FCC Part 15 Subpart C Test Report

for DSSS/OFDM System

Product Name : Android Moblie Data Terminal
Model Name : MX-5060

Prepared for:
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Report Number : UL33220160629FCC004-1
Date of Report : 08-17-2016
Date of Test : 08-01-2016~08-16-2016

Notes：
The test results only relate to these samples which have been tested.
Partly using this report will not be admitted unless been allowed by Unilab.
Uniab is only responsible for the complete report with the reported stamp of Unilab.

Applicant:	Mexxen Technology(ShangHai)INC. Unit B,12F,Building 11,No. 518,xinzhuan Rd., Songjiang District, Shanghai, China
Manufacturer:	Mexxen Technology(ShangHai)INC. Unit B,12F,Building 11,No. 518,xinzhuan Rd., Songjiang District,Shanghai,China
Product Name:	Android Mobile Data Terminal
Brand Name:	MEXXEN
Model Name:	MX-5060
FCC ID:	2ADX0-MX-5060
EUT Voltage:	AC input: AC 100~240V 50/60Hz 0.35A Output: 5V 2A
Date of Receipt:	06-29-2016
Date of Test:	08-01-2016~08-16-2016
Test Standard:	FCC CFR Tile 47 Part 15 Subpart C ANSI C63.4: 2009 KDB 558074 D01 v03r05
Test Result:	PASS

Prepared by : Wayne Wu
(Technical Engineer: Jeffrey Wang)

Reviewed by : Forest Cao
(Senior Engineer: Forest Cao)

Approved by : Eva wang
(Supervisor: Eva Wang)

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1. GENERAL INFORMATION

1.1 EUT DESCRIPTION

Product Name:	Android Mobile Data Terminal
Model Name:	MX-5060
Hardware Version:	V3.0
Software Version:	GST_A82_M30_3110955E_MUL_V02_20150619
RF Exposure Environment:	Uncontrolled
WIFI	
Frequency Range:	2412MHz~2462MHz
Type of Modulation:	DSSS(BPSK/QPSK/CCK) OFDM(BPSK/QPSK/16QAM/64QAM)
Channel Number:	11
Antenna Type:	Internal
Antenna Peak Gain:	3.51dBi
Component	
AC Adapter:	Input: AC 100-240V 50/60Hz 0.35A
	Output: DC 5V 2A

1.2 TEST MODE

Unilab has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode
Mode 1: 802.11b CH1
Mode 2: 802.11b CH6
Mode 3: 802.11b CH11
Mode 4: 802.11g CH1
Mode 5: 802.11g CH6
Mode 6: 802.11g CH11
Mode 7: 802.11n20 CH1
Mode 8: 802.11n20 CH6
Mode 9: 802.11n20 CH11
Mode 10: 802.11n40 CH3
Mode 11: 802.11n40 CH6
Mode 12: 802.11n40 CH9

The conducted power table is as follows:

Test Mode		Conduct Power(dBm)		
		Channel 1	Channel 6	Channel 11
802.11b	rate 1	12.6	12.5	12.7
	rate 11	**12.9**	**12.8**	**12.9**
802.11g	rate 6	11.0	11.1	11.5
	rate 54	**11.2**	**11.4**	**11.6**
802.11n20	rate MCS 0	10.9	10.9	11.0
	rate MCS 7	**11.1**	**11.2**	**11.2**
Test Mode		Channel 3	Channel 6	Channel 9
802.11n40	rate MCS 0	11.2	11.3	11.1
	rate MCS 7	**11.3**	**11.4**	**11.4**

Note:
1. Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.
2. For the radiated emission test, every axis (X, Y, Z) was verified, and show the worst result on this report.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4 and FCC CFR 47 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057, 15.207, 15.209 and 15.247.

2.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application

2.2 EUT EXERCISE

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements. According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.

2.3 GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4: 2009 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4: 2009.

2.4 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])
13.36 - 13.41			

1 Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

2 Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

2.5 DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition.
After verification, all tests were carried out with the worst case test modes as shown below

IEEE802.11b mode:

Channel Low (2412MHz)

Channel Mid (2437MHz)

Channel High (2462MHz) with 11Mbps data rate were chosen for full testing.

IEEE802.11g mode:

Channel Low (2412MHz)

Channel Mid (2437MHz)

Channel High (2462MHz) with 54Mbps data rate were chosen for full testing.

IEEE802.11n20 mode:

Channel Low (2412MHz)

Channel Mid (2437MHz)

Channel High (2462MHz) with 65Mbps data rate were chosen for full testing.

IEEE802.11n40 mode:

Channel Low (2422MHz)

Channel Mid (2437MHz)

Channel High (2452MHz) with 135Mbps data rate were chosen for full testing.

3. TECHNIACL SUMMARY

3.1 SUMMARY OF STANDARDS AND TEST RESULTS

The EUT have been tested according to the applicable standards as referenced below:

Test Item	FCC	Result
Occupied Bandwidth	§15.247 (a)	P
6 dB bandwidth	§15.247 (a)	P
Power spectral density	§15.247 (e)	P
Peak Output Power (Conduction)	§15.247 (b)	P
Spurious Emissions (Conduction)	§15.247 (d)	P
Band edge measurement	§15.247 (d)	P
Spurious Emissions (Radiation)	§15.247 (d) §15.35 (b) §15.209 (a)	P
AC Power Line Conducted Emissions	§15.207 (a)	P

Note: P means pass, F means failure, N/A means not applicable

3.2 TEST UNCERTAINTY

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Test item	Value (dB)
Conducted disturbance	3.4
Radiated disturbance	4.2

3.3 TEST EQUIPMENT LIST

Equipment	Manufacturer	Model	Serial No.	Due Date
Receiver	Agilent	N9038A	MY51210142	11/11/2016
Power meter	R&S	NRP2	101607	02/17/2017
Loop Antenna	Schwarzbeck	FMZB1519	1519-020	03/24/2017
LISN	R&S	ENV216	100069	07/26/2017
3m Chamber & Accessory Equipment	ETS-LINDGREN	FACT-3	CT-0000336	11/26/2017
Microwave Preamplifier	EM Electronics	EM30180	3008A02425	02/26/2017
Power Splitter	Agilent	11667C/ 52401	MY53806148	02/26/2017
Biconilog Antenna	Schwarzbeck	VULB 9160	3316	09/19/2016
Horn Antenna	Schwarzbeck	BBHA9120D	942	09/19/2016
Horn Antenna	Schwarzbeck	BBHA9120D	943	09/19/2016
Horn Antenna(18-40GHz)	ETS	3116	00070497	07/18/2017

3.4 TEST FACILITY

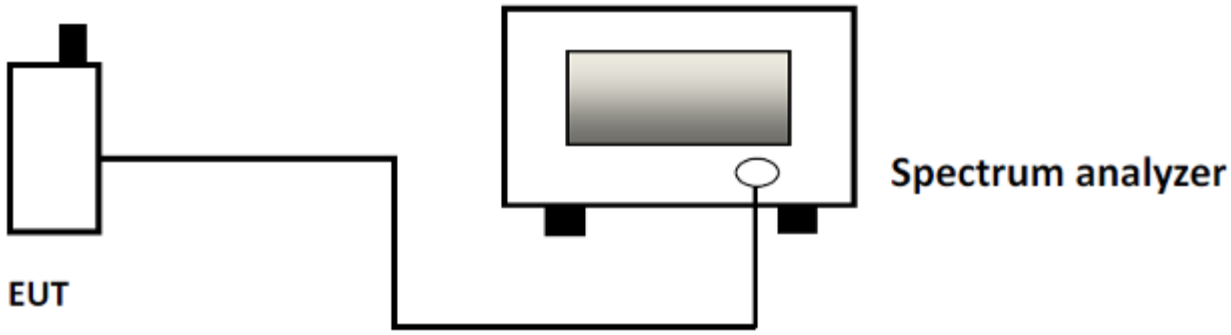
All test facilities used to collect the test data are located at No.1350, Lianxi Rd. Pudong New District, Shanghai, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4: 2009, CISPR 16-1-1 and other equivalent standards. The laboratory is compliance with the requirements of the ISO/IEC/E 17025.

3.5 TEST SETUP CONFIGURATION

The information contained within this report is intended to show verification of compliance of the EUT to the requirements of CFR 47 FCC Part 15.247.
Unilab has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report.

4. OCCUPIED BANDWIDTH

4.1 TEST SETUP



4.2 LIMITS

Limits	≥25 kHz or 2 to 3 times the 20 dB bandwidth

4.3 TEST PROCEDURE

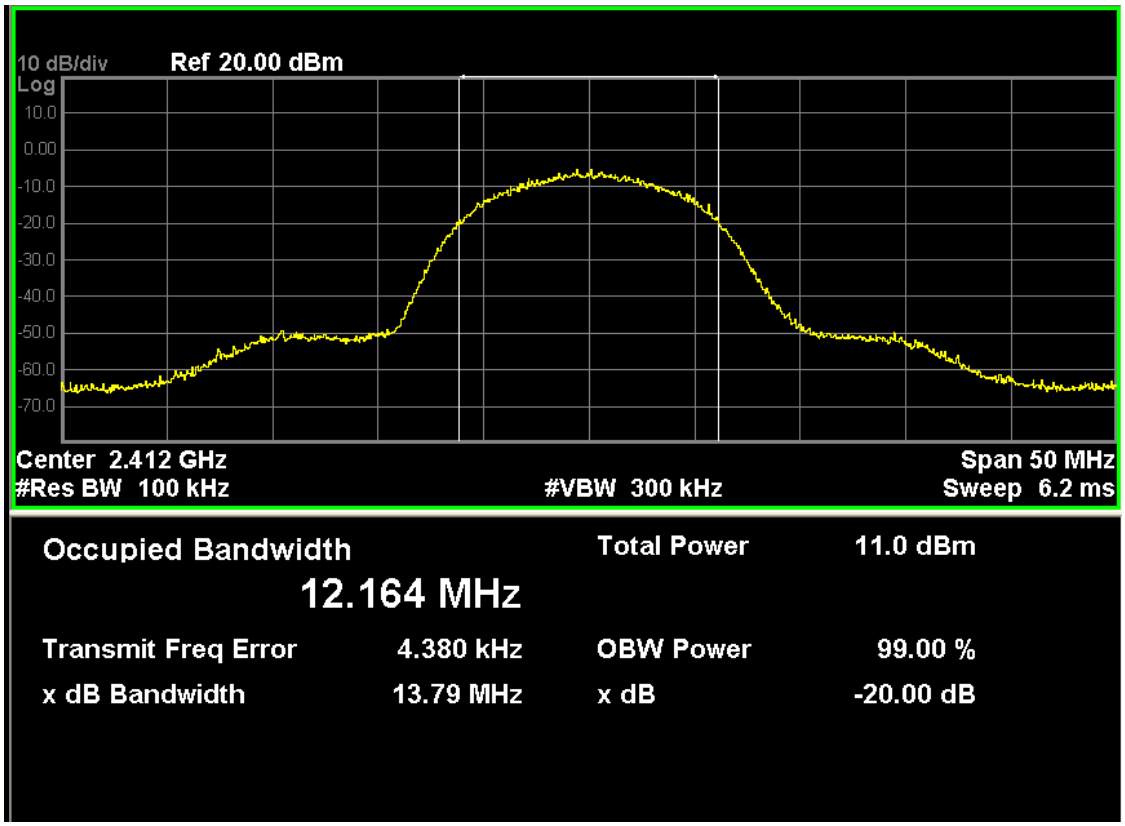
Place the EUT on the table and set it in transmitting mode. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to spectrum analyzer. The loss between RF output port of the EUT and the input port of the tester will be taken into consideration.
The measurement will be conducted at three channels.
WIFI: Low(1), Middle(6) and High (11).
Using occupied BW measurement function of spectrum analyzer and settings are:
XdB = -20dB
RBW = 100kHz
VBW ≥ 3 x RBW
Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a channel
Sweep = auto
Detector function = peak
Trace = max hold

4.4 TEST RESULTS

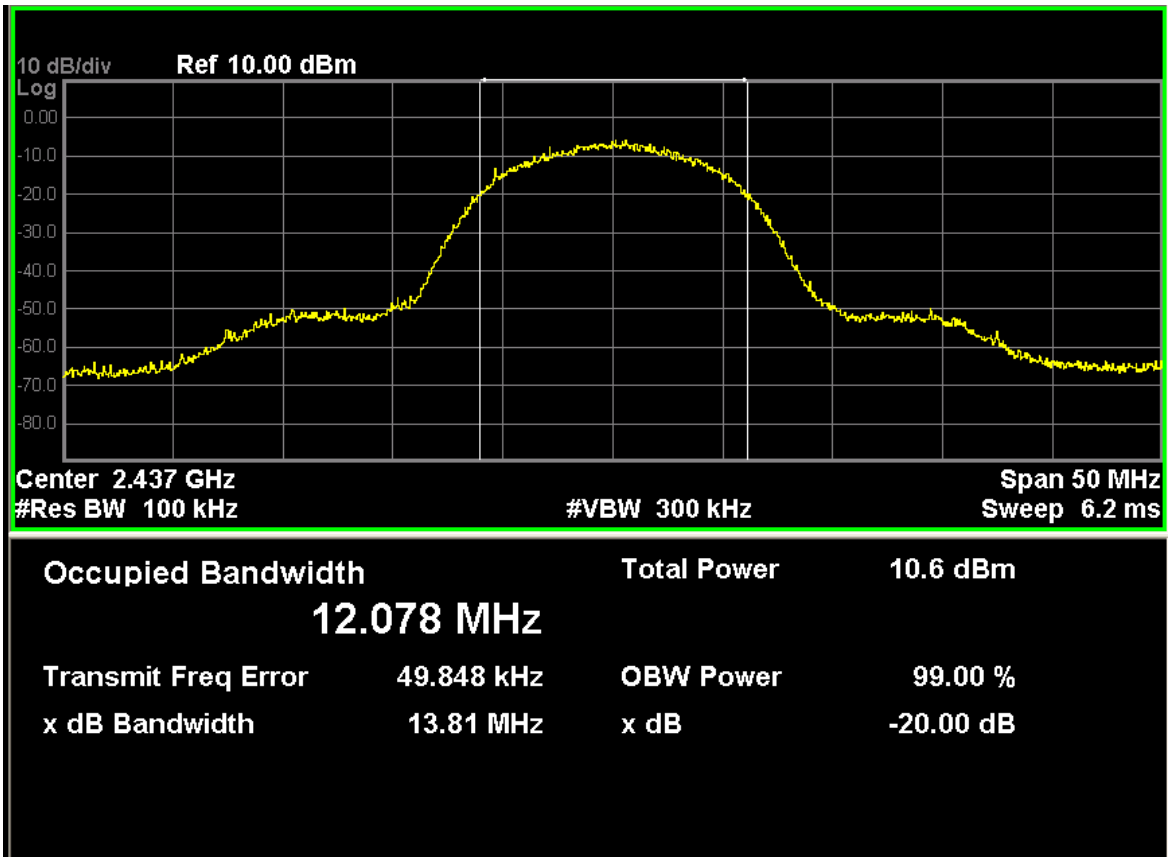
Channel	20dB bandwidth (MHz)	99% bandwidth (MHz)
802.11b		
802.11b CH1	12.164	13.79
802.11b CH6	12.078	13.81
802.11b CH11	12.058	13.78
802.11g		
802.11g CH1	16.337	17.39
802.11g CH6	16.322	17.46
802.11g CH11	16.314	17.28
802.11n20		
802.11n CH1	17.525	18.11
802.11n CH6	17.530	18.23
802.11n CH11	17.521	18.24
802.11n40		
802.11n CH3	36.023	37.08
802.11n CH6	35.943	37.04
802.11n CH9	35.925	37.02

802.11b

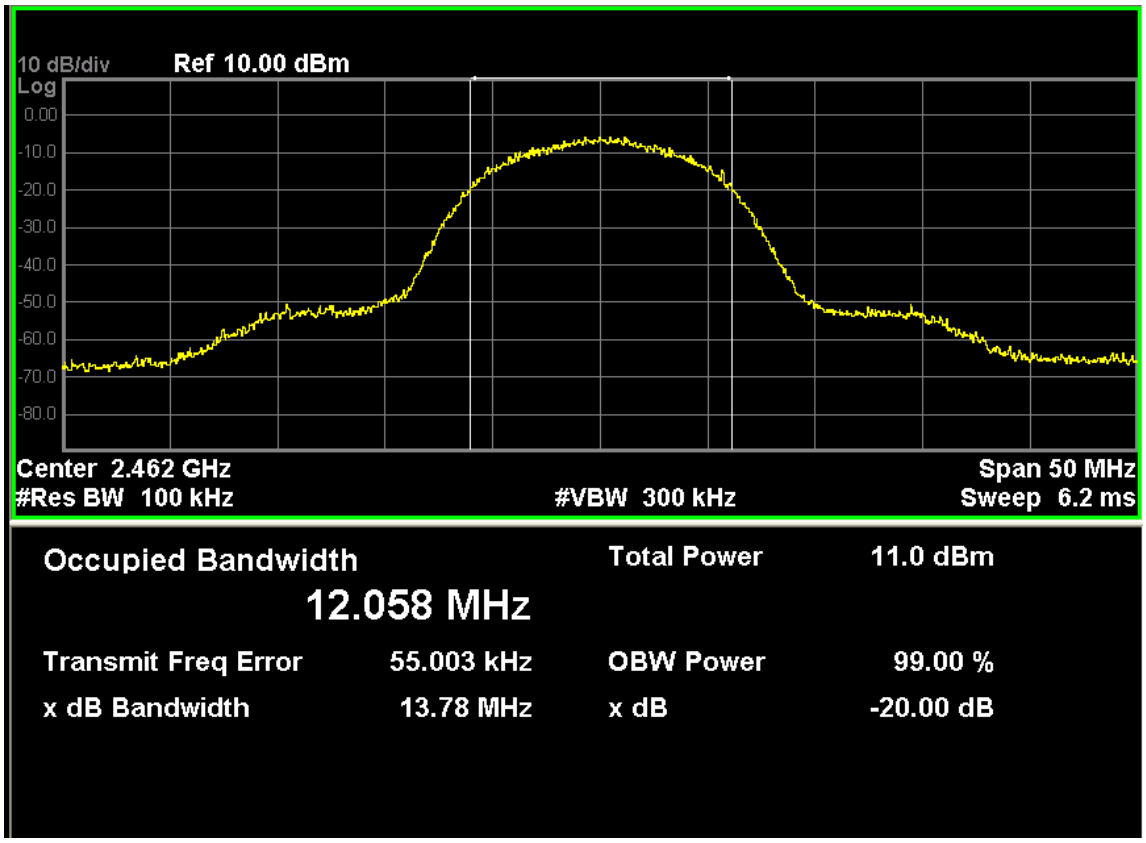
802.11b channel 1



802.11b channel 6

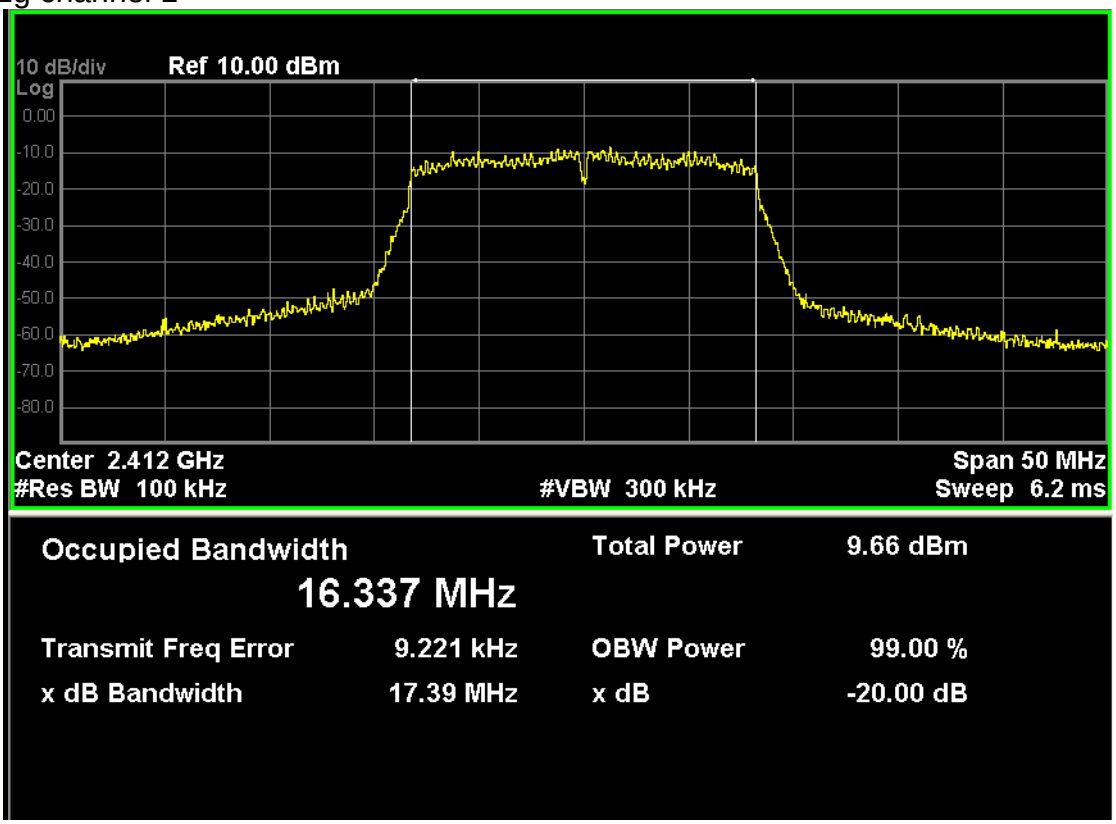


802.11b channel 11

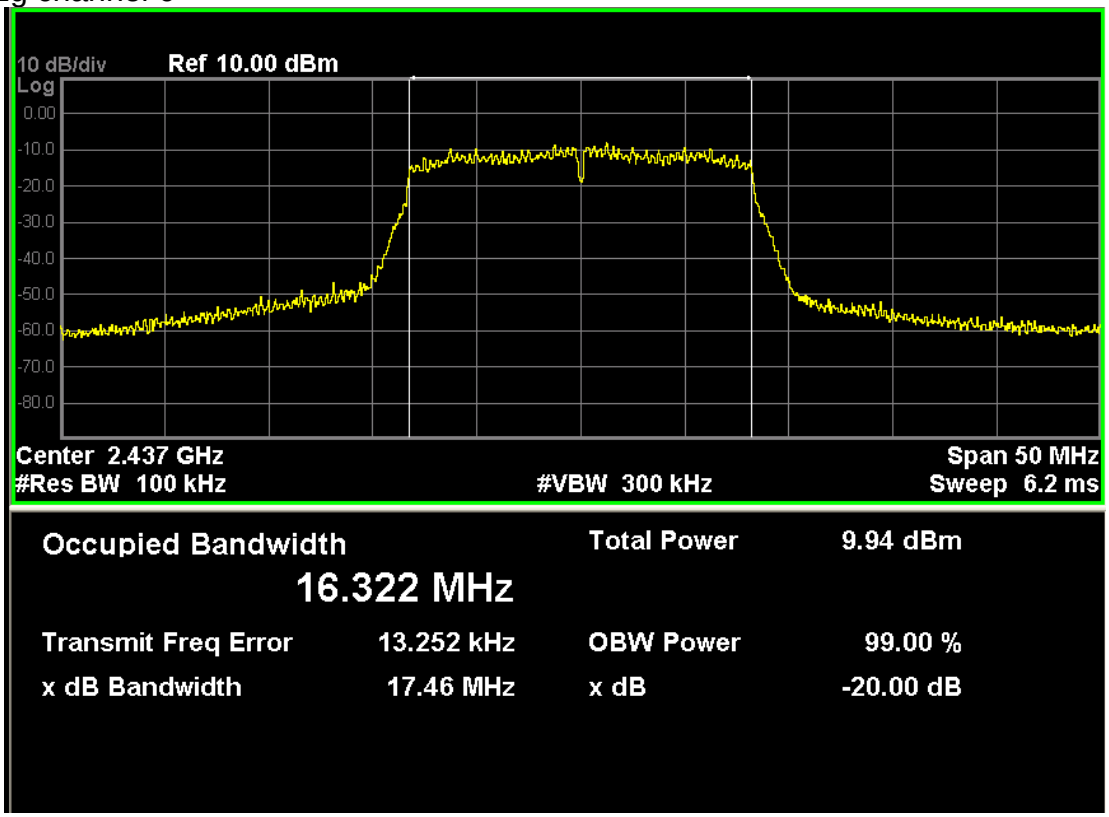


802.11g

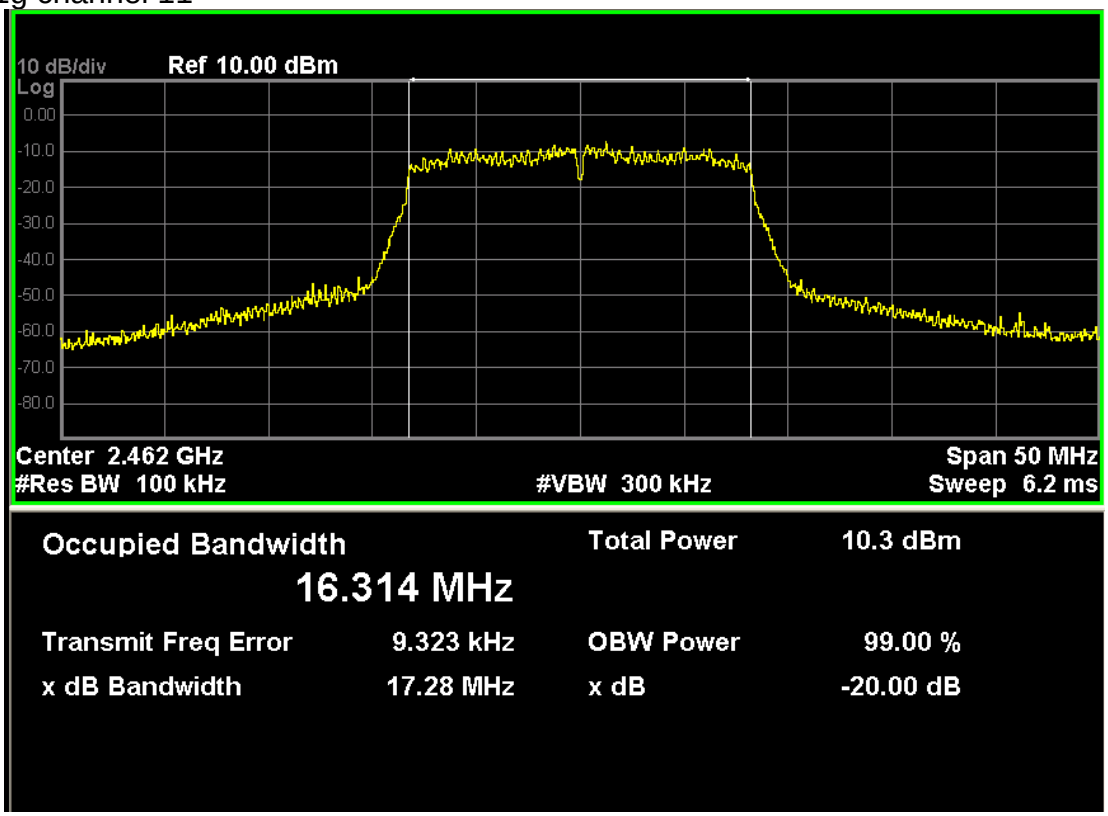
802.11g channel 1



802.11g channel 6

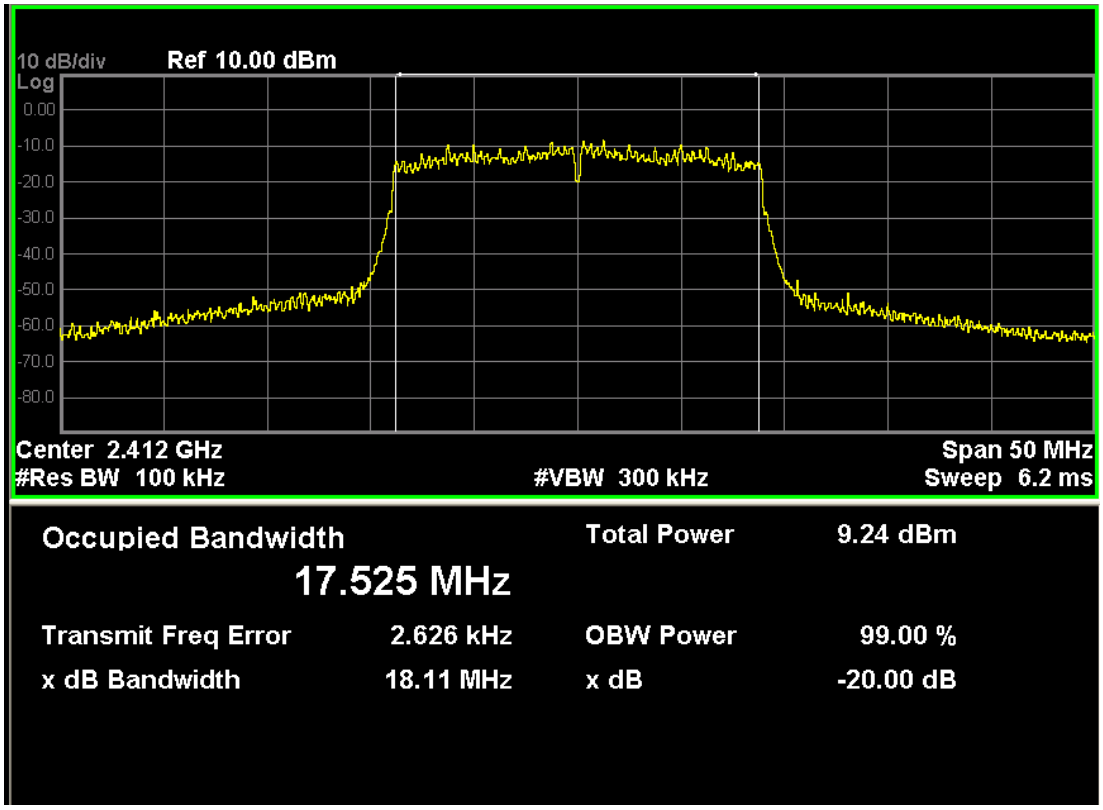


802.11g channel 11

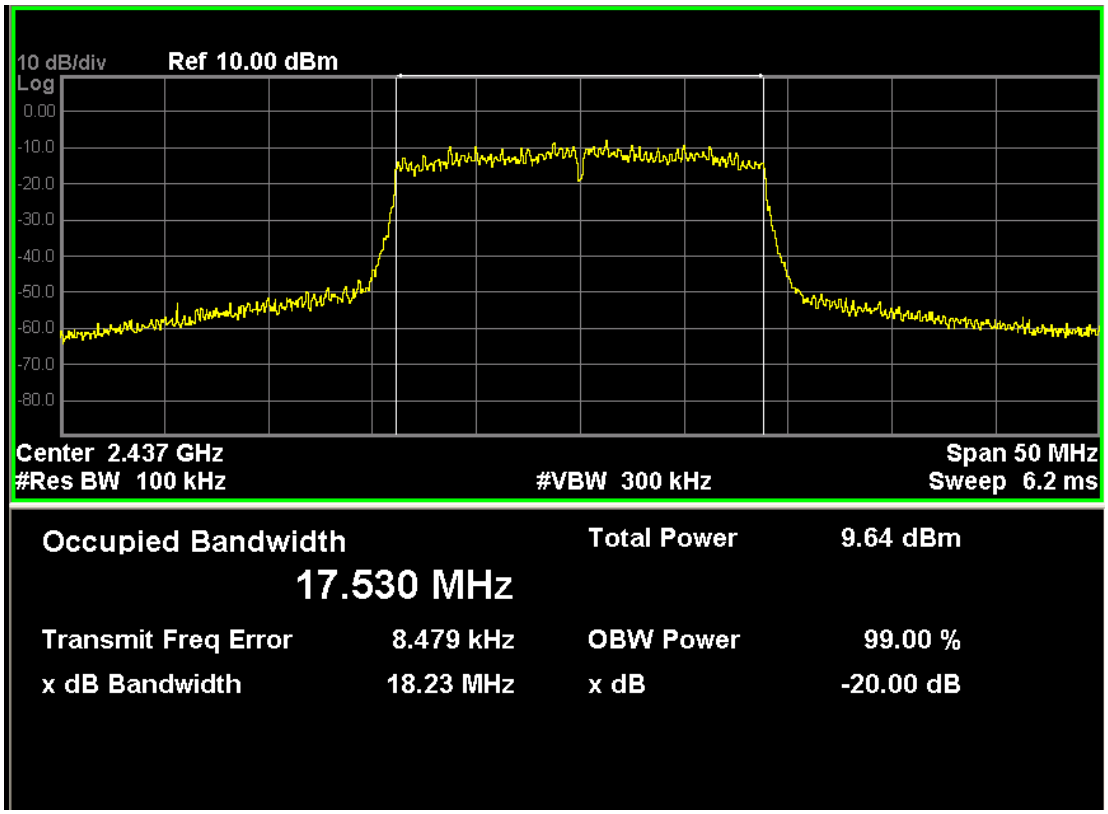


802.11n20

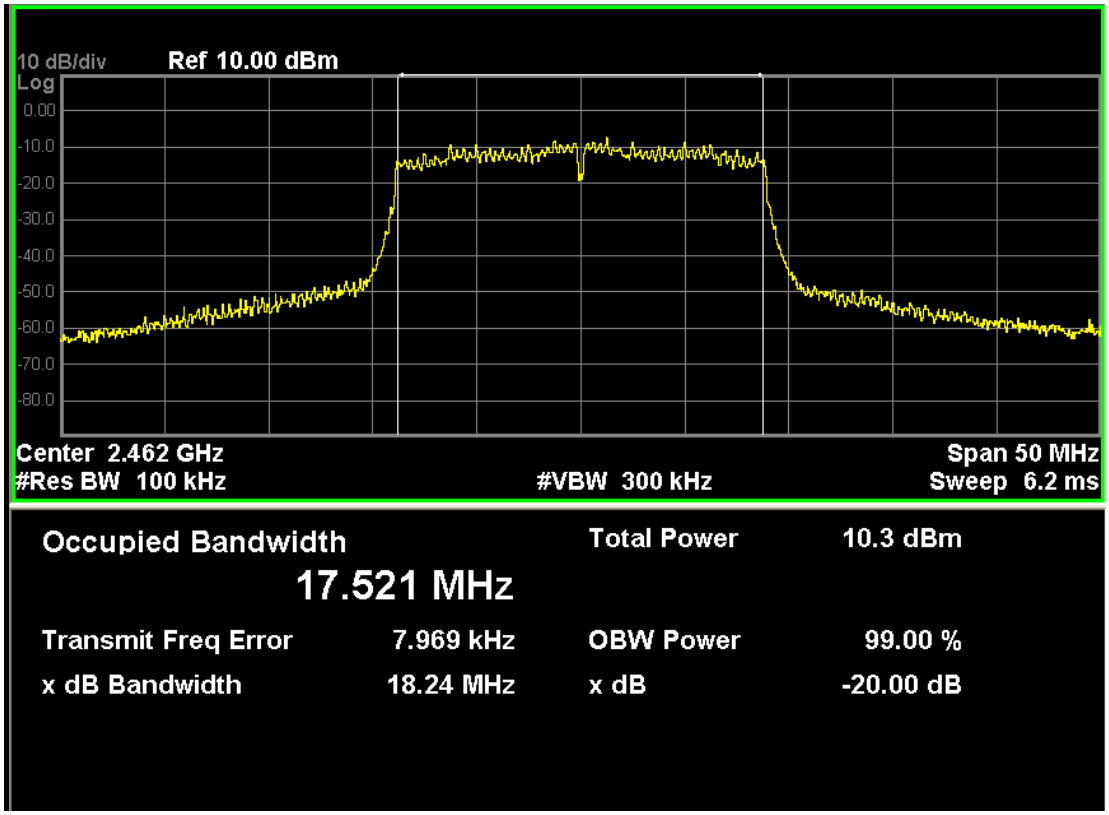
802.11n channel 1



802.11n channel 6

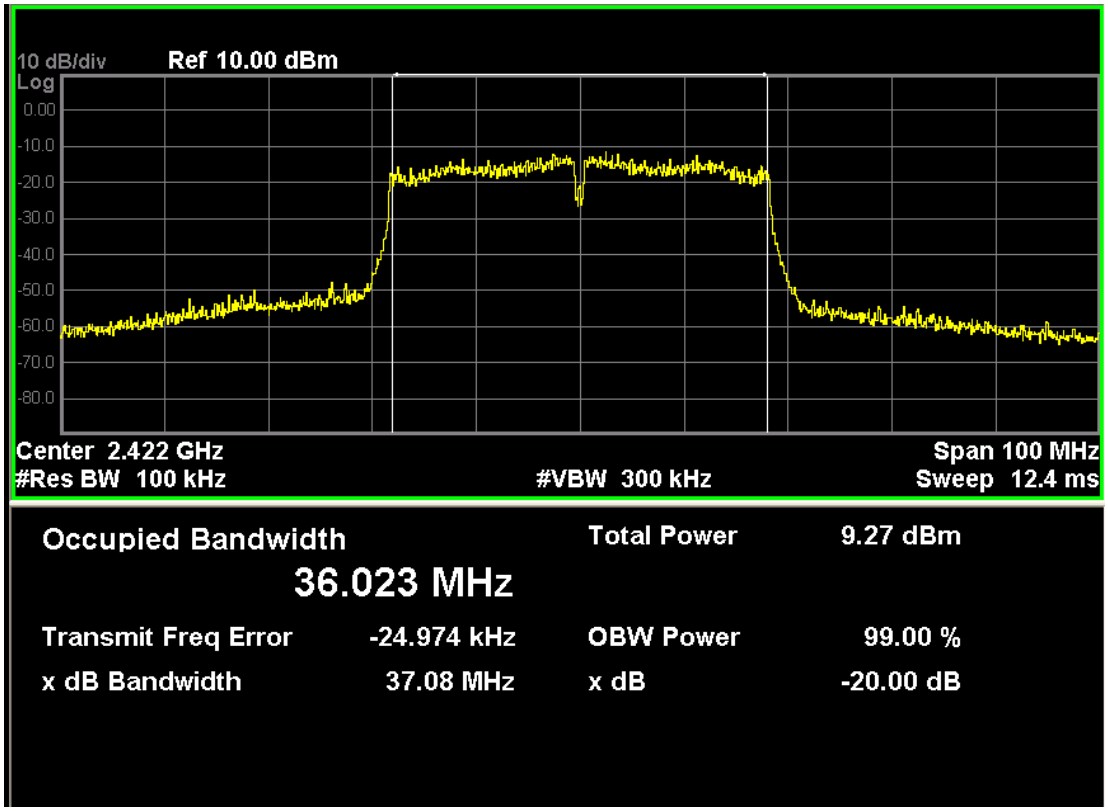


802.11n channel 11

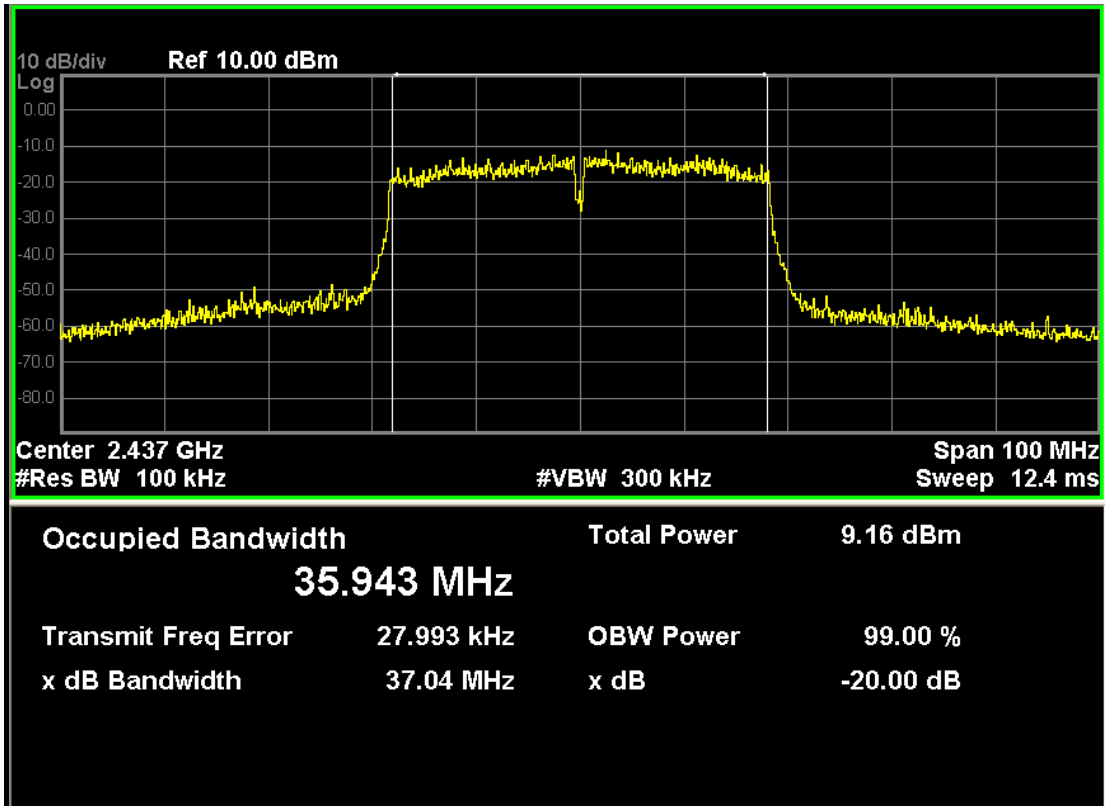


802.11n40

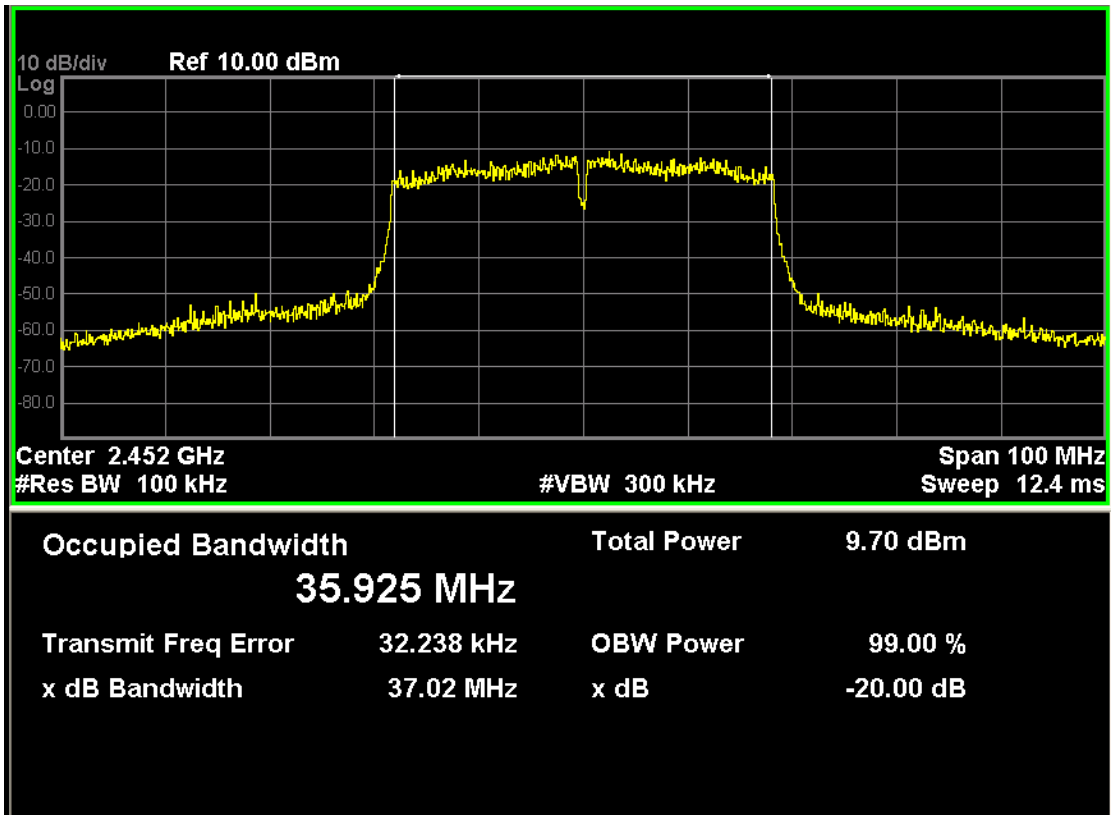
802.11n channel 3



802.11n channel 6

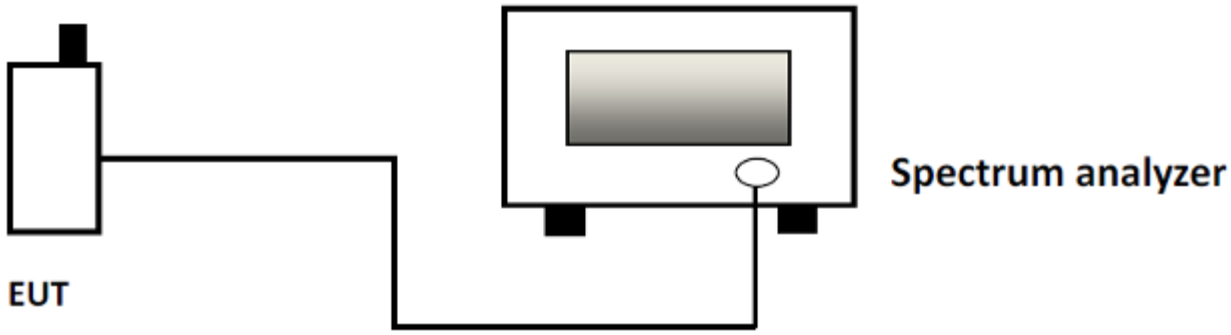


802.11n channel 11



5. 6 DB BANDWIDTH

5.1 TEST SETUP



5.2 LIMITS

Limit	≥500 kHz

5.3 TEST PROCEDURE

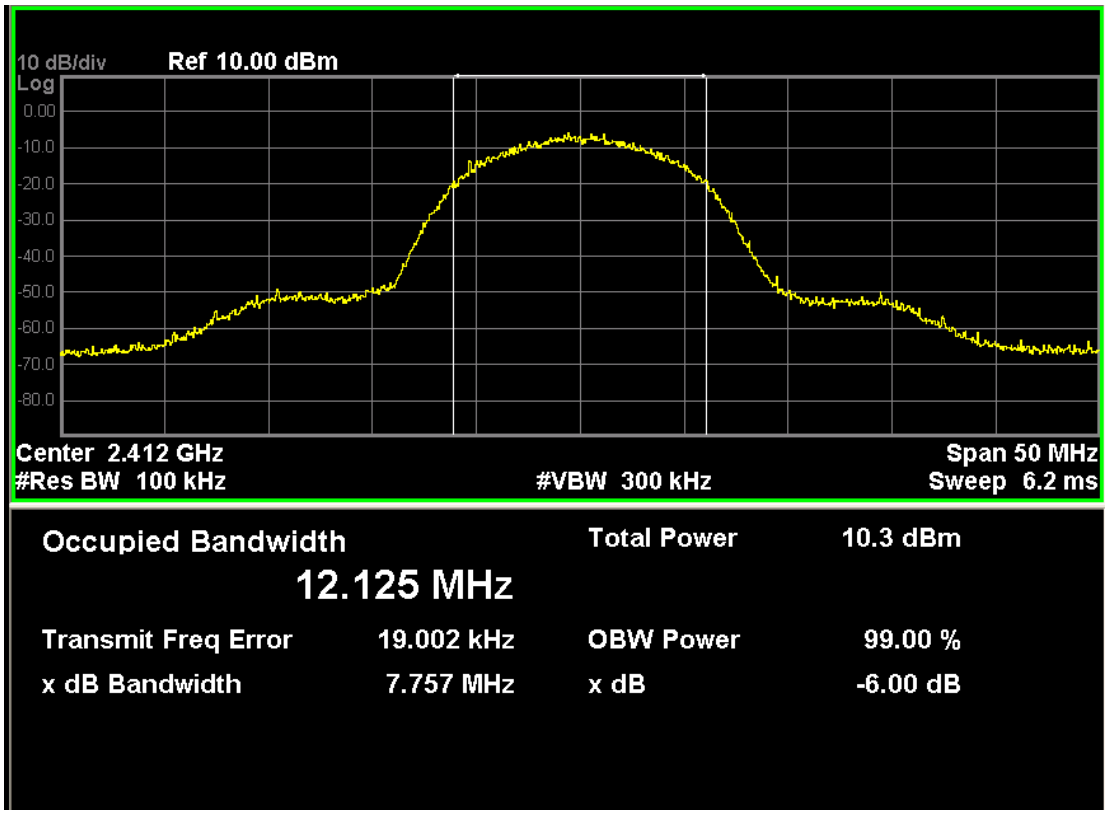
Place the EUT on the table and set it in transmitting mode. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to spectrum analyzer. The loss between RF output port of the EUT and the input port of the tester will be taken into consideration.
The measurement will be conducted at three channels.
WIFI: Low(1), Middle(6) and High (11).
Using occupied BW measurement function of spectrum analyzer and settings are:
XdB = -6dB
RBW = 100KHz
VBW ≥ 3 x RBW
Span = approximately 2 to 3 times the 6 dB bandwidth, centered on a channel
Sweep = auto
Detector function = peak
Trace = max hold

5.4 RESULTS & PERFORMANCE

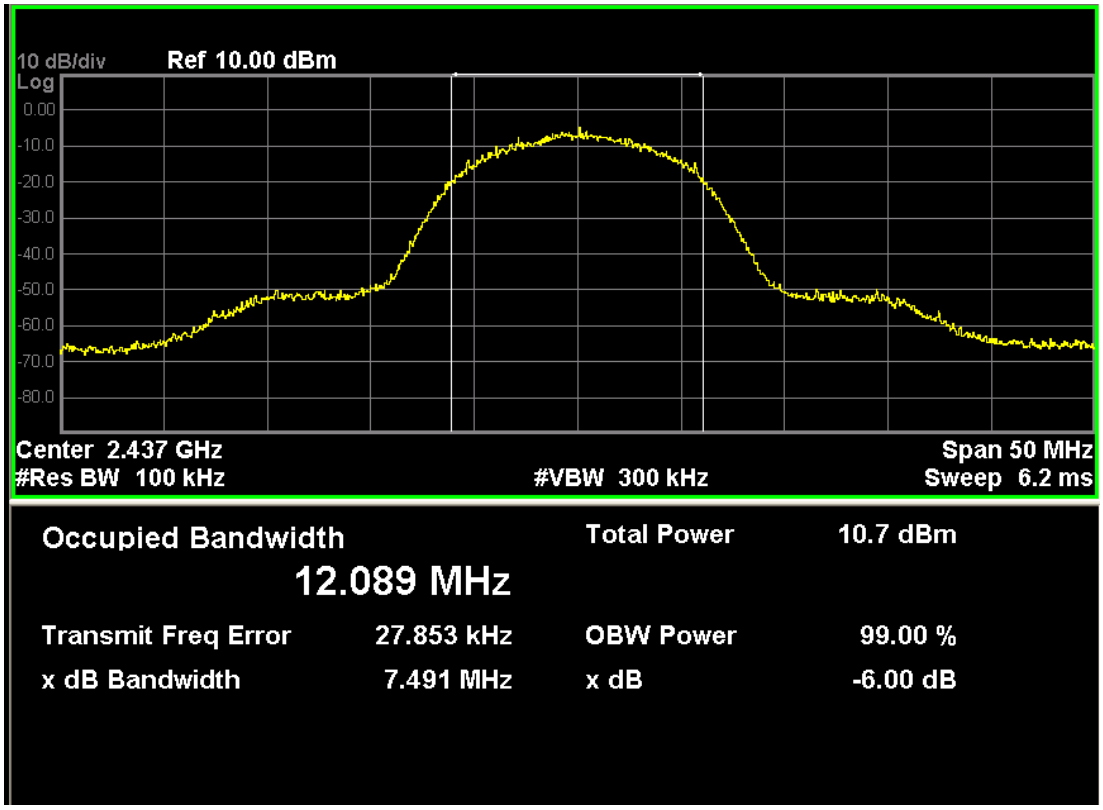
Channel	Measured 6dB bandwidth (MHz)	Limit (MHz)	Result
802.11b			
802.11b CH1	7.757	≥0.5	PASS
802.11b CH6	7.491	≥0.5	PASS
802.11b CH11	7.439	≥0.5	PASS
802.11g			
802.11g CH1	16.39	≥0.5	PASS
802.11g CH6	15.75	≥0.5	PASS
802.11g CH11	16.36	≥0.5	PASS
802.11n20			
802.11n CH1	16.59	≥0.5	PASS
802.11n CH6	17.33	≥0.5	PASS
802.11n CH11	16.62	≥0.5	PASS
802.11n40			
802.11n CH3	35.67	≥0.5	PASS
802.11n CH6	35.11	≥0.5	PASS
802.11n CH9	35.67	≥0.5	PASS

802.11b

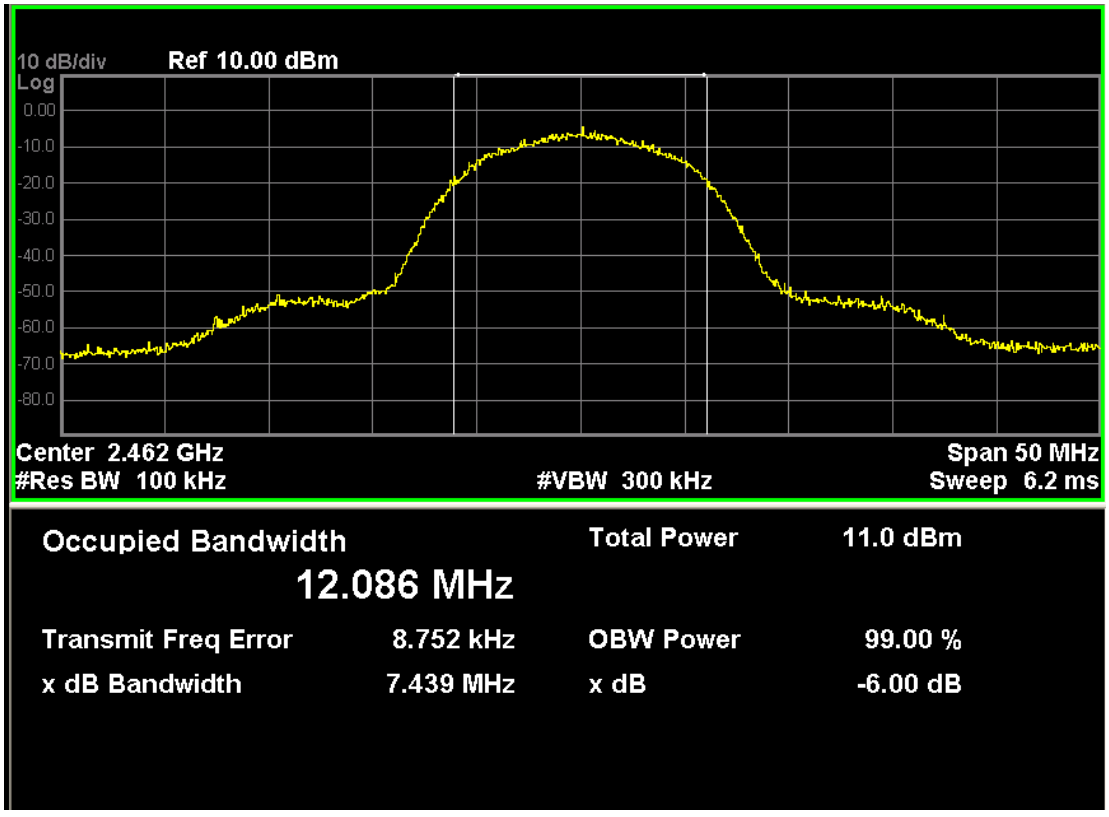
802.11b channel 1



802.11b channel 6

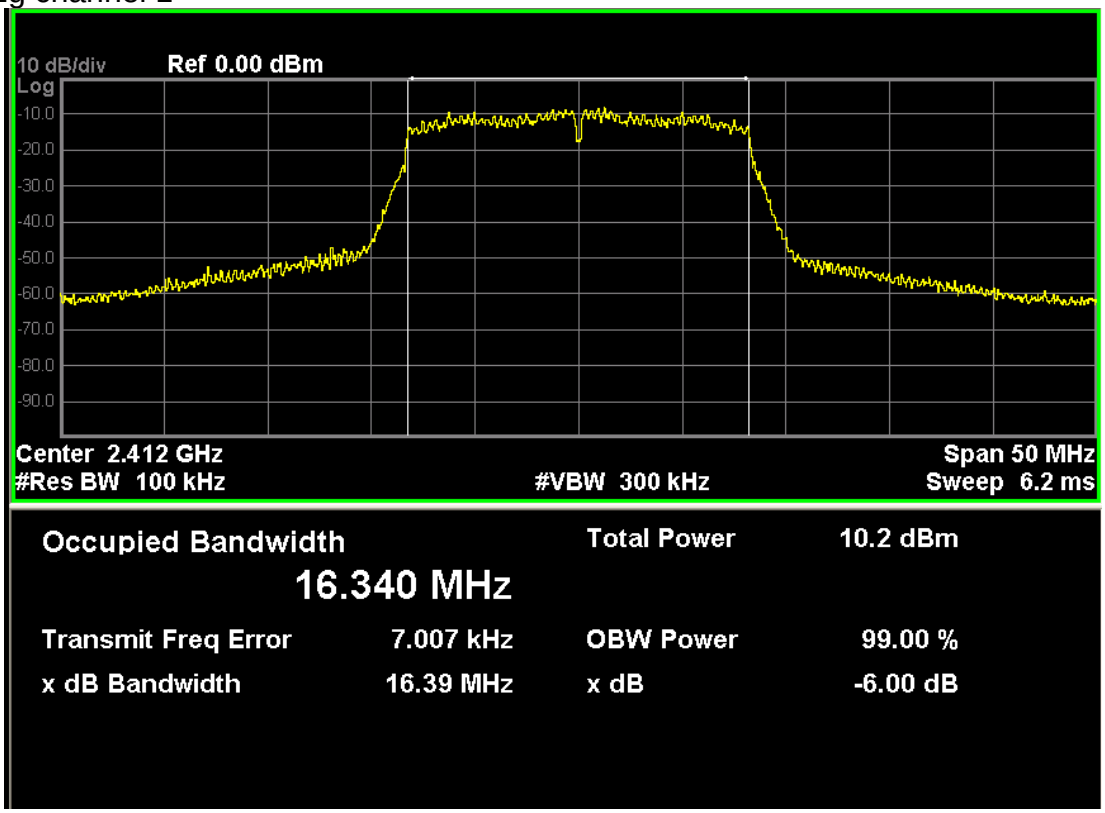


802.11b channel 11

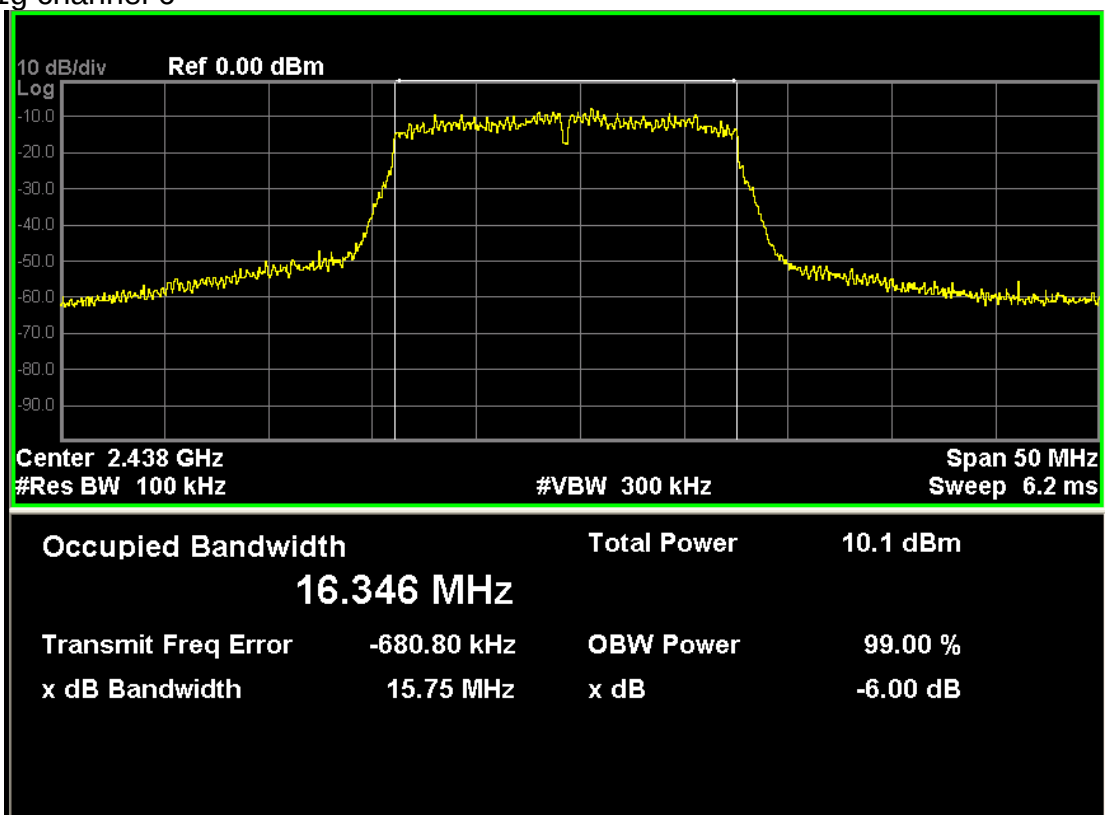


802.11g

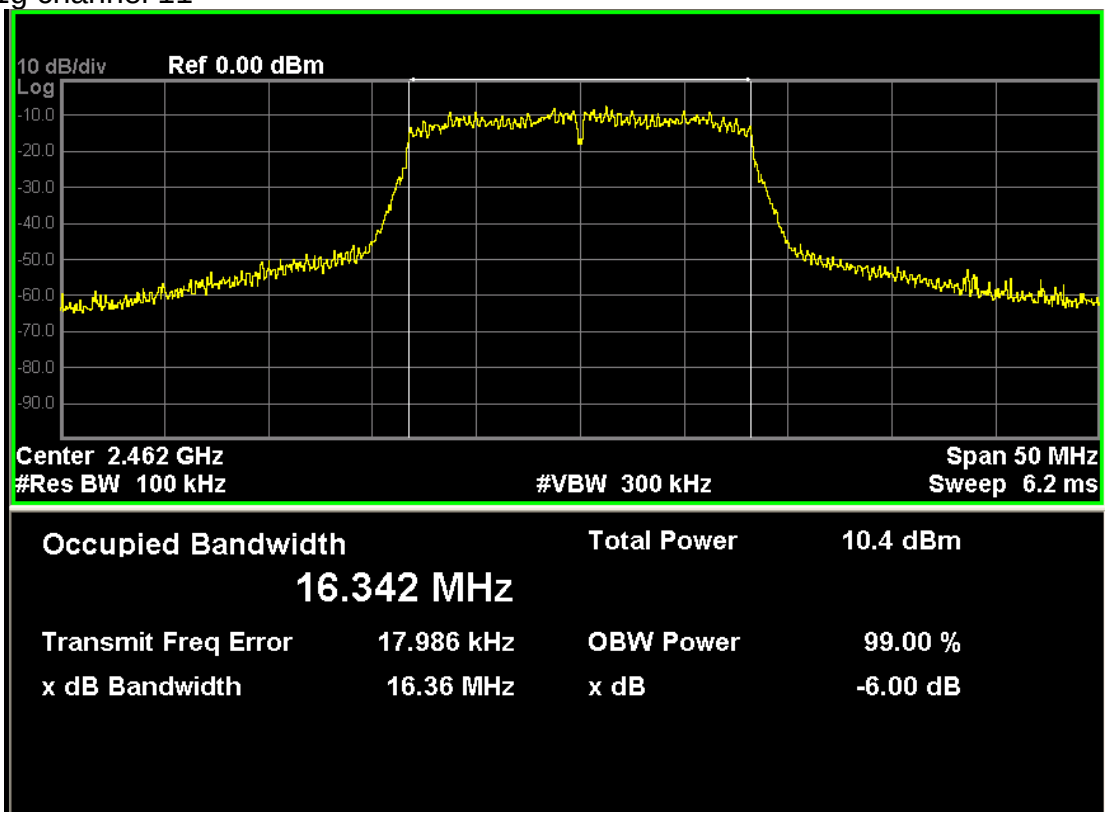
802.11g channel 1



802.11g channel 6

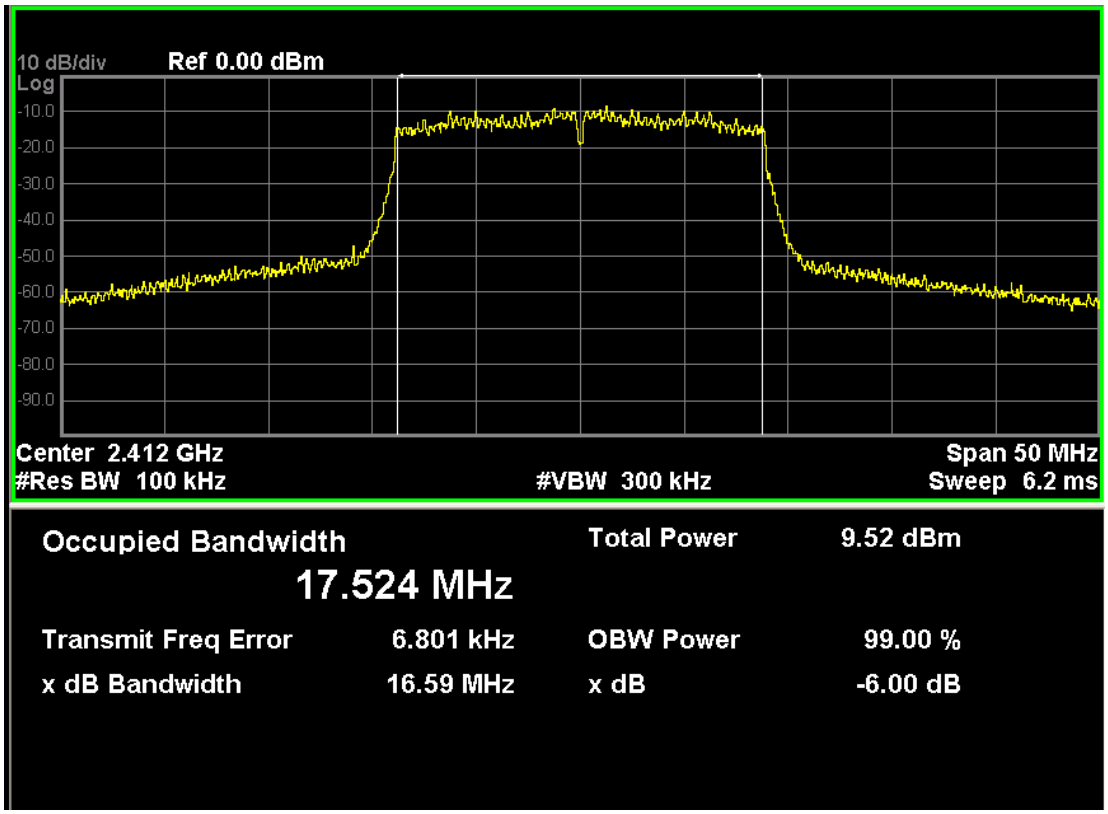


802.11g channel 11



802.11n20

802.11n channel 1



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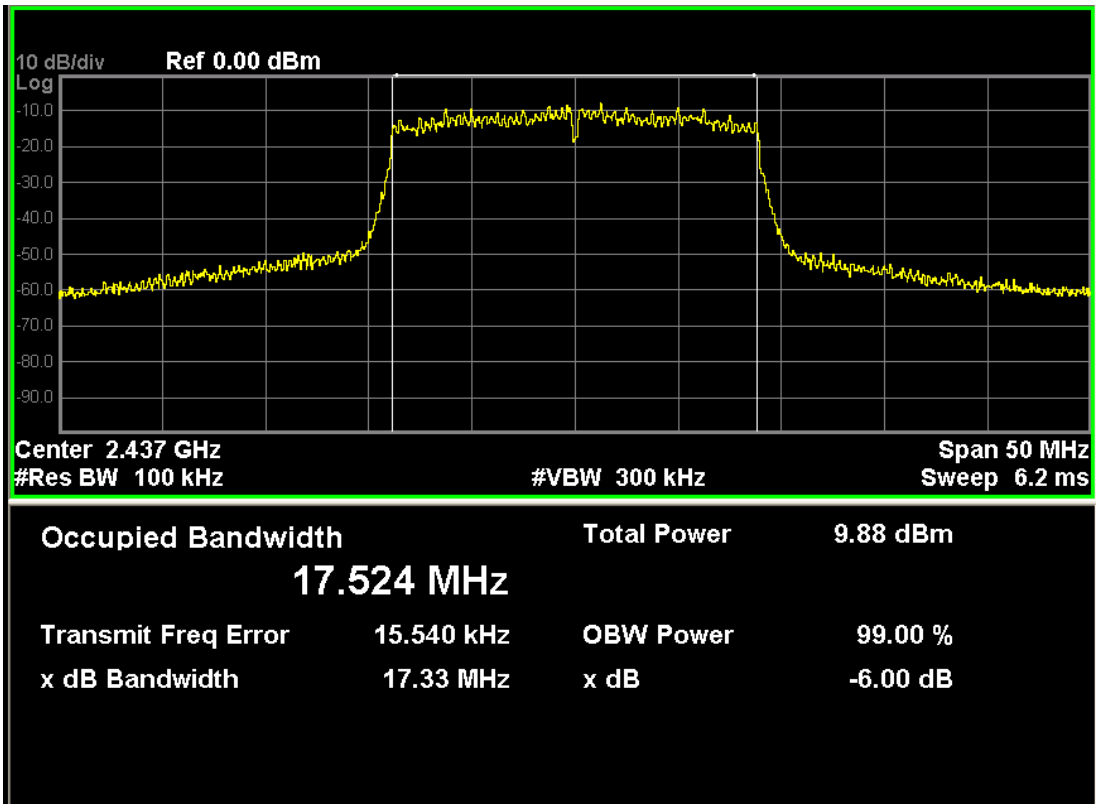

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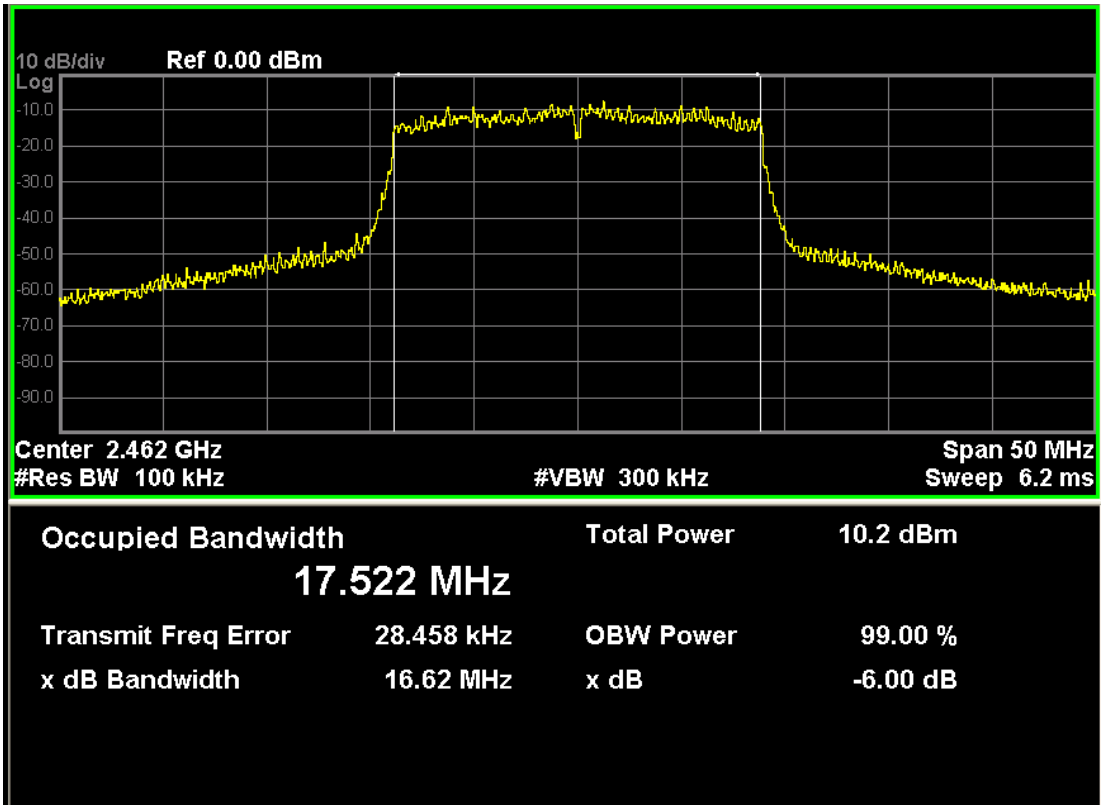
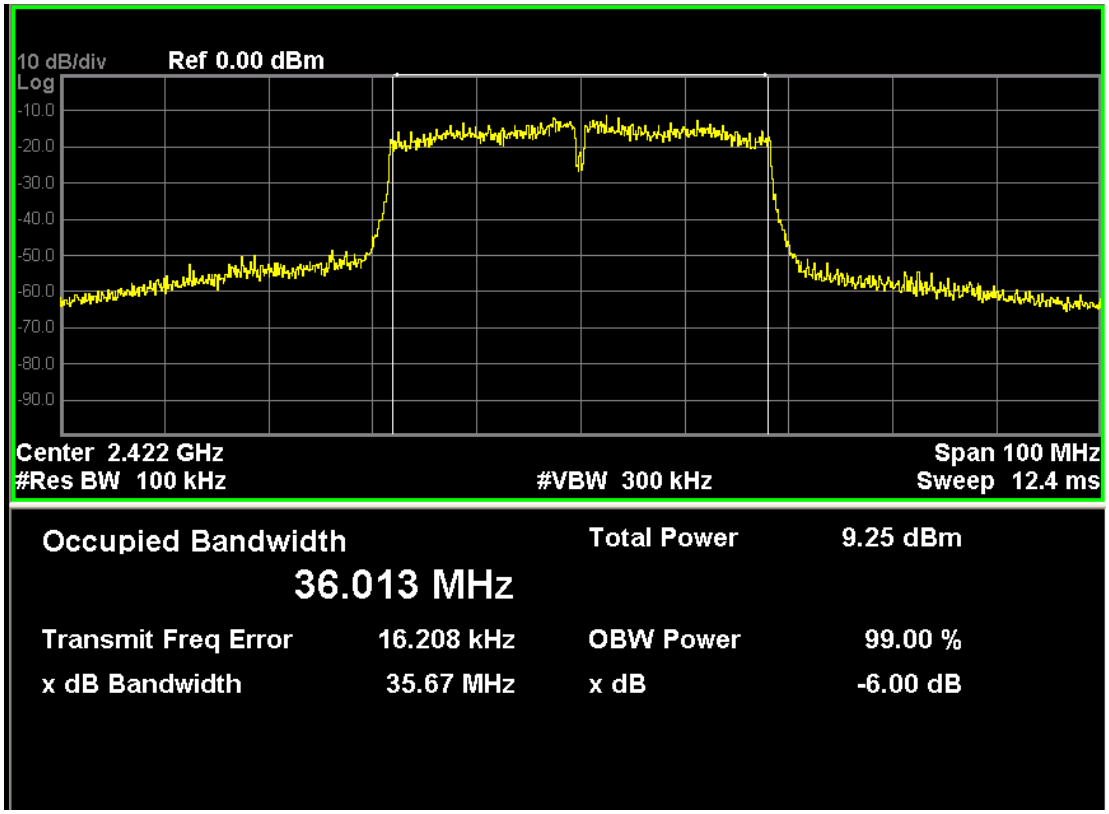
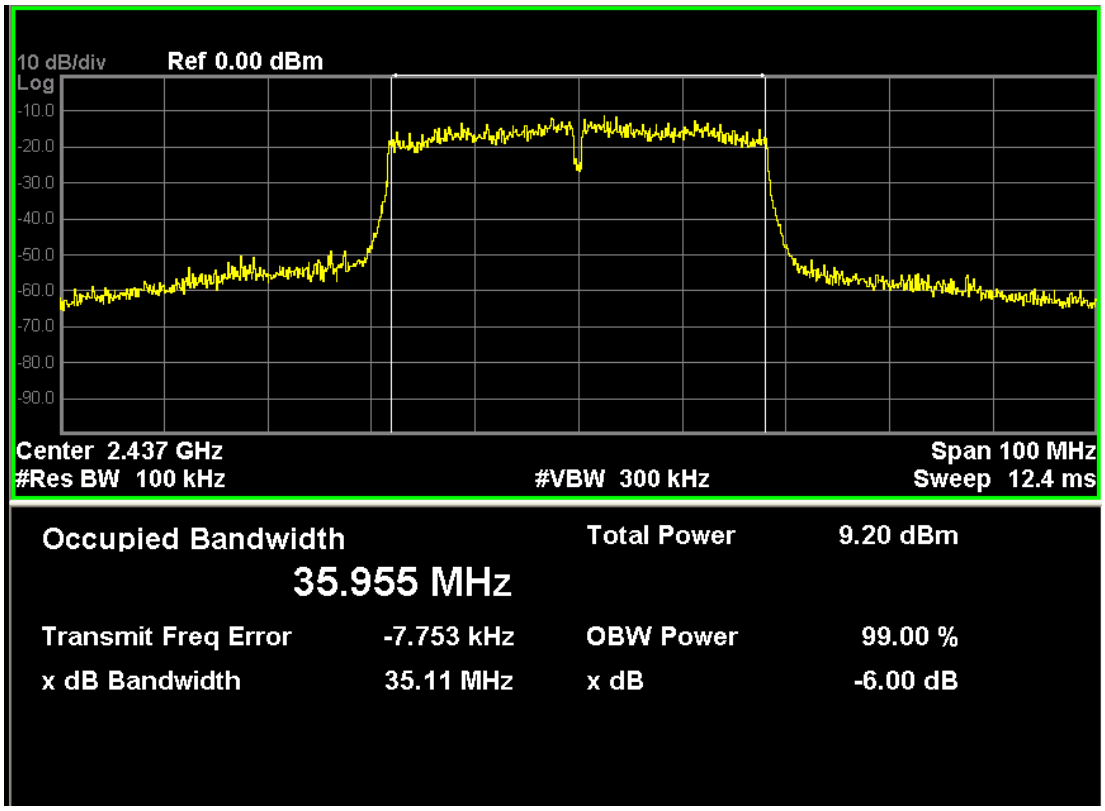


802.11n40

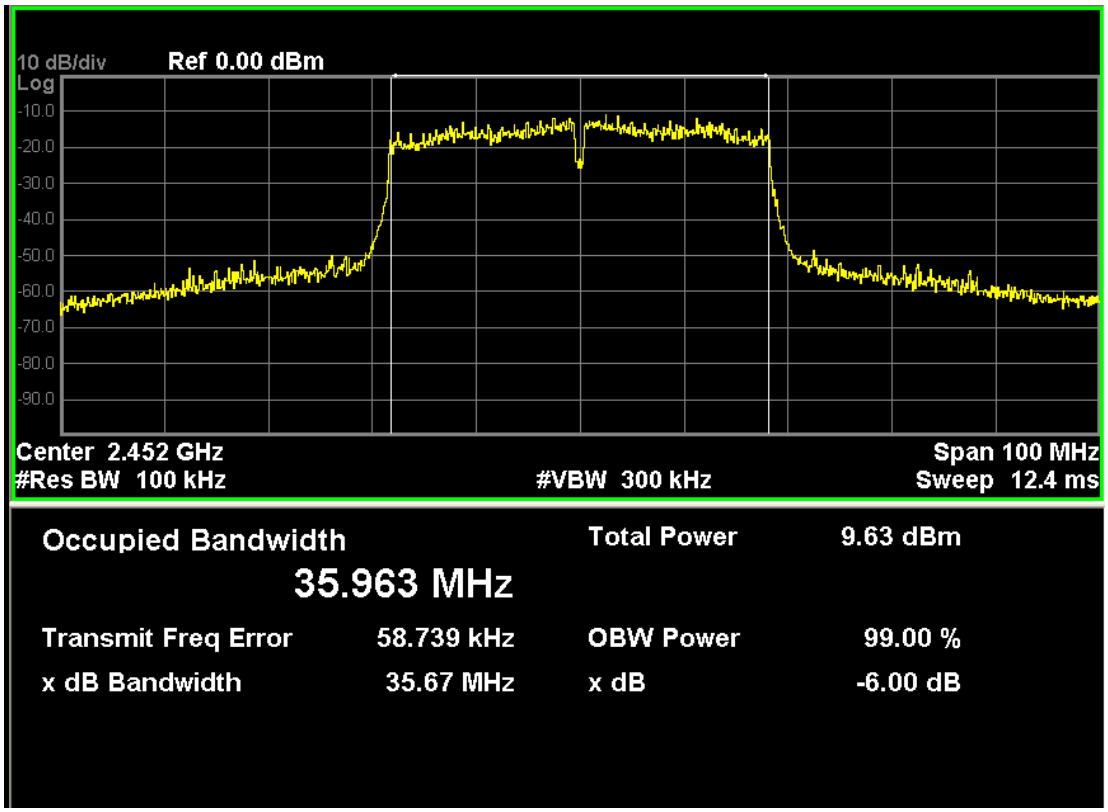
802.11n channel 3



802.11n channel 6

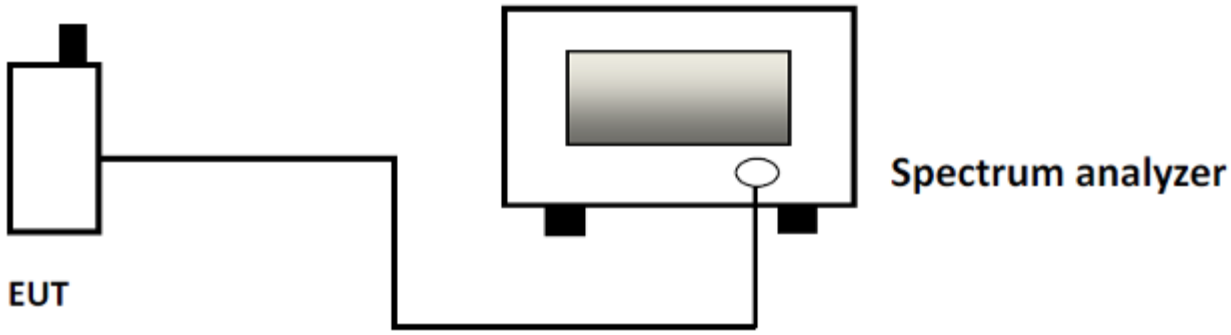


802.11n channel 9



6. POWER SPECTRAL DENSITY

6.1 TEST SETUP



6.2 LIMITS

Limits	≤8dBm/3kHz

6.3 TEST PROCEDURE

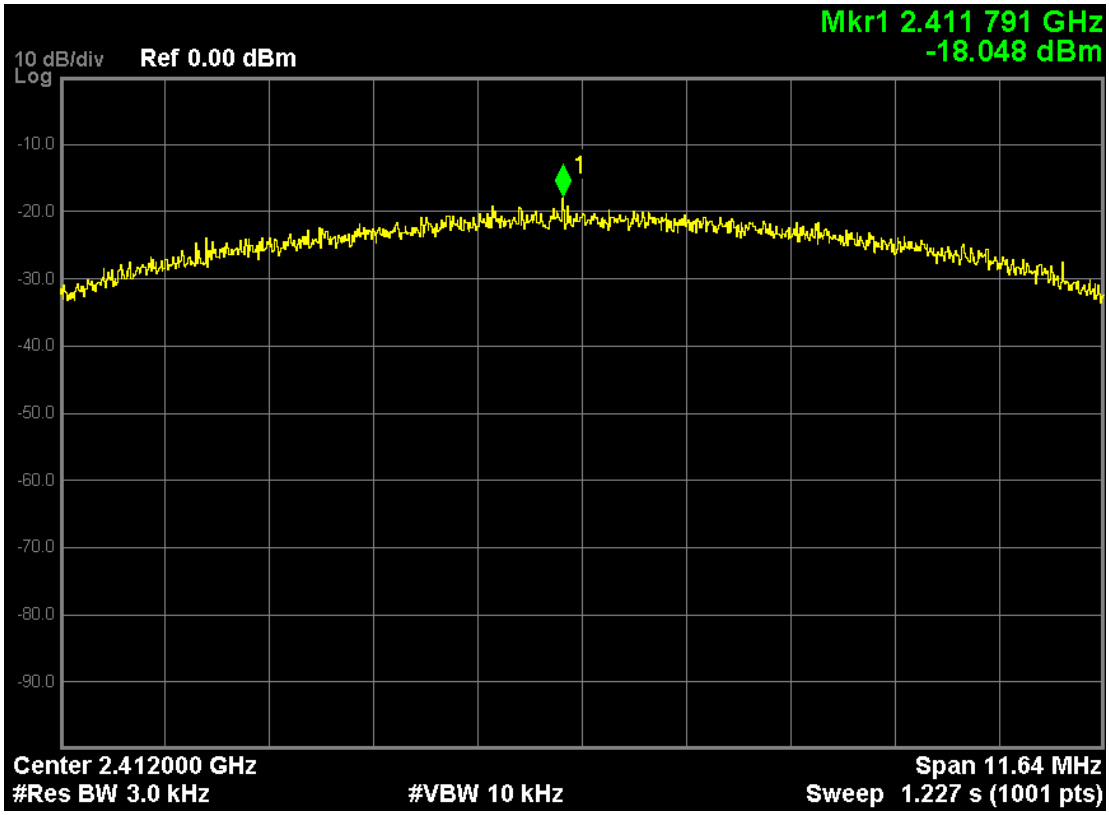
Set analyzer center frequency to DTS channel center frequency.
Set the span to 1.5 times the DTS bandwidth.
Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
Set the VBW ≥ 3xRBW.
Detector = peak.
Sweep time = auto couple.
Trace mode = max hold.
Allow trace to fully stabilize.
Use the peak marker function to determine the maximum amplitude level within the RBW.
If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

6.4 RESULTS & PERFORMANCE

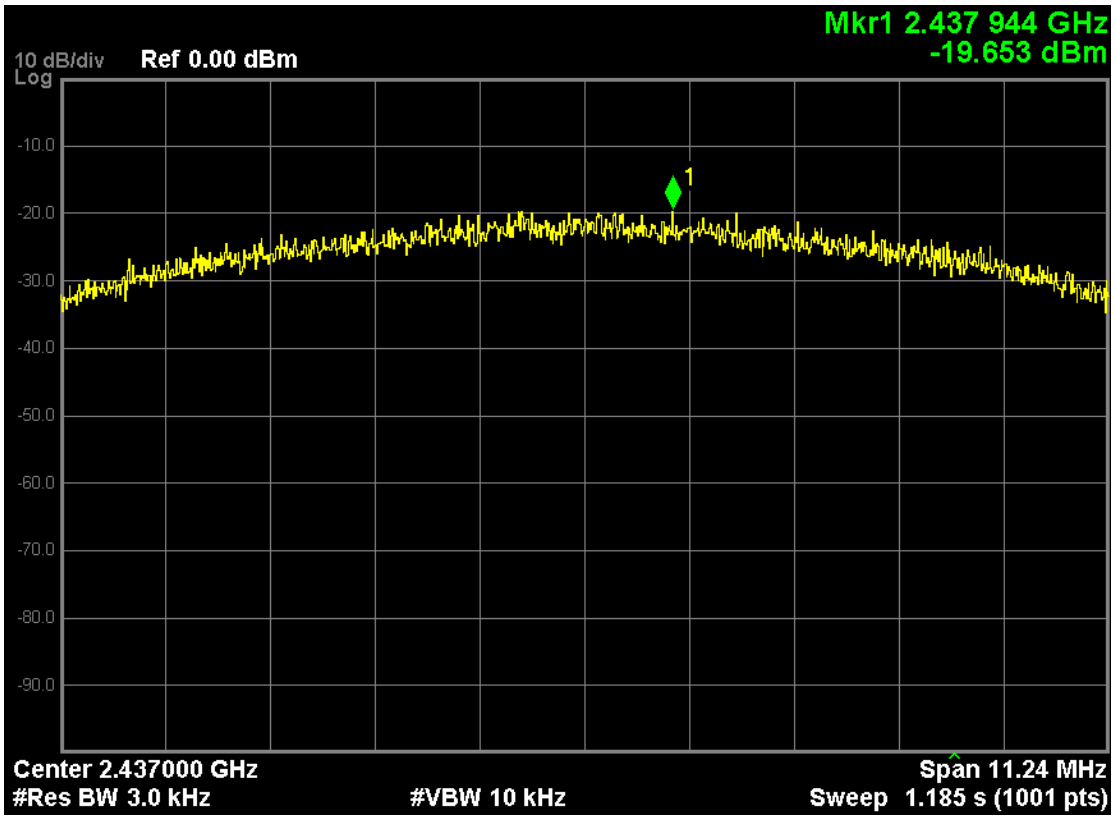
Mode	Channel	Measured level (dBm/3KHz)	Limit (dBm/3KHz)	Result
802.11b	CH1	-18.048	≤8.00	Pass
	CH6	-19.653	≤8.00	Pass
	CH11	-18.650	≤8.00	Pass
802.11g	CH1	-21.518	≤8.00	Pass
	CH6	-21.004	≤8.00	Pass
	CH11	-21.495	≤8.00	Pass
802.11n20	CH1	-22.419	≤8.00	Pass
	CH6	-21.320	≤8.00	Pass
	CH11	-22.061	≤8.00	Pass
802.11n40	CH3	-25.134	≤8.00	Pass
	CH6	-25.281	≤8.00	Pass
	CH9	-24.790	≤8.00	Pass

802.11b

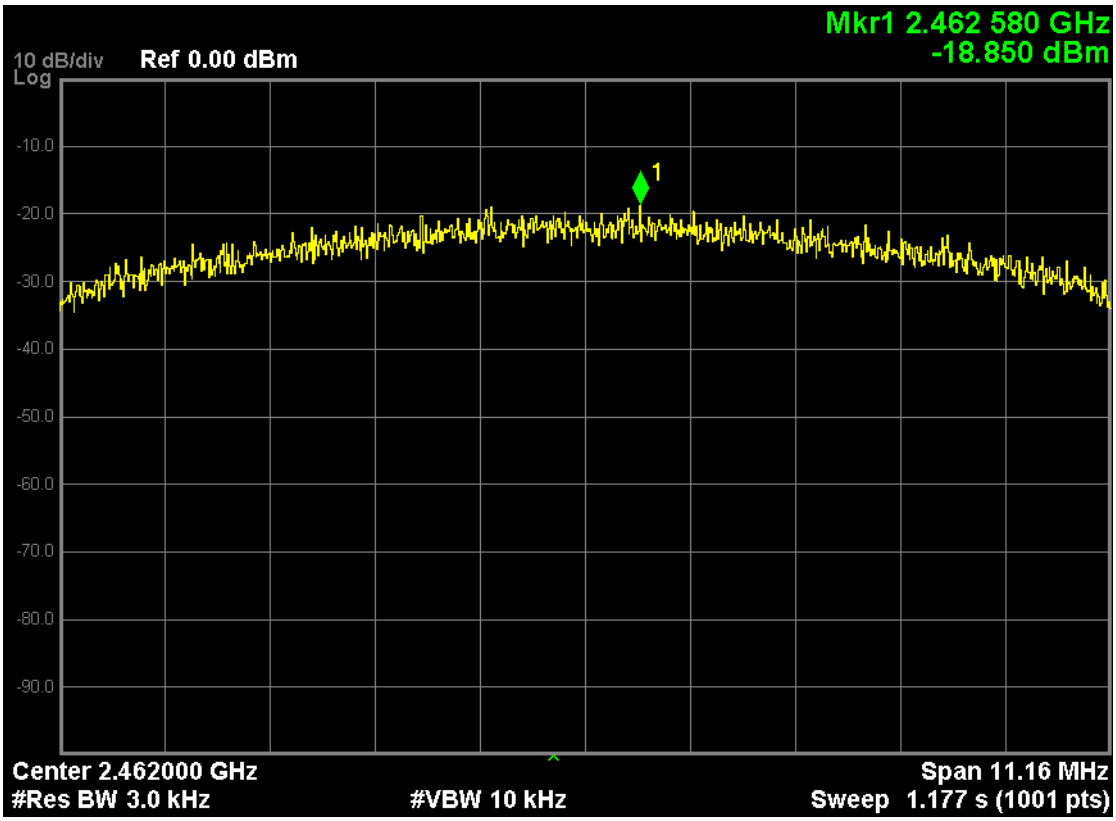
802.11b channel 1



802.11b channel 6

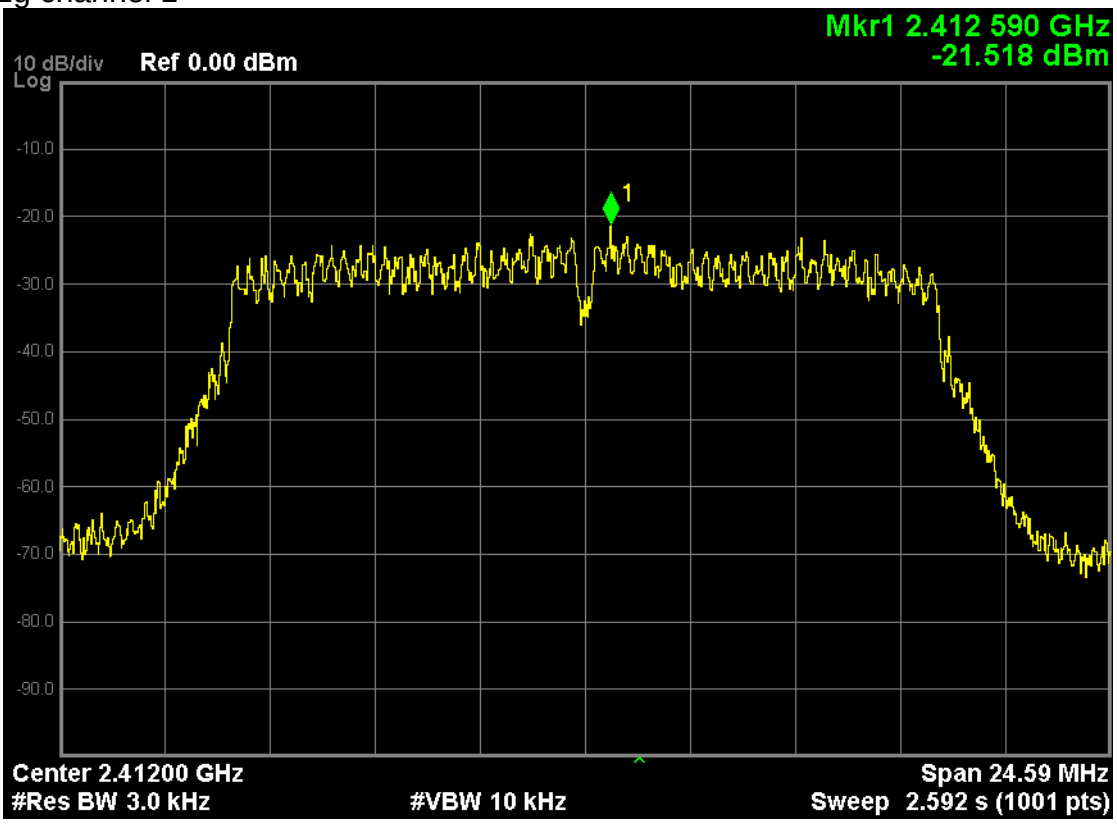


802.11b channel 11

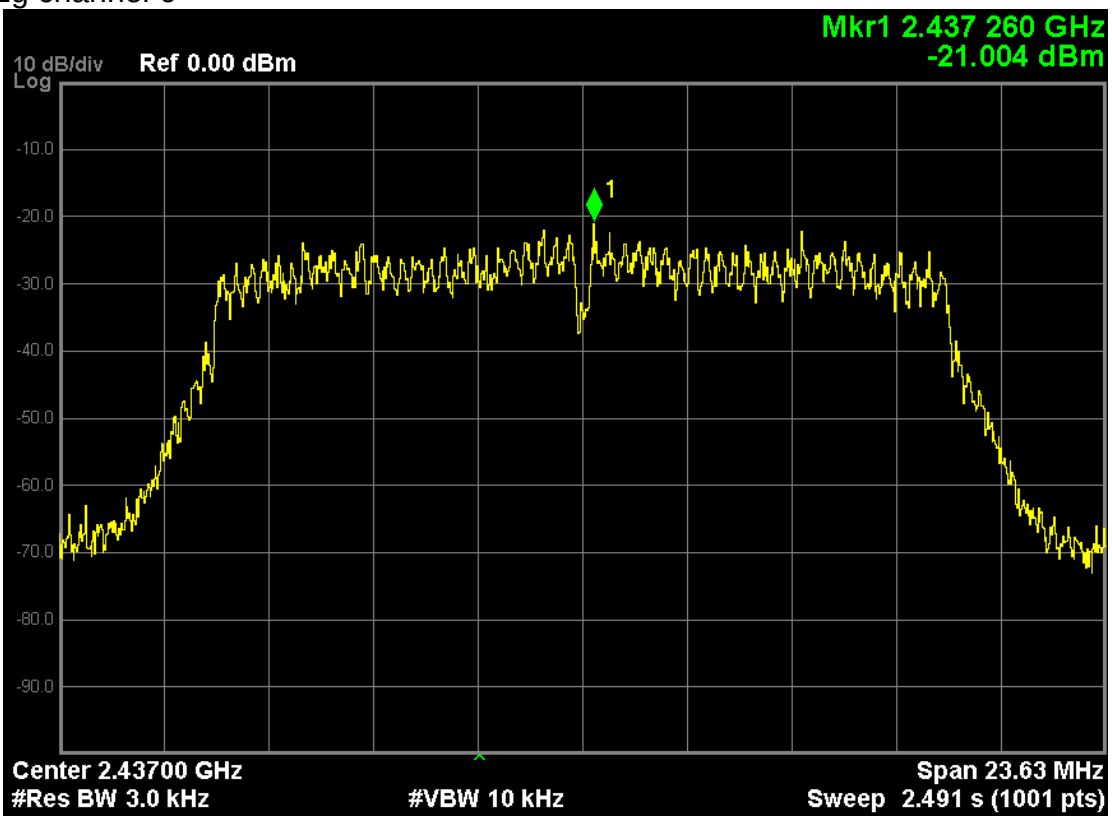


802.11g

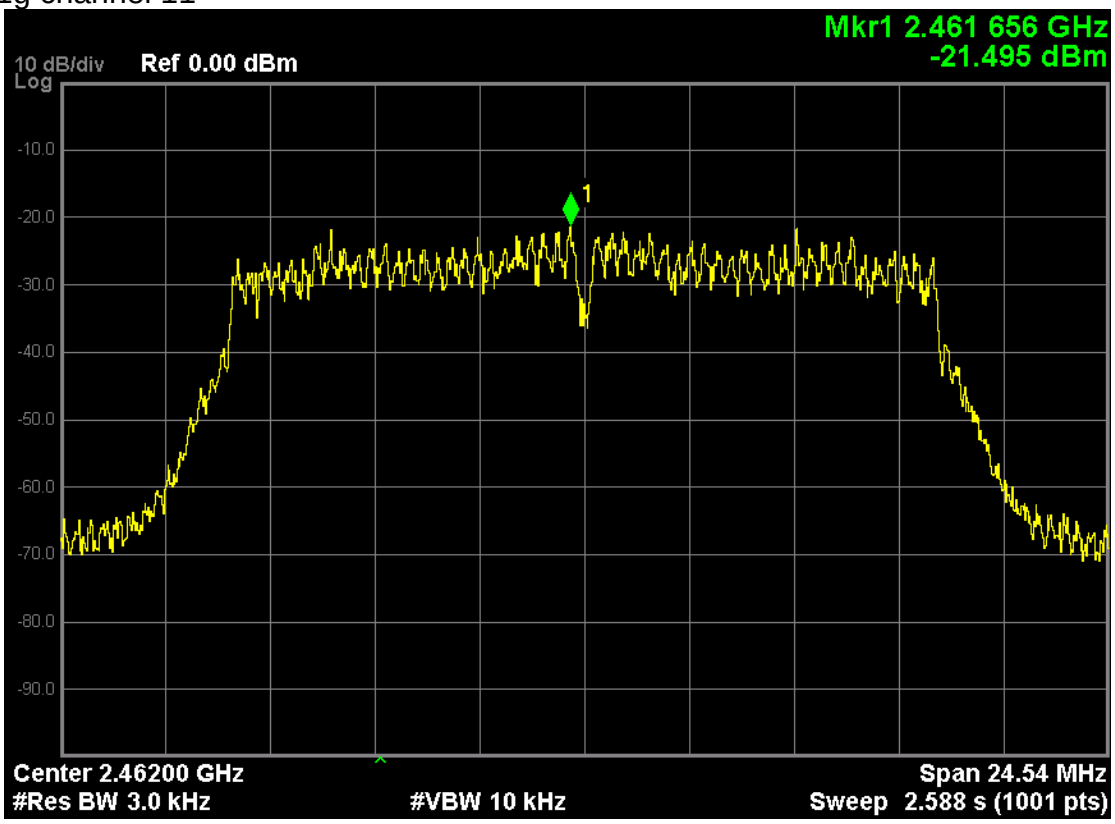
802.11g channel 1



802.11g channel 6

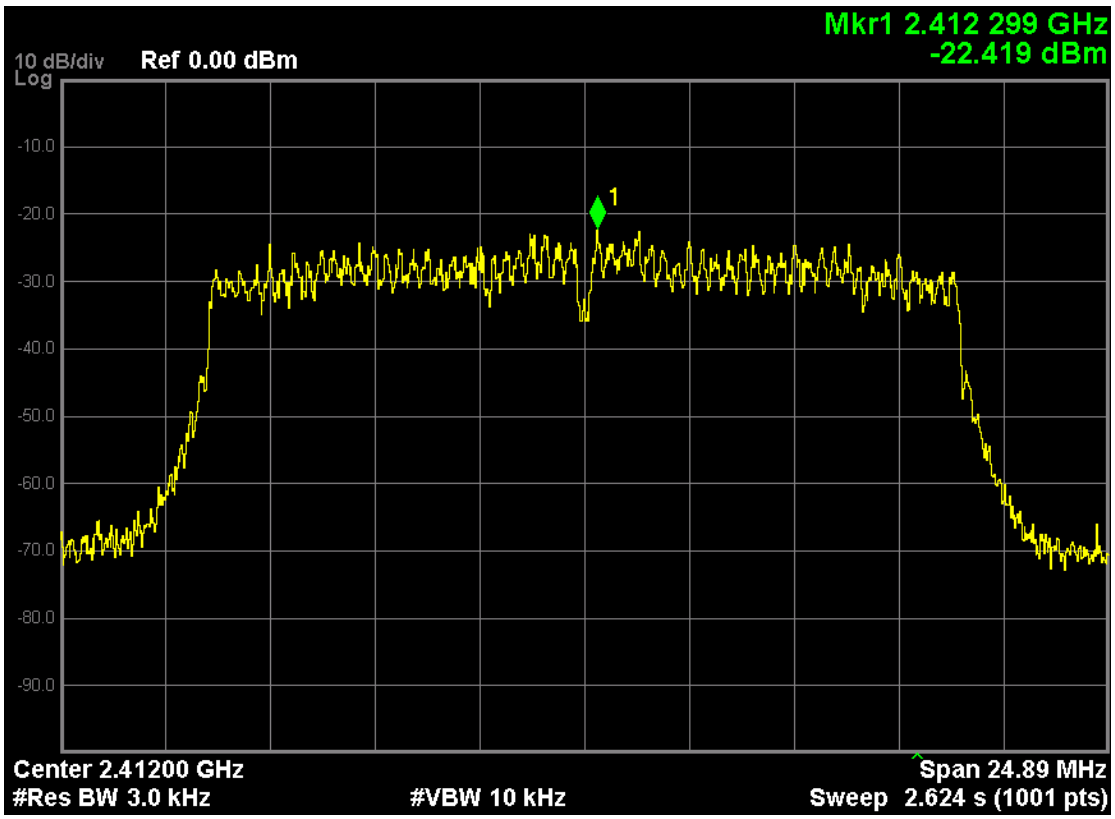


802.11g channel 11

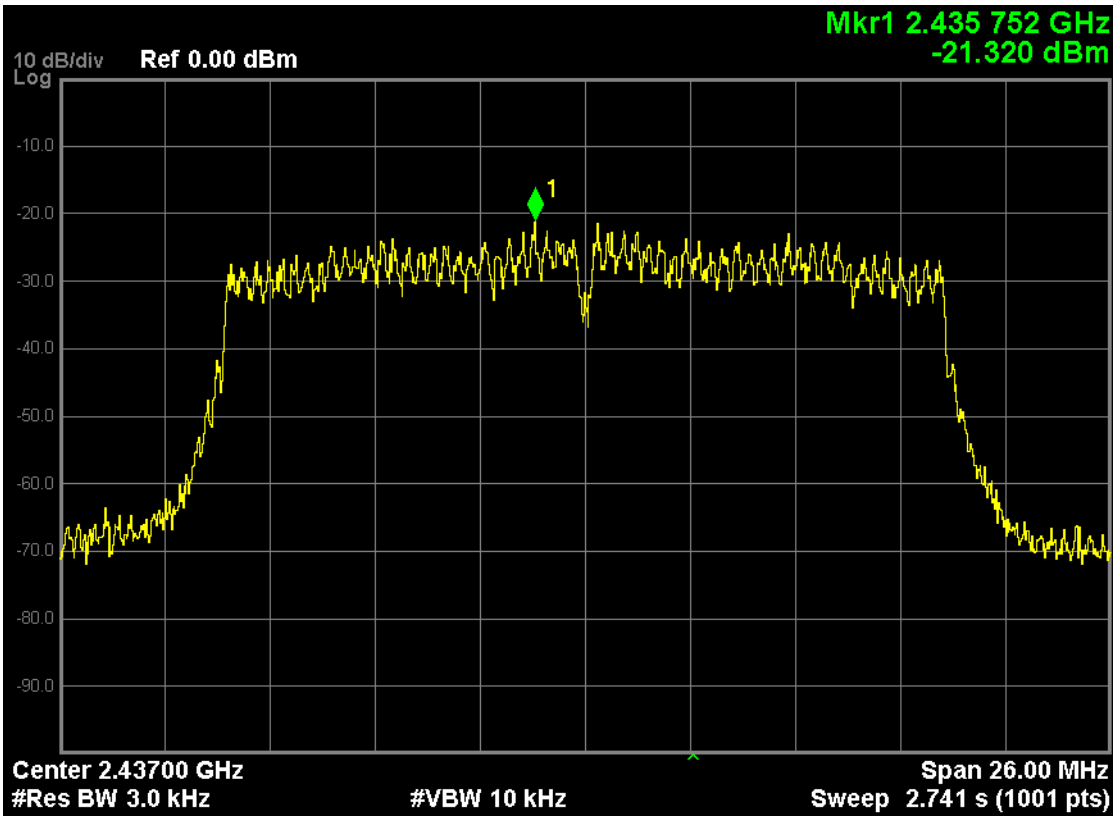


802.11n20

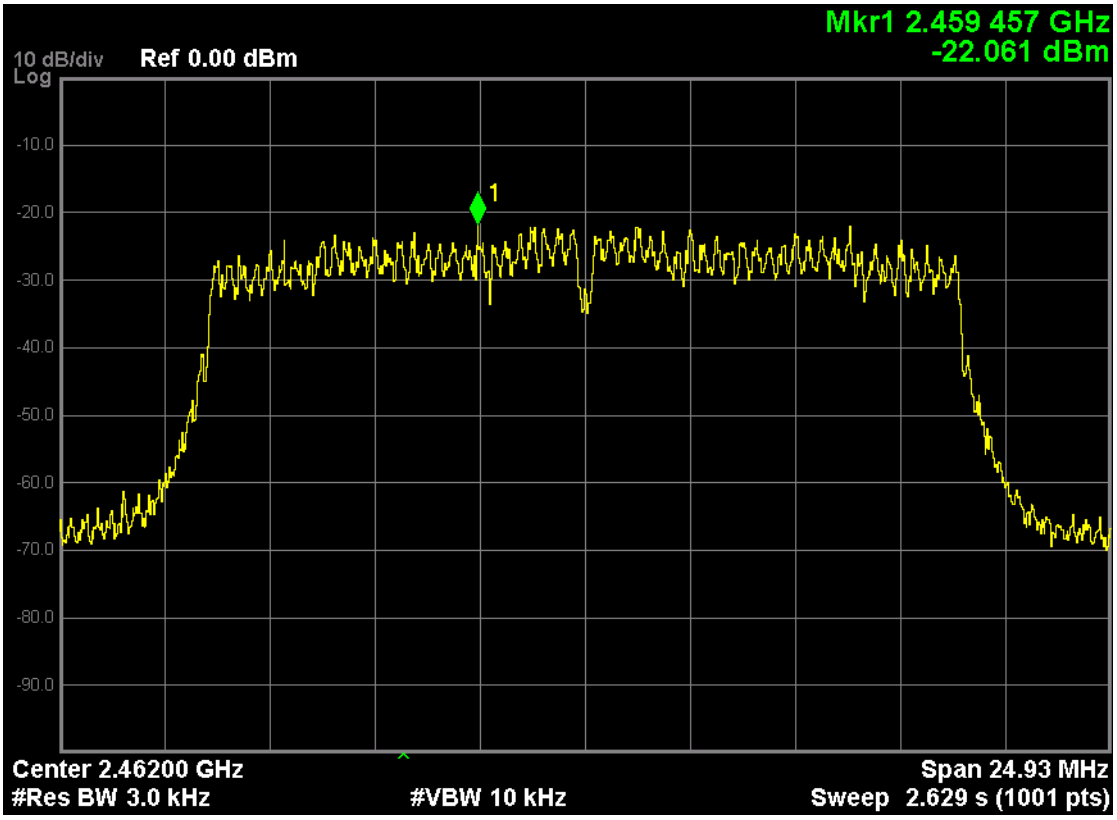
802.11n channel 1



802.11n channel 6

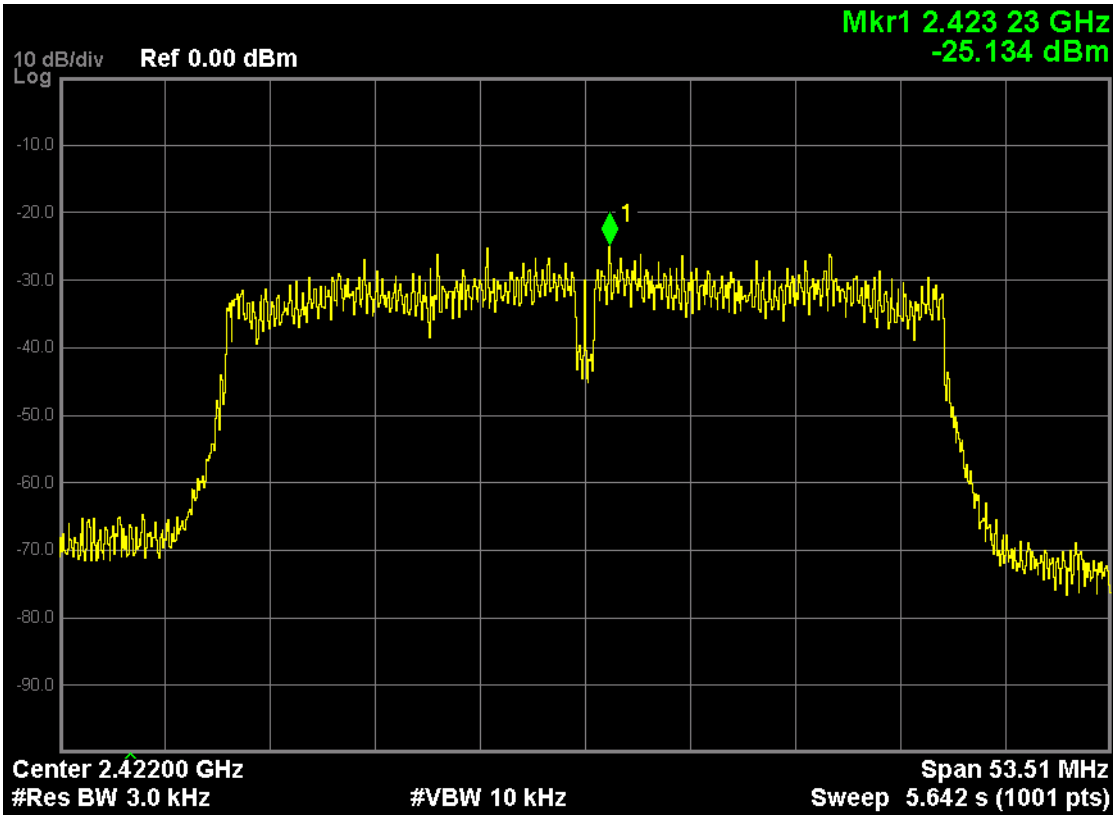


802.11n channel 11

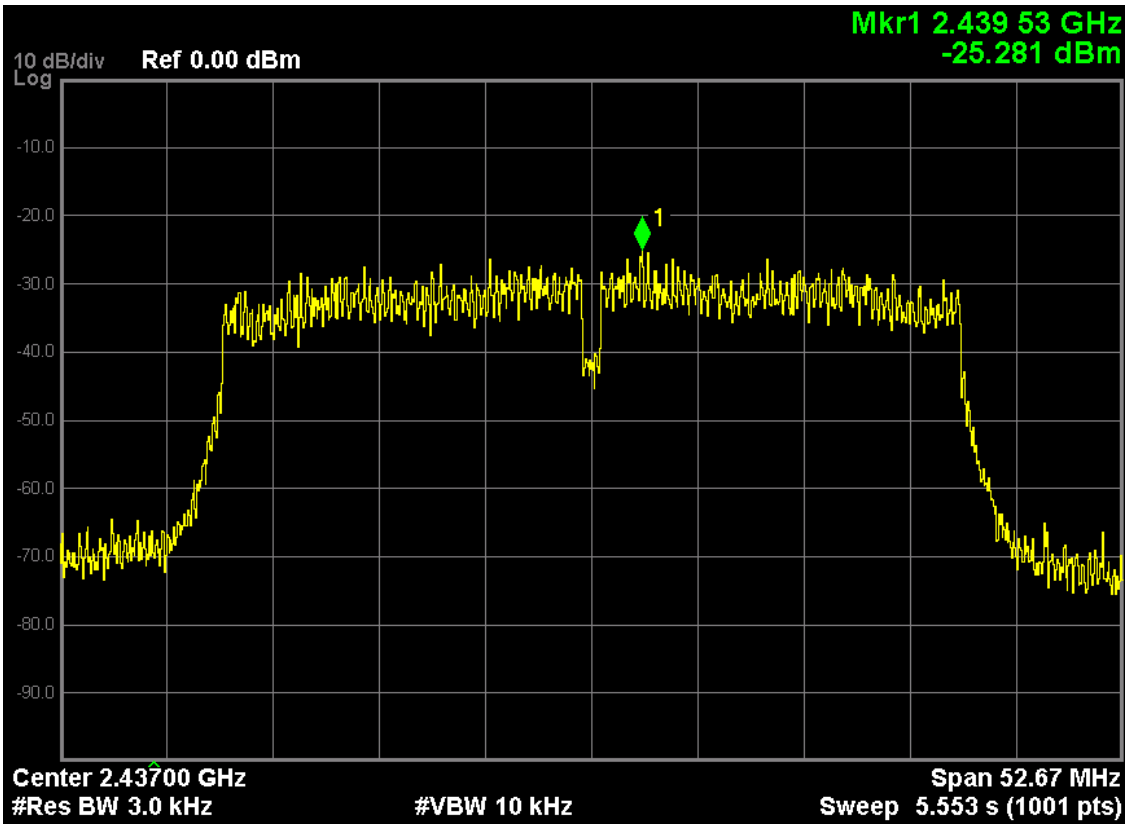


802.11n40

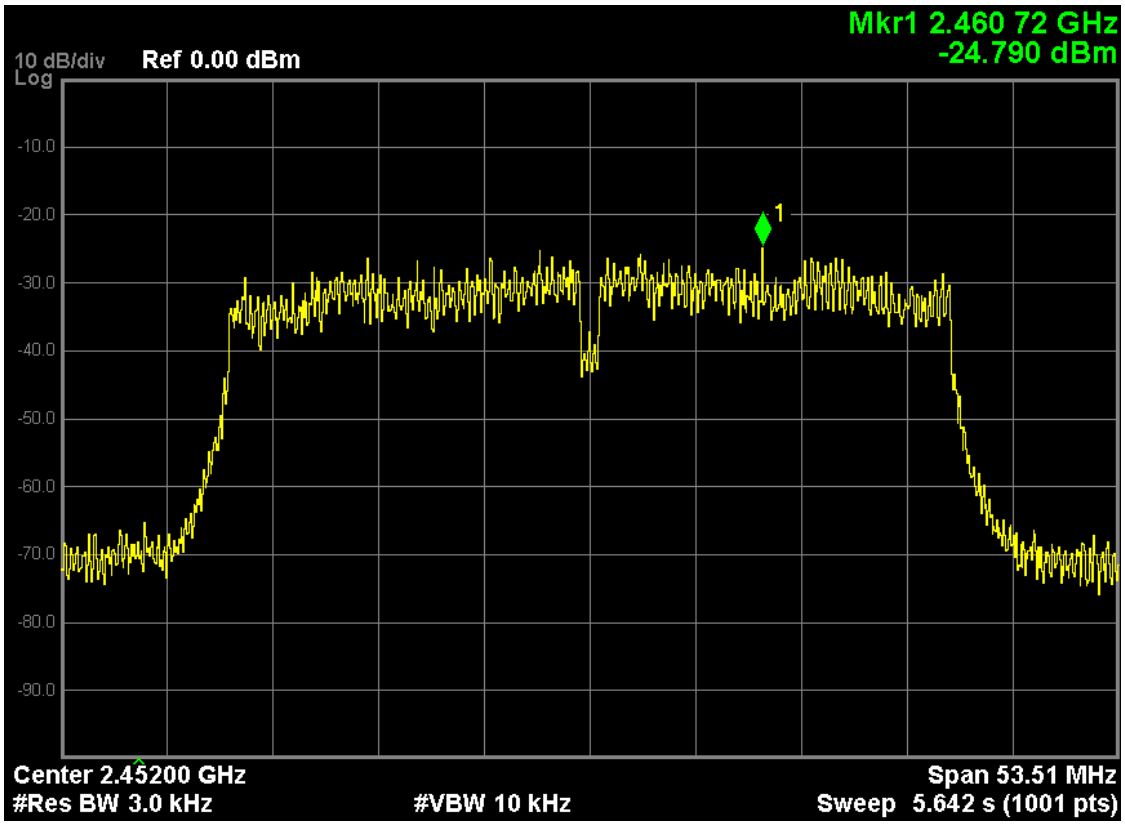
802.11n channel 3



802.11n channel 6

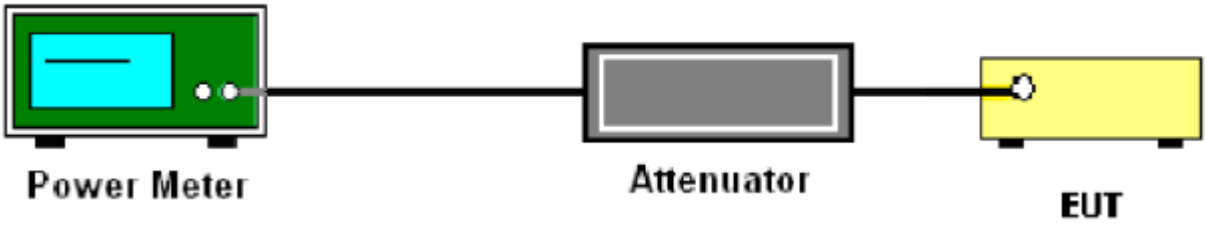


802.11n channel 9



7. PEAK OUTPUT POWER (CONDUCTION)

7.1 TEST SETUP



7.2 LIMITS

Limits	<30dBm

7.3 TEST PROCEDURE

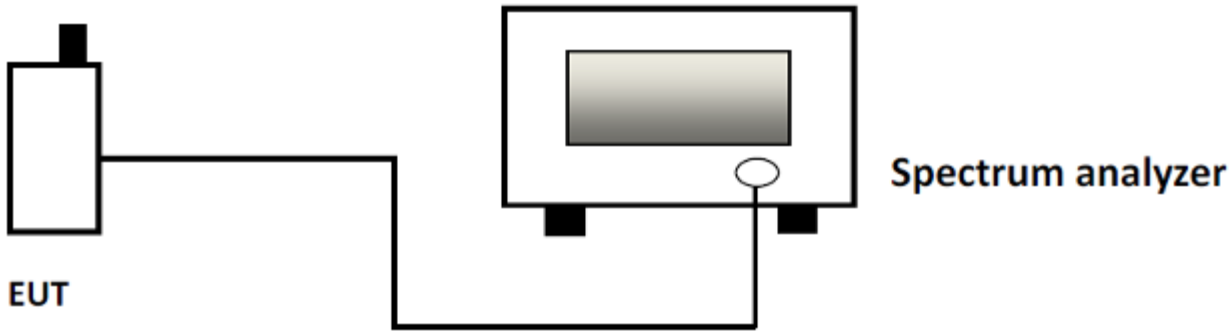
Place the EUT on the table and set it in transmitting mode. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to spectrum analyzer. The loss between RF output port of the EUT and the input port of the tester will be taken into consideration.
The measurement will be conducted at three channels.
WIFI: Low(1), middle(6) and High (11).

7.4 RESULTS & PERFORMANCE

802.11b			
Channel	Peak power (dBm)	Limit (dBm)	Margin (dB)
1 (2412MHz)	12.9	30	17.1
6 (2437MHz)	12.8	30	17.2
11 (2462MHz)	12.9	30	17.1
802.11g			
Channel	Peak power (dBm)11.4	Limit (dBm)	Margin (dB)
1 (2412MHz)	11.2	30	18.8
6 (2437MHz)	11.4	30	18.6
11 (2462MHz)	11.6	30	18.4
802.11n20			
Channel	Peak power (dBm)	Limit (dBm)	Margin (dB)
1 (2412MHz)	11.1	30	18.9
6 (2437MHz)	11.2	30	18.8
11 (2462MHz)	11.2	30	18.8
802.11n40			
Channel	Peak power (dBm)	Limit (dBm)	Margin (dB)
3 (2422MHz)	11.3	30	18.7
6 (2437MHz)	11.4	30	18.6
9 (2452MHz)	11.4	30	18.6

8. SPURIOUS EMISSIONS (CONDUCTION)

8.1 TEST SETUP



8.2 LIMITS

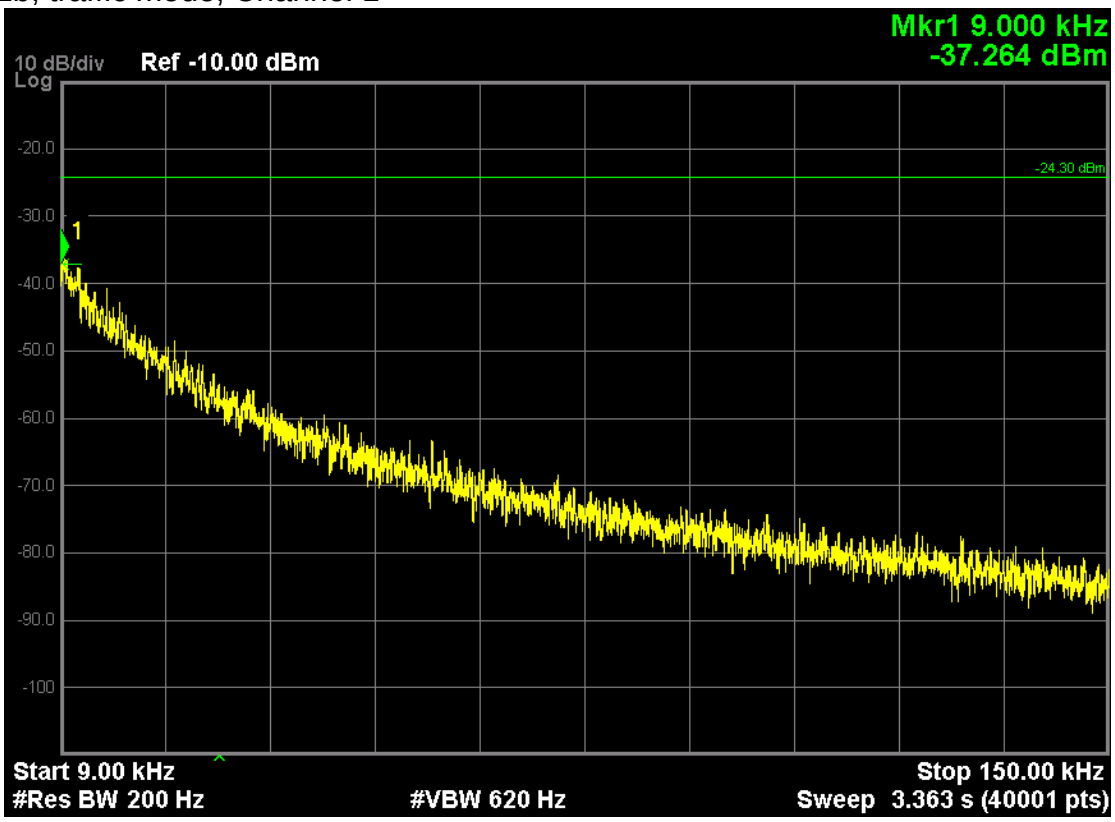
Limit	<(P-20dB)
Note: P is the highest level of the desired power	

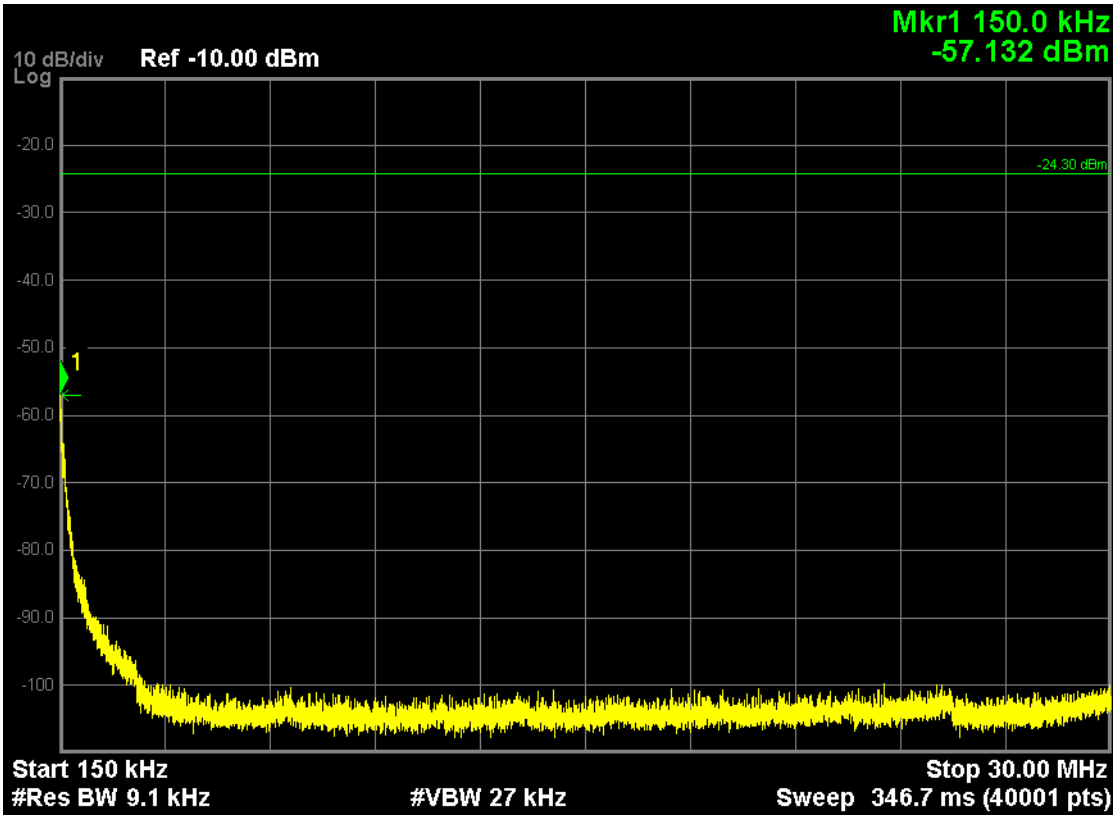
8.3 TEST PROCEDURE

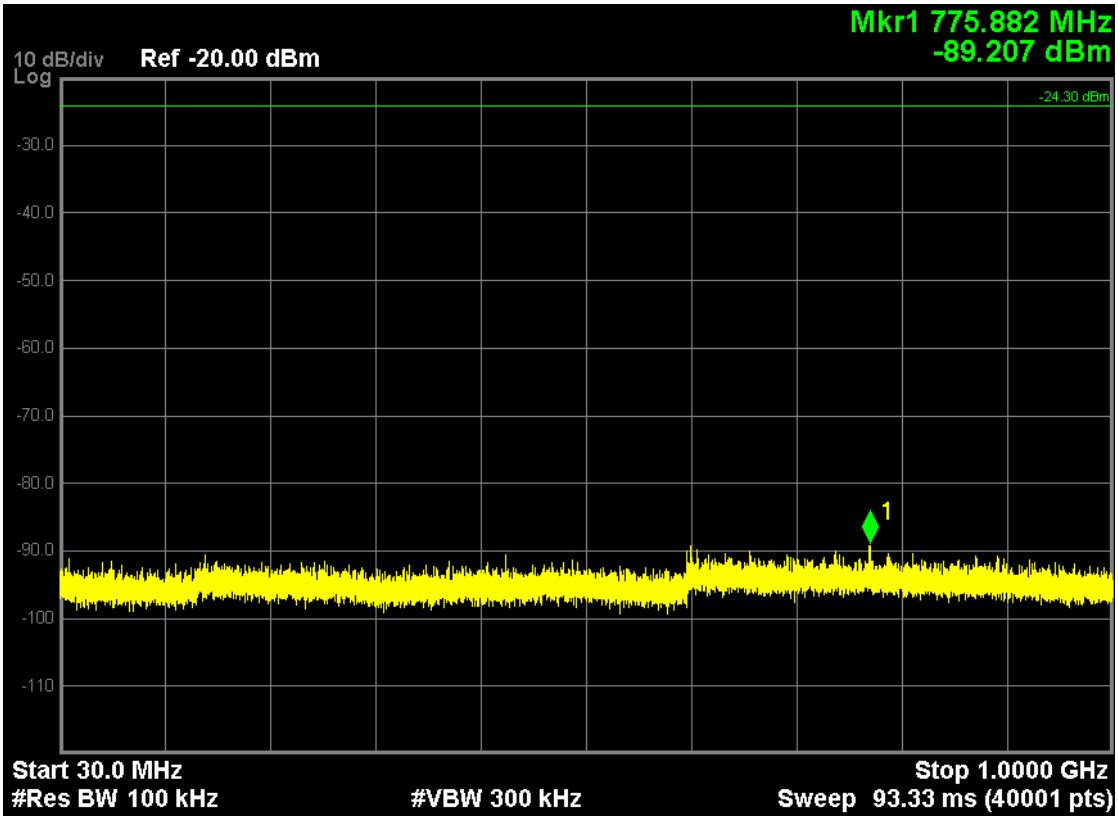
The EUT was connected to Spectrum Analyzer and Base Station via power divider. Use the following spectrum analyzer settings:
Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic. Typically, several plots are required to cover this entire span.
RBW = 100 kHz;VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold
Allow the trace to stabilize. Set the marker on the peak of any spurious emission recorded. The level displayed must comply with the limit specified in this Section.

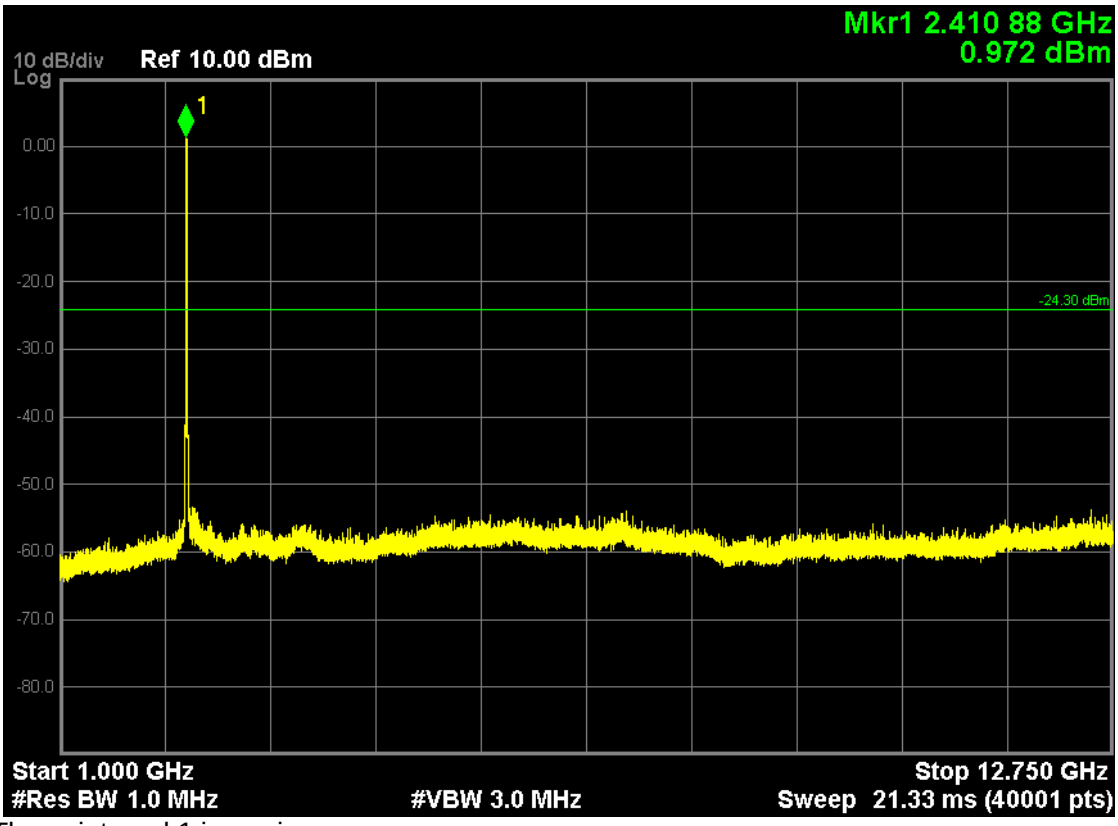
8.4 RESULTS & PERFORMANCE

802.11b, traffic mode; Channel 1

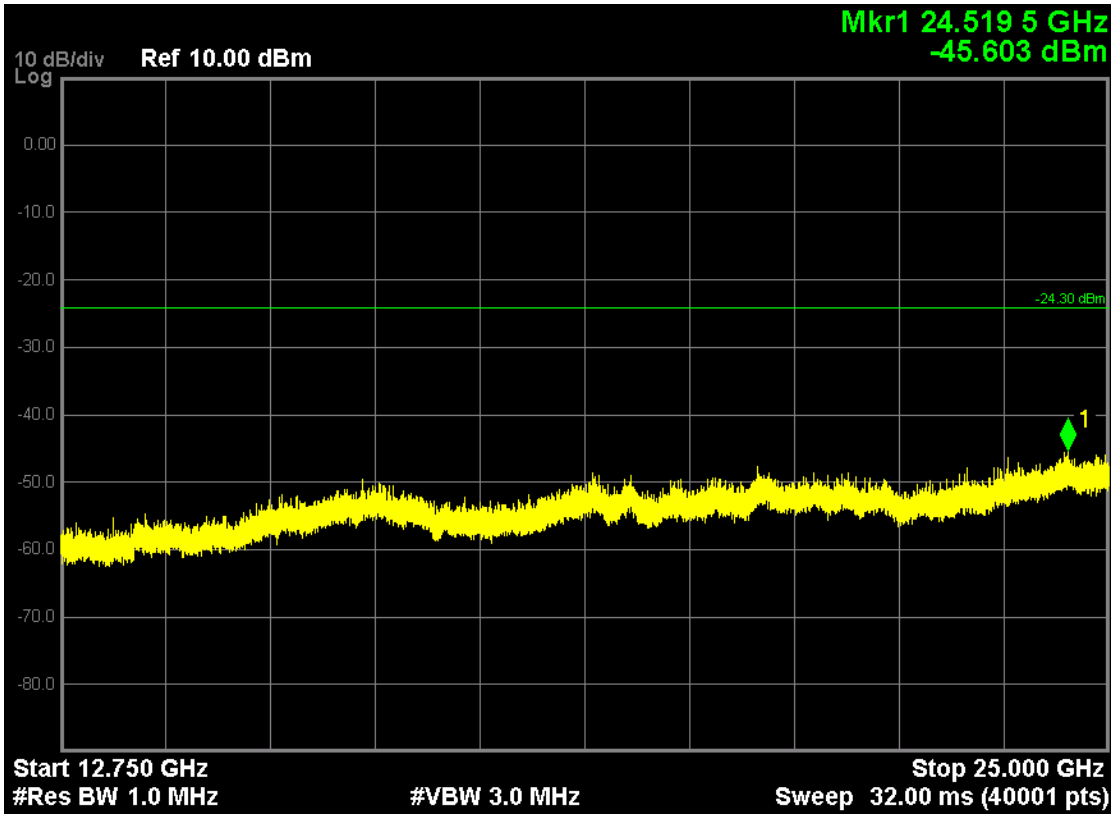




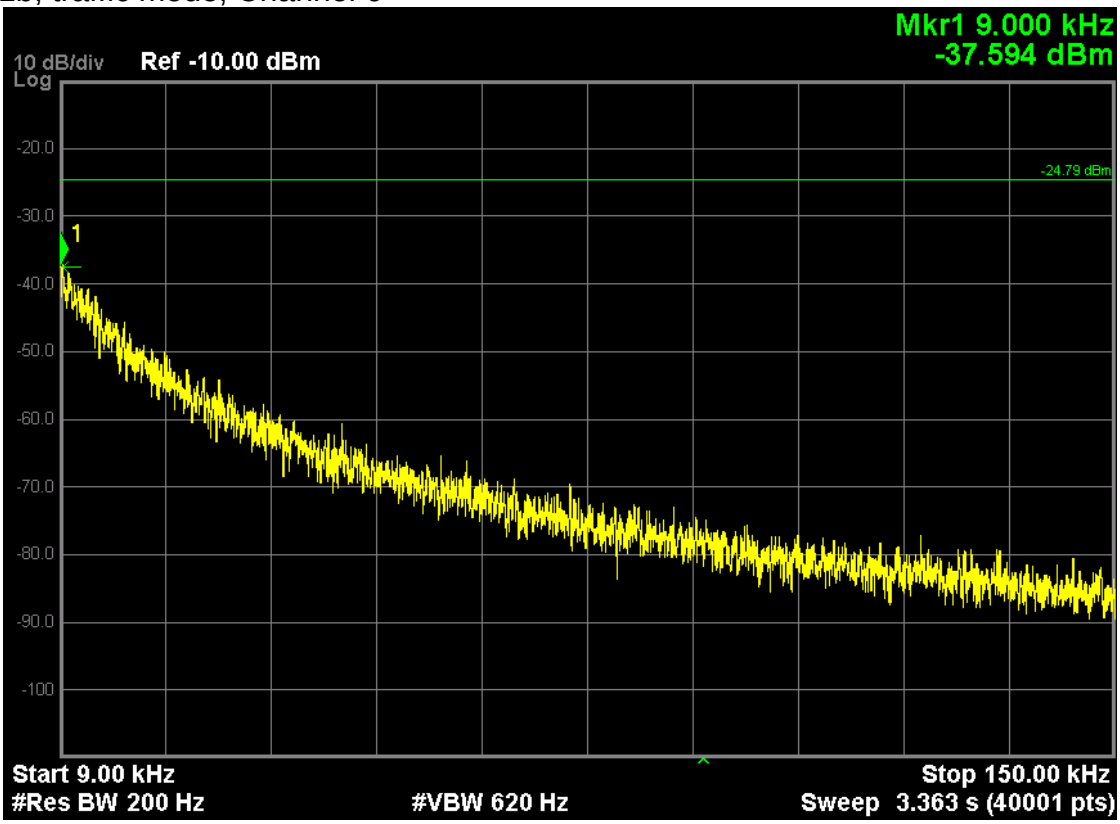


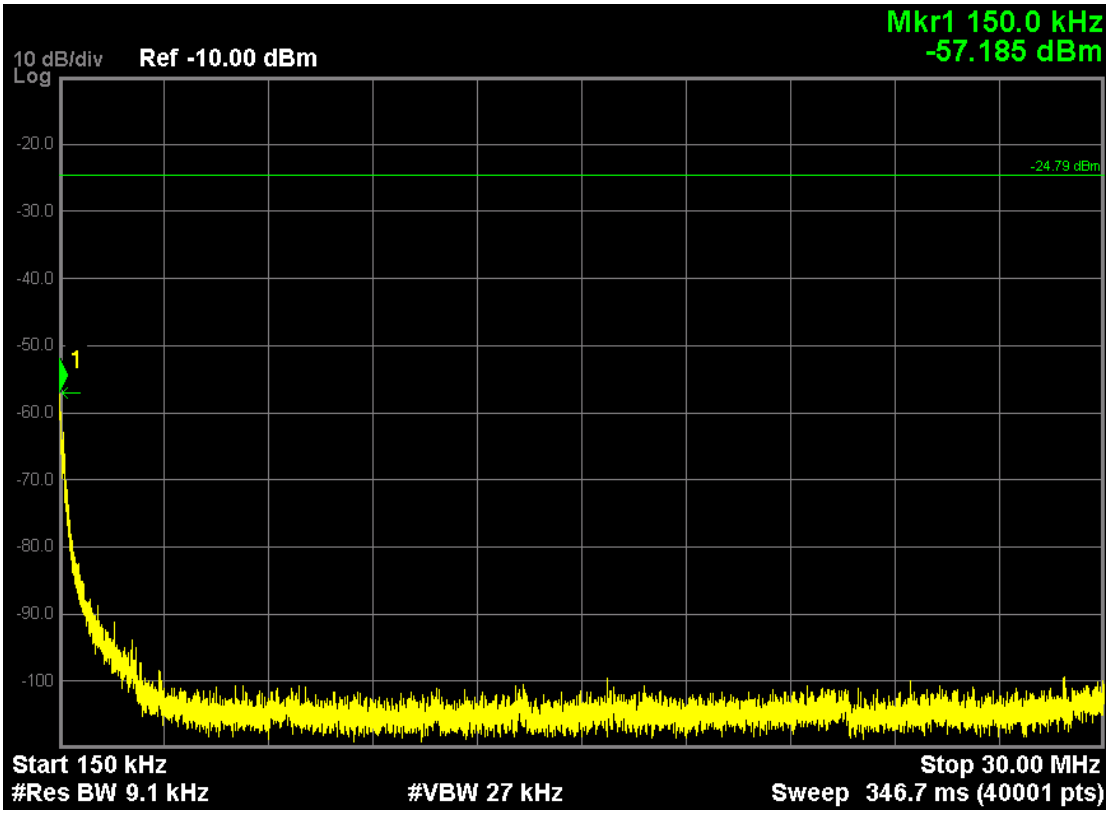


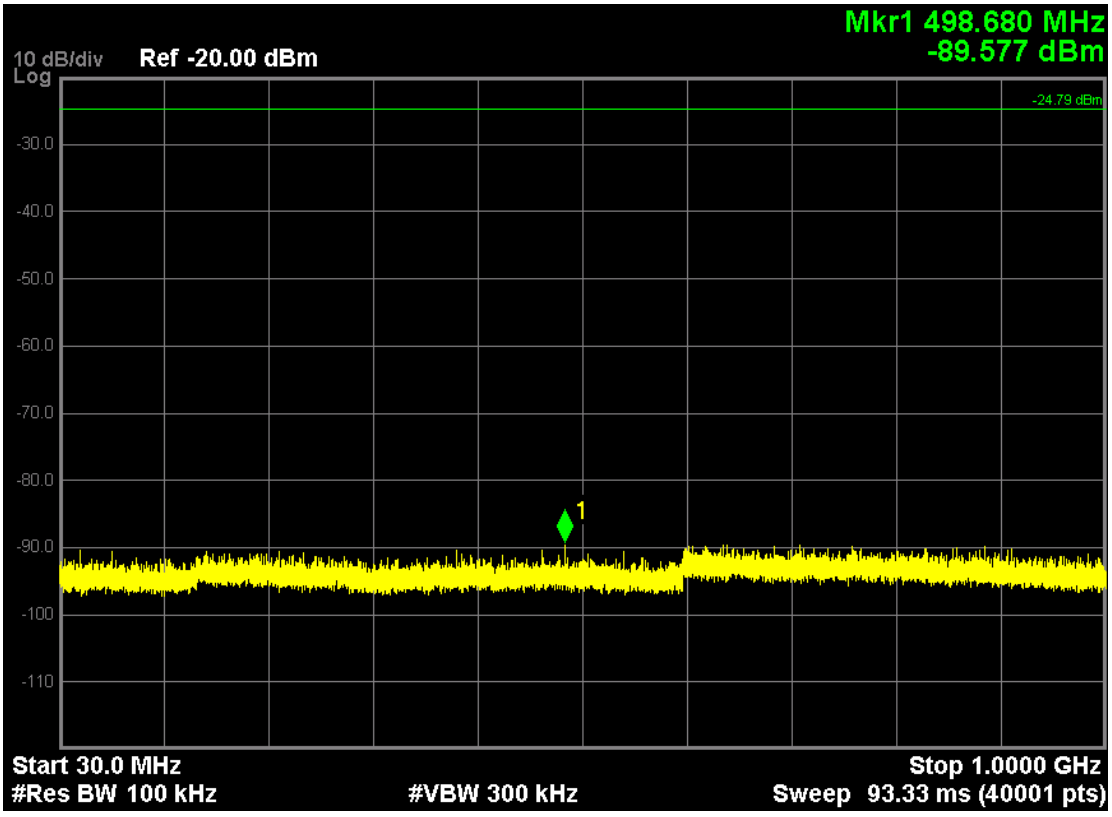
Note: The point mark1 is carrier.

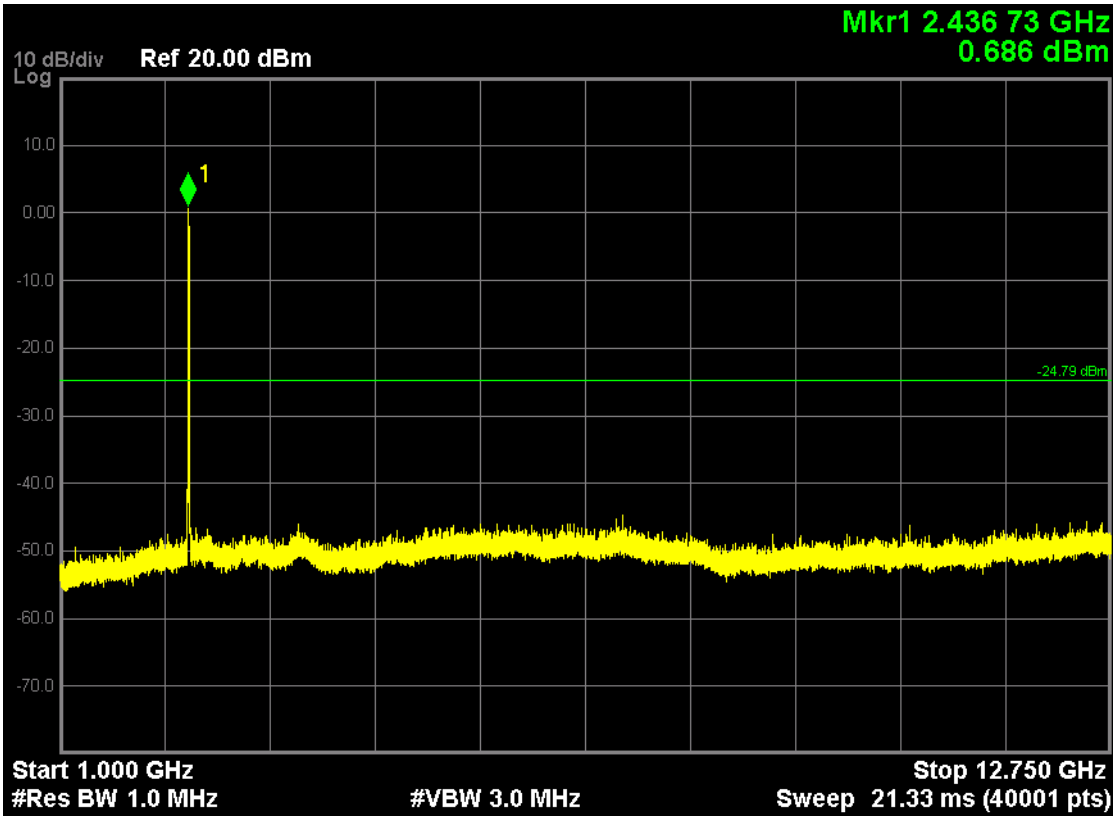


802.11b, traffic mode; Channel 6

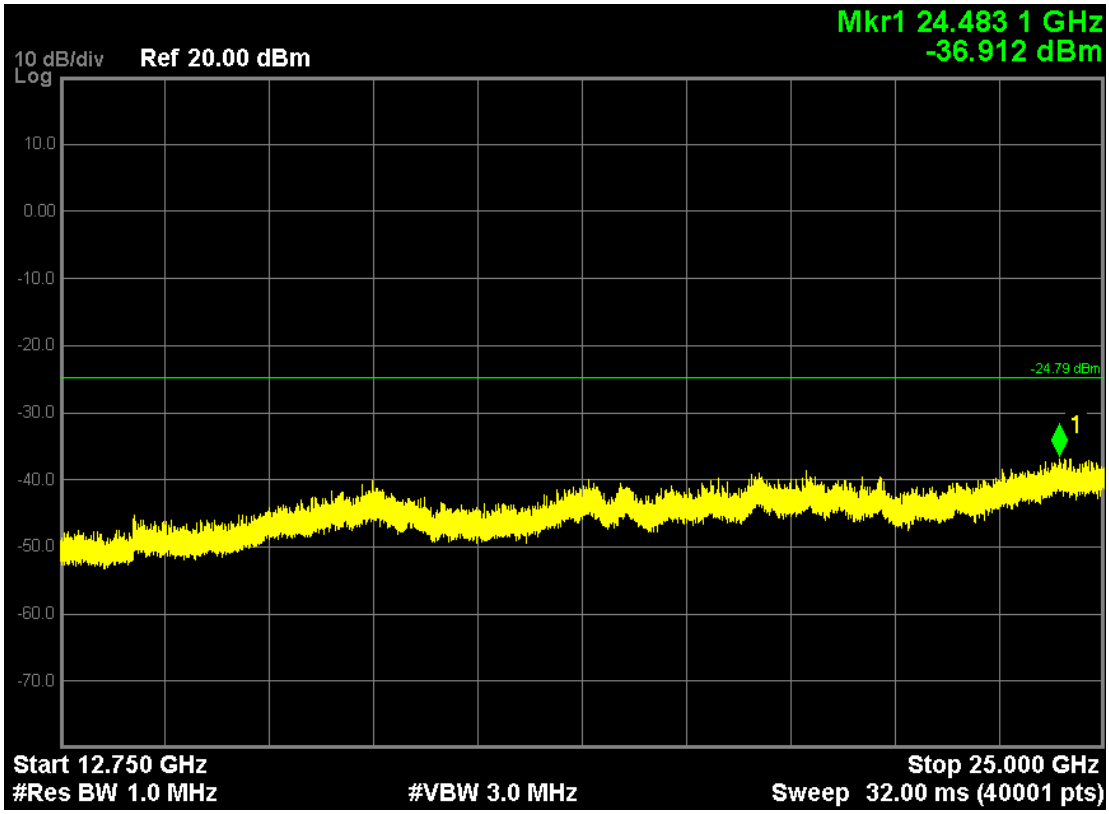



Mkr1 150.0 kHz
-57.185 dBm
10 dB/div
Log
Ref -10.00 dBm
-24.79 dBm
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
-100
1
Start 150 kHz
#Res BW 9.1 kHz
#VBW 27 kHz
Stop 30.00 MHz
Sweep 346.7 ms (40001 pts)

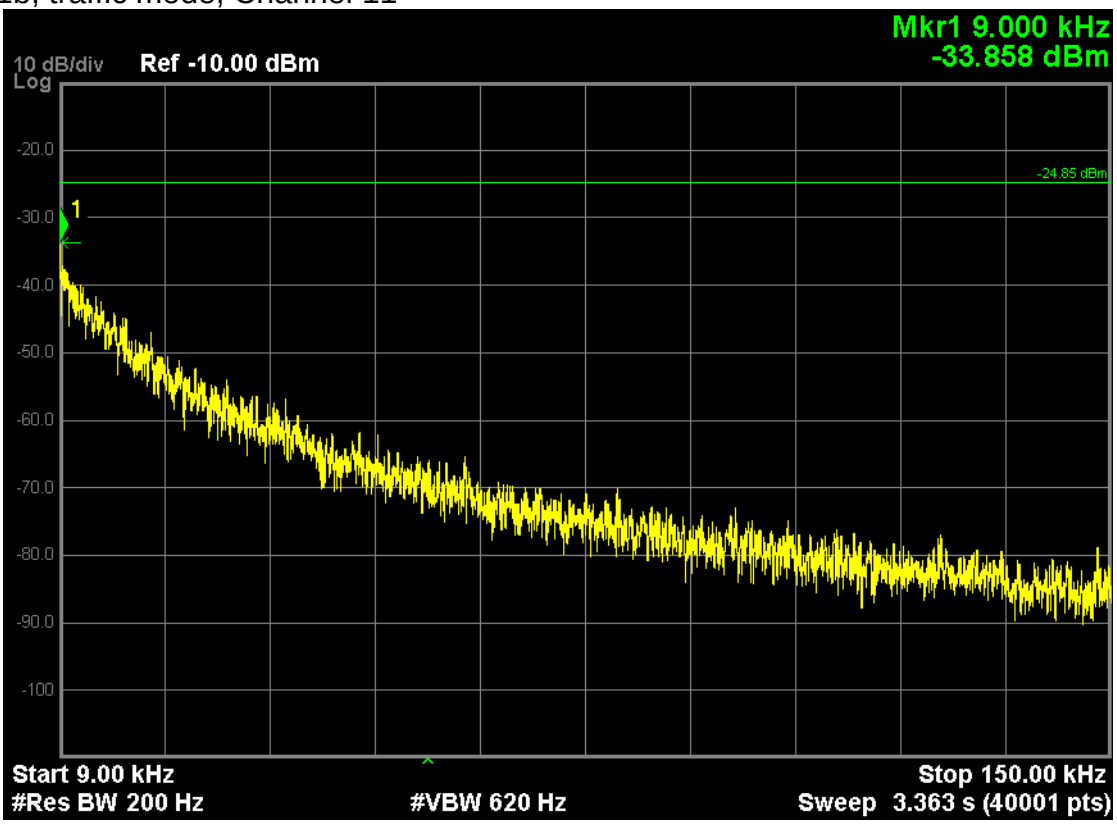

Mkr1 498.680 MHz
-89.577 dBm
10 dB/div
Log
Ref -20.00 dBm
-24.79 dBm
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
-100
-110
1
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 93.33 ms (40001 pts)

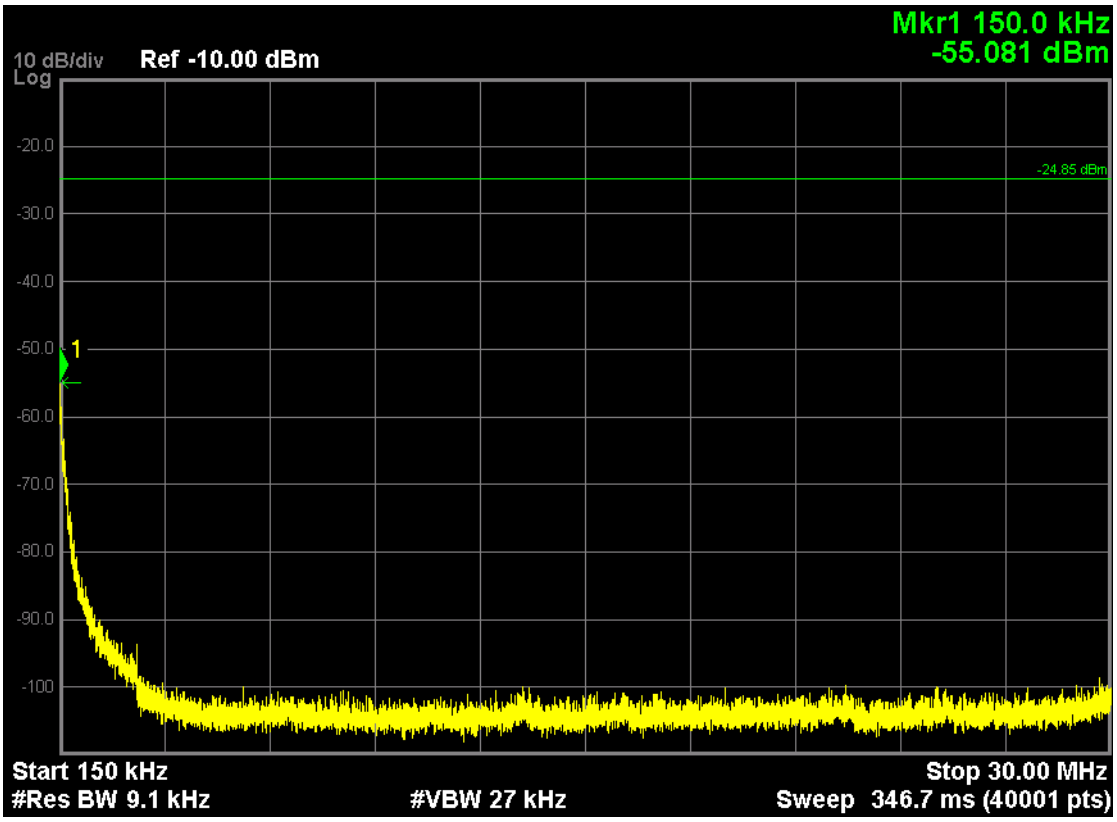


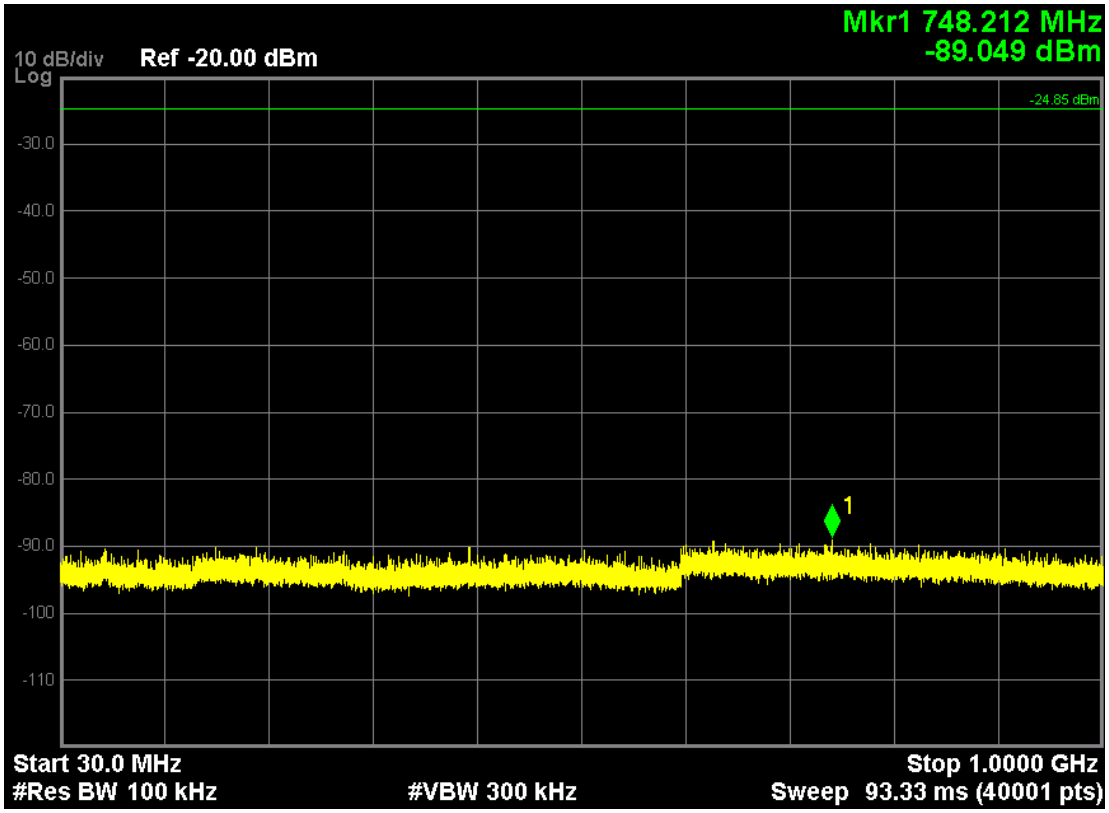
Note: The Mark1 point is carrier.

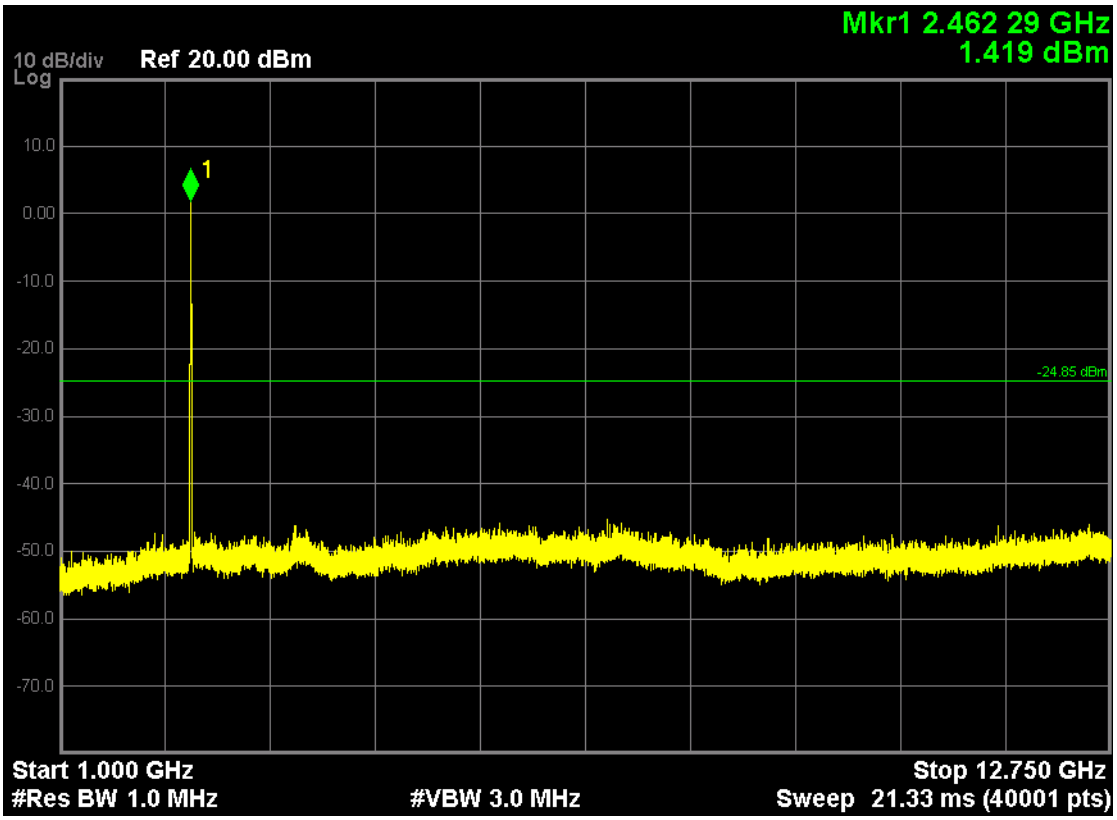


802.11b, traffic mode; Channel 11

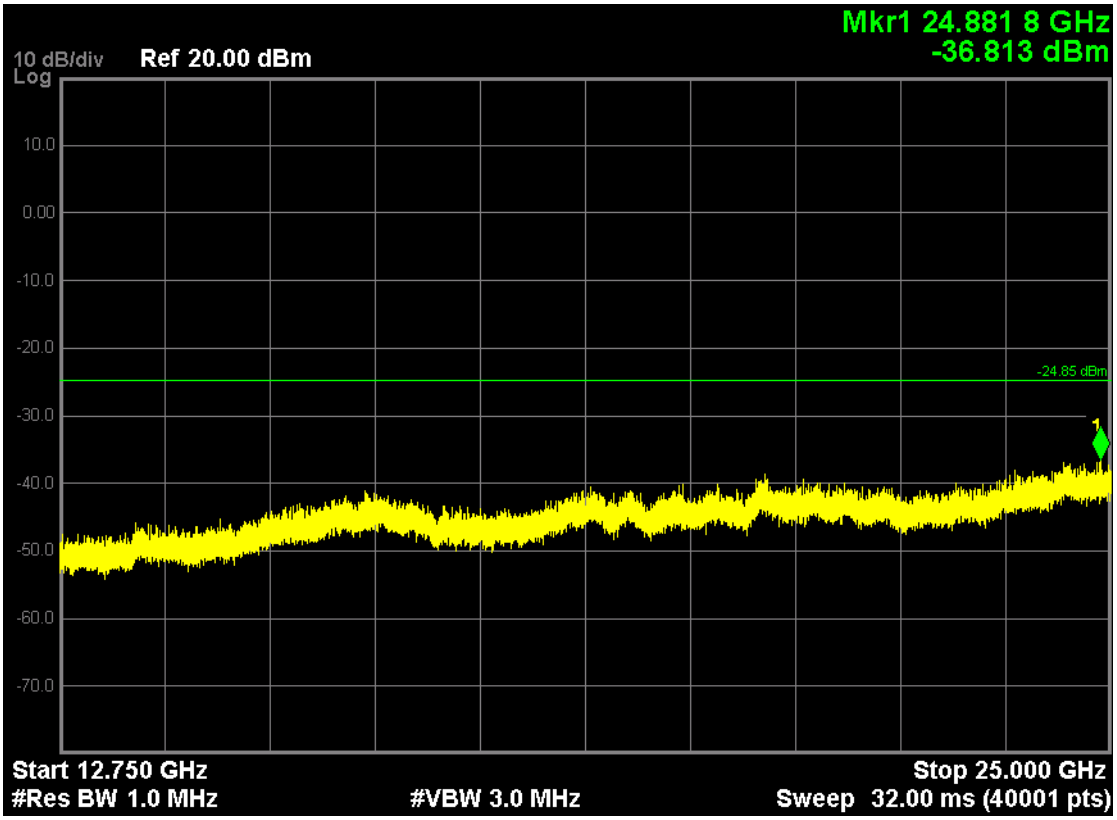




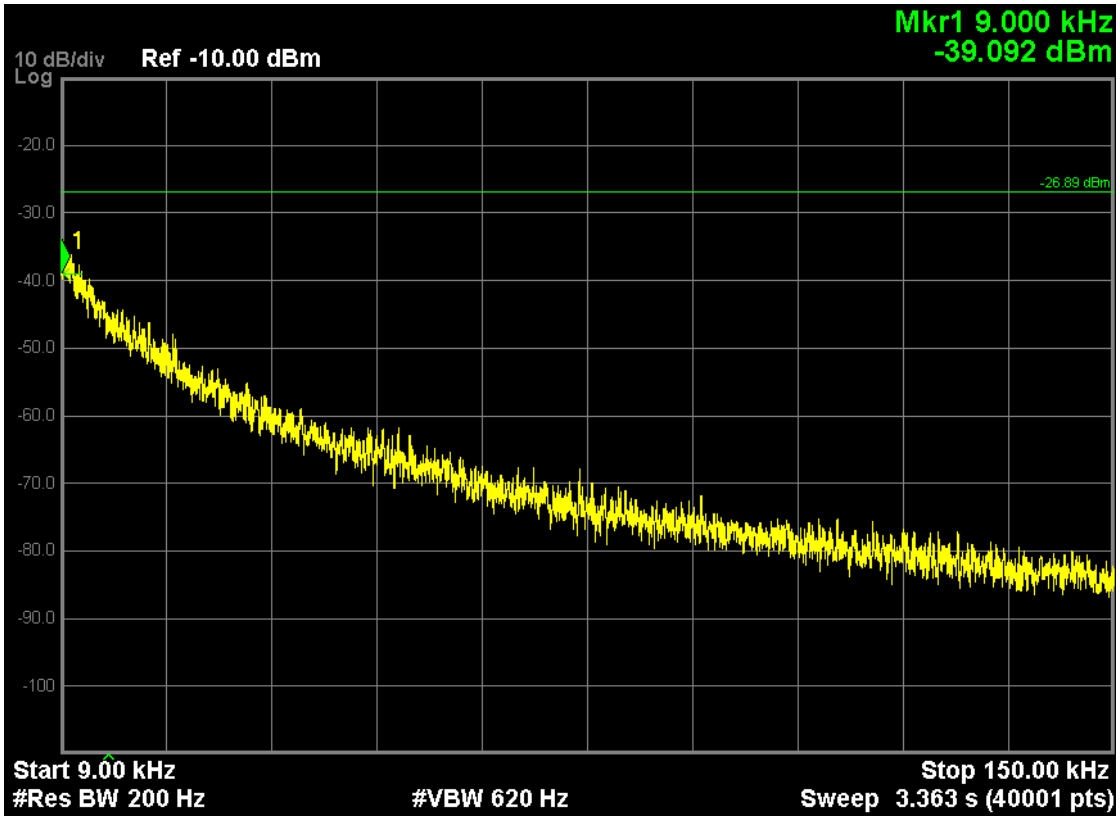


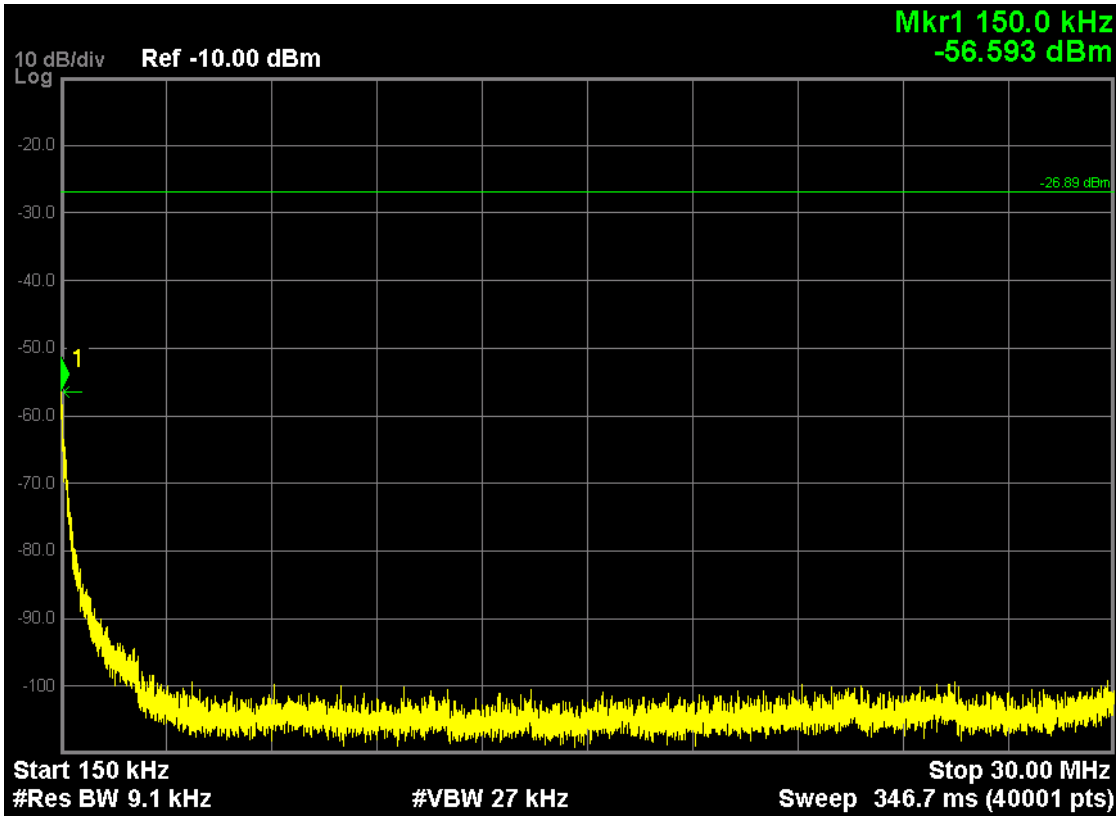


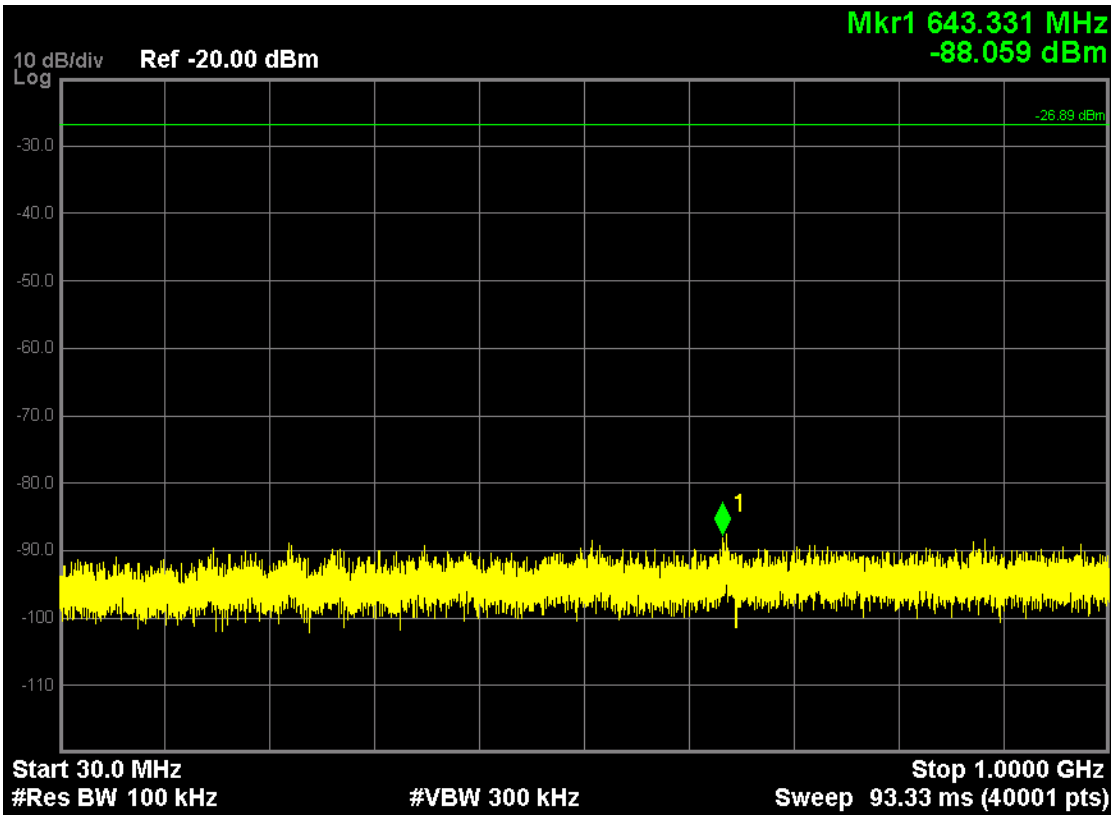
Note: The Mark1 point is carrier.

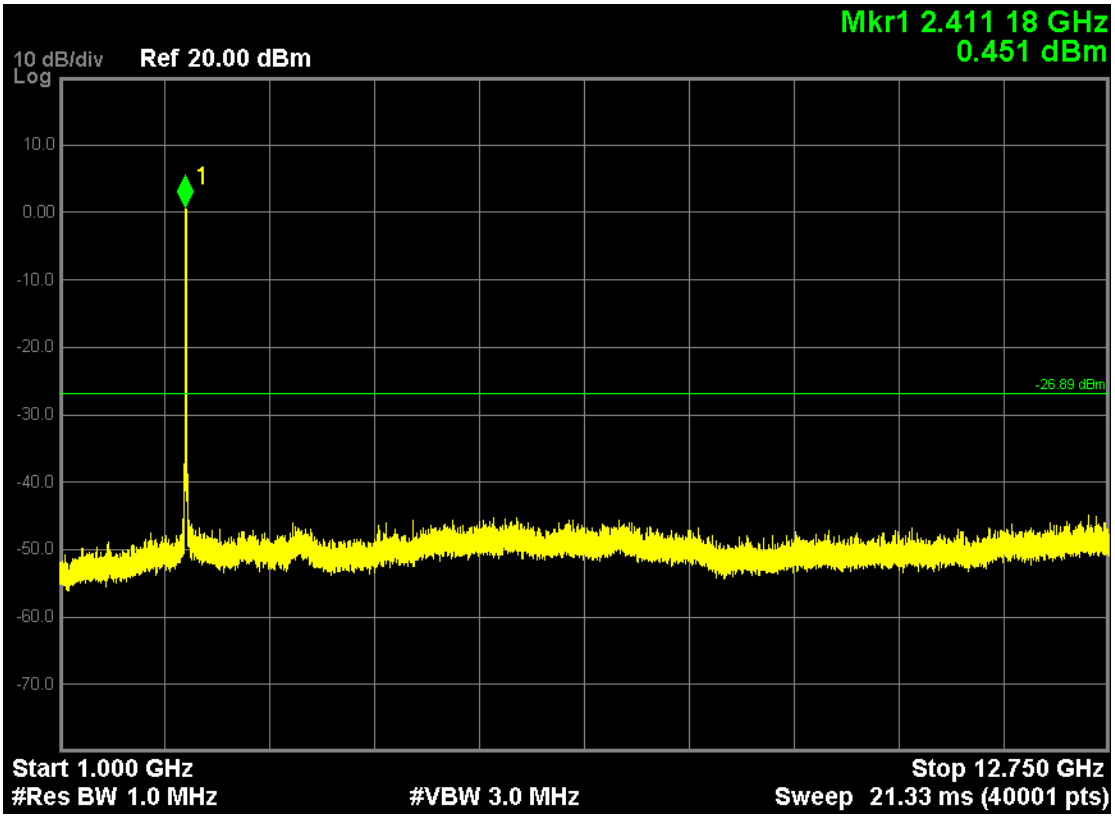


802.11g, traffic mode; Channel 1

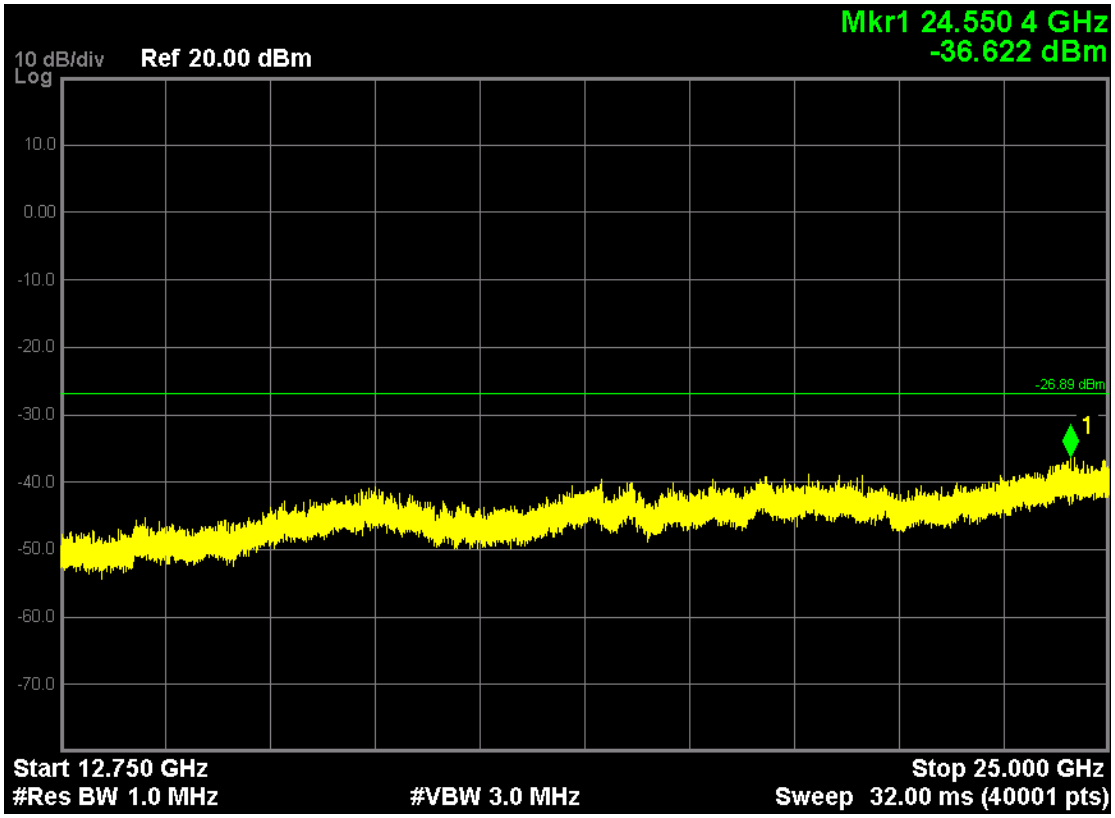



Mkr1 150.0 kHz
-56.593 dBm
10 dB/div
Log
Ref -10.00 dBm
-26.89 dBm
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
-100
1
Start 150 kHz
#Res BW 9.1 kHz
#VBW 27 kHz
Stop 30.00 MHz
Sweep 346.7 ms (40001 pts)

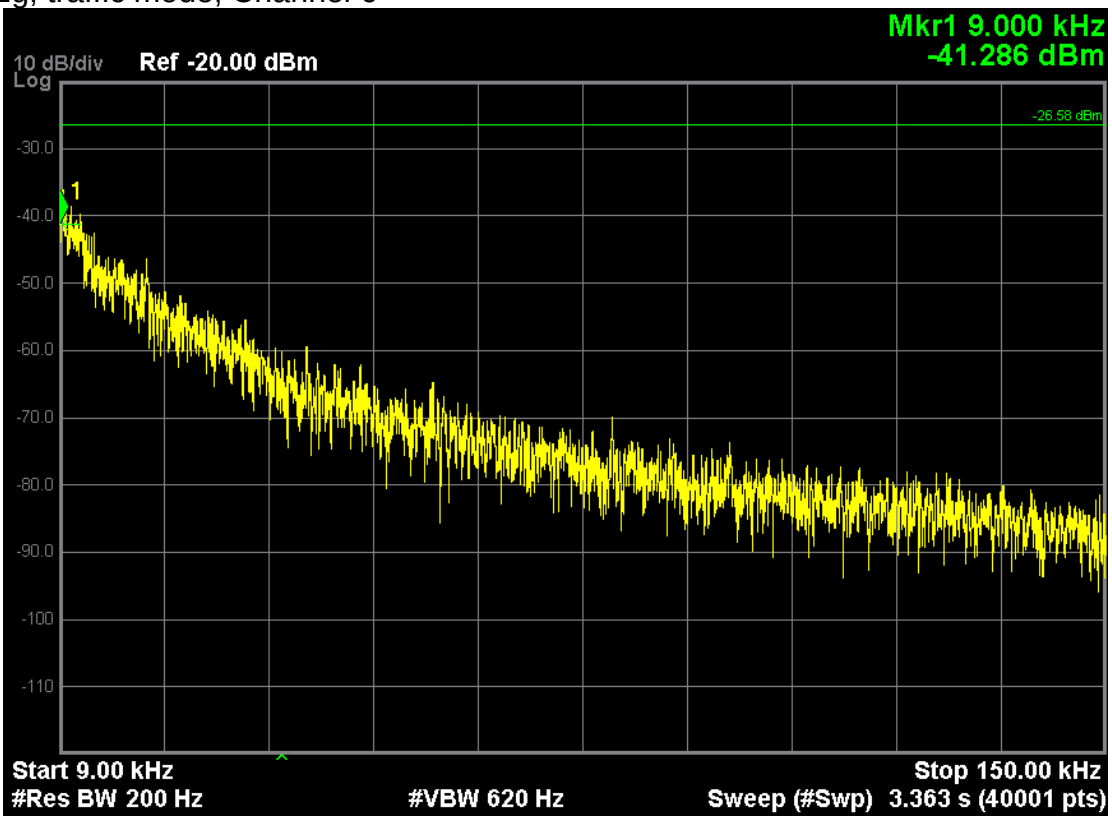

Mkr1 643.331 MHz
-88.059 dBm
10 dB/div
Log
Ref -20.00 dBm
-26.89 dBm
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
-100
-110
1
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 93.33 ms (40001 pts)

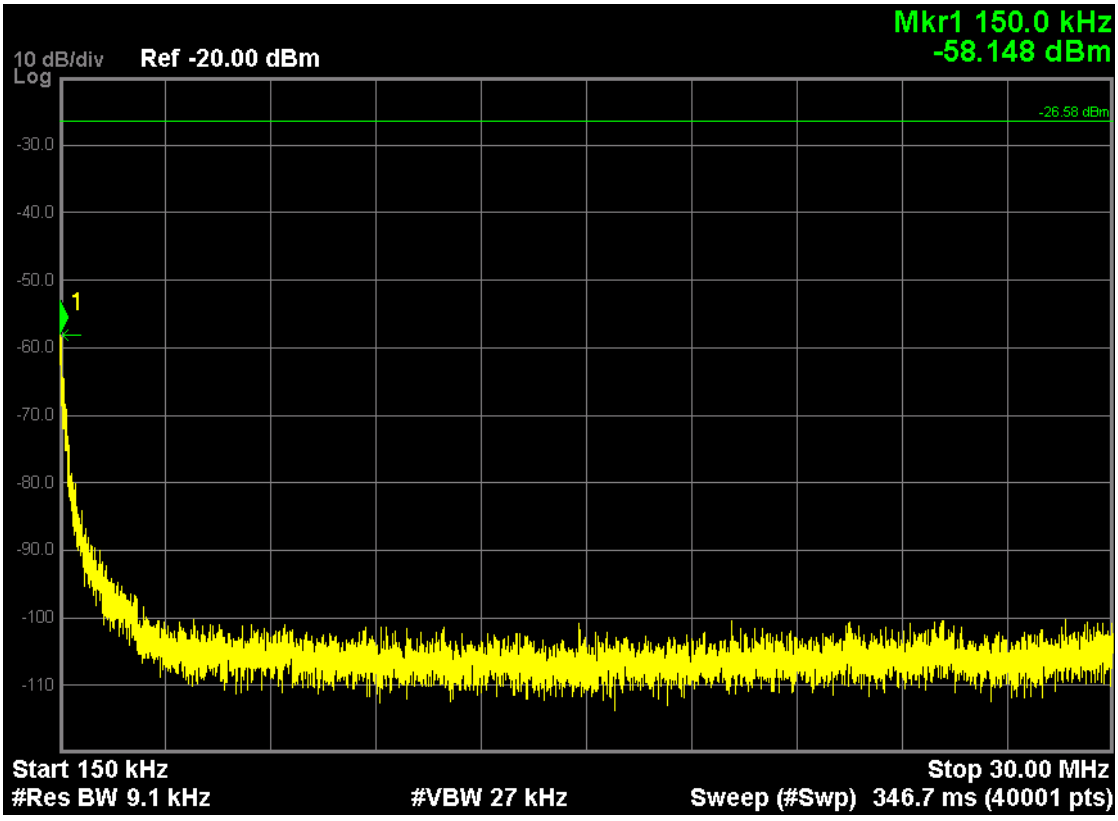


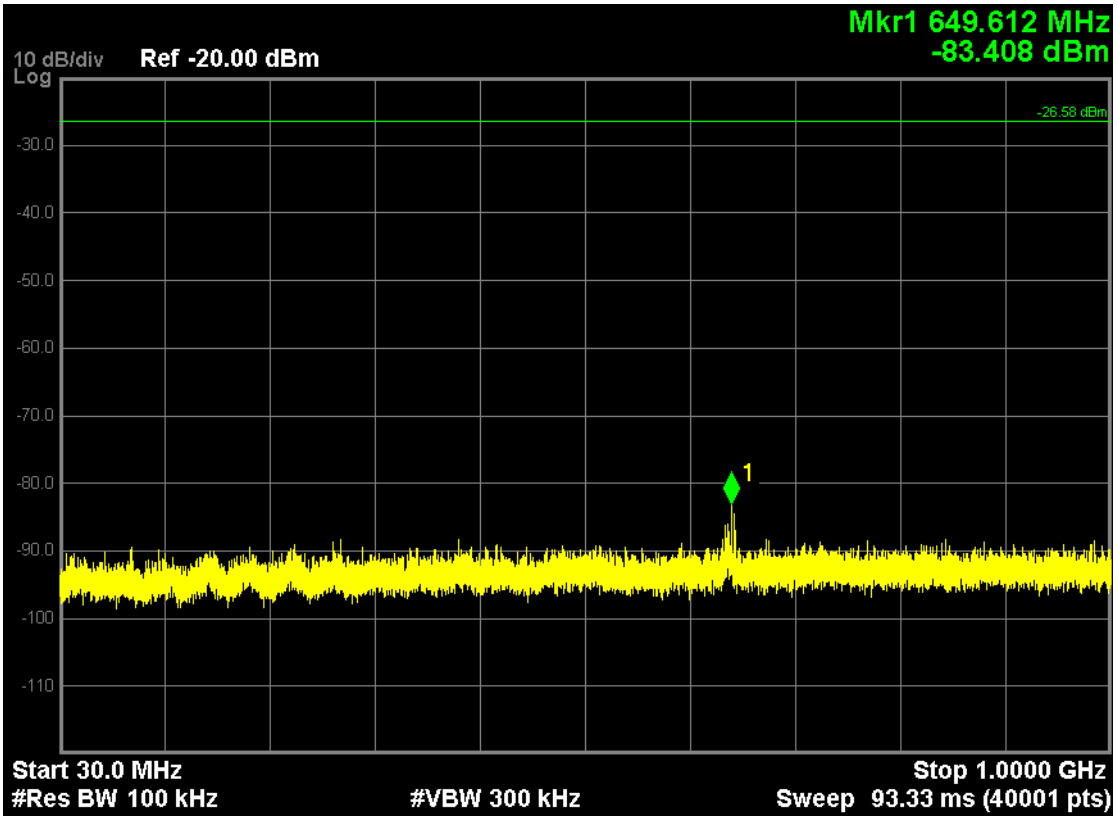
Note: The Mark1 point is carrier.

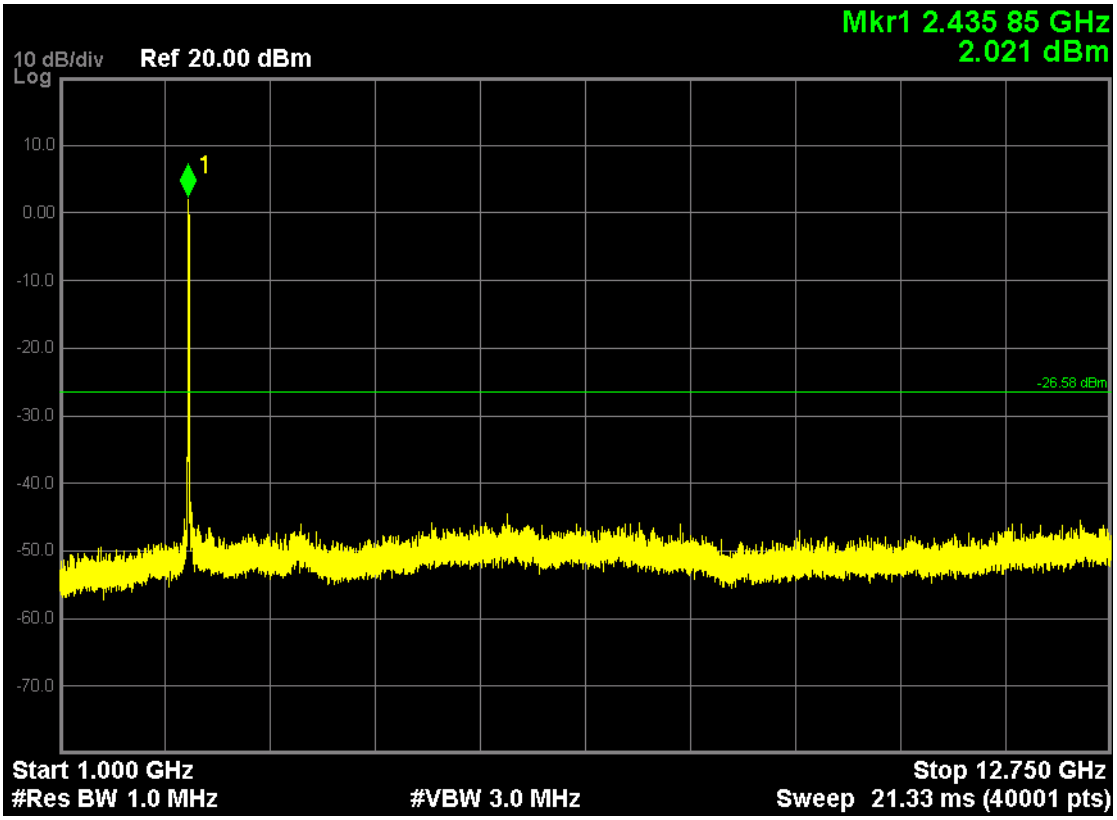


802.11g, traffic mode; Channel 6

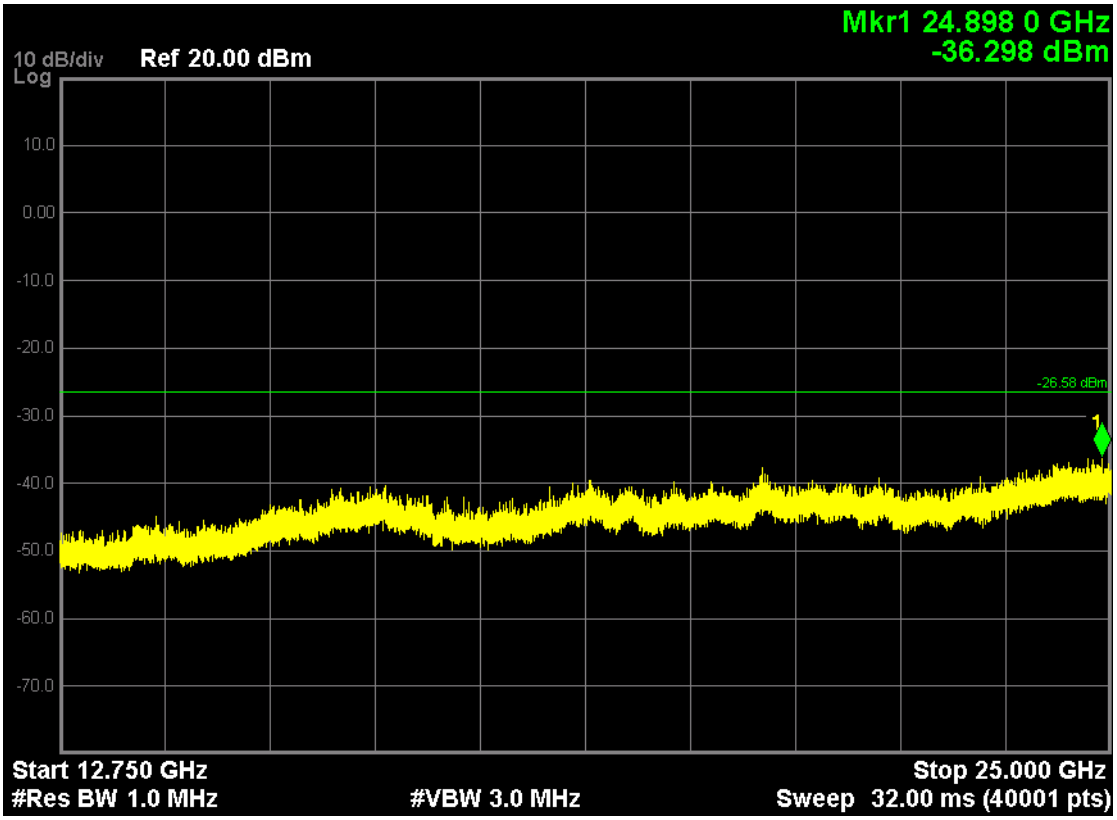




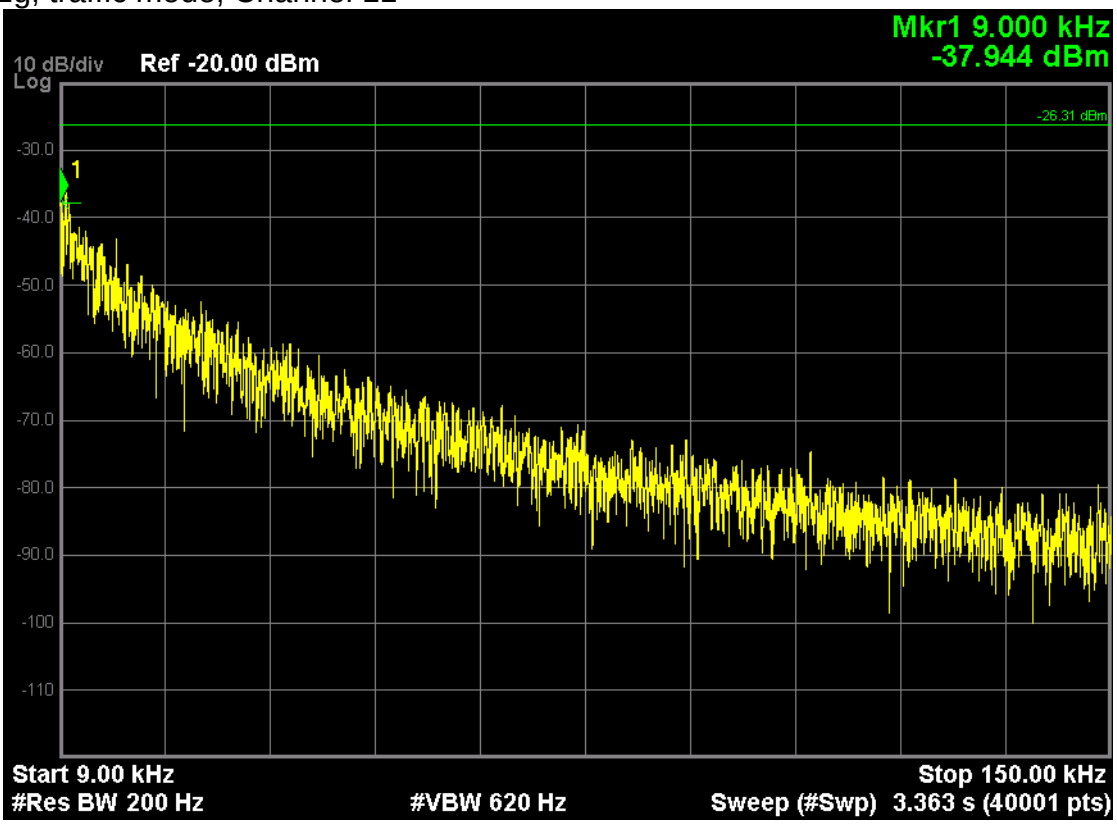


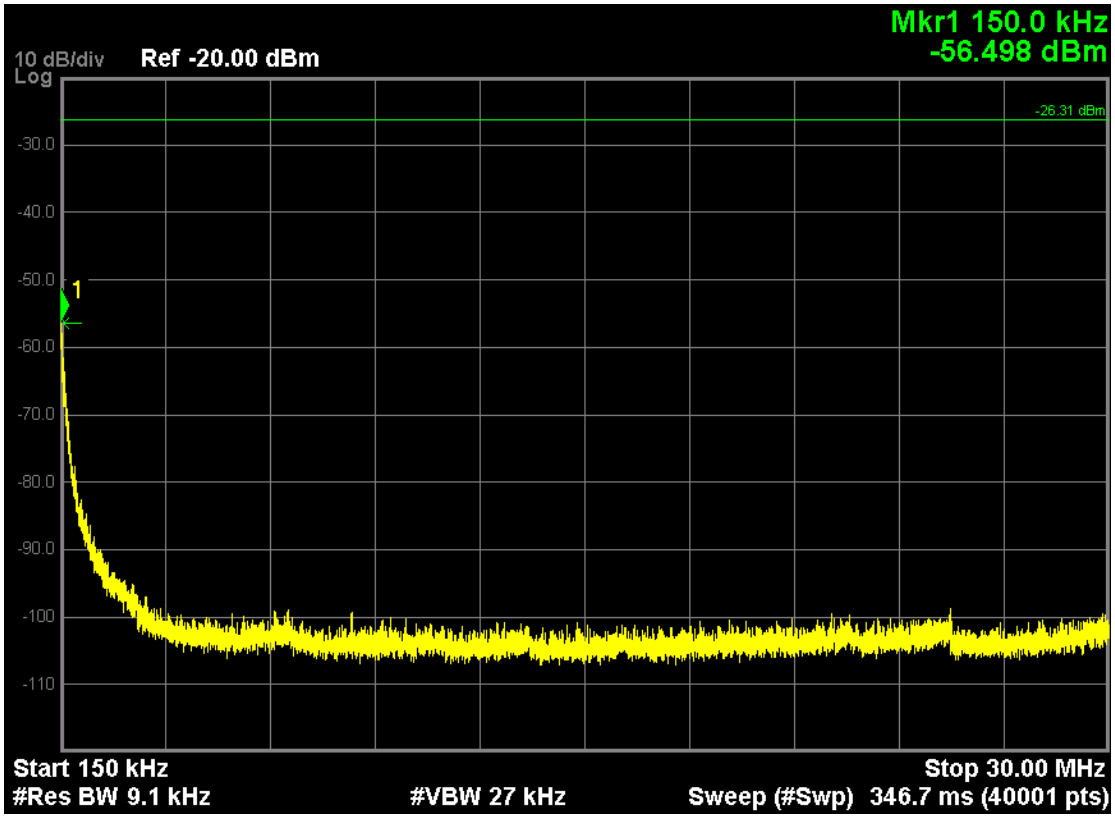


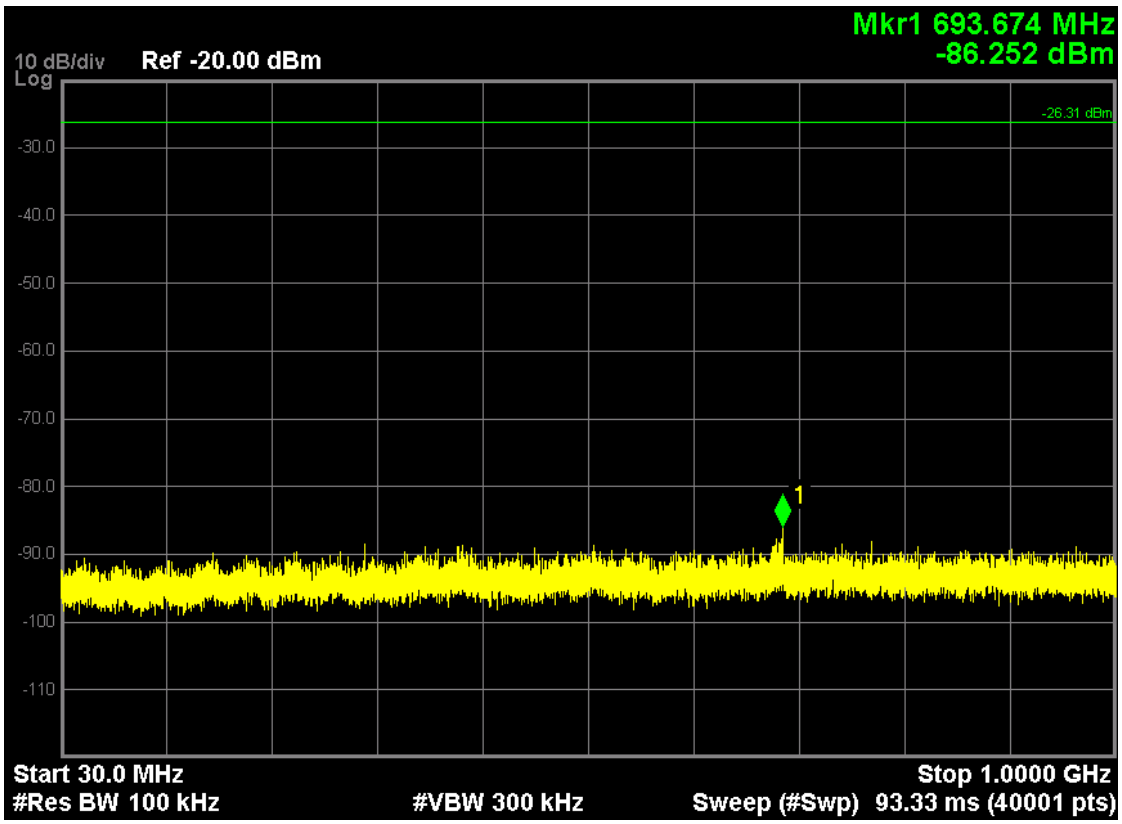
Note: The Mark1 point is carrier.

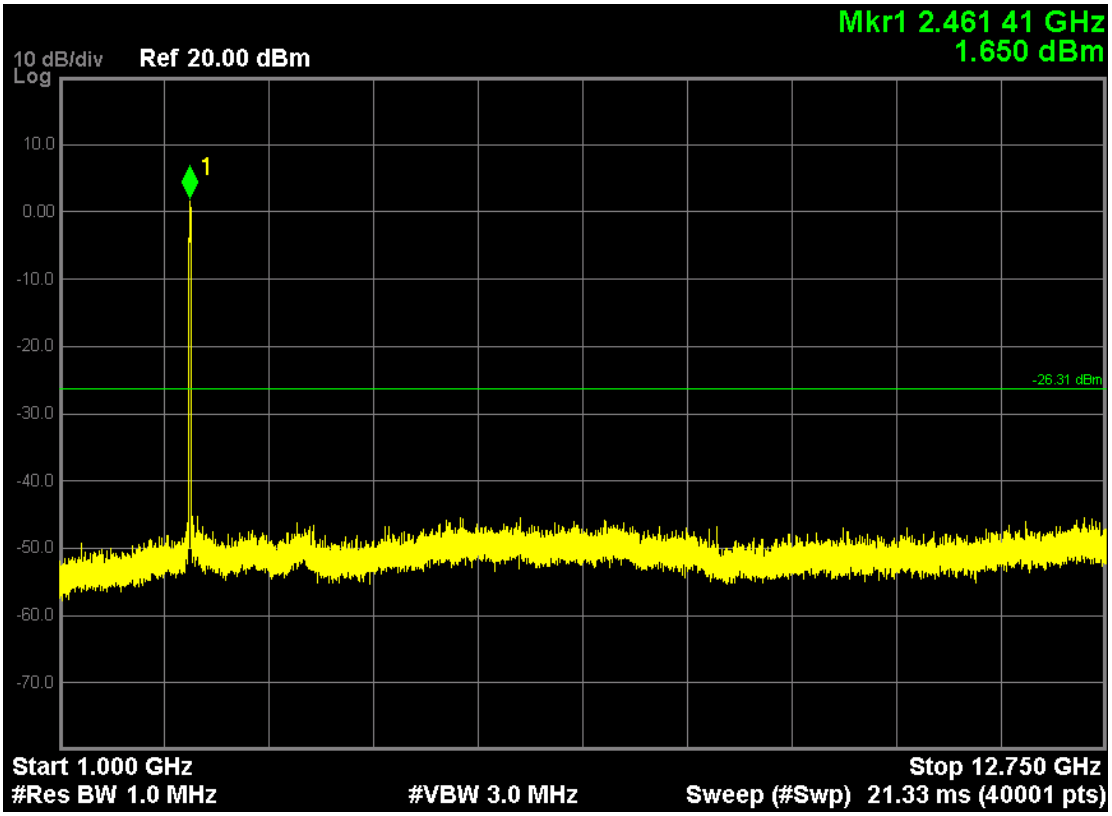


802.11g, traffic mode; Channel 11

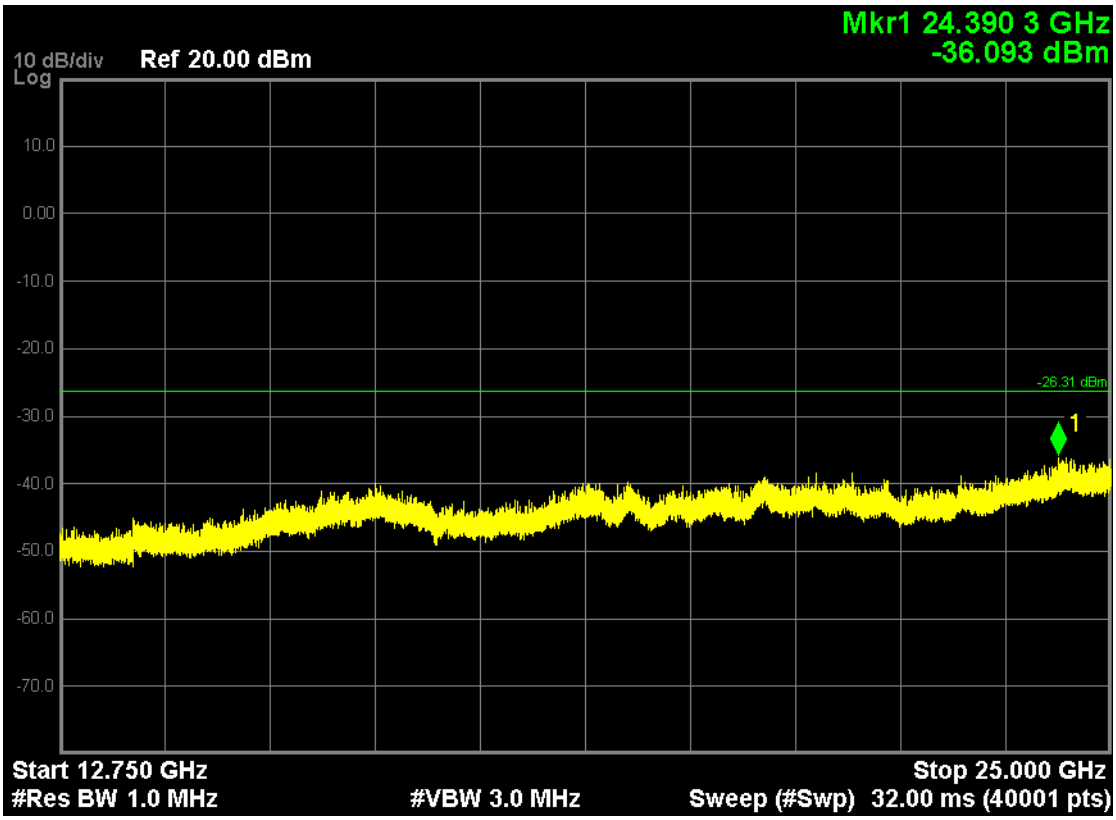



Mkr1 150.0 kHz
-56.498 dBm
10 dB/div
Log
Ref -20.00 dBm
-26.31 dBm
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
-100
-110
1
Start 150 kHz
#Res BW 9.1 kHz
#VBW 27 kHz
Stop 30.00 MHz
Sweep (#Swp) 346.7 ms (40001 pts)

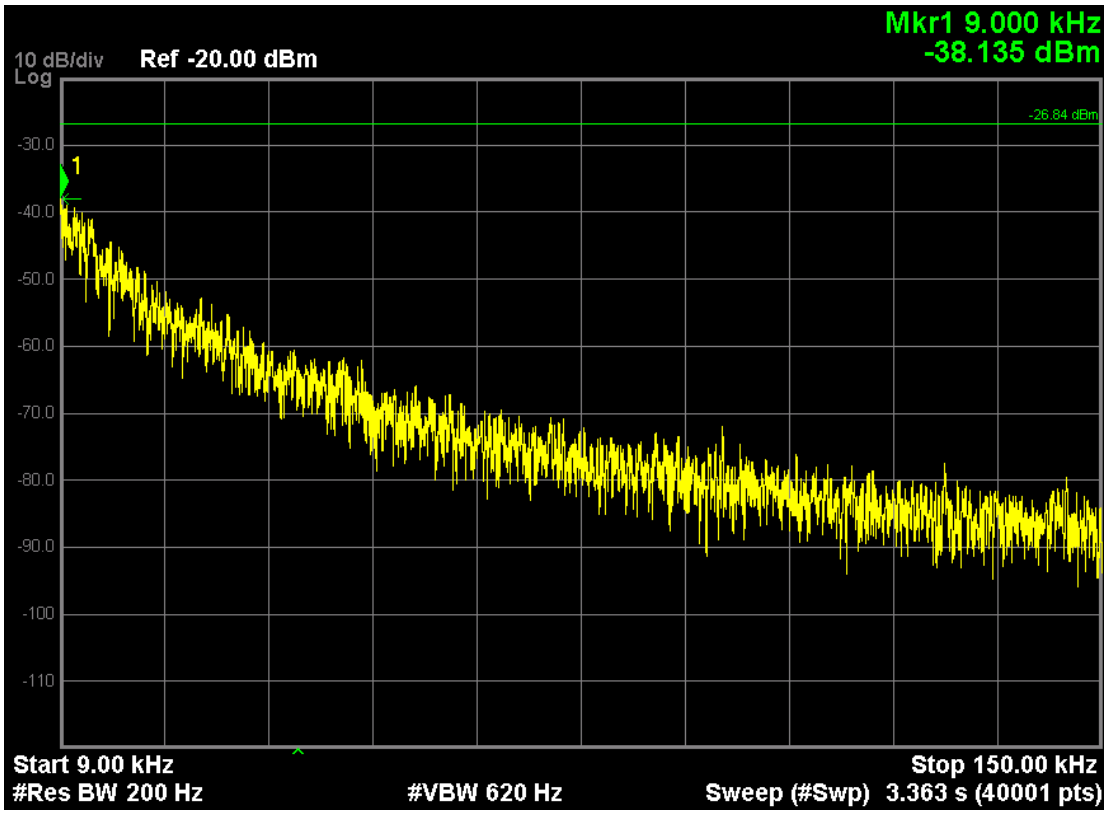

Mkr1 693.674 MHz
-86.252 dBm
10 dB/div
Log
Ref -20.00 dBm
-26.31 dBm
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
-100
-110
1
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep (#Swp) 93.33 ms (40001 pts)

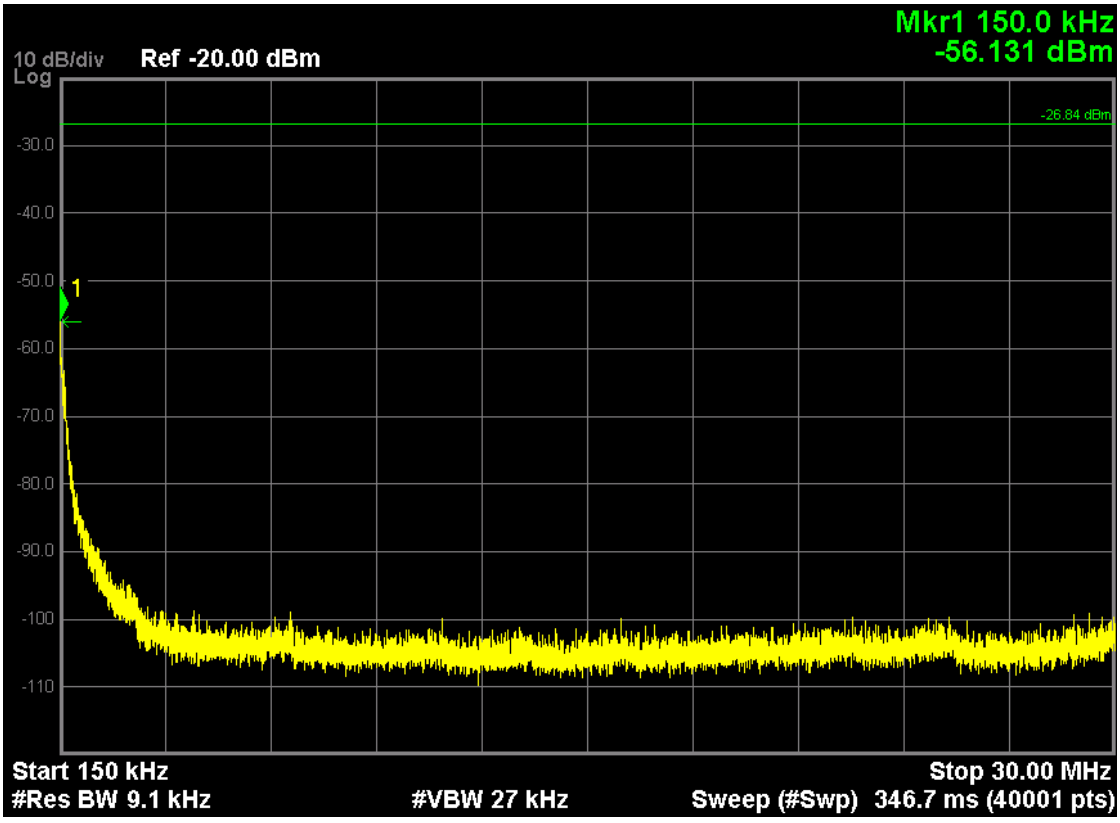


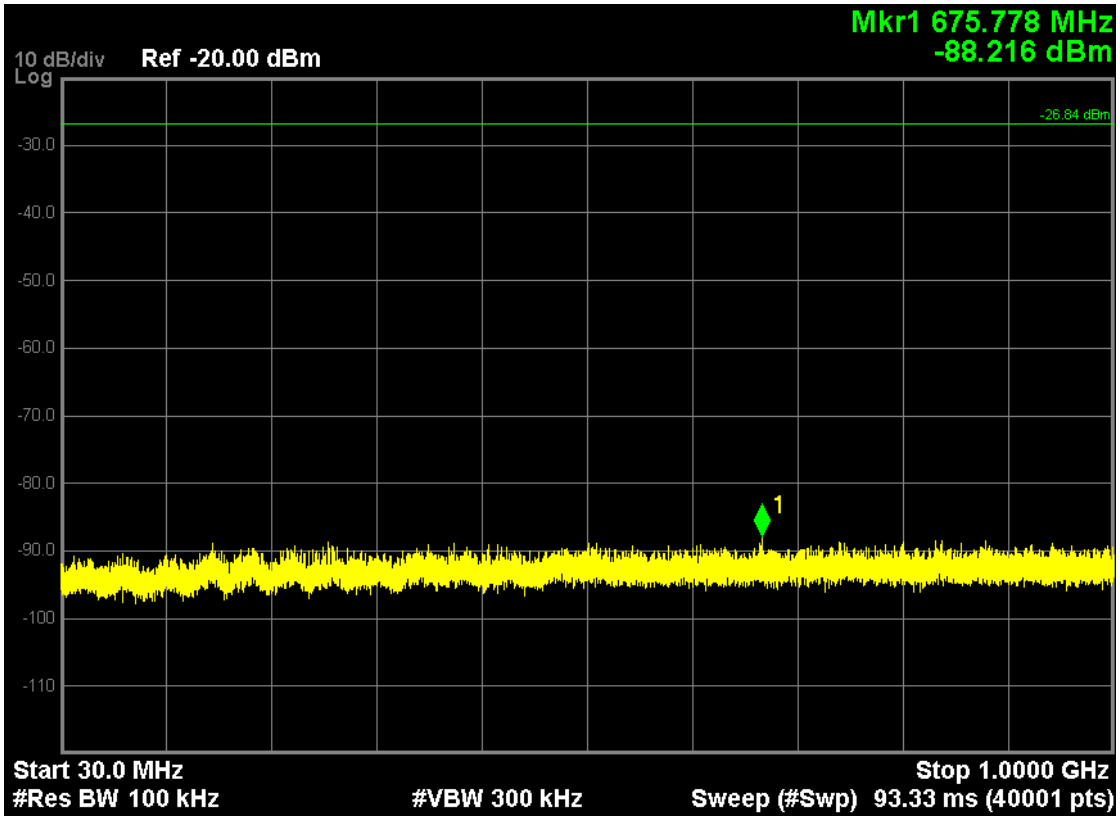
Note: The Mark1 point is carrier

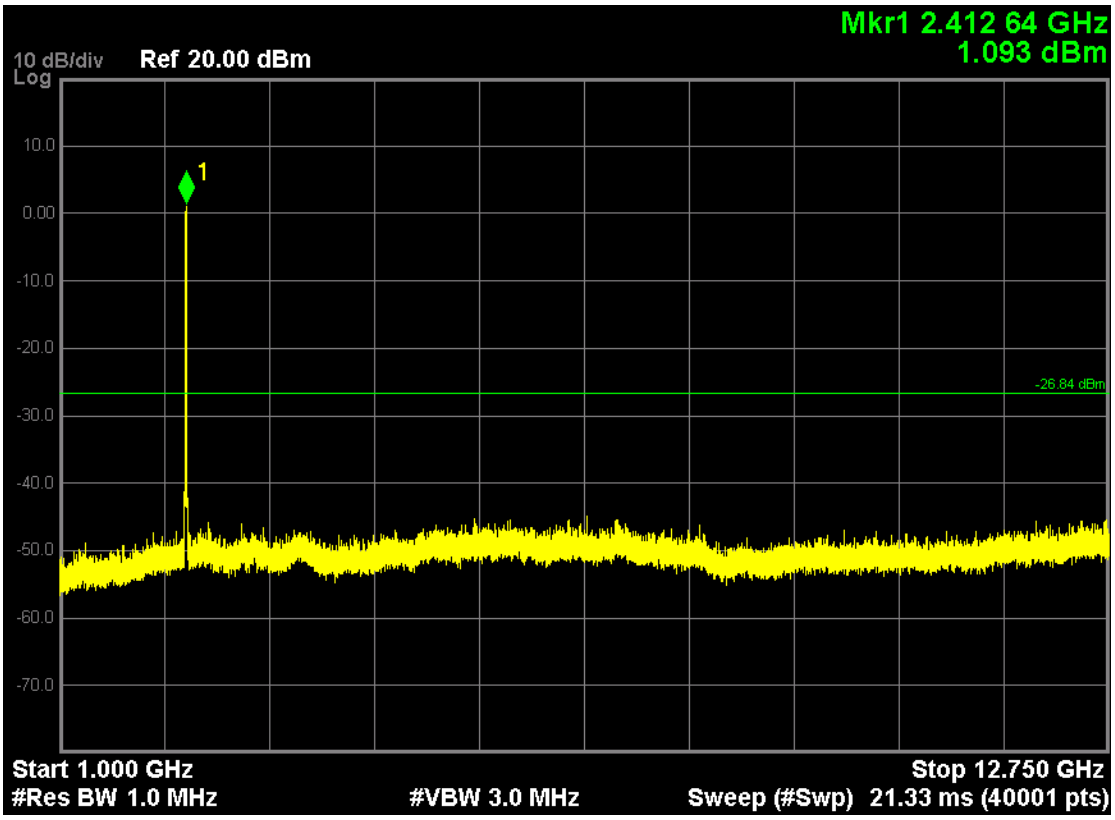


802.11n20, traffic mode; Channel 1;

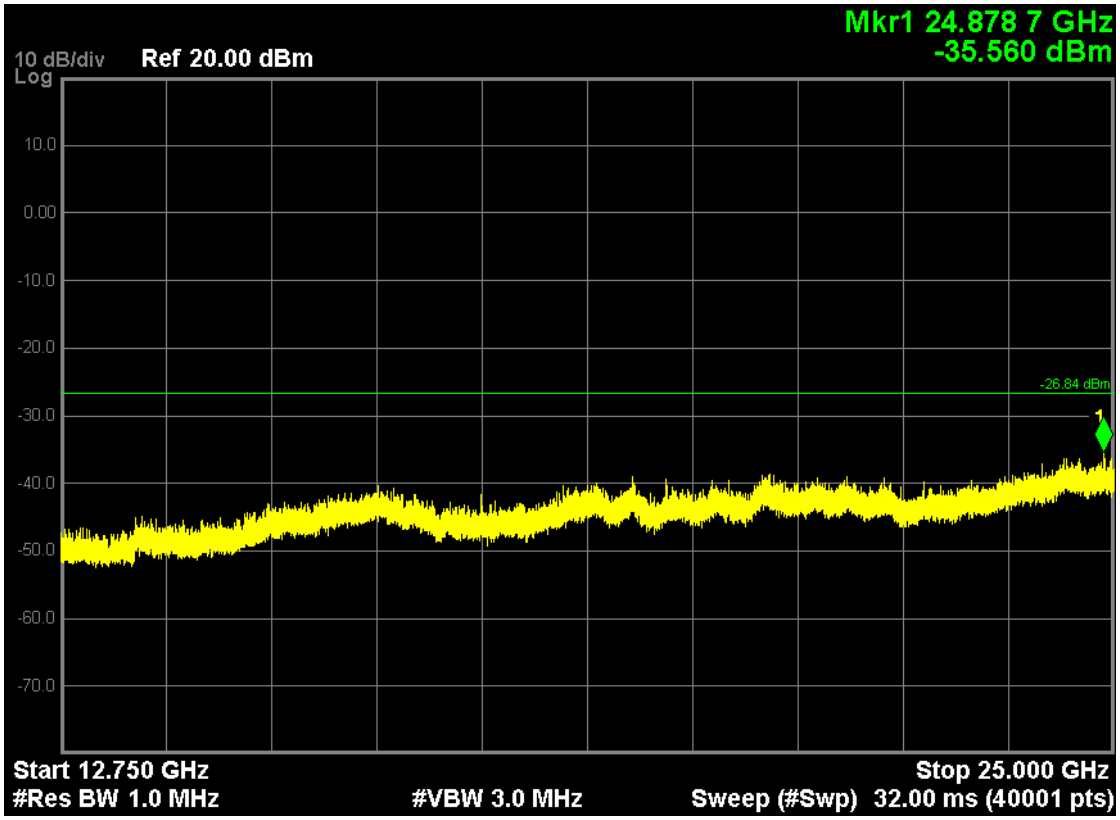




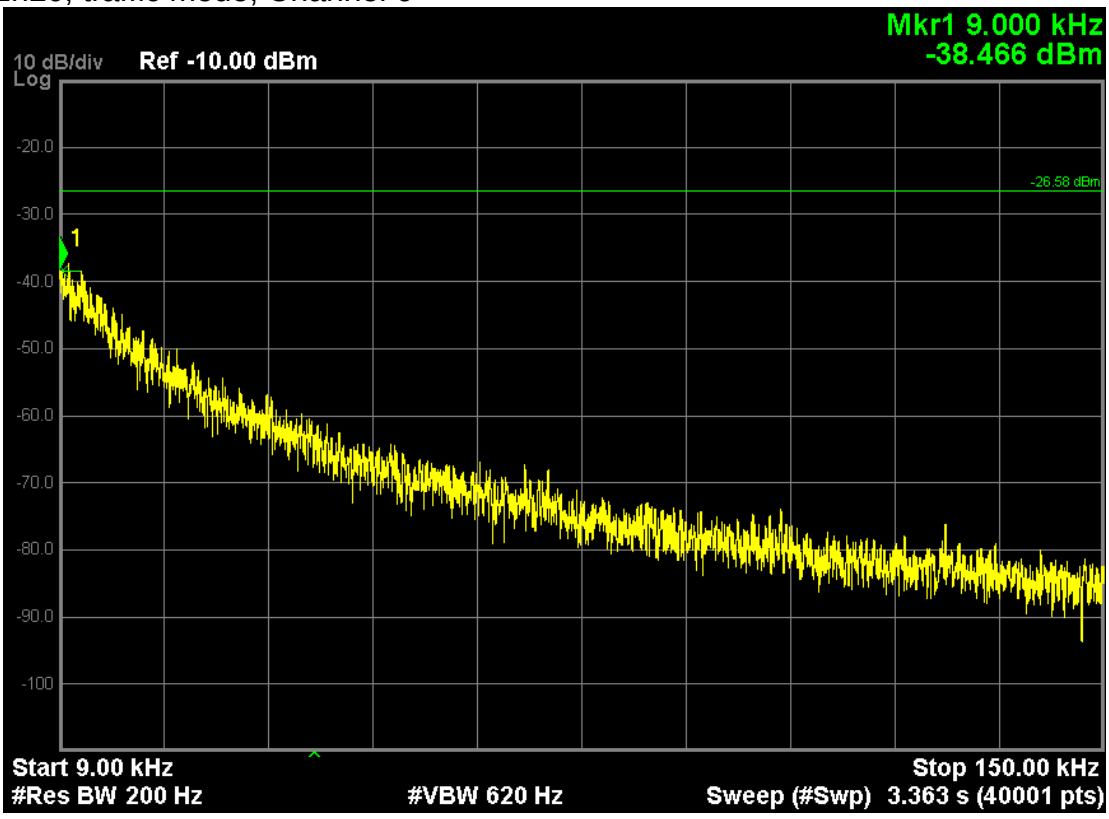


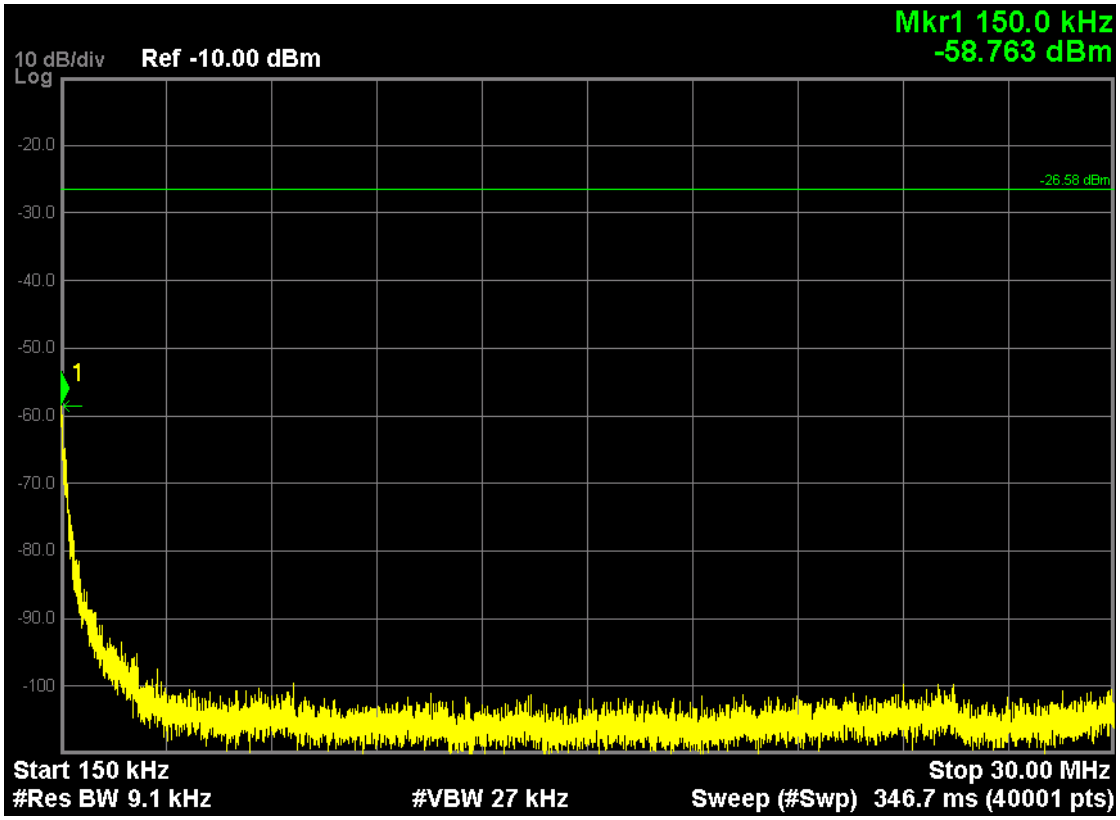


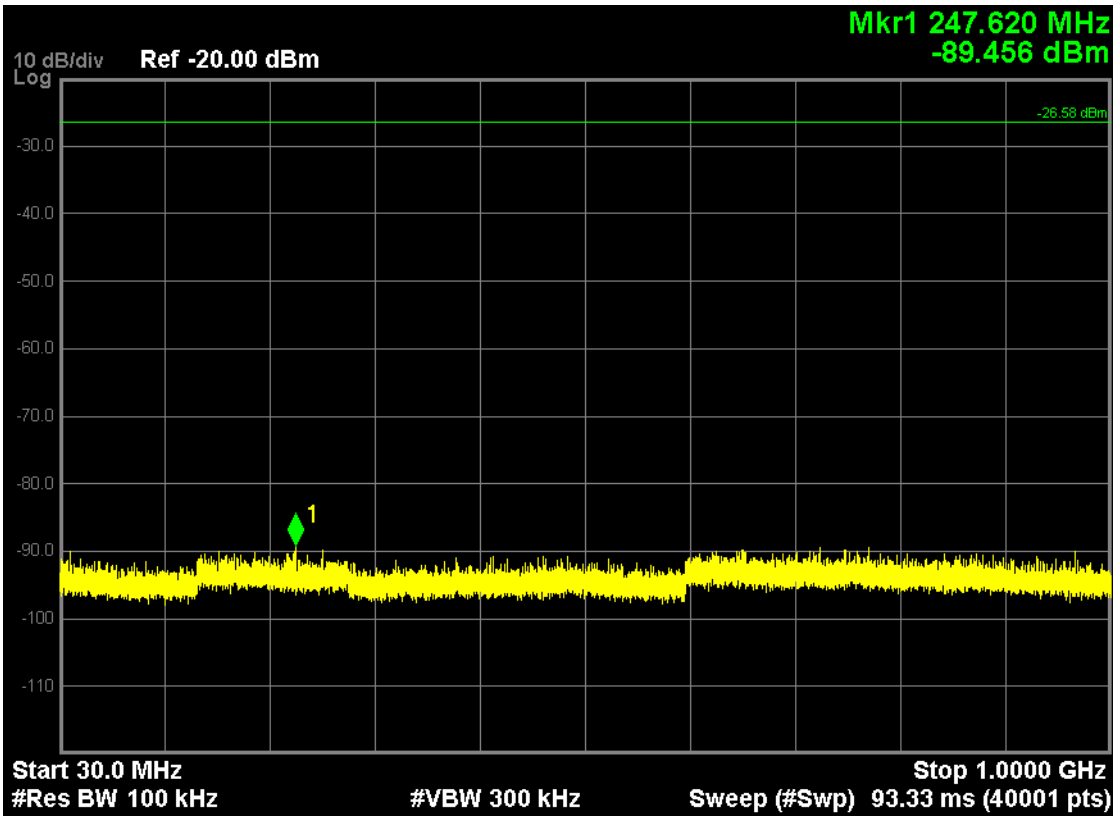
Note: The Mark1 point is carrier.

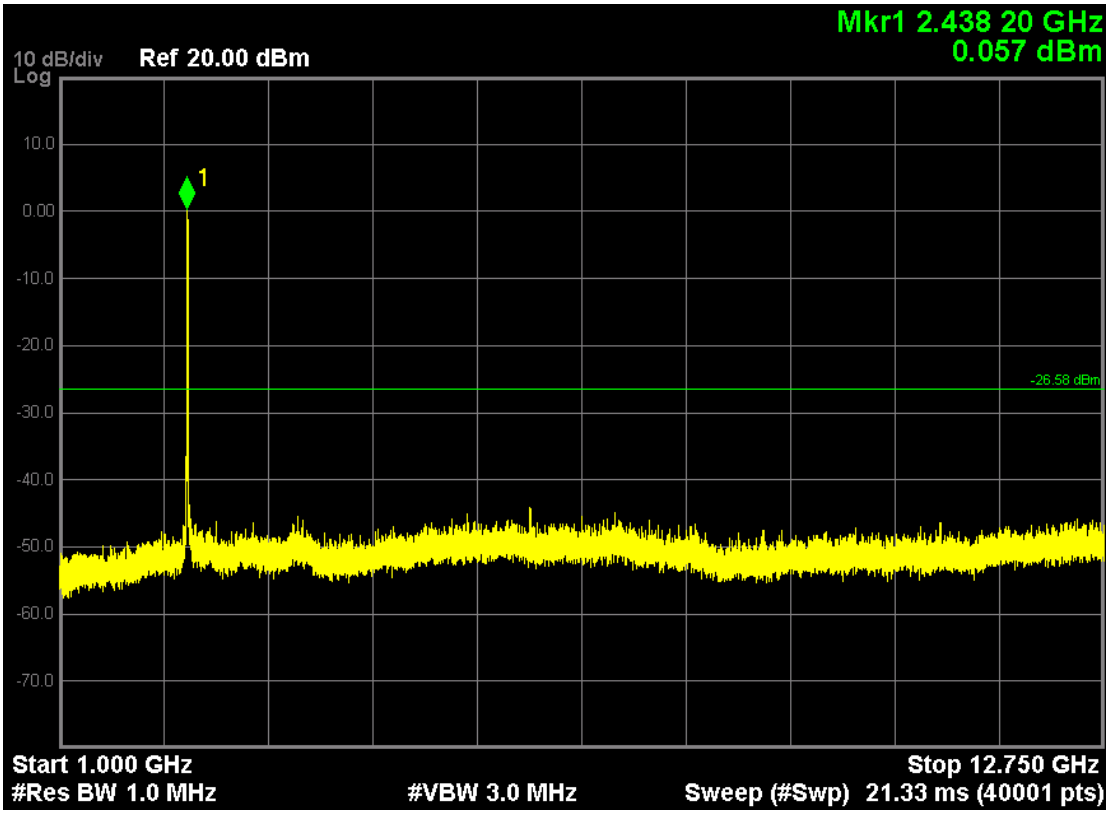


802.11n20, traffic mode; Channel 6

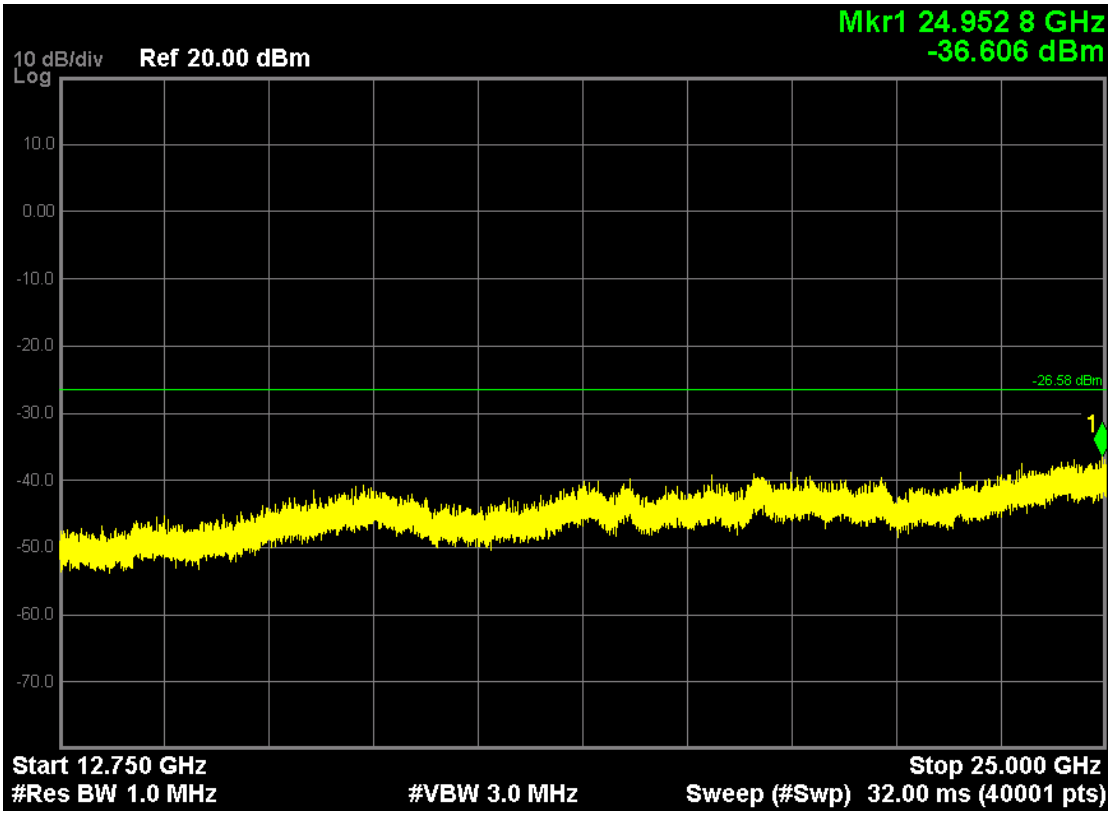



Mkr1 150.0 kHz
-58.763 dBm
10 dB/div
Log
Ref -10.00 dBm
-26.58 dBm
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
-100
1
Start 150 kHz
#Res BW 9.1 kHz
#VBW 27 kHz
Stop 30.00 MHz
Sweep (#Swp) 346.7 ms (40001 pts)

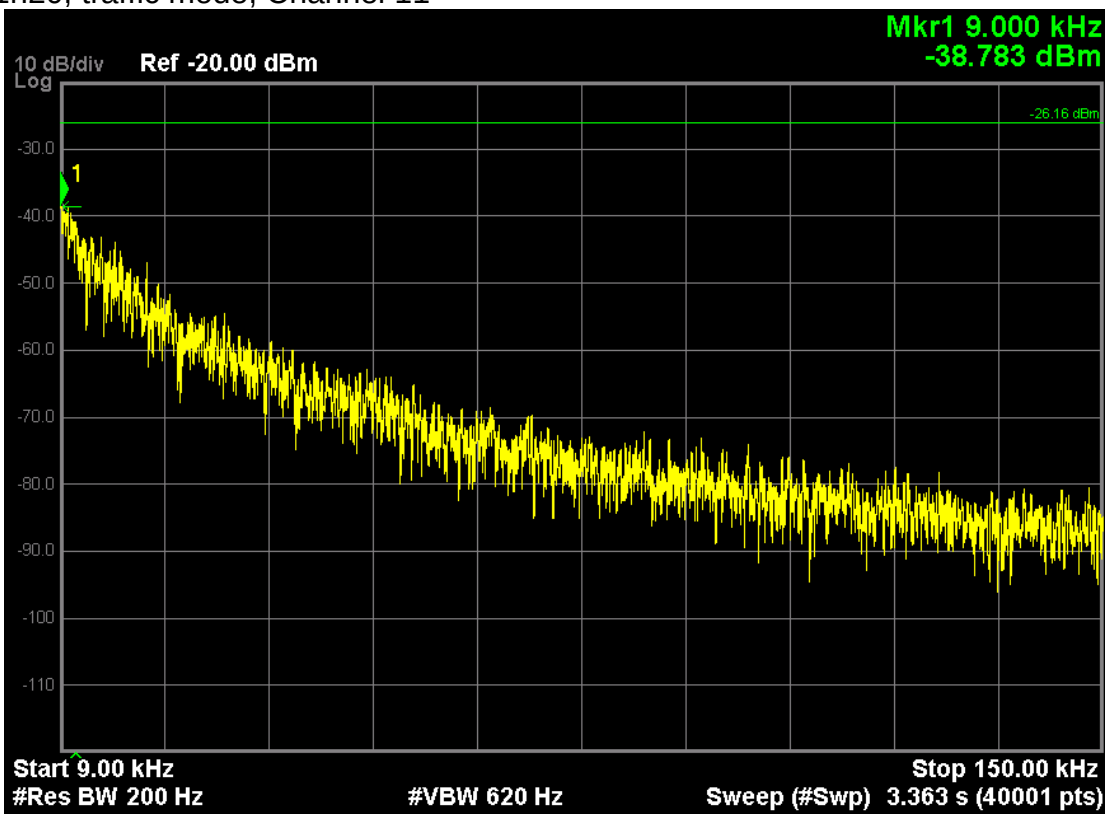

Mkr1 247.620 MHz
-89.456 dBm
10 dB/div
Log
Ref -20.00 dBm
-26.58 dBm
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
-100
-110
1
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep (#Swp) 93.33 ms (40001 pts)

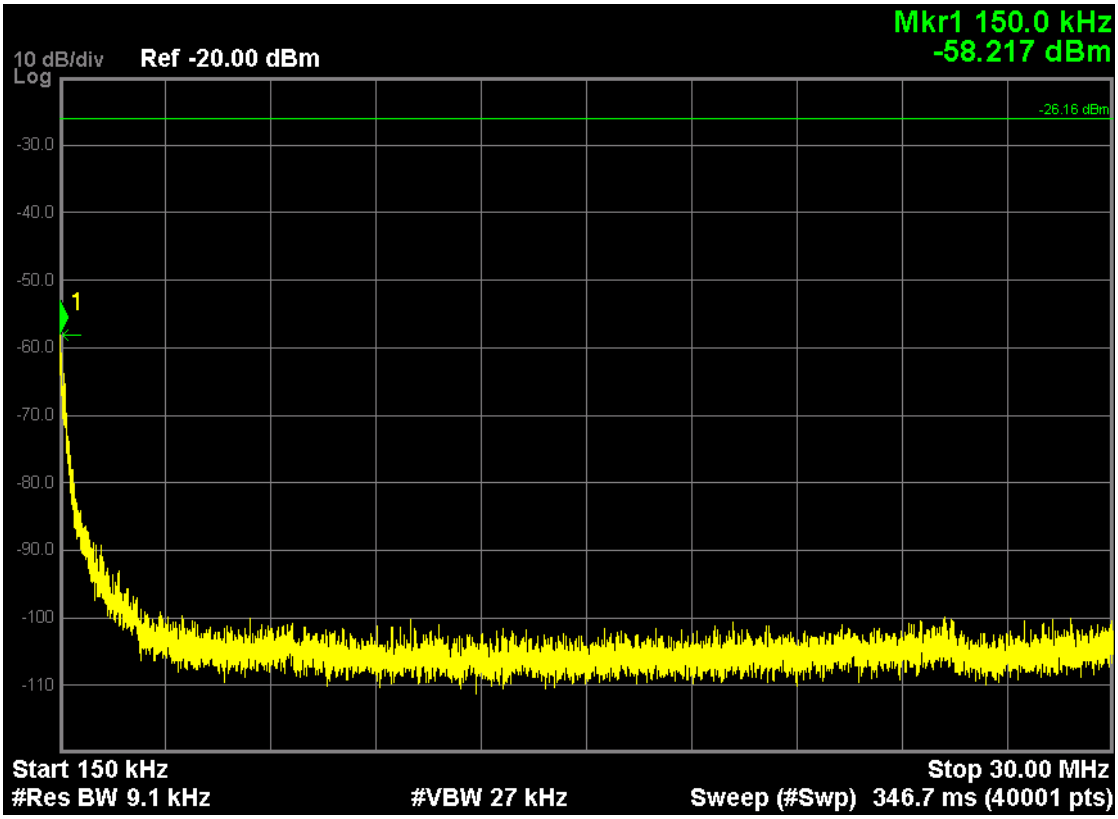


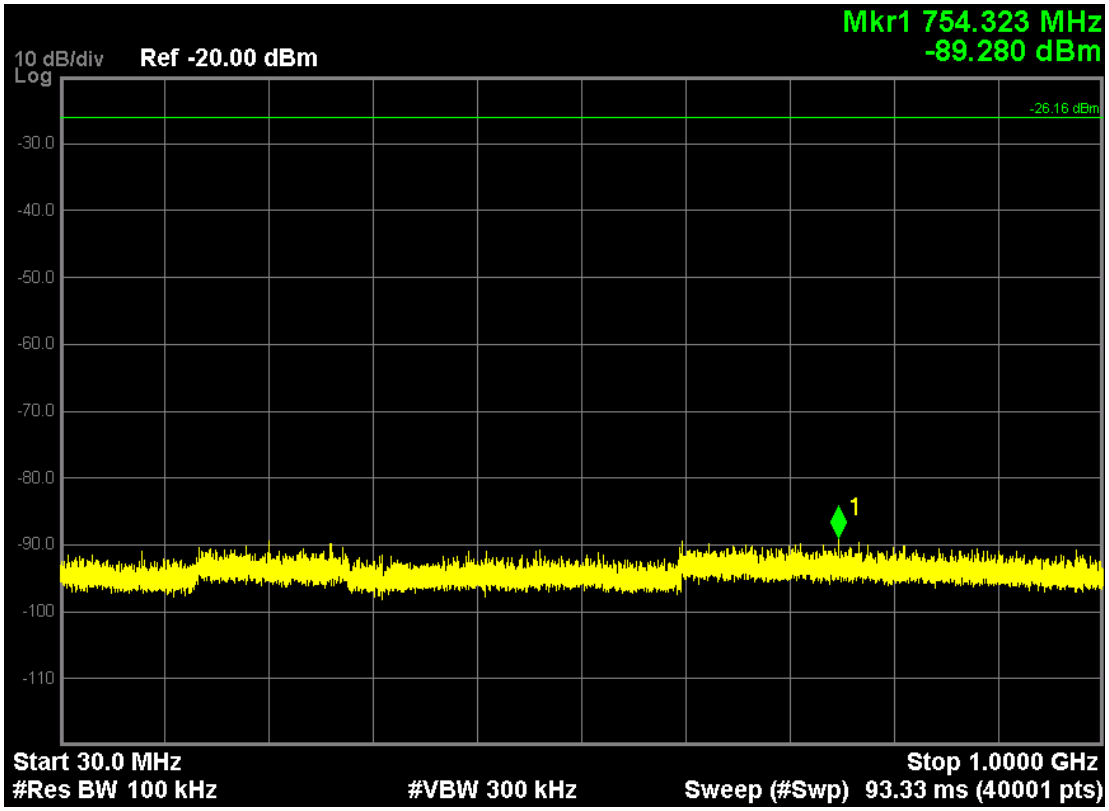
Note: The Mark1 point is carrier.

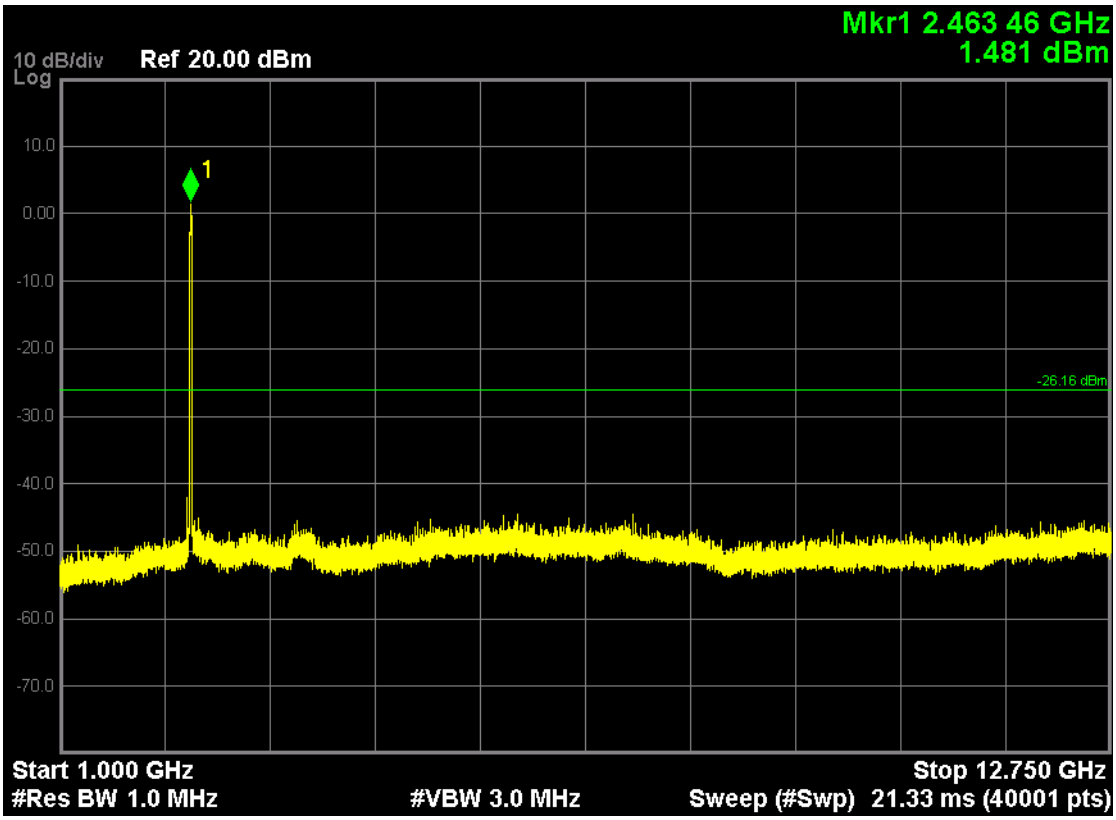


802.11n20, traffic mode; Channel 11

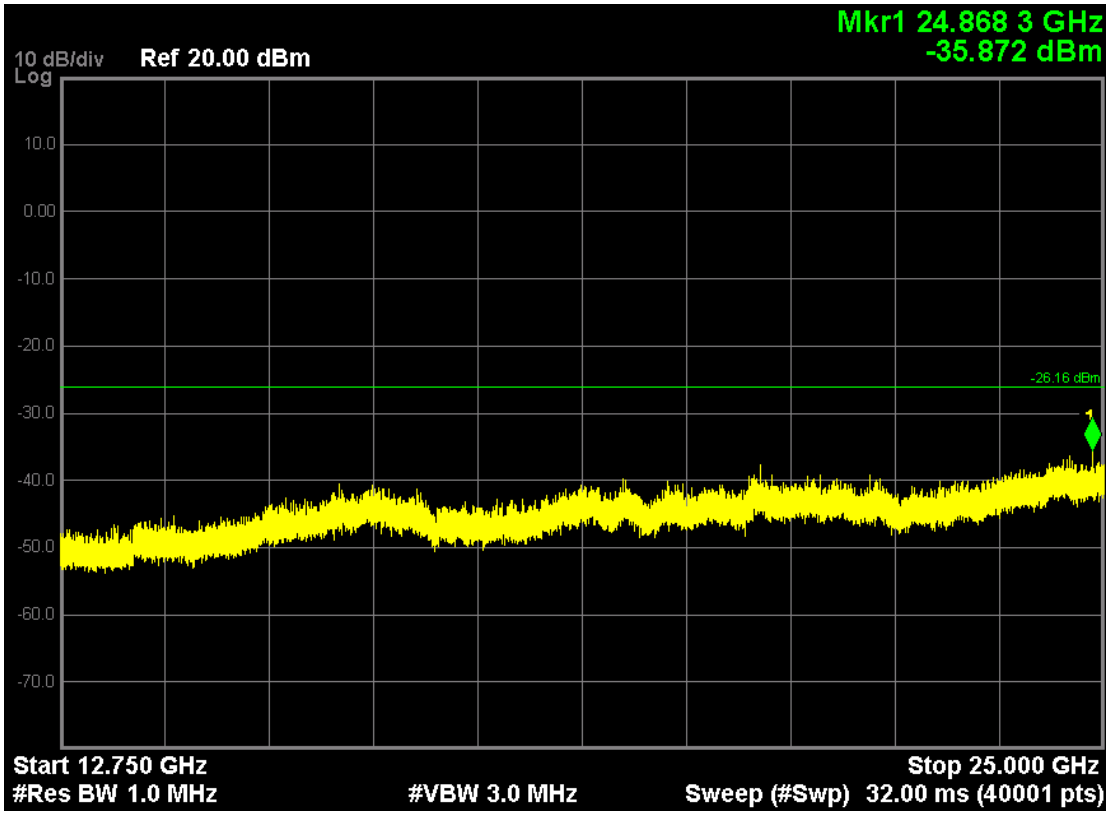




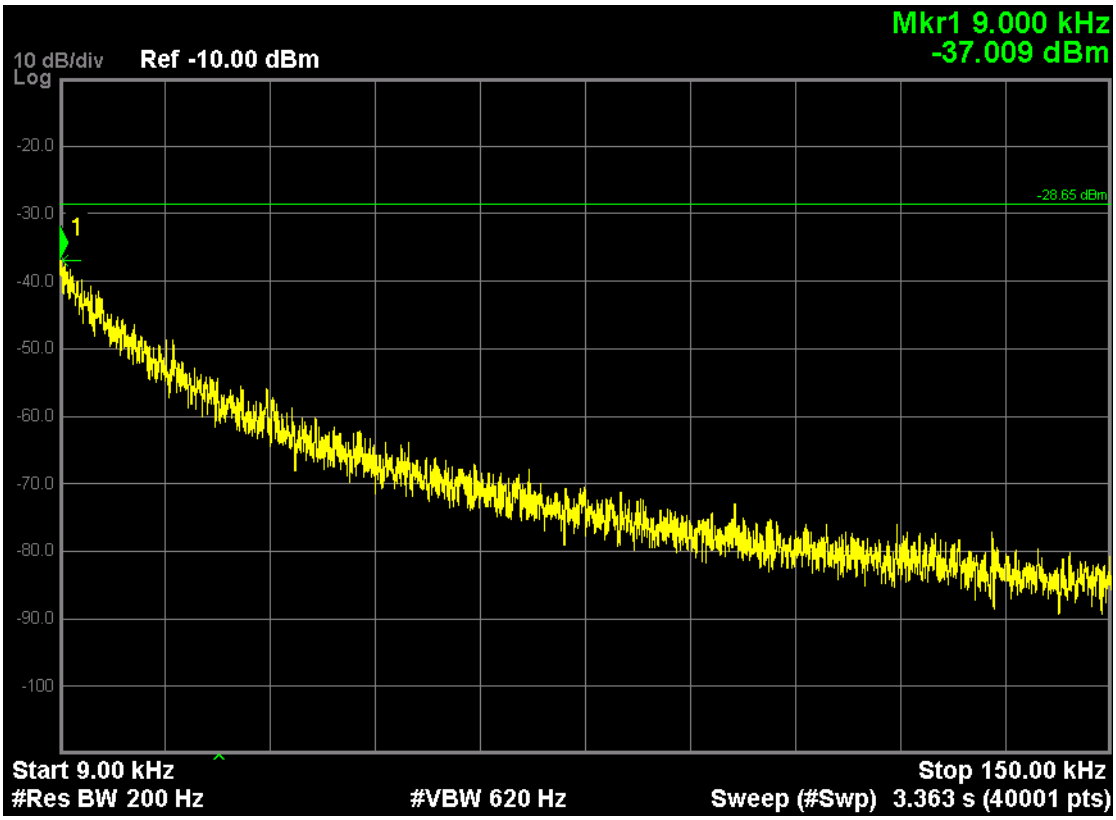


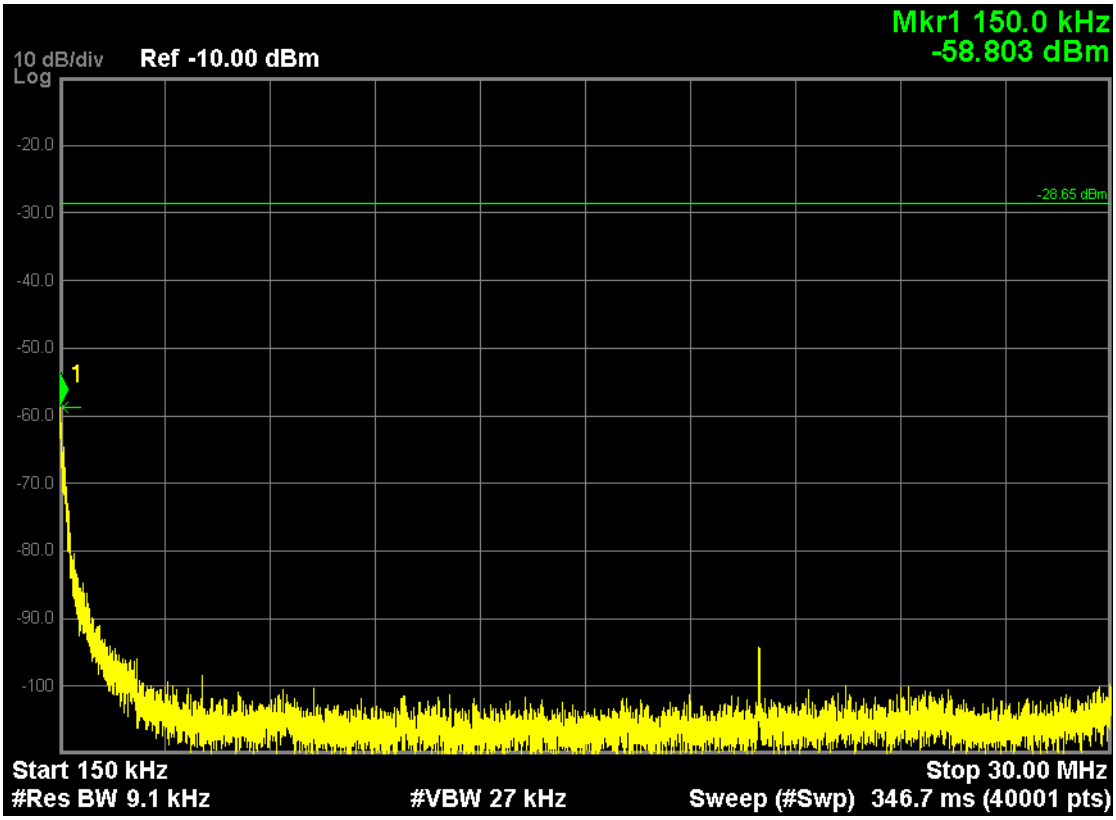


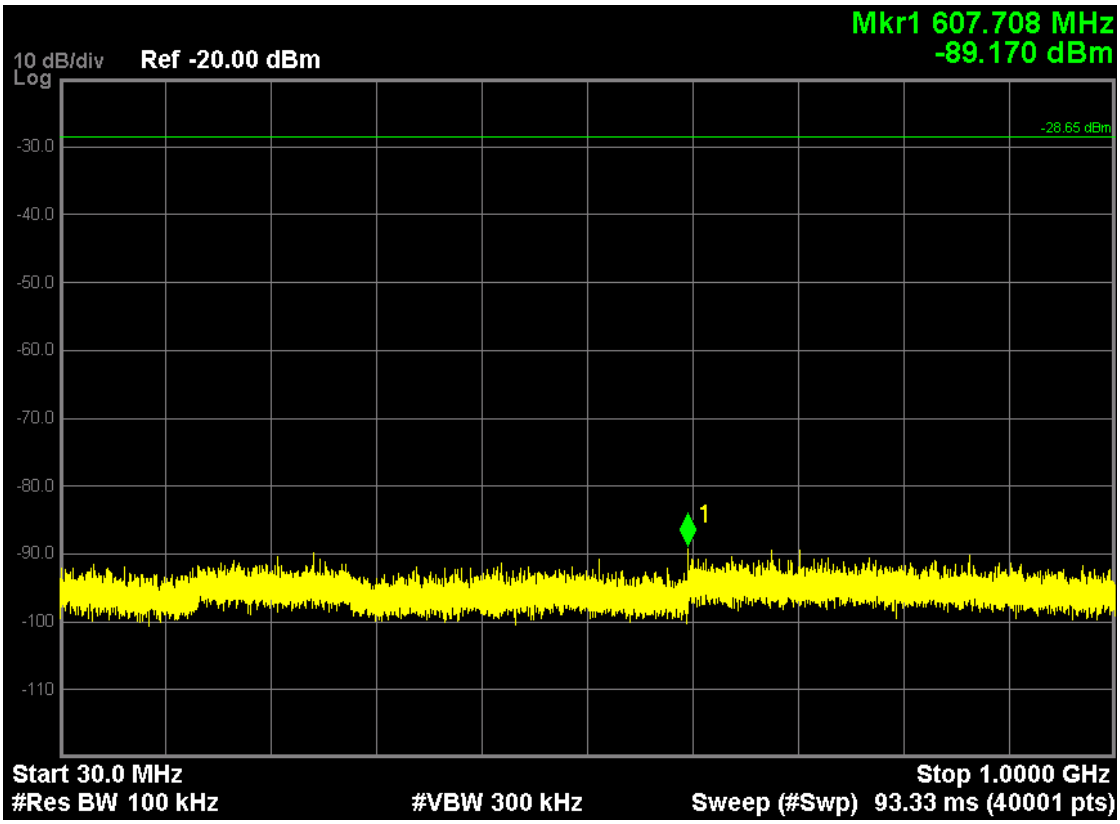
Note: The Mark1 point is carrier.

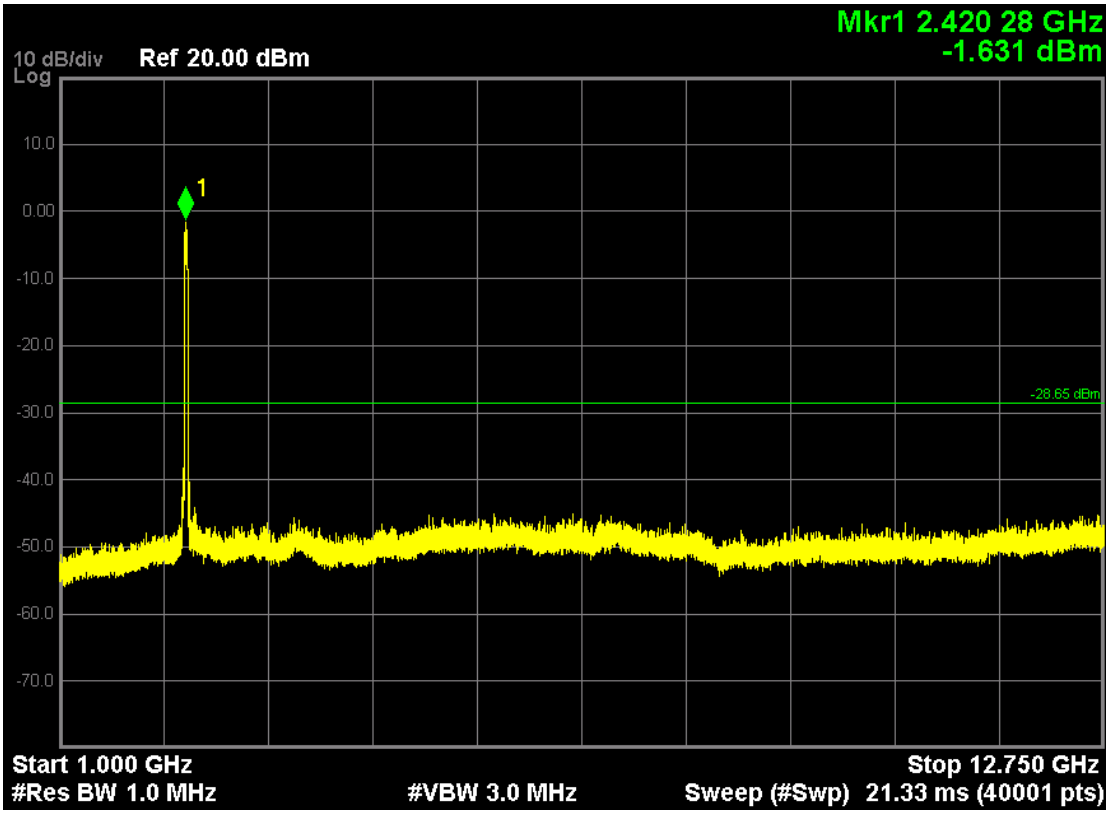


802.11n40, traffic mode; Channel 3

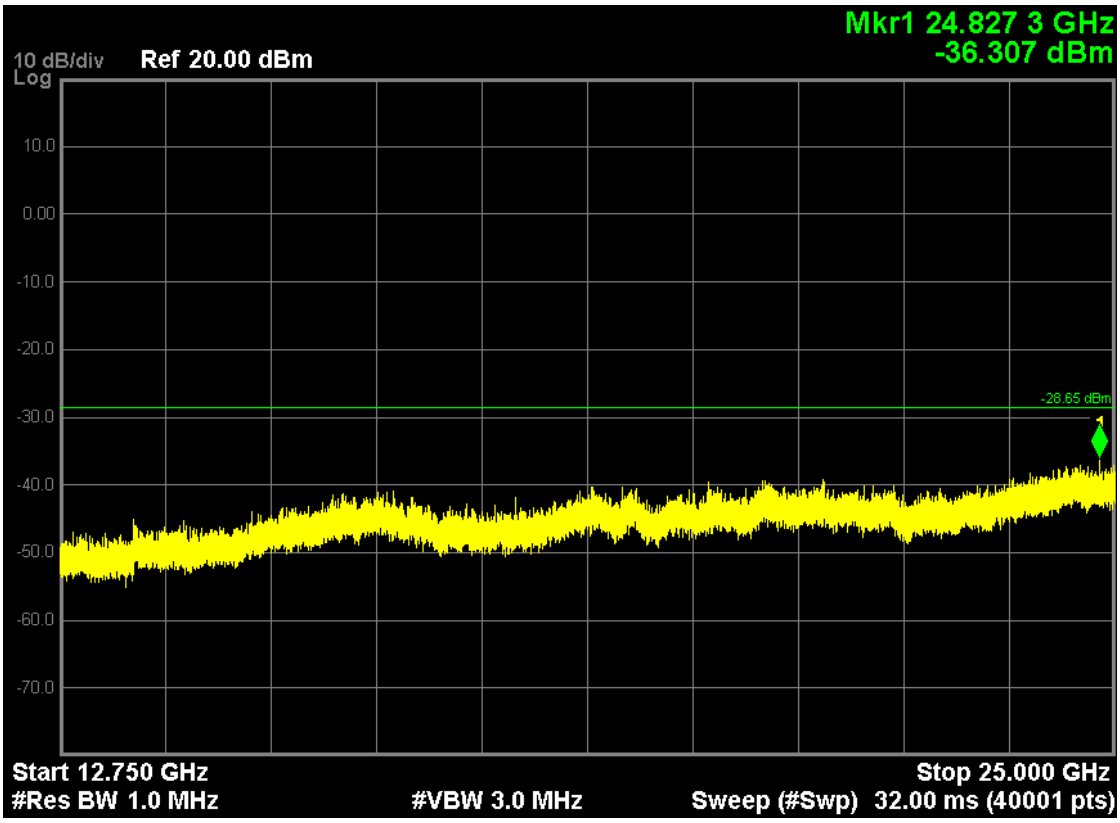



Mkr1 150.0 kHz
-58.803 dBm
10 dB/div
Log
Ref -10.00 dBm
-28.65 dBm
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
-100
1
Start 150 kHz
#Res BW 9.1 kHz
#VBW 27 kHz
Stop 30.00 MHz
Sweep (#Swp) 346.7 ms (40001 pts)

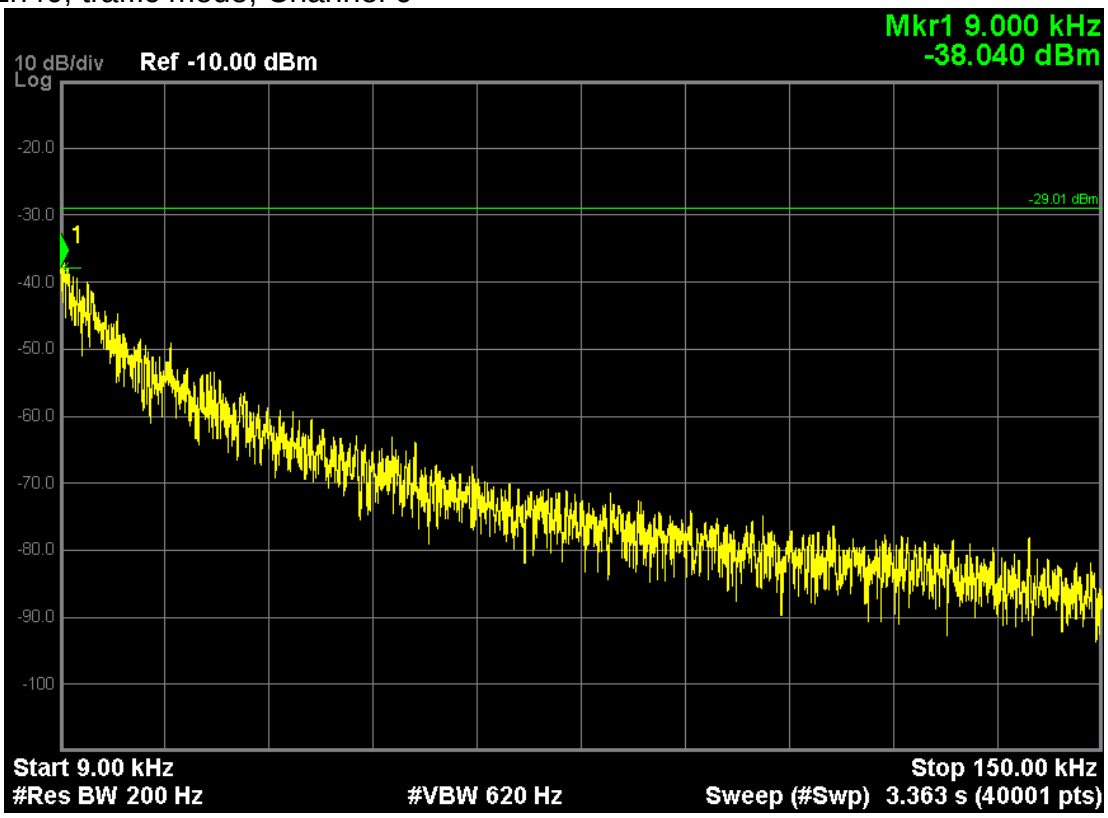

Mkr1 607.708 MHz
-89.170 dBm
10 dB/div
Log
Ref -20.00 dBm
-28.65 dBm
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
-100
-110
1
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep (#Swp) 93.33 ms (40001 pts)

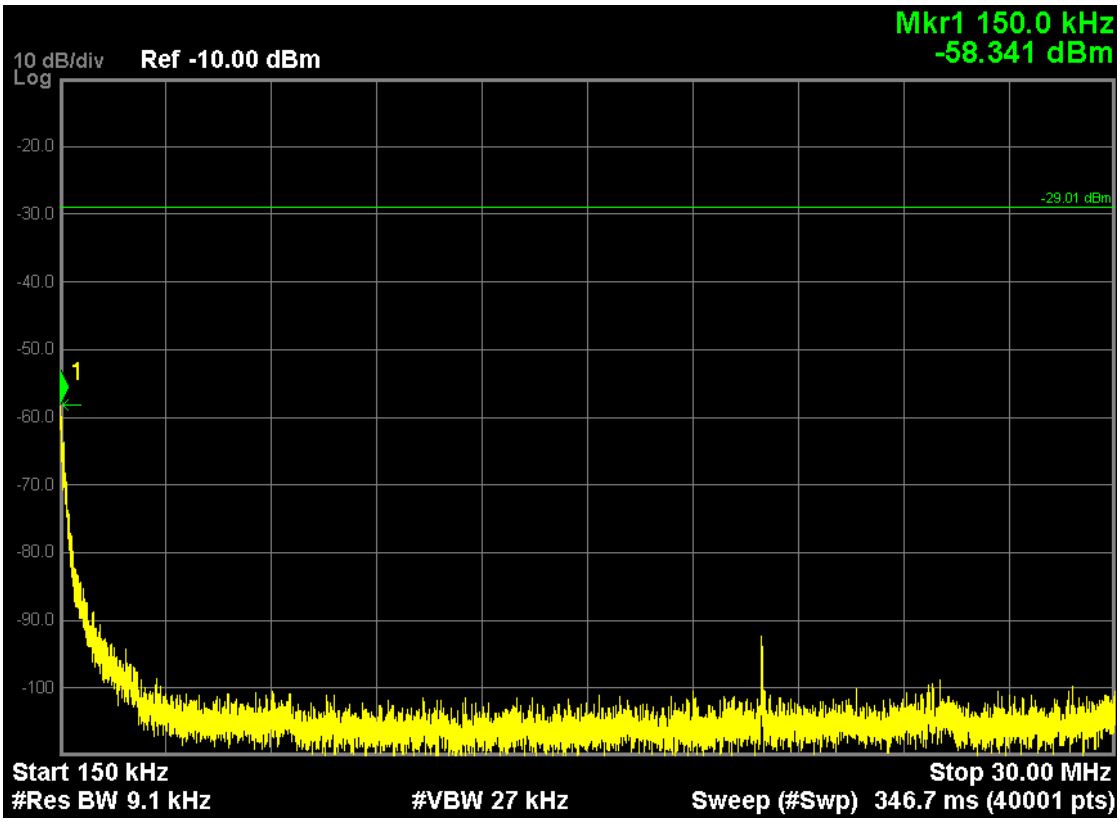


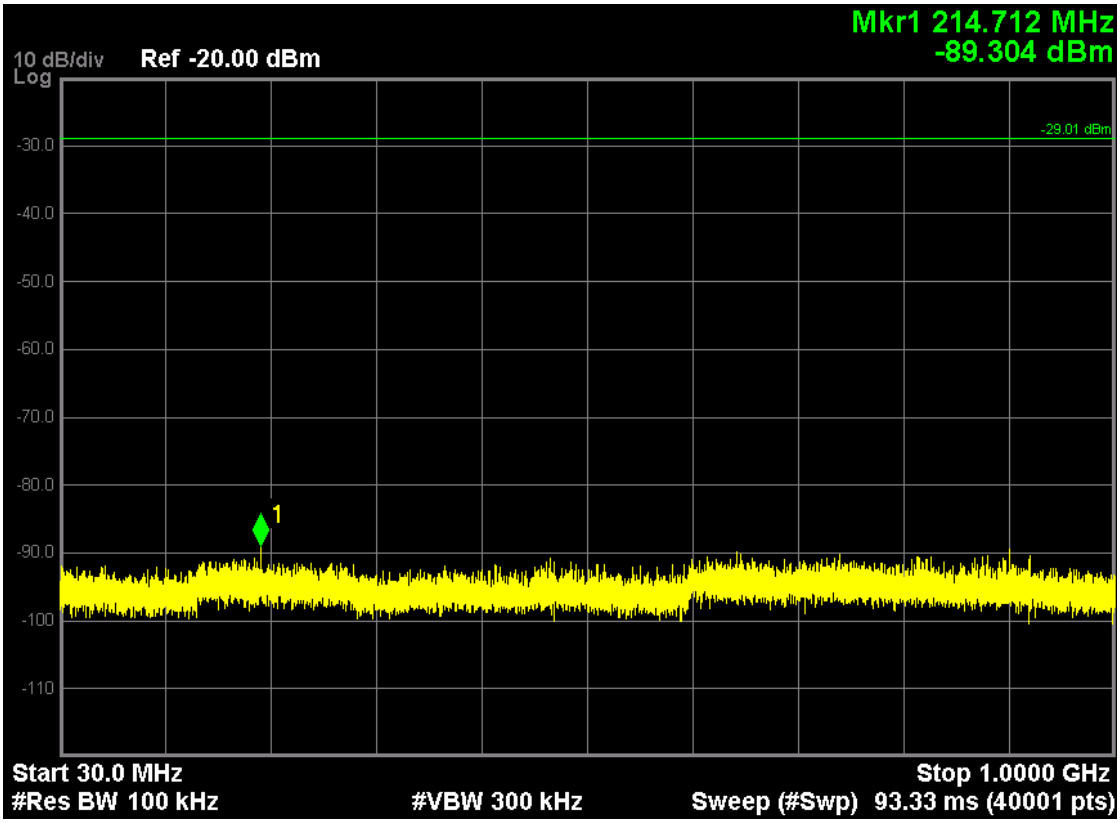
Note: The Mark1 point is carrier.

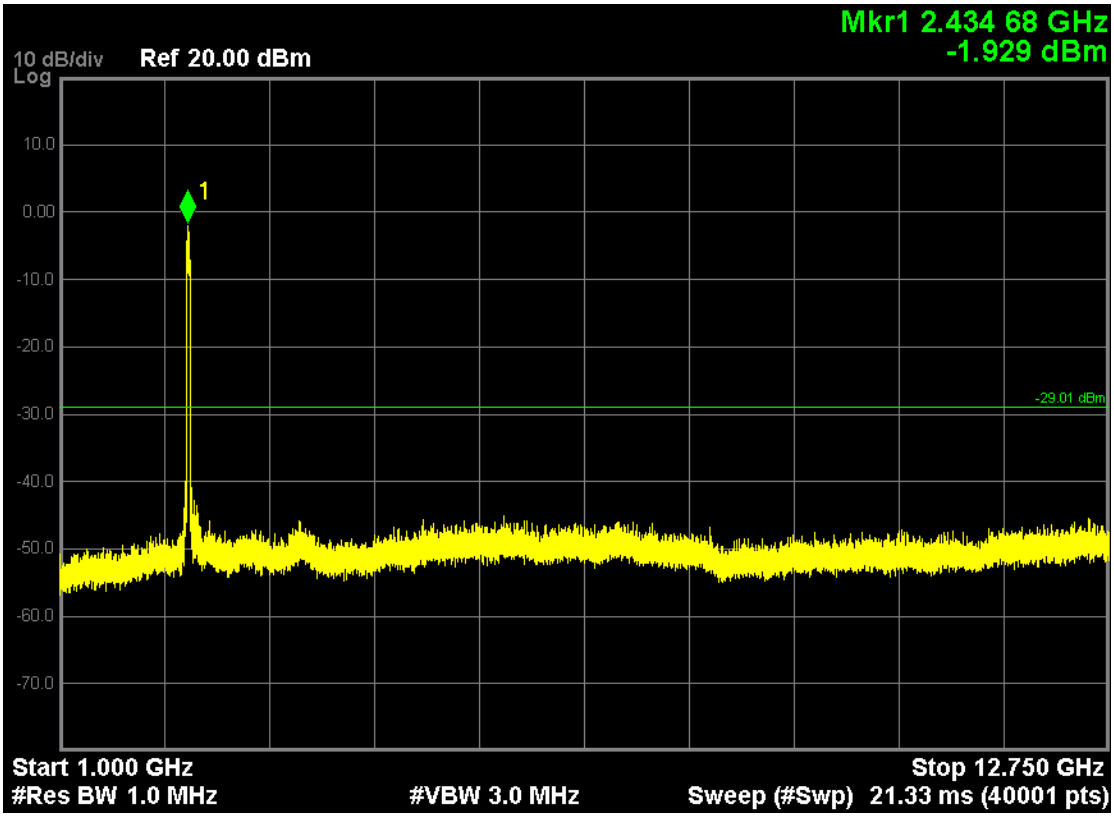


802.11n40, traffic mode; Channel 6

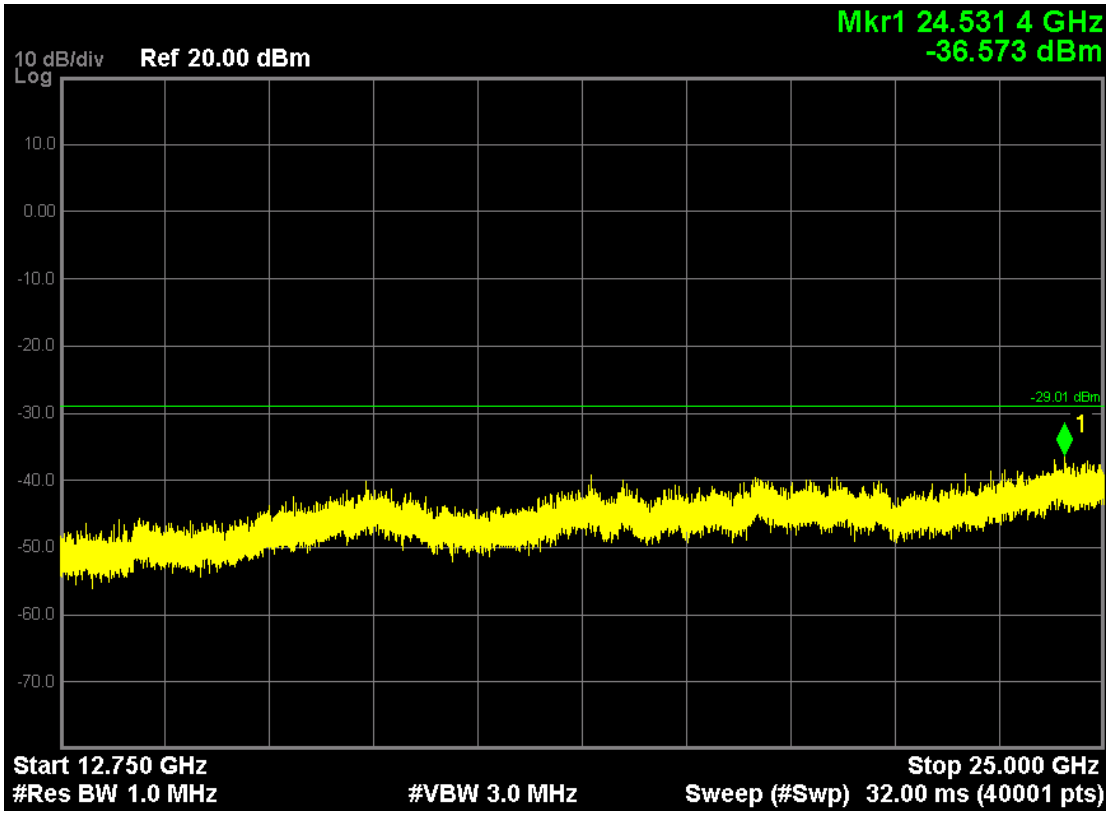




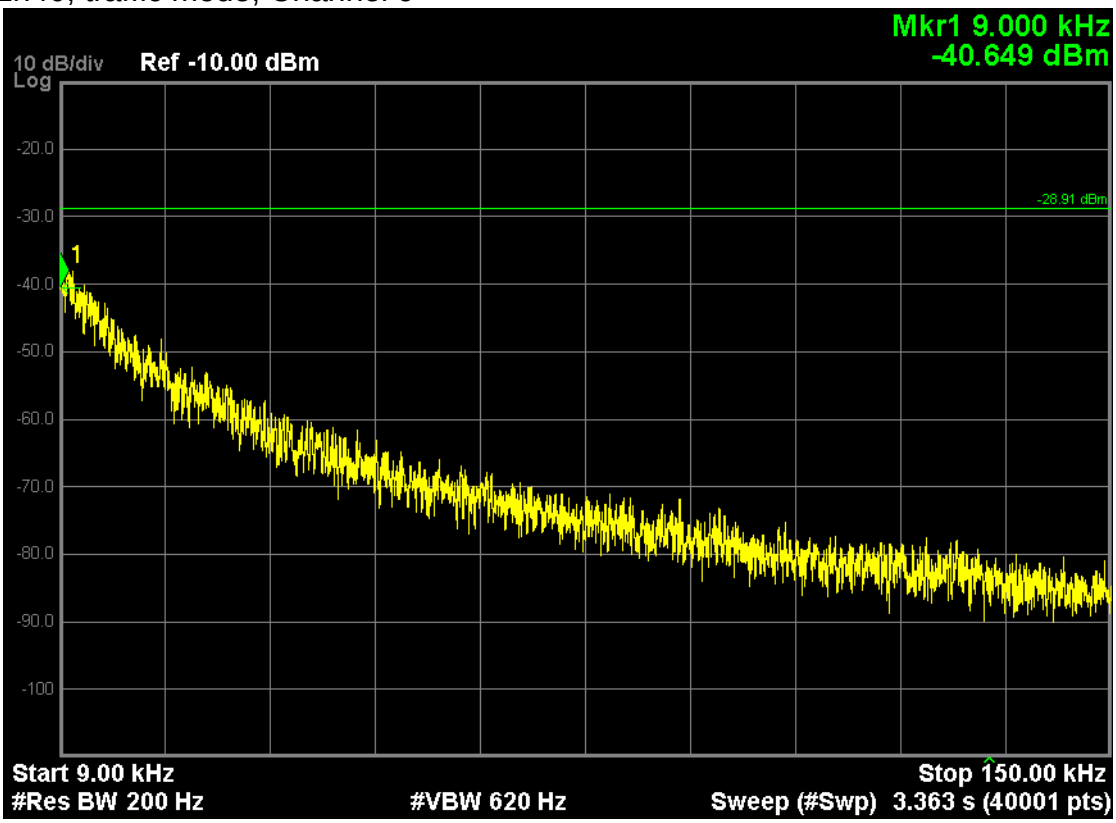


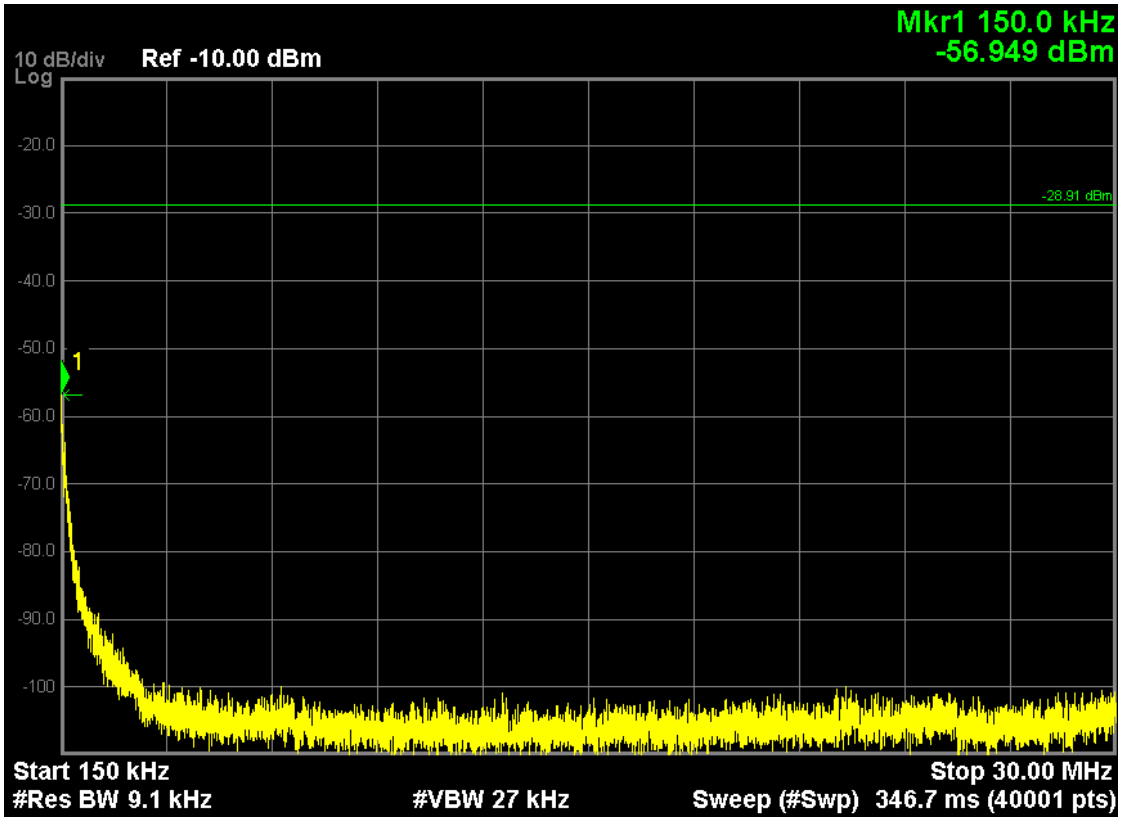


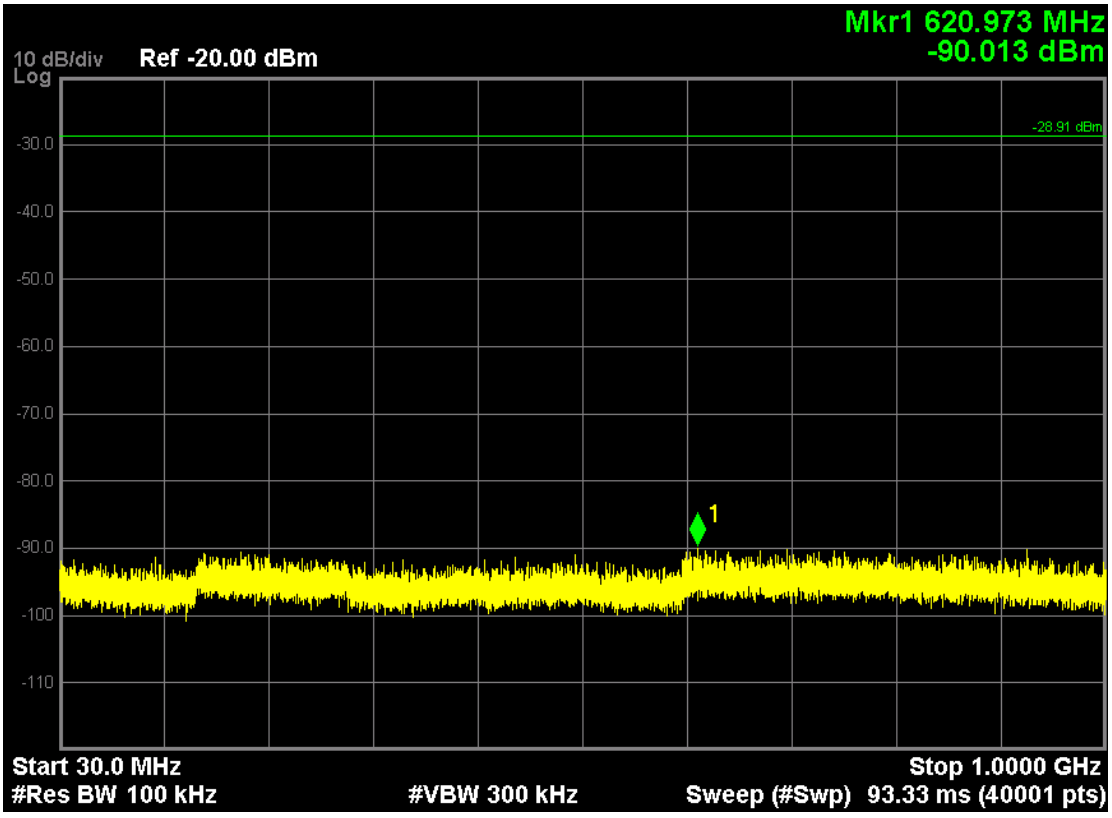
Note: The Mark1 point is carrier.

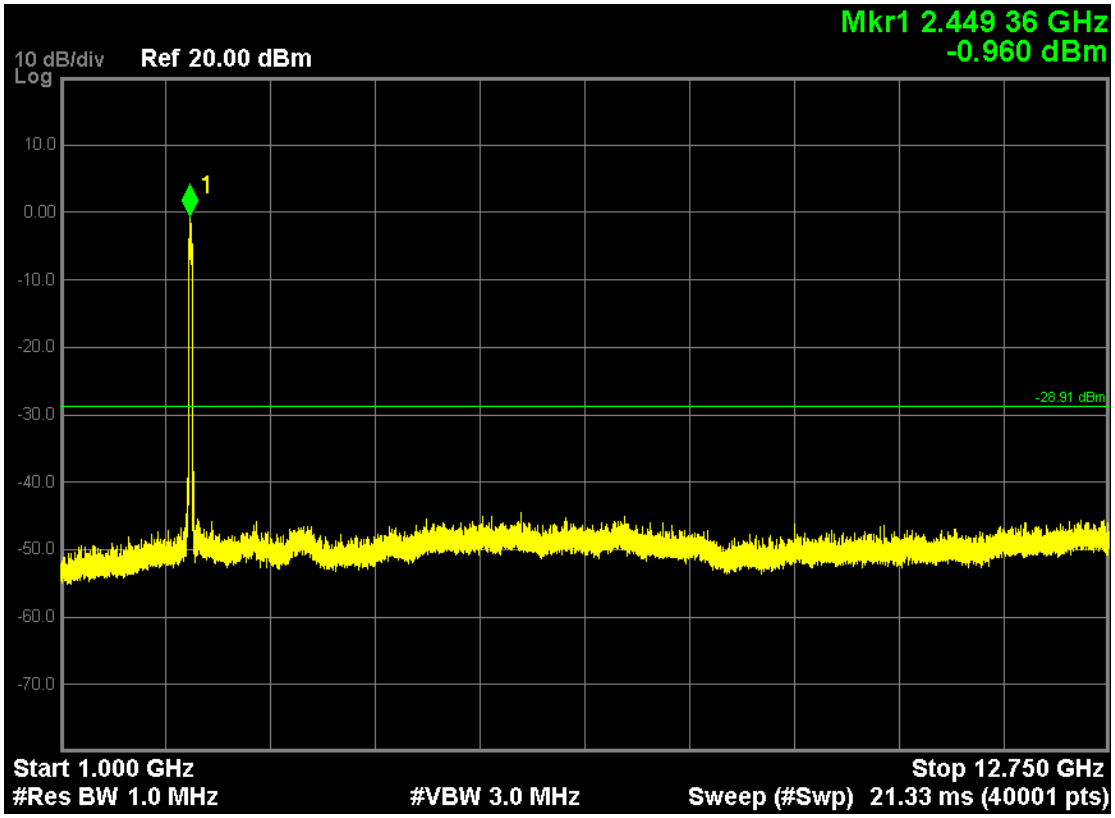


802.11n40, traffic mode; Channel 9

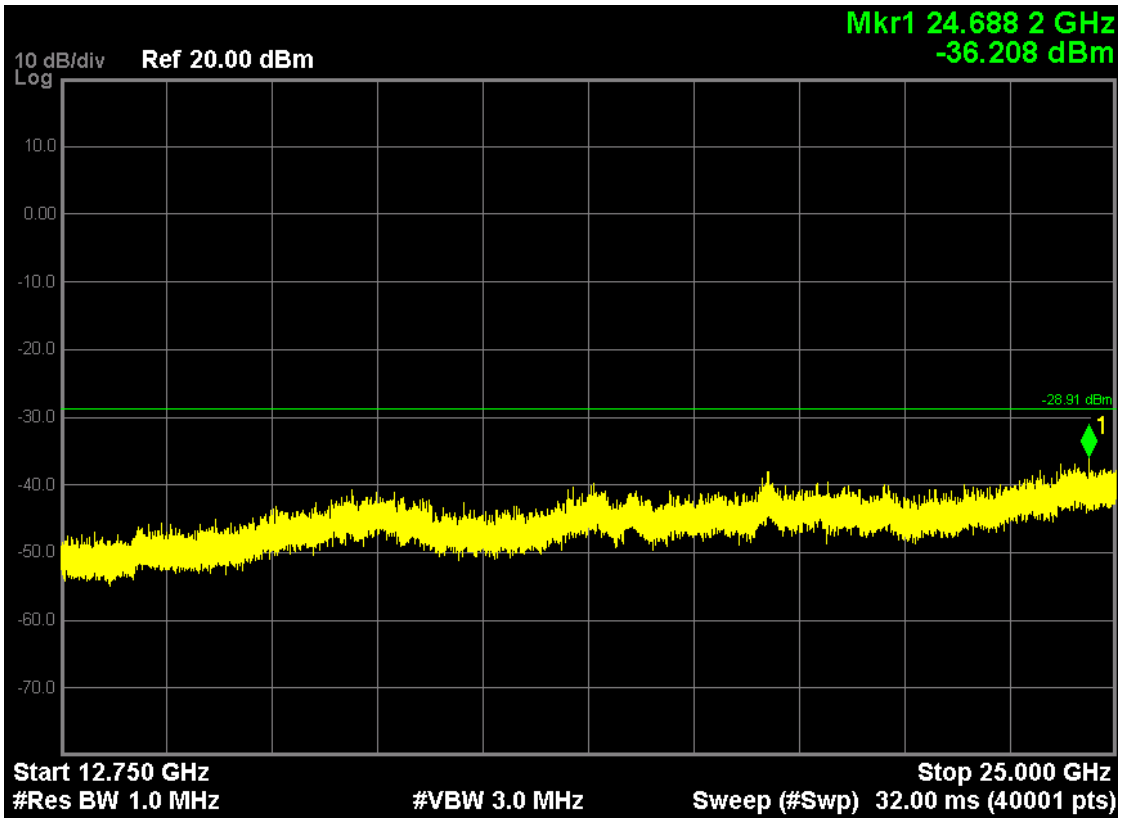



Mkr1 150.0 kHz
-56.949 dBm
10 dB/div
Log
Ref -10.00 dBm
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
-100
-28.91 dBm
1
Start 150 kHz
#Res BW 9.1 kHz
#VBW 27 kHz
Stop 30.00 MHz
Sweep (#Swp) 346.7 ms (40001 pts)


Mkr1 620.973 MHz
-90.013 dBm
10 dB/div
Log
Ref -20.00 dBm
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
-100
-110
-28.91 dBm
1
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep (#Swp) 93.33 ms (40001 pts)

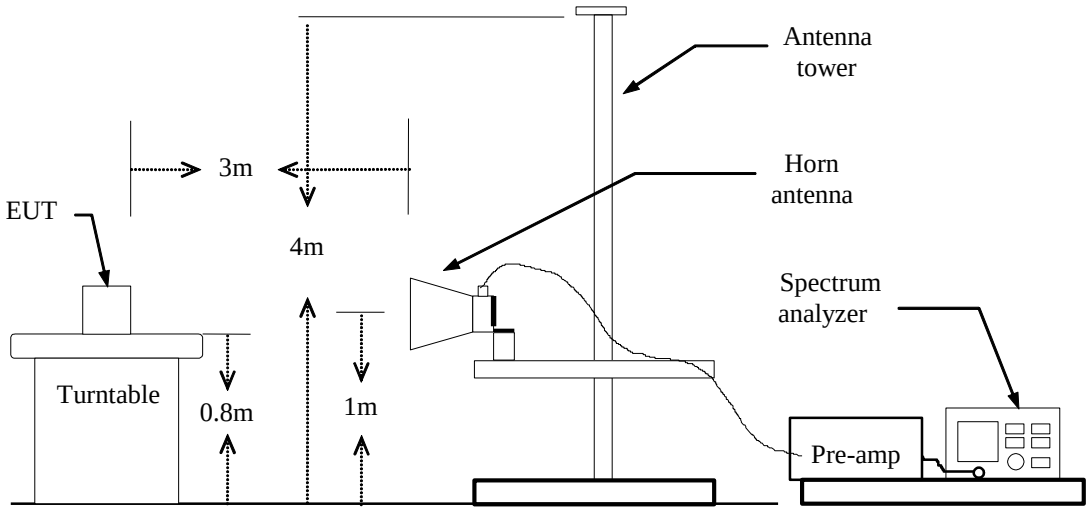


Note: The Mark1 point is carrier.



9. BAND EDGE MEASUREMENT

9.1 TEST SETUP



9.2 LIMITS

According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in15.209(a).

9.3 TEST PROCEDURE

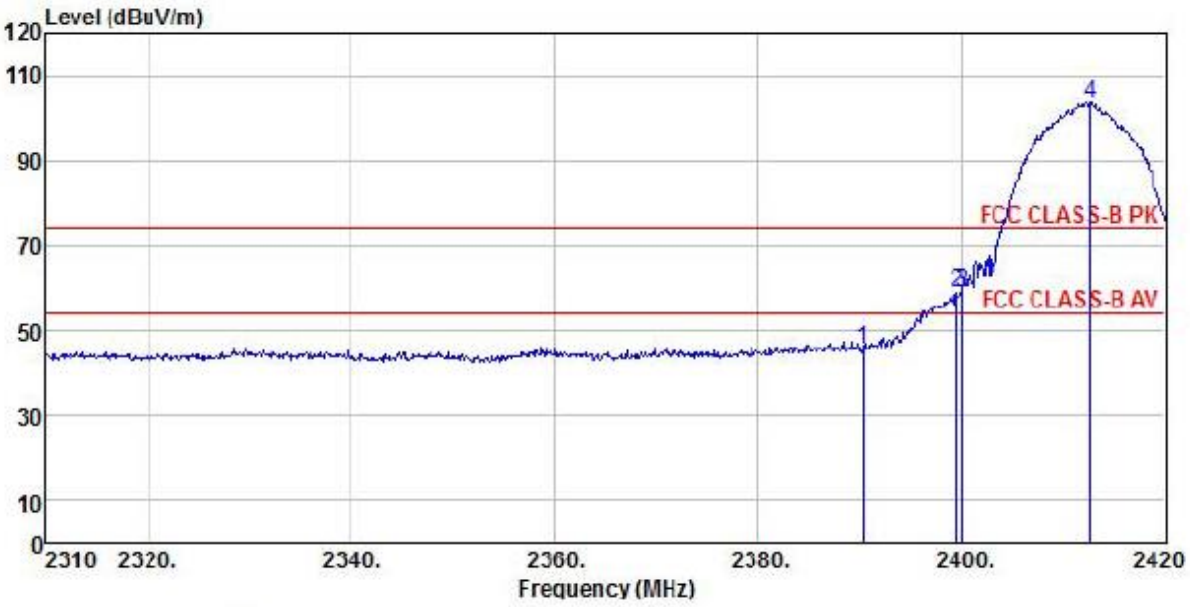
The EUT is placed on a turntable, which is 0.8m above the ground plane.
The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
PEAK: RBW=VBW=1MHz / Sweep=AUTO
AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO
Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are measured.

9.4 RESULTS & PERFORMANCE

Radiated Band Edge:

802.11b (Ch1)

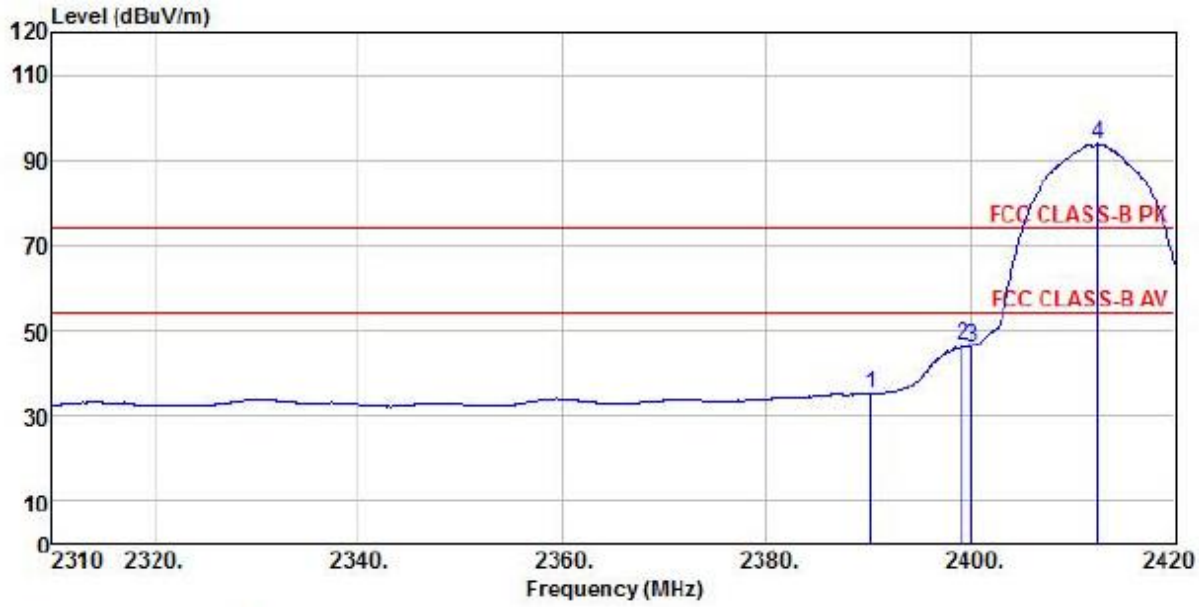
Detector mode: Peak Polarity: Horizontal



Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL
EUT :
Model Name : MX-5060
Temp/Humi : 24.1℃ / 61%
Power Rating: AC 220V
Mode : 802.11b CH1
Memo :

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.19	49.23	27.58	7.13	38.34	45.60	74.00	-28.40	Peak
2	2399.54	62.34	27.58	7.13	38.34	58.71	74.00	-15.29	Peak
3	2400.09	62.63	27.58	7.13	38.34	59.00	74.00	-15.00	Peak
4 pp	2412.63	107.12	27.54	7.21	38.34	103.53	74.00	29.53	Peak

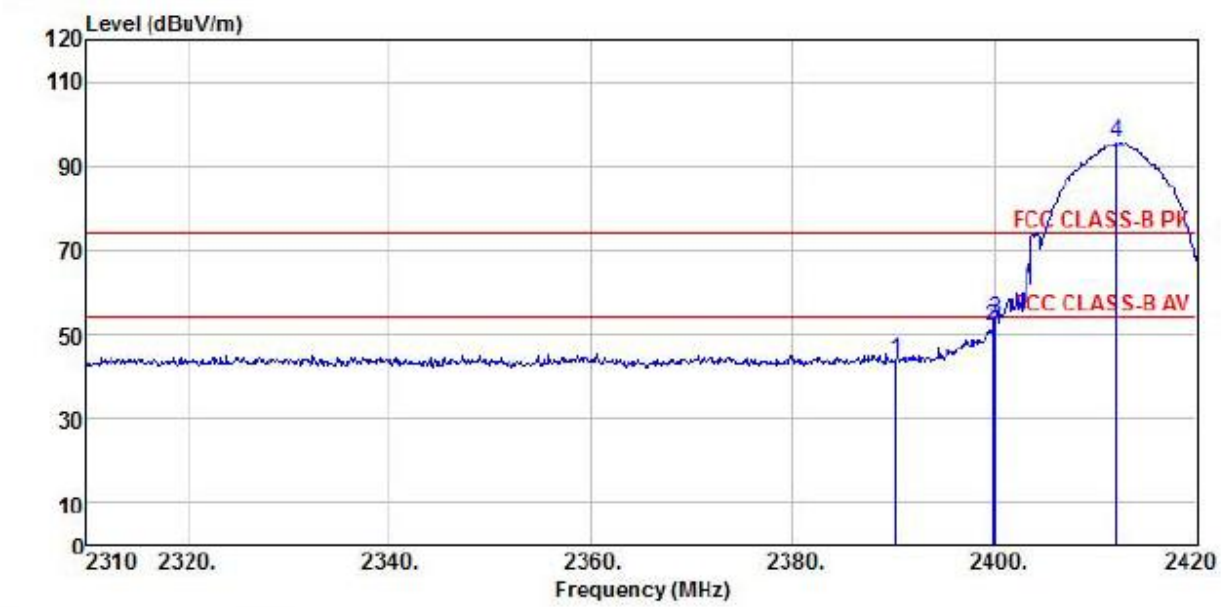
Detector mode: Average Polarity: Horizontal



Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL
EUT :
Model Name : MX-5060
Temp/Humi : 24.1℃ / 61%
Power Rating: AC 220V
Mode : 802.11b CH1
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.08	38.55	27.58	7.13	38.34	34.92	54.00	-19.08	Average
2	2399.10	50.10	27.58	7.13	38.34	46.47	54.00	-7.53	Average
3	2400.09	49.81	27.58	7.13	38.34	46.18	54.00	-7.82	Average
4 pp	2412.41	97.30	27.54	7.21	38.34	93.71	54.00	39.71	Average

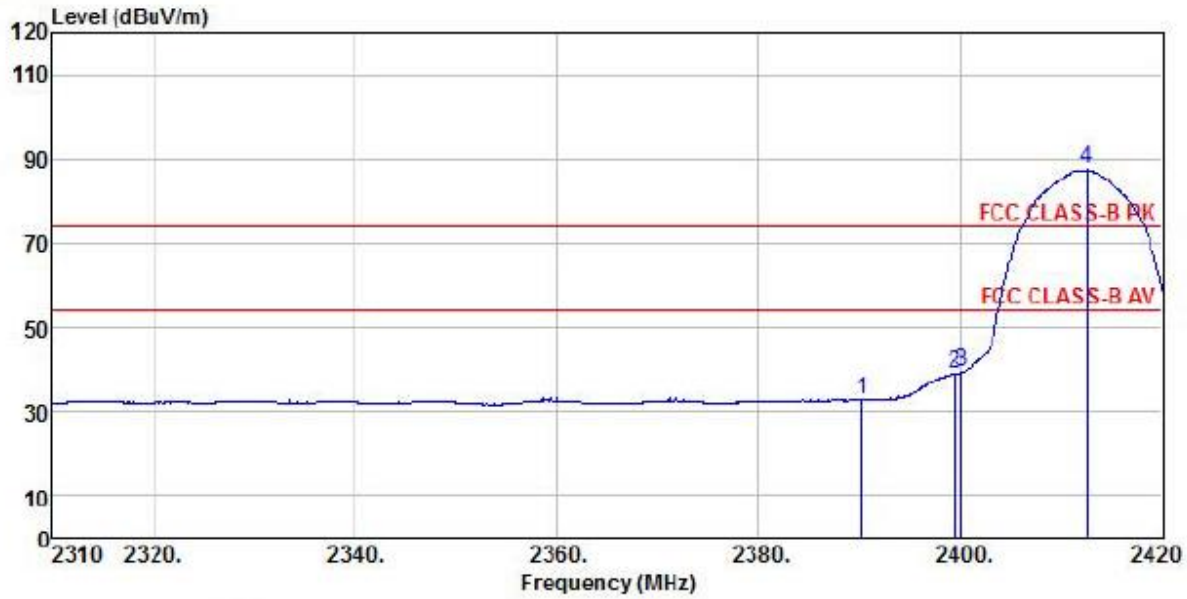
Detector mode: Peak Polarity: Vertical



Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL
EUT :
Model Name : MX-5060
Temp/Humi : 24.1℃ / 61%
Power Rating: AC 220V
Mode : 802.11b CH1
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.08	47.40	27.58	7.13	38.34	43.77	74.00	-30.23	Peak
2	2399.76	55.56	27.58	7.13	38.34	51.93	74.00	-22.07	Peak
3	2400.09	57.25	27.58	7.13	38.34	53.62	74.00	-20.38	Peak
4 pp	2412.08	99.41	27.54	7.21	38.34	95.82	74.00	21.82	Peak

Detector mode: Average Polarity: Vertical

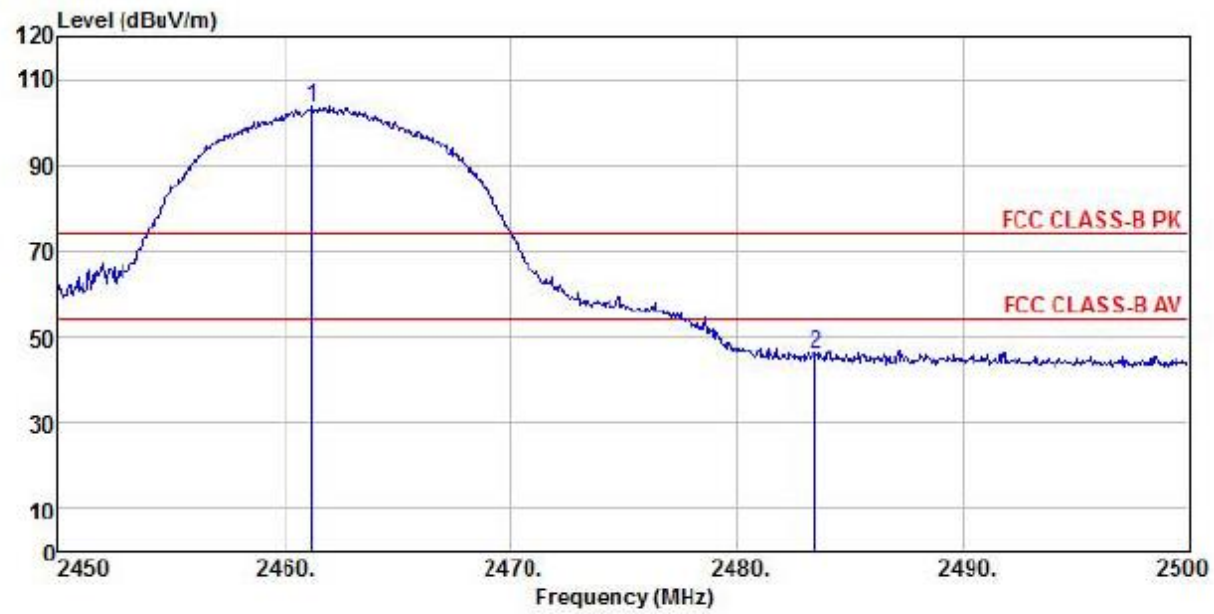


Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL
EUT :
Model Name : MX-5060
Temp/Humi : 24.1℃ / 61%
Power Rating: AC 220V
Mode : 802.11b CH1
Memo :

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.08	36.23	27.58	7.13	38.34	32.60	54.00	-21.40	Average
2	2399.43	42.72	27.58	7.13	38.34	39.09	54.00	-14.91	Average
3	2400.09	42.89	27.58	7.13	38.34	39.26	54.00	-14.74	Average
4 pp	2412.52	91.24	27.54	7.21	38.34	87.65	54.00	33.65	Average

802.11b (Ch11)

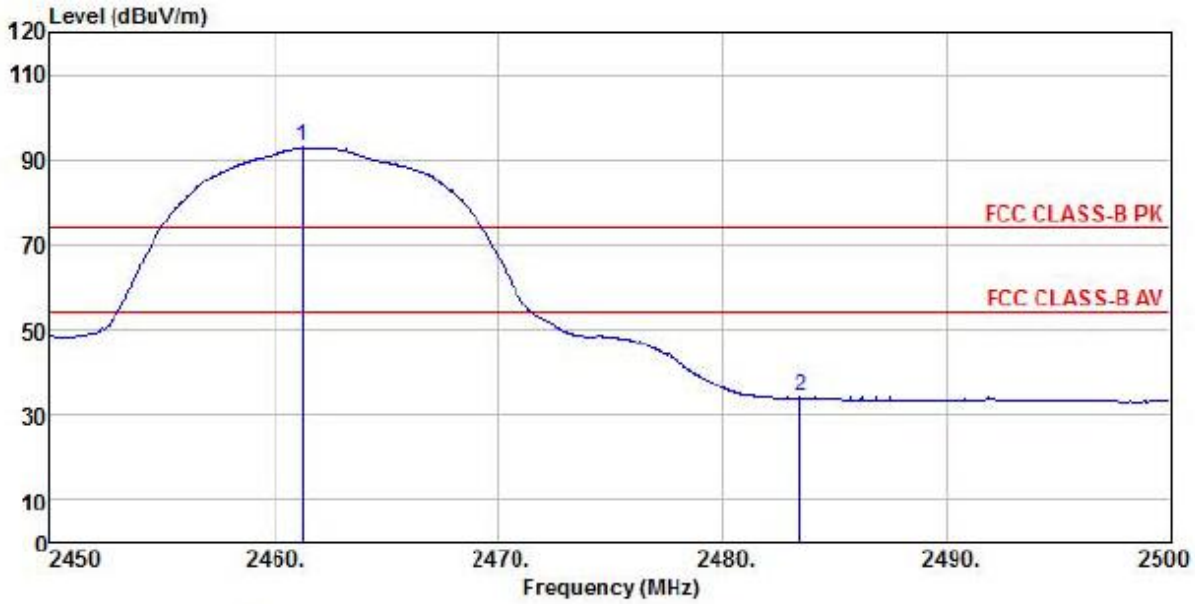
Detector mode: Peak Polarity: Horizontal



Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL
EUT :
Model Name : MX-5060
Temp/Humi : 24.1℃ / 61%
Power Rating: AC 220V
Mode : 802.11b CH11
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1 pp	2461.20	107.13	27.49	7.39	38.32	103.69	74.00	29.69	Peak
2	2483.50	49.56	27.52	7.41	38.31	46.18	74.00	-27.82	Peak

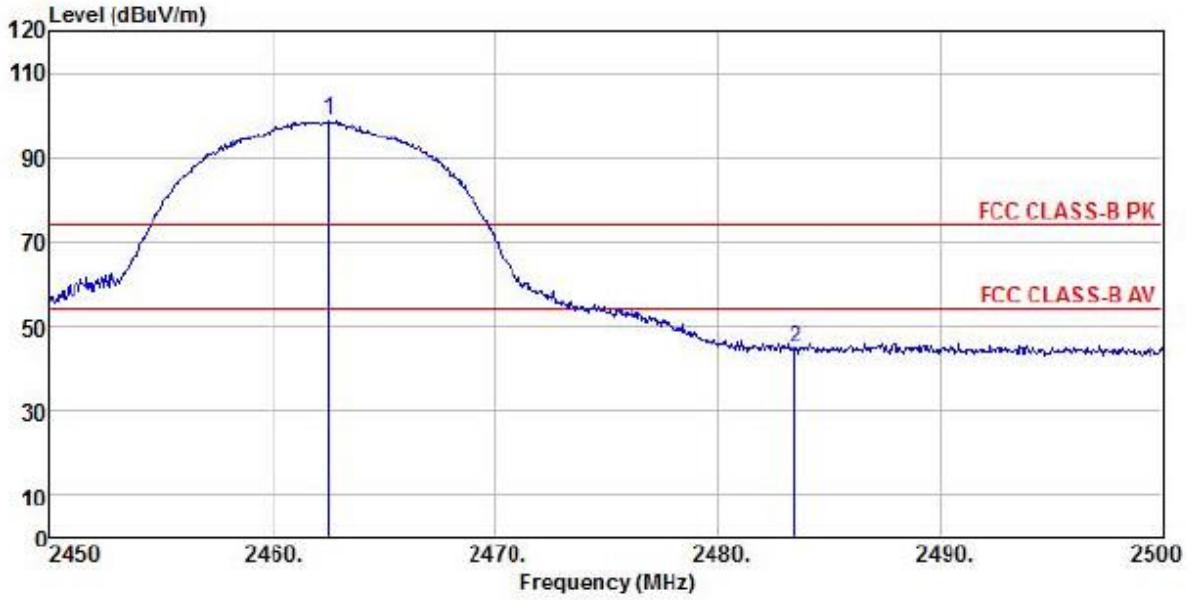
Detector mode: Average Polarity: Horizontal



Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL
EUT :
Model Name : MX-5060
Temp/Humi : 24.1℃ / 61%
Power Rating: AC 220V
Mode : 802.11b CH11
Memo :

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1 pp	2461.25	96.49	27.49	7.39	38.32	93.05	54.00	39.05	Average
2	2483.50	37.36	27.52	7.41	38.31	33.98	54.00	-20.02	Average

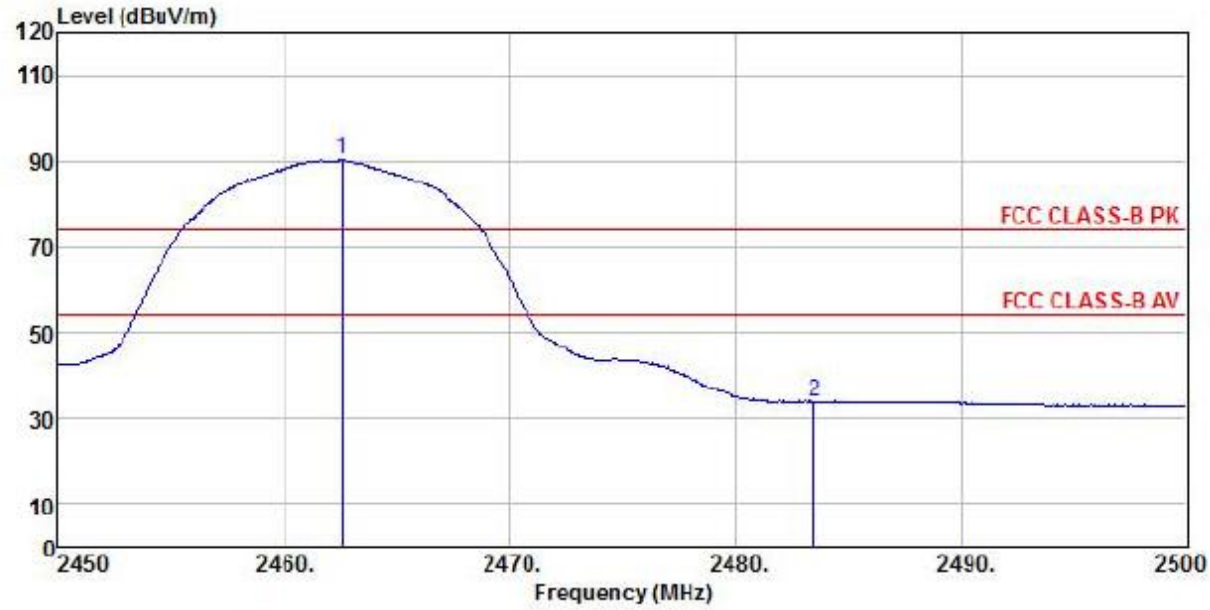
Detector mode: Peak Polarity: Vertical



Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL
EUT :
Model Name : MX-5060
Temp/Humi : 24.1℃ / 61%
Power Rating: AC 220V
Mode : 802.11b CH11
Memo :

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1 pp	2462.55	102.20	27.49	7.39	38.32	98.76	74.00	24.76	Peak
2	2483.50	48.30	27.52	7.41	38.31	44.92	74.00	-29.08	Peak

Detector mode: Average Polarity: Vertical

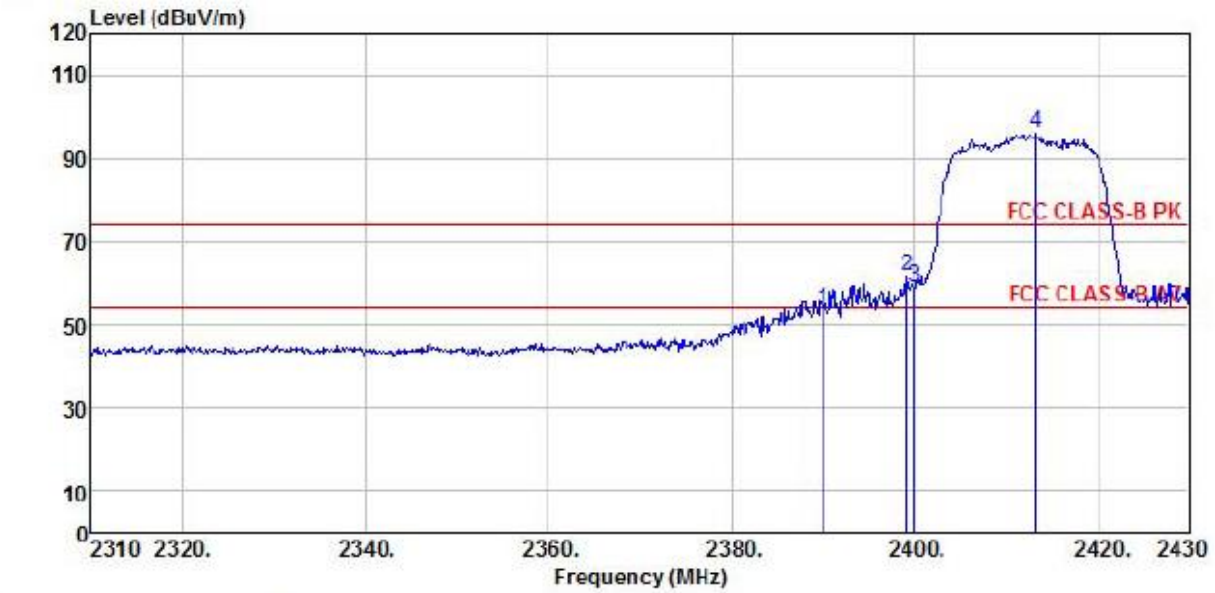


Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL
EUT :
Model Name : MX-5060
Temp/Humi : 24.1℃ / 61%
Power Rating: AC 220V
Mode : 802.11b CH11
Memo :

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1 pp	2462.60	93.59	27.49	7.39	38.32	90.15	54.00	36.15	Average
2	2483.50	37.15	27.52	7.41	38.31	33.77	54.00	-20.23	Average

802.11g (Ch1)

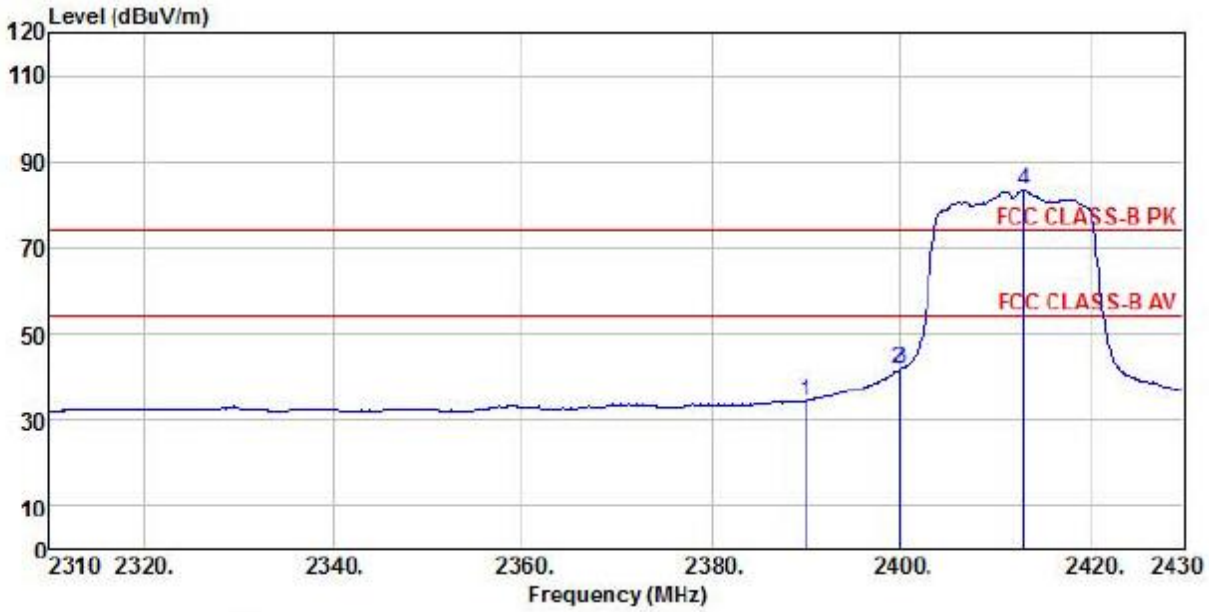
Detector mode: Peak Polarity: Horizontal



Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL
EUT :
Model Name : MX-5060
Temp/Humi : 24.1℃ / 61%
Power Rating: AC 220V
Mode : 802.11g CH1
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.04	57.20	27.58	7.13	38.34	53.57	74.00	-20.43	Peak
2	2399.16	65.08	27.58	7.13	38.34	61.45	74.00	-12.55	Peak
3	2400.00	62.37	27.58	7.13	38.34	58.74	74.00	-15.26	Peak
4 pp	2413.32	99.77	27.54	7.21	38.34	96.18	74.00	22.18	Peak

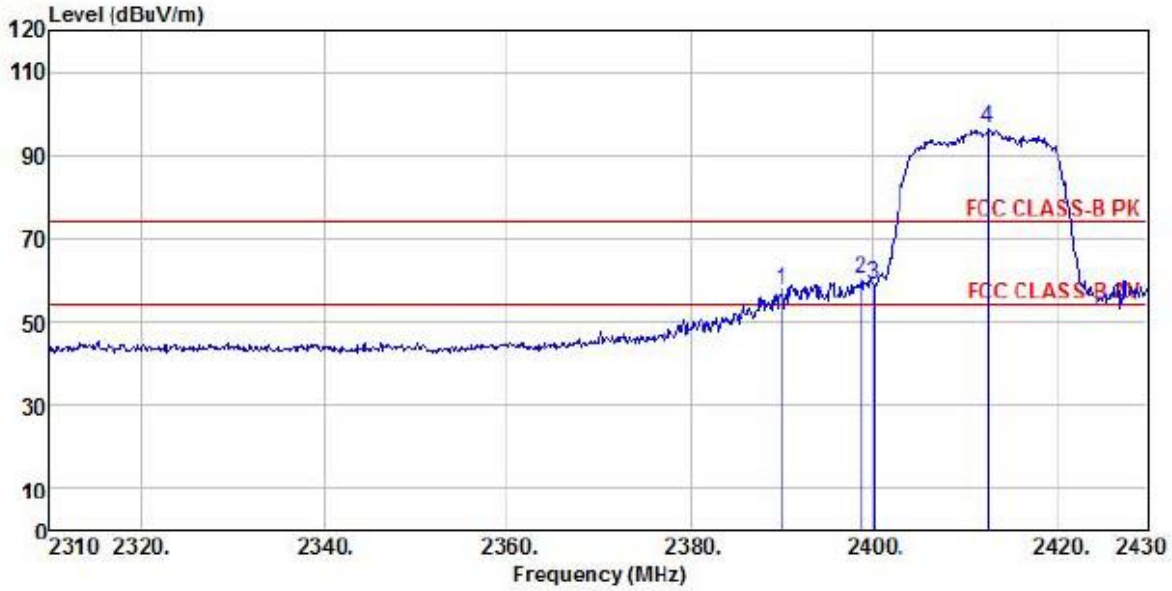
Detector mode: Average Polarity: Horizontal



Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL
EUT :
Model Name : MX-5060
Temp/Humi : 24.1℃ / 61%
Power Rating: AC 220V
Mode : 802.11g CH1
Memo :

	Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.04	37.90	27.58	7.13	38.34	34.27	54.00	-19.73	Average
2	2399.88	45.04	27.58	7.13	38.34	41.41	54.00	-12.59	Average
3	2400.00	45.23	27.58	7.13	38.34	41.60	54.00	-12.40	Average
4 pp	2413.08	86.76	27.54	7.21	38.34	83.17	54.00	29.17	Average

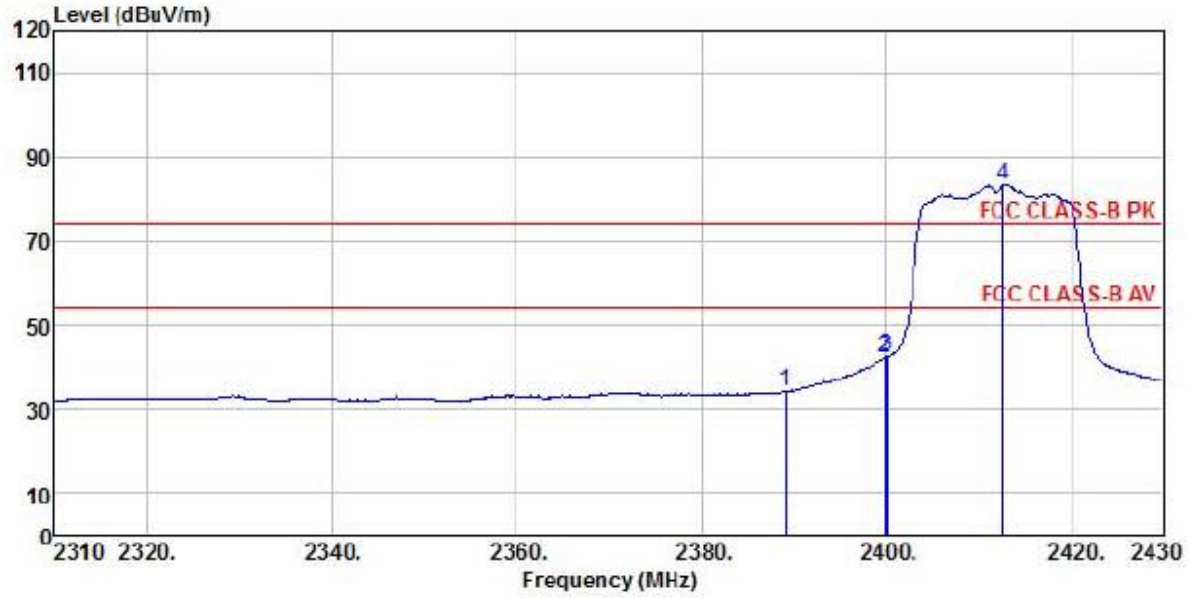
Detector mode: Peak Polarity: Vertical



Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL
EUT :
Model Name : MX-5060
Temp/Humi : 24.1℃ / 61%
Power Rating: AC 220V
Mode : 802.11g CH1
Memo :

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.04	61.24	27.58	7.13	38.34	57.61	74.00	-16.39	Peak
2	2398.68	63.84	27.58	7.13	38.34	60.21	74.00	-13.79	Peak
3	2400.12	62.67	27.58	7.13	38.34	59.04	74.00	-14.96	Peak
4 pp	2412.60	100.16	27.54	7.21	38.34	96.57	74.00	22.57	Peak

Detector mode: Average Polarity: Vertical

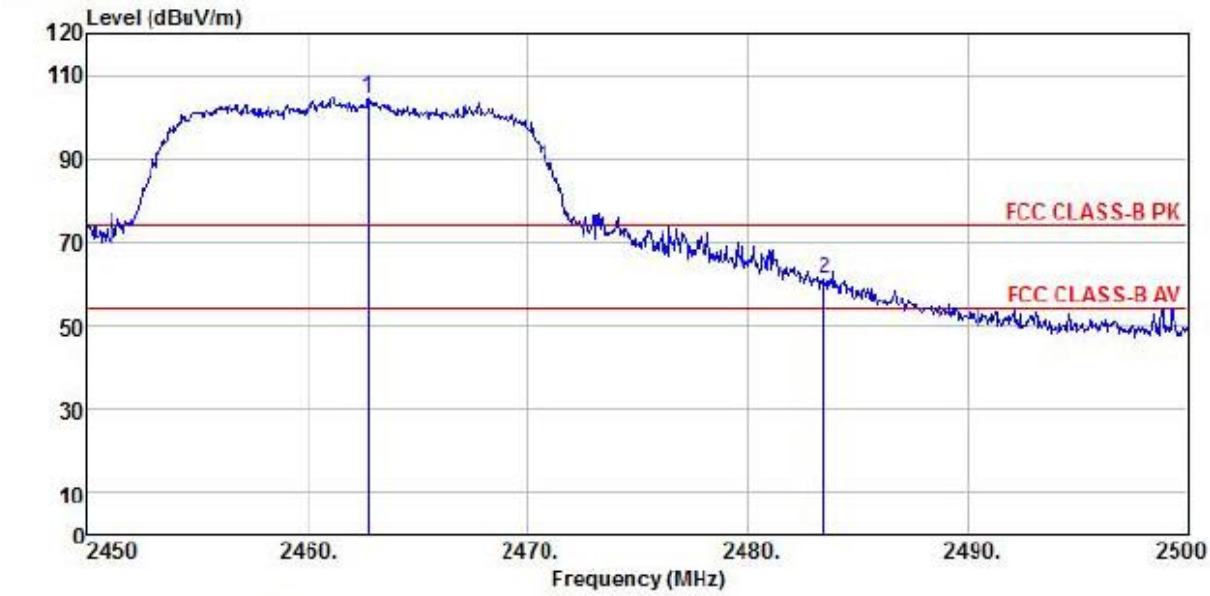


Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL
EUT :
Model Name : MX-5060
Temp/Humi : 24.1℃ / 61%
Power Rating: AC 220V
Mode : 802.11g CH1
Memo :

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2389.08	37.61	27.58	7.13	38.34	33.98	54.00	-20.02	Average
2	2399.88	45.68	27.58	7.13	38.34	42.05	54.00	-11.95	Average
3	2400.12	46.01	27.58	7.13	38.34	42.38	54.00	-11.62	Average
4 pp	2412.72	86.91	27.54	7.21	38.34	83.32	54.00	29.32	Average

802.11g (Ch11)

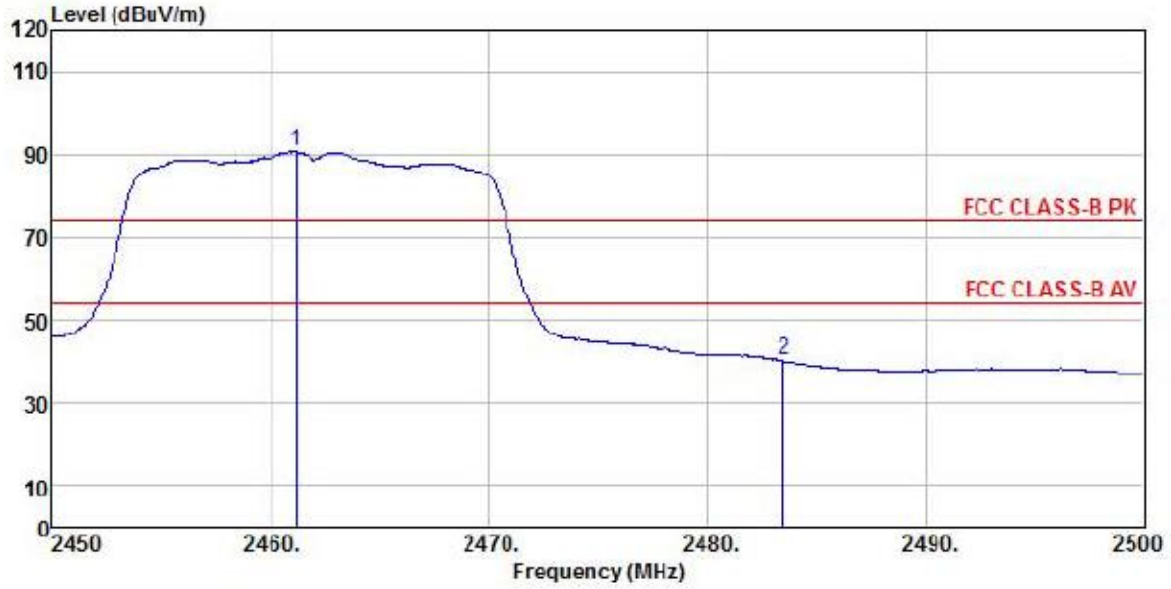
Detector mode: Peak Polarity: Horizontal



Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL
EUT :
Model Name : MX-5060
Temp/Humi : 24.1℃ / 61%
Power Rating: AC 220V
Mode : 802.11g CH11
Memo :

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1 pp	2462.75	108.08	27.49	7.39	38.32	104.64	74.00	30.64	Peak
2	2483.50	64.30	27.52	7.41	38.31	60.92	74.00	-13.08	Peak

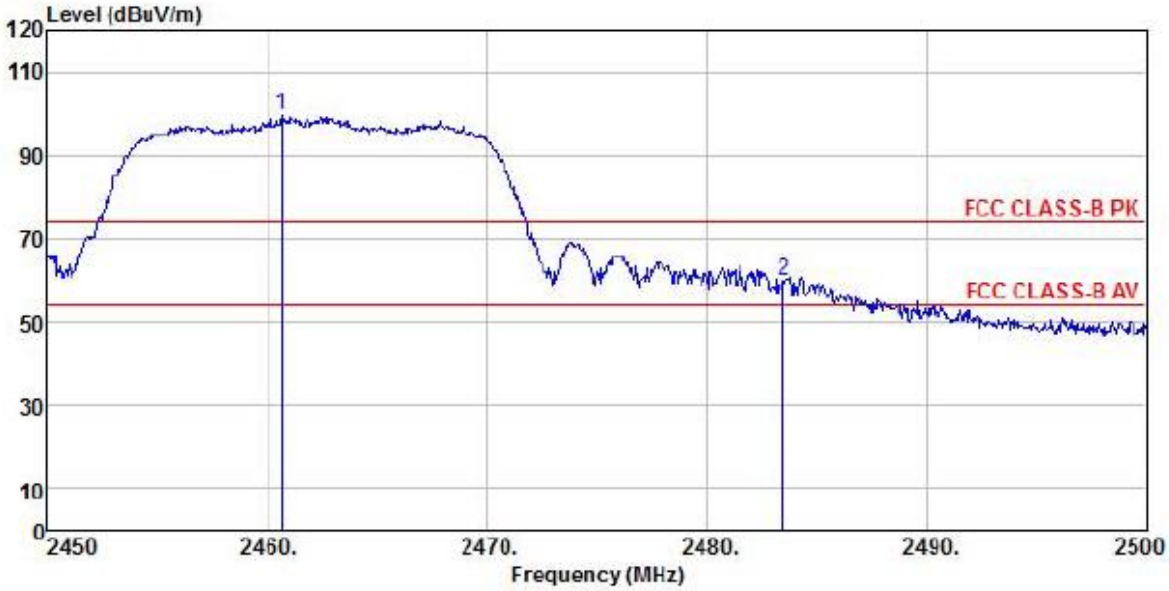
Detector mode: Average Polarity: Horizontal



Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL
EUT :
Model Name : MX-5060
Temp/Humi : 24.1℃ / 61%
Power Rating: AC 220V
Mode : 802.11g CH11
Memo :

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1 pp	2461.15	94.12	27.49	7.39	38.32	90.68	54.00	36.68	Average
2	2483.50	43.52	27.52	7.41	38.31	40.14	54.00	-13.86	Average

Detector mode: Peak Polarity: Vertical

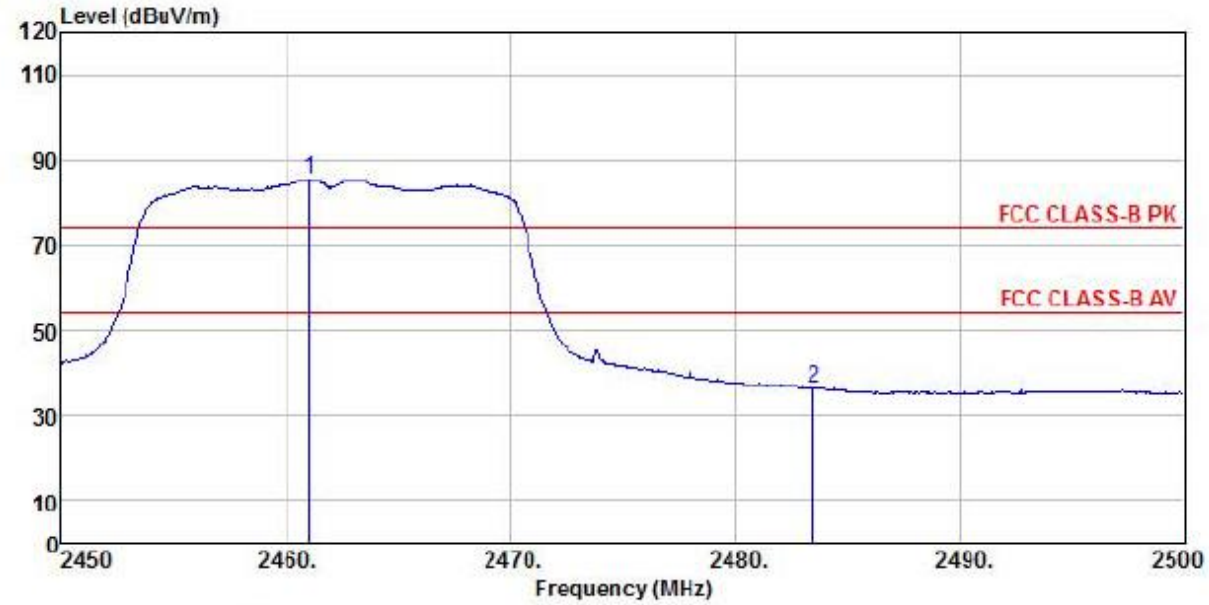


Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL
EUT :
Model Name : MX-5060
Temp/Humi : 24.1℃ / 61%
Power Rating: AC 220V
Mode : 802.11g CH11
Memo :

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1 pp	2460.65	102.88	27.49	7.39	38.32	99.44	74.00	25.44	Peak
2	2483.50	63.32	27.52	7.41	38.31	59.94	74.00	-14.06	Peak

Detector mode: Average

Polarity: Vertical

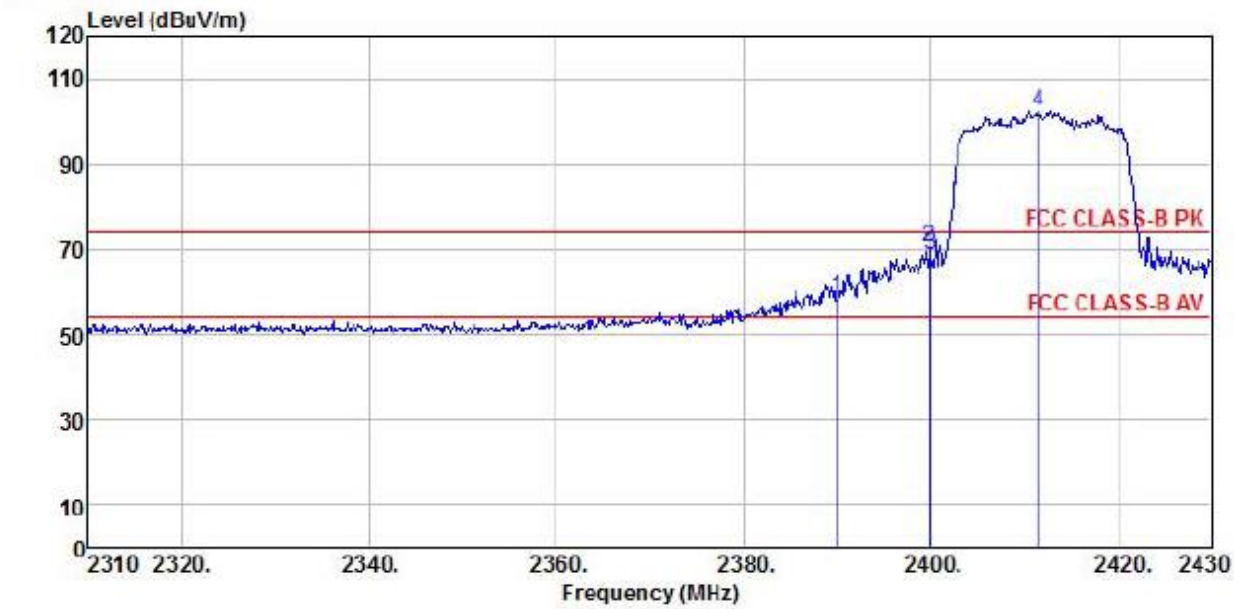


Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL
EUT :
Model Name : MX-5060
Temp/Humi : 24.1℃ / 61%
Power Rating: AC 220V
Mode : 802.11g CH11
Memo :

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1 pp	2461.05	89.07	27.49	7.39	38.32	85.63	54.00	31.63	Average
2	2483.50	39.57	27.52	7.41	38.31	36.19	54.00	-17.81	Average

802.11n20 (Ch1)

Detector mode: Peak Polarity: Horizontal

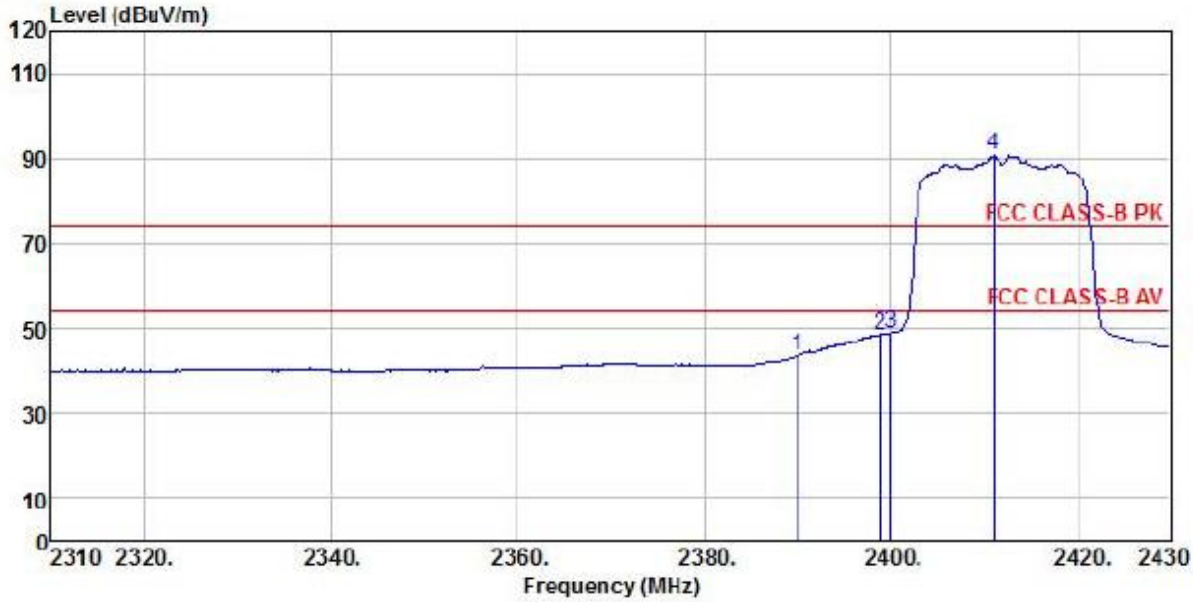


Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL
EUT :
Model Name : MX-5060
Temp/Humi : 24.1℃ / 61%
Power Rating: AC 220V
Mode : 802.11n20 CH1
Memo :

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.04	62.11	27.58	7.13	38.34	58.48	74.00	-15.52	Peak
2	2399.88	73.87	27.58	7.13	38.34	70.24	74.00	-3.76	Peak
3	2400.00	72.47	27.58	7.13	38.34	68.84	74.00	-5.16	Peak
4 pp	2411.52	105.78	27.54	7.21	38.34	102.19	74.00	28.19	Peak

Detector mode: Average

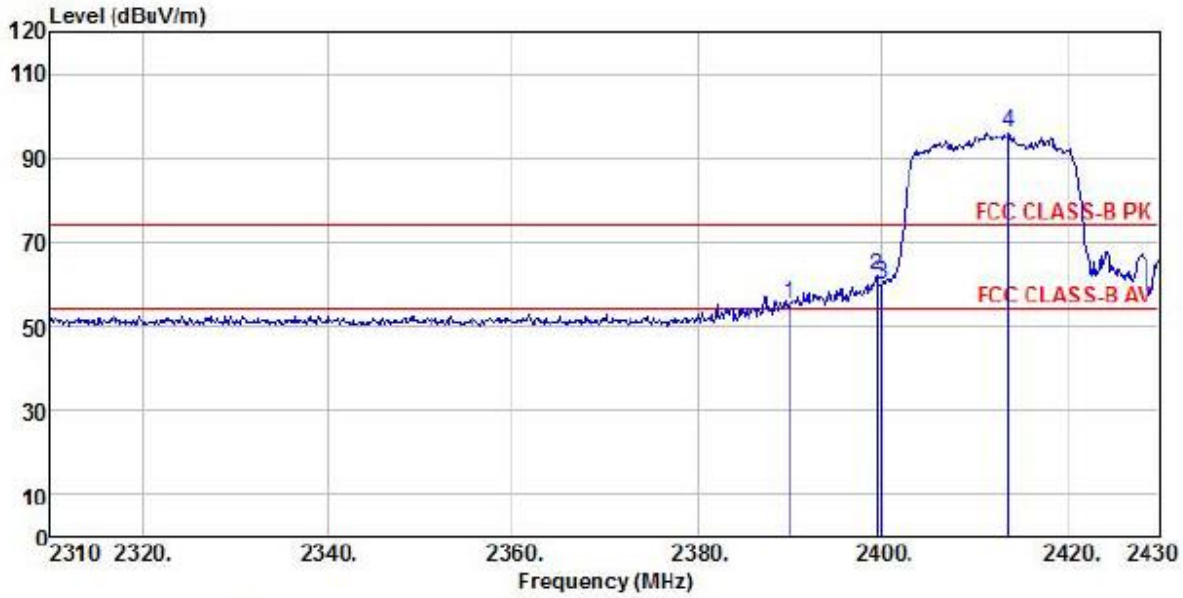
Polarity: Horizontal



Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL
EUT :
Model Name : MX-5060
Temp/Humi : 24.1℃ / 61%
Power Rating: AC 220V
Mode : 802.11n20 CH1
Memo :

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.04	46.99	27.58	7.13	38.34	43.36	54.00	-10.64	Average
2	2398.92	52.07	27.58	7.13	38.34	48.44	54.00	-5.56	Average
3	2400.00	52.52	27.58	7.13	38.34	48.89	54.00	-5.11	Average
4 pp	2410.92	94.27	27.54	7.21	38.34	90.68	54.00	36.68	Average

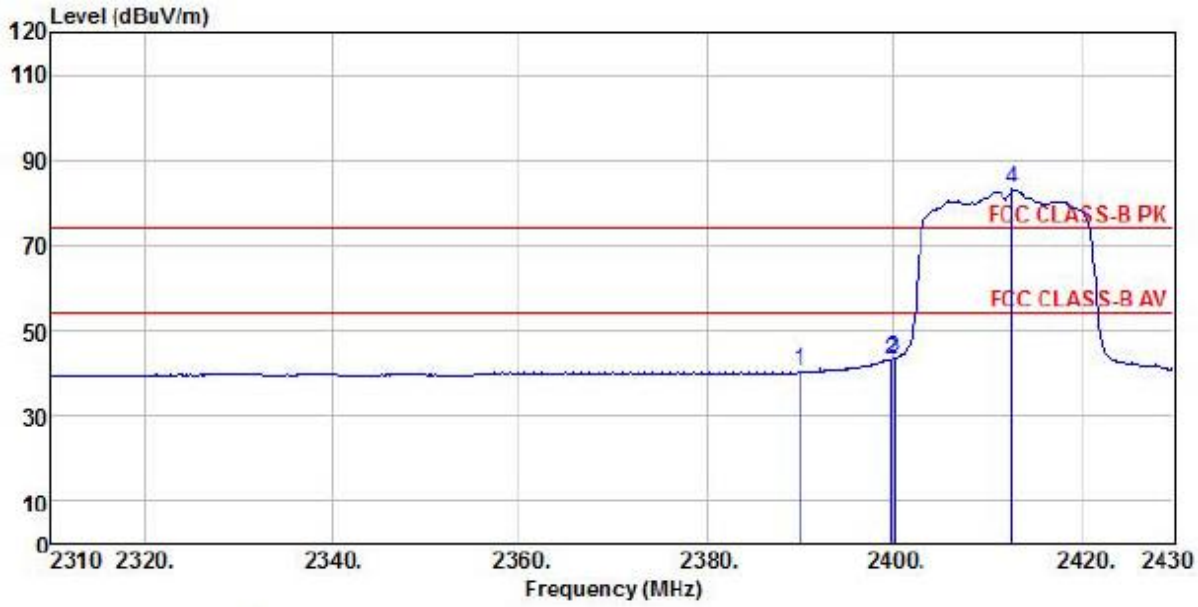
Detector mode: Peak Polarity: Vertical



Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL
EUT :
Model Name : MX-5060
Temp/Humi : 24.1℃ / 61%
Power Rating: AC 220V
Mode : 802.11n20 CH1
Memo :

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.04	58.90	27.58	7.13	38.34	55.27	74.00	-18.73	Peak
2	2399.52	65.43	27.58	7.13	38.34	61.80	74.00	-12.20	Peak
3	2400.00	63.43	27.58	7.13	38.34	59.80	74.00	-14.20	Peak
4 pp	2413.68	99.68	27.54	7.21	38.34	96.09	74.00	22.09	Peak

Detector mode: Average Polarity: Vertical

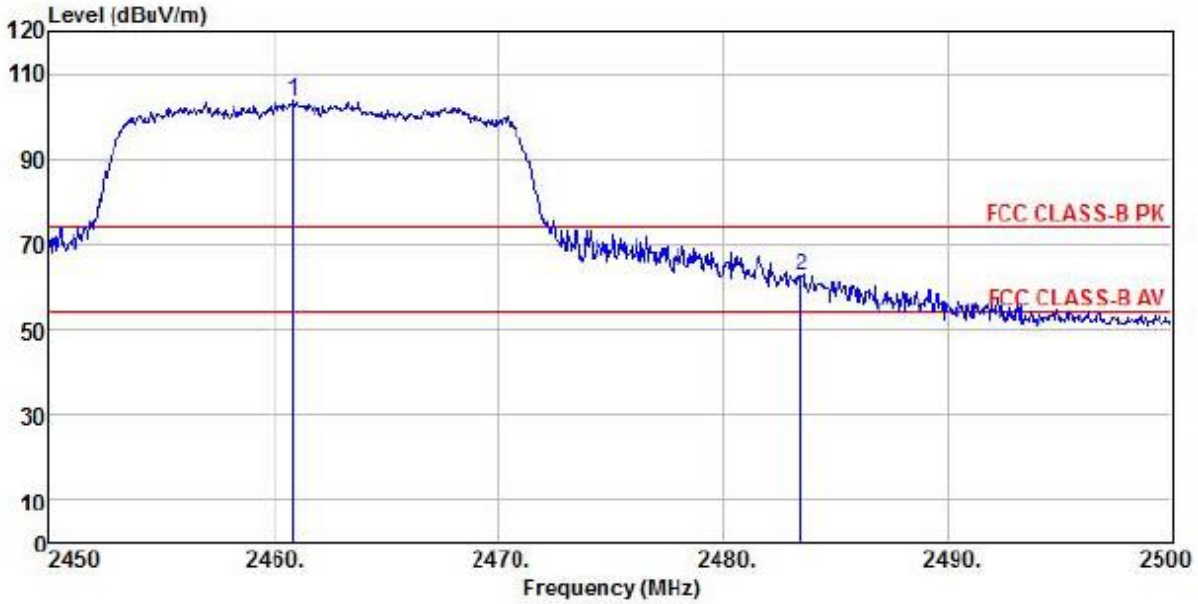


Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL
EUT :
Model Name : MX-5060
Temp/Humi : 24.1℃ / 61%
Power Rating: AC 220V
Mode : 802.11n20 CH1
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.04	43.78	27.58	7.13	38.34	40.15	54.00	-13.85	Average
2	2399.76	46.77	27.58	7.13	38.34	43.14	54.00	-10.86	Average
3	2400.12	47.03	27.58	7.13	38.34	43.40	54.00	-10.60	Average
4 pp	2412.72	86.77	27.54	7.21	38.34	83.18	54.00	29.18	Average

802.11n20 (Ch11)

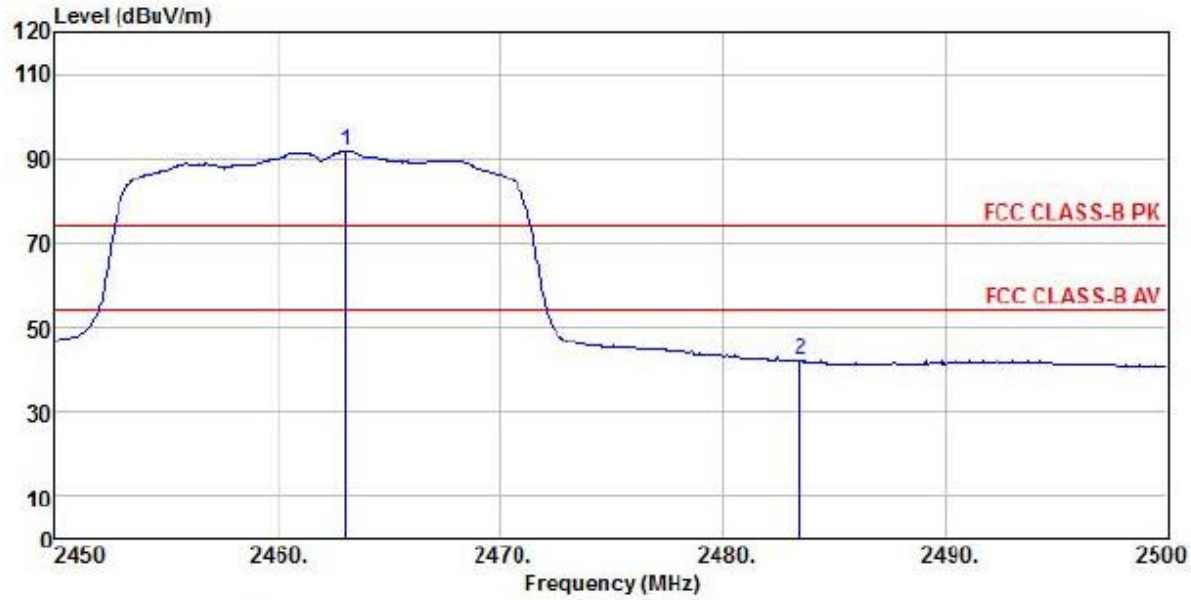
Detector mode: Peak Polarity: Horizontal



Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL
EUT :
Model Name : MX-5060
Temp/Humi : 24.1℃ / 61%
Power Rating: AC 220V
Mode : 802.11n20 CH11
Memo :

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1 pp	2460.85	106.85	27.49	7.39	38.32	103.41	74.00	29.41	Peak
2	2483.50	65.93	27.52	7.41	38.31	62.55	74.00	-11.45	Peak

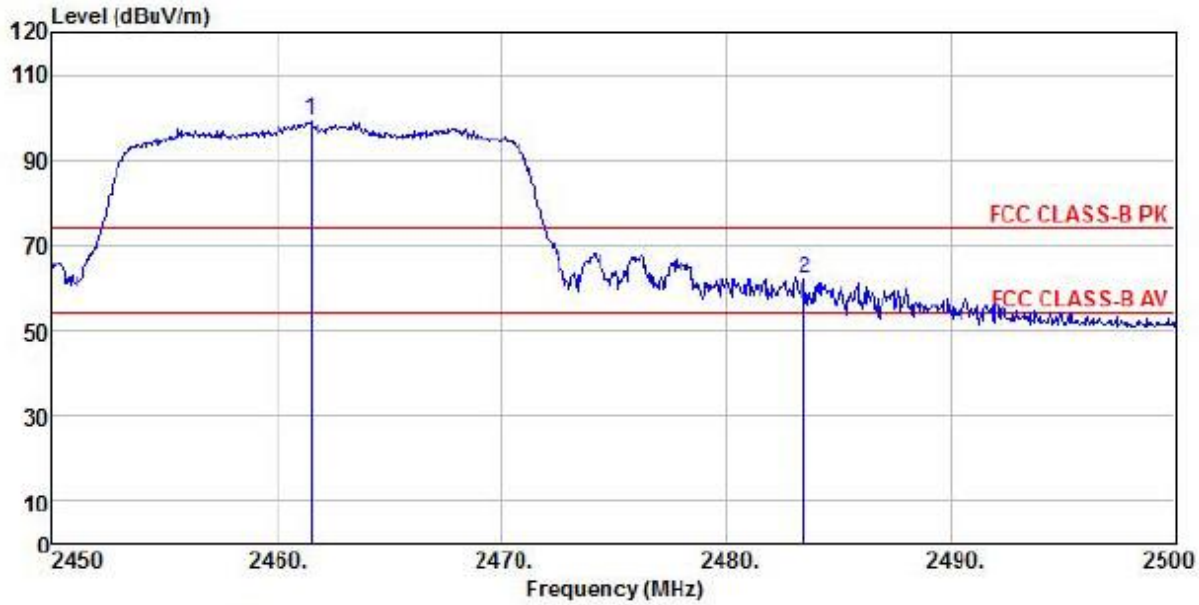
Detector mode: Average Polarity: Horizontal



Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL
EUT :
Model Name : MX-5060
Temp/Humi : 24.1℃ / 61%
Power Rating: AC 220V
Mode : 802.11n20 CH11
Memo :

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1 pp	2463.05	95.07	27.49	7.39	38.32	91.63	74.00	17.63	Peak
2	2483.50	45.28	27.52	7.41	38.31	41.90	74.00	-32.10	Peak

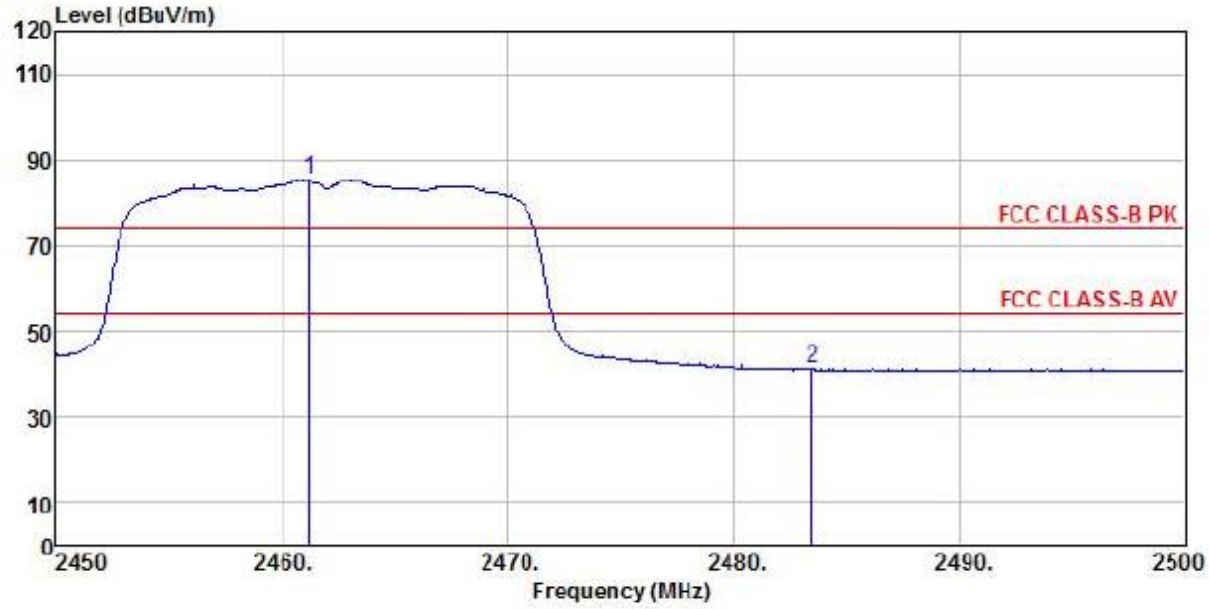
Detector mode: Peak Polarity: Vertical



Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL
EUT :
Model Name : MX-5060
Temp/Humi : 24.1℃ / 61%
Power Rating: AC 220V
Mode : 802.11n20 CH11
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1 pp	2461.50	102.43	27.49	7.39	38.32	98.99	74.00	24.99	Peak
2	2483.50	65.47	27.52	7.41	38.31	62.09	74.00	-11.91	Peak

Detector mode: Average Polarity: Vertical

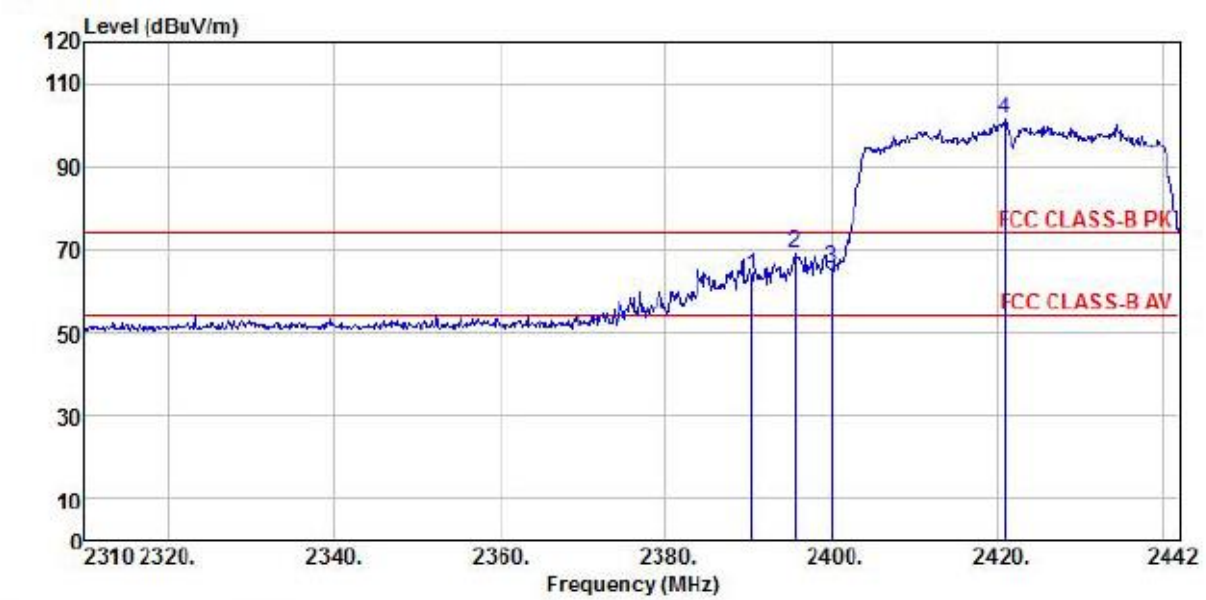


Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL
EUT :
Model Name : MX-5060
Temp/Humi : 24.1℃ / 61%
Power Rating: AC 220V
Mode : 802.11n20 CH11
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1 pp	2461.20	88.88	27.49	7.39	38.32	85.44	54.00	31.44	Average
2	2483.50	44.39	27.52	7.41	38.31	41.01	54.00	-12.99	Average

802.11n40 (Ch3)

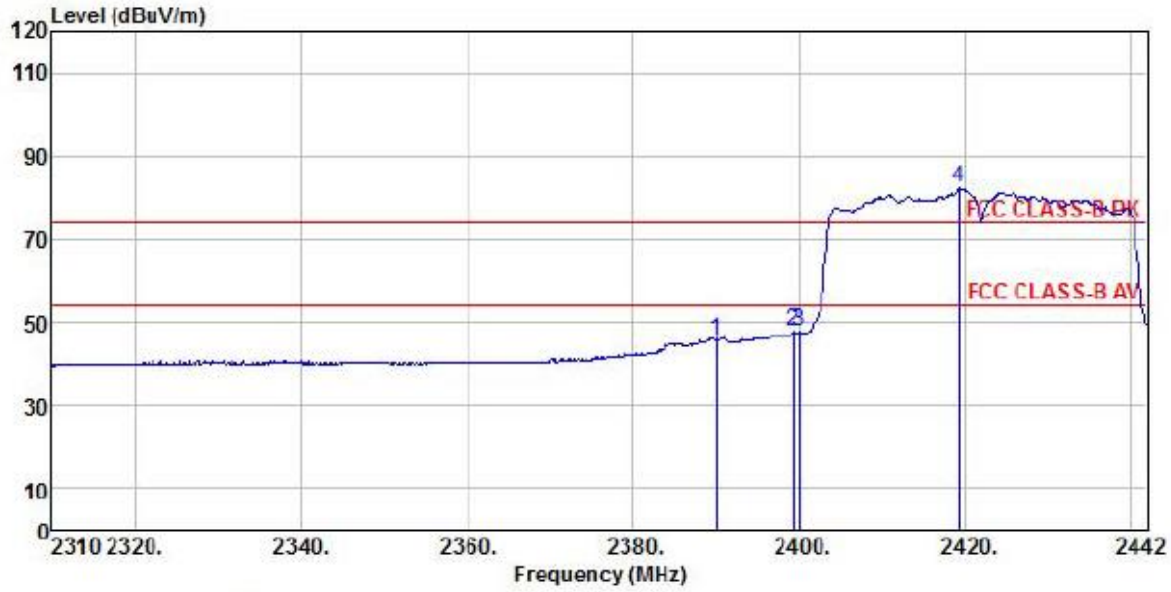
Detector mode: Peak Polarity: Horizontal



Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL
EUT :
Model Name : MX-5060
Temp/Humi : 24.1℃ / 61%
Power Rating: AC 220V
Mode : 802.11n40 CH3
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.39	67.18	27.58	7.13	38.34	63.55	74.00	-10.45	Peak
2	2395.67	72.49	27.58	7.13	38.34	68.86	74.00	-5.14	Peak
3	2400.02	69.19	27.58	7.13	38.34	65.56	74.00	-8.44	Peak
4 pp	2420.88	105.09	27.50	7.29	38.33	101.55	74.00	27.55	Peak

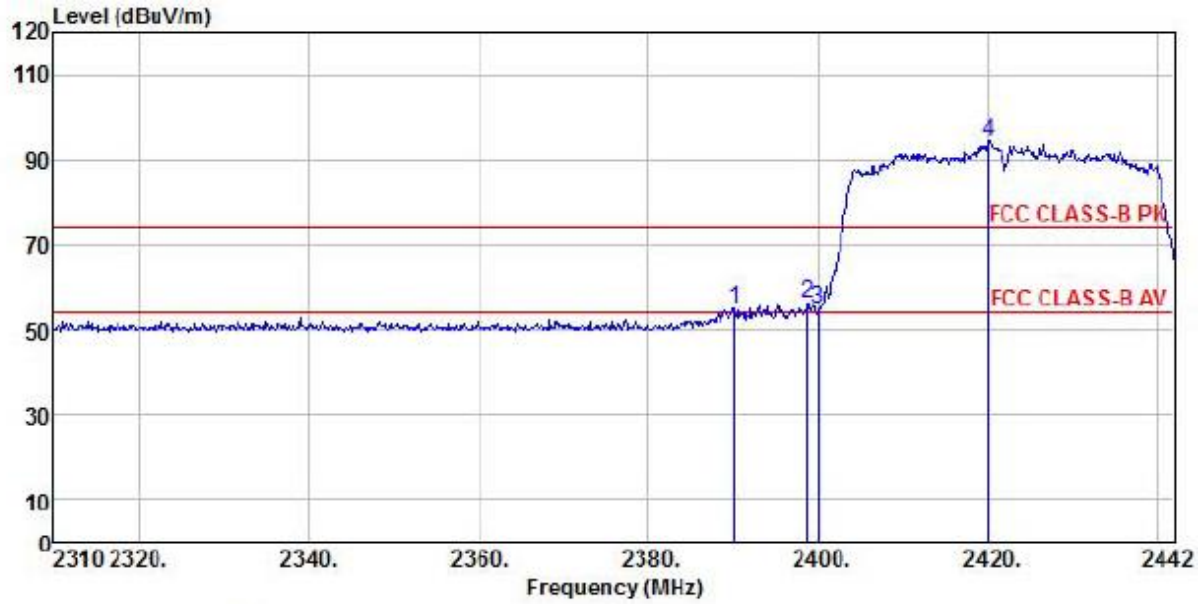
Detector mode: Average Polarity: Horizontal



Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL
EUT :
Model Name : MX-5060
Temp/Humi : 24.1℃ / 61%
Power Rating: AC 220V
Mode : 802.11n40 CH3
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.12	49.25	27.58	7.13	38.34	45.62	54.00	-8.38	Average
2	2399.36	51.24	27.58	7.13	38.34	47.61	54.00	-6.39	Average
3	2400.02	51.37	27.58	7.13	38.34	47.74	54.00	-6.26	Average
4 pp	2419.30	85.91	27.54	7.21	38.34	82.32	54.00	28.32	Average

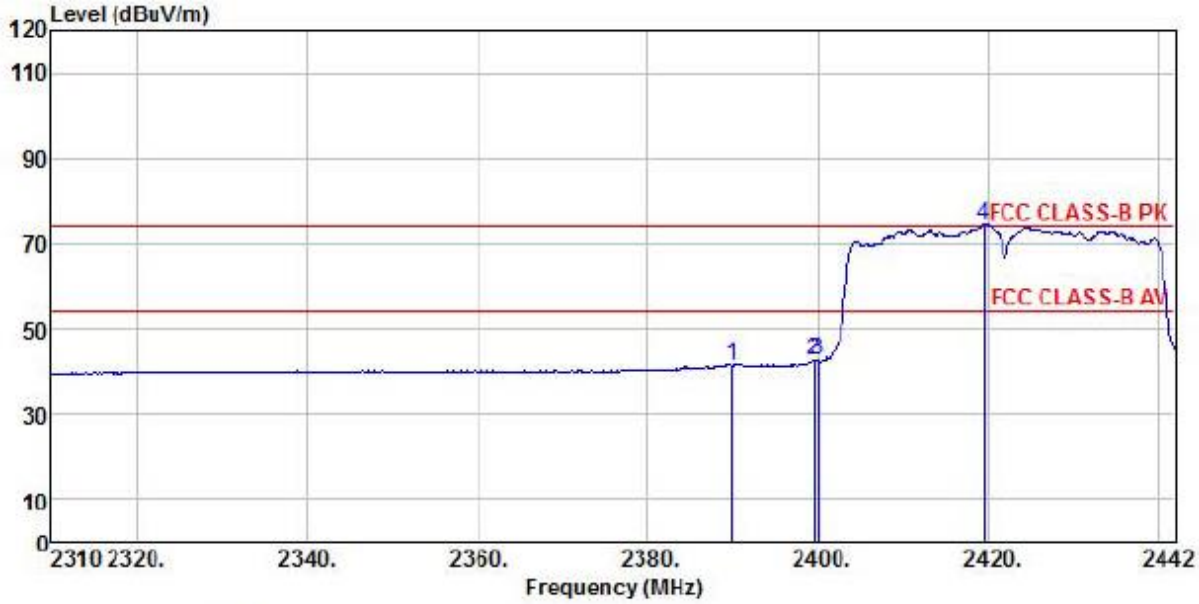
Detector mode: Peak Polarity: Vertical



Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL
EUT :
Model Name : MX-5060
Temp/Humi : 24.1℃ / 61%
Power Rating: AC 220V
Mode : 802.11n40 CH3
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.26	58.44	27.58	7.13	38.34	54.81	74.00	-19.19	Peak
2	2398.84	60.02	27.58	7.13	38.34	56.39	74.00	-17.61	Peak
3	2400.02	58.59	27.58	7.13	38.34	54.96	74.00	-19.04	Peak
4 pp	2420.09	97.87	27.50	7.29	38.33	94.33	74.00	20.33	Peak

Detector mode: Average Polarity: Vertical

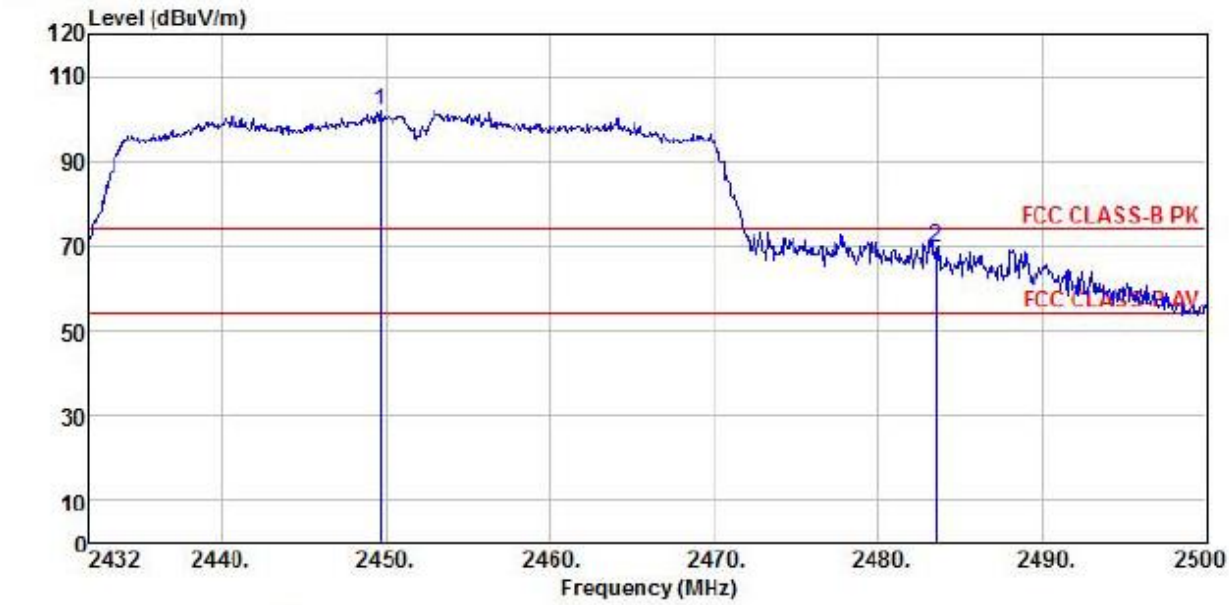


Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL
EUT :
Model Name : MX-5060
Temp/Humi : 24.1℃ / 61%
Power Rating: AC 220V
Mode : 802.11n40 CH3
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2389.99	44.99	27.58	7.13	38.34	41.36	54.00	-12.64	Average
2	2399.63	46.03	27.58	7.13	38.34	42.40	54.00	-11.60	Average
3	2400.02	45.95	27.58	7.13	38.34	42.32	54.00	-11.68	Average
4 pp	2419.56	77.94	27.50	7.29	38.33	74.40	54.00	20.40	Average

802.11n40 (Ch9)

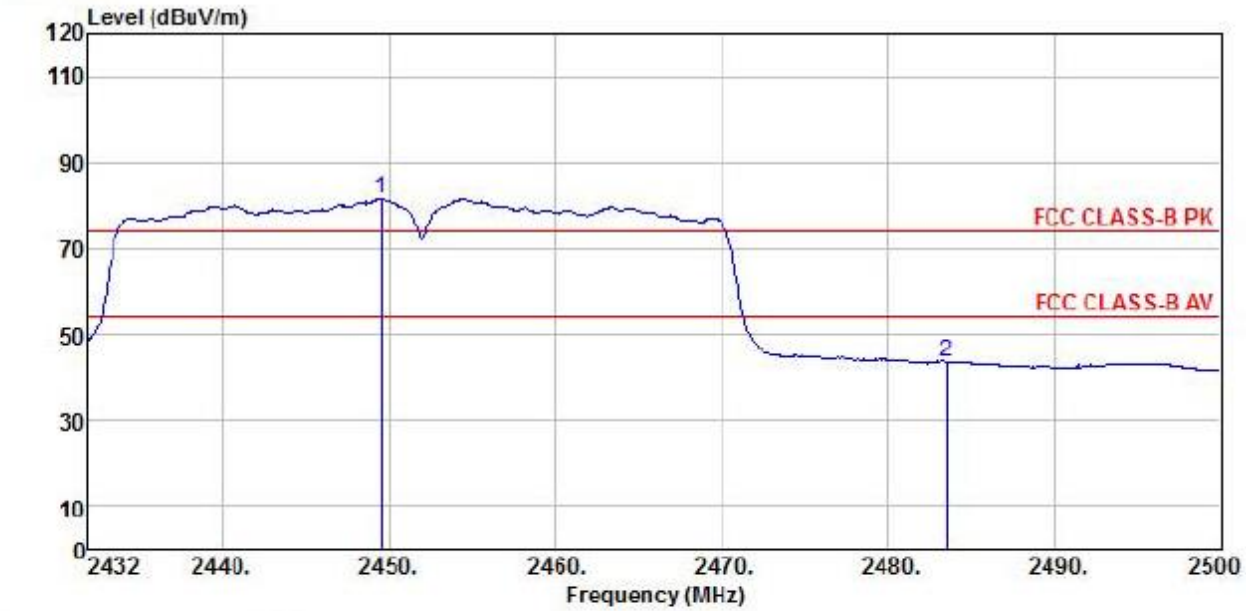
Detector mode: Peak Polarity: Horizontal



Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL
EUT :
Model Name : MX-5060
Temp/Humi : 24.1℃ / 61%
Power Rating: AC 220V
Mode : 802.11n40 CH9
Memo :

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1 pp	2449.68	105.13	27.46	7.37	38.32	101.64	74.00	27.64	Peak
2	2483.54	72.70	27.52	7.41	38.31	69.32	74.00	-4.68	Peak

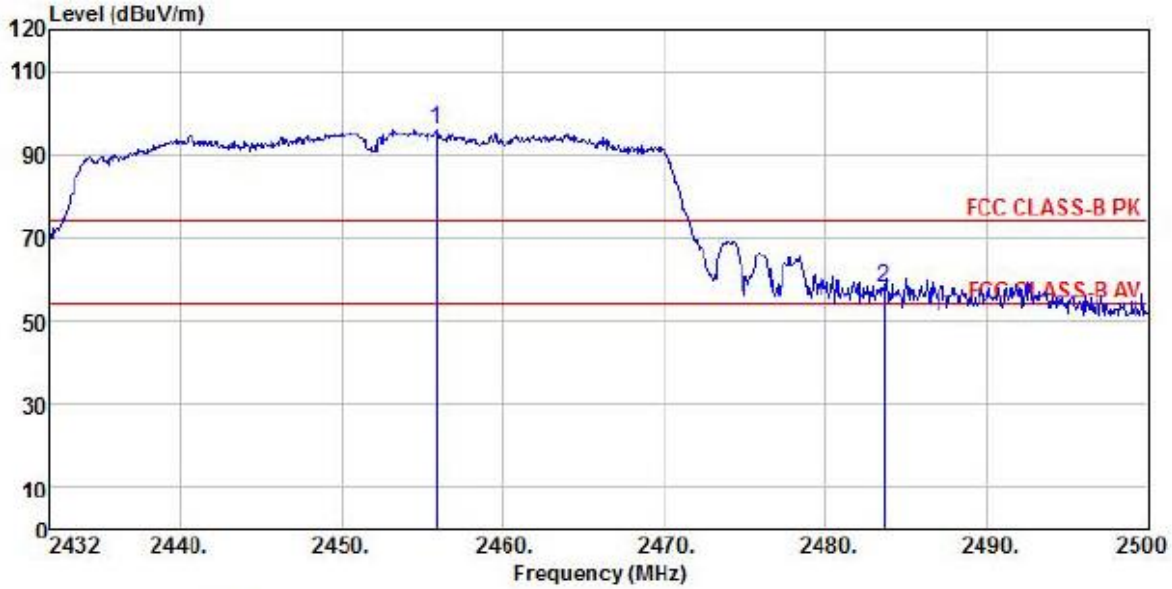
Detector mode: Average Polarity: Horizontal



Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL
EUT :
Model Name : MX-5060
Temp/Humi : 24.1℃ / 61%
Power Rating: AC 220V
Mode : 802.11n40 CH9
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1 pp	2449.54	84.92	27.46	7.37	38.32	81.43	54.00	27.43	Average
2	2483.54	46.97	27.52	7.41	38.31	43.59	54.00	-10.41	Average

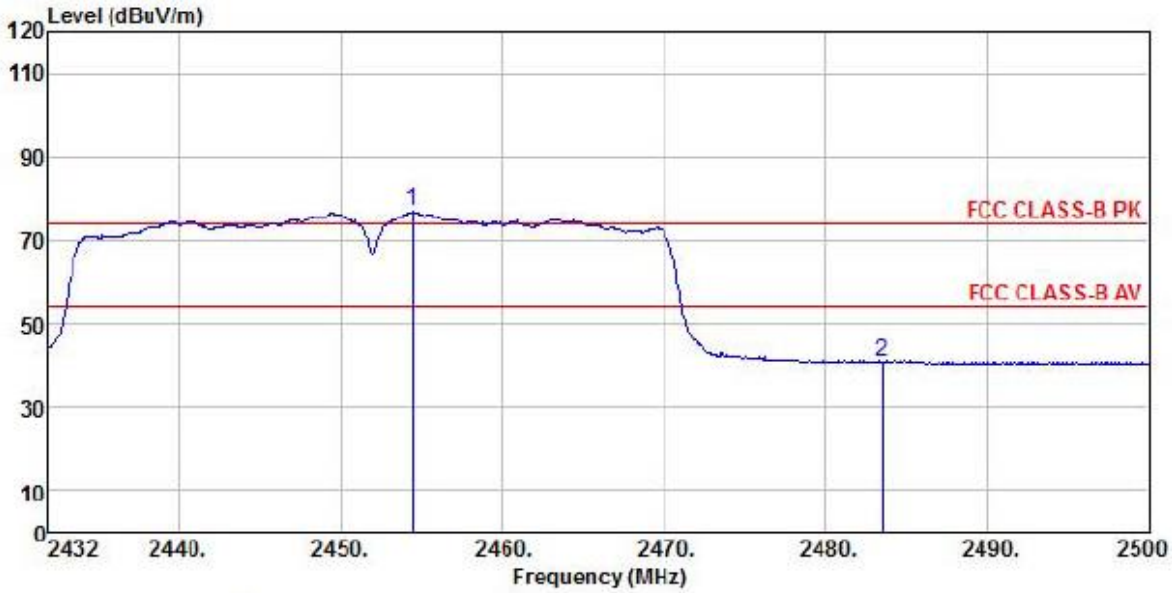
Detector mode: Peak Polarity: Vertical



Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL
EUT :
Model Name : MX-5060
Temp/Humi : 24.1℃ / 61%
Power Rating: AC 220V
Mode : 802.11n40 CH9
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1 pp	2455.94	99.48	27.49	7.39	38.32	96.04	74.00	22.04	Peak
2	2483.61	61.55	27.52	7.41	38.31	58.17	74.00	-15.83	Peak

Detector mode: Average Polarity: Vertical

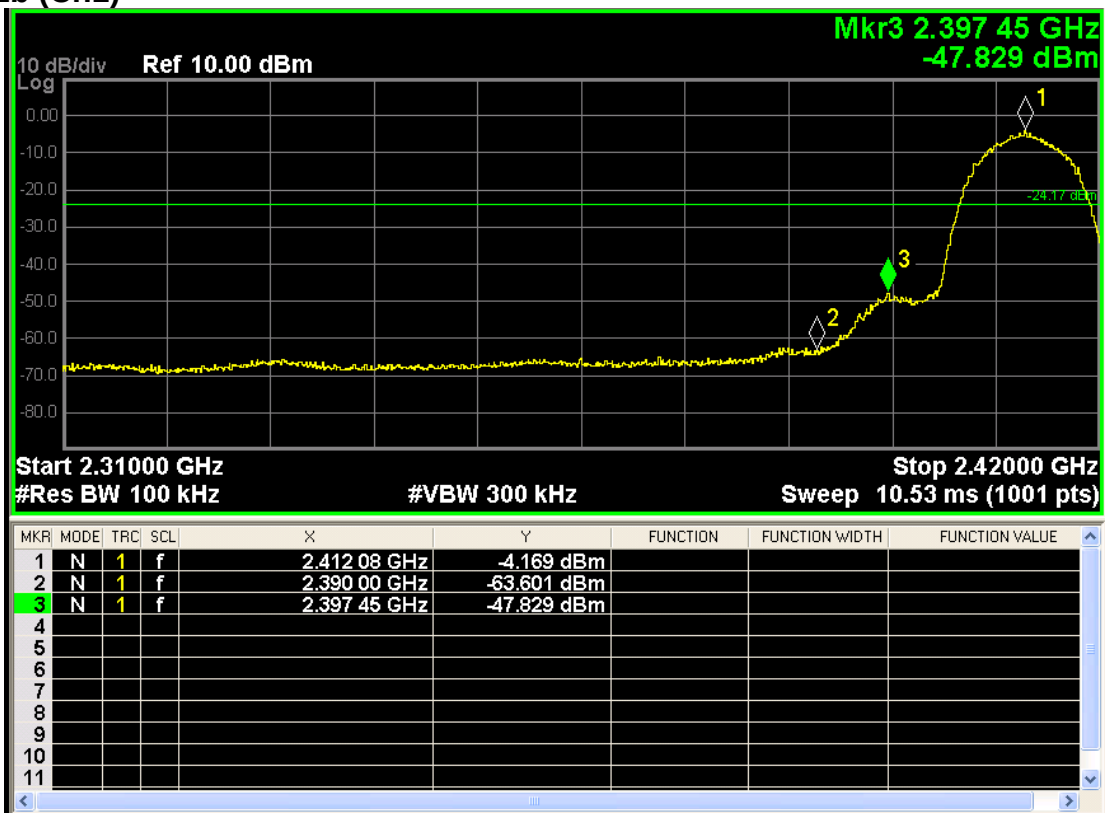


Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL
EUT :
Model Name : MX-5060
Temp/Humi : 24.1℃ / 61%
Power Rating: AC 220V
Mode : 802.11n40 CH9
Memo :

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1 pp	2454.44	80.37	27.46	7.39	38.32	76.90	74.00	2.90	Peak
2	2483.54	44.22	27.52	7.41	38.31	40.84	74.00	-33.16	Peak

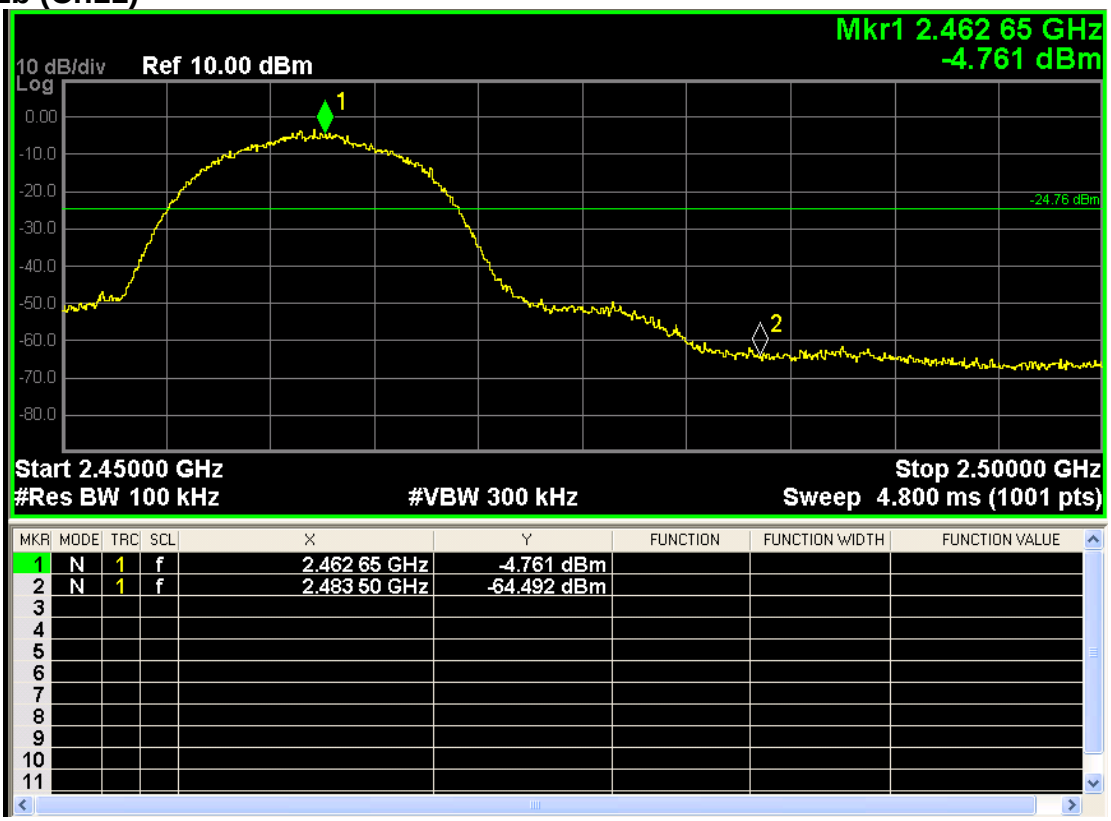
Conducted Band Edge:

802.11b (Ch1)



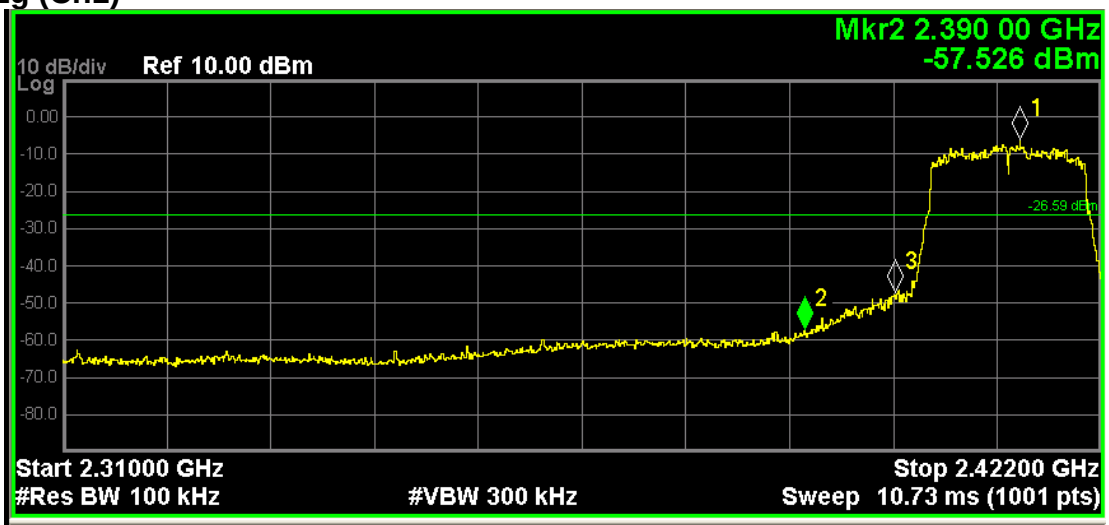
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.412 08 GHz	-4.169 dBm			
2	N	1	f	2.390 00 GHz	-63.601 dBm			
3	N	1	f	2.397 45 GHz	-47.829 dBm			
4								
5								
6								
7								
8								
9								
10								
11								

802.11b (Ch11)



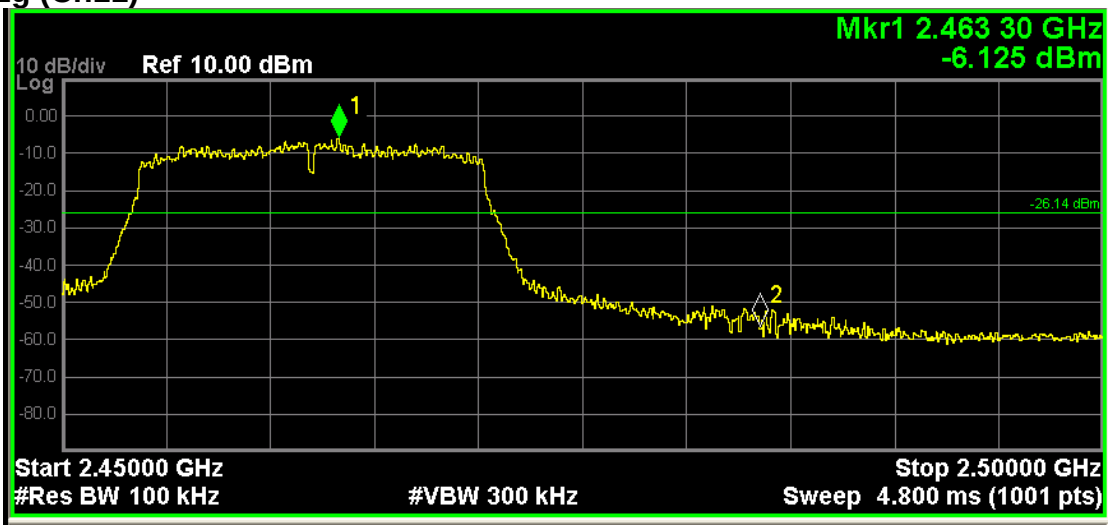
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.462 65 GHz	-4.761 dBm			
2	N	1	f	2.483 50 GHz	-64.492 dBm			
3								
4								
5								
6								
7								
8								
9								
10								
11								

802.11g (Ch1)



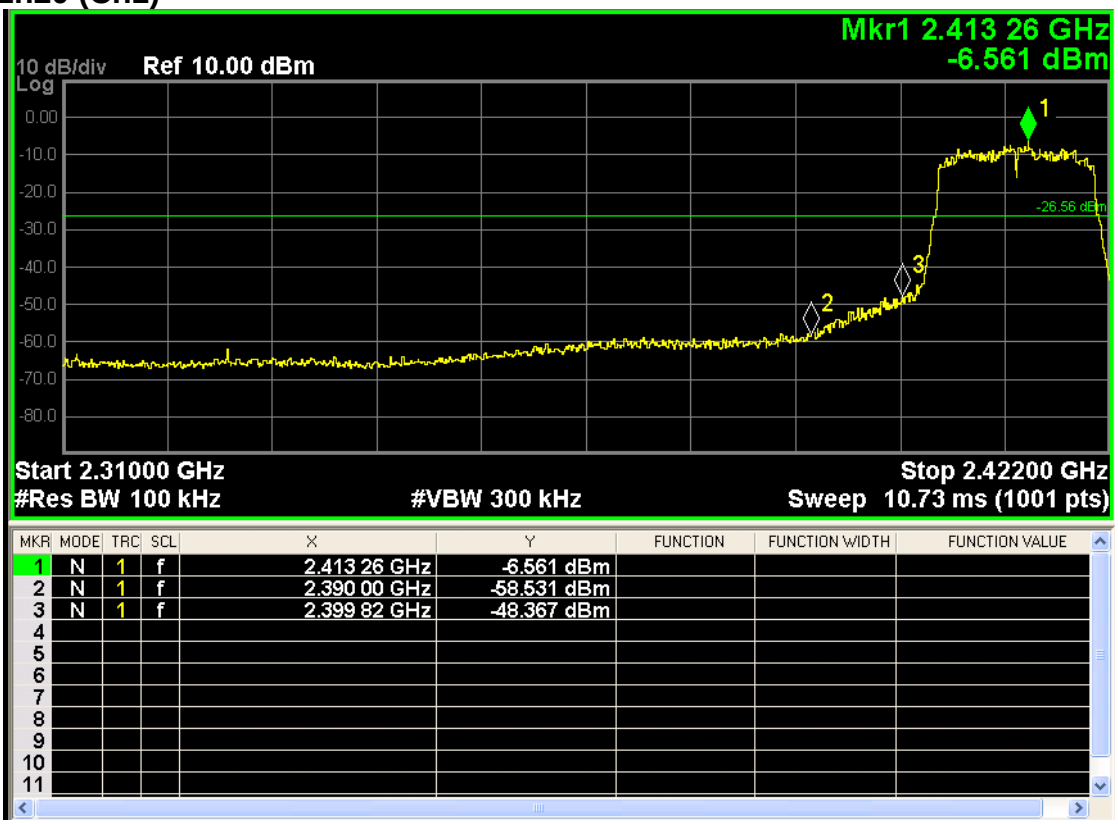
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.413 26 GHz	-6.589 dBm			
2	N	1	f	2.390 00 GHz	-57.526 dBm			
3	N	1	f	2.399 82 GHz	-47.728 dBm			
4								
5								
6								
7								
8								
9								
10								
11								

802.11g (Ch11)



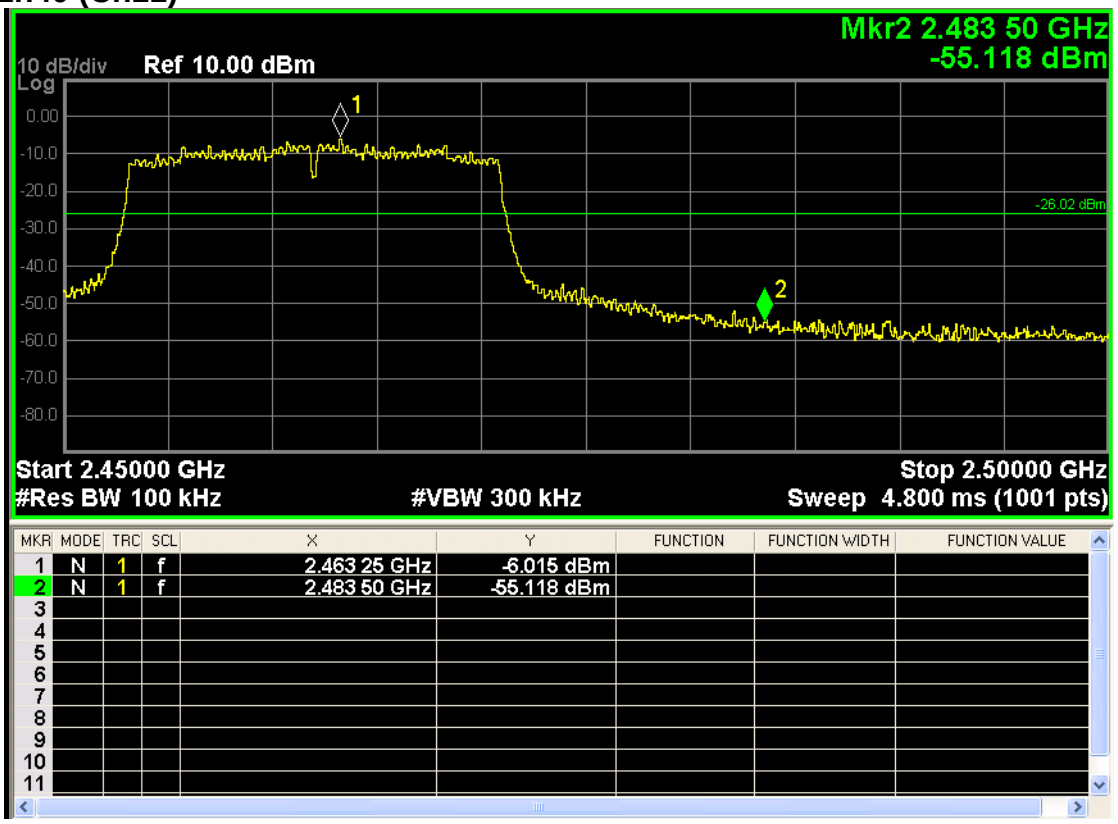
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.463 30 GHz	-6.125 dBm			
2	N	1	f	2.483 50 GHz	-57.085 dBm			
3								
4								
5								
6								
7								
8								
9								
10								
11								

802.11n20 (Ch1)



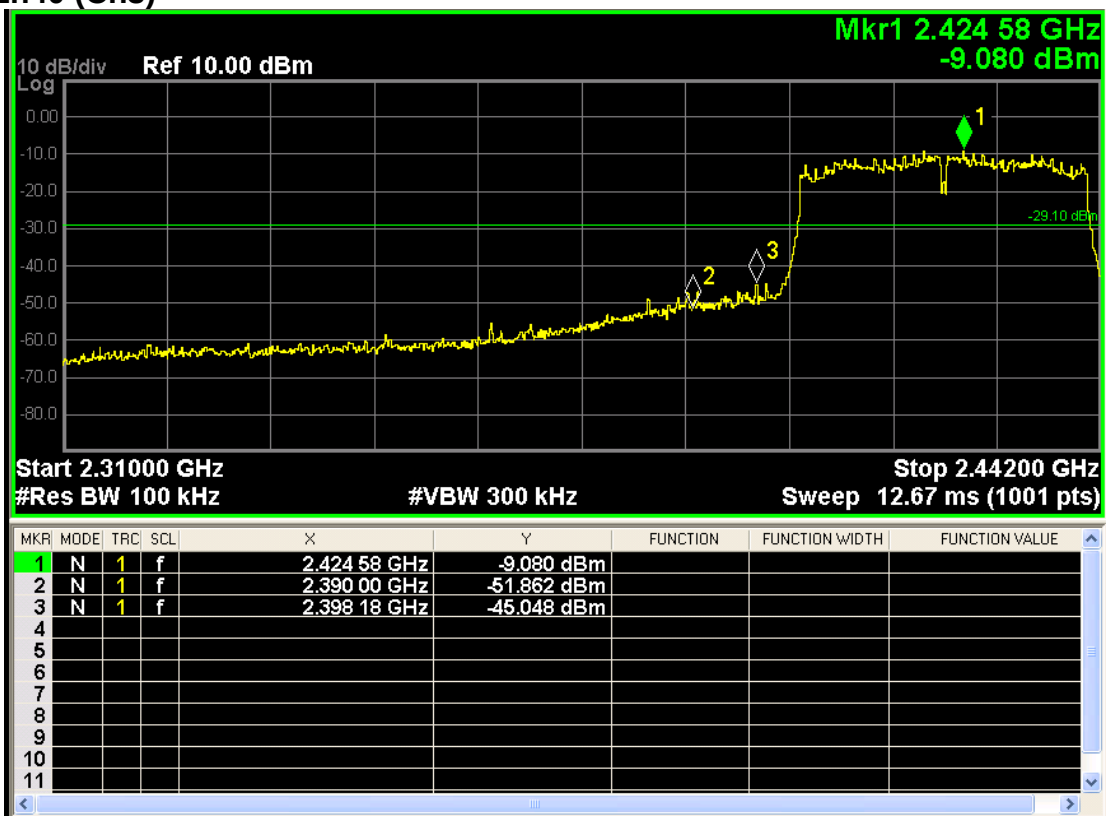
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.413 26 GHz	-6.561 dBm			
2	N	1	f	2.390 00 GHz	-58.531 dBm			
3	N	1	f	2.399 82 GHz	-48.367 dBm			
4								
5								
6								
7								
8								
9								
10								
11								

802.11n40 (Ch11)



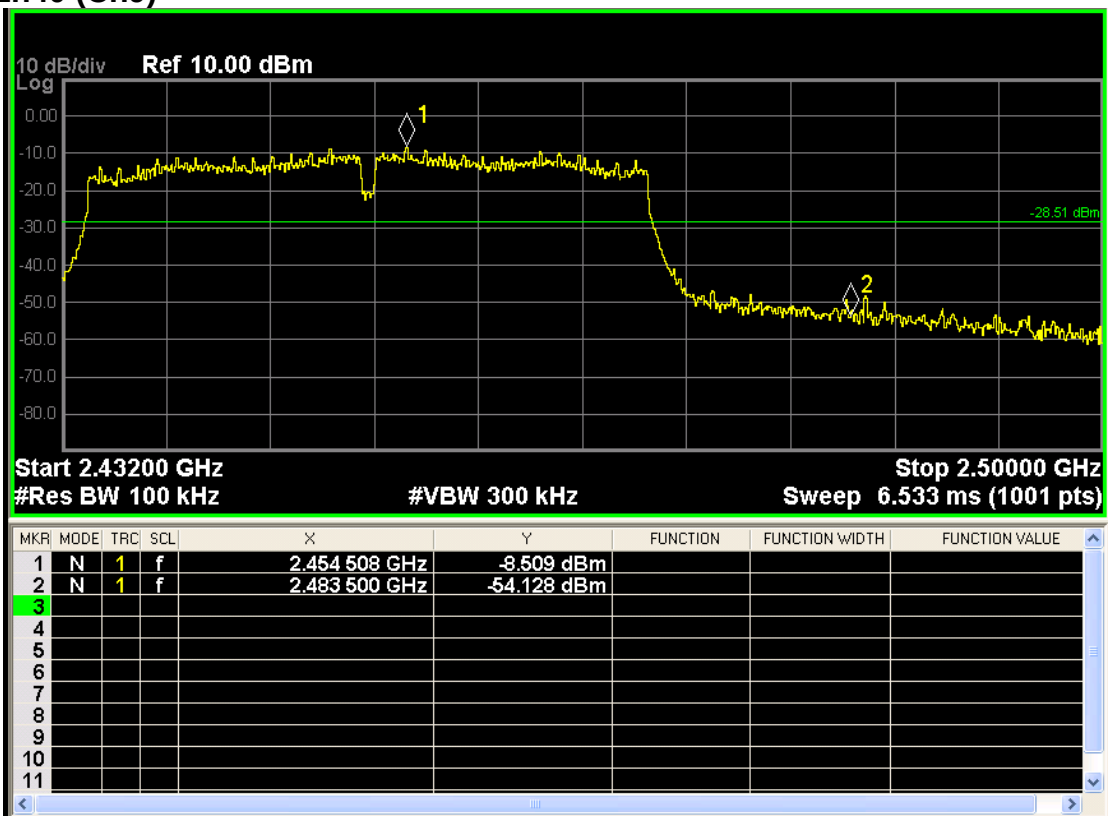
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.463 25 GHz	-6.015 dBm			
2	N	1	f	2.483 50 GHz	-55.118 dBm			
3								
4								
5								
6								
7								
8								
9								
10								
11								

802.11n40 (Ch3)



MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.424 58 GHz	-9.080 dBm			
2	N	1	f	2.390 00 GHz	-51.862 dBm			
3	N	1	f	2.398 18 GHz	-45.048 dBm			
4								
5								
6								
7								
8								
9								
10								
11								

802.11n40 (Ch9)

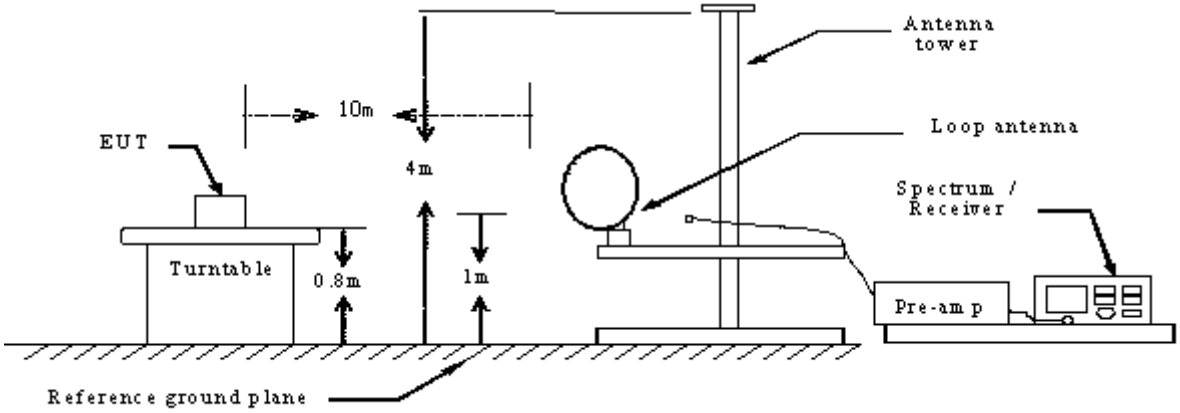


MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.454 508 GHz	-8.509 dBm			
2	N	1	f	2.483 500 GHz	-54.128 dBm			
3								
4								
5								
6								
7								
8								
9								
10								
11								

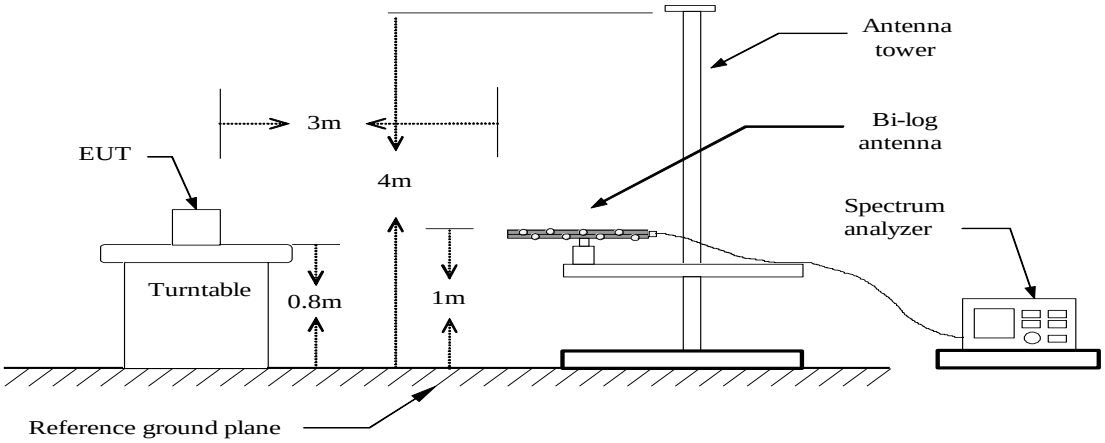
10. SPURIOUS EMISSIONS (RADIATION)

10.1 TEST SETUP

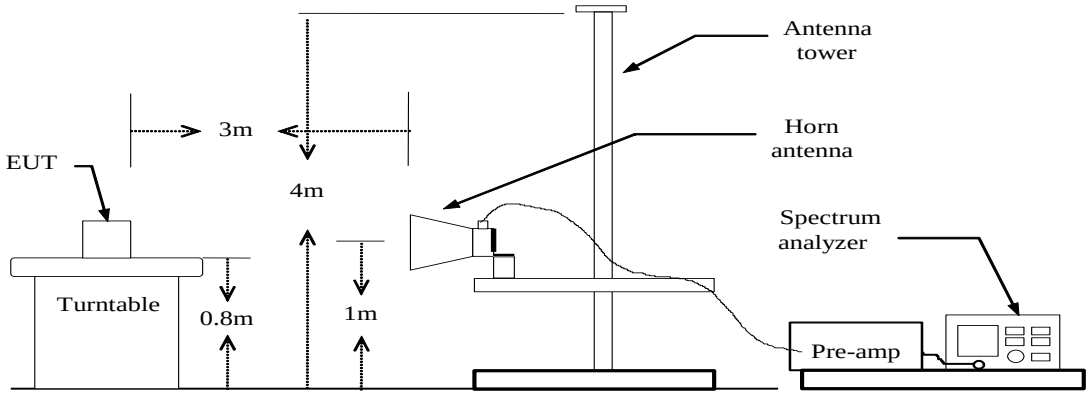
Radiated Spurious Measurement: below 30MHz



Radiated Spurious Measurement: below 1GHz



Radiated Spurious Measurement: above 1GHz



10.2 LIMITS

Frequency (MHz)	Limits (uV/m)	Limits(dBuV/m) At 3m	Measured Distance (m)
0.009-0.490	2400/F(KHz)	128.5-93.80	300
0.490-1.705	24000/F(KHz)	73.80-63.00	30
1.705-30.0	30	69.5	30
30~88	100	40	3
88~216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

Notes: the calculate formula for below 30MHz
L2 = 20lg (L1) + 40lg (d1/d2)
L2: is the specified limit in dB microvolts per metre at distance d2.
L1: is the specified limit in microvolts per metre at distance d1.
For example:
L1 = 2400/9 (μV/m), d1 = 300 (m), d2 = 3 (m), so L2 as follows:
20lg（2400/9）+40lg(300/3) = 128.5(dBμV/m)

10.3 TEST PROCEDURE

Radiated Emission (9 kHz – 30 MHz) :
Spurious emissions from the EUT are measured in the frequency range of 9 kHz to 30 MHz using a tuned receiver and a shielded loop antenna. The antenna was positioned 3 meters horizontally from the EUT. The RBW of the spectrum analyzer is set to 200Hz(measured frequency range was 9KHz~150KHz) or 9KHz(measured frequency range was 150KHz~30MHz).Measurements have been made in all three orthogonal axes and the shielded loop antenna was rotated to locate the maximum of the emissions. The emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz (these two bands employing a average detector).

Radiated Emission (30 MHz – 1000 MHz):
According to description of ANSI C63.4: 2009 sec.13.4, the preliminary radiated emissions measurement were carried out. The preliminary radiated measurements were performed at the measurement distance that specified for compliance to determine the emission characteristics of the EUT. The EUT configuration (in X, Y and Z axis), cable configuration and mode of operation were determined for producing the maximum level of emissions. These configurations were used for the final radiated emissions measurements. The measurement is carried out using a spectrum analyzer or receiver. The Quasi-peak detector is used and RBW is set to 120kHz.The antenna height and turn table rotation is adjusted until the maximum power value is founded on spectrum analyzer or receiver.

Radiated Emission (Above 1 GHz):

According to description of ANSI C63.4: 2009 sec.13.4, the preliminary radiated emissions measurement were carried out. The preliminary radiated measurements were performed at the measurement distance that specified for compliance to determine the emission characteristics of the EUT. The EUT configuration (in X, Y and Z axis), cable configuration and mode of operation were determined for producing the maximum level of emissions. These configurations were used for the final radiated emissions measurements. The measurement is carried out using a spectrum analyzer or receiver. The spectrum analyzer scans from 1GHz to 25GHz (higher than the 10^{th} harmonic of the carrier). The peak detector is used for Peak limit and RBW is set to 1MHz ,VBW ≥ 3RBW. The peak detector is used for Average limit and RBW is set to 1MHz ,VBW is not smaller than 1/T, T = to the shortest pulse width. The antenna height and turn table rotation is adjusted until the maximum power value is founded on spectrum analyzer or receiver.

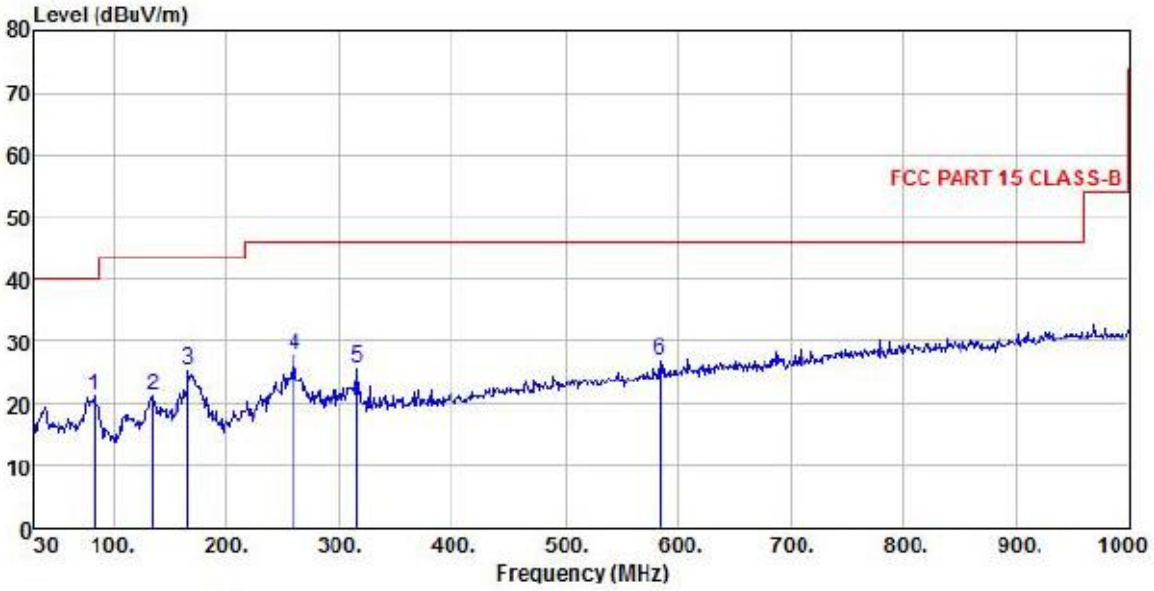
10.4 RESULTS & PERFORMANCE

From 9KHz to 30MHz:

The test data was 20dB lower than the permissible limit was not recorded in the report.
802.11b, traffic mode; Channel 1

From 30MHz to 1GHz:

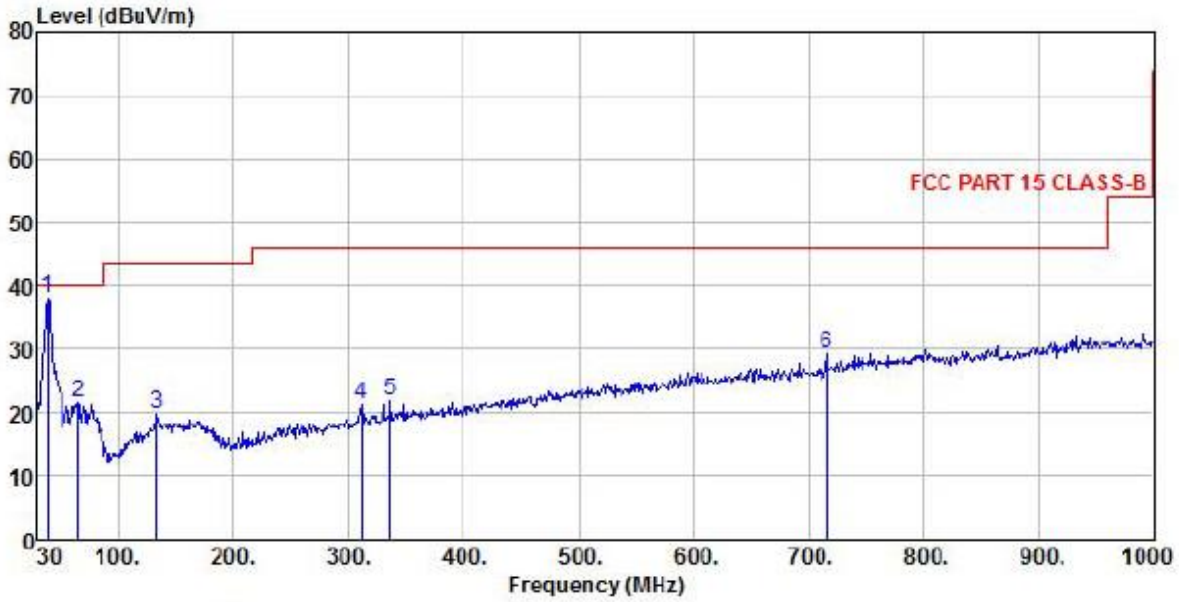
802.11b Ch1 Polarity: Horizontal



Site : chamber
Condition : FCC PART 15 CLASS-B 3m VULB9160 HORIZONTAL
EUT :
Model Name : MX-5060
Temp/Humi : 23.1 ℃ / 59 %
Power Rating: AC 220V
Mode : 802.11b CH1
Memo :

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	82.38	11.34	8.73	1.09	0.00	21.16	40.00	-18.84	Peak
2	134.76	6.62	13.07	1.62	0.00	21.31	43.50	-22.19	Peak
3 pp	165.80	10.18	13.55	1.77	0.00	25.50	43.50	-18.00	Peak
4	259.89	13.42	12.13	2.18	0.00	27.73	46.00	-18.27	Peak
5	315.18	9.70	13.56	2.52	0.00	25.78	46.00	-20.22	Peak
6	584.84	4.84	18.73	3.29	0.00	26.86	46.00	-19.14	Peak

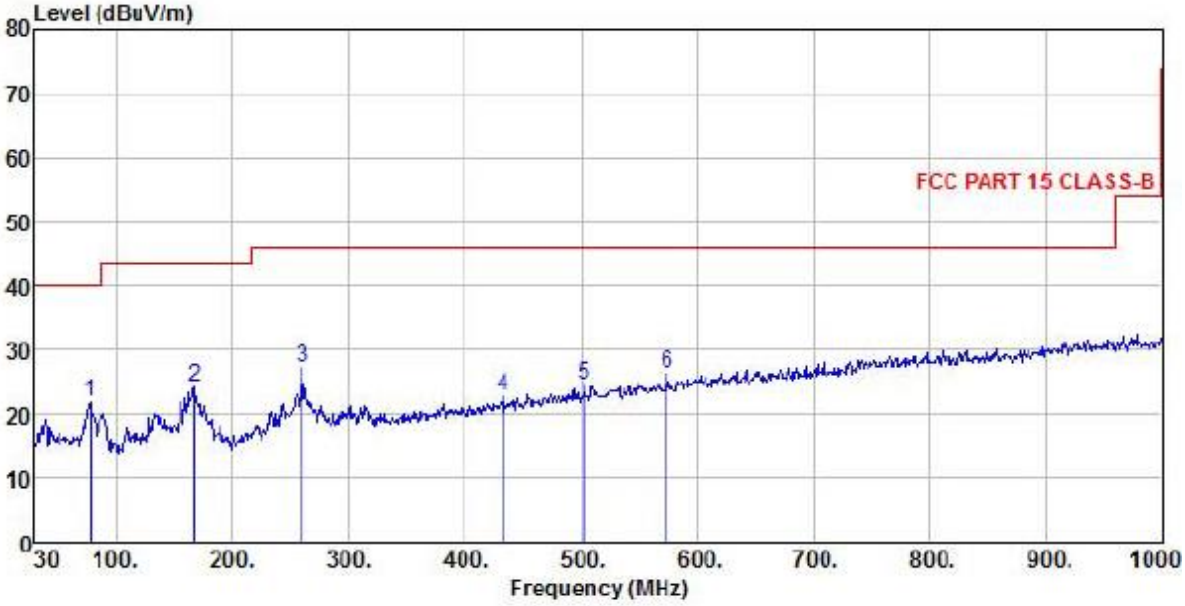
802.11b Ch1 Polarity: Vertical



Site : chamber
Condition : FCC PART 15 CLASS-B 3m VULB9160 VERTICAL
EUT :
Model Name : MX-5060
Temp/Humi : 23.1 ℃ / 59 %
Power Rating: AC 220V
Mode : 802.11b CH1
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1 pp	38.73	24.59	12.61	0.81	0.00	38.01	40.00	-1.99	Peak
2	64.92	8.07	12.34	1.08	0.00	21.49	40.00	-18.51	Peak
3	133.79	5.12	12.92	1.61	0.00	19.65	43.50	-23.85	Peak
4	311.30	5.20	13.47	2.51	0.00	21.18	46.00	-24.82	Peak
5	336.52	5.15	14.05	2.50	0.00	21.70	46.00	-24.30	Peak
6	715.79	5.07	20.45	3.66	0.00	29.18	46.00	-16.82	Peak

802.11b Ch6 Polarity: Horizontal



Site : chamber
Condition : FCC PART 15 CLASS-B 3m VULB9160 HORIZONTAL
EUT :
Model Name : MX-5060
Temp/Humi : 23.1 ℃ / 59 %
Power Rating: AC 220V
Mode : 802.11b CH6
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1 pp	77.53	11.56	9.14	1.10	0.00	21.80	40.00	-18.20	Peak
2	167.74	8.86	13.44	1.81	0.00	24.11	43.50	-19.39	Peak
3	259.89	12.73	12.13	2.18	0.00	27.04	46.00	-18.96	Peak
4	432.55	4.03	16.01	2.80	0.00	22.84	46.00	-23.16	Peak
5	502.39	4.48	17.09	3.05	0.00	24.62	46.00	-21.38	Peak
6	574.17	4.48	18.49	3.23	0.00	26.20	46.00	-19.80	Peak