



RF TEST REPORT

Report No.: SET2016-10329

Product Name: ZTE 4G Wireless Router

FCC ID: SRQ-MF253V

Model No. : MF253V

Applicant: ZTE Corporation

Address: ZTE Plaza, Keji Road South, Shenzhen, China

Dates of Testing: 09/23/2016 — 03/25/2017

Issued by: CCIC-SET

Lab Location: Building 28/29, East of Shigu, Xili Industrial Zone, Xili Road,
Nanshan District, Shenzhen, Guangdong, China

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Test Report

Product Name : ZTE 4G Wireless Router

Brand Name : ZTE

Trade Name : ZTE

Applicant : ZTE Corporation

Applicant Address : ZTE Plaza, Keji Road South, Shenzhen, China

Manufacturer : ZTE Corporation

Manufacturer Address : ZTE Plaza, Keji Road South, Shenzhen, China

Test Standards : 47 CFR Part 15 Subpart C:Radio Frequency Devices
ANSI C63.10 2013:American National Standard for
Testing Unlicensed Wireless Devices
KDB558074 D01 v03r05

Test Result : PASS

Tested by :

2017.03.26

Lu Lei, Test Engineer

Reviewed by :

2017.03.26

Zhu Qi, Senior Engineer

Approved by :

2017.03.26

Wu Li'an, Manager

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Change History		
Issue	Date	Reason for change
1.0	2017.03.26	First edition

1. General Information

1.1. EUT Description

EUT Type	ZTE 4G Wireless Router
Hardware Version	djjA
Software Version	EN_ZTE_MF253VV1.0.0B03
EUT supports Radios application	WLAN2.4GHz 802.11b/g/n (HT20/HT40)
Modulation technology	DSSS, OFDM
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Transfer Rate	802.11b: 11/5.5/2/1 Mbps 802.11g: 54/48/36/24/18/12/9/6 Mbps 802.11n: up to 300 Mbps
Frequency Range	802.11b, 802.11g, 802.11n(20MHz): 2412~2462MHz 802.11n(40MHz): 2422~2452MHz
Channel Number	802.11b/g/n-20MHz: 11 802.11n-40MHz: 7
Antenna Type	Internal Antenna
Antenna Gain	Antenna(1): 2.96dBi ; Antenna(2): 2.99dBi
Product Type	Refer to note
Output Power (Max.)	802.11b: 26.14dBm 802.11g: 26.52dBm 802.11n(20MHz): 25.49dBm 802.11n(40MHz): 24.11dBm

Note1: The EUT incorporates a MIMO function. Physically, the EUT provides 2 completed transmitters and 2 receivers for 2.4GHz WLAN.

Note 2: The EUT was programmed to be in continuously transmitting mode via the software and the transmit duty cycle is not less than 98%.

Frequency	Modulation Mode	TX / RX Function
2.4GHz	802.11b	1TX / 1RX
	802.11g	1TX / 1RX
	802.11n (HT20)	1TX / 1RX or 2TX / 2RX
	802.11n (HT40)	1TX / 1RX or 2TX / 2RX

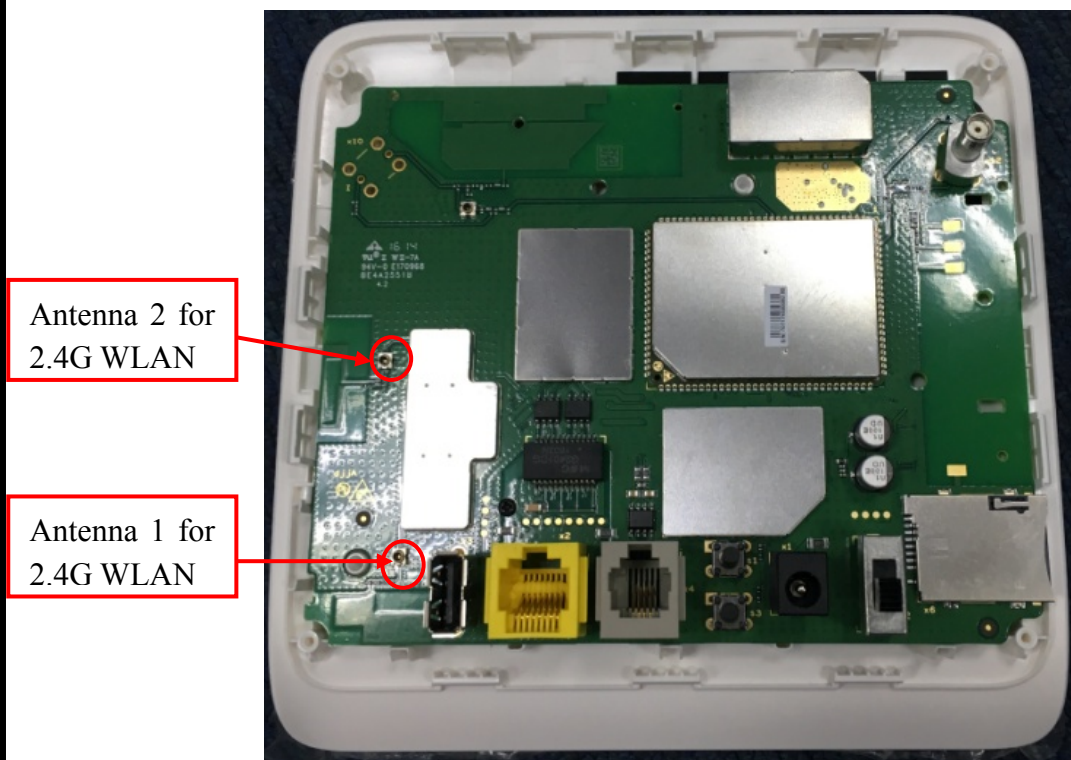
WLAN 2.4GHz

11 channels are provided for 802.11b, 802.11g, and 802.11n (20MHz)

Channel	Frequency(MHz)	Channel	Frequency(MHz)
1	2412	7	2442
2	2417	8	2447
3	2422	9	2452
4	2427	10	2457
5	2432	11	2462
6	2437		
7	2442		

7 channels are provided for 802.11n (40MHz)

Channel	Frequency(MHz)	Channel	Frequency(MHz)
3	2422	8	2447
4	2427	9	2452
5	2432	10	2457
6	2437	11	2462
7	2442		



1.2. Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 15 Subpart C (Bluetooth, 2.4GHz ISM band radiators) for the EUT FCC Certification:

No.	Identity	Document Title
1	47 CFR Part 15 Subpart C 2013	Radio Frequency Devices
2	ANSI C63.10 2013	American National Standard for Testing Unlicensed Wireless Devices

Test detailed items/section required by FCC rules and results are as below:

No.	Section in CFR 47	Description	Result
1	15.203	Antenna Requirement	PASS
2	15.247(b)	Peak Output Power	PASS
3	15.247(a)	6dB Bandwidth	PASS
4	15.247(d)	Conducted Band Edges and Spurious Emission	PASS
5	15.247(e)	Power spectral density (PSD)	PASS
6	15.207	Conducted Emission	PASS
7	15.209 15.247(d)	Radiated Band Edges and Spurious Emission	PASS

The tests of Conducted Emission and Radiated Emission were performed according to the method of measurements prescribed in ANSI C63.10-2013.

These RF tests were performed according to the method of measurements prescribed in KDB558074 D01 v03r05.

Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

1.3. Test environment and mode

Operating Environment	
Temperature	24°C
Humidity	57 % RH
Atmospheric Pressure	1010 mbar
Test mode:	
Continuously transmitting mode	Keeps the EUT in 100% duty cycle transmitting with modulation in SISO and MIMO mode, duty cycle factor is not required.

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Test Items	Mode	Data Rate	Channel
Peak Conducted Output Power Power Spectral Density 6dB Bandwidth Conducted and Spurious Emission Radiated and Spurious Emission	11b/DSSS	1 Mbps	1/6/11
	11g/OFDM	6 Mbps	1/6/11
	11n(20MHz)/OFDM	MCS 0	1/6/11
	11n(40MHz)/OFDM	MCS 0	3/6/9
Band Edge	11b/DSSS	1 Mbps	1/11
	11g/OFDM	6 Mbps	1/11
	11n(20MHz)/OFDM	MCS 0	1/11
	11n(40MHz)/OFDM	MCS 0	3/9

1.4. Table for Supporting Units

No.	Equipment	Brand Name	Model Name	Manufacturer	Serial No.	Note
1	Notebook	DELL	PP11L	DELL	H5914A03	FCC DOC

1.5. Laboratory Facilities

CNAS-Lab Code: L1659

CCIC Southern Electronic Product Testing (Shenzhen) Co., Ltd. CCIC is a third party testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L1659. A 12.8*6.8*6.4 (m) fully anechoic chamber was used for the radiated spurious emissions test.

FCC-Registration No.: 406086

CCIC Southern Electronic Product Testing (Shenzhen) 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. Registration 406086, valid time is until October 28, 2017.

IC-Registration No.: 11185A-1

CCIC Southern Electronic Product Testing (Shenzhen) Co., Ltd. EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 11185A-1 on Aug. 04, 2016, valid time is until Aug. 03, 2019.

2. 47 CFR Part 15C Requirements

2.1. Antenna requirement

2.1.1. Applicable Standard

According to FCC 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.

And according to FCC 47 CFR Section 15.247(c), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

2.1.2. Antenna Information

Antenna Category: internal antenna

An internal antenna was soldered to the antenna port of EUT via an adaptor cable, can't be removed.

Antenna General Information:

Antenna	EUT	Ant. Type	Gain(dBi)	1+2 Gain(dBi)
1	GPON SFU	Linear Vertical	2.96	2.98 _{note}
2	GPON SFU	Linear Vertical	2.99	

Note: According to KDB 662911, all transmit signals are completely uncorrelated with each other.

Directional gain = G_{ANT}

2.1.3. Result: comply

The EUT has a permanently and irreplaceable attached antenna. Please refer to the EUT internal photos.

2.2. Peak Output Power

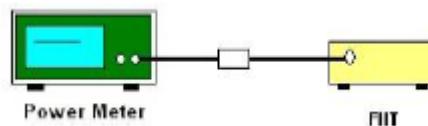
2.2.1. Limit of Peak Output Power

For systems using digital modulation in the 2400-2483.5MHz, the limit for peak output power is 30dBm. If transmitting antenna of directional gain greater than 6dBi is used, the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

2.2.2. Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

2.2.3. Test Setup



2.2.4. Test Procedures

1. The testing follows the Measurement Procedure of FCC KDB 558074 D01 v03r05.
2. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Measure the conducted output power and record the results in the test report.

2.2.5. Test Result

802.11b mode

Channel	Frequency (MHz)	Output Power(dBm)		Limits (dBm)	Result
		Ant. 1	Ant. 2		
1	2412	22.48	25.56	30	PASS
6	2437	23.11	25.14	30	PASS
11	2462	22.40	24.81	30	PASS

802.11g Test mode

Channel	Frequency (MHz)	Output Power(dBm)		Limits (dBm)	Result
		Ant. 1	Ant. 2		
1	2412	25.50	25.95	30	PASS
6	2437	26.27	26.52	30	PASS
11	2462	24.85	25.45	30	PASS

802.11n-20MHz Test mode

Channel	Frequency (MHz)	Output Power(dBm)			Limits (dBm)	Result
		Ant. 1	Ant. 2	Ant. 1+2		
1	2412	19.38	23.49	24.91	30	PASS
6	2437	20.05	24.03	25.49	30	PASS
11	2462	19.63	23.83	25.23	30	PASS

802.11n-40MHz Test mode

Channel	Frequency (MHz)	Output Power(dBm)			Limits (dBm)	Result
		Ant. 1	Ant. 2	Ant. 1+2		
3	2422	18.37	22.52	23.93	30	PASS
6	2437	18.88	22.56	24.11	30	PASS
9	2452	18.07	22.04	23.51	30	PASS

Note: All data rates are testing, but the worse case data rate was record in the report.

2.3. 6dB Bandwidth

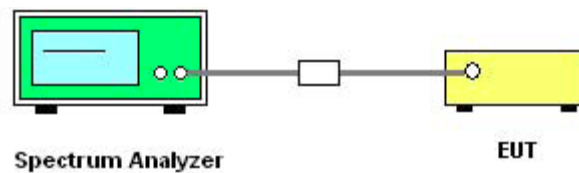
2.3.1. Limit of 6dB Bandwidth

The minimum 6 dB bandwidth shall be at least 500 kHz.

2.3.2. Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

2.3.3. Test Setup



2.3.4. Test Procedures

1. The testing follows FCC KDB558074 D01 v03r05.

2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.

3. Set to the maximum power setting and enable the EUT transmit continuously.

4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz.

Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6dB bandwidth must be greater than 500 kHz.

5. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) is set 30kHz and set the Video bandwidth (VBW) = 100kHz.

6. Measure and record the results in the test report.

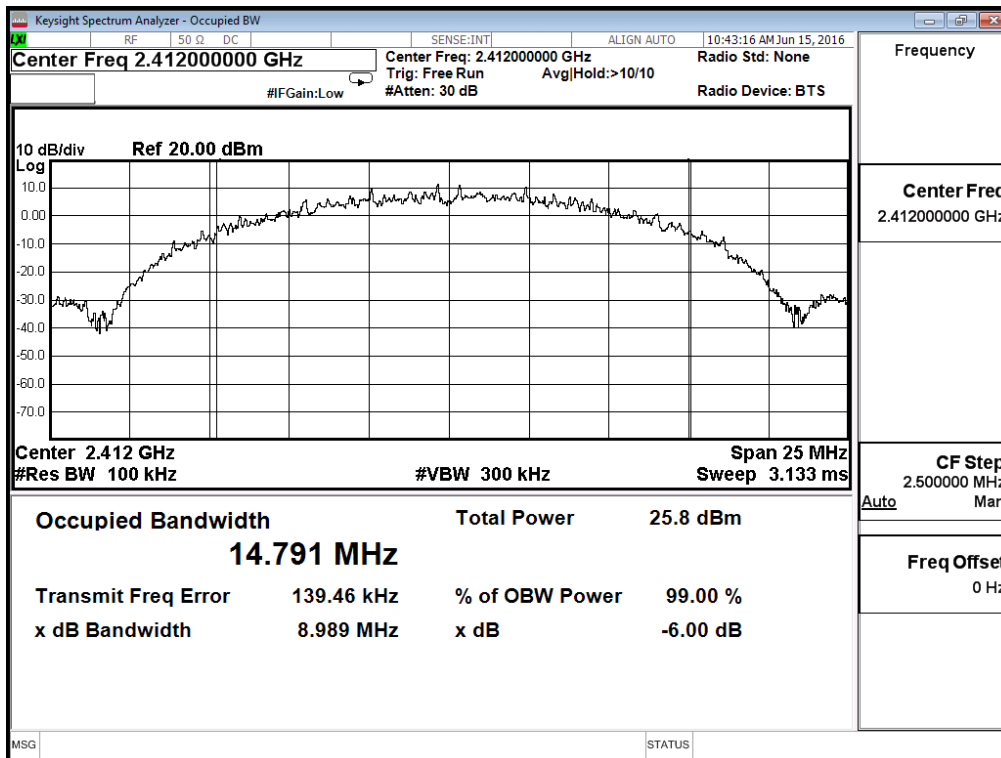
2.3.5. Test Results of 6dB Bandwidth

Antenna	Test mode	Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits (MHz)	Result
Antenna 1	802.11b	1	2412	8.99	≥ 0.5	PASS
		6	2437	9.01		PASS
		11	2462	9.04		PASS
	802.11g	1	2412	16.36		PASS
		6	2437	16.43		PASS
		11	2462	16.44		PASS
	802.11n20	1	2412	17.30		PASS
		6	2437	17.71		PASS
		11	2462	17.72		PASS
	802.11n40	3	2422	35.41		PASS
		6	2437	35.36		PASS
		9	2452	35.37		PASS

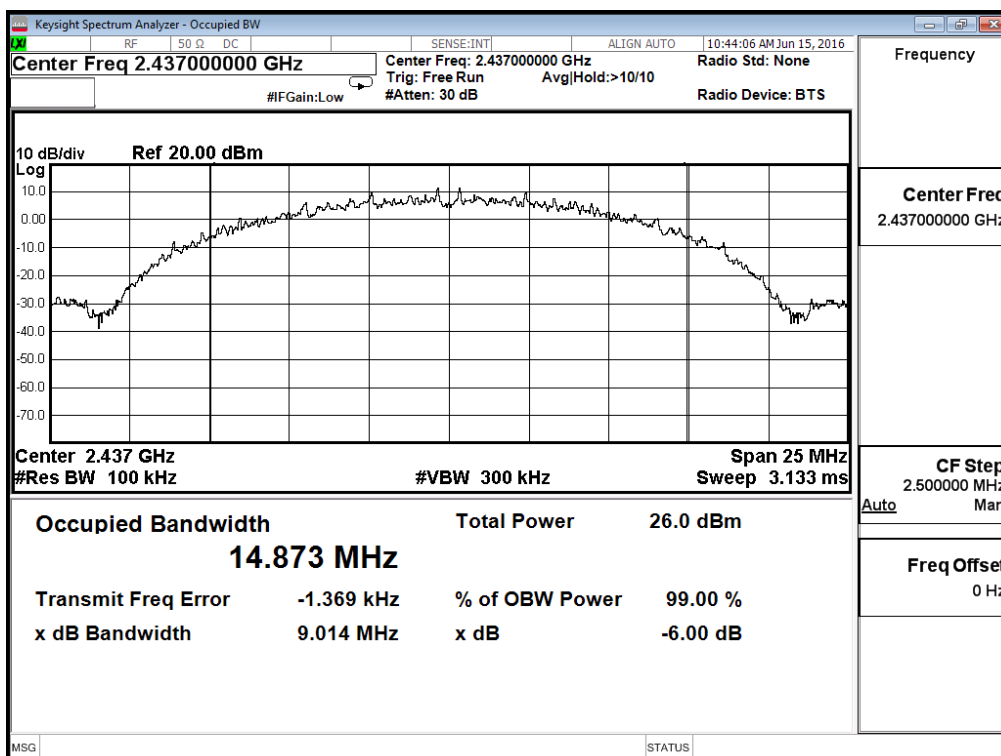
Antenna	Test mode	Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits (MHz)	Result
Antenna 2	802.11b	1	2412	9.06	≥ 0.5	PASS
		6	2437	9.07		PASS
		11	2462	9.07		PASS
	802.11g	1	2412	16.43		PASS
		6	2437	16.47		PASS
		11	2462	16.47		PASS
	802.11n20	1	2412	17.58		PASS
		6	2437	17.73		PASS
		11	2462	17.73		PASS
	802.11n40	3	2422	35.43		PASS
		6	2437	36.03		PASS
		9	2452	36.04		PASS

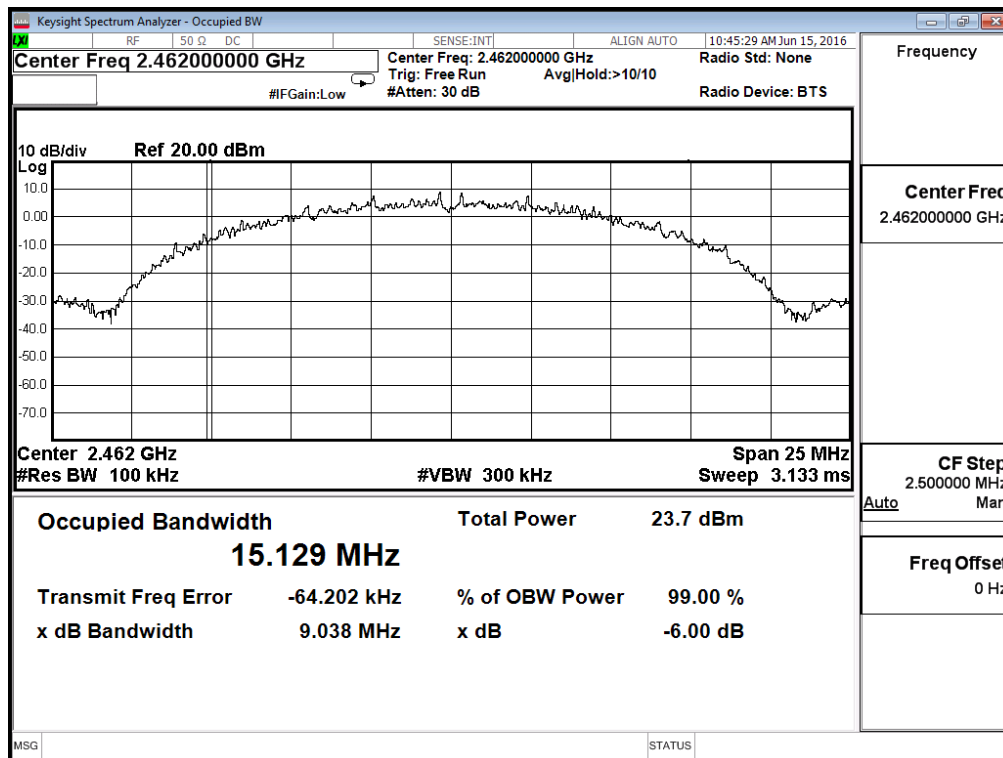
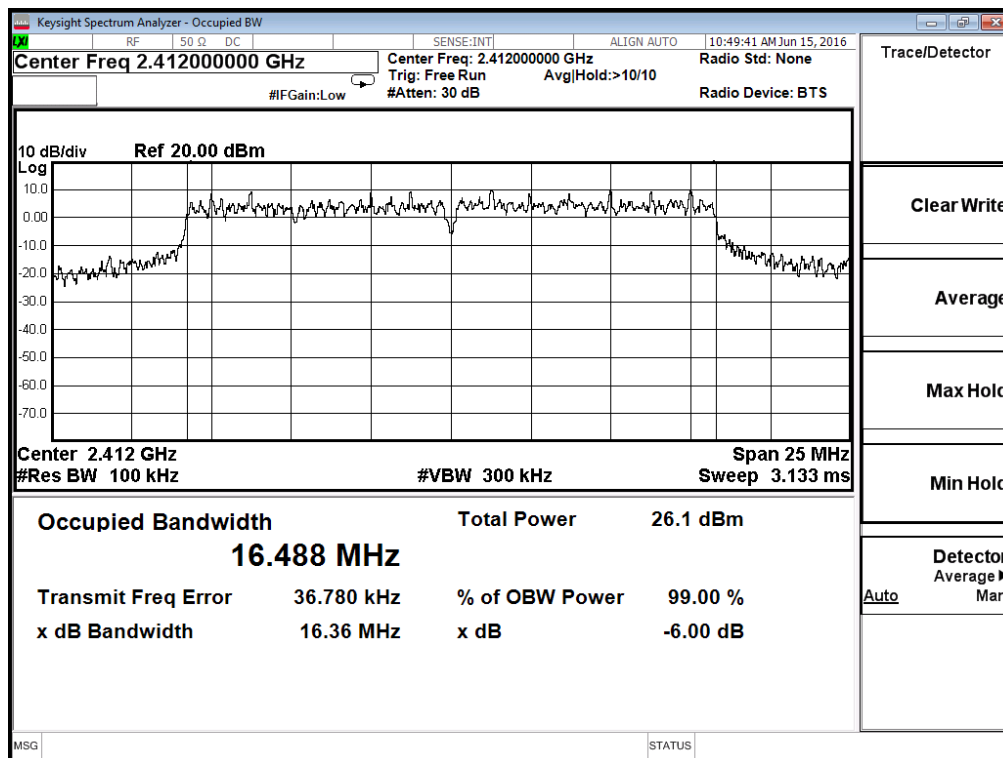
2.3.6. Test Results (plots) of 6dB Bandwidth

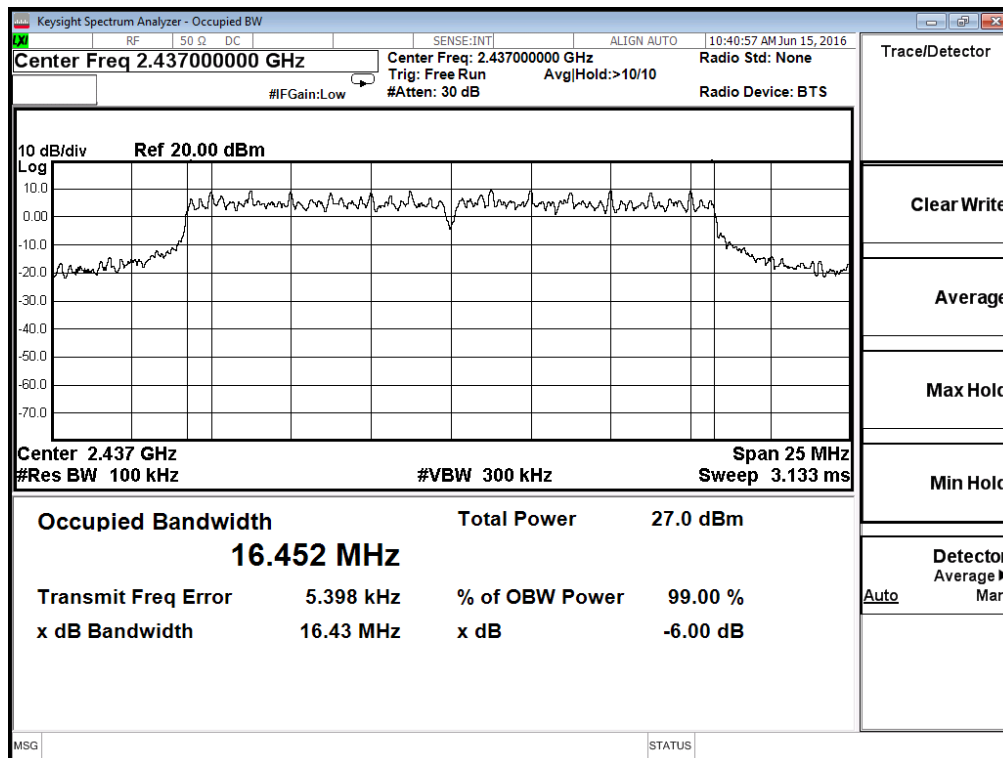
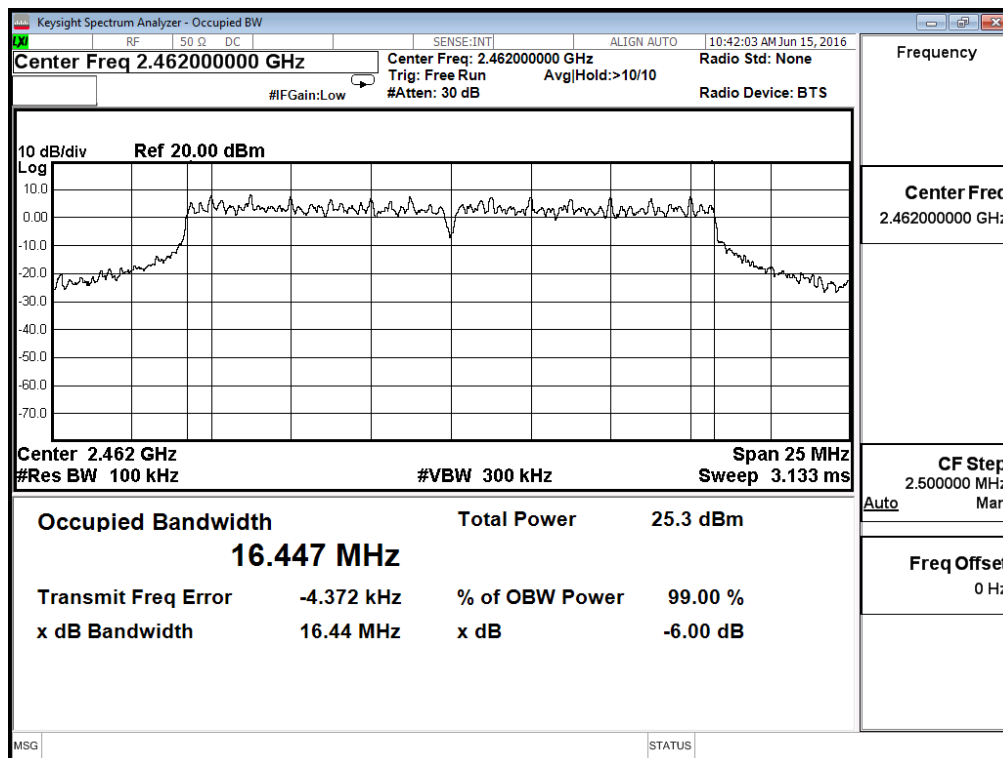
Antenna 1 - 802.11b - 6 dB Bandwidth Plot on channel 1

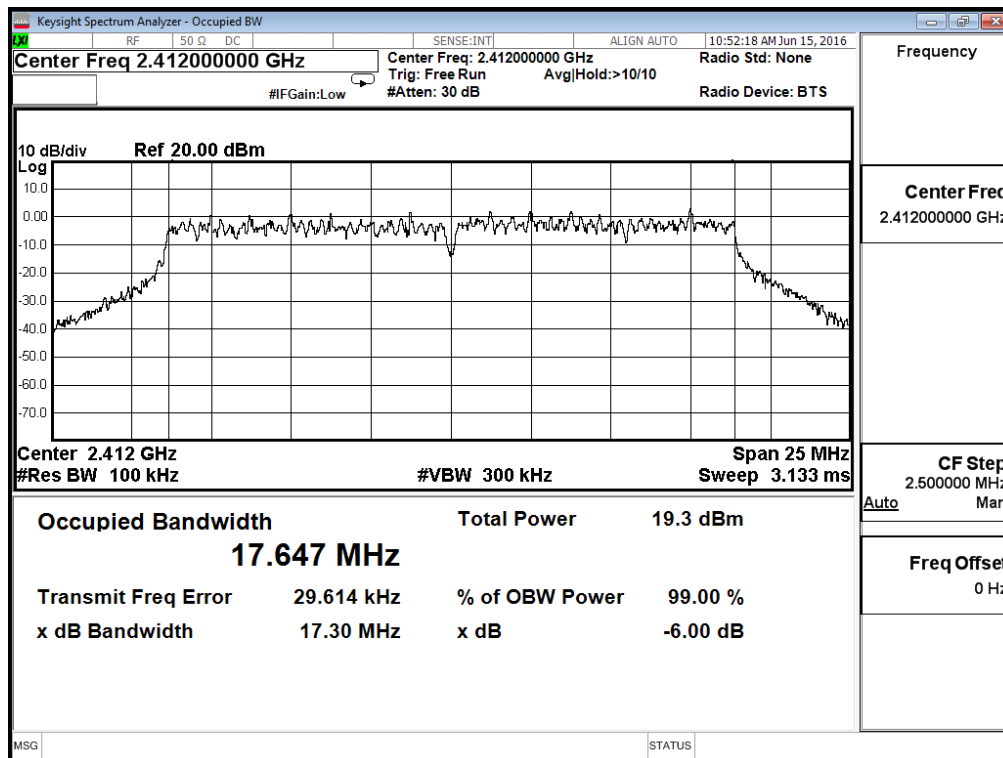
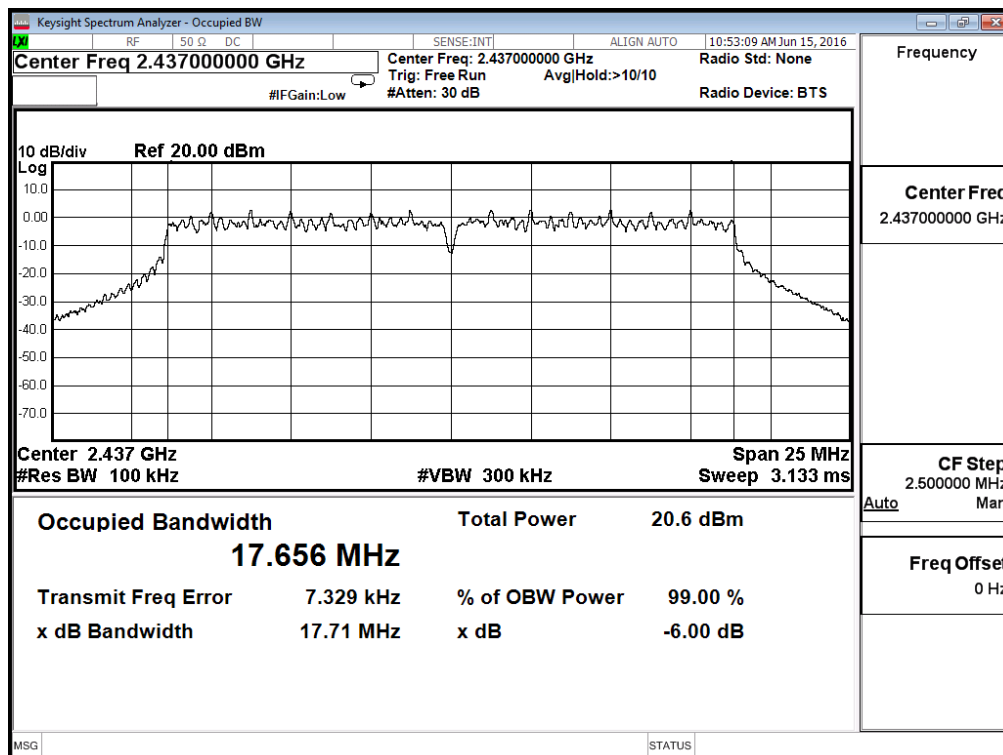


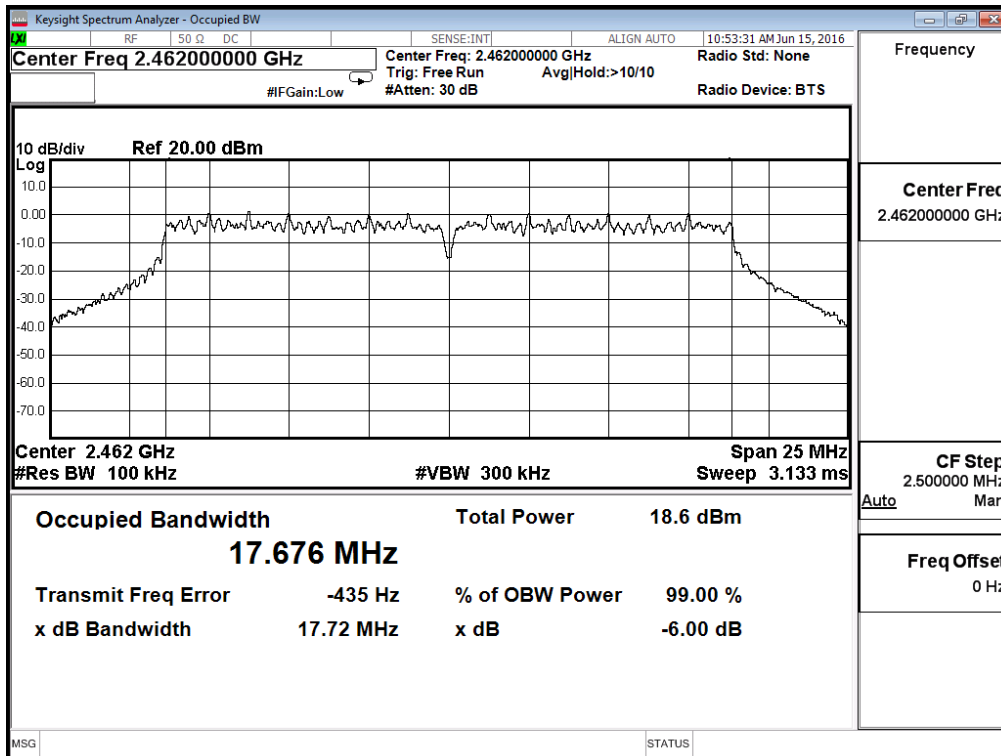
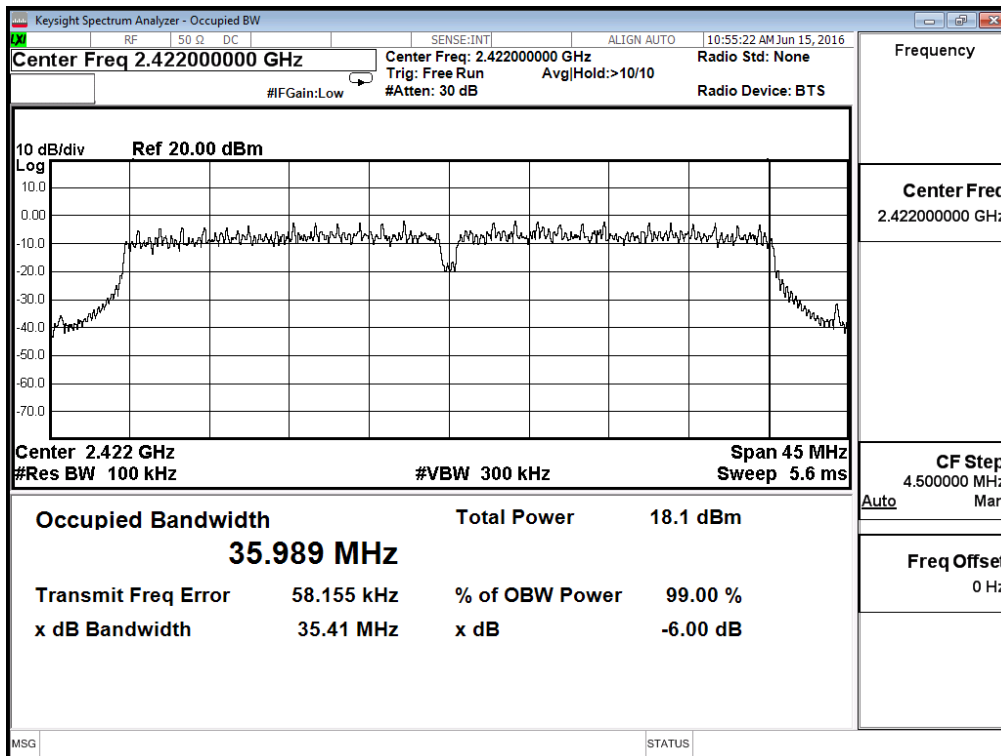
Antenna 1 - 802.11b - 6 dB Bandwidth Plot on channel 6

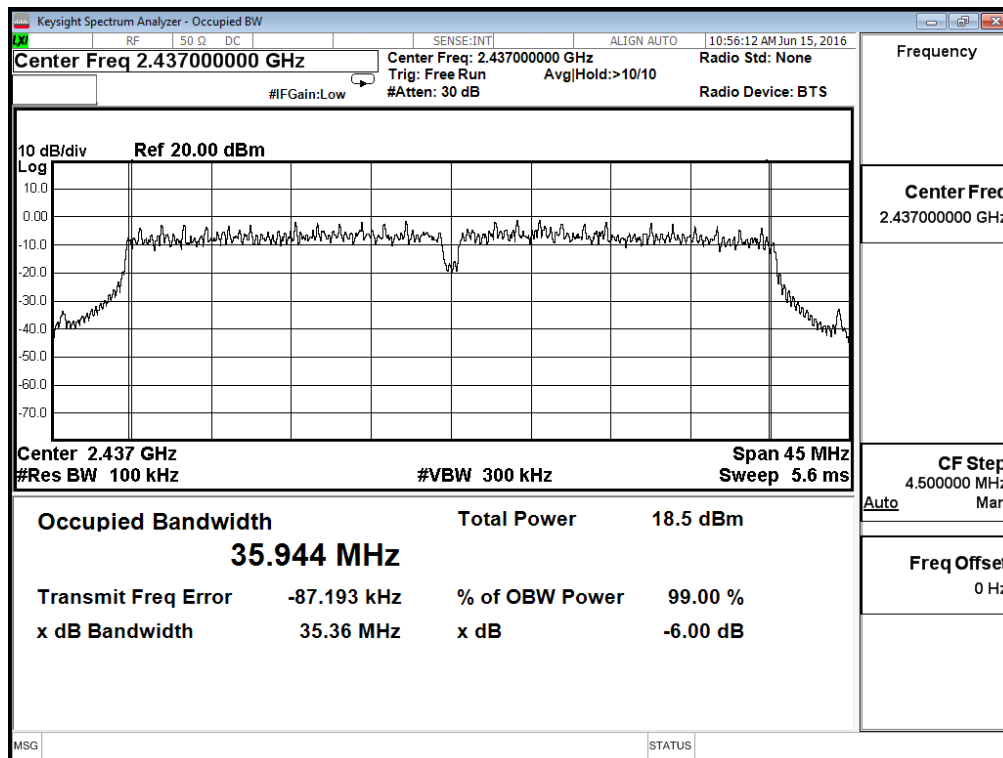
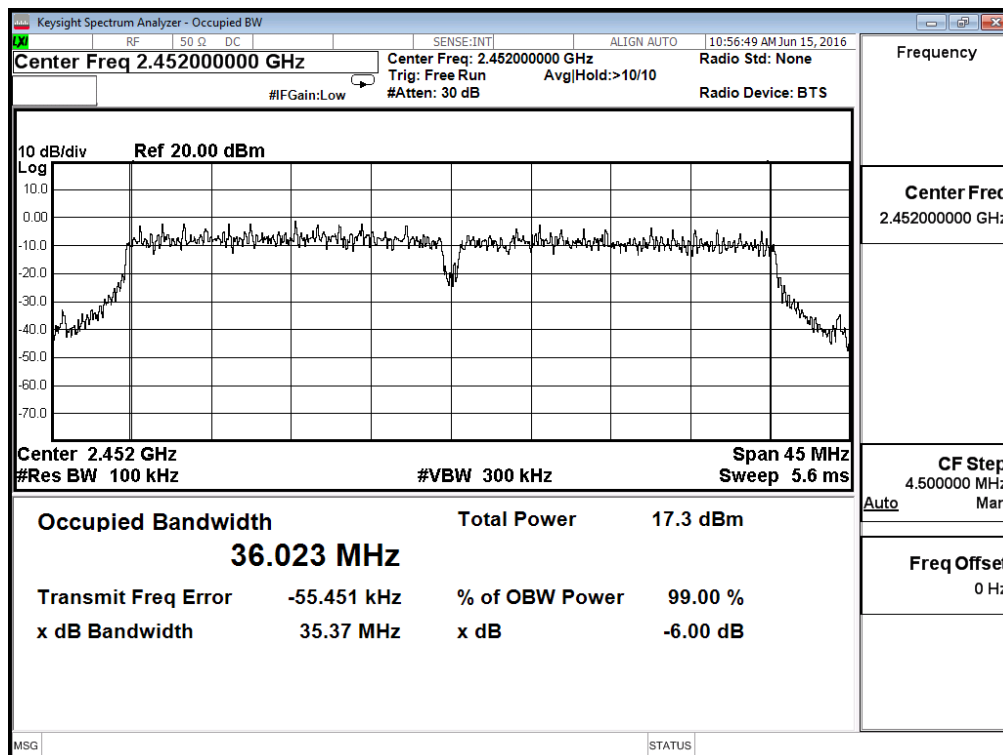


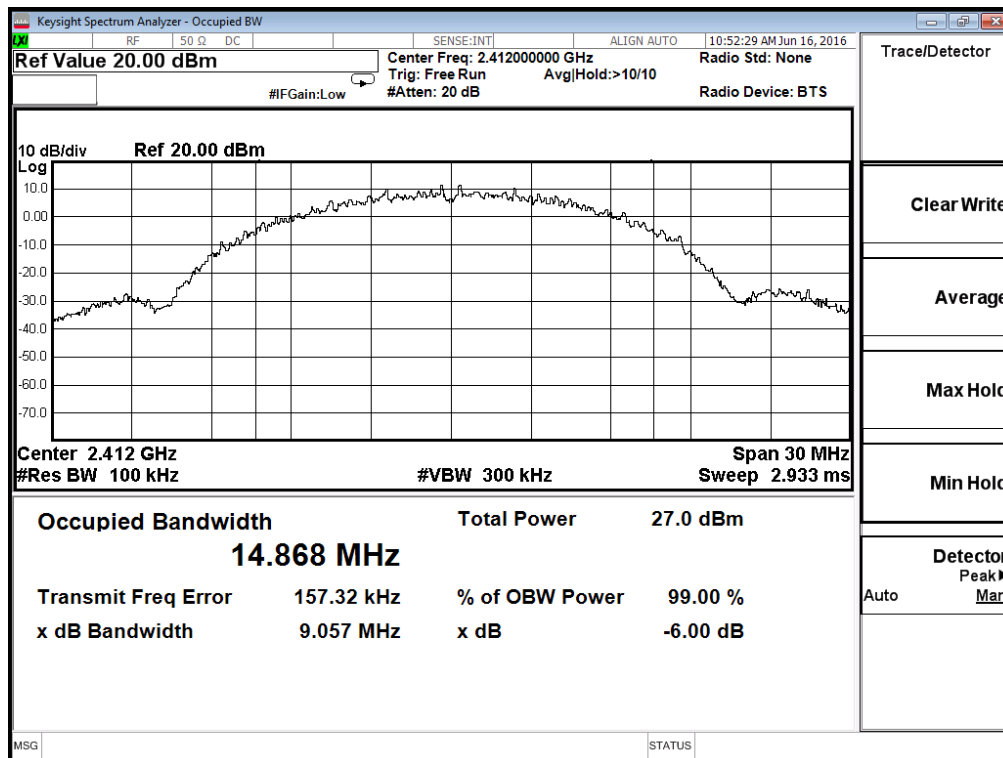
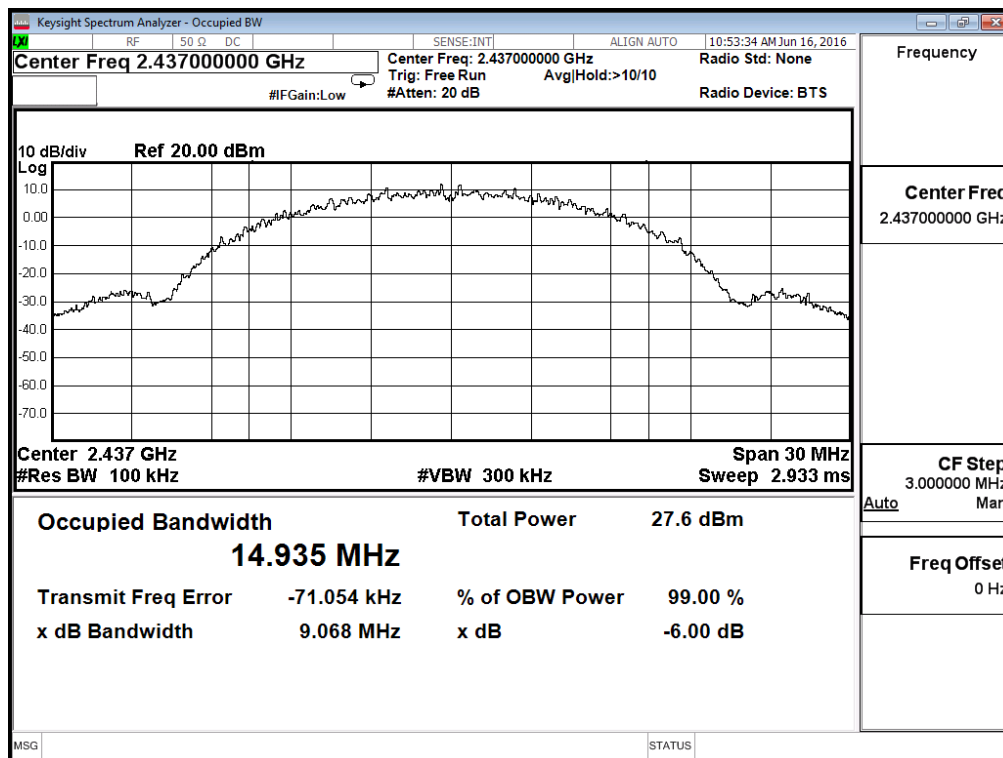
**Antenna 1 - 802.11b - 6 dB Bandwidth Plot on channel 11****Antenna 1 - 802.11g - 6 dB Bandwidth Plot on channel 1**

**Antenna 1 - 802.11g - 6 dB Bandwidth Plot on channel 6****Antenna 1 - 802.11g - 6 dB Bandwidth Plot on channel 11**

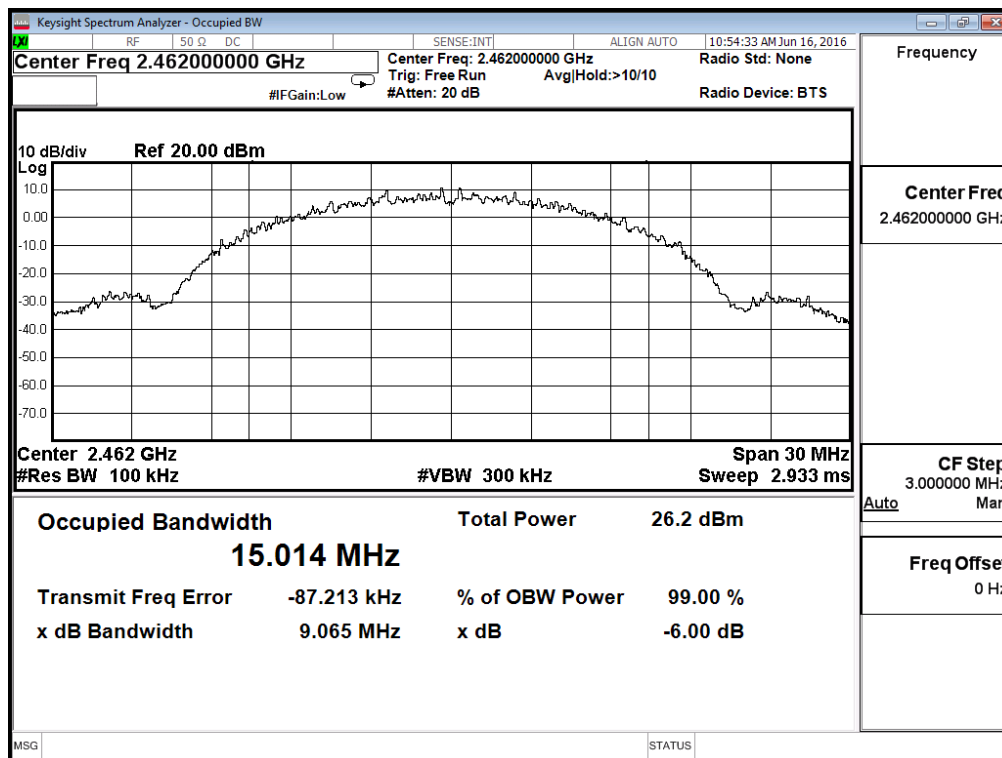
**Antenna 1 - 802.11n20 - 6 dB Bandwidth Plot on channel 1****Antenna 1 - 802.11n20 - 6 dB Bandwidth Plot on channel 6**

**Antenna 1 - 802.11n20 - 6 dB Bandwidth Plot on channel 11****Antenna 1 - 802.11n40 - 6 dB Bandwidth Plot on channel 3**

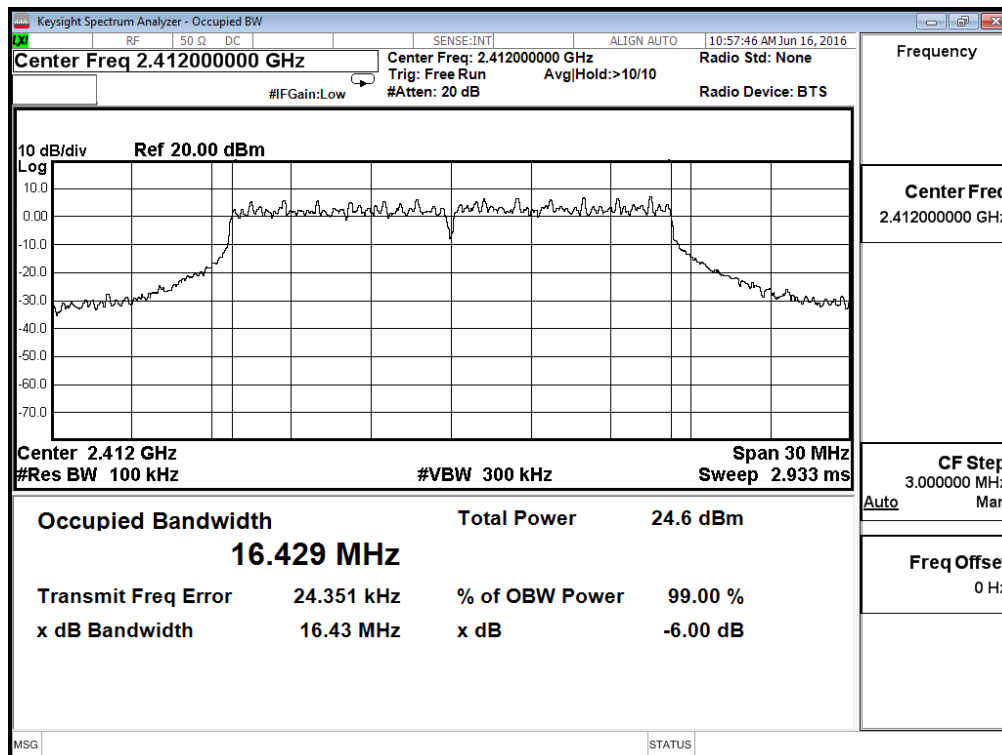
**Antenna 1 - 802.11n40 - 6 dB Bandwidth Plot on channel 6****Antenna 1 - 802.11n40 - 6 dB Bandwidth Plot on channel 9**

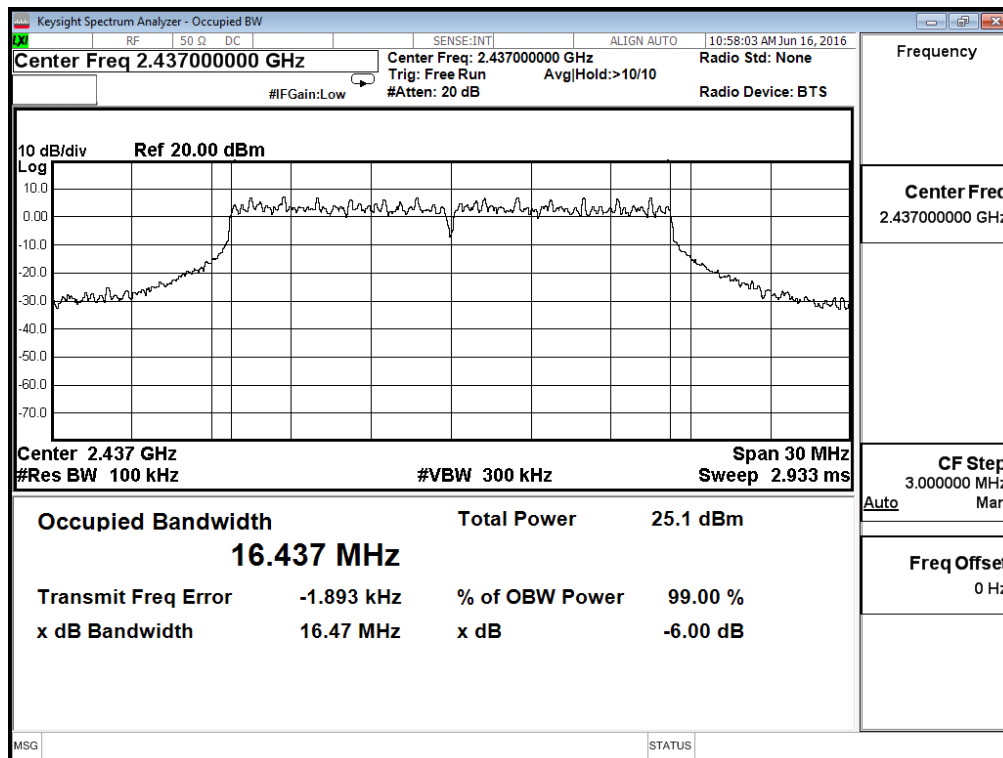
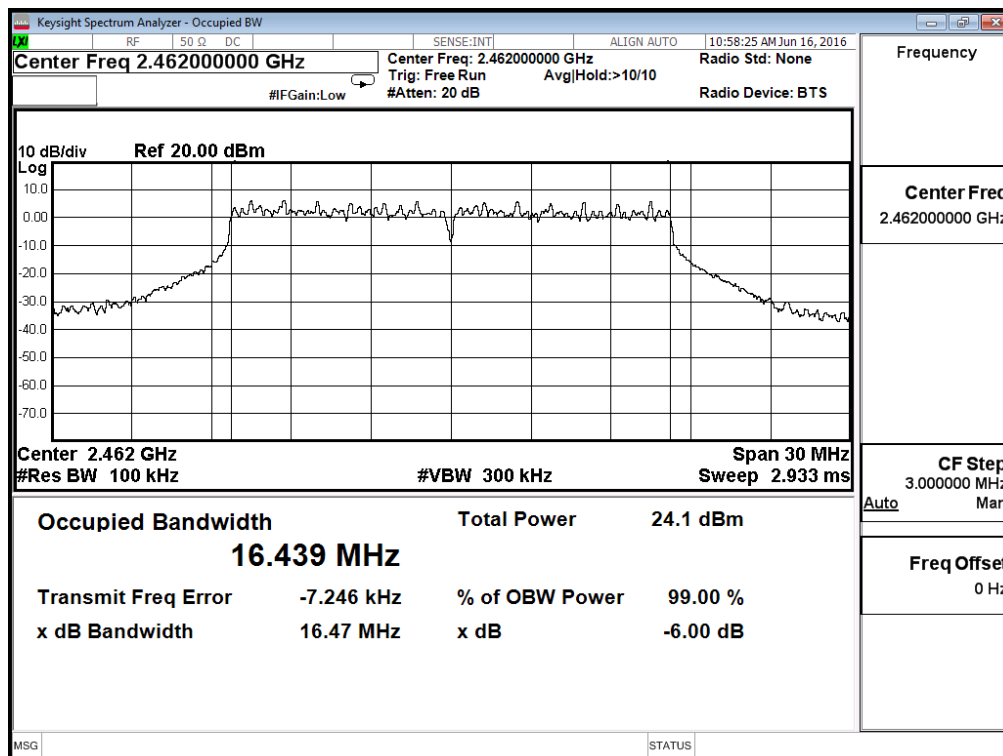
**Antenna 2 - 802.11b - 6 dB Bandwidth Plot on channel 1****Antenna 2 - 802.11b - 6 dB Bandwidth Plot on channel 6**

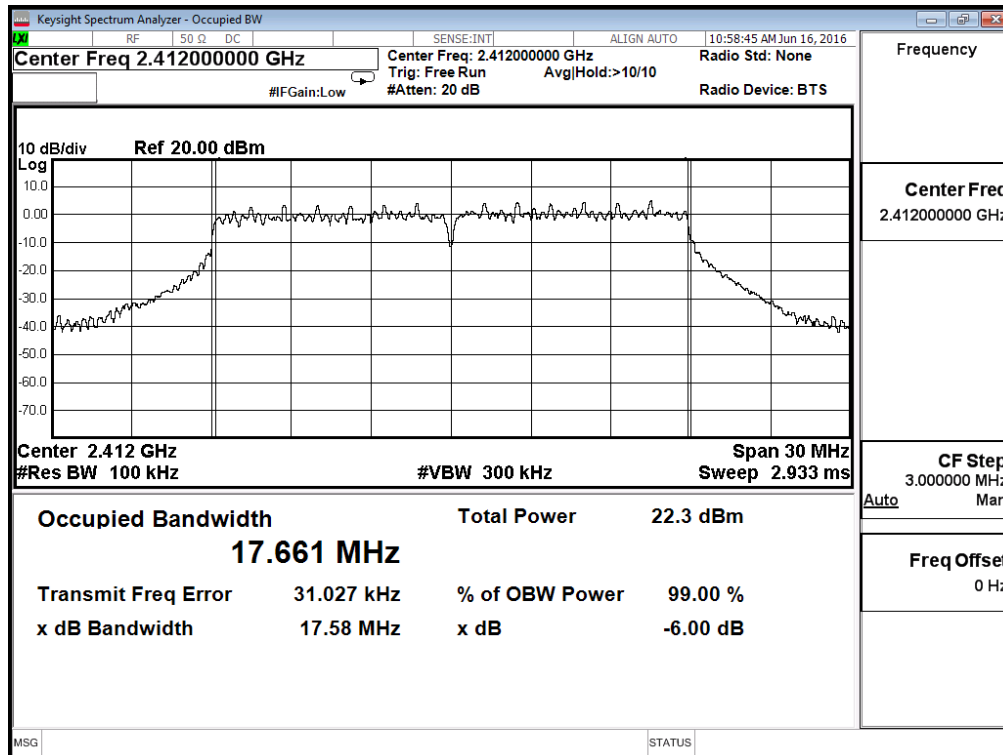
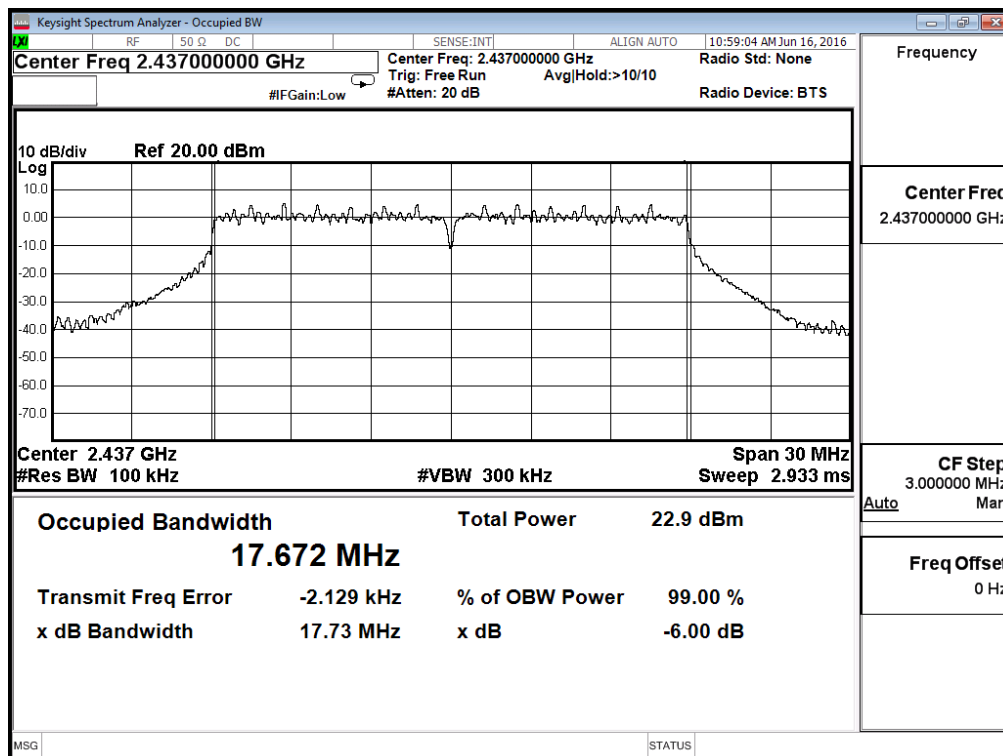
Antenna 2 - 802.11b - 6 dB Bandwidth Plot on channel 11

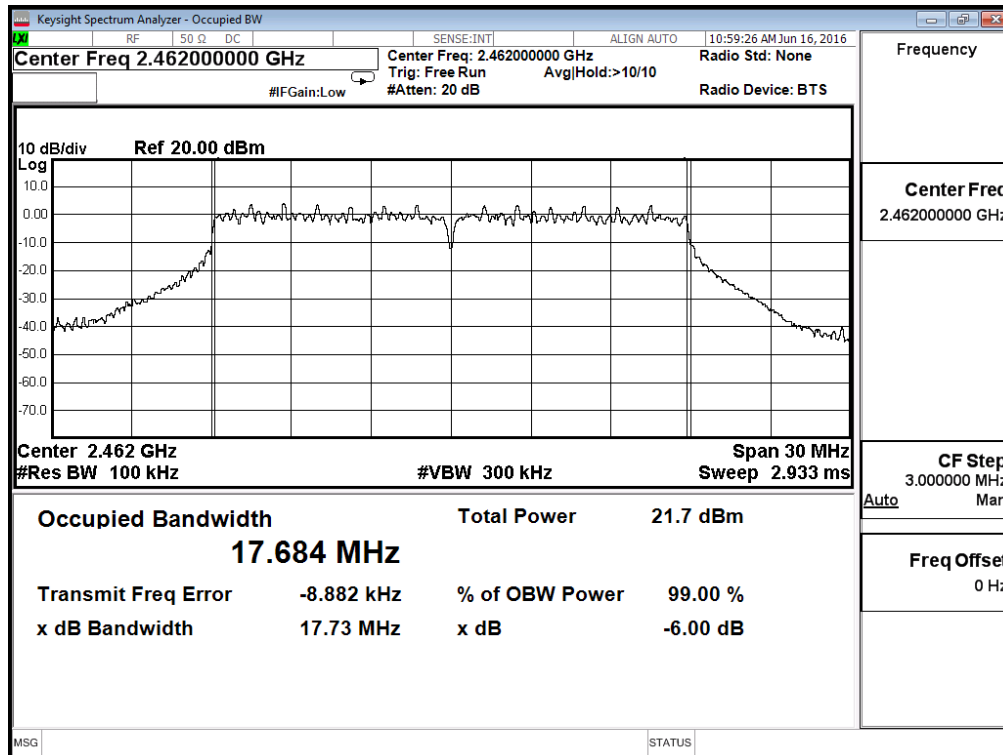
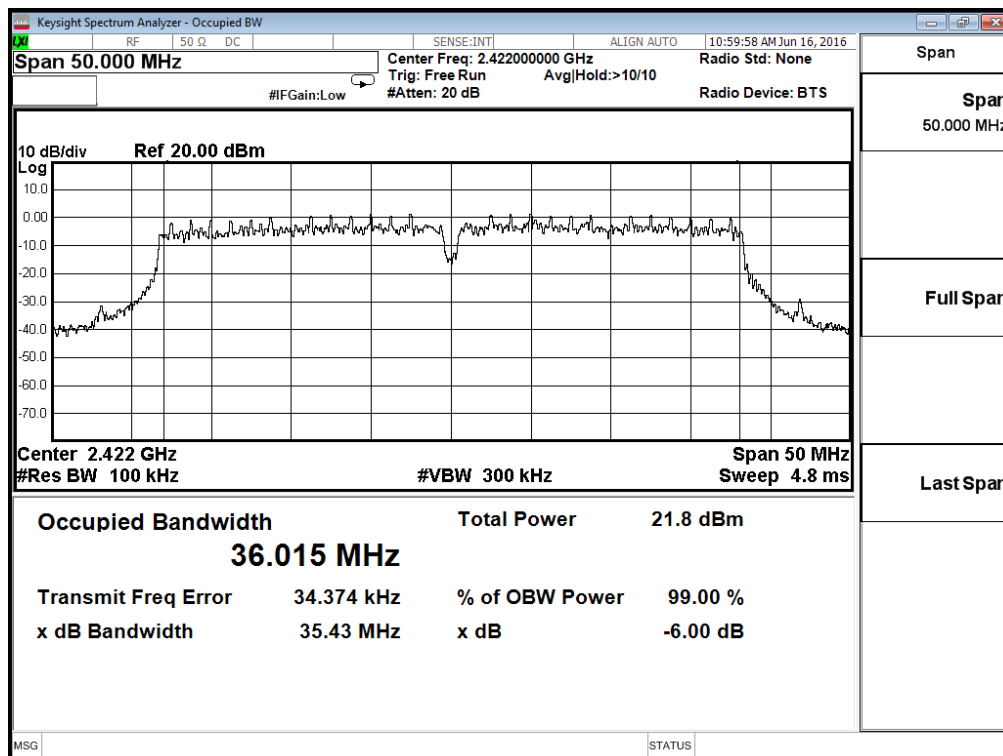


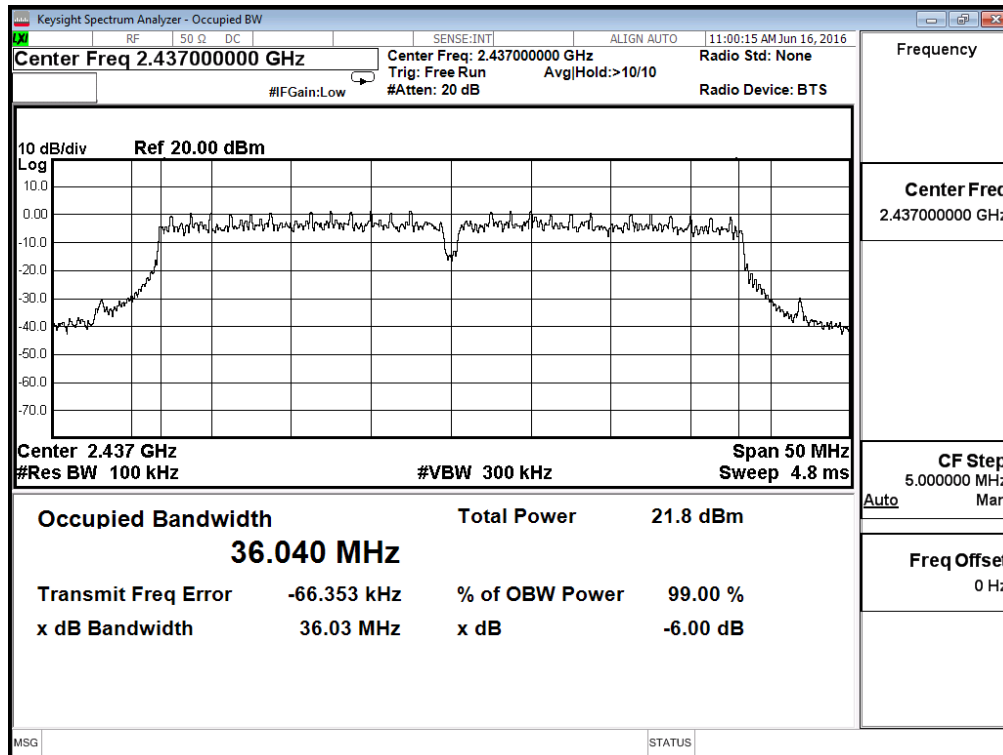
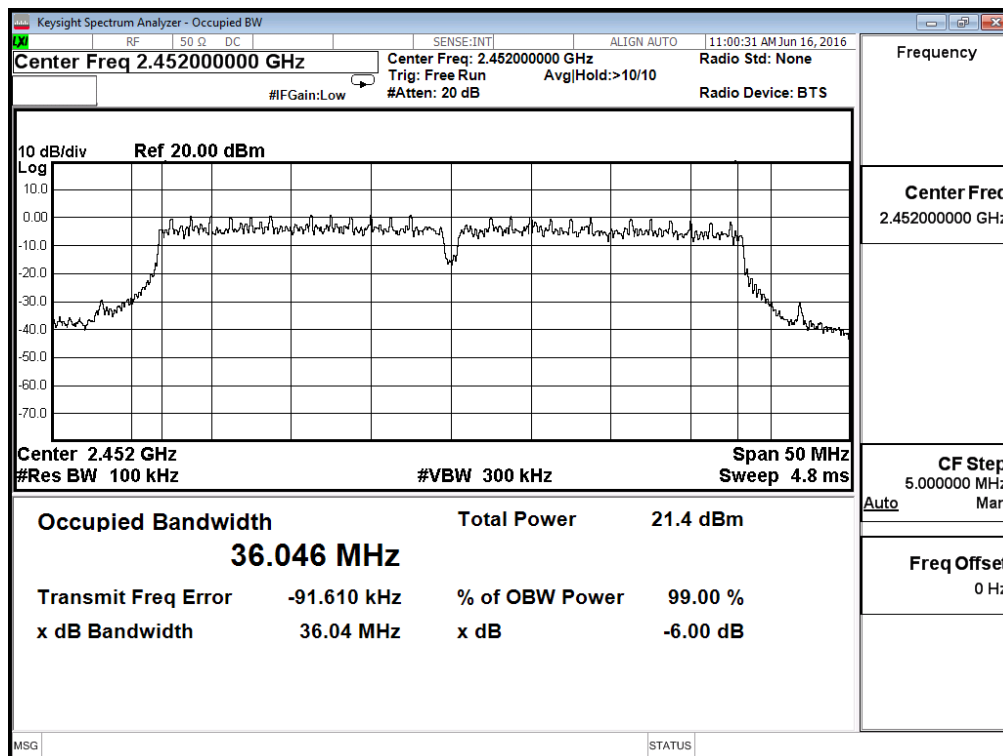
Antenna 2 - 802.11g - 6 dB Bandwidth Plot on channel 1



**Antenna 2 - 802.11g - 6 dB Bandwidth Plot on channel 6****Antenna 2 - 802.11g - 6 dB Bandwidth Plot on channel 11**

**Antenna 2 - 802.11n20 - 6 dB Bandwidth Plot on channel 1****Antenna 2 - 802.11n20 - 6 dB Bandwidth Plot on channel 6**

**Antenna 2 - 802.11n20 - 6 dB Bandwidth Plot on channel 11****Antenna 2 - 802.11n40 - 6 dB Bandwidth Plot on channel 3**

**Antenna 2 - 802.11n40 - 6 dB Bandwidth Plot on channel 6****Antenna 2 - 802.11n40 - 6 dB Bandwidth Plot on channel 9**

2.4. Conducted Band Edges and Spurious Emissions

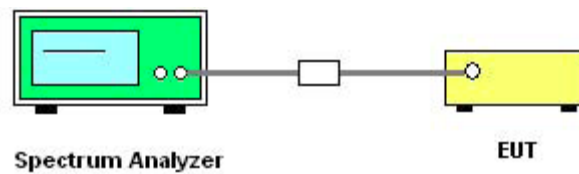
2.4.1. Limit of Conducted Band Edges and Spurious Emissions

All harmonics/spurious must be at least 20 dB down from the highest emission level within the authorized band.

2.4.2. Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

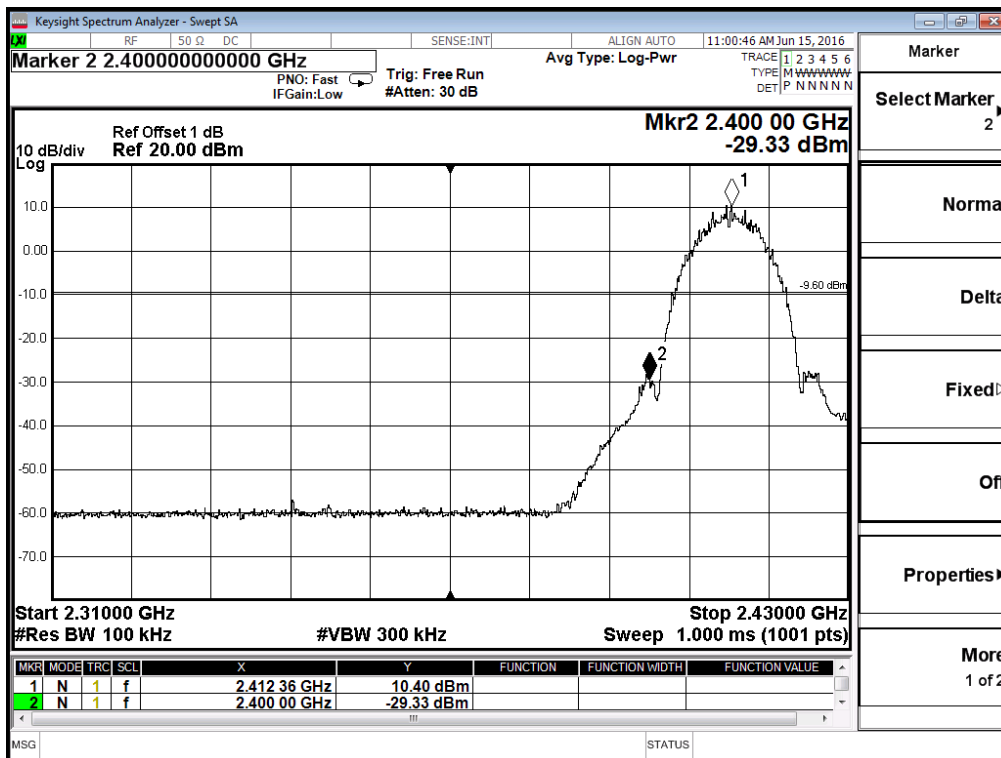
2.4.3. Test Setup



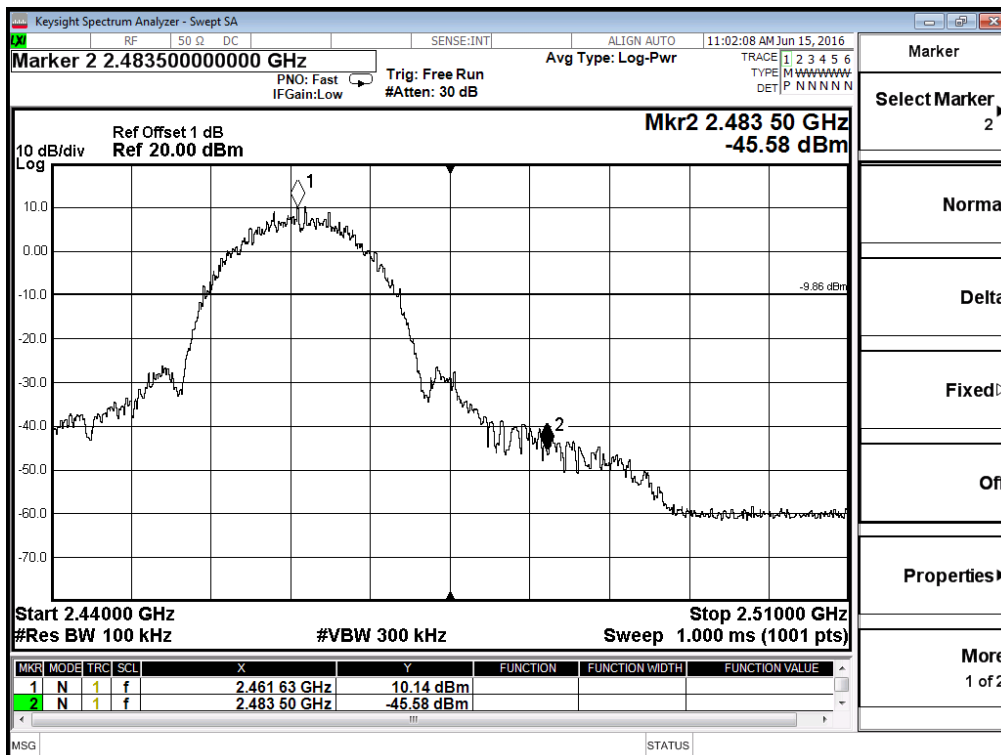
2.4.4. Test Procedure

1. The testing follows FCC KDB558074 D01 v03r05.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator.
The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector. Unwanted Emissions measured in any 100kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d).
5. Measure and record the results in the test report.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

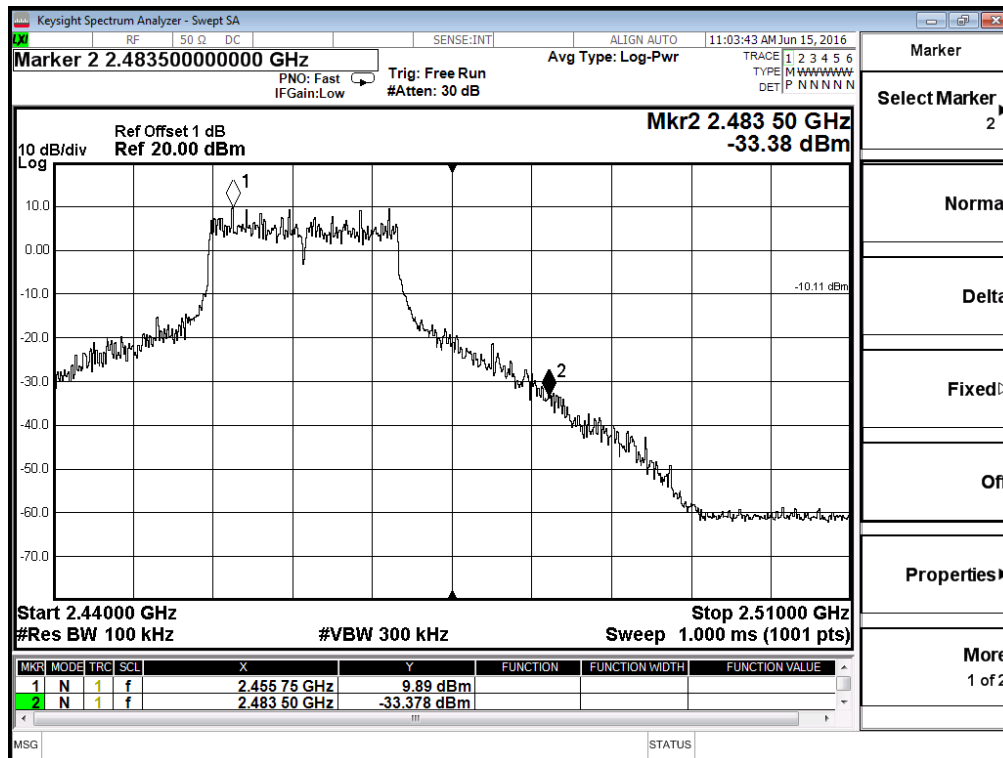
2.4.5. Test Results of Conducted Band Edges



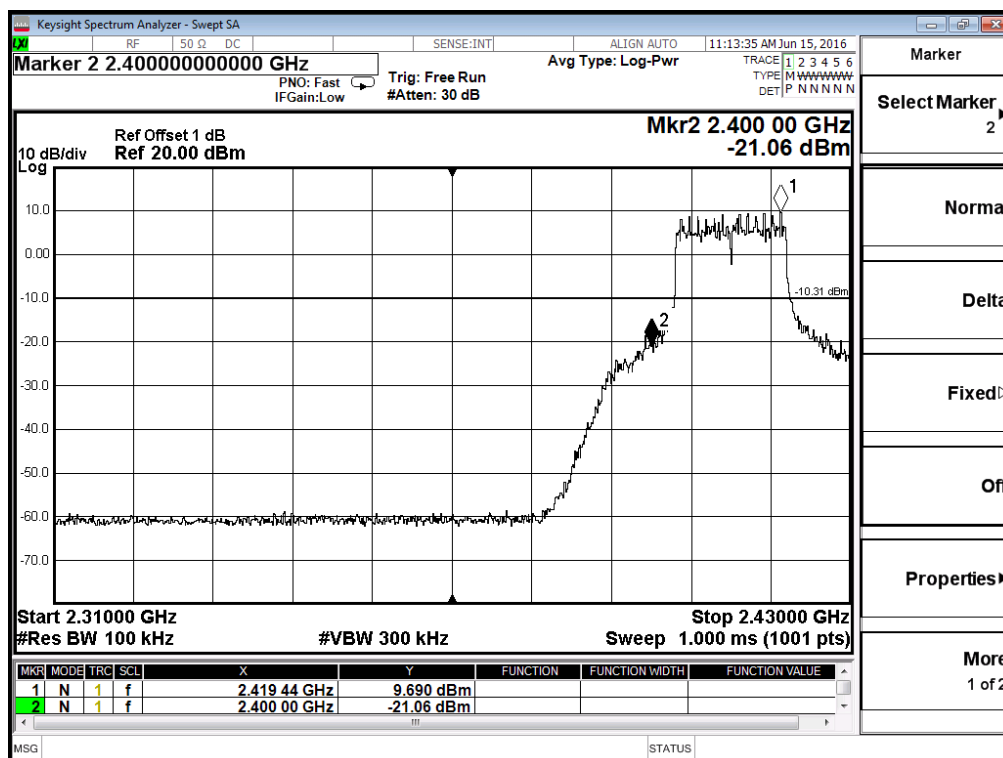
Antenna 1 - 802.11b - Low Band Edge Plot on Channel 1



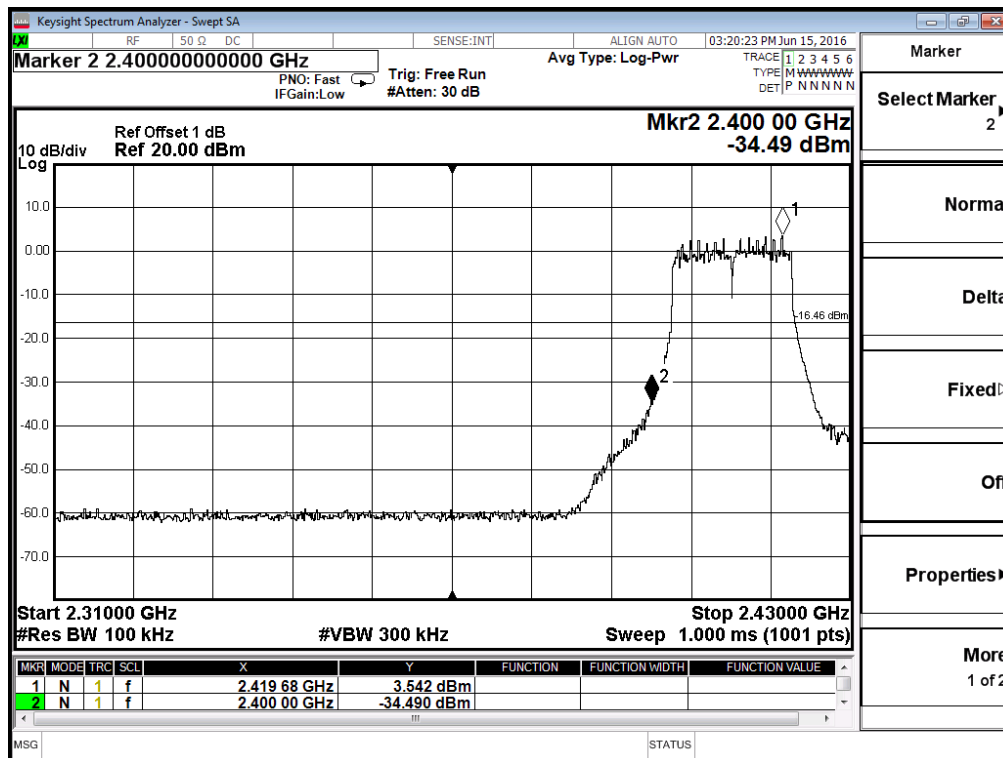
Antenna 1 - 802.11b - High Band Edge Plot on Channel 11



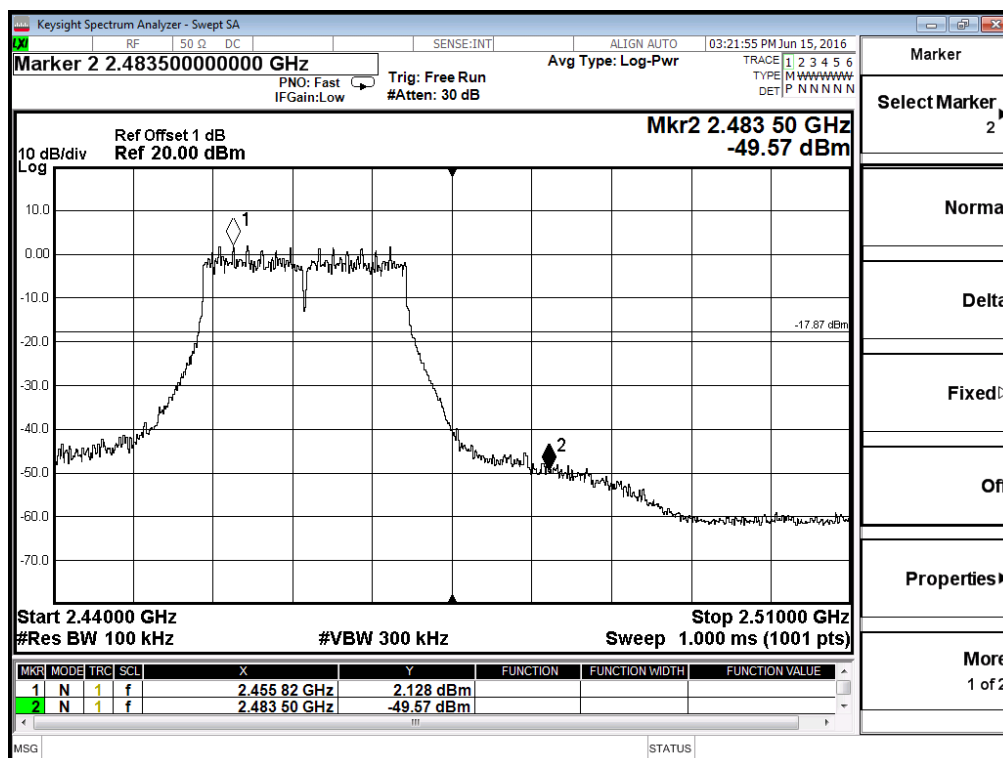
Antenna 1 - 802.11g - Low Band Edge Plot on Channel 1



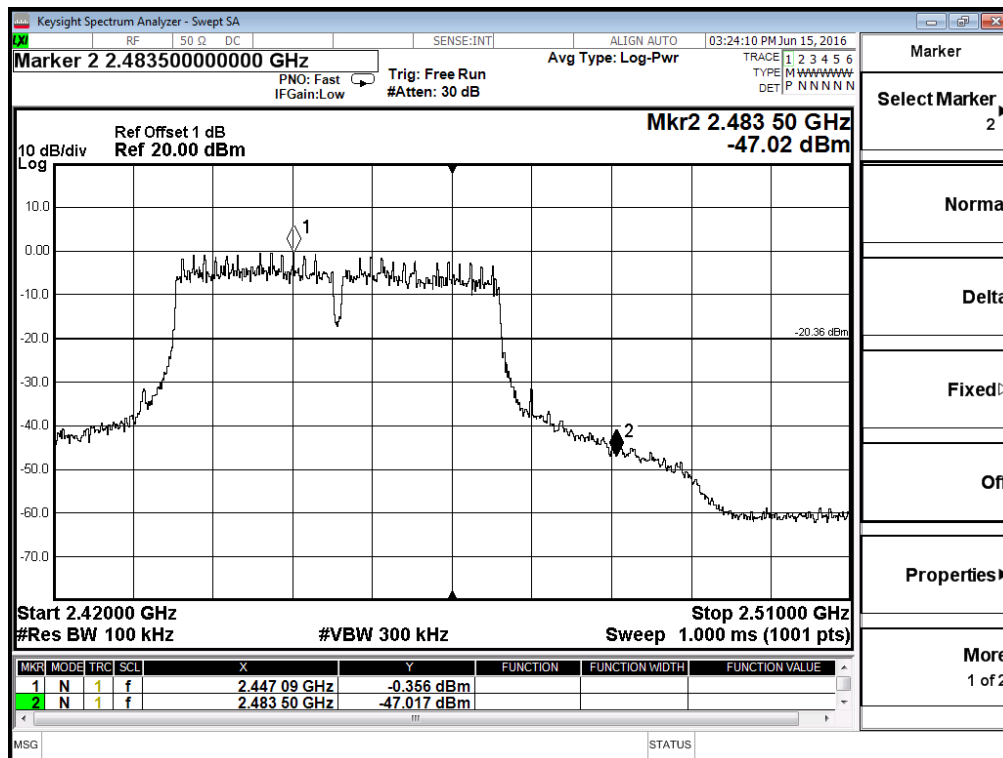
Antenna 1 - 802.11g - High Band Edge Plot on Channel 11



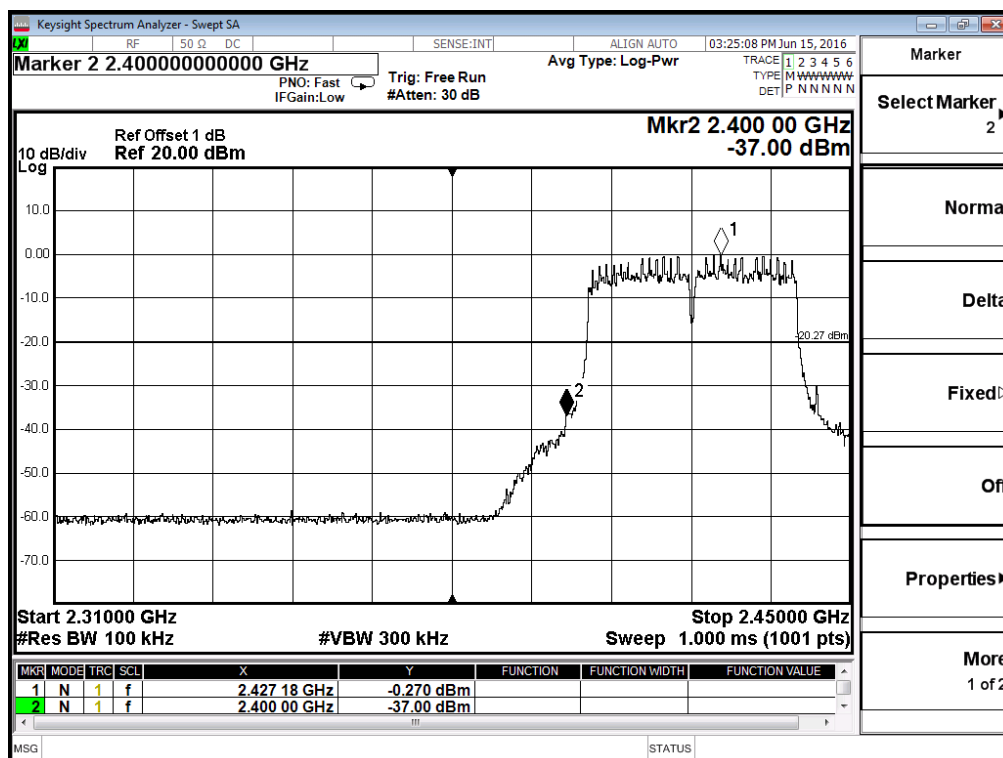
Antenna 1 - 802.11n20 - Low Band Edge Plot on Channel 1



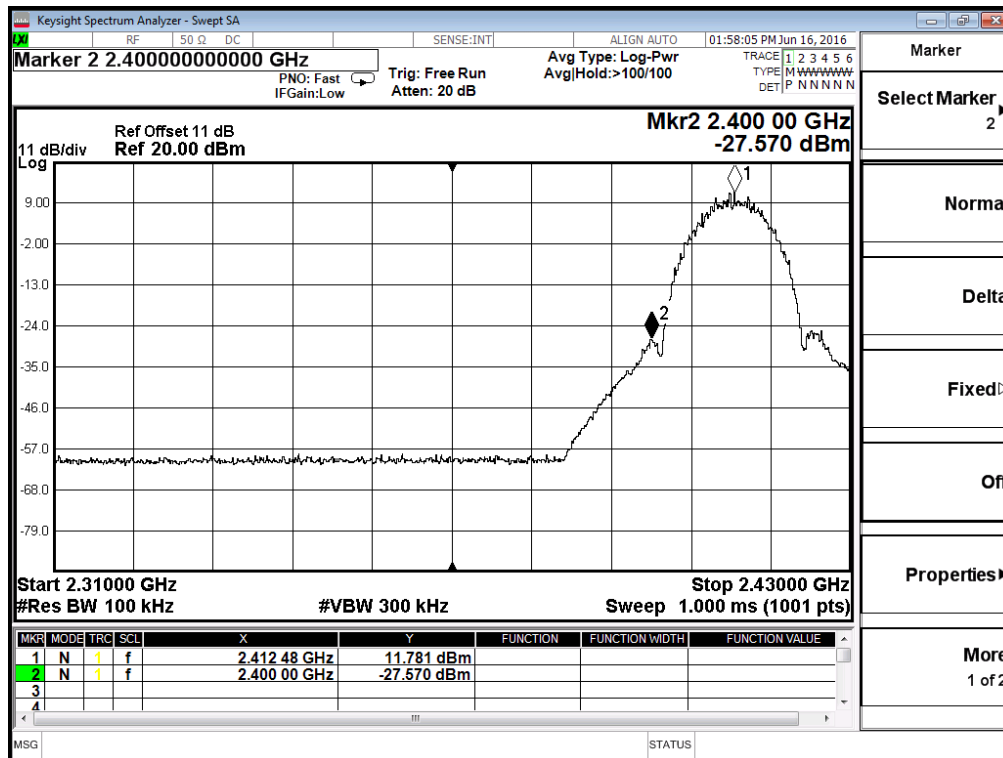
Antenna 1 - 802.11n20 - High Band Edge Plot on Channel 11



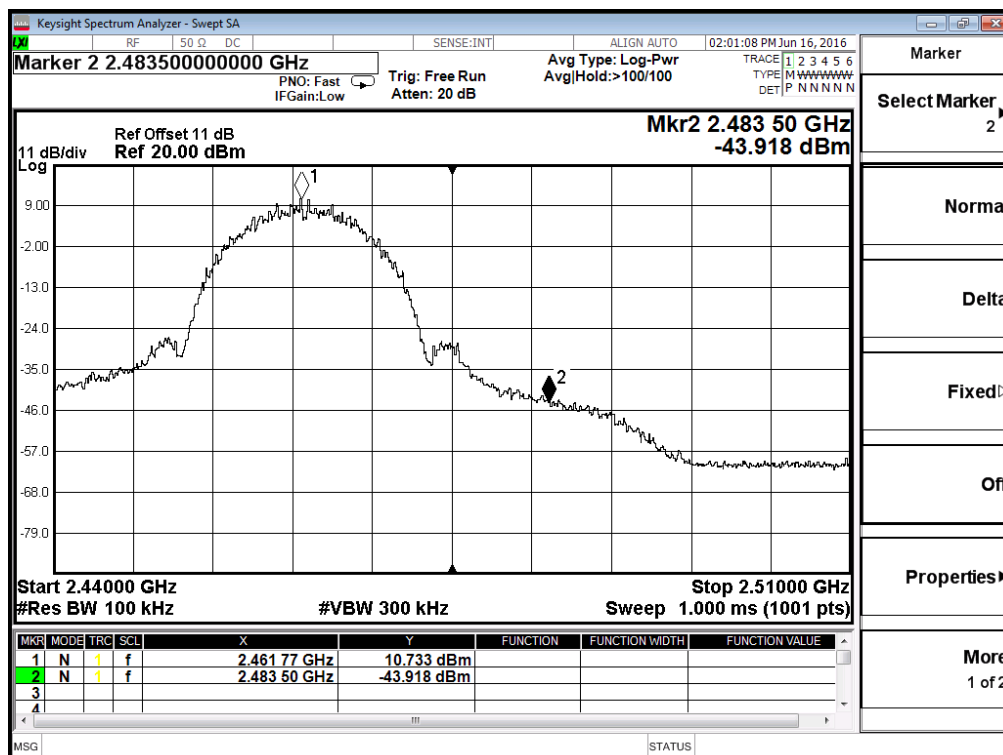
Antenna 1 - 802.11n40 - Low Band Edge Plot on Channel 3



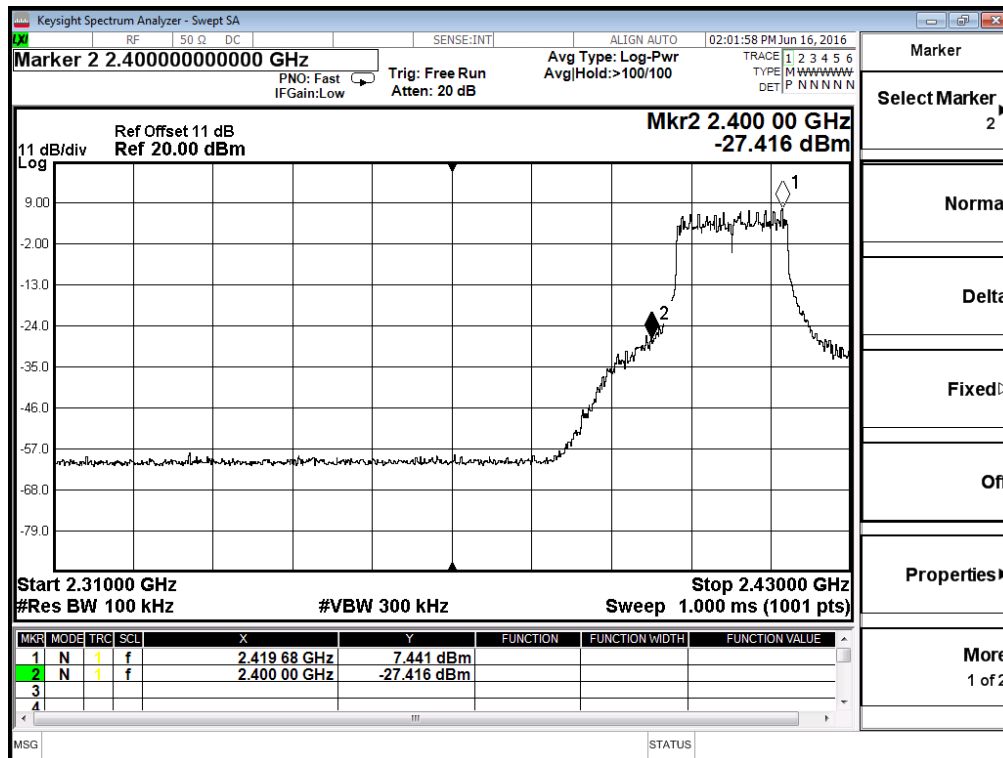
Antenna 1 - 802.11n40 - High Band Edge Plot on Channel 9



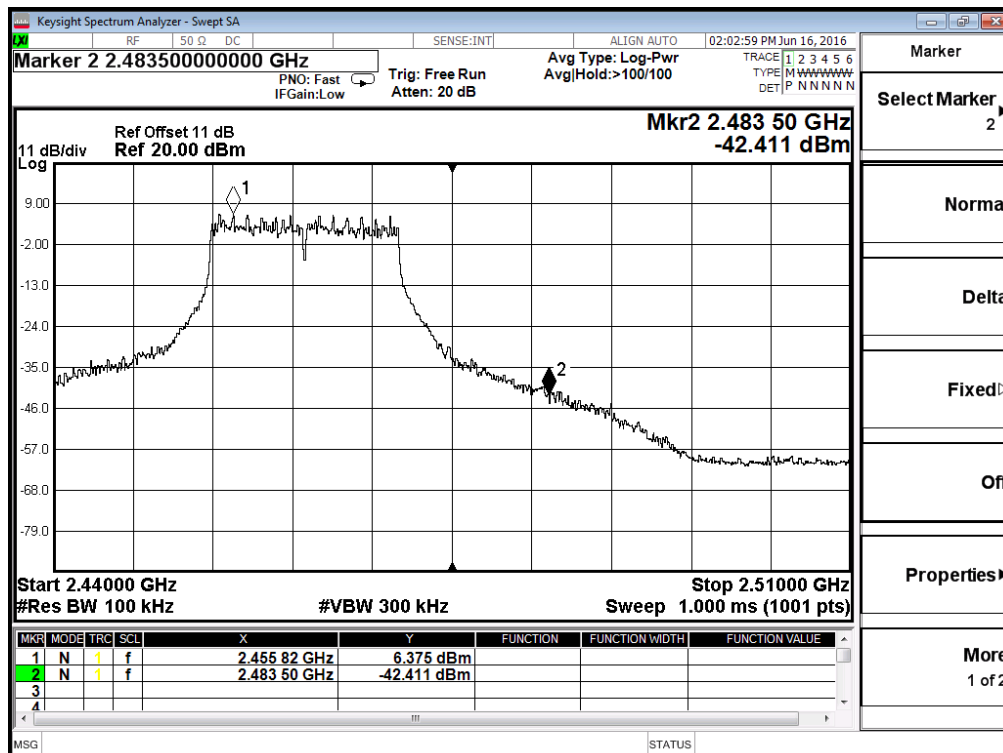
Antenna 2 - 802.11b - Low Band Edge Plot on Channel 1



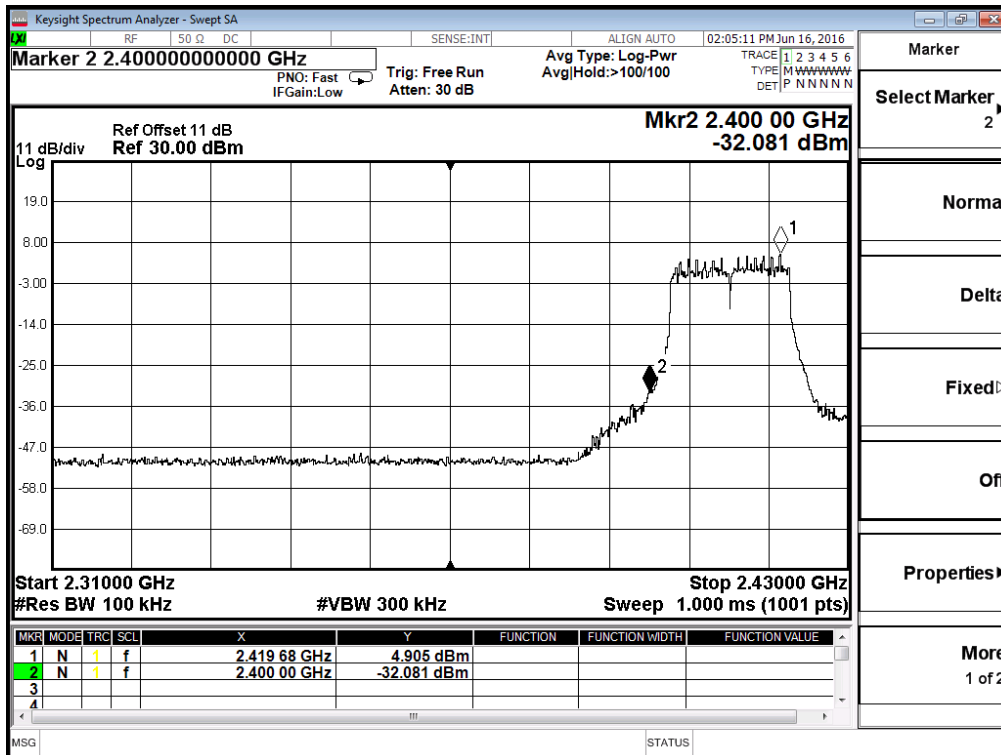
Antenna 2 - 802.11b - High Band Edge Plot on Channel 11



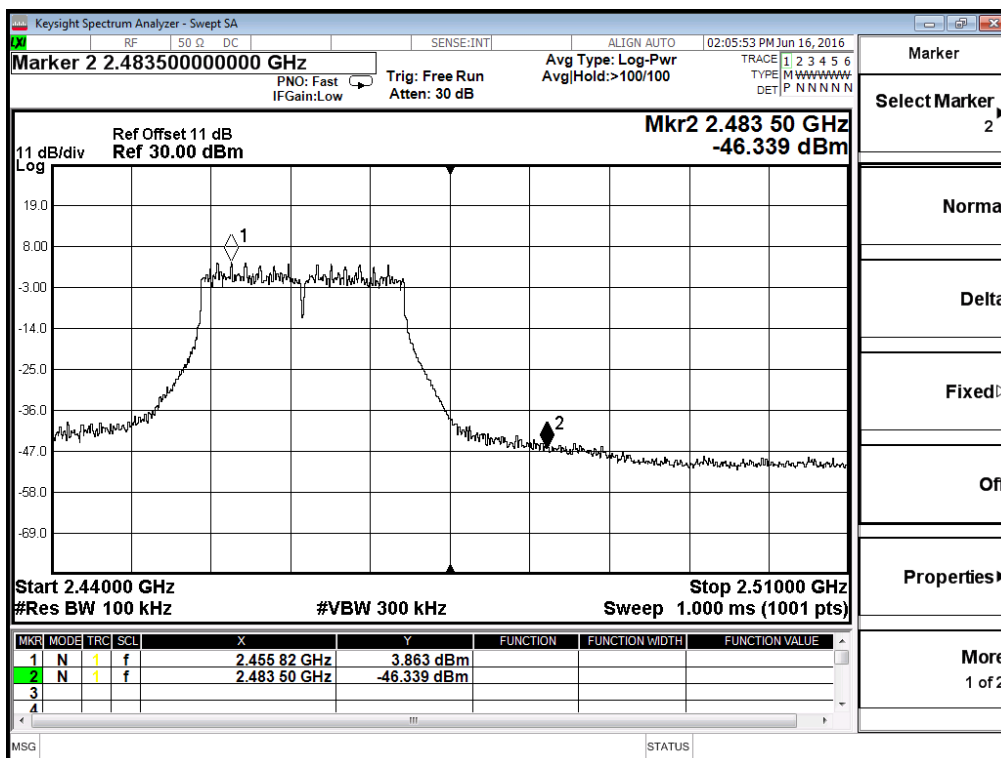
Antenna 2 - 802.11g - Low Band Edge Plot on Channel 1



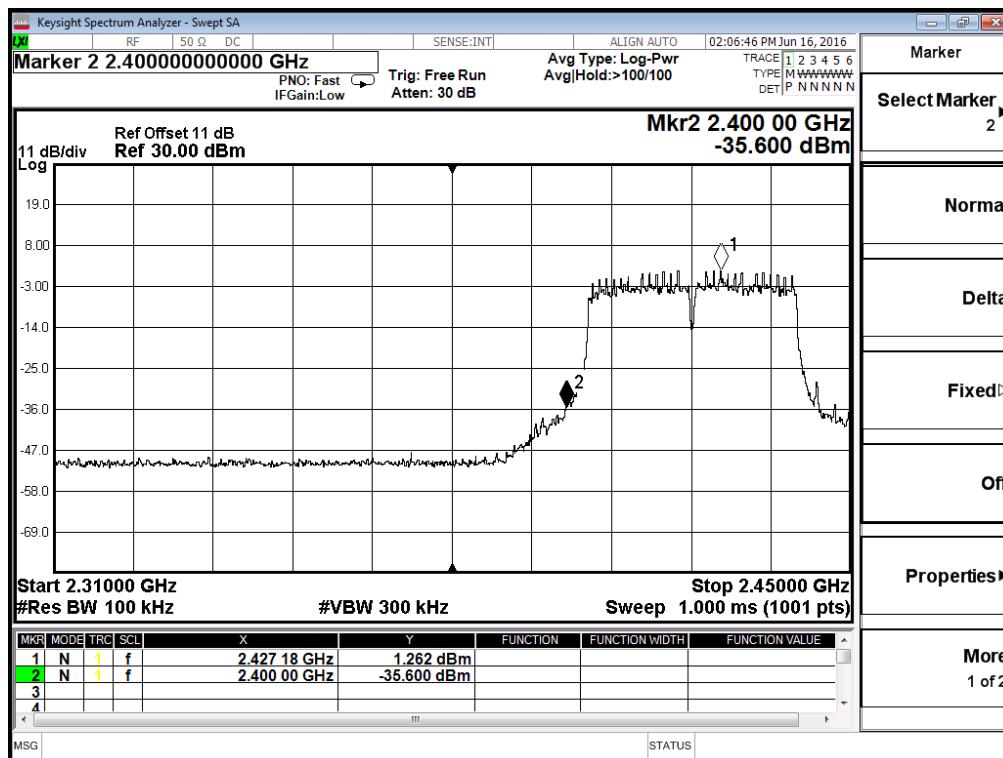
Antenna 2 - 802.11g - High Band Edge Plot on Channel 11



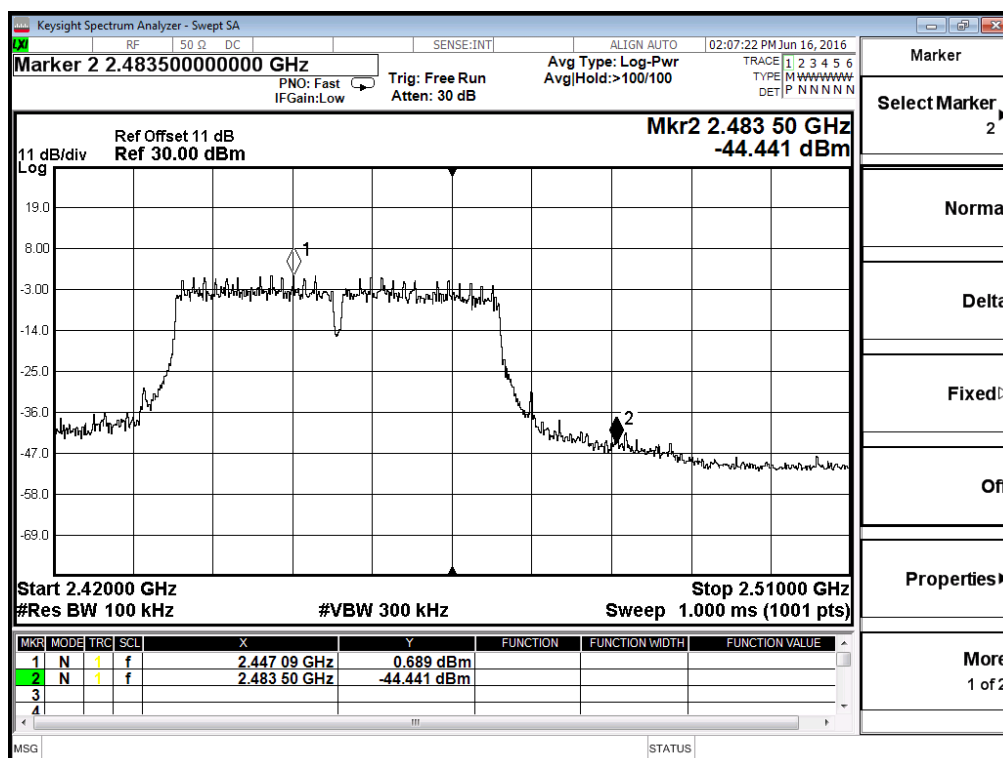
Antenna 2 - 802.11n20 - Low Band Edge Plot on Channel 1



Antenna 2 - 802.11n20 - High Band Edge Plot on Channel 11



Antenna 2 - 802.11n40 - Low Band Edge Plot on Channel 3



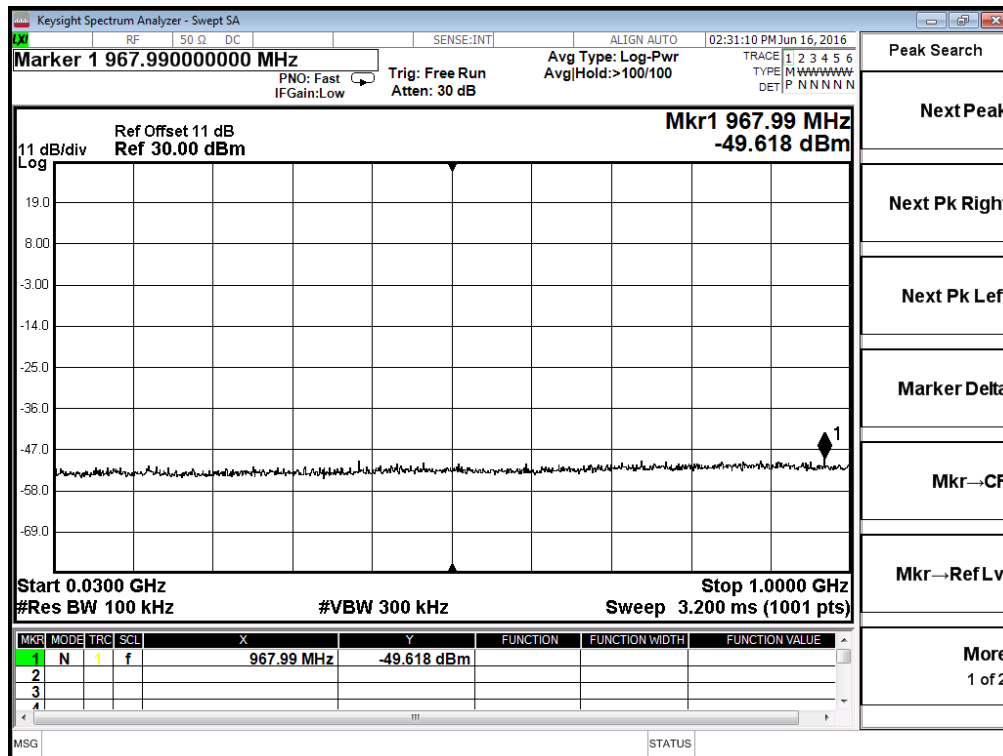
Antenna 2 - 802.11n40 - High Band Edge Plot on Channel 9

2.4.6. Test Result of Conducted Spurious Emission

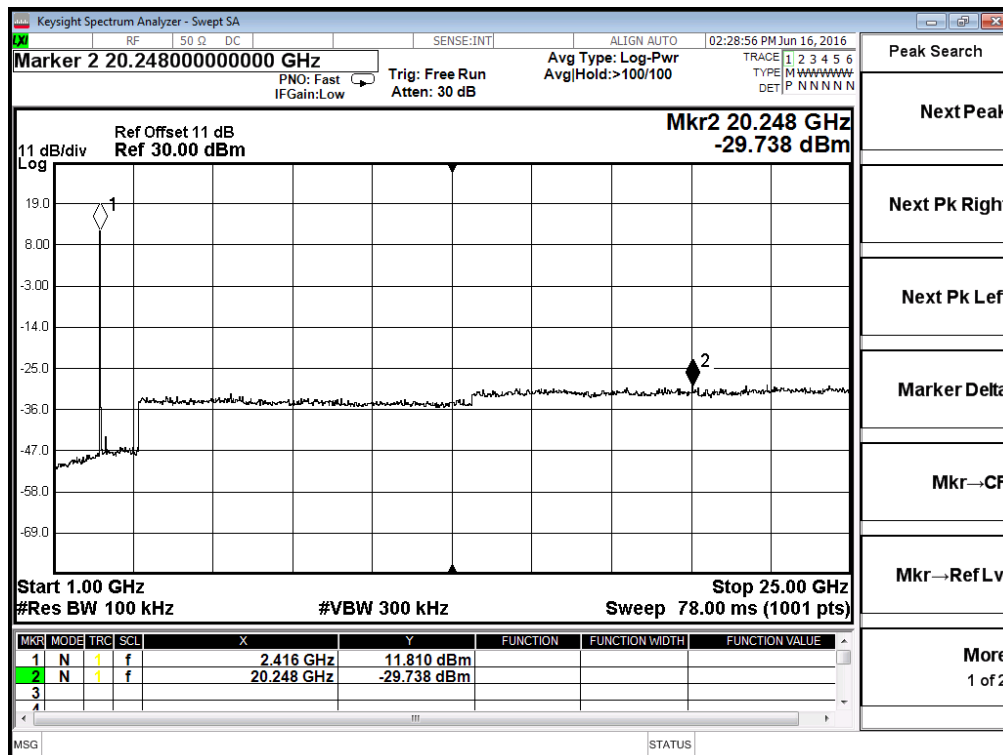
NOTE1: Two antenna were tested and found antenna 2 for 802.11b/g is the worst mode, the worst results were recorded in this report.

NOTE2: Two antenna were tested and found antenna 1+2 for 802.11n is the worst mode, the worst results were recorded in this report.

802.11b - Conducted Spurious Emission Plot on channel 1

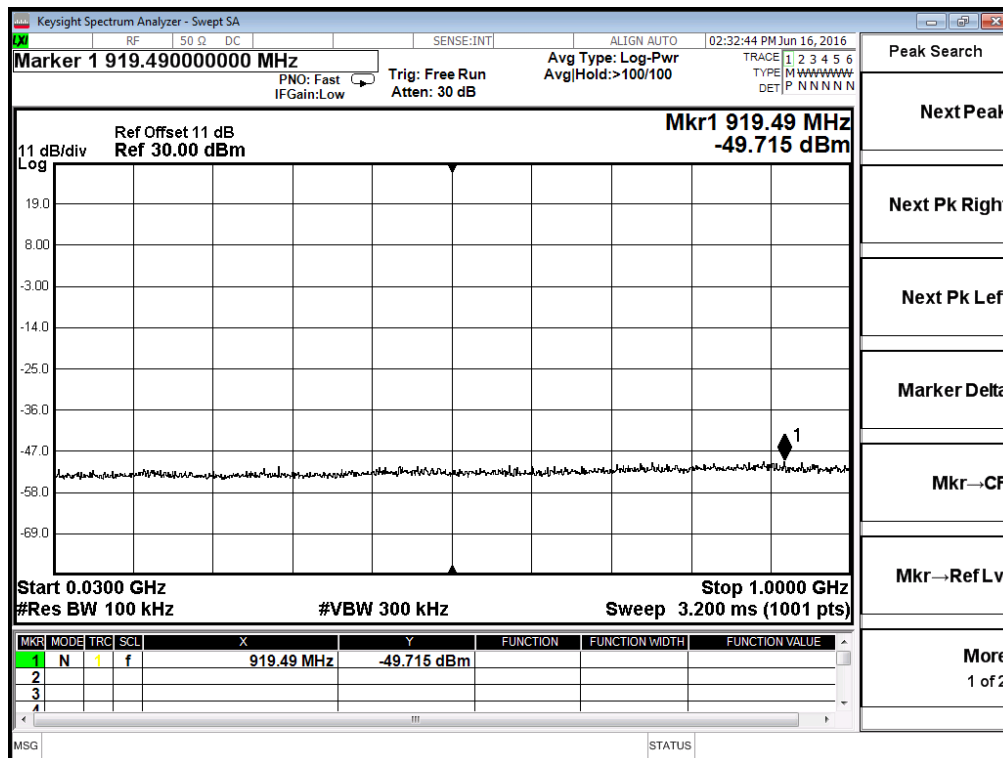


Channel = 1, 30MHz to 1GHz

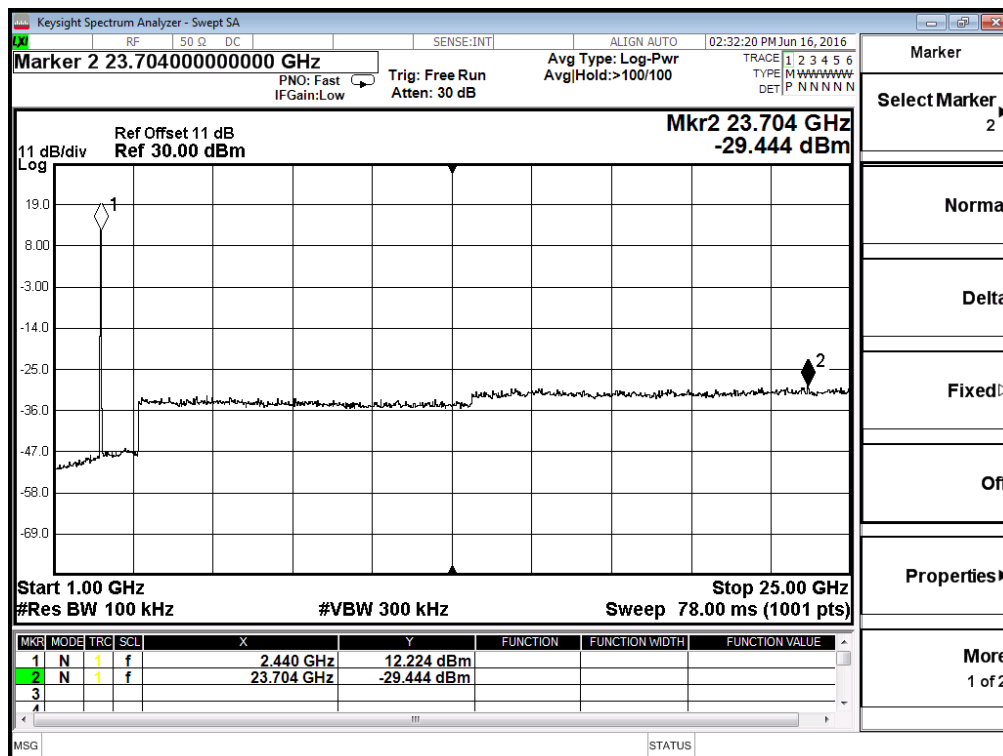


Channel = 1, 1GHz to 25GHz

802.11b - Conducted Spurious Emission Plot on channel 6

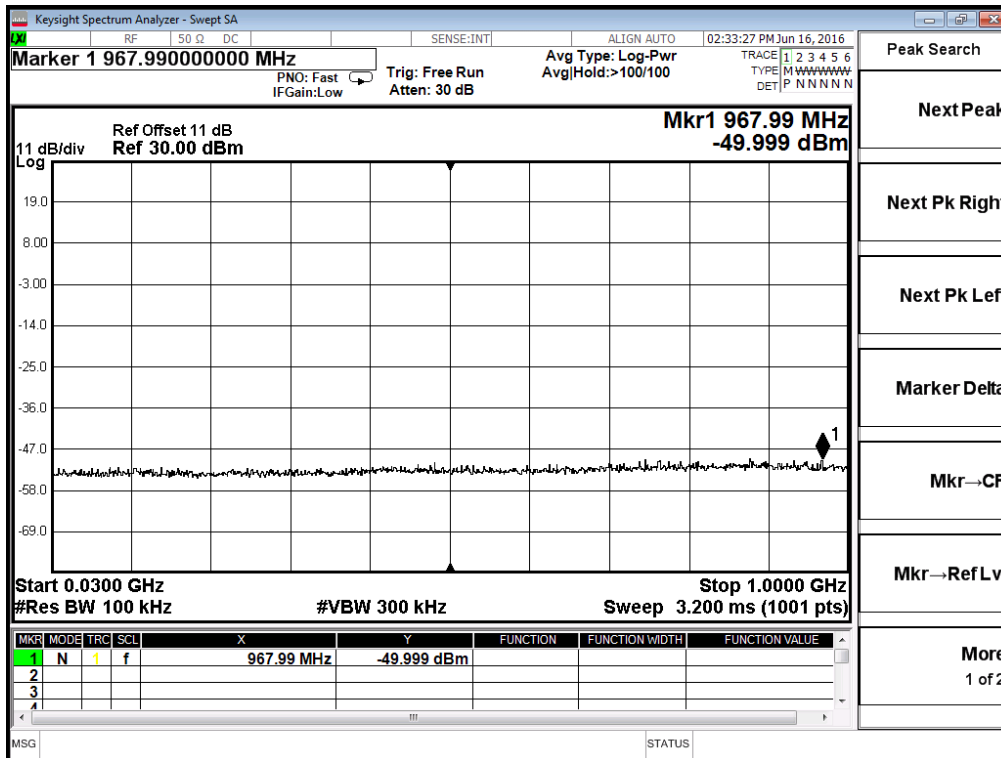


Channel = 6, 30MHz to 1GHz

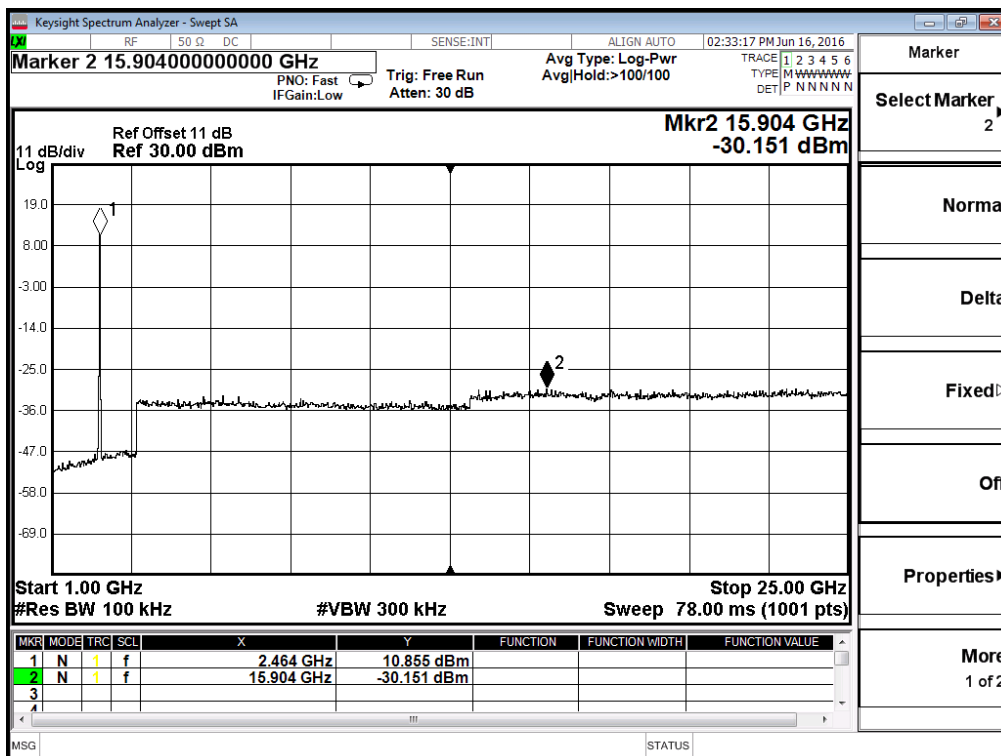


Channel = 6, 1GHz to 25GHz

802.11b - Conducted Spurious Emission Plot on channel 11

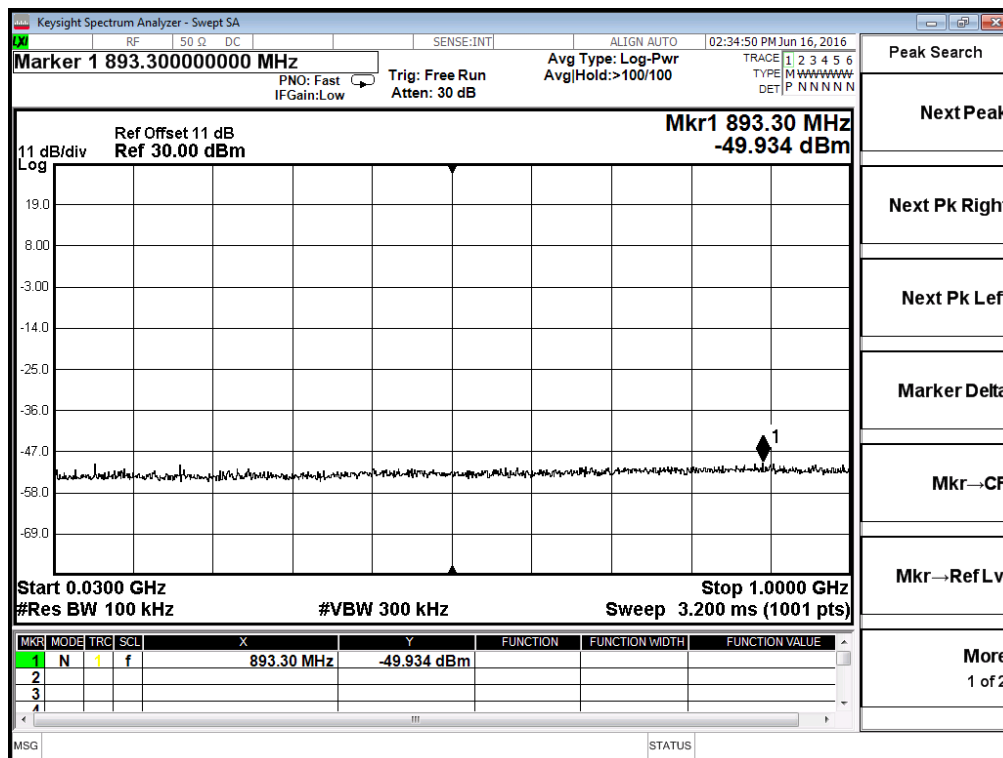


Channel = 11, 30MHz to 25GHz

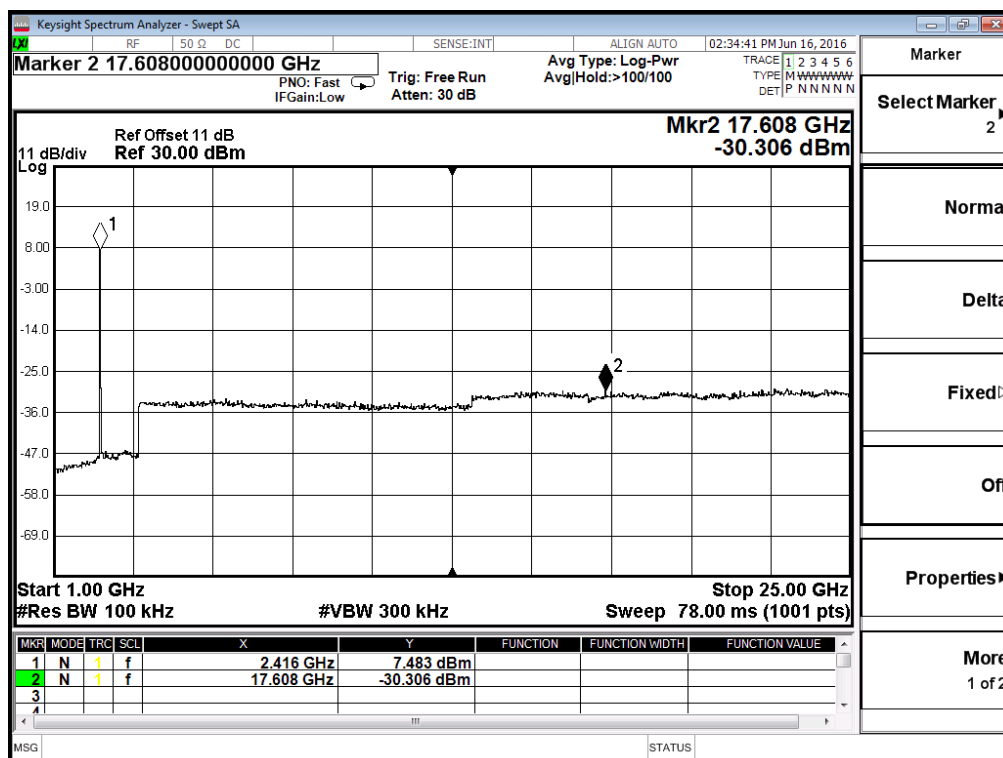


Channel = 11, 30MHz to 25GHz

802.11g - Conducted Spurious Emission Plot on channel 1

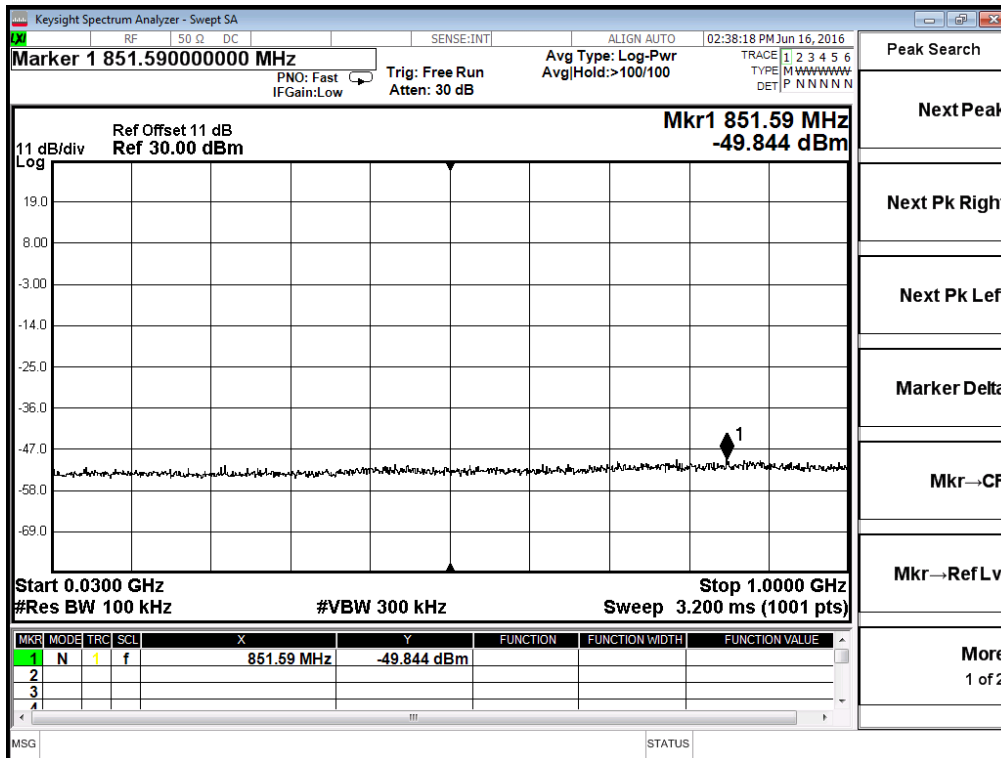


Channel = 1, 30MHz to 1GHz

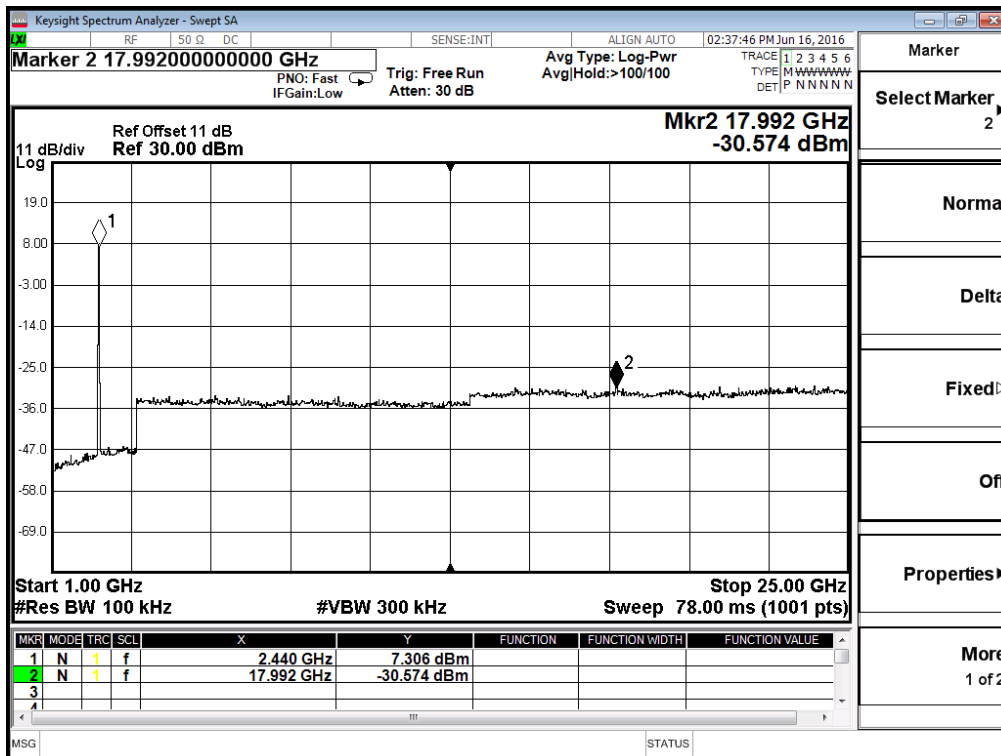


Channel = 1, 1GHz to 25GHz

802.11g - Conducted Spurious Emission Plot on channel 6

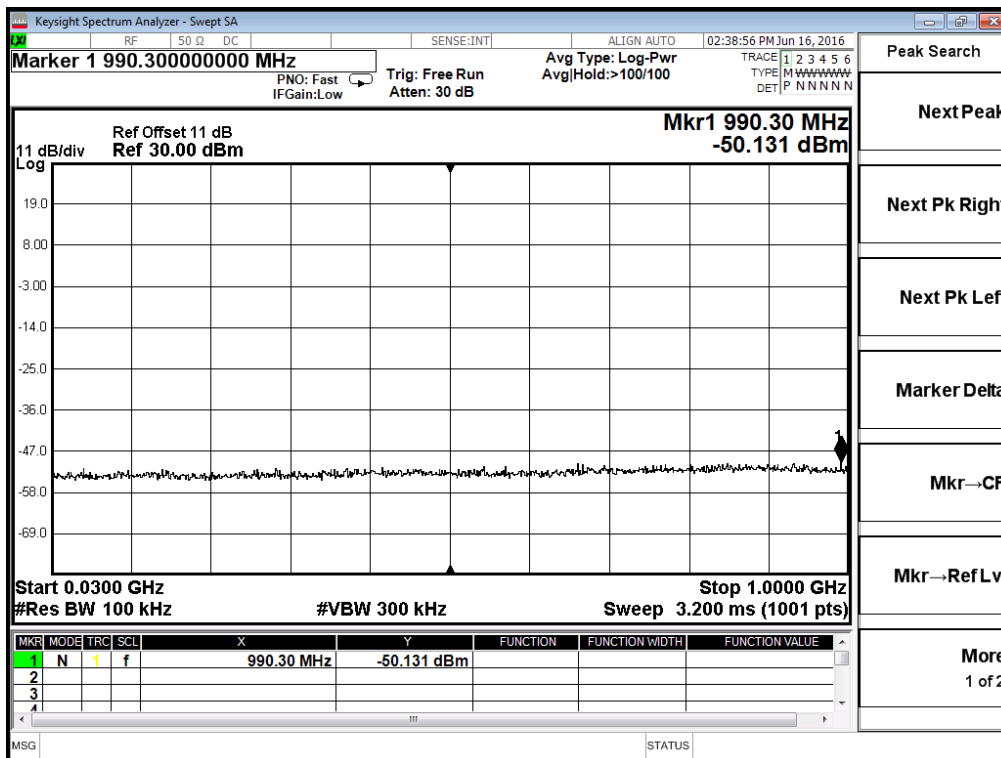


Channel = 6, 30MHz to 1GHz

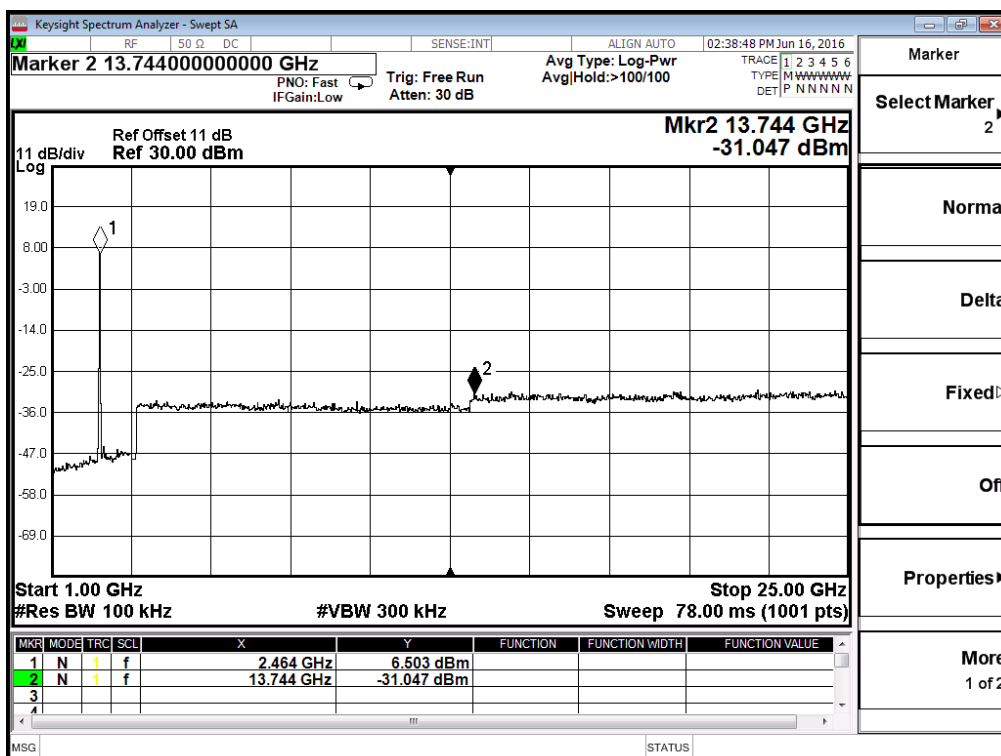


Channel = 6, 1GHz to 25GHz

802.11g - Conducted Spurious Emission Plot on channel 11

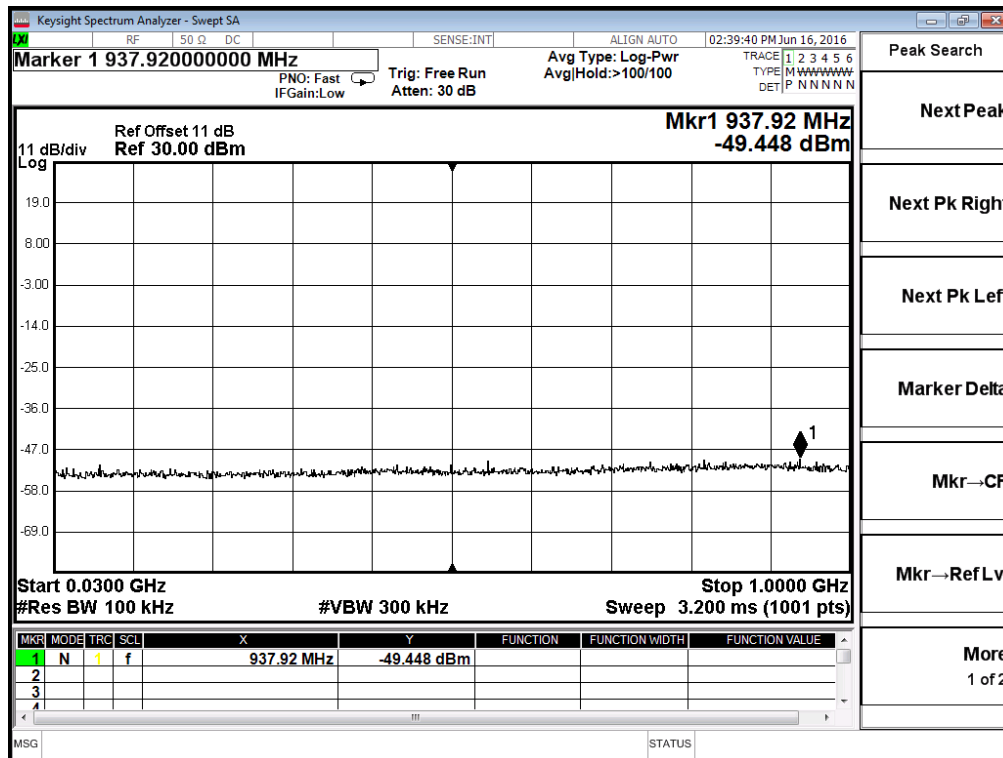


Channel = 11, 30MHz to 25GHz

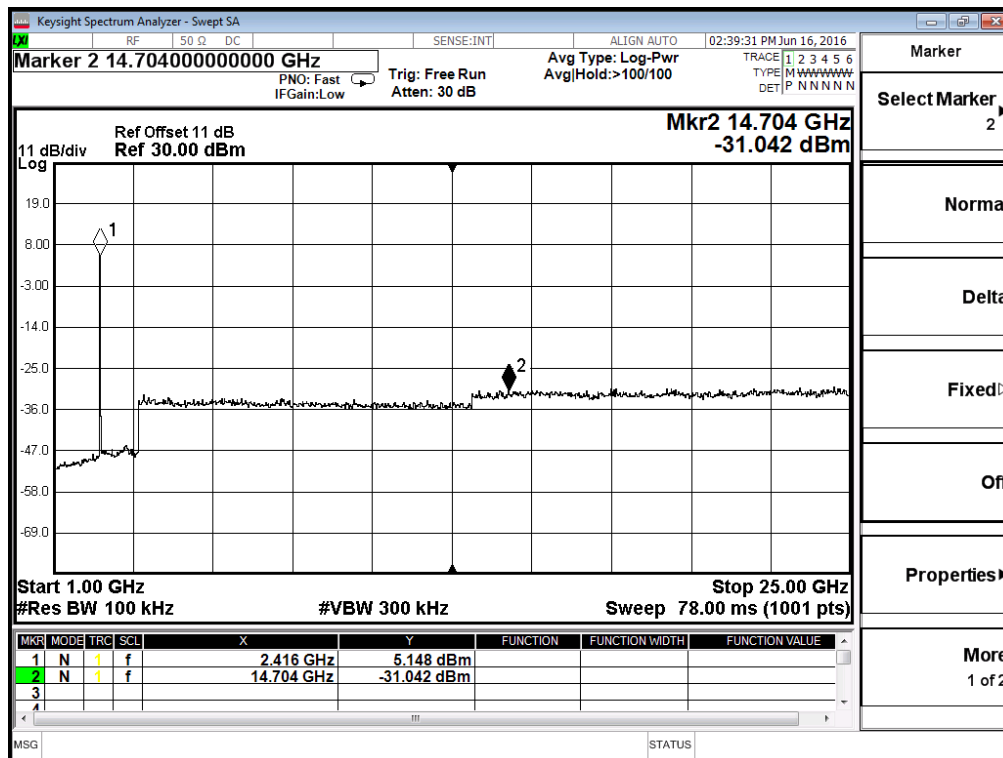


Channel = 11, 30MHz to 25GHz

802.11n20 - Conducted Spurious Emission Plot on channel 1

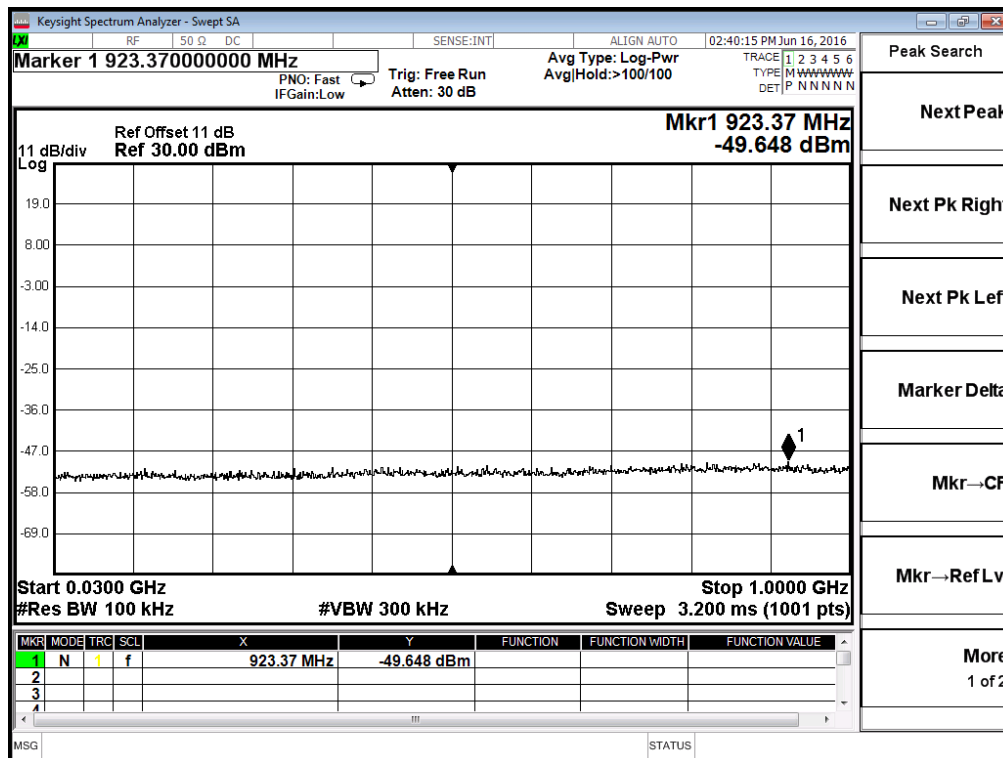


Channel = 1, 30MHz to 1GHz

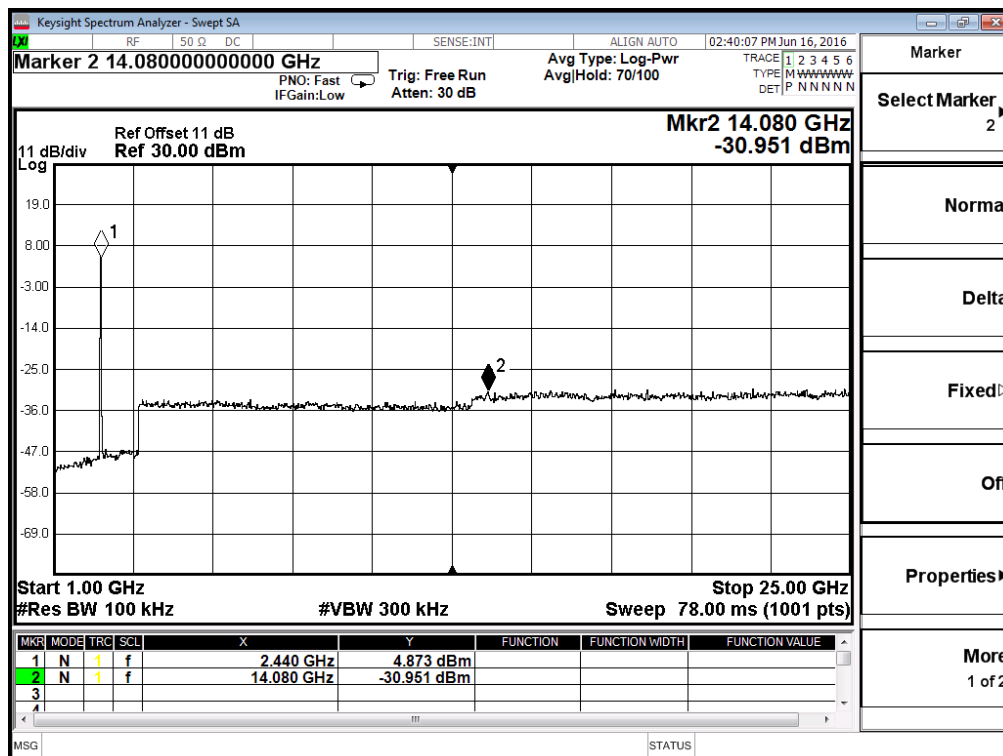


Channel = 1, 1GHz to 25GHz

802.11n20 - Conducted Spurious Emission Plot on channel 6

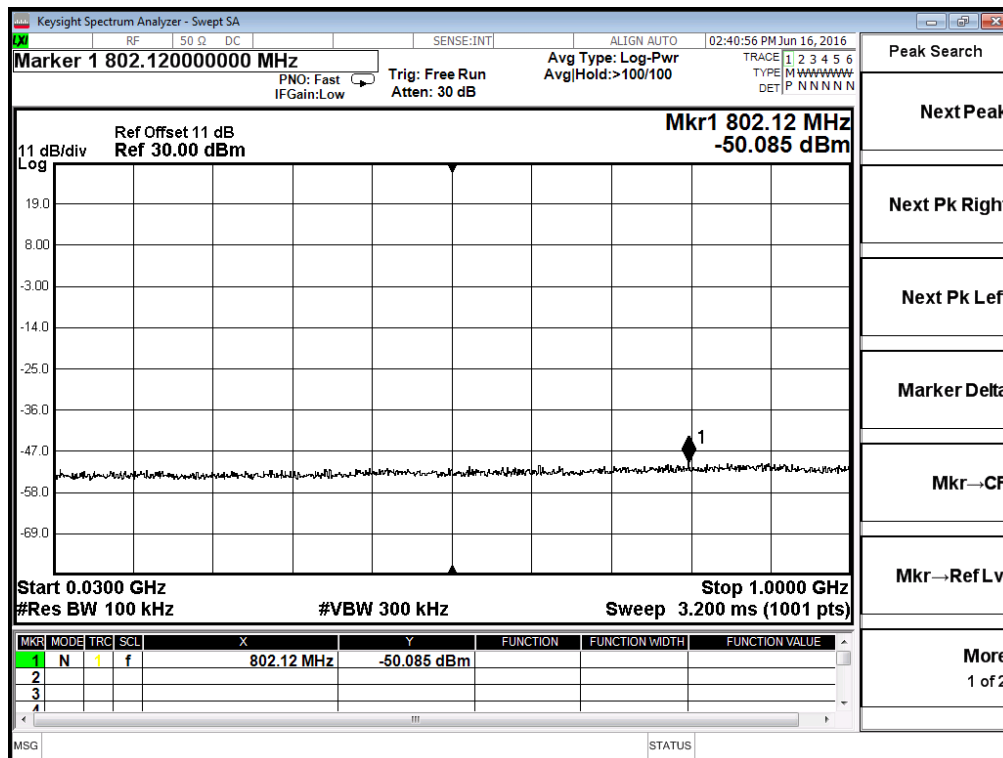


Channel = 6, 30MHz to 1GHz

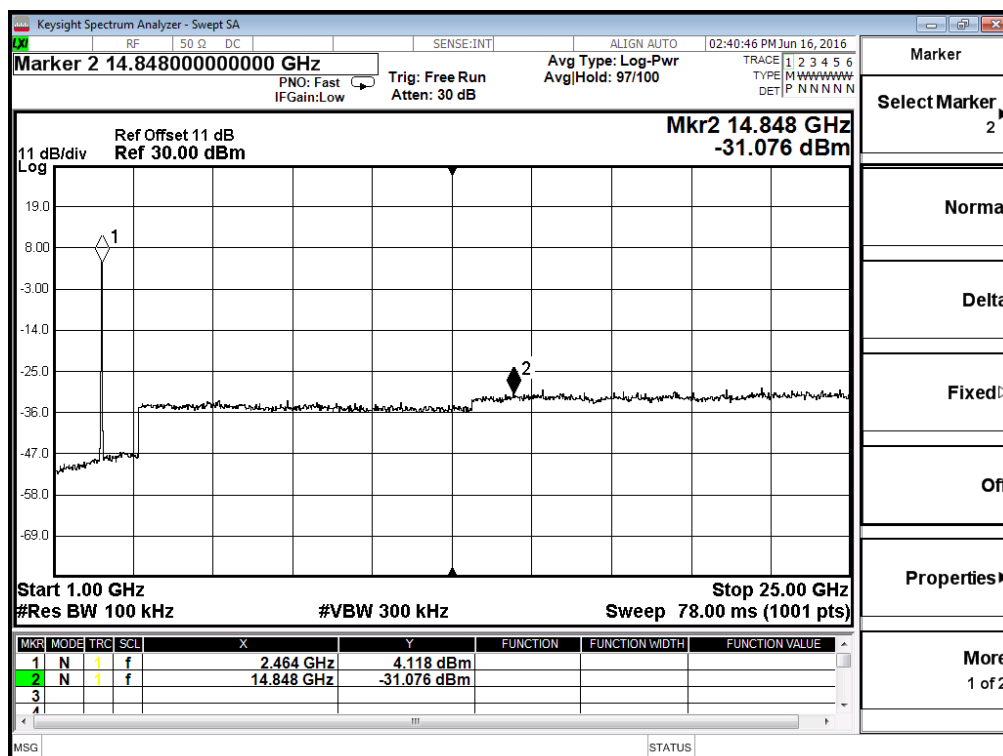


Channel = 6, 1GHz to 25GHz

802.11n20 - Conducted Spurious Emission Plot on channel 11

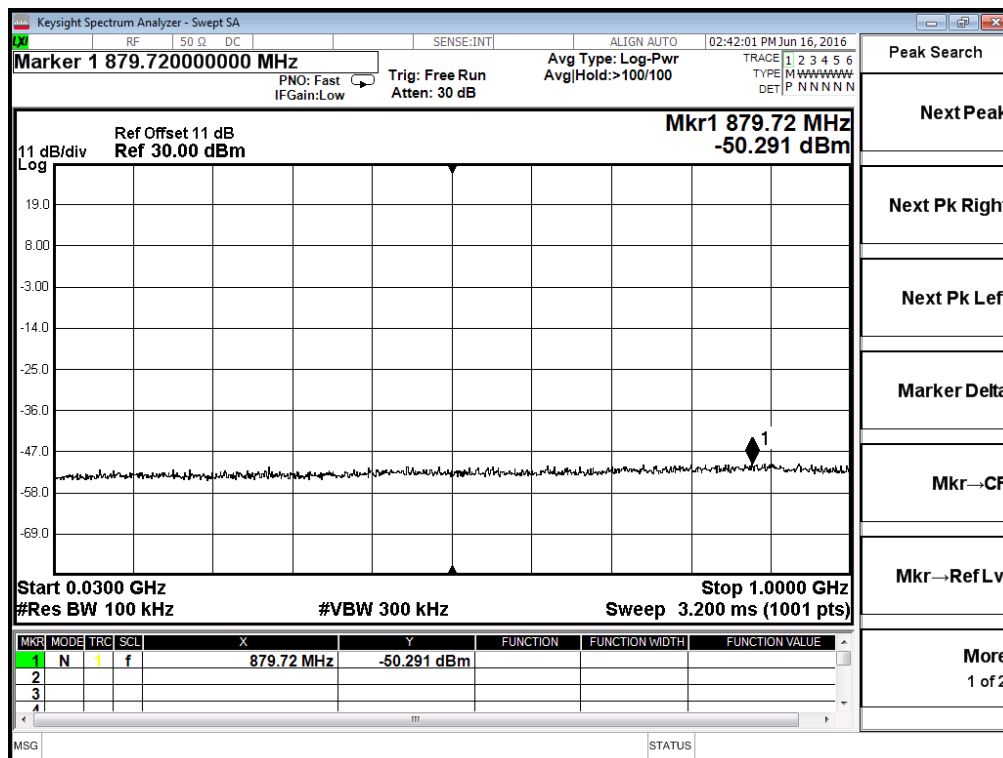


Channel = 11, 30MHz to 25GHz

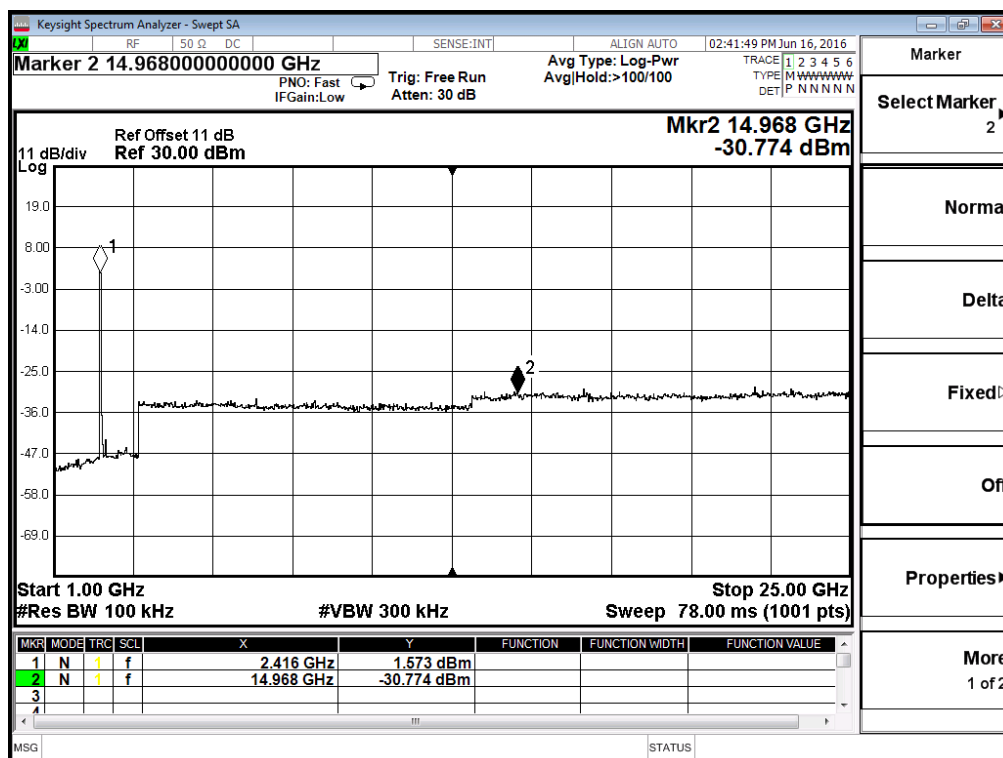


Channel = 11, 30MHz to 25GHz

802.11n40 - Conducted Spurious Emission Plot on channel 3

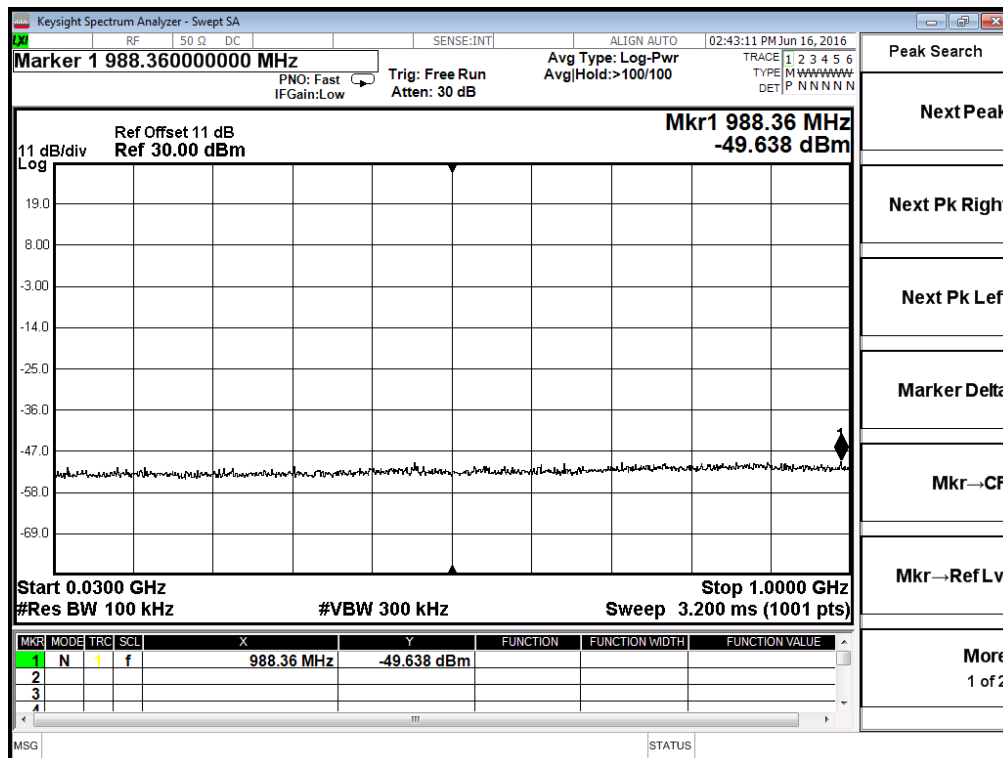


Channel = 3, 30MHz to 1GHz

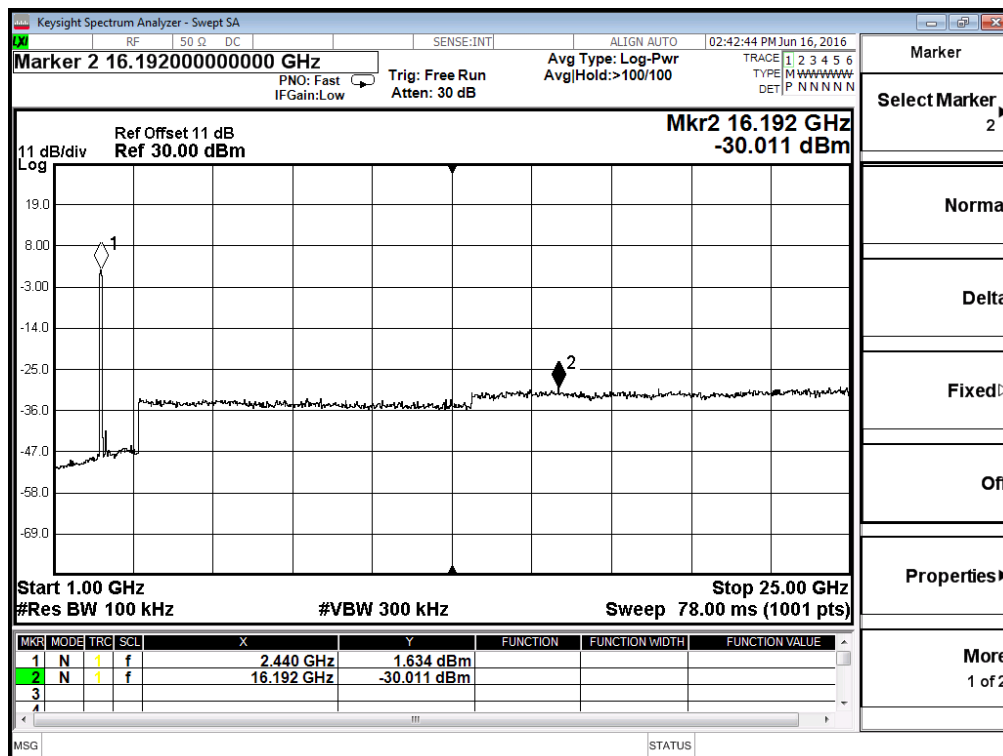


Channel = 3, 1GHz to 25GHz

802.11n40 - Conducted Spurious Emission Plot on channel 6

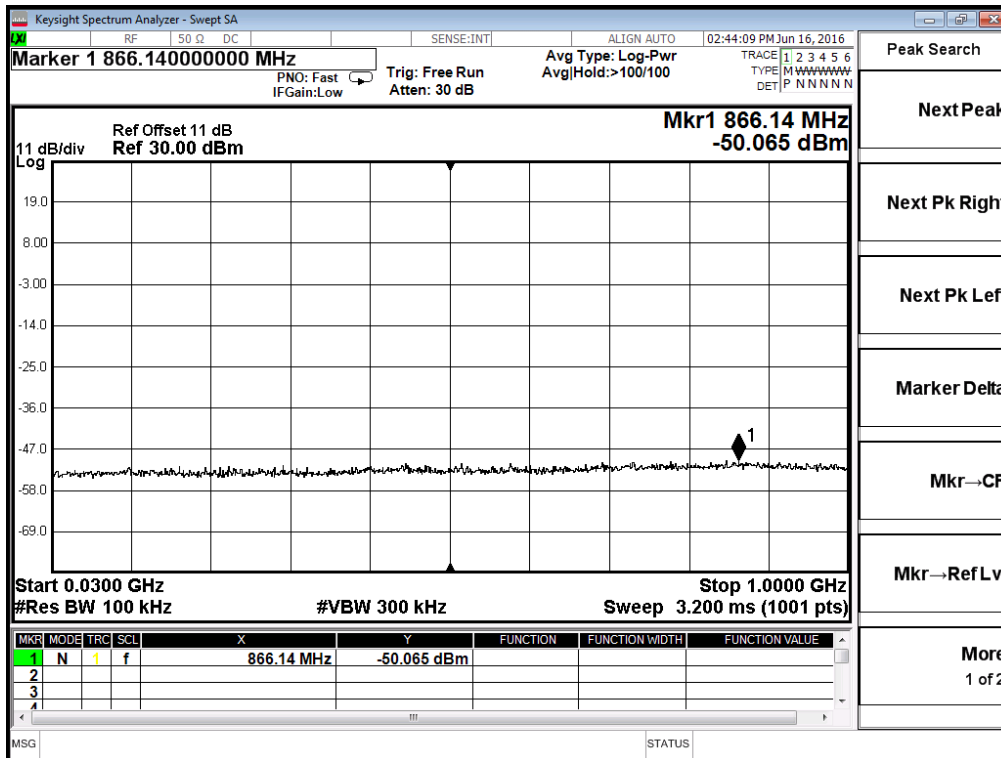


Channel = 6, 30MHz to 1GHz

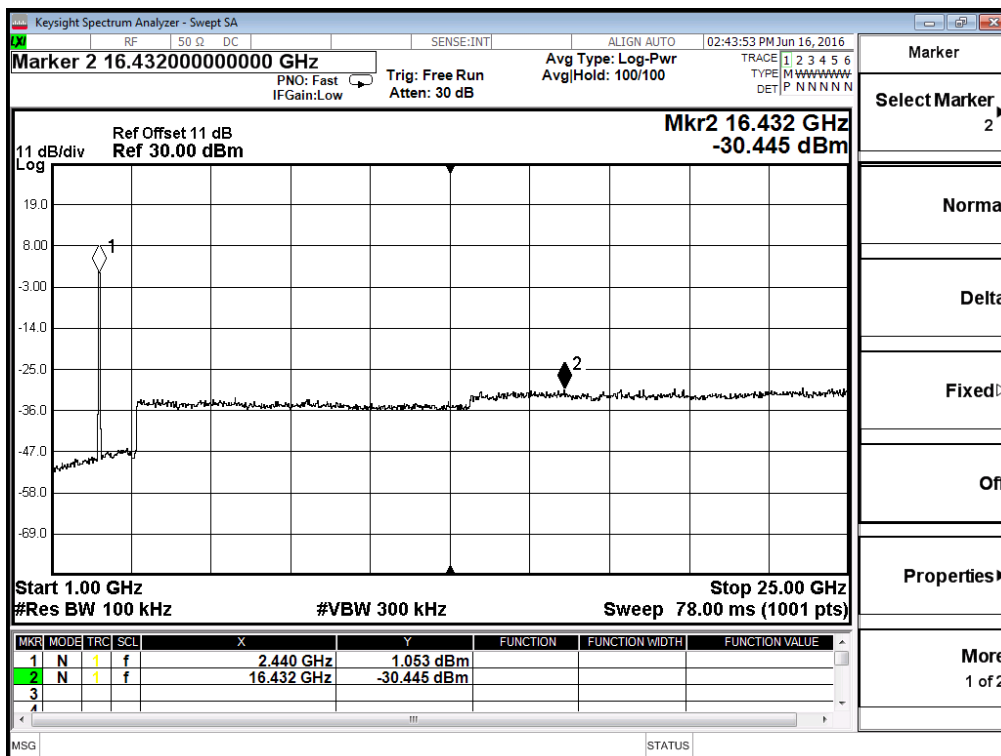


Channel = 6, 1GHz to 25GHz

802.11n40 - Conducted Spurious Emission Plot on channel 9



Channel = 9, 30MHz to 25GHz



Channel = 9, 30MHz to 25GHz

2.5. Power spectral density (PSD)

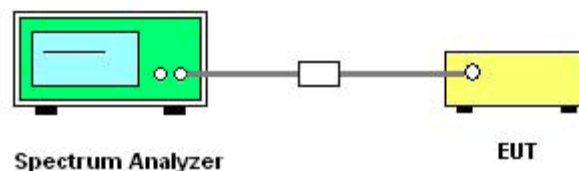
2.5.1. Limit of Power Spectral Density

The peak power spectral density shall not be greater than 8dBm in any 3kHz band at any time interval of continuous transmission.

2.5.2. Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

2.5.3. Test Setup



2.5.4. Test Procedures

1. The testing follows Measurement Procedure 10.2 Method PKPSD of FCC KDB558074 D01 v03r05.

2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator.

The path loss was compensated to the results for each measurement.

3. Set to the maximum power setting and enable the EUT transmit continuously.

4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 3 kHz.

Video bandwidth VBW = 10 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)

5. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level.

6. Measure and record the results in the test report.

7. The Measured power density (dBm)/ 100kHz is a reference level and used as 20dBc down limit line for Conducted Band Edges and Conducted Spurious Emission.

2.5.5. Test Results of Power spectral density

Note: Measured power density (dBm) has offset with cable loss.

802.11b Test mode

Spectral power density (Ant. 1)				
Mode	Channel	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
802.11b	1	-4.02	8	PASS
	6	-5.04	8	PASS
	11	-5.36	8	PASS
Measurement uncertainty: ± 1.3 dB				

Spectral power density (Ant. 2)				
Mode	Channel	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
802.11b	1	-3.72	8	PASS
	6	-3.30	8	PASS
	11	-4.67	8	PASS
Measurement uncertainty: ± 1.3 dB				

802.11g Test mode

Spectral power density (Ant. 1)				
Mode	Channel	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
802.11g	1	-7.05	8	PASS
	6	-6.17	8	PASS
	11	-7.40	8	PASS
Measurement uncertainty: ± 1.3 dB				

Spectral power density (Ant. 2)				
Mode	Channel	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
802.11g	1	-9.42	8	PASS
	6	-9.03	8	PASS
	11	-9.83	8	PASS
Measurement uncertainty: ± 1.3 dB				

802.11n20 Test mode

Spectral power density (Ant. 1)				
Mode	Channel	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
802.11n20	1	-12.92	8	PASS
	6	-12.35	8	PASS
	11	-13.96	8	PASS
Measurement uncertainty: ± 1.3 dB				

Spectral power density (Ant. 2)				
Mode	Channel	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
802.11n20	1	-10.67	8	PASS
	6	-10.13	8	PASS
	11	-11.14	8	PASS
Measurement uncertainty: ± 1.3 dB				

Spectral power density (Ant. 1+2)				
Mode	Channel	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
802.11n20	1	-8.64	8	PASS
	6	-8.09	8	PASS
	11	-9.31	8	PASS

802.11n40 Test mode

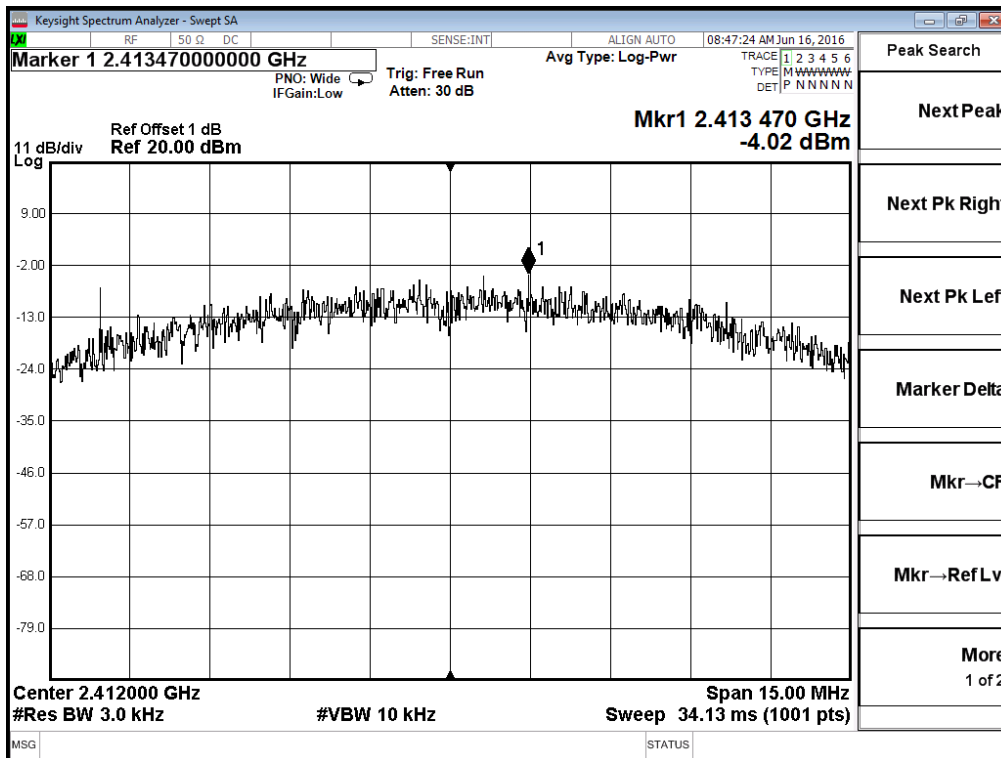
Spectral power density (Ant. 1)				
Mode	Channel	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
802.11n40	3	-16.04	8	PASS
	6	-15.44	8	PASS
	9	-16.16	8	PASS
Measurement uncertainty: ± 1.3 dB				

Spectral power density (Ant. 2)				
Mode	Channel	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
802.11n40	3	-13.71	8	PASS
	6	-13.61	8	PASS
	9	-14.38	8	PASS
Measurement uncertainty: ± 1.3 dB				

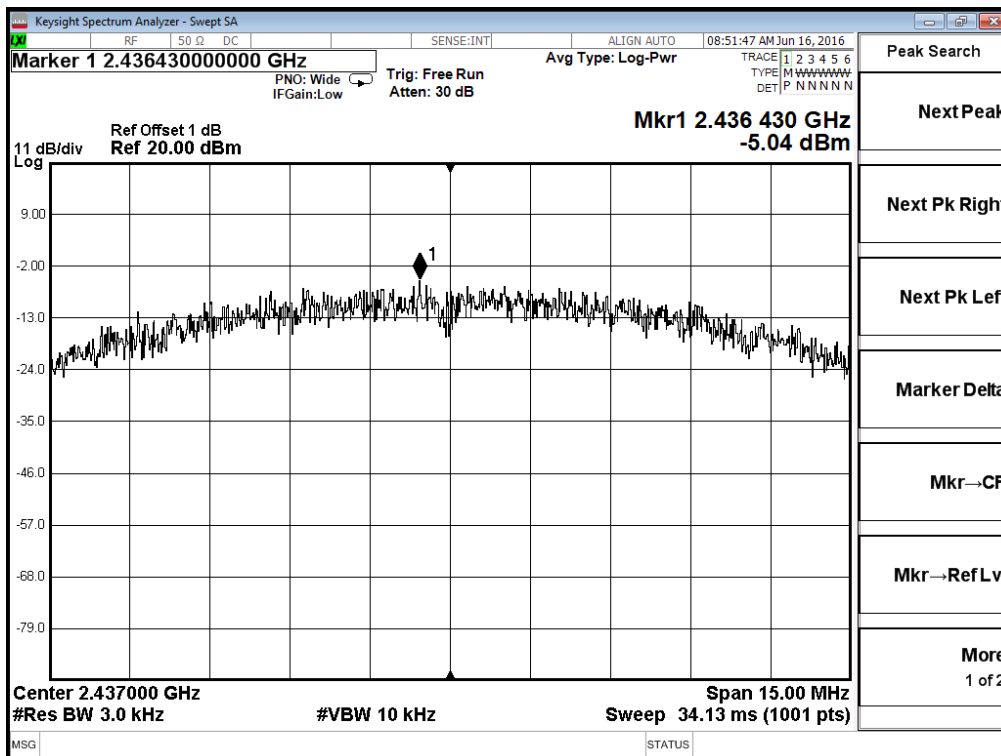


Spectral power density (Ant. 1+2)				
Mode	Channel	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
802.11n40	3	-11.71	8	PASS
	6	-11.42	8	PASS
	9	-12.17	8	PASS
Measurement uncertainty: ± 1.3 dB				

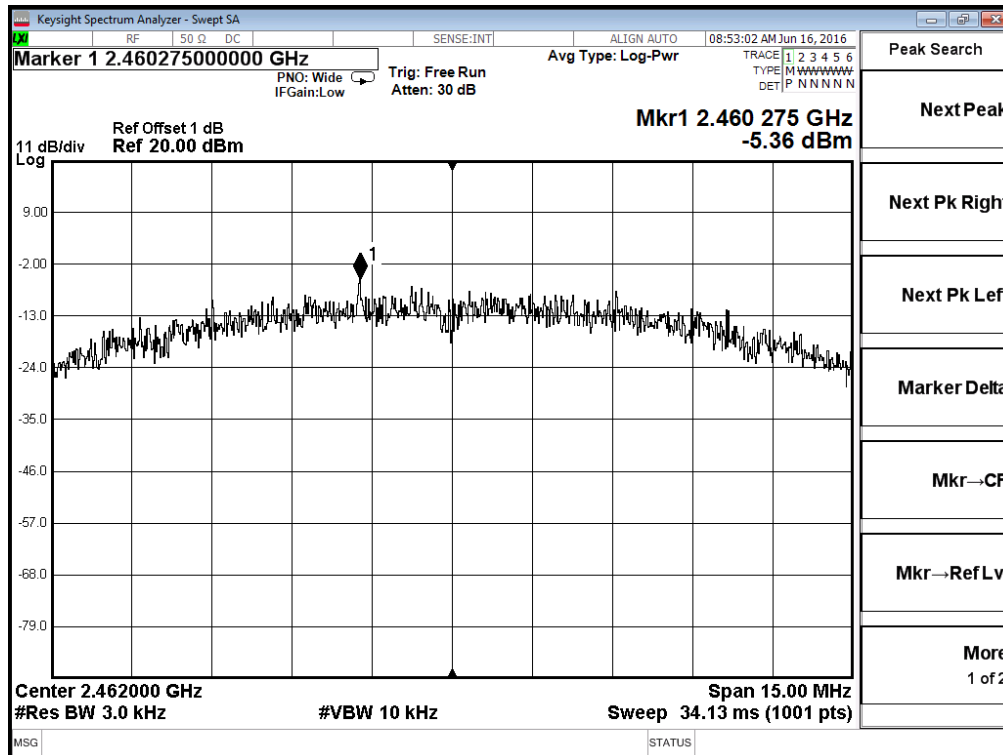
2.5.6. Test Results (plots) of Power spectral density



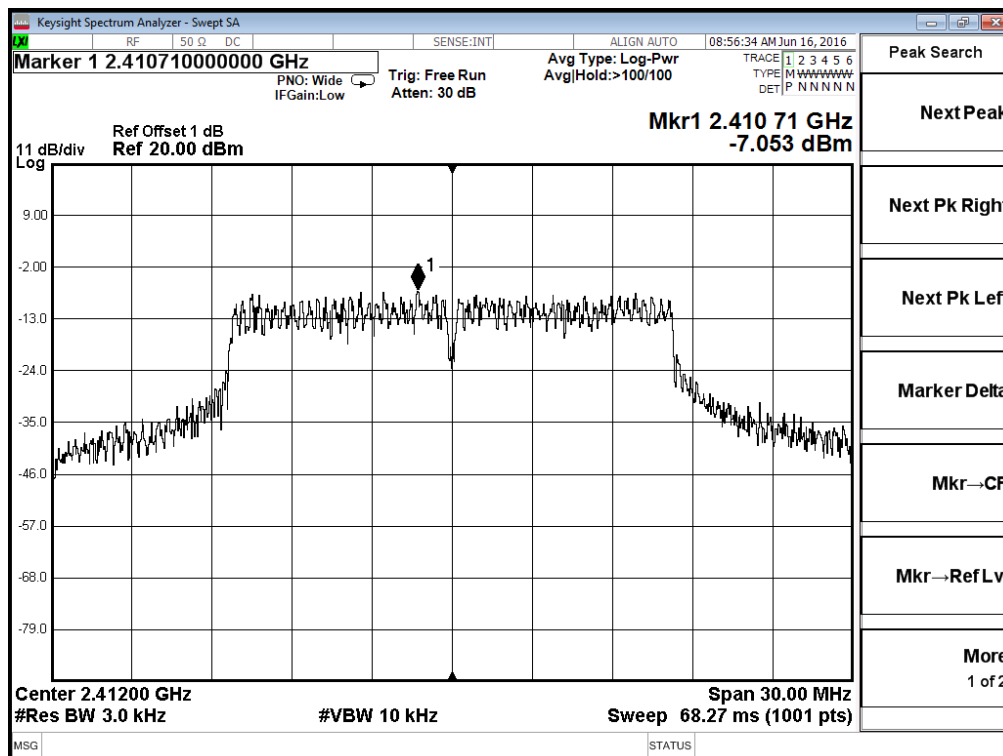
Antenna 1 - 802.11b - Channel 1



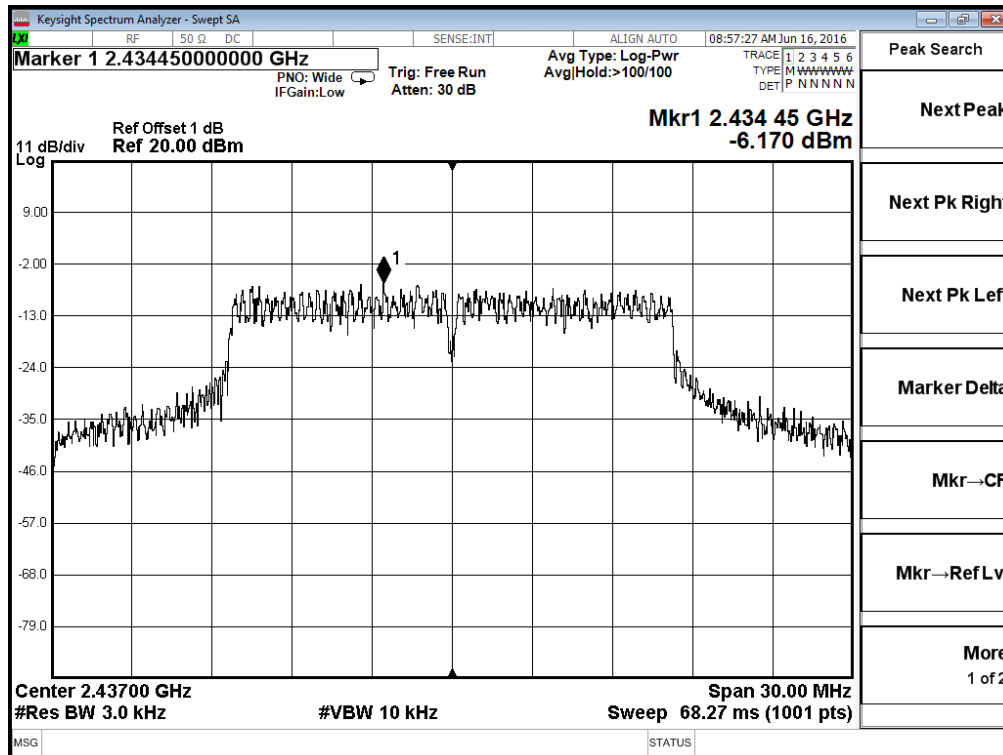
Antenna 1 - 802.11b - Channel 6



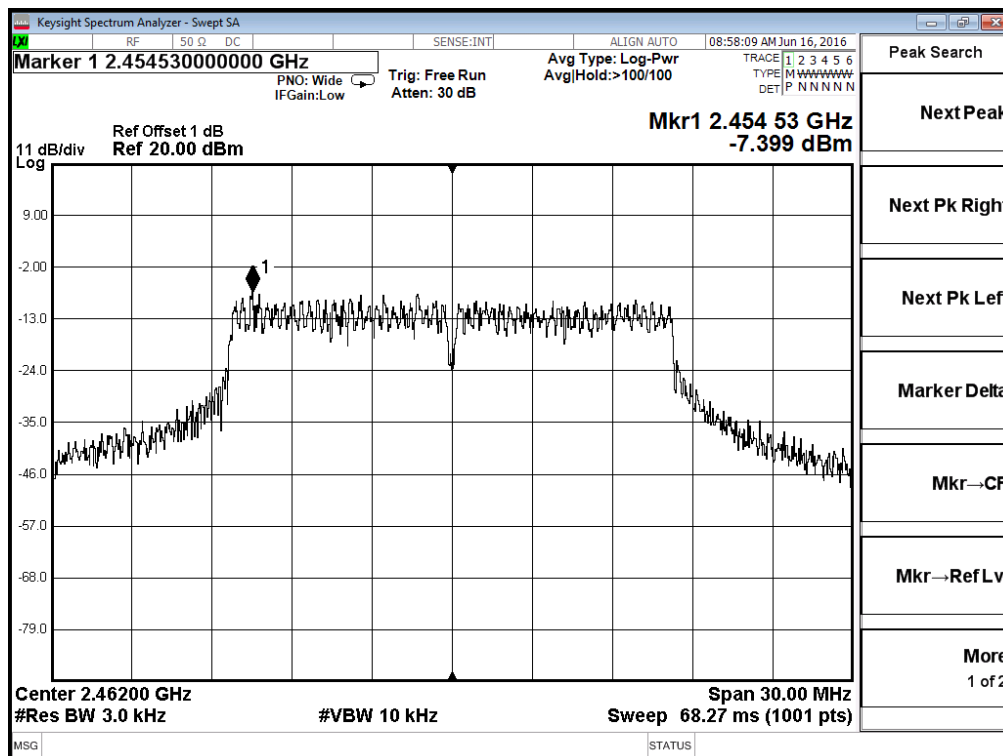
Antenna 1 - 802.11b - Channel 11



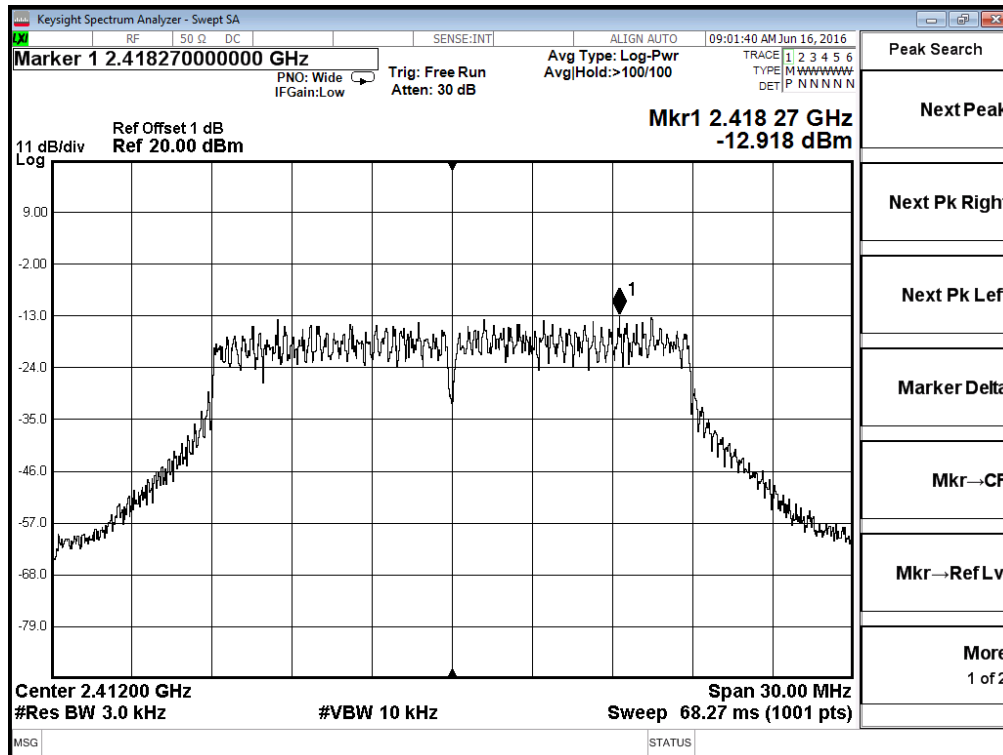
Antenna 1 - 802.11g - Channel 1



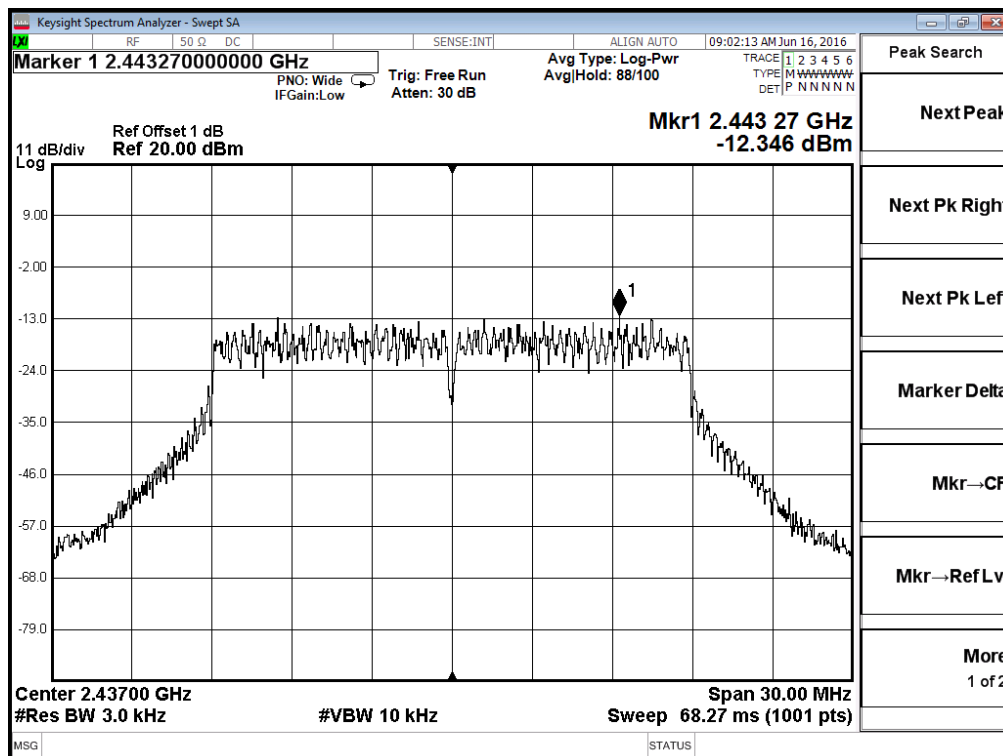
Antenna 1 - 802.11g - Channel 6



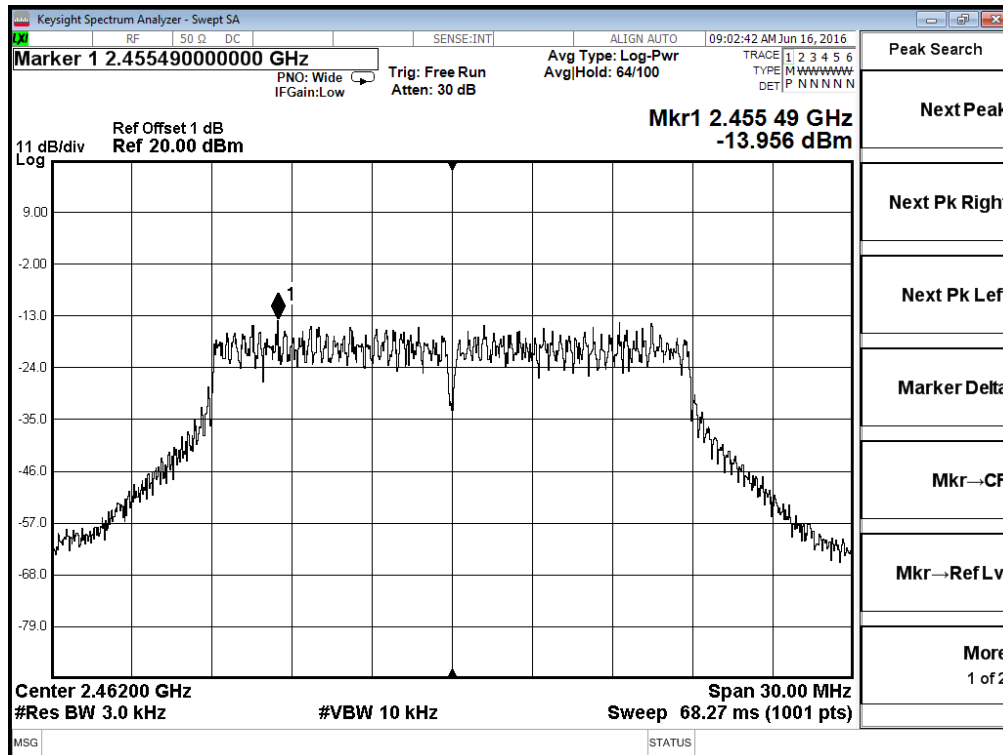
Antenna 1 - 802.11g - Channel 11



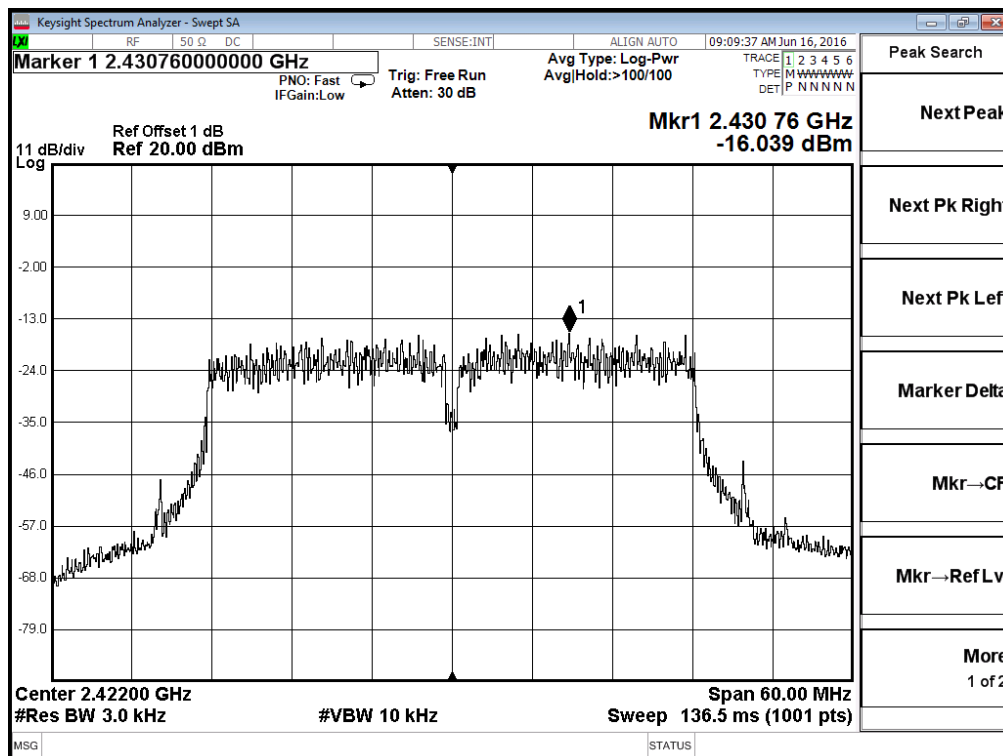
Antenna 1 - 802.11n20 - Channel 1



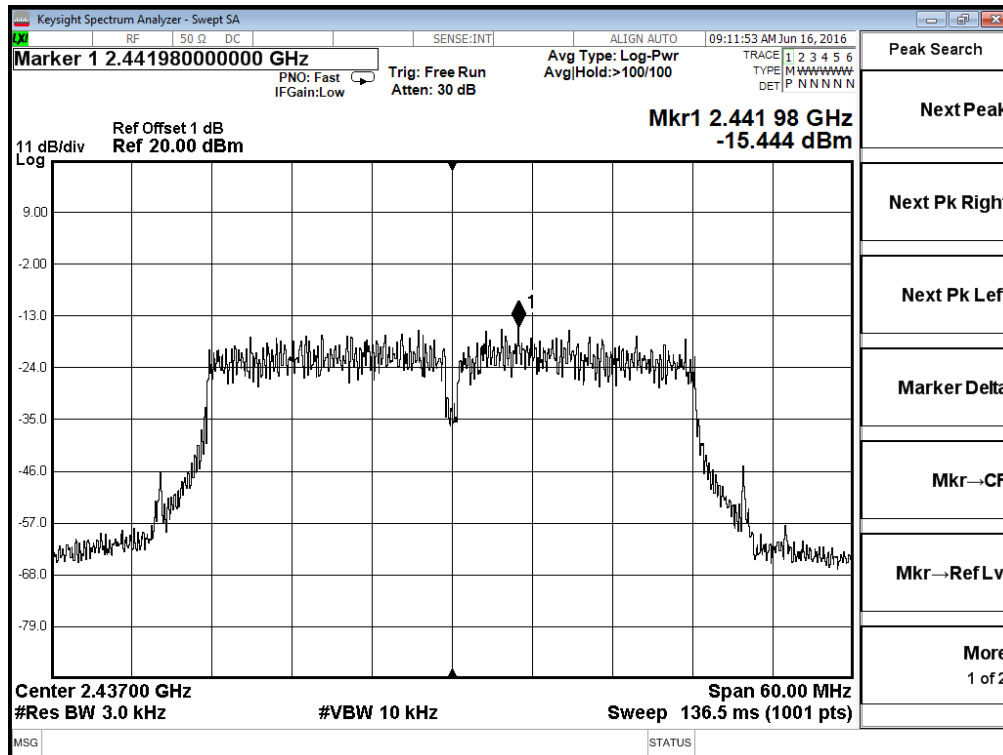
Antenna 1 - 802.11n20 - Channel 6



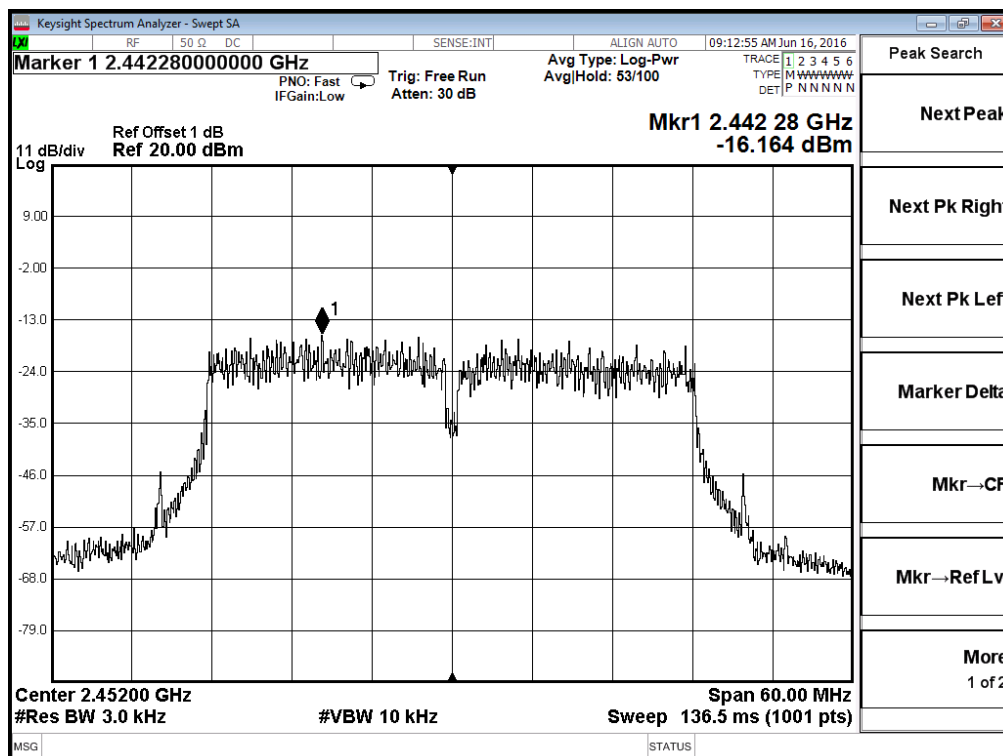
Antenna 1 - 802.11n20 - Channel 11



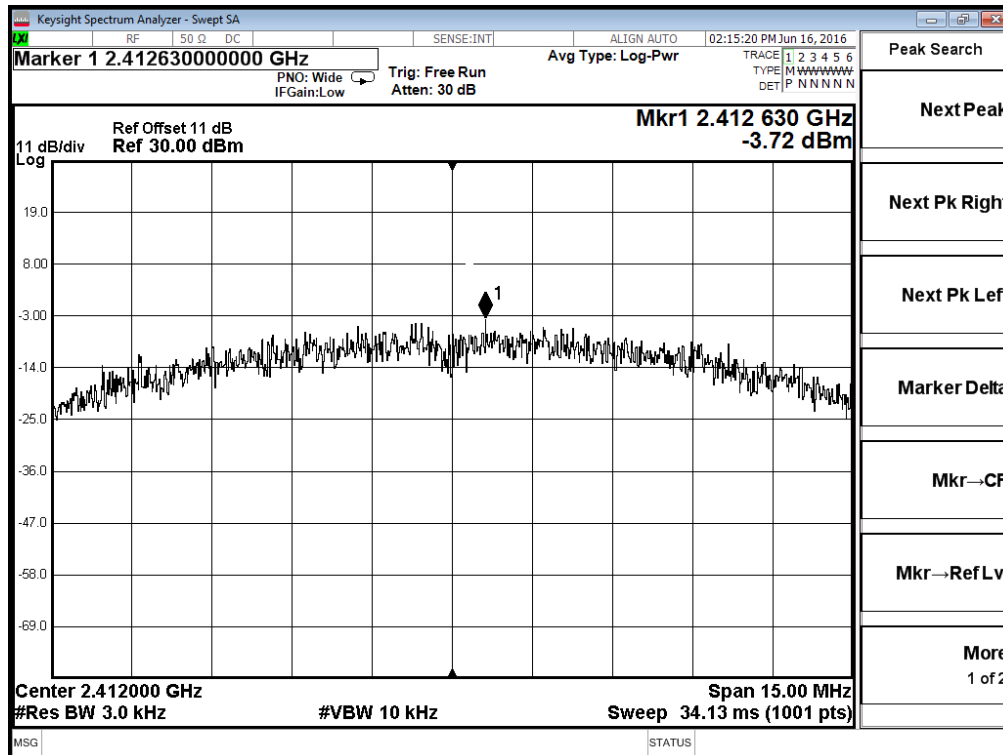
Antenna 1 - 802.11n40 - Channel 3



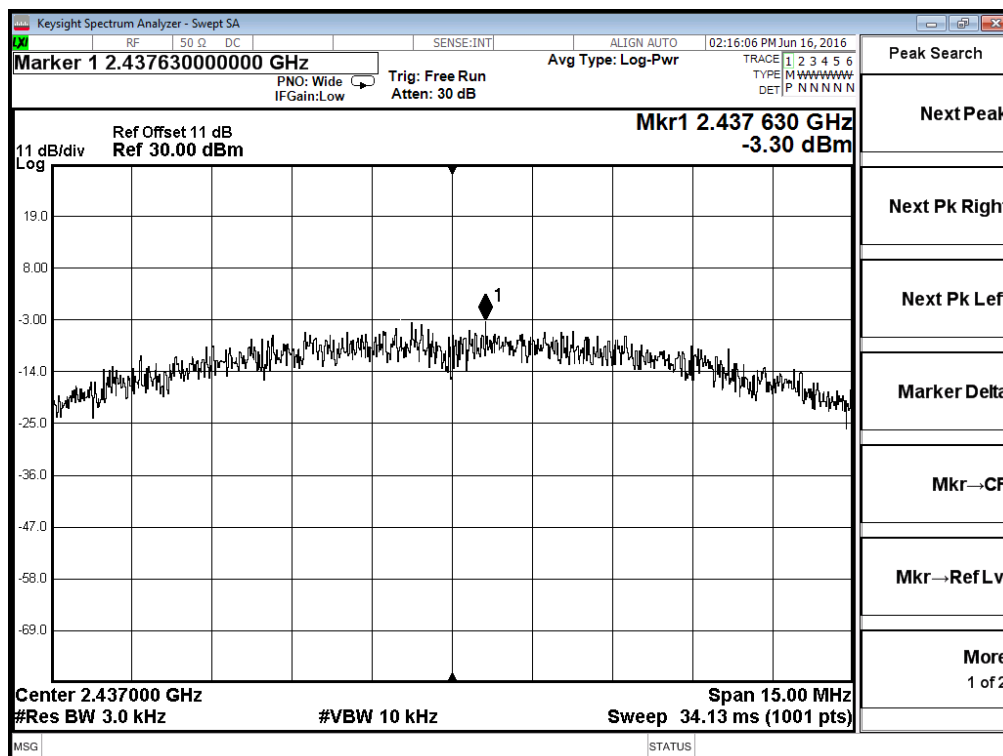
Antenna 1 - 802.11n40 - Channel 6



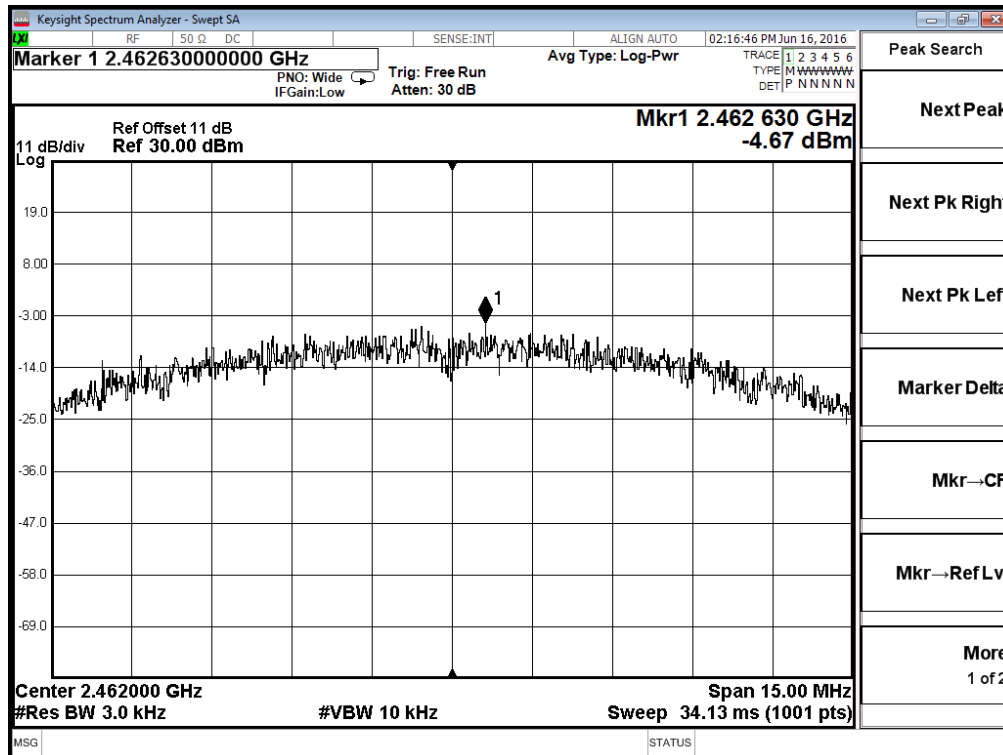
Antenna 1 - 802.11n40 - Channel 9



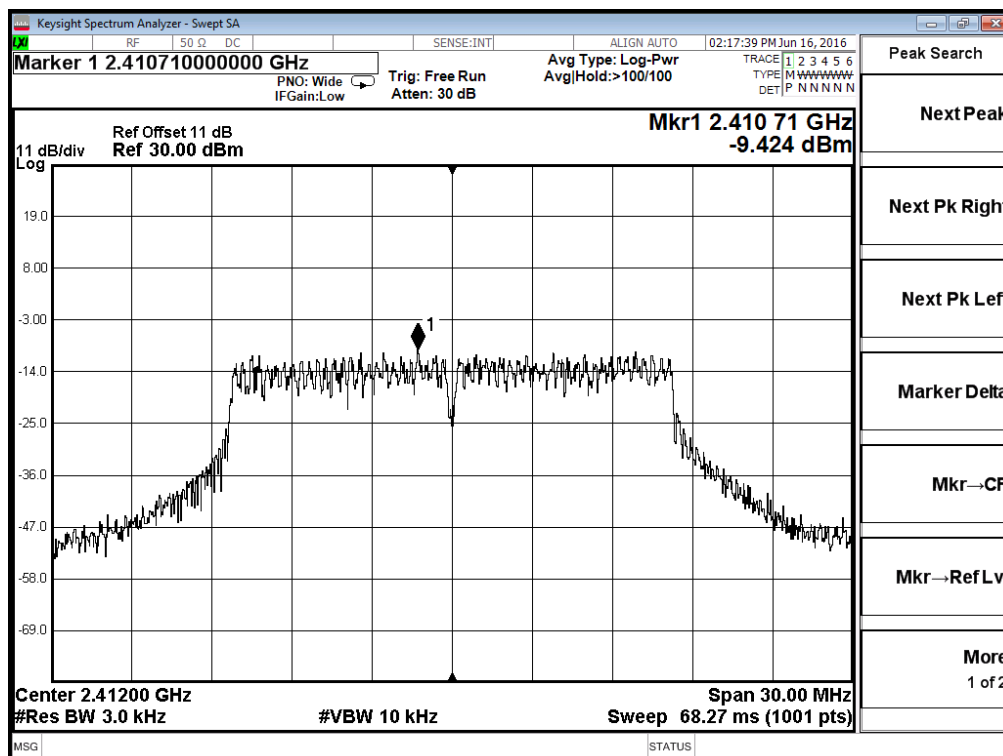
Antenna 2 - 802.11b - Channel 1



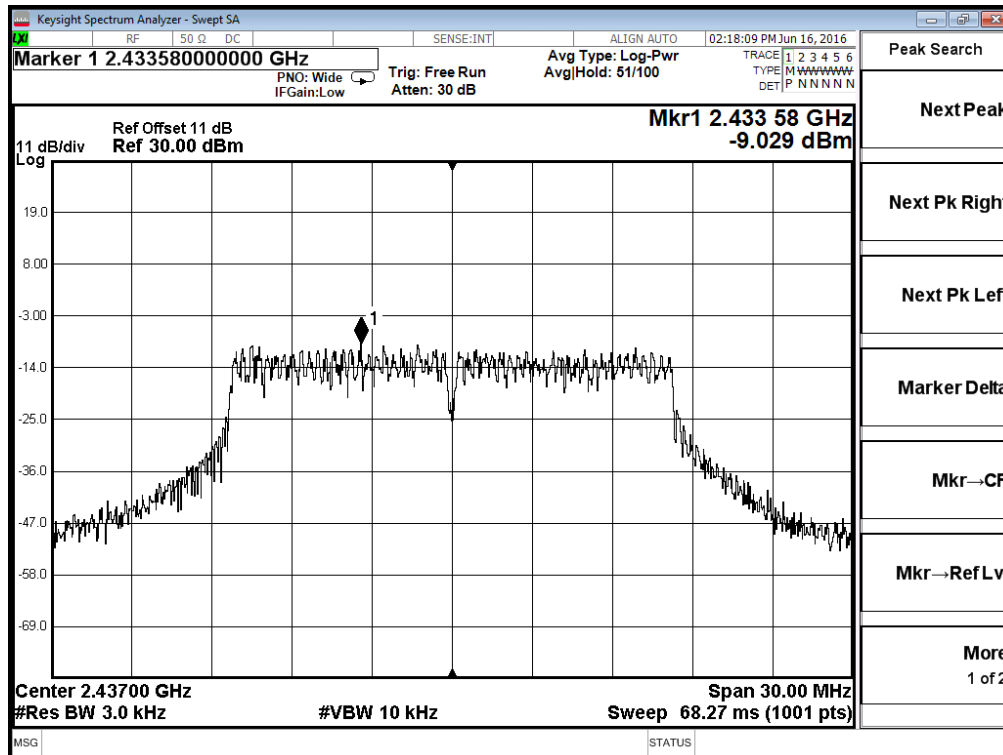
Antenna 2 - 802.11b - Channel 6



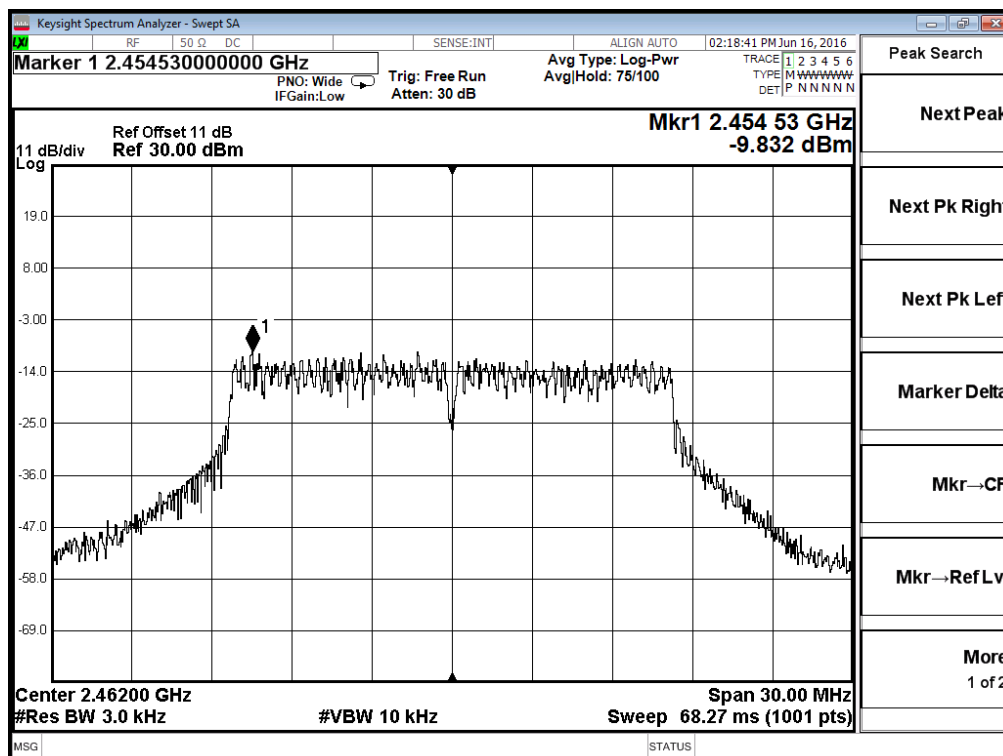
Antenna 2 - 802.11b - Channel 11



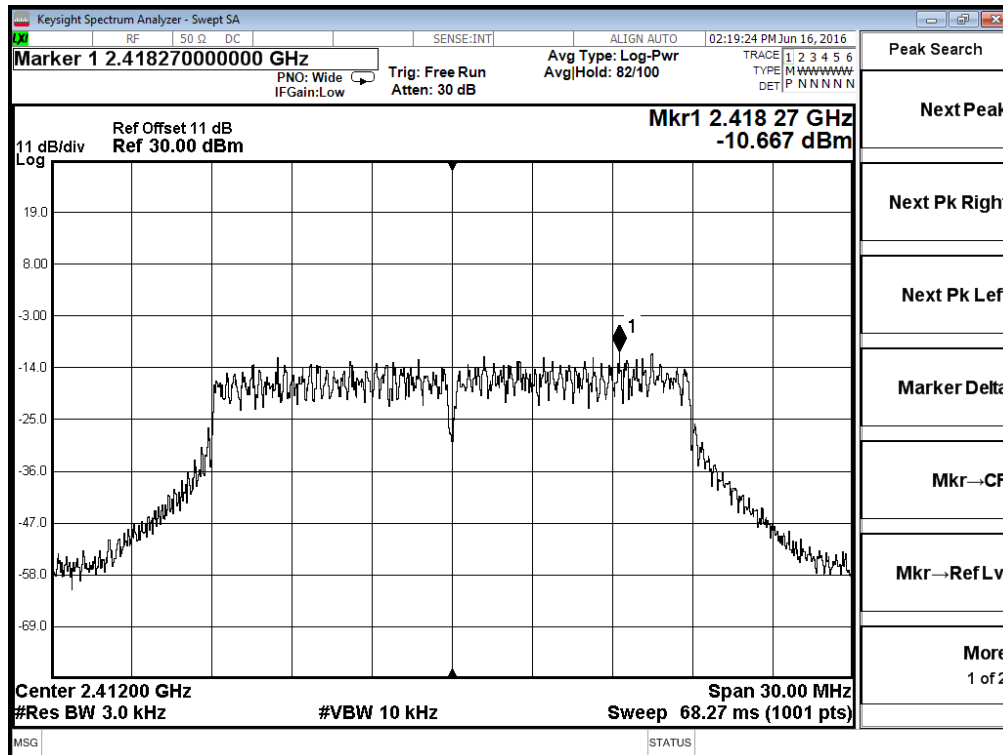
Antenna 2 - 802.11g - Channel 1



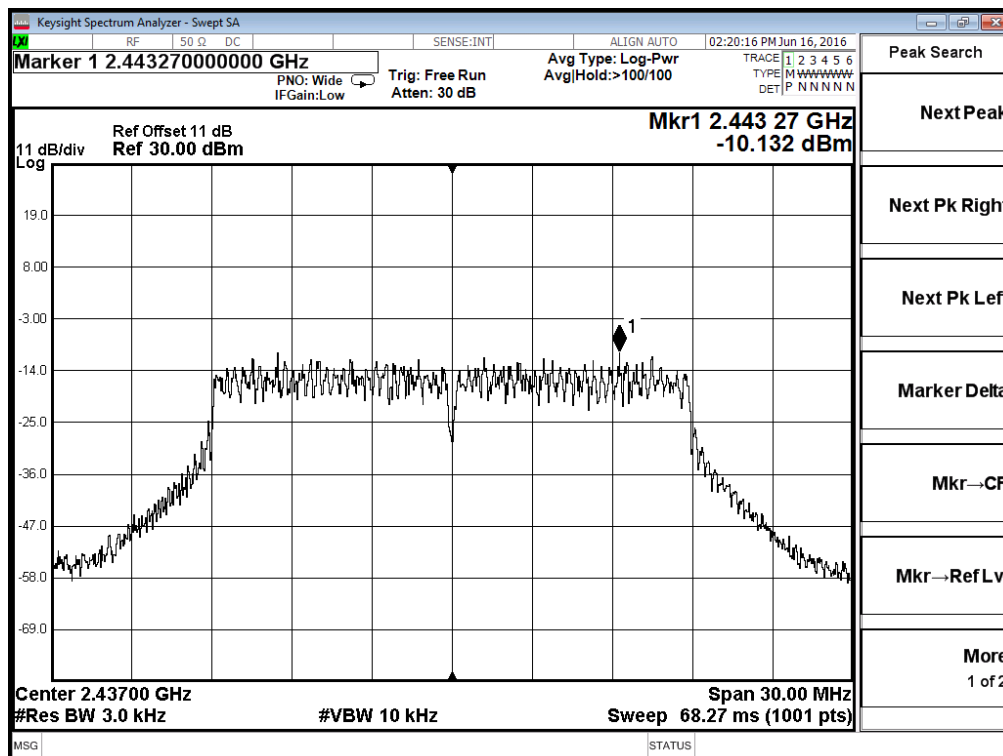
Antenna 2 - 802.11g - Channel 6



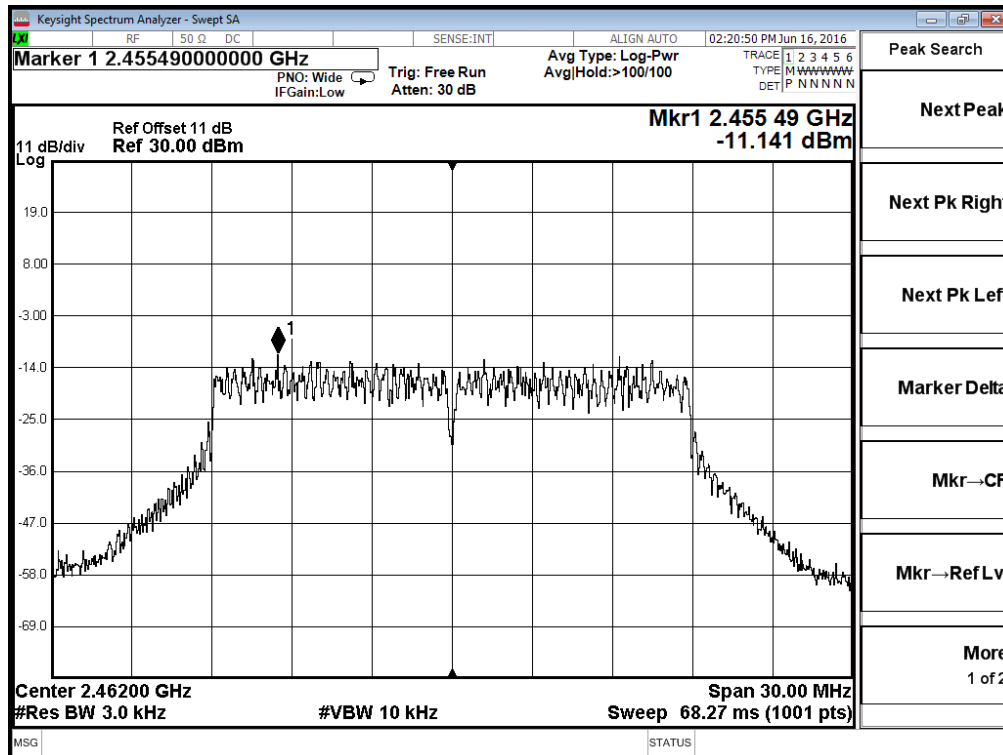
Antenna 2 - 802.11g - Channel 11



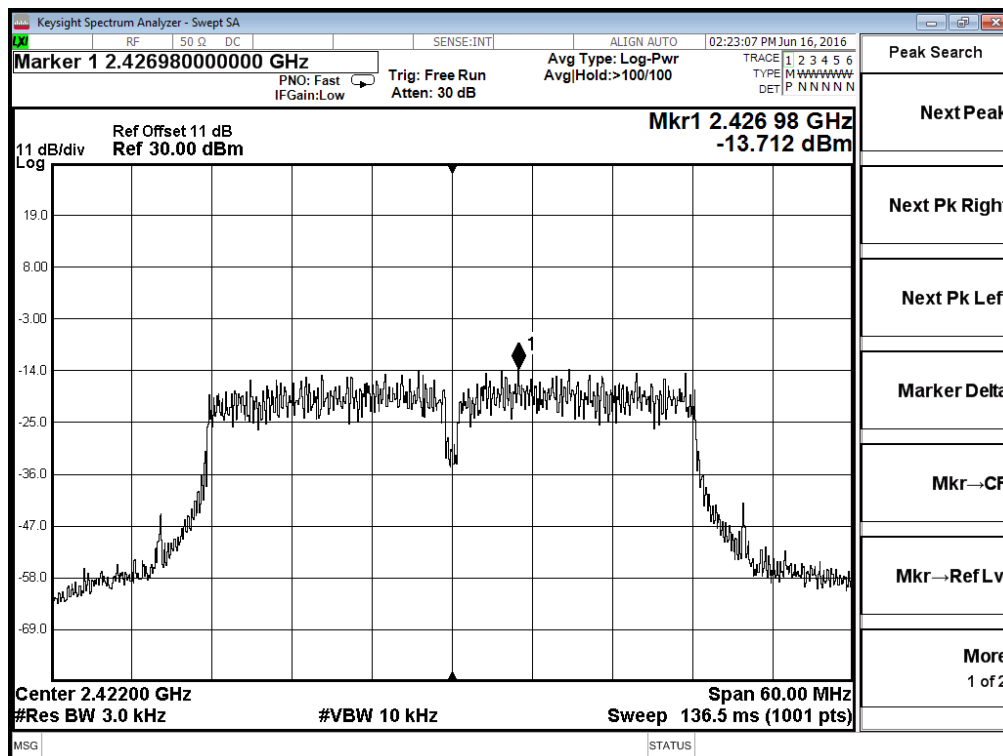
Antenna 2 - 802.11n20 - Channel 1



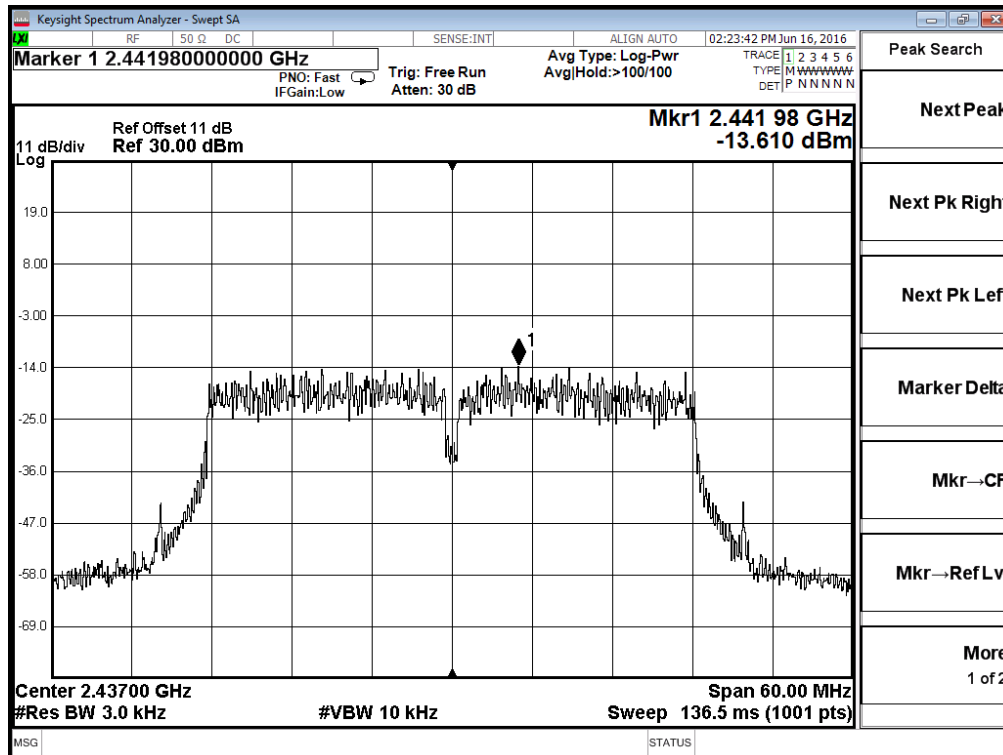
Antenna 2 - 802.11n20 - Channel 6



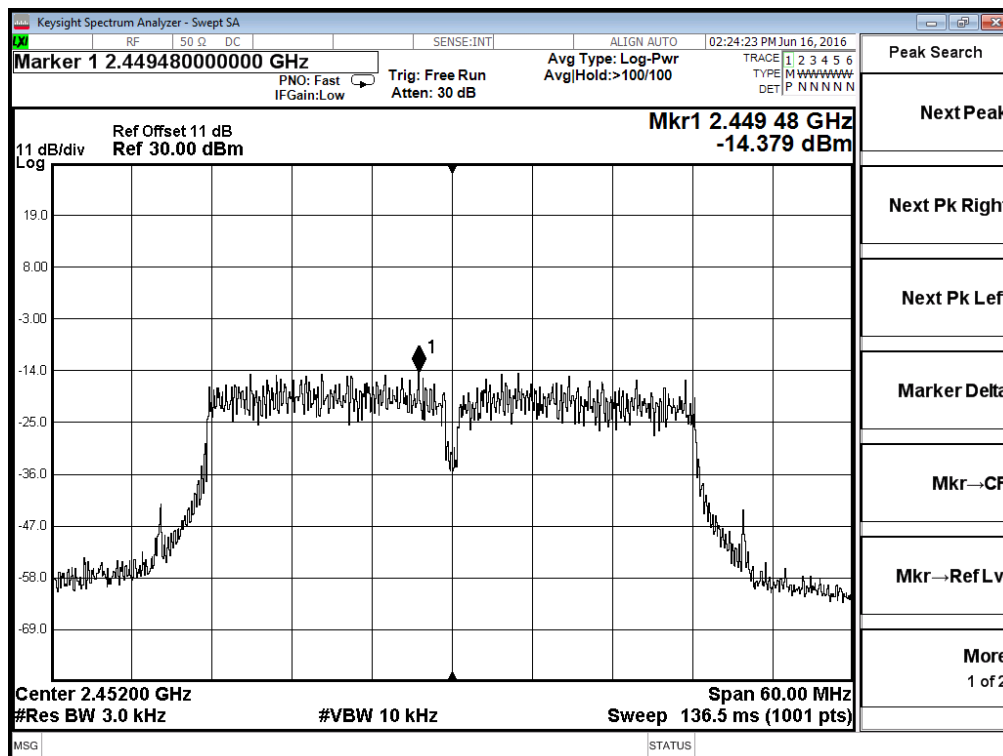
Antenna 2 - 802.11n20 - Channel 11



Antenna 2 - 802.11n40 - Channel 3



Antenna 2 - 802.11n40 - Channel 6



Antenna 2 - 802.11n40 - Channel 9

2.6. Radiated Band Edge and Spurious Emission

2.6.1. Limit of Radiated Band Edges and Spurious Emission

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as below.

Note: Wireless charger configuration was evaluated.

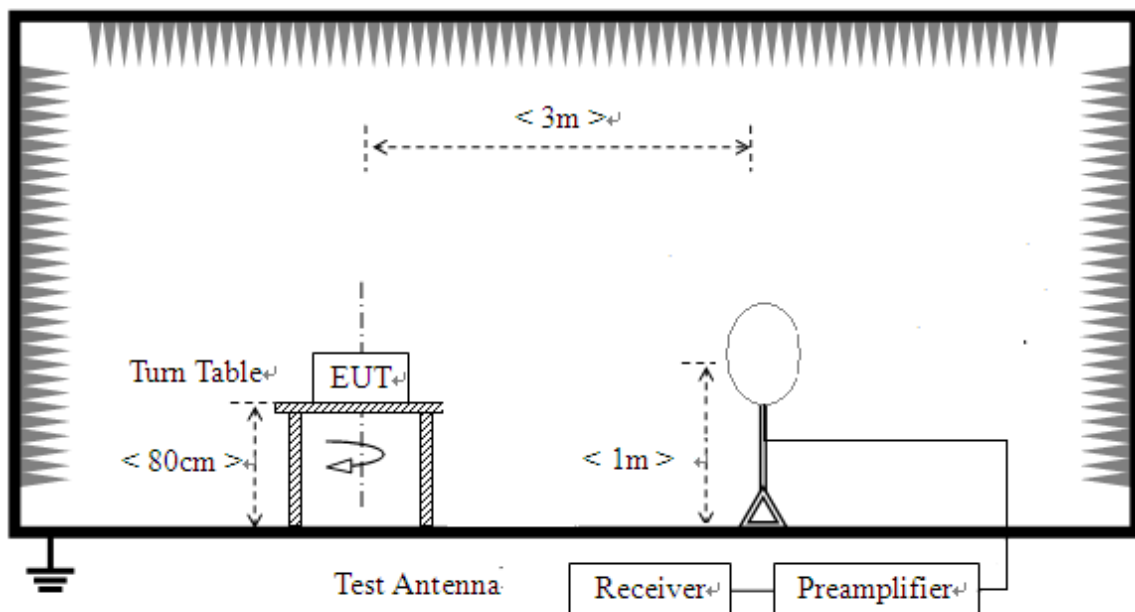
Frequency (MHz)	Field Strength ($\mu\text{V/m}$)	Measurement Distance (m)
0.009 - 0.490	$2400/F(\text{kHz})$	300
0.490 - 1.705	$24000/F(\text{kHz})$	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

2.6.2. Measuring Instruments

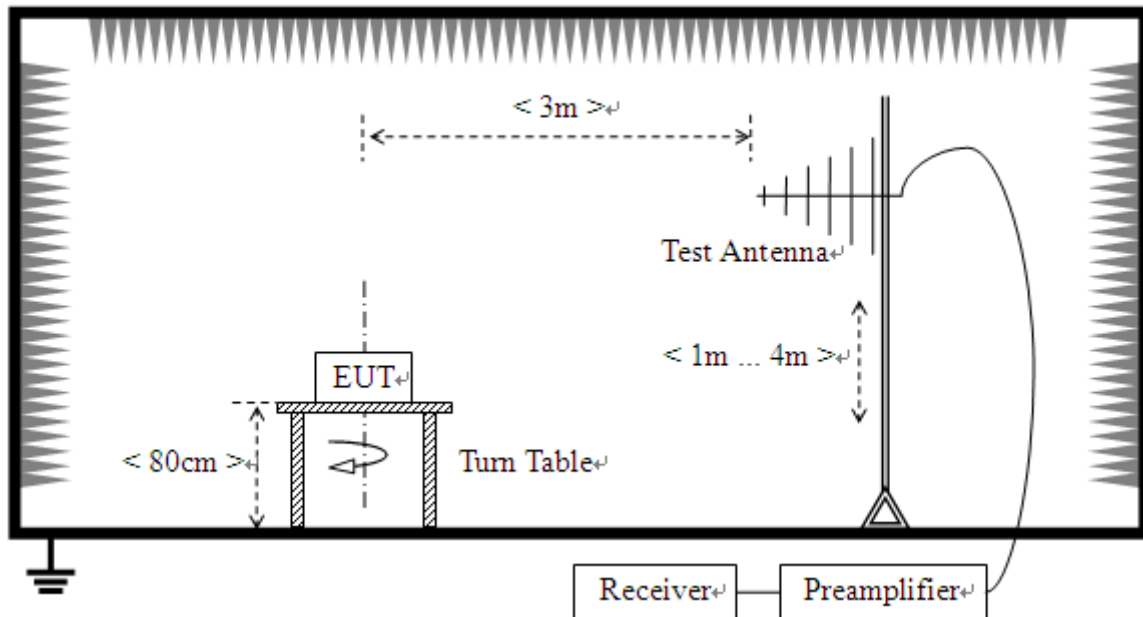
The measuring equipment is listed in the section 3 of this test report.

2.6.3. Test Setup

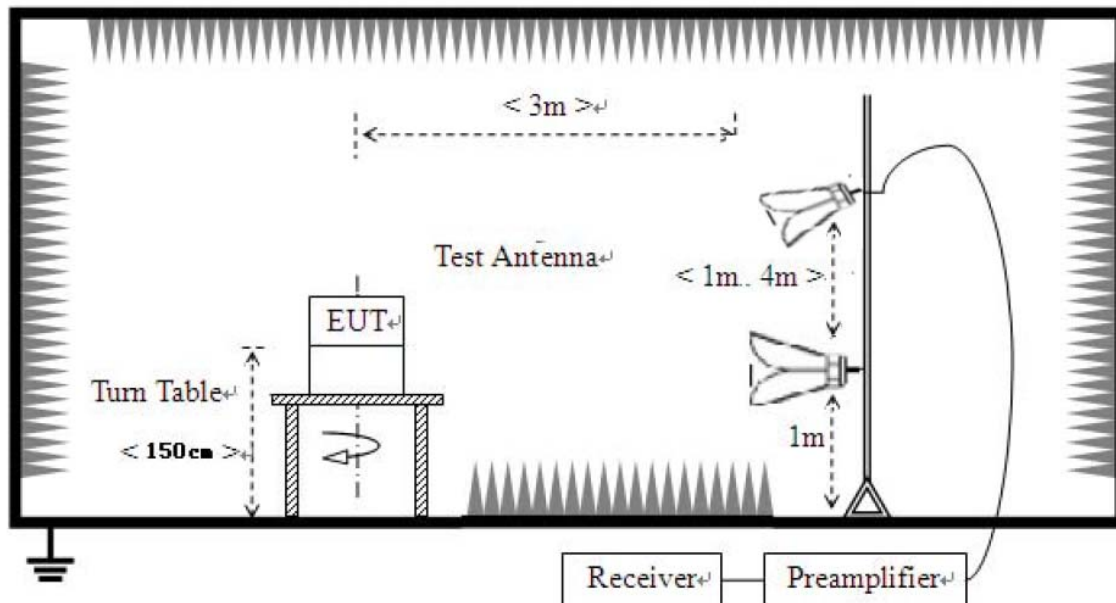
For radiated emissions from 9kHz to 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



2.6.4. Test Procedures

1. The EUT was placed on the top of a rotating table 0.8 meters for below 1GHz and 1.5 meters for above 1GHz on the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. Height of receiving antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported.

Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
4. For 9K~30MHz, the result is lower more than 20dB by the permissible value, and not provide at the report

2.6.5. Test Results of Radiated Band Edge and Spurious Emission

For 9 kHz to 30MHz

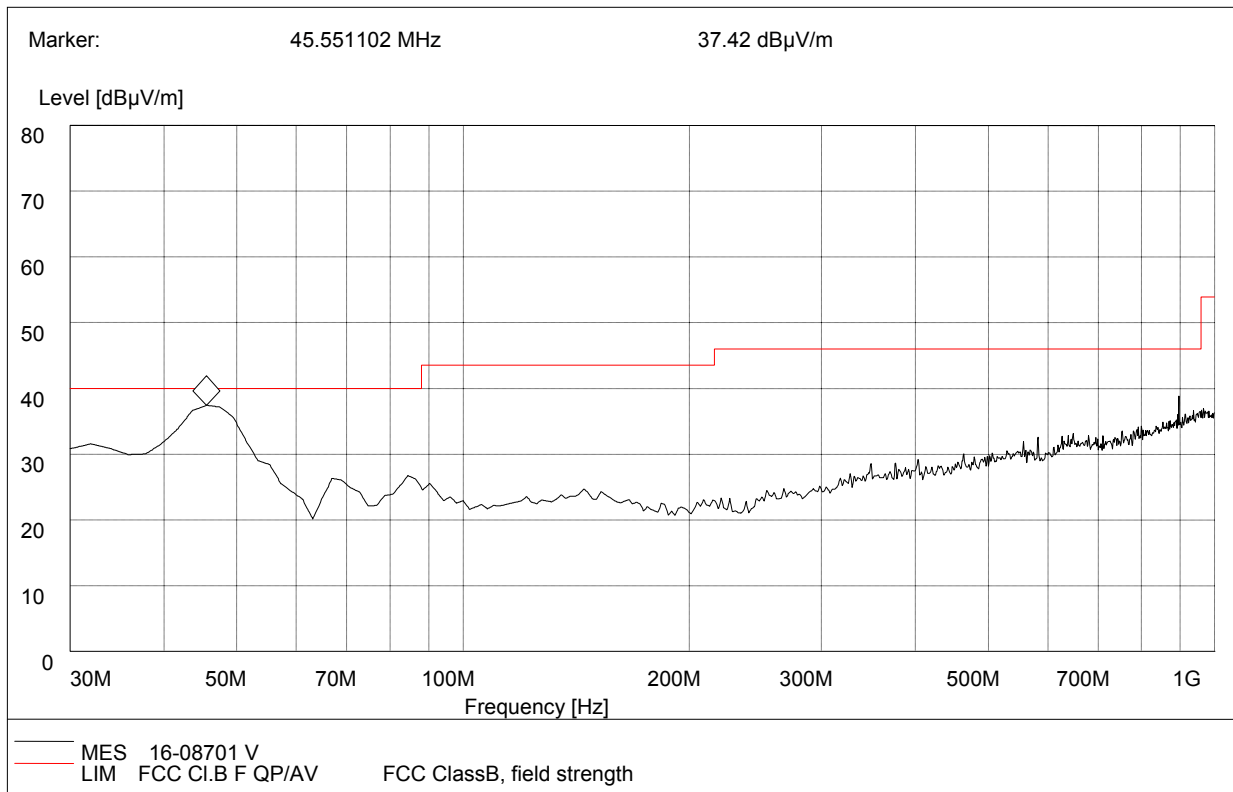
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

For 30MHz to 1000 MHz

Test mode:

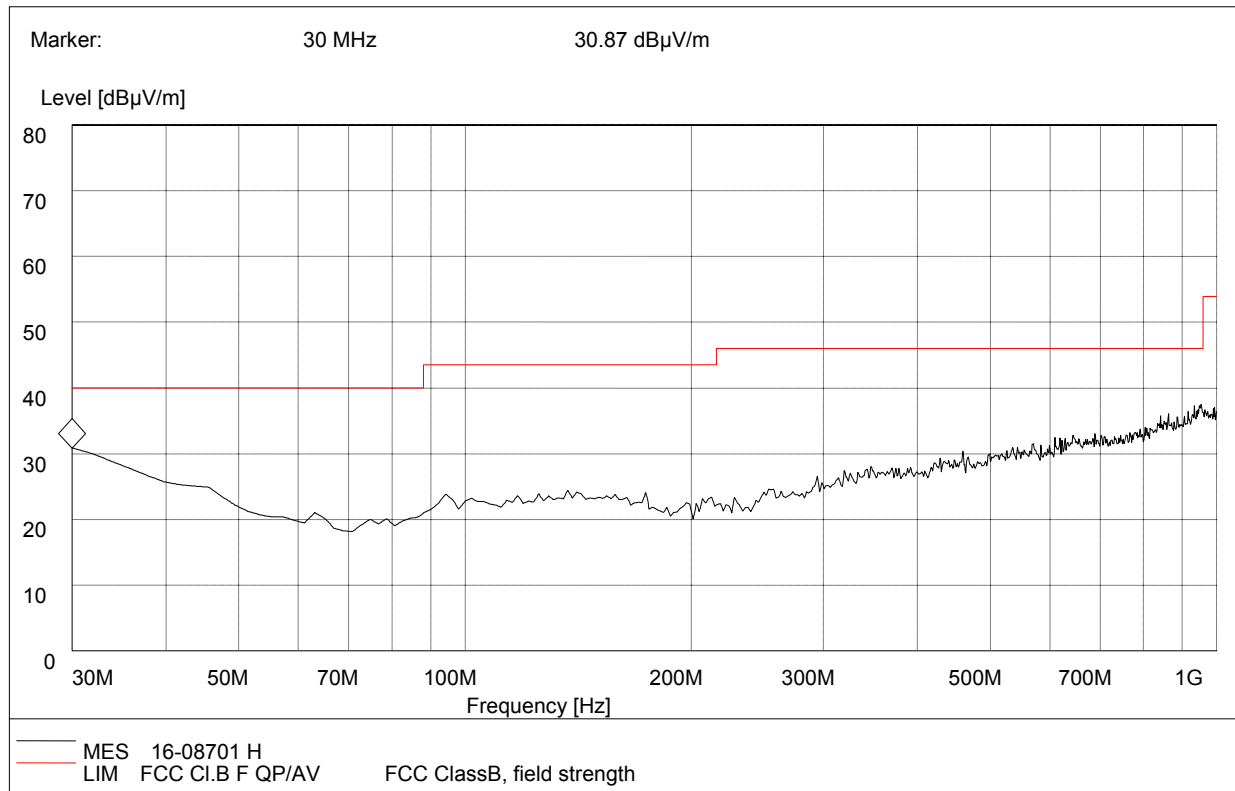
Adapter (model: STC-A2O120150C55-C) with EUT (model: MF253V) operating frequency: 2437MHz

Retest date: Retest at 2016-09-26



30MHz to 1GHz, Antenna Vertical

Frequency (MHz)	QuasiPeak (dB μ V/m)	Bandwidth (kHz)	Antenna height (cm)	Limit (dB μ V/m)	Antenna	Verdict
45.55	37.42	120.000	100.0	40.00	Vertical	Pass



30MHz to 1GHz, Antenna Horizontal

Frequency (MHz)	QuasiPeak (dB μ V/m)	Bandwidth (kHz)	Antenna height (cm)	Limit (dB μ V/m)	Antenna	Verdict
30.00	30.87	120.000	100.0	40.00	Horizontal	Pass

For 1GHz to 25 GHz

Note: Only provide the worst-case data here (adapter model: RD1202000-C55-29MG with EUT model: 7279G)。

Retest at 2016-09-26

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (802.11b_2412MHz)

No.	Frequency (MHz)	Emssion Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)
1	2390.00	50.58	PK	74.00	-23.42	1.50 H	30	49.28	1.3
2	2390.00	34.19	AV	54.00	-19.81	1.50 H	30	32.89	1.3
3	*2412.00	97.66	PK	/	/	1.50 H	30	95.66	2.0
4	*2412.00	90.71	AV	/	/	1.50 H	30	88.71	2.0
5	4824.00	51.92	PK	74.00	-22.08	1.50 H	0	45.52	6.4
6	4824.00	38.28	AV	54.00	-15.72	1.50 H	0	31.88	6.4

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (802.11b_2412MHz)

No.	Frequency (MHz)	Emssion Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)
1	2390.00	47.63	PK	74.00	-26.37	1.50 V	29	46.33	1.3
2	2390.00	33.74	AV	54.00	-20.26	1.50 V	29	32.44	1.3
3	*2412.00	97.34	PK	/	/	1.50 V	29	95.34	2.0
4	*2412.00	90.48	AV	/	/	1.50 V	29	88.48	2.0
5	4824.00	51.20	PK	74.00	-22.8	1.50 V	0	44.80	6.4
6	4824.00	37.59	AV	54.00	-16.41	1.50 V	0	31.19	6.4

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (802.11b_2437MHz)

No.	Frequency (MHz)	Emssion Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)
1	*2437.00	97.82	PK	/	/	1.50 H	35	95.72	2.1
2	*2437.00	90.29	AV	/	/	1.50 H	35	88.19	2.1
3	4874.00	50.72	PK	74.00	-23.28	1.50 H	0	44.22	6.5
4	4874.00	38.01	AV	54.00	-15.99	1.50 H	0	31.51	6.5

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (802.11b_2437MHz)

No.	Frequency (MHz)	Emssion Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)
1	*2437.00	96.52	PK	/	/	1.50 V	27	94.42	2.1
2	*2437.00	88.80	AV	/	/	1.50 V	27	86.70	2.1
3	4874.00	48.87	PK	74.00	-25.13	1.50 V	0	42.37	6.5
4	4874.00	36.83	AV	54.00	-17.17	1.50 V	0	30.33	6.5

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (802.11b_2462MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)
1	*2462.00	96.31	PK	/	/	1.50 H	31	94.01	2.3
2	*2462.00	87.03	AV	/	/	1.50 H	31	84.73	2.3
3	2483.50	55.19	PK	74.00	-18.81	1.50 H	31	52.59	2.6
4	2483.50	35.58	AV	54.00	-18.42	1.50 H	31	32.98	2.6
5	4924.00	49.66	PK	74.00	-24.34	1.50 H	0	42.96	6.7
6	4924.00	37.43	AV	54.00	-16.57	1.50 H	0	30.73	6.7

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (802.11b_2462MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)
1	*2462.00	96.17	PK	/	/	1.50 V	24	93.87	2.3
2	*2462.00	87.28	AV	/	/	1.50 V	24	84.98	2.3
3	2483.50	56.64	PK	74.00	-17.36	1.50 V	24	54.04	2.6
4	2483.50	35.58	AV	54.00	-18.42	1.50V	24	32.98	2.6
5	4924.00	49.28	PK	74.00	-24.72	1.50 V	0	42.58	6.7
6	4924.00	37.43	AV	54.00	-16.57	1.50 V	0	30.73	6.7

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (802.11g_2412MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)
1	2390.00	53.37	PK	74.0	-20.63	1.50 H	26	52.07	1.3
2	2390.00	38.54	AV	54.0	-15.46	1.50 H	26	37.24	1.3
3	*2412.00	101.98	PK	/	/	1.50 H	26	99.98	2.0
4	*2412.00	92.36	AV	/	/	1.50 H	26	90.36	2.0
5	4824.00	58.97	PK	74.00	-15.03	1.50 H	0	52.57	6.4
6	4824.00	46.83	AV	54.00	-7.17	1.50 H	0	40.43	6.4

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (802.11g_2412MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)
1	2390.00	56.80	PK	74.0	-17.2	1.50 V	37	55.50	1.3
2	2390.00	40.84	AV	54.0	-13.16	1.50 V	37	39.54	1.3
3	*2412.00	100.55	PK	/	/	1.50 V	37	98.55	2.0
4	*2412.00	90.76	AV	/	/	1.50 V	37	88.76	2.0
5	4824.00	49.54	PK	74.00	-24.46	1.50 V	0	43.14	6.4
6	4824.00	37.59	AV	54.00	-16.41	1.50 V	0	31.19	6.4

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (802.11g_2437MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)
1	*2437.00	101.24	PK	/	/	1.50 H	32	99.14	2.1
2	*2437.00	91.24	AV	/	/	1.50 H	32	89.14	2.1
3	4874.00	51.57	PK	74.00	-22.43	1.50 H	0	45.07	6.5
4	4874.00	38.69	AV	54.00	-15.31	1.50 H	0	32.19	6.5

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (802.11g_2437MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)
1	*2437.00	100.24	PK	/	/	1.50 V	28	98.14	2.1
2	*2437.00	90.73	AV	/	/	1.50 V	28	88.63	2.1
3	4874.00	49.61	PK	74.00	-24.39	1.50 V	0	43.11	6.5
4	4874.00	38.01	AV	54.00	-15.99	1.50 V	0	31.51	6.5

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (802.11g_2462MHz)

No.	Frequency (MHz)	Emssion Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)
1	*2462.00	99.74	PK	/	/	1.50 H	33	97.44	2.3
2	*2462.00	85.18	AV	/	/	1.50 H	33	82.88	2.3
3	2483.50	62.28	PK	74.0	-11.72	1.50 H	33	59.68	2.6
4	2483.50	45.48	AV	54.0	-8.52	1.50 H	33	42.88	2.6
5	4924.00	49.47	PK	74.0	-24.53	1.50 H	0	42.77	6.7
6	4924.00	37.80	AV	54.0	-16.2	1.50 H	0	31.10	6.7

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (802.11g_2462MHz)

No.	Frequency (MHz)	Emssion Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)
1	*2462.00	98.61	PK	/	/	1.50 V	25	96.31	2.3
2	*2462.00	87.66	AV	/	/	1.50 V	25	85.36	2.3
3	2483.50	62.44	PK	74.0	-11.56	1.50 V	25	59.84	2.6
4	2483.50	45.49	AV	54.0	-8.51	1.50 V	25	42.89	2.6
5	4924.00	49.66	PK	74.0	-24.34	1.50 V	0	42.96	6.7
6	4924.00	37.43	AV	54.0	-16.57	1.50 V	0	30.73	6.7

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (802.11n20_2412MHz)

No.	Frequency (MHz)	Emssion Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)
1	2390.00	45.72	PK	74.0	-28.28	1.50 H	35	44.42	1.3
2	2390.00	34.09	AV	54.0	-19.91	1.50 H	35	32.79	1.3
3	*2412.00	95.04	PK	/	/	1.50 H	35	93.04	2.0
4	*2412.00	81.28	AV	/	/	1.50 H	35	79.28	2.0
5	4824.00	49.72	PK	74.00	-24.28	1.50 H	0	43.32	6.4
6	4824.00	36.83	AV	54.00	-17.17	1.50 H	0	30.43	6.4

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (802.11n20_2412MHz)

No.	Frequency (MHz)	Emssion Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)
1	2390.00	45.55	PK	74.0	-28.45	1.50 V	22	44.25	1.3
2	2390.00	33.74	AV	54.0	-20.26	1.50 V	22	32.44	1.3
3	*2412.00	95.73	PK	/	/	1.50 V	22	93.73	2.0
4	*2412.00	80.91	AV	/	/	1.50 V	22	78.91	2.0
5	4824.00	48.77	PK	74.00	-25.23	1.50 V	0	42.37	6.4
6	4824.00	36.83	AV	54.00	-17.17	1.50 V	0	30.43	6.4

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (802.11n20_2437MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)
1	*2437.00	94.99	PK	/	/	1.50 H	30	92.89	2.1
2	*2437.00	81.18	AV	/	/	1.50 H	30	79.08	2.1
3	4874.00	50.14	PK	74.00	-23.86	1.50 H	0	43.64	6.5
4	4874.00	37.29	AV	54.00	-16.71	1.50 H	0	30.79	6.5

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (802.11n20_2437MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)
1	*2437.00	95.59	PK	/	/	1.50 V	30	93.49	2.1
2	*2437.00	81.54	AV	/	/	1.50 V	30	79.44	2.1
3	4874.00	49.04	PK	74.00	-24.96	1.50 V	0	42.54	6.5
4	4874.00	37.29	AV	54.00	-16.71	1.50 V	0	30.79	6.5

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (802.11n20_2462MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)
1	*2462.00	95.21	PK	/	/	1.50 H	24	92.91	2.3
2	*2462.00	77.51	AV	/	/	1.50 H	24	75.21	2.3
3	2483.50	49.01	PK	74.0	-24.99	1.50 H	24	46.41	2.6
4	2483.50	35.58	AV	54.0	-18.42	1.50 H	24	32.98	2.6
5	4924.00	49.47	PK	74.0	-24.53	1.50 H	0	42.77	6.7
6	4924.00	37.43	AV	54.0	-16.57	1.50 H	0	30.73	6.7

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (802.11n20_2462MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)
1	*2462.00	96.49	PK	/	/	1.50 V	31	94.19	2.3
2	*2462.00	79.64	AV	/	/	1.50 V	31	77.34	2.3
3	2483.50	48.85	PK	74.0	-25.15	1.50 V	31	46.25	2.6
4	2483.50	35.58	AV	54.0	-18.42	1.50 V	31	32.98	2.6
5	4924.00	49.56	PK	74.0	-24.44	1.50 V	0	42.86	6.7
6	4924.00	37.42	AV	54.0	-16.58	1.50 V	0	30.72	6.7

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (802.11n40_2422MHz)

No.	Frequency (MHz)	Emssion Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)
1	2390.00	48.25	PK	74.0	-25.75	1.50 H	29	46.95	1.3
2	2390.00	33.71	AV	54.0	-20.29	1.50 H	29	32.41	1.3
3	*2422.00	91.88	PK	/	/	1.50 H	29	89.88	2.0
4	*2422.00	75.50	AV	/	/	1.50 H	29	73.50	2.0
5	4844.00	49.82	PK	74.00	-24.18	1.50 H	0	43.42	6.4
6	4844.00	37.23	AV	54.00	-16.77	1.50 H	0	30.83	6.4

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (802.11n40_2422MHz)

No.	Frequency (MHz)	Emssion Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)
1	2390.00	51.15	PK	74.0	-22.85	1.50 V	34	49.85	1.3
2	2390.00	34.19	AV	54.0	-19.81	1.50 V	34	32.89	1.3
3	*2422.00	91.63	PK	/	/	1.50 V	34	89.63	2.0
4	*2422.00	74.88	AV	/	/	1.50 V	34	72.88	2.0
5	4844.00	49.08	PK	74.00	-24.92	1.50 V	0	42.68	6.4
6	4844.00	37.23	AV	54.00	-16.77	1.50 V	0	30.83	6.4

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (802.11n40_2437MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)
1	*2437.00	90.65	PK	/	/	1.50 H	30	88.55	2.1
2	*2437.00	72.06	AV	/	/	1.50 H	30	69.96	2.1
3	4874.00	48.95	PK	74.00	-25.05	1.50 H	0	42.45	6.5
4	4874.00	37.29	AV	54.00	-16.71	1.50 H	0	30.79	6.5

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (802.11n40_2437MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)
1	*2437.00	92.60	PK	/	/	1.50 V	40	90.50	2.1
2	*2437.00	76.14	AV	/	/	1.50 V	40	74.04	2.1
3	4874.00	50.23	PK	74.00	-23.77	1.50 V	0	43.73	6.5
4	4874.00	37.29	AV	54.00	-16.71	1.50 V	0	30.79	6.5

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (802.11n40_2452MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)
1	*2452.00	91.93	PK	/	/	1.50 H	27	89.63	2.3
2	*2452.00	68.25	AV	/	/	1.50 H	27	65.95	2.3
3	2483.50	56.16	PK	74.0	-17.84	1.50 H	27	53.56	2.6
4	2483.50	35.58	AV	54.0	-18.42	1.50 H	27	32.98	2.6
5	4904.00	49.56	PK	74.0	-24.44	1.50 H	0	42.86	6.7
6	4904.00	37.42	AV	54.0	-16.58	1.50 H	0	30.72	6.7

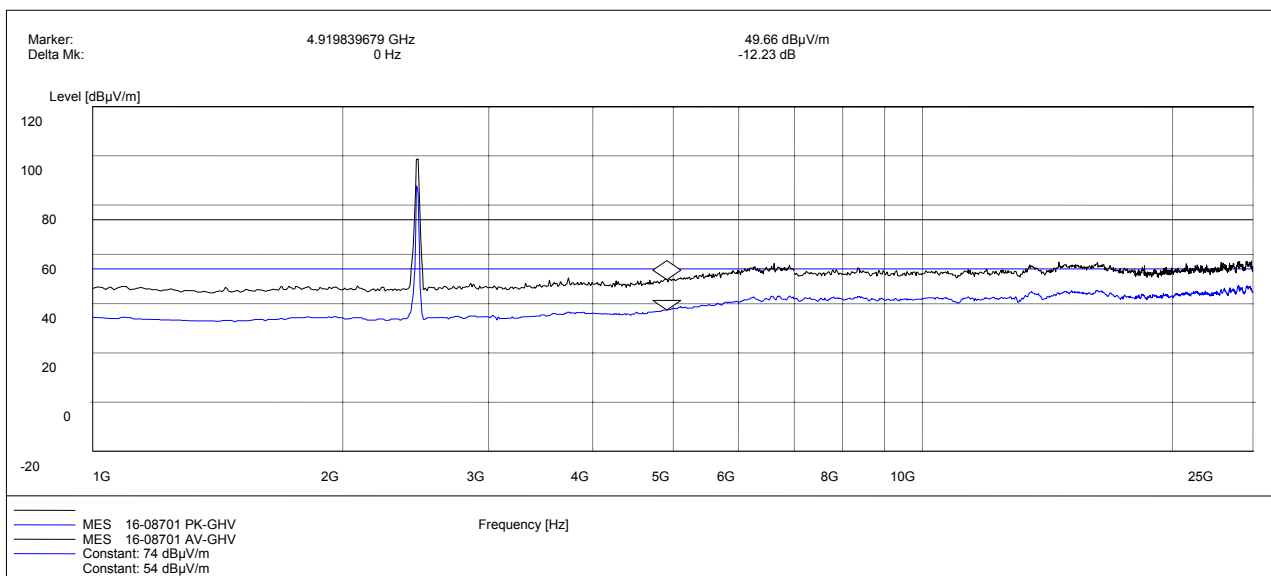
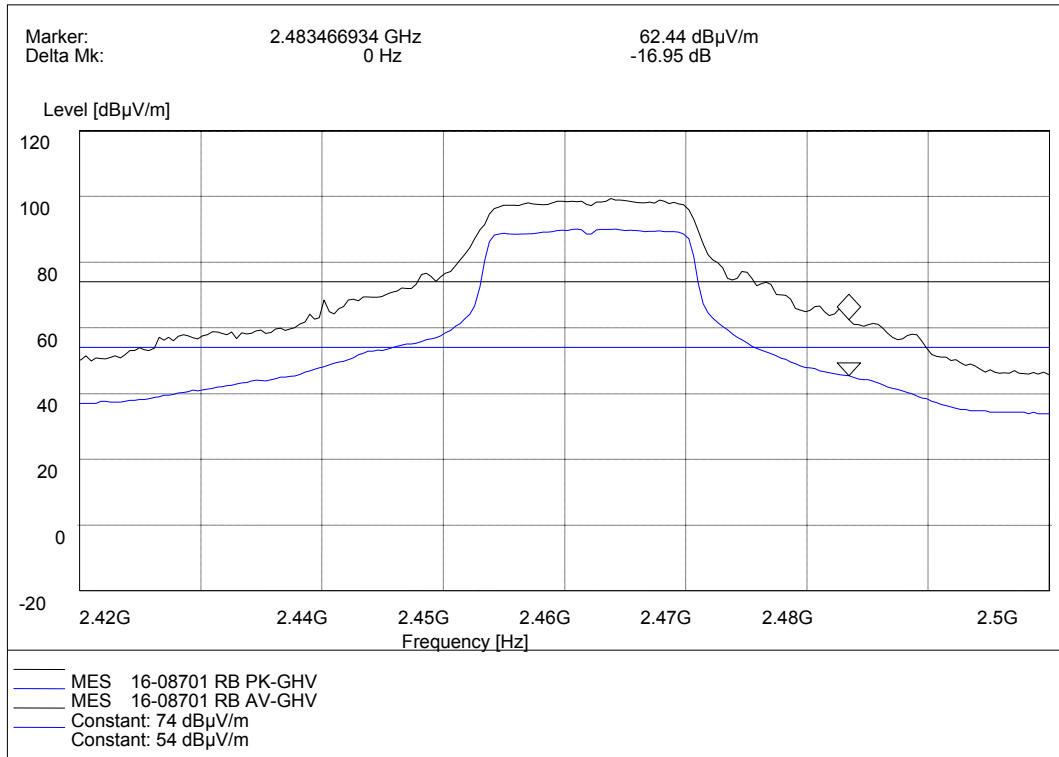
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (802.11n40_2452MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)
1	*2452.00	94.11	PK	/	/	1.50 V	32	91.81	2.3
2	*2452.00	76.04	AV	/	/	1.50 V	32	73.74	2.3
3	2483.50	56.77	PK	74.0	-17.23	1.50 V	32	54.17	2.6
4	2483.50	35.94	AV	54.0	-18.06	1.50 V	32	33.34	2.6
5	4904.00	48.88	PK	74.0	-25.12	1.50 V	0	42.18	6.7
6	4904.00	37.42	AV	54.0	-16.58	1.50 V	0	30.72	6.7

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
- Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level - Limit value
5. " * ": Fundamental frequency.

Worst-Case mode test Plots of VERTICAL AT 3 M (802.11g_2462MHz)



2.7. Conducted Emission

2.7.1. Limit of Conducted Emission

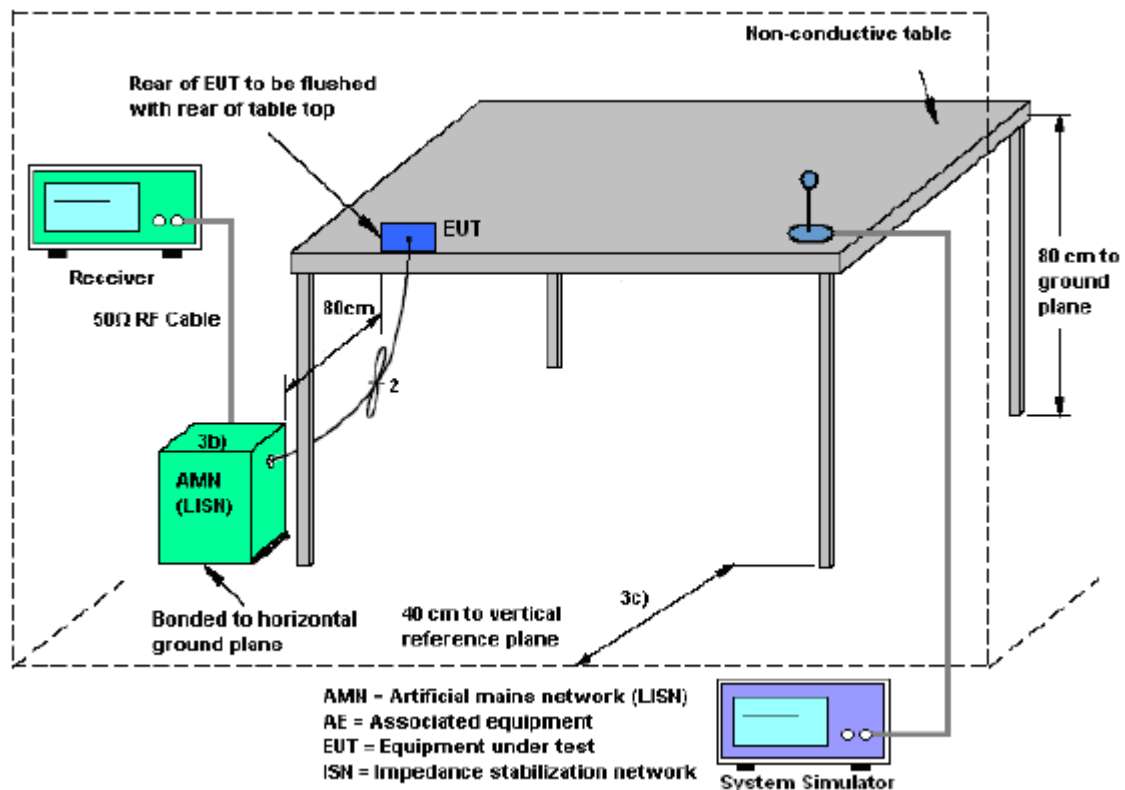
For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency range (MHz)	Conducted Limit (dB μ V)	
	Quai-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
5 - 30	60	50

2.7.2. Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

2.7.3. Test Setup



2.7.4. Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

2.7.5. Test Results of Conducted Emission

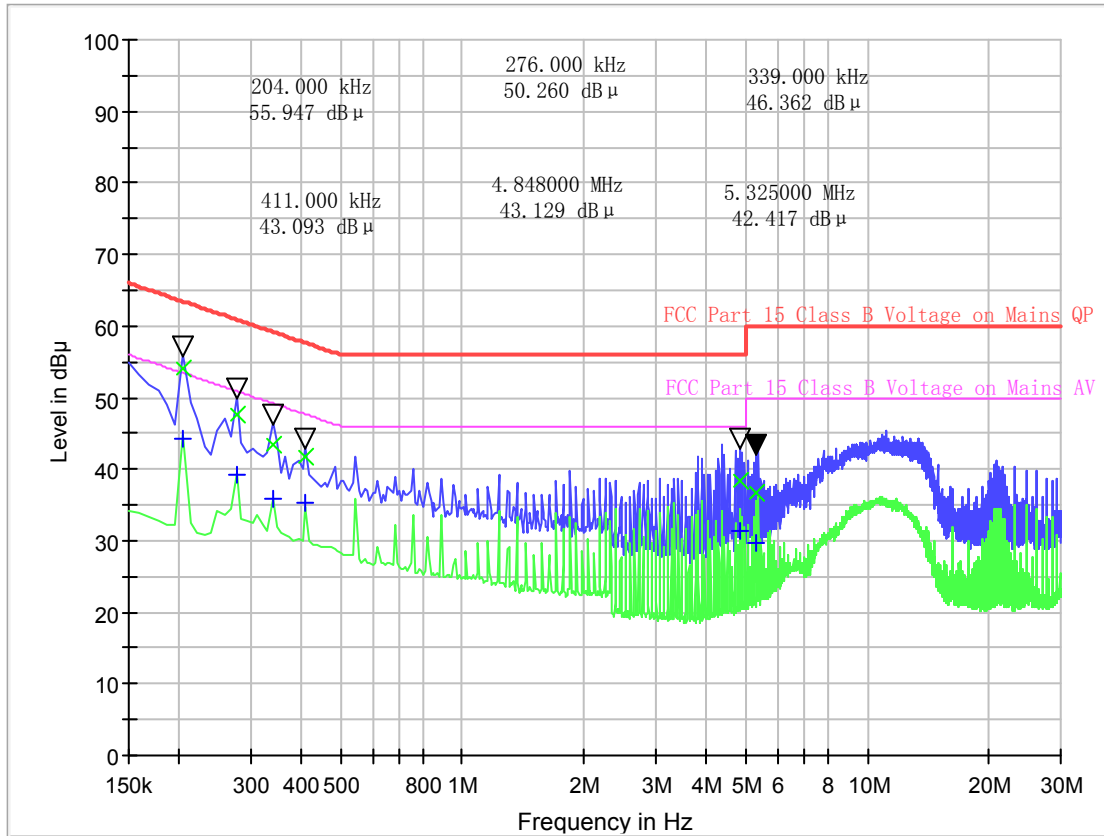
The EUT configuration of the emission tests is WLAN Link + USB Cable (Charging from Adapter).

Test mode:

Adapter (model: STC-A2O120150C55-C) with EUT (model: MF253V) operating frequency: 2437MHz

Retest at 2017-3-25

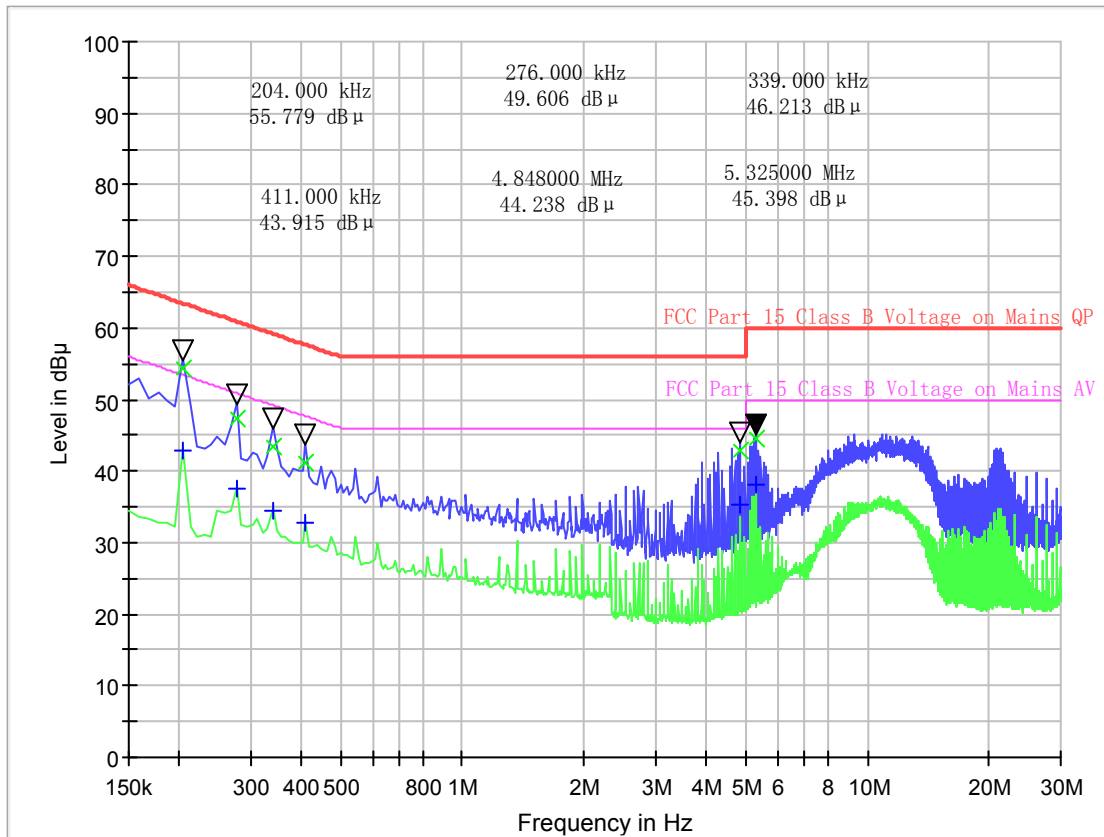
FCC Part 15 Class B Voltage Test



L Phase

Conducted Disturbance at Mains Terminals					
L Test Data					
QP			AV		
Frequency (MHz)	Limits (dBμV)	Measurement Value (dBμV)	Frequency (MHz)	Limits (dBμV)	Measurement Value (dBμV)
0.204000	63.4	54.19	0.204000	53.4	44.29
0.276000	60.9	47.55	0.276000	50.9	39.22
0.339000	59.2	43.46	0.339000	49.2	35.79
0.411000	57.6	41.73	0.411000	47.6	35.16
4.848000	56.0	38.46	4.848000	46.0	31.32
5.325000	60.0	36.73	5.325000	50.0	29.59

FCC Part 15 Class B Voltage Test



N Phase

Conducted Disturbance at Mains Terminals

N Test Data

QP			AV		
Frequency (MHz)	Limits (dBμV)	Measurement Value (dBμV)	Frequency (MHz)	Limits (dBμV)	Measurement Value (dBμV)
0.204000	63.4	54.43	0.204000	53.4	42.90
0.276000	60.9	47.34	0.276000	50.9	37.67
0.339000	59.2	43.51	0.339000	49.2	34.54
0.411000	57.6	41.22	0.411000	47.6	32.91
4.848000	56.0	42.75	4.848000	46.0	35.38
5.325000	60.0	44.45	5.325000	50.0	38.19

3. List of measuring equipment

Description	Manufacturer	Model	Serial No.	Test Date	Due Date	Remark
EMI Test Receiver	R&S	ESIB26	A0304218	2016.06.02	2017.06.01	Radiation
Full-Anechoic Chamber	Albatross	12.8m*6.8m*6.4m	A0412372	2016.06.02	2017.06.01	Radiation
Loop Antenna	Schwarz beck	HFH2-Z2	100047	2016.06.02	2017.06.01	Radiation
Bilog Antenna	Schwarzbeck	VULB 9163	9163-274	2016.06.02	2017.06.01	Radiation
Double ridge horn antenna	R&S	HF906	100150	2016.06.02	2017.06.01	Radiation
Ultra-wideband antenna	R&S	HL562	100089	2016.06.02	2017.06.01	Radiation
Test Antenna – Horn (18-26.5GHz)	ETS	3160-09	A0902607	2016.06.02	2017.06.01	Radiation
Amplifier 20M~3GHz	R&S	PAP-0203H	22018	2016.06.02	2017.06.01	Radiation
Amplifier 1G~18GHz	R&S	MITEQ AFS42-00101800	25-S-42	2016.06.02	2017.06.01	Radiation
Amplifier 18G~40GHz	R&S	JS42-18002600-28-5A	12111.0980.00	2016.06.02	2017.06.01	Radiation
Spectrum Analyzer	KEYSIGHT	N9030A	MY55410524	2016.05.05	2017.05.04	Conducted
Power Meter	R&S	NRVS	1020.1809.02	2016.06.02	2017.06.01	Conducted
Power Sensor	R&S	NRV-Z4	823.3618.03	2016.06.02	2017.06.01	Conducted
LISN	ROHDE&SCHWARZ	ESH2-Z5	A0304221	2016.06.02	2017.06.01	Conducted
Test Receiver	R&S	ESCS30	A0304260	2016.06.02	2017.06.01	Conducted
Cable	SUNHNER	SUCOFLEX 100	/	2016.06.02	2017.06.01	Radiation
Cable	SUNHNER	SUCOFLEX 104	/	2016.06.02	2017.06.01	Radiation

4. Uncertainty of Evaluation

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2

Measurement	Frequency	Uncertainty
Conducted emissions	9kHz~30MHz	2.35dB
Radiated emissions	9kHz~30MHz	2.59dB
	30MHz~1000MHz	2.45dB
	1G~18GHz	2.21dB
	18G~40GHz	1.96dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

**** END OF REPORT ****