FCC/ISED RF TEST REPORT

ISSUED BY
Shenzhen BALUN Technology Co., Ltd.

FOR

WiFi/BT Combo Module

ISSUED TO
Dongguan Digital AV Technology Corp., Ltd.

2nd floor F2-S3 district, No.18 Haibin road, Wusha, Changan, Dongguan, Guangdong

Report No.:	BL-SZ15C0294-603
EUT Type:	WiFi/BT Combo Module
Model Name:	WUS-AC13
Brand Name:	OPPO
Test Standard:	47 CFR Part 15 Subpart C RSS-Gen (Issue 4, November 2014) RSS-247 (Issue 1, May 2015)
FCC ID:	2AGM4-WUS13
ISED Number:	20960-WUS13
Test conclusion:	Pass
Test Date:	Feb. 26, 2016 ~ Mar. 4, 2016
Date of Issue:	Mar. 15, 2016

Tested by: Cao Shaodong
(Engineer)
Date Mar. 15, 2016

Approved by: Wei Yanquan
(Chief Engineer)
Date Mar. 15. 2016

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Revision History

Version	Issue Date	Revisions Content
Rev. 01	Mar. 15, 2016	Initial Issue

TABLE OF CONTENTS

1 ADMINISTRATIVE DATA (GENERAL INFORMATION) 5

1.1 Identification of the Testing Laboratory 5

1.2 Identification of the Responsible Testing Location 5

1.3 Laboratory Condition 5

1.4 Announce 5

2 PRODUCT INFORMATION 7

2.1 Applicant 7

2.2 Manufacturer 7

2.3 Factory Information 7

2.4 General Description for Equipment under Test (EUT) 7

2.5 Ancillary Equipment 7

2.6 Technical Information 8

2.7 Additional Instructions 10

3 SUMMARY OF TEST RESULTS 11

3.1 Test Standards 11

3.2 Verdict 11

4 GENERAL TEST CONFIGURATIONS 12

4.1 Test Environments 12

4.2 Test Equipment List 12

4.3 Test Configurations 13

4.4 Test Combination 13

4.5 Description of Test Setup 13

4.5.1 For Antenna Port Test 13

4.5.2 For AC Power Supply Port Test 14

4.5.3 For Radiated Test (Below 30 MHz) 14

4.5.4 For Radiated Test (30 MHz-1 GHz) 15
4.5.5 For Radiated Test (Above 1 GHz) 15
4.6 Test Conditions 16
5 TEST ITEMS 17
5.1 Antenna Requirements 17
5.1.1 Standard Applicable 17
5.1.2 Antenna Anti-Replacement Construction 17
5.1.3 Antenna Gain 18
5.2 Output Power 19
5.2.1 Test Limit 19
5.2.2 Test Setup 19
5.2.3 Test Procedure 19
5.2.4 Test Result 20
5.3 6dB Bandwidth 21
5.3.1 Limit 21
5.3.2 Test Setup 21
5.3.3 Test Procedure 21
5.3.4 Test Result 21
5.4 Conducted Spurious Emission 22
5.4.1 Limit 22
5.4.2 Test Setup 22
5.4.3 Test Procedure 22
5.4.4 Test Result 23
5.5 Band Edge (Authorized-band band-edge) 24
5.5.1 Limit 24
5.5.2 Test Setup 24
5.5.3 Test Procedure 24
5.5.4 Test Result 25
5.6 Conducted Emission 26
5.6.1 Limit 26
5.6.2 Test Setup 26

5.6.3 Test Procedure 26
5.6.4 Test Result 26
5.7 Radiated Spurious Emission 27
5.7.1 Limit 27
5.7.2 Test Setup 27
5.7.3 Test Procedure 27
5.7.4 Test Result 30
5.8 Power Spectral density (PSD) 31
5.8.1 Limit 31
5.8.2 Test Setup 31
5.8.3 Test Procedure 31
5.8.4 Test Result 31
5.9 Receiver Spurious Emissions 32
5.9.1 Limit 32
5.9.2 Test Setup 32
5.9.3 Test Procedure 32
5.9.4 Test Result 32
ANNEX A TEST RESULT 33
A.1 Output Power 33
A.2 Bandwidth 35
A.3 Conducted Spurious Emissions 41
A.4 Band Edge (Authorized-band band-edge) 59
A.5 Conducted Emissions 73
A.6 Radiated Emission 75
A.7 Power Spectral Density (PSD) 87
A.8 Receiver Spurious Emissions 92
ANNEX B TEST SETUP PHOTOS 96
ANNEX C EUT EXTERNAL PHOTOS 96
ANNEX D EUT INTERNAL PHOTOS 96

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 6685 0100
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 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 Laboratory Condition

Ambient Temperature	20 to 25℃
Ambient Relative Humidity	45% - 55%
Ambient Pressure	100 kPa - 102 kPa

1.4 Announce

(1) The test report reference to the report template version v2.1.

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

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

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

(5) 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.

(6) 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	Dongguan Digital AV Technology Corp., Ltd.
Address	2nd floor F2-S3 district, No.18 Haibin road, Wusha, Changan, Dongguan, Guangdong

2.2 Manufacturer

Manufacturer	Dongguan Digital AV Technology Corp., Ltd.
Address	2nd floor F2-S3 district, No.18 Haibin road, Wusha, Changan, Dongguan, Guangdong

2.3 Factory Information

Factory	Dongguan Digital AV Technology Corp., Ltd.
Address	2nd floor F2-S3 district, No.18 Haibin road, Wusha, Changan, Dongguan, Guangdong

2.4 General Description for Equipment under Test (EUT)

EUT Type	WiFi/BT Combo Module
Model Name Under Test	WUS-AC13
Hardware Version	A1
Software Version	N/A
Network and Wireless connectivity	Bluetooth 3.0, Bluetooth 4.0 Low Energy (BLE) WIFI 802.11a, 802.11b, 802.11g, 802.11n(HT20/40) and 802.11ac

2.5 Ancillary Equipment

N/A

2.6 Technical Information

The requirement for the following technical information of the EUT was tested in this report:

TX/ RX Operating Range		802.11b/g/n(20 MHz): 2.412 GHz - 2.462 GHz 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(40 MHz): 2.422 GHz - 2.452 GHz 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
Product Type		Indoor
Antenna System (eg., MIMO, Smart Antenna)		Cyclic Delay Diversity (CDD) for 802.11n Unequal antenna gains, with equal transmit powers for 802.11b/g
Categorization as Correlated or Completely Uncorrelated		Correlated
Antenna Type	Antenna 0 (ANT 0)	PCB Antenna
	Antenna 1 (ANT 1)	
Antenna Gain	Antenna 0 (ANT 0)	3.5 dBi
	Antenna 1 (ANT 1)	5.4 dBi
Total directional gain for 802.11n	For power spectral density(PSD) measurements	5.4 Formulas: Directional gain = G_{ANT} + Array Gain, *Array Gain = 10 log(N_{ANT}/N_{SS}) dB*. N_{SS} =2, G_{ANT} set equal to the gain of the antenna having the highest gain.
	For power measurements	5.4 Formulas: Directional gain = G_{ANT} + Array Gain, *Array Gain* = 0.
	For Conducted Out-of-Band and Spurious Measurements	5.4 Formulas: Directional gain = G_{ANT} + Array Gain, *Array Gain = 10 log(N_{ANT}/N_{SS}) dB*. N_{SS} =2, G_{ANT} set equal to the gain of the antenna having the highest gain.
Total directional gain for 802.11b/g	For power spectral density(PSD) measurements	7.5 Formulas: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2 / N_{ANT}]$ dBi
	For power measurements	7.5 Formulas: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2 / N_{ANT}]$ dBi
	For Conducted Out-of-Band and Spurious Measurements	7.5 Formulas: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2 / N_{ANT}]$ dBi

Modulation technology	Modulation Type	Transfer Rate (Mbps)	The Frequency Equal to the Transmission Rate of Modulation Signal
DSSS (802.11b)	DBPSK	1	1 MHz
	DQPSK	2	
	CCK	5.5/ 11	1.375 MHz
OFDM (802.11g)	BPSK	6 / 9	1 MHz
	QPSK	12 / 18	
	16QAM	24 / 36	
	64QAM	48 / 54	
OFDM (802.11n-20MHz)	BPSK	6.5	1 MHz
	QPSK	13/19.5	
	16QAM	26/39	
	64QAM	52/58.5/65	
OFDM (802.11n-40MHz)	BPSK	13.5	1 MHz
	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	
Output Power	11b/11g/11n20/11n40	1/6/6.5/13.5 Mbps	1/6/11	3/6/9
6dB Bandwidth	11b/11g/11n20/11n40	1/6/6.5/13.5 Mbps	1/6/11	3/6/9
Conducted Spurious Emission	11b/11g/11n20/11n40	1/6/6.5/13.5 Mbps	1/6/11	3/6/9
Conducted Emission	11b/11g/11n20/11n40	1/6/6.5/13.5 Mbps	1/6/11	3/6/9
Radiated Spurious Emission	11b/11g/11n20/11n40	1/6/6.5/13.5 Mbps	1/6/11	3/6/9
Band Edge	11b/11g/11n20/11n40	1/6/6.5/13.5 Mbps	1/6/11	3/6/9
Power spectral density (PSD)	11b/11g/11n20/11n40	1/6/6.5/13.5 Mbps	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.

2.7 Additional Instructions

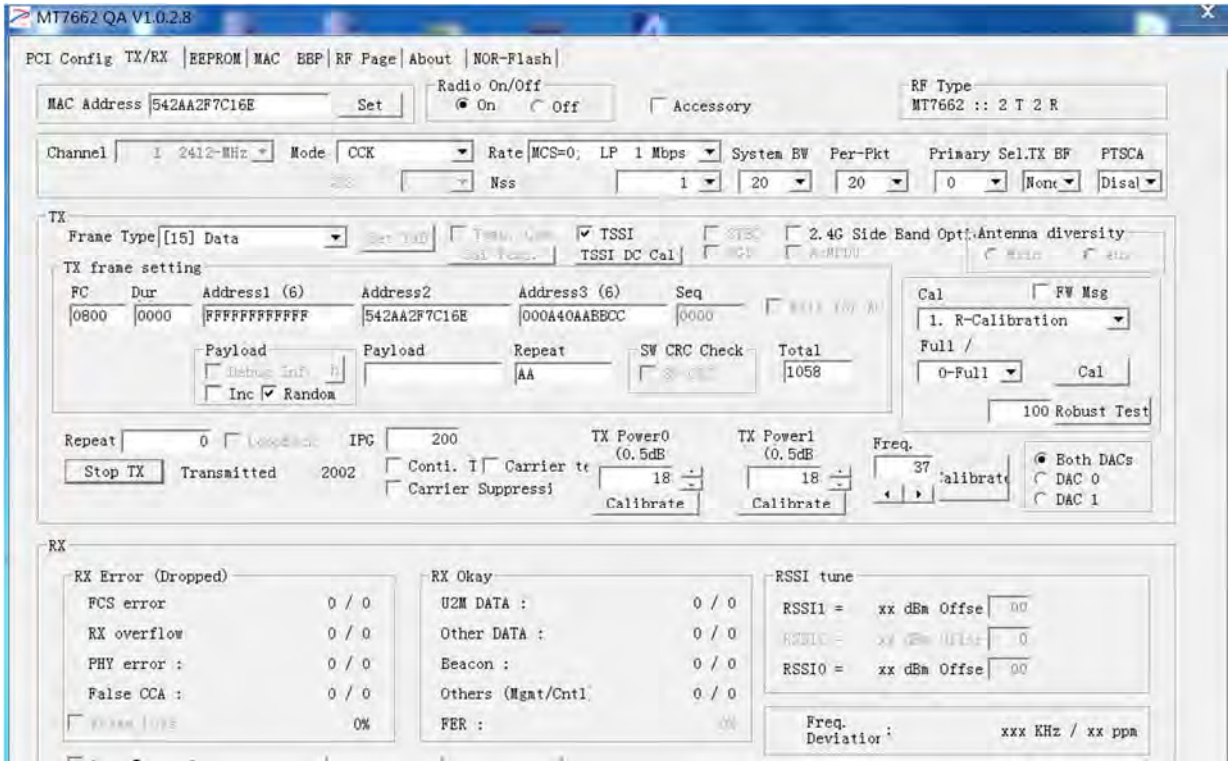
Mode	☒ Special software is used. The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

During testing. Channel and Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

EUT Software Settings:

Power level setup in software				
Test Software Version	MT7662 QA V1.0.2.8			
Mode	Channel	Frequency (MHz)	Soft Set	
11b	CH1	2412	1e	1e
11b	CH6	2437	1e	1e
11b	CH11	2462	1e	1e
11g	CH1	2412	1c	1c
11g	CH6	2437	20	20
11g	CH11	2462	20	20
11n (HT20)	CH1	2412	1a	1a
11n (HT20)	CH6	2437	20	20
11n (HT20)	CH11	2462	20	20
11n (HT40)	CH3	2422	20	20
11n (HT40)	CH6	2437	20	20
11n (HT40)	CH9	2452	20	20

Run Software



3 SUMMARY OF TEST RESULTS

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 15, Subpart C (10-1-14 Edition)	Miscellaneous Wireless Communications Services
2	KDB Publication 662911 D01 v02r01	Emission Testing of Transmitters with Multiple Outputs in the same Band(e.g., MIMO, Smart Antenna, etc)
3	RSS-Gen (Issue 4, Nov. 2014)	General Requirements for Compliance of Radio Apparatus
4	RSS-247 (Issue 1, May 2015)	Digital Transmission Systems (DTSs), Frequency Hopping Systems(FHSs) and Licence-Exemp Local Area Network (LE-LAN) Devices
5	ANSI C63.4-2014	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
6	ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices

3.2 Verdict

No.	Description	Part No.	Test Result	Verdict
1	Antenna Requirement	RSS-247, 5.4 (6); 15.203; 15.247(b)	Note1	Pass
2	Output Power	RSS-247, 5.4 (4); 15.247(b)	ANNEX A.1	Pass
3	6dB Bandwidth	RSS-GEN, 6.6; RSS-247, 5.2 (1); 15.247(a)	ANNEX A.2	Pass
4	Conducted Spurious Emission	RSS-247, 5.5; 15.247(d)	ANNEX A.3	Pass
5	Band Edge	RSS-247, 5.5; 15.247(d)	ANNEX A.4	Pass
6	Conducted Emission	RSS-GEN, 8.8; 15.207	ANNEX A.5	Pass
7	Radiated Spurious Emission	RSS-247, 5.5; 15.209; 15.247(d)	ANNEX A.6	Pass
8	Power spectral density (PSD)	RSS-247, 5.2 (2); 15.247(e)	ANNEX A.7	Pass
10	Receiver Spurious Emissions	RSS-Gen, 7.1.2	ANNEX A.8	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	45% - 55%	
Atmospheric Pressure	100 kPa - 102 kPa	
Temperature	NT (Normal Temperature)	+22℃ to +25℃
Working Voltage of the EUT	NV (Normal Voltage)	3.3 V

4.2 Test Equipment List

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer	ROHDE&SCHWARZ	FSV-30	103118	2015.07.16	2016.07.15
Vector Signal Generator	ROHDE&SCHWARZ	SMBV100A	177746	2015.07.16	2016.07.15
Signal Generator	ROHDE&SCHWARZ	SMB100A	260592	2015.07.01	2016.06.30
Switch Unit with OSP-B157	ROHDE&SCHWARZ	OSP120	101270	2015.07.16	2016.07.15
Spectrum Analyzer	AGILENT	E4440A	MY45304434	2015.10.18	2016.10.17
EMI Receiver	ROHDE&SCHWARZ	ESRP	101036	2015.07.14	2016.07.13
LISN	SCHWARZBECK	NSLK 8127	8127-687	2015.07.14	2016.07.13
Bluetooth Tester	ROHDE&SCHWARZ	CBT	101005	2015.07.16	2016.07.15
Power Splitter	KMW	DCPD-LDC	1305003215	2015.07.01	2016.06.30
Power Sensor	ROHDE&SCHWARZ	NRP-Z21	103971	2015.07.21	2016.07.20
Attenuator (20 dB)	KMW	ZA-S1-201	110617091	--	--
Attenuator (6 dB)	KMW	ZA-S1-61	1305003189	--	--
DC Power Supply	ROHDE&SCHWARZ	HMP2020	018141664	2015.07.17	2016.07.16
Temperature Chamber	ANGELANTIONI SCIENCE	NTH64-40A	1310	2015.08.07	2016.08.06
Test Antenna-Loop(9 kHz-30 MHz)	SCHWARZBECK	FMZB 1519	1519-037	2015.07.22	2017.07.21
Test Antenna-Bi-Log(30 MHz-3 GHz)	SCHWARZBECK	VULB 9163	9163-624	2015.07.22	2017.07.21
Test Antenna-Horn(1-18 GHz)	SCHWARZBECK	BBHA 9120D	9120D-1148	2015.07.22	2017.07.21
Test Antenna-Horn(15-26.5 GHz)	SCHWARZBECK	BBHA 9170	9170-305	2015.07.22	2017.07.21
Anechoic Chamber	RAINFORD	9m*6m*6m	N/A	2015.02.28	2017.02.27
Shielded Enclosure	ChangNing	CN-130701	130703	--	--

4.3 Test Configurations

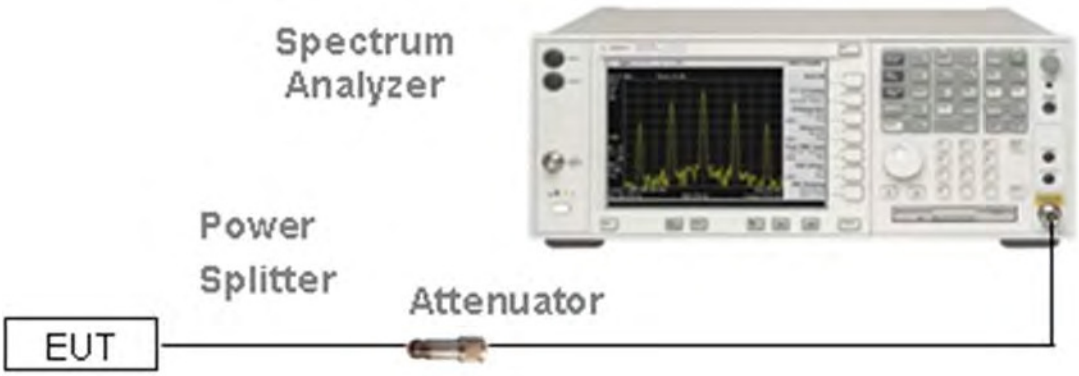
Test Configurations (TC) NO.	Description	
	Signal Description	Operating Frequency
Transmitter		
TC01	DSSS modulation, 802.11b	Ch No. 1/ 2412 MHz
TC02	DSSS modulation, 802.11b	Ch No. 6/ 2437 MHz
TC03	DSSS modulation, 802.11b	Ch No. 11/ 2462 MHz
TC04	OFDM modulation, 802.11g	Ch No. 1/ 2412 MHz
TC05	OFDM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

4.4 Test Combination

	Antenna 0	Antenna 1	Antenna 0 & Antenna 1
CASE 1	√	√	
CASE 2	√	√	
CASE 3			√

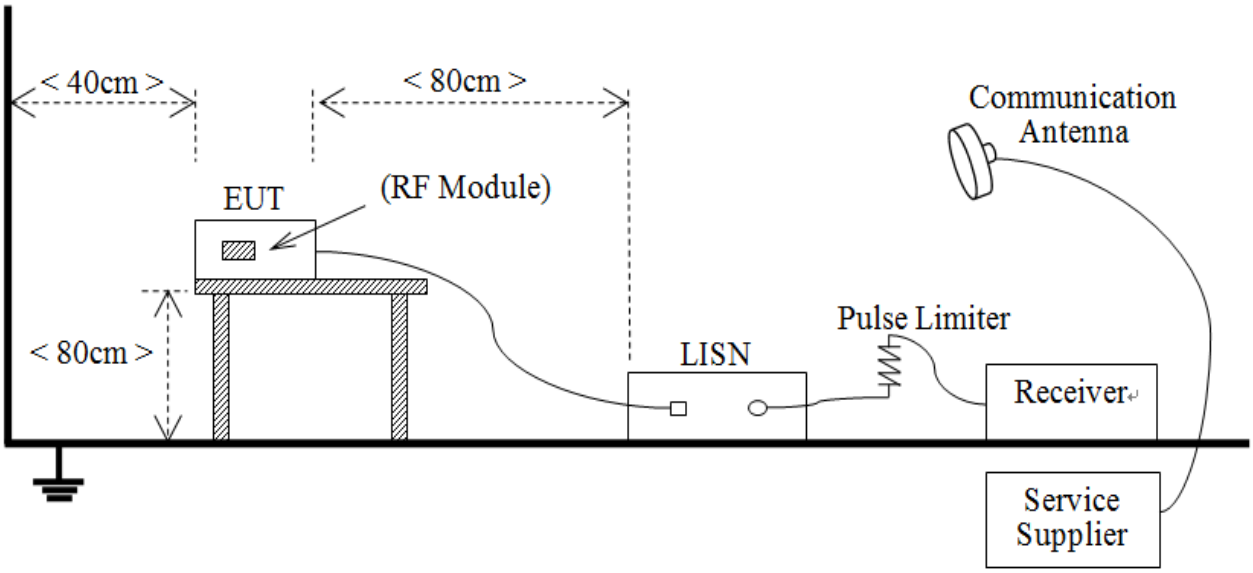
4.5 Description of Test Setup

4.5.1 For Antenna Port Test



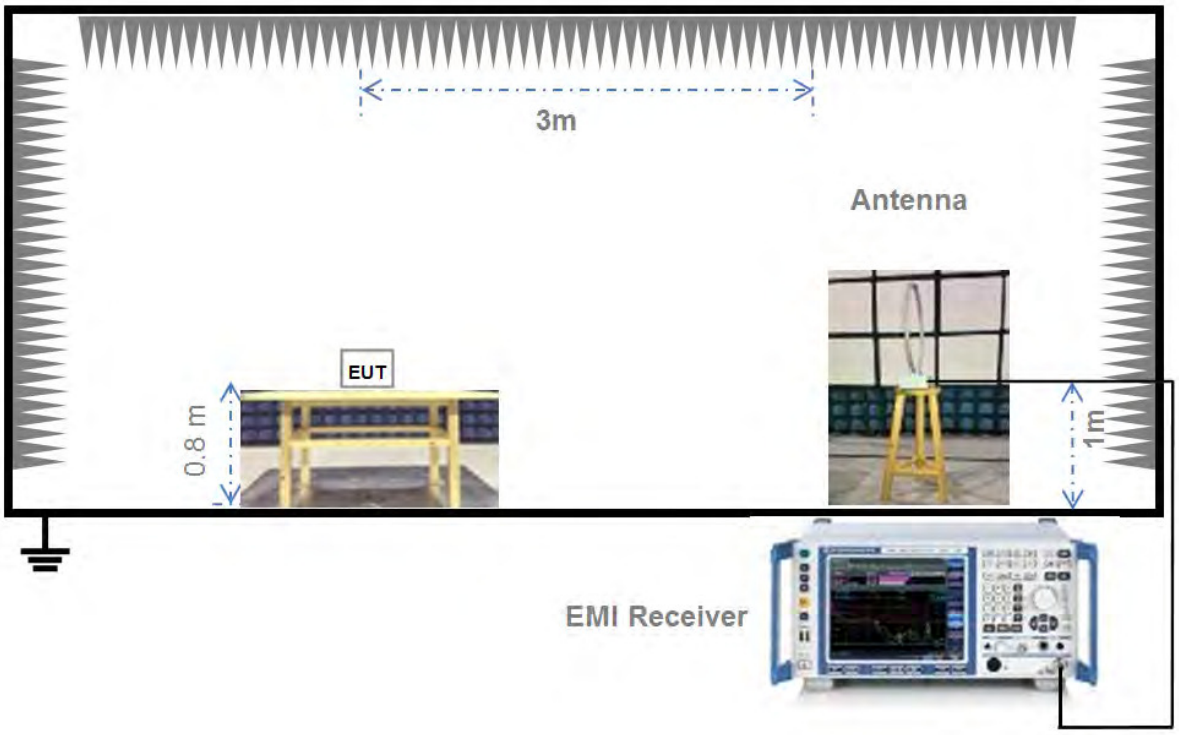
(Diagram 1)

4.5.2 For AC Power Supply Port Test



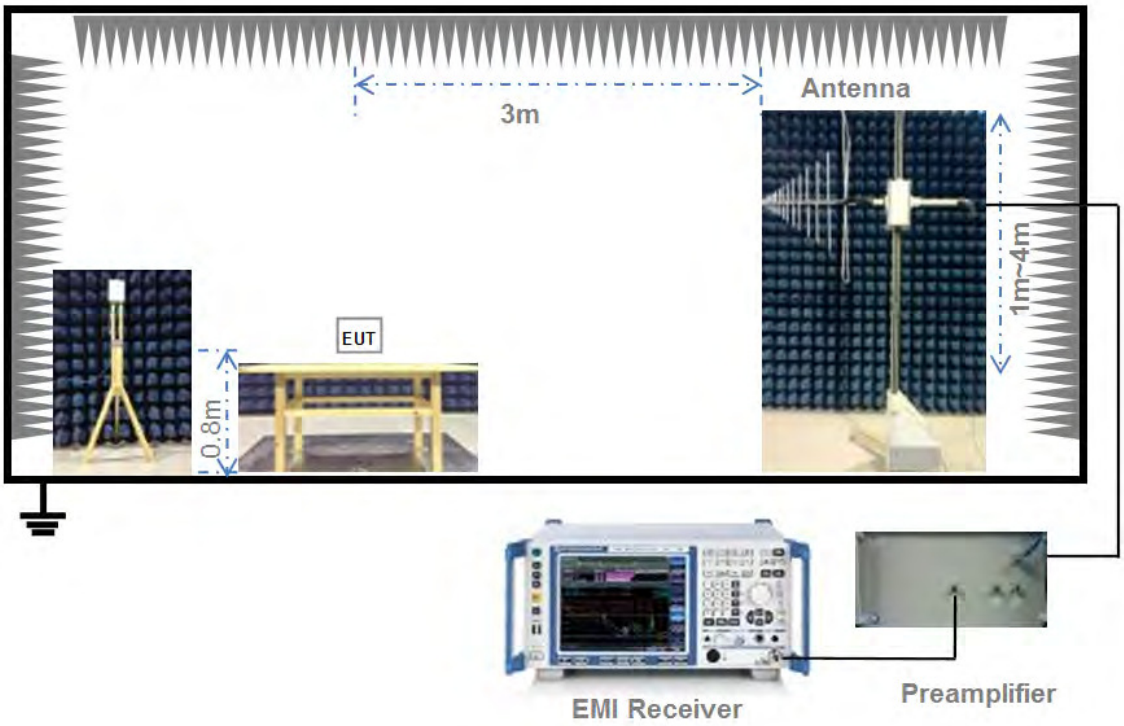
(Diagram 2)

4.5.3 For Radiated Test (Below 30 MHz)



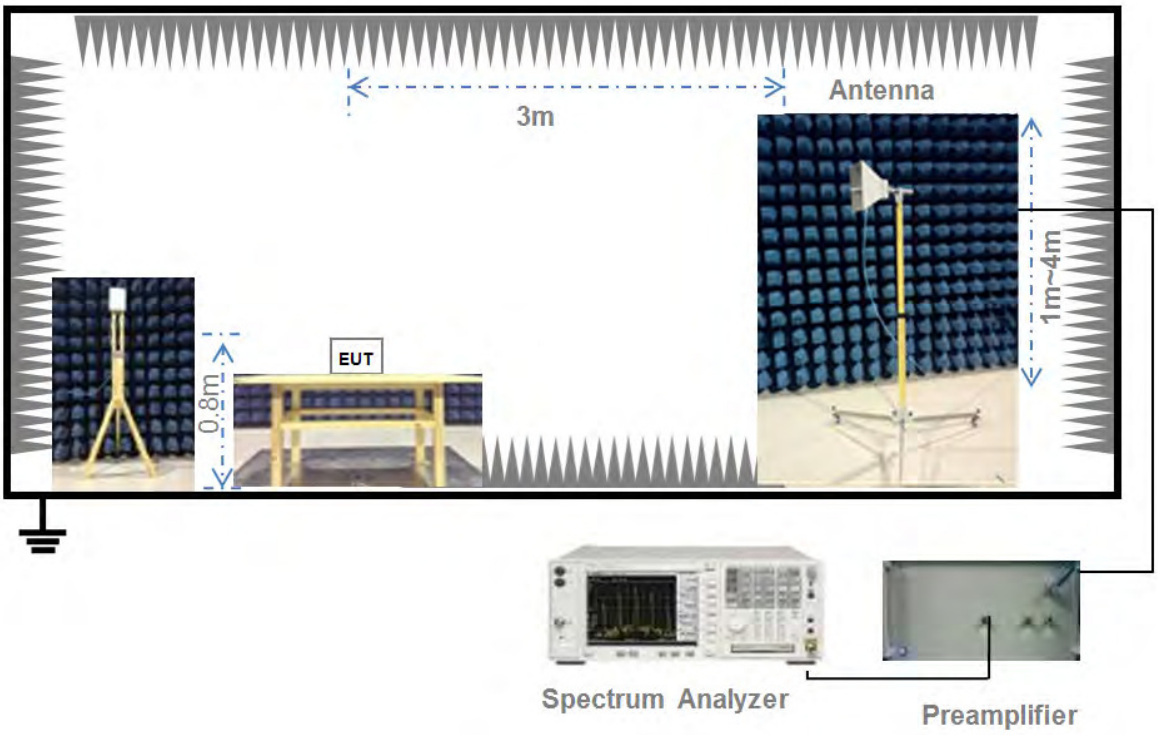
(Diagram 3)

4.5.4 For Radiated Test (30 MHz-1 GHz)



(Diagram 4)

4.5.5 For Radiated Test (Above 1 GHz)



(Diagram 5)

4.6 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 1	TC01~TC12

Note:
1. Please refer to section 4.4 for test setup details.
2. Please refer to section 4.3 for test configuration details.

5 TEST ITEMS

5.1 Antenna Requirements

5.1.1 Standard Applicable

RSS-247, 5.4 (6); 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.

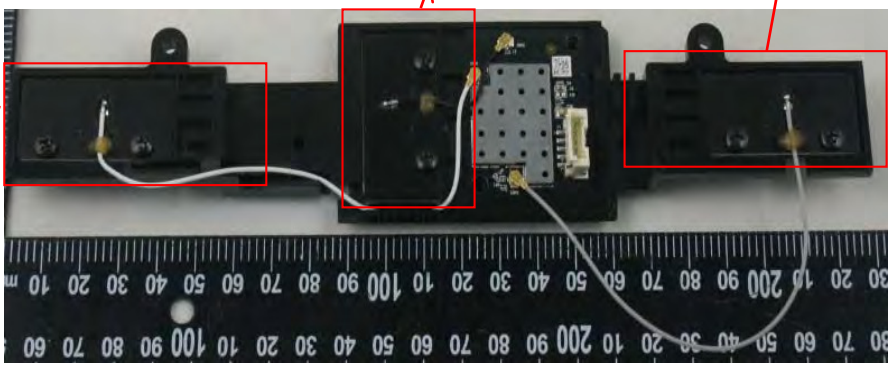
If directional gain of transmitting antennas is greater than 6 dBi, the power shall be reduced by the same level in dB comparing to gain minus 6 dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi. The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

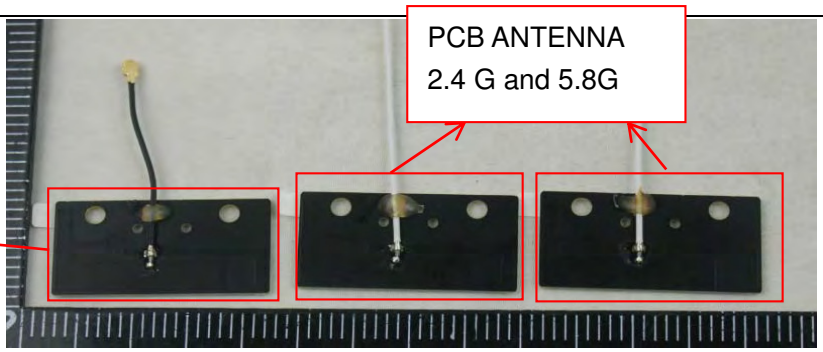
5.1.2 Antenna Anti-Replacement Construction

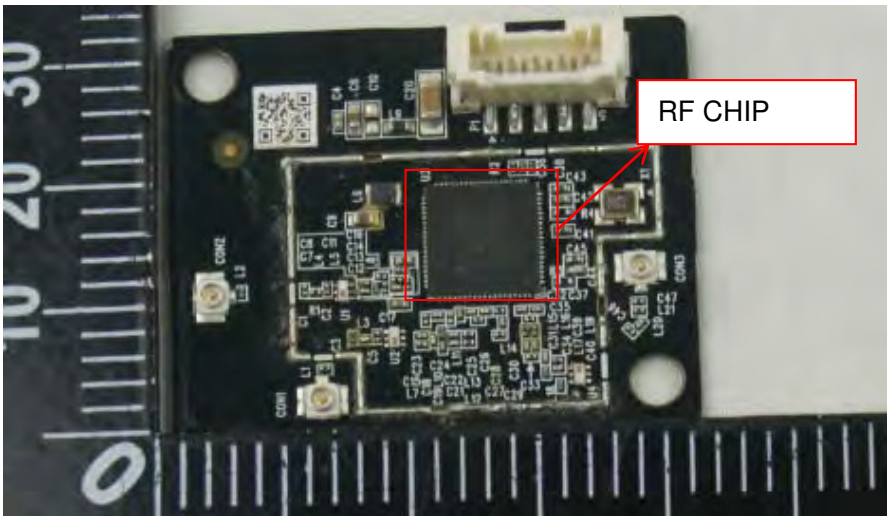
Note: The antenna isn't welded on the mainboard, it is welded on another board, it is through the buckle line connection mainboard.

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

RSS-247, 5.4 (4); FCC § 15.247(b)

For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz 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 Setup

See section 4.4.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.2.3 Test Procedure

Maximum peak conducted output power

The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the *DTS bandwidth* and shall utilize a fast-responding diode detector.

Maximum conducted (average) output power (Reporting Only)

a) As an alternative to spectrum analyzer or EMI receiver measurements, measurements may be performed

using a wideband RF power meter with a thermocouple detector or equivalent if all of the conditions listed below are satisfied.

1) The EUT is configured to transmit continuously, or to transmit with a constant duty factor.

2) At all times when the EUT is transmitting, it shall be transmitting at its maximum power control level.

3) The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a

factor of five.

b) If the transmitter does not transmit continuously, measure the duty cycle (x) of the transmitter output signal as

described in Section 6.0.

c) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.

d) Adjust the measurement in dBm by adding 10log (1/x), where x is the duty cycle to the measurement result.

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.)

5.2.4 Test Result

Please refer to ANNEX A.1.

5.3 6dB Bandwidth

5.3.1 Limit

RSS-GEN, 6.6; 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 Setup

See section 4.4.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.3.3 Test Procedure

Use the following spectrum analyzer settings:

Set RBW = 100 kHz.

Set the video bandwidth (VBW) $\geqslant$ 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.

5.3.4 Test Result

Please refer to ANNEX A.2.

5.4 Conducted Spurious Emission

5.4.1 Limit

FCC §15.247(c); RSS-247, 5.5

In any 100 kHz 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 20 dB below that in the 100 kHz 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 Setup

See section 4.4.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.4.3 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.

<u>Reference level measurement</u>

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.

5.4.4 Test Result

Please refer to ANNEX A.3.

5.5 Band Edge (Authorized-band band-edge)

5.5.1 Limit

FCC §15.247(d); RSS-247, 5.5

In any 100 kHz 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 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

5.5.2 Test Setup

See section 4.4.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.5.3 Test Procedure

<u>This Method apply to the equipment is using FHSS.</u>

Span = wide enough to capture the peak level of the emission operating on the channel closest to the band edge, as well as any modulation products which fall outside of the authorized band of operation

RBW ≥ 1% of the span

VBW ≥ RBW

Sweep = auto

Detector function = peak /AV

Trace = max hold

Allow the trace to stabilize.

E [dBμV/m] =UR + AT + AFactor [dB]; AT =LCable loss [dB] - Gpreamp [dB]

AT: Total correction Factor except Antenna

UR: Receiver Reading

Gpreamp: Preamplifier Gain

AFactor: Antenna Factor at 3m

<u>This Method apply to the equipment is using wide band modulations other than FHSS.</u>

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.

5.5.4 Test Result

Please refer to ANNEX A.4.

5.6 Conducted Emission

5.6.1 Limit

FCC §15.207; RSS-GEN, 8.8

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 150 kHz to 30 MHz 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

5.6.2 Test Setup

See section 4.4.2 for test setup description for the AC power supply port. The photo of test setup please refer to ANNEX B.

5.6.3 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.

5.6.4 Test Result

Please refer to ANNEX A.5.

5.7 Radiated Spurious Emission

5.7.1 Limit

FCC §15.209&15.247(c); RSS-247, 5.5

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

5.7.2 Test Setup

See section 4.4.2-4.4.5 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.7.3 Test Procedure

Since the emission limits are specified in terms of radiated field strength levels, measurements performed to demonstrate compliance have traditionally relied on a radiated test configuration. Radiated measurements remain the principal method for demonstrating compliance to the specified limits; however antenna-port conducted measurements are also now acceptable to demonstrate compliance (see below for details). When radiated measurements are utilized, test site requirements and procedures for maximizing and measuring radiated emissions that are described in ANSI C63.10 shall be followed.

Antenna-port conducted measurements may also be used as an alternative to radiated measurements for demonstrating compliance in the restricted frequency bands. If conducted measurements are performed, then proper impedance matching must be ensured and an additional radiated test for cabinet/case spurious emissions is required.

<u>General Procedure for conducted measurements in restricted bands</u>

a) Measure the conducted output power (in dBm) using the detector specified (see guidance regarding measurement procedures for determining quasi-peak, peak, and average conducted output power, respectively).

b) Add the maximum transmit antenna gain (in dBi) to the measured output power level to determine the EIRP level (see guidance on determining the applicable antenna gain)

c) Add the appropriate maximum ground reflection factor to the EIRP level (6 dB for frequencies ≤ 30 MHz, 4.7 dB for frequencies between 30 MHz and 1000 MHz, inclusive and 0 dB for frequencies > 1000 MHz).

d) For devices with multiple antenna-ports, measure the power of each individual chain and sum the EIRP of all chains in linear terms (e.g., Watts, mW).

e) Convert the resultant EIRP level to an equivalent electric field strength using the following relationship:

$E = EIRP - 20\log D + 104.8$

where:

E = electric field strength in dBμV/m,

EIRP = equivalent isotropic radiated power in dBm

D = specified measurement distance in meters.

f) Compare the resultant electric field strength level to the applicable limit.

g) Perform radiated spurious emission test.

Quasi-Peak measurement procedure

The specifications for measurements using the CISPR quasi-peak detector can be found in Publication 16 of the International Special Committee on Radio Frequency Interference (CISPR) of the International Electrotechnical Commission.

As an alternative to CISPR quasi-peak measurement, compliance can be demonstrated to the applicable emission limits using a peak detector.

Peak power measurement procedure

Peak emission levels are measured by setting the instrument as follows:

a) RBW = as specified in Table 1.

b) VBW ≥ 3 x RBW.

c) Detector = Peak.

d) Sweep time = auto.

e) Trace mode = max hold.

f) Allow sweeps to continue until the trace stabilizes. (Note that the required measurement time may be longer for low duty cycle applications).

Table 1—RBW as a function of frequency

Frequency	RBW
9-150 kHz	200-300 Hz
0.15-30 MHz	9-10 kHz
30-1000 MHz	100-120 kHz

> 1000 MHz	1 MHz

If the peak-detected amplitude can be shown to comply with the average limit, then it is not necessary to perform a separate average measurement.

Trace averaging across on and off times of the EUT transmissions followed by duty cycle correction

If continuous transmission of the EUT (i.e., duty cycle ≥ 98 percent) cannot be achieved and the duty cycle is constant (i.e., duty cycle variations are less than ± 2 percent), then the following procedure shall be used:

a) The EUT shall be configured to operate at the maximum achievable duty cycle.

b) Measure the duty cycle, x, of the transmitter output signal as described in section 6.0.

c) RBW = 1 MHz (unless otherwise specified).

d) VBW ≥ 3 x RBW.

e) Detector = RMS, if span/(# of points in sweep) ≤ (RBW/2). Satisfying this condition may require increasing the number of points in the sweep or reducing the span. If this condition cannot be satisfied, then the detector mode shall be set to peak.

f) Averaging type = power (i.e., RMS).

1) As an alternative, the detector and averaging type may be set for linear voltage averaging.

2) Some instruments require linear display mode in order to use linear voltage averaging. Log or dB averaging shall not be used.

g) Sweep time = auto.

h) Perform a trace average of at least 100 traces.

i) A correction factor shall be added to the measurement results prior to comparing to the emission limit in order to compute the emission level that would have been measured had the test been performed at 100 percent duty cycle. The correction factor is computed as follows:

1) If power averaging (RMS) mode was used in step f), then the applicable correction factor is 10 log(1/x), where x is the duty cycle.

2) If linear voltage averaging mode was used in step f), then the applicable correction factor is 20 log(1/x), where x is the duty cycle.

3) If a specific emission is demonstrated to be continuous (≥ 98 percent duty cycle) rather than turning on and off with the transmit cycle, then no duty cycle correction is required for that emission.

NOTE: Reduction of the measured emission amplitude levels to account for operational duty factor is not permitted. Compliance is based on emission levels occurring during transmission - not on an average across on and off times of the transmitter.

Determining the applicable transmit antenna gain

A conducted power measurement will determine the maximum output power associated with a restricted band emission; however, in order to determine the associated EIRP level, the gain of the transmitting antenna (in dBi)

must be added to the measured output power (in dBm).

Since the out-of-band characteristics of the EUT transmit antenna will often be unknown, the use of a conservative antenna gain value is necessary. Thus, when determining the EIRP based on the measured conducted power, the upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands, or 2 dBi, whichever is greater. However, for devices that operate in multiple frequency bands while using the same transmit antenna, the highest gain of the antenna within the operating band nearest in frequency to the restricted band emission being measured may be used in lieu of the overall highest gain when the emission is at a frequency that is within 20 percent of the nearest band edge frequency, but in no case shall a value less than 2 dBi be used.

See KDB 662911 for guidance on calculating the additional array gain term when determining the effective antenna gain for a EUT with multiple outputs occupying the same or overlapping frequency ranges in the same band.

Radiated spurious emission test

An additional consideration when performing conducted measurements of restricted band emissions is that unwanted emissions radiating from the EUT cabinet, control circuits, power leads, or intermediate circuit elements will likely go undetected in a conducted measurement configuration. To address this concern, a radiated test shall be performed to ensure that emissions emanating from the EUT cabinet (rather than the antenna port) also comply with the applicable limits.

For these cabinet radiated spurious emission measurements the EUT transmit antenna may be replaced with a termination matching the nominal impedance of the antenna. Procedures for performing radiated measurements are specified in ANSI C63.10. All detected emissions shall comply with the applicable limits.

The measurement frequency range is from 30 MHz 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

5.7.4 Test Result

Please refer to ANNEX A.6.

5.8 Power Spectral density (PSD)

5.8.1 Limit

FCC §15.247(d); RSS-247, 5.2 (2)

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 Setup

See section 4.4.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.8.3 Test Procedure

Set analyzer center frequency to DTS channel center frequency.

Set the span to 1.5 times the DTS bandwidth.

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

5.8.4 Test Result

Please refer to ANNEX A.7.

5.9 Receiver Spurious Emissions

5.9.1 Limit

IC RSS-Gen, 7.1.2

Radiated spurious emission measurements shall be performed with the receiver antenna connected to the receiver antenna terminals. Spurious emissions from receivers shall not exceed the radiated limits shown in the table below:

Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

5.9.2 Test Setup

See section 4.4.3-5 (Diagram 3-5) for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.9.3 Test Procedure

The measurement frequency range is from 30 MHz 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.

Test Plots for the Whole Measurement Frequency Range:

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

5.9.4 Test Result

Please refer to ANNEX A.8.

ANNEX A TEST RESULT

A.1 Output Power

Duty Cycle

Antenna	Mode	Duty Cycle (%)	T (ms)	1/T (kHz)
ANT 0	802.11b	97.38	8.667	0.1152
	802.11g	86.16	1.413	0.6978
	802.11n HT20	85.83	1.333	0.7576
	802.11n HT40	72.31	0.627	1.5798
ANT 1	802.11b	97.38	8.667	0.1149
	802.11b	86.22	1.420	0.7077
	802.11n HT20	85.90	1.340	0.7576
	802.11n HT40	71.76	0.627	1.5798

Peak Power Test Data

802.11b Mode:

Channel	Measured Output Peak Power Of ANT 0		Measured Output Peak Power Of ANT 1		Total of output power		Limit		Verdict
	dBm	mW	dBm	mW	dBm	mW	dBm	mW	
Low	15.88	38.73	16.02	39.99	18.96	78.72	30	1000	Pass
Middle	16.67	46.45	15.78	37.84	19.26	84.30			Pass
High	16.36	43.25	15.76	37.67	19.08	80.92			Pass

802.11g Mode:

Channel	Measured Output Peak Power Of ANT 0		Measured Output Peak Power Of ANT 1		Total of output power		Limit		Verdict
	dBm	mW	dBm	mW	dBm	mW	dBm	mW	
Low	14.94	31.19	15.35	34.28	18.16	65.47	30	1000	Pass
Middle	14.57	28.64	15.21	33.19	17.91	61.83			Pass
High	15.08	32.21	15.58	36.14	18.35	68.35			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Peak Power Of ANT 0		Measured Output Peak Power Of ANT 1		Total of output power		Limit		Verdict
	dBm	mW	dBm	mW	dBm	mW	dBm	mW	
Low	14.87	30.69	14.81	30.27	17.85	60.96	30	1000	Pass
Middle	14.37	27.35	15.33	34.12	17.89	61.47			Pass
High	14.87	30.69	15.36	34.36	18.13	65.05			Pass

802.11n-40 MHz Mode:

Channel	Measured Output Peak Power Of ANT 0		Measured Output Peak Power Of ANT 1		Total of output power		Limit		Verdict
	dBm	mW	dBm	mW	dBm	mW	dBm	mW	
Low	14.27	26.73	14.75	29.85	17.53	56.58	30	1000	Pass
Middle	14.15	26.00	14.71	29.58	17.45	55.58			Pass
High	14.07	25.53	15.35	34.28	17.77	59.80			Pass

A.2 Bandwidth

Test Data

ANT 0

802.11b Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limits (kHz)
Low	10.073	12.4809	⩾500
Middle	10.106	12.3211	⩾500
High	10.085	12.2805	⩾500

802.11g Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limits (kHz)
Low	16.338	16.6041	⩾500
Middle	16.077	16.4656	⩾500
High	16.049	16.4600	⩾500

802.11n-20MHz Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limits (kHz)
Low	16.989	17.6252	⩾500
Middle	16.928	17.5781	⩾500
High	16.971	17.6069	⩾500

802.11n-40MHz Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limits (kHz)
Low	35.244	36.0067	⩾500
Middle	35.494	35.9316	⩾500
High	35.264	35.9201	⩾500

ANT 1

802.11b Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limits (kHz)
Low	10.065	12.5683	⩾500
Middle	10.081	12.4948	⩾500
High	10.066	12.4446	⩾500

802.11g Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limits (kHz)
Low	16.318	16.5590	⩾500
Middle	16.290	16.5876	⩾500
High	15.710	16.5216	⩾500

802.11n-20MHz Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limits (kHz)
Low	17.313	17.6631	⩾500
Middle	16.317	17.6495	⩾500
High	16.194	17.6543	⩾500

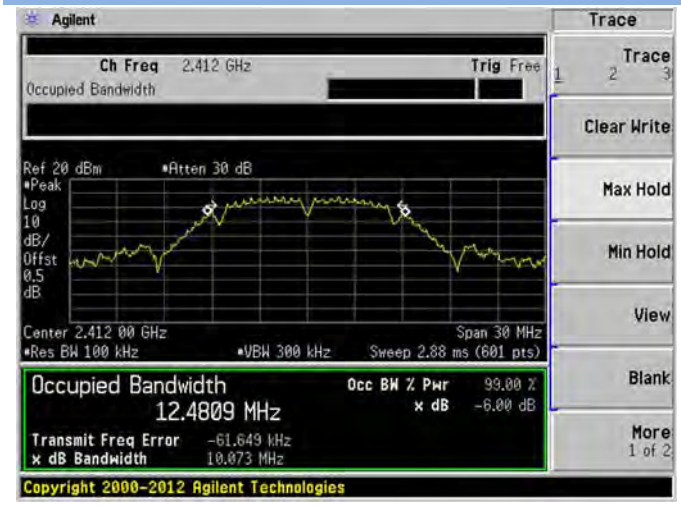
802.11n-40MHz Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limits (kHz)
Low	35.268	36.1119	⩾500
Middle	35.199	36.1100	⩾500
High	35.244	35.0881	⩾500

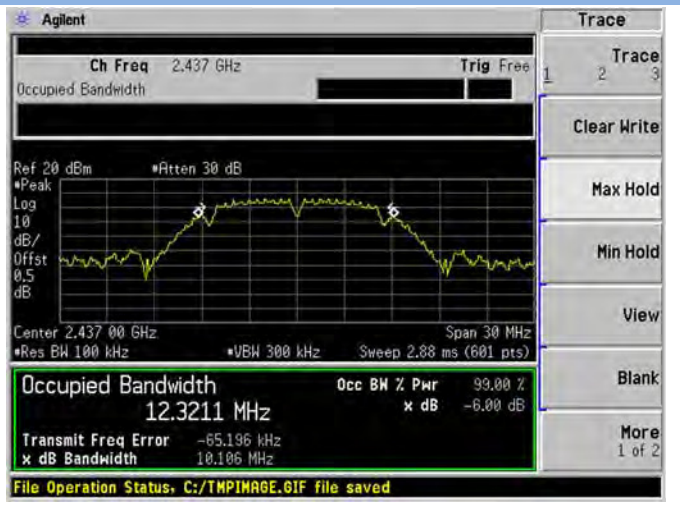
Test plots

ANT 0

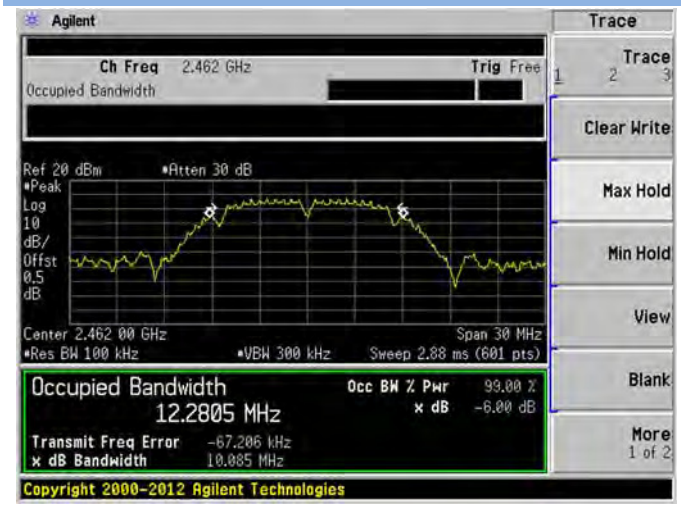
802.11b LOW CHANNEL



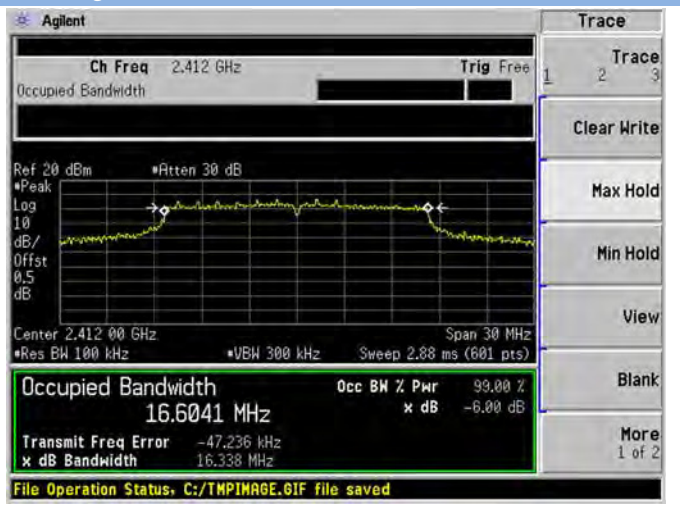
802.11b MIDDLE CHANNEL



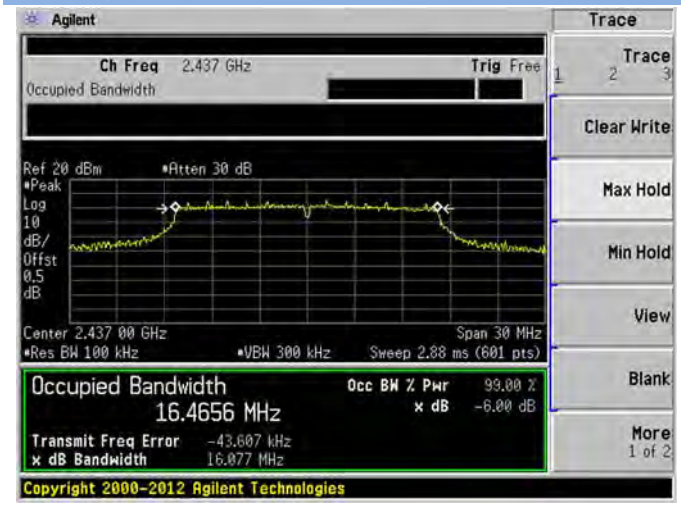
802.11b HIGH CHANNEL



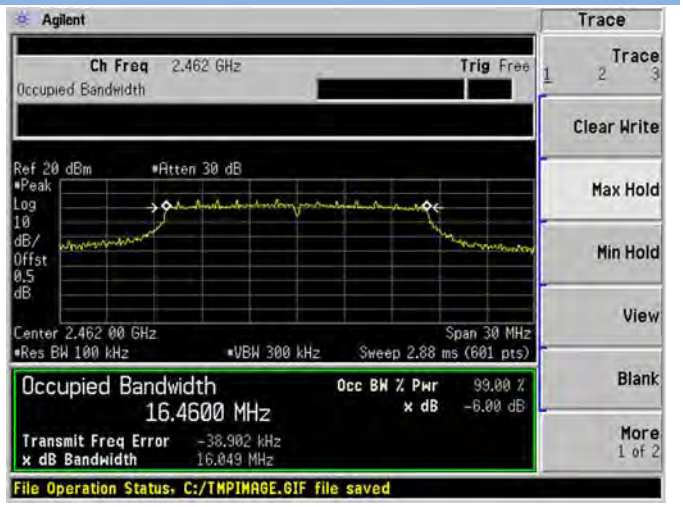
802.11g LOW CHANNEL



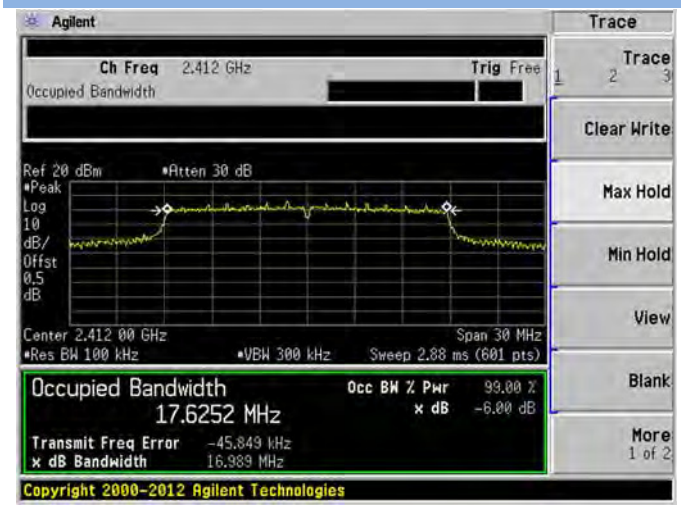
802.11g MIDDLE CHANNEL



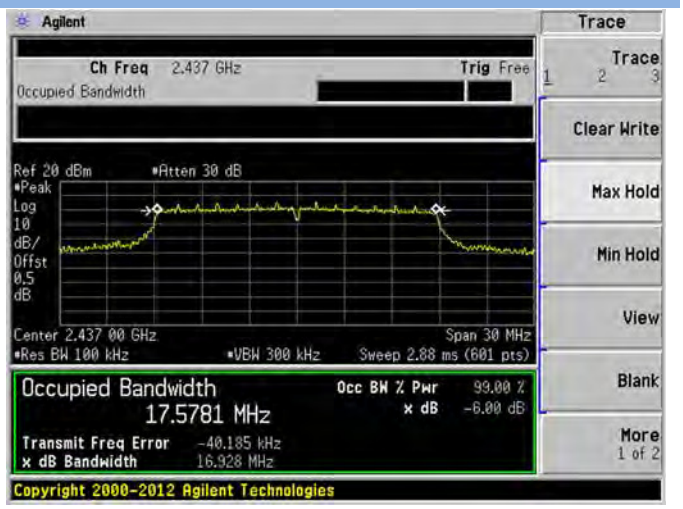
802.11g HIGH CHANNEL



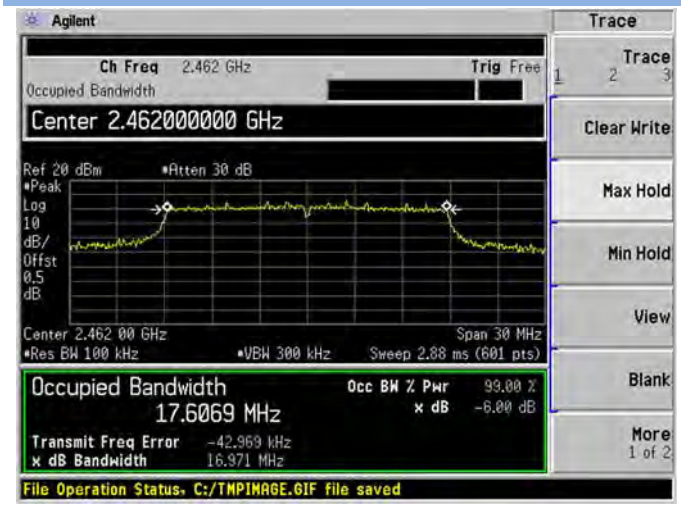
802.11n-20 MHz LOW CHANNEL



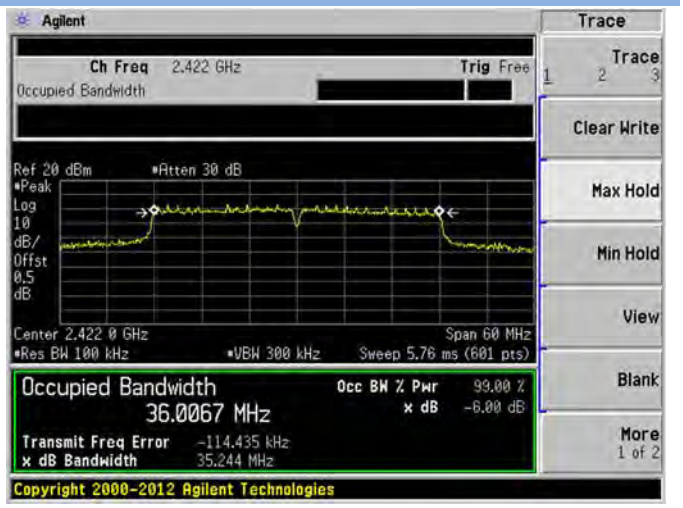
802.11 n-20 MHz MIDDLE CHANNEL



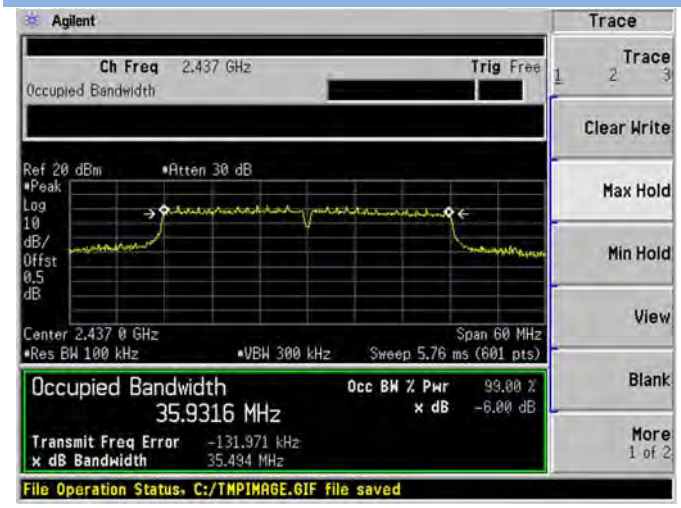
802.11n-20 MHz HIGH CHANNEL



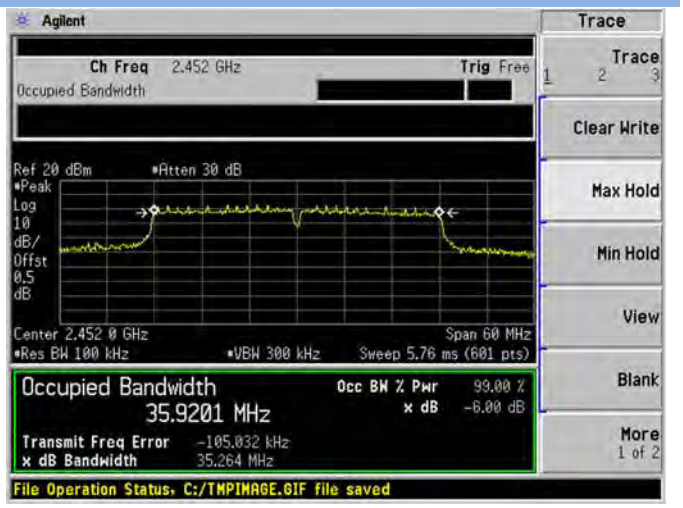
802.11n-40 MHz LOW CHANNEL



802.11n-40 MHz MIDDLE CHANNEL

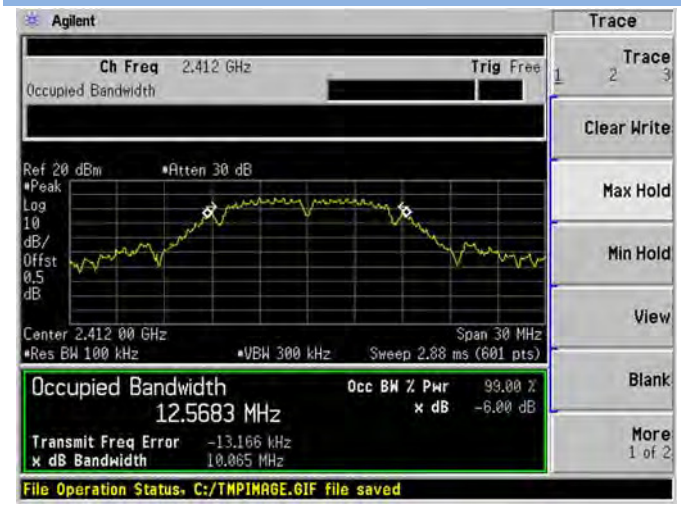


802.11n-40 MHz HIGH CHANNEL

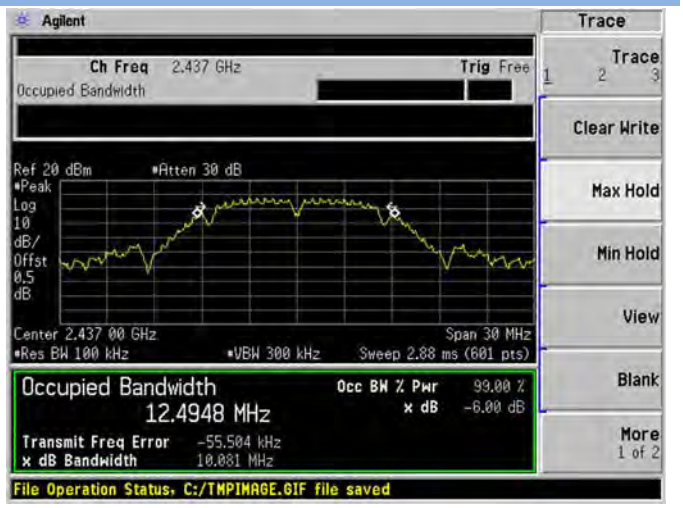


ANT 1

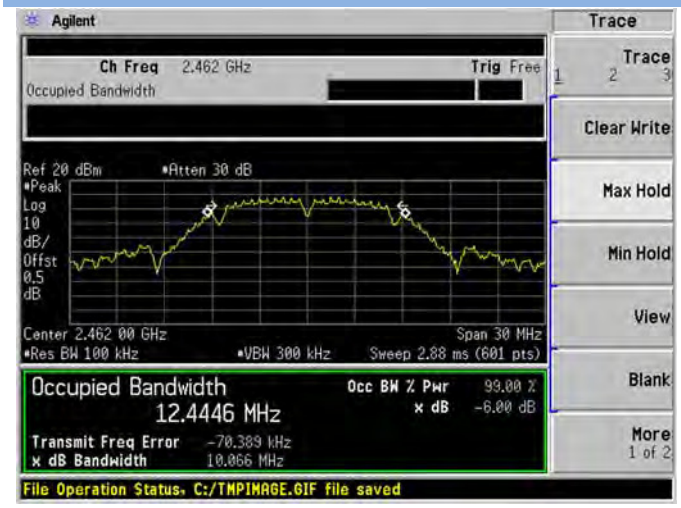
802.11b LOW CHANNEL



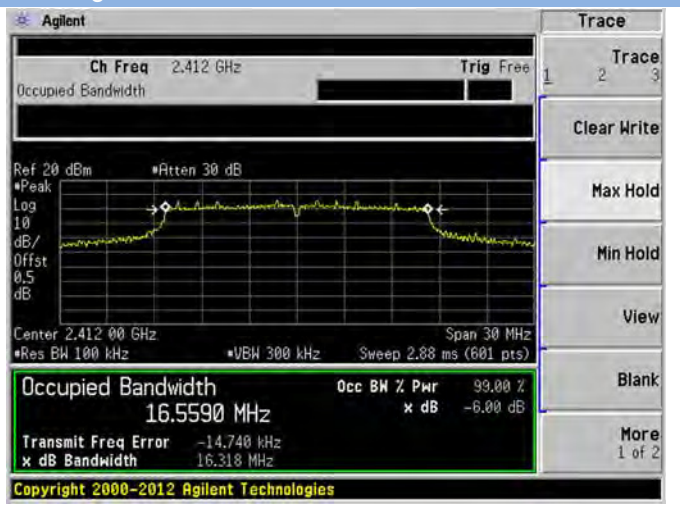
802.11b MIDDLE CHANNEL



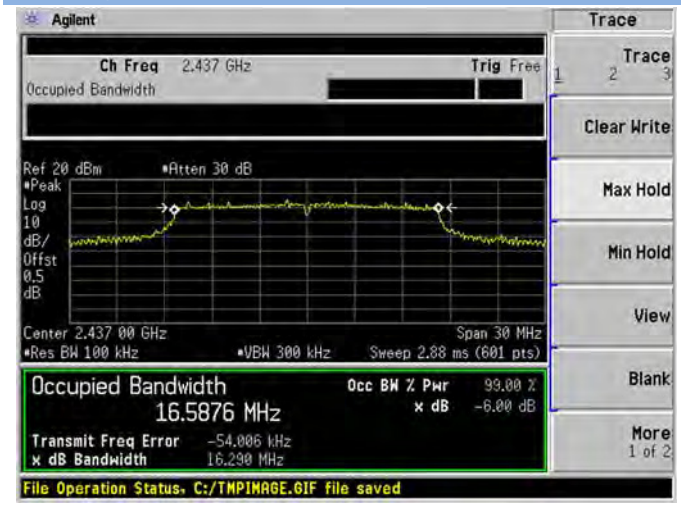
802.11b HIGH CHANNEL



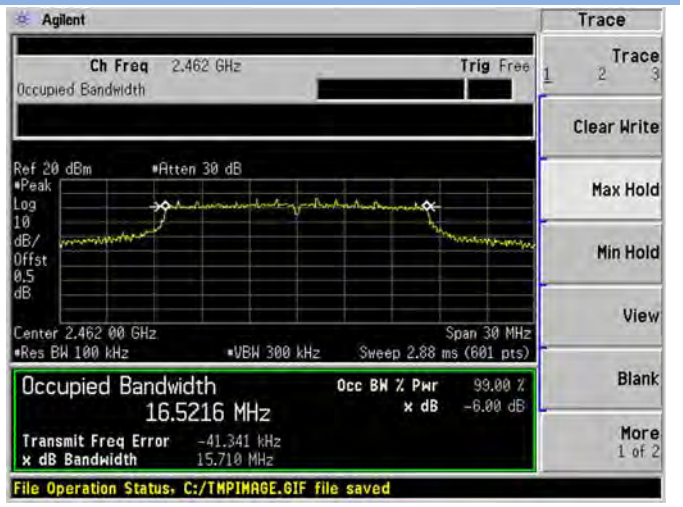
802.11g LOW CHANNEL



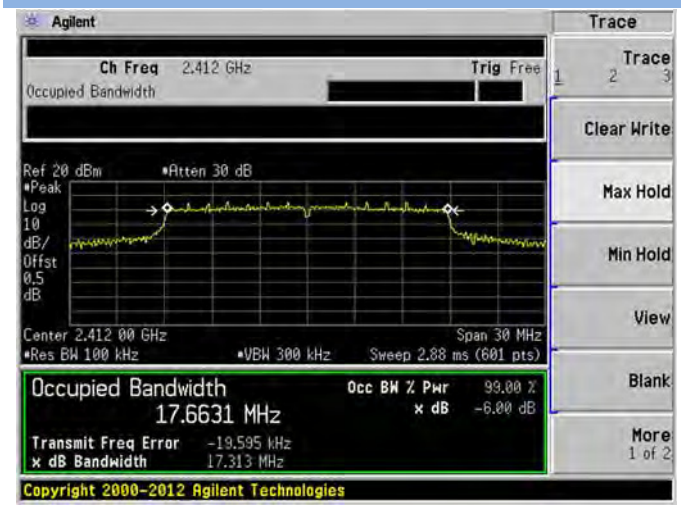
802.11g MIDDLE CHANNEL



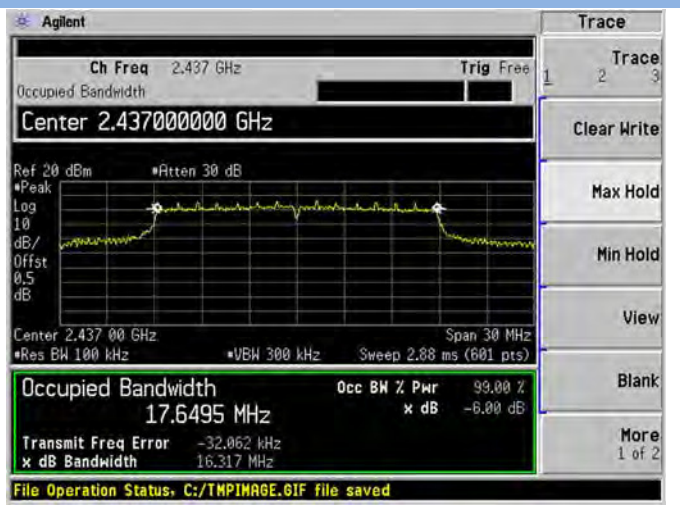
802.11g HIGH CHANNEL



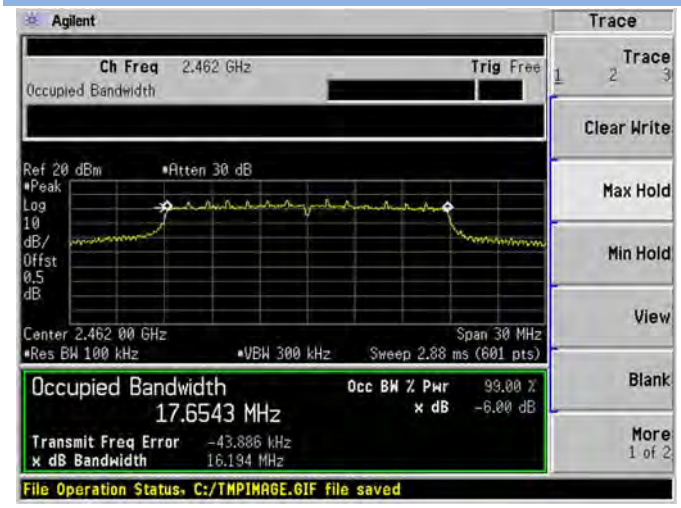
802.11n-20 MHz LOW CHANNEL



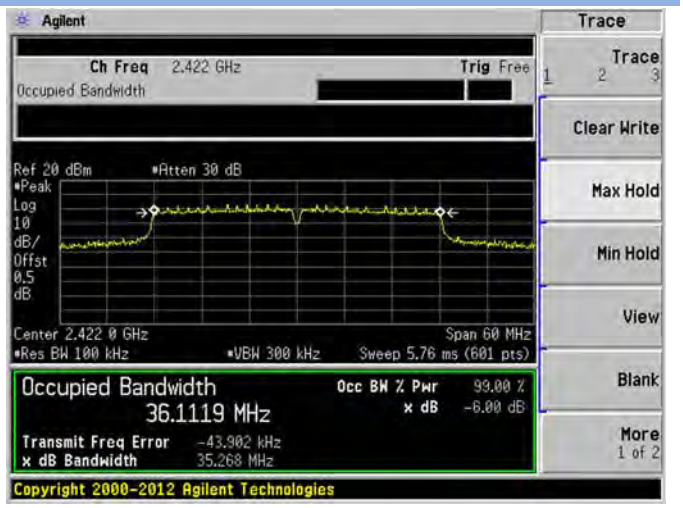
802.11 n-20 MHz MIDDLE CHANNEL



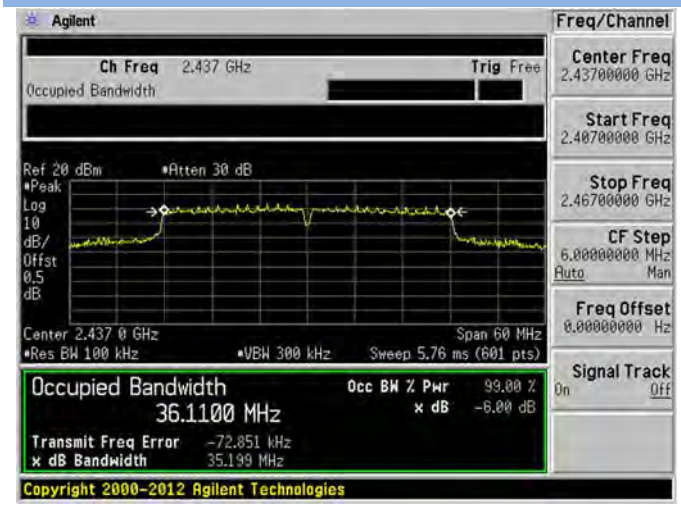
802.11n-20 MHz HIGH CHANNEL



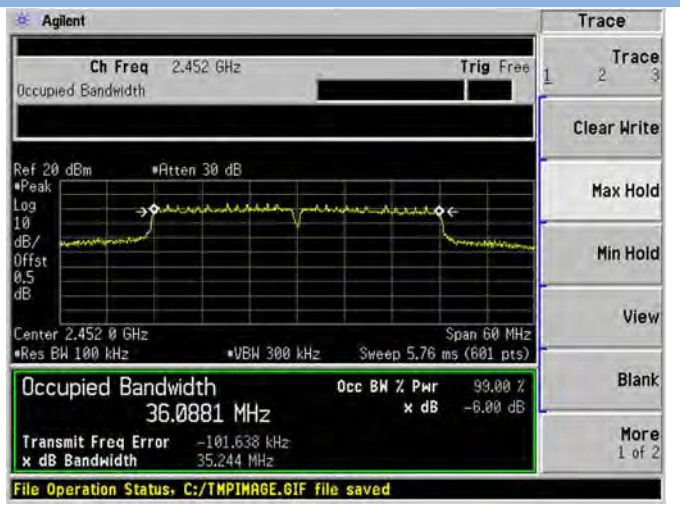
802.11n-40 MHz LOW CHANNEL



802.11n-40 MHz MIDDLE CHANNEL



802.11n-40 MHz HIGH CHANNEL



A.3 Conducted Spurious Emissions

Test Data

ANT 0

802.11b Mode:

Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low	-48.52	10.11	-9.89	Pass
Middle	-48.36	11.47	-8.53	Pass
High	-49.21	11.27	-8.73	Pass

802.11g Mode:

Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low	-55.17	4.42	-15.58	Pass
Middle	-55.22	9.05	-10.95	Pass
High	-55.50	8.92	-11.08	Pass

802.11n-20MHz Mode:

Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low	-54.55	3.15	-16.85	Pass
Middle	-55.12	8.45	-11.55	Pass
High	-53.38	11.31	-8.69	Pass

802.11n-40MHz Mode:

Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low	-55.37	0.20	-19.80	Pass
Middle	-55.53	9.67	-10.33	Pass
High	-54.72	3.97	-16.03	Pass

ANT 1

802.11b Mode:

Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low	-35.98	9.93	-10.07	Pass
Middle	-36.49	9.53	-10.47	Pass
High	-32.68	9.87	-10.13	Pass

802.11g Mode:

Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low	-50.96	2.81	-17.19	Pass
Middle	-47.07	8.51	-11.49	Pass
High	-45.69	8.75	-11.25	Pass

802.11n-20MHz Mode:

Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low	-51.25	2.63	-17.37	Pass
Middle	-44.79	8.64	-11.36	Pass
High	-41.71	9.19	-10.81	Pass

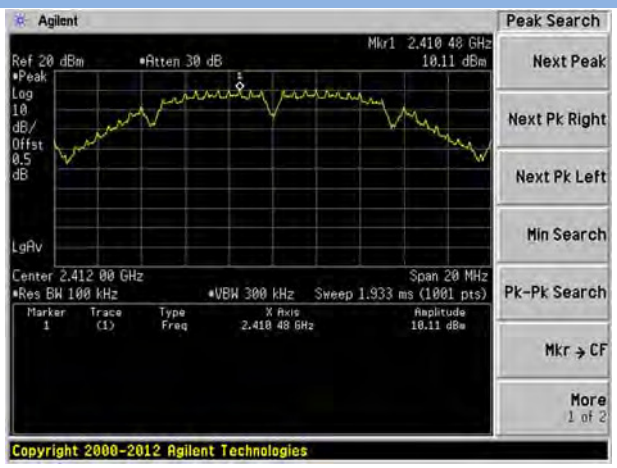
802.11n-40MHz Mode:

Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low	-49.77	-0.86	-20.86	Pass
Middle	-47.97	9.35	-10.65	Pass
High	-51.25	2.74	-17.26	Pass

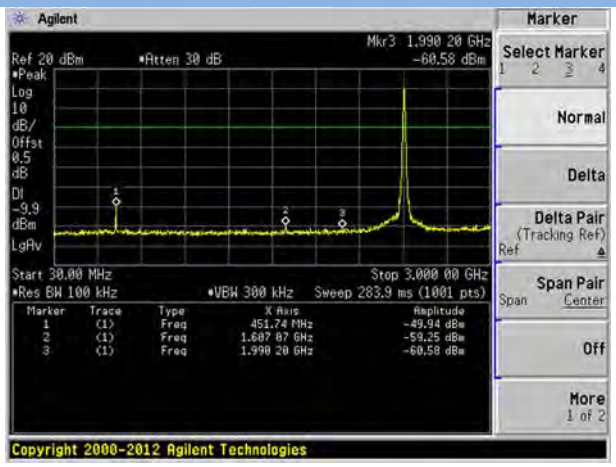
Test Plots

ANT 0

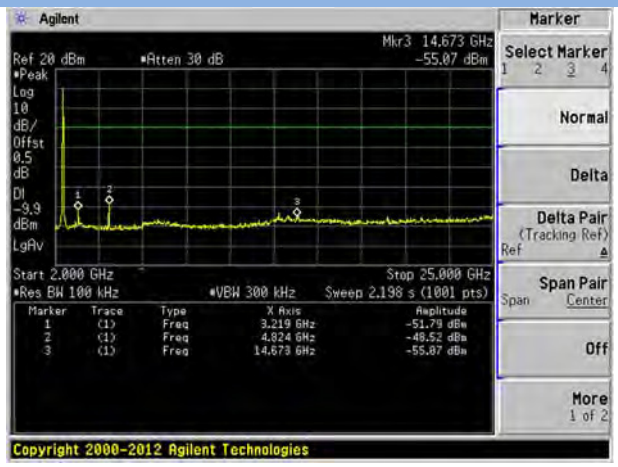
802.11b LOW CHANNEL CARRIER LEVEL



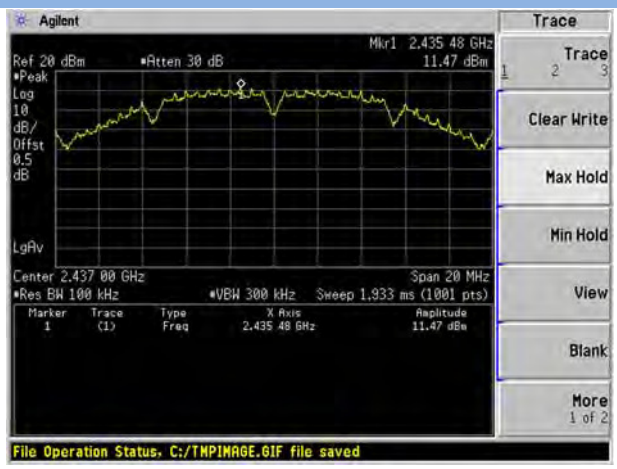
802.11b LOW CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



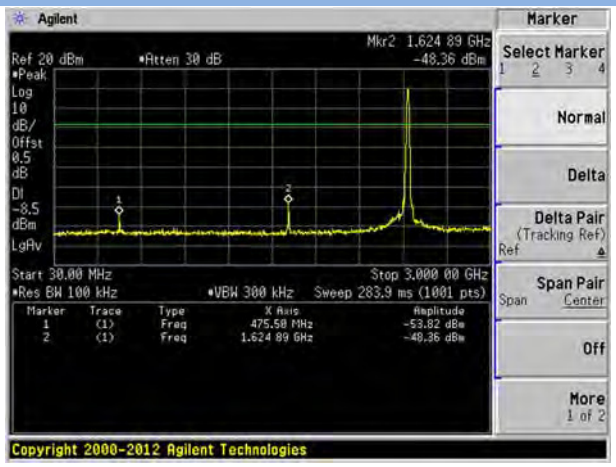
802.11b LOW CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



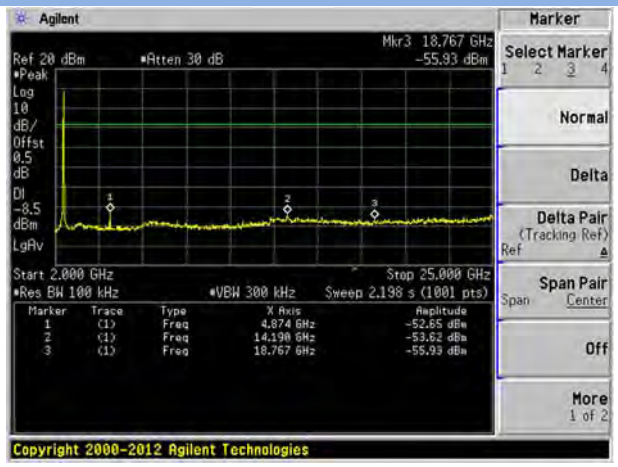
802.11b MIDDLE CHANNEL CARRIER LEVEL



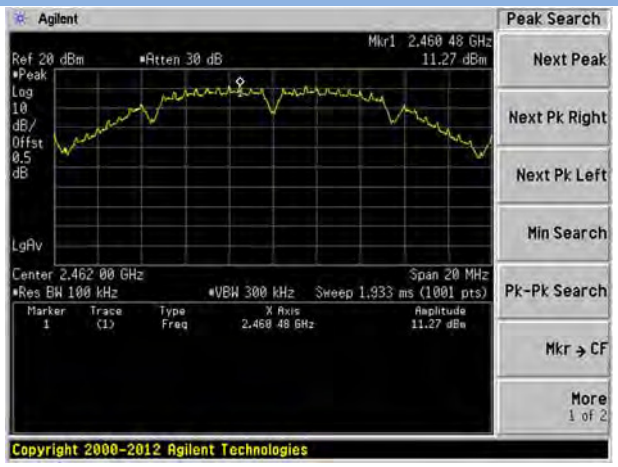
802.11b MIDDLE CHANNEL, SPURIOUS
30 MHz ~ 3 GHz



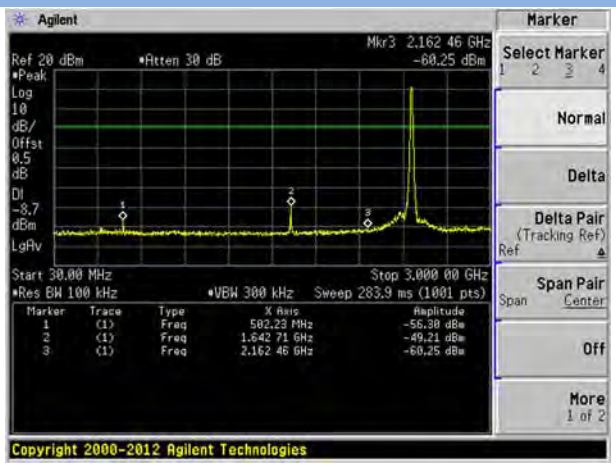
802.11b MIDDLE CHANNEL, SPURIOUS
2 GHz ~ 25 GHz



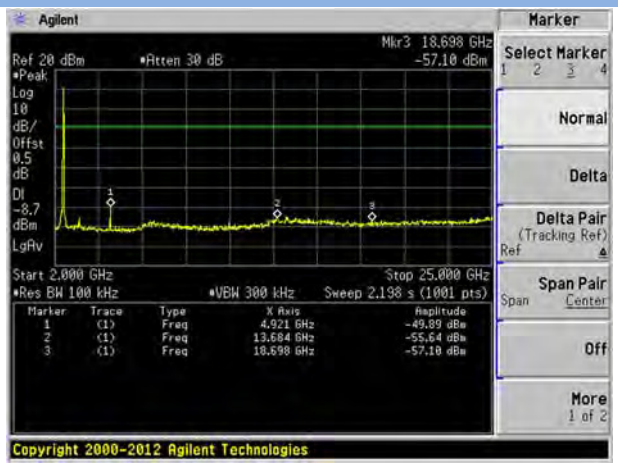
802.11b HIGH CHANNEL CARRIER LEVEL



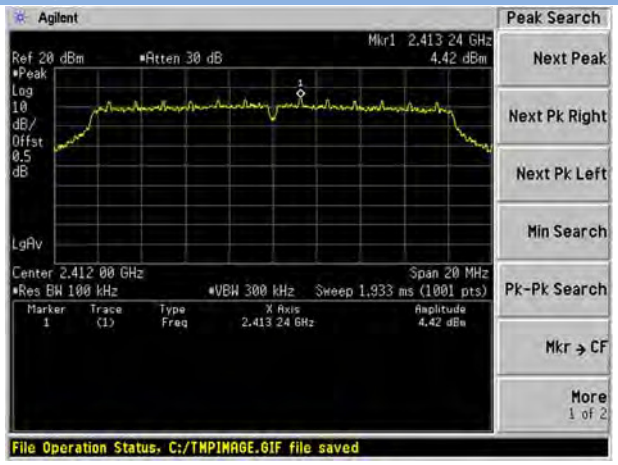
802.11b HIGH CHANNEL, SPURIOUS
30 MHz ~ 3 GHz



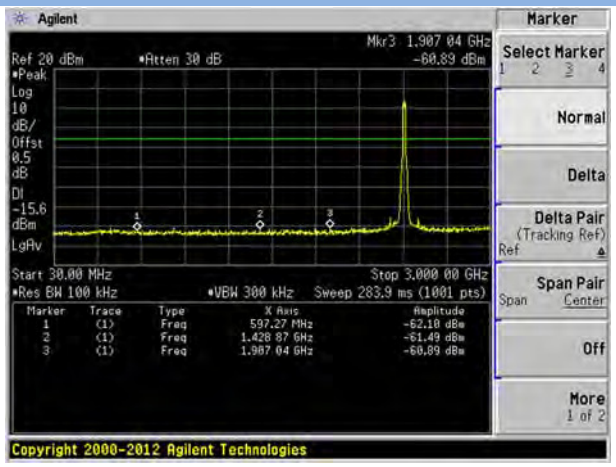
802.11b HIGH CHANNEL, SPURIOUS
2 GHz ~ 25 GHz



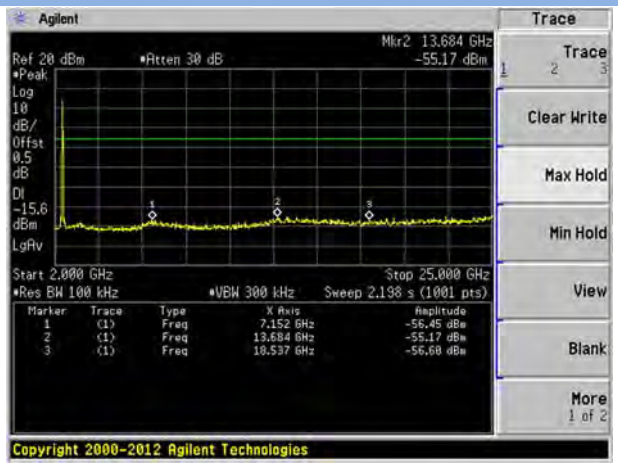
802.11g LOW CHANNEL CARRIER LEVEL



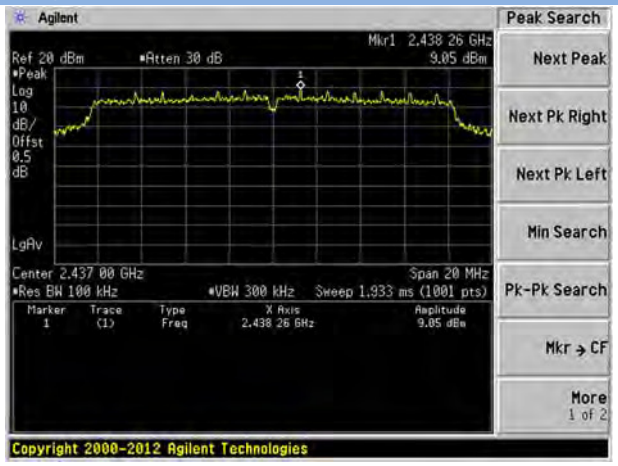
802.11g LOW CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



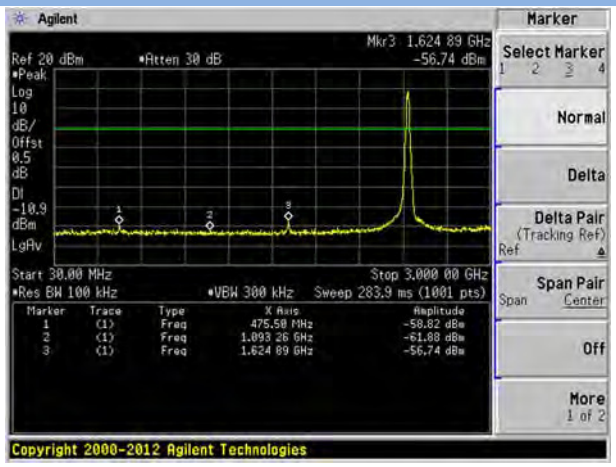
802.11g LOW CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



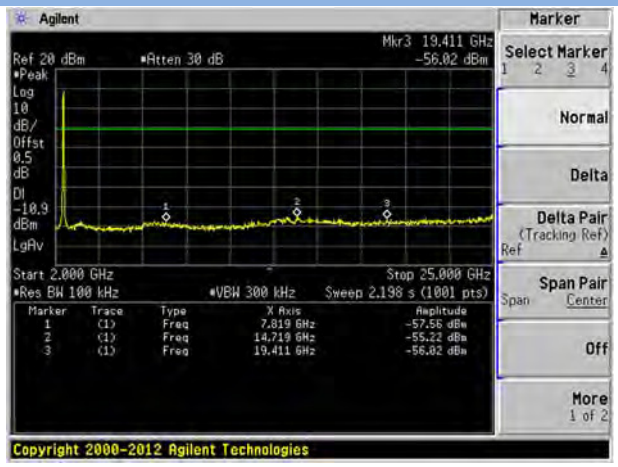
802.11g MIDDLE CHANNEL CARRIER LEVEL



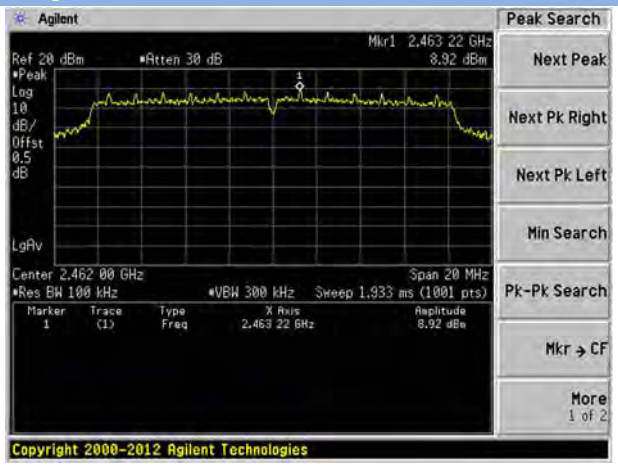
802.11g MIDDLE CHANNEL, SPURIOUS
30 MHz ~ 3 GHz



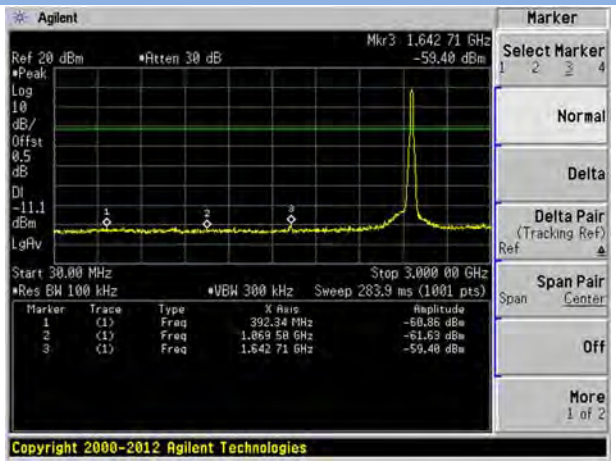
802.11g MIDDLE CHANNEL, SPURIOUS
2 GHz ~ 25 GHz



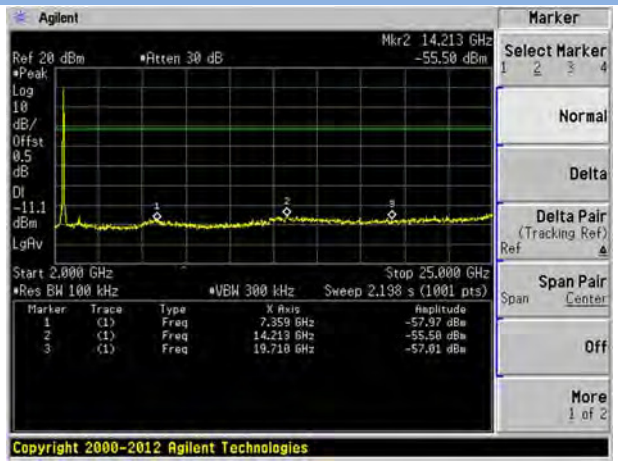
802.11g HIGH CHANNEL CARRIER LEVEL



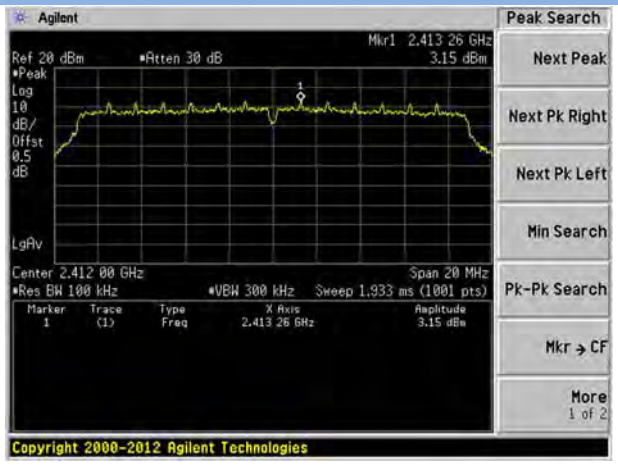
802.11g HIGH CHANNEL, SPURIOUS
30 MHz ~ 3 GHz



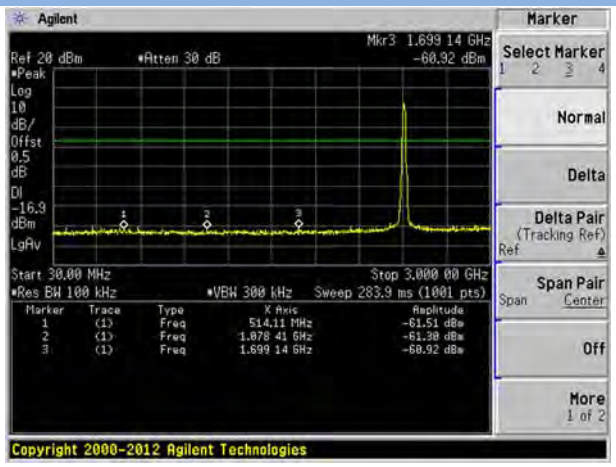
802.11g HIGH CHANNEL, SPURIOUS
2 GHz ~ 25 GHz



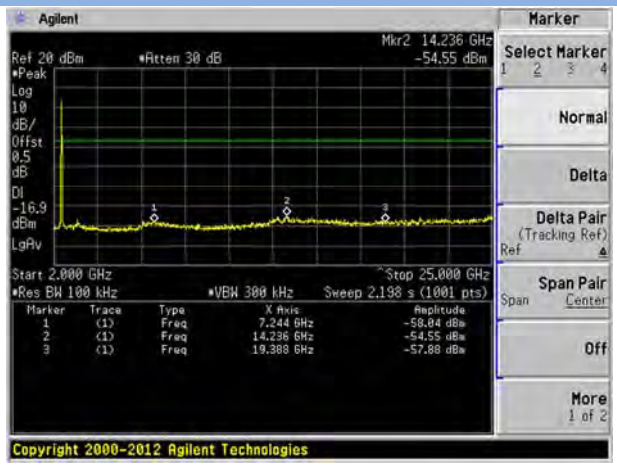
802.11n-20 MHz LOW CHANNEL CARRIER LEVEL



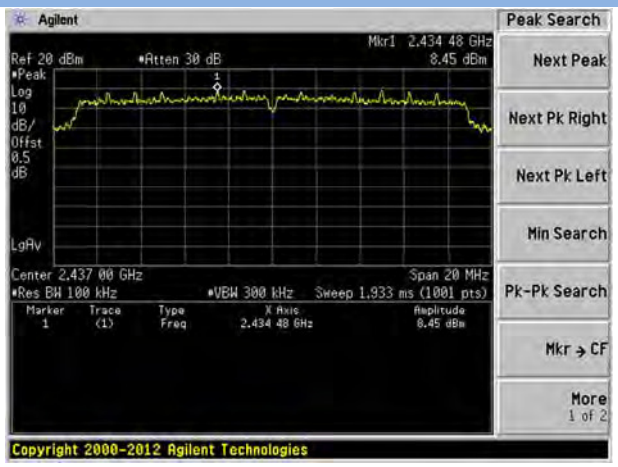
802.11n-20 MHz LOW CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



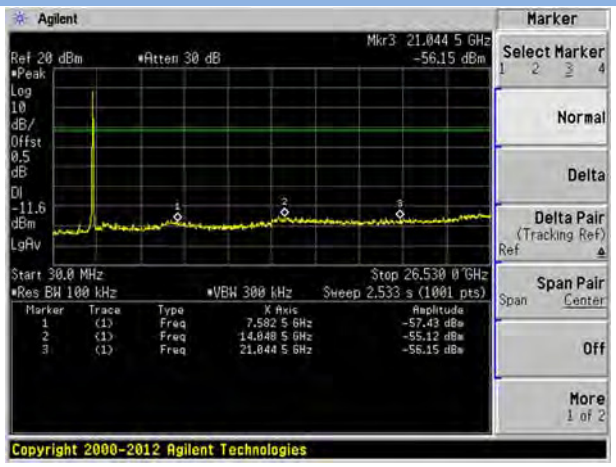
802.11n-20 MHz LOW CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



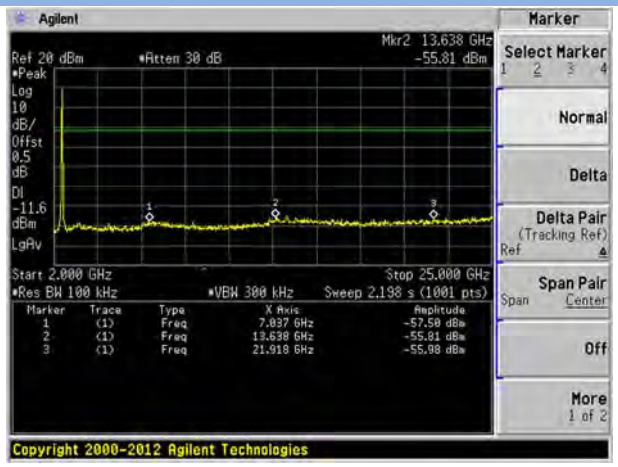
802.11n-20 MHz MIDDLE CHANNEL CARRIER LEVEL



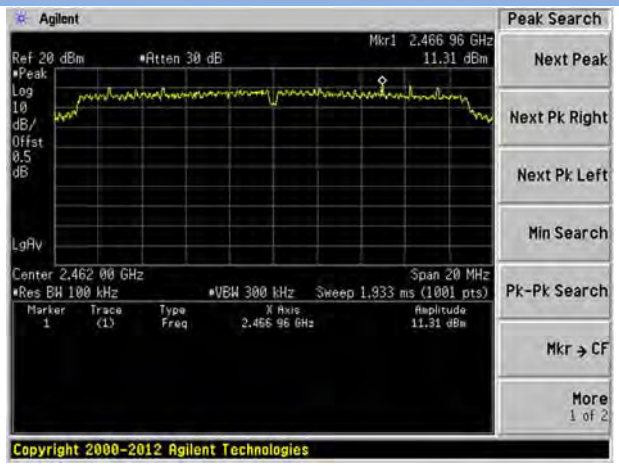
802.11n-20 MHz MIDDLE CHANNEL, SPURIOUS
30 MHz ~ 3 GHz



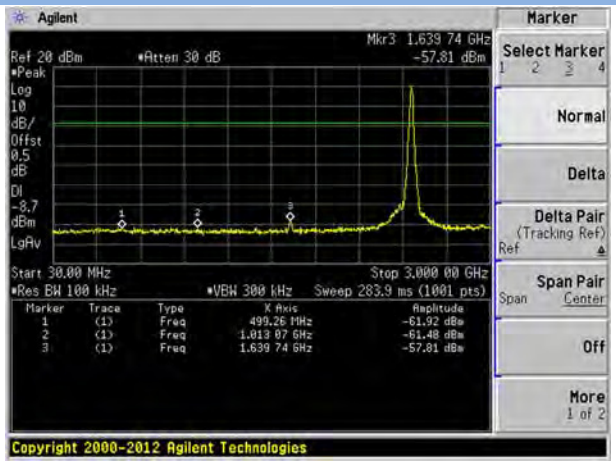
802.11n-20 MHz MIDDLE CHANNEL, SPURIOUS
2 GHz ~ 25 GHz



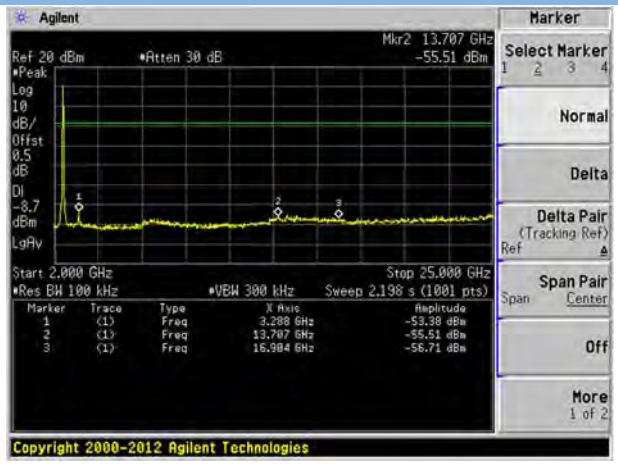
802.11n-20 MHz HIGH CHANNEL CARRIER LEVEL



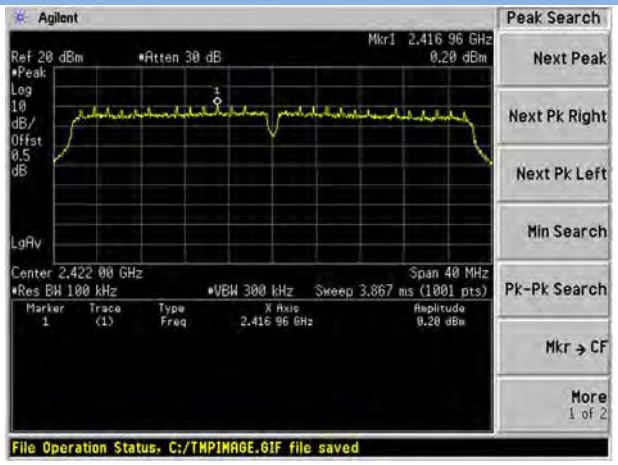
802.11n-20 MHz HIGH CHANNEL, SPURIOUS
30 MHz ~ 3 GHz



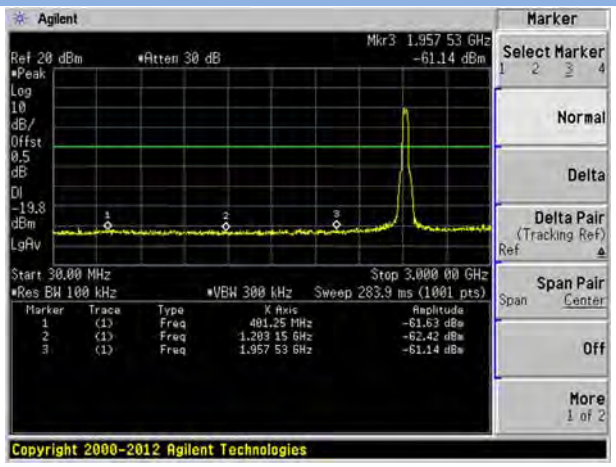
802.11n-20 MHz HIGH CHANNEL, SPURIOUS
2 GHz ~ 25 GHz



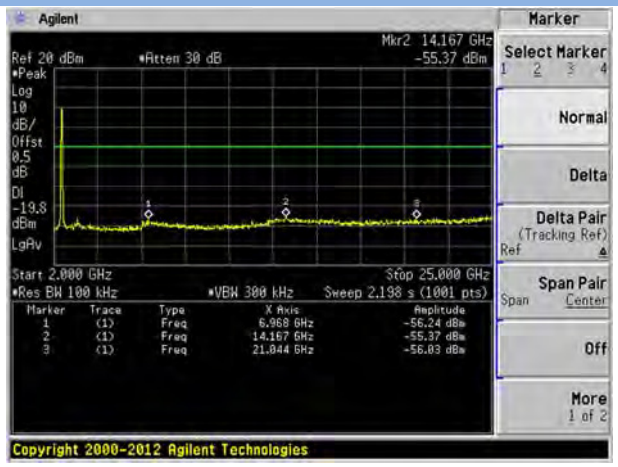
802.11n-40 MHz LOW CHANNEL CARRIER LEVEL



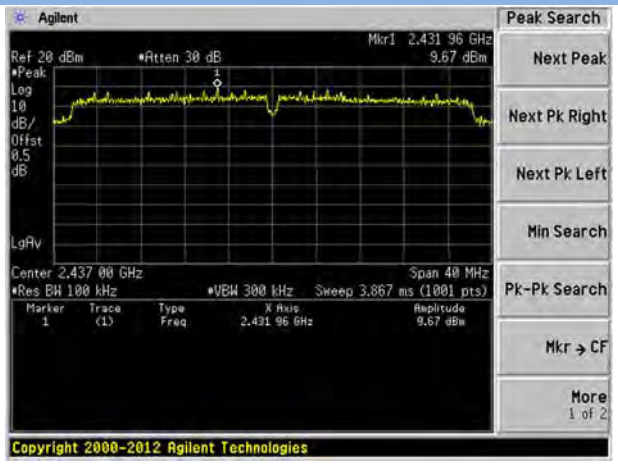
802.11n-40 MHz LOW CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



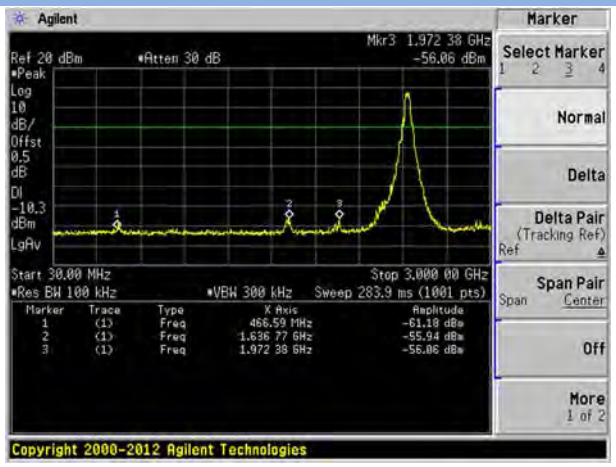
802.11n-40 MHz LOW CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



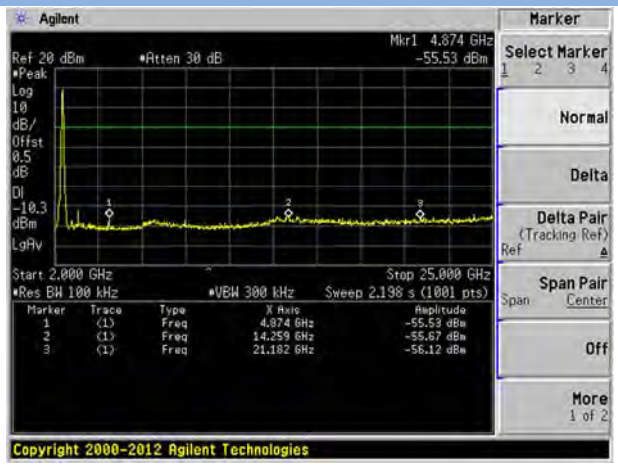
802.11n-40 MHz MIDDLE CHANNEL CARRIER LEVEL



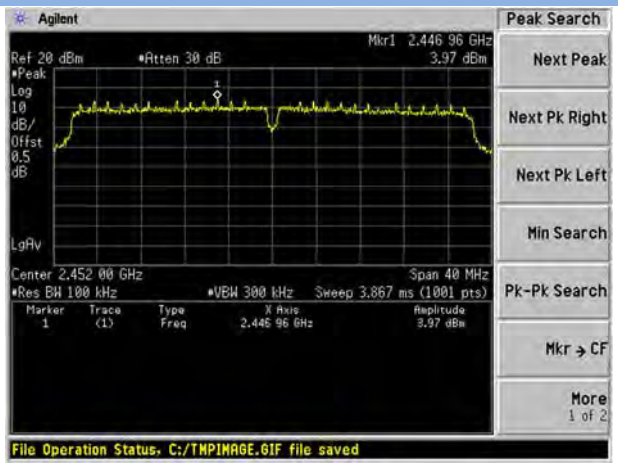
802.11n-40 MHz MIDDLE CHANNEL, SPURIOUS
30 MHz ~ 3 GHz



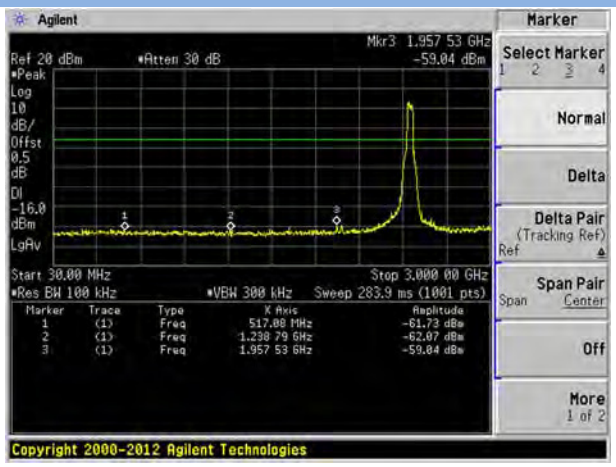
802.11n-40 MHz MIDDLE CHANNEL, SPURIOUS
2 GHz ~ 25 GHz



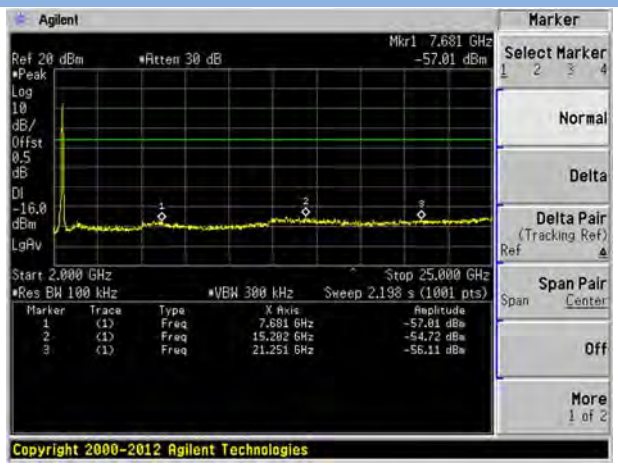
802.11n-40 MHz HIGH CHANNEL CARRIER LEVEL



802.11-n40 MHz HIGH CHANNEL, SPURIOUS
30 MHz ~ 3 GHz

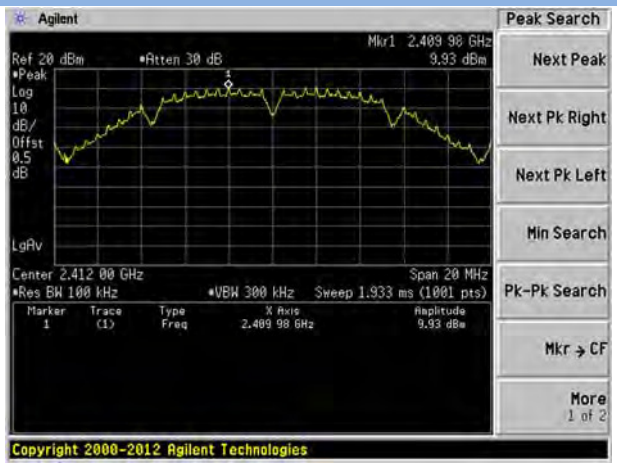


802.11n-40 MHz HIGH CHANNEL, SPURIOUS
2 GHz ~ 25 GHz

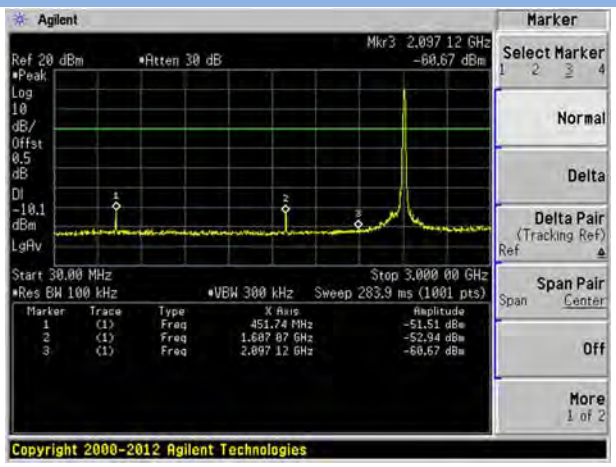


ANT 1

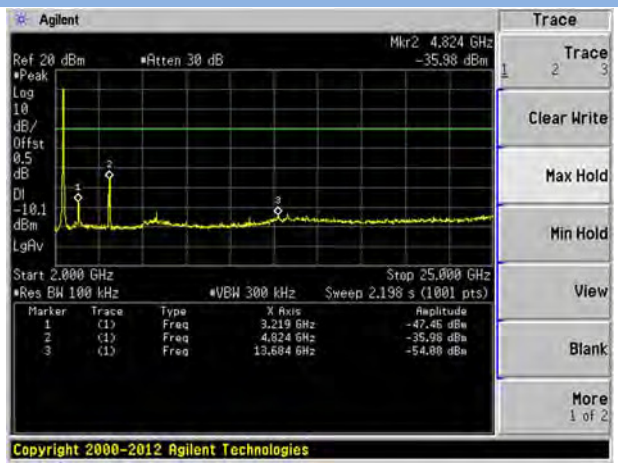
802.11b LOW CHANNEL CARRIER LEVEL



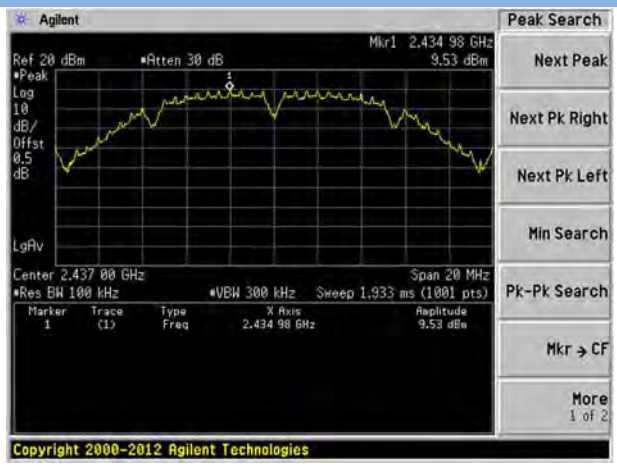
802.11b LOW CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



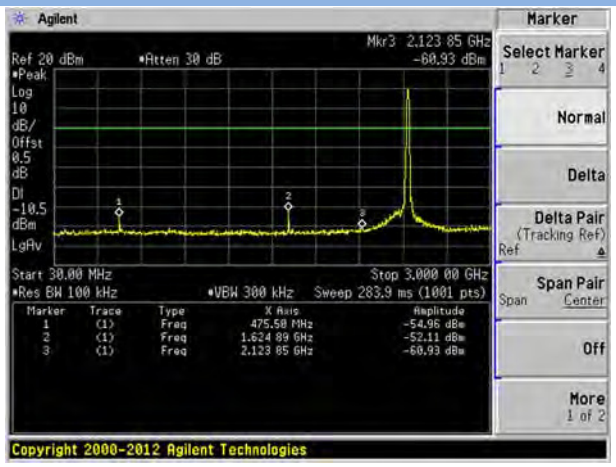
802.11b LOW CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



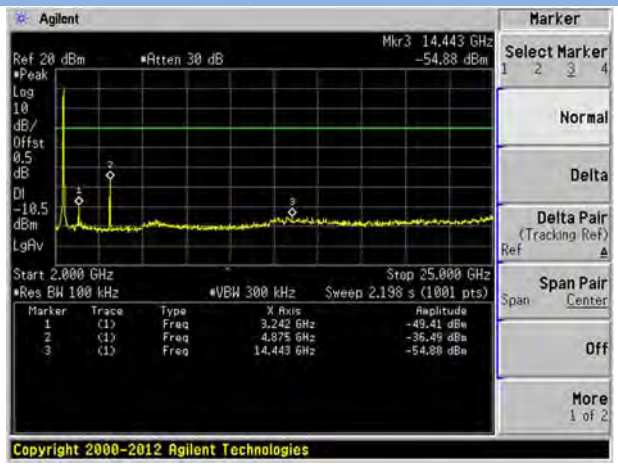
802.11b MIDDLE CHANNEL CARRIER LEVEL



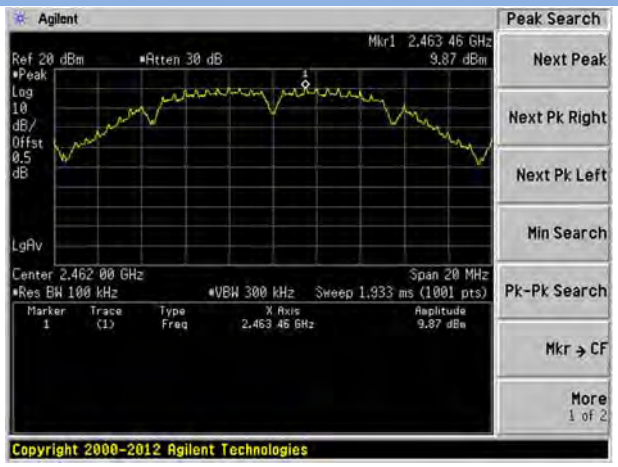
802.11b MIDDLE CHANNEL, SPURIOUS
30 MHz ~ 3 GHz



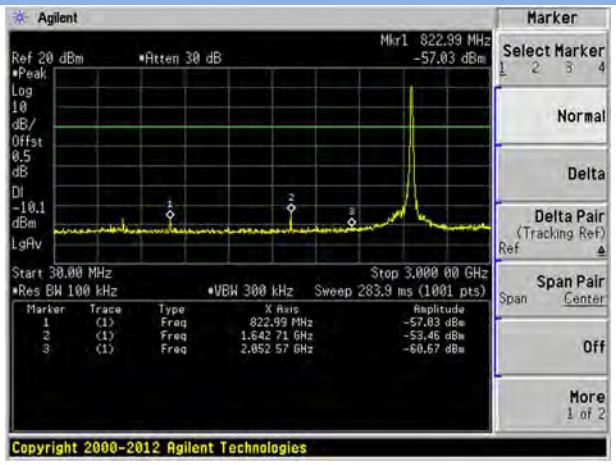
802.11b MIDDLE CHANNEL, SPURIOUS
2 GHz ~ 25 GHz



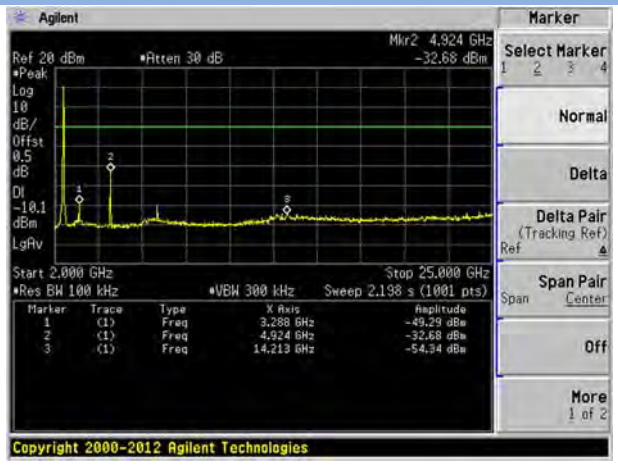
802.11b HIGH CHANNEL CARRIER LEVEL



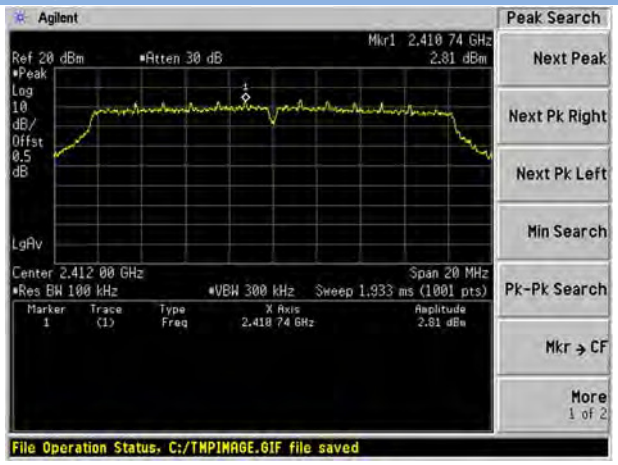
802.11b HIGH CHANNEL, SPURIOUS
30 MHz ~ 3 GHz



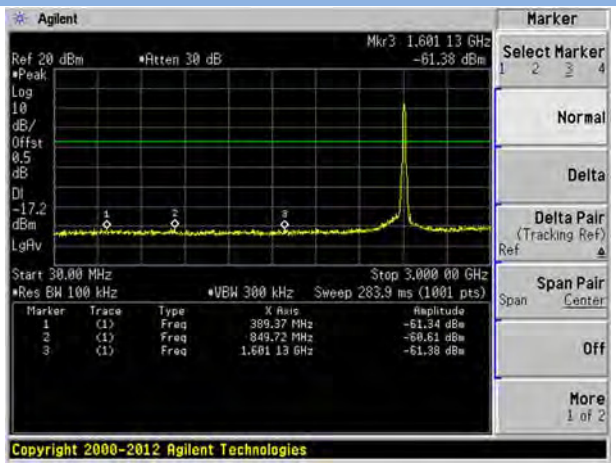
802.11b HIGH CHANNEL, SPURIOUS
2 GHz ~ 25 GHz



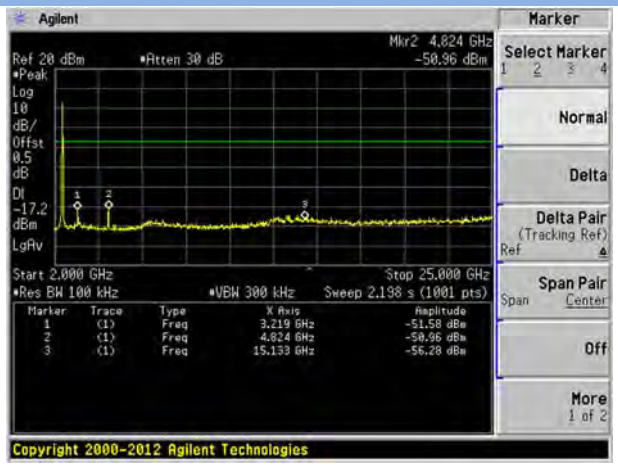
802.11g LOW CHANNEL CARRIER LEVEL



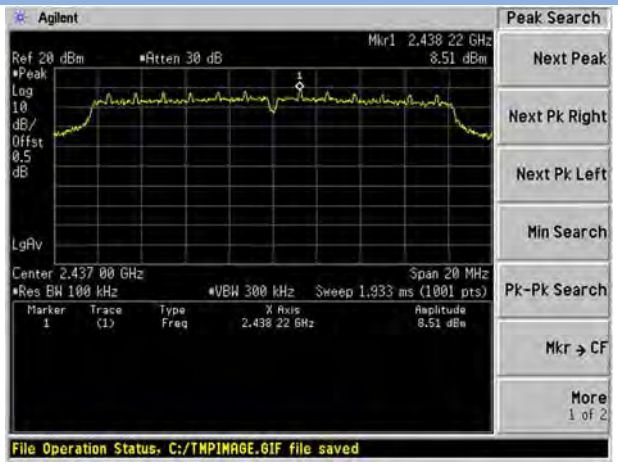
802.11g LOW CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



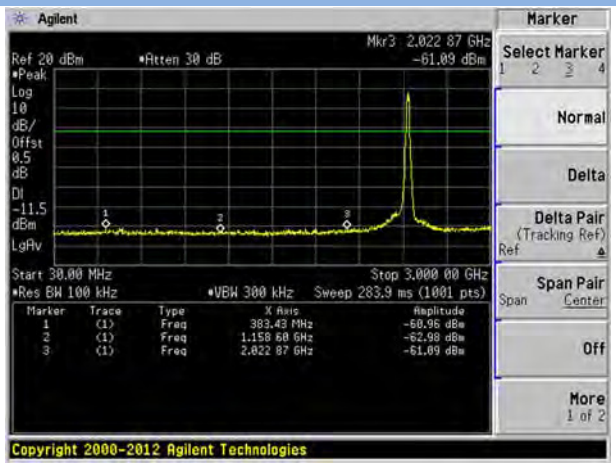
802.11g LOW CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



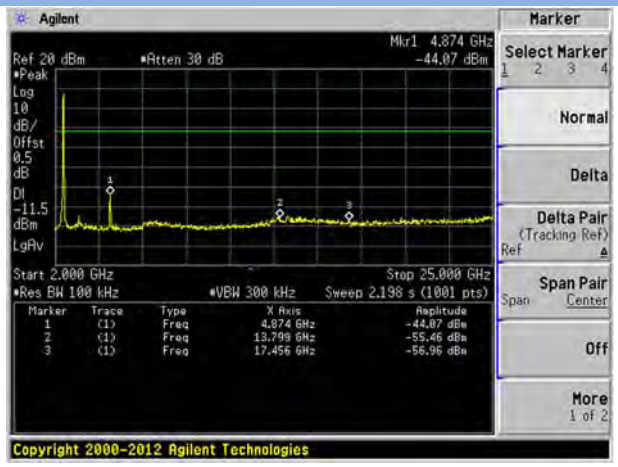
802.11g MIDDLE CHANNEL CARRIER LEVEL



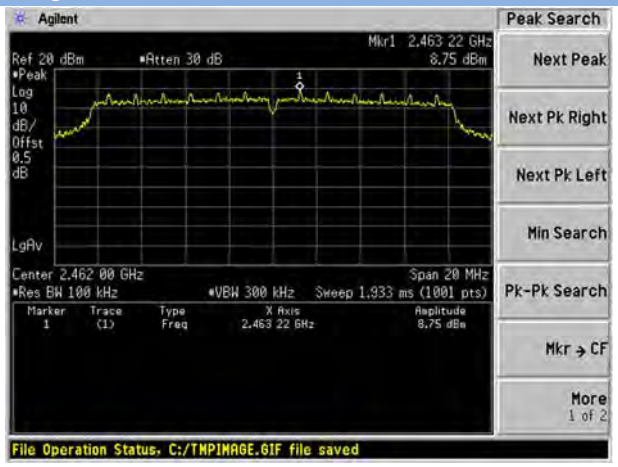
802.11g MIDDLE CHANNEL, SPURIOUS
30 MHz ~ 3 GHz



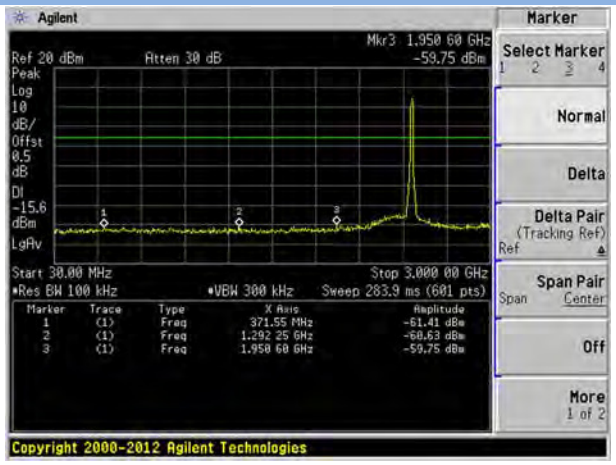
802.11g MIDDLE CHANNEL, SPURIOUS
2 GHz ~ 25 GHz



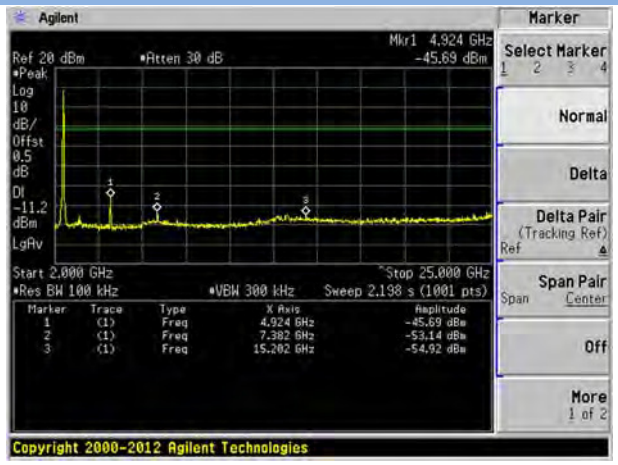
802.11g HIGH CHANNEL CARRIER LEVEL



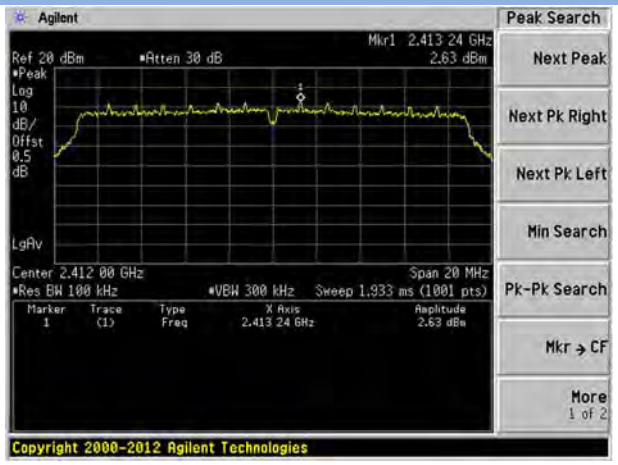
802.11g HIGH CHANNEL, SPURIOUS
30 MHz ~ 3 GHz



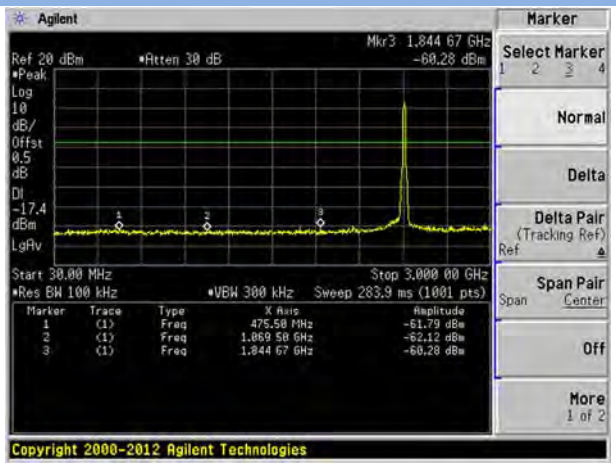
802.11g HIGH CHANNEL, SPURIOUS
2 GHz ~ 25 GHz



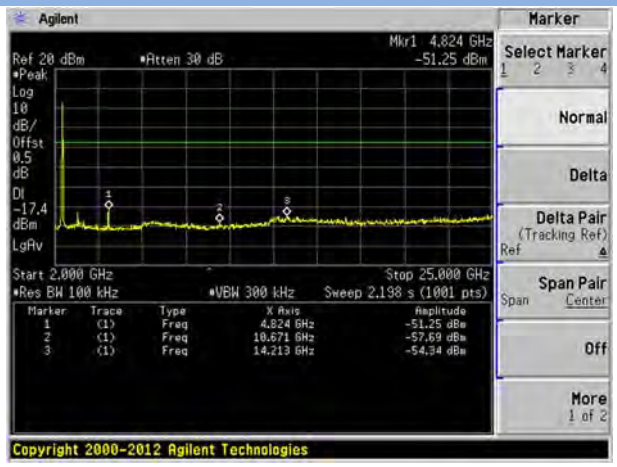
802.11n-20 MHz LOW CHANNEL CARRIER LEVEL



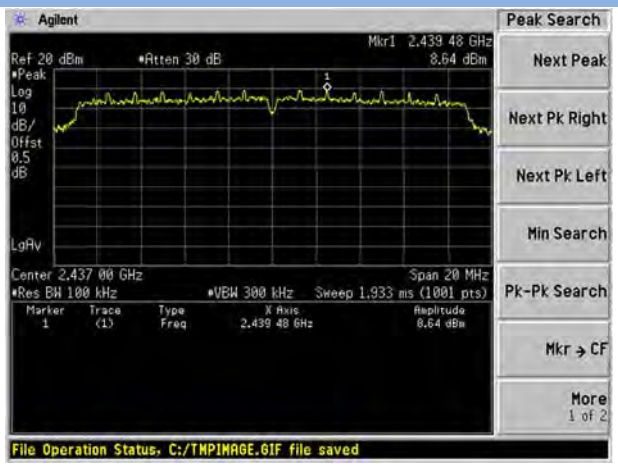
802.11n-20 MHz LOW CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



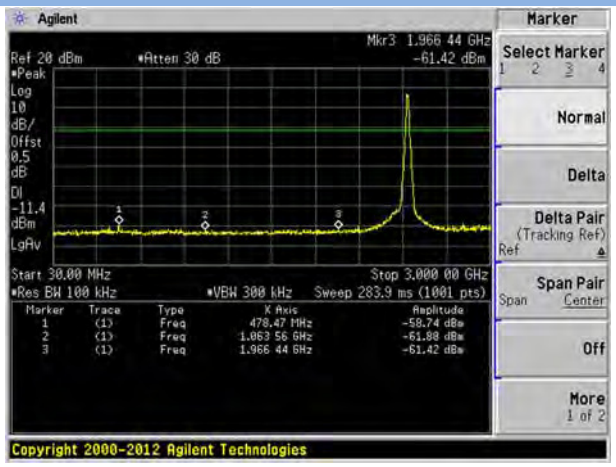
802.11n-20 MHz LOW CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



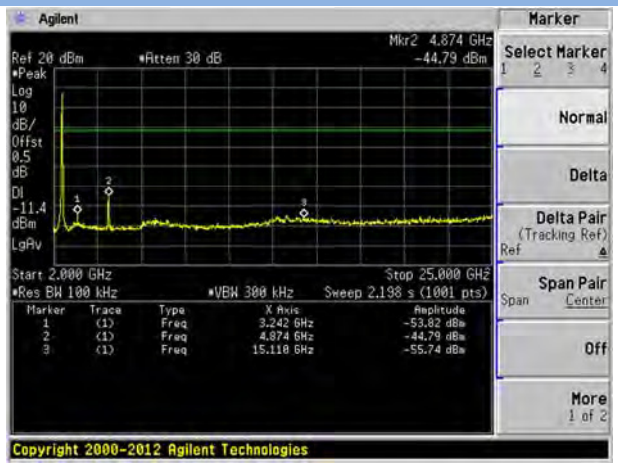
802.11n-20 MHz MIDDLE CHANNEL CARRIER LEVEL



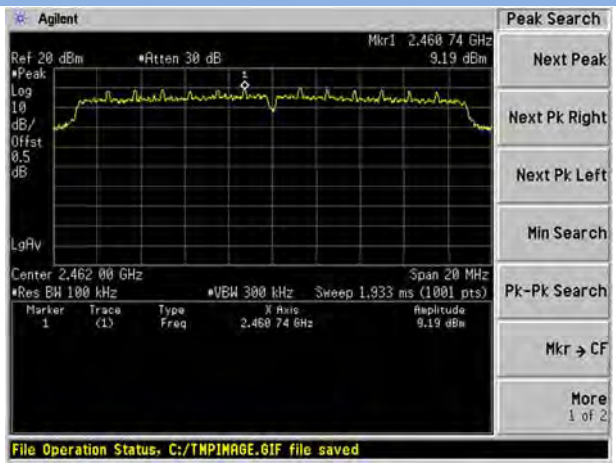
802.11n-20 MHz MIDDLE CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



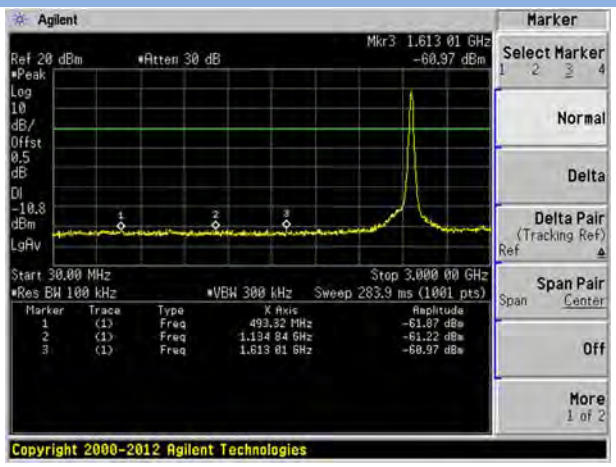
802.11n-20 MHz MIDDLE CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



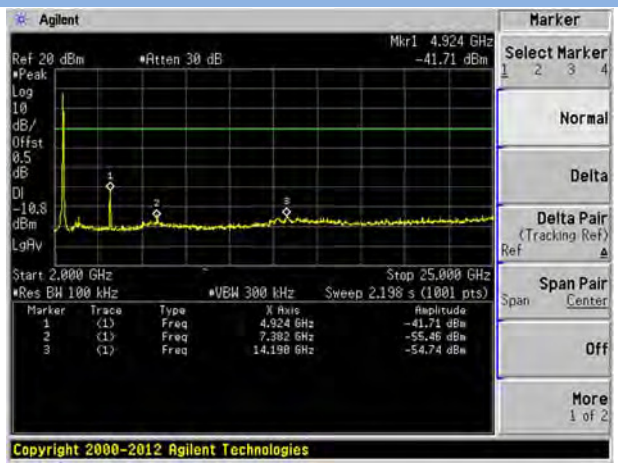
802.11n-20 MHz HIGH CHANNEL CARRIER LEVEL



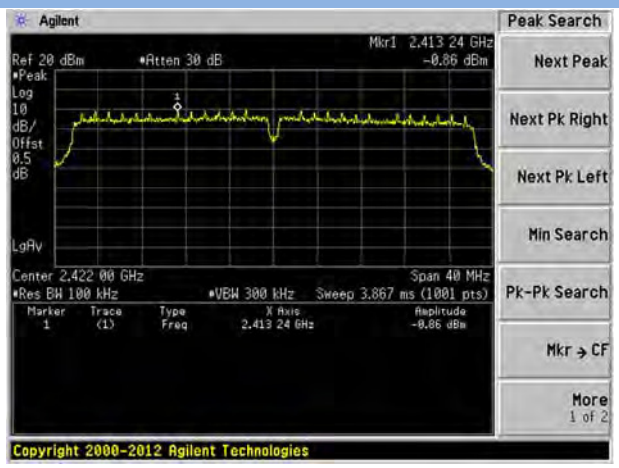
802.11n-20 MHz HIGH CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



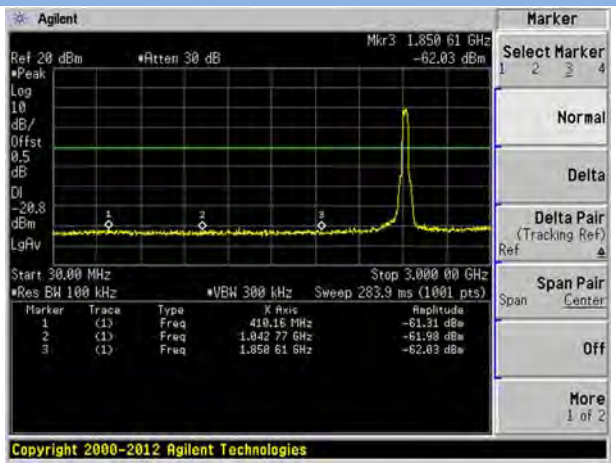
802.11n-20 MHz HIGH CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



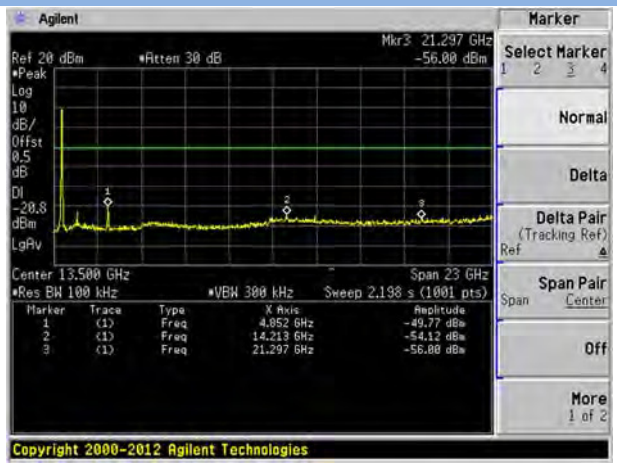
802.11n-40 MHz LOW CHANNEL CARRIER LEVEL



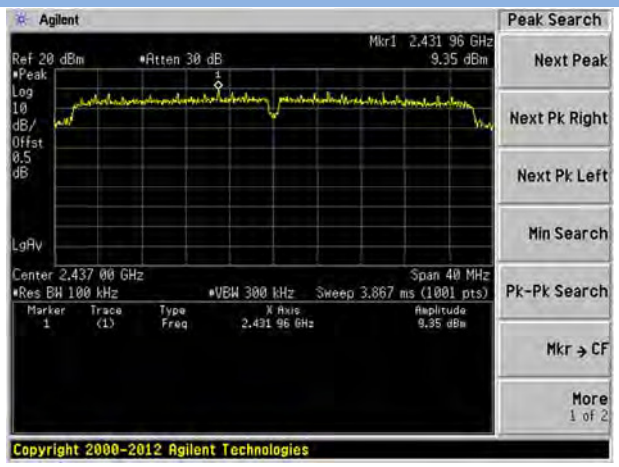
802.11n-40 MHz LOW CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



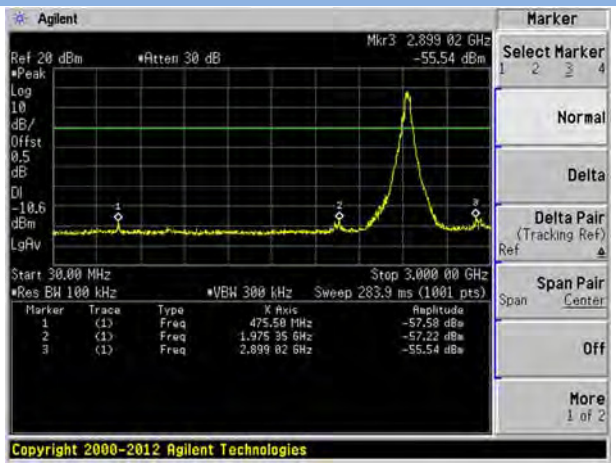
802.11n-40 MHz LOW CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



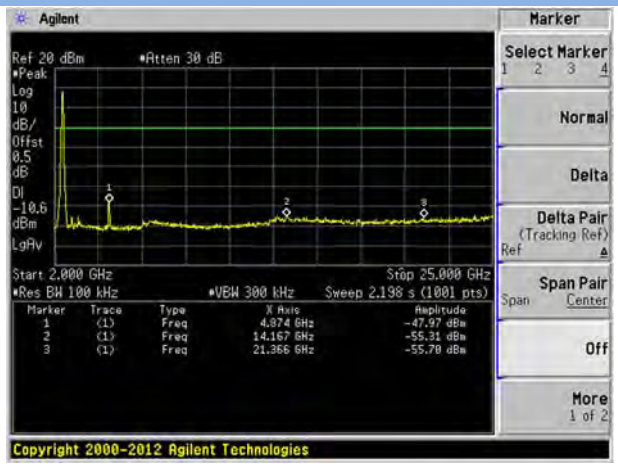
802.11n-40 MHz MIDDLE CHANNEL CARRIER LEVEL



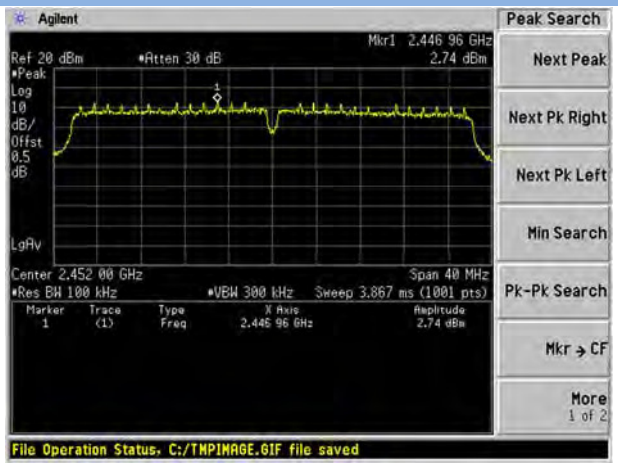
802.11n-40 MHz MIDDLE CHANNEL, SPURIOUS
30 MHz ~ 3 GHz



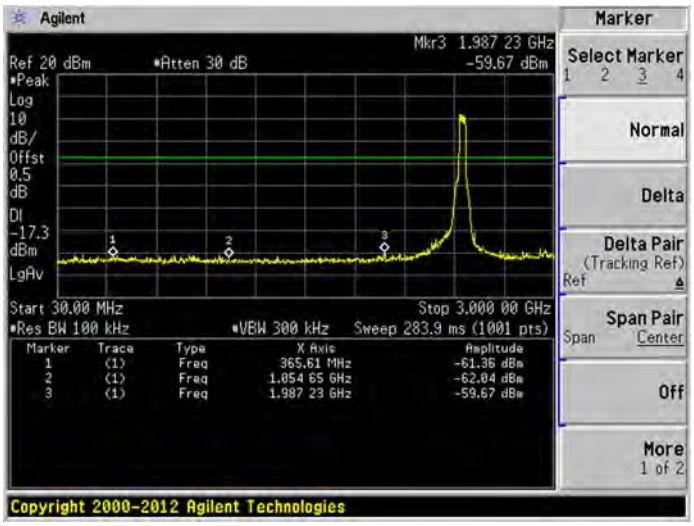
802.11n-40 MHz MIDDLE CHANNEL, SPURIOUS
2 GHz ~ 25 GHz



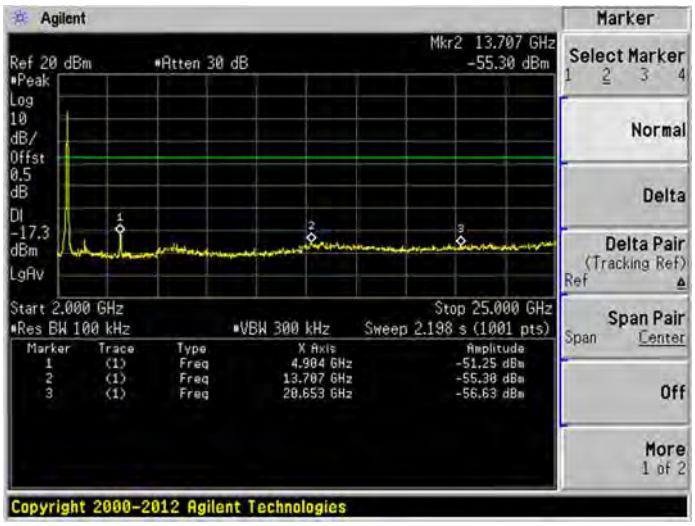
802.11n-40 MHz HIGH CHANNEL CARRIER LEVEL



802.11-n40 MHz HIGH CHANNEL, SPURIOUS
30 MHz ~ 3 GHz



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



A.4 Band Edge (Authorized-band band-edge)

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

Test Data (ANT 0)

802.11b Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-22.57	10.11	-9.89	Pass
High Channel	-23.23	11.27	-8.73	Pass

802.11g Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-26.16	4.42	-15.58	Pass
High Channel	-26.07	8.92	-11.08	Pass

802.11n-20 MHz Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-30.14	3.15	-16.85	Pass
High Channel	-20.83	11.31	-8.69	Pass

802.11n-40 MHz Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-30.82	0.20	-19.8	Pass
High Channel	-19.59	3.97	-16.03	Pass

Test Data (ANT 1)

802.11b Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-23.33	9.93	-10.07	Pass
High Channel	-40.95	9.87	-10.13	Pass

802.11g Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-26.49	2.81	-17.19	Pass
High Channel	-29.81	8.75	-11.25	Pass

802.11n-20 MHz Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-28.52	2.63	-17.37	Pass
High Channel	-24.31	9.19	-10.81	Pass

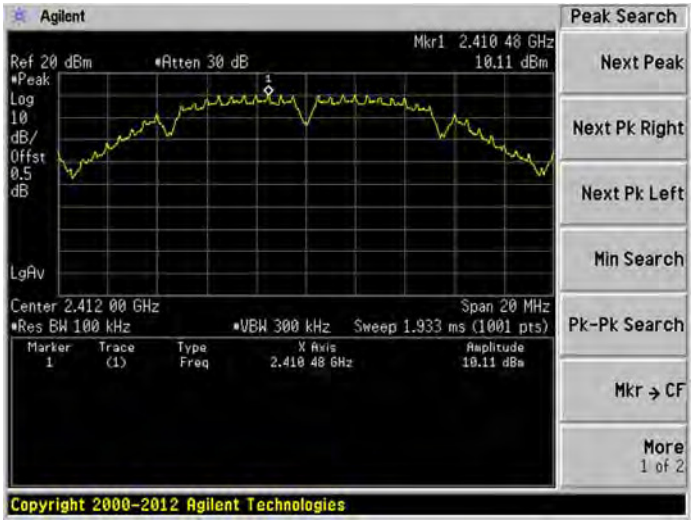
802.11n-40 MHz Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-31.69	-0.86	-20.86	Pass
High Channel	-30.32	2.74	-17.26	Pass

Test Plots

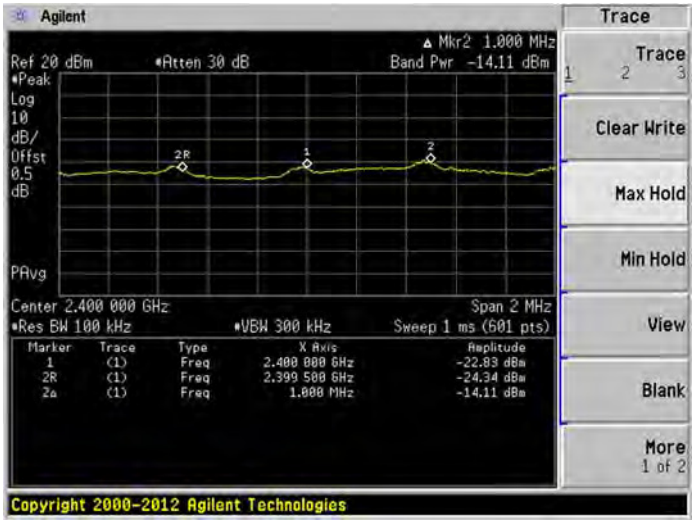
ANT 0

802.11b LOW CHANNEL, Carrier level

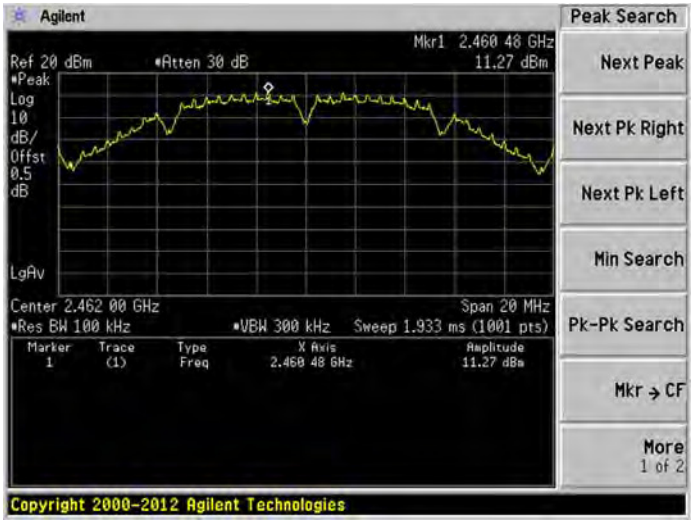


802.11b LOW CHANNEL, Reference level

802.11b LOW CHANNEL, Band Edge

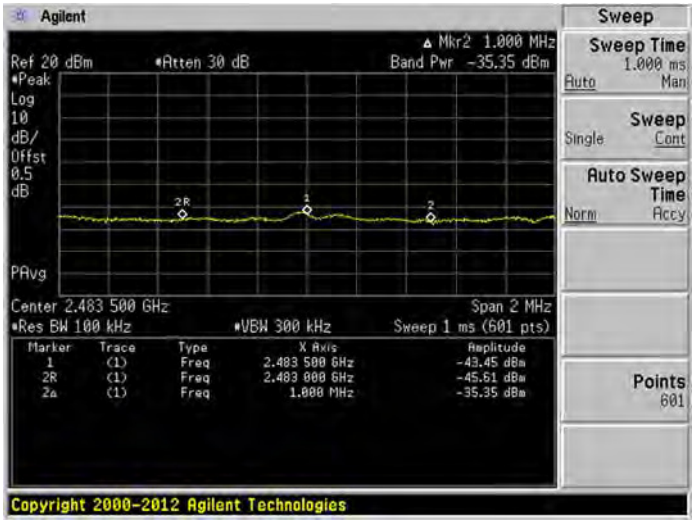


802.11b HIGH CHANNEL, Carrier level

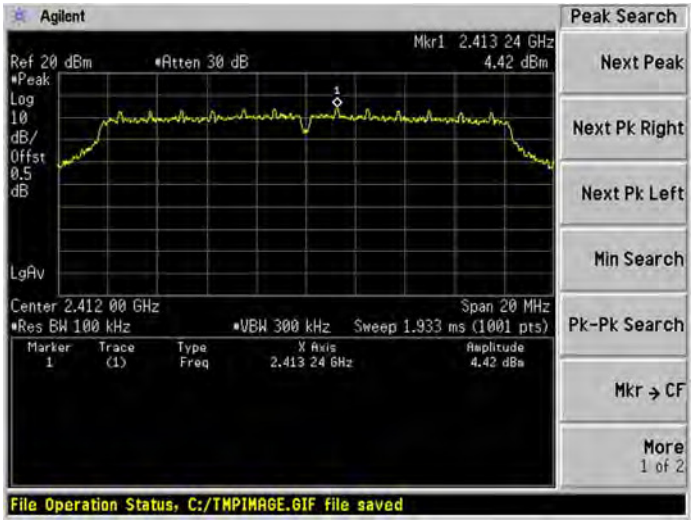


802.11b HIGH CHANNEL, Reference level

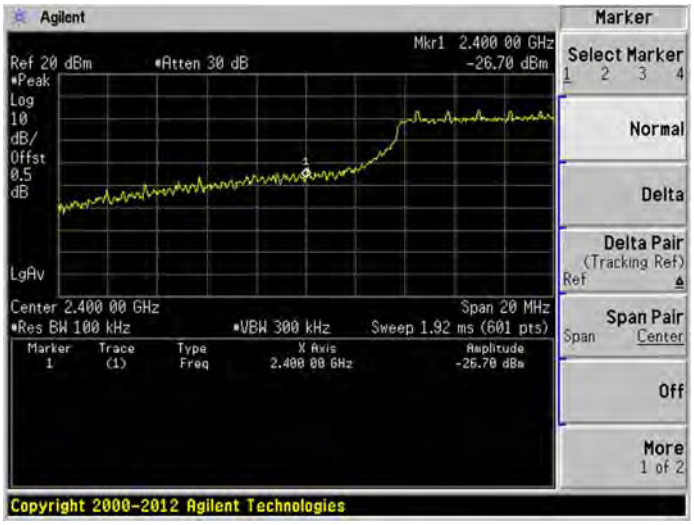
802.11b HIGH CHANNEL, Band Edge



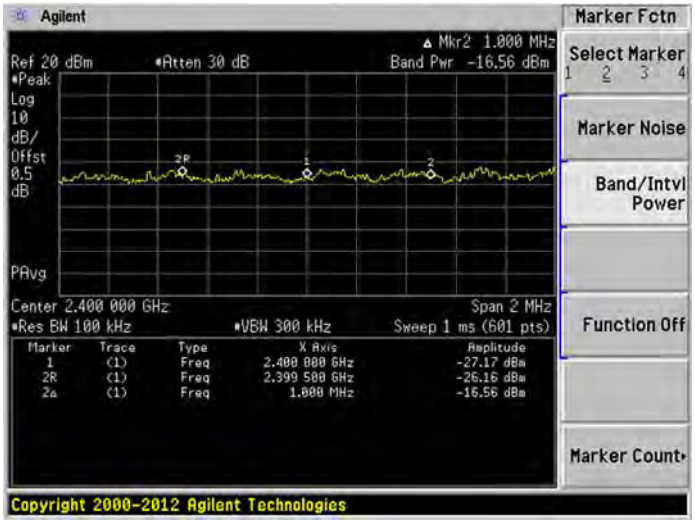
802.11g LOW CHANNEL, Carrier level



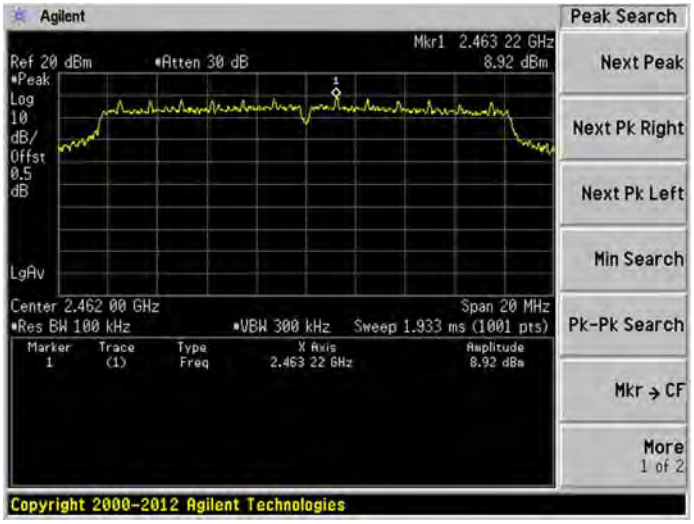
802.11g LOW CHANNEL, Reference level



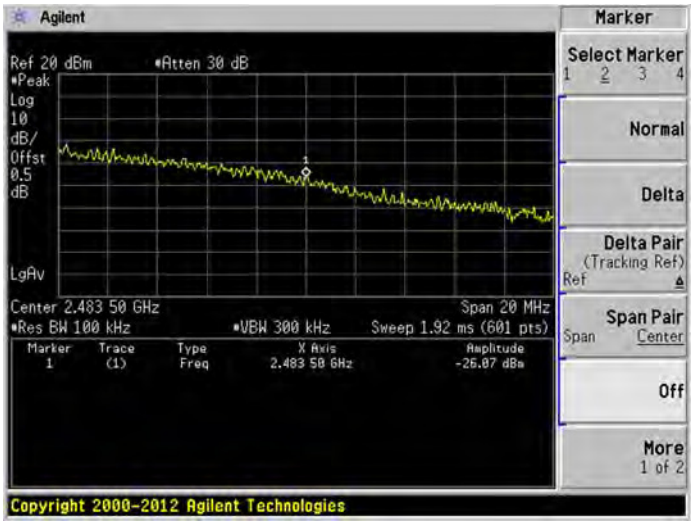
802.11g LOW CHANNEL, Band Edge



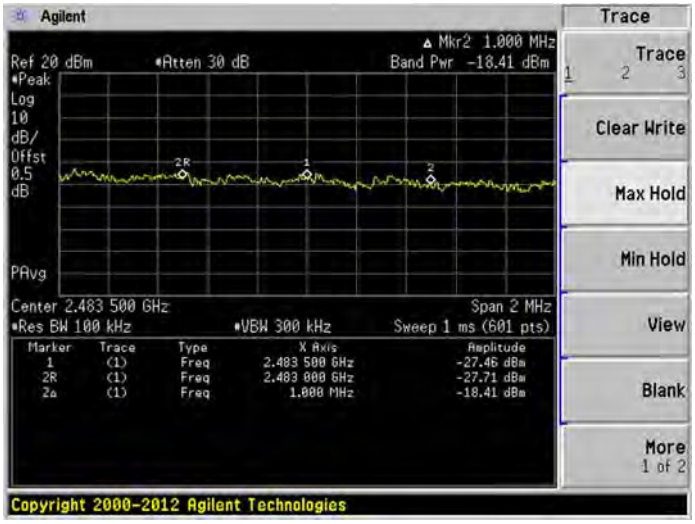
802.11g HIGH CHANNEL, Carrier level



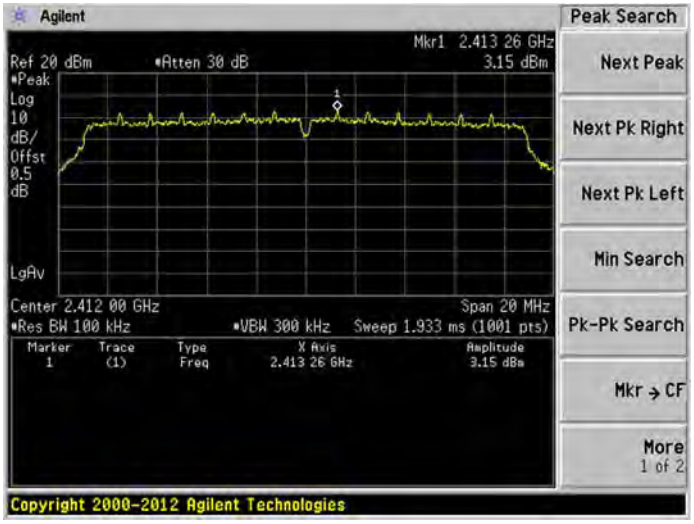
802.11g HIGH CHANNEL, Reference level



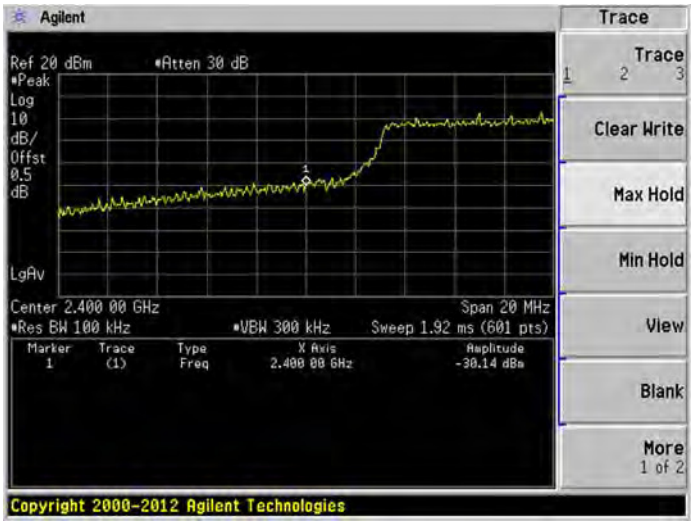
802.11g HIGH CHANNEL, Band Edge



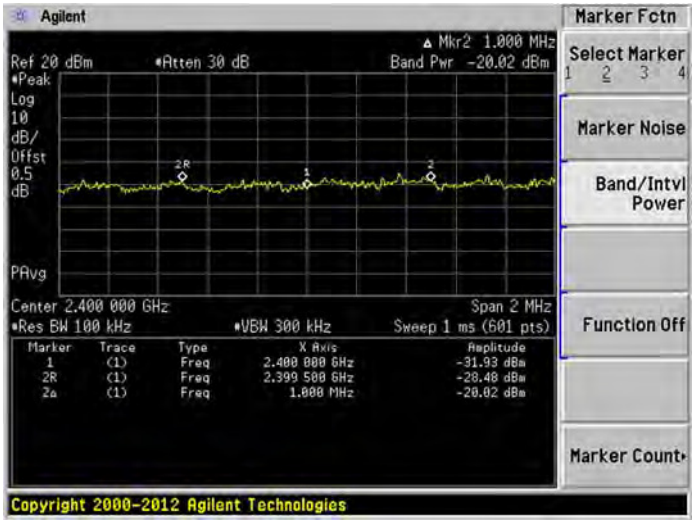
802.11n-20 MHz LOW CHANNEL, Carrier level



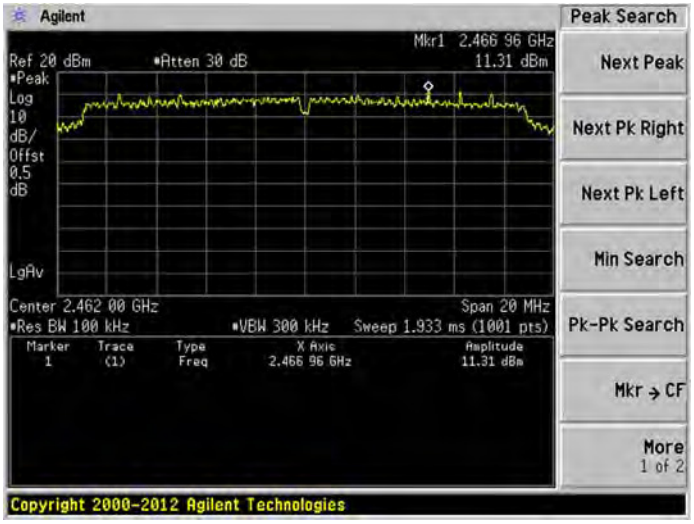
802.11n-20 MHz LOW CHANNEL, Reference level



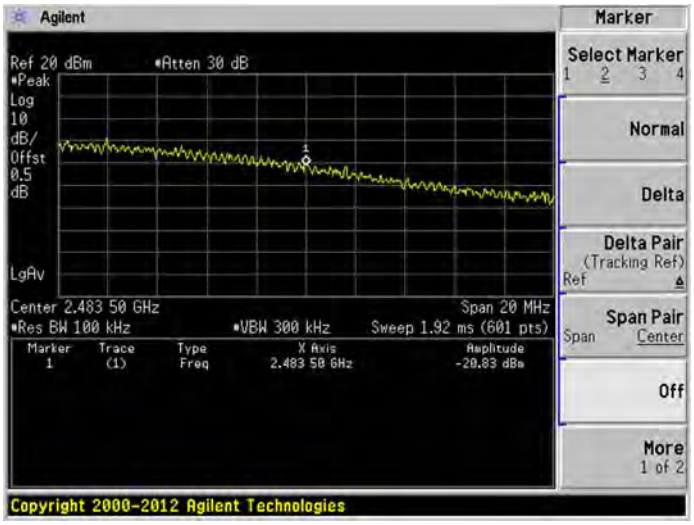
802.11n-20 MHz LOW CHANNEL, Band Edge



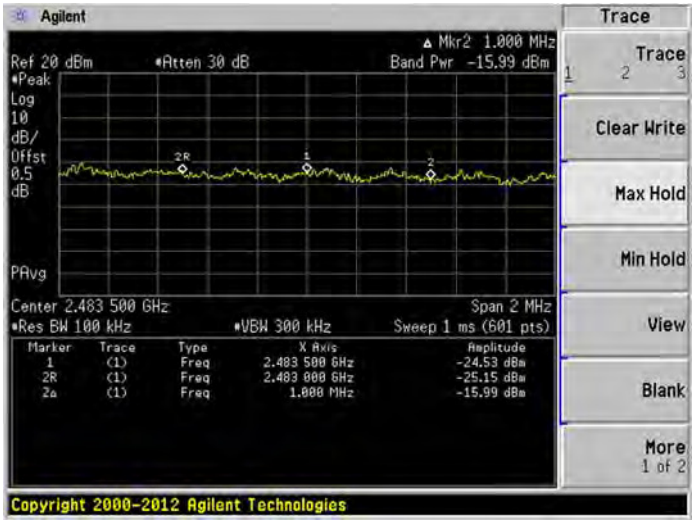
802.11n-20 MHz HIGH CHANNEL, Carrier level



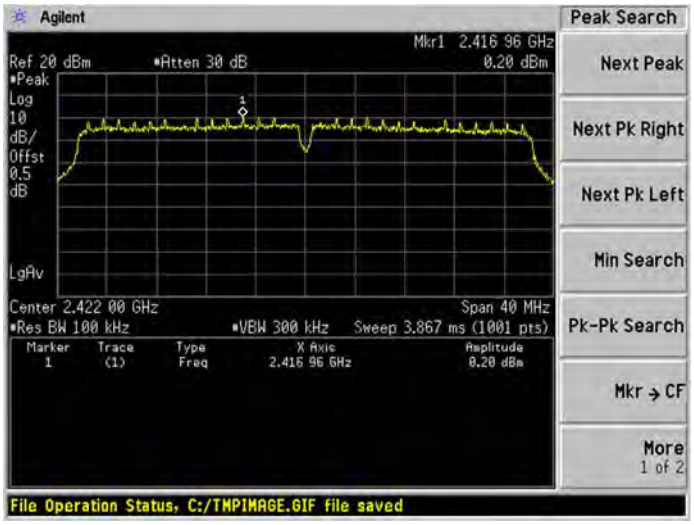
802.11n-20 MHz HIGH CHANNEL, Reference level



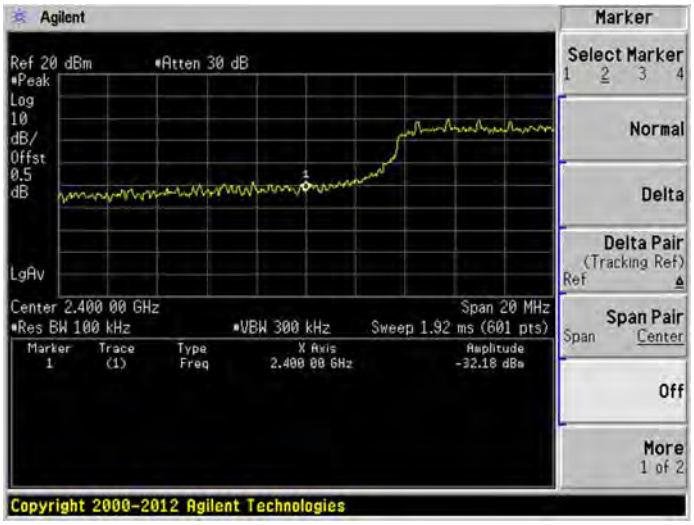
802.11n-20 MHz HIGH CHANNEL, Band Edge



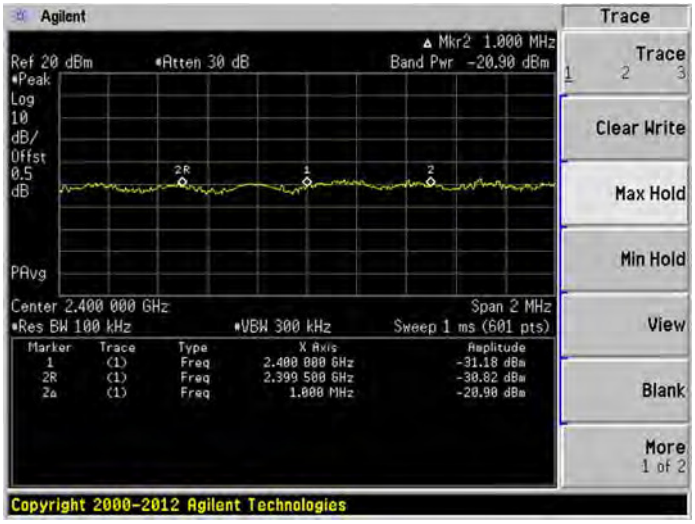
802.11n-40 MHz LOW CHANNEL, Carrier level



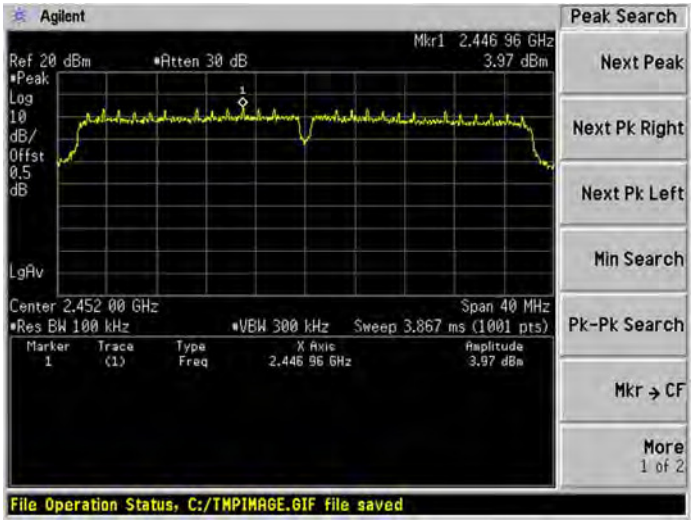
802.11n-40 MHz LOW CHANNEL, Reference level



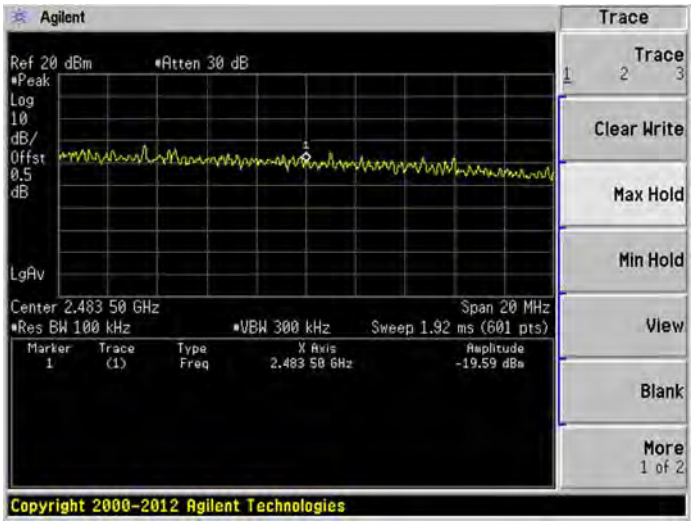
802.11n-40 MHz LOW CHANNEL, Band Edge



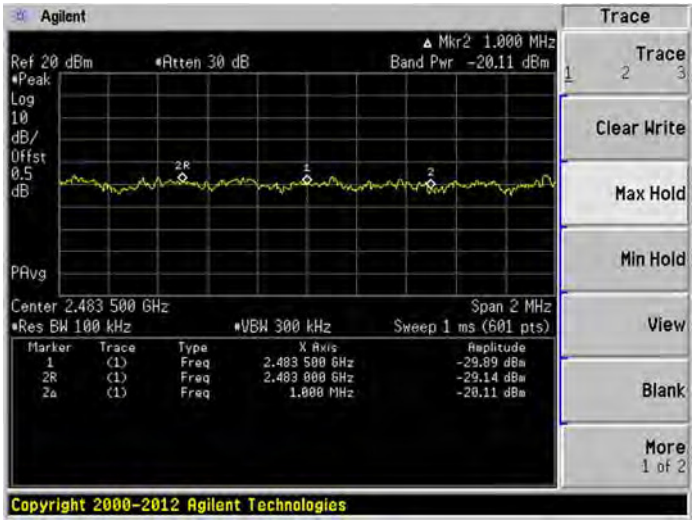
802.11n-40 MHz HIGH CHANNEL, Carrier level



802.11n-40 MHz HIGH CHANNEL, Reference level

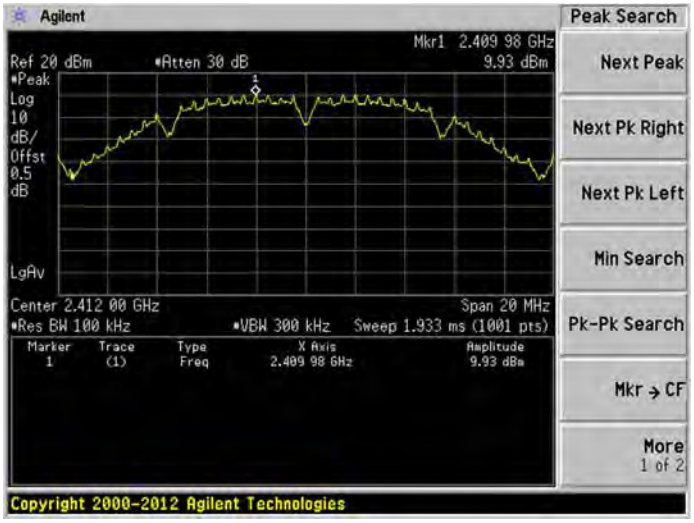


802.11n-40 MHz HIGH CHANNEL, Band Edge



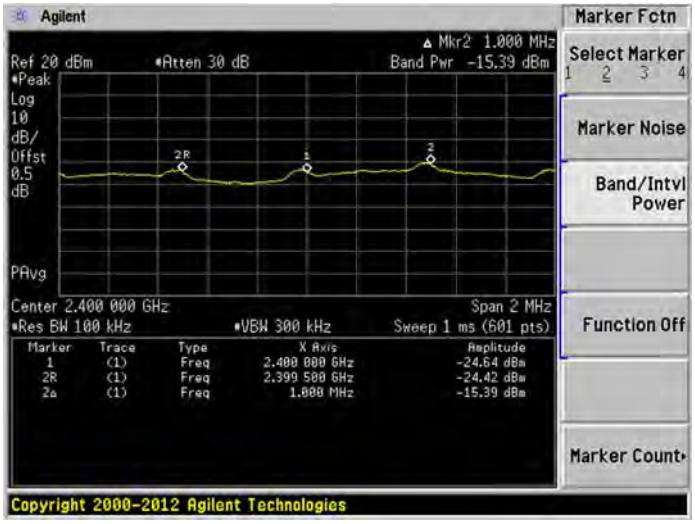
ANT 1

802.11b LOW CHANNEL, Carrier level

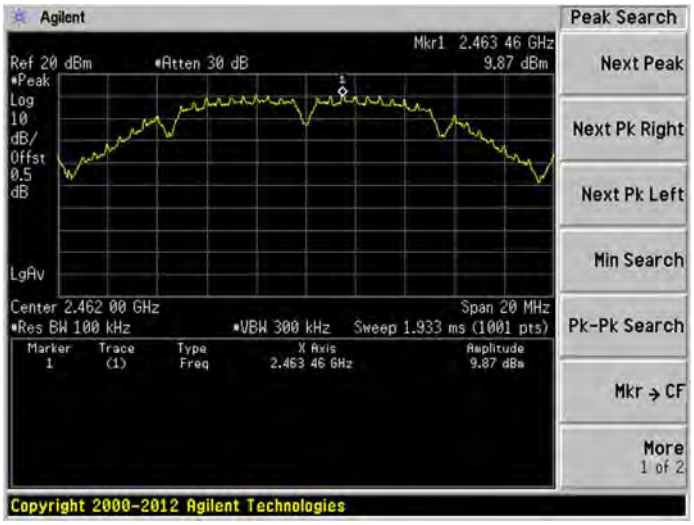


802.11b LOW CHANNEL, Reference level

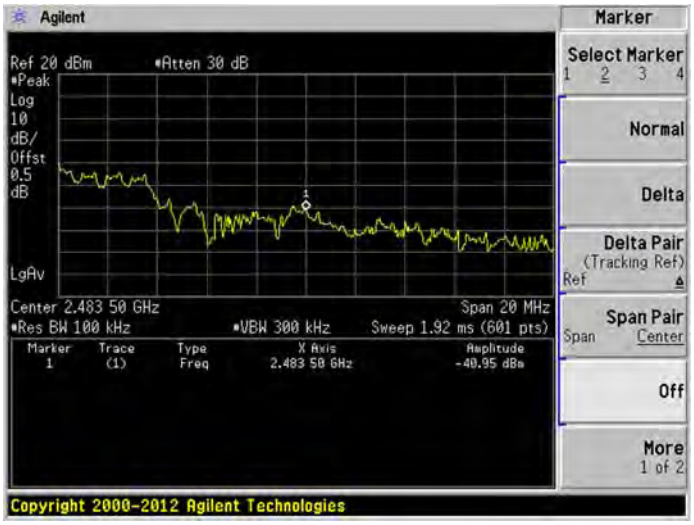
802.11b LOW CHANNEL, Band Edge



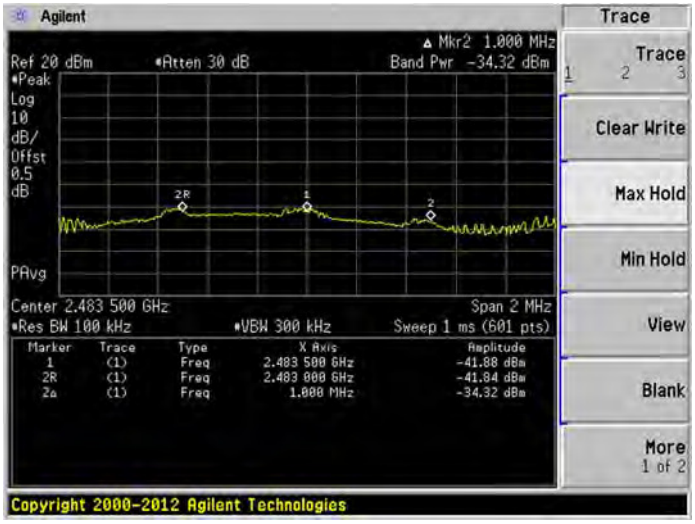
802.11b HIGH CHANNEL, Carrier level



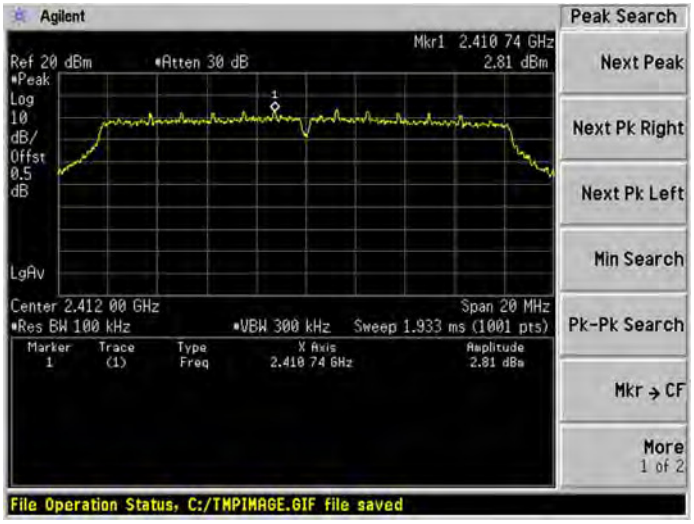
802.11b HIGH CHANNEL, Reference level



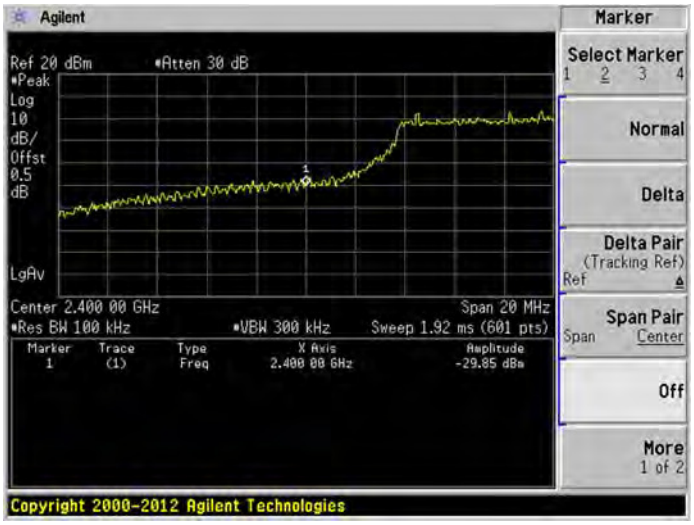
802.11b HIGH CHANNEL, Band Edge



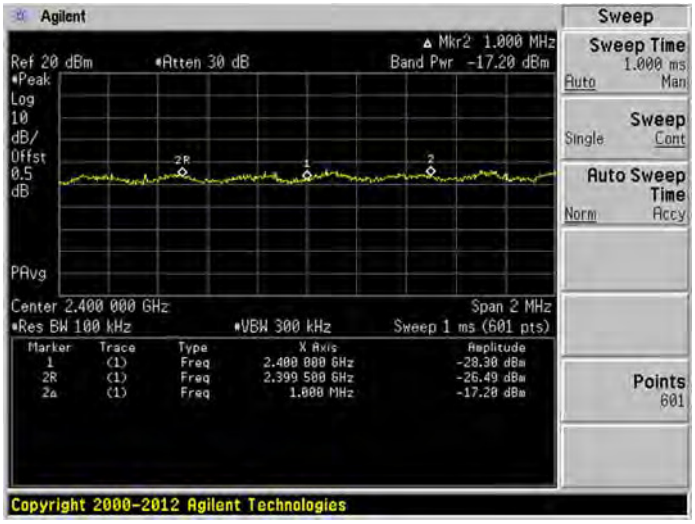
802.11g LOW CHANNEL, Carrier level



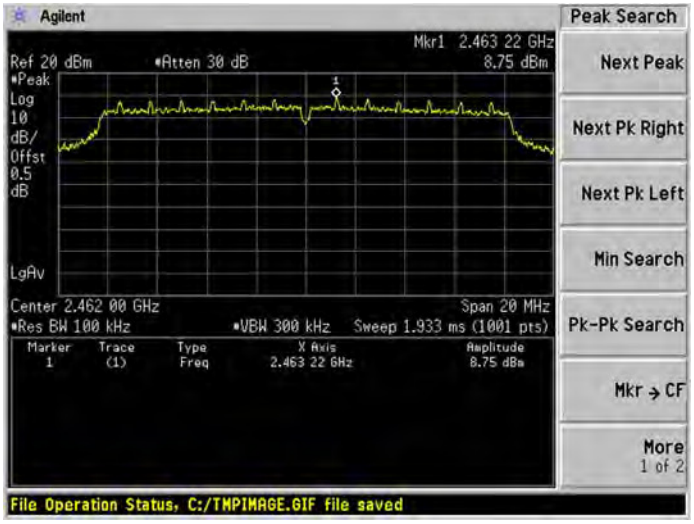
802.11g LOW CHANNEL, Reference level



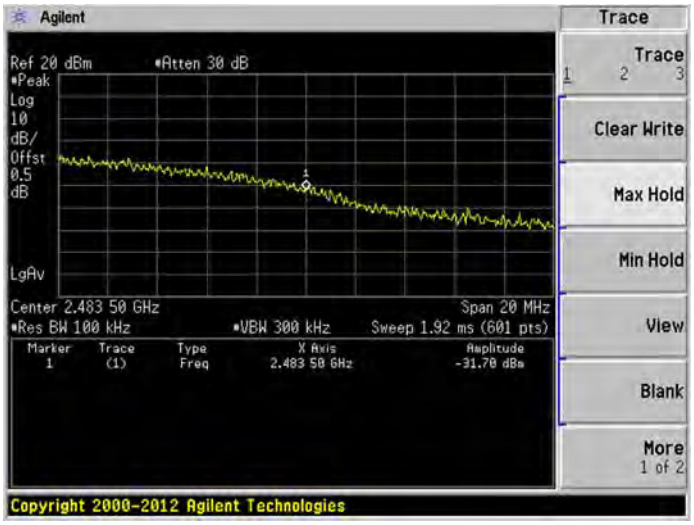
802.11g LOW CHANNEL, Band Edge



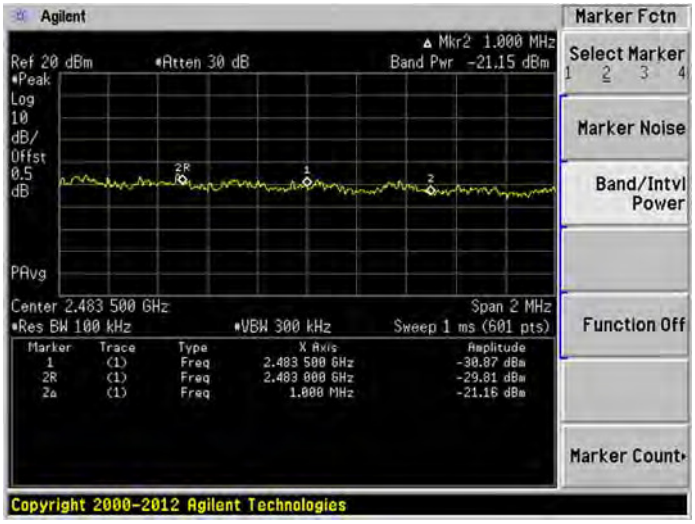
802.11g HIGH CHANNEL, Carrier level



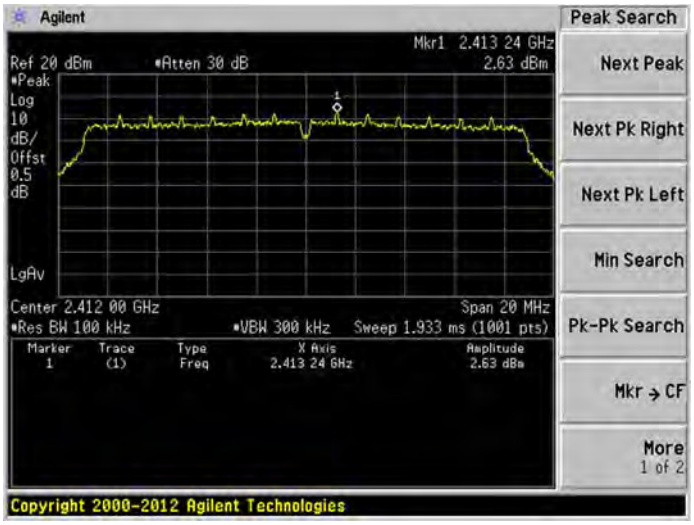
802.11g HIGH CHANNEL, Reference level



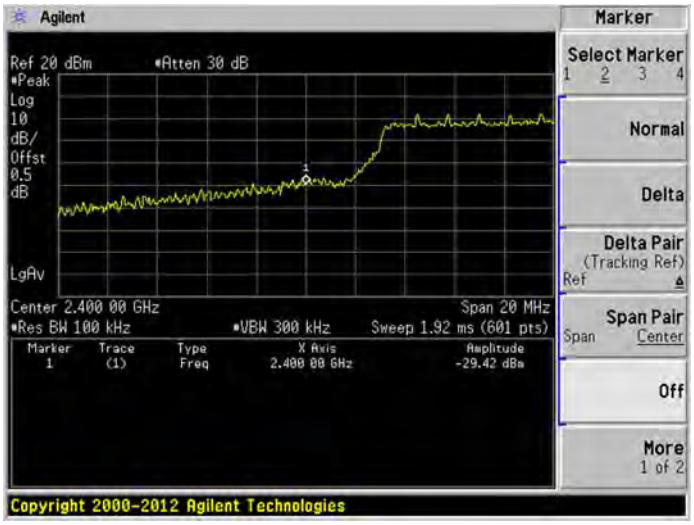
802.11g HIGH CHANNEL, Band Edge



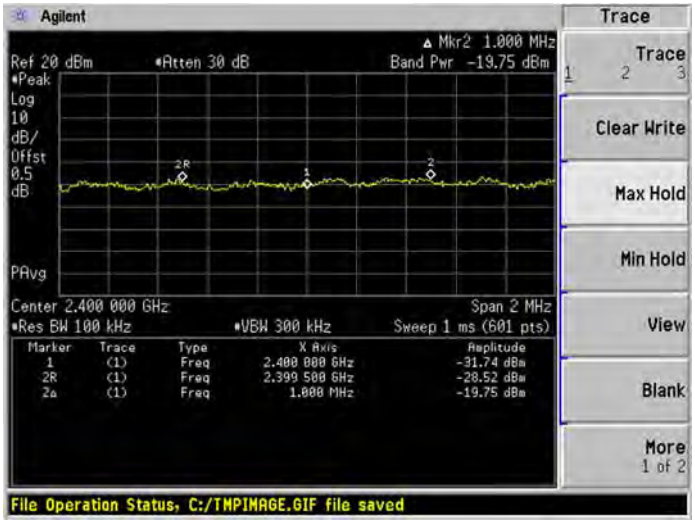
802.11n-20 MHz LOW CHANNEL, Carrier level



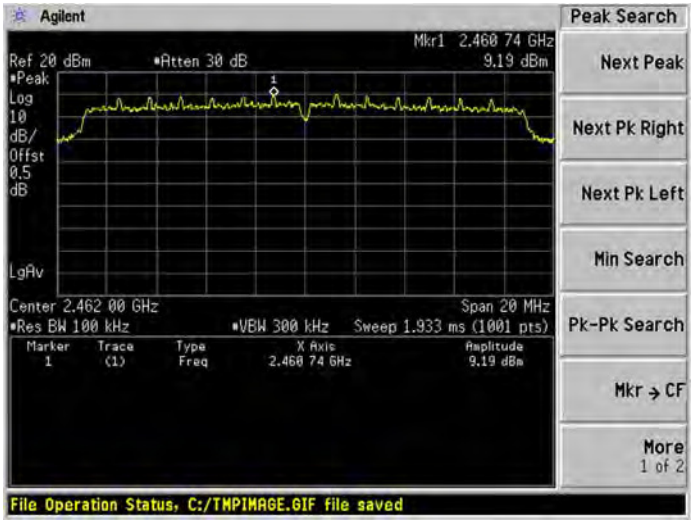
802.11n-20 MHz LOW CHANNEL, Reference level



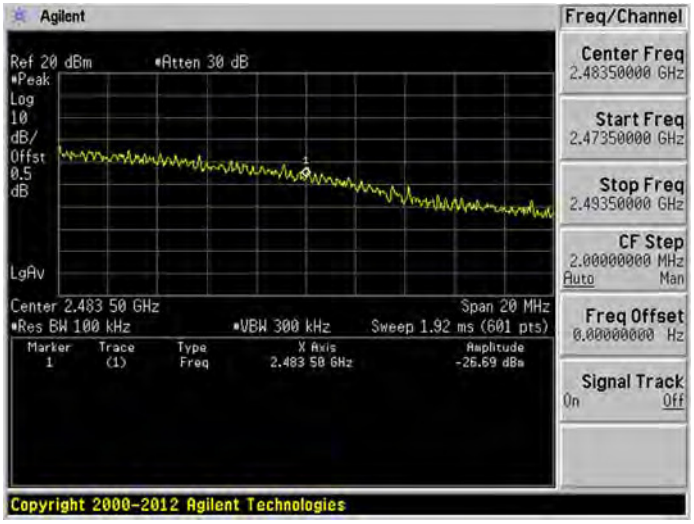
802.11n-20 MHz LOW CHANNEL, Band Edge



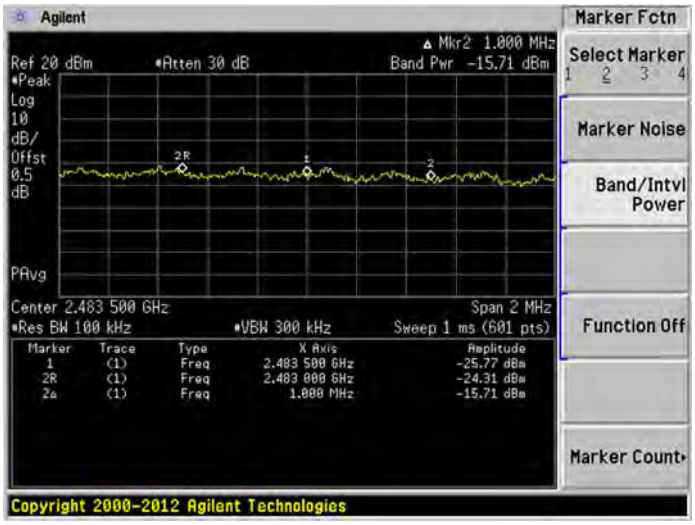
802.11n-20 MHz HIGH CHANNEL, Carrier level



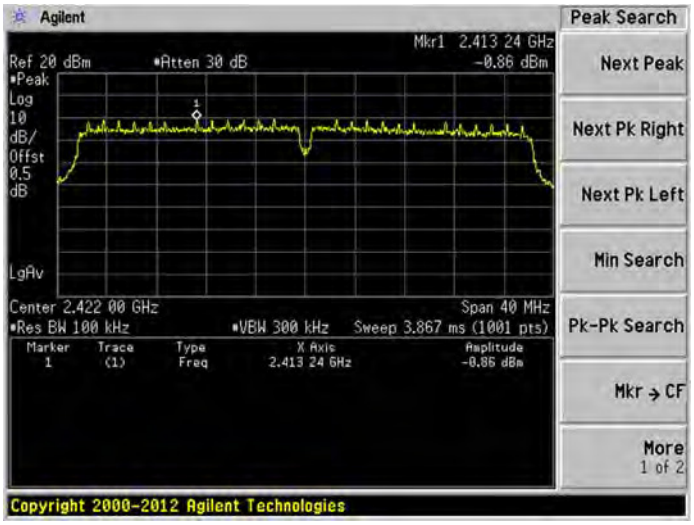
802.11n-20 MHz HIGH CHANNEL, Reference level



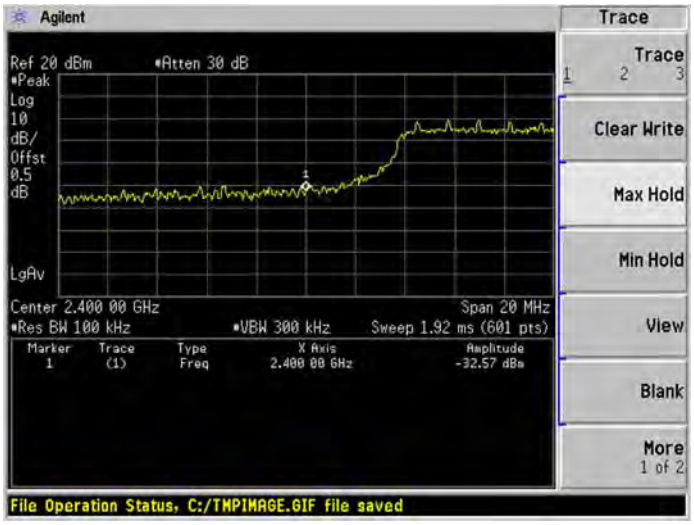
802.11n-20 MHz HIGH CHANNEL, Band Edge



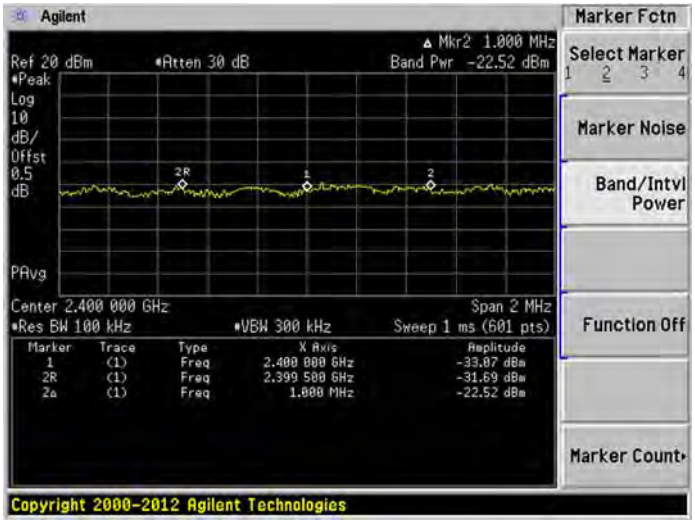
802.11n-40 MHz LOW CHANNEL, Carrier level



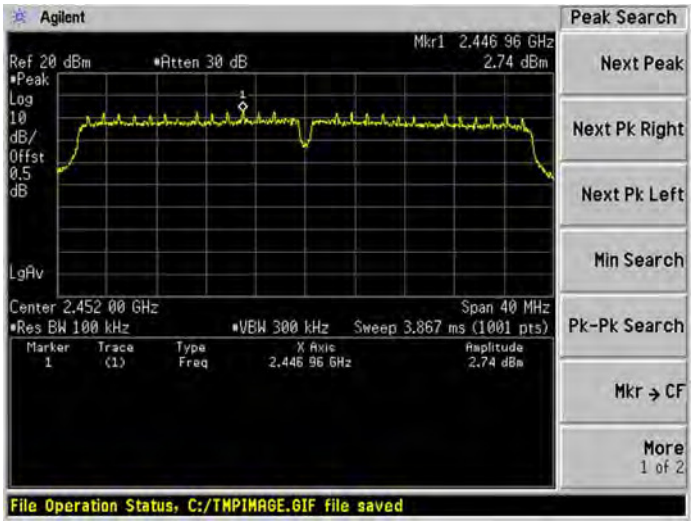
802.11n-40 MHz LOW CHANNEL, Reference level



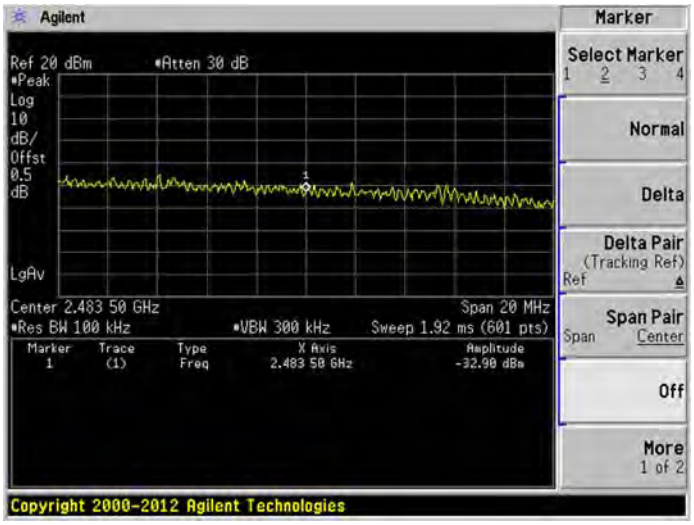
802.11n-40 MHz LOW CHANNEL, Band Edge



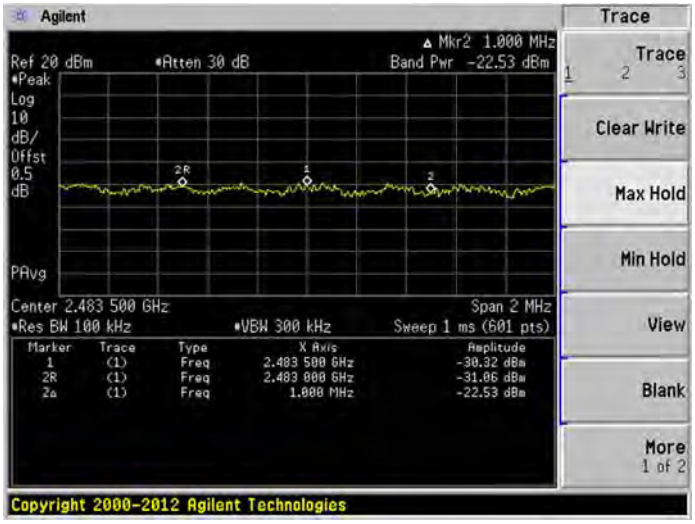
802.11n-40 MHz HIGH CHANNEL, Carrier level



802.11n-40 MHz HIGH CHANNEL, Reference level



802.11n-40 MHz HIGH CHANNEL, Band Edge

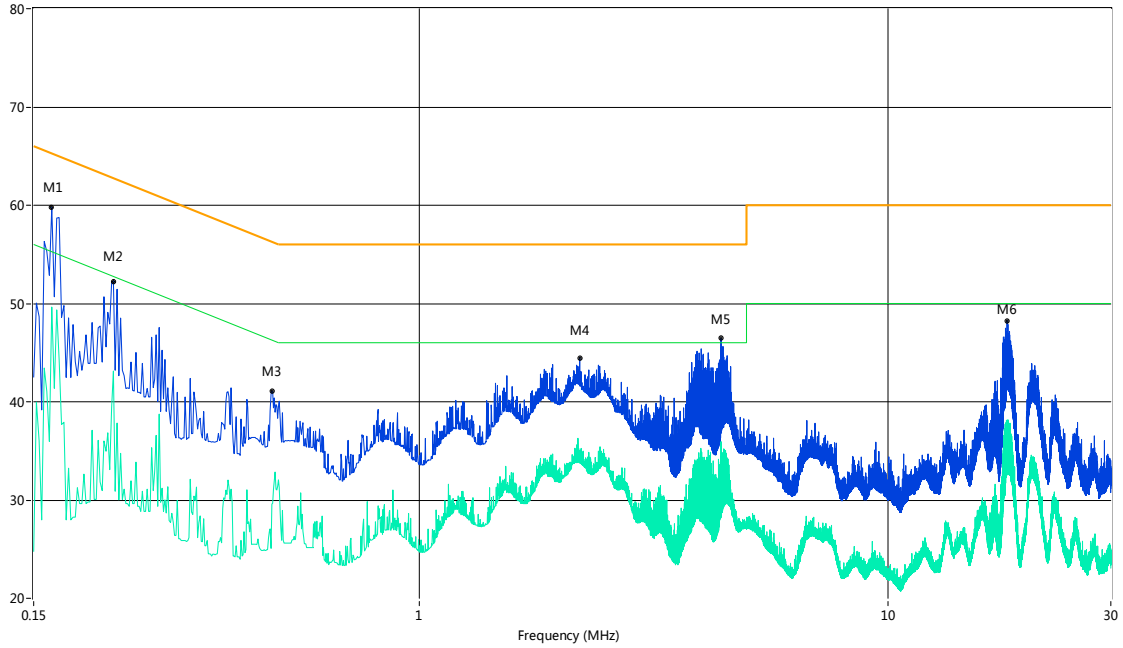


A.5 Conducted Emissions

Note: All configurations have been tested, only the worst configuration (802.11b High Channel) shown here.

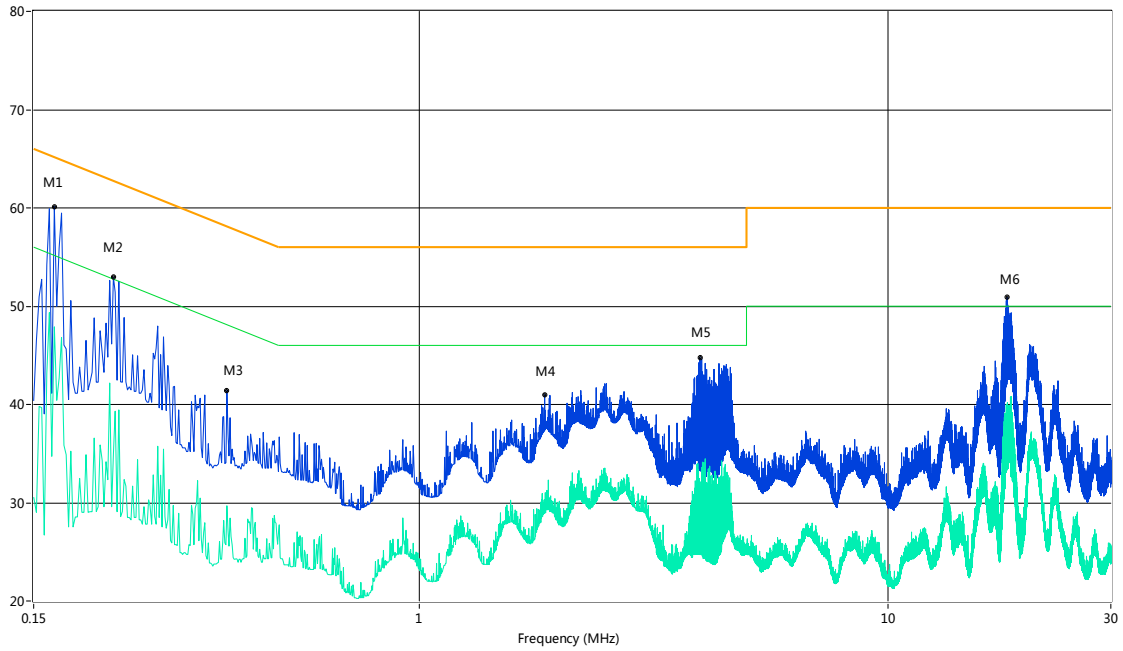
Test Data and Plots

PHASE L



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.16	59.8	13.00	65.6	5.80	Peak	L Line	Pass
1**	0.16	49.6	13.00	55.6	6.00	AV	L Line	Pass
2	0.22	52.3	13.00	63.9	11.60	Peak	L Line	Pass
2**	0.22	43.1	13.00	53.9	10.80	AV	L Line	Pass
3	0.48	41.1	13.00	56.5	15.40	Peak	L Line	Pass
3**	0.48	29.6	13.00	46.5	16.90	AV	L Line	Pass
4	2.20	44.5	13.00	56.0	11.50	Peak	L Line	Pass
4**	2.20	34.8	13.00	46.0	11.20	AV	L Line	Pass
5	4.41	46.4	13.00	56.0	9.60	Peak	L Line	Pass
5**	4.41	35.9	13.00	46.0	10.10	AV	L Line	Pass
6	18.01	48.2	13.00	60.0	11.80	Peak	L Line	Pass
6**	18.01	36.9	13.00	50.0	13.10	AV	L Line	Pass

PHASE N



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.17	60.2	13.00	65.5	5.30	Peak	N Line	Pass
1**	0.17	47.9	13.00	55.5	7.60	AV	N Line	Pass
2	0.22	53.0	13.00	63.9	10.90	Peak	N Line	Pass
2**	0.22	34.9	13.00	53.9	19.00	AV	N Line	Pass
3	0.39	41.4	13.00	59.2	17.80	Peak	N Line	Pass
3**	0.39	29.7	13.00	49.2	19.50	AV	N Line	Pass
4	1.85	41.0	13.00	56.0	15.00	Peak	N Line	Pass
4**	1.85	30.3	13.00	46.0	15.70	AV	N Line	Pass
5	3.98	44.8	13.00	56.0	11.20	Peak	N Line	Pass
5**	3.98	30.4	13.00	46.0	15.60	AV	N Line	Pass
6	18.02	50.9	13.00	60.0	9.10	Peak	N Line	Pass
6**	18.02	38.9	13.00	50.0	11.10	AV	N Line	Pass

A.6 Radiated Emission

Radiated spurious emission test

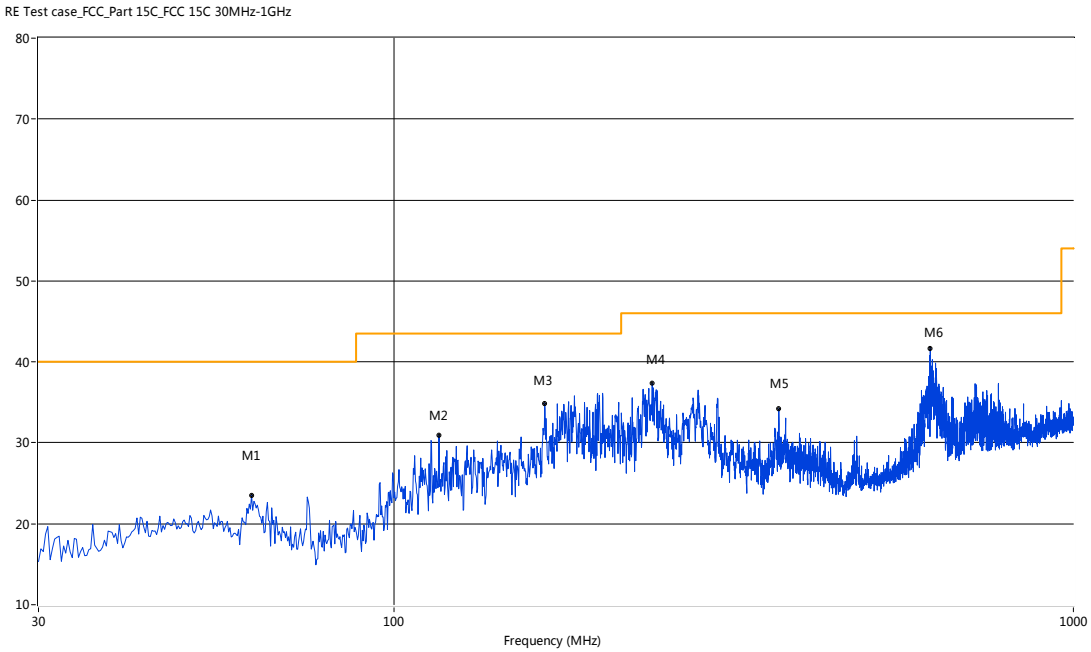
Note 1: The symbol of "--" in the table which means not application.

Note 2: For the test data above 1 GHz，according the ANSI C63.4-2014, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

Note 3: The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

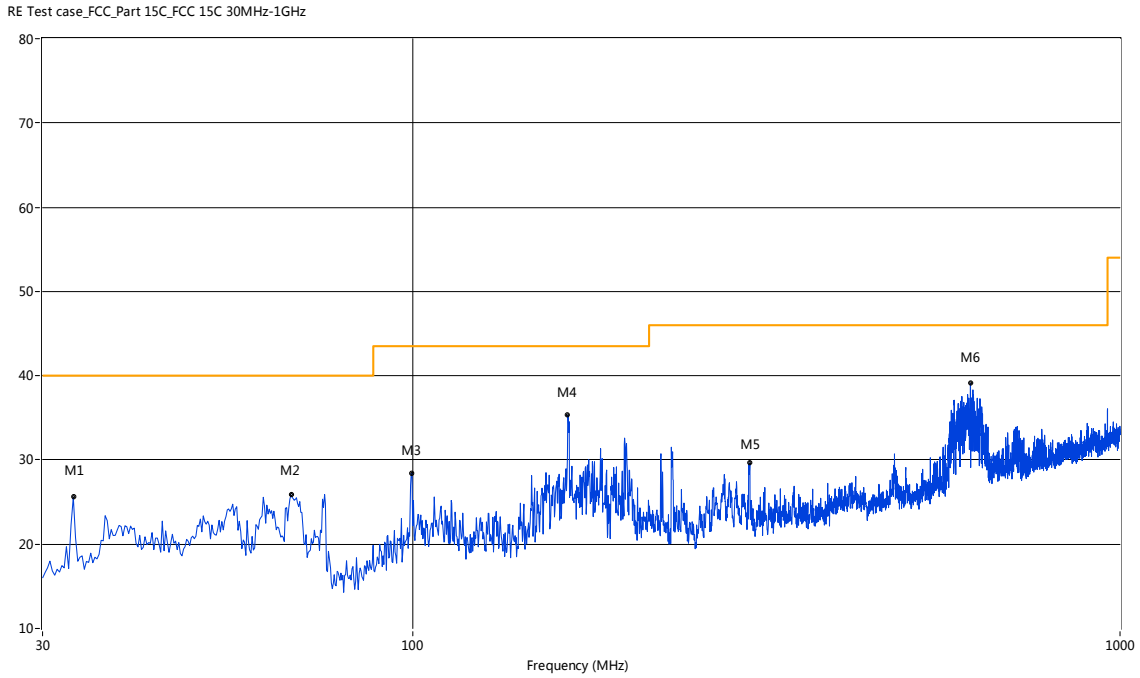
Note 4: All configurations have been tested, only the worst configuration (802.11b High Channel) shown here.

30 MHz to 1 GHz, ANT H 802.11b Low Channel



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	61.76	23.51	-20.29	40.0	16.49	Peak	342.00	100	Horizontal	N/A
1*	61.76	3.83	-20.29	40.0	36.17	QP	342.00	100	Horizontal	Pass
2	116.55	30.94	-21.21	43.5	12.56	Peak	4.00	100	Horizontal	N/A
2*	116.55	10.43	-21.21	43.5	33.07	QP	4.00	100	Horizontal	Pass
3	166.74	34.85	-22.85	43.5	8.65	Peak	172.00	100	Horizontal	N/A
3*	166.74	13.75	-22.85	43.5	29.75	QP	172.00	100	Horizontal	Pass
4	239.95	37.35	-19.10	46.0	8.65	Peak	254.00	100	Horizontal	N/A
4*	239.95	16.75	-19.1	46.0	29.25	QP	254.00	100	Horizontal	Pass
5	368.45	34.22	-16.00	46.0	11.78	Peak	122.00	100	Horizontal	N/A
5*	368.45	16.41	-16	46.0	29.59	QP	122.00	100	Horizontal	Pass
6	615.73	41.68	-10.36	46.0	4.32	Peak	182.00	100	Horizontal	N/A
6*	615.73	23.34	-10.36	46.0	22.66	QP	182.00	100	Horizontal	Pass

30 MHz to 1 GHz, ANT V 802.11b Low Channel



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	33.15	25.59	-21.90	40.0	14.41	Peak	242.00	100	Vertical	N/A
1*	33.15	5.47	-21.9	40.0	34.53	QP	242.00	100	Vertical	Pass
2	67.34	25.85	-21.61	40.0	14.15	Peak	18.00	100	Vertical	N/A
2*	67.34	6.34	-21.61	40.0	33.66	QP	18.00	100	Vertical	Pass
3	99.82	28.45	-20.20	43.5	15.05	Peak	118.00	100	Vertical	N/A
3*	99.82	14.75	-20.2	43.5	28.75	QP	118.00	100	Vertical	Pass
4	165.77	35.34	-22.91	43.5	8.16	Peak	267.00	100	Vertical	N/A
4*	165.77	17.37	-22.91	43.5	26.13	QP	267.00	100	Vertical	Pass
5	299.59	29.66	-17.64	46.0	16.34	Peak	47.00	100	Vertical	N/A
5*	299.59	12.38	-17.64	46.0	33.62	QP	47.00	100	Vertical	Pass
6	614.52	39.08	-10.24	46.0	6.92	Peak	298.00	100	Vertical	N/A
6*	614.52	20.76	-10.24	46	25.24	QP	298.00	100	Vertical	Pass

1 GHz to 25 GHz, ANT V 802.11b Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1192.45	45.81	-5.42	74.0	28.19	Peak	122.30	100	Vertical	Pass
2	1442.39	46.92	-4.52	74.0	27.08	Peak	280.40	100	Vertical	Pass
3	1796.80	52.95	-3.70	74.0	21.05	Peak	173.40	100	Vertical	Pass
4	2410.15	99.53	-0.12	74.0	-25.53	Peak	179.80	100	Vertical	N/A
5	3215.95	47.99	9.18	74.0	26.01	Peak	117.70	100	Vertical	Pass
6**	4823.99	50.86	13.77	54.0	3.14	AV	196.60	141.90	Vertical	Pass
6	4823.99	56.83	13.77	74.0	17.17	Peak	196.60	141.90	Vertical	Pass
7	12008.74	52.04	20.87	74.0	21.96	Peak	311.20	100	Vertical	Pass
8	19149.75	50.64	13.93	74.0	23.36	Peak	356.30	100	Vertical	Pass

1 GHz to 25 GHz, ANT H 802.11b Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1442.39	46.14	-4.23	74.0	27.86	Peak	196.00	100	Horizontal	Pass
2	1764.81	48.37	-3.30	74.0	25.63	Peak	239.00	100	Horizontal	Pass
3	2410.15	114.31	0.17	74.0	-40.31	Peak	277.00	100	Horizontal	N/A
4	2753.06	51.01	2.20	74.0	22.99	Peak	242.00	100	Horizontal	Pass
5	3215.95	52.76	9.18	74.0	21.24	Peak	222.00	100	Horizontal	Pass
6	4824.29	57.66	13.77	74.0	16.34	Peak	341.00	100	Horizontal	Pass
6**	4824.29	52.42	13.77	54.0	1.58	AV	341.00	100	Horizontal	Pass
7	12323.21	52.06	20.64	74.0	21.94	Peak	342.80	100	Horizontal	Pass
8	19309.48	51.70	13.46	74.0	22.30	Peak	57.90	100	Horizontal	Pass

1 GHz to 25 GHz, ANT V 802.11b Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1055.49	45.40	-6.18	74.0	28.60	Peak	263.00	100	Vertical	Pass
2	1439.89	52.00	-4.59	74.0	22.00	Peak	286.40	100	Vertical	Pass
3	1797.30	53.14	-3.69	74.0	20.86	Peak	44.00	100	Vertical	Pass
4	2435.14	98.65	-0.51	74.0	-24.65	Peak	110.00	100	Vertical	N/A
5	3248.94	47.70	9.07	74.0	26.30	Peak	261.60	100	Vertical	Pass
6**	4873.78	50.51	13.66	54.0	3.49	AV	195.46.	100	Vertical	Pass
6	4873.78	54.97	13.66	74.0	19.03	Peak	195.46.	100	Vertical	Pass
7	12233.36	51.68	20.65	74.0	22.32	Peak	0.90	100	Vertical	Pass
8	18022.46	50.26	13.26	74.0	23.74	Peak	167.10	100	Vertical	Pass

1 GHz to 25 GHz, ANT H 802.11b Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1440.39	47.03	-4.16	74.0	26.97	Peak	180.00	100	Horizontal	Pass
2	1687.33	48.70	-3.70	74.0	25.30	Peak	215.00	100	Horizontal	Pass
3	2439.64	117.72	0.23	74.0	-43.72	Peak	197.00	100	Horizontal	N/A
4	2729.07	51.23	2.47	74.0	22.77	Peak	50.00	100	Horizontal	Pass
5	3249.69	52.01	9.09	74.0	21.99	Peak	163.00	100	Horizontal	Pass
6	4708.82	51.98	13.38	74.0	22.02	Peak	5.00	100	Horizontal	Pass
7	12008.74	52.04	20.87	74.0	21.96	Peak	311.20	100	Horizontal	Pass
8	19149.75	50.64	13.93	74.0	23.36	Peak	356.30	100	Horizontal	Pass

1 GHz to 25 GHz, ANT V 802.11b High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1218.45	45.00	-5.14	74.0	29.00	Peak	131.10	100	Vertical	Pass
2	1440.39	53.39	-4.55	74.0	20.61	Peak	270.10	100	Vertical	Pass
3	1661.33	49.02	-4.15	74.0	24.98	Peak	131.10	100	Vertical	Pass
4	2463.63	99.34	-0.55	74.0	-25.34	Peak	213.20	100	Vertical	N/A
5	3967.26	49.19	11.11	74.0	24.81	Peak	358.60	100	Vertical	Pass
6**	4923.92	50.90	13.86	54.0	3.10	AV	187.50	100	Vertical	Pass
6	4923.92	56.08	13.86	74.0	17.92	Peak	187.50	100	Vertical	Pass
7	12323.21	52.06	20.64	74.0	21.94	Peak	342.80	100	Vertical	Pass
8	19309.48	51.70	13.46	74.0	22.30	Peak	57.90	100	Vertical	Pass

1 GHz to 25 GHz, ANT H 802.11b High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1441.39	48.61	-4.09	74.0	25.39	Peak	205.00	100	Horizontal	Pass
2	1679.83	50.82	-3.51	74.0	23.18	Peak	34.00	100	Horizontal	Pass
3	2463.13	118.45	-0.13	74.0	-44.45	Peak	96.00	100	Horizontal	N/A
4	2780.05	51.42	2.39	74.0	22.58	Peak	290.00	100	Horizontal	Pass
5	3282.68	50.77	8.89	74.0	23.23	Peak	138.00	100	Horizontal	Pass
6**	4924.02	51.56	13.86	54.0	2.44	AV	306.00	100	Horizontal	Pass
6	4924.02	56.75	13.86	74.0	17.25	Peak	306.00	100	Horizontal	Pass
7	11649.33	51.92	20.41	74.0	22.08	Peak	0.60	100	Horizontal	Pass
8	19309.48	51.70	13.46	74.0	22.30	Peak	57.90	100	Horizontal	Pass

1 GHz to 25 GHz, ANT V 802.11g Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1439.89	52.41	-4.59	74.0	21.59	Peak	285.90	100	Vertical	Pass
2	1681.83	49.98	-4.16	74.0	24.02	Peak	177.00	100	Vertical	Pass
3	1797.30	51.02	-3.69	74.0	22.98	Peak	157.40	100	Vertical	Pass
4	2408.65	98.57	-0.09	74.0	-24.57	Peak	306.10	100	Vertical	N/A
5	3873.53	49.19	10.85	74.0	24.81	Peak	113.70	100	Vertical	Pass
6	5150.46	51.86	15.09	74.0	22.14	Peak	81.60	100	Vertical	Pass
7	11649.33	51.92	20.41	74.0	22.08	Peak	0.60	100	Vertical	Pass
8	19169.72	50.77	14.01	74.0	23.23	Peak	335.90	100	Vertical	Pass

1 GHz to 25 GHz, ANT H 802.11g Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1438.89	47.36	-4.22	74.0	26.64	Peak	132.20	100	Horizontal	Pass
2	1676.33	49.70	-3.50	74.0	24.30	Peak	288.10	100	Horizontal	Pass
3	2411.15	114.31	0.27	74.0	-40.31	Peak	188.70	100	Horizontal	N/A
4	3215.95	52.14	9.18	74.0	21.86	Peak	359.50	100	Horizontal	Pass
5	4459.89	52.09	12.46	74.0	21.91	Peak	5.10	100	Horizontal	Pass
6	5658.84	51.28	15.52	74.0	22.72	Peak	331.10	100	Horizontal	Pass
7	11649.33	52.05	20.41	74.0	21.95	Peak	0.30	100	Horizontal	Pass
8	19309.48	51.37	13.46	74.0	22.63	Peak	56.70	100	Horizontal	Pass

1 GHz to 25 GHz, ANT V 802.11g Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1440.39	52.21	-4.55	74.0	21.79	Peak	253.70	100	Vertical	Pass
2	1678.33	47.95	-4.23	74.0	26.05	Peak	139.20	100	Vertical	Pass
3	1792.30	47.56	-3.68	74.0	26.44	Peak	114.00	100	Vertical	Pass
4	2436.14	105.62	-0.46	74.0	-31.62	Peak	132.90	100	Vertical	N/A
5	3422.89	46.86	9.28	74.0	27.14	Peak	-0.70	100	Vertical	Pass
6	4873.03	52.44	13.65	74.0	21.56	Peak	127.80	100	Vertical	Pass
7	11278.70	51.10	20.21	74.0	22.90	Peak	49.00	100	Vertical	Pass
8	19169.72	50.74	14.01	74.0	23.26	Peak	335.70	100	Vertical	Pass

1 GHz to 25 GHz, ANT H 802.11g Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1199.45	45.54	-5.30	74.0	28.46	Peak	80.80	100	Horizontal	Pass
2	1440.39	47.08	-4.55	74.0	26.92	Peak	215.30	100	Horizontal	Pass
3	1920.27	47.53	-2.46	74.0	26.47	Peak	132.30	100	Horizontal	Pass
4	2432.64	116.25	-0.60	74.0	-42.25	Peak	80.80	100	Horizontal	N/A
5	3249.69	49.59	9.09	74.0	24.41	Peak	15.70	100	Horizontal	Pass
6**	4876.43	43.67	13.67	54.0	10.33	AV	310.60	100	Horizontal	Pass
6	4876.43	58.58	13.67	74.0	15.42	Peak	310.60	100	Horizontal	Pass
7	11020.38	51.32	20.14	74.0	22.68	Peak	168.20	100	Horizontal	Pass
8	19309.48	51.73	13.46	74.0	22.27	Peak	57.70	100	Horizontal	Pass

1 GHz to 25 GHz, ANT V 802.11g High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1439.89	52.07	-4.59	74.0	21.93	Peak	358.00	100	Vertical	Pass
2	1764.81	48.41	-3.76	74.0	25.59	Peak	161.10	100	Vertical	Pass
3	2188.20	49.03	-0.78	74.0	24.97	Peak	273.50	100	Vertical	Pass
4	2460.13	106.03	-0.61	74.0	-32.03	Peak	129.20	100	Vertical	N/A
5	3761.06	47.88	10.46	74.0	26.12	Peak	351.20	100	Vertical	Pass
6**	4927.57	40.51	13.96	54.0	13.49	AV	56.50	100	Vertical	Pass
6	4927.57	56.22	13.96	74.0	17.78	Peak	56.50	100	Vertical	Pass
7	11739.18	51.57	20.47	74.0	22.43	Peak	96.20	100	Vertical	Pass
8	19309.48	51.73	13.46	74.0	22.27	Peak	57.70	100	Vertical	Pass

1 GHz to 25 GHz, ANT H 802.11g High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1440.39	50.36	-4.55	74.0	23.64	Peak	157.40	100	Horizontal	Pass
2	1681.33	47.95	-4.16	74.0	26.05	Peak	246.90	100	Horizontal	Pass
3	2057.24	47.46	-1.95	74.0	26.54	Peak	170.30	100	Horizontal	Pass
4	2463.13	116.53	-0.56	74.0	-42.53	Peak	99.30	100	Horizontal	N/A
5	3282.68	49.65	8.89	74.0	24.35	Peak	28.60	100	Horizontal	Pass
6**	4926.27	45.07	13.96	54.0	8.93	AV	298.50	100	Horizontal	Pass
6	4926.27	60.64	13.96	74.0	13.36	Peak	298.50	100	Horizontal	Pass
7	11649.33	51.56	20.41	74.0	22.44	Peak	-0.10	100	Horizontal	Pass
8	19309.48	51.73	13.46	74.0	22.27	Peak	57.70	100	Horizontal	Pass

1 GHz to 25 GHz, ANT V 802.11n20 Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1439.89	50.58	-4.59	74.0	23.42	Peak	267.40	100	Vertical	Pass
2	1791.80	49.56	-3.70	74.0	24.44	Peak	158.80	100	Vertical	Pass
3	1919.77	50.51	-2.42	74.0	23.49	Peak	273.70	100	Vertical	Pass
4	2415.15	101.74	0.01	74.0	-27.74	Peak	127.00	100	Vertical	N/A
5	2885.03	50.80	2.28	74.0	23.20	Peak	330.40	100	Vertical	Pass
6	4692.33	51.86	13.24	74.0	22.14	Peak	146.70	100	Vertical	Pass
7	12323.21	51.83	20.64	74.0	22.17	Peak	344.10	100	Vertical	Pass
8	19309.48	51.73	13.46	74.0	22.27	Peak	57.70	100	Vertical	Pass

1 GHz to 25 GHz, ANT H 802.11n20 Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1439.89	47.52	-4.59	74.0	26.48	Peak	311.90	100	Horizontal	Pass
2	1681.33	47.77	-4.16	74.0	26.23	Peak	241.50	100	Horizontal	Pass
3	1920.27	48.32	-2.46	74.0	25.68	Peak	128.00	100	Horizontal	Pass
4	2414.15	112.85	-0.01	74.0	-38.85	Peak	77.10	100	Horizontal	N/A
5	3216.70	48.50	9.18	74.0	25.50	Peak	85.70	100	Horizontal	Pass
6	4813.80	52.32	13.96	74.0	21.68	Peak	234.00	100	Horizontal	Pass
7	11649.33	51.85	20.41	74.0	22.15	Peak	0.10	100	Horizontal	Pass
8	19309.48	51.73	13.46	74.0	22.27	Peak	57.70	100	Horizontal	Pass

1 GHz to 25 GHz, ANT V 802.11n20 Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1439.89	51.97	-4.59	74.0	22.03	Peak	260.60	100	Vertical	Pass
2	1693.33	49.30	-4.20	74.0	24.70	Peak	353.80	100	Vertical	Pass
3	2127.22	47.84	-0.95	74.0	26.16	Peak	88.50	100	Vertical	Pass
4	2434.14	102.78	-0.57	74.0	-28.78	Peak	126.60	100	Vertical	N/A
5	3633.59	48.03	10.09	74.0	25.97	Peak	140.90	100	Vertical	Pass
6	4863.28	52.44	13.59	74.0	21.56	Peak	71.20	100	Vertical	Pass
7	12008.74	51.93	20.87	74.0	22.07	Peak	311.00	100	Vertical	Pass
8	19309.48	51.73	13.46	74.0	22.27	Peak	57.70	100	Vertical	Pass

1 GHz to 25 GHz, ANT H 802.11n20 Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1440.39	49.72	-4.55	74.0	24.28	Peak	317.40	100	Horizontal	Pass
2	1681.33	46.12	-4.16	74.0	27.88	Peak	176.50	100	Horizontal	Pass
3	1920.27	48.99	-2.46	74.0	25.01	Peak	119.40	100	Horizontal	Pass
4	2439.64	115.28	-0.46	74.0	-41.28	Peak	113.00	100	Horizontal	N/A
5	3249.69	49.94	9.09	74.0	24.06	Peak	24.70	100	Horizontal	Pass
6**	4878.68	45.81	13.71	54.0	8.19	AV	29.10	100	Horizontal	Pass
6	4878.68	57.40	13.71	74.0	16.60	Peak	29.10	100	Horizontal	Pass
7	12008.74	52.20	20.87	74.0	21.80	Peak	310.60	100	Horizontal	Pass
8	19309.48	50.41	13.46	74.0	23.59	Peak	56.60	100	Horizontal	Pass

1 GHz to 25 GHz, ANT V 802.11n20 High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1439.39	50.39	-4.22	74.0	23.61	Peak	42.00	100	Vertical	Pass
2	1728.32	49.44	-3.60	74.0	24.56	Peak	153.70	100	Vertical	Pass
3	2464.13	101.56	-0.12	74.0	-27.56	Peak	61.20	100	Vertical	N/A
4	3758.81	48.16	10.49	74.0	25.84	Peak	50.90	100	Vertical	Pass
5	4177.96	50.44	11.52	74.0	23.56	Peak	312.90	100	Vertical	Pass
6	4921.02	53.47	13.84	74.0	20.53	Peak	6.00	100	Vertical	Pass
7	12233.36	51.92	20.65	74.0	22.08	Peak	0.60	100	Vertical	Pass
8	19309.48	50.41	13.46	74.0	23.59	Peak	56.60	100	Vertical	Pass

1 GHz to 25 GHz, ANT H 802.11n20 High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1439.39	52.66	-4.22	74.0	21.34	Peak	292.20	100	Horizontal	Pass
2	1682.33	49.56	-3.72	74.0	24.44	Peak	10.50	100	Horizontal	Pass
3	2460.63	117.05	-0.15	74.0	-43.05	Peak	123.30	100	Horizontal	N/A
4	3282.68	49.12	8.89	74.0	24.88	Peak	330.60	100	Horizontal	Pass
5	3745.31	48.18	10.69	74.0	25.82	Peak	177.30	100	Horizontal	Pass
6**	4922.07	42.93	13.83	54.0	11.07	AV	163.60	100	Horizontal	Pass
6	4922.07	57.76	13.83	74.0	16.24	Peak	163.60	100	Horizontal	Pass
7	12008.74	51.91	20.87	74.0	22.09	Peak	311.20	100	Horizontal	Pass
8	19309.48	50.41	13.46	74.0	23.59	Peak	56.60	100	Horizontal	Pass

1 GHz to 25 GHz, ANT V 802.11n40 Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1440.39	51.07	-4.16	74.0	22.93	Peak	167.00	100	Vertical	Pass
2	1689.83	49.61	-3.79	74.0	24.39	Peak	357.00	100	Vertical	Pass
3	2419.65	101.04	0.57	74.0	-27.04	Peak	22.00	100	Vertical	N/A
4	2821.04	51.47	2.81	74.0	22.53	Peak	78.00	100	Vertical	Pass
5	3974.01	49.02	11.07	74.0	24.98	Peak	345.00	100	Vertical	Pass
6	4678.08	52.38	13.14	74.0	21.62	Peak	209.00	100	Vertical	Pass
7	12413.06	51.55	20.58	74.0	22.45	Peak	113.70	100	Vertical	Pass
8	19309.48	50.41	13.46	74.0	23.59	Peak	56.60	100	Vertical	Pass

1 GHz to 25 GHz, ANT H 802.11n40 Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1439.89	52.26	-4.17	74.0	21.74	Peak	271.00	100	Horizontal	Pass
2	1680.33	50.12	-3.51	74.0	23.88	Peak	192.00	100	Horizontal	Pass
3	2406.65	114.86	0.02	74.0	-40.86	Peak	256.00	100	Horizontal	N/A
4	3229.44	50.23	9.17	74.0	23.77	Peak	183.00	100	Horizontal	Pass
5	3946.26	48.04	11.03	74.0	25.96	Peak	91.00	100	Horizontal	Pass
6	4812.30	51.61	13.93	74.0	22.39	Peak	183.00	100	Horizontal	Pass
7	12233.36	51.96	20.65	74.0	22.04	Peak	-0.40	100	Horizontal	Pass
8	19309.48	50.41	13.46	74.0	23.59	Peak	56.60	100	Horizontal	Pass

1 GHz to 25 GHz, ANT H 802.11n40 Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1439.89	52.55	-4.17	74.0	21.45	Peak	224.00	100	Vertical	Pass
2	1724.32	47.80	-3.60	74.0	26.20	Peak	212.00	100	Vertical	Pass
3	2433.64	100.86	0.08	74.0	-26.86	Peak	170.00	100	Vertical	N/A
4	2797.55	51.85	2.37	74.0	22.15	Peak	317.00	100	Vertical	Pass
5	3609.60	47.34	10.01	74.0	26.66	Peak	15.00	100	Vertical	Pass
6	4306.17	50.92	11.95	74.0	23.08	Peak	196.00	100	Vertical	Pass
7	12323.21	52.08	20.64	74.0	21.92	Peak	343.50	100	Vertical	Pass
8	19309.48	50.41	13.46	74.0	23.59	Peak	56.60	100	Vertical	Pass

1 GHz to 25 GHz, ANT H 802.11n40 Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1439.89	52.86	-4.17	74.0	21.14	Peak	286.00	100	Vertical	Pass
2	1682.83	49.36	-3.69	74.0	24.64	Peak	2.00	100	Vertical	Pass
3	2441.14	115.29	0.24	74.0	-41.29	Peak	319.00	100	Vertical	N/A
4	2903.02	53.21	2.90	74.0	20.79	Peak	110.00	100	Vertical	Pass
5	3604.35	48.76	9.97	74.0	25.24	Peak	156.00	100	Vertical	Pass
6	4673.58	51.79	13.17	74.0	22.21	Peak	201.00	100	Vertical	Pass
7	12132.28	51.66	20.73	74.0	22.34	Peak	136.10	100	Vertical	Pass
8	19219.63	50.78	14.00	74.0	23.22	Peak	359.00	100	Vertical	Pass

1 GHz to 25 GHz, ANT V 802.11n40 High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1440.39	53.52	-4.16	74.0	20.48	Peak	80.00	100	Vertical	Pass
2	1797.30	48.53	-3.26	74.0	25.47	Peak	27.00	100	Vertical	Pass
3	2461.63	99.61	-0.16	74.0	-25.61	Peak	346.00	100	Vertical	N/A
4	2864.03	51.01	2.61	74.0	22.99	Peak	221.00	100	Vertical	Pass
5	3801.55	48.15	10.78	74.0	25.85	Peak	357.00	100	Vertical	Pass
6	4833.29	52.04	13.69	74.0	21.96	Peak	134.00	100	Vertical	Pass
7	12323.21	52.15	20.64	74.0	21.85	Peak	343.50	100	Vertical	Pass
8	19309.48	51.14	13.46	74.0	22.86	Peak	57.90	100	Vertical	Pass

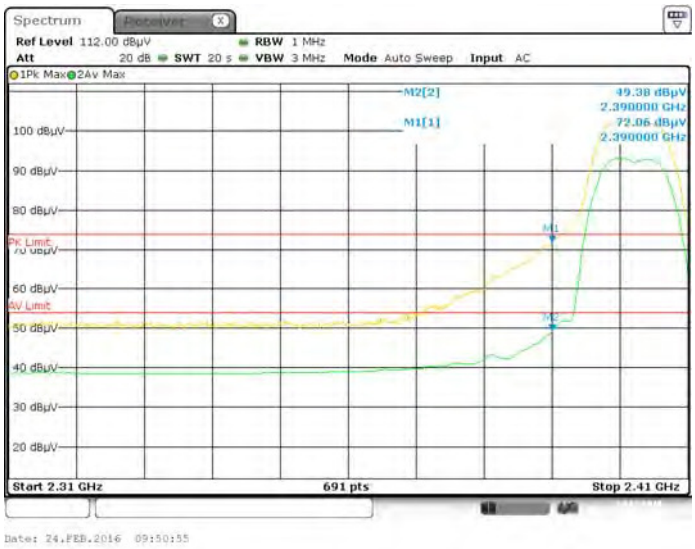
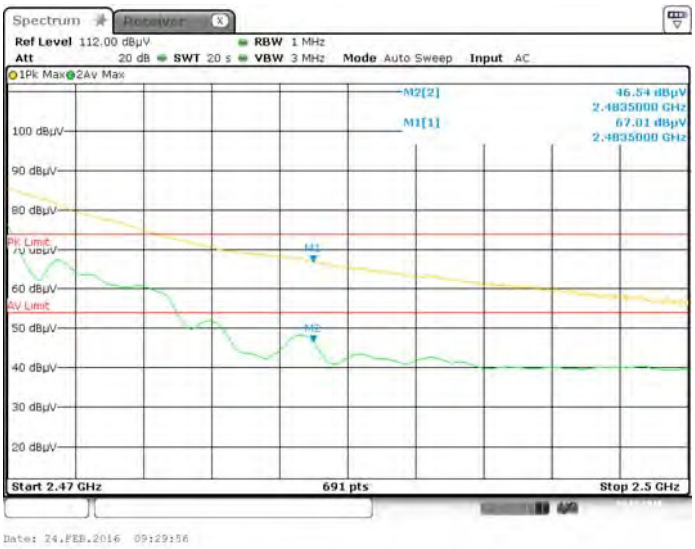
1 GHz to 25 GHz, ANT H 802.11n40 High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1440.39	50.32	-4.16	74.0	23.68	Peak	8.00	100	Vertical	Pass
2	1681.33	49.22	-3.58	74.0	24.78	Peak	232.00	100	Vertical	Pass
3	2439.14	115.91	0.21	74.0	-41.91	Peak	195.00	100	Vertical	N/A
4	2920.02	53.10	2.89	74.0	20.90	Peak	272.00	100	Vertical	Pass
5	3552.61	48.14	9.85	74.0	25.86	Peak	202.00	100	Vertical	Pass
6	4925.52	53.48	13.90	74.0	20.52	Peak	253.00	100	Vertical	Pass
7	12132.28	51.84	20.73	74.0	22.16	Peak	136.50	100	Vertical	Pass
8	19309.48	51.14	13.46	74.0	22.86	Peak	57.90	100	Vertical	Pass

Restricted-band band-edge

Test Data (ANT 0 + ANT 1)

802.11b Mode:

LOW CHANNEL, PEAK, AV	HIGH CHANNEL, PEAK, AV
	

802.11g Mode:

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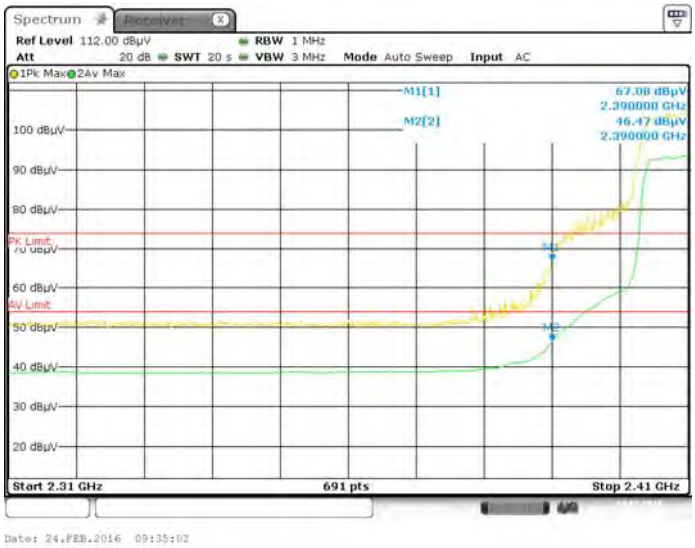	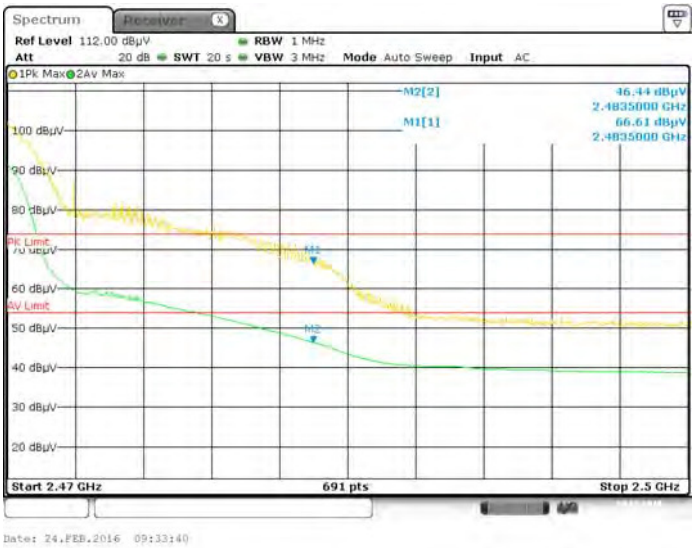

802.11n-20 MHz Mode：

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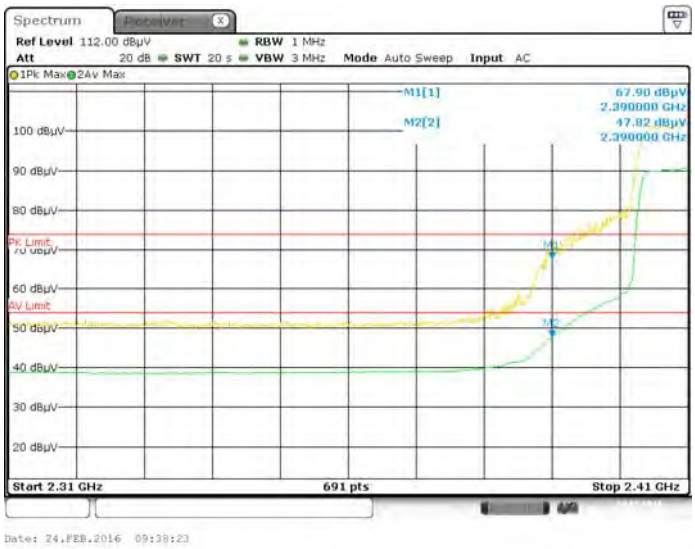	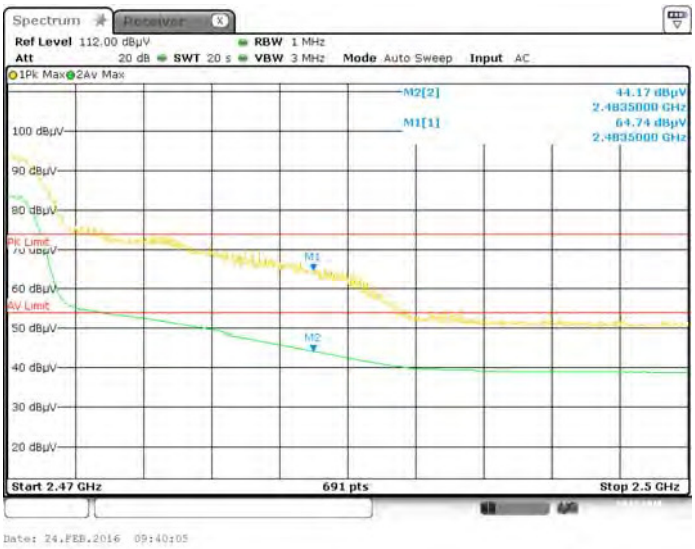

802.11n-40 MHz Mode：

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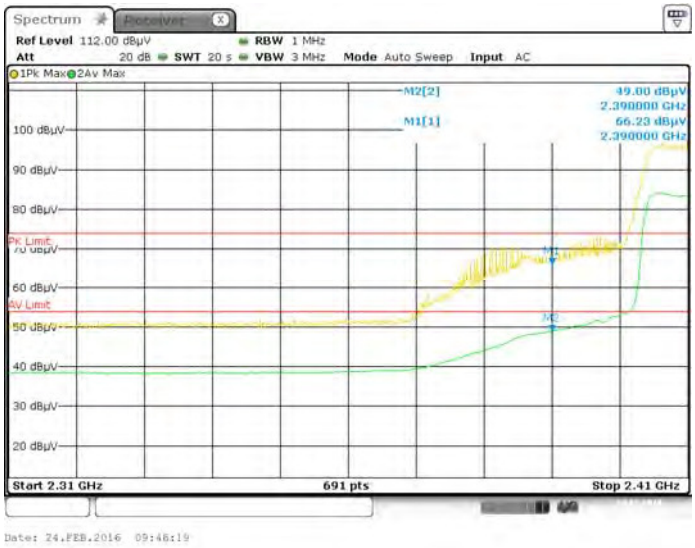
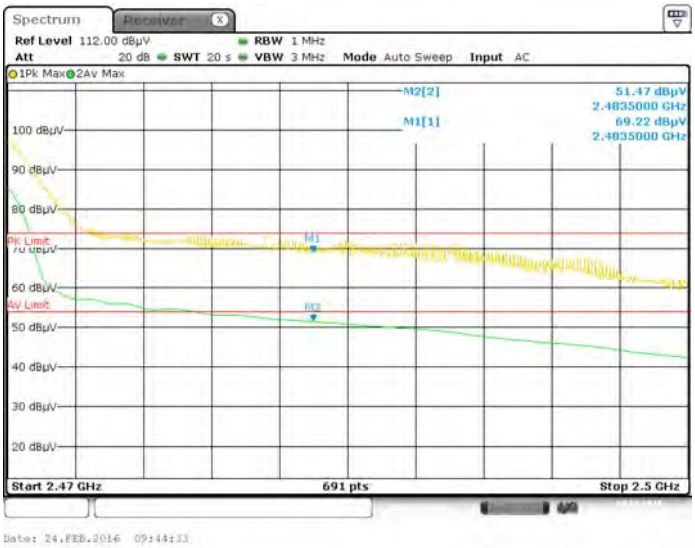
	

A.7 Power Spectral Density (PSD)

Test Data

Note: PSD measurements have be summed across the two outputs for conducted measurements, per KDB 662911 D01 v02r01. Which choose method is"Measure and sum spectral maxima across the outputs".

802.11b Mode:

Channel	Spectral power density (dBm/3kHz) at ANT 0	Spectral power density (dBm/3kHz) at ANT 1	Total Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-7.71	-7.34	-4.56	8
Middle	-5.70	-5.36	-2.52	8
High	-7.89	-6.11	-3.87	8

802.11g Mode:

Channel	Spectral power density (dBm/3kHz) at ANT 0	Spectral power density (dBm/3kHz) at ANT 1	Total Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-8.98	-7.97	-5.38	8
Middle	-8.94	-8.66	-5.85	8
High	-8.66	-9.30	-6.02	8

802.11n-20 MHz Mode:

Channel	Spectral power density (dBm/3kHz) at ANT 0	Spectral power density (dBm/3kHz) at ANT 1	Total Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-7.70	-9.55	-5.53	8
Middle	-9.02	-8.80	-5.85	8
High	-8.18	-8.07	-5.09	8

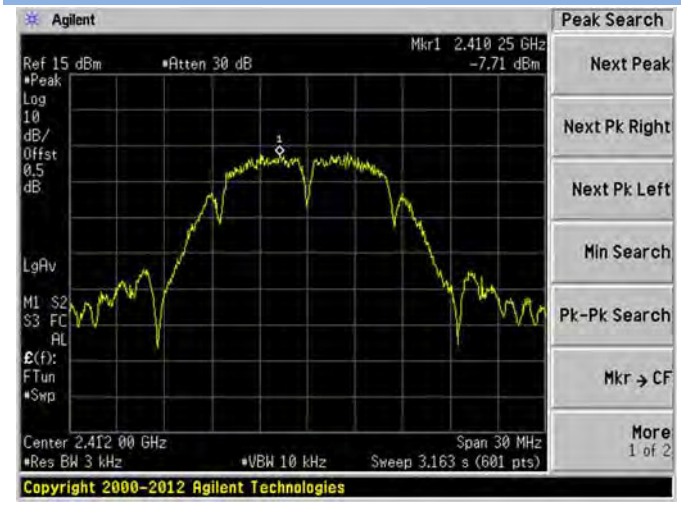
802.11n-40 MHz Mode:

Channel	Spectral power density (dBm/3kHz) at ANT 0	Spectral power density (dBm/3kHz) at ANT 1	Total Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-9.71	-8.30	-5.85	8
Middle	-10.15	-9.30	-6.58	8
High	-11.59	-8.92	-6.99	8

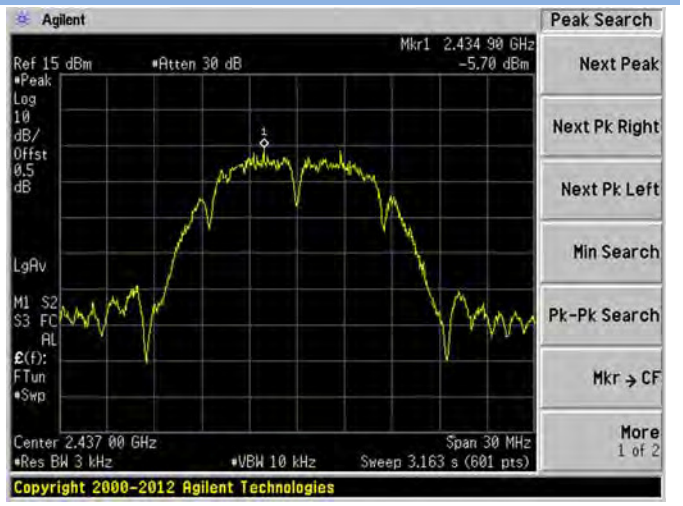
Test plots

ANT 0

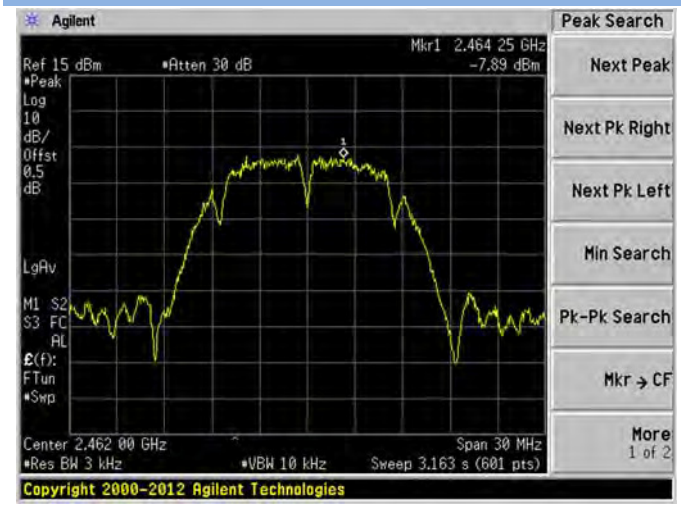
802.11b LOW CHANNEL



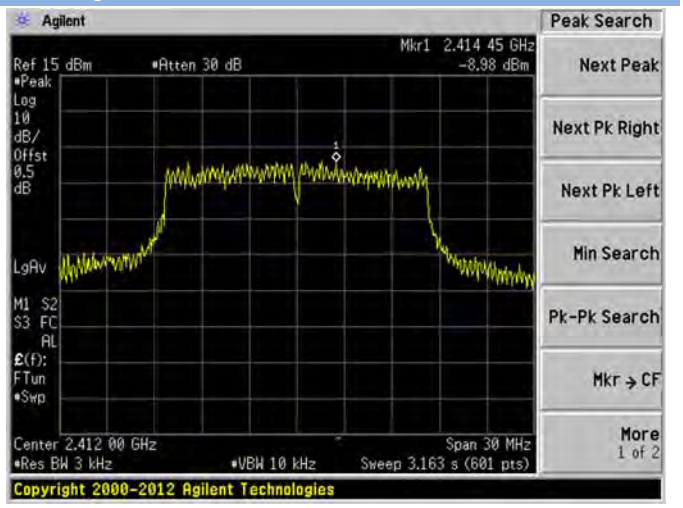
802.11b MIDDLE CHANNEL



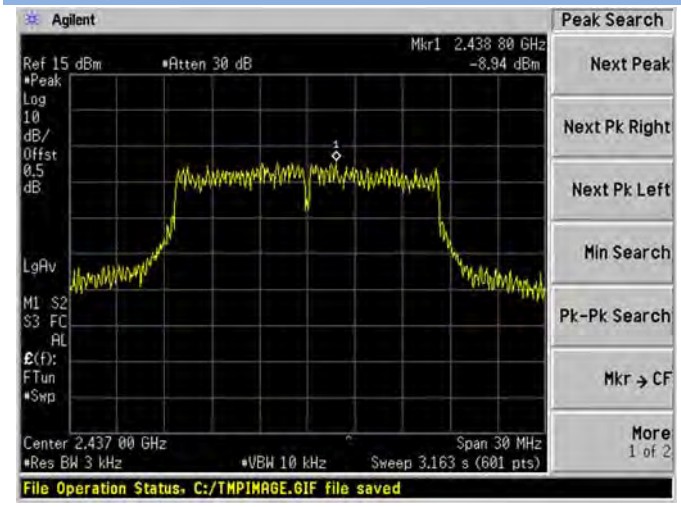
802.11b HIGH CHANNEL



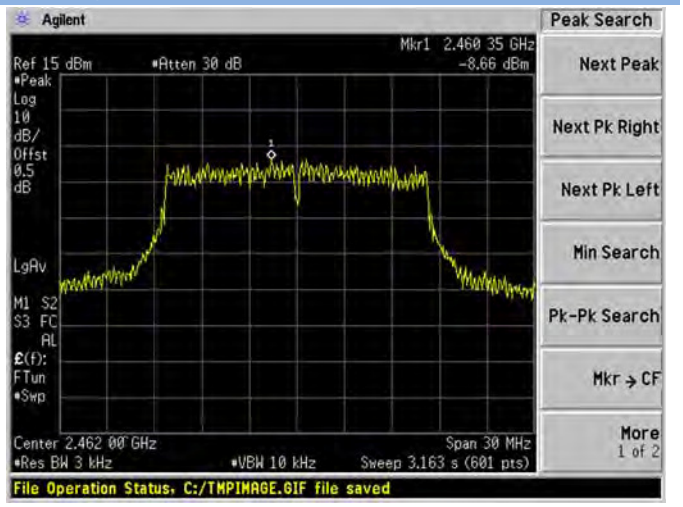
802.11g LOW CHANNEL



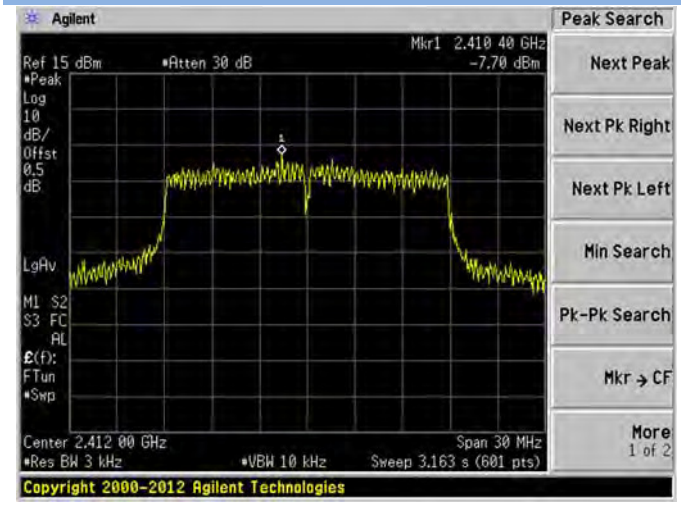
802.11g MIDDLE CHANNEL



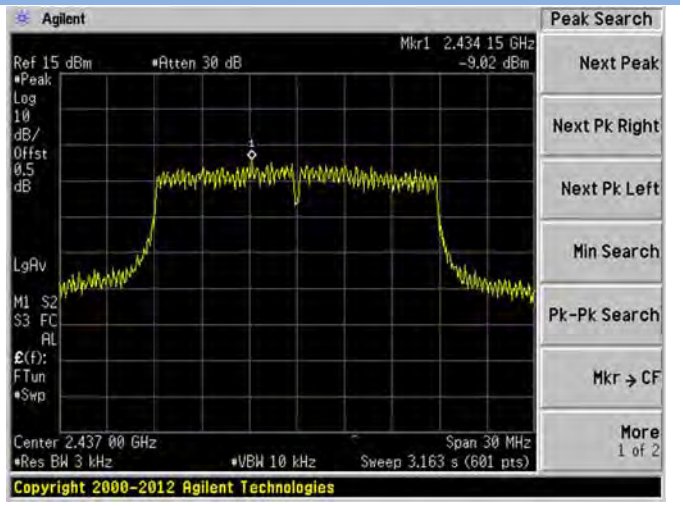
802.11g HIGH CHANNEL



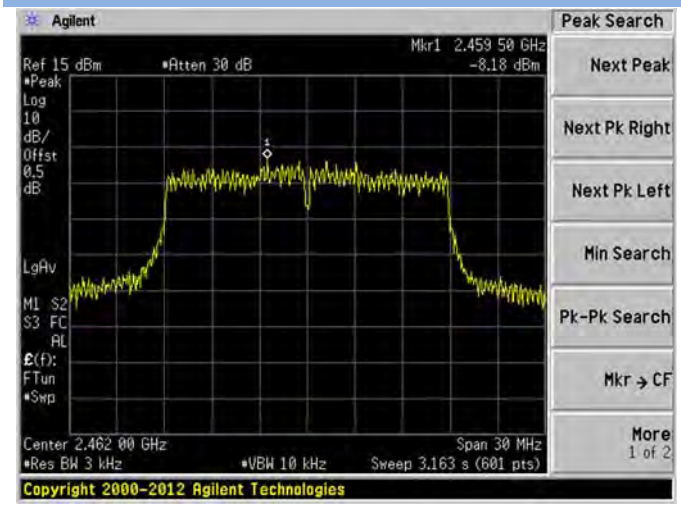
802.11n-20 MHz LOW CHANNEL



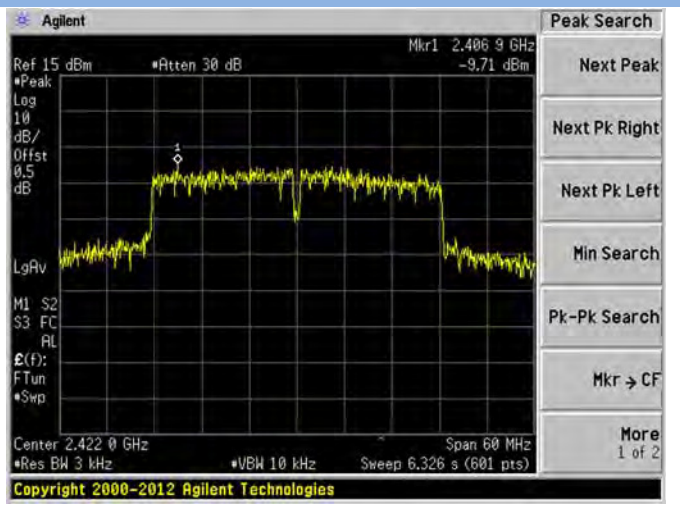
802.11 n-20 MHz MIDDLE CHANNEL



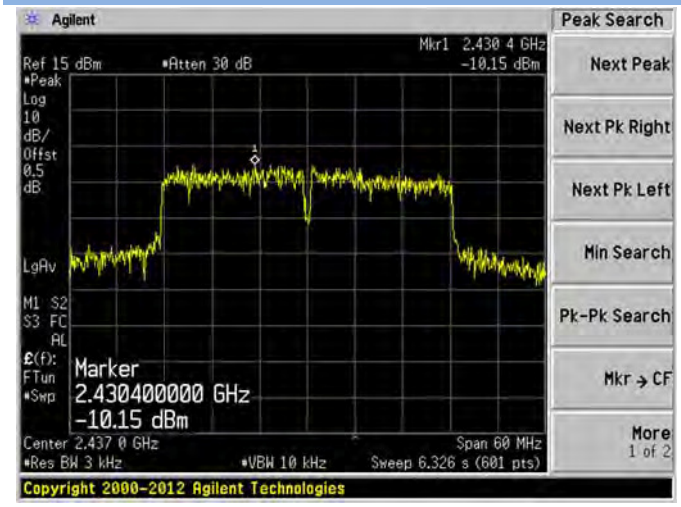
802.11n-20 MHz HIGH CHANNEL



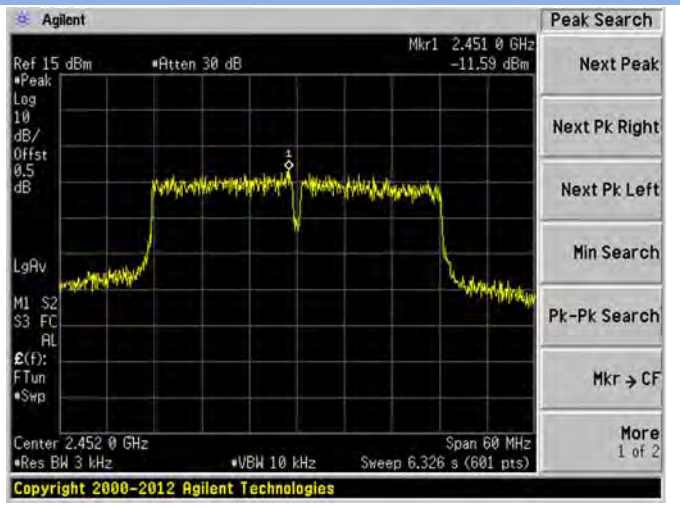
802.11n-40 MHz LOW CHANNEL



802.11n-40 MHz MIDDLE CHANNEL

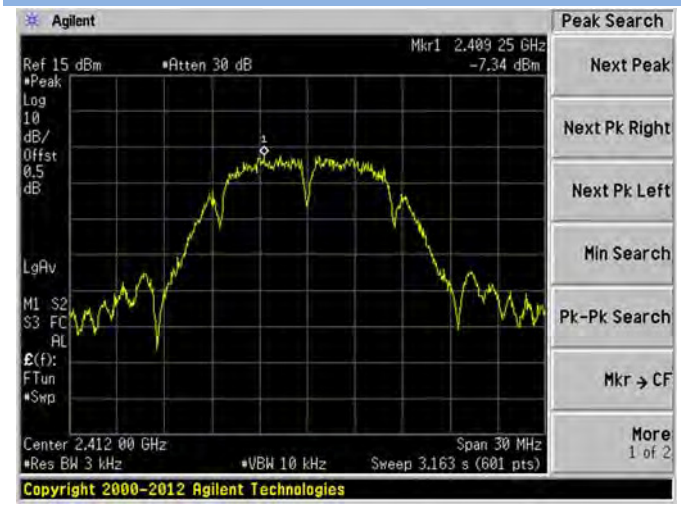


802.11n-40 MHz HIGH CHANNEL

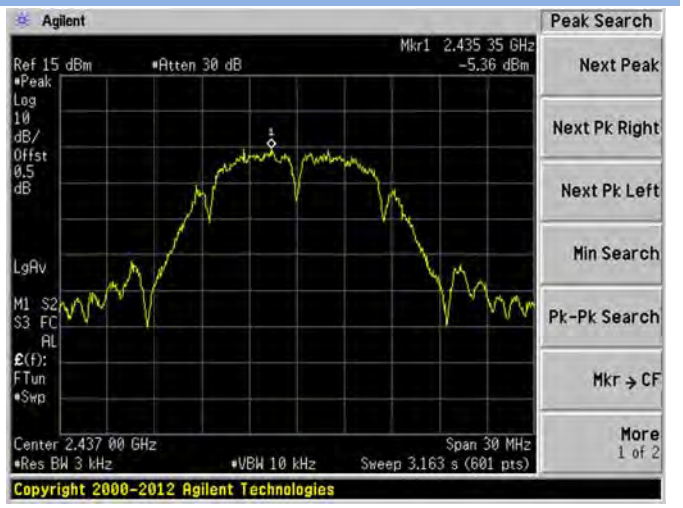


ANT 1

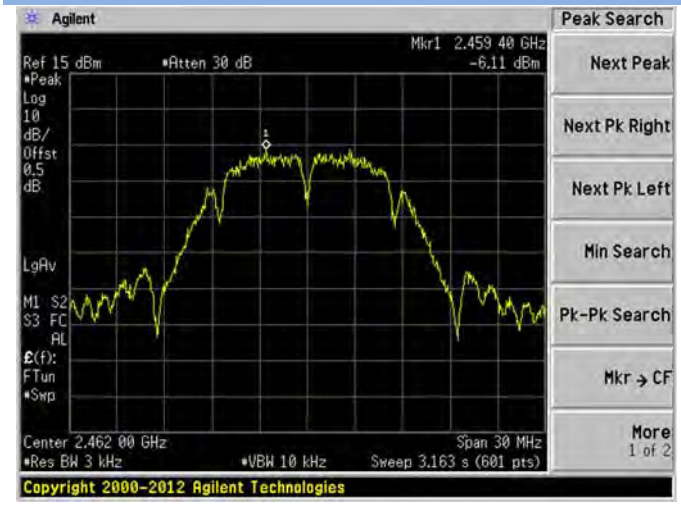
802.11b LOW CHANNEL



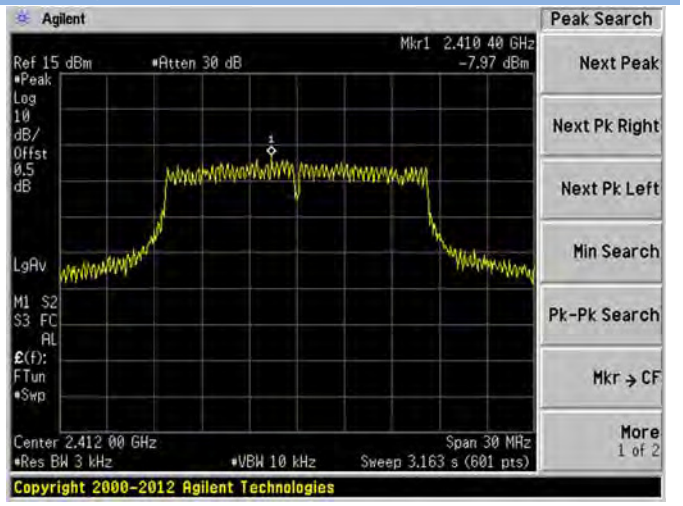
802.11b MIDDLE CHANNEL



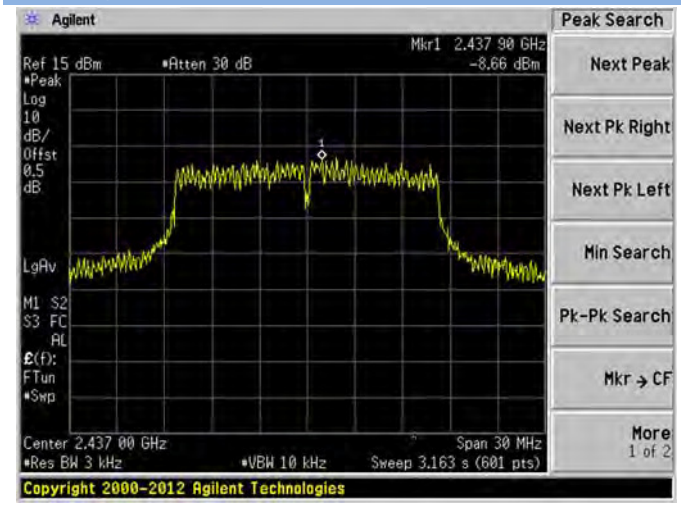
802.11b HIGH CHANNEL



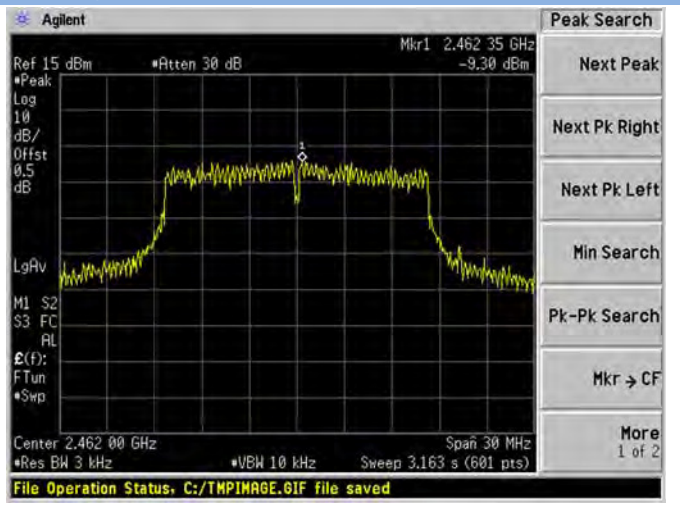
802.11g LOW CHANNEL



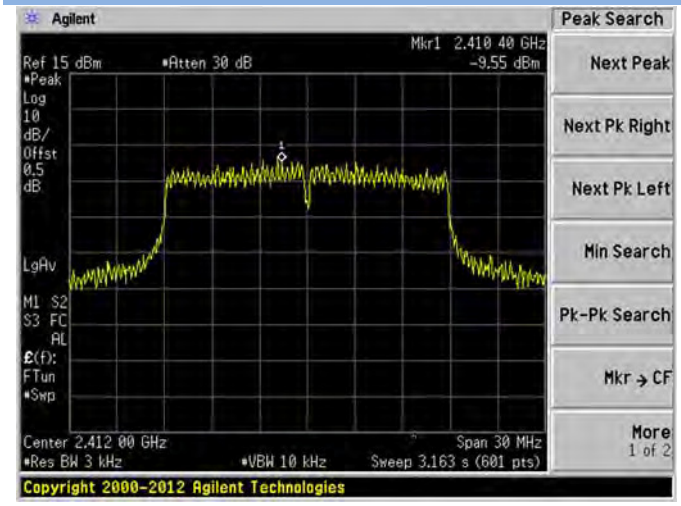
802.11g MIDDLE CHANNEL



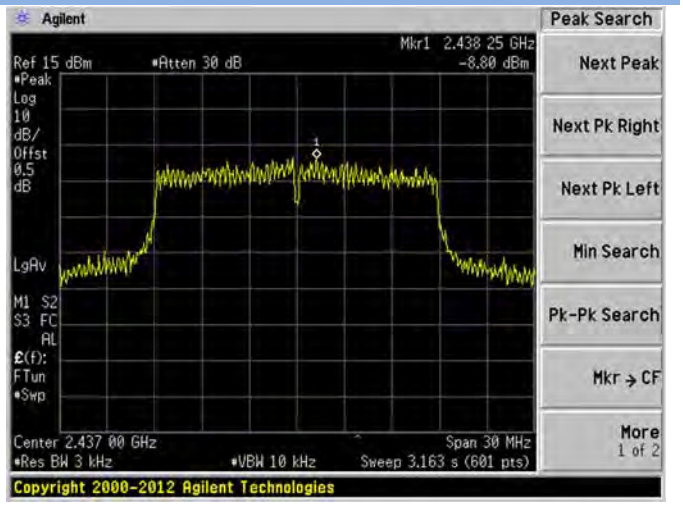
802.11g HIGH CHANNEL



802.11n-20 MHz LOW CHANNEL



802.11 n-20 MHz MIDDLE CHANNEL



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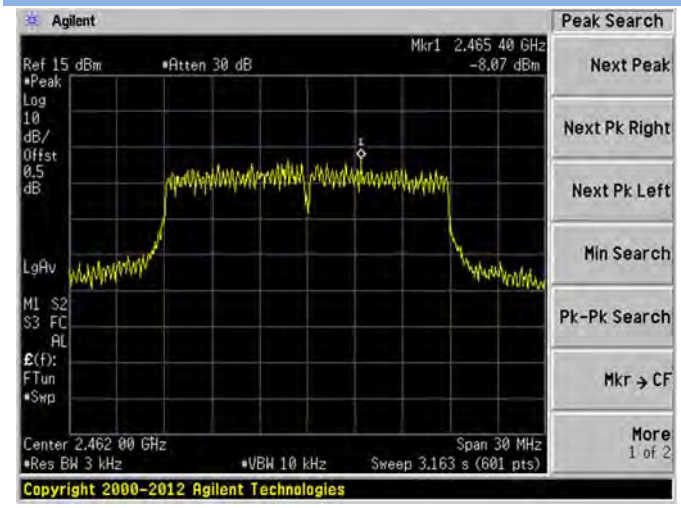
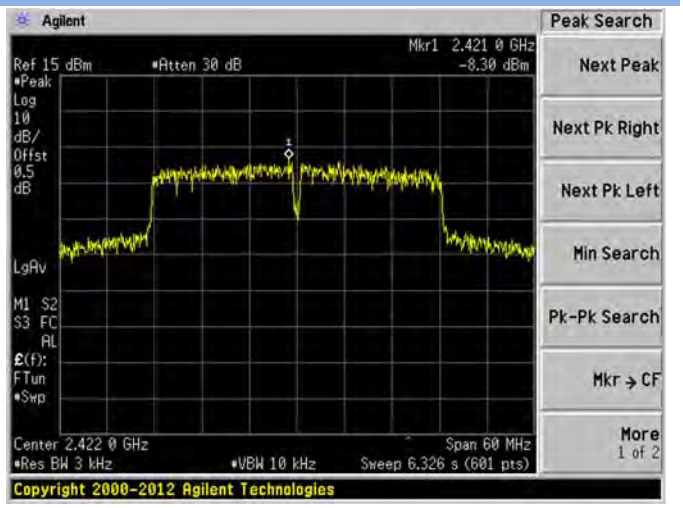
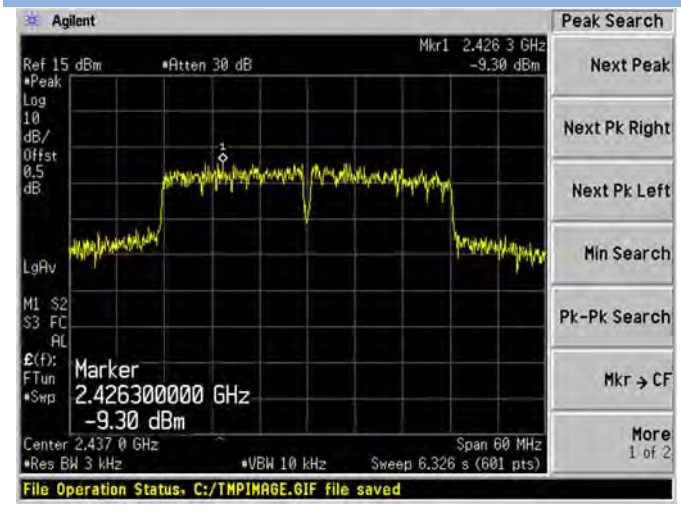


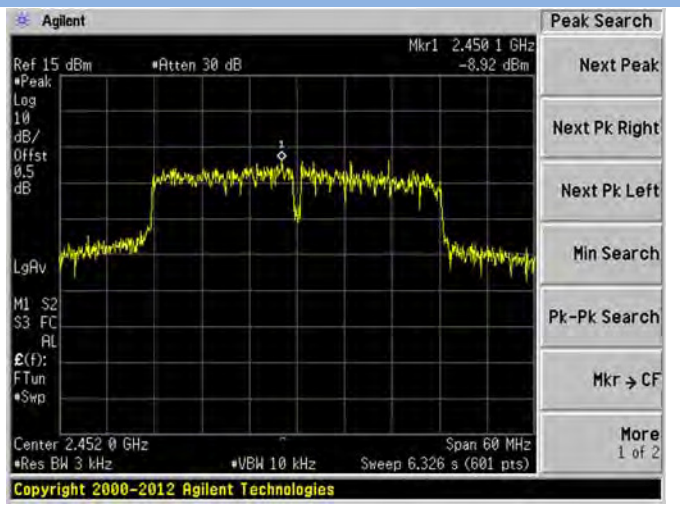
802.11n-40 MHz LOW CHANNEL



802.11n-40 MHz MIDDLE CHANNEL



802.11n-40 MHz HIGH CHANNEL

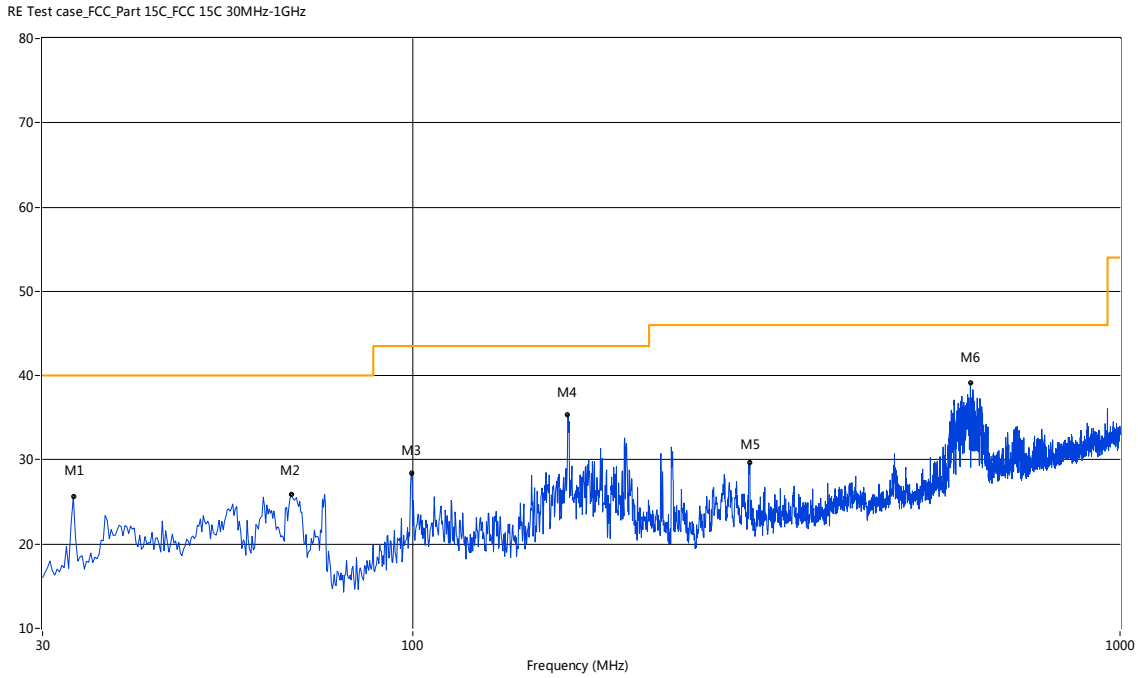


A.8 Receiver Spurious Emissions

Note: All configurations have been tested, only the worst configuration (802.11b High Channel) shown here.

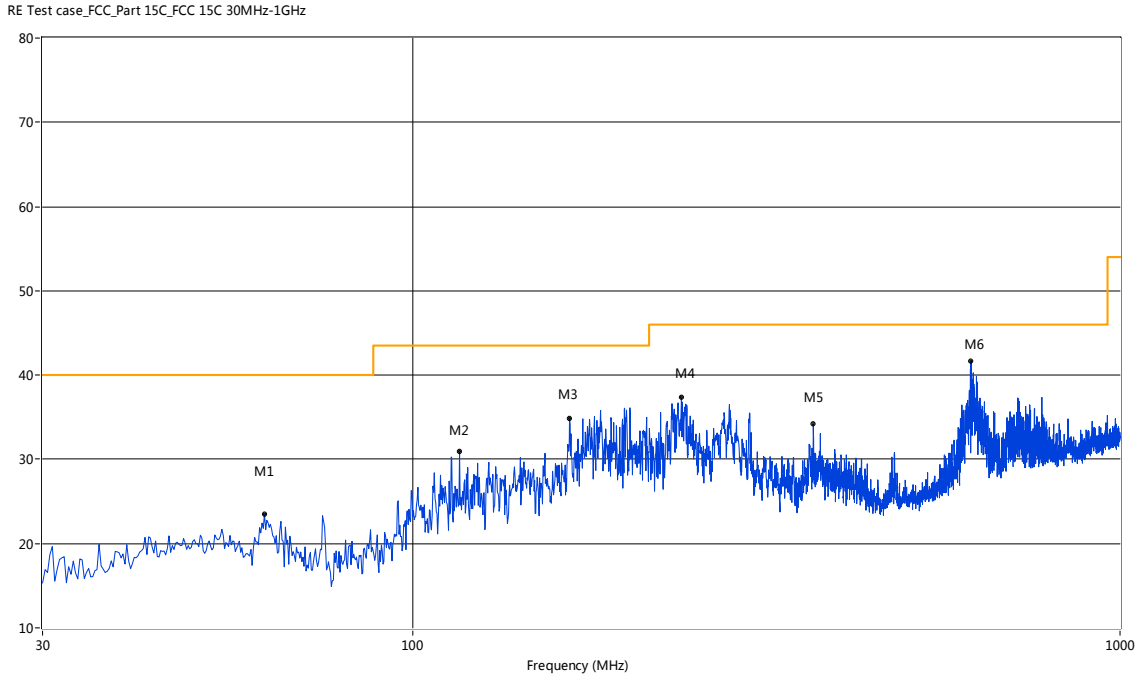
Test Data and Plots

30 MHz to 1 GHz, ANT V



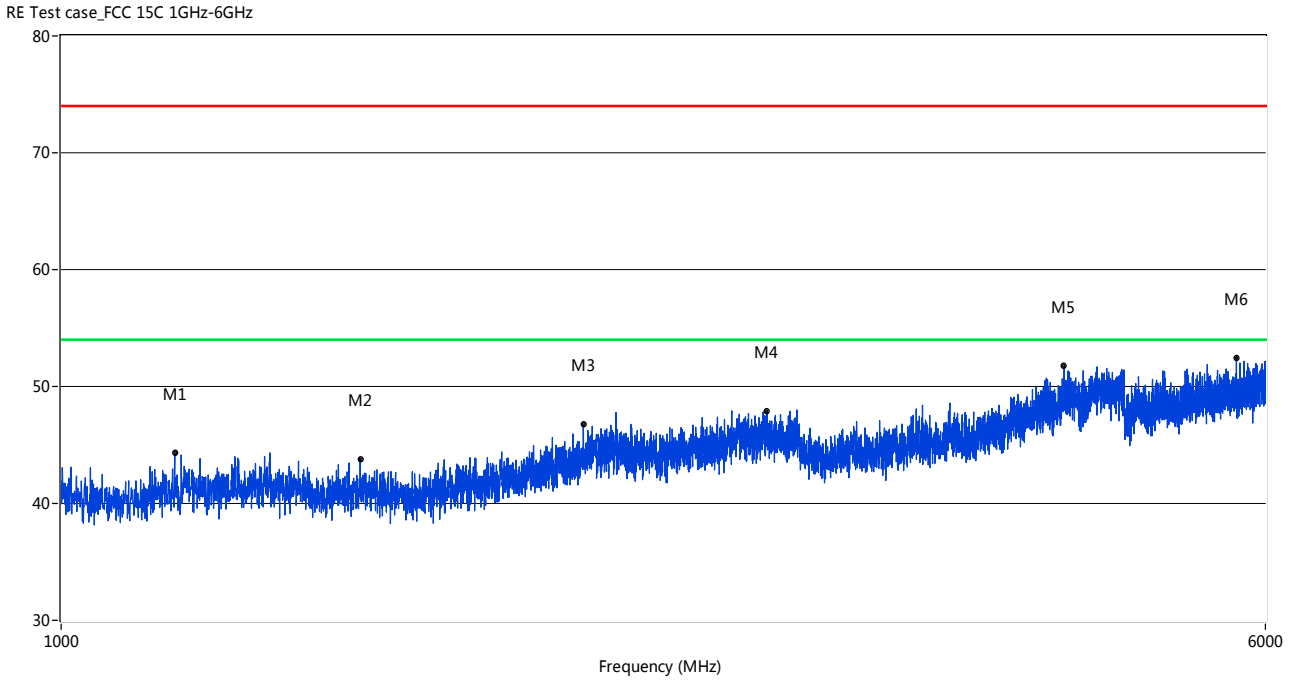
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	33.15	25.59	-21.9	40	14.41	Peak	242.00	100	Vertical	N/A
1*	33.15	18.15	-21.9	54	35.85	QP	242.00	100	Vertical	Pass
2	67.34	25.85	-21.61	40	14.15	Peak	18.00	100	Vertical	N/A
2*	67.34	17.32	-21.61	54	36.68	QP	18.00	100	Vertical	Pass
3	99.82	28.45	-20.2	43.5	15.05	Peak	118.00	100	Vertical	N/A
3*	99.82	17.91	-20.2	54	36.09	QP	118.00	100	Vertical	Pass
4	165.77	35.34	-22.91	43.5	8.16	Peak	267.00	100	Vertical	N/A
4*	165.77	25.51	-22.91	54	28.49	QP	267.00	100	Vertical	Pass
5	299.59	29.66	-17.64	46	16.34	Peak	47.00	100	Vertical	N/A
5*	299.59	19.32	-17.64	54	34.68	QP	47.00	100	Vertical	Pass
6	614.52	39.08	-10.24	46	6.92	Peak	298.00	100	Vertical	N/A
6*	614.52	28.00	-10.24	54	26.00	QP	298.00	100	Vertical	Pass

30 MHz to 1 GHz, ANT H



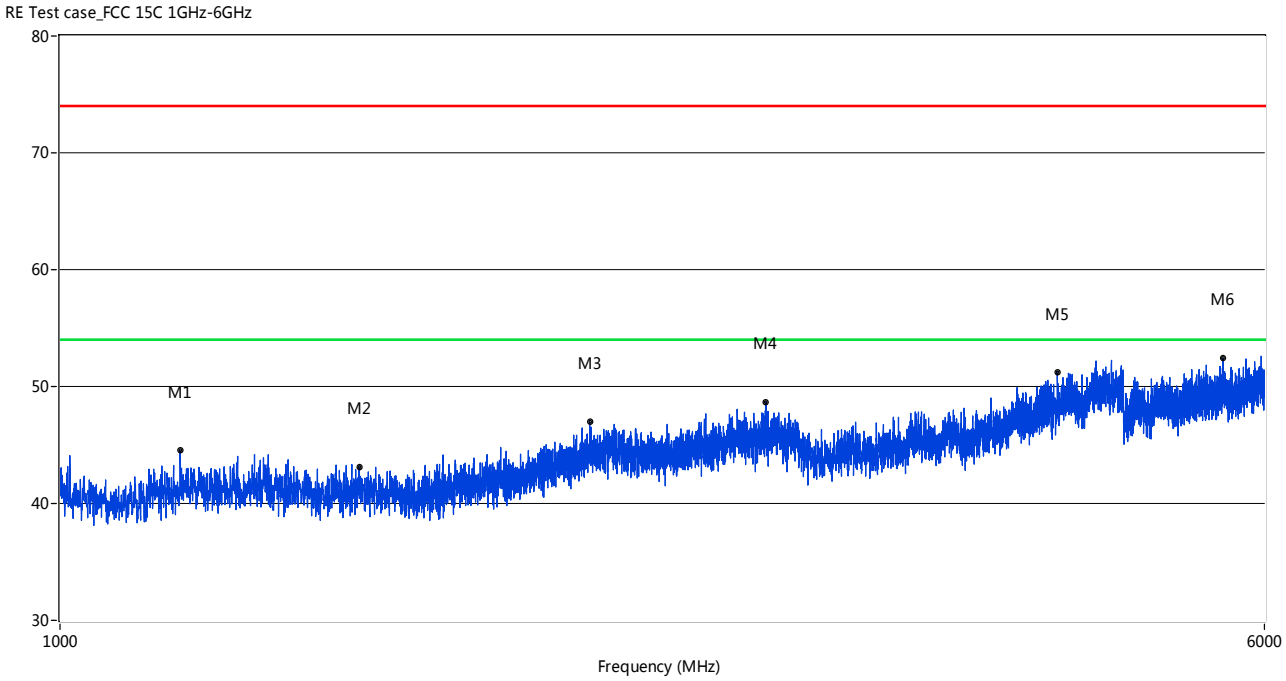
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	61.76	23.51	-20.29	40	16.49	Peak	342.00	100	Horizontal	N/A
1*	61.76	15.04	-20.29	54	38.96	QP	342.00	100	Horizontal	Pass
2	116.55	30.94	-21.21	43.5	12.56	Peak	4.00	100	Horizontal	N/A
2*	116.55	22.28	-21.21	54	31.72	QP	4.00	100	Horizontal	Pass
3	166.74	34.85	-22.85	43.5	8.65	Peak	172.00	100	Horizontal	N/A
3*	166.74	24.34	-22.85	54	29.66	QP	172.00	100	Horizontal	Pass
4	239.95	37.35	-19.1	46	8.65	Peak	254.00	100	Horizontal	N/A
4*	239.95	28.22	-19.1	54	25.78	QP	254.00	100	Horizontal	Pass
5	368.45	34.22	-16	46	11.78	Peak	122.00	100	Horizontal	N/A
5*	368.45	22.94	-16	54	31.06	QP	122.00	100	Horizontal	Pass
6	615.73	41.68	-10.36	46	4.32	Peak	182.00	100	Horizontal	N/A
6*	615.73	32.67	-10.36	54	21.33	QP	182.00	100	Horizontal	Pass

1 GHz to 6 GHz, ANT V



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1183.95	44.36	-5.55	74.0	29.64	Peak	125.50	100	Vertical	Pass
2	1560.36	43.82	-4.00	74.0	30.18	Peak	55.50	100	Vertical	Pass
3	2174.71	46.73	-0.99	74.0	27.27	Peak	358.40	100	Vertical	Pass
4	2859.03	47.87	1.99	74.0	26.13	Peak	2.00	100	Vertical	Pass
5	4447.14	51.76	12.48	74.0	22.24	Peak	171.70	100	Vertical	Pass
6	5747.31	52.45	15.50	74.0	21.55	Peak	232.70	100	Vertical	Pass

1 GHz to 6 GHz, ANT H



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1195.45	44.53	-5.46	74.0	29.47	Peak	251.60	100	Horizontal	Pass
2	1560.36	43.14	-4.00	74.0	30.86	Peak	54.70	100	Horizontal	Pass
3	2198.70	47.00	-0.46	74.0	27.00	Peak	0.40	100	Horizontal	Pass
4	2859.03	48.70	1.99	74.0	25.30	Peak	2.20	100	Horizontal	Pass
5	4409.65	51.26	12.44	74.0	22.74	Peak	199.70	100	Horizontal	Pass
6	5642.34	52.40	15.56	74.0	21.60	Peak	64.00	100	Horizontal	Pass

ANNEX B TEST SETUP PHOTOS

Please refer the document “BL-SZ15C0294-AR.pdf

ANNEX C EUT EXTERNAL PHOTOS

Please refer the document “BL-SZ15C0294-AW.pdf

ANNEX D EUT INTERNAL PHOTOS

Please refer the document “BL-SZ15C0294-AI.pdf”

--END OF REPORT--