FCC Part 15E
Measurement and Test Report

For

JACS Solutions, LLC

8808 Centre Park Drive, Suite 305, Columbia, MD21045, USA

FCC ID: 2AGCD-JACS800V

FCC Rule(s):	FCC Part 15E
Product Description:	Tablets
Tested Model:	TT800V
Report No.:	STR16018131I-5
Tested Date:	2016-03-10 to 2016-03-25
Issued Date:	2016-03-25
Tested By:	Iven Guo / Engineer
Reviewed By:	Silin Chen / EMC Manager
Approved & Authorized By:	Jandy So / PSQ Manager

Prepared By:

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	JACS Solutions, LLC
Address of applicant:	8808 Centre Park Drive, Suite 305, Columbia, MD21045, USA
Manufacturer:	Xiamen Candour Co., Ltd
Address of manufacturer:	19F C&D International Building 1669 Huandao East Road, Xiamen, Fujian, China

General Description of EUT	
Product Name:	Tablets
Trade Name:	JACS SOLUTIONS
Model No.:	TT800V
Adding Model(s):	/
Hardware Version:	BS-M81FPG-V1.0
Software Version:	TT800VF1204USV01
IMEI:	354019060171495
Rated Voltage:	Battery: DC 3.7V(6200mAh)
Note: The test data is gathered from a production sample, provided by the manufacturer. All test data carry on SIM1 which is the worst case.	

Technical Characteristics of EUT	
Wi-Fi(5G/5.8G)	
Support Standards:	802.11a, 802.11n(HT20),
Frequency Range:	5150-5250MHz, 5725-5850MHz
RF Output Power:	7.22dBm (Conducted)
Type of Modulation:	OFDM, 64-QAM,16-QAM, QPSK, BPSK, 256-QAM
Data Rate:	6-54Mbps, up to 300Mbps
Quantity of Channels:	8 fort 5150-5250MHz; 5 fort 5725-5850MHz
Channel Separation:	20MHz
Type of Antenna:	Integral Antenna
Antenna Gain:	1.11dBi

1.2 Test Standards

The following report is prepared on behalf of the JACS Solutions, LLC 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 v01r02 for Unlicensed National Information Infrastructure (U-NII) Devices and KDB 662911 D01 Multiple Transmitter Output v02r01 shall be performed also.

1.4 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).

1.5 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

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Core
Car charging Cable	4.0	Shielded	Without Core
Adapter #1 Cable	1.0	Shielded	Without Core
Adapter #2 Cable	1.0	Shielded	Without Core

Special Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
Earphone Cable	1.2	Unshielded	Without Core

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

1.6 Measurement Uncertainty

Measurement uncertainty		
Parameter	Conditions	Uncertainty
RF Output Power	Conducted	±0.42dB
Occupied Bandwidth	Conducted	±1.5%
Power Spectral Density	Conducted	±1.8dB
Conducted Emissions	Conducted	±2.88dB
Transmitter Spurious Emissions	Radiated	±5.1dB
Frequency Stability	Conducted	2.3%

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

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

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

5.2 Test Procedure

According to 789033 D02 v01r02 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	2.280	11
	5200	1.678	11
	5240	2.323	11
802.11n-HT20	5180	3.053	11
	5200	2.620	11
	5240	3.496	11

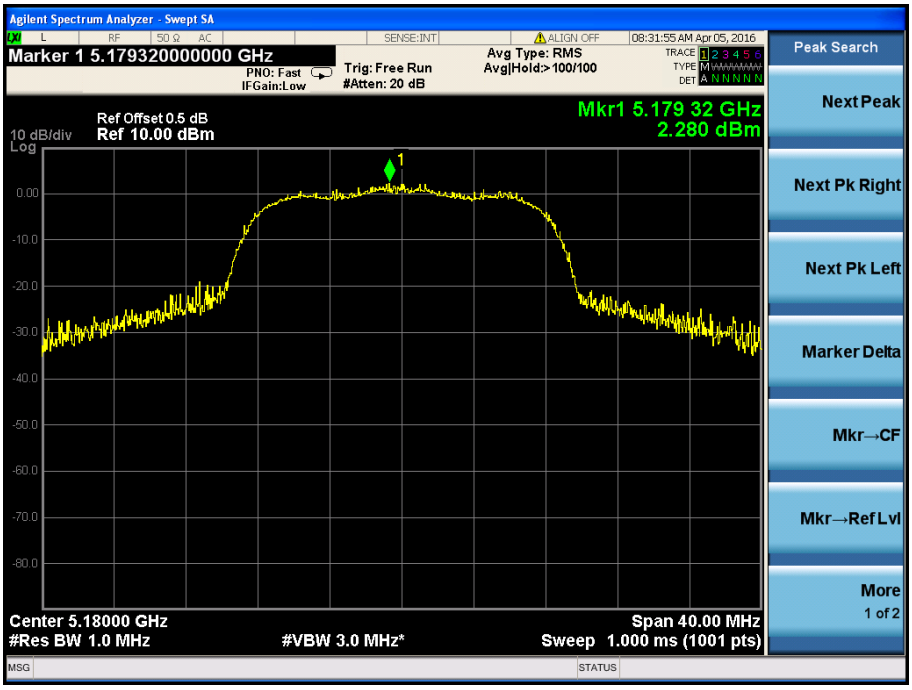
5725-5850MHz

Operating mode	Test Channel	Power Spectral Density dBm/500kHz	Limit (dBm/500kHz)
802.11a	5745	-3.202	30
	5785	-5.022	30
	5825	-5.037	30
802.11n-HT20	5745	-5.520	30
	5785	-6.494	30
	5825	-6.881	30

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



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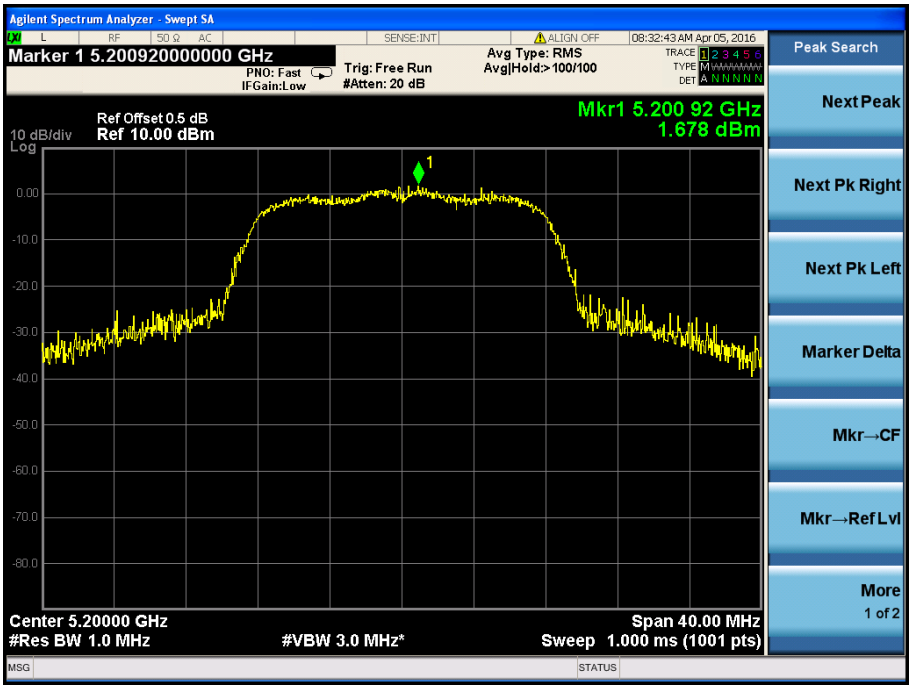
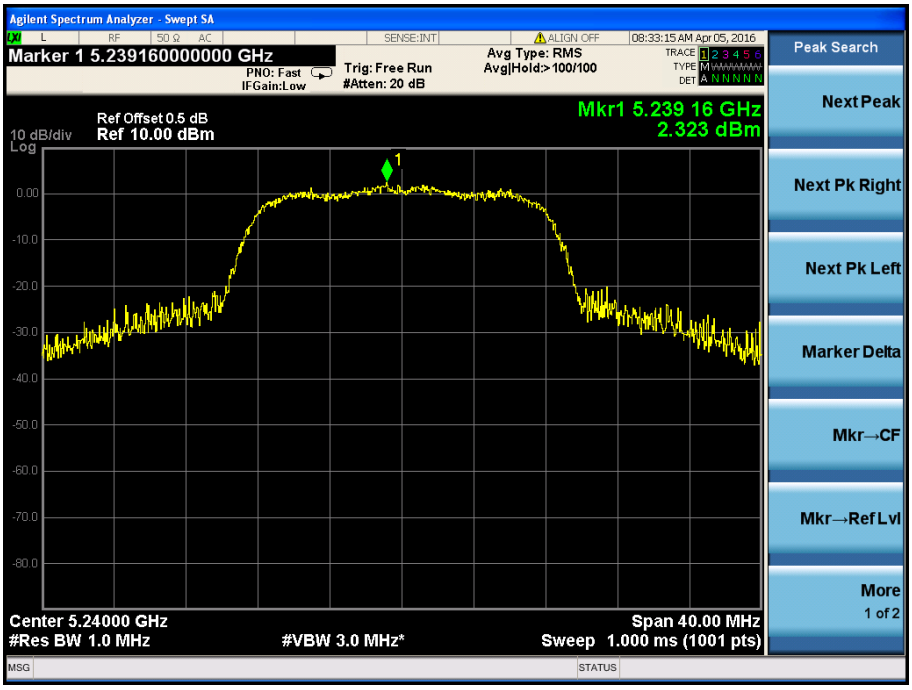
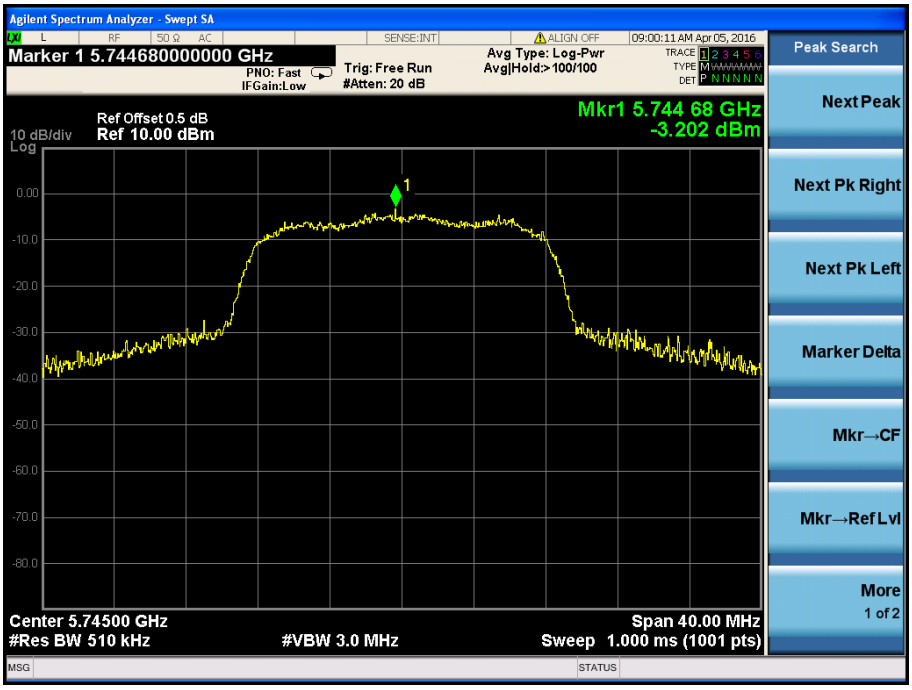


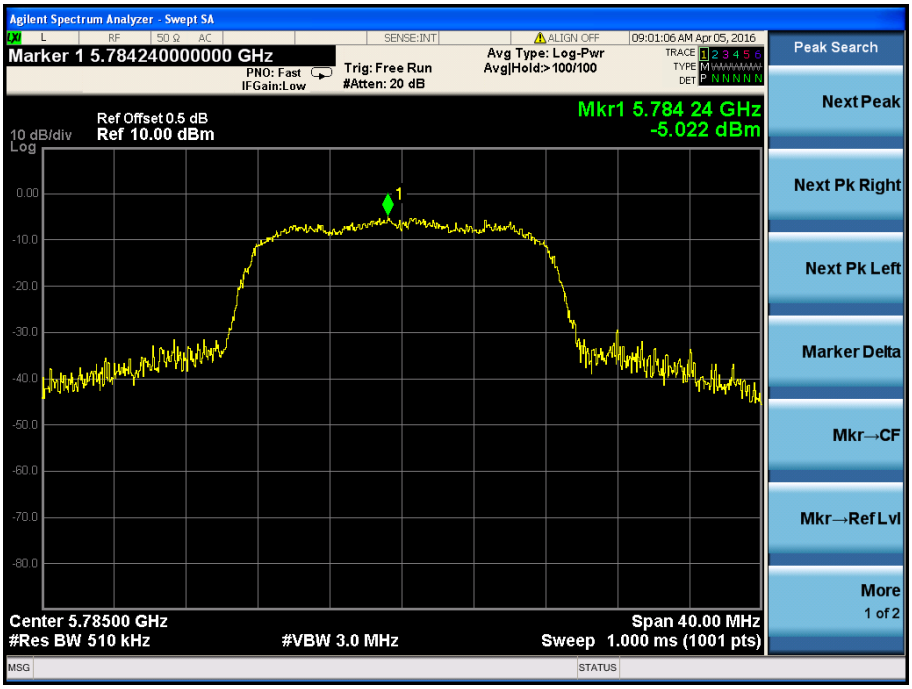
5240MHz



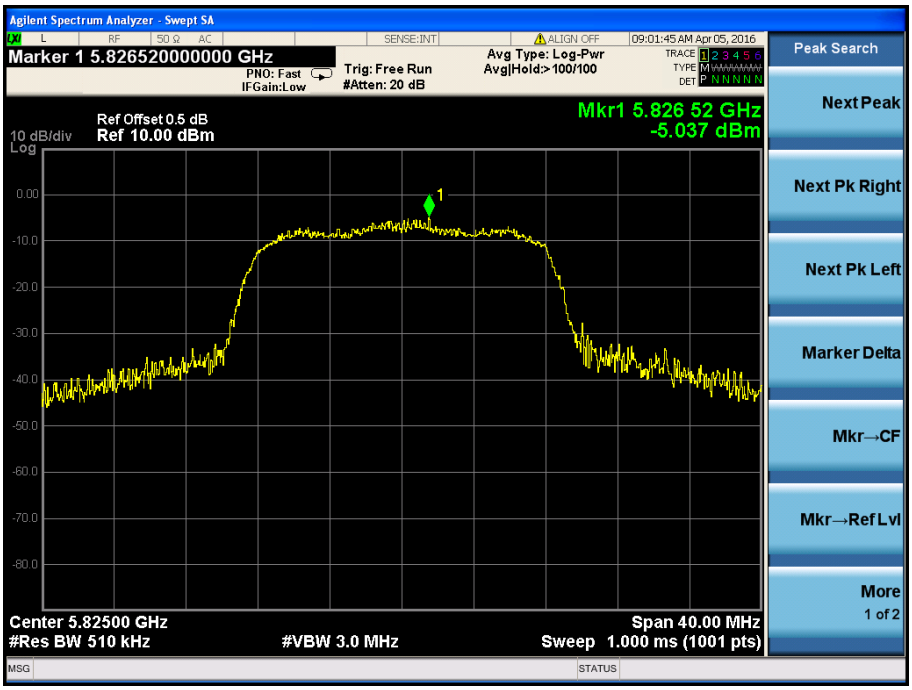
5745MHz



5785MHz

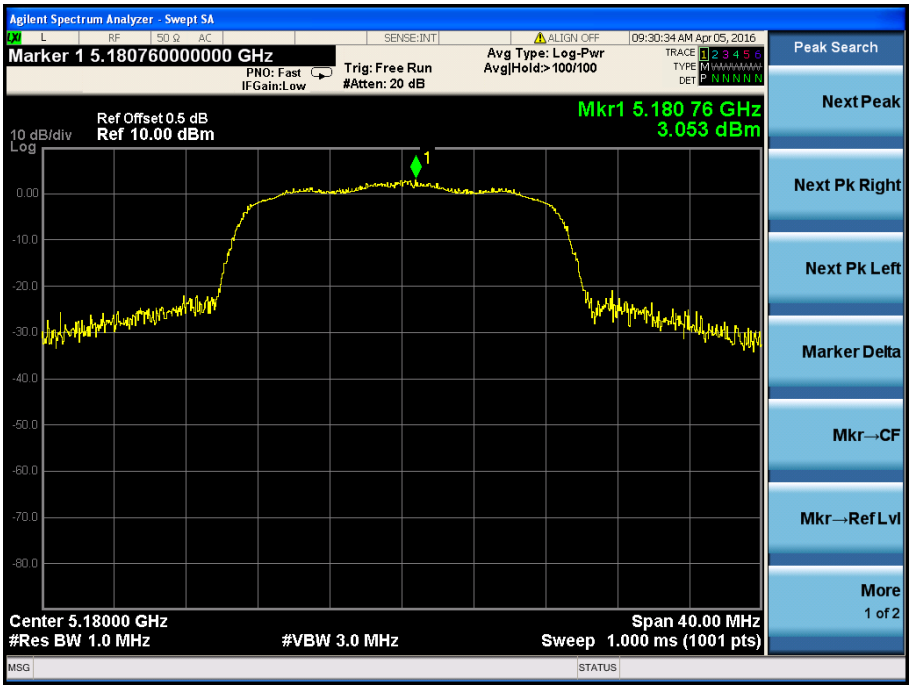


5825MHz

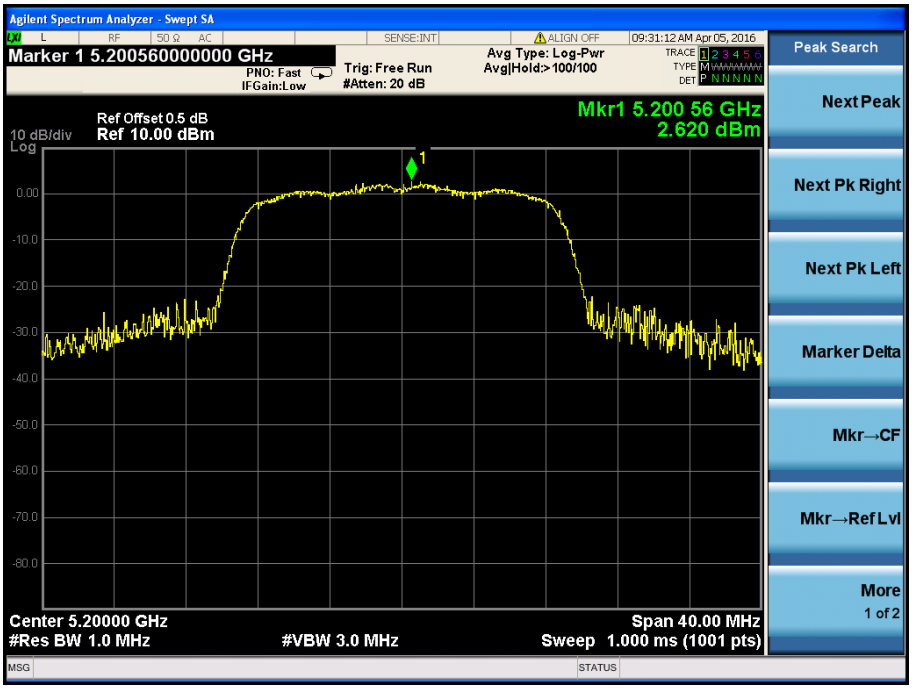


Test Mode: 802.11n-HT20

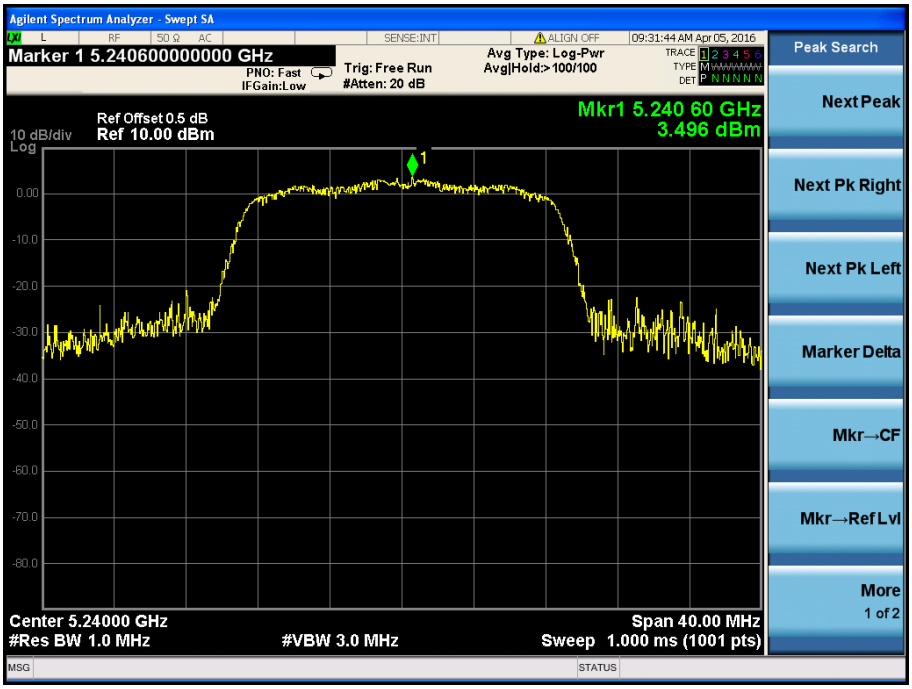
5180MHz



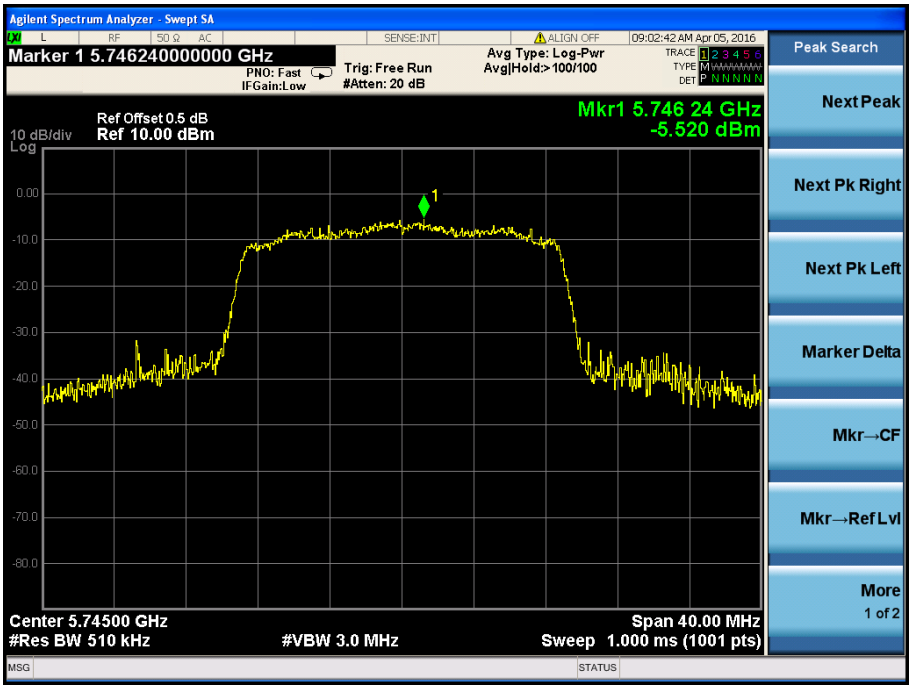
5200MHz



5240MHz



5745MHz



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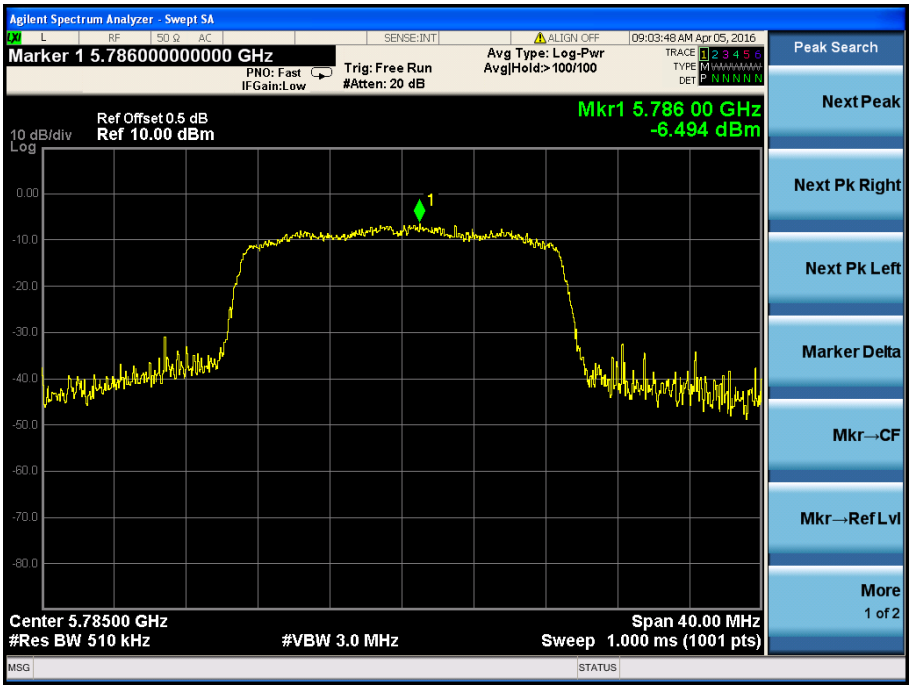
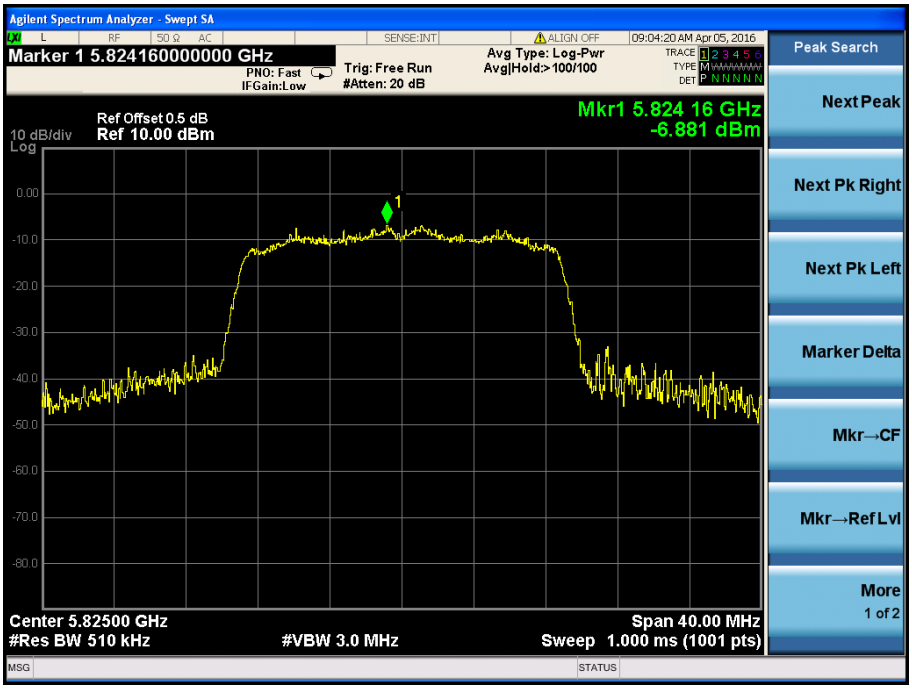


5825MHz



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

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

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

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

6.2 Test Procedure

According to 789033 D02 v01r02 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 v01r02 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	Limit MHz
802.11a	5180	18.87	16.514	--
	5200	23.46	16.601	--
	5240	23.31	16.595	--
802.11n-HT20	5180	19.50	17.515	--
	5200	19.20	17.526	--
	5240	19.61	17.540	--

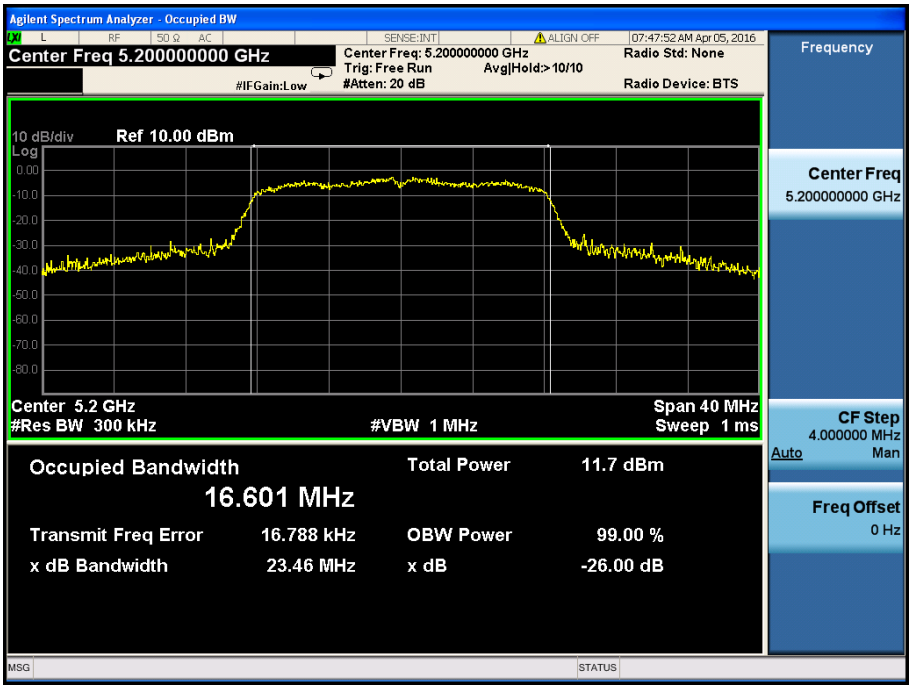
5725-5850MHz

Test Mode	Test Channel MHz	6 dB Bandwidth MHz	99% Bandwidth MHz	Limit kHz
802.11a	5745	15.89	16.604	≥500
	5785	15.41	16.510	≥500
	5825	15.94	16.493	≥500
802.11n-HT20	5745	17.36	17.536	≥500
	5785	17.42	17.519	≥500
	5825	17.17	17.534	≥500

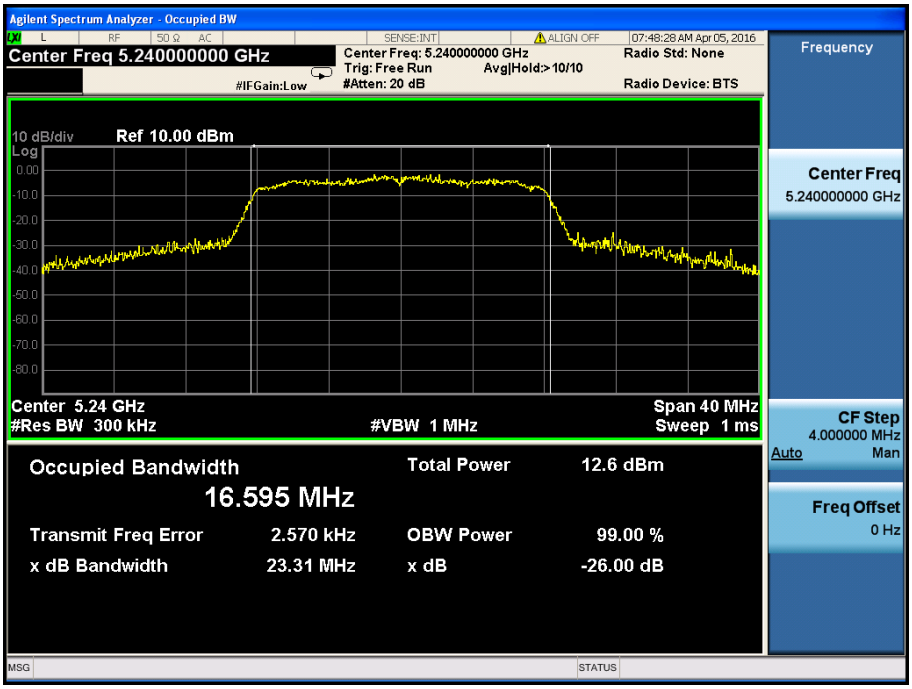
Test mode：802.11a

5180MHz

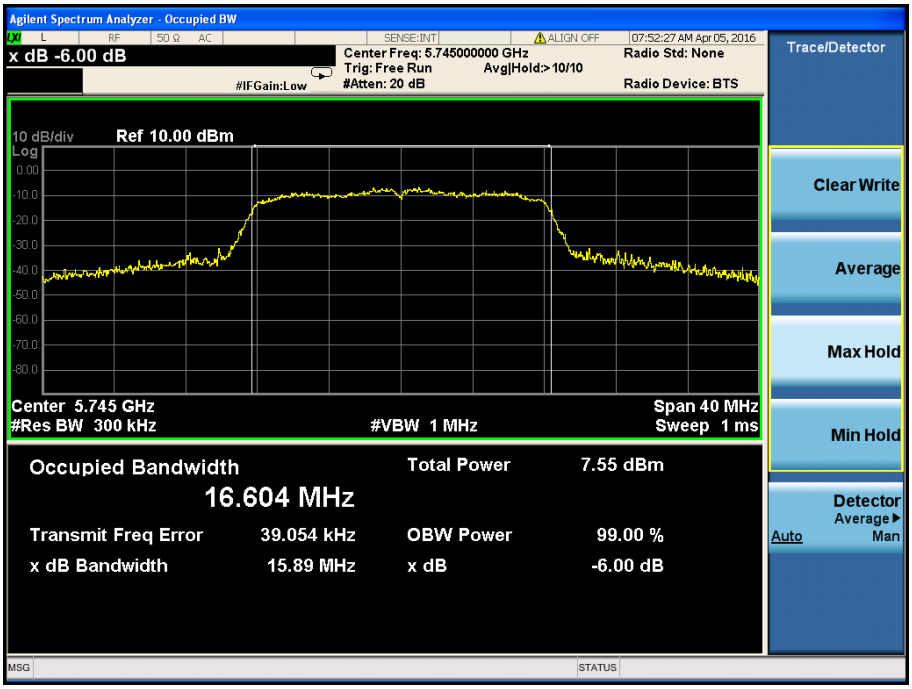
5200MHz



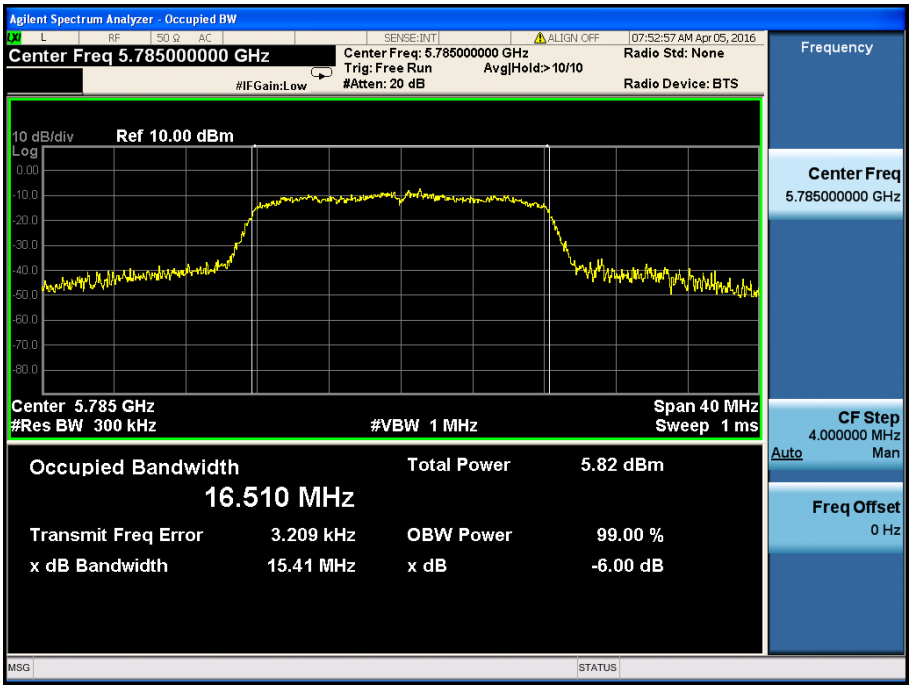
5240MHz



5745MHz



5785MHz



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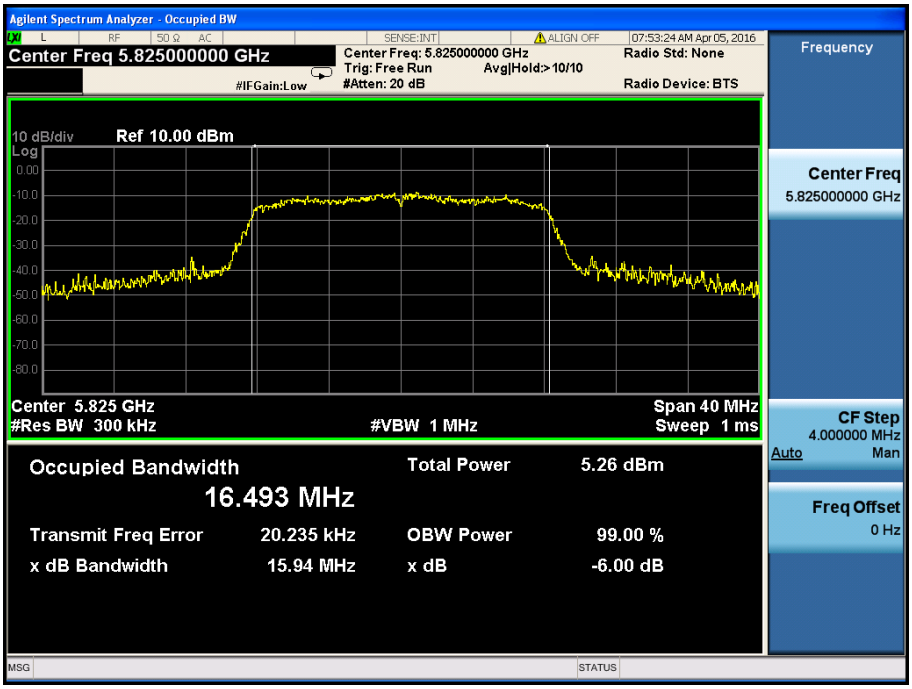
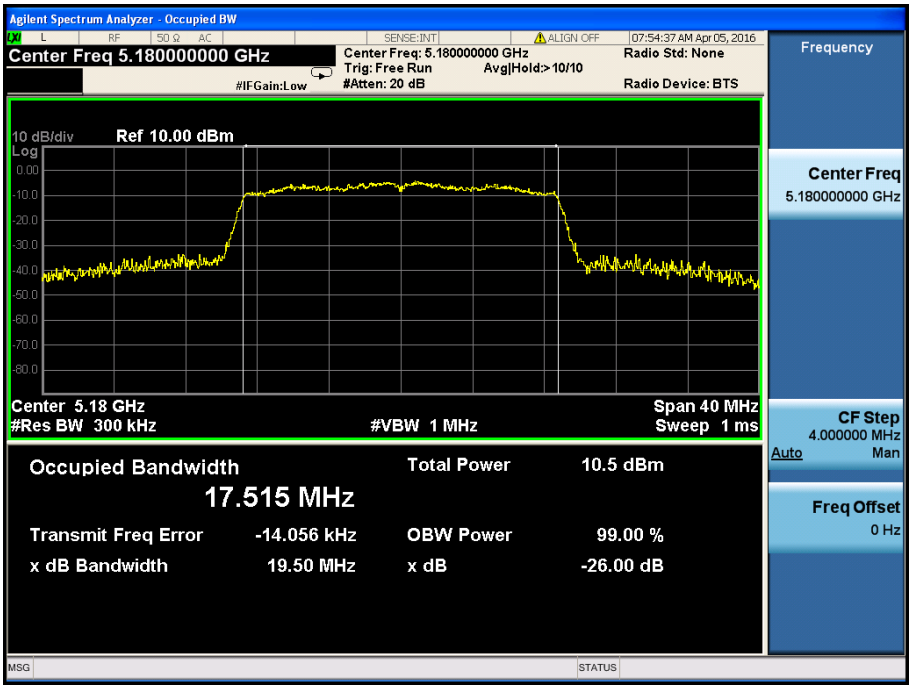
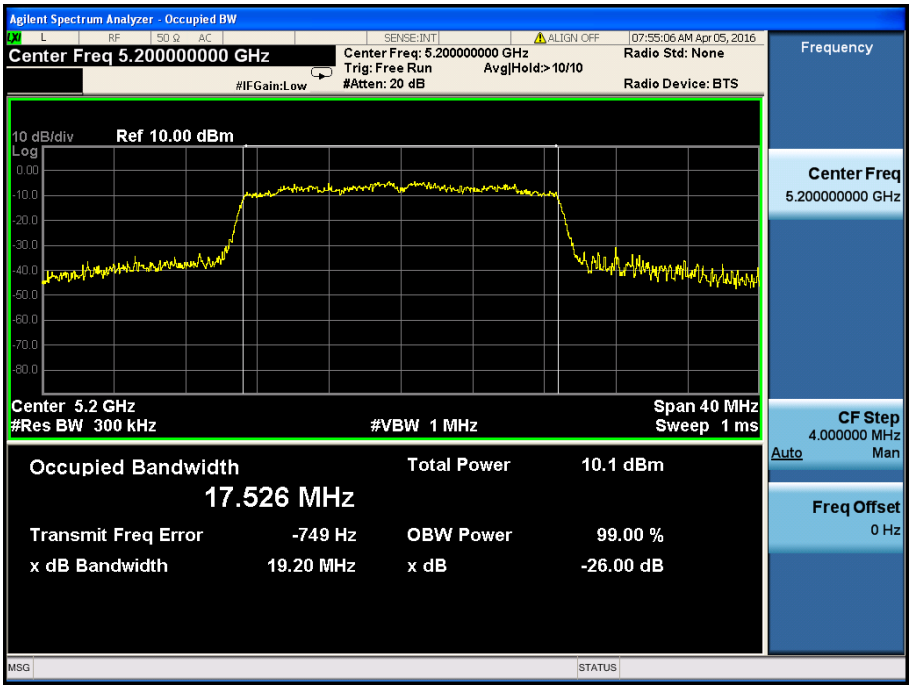


Test mode：802.11n-HT20

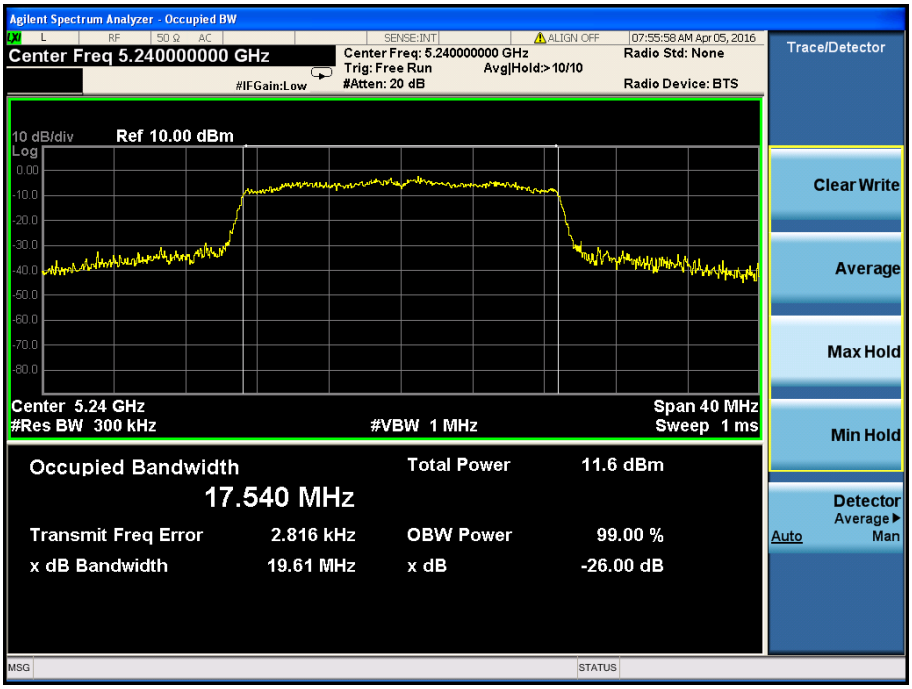
5180MHz



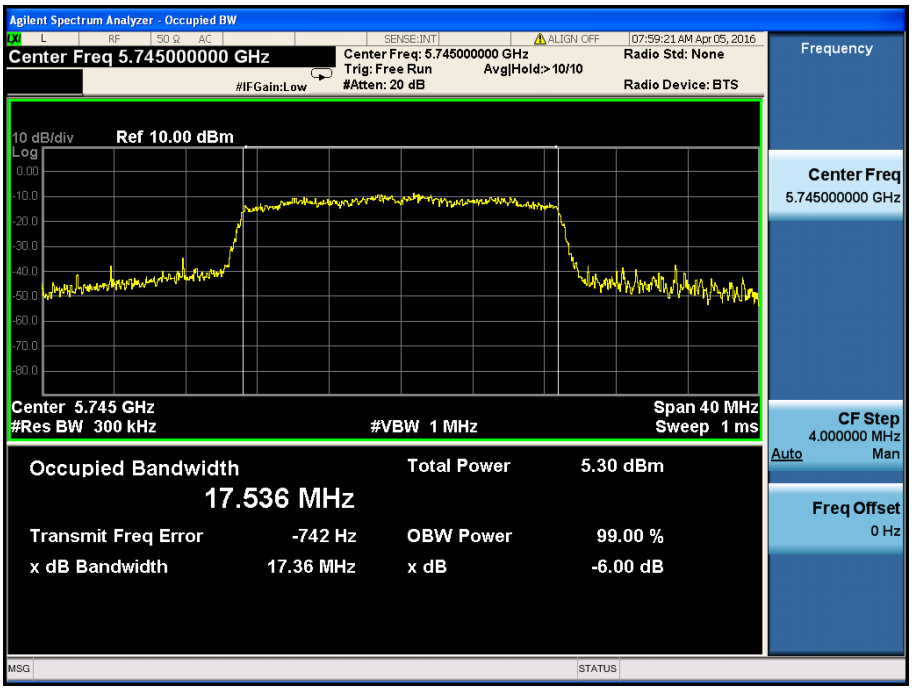
5200MHz



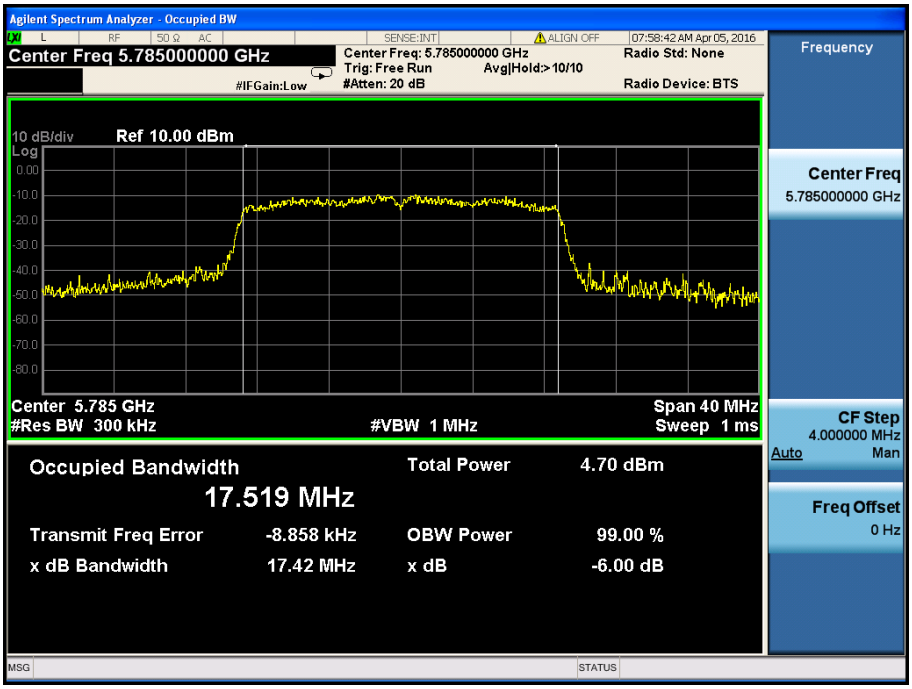
5240MHz



5745MHz



5785MHz



5825MHz

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

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

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

7.2 Test Procedure

According to KDB789033 D02 v01r02 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

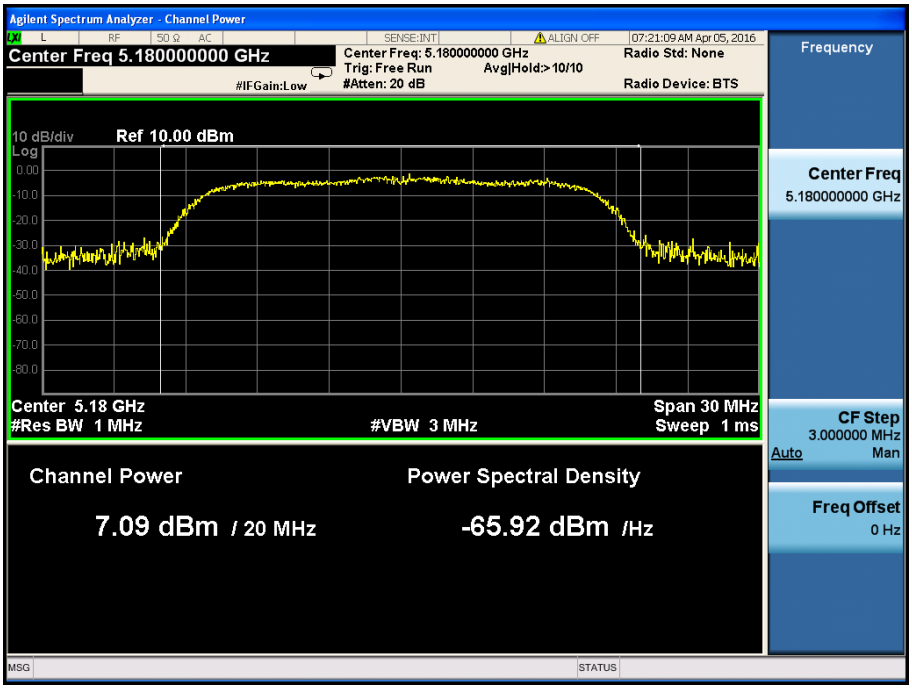
7.4 Summary of Test Results/Plots

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

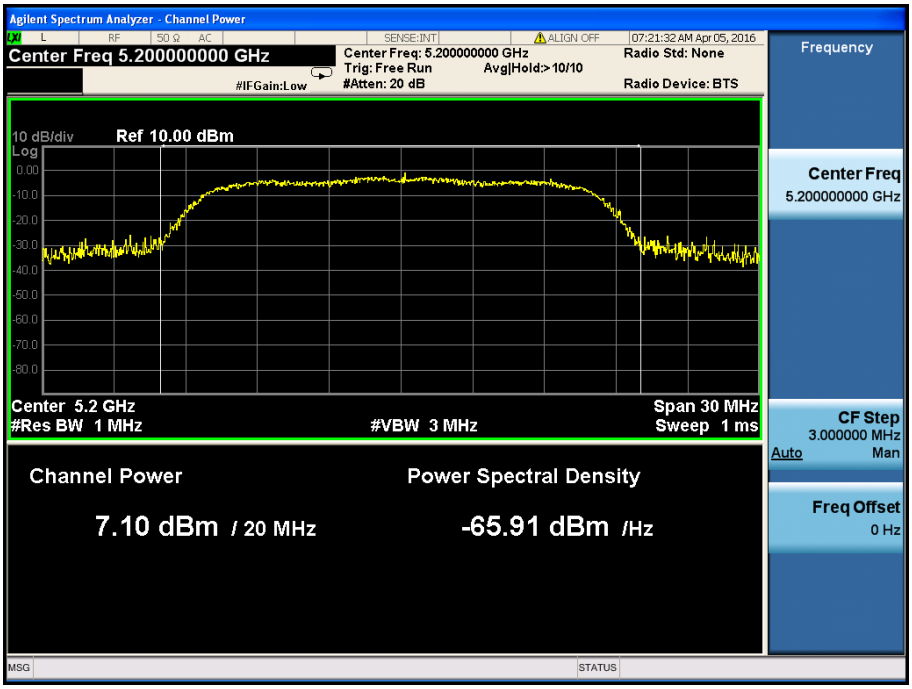
Test mode	Frequency MHz	Output Power dBm	Output Power mW	Limit mW
802.11a	5180	7.09	5.12	250
	5200	7.10	5.13	250
	5240	6.43	4.40	250
	5745	6.80	4.79	1000
	5785	5.86	3.85	1000
	5825	5.41	3.48	1000
802.11n-HT20	5180	6.74	4.72	250
	5200	7.22	5.27	250
	5240	7.20	5.25	250
	5745	6.64	4.61	1000
	5785	5.87	3.86	1000
	5825	5.39	3.46	1000

Test Mode: 802.11a

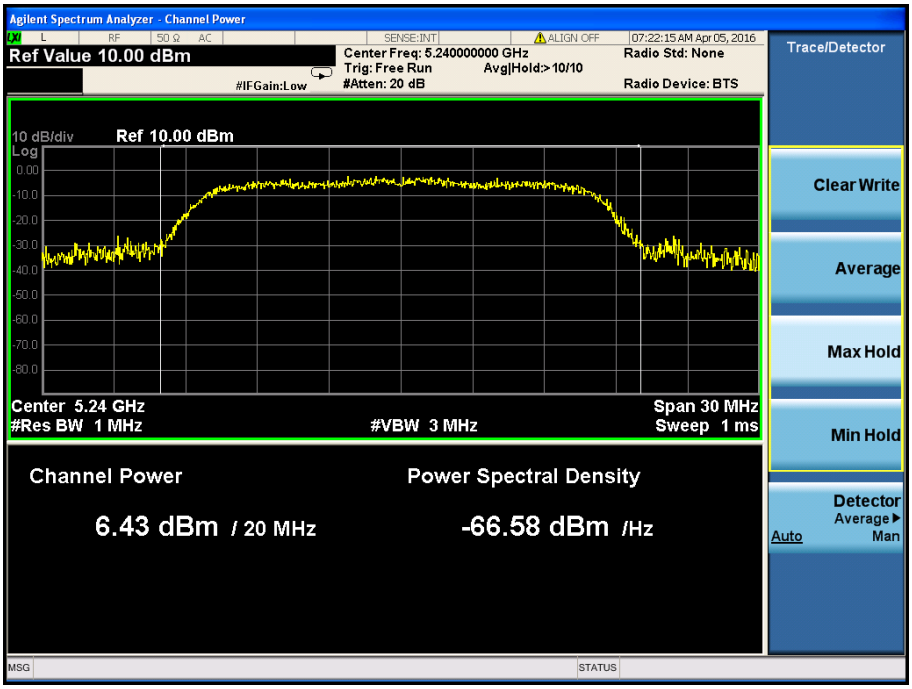
5180MHz



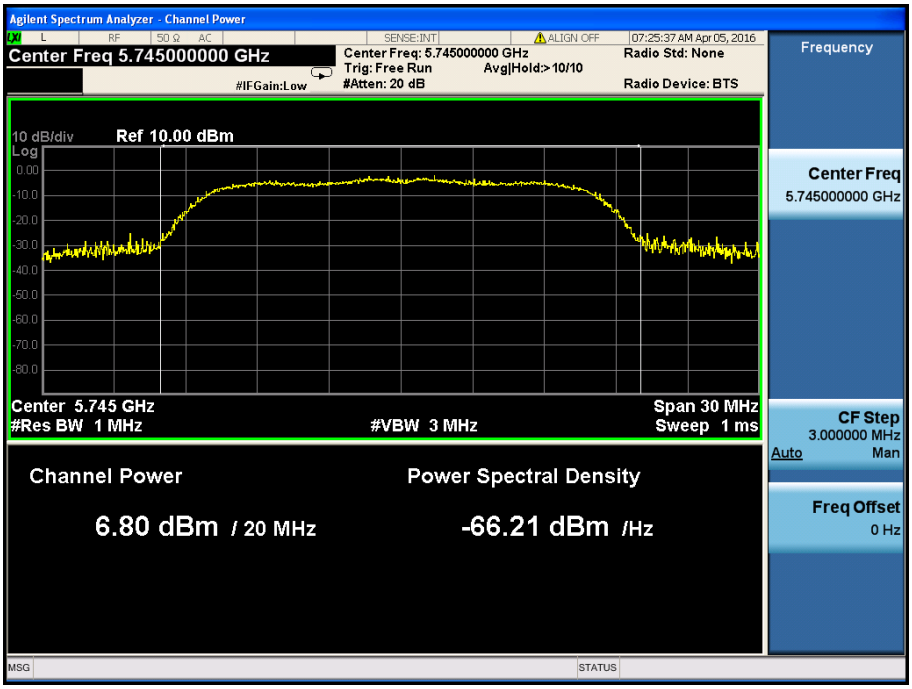
5200MHz



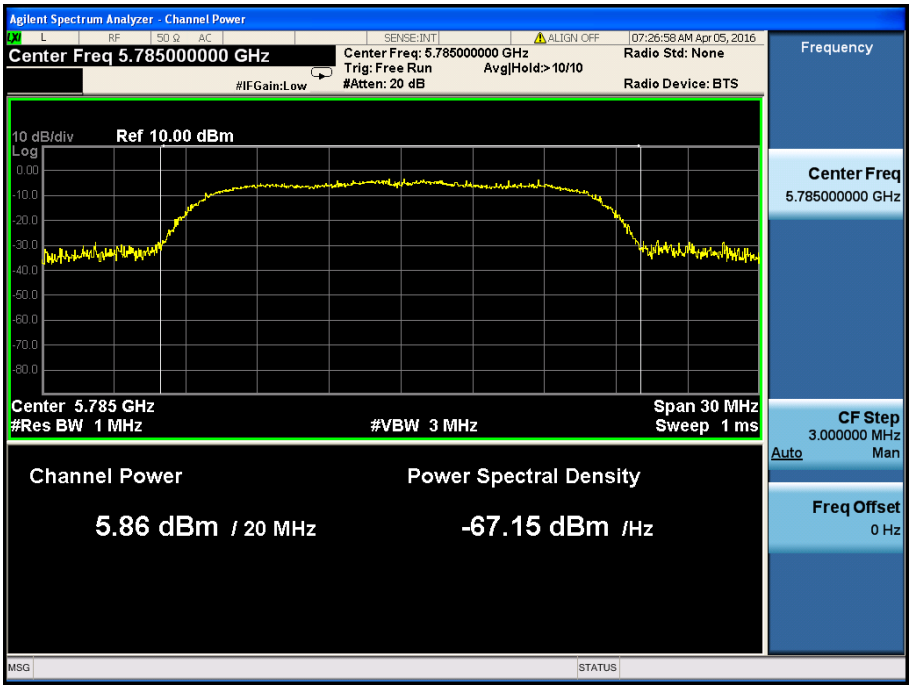
5240MHz



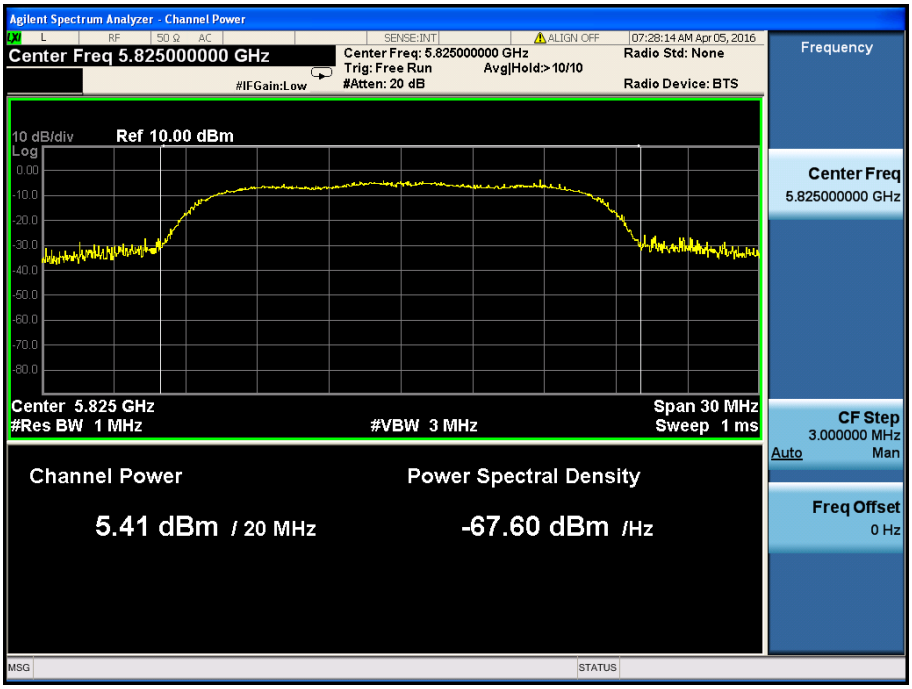
5745MHz



5785MHz

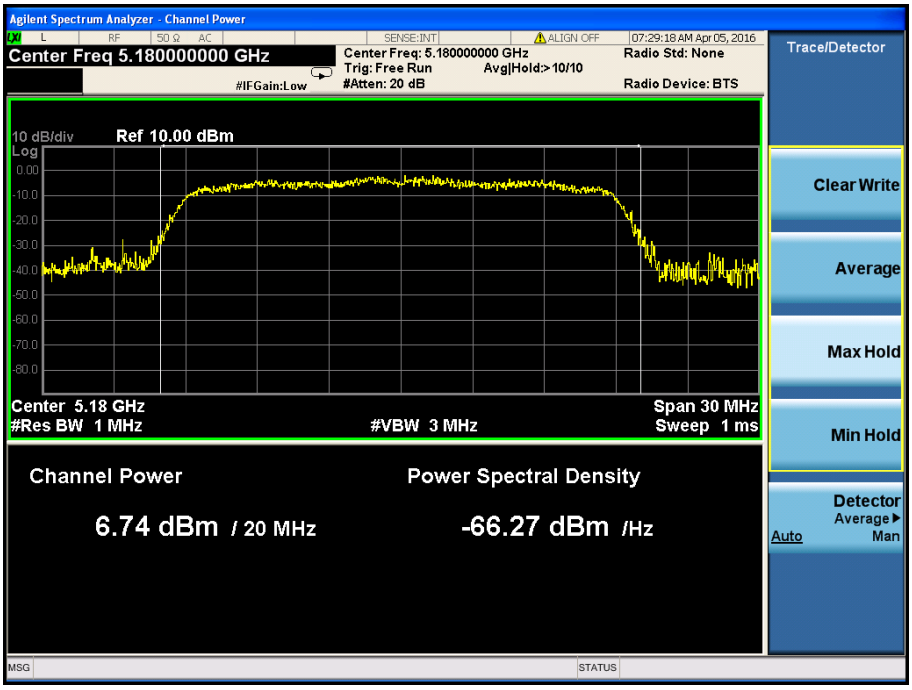


5825MHz

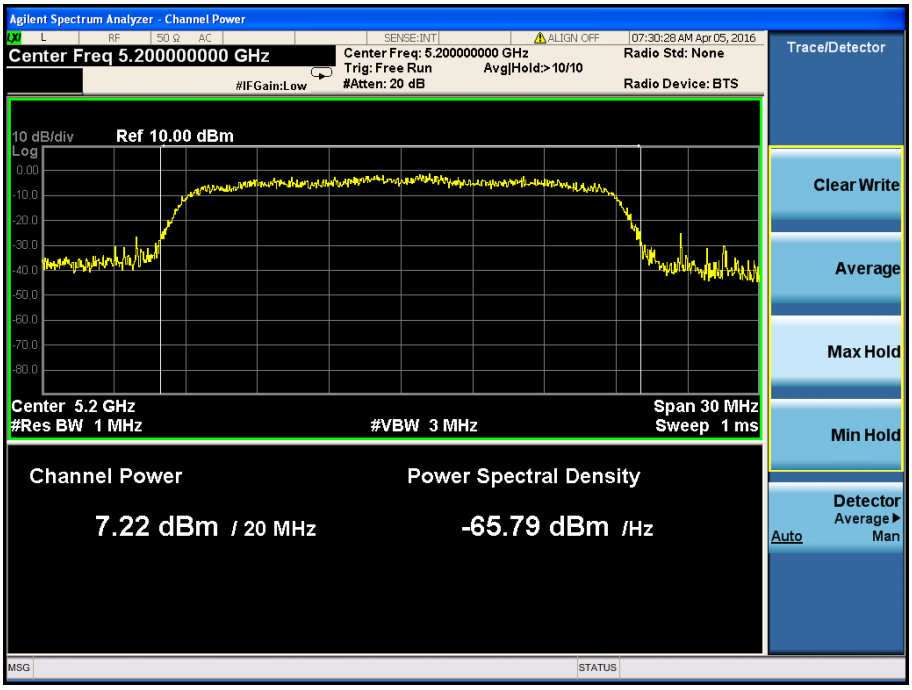


Test Mode: 802.11n-HT20

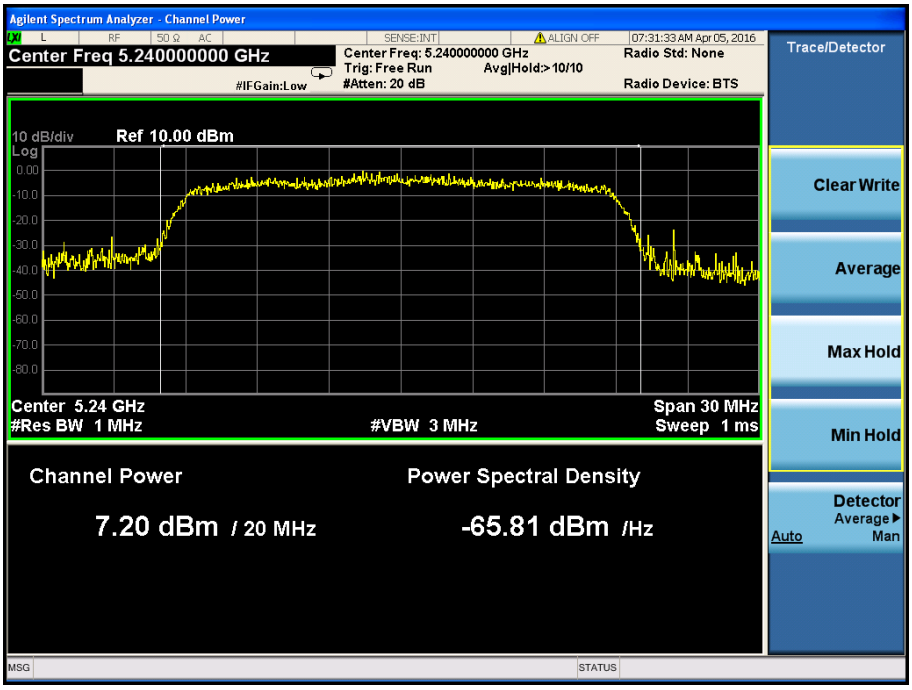
5180MHz



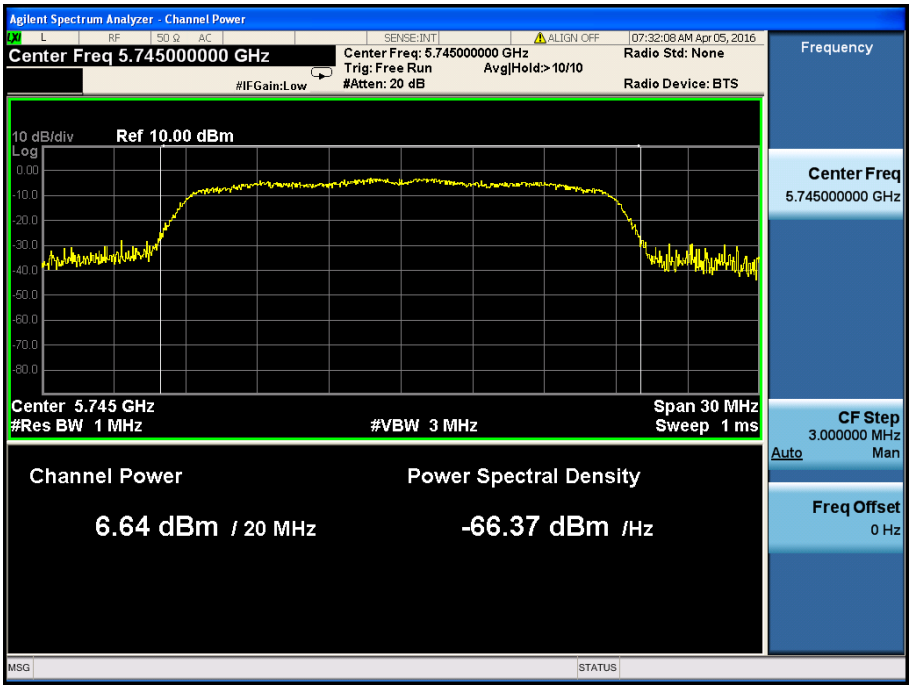
5200MHz



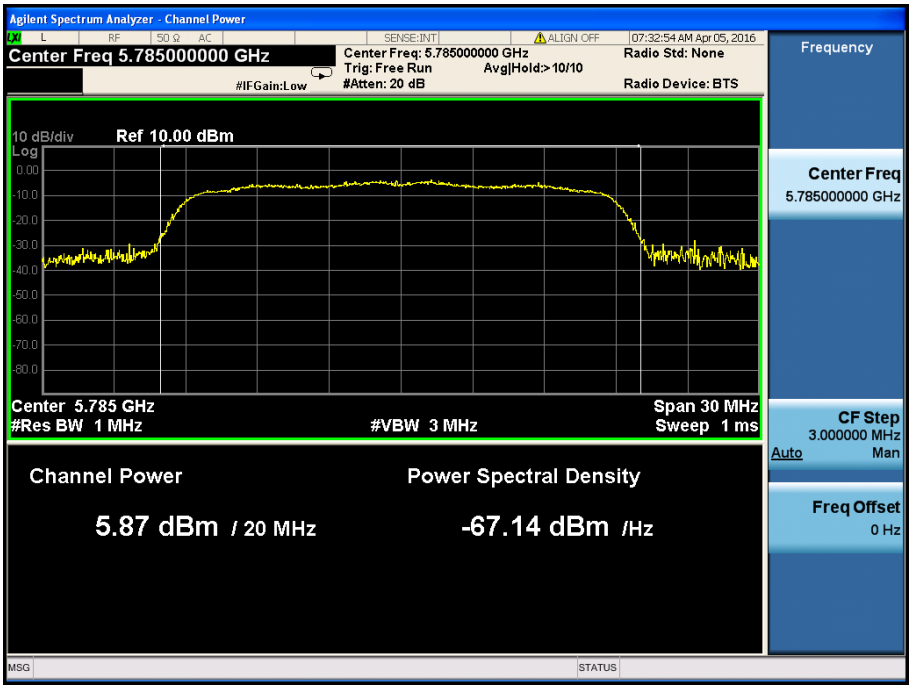
5240MHz



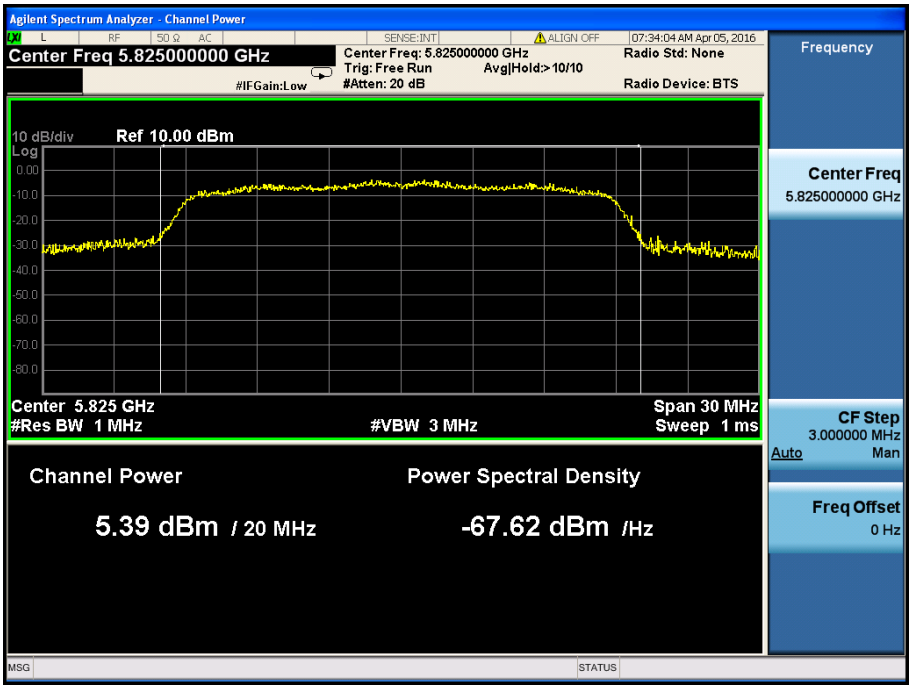
5745MHz



5785MHz



5825MHz



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

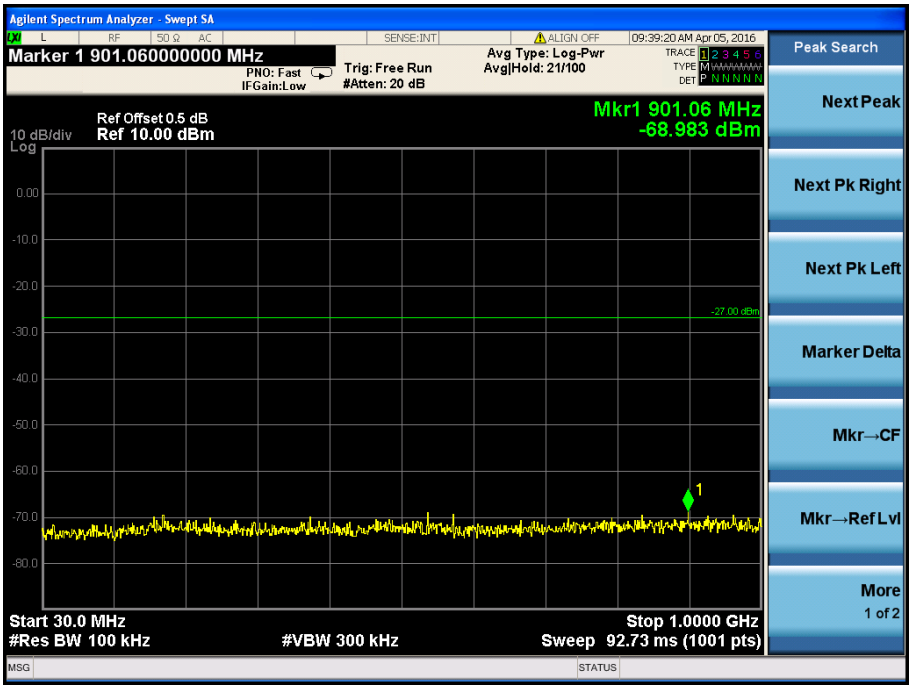
Temperature:	21° C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

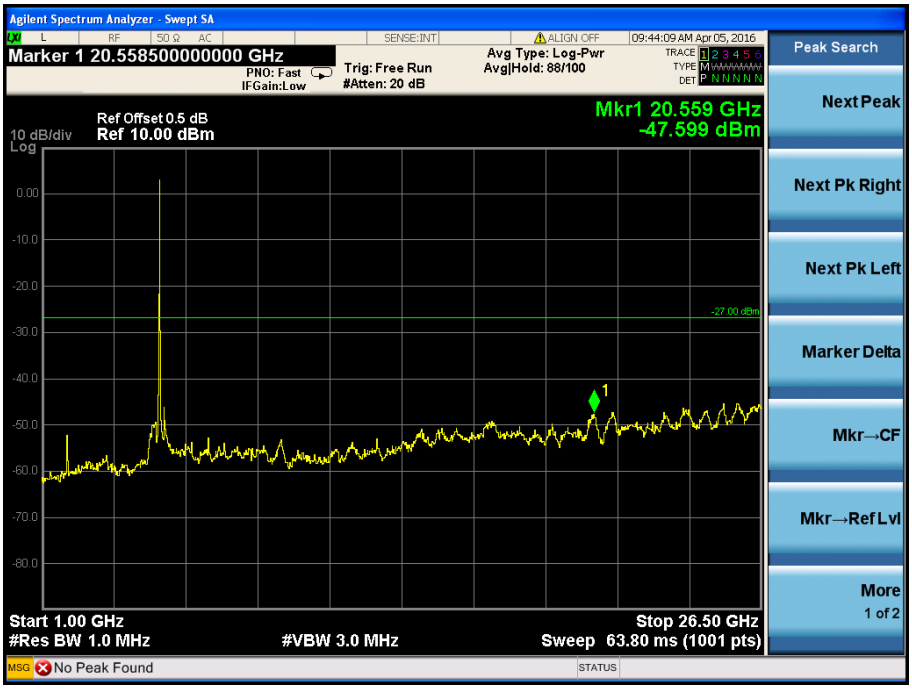
8.4 Summary of Test Results/Plots

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

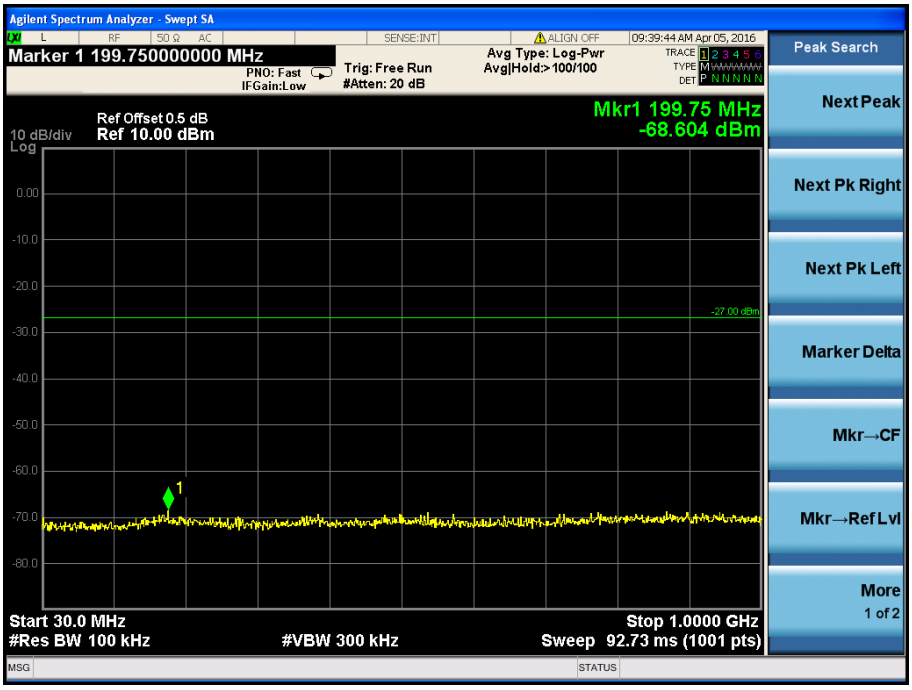
802.11a

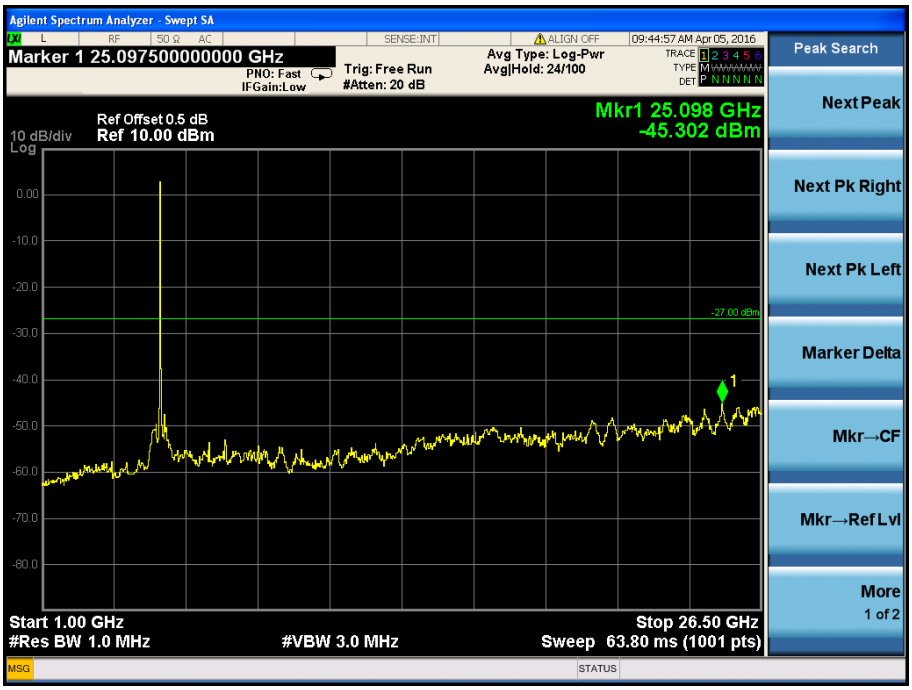
5180MHz



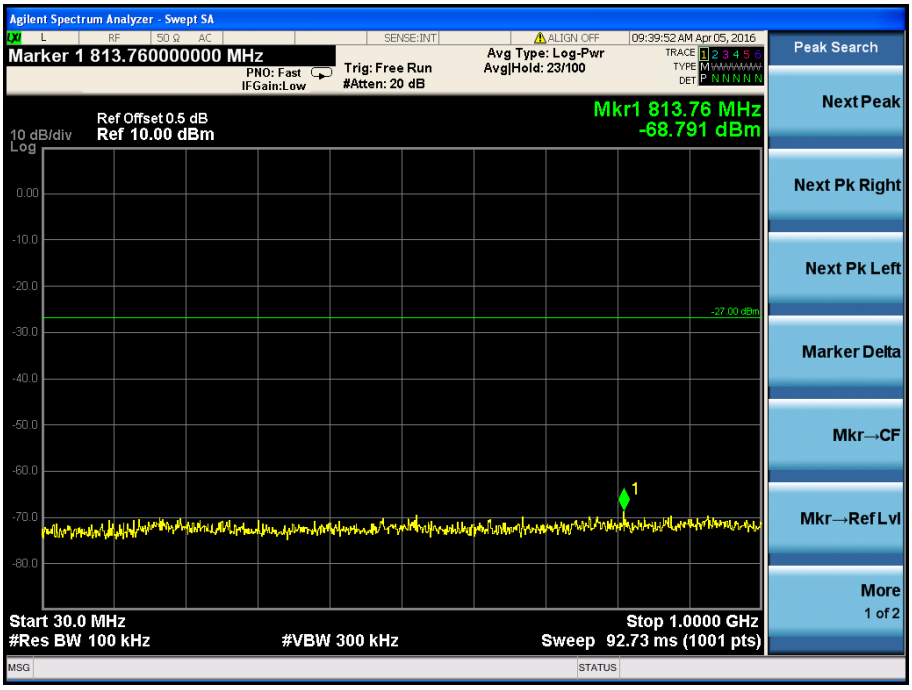


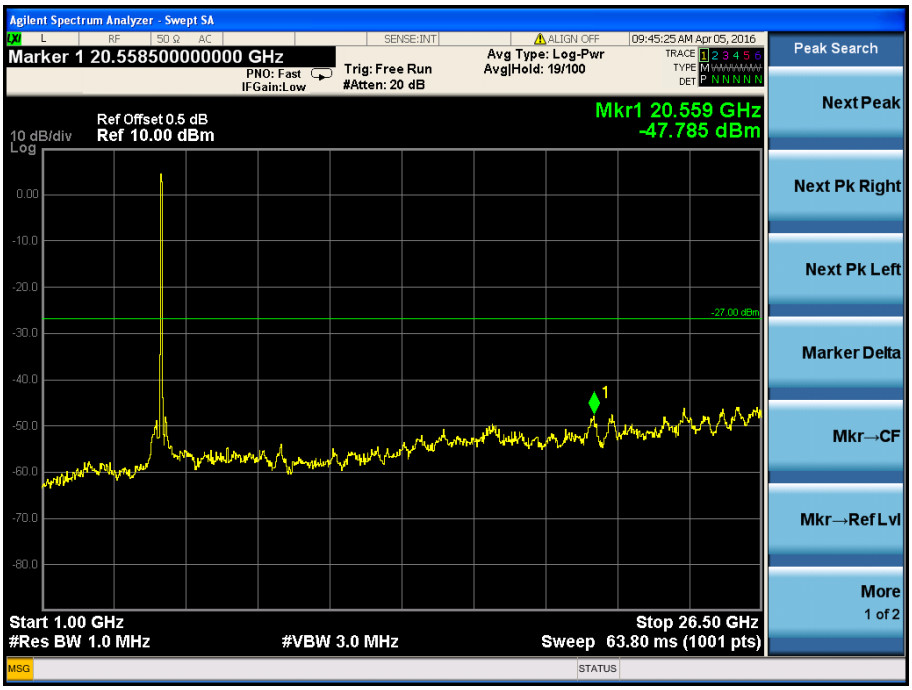
5200MHz


Agilent Spectrum Analyzer - Swept SA
Marker 1 199.750000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
09:39:44 AM Apr 05, 2016
Ref Offset 0.5 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 199.75 MHz
-68.604 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

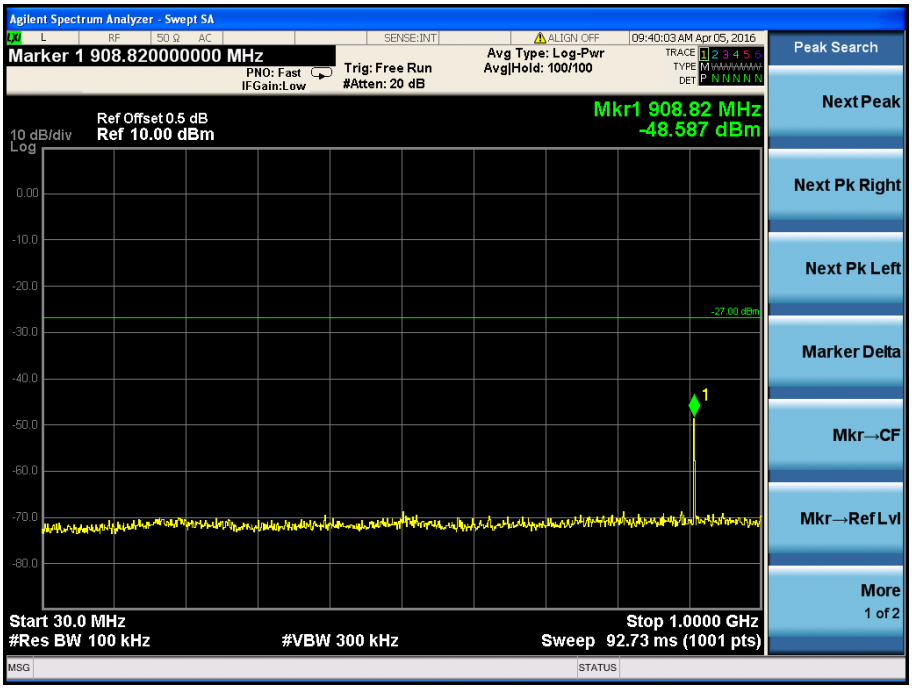

Agilent Spectrum Analyzer - Swept SA
Marker 1 25.097500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 24/100
09:44:57 AM Apr 05, 2016
Ref Offset 0.5 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 25.098 GHz
-45.302 dBm
-27.00 dBm
Start 1.00 GHz
#Res BW 1.0 MHz
#VBW 3.0 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

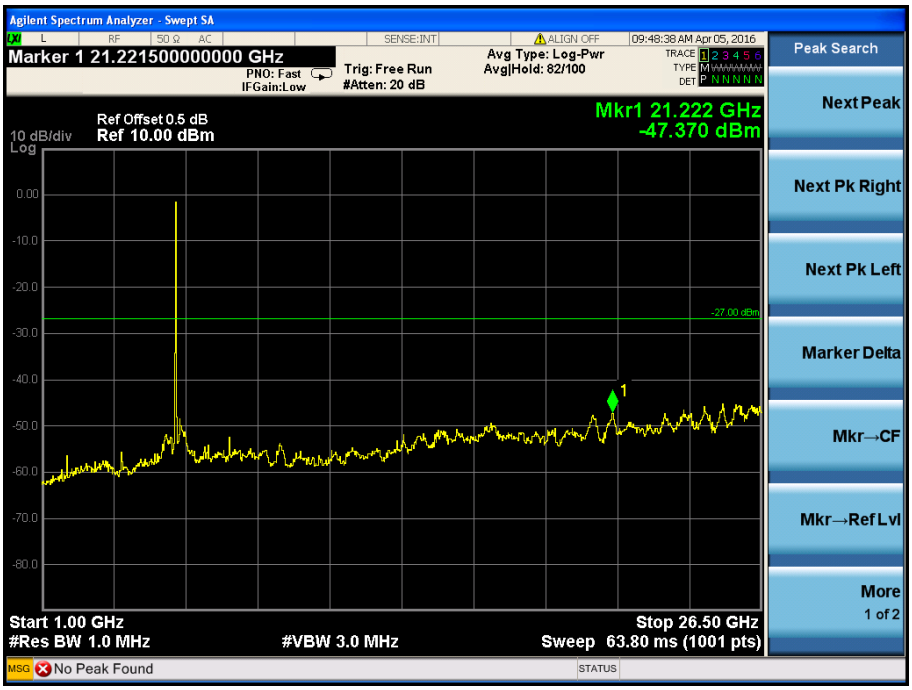
5240MHz


Agilent Spectrum Analyzer - Swept SA
Marker 1 813.760000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 23/100
09:39:52 AM Apr 05, 2016
Ref Offset 0.5 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 813.76 MHz
-68.791 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

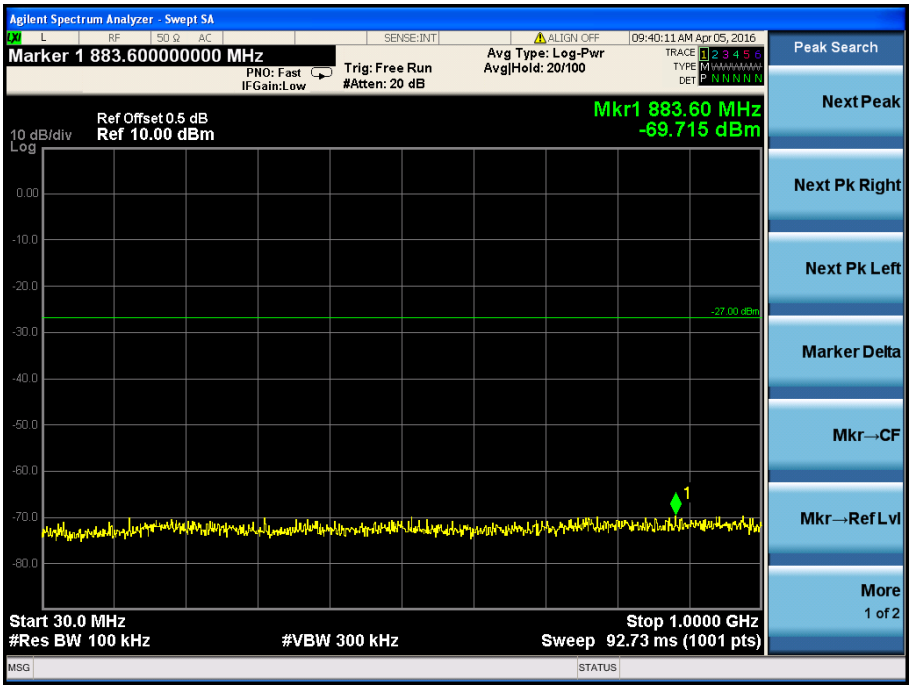

Agilent Spectrum Analyzer - Swept SA
Marker 1 20.558500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 19/100
09:45:25 AM Apr 05, 2016
Ref Offset 0.5 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 20.559 GHz
-47.785 dBm
-27.00 dBm
Start 1.00 GHz
#Res BW 1.0 MHz
#VBW 3.0 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

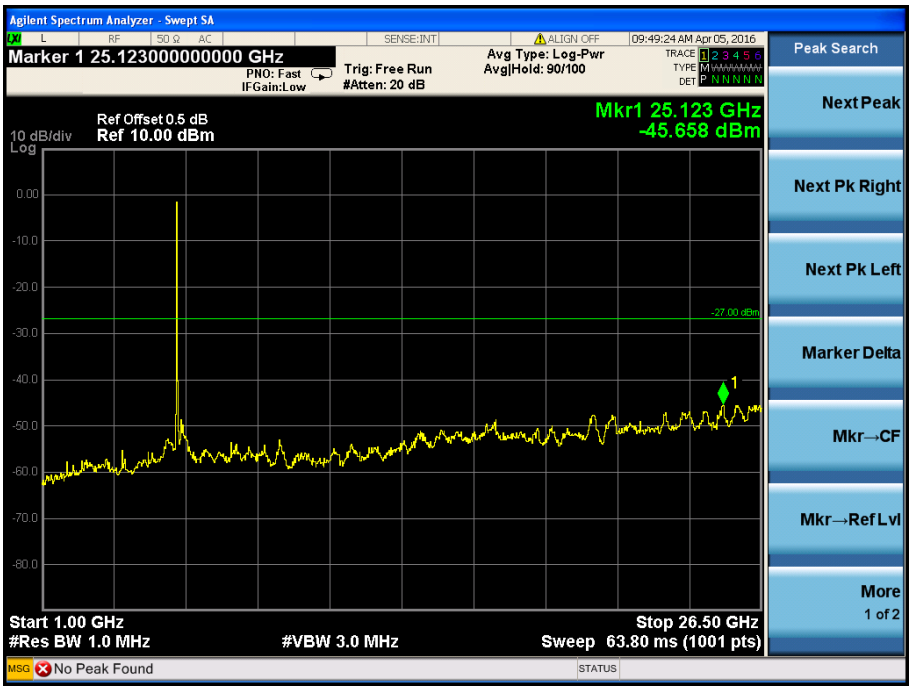
5745MHz


Agilent Spectrum Analyzer - Swept SA
Marker 1 908.820000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 100/100
09:40:03 AM Apr 05, 2016
Ref Offset 0.5 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 908.82 MHz
-48.587 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

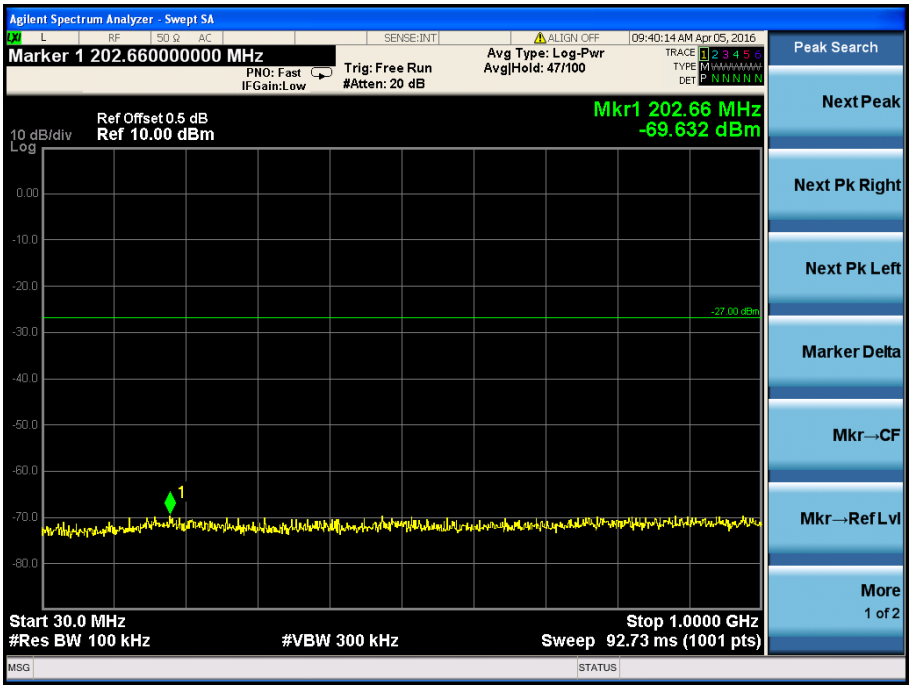

Agilent Spectrum Analyzer - Swept SA
Marker 1 21.221500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 82/100
09:48:38 AM Apr 05, 2016
Ref Offset 0.5 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 21.222 GHz
-47.370 dBm
-27.00 dBm
Start 1.00 GHz
#Res BW 1.0 MHz
#VBW 3.0 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
No Peak Found
STATUS

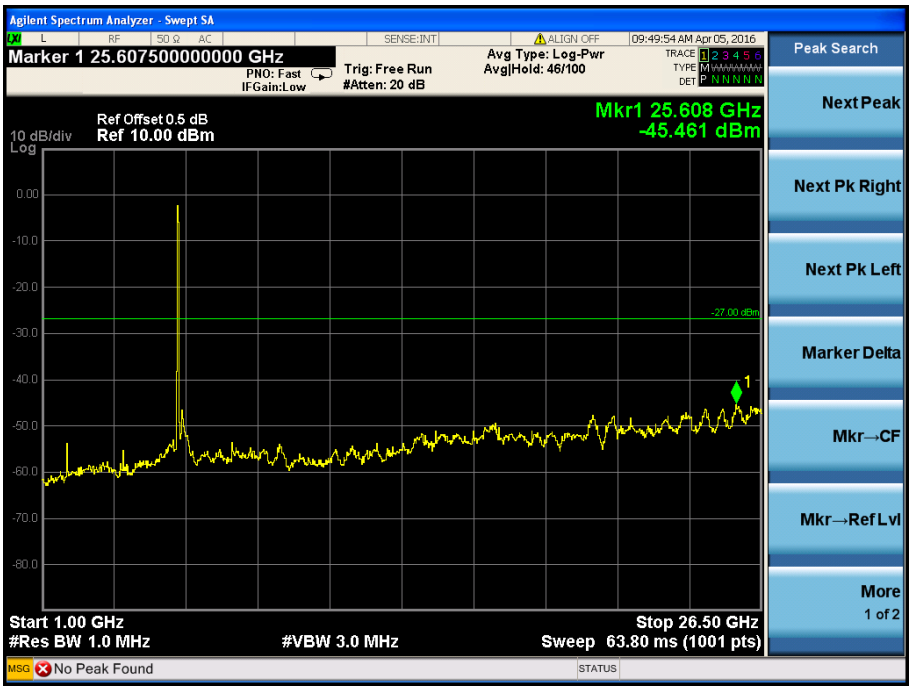
5785MHz


Agilent Spectrum Analyzer - Swept SA
Marker 1 883.600000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 20/100
09:40:11 AM Apr 05, 2016
Ref Offset 0.5 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 883.60 MHz
-69.715 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 25.123000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 90/100
09:49:24 AM Apr 05, 2016
Ref Offset 0.5 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 25.123 GHz
-45.658 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
No Peak Found
STATUS

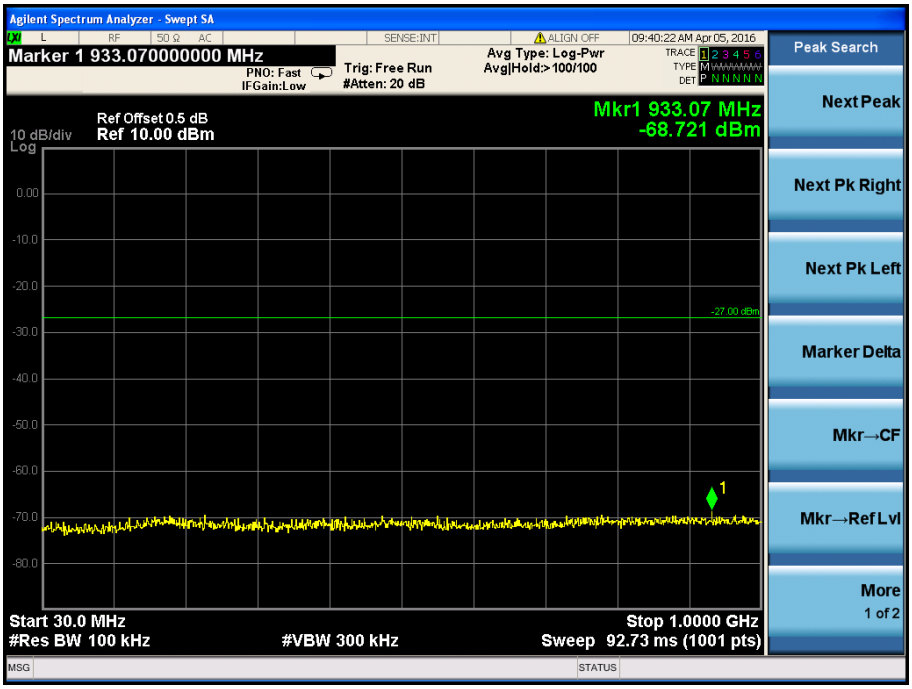
5825MHz

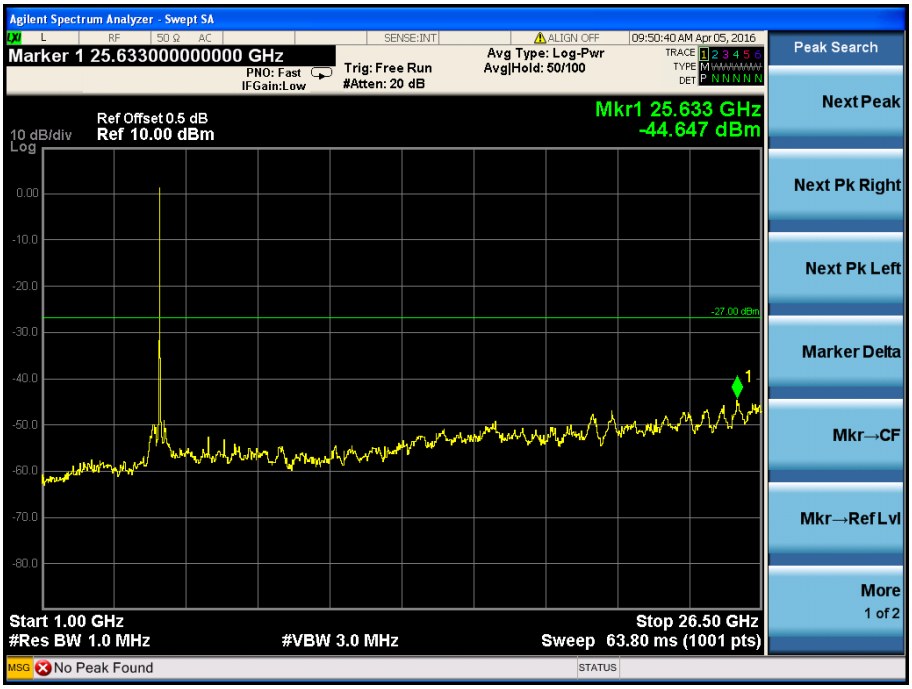

Agilent Spectrum Analyzer - Swept SA
Marker 1 202.660000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 47/100
09:40:14 AM Apr 05, 2016
Ref Offset 0.5 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 202.66 MHz
-69.632 dBm
-27.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
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 25.607500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 46/100
09:49:54 AM Apr 05, 2016
Ref Offset 0.5 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 25.608 GHz
-45.461 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
No Peak Found
STATUS

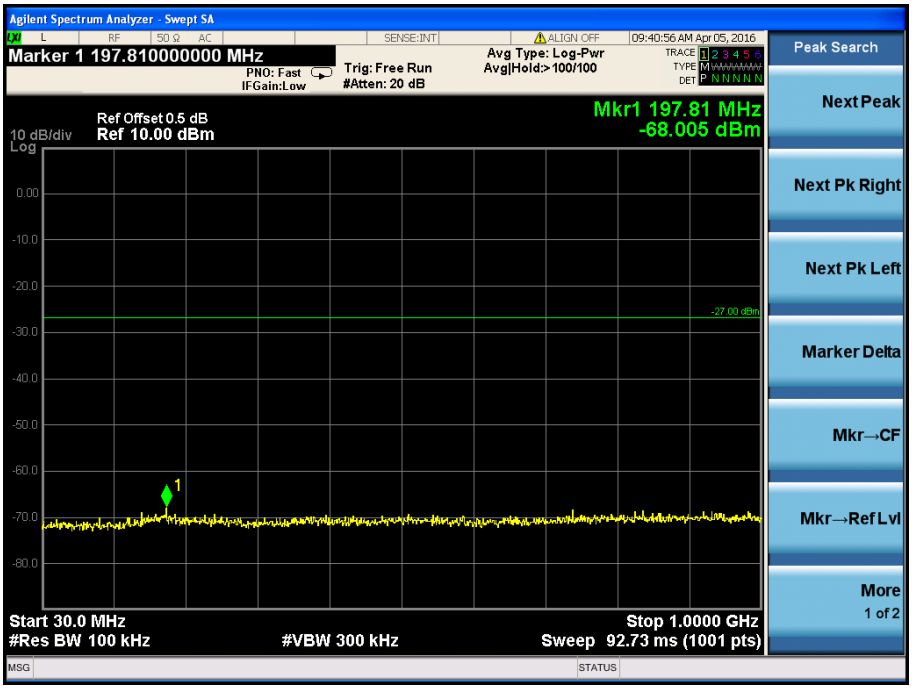
802.11n-HT20

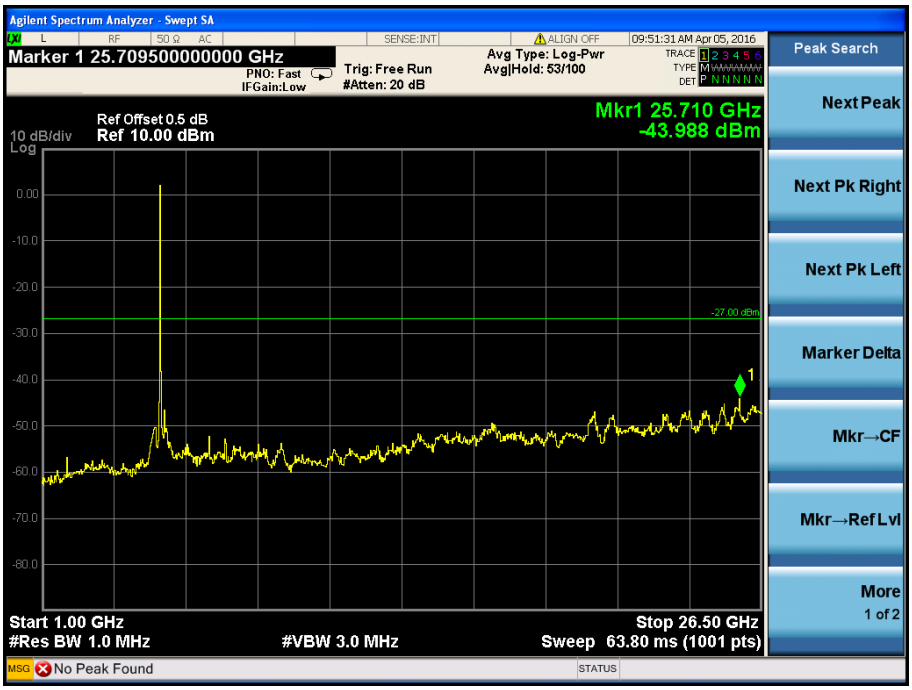
5180MHz



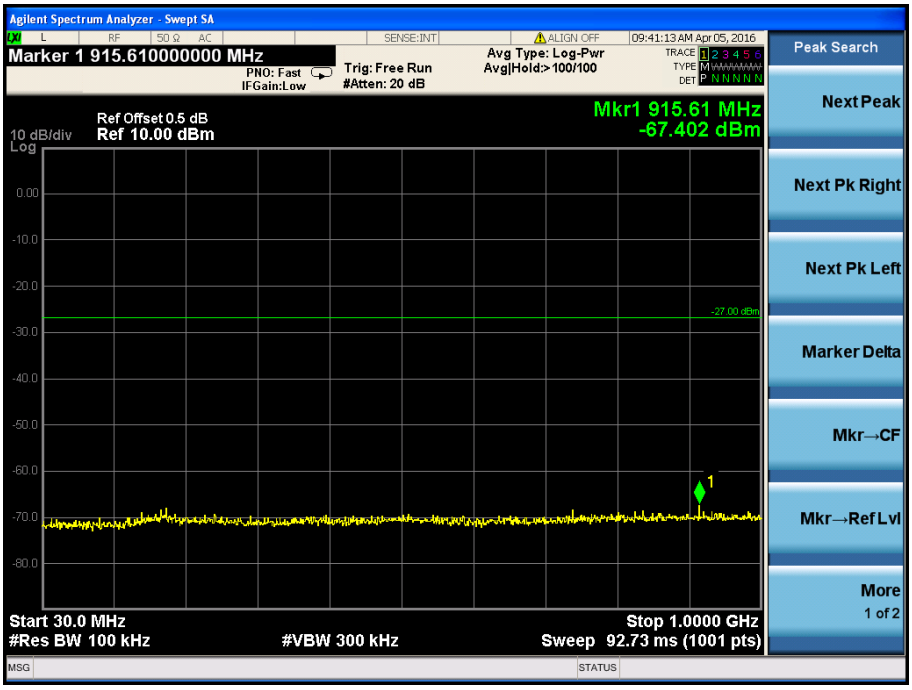


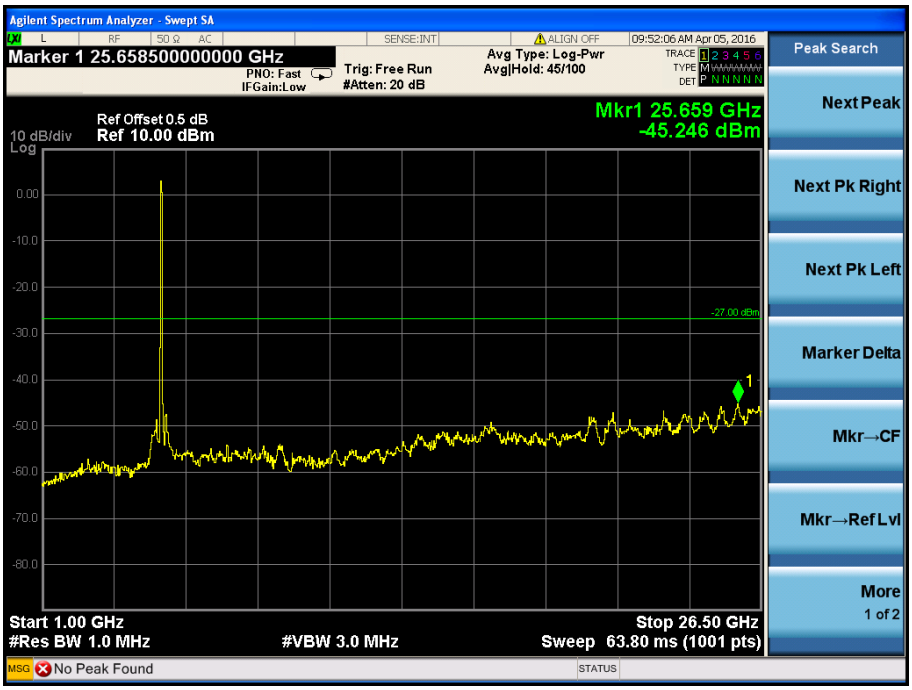
5200MHz


Agilent Spectrum Analyzer - Swept SA
Marker 1 197.810000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
09:40:56 AM Apr 05, 2016
Ref Offset 0.5 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 197.81 MHz
-68.005 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

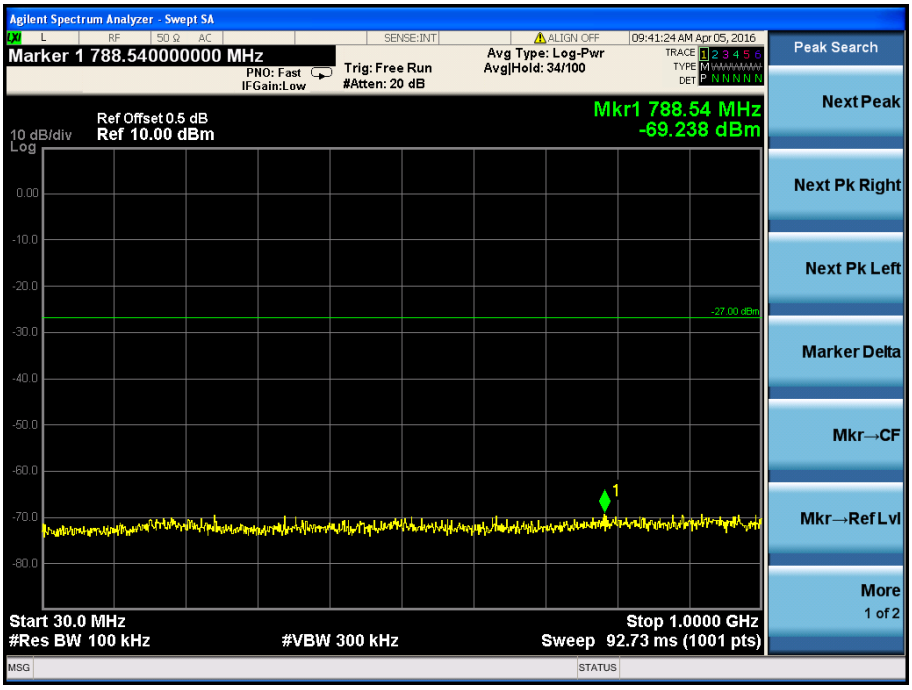

Agilent Spectrum Analyzer - Swept SA
Marker 1 25.709500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 53/100
09:51:31 AM Apr 05, 2016
Ref Offset 0.5 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 25.710 GHz
-43.988 dBm
-27.00 dBm
Start 1.00 GHz
#Res BW 1.0 MHz
#VBW 3.0 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
No Peak Found
STATUS

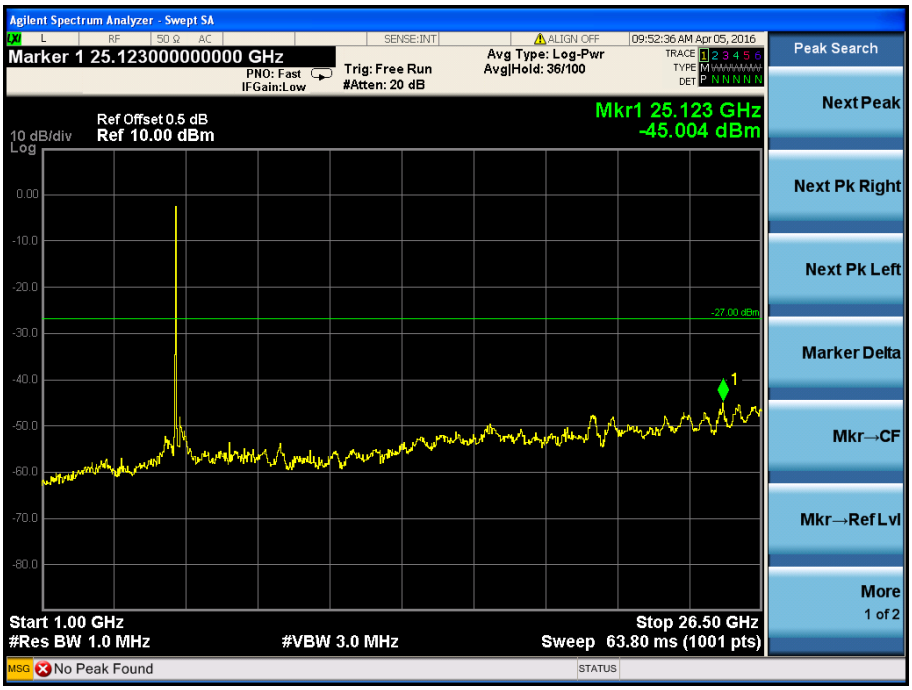
5240MHz


Agilent Spectrum Analyzer - Swept SA
Marker 1 915.610000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
09:41:13 AM Apr 05, 2016
Ref Offset 0.5 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 915.61 MHz
-67.402 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

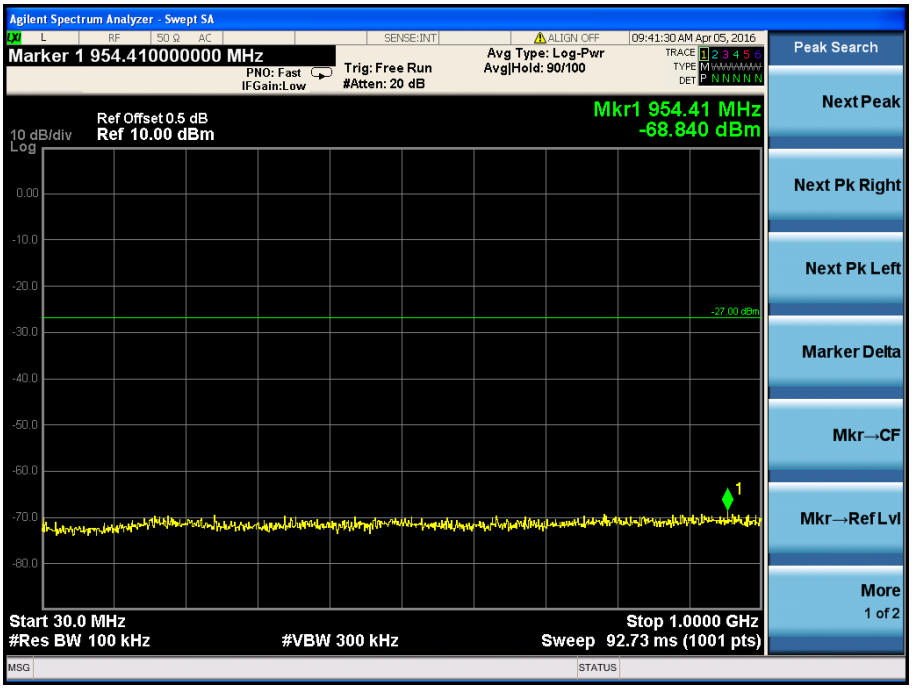

Agilent Spectrum Analyzer - Swept SA
Marker 1 25.658500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 45/100
09:52:06 AM Apr 05, 2016
Ref Offset 0.5 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 25.659 GHz
-45.246 dBm
-27.00 dBm
Start 1.00 GHz
#Res BW 1.0 MHz
#VBW 3.0 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
No Peak Found
STATUS

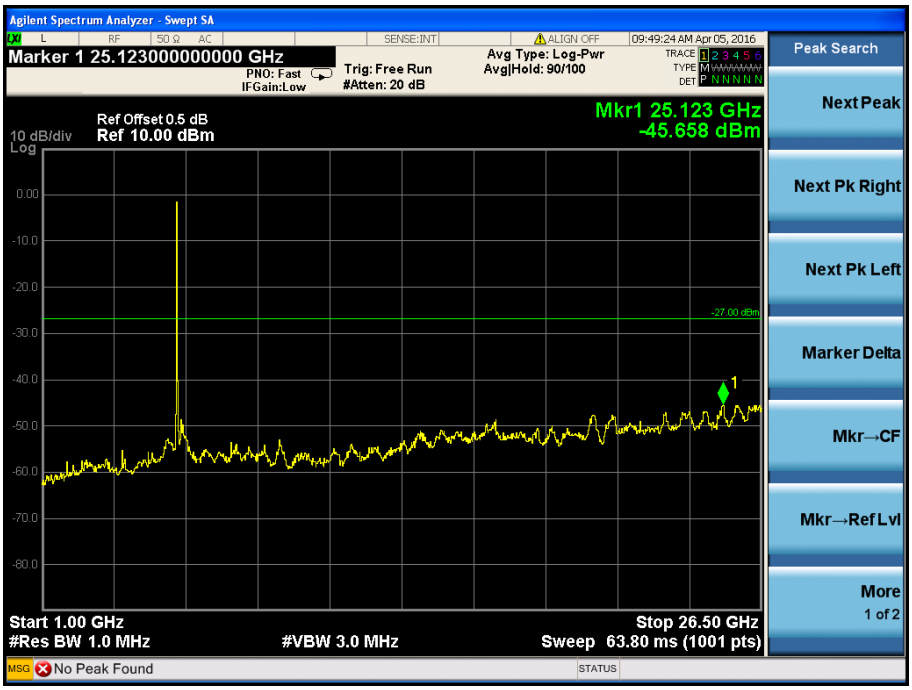
5745MHz


Agilent Spectrum Analyzer - Swept SA
Marker 1 788.540000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 34/100
09:41:24 AM Apr 05, 2016
Ref Offset 0.5 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 788.54 MHz
-69.238 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

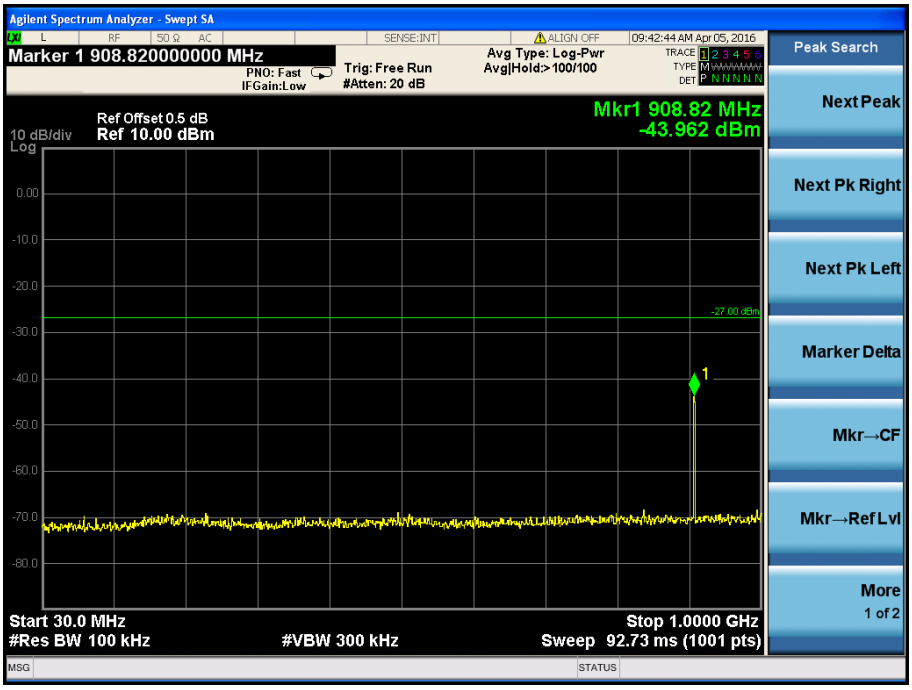

Agilent Spectrum Analyzer - Swept SA
Marker 1 25.123000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 36/100
09:52:36 AM Apr 05, 2016
Ref Offset 0.5 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 25.123 GHz
-45.004 dBm
-27.00 dBm
Start 1.00 GHz
#Res BW 1.0 MHz
#VBW 3.0 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
No Peak Found
STATUS

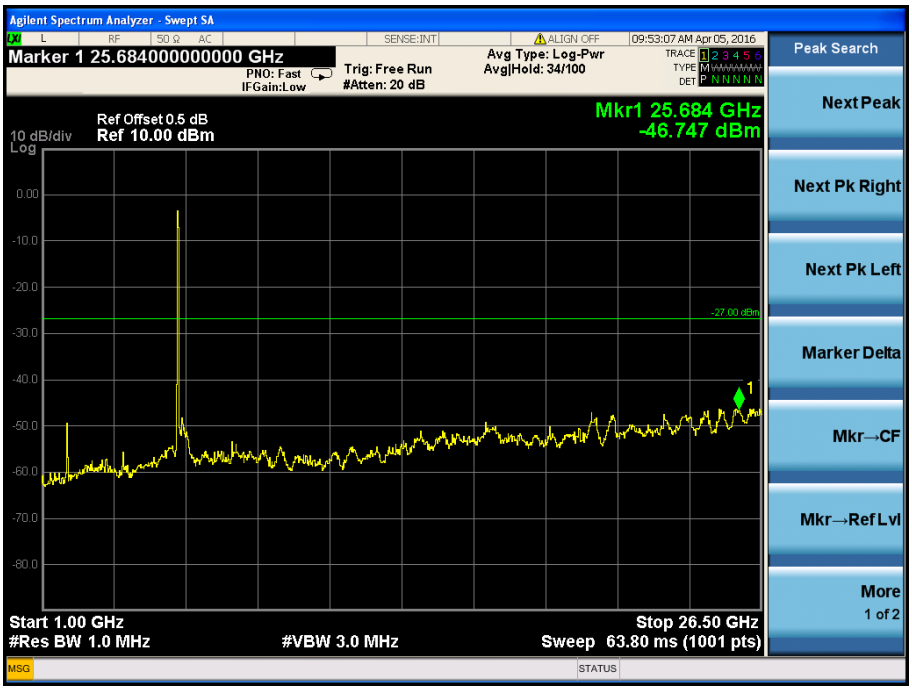
5785MHz


Agilent Spectrum Analyzer - Swept SA
Marker 1 954.410000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 90/100
09:41:30 AM Apr 05, 2016
Ref Offset 0.5 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 954.41 MHz
-68.840 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 25.123000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 90/100
09:49:24 AM Apr 05, 2016
Ref Offset 0.5 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 25.123 GHz
-45.658 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
No Peak Found
STATUS

5825MHz


Agilent Spectrum Analyzer - Swept SA
Marker 1 908.820000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
09:42:44 AM Apr 05, 2016
Ref Offset 0.5 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 908.82 MHz
-43.962 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 25.684000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 34/100
09:53:07 AM Apr 05, 2016
Ref Offset 0.5 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 25.684 GHz
-46.747 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

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 v01r02General UNII Test Procedures New Rules v01
If radiated measurements are performed, field strength is then converted to EIRP as follows:

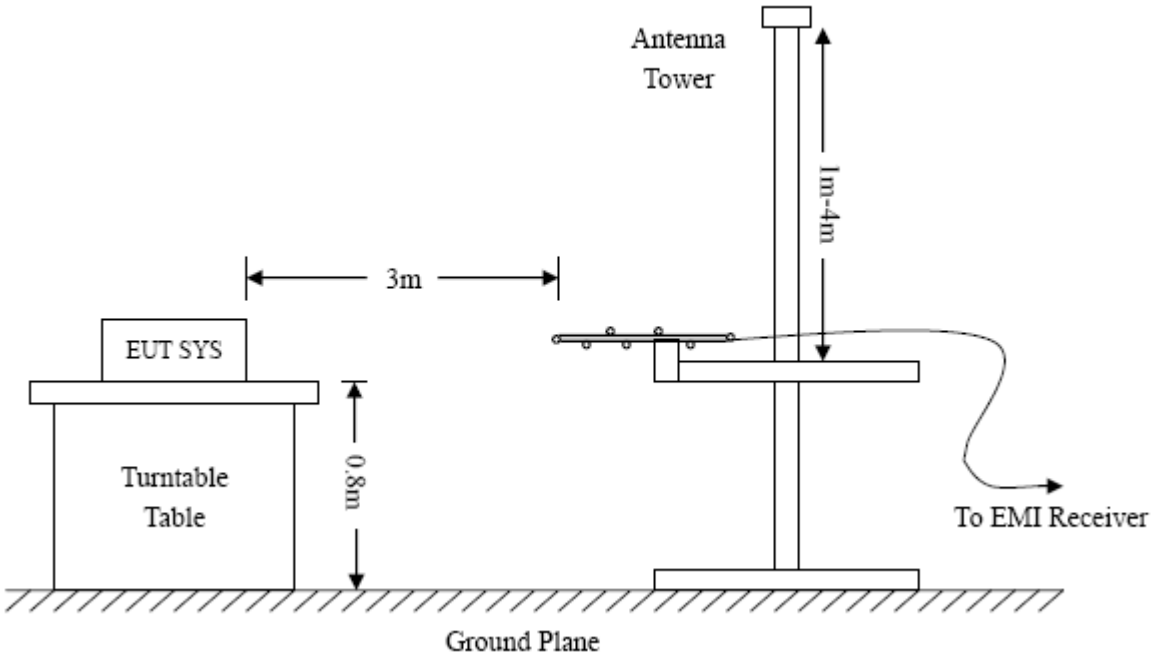
EIRP = ((E*d)^2) / 30

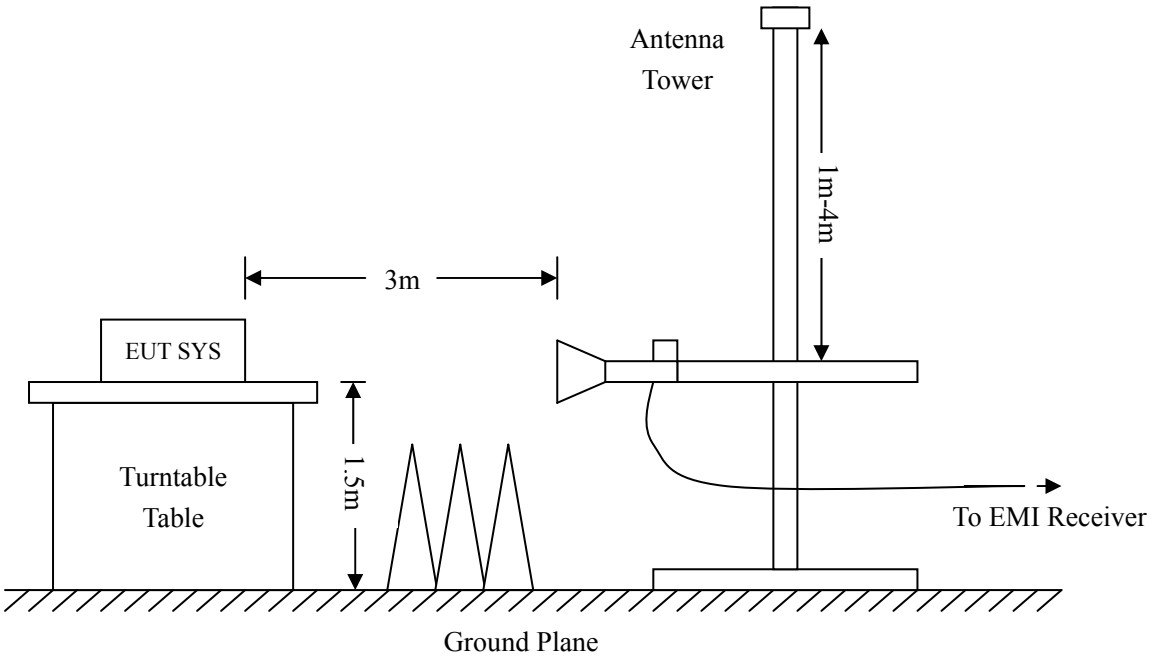
where:

- 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 C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.205 15.407(b)(6) and FCC Part 15.209 Limit..
The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.
The spacing between the peripherals was 10 cm.





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

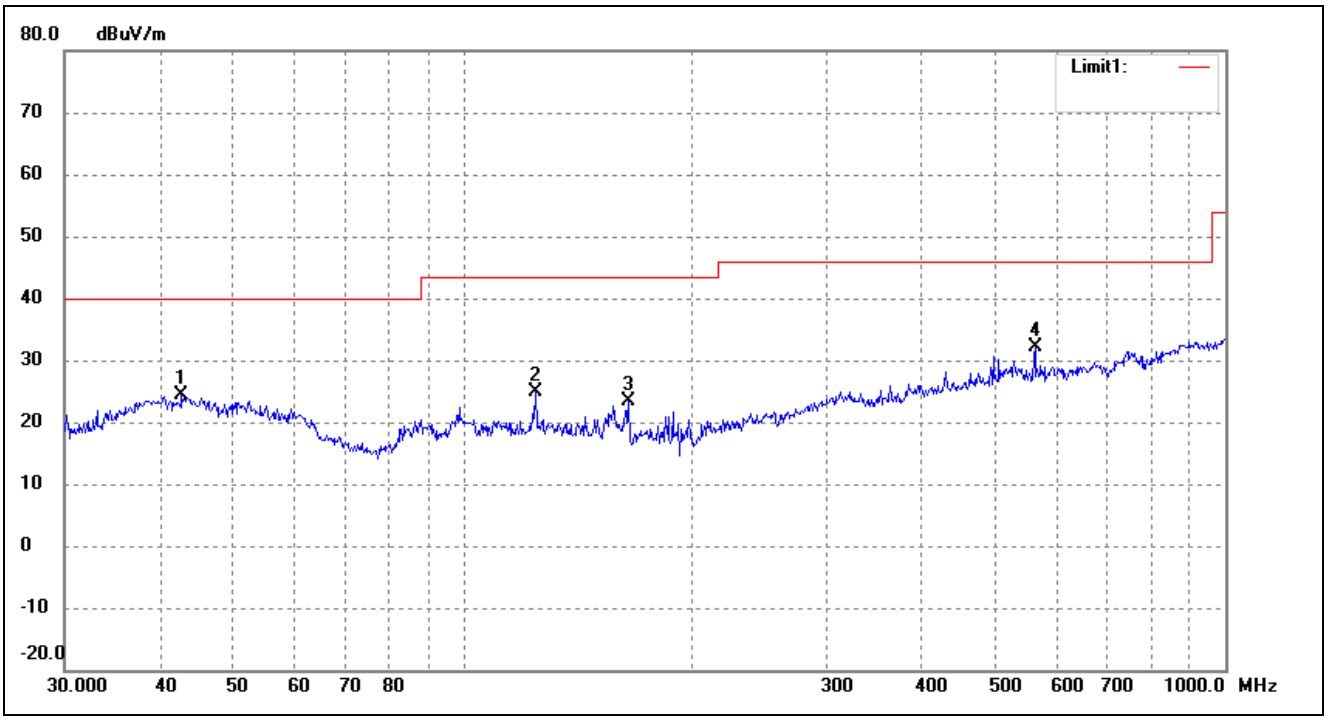
Temperature:	22° C
Relative Humidity:	52%
ATM Pressure:	1012 mbar

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:

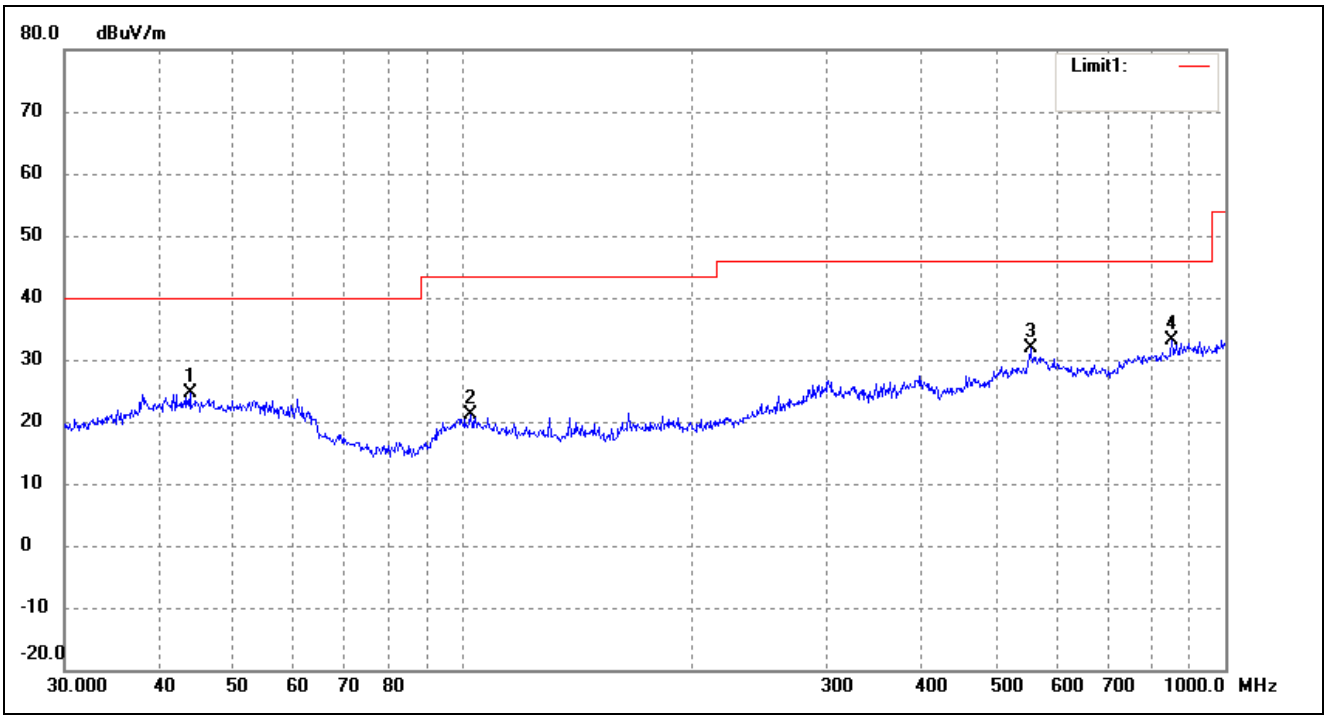
Note: *this EUT was tested in 3 orthogonal positions and the worst case position data was reported.*

For 802.11a
Spurious Emission From 30 MHz to 1 GHz
Test mode: Transmitting 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	42.7496	17.30	6.98	24.28	40.00	-15.72	35	100	peak
2	124.5690	21.12	3.65	24.77	43.50	-18.73	68	100	peak
3	164.9071	20.76	2.65	23.41	43.50	-20.09	105	100	peak
4	562.6624	20.52	11.67	32.19	46.00	-13.81	138	100	peak

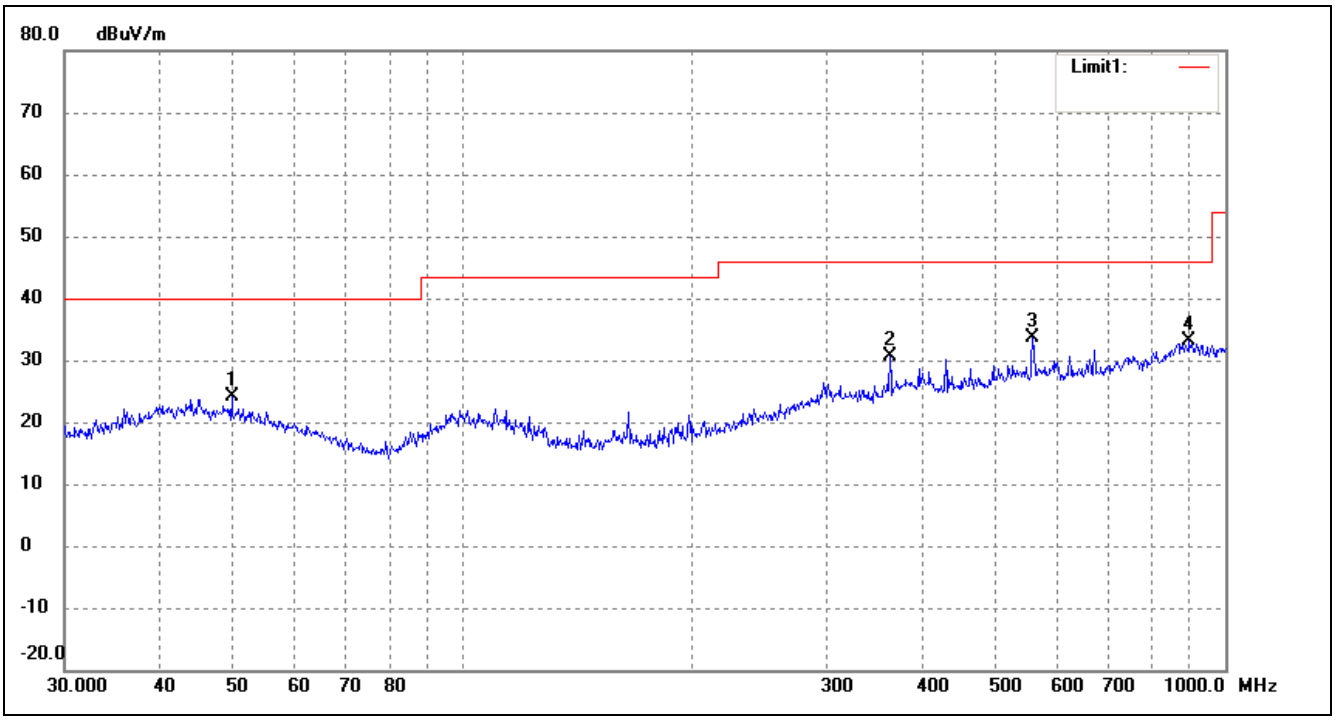
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	43.8119	16.42	8.12	24.54	40.00	-15.46	41	100	peak
2	102.3597	15.15	5.88	21.03	43.50	-22.47	77	100	peak
3	554.8252	20.44	11.46	31.90	46.00	-14.10	114	100	peak
4	851.0353	17.11	15.97	33.08	46.00	-12.92	172	100	peak

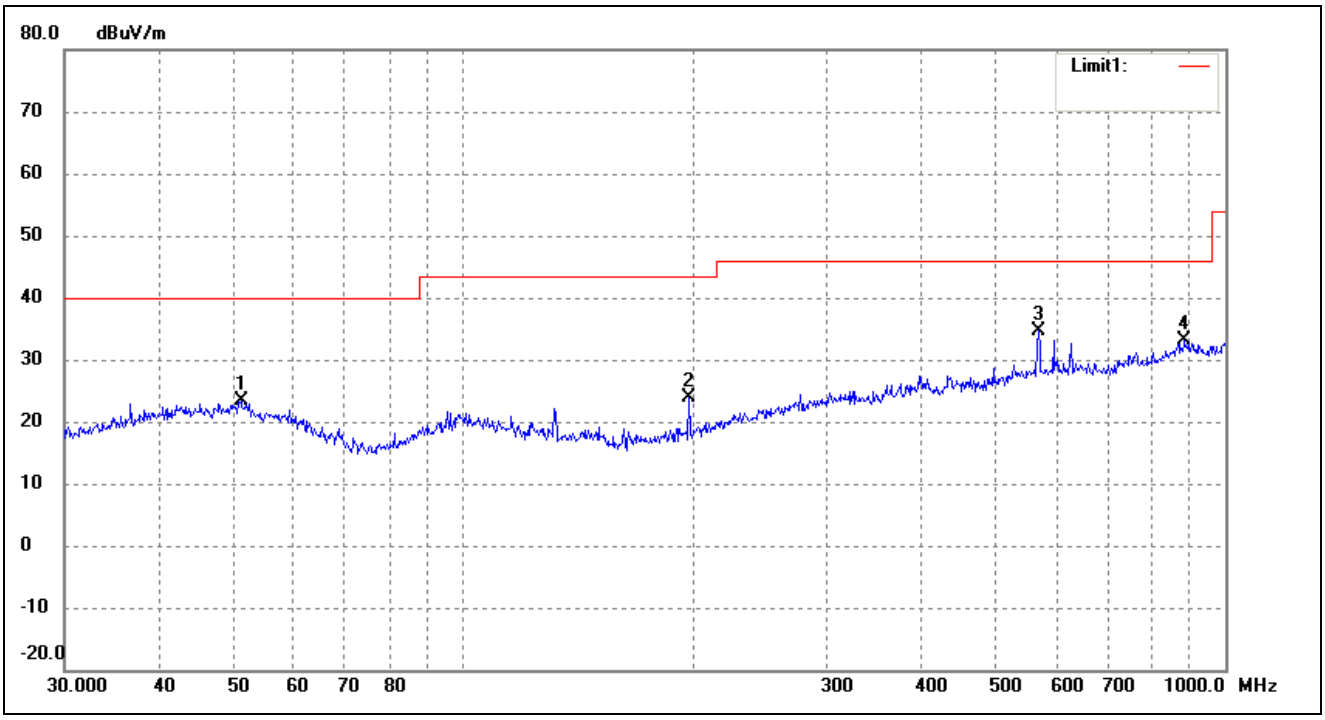
Test mode: Transmitting Channel 5200MHz

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	49.7068	17.83	6.29	24.12	40.00	-15.88	39	100	peak
2	362.9845	21.39	9.24	30.63	46.00	-15.37	164	100	peak
3	558.7301	22.04	11.52	33.56	46.00	-12.44	204	100	peak
4	896.9964	16.18	16.85	33.03	46.00	-12.97	255	100	peak

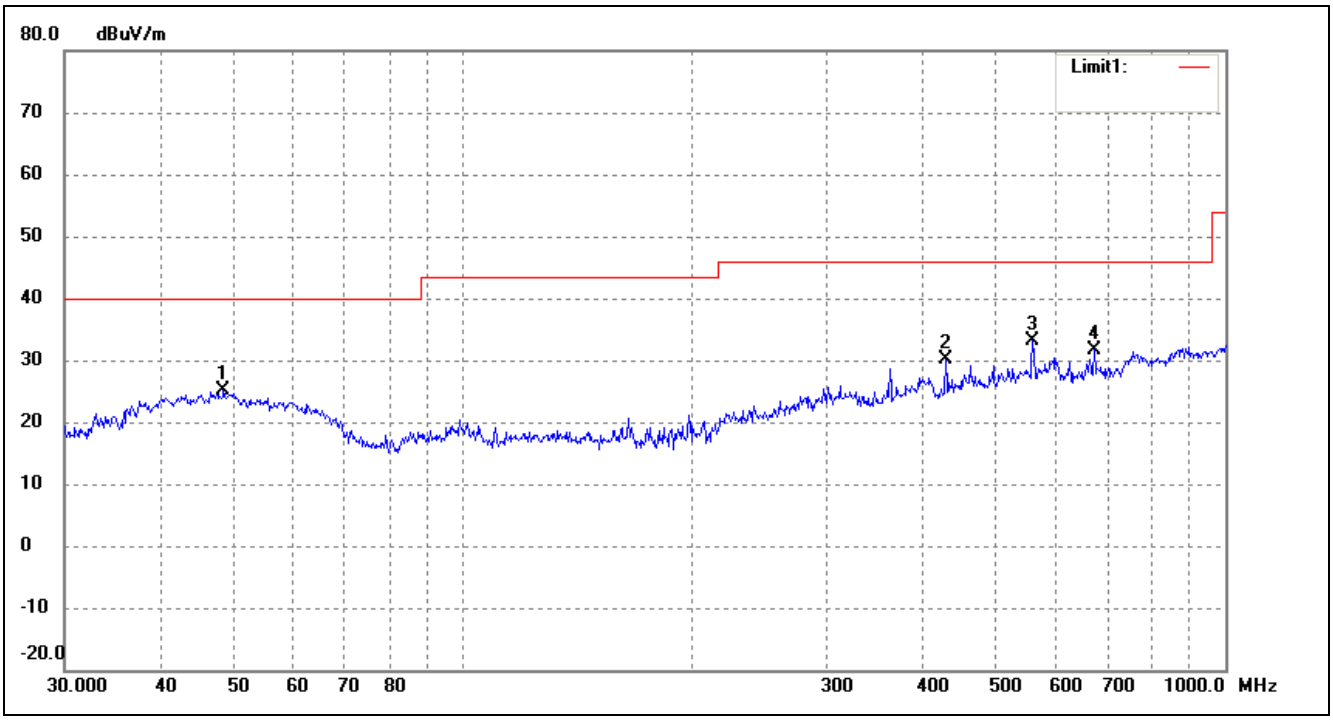
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	51.1208	17.10	6.16	23.26	40.00	-16.74	50	100	peak
2	197.8927	20.40	3.58	23.98	43.50	-19.52	89	100	peak
3	568.6127	22.66	11.98	34.64	46.00	-11.36	135	100	peak
4	884.5028	16.19	16.83	33.02	46.00	-12.98	169	100	peak

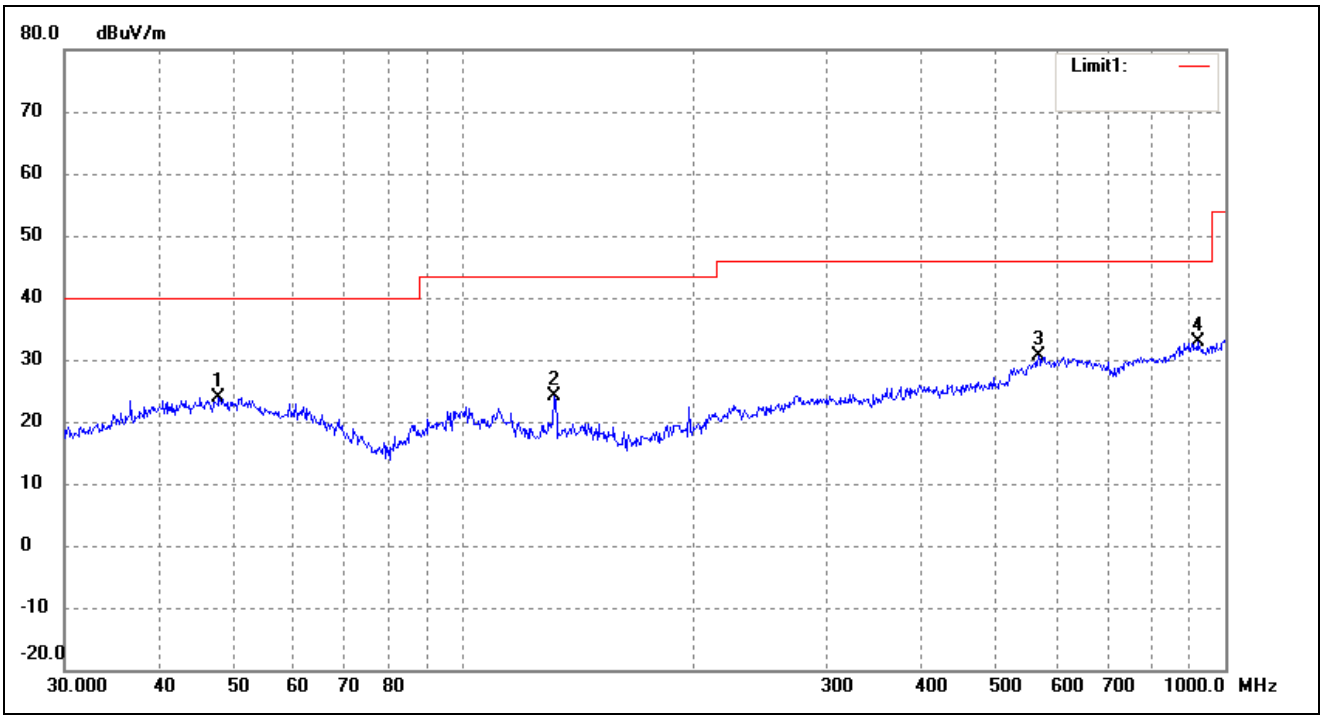
Test mode: Transmitting Channel 5240MHz

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	48.5016	18.61	6.41	25.02	40.00	-14.98	44	100	peak
2	429.5228	20.36	9.68	30.04	46.00	-15.96	149	100	peak
3	558.7300	21.54	11.52	33.06	46.00	-12.94	183	100	peak
4	672.8445	19.38	12.22	31.60	46.00	-14.40	226	100	peak

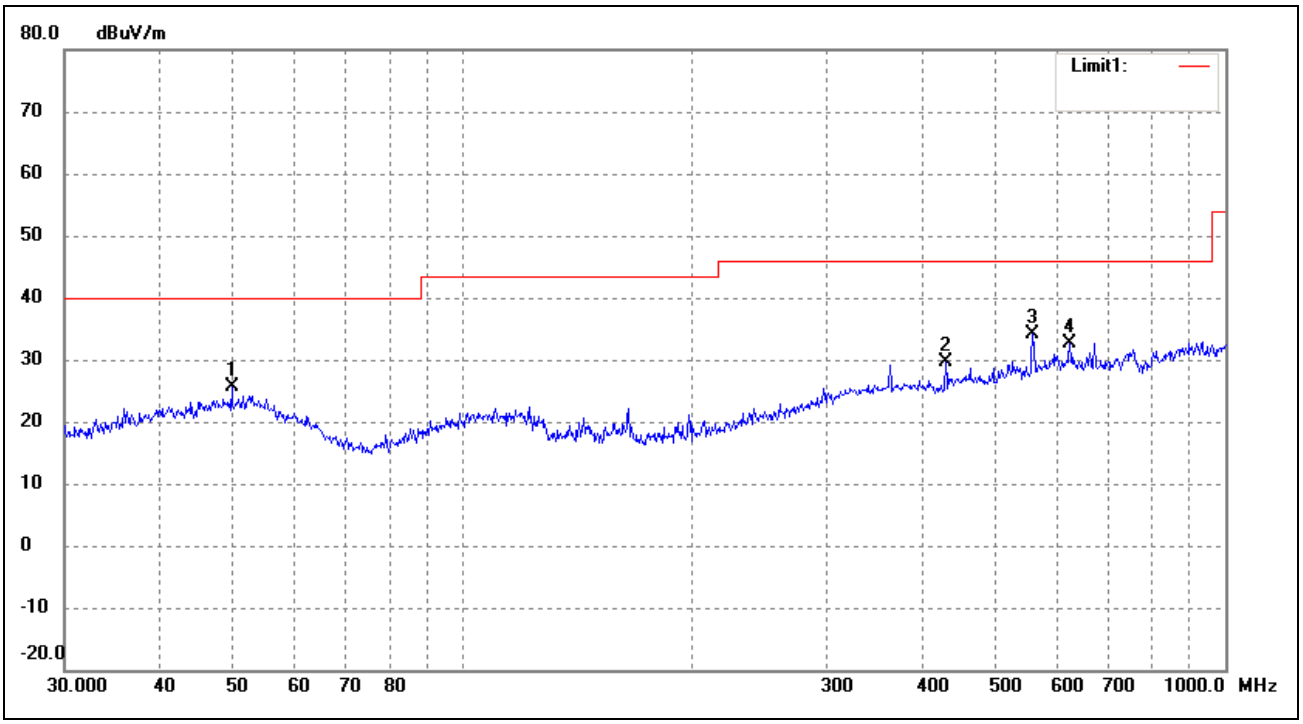
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	47.8260	16.91	6.91	23.82	40.00	-16.18	42	100	peak
2	131.7574	21.00	3.07	24.07	43.50	-19.43	79	100	peak
3	568.6127	18.66	11.98	30.64	46.00	-15.36	176	100	peak
4	919.2866	16.36	16.50	32.86	46.00	-13.14	255	100	peak

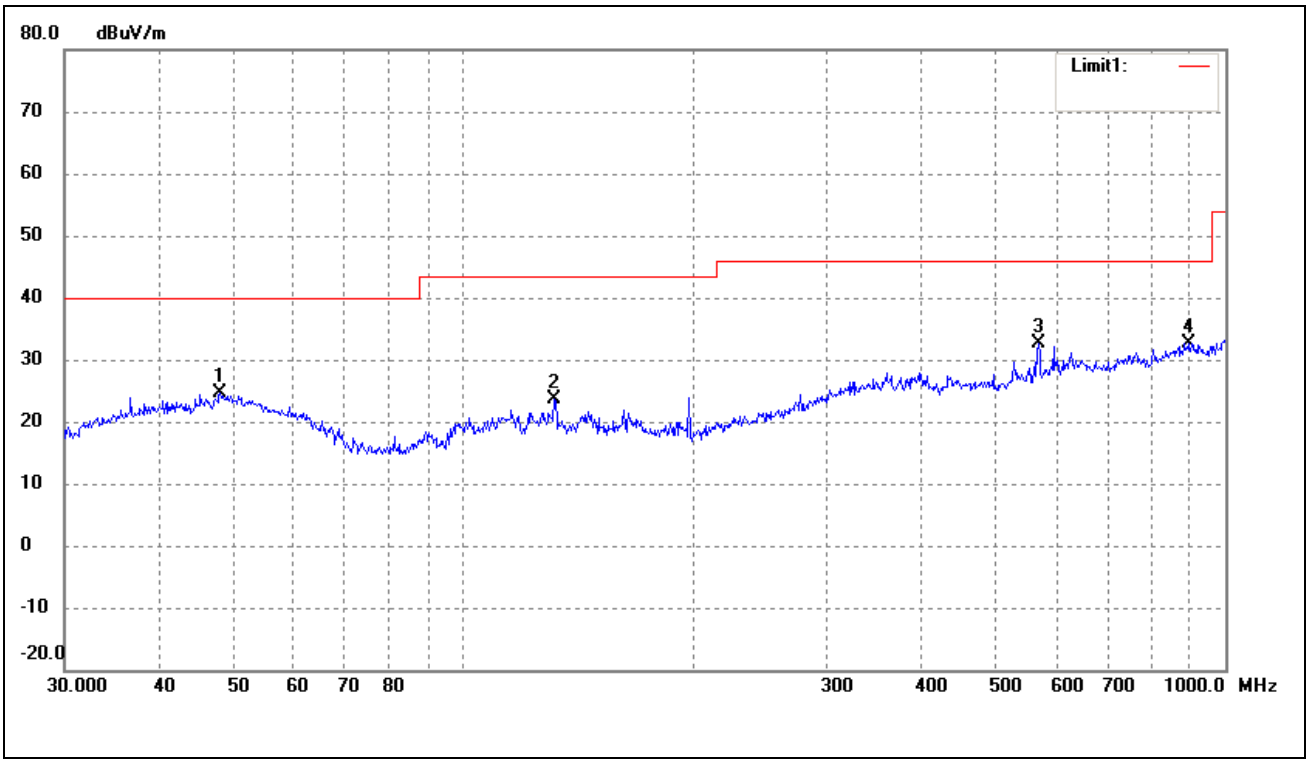
Test mode: Transmitting Channel 5745MHz

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	49.7068	19.33	6.29	25.62	40.00	-14.38	46	100	peak
2	429.5228	19.86	9.68	29.54	46.00	-16.46	149	100	peak
3	558.7300	22.54	11.52	34.06	46.00	-11.94	169	100	peak
4	625.0778	20.58	12.11	32.69	46.00	-13.31	212	100	peak

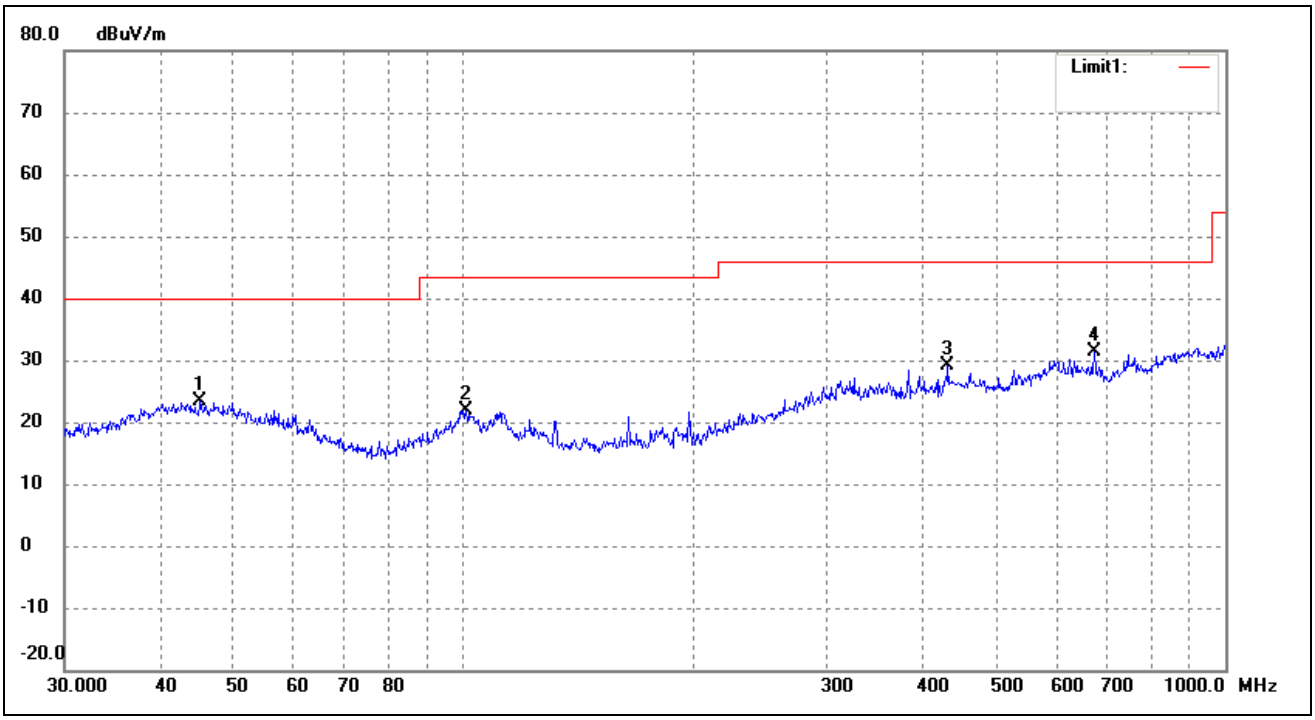
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	47.9938	17.73	6.86	24.59	40.00	-15.41	39	100	peak
2	131.7574	20.50	3.07	23.57	43.50	-19.93	97	100	peak
3	568.6127	20.66	11.98	32.64	46.00	-13.36	156	100	peak
4	893.8567	15.68	16.85	32.53	46.00	-13.47	221	100	peak

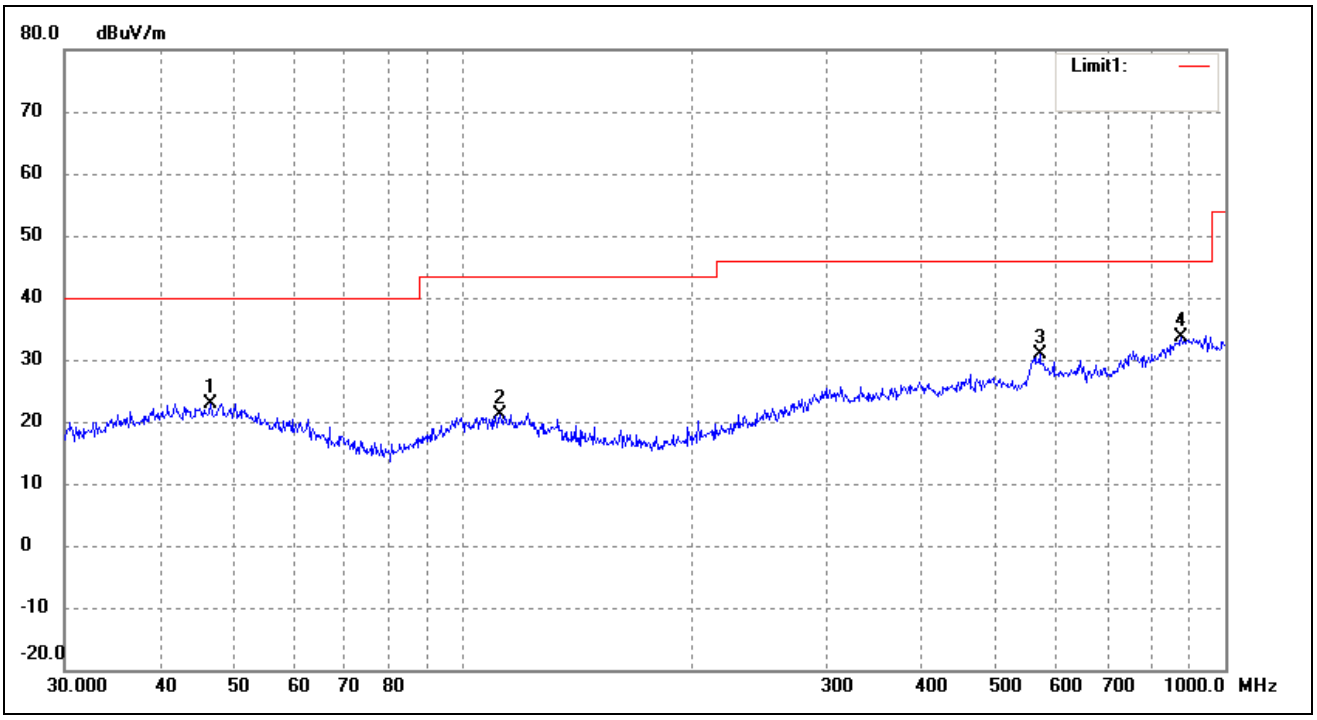
Test mode: Transmitting Channel 5785MHz

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	45.2165	16.53	6.74	23.27	40.00	-16.73	45	100	peak
2	100.9338	15.83	6.03	21.86	43.50	-21.64	66	100	peak
3	432.5457	19.28	9.77	29.05	46.00	-16.95	157	100	peak
4	672.8445	19.24	12.22	31.46	46.00	-14.54	232	100	peak

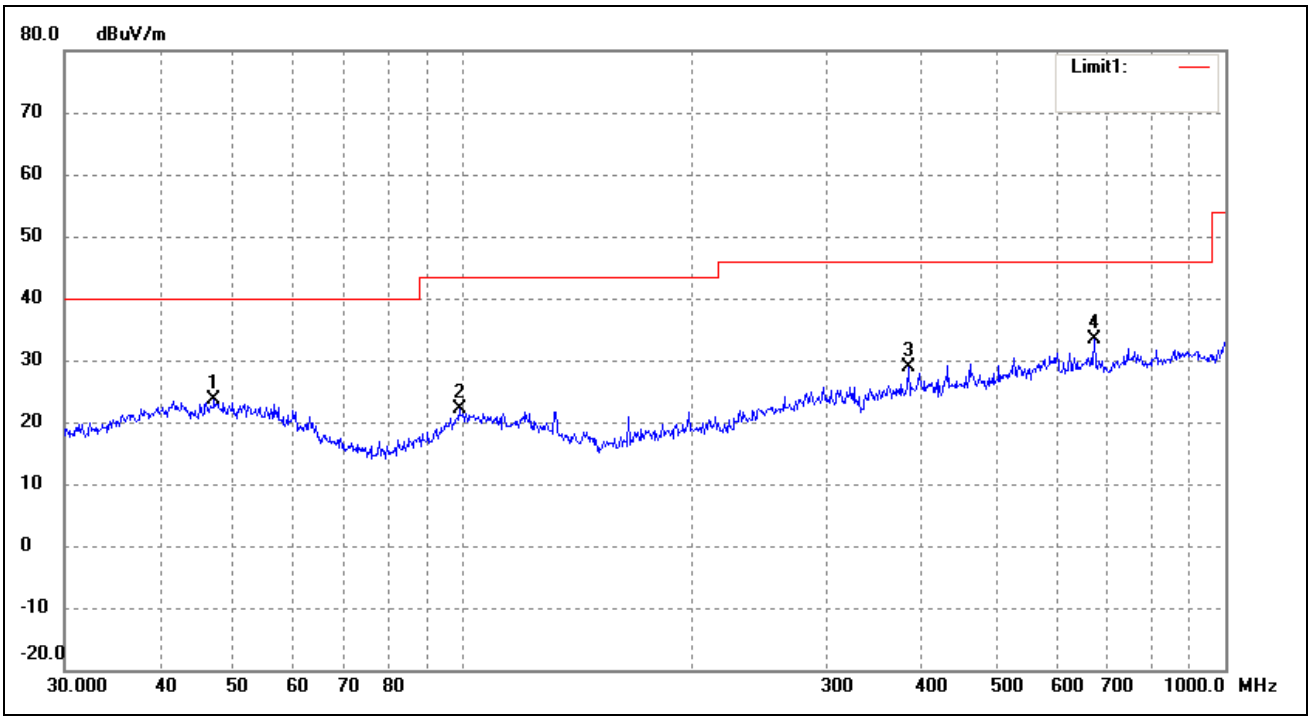
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	46.6664	15.71	7.26	22.97	40.00	-17.03	51	100	peak
2	111.7378	16.15	4.89	21.04	43.50	-22.46	93	100	peak
3	570.6100	18.68	12.08	30.76	46.00	-15.24	164	100	peak
4	875.2468	16.84	16.70	33.54	46.00	-12.46	199	100	peak

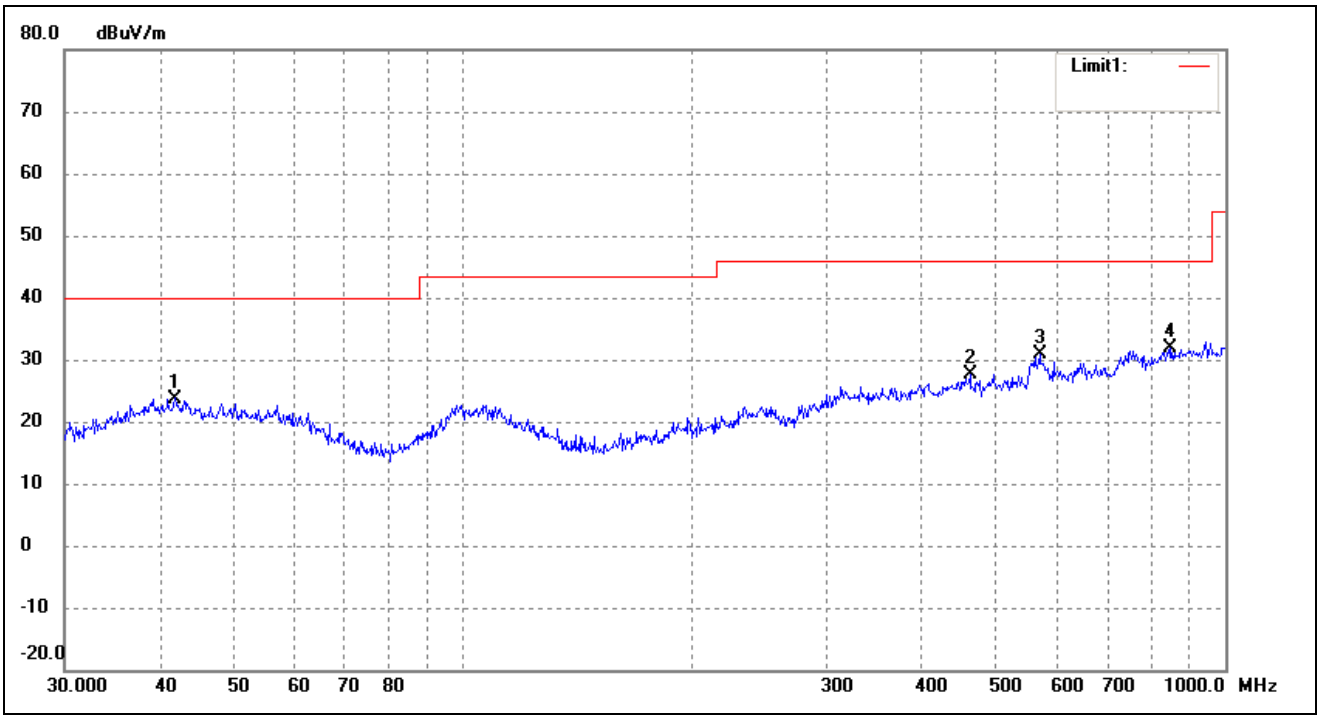
Test mode: Transmitting Channel 5825MHz

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	47.1599	17.01	6.54	23.55	40.00	-16.45	36	100	peak
2	98.8324	16.40	5.84	22.24	43.50	-21.26	82	100	peak
3	383.9318	19.57	9.38	28.95	46.00	-17.05	164	100	peak
4	672.8445	21.24	12.22	33.46	46.00	-12.54	241	100	peak

Test Specification: *Vertical*

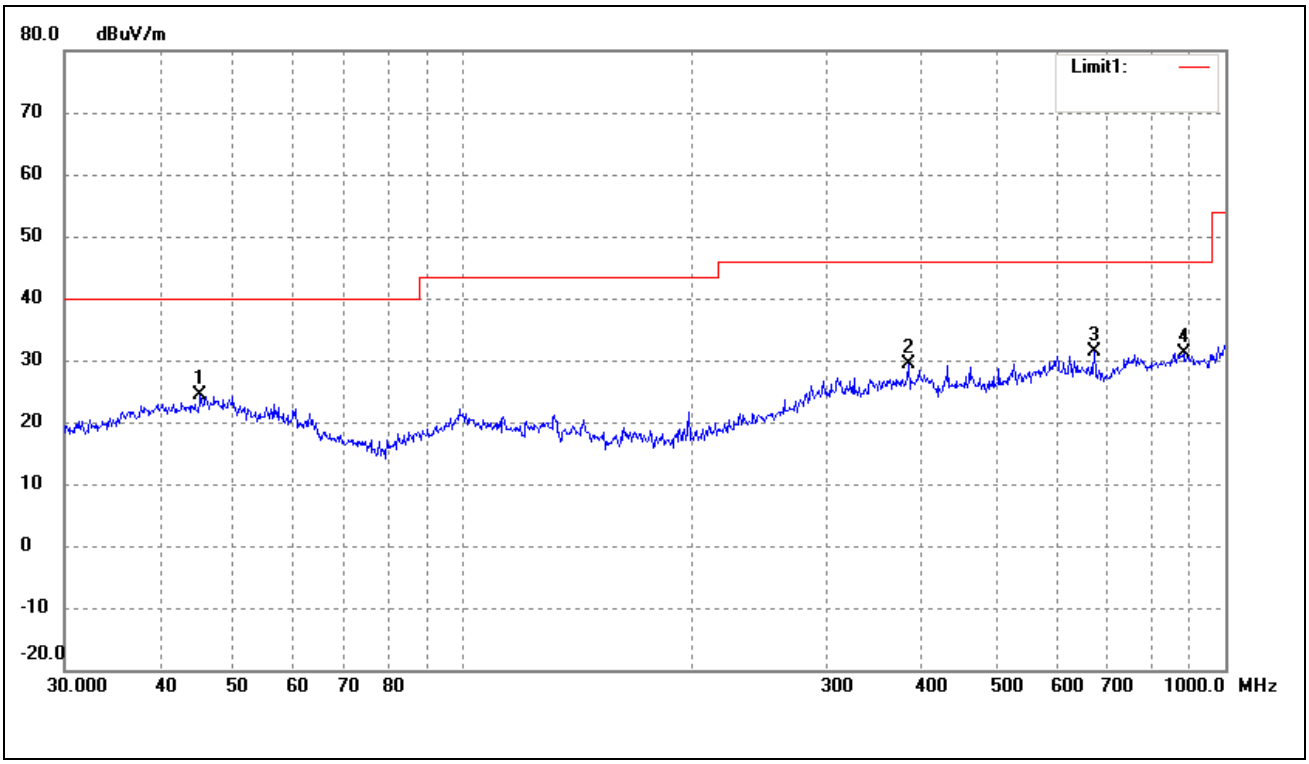


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	41.8596	15.06	8.69	23.75	40.00	-16.25	46	100	peak
2	462.3455	17.11	10.50	27.61	46.00	-18.39	138	100	peak
3	570.6100	18.68	12.08	30.76	46.00	-15.24	175	100	peak
4	848.0561	15.92	15.86	31.78	46.00	-14.22	235	100	peak

For 802.11n-HT20

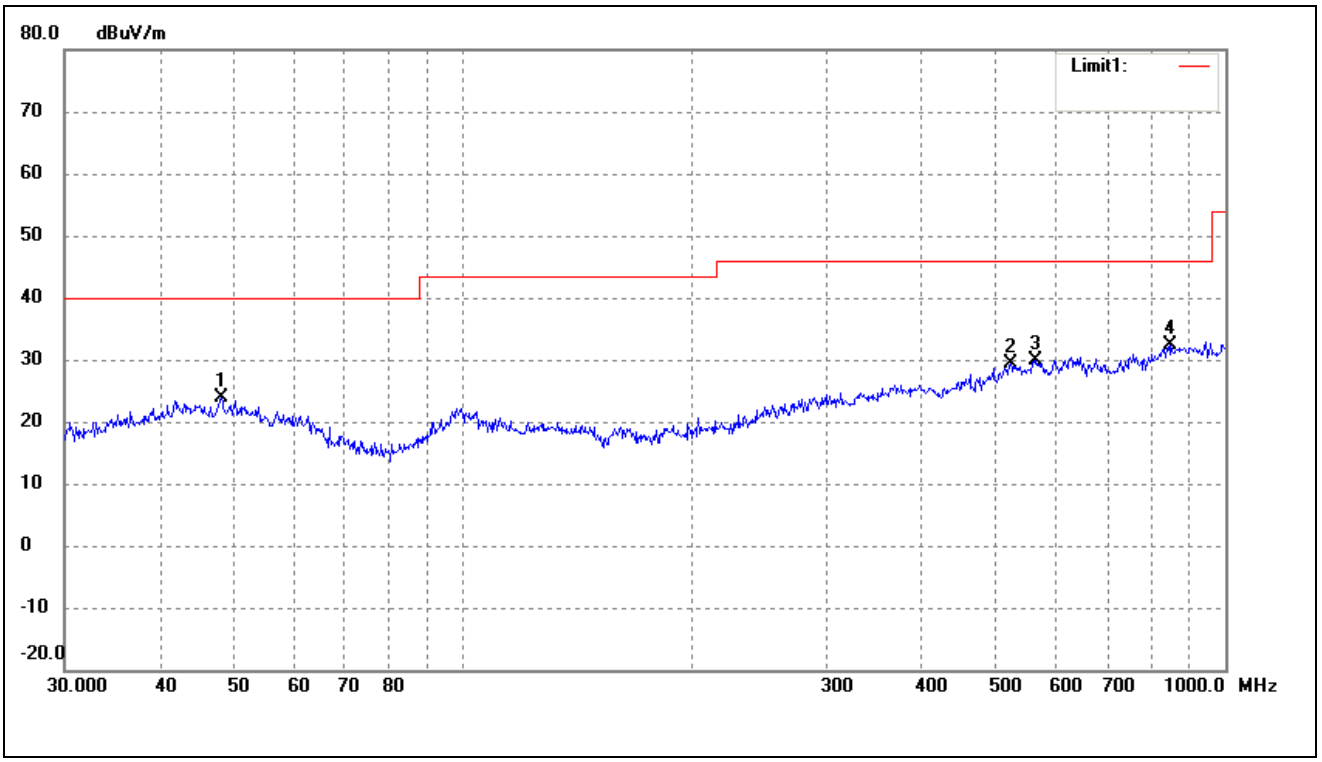
Test mode: Transmitting Channel 5180MHz

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	45.2165	17.53	6.74	24.27	40.00	-15.73	54	100	peak
2	383.9318	20.07	9.38	29.45	46.00	-16.55	125	100	peak
3	672.8445	19.24	12.22	31.46	46.00	-14.54	167	100	peak
4	881.4067	14.27	16.82	31.09	46.00	-14.91	241	100	peak

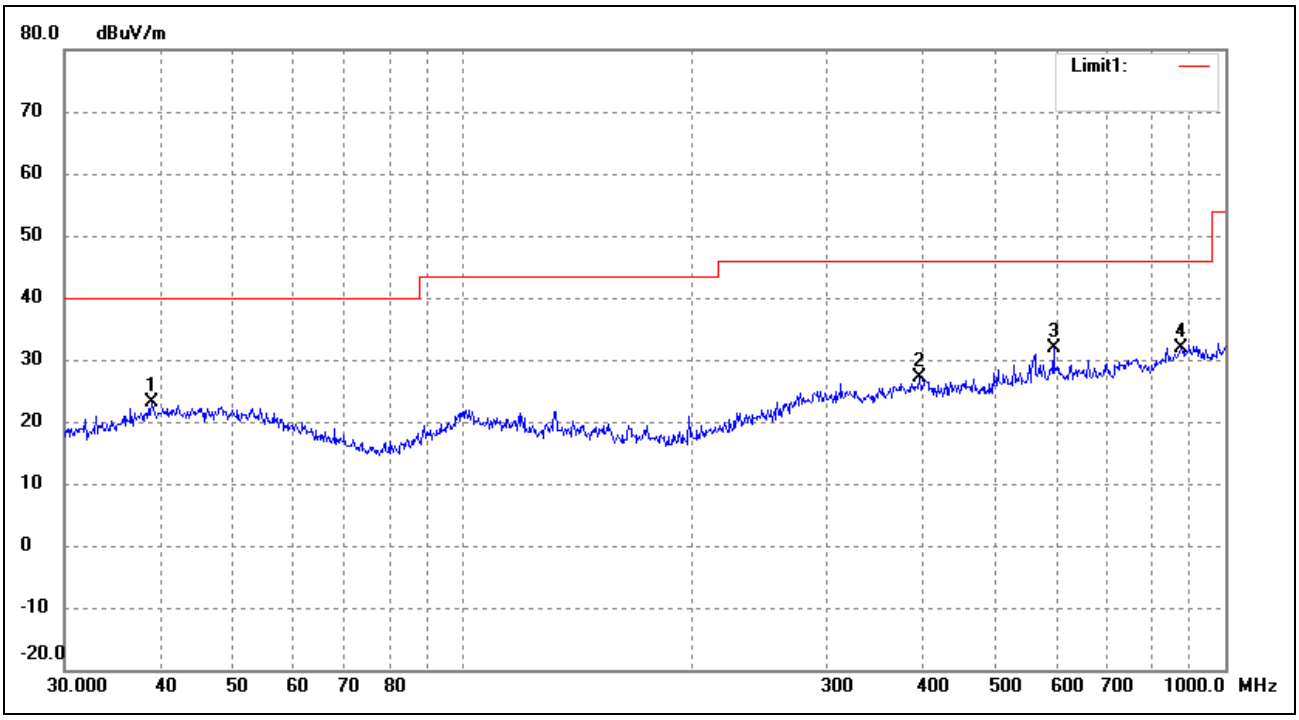
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	48.1625	16.97	6.81	23.78	40.00	-16.22	37	100	peak
2	522.7178	18.12	11.37	29.49	46.00	-16.51	204	100	peak
3	564.6389	18.12	11.77	29.89	46.00	-16.11	232	100	peak
4	848.0561	16.42	15.86	32.28	46.00	-13.72	268	100	peak

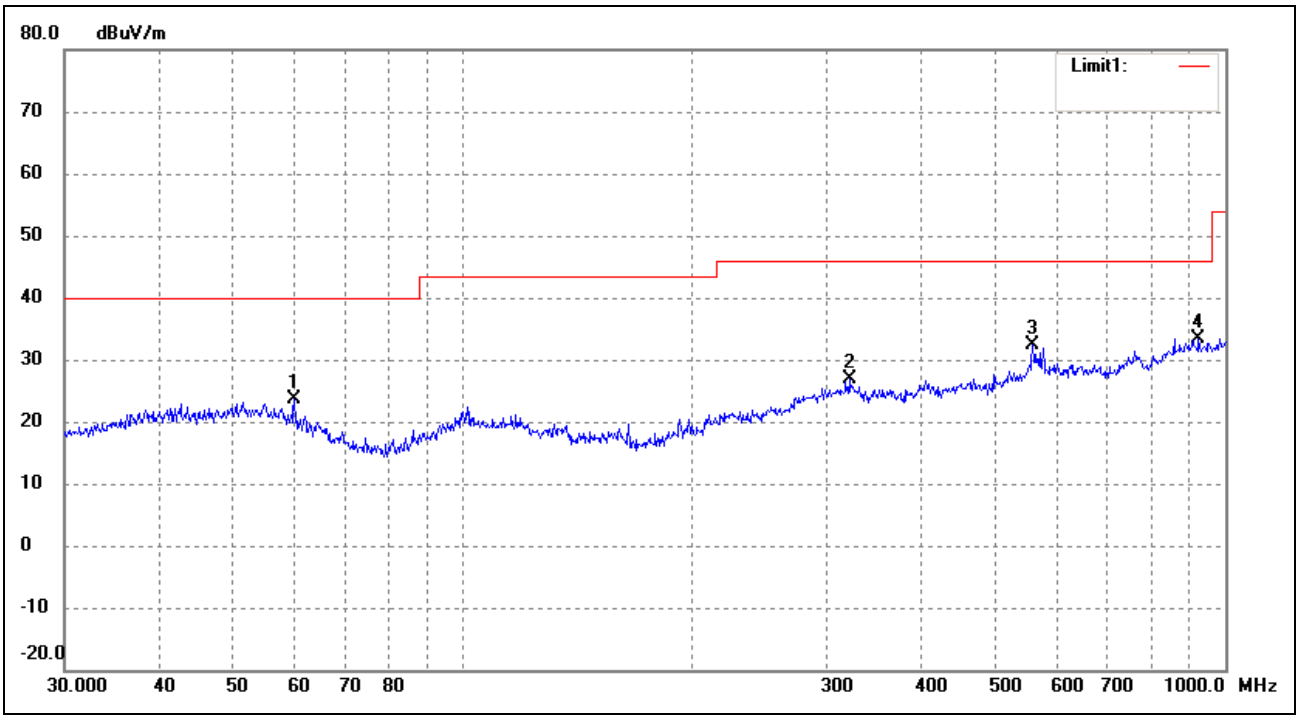
Test mode: Transmitting Channel 5200MHz

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	39.0245	14.03	9.08	23.11	40.00	-16.89	29	100	peak
2	396.2413	17.29	9.95	27.24	46.00	-18.76	135	100	peak
3	595.1326	18.85	13.14	31.99	46.00	-14.01	174	100	peak
4	875.2468	15.18	16.70	31.88	46.00	-14.12	218	100	peak

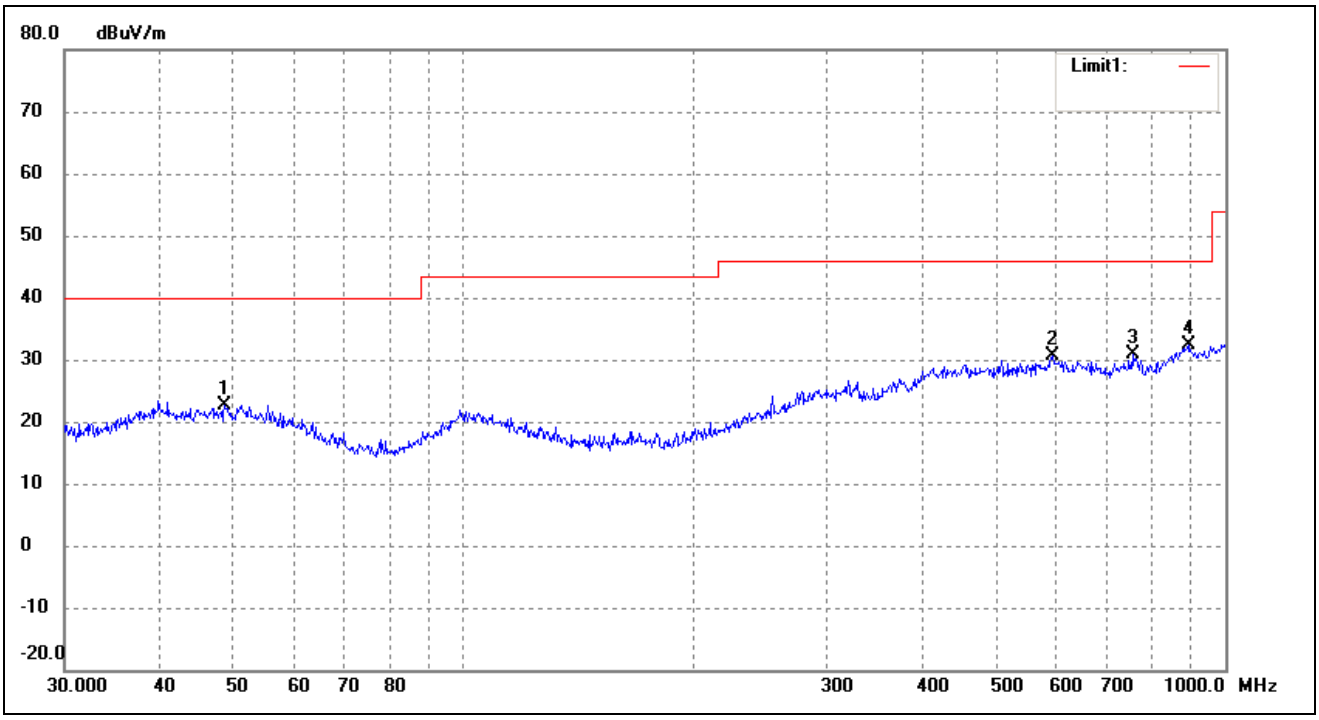
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	60.0690	18.15	5.36	23.51	40.00	-16.49	54	100	peak
2	321.0606	17.67	9.26	26.93	46.00	-19.07	165	100	peak
3	558.7300	20.75	11.52	32.27	46.00	-13.73	194	100	peak
4	922.5157	16.89	16.44	33.33	46.00	-12.67	237	100	peak

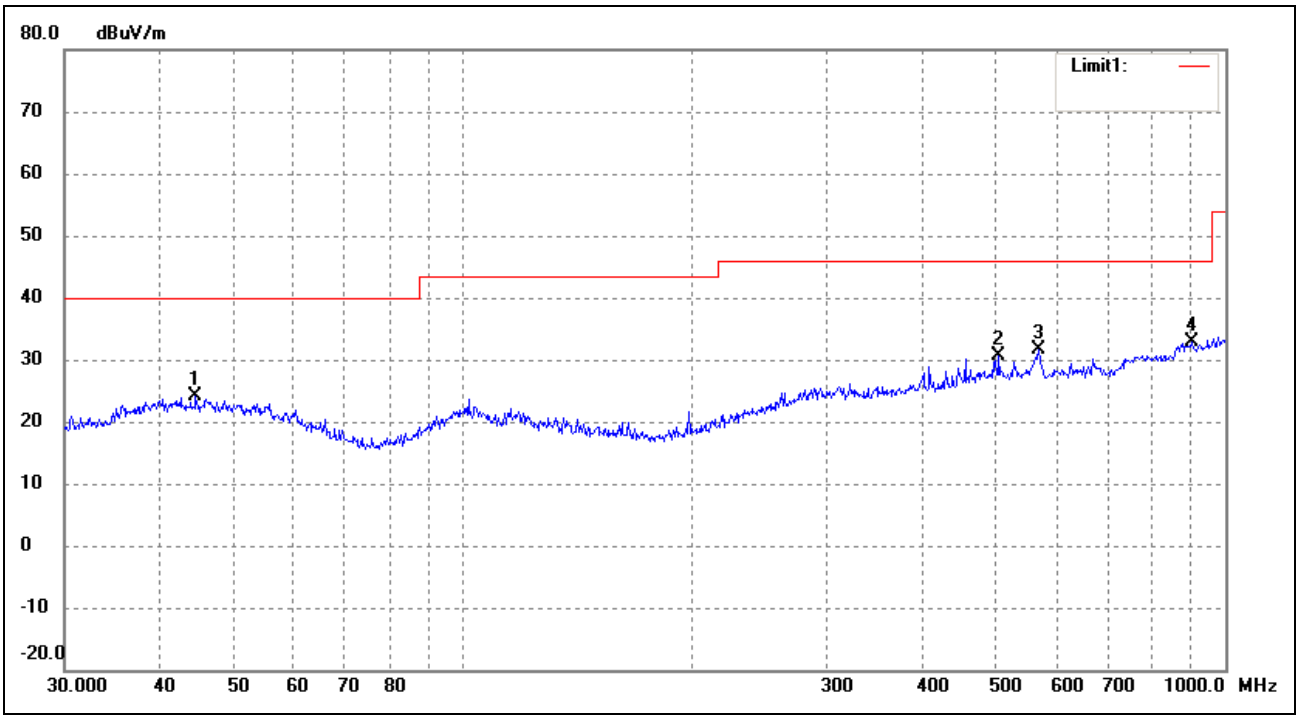
Test mode: Transmitting Channel 5240MHz

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	48.6719	16.24	6.39	22.63	40.00	-17.37	36	100	peak
2	593.0497	17.45	13.06	30.51	46.00	-15.49	121	100	peak
3	755.3872	16.46	14.40	30.86	46.00	-15.14	167	100	peak
4	893.8567	15.46	16.85	32.31	46.00	-13.69	195	100	peak

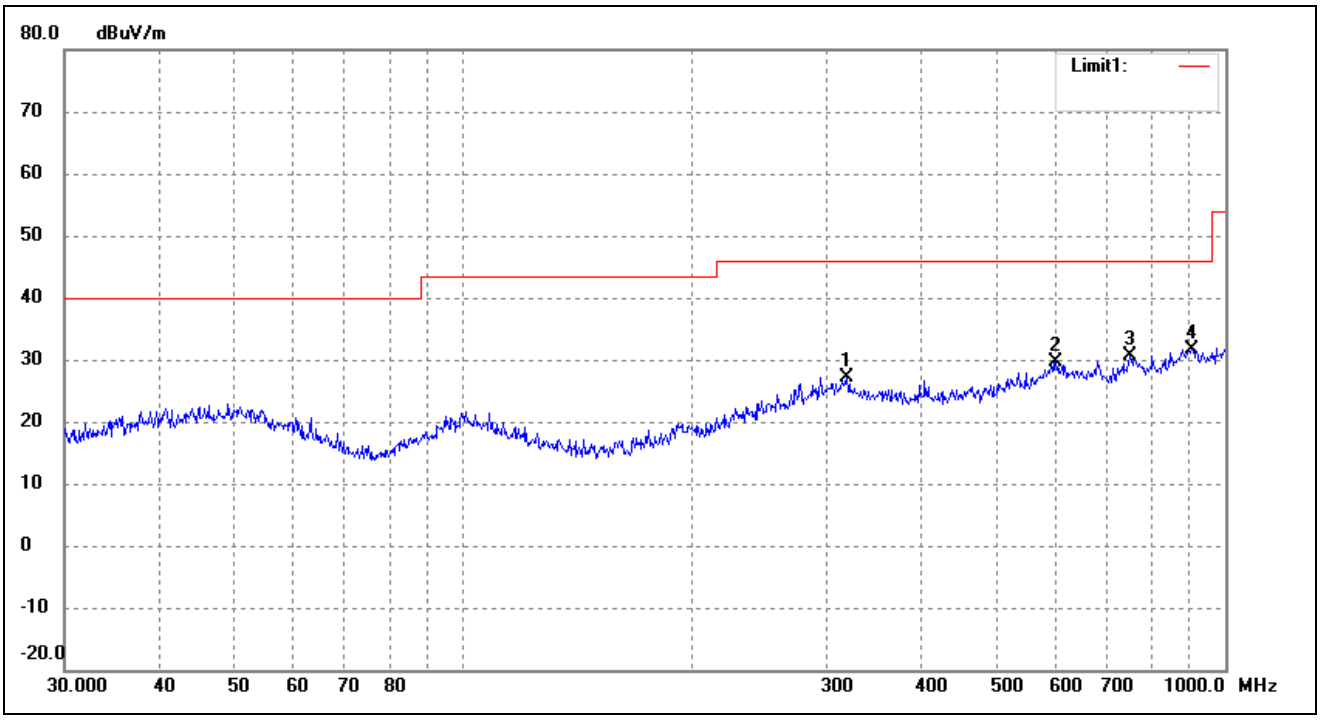
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	44.5867	16.15	7.88	24.03	40.00	-15.97	44	100	peak
2	504.7062	19.72	10.98	30.70	46.00	-15.30	135	100	peak
3	568.6127	19.54	11.98	31.52	46.00	-14.48	197	100	peak
4	903.3093	15.99	16.79	32.78	46.00	-13.22	251	100	peak

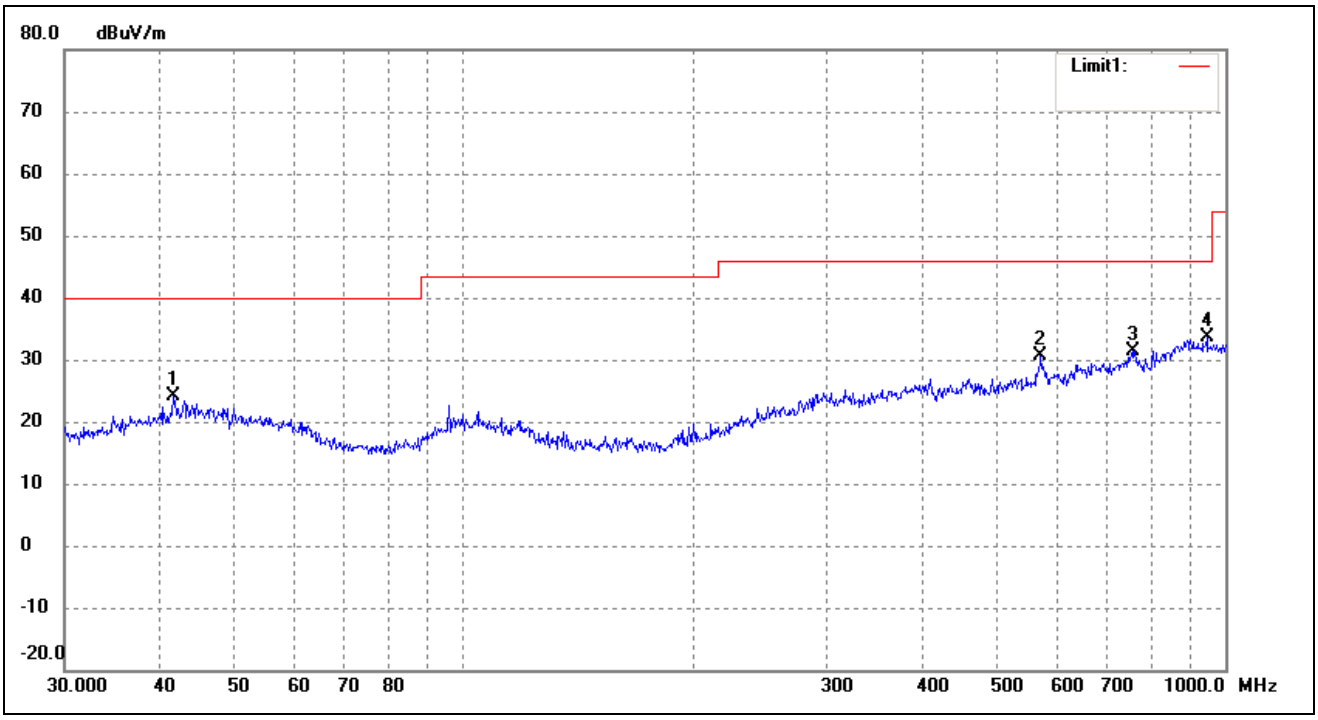
Test mode: Transmitting Channel 5745MHz

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	318.8170	17.91	9.28	27.19	46.00	-18.81	85	100	peak
2	599.3212	16.34	13.30	29.64	46.00	-16.36	147	100	peak
3	750.1082	16.64	14.10	30.74	46.00	-15.26	203	100	peak
4	903.3093	14.92	16.79	31.71	46.00	-14.29	269	100	peak

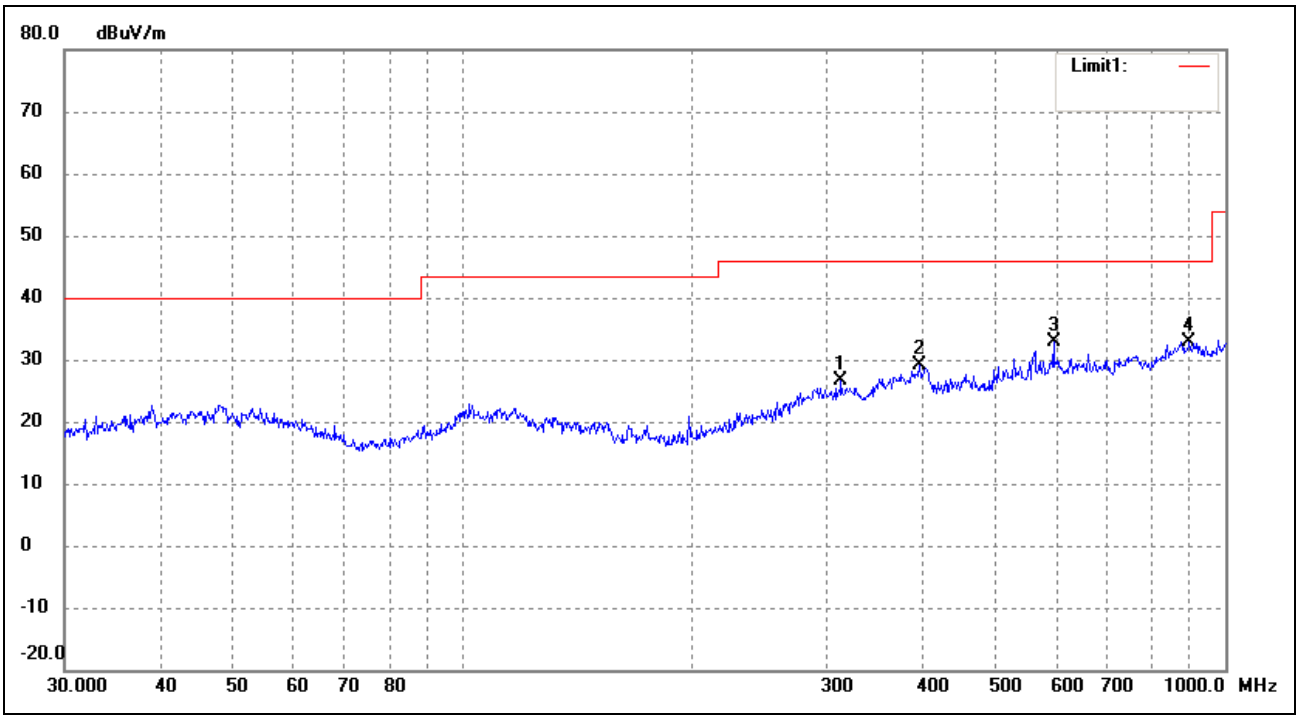
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	41.7130	15.31	8.74	24.05	40.00	-15.95	26	100	peak
2	572.6144	18.56	12.19	30.75	46.00	-15.25	164	100	peak
3	755.3872	16.60	14.86	31.46	46.00	-14.54	215	100	peak
4	945.4397	17.32	16.25	33.57	46.00	-12.43	283	100	peak

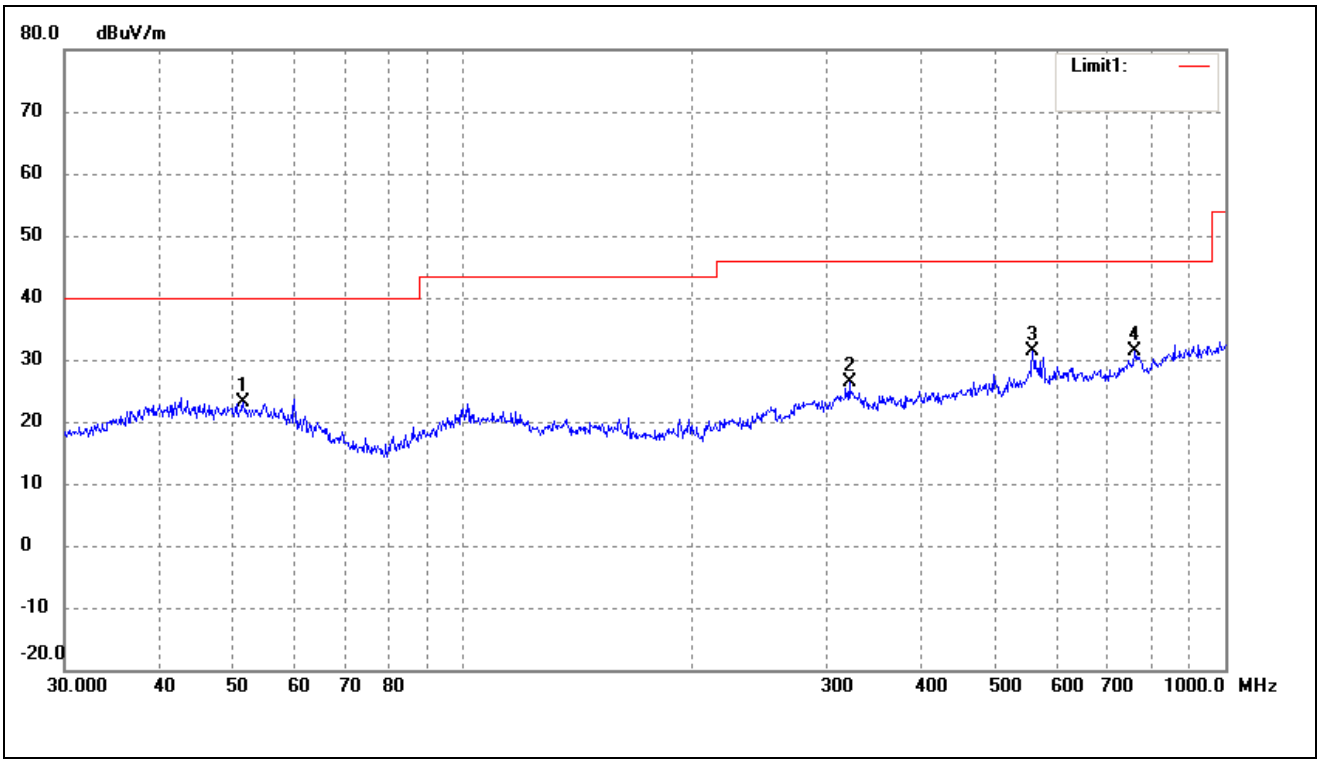
Test mode: Transmitting Channel 5785MHz

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	313.2760	17.44	9.25	26.69	46.00	-19.31	99	100	peak
2	396.2413	19.29	9.95	29.24	46.00	-16.76	157	100	peak
3	595.1326	19.85	13.14	32.99	46.00	-13.01	216	200	peak
4	896.9963	16.12	16.85	32.97	46.00	-13.03	267	200	peak

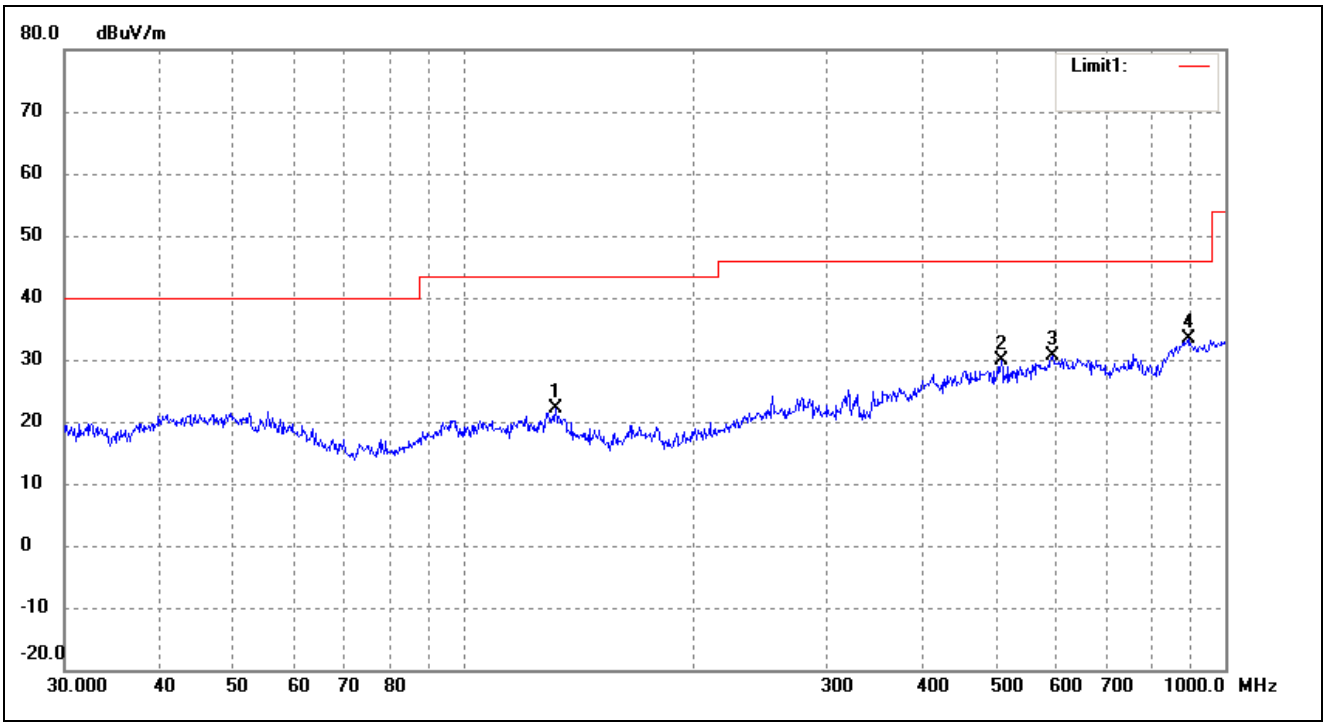
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	51.4806	16.91	6.14	23.05	40.00	-16.95	46	100	peak
2	321.0606	17.17	9.26	26.43	46.00	-19.57	135	100	peak
3	558.7300	19.75	11.52	31.27	46.00	-14.73	168	100	peak
4	760.7036	16.80	14.61	31.41	46.00	-14.59	225	100	peak

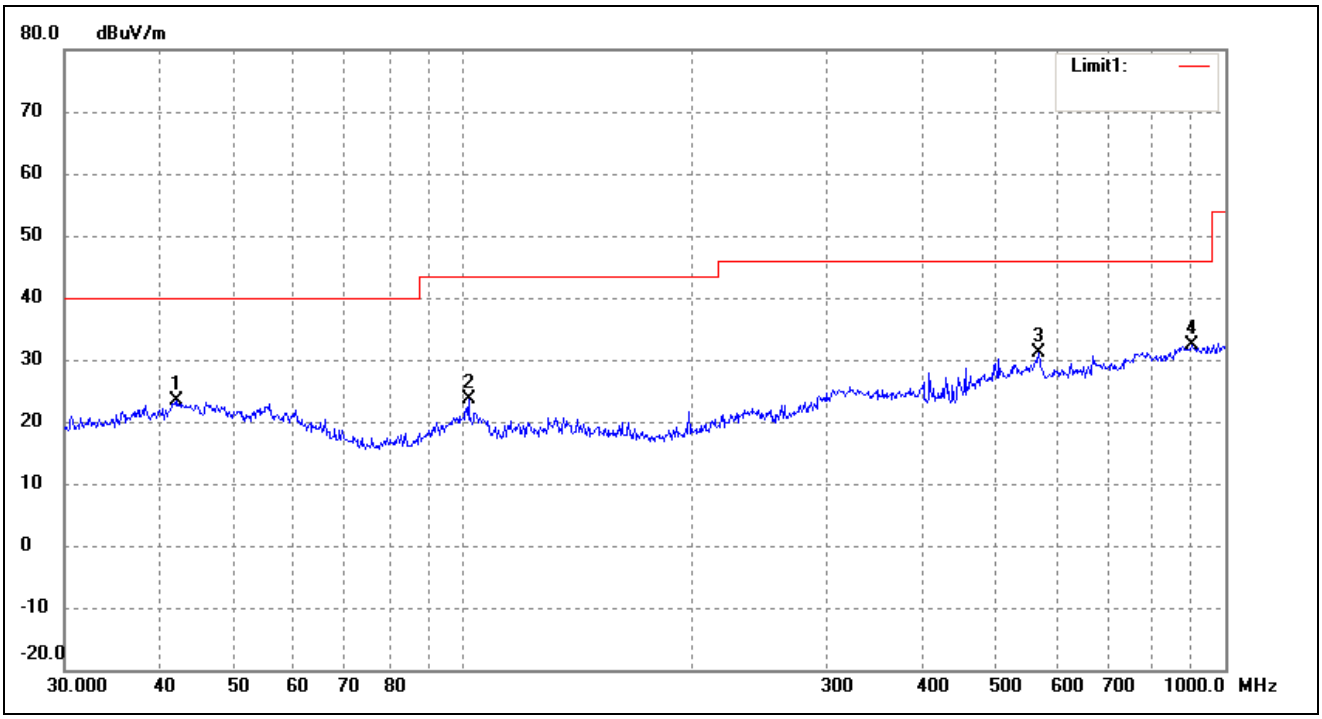
Test mode: Transmitting Channel 5825MHz

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	132.2204	18.99	3.03	22.02	43.50	-21.48	76	100	peak
2	508.2581	18.81	11.07	29.88	46.00	-16.12	165	100	peak
3	593.0497	17.45	13.06	30.51	46.00	-15.49	199	100	peak
4	893.8567	16.46	16.85	33.31	46.00	-12.69	228	100	peak

Test Specification: *Vertical*



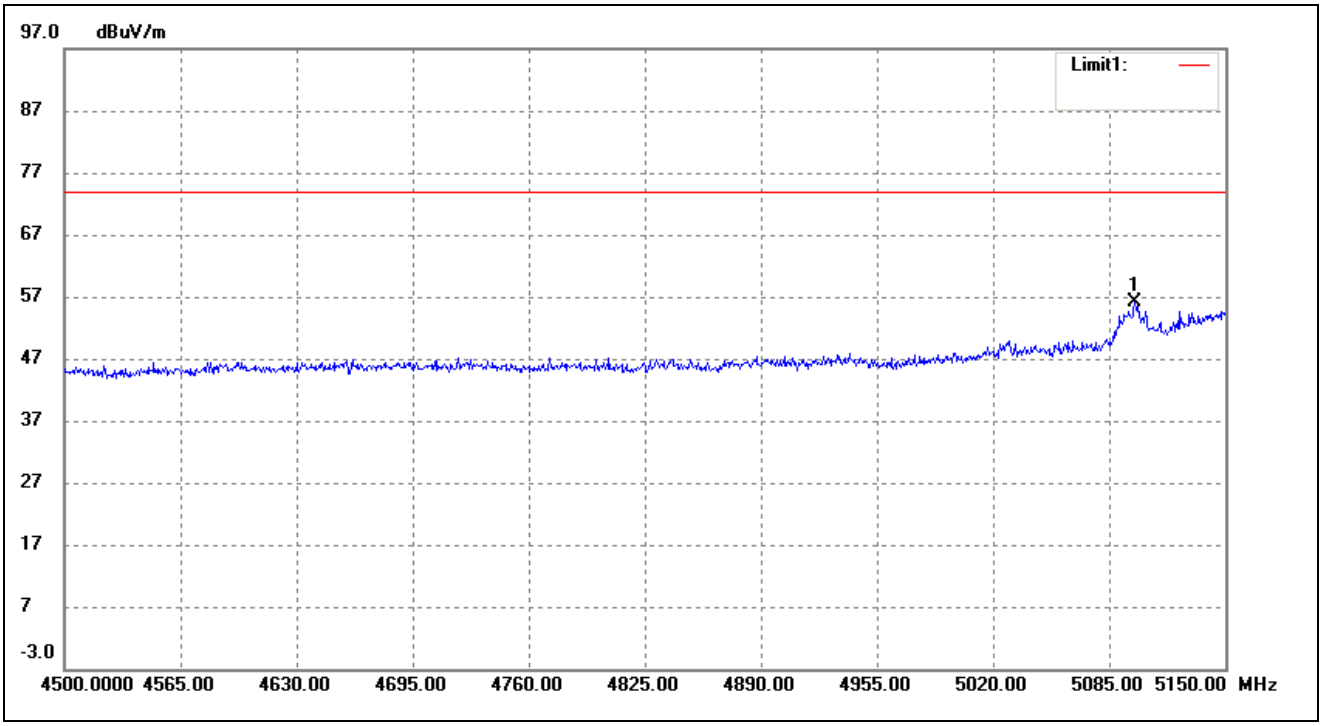
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	42.1542	14.73	8.60	23.33	40.00	-16.67	33	100	peak
2	101.6443	17.58	5.95	23.53	43.50	-19.97	82	100	peak
3	568.6127	19.04	11.98	31.02	46.00	-14.98	157	100	peak
4	903.3093	15.49	16.79	32.28	46.00	-13.72	252	100	peak

For 802.11a

Spurious Emission above 1GHz

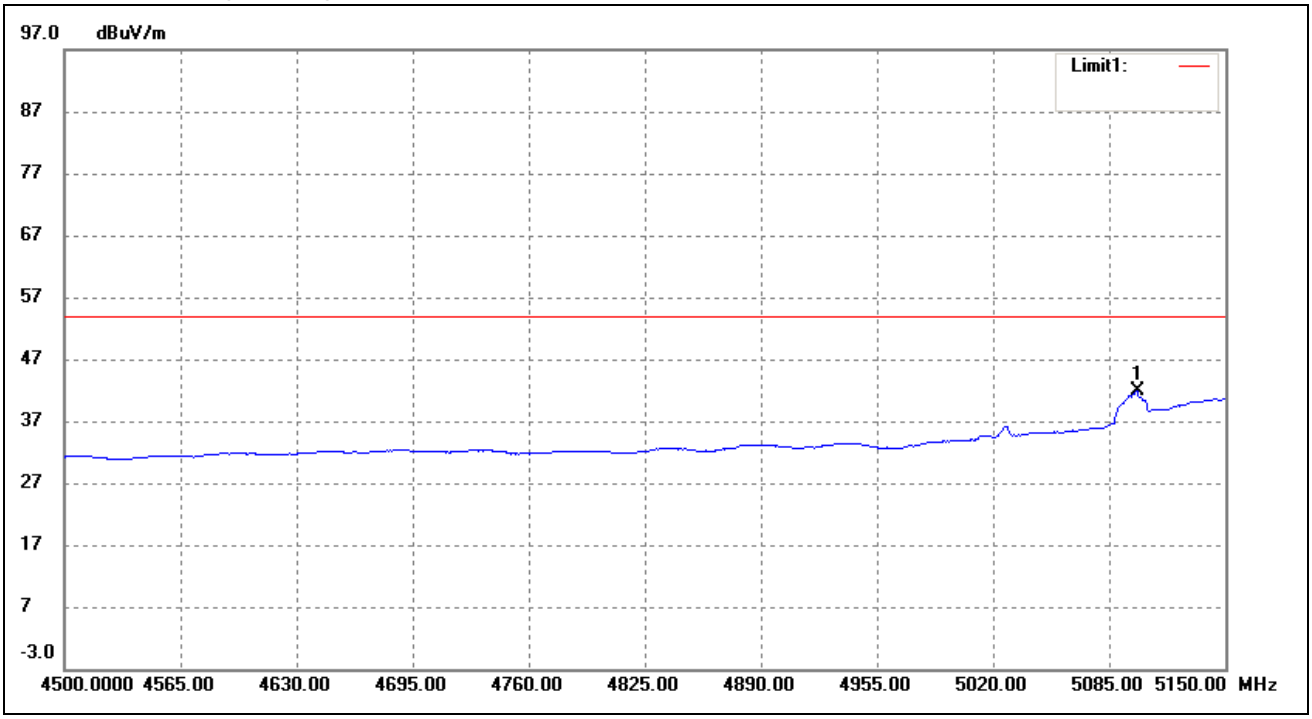
For the frequency band 5.15-5.25GHz(802.11a)

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	5099.307	55.39	-0.25	55.14	74	-18.86	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	5100.610	40.19	-0.25	39.94	54	-14.06	360	100	Ave

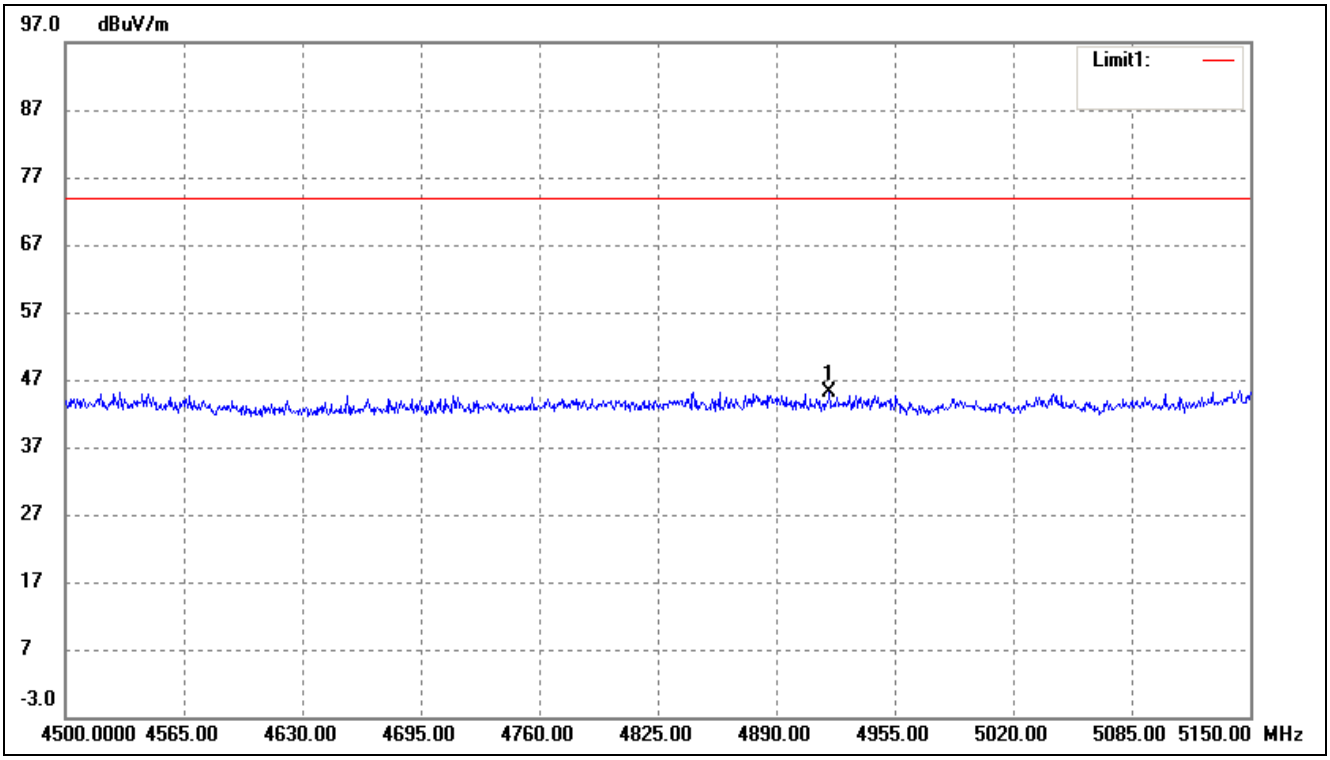
Note: this EUT was tested in the low, high channel and the worst case position data was reported.

802.11n HT20

Spurious Emission above 1GHz

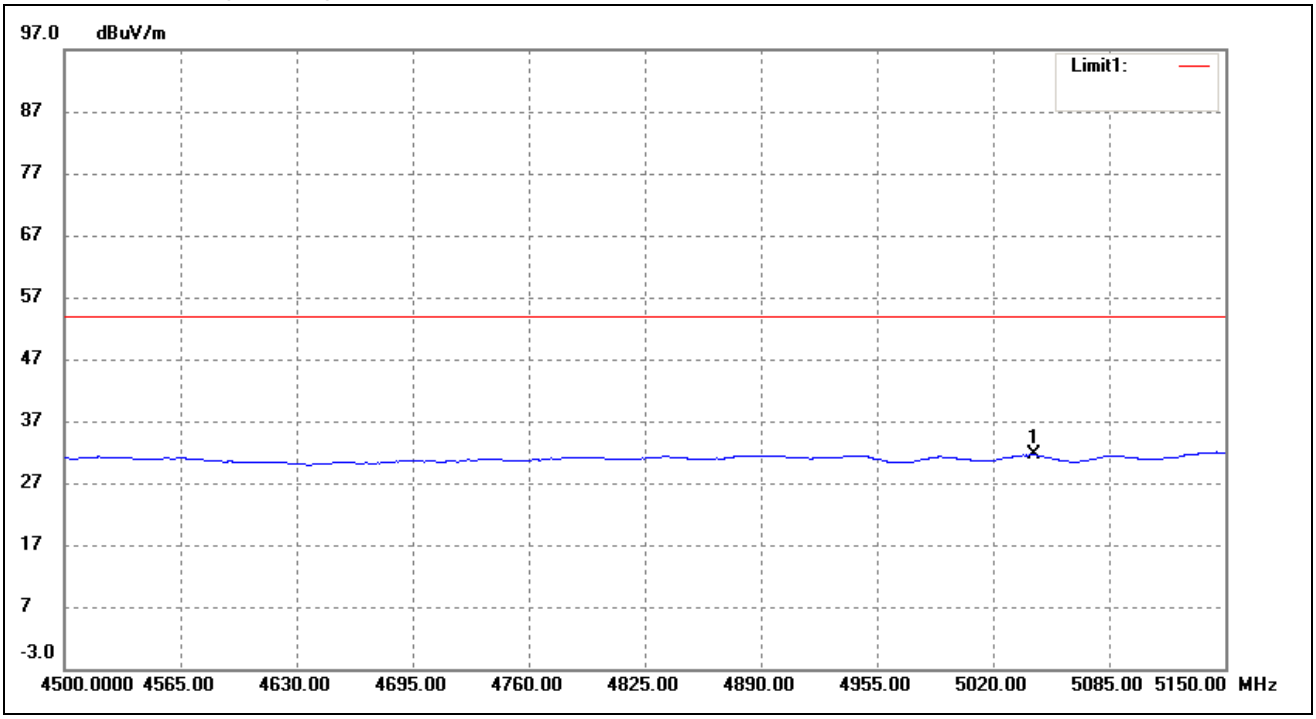
For the frequency band 5.15-5.25GHz(802.11n HT20)

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	4919.248	44.75	-0.69	44.06	74	-29.94	55	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	5042.747	32.75	-0.38	32.37	54	-21.63	55	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	43.69	266	V	40.7	10.9	39.6	55.69	74	-18.31
15540	PK	45.78	186	H	40.7	10.9	39.6	57.78	74	-16.22
15540	AV	31.16	181	V	40.7	10.9	39.6	43.16	54	-10.84
15540	AV	32.52	146	H	40.7	10.9	39.6	44.52	54	-9.48
High Channel (5240MHz)										
15720	PK	45.98	164	V	40.7	10.9	39.6	57.98	74	-16.02
15720	PK	46.72	125	H	40.7	10.9	39.6	58.72	74	-15.28
15720	AV	32.09	200	V	40.7	10.9	39.6	44.09	54	-9.91
15720	AV	31.26	220	H	40.7	10.9	39.6	43.26	54	-10.74
Low Channel (5745MHz)										
11490	PK	48.72	149	V	38.9	9.8	40.1	57.32	74	-16.68
11490	PK	47.56	137	H	38.9	9.8	40.1	56.16	74	-17.84
11490	AV	33.16	189	V	38.9	9.8	40.1	41.76	54	-12.24
11490	AV	32.78	116	H	38.9	9.8	40.1	41.38	54	-12.62
High Channel (5825MHz)										
11610	PK	47.27	204	V	38.9	9.8	40.1	55.87	74	-18.13
11610	PK	49.62	175	H	38.9	9.8	40.1	58.22	74	-15.78
11610	AV	31.17	309	V	38.9	9.8	40.1	39.77	54	-14.23
11610	AV	31.58	228	H	38.9	9.8	40.1	40.18	54	-13.82

Out of Band edge for 5150-5250MHz

Test CH.	Test Segment	Result	Limit
	MHz	dBm/MHz	dBm/MHz
Lowest	Below 5150	-45.35	-27
Highest	Above 5350	-44.86	-27
Note: the data just list the worst cases			

Out of Band edge for 5725-5850MHz

Test CH.	Test Segment	Result	Limit
	MHz	dBm/MHz	dBm/MHz
Lowest	Below 5715	-47.51	-27
	5715 to 5725	-45.37	-17
Highest	5850 to 5860	-45.34	-17
	Above 5860	-48.67	-27
Note: the data just list the worst cases			

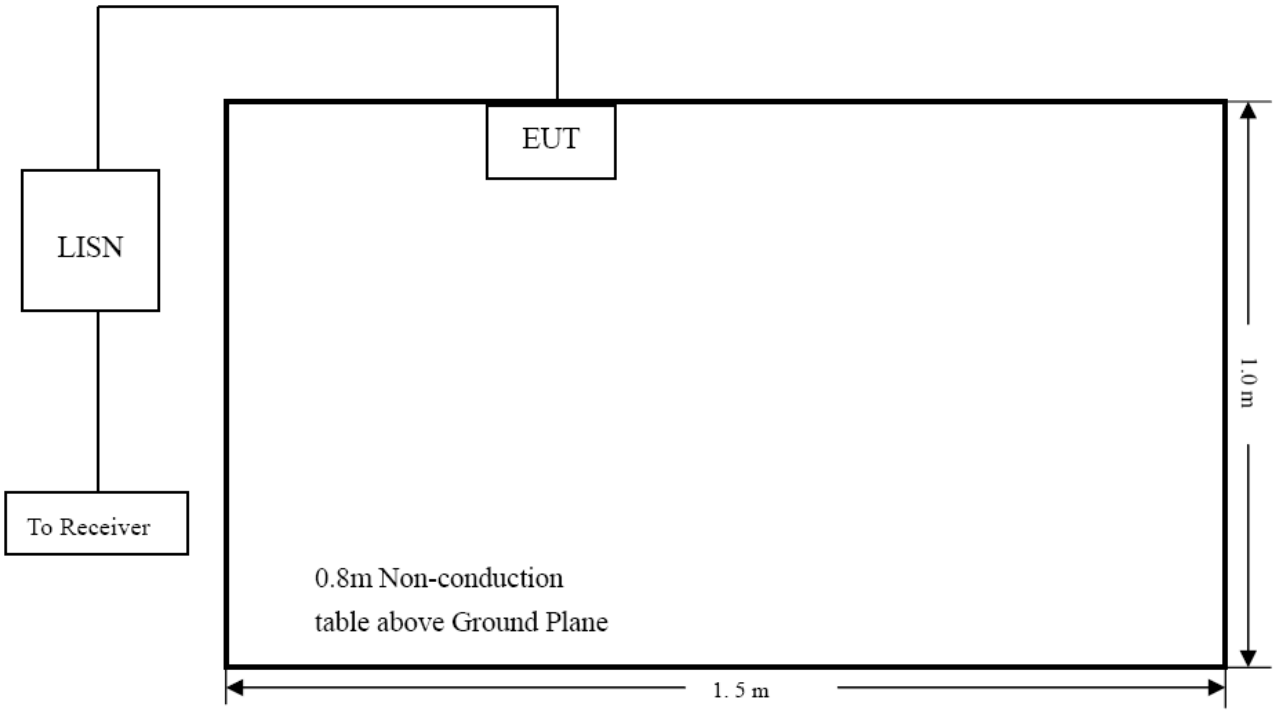
Note: Testing is carried out with frequency rang 9kHz to 40GHz, which above 3th Harmonics are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
The measurements greater than 20dB below the limit from 9kHz to 30MHz.

10. Conducted Emissions

10.1 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.

10.2 Basic Test Setup Block Diagram



10.3 Environmental Conditions

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

10.4 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

10.5 Summary of Test Results/Plots

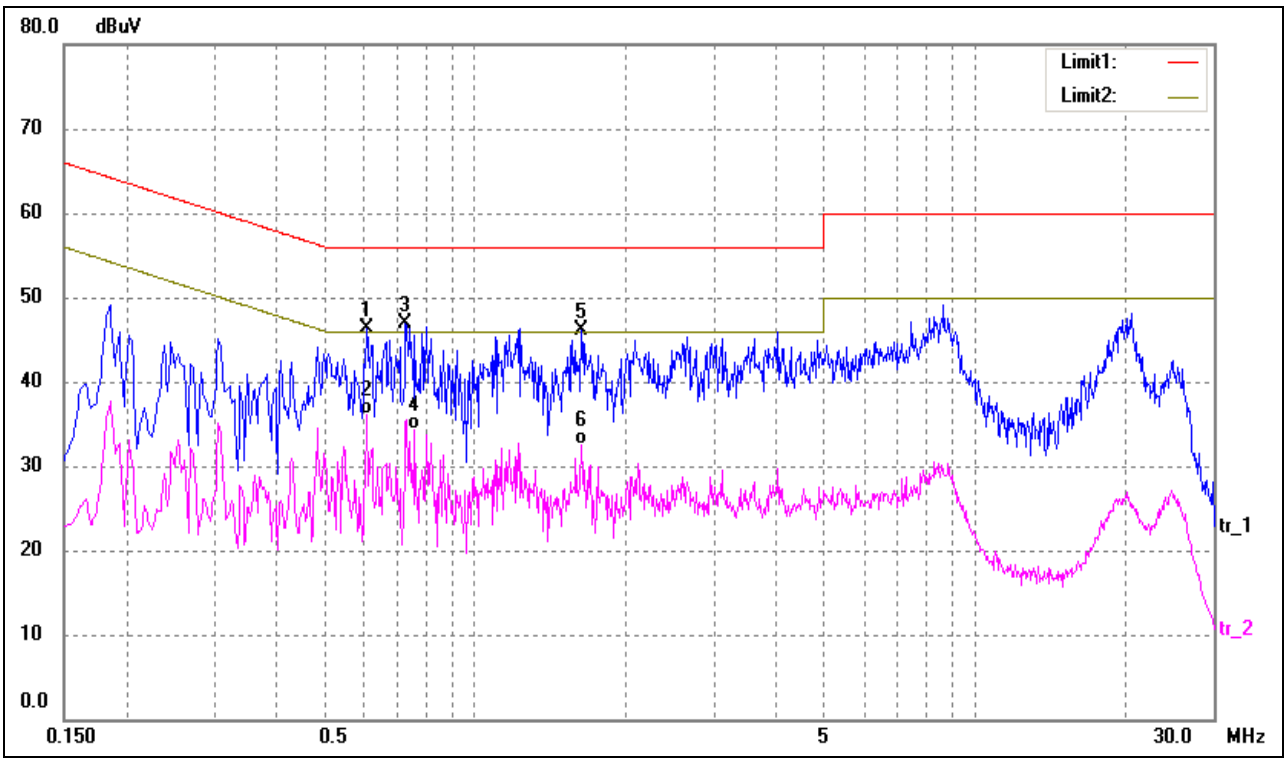
According to the data in section 10.6, the EUT complied with the FCC Part 15.207 Conducted margin for this device, with the *worst* margin reading of:

-4.01 dB at **1.1940 MHz** in the **Line, peak** detector, 0.15-30MHz

10.6 Conducted Emissions Test Data

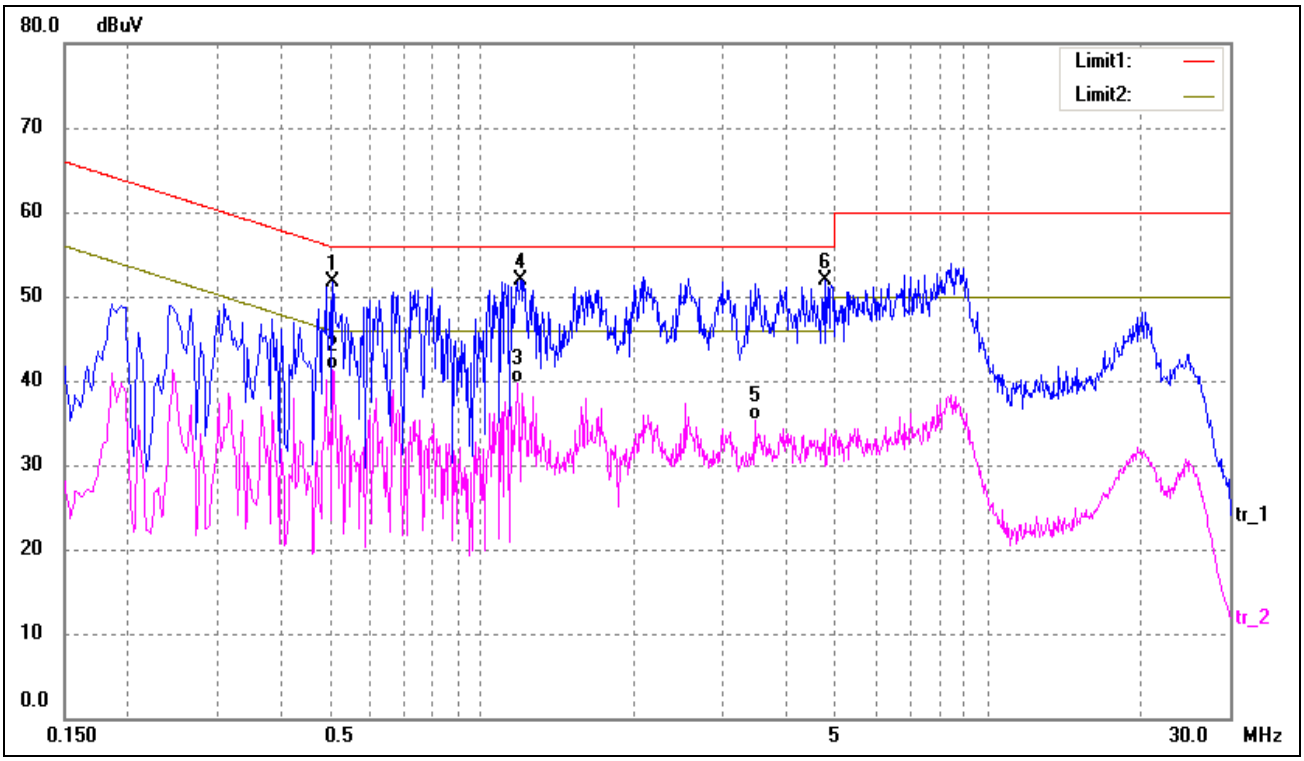
Plot of Conducted Emissions Test Data

EUT: *Tablets*
Tested Model: *TT800V*
Operating Condition: *Transmitting*
Comment: *AC 120V/60Hz; Adapter DC 5V*
Test Specification: *Neutral*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.6060	36.72	9.59	46.31	56.00	-9.69	peak
2	0.6060	26.43	9.59	36.02	46.00	-9.98	AVG
3*	0.7260	37.32	9.61	46.93	56.00	-9.07	peak
4	0.7580	24.72	9.62	34.34	46.00	-11.66	AVG
5	1.6300	36.39	9.77	46.16	56.00	-9.84	peak
6	1.6300	22.69	9.77	32.46	46.00	-13.54	AVG

Test Specification: *Line*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.5100	42.07	9.56	51.63	56.00	-4.37	peak
2	0.5100	31.76	9.56	41.32	46.00	-4.68	AVG
3	1.1820	30.01	9.71	39.72	46.00	-6.28	AVG
4*	1.1940	42.28	9.71	51.99	56.00	-4.01	peak
5	3.4580	25.20	10.02	35.22	46.00	-10.78	AVG
6	4.7700	41.60	10.21	51.81	56.00	-4.19	peak

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	DC 3.3-4.2V of nominal voltage declared by manufacturer
-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

Reference Frequency(Middle Channel): 5200 MHz			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	3.7	141	0.0269
40	3.7	128	0.0244
30	3.7	124	0.0237
20	3.7	154	0.0294
10	3.7	114	0.0218
0	3.7	134	0.0256
-10	3.7	147	0.0281
-20	3.7	118	0.0225
-30	3.7	126	0.0240

802.11n_HT20

Reference Frequency(Middle Channel): 5200 MHz			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	3.7	141	0.0270
40	3.7	145	0.0277
30	3.7	141	0.0270
20	3.7	131	0.0250
10	3.7	148	0.0283
0	3.7	152	0.0291
-10	3.7	158	0.0302
-20	3.7	151	0.0289
-30	3.7	149	0.0285

5725-5850MHz

802.11a

Reference Frequency(Middle Channel): 5785MHz			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	3.7	117	0.0267
40	3.7	127	0.0260
30	3.7	145	0.0271
20	3.7	154	0.0260
10	3.7	165	0.0265
0	3.7	185	0.0278
-10	3.7	154	0.0288
-20	3.7	181	0.0278
-30	3.7	157	0.0285

802.11n_HT20

Reference Frequency(Middle Channel): 5785 MHz			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	3.7	141	0.0254
40	3.7	148	0.0262
30	3.7	147	0.0251
20	3.7	134	0.0227
10	3.7	115	0.0227
0	3.7	185	0.0314
-10	3.7	155	0.0222
-20	3.7	152	0.0219
-30	3.7	145	0.0257

So, Frequency Stability Versus Input Voltage is:

5150-5250MHz

802.11a

Reference Frequency(Middle Channel): 5200 MHz			
Environment Temperature (°C)	Power Supplied (VAC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	3.3	145	0.0277
	3.7	154	0.0294
	4.2	152	0.0290

802.11n_HT20

Reference Frequency(Middle Channel): 5200 MHz			
Environment Temperature (°C)	Power Supplied (VAC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	3.3	145	0.0257
	3.7	131	0.0250
	4.2	152	0.0284

5725-5850MHz

802.11a

Reference Frequency(Middle Channel): 5785 MHz			
Environment Temperature (°C)	Power Supplied (VAC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	3.3	184	0.0325
	3.7	154	0.0260
	4.2	158	0.0303

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	3.3	184	0.0257
	3.7	134	0.0227
	4.2	158	0.0342

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