



 <p>CERTIFICATE 2518.08</p> <p>MS ISO/IEC 17025 TESTING SAMM NO. 0825</p>																																												
<p>MOTOROLA PENANG ADV. COMM. LABORATORY Motorola Solutions Malaysia Sdn. Bhd. Plot 2A Medan Bayan Lepas, Mukim 12, S.W.D. 11900 Bayan Lepas, Penang, Malaysia.</p>	<p>FCC / ISED TEST REPORT Report Revision : Rev.B</p>																																												
<table border="0"> <tr> <td>Date/s Tested</td> <td>: 12-Nov-2021 - 19-Nov-2021</td> <td rowspan="10" style="text-align: center; vertical-align: middle;">  </td> </tr> <tr> <td>Report Issue Date</td> <td>: 02-Dec-2021</td> </tr> <tr> <td>Manufacturer/Location</td> <td>: Motorola Solutions Malaysia Sdn Bhd Plot 2A, Medan Bayan Lepas, Mukim 12 SWD, 11900, Bayan Lepas, Penang, Malaysia</td> </tr> <tr> <td>Requestor</td> <td>: SOH LEY KOON</td> </tr> <tr> <td>Product Type</td> <td>: Hand-held</td> </tr> <tr> <td>Product Version (PMN)</td> <td>: XPR 7550e</td> </tr> <tr> <td>Model Number (HVIN)</td> <td>: AAH56RDN9RA1AN (IC MODEL: PMUE3675DBCNA)</td> </tr> <tr> <td>Frequency Band</td> <td>: 2.412-2.462 GHz</td> </tr> <tr> <td>Max RF Output Power</td> <td>: 802.11b - 22.4 mWatts 802.11g - 8.3 mWatts 802.11n - 12.6 mWatts</td> </tr> <tr> <td>Applicant Name</td> <td>: Motorola Solutions Inc</td> </tr> <tr> <td>Applicant Address</td> <td>: 8000 West Sunrise Boulevard, Fort Lauderdale, Florida 33322</td> </tr> <tr> <td>FCC Registrations</td> <td>: 461337</td> <td></td> </tr> <tr> <td>ISED Registrations</td> <td>: MY0001</td> <td></td> </tr> <tr> <td>Firmware Version (FVIN)</td> <td>: D02.21.06.0036</td> <td></td> </tr> <tr> <td colspan="3">The equipment was tested accordance to the requirement listed below:</td> </tr> <tr> <td>(2.4GHz Wifi)</td> <td></td> <td style="text-align: center;">PASS</td> </tr> <tr> <td>47CFR Part 15C</td> <td></td> <td></td> </tr> <tr> <td>ISED RSS 247 Issue 2</td> <td></td> <td></td> </tr> </table>		Date/s Tested	: 12-Nov-2021 - 19-Nov-2021		Report Issue Date	: 02-Dec-2021	Manufacturer/Location	: Motorola Solutions Malaysia Sdn Bhd Plot 2A, Medan Bayan Lepas, Mukim 12 SWD, 11900, Bayan Lepas, Penang, Malaysia	Requestor	: SOH LEY KOON	Product Type	: Hand-held	Product Version (PMN)	: XPR 7550e	Model Number (HVIN)	: AAH56RDN9RA1AN (IC MODEL: PMUE3675DBCNA)	Frequency Band	: 2.412-2.462 GHz	Max RF Output Power	: 802.11b - 22.4 mWatts 802.11g - 8.3 mWatts 802.11n - 12.6 mWatts	Applicant Name	: Motorola Solutions Inc	Applicant Address	: 8000 West Sunrise Boulevard, Fort Lauderdale, Florida 33322	FCC Registrations	: 461337		ISED Registrations	: MY0001		Firmware Version (FVIN)	: D02.21.06.0036		The equipment was tested accordance to the requirement listed below:			(2.4GHz Wifi)		PASS	47CFR Part 15C			ISED RSS 247 Issue 2		
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<p>Prepared By:</p>  <hr/> <p>GAN BOON TEONG Test Personnel</p>	<p>Approved Signatory:</p> <hr/> <p>VINCENT FOONG CHUEN KIT Responsible Engineer</p>																																												

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REVISION HISTORY

Revision History	Description	Date	Originator
Rev. A	Initial Report	01-Dec-2021	Gan Boon Teong
Rev. B	Updated summary table	20-Dec-2021	Gan Boon Teong

1.0. General Information

EUT Description:

Technologies	2.4GHz Wi-Fi
TX Frequency range	2412MHz – 2462MHz
Modulation Type	DSSS, OFDM
Connector type	PROGRAMMING, TEST & ALIGNMENT CABLE
Antenna type	IFA BLUETOOTH/WIFI ANTENNA

1.1. Channel number and frequency information:

There are two bandwidth systems.

For 20MHz Bandwidth systems (802.11b, 802.11g, 802.11n), use channel 1 ~ channel 11

For 40MHz Bandwidth systems (802.11n), use channel 3 ~ channel 9

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

The EUT contains following accessory devices and data cable:

Item	Brand	Model or P/N
BELIZE TIA4950 IMPRES HIGH CAP LI ION BATTERY 2850M2900T	MOTOROLA	PMNN4489B
PROGRAMMING, TEST AND ALIGNMENT CABLE	MOTOROLA	PMKN4013C
UHF SLIM WHIP ANTENNA	MOTOROLA	PMAE4079A

General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, the EUT is to comply with the requirements of the following standards:

FCC 47 CFR Part 15 Subpart C
KDB 558074 D01 15.247 Meas Guidance v05
ANSI C63.10-2013

Deviation from standard

Not applicable as no deviation from standard test method

Modifications to EUT

For RF conducted measurements a pigtail was soldered out of the board while for radiated measurements there were no modifications to the device

Test configuration of EUT

All relevant configurations involving radio models and accessories (including chargers, batteries, antennas) were assessed. Only worst case configurations will be included in this report.

2.0. Summary of Test Results

FCC Clause	IC Clause	Test Item	Result	Remark	Serial number tested	Tested by
15.247 (a)(2)	RSS-247 5.2(a)	DTS & 99% Channel Bandwidth	Pass	Highest 99% OCB: 802.11b: 13.492 MHz(13M5G1D) 802.11g: 16.742 MHz(16M7D1D) 802.11n: 17.709 MHz(17M7D1D)	871TXVC358	Gan
15.247 (b)(3)	RSS-247 5.4(d)	Conducted RF Output Power (Average)	Pass	Highest output power: 802.11b: 13.184 dBm (20.82 mW) 802.11g: 8.725 dBm(7.46 mW) 802.11n: 10.769 dBm(11.94 mW)	871TXVC358	Gan
15.247(e)	RSS-247 5.2(b)	Maximum Power Spectral Density	Pass	Meet the limit requirement.	871TXVC358	Gan
15.247(d)	RSS-247 5.5	Conducted Spurious Emissions	Pass	Worst case emission: -39.88 dBm	871TXVC358	Gan
15.247 (d)	RSS-247 5.5	Band edge Conducted Spurious Emission	Pass	Worst case emission: -36.02 dBm	871TXVC358	Gan
15.205, 15.209, 15.247 (d)	RSS-247 5.5	Radiated Emission within Restricted Bands	Pass	Worst case emission: RBE: 45.4106dBuV/m (margin: 8.5894dB) RSE: 51.5183dBuV/m (margin 2.4817dB, noise floor)	871TXVC351	Nazrin&Qawiman
15.207	RSS-Gen 8.8	AC Power Line Conducted Emission	NA	Testing is not required, radio shall turn off during charging mode	NA	NA
15.203		Antenna requirement	NA	Internal antenna is not accessible to the enduser	NA	NA

NA → Not Available

3.0. Measurement Uncertainty

Measurement	Frequency	Expended Uncertainty (k=1.96) (±)
AC Power Line Conducted Spurious Emission	150kHz ~ 30MHz	3.48 dB
Radiated Emissions up to 1 GHz (Field Strength)	30MHz ~ 1000MHz	5.88 dB
Radiated Emissions above 1 GHz (Field Strength)	1GHz ~ 18GHz	5.84 dB
	18GHz ~ 40GHz	6.02 dB
Conducted Spurious Emissions	9kHz ~ 12.75GHz	2.82 dB

4.0. Equipment List

Bluetooth ATE # 1 (SW Version: Ate Main_3.1.11)

Description	Model	Serial Number	Calibration Date	Calibration Due Date
POWER SUPPLY	6652A	3640A02941	22-Jan-21	22-Jan-22
SPECTRUM ANALYZER	E4440A	US45303111	14-Jul-21	14-Jul-22
CHAMBER	SH-641	92003820	14-Jul-21	14-Jul-22
N to N RF Cable # 1	SF126/11N/11N	NA	NA	NA

Radiated Emission Station (SW Version: EMC FCC RE v1.6.2)

Description	Model	Serial Number	Calibration Date	Calibration Due Date
DRG HORN FREQ.	SAS-571	720	06-Apr-21	06-Apr-23
DRG HORN FREQ.	SAS-571	719	13-Sep-21	13-Sep-22
POWER SUPPLY	N7976A	MY53410110	24-May-21	24-May-22
SIGNAL GENERATOR	SMB 100A	182511	4-Jun-21	4-Jun-24
EMI TEST RECEIVER	ESW44	101750	15-Jan-21	15-Jan-22
EMI TEST RECEIVER	ESIB26	827769/009	11-Mar-21	11-Mar-22
5m SEMI-ANECHOIC CHAMBER	S800-HX	J2308	Not Required	Not Required
BILOG ANTENNA	CBL6112D	55546	06-Jun-21	06-Jun-22
BILOG ANTENNA	CBL6112B	2964	4-May-21	4-May-22
HYGRO-THERMOMETER	SDL500	A.016800	18-May-21	18-May-22
SYSTEM CONTROLLER	SC104V	050806-1	Not Required	Not Required
TURNTABLE FLUSH MOUNT 2M	FM2011	NA	Not Required	Not Required
ANTENNA POSITIONING TOWER	TLT2	NA	Not Required	Not Required
BROAD-BAND HORN ANTENNA	BBHA9170	BBHA9170255	4-Feb-21	4-Feb-22
PREAMPLIFIER 18-40GHz	BBV9721	9721-007	Not Required	Not Required
PREAMPLIFIER	PAM-0118P	361	11-Sep-20	11-Sep-23
LOOP ANTENNA	6502	00203479	5-Feb-21	5-Feb-22
DRG HORN FREQ.	SAS-571	720	06-Apr-21	06-Apr-23

5.0. Test Mode Applicability and Test Channel Detail

The device employs MIMO technology. Below are the possible configurations.

WLAN Configurations		Mode					
		SISO		Spatial Diversity Multiplexing (MIMO)		Cyclic Delay Diversity (MIMO)	
2.4GHz	Antenna	Primary	Secondary	Primary	Secondary	Primary	Secondary
	802.11b	√	√	x	x	x	x
	802.11g	√	√	x	x	x	x
	802.11n (HT20)	√	√	x	x	x	x
	802.11n (HT40)	x	x	x	x	x	x

√ = Support;
 x = NOT Support

Note: This Device supports simultaneous transmission operation, which allows for two SISO or two MIMO channels to operate independent of one another in the 2.4GHz band on each antenna. 802.11n mode is capable of transmitting simultaneously on two antennas using Cyclic Delay Diversity and Spatial Diversity Multiplexing (2x2 MIMO).
 The following tables show the worst case configurations determined during testing. The data for these configurations is contained in this test report.

Radiated Emission Test (Above 1GHz)

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Modulation	Available Channel	Tested Channel	Modulation Technology	Data Modulation Type	Date Rate (Mbps)	Mode	Environmental Conditions
Test Mode	802.11b	1 to 11	1,6,11	DSSS	DBPSK	1	SISO	23.3°C, 70.6%RH
Test Mode	802.11g	1 to 11	1,6,11	OFDM	BPSK	6	SISO	23.3°C, 70.6%RH
Test Mode	802.11n (HT20)	1 to 11	1,6,11	OFDM	BPSK	6.5	SISO CDD (MIMO)	23.3°C, 70.6%RH
Test Mode	802.11n (HT40)	3 to 9	3,6,9	OFDM	BPSK	6.5	SISO CDD (MIMO)	NA

Radiated Emission Test (Below 1GHz)

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Modulation	Available Channel	Tested Channel	Modulation Technology	Data Modulation Type	Date Rate (Mbps)	Mode	Environmental Conditions
Test Mode	802.11b	1 to 11	1,6,11	DSSS	DBPSK	1	SISO	23.3°C, 70.6%RH
Test Mode	802.11g	1 to 11	1,6,11	OFDM	BPSK	6	SISO	23.3°C, 70.6%RH
Test Mode	802.11n (HT20)	1 to 11	1,6,11	OFDM	BPSK	6.5	SISO CDD (MIMO)	23.3°C, 70.6%RH
Test Mode	802.11n (HT40)	3 to 9	3,6,9	OFDM	BPSK	6.5	SISO CDD (MIMO)	NA

Power Line Conducted Emission Test

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Modulation	Available Channel	Tested Channel	Modulation Technology	Data Modulation Type	Data Rate (Mbps)	Environmental Conditions
Application Mode	802.11bgn mixed	1 to 11	AUTO	DSSS, OFDM	AUTO	AUTO	NA

Antenna Port Conducted Measurement:

This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Modulation	Available Channel	Tested Channel	Modulation Technology	Data Modulation Type	Data Rate (Mbps)	Mode	Environmental Conditions
Test Mode	802.11b	1 to 11	1,6,11	DSSS	DBPSK	1	SISO	25°C, 57.0%RH
Test Mode	802.11g	1 to 11	1,6,11	OFDM	BPSK	6	SISO	25°C, 57.0%RH
Test Mode	802.11n (HT20)	1 to 11	1,6,11	OFDM	BPSK	6.5	SISO CDD (MIMO)	25°C, 57.0%RH
Test Mode	802.11n (HT40)	1 to 11	3,6,9	OFDM	BPSK	6.5	SISO CDD (MIMO)	NA

Duty Cycle of Test Signal

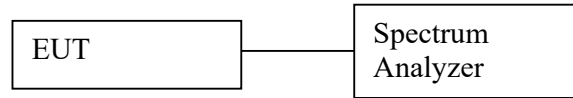
802.11b and 802.11n : Duty cycle of test signal is $\geq 98\%$.

802.11g : Duty cycle of test signal is $\leq 98\%$. (Refer to Clause 6.3 for duty cycle test signal)

6.0. Transmitter Test Parameters

6.1. 6dB Channel Bandwidth

6.1.1. Test Setup



- a) Check and ensure the spectrum analyzer well calibrate.
- b) Turn on the DUT and set DUT to transmit maximum power.
- c) Connect DUT's antenna terminal to spectrum analyzer with a low loss cable.
- d) Setting of Spectrum analyzer :
 - a. RBW = 100 kHz
 - b. VBW = 300 kHz
 - c. Detector mode = Peak
 - d. Trace = Max hold
 - e. Sweep = auto
- e) Measure the freq different of two frequencies that were attenuated 6dB from peak of the emission & record the frequency difference as the emission bandwidth.
- f) Measure every antenna port by repeat the step above for MIMO measurement.

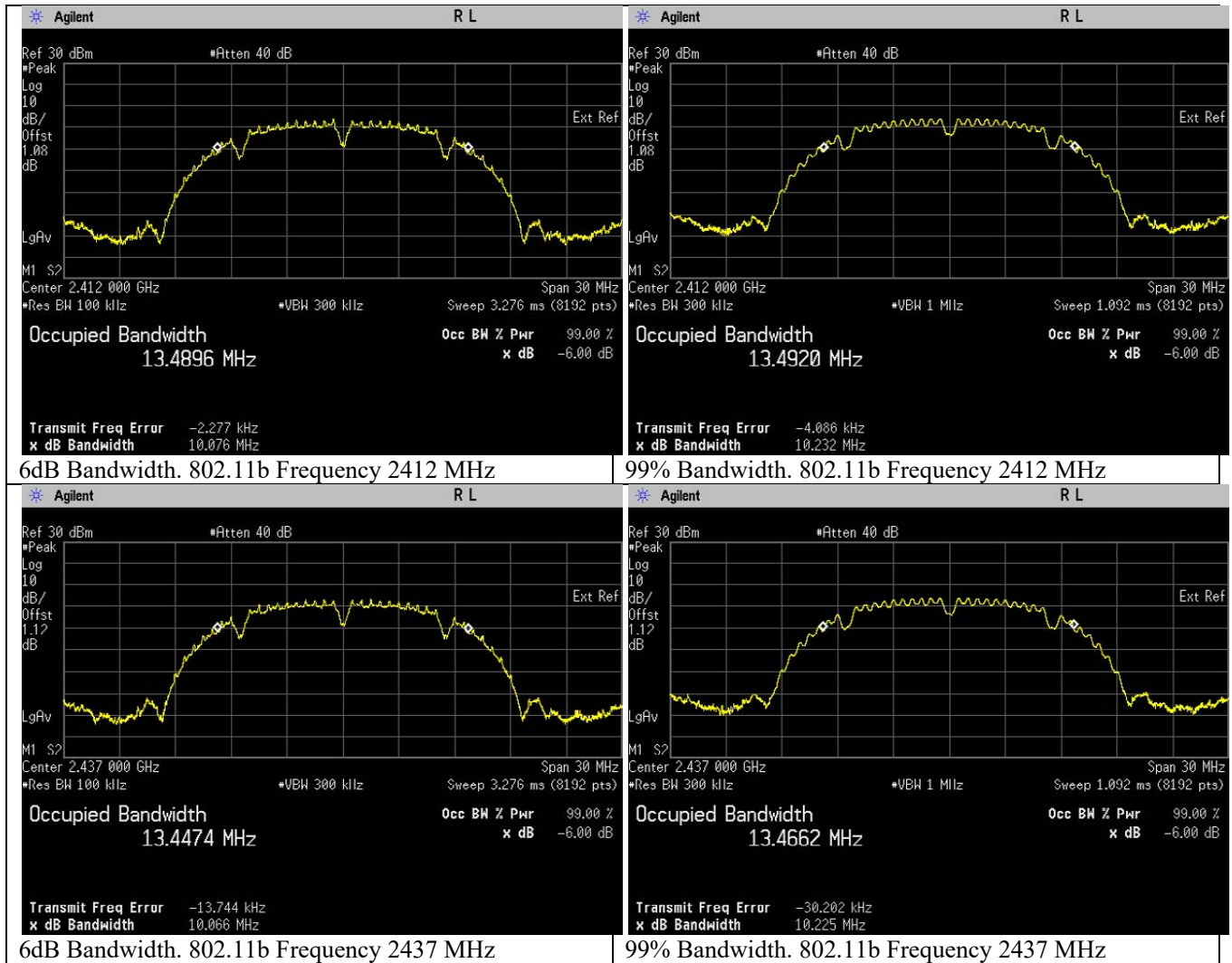
6.1.2. Test Limits:

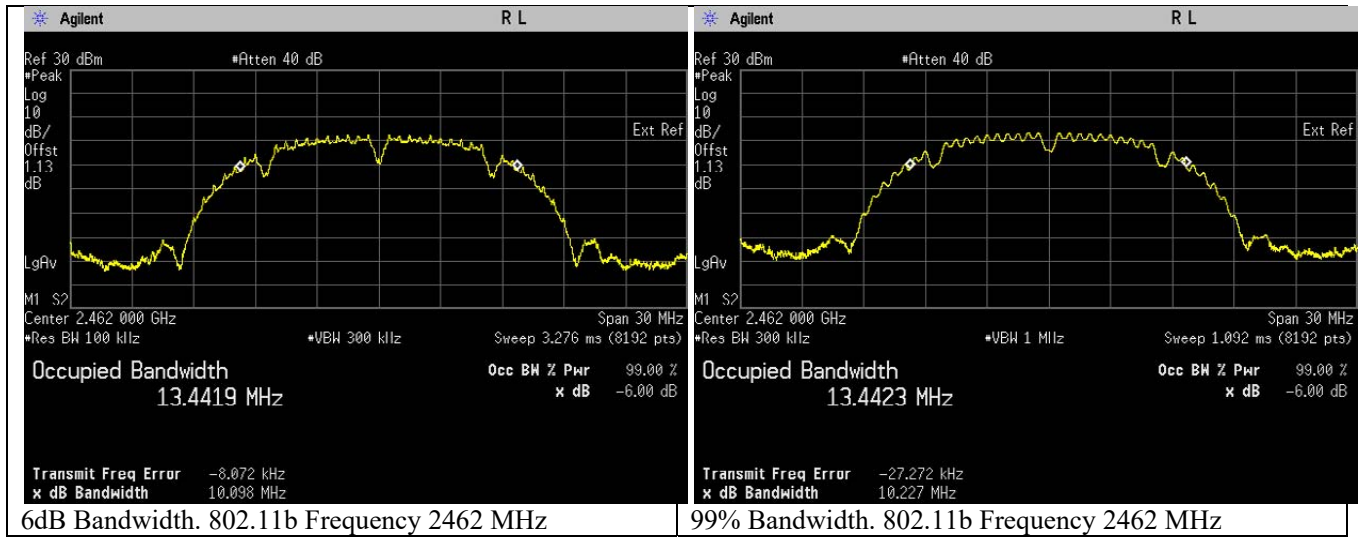
Normal Condition (25 ° C)
≥500 kHz

6.1.3. Test Data:

802.11 b

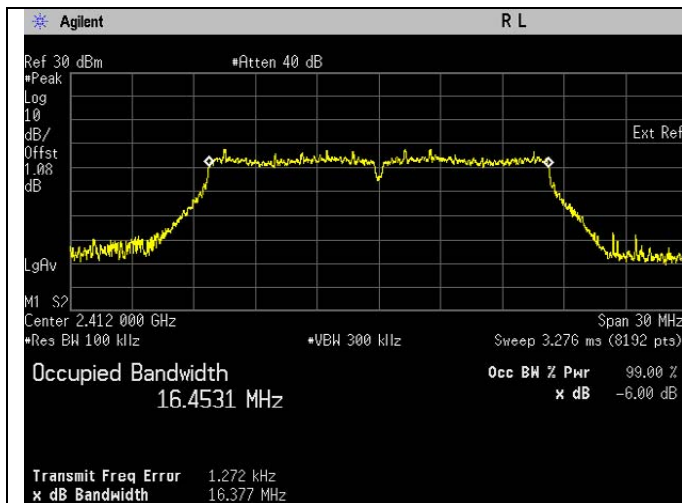
Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Status
802.11b	DSSS	DBPSK	1	2412	10.076	13.492	Pass
802.11b	DSSS	DBPSK	1	2437	10.066	13.466	Pass
802.11b	DSSS	DBPSK	1	2462	10.098	13.442	Pass



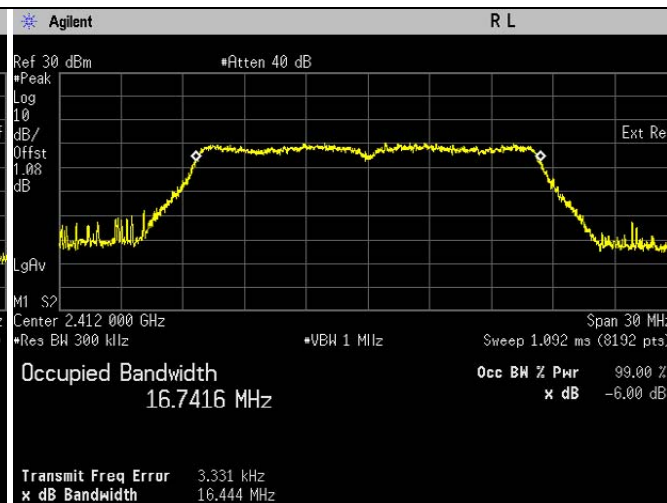


802.11 g

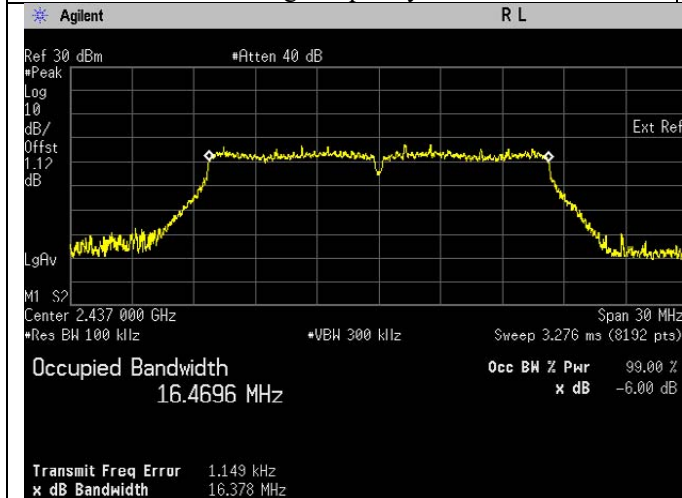
Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Status
802.11g	OFDM	BPSK	6	2412	16.377	16.742	Pass
802.11g	OFDM	BPSK	6	2437	16.378	16.731	Pass
802.11g	OFDM	BPSK	6	2462	16.366	16.735	Pass



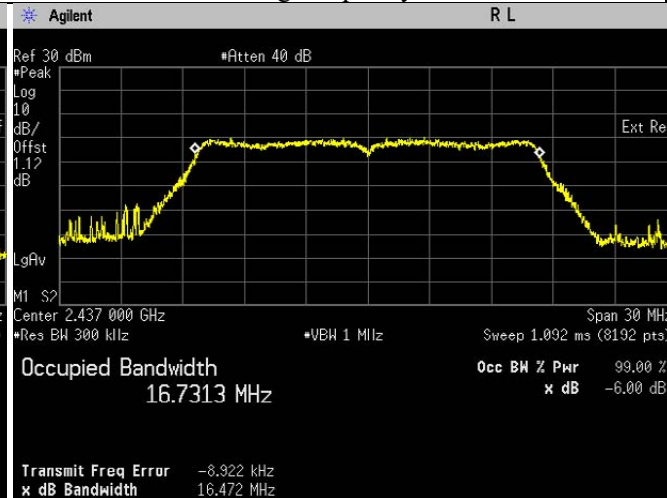
6dB Bandwidth. 802.11g Frequency 2412 MHz



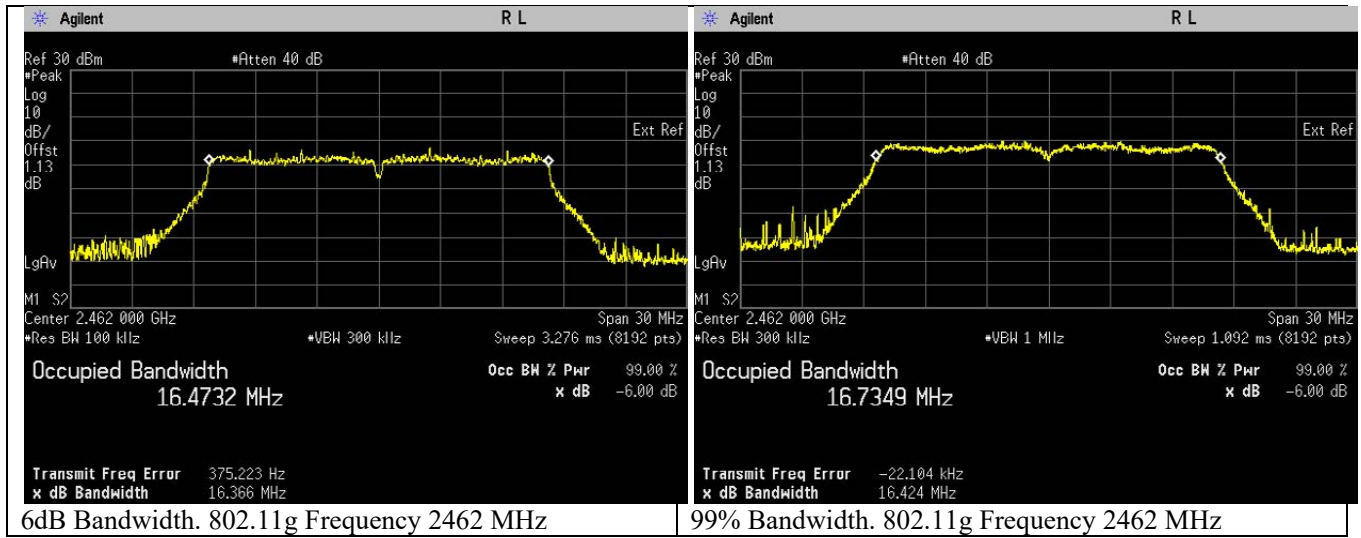
99% Bandwidth. 802.11g Frequency 2412 MHz



6dB Bandwidth. 802.11g Frequency 2437 MHz

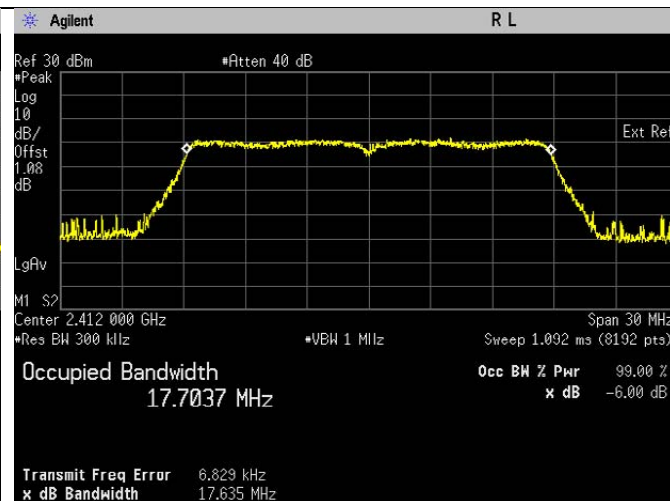
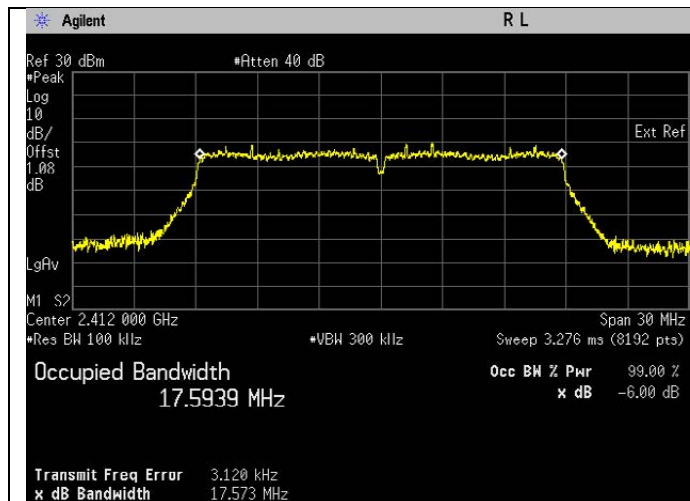


99% Bandwidth. 802.11g Frequency 2437 MHz



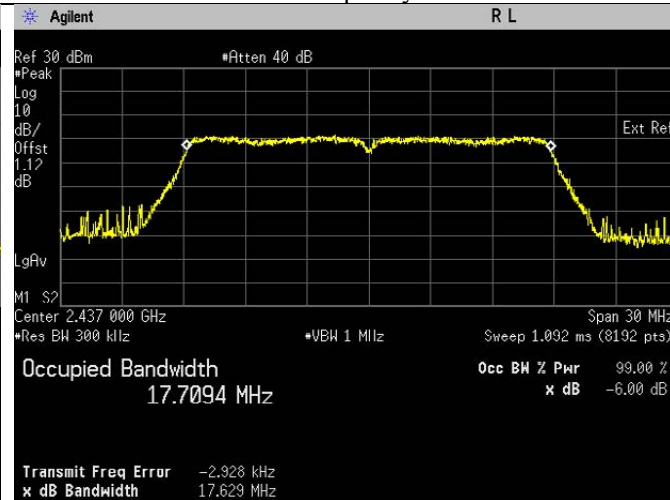
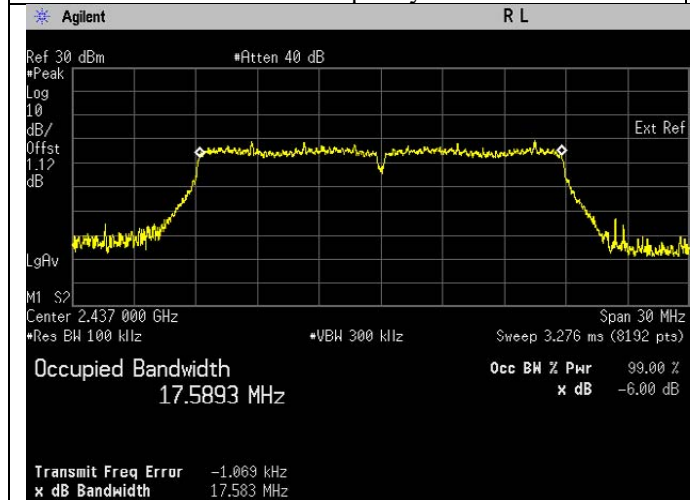
802.11n (HT20)

Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Status
802.11n	OFDM	DBPSK	6.5	2412	17.573	17.704	Pass
802.11n	OFDM	DBPSK	6.5	2437	17.583	17.709	Pass
802.11n	OFDM	DBPSK	6.5	2462	17.565	17.705	Pass



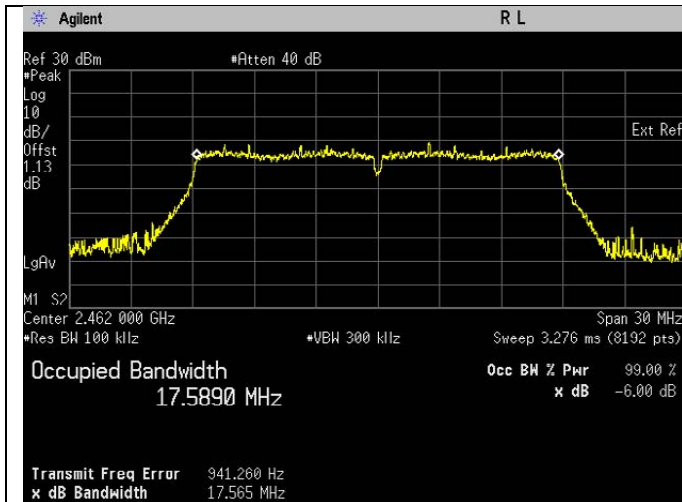
6dB Bandwidth. 802.11n Frequency 2412 MHz

99% Bandwidth. 802.11n Frequency 2412 MHz

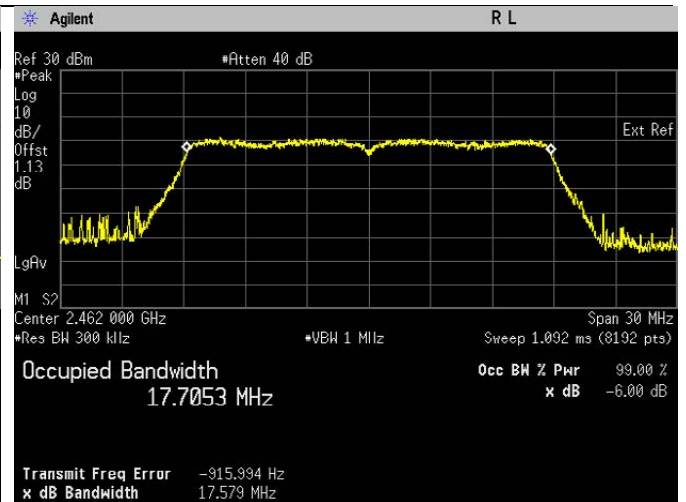


6dB Bandwidth. 802.11n Frequency 2437 MHz

99% Bandwidth. 802.11n Frequency 2437 MHz



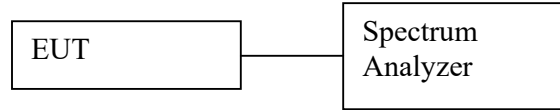
6dB Bandwidth. 802.1 In Frequency 2462 MHz



99% Bandwidth. 802.1 In Frequency 2462 MHz

6.2. Conducted RF Output Power

6.2.1. Test Setup



Average

- a) Check and ensure the spectrum analyzer well calibrate.
- b) Turn on the DUT and set DUT to transmit maximum power.
- c) Measure the duty cycle of transmitter output signal.
- d) Setting of Spectrum analyzer :
 - a. Set the RBW = 300 kHz.
 - b. Set the VBW $\geq [3 \times \text{RBW}]$.
 - c. Set the span $\geq [1.5 \times \text{OBW bandwidth}]$.
 - d. Detector = average.
 - e. Sweep time = auto couple.
 - f. Trace mode = free run.
 - g. Allow trace to fully stabilize.
- e) Add in duty cycle correction into final test result.
- f) Duty cycle correction is calculated as below:
 $10 \log (1/x)$
- g) Measure every antenna port by repeat the step above for MIMO measurement.

6.2.2. Test Limits:

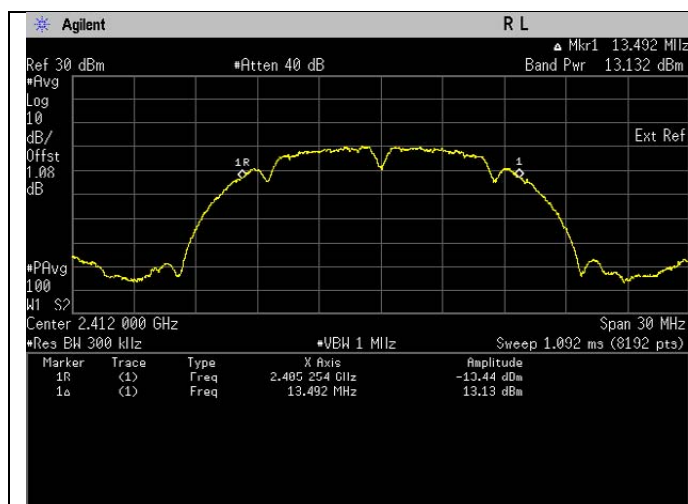
Normal Condition (25 ° C)
$\leq 1 \text{ Watt}(30 \text{ dBm})$

6.2.3. Test Data:

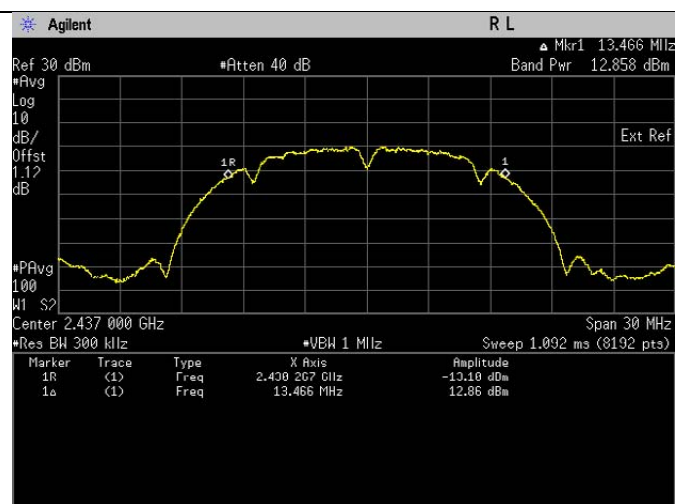
802.11b

Output Power = Band Power + Duty Cycle Factor
 = Band Power + 0.051dBm

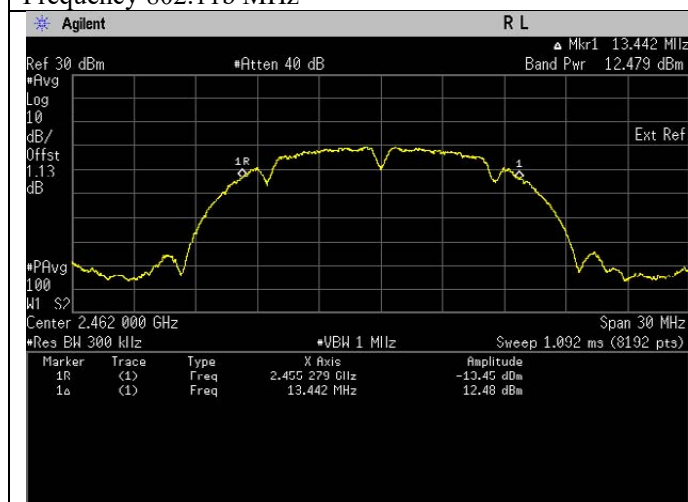
Test Conditions				Test Frequency	Results	
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Output Power (dBm)	Status
802.11b	DSSS	DBPSK	1	2412	13.183	Pass
802.11b	DSSS	DBPSK	1	2437	12.909	Pass
802.11b	DSSS	DBPSK	1	2462	12.530	Pass



Frequency 802.11b MHz



Frequency 802.11b MHz

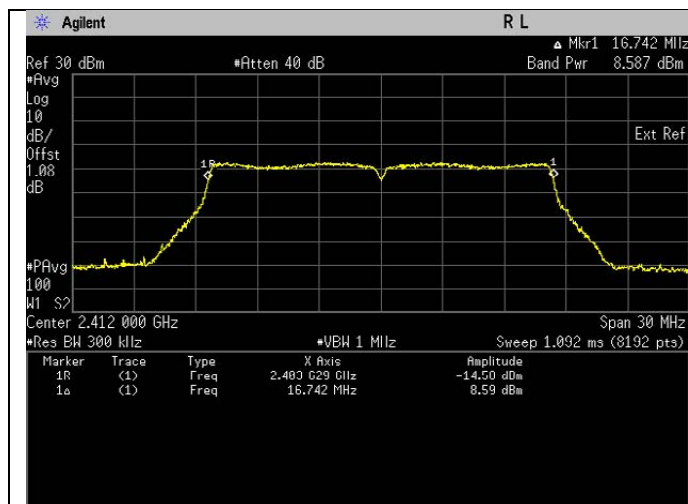


Frequency 802.11b MHz

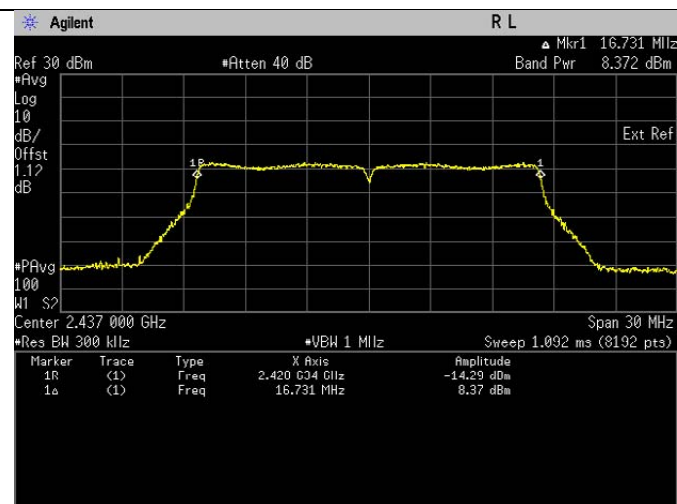
802.11g

$$\begin{aligned} \text{Output Power} &= \text{Band Power} + \text{Duty Cycle Factor} \\ &= \text{Band Power} + 0.137\text{dBm} \end{aligned}$$

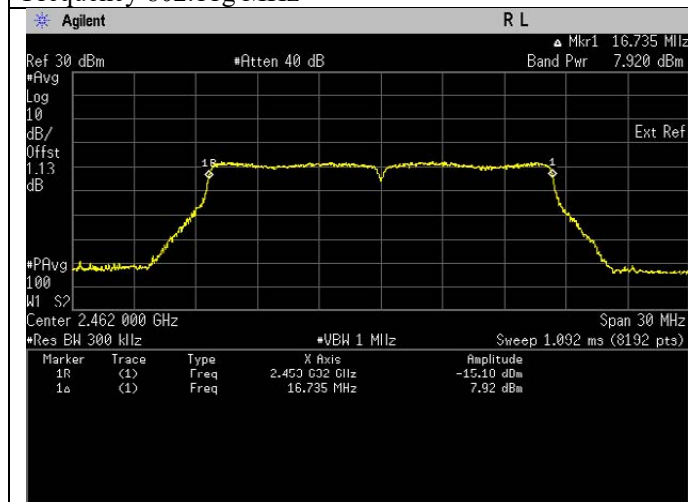
Test Conditions				Test Frequency	Results	
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Output Power (dBm)	Status
802.11g	OFDM	BPSK	6	2412	8.724	Pass
802.11g	OFDM	BPSK	6	2437	8.509	Pass
802.11g	OFDM	BPSK	6	2462	8.057	Pass



Frequency 802.11g MHz



Frequency 802.11g MHz

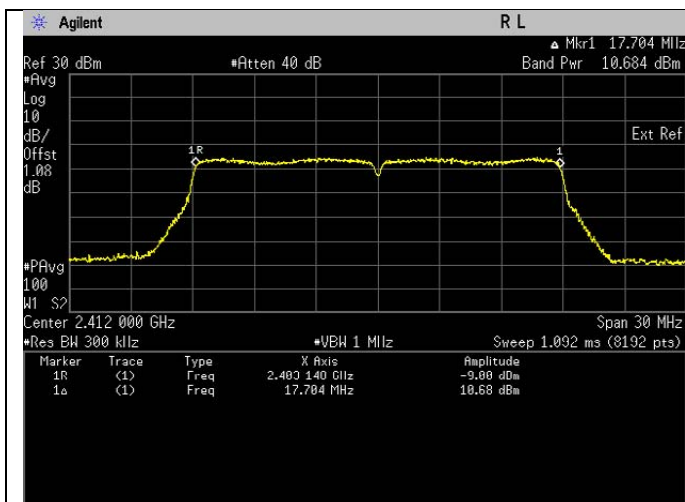


Frequency 802.11g MHz

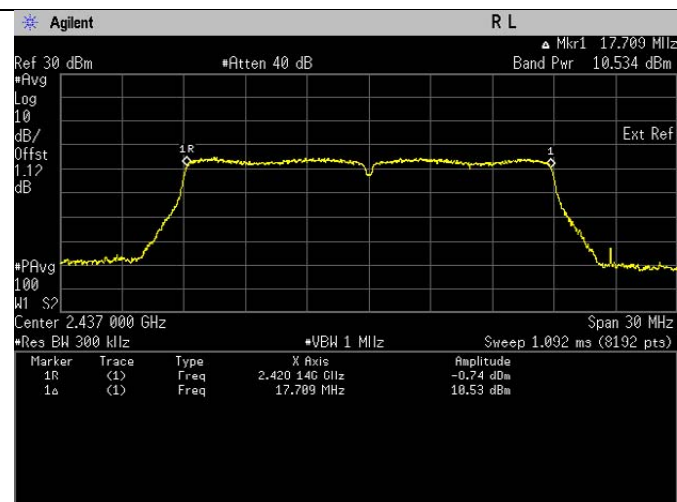
802.11n (HT20)

Output Power = Band Power + Duty Cycle Factor
 = Band Power + 0.034dBm

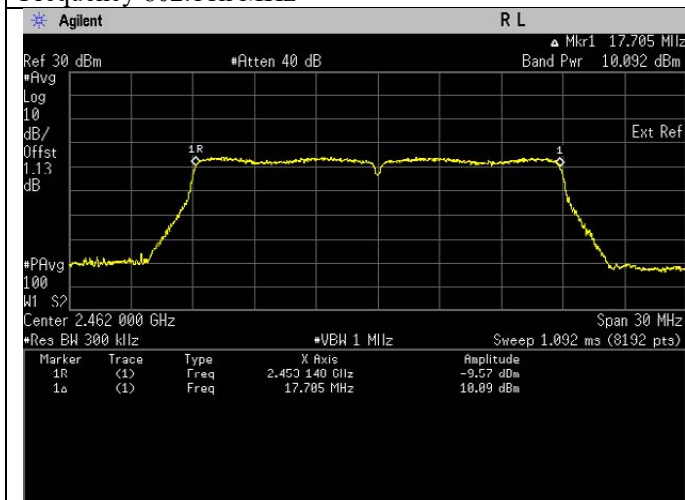
Test Conditions				Test Frequency	Results	
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)		Tx (MHz)	Output Power (dBm)
802.11n	OFDM	DBPSK	6.5	2412	10.768	Pass
802.11n	OFDM	DBPSK	6.5	2437	10.618	Pass
802.11n	OFDM	DBPSK	6.5	2462	10.176	Pass



Frequency 802.11n MHz



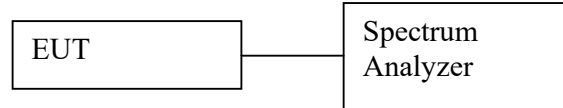
Frequency 802.11n MHz



Frequency 802.11n MHz

6.3.Duty Cycle of the test signal

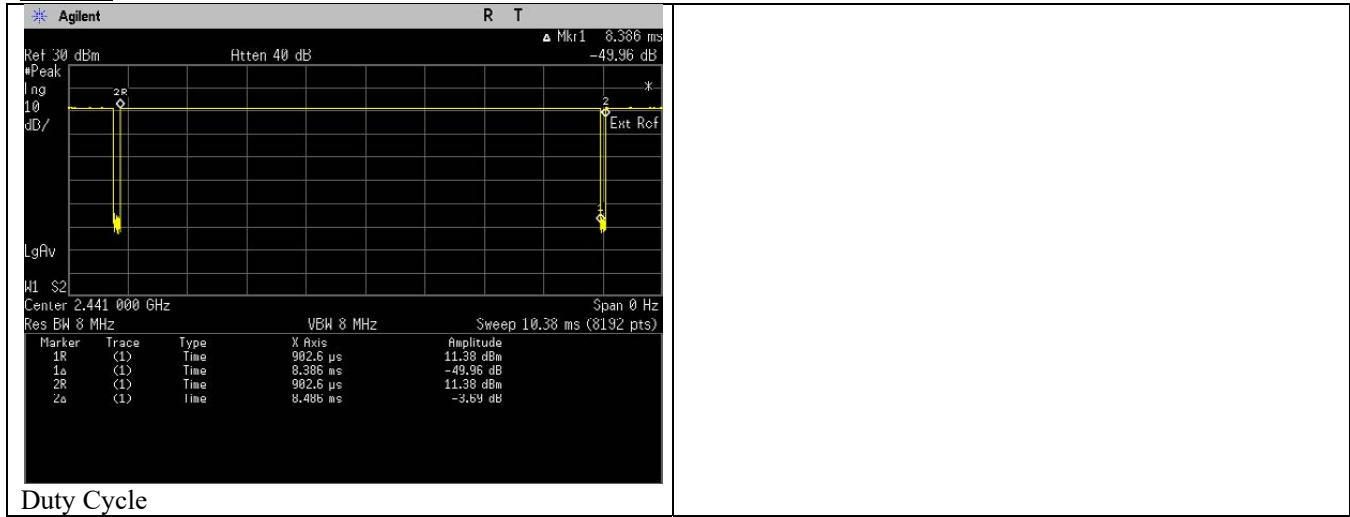
6.3.1. Test Setup



- 1) Check and ensure the spectrum analyzer well calibrate.
- 2) Turn on the DUT and set DUT to transmit maximum power.
- 3) Connect DUT's antenna terminal to spectrum analyzer with a low loss cable.
- 4) Setting of Spectrum analyzer :
 - a. Set the RBW = 10 MHz or the highest RBW available on spectrum analyzer.
 - b. Set the VBW \geq RBW.
 - c. Set the span \geq [1.5 \times DTS bandwidth].
 - d. Detector = Peak.
 - e. Sweep time = 10ms or others that allow to measure accurate duty cycle.
 - f. Trace mode = max hold.
 - g. Allow trace to fully stabilize.
- 5) Record the duty cycle as X and save the plot.
- 6) Measure every antenna port by repeat the step above for MIMO measurement.

6.3.2. Test Data

802.11b

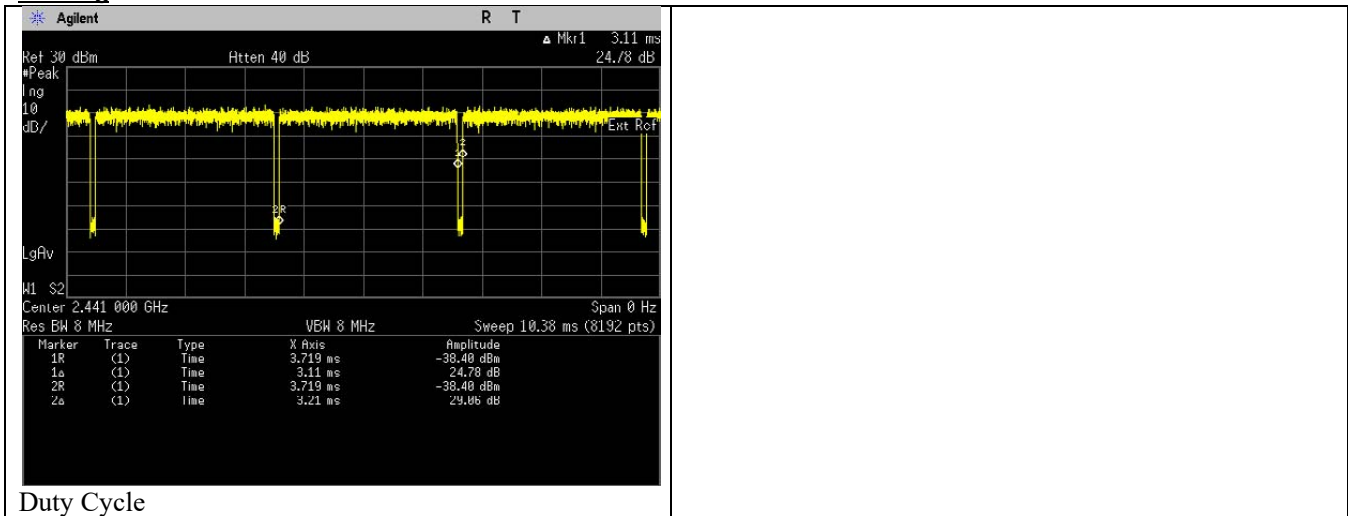


On time (ms)	8.386
On + Off Time (ms)	8.486
Duty cycle	0.9882
Duty Cycle factor	0.051

*Duty cycle = On time/ On +off time

*Duty Cycle factor = 10*log(1/Duty Cycle)

802.11g



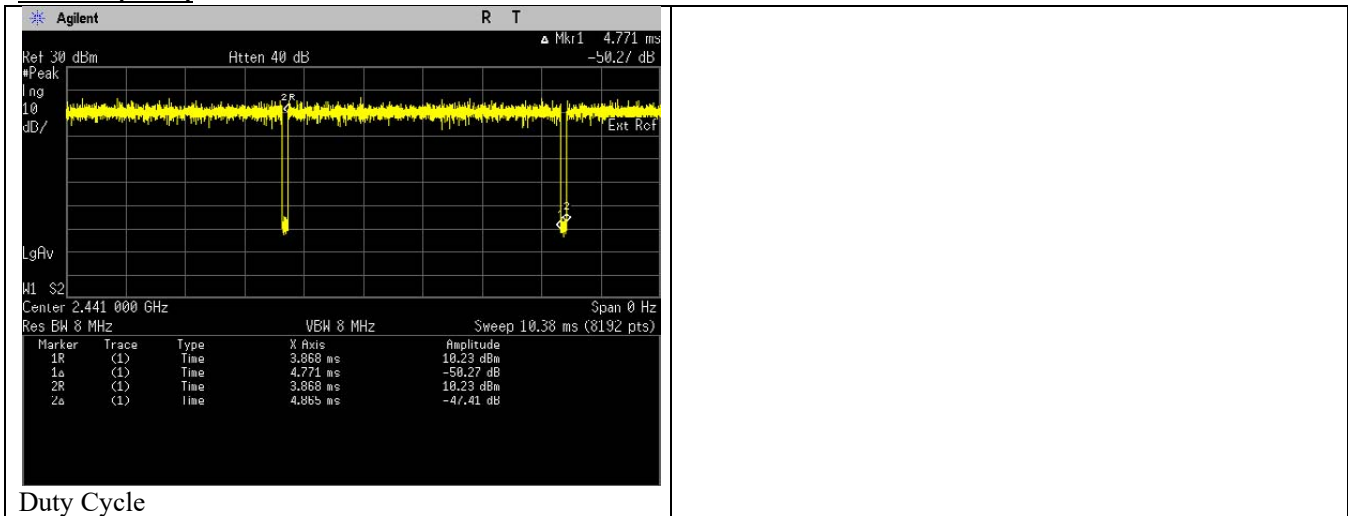
Duty Cycle

On time (ms)	3.11
On + Off Time (ms)	3.21
Duty cycle	0.9688
Duty Cycle factor	0.137

*Duty cycle = On time/ On +off time

*Duty Cycle factor = 10*log(1/Duty Cycle)

802.11n (HT20)



Duty Cycle

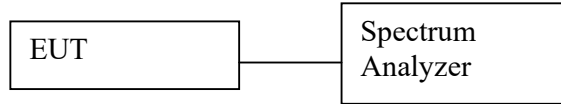
On time (ms)	4.771
On + Off Time (ms)	4.865
Duty cycle	0.9807
Duty Cycle factor	0.085

*Duty cycle = On time/ On +off time

*Duty Cycle factor = 10*log(1/Duty Cycle)

6.4. Maximum Peak Power Spectral Density

6.4.1. Test Setup



Maximum Peak

- a) Check and ensure the spectrum analyzer well calibrate.
- b) Turn on the DUT and set DUT to transmit maximum power.
- c) Connect DUT's antenna terminal to spectrum analyzer with a low loss cable.
- d) Setting of Spectrum analyzer :
 - a. Set analyzer center frequency to DTS channel center frequency.
 - b. Set the span to 1.5 times the DTS bandwidth.
 - c. Set the RBW to $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
 - d. Set the VBW $\geq [3 \times \text{RBW}]$.
 - e. Detector = peak.
 - f. Sweep time = auto couple.
 - g. Trace mode = max hold.
 - h. Allow trace to fully stabilize.
 - i. Use the peak marker function to determine the maximum amplitude level within the RBW.
 - j. If measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat.
- e) Measure every antenna port by repeat the step above for MIMO measurement.

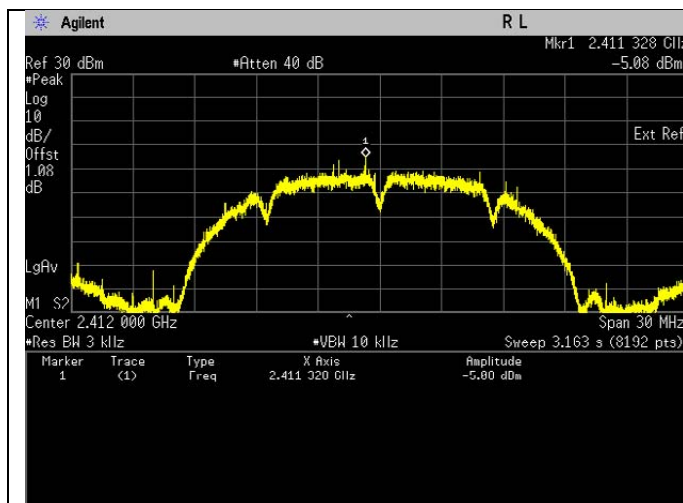
6.4.2. Test Limits

Normal Condition (25 ° C)
$\leq 8 \text{ dBm/3kHz}$

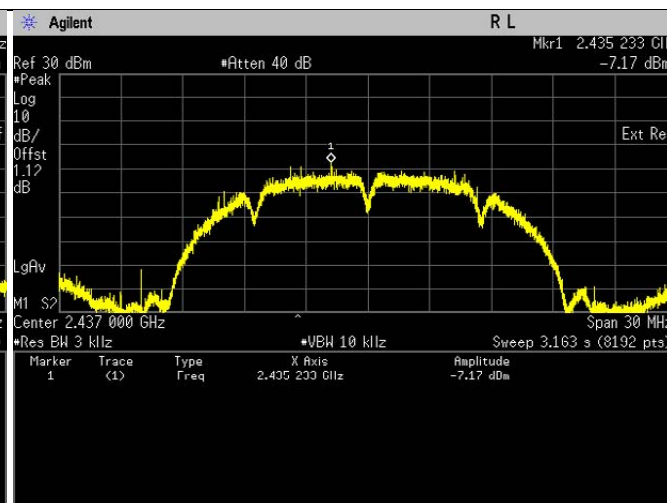
6.4.3. Test Result

802.11b

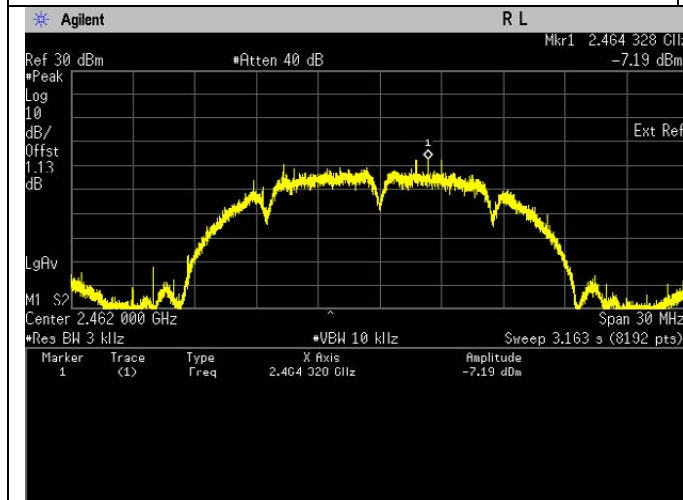
Test Conditions				Test Frequency	Results	
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Power (dBm/3kHz)	Status
802.11b	DSSS	DBPSK	1	2412	-5.08	Pass
802.11b	DSSS	DBPSK	1	2437	-7.17	Pass
802.11b	DSSS	DBPSK	1	2462	-7.19	Pass



Maximum Power Spectral Density. 802.11b Frequency 2412 MHz



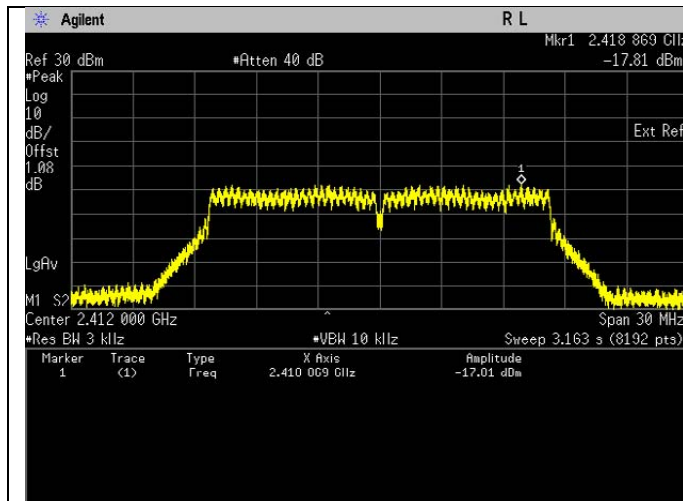
Maximum Power Spectral Density. 802.11b Frequency 2437 MHz



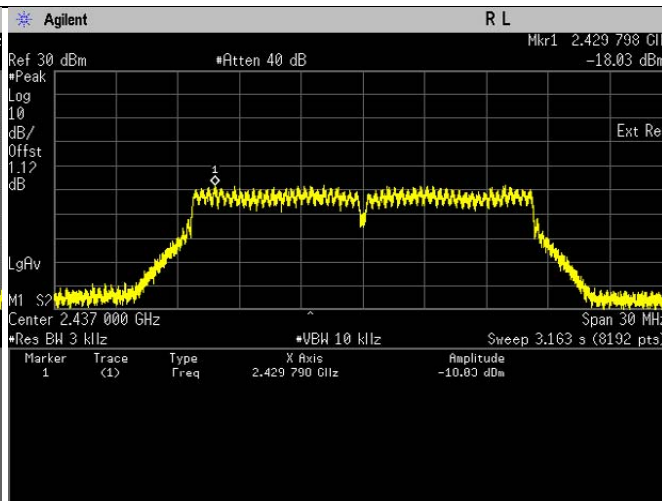
Maximum Power Spectral Density. 802.11b Frequency 2462 MHz

802.11g

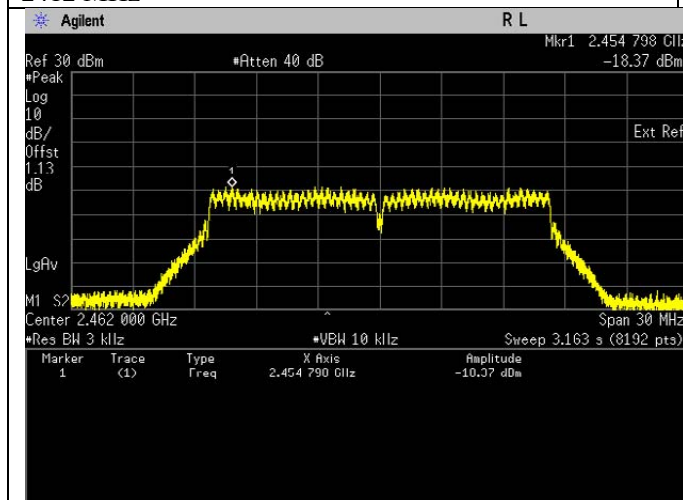
Test Conditions				Test Frequency	Results	
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Power (dBm/3kHz)	Status
802.11g	OFDM	BPSK	6	2412	-17.81	Pass
802.11g	OFDM	BPSK	6	2437	-18.03	Pass
802.11g	OFDM	BPSK	6	2462	-18.37	Pass



Maximum Power Spectral Density. 802.11g Frequency 2412 MHz



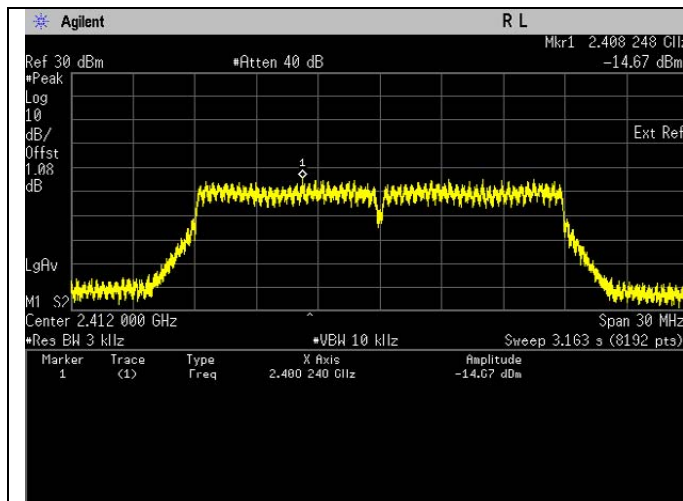
Maximum Power Spectral Density. 802.11g Frequency 2437 MHz



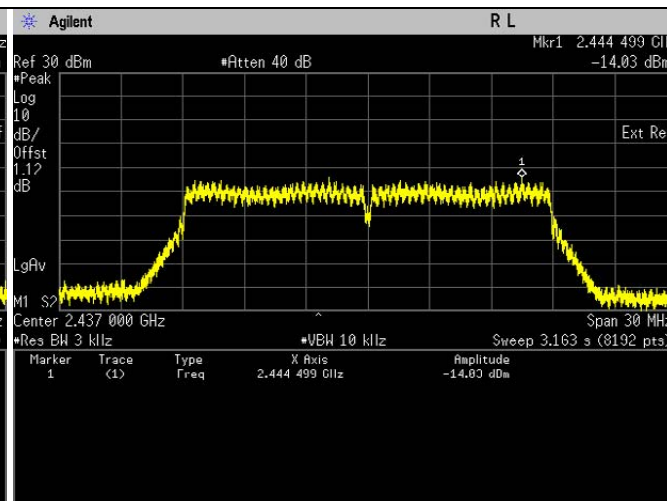
Maximum Power Spectral Density. 802.11g Frequency 2462 MHz

802.11n (HT20)

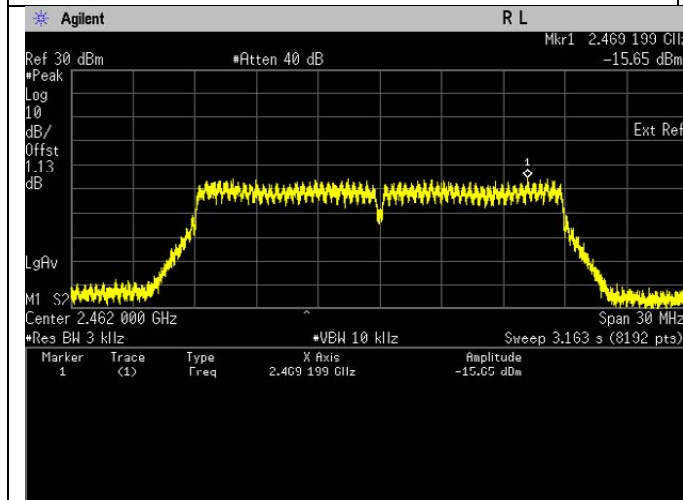
Test Conditions				Test Frequency	Results	
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Power (dBm/3kHz)	Status
802.11n	OFDM	DBPSK	6.5	2412	-14.67	Pass
802.11n	OFDM	DBPSK	6.5	2437	-14.03	Pass
802.11n	OFDM	DBPSK	6.5	2462	-15.65	Pass



Maximum Power Spectral Density. 802.11n Frequency 2412 MHz



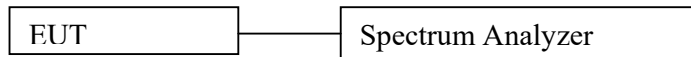
Maximum Power Spectral Density. 802.11n Frequency 2437 MHz



Maximum Power Spectral Density. 802.11n Frequency 2462 MHz

6.5. Conducted Spurious Emission

6.5.1. Test Setup



- a) Check and ensure the spectrum analyzer well calibrate.
- b) Turn on the DUT and set DUT to transmit maximum power.
- c) Connect DUT's antenna terminal to spectrum analyzer with a low loss cable.
- d) Setting of Spectrum analyzer :
 - a. RBW = 100 kHz
 - b. VBW = 300 kHz
 - c. Detector mode = Peak
 - d. Trace = Max Hold
 - e. Sweep = auto
- e) Use the peak marker function to measure highest emission and scan up to 10th harmonic.
- f) Measure every antenna port by repeat the step above for MIMO measurement.

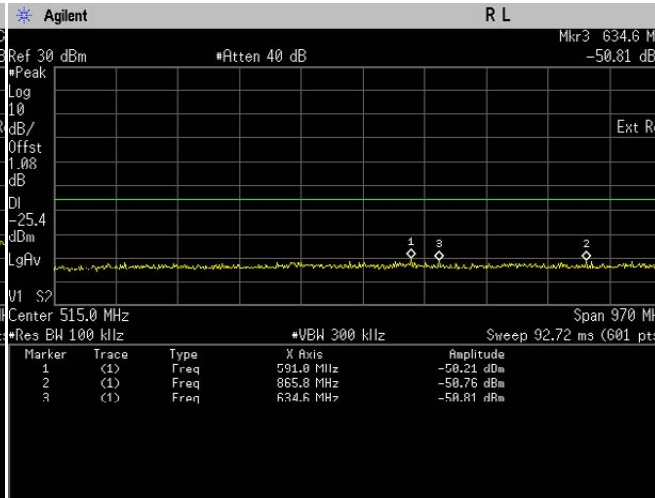
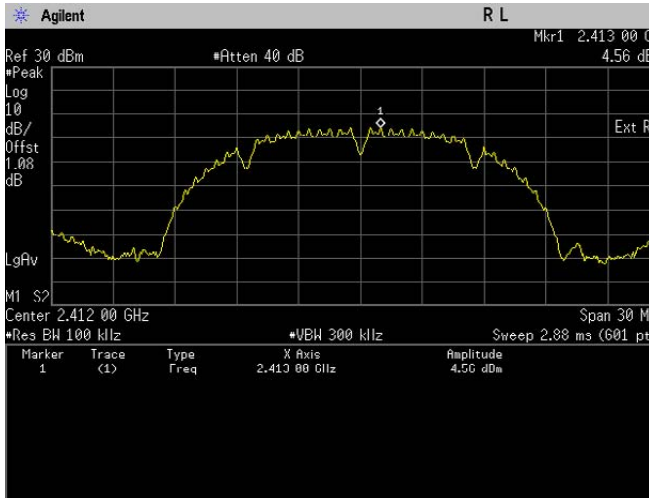
6.5.2. Test Limits:

Normal Condition (25 ° C)
Shall be at least 30 dB below peak (max) power.

6.5.3. Test Result

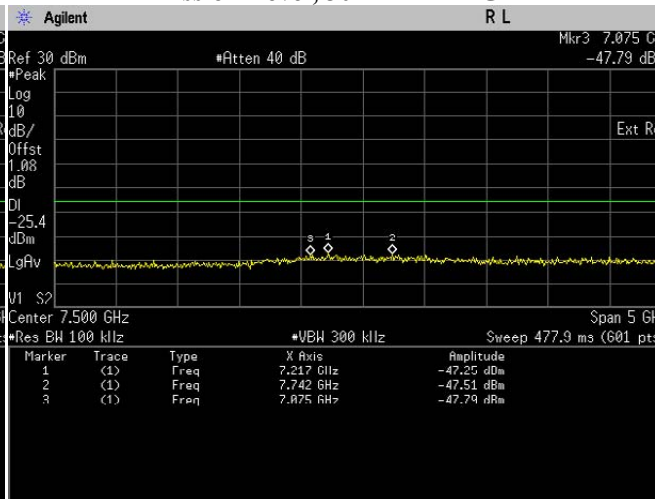
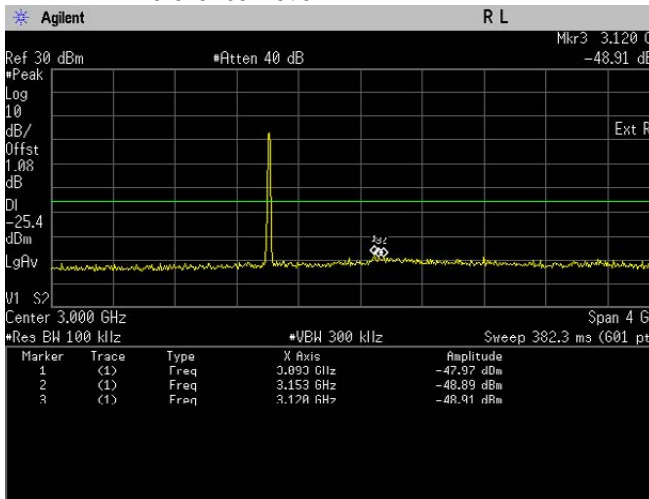
802.11b

Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Spurs (MHz)	Level (dBm)	Status
802.11b	DSSS	DBPSK	1	2412	24942.00	-40.76	Pass
					24883.00	-40.99	Pass
					24158.00	-41.11	Pass
802.11b	DSSS	DBPSK	1	2437	23925.00	-40.69	Pass
					24875.00	-41.27	Pass
					24850.00	-41.38	Pass
802.11b	DSSS	DBPSK	1	2462	24950.00	-41.17	Pass
					24142.00	-41.47	Pass
					24575.00	-41.47	Pass



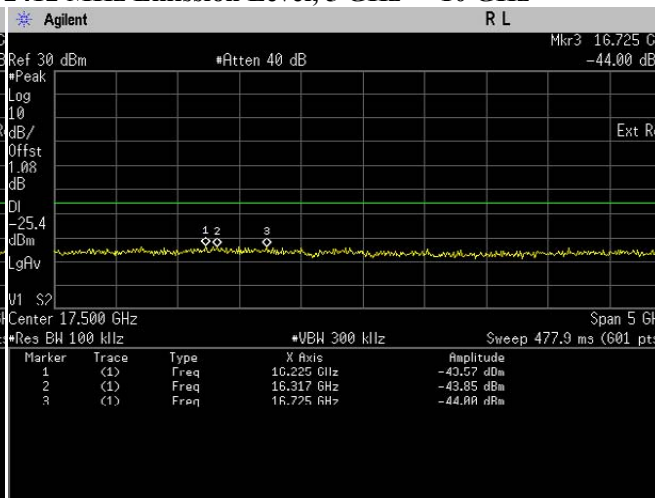
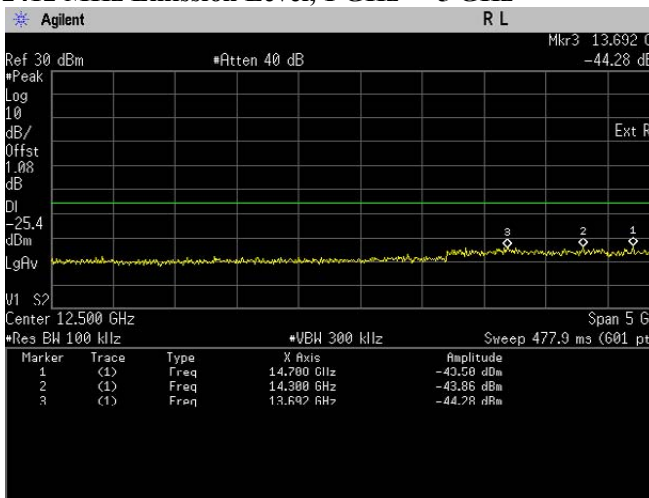
Conducted Emissions(Average). 802.11b, Frequency 2412 MHz Reference Level

Conducted Emissions(Average). 802.11b, Frequency 2412 MHz Emission Level, 30 MHz -> 1 GHz



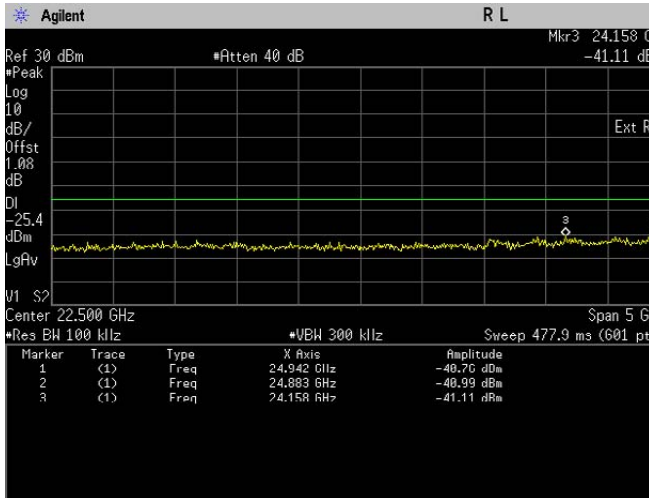
Conducted Emissions(Average). 802.11b, Frequency 2412 MHz Emission Level, 1 GHz -> 5 GHz

Conducted Emissions(Average). 802.11b, Frequency 2412 MHz Emission Level, 5 GHz -> 10 GHz

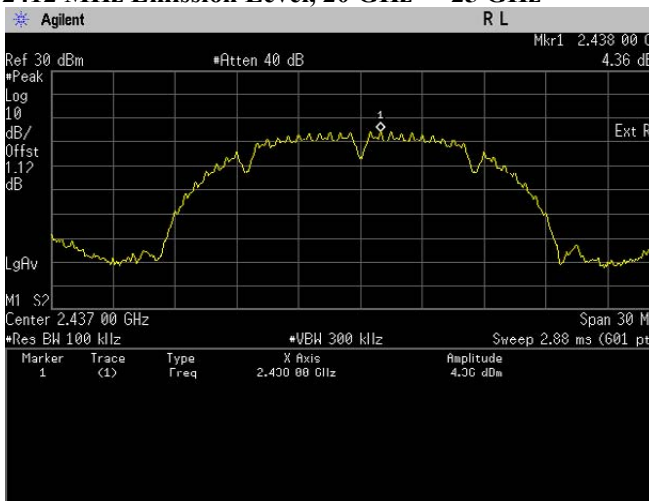


Conducted Emissions(Average). 802.11b, Frequency 2412 Emission Level, 10 GHz -> 15 GHz

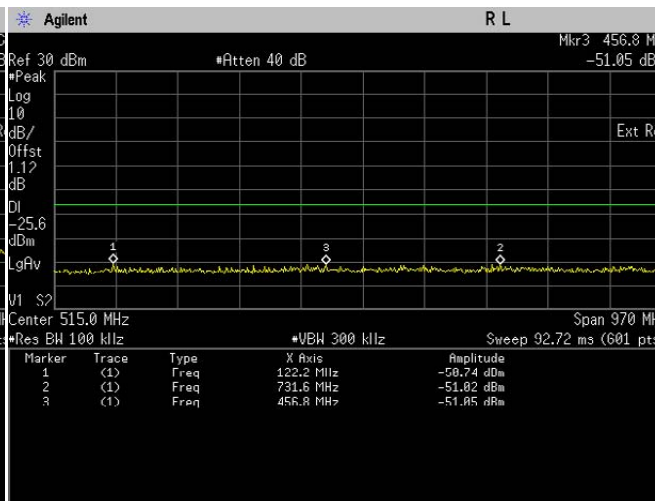
Conducted Emissions(Average). 802.11b, Frequency 2412 MHz Emission Level, 15 GHz -> 20 GHz



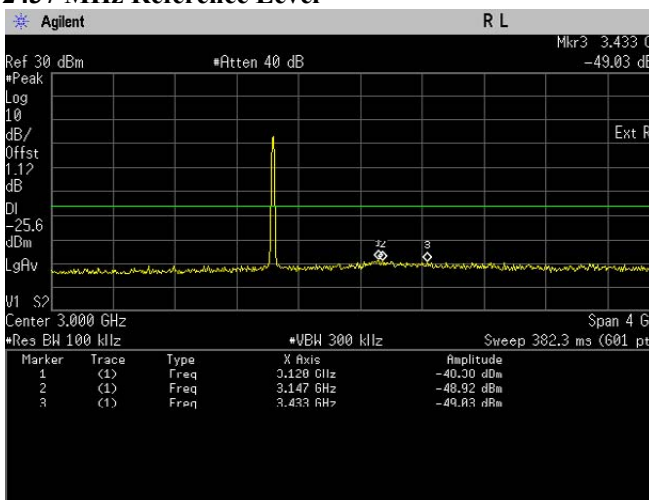
Conducted Emissions(Average). 802.11b, Frequency 2412 MHz Emission Level, 20 GHz -> 25 GHz



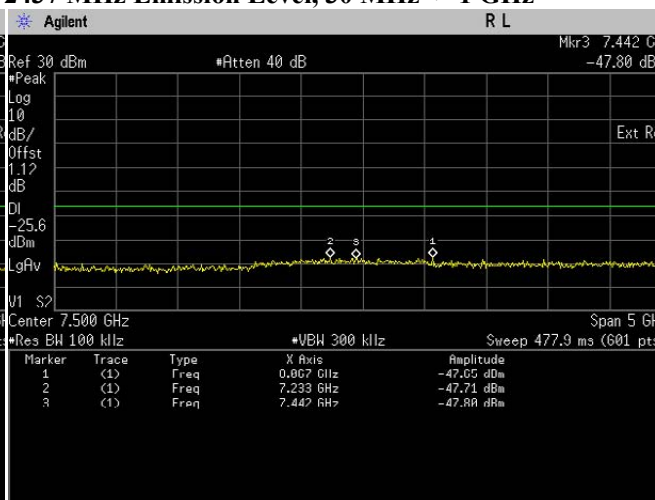
Conducted Emissions(Average). 802.11b, Frequency 2437 MHz Reference Level



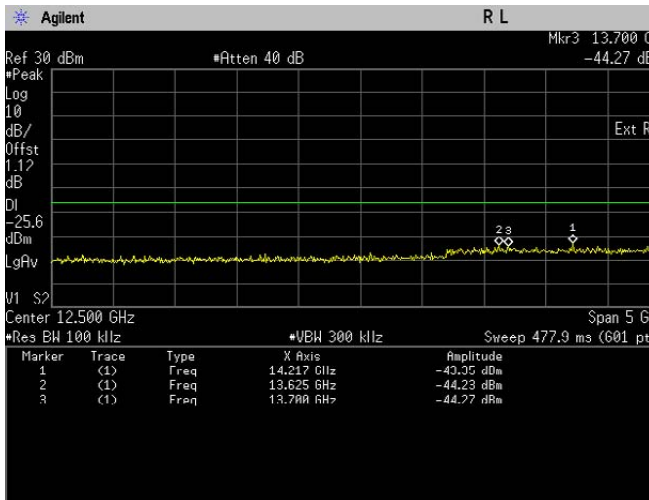
Conducted Emissions(Average). 802.11b, Frequency 2437 MHz Emission Level, 30 MHz -> 1 GHz



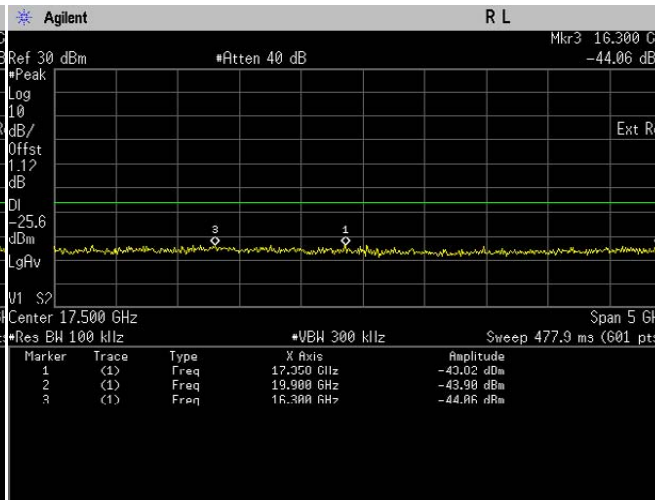
Conducted Emissions(Average). 802.11b, Frequency 2437 MHz Emission Level, 1 GHz -> 5 GHz



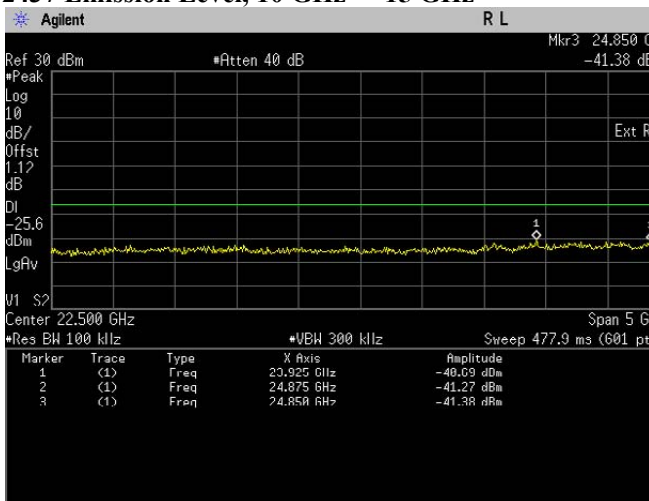
Conducted Emissions(Average). 802.11b, Frequency 2437 MHz Emission Level, 5 GHz -> 10 GHz



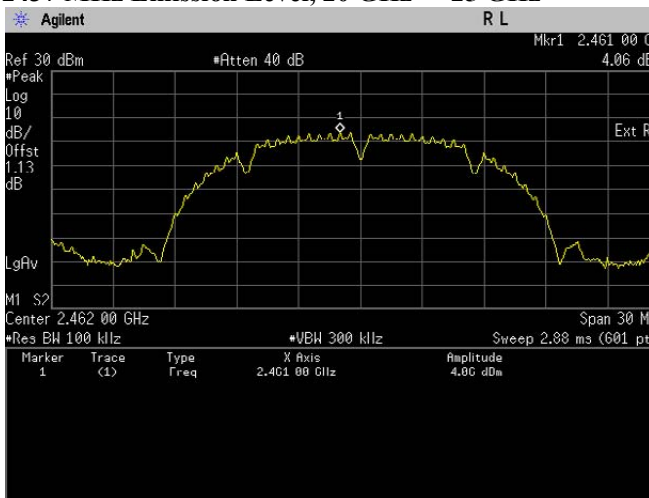
Conducted Emissions(Average). 802.11b, Frequency 2437 Emission Level, 10 GHz -> 15 GHz



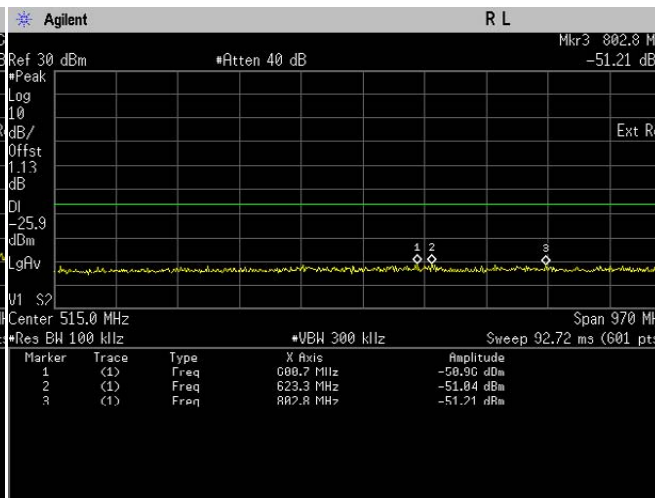
Conducted Emissions(Average). 802.11b, Frequency 2437 MHz Emission Level, 15 GHz -> 20 GHz



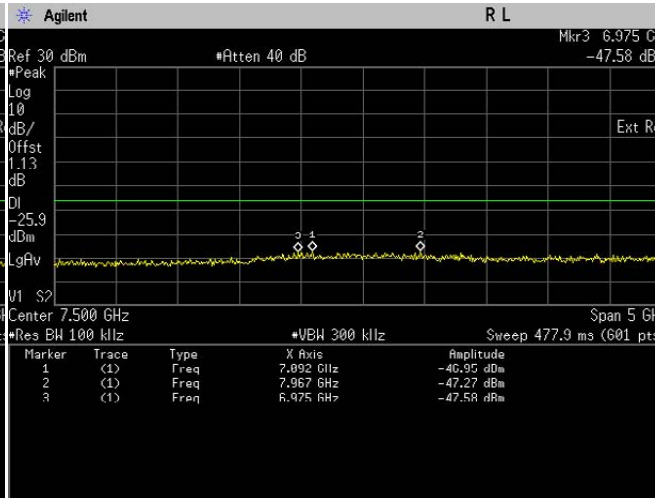
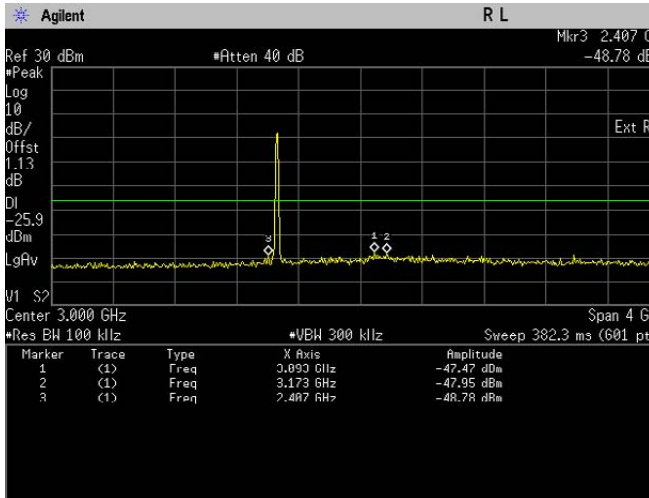
Conducted Emissions(Average). 802.11b, Frequency 2437 MHz Emission Level, 20 GHz -> 25 GHz



Conducted Emissions(Average). 802.11b, Frequency 2462 MHz Reference Level

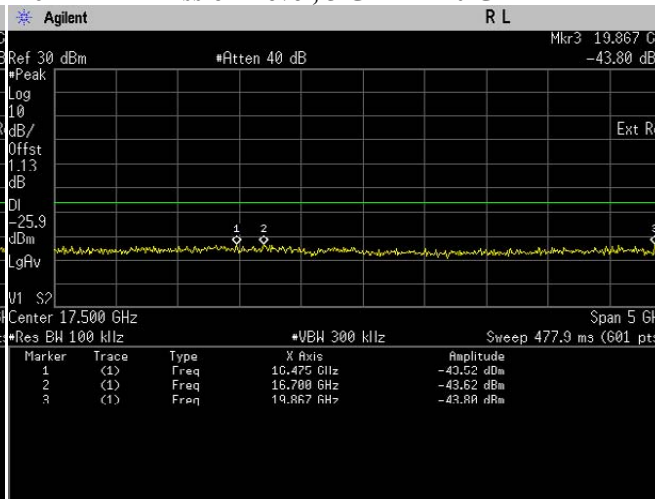
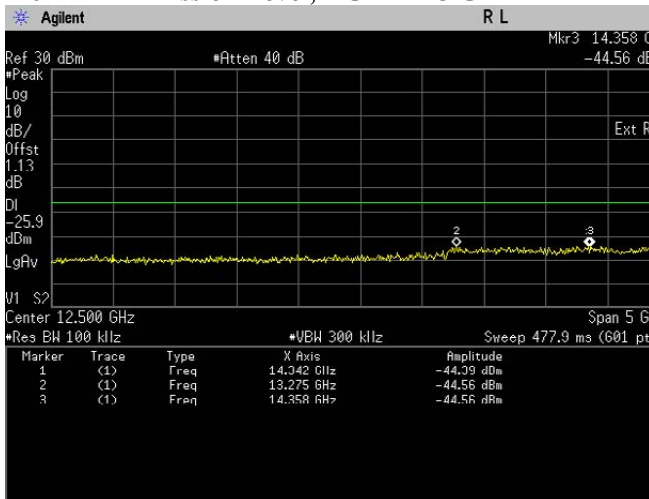


Conducted Emissions(Average). 802.11b, Frequency 2462 MHz Emission Level, 30 MHz -> 1 GHz



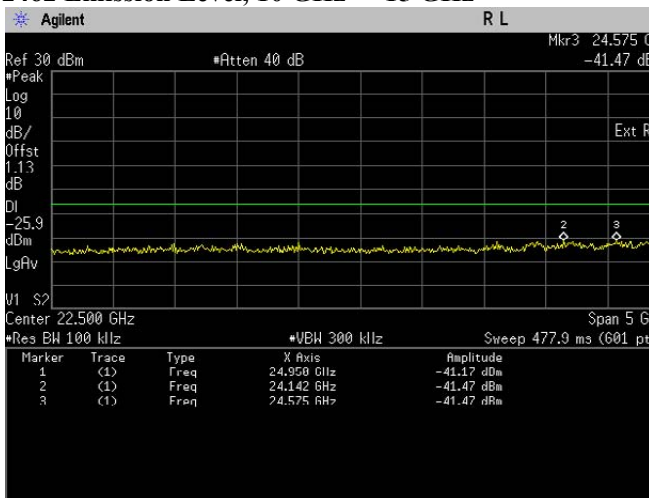
Conducted Emissions(Average). 802.11b, Frequency 2462 MHz Emission Level, 1 GHz -> 5 GHz

Conducted Emissions(Average). 802.11b, Frequency 2462 MHz Emission Level, 5 GHz -> 10 GHz



Conducted Emissions(Average). 802.11b, Frequency 2462 MHz Emission Level, 10 GHz -> 15 GHz

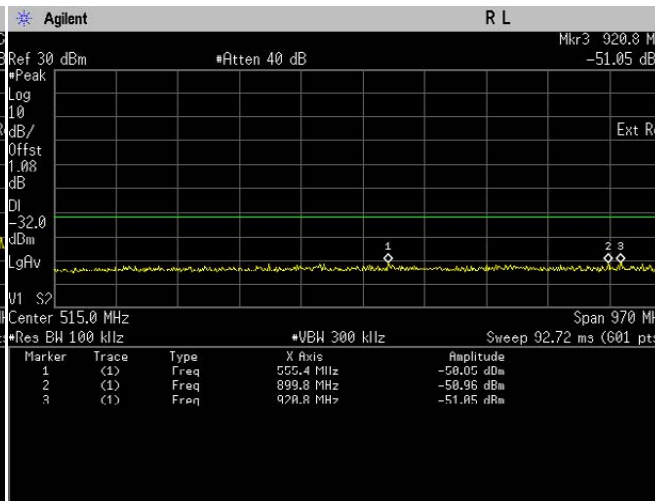
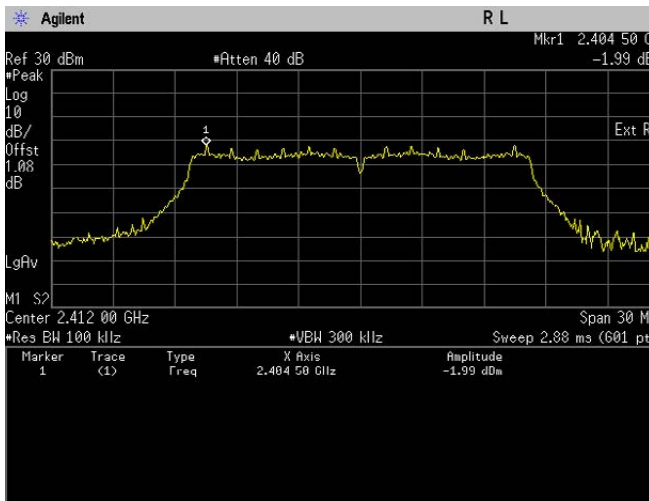
Conducted Emissions(Average). 802.11b, Frequency 2462 MHz Emission Level, 15 GHz -> 20 GHz



Conducted Emissions(Average). 802.11b, Frequency 2462 MHz Emission Level, 20 GHz -> 25 GHz

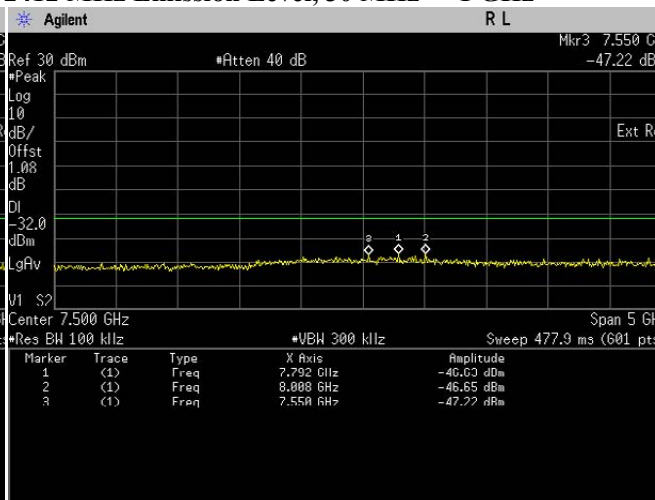
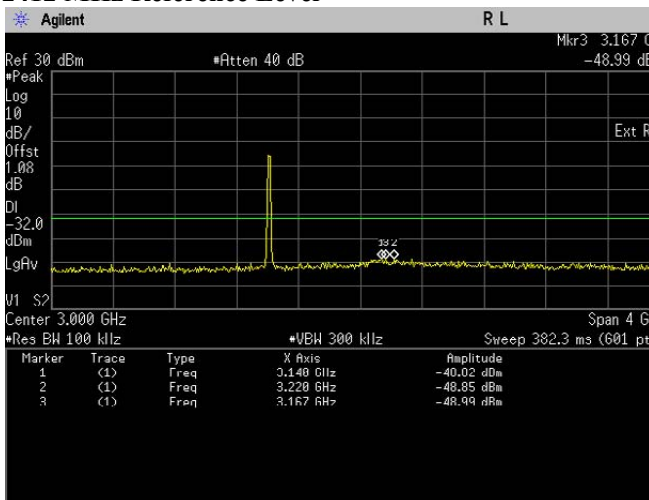
802.11g

Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Spurs (MHz)	Level (dBm)	Status
802.11g	OFDM	BPSK	6	2412	24892.00	-41.19	Pass
					24833.00	-41.43	Pass
					24958.00	-41.51	Pass
802.11g	OFDM	BPSK	6	2437	24600.00	-41.25	Pass
					24942.00	-41.37	Pass
					24558.00	-41.68	Pass
802.11g	OFDM	BPSK	6	2462	24242.00	-40.19	Pass
					24650.00	-40.74	Pass
					24308.00	-41.04	Pass



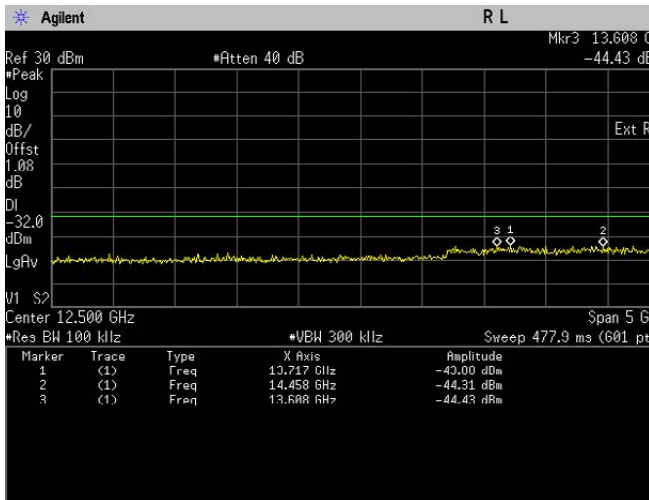
Conducted Emissions(Average). 802.11g, Frequency 2412 MHz Reference Level

Conducted Emissions(Average). 802.11g, Frequency 2412 MHz Emission Level, 30 MHz -> 1 GHz

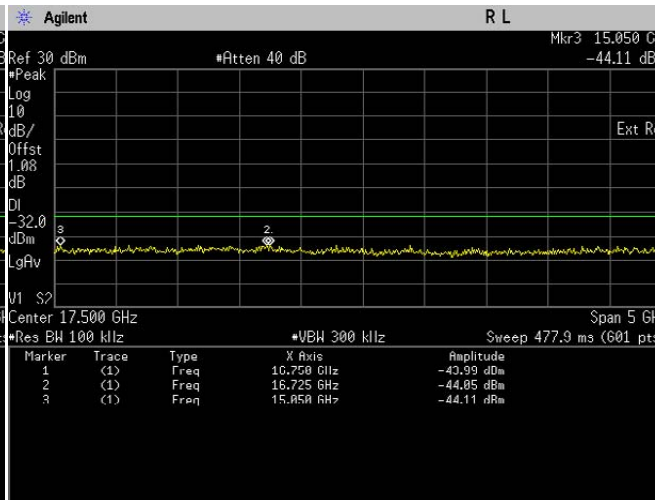


Conducted Emissions(Average). 802.11g, Frequency 2412 MHz Emission Level, 1 GHz -> 5 GHz

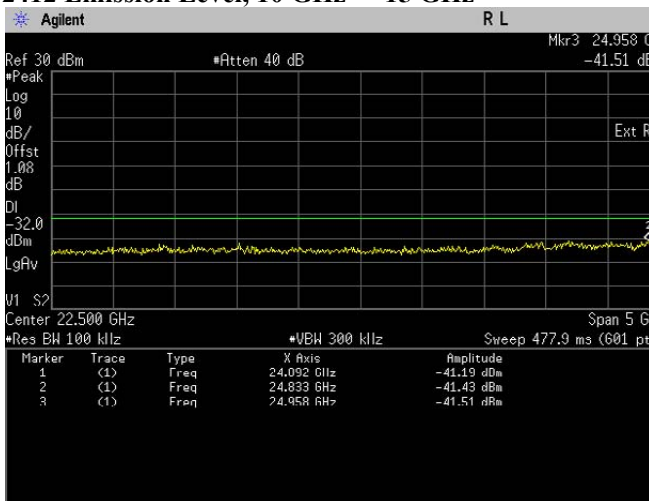
Conducted Emissions(Average). 802.11g, Frequency 2412 MHz Emission Level, 5 GHz -> 10 GHz



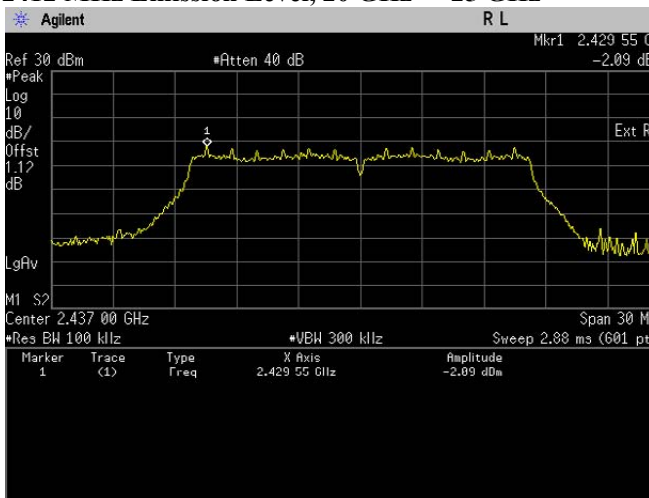
Conducted Emissions(Average). 802.11g, Frequency 2412 Emission Level, 10 GHz -> 15 GHz



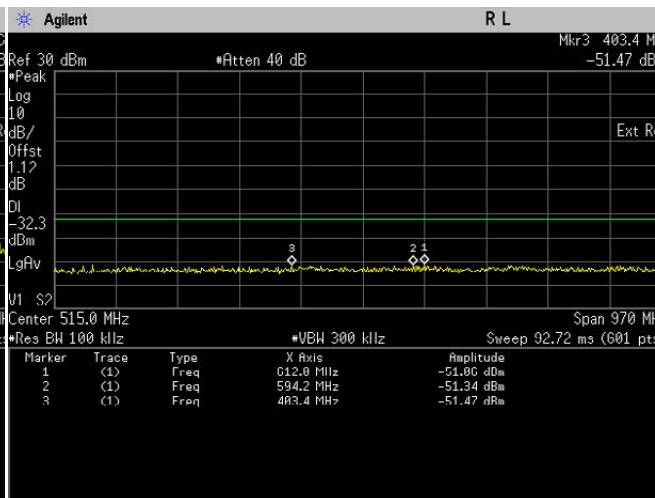
Conducted Emissions(Average). 802.11g, Frequency 2412 MHz Emission Level, 15 GHz -> 20 GHz



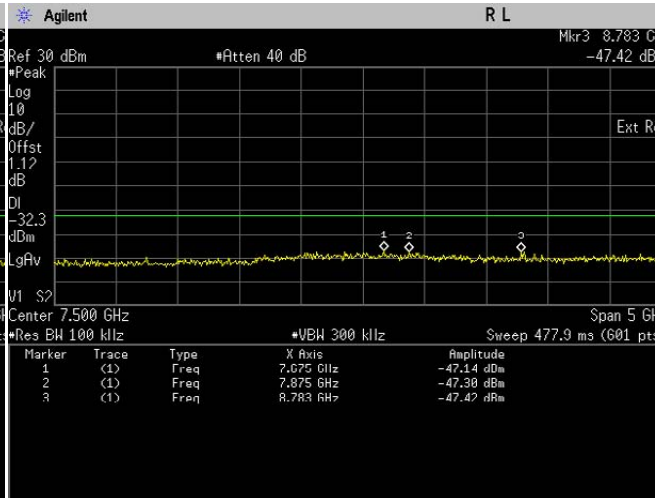
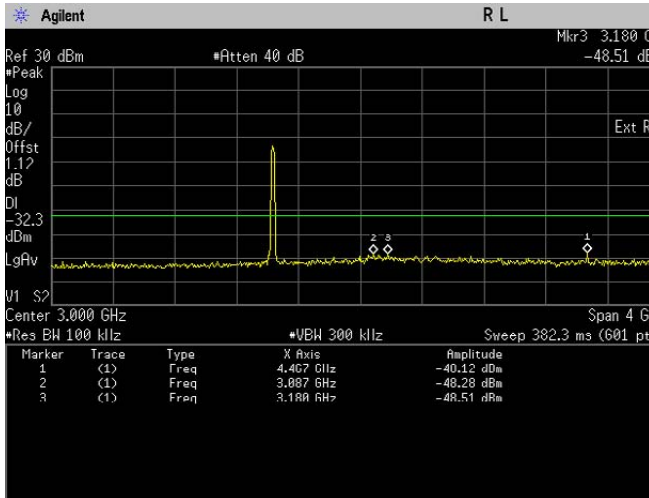
Conducted Emissions(Average). 802.11g, Frequency 2412 MHz Emission Level, 20 GHz -> 25 GHz



Conducted Emissions(Average). 802.11g, Frequency 2437 MHz Reference Level

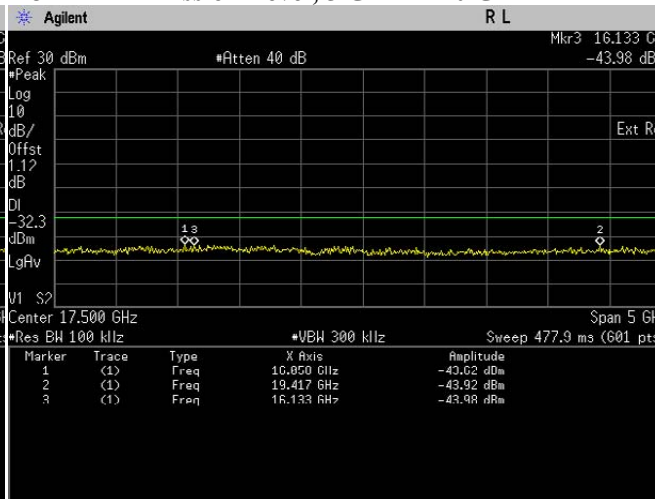
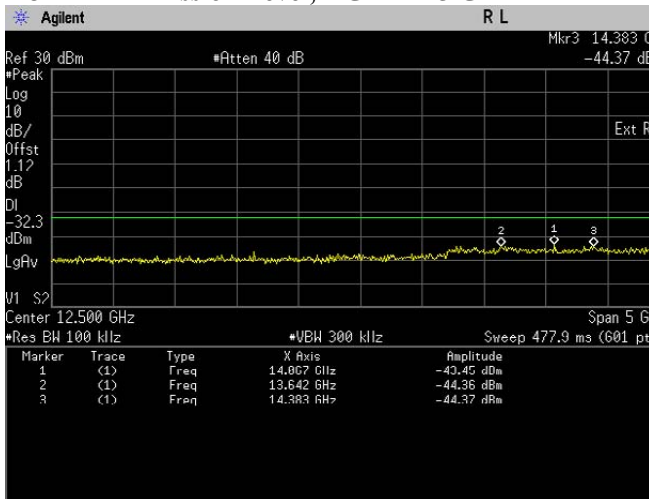


Conducted Emissions(Average). 802.11g, Frequency 2437 MHz Emission Level, 30 MHz -> 1 GHz



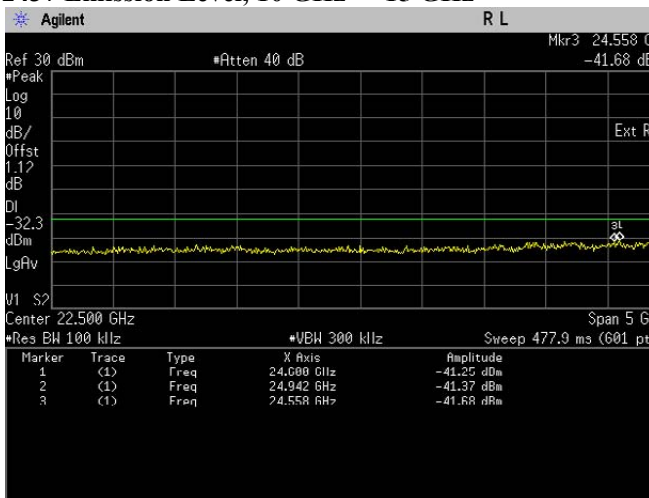
Conducted Emissions(Average). 802.11g, Frequency 2437 MHz Emission Level, 1 GHz -> 5 GHz

Conducted Emissions(Average). 802.11g, Frequency 2437 MHz Emission Level, 5 GHz -> 10 GHz

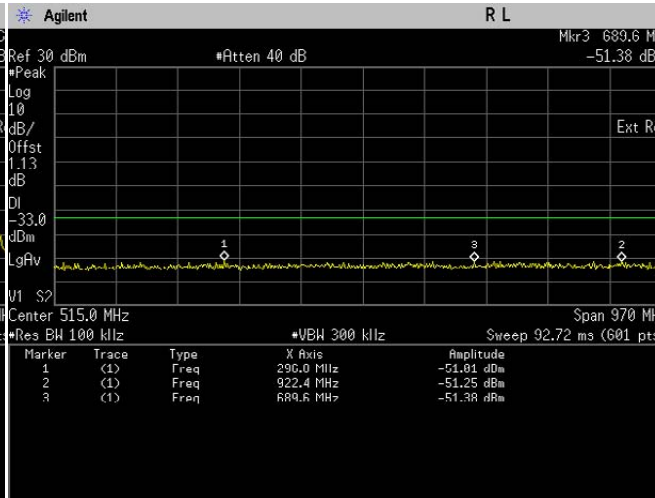
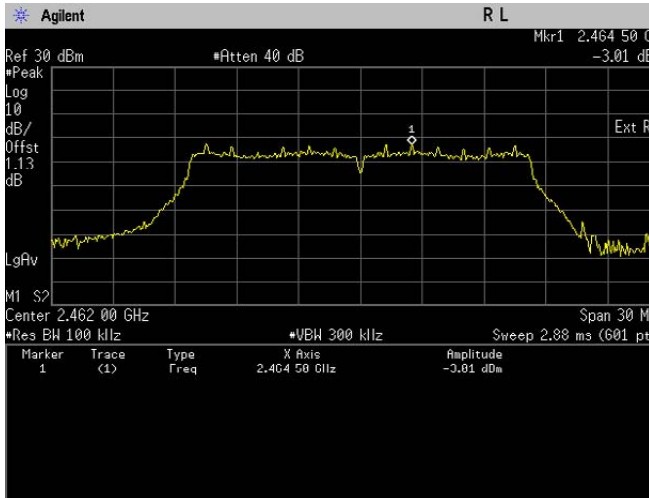


Conducted Emissions(Average). 802.11g, Frequency 2437 MHz Emission Level, 10 GHz -> 15 GHz

Conducted Emissions(Average). 802.11g, Frequency 2437 MHz Emission Level, 15 GHz -> 20 GHz

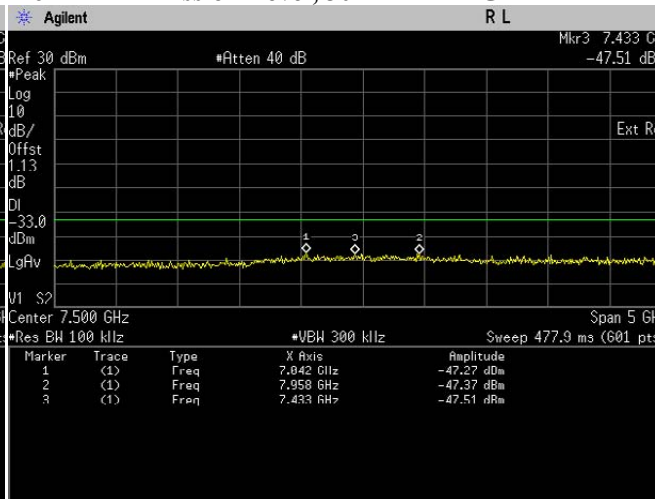
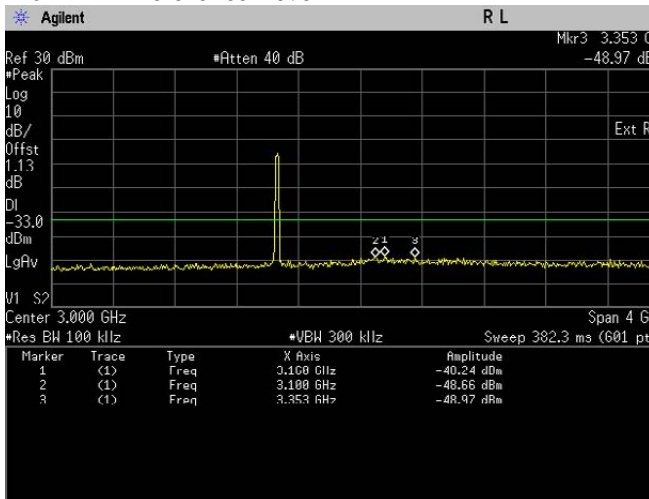


Conducted Emissions(Average). 802.11g, Frequency 2437 MHz Emission Level, 20 GHz -> 25 GHz



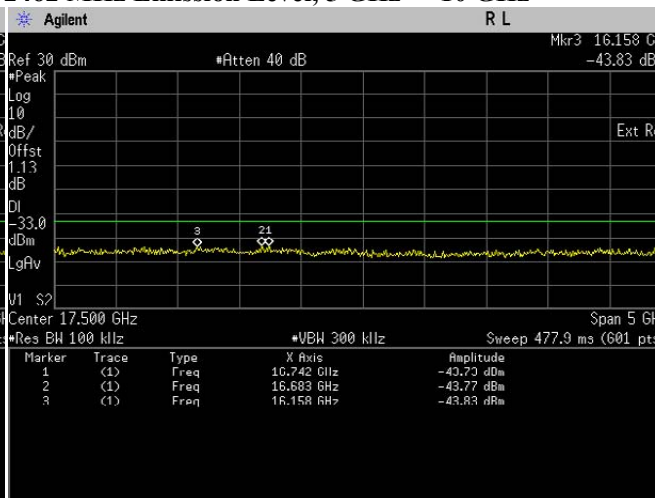
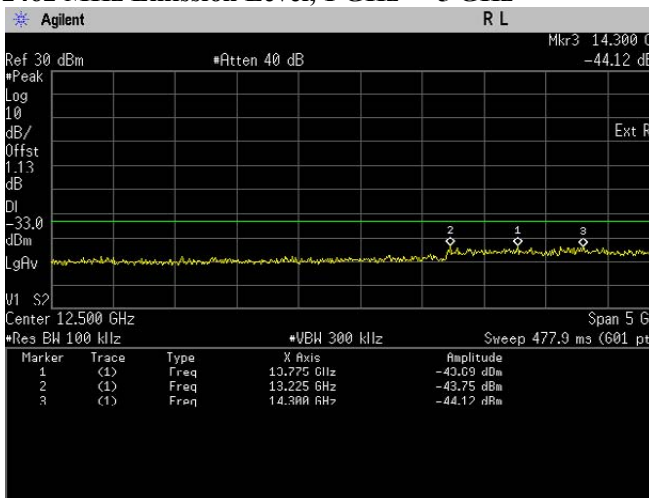
Conducted Emissions(Average). 802.11g, Frequency 2462 MHz Reference Level

Conducted Emissions(Average). 802.11g, Frequency 2462 MHz Emission Level, 30 MHz -> 1 GHz



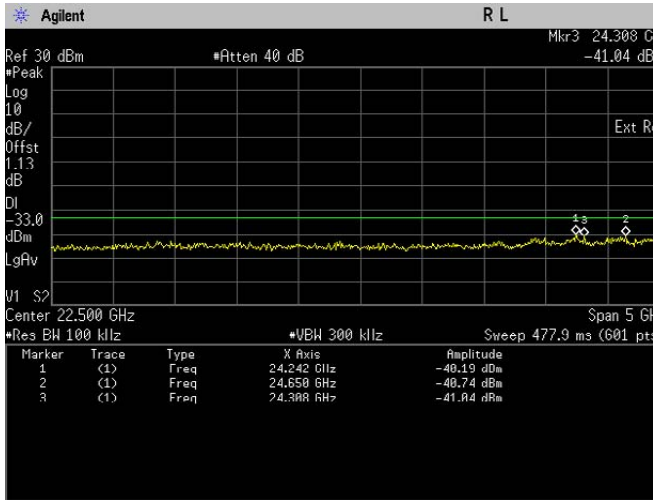
Conducted Emissions(Average). 802.11g, Frequency 2462 MHz Emission Level, 1 GHz -> 5 GHz

Conducted Emissions(Average). 802.11g, Frequency 2462 MHz Emission Level, 5 GHz -> 10 GHz



Conducted Emissions(Average). 802.11g, Frequency 2462 MHz Emission Level, 10 GHz -> 15 GHz

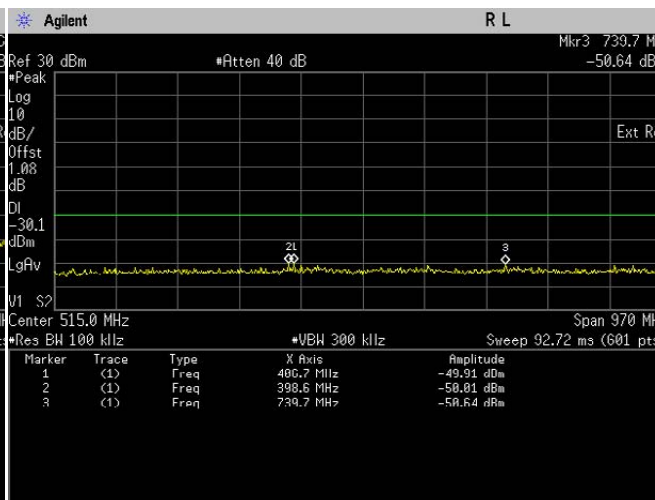
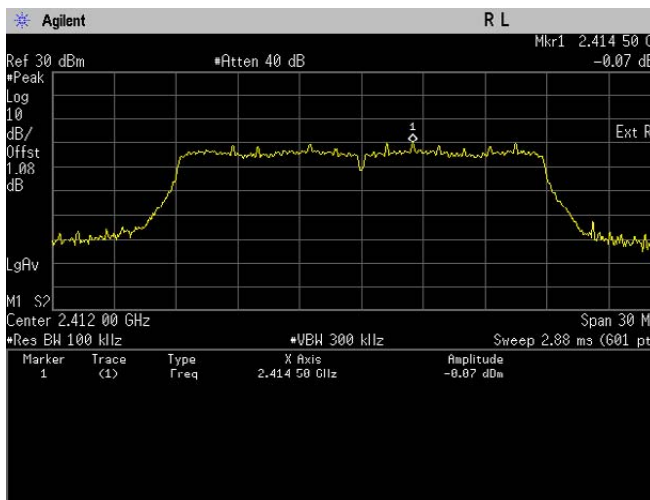
Conducted Emissions(Average). 802.11g, Frequency 2462 MHz Emission Level, 15 GHz -> 20 GHz



Conducted Emissions(Average). 802.11g, Frequency
2462 MHz Emission Level, 20 GHz -> 25 GHz

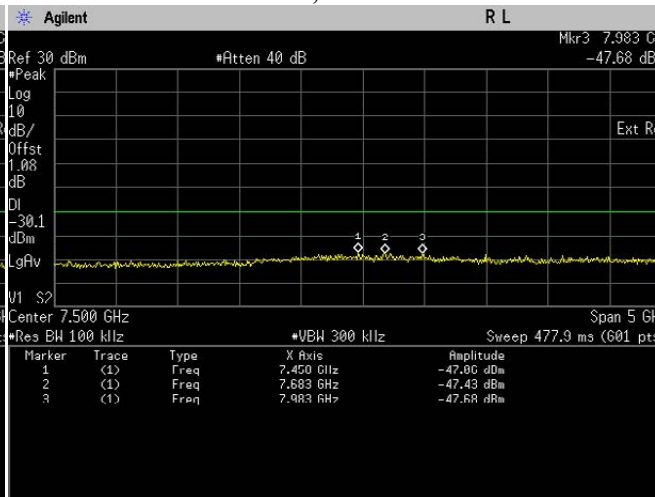
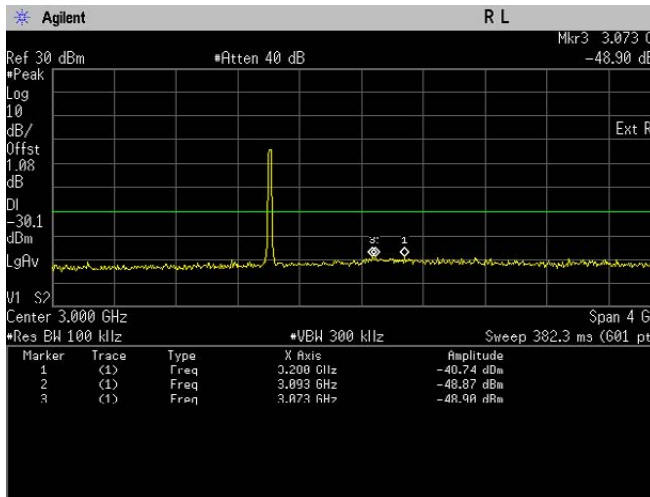
802.11n (HT20)

Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Spurs (MHz)	Level (dBm)	Status
802.11n	OFDM	DBPSK	6.5	2412	24908.00	-40.78	Pass
					24792.00	-41.08	Pass
					24925.00	-41.23	Pass
802.11n	OFDM	DBPSK	6.5	2437	24217.00	-40.75	Pass
					24850.00	-41.15	Pass
					24583.00	-41.17	Pass
802.11n	OFDM	DBPSK	6.5	2462	24892.00	-39.88	Pass
					24208.00	-40.80	Pass
					24183.00	-40.95	Pass



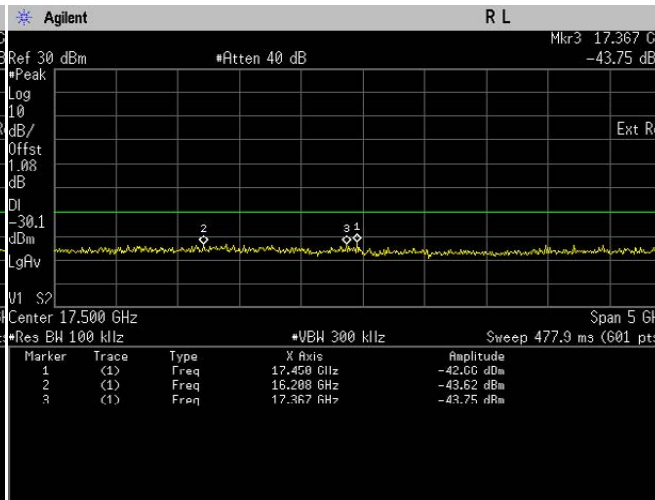
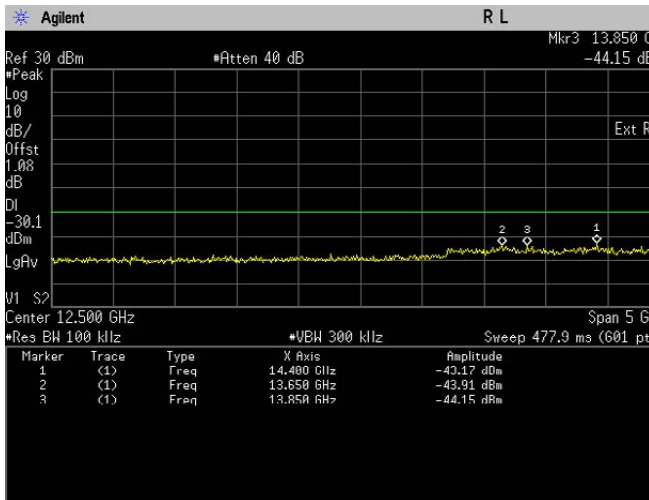
Conducted Emissions(Average). 802.11n, Frequency 2412 MHz Reference Level

Conducted Emissions(Average). 802.11n, Frequency 2412 MHz Emission Level, 30 MHz -> 1 GHz



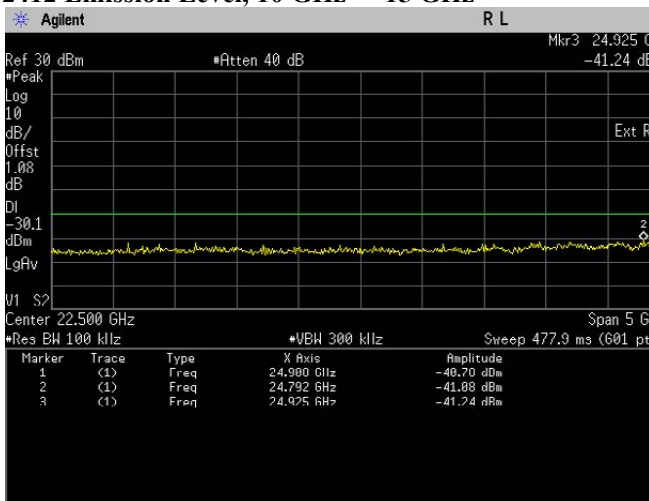
Conducted Emissions(Average). 802.11n, Frequency 2412 MHz Emission Level, 1 GHz -> 5 GHz

Conducted Emissions(Average). 802.11n, Frequency 2412 MHz Emission Level, 5 GHz -> 10 GHz

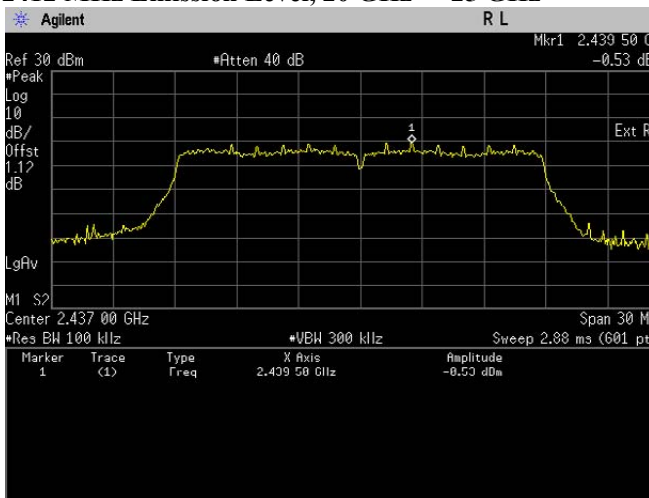


Conducted Emissions(Average). 802.11n, Frequency 2412 Emission Level, 10 GHz -> 15 GHz

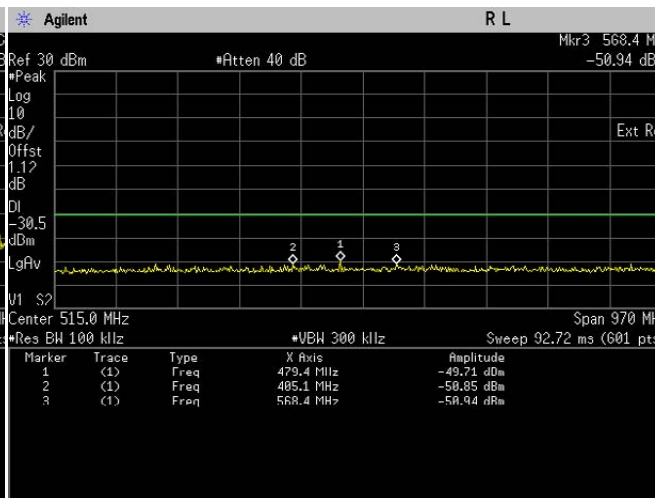
Conducted Emissions(Average). 802.11n, Frequency 2412 MHz Emission Level, 15 GHz -> 20 GHz



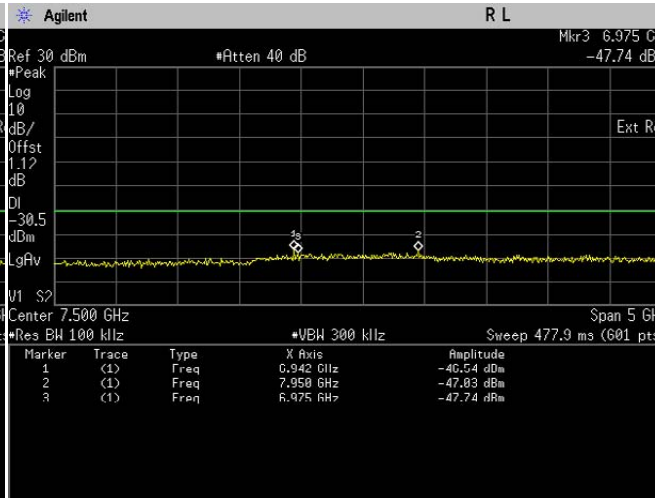
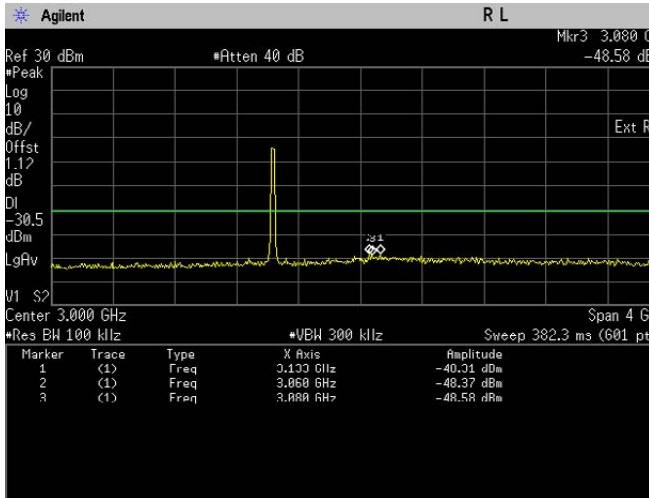
Conducted Emissions(Average). 802.11n, Frequency 2412 MHz Emission Level, 20 GHz -> 25 GHz



Conducted Emissions(Average). 802.11n, Frequency 2437 MHz Reference Level

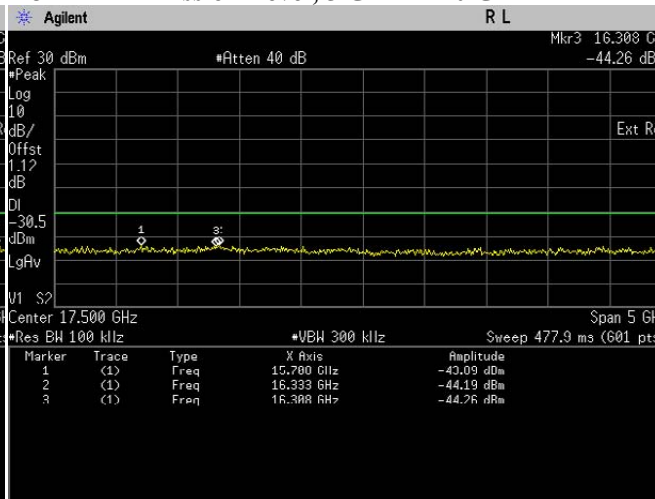
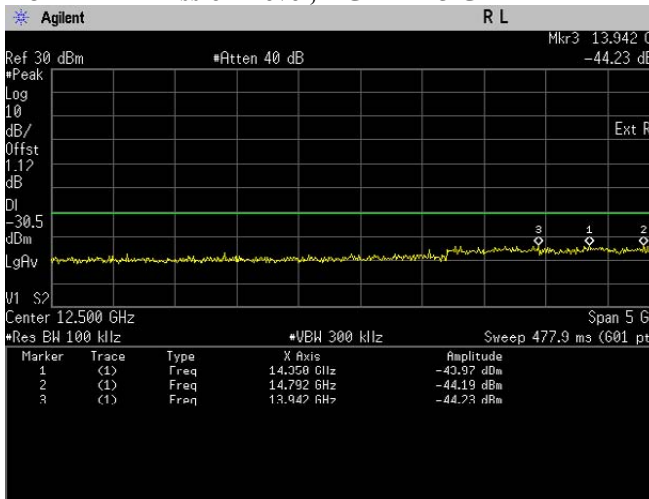


Conducted Emissions(Average). 802.11n, Frequency 2437 MHz Emission Level, 30 MHz -> 1 GHz



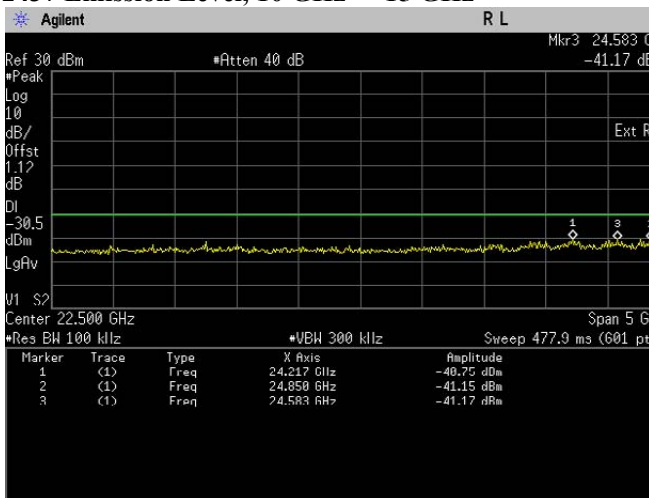
Conducted Emissions(Average). 802.11n, Frequency 2437 MHz Emission Level, 1 GHz -> 5 GHz

Conducted Emissions(Average). 802.11n, Frequency 2437 MHz Emission Level, 5 GHz -> 10 GHz

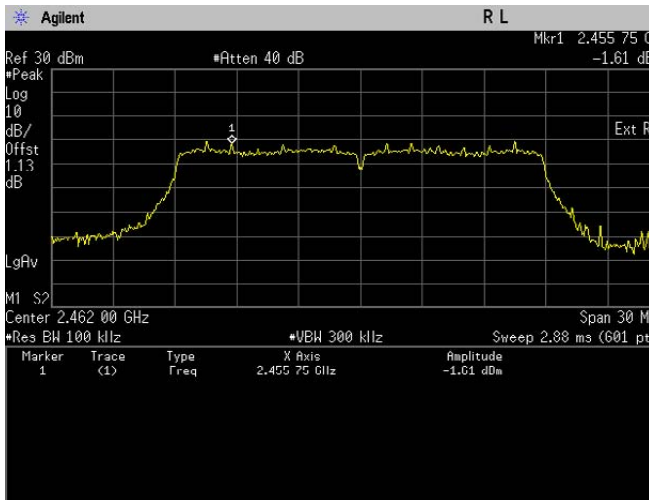


Conducted Emissions(Average). 802.11n, Frequency 2437 MHz Emission Level, 10 GHz -> 15 GHz

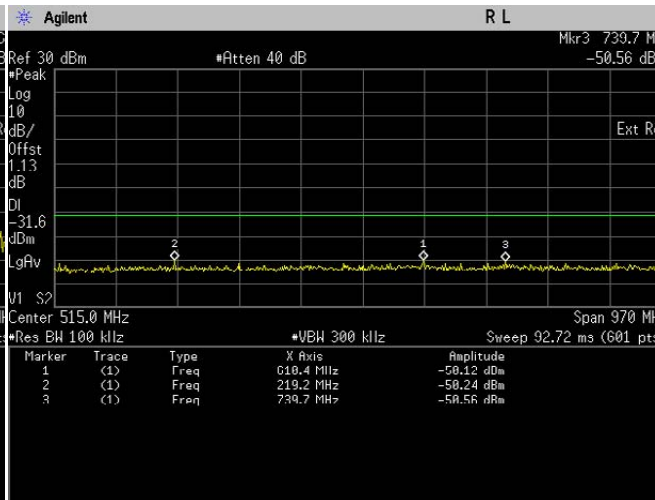
Conducted Emissions(Average). 802.11n, Frequency 2437 MHz Emission Level, 15 GHz -> 20 GHz



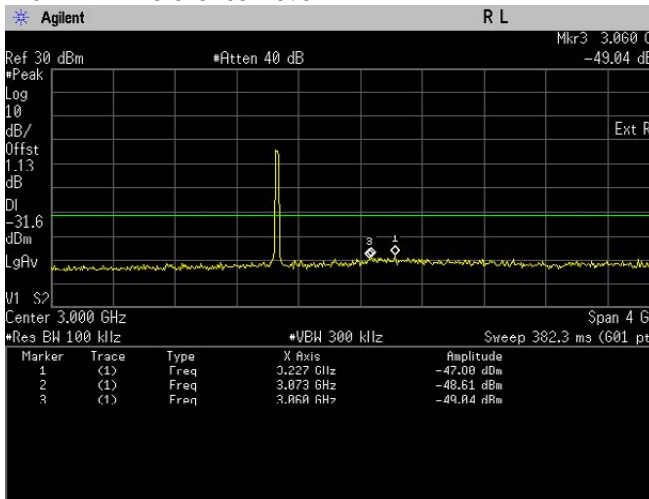
Conducted Emissions(Average). 802.11n, Frequency 2437 MHz Emission Level, 20 GHz -> 25 GHz



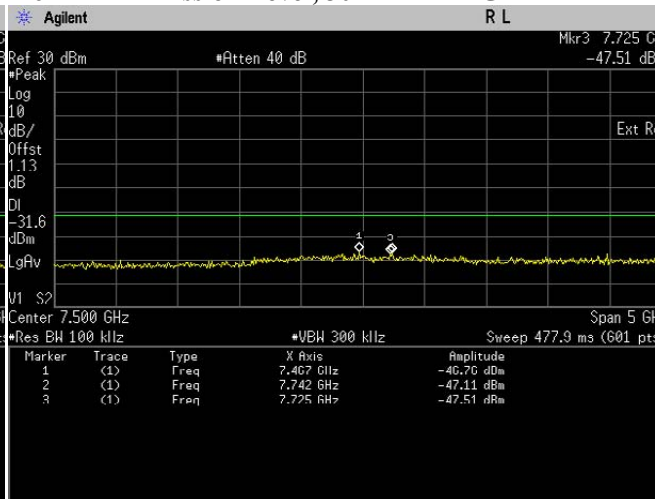
Conducted Emissions(Average). 802.11n, Frequency 2462 MHz Reference Level



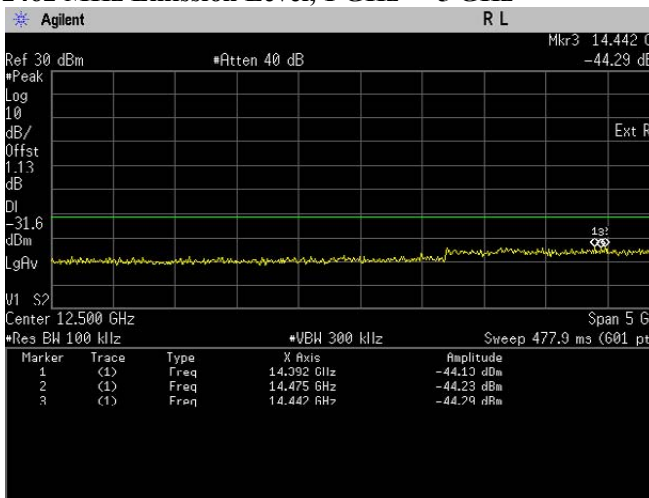
Conducted Emissions(Average). 802.11n, Frequency 2462 MHz Emission Level, 30 MHz -> 1 GHz



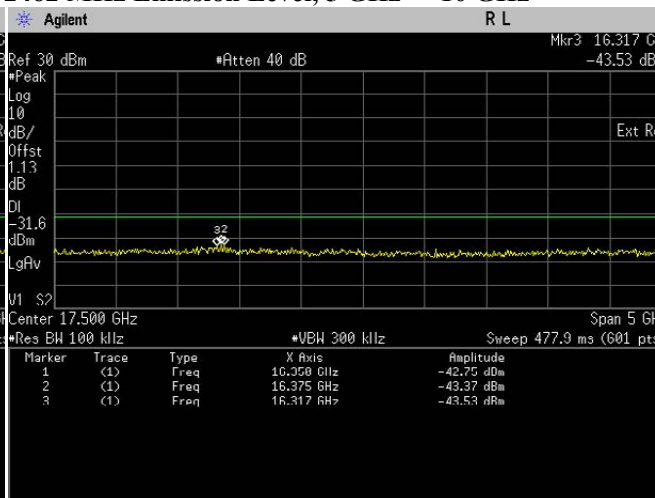
Conducted Emissions(Average). 802.11n, Frequency 2462 MHz Emission Level, 1 GHz -> 5 GHz



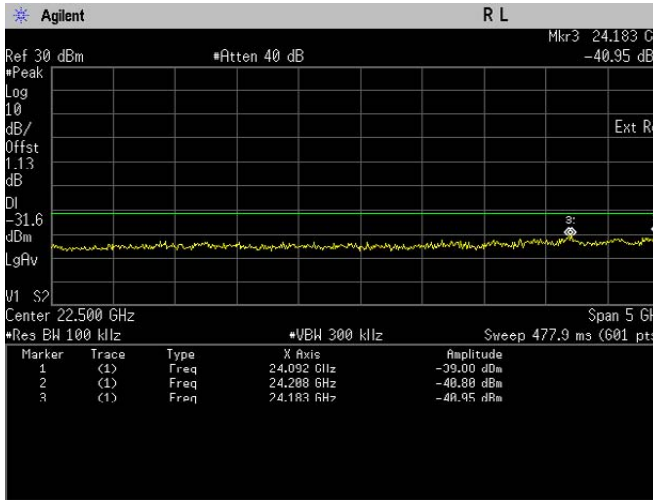
Conducted Emissions(Average). 802.11n, Frequency 2462 MHz Emission Level, 5 GHz -> 10 GHz



Conducted Emissions(Average). 802.11n, Frequency 2462 Emission Level, 10 GHz -> 15 GHz



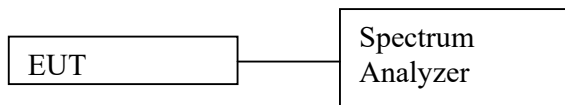
Conducted Emissions(Average). 802.11n, Frequency 2462 MHz Emission Level, 15 GHz -> 20 GHz



Conducted Emissions(Average). 802.11n, Frequency
2462 MHz Emission Level, 20 GHz -> 25 GHz

6.6. Band edge Conducted Spurious Emission

6.6.1. Test Setup



- a) Check and ensure the spectrum analyzer well calibrate.
- b) Turn on the DUT and set DUT to transmit maximum power.
- c) Connect DUT’s antenna terminal to spectrum analyzer with a low loss cable.
- d) Setting of Spectrum analyzer :
 - a. RBW = 100 kHz
 - b. VBW = 300 kHz
 - c. Detector mode = Peak
 - d. Trace = Max Hold
 - e. Sweep = auto
- e) Use the peak marker function to measure highest emission.
- f) Measure every antenna port by repeat the step above for MIMO measurement.

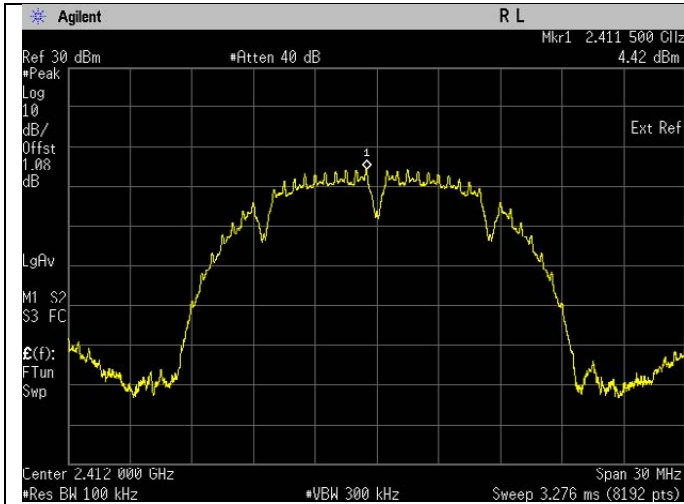
6.6.2. Test Limits:

Normal Condition (25 ° C)
Shall be at least 30 dB below peak (max) power.

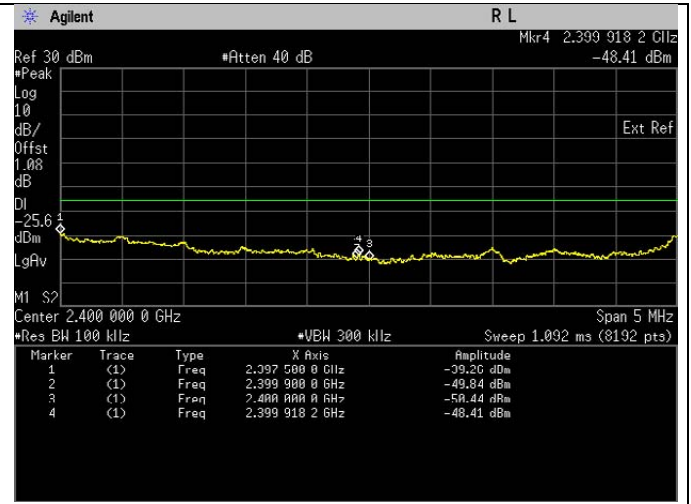
6.6.3. Test Result

802.11b

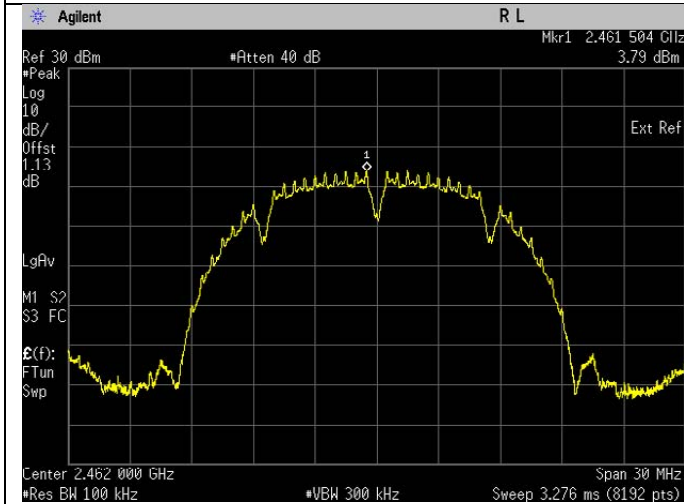
Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Frequencies (MHz)	Power (dBm)	Status
802.11b	DSSS	DBPSK	1	2412	2399.92	-48.41	Pass
802.11b	DSSS	DBPSK	1	2462	2483.50	-48.82	Pass



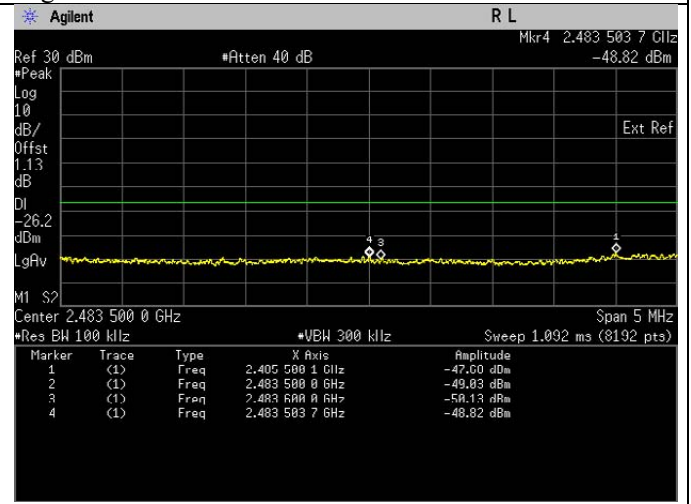
Band Edge(Average). 802.11b Frequency 2412 MHz Reference Level



Band Edge(Average). 802.11b Frequency 2412 MHz Band Edge



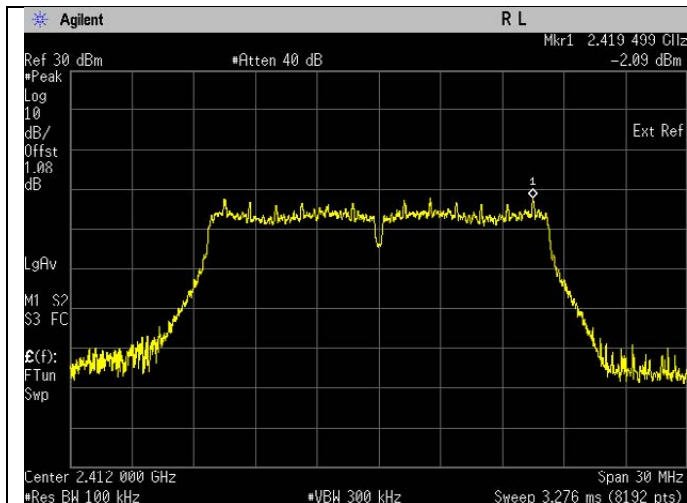
Band Edge(Average). 802.11b Frequency 2462 MHz Reference Level



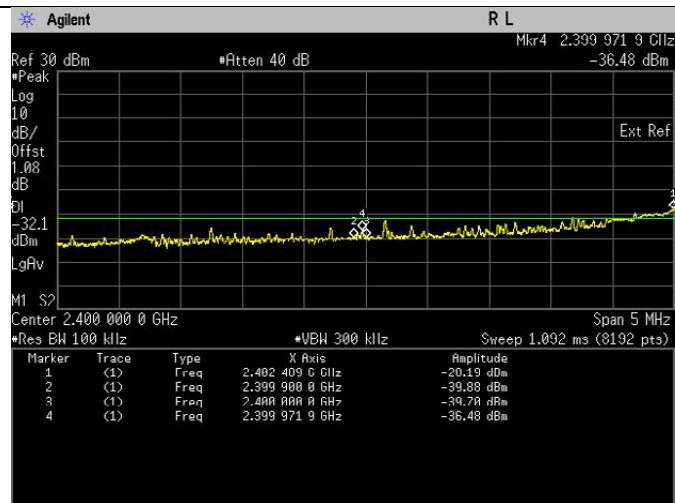
Band Edge(Average). 802.11b Frequency 2462 MHz Band Edge

802.11g

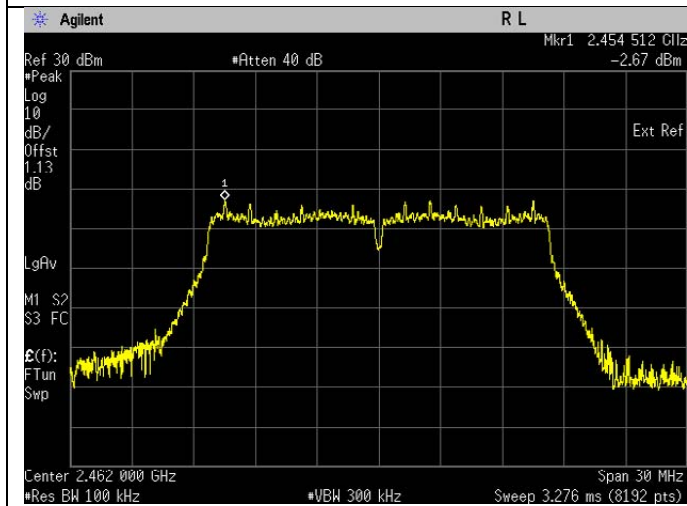
Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Frequencies (MHz)	Power (dBm)	Status
802.11g	OFDM	BPSK	6	2412	2399.97	-36.48	Pass
802.11g	OFDM	BPSK	6	2462	2483.52	-47.56	Pass



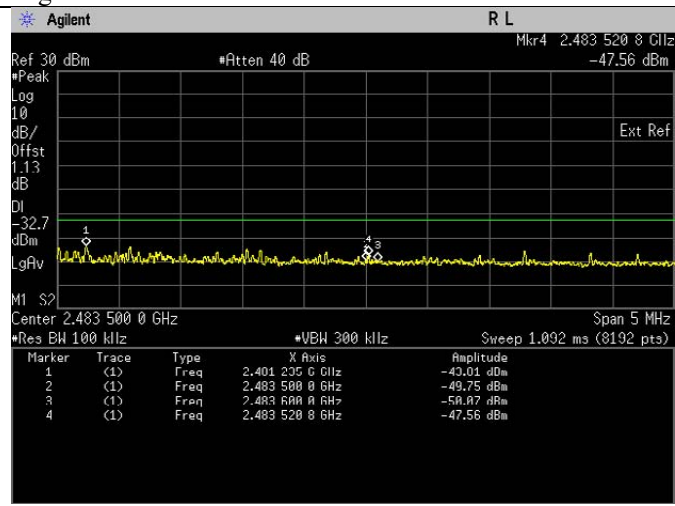
Band Edge(Average). 802.11g Frequency 2412 MHz Reference Level



Band Edge(Average). 802.11g Frequency 2412 MHz Band Edge



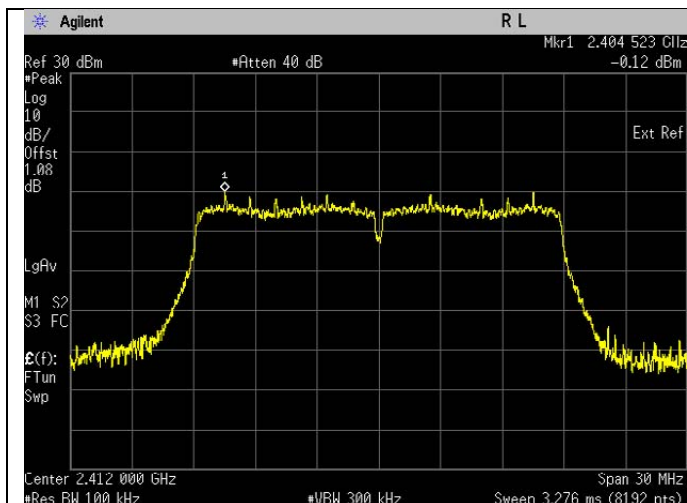
Band Edge(Average). 802.11g Frequency 2462 MHz Reference Level



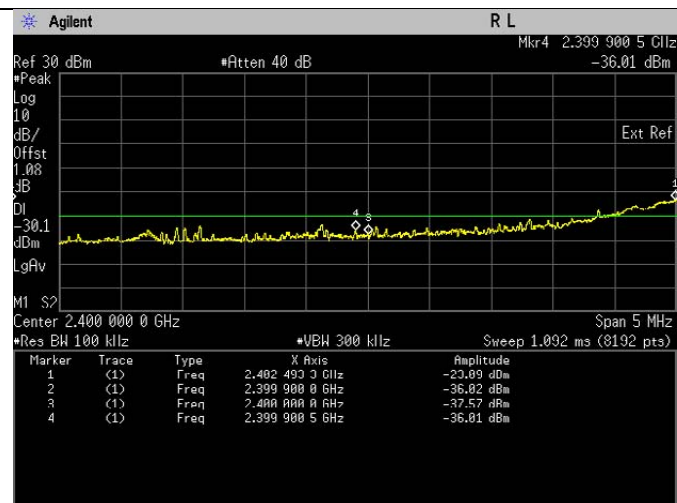
Band Edge(Average). 802.11g Frequency 2462 MHz Band Edge

802.11n (HT20)

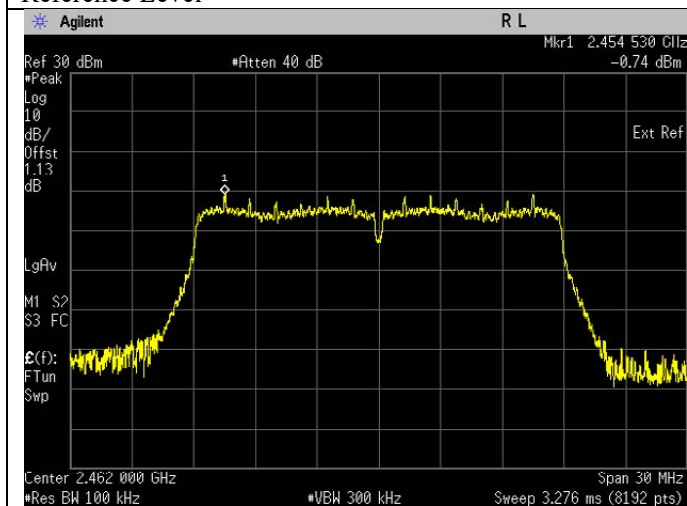
Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Frequencies (MHz)	Power (dBm)	Status
802.11n	OFDM	DBPSK	6.5	2412	2399.90	-36.02	Pass
802.11n	OFDM	DBPSK	6.5	2462	2483.50	-47.66	Pass



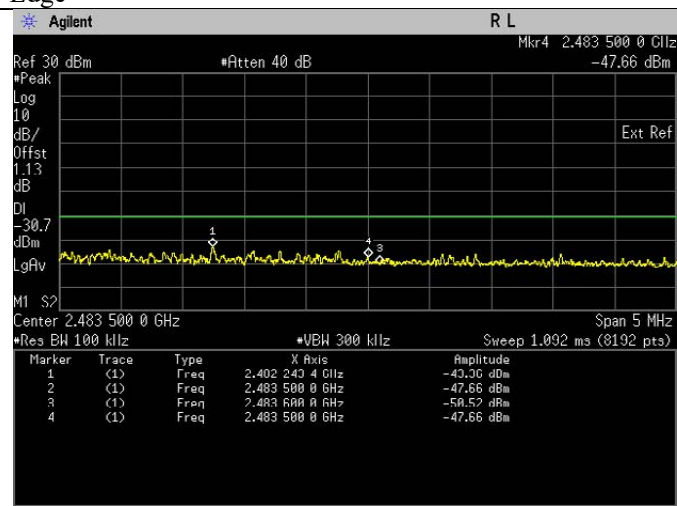
Band Edge(Average). 802.11n Frequency 2412 MHz Reference Level



Band Edge(Average). 802.11n Frequency 2412 MHz Band Edge



Band Edge(Average). 802.11n Frequency 2462 MHz Reference Level



Band Edge(Average). 802.11n Frequency 2462 MHz Band Edge