MOTOROLA SOLUTIONS

CERTIFICATE 2518.08

SAMM 825

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.

FCC / ISED TEST REPORT

Report Revision : Rev.A

Date/s Tested	:	28-July-2024 - 23-September-2024
Report Issue Date	:	26-September-2024
Manufacturer/Location	:	Motorola Solutions Malaysia Sdn Bhd Plot 2A, Medan Bayan Lepas, Mukim 12 SWD, 11900, Bayan Lepas, Penang, Malaysia
Requestor	:	R Thayaparan Daneshkumar AL
Product Type	:	Portable
Product Marketing Name (PMN)	:	R5
Hardware Version Identification Number (HVIN)	:	AAH07RDH9SA1AN
Frequency Band	:	2.412-2.462 GHz
Max RF Output Power	:	802.11b - 100 mWatts 802.11g - 281.84 mWatts 802.11n - 281.84 mWatts
Applicant Name	:	Motorola Solutions Inc
Applicant Address	:	Plot 2A, Medan Bayan Lepas, Mukim 12 SWD, 11900 Bayan Lepas, Penang, Malaysia
FCC Registrations	:	461337
ISED Registrations	:	MY0001
Firmware Version Identification Number (FVIN)	:	D02.25.01.0010

The equipment was tested accordance to the requirement listed below:

(2.4GHz Wi-Fi) **FCC 47CFR Part 15C** **ISED RSS 247 Issue 3,** **August 2023**	**PASS**

Prepared By:

Siti Nurhidayati Binti Abdul Halim
Test Personnel

Approved Signatory:

Maheshvaran A/L Rajagopal
Responsible Engineer

Table of Contents

REVISION HISTORY

Revision History	Description	Date	Originator
Rev. A	Initial Report	**24-September-2024**	**Hidayati**

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	PIFA

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

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
BATT IMPRES LIION TIA4950 IP68 3200T	MOTOROLA	PMNN4890A
ANTENNA, STAMPED METAL,UHF SLIM WHIP ANTENNA (400-527MHZ)	MOTOROLA	PMAE4079A
CHARGER, SINGLE-UNIT, IMPRES, 1.25A, UNIV, NA/JP PWR CORD, APME/LACR	MOTOROLA	WPLN4253A

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

2.0. Summary

2.1. 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: 13.391 MHz (13M4G1D) 802.11g: 16.774 MHz (16M8D1D) 802.11n: 17.768 MHz (17M8D1D)	651EAP0008	Hidayati
15.247 (b)(3)	RSS-247 5.4(d)	Conducted RF Output Power (Peak)	Pass	Highest output power: 802.11b: 18.97 dBm (78.89 mW) 802.11g: 24.11 dBm (257.63 mW) 802.11n: 24.27 dBm (267.30 mW)	651EAP0008	Hidayati
15.247(e)	RSS-247 5.2(b)	Maximum Power Spectral Density	Pass	Meet the limit requirement.	651EAP0008	Hidayati
15.247(d)	RSS-247 5.5	Conducted Spurious Emissions	Pass	Worst case emission: -41.82 dBm	651EAP0008	Hidayati
15.247 (d)	RSS-247 5.5	Band edge Conducted Spurious Emission	Pass	Worst case emission: -29.90 dBm	651EAP0008	Hidayati
15.205, 15.209, 15.247 (d)	RSS-247 5.5	Radiated Emission within Restricted Bands	Pass	Worst case emission: RBE: 47.3846 dBuV/m (margin: 6.6154 dB) RSE: 27.3947dBuV/m (margin: 12.6053dB)	651EAP0011	Nazrin & Rezza
15.207	RSS-Gen 8.8	AC Power Line Conducted Emission	Pass	Meet the requirement limit.	651EAP0011, 651EAP0018, 651EAP0020	Shidee
15.203	-	Antenna requirement	NA	Internal antenna is not accessible to the end-user	NA	NA

NA → Not Available

3.0. Measurement Uncertainty

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

4.0. Equipment List

Bluetooth ATE # 1 (SW Version: Ate Main_3.1.12_R1)

Description	Model	Serial Number	Calibration Date	Calibration Due Date
POWER SUPPLY	6652A	MY40001437	19-Feb-24	19-Feb-25
SPECTRUM ANALYZER	E4440A	MY46185415	5-Jan-24	5-Jan-25
CHAMBER	SH-641	92005573	1-Apr-24	1-Apr-25
PULSE SENSOR	MA2411B	1726287	22-Aug-23	22-Aug-24
PULSE POWER METER	ML2495A	1845014	16-Aug-23	16-Aug-24

Radiated Emission Station (SW Version: EMC FCC RE v1.6.5)

Description	Model	Serial Number	Calibration Date	Calibration Due Date
DRG HORN FREQ.	SAS-571	1143	08-Mar-23	08-Mar-25
DRG HORN FREQ.	SAS-571	720	18-Apr-23	18-Apr-25
DC POWER SUPPLY	6623A	3302A02585	30-Jul-24	30-Jul-25
SIGNAL GENERATOR	SMB 100A	182511	04-Sep-21	04-Dec-24
EMI TEST RECEIVER	ESW44	101750	08-Aug-24	07-Aug-25
BILOG ANTENNA	CBL6112B	2950	14-Dec-23	14-Dec-24
BILOG ANTENNA	CBL6112B	2964	25-Sep-23	25-Sep-24
DATA LOGGER THERMOHYGROMETER	SDL500	A.016800	26-Jun-24	26-Jun-25
BROAD-BAND HORN ANTENNA	BBHA9170	BBHA9170255	13-Mar-2024	13-Mar-2025
PREAMPLIFIER	PAM-0118P	574	19-Mar-24	19-Mar-25
LOOP ANTENNA	6502	00203479	06-Mac-24	06-Mac-25
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
PREAMPLIFIER 18-40GHz	Miteq Hi Gain Sucoflex	002	Not Required	Not Required
5m SEMI-ANECHOIC CHAMBER	S800-HX	J2308	Not Required	Not Required

AC Powerline Station (SW Version: EMC32 Ver.10.60.10)

Description	Model	Serial Number	Calibration Date	Calibration Due Date
DATA LOGGER	DSB	16344143	5-Jul-2024	5-Jul-2025
V-NETWORK 2-LINE	ENV216V	101039	13-Dec-23	13-Dec-24
EMI TEST RECEIVER	ESCI	100225	8-May-2024	8-May-2025
PROGRAMMABLE AC SOURCE	61604	616040003502	15-Dec-2023	15-Dec-2024

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)	
	Antenna	Primary	Secondary	Primary	Secondary	Primary	Secondary
2.4GHz	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	QPSK	5.5	SISO	23.5°C, 69.3%RH
Test Mode	802.11g	1 to 11	1,6,11	OFDM	BPSK	6	SISO	23.5°C, 69.3%RH
Test Mode	802.11n (HT20)	1 to 11	1,6,11	OFDM	BPSK	6.5	SISO CDD (MIMO)	23.5°C, 69.3%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	QPSK	5.5	SISO	23.5°C, 69.3%RH
Test Mode	802.11g	1 to 11	1,6,11	OFDM	BPSK	6	SISO	23.5°C, 69.3%RH
Test Mode	802.11n (HT20)	1 to 11	1,6,11	OFDM	BPSK	6.5	SISO CDD (MIMO)	23.5°C, 69.3%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	Date 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	QPSK	5.5	SISO	25°C, 54.8%RH
Test Mode	802.11g	1 to 11	1,6,11	OFDM	BPSK	6	SISO	25°C, 54.8%RH
Test Mode	802.11n (HT20)	1 to 11	1,6,11	OFDM	BPSK	6.5	SISO CDD (MIMO)	25°C, 54.8%RH
Test Mode	802.11n (HT40)	1 to 11	3,6,9	OFDM	BPSK	6.5	SISO CDD (MIMO)	NA

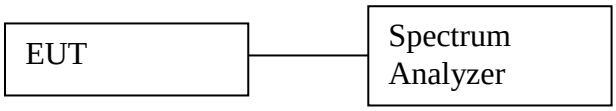
Duty Cycle of Test Signal

802.11b, 802.11g and 802.11n : Duty cycle of test signal is ≥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.

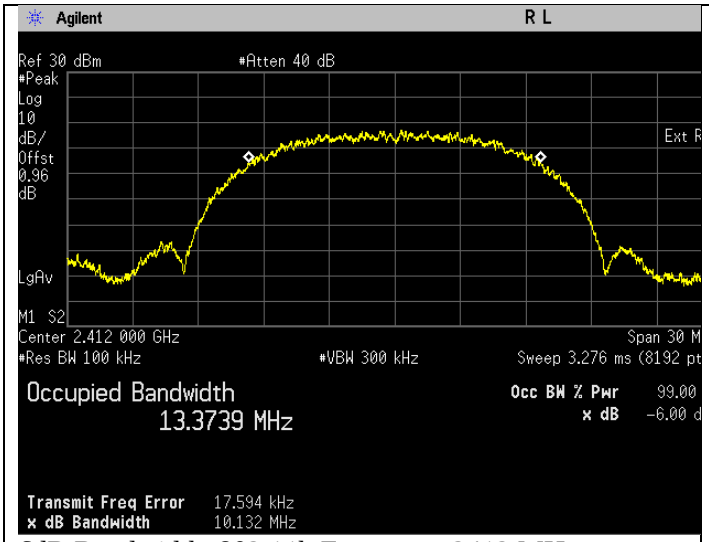
6.1.2. Test Limits:

Normal Condition (25 ° C)
≥500 kHz

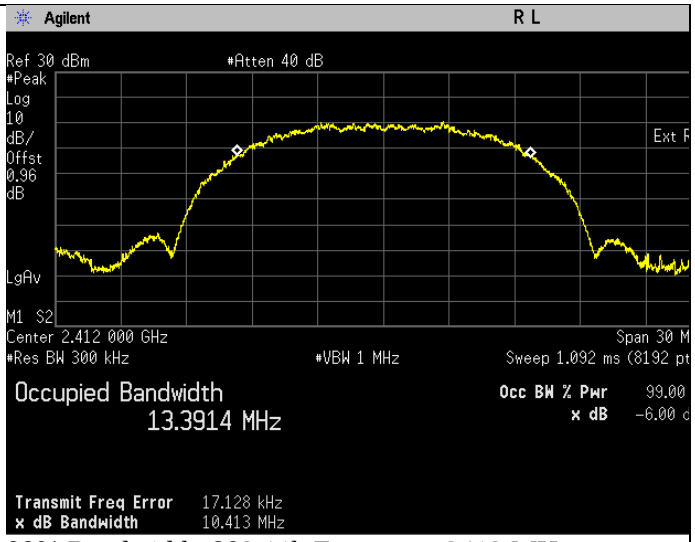
6.1.3. **Test Data:**

802.11 b

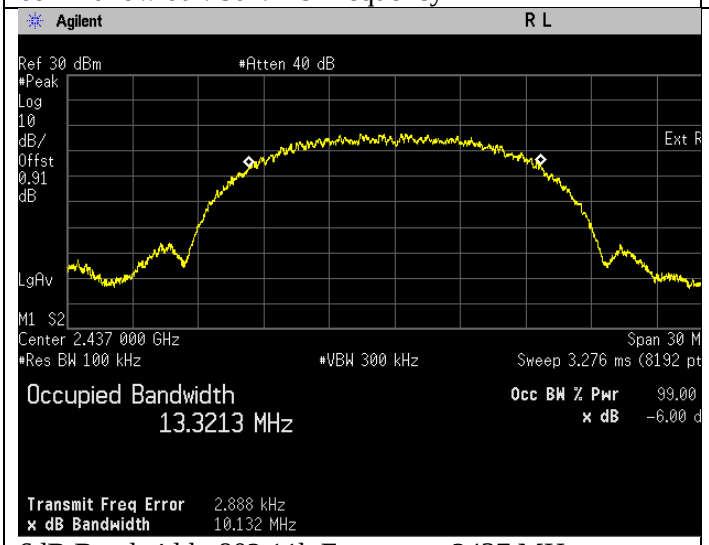
Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Status
802.11b	DSSS	QPSK	5.5	2412	10.132	13.391	Pass
802.11b	DSSS	QPSK	5.5	2437	10.132	13.358	Pass
802.11b	DSSS	QPSK	5.5	2462	10.145	13.385	Pass



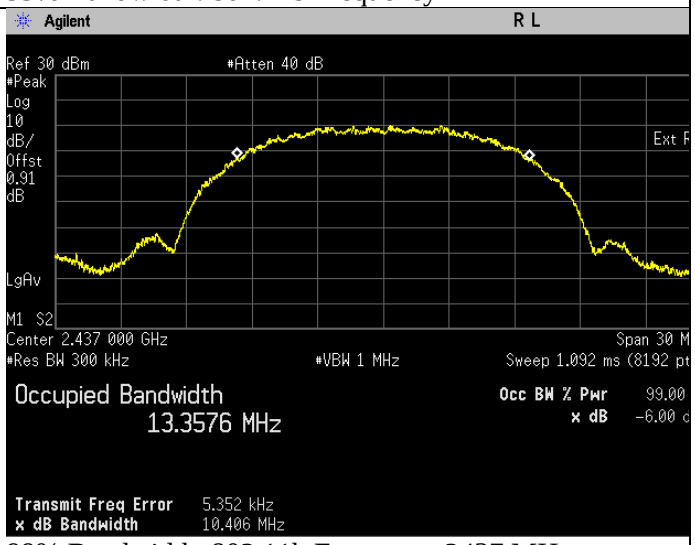
6dB Bandwidth. 802.11b Frequency 2412 MHz



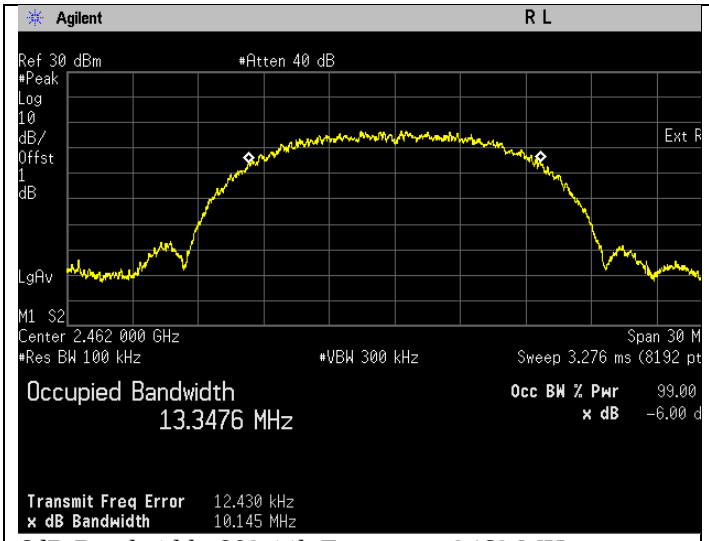
99% Bandwidth. 802.11b Frequency 2412 MHz



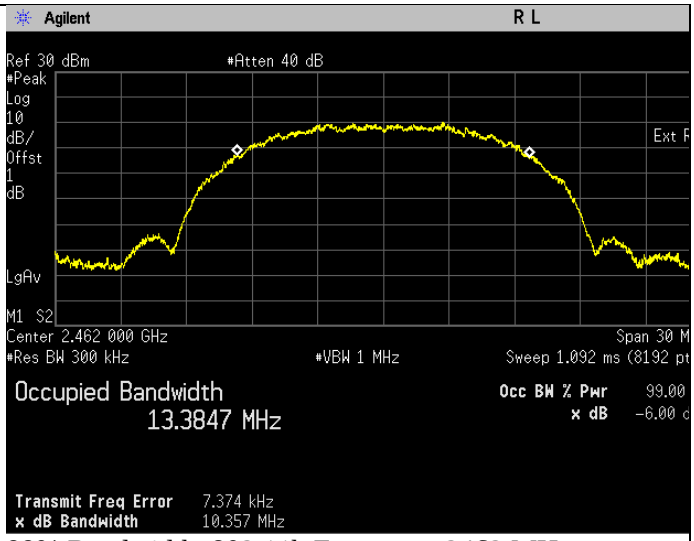
6dB Bandwidth. 802.11b Frequency 2437 MHz



99% Bandwidth. 802.11b Frequency 2437 MHz



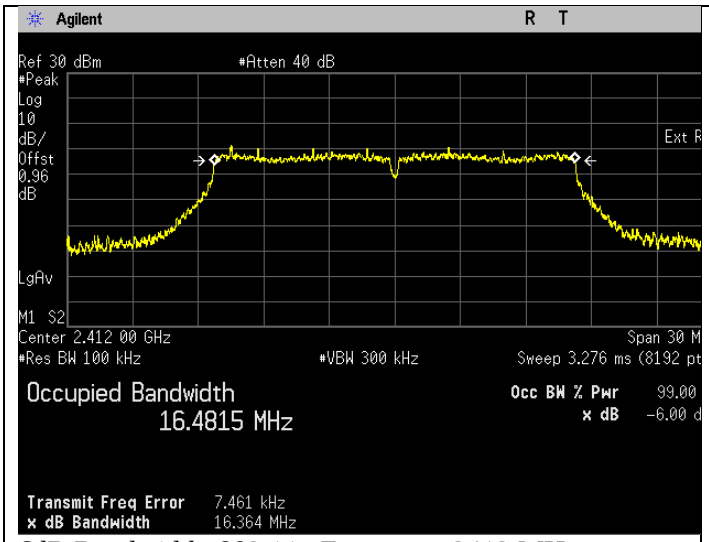
6dB Bandwidth. 802.11b Frequency 2462 MHz



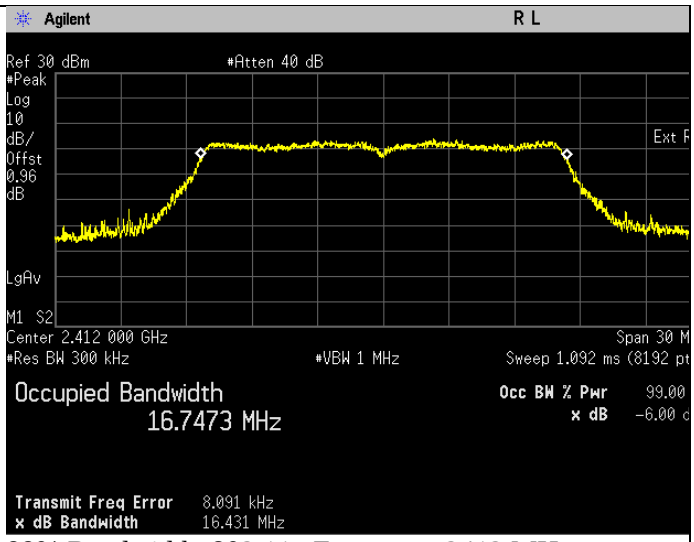
99% Bandwidth. 802.11b Frequency 2462 MHz

802.11 g

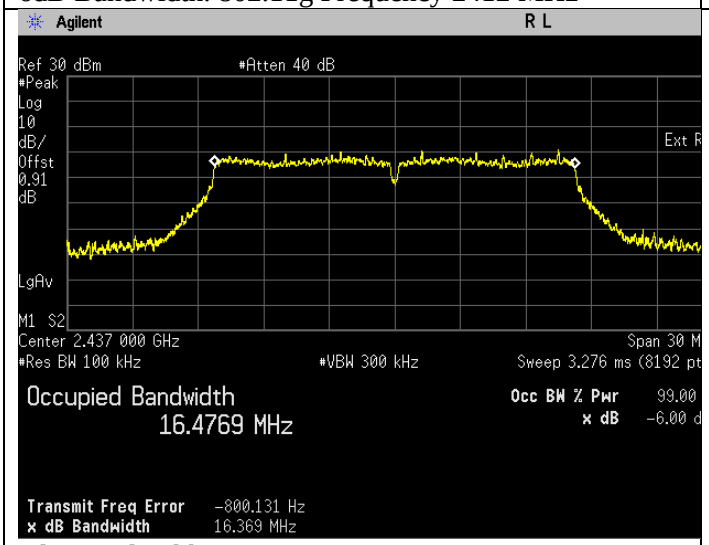
Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Status
802.11g	OFDM	BPSK	6	2412	16.364	16.747	Pass
802.11g	OFDM	BPSK	6	2437	16.369	16.739	Pass
802.11g	OFDM	BPSK	6	2462	16.371	16.774	Pass



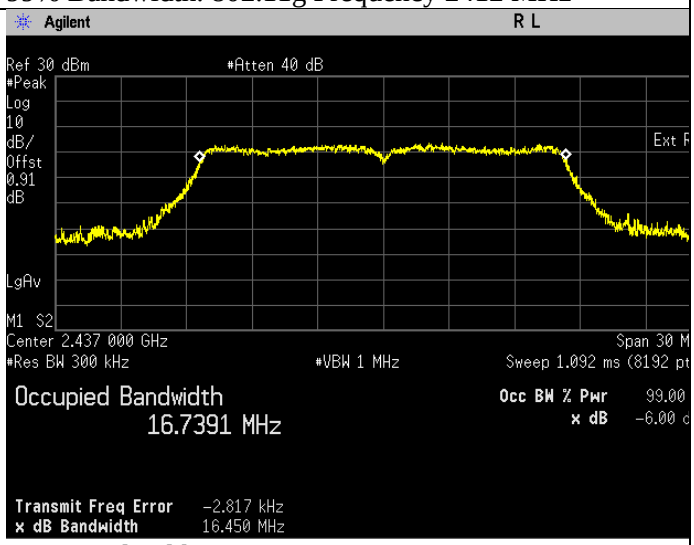
6dB Bandwidth. 802.11g Frequency 2412 MHz



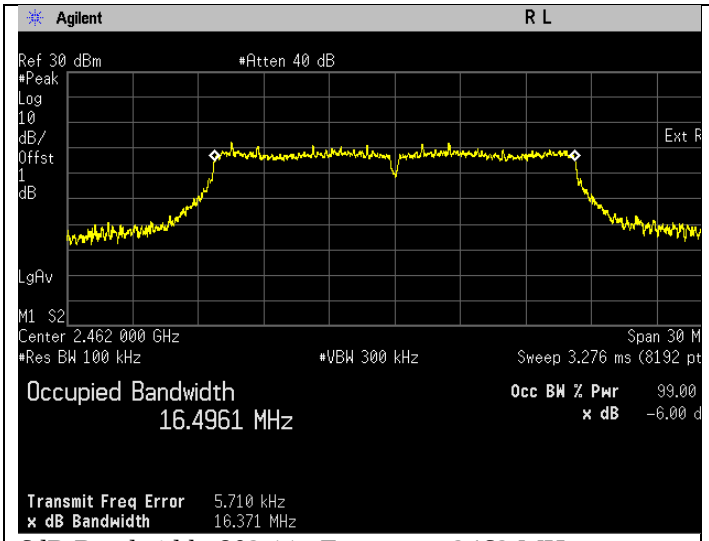
99% Bandwidth. 802.11g Frequency 2412 MHz



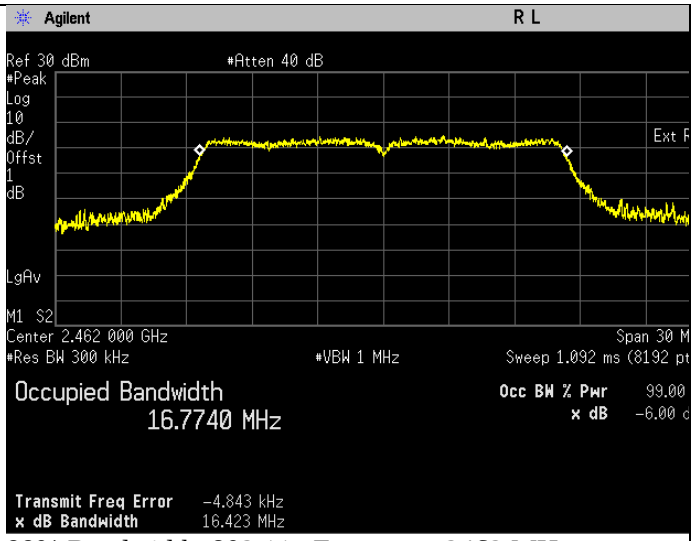
6dB Bandwidth. 802.11g Frequency 2437 MHz



99% Bandwidth. 802.11g Frequency 2437 MHz



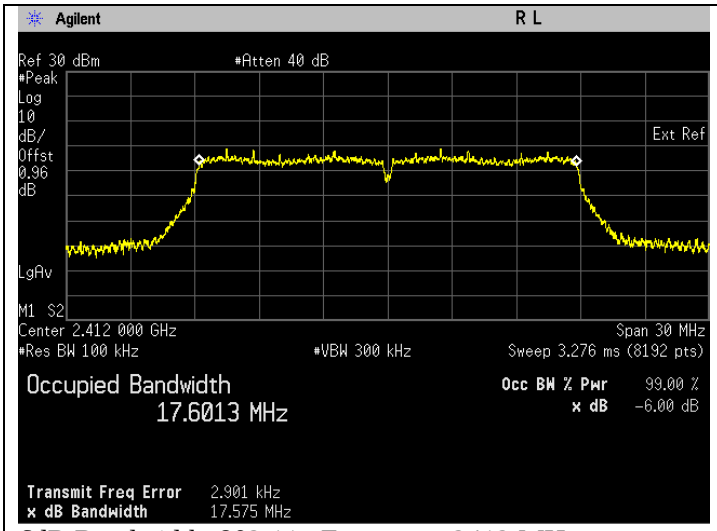
6dB Bandwidth. 802.11g Frequency 2462 MHz



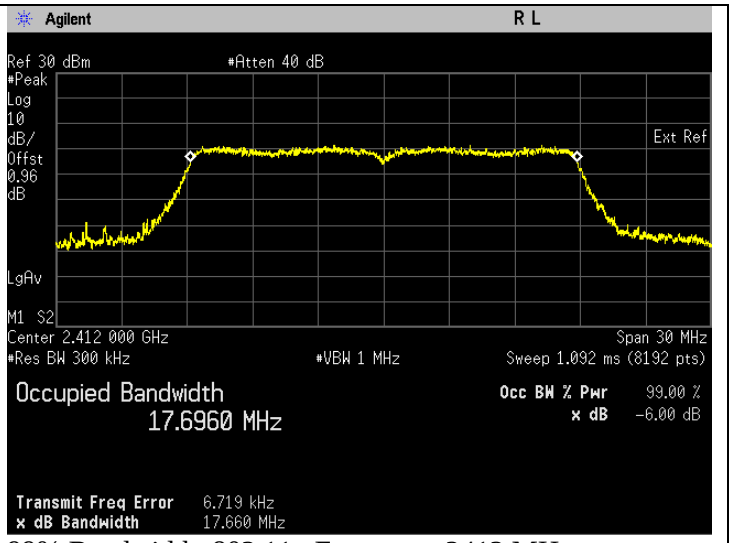
99% Bandwidth. 802.11g Frequency 2462 MHz

802.11n (HT20)

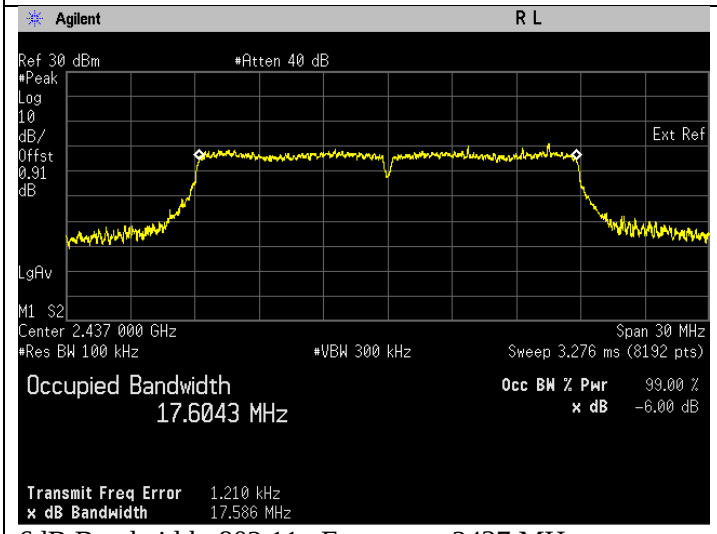
Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Status
802.11n	OFDM	BPSK	6.5	2412	17.575	17.696	Pass
802.11n	OFDM	BPSK	6.5	2437	17.586	17.727	Pass
802.11n	OFDM	BPSK	6.5	2462	17.580	17.768	Pass



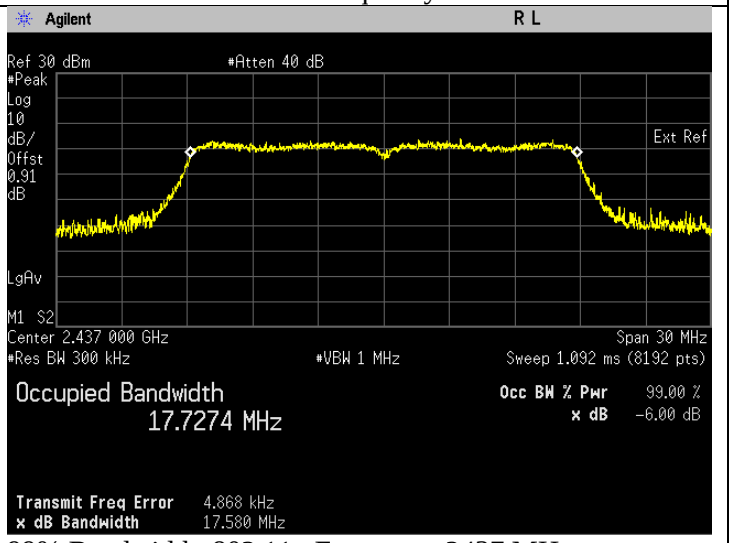
6dB Bandwidth. 802.11n Frequency 2412 MHz



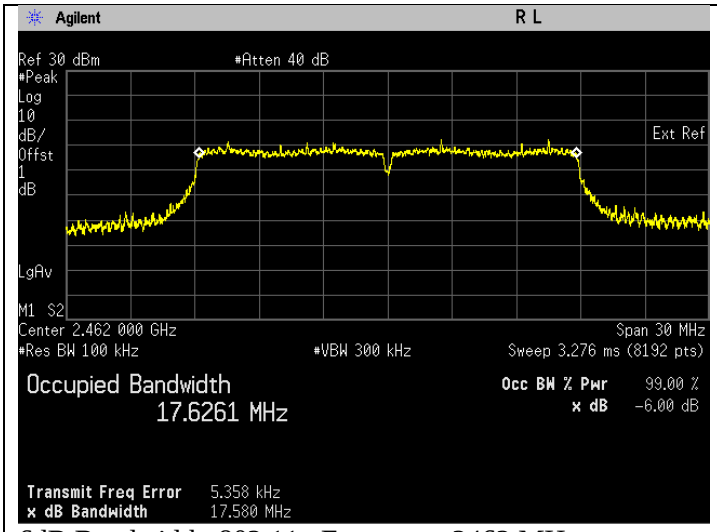
99% Bandwidth. 802.11n Frequency 2412 MHz



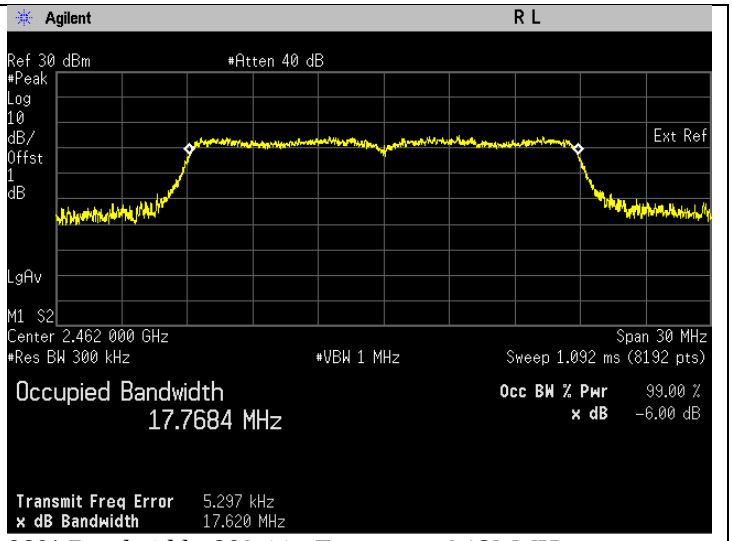
6dB Bandwidth. 802.11n Frequency 2437 MHz



99% Bandwidth. 802.11n Frequency 2437 MHz



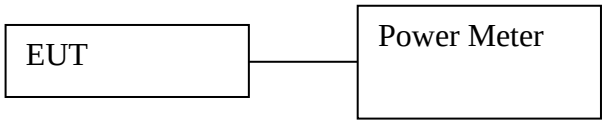
6dB Bandwidth. 802.11n Frequency 2462 MHz



99% Bandwidth. 802.11n Frequency 2462 MHz

6.2. Conducted RF Output Power

6.2.1. Test Setup



Peak

a) Set the following settings on the power meter:
   a. Preset -> reset
   b. Cal/Zero -> Zero & Cal
   c. Preset -> 802.11g
   d. Sensor -> Cal Factor -> Enter freq
   e. Channel -> Trigger -> Trigger Source -> Internal, Rising Edge
   f. Channel -> Trigger -> More -> Arming -> Automatic
   g. Channel -> Averaging -> Averaging
   h. Sensor -> offset -> fixed to couple for losses from ancillaries
   i. Record peak data
b) Key up DUT
c) Restart averaging and read data once the numbers stabilize.
d) Record power by reading peak data
e) Repeat the steps in (1) (omit first 3 steps if done previously) by setting DUT to transmit at mid frequency and high frequency.

6.2.2. Test Limits:

Normal Condition (25 ° C)
≤1 Watt(30 dBm)

6.2.3. **Test Data:**

Test was conducted with peak power.

802.11b

Test Conditions				Test Frequency	Results	
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Output Power (dBm)	Status
802.11b	DSSS	QPSK	5.5	2412	18.97	Pass
802.11b	DSSS	QPSK	5.5	2437	18.91	Pass
802.11b	DSSS	QPSK	5.5	2462	18.77	Pass

802.11g

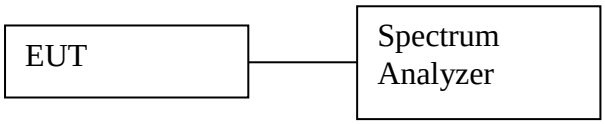
Test Conditions				Test Frequency	Results	
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Output Power (dBm)	Status
802.11g	OFDM	BPSK	6	2412	21.15	Pass
802.11g	OFDM	BPSK	6	2437	23.00	Pass
802.11g	OFDM	BPSK	6	2462	24.11	Pass

802.11n (HT20)

Test Conditions				Test Frequency	Results	
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Output Power (dBm)	Status
802.11n	OFDM	BPSK	6.5	2412	20.34	Pass
802.11n	OFDM	BPSK	6.5	2437	23.32	Pass
802.11n	OFDM	BPSK	6.5	2462	24.27	Pass

6.3.Duty Cycle of the test signal

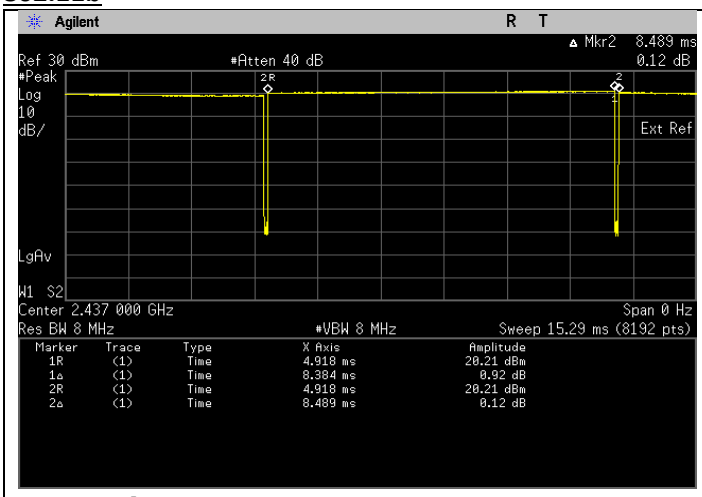
6.3.1. **Test Setup**



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 ≥ RBW.
    c. Set the span ≥ [1.5 × 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

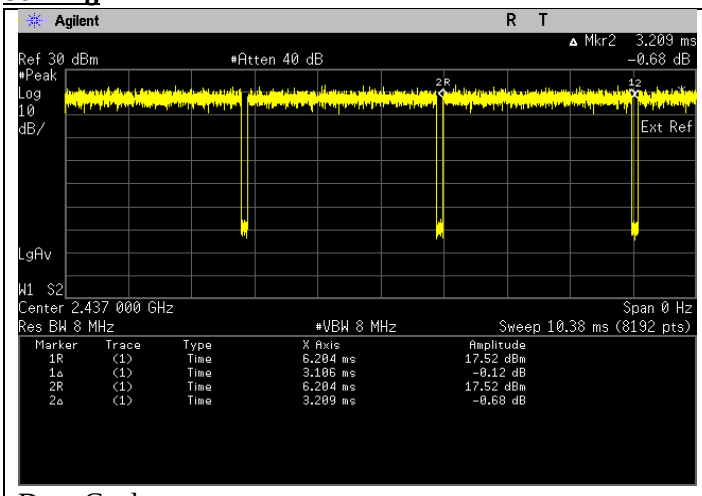


Duty Cycle

On time (ms)	8.384
On + Off Time (ms)	8.489
Duty cycle	0.9876
Duty Cycle factor	0.054

*Duty cycle = On time/ On +off time
*Duty Cycle factor = 10*log(1/Duty Cycle)

802.11g

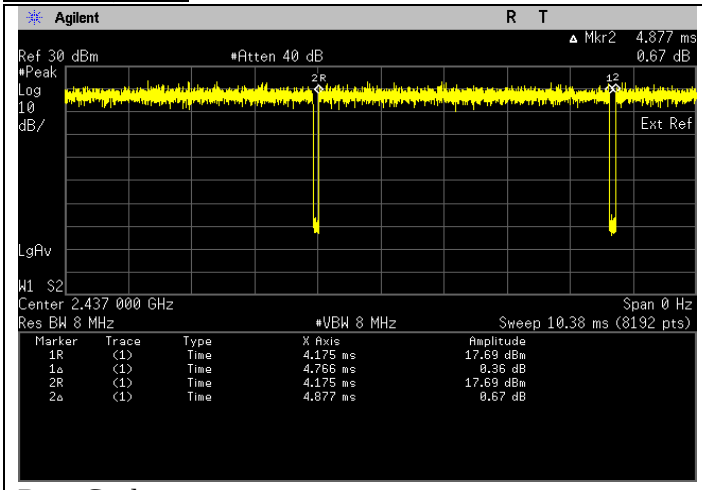


Duty Cycle

On time (ms)	3.106
On + Off Time (ms)	3.209
Duty cycle	0.9679
Duty Cycle factor	0.142

*Duty cycle = On time/ On +off time
*Duty Cycle factor = 10*log(1/Duty Cycle)

802.11n (HT20)



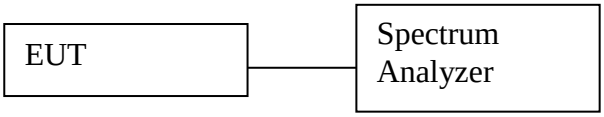
Duty Cycle

On time (ms)	4.766
On + Off Time (ms)	4.877
Duty cycle	0.9772
Duty Cycle factor	0.100

*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 kHz ≤ RBW ≤ 100 kHz.
    d. Set the VBW ≥ [3 × 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.

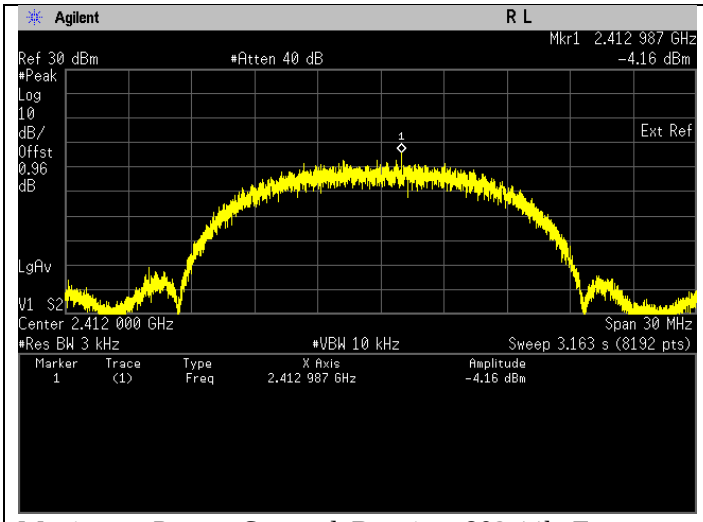
6.4.2. Test Limits

Normal Condition (25 º C)
≤ 8 dBm/3kHz

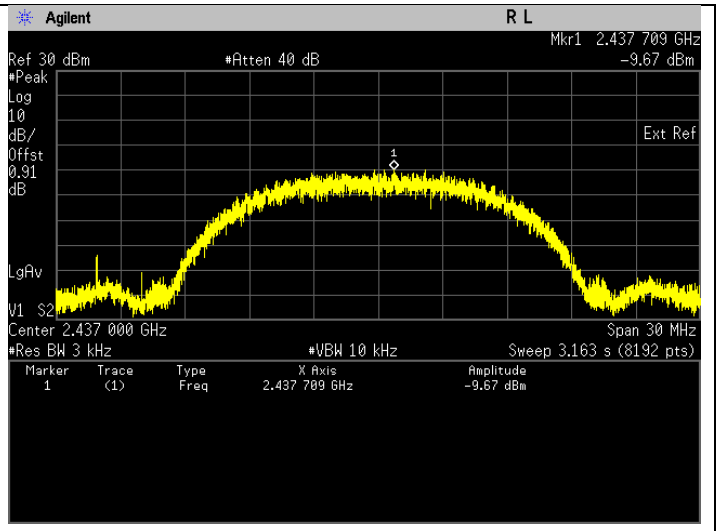
6.4.3. **Test Result**

802.11b

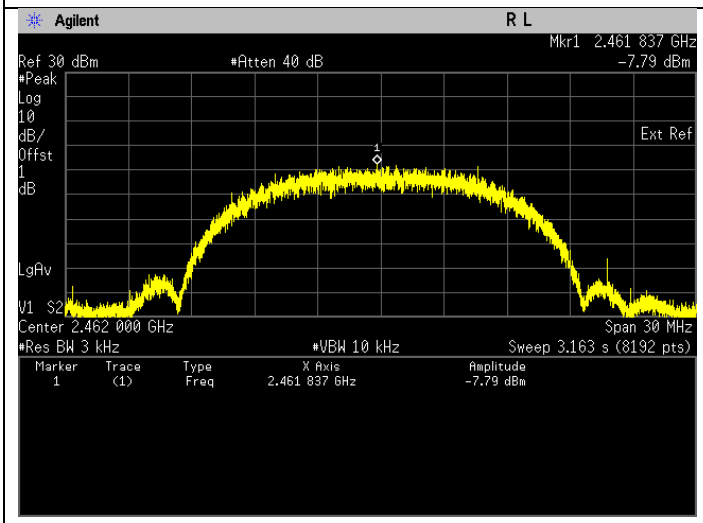
Test Conditions				Test Frequency	Results	
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Power (dBm/3kHz)	Status
802.11b	DSSS	QPSK	5.5	2412	-4.16	Pass
802.11b	DSSS	QPSK	5.5	2437	-9.67	Pass
802.11b	DSSS	QPSK	5.5	2462	-7.79	Pass



Maximum Power Spectral Density. 802.11b Frequency 2412 MHz



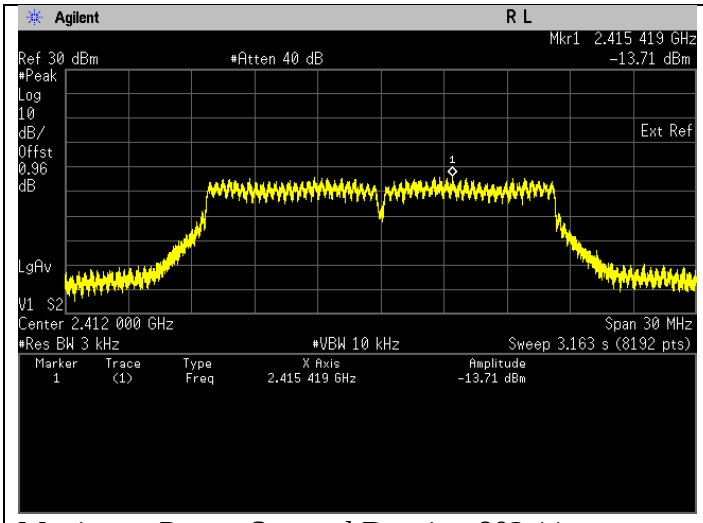
Maximum Power Spectral Density. 802.11b Frequency 2437 MHz



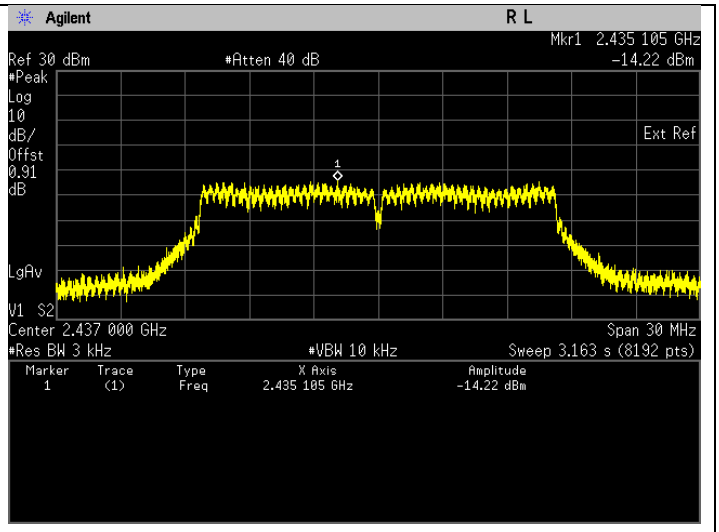
Maximum Power Spectral Density. 802.11b Frequency 2462 MHz

802.11g

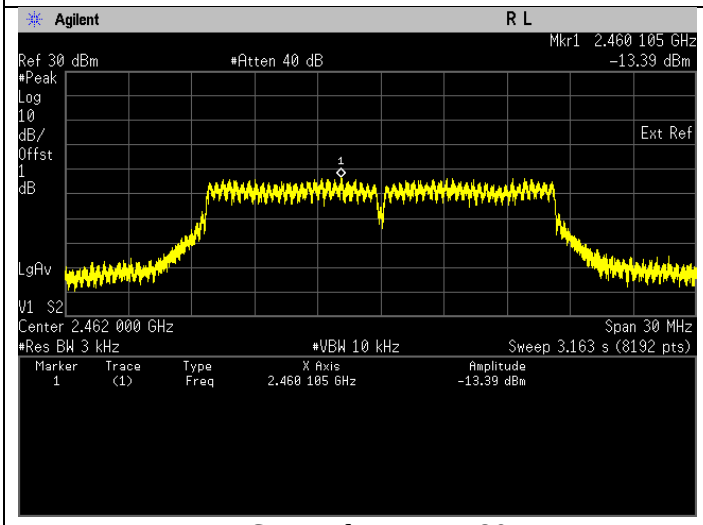
Test Conditions				Test Frequency	Results	
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Power (dBm/3kHz)	Status
802.11g	OFDM	BPSK	6	2412	-13.71	Pass
802.11g	OFDM	BPSK	6	2437	-14.22	Pass
802.11g	OFDM	BPSK	6	2462	-13.39	Pass



Maximum Power Spectral Density. 802.11g
Frequency 2412 MHz



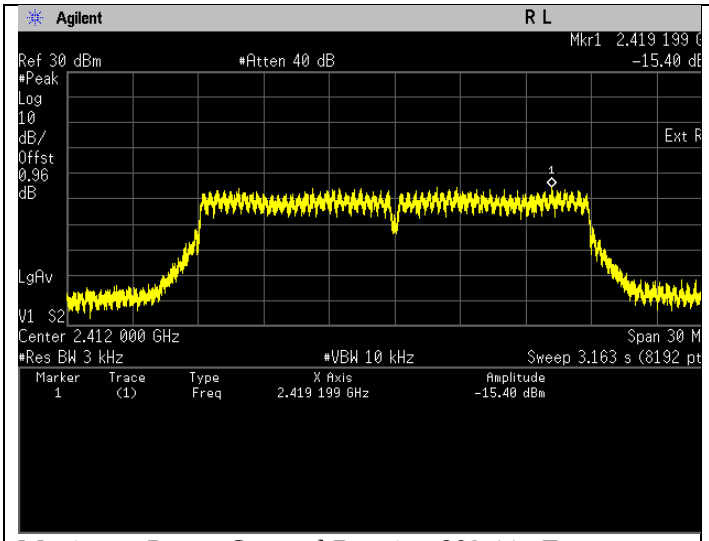
Maximum Power Spectral Density. 802.11g
Frequency 2437 MHz



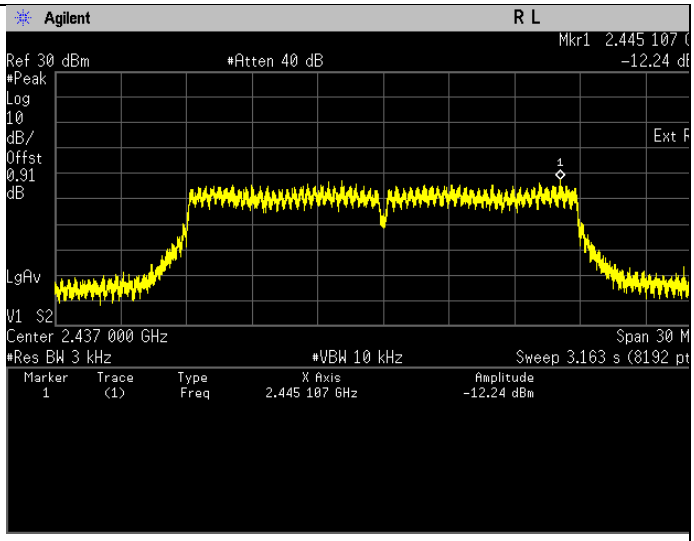
Maximum Power Spectral Density. 802.11g
Frequency 2462 MHz

802.11n (HT20)

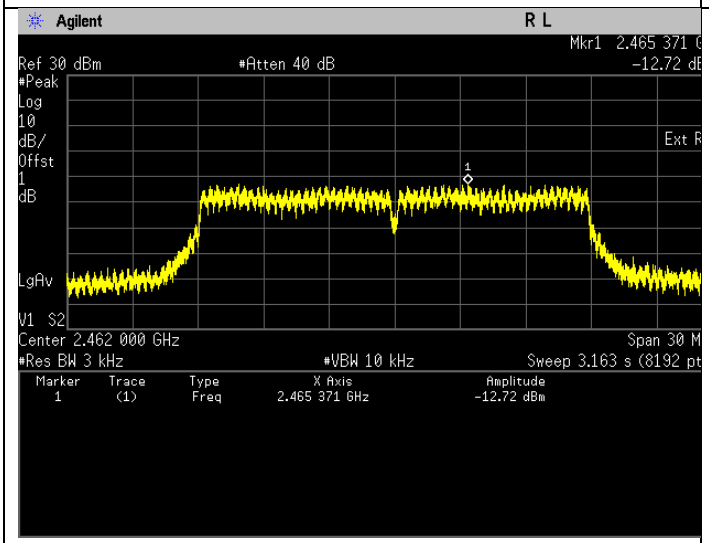
Test Conditions				Test Frequency	Results	
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Power (dBm/3kHz)	Status
802.11n	OFDM	DBPSK	6.5	2412	-15.40	Pass
802.11n	OFDM	DBPSK	6.5	2437	-12.24	Pass
802.11n	OFDM	DBPSK	6.5	2462	-12.72	Pass



Maximum Power Spectral Density. 802.11n Frequency 2412 MHz



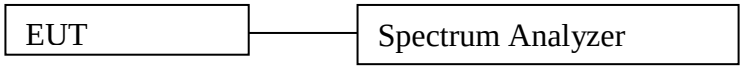
Maximum Power Spectral Density. 802.11n Frequency 2437 MHz



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.

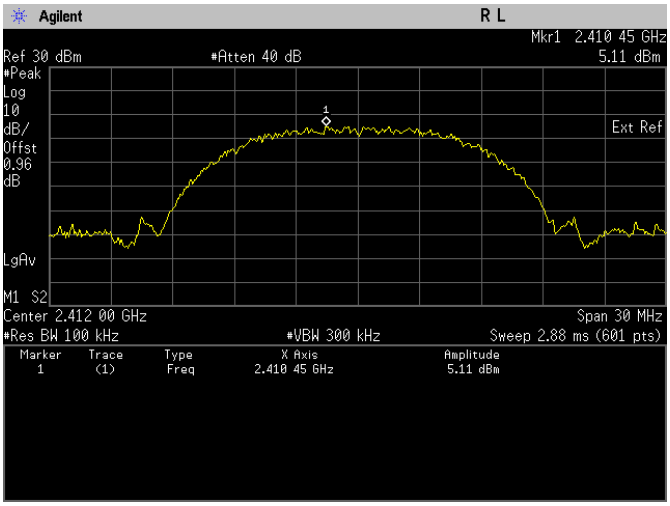
6.5.2. **Test Limits:**

Normal Condition (25 º C)
Shall be at least 20 dB below max power. (Peak detector)

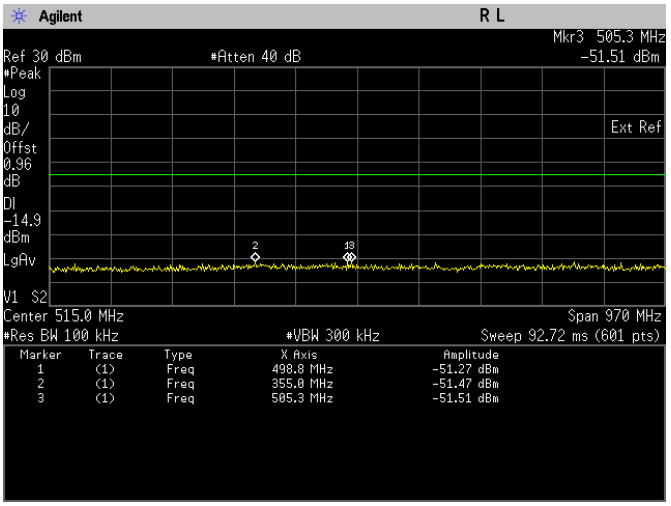
6.5.3. Test Result

802.11b

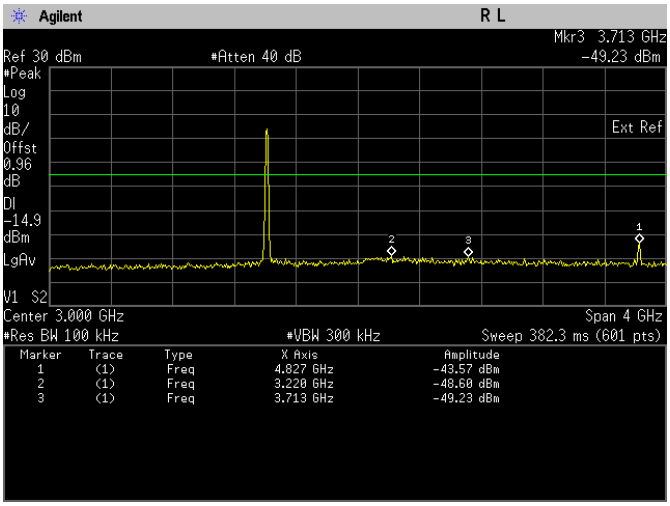
Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Spurs (MHz)	Level (dBm)	Status
802.11b	DSSS	QPSK	5.5	2412	24967.000	-42.72	Pass
					24675.000	-43.29	Pass
					13600.000	-43.40	Pass
802.11b	DSSS	QPSK	5.5	2437	24575.000	-43.25	Pass
					24325.000	-43.55	Pass
					24350.000	-43.66	Pass
802.11b	DSSS	QPSK	5.5	2462	24992.000	-42.74	Pass
					24917.000	-42.84	Pass
					24767.000	-43.29	Pass



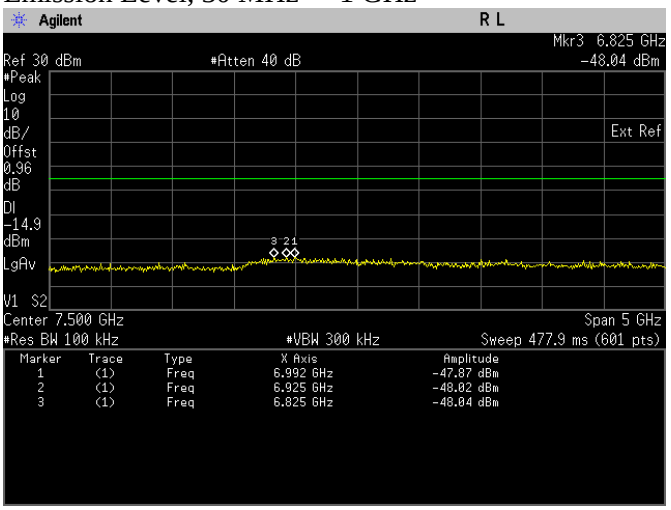
Conducted Emissions. 802.11b, Frequency 2412 MHz
Reference Level



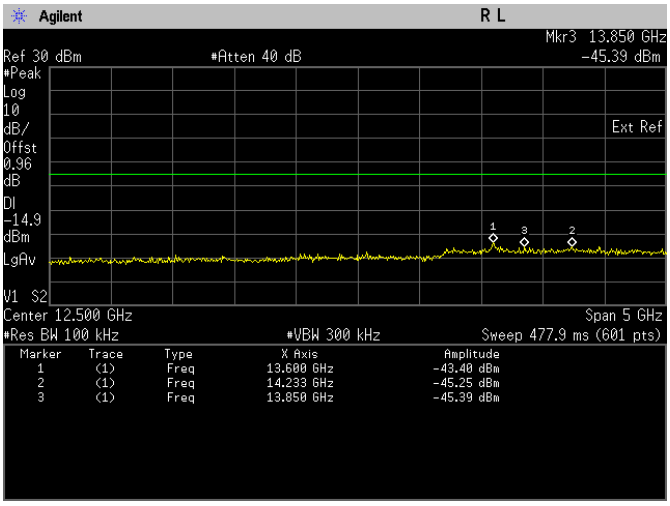
Conducted Emissions. 802.11b, Frequency 2412 MHz
Emission Level, 30 MHz -> 1 GHz



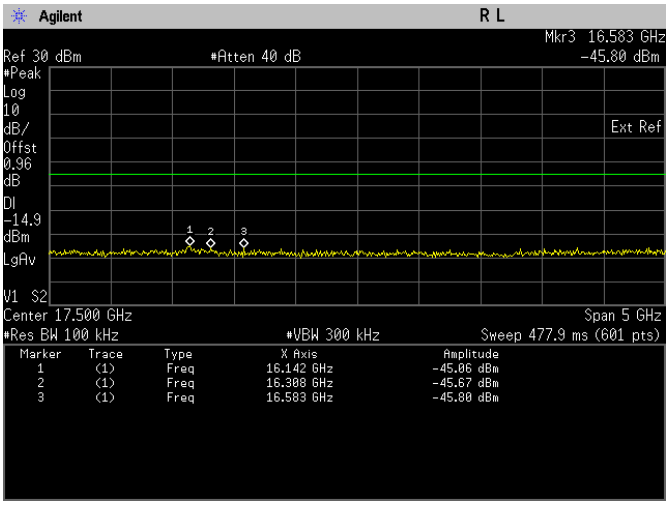
Conducted Emissions. 802.11b, Frequency 2412 MHz
Emission Level, 1 GHz -> 5 GHz



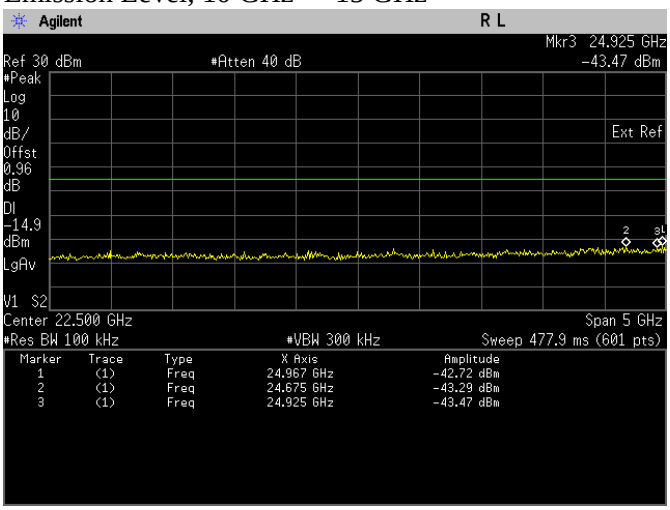
Conducted Emissions. 802.11b, Frequency 2412 MHz
Emission Level, 5 GHz -> 10 GHz



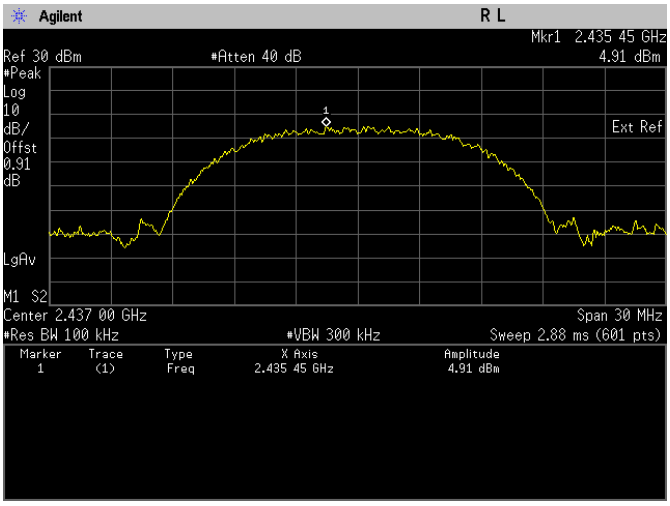
Conducted Emissions. 802.11b, Frequency 2412
Emission Level, 10 GHz -> 15 GHz



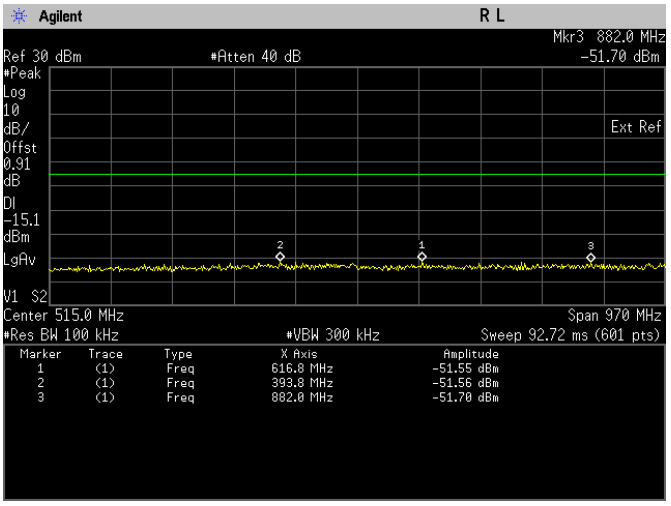
Conducted Emissions. 802.11b, Frequency 2412 MHz
Emission Level, 15 GHz -> 20 GHz



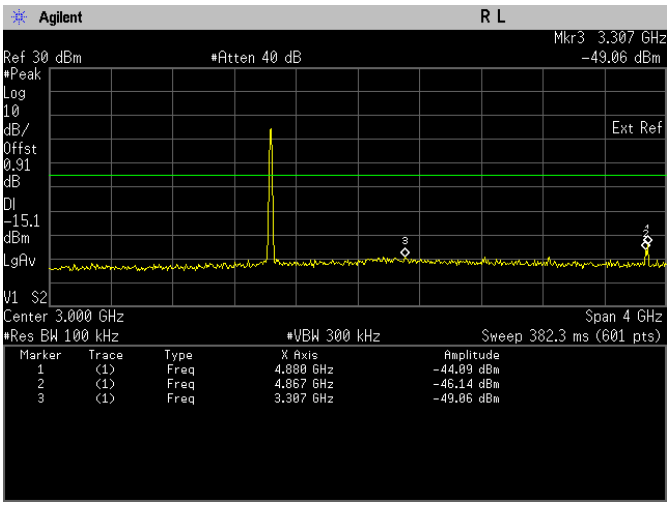
Conducted Emissions. 802.11b, Frequency 2412 MHz
Emission Level, 20 GHz -> 25 GHz



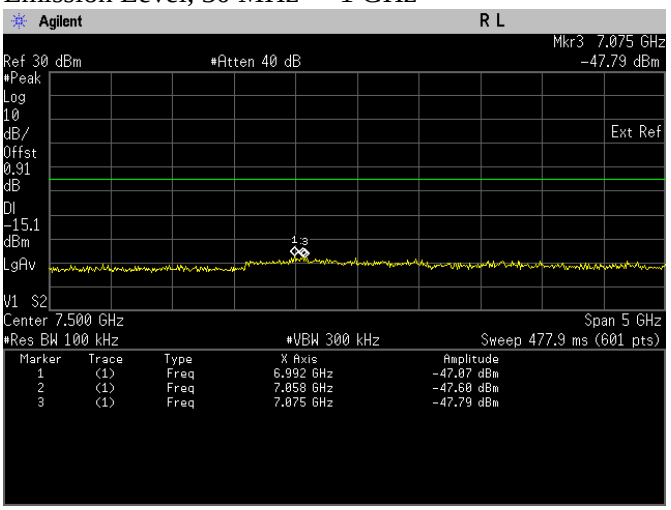
Conducted Emissions. 802.11b, Frequency 2437 MHz
Reference Level



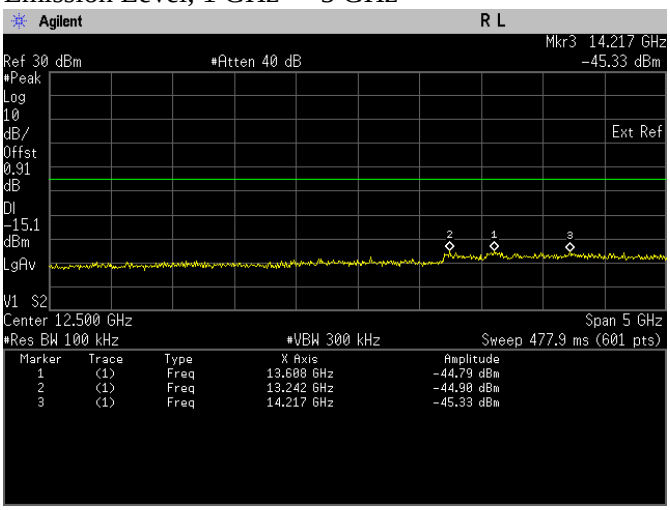
Conducted Emissions. 802.11b, Frequency 2437 MHz
Emission Level, 30 MHz -> 1 GHz



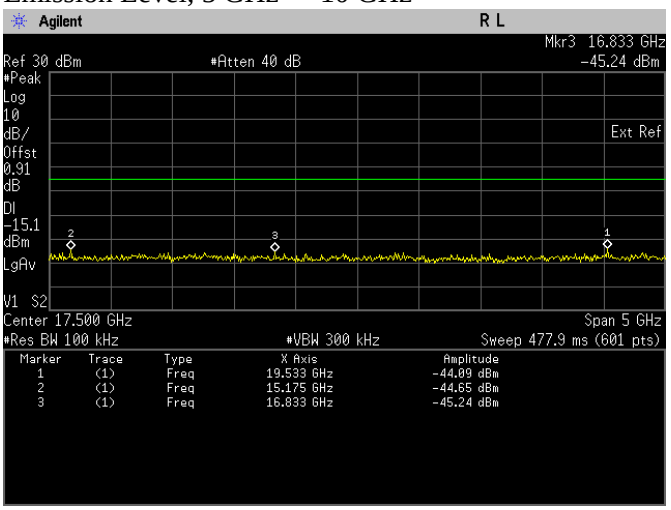
Conducted Emissions. 802.11b, Frequency 2437 MHz
Emission Level, 1 GHz -> 5 GHz



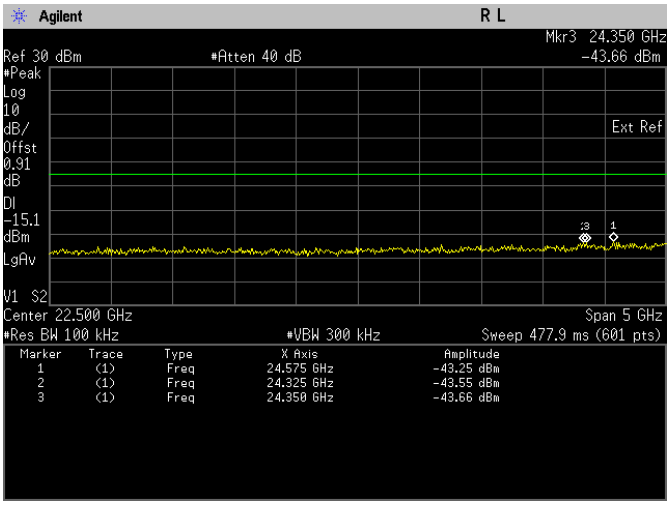
Conducted Emissions. 802.11b, Frequency 2437 MHz
Emission Level, 5 GHz -> 10 GHz



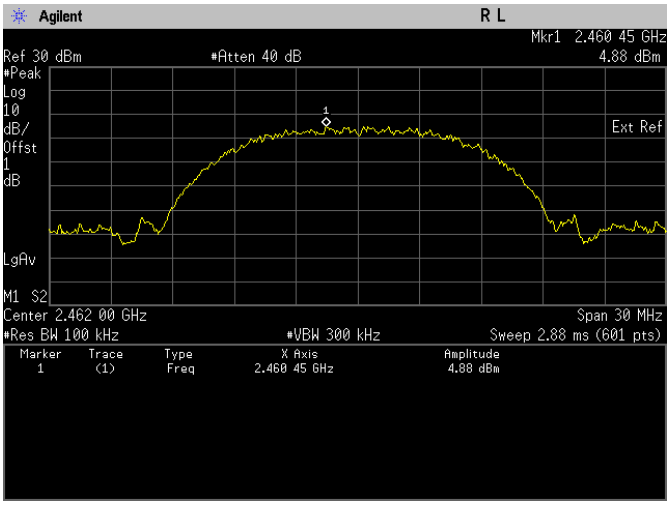
Conducted Emissions. 802.11b, Frequency 2437
Emission Level, 10 GHz -> 15 GHz



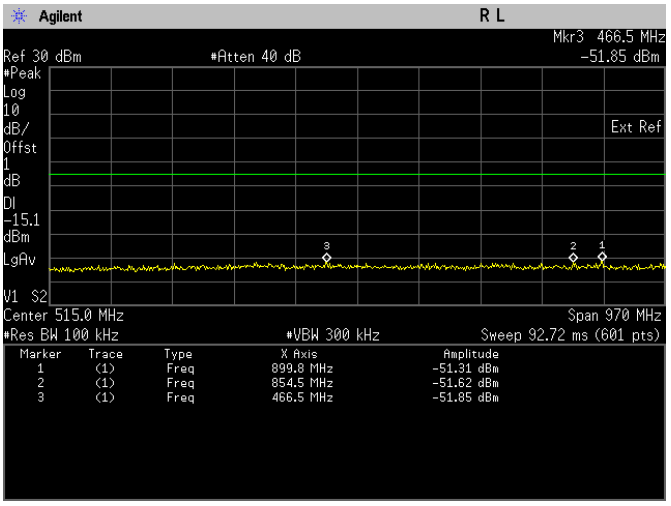
Conducted Emissions. 802.11b, Frequency 2437 MHz
Emission Level, 15 GHz -> 20 GHz



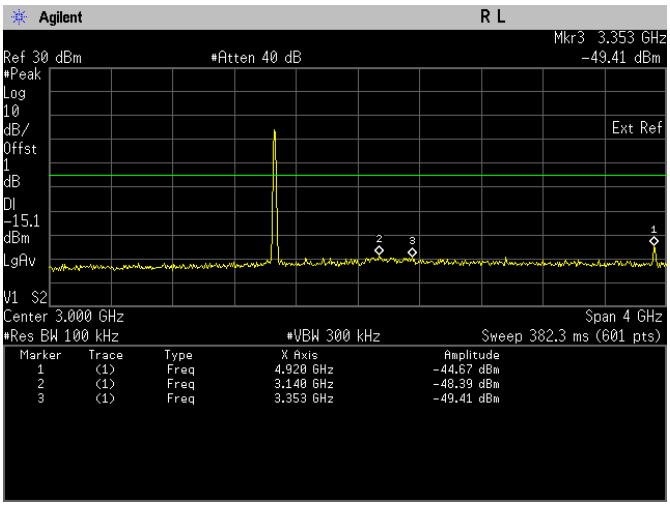
Conducted Emissions. 802.11b, Frequency 2437 MHz
Emission Level, 20 GHz -> 25 GHz



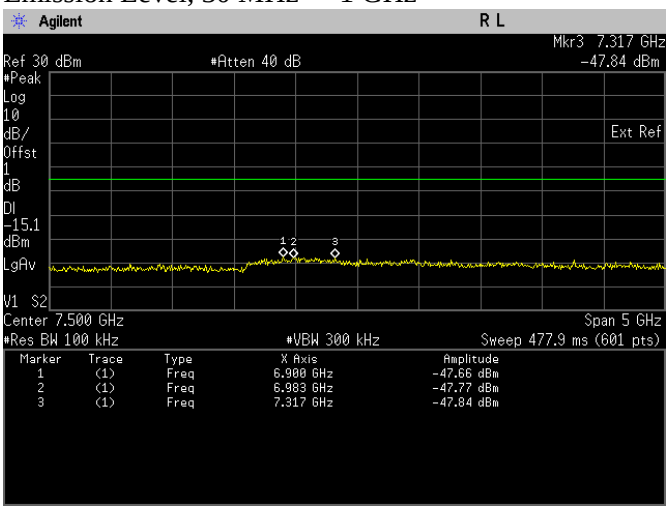
Conducted Emissions. 802.11b, Frequency 2462 MHz
Reference Level



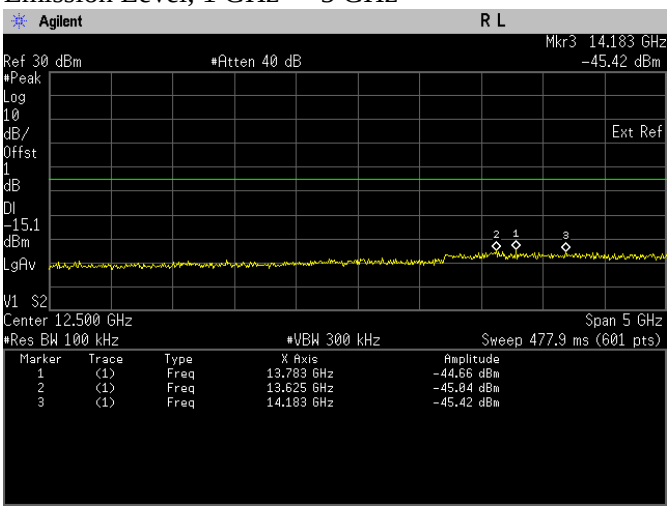
Conducted Emissions. 802.11b, Frequency 2462 MHz
Emission Level, 30 MHz -> 1 GHz



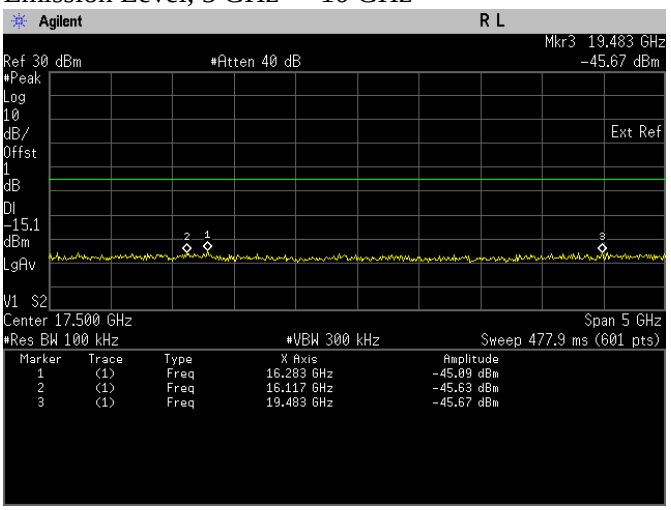
Conducted Emissions. 802.11b, Frequency 2462 MHz
Emission Level, 1 GHz -> 5 GHz



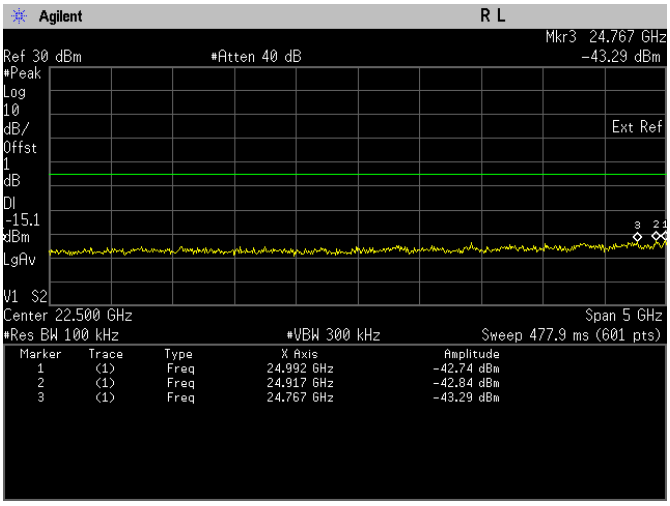
Conducted Emissions. 802.11b, Frequency 2462 MHz
Emission Level, 5 GHz -> 10 GHz



Conducted Emissions. 802.11b, Frequency 2462
Emission Level, 10 GHz -> 15 GHz



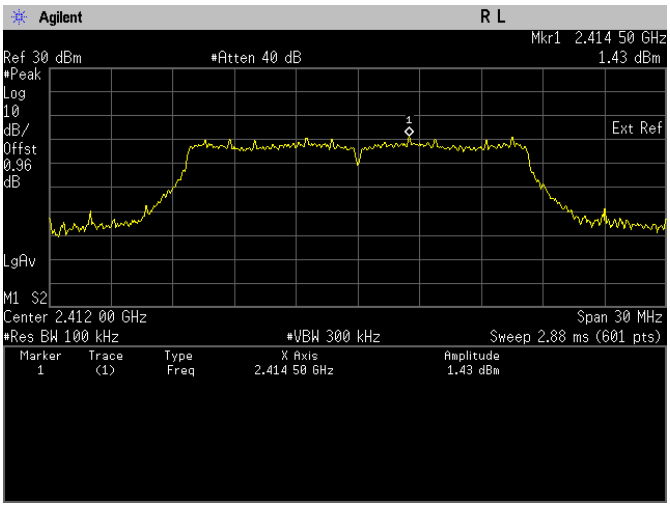
Conducted Emissions. 802.11b, Frequency 2462 MHz
Emission Level, 15 GHz -> 20 GHz



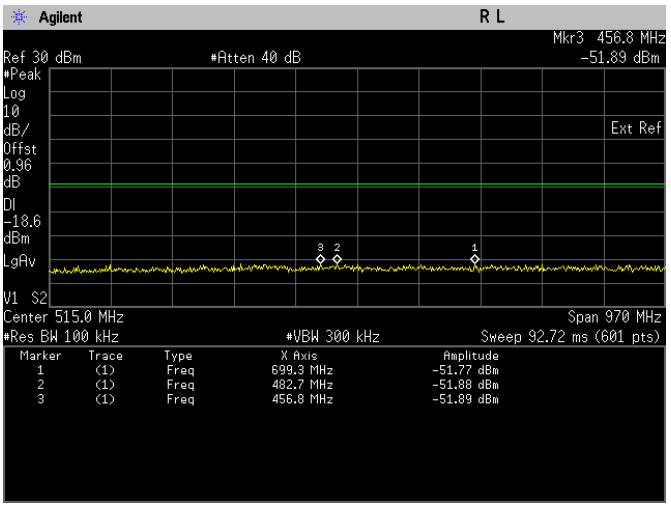
Conducted Emissions. 802.11b, Frequency 2462 MHz
Emission Level, 20 GHz -> 25 GHz

802.11g

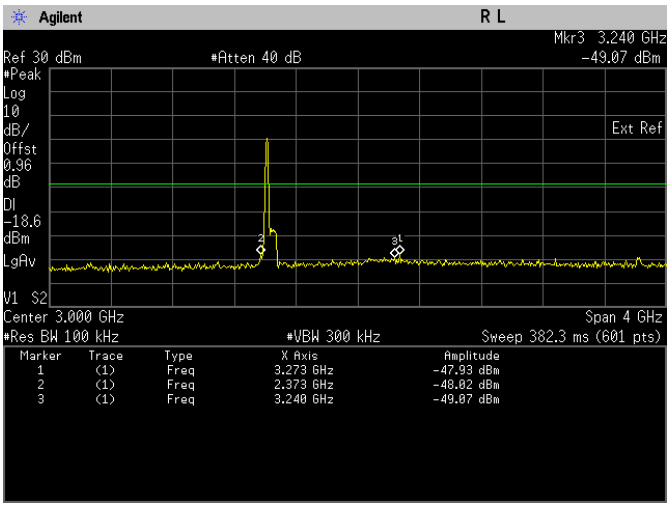
Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Spurs (MHz)	Level (dBm)	Status
802.11g	OFDM	BPSK	6	2412	24950.000	-43.03	Pass
					24925.000	-43.47	Pass
					24308.000	-43.69	Pass
802.11g	OFDM	BPSK	6	2437	24583.000	-43.24	Pass
					24692.000	-43.65	Pass
					24950.000	-43.84	Pass
802.11g	OFDM	BPSK	6	2462	24367.000	-43.33	Pass
					24975.000	-43.34	Pass
					24592.000	-43.48	Pass



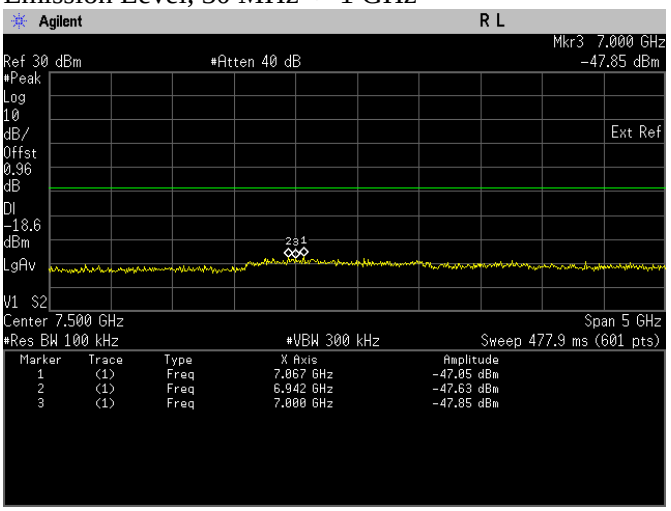
Conducted Emissions. 802.11g, Frequency 2412 MHz Reference Level



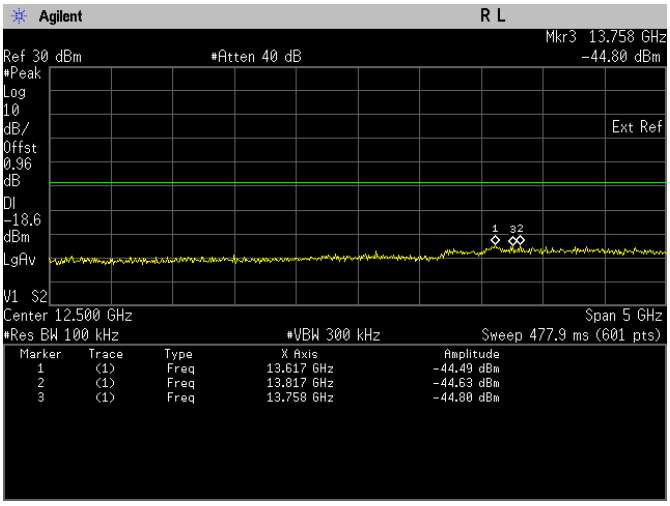
Conducted Emissions. 802.11g, Frequency 2412 MHz Emission Level, 30 MHz -> 1 GHz



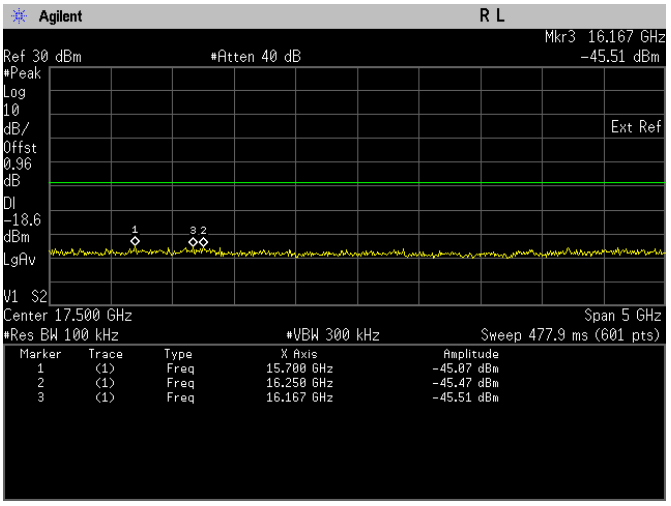
Conducted Emissions. 802.11g, Frequency 2412 MHz Emission Level, 1 GHz -> 5 GHz



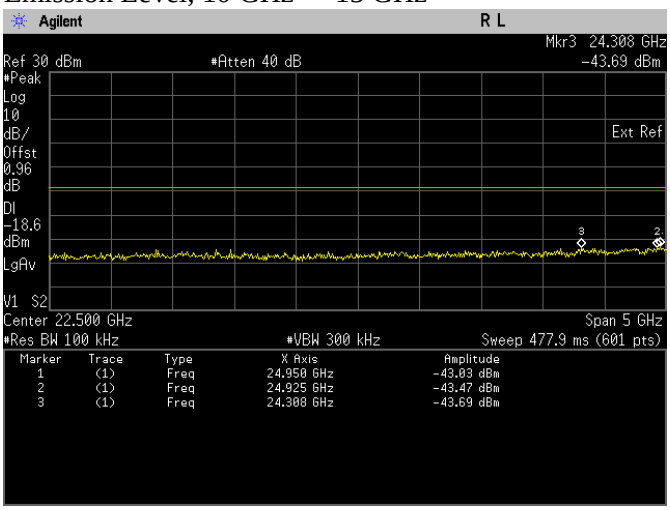
Conducted Emissions. 802.11g, Frequency 2412 MHz Emission Level, 5 GHz -> 10 GHz



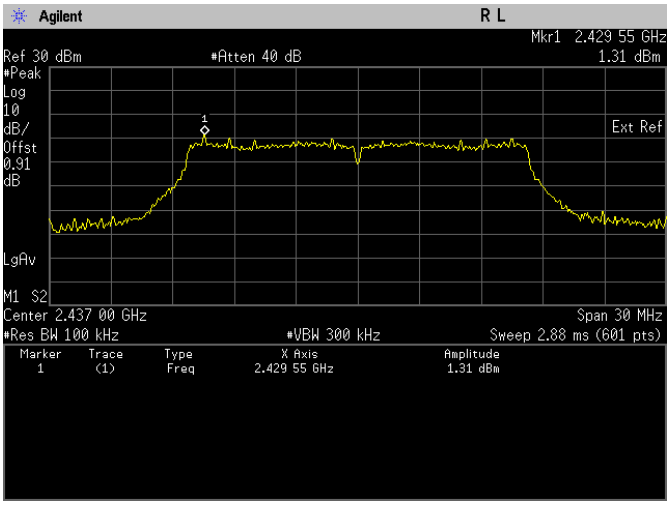
Conducted Emissions. 802.11g, Frequency 2412
Emission Level, 10 GHz -> 15 GHz



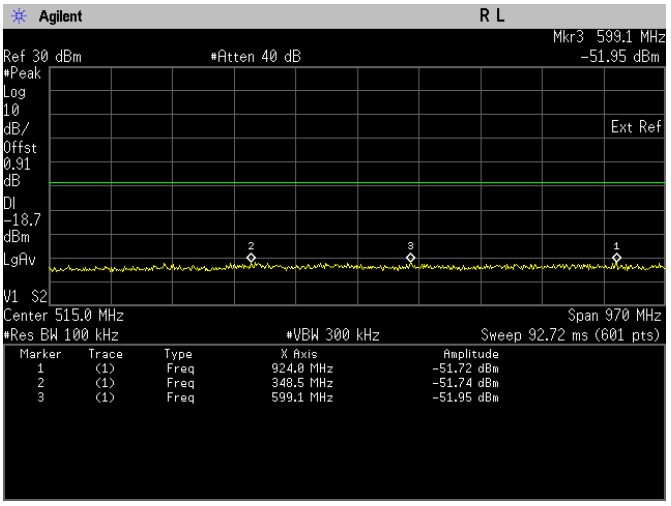
Conducted Emissions. 802.11g, Frequency 2412 MHz
Emission Level, 15 GHz -> 20 GHz



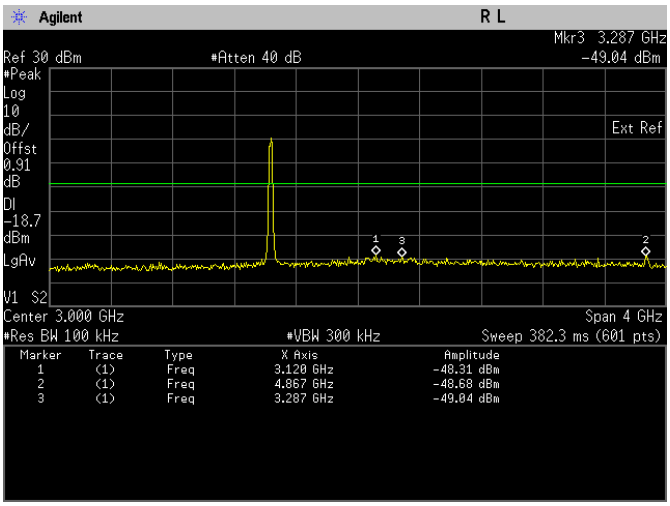
Conducted Emissions. 802.11g, Frequency 2412 MHz
Emission Level, 20 GHz -> 25 GHz



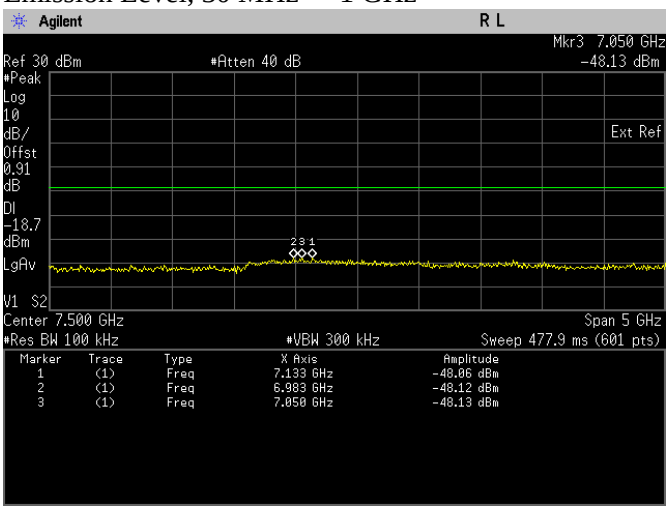
Conducted Emissions. 802.11g, Frequency 2437 MHz
Reference Level



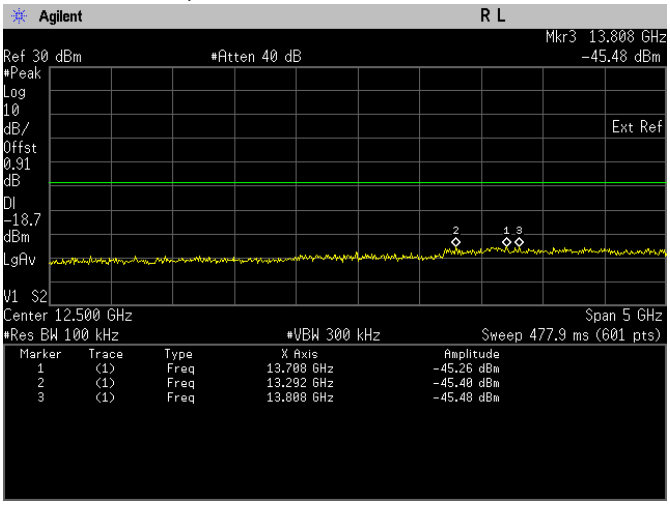
Conducted Emissions. 802.11g, Frequency 2437 MHz
Emission Level, 30 MHz -> 1 GHz



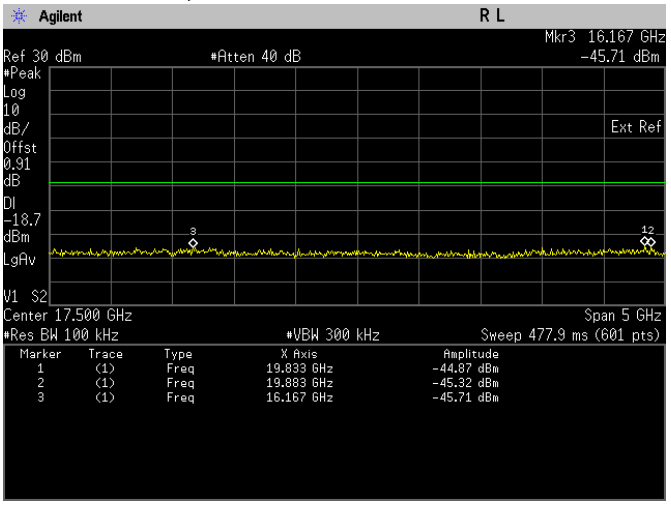
Conducted Emissions. 802.11g, Frequency 2437 MHz
Emission Level, 1 GHz -> 5 GHz



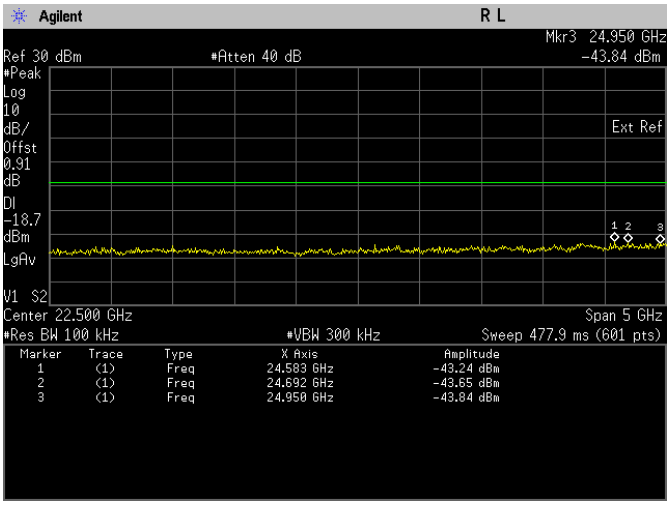
Conducted Emissions. 802.11g, Frequency 2437 MHz
Emission Level, 5 GHz -> 10 GHz



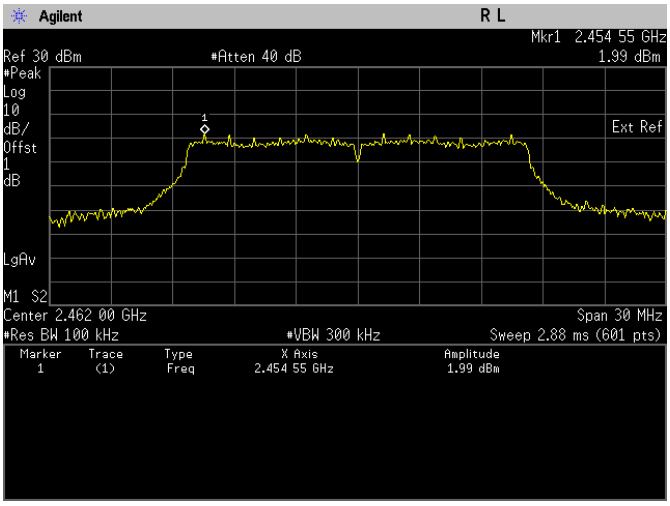
Conducted Emissions. 802.11g, Frequency 2437
Emission Level, 10 GHz -> 15 GHz



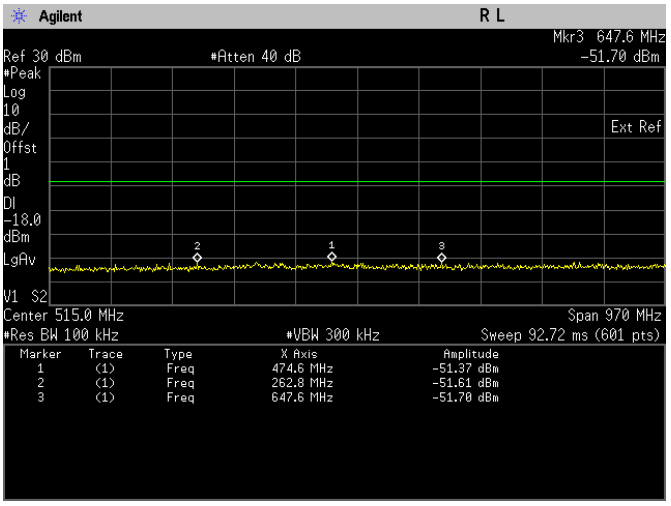
Conducted Emissions. 802.11g, Frequency 2437 MHz
Emission Level, 15 GHz -> 20 GHz



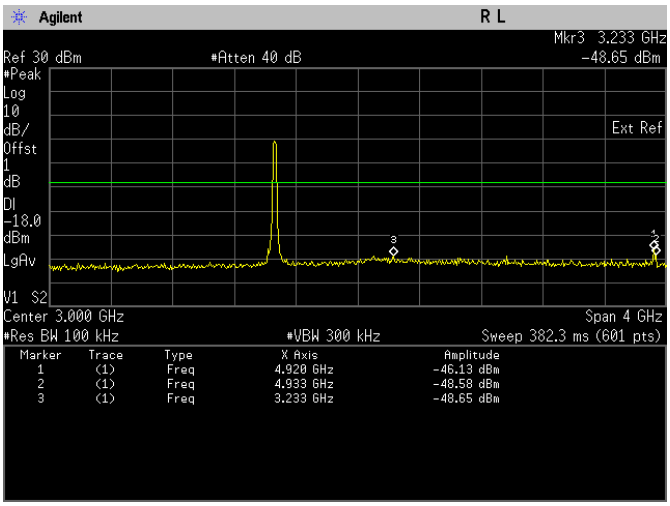
Conducted Emissions. 802.11g, Frequency 2437 MHz
Emission Level, 20 GHz -> 25 GHz



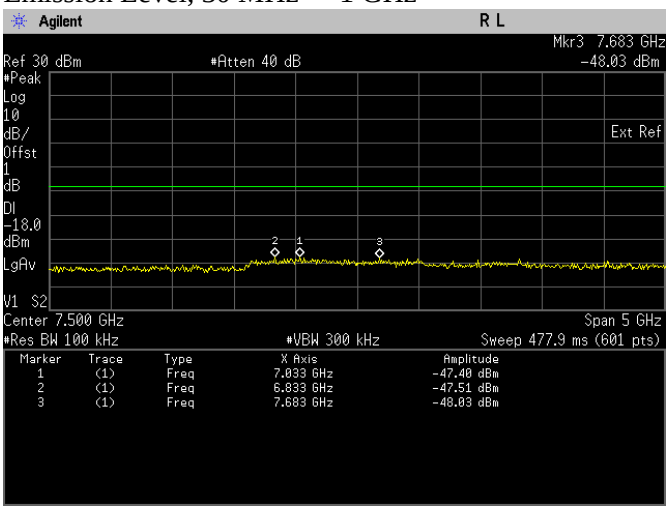
Conducted Emissions. 802.11g, Frequency 2462 MHz
Reference Level



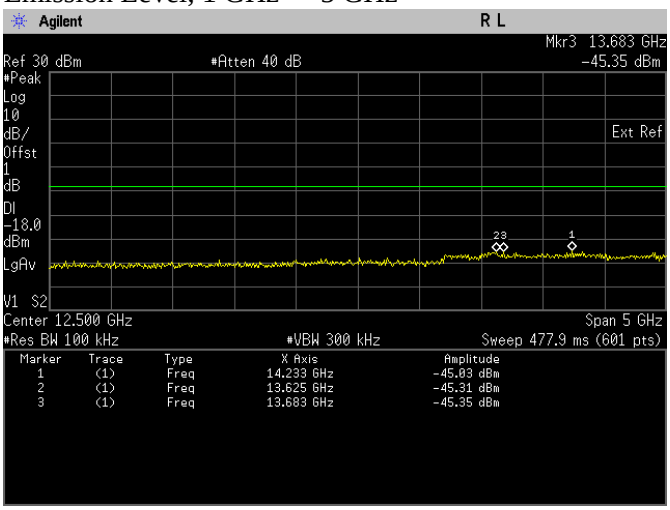
Conducted Emissions. 802.11g, Frequency 2462 MHz
Emission Level, 30 MHz -> 1 GHz



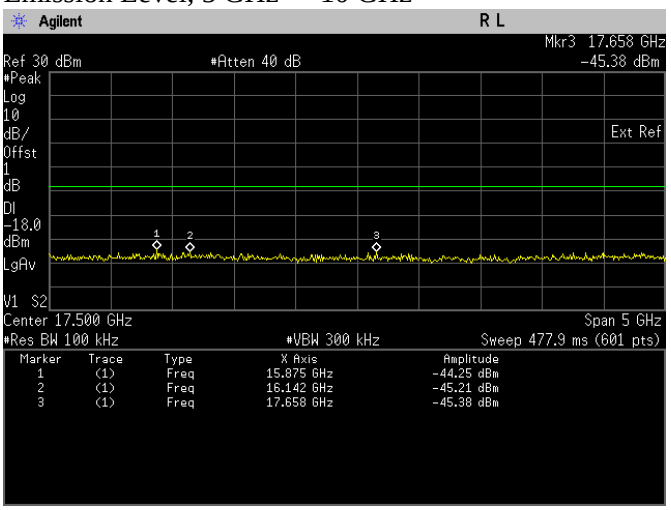
Conducted Emissions. 802.11g, Frequency 2462 MHz
Emission Level, 1 GHz -> 5 GHz



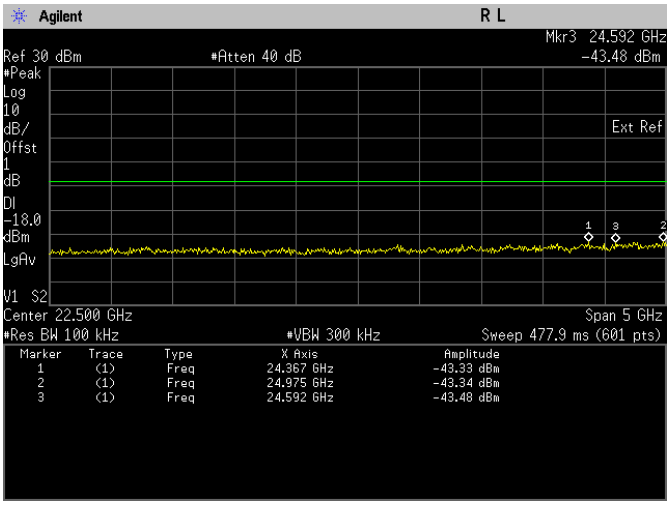
Conducted Emissions. 802.11g, Frequency 2462 MHz
Emission Level, 5 GHz -> 10 GHz



Conducted Emissions. 802.11g, Frequency 2462
Emission Level, 10 GHz -> 15 GHz



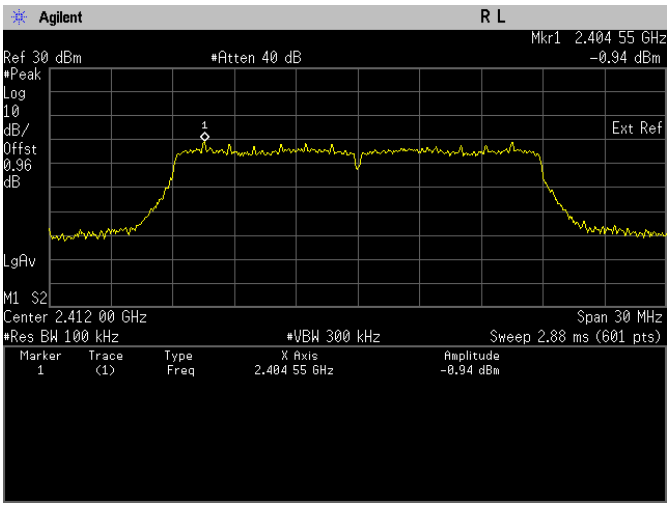
Conducted Emissions. 802.11g, Frequency 2462 MHz
Emission Level, 15 GHz -> 20 GHz



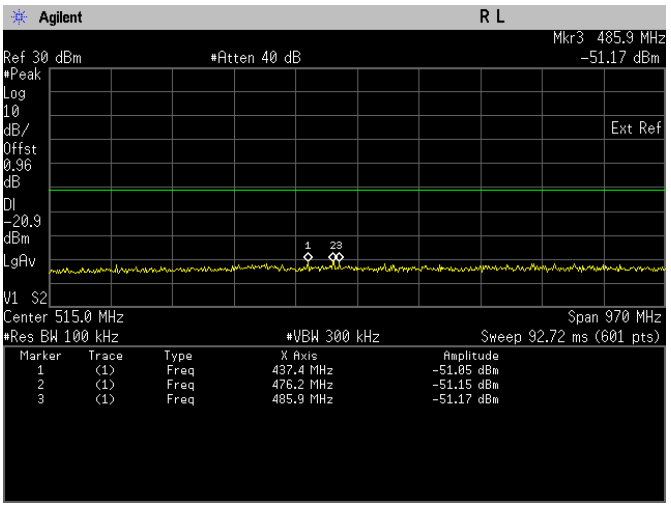
Conducted Emissions. 802.11g, Frequency 2462 MHz
Emission Level, 20 GHz -> 25 GHz

802.11n (HT20)

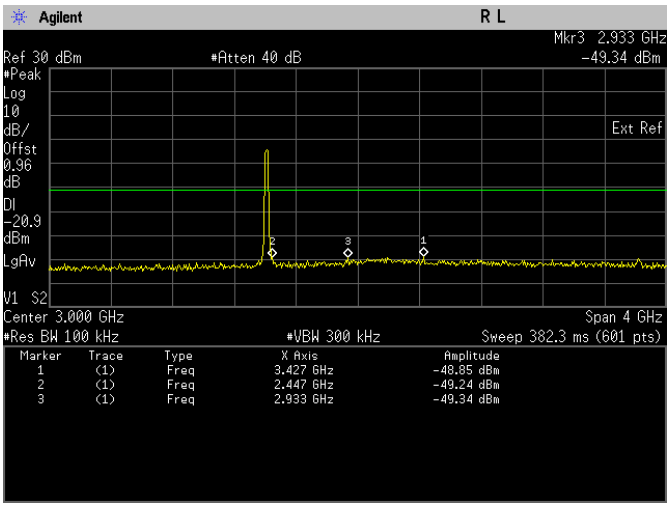
Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Spurs (MHz)	Level (dBm)	Status
802.11n	OFDM	BPSK	6.5	2412	25000.000	-41.82	Pass
					24983.000	-43.21	Pass
					24933.000	-43.80	Pass
802.11n	OFDM	BPSK	6.5	2437	24633.000	-43.26	Pass
					24500.000	-43.28	Pass
					24908.000	-43.60	Pass
802.11n	OFDM	BPSK	6.5	2462	24942.000	-42.98	Pass
					24983.000	-43.49	Pass
					24092.000	-43.54	Pass



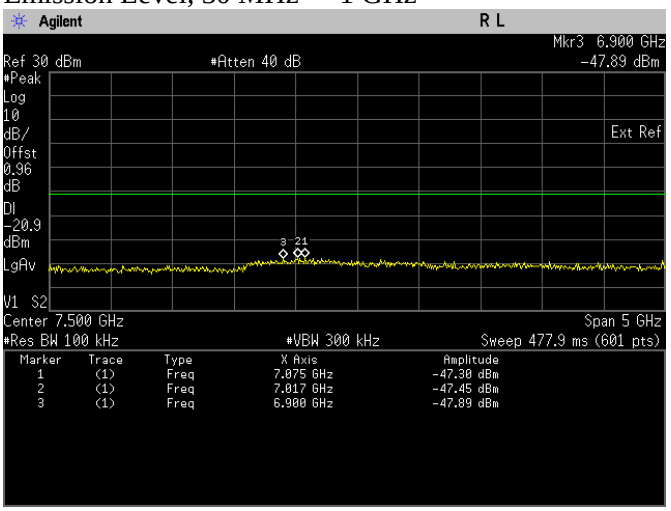
Conducted Emissions. 802.11n, Frequency 2412 MHz Reference Level



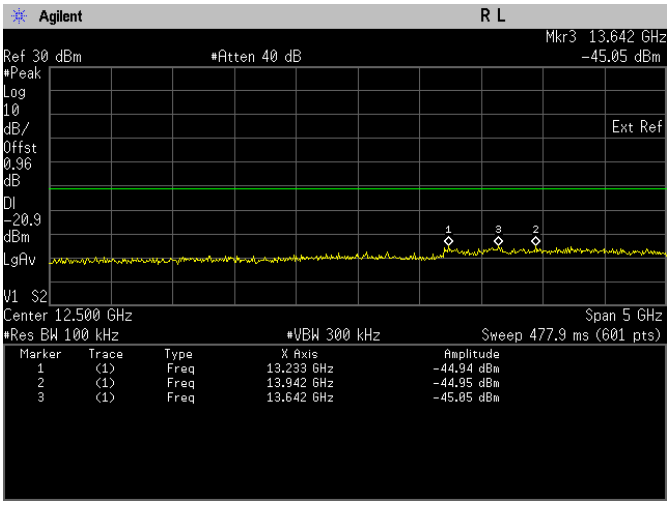
Conducted Emissions. 802.11n, Frequency 2412 MHz Emission Level, 30 MHz -> 1 GHz



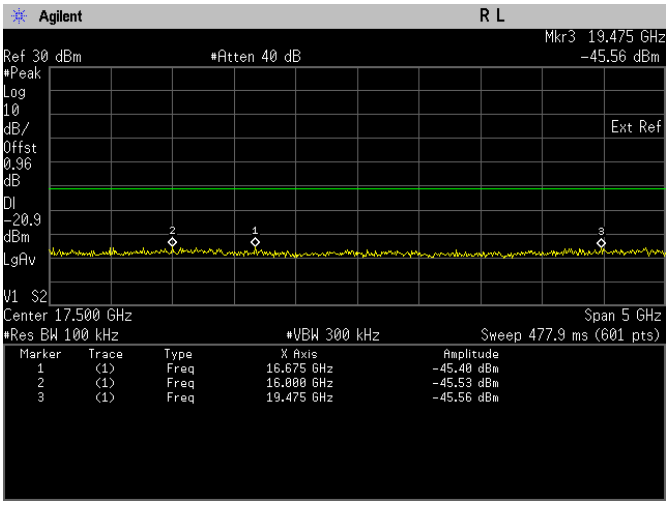
Conducted Emissions. 802.11n, Frequency 2412 MHz Emission Level, 1 GHz -> 5 GHz



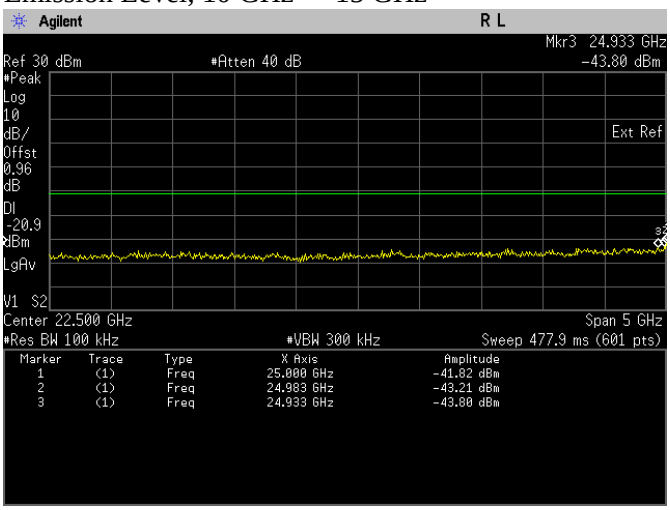
Conducted Emissions. 802.11n, Frequency 2412 MHz Emission Level, 5 GHz -> 10 GHz



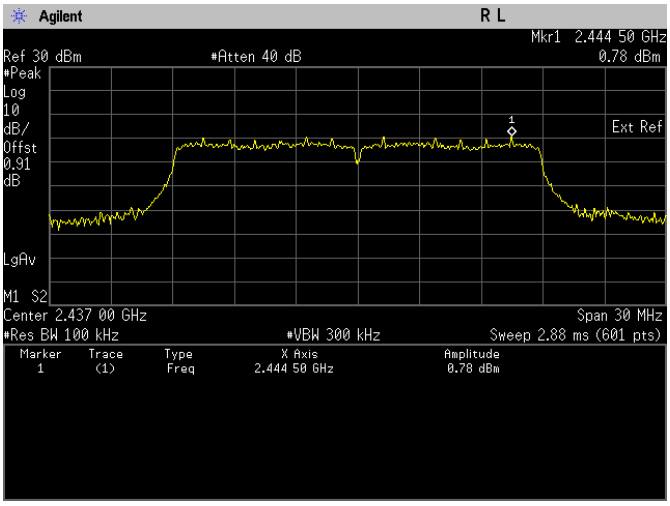
Conducted Emissions. 802.11n, Frequency 2412
Emission Level, 10 GHz -> 15 GHz



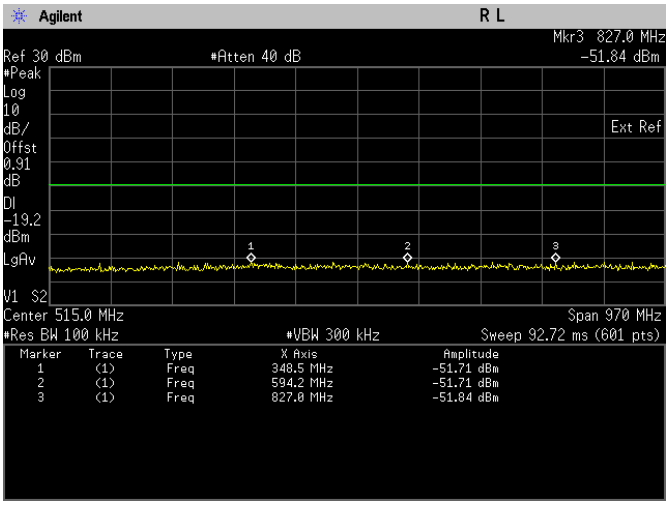
Conducted Emissions. 802.11n, Frequency 2412 MHz
Emission Level, 15 GHz -> 20 GHz



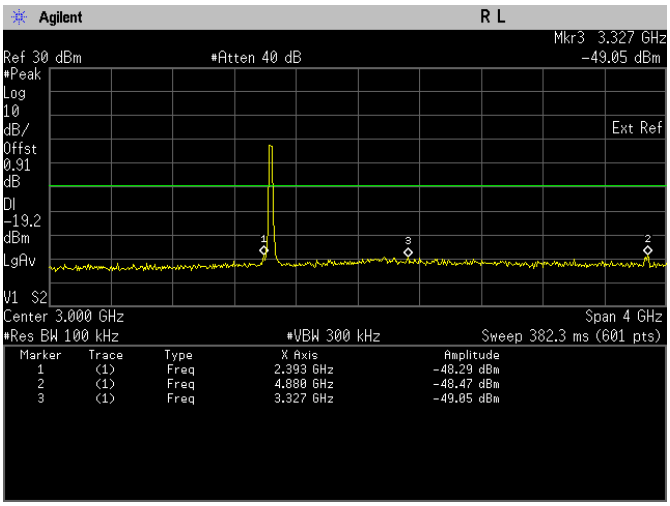
Conducted Emissions. 802.11n, Frequency 2412 MHz
Emission Level, 20 GHz -> 25 GHz



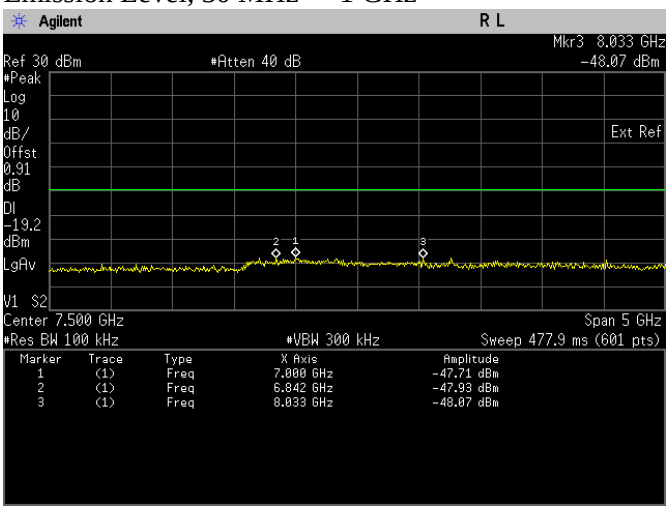
Conducted Emissions. 802.11n, Frequency 2437 MHz
Reference Level



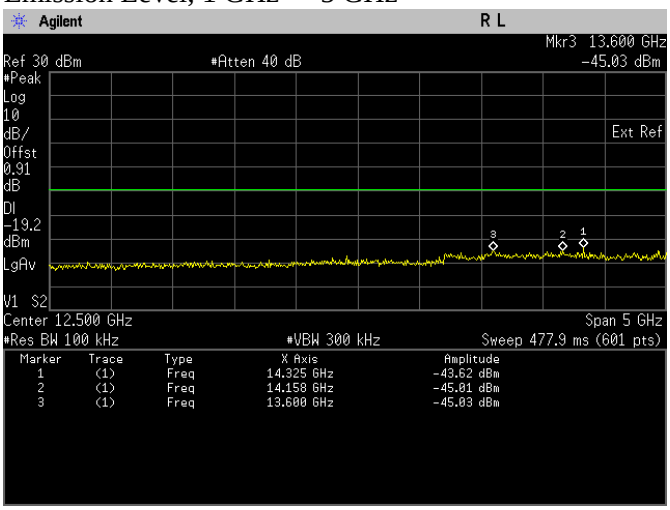
Conducted Emissions. 802.11n, Frequency 2437 MHz
Emission Level, 30 MHz -> 1 GHz



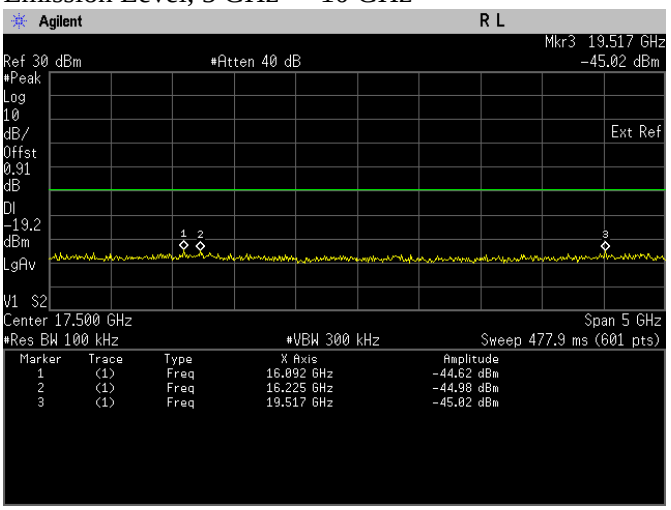
Conducted Emissions. 802.11n, Frequency 2437 MHz
Emission Level, 1 GHz -> 5 GHz



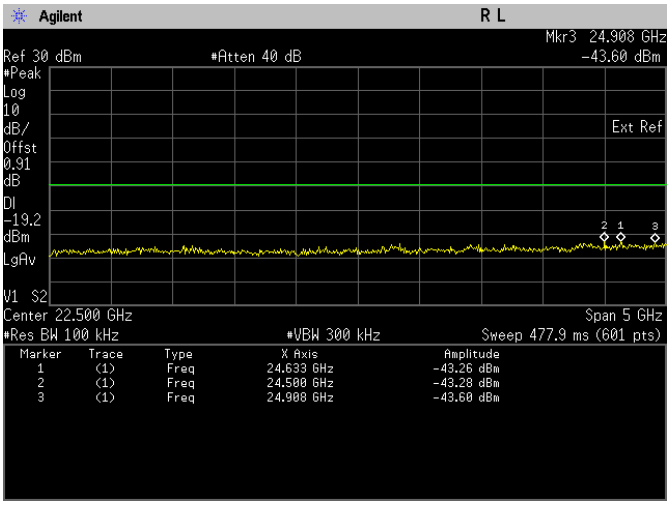
Conducted Emissions. 802.11n, Frequency 2437 MHz
Emission Level, 5 GHz -> 10 GHz



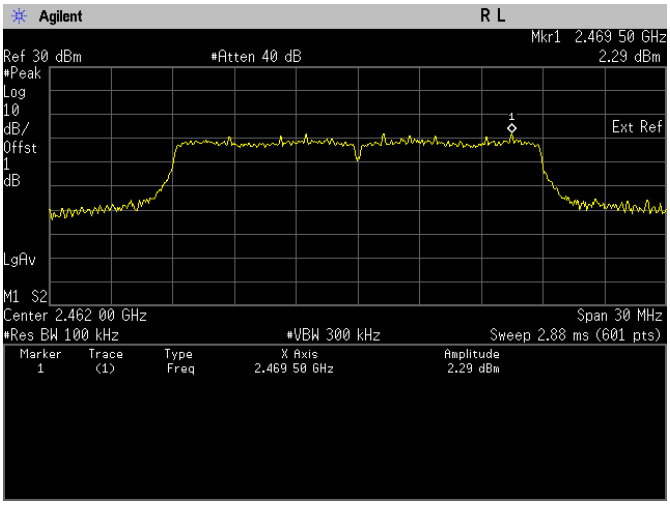
Conducted Emissions. 802.11n, Frequency 2437
Emission Level, 10 GHz -> 15 GHz



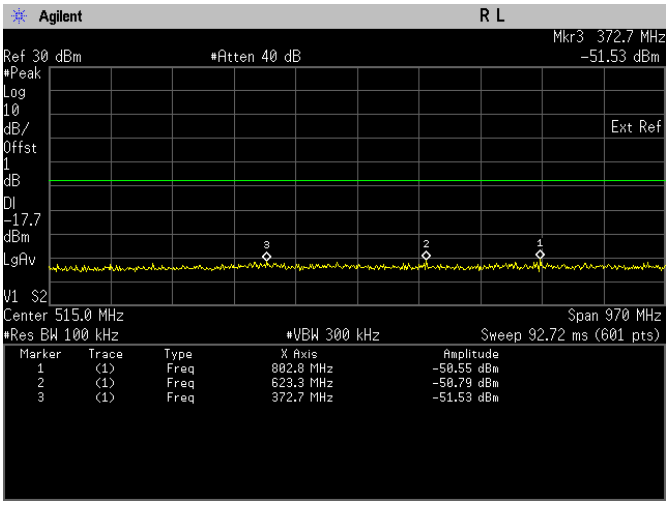
Conducted Emissions. 802.11n, Frequency 2437 MHz
Emission Level, 15 GHz -> 20 GHz



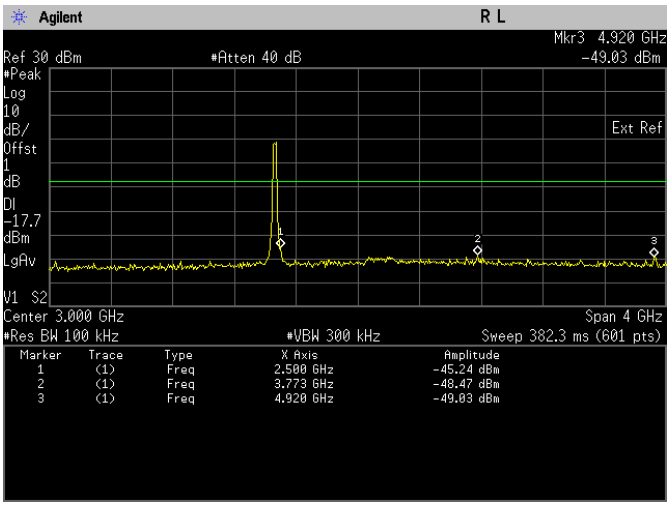
Conducted Emissions. 802.11n, Frequency 2437 MHz
Emission Level, 20 GHz -> 25 GHz



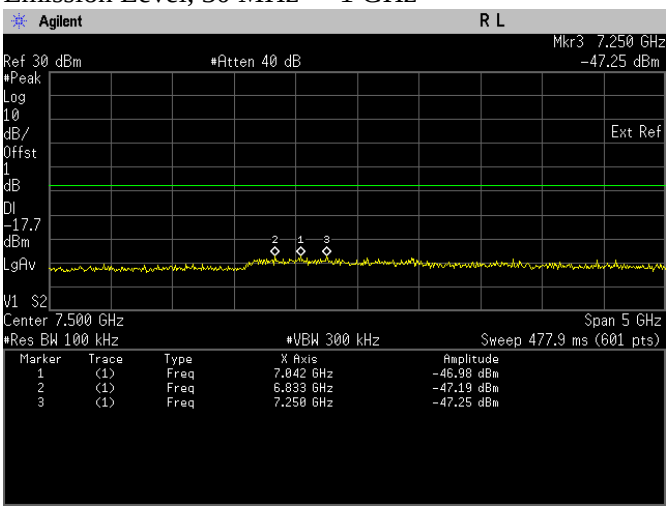
Conducted Emissions. 802.11n, Frequency 2462 MHz
Reference Level



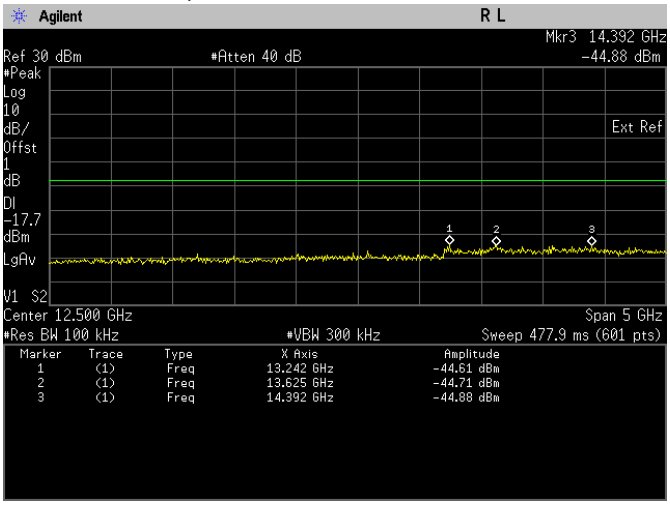
Conducted Emissions. 802.11n, Frequency 2462 MHz
Emission Level, 30 MHz -> 1 GHz



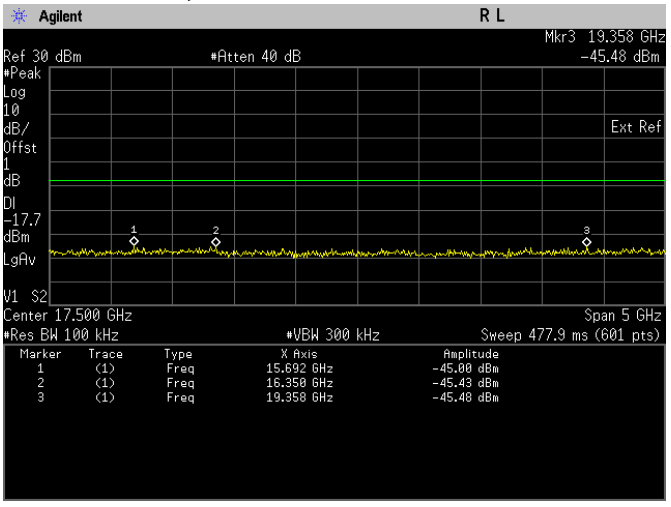
Conducted Emissions. 802.11n, Frequency 2462 MHz
Emission Level, 1 GHz -> 5 GHz



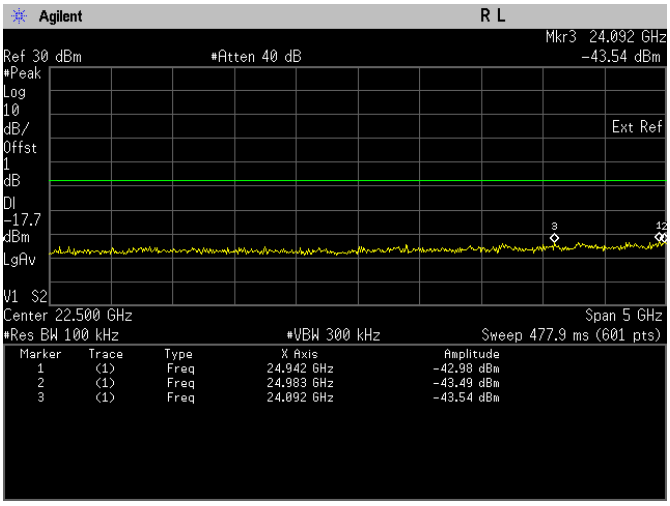
Conducted Emissions. 802.11n, Frequency 2462 MHz
Emission Level, 5 GHz -> 10 GHz



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



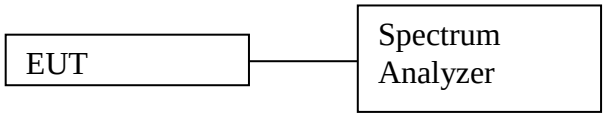
Conducted Emissions. 802.11n, Frequency 2462 MHz
Emission Level, 15 GHz -> 20 GHz



Conducted Emissions. 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.

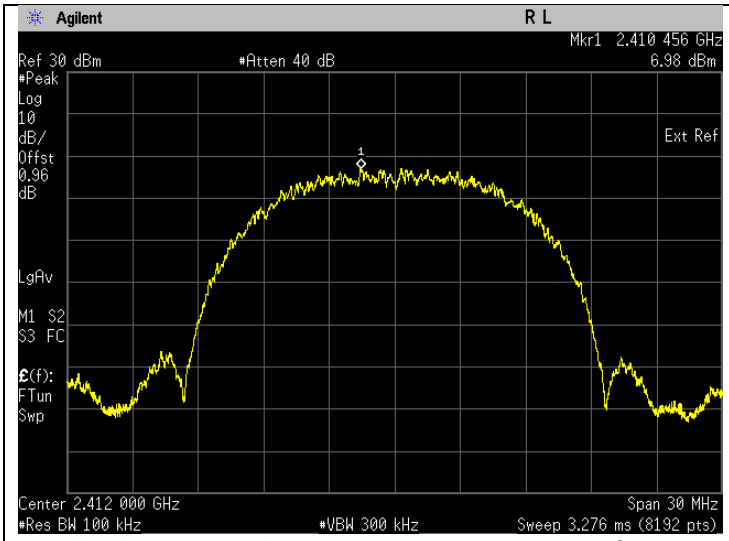
6.6.2. Test Limits:

Normal Condition (25 º C)
Shall be at least 20 dB below max power. (Peak detector)

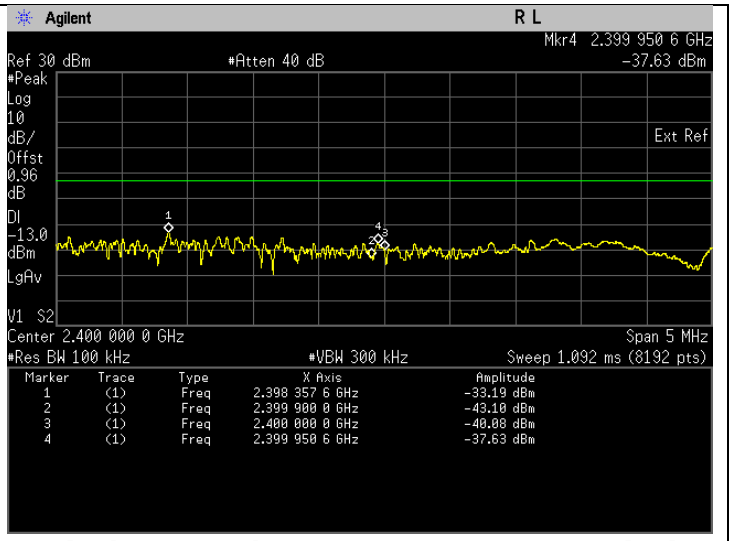
6.6.3. **Test Result**

802.11b

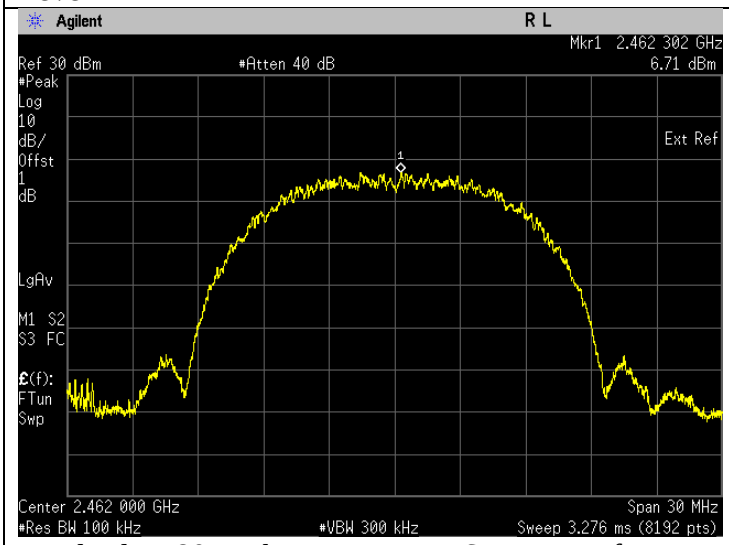
Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Frequencies (MHz)	Power (dBm)	Status
802.11b	DSSS	QPSK	5.5	2412	2399.95	-37.63	Pass
802.11b	DSSS	QPSK	5.5	2462	2483.59	-43.44	Pass



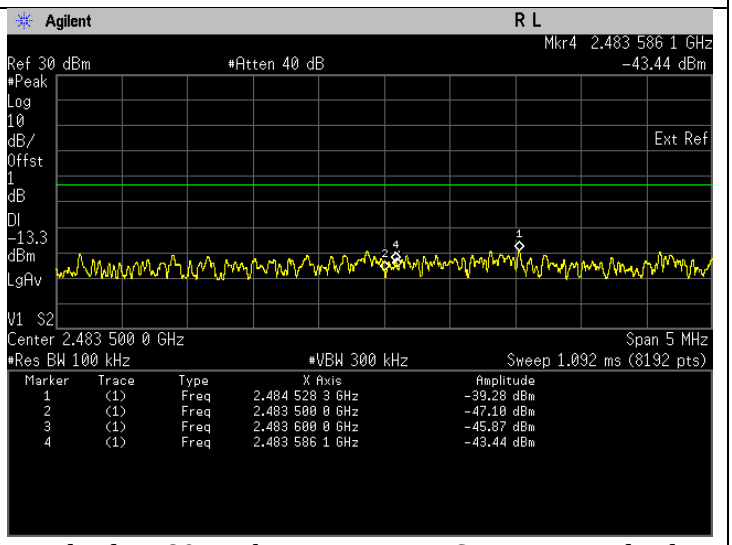
Band Edge. 802.11b Frequency 2412 MHz Reference Level



Band Edge. 802.11b Frequency 2412 MHz Band Edge



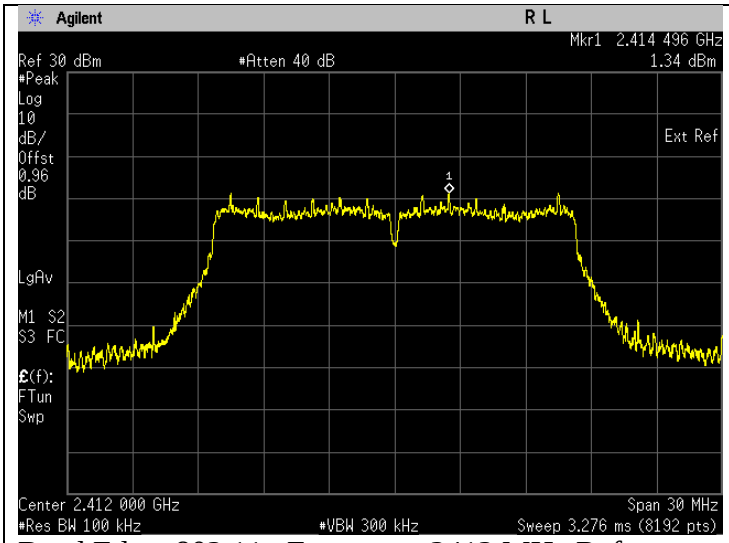
Band Edge. 802.11b Frequency 2462 MHz Reference Level



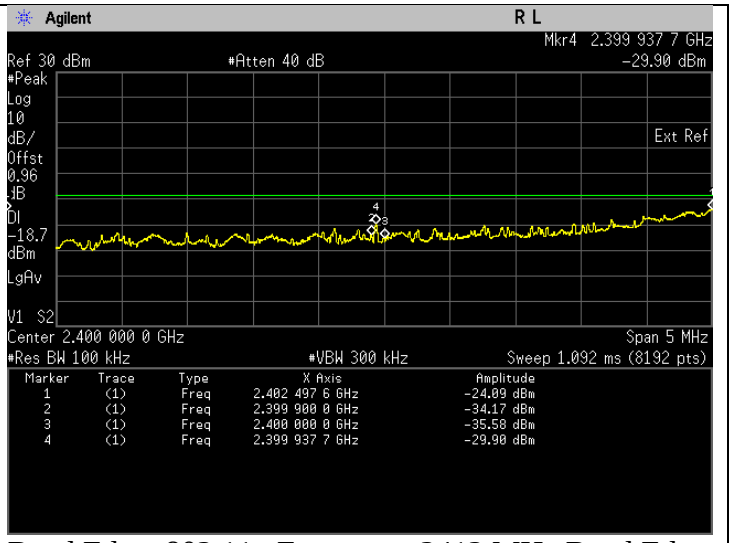
Band Edge. 802.11b Frequency 2462 MHz Band Edge

802.11g

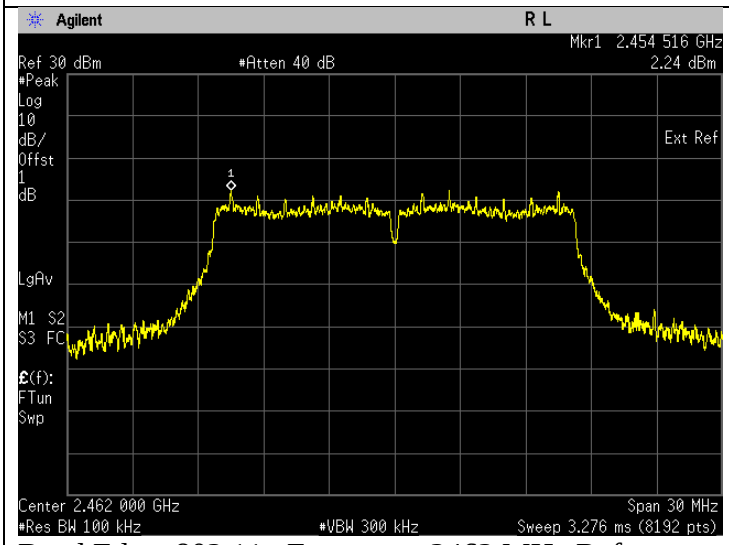
Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Frequencies (MHz)	Power (dBm)	Status
802.11g	OFDM	BPSK	6	2412	2399.94	-29.90	Pass
802.11g	OFDM	BPSK	6	2462	2483.51	-36.61	Pass



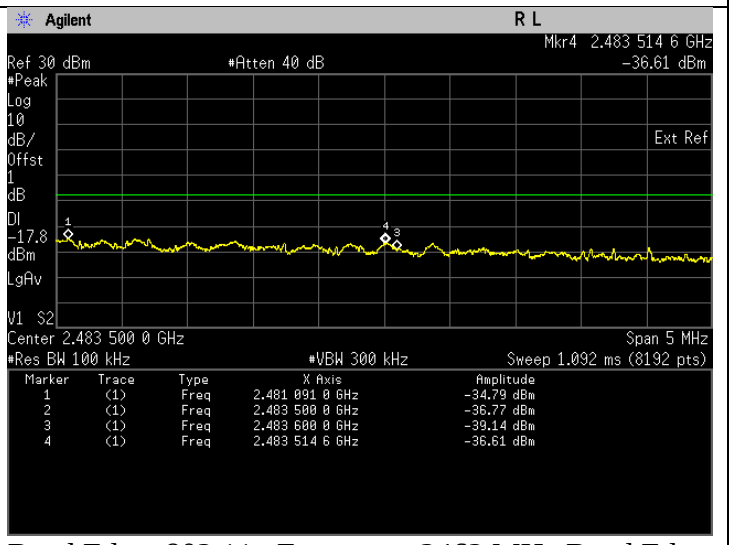
Band Edge. 802.11g Frequency 2412 MHz Reference Level



Band Edge. 802.11g Frequency 2412 MHz Band Edge



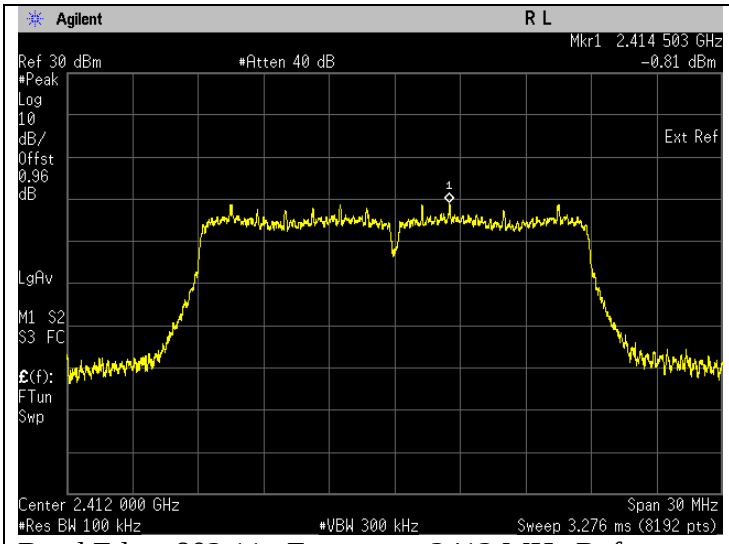
Band Edge. 802.11g Frequency 2462 MHz Reference Level



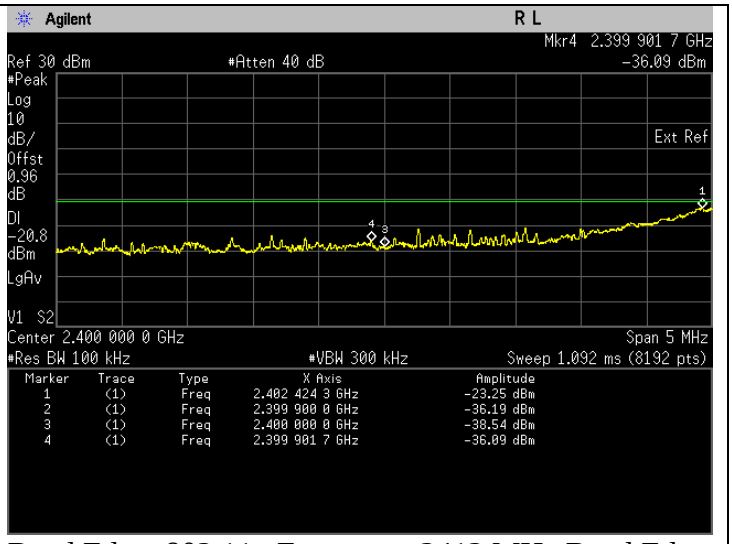
Band Edge. 802.11g Frequency 2462 MHz Band Edge

802.11n (HT20)

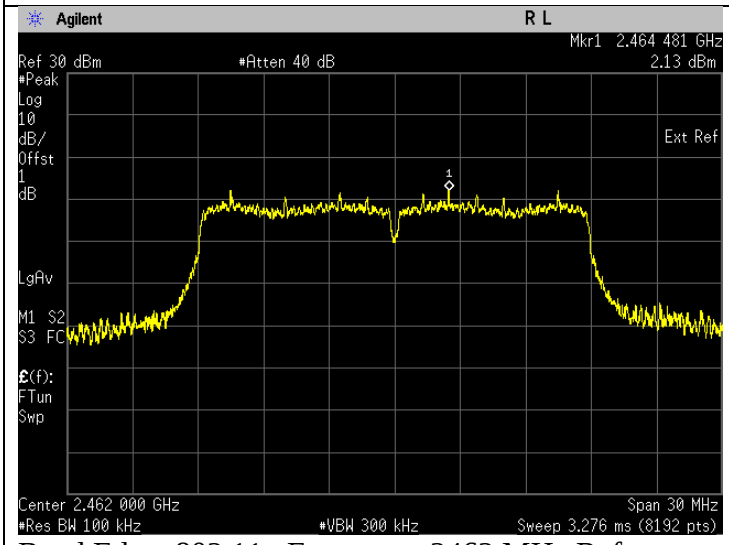
Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Frequencies (MHz)	Power (dBm)	Status
802.11n	OFDM	BPSK	6.5	2412	2399.90	-36.09	Pass
802.11n	OFDM	BPSK	6.5	2462	2483.50	-34.58	Pass



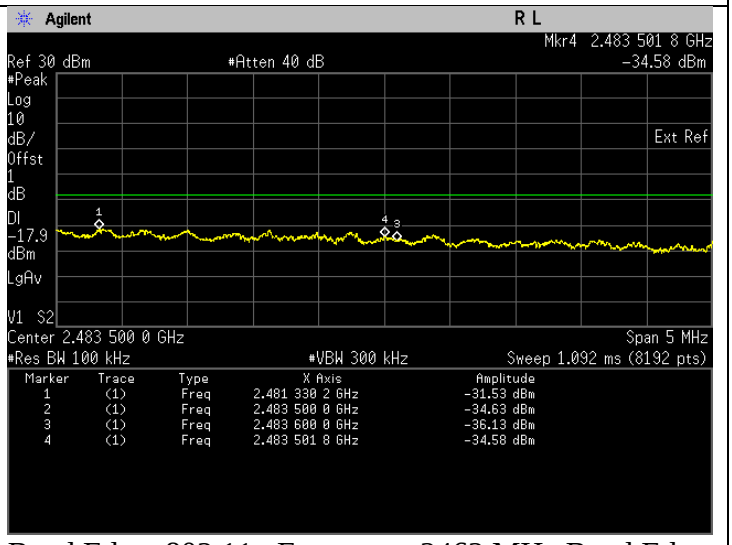
Band Edge. 802.11n Frequency 2412 MHz Reference Level



Band Edge. 802.11n Frequency 2412 MHz Band Edge



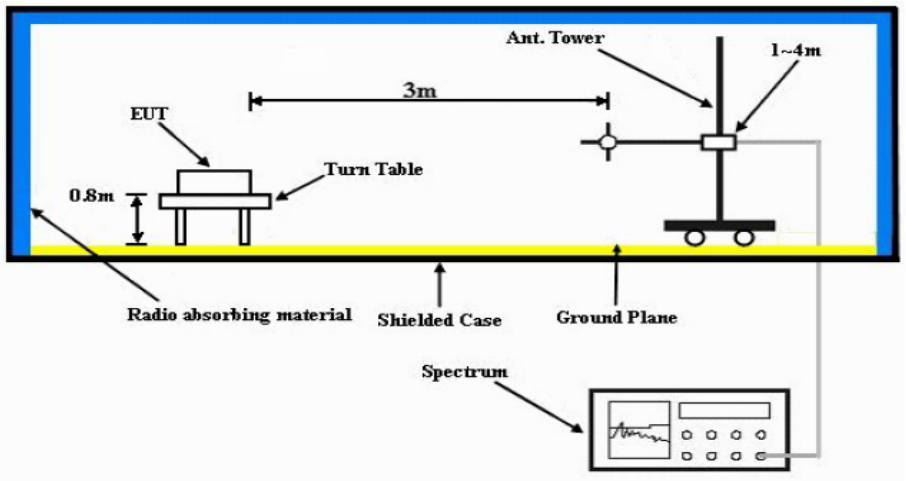
Band Edge. 802.11n Frequency 2462 MHz Reference Level



Band Edge. 802.11n Frequency 2462 MHz Band Edge

6.7. Radiated Emission within restricted Bands

6.7.1. Test Setup



a. The EUT is placed on the top of a rotating table 0.8m above the ground (<1GHz) and 1.5m above the ground (>1GHz) at a 3m semi-anechoic chamber. The table is rotated 360 degrees to determine the position of the highest radiation.
b. The EUT is set 3m away from the interference-receiving antenna, which is mounted on the top of a variable-height antenna tower.
c. The antenna is Bilog/Horn antenna depend on which frequency range uses, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT is arranged to its worst case and then the antenna is tuned to heights from 1m to 4m and the rotatable table is turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system is set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
f. If the emission level of the EUT in peak mode is fall within the range of 10dB from the limit specified, the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. Otherwise, the testing could be stopped and the peak values of the EUT would be reported.

NOTE:

a. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection at frequency below 1GHz.
b. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3 MHz for Peak detection at frequency above 1 GHz.
c. All modes of operation were investigated and the worst-case emissions are reported.

6.7.2. **Test Limits:**

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power.

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
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:

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

6.7.3. Test Data:

Test: WIFI SAC Restricted Band Edge
Model Number: AAH07RDH9SA1AN S/N: 651EAP0011 EMC SR ID#: 0549N01-EMC-00047
Battery: PMNN4890A Softpot power (16dBm) Accessory: PMAE4079A
Test Channel: Low Test Frequency: 2412.0000 MHz Test Standard: ANSI C63.10-2013
Worst Case Plane: Z-Plane (802.11b)

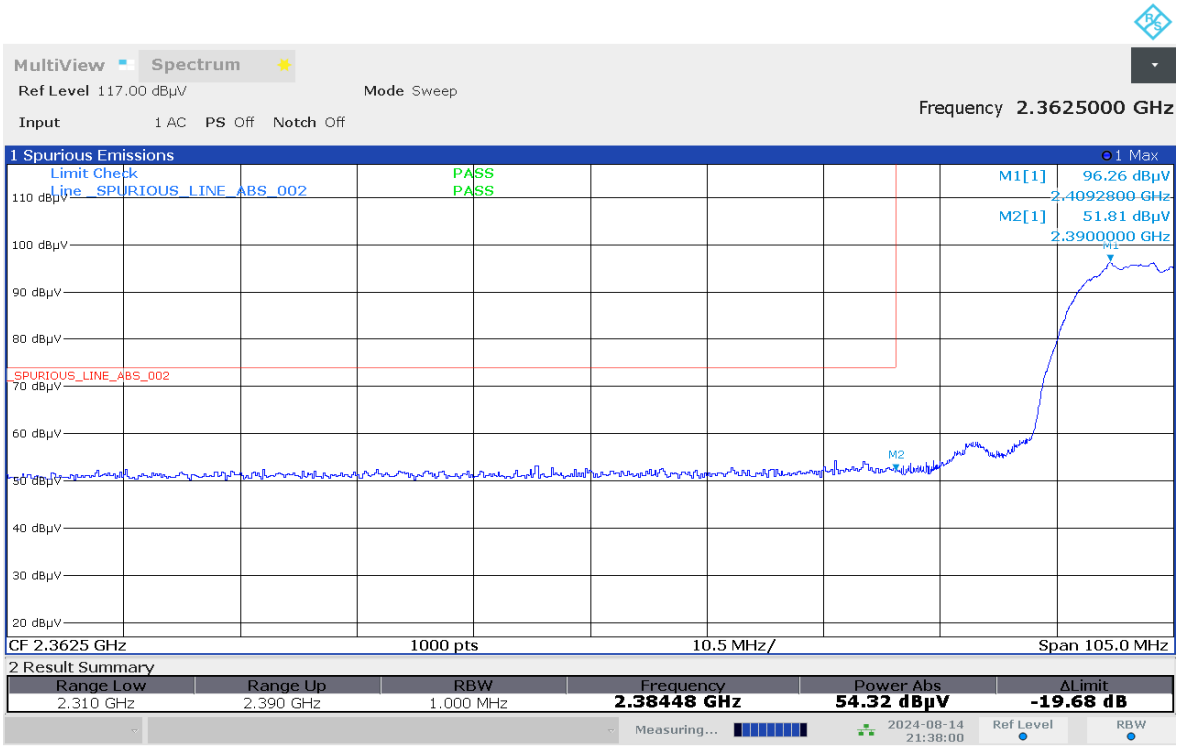
Restricted Band Edge (Low Channel) tabular data

Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
2390.0000	-	51.4942	41.5311	-	74.0000	54.0000	-	22.5058	12.4689	-
Horizontal Radiated Emission Result										
2390.0000	-	53.5552	43.7781	-	74.0000	54.0000	-	20.4448	10.2219	-

Remarks: Pass Result	Marginal Result	Fail Result

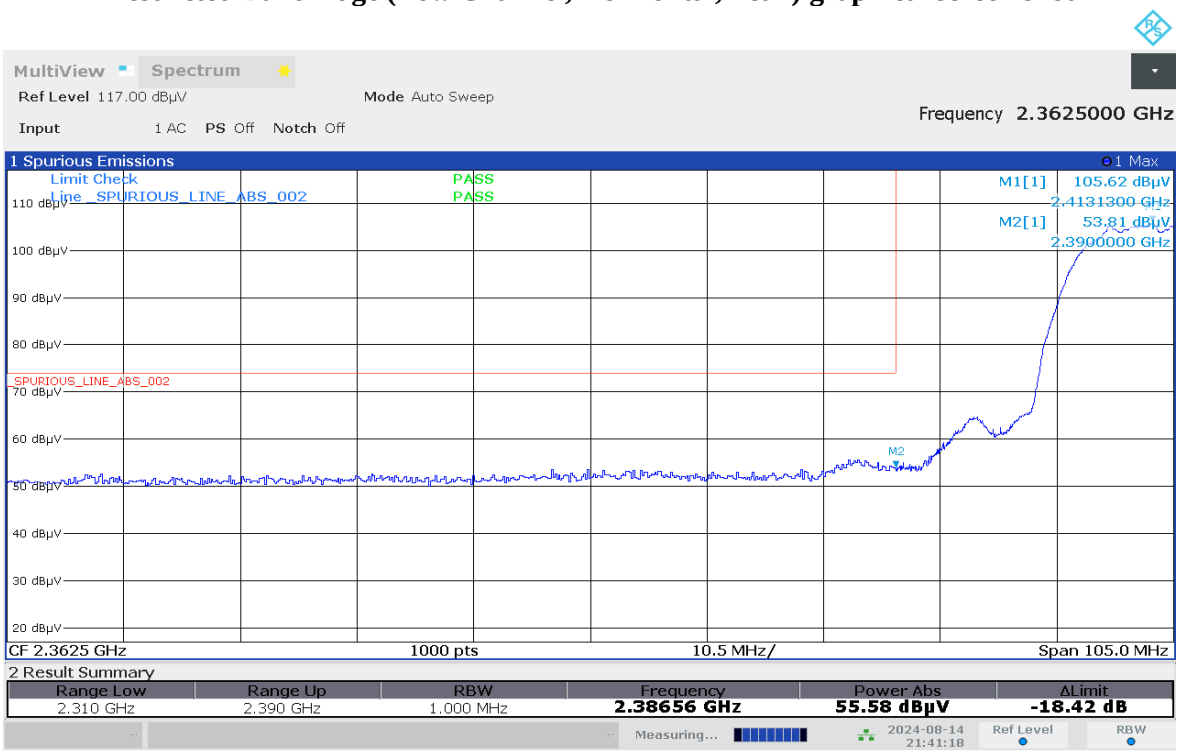
Temperature (degC): 23.6 **Humidity (%): 69.4**
Test Performed by: Rezza&Nazrin **Test Date: Thu, 15 Aug, 2024**
System MU: 5.84dB

Restricted Band Edge (Low Channel, Vertical, Peak) graphical screen shot



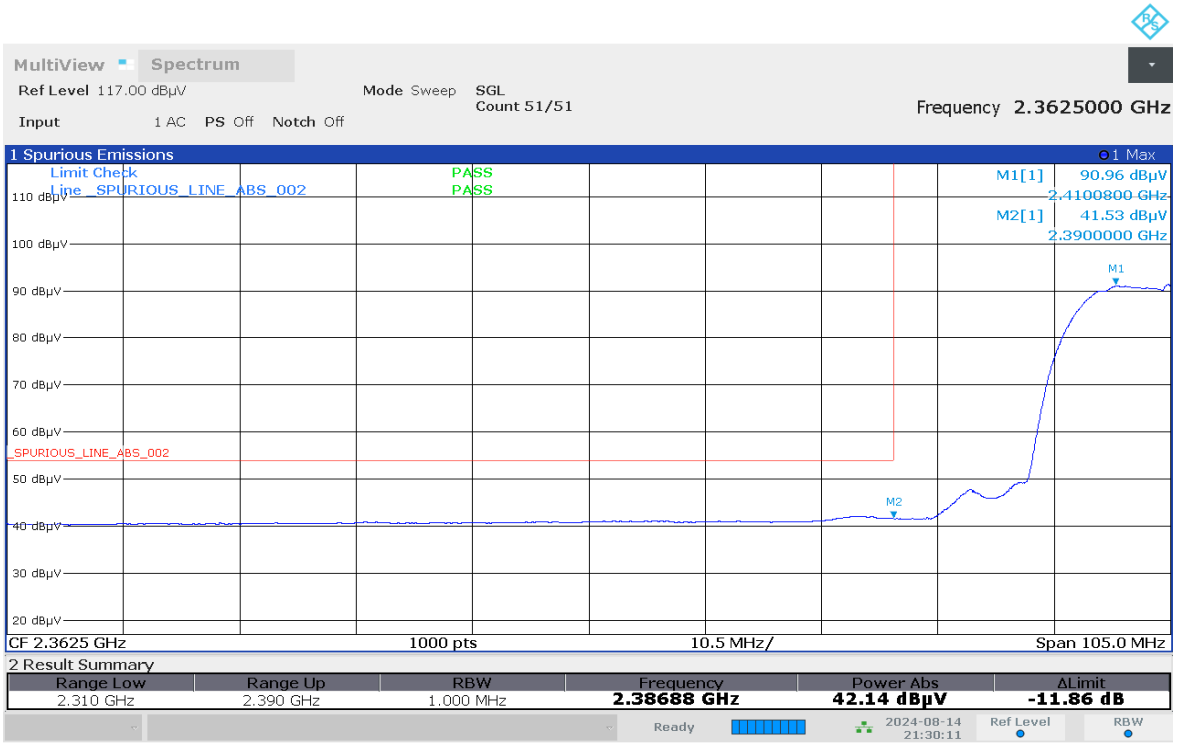
09:38:00 PM 08/14/2024

Restricted Band Edge (Low Channel, Horizontal, Peak) graphical screen shot



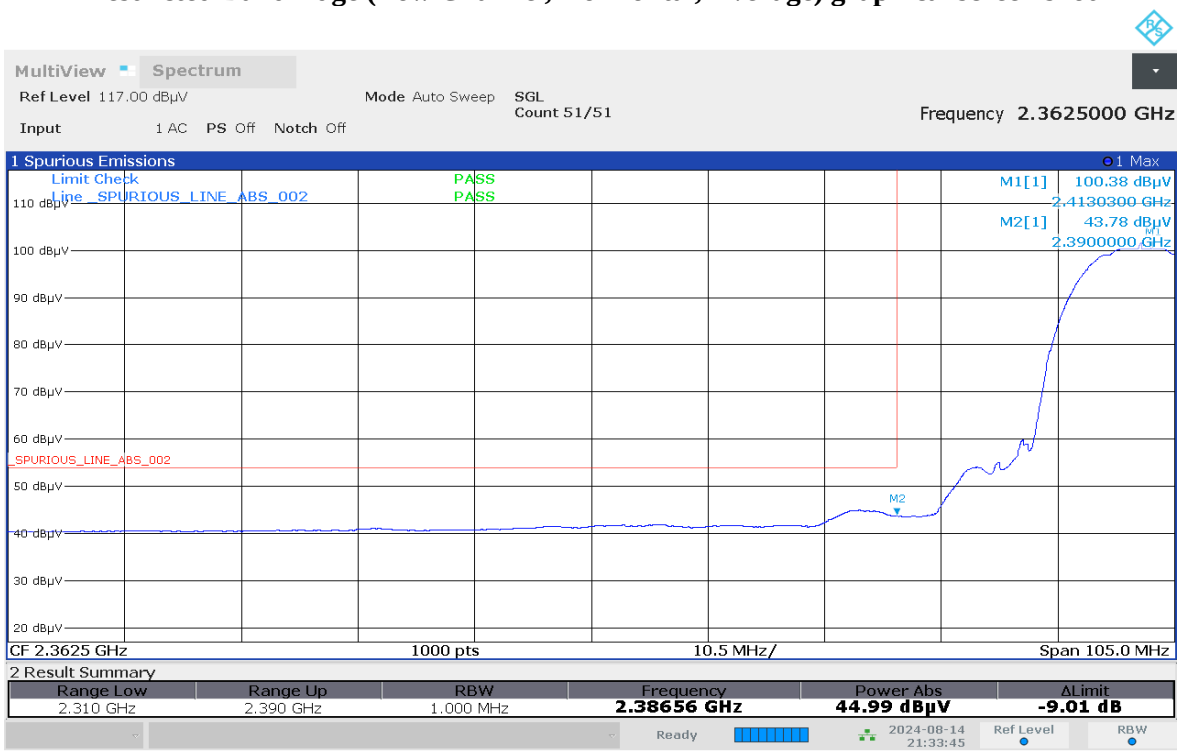
09:41:19 PM 08/14/2024

Restricted Band Edge (Low Channel, Vertical, Average) graphical screen shot



09:30:12 PM 08/14/2024

Restricted Band Edge (Low Channel, Horizontal, Average) graphical screen shot



09:33:46 PM 08/14/2024

Test: WIFI SAC Restricted Band Edge
Model Number: AAH07RDH9SA1AN S/N: 651EAP0011 EMC SR ID#: 0549N01-EMC-00047
Battery: PMNN4890A Softpot power (16dBm) Accessory: PMAE4079A
Test Channel: High Test Frequency: 2462.0000 MHz Test Standard: ANSI C63.10-2013
Worst Case Plane: Z-Plane (802.11b)

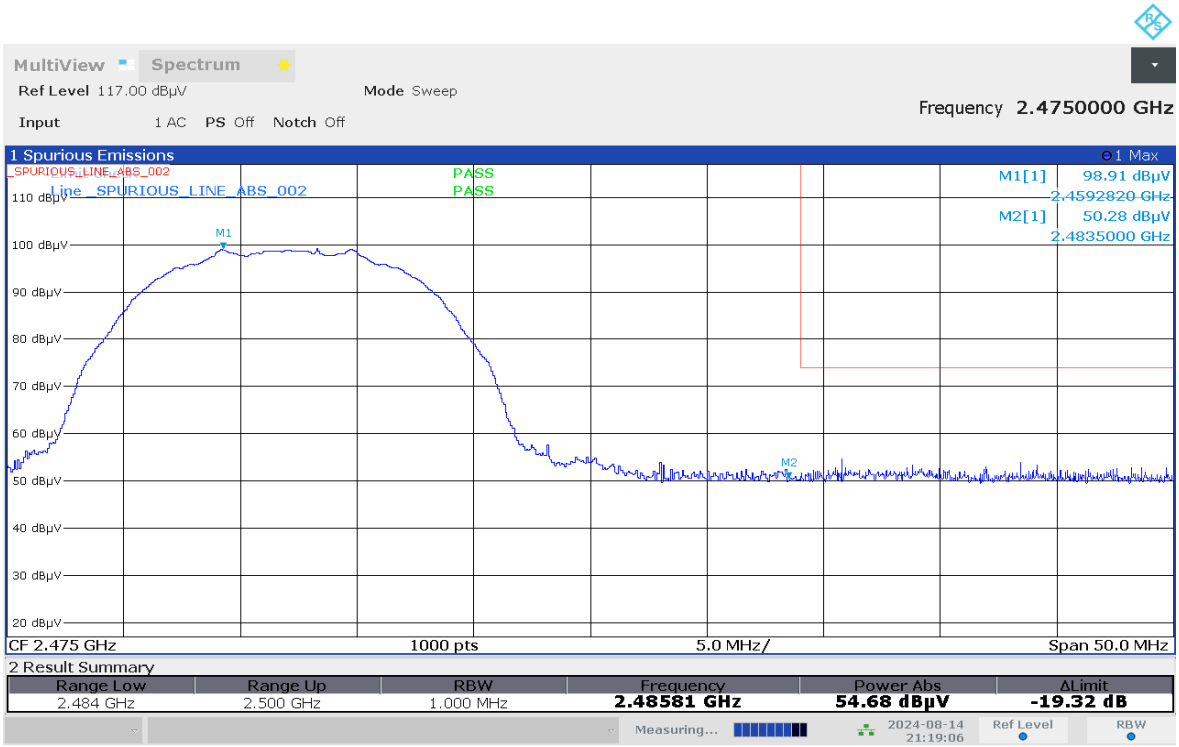
Restricted Band Edge (High Channel) tabular data

Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
2483.5000	-	50.2838	41.4777	-	74.0000	54.0000	-	23.7162	12.5223	-
Horizontal Radiated Emission Result										
2483.5000	-	50.8513	42.6108	-	74.0000	54.0000	-	23.1487	11.3892	-

Remarks: Pass Result	Marginal Result	Fail Result

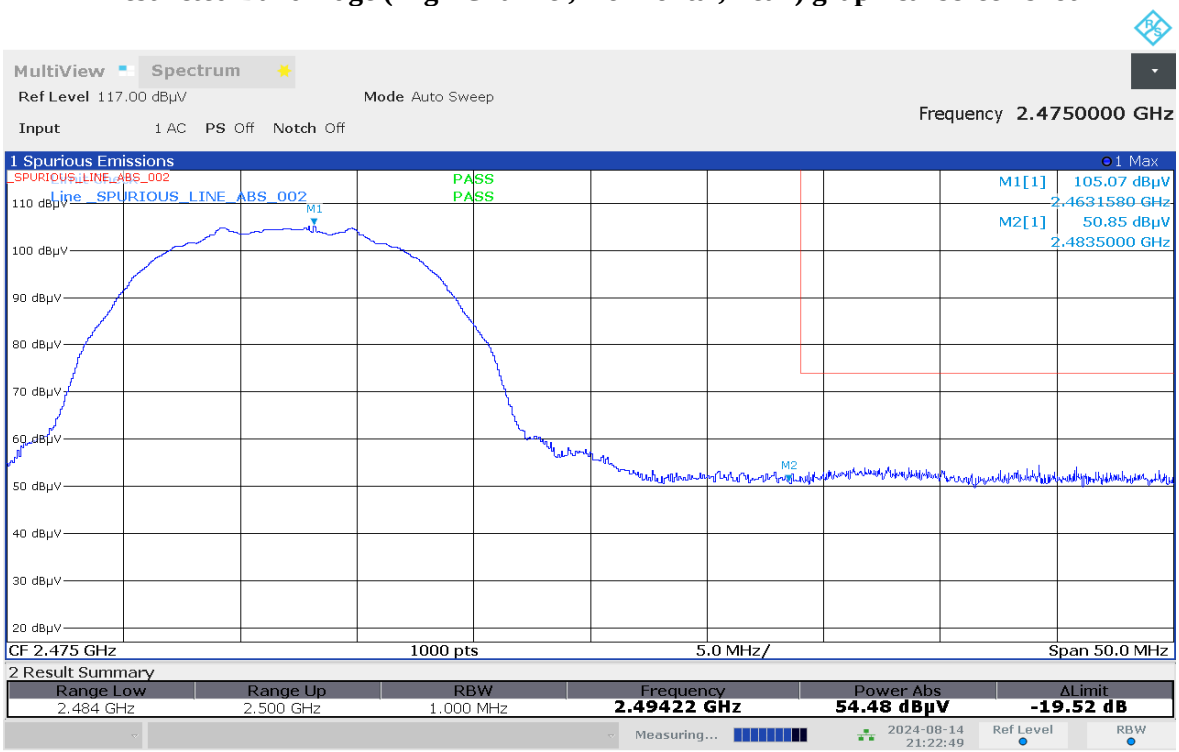
Temperature (degC): 23.6 **Humidity (%): 69.4**
Test Performed by: Rezza&Nazrin **Test Date: Thu, 15 Aug, 2024**
System MU: 5.84dB

Restricted Band Edge (High Channel, Vertical, Peak) graphical screen shot



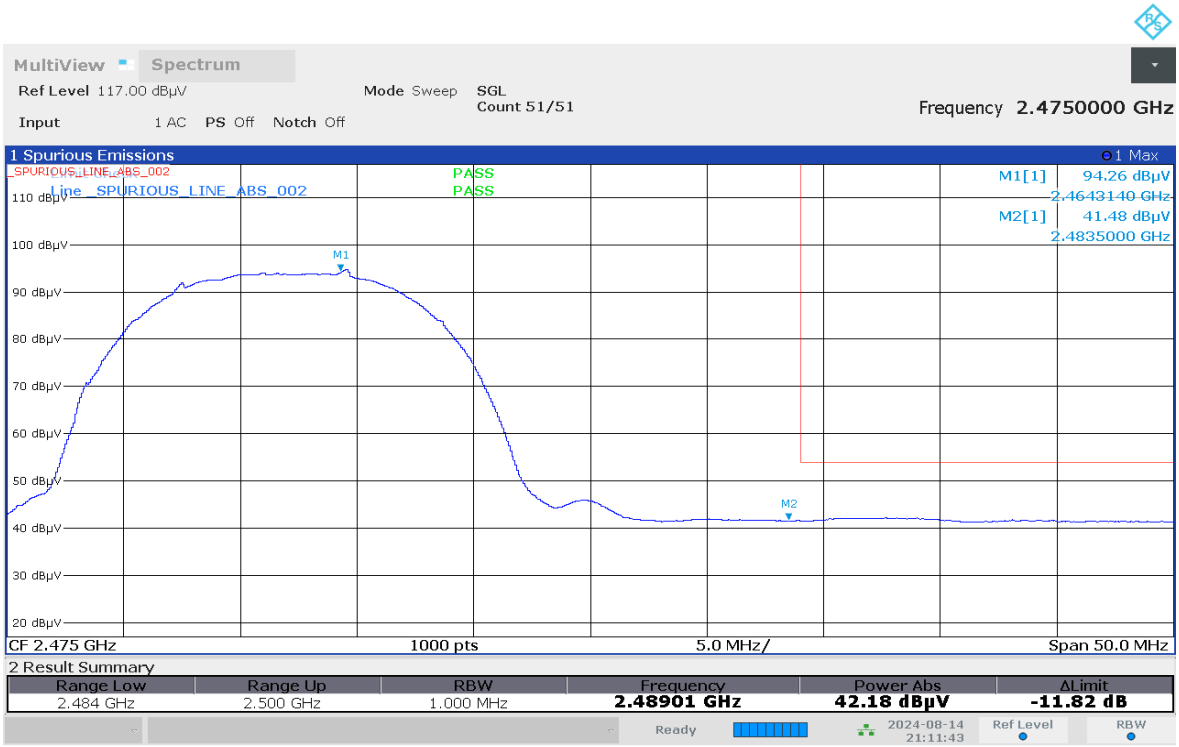
09:19:07 PM 08/14/2024

Restricted Band Edge (High Channel, Horizontal, Peak) graphical screen shot



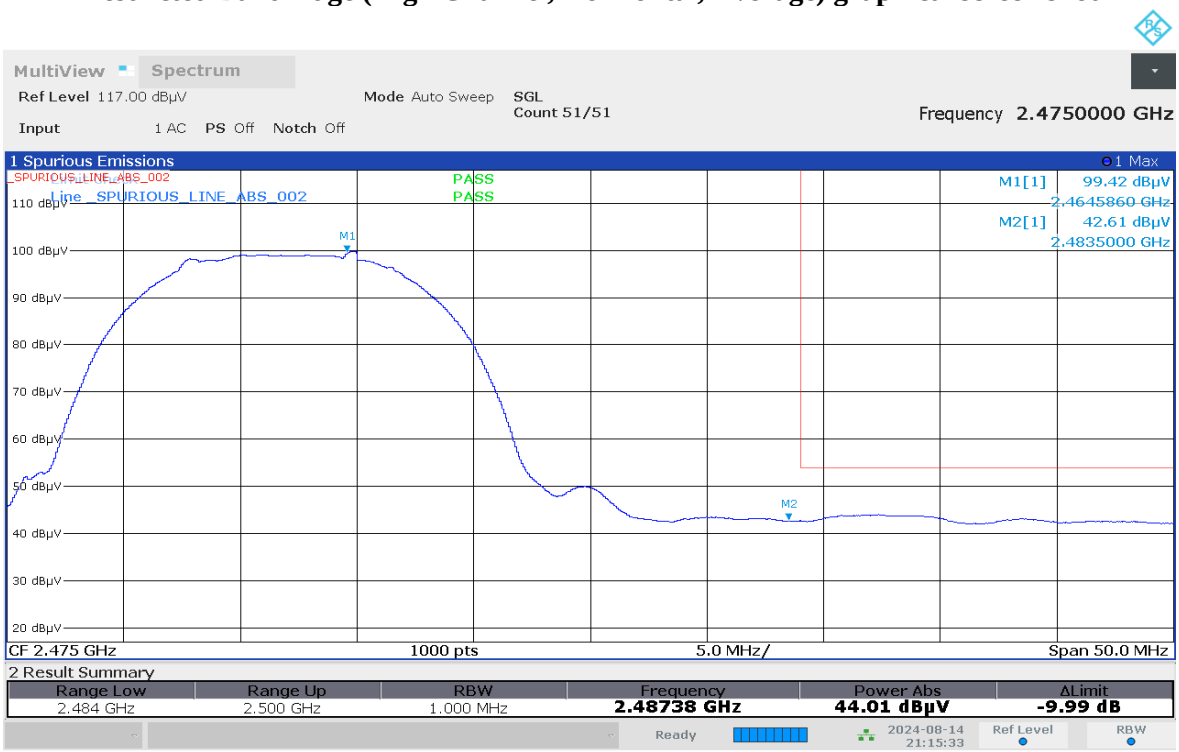
09:22:49 PM 08/14/2024

Restricted Band Edge (High Channel, Vertical, Average) graphical screen shot



09:11:43 PM 08/14/2024

Restricted Band Edge (High Channel, Horizontal, Average) graphical screen shot



09:15:33 PM 08/14/2024

Test: WIFI SAC Restricted Band Edge
Model Number: AAH07RDH9SA1AN S/N: 651EAP0011 EMC SR ID#: 0549N01-EMC-00047
Battery: PMNN4890A Softpot power (12dBm) Accessory: PMAE4079A
Test Channel: Low Test Frequency: 2412.0000 MHz Test Standard: ANSI C63.10-2013
Worst Case Plane: Z-Plane (802.11g)

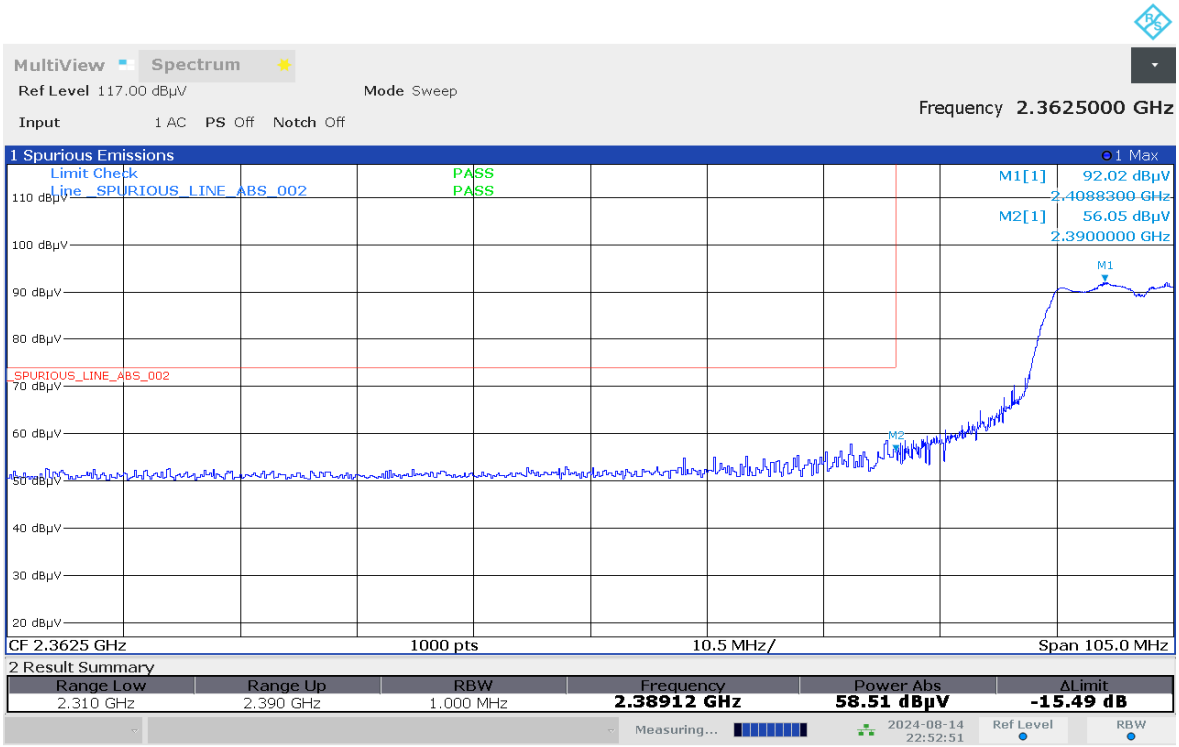
Restricted Band Edge (Low Channel) tabular data

Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
2390.0000	-	56.0530	42.3964	-	74.0000	54.0000	-	17.9470	11.6036	-
Horizontal Radiated Emission Result										
2390.0000	-	64.6261	46.9524	-	74.0000	54.0000	-	9.3739	7.0476	-

Remarks: Pass Result	Marginal Result	Fail Result

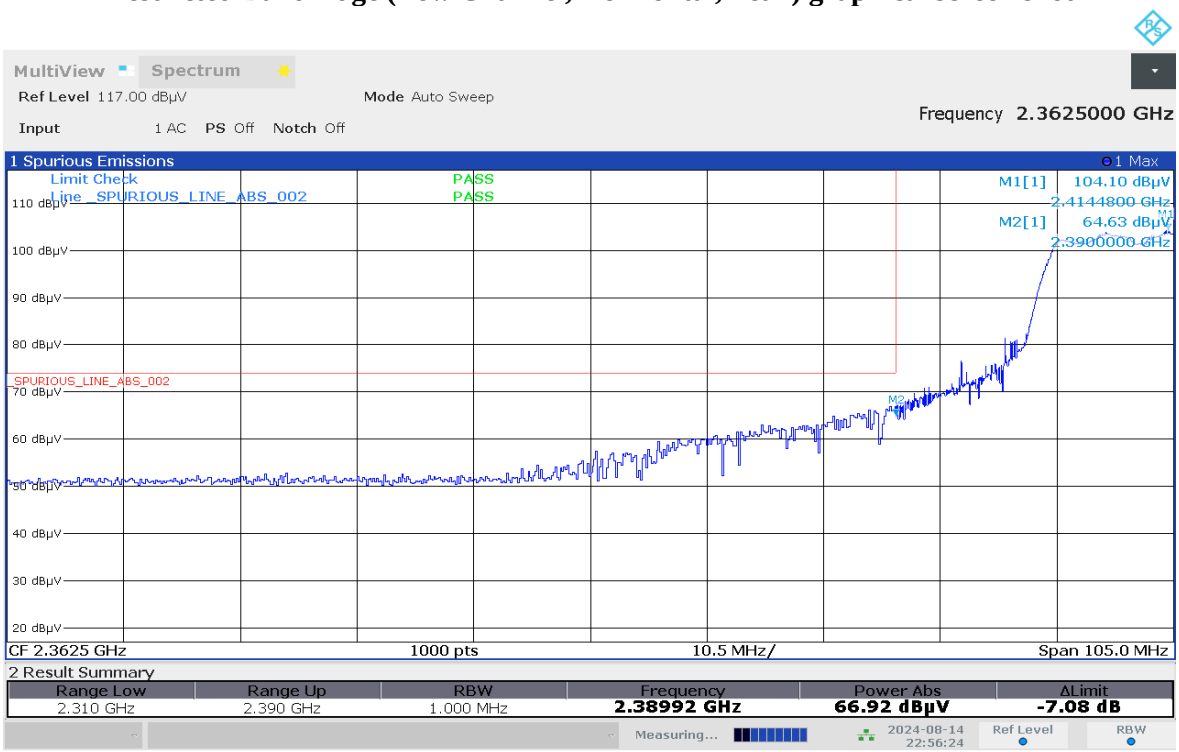
Temperature (degC): 23.6 **Humidity (%): 69.4**
Test Performed by: Rezza&Nazrin **Test Date: Thu, 15 Aug, 2024**
System MU: 5.84dB

Restricted Band Edge (Low Channel, Vertical, Peak) graphical screen shot



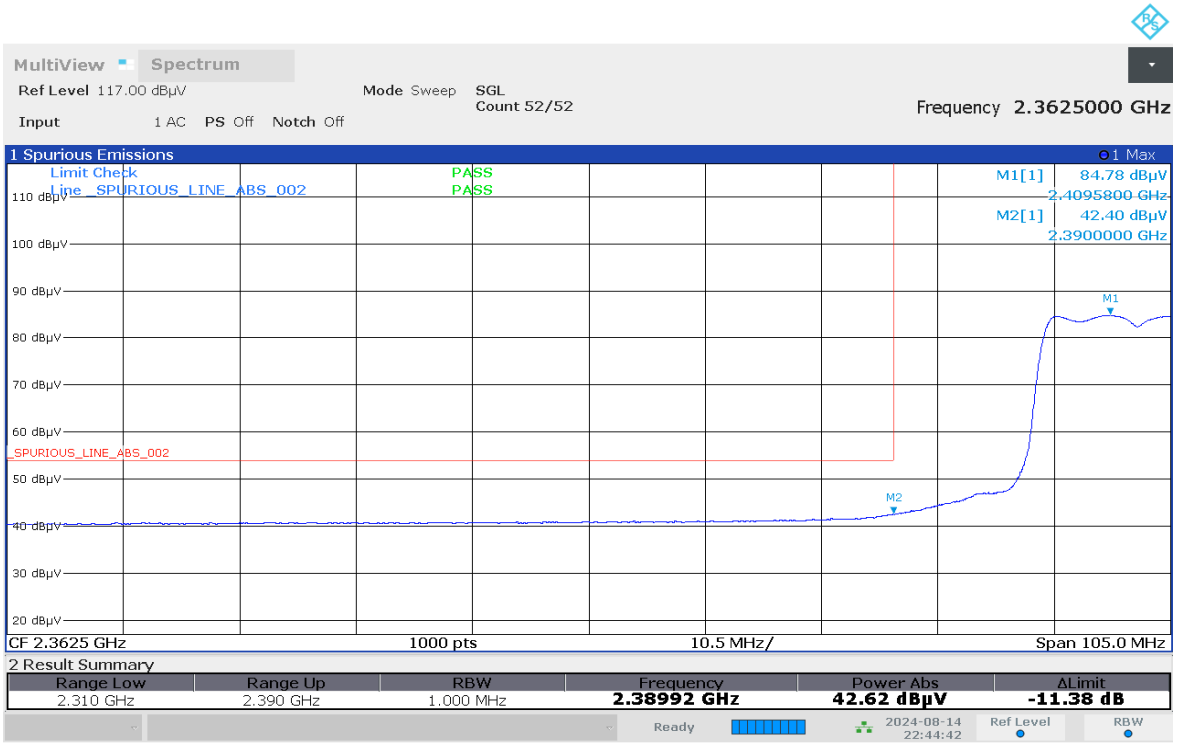
10:52:51 PM 08/14/2024

Restricted Band Edge (Low Channel, Horizontal, Peak) graphical screen shot



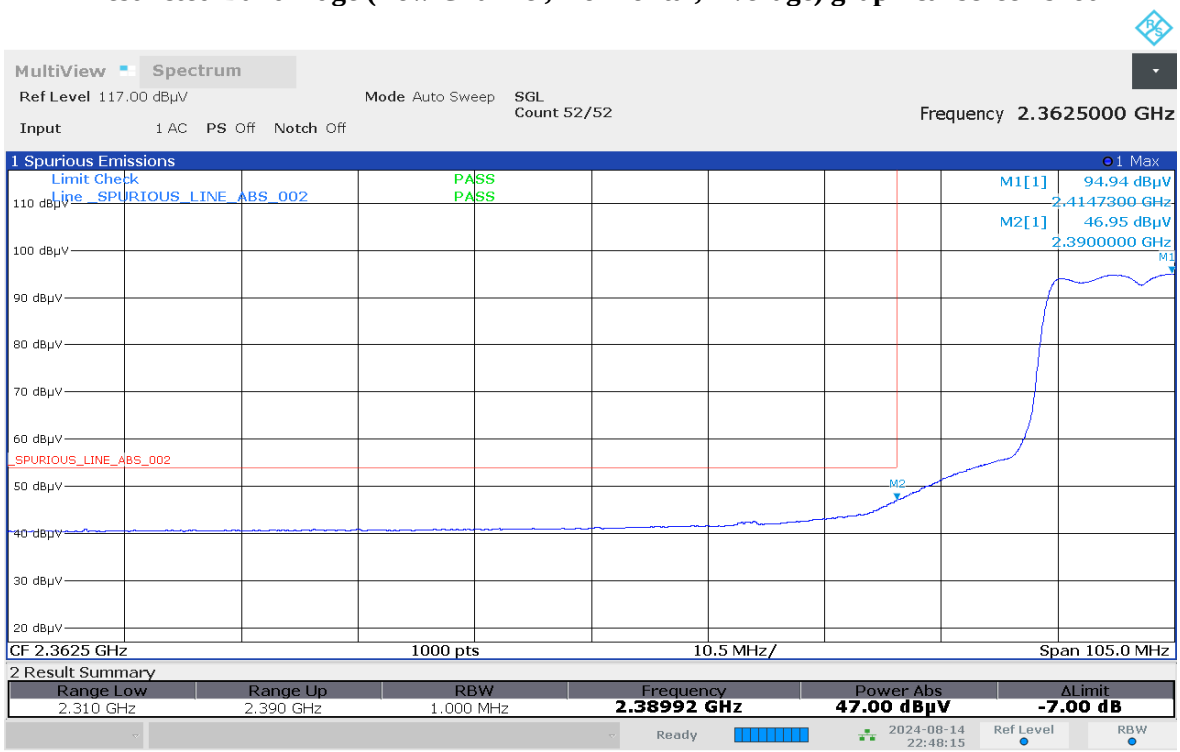
10:56:24 PM 08/14/2024

Restricted Band Edge (Low Channel, Vertical, Average) graphical screen shot



10:44:42 PM 08/14/2024

Restricted Band Edge (Low Channel, Horizontal, Average) graphical screen shot



10:48:15 PM 08/14/2024

Test: WIFI SAC Restricted Band Edge
Model Number: AAH07RDH9SA1AN S/N: 651EAP0011 EMC SR ID#: 0549N01-EMC-00047
Battery: PMNN4890A Softpot power (15dBm) Accessory: PMAE4079A
Test Channel: High Test Frequency: 2462.0000 MHz Test Standard: ANSI C63.10-2013
Worst Case Plane: Z-Plane (802.11g)

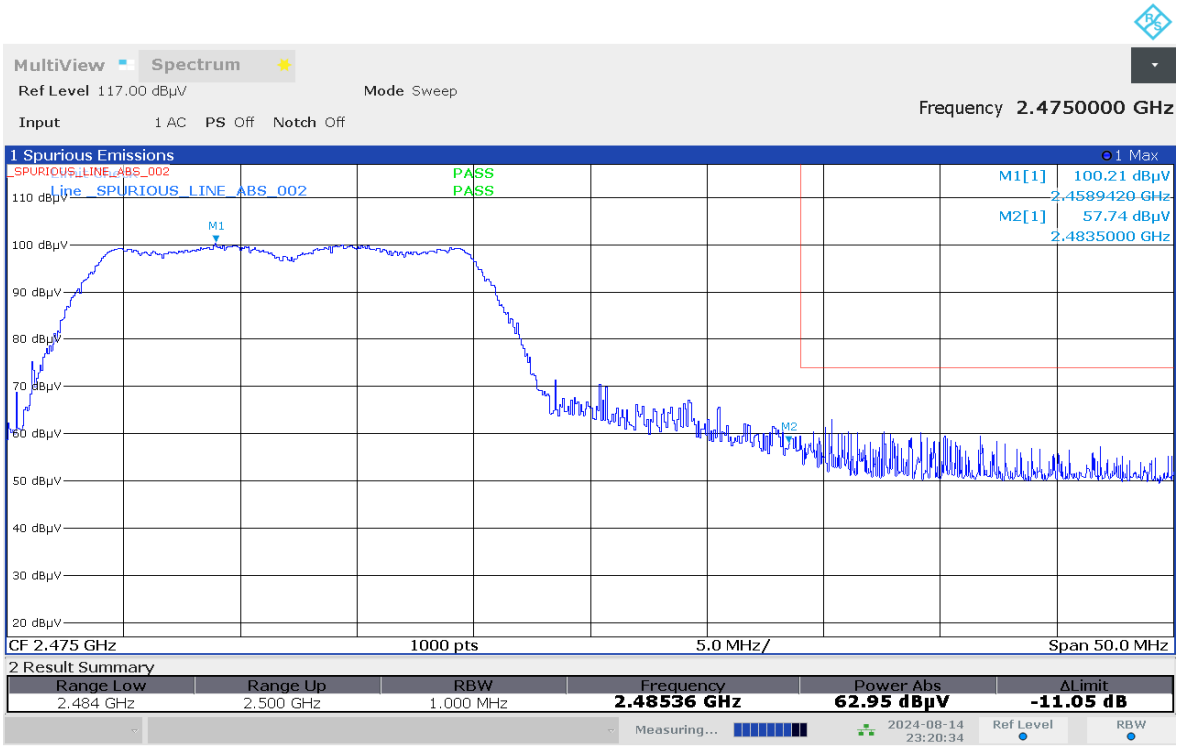
Restricted Band Edge (High Channel) tabular data

Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
2483.5000	-	57.7447	43.8329	-	74.0000	54.0000	-	16.2553	10.1671	-
Horizontal Radiated Emission Result										
2483.5000	-	60.1175	46.4797	-	74.0000	54.0000	-	13.8825	7.5203	-

Remarks: Pass Result	Marginal Result	Fail Result

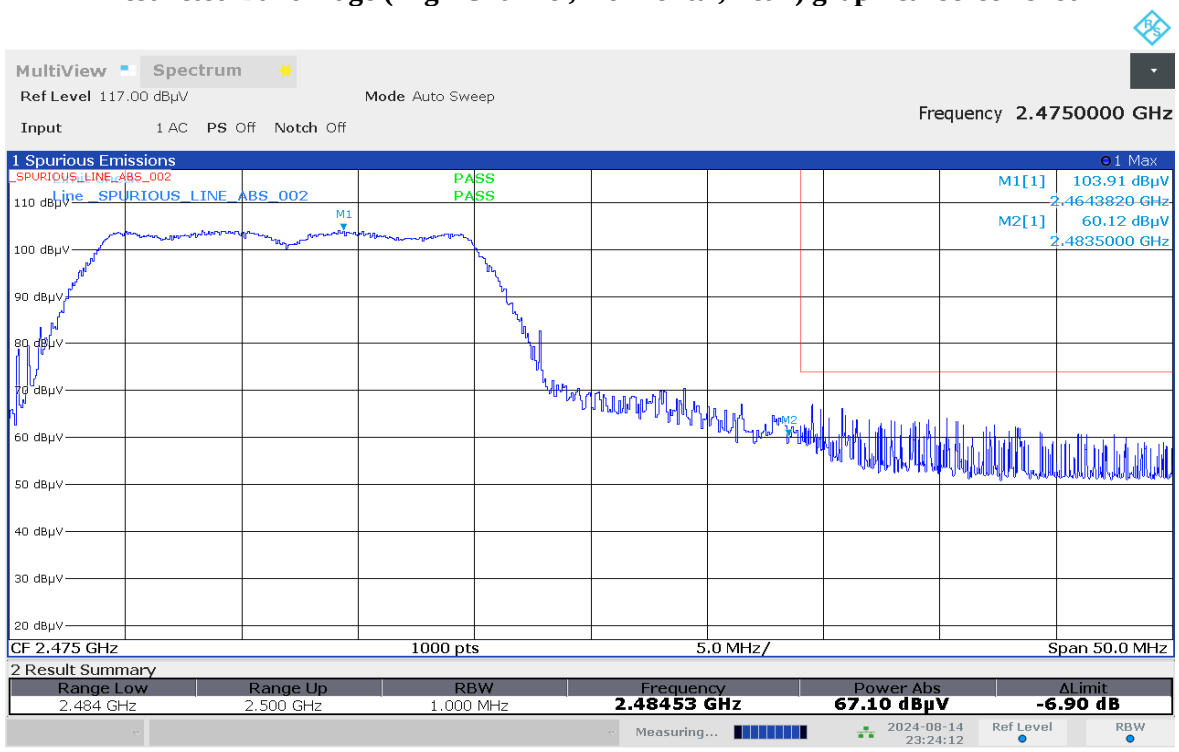
Temperature (degC): 23.6 **Humidity (%): 69.4**
Test Performed by: Rezza&Nazrin **Test Date: Thu, 15 Aug, 2024**
System MU: 5.84dB

Restricted Band Edge (High Channel, Vertical, Peak) graphical screen shot



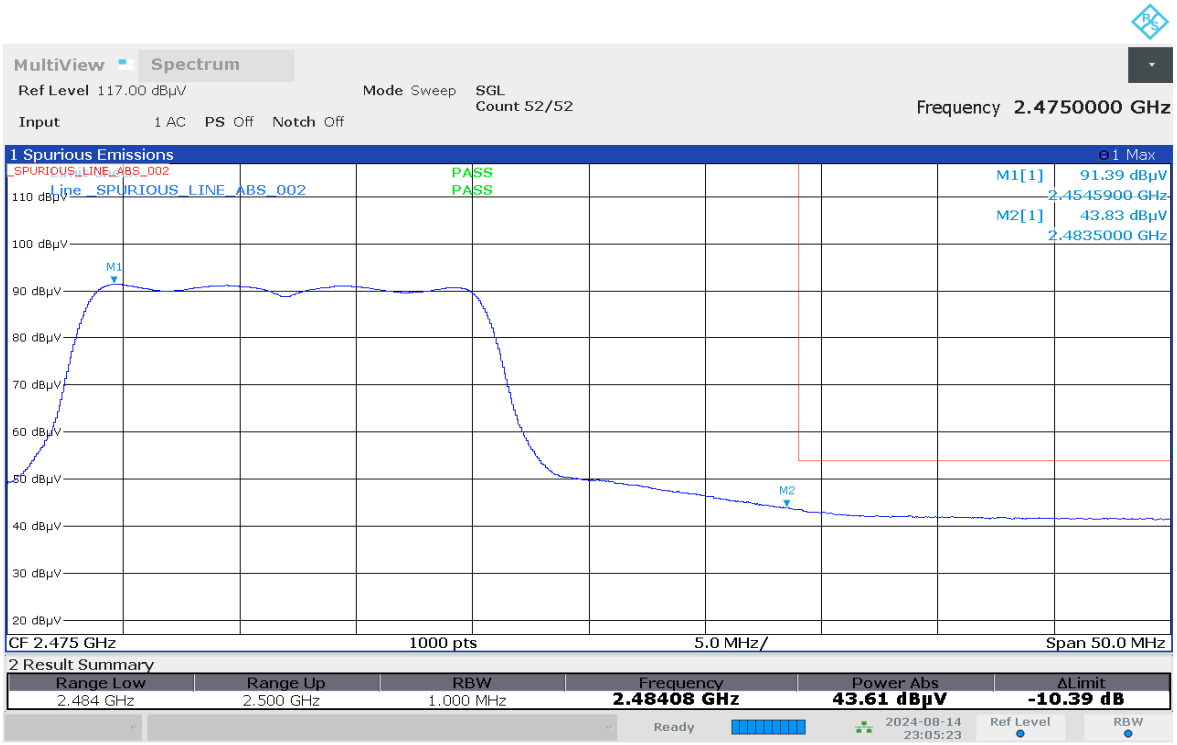
11:20:34 PM 08/14/2024

Restricted Band Edge (High Channel, Horizontal, Peak) graphical screen shot



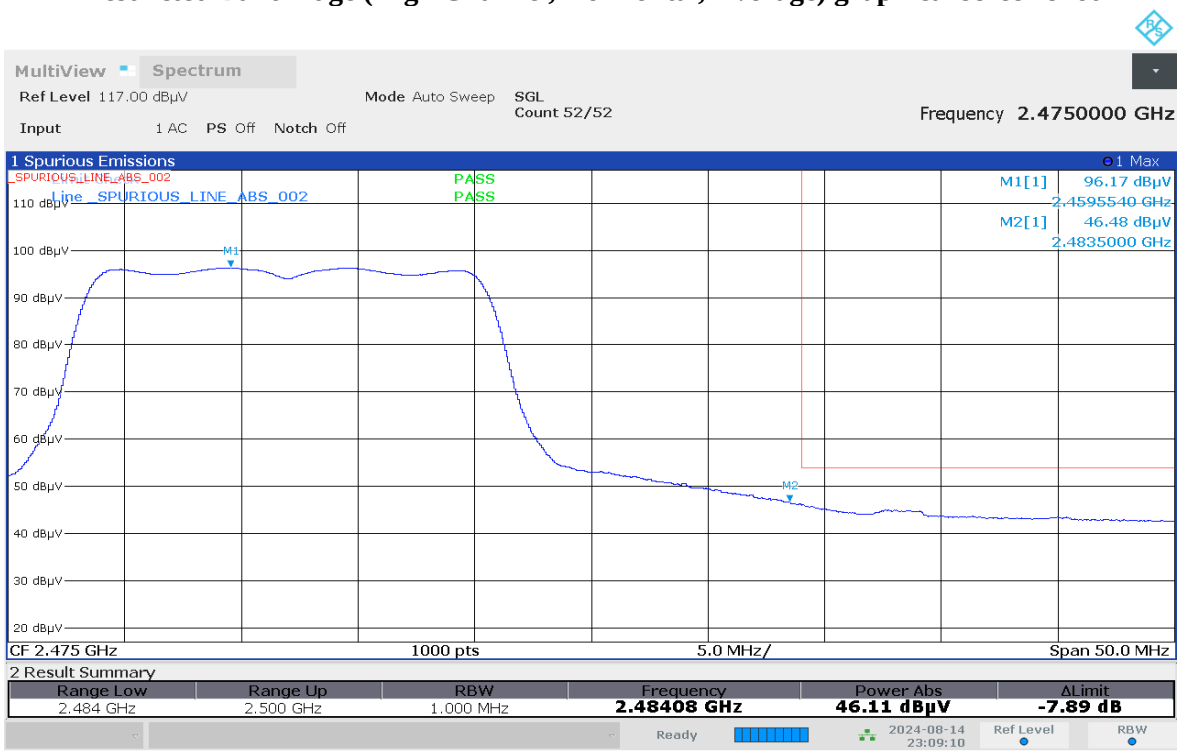
11:24:12 PM 08/14/2024

Restricted Band Edge (High Channel, Vertical, Average) graphical screen shot



11:05:24 PM 08/14/2024

Restricted Band Edge (High Channel, Horizontal, Average) graphical screen shot



11:09:11 PM 08/14/2024

Test: WIFI SAC Restricted Band Edge
Model Number: AAH07RDH9SA1AN S/N: 651EAP0011 EMC SR ID#: 0549N01-EMC-00047
Battery: PMNN4890A Softpot power (11dBm) Accessory: PMAE4079A
Test Channel: Low Test Frequency: 2412.0000 MHz Test Standard: ANSI C63.10-2013
Worst Case Plane: Z-Plane (802.11n20)

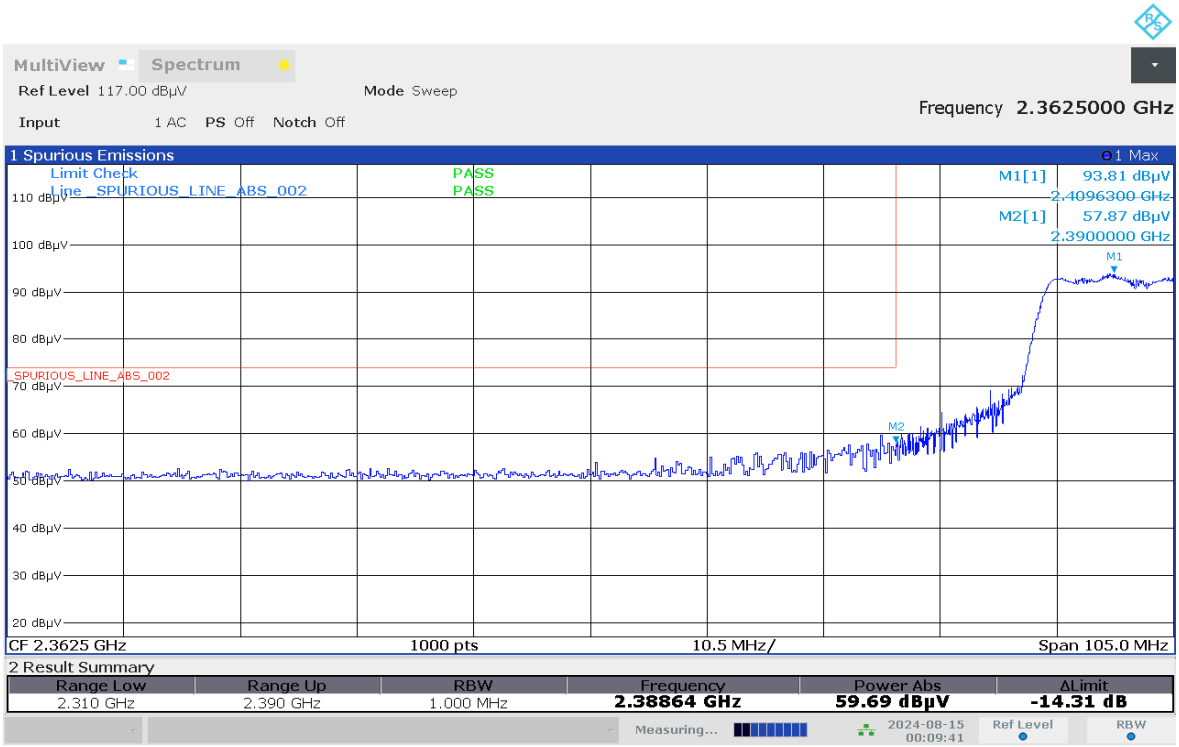
Restricted Band Edge (Low Channel) tabular data

Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
2390.0000	-	57.8663	42.7630	-	74.0000	54.0000	-	16.1337	11.2370	-
Horizontal Radiated Emission Result										
2390.0000	-	60.4586	47.3846	-	74.0000	54.0000	-	13.5414	6.6154	-

Remarks: Pass Result	Marginal Result	Fail Result

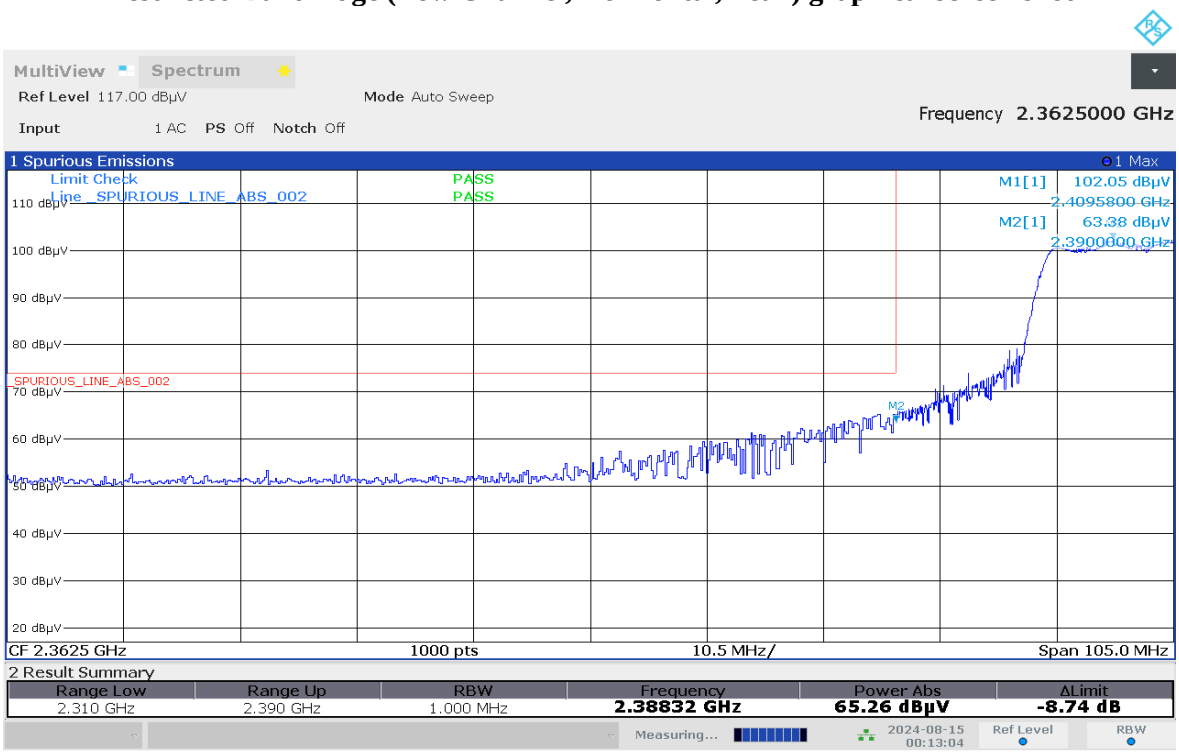
Temperature (degC): 23.6 **Humidity (%): 69.4**
Test Performed by: Rezza&Nazrin **Test Date: Thu, 15 Aug, 2024**
System MU: 5.84dB

Restricted Band Edge (Low Channel, Vertical, Peak) graphical screen shot



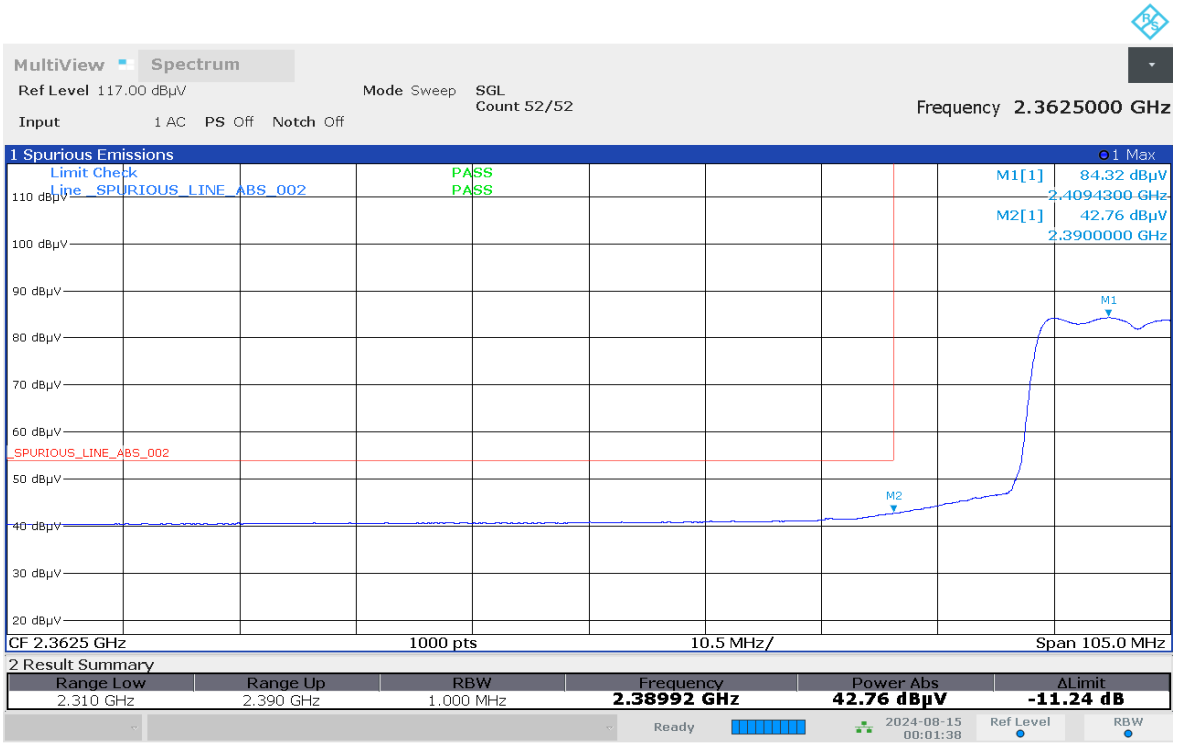
12:09:42 AM 08/15/2024

Restricted Band Edge (Low Channel, Horizontal, Peak) graphical screen shot



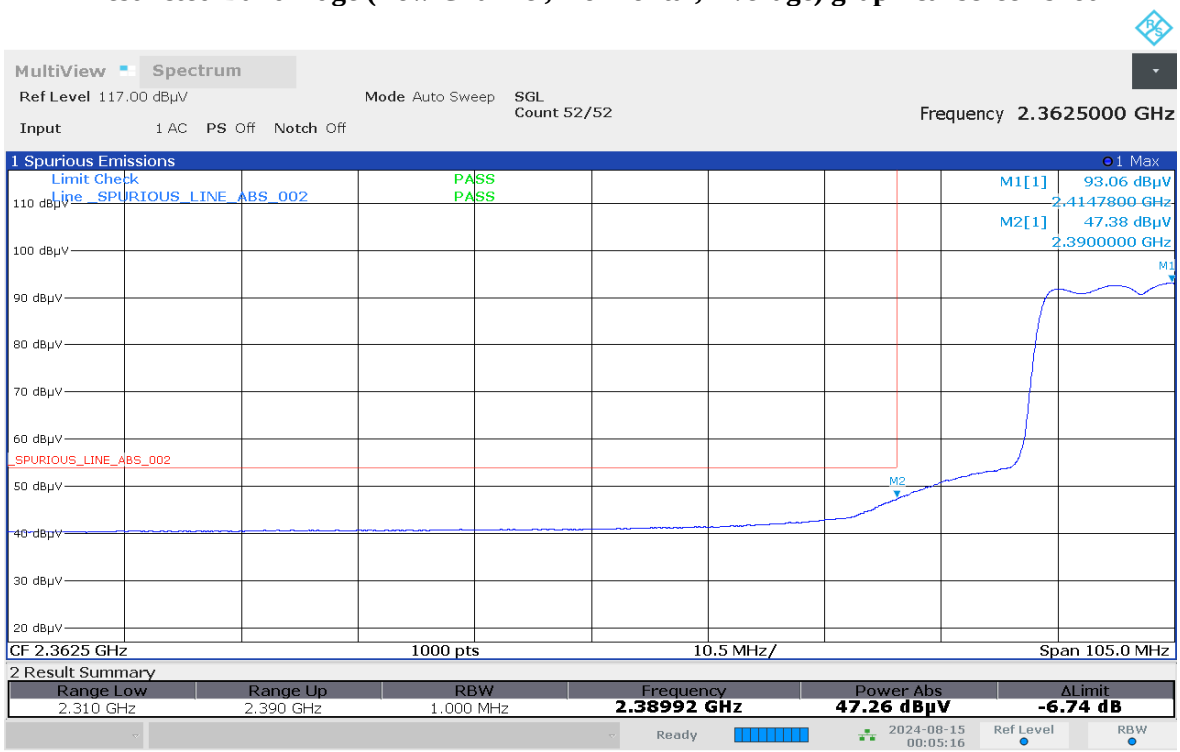
12:13:04 AM 08/15/2024

Restricted Band Edge (Low Channel, Vertical, Average) graphical screen shot



12:01:38 AM 08/15/2024

Restricted Band Edge (Low Channel, Horizontal, Average) graphical screen shot



12:05:16 AM 08/15/2024

Test: WIFI SAC Restricted Band Edge
Model Number: AAH07RDH9SA1AN S/N: 651EAP0011 EMC SR ID#: 0549N01-EMC-00047
Battery: PMNN4890A Softpot power (14dBm) Accessory: PMAE4079A
Test Channel: High Test Frequency: 2462.0000 MHz Test Standard: ANSI C63.10-2013
Worst Case Plane: Z-Plane (802.11n20)

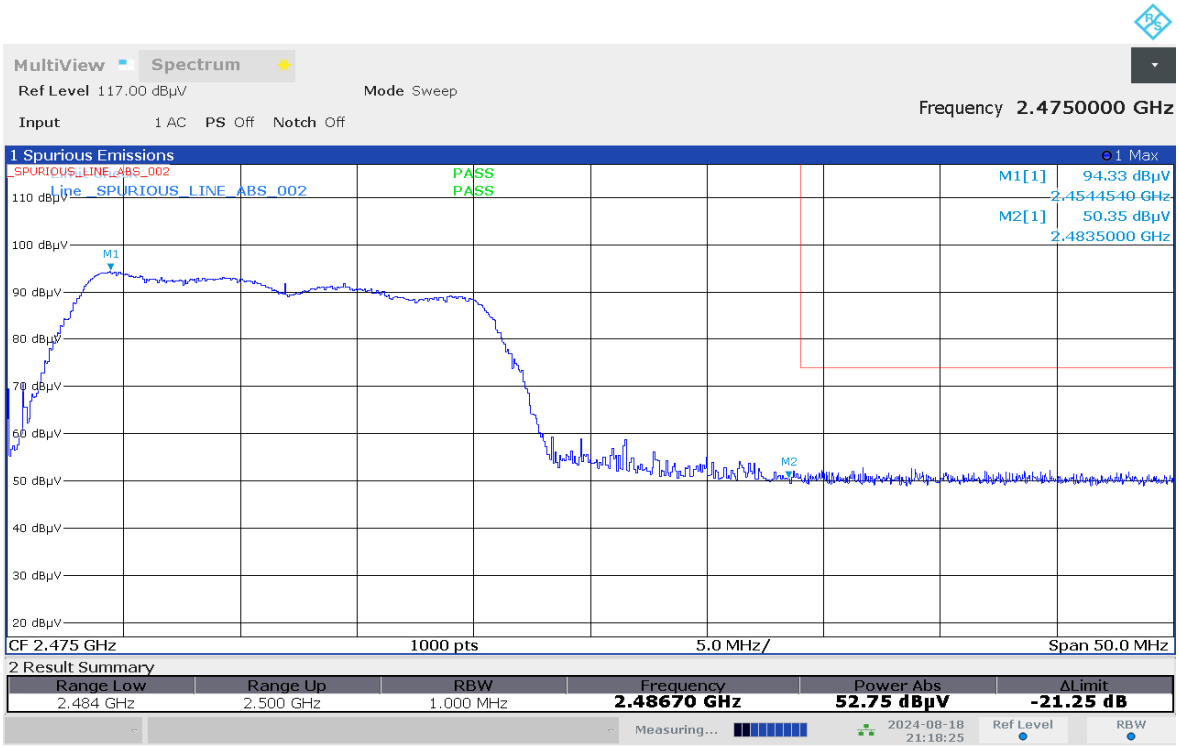
Restricted Band Edge (High Channel) tabular data

Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
2483.5000	-	50.1392	42.9778	-	74.0000	54.0000	-	23.8608	11.0222	-
Horizontal Radiated Emission Result										
2483.5000	-	61.7596	46.3181	-	74.0000	54.0000	-	12.2404	7.6819	-

Remarks: Pass Result	Marginal Result	Fail Result

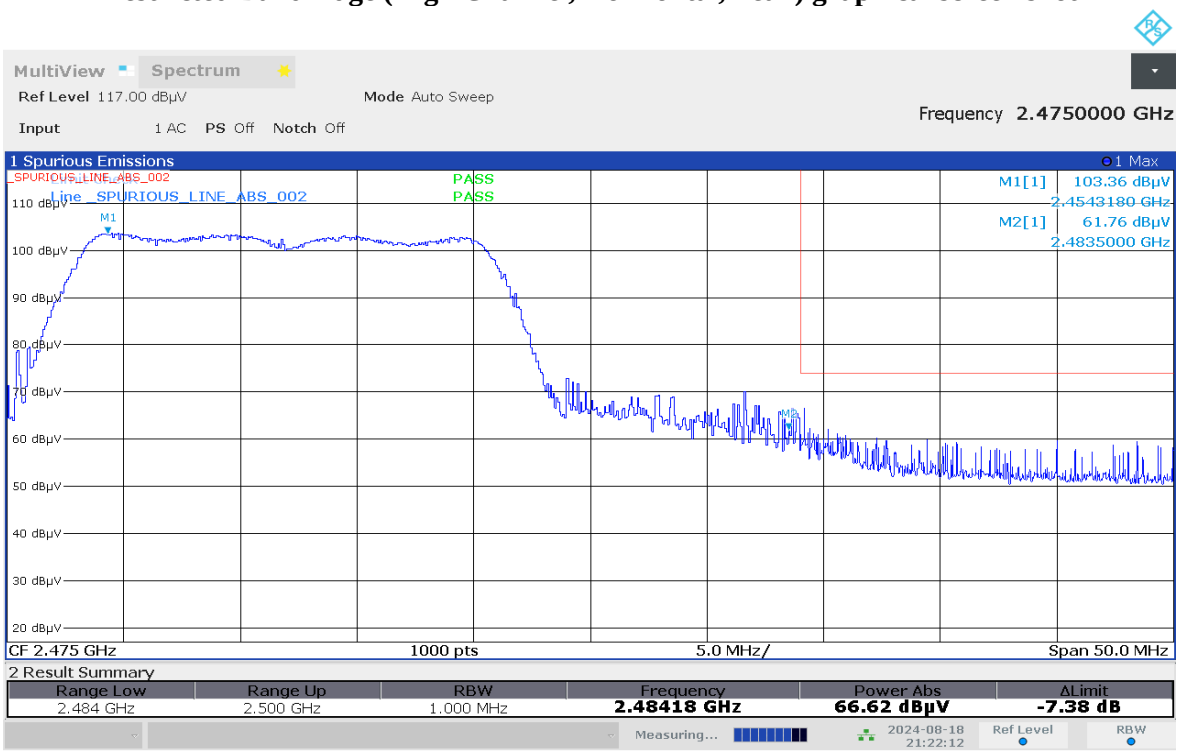
Temperature (degC): 23.5 **Humidity (%): 69.3**
Test Performed by: Nazrin & Rezza **Test Date: Mon, 19 Aug, 2024**
System MU: 5.84dB

Restricted Band Edge (High Channel, Vertical, Peak) graphical screen shot



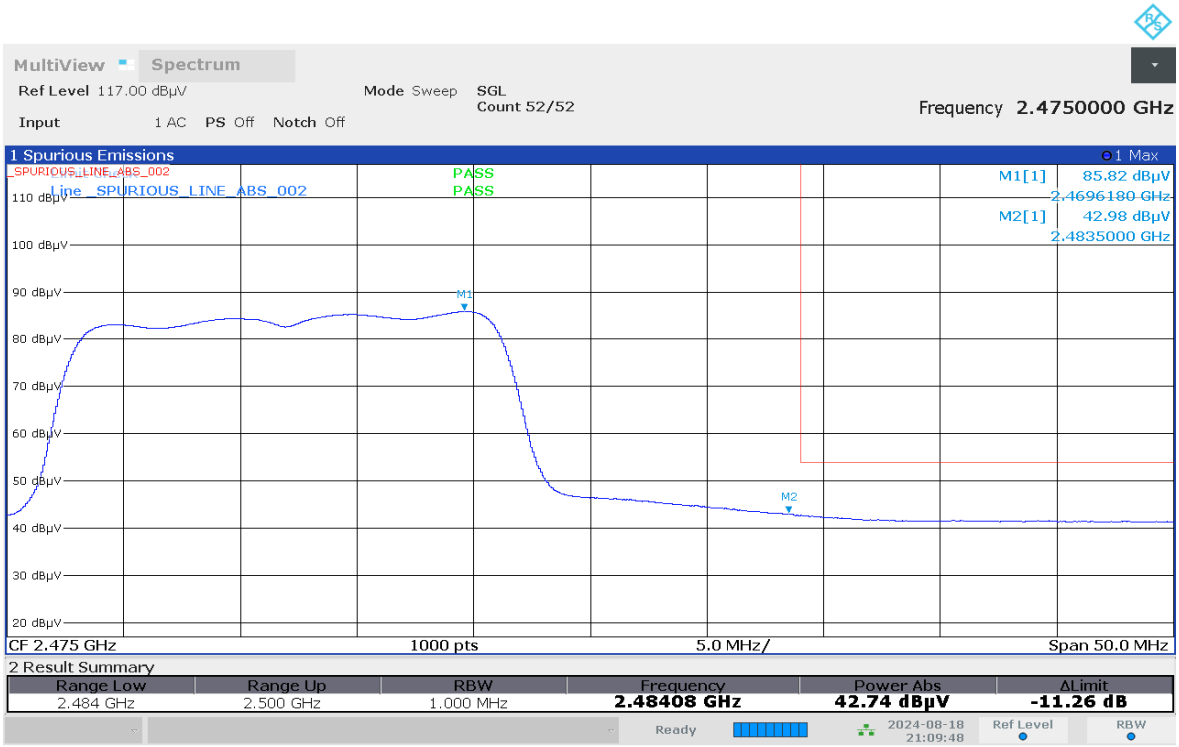
09:18:26 PM 08/18/2024

Restricted Band Edge (High Channel, Horizontal, Peak) graphical screen shot



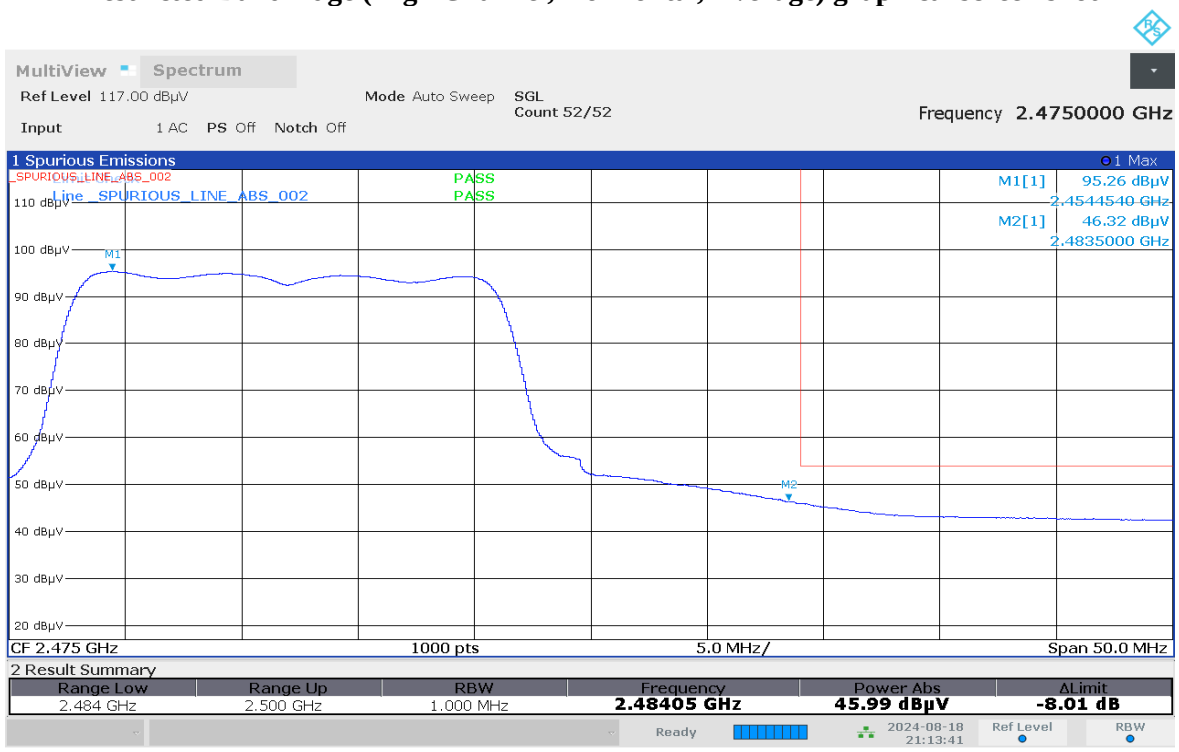
09:22:12 PM 08/18/2024

Restricted Band Edge (High Channel, Vertical, Average) graphical screen shot



09:09:49 PM 08/18/2024

Restricted Band Edge (High Channel, Horizontal, Average) graphical screen shot



09:13:41 PM 08/18/2024

Test: WIFI SAC Transmitter Radiated Emission
Model#: AAH07RDH9SA1AN S/N: 651EAP0011 EMC SR ID#: 0549N01-EMC-00047
Battery: PMNN4890A Softpot power (16dBm) Accessory: PMAE4079A
Test Channel: Low Test Frequency: 2412.0000 MHz Test Standard: ANSI C63.10-2013
Worst Case Plane: Z-Plane (802.11b)

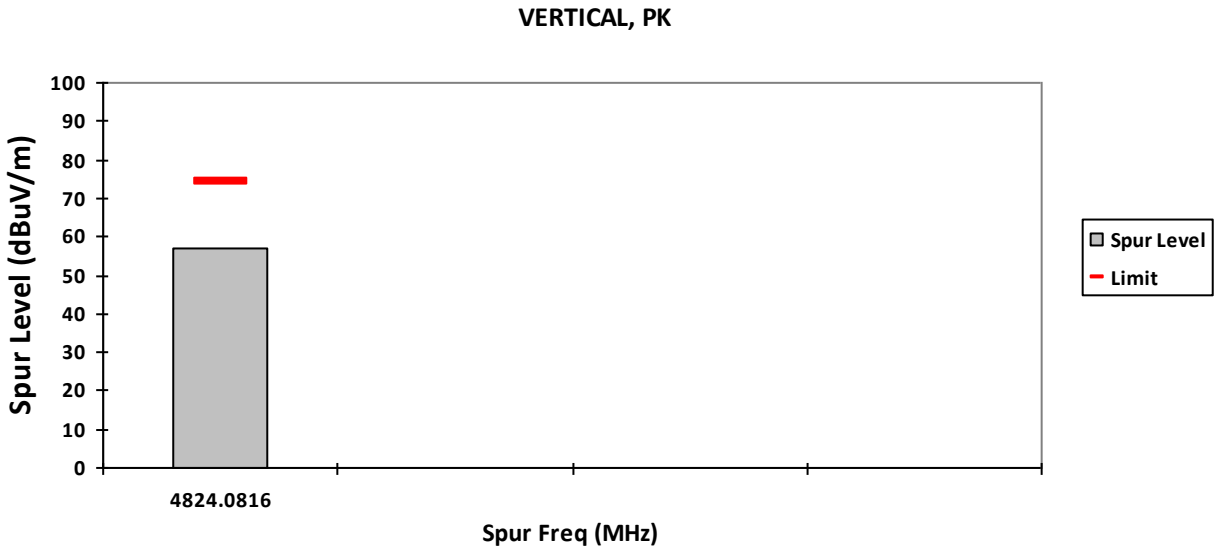
Radiated Emission (Low Channel) tabular data

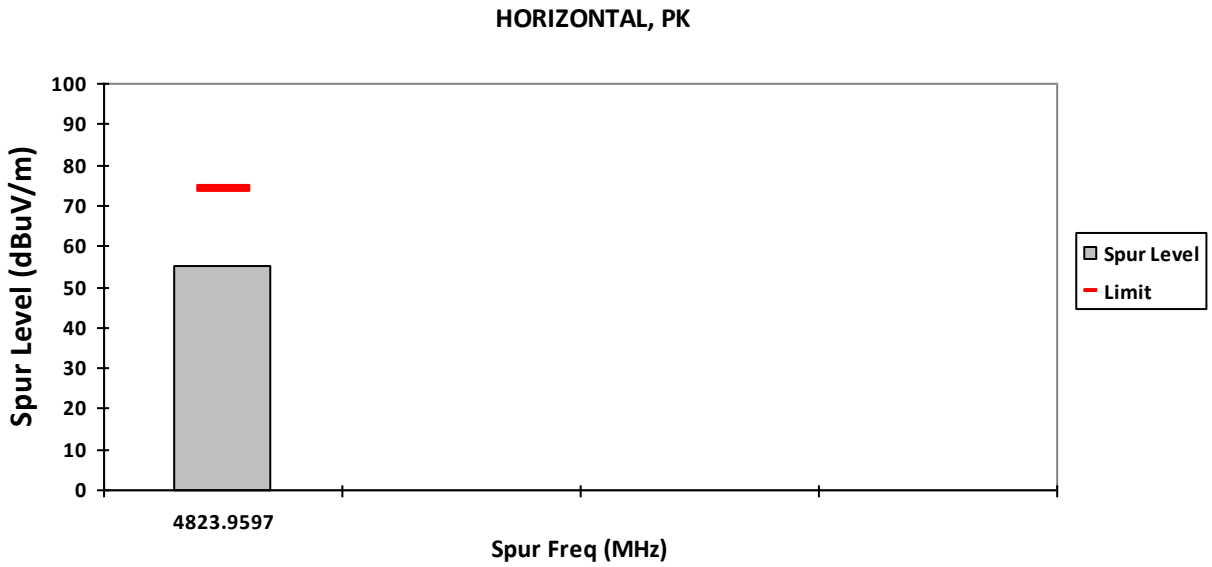
Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
4824.0816	-	57.0966	40.1458	-	74.0000	54.0000	-	16.9034	13.8542	-
Horizontal Radiated Emission Result										
4823.9597	-	55.3747	38.9294	-	74.0000	54.0000	-	18.6253	15.0706	-

Remarks: Pass Result	Marginal Result	Fail Result

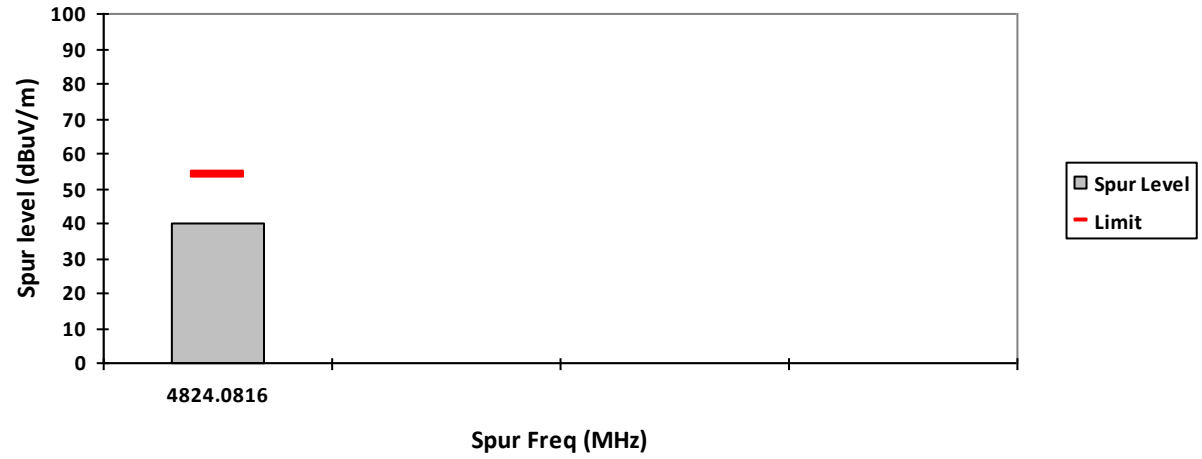
Temperature (degC): 23.5 **Humidity (%): 69.3**
Test Performed by: Nazrin & Rezza **Test Date: Sat, 17 Aug, 2024**
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.
***Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.**

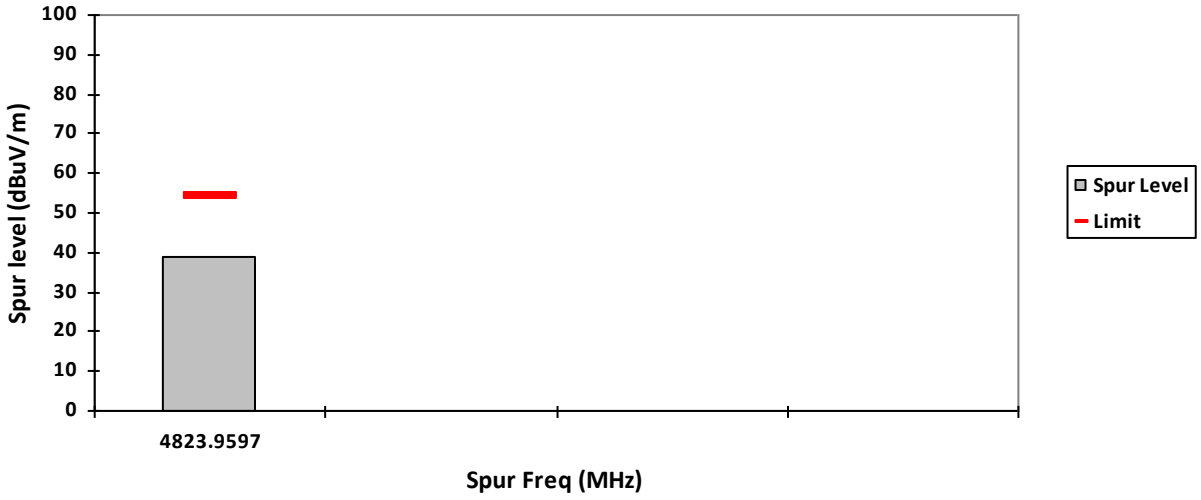

VERTICAL, PK
Spur Level (dBuV/m)
100
90
80
70
60
50
40
30
20
10
0
4824.0816
Spur Freq (MHz)
Spur Level
Limit


HORIZONTAL, PK
Spur Level (dBuV/m)
100
90
80
70
60
50
40
30
20
10
0
4823.9597
Spur Freq (MHz)
Spur Level
Limit

VERTICAL, AV



HORIZONTAL, AV



Test: WIFI SAC Transmitter Radiated Emission
Model#: AAH07RDH9SA1AN S/N: 651EAP0011 EMC SR ID#: 0549N01-EMC-00047
Battery: PMNN4890A Softpot power (16dBm) Accessory: PMAE4079A
Test Channel: Mid Test Frequency: 2437.0000 MHz Test Standard: ANSI C63.10-2013
Worst Case Plane: Z-Plane (802.11b)

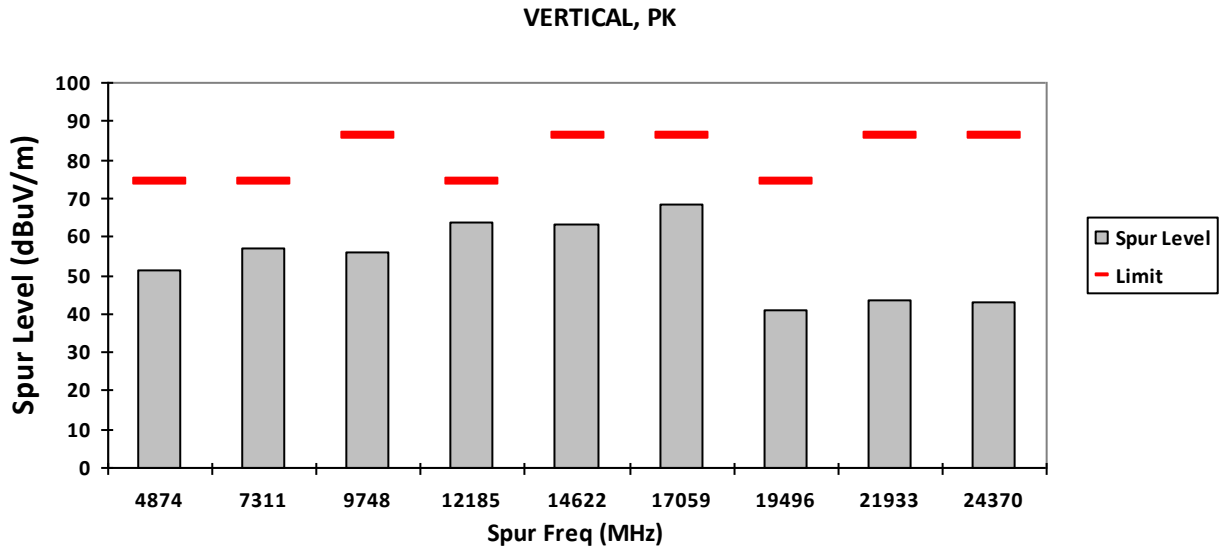
Radiated Emission (Mid Channel) tabular data

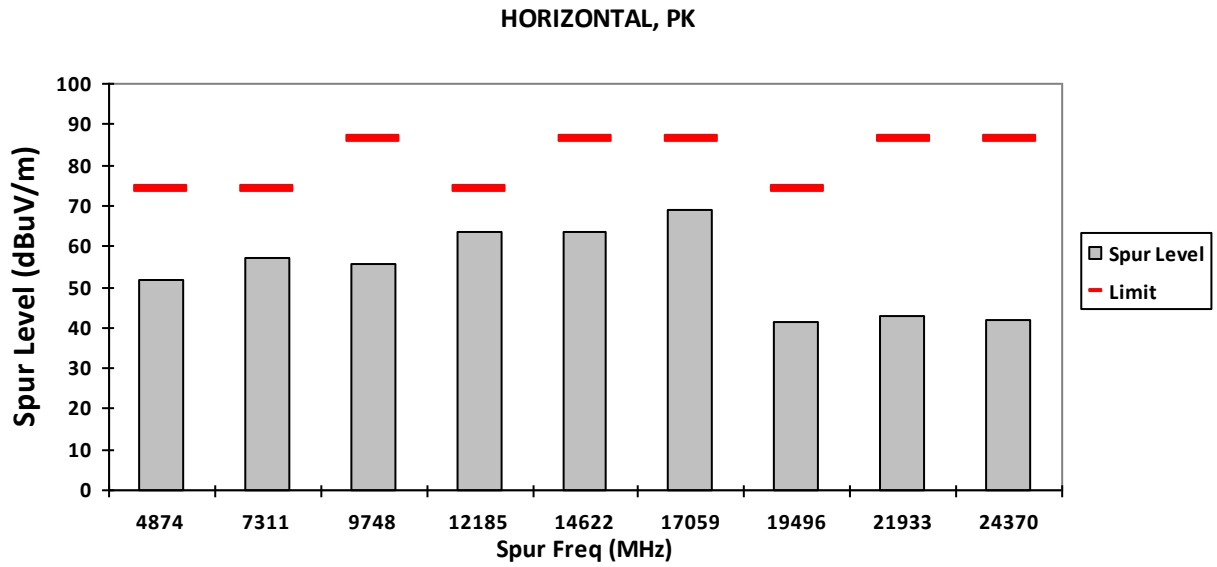
Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
4874	-	51.4485**	-	-	74.0000	-	-	22.5515	-	-
7311	-	56.7414**	43.2783**	-	74.0000	54.0000	-	17.2586	10.7217	-
9748	-	56.0487**	-	-	86.0419	-	-	29.9932	-	106.0419
12185	-	63.7045**	50.2898**	-	74.0000	54.0000	-	10.2955	3.7102	-
14622	-	63.4513**	-	-	86.0419	-	-	22.5906	-	106.0419
17059	-	68.3291**	-	-	86.0419	-	-	17.7128	-	106.0419
19496	-	40.7506**	-	-	74.0000	-	-	33.2494	-	-
21933	-	43.4989**	-	-	86.0419	-	-	42.5430	-	106.0419
24370	-	42.8085**	-	-	86.0419	-	-	43.2334	-	106.0419
Horizontal Radiated Emission Result										
4874	-	51.4914**	-	-	74.0000	-	-	22.5086	-	-
7311	-	57.0098**	43.2789**	-	74.0000	54.0000	-	16.9902	10.7211	-
9748	-	55.8770**	-	-	86.0419	-	-	30.1649	-	106.0419
12185	-	63.4095**	50.2896**	-	74.0000	54.0000	-	10.5905	3.7104	-
14622	-	63.7319**	-	-	86.0419	-	-	22.3100	-	106.0419
17059	-	68.9535**	-	-	86.0419	-	-	17.0884	-	106.0419
19496	-	41.3726**	-	-	74.0000	-	-	32.6274	-	-
21933	-	42.7337**	-	-	86.0419	-	-	43.3082	-	106.0419
24370	-	42.0037**	-	-	86.0419	-	-	44.0382	-	106.0419

Remarks: Pass Result	Marginal Result	Fail Result

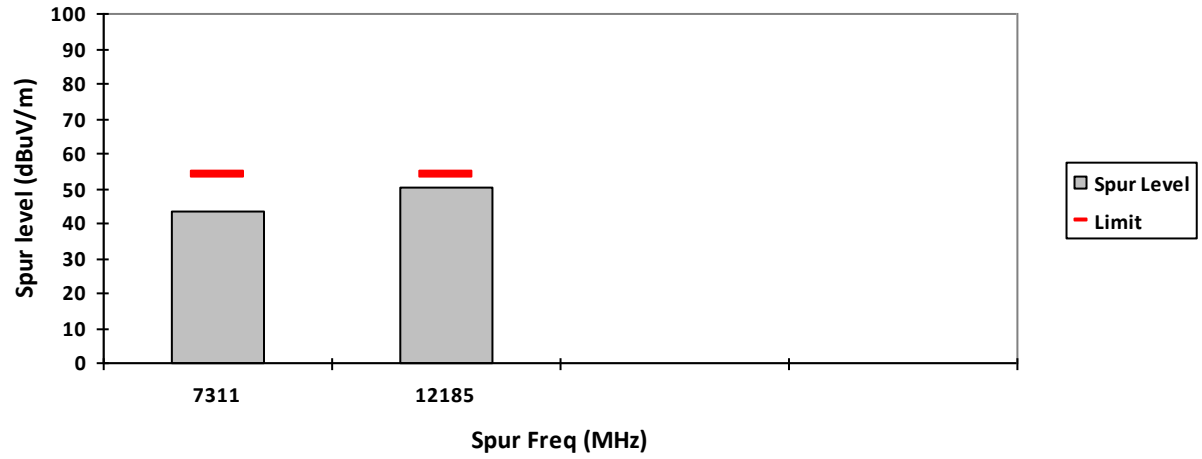
Temperature (degC): 23.5 Humidity (%): 69.3
Test Performed by: Nazrin & Rezza Test Date: Sat, 17 Aug, 2024
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.
***Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.**

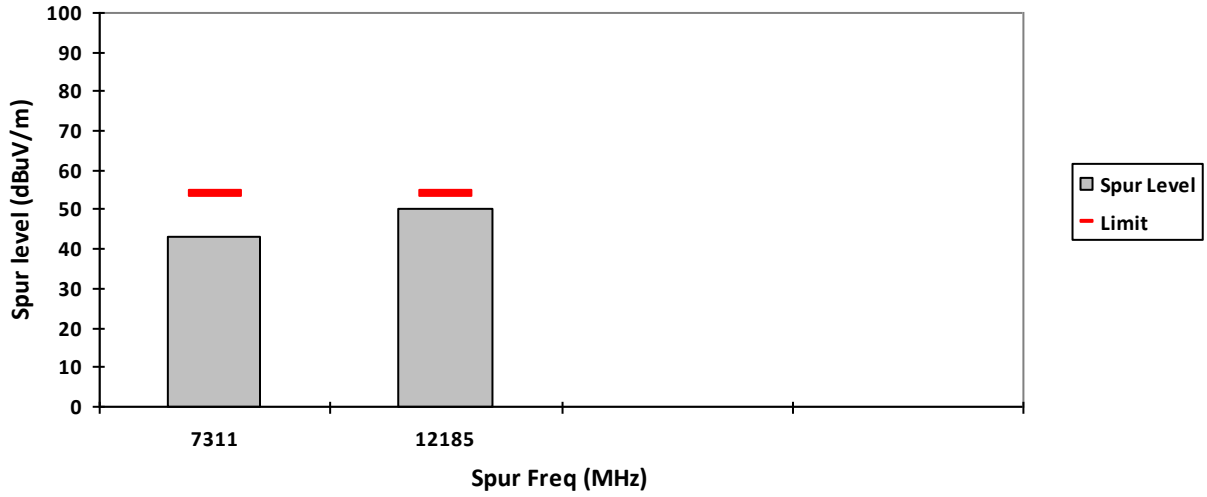

VERTICAL, PK
Spur Level (dBuV/m)
100
90
80
70
60
50
40
30
20
10
0
4874
7311
9748
12185
14622
17059
19496
21933
24370
Spur Freq (MHz)
Spur Level
Limit


HORIZONTAL, PK
Spur Level (dBuV/m)
100
90
80
70
60
50
40
30
20
10
0
4874
7311
9748
12185
14622
17059
19496
21933
24370
Spur Freq (MHz)
Spur Level
Limit

VERTICAL, AV



HORIZONTAL, AV



Test: WIFI SAC Transmitter Radiated Emission
Model#: AAH07RDH9SA1AN S/N: 651EAP0011 EMC SR ID#: 0549N01-EMC-00047
Battery: PMNN4890A Softpot power (16dBm) Accessory: PMAE4079A
Test Channel: High Test Frequency: 2462.0000 MHz Test Standard: ANSI C63.10-2013
Worst Case Plane: Z-Plane (802.11b)

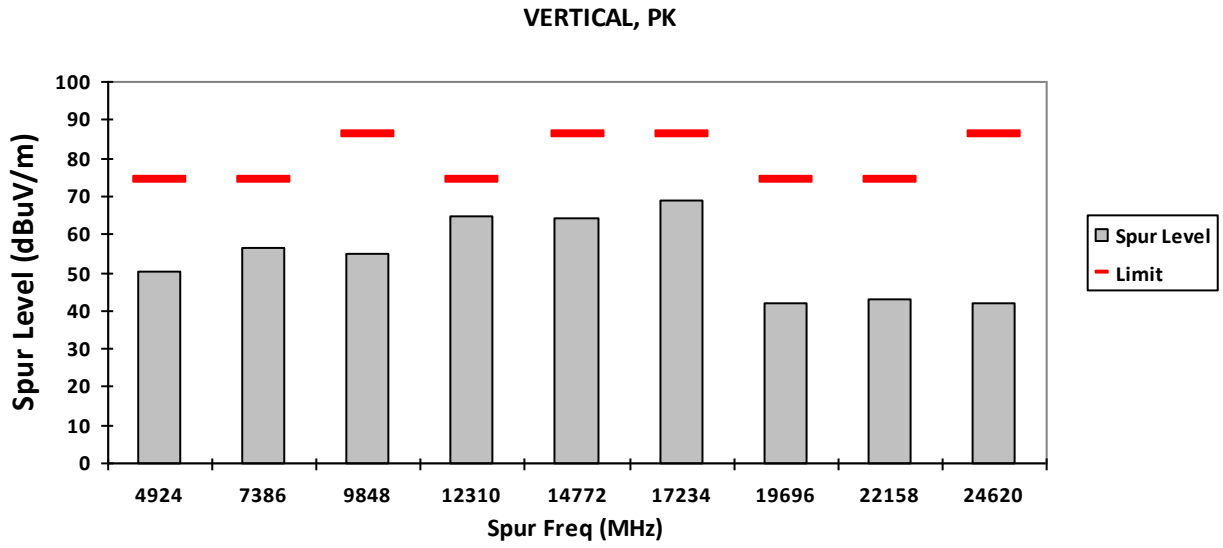
Radiated Emission (High Channel) tabular data

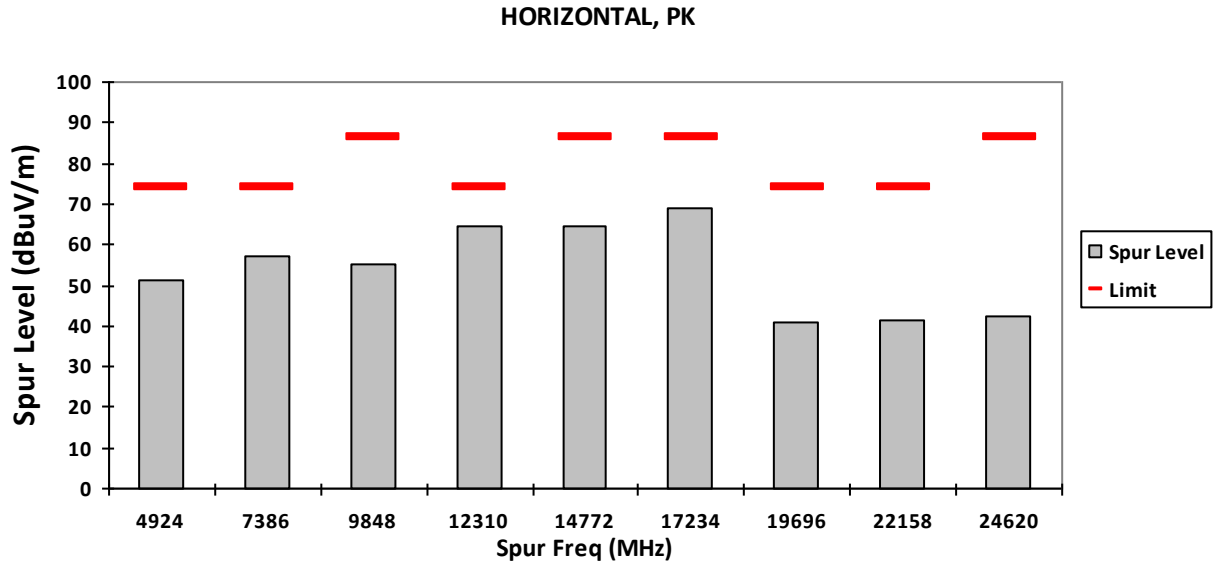
Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
4924	-	50.1697**	-	-	74.0000	-	-	23.8303	-	-
7386	-	56.6708**	43.0951**	-	74.0000	54.0000	-	17.3292	10.9049	-
9848	-	54.9935**	-	-	86.0419	-	-	31.0484	-	106.0419
12310	-	64.8106**	50.8532**	-	74.0000	54.0000	-	9.1894	3.1468	-
14772	-	64.2706**	-	-	86.0419	-	-	21.7713	-	106.0419
17234	-	68.8136**	-	-	86.0419	-	-	17.2283	-	106.0419
19696	-	41.9187**	-	-	74.0000	-	-	32.0813	-	-
22158	-	43.2279**	-	-	74.0000	-	-	30.7721	-	-
24620	-	42.0553**	-	-	86.0419	-	-	43.9866	-	106.0419
Horizontal Radiated Emission Result										
4924	-	51.4647**	-	-	74.0000	-	-	22.5353	-	-
7386	-	57.1767**	42.9978**	-	74.0000	54.0000	-	16.8233	11.0022	-
9848	-	55.2871**	-	-	86.0419	-	-	30.7548	-	106.0419
12310	-	64.4710**	51.0120**	-	74.0000	54.0000	-	9.5290	2.9880	-
14772	-	64.7736**	-	-	86.0419	-	-	21.2683	-	106.0419
17234	-	69.0095**	-	-	86.0419	-	-	17.0324	-	106.0419
19696	-	40.7441**	-	-	74.0000	-	-	33.2559	-	-
22158	-	41.3423**	-	-	74.0000	-	-	32.6577	-	-
24620	-	42.4575**	-	-	86.0419	-	-	43.5844	-	106.0419

Remarks: Pass Result	Marginal Result	Fail Result

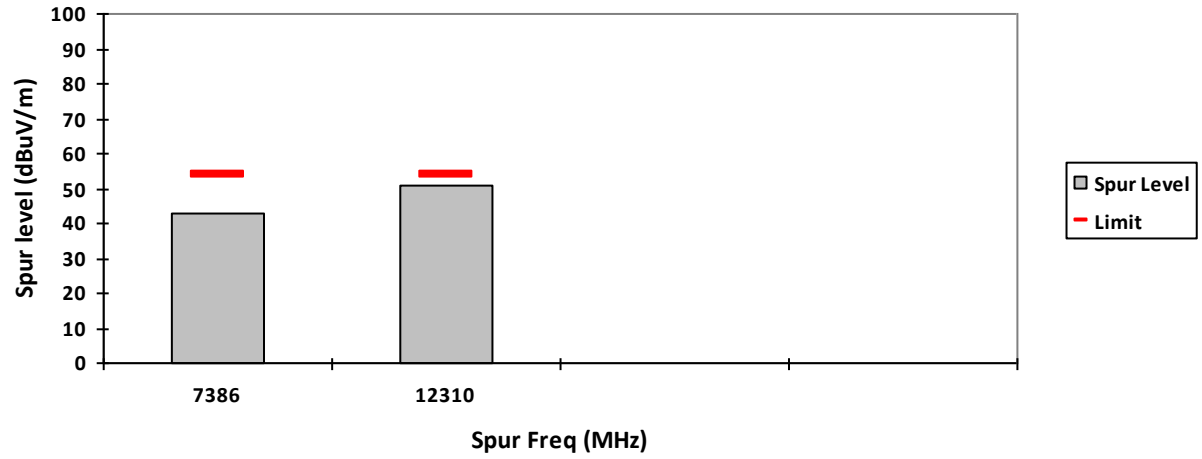
Temperature (degC): 23.5 **Humidity (%): 69.3**
Test Performed by: Nazrin & Rezza **Test Date: Sat, 17 Aug, 2024**
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.
***Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.**

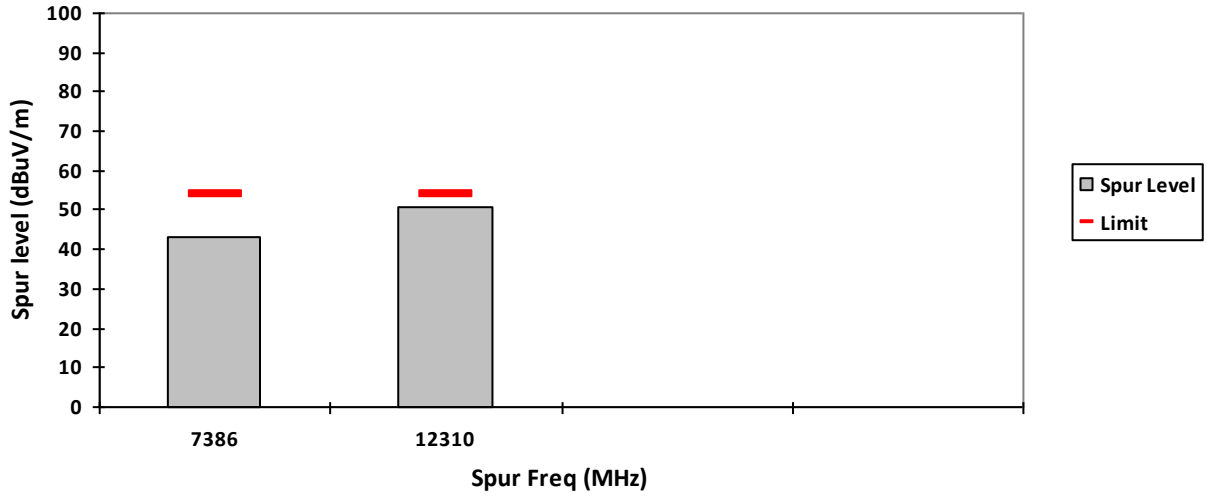

VERTICAL, PK
Spur Level (dBuV/m)
100
90
80
70
60
50
40
30
20
10
0
4924
7386
9848
12310
14772
17234
19696
22158
24620
Spur Freq (MHz)
Spur Level
Limit


HORIZONTAL, PK
Spur Level (dBuV/m)
100
90
80
70
60
50
40
30
20
10
0
4924
7386
9848
12310
14772
17234
19696
22158
24620
Spur Freq (MHz)
Spur Level
Limit

VERTICAL, AV



HORIZONTAL, AV



Test: WIFI SAC Transmitter Radiated Emission
Model#: AAH07RDH9SA1AN S/N: 651EAP0011 EMC SR ID#: 0549N01-EMC-00047
Battery: PMNN4890A Softpot power (14dBm) Accessory: PMAE4079A
Test Channel: Low Test Frequency: 2412.0000 MHz Test Standard: ANSI C63.10-2013
Worst Case Plane: Z-Plane (802.11g)

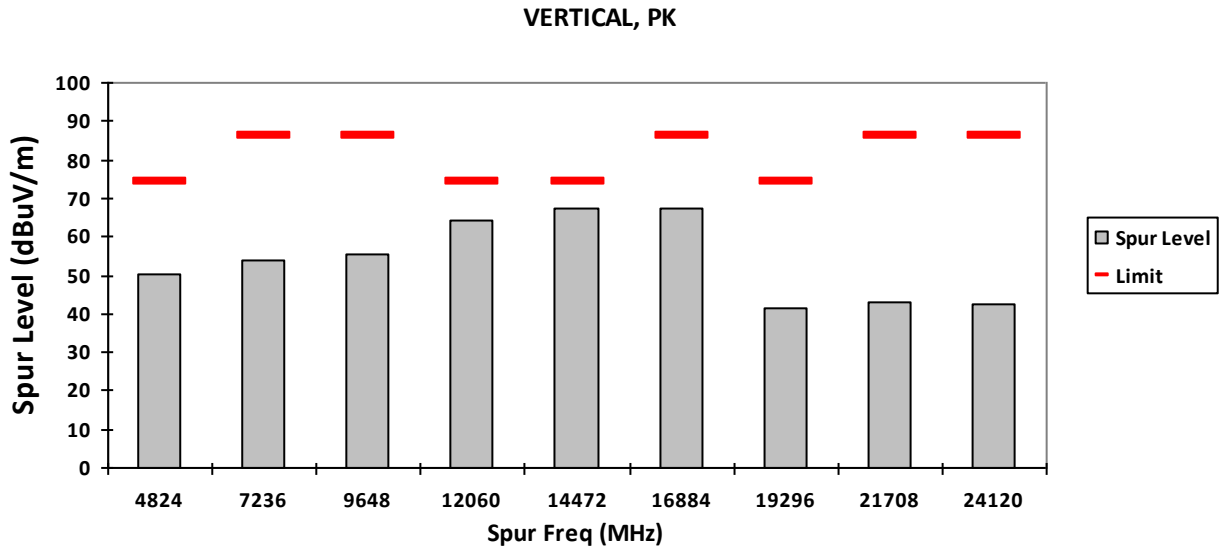
Radiated Emission (Low Channel) tabular data

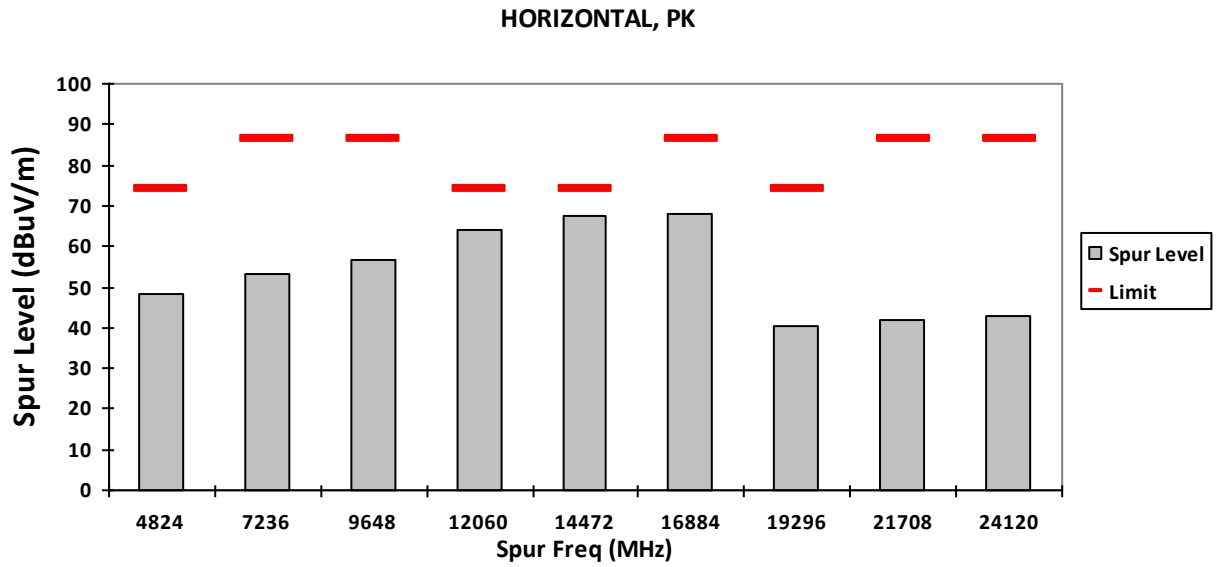
Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
4824	-	50.1553**	-	-	74.0000	-	-	23.8447	-	-
7236	-	53.9647**	-	-	86.0419	-	-	32.0772	-	106.0419
9648	-	55.2065**	-	-	86.0419	-	-	30.8354	-	106.0419
12060	-	64.1459**	50.2342**	-	74.0000	54.0000	-	9.8541	3.7658	-
14472	-	67.4559**	52.1800**	-	74.0000	54.0000	-	6.5441	1.8200	-
16884	-	67.1387**	-	-	86.0419	-	-	18.9032	-	106.0419
19296	-	41.5892**	-	-	74.0000	-	-	32.4108	-	-
21708	-	43.2112**	-	-	86.0419	-	-	42.8307	-	106.0419
24120	-	42.7052**	-	-	86.0419	-	-	43.3367	-	106.0419
Horizontal Radiated Emission Result										
4824	-	48.4524**	-	-	74.0000	-	-	25.5476	-	-
7236	-	53.2856**	-	-	86.0419	-	-	32.7563	-	106.0419
9648	-	56.4563**	-	-	86.0419	-	-	29.5856	-	106.0419
12060	-	64.2347**	50.2355**	-	74.0000	54.0000	-	9.7653	3.7645	-
14472	-	67.6285**	52.1809**	-	74.0000	54.0000	-	6.3715	1.1809	-
16884	-	67.8451**	-	-	86.0419	-	-	18.1968	-	106.0419
19296	-	40.4445**	-	-	74.0000	-	-	33.5555	-	-
21708	-	42.0756**	-	-	86.0419	-	-	43.9663	-	106.0419
24120	-	42.9161**	-	-	86.0419	-	-	43.1258	-	106.0419

Remarks: Pass Result	Marginal Result	Fail Result

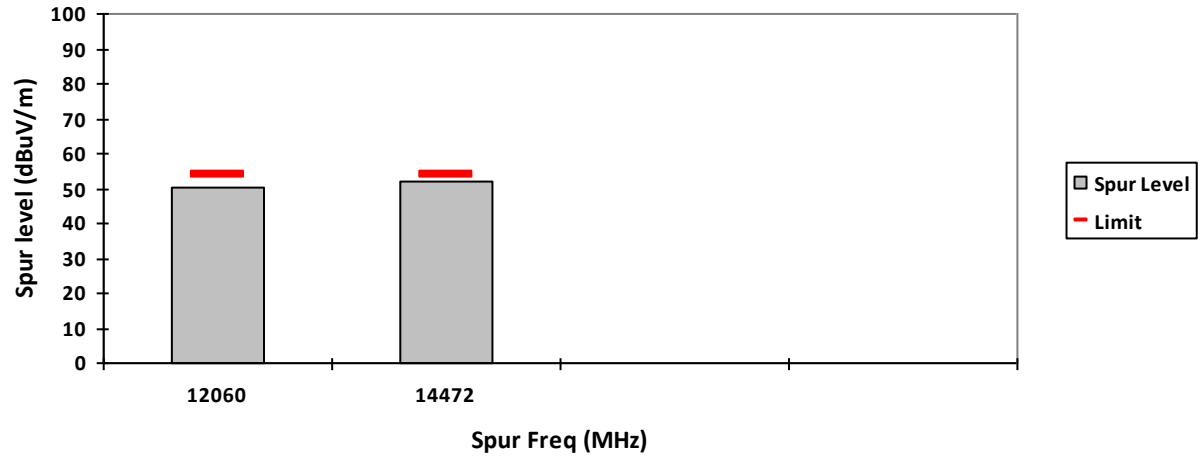
Temperature (degC): 23.5 Humidity (%): 69.3
Test Performed by: Nazrin & Rezza Test Date: Sat, 17 Aug, 2024
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.
***Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.**

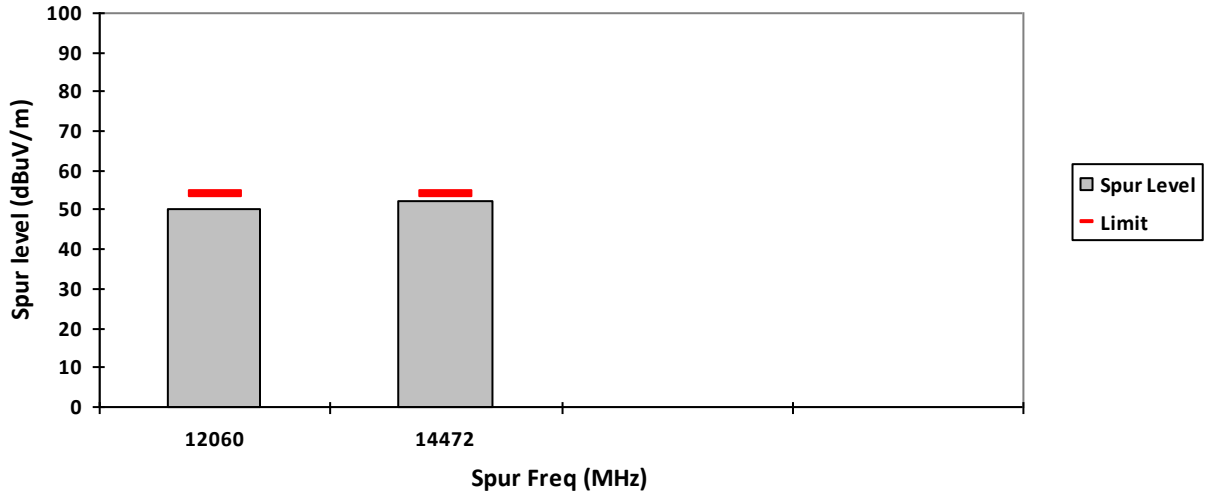

VERTICAL, PK
Spur Level (dBuV/m)
100
90
80
70
60
50
40
30
20
10
0
4824
7236
9648
12060
14472
16884
19296
21708
24120
Spur Freq (MHz)
Spur Level
Limit


HORIZONTAL, PK
Spur Level (dBuV/m)
100
90
80
70
60
50
40
30
20
10
0
4824
7236
9648
12060
14472
16884
19296
21708
24120
Spur Freq (MHz)
Spur Level
Limit

VERTICAL, AV



HORIZONTAL, AV



Test: WIFI SAC Transmitter Radiated Emission
Model#: AAH07RDH9SA1AN S/N: 651EAP0011 EMC SR ID#: 0549N01-EMC-00047
Battery: PMNN4890A Softpot power (14dBm) Accessory: PMAE4079A
Test Channel: Mid Test Frequency: 2437.0000 MHz Test Standard: ANSI C63.10-2013
Worst Case Plane: Z-Plane (802.11g)

Radiated Emission (Mid Channel) tabular data

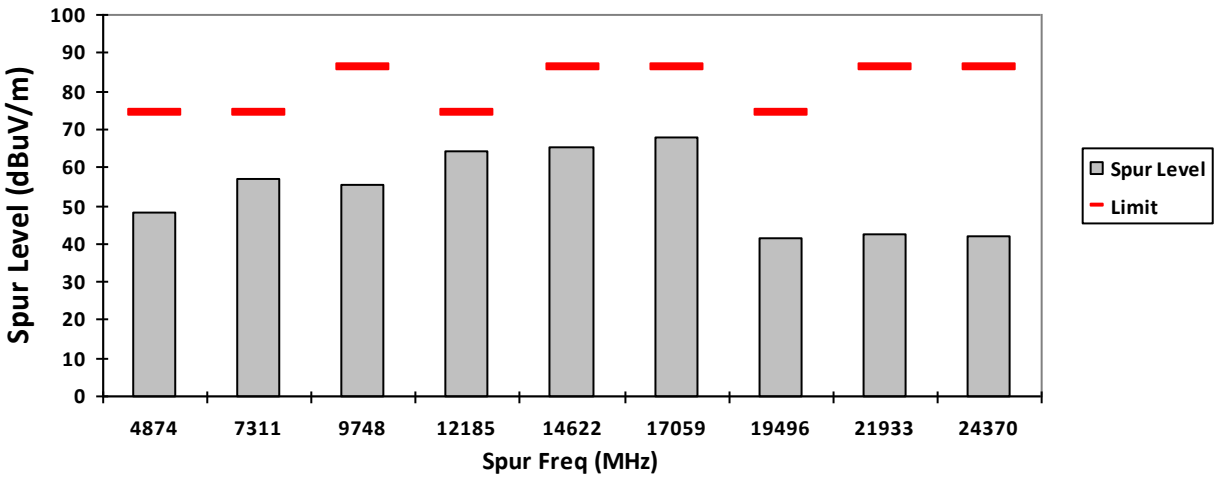
Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
4874	-	48.3277**	-	-	74.0000	-	-	25.6723	-	-
7311	-	56.7875**	43.4612**	-	74.0000	54.0000	-	17.2125	10.5388	-
9748	-	55.3773**	-	-	86.0419	-	-	30.6646	-	106.0419
12185	-	64.2410**	50.4441**	-	74.0000	54.0000	-	9.7590	3.5559	-
14622	-	65.2136**	-	-	86.0419	-	-	20.8283	-	106.0419
17059	-	67.9859**	-	-	86.0419	-	-	18.0560	-	106.0419
19496	-	41.5794**	-	-	74.0000	-	-	32.4206	-	-
21933	-	42.3988**	-	-	86.0419	-	-	43.6431	-	106.0419
24370	-	41.7525**	-	-	86.0419	-	-	44.2894	-	106.0419
Horizontal Radiated Emission Result										
4874	-	49.0477**	-	-	74.0000	-	-	24.9523	-	-
7311	-	57.0131**	43.4600**	-	74.0000	54.0000	-	16.9869	10.5400	-
9748	-	55.8839**	-	-	86.0419	-	-	30.1580	-	106.0419
12185	-	63.7244**	50.2909**	-	74.0000	54.0000	-	10.2756	3.7091	-
14622	-	64.8024**	-	-	86.0419	-	-	21.2395	-	106.0419
17059	-	69.5775**	-	-	86.0419	-	-	16.4644	-	106.0419
19496	-	41.3477**	-	-	74.0000	-	-	32.6523	-	-
21933	-	43.4311**	-	-	86.0419	-	-	42.6108	-	106.0419
24370	-	42.1713**	-	-	86.0419	-	-	43.8706	-	106.0419

Remarks: Pass Result	Marginal Result	Fail Result

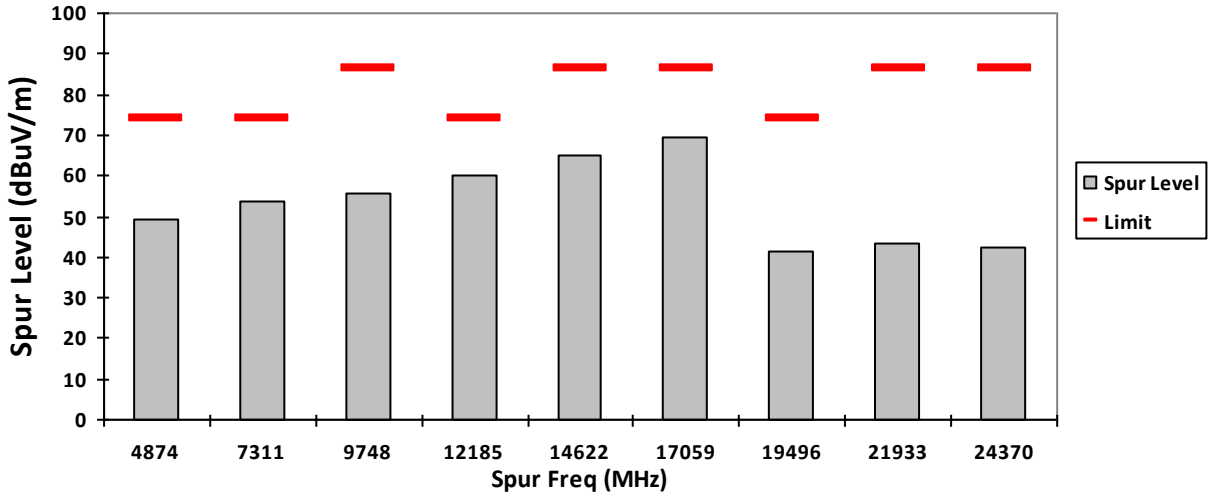
Temperature (degC): 23.5 Humidity (%): 69.3
Test Performed by: Nazrin & Rezza Test Date: Sat, 17 Aug, 2024
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.
***Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.**

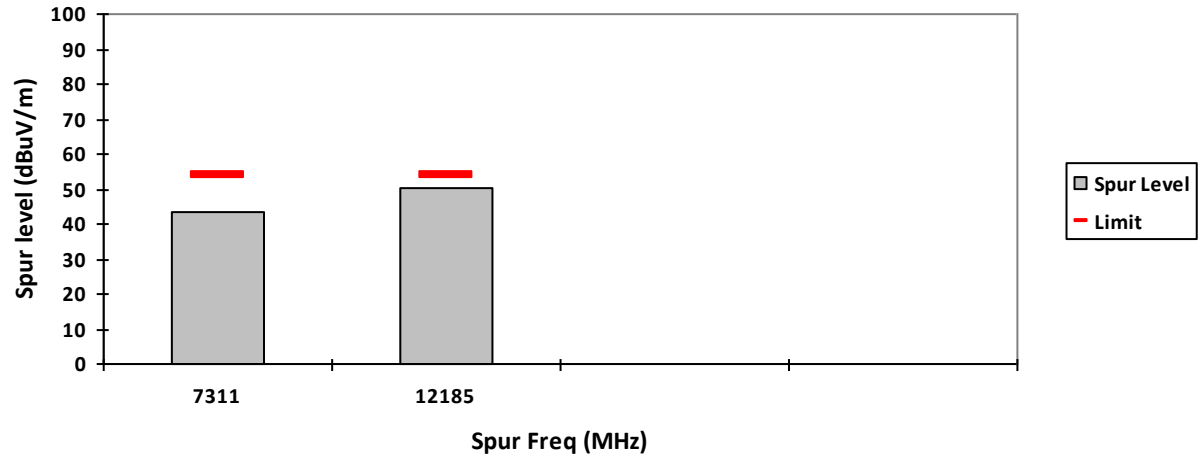
VERTICAL, PK



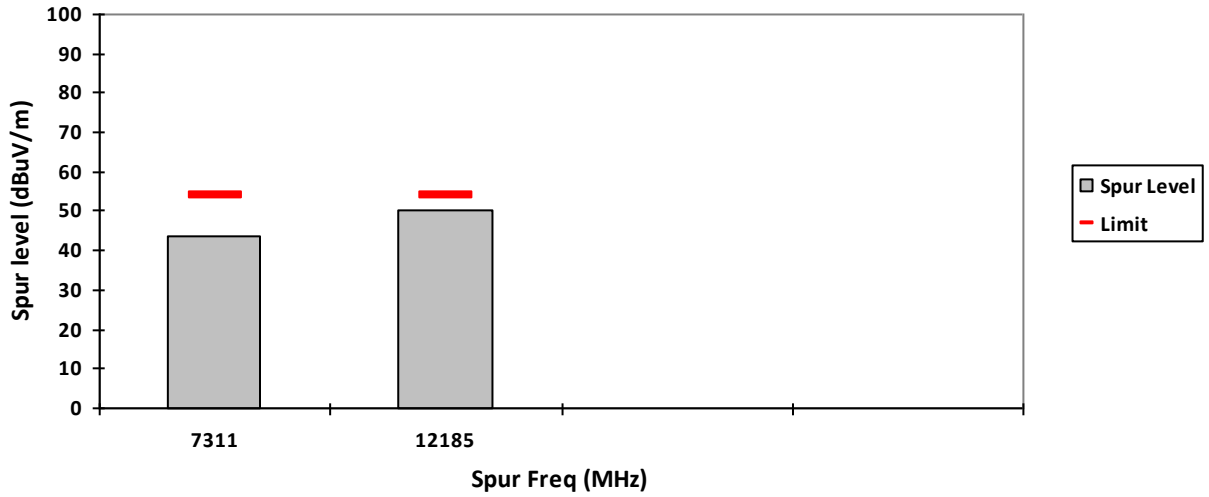
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Test: WIFI SAC Transmitter Radiated Emission
Model#: AAH07RDH9SA1AN S/N: 651EAP0011 EMC SR ID#: 0549N01-EMC-00047
Battery: PMNN4890A Softpot power (15dBm) Accessory: PMAE4079A
Test Channel: High Test Frequency: 2462.0000 MHz Test Standard: ANSI C63.10-2013
Worst Case Plane: Z-Plane (802.11g)

Radiated Emission (High Channel) tabular data

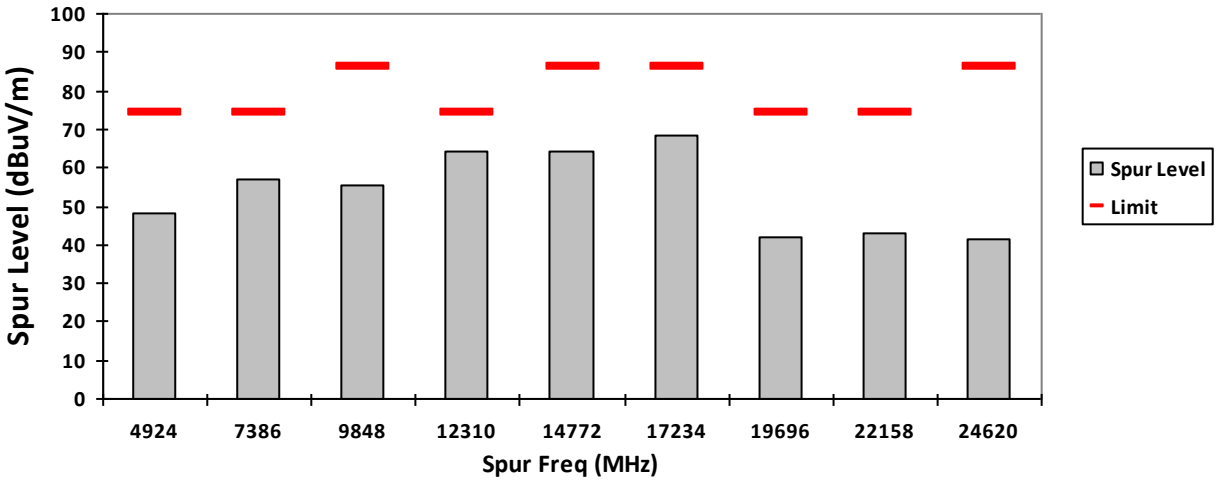
Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
4924	-	48.4150**	-	-	74.0000	-	-	25.5850	-	-
7386	-	56.7430**	43.1481**	-	74.0000	54.0000	-	17.2570	10.8519	-
9848	-	55.2360**	-	-	86.0419	-	-	30.8059	-	106.0419
12310	-	64.2097**	50.8575**	-	74.0000	54.0000	-	9.7903	3.1425	-
14772	-	64.2097**	-	-	86.0419	-	-	21.8322	-	106.0419
17234	-	68.1484**	-	-	86.0419	-	-	17.8935	-	106.0419
19696	-	42.2263**	-	-	74.0000	-	-	31.7737	-	-
22158	-	42.9761**	-	-	74.0000	-	-	31.0239	-	-
24620	-	41.7005**	-	-	86.0419	-	-	44.3414	-	106.0419
Horizontal Radiated Emission Result										
4924	-	48.3343**	-	-	74.0000	-	-	25.6657	-	-
7386	-	56.7580**	43.1498**	-	74.0000	54.0000	-	17.2420	10.8502	-
9848	-	54.9207**	-	-	86.0419	-	-	31.1212	-	106.0419
12310	-	64.9776**	50.8575**	-	74.0000	54.0000	-	9.0224	3.1425	-
14772	-	64.4542**	-	-	86.0419	-	-	21.5877	-	106.0419
17234	-	69.1903**	-	-	86.0419	-	-	16.8516	-	106.0419
19696	-	41.5946**	-	-	74.0000	-	-	32.4054	-	-
22158	-	42.9605**	-	-	74.0000	-	-	31.0395	-	-
24620	-	43.3971**	-	-	86.0419	-	-	42.6448	-	106.0419

Remarks: Pass Result	Marginal Result	Fail Result

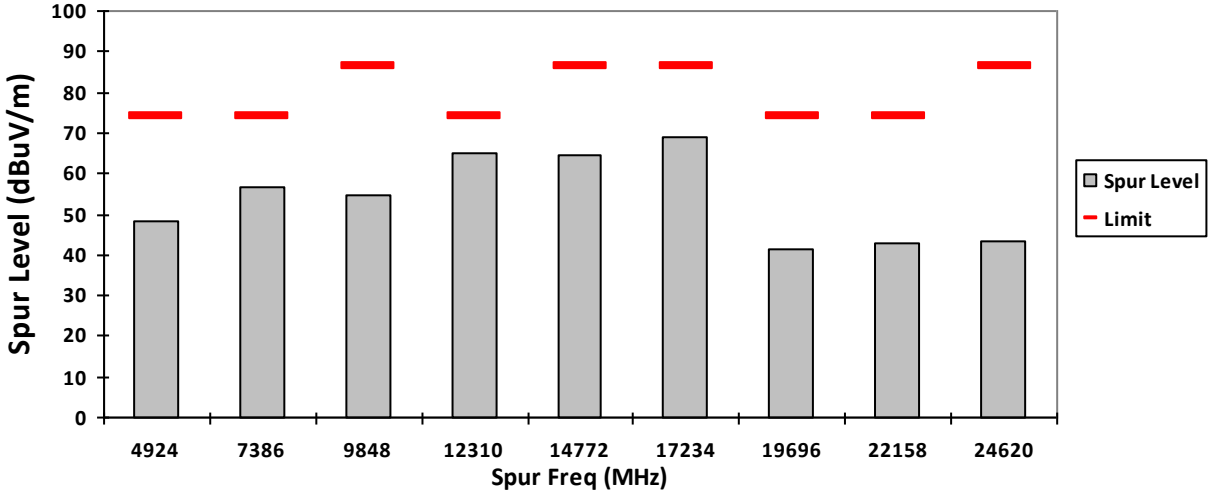
Temperature (degC): 23.5 Humidity (%): 69.3
Test Performed by: Nazrin & Rezza Test Date: Sat, 17 Aug, 2024
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.
***Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.**

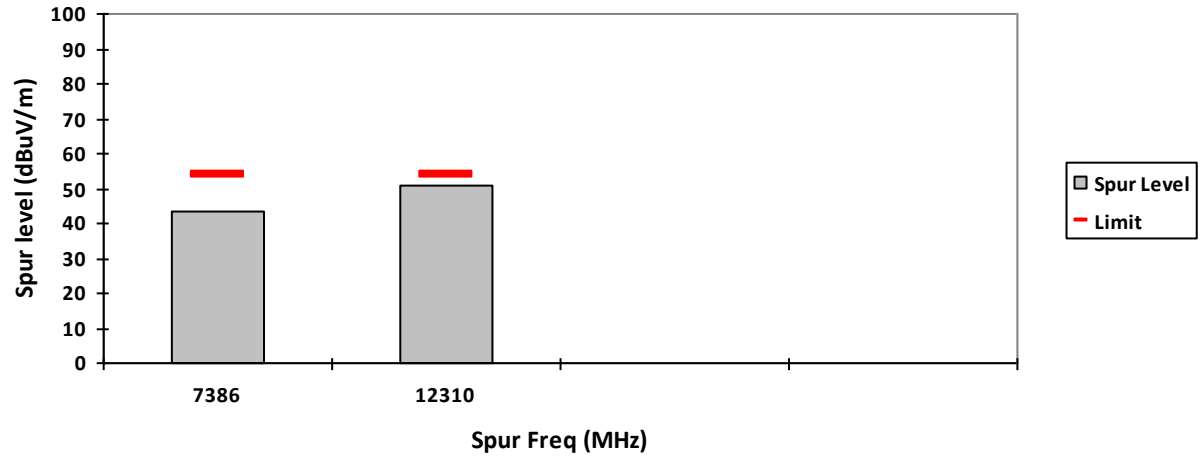
VERTICAL, PK



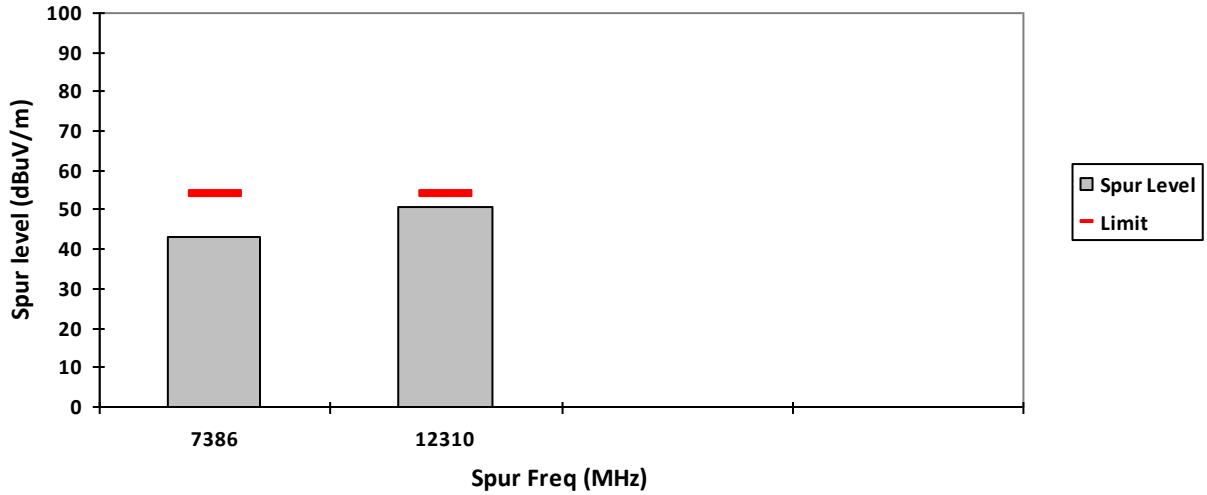
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Test: WIFI SAC Transmitter Radiated Emission
Model#: AAH07RDH9SA1AN S/N: 651EAP0011 EMC SR ID#: 0549N01-EMC-00047
Battery: PMNN4890A Softpot power (12dBm) Accessory: PMAE4079A
Test Channel: Low Test Frequency: 2412.0000 MHz Test Standard: ANSI C63.10-2013
Worst Case Plane: Z-Plane (802.11n 20MHz)

Radiated Emission (Low Channel) tabular data

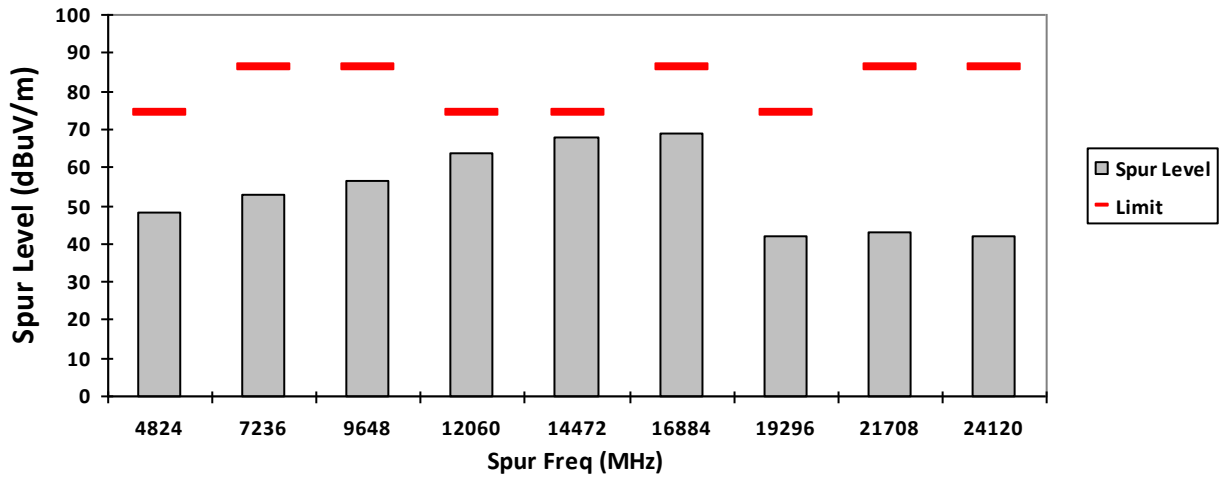
Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
4824	-	48.3958**	-	-	74.0000	-	-	25.6042	-	-
7236	-	52.8816**	-	-	86.0419	-	-	33.1603	-	106.0419
9648	-	56.2797**	-	-	86.0419	-	-	29.7622	-	106.0419
12060	-	63.5637**	50.0913**	-	74.0000	54.0000	-	10.4363	3.9087	-
14472	-	68.0909**	52.0286**	-	74.0000	54.0000	-	5.9091	1.9714	-
16884	-	68.7819**	-	-	86.0419	-	-	17.2600	-	106.0419
19296	-	41.7816**	-	-	74.0000	-	-	32.2184	-	-
21708	-	43.1932**	-	-	86.0419	-	-	42.8487	-	106.0419
24120	-	41.9384**	-	-	86.0419	-	-	44.1035	-	106.0419
Horizontal Radiated Emission Result										
4824	-	47.9058**	-	-	74.0000	-	-	26.0942	-	-
7236	-	53.5154**	-	-	86.0419	-	-	32.5265	-	106.0419
9648	-	55.0868**	-	-	86.0419	-	-	30.9551	-	106.0419
12060	-	63.6038**	50.0905**	-	74.0000	54.0000	-	10.3962	3.9095	-
14472	-	68.0208**	52.0292**	-	74.0000	54.0000	-	5.9792	1.9708	-
16884	-	68.2771**	-	-	86.0419	-	-	17.7648	-	106.0419
19296	-	41.6898**	-	-	74.0000	-	-	32.3102	-	-
21708	-	41.0158**	-	-	86.0419	-	-	45.0261	-	106.0419
24120	-	41.8791**	-	-	86.0419	-	-	44.1628	-	106.0419

Remarks: Pass Result	Marginal Result	Fail Result

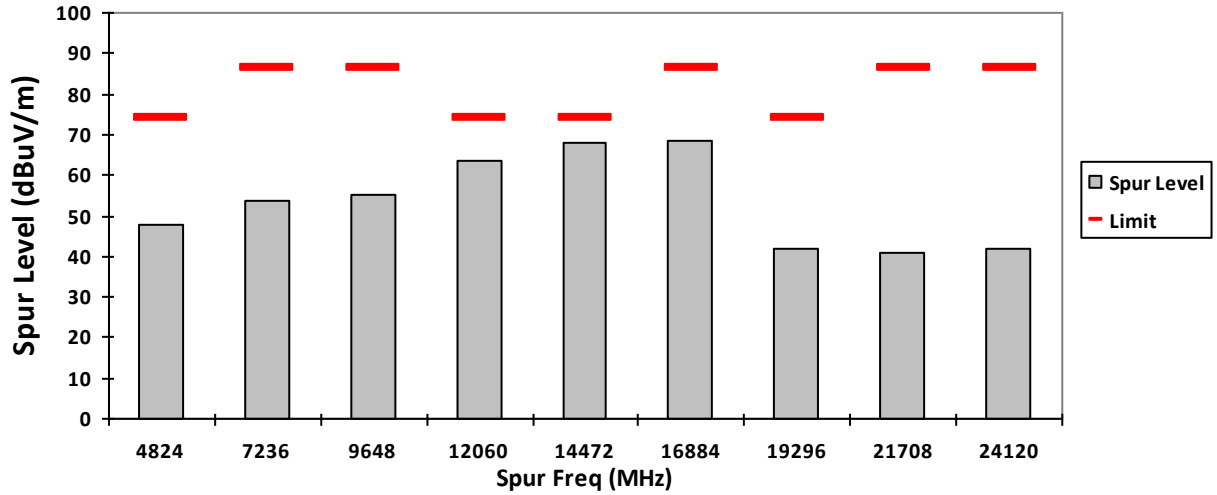
Temperature (degC): 23.5 Humidity (%): 69.3
Test Performed by: Nazrin & Rezza Test Date: Sat, 17 Aug, 2024
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.
***Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.**

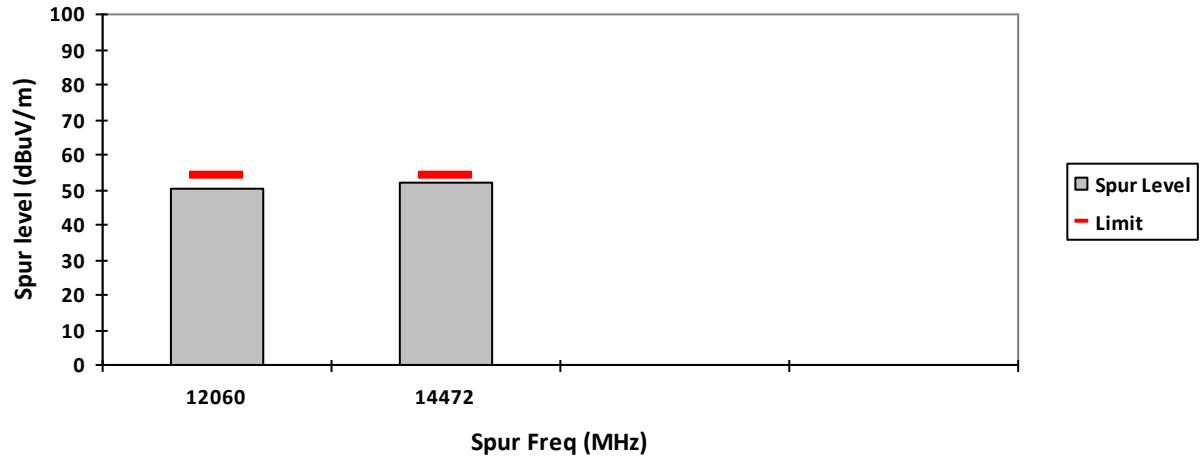
VERTICAL, PK



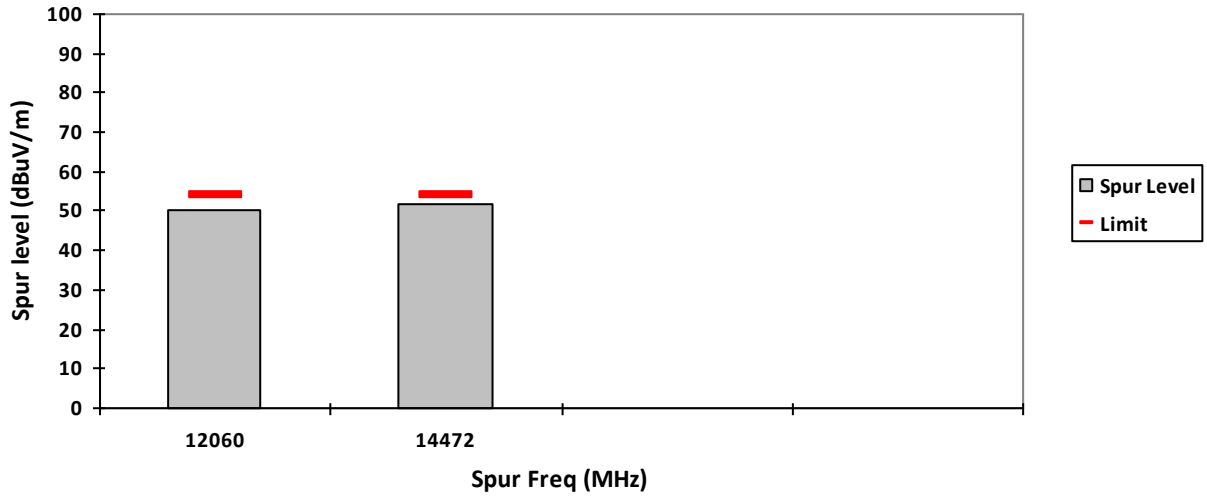
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Test: WIFI SAC Transmitter Radiated Emission
Model#: AAH07RDH9SA1AN S/N: 651EAP0011 EMC SR ID#: 0549N01-EMC-00047
Battery: PMNN4890A Softpot power (14dBm) Accessory: PMAE4079A
Test Channel: Mid Test Frequency: 2437.0000 MHz Test Standard: ANSI C63.10-2013
Worst Case Plane: Z-Plane (802.11n 20MHz)

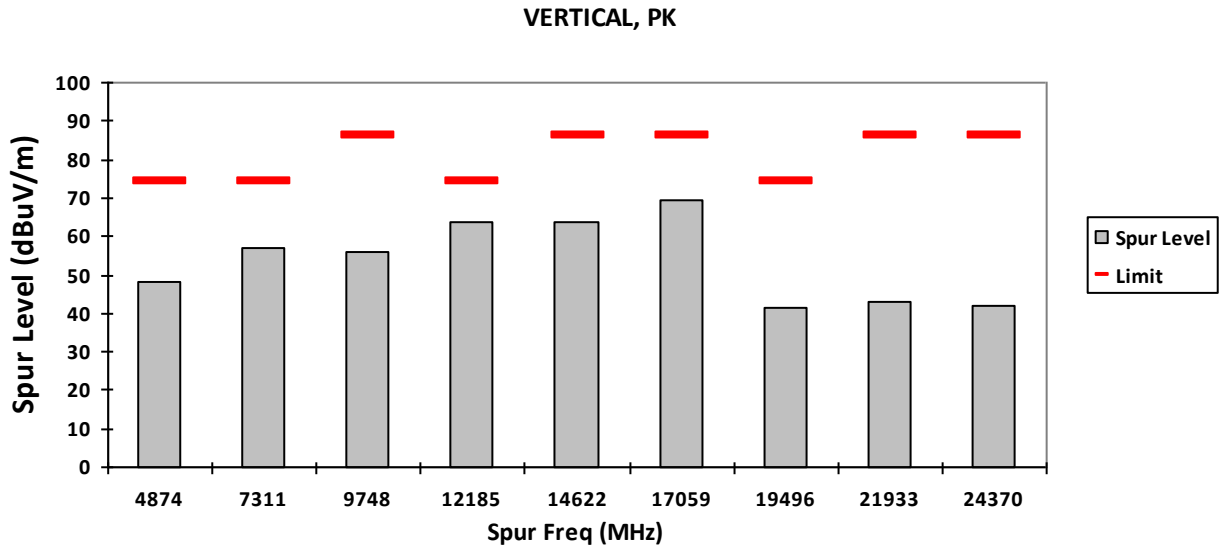
Radiated Emission (Mid Channel) tabular data

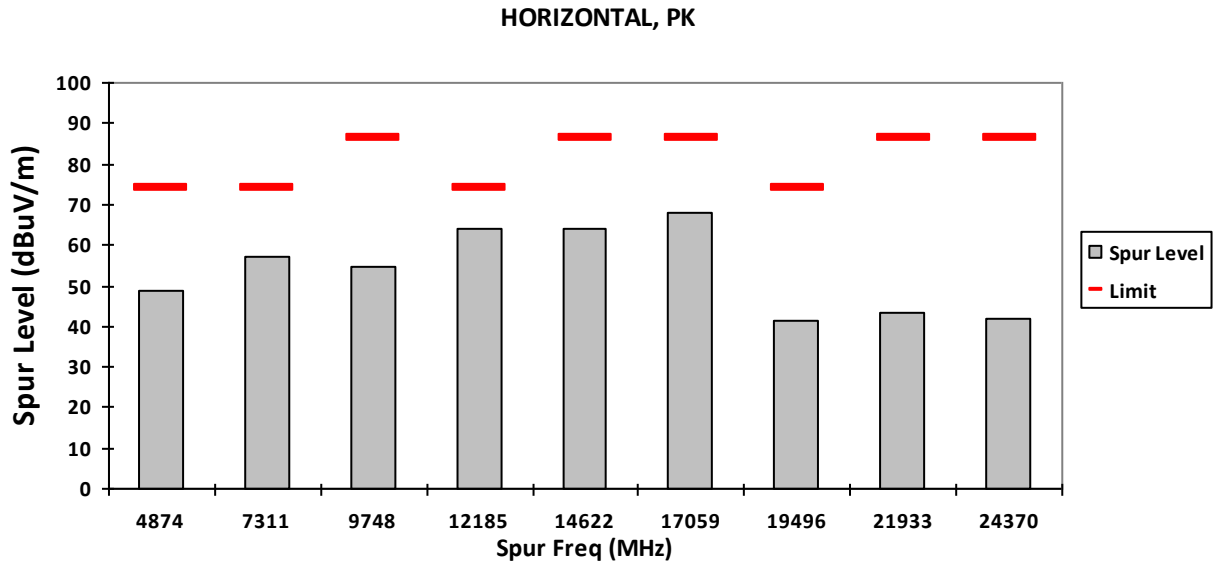
Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
4874	-	48.0629**	-	-	74.0000	-	-	25.9371	-	-
7311	-	57.0240**	43.3631**	-	74.0000	54.0000	-	16.9760	10.6369	-
9748	-	55.9833**	-	-	86.0419	-	-	30.0586	-	106.0419
12185	-	63.9500**	50.2878**	-	74.0000	54.0000	-	10.0500	3.7122	-
14622	-	63.7969**	-	-	86.0419	-	-	22.2450	-	106.0419
17059	-	69.5667**	-	-	86.0419	-	-	16.4752	-	106.0419
19496	-	41.4232**	-	-	74.0000	-	-	32.5768	-	-
21933	-	43.1991**	-	-	86.0419	-	-	42.8428	-	106.0419
24370	-	42.1375**	-	-	86.0419	-	-	43.9044	-	106.0419
Horizontal Radiated Emission Result										
4874	-	48.8004**	-	-	74.0000	-	-	25.1996	-	-
7311	-	57.0538**	43.3293**	-	74.0000	54.0000	-	16.9462	10.6707	-
9748	-	54.6517**	-	-	86.0419	-	-	31.3902	-	106.0419
12185	-	63.8780**	50.1321**	-	74.0000	54.0000	-	10.1220	3.8679	-
14622	-	63.9450**	-	-	86.0419	-	-	22.0969	-	106.0419
17059	-	68.1449**	-	-	86.0419	-	-	17.8970	-	106.0419
19496	-	41.4195**	-	-	74.0000	-	-	32.5805	-	-
21933	-	43.3953**	-	-	86.0419	-	-	42.6466	-	106.0419
24370	-	42.0044**	-	-	86.0419	-	-	44.0375	-	106.0419

Remarks: Pass Result	Marginal Result	Fail Result

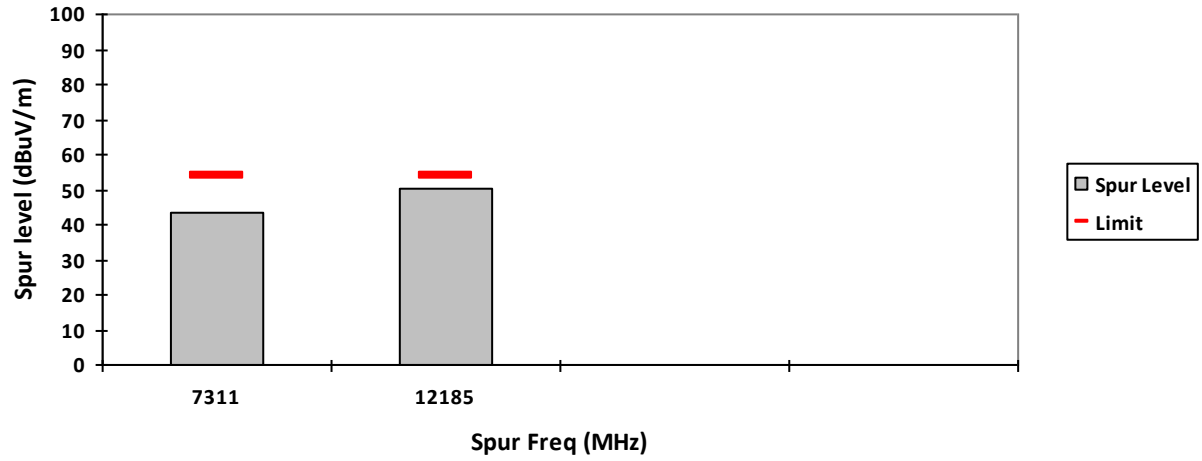
Temperature (degC): 23.5 Humidity (%): 69.3
Test Performed by: Nazrin & Rezza Test Date: Sat, 17 Aug, 2024
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.
***Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.**

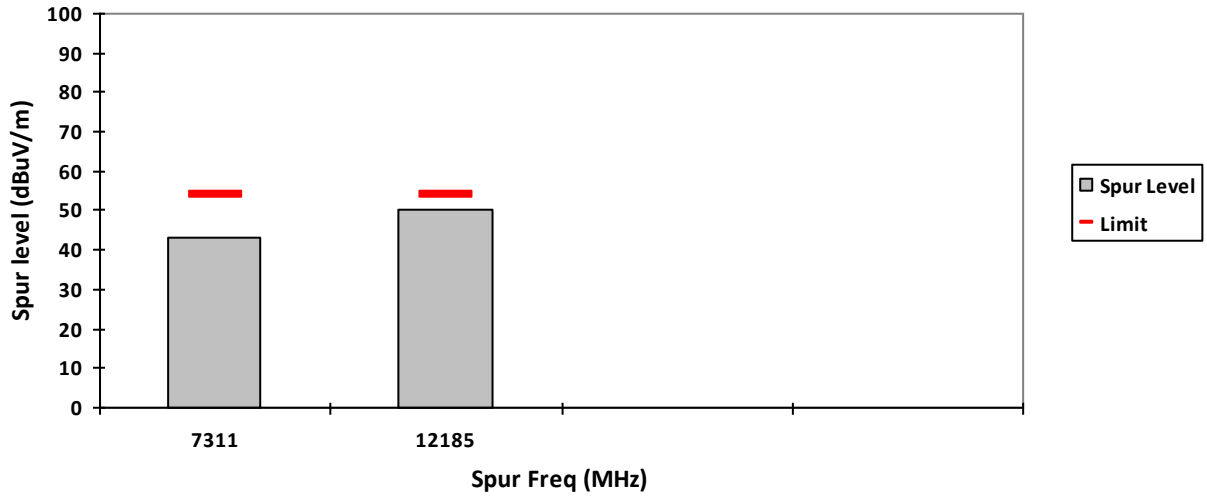

VERTICAL, PK
Spur Level (dBuV/m)
100
90
80
70
60
50
40
30
20
10
0
4874
7311
9748
12185
14622
17059
19496
21933
24370
Spur Freq (MHz)
Spur Level
Limit


HORIZONTAL, PK
Spur Level (dBuV/m)
100
90
80
70
60
50
40
30
20
10
0
4874
7311
9748
12185
14622
17059
19496
21933
24370
Spur Freq (MHz)
Spur Level
Limit

VERTICAL, AV



HORIZONTAL, AV



Test: WIFI SAC Transmitter Radiated Emission
Model#: AAH07RDH9SA1AN S/N: 651EAP0011 EMC SR ID#: 0549N01-EMC-00047
Battery: PMNN4890A Softpot power (15dBm) Accessory: PMAE4079A
Test Channel: High Test Frequency: 2462.0000 MHz Test Standard: ANSI C63.10-2013 Worst Case Plane: Z-Plane (802.11n 20MHz)

Radiated Emission (High Channel) tabular data

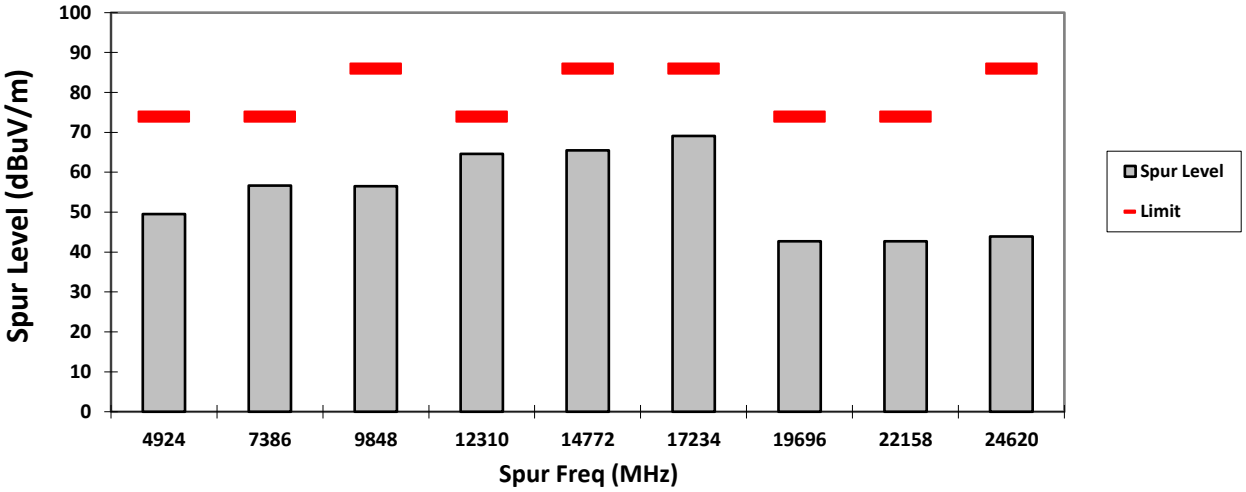
Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
4924	-	49.5238**	-	-	74.0000	-	-	24.4762	-	-
7386	-	56.6498**	43.0960**	-	74.0000	54.0000	-	17.3502	10.9040	-
9848	-	56.5150**	-	-	86.0419	-	-	29.5269	-	106.0419
12310	-	64.5735**	51.0130**	-	74.0000	54.0000	-	9.4265	2.9870	-
14772	-	65.5170**	-	-	86.0419	-	-	20.5249	-	106.0419
17234	-	69.0856**	-	-	86.0419	-	-	16.9563	-	106.0419
19696	-	42.6861**	-	-	74.0000	-	-	31.3139	-	-
22158	-	42.7388**	-	-	74.0000	-	-	31.2612	-	-
24620	-	43.9318**	-	-	86.0419	-	-	42.1101	-	106.0419
Horizontal Radiated Emission Result										
4924	-	49.9121**	-	-	74.0000	-	-	24.0879	-	-
7386	-	56.5324**	43.0452**	-	74.0000	54.0000	-	17.4676	10.9548	-
9848	-	54.4032**	-	-	86.0419	-	-	31.6387	-	106.0419
12310	-	64.5135**	51.0142**	-	74.0000	54.0000	-	9.4865	2.9858	-
14772	-	64.6249**	-	-	86.0419	-	-	21.4170	-	106.0419
17234	-	68.8603**	-	-	86.0419	-	-	17.1816	-	106.0419
19696	-	41.2266**	-	-	74.0000	-	-	32.7734	-	-
22158	-	42.3307**	-	-	74.0000	-	-	31.6693	-	-
24620	-	42.9026**	-	-	86.0419	-	-	43.1393	-	106.0419

Remarks: Pass Result	Marginal Result	Fail Result

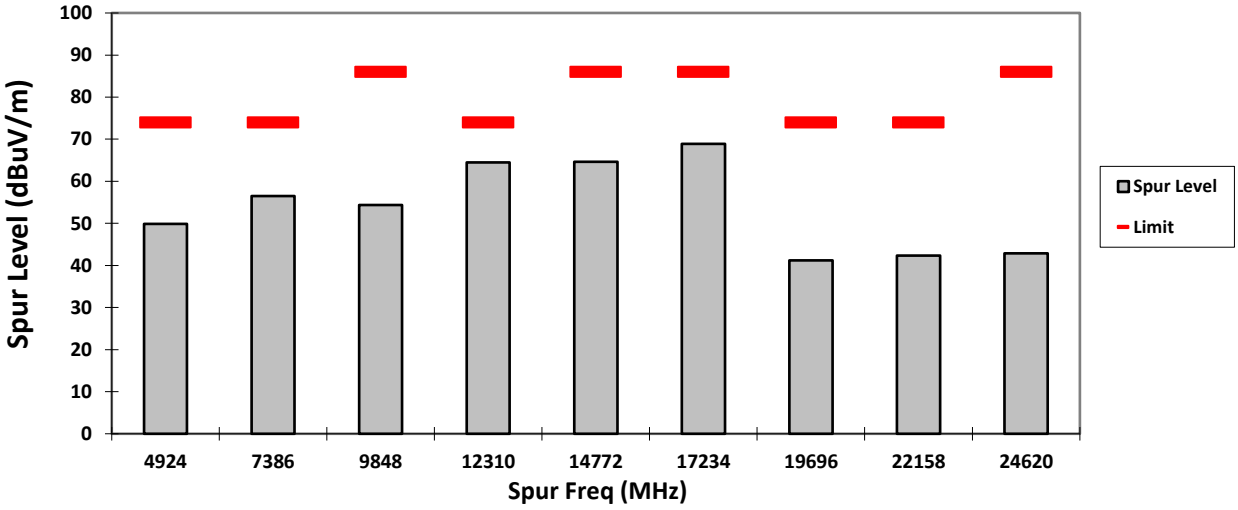
Temperature (degC): 23.5 **Humidity (%): 69.3**
Test Performed by: Nazrin & Rezza **Test Date: Sat, 17 Aug, 2024**
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.
***Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.**

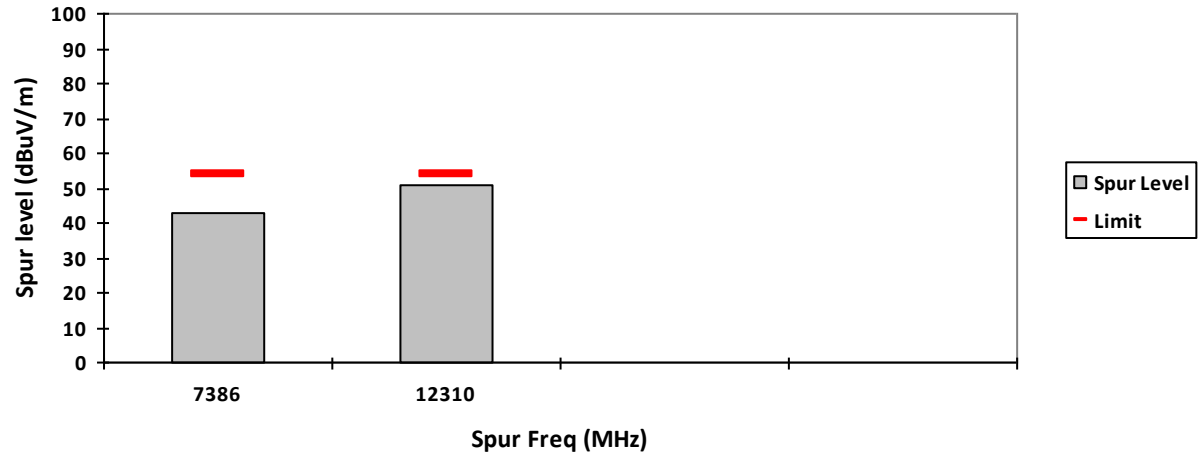
VERTICAL, PK



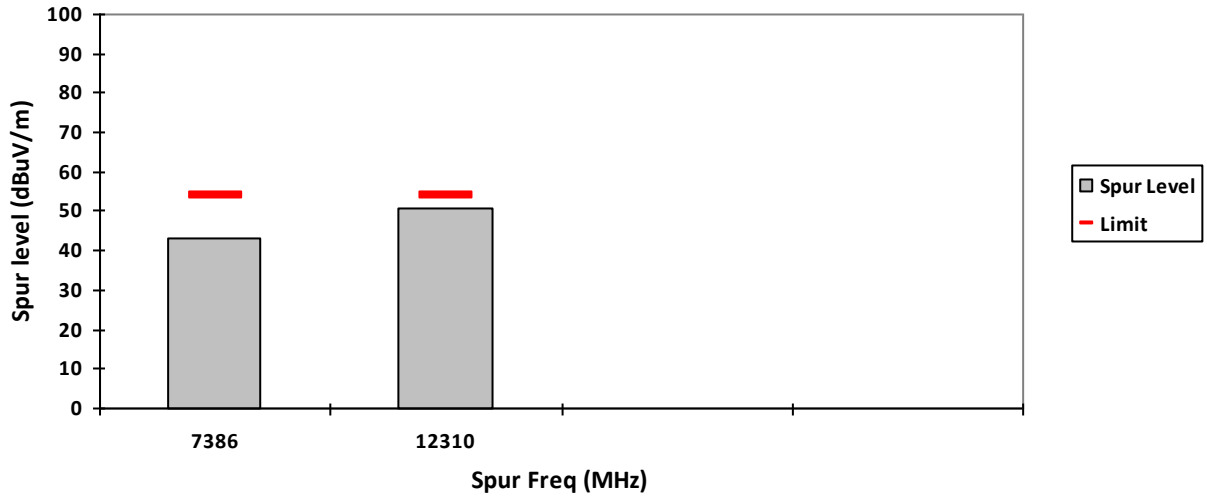
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Test: WIFI SAC Transmitter Radiated Emission
Model#: AAH07RDH9SA1AN S/N: 651EAP0011 EMC SR ID#: 0549N01-EMC-00054
Battery: PMNN4890A Accessory: PMAE4079A, WPLN4226A-C5, PS000577A01-C1
Test Channel: Low Test Frequency: 2412.0000 MHz Test Standard: ANSI C63.10-2013
Worst Case Plane: Y-Plane (802.11b)

Radiated Emission (120V) tabular data

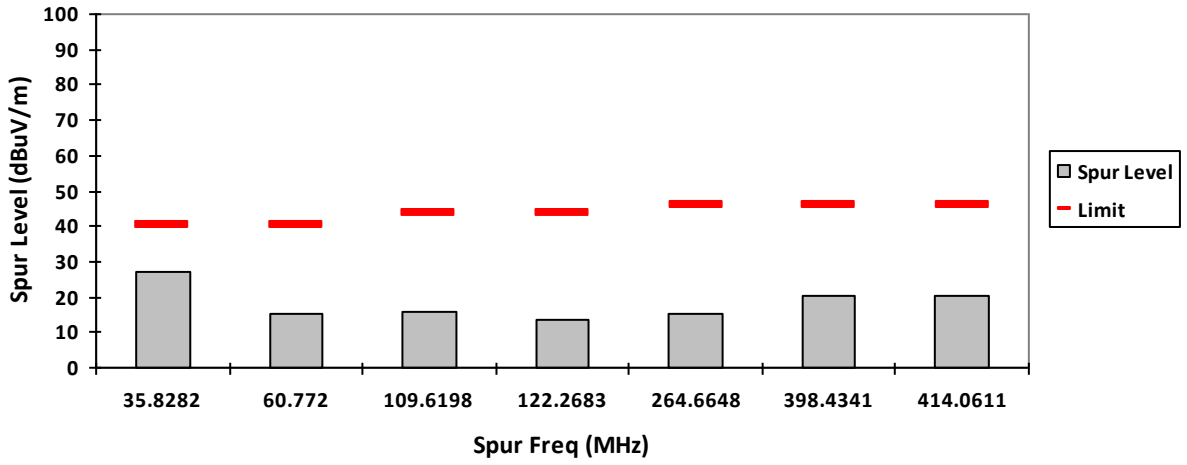
Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
35.8282	27.3947	-	-	40.0000	-	-	12.6053	-	-	-
60.7720	15.0601 *	-	-	40.0000	-	-	24.9399	-	-	-
109.6198	15.9527 *	-	-	43.5000	-	-	27.5473	-	-	-
122.2683	13.3404 *	-	-	43.5000	-	-	30.1596	-	-	-
264.6648	15.0379 *	-	-	46.0000	-	-	30.9621	-	-	-
398.4341	20.3877 *	-	-	46.0000	-	-	25.6123	-	-	-
414.0611	20.5529 *	-	-	46.0000	-	-	25.4471	-	-	-
Horizontal Radiated Emission Result										
35.8402	20.1161	-	-	40.0000	-	-	19.8839	-	-	-
60.8000	9.2752 *	-	-	40.0000	-	-	30.7248	-	-	-
109.4200	22.2022 *	-	-	43.5000	-	-	21.2978	-	-	-
122.0805	13.3242 *	-	-	43.5000	-	-	30.1758	-	-	-
264.2322	15.2000 *	-	-	46.0000	-	-	30.8000	-	-	-
398.3821	17.8512 *	-	-	46.0000	-	-	28.1488	-	-	-
414.0631	18.1920 *	-	-	46.0000	-	-	27.8080	-	-	-

Remarks: Pass Result	Marginal Result	Fail Result

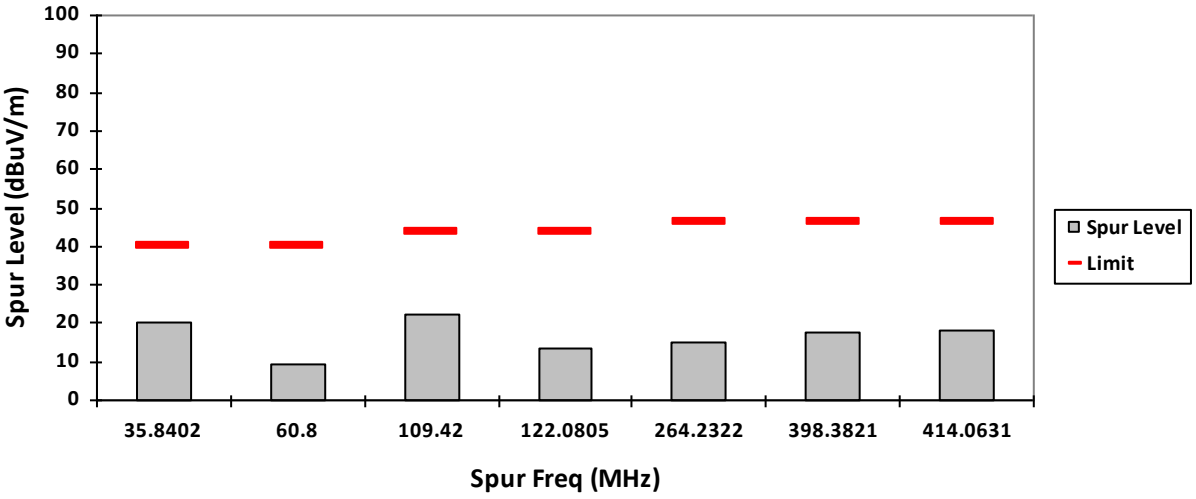
Temperature (degC): 23.5 Humidity (%): 67.9
Test Performed by: Rezza & Nazrin Test Date: Tue, 10 Sep, 2024
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.
***Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.**

VERTICAL, QPK

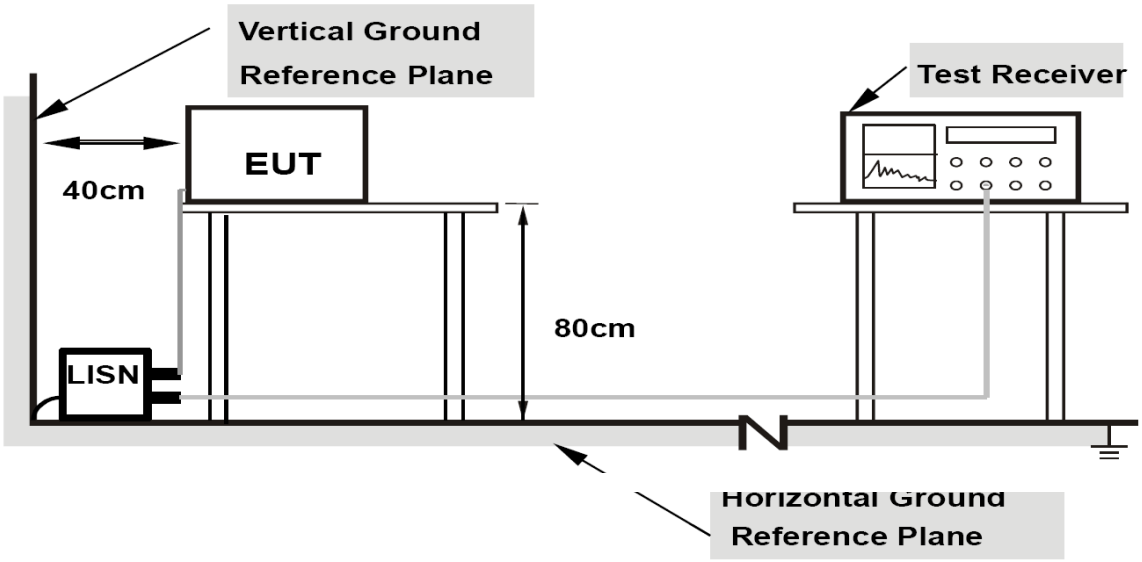


HORIZONTAL, QPK



6.8. AC Powerline Conducted Emission

6.8.1. Test Setup



1) Tests were conducted for both Receive and Transmit Mode of the EUT.
2) The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/50uH of coupling impedance for the measuring instrument.
3) Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
4) The frequency range from 150 kHz to 30MHz was measured.

6.8.2. Test Limits:

For AC Power Line Conducted Test Limit can be Class A or B depends on product classification.

Limits for conducted disturbance at the mains ports of class A ITE

Frequency range MHz	Limits dB(µV)	
	Quasi-peak	Average
0,15 to 0,50	79	66
0,50 to 30	73	60
NOTE The lower limit shall apply at the transition frequency.		

Table 1: Limits for Conducted Disturbance at the Mains Ports of Class A ITE.

Limits for conducted disturbance at the mains ports of class B ITE

Frequency range MHz	Limits dB(µV)	
	Quasi-peak	Average
0,15 to 0,50	66 to 56	56 to 46
0,50 to 5	56	46
5 to 30	60	50
NOTE 1 The lower limit shall apply at the transition frequencies. NOTE 2 The limit decreases linearly with the logarithm of the frequency in the range 0,15 MHz to 0,50 MHz.		

Table 2: Limits for Conducted Disturbance at the Mains Ports of Class B ITE

6.8.3. Test Result

Not Applicable.

END OF TEST REPORT