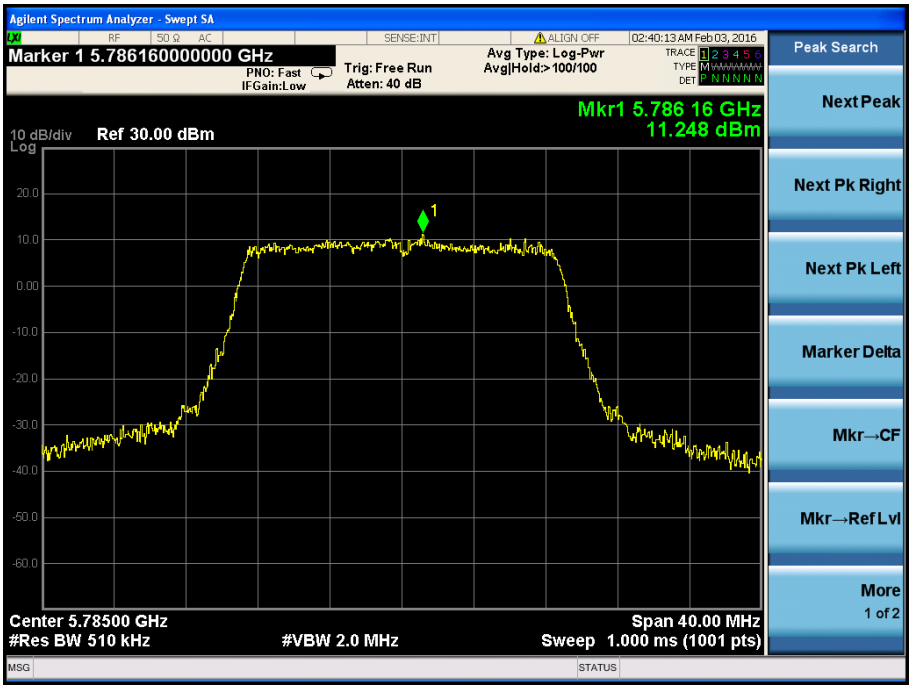
5240MHz



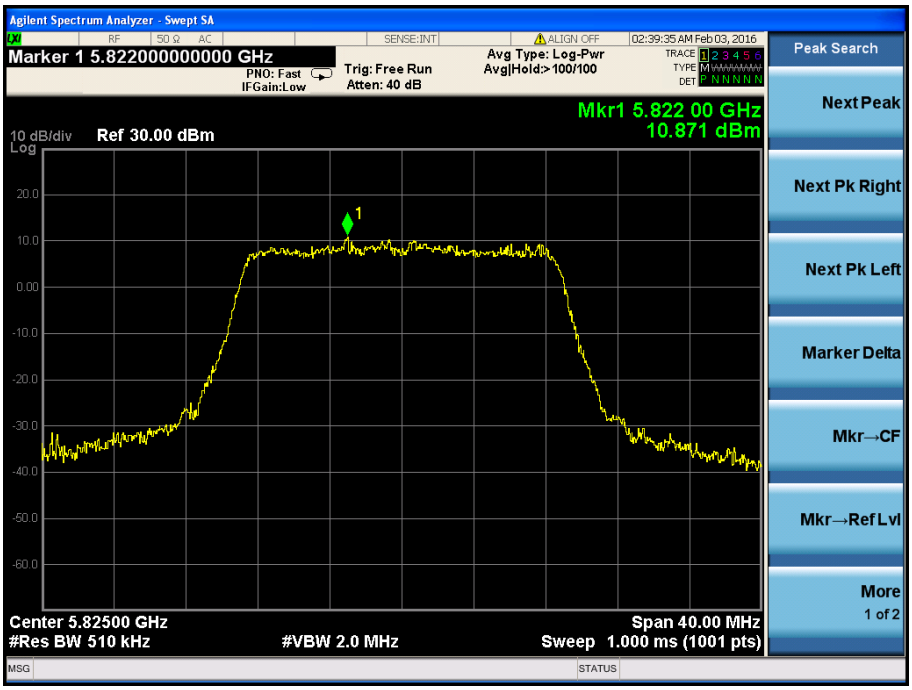
5745MHz



5785MHz

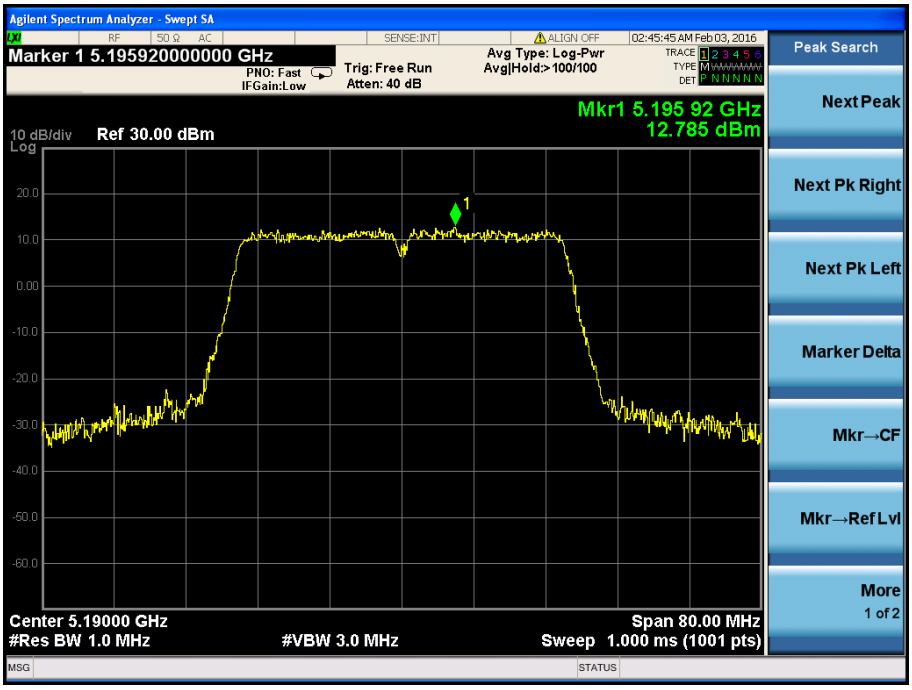


5825MHz



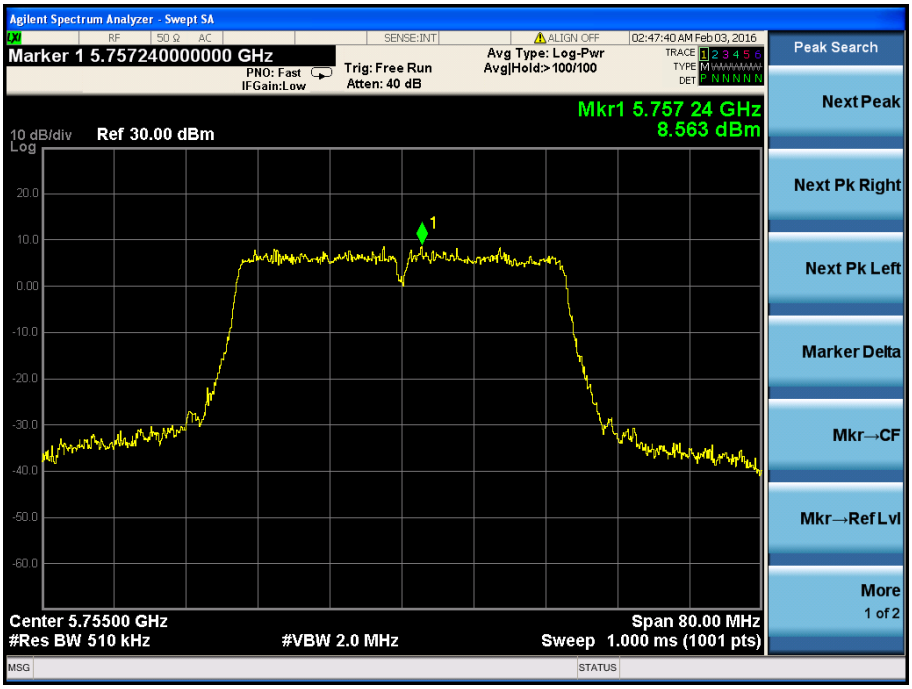
Test Mode: 802.11n-HT40

5190MHz

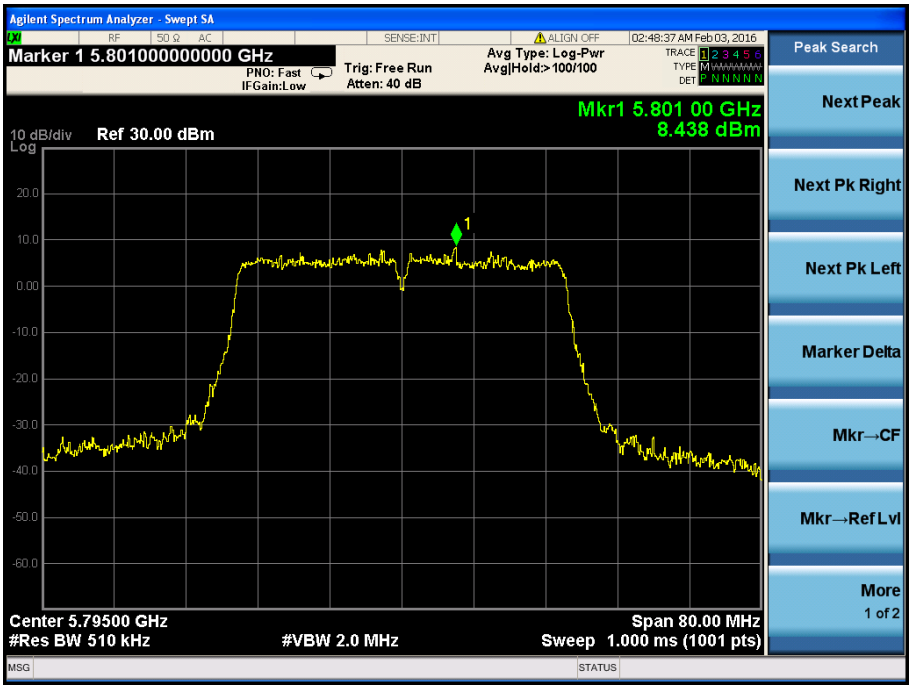


5230MHz

5755MHz

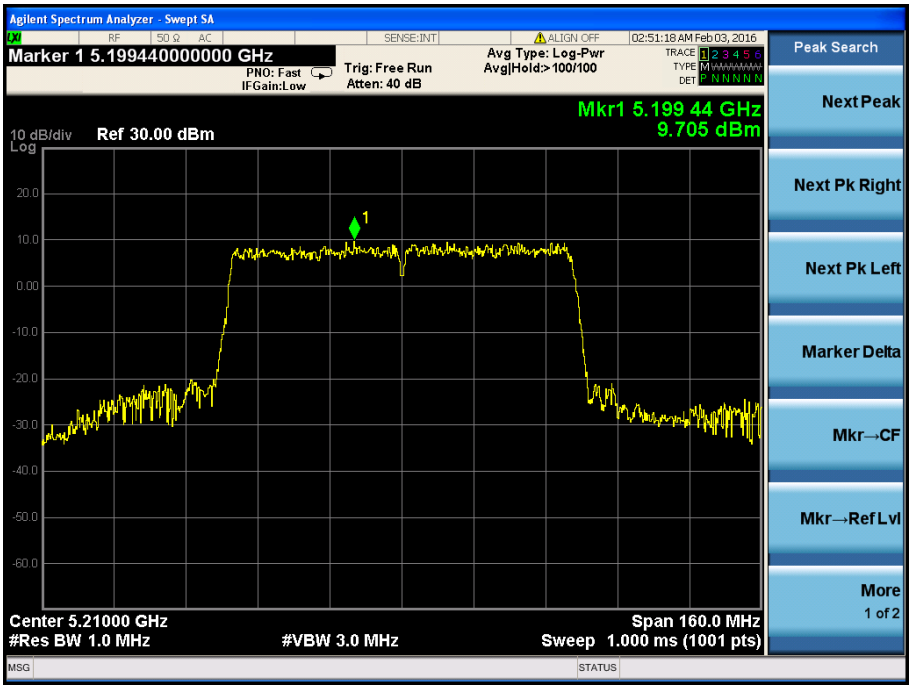


5795MHz

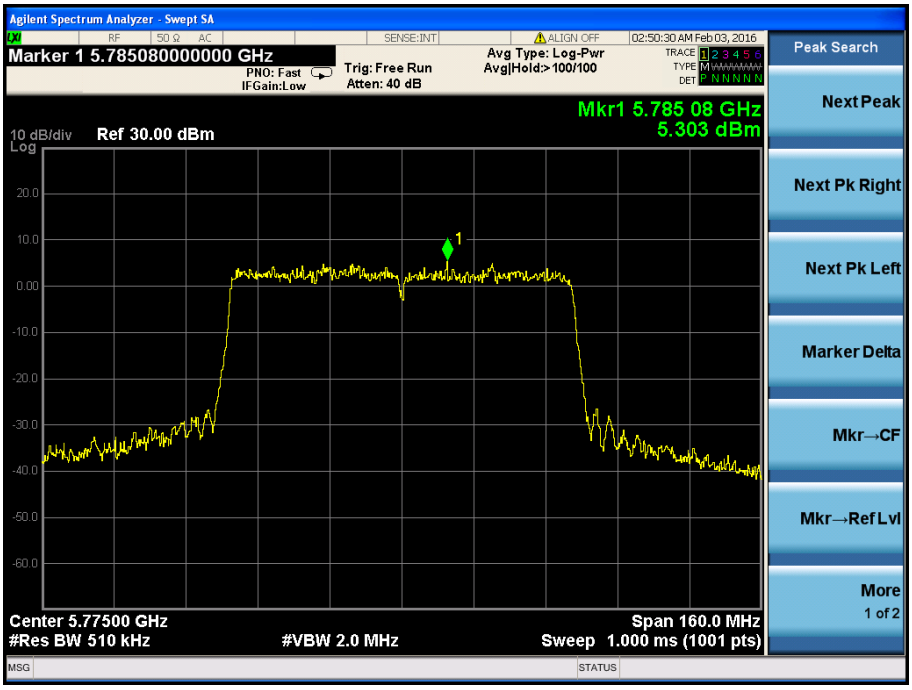


Test Mode: 802.11ac-HT80

5210MHz



5775MHz



6. Emission Bandwidth and Occupied Bandwidth

6.1 Standard Applicable

According to 15.407 (a) and (e)

(1) For the band 5.15-5.25 GHz.
(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 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. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(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.

6.2 Test Procedure

According to 789033 D02 v01 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 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.

6.3 Environmental Conditions

Temperature:	24° C
Relative Humidity:	53%
ATM Pressure:	1018 mbar

6.4 Summary of Test Results/Plots

5150-5250MHz

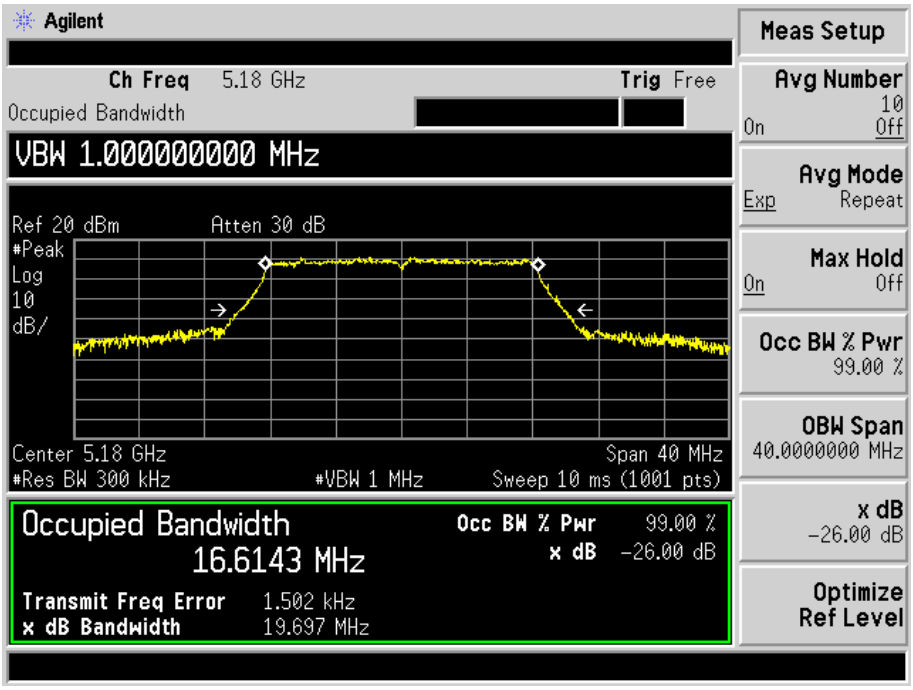
Test Mode	Test Channel MHz	26 dB Bandwidth MHz	99% Bandwidth MHz	Result
802.11a	5180	19.697	16.6143	Pass
	5200	19.733	16.6351	Pass
	5240	19.781	16.6290	Pass
802.11n-HT20	5180	20.033	17.5849	Pass
	5200	20.226	17.5853	Pass
	5240	20.158	17.5927	Pass
802.11n-HT40	5190	41.861	36.6333	Pass
	5230	41.972	36.6010	Pass
802.11ac-HT80	5210	81.701	75.5813	Pass

5725-5850MHz

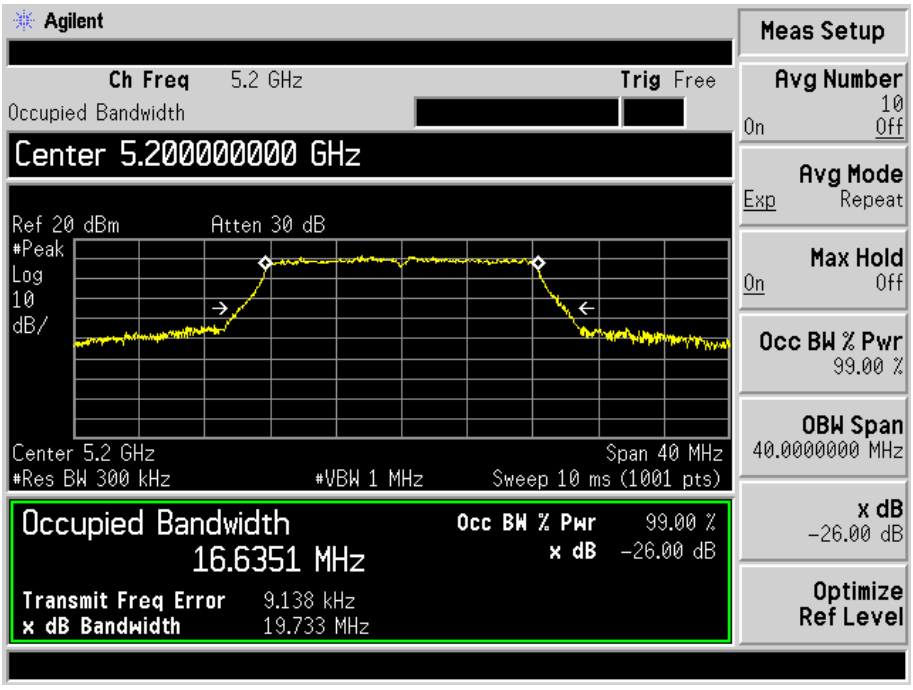
Test Mode	Test Channel MHz	26 dB Bandwidth MHz	6 dB Bandwidth MHz	99% Bandwidth MHz	Limit kHz
802.11a	5745	19.824	16.410	16.6476	≥500
	5785	19.982	16.406	16.6259	≥500
	5825	19.796	16.458	16.6344	≥500
802.11n-HT20	5745	20.052	17.613	17.6033	≥500
	5785	19.852	17.374	17.5834	≥500
	5825	20.084	17.451	17.5790	≥500
802.11n-HT40	5755	41.644	36.128	36.6027	≥500
	5795	41.620	36.382	36.5671	≥500
802.11ac-HT80	5775	81.628	75.627	75.5715	≥500

Test mode：802.11a

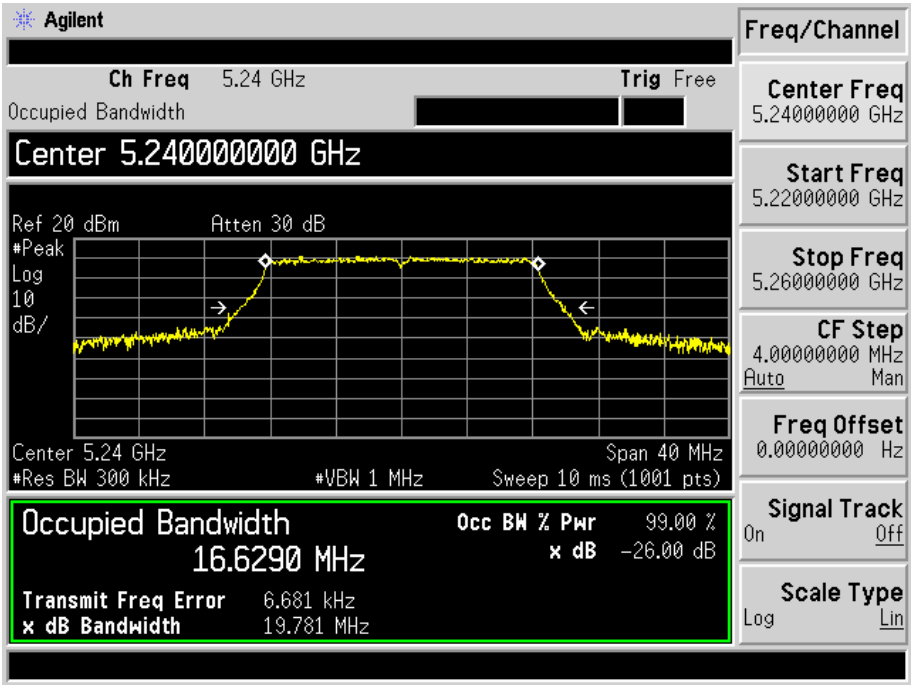
5180MHz



5200MHz

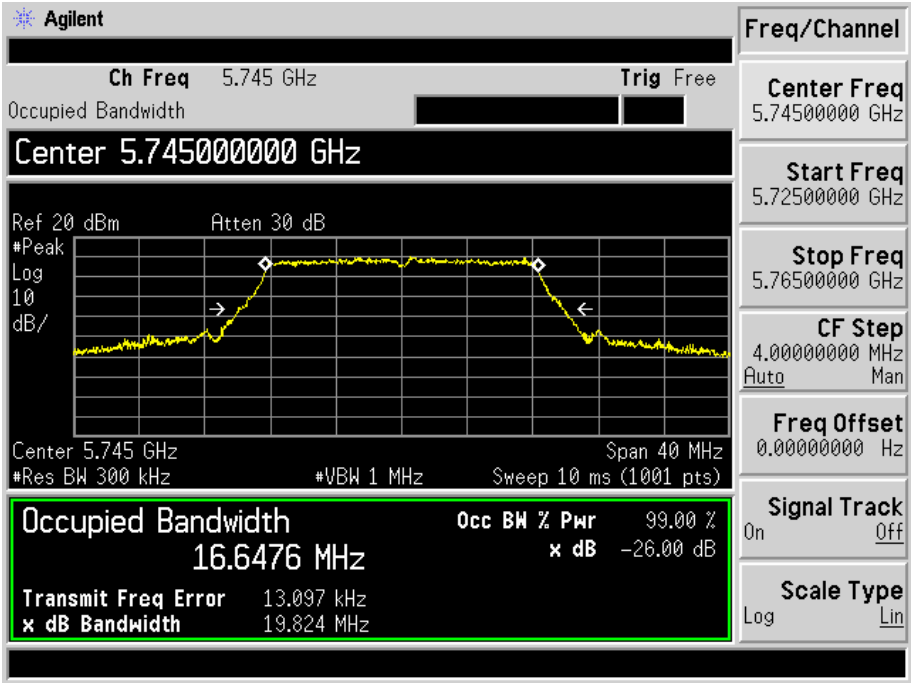


5240MHz

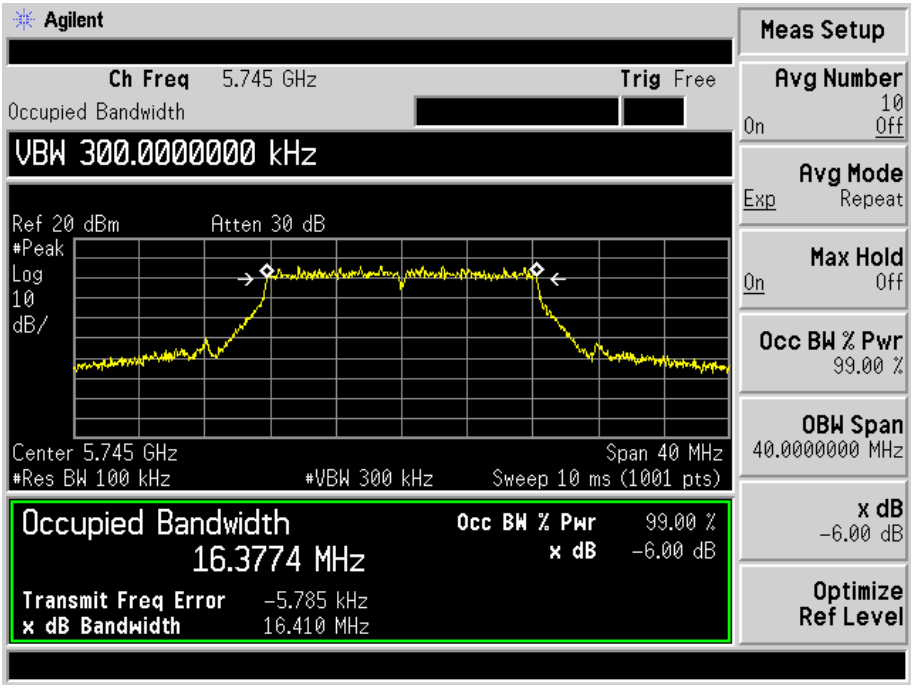


5745MHz

26dB and 99% bandwidth

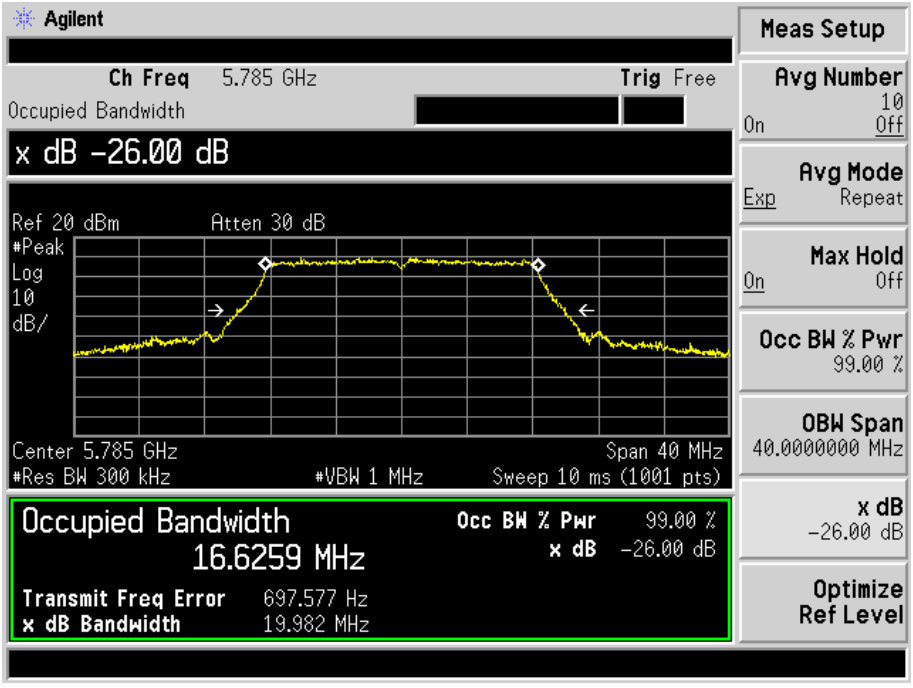


6dB bandwidht

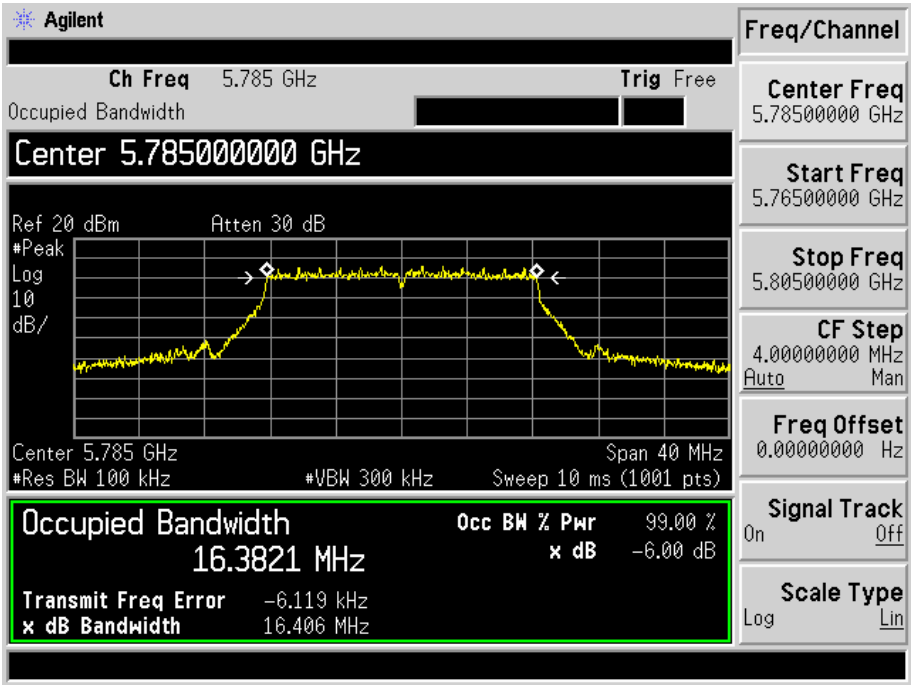


5785MHz

26dB and 99% bandwidth

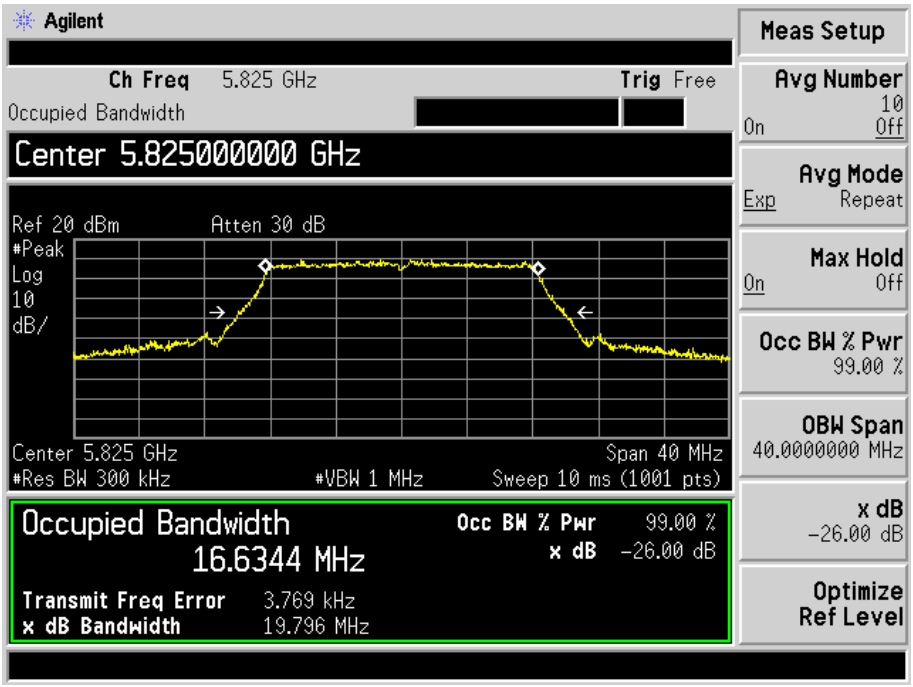


6dB bandwidht

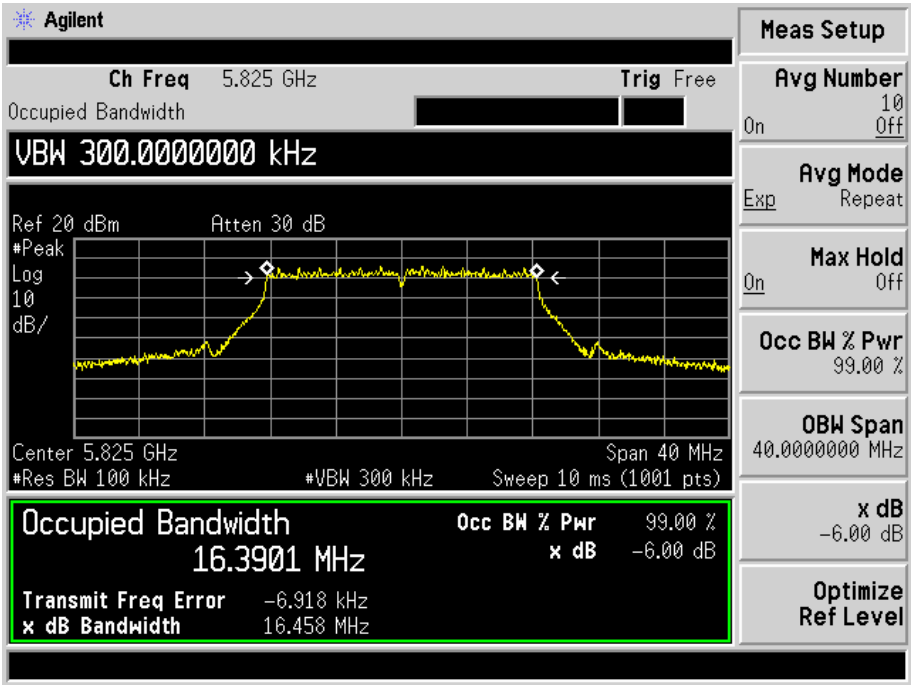


5825MHz

26dB and 99% bandwidth

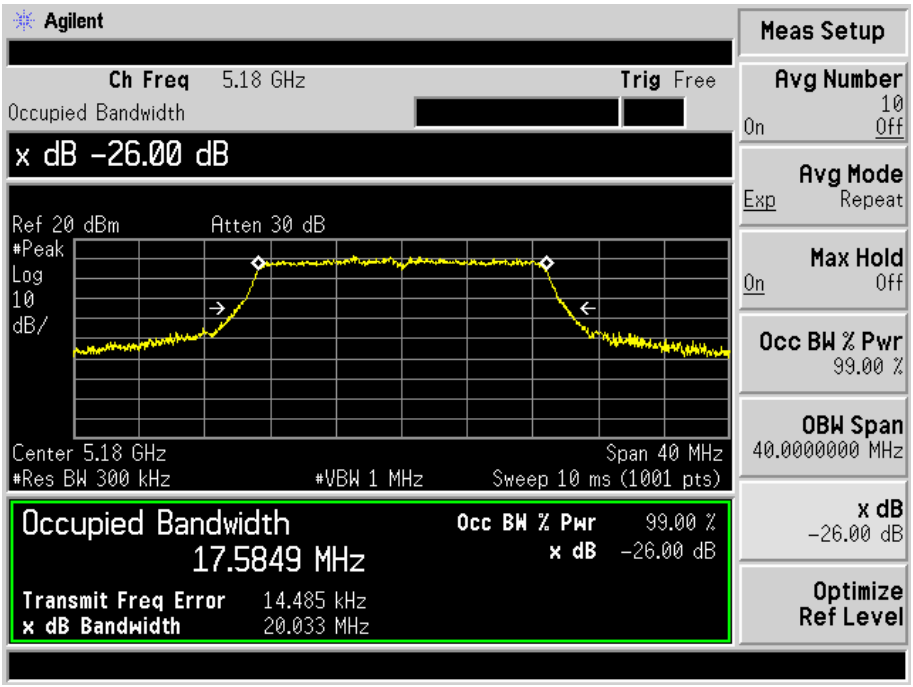


6dB bandwidht

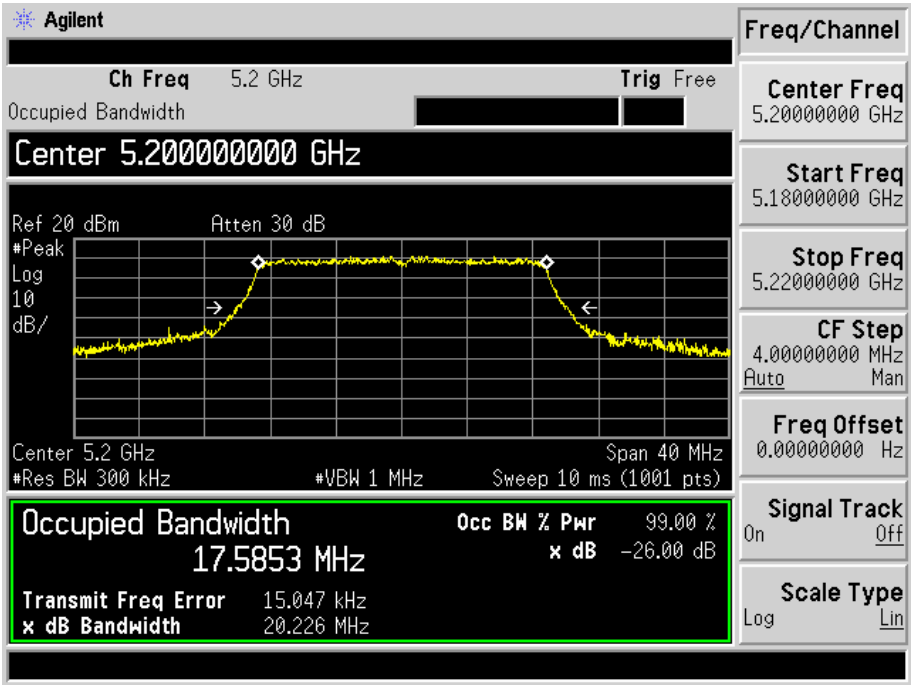


Test mode：802.11n-HT20

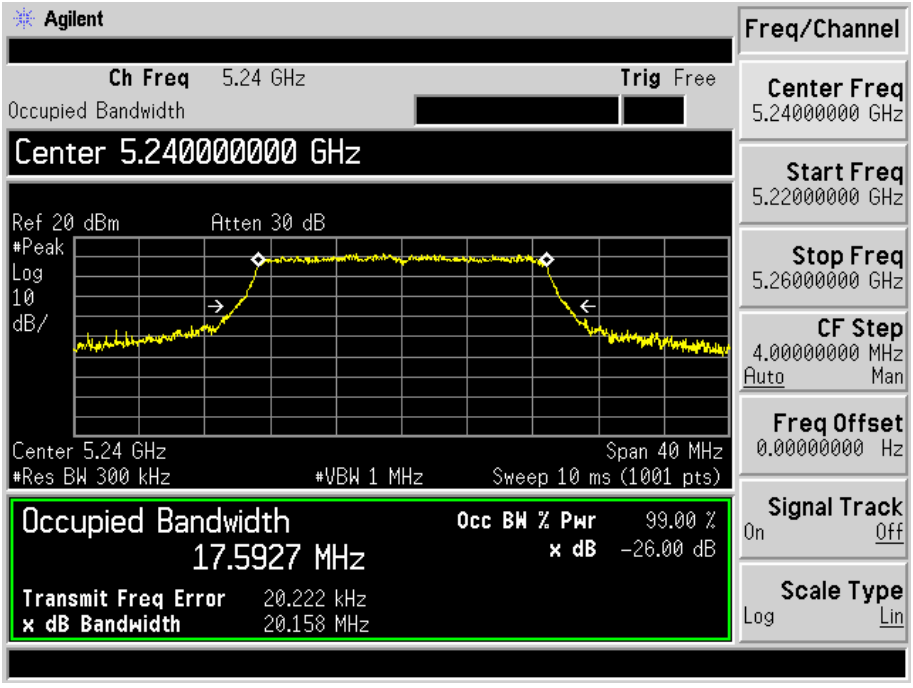
5180MHz



5200MHz

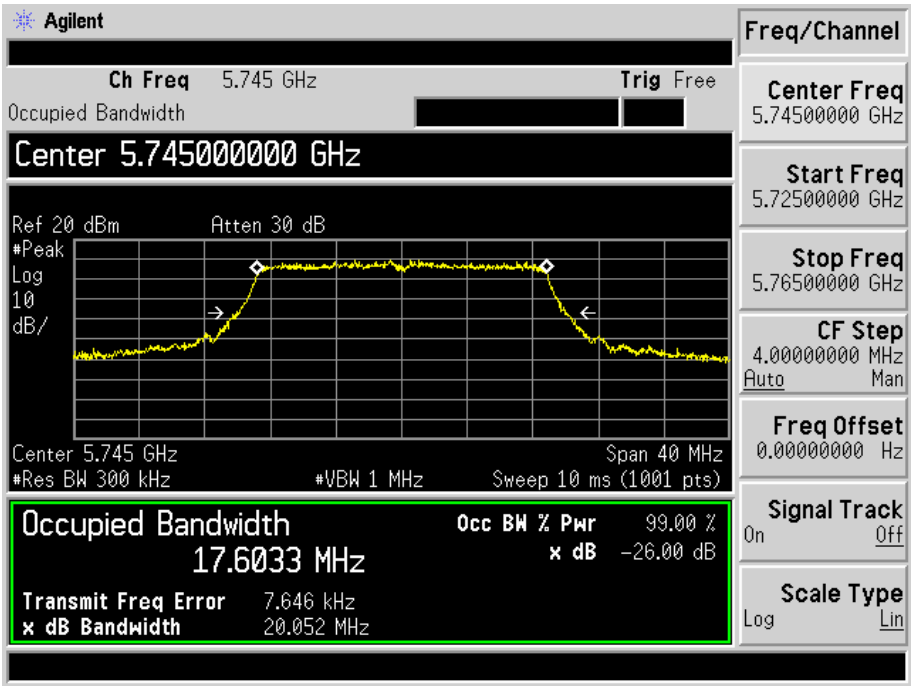


5240MHz

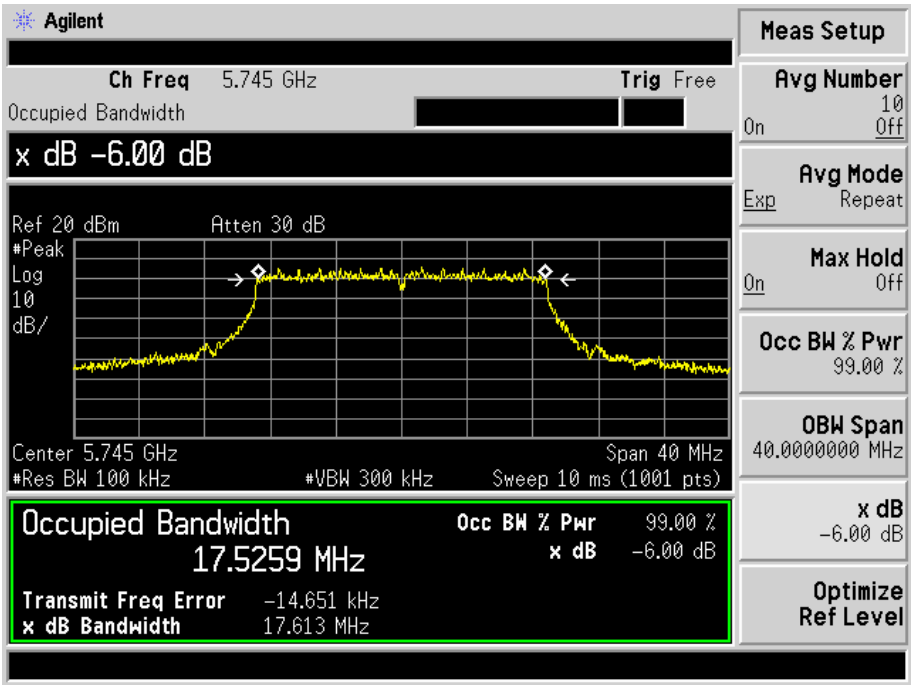


5745MHz

26dB and 99% bandwidth

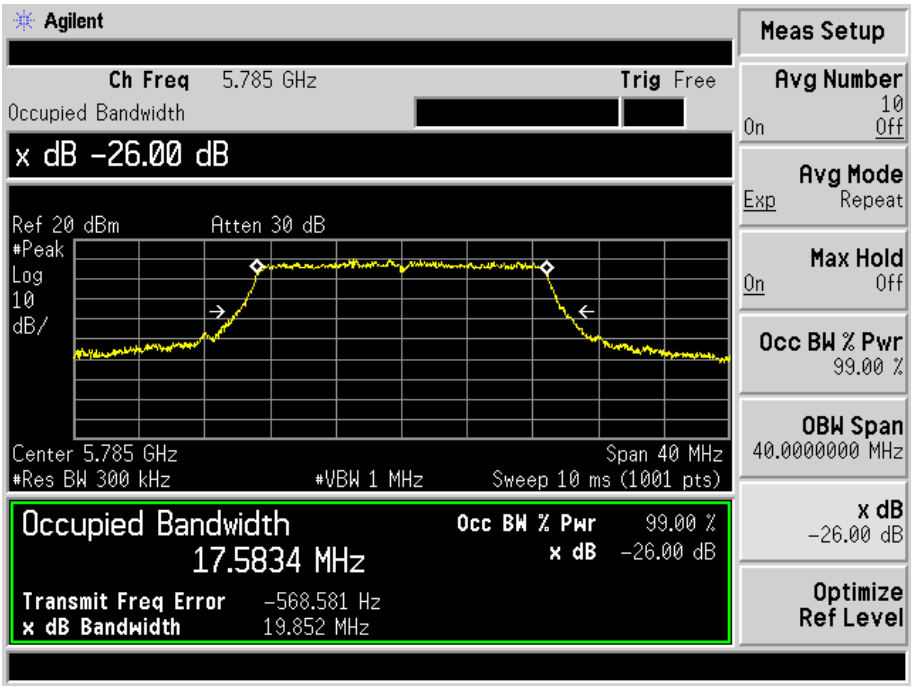


6dB bandwidth

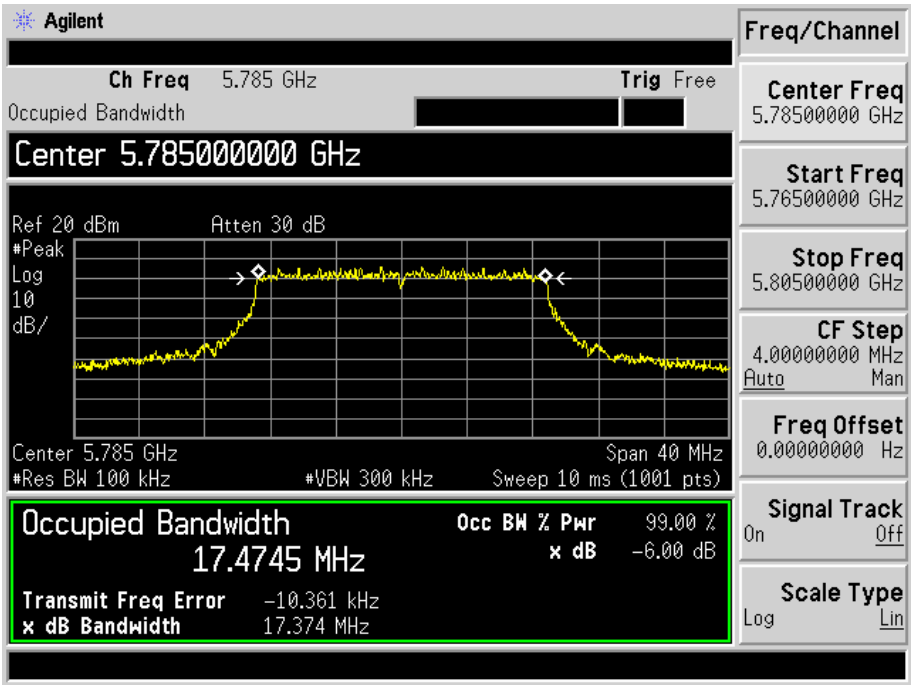


5785MHz

26dB and 99% bandwidth

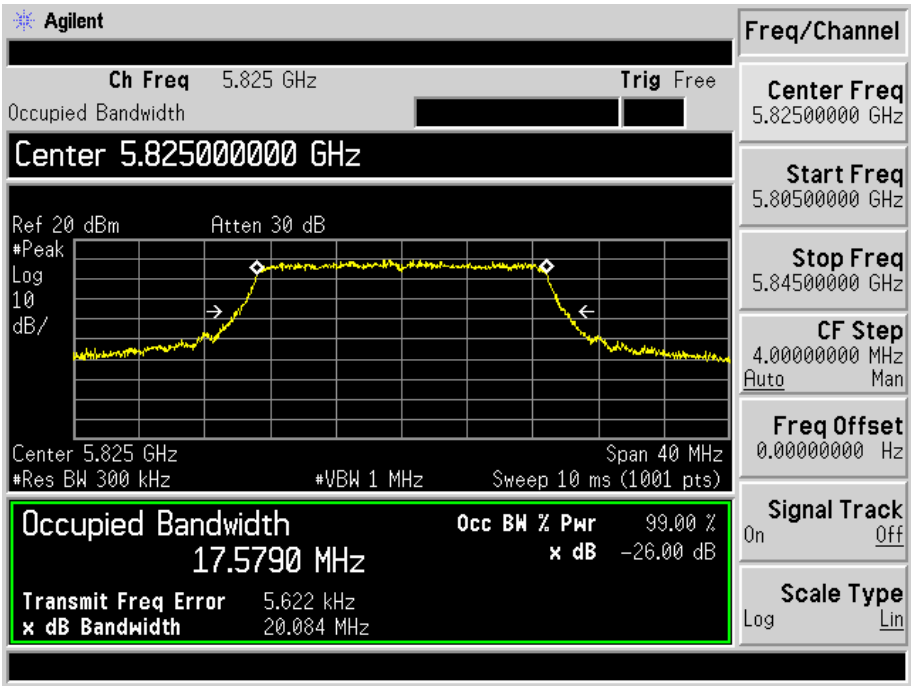


6dB bandwidth

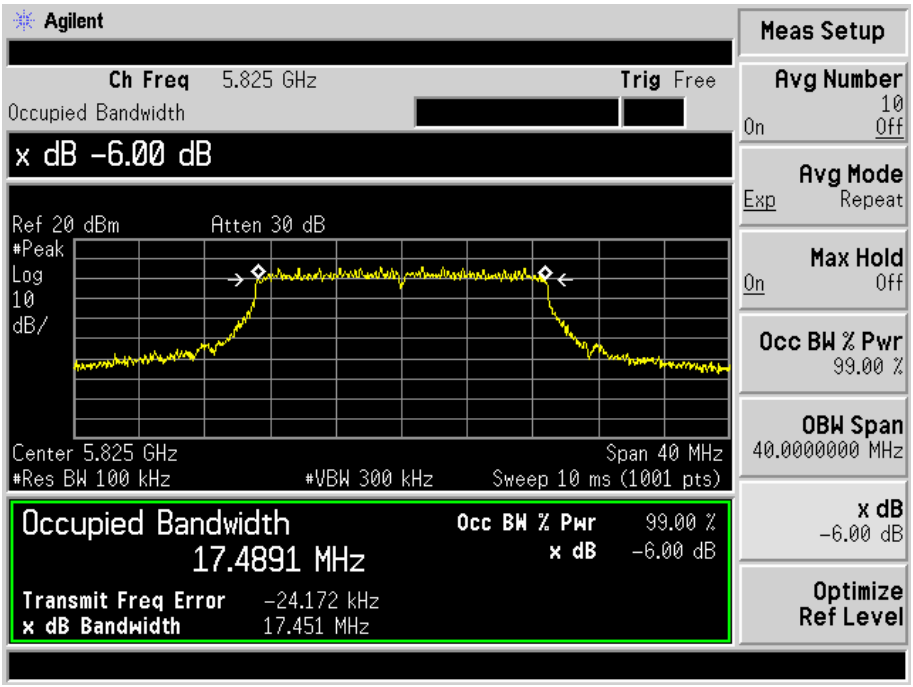


5825MHz

26dB and 99% bandwidth

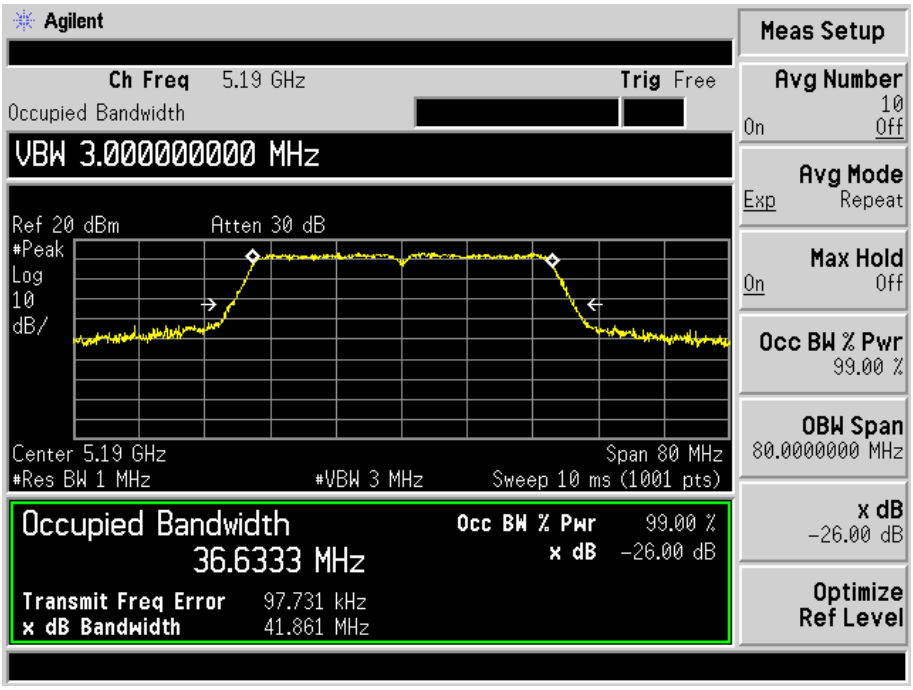


6dB bandwidth

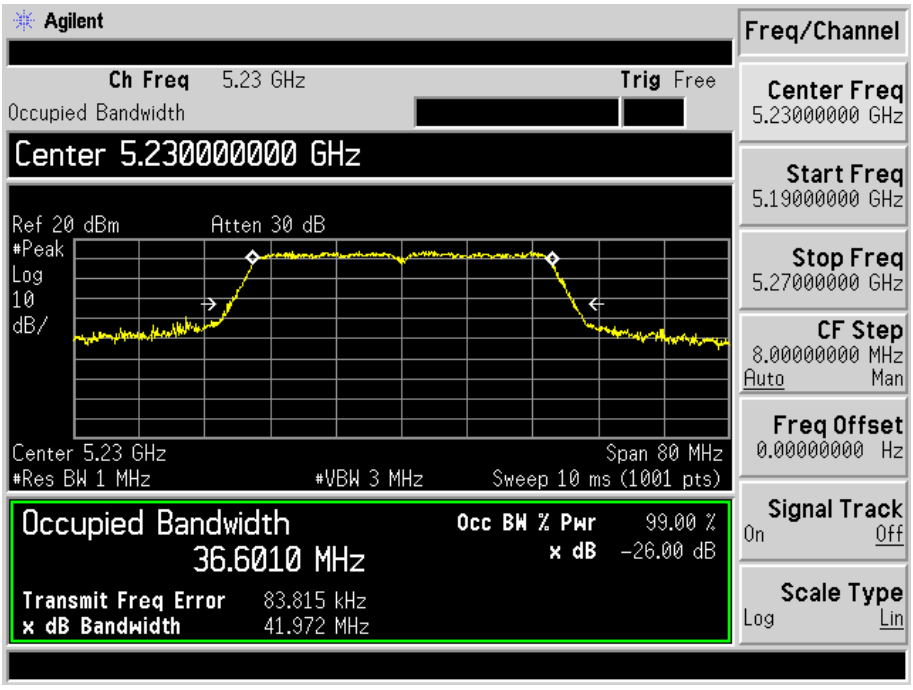


Test mode：802.11n-HT40

5190MHz

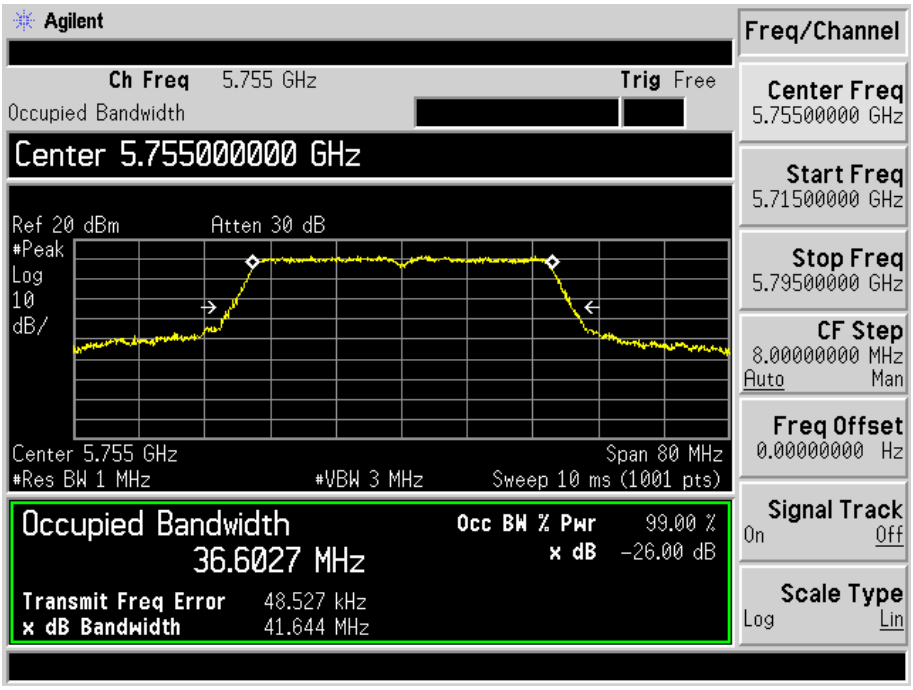


5230MHz

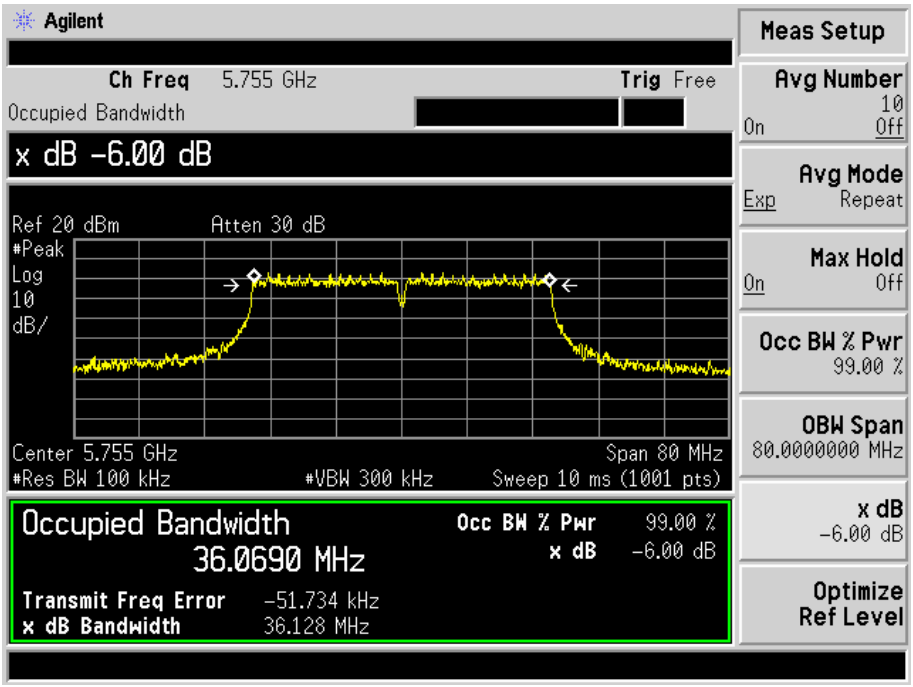


5755MHz

26dB and 99% bandwidth

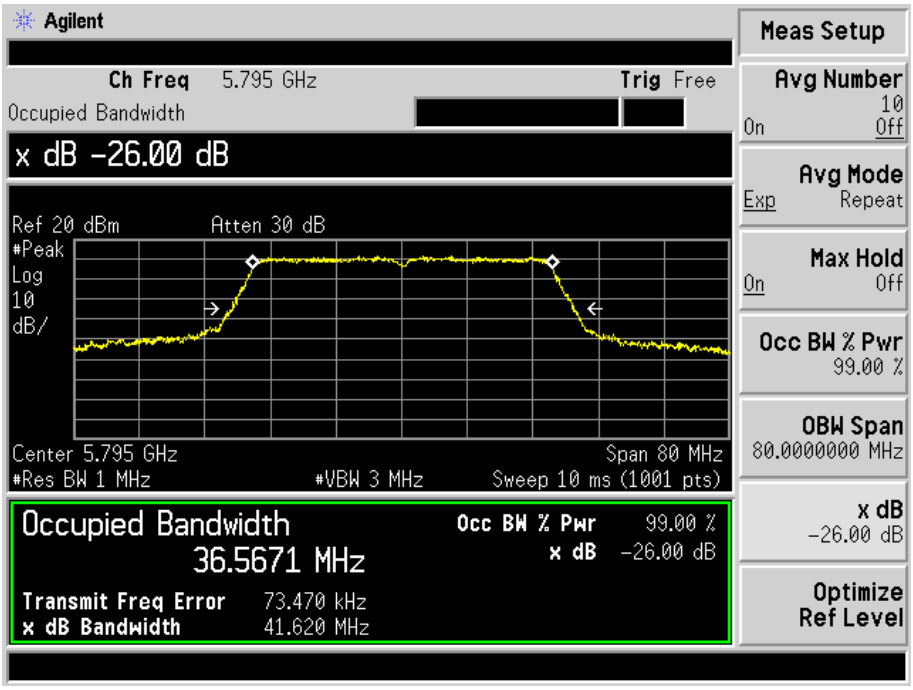


6dB bandwidth

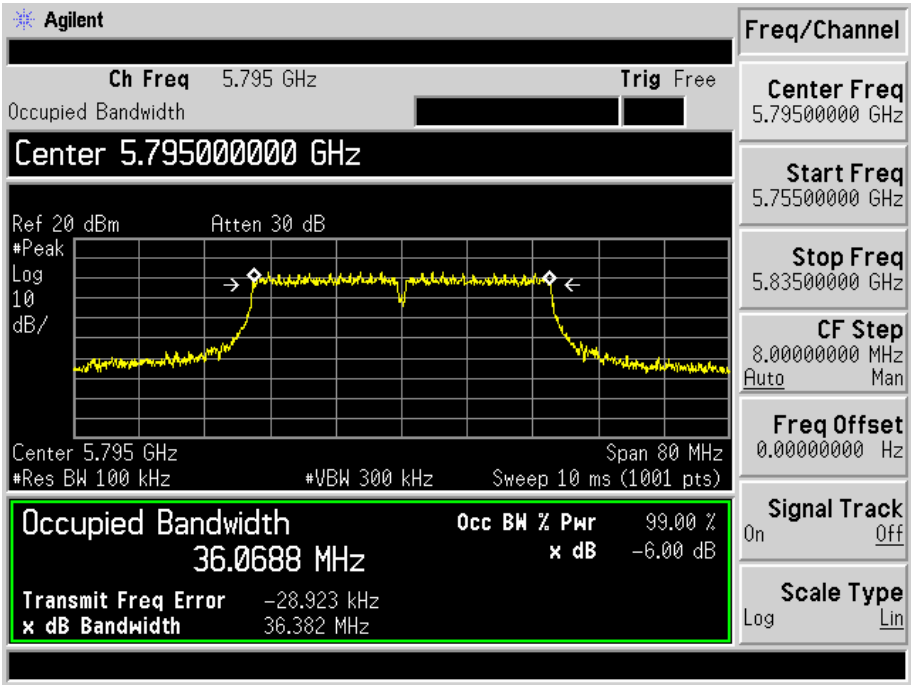


5795MHz

26dB and 99% bandwidth

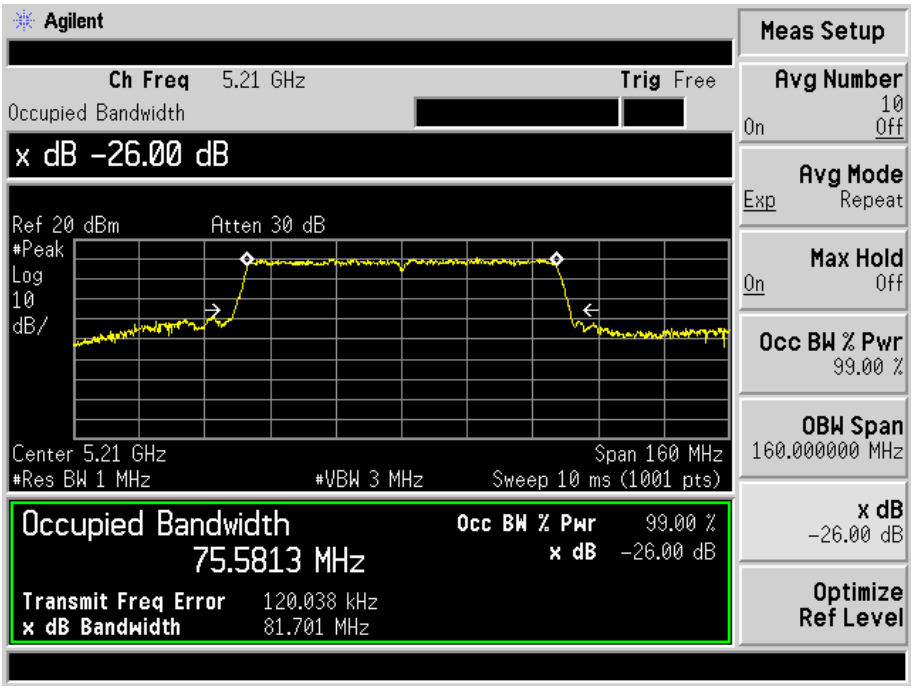


6dB bandwidth



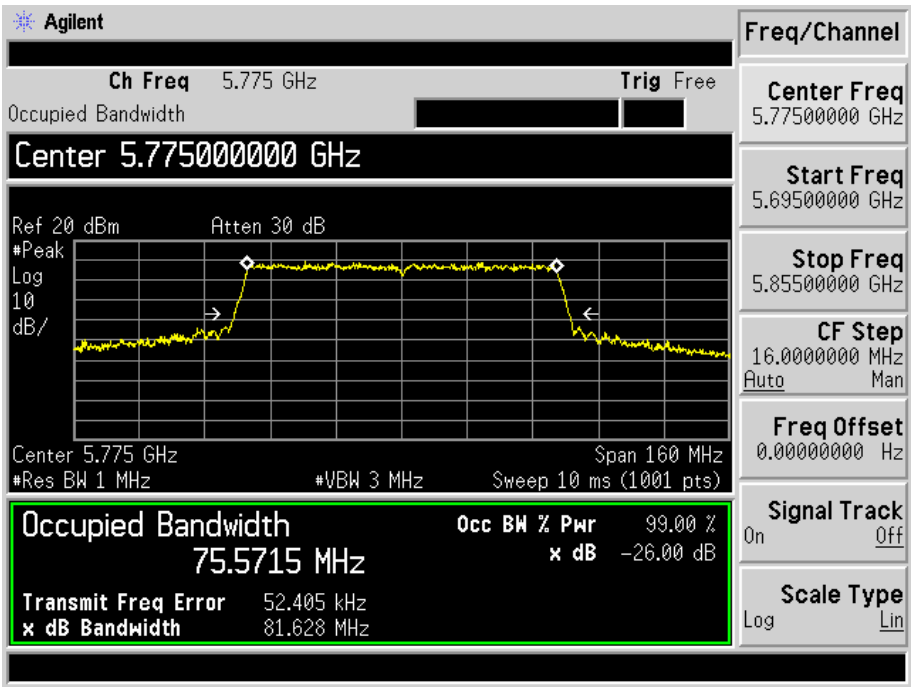
Test mode：802.11ac-HT80

5210MHz

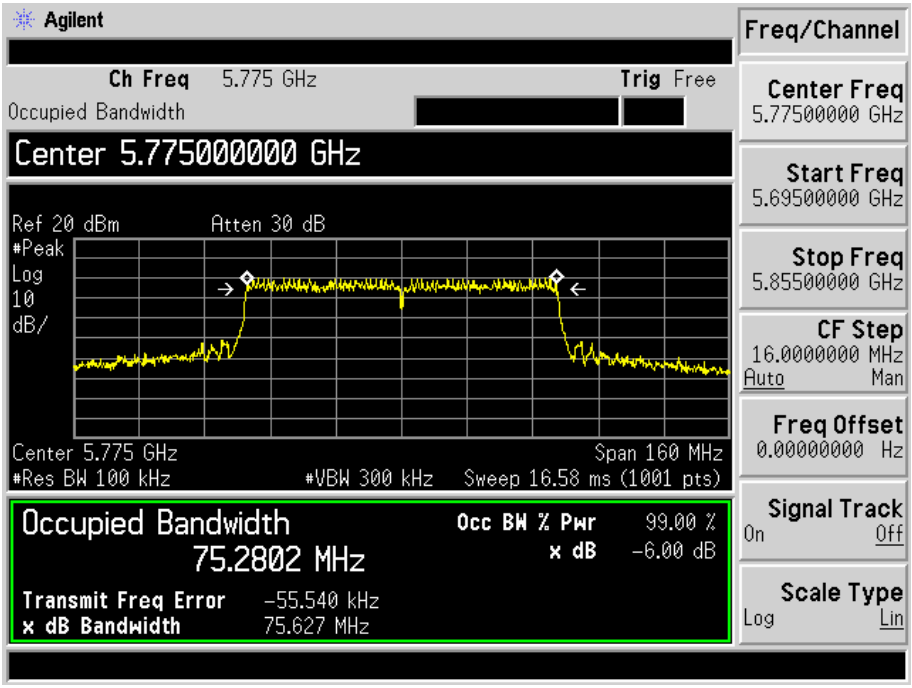


5775MHz

26dB and 99% bandwidth



6dB bandwidth



7. Maximum Conducted Output Power

7.1 Standard Applicable

According to 15.407(a) Power limits:

(1) For the band 5.15-5.25 GHz.
(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 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. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(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.

7.2 Test Procedure

According to KDB789033 D02 v01 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.

7.3 Environmental Conditions

Temperature:	26° C
Relative Humidity:	65%
ATM Pressure:	1011 mbar

7.4 Summary of Test Results/Plots

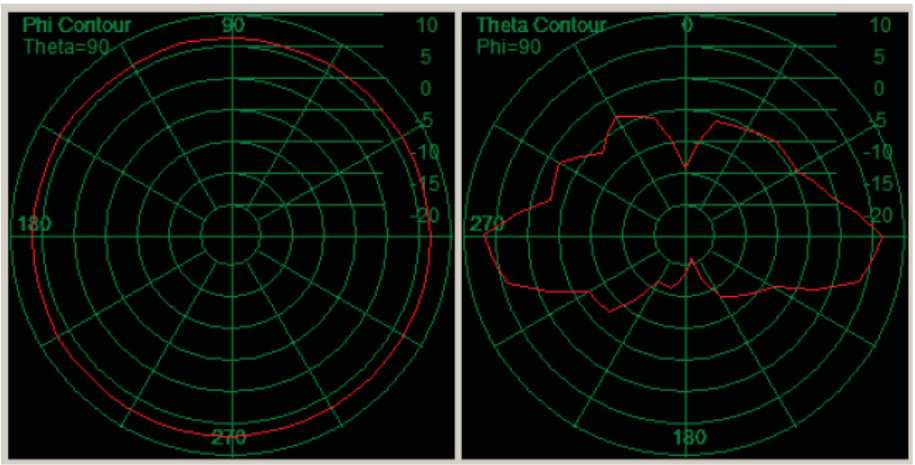
For the frequency band 5.15-5.25GHz, 5.275-5.850GHz

Test mode	Frequency MHz	Conducted Power dBm	Conducted Power mW	Limit dBm
802.11a	5180	15.42	34.83	21
	5200	15.58	36.14	21
	5240	15.64	36.64	21
	5745	14.27	26.73	21
	5785	13.13	20.56	21
	5825	12.45	17.58	21
802.11n-HT20	5180	15.08	32.21	21
	5200	15.41	34.75	21
	5240	15.40	34.67	21
	5745	14.23	26.49	21
	5785	13.28	21.28	21
	5825	12.26	16.83	21
802.11n-HT40	5190	14.22	26.42	21
	5230	14.24	26.55	21
	5755	12.78	18.97	21
	5795	11.86	15.35	21
802.11ac-HT80	5210	13.15	20.65	21
	5775	11.09	12.85	21

The antenna always vertical install with the elevation plane

Elevation angle above 30 degree Max Gain(dBi)					
Frequency MHz	5150	Elevation Angle Define	Frequency MHz	5150	Elevation Angle Define
H-Plan angle(Degree)	Gain(dBi)		H-Plan angle(Degree)	Gain(dBi)	
90	6.7	0° ~30°	356	-12.0	Above 30°
86	4.5		352	-10.0	
82	2.2		348	-8.0	
78	0		344	-6.0	
72	-1.8		340	-4.8	
70	-3.2		336	-3.8	
64	-4.2		332	-3.5	
60	-4.6	Above 30°	328	-3.9	
56	-4.6		324	-4.8	
52	-4.6		320	-5.6	
48	-4.6		316	-6.5	
44	-4.6		312	-5.8	
40	-5.0		308	-5.0	
36	-5.4		304	-4.2	
32	-5.8		300	**-3.0**	
28	-6.0		296	-2.9	0° ~30°
24	-6.2		292	-2.6	
20	-6.3		288	-2.6	
16	-6.4		284	-2.5	
12	-7.5		280	1.5	
8	-9.0		276	3.5	
4	-11.0		272	6.7	
0	-12.6		268	6.6	

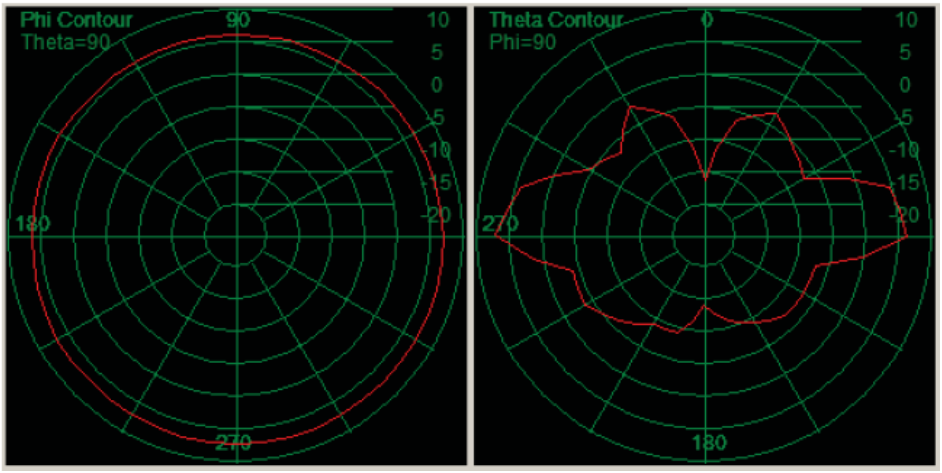
5150MHz



The antenna always vertical install with the elevation plane

Elevation angle above 30 degree Max Gain(dBi)					
Frequency MHz	5850	Elevation Angle Define	Frequency MHz	5850	Elevation Angle Define
H-Plan angle(Degree)	Gain(dBi)		H-Plan angle(Degree)	Gain(dBi)	
90	6.6	0° ~30°	356	-15.2	Above 30°
86	4.3		352	-13.0	
82	2.3		348	-8.1	
78	0		344	-6.5	
72	-1.9		340	-4.6	
70	-3.3		336	-3.3	
64	-4.3		332	**-2.8**	
60	-4.4	Above 30°	328	-3.4	
56	-4.5		324	-4.4	
52	-4.5		320	-5.8	
48	-4.7		316	-6.7	
44	-4.8		312	-5.7	
40	-5.1		308	-5.0	
36	-5.2		304	-4.2	
32	-3.5		300	-5.0	
28	-3.6		296	-2.9	0° ~30°
24	-6.0		292	-1.9	
20	-6.1		288	-0.5	
16	-6.3		284	-2.2	
12	-7.4		280	1.5	
8	-9.1		276	3.5	
4	-11.0		272	6.8	
0	-12.6		268	6.7	

5850MHz

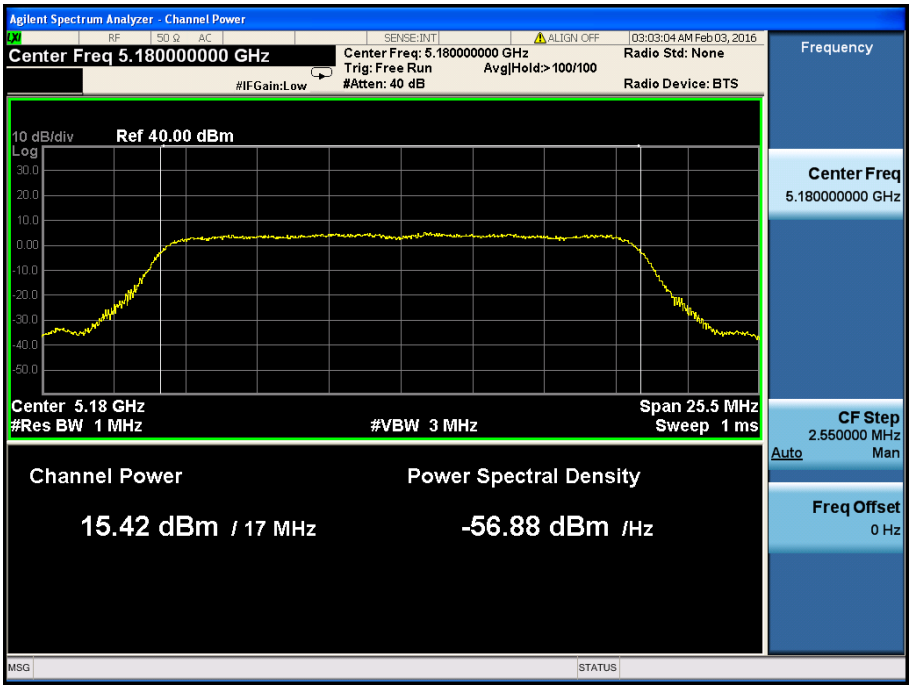


Professional installers are responsible for reducing the conducted output power to 10dBm when using the 7dBi omni-directional antenna and for making sure the antenna is always installed strictly vertical. So the Max. EIRP with the 30° to 90° elevation plane is:

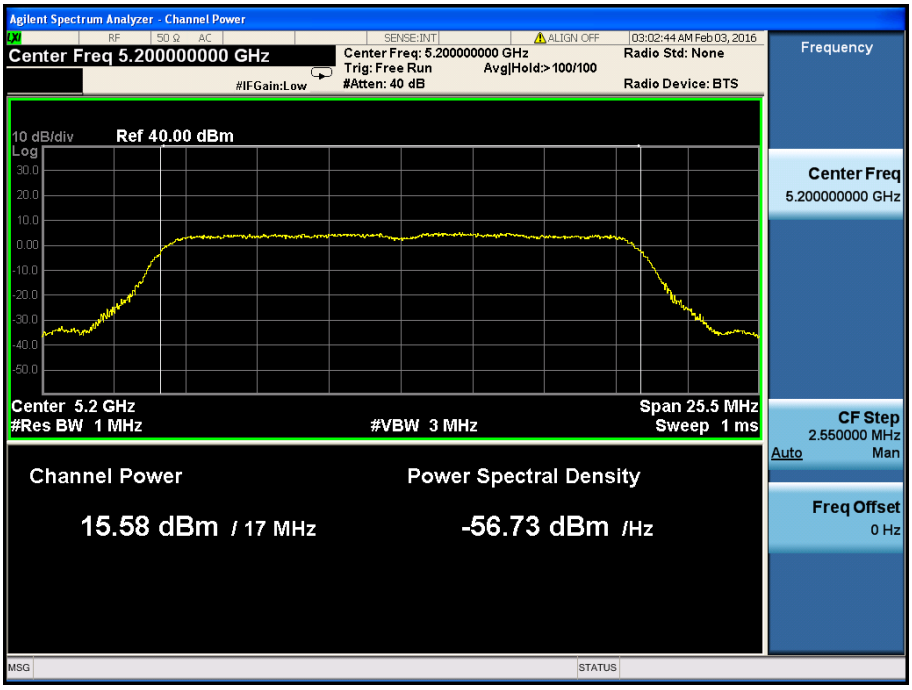
Conducted Power dBm	Max. Antenna Gain dBi	EIRP dBm	EIRP mW	Limit mW
10	-2.8	7.2	5.25	125

Test Mode: 802.11a

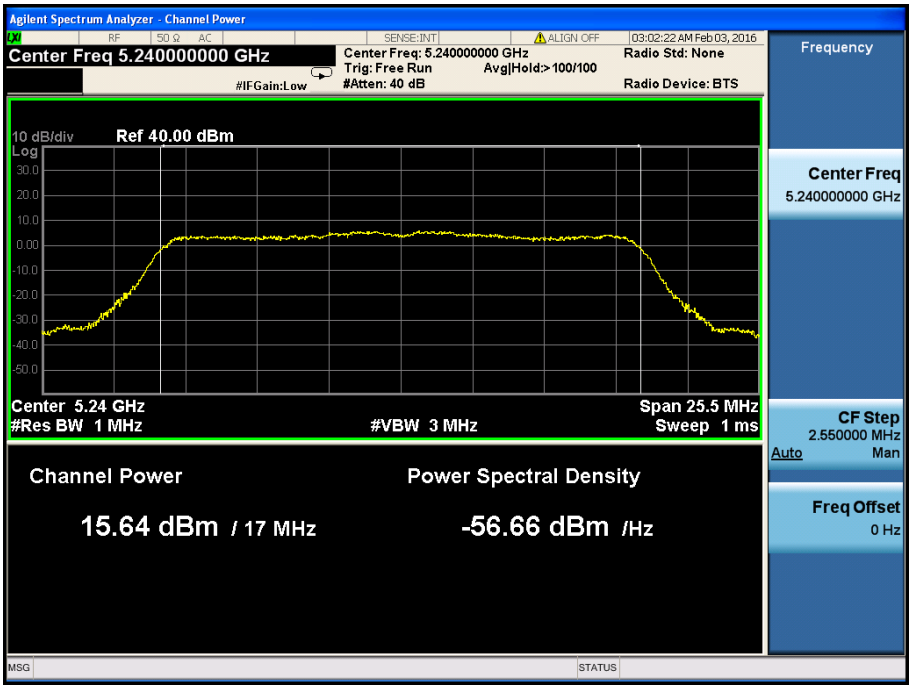
5180MHz



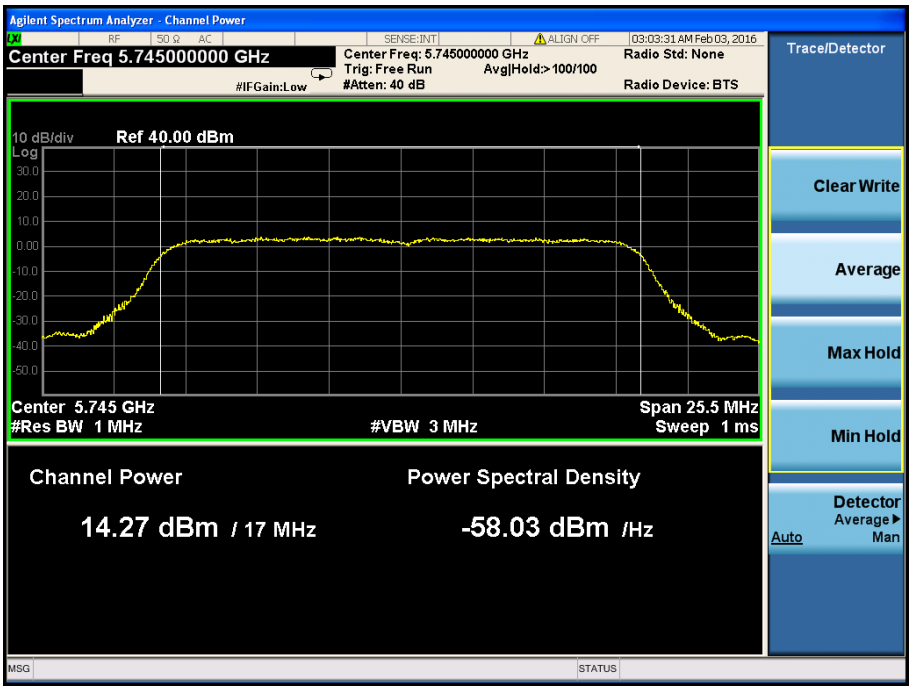
5200MHz



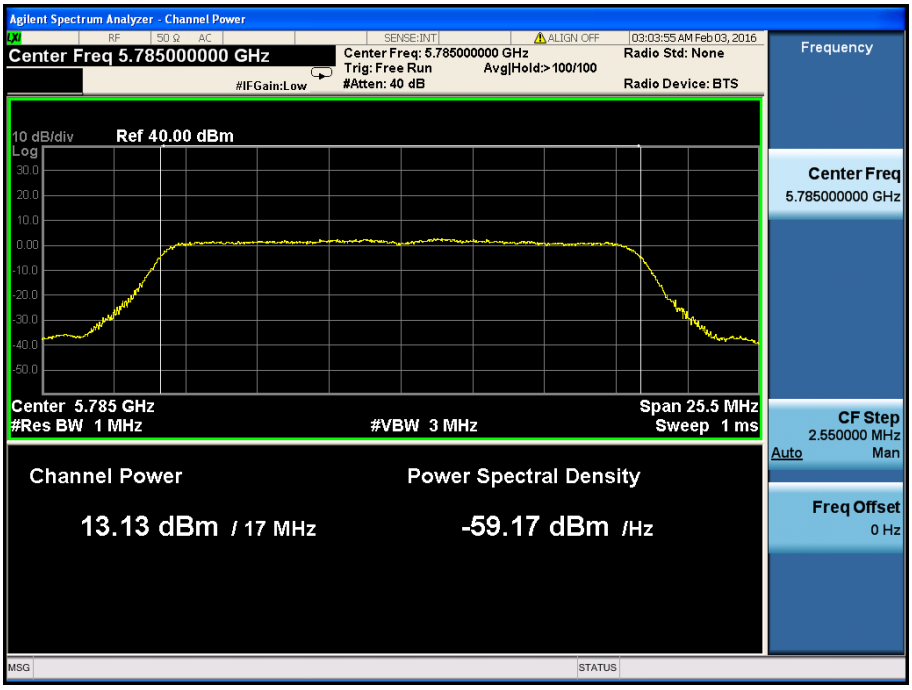
5240MHz



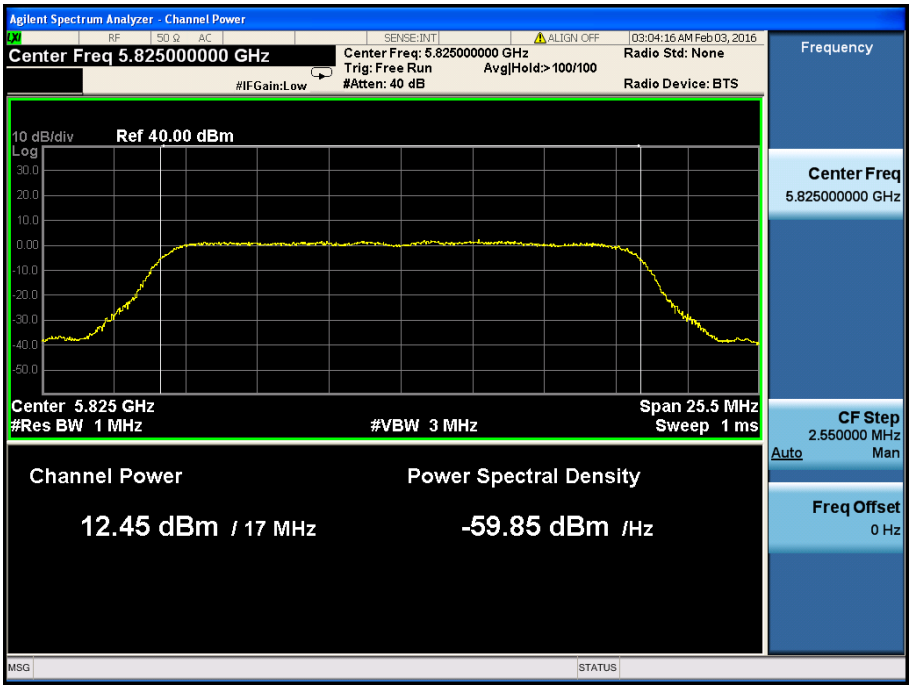
5745MHz



5785MHz

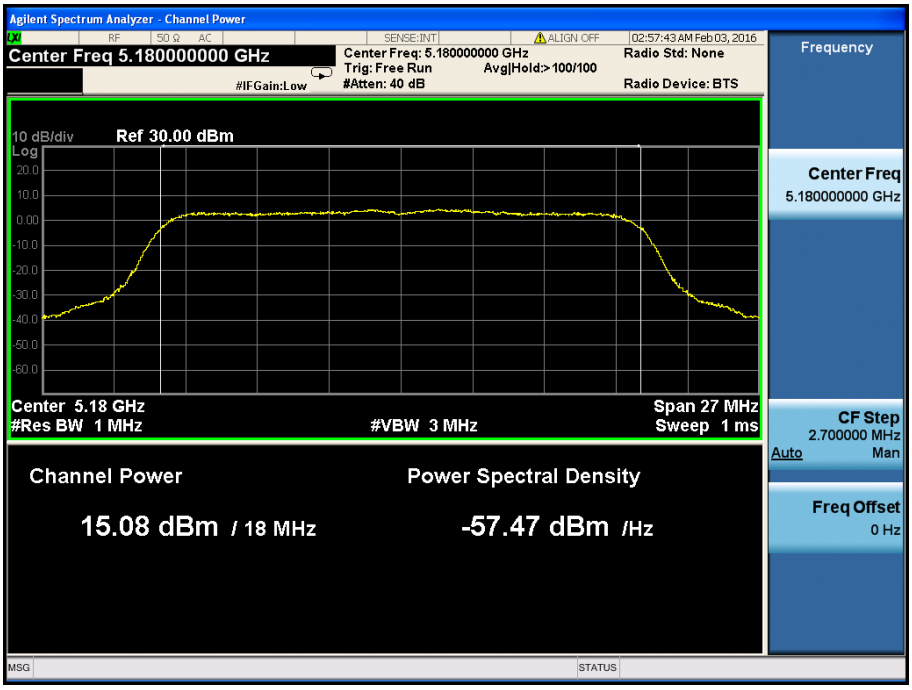


5825MHz

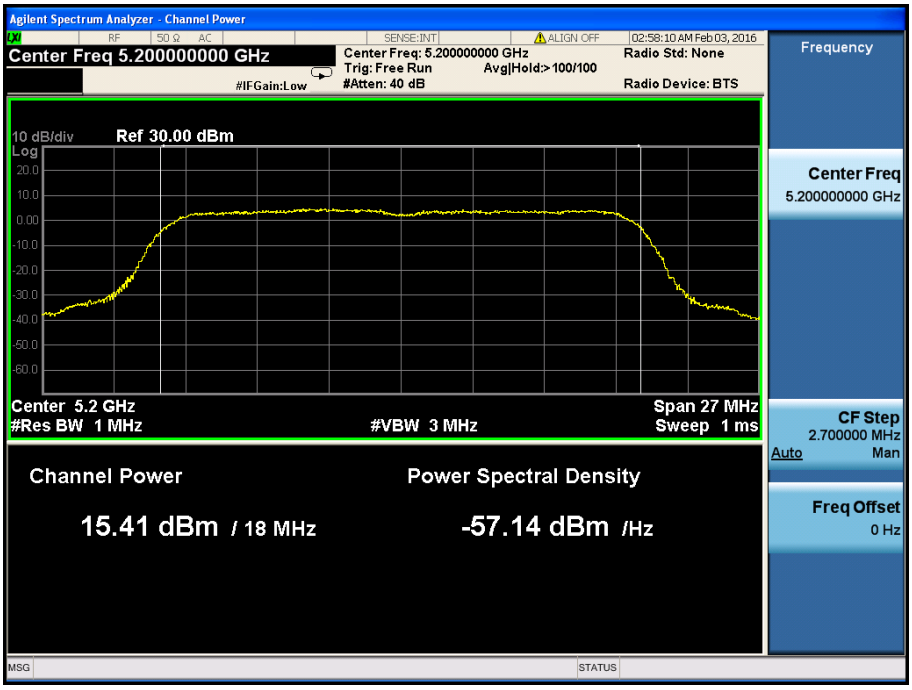


Test Mode: 802.11n-HT20

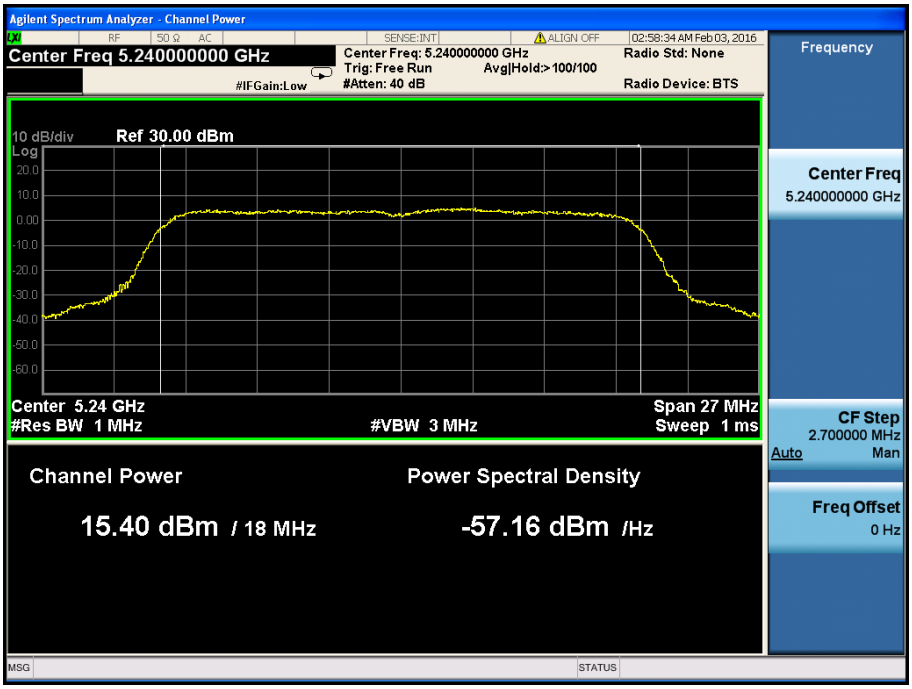
5180MHz



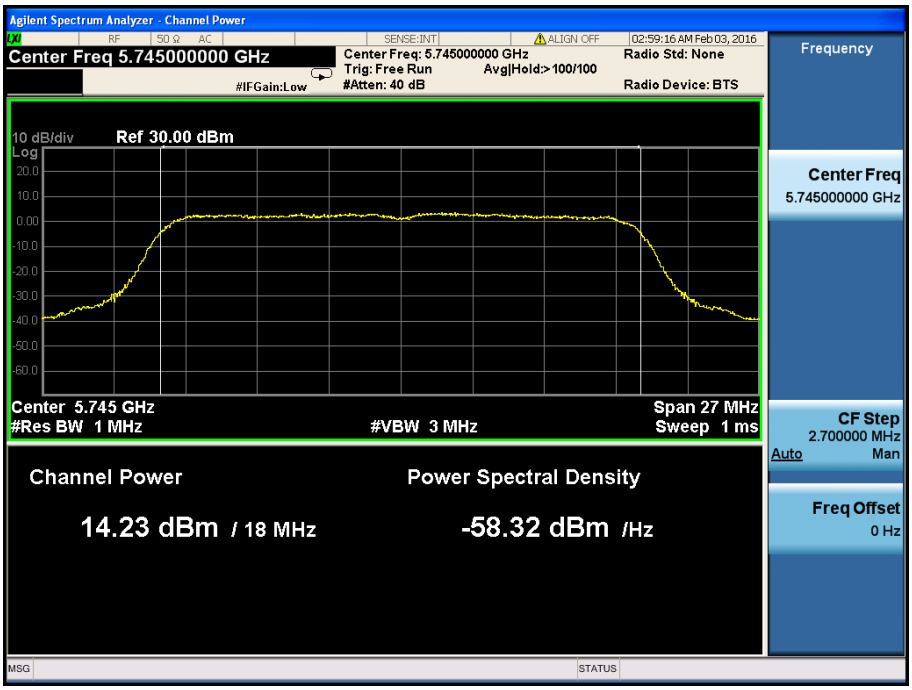
5200MHz



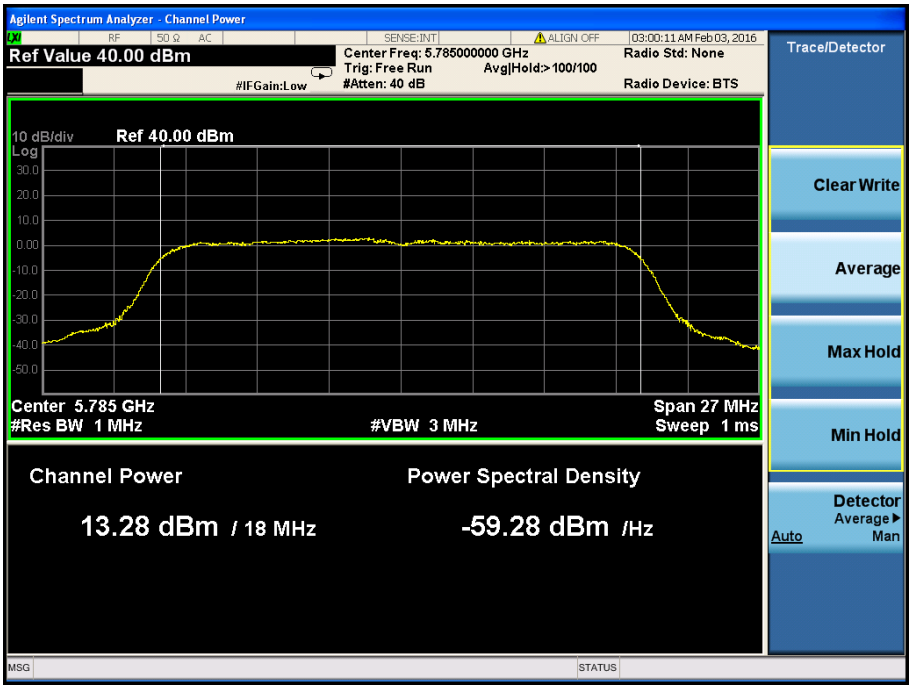
5240MHz



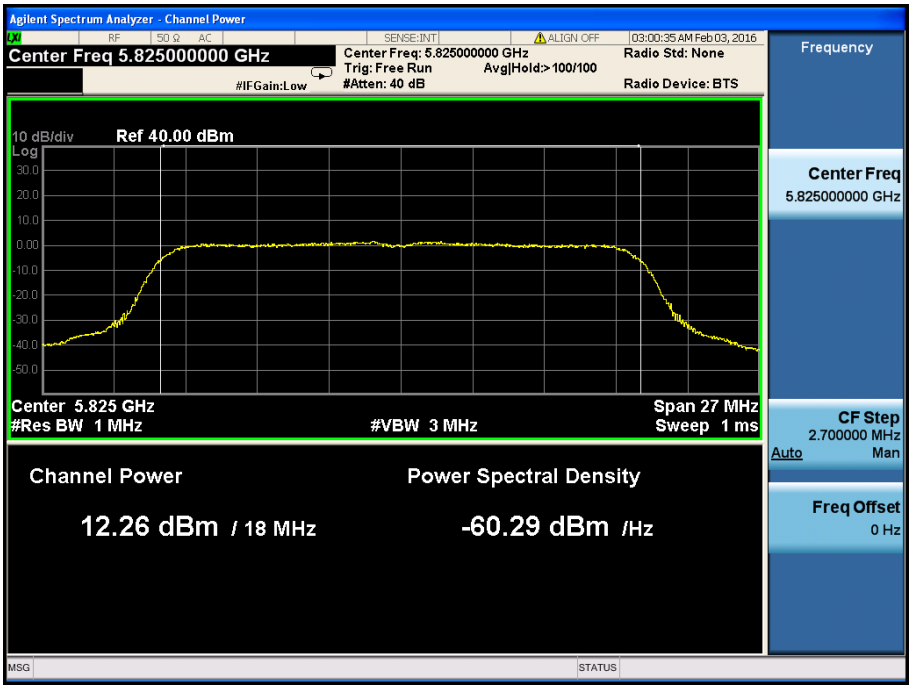
5745MHz



5785MHz

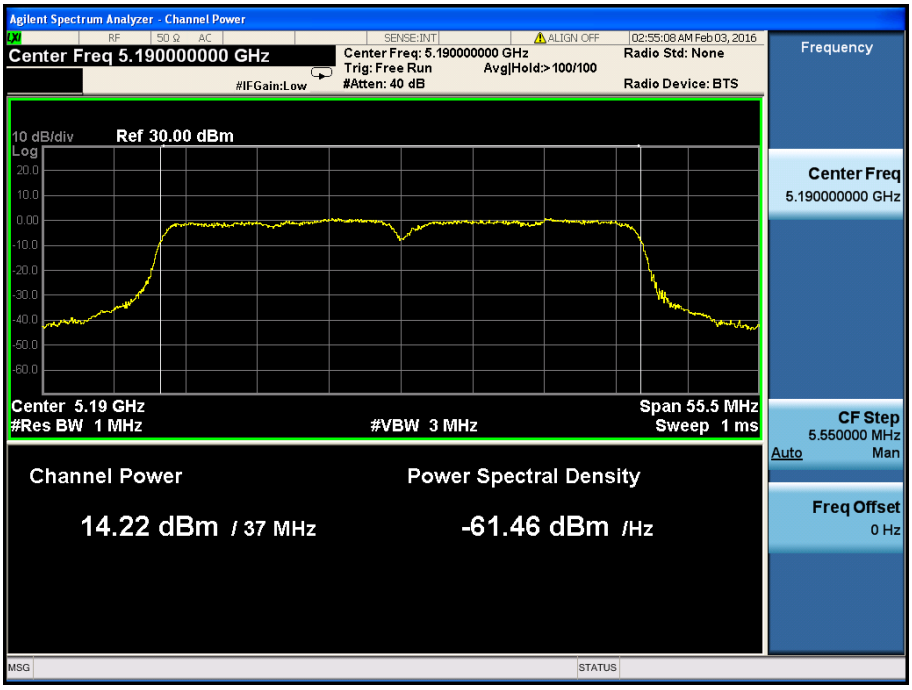


5825MHz

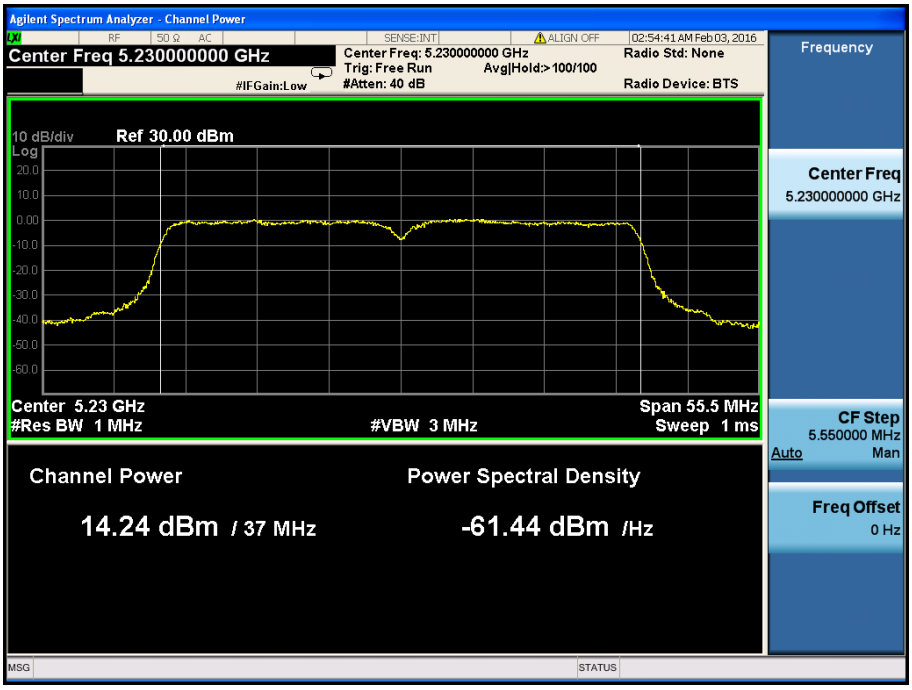


Test Mode: 802.11n-HT40

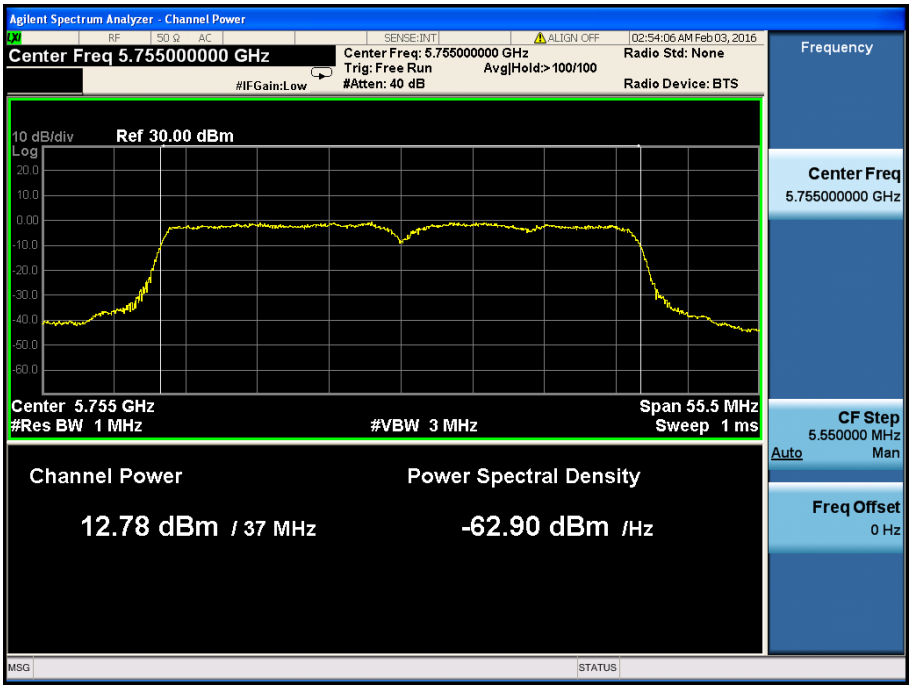
5190MHz



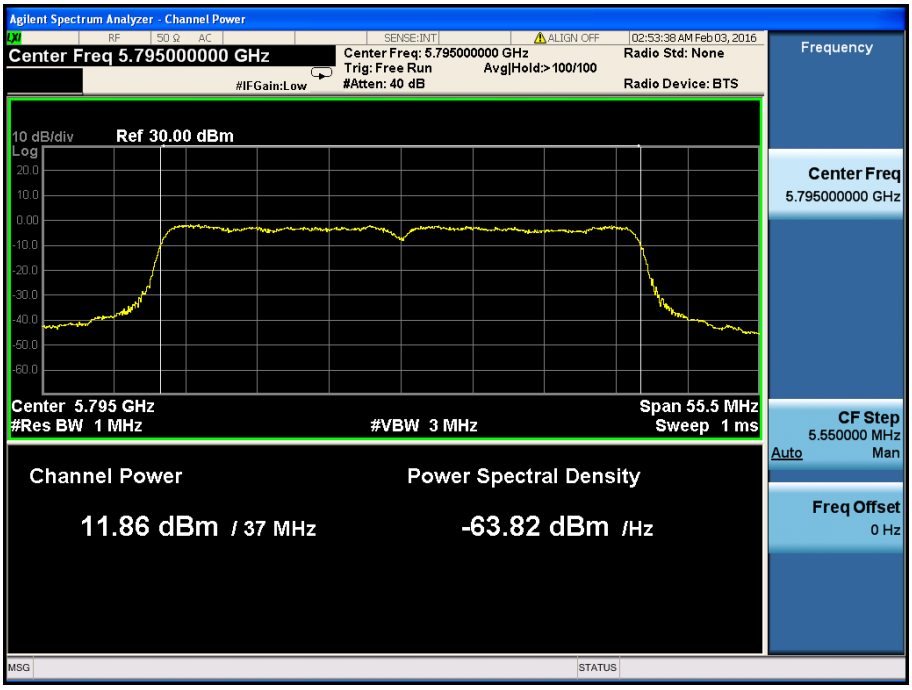
5230MHz



5755MHz

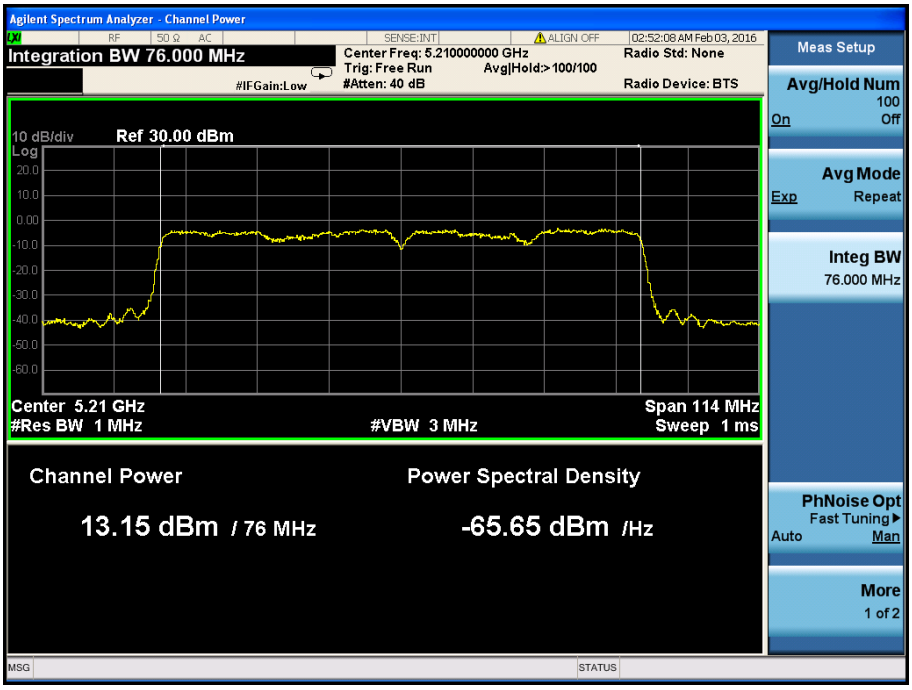


5795MHz

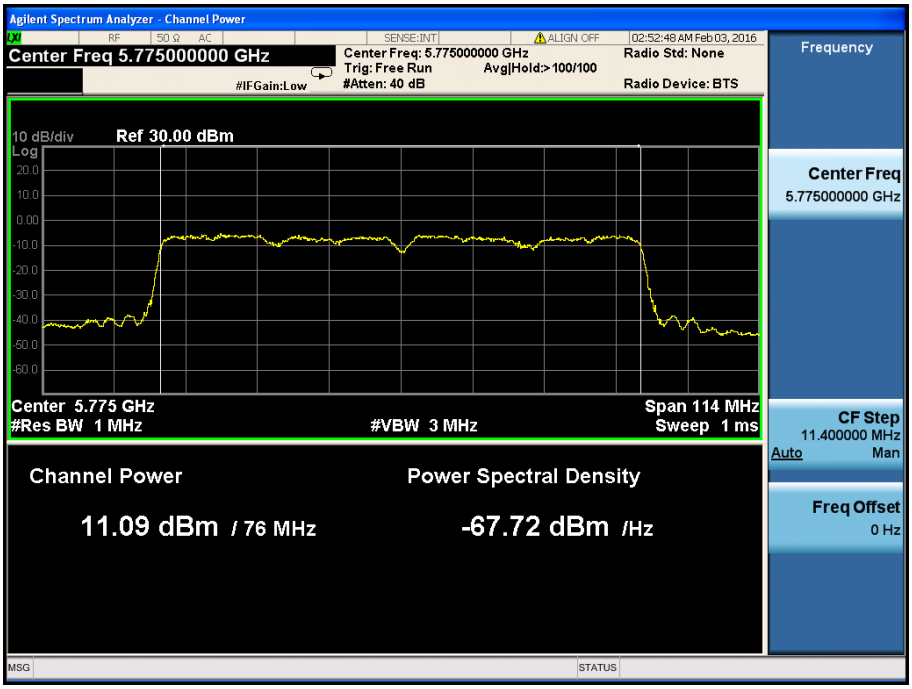


Test Mode: 802.11ac-HT80

5210MHz



5775MHz



8. Conducted Spurious Emissions

8.1 Standard Applicable

According to §15.407 (b) (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: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of −17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of −27 dBm/MHz.

8.2 Test Procedure

1. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer via a RF combiner.
2. Set the spectrum analyzer as RBW = 100kHz/1MHz, VBW=300kHz/3MHz, Sweep = auto
3. Set the Lowest, Middle and Highest Transmitting Channel, observed the outside band of 30MHz to 40GHz, then mark the higher-level emission for comparing with the FCC rules.

8.3 Environmental Conditions

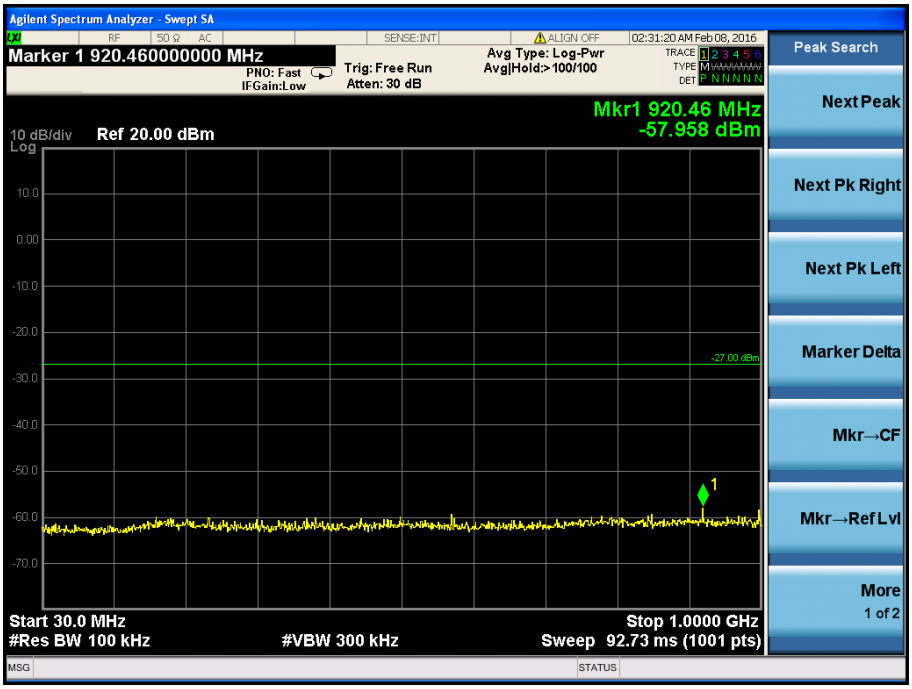
Temperature:	21° C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

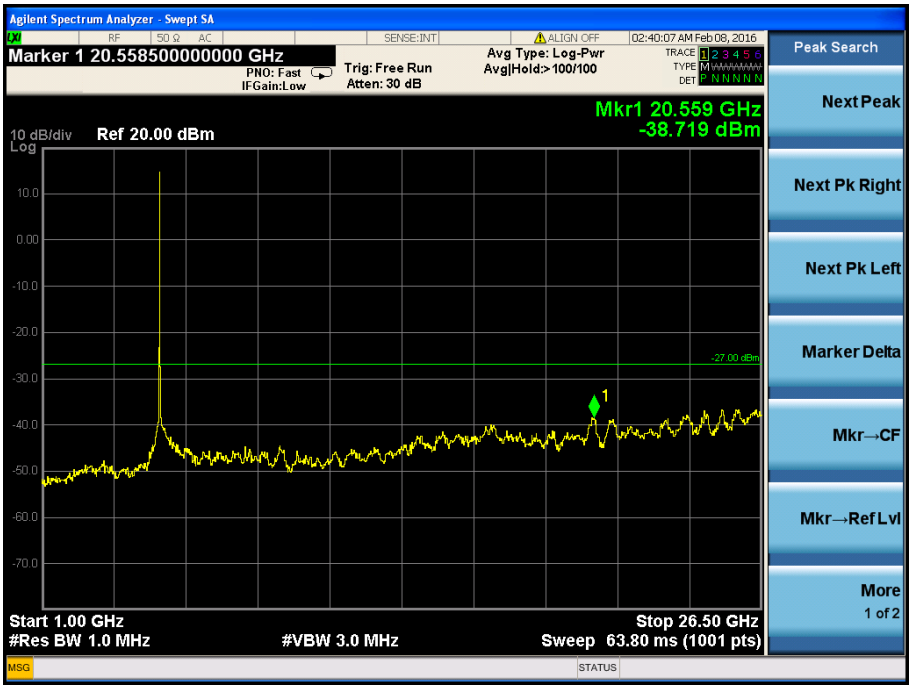
8.4 Summary of Test Results/Plots

Emissions above 26.5GHz are attenuated more than 20dB below the permissible limits and test data are not reported.

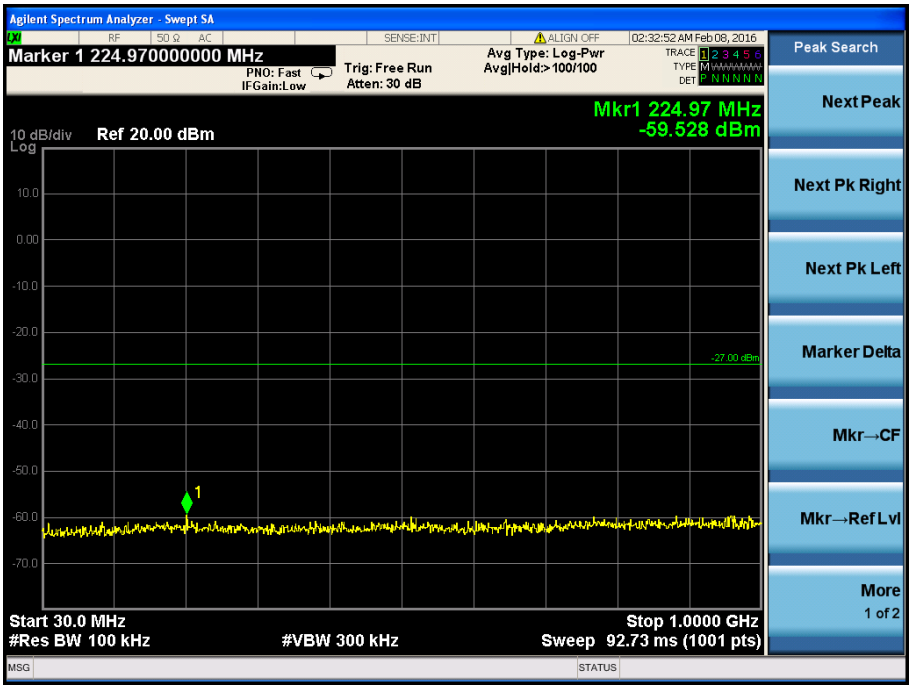
802.11a

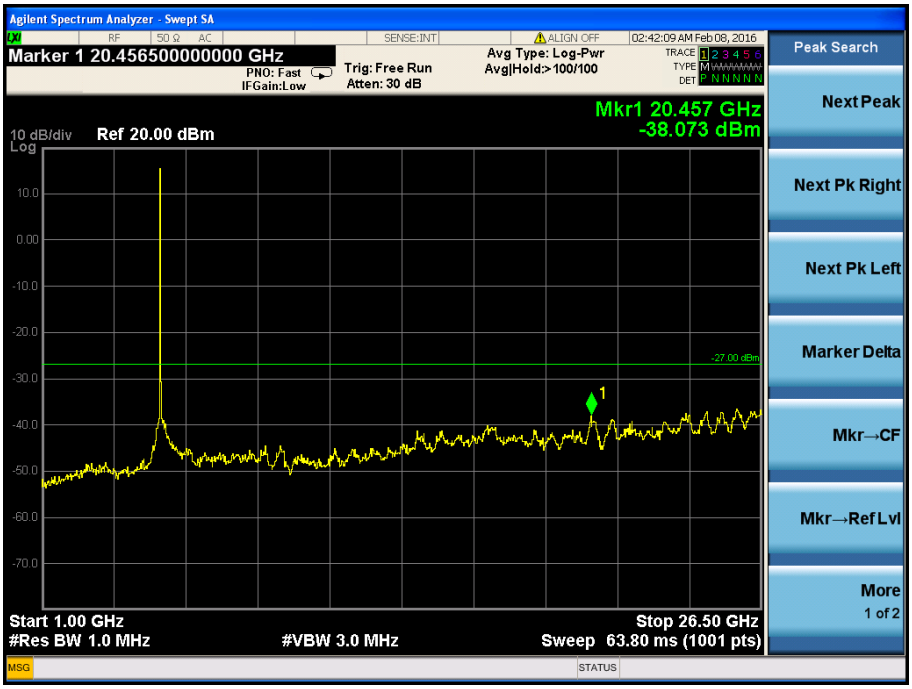
5180MHz



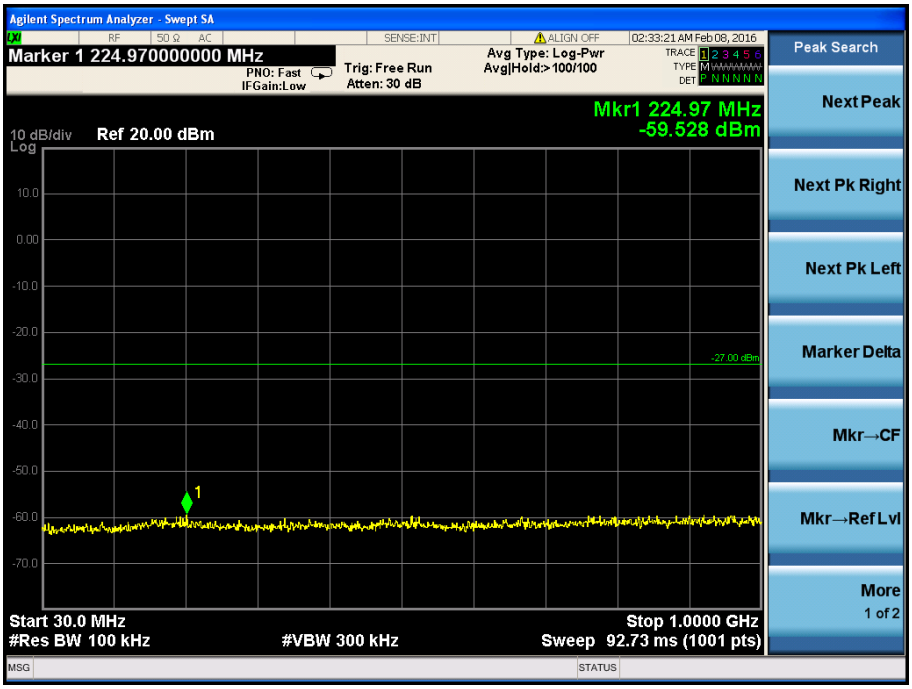


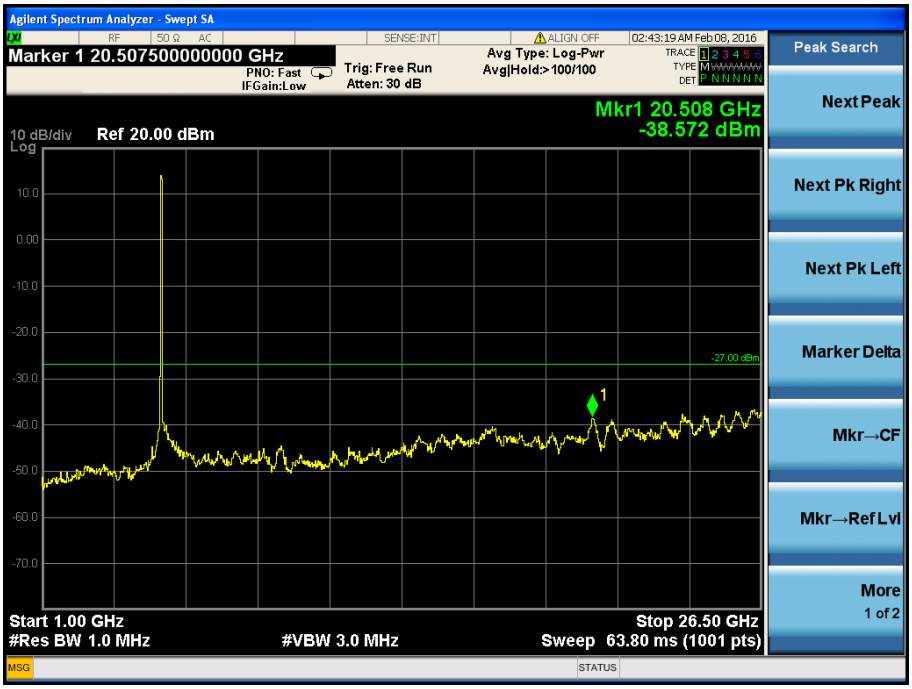
5200MHz


Agilent Spectrum Analyzer - Swept SA
Marker 1 224.970000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
02:32:52 AM Feb 08, 2016
Mkr1 224.97 MHz
-59.528 dBm
10 dB/div
Log
Ref 20.00 dBm
-27.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 92.73 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

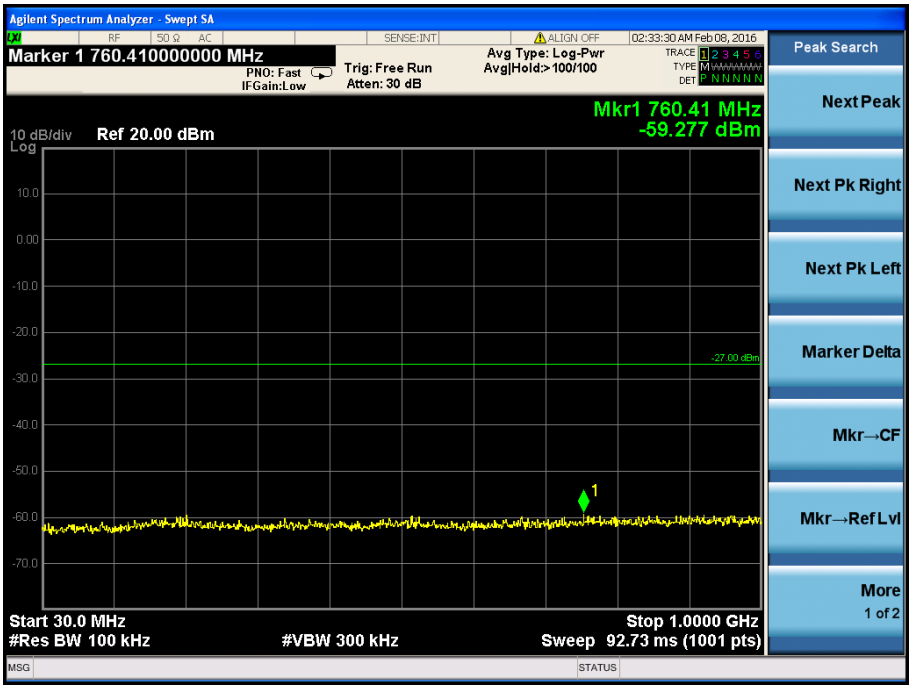

Agilent Spectrum Analyzer - Swept SA
Marker 1 20.456500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
02:42:09 AM Feb 08, 2016
Mkr1 20.457 GHz
-38.073 dBm
10 dB/div
Log
Ref 20.00 dBm
-27.00 dBm
Start 1.00 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 26.50 GHz
Sweep 63.80 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

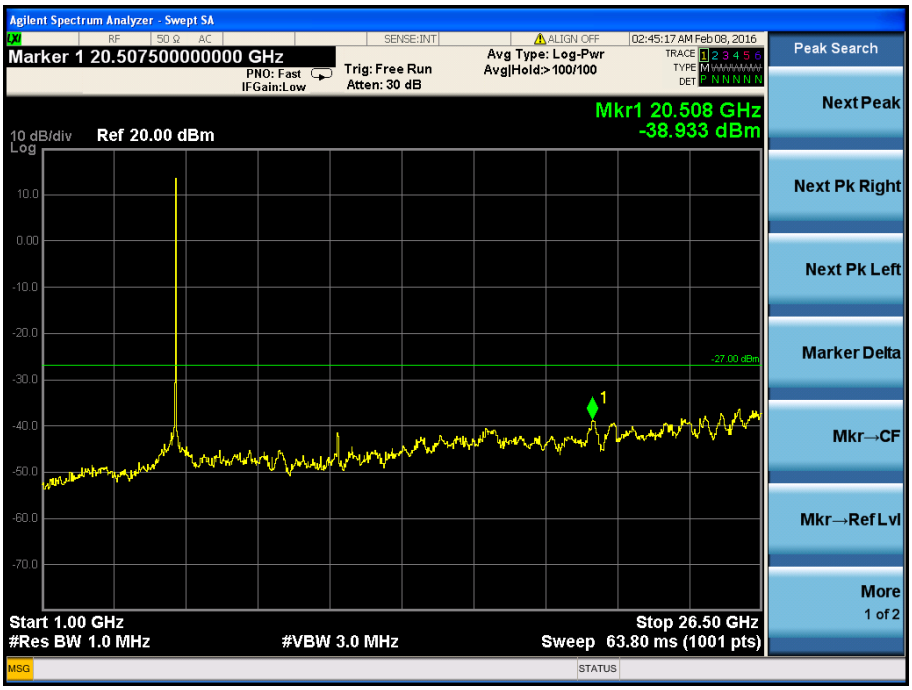
5240MHz


Agilent Spectrum Analyzer - Swept SA
Marker 1 224.970000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
02:33:21 AM Feb 08, 2016
Mkr1 224.97 MHz
-59.528 dBm
10 dB/div
Log
Ref 20.00 dBm
-27.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 92.73 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

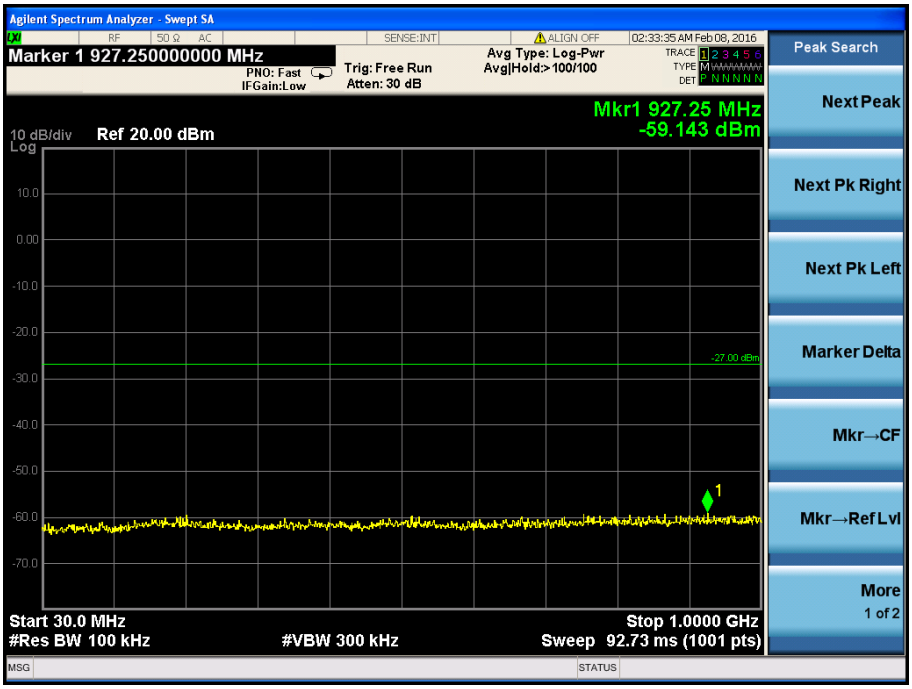

Agilent Spectrum Analyzer - Swept SA
Marker 1 20.507500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
02:43:19 AM Feb 08, 2016
Mkr1 20.508 GHz
-38.572 dBm
10 dB/div
Log
Ref 20.00 dBm
-27.00 dBm
Start 1.00 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 26.50 GHz
Sweep 63.80 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

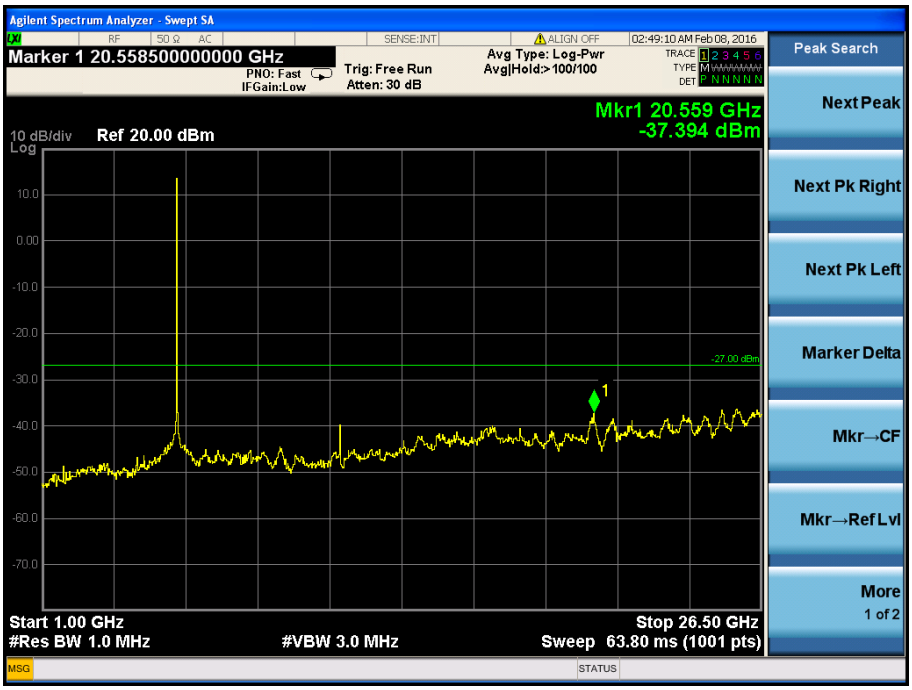
5745MHz


Agilent Spectrum Analyzer - Swept SA
Marker 1 760.410000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
02:33:30 AM Feb 08, 2016
Mkr1 760.41 MHz
-59.277 dBm
10 dB/div
Log
Ref 20.00 dBm
-27.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 92.73 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS

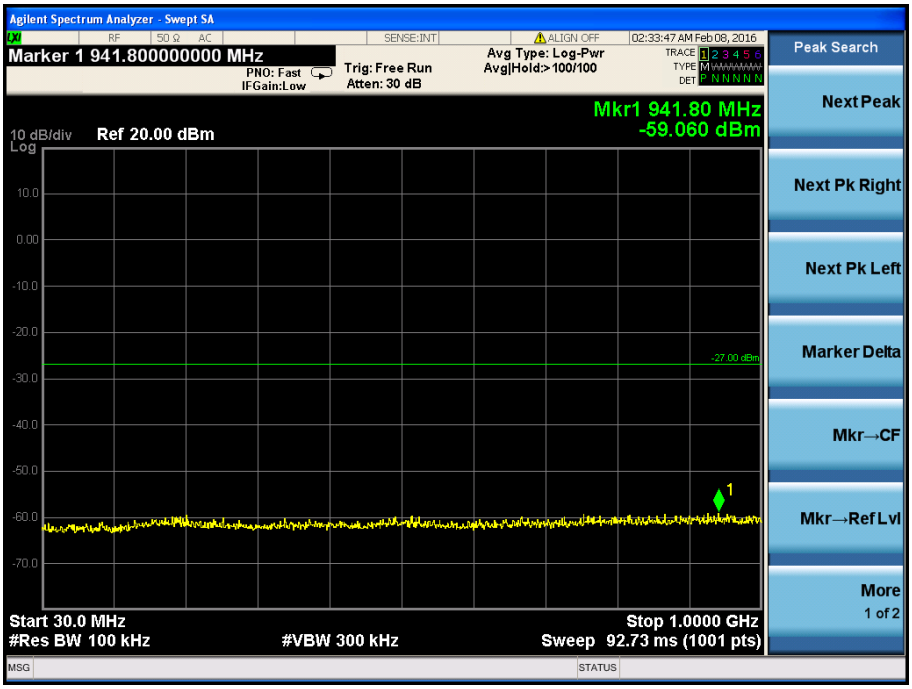

Agilent Spectrum Analyzer - Swept SA
Marker 1 20.507500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
02:45:17 AM Feb 08, 2016
Mkr1 20.508 GHz
-38.933 dBm
10 dB/div
Log
Ref 20.00 dBm
-27.00 dBm
Start 1.00 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 26.50 GHz
Sweep 63.80 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS

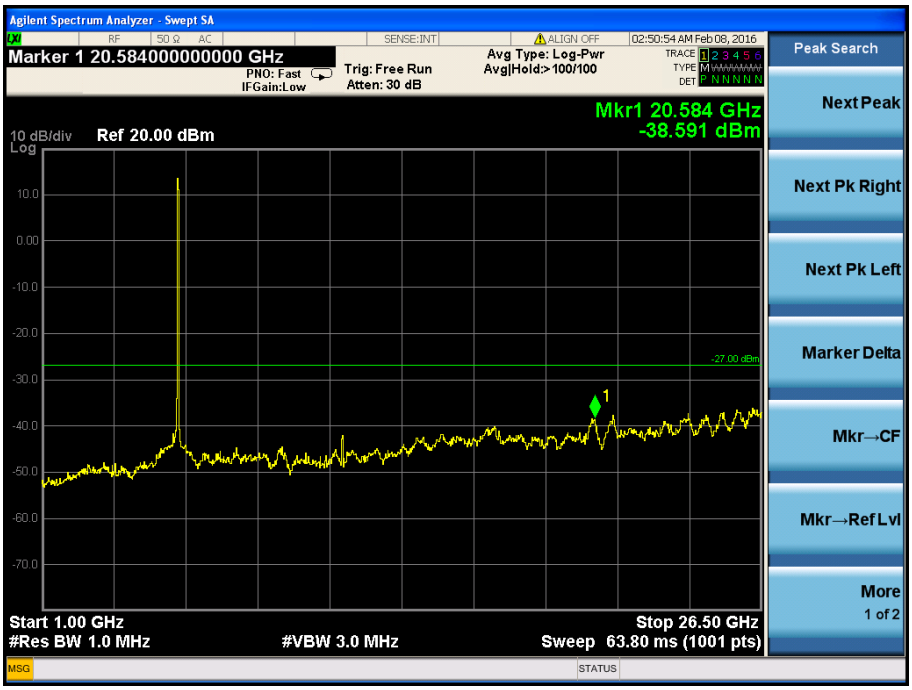
5785MHz


Agilent Spectrum Analyzer - Swept SA
Marker 1 927.250000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
02:33:35 AM Feb 08, 2016
Mkr1 927.25 MHz
-59.143 dBm
10 dB/div
Log
Ref 20.00 dBm
-27.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 92.73 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS


Agilent Spectrum Analyzer - Swept SA
Marker 1 20.558500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
02:49:10 AM Feb 08, 2016
Mkr1 20.559 GHz
-37.394 dBm
10 dB/div
Log
Ref 20.00 dBm
-27.00 dBm
Start 1.00 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 26.50 GHz
Sweep 63.80 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS

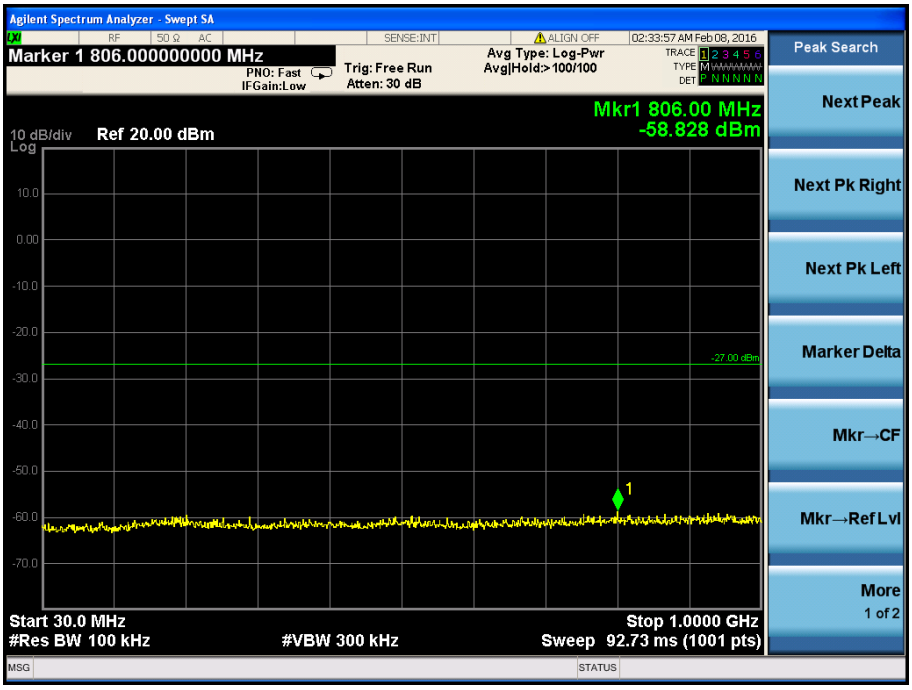
5825MHz

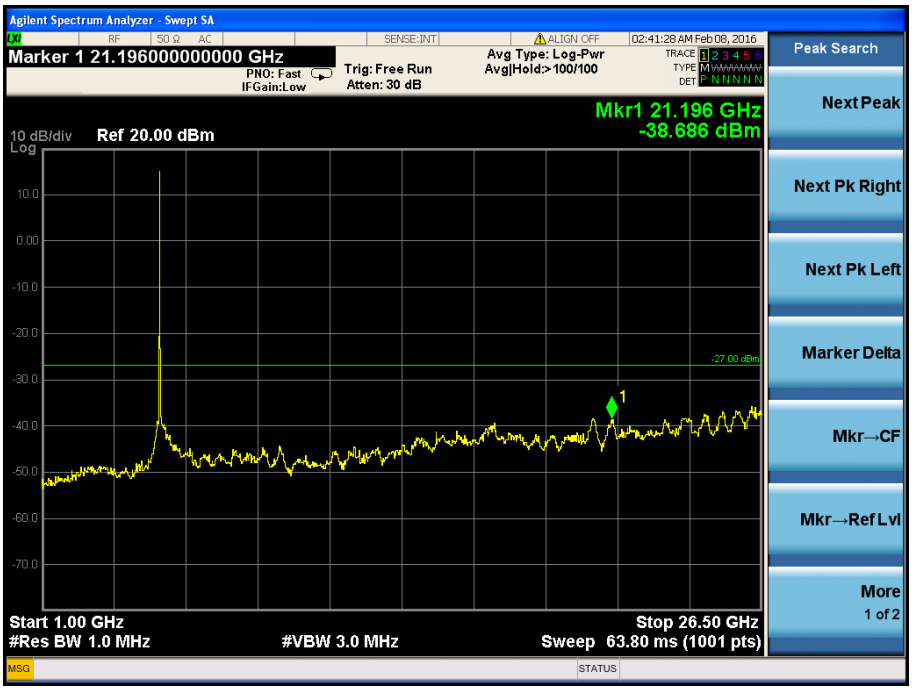

Agilent Spectrum Analyzer - Swept SA
Marker 1 941.800000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
02:33:47 AM Feb 08, 2016
Mkr1 941.80 MHz
-59.060 dBm
10 dB/div
Log
Ref 20.00 dBm
-27.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 92.73 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Marker 1 20.584000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
02:50:54 AM Feb 08, 2016
Mkr1 20.584 GHz
-38.591 dBm
10 dB/div
Log
Ref 20.00 dBm
-27.00 dBm
Start 1.00 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 26.50 GHz
Sweep 63.80 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

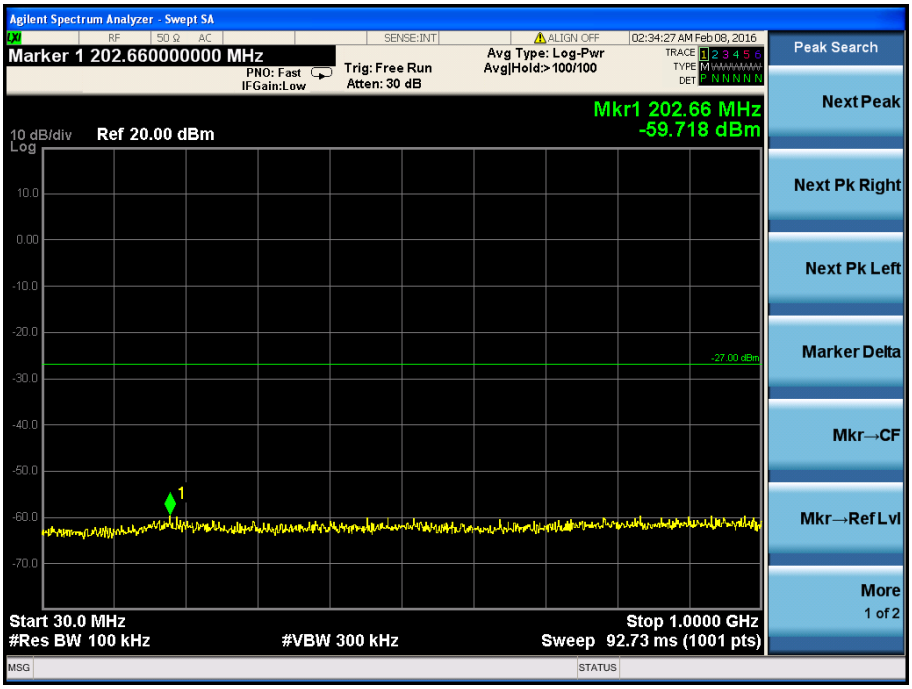
802.11n HT20

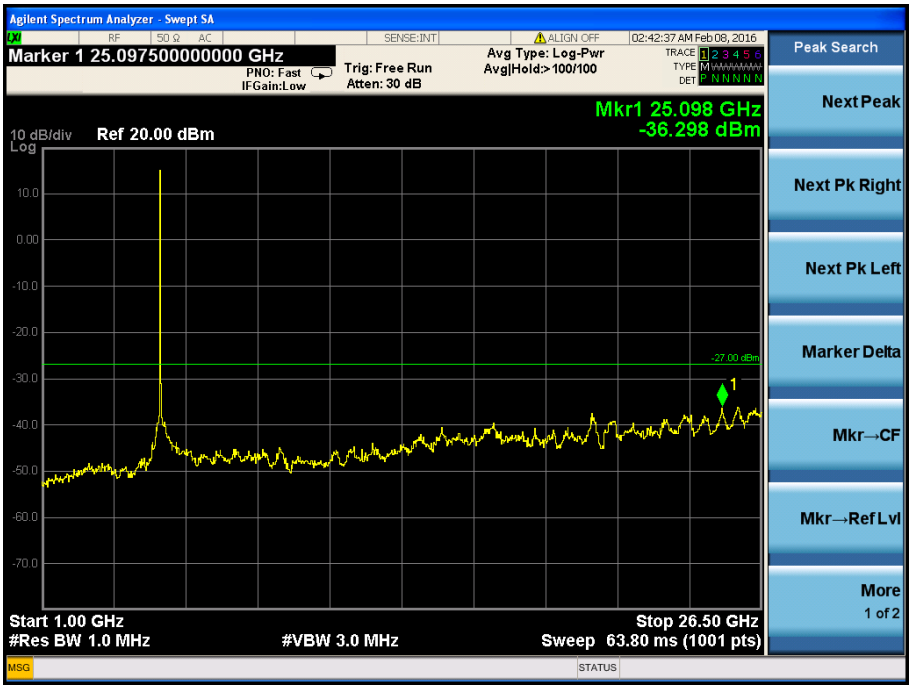
5180MHz



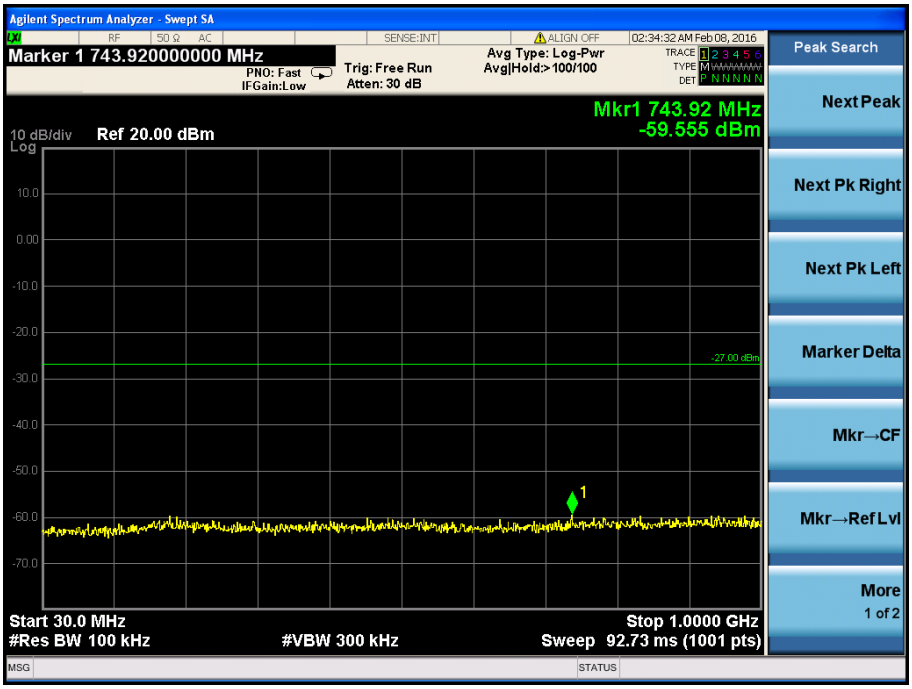


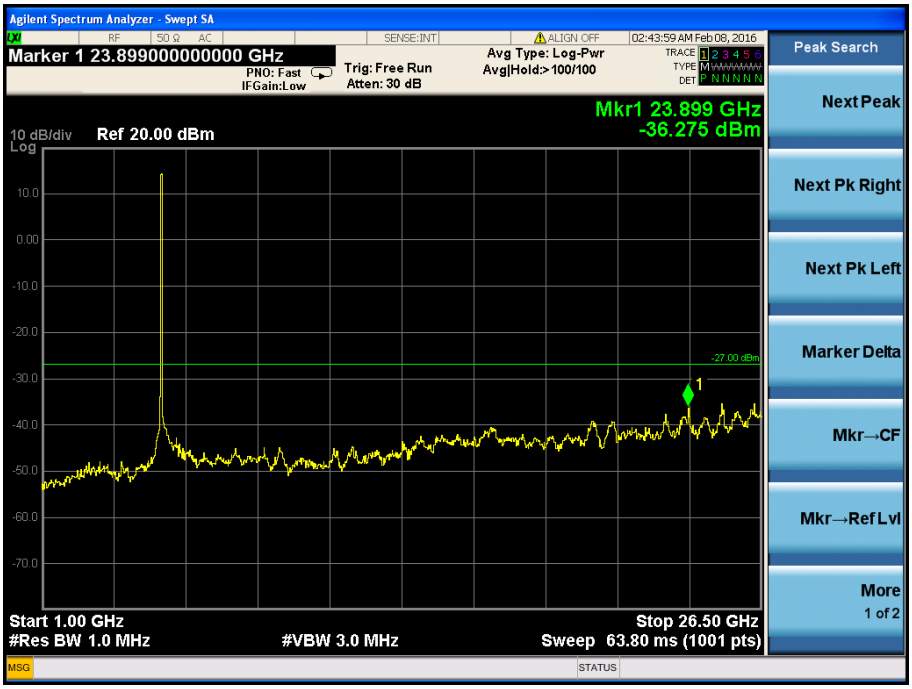
5200MHz


Agilent Spectrum Analyzer - Swept SA
Marker 1 202.660000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
02:34:27 AM Feb 08, 2016
Mkr1 202.66 MHz
-59.718 dBm
10 dB/div
Log
Ref 20.00 dBm
-27.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 92.73 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

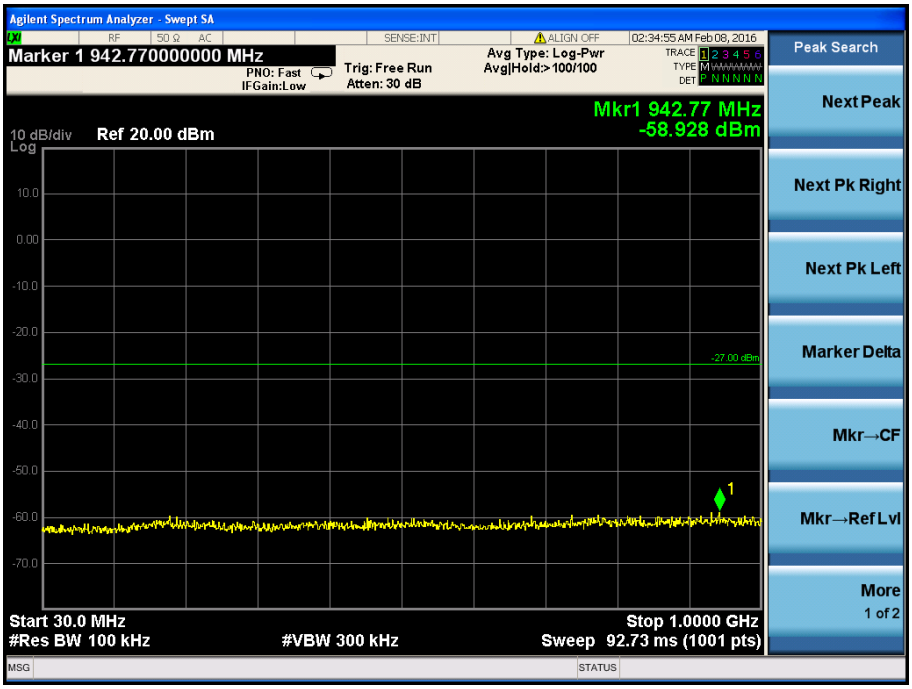

Agilent Spectrum Analyzer - Swept SA
Marker 1 25.097500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
02:42:37 AM Feb 08, 2016
Mkr1 25.098 GHz
-36.298 dBm
10 dB/div
Log
Ref 20.00 dBm
-27.00 dBm
Start 1.00 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 26.50 GHz
Sweep 63.80 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

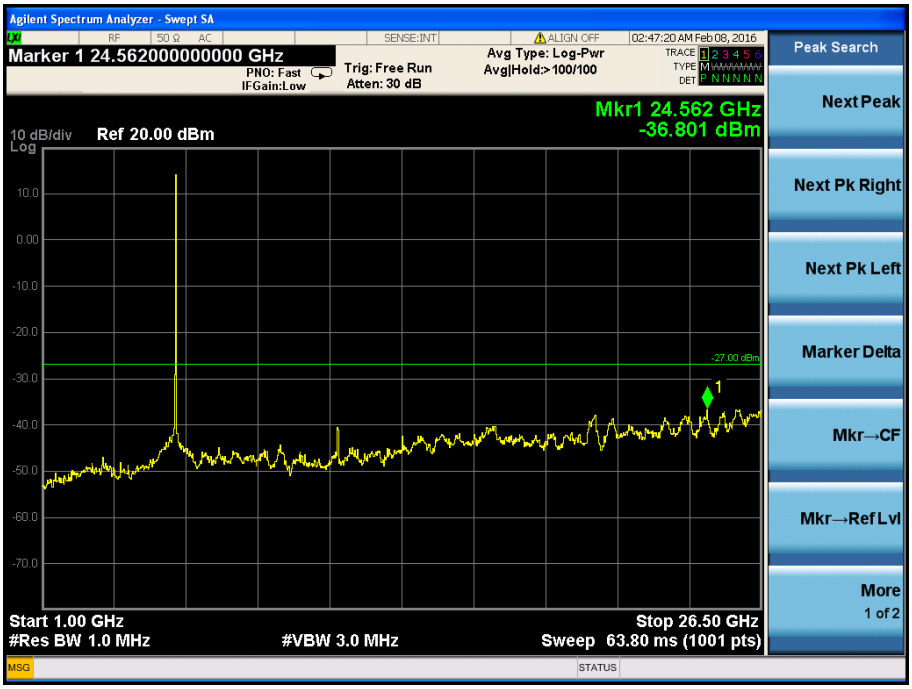
5240MHz


Agilent Spectrum Analyzer - Swept SA
Marker 1 743.920000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
02:34:32 AM Feb 08, 2016
Mkr1 743.92 MHz
-59.555 dBm
10 dB/div
Log
Ref 20.00 dBm
-27.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 92.73 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS

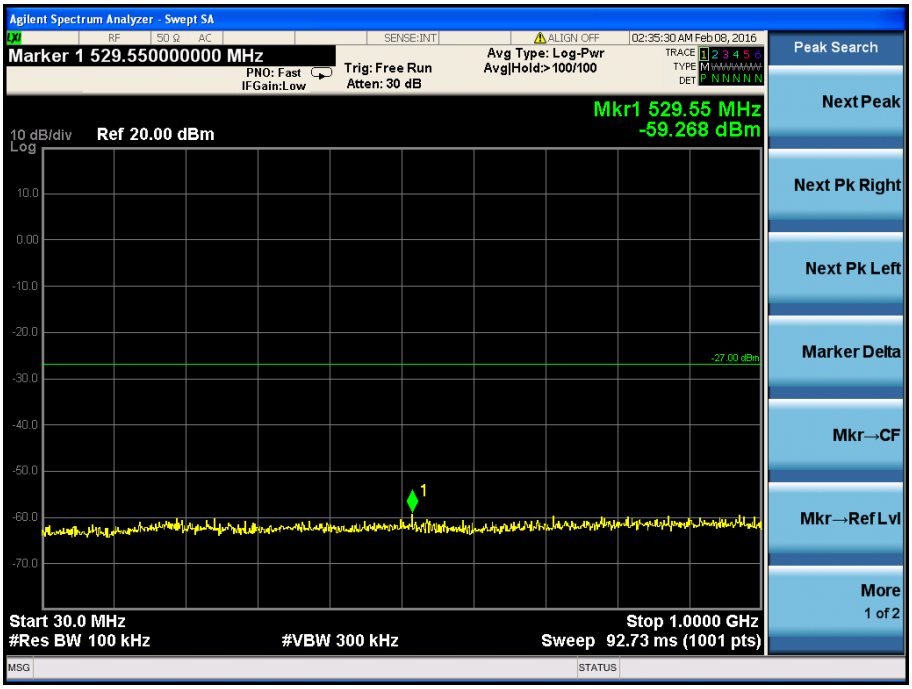

Agilent Spectrum Analyzer - Swept SA
Marker 1 23.899000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
02:43:59 AM Feb 08, 2016
Mkr1 23.899 GHz
-36.275 dBm
10 dB/div
Log
Ref 20.00 dBm
-27.00 dBm
Start 1.00 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 26.50 GHz
Sweep 63.80 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS

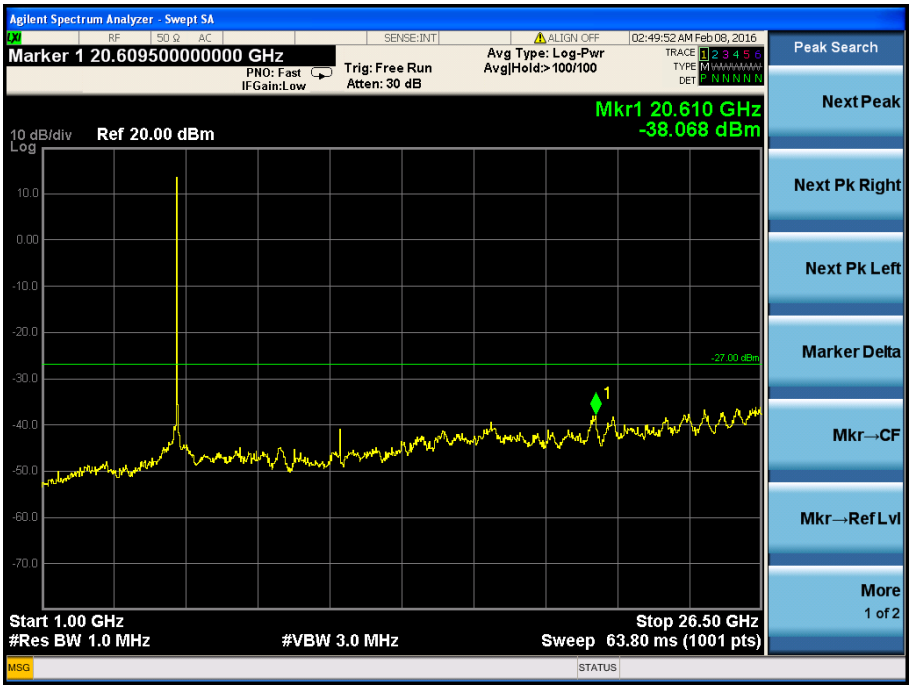
5745MHz


Agilent Spectrum Analyzer - Swept SA
Marker 1 942.770000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
02:34:55 AM Feb 08, 2016
Mkr1 942.77 MHz
-58.928 dBm
10 dB/div
Log
Ref 20.00 dBm
-27.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 92.73 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

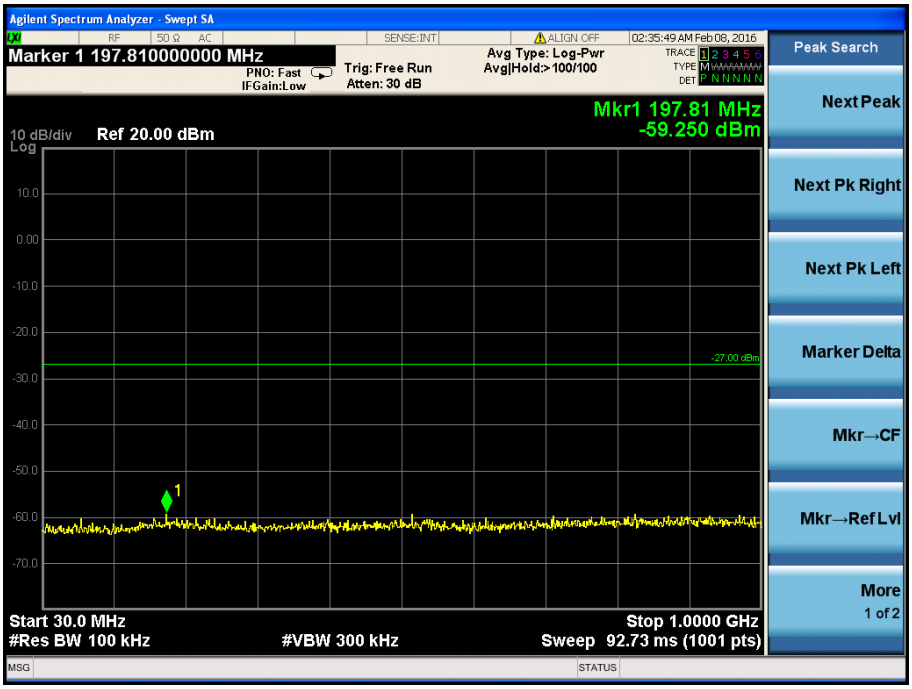

Agilent Spectrum Analyzer - Swept SA
Marker 1 24.562000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
02:47:20 AM Feb 08, 2016
Mkr1 24.562 GHz
-36.801 dBm
10 dB/div
Log
Ref 20.00 dBm
-27.00 dBm
Start 1.00 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 26.50 GHz
Sweep 63.80 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

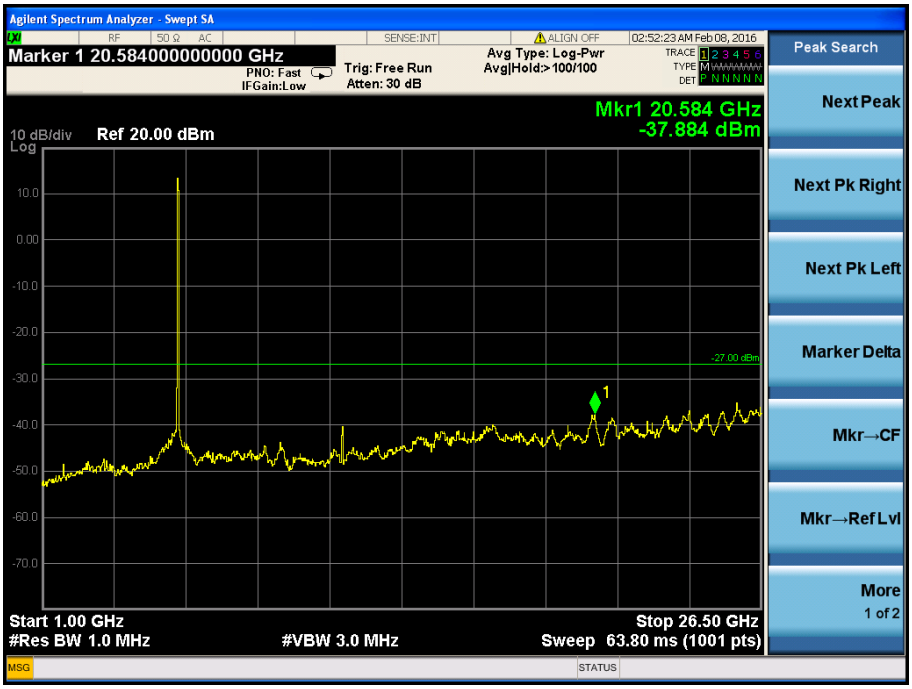
5785MHz


Agilent Spectrum Analyzer - Swept SA
Marker 1 529.550000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
02:35:30 AM Feb 08, 2016
Mkr1 529.55 MHz
-59.268 dBm
10 dB/div
Log
Ref 20.00 dBm
-27.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 92.73 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Marker 1 20.609500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
02:49:52 AM Feb 08, 2016
Mkr1 20.610 GHz
-38.068 dBm
10 dB/div
Log
Ref 20.00 dBm
-27.00 dBm
Start 1.00 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 26.50 GHz
Sweep 63.80 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

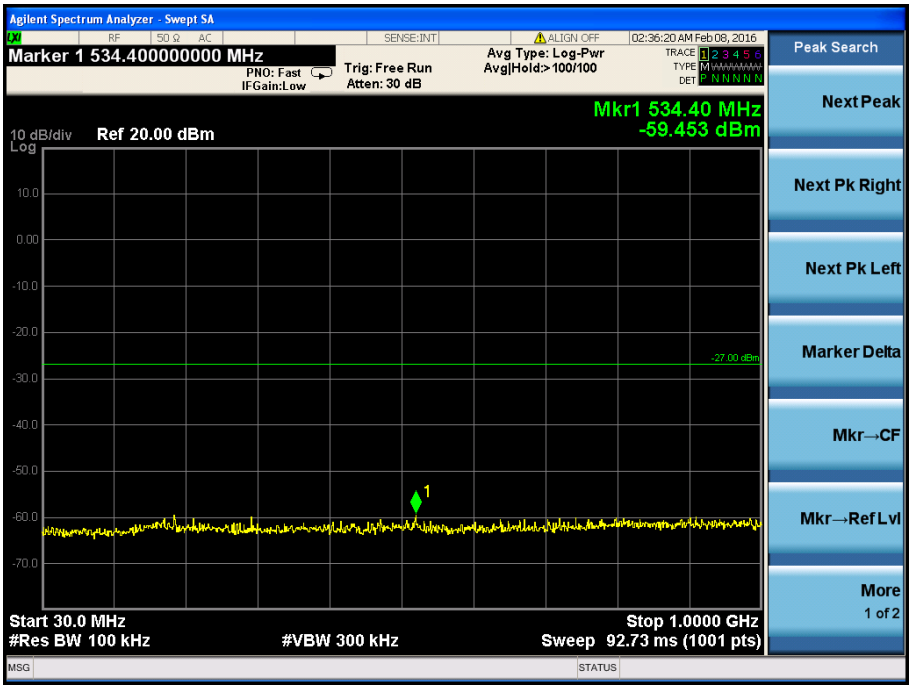
5825MHz

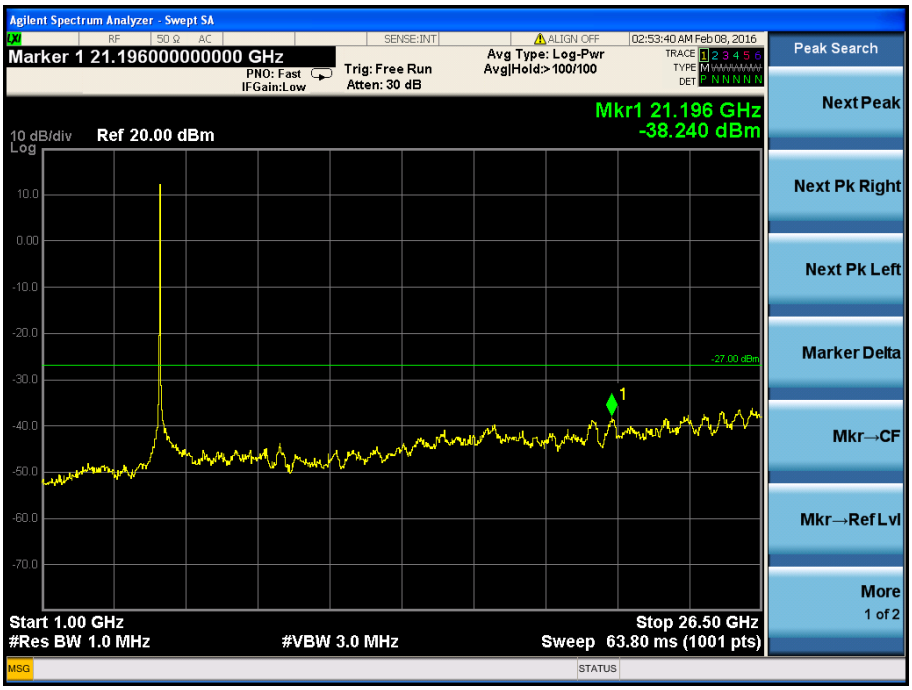

Agilent Spectrum Analyzer - Swept SA
Marker 1 197.810000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
02:35:49 AM Feb 08, 2016
Mkr1 197.81 MHz
-59.250 dBm
10 dB/div
Log
Ref 20.00 dBm
-27.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 92.73 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS


Agilent Spectrum Analyzer - Swept SA
Marker 1 20.584000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
02:52:23 AM Feb 08, 2016
Mkr1 20.584 GHz
-37.884 dBm
10 dB/div
Log
Ref 20.00 dBm
-27.00 dBm
Start 1.00 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 26.50 GHz
Sweep 63.80 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS

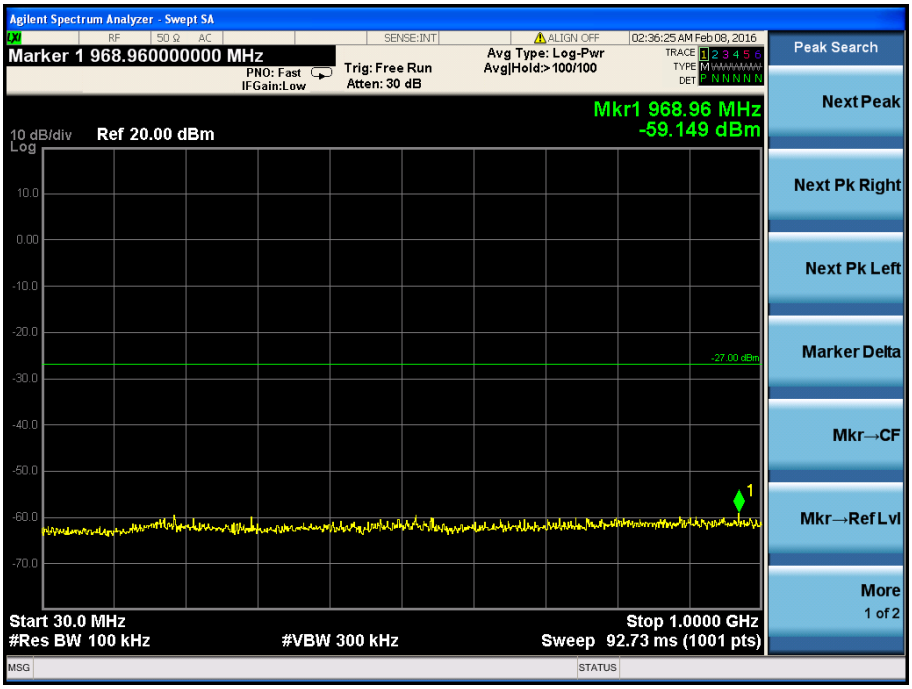
802.11n HT40

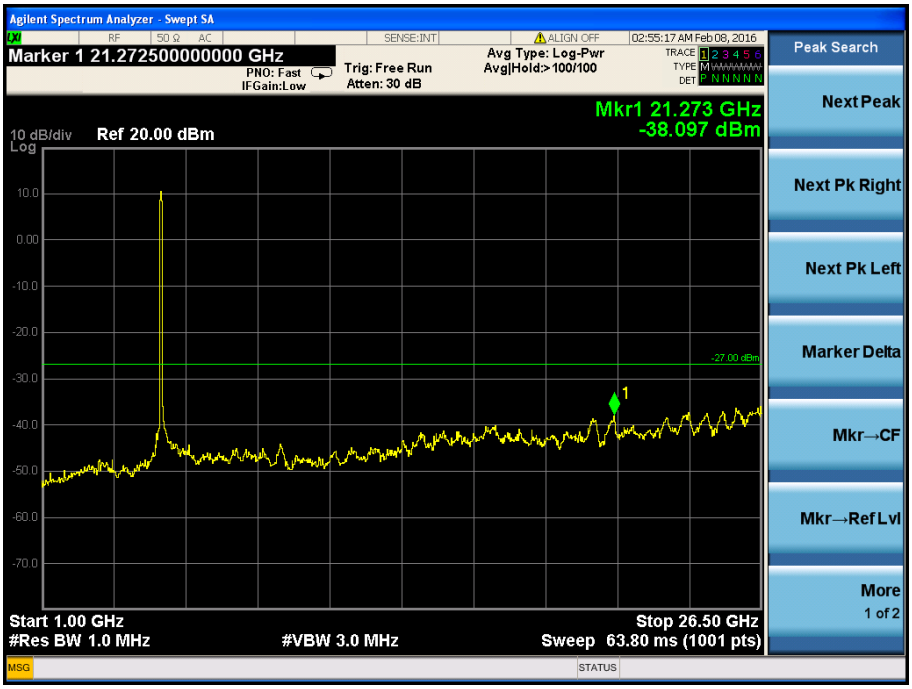
5190MHz



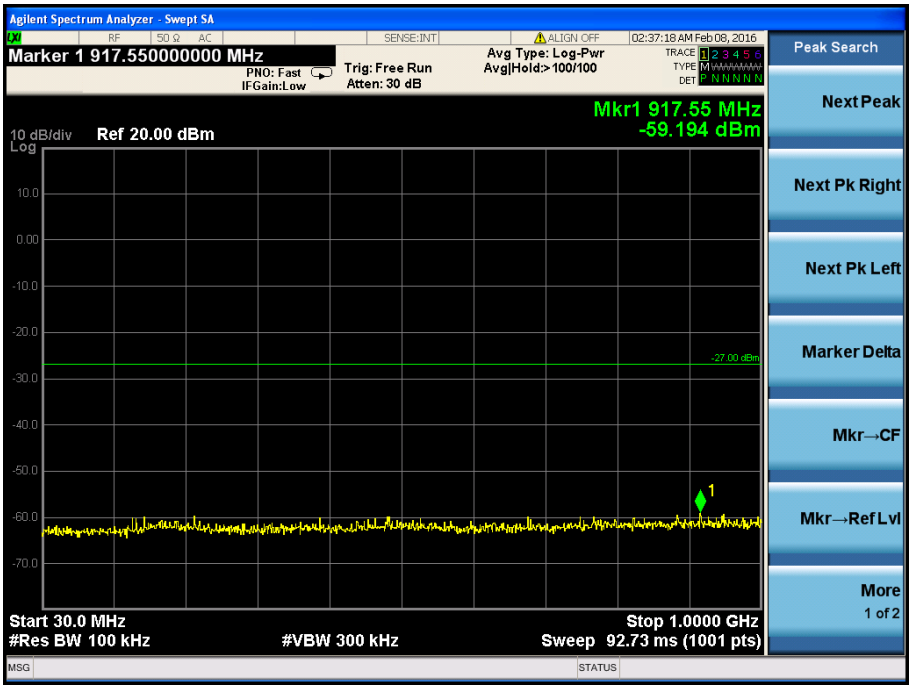


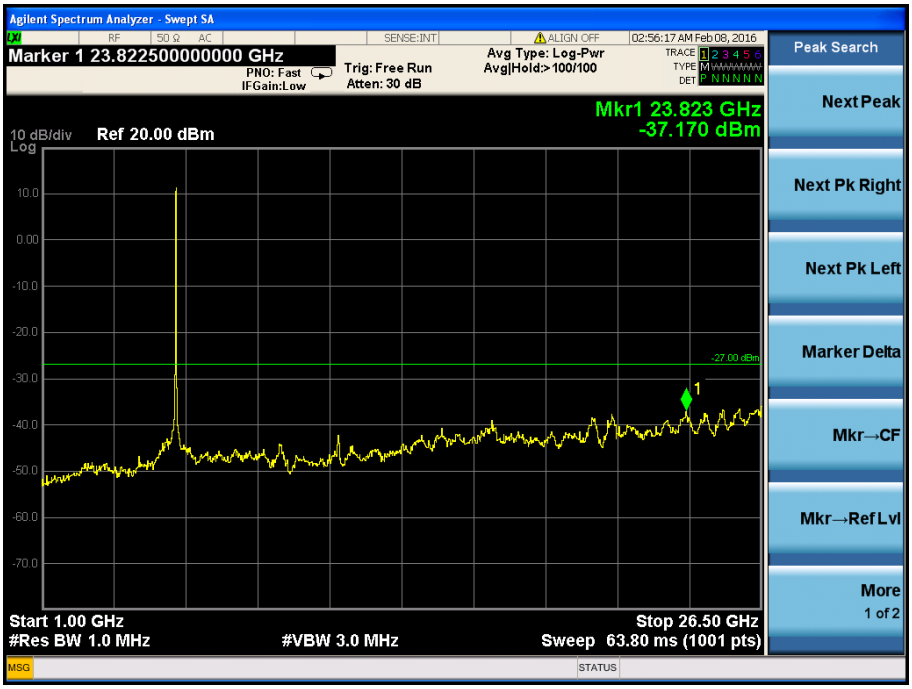
5230MHz


Agilent Spectrum Analyzer - Swept SA
Marker 1 968.960000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
02:36:25 AM Feb 08, 2016
Mkr1 968.96 MHz
-59.149 dBm
10 dB/div
Log
Ref 20.00 dBm
-27.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 92.73 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS

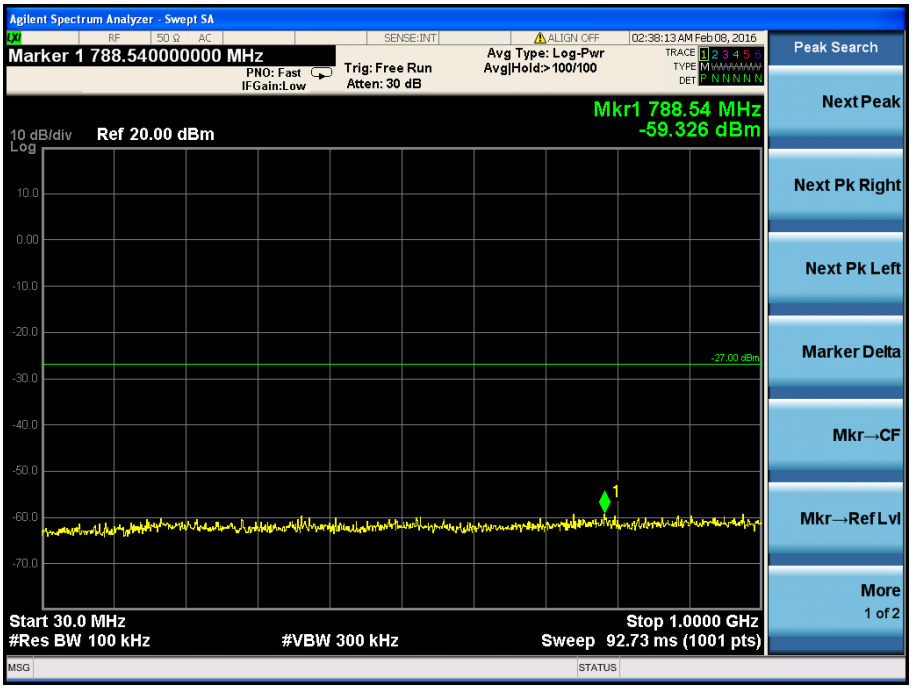

Agilent Spectrum Analyzer - Swept SA
Marker 1 21.272500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
02:55:17 AM Feb 08, 2016
Mkr1 21.273 GHz
-38.097 dBm
10 dB/div
Log
Ref 20.00 dBm
-27.00 dBm
Start 1.00 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 26.50 GHz
Sweep 63.80 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS

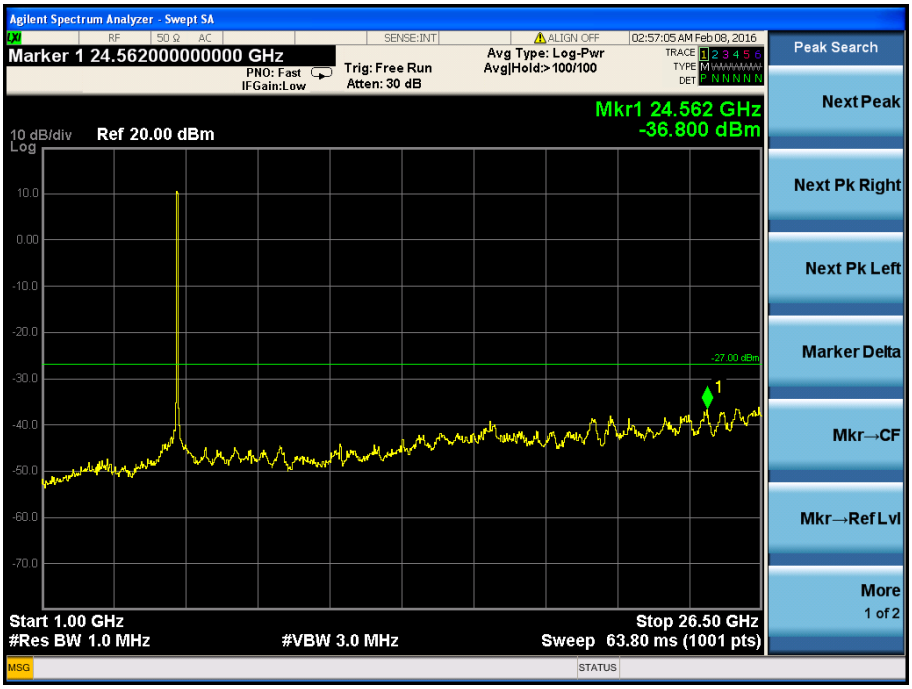
5755MHz


Agilent Spectrum Analyzer - Swept SA
Marker 1 917.550000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
02:37:18 AM Feb 08, 2016
Mkr1 917.55 MHz
-59.194 dBm
10 dB/div
Log
Ref 20.00 dBm
-27.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 92.73 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Marker 1 23.822500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
02:56:17 AM Feb 08, 2016
Mkr1 23.823 GHz
-37.170 dBm
10 dB/div
Log
Ref 20.00 dBm
-27.00 dBm
Start 1.00 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 26.50 GHz
Sweep 63.80 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

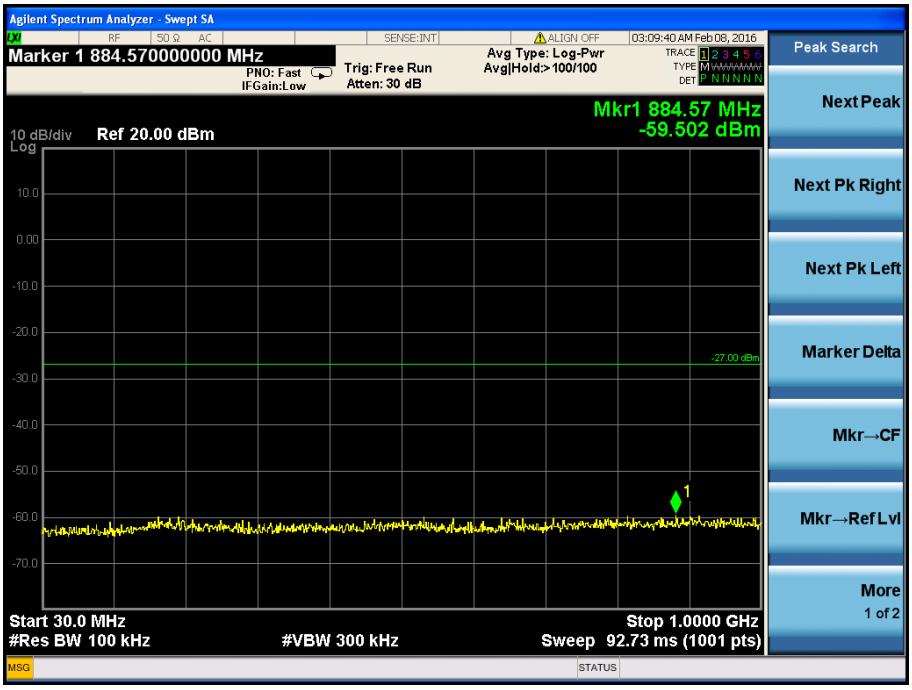
5795MHz

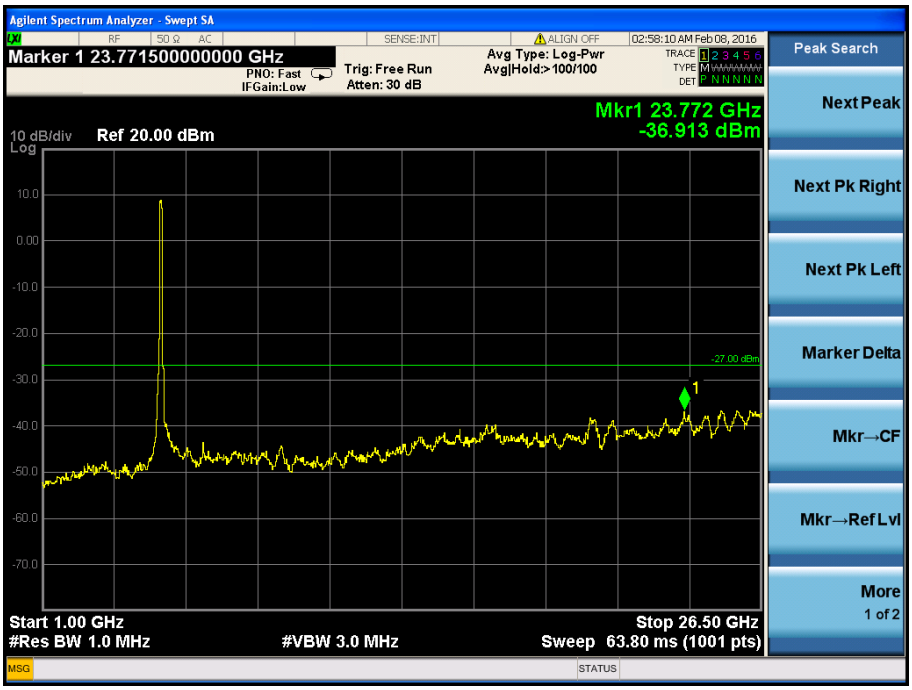

Agilent Spectrum Analyzer - Swept SA
Marker 1 788.540000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
02:38:13 AM Feb 08, 2016
Mkr1 788.54 MHz
-59.326 dBm
10 dB/div
Log
Ref 20.00 dBm
-27.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 92.73 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Marker 1 24.562000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
02:57:05 AM Feb 08, 2016
Mkr1 24.562 GHz
-36.800 dBm
10 dB/div
Log
Ref 20.00 dBm
-27.00 dBm
Start 1.00 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 26.50 GHz
Sweep 63.80 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

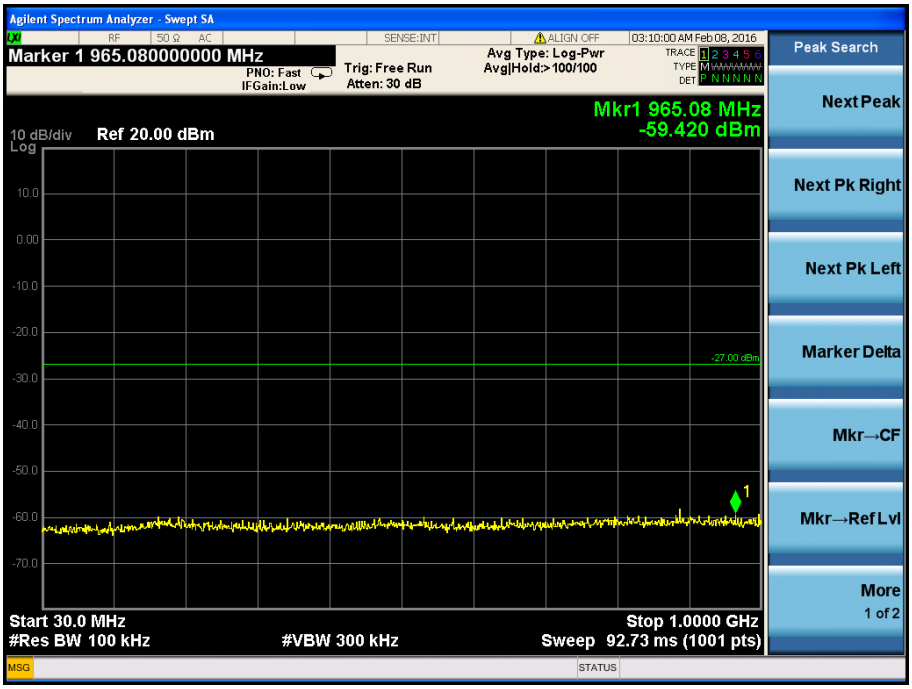
802.1ac HT80

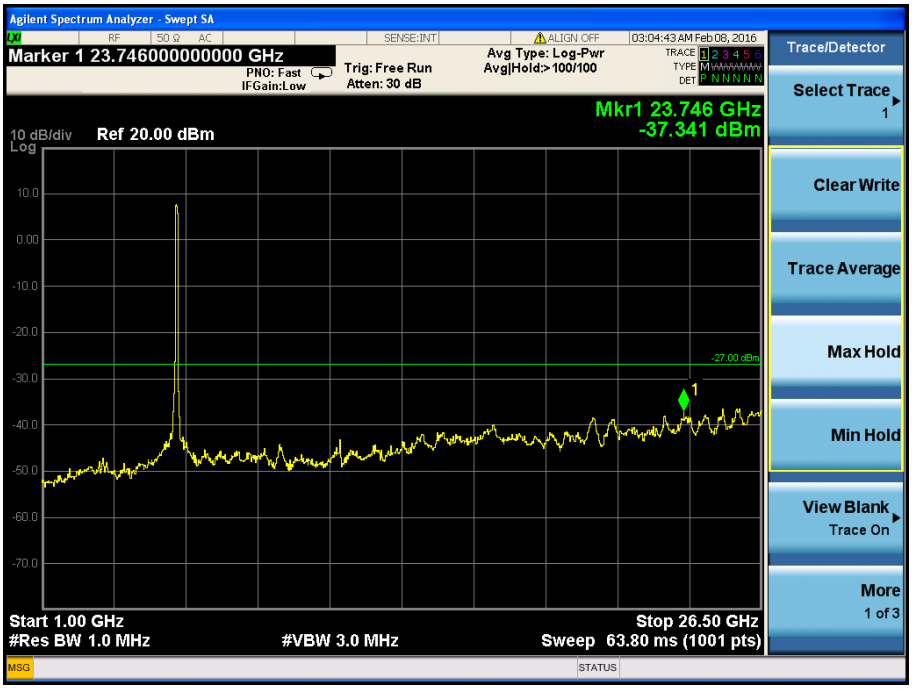
5210MHz





5775MHz


Agilent Spectrum Analyzer - Swept SA
Marker 1 965.080000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
03:10:00 AM Feb 08, 2016
Mkr1 965.08 MHz
-59.420 dBm
10 dB/div
Log
Ref 20.00 dBm
-27.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 92.73 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Marker 1 23.746000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
03:04:43 AM Feb 08, 2016
Mkr1 23.746 GHz
-37.341 dBm
10 dB/div
Log
Ref 20.00 dBm
-27.00 dBm
Start 1.00 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 26.50 GHz
Sweep 63.80 ms (1001 pts)
Trace/Detector
Select Trace
1
Clear Write
Trace Average
Max Hold
Min Hold
View Blank
Trace On
More
1 of 3

9. Radiated Spurious Emissions

9.1 Measurement Uncertainty

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement is ±5.10 dB.

9.2 Standard Applicable

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.
789033 D02 General UNII Test Procedures New Rules v01
If radiated measurements are performed, field strength is then converted to EIRP as follows:

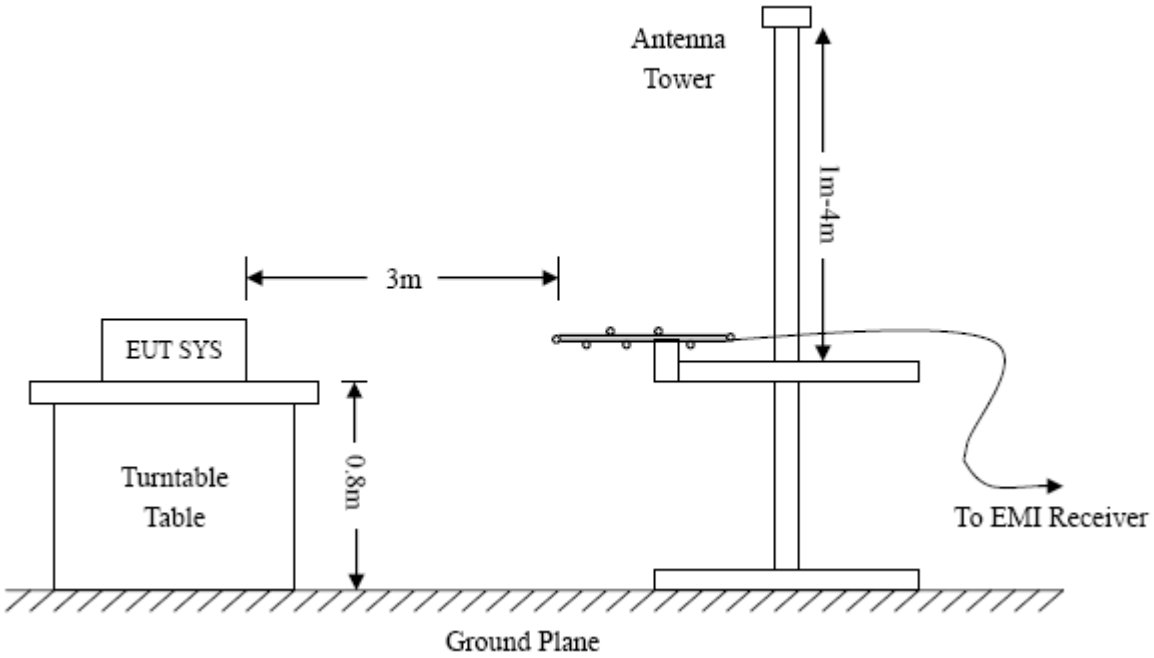
EIRP = ((E*d)^2) / 30

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.

9.3 Test Procedure

The setup of EUT is according with per ANSI C63.4-2014 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.



9.4 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

9.5 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. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – FCC Part 15 Limit

9.6 Environmental Conditions

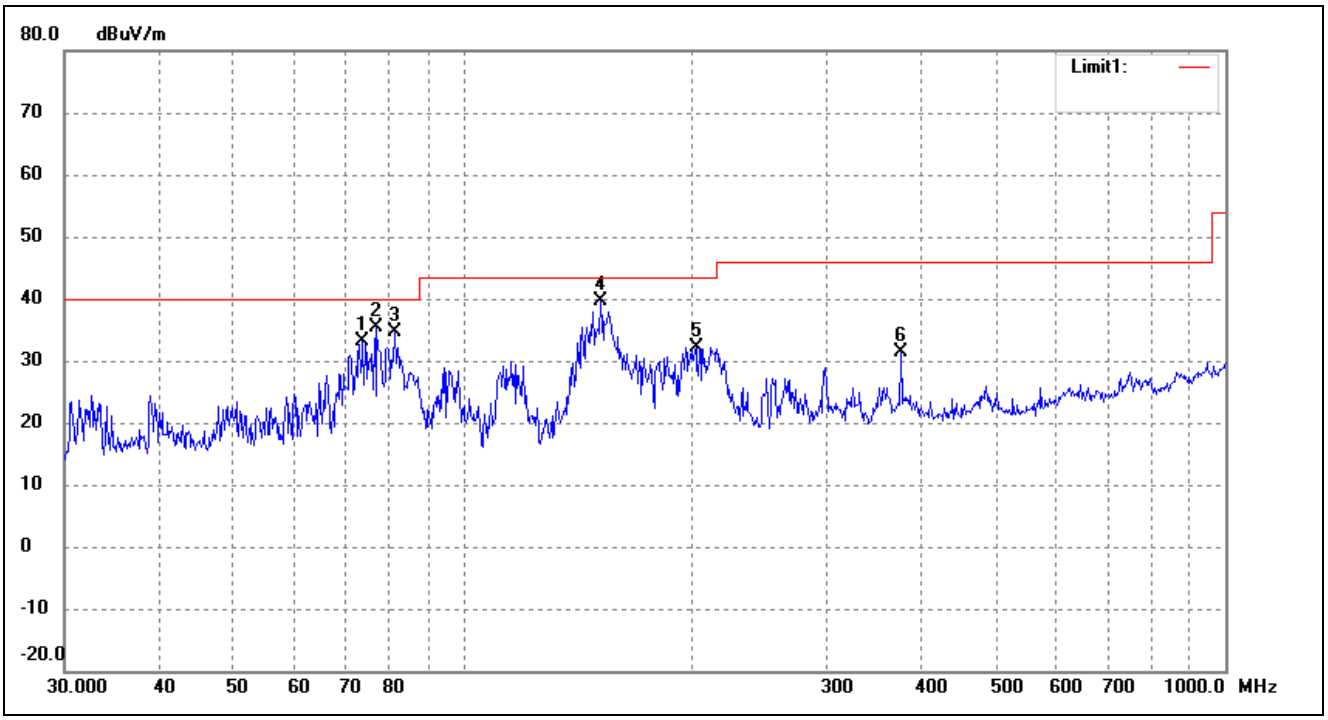
Temperature:	22° C
Relative Humidity:	52%
ATM Pressure:	1012 mbar

9.7 Summary of Test Results/Plots

According to the data below, the FCC Part 15.205, 15.209 and 15.407(b)(6) standards, and had the worst margin of:

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

For 802.11a
5150-5250MHz band
Spurious Emission From 30 MHz to 1 GHz
Test mode: Transmitting Low Channel 5180MHz
Horizontal



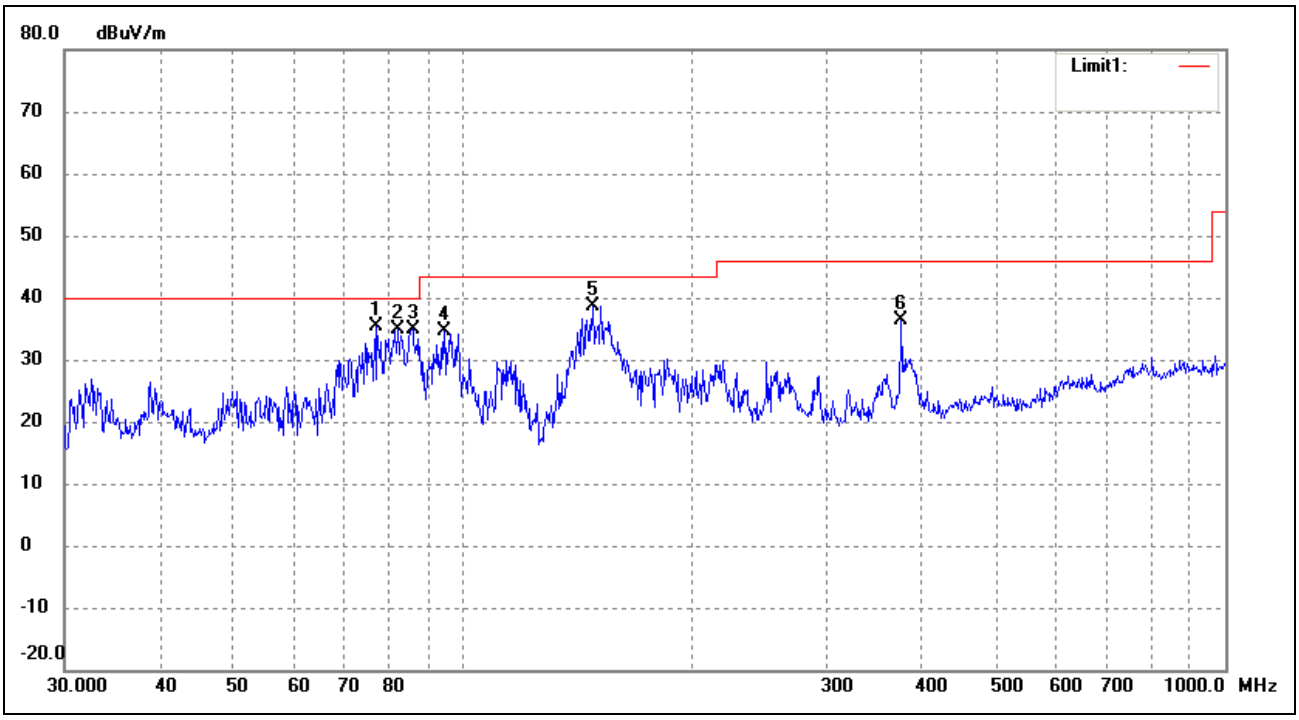
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	73.8756	45.58	-12.50	33.08	40.00	-6.92	52	100	peak
2	77.0503	47.73	-12.24	35.49	40.00	-4.51	93	100	peak
3	81.4968	46.85	-12.13	34.72	40.00	-5.28	128	100	peak
4	151.5971	51.97	-12.40	39.57	43.50	-3.93	164	100	peak
5	202.1005	40.87	-8.66	32.21	43.50	-11.29	183	100	peak
6	375.9384	33.80	-2.33	31.47	46.00	-14.53	215	100	peak

Test Specification: *Vertical*

No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	31.3992	45.62	-9.96	35.66	40.00	-4.34	33	100	peak
2	32.5197	47.35	-9.67	37.68	40.00	-2.32	97	100	peak
3	79.2425	46.22	-12.05	34.17	40.00	-5.83	132	100	peak
4	81.4968	48.25	-12.13	36.12	40.00	-3.88	195	100	peak
5	85.8983	46.94	-12.55	34.39	40.00	-5.61	219	100	peak
6	94.4282	45.73	-12.04	33.69	43.50	-9.81	252	100	peak

Test mode: Transmitting Middle Channel 5200MHz

Horizontal



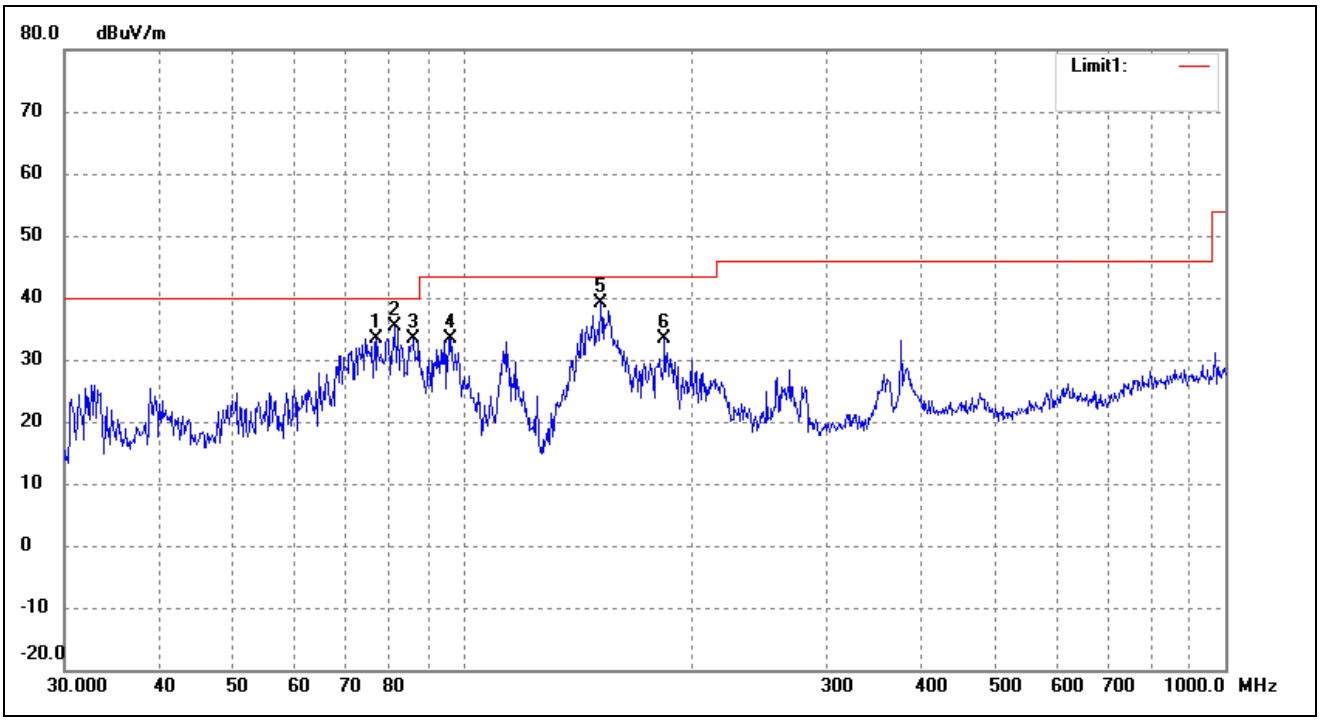
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	77.0503	47.70	-12.24	35.46	40.00	-4.54	61	100	peak
2	82.0704	47.09	-12.19	34.90	40.00	-5.10	79	100	peak
3	85.8983	47.37	-12.55	34.82	40.00	-5.18	96	100	peak
4	94.4282	46.69	-12.04	34.65	43.50	-8.85	155	100	peak
5	147.9214	51.08	-12.45	38.63	43.50	-4.87	247	100	peak
6	375.9384	38.80	-2.33	36.47	46.00	-9.53	298	100	peak

Test Specification: *Vertical*

No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	32.5197	46.81	-9.67	37.14	40.00	-2.86	42	100	peak
2	77.0503	48.42	-12.24	36.18	40.00	-3.82	90	100	peak
3	81.2116	48.26	-12.11	36.15	40.00	-3.85	124	100	peak
4	85.8983	48.04	-12.55	35.49	40.00	-4.51	165	100	peak
5	94.4282	44.63	-12.04	32.59	43.50	-10.91	199	100	peak
6	147.9214	44.76	-12.45	32.31	43.50	-11.19	236	100	peak

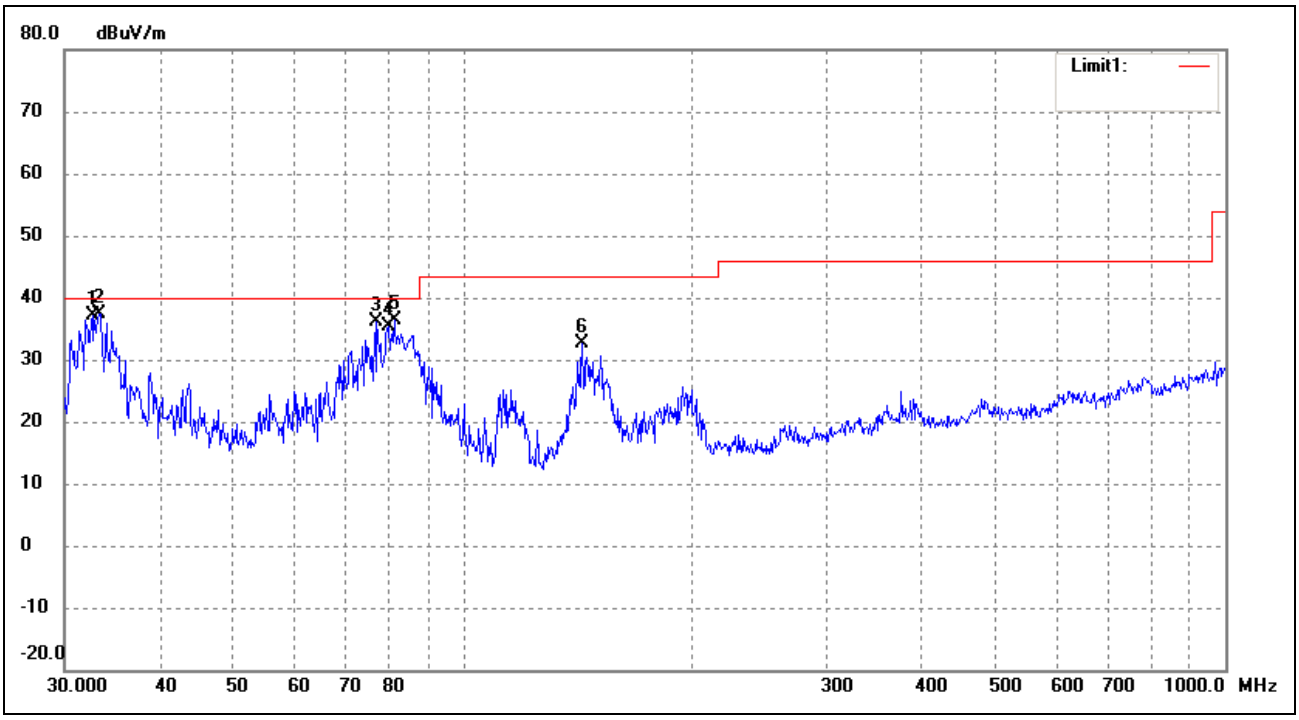
Test mode: Transmitting High Channel 5240MHz

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	77.0504	45.65	-12.24	33.41	40.00	-6.59	65	100	peak
2	81.2116	47.41	-12.11	35.30	40.00	-4.70	124	100	peak
3	86.2001	46.06	-12.58	33.48	40.00	-6.52	185	100	peak
4	96.4361	44.89	-11.63	33.26	43.50	-10.24	212	100	peak
5	151.5971	51.41	-12.40	39.01	43.50	-4.49	267	100	peak
6	183.8439	44.16	-10.84	33.32	43.50	-10.18	299	100	peak

Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	32.6340	46.71	-9.65	37.06	40.00	-2.94	55	100	peak
2	33.3278	46.85	-9.46	37.39	40.00	-2.61	58	100	peak
3	77.0504	48.39	-12.24	36.15	40.00	-3.85	154	100	peak
4	79.8002	47.45	-12.01	35.44	40.00	-4.56	169	100	peak
5	81.2116	48.48	-12.11	36.37	40.00	-3.63	195	100	peak
6	143.3260	45.04	-12.51	32.53	43.50	-10.97	264	100	peak

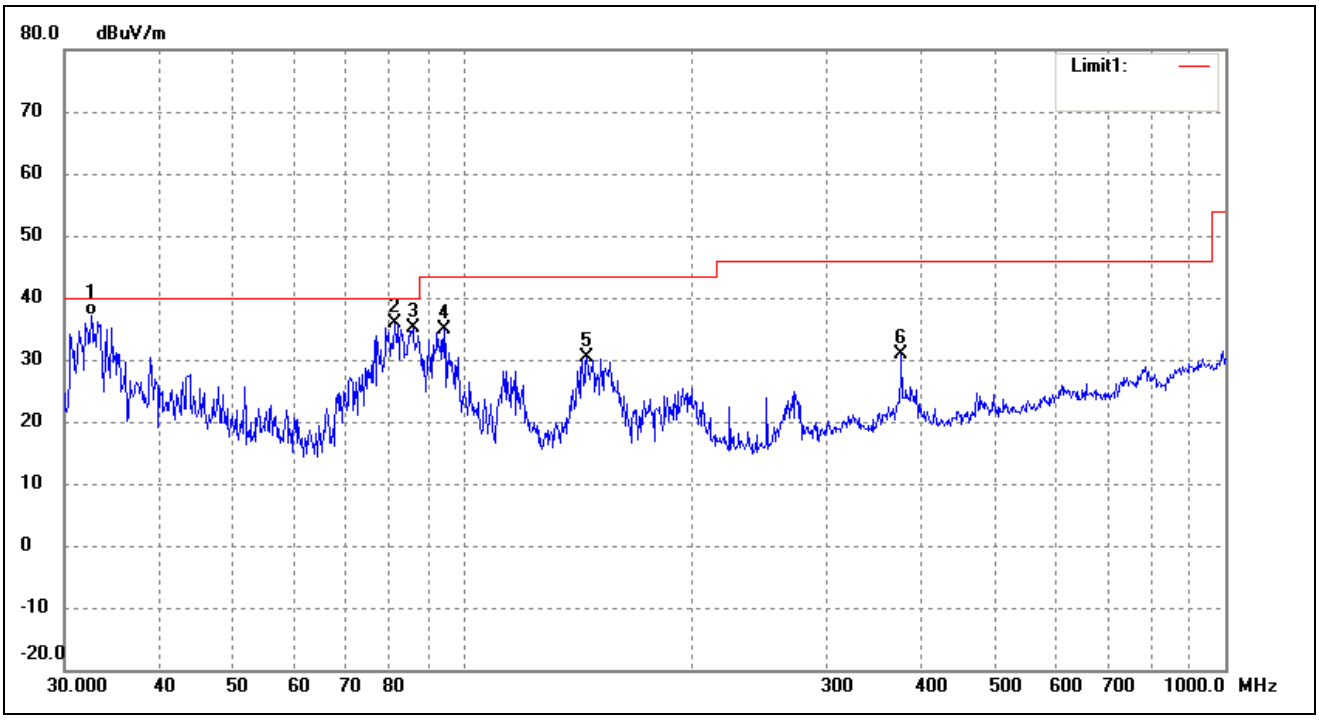
5725-5850MHz band

Test mode: Transmitting Low Channel 5745MHz

Horizontal

No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	76.5121	47.39	-12.28	35.11	40.00	-4.89	69	100	peak
2	81.2116	48.51	-12.11	36.40	40.00	-3.60	88	100	peak
3	87.4176	47.75	-12.70	35.05	40.00	-4.95	104	100	peak
4	94.4283	48.51	-12.04	36.47	43.50	-7.03	157	100	peak
5	151.5971	51.96	-12.40	39.56	43.50	-3.94	168	100	peak
6	375.9384	36.84	-2.33	34.51	46.00	-11.49	201	100	peak

Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	32.5197	46.82	-9.67	37.15	40.00	-2.85	26	100	QP
2	81.2116	47.92	-12.11	35.81	40.00	-4.19	91	100	peak
3	85.8983	47.77	-12.55	35.22	40.00	-4.78	123.	100	peak
4	94.4282	46.87	-12.04	34.83	43.50	-8.67	156	100	peak
5	145.3505	42.83	-12.48	30.35	43.50	-13.15	224	100	peak
6	375.9384	33.21	-2.33	30.88	46.00	-15.12	256	100	peak

Test mode: Transmitting Middle Channel 5785MHz

Horizontal

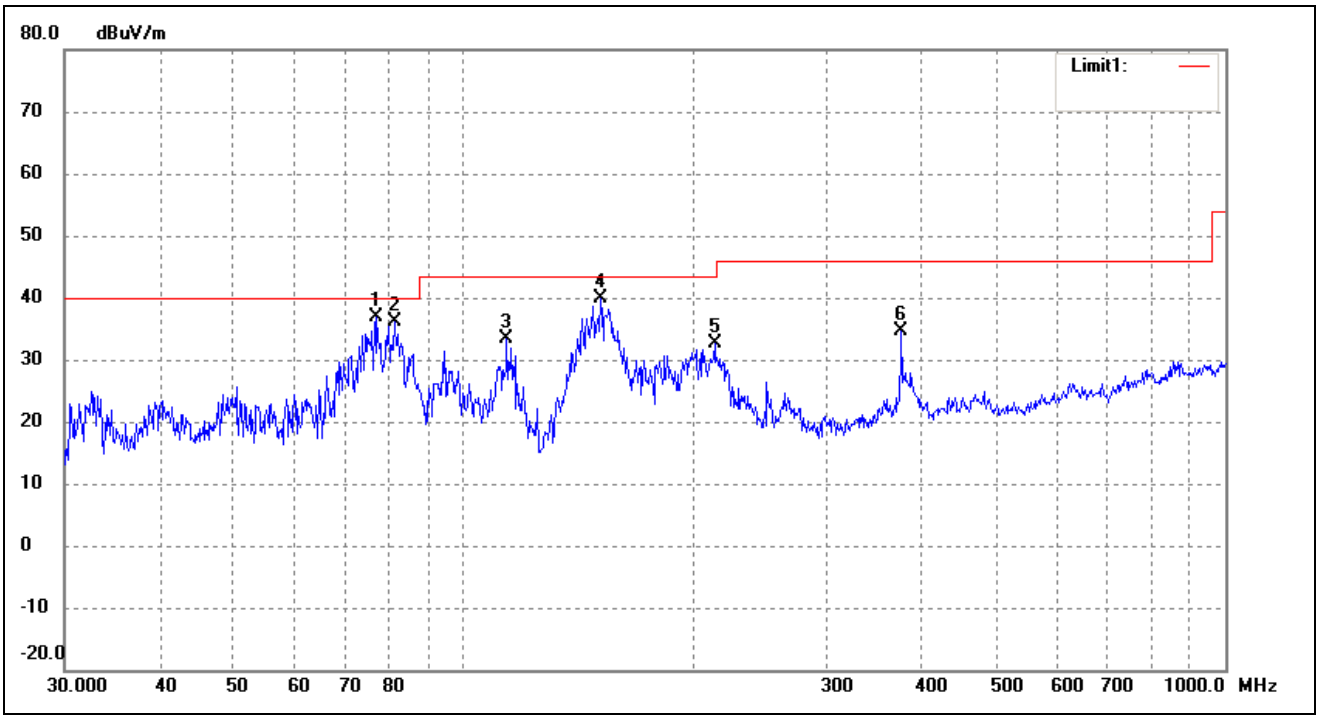
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	77.0503	49.06	-12.24	36.82	40.00	-3.18	66	100	peak
2	81.2116	48.64	-12.11	36.53	40.00	-3.47	95	100	peak
3	86.2001	46.27	-12.58	33.69	40.00	-6.31	132	100	peak
4	94.4282	45.09	-12.04	33.05	43.50	-10.45	154	100	peak
5	151.5971	51.76	-12.40	39.36	43.50	-4.14	178	100	peak
6	375.9384	35.59	-2.33	33.26	46.00	-12.74	205	100	peak

Test Specification: *Vertical*

No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	33.4448	45.02	-9.43	35.59	40.00	-4.41	45	100	peak
2	73.1025	48.30	-12.57	35.73	40.00	-4.27	136	100	peak
3	77.0503	48.28	-12.24	36.04	40.00	-3.96	187	100	peak
4	86.2001	48.05	-12.58	35.47	40.00	-4.53	86	100	peak
5	90.8554	45.35	-12.77	32.58	43.50	-10.92	161	100	peak
6	147.9214	43.09	-12.45	30.64	43.50	-12.86	245	100	peak

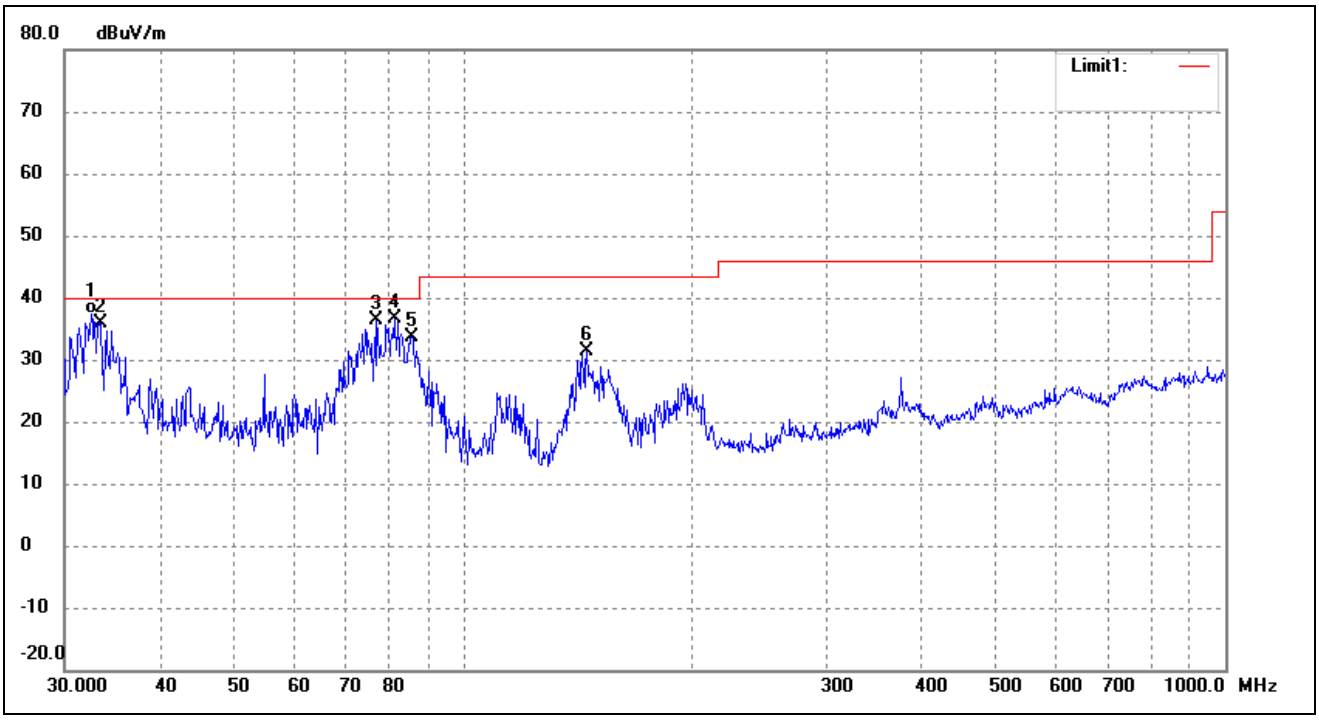
Test mode: Transmitting High Channel 5825MHz

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	77.0503	49.17	-12.24	36.93	40.00	-3.07	87	100	peak
2	81.2116	48.30	-12.11	36.19	40.00	-3.81	103	100	peak
3	114.1136	44.58	-11.28	33.30	43.50	-10.20	189	100	peak
4	151.5971	52.26	-12.40	39.86	43.50	-3.64	265	100	peak
5	213.7632	41.38	-8.77	32.61	43.50	-10.89	208	100	peak
6	375.9384	37.03	-2.33	34.70	46.00	-11.30	236	100	peak

Test Specification: *Vertical*



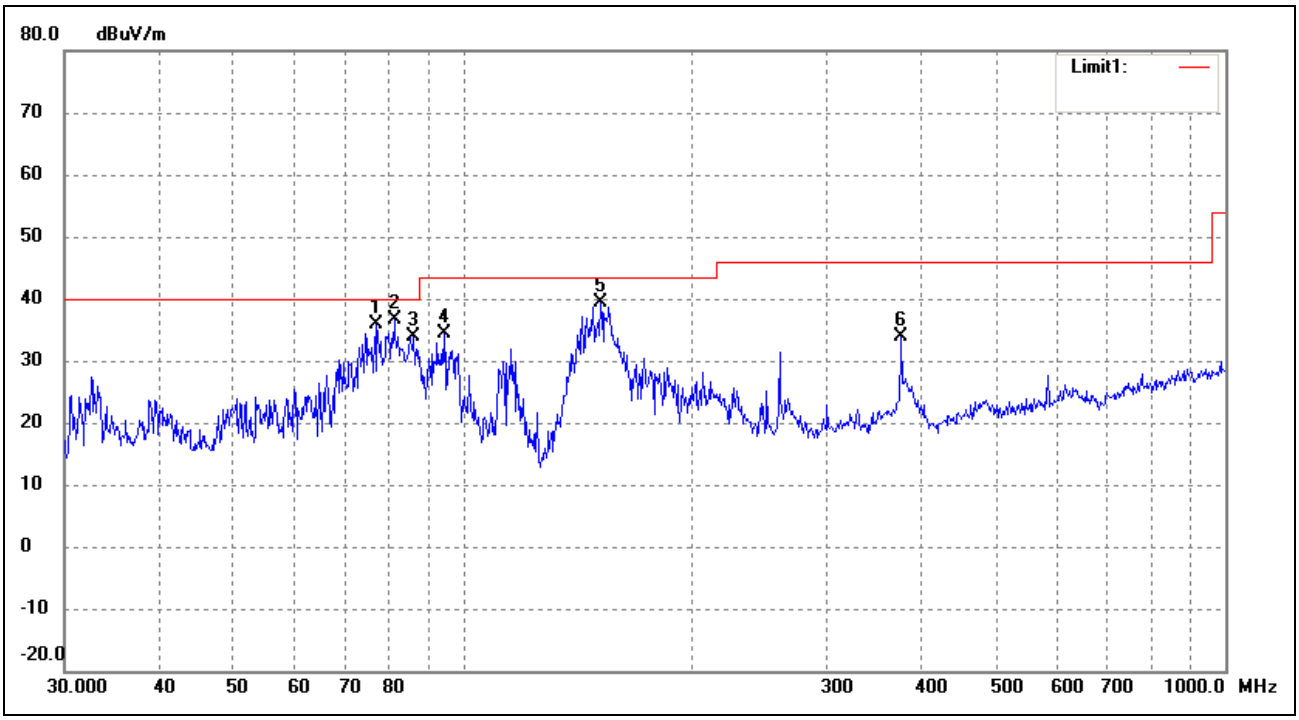
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	32.5197	47.06	-9.67	37.39	40.00	-2.61	33	100	peak
2	33.4448	45.31	-9.43	35.88	40.00	-4.12	105	100	peak
3	77.0504	48.53	-12.24	36.29	40.00	-3.71	169	100	peak
4	81.2116	48.85	-12.11	36.74	40.00	-3.26	233	100	peak
5	85.5977	46.24	-12.52	33.72	40.00	-6.28	196	100	peak
6	145.3505	43.82	-12.48	31.34	43.50	-12.16	285	100	peak

For 802.11n-HT20

5150-5250MHz band

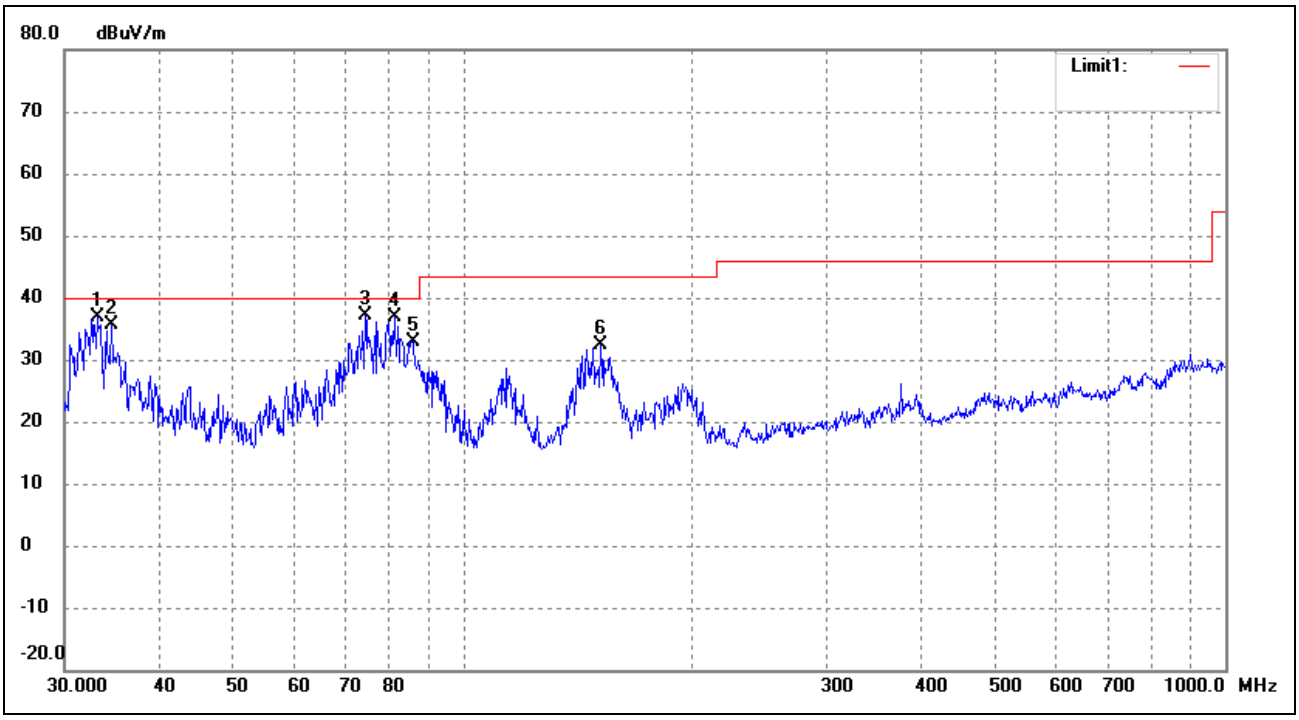
Test mode: Transmitting Low Channel 5180MHz

Horizontal:



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	77.0503	48.01	-12.24	35.77	40.00	-4.23	67	100	peak
2	81.2116	48.66	-12.11	36.55	40.00	-3.45	105	100	peak
3	86.2001	46.34	-12.58	33.76	40.00	-6.24	183	100	peak
4	94.4282	46.52	-12.04	34.48	43.50	-9.02	157	100	peak
5	151.5971	51.70	-12.40	39.30	43.50	-4.20	229	100	peak
6	375.9384	36.12	-2.33	33.79	46.00	-12.21	267	100	peak

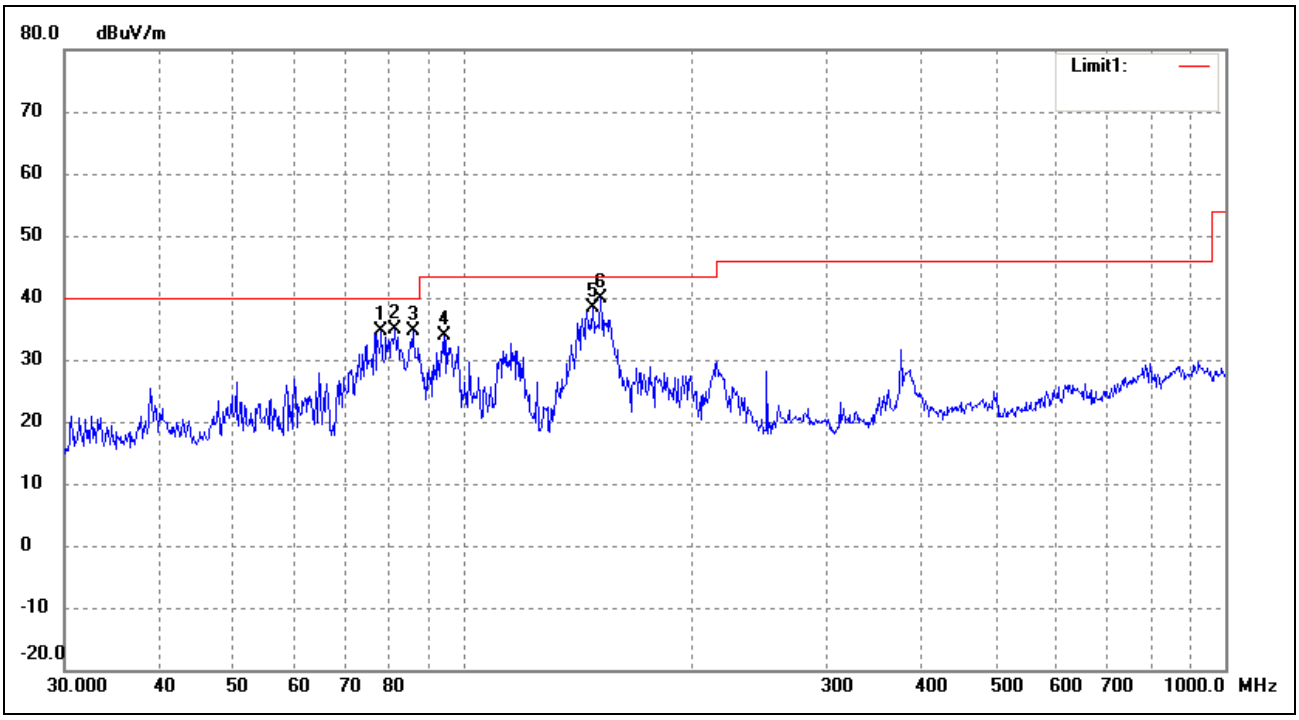
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	33.0949	46.52	-9.53	36.99	40.00	-3.01	61	100	peak
2	34.5172	44.92	-9.17	35.75	40.00	-4.25	80	100	peak
3	74.3953	49.55	-12.46	37.09	40.00	-2.91	139	100	peak
4	81.2116	48.89	-12.11	36.78	40.00	-3.22	177	100	peak
5	85.8983	45.46	-12.55	32.91	40.00	-7.09	194	100	peak
6	151.5971	44.82	-12.40	32.42	43.50	-11.08	236	100	peak

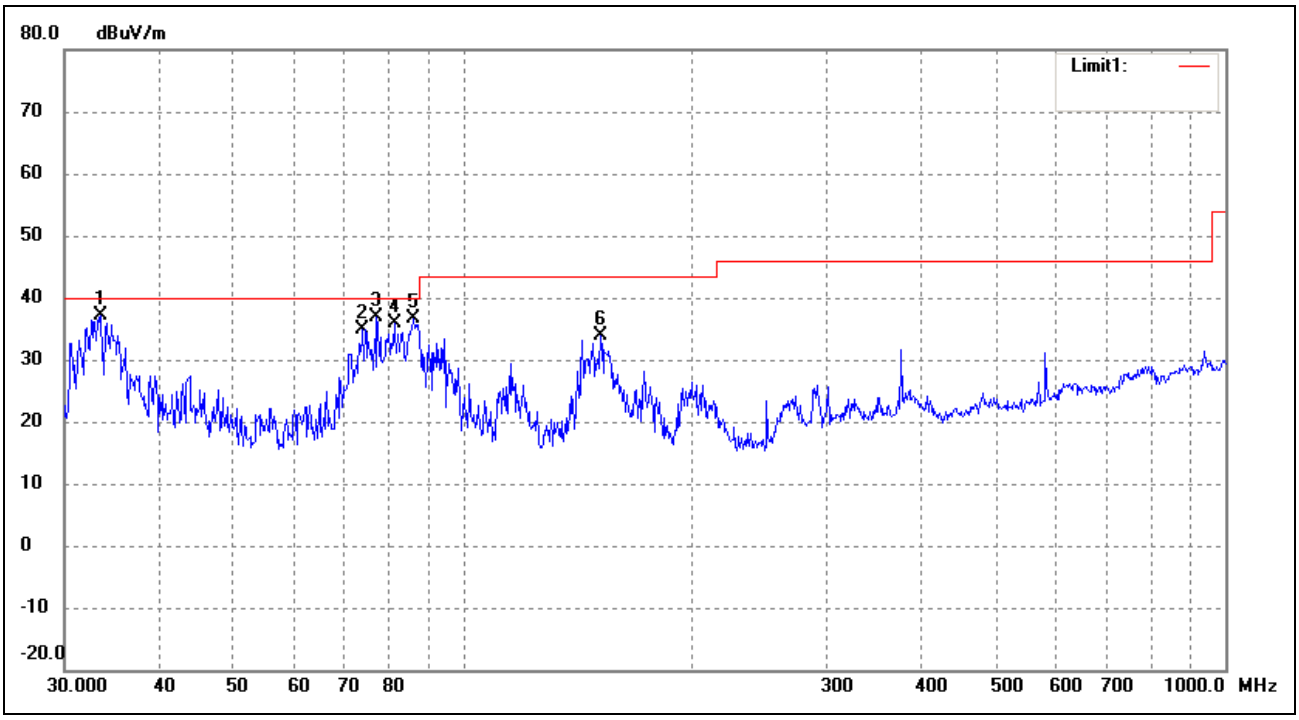
Test mode: Transmitting Middle Channel 5200MHz

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	78.1389	46.77	-12.15	34.62	40.00	-5.38	94	100	peak
2	81.4968	46.98	-12.13	34.85	40.00	-5.15	135	100	peak
3	85.8983	47.21	-12.55	34.66	40.00	-5.34	191	100	peak
4	94.4282	45.97	-12.04	33.93	43.50	-9.57	212	100	peak
5	147.9214	50.86	-12.45	38.41	43.50	-5.09	285	100	peak
6	151.5971	52.22	-12.40	39.82	43.50	-3.68	233	100	peak

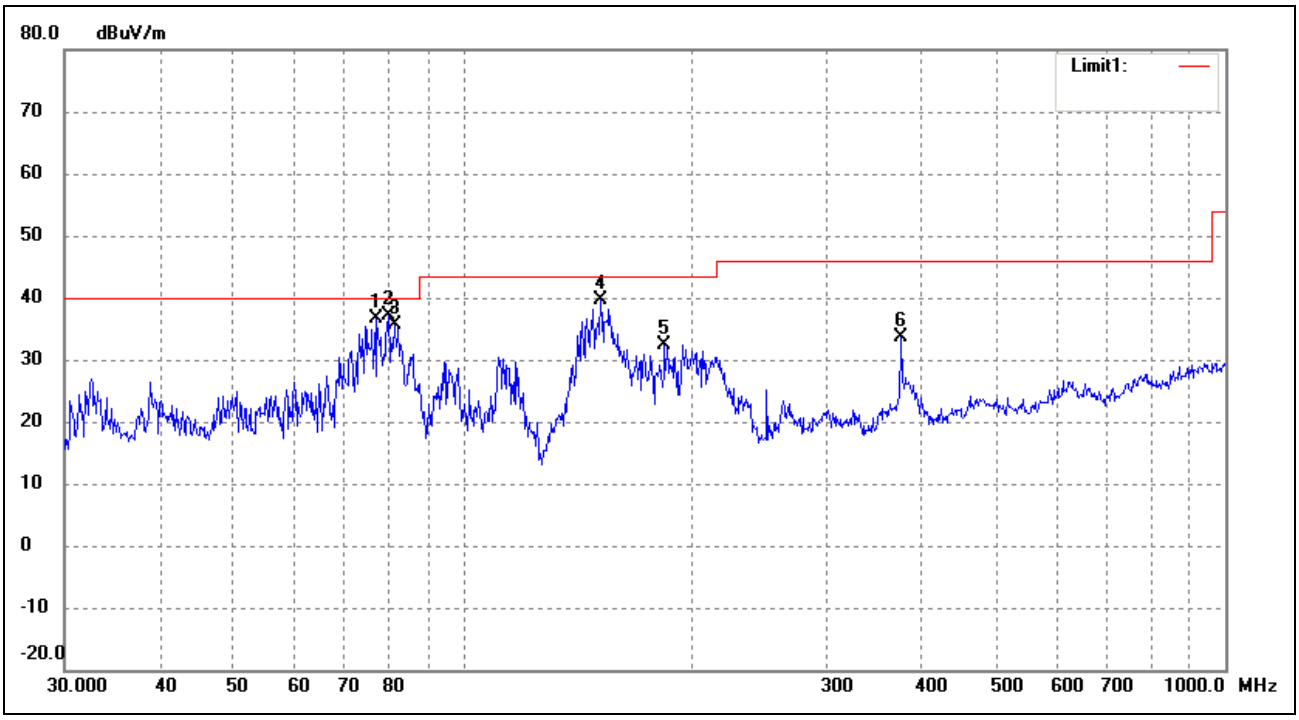
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	33.4448	46.52	-9.43	37.09	40.00	-2.91	36	100	peak
2	73.8756	47.41	-12.50	34.91	40.00	-5.09	125	100	peak
3	77.0503	49.21	-12.24	36.97	40.00	-3.03	166	100	peak
4	81.2116	47.93	-12.11	35.82	40.00	-4.18	229	100	peak
5	86.2001	49.12	-12.58	36.54	40.00	-3.46	246	100	peak
6	151.5971	46.30	-12.40	33.90	43.50	-9.60	269	100	peak

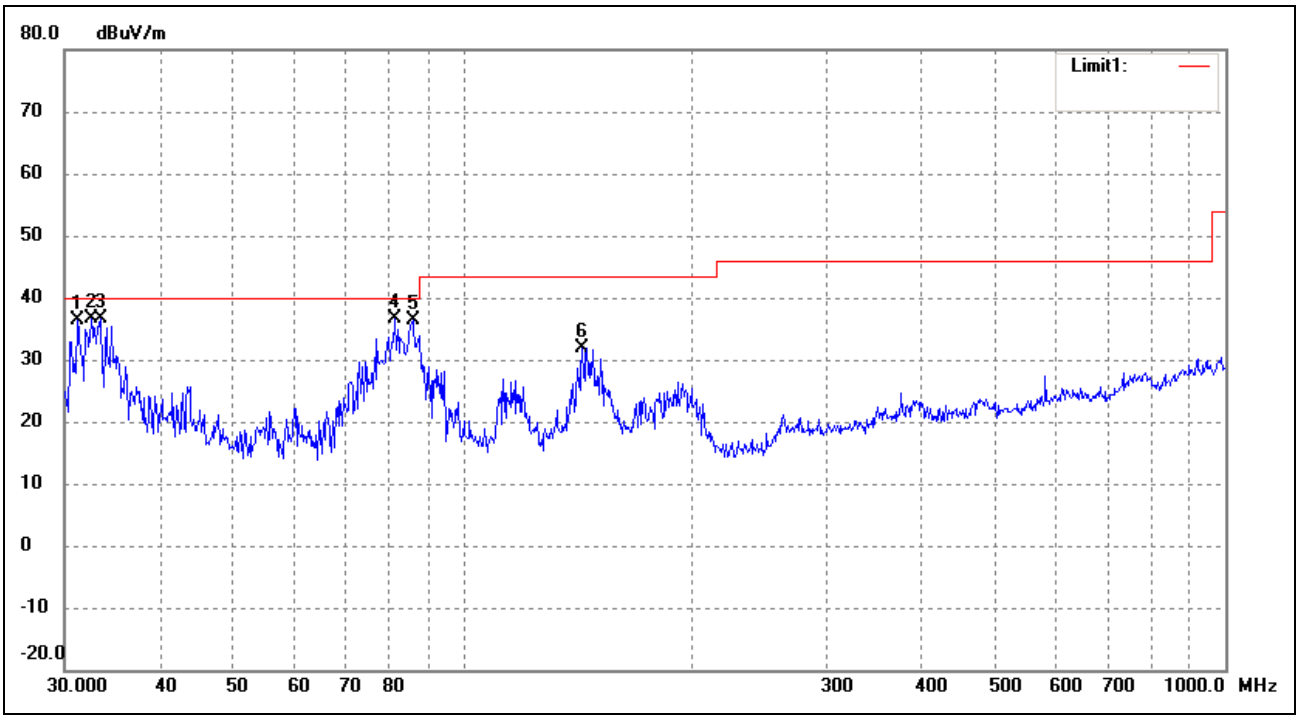
Test mode: Transmitting High Channel 5240MHz

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	77.0503	48.89	-12.24	36.65	40.00	-3.35	99	100	peak
2	79.8002	49.19	-12.01	37.18	40.00	-2.82	168	100	peak
3	81.2116	47.80	-12.11	35.69	40.00	-4.31	216	100	peak
4	151.5971	51.96	-12.40	39.56	43.50	-3.94	285	100	peak
5	183.8438	43.29	-10.84	32.45	43.50	-11.05	194	100	peak
6	375.9384	35.95	-2.33	33.62	46.00	-12.38	138	100	peak

Test Specification: *Vertical*

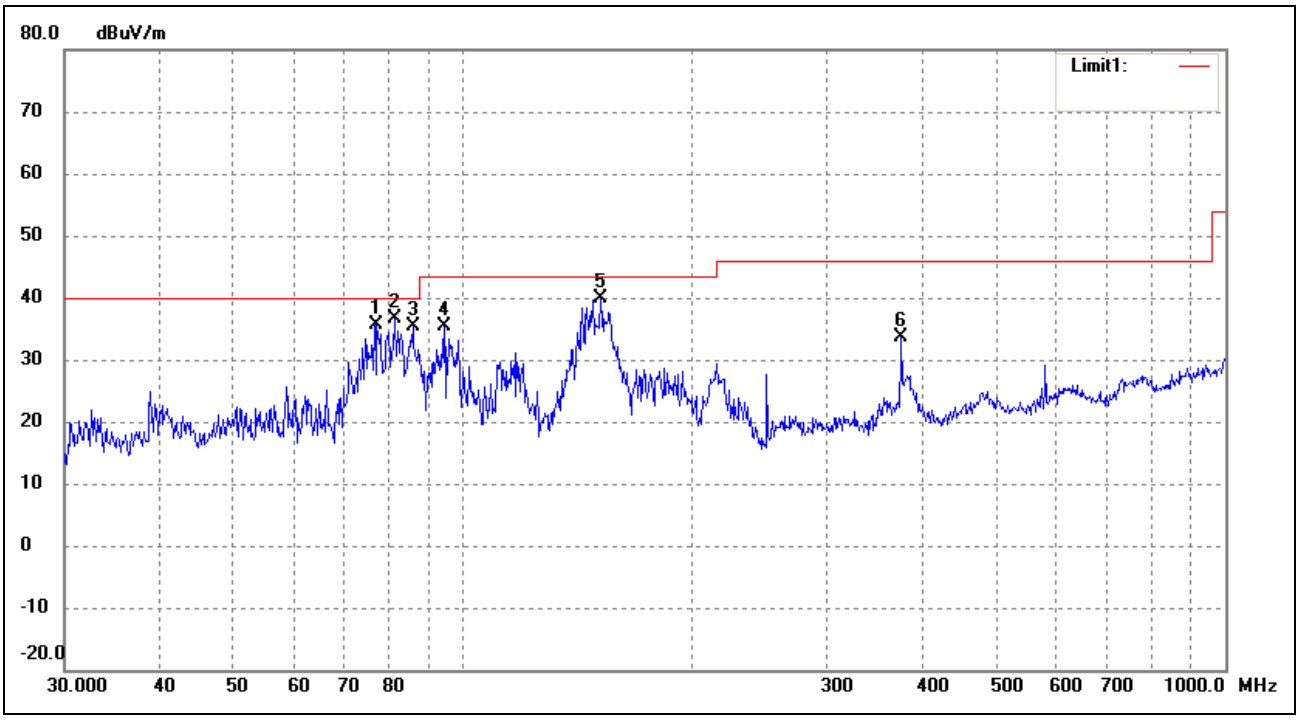


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	31.1798	46.44	-10.01	36.43	40.00	-3.57	35	100	peak
2	32.5197	46.34	-9.67	36.67	40.00	-3.33	52	100	peak
3	33.4448	46.07	-9.43	36.64	40.00	-3.36	63	100	peak
4	81.4969	48.65	-12.13	36.52	40.00	-3.48	154	100	peak
5	85.8983	48.95	-12.55	36.40	40.00	-3.60	169	100	peak
6	143.3260	44.48	-12.51	31.97	43.50	-11.53	231	100	peak

5725-5850MHz band

Test mode: Transmitting Low Channel 5745MHz

Horizontal



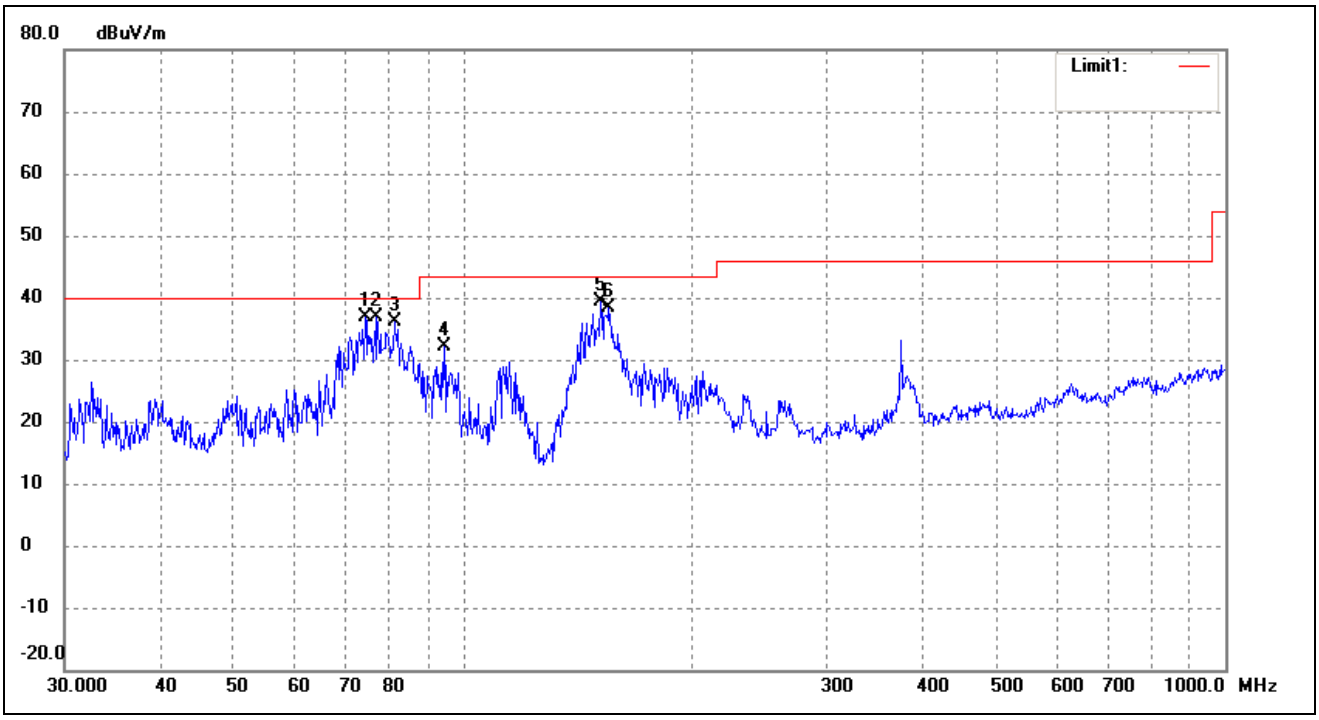
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	77.0503	47.90	-12.24	35.66	40.00	-4.34	85	100	peak
2	81.2116	48.65	-12.11	36.54	40.00	-3.46	123	100	peak
3	85.8983	47.91	-12.55	35.36	40.00	-4.64	214	100	peak
4	94.4282	47.30	-12.04	35.26	43.50	-8.24	311	100	peak
5	151.5971	52.26	-12.40	39.86	43.50	-3.64	91	100	peak
6	375.9384	35.87	-2.33	33.54	46.00	-12.46	165	100	peak

Test Specification: *Vertical*

No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	32.5197	46.95	-9.67	37.28	40.00	-2.72	42	100	peak
2	77.0504	48.93	-12.24	36.69	40.00	-3.31	67	100	peak
3	81.2116	48.74	-12.11	36.63	40.00	-3.37	101	100	peak
4	85.8983	47.00	-12.55	34.45	40.00	-5.55	166	100	peak
5	94.4283	46.49	-12.04	34.45	43.50	-9.05	197	100	peak
6	151.5971	45.22	-12.40	32.82	43.50	-10.68	235	100	peak

Test mode: Transmitting Middle Channel 5785MHz

Horizontal



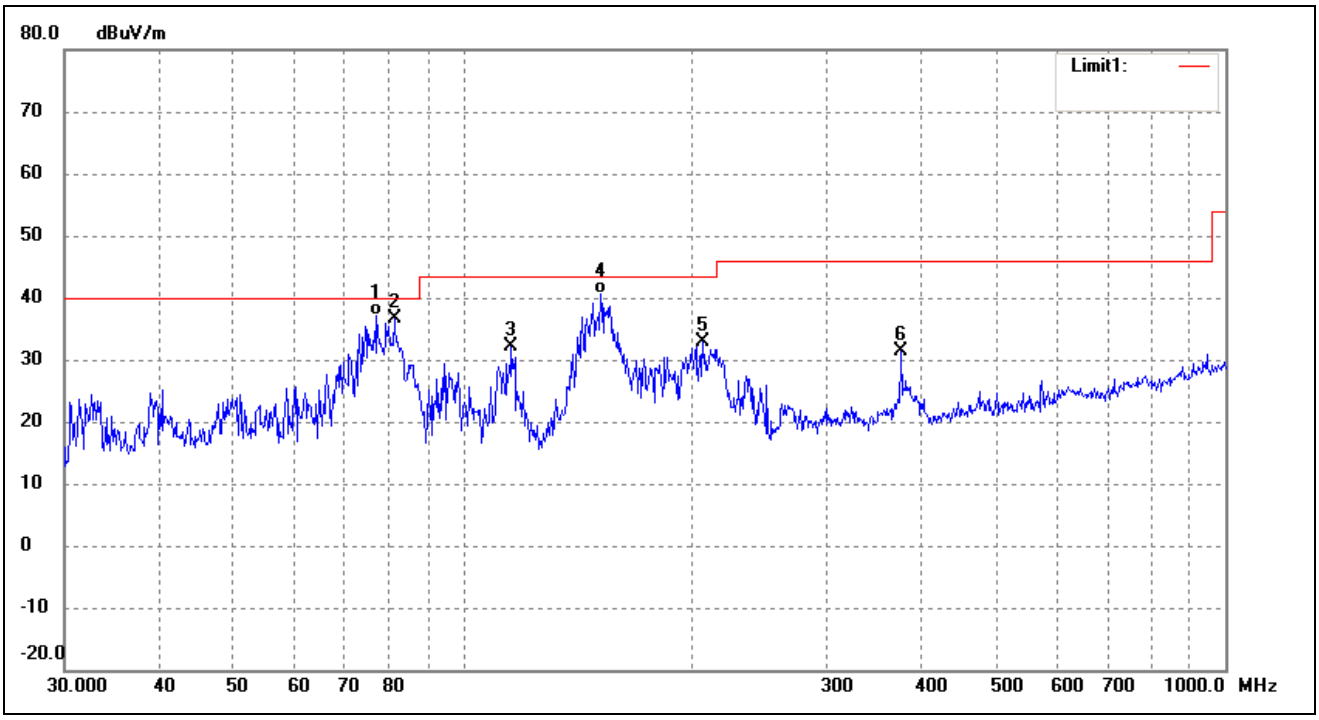
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	74.3954	49.27	-12.46	36.81	40.00	-3.19	74	100	peak
2	77.0504	49.18	-12.24	36.94	40.00	-3.06	53	200	peak
3	81.2116	48.24	-12.11	36.13	40.00	-3.87	124	200	peak
4	94.4283	44.12	-12.04	32.08	43.50	-11.42	169	100	peak
5	151.5971	51.75	-12.40	39.35	43.50	-4.15	111	100	peak
6	155.3643	50.68	-12.34	38.34	43.50	-5.16	157	100	peak

Test Specification: *Vertical*

No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	32.5197	46.16	-9.67	36.49	40.00	-3.51	45	100	QP
2	34.6385	44.53	-9.13	35.40	40.00	-4.60	83	200	peak
3	74.3954	48.56	-12.46	36.10	40.00	-3.90	132	200	peak
4	81.2116	49.28	-12.11	37.17	40.00	-2.83	167	100	QP
5	85.8983	48.25	-12.55	35.70	40.00	-4.30	182	100	peak
6	147.9214	44.84	-12.45	32.39	43.50	-11.11	236	100	peak

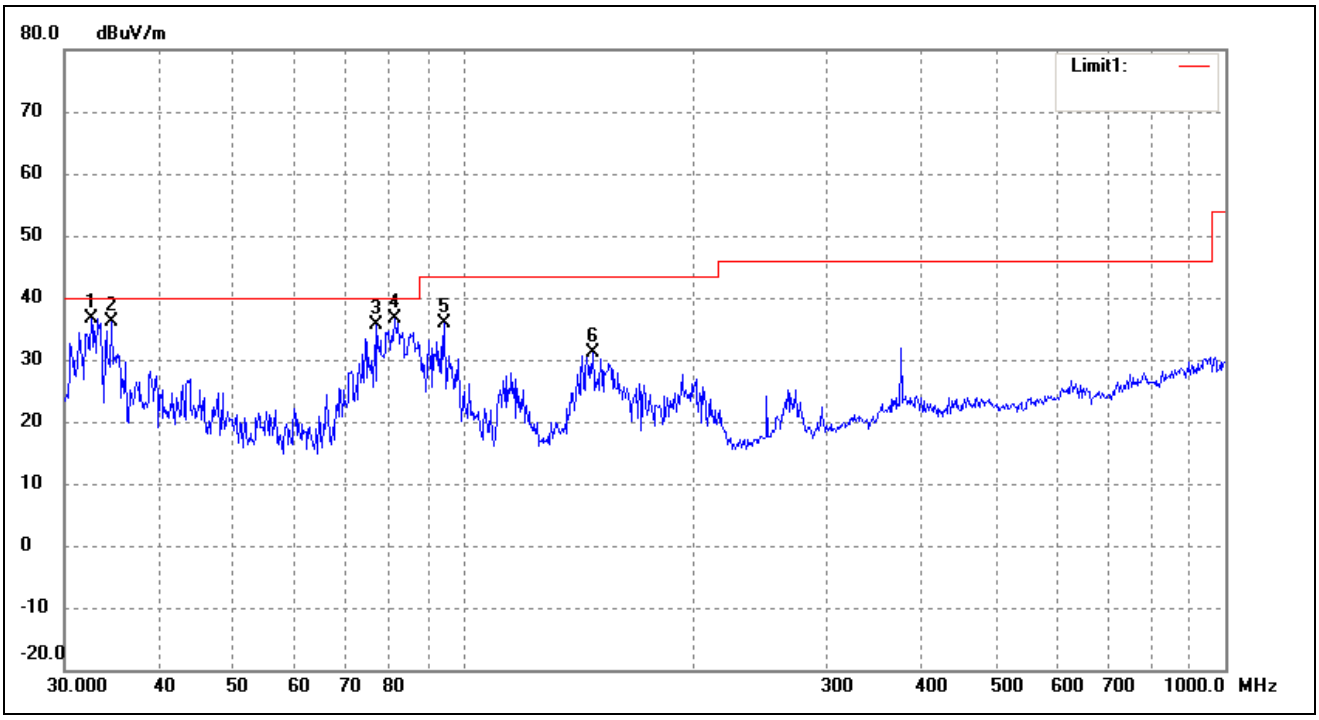
Test mode: Transmitting High Channel 5825MHz

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	77.0503	49.39	-12.24	37.15	40.00	-2.85	78	100	QP
2	81.2116	48.70	-12.11	36.59	40.00	-3.41	193	100	peak
3	115.7256	43.54	-11.32	32.22	43.50	-11.28	261	200	peak
4	151.5971	52.97	-12.40	40.57	43.50	-2.93	135	100	QP
5	206.3976	41.66	-8.70	32.96	43.50	-10.54	151	100	peak
6	375.9384	33.68	-2.33	31.35	46.00	-14.65	186	100	peak

Test Specification: *Vertical*



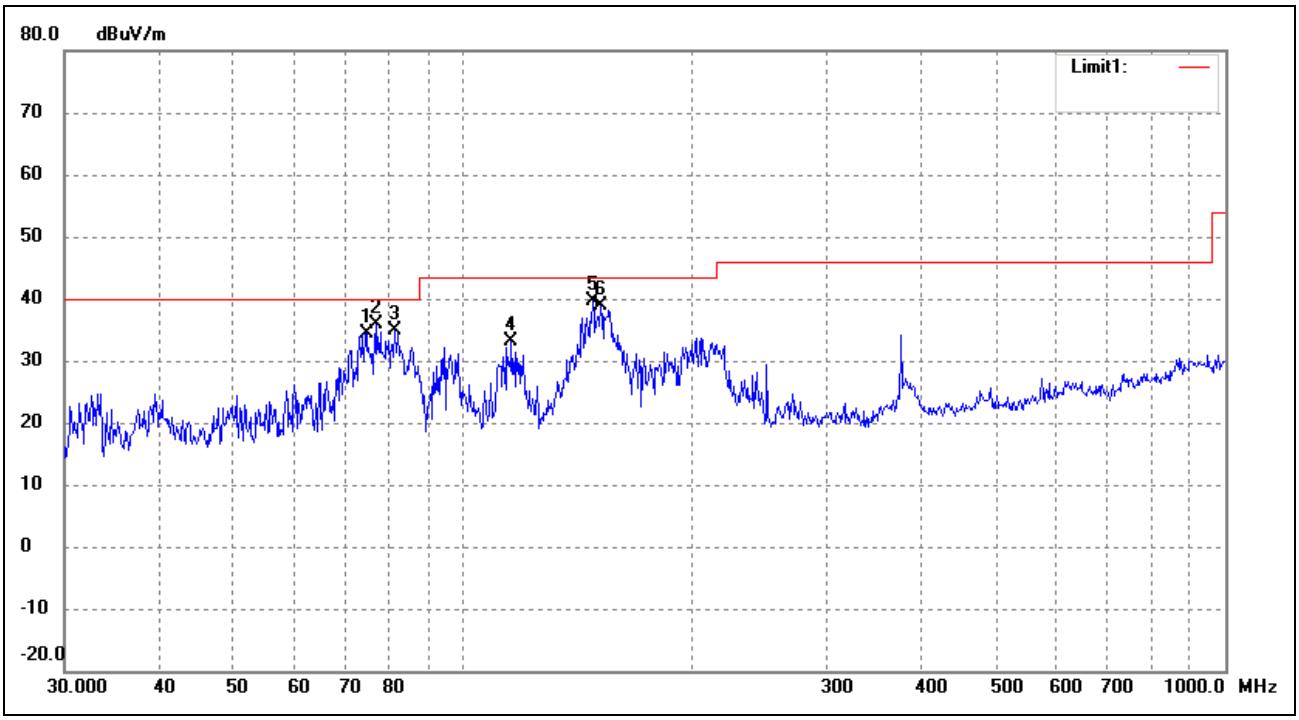
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	32.5197	46.37	-9.67	36.70	40.00	-3.30	57	100	peak
2	34.5172	45.34	-9.17	36.17	40.00	-3.83	169	200	peak
3	77.0504	47.77	-12.24	35.53	40.00	-4.47	128	100	peak
4	81.2116	48.70	-12.11	36.59	40.00	-3.41	256	100	peak
5	94.4283	47.81	-12.04	35.77	43.50	-7.73	302	100	peak
6	147.9214	43.64	-12.45	31.19	43.50	-12.31	91	100	peak

For 802.11n-HT40

5150-5250MHz band

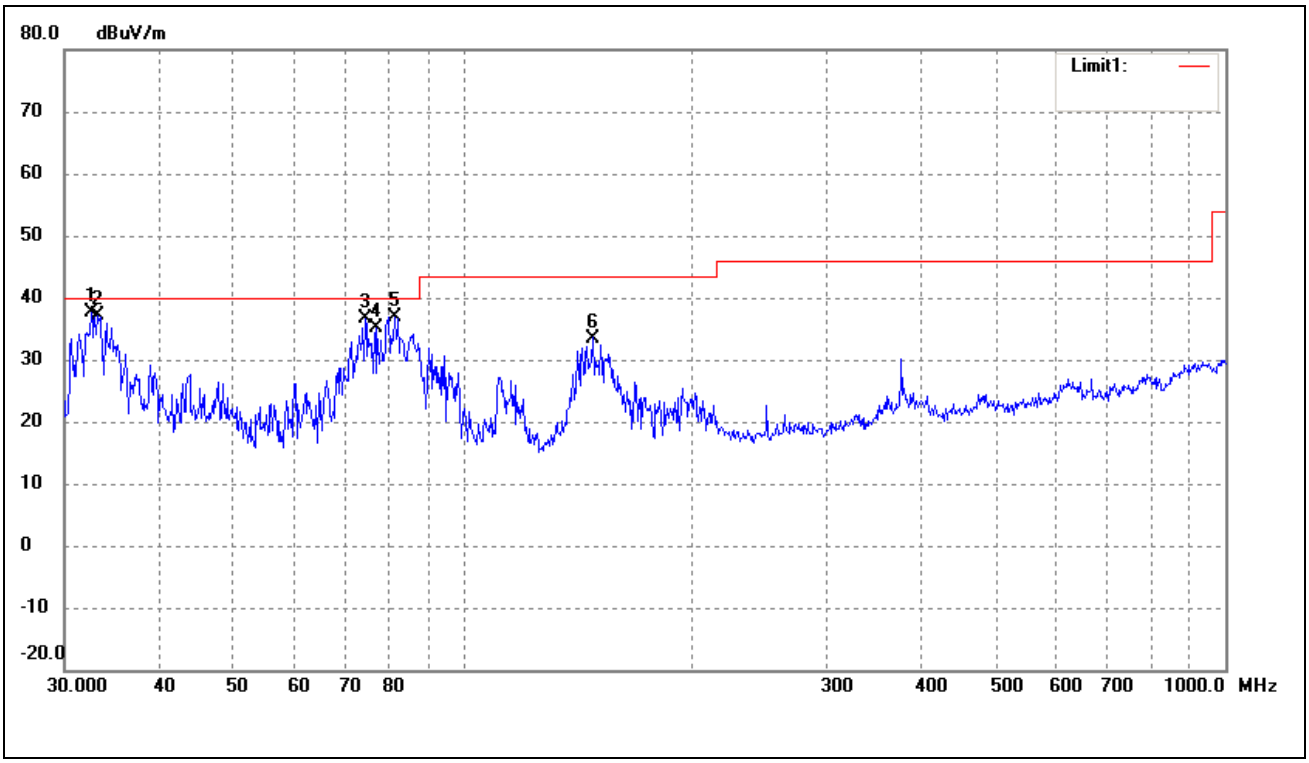
Test mode: Transmitting Low Channel 5190MHz

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	74.6568	46.71	-12.44	34.27	40.00	-5.73	76	100	peak
2	77.0504	48.19	-12.24	35.95	40.00	-4.05	113	100	peak
3	81.2116	47.02	-12.11	34.91	40.00	-5.09	284	100	peak
4	115.7256	44.45	-11.32	33.13	43.50	-10.37	335	100	peak
5	147.9214	52.04	-12.45	39.59	43.50	-3.91	174	100	peak
6	151.5971	51.18	-12.40	38.78	43.50	-4.72	196	100	peak

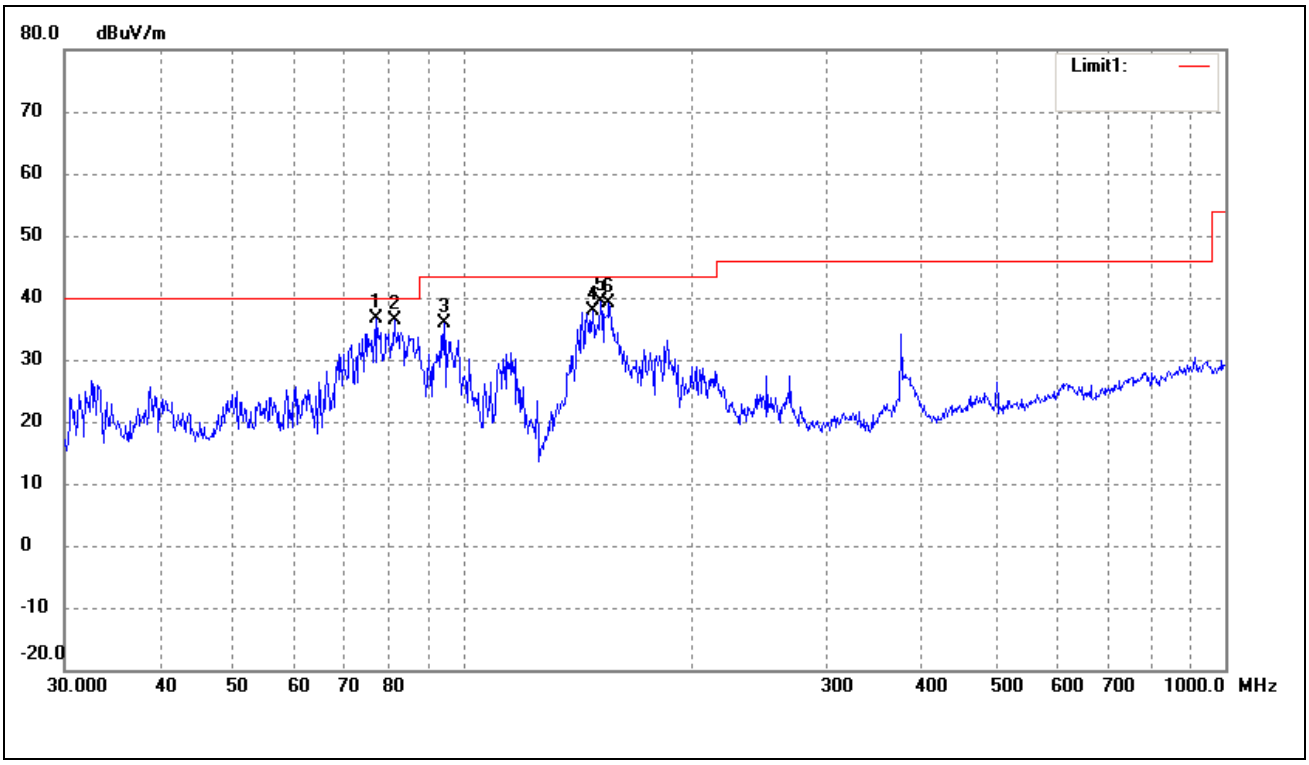
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	32.5197	47.22	-9.67	37.55	40.00	-2.45	46	100	peak
2	33.0949	46.56	-9.53	37.03	40.00	-2.97	170	100	peak
3	74.3954	49.07	-12.46	36.61	40.00	-3.39	260	100	peak
4	77.0504	47.33	-12.24	35.09	40.00	-4.91	116	100	peak
5	81.2116	49.00	-12.11	36.89	40.00	-3.11	152	100	peak
6	147.9214	45.95	-12.45	33.50	43.50	-10.00	194	100	peak

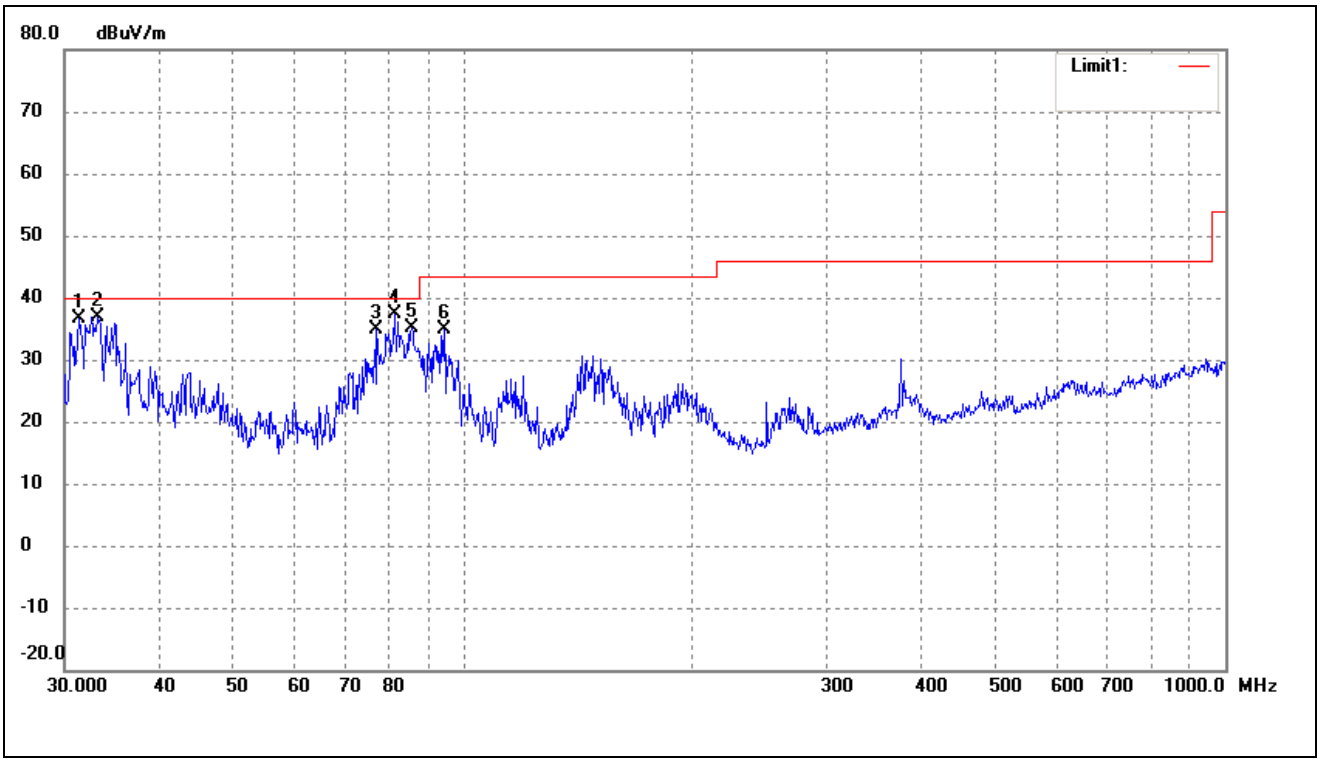
Test mode: Transmitting High Channel 5230MHz

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	77.0504	48.79	-12.24	36.55	40.00	-3.45	37	100	peak
2	81.2116	48.38	-12.11	36.27	40.00	-3.73	124	100	peak
3	94.4283	47.99	-12.04	35.95	43.50	-7.55	160	100	peak
4	147.9214	50.30	-12.45	37.85	43.50	-5.65	290	100	peak
5	151.5971	51.75	-12.40	39.35	43.50	-4.15	312	100	peak
6	155.3643	51.43	-12.34	39.09	43.50	-4.41	353	100	peak

Test Specification: *Vertical*

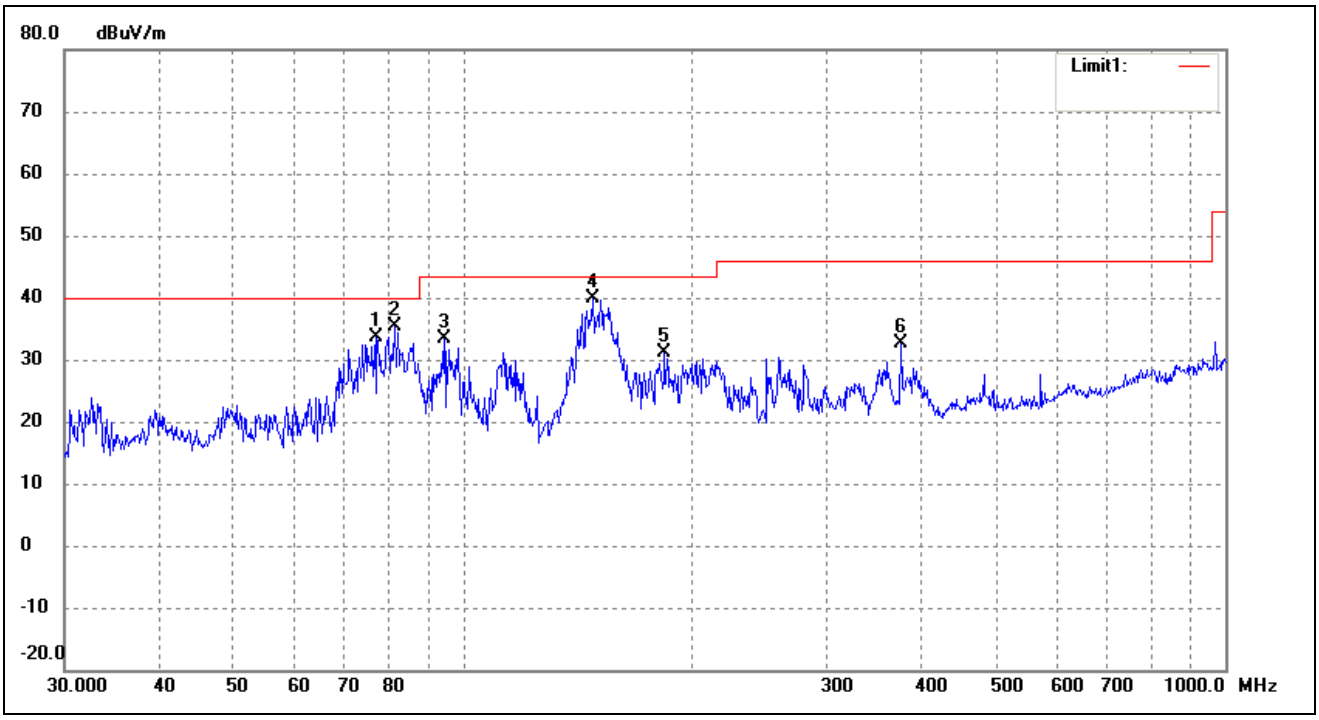


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	31.2893	46.65	-9.98	36.67	40.00	-3.33	38	100	peak
2	33.0949	46.36	-9.53	36.83	40.00	-3.17	124	100	peak
3	77.0504	47.16	-12.24	34.92	40.00	-5.08	168	100	peak
4	81.2116	49.48	-12.11	37.37	40.00	-2.63	245	100	peak
5	85.5977	47.71	-12.52	35.19	40.00	-4.81	79	100	peak
6	94.4283	46.81	-12.04	34.77	43.50	-8.73	102	100	peak

5725-5850MHz band

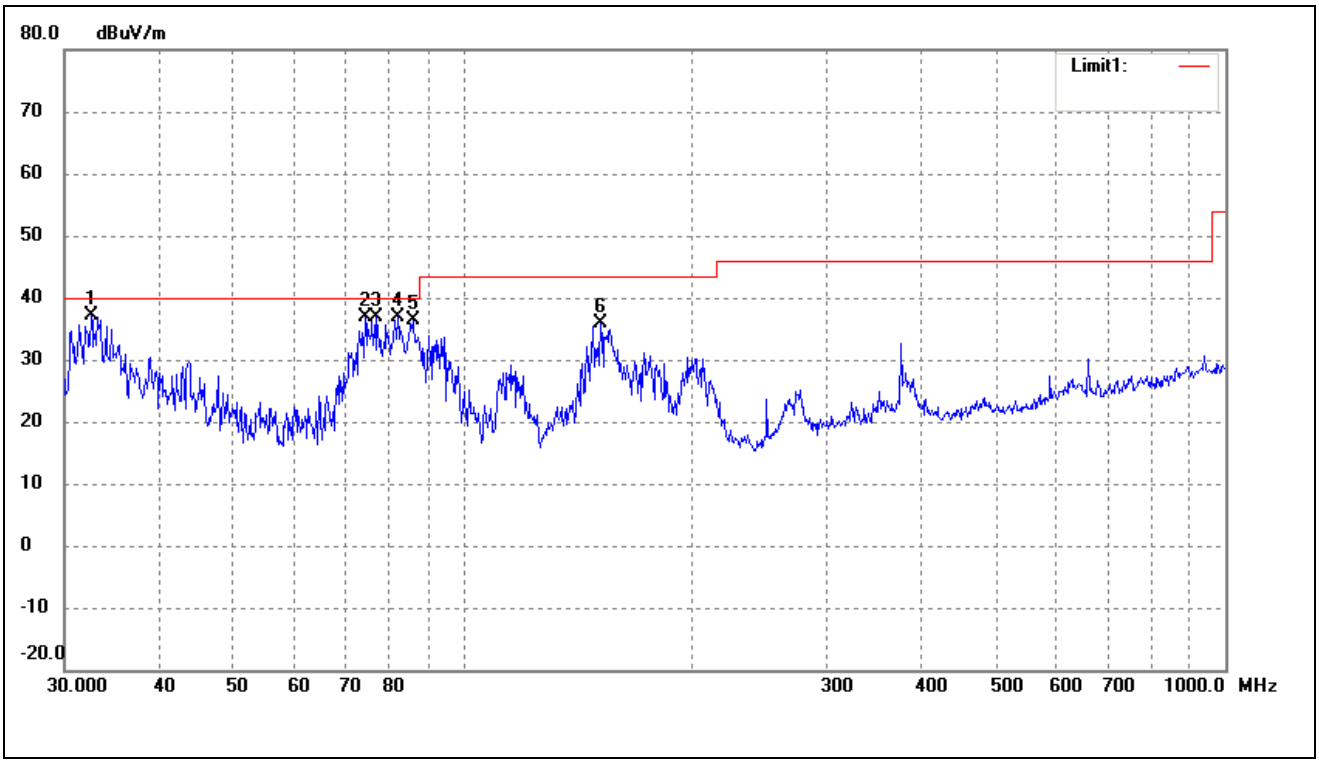
Test mode: Transmitting Low Channel 5755MHz

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	77.0504	45.91	-12.24	33.67	40.00	-6.33	65	100	peak
2	81.2116	47.39	-12.11	35.28	40.00	-4.72	104	200	peak
3	94.4283	45.53	-12.04	33.49	43.50	-10.01	241	100	peak
4	147.9214	52.29	-12.45	39.84	43.50	-3.66	169	100	peak
5	183.8439	41.96	-10.84	31.12	43.50	-12.38	217	100	peak
6	375.9384	34.89	-2.33	32.56	46.00	-13.44	268	100	peak

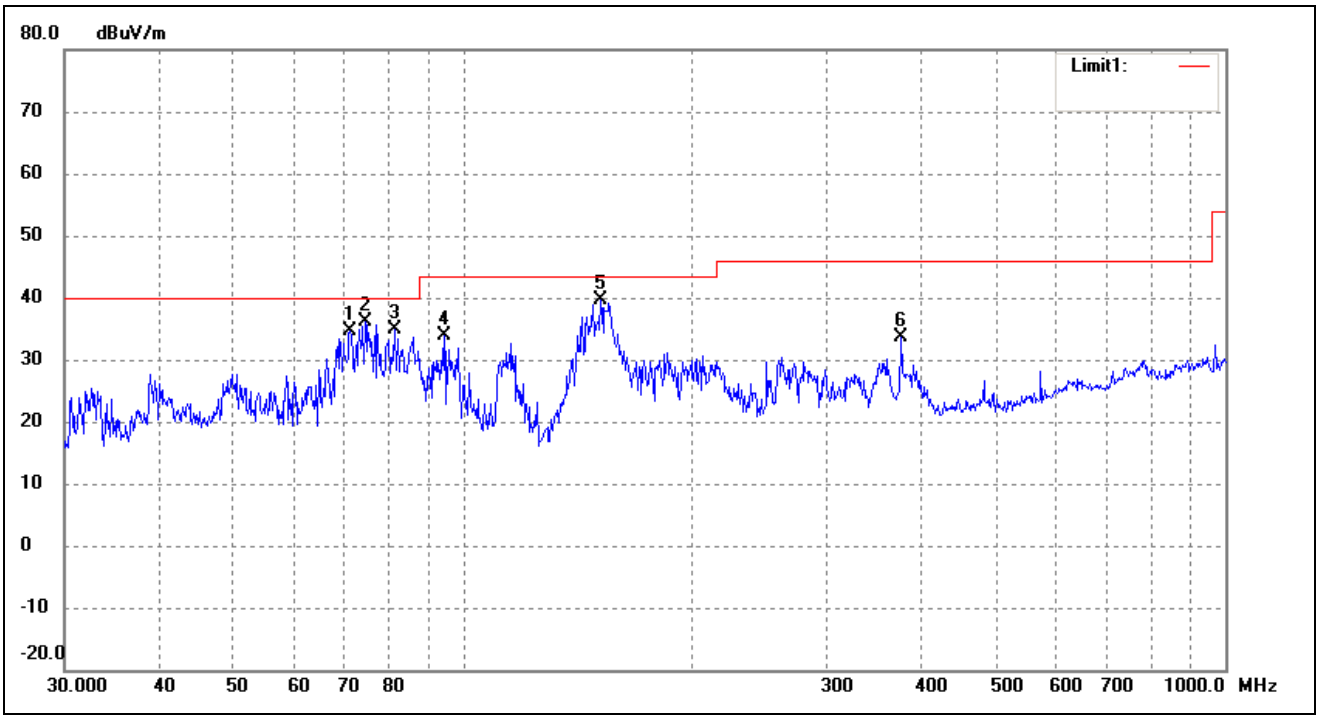
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	32.5197	46.81	-9.67	37.14	40.00	-2.86	41	100	peak
2	74.3954	49.37	-12.46	36.91	40.00	-3.09	95	100	peak
3	77.0504	49.20	-12.24	36.96	40.00	-3.04	138	100	peak
4	82.0705	49.10	-12.19	36.91	40.00	-3.09	197	100	peak
5	85.8983	48.93	-12.55	36.38	40.00	-3.62	208	100	peak
6	151.5971	48.28	-12.40	35.88	43.50	-7.62	264	100	peak

Test mode: Transmitting High Channel 5795MHz

Horizontal

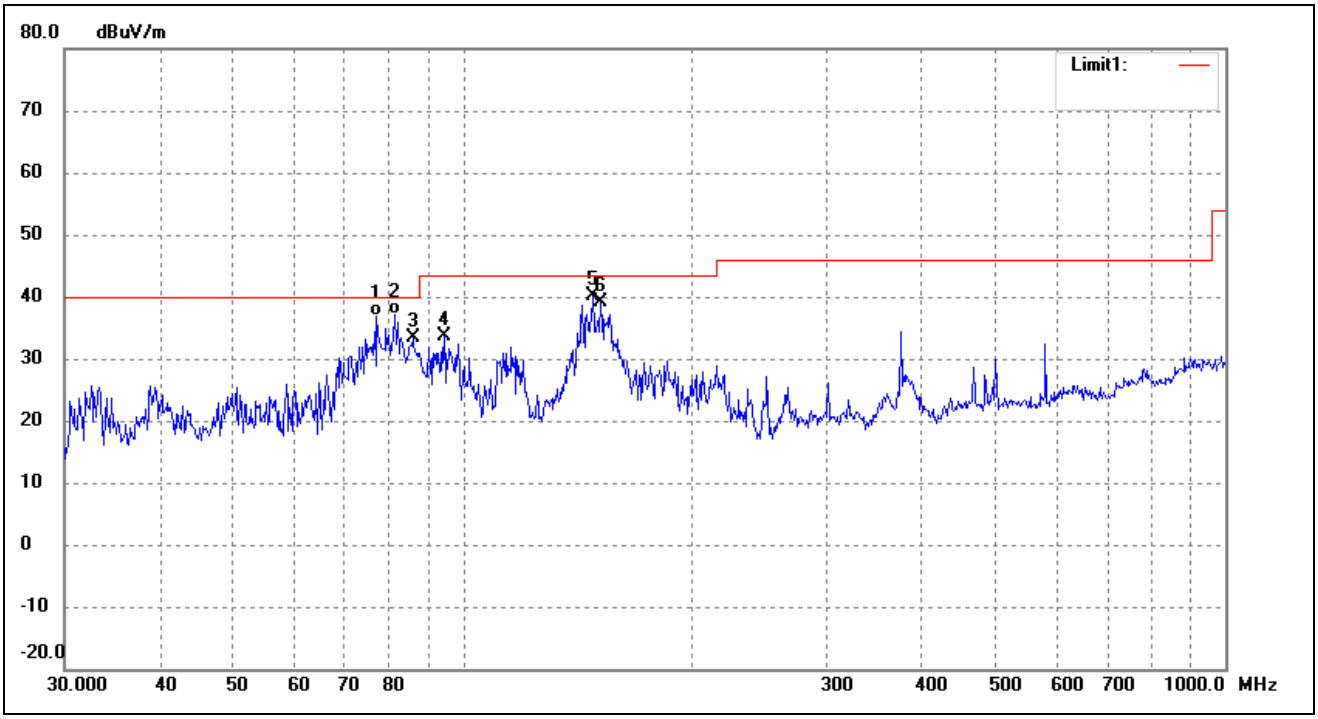


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	71.0802	47.26	-12.74	34.52	40.00	-5.48	77	100	peak
2	74.3954	48.66	-12.46	36.20	40.00	-3.80	36	100	peak
3	81.2116	46.89	-12.11	34.78	40.00	-5.22	164	100	peak
4	94.4283	46.03	-12.04	33.99	43.50	-9.51	218	100	peak
5	151.5971	51.95	-12.40	39.55	43.50	-3.95	134	100	peak
6	375.9384	35.92	-2.33	33.59	46.00	-12.41	200	100	peak

Test Specification: *Vertical*

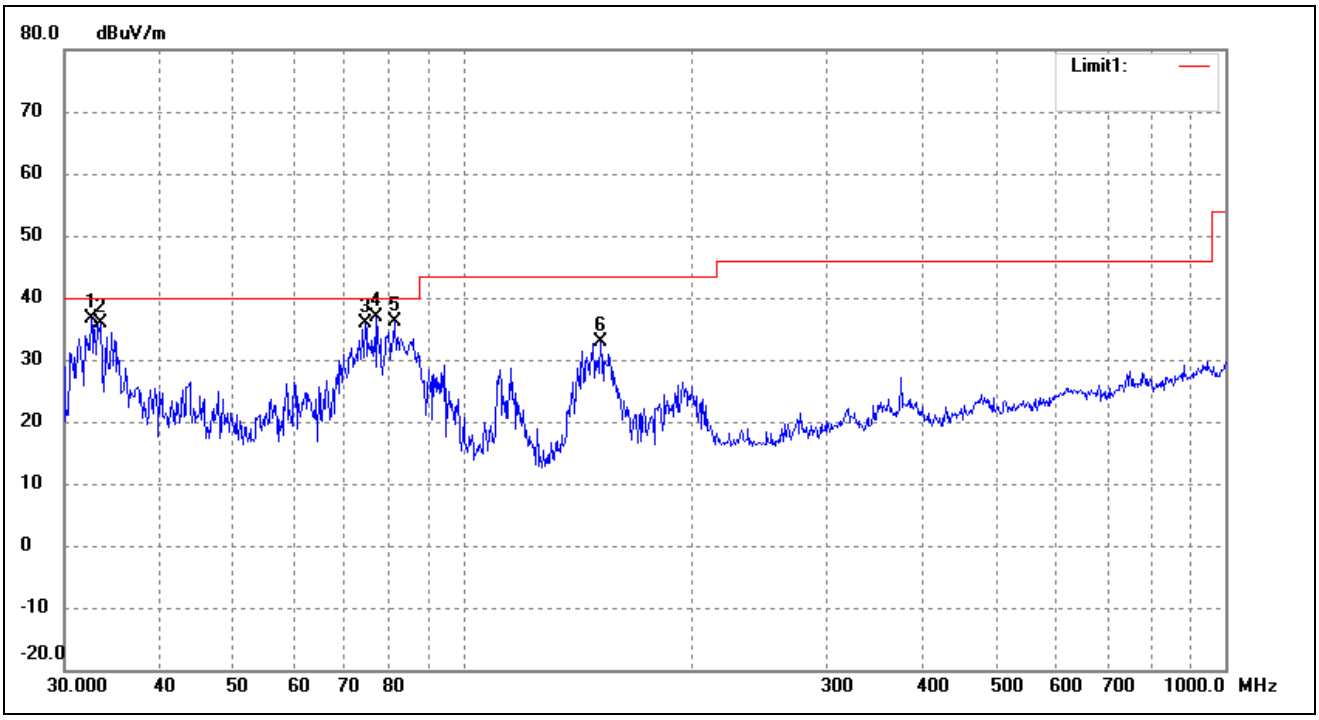
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	33.4448	46.37	-9.43	36.94	40.00	-3.06	160	100	peak
2	74.3954	50.04	-12.46	37.58	40.00	-2.42	112	100	peak
3	77.0504	48.60	-12.24	36.36	40.00	-3.64	180	200	peak
4	81.2116	48.48	-12.11	36.37	40.00	-3.63	215	200	peak
5	85.8983	47.60	-12.55	35.05	40.00	-4.95	175	100	peak
6	151.5971	48.56	-12.40	36.16	43.50	-7.34	36	100	peak

For 802.11ac-HT80
5150-5250MHz band
Test mode: Transmitting Channel 5210MHz
Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	77.0504	49.06	-12.24	36.82	40.00	-3.18	69	100	peak
2	81.4969	49.18	-12.13	37.05	40.00	-2.95	137	100	peak
3	85.8983	45.82	-12.55	33.27	40.00	-6.73	182	100	peak
4	94.4283	45.70	-12.04	33.66	43.50	-9.84	227	100	peak
5	147.9214	52.48	-12.45	40.03	43.50	-3.47	269	100	peak
6	151.5971	51.54	-12.40	39.14	43.50	-4.36	302	100	peak

Test Specification: *Vertical*

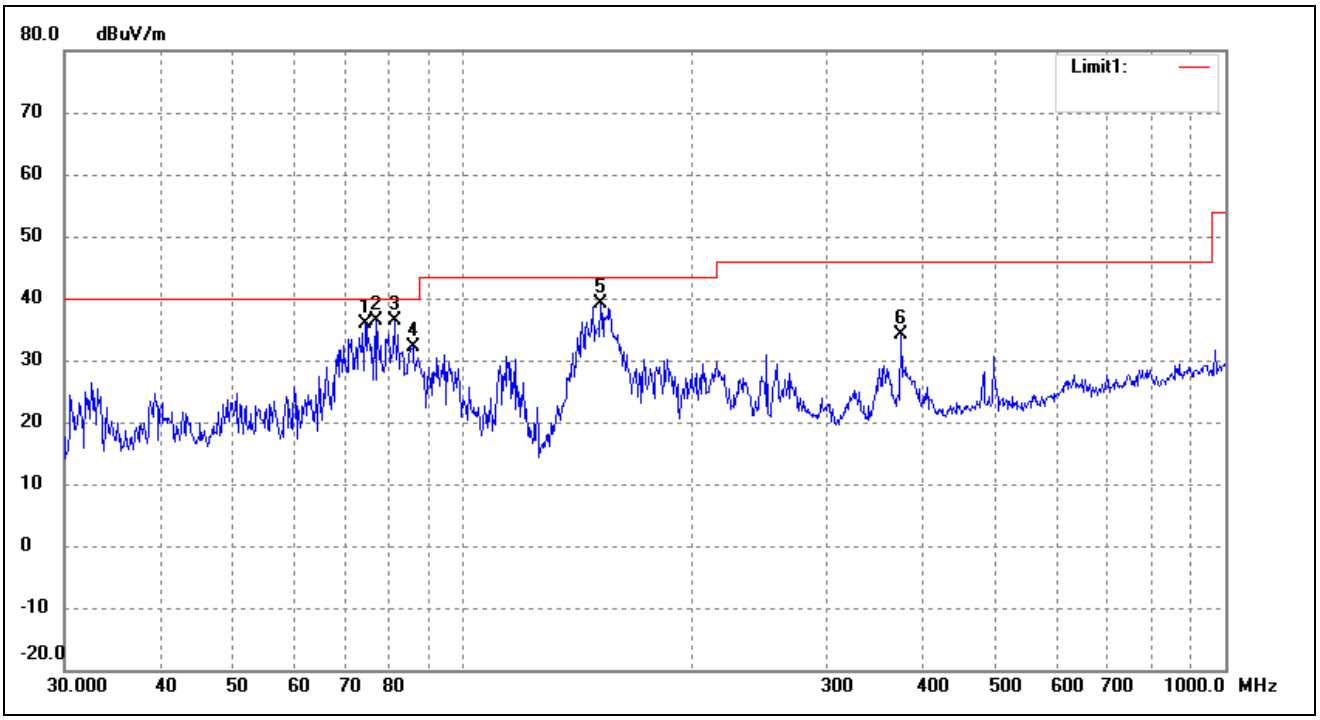


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	32.5197	46.26	-9.67	36.59	40.00	-3.41	55	100	peak
2	33.4448	45.25	-9.43	35.82	40.00	-4.18	197	100	peak
3	74.3954	48.28	-12.46	35.82	40.00	-4.18	310	100	peak
4	77.0504	49.08	-12.24	36.84	40.00	-3.16	229	100	peak
5	81.2116	48.27	-12.11	36.16	40.00	-3.84	181	100	peak
6	151.5971	45.24	-12.40	32.84	43.50	-10.66	124	100	peak

5725-5850MHz band

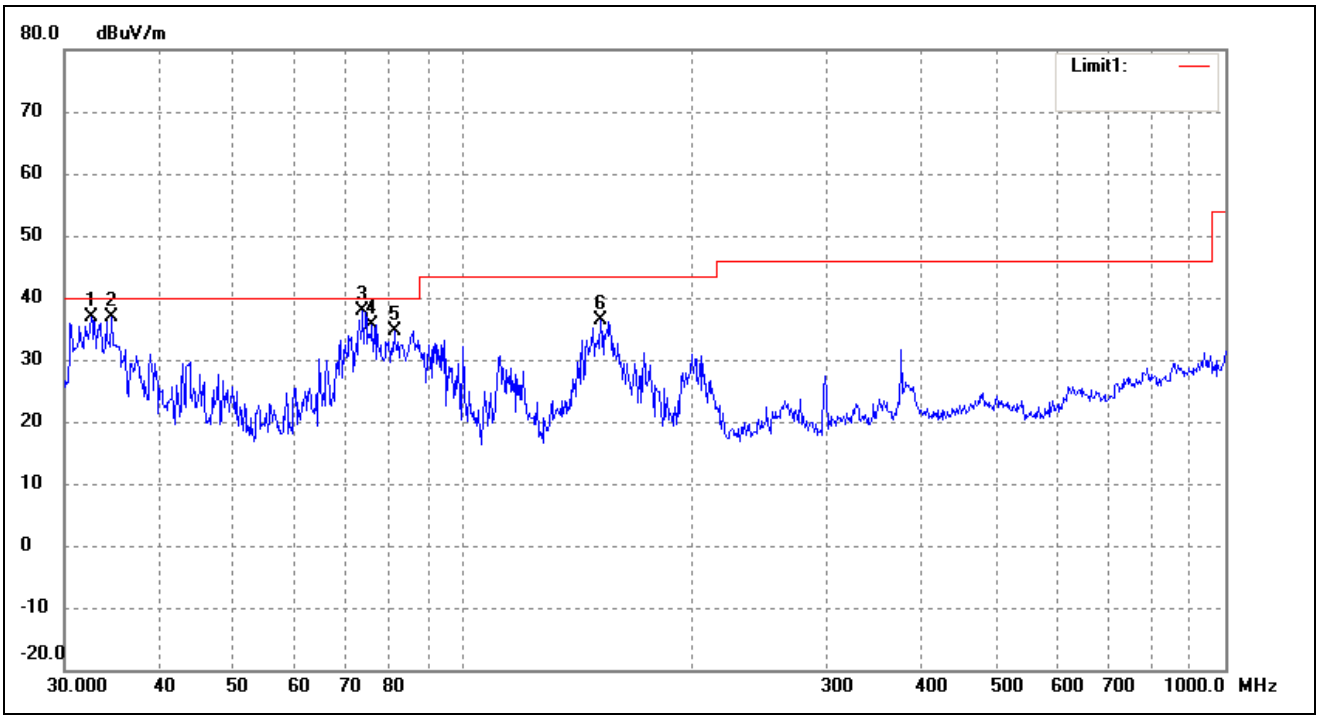
Test mode: Transmitting Channel 5775MHz

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	74.3954	48.34	-12.46	35.88	40.00	-4.12	83	100	peak
2	77.0504	48.74	-12.24	36.50	40.00	-3.50	154	100	peak
3	81.2116	48.43	-12.11	36.32	40.00	-3.68	169	200	peak
4	85.8983	44.76	-12.55	32.21	40.00	-7.79	215	200	peak
5	151.5971	51.60	-12.40	39.20	43.50	-4.30	263	100	peak
6	375.9384	36.58	-2.33	34.25	46.00	-11.75	286	100	peak

Test Specification: *Vertical*



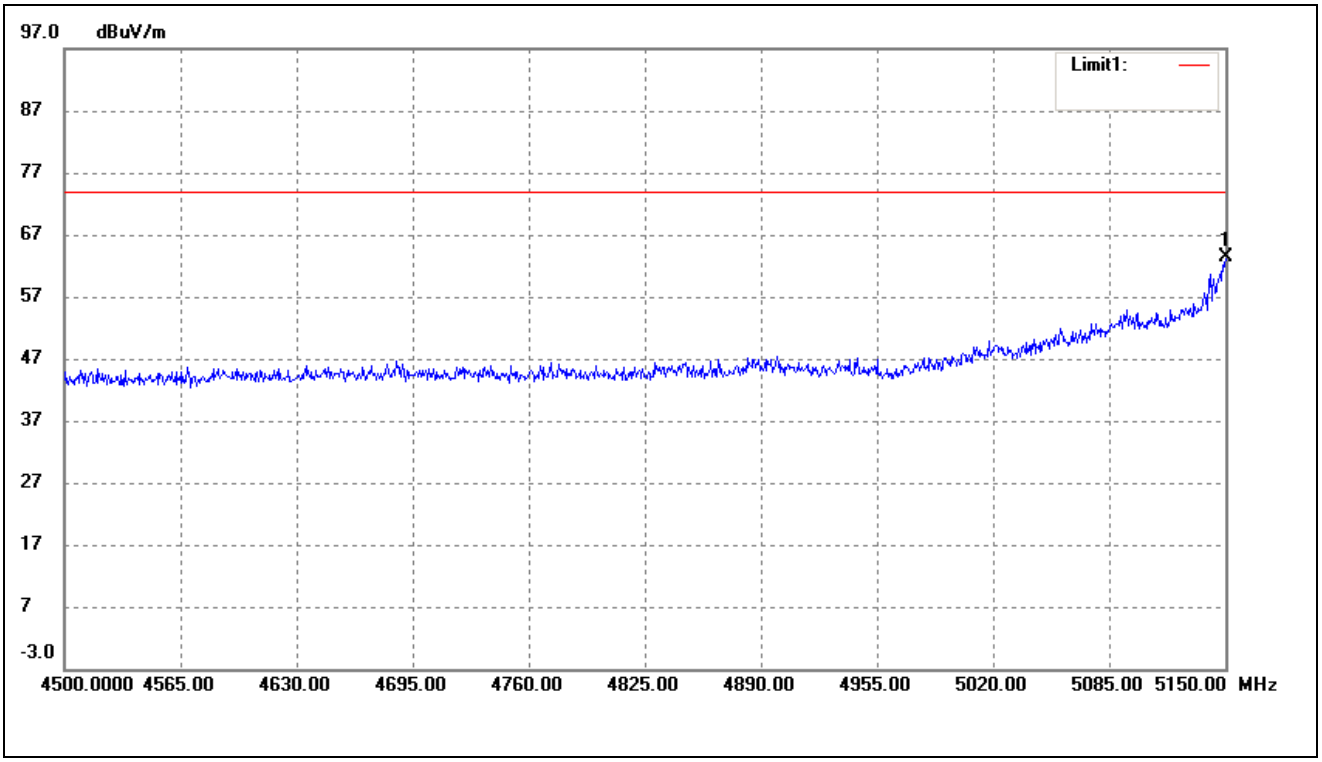
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	32.5197	46.59	-9.67	36.92	40.00	-3.08	62	100	peak
2	34.6385	46.13	-9.13	37.00	40.00	-3.00	195	100	peak
3	73.8756	50.26	-12.50	37.76	40.00	-2.24	273	100	peak
4	75.9772	47.93	-12.33	35.60	40.00	-4.40	58	100	peak
5	81.2116	46.83	-12.11	34.72	40.00	-5.28	77	100	peak
6	151.5971	48.74	-12.40	36.34	43.50	-7.16	153	100	peak

For 802.11a

Spurious Emission above 1GHz

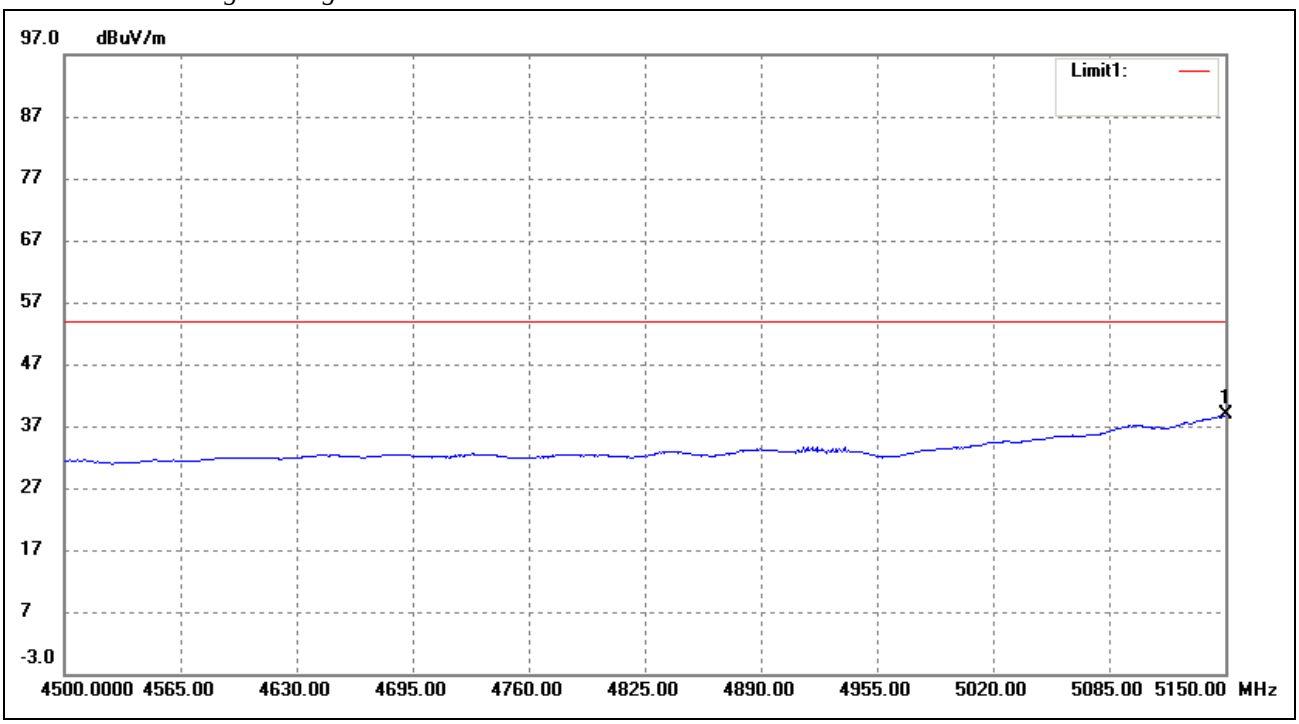
For the frequency band 5.15-5.25GHz

Restricted Bandedge Peak



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	5150.000	63.52	-0.13	63.39	74.00	-10.61	360	100	peak

Restricted Bandedge Average



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	5150.000	38.96	-0.13	38.83	54.00	-15.17	360	100	Ave

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

Hormonics And Spurious Emissions

Frequency MHz	Detector	Meter Reading dBuV	Direction Degree	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
Low Channel (5180MHz)										
15540	PK	53.5	360	V	40.7	10.9	39.6	65.5	74	-8.5
15540	PK	52.1	360	H	40.7	10.9	39.6	64.1	74	-9.9
15540	AV	35.4	360	V	40.7	10.9	39.6	47.4	54	-6.6
15540	AV	34.2	360	H	40.7	10.9	39.6	46.2	54	-7.8
High Channel (5240MHz)										
15720	PK	54.0	360	V	40.7	10.9	39.6	66	74	-8.0
15720	PK	52.9	360	H	40.7	10.9	39.6	64.9	74	-9.1
15720	AV	34.8	360	V	40.7	10.9	39.6	46.8	54	-7.2
15720	AV	32.3	360	H	40.7	10.9	39.6	44.3	54	-9.7

Out of Band edge

Test CH.	**Test Segment**	**Result**	**Limit**
	MHz	**dBm/MHz**	**dBm/MHz**
Lowest	Below 5150	-45.31	-27
Highest	Above 5350	-43.36	-27
Note: the data just list the worst cases			

For the frequency band 5.725-5.850GHz

Hormonics And Spurious Emissions

Frequency MHz	Detector	Meter Reading dBuV	Direction Degree	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
Low Channel (5725MHz)										
11450	PK	51.1	360	V	38.9	9.8	40.1	59.7	74	-14.3
11450	PK	49.9	360	H	38.9	9.8	40.1	58.5	74	-15.5
11450	AV	35.3	360	V	38.9	9.8	40.1	43.9	54	-10.1
11450	AV	33.2	360	H	38.9	9.8	40.1	41.8	54	-12.2
High Channel (5825MHz)										
11650	PK	52.8	360	V	38.9	9.8	40.1	61.4	74	-12.6
11650	PK	51.7	360	H	38.9	9.8	40.1	60.3	74	-13.7
11650	AV	33.3	360	V	38.9	9.8	40.1	41.9	54	-12.1
11650	AV	31.5	360	H	38.9	9.8	40.1	40.1	54	-13.9

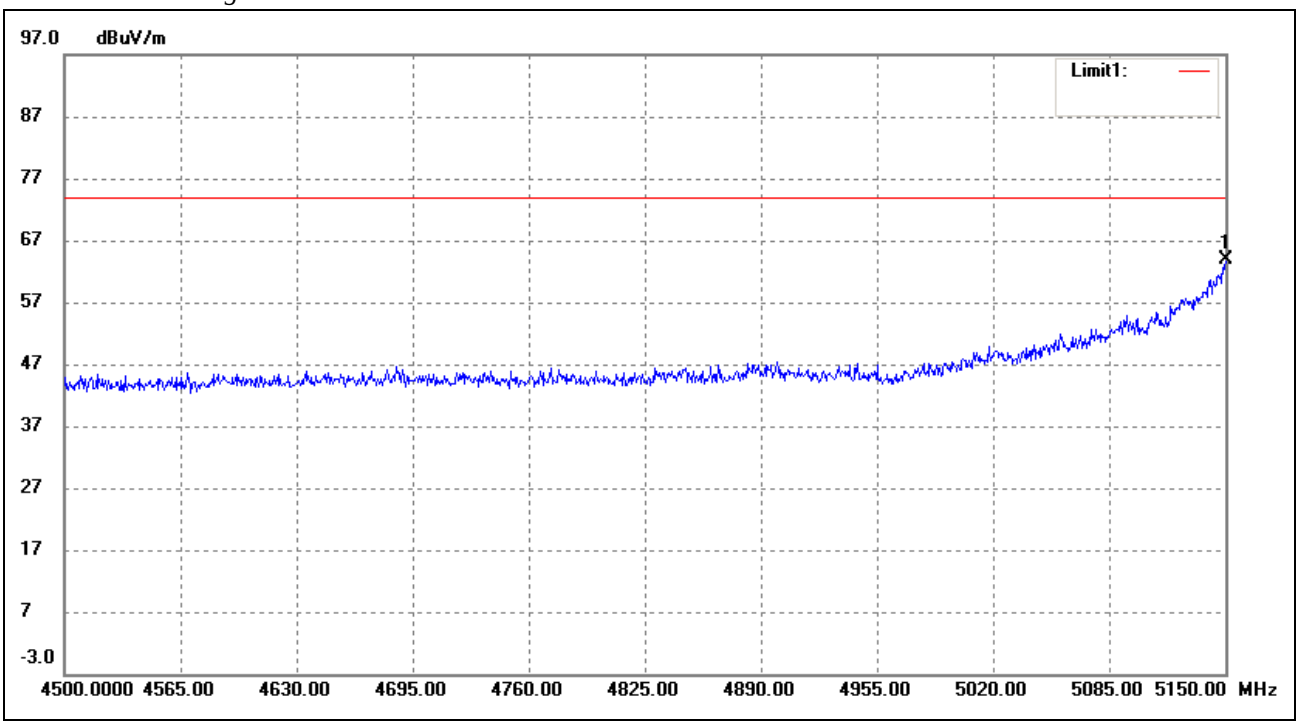
Out of Band edge

Test CH.	**Test Segment**	**Result**	**Limit**
	MHz	**dBm/MHz**	**dBm/MHz**
Lowest	Below 5715	-48.31	-27
	5715 to 5725	-44.32	-17
Highest	5850 to 5860	-45.35	-17
	Above 5860	-48.63	-27
Note: the data just list the worst cases			

802.11n HT20

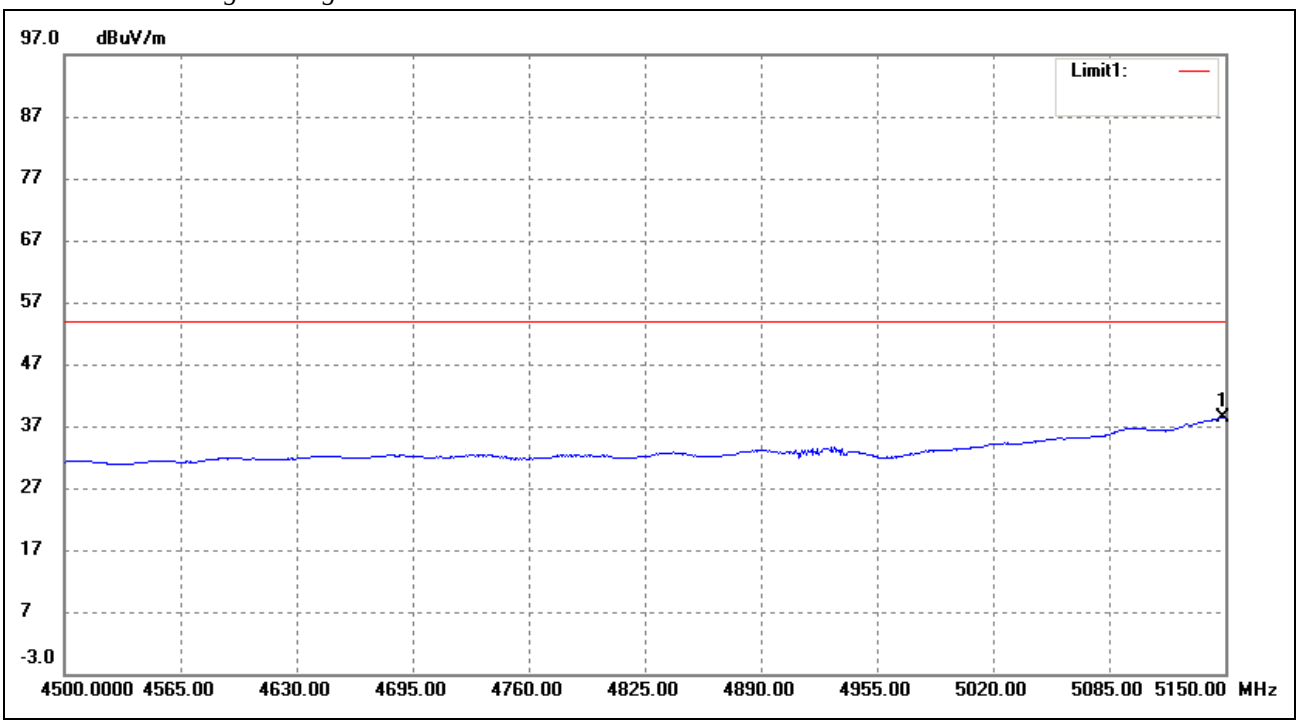
For the frequency band 5.15-5.25GHz

Restricted Bandedge Peak



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	5150.000	64.02	-0.13	63.89	74.00	-10.11	360	100	peak

Restricted Bandedge Average



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	5148.700	38.52	-0.13	38.39	54.00	-15.61	360	100	Ave

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

Hormonics And Spurious Emissions

Frequency MHz	Detector	Meter Reading dBuV	Direction Degree	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
Low Channel (5180MHz)										
15540	PK	54.1	360	V	40.7	10.9	39.6	66.1	74	-7.9
15540	PK	49.7	360	H	40.7	10.9	39.6	61.7	74	-12.3
15540	AV	32.3	360	V	40.7	10.9	39.6	44.3	54	-9.7
15540	AV	31.0	360	H	40.7	10.9	39.6	43.0	54	-11.0
High Channel (5240MHz)										
15720	PK	52.1	360	V	40.7	10.9	39.6	64.1	74	-9.9
15720	PK	47.9	360	H	40.7	10.9	39.6	59.9	74	-14.1
15720	AV	32.5	360	V	40.7	10.9	39.6	44.5	54	-9.5
15720	AV	30.7	360	H	40.7	10.9	39.6	42.7	54	-11.3

Out of Band edge

Test CH.	**Test Segment**	**Result**	**Limit**
	MHz	**dBm/MHz**	**dBm/MHz**
Lowest	Below 5150	-45.47	-27
Highest	Above 5350	-43.89	-27
Note: the data just list the worst cases			

For the frequency band 5.725-5.850GHz

Hormonics And Spurious Emissions

Frequency MHz	Detector	Meter Reading dBuV	Direction Degree	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
Low Channel (5725MHz)										
11450	PK	52.4	360	V	38.9	9.8	40.1	61.0	74	-13.0
11450	PK	50.8	360	H	38.9	9.8	40.1	59.4	74	-14.6
11450	AV	31.8	360	V	38.9	9.8	40.1	40.4	54	-13.6
11450	AV	30.5	360	H	38.9	9.8	40.1	39.1	54	-14.9
High Channel (5825MHz)										
11650	PK	52.4	360	V	38.9	9.8	40.1	61.0	74	-13.0
11650	PK	50.9	360	H	38.9	9.8	40.1	59.5	74	-14.5
11650	AV	32.6	360	V	38.9	9.8	40.1	41.2	54	-12.8
11650	AV	31.7	360	H	38.9	9.8	40.1	40.3	54	-13.7

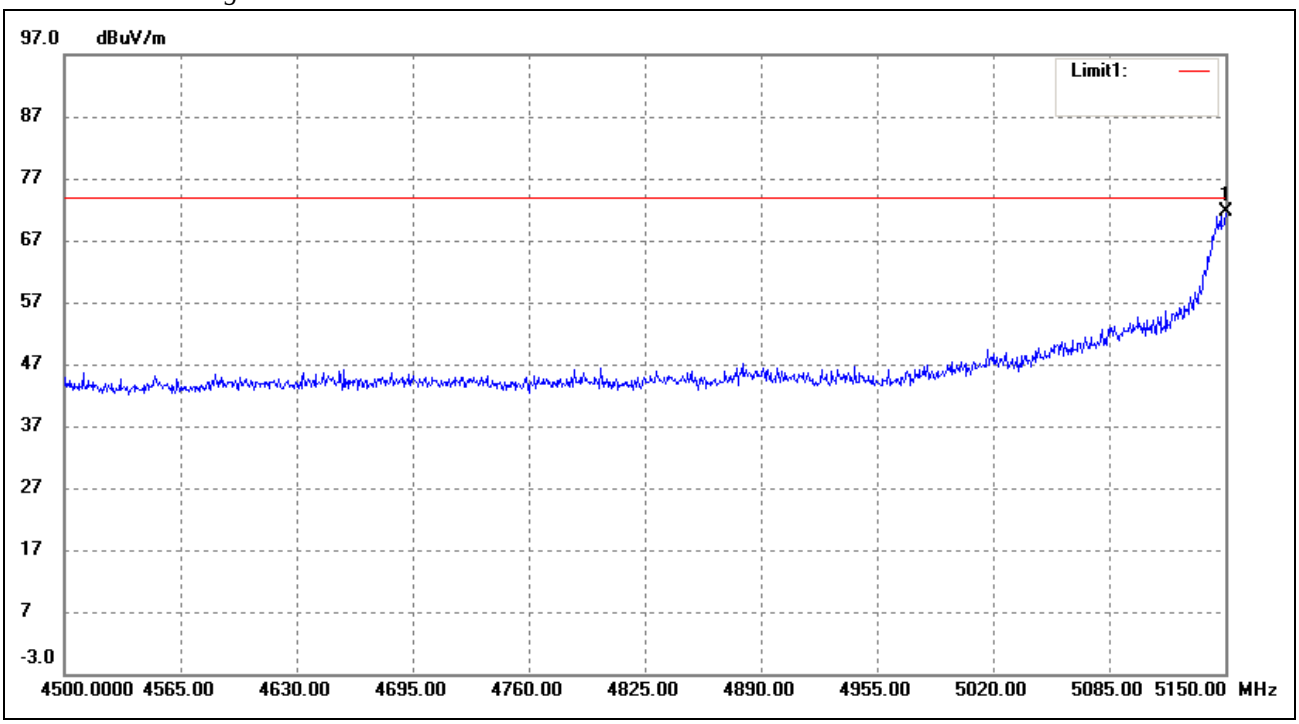
Out of Band edge

Test CH.	**Test Segment**	**Result**	**Limit**
	MHz	**dBm/MHz**	**dBm/MHz**
Lowest	Below 5715	-47.88	-27
	5715 to 5725	-44.36	-17
Highest	5850 to 5860	-45.82	-17
	Above 5860	-48.60	-27
Note: the data just list the worst cases			

802.11n HT40

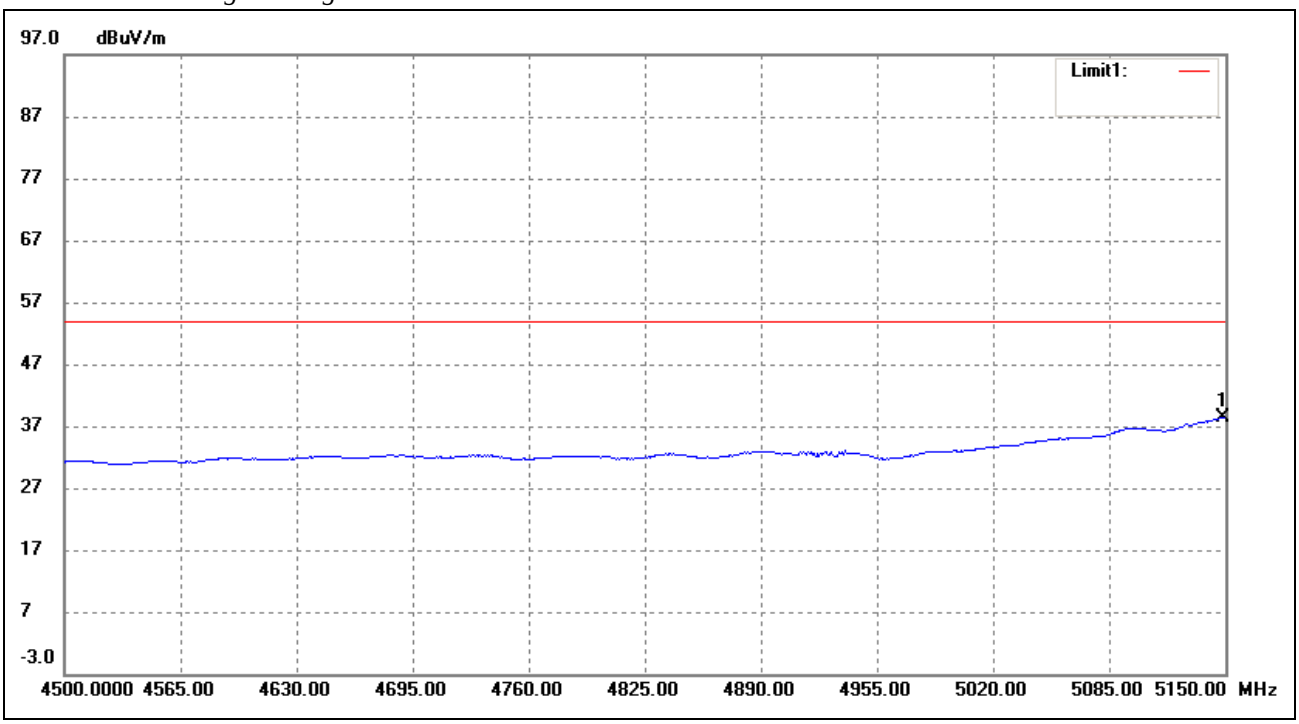
For the frequency band 5.15-5.25GHz

Restricted Bandedge Peak



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	5150.000	71.84	-0.13	71.71	74.00	-2.29	360	100	peak

Restricted Bandedge Average



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	5148.700	38.45	-0.13	38.32	54.00	-15.68	360	100	Ave

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

Hormonics And Spurious Emissions

Frequency MHz	Detector	Meter Reading dBuV	Direction Degree	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
Low Channel (5190MHz)										
15570	PK	49.6	360	V	40.7	10.9	39.6	61.6	74	-12.4
15570	PK	47.8	360	H	40.7	10.9	39.6	59.8	74	-14.2
15570	AV	31.5	360	V	40.7	10.9	39.6	43.5	54	-10.5
15570	AV	30.2	360	H	40.7	10.9	39.6	42.2	54	-11.8
High Channel (5230MHz)										
15690	PK	48.7	360	V	40.7	10.9	39.6	60.7	74	-13.3
15690	PK	47.3	360	H	40.7	10.9	39.6	59.3	74	-14.7
15690	AV	32.3	360	V	40.7	10.9	39.6	44.3	54	-9.7
15690	AV	30.6	360	H	40.7	10.9	39.6	42.6	54	-11.4

Out of Band edge

Test CH.	**Test Segment**	**Result**	**Limit**
	MHz	**dBm/MHz**	**dBm/MHz**
Lowest	Below 5150	-46.48	-27
Highest	Above 5350	-43.57	-27
Note: the data just list the worst cases			

For the frequency band 5.725-5.850GHz

Restricted Band, Hormonics And Spurious Emissions

Frequency MHz	Detector	Meter Reading dBuV	Direction Degree	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
Low Channel (5755MHz)										
11510	PK	51.5	360	V	38.9	9.8	40.1	60.1	74	-13.9
11510	PK	51.0	360	H	38.9	9.8	40.1	59.6	74	-14.4
11510	AV	33.3	360	V	38.9	9.8	40.1	41.9	54	-12.1
11510	AV	31.9	360	H	38.9	9.8	40.1	40.5	54	-13.5
High Channel (5795MHz)										
11590	PK	51.3	360	V	38.9	9.8	40.1	59.9	74	-14.1
11590	PK	50.2	360	H	38.9	9.8	40.1	58.8	74	-15.2
11590	AV	32.5	360	V	38.9	9.8	40.1	41.1	54	-12.9
11590	AV	31.7	360	H	38.9	9.8	40.1	40.3	54	-13.7

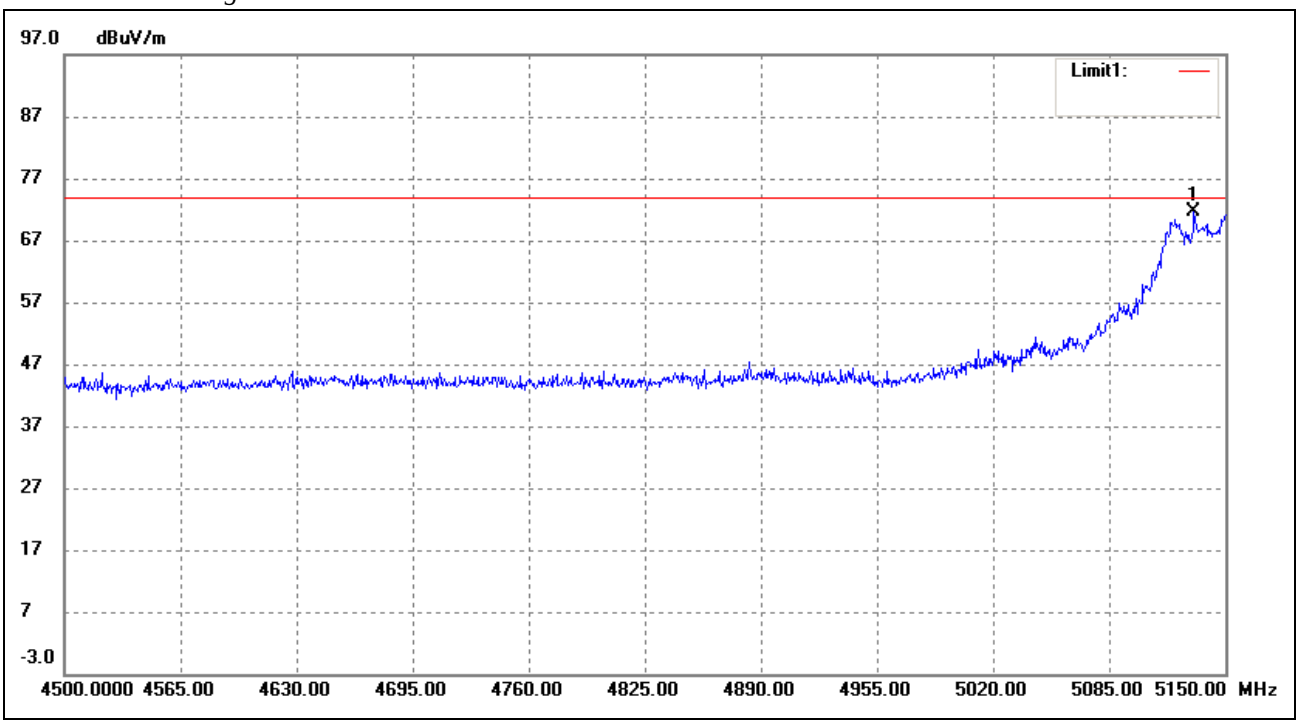
Out of Band edge

Test CH.	**Test Segment**	**Result**	**Limit**
	MHz	**dBm/MHz**	**dBm/MHz**
Lowest	Below 5715	-47.68	-27
	5715 to 5725	-44.35	-17
Highest	5850 to 5860	-45.80	-17
	Above 5860	-46.65	-27
Note: the data just list the worst cases			

802.11ac HT80

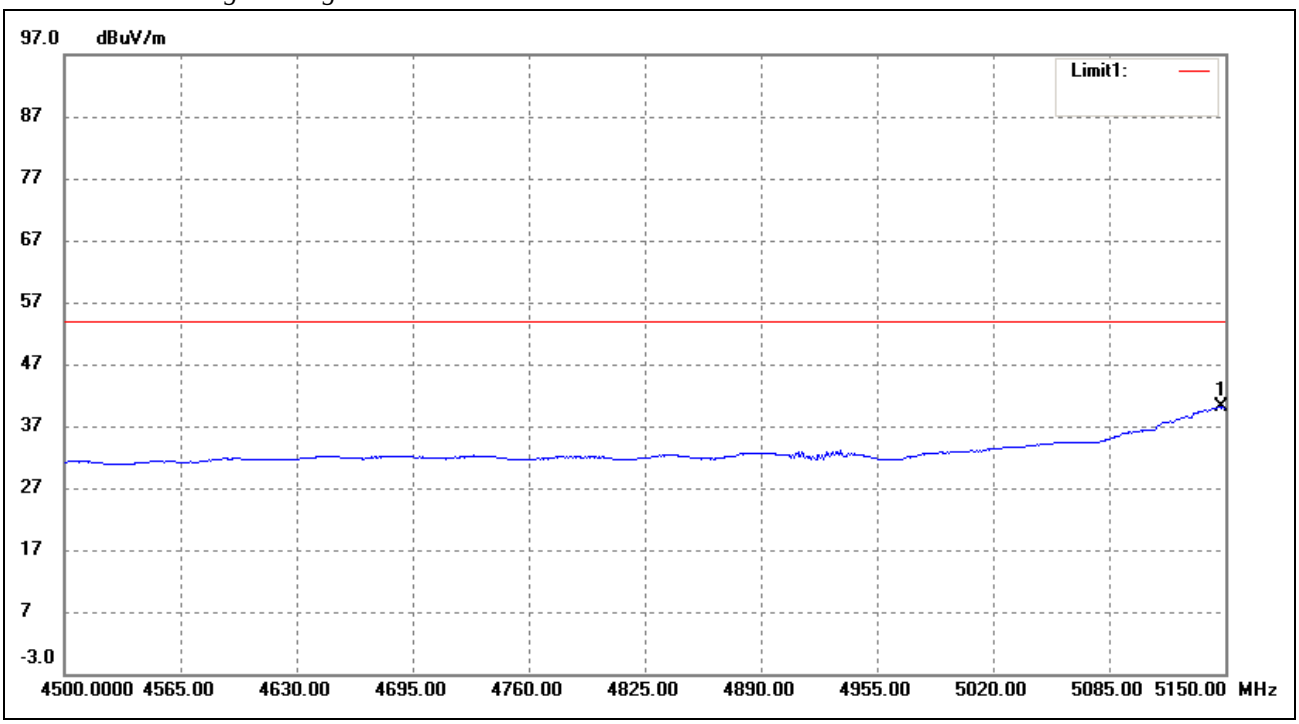
For the frequency band 5.15-5.25GHz

Restricted Bandedge Peak



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	5132.450	71.82	-0.17	71.65	74.00	-2.35	360	100	peak

Restricted Bandedge Average



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	5148.050	40.19	-0.13	40.06	54.00	-13.94	360	100	Ave

Hormonics And Spurious Emissions

Frequency MHz	Detector	Meter Reading dBuV	Direction Degree	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
Low Channel (5210MHz)										
15630	PK	46.3	360	V	40.7	10.9	39.6	58.3	74	-15.7
15630	PK	45.8	360	H	40.7	10.9	39.6	57.8	74	-16.2
15630	AV	30.1	360	V	40.7	10.9	39.6	42.1	54	-11.9
15630	AV	29.7	360	H	40.7	10.9	39.6	41.7	54	-12.3

Out of Band edge

Test CH.	**Test Segment**	**Result**	**Limit**
	MHz	**dBm/MHz**	**dBm/MHz**
Lowest	Below 5150	-44.75	-27
Highest	Above 5350	-43.50	-27
Note: the data just list the worst cases			

For the frequency band 5.725-5.85GHz

Hormonics And Spurious Emissions

Frequency MHz	Detector	Meter Reading dBuV	Direction Degree	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
Low Channel (5775MHz)										
11550	PK	49.4	360	V	38.9	9.8	40.1	58.0	74	-16.0
11550	PK	49.0	360	H	38.9	9.8	40.1	57.6	74	-16.4
11550	AV	31.4	360	V	38.9	9.8	40.1	40.0	54	-14.0
11550	AV	30.8	360	H	38.9	9.8	40.1	39.4	54	-14.6

Out of Band edge

Test CH.	**Test Segment**	**Result**	**Limit**
	MHz	**dBm/MHz**	**dBm/MHz**
Lowest	Below 5715	-45.96	-27
	5715 to 5725	-43.37	-17
Highest	5850 to 5860	-45.78	-17
	Above 5860	-46.62	-27
Note: the data just list the worst cases			

Note: Testing is carried out with frequency rang 30MHz to 40GHz, which above 3th Harmonics are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

10. Conducted Emissions

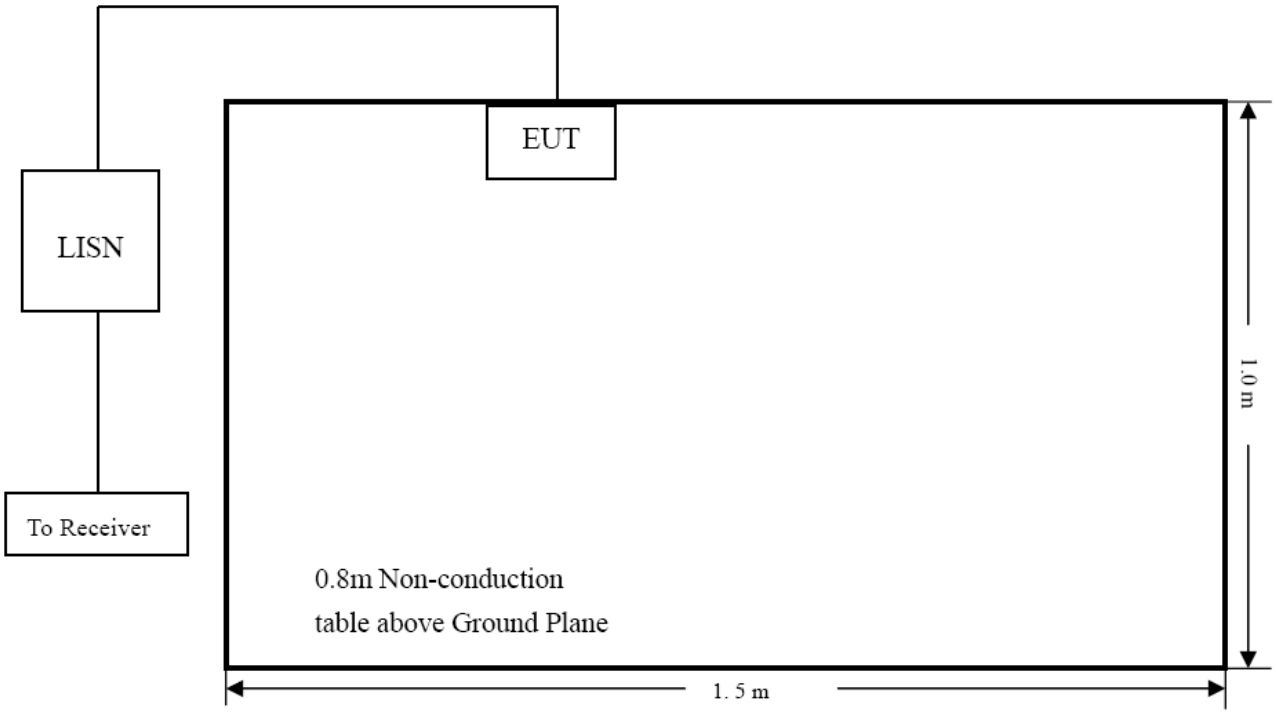
10.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is ± 2.88 dB.

10.2 Test Procedure

The setup of EUT is according with per ANSI C63.4-2014 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.

10.3 Basic Test Setup Block Diagram



10.4 Environmental Conditions

Temperature:	25 °C
Relative Humidity:	52%
ATM Pressure:	1012 mbar

10.5 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

10.6 Summary of Test Results/Plots

According to the data in section 5.7, the EUT complied with the FCC Part 15.207 Conducted margin for this device, with the *worst* margin reading of:

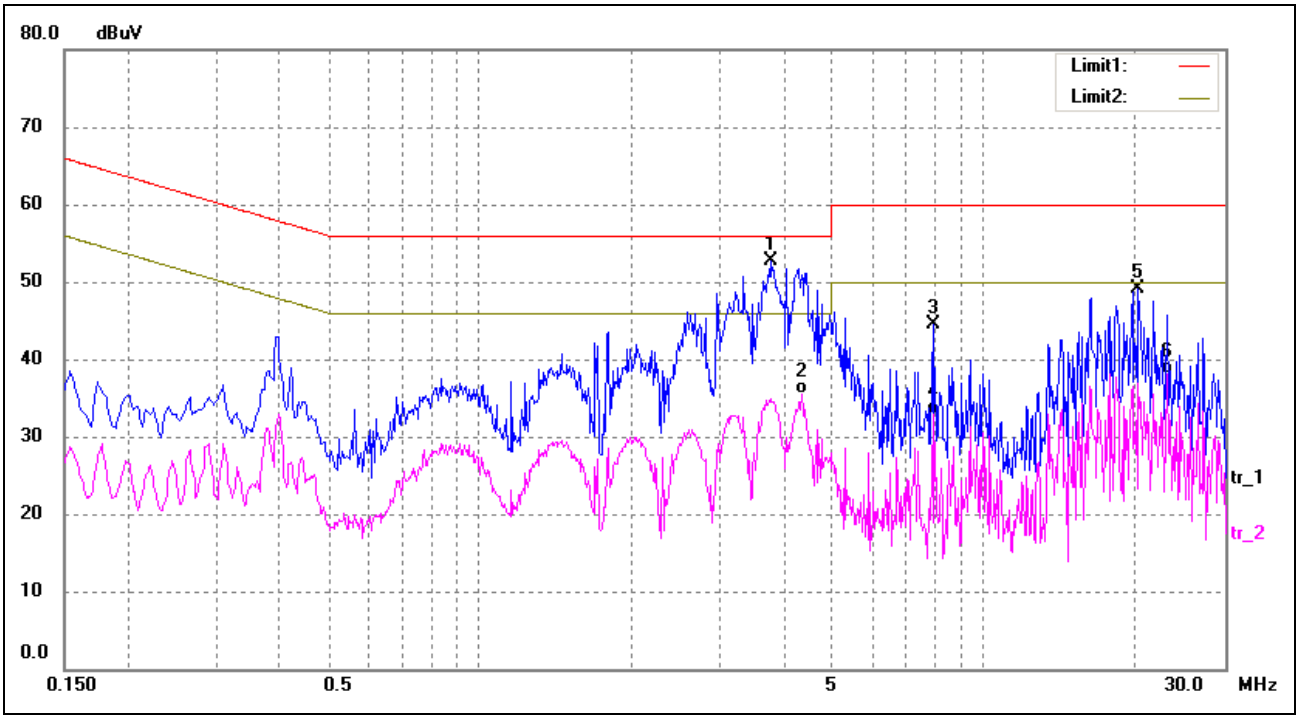
-1.7 dB at 4.3100 **MHz** in the **Line, Average** detector, 0.15-30MHz

10.7 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

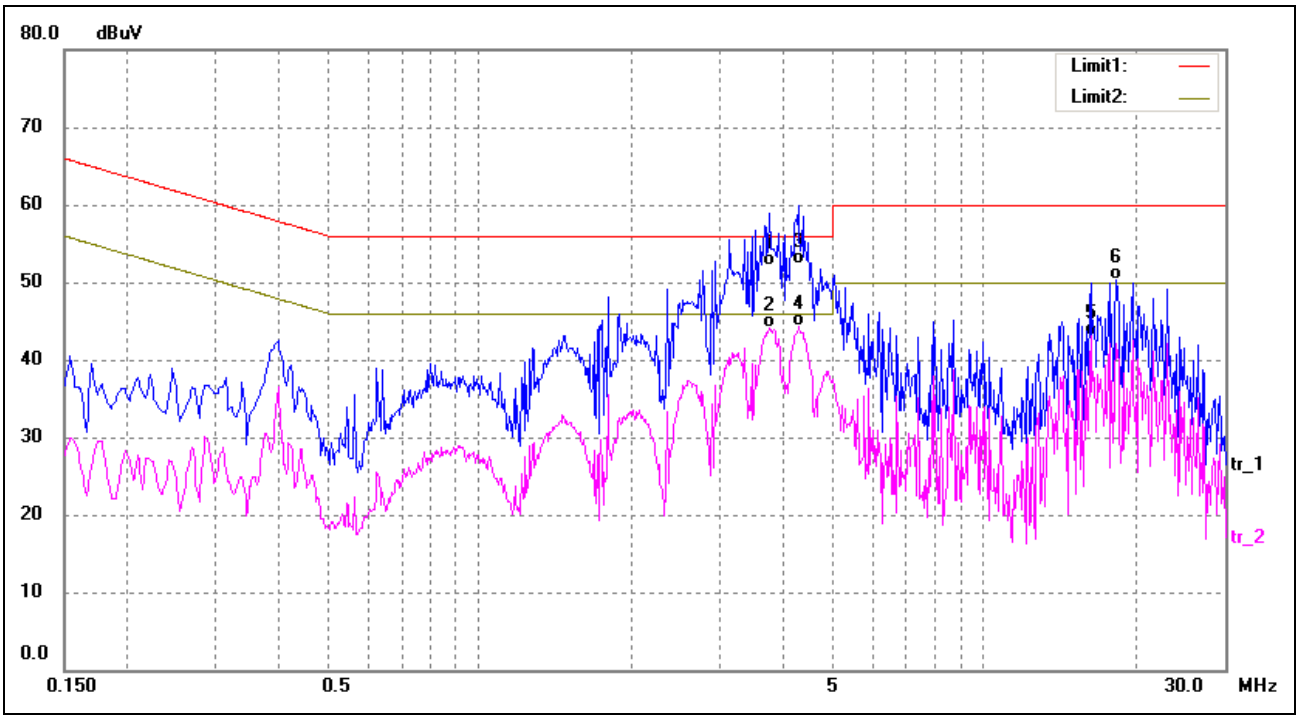
EUT: *High-Power Wireless AC600 Outdoor Access Point / Repeater*
Tested Model: *525824*
Operating Condition: *Transmitting*
Comment: *AC 120V/60Hz; Adapter DC 24V*

Test Specification: *Neutral*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	3.7620	39.63	13.00	52.63	56.00	-3.37	peak
2	4.3580	22.47	13.00	35.47	46.00	-10.53	AVG
3	7.9220	32.58	11.83	44.41	60.00	-15.59	peak
4	7.9220	21.09	11.83	32.92	50.00	-17.08	AVG
5	20.2580	37.03	12.00	49.03	60.00	-10.97	peak
6	23.1300	25.71	12.38	38.09	50.00	-11.91	AVG

Test Specification: *Line*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	3.7500	39.16	13.00	52.16	56.00	-3.84	QP
2	3.7500	31.05	13.00	44.05	46.00	-1.95	AVG
3	4.2820	39.25	13.00	52.25	56.00	-3.75	QP
4*	4.3100	31.30	13.00	44.30	46.00	-1.70	AVG
5	16.2260	31.79	11.25	43.04	50.00	-6.96	AVG
6	18.2420	38.74	11.65	50.39	60.00	-9.61	QP

11. Frequency Stability

11.1 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.

11.2 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

Temperature:	Supply Voltage
20°C	85-115% of declared nominal voltage
-30°C to +50°C	Normal

11.3 Environmental Conditions

Temperature:	20°C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

11.4 Summary of Test Results/Plots

5150-5250MHz

802.11a_20MHz

Reference Frequency(Middle Channel): 5240 MHz			
Environment Temperature (°C)	Power Supplied (VAC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	120	121	0.0231
40	120	118	0.0225
30	120	116	0.0221
20	120	124	0.0237
10	120	136	0.0260
0	120	141	0.0269
-10	120	133	0.0254
-20	120	128	0.0244
-30	120	144	0.0275

802.11n_HT20

Reference Frequency(Middle Channel): 5240 MHz			
Environment Temperature (°C)	Power Supplied (VAC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	120	141	0.0269
40	120	128	0.0244
30	120	124	0.0237
20	120	154	0.0294
10	120	114	0.0218
0	120	134	0.0256
-10	120	147	0.0281
-20	120	118	0.0225
-30	120	126	0.0240

802.11n_HT40

Reference Frequency(Middle Channel): 5230 MHz			
Environment Temperature (°C)	Power Supplied (VAC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	120	141	0.0270
40	120	145	0.0277
30	120	141	0.0270
20	120	131	0.0250
10	120	148	0.0283
0	120	152	0.0291
-10	120	158	0.0302
-20	120	151	0.0289
-30	120	149	0.0285

802.11ac_HT80

Reference Frequency(Fixed Channel): 5210 MHz			
Environment Temperature (°C)	Power Supplied (VAC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	120	148	0.0284
40	120	149	0.0286
30	120	151	0.0290
20	120	144	0.0276
10	120	151	0.0290
0	120	156	0.0299
-10	120	161	0.0309
-20	120	154	0.0296
-30	120	160	0.0307

5725-5850MHz

802.11a_HT20

Reference Frequency(Middle Channel): 5785MHz			
Environment Temperature (°C)	Power Supplied (VAC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	120	118	0.0338
40	120	124	0.0349
30	120	134	0.0367
20	120	125	0.0351
10	120	116	0.0335
0	120	147	0.0390
-10	120	157	0.0407
-20	120	184	0.0455
-30	120	164	0.0420

802.11n_HT20

Reference Frequency(Middle Channel): 5785MHz			
Environment Temperature (°C)	Power Supplied (VAC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	120	117	0.0227
40	120	127	0.0244
30	120	145	0.0276
20	120	154	0.0292
10	120	165	0.0312
0	120	185	0.0347
-10	120	154	0.0292
-20	120	181	0.0340
-30	120	157	0.0297

802.11n_HT40

Reference Frequency(Fixed Channel): 5755 MHz			
Environment Temperature (°C)	Power Supplied (VAC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	120	155	0.0269
40	120	162	0.0281
30	120	161	0.0280
20	120	148	0.0257
10	120	129	0.0223
0	120	200	0.0347
-10	120	169	0.0294
-20	120	167	0.0289
-30	120	159	0.0276

802.11ac_HT80

Reference Frequency(Fixed Channel): 5775 MHz			
Environment Temperature (°C)	Power Supplied (VAC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	120	160	0.0277
40	120	156	0.0270
30	120	163	0.0281
20	120	156	0.0270
10	120	159	0.0275
0	120	167	0.0288
-10	120	172	0.0298
-20	120	167	0.0288
-30	120	171	0.0295

So, Frequency Stability Versus Input Voltage is:

5150-5250MHz

802.11a_HT20

Reference Frequency(Middle Channel): 5240 MHz			
Environment Temperature (°C)	Power Supplied (VAC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	102	139	0.0265
	120	136	0.0260
	138	133	0.0254

802.11n_HT20

Reference Frequency(Middle Channel): 5240 MHz			
Environment Temperature (°C)	Power Supplied (VAC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	102	145	0.0277
	120	148	0.0282
	138	152	0.0290

802.11n_HT40

Reference Frequency(Middle Channel): 5230 MHz			
Environment Temperature (°C)	Power Supplied (VAC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	102	152	0.0291
	120	148	0.0283
	138	146	0.0279

802.11ac_HT80

Reference Frequency(Fix Channel): 5210 MHz			
Environment Temperature (°C)	Power Supplied (VAC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	102	155	0.0298
	120	151	0.0290
	138	158	0.0303

5725-5850MHz

802.11a_HT20

Reference Frequency(Middle Channel): 5785 MHz			
Environment Temperature (°C)	Power Supplied (VAC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	102	147	0.0270
	120	154	0.0306
	138	186	0.0367

802.11n_HT20

Reference Frequency(Middle Channel): 5785 MHz			
Environment Temperature (°C)	Power Supplied (VAC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	102	184	0.0335
	120	149	0.0296
	138	158	0.0313

802.11n_HT40

Reference Frequency(Fixed Channel): 5755 MHz			
Environment Temperature (°C)	Power Supplied (VAC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	102	167	0.0289
	120	150	0.0260
	138	152	0.0264

802.11ac_HT80

Reference Frequency(Fixed Channel): 5775MHz			
Environment Temperature (°C)	Power Supplied (VAC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	102	163	0.0281
	120	164	0.0284
	138	175	0.0303

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