

FCC Part 15E Measurement and Test Report

For

JACS Solutions, LLC

8808 Centre Park Drive, Suite 305, Columbia, MD 21045, USA

FCC ID: 2AGCD-JACS800V

FCC Rule(s): FCC Part 15E

Product Description: Tablets

Tested Model: TT800V

Report No.: STR17068003I-2

Tested Date: 2017-06-12 to 2017-06-28

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

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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, MD 21045, USA

Manufacturer: Xiamen Candour Co., Ltd
Address of manufacturer: 19F C&D International Building 1669 Huandao East Road, Xiamen, Fujian, CN

General Description of EUT:	
Product Name:	Tablets
Brand Name:	JACS SOLUTION
Model No.:	TT800V
Adding Model(s):	M81F, TT800W, TT800OW, TT800OV
Power Adapter:	AC Power Adaptor: Model:JML-0500250-LW Input:100V-240V, 50/60Hz,0.6A ; Output:5V,2.5A
	Car charging Adaptor: Model:KCDDC-001 Input:12V-24VDC,1.2 A ; Output:5V,3.5A
Rated Voltage:	DC 3.7V Li-ion Battery
Battery capacity:	6200mAh
Software version:	/
Hardware version:	/
<i>The EUT Main board support LTE Band 4/13 function. It is intended for speech, Multimedia Message Service (MMS) transmission. It is equipped with GPS, FM, NFC, Bluetooth and Wi-Fi functions. For more information see the following datasheet</i>	
<i>Note: The test data is gathered from a production sample provided by the manufacturer. The appearance of others models listed in the report is different from main-test model TT800V, but the circuit and the electronic construction do not change, declared by the manufacturer.</i>	

Technical Characteristics of EUT	
Support Standards:	802.11a, 802.11n(HT20)
Frequency Range:	5150-5250MHz, 5725-5850MHz
RF Output Power:	7.40dBm (Conducted)
Type of Modulation:	QPSK, 16QAM, 64QAM
Data Rate:	6-54Mbps, up to 72.2Mbps
Channel Separation:	20MHz
Type of Antenna:	Integral

Antenna Gain:	2.04dBi
Lowest Internal Frequency	32.768kHz

1.2 Test Standards

The following report is prepared on behalf of the JACS Solutions, LLC in accordance with FCC Part 15, Subpart C&E, 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&E, 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 Table for parameters of Test Software setting

The test utility software used during testing was “AP6xxx.bat”. 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	76	76	76	/	/	/	/	/	/	/	76	76	76
802.11n-HT20 MCS0	76	76	76	/	/	/	/	/	/	/	76	76	76
Mode	NCB: 40MHz												
	5190	5230	5270	5310	5510	5550	5670	5710	5755	5795			
802.11n-HT40 MCS0	/	/	/	/	/	/	/	/	/	/	/	/	
Mode	NCB: 80MHz												
	5210		5290		5530		5610		5690		5775		
802.11ac-HT80 MCS0/Nss2	/		/		/		/		/		/		

1.5 EUT Operating during test

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

1.6 Test Facility

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
Note: All test modes (different data rate and different modulation) are performed, but only the worst case is recorded in this report.		

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

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 Measurement Uncertainty

Measurement uncertainty		
Parameter	Conditions	Uncertainty
RF Output Power	Conducted	$\pm 0.42\text{dB}$
Occupied Bandwidth	Conducted	$\pm 1.5\%$
Power Spectral Density	Conducted	$\pm 1.8\text{dB}$
Conducted Spurious Emission	Conducted	$\pm 2.17\text{dB}$
Conducted Emissions	Conducted	$\pm 2.88\text{dB}$
Transmitter Spurious Emissions	Radiated	$\pm 5.1\text{dB}$

1.9 Test Equipment List and Details

No.	Description	Manufacturer	Model	Serial No.	Cal Date	Due Date
SEMT-1072	Spectrum Analyzer	Agilent	E4407B	MY41440400	2017-06-12	2018-06-11
SEMT-1031	Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2017-06-12	2018-06-11
SEMT-1007	EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2017-06-12	2018-06-11
SEMT-1008	Amplifier	Agilent	8447F	3113A06717	2017-06-12	2018-06-11
SEMT-1043	Amplifier	C&D	PAP-1G18	2002	2017-06-12	2018-06-11
SEMT-1011	Broadband Antenna	Schwarz beck	VULB9163	9163-333	2017-06-12	2018-06-11
SEMT-1042	Horn Antenna	ETS	3117	00086197	2017-06-12	2018-06-11
SEMT-1121	Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170582	2017-06-12	2018-06-11
SEMT-1069	Loop Antenna	Schwarz beck	FMZB 1516	9773	2017-06-12	2018-06-11
SEMT-1001	EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2017-06-12	2018-06-11
SEMT-1003	L.I.S.N	Schwarz beck	NSLK8126	8126-224	2017-06-12	2018-06-11
SEMT-1002	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2017-06-12	2018-06-11

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 SAR Report.

4. Antenna Requirement

4.1 Standard Applicable

According to FCC Part 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

4.2 Evaluation Information

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

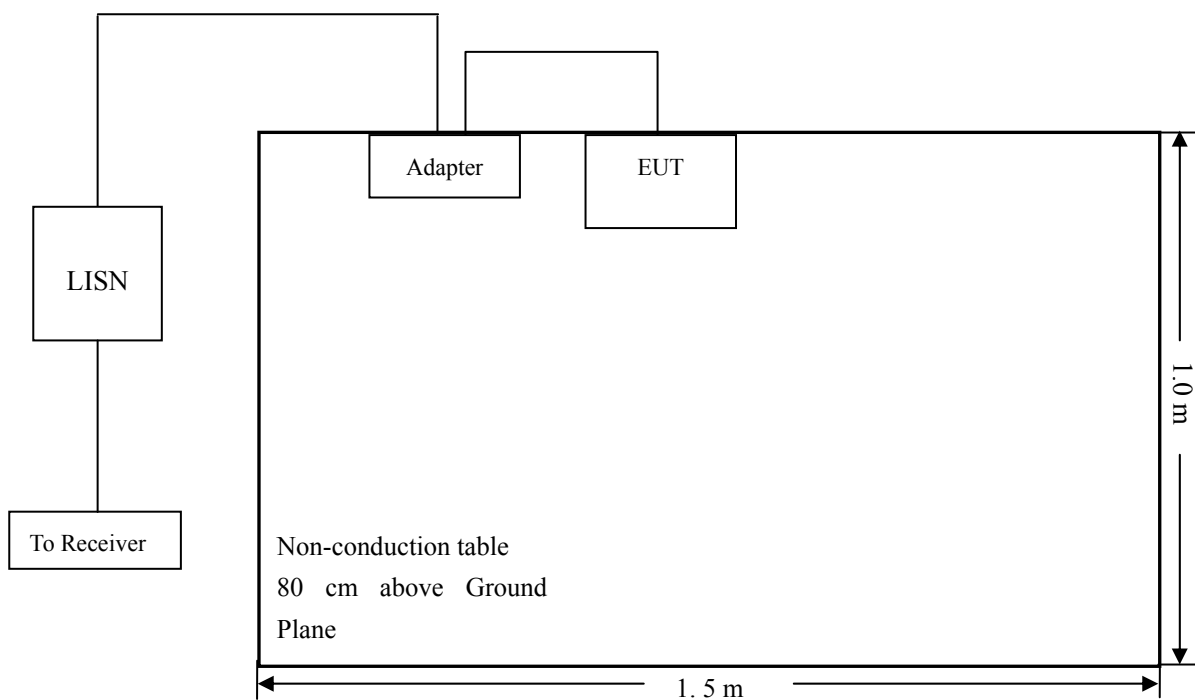
5. Conducted Emissions

5.1 Test Procedure

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

5.3 Basic Test Setup Block Diagram



5.4 Environmental Conditions

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

5.5 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

5.6 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 a Class B device, with the *worst* margin reading of:

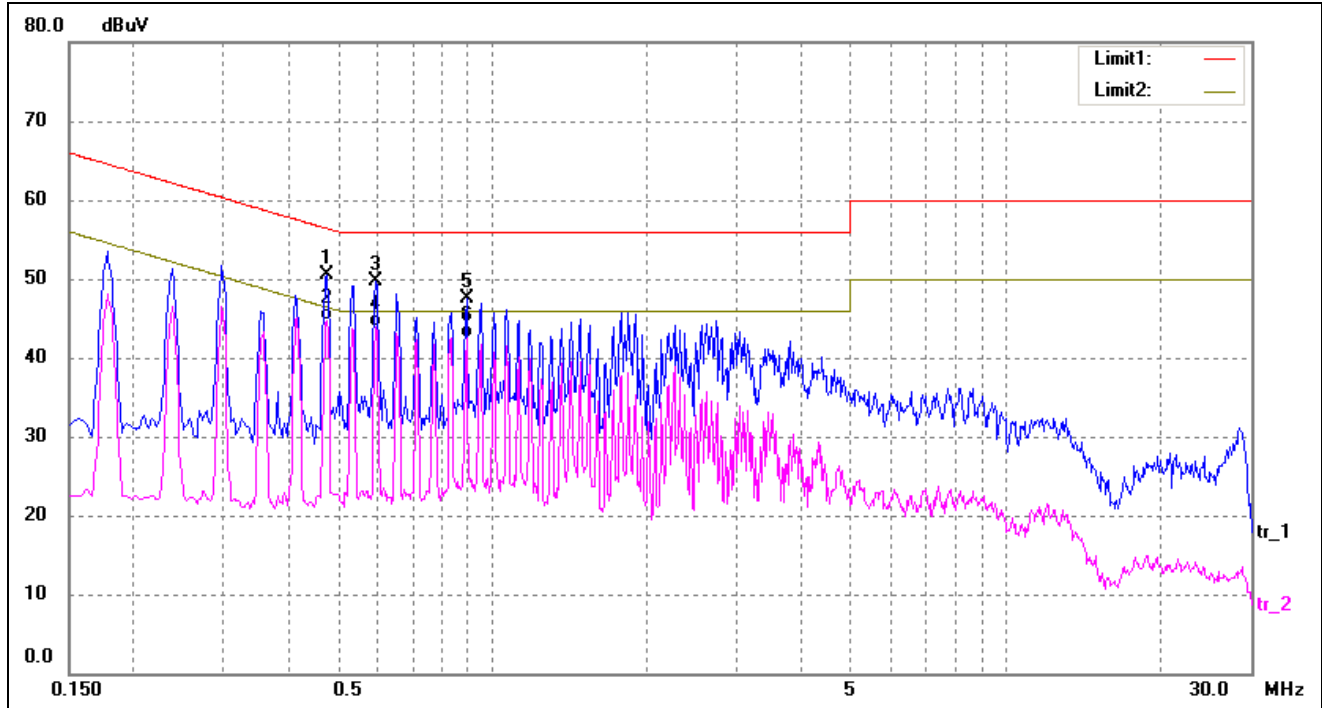
-1.64 dB at 0.6180 MHz in the Line, AVG detector, 0.15-30MHz

5.7 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

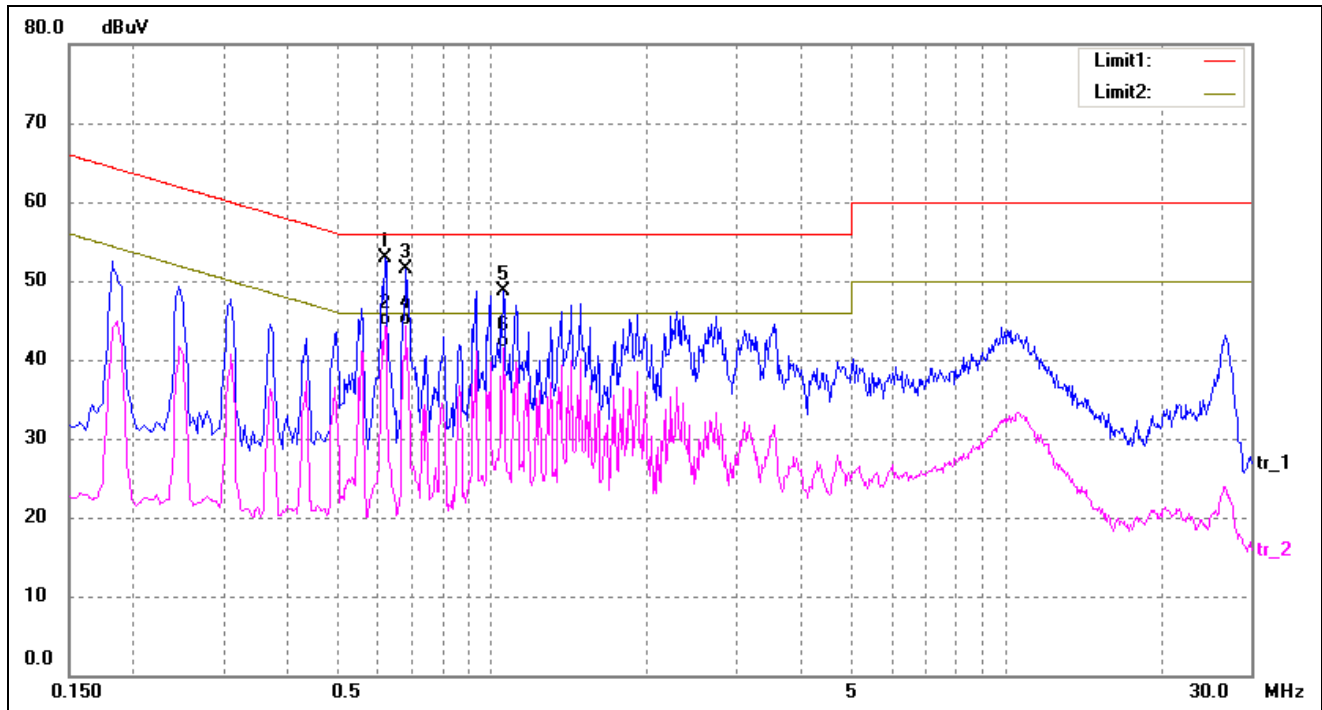
EUT: Tablets
 Tested Model: TT800V
 Operating Condition: Transmitting
 Comment: AC 120V/60Hz; Adapter DC 5V

Test Specification: Neutral



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.4780	40.73	9.80	50.53	56.37	-5.84	QP
2*	0.4780	34.86	9.80	44.66	46.37	-1.71	AVG
3	0.5940	39.98	9.79	49.77	56.00	-6.23	QP
4	0.5940	34.14	9.79	43.93	46.00	-2.07	AVG
5	0.8940	37.69	9.77	47.46	56.00	-8.54	QP
6	0.8940	32.68	9.77	42.45	46.00	-3.55	AVG

Test Specification: Line



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.6180	43.08	9.79	52.87	56.00	-3.13	QP
2*	0.6180	34.57	9.79	44.36	46.00	-1.64	AVG
3	0.6820	41.65	9.79	51.44	56.00	-4.56	QP
4	0.6820	34.49	9.79	44.28	46.00	-1.72	AVG
5	1.0540	39.00	9.76	48.76	56.00	-7.24	QP
6	1.0540	31.76	9.76	41.52	46.00	-4.48	AVG

6. Power Spectral Density

6.1 Standard Applicable

Section 15.407(a) Power limits:

(1) For the band 5.15-5.25 GHz.

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

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

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

6.2 Test Procedure

According to 789033 D02 General UNII Test Procedures New Rules v01, 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 ($< 1 \text{ MHz}$, or $< 500 \text{ kHz}$) and integrated over 1 MHz, or 500 KHz bandwidth, the following adjustments to the procedures apply:

- a) Set $RBW \geq 1/T$, where T is defined in section II.B.1.a).
- b) Set $VBW \geq 3 RBW$.
- c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10\log(500\text{kHz}/RBW)$ to the measured result, whereas $RBW (< 500 \text{ KHz})$ 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 $10\log(1\text{MHz}/RBW)$ to the measured result, whereas $RBW (< 1 \text{ MHz})$ 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 $RBW=100 \text{ KHz}$ is available on nearly all spectrum analyzers.

6.3 Environmental Conditions

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

6.4 Summary of Test Results/Plots

5150-5250MHz

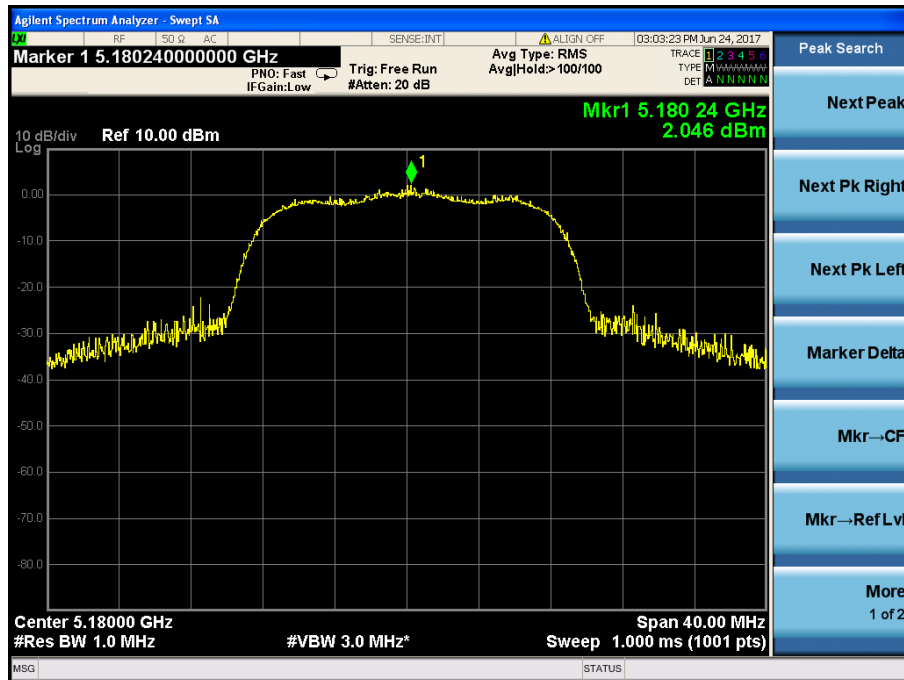
Operating mode	Test Channel	Power Spectral Density dBm/MHz	Limit (dBm/MHz)
802.11a	5180	2.046	11
	5200	0.639	11
	5240	0.839	11
802.11n-HT20	5180	-1.015	11
	5200	-0.600	11
	5240	-1.059	11

5725-5850MHz

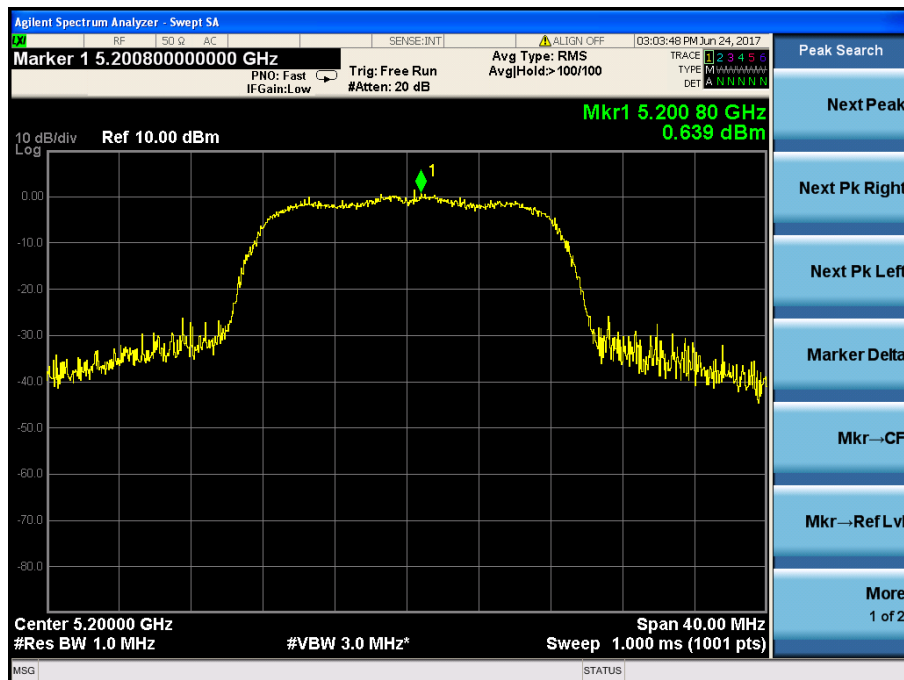
Operating mode	Test Channel	Power Spectral Density dBm/500kHz	Limit (dBm/500kHz)
802.11a	5745	-0.256	30
	5785	-1.435	30
	5825	-1.239	30
802.11n-HT20	5745	-1.946	30
	5785	-2.311	30
	5825	-1.591	30

Test Mode: 802.11a

5180MHz



5200MHz





Agilent Spectrum Analyzer - Swept SA

Marker 1 5.244520000000 GHz

PNO: Fast IF Gain: Low Trig: Free Run Avg Type: RMS Avg Hold: > 100/100

03:04:30 PM Jun 24, 2017

Trace 1 2 3 4 5 6

TYPE M

DET A

Peak Search

Next Peak

Next Pk Right

Next Pk Left

Marker Delta

Mkr → CF

Mkr → Ref Lvl

More

1 of 2

The screenshot displays a spectrum analyzer interface. The main plot shows a signal with a peak at 5.24452 GHz and 0.839 dBm. The y-axis is labeled '10 dB/div Log' and ranges from -80.0 to 0.0. The x-axis is labeled 'Center 5.24000 GHz' and 'Span 40.00 MHz'. The resolution bandwidth is '#Res BW 1.0 MHz' and the video bandwidth is '#VBW 3.0 MHz*'. The sweep rate is 'Sweep 1.000 ms (1001 pts)'. The reference level is 'Ref 10.00 dBm'. The signal is identified as 'Marker 1 5.244520000000 GHz'. The peak is labeled 'Mkr1 5.244 52 GHz 0.839 dBm'. The interface includes various controls and status indicators at the top, such as 'PNO: Fast', 'IF Gain: Low', 'Trig: Free Run', 'Avg Type: RMS', 'Avg Hold: > 100/100', and the date/time '03:04:30 PM Jun 24, 2017'. A 'Peak Search' menu is open on the right side, showing options like 'Next Peak', 'Next Pk Right', 'Next Pk Left', 'Marker Delta', 'Mkr → CF', 'Mkr → Ref Lvl', and 'More'.

Agilent Spectrum Analyzer - Swept SA

Marker 1 5.744720000000 GHz

PNO: Fast IFGain: Low Trig: Free Run #Atten: 20 dB

Avg Type: RMS Avg|Hold: 100/100

03:05:20 PM Jun 24, 2017

TRACE 1 2 3 4 5 6

TYPE M

DET A

10 dB/div Ref 10.00 dBm

Log

Center 5.74500 GHz

#Res BW 510 kHz

#VBW 3.0 MHz*

Span 40.00 MHz

Sweep 1.000 ms (1001 pts)

MSG STATUS

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

RF 50 Q AC SENSE:INT ALIGN OFF 03:05:37 PM Jun 24, 2017

Marker 1 5.786160000000 GHz PNO: Fast IF Gain: Low Trig: Free Run Avg Type: RMS Avg Hold: > 100/100

TRACE 1 2 3 4 5 6 TYPE M N O P Q R DET A B C D E F

Peak Search

Next Peak

Next Pk Right

Next Pk Left

Marker Delta

Mkr→CF

Mkr→Ref Lvl

More

1 of 2

10 dB/div Log Ref 10.00 dBm

Mkr1 5.786 16 GHz -1.435 dBm

Center 5.78500 GHz #Res BW 510 kHz #VBW 3.0 MHz* Span 40.00 MHz Sweep 1.000 ms (1001 pts)

The image shows a screenshot of an Agilent Spectrum Analyzer. The main display is a plot of the spectrum with a yellow trace. The x-axis represents frequency, and the y-axis represents power in dBm. A marker is placed on the trace at 5.78616 GHz, with a power level of -1.435 dBm. The plot shows a signal that rises from a noise floor, reaches a peak, and then falls back to the noise floor. The noise floor is around -40 dBm. The signal peak is around -1.4 dBm. The plot is labeled 'Mkr1 5.786 16 GHz -1.435 dBm'. The top of the screen shows various settings and status information, including 'Agilent Spectrum Analyzer - Swept SA', 'RF 50 Q AC', 'SENSE:INT', 'ALIGN OFF', '03:05:37 PM Jun 24, 2017', 'Marker 1 5.786160000000 GHz', 'PNO: Fast', 'IF Gain: Low', 'Trig: Free Run', 'Avg Type: RMS', 'Avg Hold: > 100/100', 'TRACE 1 2 3 4 5 6', 'TYPE M N O P Q R', 'DET A B C D E F', 'Peak Search', 'Next Peak', 'Next Pk Right', 'Next Pk Left', 'Marker Delta', 'Mkr→CF', 'Mkr→Ref Lvl', 'More', '1 of 2', 'Center 5.78500 GHz', '#Res BW 510 kHz', '#VBW 3.0 MHz*', 'Span 40.00 MHz', 'Sweep 1.000 ms (1001 pts)', 'MSG', and 'STATUS'.

Agilent Spectrum Analyzer - Swept SA

Marker 1 5.826520000000 GHz

PNO: Fast IFGain: Low Trig: Free Run #Atten: 20 dB

Avg Type: RMS Avg|Hold: > 100/100

TRACE 1 2 3 4 5 6
TYPE M N N N N N N
DET A N N N N N

10 dB/div Log Ref 10.00 dBm

Mkr1 5.826 52 GHz
-1.239 dBm

Center 5.82500 GHz
#Res BW 510 kHz #VBW 3.0 MHz*

Span 40.00 MHz
Sweep 1.000 ms (1001 pts)

MSG STATUS

Peak Search

Next Peak

Next Pk Right

Next Pk Left

Marker Delta

Mkr→CF

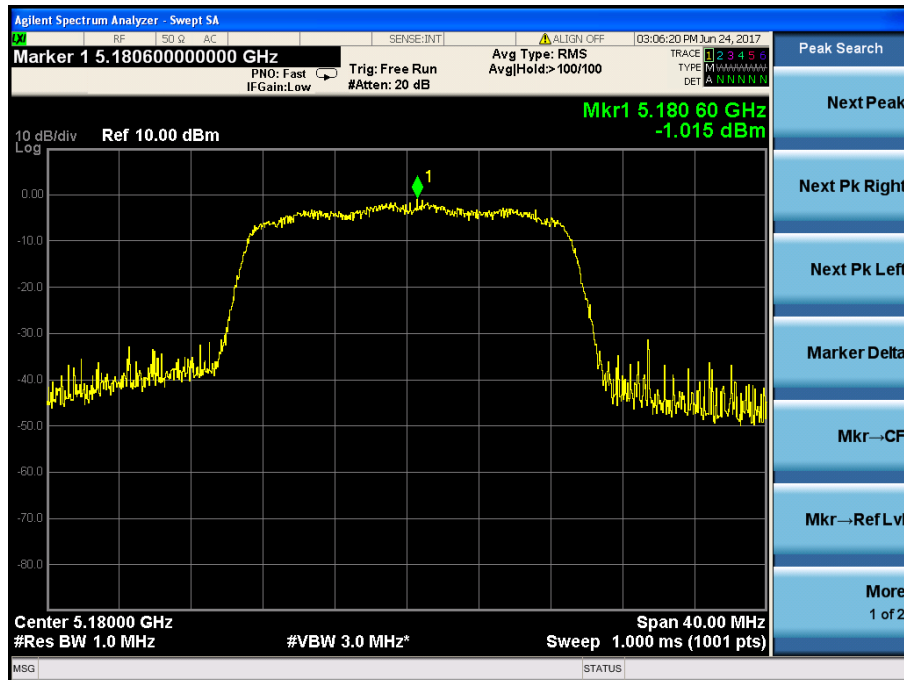
Mkr→Ref Lvl

More

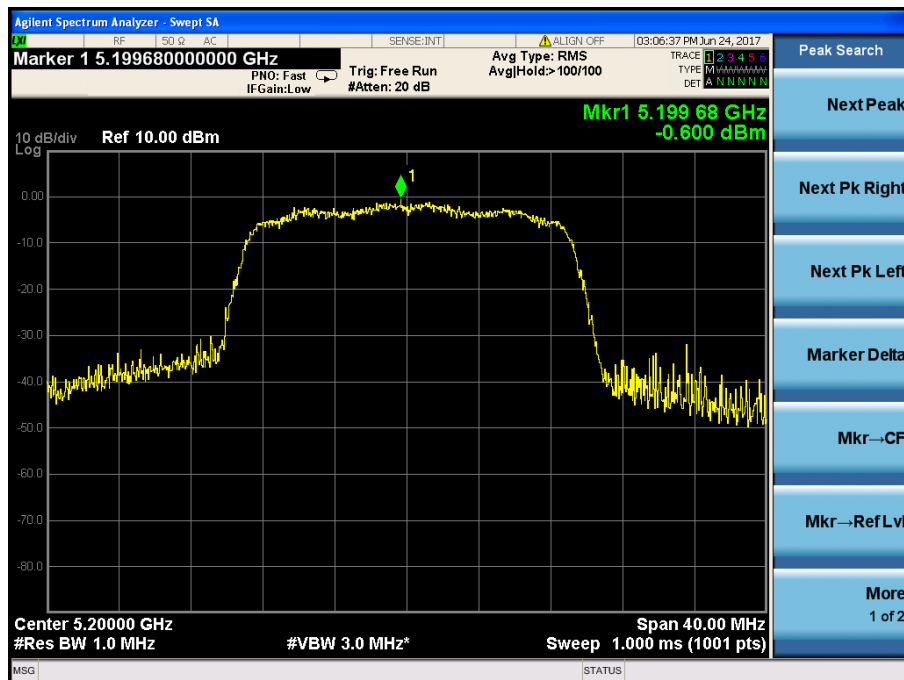
1 of 2

Test Mode: 802.11n-HT20

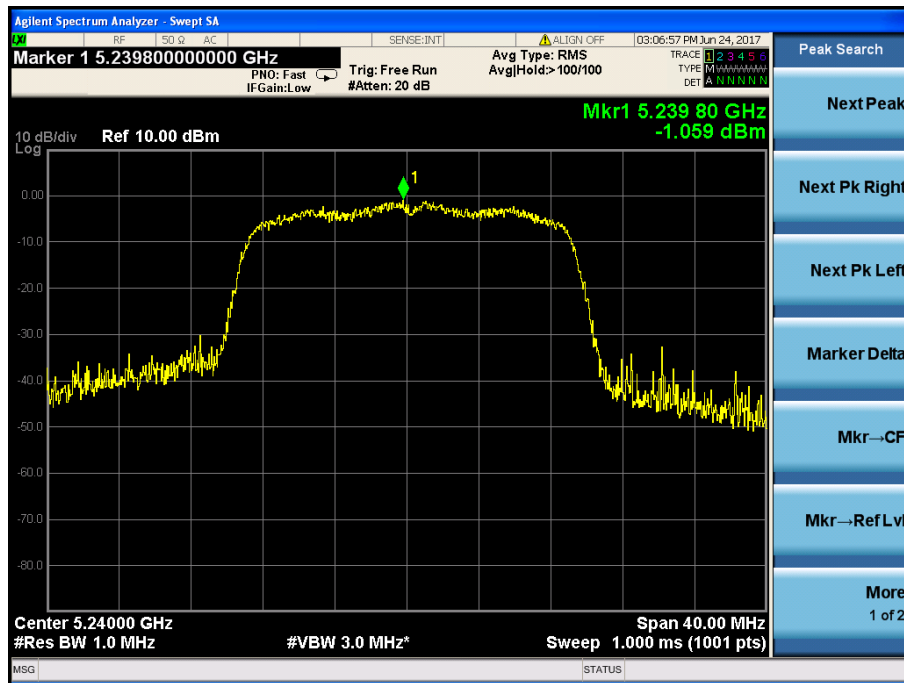
5180MHz



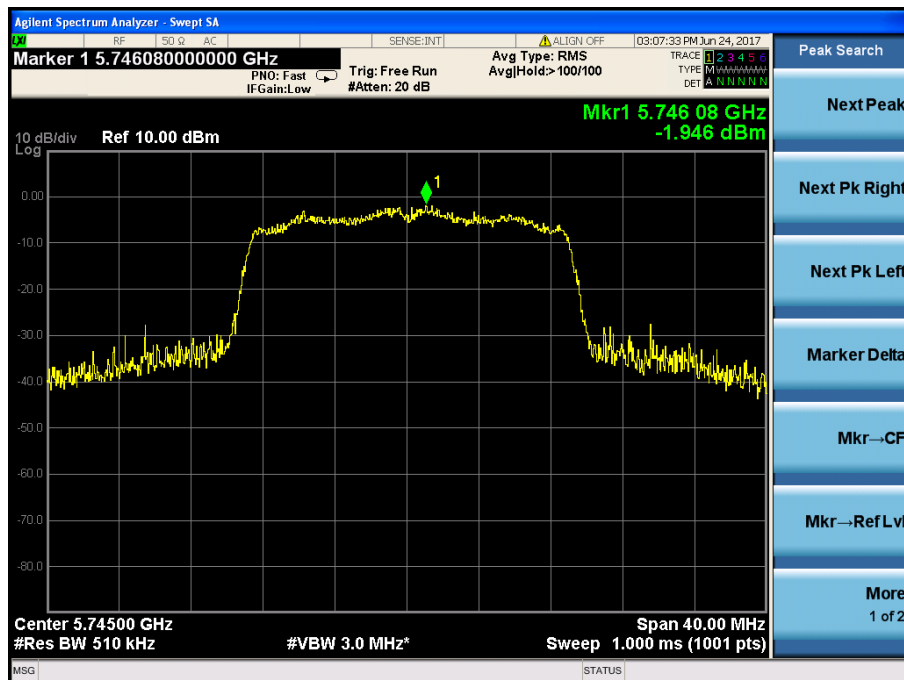
5200MHz



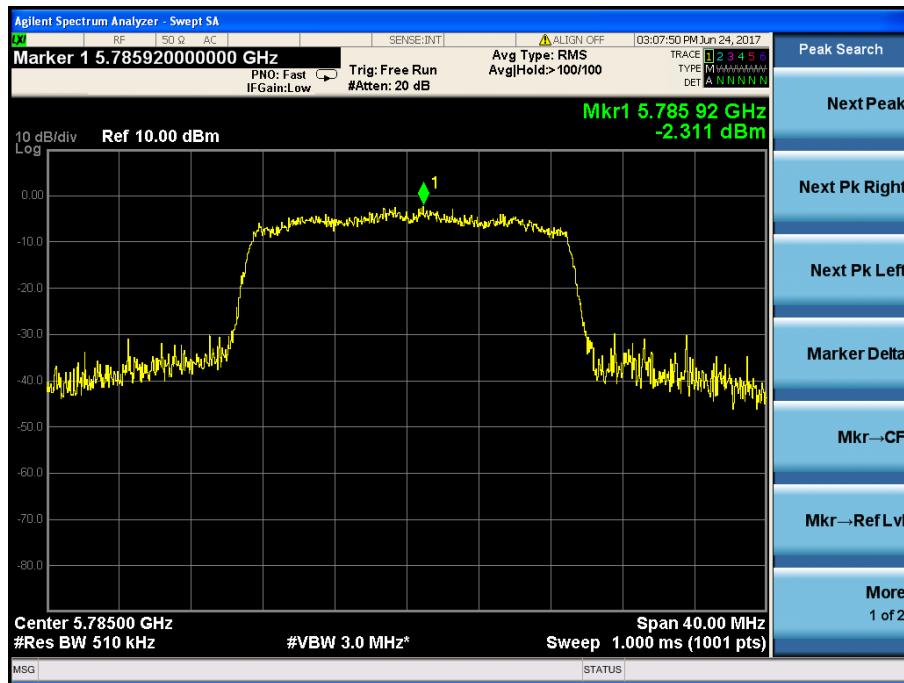
5240MHz



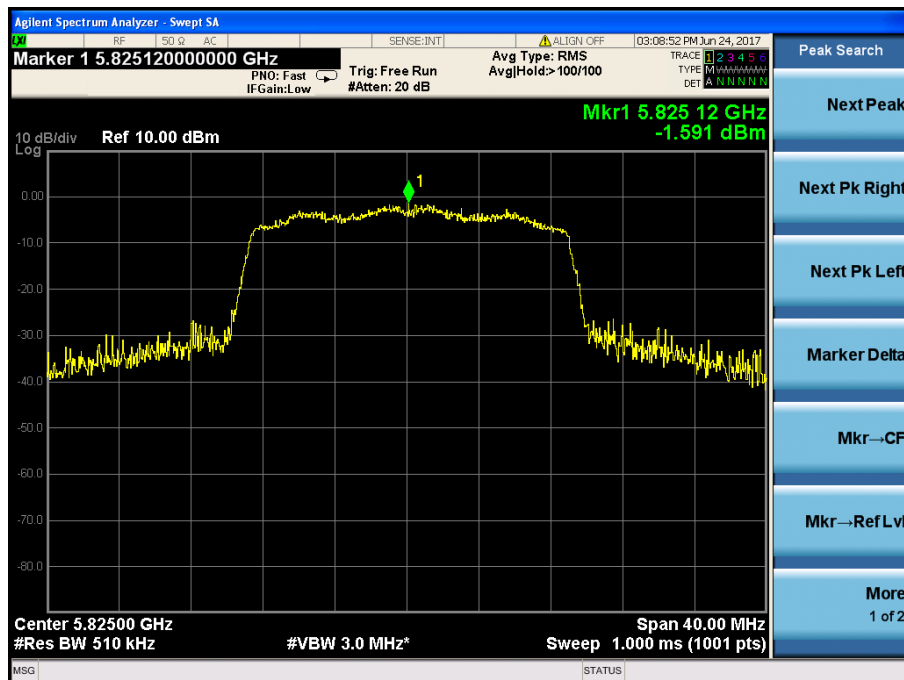
5745MHz



5785MHz



5825MHz



7. Emission Bandwidth and Occupied Bandwidth

7.1 Standard Applicable

According to 15.407 (a) and (e)

(1) For the band 5.15-5.25 GHz.

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

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

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

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

7.2 Test Procedure

According to 789033 D02 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) $\geq 3 \times \text{RBW}$.
- 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 $\geq 3 \cdot \text{RBW}$
5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
6. Use the 99 % power bandwidth function of the instrument (if available).
7. If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

7.3 Environmental Conditions

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

7.4 Summary of Test Results/Plots

5150-5250MHz

Test Mode	Test Channel MHz	26 dB Bandwidth MHz	99% Bandwidth MHz	Limit MHz
802.11a	5180	18.86	16.536	Pass
	5200	18.80	16.465	Pass
	5240	18.66	16.453	Pass
802.11n-HT20	5180	19.07	17.492	Pass
	5200	19.20	17.498	Pass
	5240	19.07	17.496	Pass

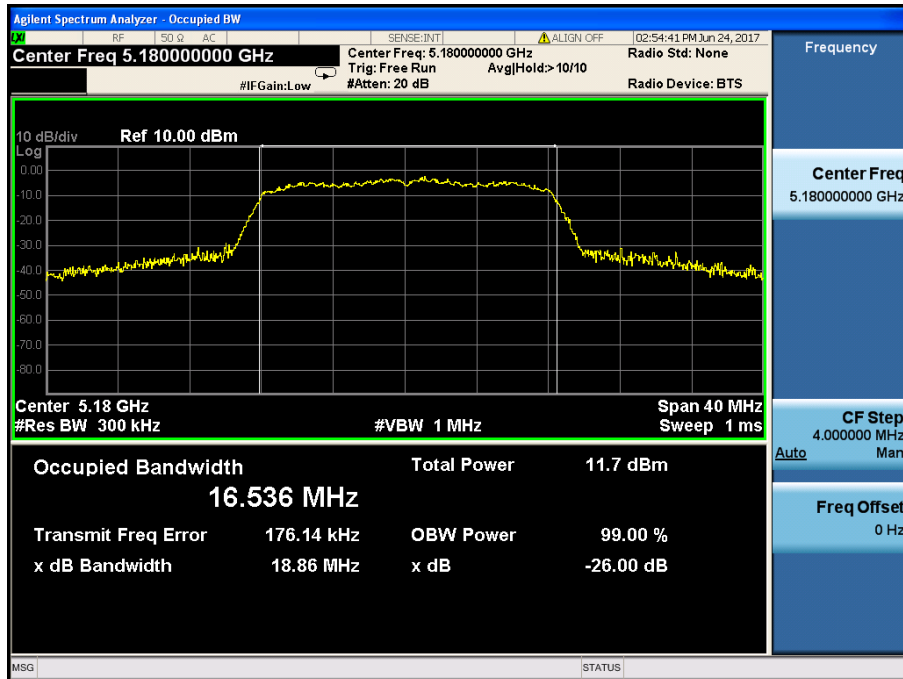
5725-5850MHz

Test Mode	Test Channel MHz	6 dB Bandwidth MHz	99% Bandwidth MHz	Limit MHz
802.11a	5745	15.87	16.572	≥ 500
	5785	15.85	16.509	≥ 500
	5825	16.10	16.526	≥ 500
802.11n-HT20	5745	17.29	17.521	≥ 500
	5785	17.26	17.524	≥ 500
	5825	17.30	17.513	≥ 500

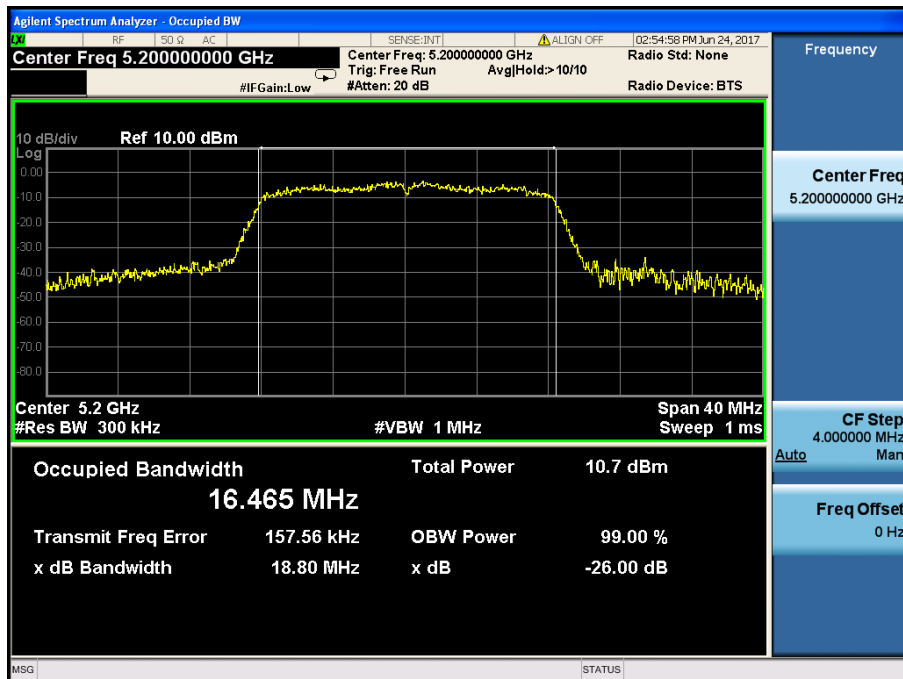
5150-5250MHz

Test mode: 802.11a

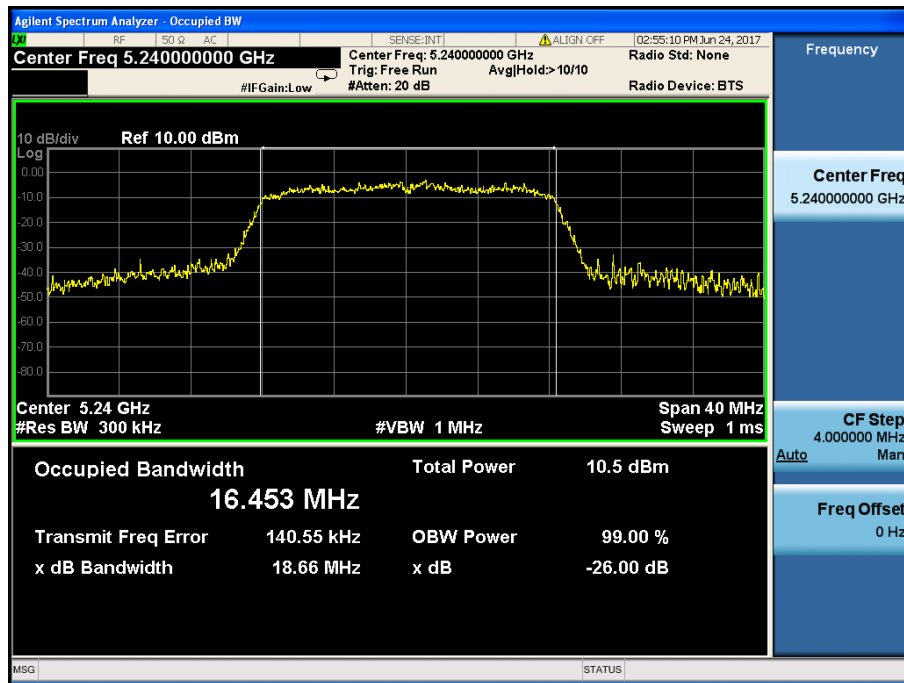
5180MHz



5200MHz

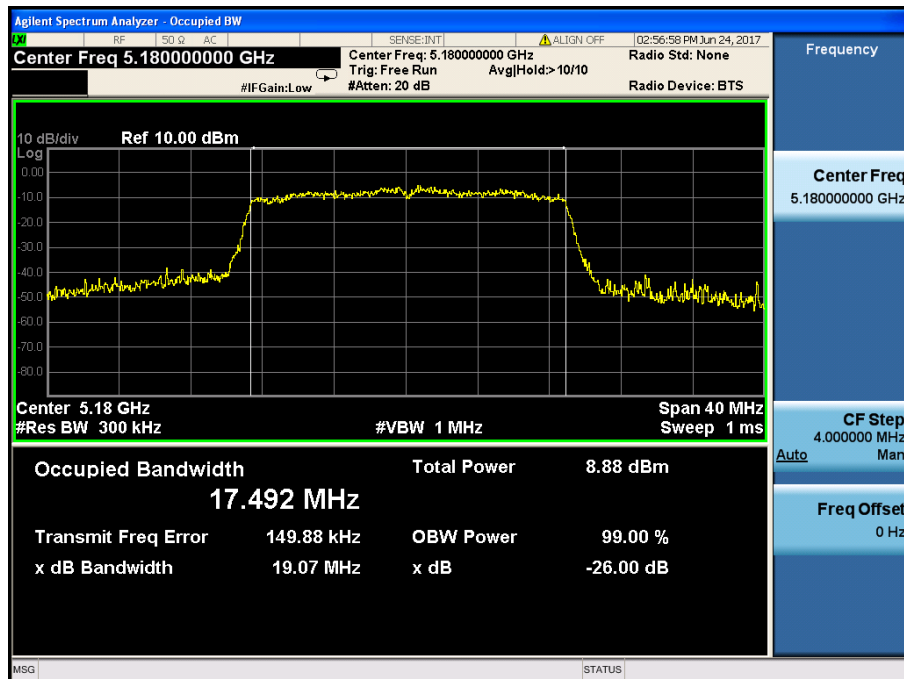


5240MHz

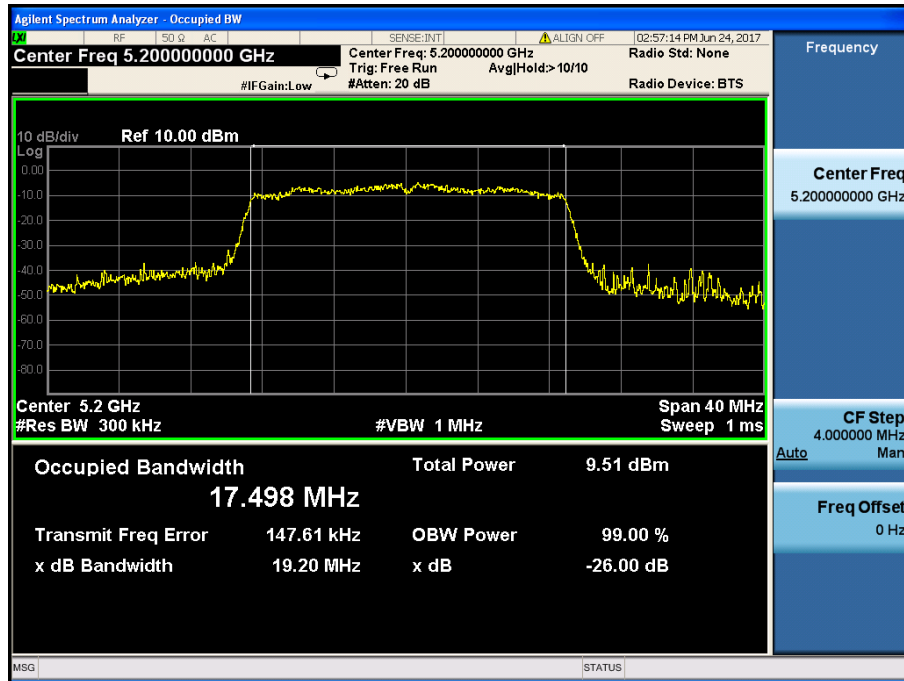


Test mode: 802.11n-HT20

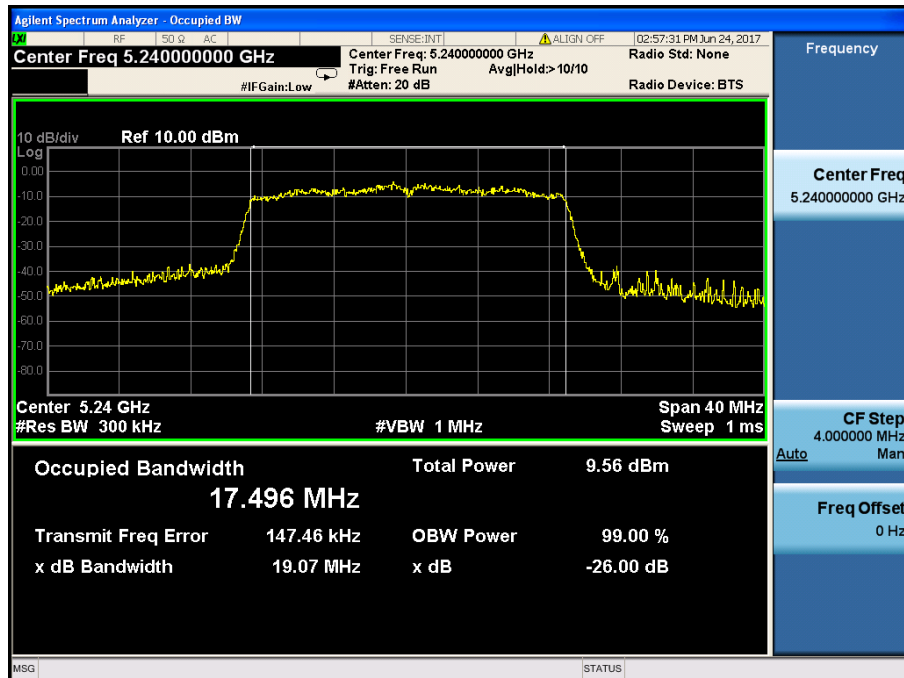
5180MHz



5200MHz



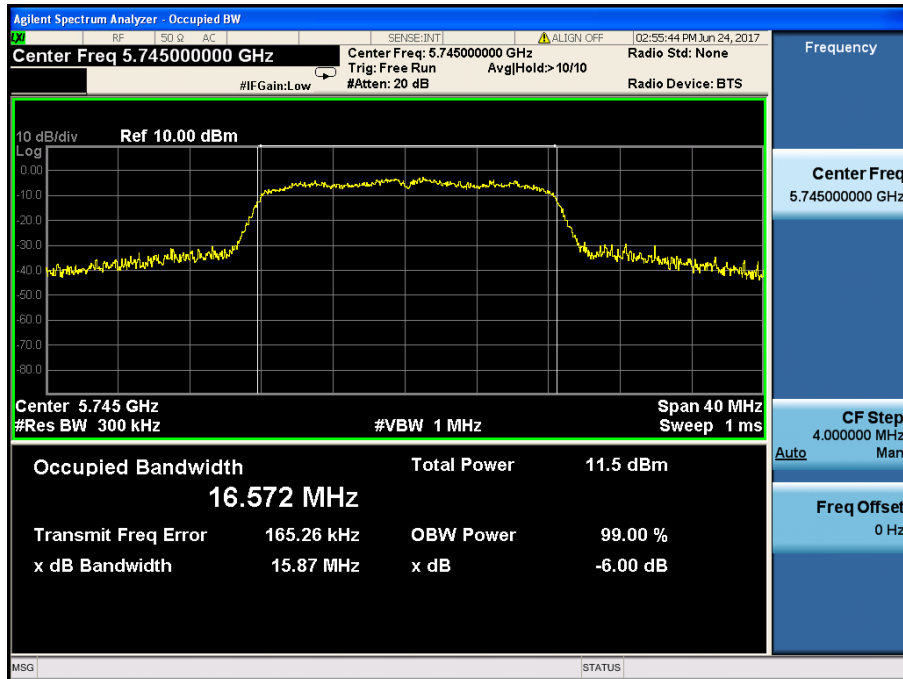
5240MHz



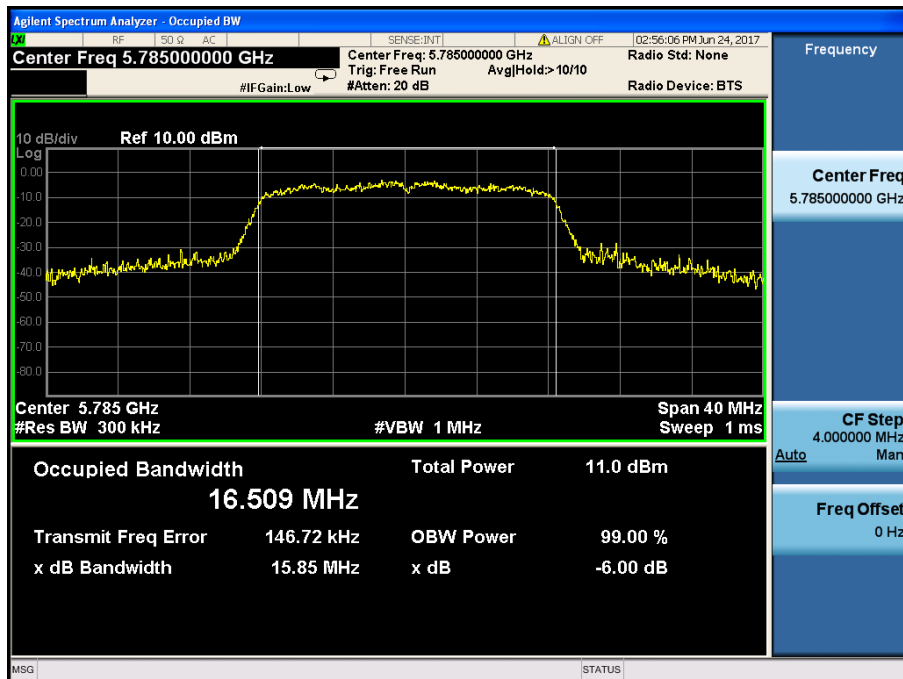
5725-5850MHz

Test mode: 802.11a

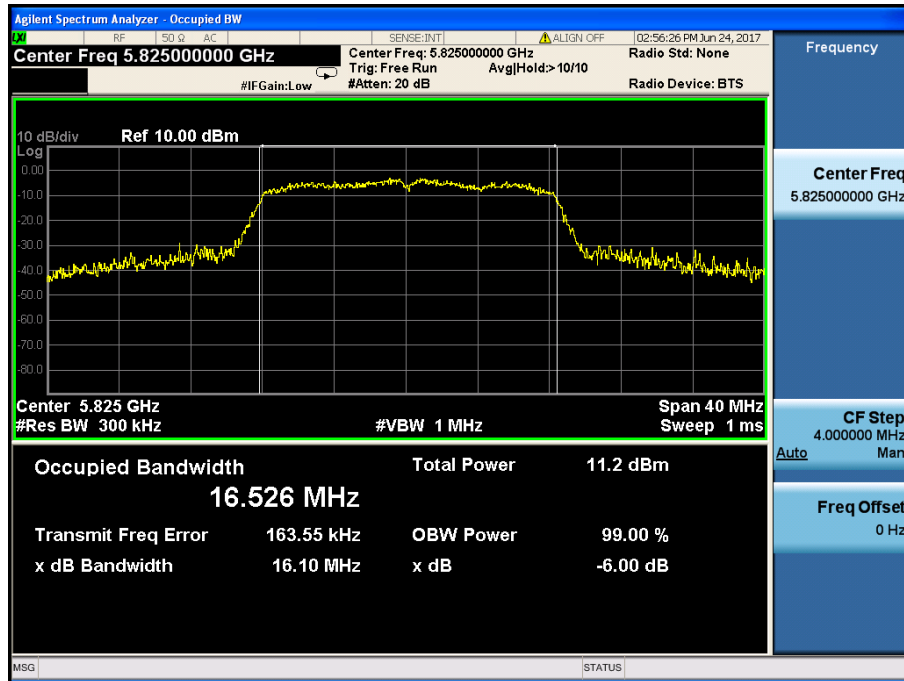
5745MHz



5785MHz

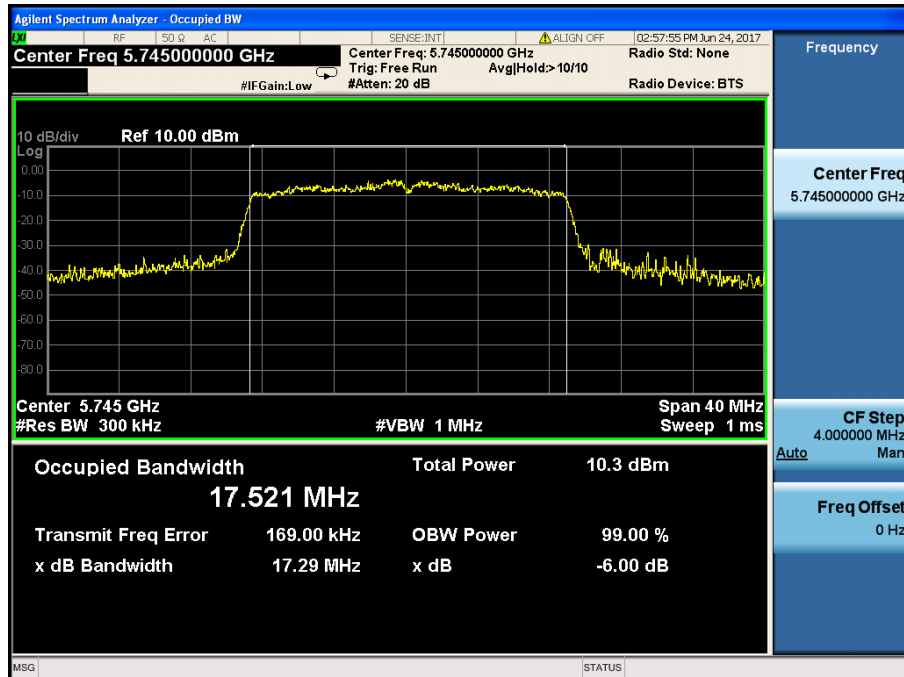


5825MHz

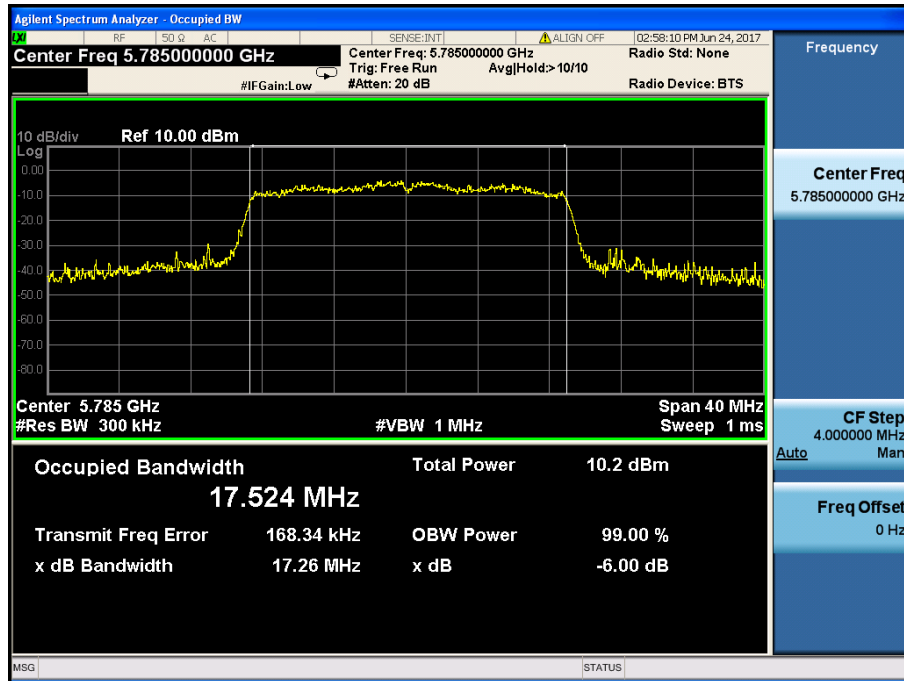


Test mode: 802.11-HT20

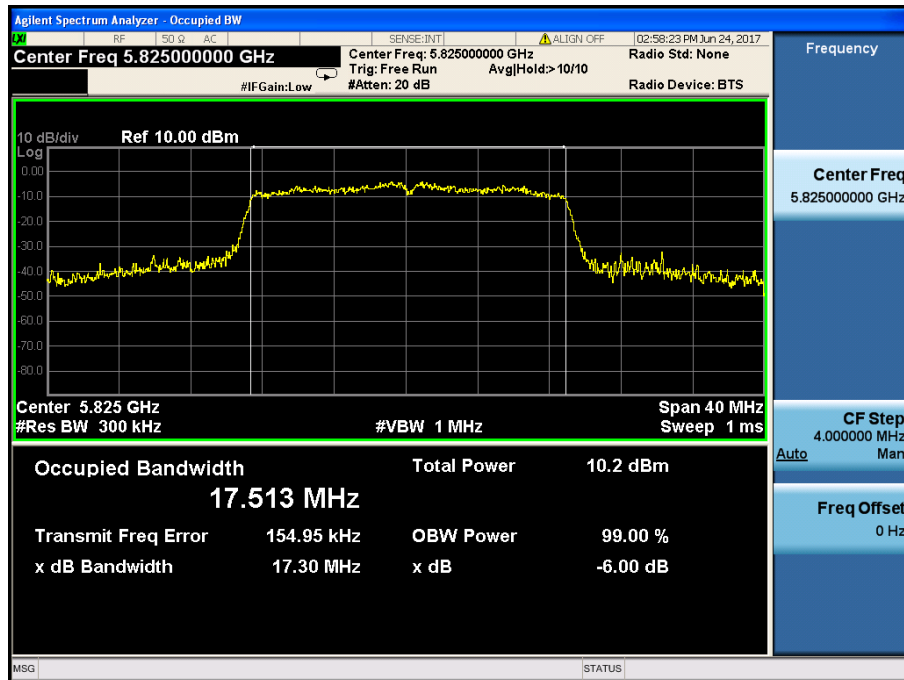
5745MHz



5785MHz



5825MHz



8. Maximum Conducted Output Power

8.1 Standard Applicable

Section 15.407(a) Power limits:

(1) For the band 5.15-5.25 GHz.

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

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

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

8.2 Test Procedure

According to KDB789033 D02 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 $\geq 2 \text{ Span} / \text{RBW}$. (This ensures that bin-to-bin spacing is $\leq \text{RBW}/2$, 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 $\geq$ 98 percent, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to “free run”.
- (viii) Trace average at least 100 traces in power averaging (i.e., RMS) mode.
- (ix) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument’s band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the spectrum.

8.3 Environmental Conditions

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

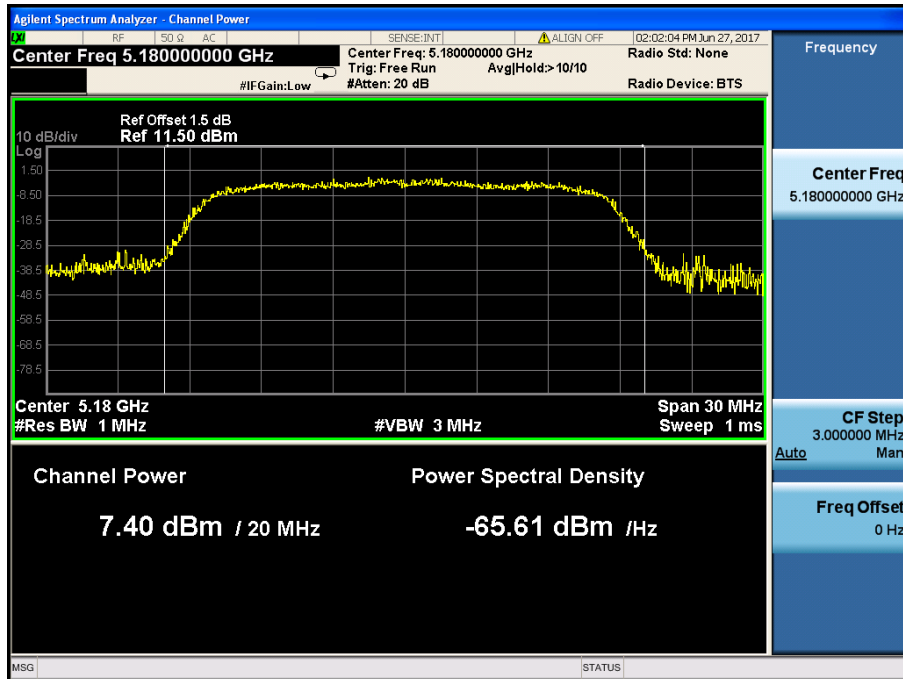
8.4 Summary of Test Results/Plots

For the frequency band 5.15-5.25GHz, 5725-5850GHz

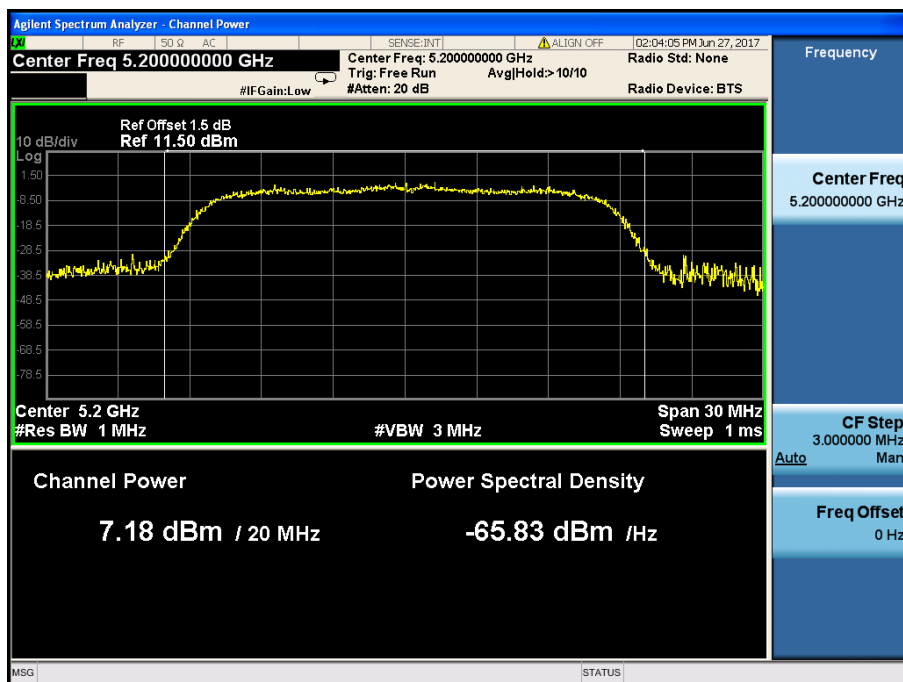
Test mode	Frequency MHz	Output Power dBm	Output Power mW	Limit mW
802.11a	5180	7.40	5.50	250
	5200	7.18	5.22	250
	5240	7.15	5.19	250
	5745	6.13	4.10	1000
	5785	6.08	4.06	1000
	5825	6.22	4.19	1000
802.11n-HT20	5180	6.75	4.73	250
	5200	5.96	3.94	250
	5240	5.34	3.42	250
	5745	5.25	3.35	1000
	5785	5.19	3.30	1000
	5825	5.85	3.85	1000

Test Mode: 802.11a

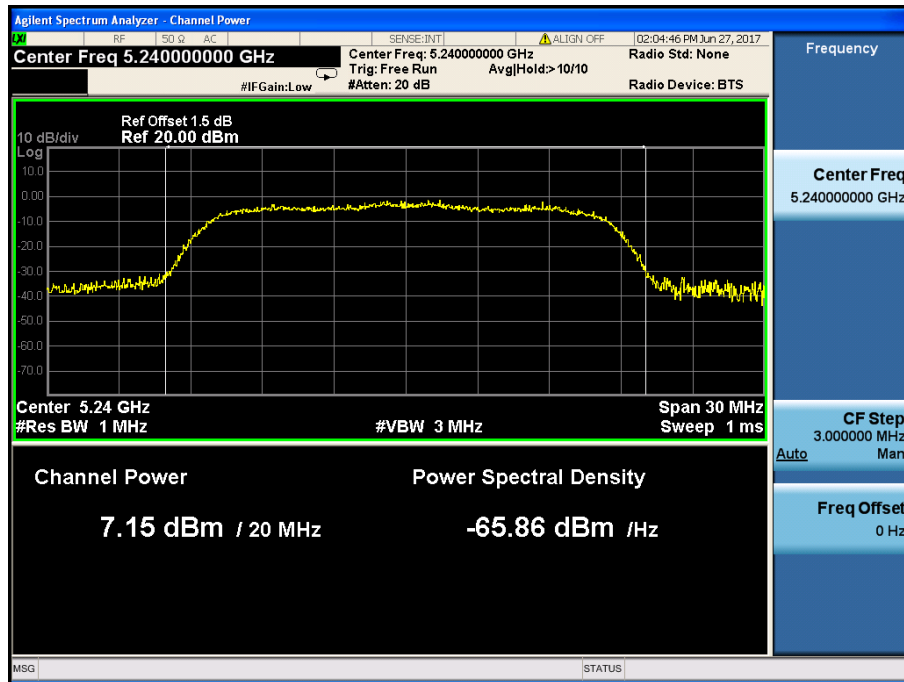
5180MHz



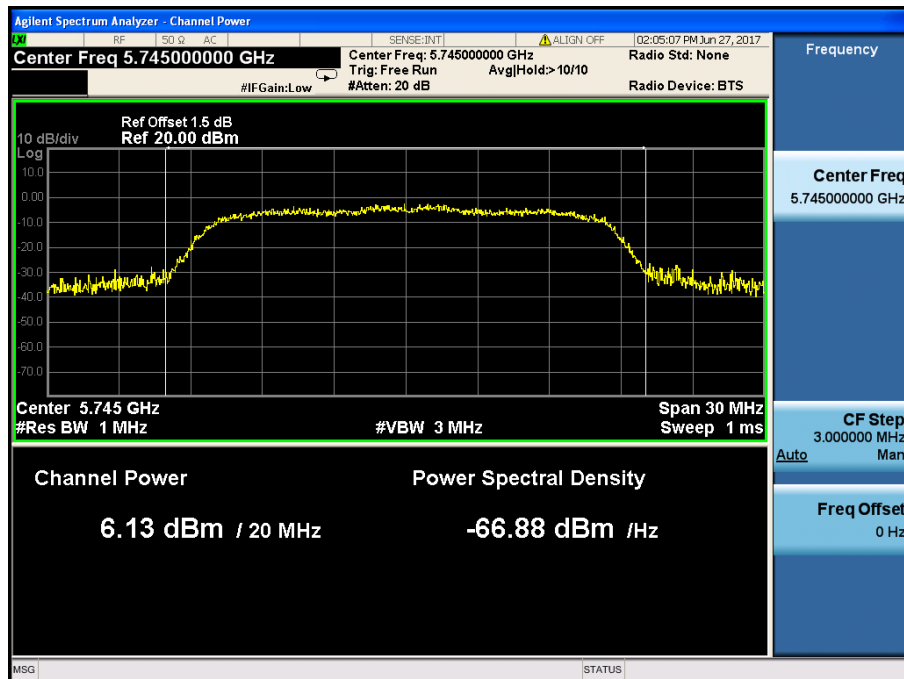
5200MHz



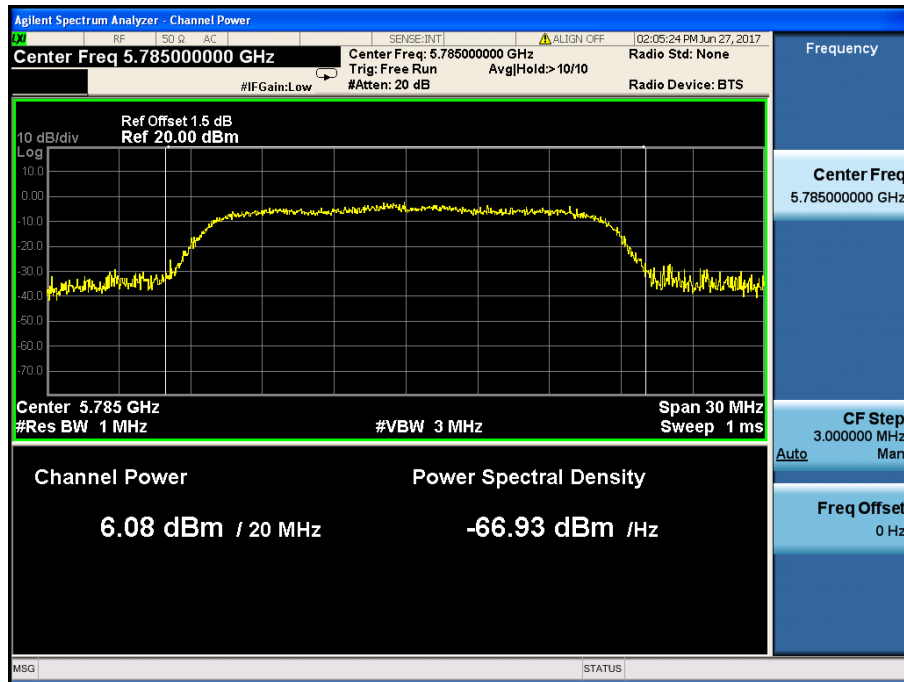
5240MHz



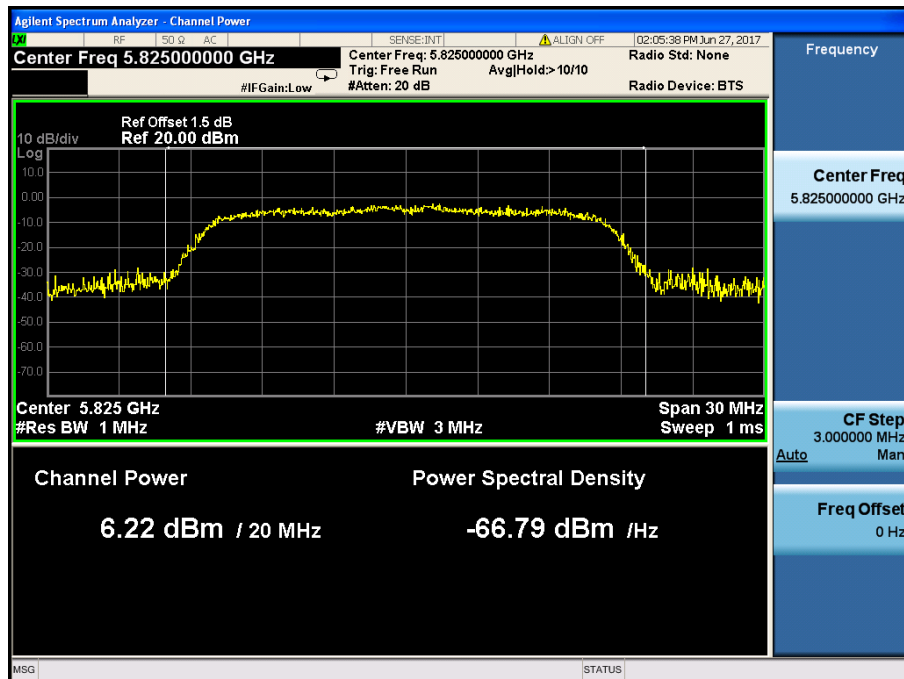
5745MHz



5785MHz

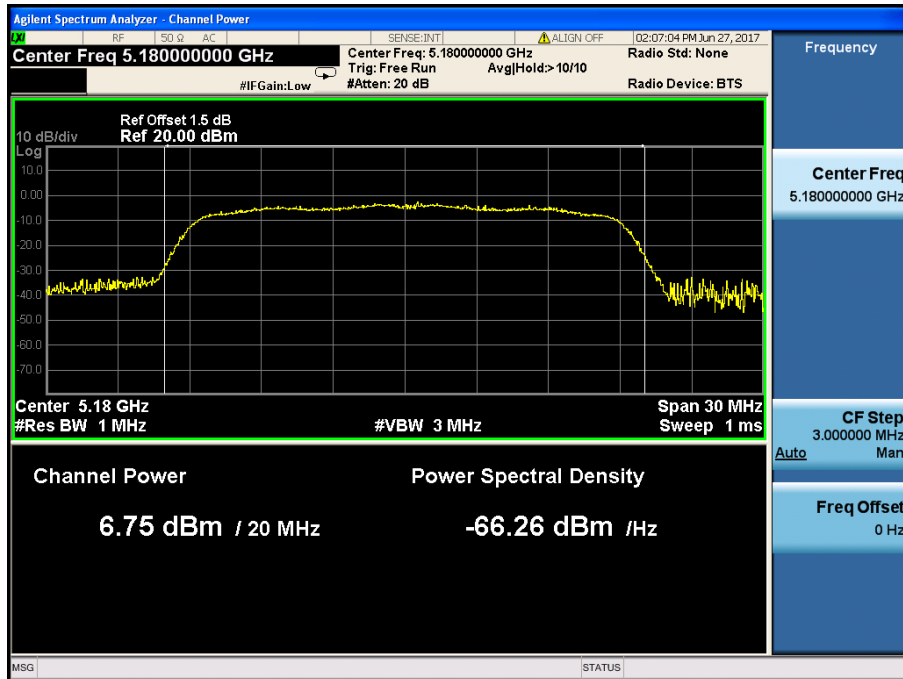


5825MHz

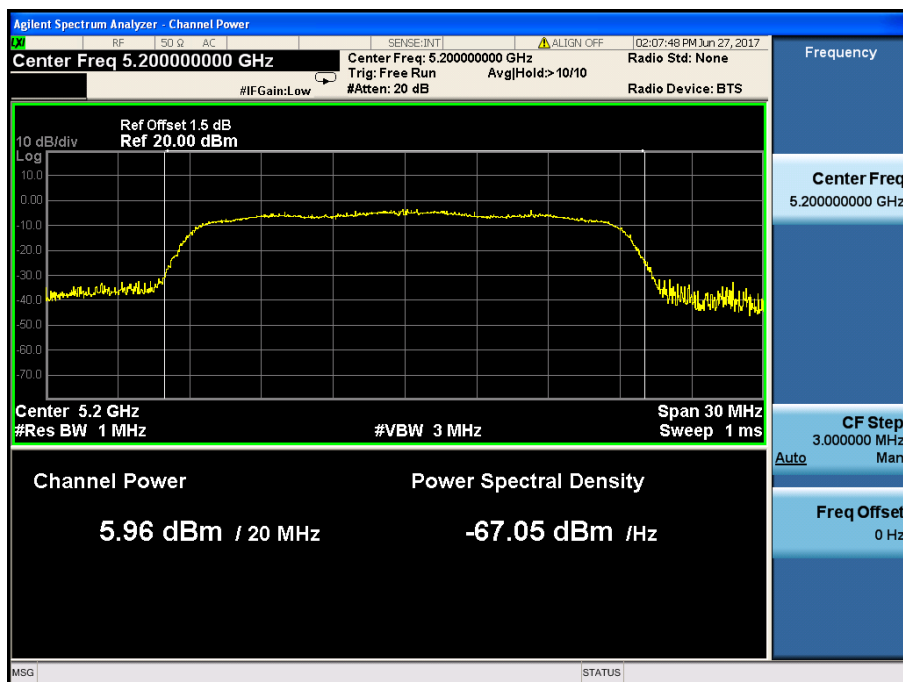


Test Mode: 802.11n-HT20

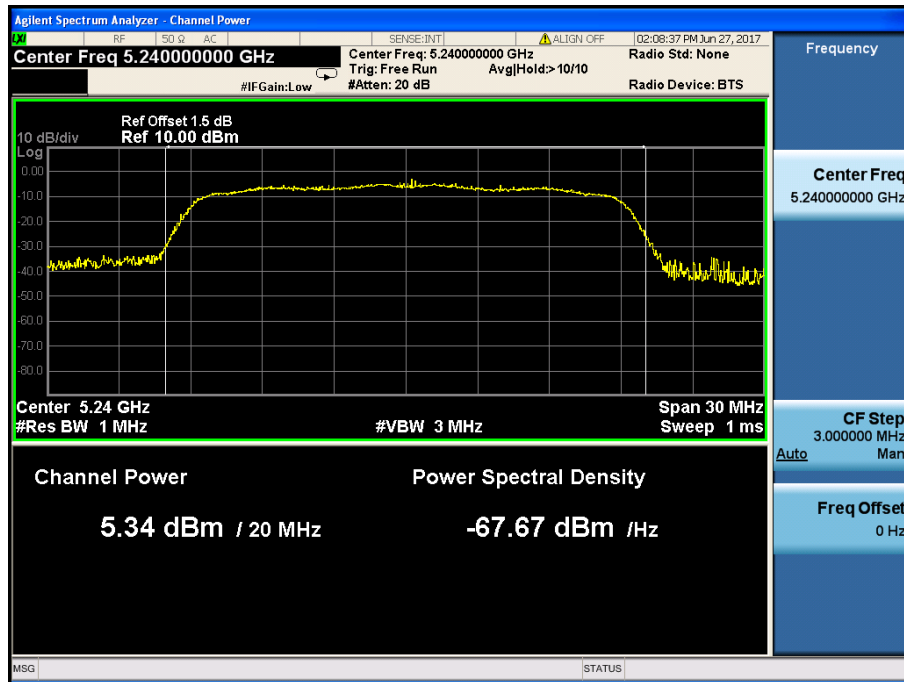
5180MHz



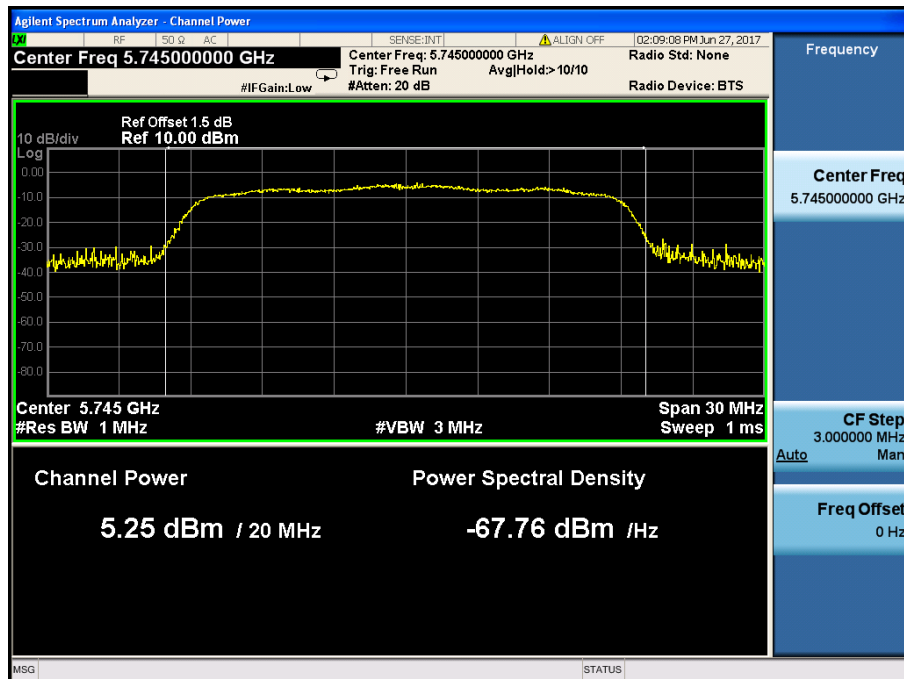
5200MHz



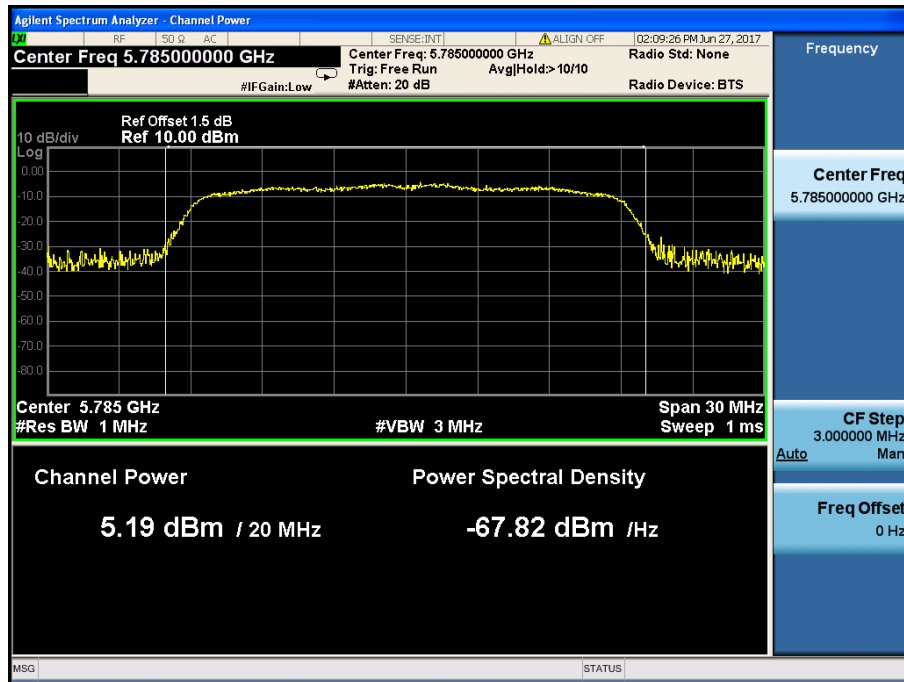
5240MHz



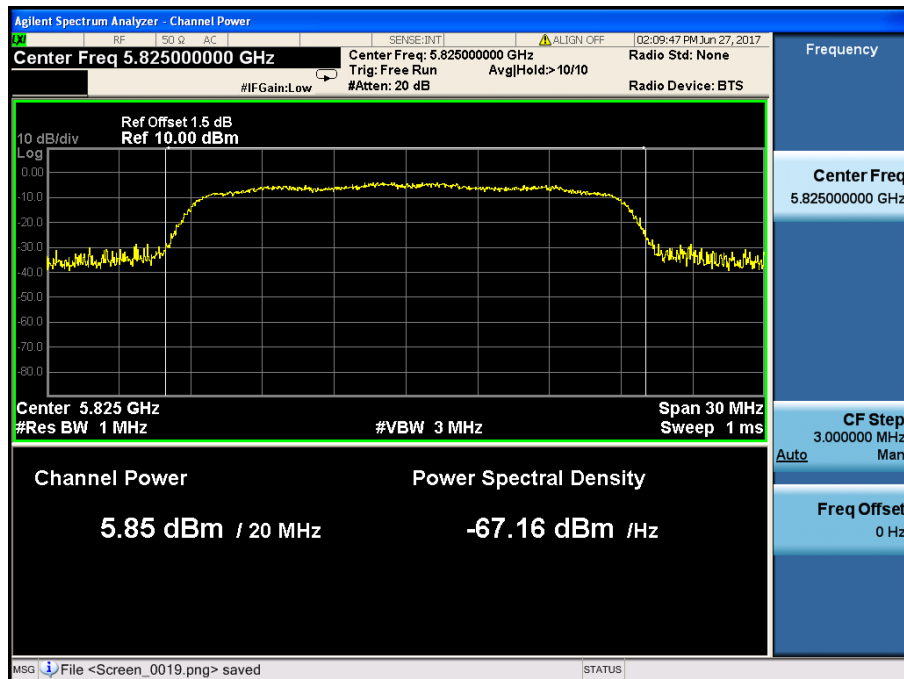
5745MHz



5785MHz



5825MHz



9. Conducted Spurious Emissions

9.1 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.

9.2 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.

9.3 Environmental Conditions

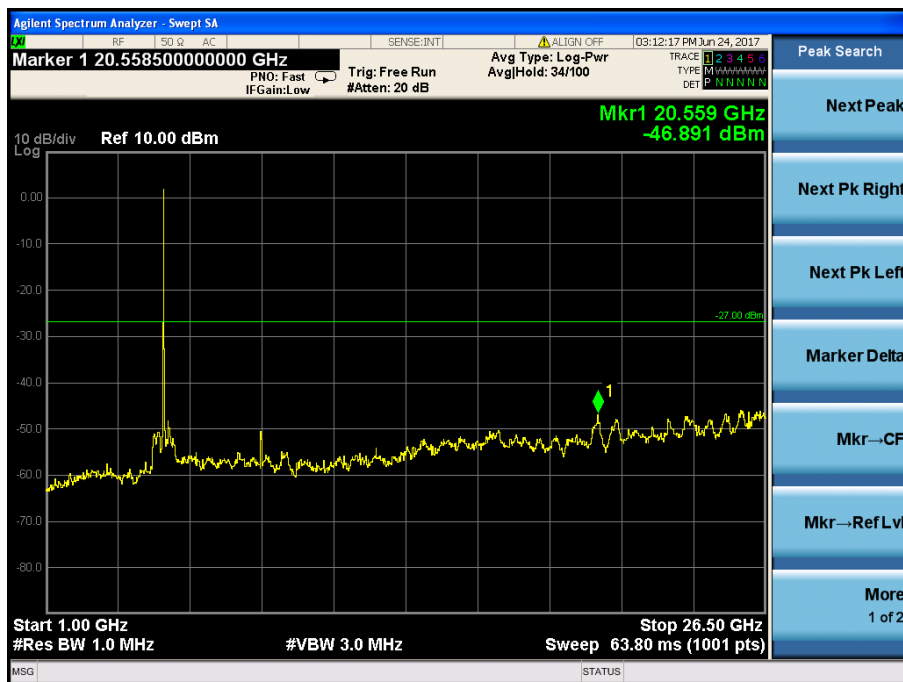
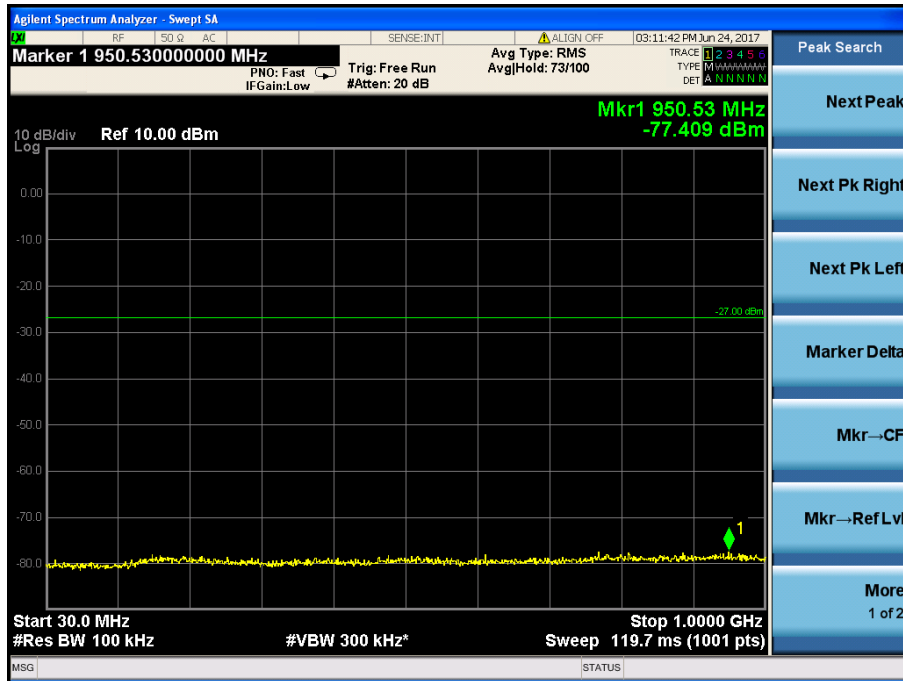
Temperature:	21° C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

10.4 Summary of Test Results/Plots

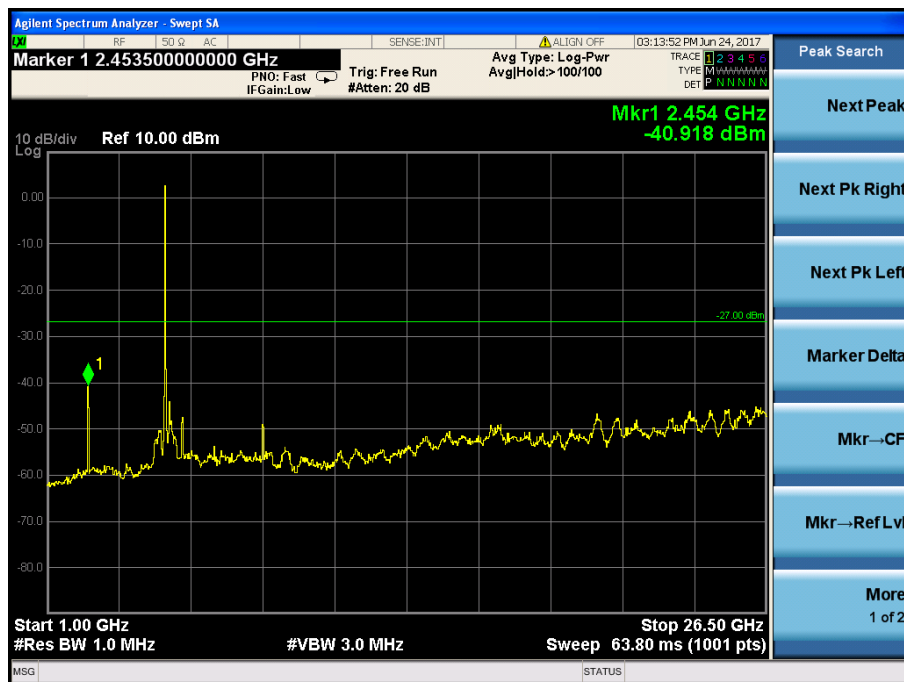
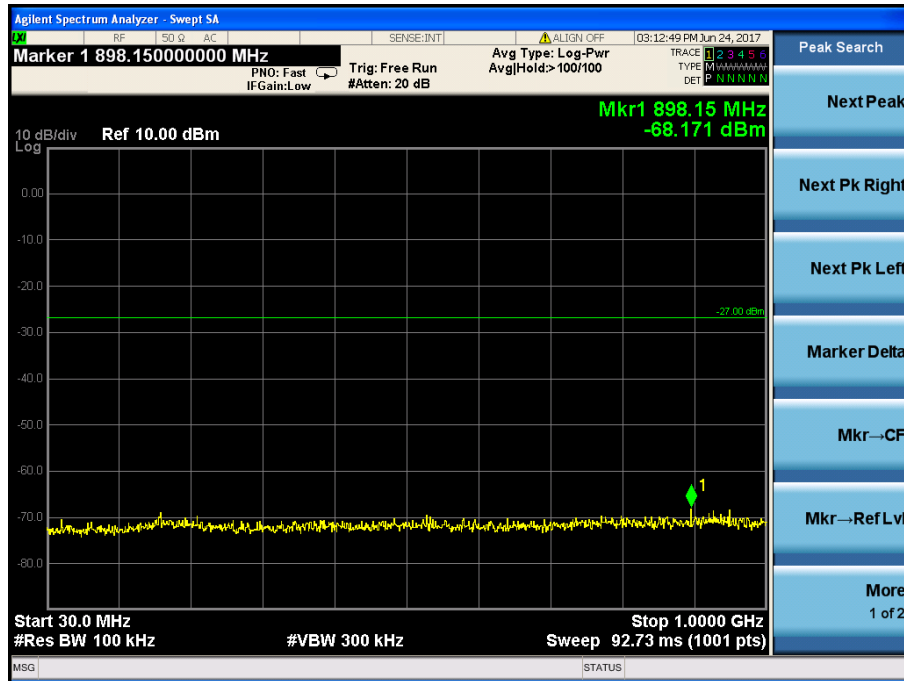
Emissions above 26.5GHz are attenuated more than 20dB below the permissible limits and test data are not reported.

802.11a

5180MHz



5200MHz



Agilent Spectrum Analyzer - Swept SA

Marker 1 950.53000000 MHz

PNO: Fast IFGain: Low Trig: Free Run #Atten: 20 dB

Avg Type: Log-Pwr Avg/Hold: 48/100

TRAC 1 2 3 4 5 6 TYPE M N N N N N N DET C N N N N N

03:14:21 PM Jun 24, 2017

Peak Search

Next Peak

Next Pk Right

Next Pk Left

Marker Delta

Mkr→CF

Mkr→Ref Lvl

More 1 of 2

10 dB/div Ref 10.00 dBm

Log

0.00

-10.0

-20.0

-30.0

-40.0

-50.0

-60.0

-70.0

-80.0

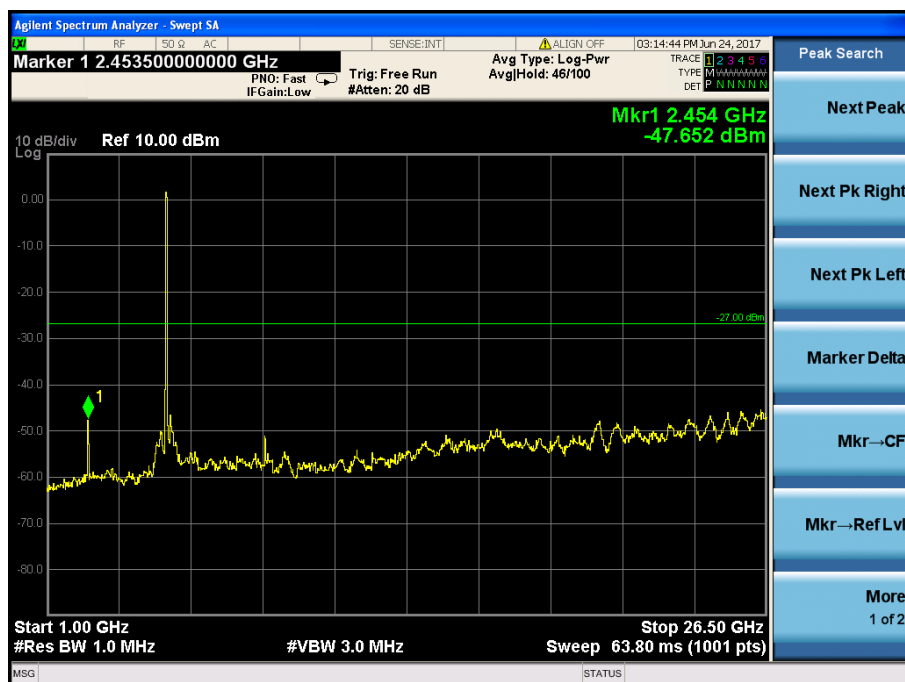
-27.00 dBm

Mkr1 950.53 MHz -68.608 dBm

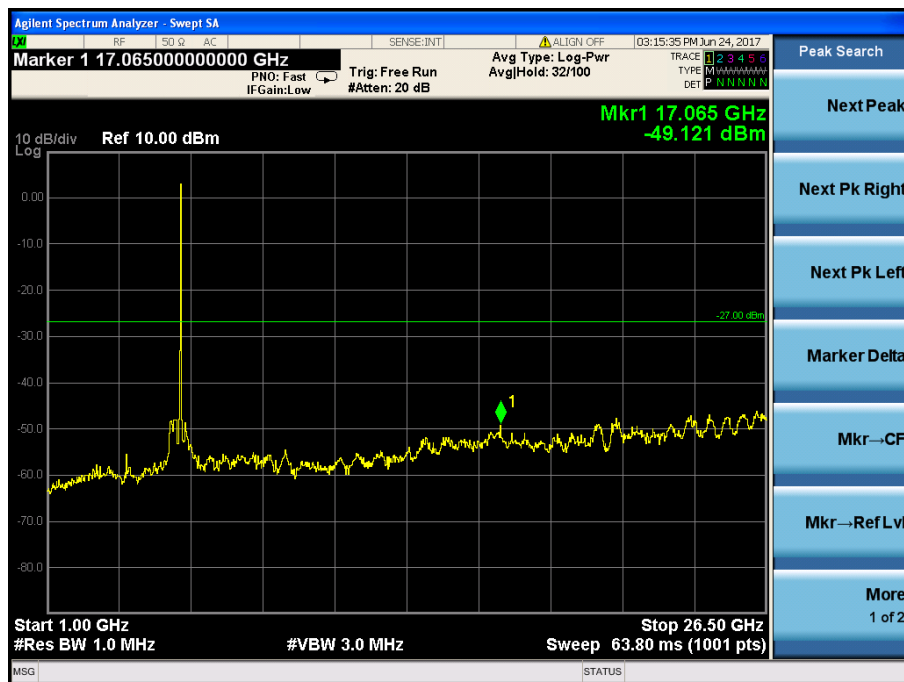
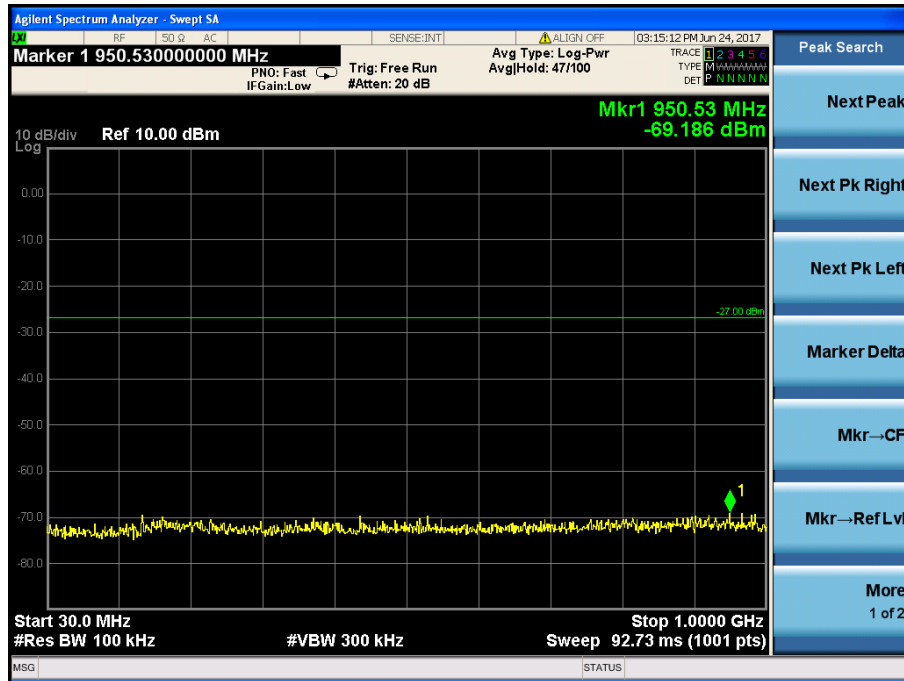
Start 30.0 MHz #Res BW 100 kHz #VBW 300 kHz

Stop 1.0000 GHz Sweep 92.73 ms (1001 pts)

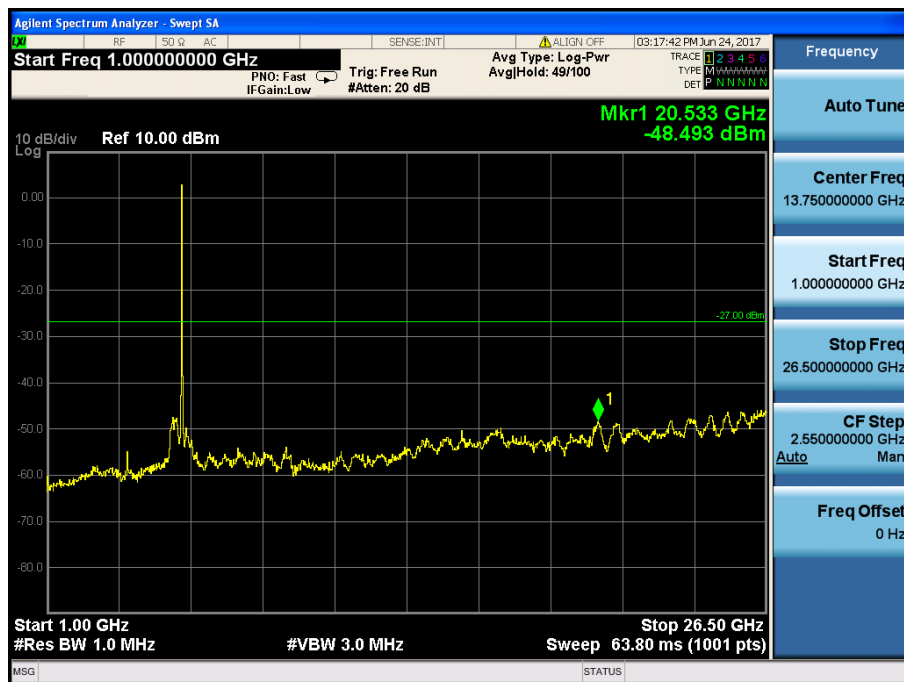
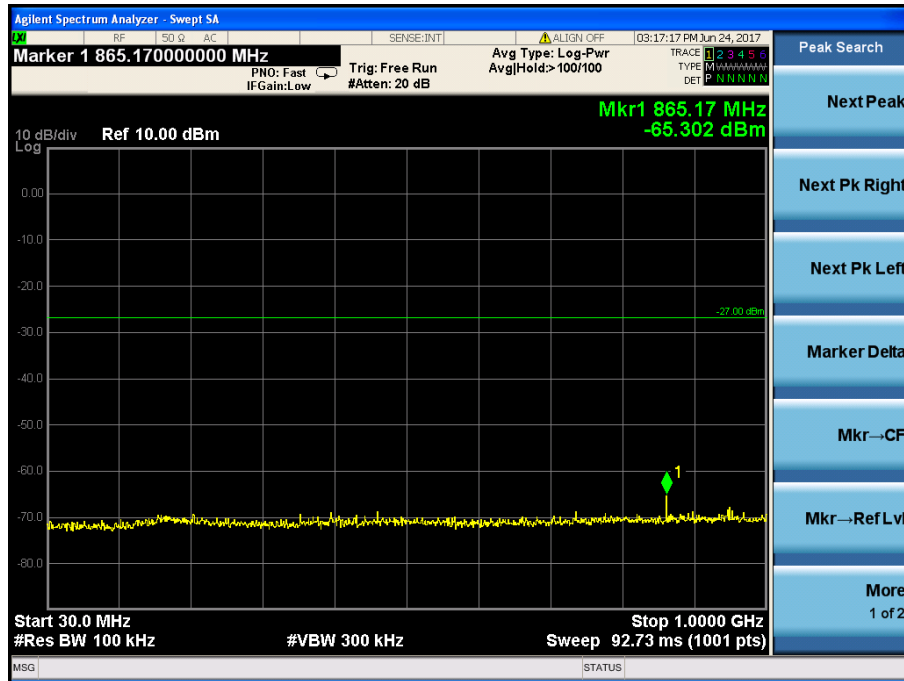
MSG STATUS



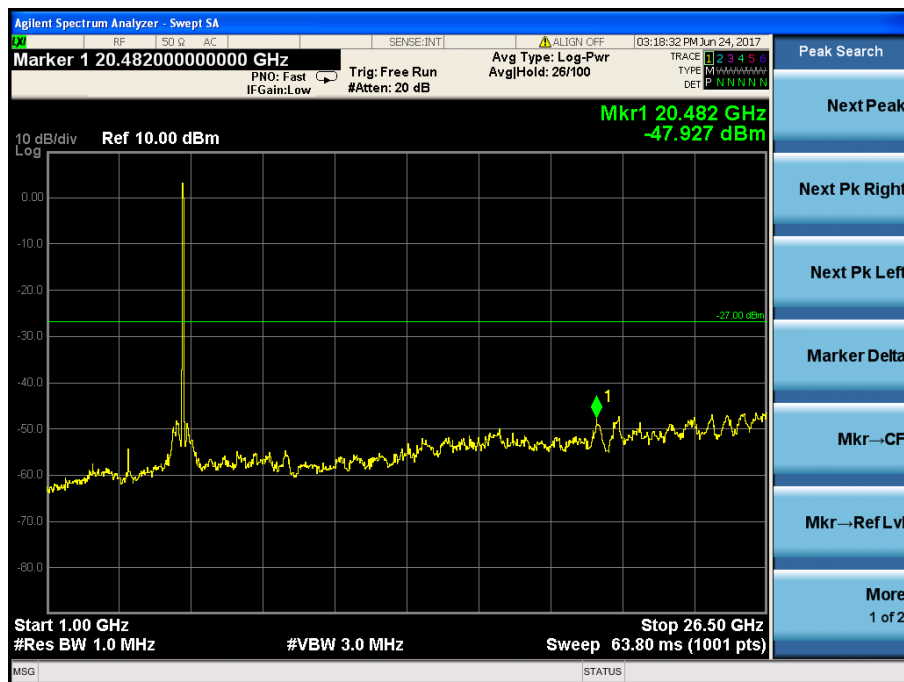
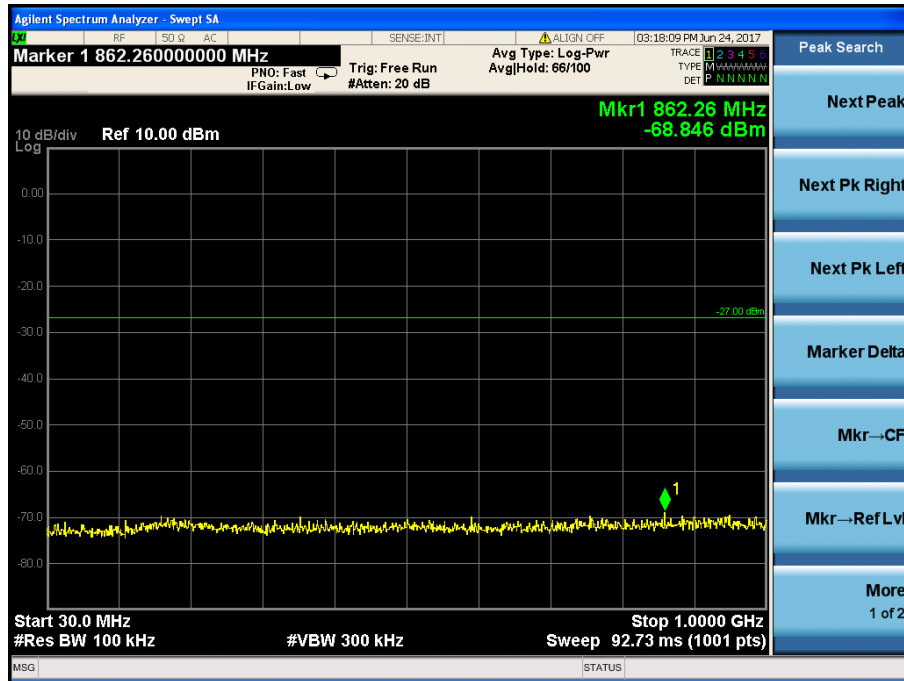
5745MHz



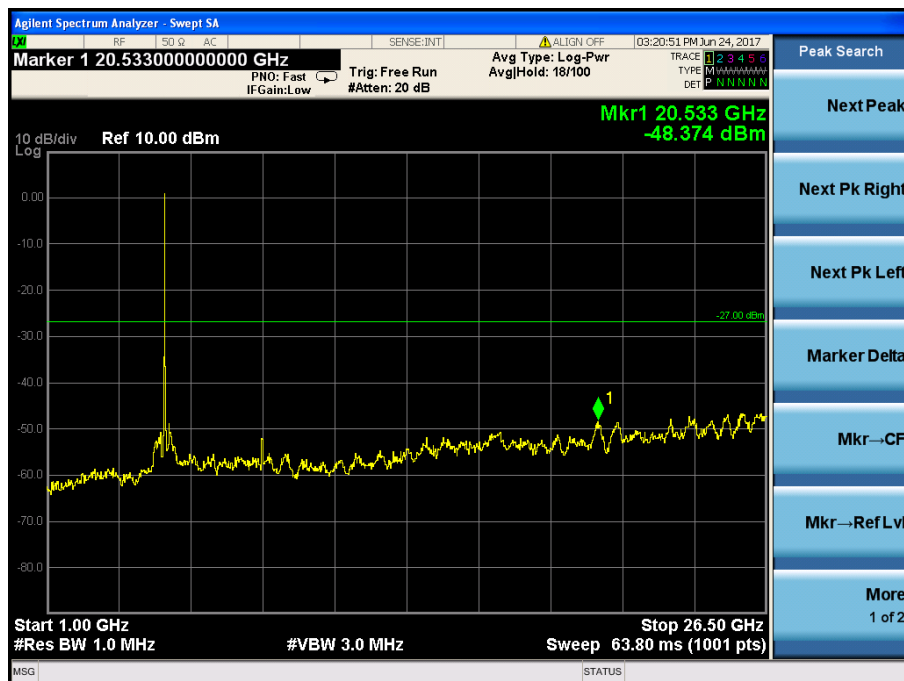
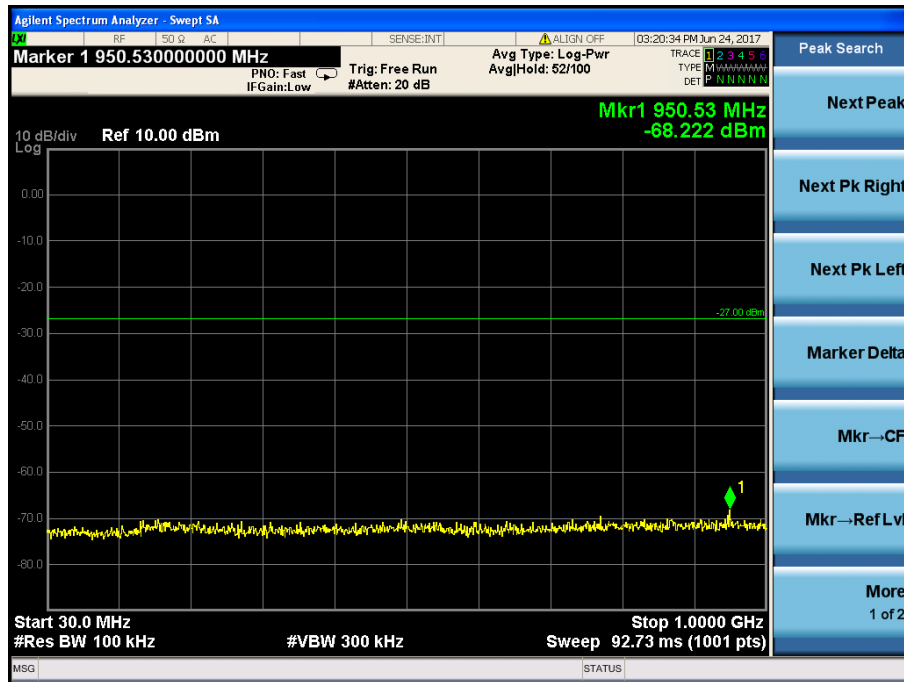
5785MHz



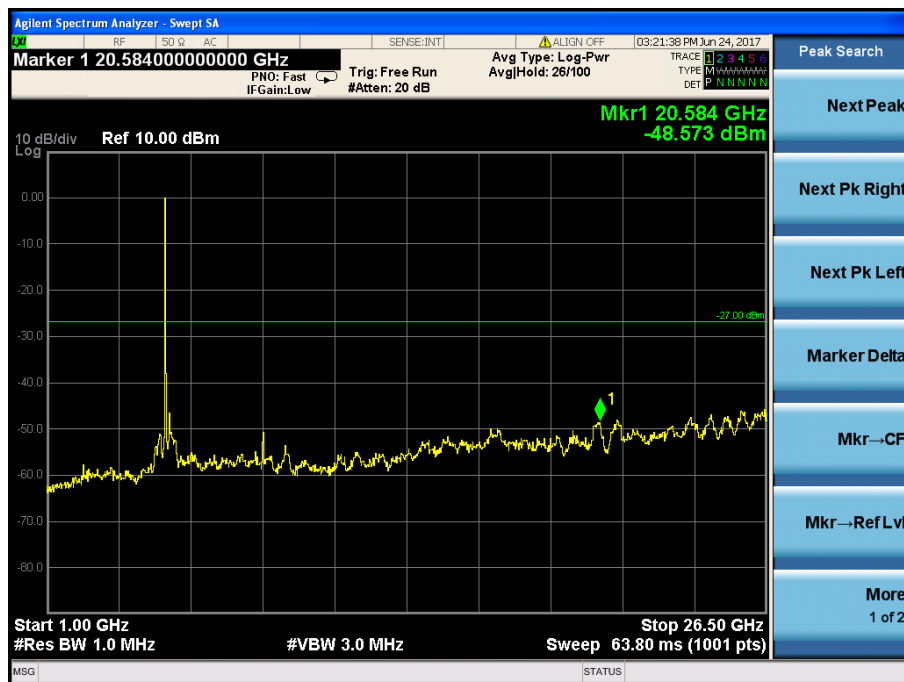
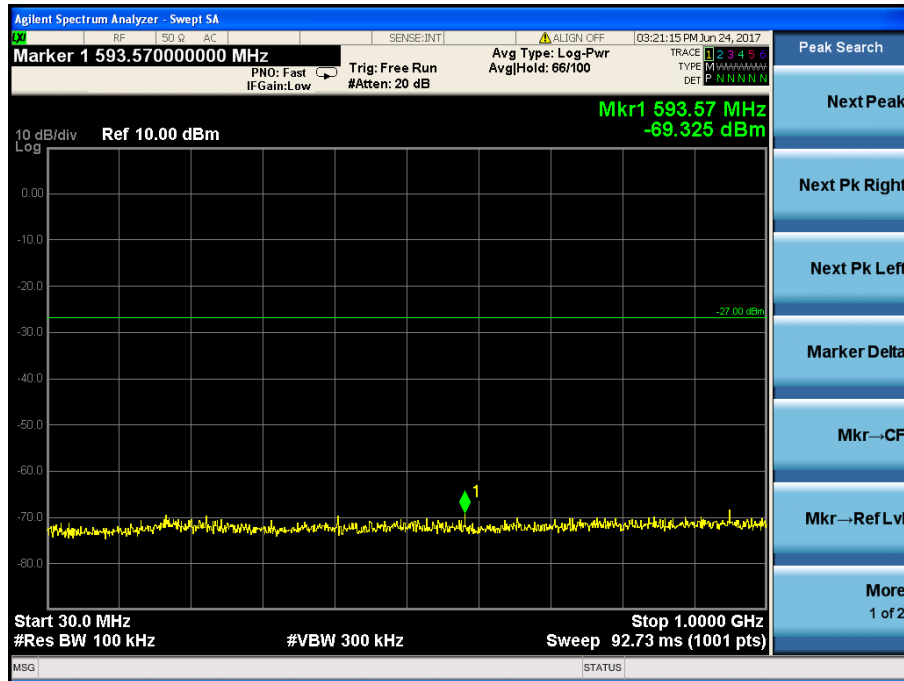
5825MHz



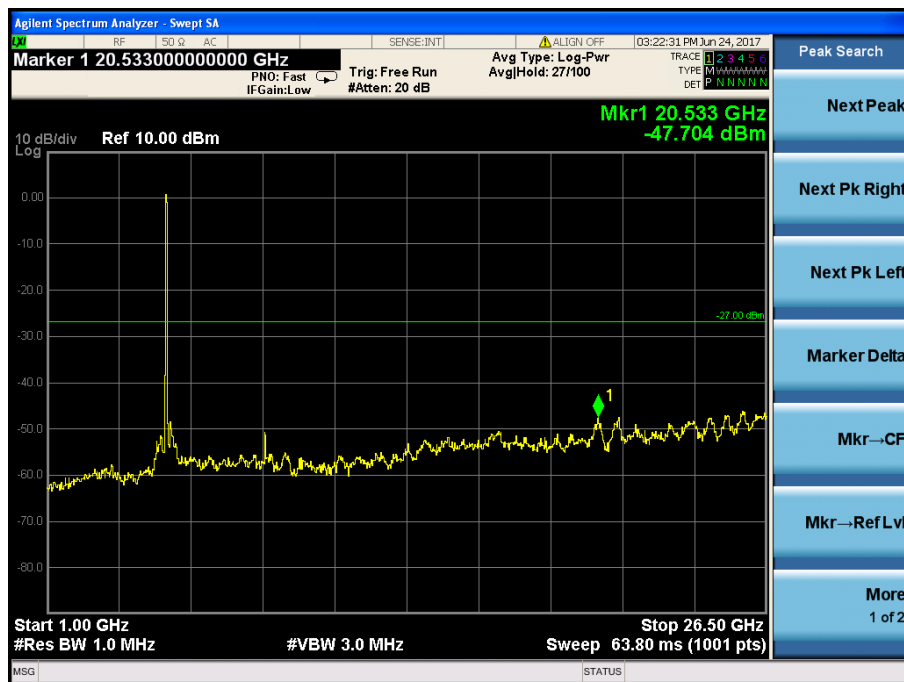
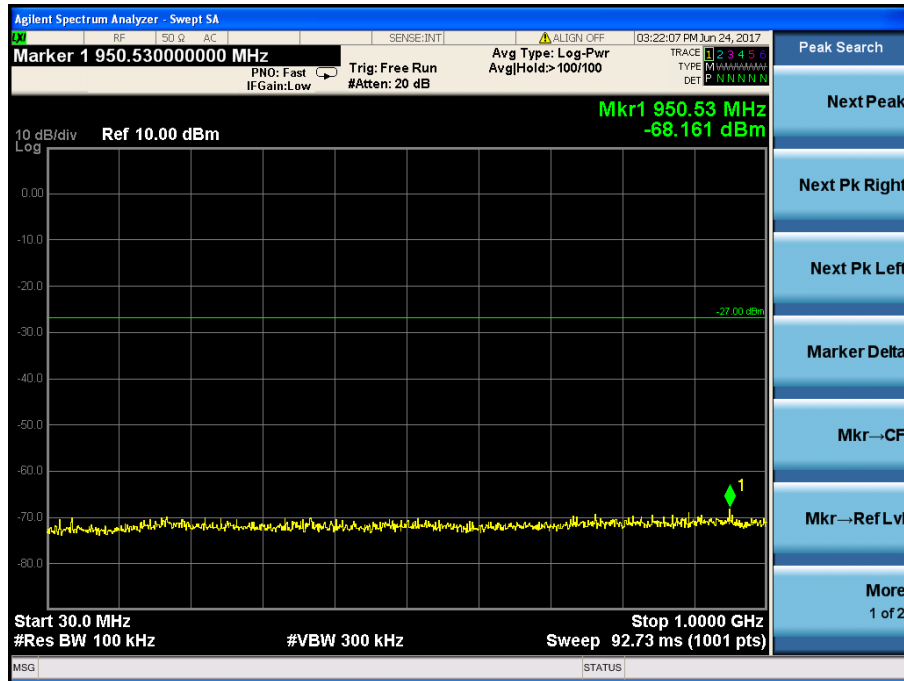
802.11n HT20
5180MHz



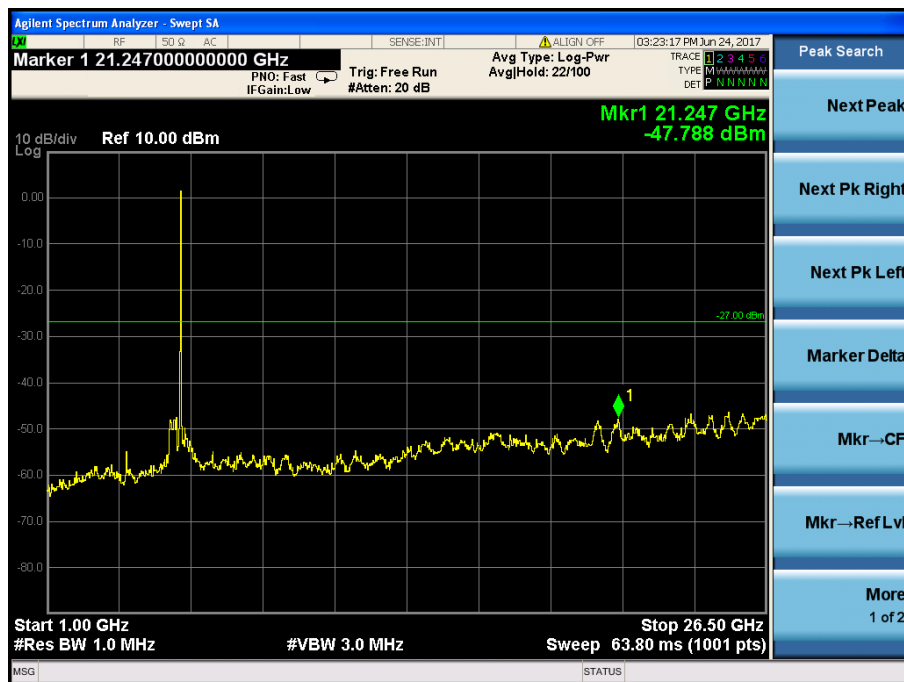
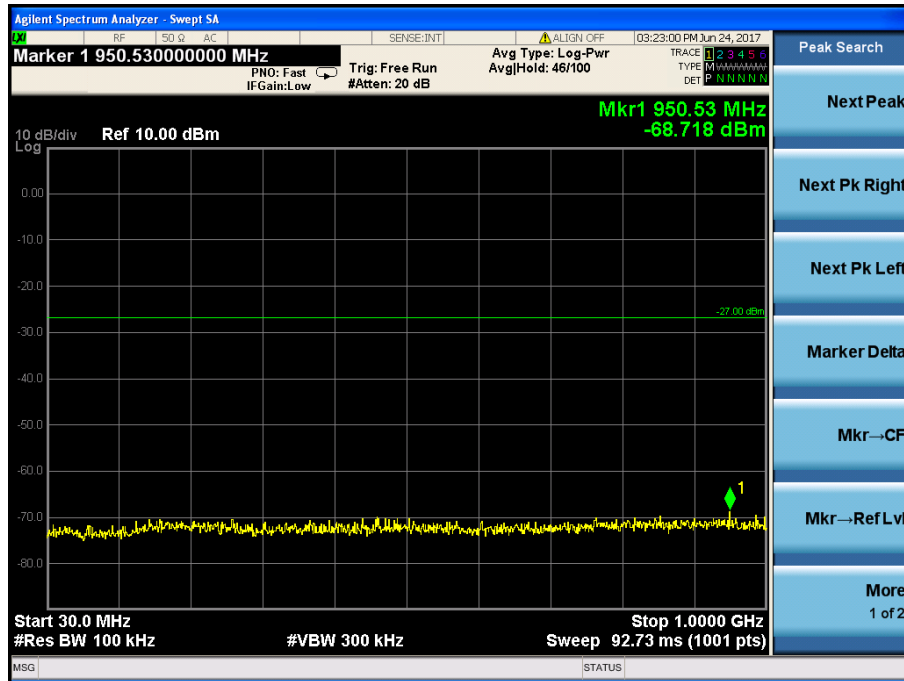
5200MHz

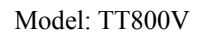


5240MHz



5745MHz





Agilent Spectrum Analyzer - Swept SA

Marker 1 853.53000000 MHz

PNO: Fast IFGain: Low Trig: Free Run #Atten: 20 dB

Avg Type: Log-Pwr Avg/Hold: 52/100

03:23:40 PM Jun 24, 2017

TRACE 1 2 3 4 5 6 TYPE M DET N N N N N

10 dB/div Ref 10.00 dBm

Log

0.00

-10.0

-20.0

-30.0

-40.0

-50.0

-60.0

-70.0

-80.0

Mkr1 853.53 MHz -69.274 dBm

Start 30.0 MHz #Res BW 100 kHz #VBW 300 kHz Stop 1.0000 GHz Sweep 92.73 ms (1001 pts)

MSG STATUS

Peak Search

Next Peak

Next Pk Right

Next Pk Left

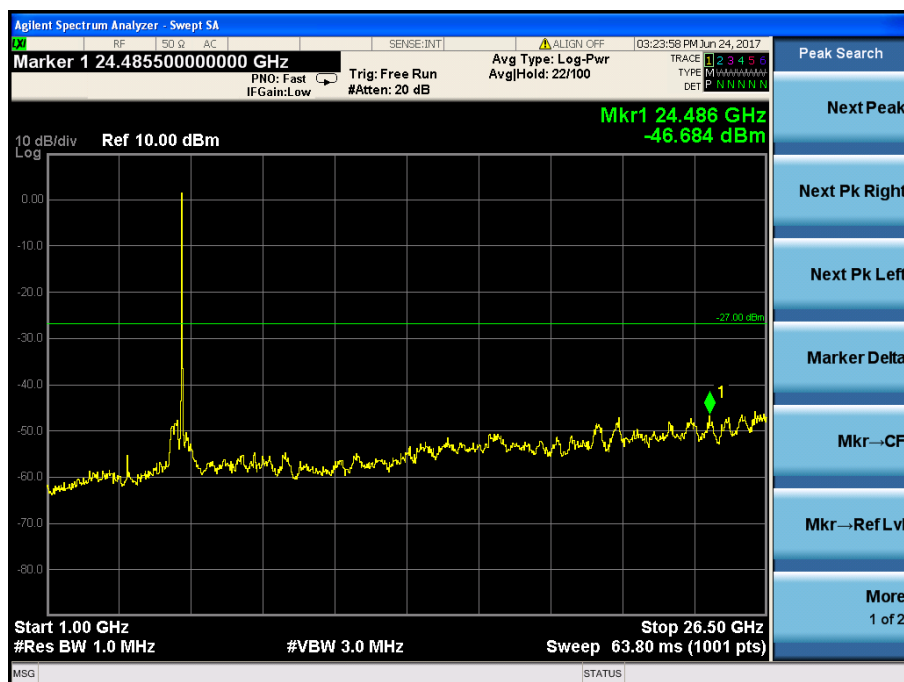
Marker Delta

Mkr→CF

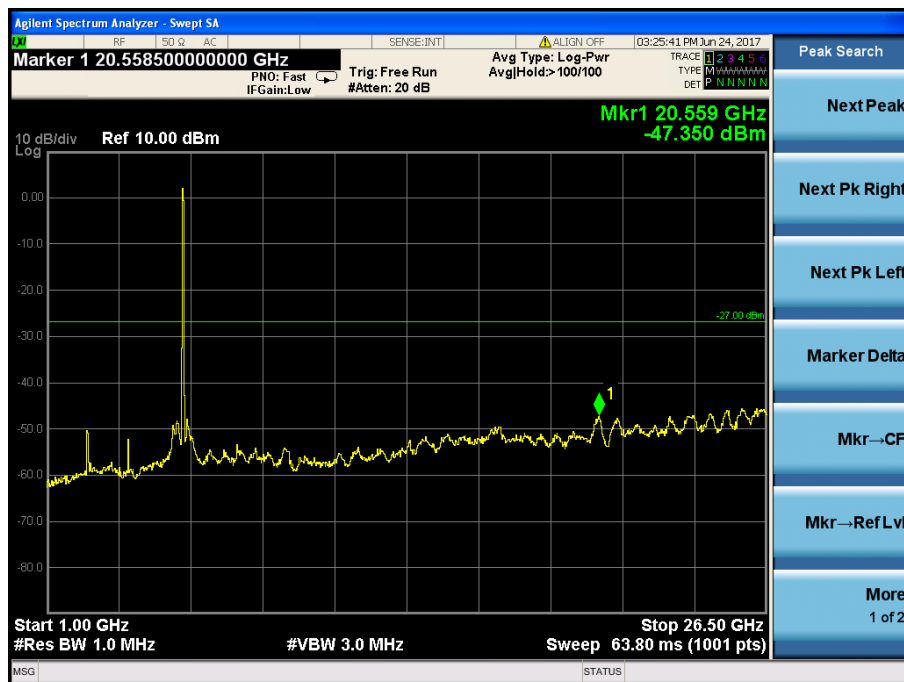
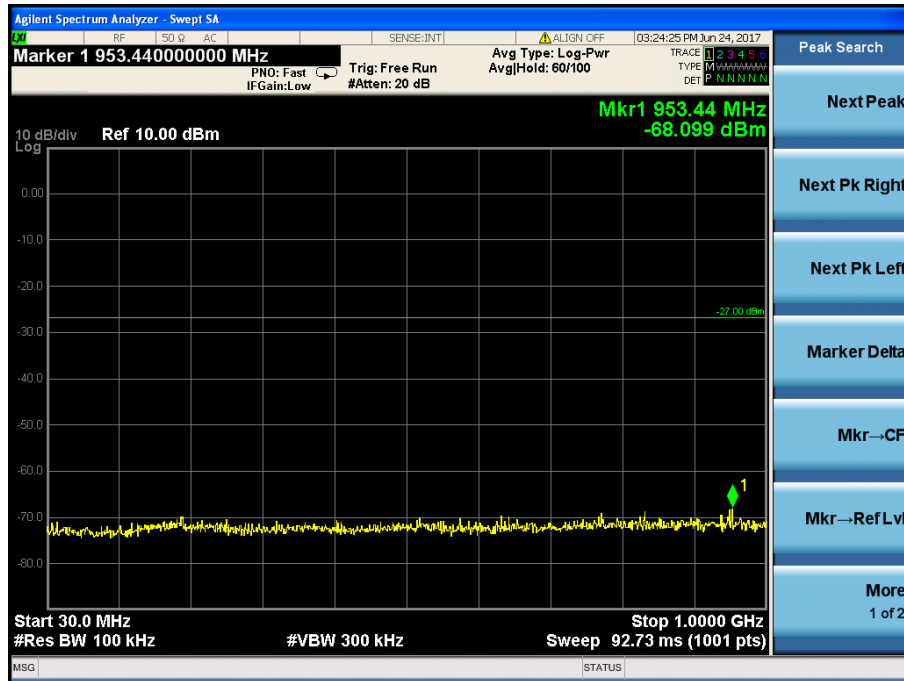
Mkr→Ref Lvl

More 1 of 2

The screenshot displays a spectrum analyzer interface. The main plot area shows a noisy baseline at approximately -70 dBm. A horizontal green line is drawn at -27.00 dBm, likely representing the noise floor or a reference level. A yellow diamond marker labeled '1' is positioned at 853.53 MHz with a level of -69.274 dBm. The top of the screen shows various settings: 'Marker 1 853.53000000 MHz', 'PNO: Fast IFGain: Low', 'Trig: Free Run #Atten: 20 dB', 'Avg Type: Log-Pwr Avg/Hold: 52/100', and the date/time '03:23:40 PM Jun 24, 2017'. The left side indicates '10 dB/div' and 'Log' scale. The bottom shows the frequency range 'Start 30.0 MHz' to 'Stop 1.0000 GHz' with a 'Sweep 92.73 ms (1001 pts)'. On the right, a 'Peak Search' menu is open, showing options like 'Next Peak', 'Next Pk Right', 'Next Pk Left', 'Marker Delta', 'Mkr→CF', 'Mkr→Ref Lvl', and 'More 1 of 2'.



5825MHz



11. Radiated Spurious Emissions

11.1 Standard Applicable

According to §15.407(b)(6), Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in Section 15.209.

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

789033 D02 v01r02 General UNII Test Procedures New Rules v01

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

$$\text{EIRP} = ((E \cdot d)^2) / 30$$

where:

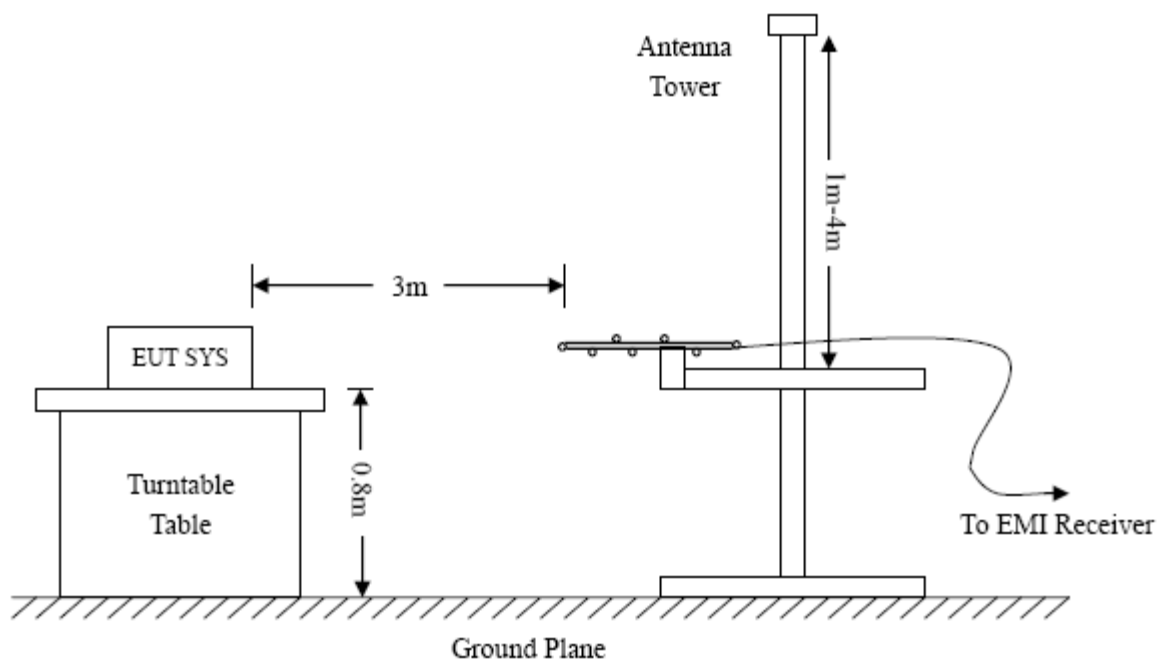
- E is the field strength in V/m;
- d is the measurement distance in meters;
- EIRP is the equivalent isotropically radiated power in watts.

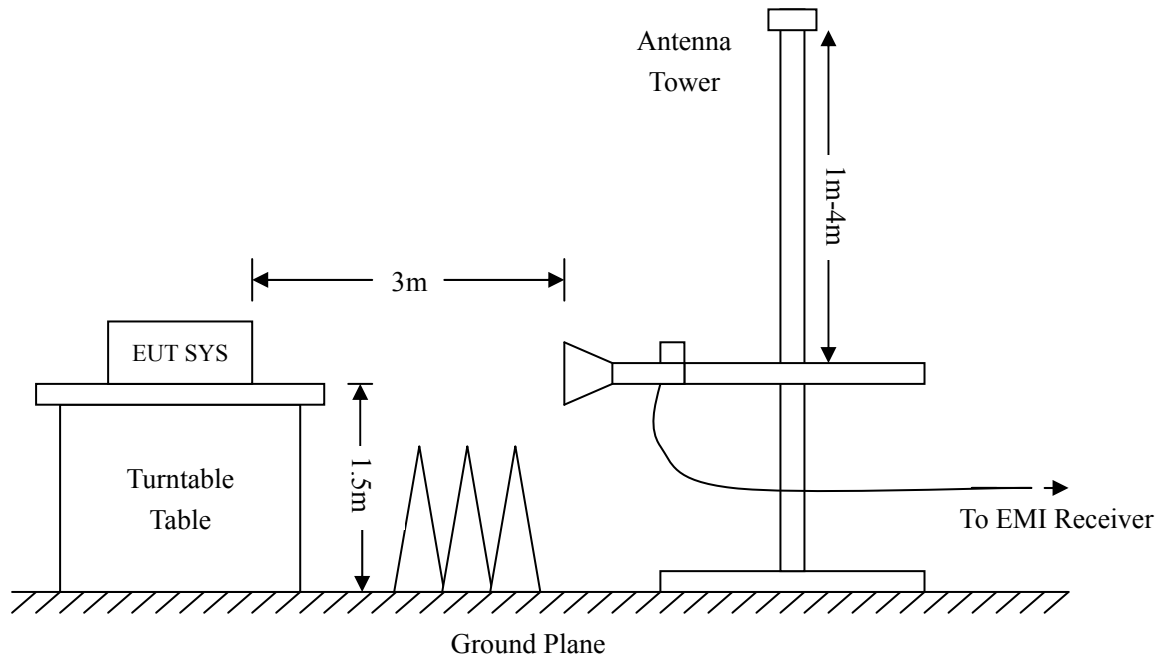
11.2 Test Procedure

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

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

The spacing between the peripherals was 10 cm.





11.3 Test Receiver Setup

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

For peak detector:

RBW = 1000kHz, VBW = 3000kHz, Sweep Time = Auto

For average detector:

RBW = 1000kHz, VBW = 10Hz, Sweep Time = Auto

11.4 Corrected Amplitude & Margin Calculation

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

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Ant. Factor} + \text{Cable Loss} - \text{Ampl. Gain}$$

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

$$\text{Margin} = \text{Corr. Ampl.} - \text{FCC Part 15 Limit}$$

11.5 Environmental Conditions

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

11.6 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:

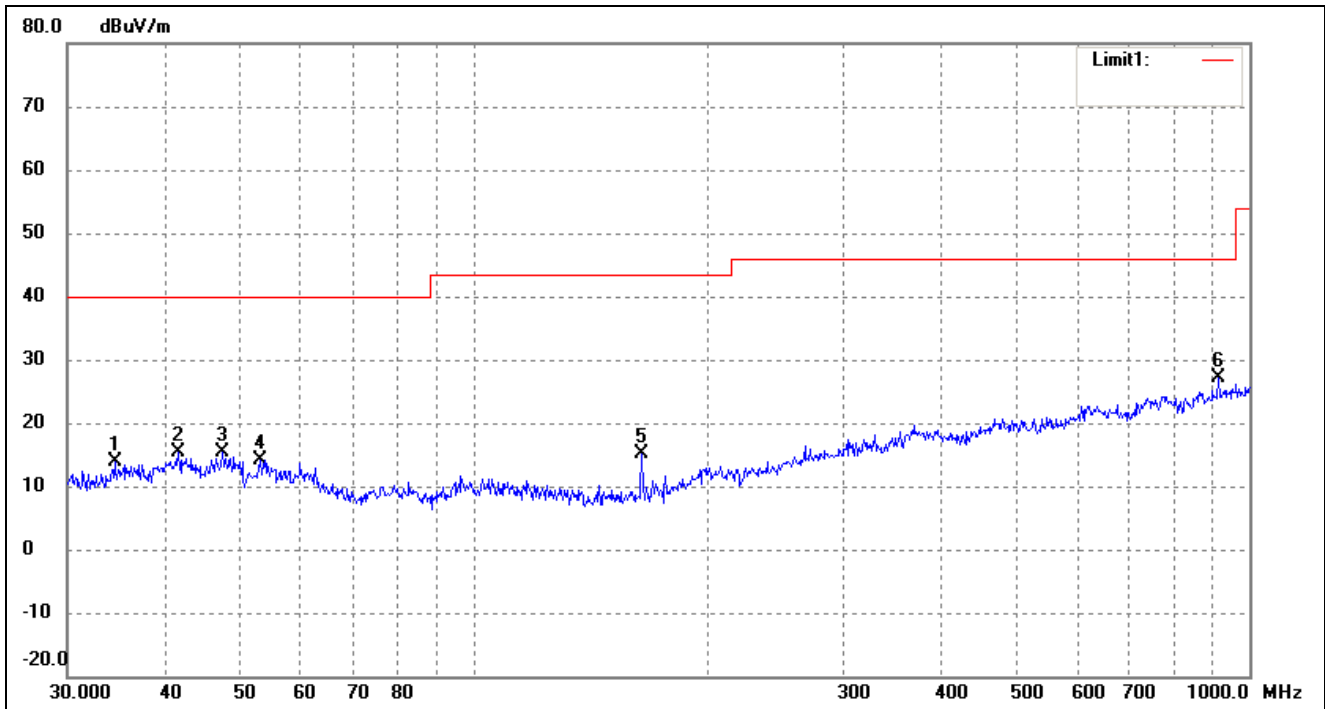
Note: this EUT was tested in 3 orthogonal positions and the worst case position data was reported.

For 802.11a

Spurious Emission From 30 MHz to 1 GHz

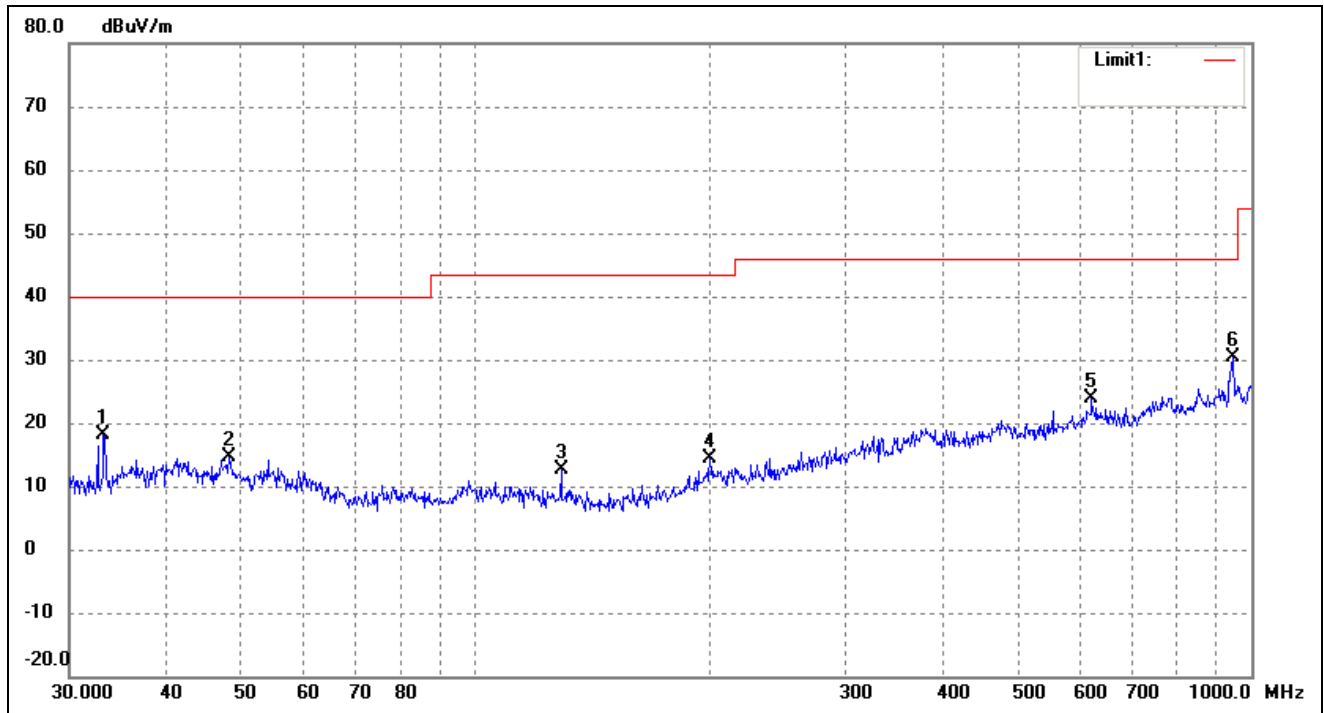
Test mode: Transmitting Channel 5180MHz

Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	34.5173	23.02	-9.17	13.85	40.00	-26.15	223	100	peak
2	41.7130	23.17	-7.78	15.39	40.00	-24.61	94	100	peak
3	47.4918	23.42	-8.16	15.26	40.00	-24.74	208	100	peak
4	53.1313	22.94	-8.72	14.22	40.00	-25.78	117	100	peak
5	164.9075	27.13	-12.04	15.09	43.50	-28.41	65	100	peak
6	912.8620	23.68	3.49	27.17	46.00	-18.83	188	100	peak

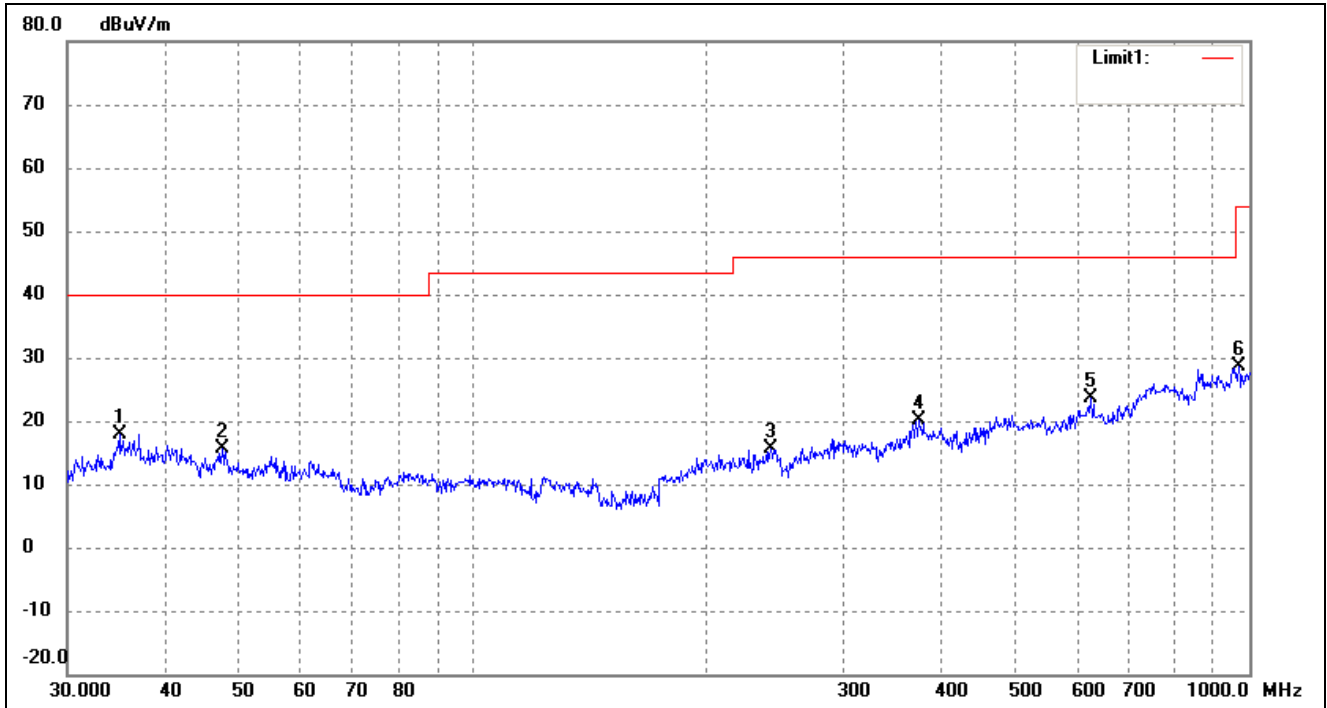
Test Specification: Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	33.2112	27.58	-9.50	18.08	40.00	-21.92	206	100	peak
2	48.1626	22.72	-8.20	14.52	40.00	-25.48	99	100	peak
3	129.0146	24.53	-11.94	12.59	43.50	-30.91	301	100	peak
4	200.6881	23.07	-8.66	14.41	43.50	-29.09	103	100	peak
5	622.8900	22.67	1.16	23.83	46.00	-22.17	102	100	peak
6	948.7610	26.46	3.97	30.43	46.00	-15.57	205	100	peak

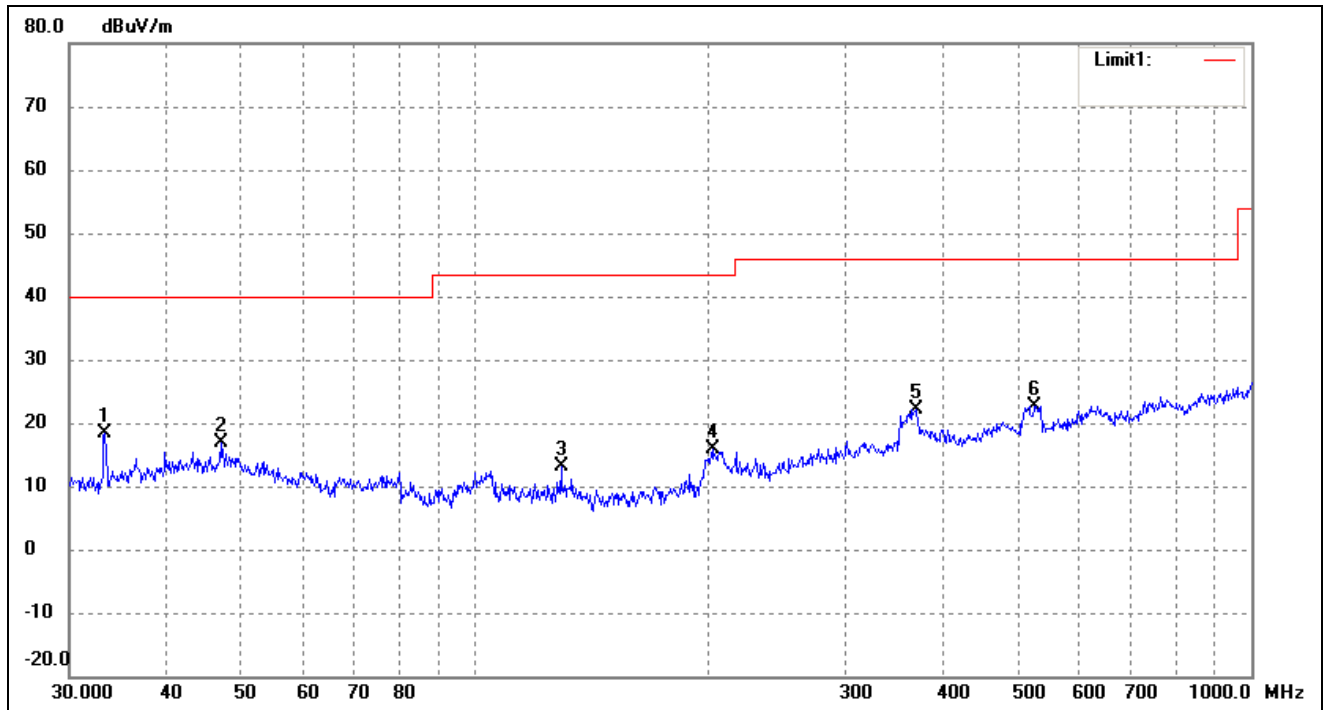
Test mode: Transmitting Channel 5200MHz

Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	35.0048	26.99	-9.04	17.95	40.00	-22.05	279	100	peak
2	47.4918	23.90	-8.16	15.74	40.00	-24.26	247	100	peak
3	241.6763	23.79	-8.20	15.59	46.00	-30.41	70	100	peak
4	374.6226	22.43	-2.41	20.02	46.00	-25.98	320	100	peak
5	625.0780	22.64	1.11	23.75	46.00	-22.25	305	100	peak
6	968.9338	24.89	3.72	28.61	54.00	-25.39	328	100	peak

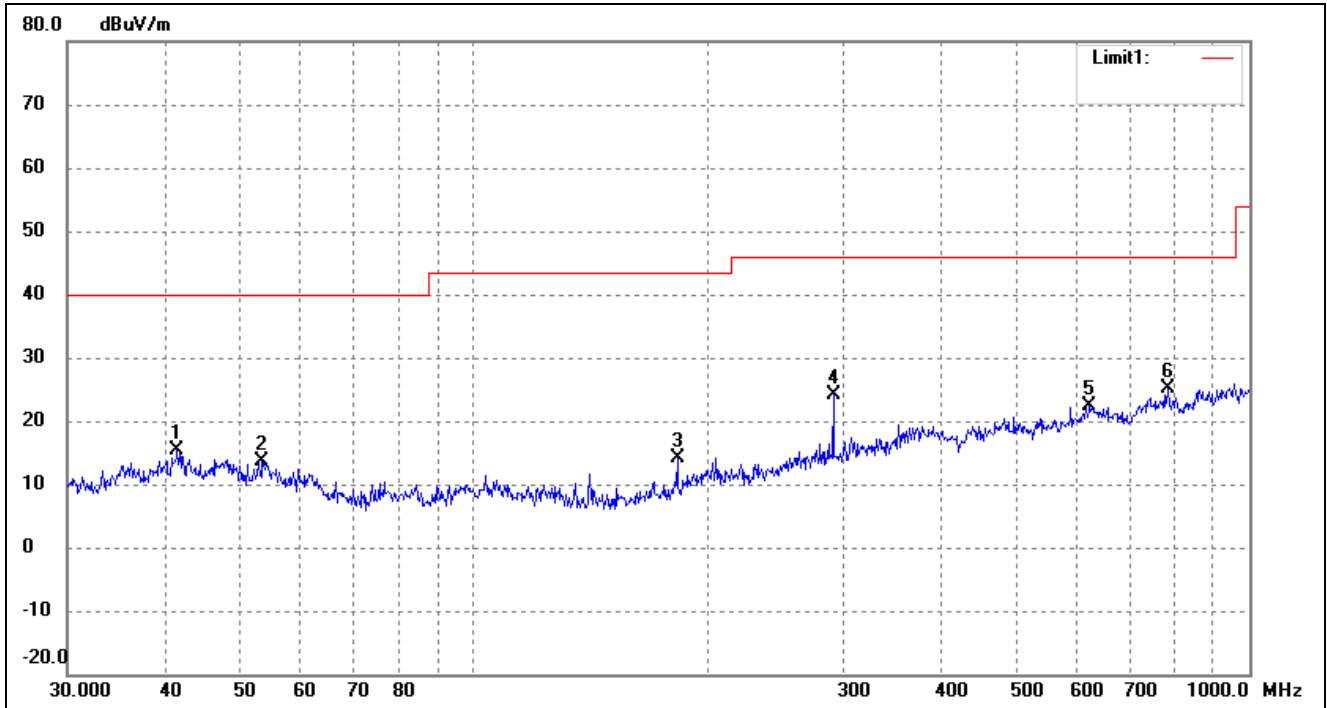
Test Specification: Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	33.3279	27.92	-9.46	18.46	40.00	-21.54	193	100	peak
2	46.9948	25.01	-8.13	16.88	40.00	-23.12	284	100	peak
3	129.0146	25.13	-11.94	13.19	43.50	-30.31	71	100	peak
4	202.8104	24.63	-8.68	15.95	43.50	-27.55	226	100	peak
5	369.4047	24.87	-2.71	22.16	46.00	-23.84	133	100	peak
6	526.3967	24.57	-1.86	22.71	46.00	-23.29	118	100	peak

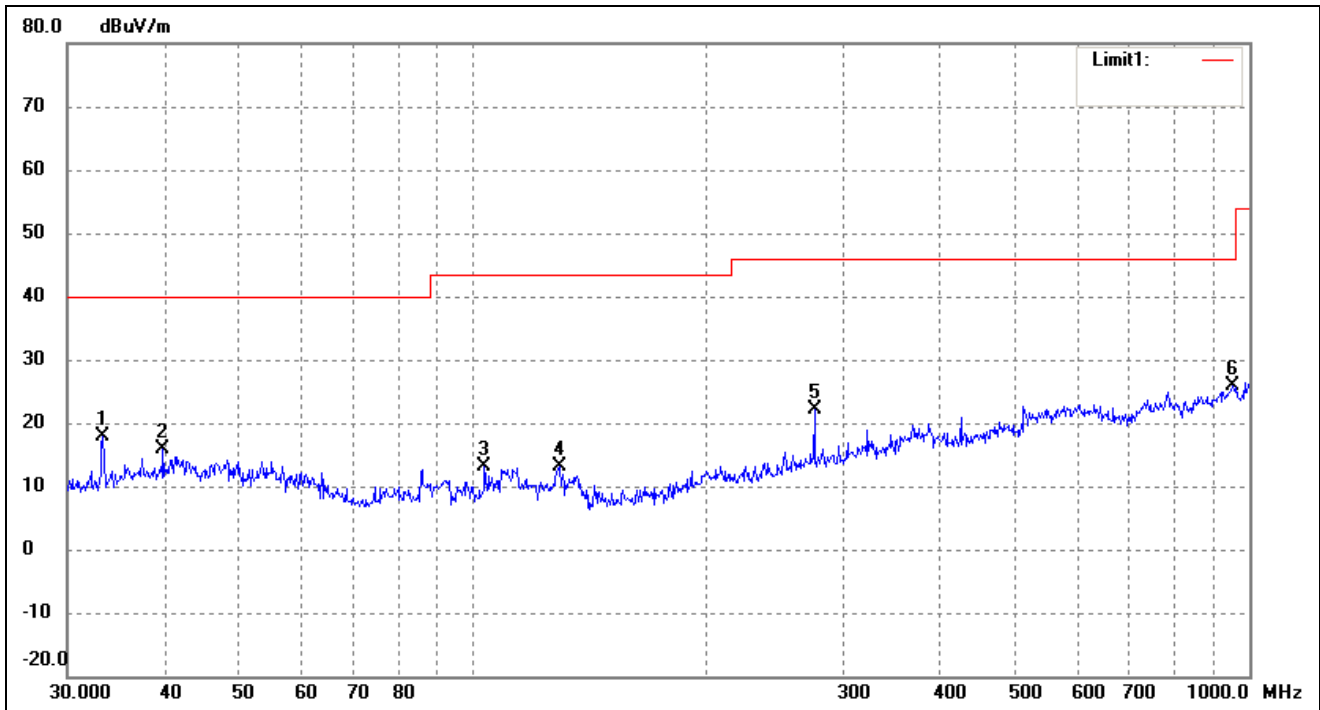
Test mode: Transmitting Channel 5240MHz

Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	41.5670	23.08	-7.77	15.31	40.00	-24.69	136	100	peak
2	53.5052	22.40	-8.76	13.64	40.00	-26.36	106	100	peak
3	183.2005	25.03	-10.93	14.10	43.50	-29.40	86	100	peak
4	291.0360	30.10	-5.85	24.25	46.00	-21.75	145	100	peak
5	622.8900	21.22	1.16	22.38	46.00	-23.62	245	100	peak
6	785.0935	22.46	2.65	25.11	46.00	-20.89	347	100	peak

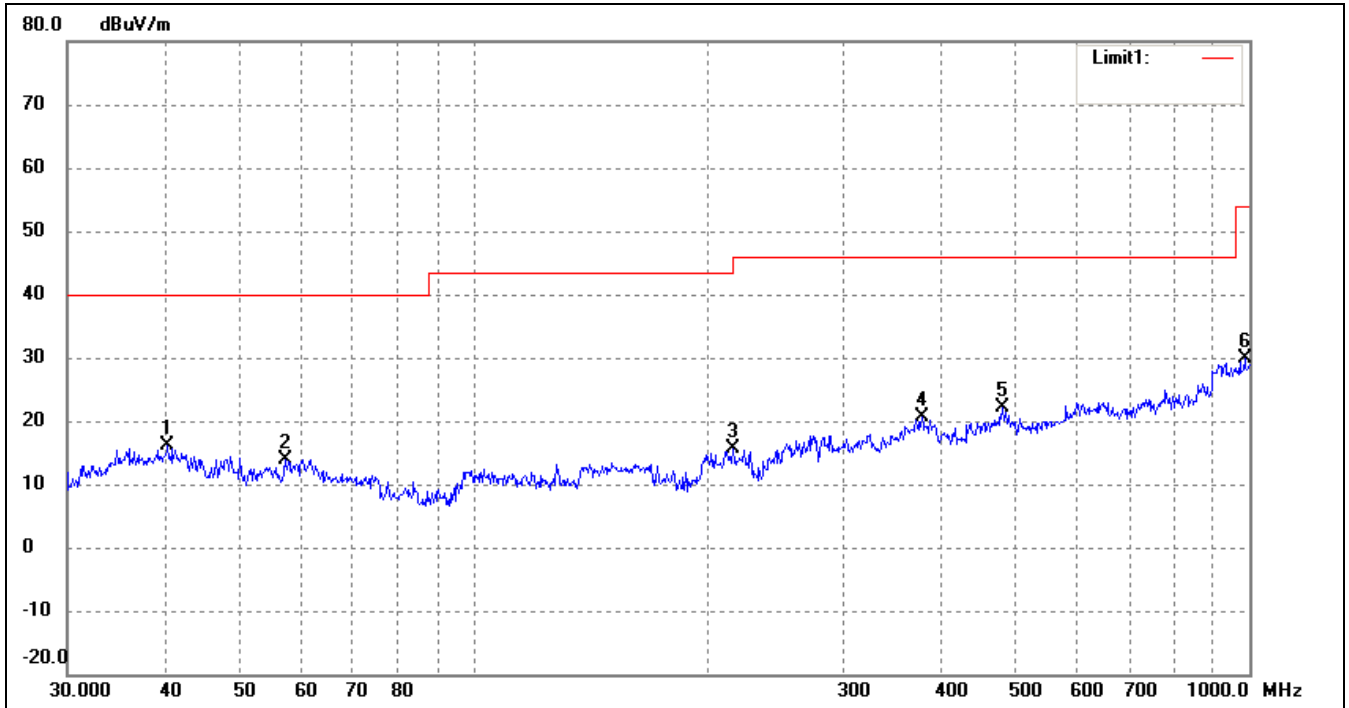
Test Specification: Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	33.3279	27.27	-9.46	17.81	40.00	-22.19	84	100	peak
2	39.8542	23.58	-7.71	15.87	40.00	-24.13	157	100	peak
3	103.4421	24.16	-10.99	13.17	43.50	-30.33	51	100	peak
4	129.4678	24.98	-11.97	13.01	43.50	-30.49	137	100	peak
5	275.1570	28.44	-6.30	22.14	46.00	-23.86	317	100	peak
6	952.0937	22.07	3.85	25.92	46.00	-20.08	133	100	peak

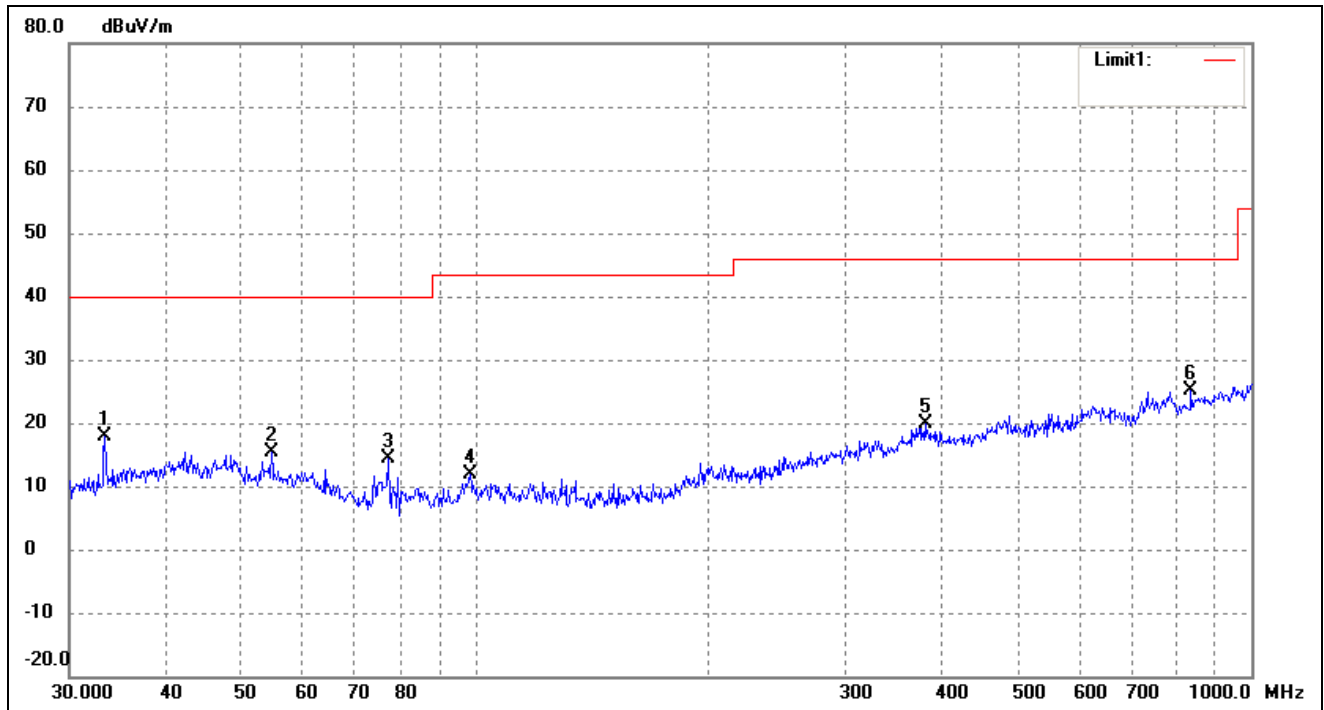
Test mode: Transmitting Channel 5745MHz

Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	40.4172	23.89	-7.70	16.19	40.00	-23.81	268	100	peak
2	57.1914	23.21	-9.22	13.99	40.00	-26.01	94	100	peak
3	216.0240	24.55	-8.81	15.74	46.00	-30.26	285	100	peak
4	378.5843	22.70	-2.17	20.53	46.00	-25.47	110	100	peak
5	480.5276	23.15	-1.08	22.07	46.00	-23.93	200	100	peak
6	986.0717	25.80	4.16	29.96	54.00	-24.04	207	100	peak

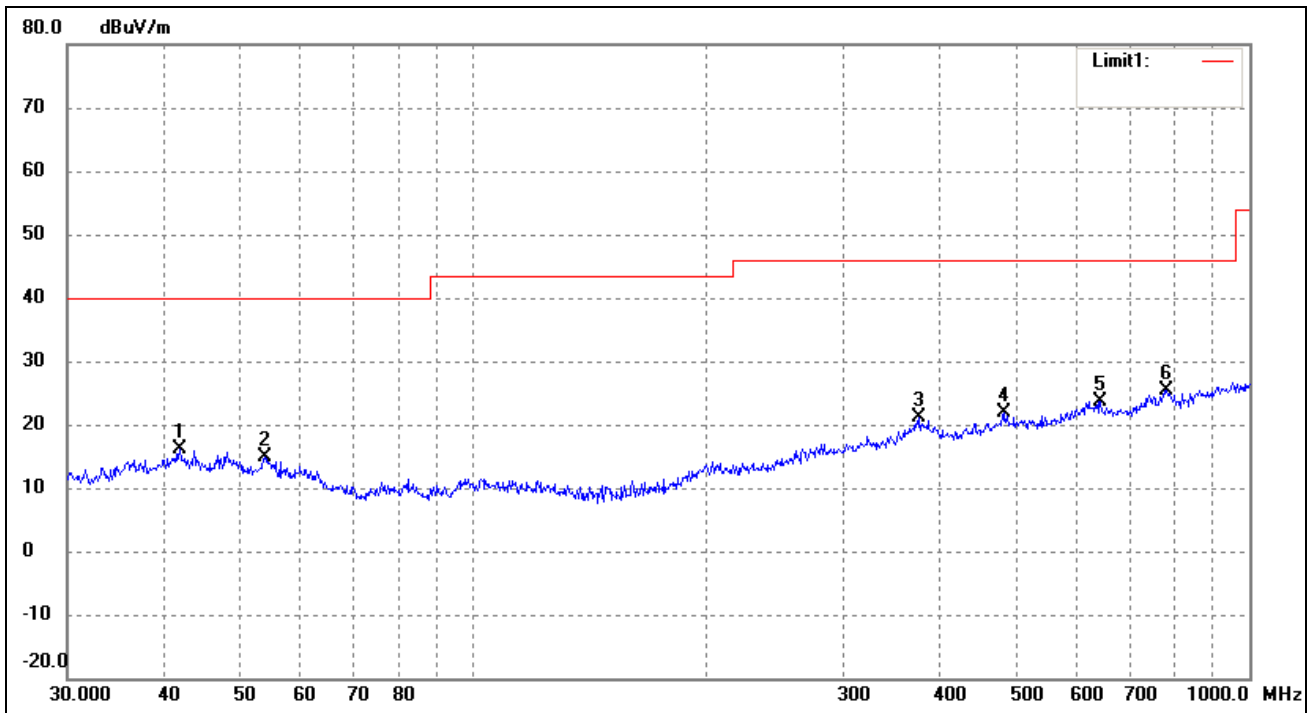
Test Specification: Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	33.3279	27.24	-9.46	17.78	40.00	-22.22	266	100	peak
2	54.6429	24.23	-8.91	15.32	40.00	-24.68	99	100	peak
3	77.3212	26.57	-12.21	14.36	40.00	-25.64	309	100	peak
4	98.4866	23.13	-11.21	11.92	43.50	-31.58	119	100	peak
5	379.9141	22.08	-2.11	19.97	46.00	-26.03	278	100	peak
6	836.2443	23.25	1.84	25.09	46.00	-20.91	208	100	peak

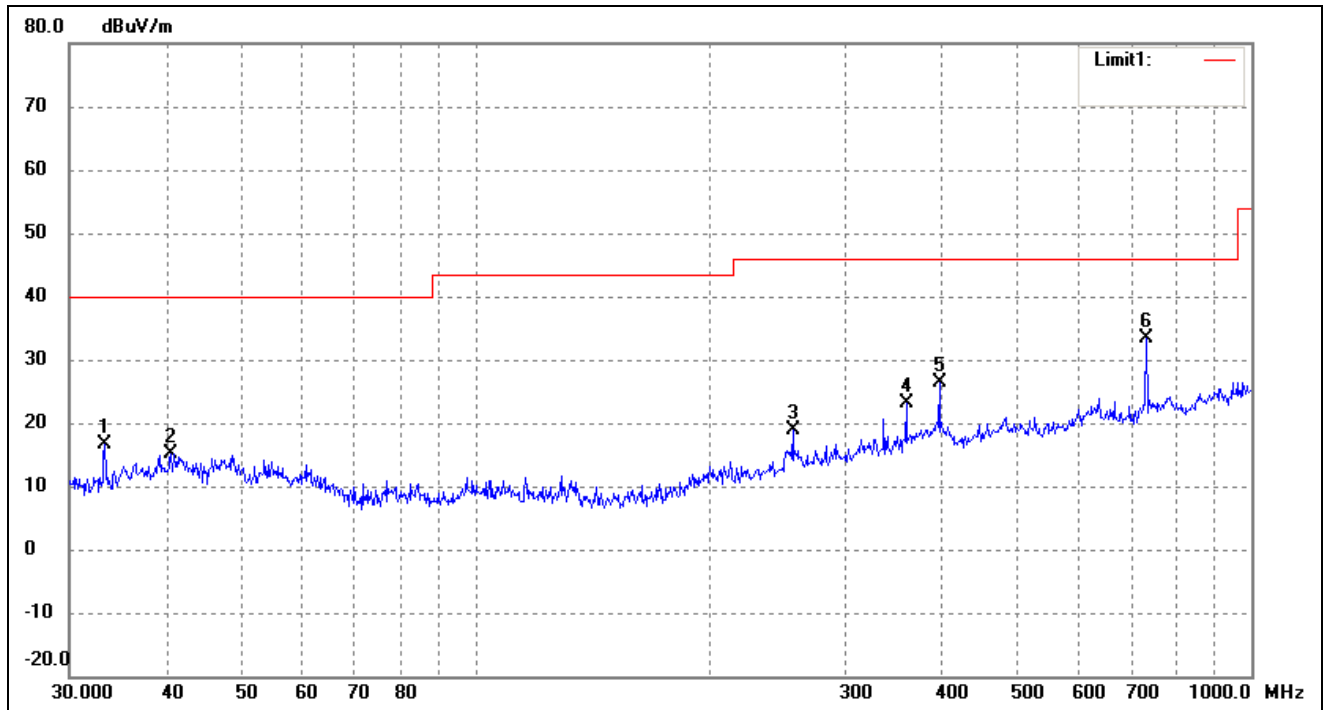
Test mode: Transmitting Channel 5785MHz

Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	41.8596	23.85	-7.79	16.06	40.00	-23.94	359	100	peak
2	53.8818	23.75	-8.81	14.94	40.00	-25.06	213	100	peak
3	375.9385	23.42	-2.33	21.09	46.00	-24.91	75	100	peak
4	483.9094	23.03	-1.27	21.76	46.00	-24.24	175	100	peak
5	642.8613	22.99	0.65	23.64	46.00	-22.36	309	100	peak
6	782.3453	22.63	2.78	25.41	46.00	-20.59	263	100	peak

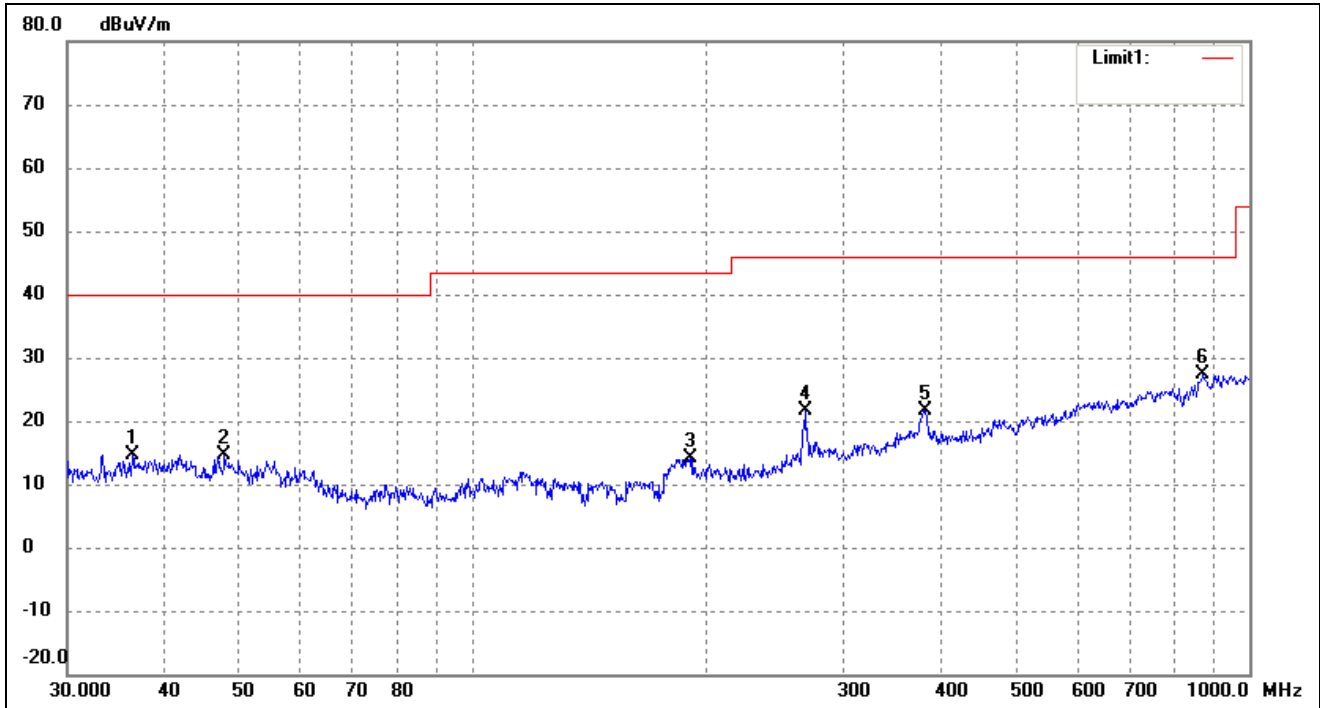
Test Specification: Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	33.3279	26.14	-9.46	16.68	40.00	-23.32	174	100	peak
2	40.5591	22.85	-7.70	15.15	40.00	-24.85	108	100	peak
3	256.5211	26.02	-7.18	18.84	46.00	-27.16	65	100	peak
4	359.1860	26.57	-3.32	23.25	46.00	-22.75	300	100	peak
5	396.2415	29.28	-2.95	26.33	46.00	-19.67	164	100	peak
6	731.9203	31.73	1.66	33.39	46.00	-12.61	259	100	peak

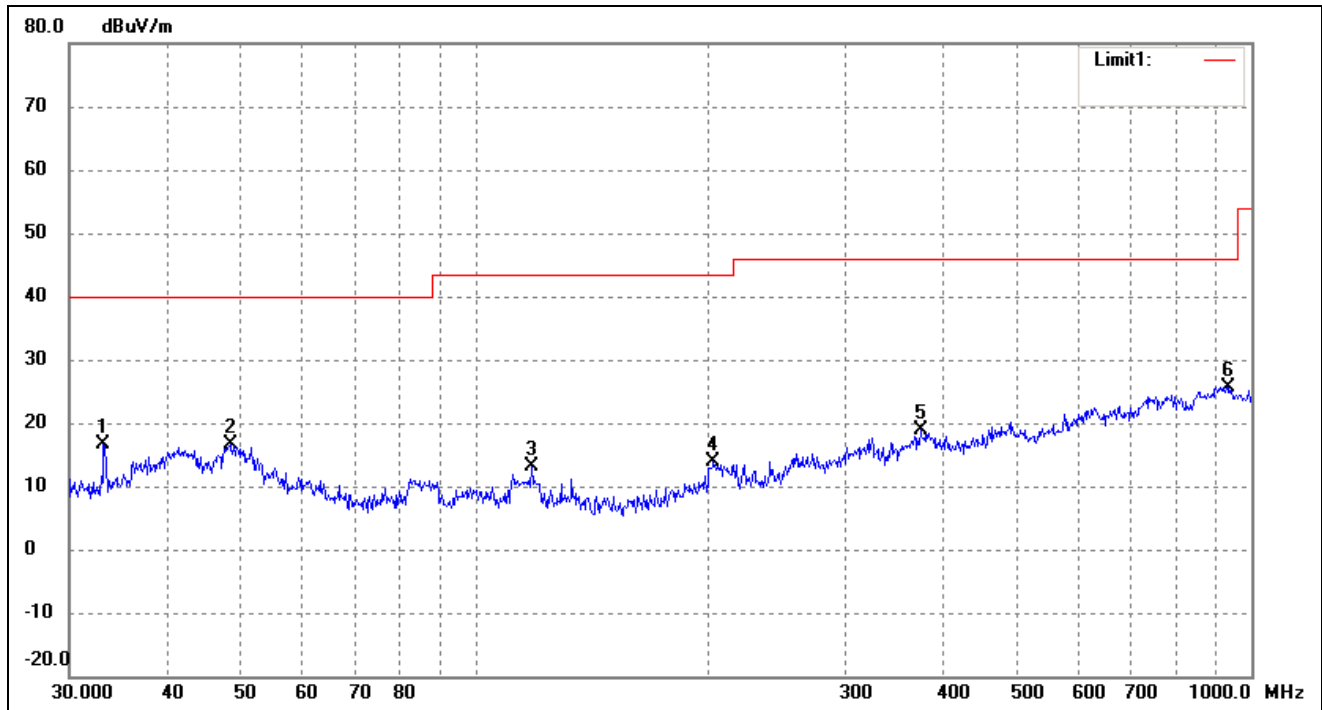
Test mode: Transmitting Channel 5825MHz

Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	36.3814	23.36	-8.66	14.70	40.00	-25.30	162	100	peak
2	47.8260	22.92	-8.18	14.74	40.00	-25.26	91	100	peak
3	190.4050	23.97	-9.96	14.01	43.50	-29.49	114	100	peak
4	267.5455	28.23	-6.63	21.60	46.00	-24.40	92	100	peak
5	382.5879	23.97	-2.23	21.74	46.00	-24.26	138	100	peak
6	872.1832	24.34	3.05	27.39	46.00	-18.61	347	100	peak

Test Specification: Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	33.2112	26.04	-9.50	16.54	40.00	-23.46	65	100	peak
2	48.3318	24.80	-8.21	16.59	40.00	-23.41	180	100	peak
3	118.1862	24.59	-11.38	13.21	43.50	-30.29	124	100	peak
4	202.8104	22.51	-8.68	13.83	43.50	-29.67	150	100	peak
5	374.6226	21.32	-2.41	18.91	46.00	-27.09	341	100	peak
6	935.5463	21.57	4.13	25.70	46.00	-20.30	198	100	peak

For 802.11n-HT20

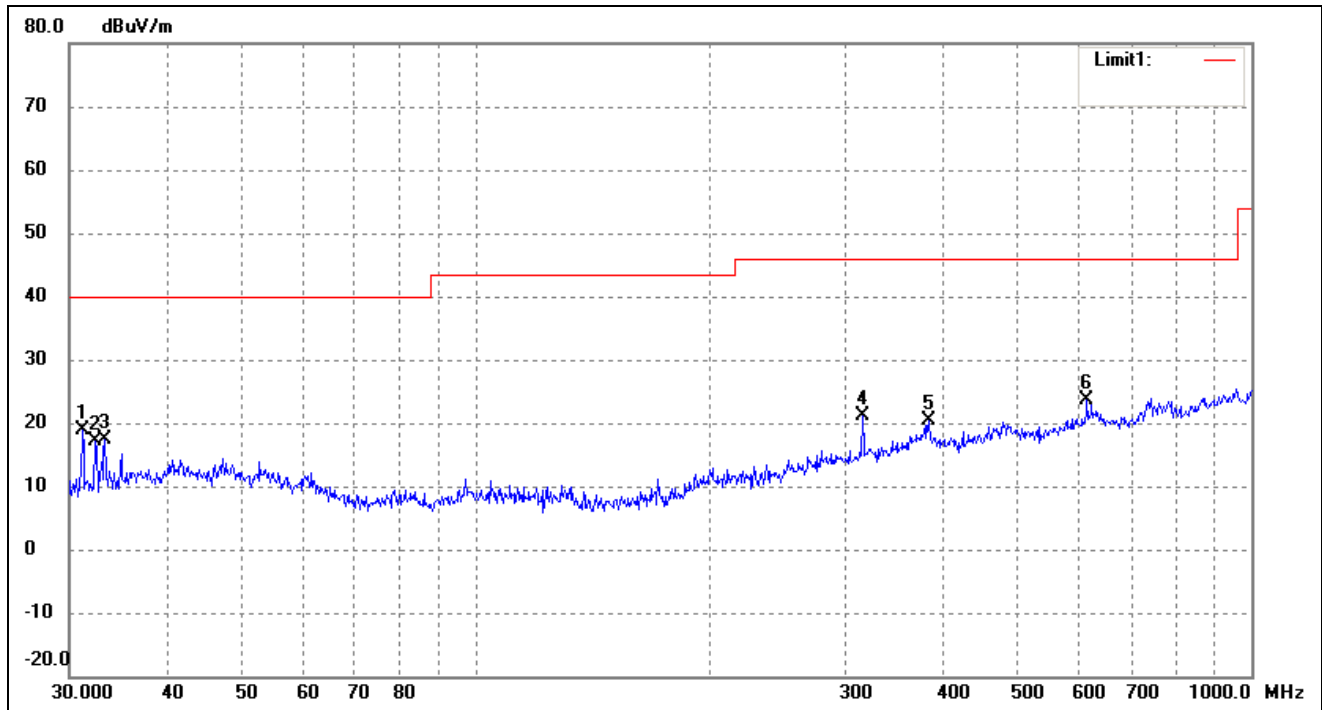
Test mode: Transmitting Channel 5180MHz

Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	38.2120	22.15	-8.16	13.99	40.00	-26.01	257	100	peak
2	53.6932	22.07	-8.78	13.29	40.00	-26.71	95	100	peak
3	60.0691	22.72	-9.60	13.12	40.00	-26.88	136	100	peak
4	139.8508	25.87	-12.55	13.32	43.50	-30.18	92	100	peak
5	234.1684	27.52	-8.48	19.04	46.00	-26.96	302	100	peak
6	268.4853	27.78	-6.59	21.19	46.00	-24.81	240	100	peak

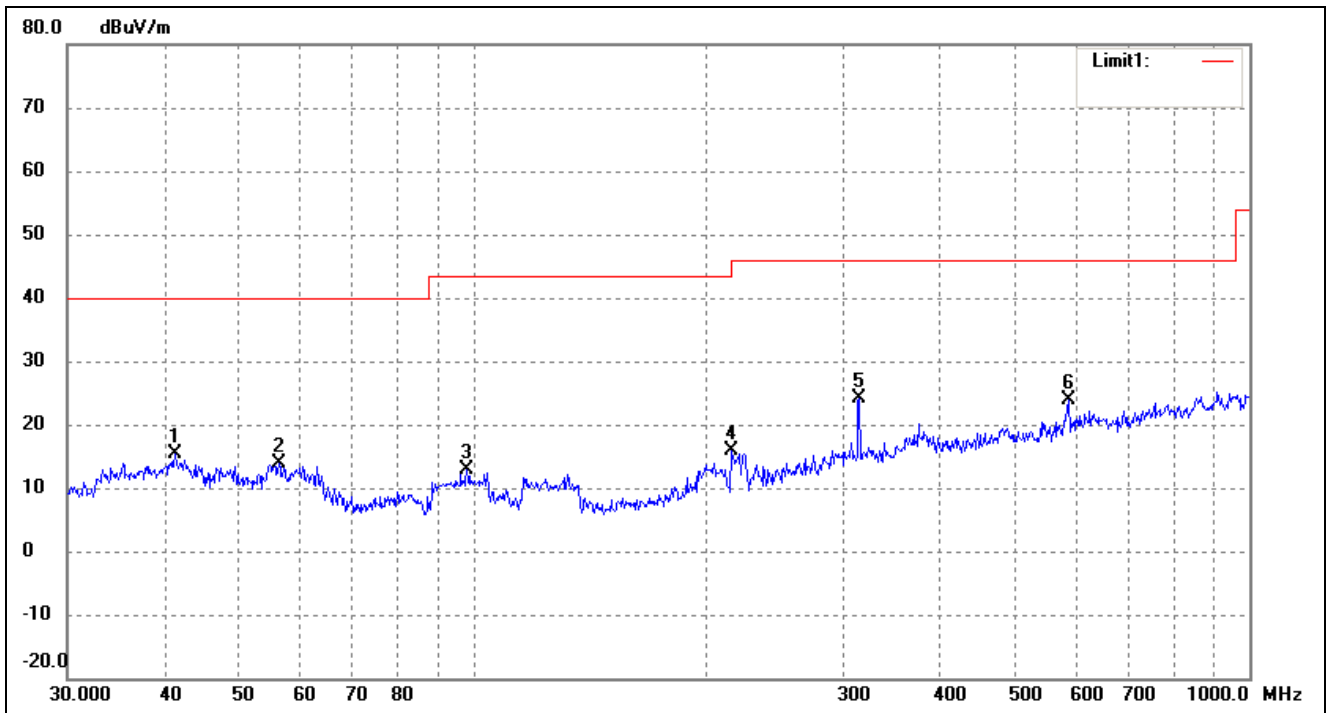
Test Specification: Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	31.1798	28.97	-10.01	18.96	40.00	-21.04	329	100	peak
2	32.4059	26.89	-9.69	17.20	40.00	-22.80	96	100	peak
3	33.3279	26.87	-9.46	17.41	40.00	-22.59	331	100	peak
4	315.4808	26.08	-4.85	21.23	46.00	-24.77	100	100	peak
5	383.9318	22.78	-2.30	20.48	46.00	-25.52	279	100	peak
6	614.2142	22.78	0.83	23.61	46.00	-22.39	281	100	peak

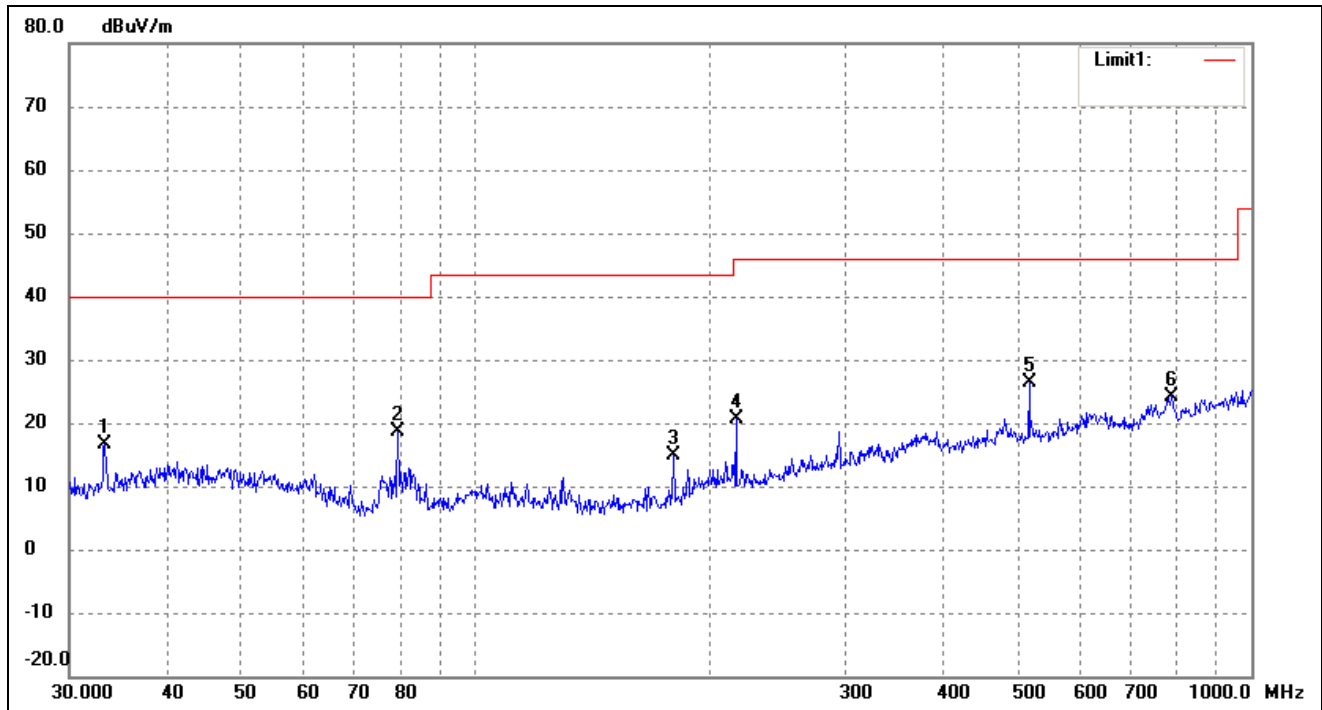
Test mode: Transmitting Channel 5200MHz

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	()	(cm)	
1	41.2765	23.20	-7.75	15.45	40.00	-24.55	359	100	peak
2	56.1974	22.86	-9.10	13.76	40.00	-26.24	149	100	peak
3	98.1419	24.14	-11.28	12.86	43.50	-30.64	86	100	peak
4	215.2678	24.74	-8.79	15.95	43.50	-27.55	135	100	peak
5	314.3765	29.04	-4.92	24.12	46.00	-21.88	137	100	peak
6	584.7895	24.60	-0.77	23.83	46.00	-22.17	165	100	peak

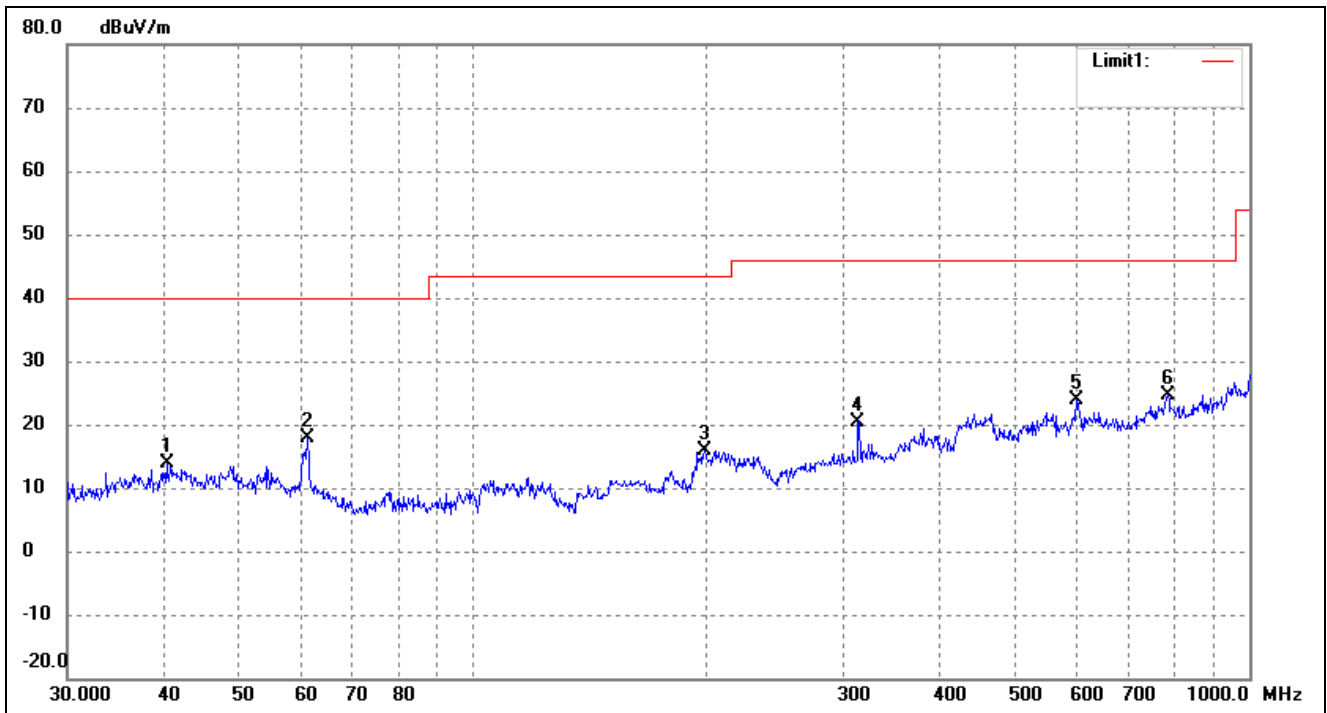
Test Specification: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	()	(cm)	
1	33.3279	26.18	-9.46	16.72	40.00	-23.28	112	100	peak
2	79.5209	30.62	-12.03	18.59	40.00	-21.41	118	100	peak
3	180.0165	26.14	-11.36	14.78	43.50	-28.72	66	100	peak
4	216.7828	29.40	-8.81	20.59	46.00	-25.41	297	100	peak
5	517.2480	28.21	-1.94	26.27	46.00	-19.73	69	100	peak
6	790.6188	21.88	2.37	24.25	46.00	-21.75	108	100	peak

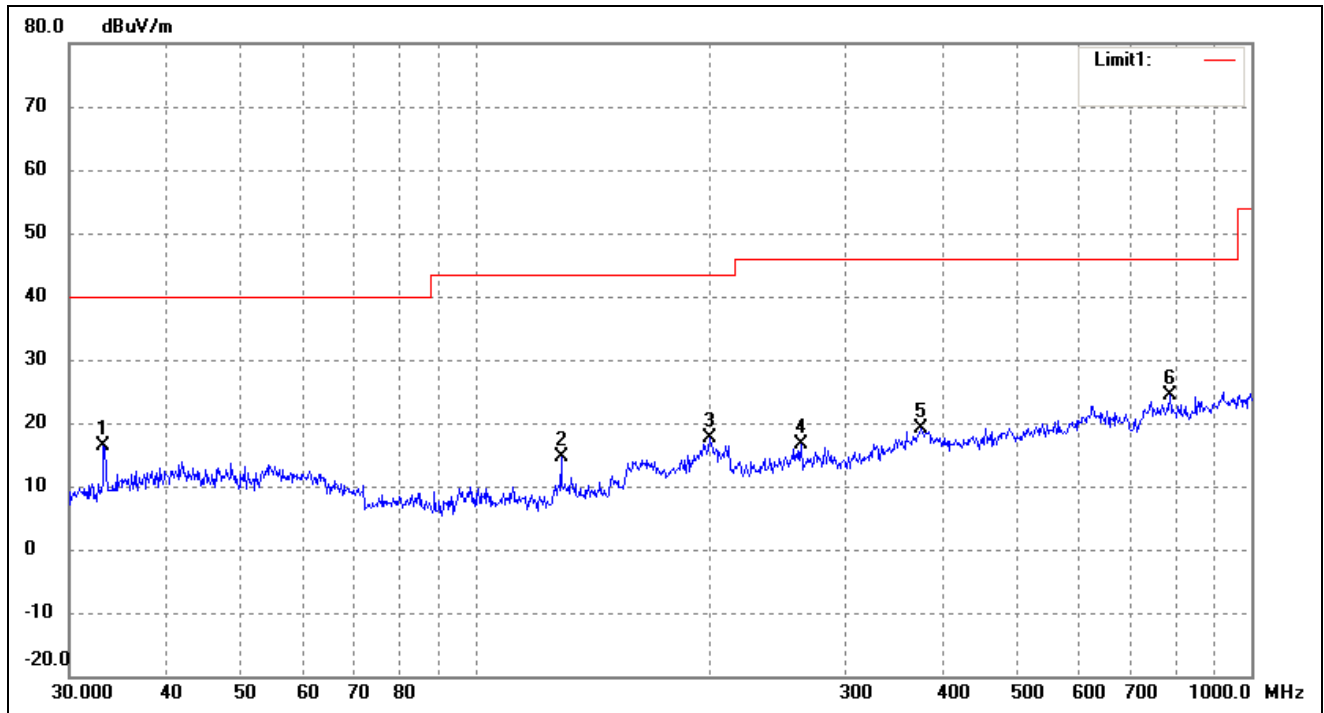
Test mode: Transmitting Channel 5240MHz

Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	40.2757	21.51	-7.69	13.82	40.00	-26.18	113	100	peak
2	61.1316	27.77	-9.94	17.83	40.00	-22.17	174	100	peak
3	198.5880	24.81	-8.85	15.96	43.50	-27.54	112	100	peak
4	313.2760	25.31	-4.97	20.34	46.00	-25.66	144	100	peak
5	599.3213	23.98	-0.17	23.81	46.00	-22.19	228	100	peak
6	785.0935	21.98	2.65	24.63	46.00	-21.37	183	100	peak

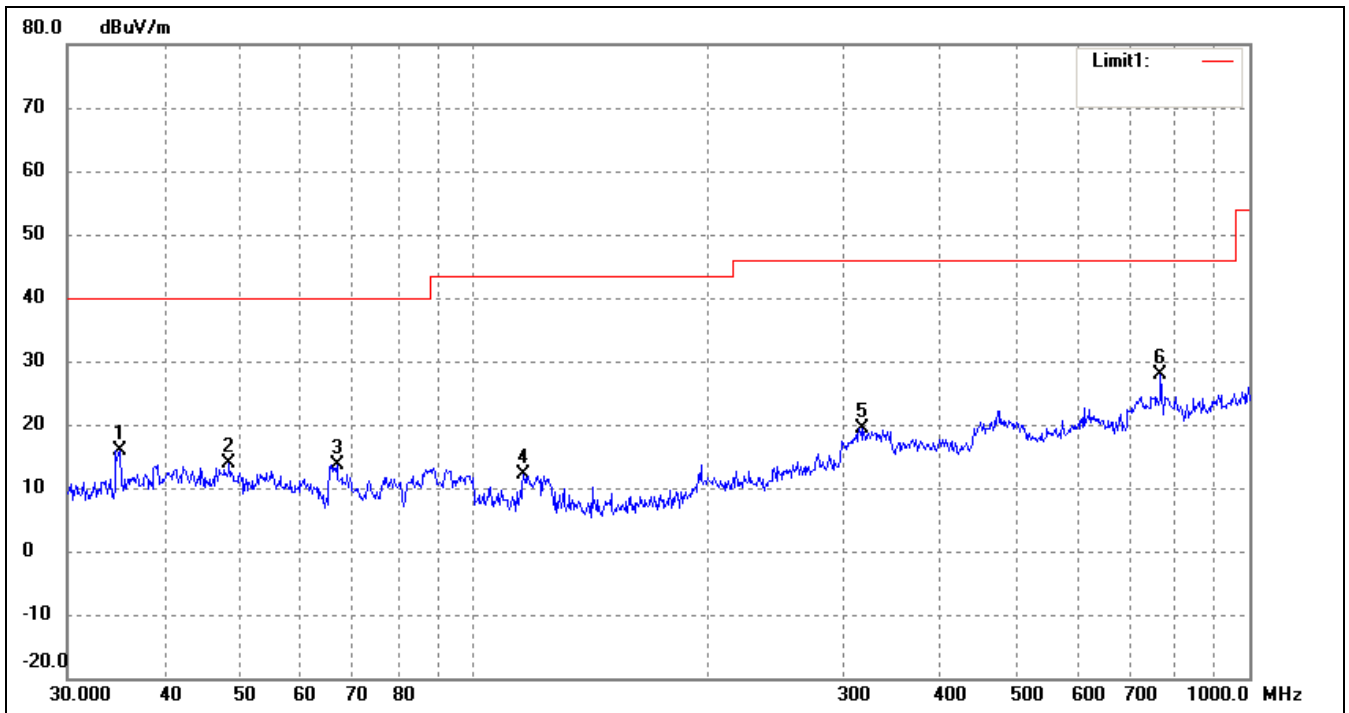
Test Specification: Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	33.2112	25.90	-9.50	16.40	40.00	-23.60	52	100	peak
2	129.0146	26.67	-11.94	14.73	43.50	-28.77	140	100	peak
3	200.6881	26.19	-8.66	17.53	43.50	-25.97	58	100	peak
4	262.8955	23.34	-6.83	16.51	46.00	-29.49	95	100	peak
5	374.6226	21.49	-2.41	19.08	46.00	-26.92	144	100	peak
6	785.0935	21.76	2.65	24.41	46.00	-21.59	307	100	peak

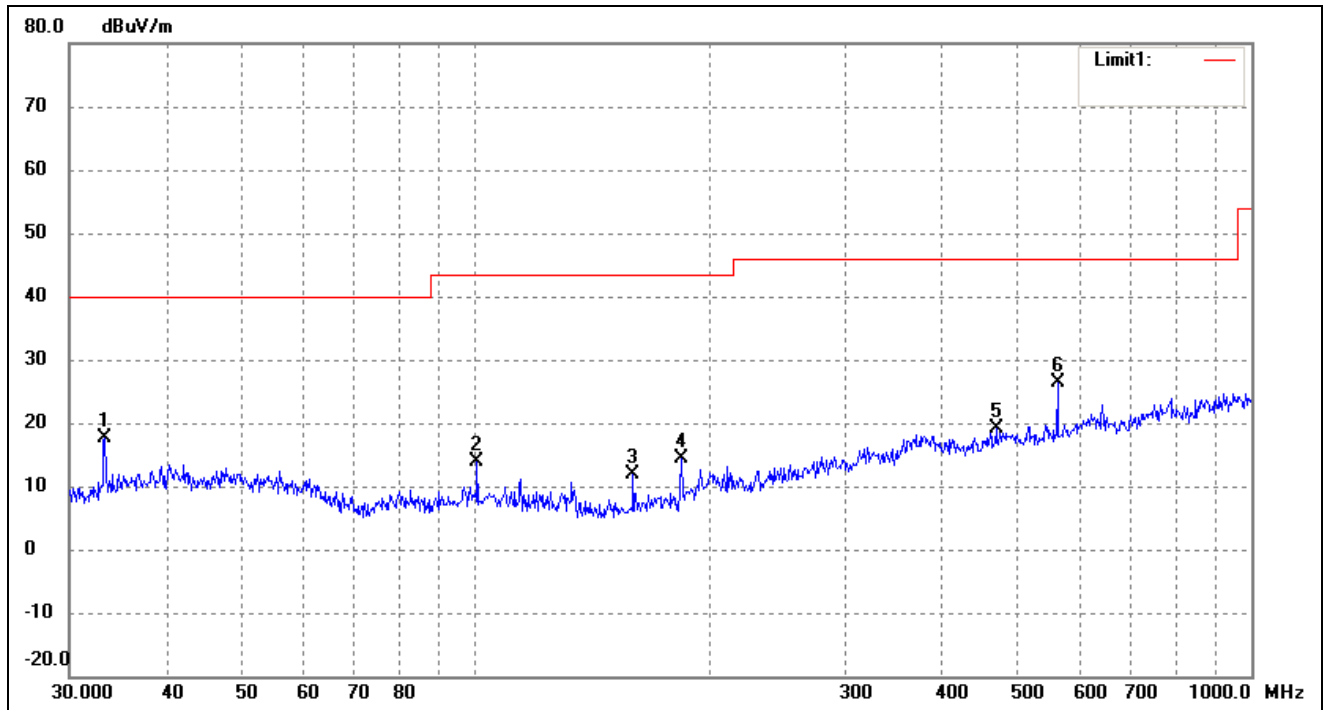
Test mode: Transmitting Channel 5745MHz

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	()	(cm)	
1	35.1278	24.96	-9.01	15.95	40.00	-24.05	238	100	peak
2	48.5016	22.09	-8.22	13.87	40.00	-26.13	93	100	peak
3	66.7325	25.34	-11.77	13.57	40.00	-26.43	94	100	peak
4	116.1321	23.54	-11.33	12.21	43.50	-31.29	107	100	peak
5	317.7011	24.18	-4.74	19.44	46.00	-26.56	52	100	peak
6	768.7482	25.64	2.28	27.92	46.00	-18.08	183	100	peak

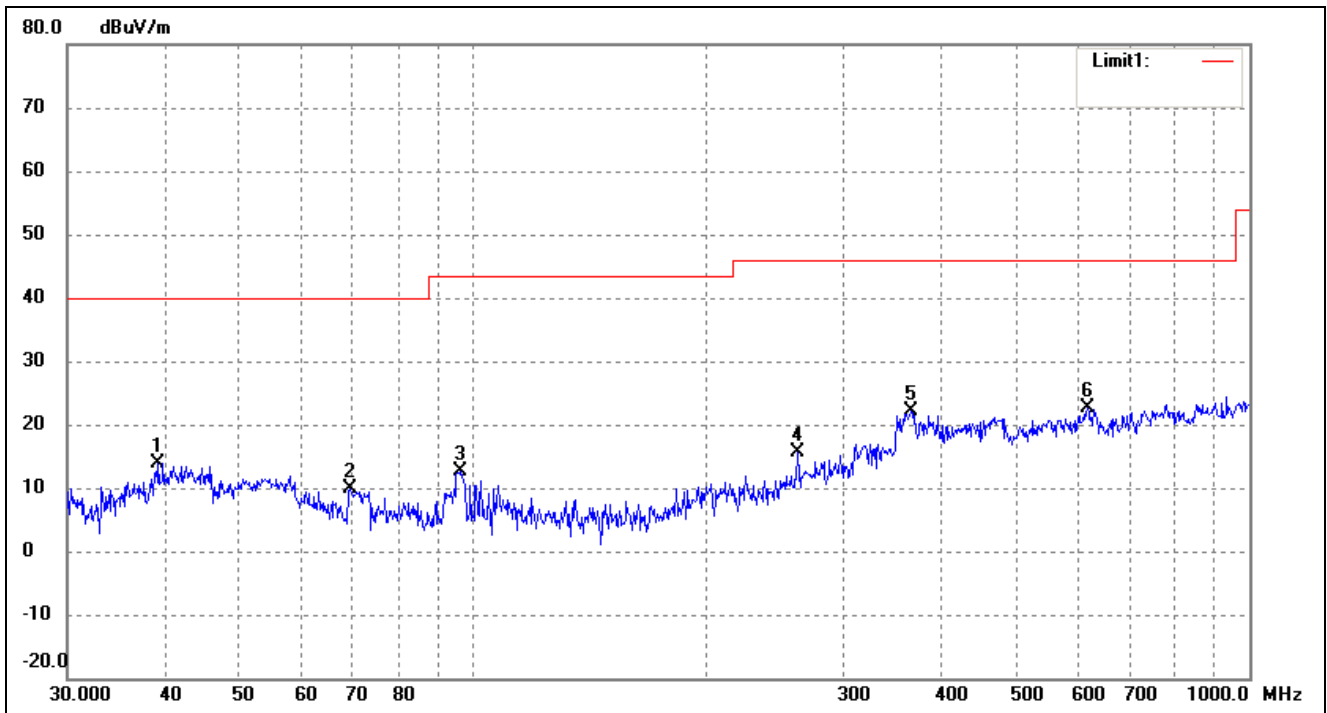
Test Specification: Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	33.3279	27.07	-9.46	17.61	40.00	-22.39	345	100	peak
2	100.5806	24.77	-10.92	13.85	43.50	-29.65	98	100	peak
3	159.7844	24.05	-12.27	11.78	43.50	-31.72	201	100	peak
4	184.4898	25.07	-10.75	14.32	43.50	-29.18	97	100	peak
5	468.8762	21.08	-1.96	19.12	46.00	-26.88	295	100	peak
6	562.6624	27.69	-1.33	26.36	46.00	-19.64	174	100	peak

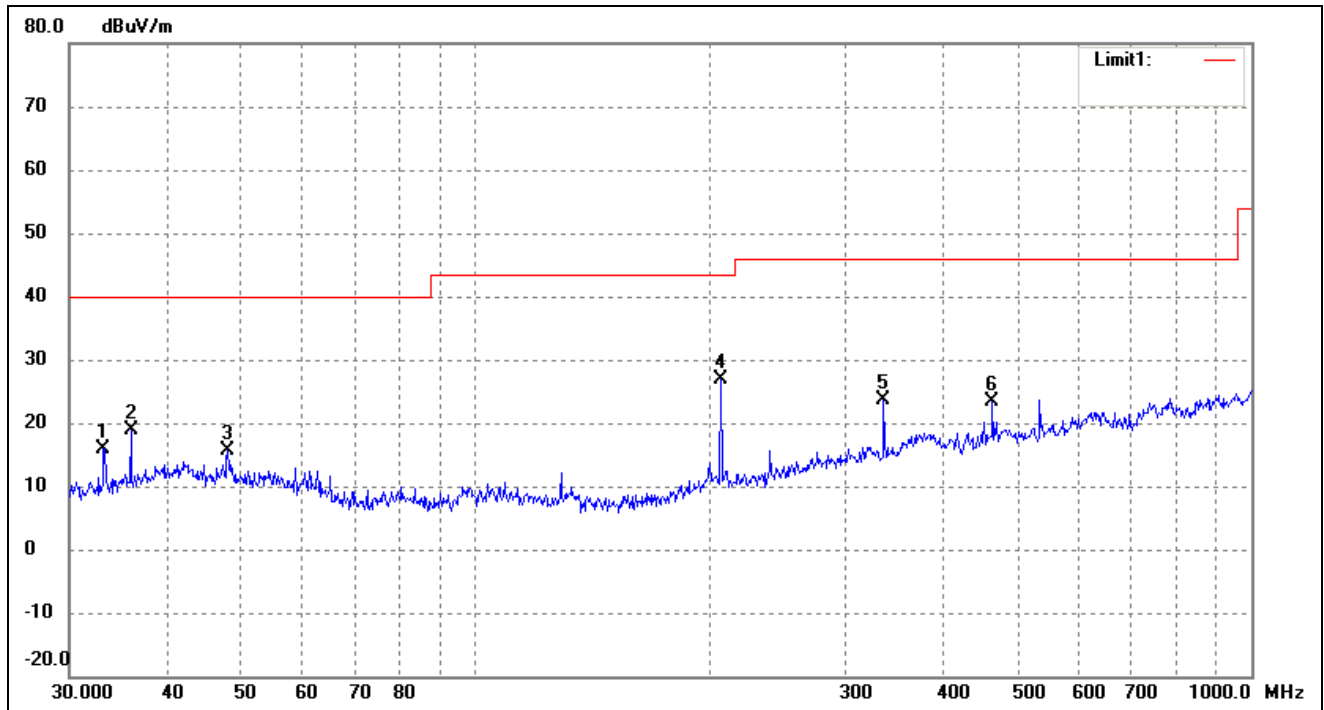
Test mode: Transmitting Channel 5785MHz

Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	39.2991	21.69	-7.85	13.84	40.00	-26.16	150	100	peak
2	69.3568	22.52	-12.62	9.90	40.00	-30.10	335	100	peak
3	96.0986	24.24	-11.70	12.54	43.50	-30.96	95	100	peak
4	261.9753	22.42	-6.87	15.55	46.00	-30.45	308	100	peak
5	366.8231	24.87	-2.86	22.01	46.00	-23.99	318	100	peak
6	618.5369	21.37	1.14	22.51	46.00	-23.49	306	100	peak

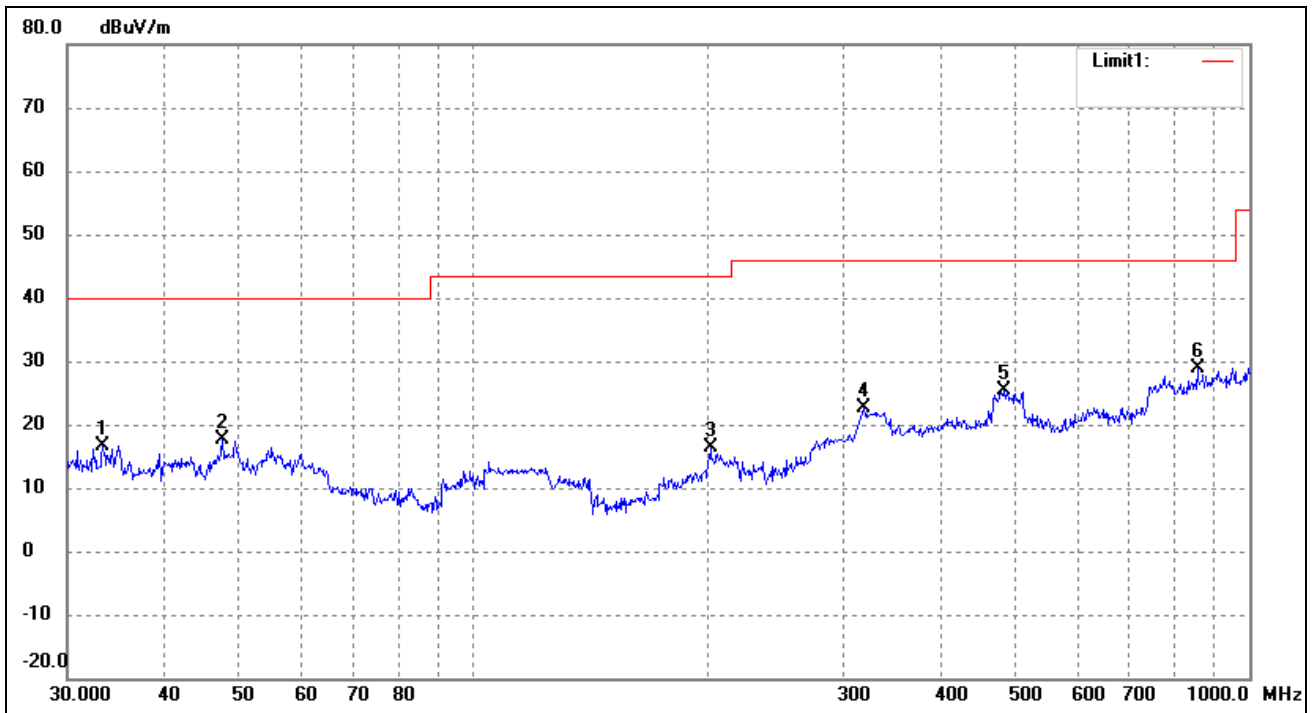
Test Specification: Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	33.2112	25.37	-9.50	15.87	40.00	-24.13	166	100	peak
2	36.0007	27.53	-8.76	18.77	40.00	-21.23	164	100	peak
3	47.9940	23.87	-8.19	15.68	40.00	-24.32	74	100	peak
4	207.1226	35.60	-8.72	26.88	43.50	-16.62	101	100	peak
5	336.0352	28.66	-4.91	23.75	46.00	-22.25	139	100	peak
6	463.9696	25.70	-2.36	23.34	46.00	-22.66	251	100	peak

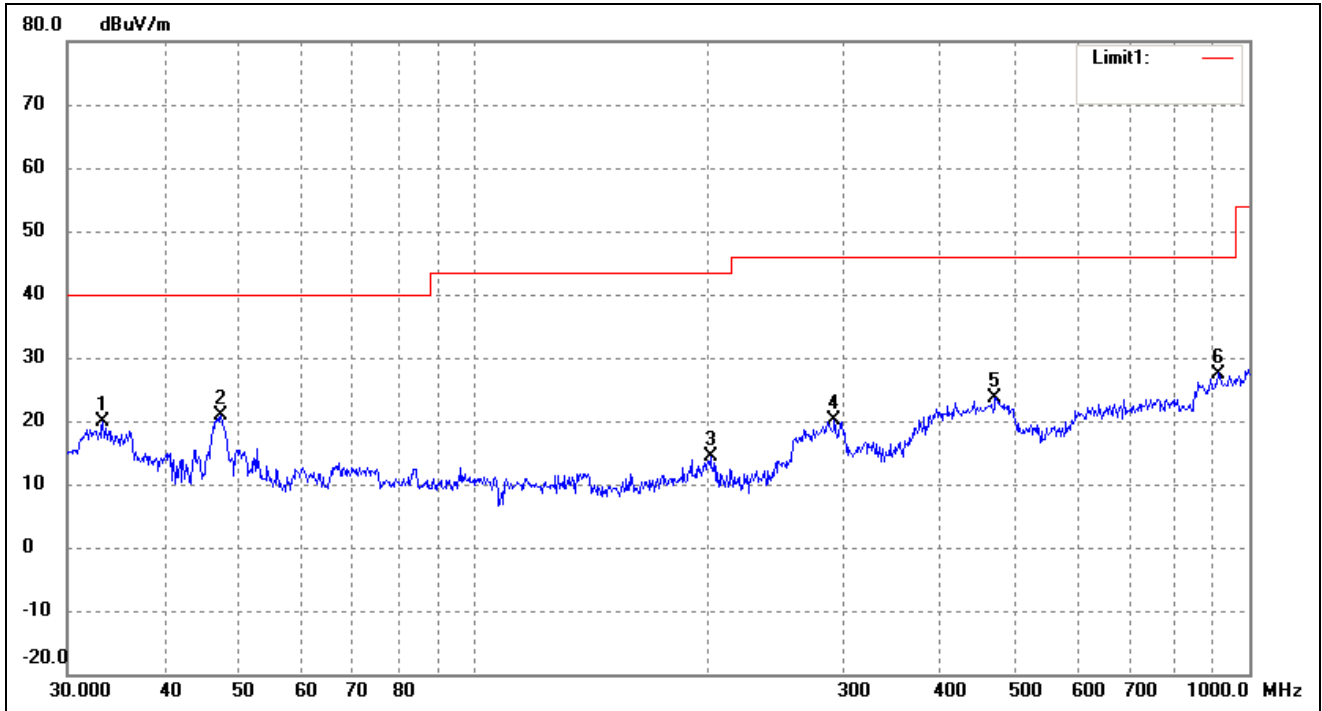
Test mode: Transmitting Channel 5825MHz

Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	33.3279	26.21	-9.46	16.75	40.00	-23.25	169	100	peak
2	47.4918	25.91	-8.16	17.75	40.00	-22.25	121	100	peak
3	202.1005	24.98	-8.66	16.32	43.50	-27.18	108	100	peak
4	318.8170	27.40	-4.68	22.72	46.00	-23.28	136	100	peak
5	482.2156	26.48	-1.17	25.31	46.00	-20.69	91	100	peak
6	857.0247	26.04	2.78	28.82	46.00	-17.18	294	100	peak

Test Specification: Vertical



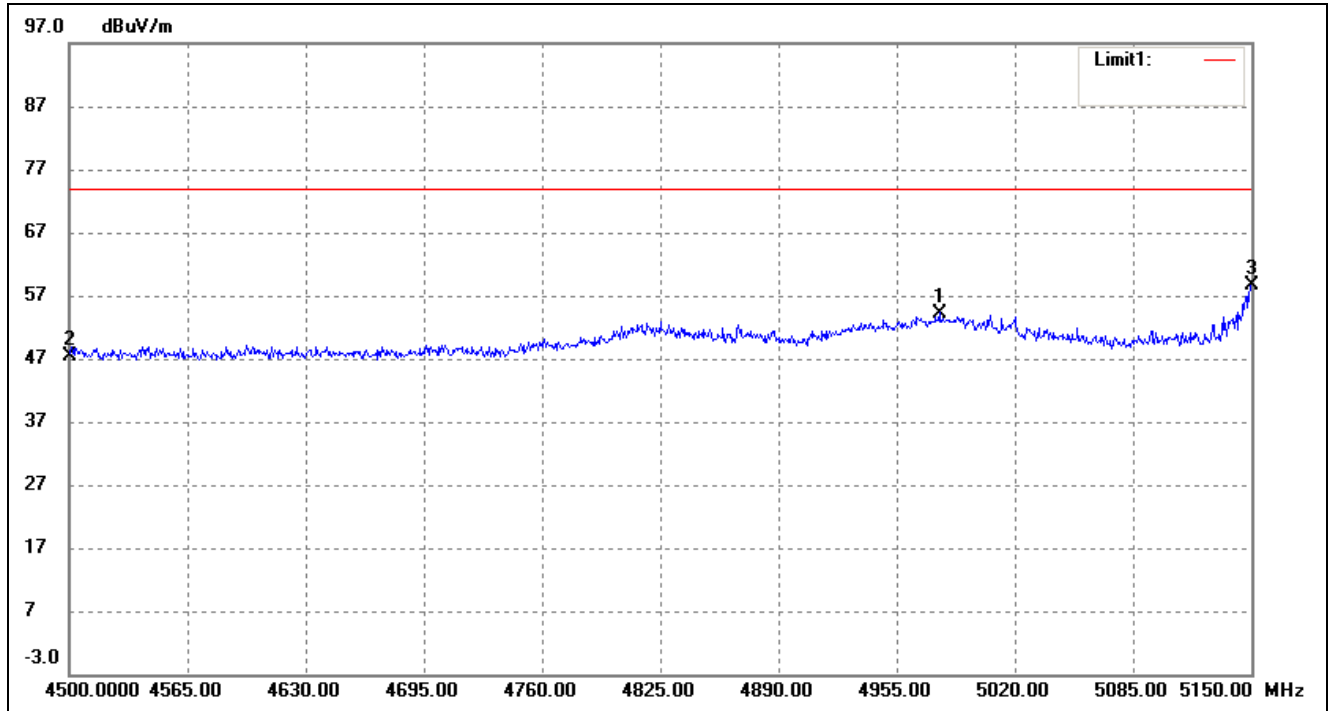
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	33.3279	29.45	-9.46	19.99	40.00	-20.01	95	100	peak
2	47.3255	28.91	-8.15	20.76	40.00	-19.24	149	100	peak
3	202.1005	23.05	-8.66	14.39	43.50	-29.11	98	100	peak
4	292.0583	25.85	-5.83	20.02	46.00	-25.98	147	100	peak
5	470.5232	25.57	-1.82	23.75	46.00	-22.25	166	100	peak
6	912.8620	24.01	3.49	27.50	46.00	-18.50	331	100	peak

For 802.11a

Spurious Emission above 1GHz

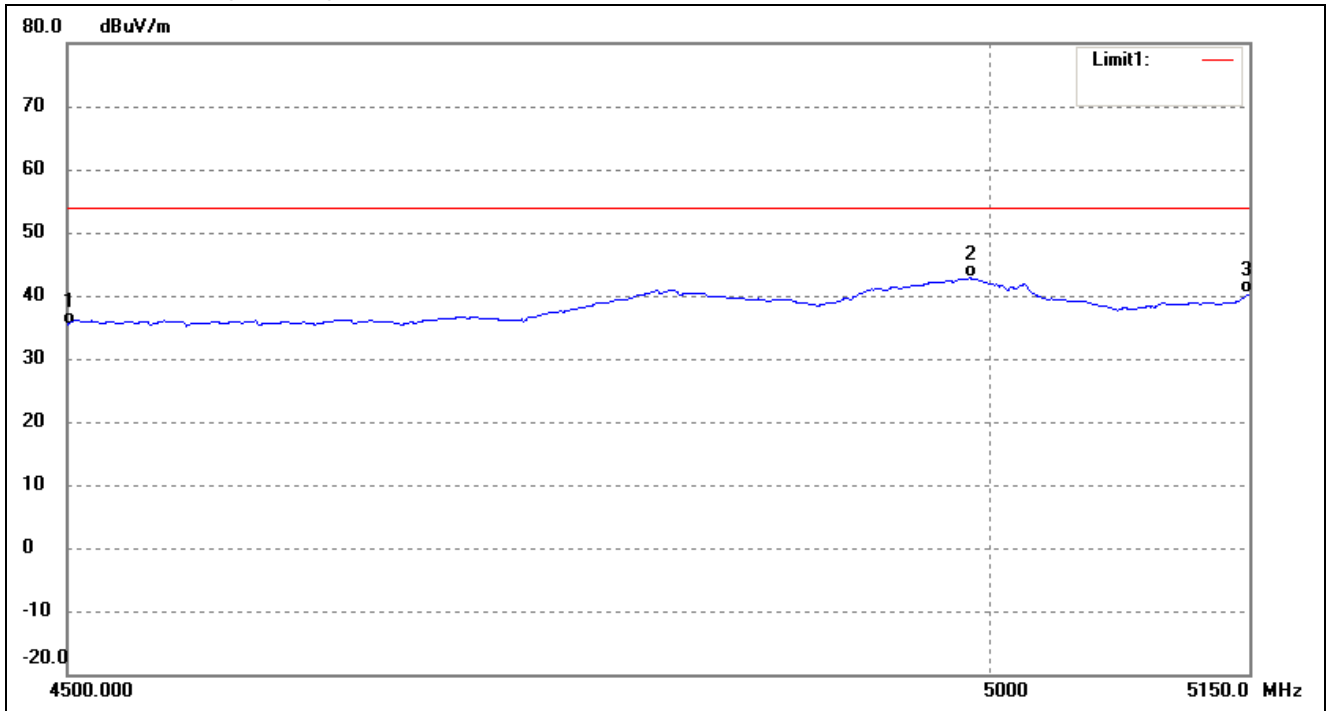
For the frequency band 5.15-5.25GHz(802.11a)

Restricted Bandedge Peak



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	4978.517	54.79	-0.54	54.25	74.00	-19.75	356	100	peak
2	4500.000	48.90	-1.43	47.47	74.00	-26.53	97	100	peak
3	5150.000	58.75	-0.13	58.62	74.00	-15.38	227	100	peak

Restricted Bandedge Average



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	4500.000	36.91	-1.43	35.48	54.00	-18.52	96	100	AVG
2	4988.602	43.31	-0.52	42.79	54.00	-11.21	187	100	AVG
3	5150.000	40.44	-0.13	40.31	54.00	-13.69	97	100	AVG

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

Harmonics 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	48.34	185	V	40.7	10.9	39.6	60.34	74	-13.66
15540	PK	47.42	235	H	40.7	10.9	39.6	59.42	74	-14.58
15540	AV	35.62	119	V	40.7	10.9	39.6	47.62	54	-6.38
15540	AV	36.22	170	H	40.7	10.9	39.6	48.22	54	-5.78
High Channel (5240MHz)										
15720	PK	46.69	285	V	40.7	10.9	39.6	58.69	74	-15.31
15720	PK	45.74	132	H	40.7	10.9	39.6	57.74	74	-16.26
15720	AV	39.98	121	V	40.7	10.9	39.6	51.98	54	-2.02
15720	AV	35.82	206	H	40.7	10.9	39.6	47.82	54	-6.18

Out of Band edge

Test CH.	Test Segment	Result	Limit
	MHz	dBm/MHz	dBm/MHz
Lowest	Below 5150	-41.27	-27
Highest	Above 5350	-43.69	-27
Note: the data just list the worst cases			

For the frequency band 5.725-5.850GHz (802.11a)

Harmonics 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 (5745MHz)										
11490	PK	46.52	155	V	38.9	9.8	40.1	55.12	74	-18.88
11490	PK	49.52	171	H	38.9	9.8	40.1	58.12	74	-15.88
11490	AV	36.37	151	V	38.9	9.8	40.1	44.97	54	-9.03
11490	AV	37.64	216	H	38.9	9.8	40.1	46.24	54	-7.76
High Channel (5825MHz)										
11610	PK	49.68	158	V	38.9	9.8	40.1	58.28	74	-15.72
11610	PK	47.6	308	H	38.9	9.8	40.1	56.2	74	-17.8
11610	AV	35.9	285	V	38.9	9.8	40.1	44.5	54	-9.5
11610	AV	38.15	246	H	38.9	9.8	40.1	46.75	54	-7.25

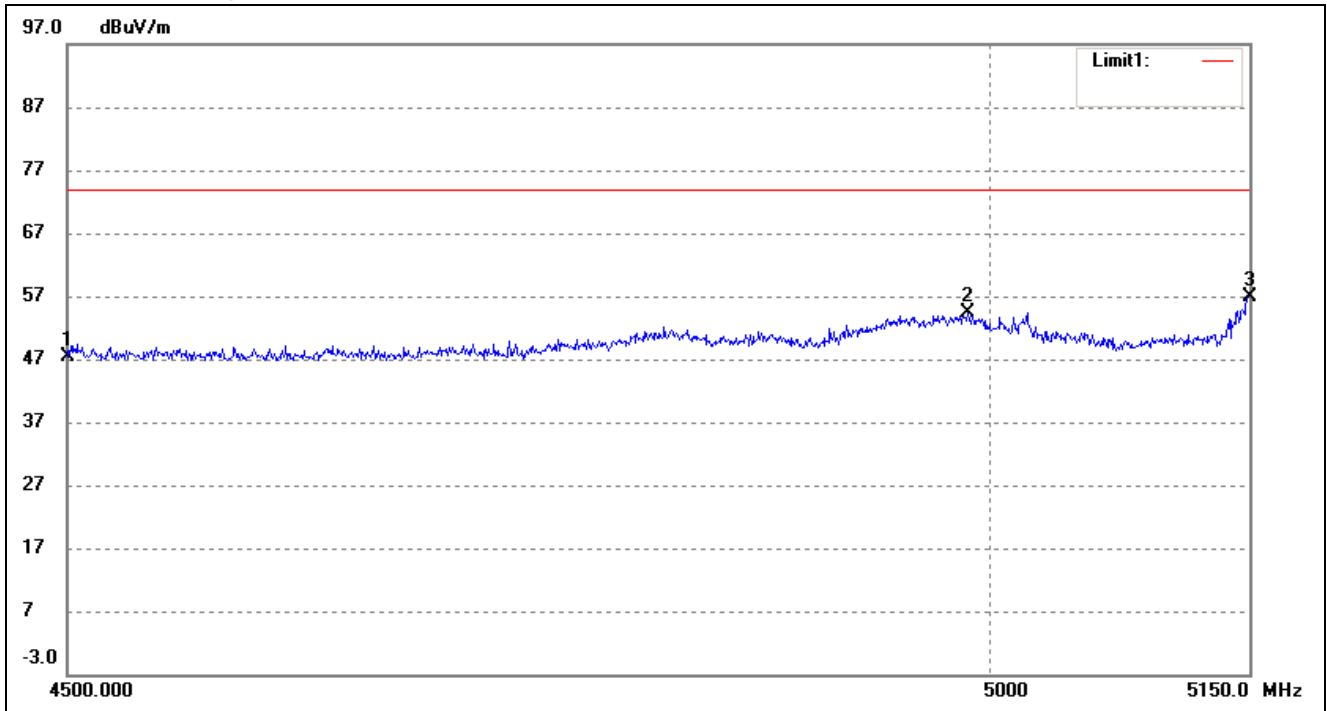
Out of Band edge

Test CH.	Test Segment	Result	Limit
	MHz	dBm/MHz	dBm/MHz
Lowest	Below 5715	-45.69	-27
	5715 to 5725	-43.18	-17
Highest	5850 to 5860	-43.23	-17
	Above 5860	-48.25	-27
Note: the data just list the worst cases			

802.11n HT20

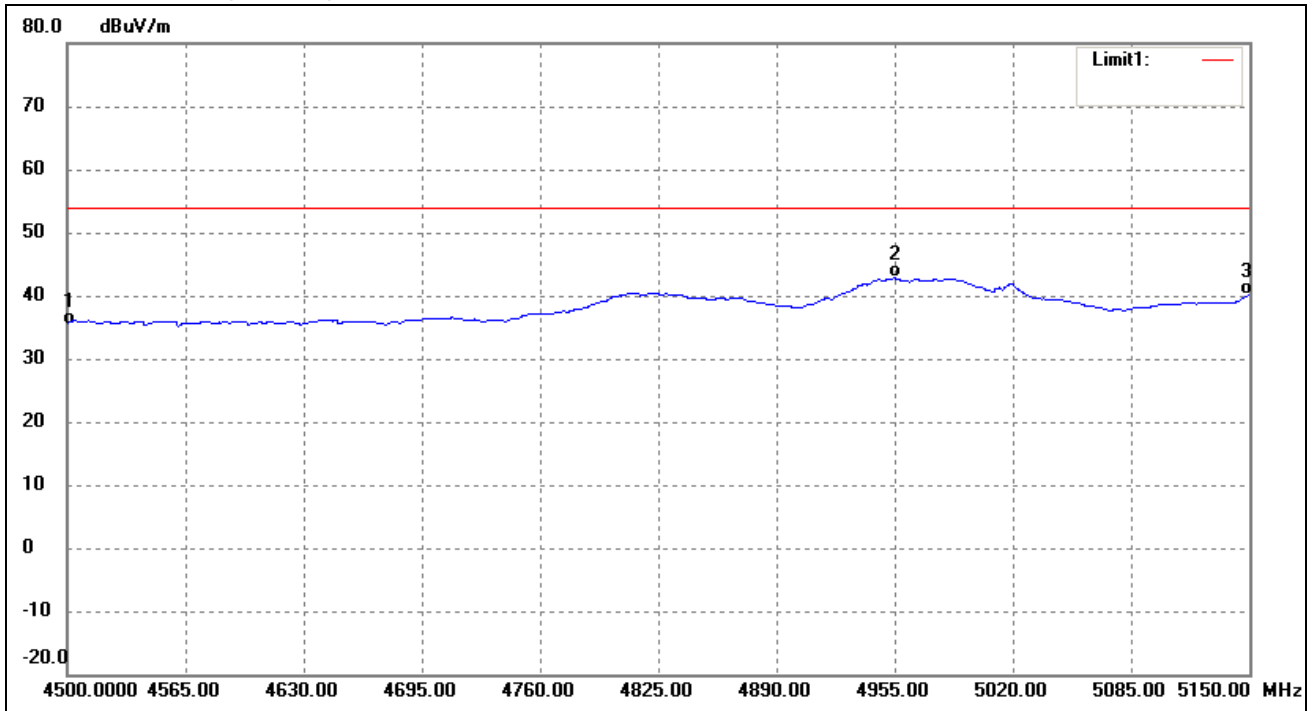
For the frequency band 5.15-5.25GHz(802.11n HT20)

Restricted Bandedge Peak



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	4500.000	48.78	-1.43	47.35	74.00	-26.65	131	100	peak
2	4987.256	54.90	-0.52	54.38	74.00	-19.62	107	100	peak
3	5150.000	56.93	-0.13	56.80	74.00	-17.20	69	100	peak

Restricted Bandedge Average



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	4500.000	36.91	-1.43	35.48	54.00	-18.52	221	100	AVG
2	4955.063	43.40	-0.61	42.79	54.00	-11.21	313	100	AVG
3	5150.000	40.18	-0.13	40.05	54.00	-13.95	89	100	AVG

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

Harmonics 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	50.9	360	V	40.7	10.9	39.6	62.9	74	-11.1
15540	PK	50.4	360	H	40.7	10.9	39.6	62.4	74	-11.6
15540	AV	34.5	360	V	40.7	10.9	39.6	46.5	54	-7.5
15540	AV	34.6	360	H	40.7	10.9	39.6	46.6	54	-7.4
High Channel (5240MHz)										
15720	PK	50.3	360	V	40.7	10.9	39.6	62.3	74	-11.7
15720	PK	49.5	360	H	40.7	10.9	39.6	61.5	74	-12.5
15720	AV	34.2	360	V	40.7	10.9	39.6	46.2	54	-7.8
15720	AV	33.8	360	H	40.7	10.9	39.6	45.8	54	-8.2

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 (802.11n HT20)

Harmonics 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)										
11490	PK	54.3	360	V	38.9	9.8	40.1	62.9	74	-11.1
11490	PK	54.5	360	H	38.9	9.8	40.1	63.1	74	-10.9
11490	AV	35.4	360	V	38.9	9.8	40.1	44.0	54	-10.0
11490	AV	36.1	360	H	38.9	9.8	40.1	44.7	54	-9.3
High Channel (5825MHz)										
11610	PK	54.4	360	V	38.9	9.8	40.1	63.0	74	-11.0
11610	PK	53.6	360	H	38.9	9.8	40.1	62.2	74	-11.8
11610	AV	36.4	360	V	38.9	9.8	40.1	45.0	54	-9.0
11610	AV	34.8	360	H	38.9	9.8	40.1	43.4	54	-10.6

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

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.

12. Frequency Stability

12.1 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.

12.2 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 declared by manufacturer
-30°C to +50°C	Normal

12.3 Environmental Conditions

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

12.4 Summary of Test Results/Plots

5150-5250MHz

802.11a_20MHz

Reference Frequency(Middle Channel): 5200 MHz			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	3.7	177	0.0340
40	3.7	185	0.0356
30	3.7	132	0.0254
20	3.7	132	0.0254
10	3.7	155	0.0298
0	3.7	137	0.0263
-10	3.7	153	0.0294
-20	3.7	179	0.0344
-30	3.7	144	0.0277

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	156	0.0300
40	3.7	151	0.0290
30	3.7	106	0.0204
20	3.7	105	0.0202
10	3.7	130	0.0250
0	3.7	142	0.0273
-10	3.7	157	0.0302
-20	3.7	86	0.0165
-30	3.7	115	0.0221

5725-5850MHz

802.11a_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	146	0.0252
40	3.7	122	0.0211
30	3.7	95	0.0164
20	3.7	125	0.0216
10	3.7	181	0.0313
0	3.7	147	0.0254
-10	3.7	164	0.0283
-20	3.7	103	0.0178
-30	3.7	128	0.0221

802.11n_HT20

Reference Frequency(Middle Channel): 5785MHz			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	3.7	162	0.0280
40	3.7	150	0.0259
30	3.7	152	0.0263
20	3.7	142	0.0245
10	3.7	118	0.0204
0	3.7	108	0.0187
-10	3.7	161	0.0278
-20	3.7	102	0.0176
-30	3.7	178	0.0308

So, Frequency Stability Versus Input Voltage is:

5150-5250MHz

802.11a_HT20

Reference Frequency(Middle Channel): 5200 MHz			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	3.3	165	0.0317
	3.7	132	0.0254
	4.2	168	0.0323

802.11n_HT20

Reference Frequency(Middle Channel): 5200 MHz			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	3.3	109	0.0210
	3.7	105	0.0202
	4.2	121	0.0233

5725-5850MHz

802.11a_HT20

Reference Frequency(Middle Channel): 5785 MHz			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	3.3	134	0.0232
	3.7	125	0.0216
	4.2	132	0.0228

802.11n_HT20

Reference Frequency(Middle Channel): 5785 MHz			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	3.3	150	0.0259
	3.7	142	0.0245
	4.2	140	0.0242

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