FCC RF TEST REPORT

ISSUED BY
Shenzhen BALUN Technology Co., Ltd.

FOR

WCDMA digital mobile phone

ISSUED TO
Power Idea Technology Limited.

4th Floor, A Section , Languang Science & technology Xinxi RD, Hi-Tech Industrial Park North, Nanshan, ShenZhen, China.

Prepared by: Cao Shaodong
(Reporting Specialist)
Date 2014.5.24

Approved by: Wei Yanquan
(Lab Director)
Date 2014.5.24

Report No.:	BL-SZ1440063-602
EUT Type:	WCDMA digital mobile phone
Model Name:	RG700, RG970, APEX PRO
Brand Name:	N/A
Test Standard:	47 CFR Part 15 Subpart C
FCC ID:	ZLE-RG700RG970
Test conclusion:	PASS
Test Date:	May 7, 2014 ~ May 21, 2014
Date of Issue:	May 24, 2014

Block B, 1st Fl., Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong, P. R. China 518055
TEL: +86-755-36850100
FAX: +86-755-61824271
www.baluntek.com

Revision History

Version	Issue Date	Revisions
Rev. 01	May 24, 2014	Initial Issue

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1 ADMINISTRATIVE DATA (GENERAL INFORMATION)

1.1 Identification of the Testing Laboratory

Company Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Phone Number	+86 755 6683 3402
Fax Number	+86 755 6182 4271

1.2 Identification of the Responsible Testing Location

Test Location	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Accreditation Certificate	The laboratory has been listed by Industry Canada to perform electromagnetic emission measurements. The recognition numbers of test site are 11524A-1. The laboratory has been listed by US Federal Communications Commission to perform electromagnetic emission measurements. The recognition numbers of test site are 832625. The laboratory has met the requirements of the IAS Accreditation Criteria for Testing Laboratories (AC89), has demonstrated compliance with ISO/IEC Standard 17025:2005. The accreditation certificate number is TL-588. The laboratory is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L6791.
Description	All measurement facilities used to collect the measurement data are located at Block B, FL 1, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China 518055

1.3 Test Environment Condition

Ambient Temperature	15 to 35℃
Ambient Relative Humidity	30 to 60%
Ambient Pressure	86 to106kPa

1.4 Announce

(1) The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.

(2) The test report is invalid if there is any evidence and/or falsification.

(3) The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein.

(4) This document may not be altered or revised in any way unless done so by BALUN and all revisions are duly noted in the revisions section.

(5) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.

2 PRODUCT INFORMATION

2.1 Applicant

Applicant	Power Idea Technology Limited.
Address	4th Floor, A Section, Languang Science & technology Xinxi RD, Hi-Tech Industrial Park North, Nanshan, Shenzhen, China.

2.2 Manufacturer

Manufacturer	Power Idea Technology Limited.
Address	4th Floor, A Section, Languang Science & technology Xinxi RD, Hi-Tech Industrial Park North, Nanshan, Shenzhen, China.

2.3 General Description for Equipment under Test (EUT)

EUT Type	WCDMA digital mobile phone
Model Name	RG700
Series Model Name	RG700, RG970, APEX PRO
Description of Model name differentiation	The equipment model RG700, RG970 and APEX PRO are WCDMA digital mobile phone, the electrical parameters and internal structure of circuit are same, only the model is different.
Hardware Version	P2
Software Version	N/A
Network and Wireless connectivity	WIFI 802.11b, 802.11g and 802.11n (HT20/40)
About the Product	The EUT is a WCDMA digital mobile phone, it contains WIFI Module operating at 2.4GHz ISM band which supports 802.11b, 802.11g and 802.11n (HT20/40)

2.4 Technical Information

TX/ RX Operating Range	802.11b/g/n(20MHz): 2.412GHz - 2.462GHz f_c = 2412 MHz + (N-1)*5 MHz, where - f_c = “Operating Frequency” in MHz, - N = “Channel Number” with the range from 1 to 11. 802.11n(40MHz): 2.422GHz - 2.452GHz f_c = 2412 MHz + (N-1)*5 MHz, where - f_c = “Operating Frequency” in MHz, - N = “Channel Number” with the range from 3 to 9.
Modulation Type	DSSS, OFDM
Antenna Type	PIFA Antenna
Antenna Gain	0dBi

Modulation technology	Modulation Type	Transfer Rate (Mbps)	The Frequency Equal to the Transmission Rate of Modulation Signal
DSSS (802.11b)	DBPSK	1	1MHz
	DQPSK	2	
	CCK	5.5/ 11	1.375MHz
OFDM (802.11g)	BPSK	6 / 9	1MHz
	QPSK	12 / 18	
	16QAM	24 / 36	
	64QAM	48 / 54	
OFDM (802.11n-20MHz)	BPSK	6.5	1MHz
	QPSK	13/19.5	
	16QAM	26/39	
	64QAM	52/58.5/65	
OFDM (802.11n-40MHz)	BPSK	13.5	1MHz
	QPSK	27/40.5	
	16QAM	54/81/108	
	64QAM	121.5/135	

Note: Preliminary tests were performed in different data rate in above table 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.

Test Items	Mode	Data Rate	Channel	
Maximum transmit power	11b / 11g/11n20/11n40	1/6/6.5/13.5Mbps	1/6/11	3/6/9
Maximum e.i.r.p. spectral density	11b / 11g/11n20/11n40	1/6/6.5/13.5Mbps	1/6/11	3/6/9
Frequency range	11b / 11g/11n20/11n40	1/6/6.5/13.5Mbps	1/6/11	3/6/9
Medium Access Protocol	11b / 11g/11n20/11n40	1/6/6.5/13.5Mbps	1/6/11	3/6/9
Transmitter spurious emissions	11b / 11g/11n20/11n40	1/6/6.5/13.5Mbps	1/6/11	3/6/9
Receiver spurious emissions	11b / 11g/11n20/11n40	1/6/6.5/13.5Mbps	1/6/11	3/6/9

Note: The above EUT information in section 2.3 and 2.4 was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

2.5 Ancillary Equipment

Ancillary Equipment 1	Battery	
	Brand Name	Ruide
	Model No	HD506083PL
	Serial No	(N/A. marked #1 by test site)
	Capacitance	3000mAh
	Rated Voltage	3.7V
	Extreme Voltage	Low: 3.5V / High:4.2V
Ancillary Equipment 2	AC Adapter	
	Brand Name	Ruide
	Model No	71822258R
	Serial No	(N/A. marked #1 by test site)
	Rated Input	~ 100-240V, 200mA, 50/60Hz
	Rated Output	⎓ 5V, 1000mA
Ancillary Equipment 3	Stereo Headset	
Ancillary Equipment 4	USB Data Cable	

3 SUMMARY OF TEST RESULTS

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 15, Subpart C (12-30-13 Edition)	Miscellaneous Wireless Communications Services
2	KDB Publication 558074 D01v03r02	Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247
3	ANSI C63.4-2009	American National Standard for Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
4	ANSI C63.10-2009	American National Standard for Testing Unlicensed Wireless Devices

3.2 Verdict

No.	Description	FCC Part No.	Test Result	Verdict
1	Antenna Requirement	15.203 15.247(b)	Note1	Pass
2	Output Power	15.247(b)	ANNEX A.1	Pass
3	6dB Bandwidth	15.247(a)	ANNEX A.2	Pass
4	Conducted Spurious Emission	15.247(c)	ANNEX A.3	Pass
5	Conducted Emission	15.207	ANNEX A.4	Pass
6	Radiated Spurious Emission	15.209 15.247(c)	ANNEX A.5	Pass
7	Band Edge	15.247(c)	ANNEX A.6	Pass
8	Power spectral density (PSD)	15.247(d)	ANNEX A.7	Pass
Note 1: Please refer to section 5.1				

4 GENERAL TEST CONFIGURATIONS

4.1 Test Environments

During the measurement, the normal environmental conditions were within the listed ranges:

Relative Humidity (%)	30 -60	
Atmospheric Pressure (kPa)	86-106	
Temperature	NT (Normal Temperature)	+20℃ to +25℃
	LT (Low Temperature)	-20℃
	HT (High Temperature)	+55℃
Working Voltage of the EUT	NV (Normal Voltage)	3.7V
	LV (Low Voltage)	3.5V
	HV (High Voltage)	4.2V

4.2 Test Equipment List

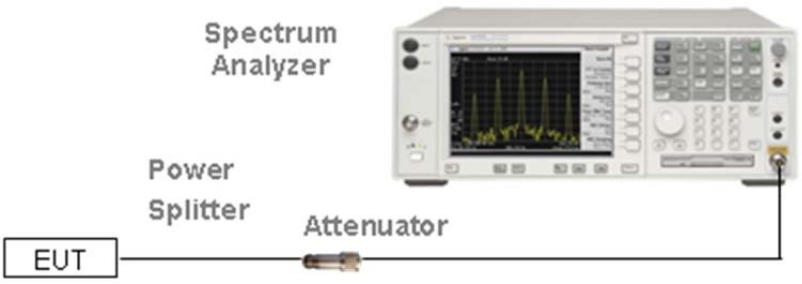
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer	AGILENT	E4440A	MY45304434	2014.05.10	2015.05.09
Spectrum Analyzer	ROHDE&SCHWARZ	FSL3	103640/003	2014.05.02	2015.05.01
Power Splitter	KMW	DCPD-LDC	1305003215	2014.05.14	2015.05.13
Power Sensor	ROHDE&SCHWARZ	NRP-Z21	103971	2014.05.08	2015.05.07
Attenuator (20dB)	KMW	ZA-S1-201	110617091	--	--
Attenuator (6dB)	KMW	ZA-S1-61	1305003189	--	--
DC Power Supply	ROHDE&SCHWARZ	HMP2020	018141664	2013.07.06	2014.07.07
Temperature Chamber	ANGELANTIONI SCIENCE	NTH64-40A	1310	2013.07.06	2014.07.07
Test Antenna-Loop(9kHz-30MHz)	SCHWARZBECK	FMZB 1519	1519-037	2013.07.02	2014.07.01
Test Antenna-Bi-Log(30MHz-3GHz)	SCHWARZBECK	VULB 9163	9163-624	2013.07.03	2014.07.02
Test Antenna-Horn(1-18GHz)	SCHWARZBECK	BBHA 9120D	9120D-1148	2013.07.02	2014.07.01
Test Antenna-Horn(15-26.5GHz)	SCHWARZBECK	BBHA 9170	9170-305	2013.07.02	2014.07.01
Anechoic Chamber	RAINFORD	9m*6m*6m	N/A	2013.10.07	2014.10.06

4.3 Test Configurations

Test Configurations (TC) NO.	Description	
	Signal Description	Operating Frequency
Transmitter		
TC01	DSSS modulation, 802.11b	Ch No. 1/ 2412MHz
TC02	DSSS modulation, 802.11b	Ch No. 6/ 2437MHz
TC03	DSSS modulation, 802.11b	Ch No. 11/ 2462MHz
TC04	OFDM modulation, 802.11g	Ch No. 1/ 2412MHz
TC05	OFDM modulation, 802.11g	Ch No. 6/ 2437MHz
TC06	OFDM modulation, 802.11g	Ch No. 11/ 2462MHz
TC07	OFDM modulation, 802.11n(20MHz)	Ch No. 1/ 2412MHz
TC08	OFDM modulation, 802.11n(20MHz)	Ch No. 6/ 2437MHz
TC09	OFDM modulation, 802.11n(20MHz)	Ch No. 11/ 2462MHz
TC10	OFDM modulation, 802.11n(40MHz)	Ch No. 3/ 2422MHz
TC11	OFDM modulation, 802.11n(40MHz)	Ch No. 6/ 2437MHz
TC12	OFDM modulation, 802.11n(40MHz)	Ch No. 9/ 2452MHz

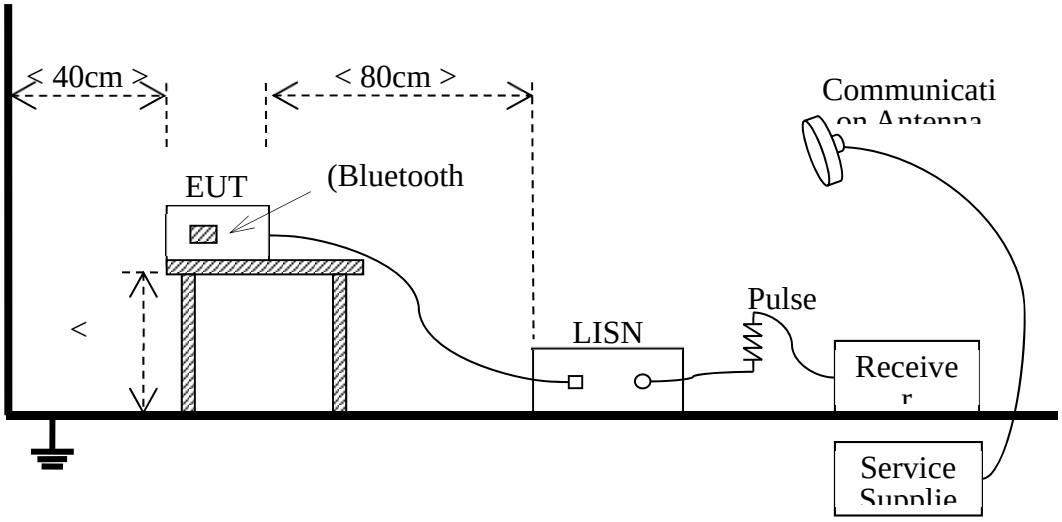
4.4 Description of Test Setup

4.4.1 For Antenna Port Test



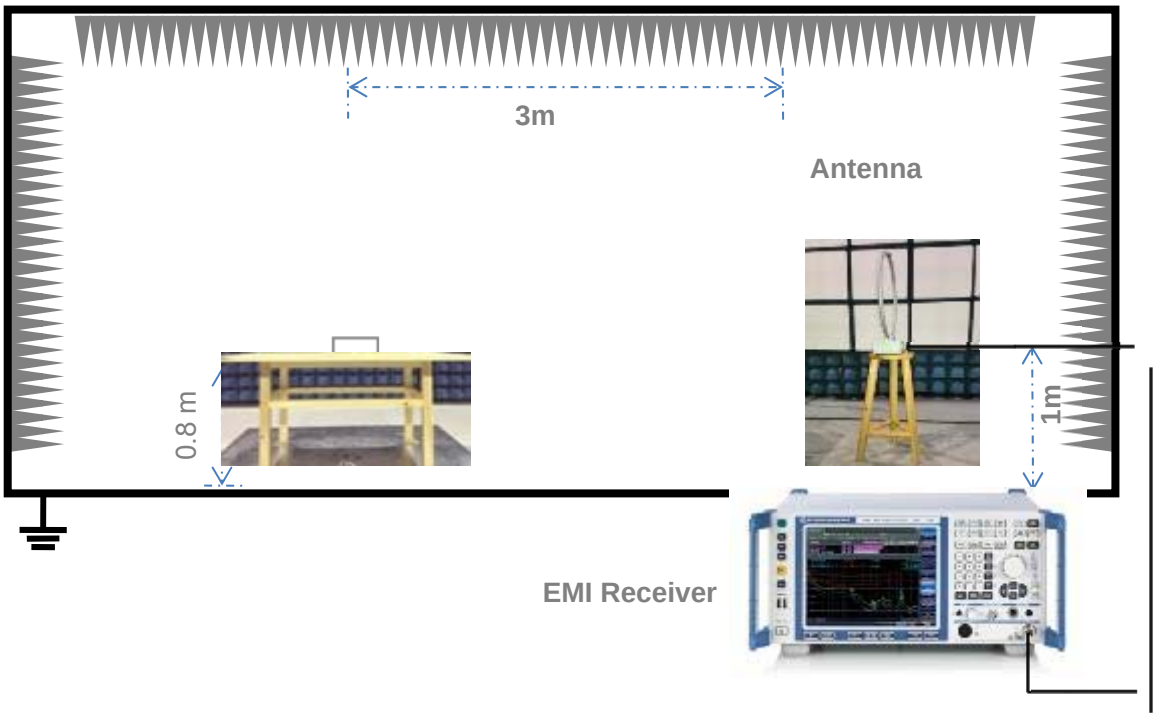
(Diagram 1)

4.4.2 For AC Power Supply Port Test



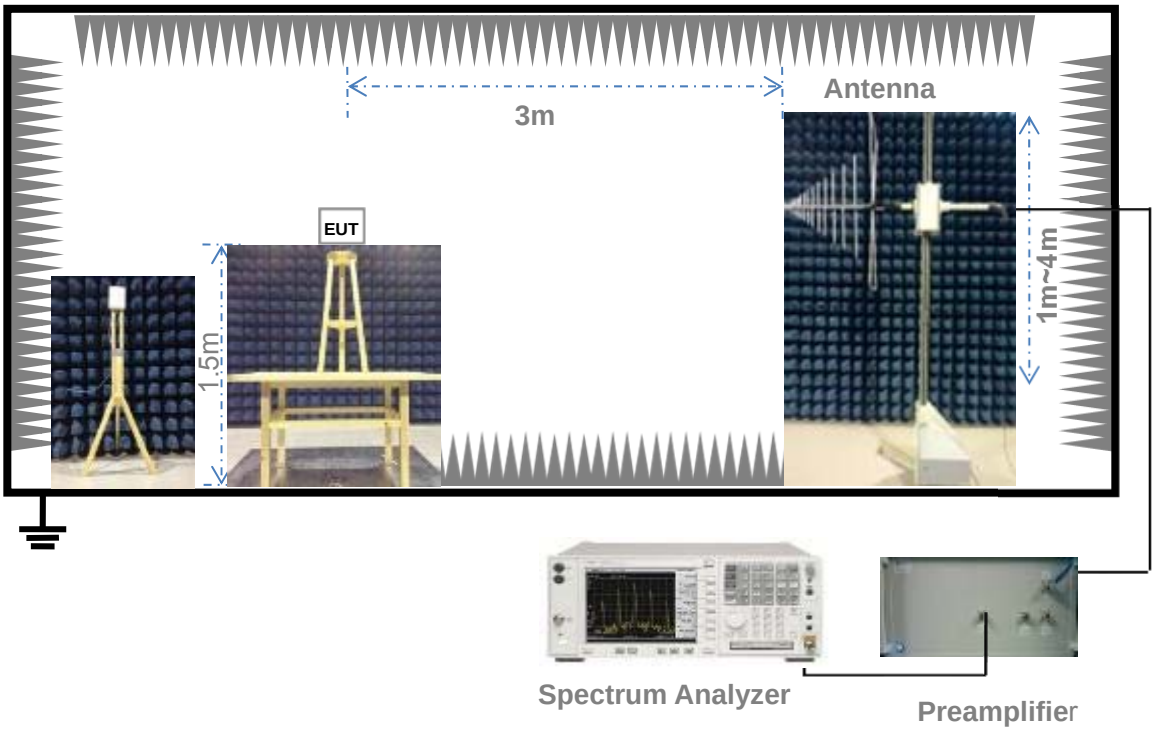
(Diagram 2)

4.4.3 For Radiated Test (Below 30MHz)



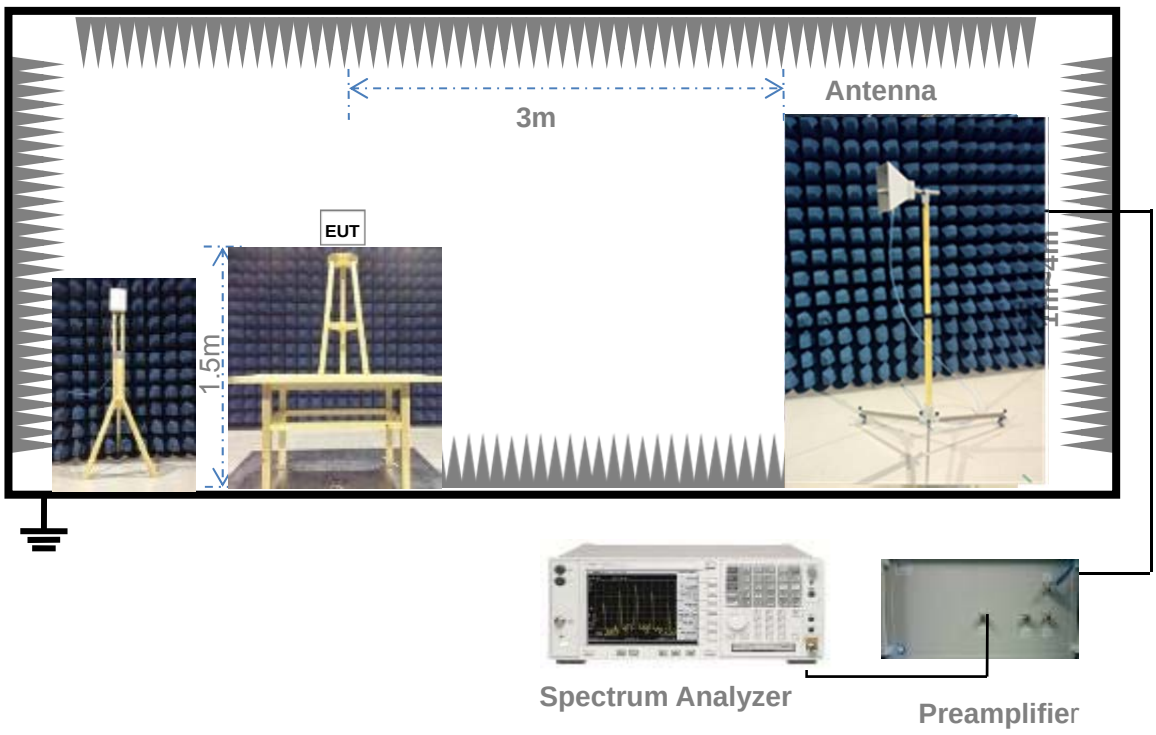
(Diagram 3)

4.4.4 For Radiated Test (30MHz-1GHz)



(Diagram 4)

4.4.5 For Radiated Test (Above 1GHz)



(Diagram 5)

4.5 Test Conditions

Test Case	Test Conditions		
	Test Env.	Test Setup Note 1	Test Configuration Note 2
Peak Output Power	NTNV	Test Setup 1	TC01~TC12
Occupied Bandwidth	NTNV	Test Setup 1	TC01~TC12
Conducted Spurious Emission	NTNV	Test Setup 1	TC01~TC12
Conducted Emission	NTNV	Test Setup 2	TC01~TC12
Radiated Spurious Emission	NTNV	Test Setup 3 Test Setup 4 Test Setup 5	TC01~TC12
Band Edge	NTNV	Test Setup 1	TC01, TC03, TC04, TC06,TC07,TC09, TC10, TC12
Power spectral density (PSD)	NTNV	Test Setup 2	TC01~TC12
Note: 1. Please refer to section 4.4 for test setup details. 2. Please refer to section 4.3 for test setup details.			

5 TEST ITEMS

5.1 Antenna Requirements

5.1.1 Standard Applicable

FCC §15.203 & 15.247(b)

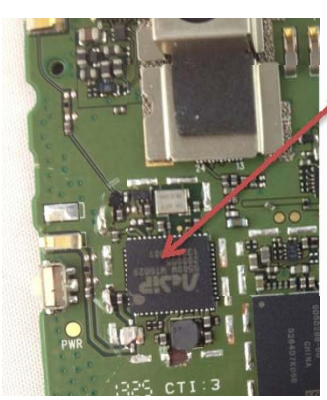
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. 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. This requirement does not apply to carrier current devices or to devices operated under the provisions of § 15.211, § 15.213, § 15.217, § 15.219, or § 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

If directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi. 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 FCC rule.

5.1.2 Antenna Anti-Replacement Construction

The Antenna Anti-Replacement as following method:

Protected Method	Description
The antenna is An embedded-in	An embedded-in antenna design is used.

Reference Documents	Item
Photo	

5.1.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

5.2 Output Power

5.2.1 Test Limit

FCC § 15.247(b)

For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements.

5.2.2 Test Procedure

Maximum peak conducted output power

This procedure may be used when the maximum available RBW of the measurement instrument is less than the DTS bandwidth.

Set the RBW = 1 MHz

Set the VBW ≥ 3 RBW

Set the span ≥1.5 x DTS bandwidth.

Detector = peak.

Sweep time = auto couple.

Trace mode = max hold.

Allow trace to fully stabilize.

Use the instrument's band/channel power measurement function with the band limits set equal to the DTS bandwidth edges (for some instruments, this may require a manual override to select peak detector).

Maximum conducted (average) output power (Reporting Only)

This method applied by the transmissions exhibit a constant duty cycle during the measurement duration. Duty cycle will be considered to be constant if variations are less than ± 2 percent.

Measure the duty cycle, x, of the transmitter output signal as described in 6.0(KDB Publication 558074 D01v03r01).

Set span to at least 1.5 times the OBW.

Set RBW = 1-5% of the OBW, not to exceed 1 MHz.

Set VBW ≥ 3 x RBW.

Number of points in sweep ≥ 2 span / RBW. (This gives bin-to-bin spacing ≤ RBW/2, so that narrowband signals are not lost between frequency bins.)

Sweep time = auto.

Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.

Do not use sweep triggering. Allow the sweep to “free run”.

Trace average at least 100 traces in power averaging (i.e., RMS) mode; however, the number of traces to be averaged shall be increased above 100 as needed such that the average accurately represents the true average over the on and off periods of the transmitter.

Compute power by integrating the spectrum across the OBW of the signal using the instrument’s band power measurement function with band limits set equal to the OBW band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.

Add 10 log (1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times (because the measurement represents an average over both the on and off times of the transmission). For example, add 10 log (1/0.25) = 6 dB if the duty cycle is 25 %.

Measurements of duty cycle

The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on and off times of the transmitted signal.

Set the center frequency of the instrument to the center frequency of the transmission.

Set RBW ≥ OBW if possible; otherwise, set RBW to the largest available value.

Set VBW ≥ RBW. Set detector = peak or average.

The zero-span measurement method shall not be used unless both RBW and VBW are > 50/T and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring duty cycle shall not be used if T ≤ 16.7 microseconds.)

5.3 6dB Bandwidth

5.3.1 Limit

FCC §15.247(a)

Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. In order to make an accurate measurement, set the span greater than RBW. The 6 dB bandwidth must be greater than 500 kHz.

5.3.2 Test Procedure

Use the following spectrum analyzer settings:

Set RBW = 100 kHz.

Set the video bandwidth (VBW) ≥ 3 RBW.

Detector = Peak.

Trace mode = max hold.

Sweep = auto couple.

Allow the trace to stabilize.

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.

5.4 Conducted Spurious Emission

5.4.1 Limit

FCC §15.247(c)

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is 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, based on either an RF conducted or a radiated measurement.

5.4.2 Test Procedure

The DTS rules specify that in any 100 kHz bandwidth outside of the authorized frequency band, the power shall be attenuated according to the following conditions:

a) If the maximum peak conducted output power procedure was used to demonstrate compliance as described in 9.1, then the peak output power measured in any 100 kHz 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 (i.e., 20 dBc).

b) If maximum conducted (average) output power was used to demonstrate compliance as described in 9.2, then the peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 30 dBc).

c) In either case, attenuation to levels below the 15.209 general radiated emissions limits is not required.

The following procedures shall be used to demonstrate compliance to these limits. Note that these procedures can be used in either an antenna-port conducted or radiated test set-up. Radiated tests must conform to the test site requirements and utilize maximization procedures defined herein.

Reference level measurement

Establish a reference level by using the following procedure:

Set instrument center frequency to DTS channel center frequency.

Set the span to ≥ 1.5 times the DTS bandwidth.

Set the RBW = 100 kHz.

Set the VBW ≥ 3 x RBW.

Detector = peak.

Sweep time = auto couple.

Trace mode = max hold.

Allow trace to fully stabilize.

Use the peak marker function to determine the maximum PSD level.

Emission level measurement

Use the following spectrum analyzer settings:

Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic. Typically, several plots are required to cover this entire span.

Set the RBW = 100 kHz.

Set the VBW ≥ 3 x RBW.

Detector = peak.

Sweep time = auto couple.

Trace mode = max hold.

Allow trace to fully stabilize.

Use the peak marker function to determine the maximum amplitude level.

Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) are attenuated by at least the minimum requirements specified in 11.1 a) or 11.1 b). Report the three highest emissions relative to the limit.

5.5 Conducted Emission

5.5.1 Limit

FCC §15.207

For an intentional radiator 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 within the band 150kHz to 30MHz shall not exceed the limits in the following table, as measured using a 50μH/50Ω line impedance stabilization network (LISN).

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

5.5.2 Test Procedure

The maximum conducted interference is searched using Peak (PK), if the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. Refer to recorded points and plots below.

5.6 Radiated Spurious Emission

5.6.1 Limit

FCC §15.209&15.247(c)

Radiated emission outside the frequency band attenuation below the general limits specified in FCC section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in FCC section 15.205(a), must also comply with the radiated emission limits specified in FCC section 15.209(a).

According to FCC section 15.209 (a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

Note:

1. For Above 1000MHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit.

2. For above 1000MHz, limit field strength of harmonics: 54dBuV/m@3m (AV) and 74dBuV/m@3m (PK).

5.6.2 Test Procedure

The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented.

The power of the EUT transmitting frequency should be ignored.

All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

Use the following spectrum analyzer settings:

Span = wide enough to fully capture the emission being measured
RBW = 1 MHz for f ≥ 1 GHz, 100 kHz for f < 1 GHz
VBW ≥ RBW
Sweep = auto
Detector function = peak
Trace = max hold

5.7 Band Edge

5.7.1 Limit

FCC §15.209&15.247(d)

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is 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, based on either an RF conducted or a radiated measurement.

5.7.2 Test Procedure

The following procedures may be used to determine the peak or average field strength or power of an unwanted emission that is within 2 MHz of the authorized band edge. If a peak detector is utilized, use the procedure described in 13.2.1. Use the procedure described in 13.2.2 when using an average detector and the EUT can be configured to transmit continuously (i.e., duty cycle ≥ 98%). Use the procedure described in 13.2.3 when using an average detector and the EUT cannot be configured to transmit continuously but the duty cycle is constant (i.e., duty cycle variations are less than ± 2 percent). Use the procedure described in 13.2.4 when using an average detector for those cases where the EUT cannot be configured to transmit continuously and the duty cycle is not constant (duty cycle variations equal or exceed 2 percent).

When using a peak detector to measure unwanted emissions at or near the band edge (within 2 MHz of the authorized band), the following integration procedure can be used.

Set instrument center frequency to the frequency of the emission to be measured (must be within 2 MHz of the authorized band edge).

Set span to 2 MHz

RBW = 100 kHz.

VBW ≥ 3 x RBW.

Detector = peak.

Sweep time = auto.

Trace mode = max hold.

Allow sweep to continue until the trace stabilizes (required measurement time may increase for low duty cycle applications)

Compute the power by integrating the spectrum over 1 MHz using the analyzer's band power measurement function with band limits set equal to the emission frequency (femission) ± 0.5 MHz. If the instrument does not have a band power function, then sum the amplitude levels (in power units) at 100 kHz intervals extending across the 1 MHz spectrum defined by femission ± 0.5 MHz.

5.8 Power Spectral density (PSD)

5.8.1 Limit

FCC §15.247(d)

The same method of determining the conducted output power shall be used to determine the power spectral density. If a peak output power is measured, then a peak power spectral density measurement is required. If an average output power is measured, then an average power spectral density measurement should be used.

5.8.2 Test Procedure

Set analyzer center frequency to DTS channel center frequency.

Set the span to 1.5 times the DTS bandwidth.

Set the RBW to: 3 kHz $\leqslant$ RBW $\leqslant$ 100 kHz.

Set the VBW $\geqslant$ 3 RBW.

Detector = peak.

Sweep time = auto couple.

Trace mode = max hold.

Allow trace to fully stabilize.

Use the peak marker function to determine the maximum amplitude level within the RBW.

If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

ANNEX A TEST RESULT

A.1 Output Power

Duty Cycle

Band	Duty Cycle(%)	T(ms)	1/T(kHz)
802.11b	98.8	8.333	0.120
802.11g	92.9	1.393	0.718
802.11n HT20	92.4	1.300	0.769
802.11n HT40	92.5	1.387	0.721

Peak Power Test Data

802.11b Mode:

Channel	Frequency (MHz)	Measured Output Peak Power		Limit		Verdict
		dBm	mW	dBm	mW	
1	2412	18.45	69.98	30	1000	PASS
6	2437	19.02	79.80			PASS
11	2462	19.57	90.57			PASS

802.11g Mode:

Channel	Frequency (MHz)	Measured Output Peak Power		Limit		Verdict
		dBm	mW	dBm	mW	
1	2412	22.09	161.81	30	1000	PASS
6	2437	21.59	144.21			PASS
11	2462	21.56	143.22			PASS

802.11n-20MHz Mode:

Channel	Frequency (MHz)	Measured Output Peak Power		Limit		Verdict
		dBm	mW	dBm	mW	
1	2412	22.58	181.13	30	1000	PASS
6	2437	22.07	161.06			PASS
11	2462	21.55	142.89			PASS

802.11n-40MHz Mode:

Channel	Frequency (MHz)	Measured Output Peak Power		Limit		Verdict
		dBm	mW	dBm	mW	
3	2422	21.76	149.97	30	1000	PASS
6	2437	22.14	163.68			PASS
9	2452	22.87	193.64			PASS

Average Power Test Data (Reporting Only)

802.11b Mode:

Channel	Frequency (MHz)	Duty Factor (10 log (1/x))	Measured Output Average Power	
			dBm	mW
1	2412	0.05	18.24	67.45
6	2437	0.05	18.45	70.79
11	2462	0.05	19.48	89.74

802.11g Mode:

Channel	Frequency (MHz)	Duty Factor (10 log (1/x))	Measured Output Average Power	
			dBm	mW
1	2412	0.32	20.58	123.03
6	2437	0.32	19.80	102.80
11	2462	0.32	20.84	130.62

802.11n-20MHz Mode:

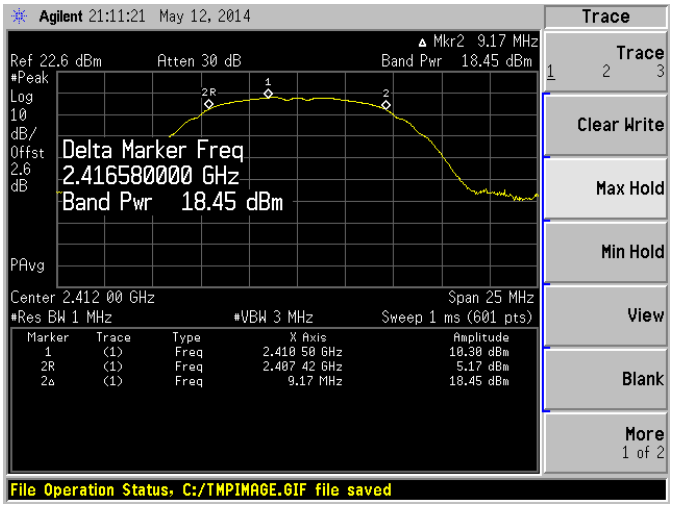
Channel	Frequency (MHz)	Duty Factor (10 log (1/x))	Measured Output Average Power	
			dBm	mW
1	2412	0.34	20.36	117.49
6	2437	0.34	20.36	117.49
11	2462	0.34	20.62	124.74

802.11n-40MHz Mode:

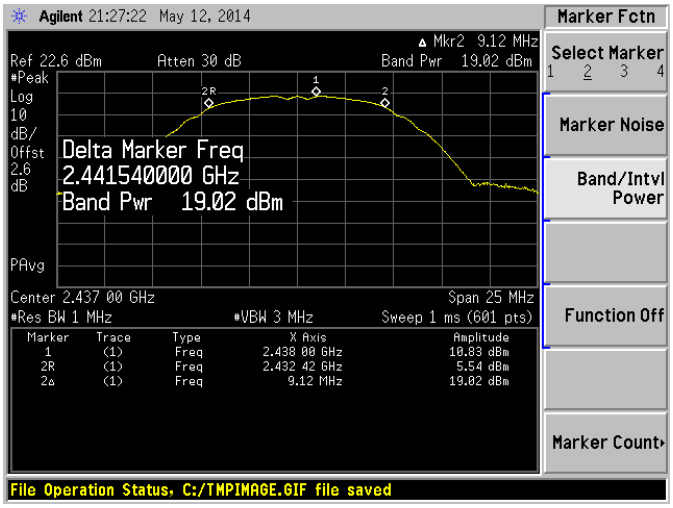
Channel	Frequency (MHz)	Duty Factor (10 log (1/x))	Measured Output Average Power	
			dBm	mW
3	2422	0.34	17.20	56.75
6	2437	0.34	17.18	56.49
9	2452	0.34	17.65	62.95

Peak Power Test Plots

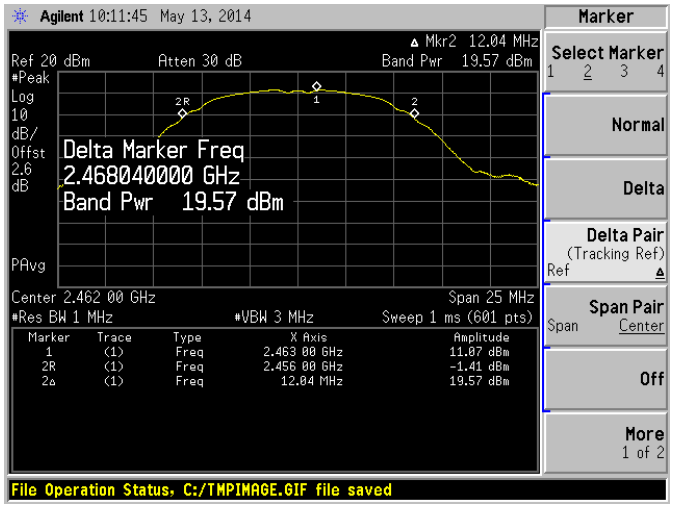
802.11b LOW CHANNEL



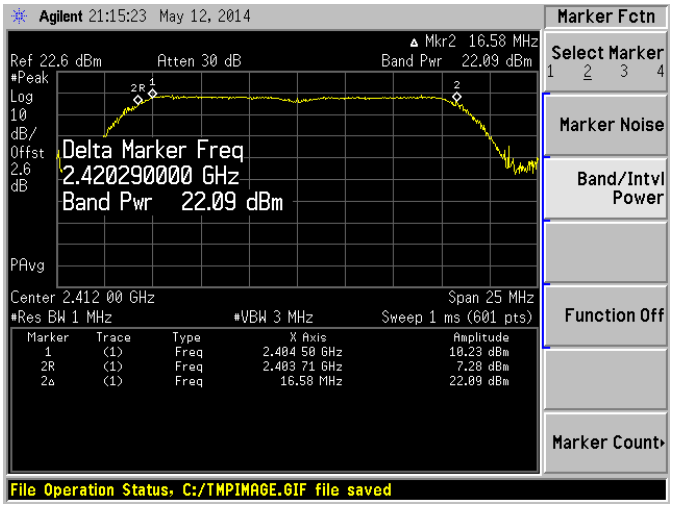
802.11b MID CHANNEL



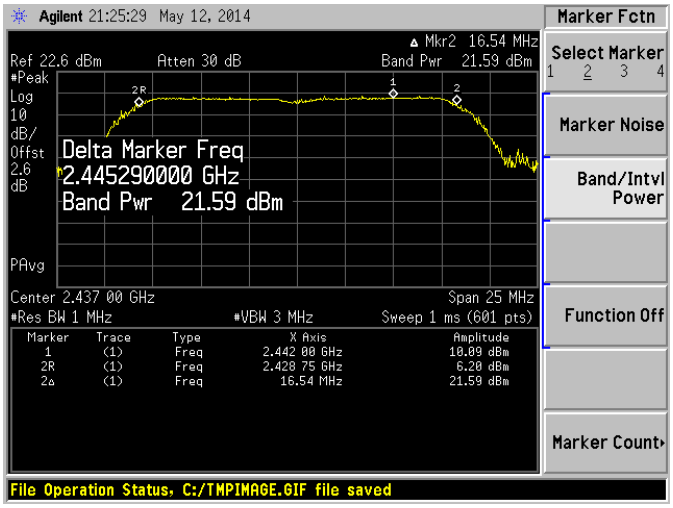
802.11b HIGH CHANNEL



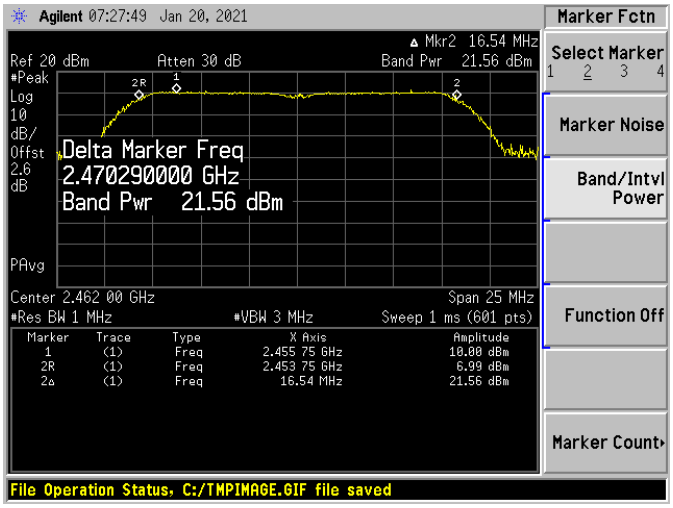
802.11g LOW CHANNEL



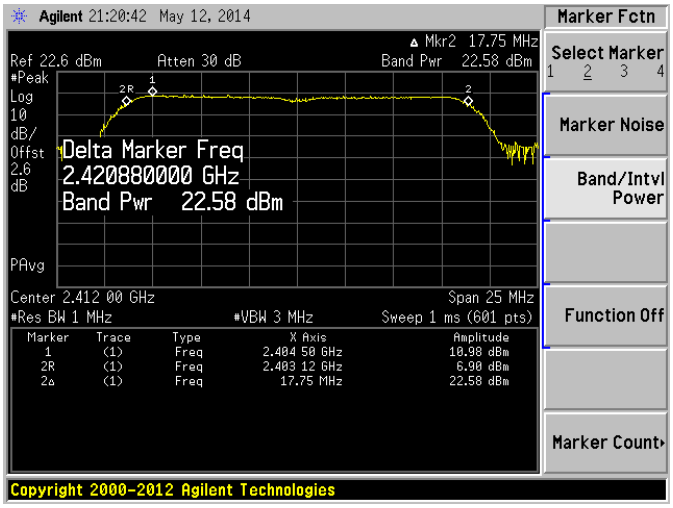
802.11g MID CHANNEL



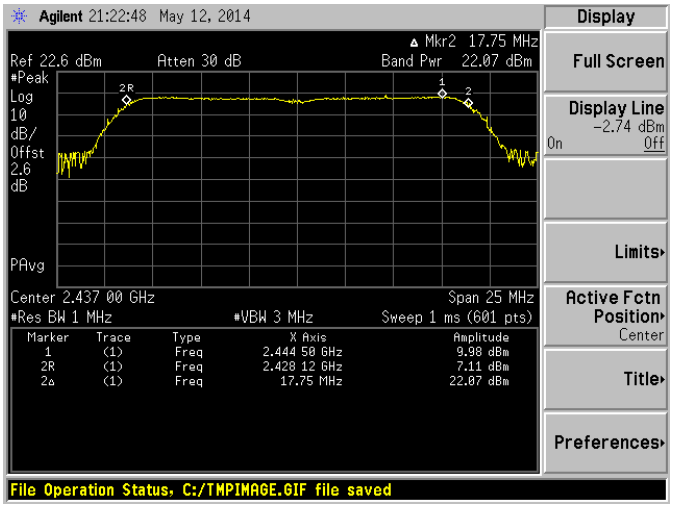
802.11g HIGH CHANNEL



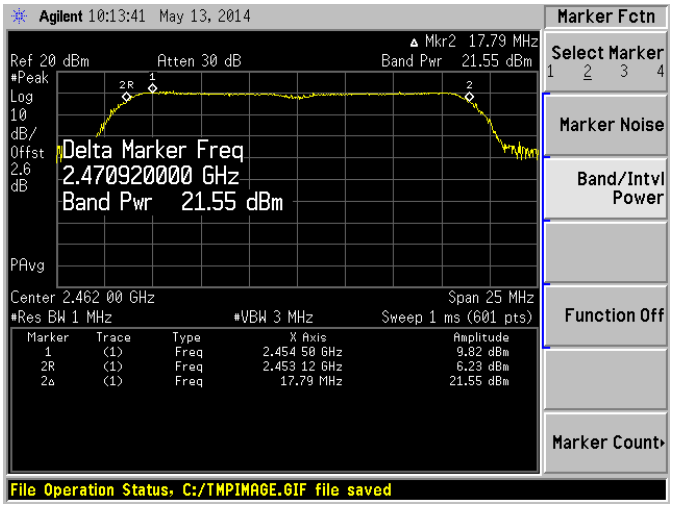
802.11n 20MHz LOW CHANNEL



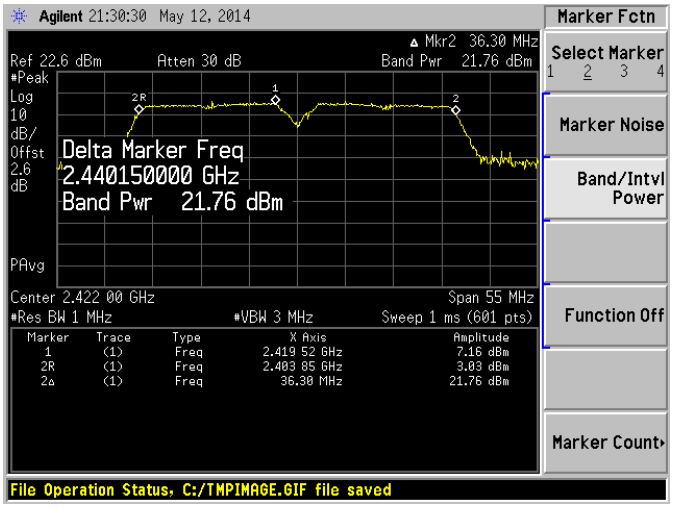
802.11 n 20MHz MID CHANNEL



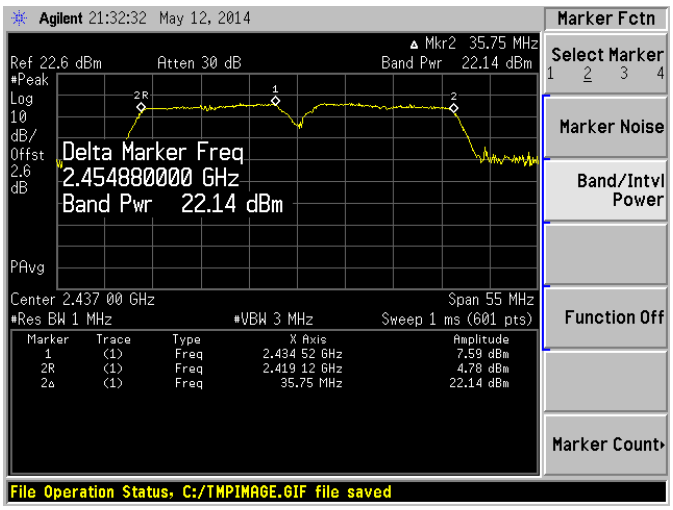
802.11 n 20MHz HIGH CHANNEL



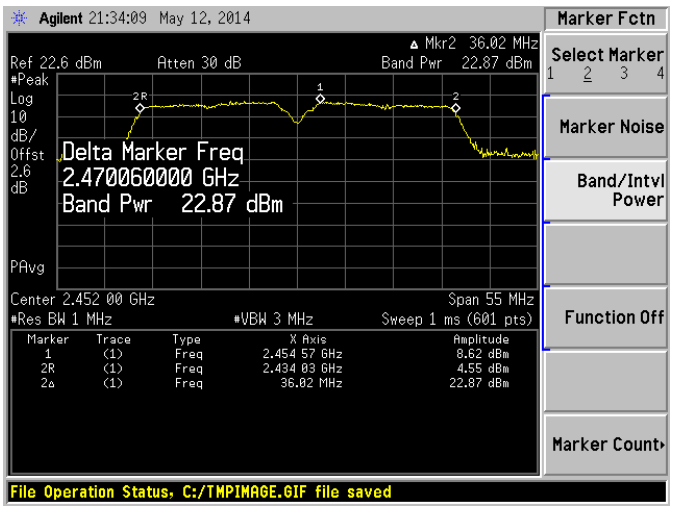
802.11 n 40MHz LOW CHANNEL



802.11 n 40MHz MID CHANNEL

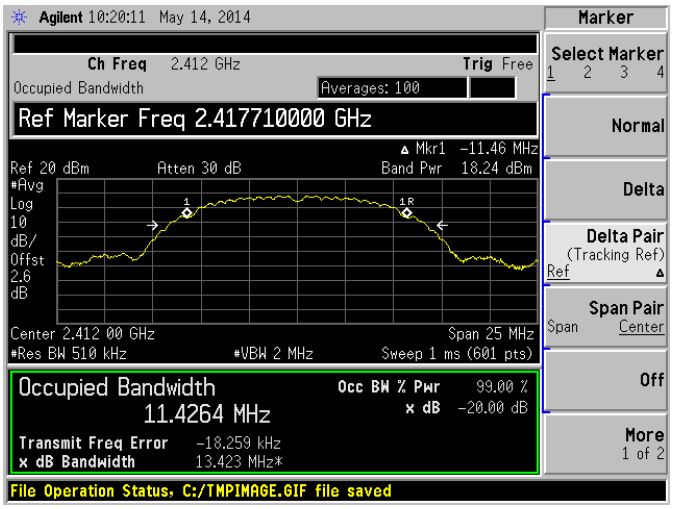


802.11 n 40MHz HIGH CHANNEL

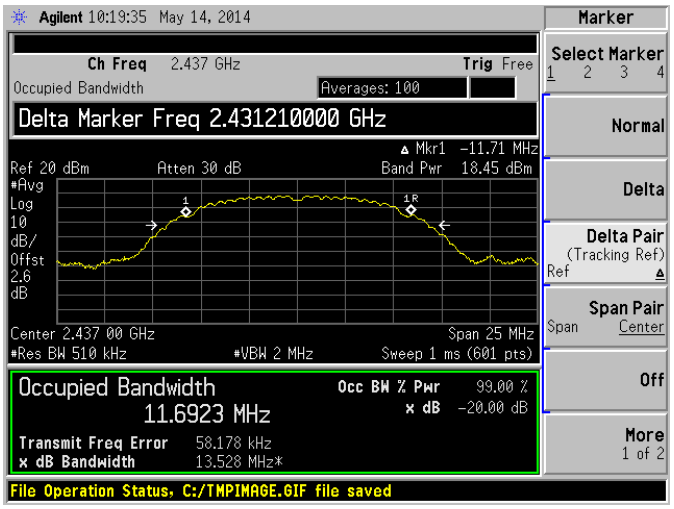


Average Power Test Plots

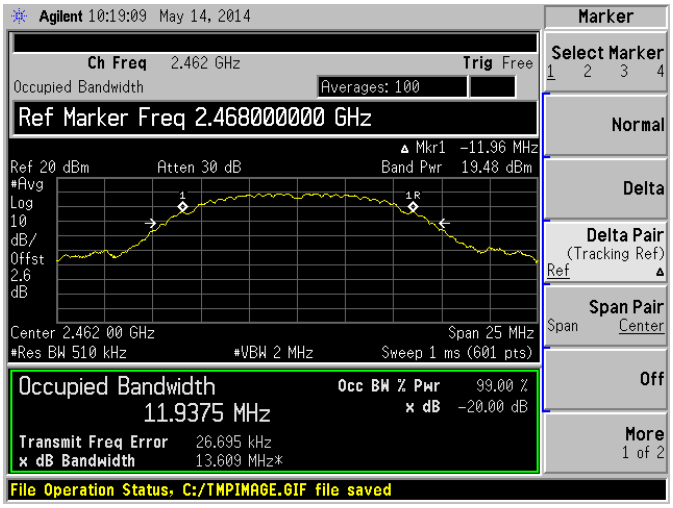
802.11b LOW CHANNEL



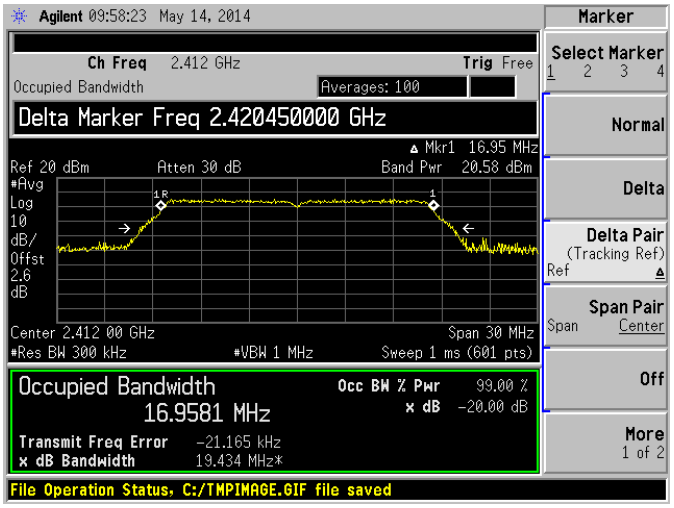
802.11b MID CHANNEL



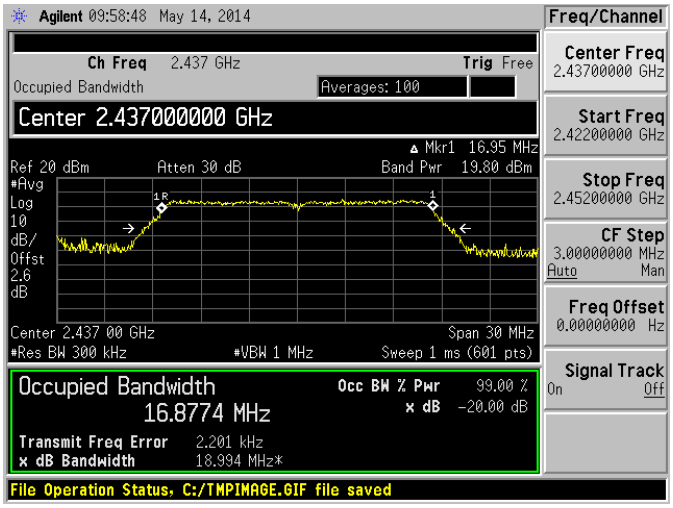
802.11b HIGH CHANNEL



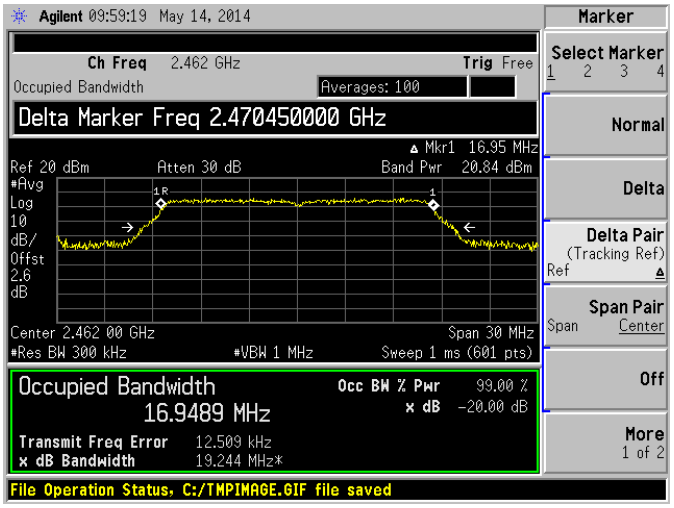
802.11g LOW CHANNEL



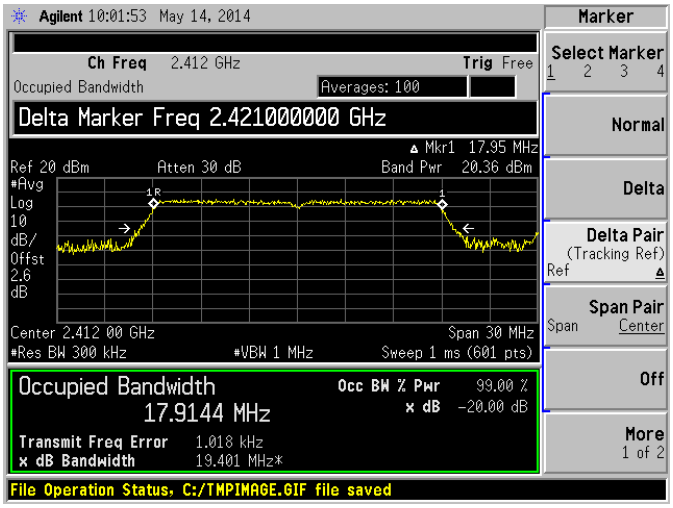
802.11g MID CHANNEL



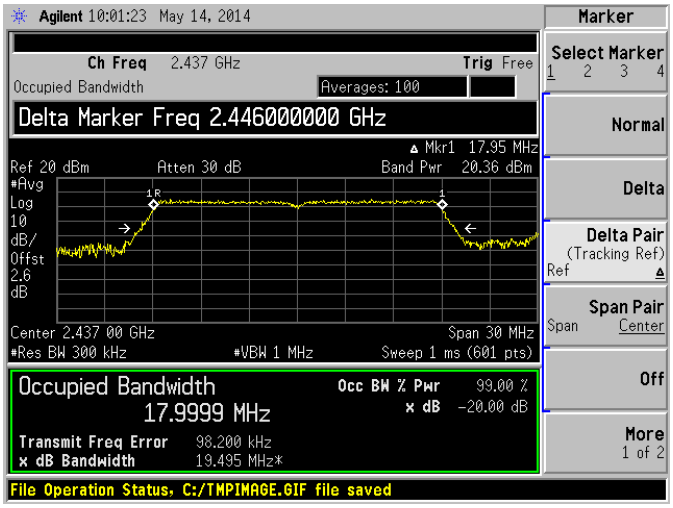
802.11g HIGH CHANNEL



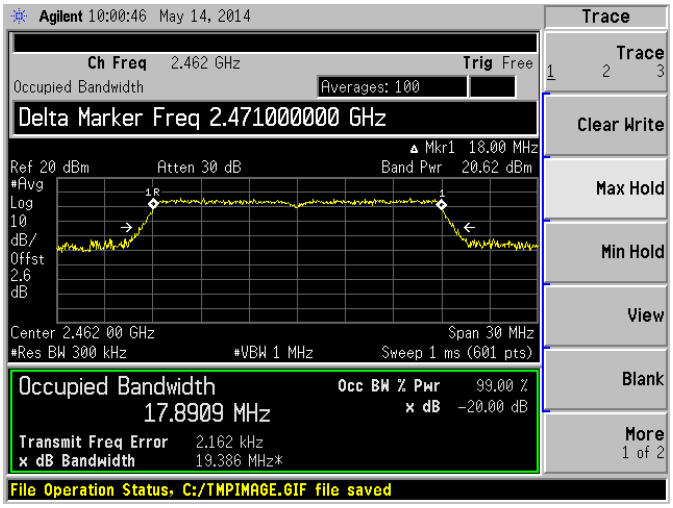
802.11n 20MHz LOW CHANNEL



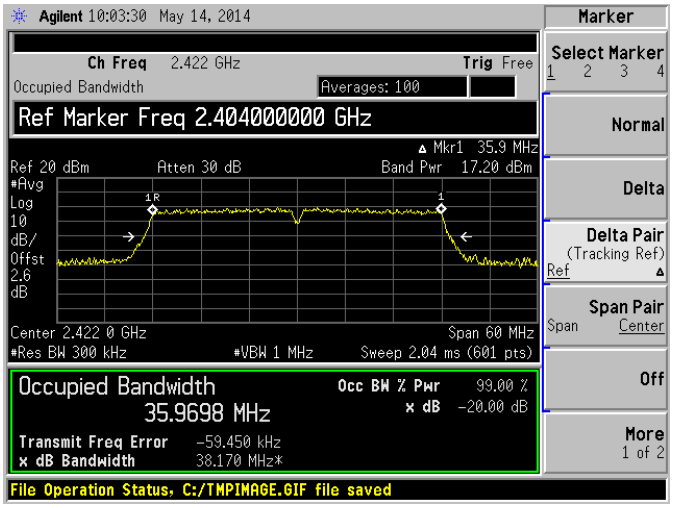
802.11 n 20MHz MID CHANNEL



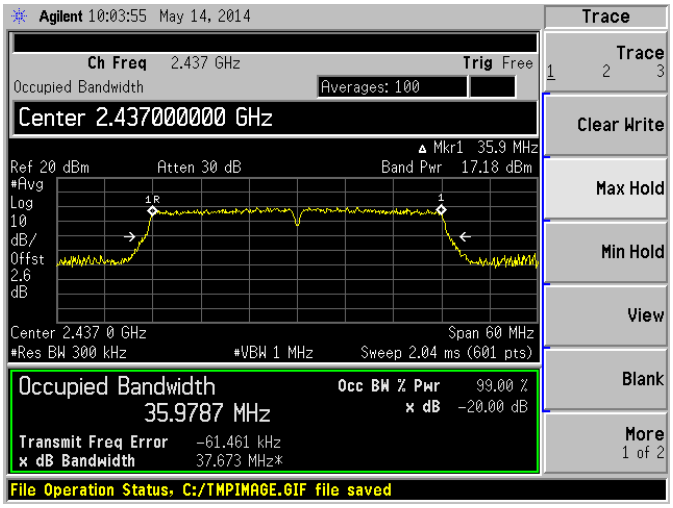
802.11 n 20MHz HIGH CHANNEL



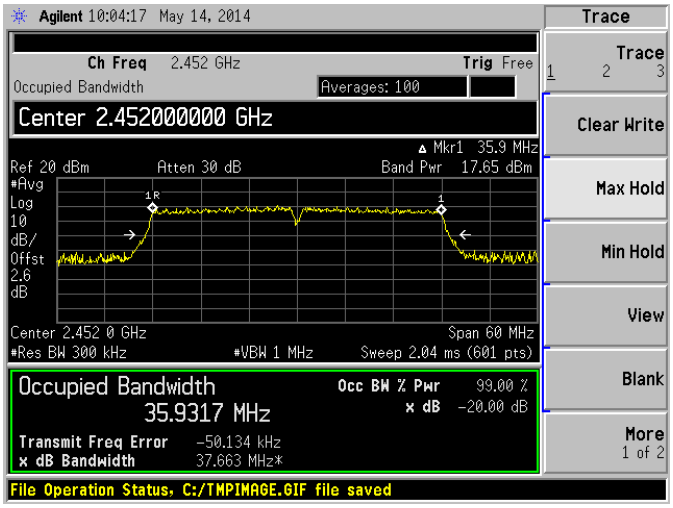
802.11 n 40MHz LOW CHANNEL



802.11 n 40MHz MID CHANNEL



802.11 n 40MHz HIGH CHANNEL



A.2 Bandwidth

Test Data

802.11b Mode:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits (kHz)
Low	2412	9.17	≥500
Middle	2437	9.12	≥500
High	2462	9.12	≥500

802.11g Mode:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits (kHz)
Low	2412	16.58	≥500
Middle	2437	16.54	≥500
High	2462	16.54	≥500

802.11n-20MHz Mode:

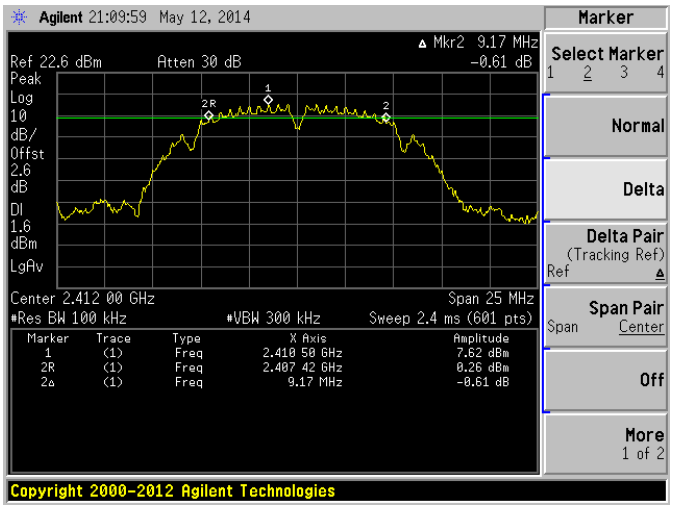
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits (kHz)
Low	2412	17.75	≥500
Middle	2437	17.75	≥500
High	2462	17.79	≥500

802.11n-40MHz Mode:

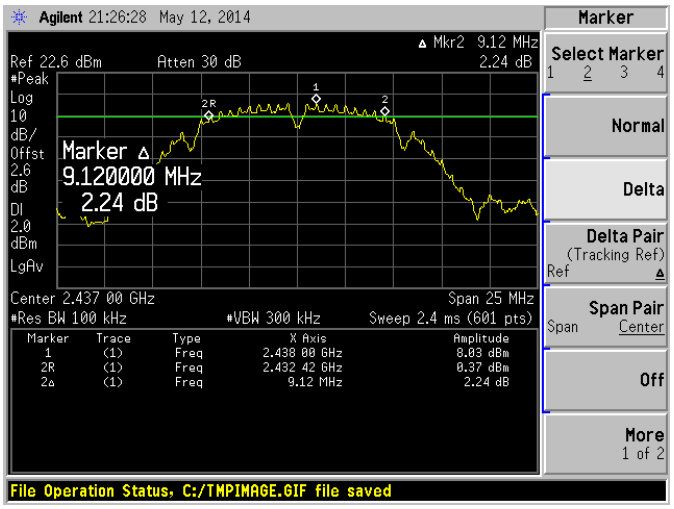
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits (kHz)
Low	2422	36.30	≥500
Middle	2437	35.75	≥500
High	2452	36.02	≥500

Test plots

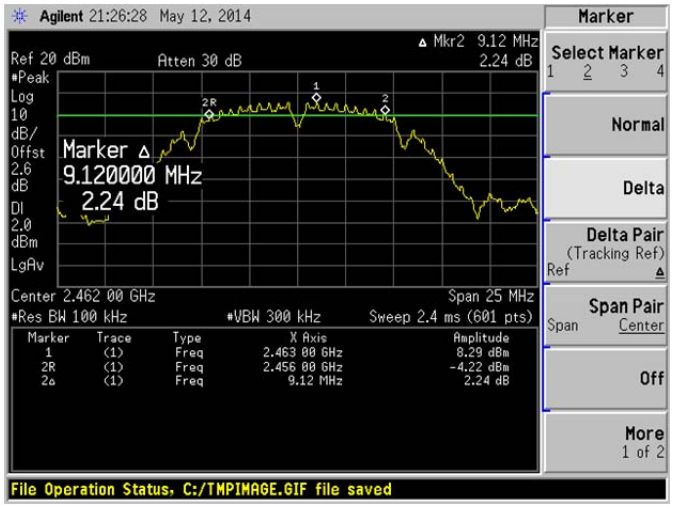
802.11b LOW CHANNEL



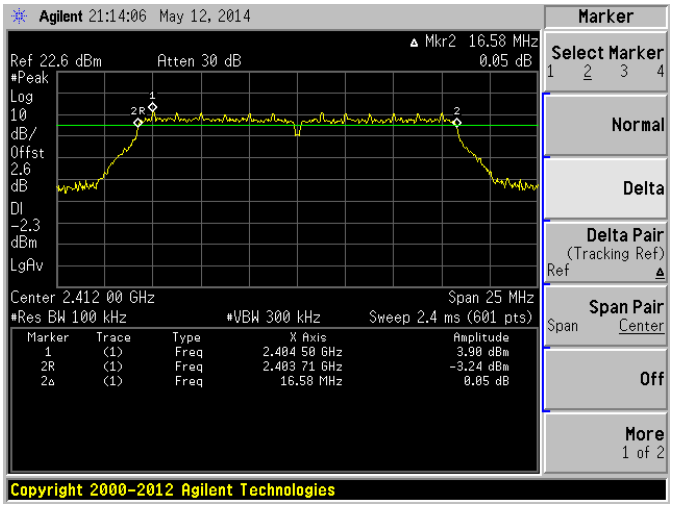
802.11b MID CHANNEL



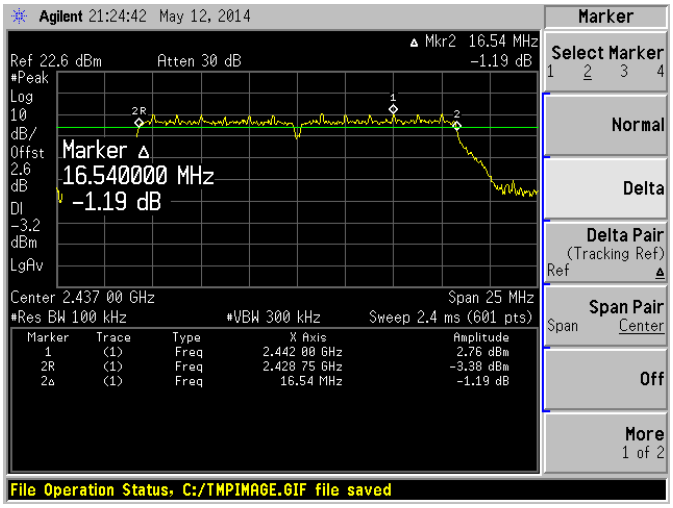
802.11b HIGH CHANNEL



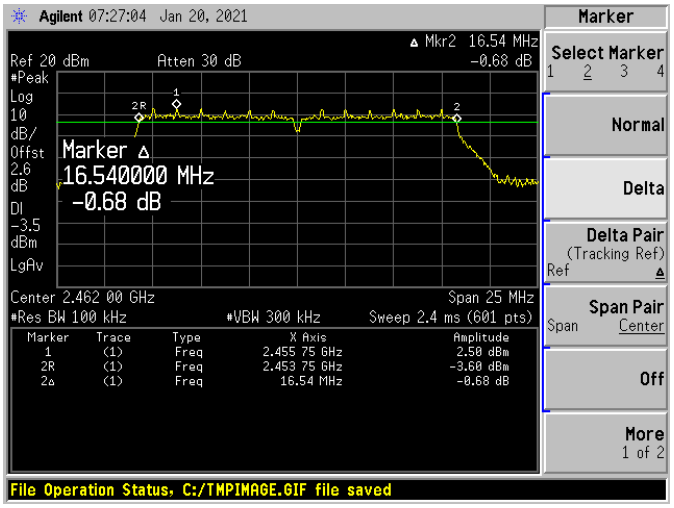
802.11g LOW CHANNEL



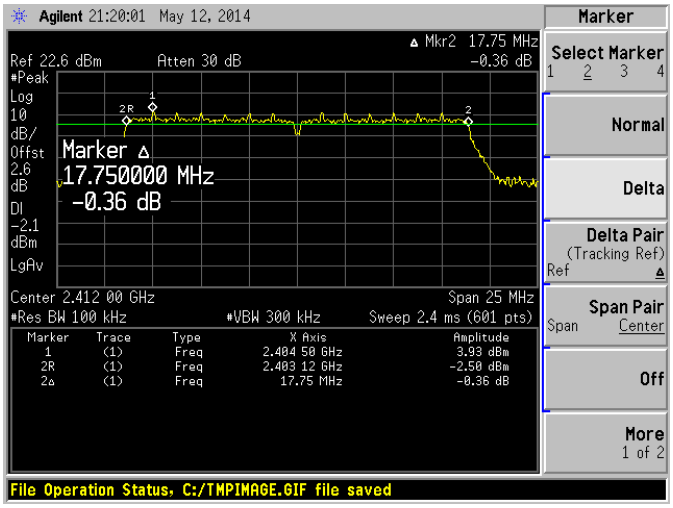
802.11g MID CHANNEL



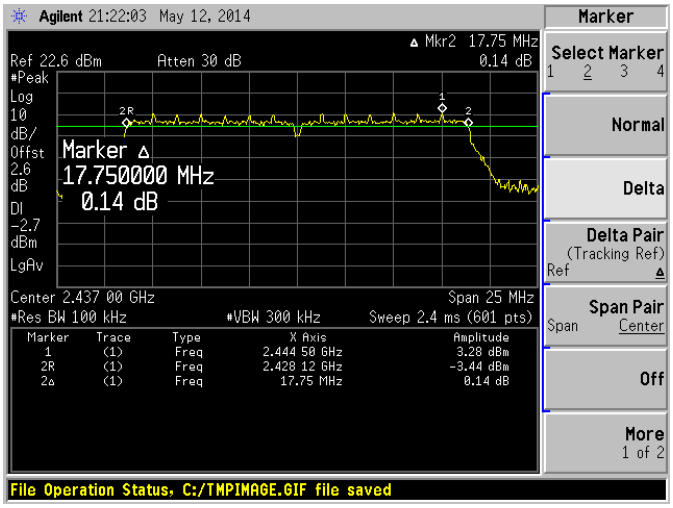
802.11g HIGH CHANNEL



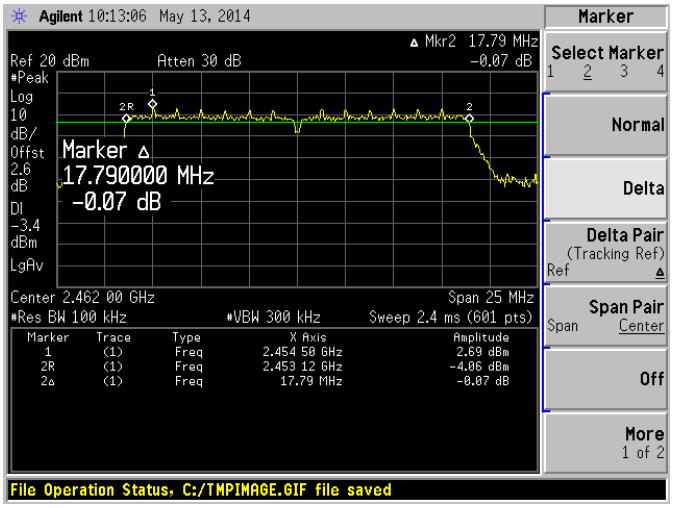
802.11n-20MHz LOW CHANNEL



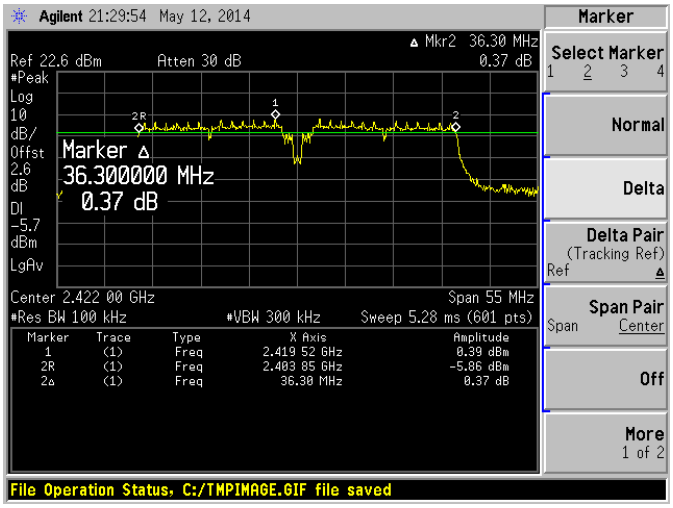
802.11 n-20MHz MID CHANNEL



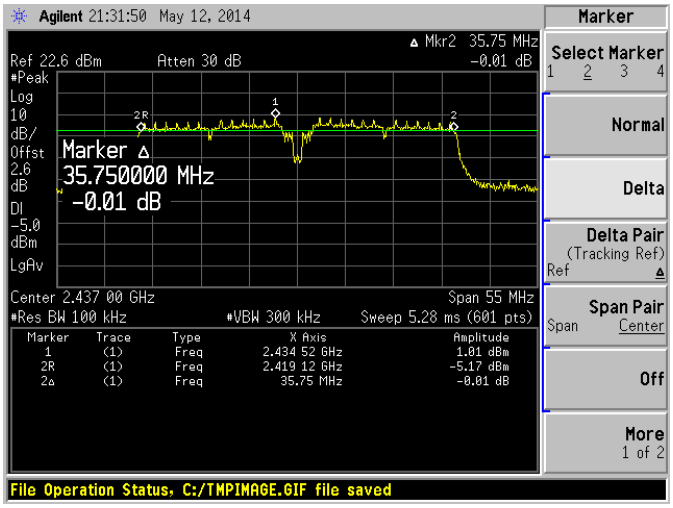
802.11n-20MHz HIGH CHANNEL



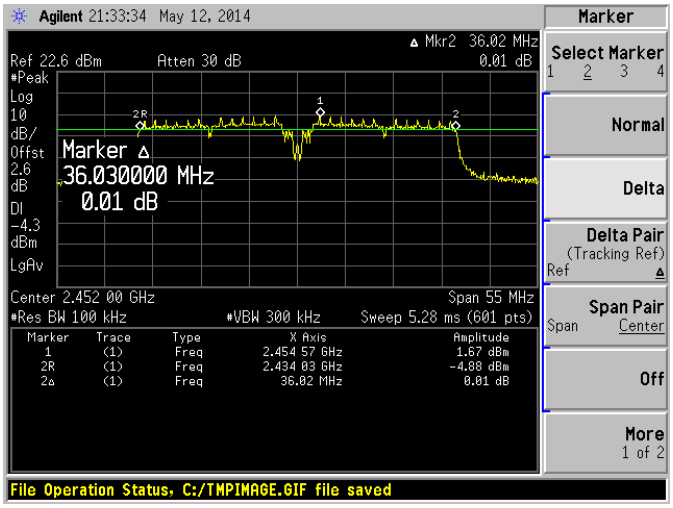
802.11n-40MHz LOW CHANNEL



802.11n-40MHz MID CHANNEL



802.11n-40MHz HIGH CHANNEL



A.3 Conducted Spurious Emissions

Test Data

802.11b Mode:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated 20 dBc Limit	
1	2412	-45.91	7.24	-12.8	PASS
6	2437	-46.10	7.98	-12.0	PASS
11	2462	-46.08	7.22	-12.8	PASS

802.11g Mode:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated 20 dBc Limit	
1	2412	-47.54	2.89	-17.1	PASS
6	2437	-47.90	2.69	-17.3	PASS
11	2462	-50.58	3.60	-16.4	PASS

802.11n-20MHz Mode:

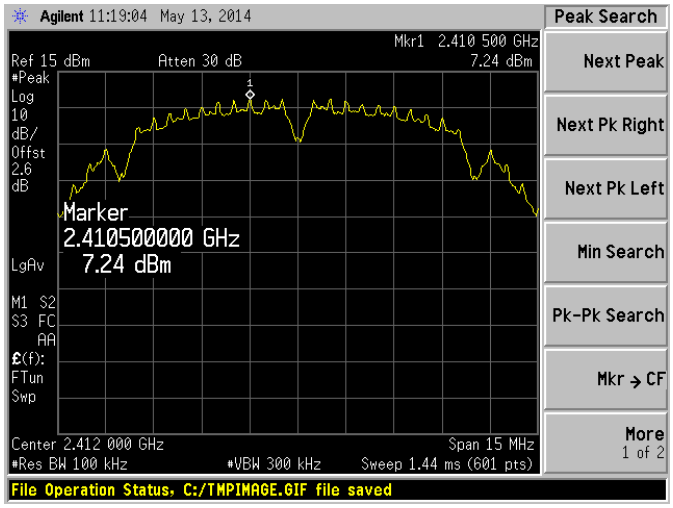
Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated 20 dBc Limit	
0	2412	-48.31	3.00	-17.0	PASS
39	2437	-47.64	2.74	-17.3	PASS
78	2462	-49.45	3.60	-16.4	PASS

802.11n-40MHz Mode:

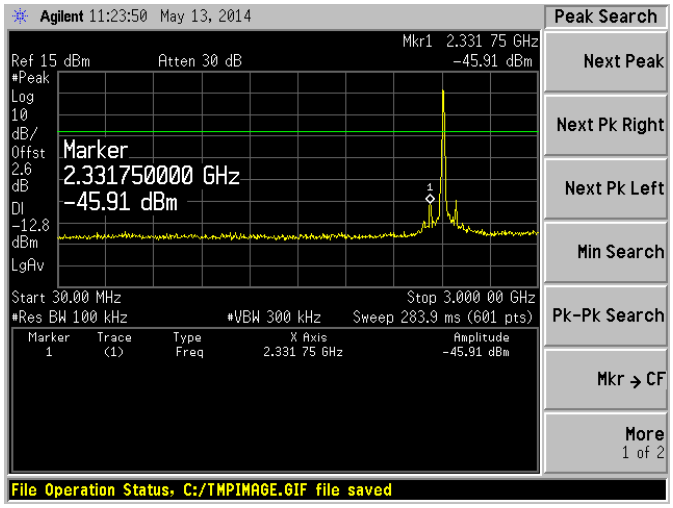
Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated 20 dBc Limit	
3	2422	-54.75	0.63	-19.4	PASS
6	2437	-56.32	1.26	-18.7	PASS
9	2452	-55.53	1.60	-18.4	PASS

Test Plots

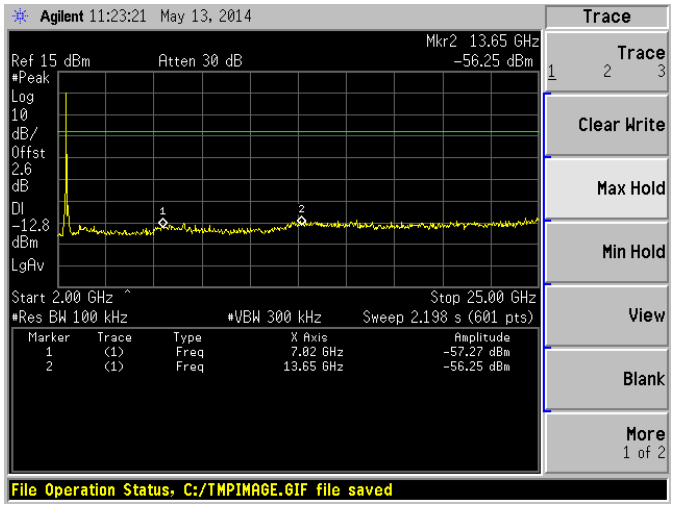
802.11b LOW CHANNEL CARRIER LEVEL



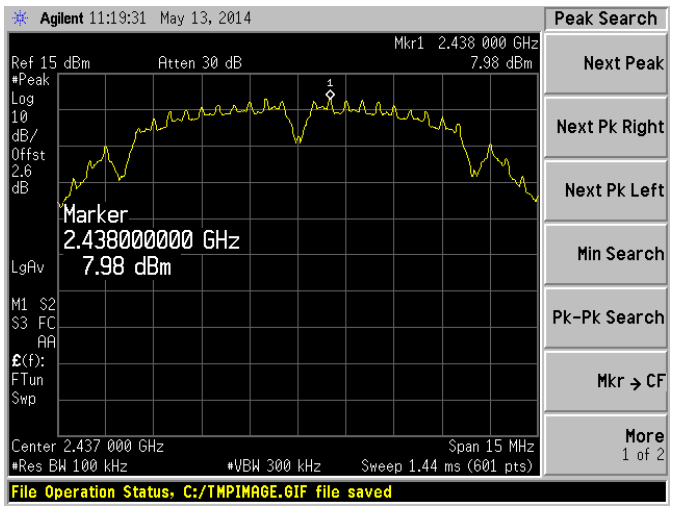
802.11b LOW CHANNEL, SPURIOUS 30MHz~3GHz



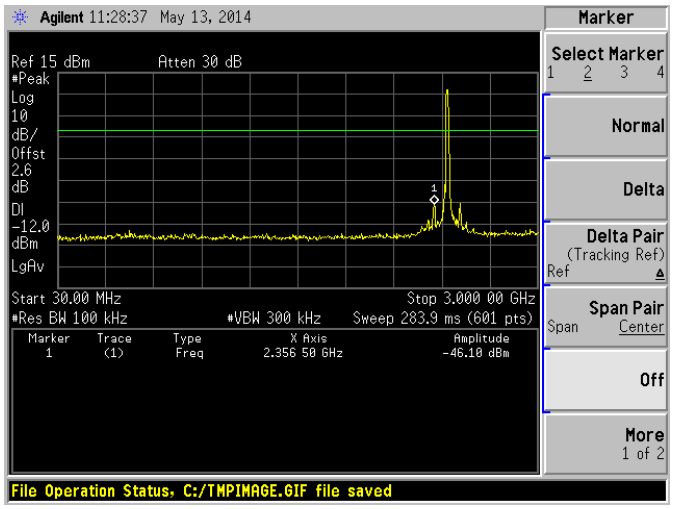
802.11b LOW CHANNEL, SPURIOUS 2GHz~25GHz



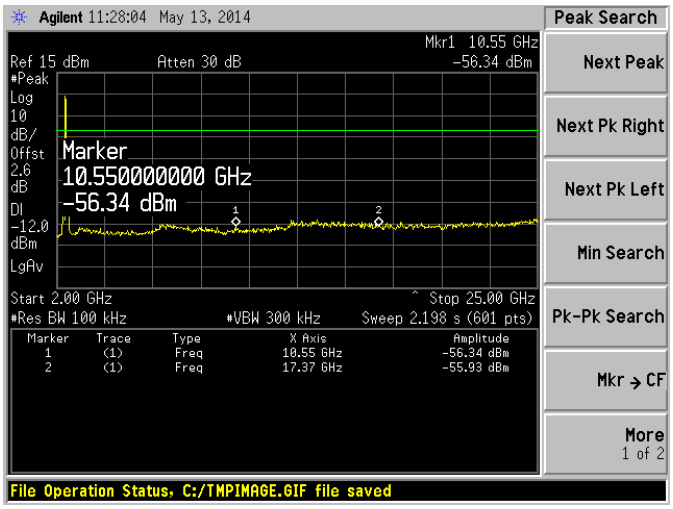
802.11b MID CHANNEL CARRIER LEVEL



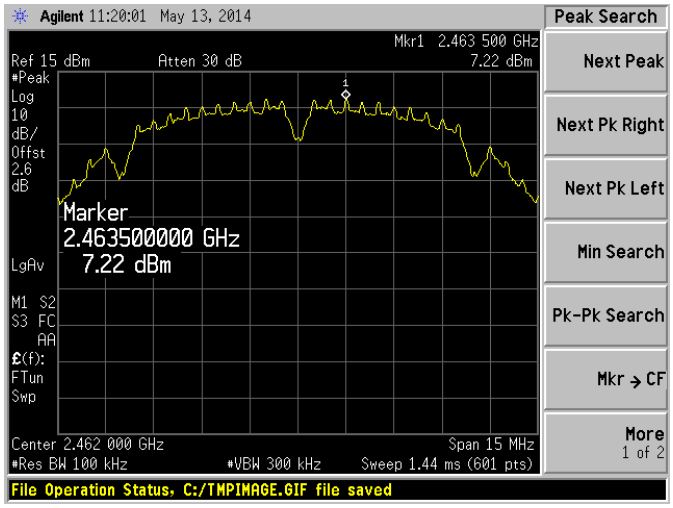
802.11b MID CHANNEL, SPURIOUS 30MHz~3GHz



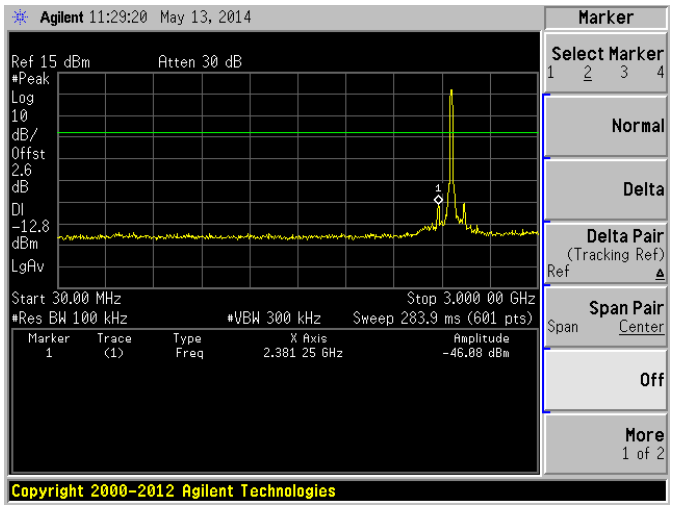
802.11b MID CHANNEL, SPURIOUS 2GHz~25GHz



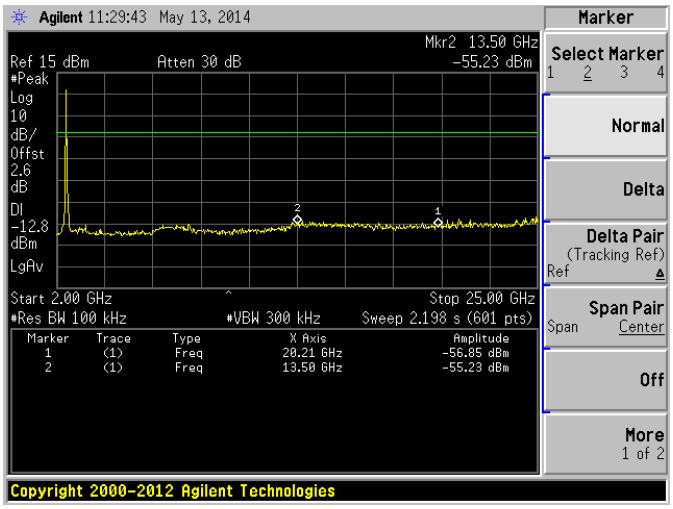
802.11b HIGH CHANNEL CARRIER LEVEL



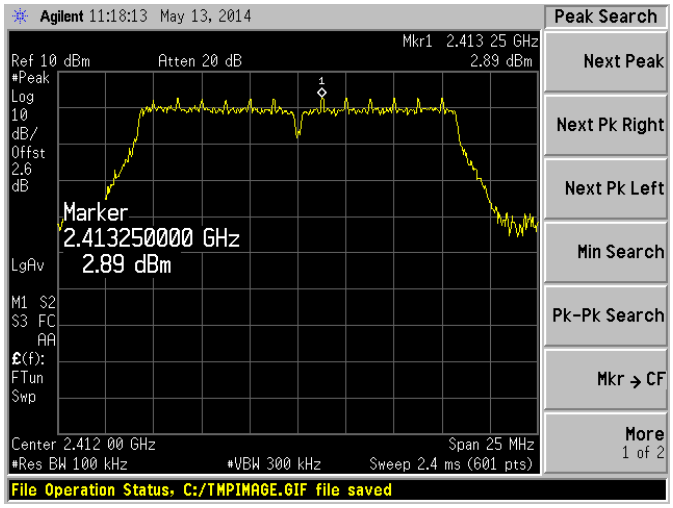
802.11b HIGH CHANNEL, SPURIOUS 30MHz~3GHz



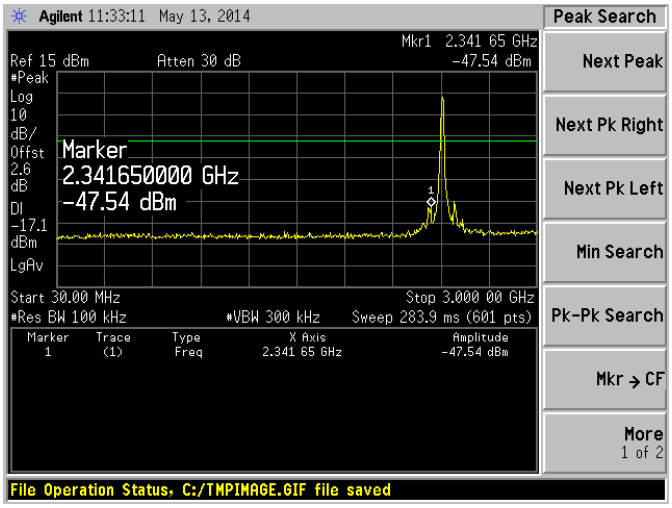
802.11b HIGH CHANNEL, SPURIOUS 2GHz~25GHz



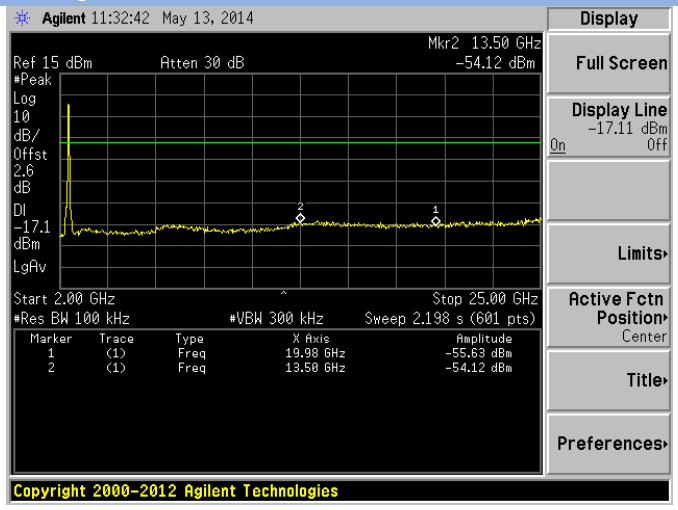
802.11g LOW CHANNEL CARRIER LEVEL



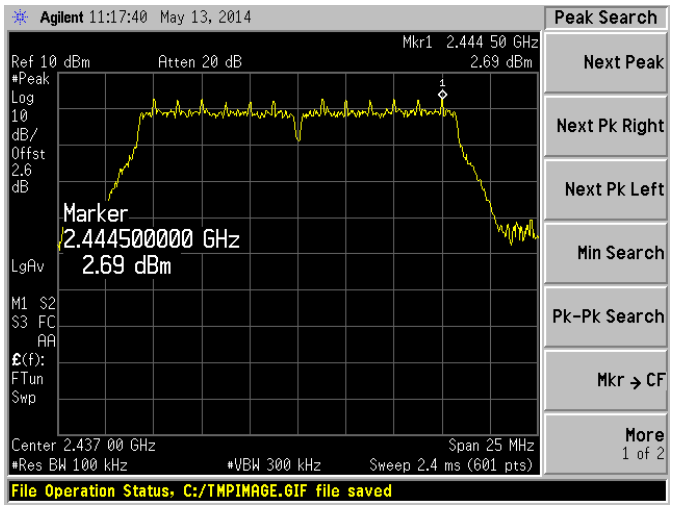
802.11g LOW CHANNEL, SPURIOUS 30MHz~3GHz



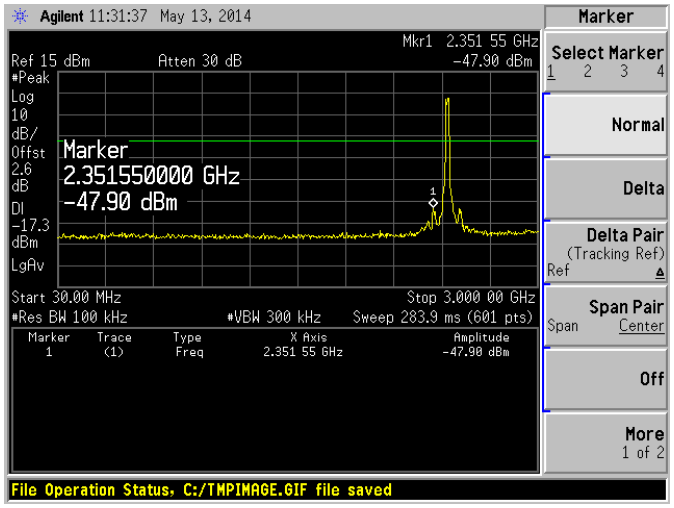
802.11g LOW CHANNEL, SPURIOUS 2GHz~25GHz



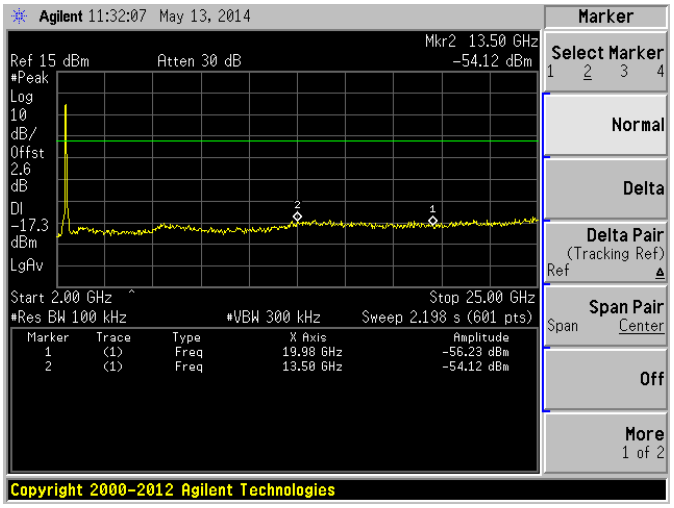
802.11g MID CHANNEL CARRIER LEVEL



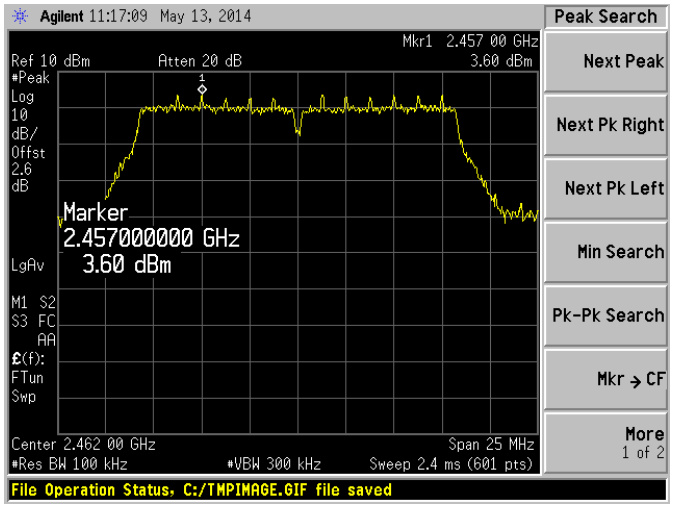
802.11g MID CHANNEL, SPURIOUS 30MHz~3GHz



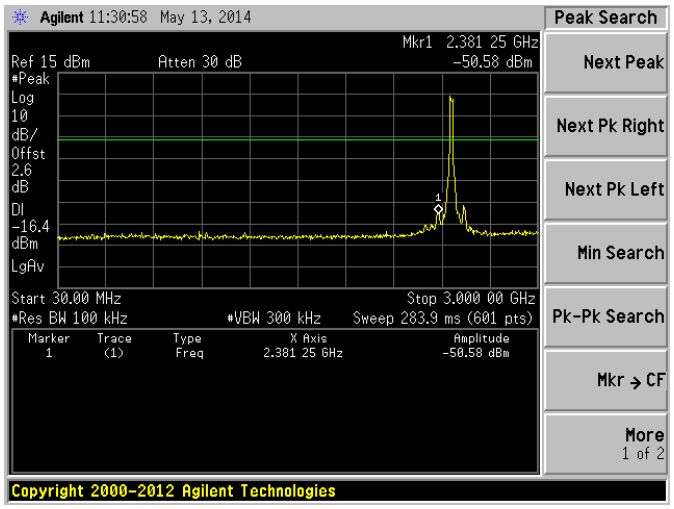
802.11g MID CHANNEL, SPURIOUS 2GHz~25GHz



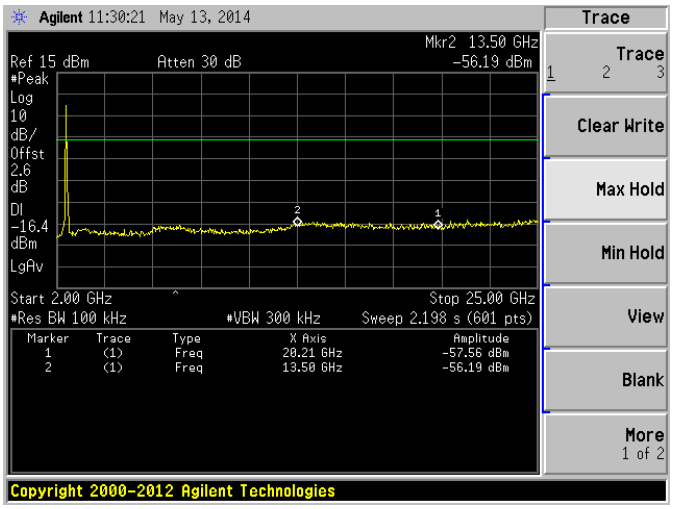
802.11g HIGH CHANNEL CARRIER LEVEL



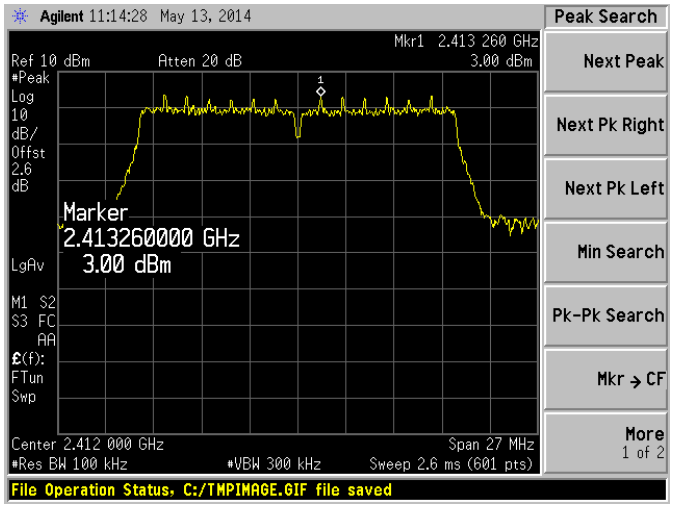
802.11g HIGH CHANNEL, SPURIOUS 30MHz~3GHz



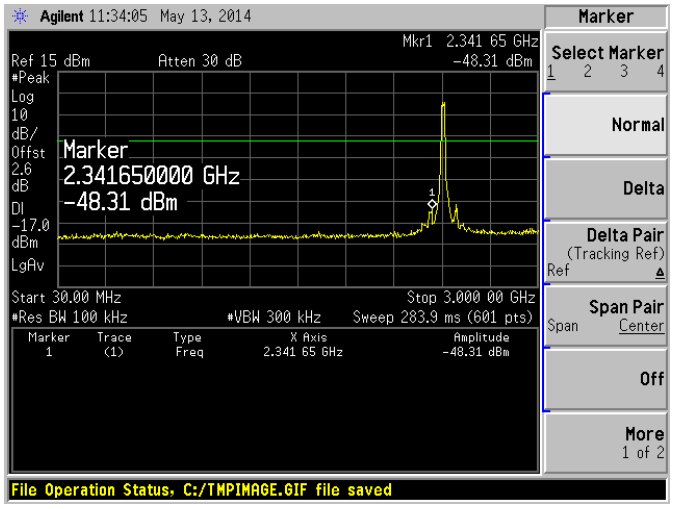
802.11g HIGH CHANNEL, SPURIOUS 2GHz~25GHz



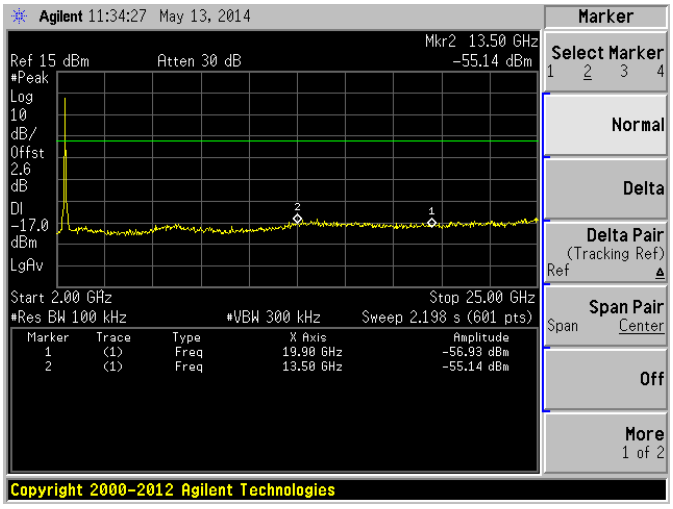
802.11n 20MHz LOW CHANNEL CARRIER LEVEL



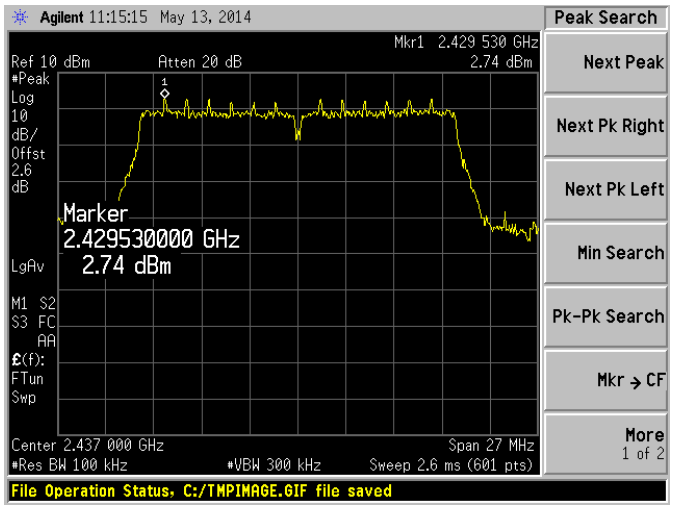
802.11 n 20MHz LOW CHANNEL, SPURIOUS 30MHz~3GHz



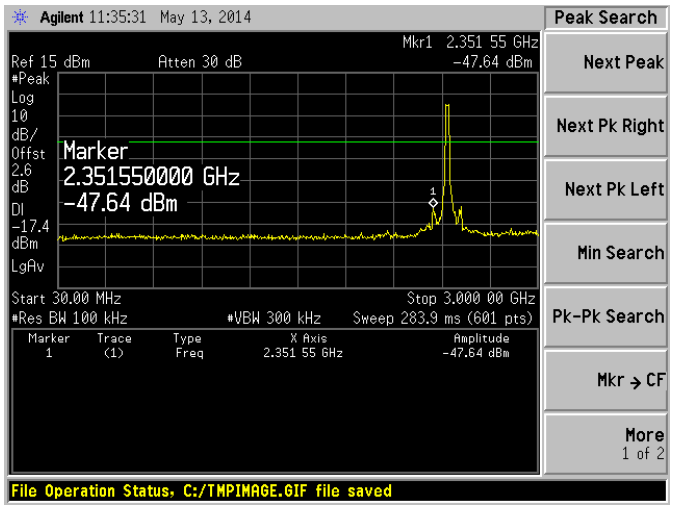
802.11 n 20MHz LOW CHANNEL, SPURIOUS 2GHz~25GHz



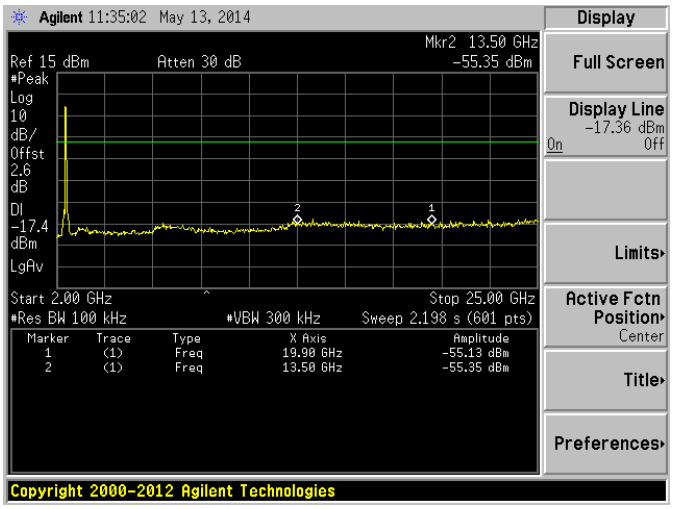
802.11 n 20MHz MID CHANNEL CARRIER LEVEL



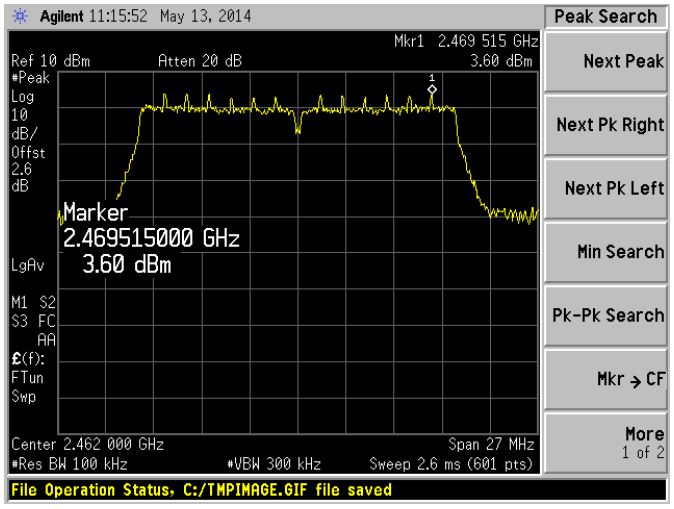
802.11 n 20MHz MID CHANNEL, SPURIOUS 30MHz~3GHz



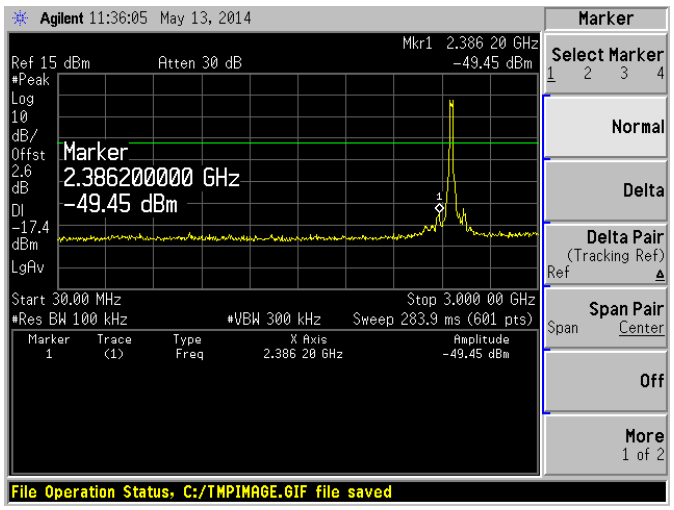
802.11 n 20MHz MID CHANNEL, SPURIOUS 2GHz~25GHz



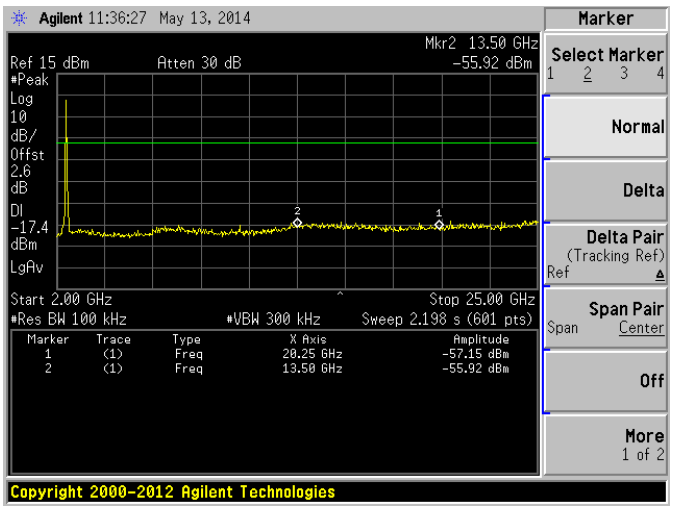
802.11 n 20MHz HIGH CHANNEL CARRIER LEVEL



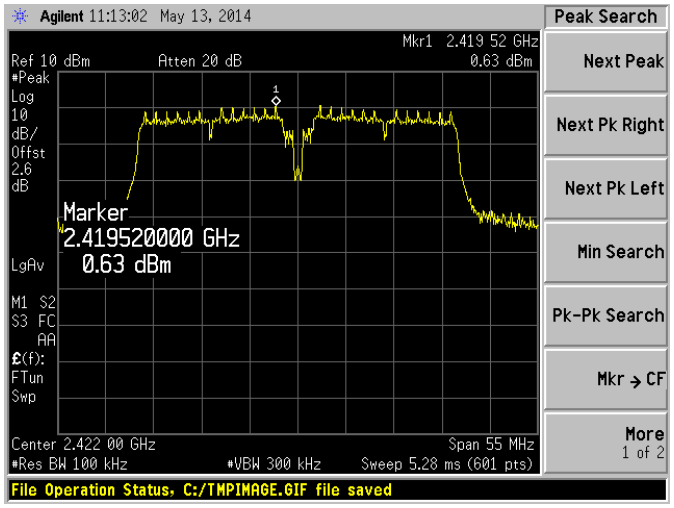
802.11 n 20MHz HIGH CHANNEL, SPURIOUS 30MHz~3GHz



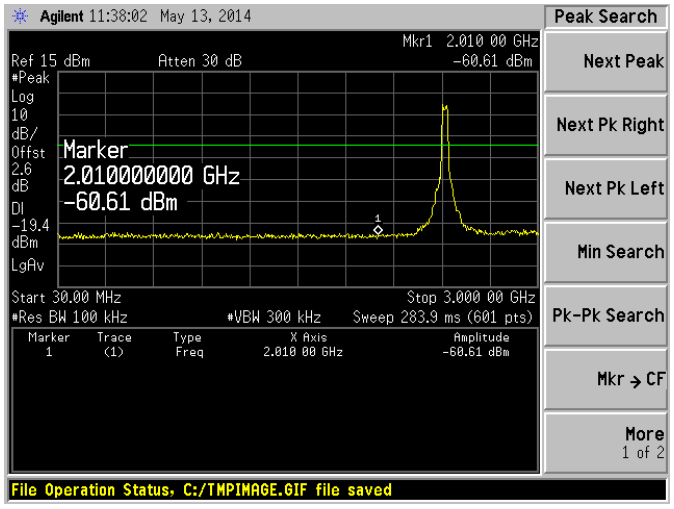
802.11 n 20MHz HIGH CHANNEL, SPURIOUS 2GHz~25GHz



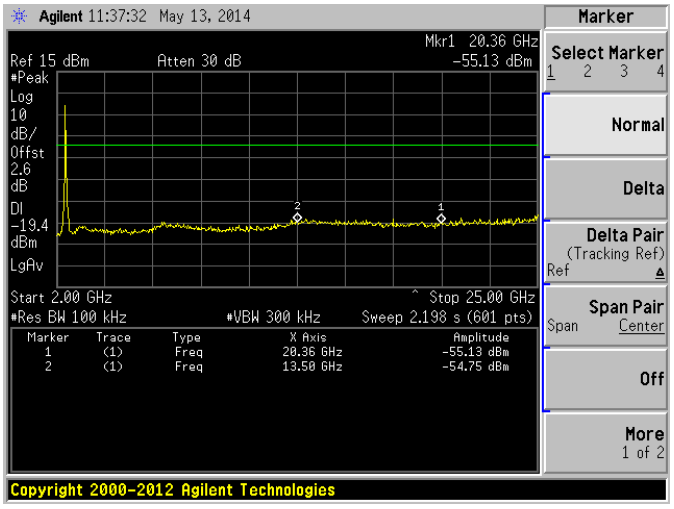
802.11n 40MHz LOW CHANNEL CARRIER LEVEL



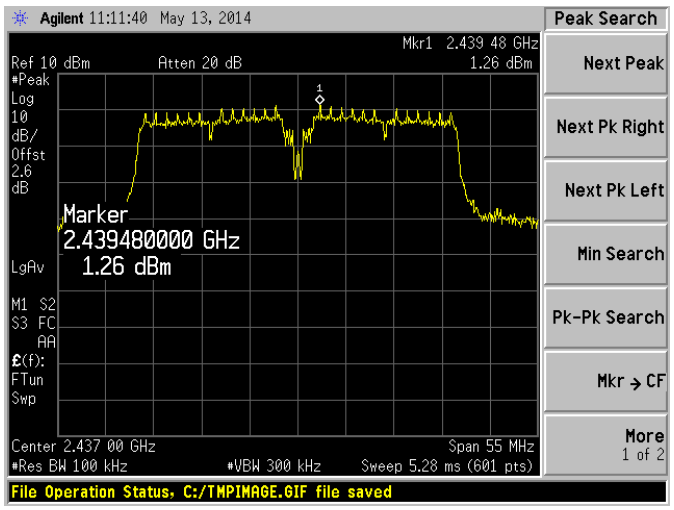
802.11 n 40MHz LOW CHANNEL, SPURIOUS 30MHz~3GHz



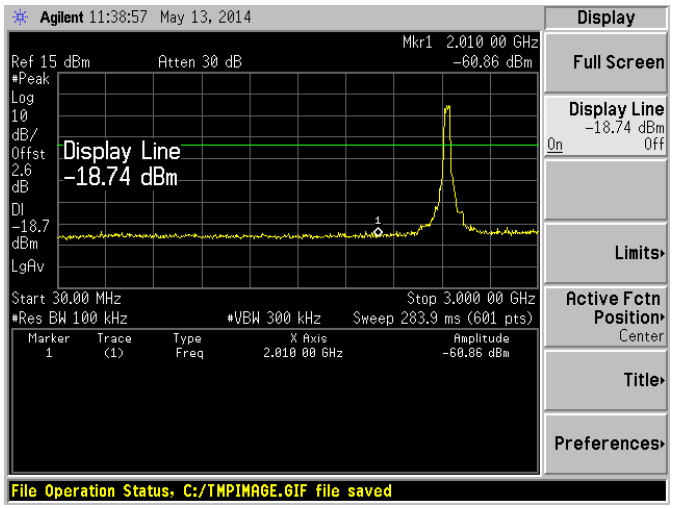
802.11 n 40MHz LOW CHANNEL, SPURIOUS 2GHz~25GHz



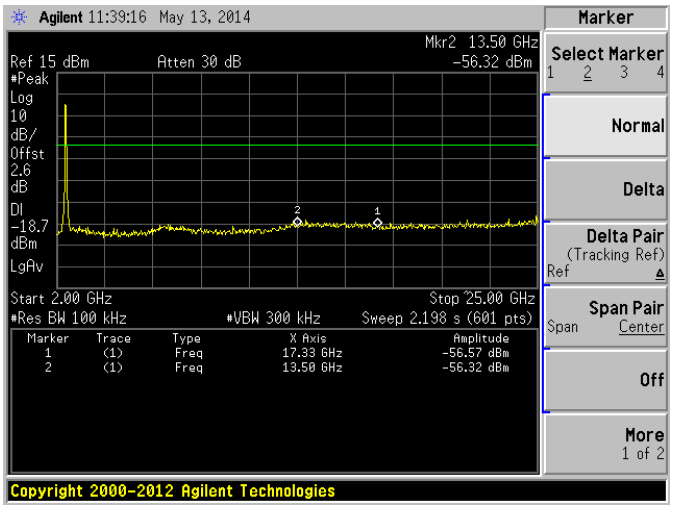
802.11 n 40MHz MID CHANNEL CARRIER LEVEL



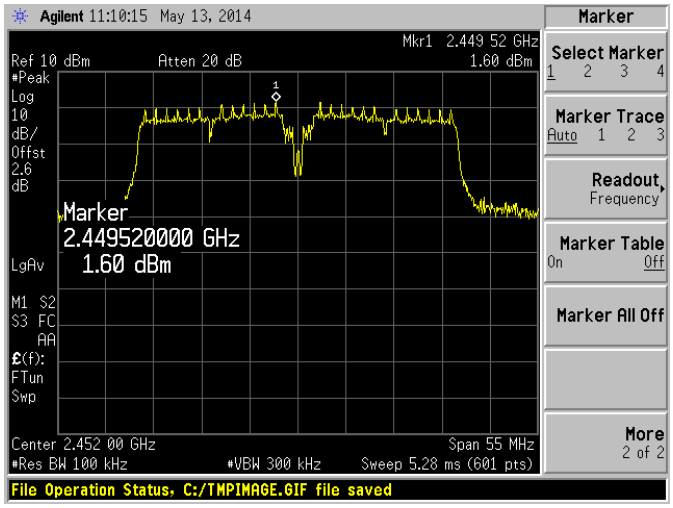
802.11 n 40MHz MID CHANNEL, SPURIOUS 30MHz~3GHz



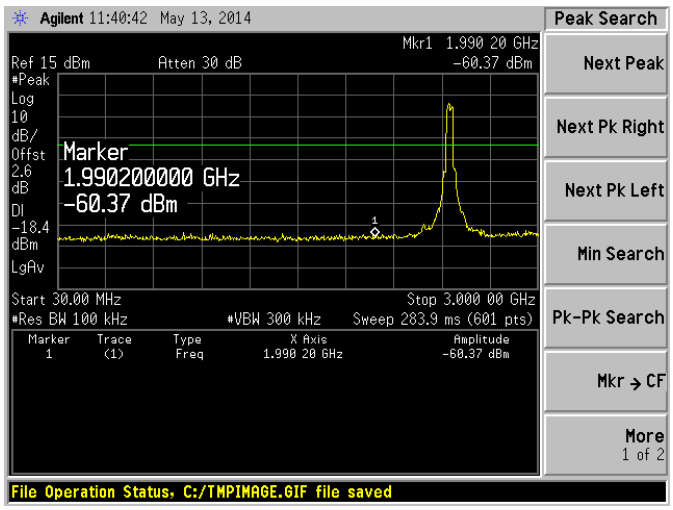
802.11 n 40MHz MID CHANNEL, SPURIOUS 2GHz~25GHz



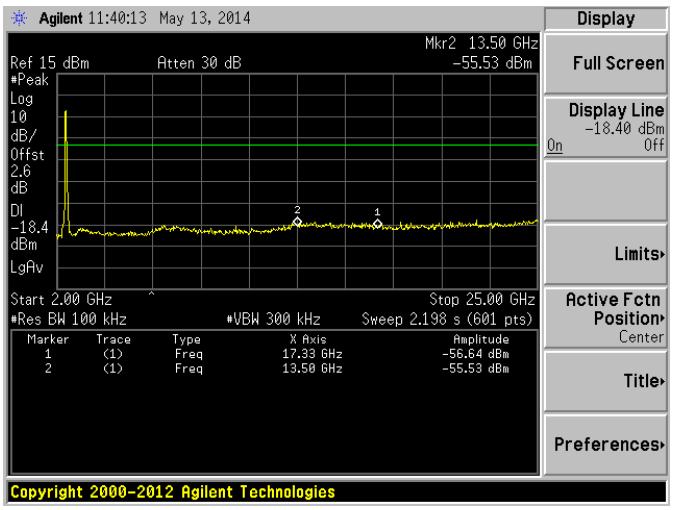
802.11 n 40MHz HIGH CHANNEL CARRIER LEVEL



802.11 n 40MHz HIGH CHANNEL, SPURIOUS 30MHz~3GHz



802.11 n 40MHz HIGH CHANNEL, SPURIOUS 2GHz~25GHz



A.4 Conducted Emissions

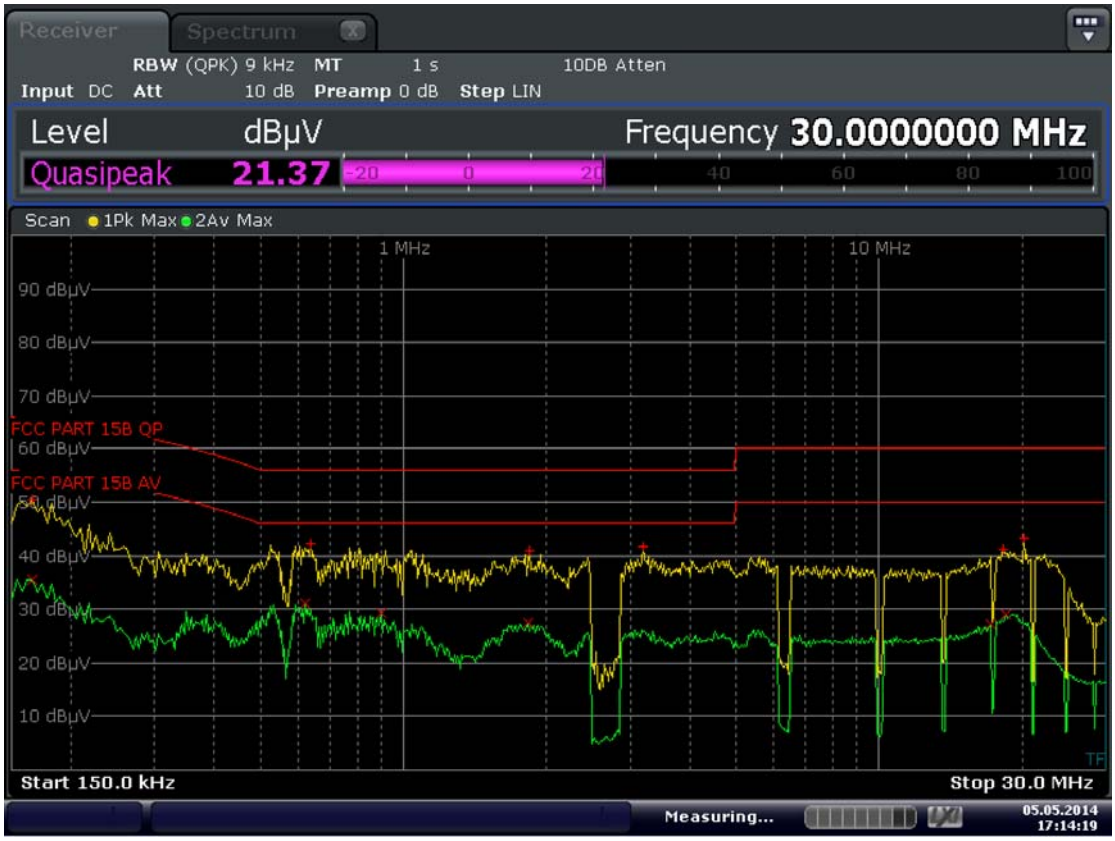
Test Data

No.	Fre. (MHz)	Measurement Level (dBuV)	Limit (dBuV)	Margin (dB)	Phase	Detector	Verdict
1	0.166	50.41	65.54	-15.13	L	QP	PASS
2	0.166	35.52	55.54	-20.02	L	AV	PASS
3	0.622	31.05	46.00	-14.95	L	AV	PASS
4	0.638	42.28	56.00	-13.72	L	QP	PASS
5	0.902	29.21	46.00	-16.79	L	AV	PASS
6	1.834	27.38	46.00	-18.62	L	AV	PASS
7	1.842	41.06	56.00	-14.94	L	QP	PASS
8	3.194	41.69	56.00	-14.31	L	QP	PASS
9	17.174	27.26	50.00	-22.74	L	AV	PASS
10	18.310	41.32	60.00	-18.68	L	QP	PASS
11	18.542	29.12	50.00	-20.88	L	AV	PASS
12	20.230	43.21	60.00	-16.79	L	QP	PASS

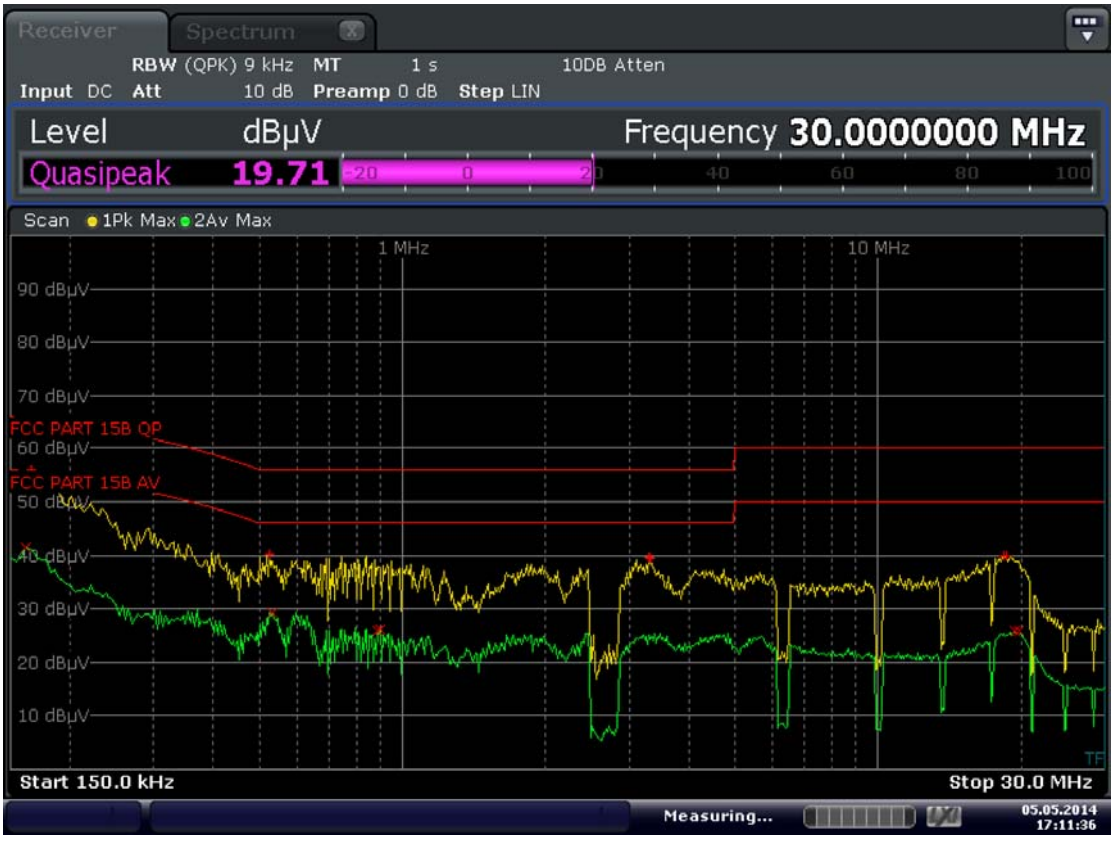
No.	Fre. (MHz)	Measurement Level (dBuV)	Limit (dBuV)	Margin (dB)	Phase	Detector	Verdict
1	0.162	41.56	55.66	-14.10	N	AV	PASS
2	0.166	55.94	65.54	-9.60	N	QP	PASS
3	0.526	40.11	56.00	-15.89	N	QP	PASS
4	0.534	29.38	46.00	-16.62	N	AV	PASS
5	0.886	25.8	46.00	-20.20	N	AV	PASS
6	0.902	26.2	46.00	-19.80	N	AV	PASS
7	3.294	39.51	56.00	-16.49	N	QP	PASS
8	3.318	39.31	56.00	-16.69	N	QP	PASS
9	18.410	39.97	60.00	-20.03	N	QP	PASS
10	18.674	39.94	60.00	-20.06	N	QP	PASS
11	19.430	25.79	50.00	-24.21	N	AV	PASS
12	19.734	25.87	50.00	-24.13	N	AV	PASS

Test Plots

PHASE L



PHASE N

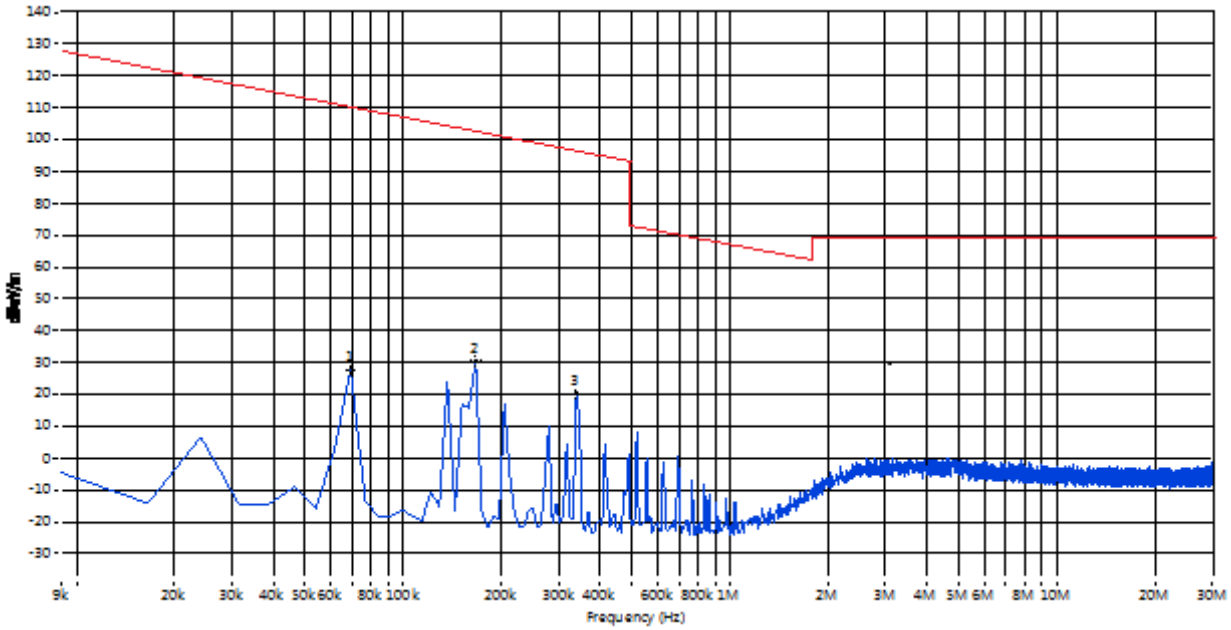


A.5 Radiated Emission

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

The worst data of 9 kHz to 30MHz

Below 30MHz

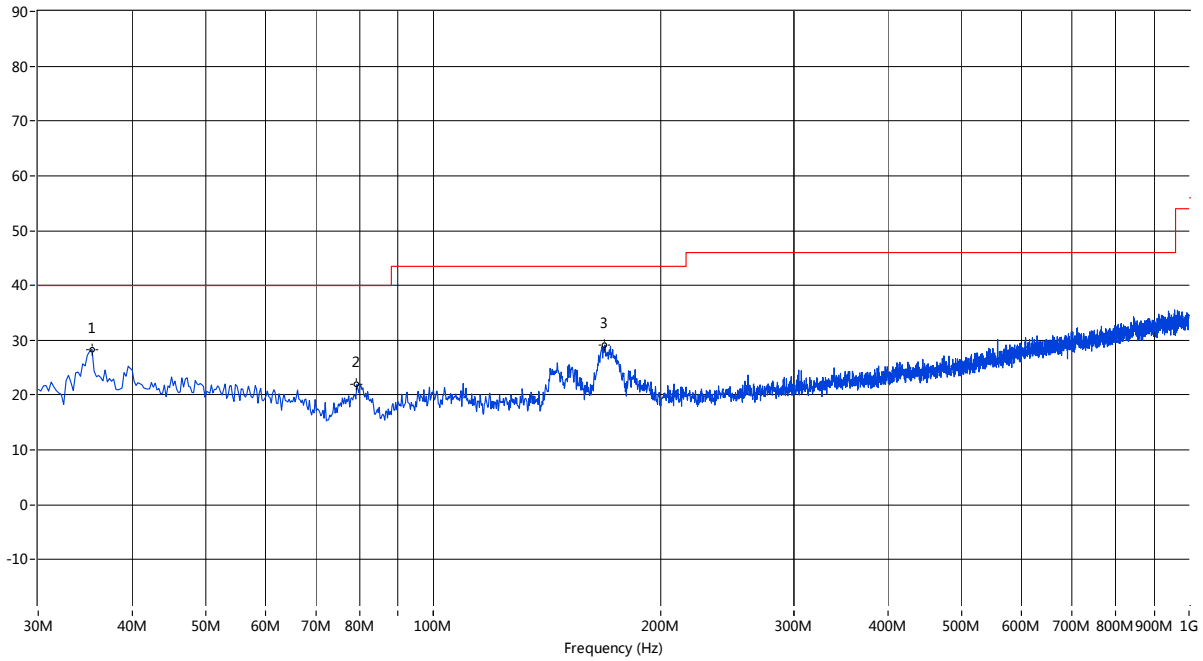


Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Verdict
0.069	31.00	--	--	--	110.8	--	0.0	PASS
0.166	29.49	--	--	--	103.2	--	0.0	PASS
0.339	16.81	--	--	--	97.0	--	0.0	PASS

Note: The marked spikes near 2400MHz with circle should be ignored because they are Fundamental signal.

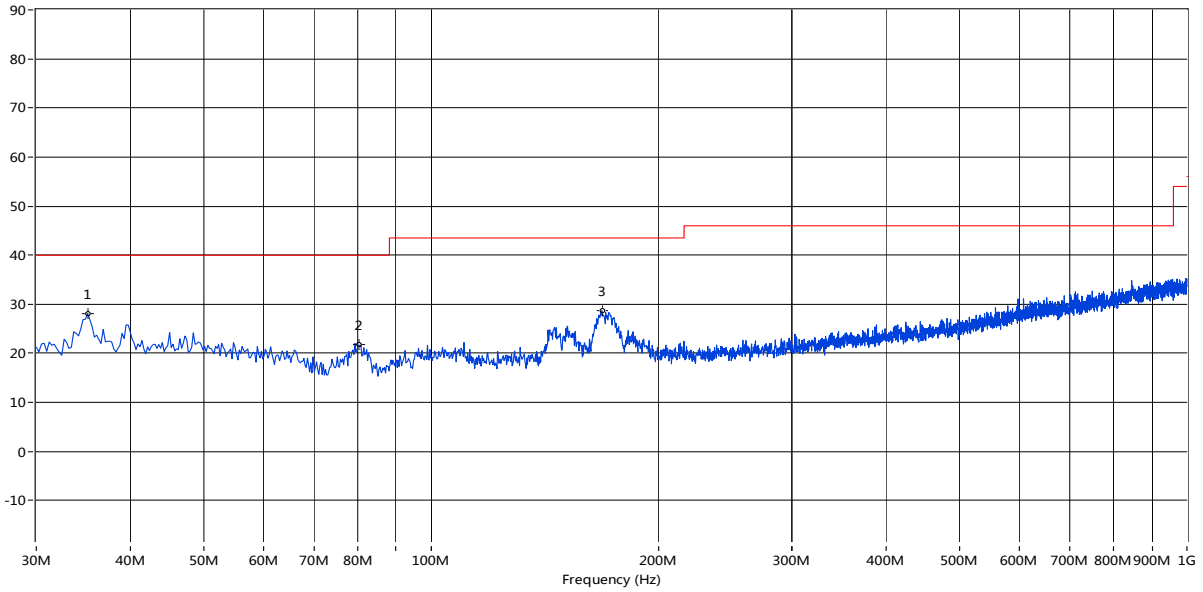
Test Data and Plots(30MHz ~ 10th Harmonic)

802.11b LOW CHANNEL 30MHz to 1GHz, ANT V



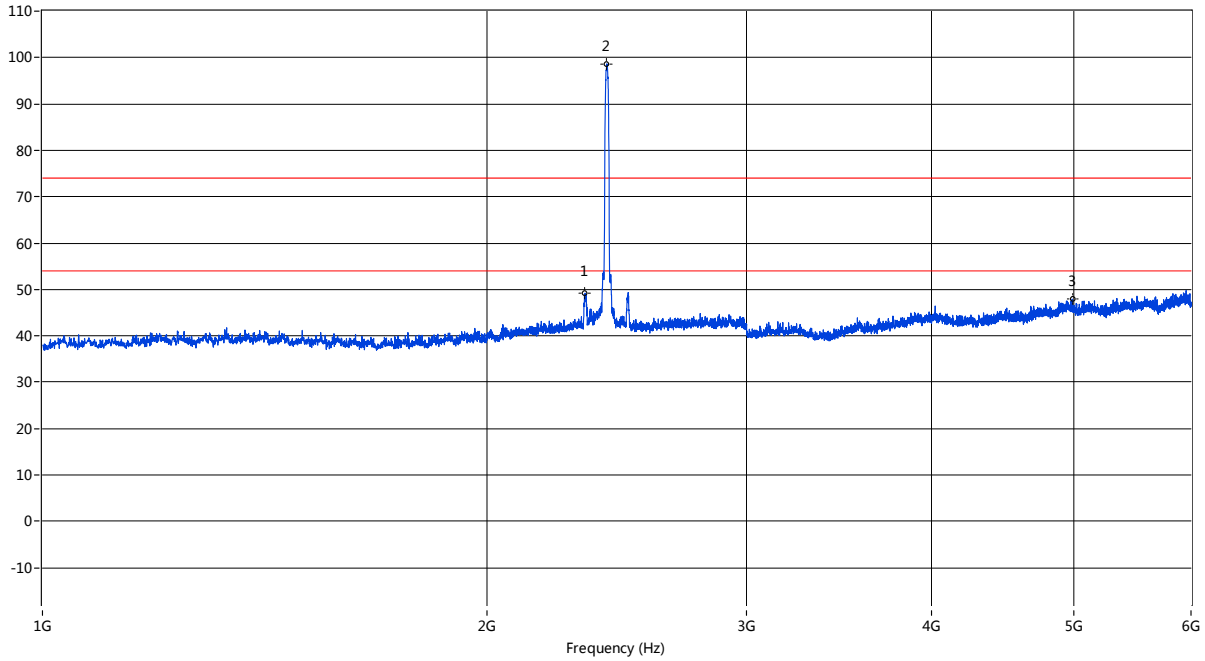
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
35.334	28.35	--	--	--	40.0	--	31.0	Vertical	PASS
79.215	21.93	--	--	--	40.0	--	3.7	Vertical	PASS
168.675	29.15	--	--	--	43.5	--	342.5	Vertical	PASS

802.11b LOW CHANNEL 30MHz to 1GHz, ANT H



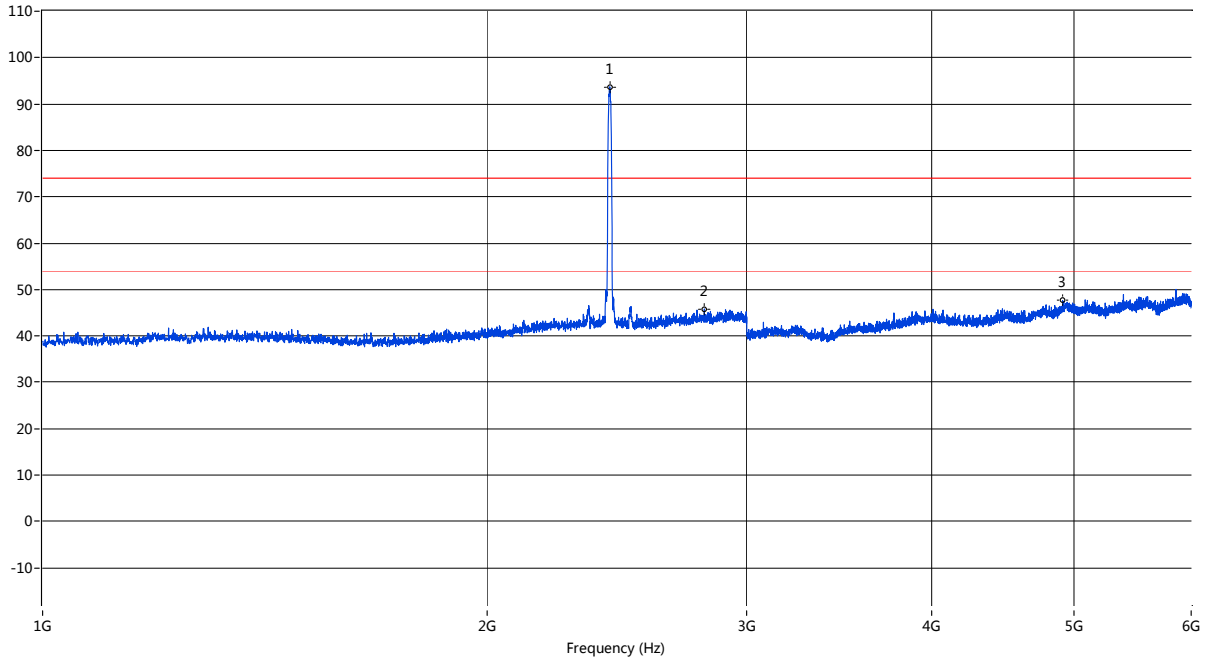
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
35.091	28.16	--	--	--	43.5	--	359.4	Horizontal	PASS
80.185	21.72	--	--	--	46.0	--	76.9	Horizontal	PASS
168.190	28.70	--	--	--	46.0	--	111.3	Horizontal	PASS

802.11b LOW CHANNEL 1GHz to 6GHz, ANT V



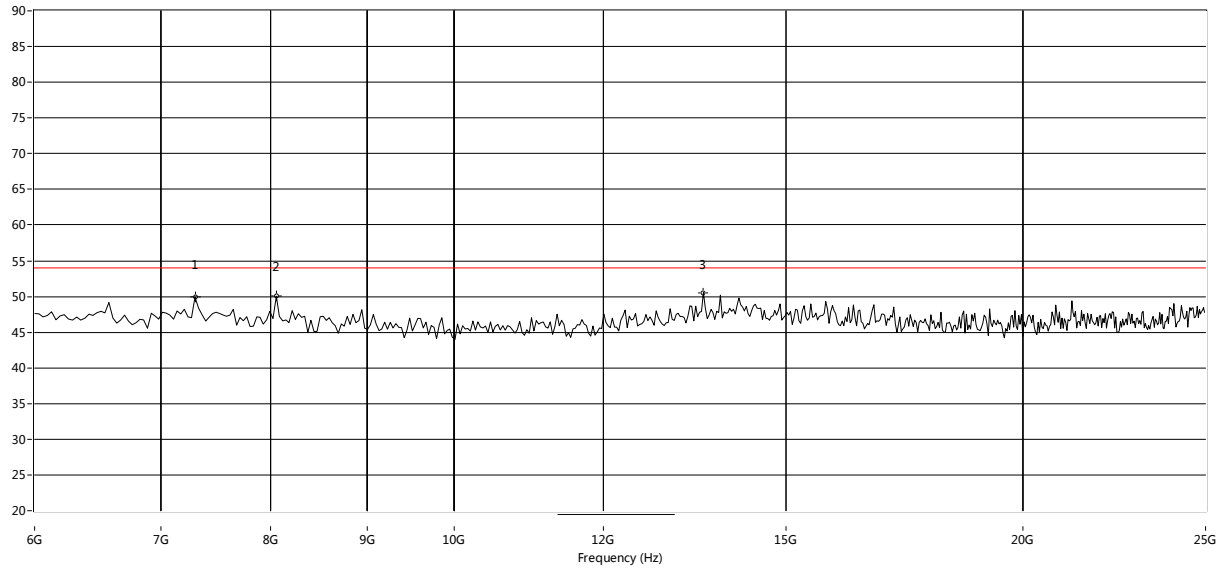
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
2331.167	49.22	--	--	74.0	--	54.0	242.7	Vertical	N/A
2412.147	98.64	--	--	74.0	--	54.0	309.3	Vertical	PASS
4984.754	47.87	--	--	74.0	--	54.0	167.4	Vertical	PASS

802.11b LOW CHANNEL 1GHz to 6GHz, ANT H



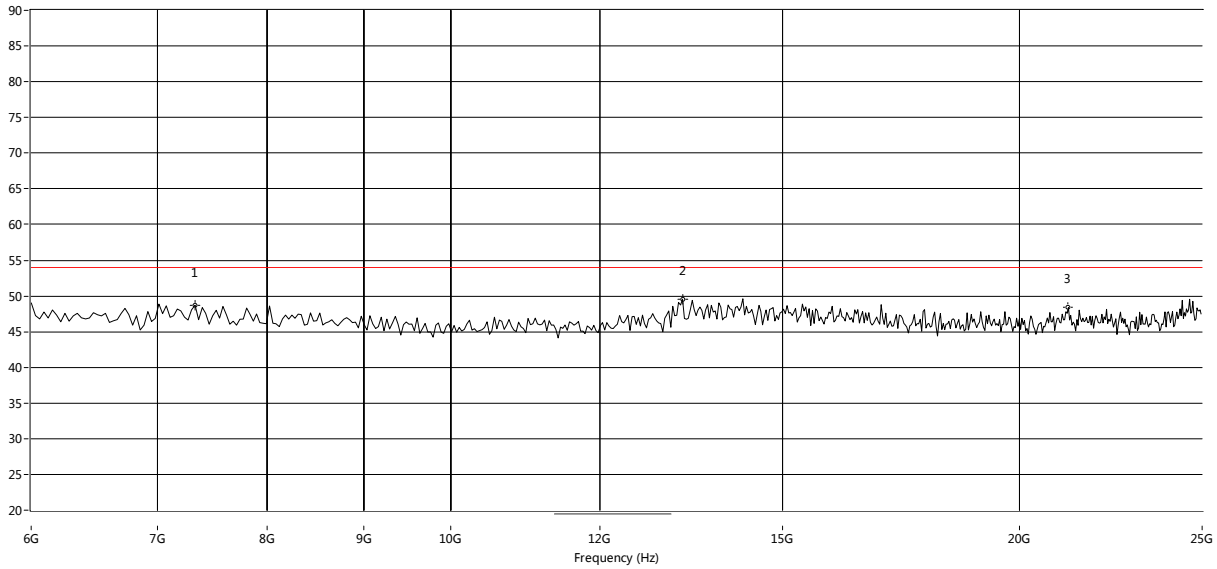
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
2422.644	93.73	--	--	74.0	--	54.0	298.0	Horizontal	N/A
2807.548	45.82	--	--	74.0	--	54.0	179.1	Horizontal	PASS
4909.773	47.61	--	--	74.0	--	54.0	303.3	Horizontal	PASS

802.11b LOW CHANNEL 6GHz to 25GHz, ANT V



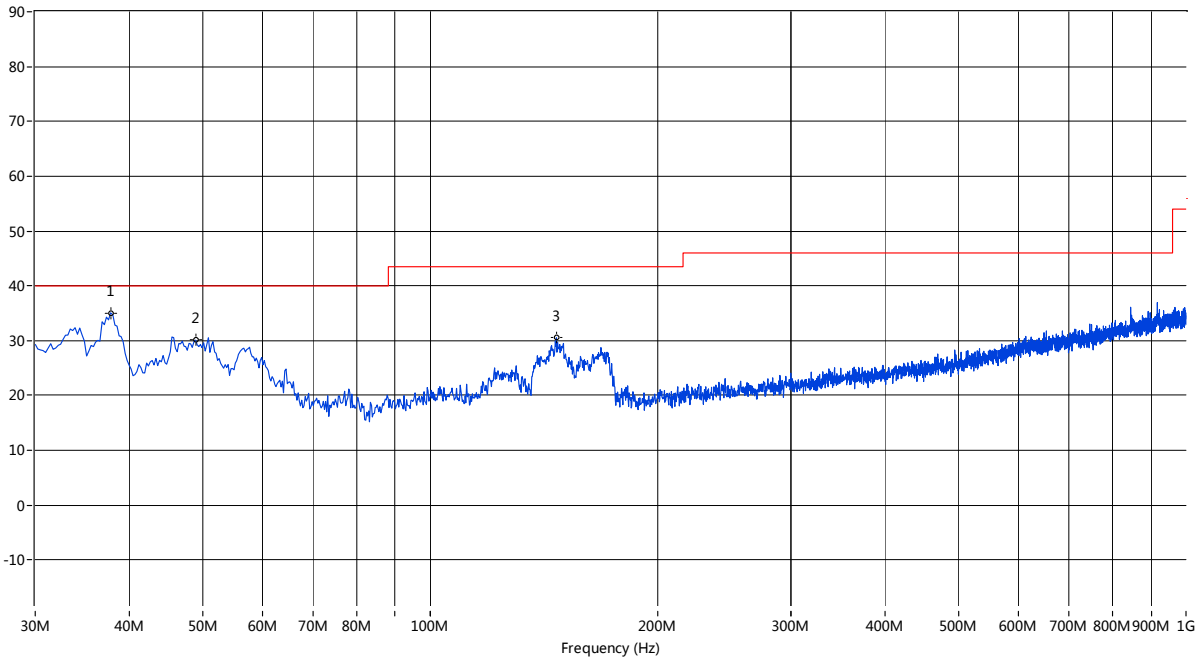
Fre. (MHz)	Peak	Limit(AV)	Margin	Degree	Antenna	Verdict
7296.173	49.93	54.0	4.1	0.0	Vertical	PASS
8086.287	46.29	54.0	7.7	0.0	Vertical	PASS
13271.215	49.39	54.0	4.6	0.0	Vertical	PASS

802.11b LOW CHANNEL 6GHz to 25GHz, ANT H



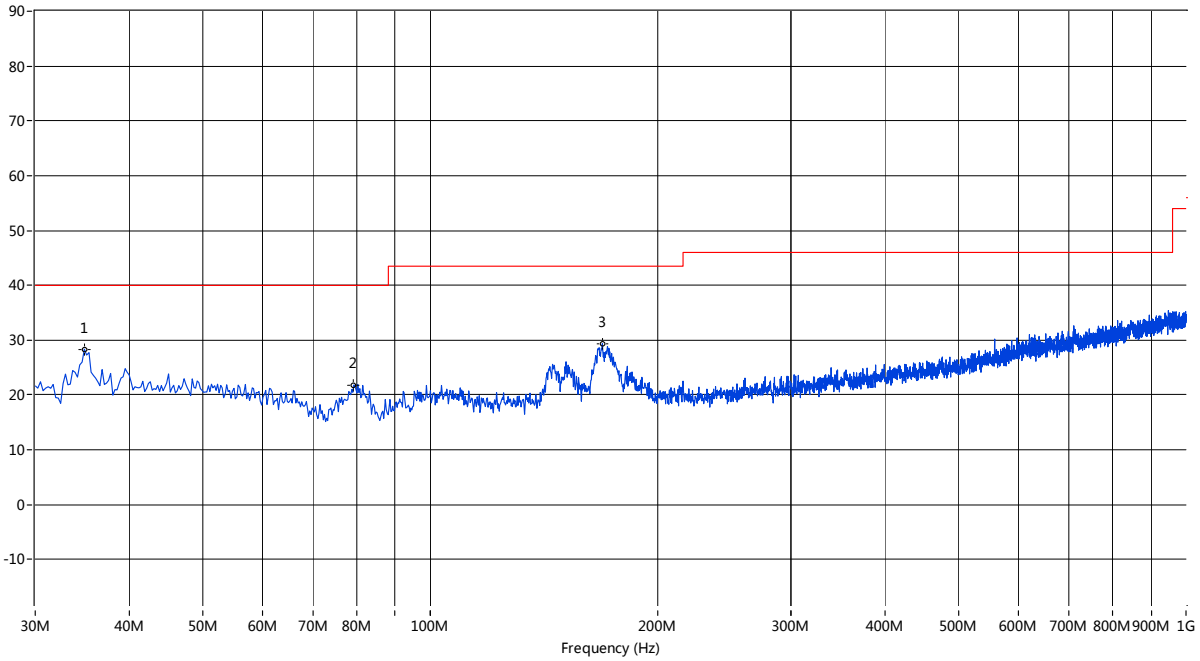
Fre. (MHz)	Peak	Limit(AV)	Margin	Degree	Antenna	Verdict
7327.787	48.70	54.0	5.3	0.0	Horizontal	PASS
13271.215	49.56	54.0	4.4	0.0	Horizontal	PASS
21237.937	48.41	54.0	5.6	0.0	Horizontal	PASS

802.11b MID CHANNEL 30MHz to 1GHz, ANT V



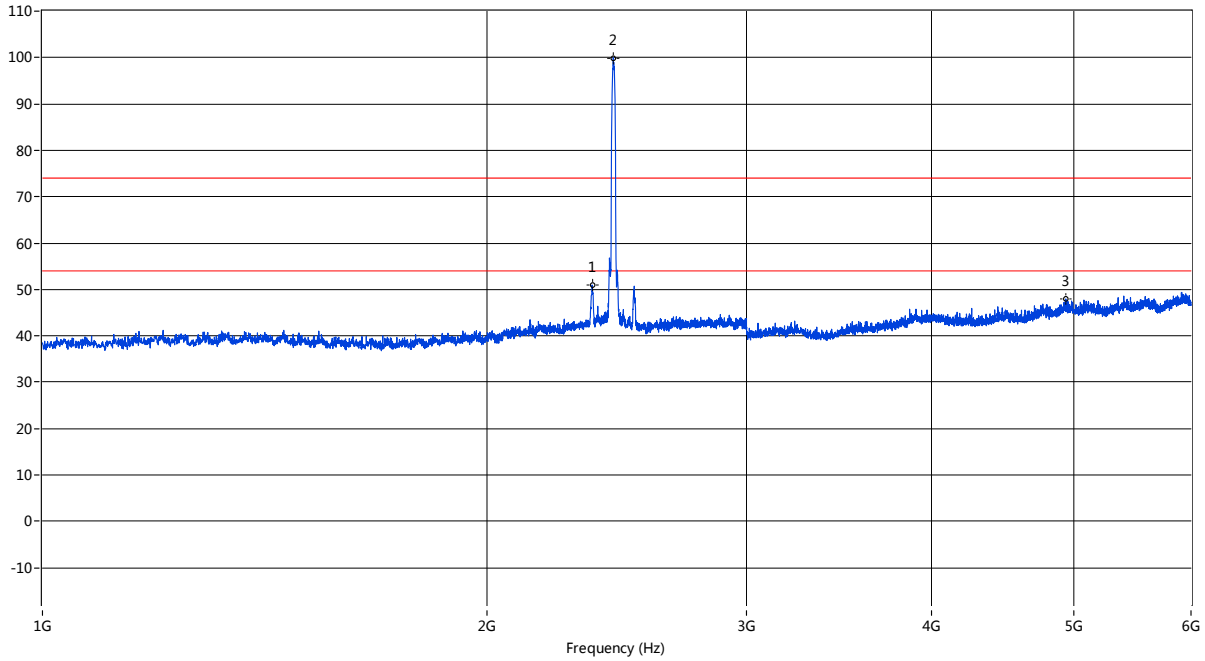
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
37.758	35.08	--	--	--	40.0	--	98.7	Vertical	PASS
48.910	30.10	--	--	--	40.0	--	325.1	Vertical	PASS
146.856	30.52	--	--	--	43.5	--	352.9	Vertical	PASS

802.11b MID CHANNEL 30MHz to 1GHz, ANT H



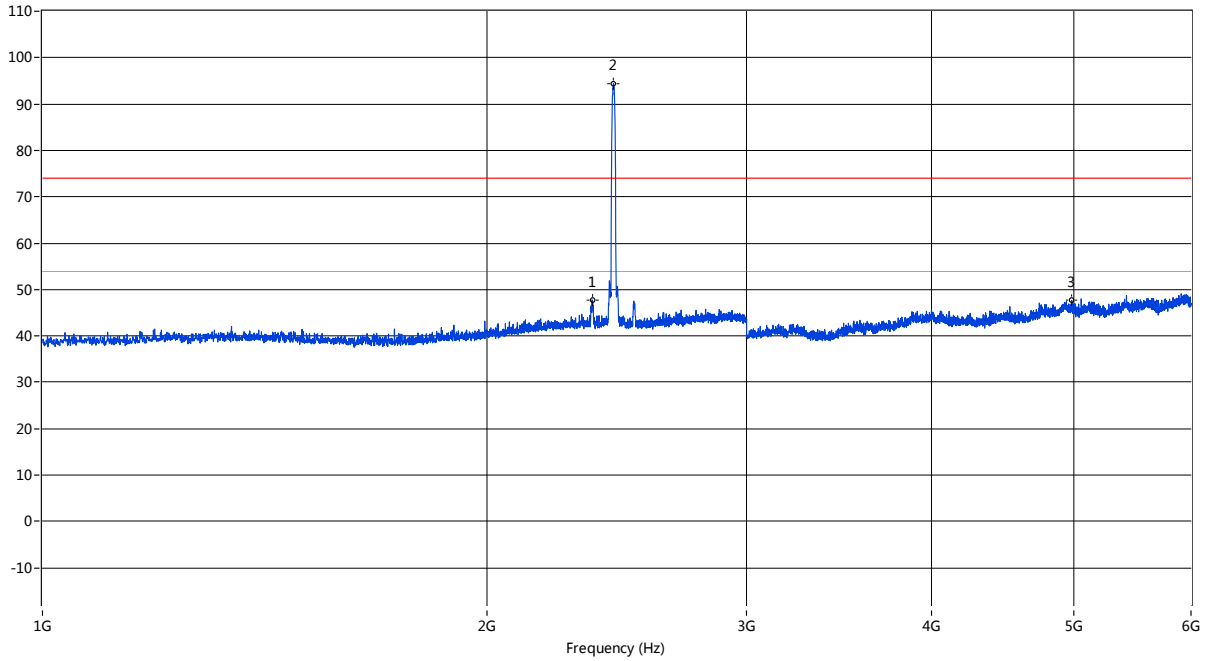
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
34.849	28.36	--	--	--	40.0	--	-0.0	Horizontal	PASS
79.215	21.81	--	--	--	40.0	--	359.6	Horizontal	PASS
168.918	29.37	--	--	--	43.5	--	62.1	Horizontal	PASS

802.11b MID CHANNEL 1GHz to 6GHz, ANT V



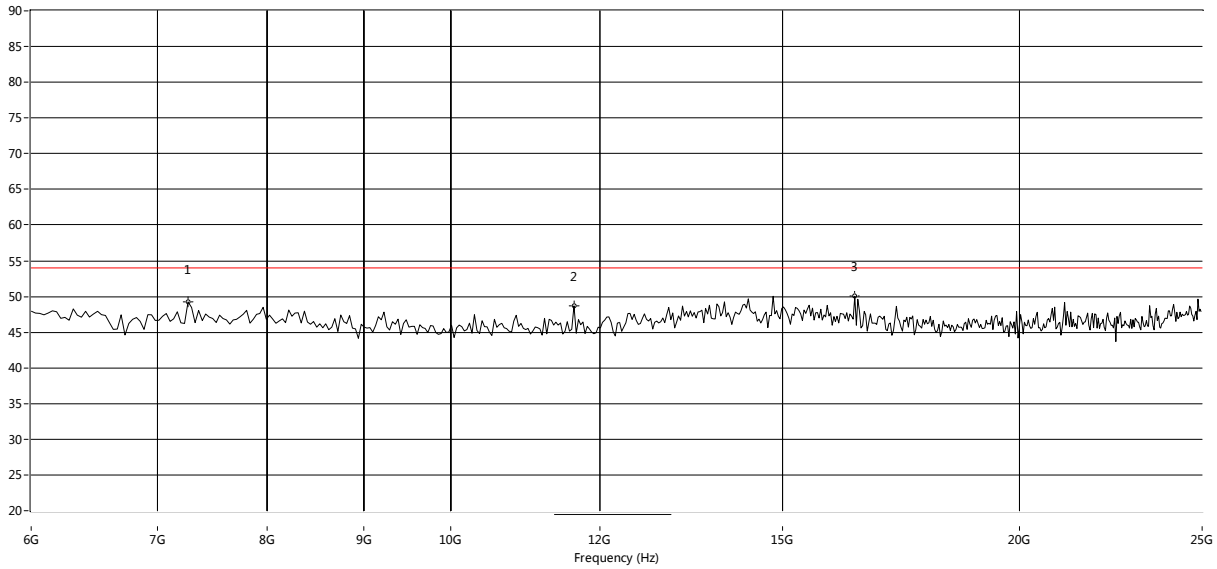
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
2357.161	50.96	--	--	74.0	--	54.0	7.1	Vertical	N/A
2436.141	99.95	--	--	74.0	--	54.0	312.2	Vertical	PASS
4935.266	47.94	--	--	74.0	--	54.0	91.8	Vertical	PASS

802.11b MID CHANNEL 1GHz to 6GHz, ANT H



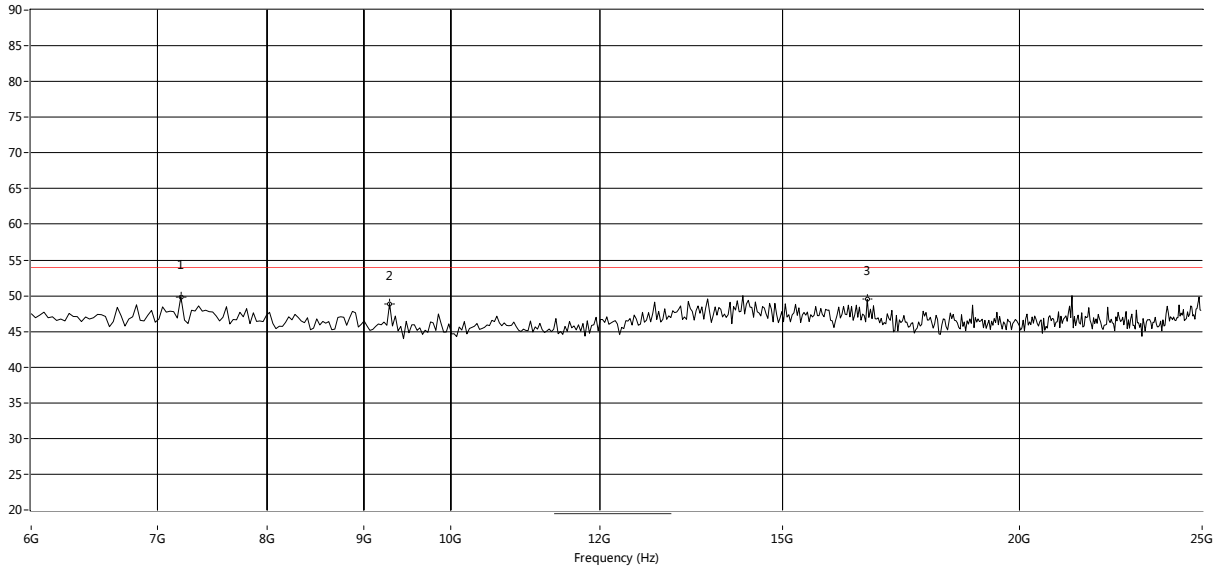
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
2357.161	47.79	--	--	74.0	--	54.0	165.4	Horizontal	N/A
2436.141	94.39	--	--	74.0	--	54.0	305.9	Horizontal	PASS
4981.005	47.64	--	--	74.0	--	54.0	7.2	Horizontal	PASS

802.11b MID CHANNEL 6GHz to 25GHz, ANT V



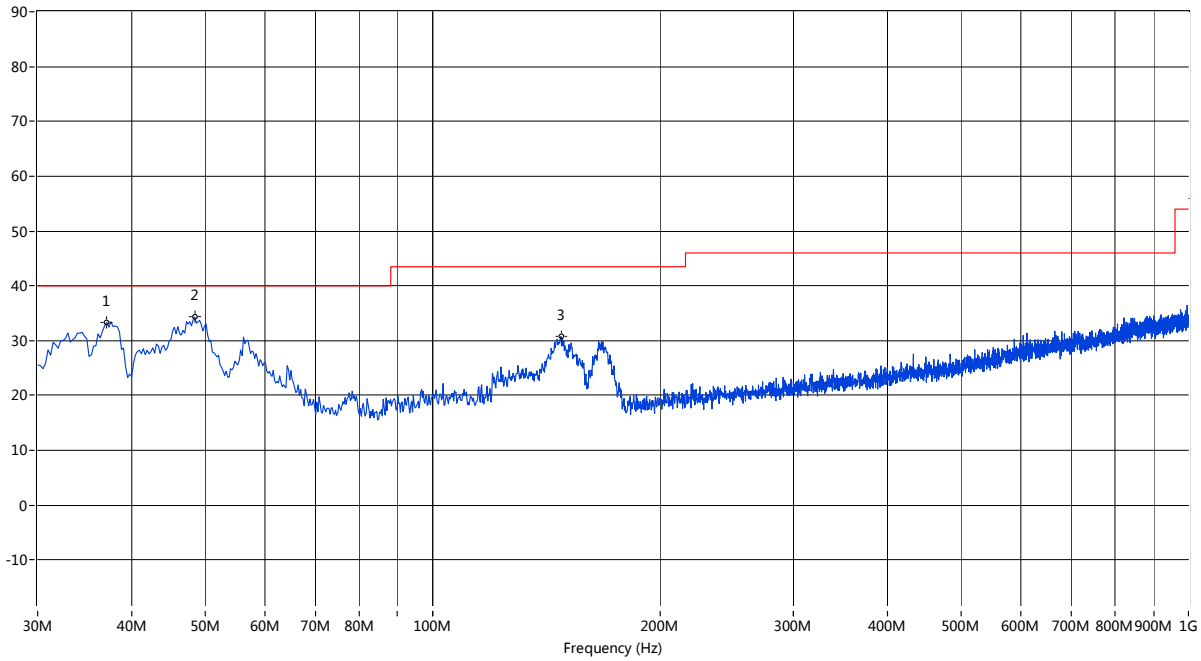
Fre. (MHz)	Peak	Limit(AV)	Margin	Degree	Antenna	Verdict
7264.559	49.23	54.0	4.8	0.0	Vertical	PASS
11236.938	47.36	54.0	6.6	0.0	Vertical	PASS
16369.740	47.88	54.0	6.1	0.0	Vertical	PASS

802.11b MID CHANNEL 6GHz to 25GHz, ANT H



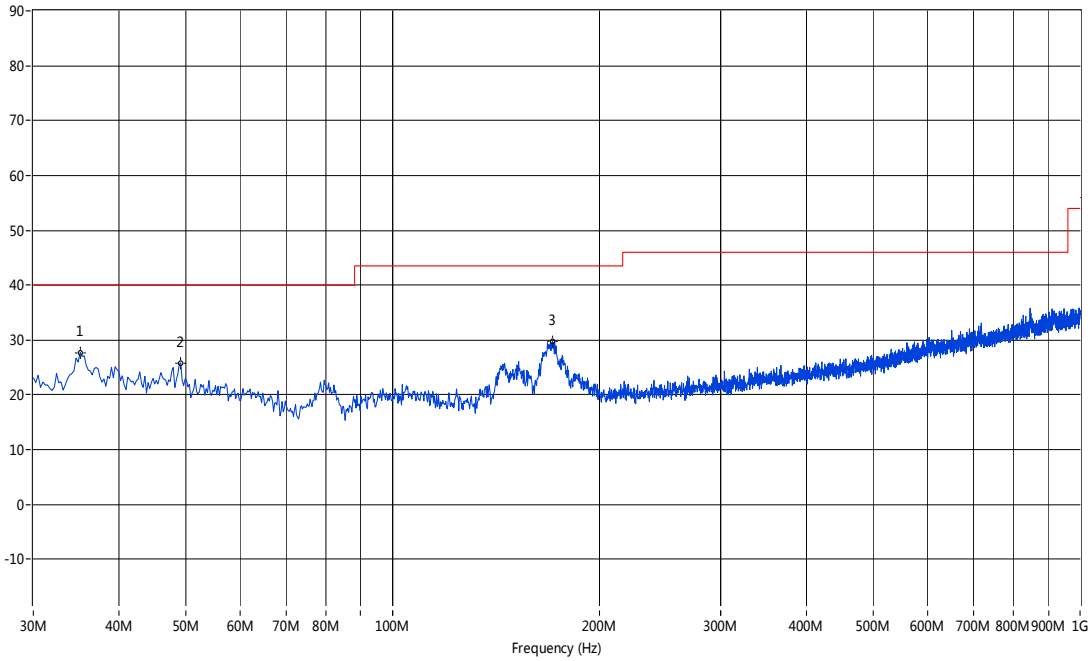
Fre. (MHz)	Peak	Limit(AV)	Margin	Degree	Antenna	Verdict
7201.331	49.87	54.0	4.1	0.0	Horizontal	PASS
9287.854	48.89	54.0	5.1	0.0	Horizontal	PASS
16369.384	47.32	54.0	6.7	0.0	Horizontal	PASS

802.11b HIGH CHANNEL 30MHz to 1GHz, ANT V



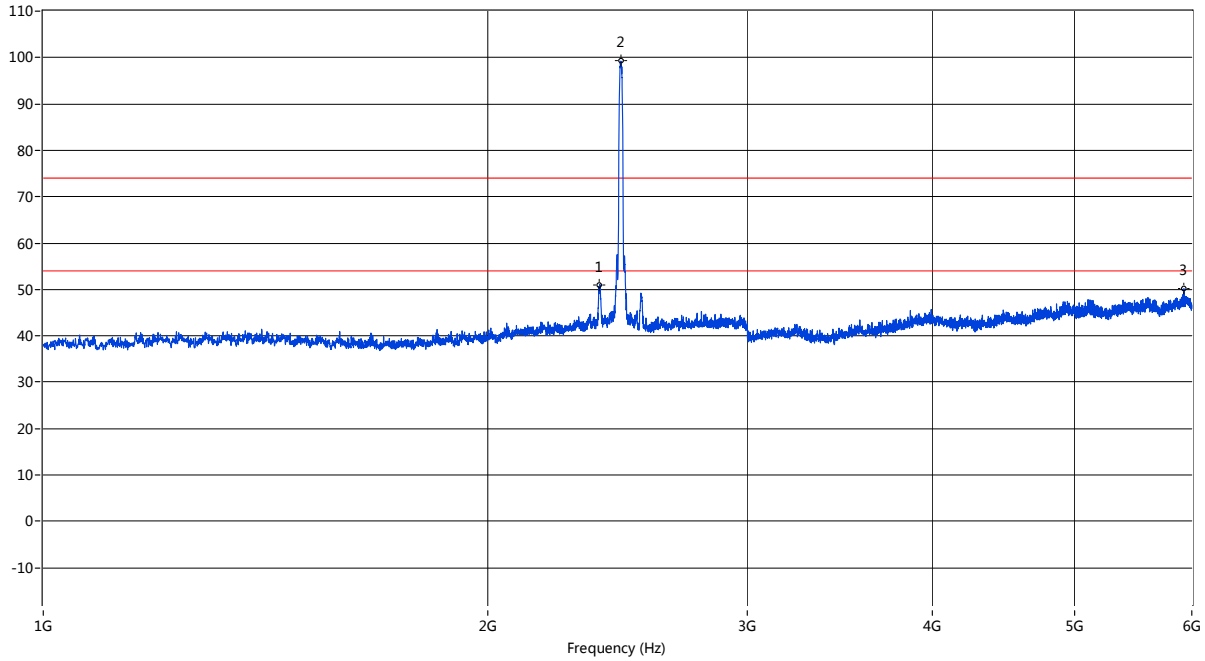
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
37.031	33.29	--	--	--	40.0	--	41.6	Vertical	PASS
48.425	34.31	--	--	--	40.0	--	2.6	Vertical	PASS
147.826	30.76	--	--	--	43.5	--	126.8	Vertical	PASS

802.11b HIGH CHANNEL 30MHz to 1GHz, ANT H



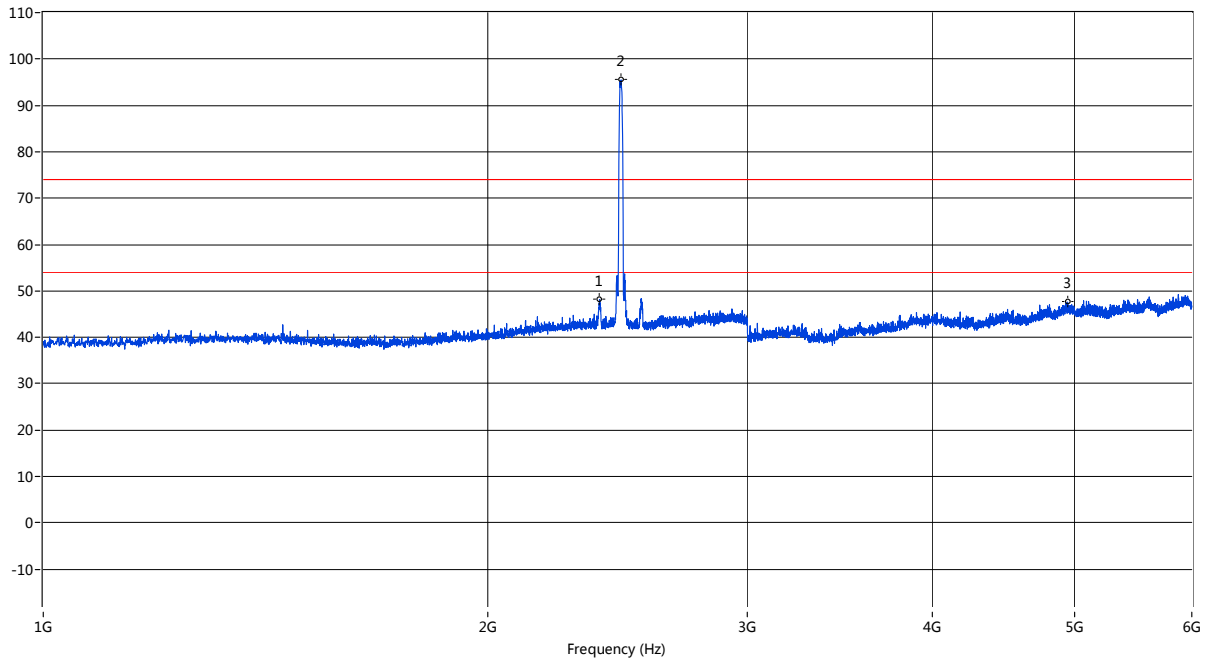
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
35.091	27.75	--	--	--	40.0	--	188.3	Horizontal	PASS
49.153	25.84	--	--	--	40.0	--	185.9	Horizontal	PASS
170.857	29.73	--	--	--	43.5	--	248.6	Horizontal	PASS

802.11b HIGH CHANNEL 1GHz to 6GHz, ANT V



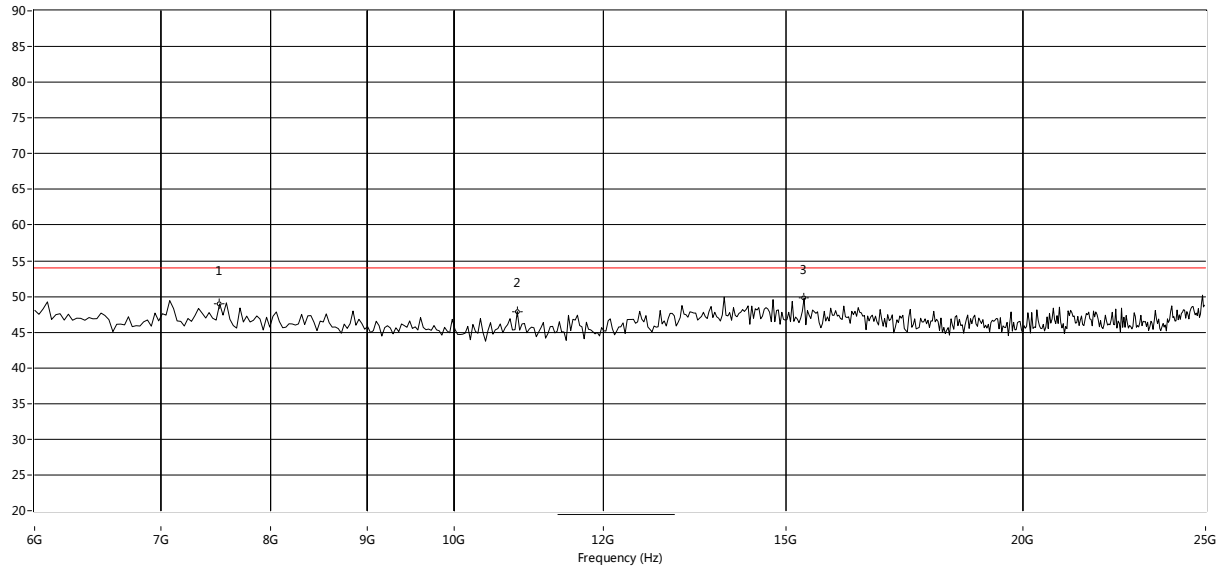
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
2382.154	50.94	--	--	74.0	--	54.0	7.1	Vertical	N/A
2461.135	99.22	--	--	74.0	--	54.0	308.9	Vertical	PASS
5926.518	50.13	--	--	74.0	--	54.0	27.3	Vertical	PASS

802.11b HIGH CHANNEL 1GHz to 6GHz, ANT H



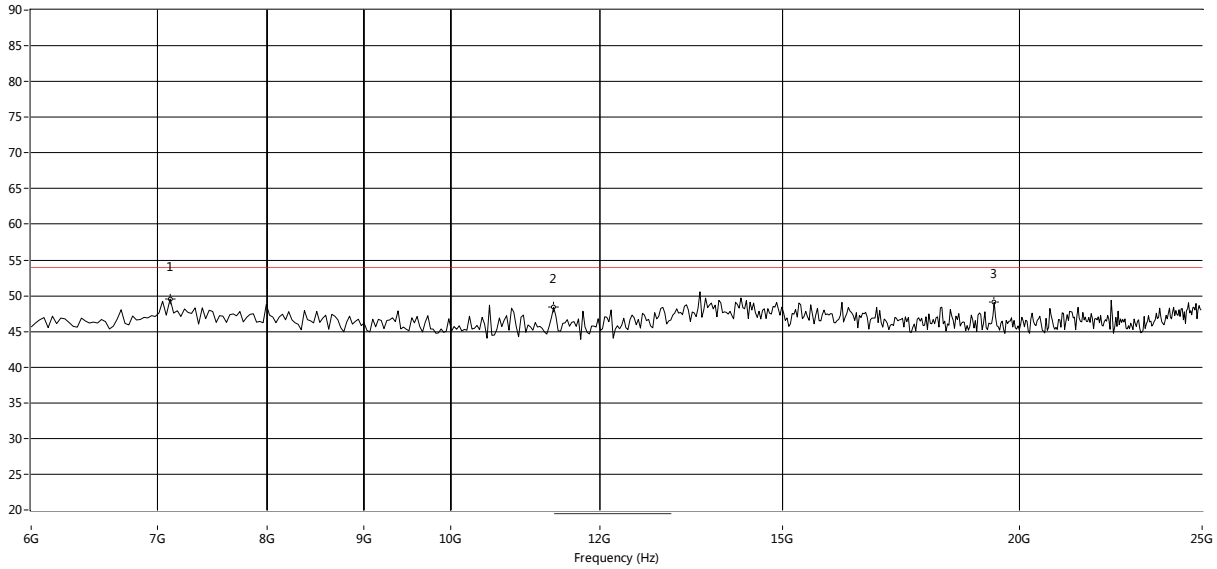
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
2382.154	48.12	--	--	74.0	--	54.0	157.9	Horizontal	N/A
2463.134	95.50	--	--	74.0	--	54.0	304.6	Horizontal	PASS
4941.265	47.61	--	--	74.0	--	54.0	347.1	Horizontal	PASS

802.11b HIGH CHANNEL 6GHz to 25GHz, ANT V



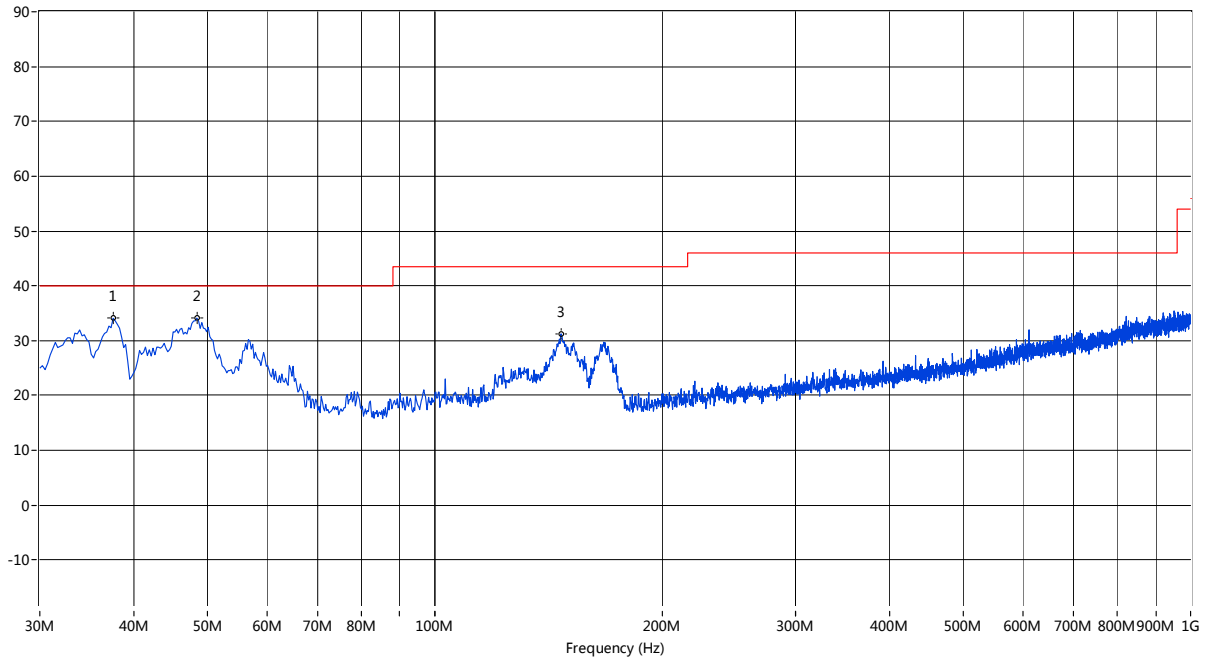
Fre. (MHz)	Peak	Limit(AV)	Margin	Degree	Antenna	Verdict
7517.471	48.94	54.0	5.1	0.0	Vertical	PASS
10805.324	47.88	54.0	6.1	0.0	Vertical	PASS
15326.123	49.76	54.0	4.2	0.0	Vertical	PASS

802.11b HIGH CHANNEL 6GHz to 25GHz, ANT H



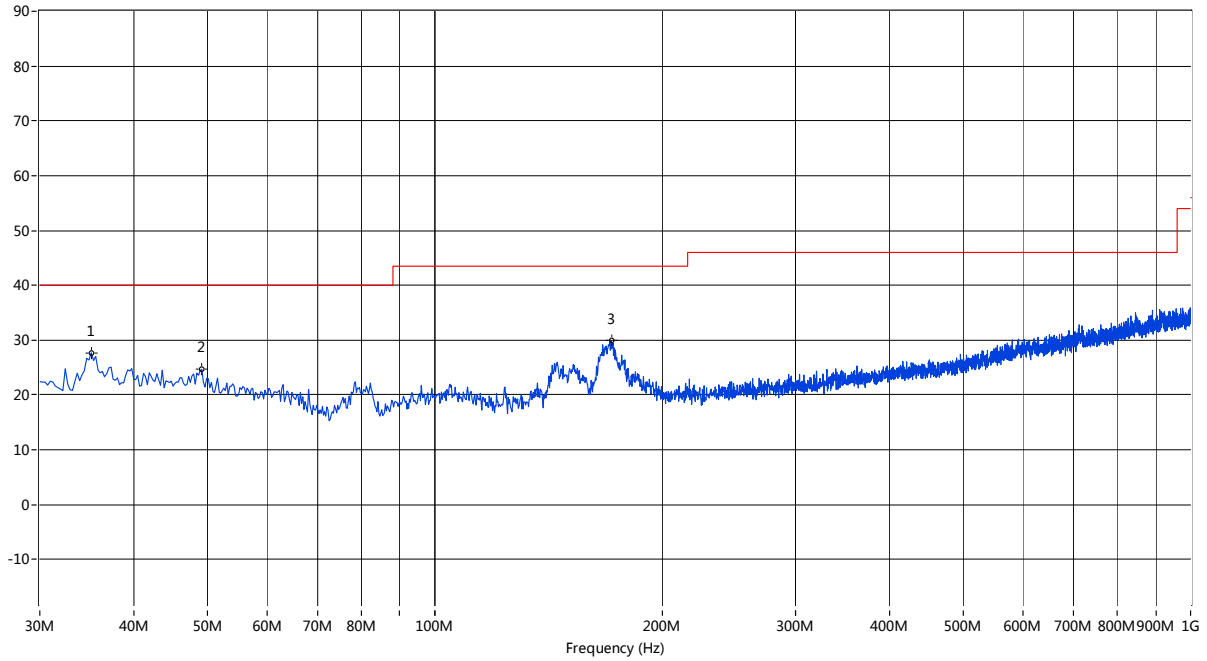
Fre. (MHz)	Peak	Limit(AV)	Margin	Degree	Antenna	Verdict
7106.489	49.55	54.0	4.5	0.0	Horizontal	PASS
11342.762	48.38	54.0	5.6	0.0	Horizontal	PASS
18922.296	46.98	54.0	7.0	0.0	Horizontal	PASS

802.11g LOW CHANNEL 30MHz to 1GHz, ANT V



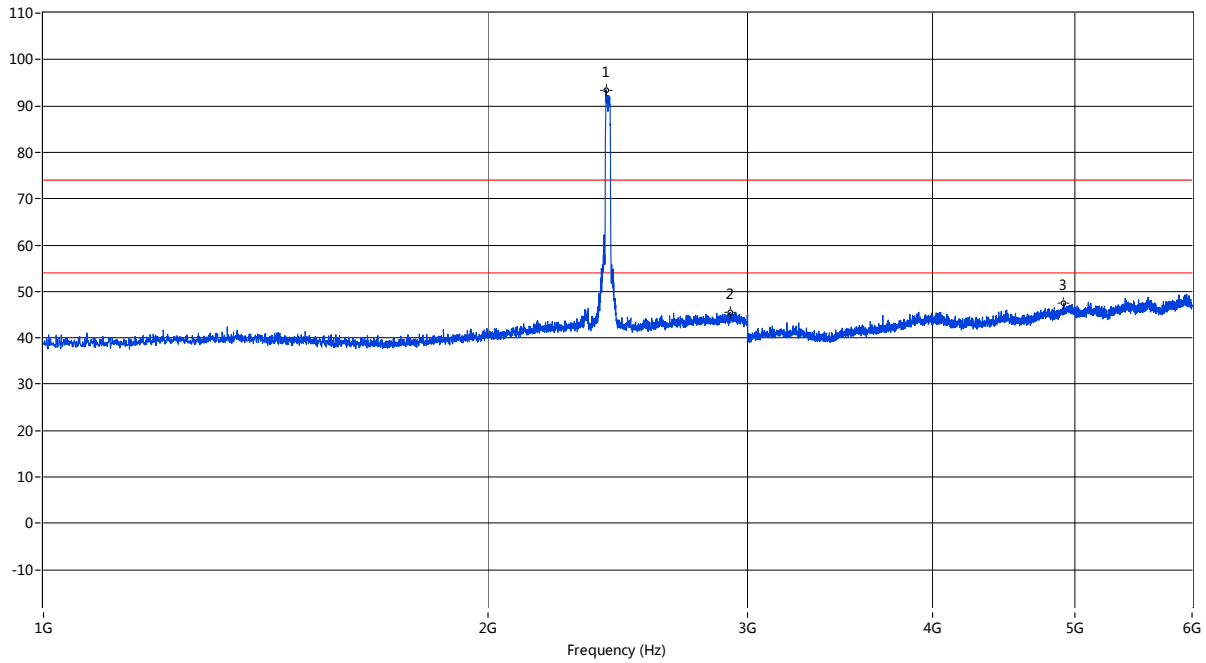
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
37.516	34.09	--	--	--	40.0	--	-0.0	Vertical	PASS
48.425	34.12	--	--	--	40.0	--	2.6	Vertical	PASS
146.856	31.26	--	--	--	43.5	--	321.2	Vertical	PASS

802.11g LOW CHANNEL 30MHz to 1GHz, ANT H



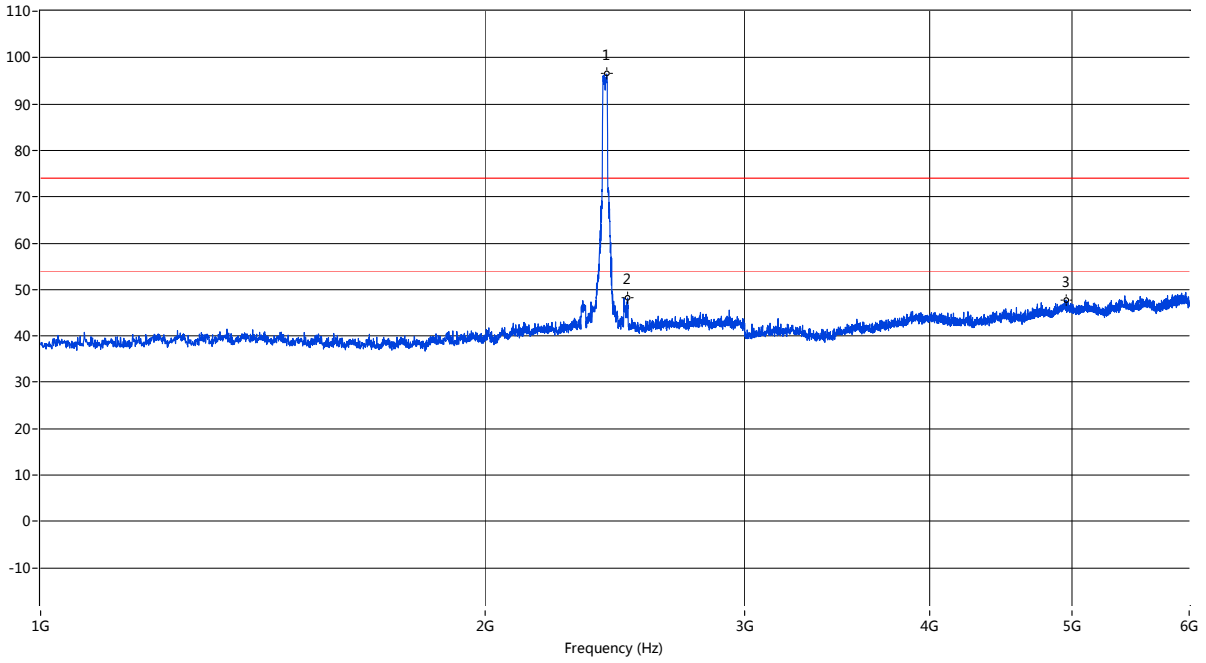
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
35.091	27.69	--	--	--	40.0	--	188.3	Horizontal	PASS
49.153	24.66	--	--	--	40.0	--	185.9	Horizontal	PASS
171.100	29.87	--	--	--	43.5	--	152.9	Horizontal	PASS

802.11g LOW CHANNEL 1GHz to 6GHz, ANT V



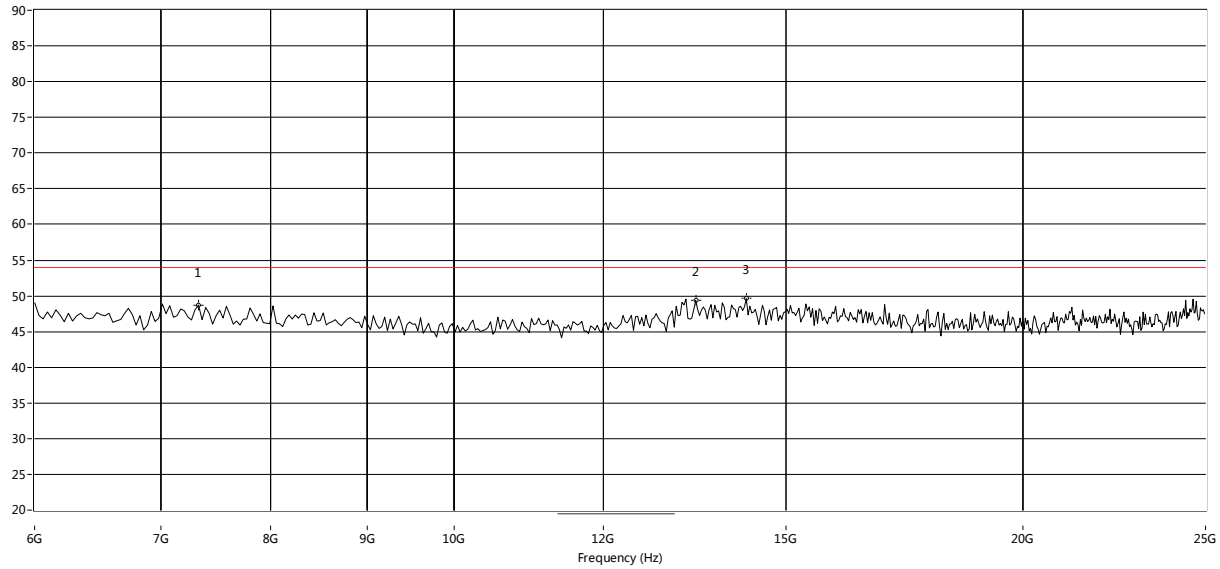
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
2404.649	93.50	--	--	74.0	--	54.0	179.7	Vertical	N/A
2918.520	45.50	--	--	74.0	--	54.0	98.2	Vertical	PASS
4910.522	47.44	--	--	74.0	--	54.0	126.4	Vertical	PASS

802.11g LOW CHANNEL 1GHz to 6GHz, ANT H



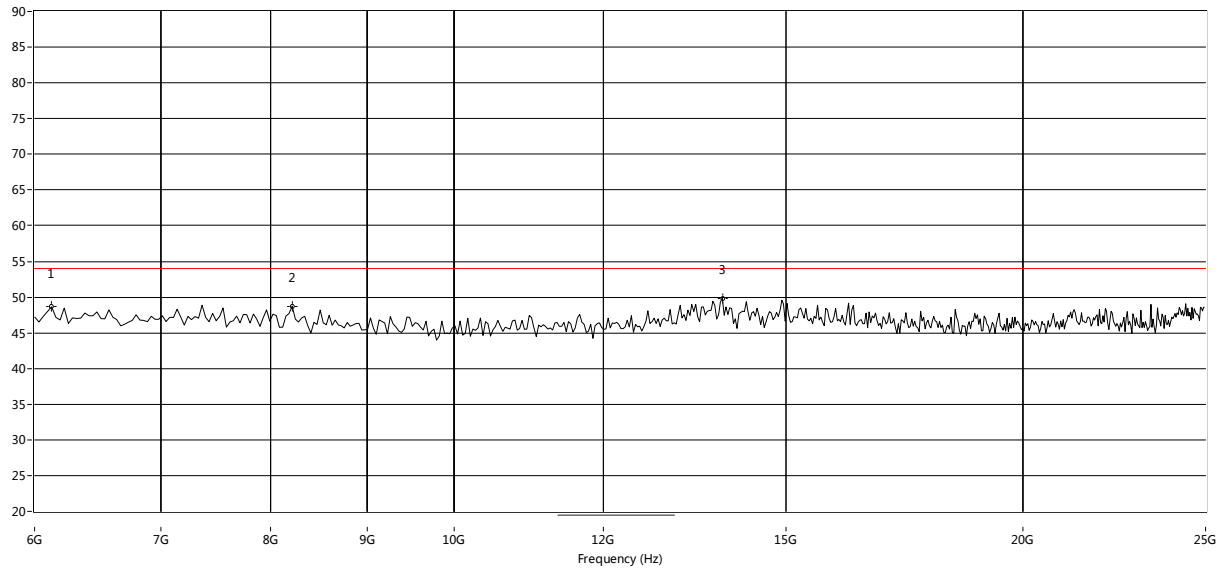
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
2418.145	96.49	--	--	74.0	--	54.0	302.3	Horizontal	N/A
2498.625	48.17	--	--	74.0	--	54.0	314.5	Horizontal	PASS
4954.761	47.69	--	--	74.0	--	54.0	350.4	Horizontal	PASS

802.11g LOW CHANNEL 6GHz to 25GHz, ANT V



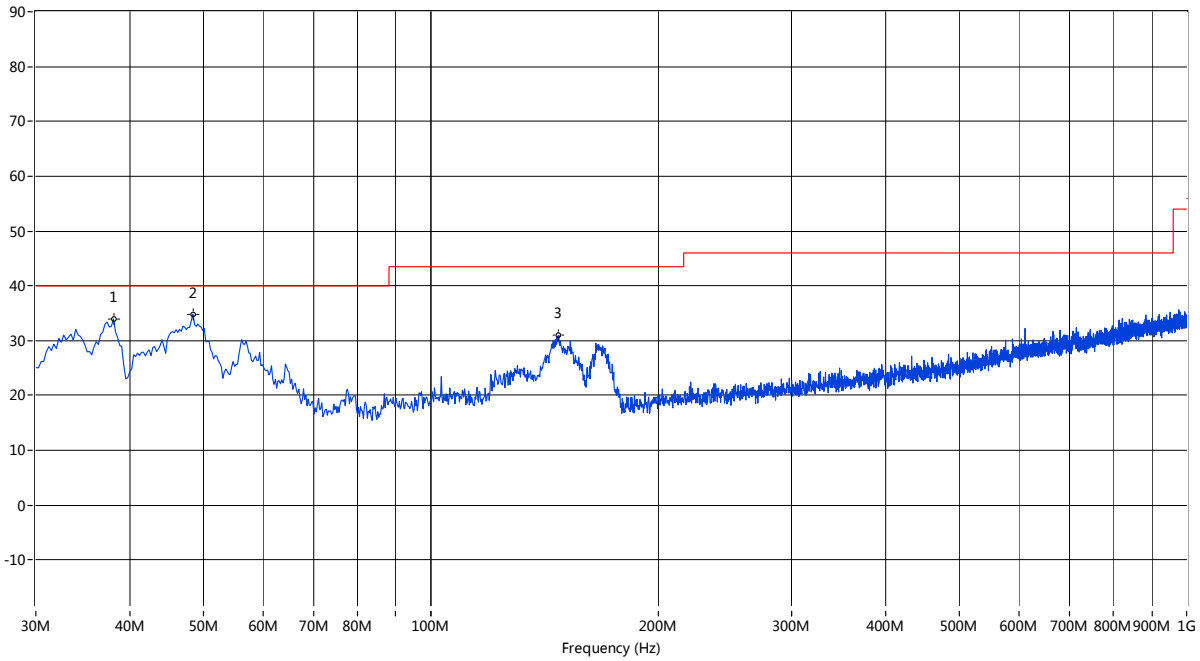
Fre. (MHz)	Peak	Limit(AV)	Margin	Degree	Antenna	Verdict
7327.787	48.70	54.0	5.3	0.0	Vertical	PASS
13429.285	49.38	54.0	4.6	0.0	Vertical	PASS
14282.862	49.61	54.0	4.4	0.0	Vertical	PASS

802.11g LOW CHANNEL 6GHz to 25GHz, ANT H



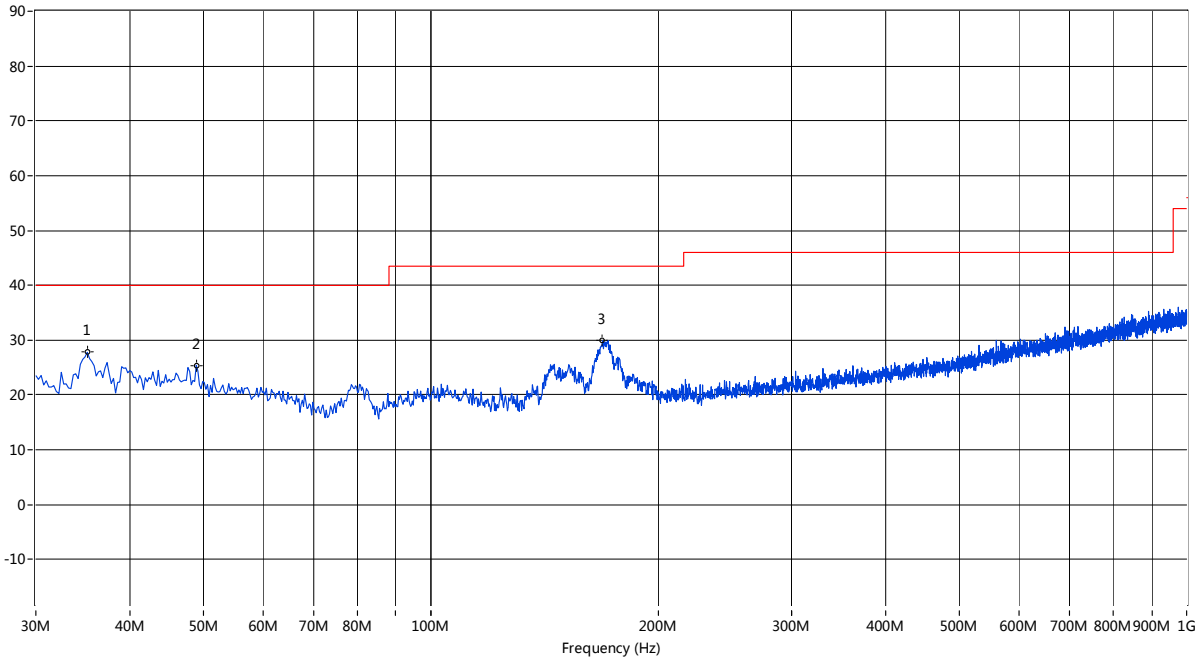
Fre. (MHz)	Peak	Limit(AV)	Margin	Degree	Antenna	Verdict
6126.456	49.26	54.0	5.4	0.0	Horizontal	PASS
8212.978	48.73	54.0	5.3	0.0	Horizontal	PASS
13871.880	49.81	54.0	4.2	0.0	Horizontal	PASS

802.11g MID CHANNEL 30MHz to 1GHz, ANT V



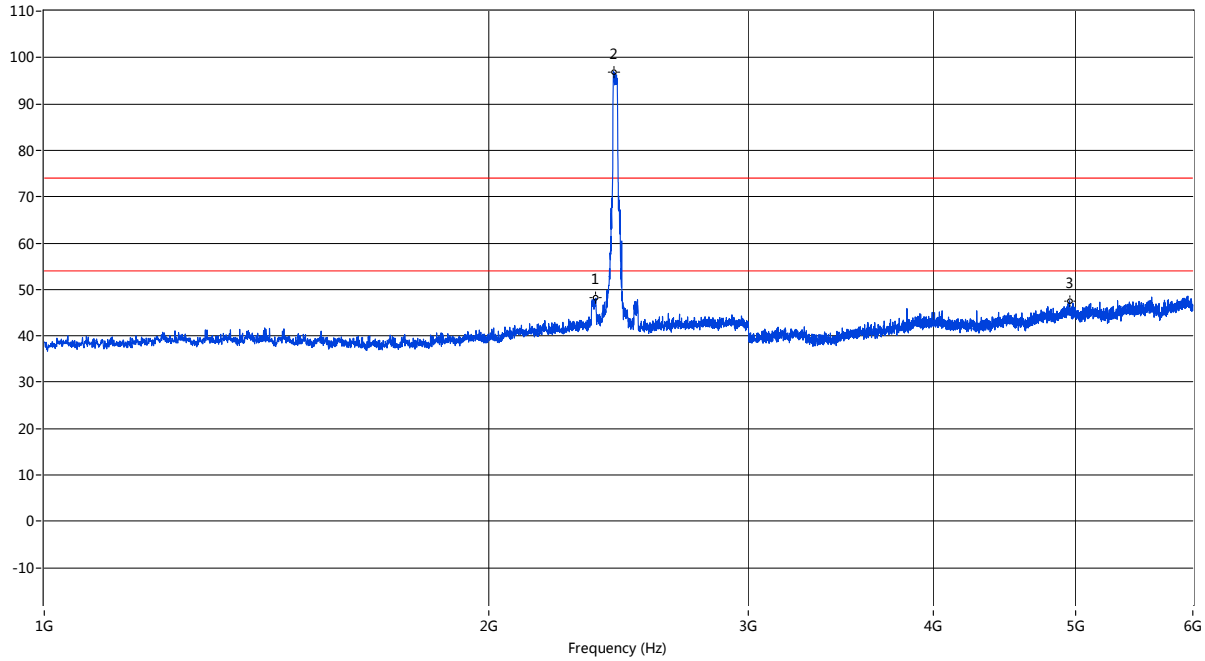
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
38.000	33.96	--	--	--	40.0	--	55.7	Vertical	PASS
48.425	34.82	--	--	--	40.0	--	2.6	Vertical	PASS
147.583	30.96	--	--	--	43.5	--	126.8	Vertical	PASS

802.11g MID CHANNEL 30MHz to 1GHz, ANT H



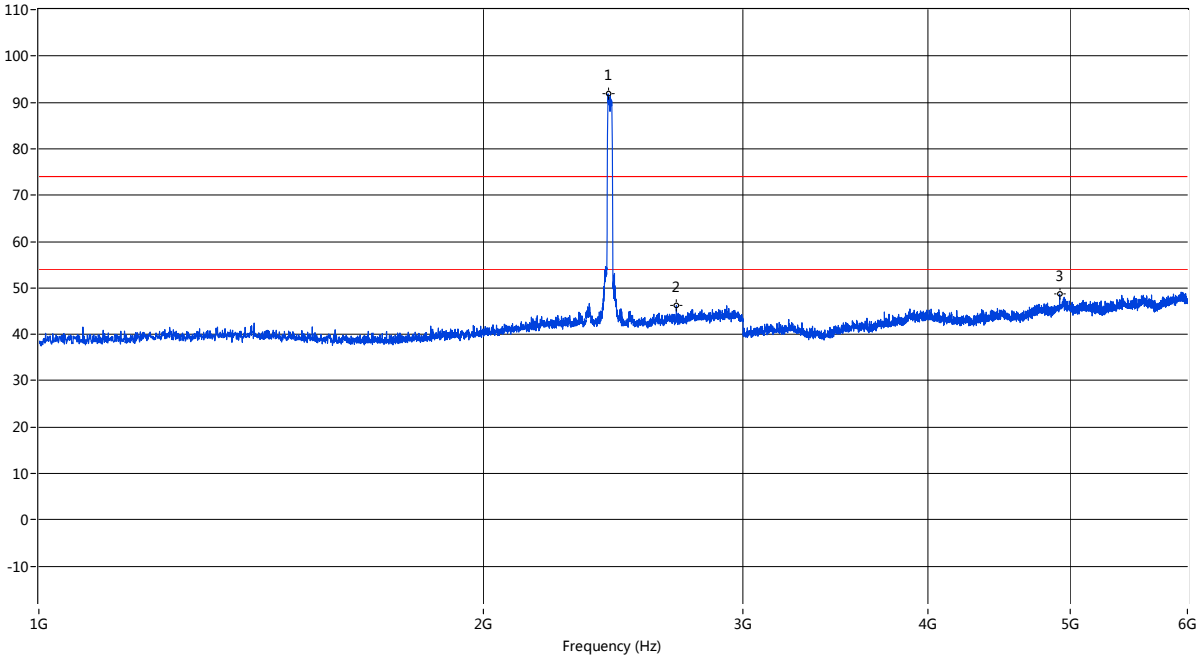
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
35.091	27.78	--	--	--	40.0	--	188.3	Horizontal	PASS
48.910	25.43	--	--	--	40.0	--	-0.0	Horizontal	PASS
168.675	29.87	--	--	--	43.5	--	154.1	Horizontal	PASS

802.11g MID CHANNEL 1GHz to 6GHz, ANT V



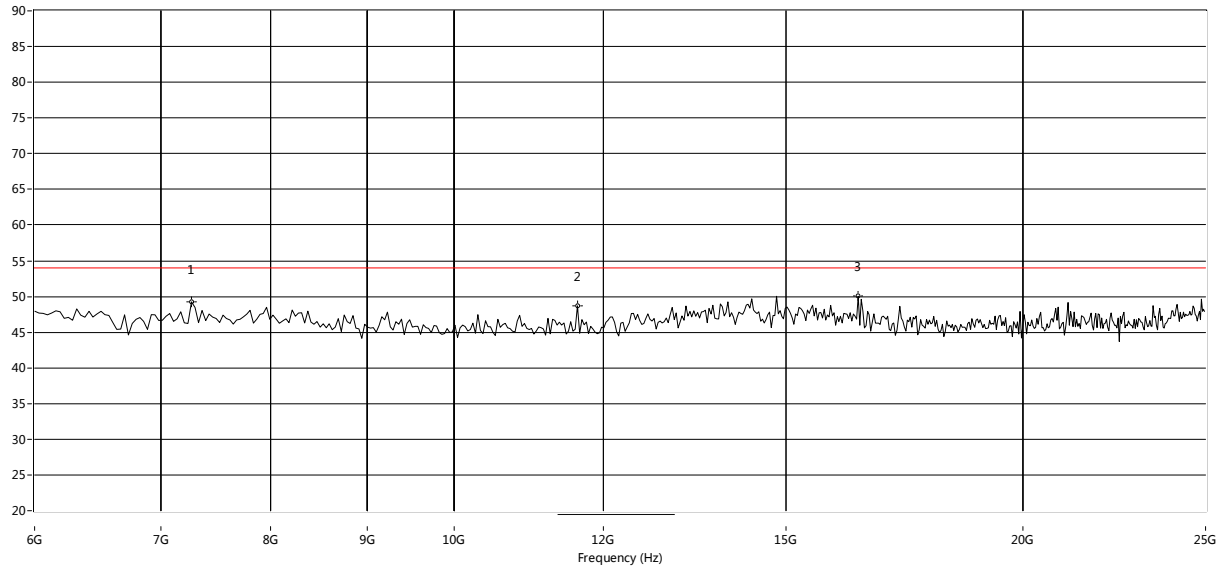
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
2364.159	48.14	--	--	74.0	--	54.0	6.5	Vertical	PASS
2430.142	96.95	--	--	74.0	--	54.0	307.1	Vertical	N/A
4950.262	47.51	--	--	74.0	--	54.0	6.2	Vertical	PASS

802.11g MID CHANNEL 1GHz to 6GHz, ANT H



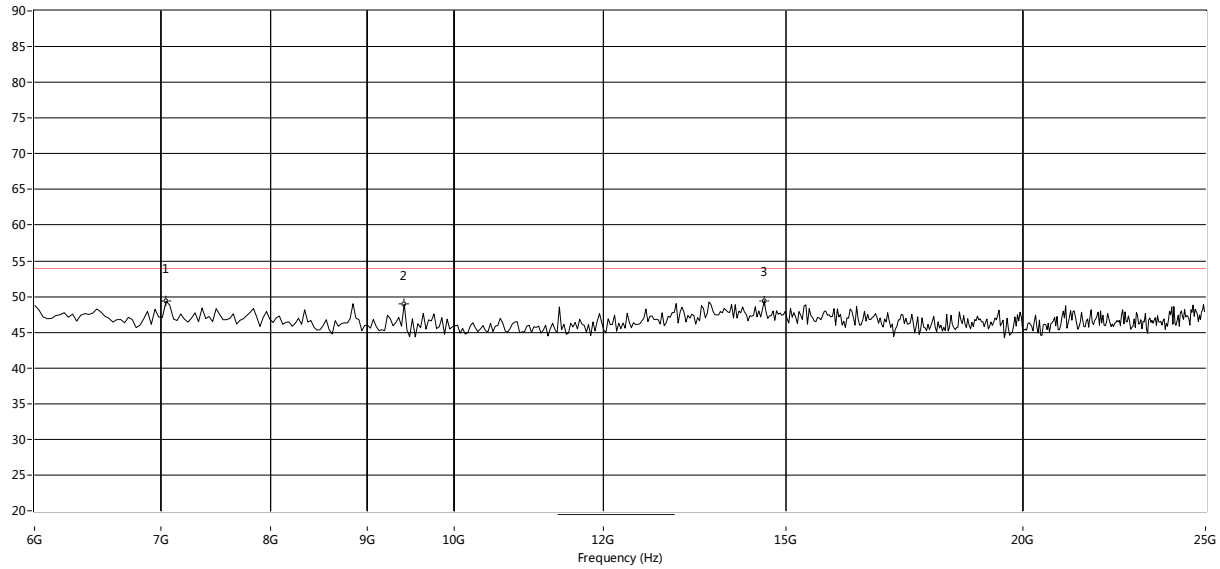
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
2430.142	91.85	--	--	74.0	--	54.0	169.6	Horizontal	N/A
2703.074	46.22	--	--	74.0	--	54.0	264.7	Horizontal	PASS
4915.021	48.66	--	--	74.0	--	54.0	125.0	Horizontal	PASS

802.11g MID CHANNEL 6GHz to 25GHz, ANT V



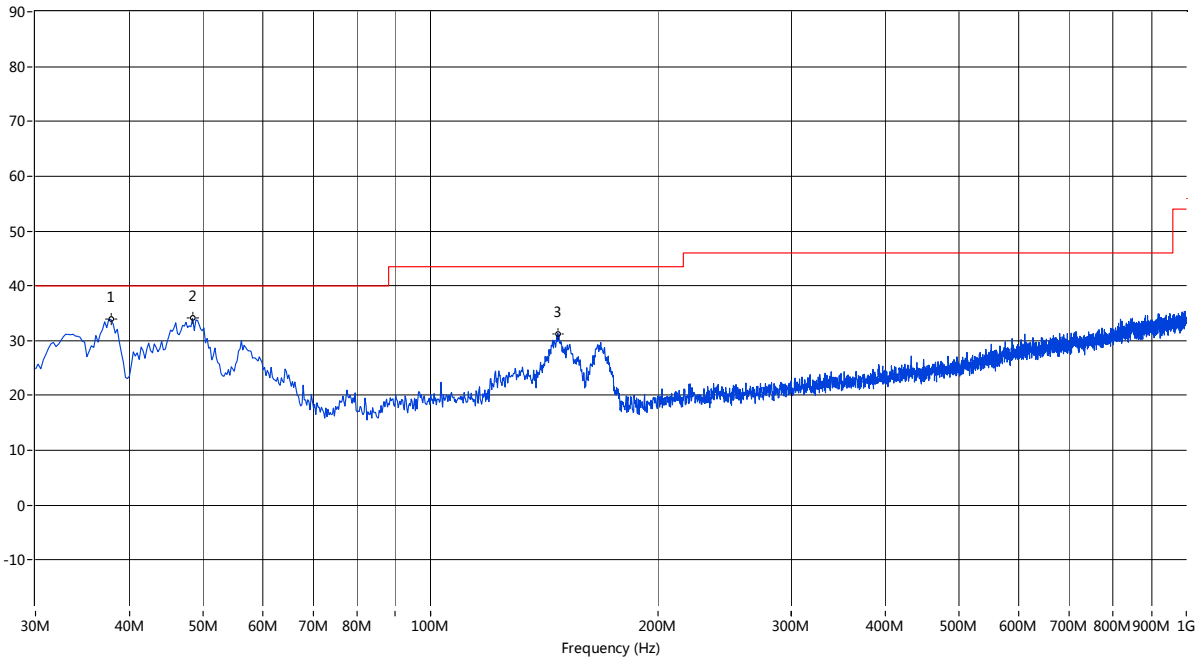
Fre. (MHz)	Peak	Limit(AV)	Margin	Degree	Antenna	Verdict
7264.559	49.23	54.0	4.8	0.0	Vertical	PASS
11529.285	47.23	54.0	6.8	0.0	Vertical	PASS
16182.862	48.80	54.0	5.2	0.0	Vertical	PASS

802.11g MID CHANNEL 6GHz to 25GHz, ANT H



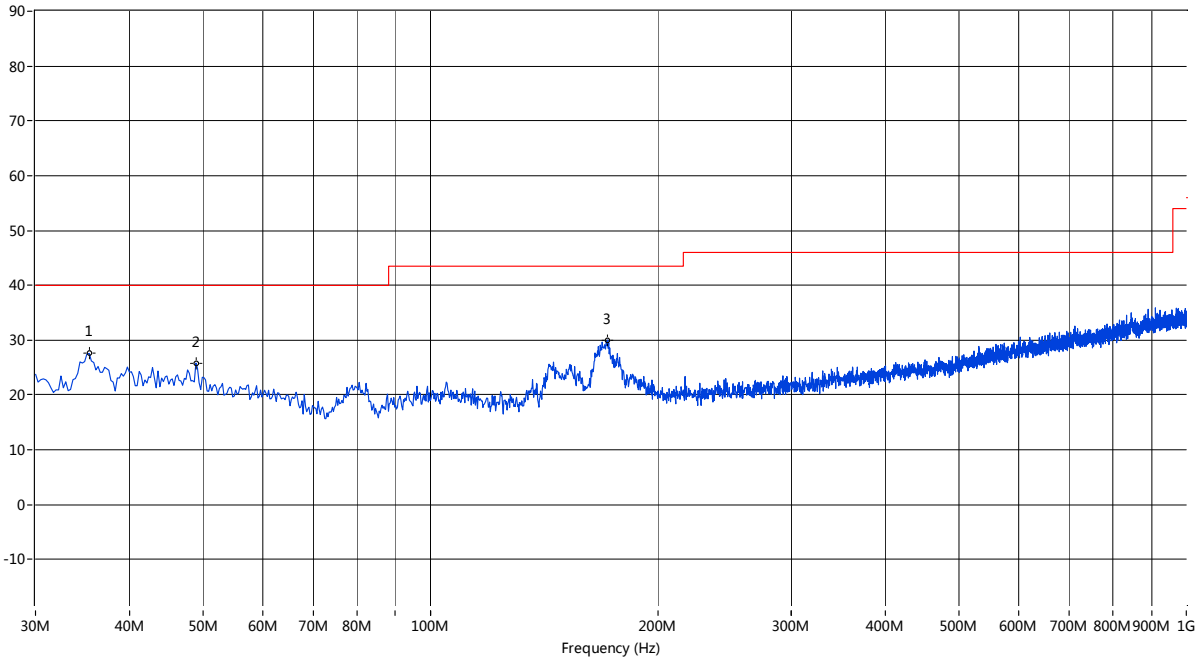
Fre. (MHz)	Peak	Limit(AV)	Margin	Degree	Antenna	Verdict
7043.261	49.36	54.0	4.6	0.0	Horizontal	PASS
9414.309	48.95	54.0	5.0	0.0	Horizontal	PASS
14599.002	49.43	54.0	4.6	0.0	Horizontal	PASS

802.11g HIGH CHANNEL 30MHz to 1GHz, ANT V



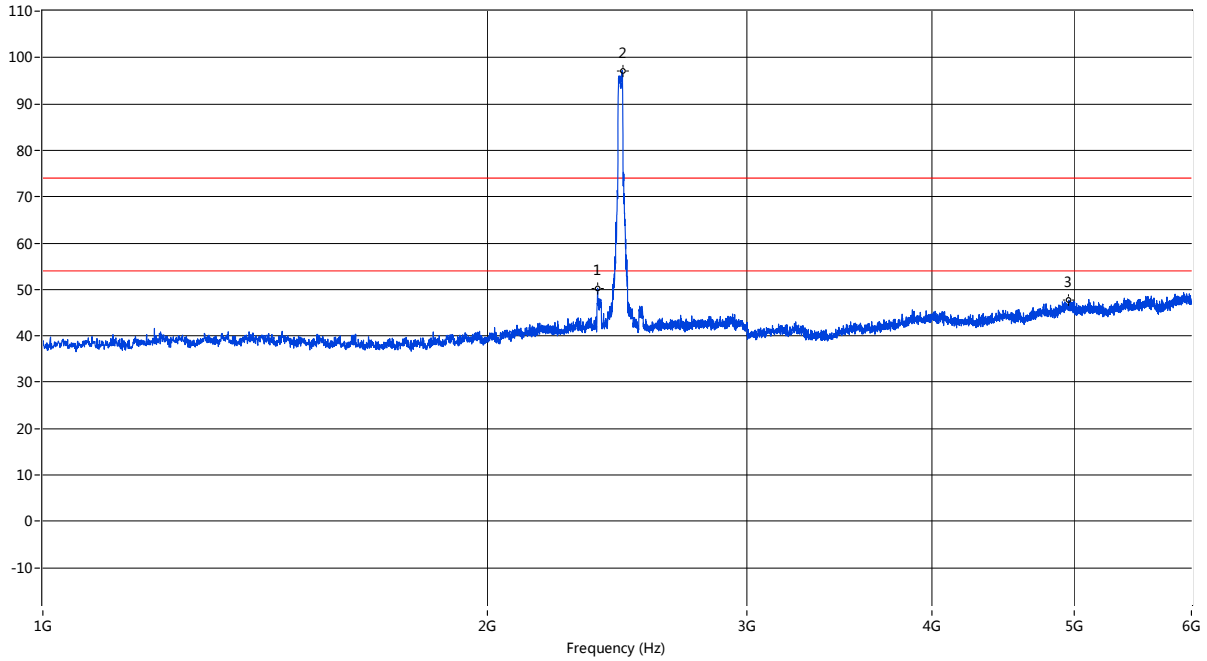
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
37.758	33.86	--	--	--	40.0	--	88.9	Vertical	PASS
48.425	34.06	--	--	--	40.0	--	2.6	Vertical	PASS
147.341	31.30	--	--	--	43.5	--	321.2	Vertical	PASS

802.11g HIGH CHANNEL 30MHz to 1GHz, ANT H



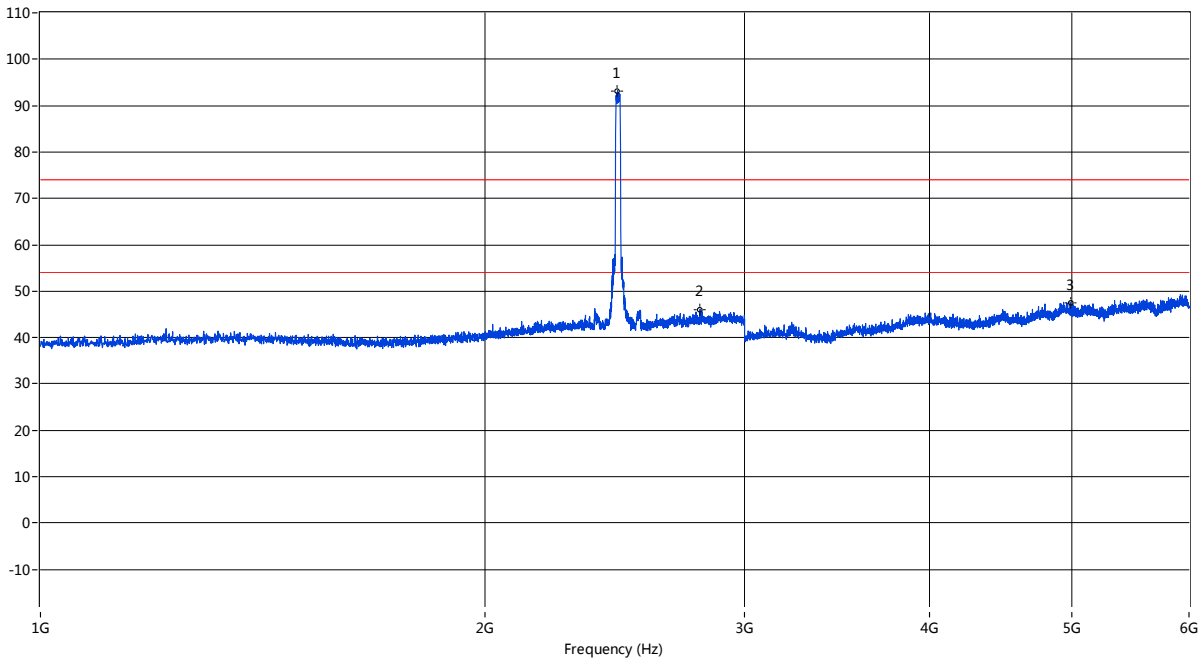
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
35.334	27.58	--	--	--	40.0	--	359.2	Horizontal	PASS
48.910	25.82	--	--	--	40.0	--	-0.0	Horizontal	PASS
171.585	30.02	--	--	--	43.5	--	172.6	Horizontal	PASS

802.11g HIGH CHANNEL 1GHz to 6GHz, ANT V



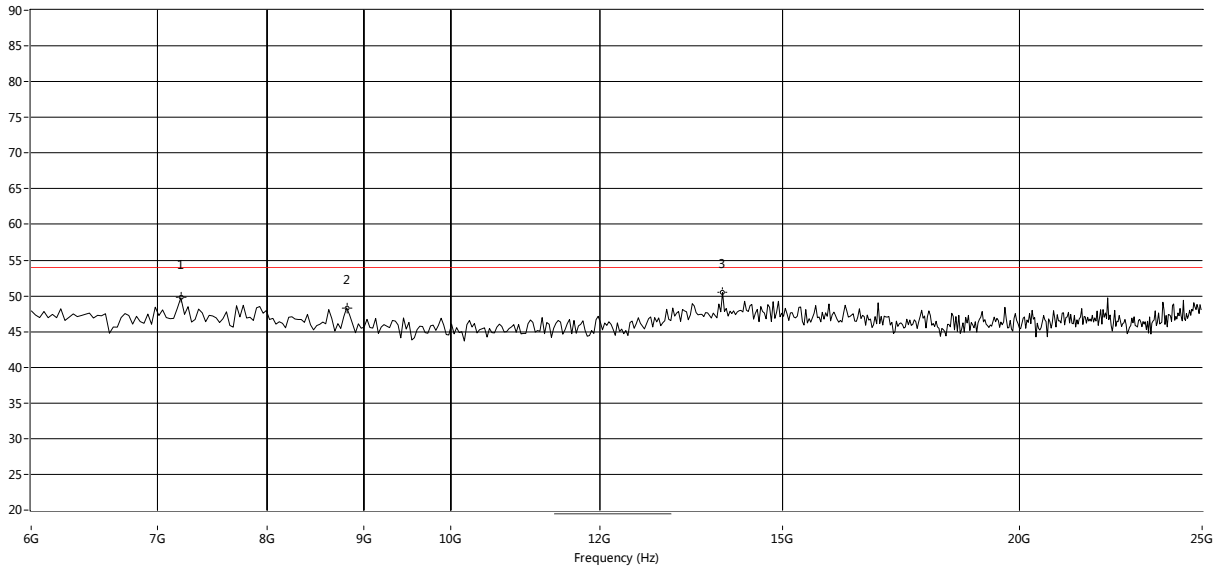
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
2375.656	50.29	--	--	74.0	--	54.0	302.3	Vertical	PASS
2469.633	97.02	--	--	74.0	--	54.0	310.4	Vertical	N/A
4955.511	47.74	--	--	74.0	--	54.0	279.5	Vertical	PASS

802.11g HIGH CHANNEL 1GHz to 6GHz, ANT H



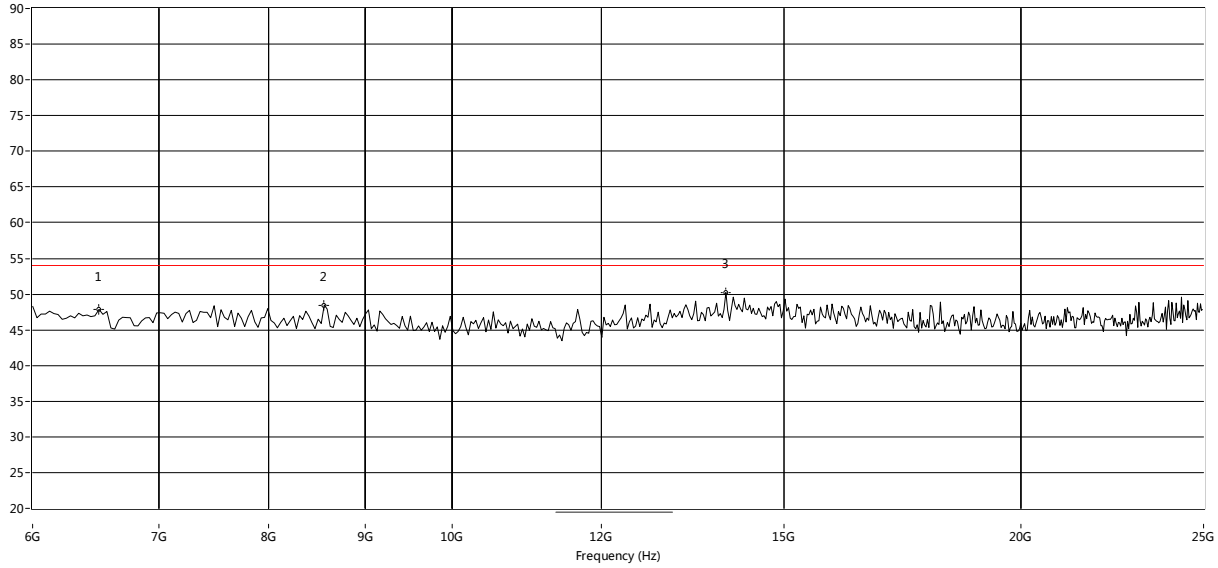
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
2460.135	93.25	--	--	74.0	--	54.0	303.7	Horizontal	N/A
2798.050	46.10	--	--	74.0	--	54.0	134.7	Horizontal	PASS
4933.767	47.62	--	--	74.0	--	54.0	259.3	Horizontal	PASS

802.11g HIGH CHANNEL 6GHz to 25GHz, ANT V



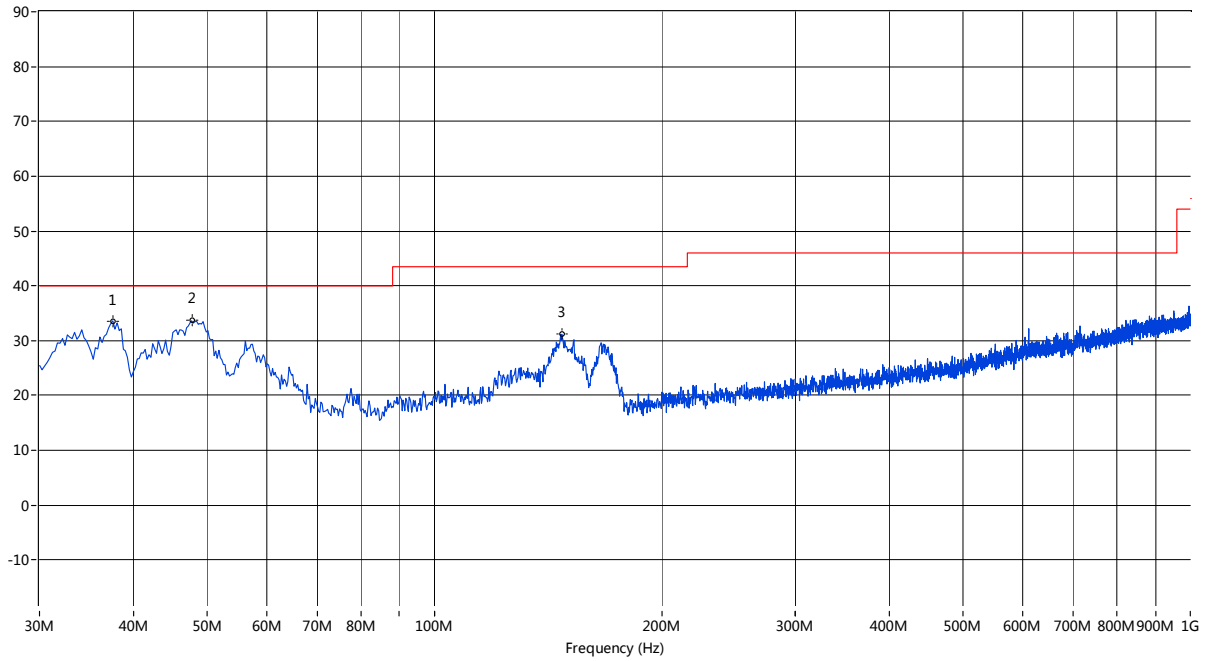
Fre. (MHz)	Peak	Limit(AV)	Margin	Degree	Antenna	Verdict
7201.331	49.74	54.0	4.3	0.0	Vertical	PASS
8813.644	48.32	54.0	5.7	0.0	Vertical	PASS
13935.108	50.48	54.0	3.5	0.0	Vertical	PASS

802.11g HIGH CHANNEL 6GHz to 25GHz, ANT H



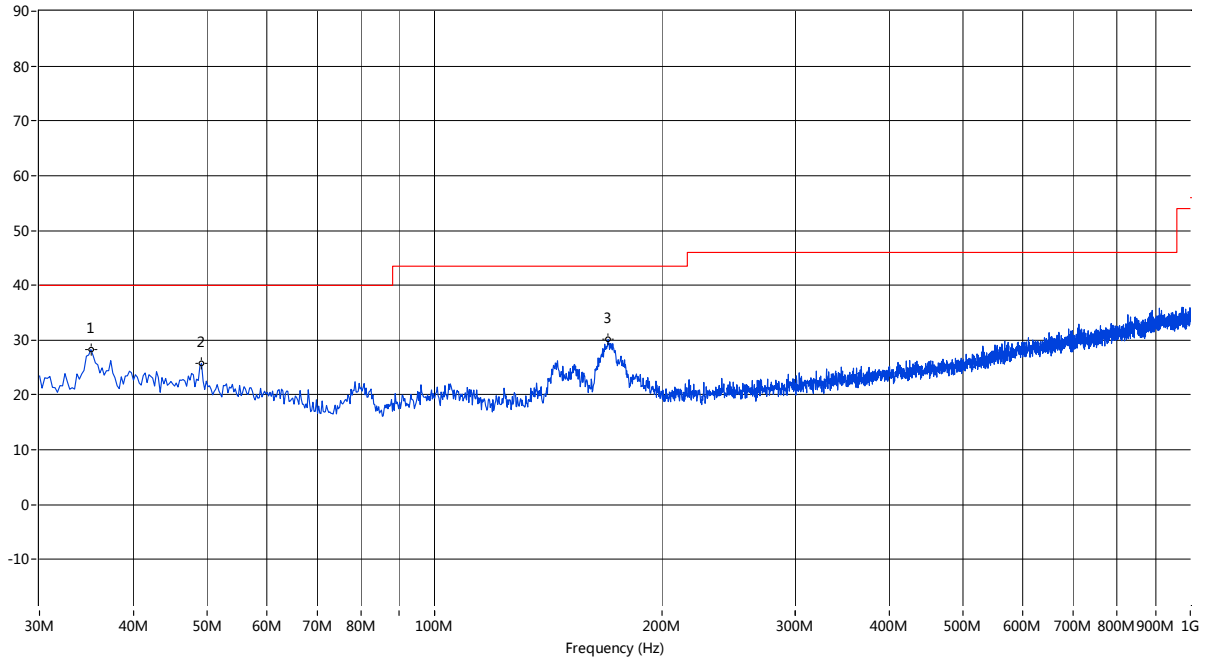
Fre. (MHz)	Peak	Limit(AV)	Margin	Degree	Antenna	Verdict
6505.824	47.87	54.0	6.1	0.0	Horizontal	PASS
8560.732	48.48	54.0	5.5	0.0	Horizontal	PASS
13966.722	50.23	54.0	3.8	0.0	Horizontal	PASS

802.11n-20MHz LOW CHANNEL 30MHz to 1GHz, ANT V



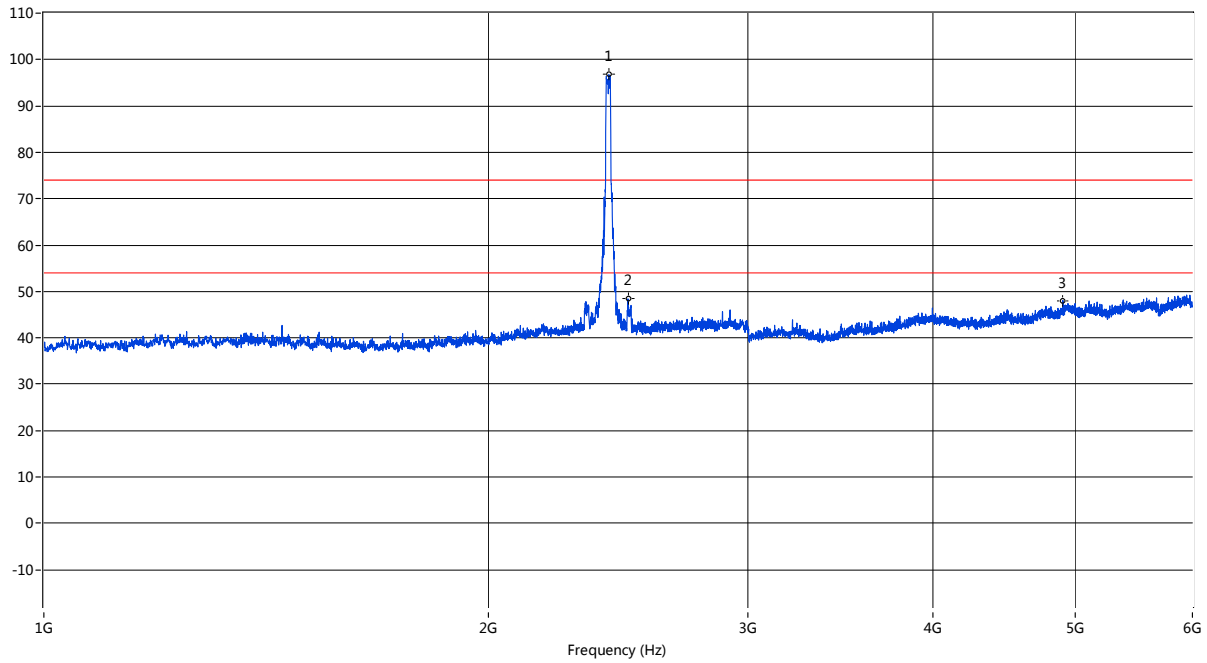
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
37.516	33.63	--	--	--	40.0	--	-0.0	Vertical	PASS
47.698	33.64	--	--	--	40.0	--	59.3	Vertical	PASS
147.341	31.16	--	--	--	43.5	--	321.2	Vertical	PASS

802.11n-20MHz LOW CHANNEL 30MHz to 1GHz, ANT H



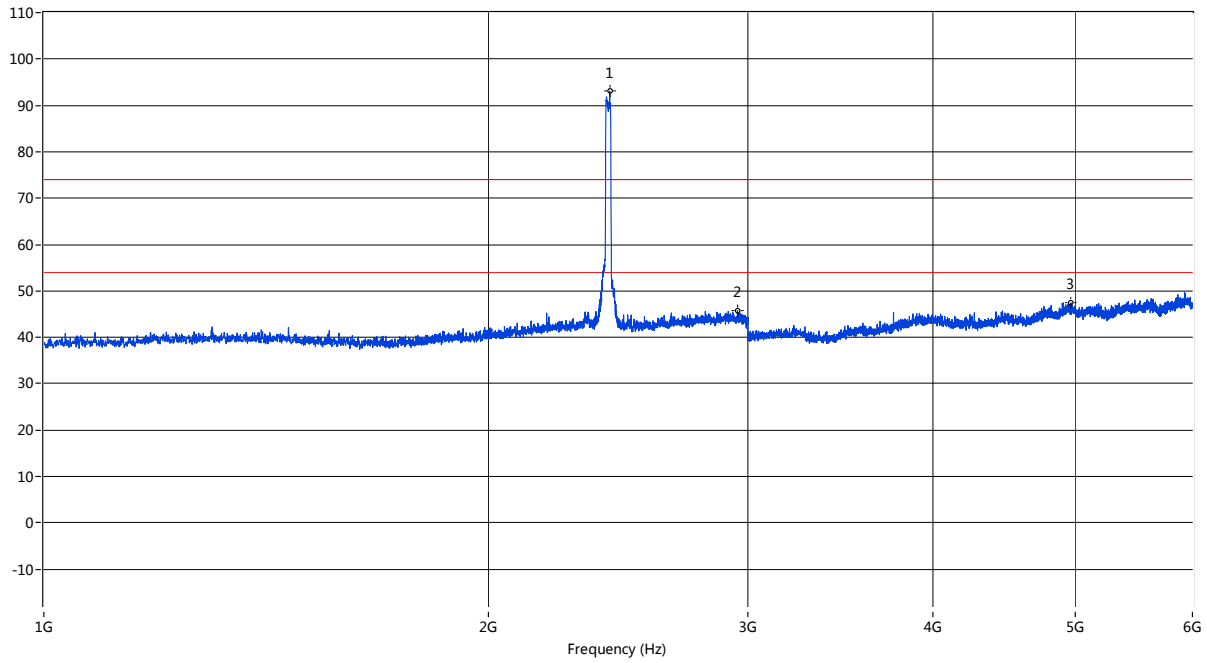
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
35.091	28.29	--	--	--	40.0	--	188.3	Horizontal	PASS
49.153	25.79	--	--	--	40.0	--	185.9	Horizontal	PASS
169.645	30.11	--	--	--	43.5	--	194.5	Horizontal	PASS

802.11n-20MHz LOW CHANNEL 1GHz to 6GHz, ANT V



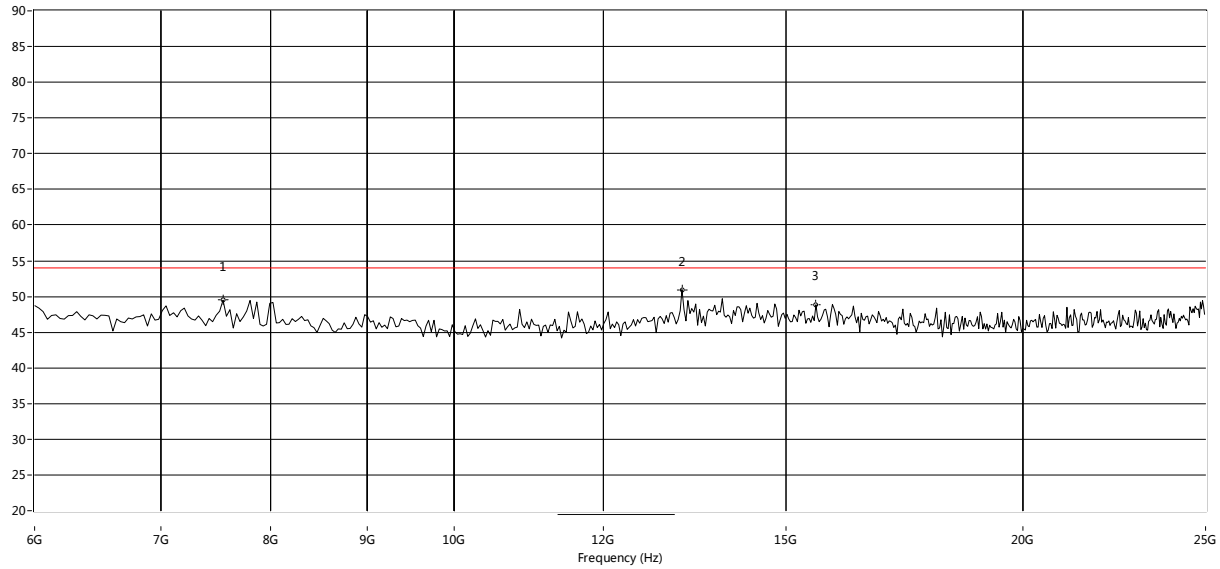
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
2413.647	96.74	--	--	74.0	--	54.0	309.7	Vertical	N/A
2487.128	48.40	--	--	74.0	--	54.0	309.7	Vertical	PASS
4902.274	48.05	--	--	74.0	--	54.0	209.3	Vertical	PASS

802.11n-20MHz LOW CHANNEL 1GHz to 6GHz, ANT H



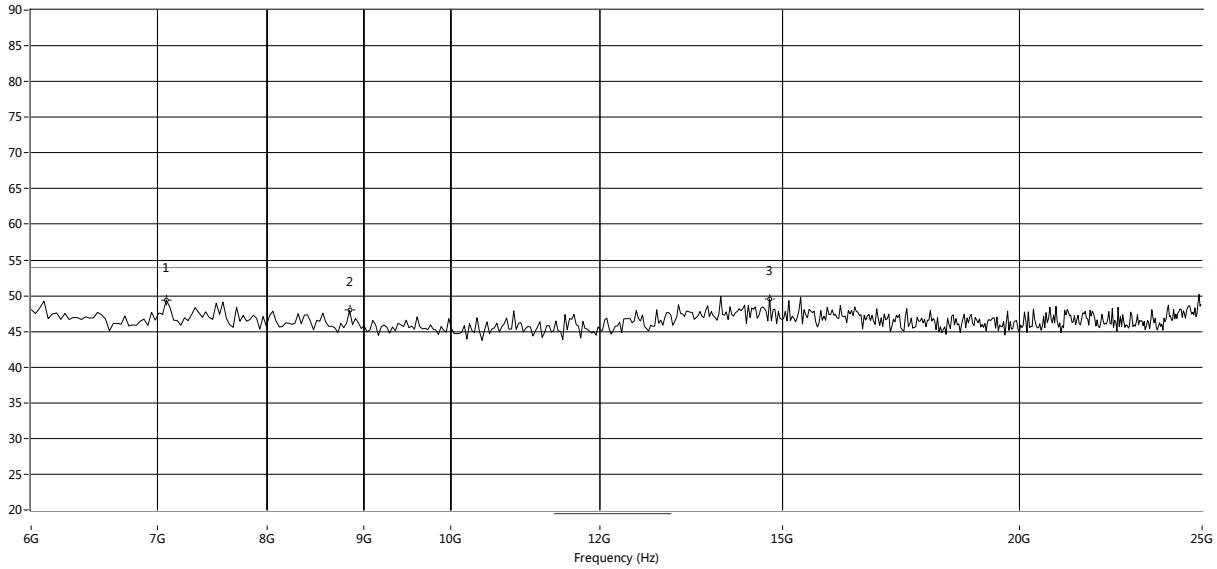
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
2417.146	93.09	--	--	74.0	--	54.0	170.2	Horizontal	N/A
2950.512	45.78	--	--	74.0	--	54.0	84.5	Horizontal	PASS
4964.509	47.42	--	--	74.0	--	54.0	133.5	Horizontal	PASS

802.11n-20MHz LOW CHANNEL 6GHz to 25GHz, ANT V



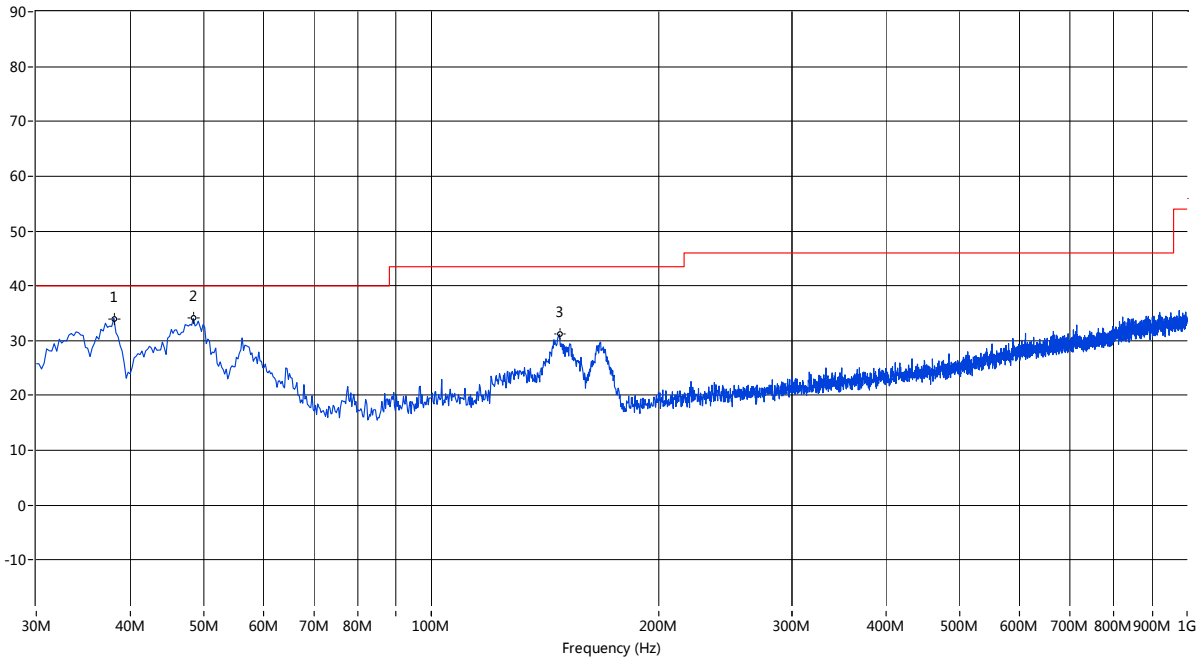
Fre. (MHz)	Peak	Limit(AV)	Margin	Degree	Antenna	Verdict
7549.085	49.49	54.0	4.5	0.0	Vertical	PASS
13207.987	50.96	54.0	3.0	0.0	Vertical	PASS
15547.421	48.84	54.0	5.2	0.0	Vertical	PASS

802.11n-20MHz LOW CHANNEL 6GHz to 25GHz, ANT H



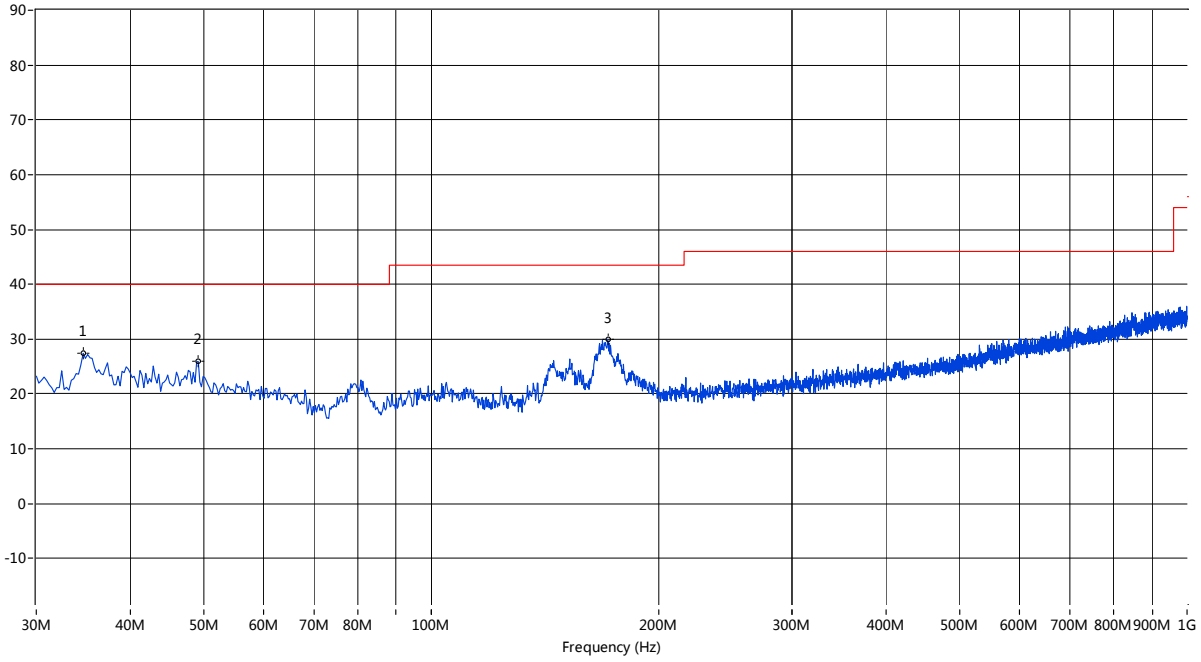
Fre. (MHz)	Peak	Limit(AV)	Margin	Degree	Antenna	Verdict
7074.875	49.41	54.0	4.6	0.0	Horizontal	PASS
8845.258	47.96	54.0	6.0	0.0	Horizontal	PASS
14387.687	46.54	54.0	7.5	0.0	Horizontal	PASS

802.11n-20MHz MID CHANNEL 30MHz to 1GHz, ANT V



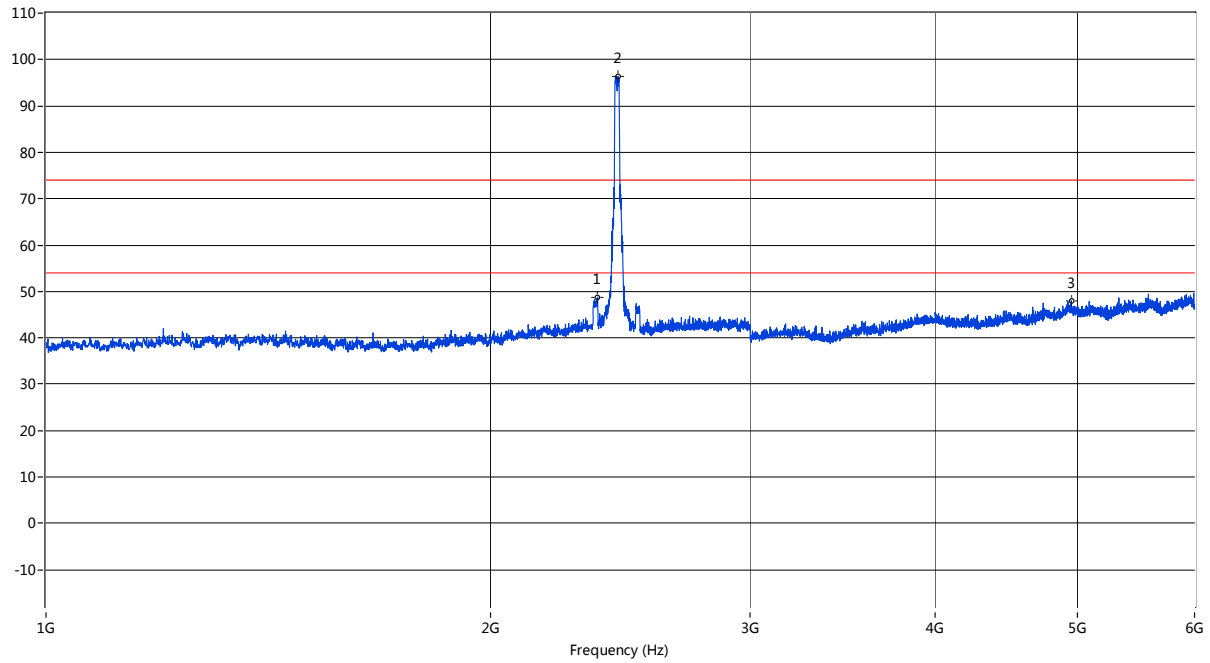
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
38.000	34.05	--	--	--	40.0	--	55.7	Vertical	PASS
48.425	34.07	--	--	--	40.0	--	2.6	Vertical	PASS
147.826	31.12	--	--	--	43.5	--	126.8	Vertical	PASS

802.11n-20MHz MID CHANNEL 30MHz to 1GHz, ANT H



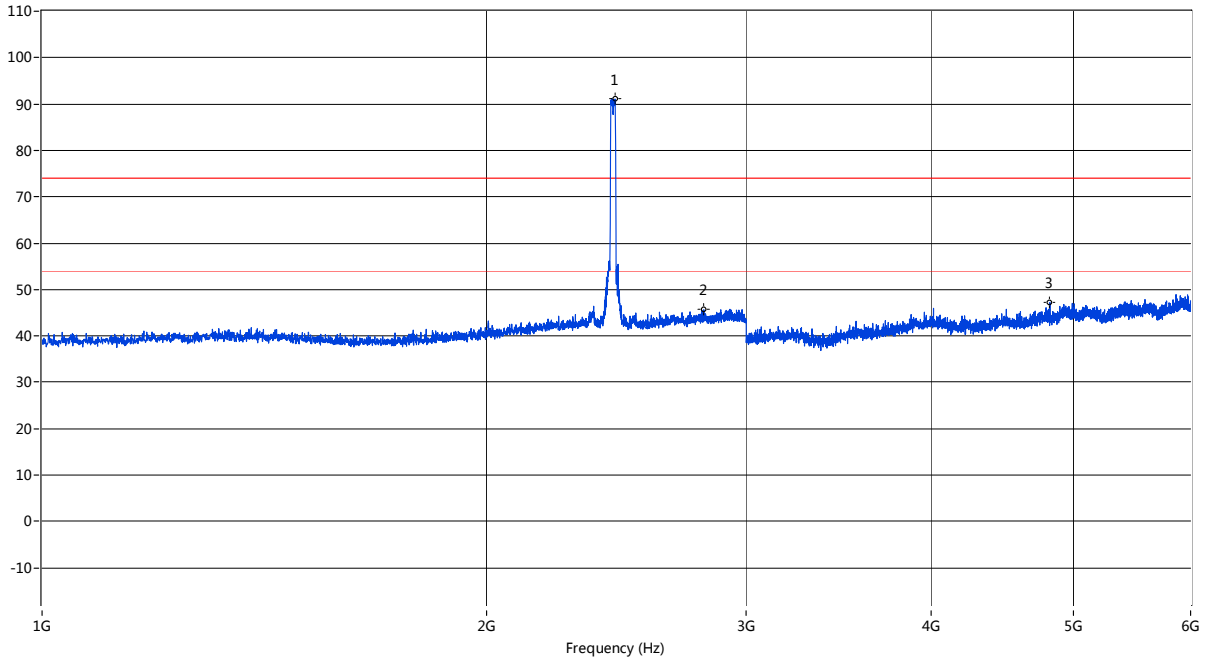
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
34.606	27.41	--	--	--	40.0	--	244.9	Horizontal	PASS
49.153	25.93	--	--	--	40.0	--	185.9	Horizontal	PASS
171.100	29.93	--	--	--	43.5	--	152.9	Horizontal	PASS

802.11n-20MHz MID CHANNEL 1GHz to 6GHz, ANT V



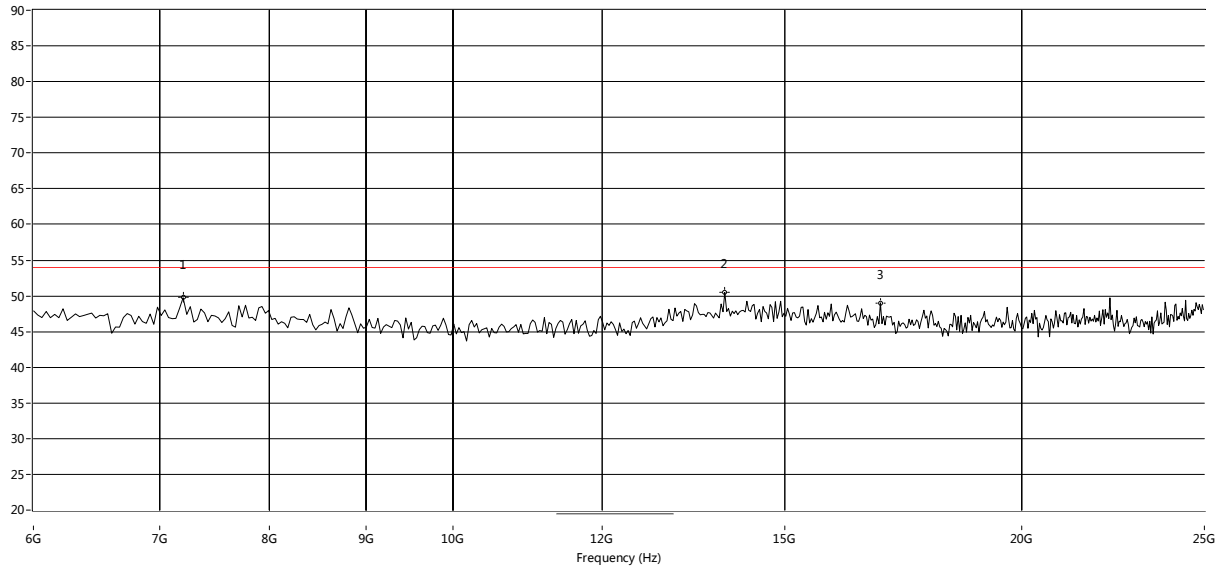
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
2364.159	48.80	--	--	74.0	--	54.0	242.7	Vertical	PASS
2440.640	96.37	--	--	74.0	--	54.0	310.1	Vertical	N/A
4950.262	48.03	--	--	74.0	--	54.0	-0.0	Vertical	PASS

802.11n-20MHz MID CHANNEL 1GHz to 6GHz, ANT H



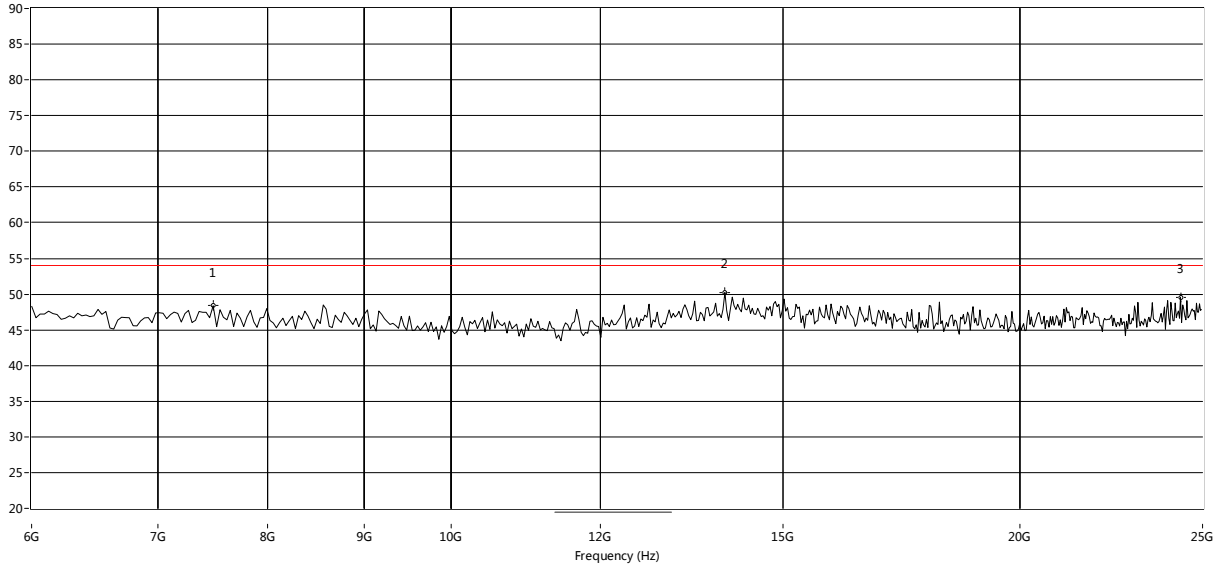
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
2444.139	91.09	--	--	74.0	--	54.0	162.7	Horizontal	N/A
2808.048	45.65	--	--	74.0	--	54.0	356.6	Horizontal	PASS
4816.796	47.20	--	--	74.0	--	54.0	360.4	Horizontal	PASS

802.11n-20MHz MID CHANNEL 6GHz to 25GHz, ANT V



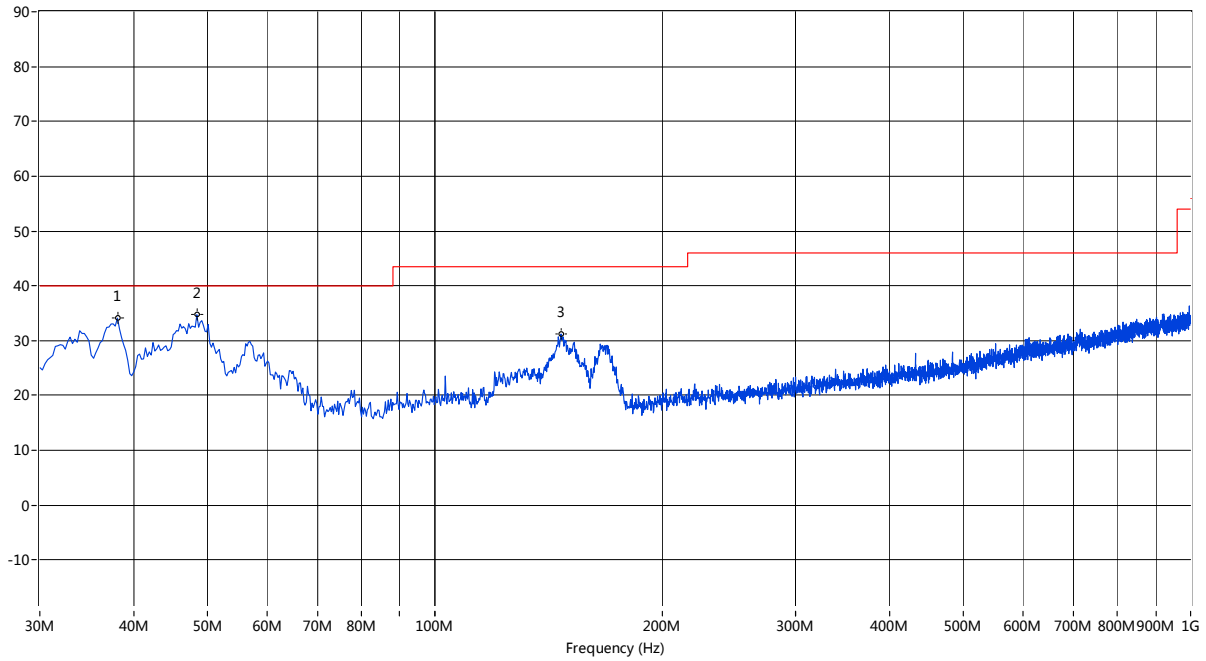
Fre. (MHz)	Peak	Limit(AV)	Margin	Degree	Antenna	Verdict
7201.331	49.74	54.0	4.3	0.0	Vertical	PASS
13935.108	50.48	54.0	3.5	0.0	Vertical	PASS
16843.594	49.02	54.0	5.0	0.0	Vertical	PASS

802.11n-20MHz MID CHANNEL 6GHz to 25GHz, ANT H



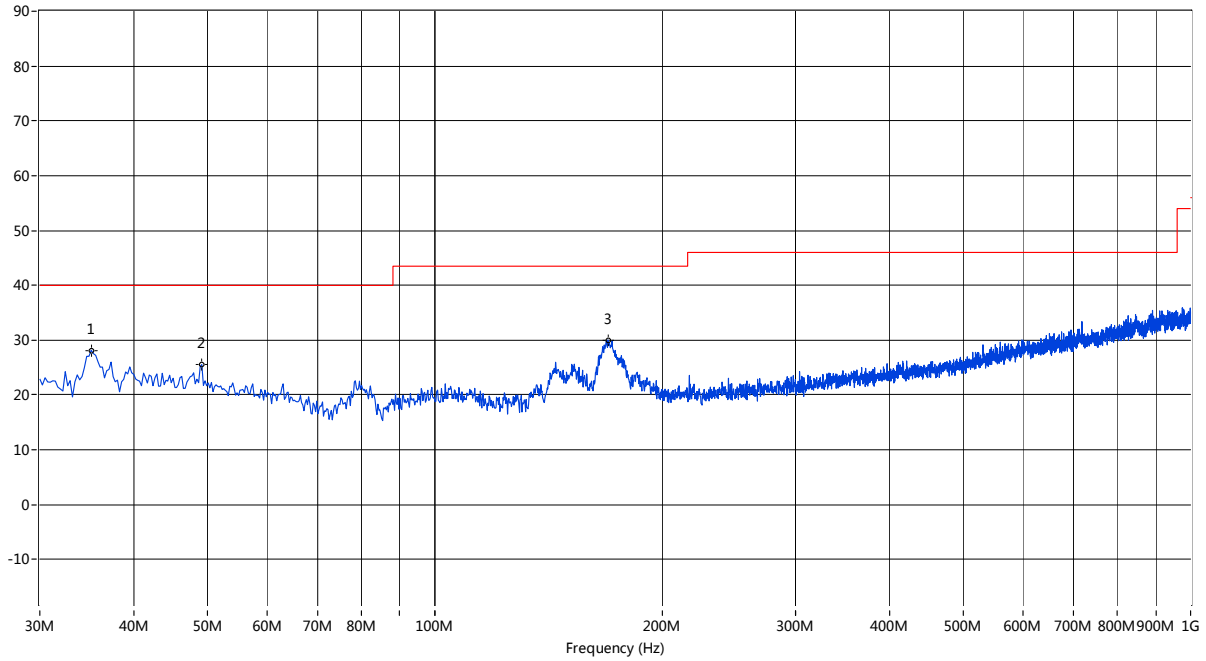
Fre. (MHz)	Peak	Limit(AV)	Margin	Degree	Antenna	Verdict
7485.857	48.37	54.0	5.6	0.0	Horizontal	PASS
13966.722	50.23	54.0	3.8	0.0	Horizontal	PASS
24043.594	47.73	54.0	6.3	0.0	Horizontal	PASS

802.11n-20MHz HIGH CHANNEL 30MHz to 1GHz, ANT V



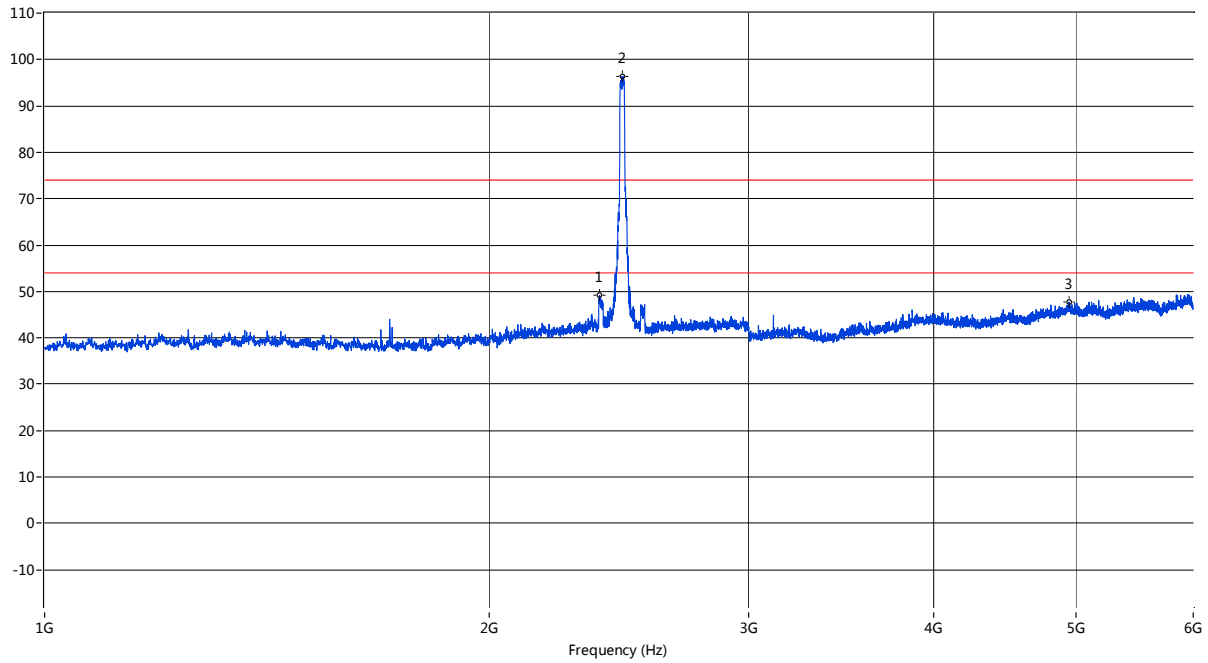
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
38.000	34.11	--	--	--	40.0	--	55.7	Vertical	PASS
48.425	34.73	--	--	--	40.0	--	2.6	Vertical	PASS
146.856	31.24	--	--	--	43.5	--	321.2	Vertical	PASS

802.11n-20MHz HIGH CHANNEL 30MHz to 1GHz, ANT H



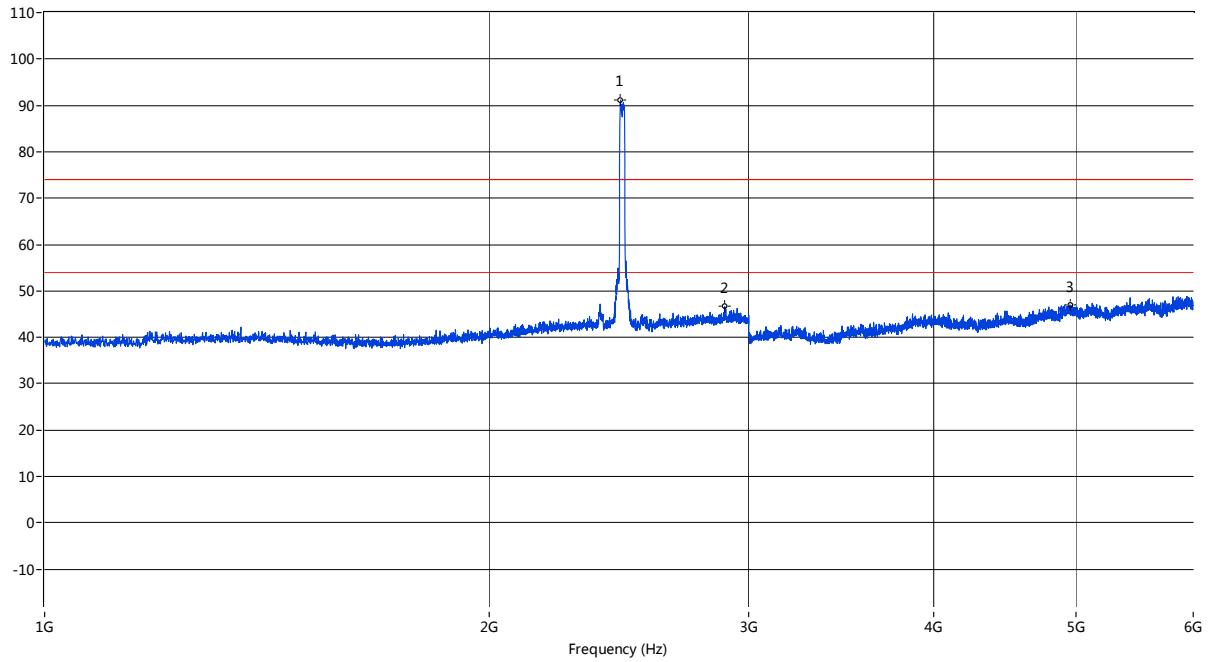
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
35.091	28.18	--	--	--	40.0	--	188.3	Horizontal	PASS
49.153	25.54	--	--	--	40.0	--	185.9	Horizontal	PASS
169.403	30.04	--	--	--	43.5	--	166.4	Horizontal	PASS

802.11n-20MHz HIGH CHANNEL 1GHz to 6GHz, ANT V



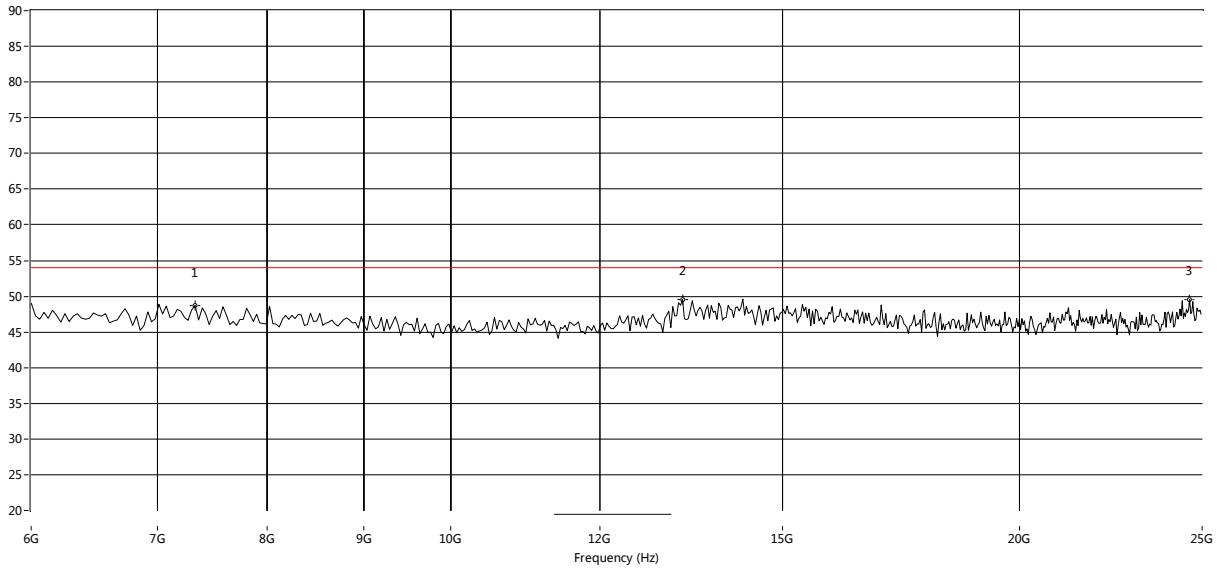
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
2376.656	49.16	--	--	74.0	--	54.0	240.8	Vertical	N/A
2461.135	96.34	--	--	74.0	--	54.0	311.6	Vertical	PASS
4943.514	47.71	--	--	74.0	--	54.0	283.1	Vertical	PASS

802.11n-20MHz HIGH CHANNEL 1GHz to 6GHz, ANT H



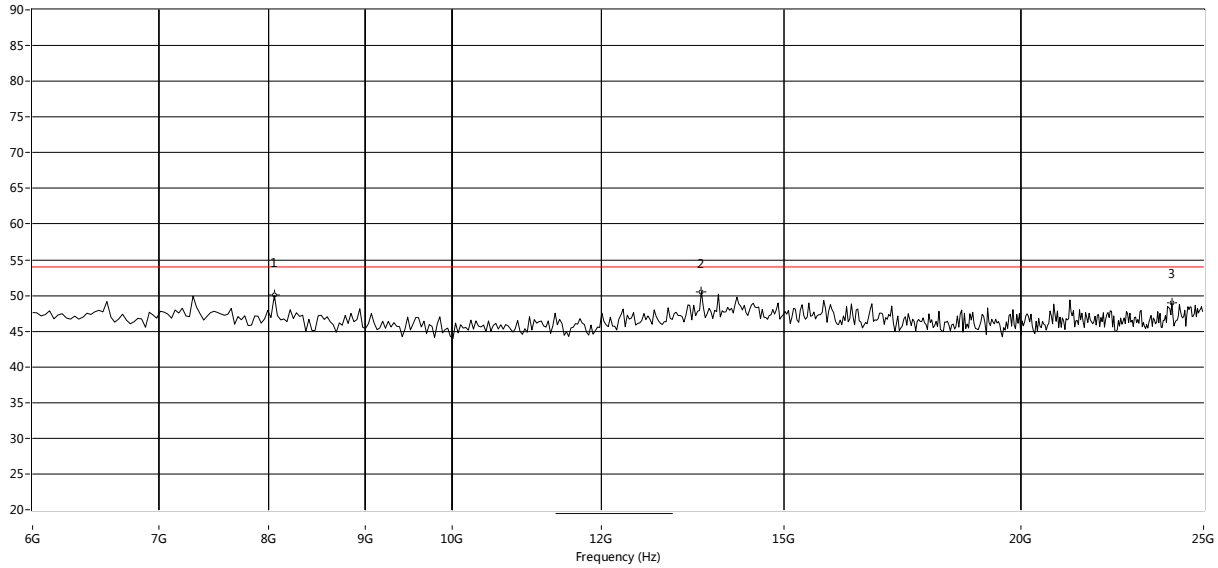
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
2455.636	91.13	--	--	74.0	--	54.0	165.6	Horizontal	N/A
2889.528	46.62	--	--	74.0	--	54.0	220.1	Horizontal	PASS
4951.012	47.02	--	--	74.0	--	54.0	298.9	Horizontal	PASS

802.11n-20MHz HIGH CHANNEL 6GHz to 25GHz, ANT V



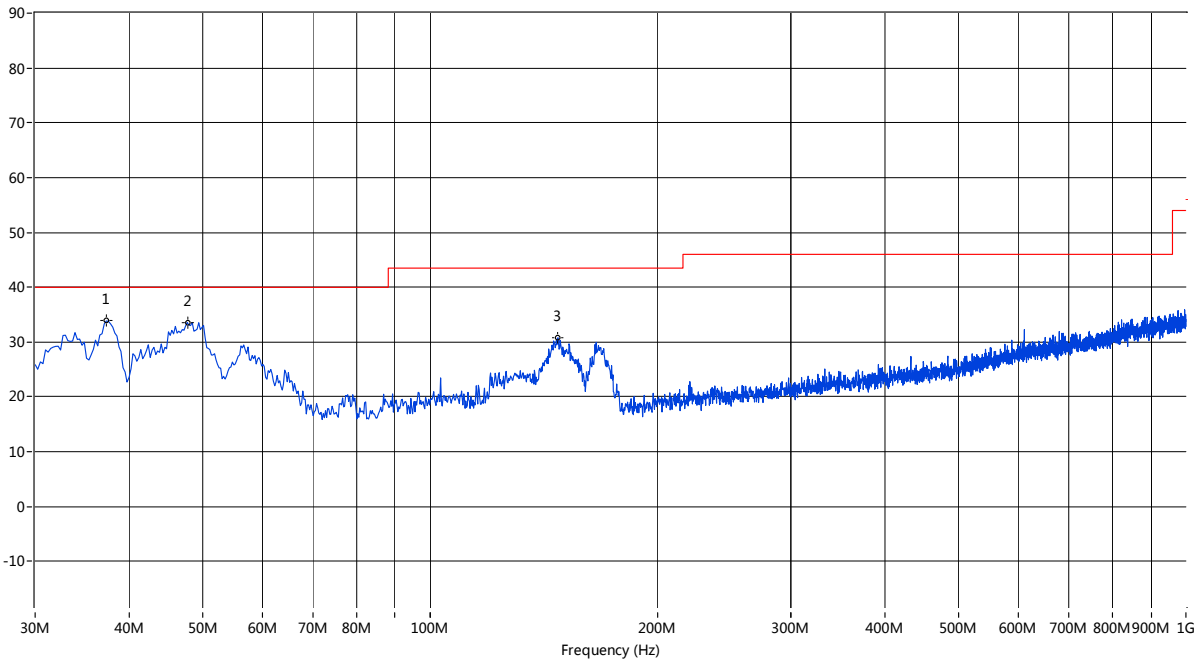
Fre. (MHz)	Peak	Limit(AV)	Margin	Degree	Antenna	Verdict
7327.787	48.70	54.0	5.3	0.0	Vertical	PASS
13271.215	49.56	54.0	4.4	0.0	Vertical	PASS
24620.632	49.52	54.0	4.5	0.0	Vertical	PASS

802.11n-20MHz HIGH CHANNEL 6GHz to 25GHz, ANT H



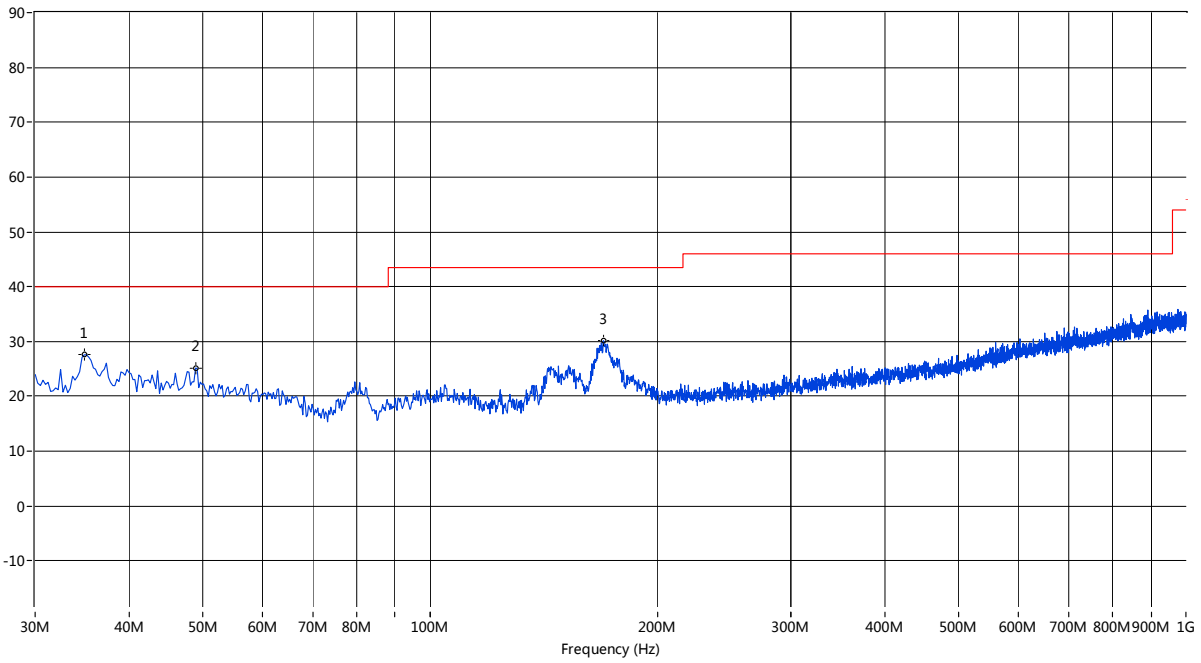
Fre. (MHz)	Peak	Limit(AV)	Margin	Degree	Antenna	Verdict
8054.908	50.03	54.0	4.0	0.0	Horizontal	PASS
13966.722	47.71	54.0	6.3	0.0	Horizontal	PASS
24336.106	47.12	54.0	6.9	0.0	Horizontal	PASS

802.11n-40MHZ LOW MODE 30MHz to 1GHz, ANT V



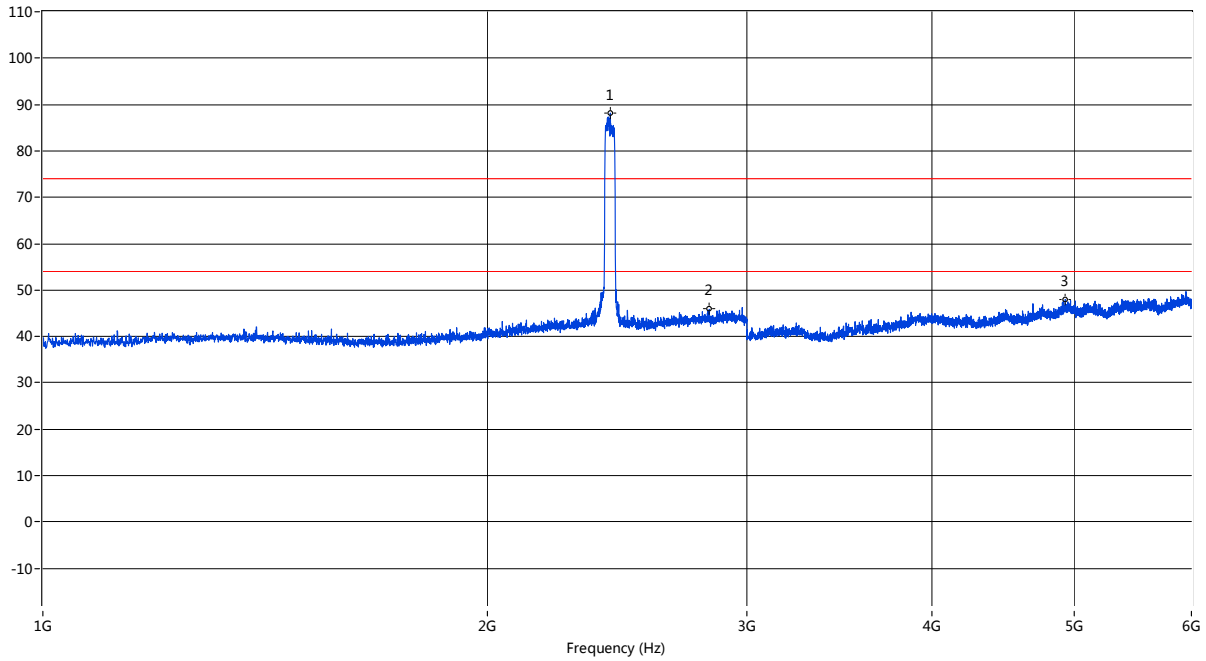
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
37.273	33.87	--	--	--	40.0	--	221.6	Vertical	PASS
47.698	33.56	--	--	--	40.0	--	59.3	Vertical	PASS
147.341	30.70	--	--	--	43.5	--	321.2	Vertical	PASS

802.11n-40MHZ LOW MODE 30MHz to 1GHz, ANT H



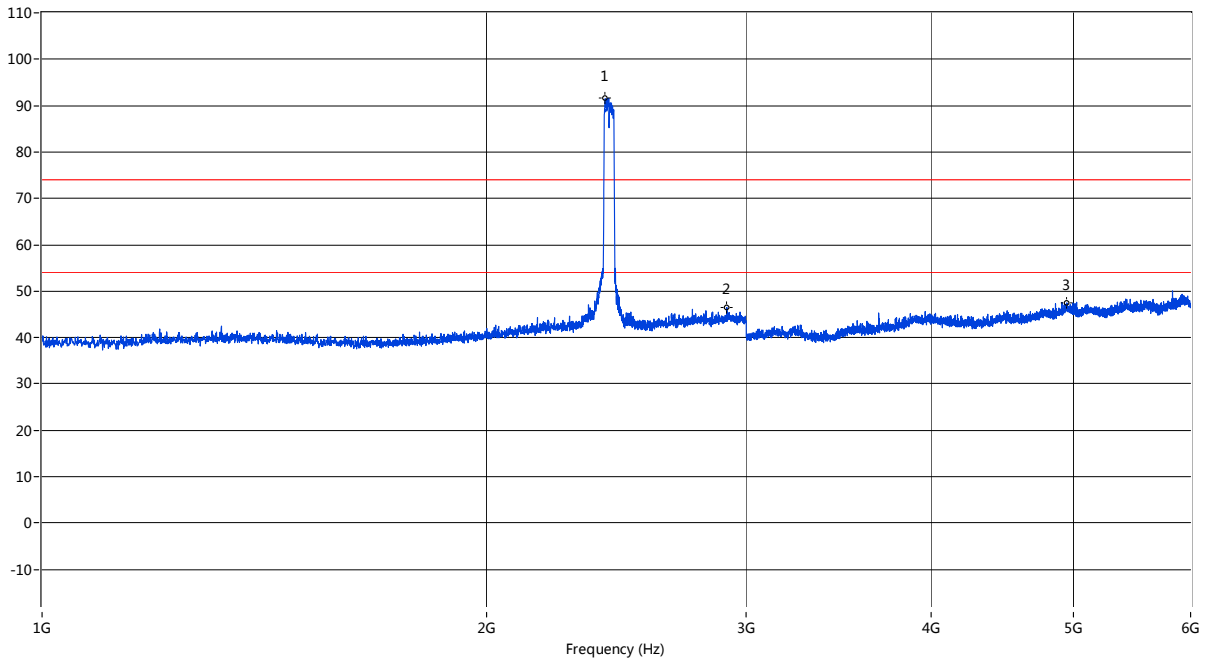
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
34.849	27.58	--	--	--	40.0	--	-0.0	Horizontal	PASS
48.910	25.15	--	--	--	40.0	--	-0.0	Horizontal	PASS
169.403	30.16	--	--	--	43.5	--	166.4	Horizontal	PASS

802.11n-40MHZ LOW MODE 1GHz to 6GHz, ANT V



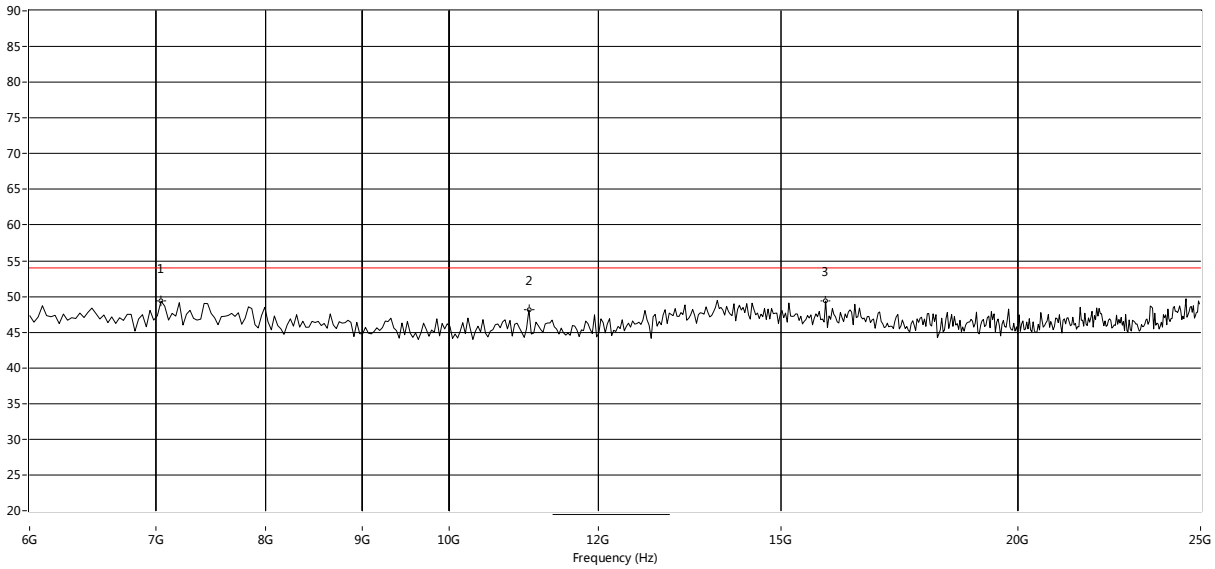
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
2423.644	88.16	--	--	74.0	--	54.0	294.1	Vertical	PASS
2828.043	45.87	--	--	74.0	--	54.0	166.8	Vertical	N/A
4928.518	48.01	--	--	74.0	--	54.0	196.5	Vertical	PASS

802.11n-40MHZ LOW MODE 1GHz to 6GHz, ANT H



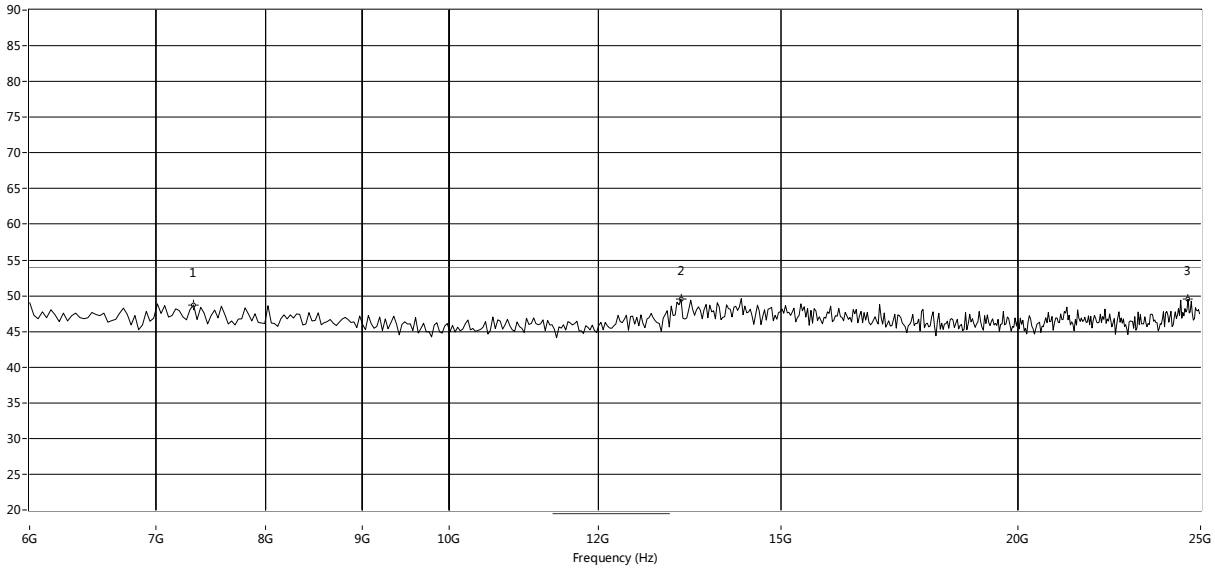
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
2407.148	91.52	--	--	74.0	--	54.0	317.8	Horizontal	N/A
2910.022	46.41	--	--	74.0	--	54.0	358.4	Horizontal	PASS
4946.513	47.43	--	--	74.0	--	54.0	357.6	Horizontal	PASS

802.11n-40MHZ LOW MODE 6GHz to 25GHz, ANT V



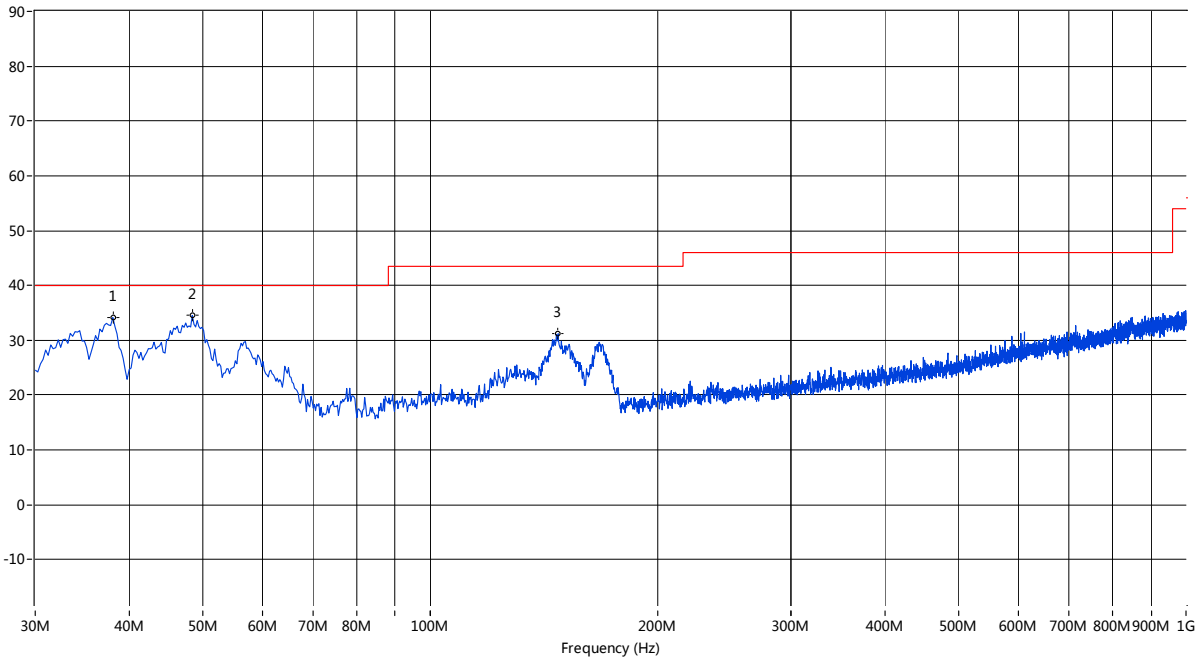
Fre. (MHz)	Peak	Limit(AV)	Margin	Degree	Antenna	Verdict
7043.261	49.34	54.0	4.7	0.0	Vertical	PASS
11026.622	48.13	54.0	5.9	0.0	Vertical	PASS
15620.632	47.46	54.0	6.5	0.0	Vertical	PASS

802.11n-40MHZ LOW MODE 6GHz to 25GHz, ANT H



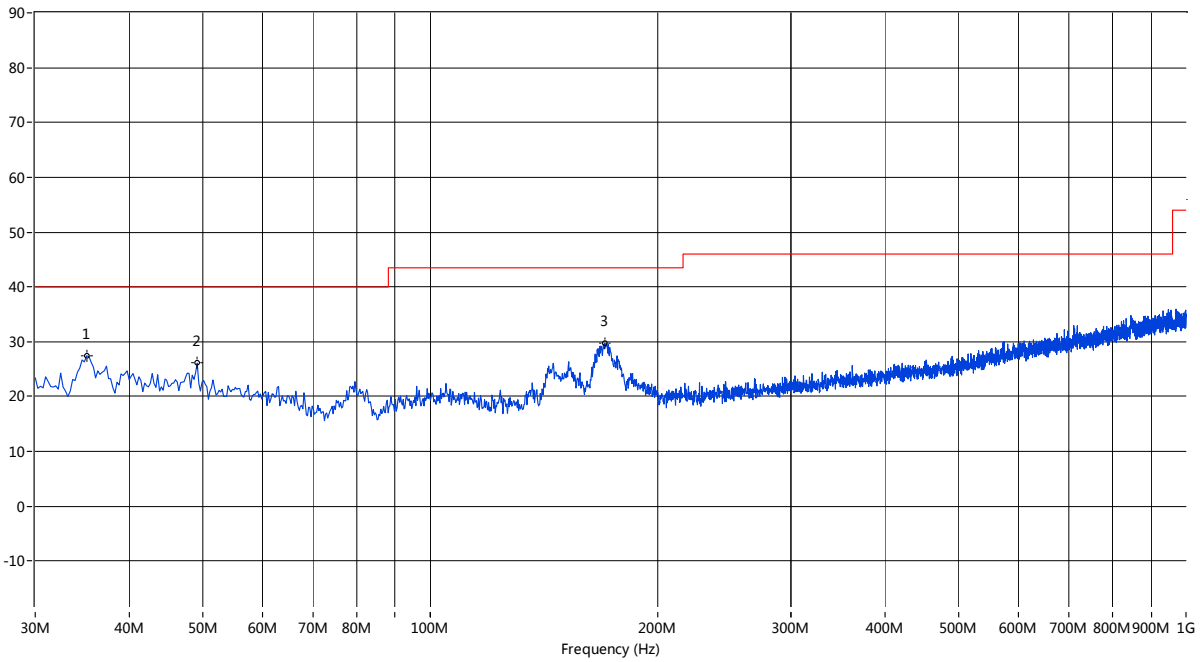
Fre. (MHz)	Peak	Limit(AV)	Margin	Degree	Antenna	Verdict
7327.787	48.70	54.0	5.3	0.0	Horizontal	PASS
13555.740	48.43	54.0	5.6	0.0	Horizontal	PASS
24537.105	46.60	54.0	7.4	0.0	Horizontal	PASS

802.11n-40MHZ MID MODE 30MHz to 1GHz, ANT V



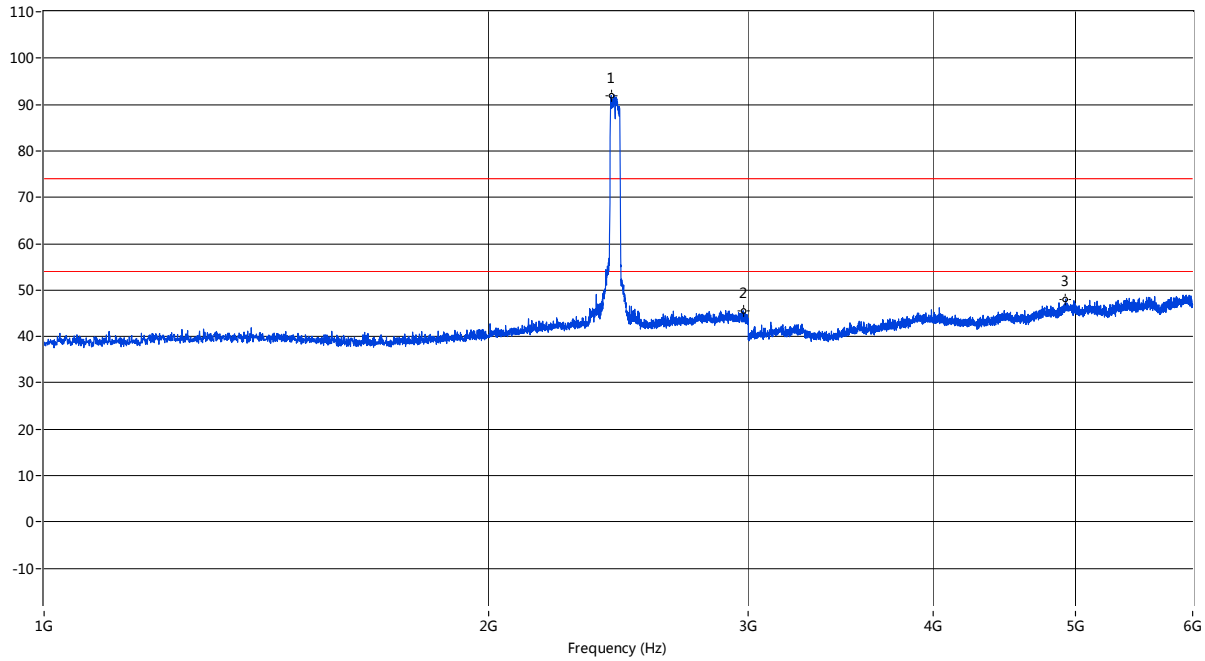
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
38.000	34.14	--	--	--	40.0	--	55.7	Vertical	PASS
48.425	34.54	--	--	--	40.0	--	2.6	Vertical	PASS
147.583	31.20	--	--	--	43.5	--	126.8	Vertical	PASS

802.11n-40MHZ MID MODE 30MHz to 1GHz, ANT H



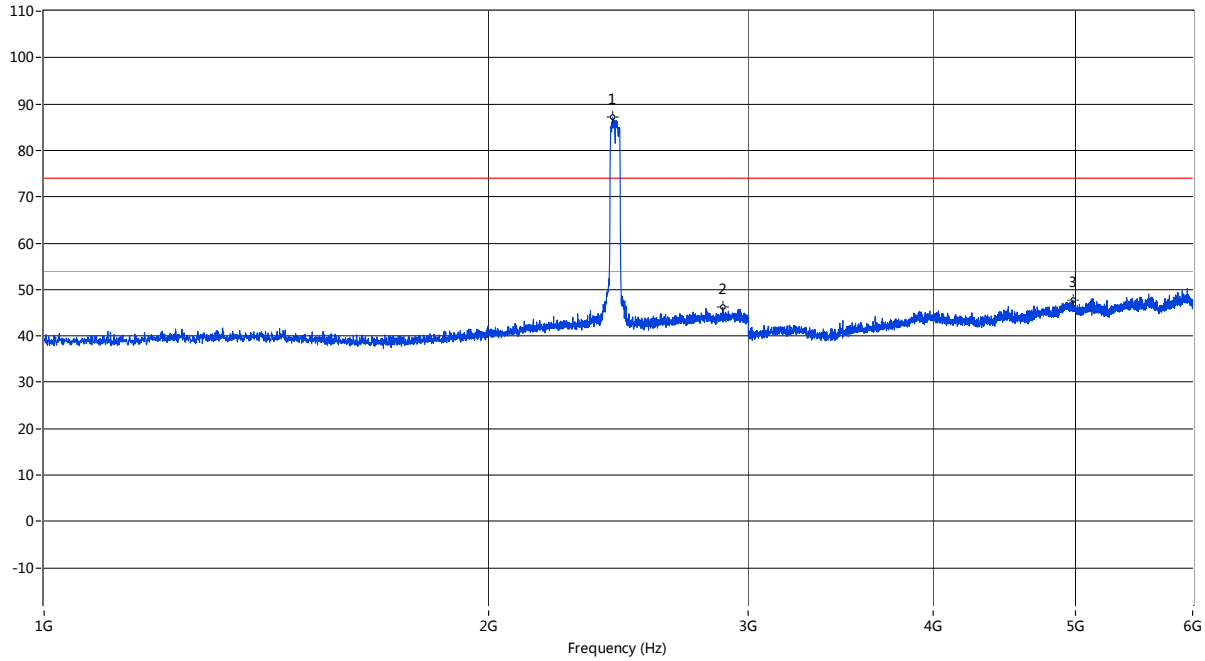
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
35.091	27.44	--	--	--	40.0	--	188.3	Horizontal	PASS
49.153	26.10	--	--	--	40.0	--	185.9	Horizontal	PASS
170.130	29.74	--	--	--	43.5	--	166.4	Horizontal	PASS

802.11n-40MHZ MID MODE 1GHz to 6GHz, ANT V



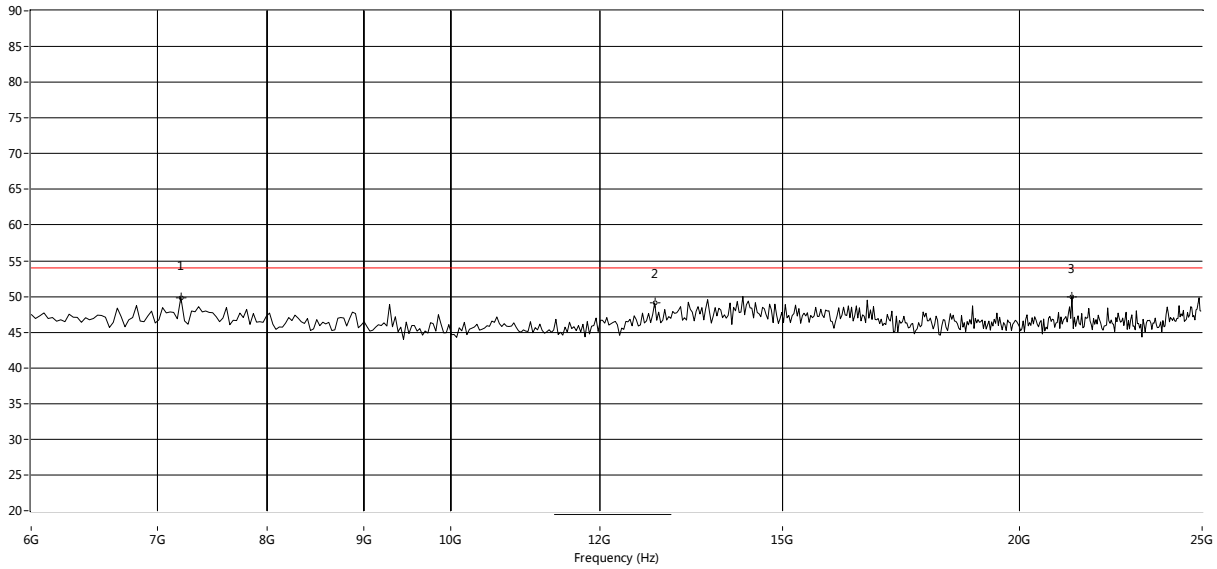
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
2422.144	91.94	--	--	74.0	--	54.0	309.8	Vertical	PASS
2975.506	45.58	--	--	74.0	--	54.0	48.8	Vertical	N/A
4921.770	48.03	--	--	74.0	--	54.0	151.9	Vertical	PASS

802.11n-40MHZ MID MODE 1GHz to 6GHz, ANT H



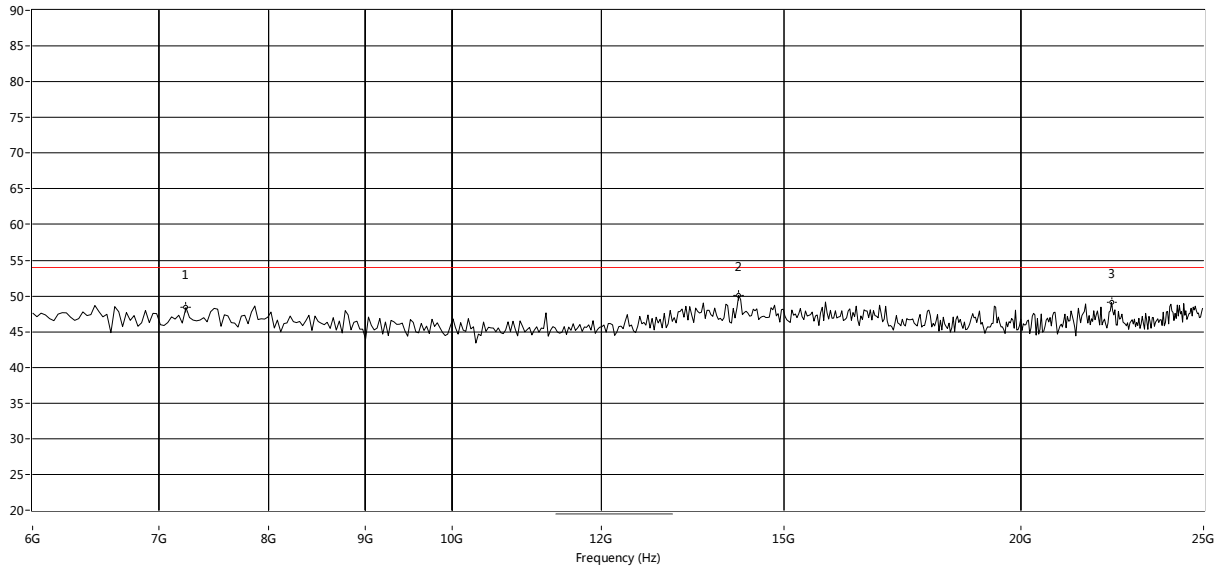
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
2427.143	87.19	--	--	74.0	--	54.0	303.6	Horizontal	N/A
2882.029	46.16	--	--	74.0	--	54.0	339.8	Horizontal	PASS
4976.506	47.76	--	--	74.0	--	54.0	294.8	Horizontal	PASS

802.11n-40MHZ MID MODE 6GHz to 25GHz, ANT V



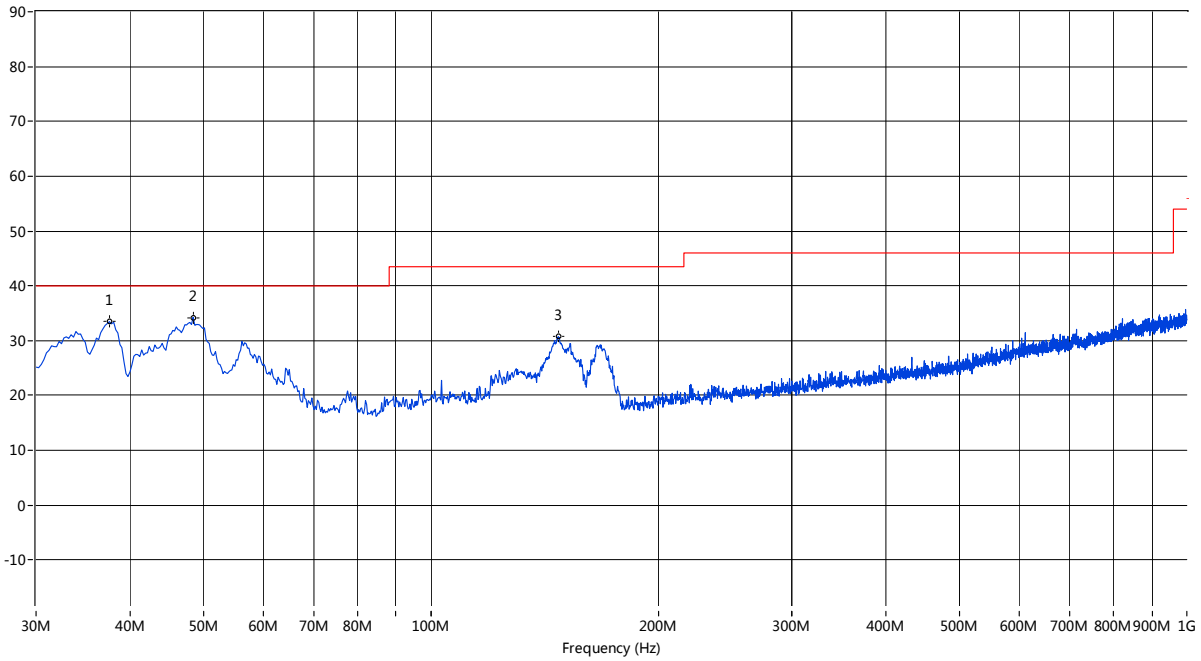
Fre. (MHz)	Peak	Limit(AV)	Margin	Degree	Antenna	Verdict
7201.331	49.87	54.0	4.1	0.0	Vertical	PASS
12828.619	49.10	54.0	4.9	0.0	Vertical	PASS
20831.947	47.97	54.0	6.0	0.0	Vertical	PASS

802.11n-40MHZ MID MODE 6GHz to 25GHz, ANT H



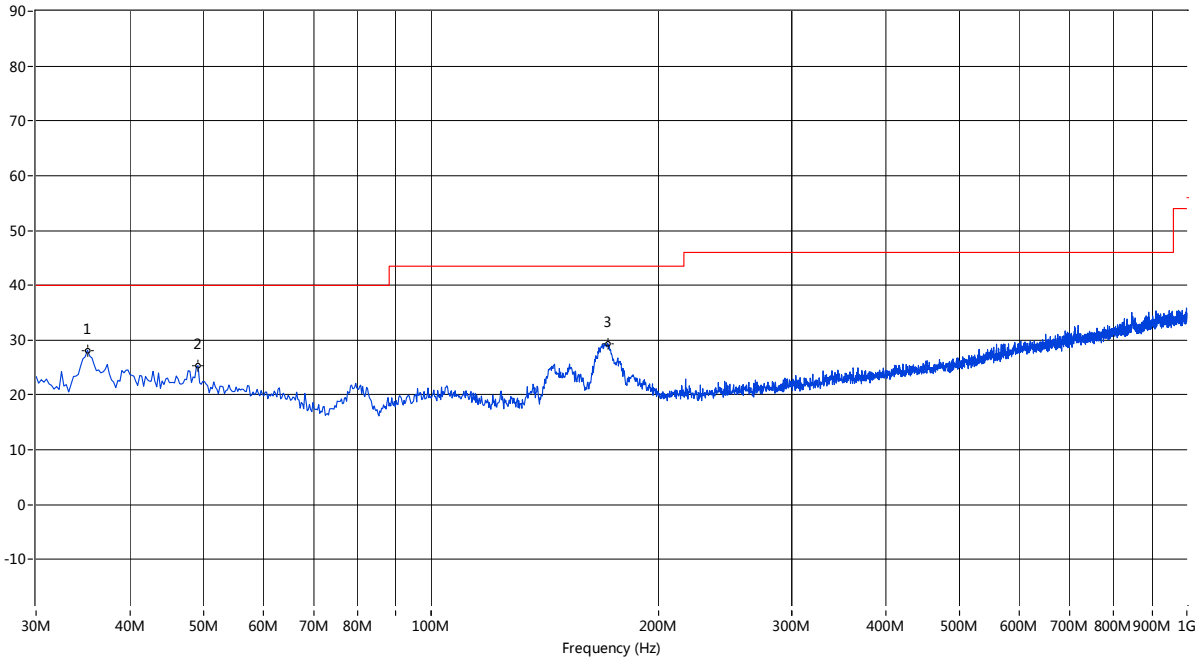
Fre. (MHz)	Peak	Limit(AV)	Margin	Degree	Antenna	Verdict
7232.945	48.37	54.0	5.6	0.0	Horizontal	PASS
14188.020	50.09	54.0	3.9	0.0	Horizontal	PASS
22344.426	49.10	54.0	4.9	0.0	Horizontal	PASS

802.11n-40MHZ HIGH MODE 30MHz to 1GHz, ANT V



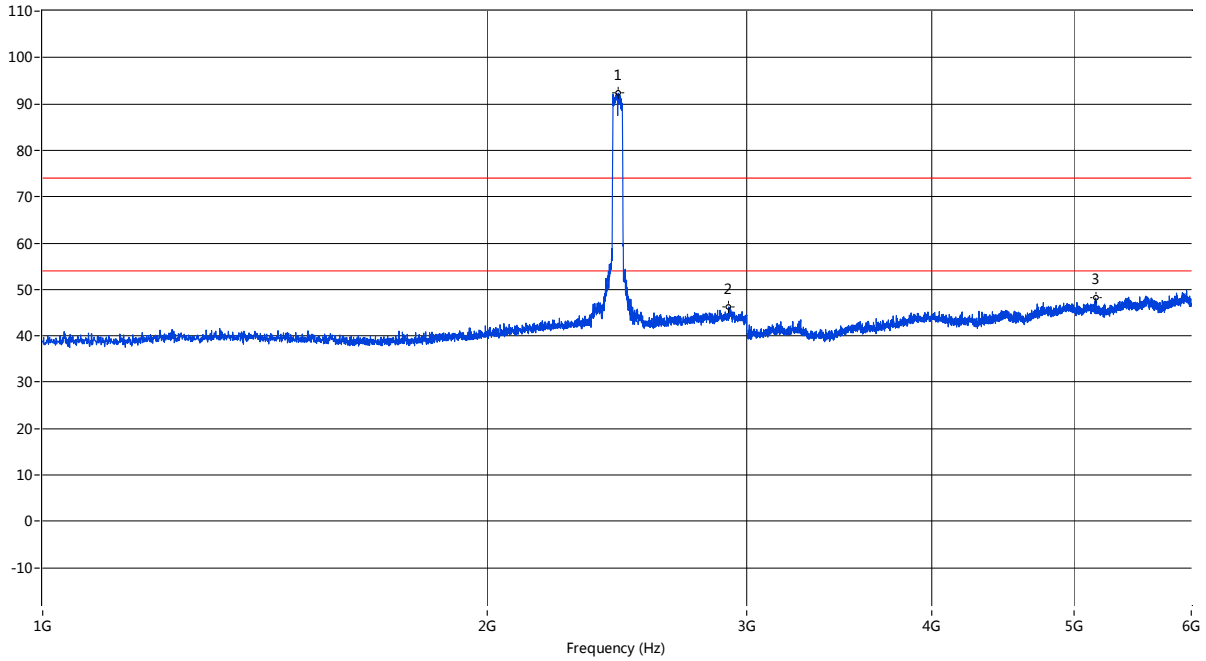
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
37.516	33.46	--	--	--	40.0	--	-0.0	Vertical	PASS
48.425	34.26	--	--	--	40.0	--	2.6	Vertical	PASS
147.341	30.73	--	--	--	43.5	--	321.2	Vertical	PASS

802.11n-40MHZ HIGH MODE 30MHz to 1GHz, ANT H



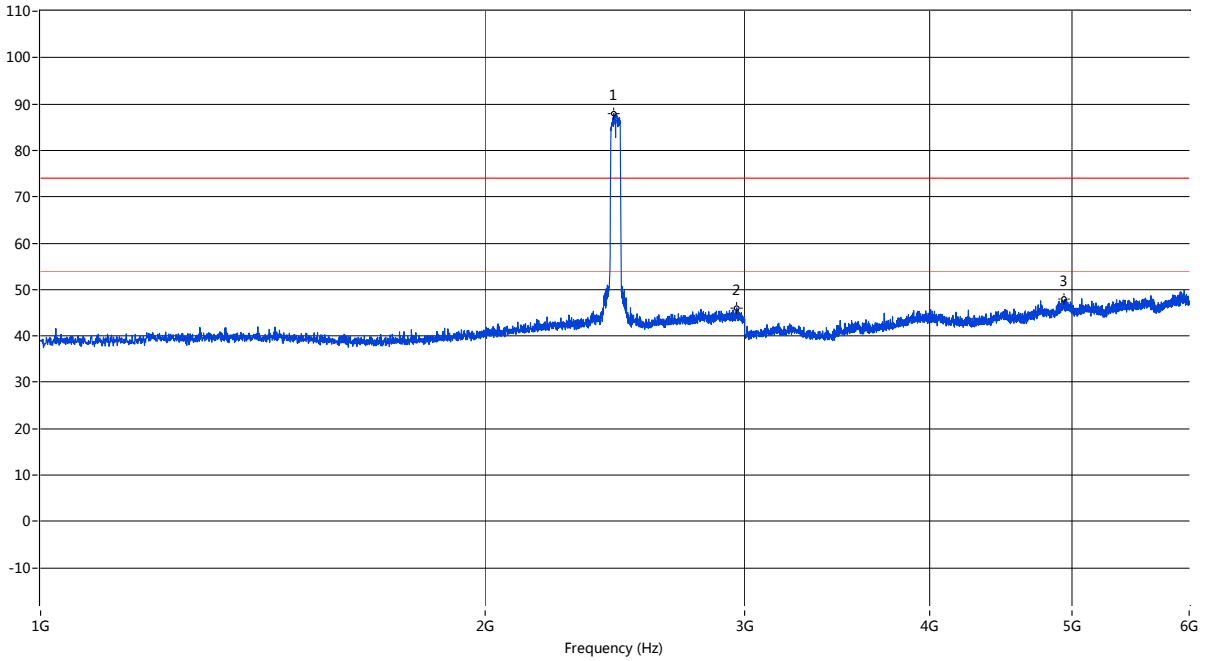
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
35.091	28.15	--	--	--	40.0	--	188.3	Horizontal	PASS
49.153	25.32	--	--	--	40.0	--	185.9	Horizontal	PASS
171.100	29.39	--	--	--	43.5	--	152.9	Horizontal	PASS

802.11n-40MHZ HIGH MODE 1GHz to 6GHz, ANT V



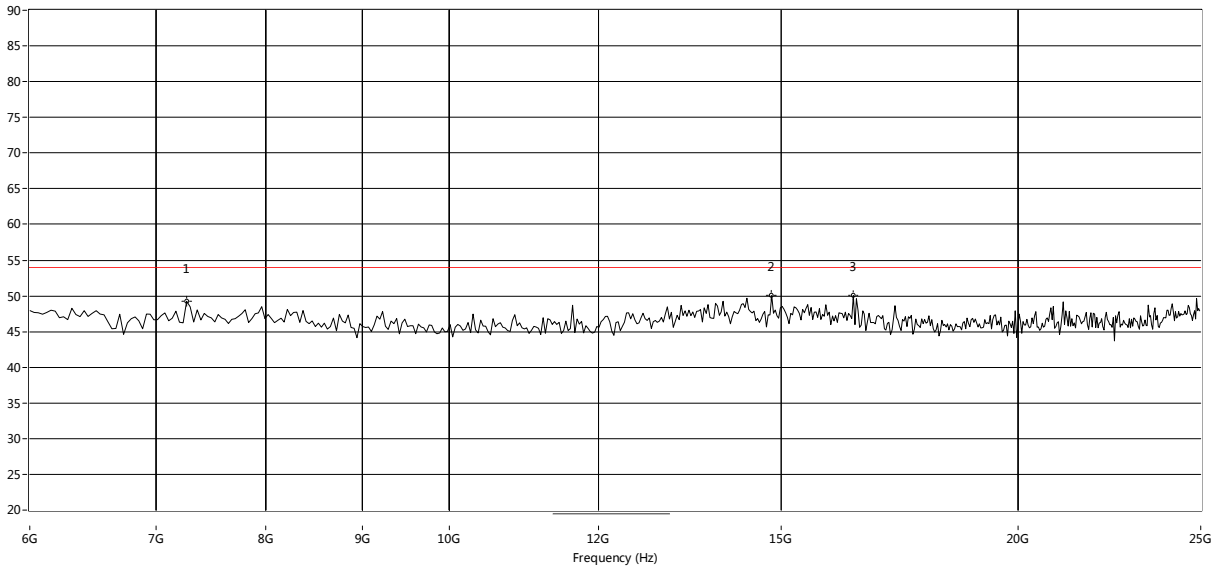
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
2453.637	92.30	--	--	74.0	--	54.0	310.5	Vertical	PASS
2916.021	46.25	--	--	74.0	--	54.0	226.4	Vertical	N/A
5167.708	48.12	--	--	74.0	--	54.0	76.6	Vertical	PASS

802.11n-40MHZ HIGH MODE 1GHz to 6GHz, ANT H



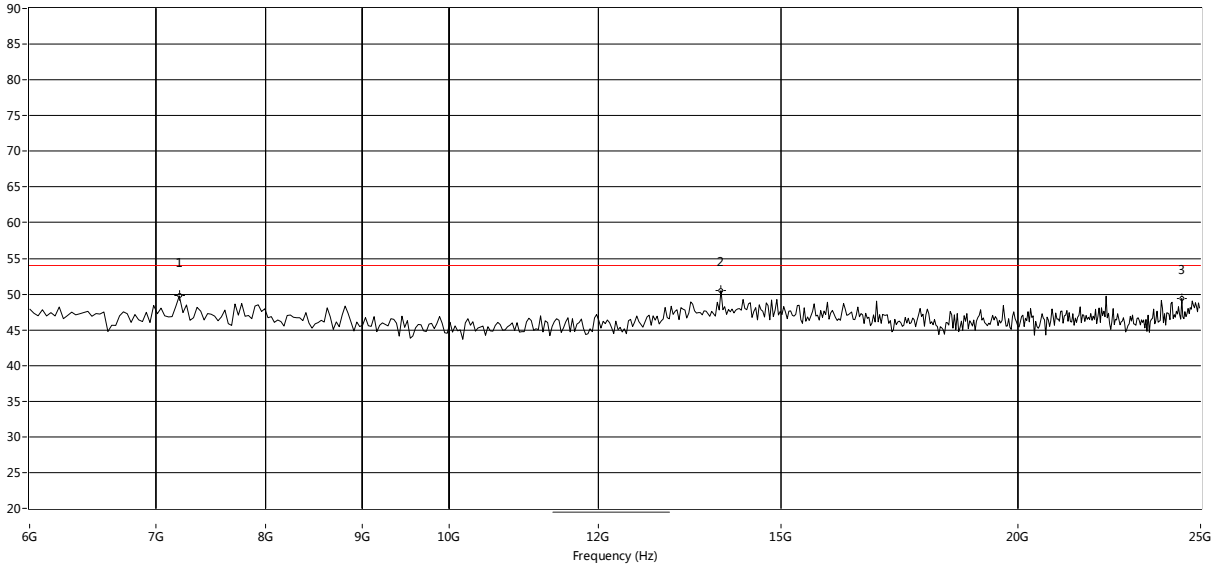
Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Degree	Antenna	Verdict
2445.639	88.00	--	--	74.0	--	54.0	308.2	Horizontal	N/A
2962.509	46.06	--	--	74.0	--	54.0	192.4	Horizontal	PASS
4939.015	47.85	--	--	74.0	--	54.0	338.2	Horizontal	PASS

802.11n-40MHZ HIGH MODE 6GHz to 25GHz, ANT V



Fre. (MHz)	Peak	Limit(AV)	Margin	Degree	Antenna	Verdict
7264.559	49.23	54.0	4.8	0.0	Vertical	PASS
13935.108	47.73	54.0	6.3	0.0	Vertical	PASS
15830.948	47.35	54.0	6.6	0.0	Vertical	PASS

802.11n-40MHZ HIGH MODE 6GHz to 25GHz, ANT H



Fre. (MHz)	Peak	Limit(AV)	Margin	Degree	Antenna	Verdict
7201.331	49.74	54.0	4.3	0.0	Horizontal	PASS
14188.020	47.75	54.0	6.3	0.0	Horizontal	PASS
24044.426	47.31	54.0	6.7	0.0	Horizontal	PASS

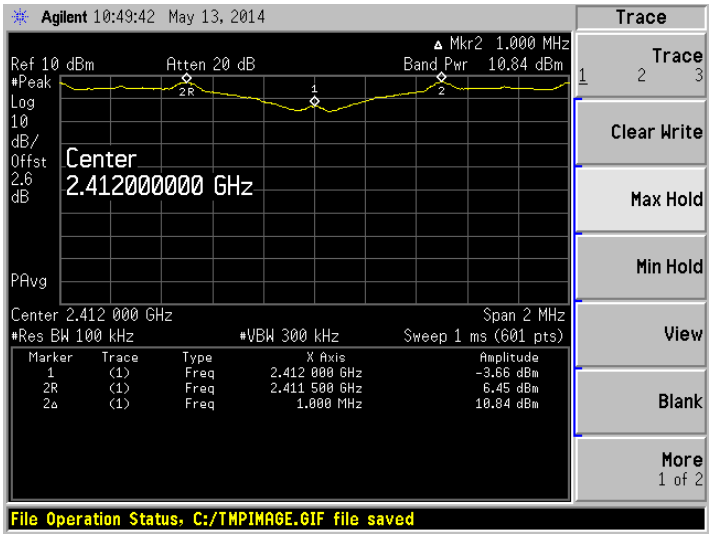
A.6 Band Edge

Test Data

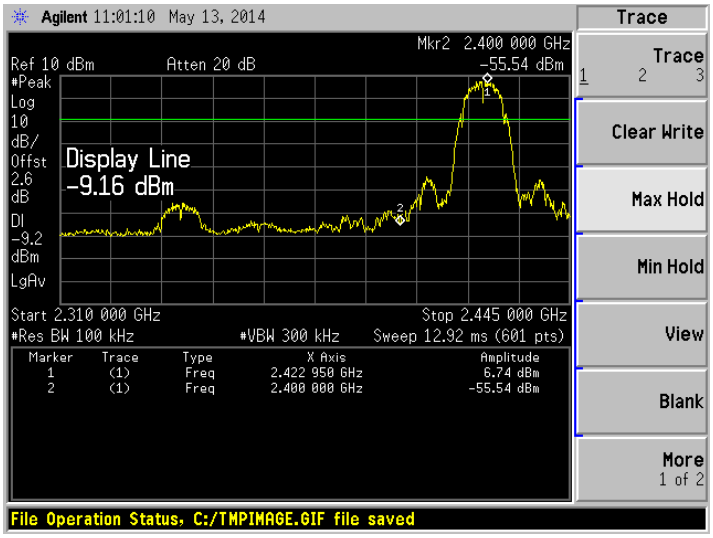
The lowest and highest channels are tested to verify the band edge emissions. Please refer to the following the plots for emissions values.

Test Plots

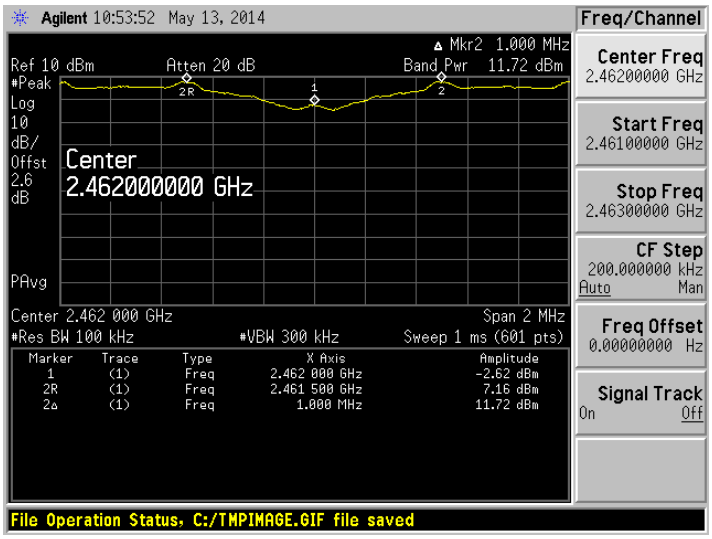
802.11b LOW CHANNEL, Reference level



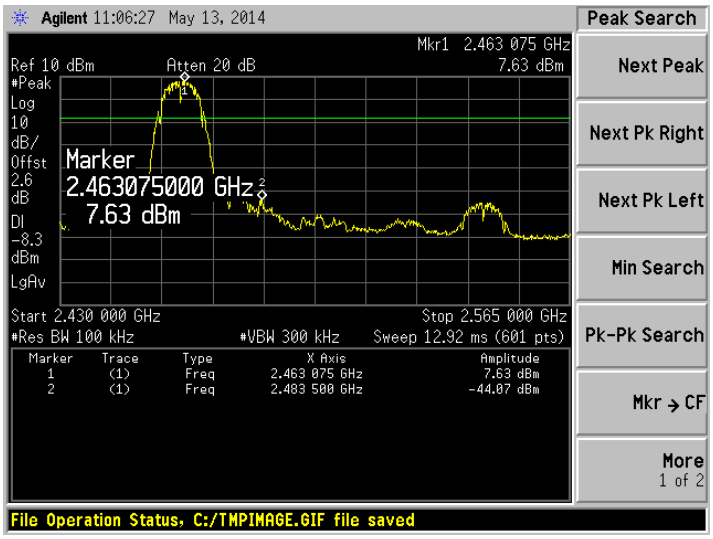
802.11b LOW CHANNEL, Band Edge



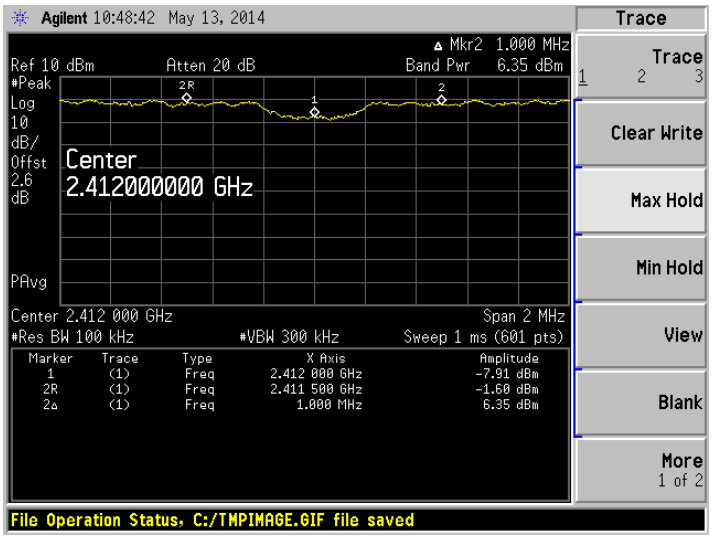
802.11b HIGH CHANNEL, Reference level



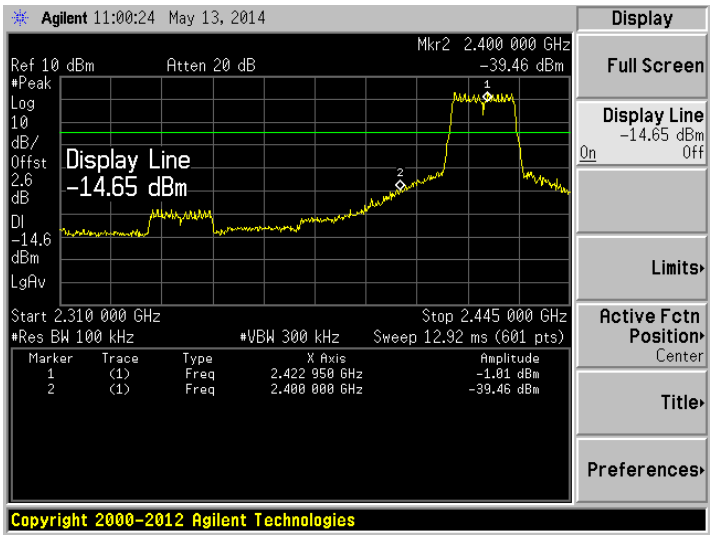
802.11b HIGH CHANNEL, Band Edge



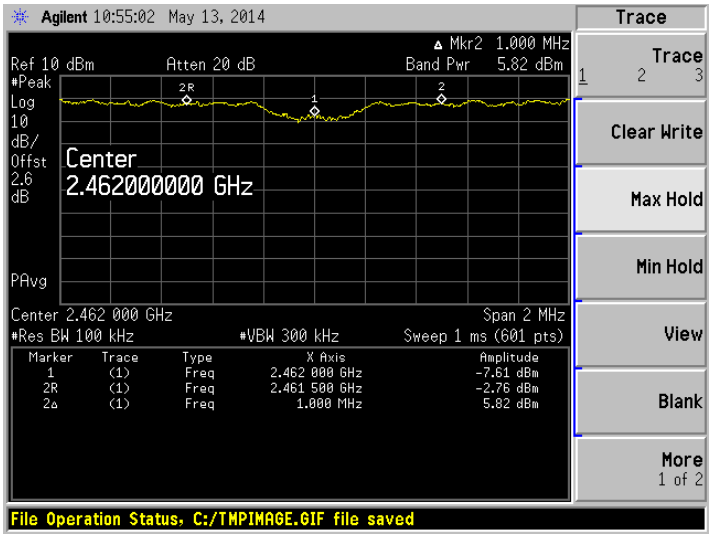
802.11g LOW CHANNEL, Reference level



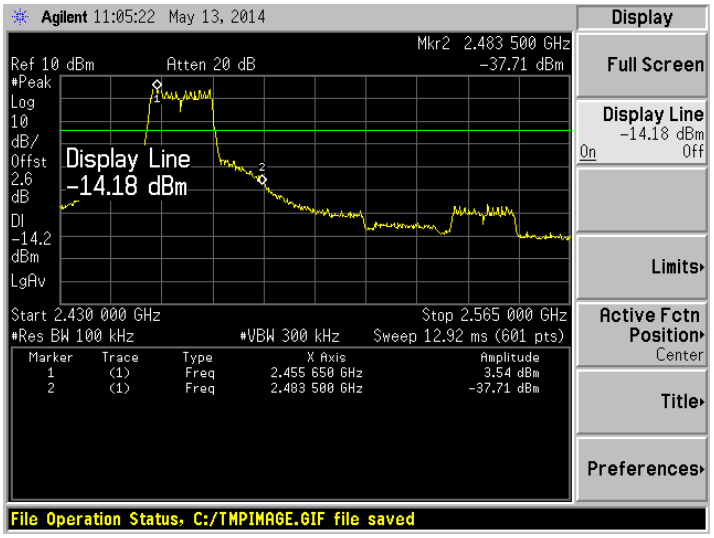
802.11g LOW CHANNEL, Band Edge



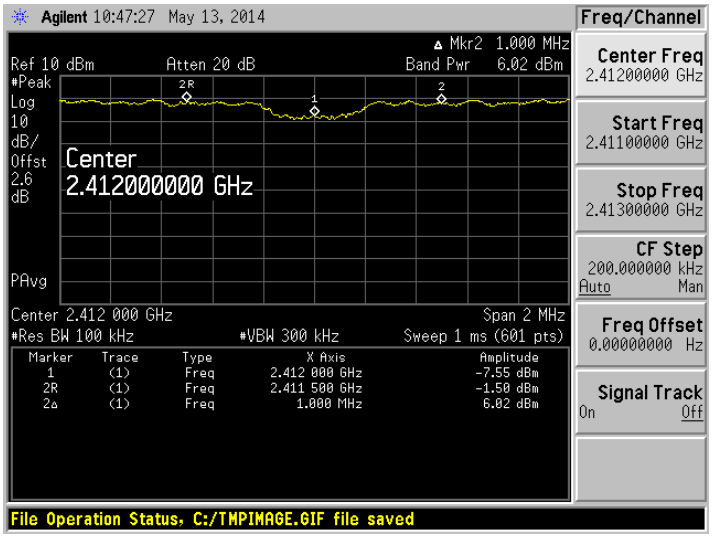
802.11g HIGH CHANNEL, Reference level



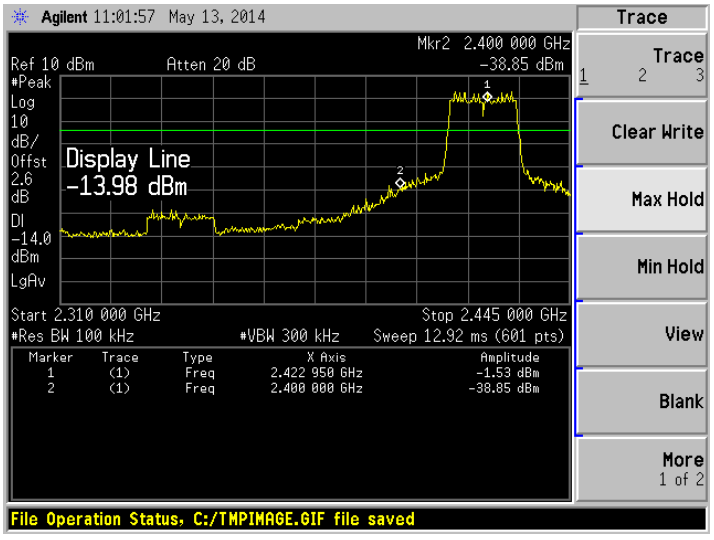
802.11g HIGH CHANNEL, Band Edge



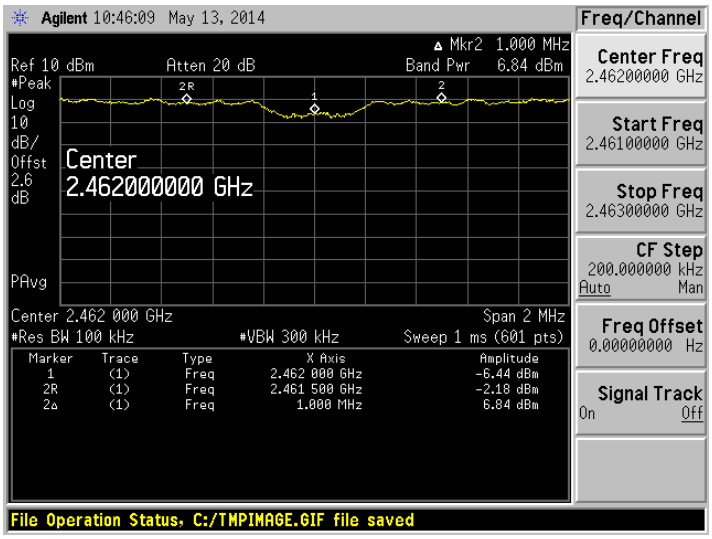
802.11n-20MHz LOW CHANNEL, Reference level



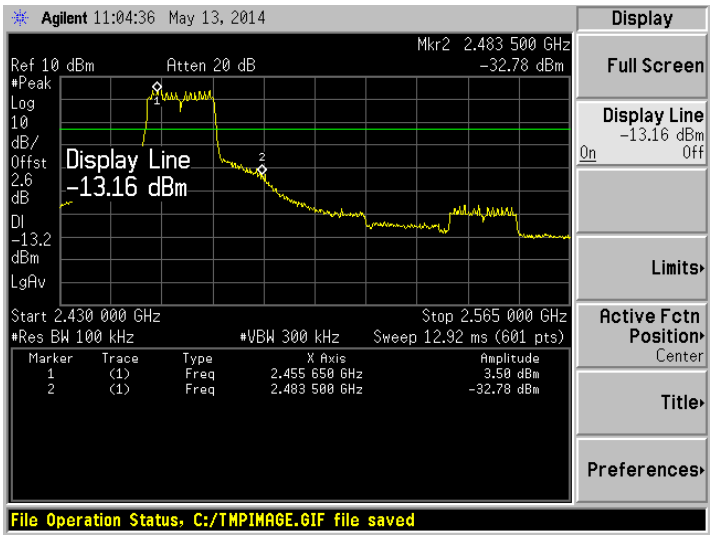
802.11n-20MHz LOW CHANNEL, Band Edge



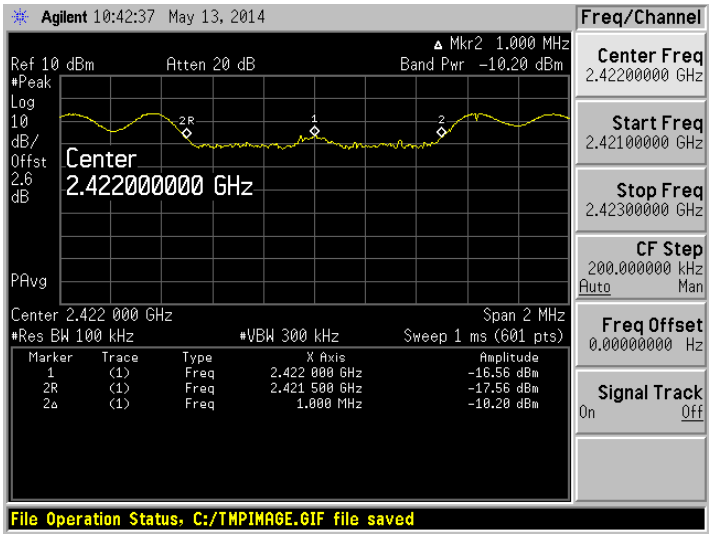
802.11n-20MHz HIGH CHANNEL, Reference level



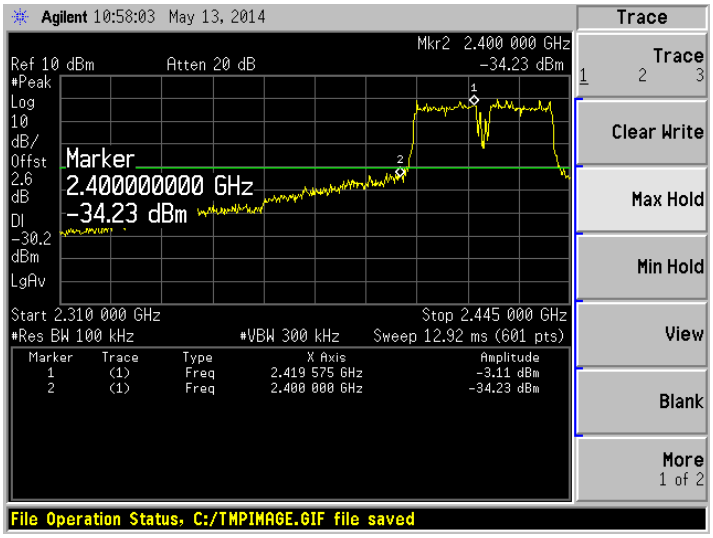
802.11n-20MHz HIGH CHANNEL, Band Edge



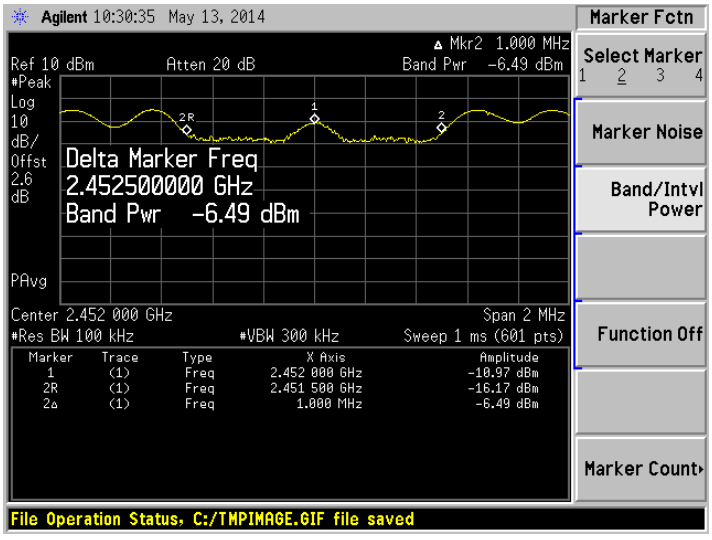
802.11n-40MHz LOW CHANNEL, Reference level



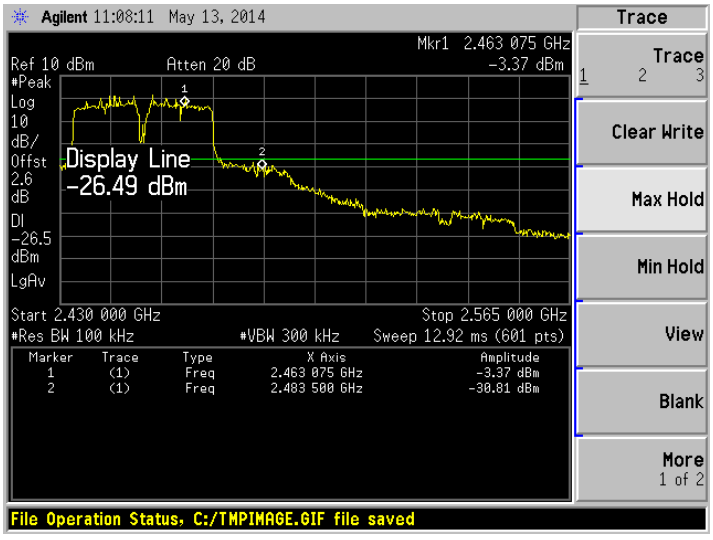
802.11n-40MHz LOW CHANNEL, Band Edge



802.11n-40MHz HIGH CHANNEL, Reference level



802.11n-40MHz HIGH CHANNEL, Band Edge



A.7 Power Spectral Density (PSD)

Test Data

802.11b Mode:

Channel	Frequency (MHz)	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	2412	-6.01	8
Middle	2437	-6.88	8
High	2462	-7.32	8

802.11g Mode:

Channel	Frequency (MHz)	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	2412	-11.44	8
Middle	2437	-11.31	8
High	2462	-10.13	8

802.11n-20MHz Mode:

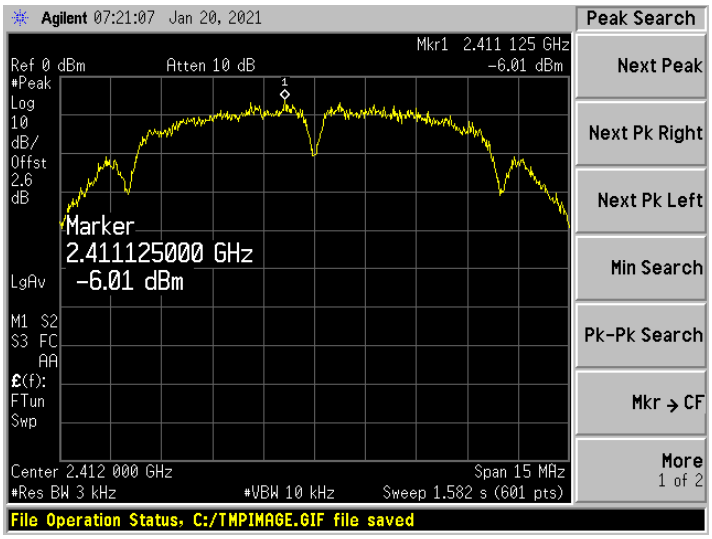
Channel	Frequency (MHz)	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	2412	-10.69	8
Middle	2437	-10.43	8
High	2462	-11.36	8

802.11n-40MHz Mode:

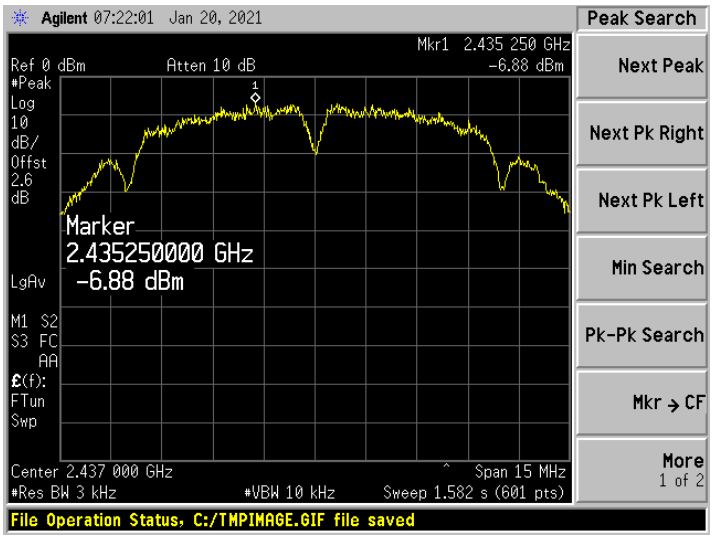
Channel	Frequency (MHz)	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	2422	-13.94	8
Middle	2437	-12.92	8
High	2452	-12.27	8

Test plots

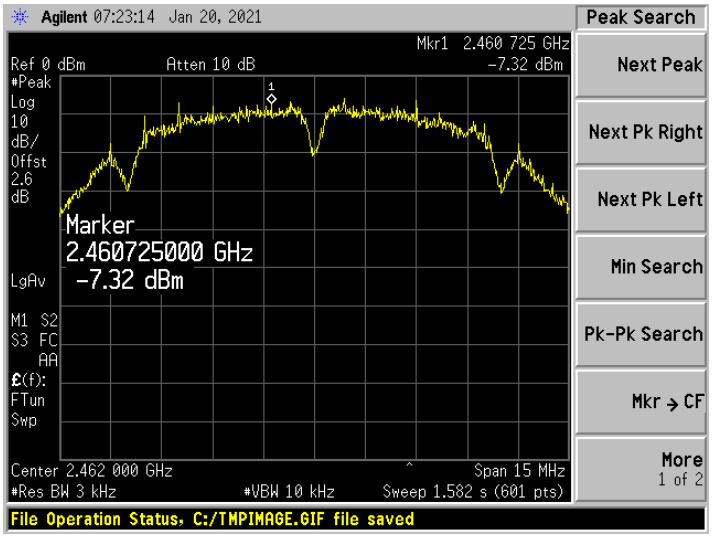
802.11b LOW CHANNEL



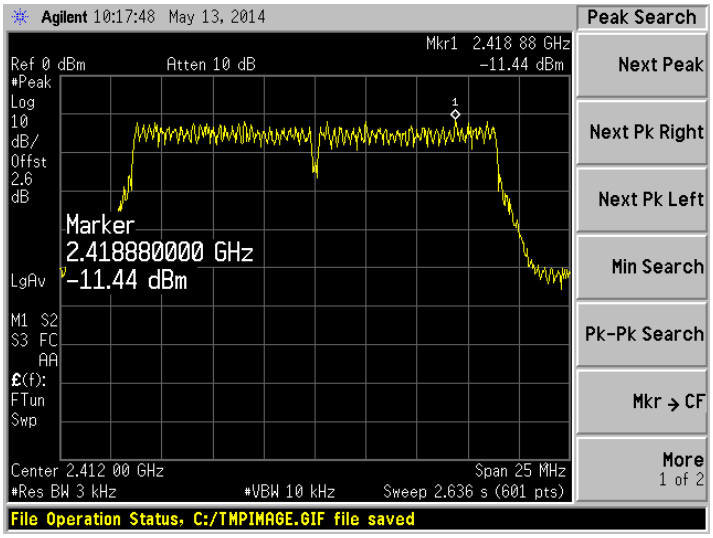
802.11b MID CHANNEL



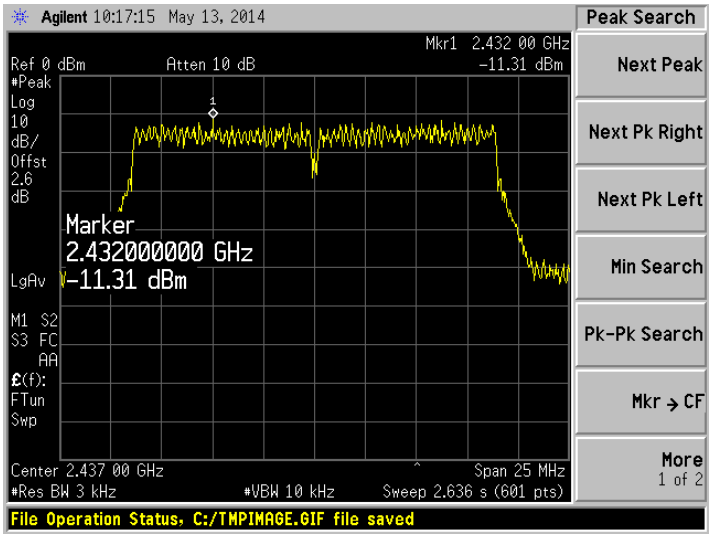
802.11b HIGH CHANNEL



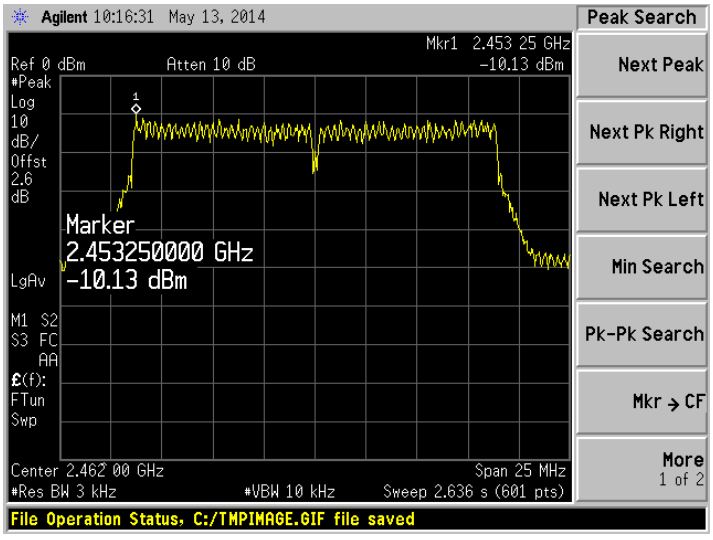
802.11g LOW CHANNEL



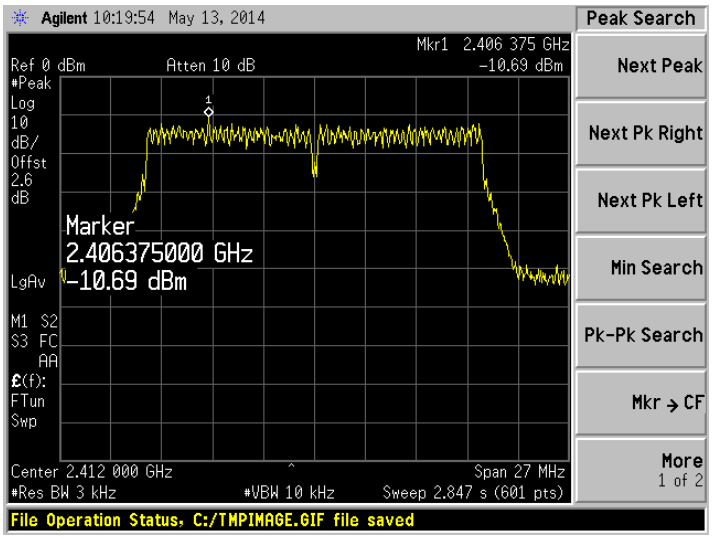
802.11g MID CHANNEL



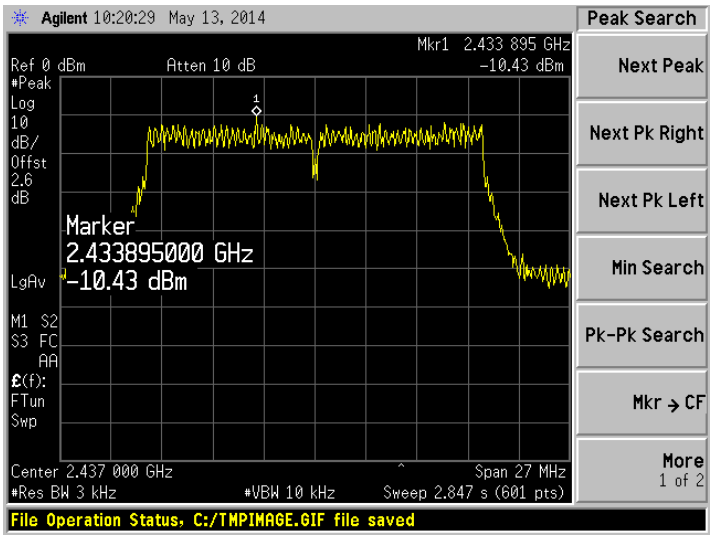
802.11g HIGH CHANNEL



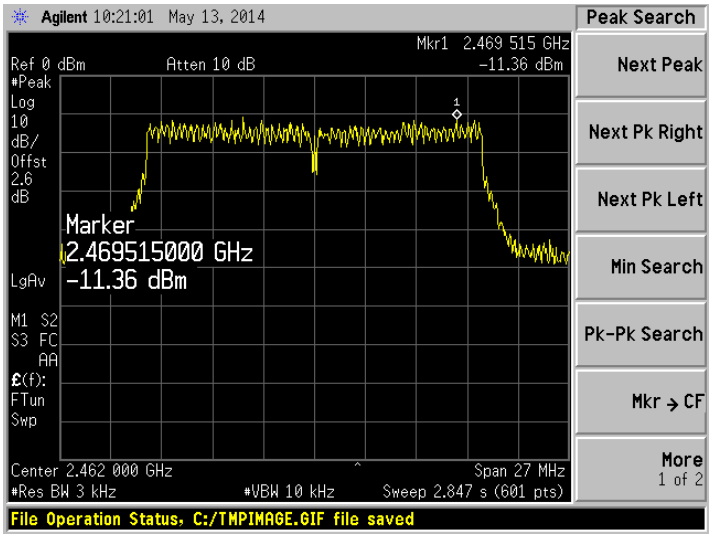
802.11n-20MHz LOW CHANNEL



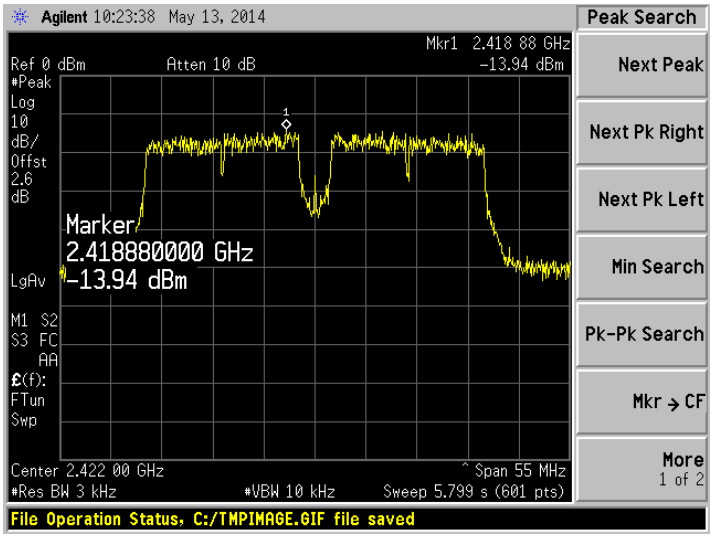
802.11 n-20MHz MID CHANNEL



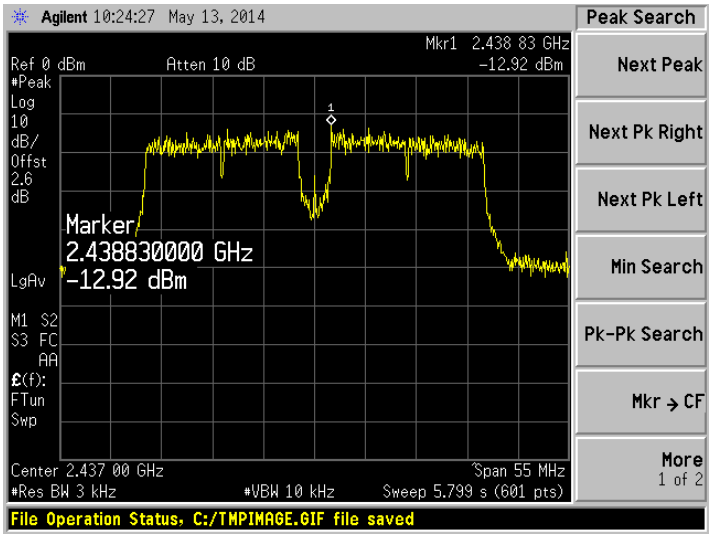
802.11n-20MHz HIGH CHANNEL



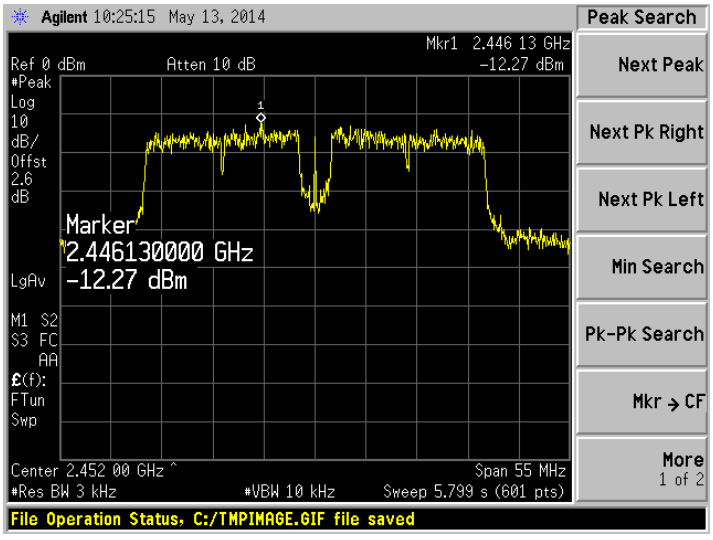
802.11n-40MHz LOW CHANNEL



802.11n-40MHz MID CHANNEL



802.11n-40MHz HIGH CHANNEL



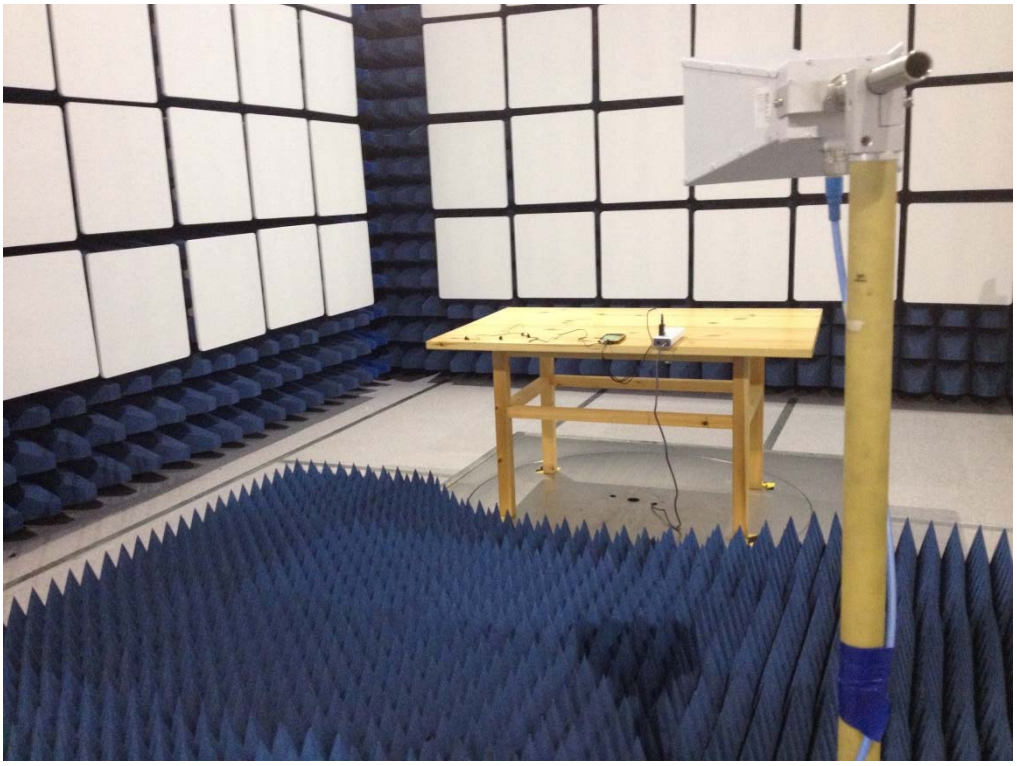
ANNEX B TEST SETUP PHOTOS

B.1. Conducted Test Photo

B.2. Radiated Test Photo

Below 30MHz

30MHz to 1GHz



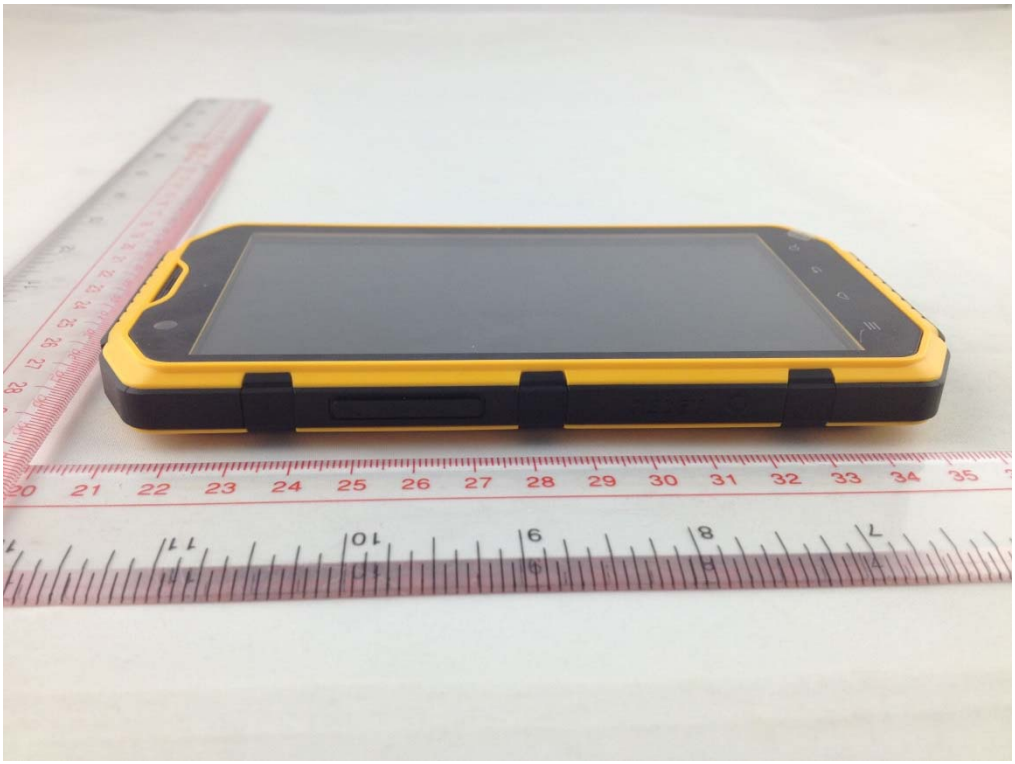
Above 1GHz

ANNEX C EUT PHOTOS

C.1 Appearance of the EUT

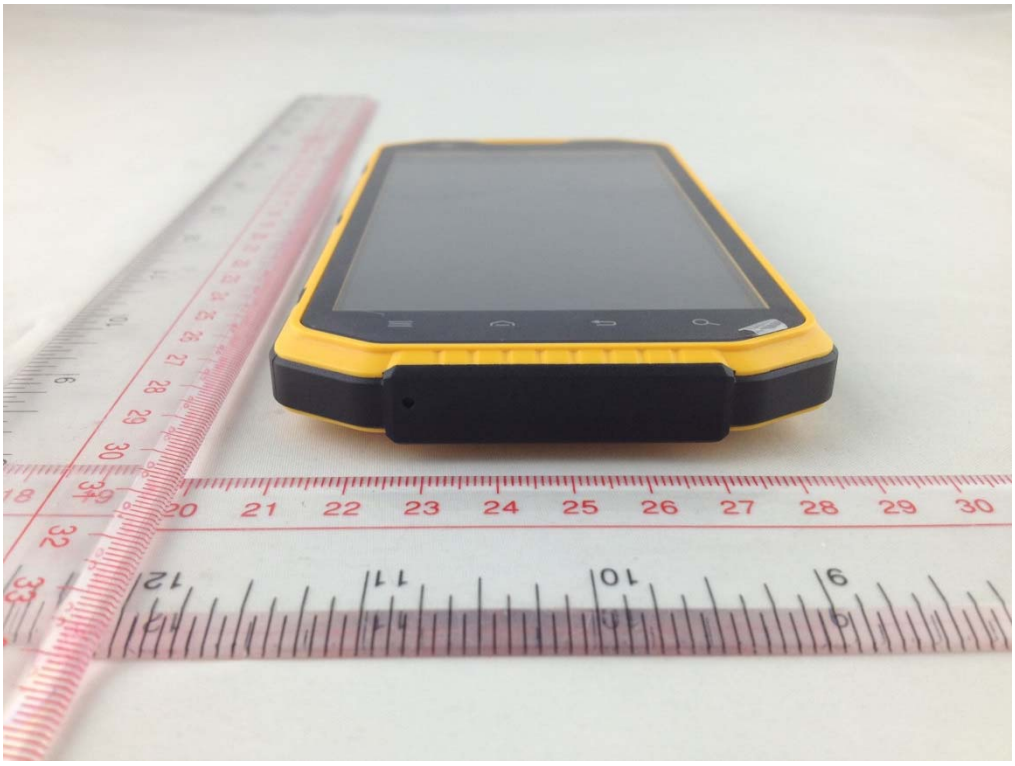
THE FRONT OF EUT

THE BACK OF EUT

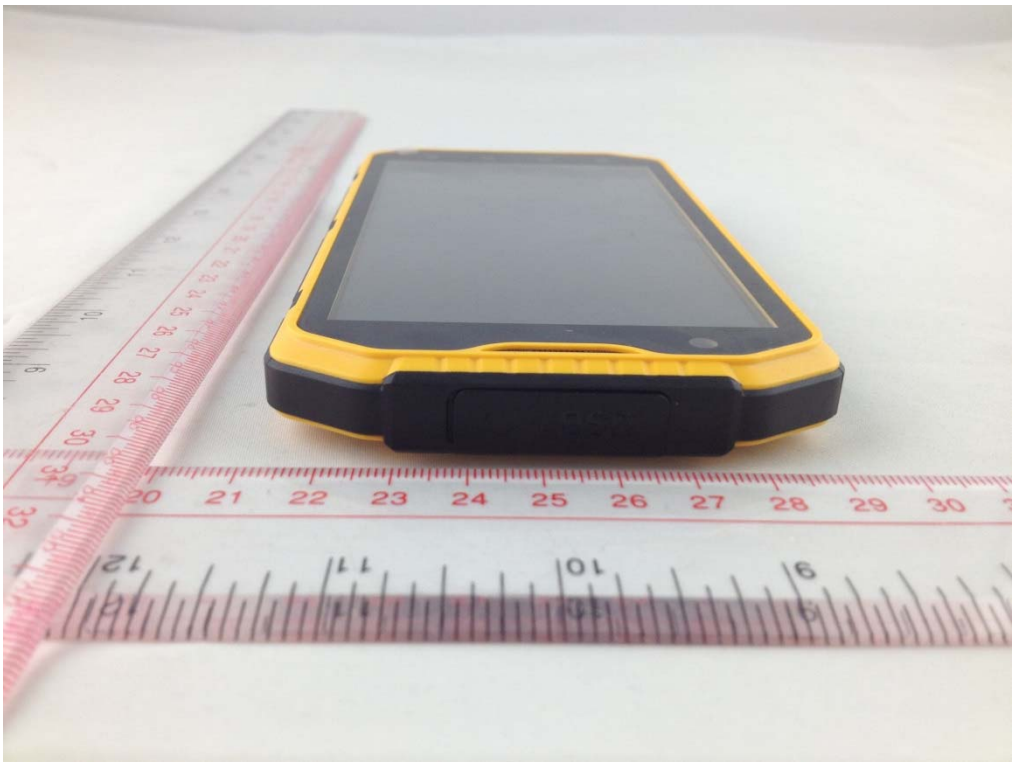


THE LEFT OF EUT

THE RIGHT OF EUT



THE UP OF EUT



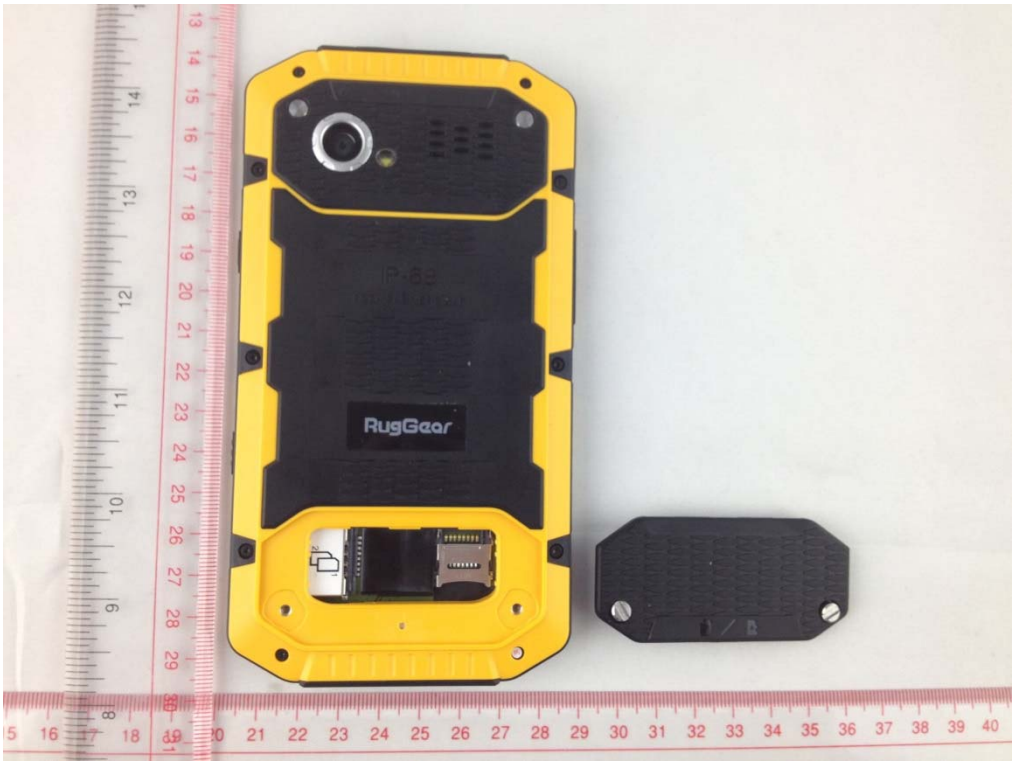
THE DOWN OF EUT

CHARGER

DATA CABLE

HEADPHONE CABLE

C.2 Inside of the EUT



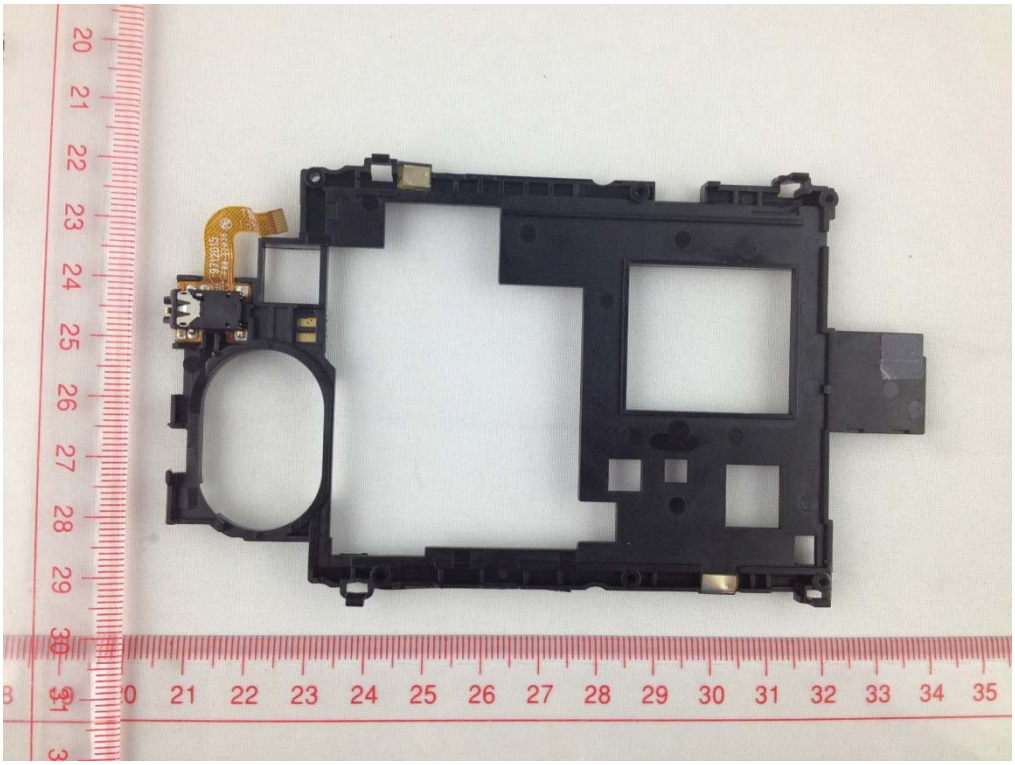
EUT UNCOVER VIEW 1

EUT UNCOVER VIEW 2

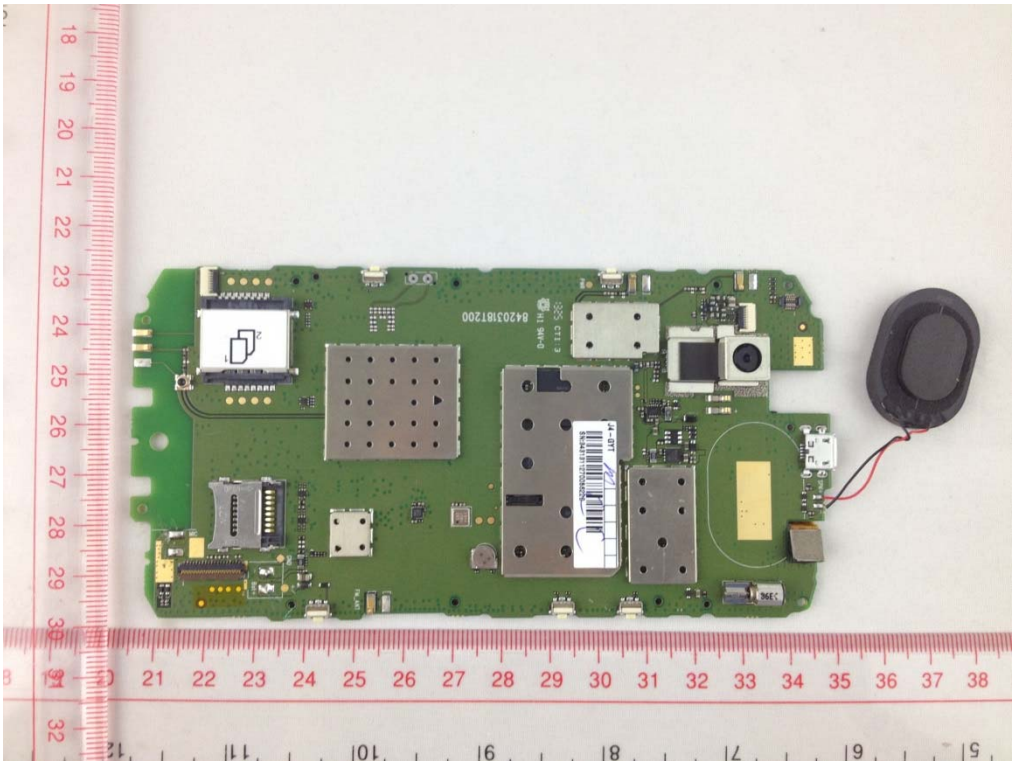
EUT UNCOVER VIEW 3

EUT UNCOVER VIEW 3

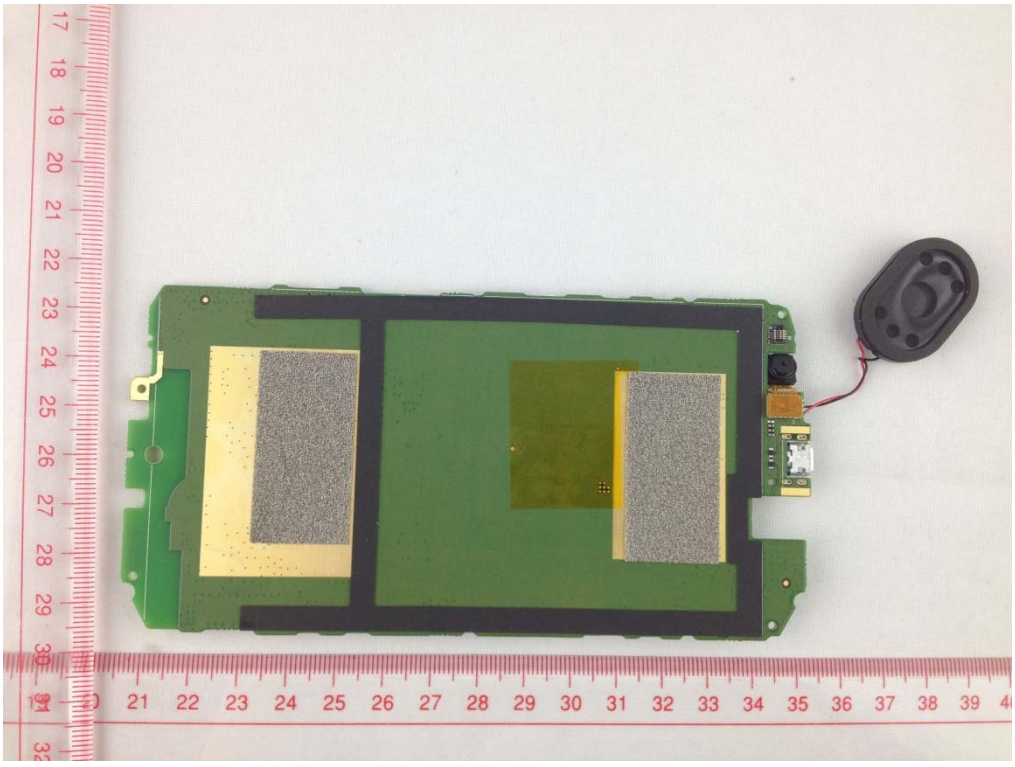
BATTERY



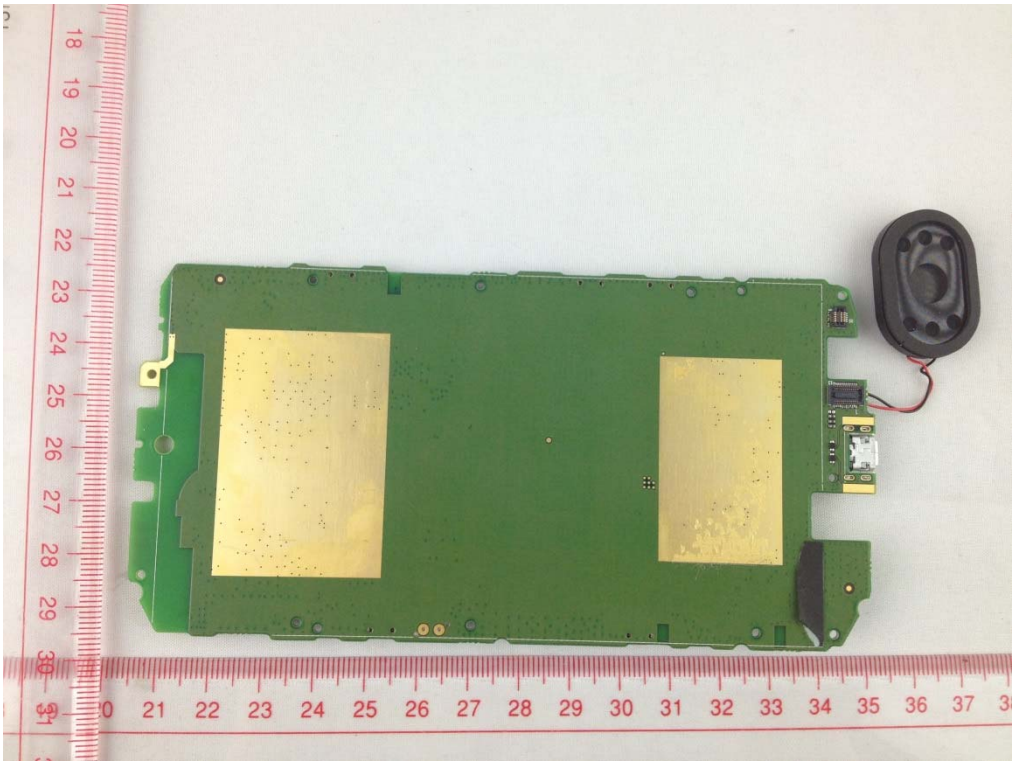
ANTENNA



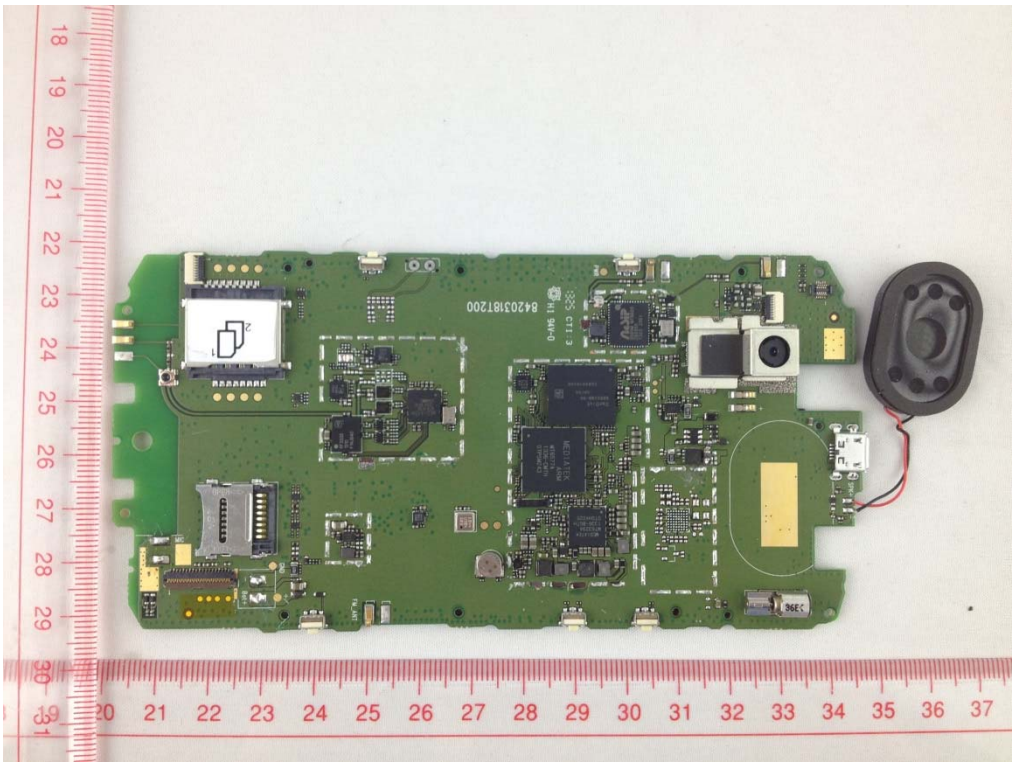
MAIN BOARD TOP VIEW 1



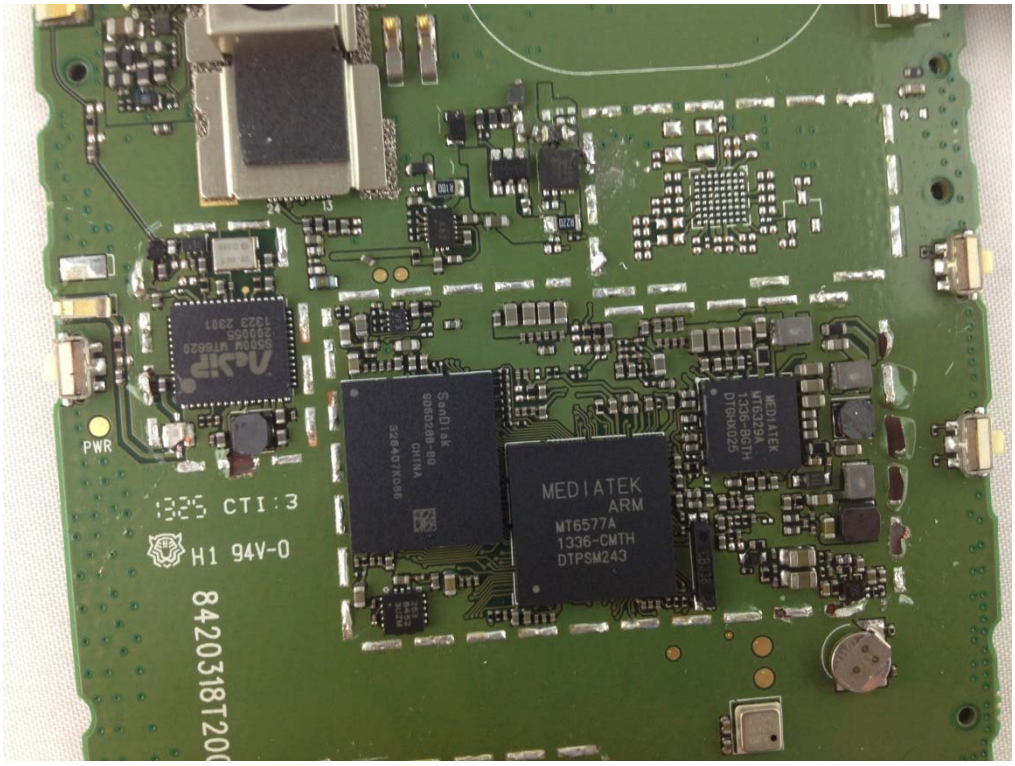
MAIN BOARD BACK VIEW 1



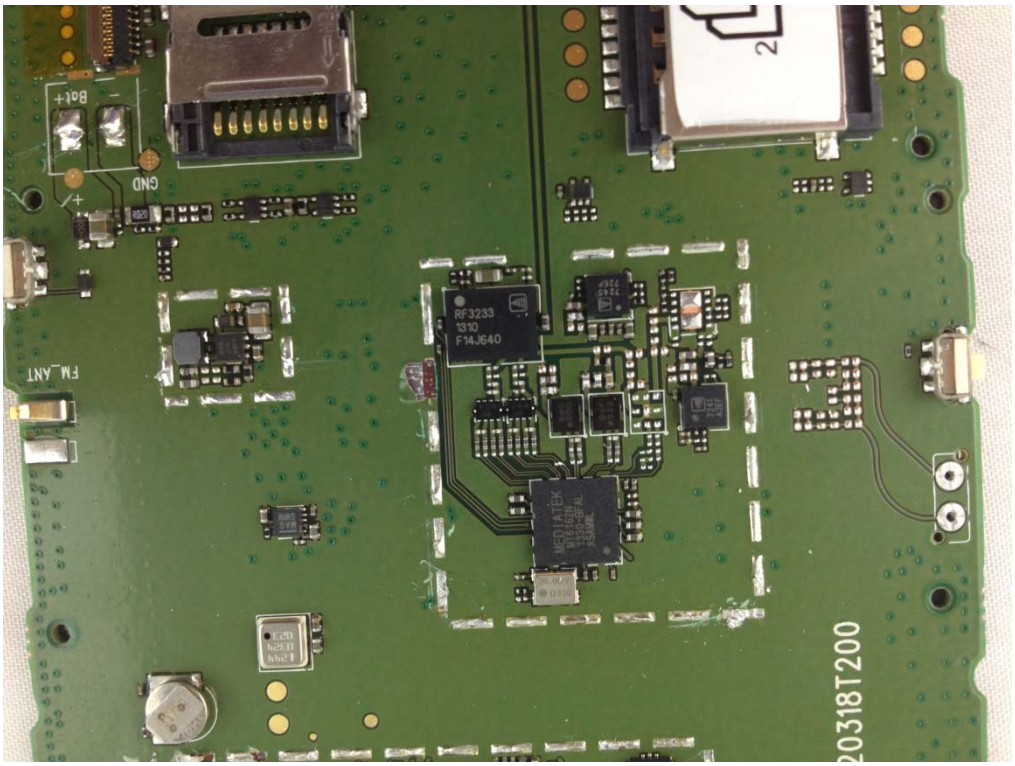
MAIN BOARD TOP VIEW 2



MAIN BOARD TOP VIEW 3



MAIN BOARD TOP VIEW 4



MAIN BOARD TOP VIEW 5

--END OF REPORT--