FCC TEST REPORT

Product	:	WiFi and Bluetooth Enabled On/Off Switch
Trade mark	:	iDevices In-wall Switch
Model/Type reference	:	IDEV0008
Report Number	:	1610100395RFC-1
Date of Issue	:	October 18, 2016
FCC ID	:	2ABDJ-SWITCH8
Test Standards	:	47 CFR Part 15 Subpart C (2015)
Test result	:	PASS

Prepared for:

iDevices, LLC

136 Simsbury Road, Bldg. 12, Avon, CT 06001, USA

Prepared by:

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Reviewed by: Jim Long, Senior Supervisor

Approved by: Billy Li, Technical Director

Date: October 18, 2016

UnionTrust Laboratories UnionTrust * Certified *

Version

Version No.	Date	Description
V1.0	October 18, 2016	Original

Content

1 General Information

1.1 Client Information

Applicant:	iDevices, LLC
Address of Applicant:	136 Simsbury Road, Bldg. 12, Avon, CT 06001, USA
Manufacturer:	iDevices, LLC
Address of Manufacturer:	1/F, Houtex Industial Building, E16 Hung To Road, Kwun Tung, Kawloon, Hong Kong

1.2 General Description of EUT

Product Name:	WiFi and Bluetooth Enabled On/Off Switch	
Model No.(EUT):	IDEV0008	
Add Mode No.:	N/A	
Trade Mark:	iDevices In-wall Switch	
EUT Supports Radios application:	Bluetooth V4.0 BLE only Wlan 2.4GHz 802.11b/g/n(HT20) 2.4GHz Wireless	
Power Supply:	AC adapter	N/A
	Charging Dock:	N/A
	Battery:	N/A
USB Micro-B Plug cable:	N/A	
Sample Received Date:	October 8, 2016	
Sample tested Date:	October 8, 2016 to October 12, 2016	

1.3 Product Specification subjective to this standard

Operation Frequency:	BLE: 2402MHz ~ 2480MHz 802.11b/g/n(HT20): 2412MHz to 2462MHz
Channel Numbers:	BLE: 40 Channels 802.11b/g/n(HT20): 11 Channels
Channel Separation:	2MHz step for BLE 5MHz step for WiFi
Transmit Data Rate:	BLE: 1MHz 802.11b:1M/ 2M/ 5.5M/ 11M bps 802.11g:6M/ 9M/ 12M/ 18M/ 24M/ 36M/ 48M/ 54M bps 802.11n(HT20): up to MCS7(65Mbps)
Type of Modulation:	BLE: GFSK 802.11b:DSSS(CCK, DQPSK, DBPSK) 802.11g:OFDM(64QAM, 16QAM, QPSK, BPSK) 802.11n(HT20): OFDM (64QAM, 16QAM, QPSK, BPSK)
Sample Type:	Mobile production
Test Power Grade:	BLE: 2dBm 802.11b: 17dBm(declared by the manufacturer) 802.11g: 15dBm(declared by the manufacturer) 802.11n(HT20): 15dBm(declared by the manufacturer)
Test Software of EUT:	Provided by the manufacturer
Antenna Type:	Chain 0: PIFA antenna for BLE Chain 1: PIFA antenna for WiFi

Antenna Gain:	Chain 0: 3.3 dBi gain Chain 1: 3.3 dBi gain
Normal Test voltage:	120V~60Hz
Extreme Test voltage:	90~280Vac (declared by the manufacturer)
Operating Temperature:	-20℃ to +50℃ (declared by the manufacturer)

Wi-Fi B, G, N (HT20)

The sample supplied operated on 11 channels, normally at 2412 - 2462 MHz for transceiver. The channel is separated by 5 MHz channel spacing.

Bluetooth 4.0 BLE

The sample supplied operated on 40 channels, nominally at 2402 -2480 MHz for transceiver. The channel is separated by 2 MHz channel spacing.

1.4 Description of Support Units

The EUT has been tested with associated equipment below.

1) Support equipment

Description	Brand	Model No.	Certification	Supplied by
Laptop	Lenovo	E450	FCC ID and DOC	UnionTrust

2) Cable

Cable No.	Description	Connector Type	Cable Type/Length	Supplied by
1	Antenna cable	SMA	0.2m(Shielded)	UnionTrust
2	USB Cable	USB	1.2m(shielded)	UnionTrust

1.5 Test Location

All tests were performed at:

Compliance Certification Services (Shenzhen) Inc.

No.10-1 Mingkeda Logistics Park, No.18 Huanguan South RD. Guan lan Town, Baoan Distr, Shenzhen, Guangdong, China.

Compliance Certification Services (Shenzhen) Inc. has been accepted by the FCC, the FCC Registration Number is 441872.

Tested by: Darry Wu

1.6 Deviation from Standards

None.

1.7 Abnormalities from Standard Conditions

None.

1.8 Other Information Requested by the Customer

None.

1.9 Measurement Uncertainty (95% confidence levels, k=2)

No.	Item	Measurement Uncertainty
1	Radio Frequency	±6.3 x 10^{-8}
2	RF power, conducted	±0.52 dB
3	Spurious emissions, radiated (Below 1GHz)	±5.3 dB
	Spurious emissions, radiated (Above 1GHz)	±5.1 dB
4	Conduction emission (9KHz~150KHz)	±3.8 dB
	Conduction emission (150KHz~30MHz)	±3.4 dB
5	Temperature	±0.64 °C
6	Humidity	±2.8 %
7	Supply voltages	±0.49 %

2 Test Summary

Tests for radiated and conducted emissions were performed. All measurements were performed according to the 2013 version of ANSI C63.10

Test Item	Test Requirement	Test method	Result
Antenna Requirement	47 CFR Part 15 Subpart C Section 15.203/15.247 (c)	ANSI C63.10-2013	PASS
AC Power Line Conducted Emission	47 CFR Part 15 Subpart C Section 15.207	ANSI C63.10-2013	PASS
Conducted Peak Output Power	47 CFR Part 15 Subpart C Section 15.247 (b)(3)	KDB 558074 D01 v03r05 Section 9.1.2	PASS
6dB Bandwidth	47 CFR Part 15 Subpart C Section 15.247 (a)(2)	KDB 558074 D01 v03r05 Section 8.1	PASS
Power Spectral Density	47 CFR Part 15 Subpart C Section 15.247 (e)	KDB 558074 D01 v03r05 Section 10.2	PASS
Conducted Out of Band Emission	47 CFR Part 15 Subpart C Section 15.247(d)	KDB 558074 D01 v03r05 Section 11	PASS
Radiated Spurious Emissions	47 CFR Part 15 Subpart C Section 15.205/15.209	ANSI C63.10-2013	PASS
Band Edge Measurements (Radiated)	47 CFR Part 15 Subpart C Section 15.205/15.209	KDB 558074 D01 v03r05 Section 12.1	PASS

Remark:
Tx: In this whole report Tx (or tx) means Transmitter.
Rx: In this whole report Rx (or rx) means Receiver.
RF: In this whole report RF means Radiated Frequency.
CH: In this whole report CH means channel.
N/A: Not application,

1. This EUT is powered by batteries, it need remove the battery from the EUT when charging, and it doesn't transmitting while charging.

3 Equipment List

Conducted Emission test					
Equipment	**Manufacturer**	**Mode No.**	**Serial Number**	**Cal. Due date (mm-dd-yyyy)**	**Cal. Interval**
EMI Test Receiver	R&S	ESCI	100783	02-21-2017	1 Year
L.I.S.N	R&S	ENV216	101543-WX	02-21-2017	1 Year

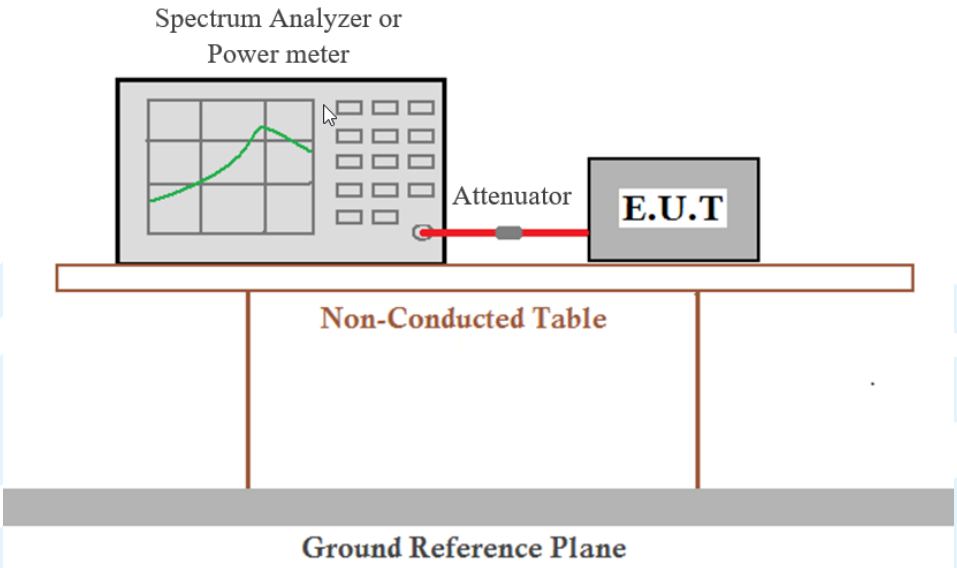
3m (Semi-Anechoic Chamber)					
Equipment	**Manufacturer**	**Mode No.**	**Serial Number**	**Cal. Due date (mm-dd-yyyy)**	**Cal. Interval**
PSA Series Spectrum Analyzer	Agilent	E4446A	US44300399	02-20-2017	1 Year
Turn Table	N/A	N/A	N/A	N.C.R	N.C.R
Controller	Sunol Sciences	SC104V	022310-1	N.C.R	N.C.R
Controller	CT	N/A	N/A	N.C.R	N.C.R
Bilog Antenna	SCHAFFNER	CBL6143	5063	02-21-2017	1 Year
Horn Antenna	SCHWARZBECK	BBHA9120	D286	02-20-2017	1 Year
Loop Antenna	COM-POWER	AL-130	121044	02-20-2017	1 Year
High Noise Amplifier	Agilent	8449B	3008A01838	02-21-2017	1 Year
Horn Antenna	Schwarzbeck	BBHA9120	D286	02-21-2017	1 Year
Temp. / Humidity Meter	Anymetre	JR913	N/A	02-21-2017	N.C.R
Antenna Tower	SUNOL	TLT2	N/A	N.C.R	N.C.R
Test S/W	FARAO	LZ-RF / CCS-SZ-3A2			

Conducted RF test					
Equipment	**Manufacturer**	**Mode No.**	**Serial Number**	**Cal. Due date (mm-dd-yyyy)**	**Cal. Interval**
Spectrum Analyzer	Agilent	N9010A	MY52221469	02-21-2017	1 Year
Power Meter	Agilent	ML2495A	1204003	02-21-2017	1 Year

4 Test Requirement

4.1 Test setup

4.1.1 For Conducted test setup



4.1.2 For Radiated Emissions test setup

Radiated Emissions setup:

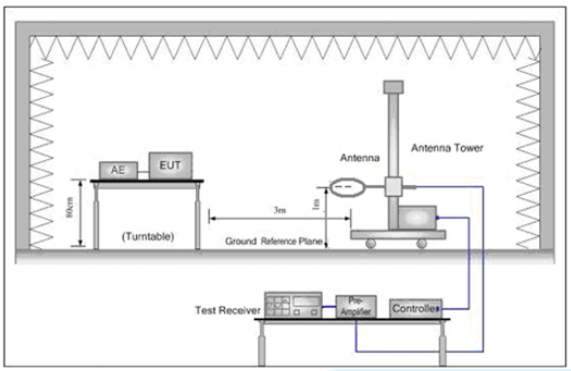


Figure 1. Below 30MHz

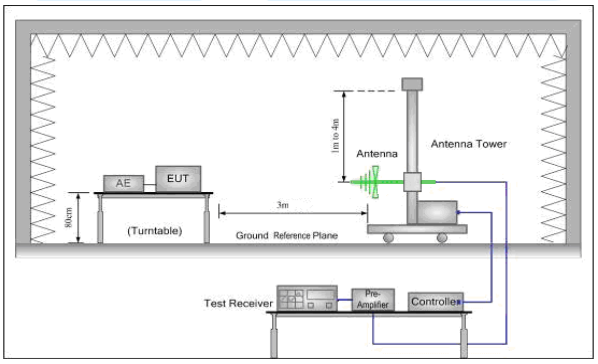


Figure 2. 30MHz to 1GHz

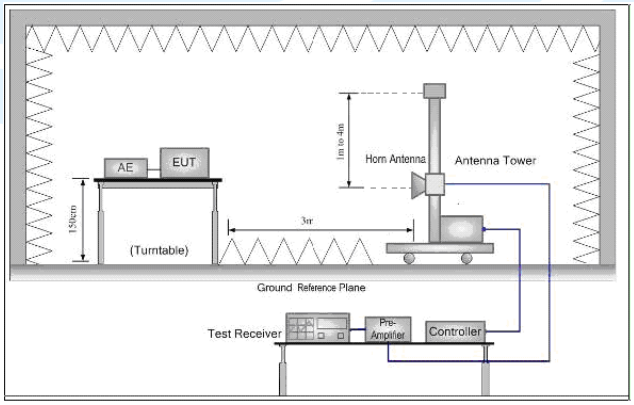
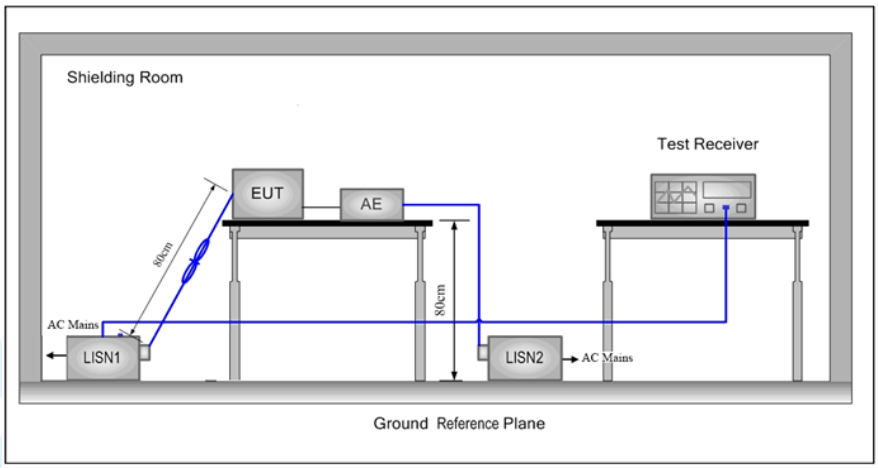


Figure 3. Above 1GHz

4.1.3 For Conducted Emissions test setup

Conducted Emissions setup



4.2 Test Environment

Operating Environment:	
Temperature:	25.0 °C
Humidity:	53 % RH
Atmospheric Pressure:	99.95mbar

4.3 System Test Configuration

For emissions testing, the equipment under test (EUT) setup to transmit continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing. During testing, radiated emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario. It was powered by a 120V~60Hz. Only the worst case data were recorded in this test report.

The signal is maximized through rotation and placement in the three orthogonal axes. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters. Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance. Therefore, all final radiated testing was performed with the EUT in (see table below) orientation.

Frequency Band	Mode	Antenna Port	Worst-case Orientation
2.4 GHz	BLE	Chain 0	X-Portrait
2.4 GHz	WiFi	Chain 1	X-Portrait

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance. Analyzer resolution is 100 kHz or greater for frequencies below 1000MHz. The resolution is 1 MHz or greater for frequencies above 1000MHz. The spurious emissions more than 20 dB below the permissible value are not reported.

Radiated emission measurement were performed from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

4.4 Test Condition

4.4.1 Test channel

Test Mode	Tx/Rx	RF Channel		
		Low(L)	Middle(M)	High(H)
BLE	2402MHz ~2480 MHz	Channel 1	Channel 20	Channel 40
		2402MHz	2440MHz	2480MHz
802.11b/g/n(HT20)	2412MHz ~2462 MHz	Channel 1	Channel 6	Channel 11
		2412MHz	2437MHz	2462MHz
Transmitting mode: Keep the EUT in transmitting mode with all kind of modulation and all kind of data rate.				

4.4.2 Test mode

Pre-scan under all rate at lowest channel

Channel/ Frequency (MHz)	Maximum Conducted Average Power (Measured Value) (dBm)							
Chain 0_802.11b								
Data Rate (Mbps)	1		2		5.5		**11**	
1(2412)	16.99		17.30		17.29		**17.31**	
Chain 0_802.11g								
Data Rate (Mbps)	6	9	12	18	24	36	48	**54**
1(2412)	15.55	15.79	15.79	15.79	15.79	15.76	15.68	**15.82**
Chain 0_802.11n(HT20)								
Data Rate (Mbps)	MCS 0	**MCS 1**	MCS 2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7
1(2412)	15.60	**15.74**	15.64	15.70	15.57	15.44	15.70	15.70

So, the worst-case data rates see table below:

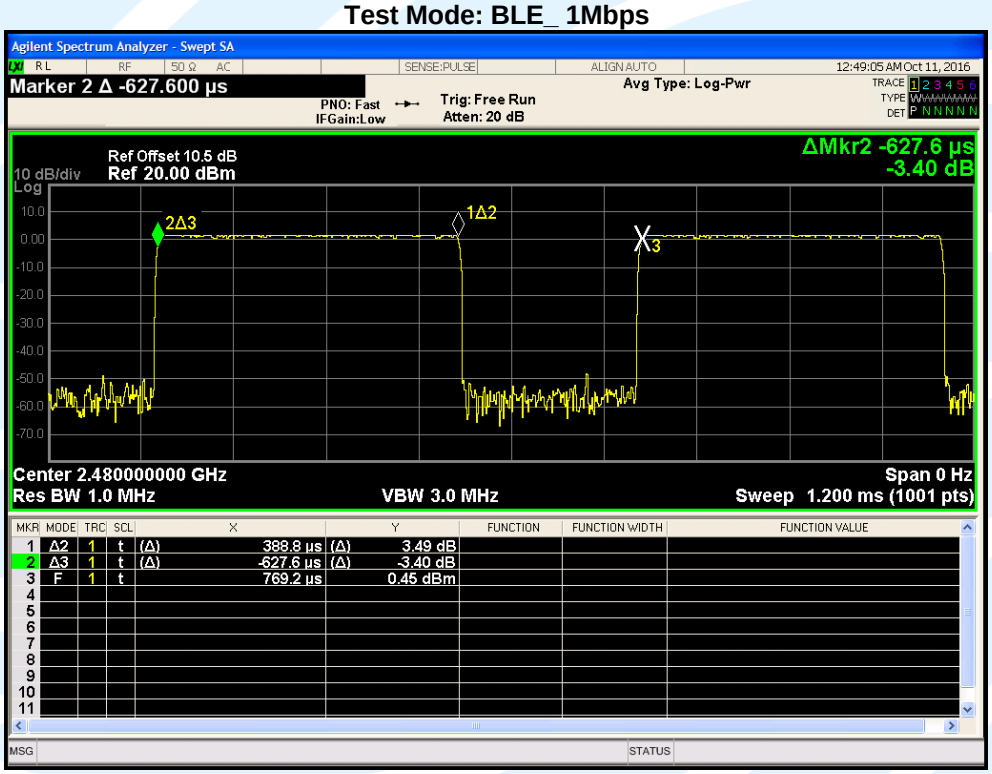
Mode	Worst-case data rates
BLE	1 Mbps
802.11b	11 Mbps
802.11g	54 Mbps
802.11n HT20	MCS 1(13Mbps)

4.4.3 Duty Cycle

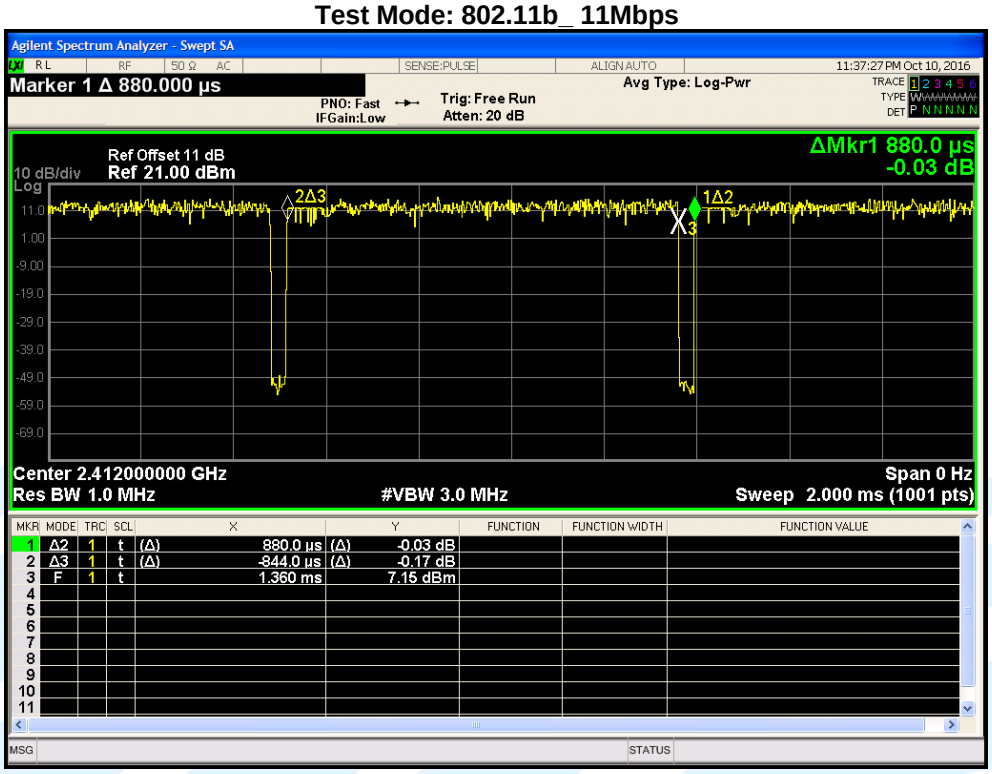
Mode	Data rates (Mbps)	On Time (msec)	Period (msec)	Duty Cycle (linear)	Duty Cycle (%)	Duty Cycle Factor (dB)	1/ T Minimum VBW (kHz)
BLE	1	0.389	0.628	0.62	62	2.08	2.6
802.11b	11	0.844	0.880	0.96	96	0.18	1.2
802.11g	54	0.480	0.520	0.92	92	0.35	2.1
802.11n(HT20)	13	0.672	0.712	0.94	94	0.25	1.5
Remark: 1) Duty cycle= On Time/ Period 2) Duty Cycle factor = 10 * log(1/ Duty cycle)							

The test plot as follows:

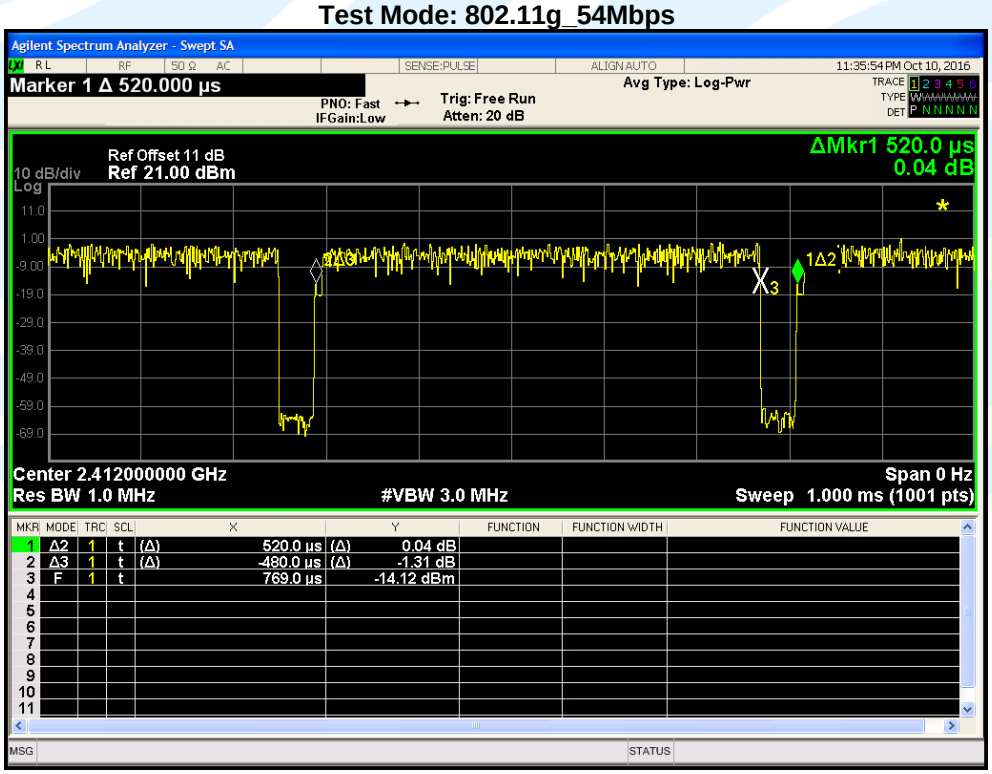
Test Mode: BLE_ 1Mbps



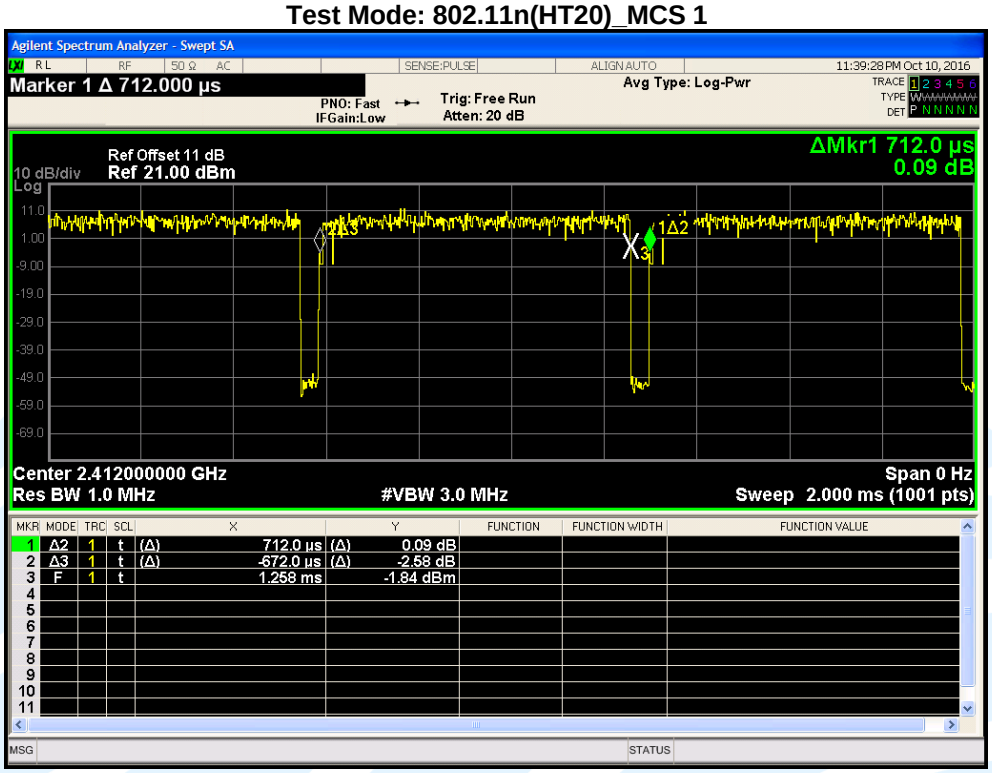
Test Mode: 802.11b_ 11Mbps



Test Mode: 802.11g_54Mbps



Test Mode: 802.11n(HT20)_MCS 1



5 Radio Technical Requirements Specification

Reference documents for testing:

No.	Identity	Document Title
1	FCC Part15C (2015)	Subpart C-Intentional Radiators
2	ANSI C63.10-2013	American National Standard for Testing Unlicesed Wireless Devices
3	KDB 558074 D01 DTS Meas Guidance v03r05	Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247
4	KDB 662911 D01 Multiple Transmitter Output v02r01	Emissions Testing of Transmitters with Multiple Outputs in the Same Band

5.1 Antenna Requirement

15.203 requirement:

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, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

EUT Antenna:	
Both antenna in the interior of the equipment and no consideration of replacement.	

5.2 Conducted Peak Output Power

Test Requirement: 47 CFR Part 15 Subpart C Section15.247 (b)(3)

Test Method: KDB 558074 D01 v03r05 Section 9.1.2 & Section 9.2.3

Limit: For systems using digital modulation in the 2400-2483.5 MHz bands: 1 Watt.

Test Procedure:

1. The output from the transmitter was connected to an attenuator and then to the input of the the power meter.
2. Measure out each test modes' peak or average output power, record the power level.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

Test Setup: Refer to section 4.1.1 for details.

Instruments Used: Refer to section 3 for details

Test Mode: Transmitter mode

Test Results: Pass

Test Data:

Maximum Conducted Power:

Mode	Channel/ Frequency (MHz)	Data Rate (Mbps)	Maximum Conducted Power (dBm)	
			Peak Power	Average Power
BLE	1(2402)	1	2.11	2.01
	20(2440)		2.07	1.95
	40(2480)		2.14	2.06
802.11b	1(2412)	11	19.53	17.31
	6(2437)		19.85	17.64
	11(2462)		19.76	17.46
802.11g	1(2412)	54	23.90	15.82
	6(2437)		23.39	16.10
	11(2462)		23.21	15.93
802.11n (HT20)	1(2412)	MCS1	23.80	15.74
	6(2437)		23.65	15.78
	11(2462)		23.41	15.86

Remark:

1. All the data attached was use the worst case data rate.
2. Power with Duty Factor = Measured Power + Duty Cycle Factor

5.3 6dB Bandwidth

Test Requirement: 47 CFR Part 15 Subpart C Section 15.247 (a)(2)

Test Method: KDB 558074 D01 v03r05 Section 8.1

Limit: For direct sequence systems, the minimum 6dB bandwidth shall be at least 500kHz

Test Procedure: The output from the transmitter was connected to an attenuator and then to the input of the spectrum analyzer.

Use the following spectrum analyzer settings:
a) Set RBW = 100 kHz.
b) Set the video bandwidth (VBW) ≥ 3 x RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

Test Setup: Refer to section 4.1.1 for details.

Instruments Used: Refer to section 3 for details

Test Mode: Transmitter mode

Test Results: Pass

Test Data:

Occupied Bandwidth:

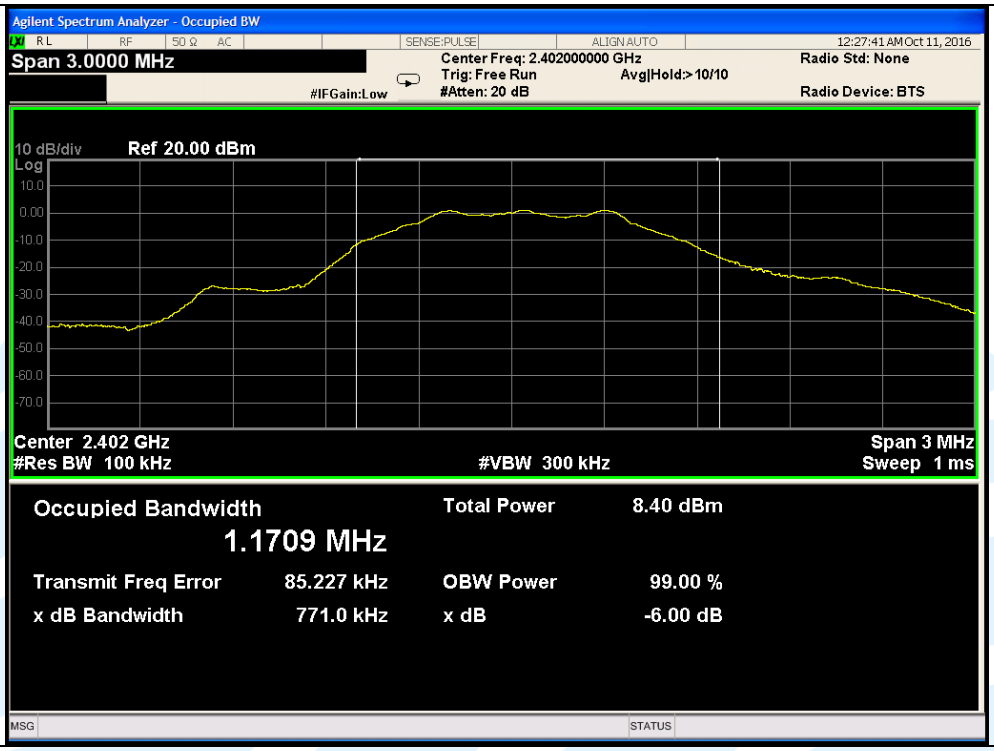
Mode	Channel Frequency (MHz)	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth Limit	Result (Pass / Fail)
BLE	1(2402)	0.7710	1.1709	> 500 kHz	Pass
	20(2440)	0.7623	1.0934	> 500 kHz	Pass
	40(2480)	0.7403	1.0827	> 500 kHz	Pass
802.11b	1 (2412)	7.669	12.451	> 500 kHz	Pass
	6 (2437)	7.864	12.385	> 500 kHz	Pass
	11 (2462)	8.525	12.417	> 500 kHz	Pass
802.11g	1 (2412)	15.16	16.323	> 500 kHz	Pass
	6 (2437)	15.17	16.320	> 500 kHz	Pass
	11 (2462)	15.40	16.327	> 500 kHz	Pass
802.11n (HT20)	1 (2412)	16.03	17.496	> 500 kHz	Pass
	6 (2437)	15.16	17.494	> 500 kHz	Pass
	11 (2462)	16.06	17.494	> 500 kHz	Pass

Remark:
All the data attached was use the worst case data rate.

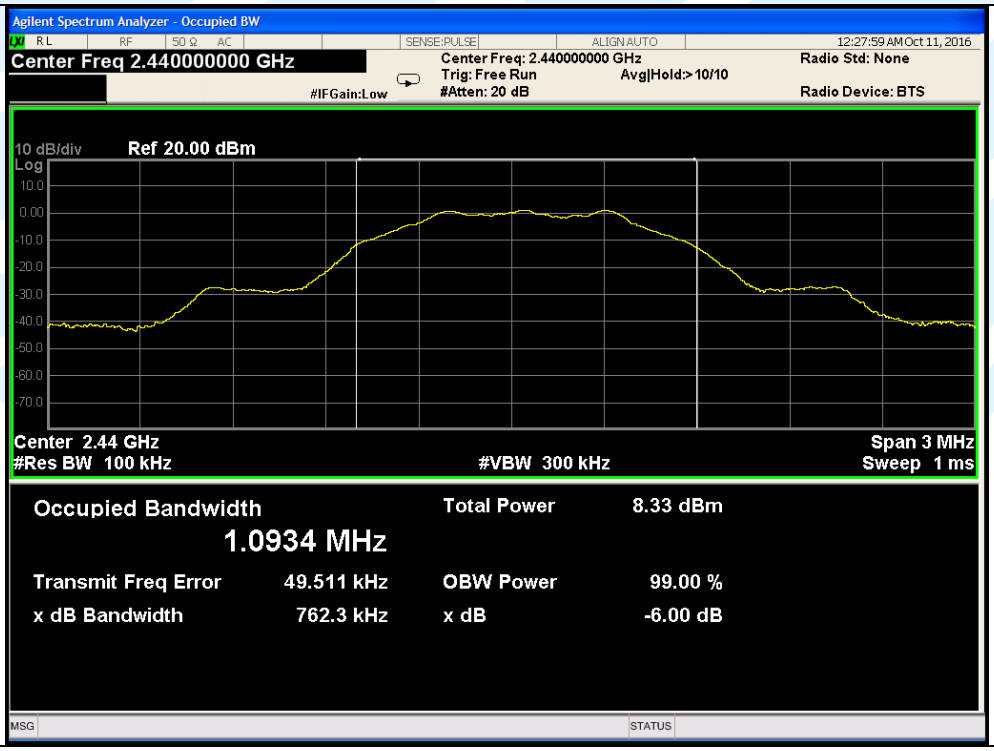
The test plot as follows:

Test Mode: BLE

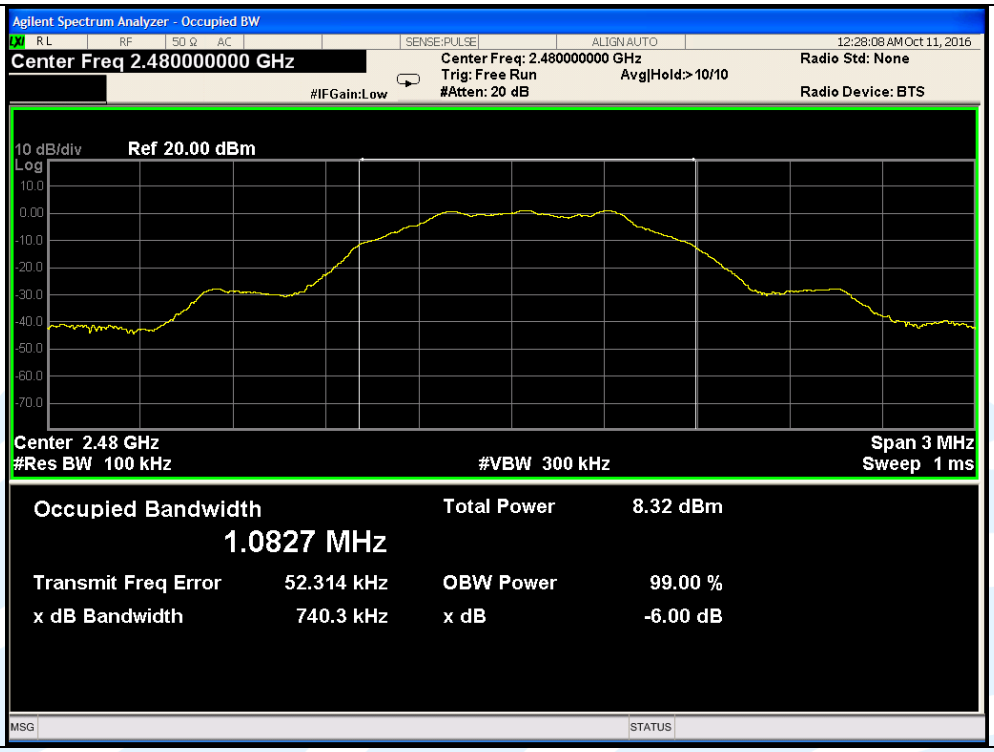
2402MHz



2440MHz

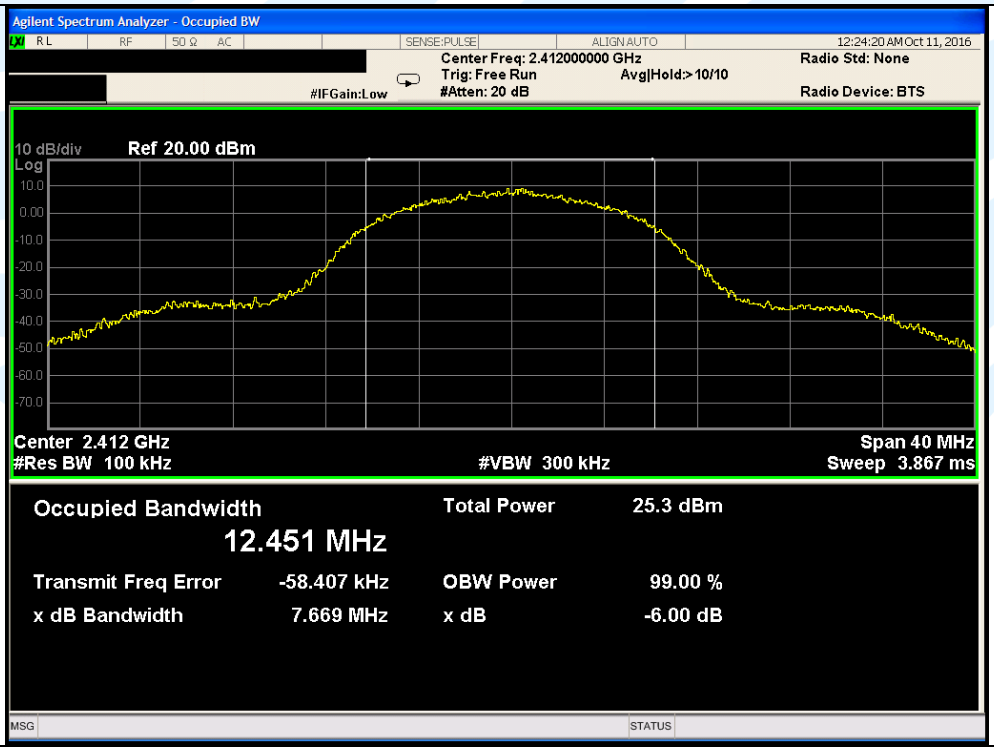


2480MHz

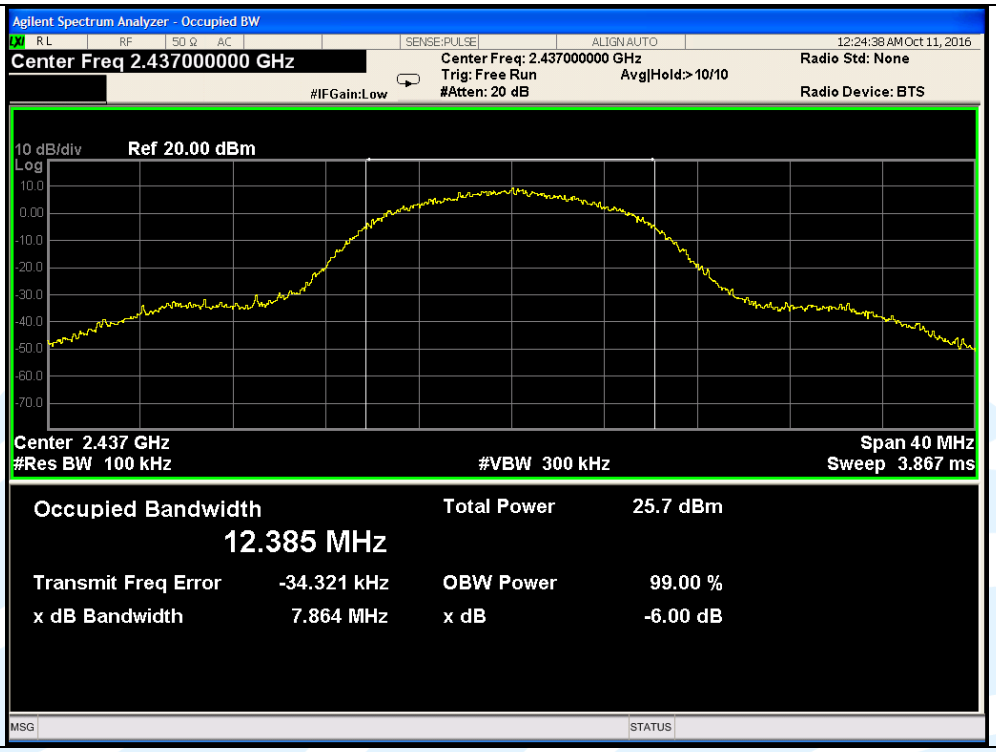


Test Mode: 802.11b

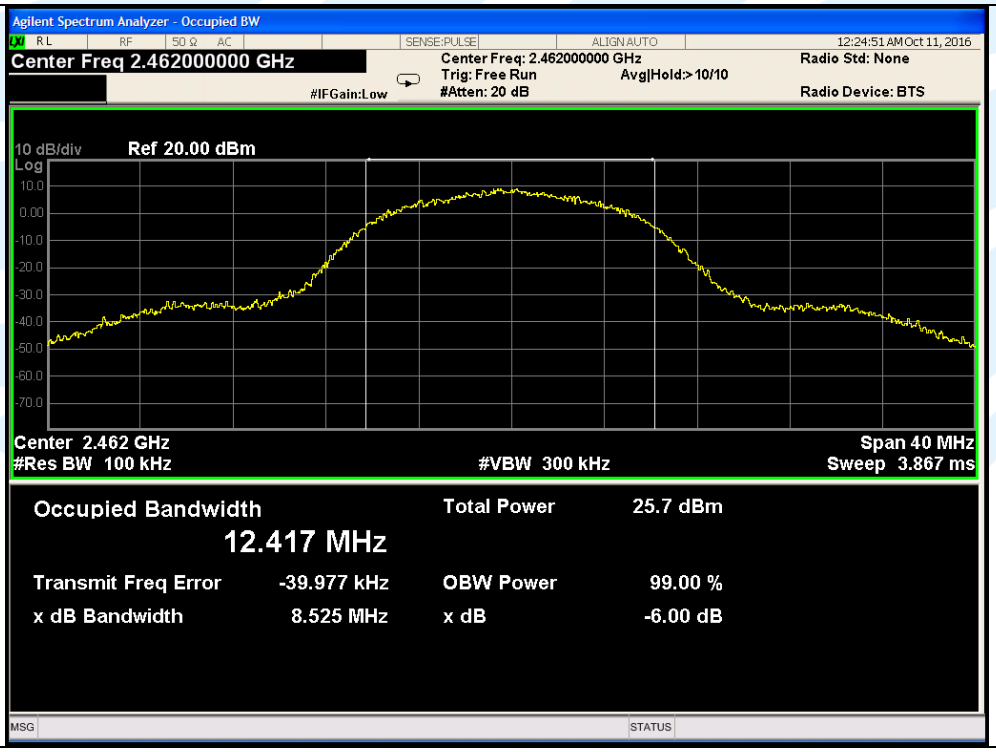
2412MHz



2437MHz

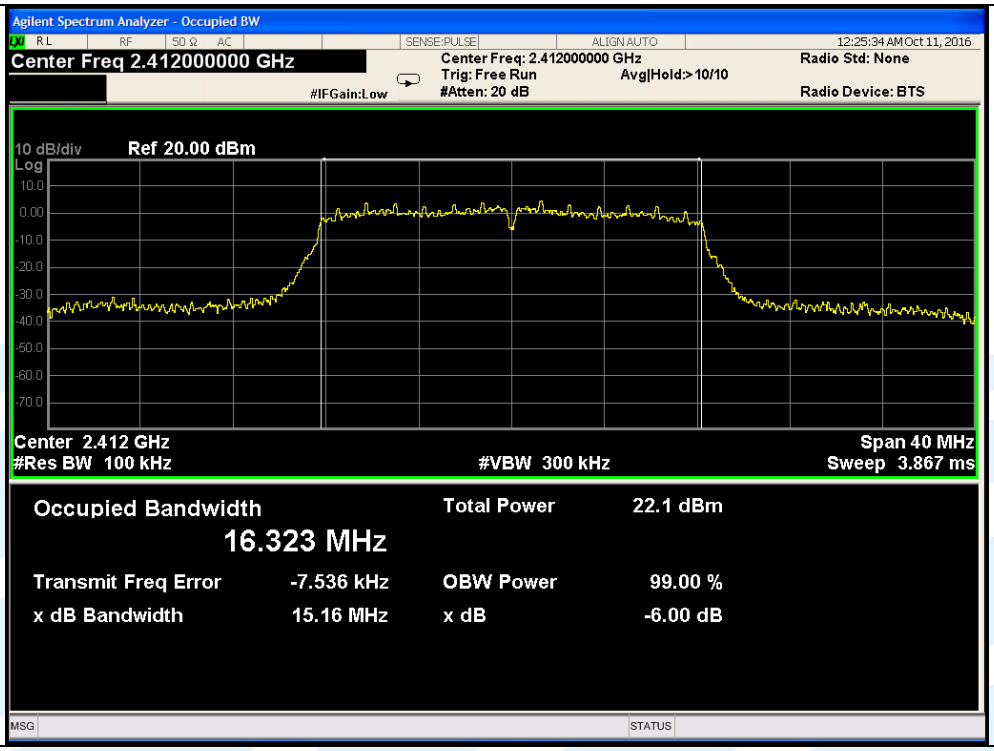


2462MHz

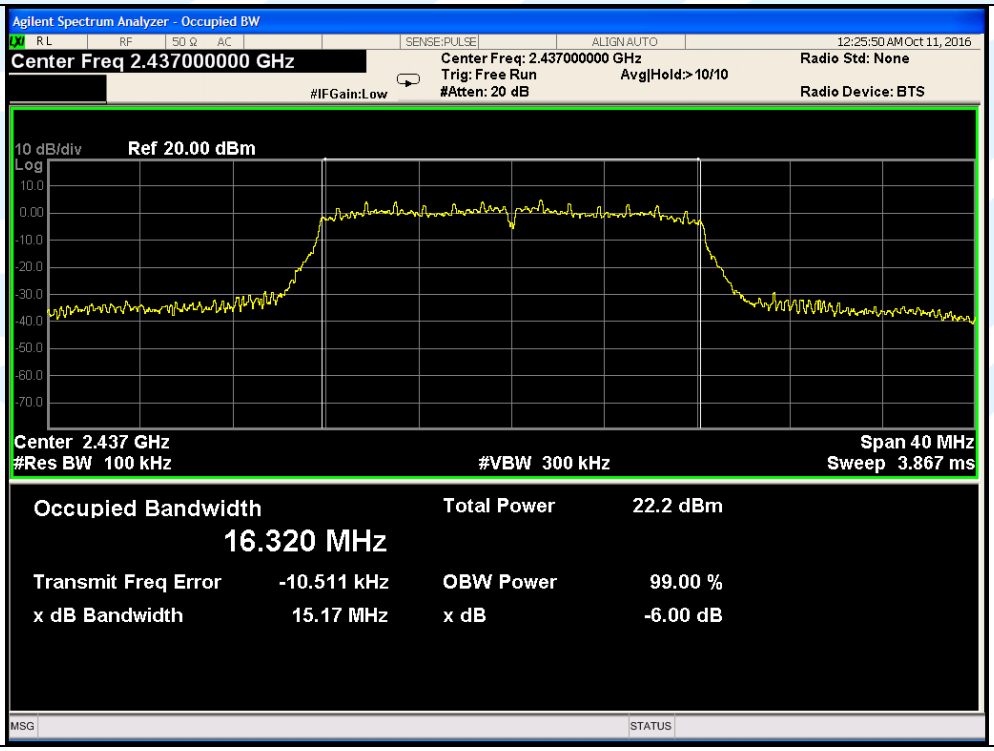


Test Mode: 802.11g

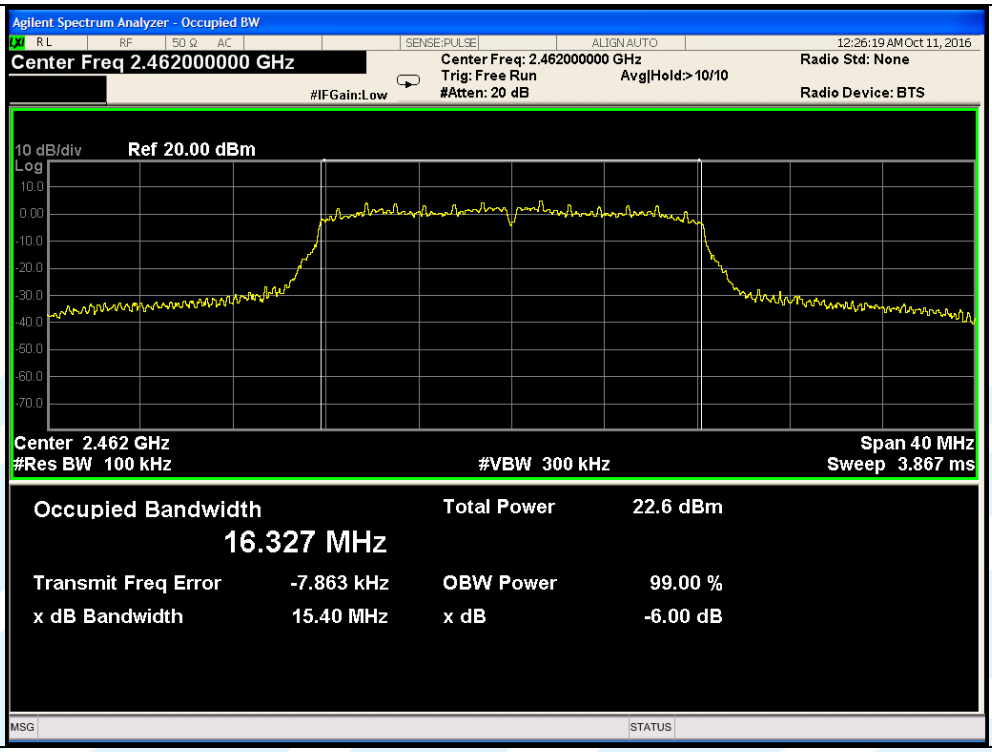
2412MHz



2437MHz

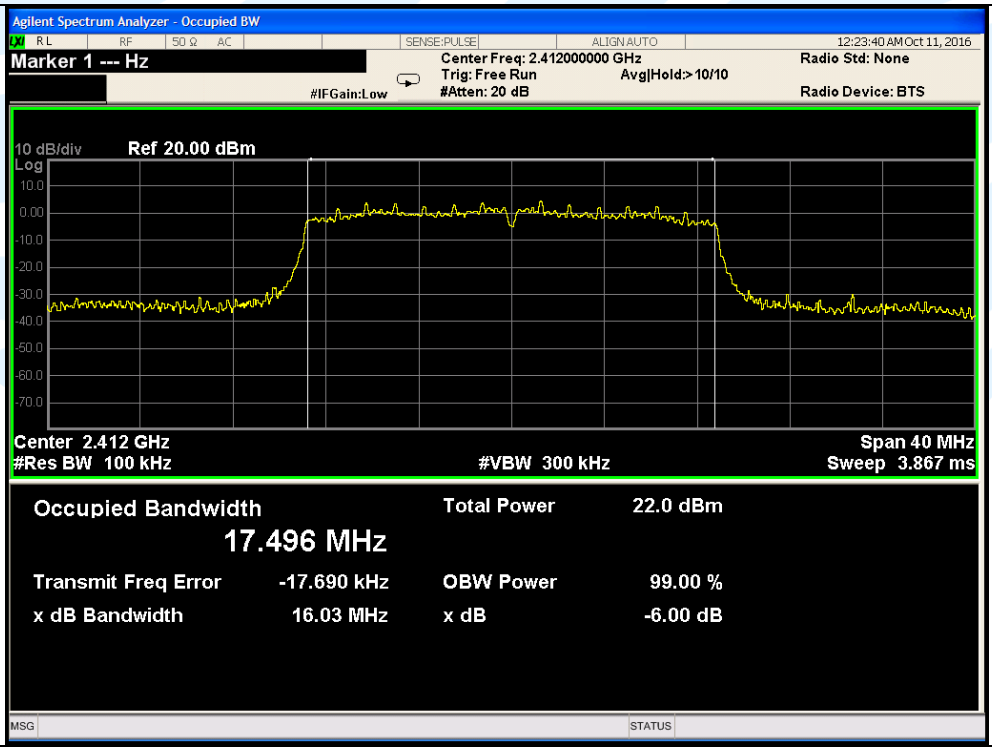


2462MHz

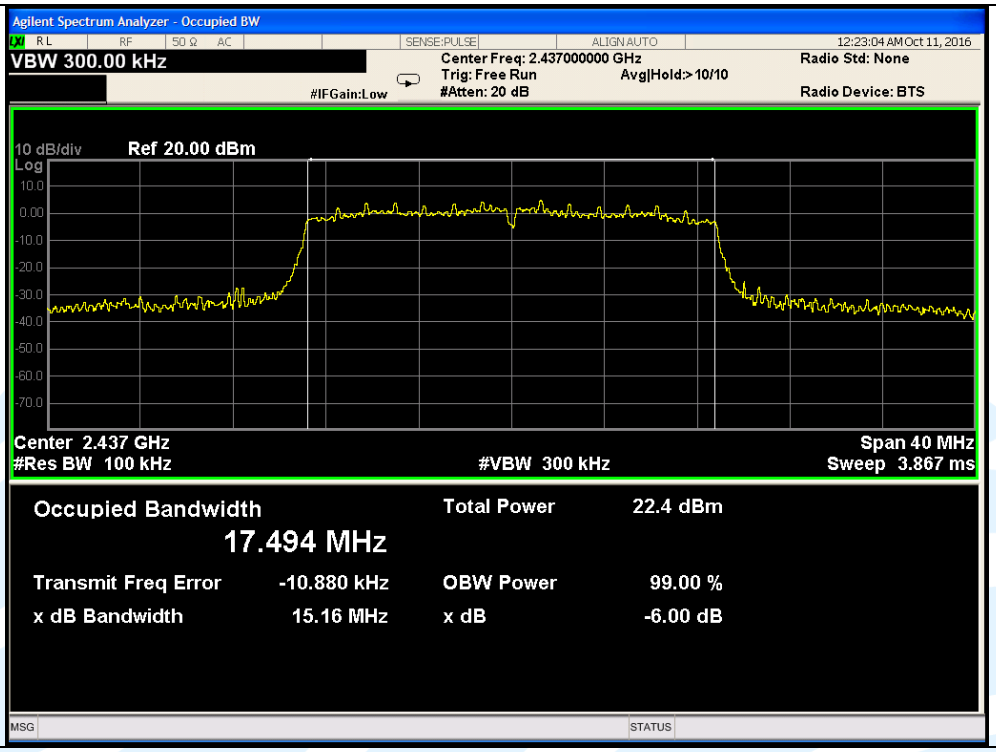


Test Mode: 802.11n(HT20)

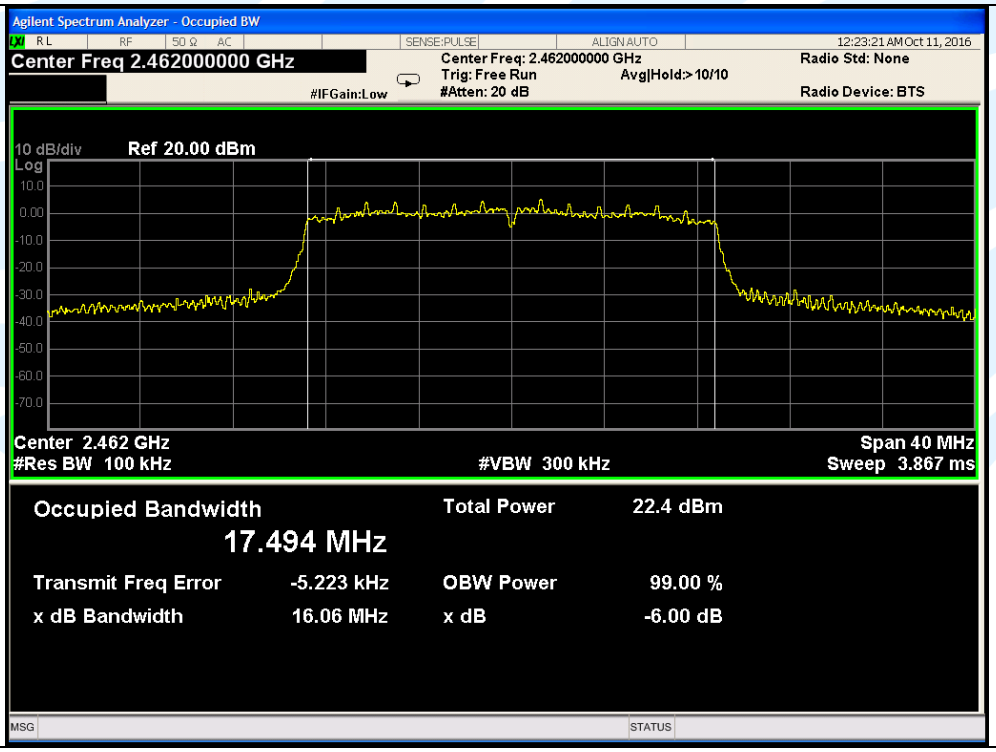
2412MHz



2437MHz



2462MHz



5.4 Power Spectral Density

Test Requirement: 47 CFR Part 15 Subpart C Section 15.247 (e)

Test Method: KDB 558074 D01 v03r05 Section 10.2

Limit: For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.

Test Procedure: The output from the transmitter was connected to an attenuator and then to the input of the spectrum analyzer.

Use the following spectrum analyzer settings:

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

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

Test Setup: Refer to section 4.1.1 for details.

Instruments Used: Refer to section 3 for details

Test Mode: Transmitter mode

Test Results: Pass

Test Data:

Test Data:

Mode	Channel/ Frequency (MHz)	PSD (dBm)	PSD Limit (dBm)	Result (Pass / Fail)
BLE	1(2402)	-14.0	8	Pass
	20(2440)	-13.5	8	Pass
	40(2480)	-13.2	8	Pass
802.11b	1 (2412)	-7.0	8	Pass
	6 (2437)	-6.6	8	Pass
	11 (2462)	-5.4	8	Pass
802.11g	1 (2412)	-11.0	8	Pass
	6 (2437)	-9.9	8	Pass
	11 (2462)	-10.0	8	Pass
802.11n (HT20)	1 (2412)	-10.0	8	Pass
	6 (2437)	-10.7	8	Pass
	11 (2462)	-9.7	8	Pass

Remark:

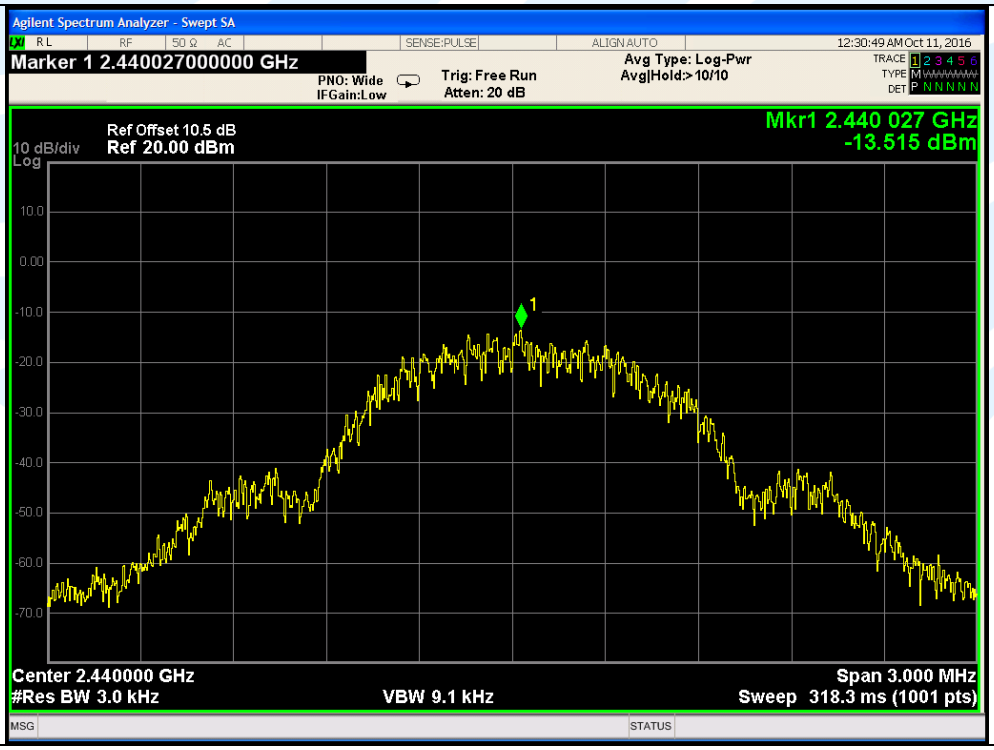
1. All the data attached was use the worst case data rate.

The test plot as follows:

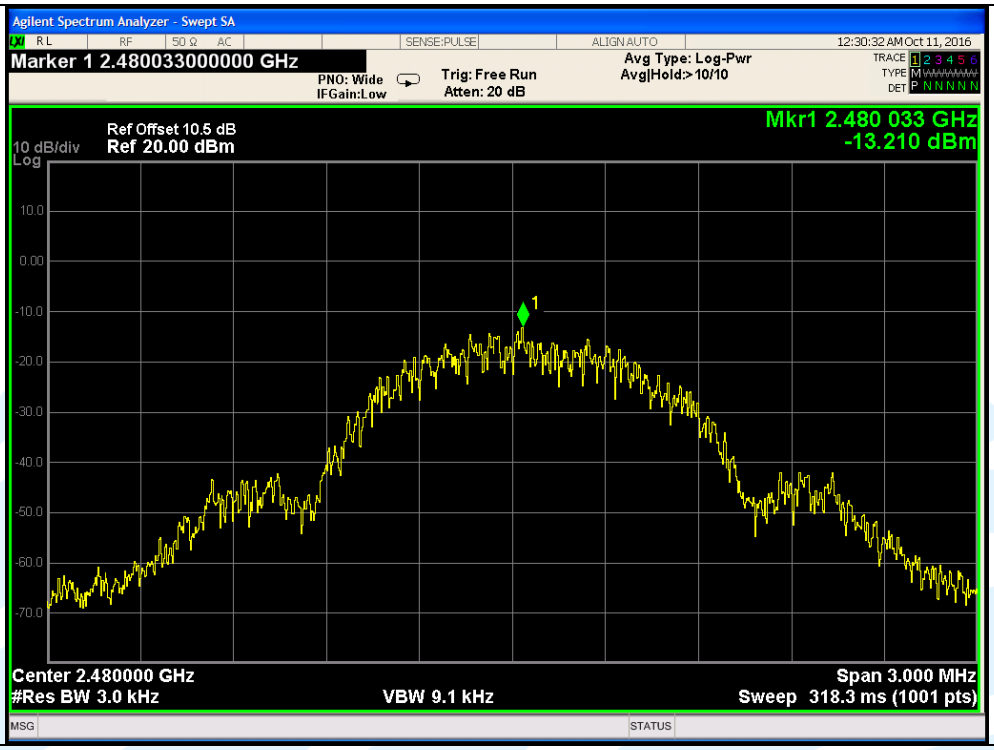
Test Mode: BLE

2402MHz

2440MHz

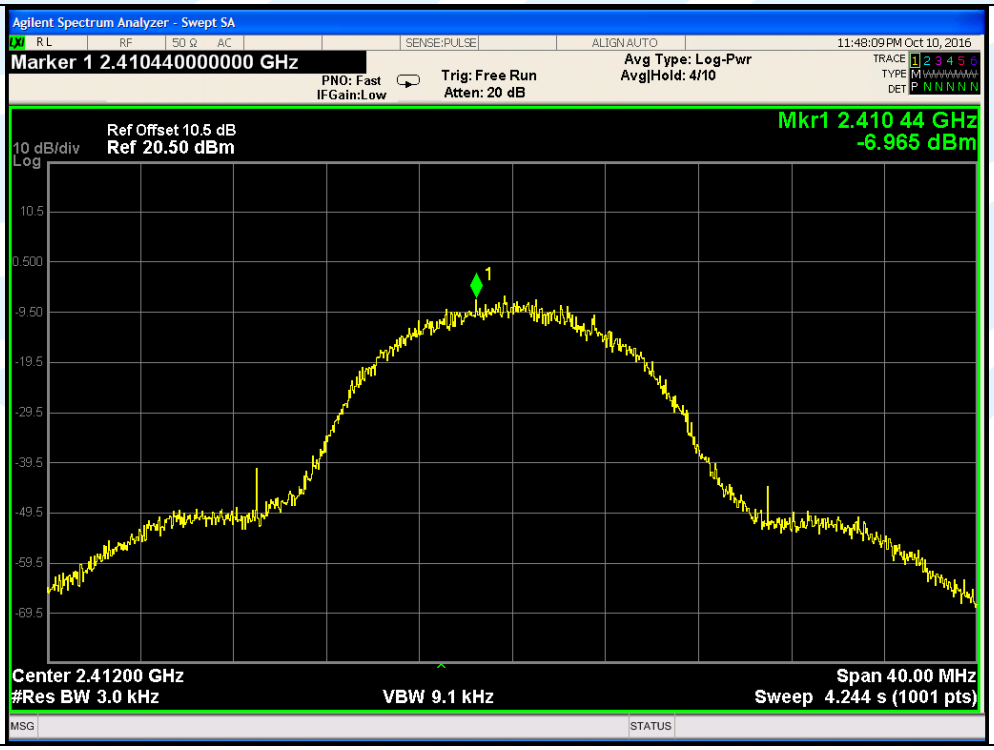


2480MHz

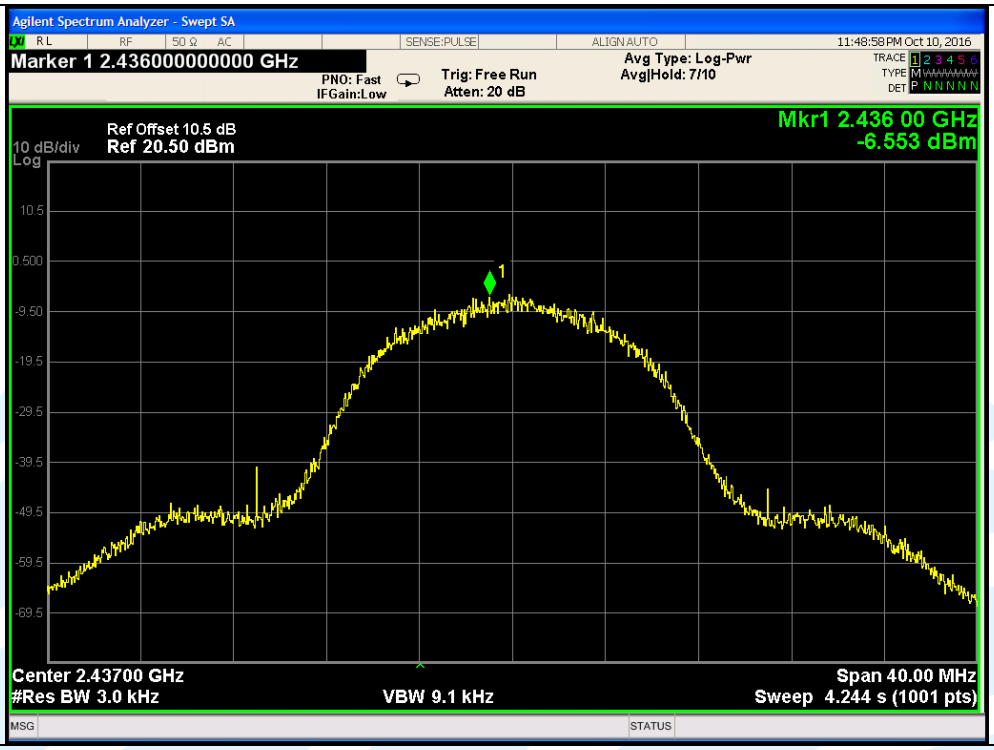


Test Mode: 802.11b

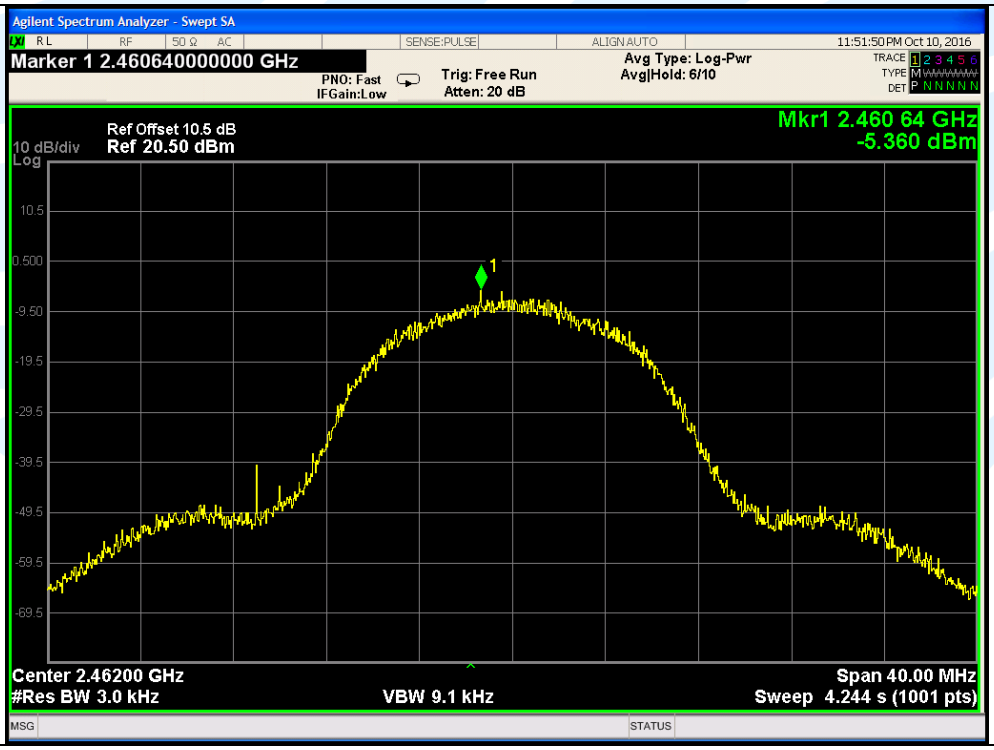
2412MHz



2437MHz

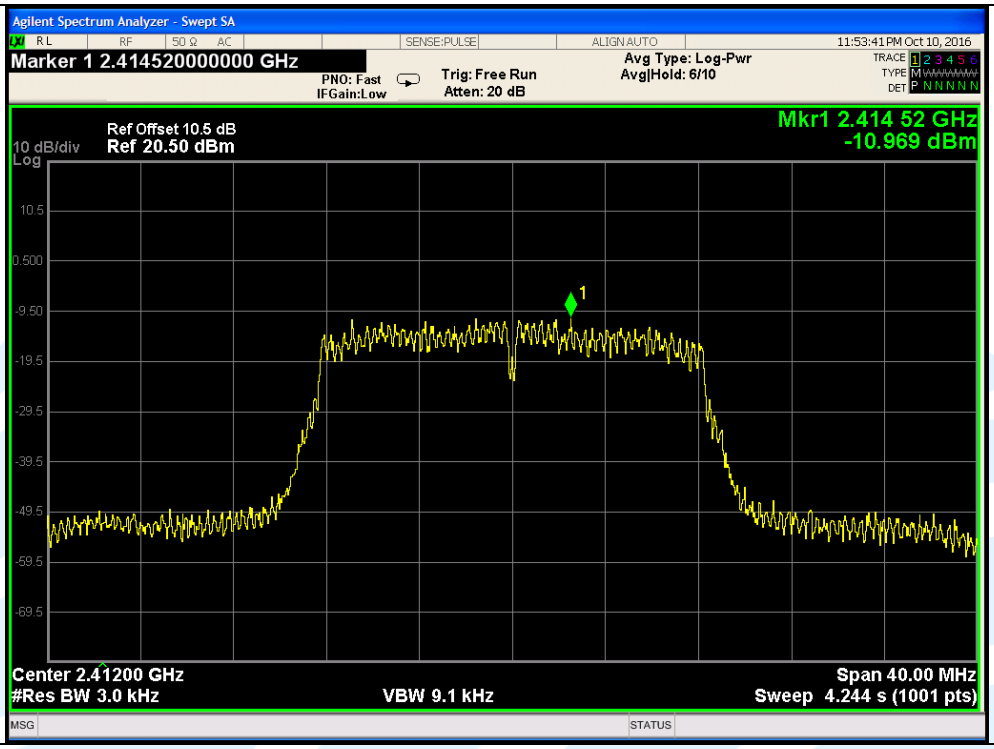


2462MHz

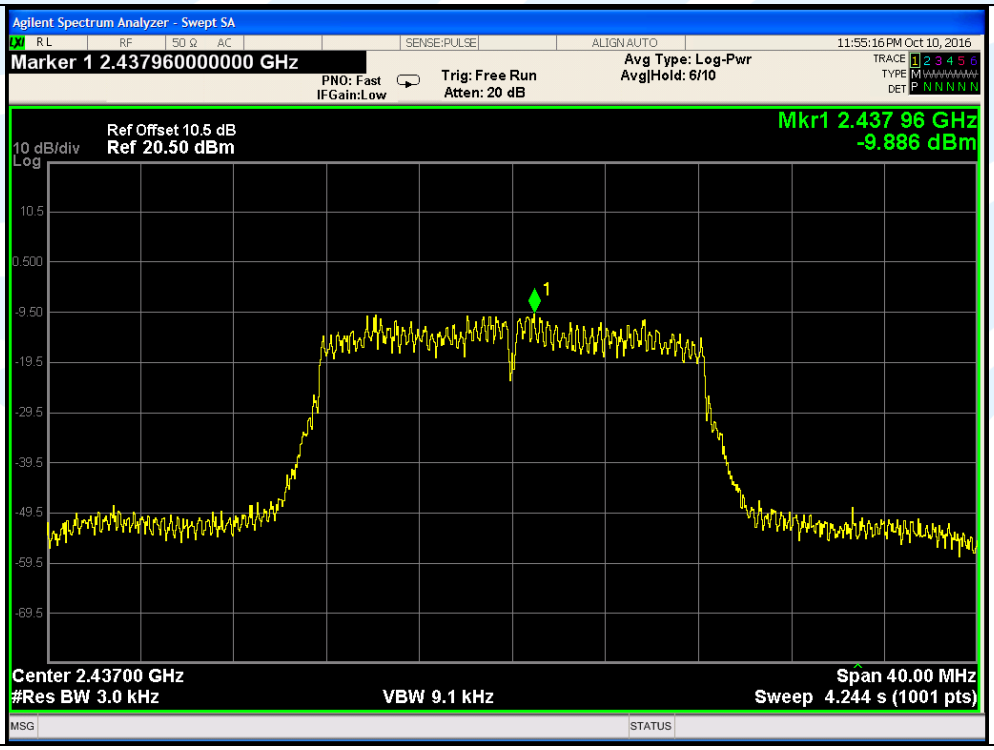


Test Mode: 802.11g

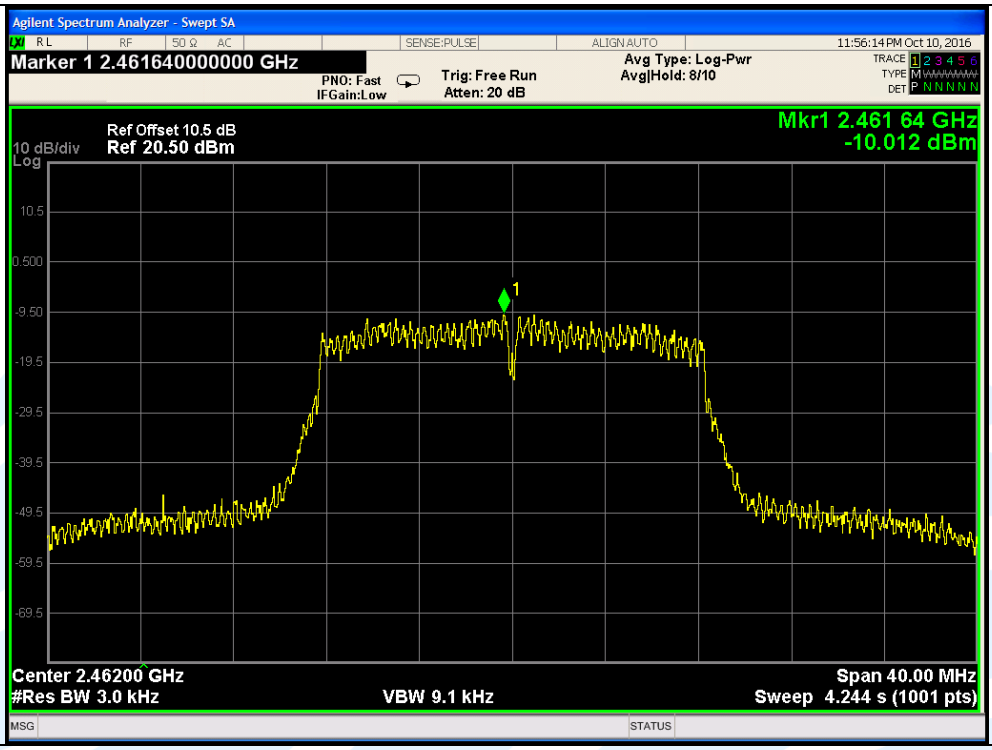
2412MHz



2437MHz

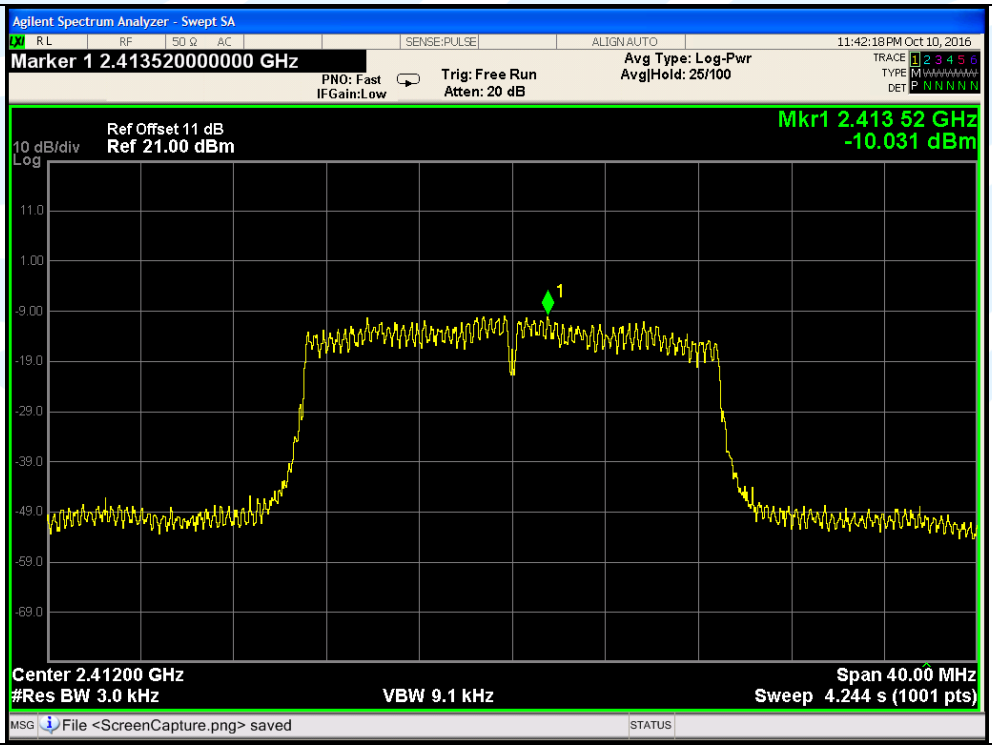


2462MHz

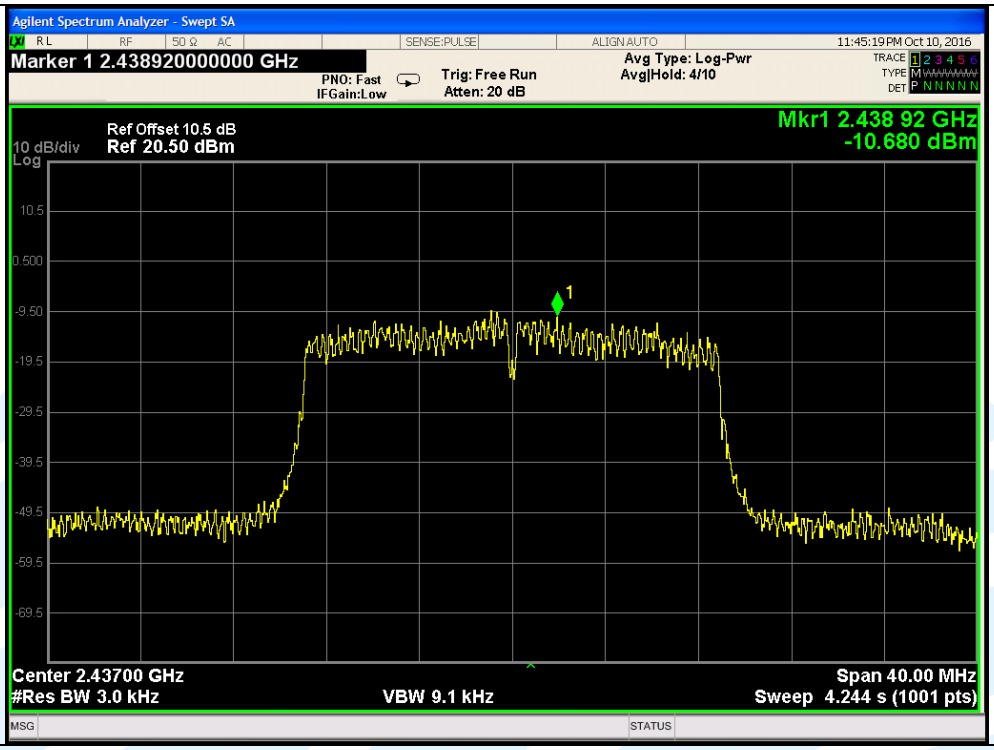


Test Mode: 802.11n(HT20)

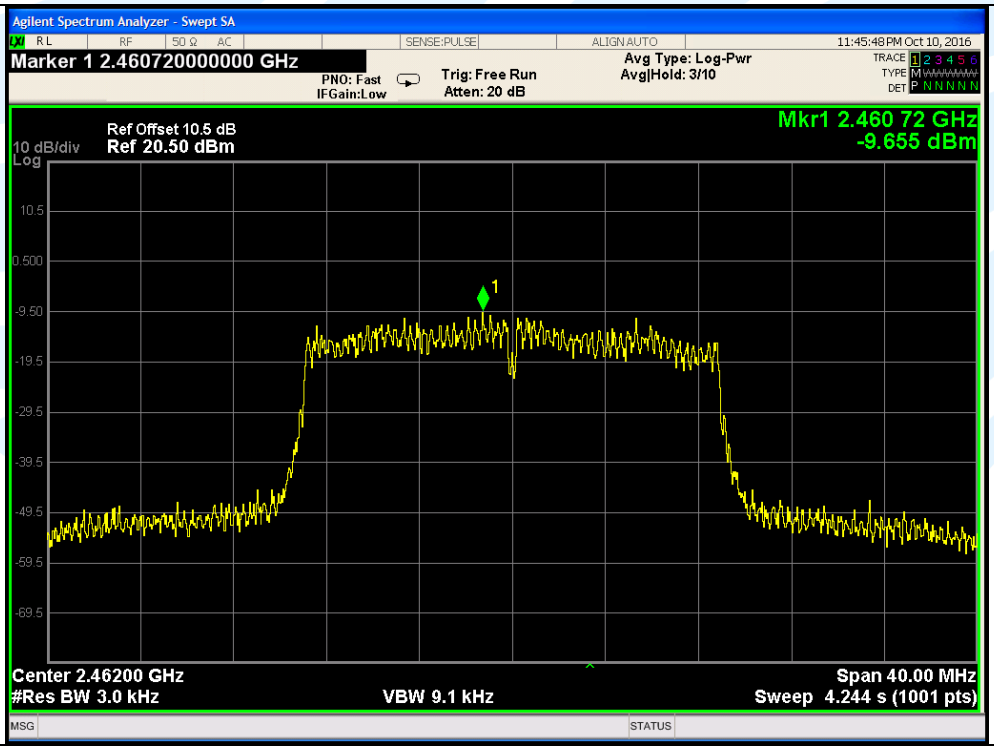
2412MHz



2437MHz



2462MHz



5.5 Conducted Out of Band Emission

Test Requirement: 47 CFR Part 15 Subpart C Section 15.247(d)

Test Method: KDB 558074 D01 v03r05 Section 11

Limit: In any 100kHz 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.

Test Procedure: The output from the transmitter was connected to an attenuator and then to the input of the spectrum analyzer.

Use the following spectrum analyzer settings:

Step 1:Measurement Procedure REF

a) Set instrument center frequency to DTS channel center frequency.
b) Set the span to ≥ 1.5 times the DTS bandwidth.
c) Set the RBW = 100 kHz.
d) Set the VBW ≥ 3 x RBW.
e) Detector = peak.
f) Sweep time = auto couple.
g) Trace mode = max hold.
h) Allow trace to fully stabilize.
i) Use the peak marker function to determine the maximum PSD level.
j) Note that the channel found to contain the maximum PSD level can be used to establish the reference level.

Step 2:Measurement Procedure OOBE

a) Set RBW = 100 kHz.
b) Set VBW ≥ 300 kHz.
c) Detector = peak.
d) Sweep = auto couple.
e) Trace Mode = max hold.
f) Allow trace to fully stabilize.
g) Use the peak marker function to determine the maximum amplitude level.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

Test Setup: Refer to section 4.1.1 for details.

Instruments Used: Refer to section 3 for details

Test Mode: Transmitter mode

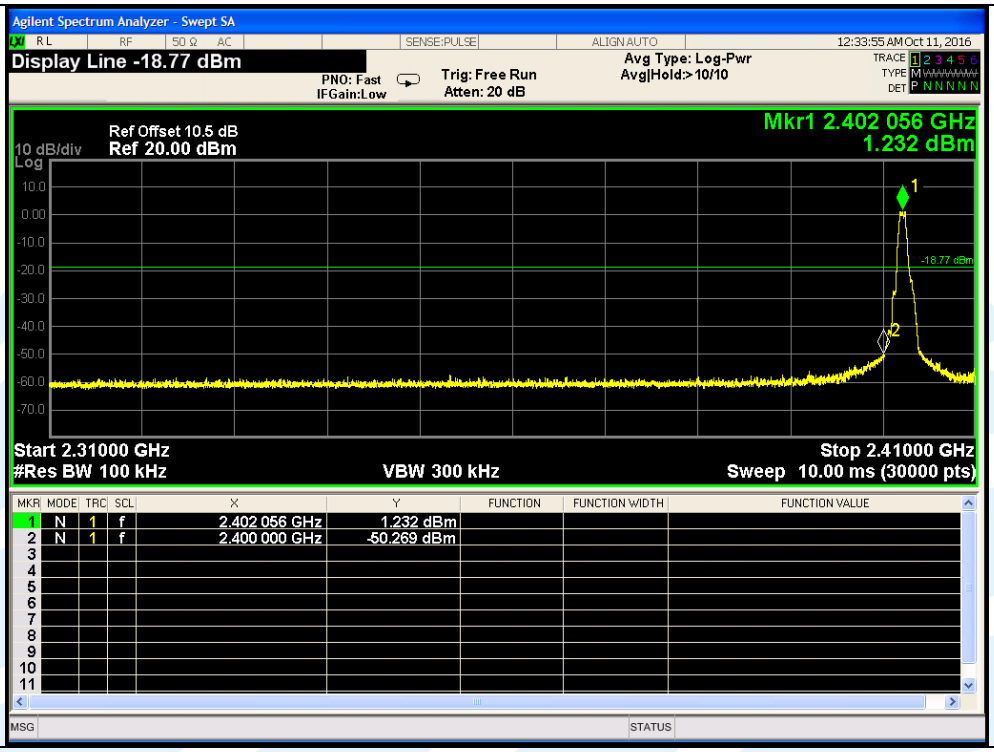
Test Results: Pass

The test plot as follows:

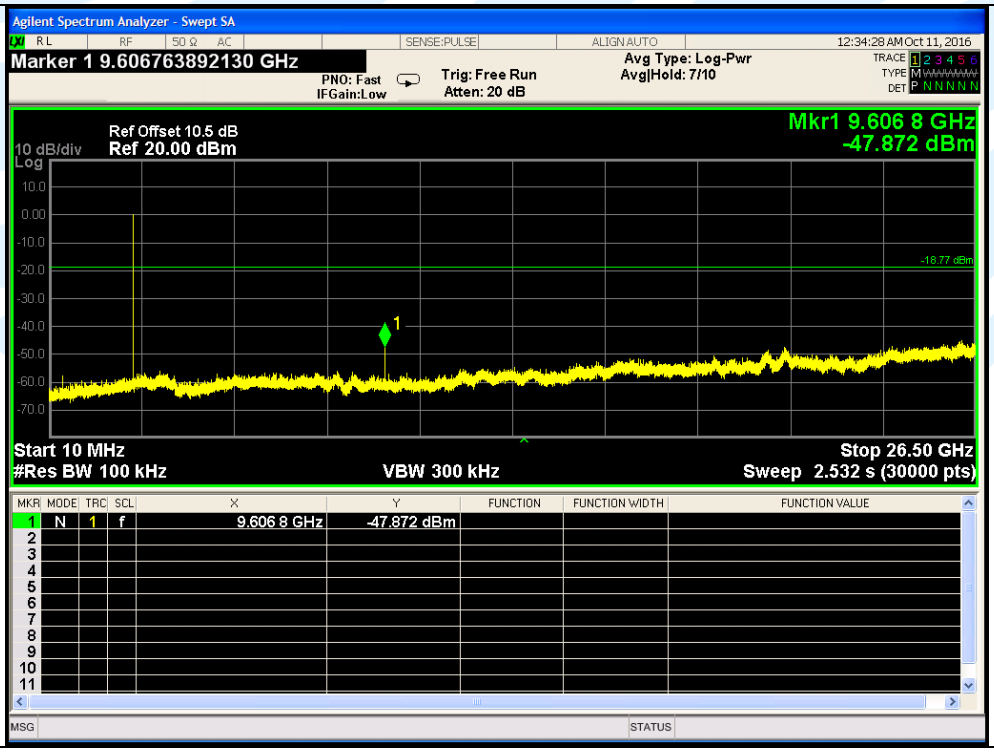
Test Mode: BLE

2402MHz

In-Band Reference Level

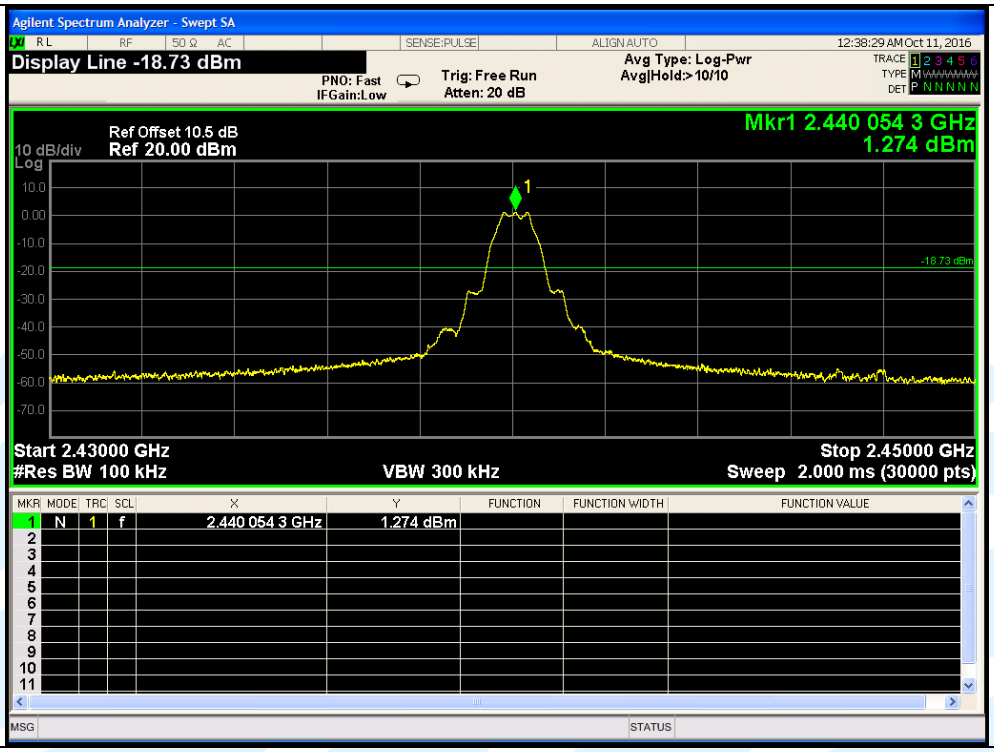


Out of Band

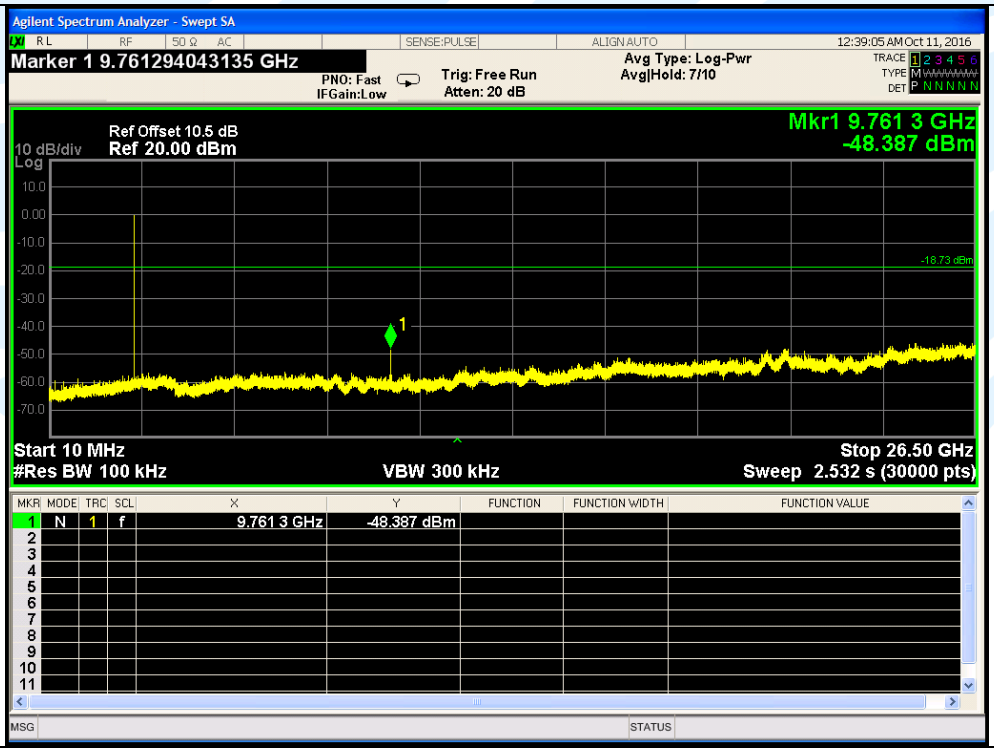


2440MHz

In-Band Reference Level

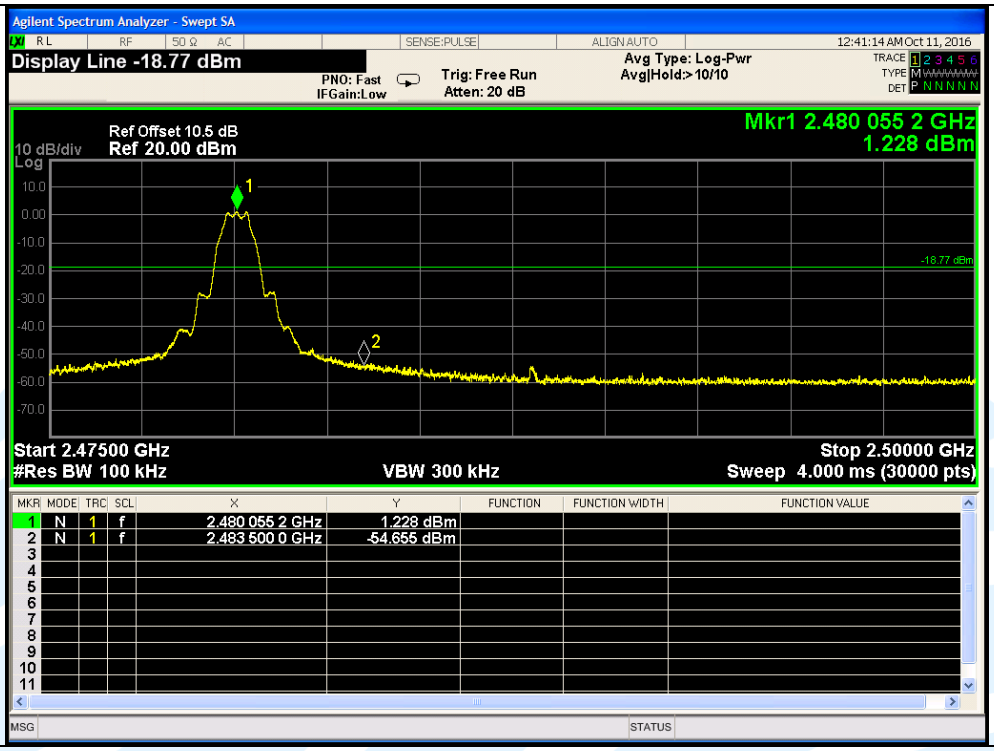


Out of Band

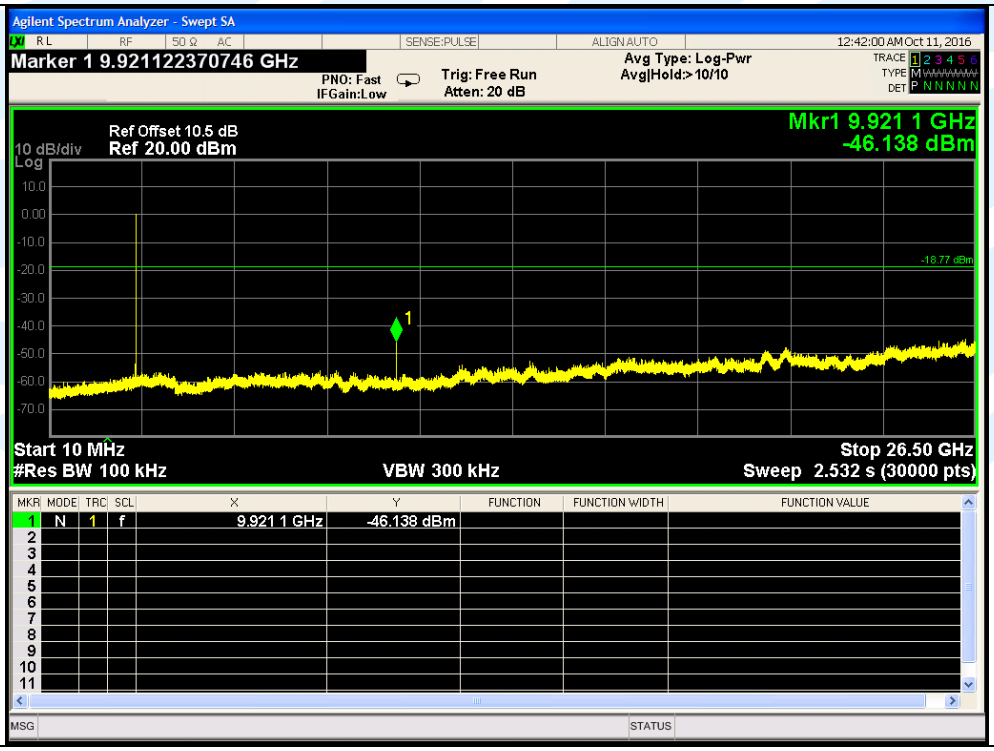


2480MHz

In-Band Reference Level



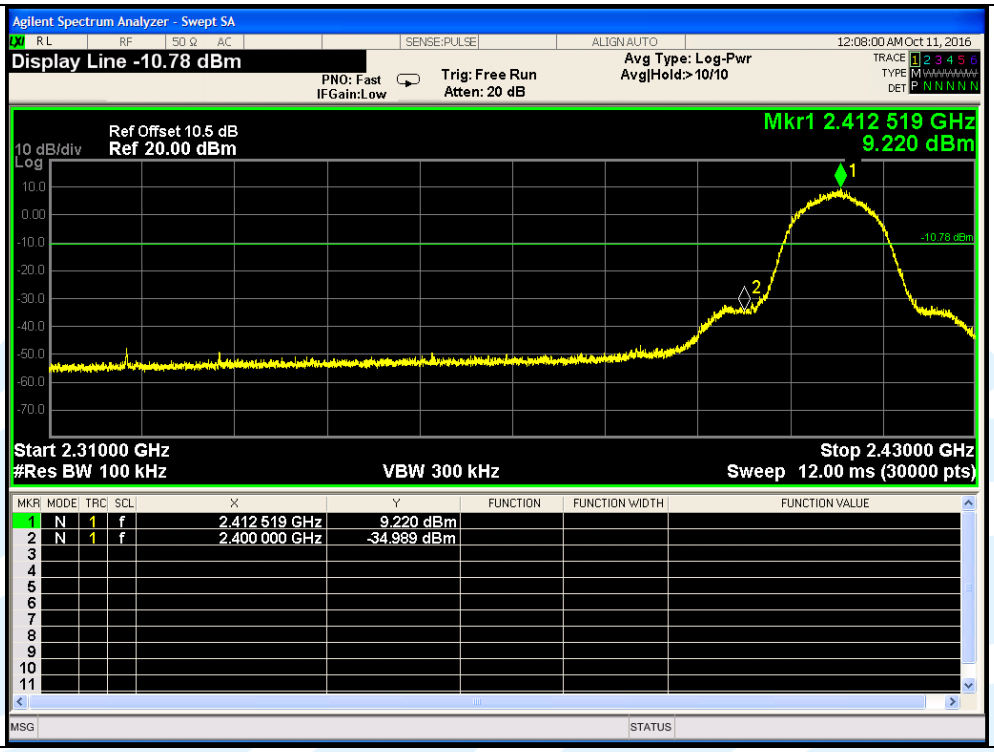
Out of Band



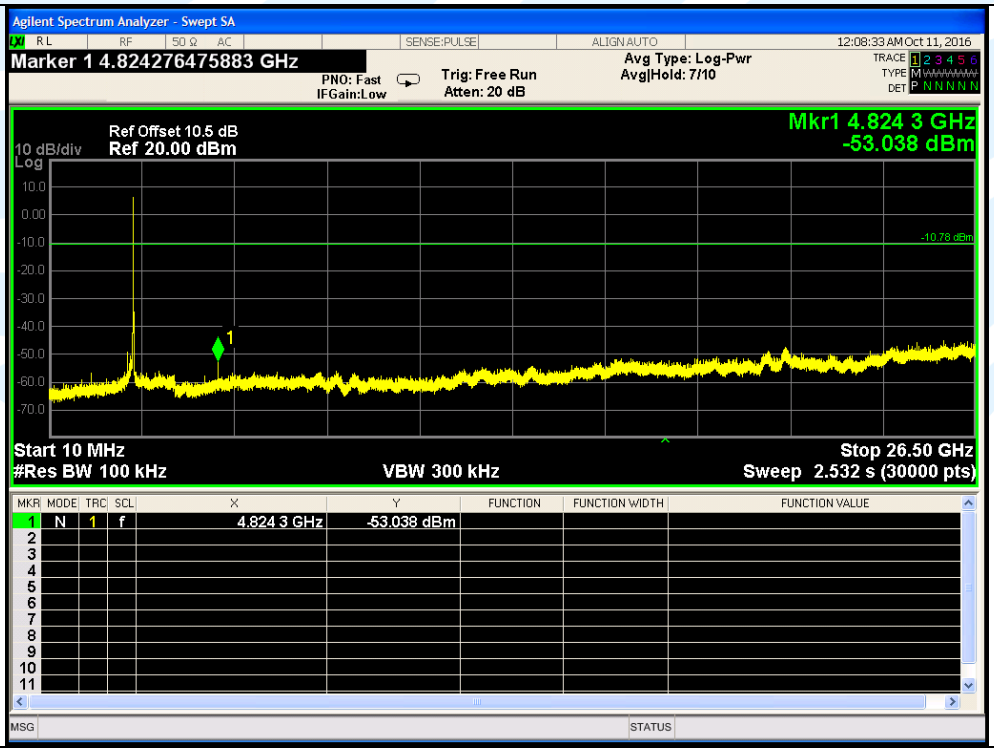
Test Mode: 802.11b

2412MHz

In-Band Reference Level

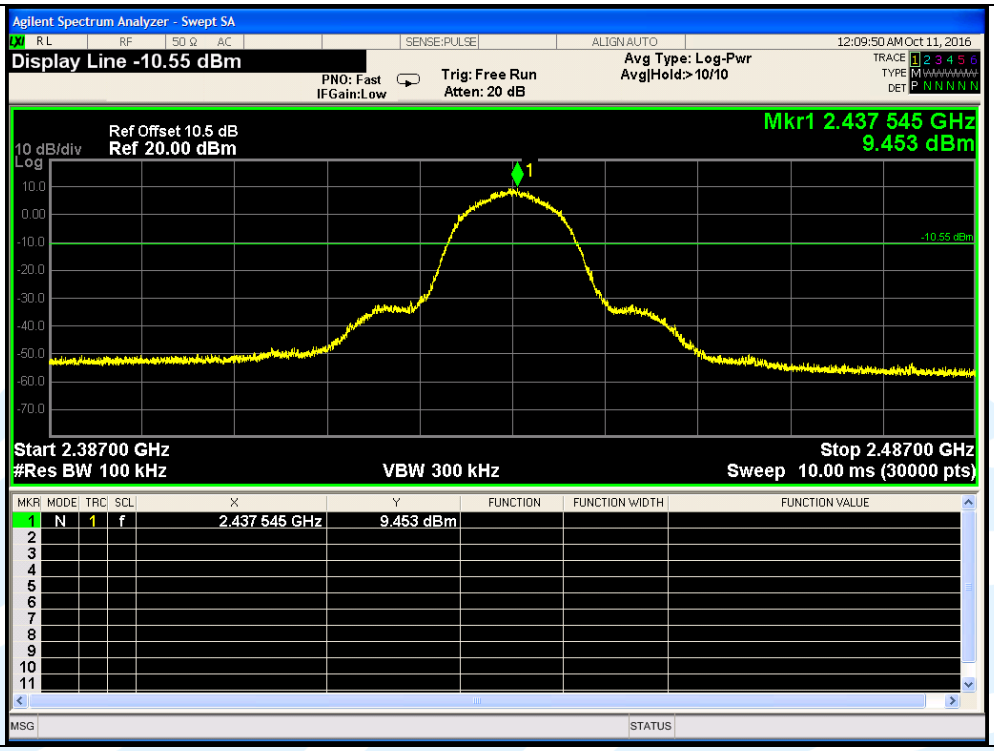


Out of Band

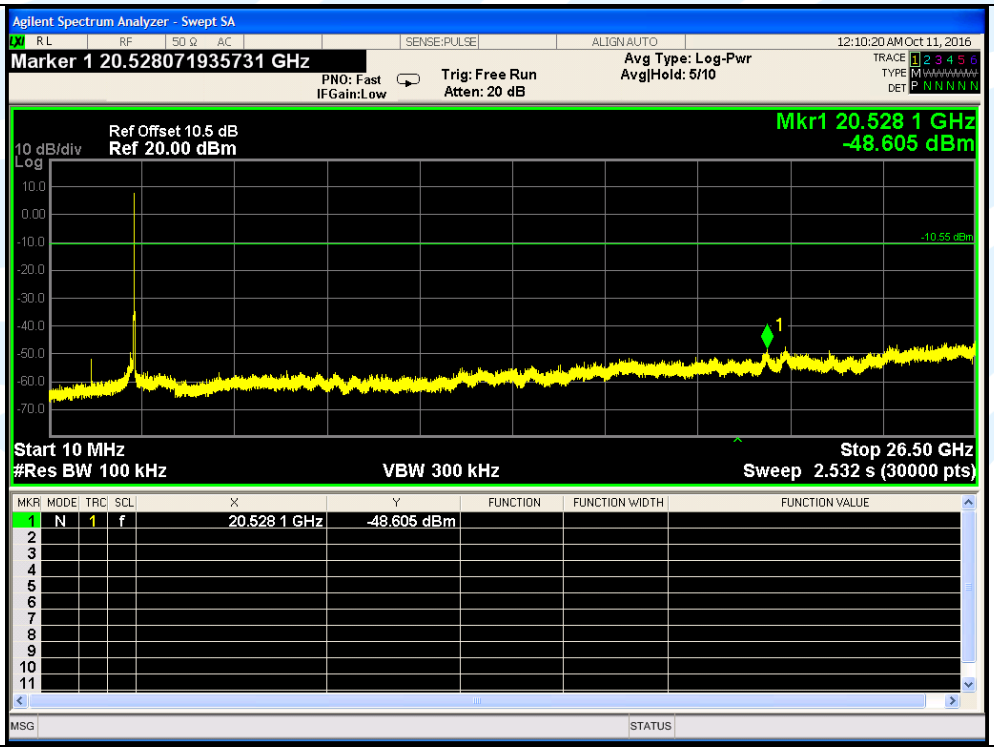


2437MHz

In-Band Reference Level

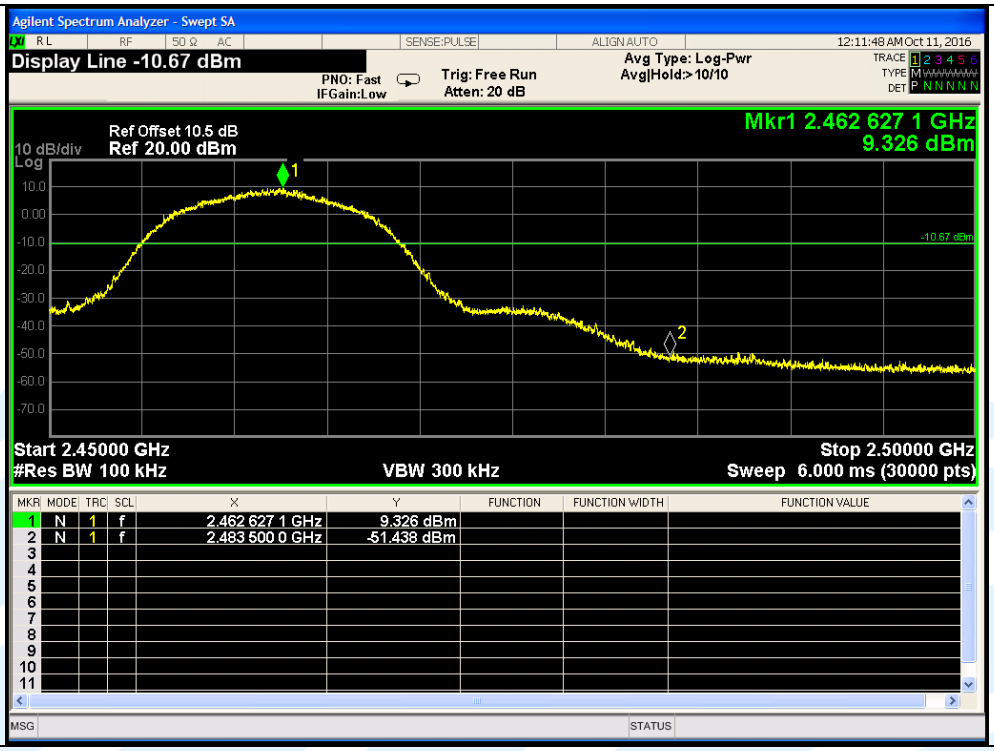


Out of Band

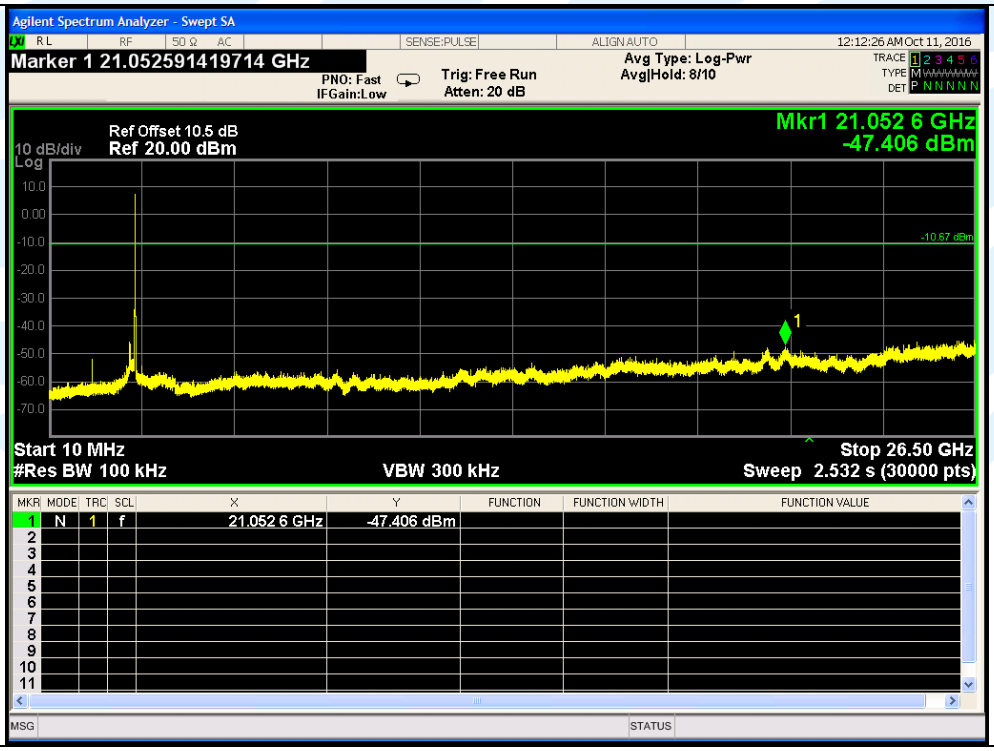


2462MHz

In-Band Reference Level



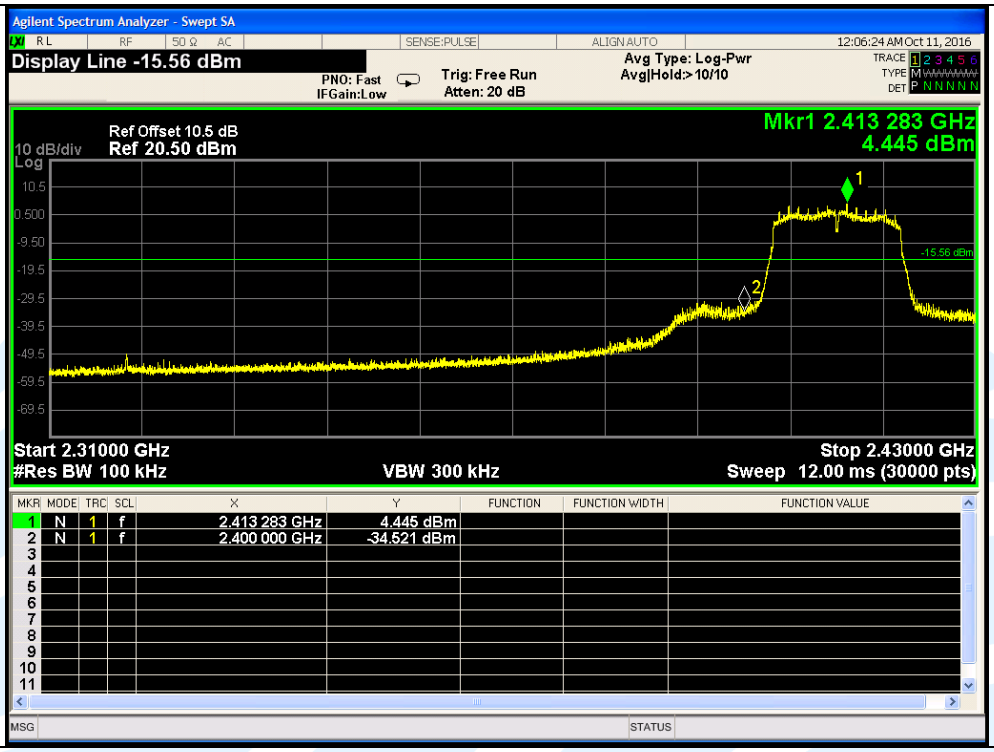
Out of Band



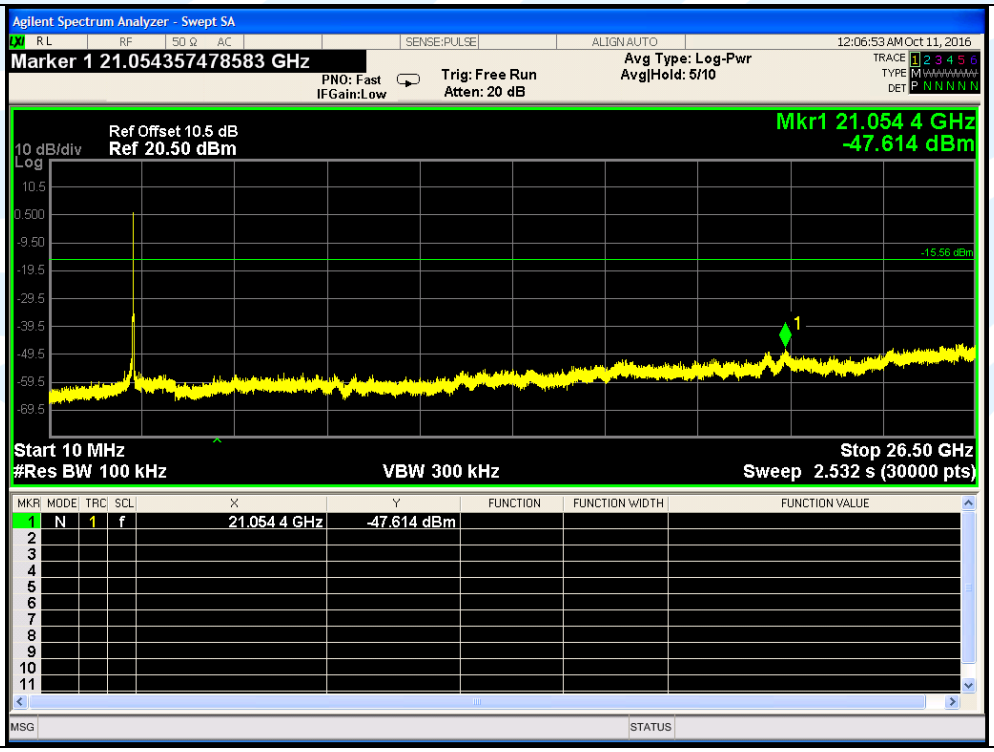
Test Mode: 802.11g

2412MHz

In-Band Reference Level

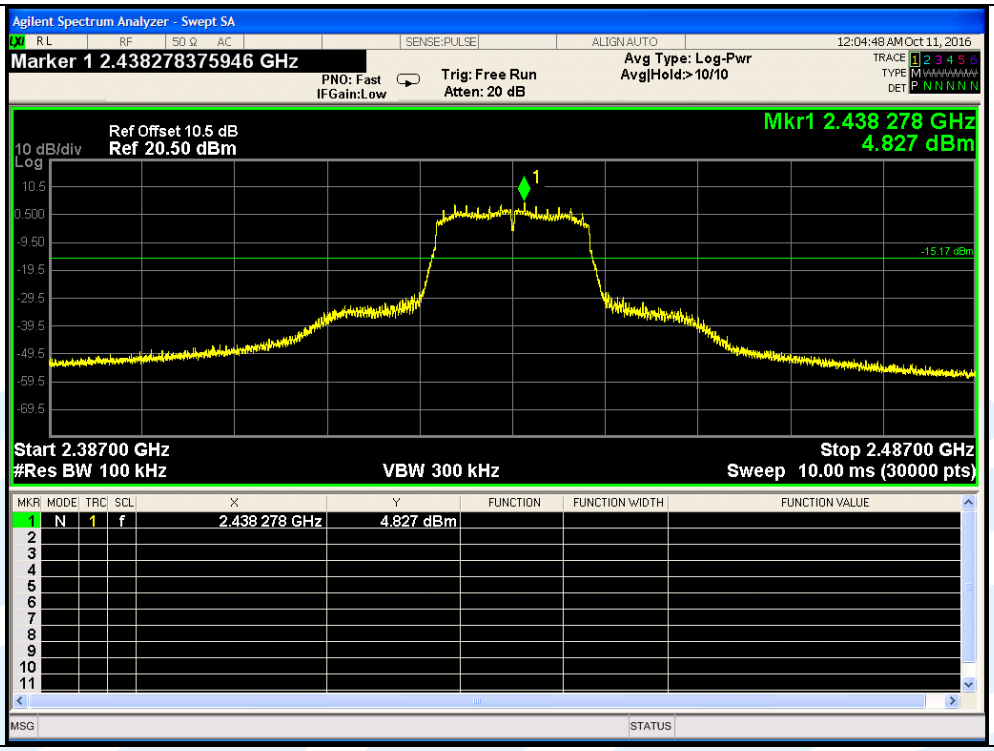


Out of Band

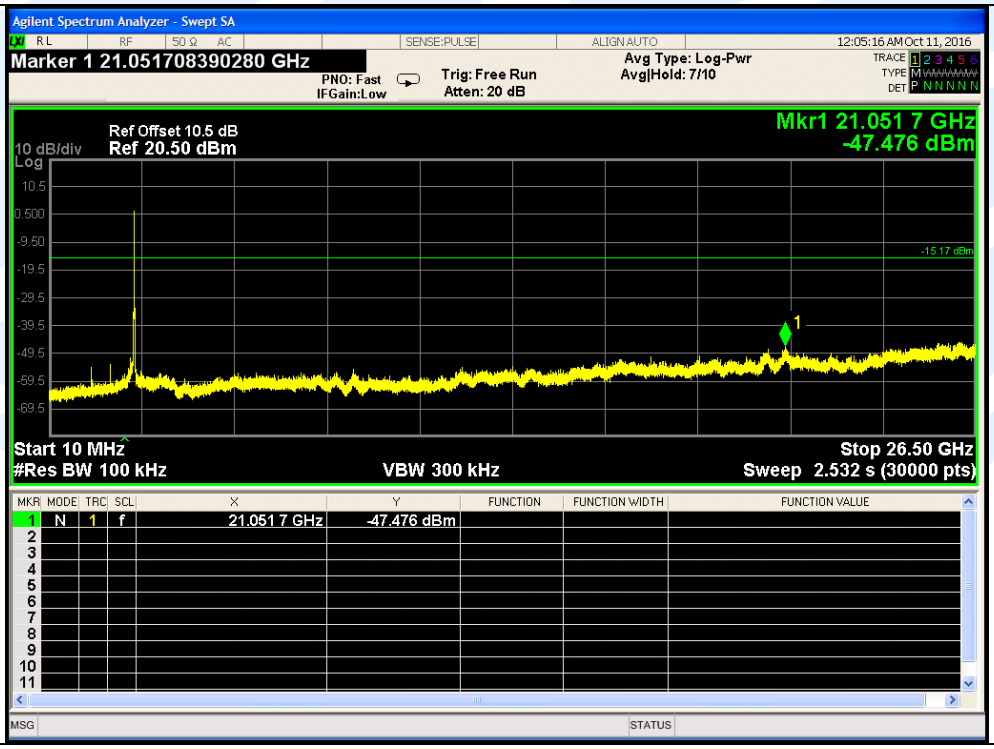


2437MHz

In-Band Reference Level

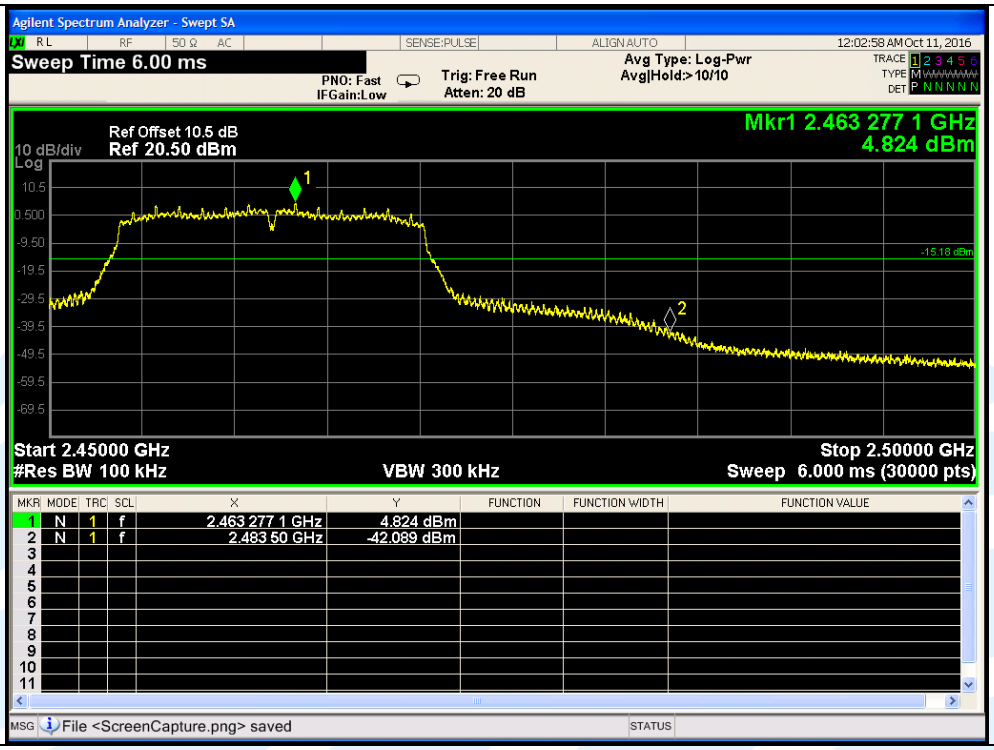


Out of Band

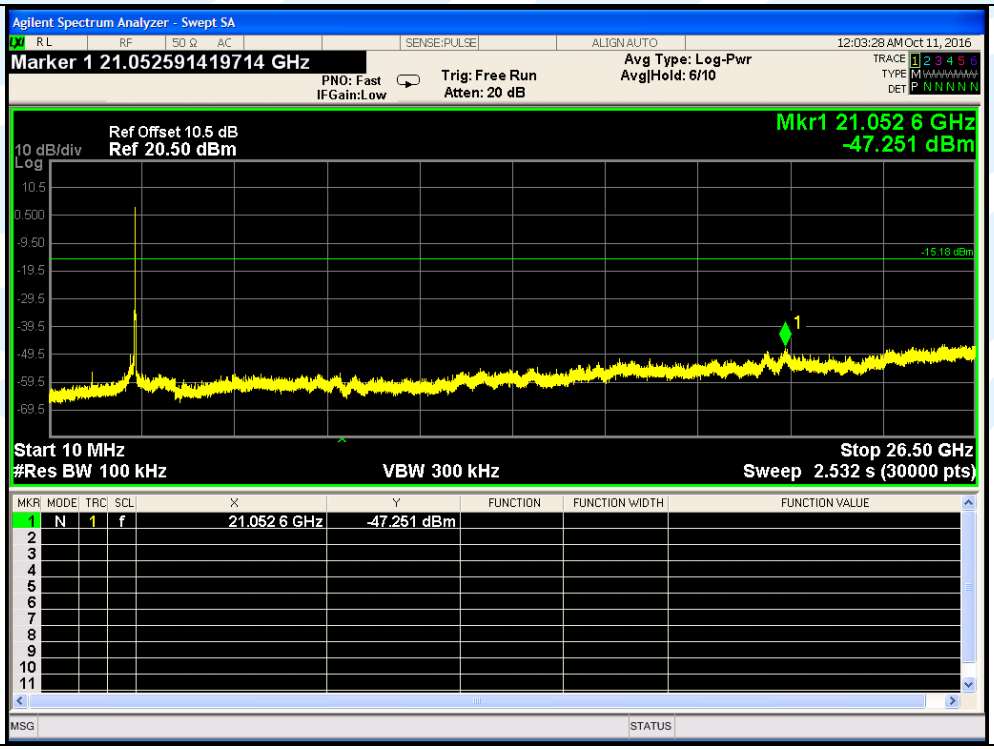


2462MHz

In-Band Reference Level



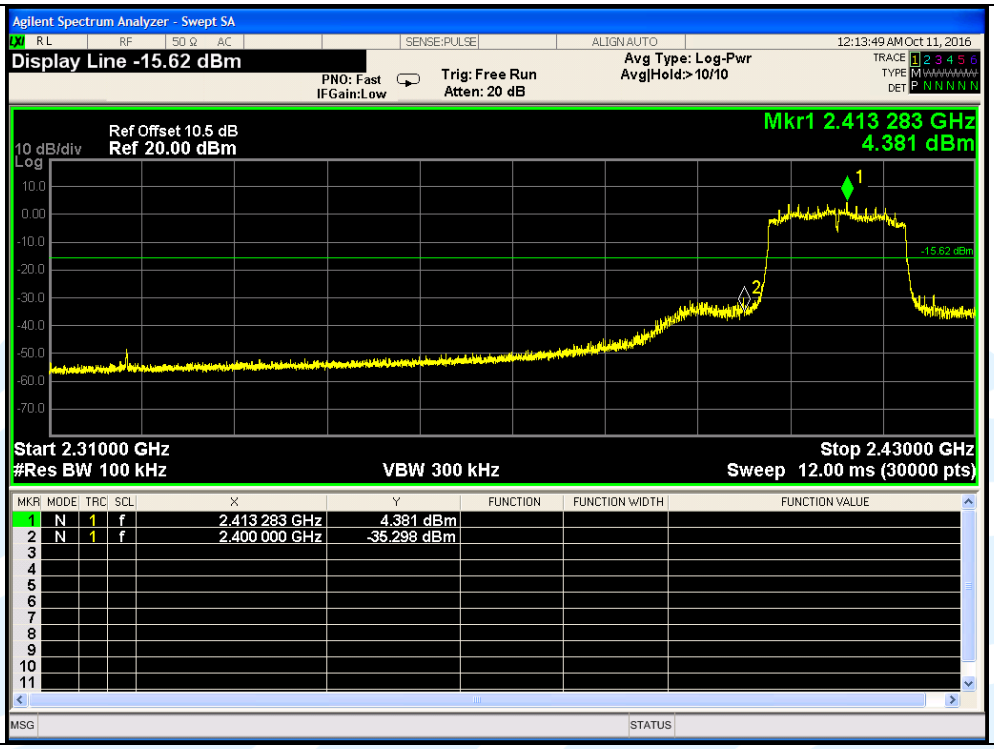
Out of Band



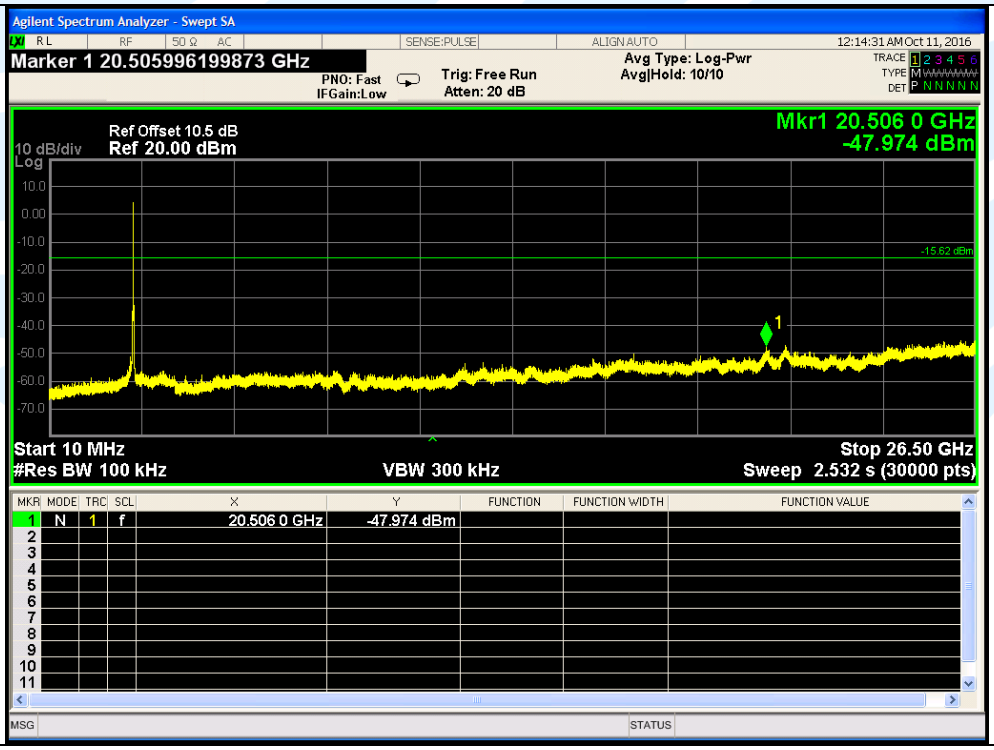
Test Mode: 802.11 n(HT20)

2412MHz

In-Band Reference Level

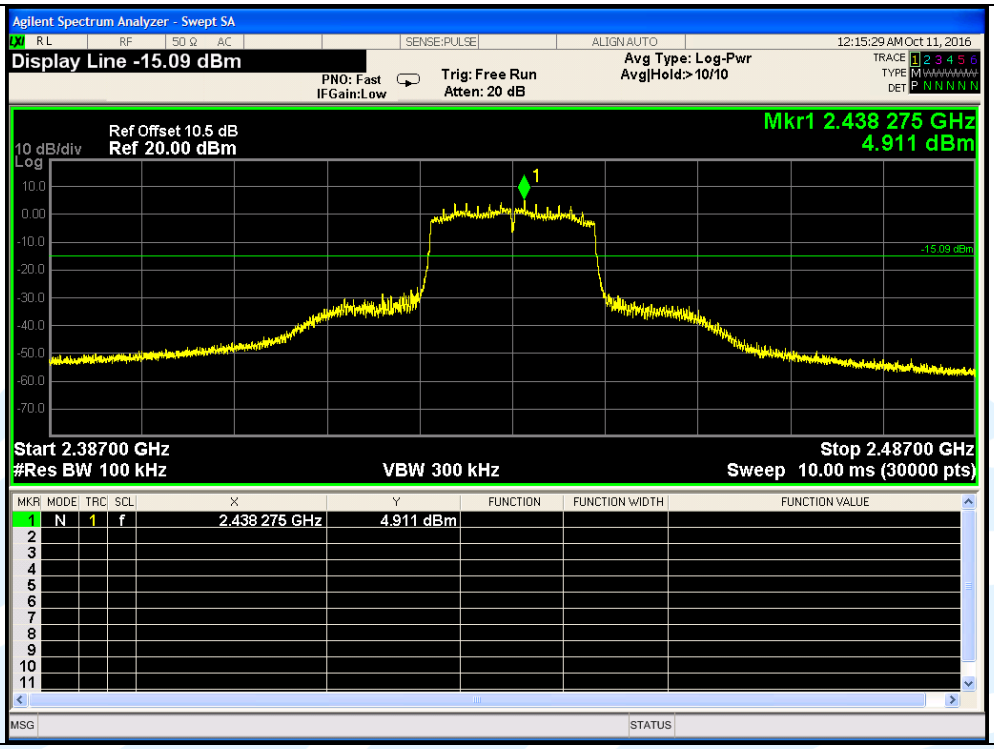


Out of Band

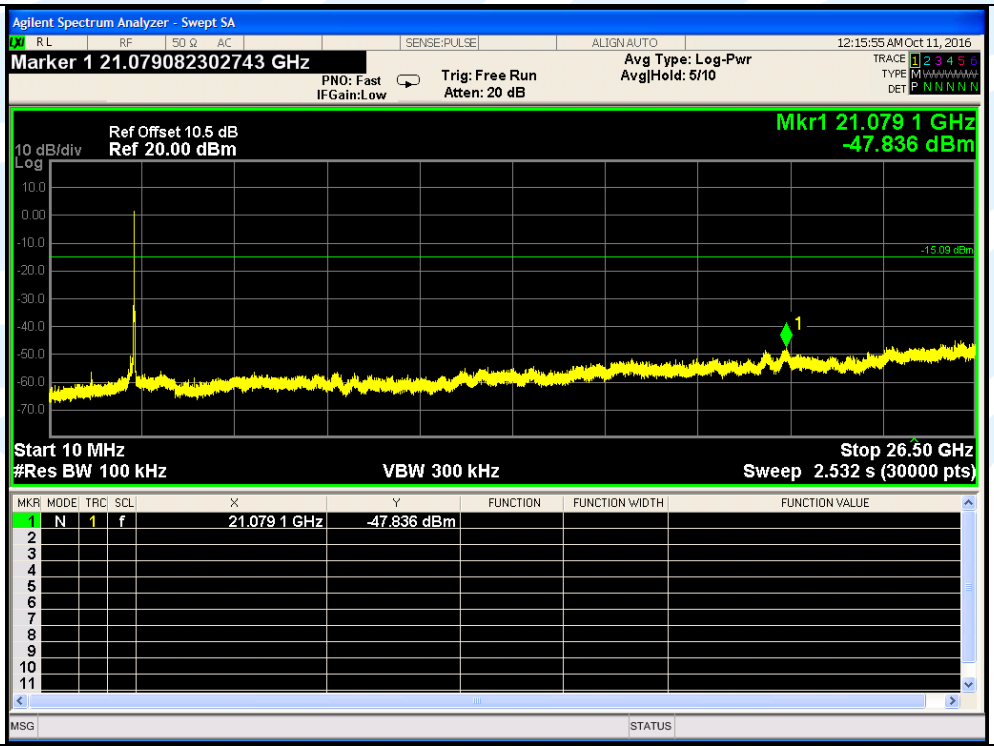


2437MHz

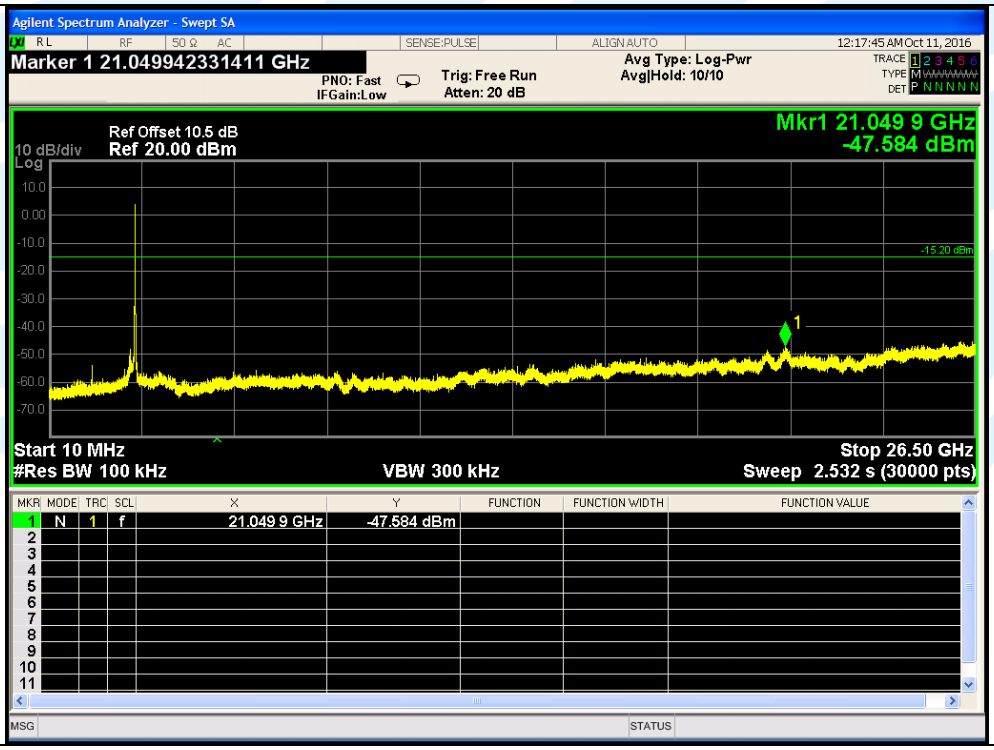
In-Band Reference Level



Out of Band



2462MHz
In-Band Reference Level

Out of Band


5.6 Radiated Spurious Emissions

Test Requirement: 47 CFR Part 15 Subpart C Section 15.205/15.209

Test Method: ANSI C63.10

Limit:

Frequency	Field strength (microvolt/meter)	Limit (dBμV/m)	Remark	Measurement distance (m)
0.009MHz-0.490MHz	2400/F(kHz)	-	-	300
0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
1.705MHz-30MHz	30	-	-	30
30MHz-88MHz	100	40.0	Quasi-peak	3
88MHz-216MHz	150	43.5	Quasi-peak	3
216MHz-960MHz	200	46.0	Quasi-peak	3
960MHz-1GHz	500	54.0	Quasi-peak	3
Above 1GHz	500	54.0	Average	3

Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

Remark:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any condition of modulation.

The emissions were measured using the following resolution bandwidths:

Frequency	Detector	RBW	VBW	Remark
0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak
0.009MHz-0.090MHz	Average	10kHz	30kHz	Average
0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak
0.110MHz-0.490MHz	Average	10kHz	30kHz	Average
0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
30MHz-1GHz	Quasi-peak	100 kHz	300kHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	10Hz	Average

Harmonic and Spurious emissions that were identified as coming from the EUT were checked in Peak and in Average Mode. The high frequency, which started from 10 to26.5GHz, which above 10GHz are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured was not reported.

Peak measurements and average measurements are made. All emissions were determined to have a peak-to-average ratio of less than 20dB.

Test Procedure:

Below 1GHz test procedure as below:

a) The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.

b) The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c) The antenna height 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.

d) 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 was turned from 0 degrees to 360 degrees to find the maximum reading.

e) The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f) Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channel

Above 1GHz test procedure as below:

g) Different between above is the test site, change from Semi-Anechoic Chamber to fully Anechoic Chamber change form table 0.8 meter to 1.5 meter(Above 18GHz the distance is 1 meter and table is 1.5 meter).

h) Test the EUT in the lowest channel , the Highest channel

i) The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is worse case.

j) Repeat above procedures until all frequencies measured was complete.

Test Setup: Refer to section 4.1.2 for details.

Instruments Used: Refer to section 3 for details

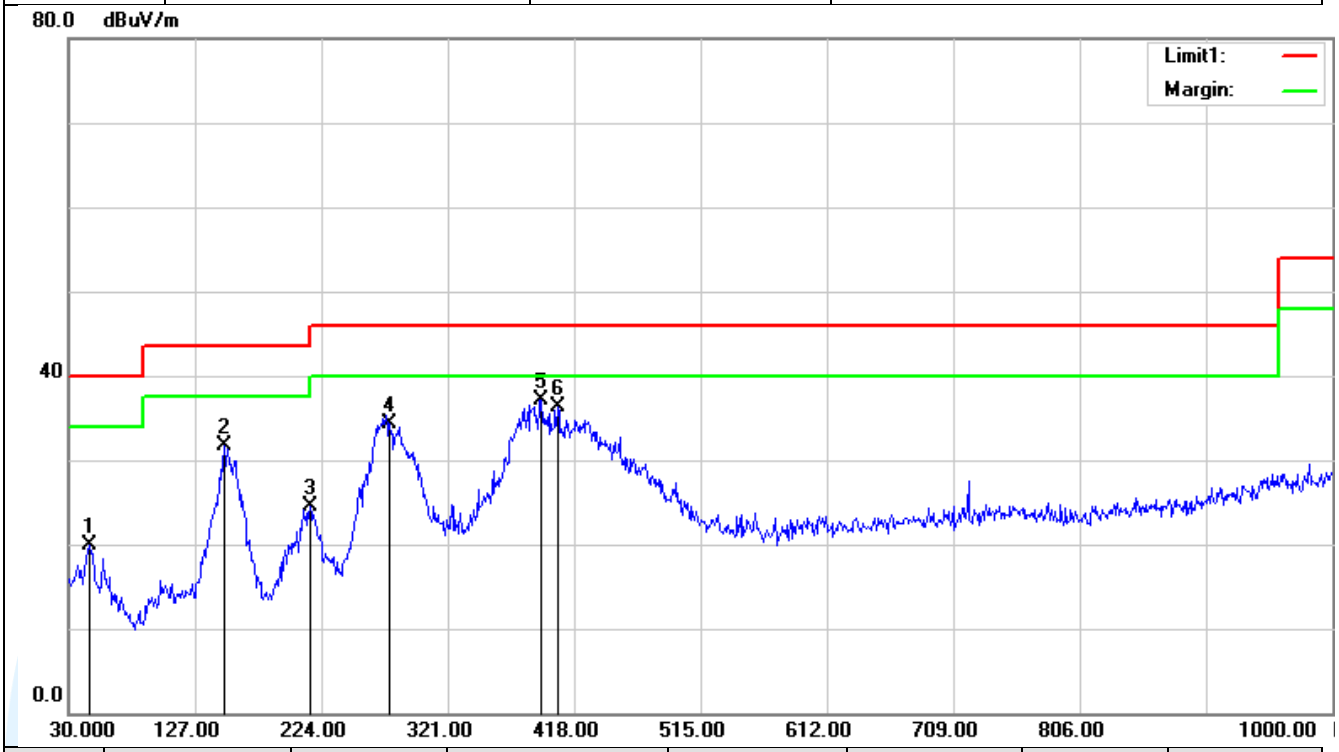
Test Mode: Transmitter mode

Test Results: Pass

Test Data:

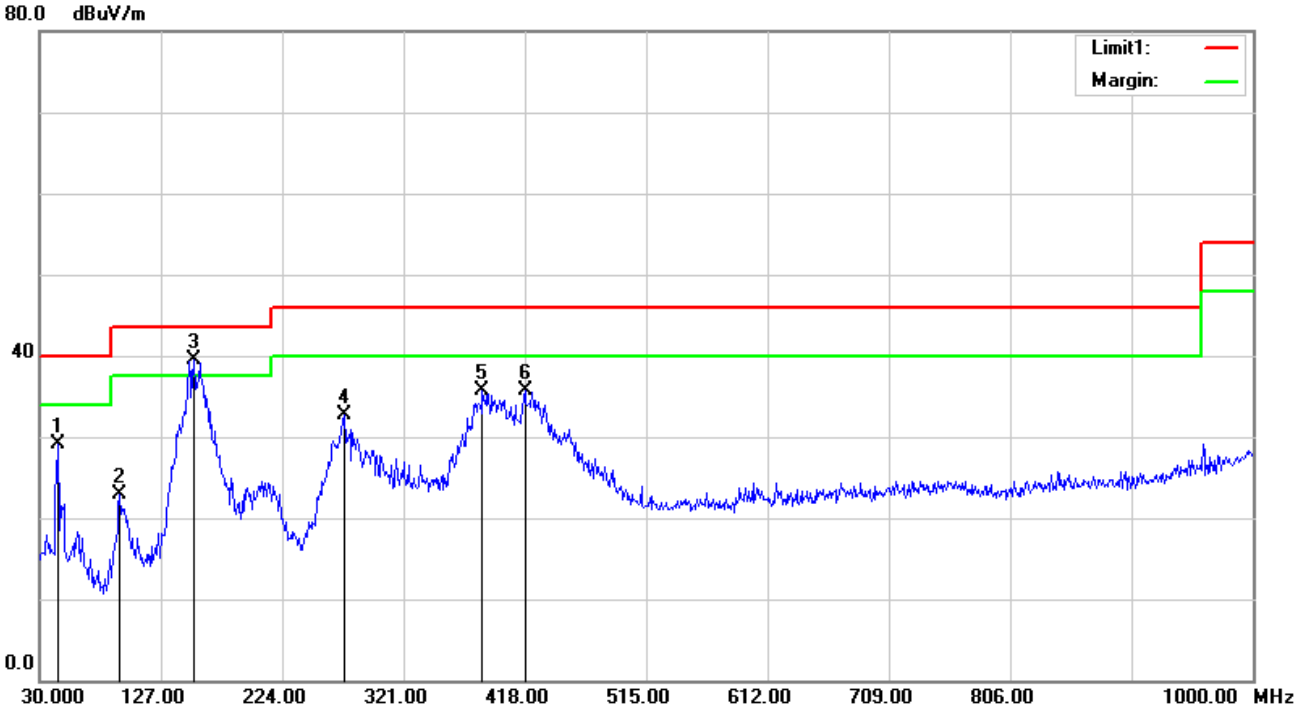
Radiated Emission Test Data (Below 1 GHz Worst Case):

Mode	802.11b	Antenna	Chain 0
Channel	1	Ant. Polar.	Horizontal



.No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	46.4900	31.91	-11.93	19.98	40.00	-20.02	QP
2	149.3100	43.52	-11.87	31.65	43.50	-11.85	QP
3	215.2700	35.68	-11.13	24.55	43.50	-18.95	QP
4	276.3800	44.15	-9.87	34.28	46.00	-11.72	QP
5*	392.7800	45.64	-8.48	37.16	46.00	-8.84	QP
6	405.3900	44.86	-8.59	36.27	46.00	-9.73	QP

Mode	802.11b	Antenna	Chain 0
Channel	1	Ant. Polar.	Vertical



.No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	44.5500	40.90	-11.73	29.17	40.00	-10.83	QP
2	94.0200	37.64	-14.71	22.93	43.50	-20.57	QP
3*	153.1900	51.31	-11.83	39.48	43.50	-4.02	QP
4	273.4700	42.67	-10.02	32.65	46.00	-13.35	QP
5	384.0500	44.13	-8.36	35.77	46.00	-10.23	QP
6	418.0000	44.37	-8.60	35.77	46.00	-10.23	QP

Radiated Emission Test Data (Above 1GHz Worst Case):

Mode	BLE	Antenna	Chain 0
Channel	1	Ant. Polar.	Horizontal

.No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1*	1765.000	53.55	-6.35	47.20	74.00	-26.80	peak
2	2161.000	45.88	-4.12	41.76	74.00	-32.24	peak
3	2557.000	45.73	-2.16	43.57	74.00	-30.43	peak
4	2836.000	43.35	-1.66	41.69	74.00	-32.31	peak
5	3151.000	43.47	-1.11	42.36	74.00	-31.64	peak
6	4672.000	42.54	3.91	46.45	74.00	-27.55	peak

Mode	BLE	Antenna	Chain 0
Channel	20	Ant. Polar.	Horizontal

.No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1288.000	48.07	-7.47	40.60	74.00	-33.40	peak
2	1756.000	47.44	-6.36	41.08	74.00	-32.92	peak
3	2107.000	45.99	-4.41	41.58	74.00	-32.42	peak
4	2494.000	45.20	-2.29	42.91	74.00	-31.09	peak
5	3628.000	44.34	0.02	44.36	74.00	-29.64	peak
6*	4825.000	42.21	4.41	46.62	74.00	-27.38	peak

Mode	BLE	Antenna	Chain 0
Channel	40	Ant. Polar.	Horizontal

.No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1396.000	49.01	-7.07	41.94	74.00	-32.06	peak
2	1756.000	49.67	-6.36	43.31	74.00	-30.69	peak
3	2548.000	44.91	-2.17	42.74	74.00	-31.26	peak
4	3079.000	44.28	-1.23	43.05	74.00	-30.95	peak
5	3925.000	42.89	1.27	44.16	74.00	-29.84	peak
6*	4843.000	41.19	4.47	45.66	74.00	-28.34	peak

Mode	802.11b	Antenna	Chain 1
Channel	1	Ant. Polar.	Horizontal

.No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1000.0000	48.42	-9.36	39.06	74.00	-34.94	peak
2	1279.000	48.37	-7.50	40.87	74.00	-33.13	peak
3	2233.000	45.01	-3.72	41.29	74.00	-32.71	peak
4	2962.000	43.73	-1.43	42.30	74.00	-31.70	peak
5	3916.000	43.42	1.24	44.66	74.00	-29.34	peak
6*	4825.000	47.24	4.41	51.65	74.00	-22.35	peak

Mode	802.11b	Antenna	Chain 1
Channel	6	Ant. Polar.	Horizontal

.No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1117.000	47.93	-8.11	39.82	74.00	-34.18	peak
2	1216.000	49.04	-7.73	41.31	74.00	-32.69	peak
3	2125.000	48.86	-4.31	44.55	74.00	-29.45	peak
4	3250.000	44.72	-0.94	43.78	74.00	-30.22	peak
5*	4870.000	44.60	4.56	49.16	74.00	-24.84	peak
6	6454.000	42.29	6.82	49.11	74.00	-24.89	peak

Mode	802.11b	Antenna	Chain 1
Channel	11	Ant. Polar.	Horizontal

.No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1234.000	50.20	-7.67	42.53	74.00	-31.47	peak
2	1765.000	49.54	-6.35	43.19	74.00	-30.81	peak
3	2251.000	45.36	-3.62	41.74	74.00	-32.26	peak
4	2611.000	44.39	-2.06	42.33	74.00	-31.67	peak
5	3250.000	44.82	-0.94	43.88	74.00	-30.12	peak
6*	4420.000	42.17	3.07	45.24	74.00	-28.76	peak

Mode	802.11g	Antenna	Chain 1
Channel	1	Ant. Polar.	Horizontal

.No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1387.000	47.11	-7.11	40.00	74.00	-34.00	peak
2	2134.000	45.25	-4.27	40.98	74.00	-33.02	peak
3	2575.000	46.21	-2.12	44.09	74.00	-29.91	peak
4	3691.000	41.89	0.29	42.18	74.00	-31.82	peak
5	4807.000	41.75	4.35	46.10	74.00	-27.90	peak
6*	5482.000	41.98	5.84	47.82	74.00	-26.18	peak

Mode	802.11g	Antenna	Chain 1
Channel	6	Ant. Polar.	Horizontal

.No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1261.000	48.33	-7.57	40.76	74.00	-33.24	peak
2	1828.000	46.72	-6.09	40.63	74.00	-33.37	peak
3	2566.000	45.96	-2.14	43.82	74.00	-30.18	peak
4	3682.000	43.98	0.25	44.23	74.00	-29.77	peak
5	4375.000	42.67	2.91	45.58	74.00	-28.42	peak
6*	4870.000	43.35	4.56	47.91	74.00	-26.09	peak

Mode	802.11g	Antenna	Chain 1
Channel	11	Ant. Polar.	Horizontal

.No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1315.000	47.35	-7.37	39.98	74.00	-34.02	peak
2	1594.000	52.21	-6.71	45.50	74.00	-28.50	peak
3	1801.000	47.31	-6.26	41.05	74.00	-32.95	peak
4	2161.000	46.14	-4.12	42.02	74.00	-31.98	peak
5	3691.000	44.19	0.29	44.48	74.00	-29.52	peak
6*	4933.000	42.11	4.76	46.87	74.00	-27.13	peak

Mode	802.11n	Antenna	Chain 1
Channel	1	Ant. Polar.	Horizontal

.No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1216.000	47.80	-7.73	40.07	74.00	-33.93	peak
2	1747.000	50.85	-6.38	44.47	74.00	-29.53	peak
3	2233.000	46.37	-3.72	42.65	74.00	-31.35	peak
4	2548.000	45.04	-2.17	42.87	74.00	-31.13	peak
5	2827.000	44.40	-1.67	42.73	74.00	-31.27	peak
6*	4825.000	43.78	4.41	48.19	74.00	-25.81	peak

Mode	802.11n	Antenna	Chain 1
Channel	6	Ant. Polar.	Horizontal

.No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1108.000	48.72	-8.14	40.58	74.00	-33.42	peak
2	1756.000	47.63	-6.36	41.27	74.00	-32.73	peak
3	2233.000	45.93	-3.72	42.21	74.00	-31.79	peak
4	2503.000	45.86	-2.25	43.61	74.00	-30.39	peak
5	3295.000	43.21	-0.86	42.35	74.00	-31.65	peak
6*	4456.000	42.39	3.20	45.59	74.00	-28.41	peak

Mode	802.11n	Antenna	Chain 1
Channel	11	Ant. Polar.	Horizontal

.No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1234.000	46.97	-7.67	39.30	74.00	-34.70	peak
2	2035.000	48.22	-4.81	43.41	74.00	-30.59	peak
3	2575.000	44.86	-2.12	42.74	74.00	-31.26	peak
4	3214.000	43.48	-1.00	42.48	74.00	-31.52	peak
5	4798.000	41.54	4.32	45.86	74.00	-28.14	peak
6*	4933.000	42.53	4.76	47.29	74.00	-26.71	peak

Note:

1) *Through Pre-scan transmitting mode with all kind of modulation and data rate, find the 11Mbps of rate is the worst case of 802.11b; 54Mbpsof rate is the worst case of 802.11g; MCS 1 of rate is the worst case of 802.11n(HT20), and then Only the worst case is recorded in the report.*
2) *The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:*

   Final Test Level =Receiver Reading - Correct Factor

   Correct Factor = Preamplifier Factor– Antenna Factor–Cable Factor
3) *Scan from 9KHz to 25GHz, the disturbance above 10GHz and below 30MHz was very low, the amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.*
4) *Since peak data above 1GHz are lower the average limit, so the average data are pass, no need for testing.*

5.7 Band Edge Measurements (Radiated)

Test Requirement: 47 CFR Part 15 Subpart C Section 15.205/15.209

Test Method: KDB 558074 D01 v03r05 Section 12.1

Limit:

Frequency	Limit (dBµV/m @3m)	Remark
30MHz-88MHz	40.0	Quasi-peak Value
88MHz-216MHz	43.5	Quasi-peak Value
216MHz-960MHz	46.0	Quasi-peak Value
960MHz-1GHz	54.0	Quasi-peak Value
Above 1GHz	54.0	Average Value
	74.0	Peak Value

Test Procedure: Radiated band edge measurements at 2390MHz and 2483MHz were made with the unit transmitting in the low end of the channel range and the high end closest to the restricted bands respectively. The emissions were made on the 966 Semi-Chamber. Use (resolution bandwidth (RBW) = 1 MHz, video bandwidth (VBW) = 3 MHz for peak levels and RBW = 1 MHz and VBW = 10 Hz or 1/T for average levels).

1. Use radiated spurious emission test procedure described in 5.6 clause. The transmitter output (antenna port) was connected to the test receiver.
2. Set the PK and AV limit line.
3. Record the fundamental emission and emissions out of the band-edge.
4. Determine band-edge compliance as required.

Test Setup: Refer to section 4.1.2 for details.

Instruments Used: Refer to section 3 for details

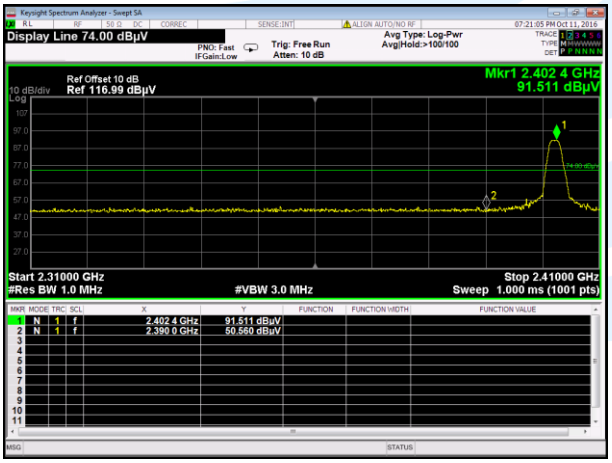
Test Mode: Transmitter mode

Test Results: Pass

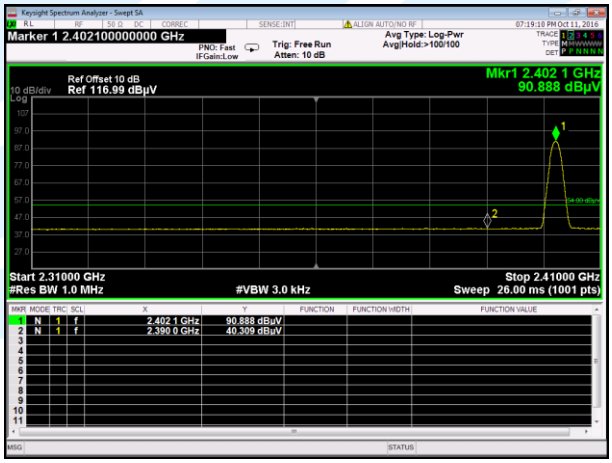
Test Data:

Mode	BLE	**Antenna**	Chain 0
Channel	1	**Ant. Polar.**	Horizontal

Detector: Peak

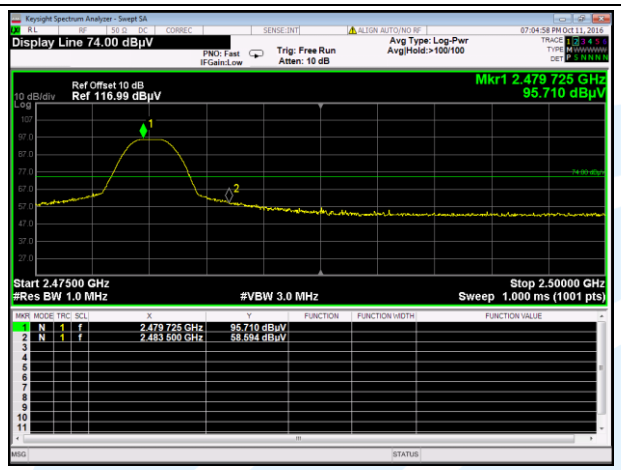
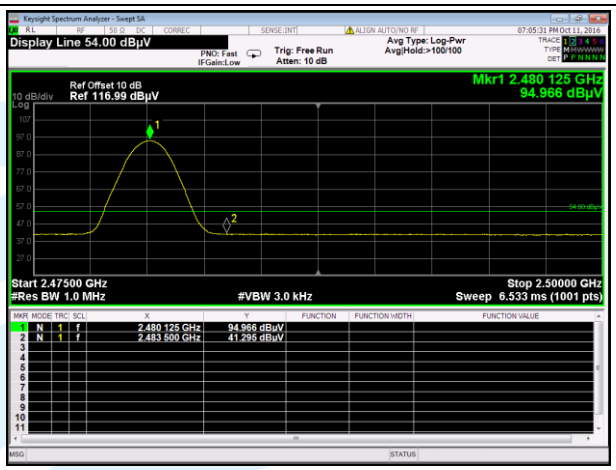


Detector: AV



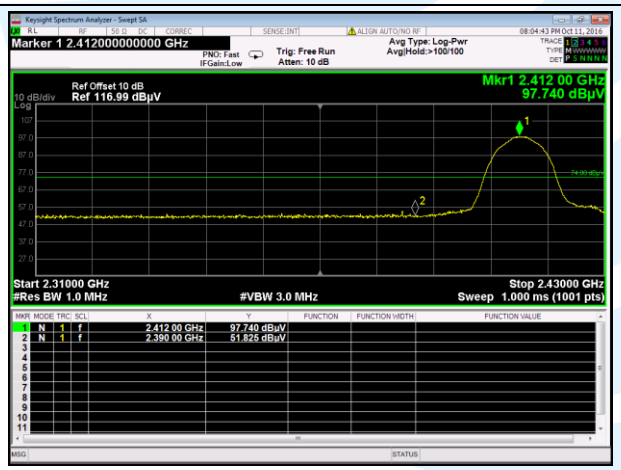
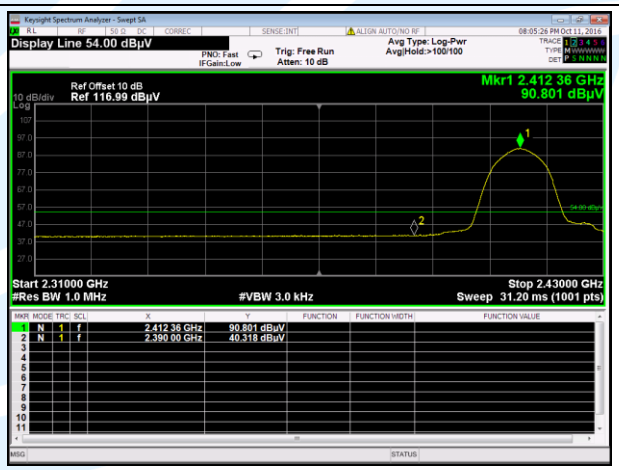
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
2390	50.56	74	40.31	54	Pass

Mode	BLE	Antenna	Chain 0
Channel	1	Ant. Polar.	Vertical

Detector: Peak	Detector: AV
	

Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
2483.5	59.59	74	41.30	54	Pass

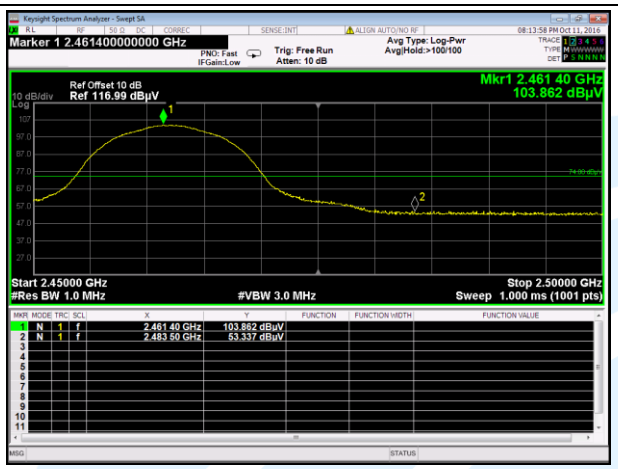
Mode	802.11b	Antenna	Chain 1
Channel	1	Ant. Polar.	Horizontal

Detector: Peak	Detector: AV
	

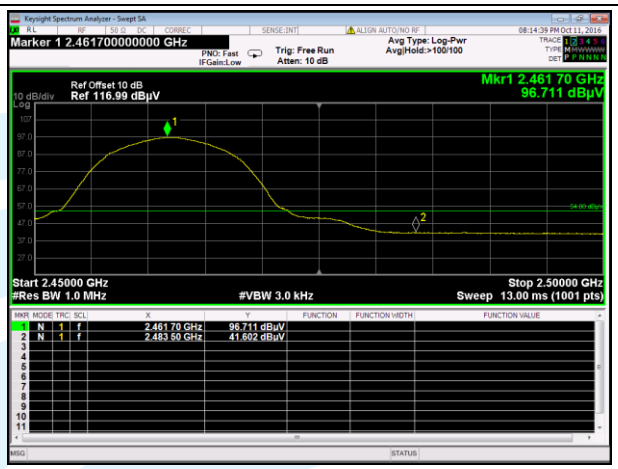
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
2390	51.83	74	40.32	54	Pass

Mode	802.11b	Antenna	Chain 1
Channel	11	Ant. Polar.	Horizontal

Detector: Peak



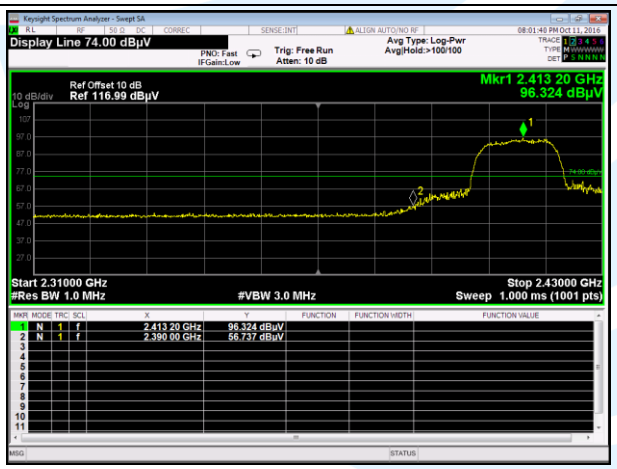
Detector: AV



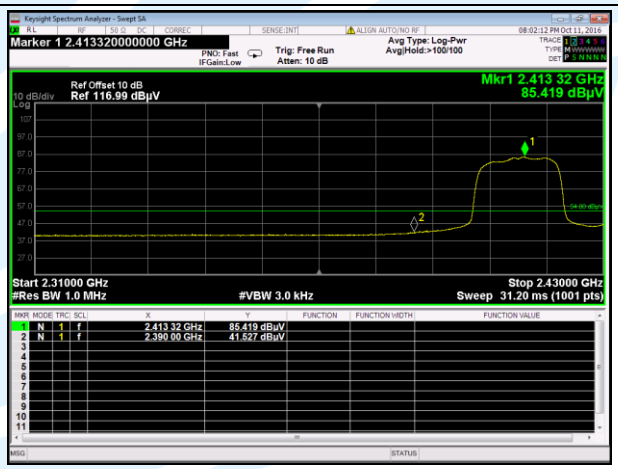
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
2483.5	53.34	74	41.60	54	Pass

Mode	802.11g	Antenna	Chain 1
Channel	1	Ant. Polar.	Horizontal

Detector: Peak

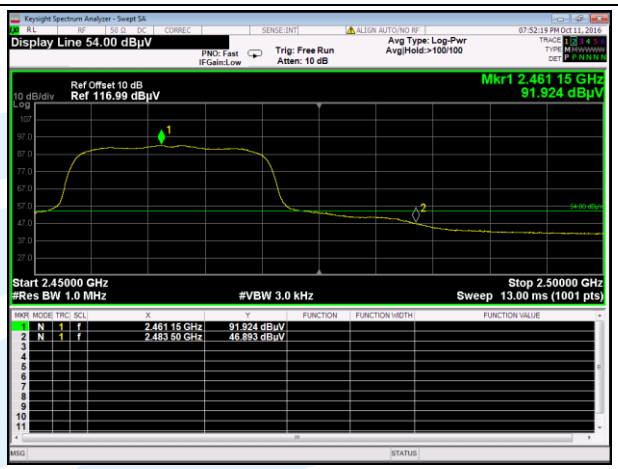


Detector: AV



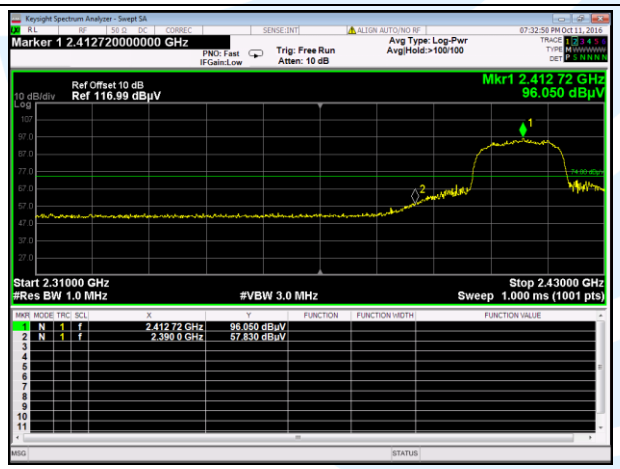
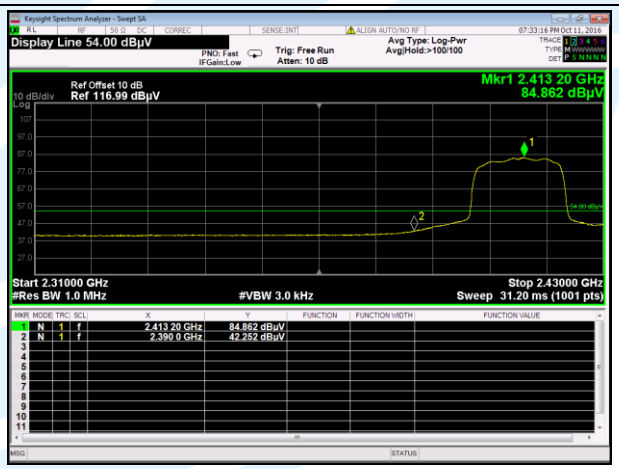
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
2390	56.74	74	41.53	54	Pass

Mode	802.11g	Antenna	Chain 1
Channel	11	Ant. Polar.	Horizontal

Detector: Peak	Detector: AV
	

Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
2483.5	64.21	74	46.89	54	Pass

Mode	802.11n(HT20)	Antenna	Chain 1
Channel	1	Ant. Polar.	Horizontal

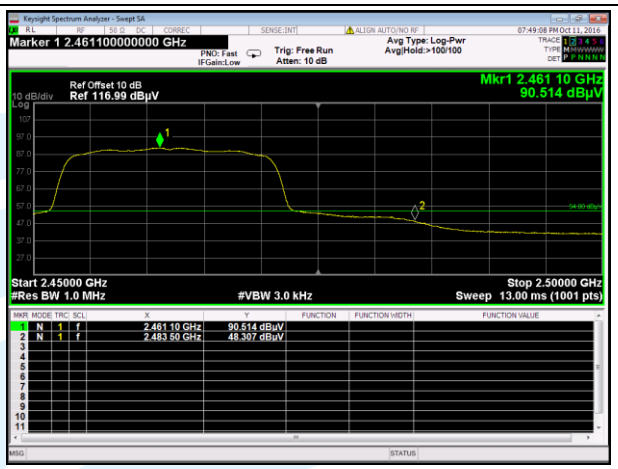
Detector: Peak	Detector: AV
	

Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
2390	57.83	74	42.25	54	Pass

Mode	802.11n(HT20)	Antenna	Chain 1
Channel	11	Ant. Polar.	Horizontal

Detector: Peak

Detector: AV



Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
2483.5	65.78	74	48.31	54	Pass

Note:

1) *Through Pre-scan transmitting mode with all kind of modulation and data rate, find the 11Mbps of rate is the worst case of 802.11b; 54Mbpsof rate is the worst case of 802.11g; MCS1 of rate is the worst case of 802.11n(HT20), and then Only the worst case is recorded in the report.*

2) *The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:*

Final Test Level =Receiver Reading - Correct Factor

Correct Factor = *Preamplifier Factor– Antenna Factor–Cable Factor*

5.8 Conducted Emissions

Test Requirement: 47 CFR Part 15C Section 15.207

Test Method: ANSI C63.10

Test Frequency Range: 150KHz to 30MHz

Limit:

Frequency range (MHz)	Limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

* The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

NOTE : The lower limit is applicable at the transition frequency

Test Procedure: Test frequency range :150KHz-30MHz

1) The mains terminal disturbance voltage test was conducted in a shielded room.

2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.

3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,

4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.

5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

Test Setup: Refer to section 4.1.3 for details.

Instruments Used: Refer to section 3 for details

Test Mode: Transmitter mode

Test Results: Pass

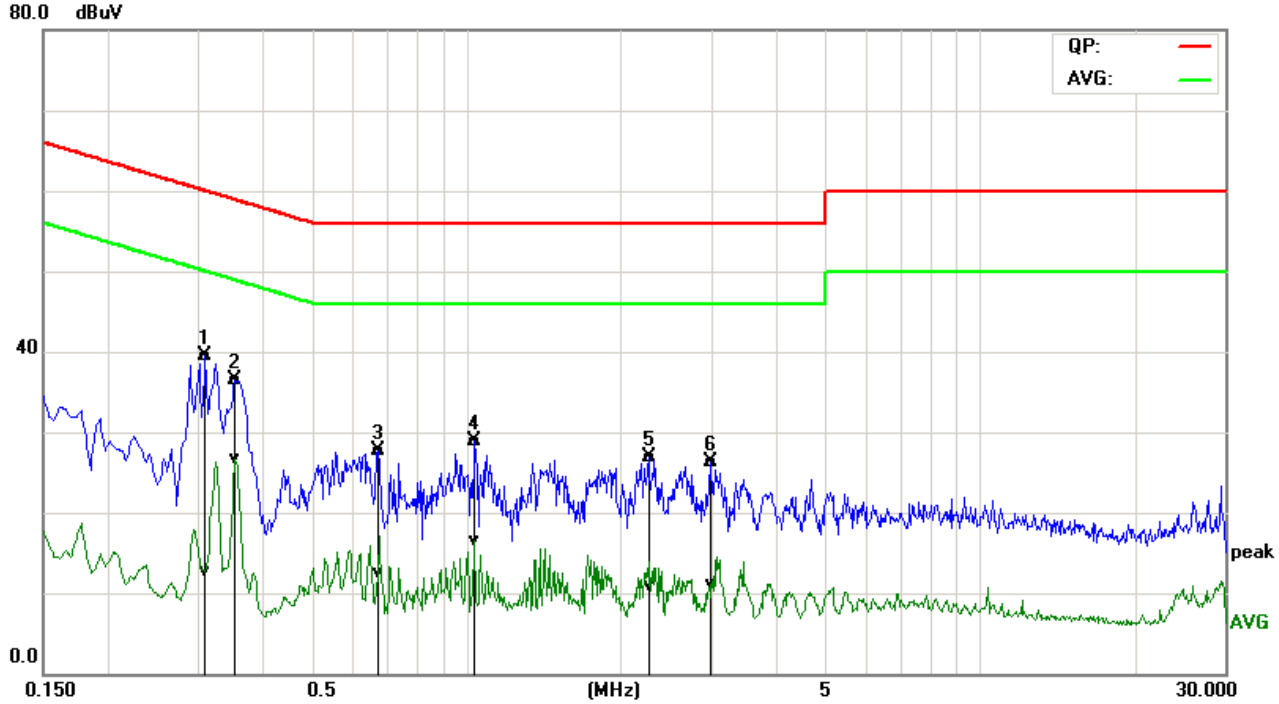
Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.
Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

Test plot as follows(Worst Case):

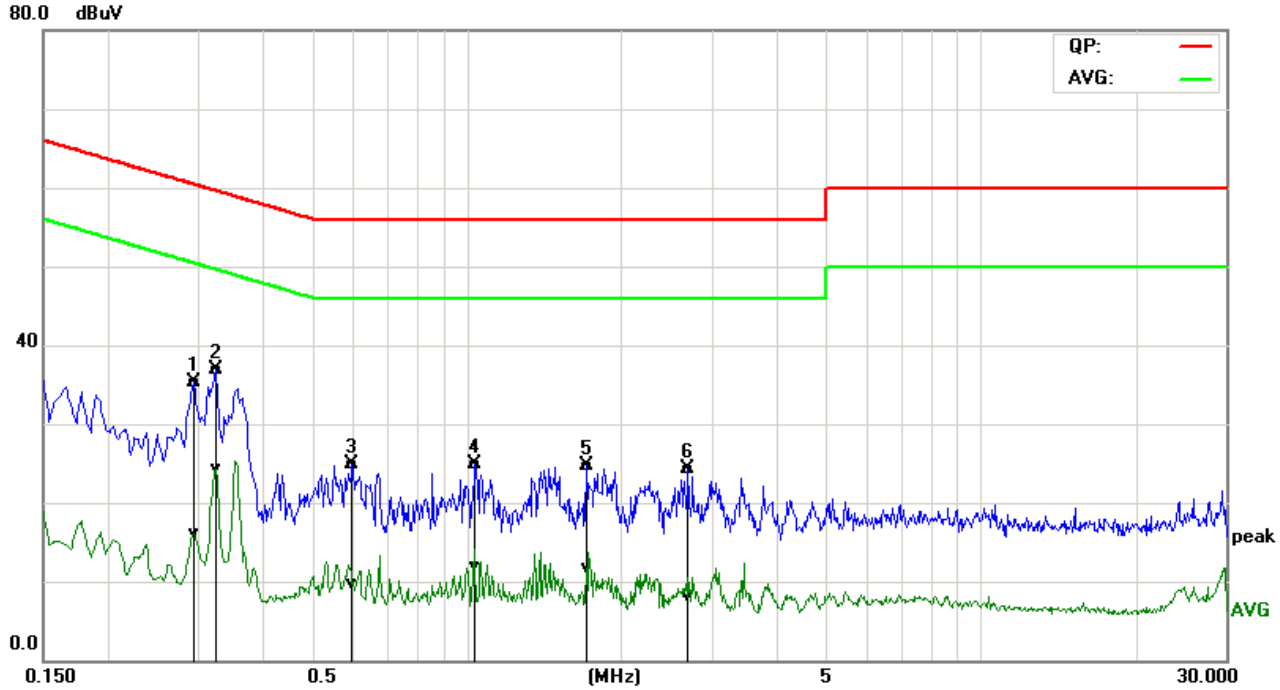
802.11b

Live Line:



No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1*	0.3100	29.53	2.85	9.93	39.46	12.78	59.97	49.97	-20.51	-37.19	Pass
2	0.3540	26.48	16.68	9.93	36.41	26.61	58.87	48.87	-22.46	-22.26	Pass
3	0.6740	17.71	2.60	9.99	27.70	12.59	56.00	46.00	-28.30	-33.41	Pass
4	1.0380	18.82	6.49	10.01	28.83	16.50	56.00	46.00	-27.17	-29.50	Pass
5	2.2700	16.93	0.89	10.05	26.98	10.94	56.00	46.00	-29.02	-35.06	Pass
6	2.9900	16.24	1.05	10.12	26.36	11.17	56.00	46.00	-29.64	-34.83	Pass

Neutral Line:



No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1	0.2940	25.27	6.04	9.99	35.26	16.03	60.41	50.41	-25.15	-34.38	Pass
2*	0.3260	26.86	14.41	9.99	36.85	24.40	59.55	49.55	-22.70	-25.15	Pass
3	0.5980	14.85	-0.37	9.98	24.83	9.61	56.00	46.00	-31.17	-36.39	Pass
4	1.0380	14.85	1.98	10.01	24.86	11.99	56.00	46.00	-31.14	-34.01	Pass
5	1.7140	14.77	1.60	10.02	24.79	11.62	56.00	46.00	-31.21	-34.38	Pass
6	2.6940	14.15	-2.00	10.09	24.24	8.09	56.00	46.00	-31.76	-37.91	Pass

Notes:

1. The following Quasi-Peak and Average measurements were performed on the EUT:

2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss

APPENDIX 1 PHOTOGRAPHS OF TEST SETUP

See test photographs attached in Appendix 1 for the actual connections between Product and support equipment.

APPENDIX 2 PHOTOGRAPHS OF EUT CONSTRUCTIONAL DETAILS

Refer to Appendix 2 for EUT external and internal photographs.

*** End of Report ***

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