

 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.C																																																
<table><tr><td>Date/s Tested</td><td>:</td><td>15-Jan-2025 - 05-Feb-2025</td></tr><tr><td>Report Issue Date</td><td>:</td><td>21-Apr-2025</td></tr><tr><td>Manufacturer/Location</td><td>:</td><td>Motorola Solutions Malaysia Sdn Bhd Plot 2A, Medan Bayan Lepas, Mukim 12 SWD, 11900, Bayan Lepas, Penang, Malaysia</td></tr><tr><td>Requestor</td><td>:</td><td>Yeap Tee Khoon</td></tr><tr><td>Product Type</td><td>:</td><td>Body Worn Camera</td></tr><tr><td>Product Marketing Name (PMN)</td><td>:</td><td>SVX</td></tr><tr><td>Hardware Version Identification Number (HVIN)</td><td>:</td><td>VX650</td></tr><tr><td>Frequency Band</td><td>:</td><td>2.412-2.462 GHz</td></tr><tr><td>Max RF Output Power</td><td>:</td><td>802.11b - 125.89 mWatts 802.11g - 223.87 mWatts 802.11n(HT20) - 199.53 mWatts 802.11n(HT40) - 112.2 mWatts</td></tr><tr><td>Applicant Name</td><td>:</td><td>Motorola Solutions Inc</td></tr><tr><td>Applicant Address</td><td>:</td><td>Plot 2A, Medan bayan Lepas, Mukim 12 S.W.D.11900 Bayan Lepas, Penang, Malaysia</td></tr><tr><td>FCC Registrations</td><td>:</td><td>461337</td></tr><tr><td>ISED Registrations</td><td>:</td><td>MY0001</td></tr><tr><td>Firmware Version Identification Number (FVIN)</td><td>:</td><td>24.4.0</td></tr></table> The equipment was tested accordance to the requirement listed below: <table><tr><td>(2.4GHz Wifi)</td><td>PASS</td></tr><tr><td>47CFR Part 15C</td><td></td></tr><tr><td>ISED RSS 247 Issue 3 August 2023</td><td></td></tr></table>		Date/s Tested	:	15-Jan-2025 - 05-Feb-2025	Report Issue Date	:	21-Apr-2025	Manufacturer/Location	:	Motorola Solutions Malaysia Sdn Bhd Plot 2A, Medan Bayan Lepas, Mukim 12 SWD, 11900, Bayan Lepas, Penang, Malaysia	Requestor	:	Yeap Tee Khoon	Product Type	:	Body Worn Camera	Product Marketing Name (PMN)	:	SVX	Hardware Version Identification Number (HVIN)	:	VX650	Frequency Band	:	2.412-2.462 GHz	Max RF Output Power	:	802.11b - 125.89 mWatts 802.11g - 223.87 mWatts 802.11n(HT20) - 199.53 mWatts 802.11n(HT40) - 112.2 mWatts	Applicant Name	:	Motorola Solutions Inc	Applicant Address	:	Plot 2A, Medan bayan Lepas, Mukim 12 S.W.D.11900 Bayan Lepas, Penang, Malaysia	FCC Registrations	:	461337	ISED Registrations	:	MY0001	Firmware Version Identification Number (FVIN)	:	24.4.0	(2.4GHz Wifi)	PASS	47CFR Part 15C		ISED RSS 247 Issue 3 August 2023	
Date/s Tested	:	15-Jan-2025 - 05-Feb-2025																																															
Report Issue Date	:	21-Apr-2025																																															
Manufacturer/Location	:	Motorola Solutions Malaysia Sdn Bhd Plot 2A, Medan Bayan Lepas, Mukim 12 SWD, 11900, Bayan Lepas, Penang, Malaysia																																															
Requestor	:	Yeap Tee Khoon																																															
Product Type	:	Body Worn Camera																																															
Product Marketing Name (PMN)	:	SVX																																															
Hardware Version Identification Number (HVIN)	:	VX650																																															
Frequency Band	:	2.412-2.462 GHz																																															
Max RF Output Power	:	802.11b - 125.89 mWatts 802.11g - 223.87 mWatts 802.11n(HT20) - 199.53 mWatts 802.11n(HT40) - 112.2 mWatts																																															
Applicant Name	:	Motorola Solutions Inc																																															
Applicant Address	:	Plot 2A, Medan bayan Lepas, Mukim 12 S.W.D.11900 Bayan Lepas, Penang, Malaysia																																															
FCC Registrations	:	461337																																															
ISED Registrations	:	MY0001																																															
Firmware Version Identification Number (FVIN)	:	24.4.0																																															
(2.4GHz Wifi)	PASS																																																
47CFR Part 15C																																																	
ISED RSS 247 Issue 3 August 2023																																																	
This report shall not be reproduced without written approval from an officially designated representative of the Motorola Penang Adv. Comm. Laboratory. The results and statements contained in this report pertain only to the device(s) evaluated.																																																	
Prepared By:  NUR ALIEYA BINTI MAT YUSOFF Test Personnel	Approved Signatory:  MAHESHVARAN A/L RAJAGOPAL Responsible Engineer																																																

Table of Contents

1.0. General Information	3
1.1. Channel number and frequency information:	3
2.0. Summary of Test Results.....	4
3.0. Measurement Uncertainty	5
4.0. Equipment List	6
5.0. Test Mode Applicability and Test Channel Detail	7
6.0. Transmitter Test Parameters	10
6.1. 6dB Channel Bandwidth	10
6.1.1. Test Setup.....	10
6.1.2. Test Limits:.....	10
6.1.3. Test Data:.....	11
6.2. Conducted RF Output Power	19
6.2.1. Test Setup.....	19
6.2.2. Test Limits:.....	19
6.2.3. Test Data:.....	20
6.3. Duty Cycle of the test signal	21
6.3.1. Test Setup.....	21
6.3.2. Test Data.....	22
6.4. Maximum Peak Power Spectral Density	26
6.4.1. Test Setup.....	26
6.4.2. Test Limits	26
6.4.3. Test Result.....	27
6.5. Conducted Spurious Emission	31
6.5.1. Test Setup.....	31
6.5.2. Test Limits:.....	31
6.5.3. Test Result.....	32
6.6. Band edge Conducted Spurious Emission	55
6.6.1. Test Setup.....	55
6.6.2. Test Limits:.....	55
6.6.3. Test Result.....	56
6.7. Radiated Emission within restricted Bands.....	60
6.7.1. Test Setup.....	60
6.7.2. Test Limits:.....	61
6.7.3. Test Data:.....	62
6.8. AC Powerline Conducted Emission	122
6.8.1. Test Setup.....	124
6.8.2. Test Limits:.....	124
6.8.3. Test Result.....	125

REVISION HISTORY

Revision History	Description	Date	Originator
Rev. A	Initial Report	24-Feb-2025	NUR ALIEYA
Rev. B	Update Antenna Type	12-Mar-2025	NUR ALIEYA
Rev. C	Change Product Marketing Name (PMN) from "VX650" to "SVX"	14-Apr-2025	NUR ALIEYA

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

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

802.11b,g,n

Mode	802.11b			802.11g			802.11n			802.11n		
Channel	1	6	11	1	6	11	1	6	11	3	6	9
Resource Unit	NA			NA			NA			NA		
Frequency	2412	2437	2462	2412	2437	2462	2412	2437	2462	2422	2437	2452
Bandwidth	20 MHz			20MHz			20MHz			40Mhz		

802.11ax

Mode	802.11ax			802.11ax (RU26)			802.11ax		
Channel	1	6	11	1	6	11	3	6	9
Resource Unit	Full RU			0,4,8			Full RU		
Frequency	2412	2437	2462	2412	2437	2462	2422	2437	2452
Bandwidth	20 MHz			20MHz			40MHz		

The EUT contains following accessory devices and data cable:

Item	Brand	Model or P/N
BATTERY PACK,BATT LIION UL DIV2 IP68 4300T	MOTOROLA	PMNN4893A

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 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: 13.329MHz (13M3G1D) 802.11g: 16.755MHz (16M8D1D) 802.11n20: 17.734MHz (17M7D1D) 802.11n40: 36.179MHz (36M2D1D)	9903EBA0063	Alieya
15.247 (b)(3)	RSS-247 5.4(d)	Conducted RF Output Power (Peak)	Pass	Highest output power: 802.11b: 20.420 dBm (110.154 mW) 802.11g: 22.270 dBm (168.655 mW) 802.11n(HT20): 21.880 dBm (154.170 mW) 802.11n(HT40): 19.910 dBm (97.949 mW)	9903EBA0063	Alieya
15.247(e)	RSS-247 5.2(b)	Maximum Power Spectral Density	Pass	Meet the limit requirement.	9903EBA0063	Alieya
15.247(d)	RSS-247 5.5	Conducted Spurious Emissions	Pass	Worst case emission: 802.11b: -41.12 dBm 802.11g: -40.21 dBm 802.11n(HT20): -41.04 dBm 802.11n(HT40): -40.63 dBm	9903EBA0063	Alieya
15.247 (d)	RSS-247 5.5	Band edge Conducted Spurious Emission	Pass	Worst case emission: 802.11b: -36.50 dBm 802.11g: -31.04 dBm 802.11n(HT20): -32.84 dBm 802.11n(HT40): -39.47 dBm	9903EBA0063	Alieya
15.205, 15.209, 15.247 (d)	RSS-247 5.5	Radiated Emission within Restricted Bands	Pass	Worst case emission: RBE: 45.1236 dBuV/m (margin: 8.8764dB) RSE: 26.4566dBuV/m (margin: 19.5434dB)	9903EBA0048	Aiman
15.207	RSS-Gen 8.8	AC Power Line Conducted Emission	Pass	Meet the limit requirement.	9903EBA0048	Shidee
15.203		Antenna requirement	NA	Internal antenna is not accessible to the enduser	NA	NA

NA → Not Available

3.0. Measurement Uncertainty

Measurement	Frequency	Expended Uncertainty (k=1.96) (±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
SPECTRUM ANALYZER	E4440A	MY46186938	29-Oct-24	29-Oct-25
POWER SUPPLY	6652A	3541A02371	11-Sep-24	11-Sep-25
CHAMBER	SH-641	92003820	04-Jul-24	04-Jul-25

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

Description	Model	Serial Number	Calibration Date	Calibration Due Date
EMI TEST RECEIVER	ESIB40	100307	23-Oct-24	23-Oct-25
3m SEMI-ANECHOIC CHAMBER	NA	888032	Not Required	Not Required
TURNTABLE FLUSH MOUNT 2M	T-200-S	NA	Not Required	Not Required
PROGRAMMING CONTROLLER	MF-7802BS	NA	Not Required	Not Required
POWER SUPPLY	6674A	3126A00133	13-Mar-24	13-Mar-25
SIGNAL ANALYZER	FSV40	101432	09-Aug-24	08-Aug-25
DATA LOGGER	SDL500	A.016800	26-Jun-24	26-Jun-25
BILOG ANTENNA	CBL6112D	55546	05-Jun-24	05-Jun-25
BILOG ANTENNA	CBL 6112B	2964	08-Oct-24	08-Oct-25
DRG HORN FREQ.	SAS-571	1027	01-Jul-24	01-Jul-25
DRG HORN FREQ.	SAS-571	720	18-Apr-23	18-Apr-25
PREAMPLIFIER	PAM-0118	427	15-Nov-24	15-Nov-25
SIGNAL GENERATOR	SMB100A	181117	06-Dec-21	06-May-25
LOOP ANTENNA	6502	00203479	06-Mac-24	06-Mac-25
BROAD-BAND HORN ANTENNA	BBHA9170	BBHA9170255	13-Mar-24	13-Mar-25

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-24	5-Jul-25
V-NETWORK 2-LINE	ENV216V	101268	12-Jun-24	12-Jun-25
EMI TEST RECEIVER	ESCI	100225	8-May-24	8-May-25
PROGRAMMABLE AC SOURCE	61604	ABR000000926	5-Aug-24	5-Aug-25

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
	802.11ax (HE20)	x	x	x	x	x	x
	802.11ax (HE40)	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	2	SISO	22.8°C, 70.1%RH
Test Mode	802.11g	1 to 11	1,6,11	OFDM	BPSK	6	SISO	22.8°C, 70.1%RH
Test Mode	802.11n (HT20)	1 to 11	1,6,11	OFDM	BPSK	6.5	SISO CDD (MIMO)	22.8°C, 70.1%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	2	SISO	22.8°C, 70.1%RH
Test Mode	802.11g	1 to 11	1,6,11	OFDM	BPSK	6	SISO	22.8°C, 70.1%RH
Test Mode	802.11n (HT20)	1 to 11	1,6,11	OFDM	BPSK	6.5	SISO CDD (MIMO)	22.8°C, 70.1%RH
Test Mode	802.11n (HT40)	3 to 9	3,6,9	OFDM	BPSK	6.5	SISO CDD (MIMO)	NA

Power Line Conducted Emission Test

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

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

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

Antenna Port Conducted Measurement:

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

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

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

EUT Configure Mode	Modulation	Available Channel	Tested Channel	Modulation Technology	Data Modulation Type	Data Rate (Mbps)	Mode	Environmental Conditions
Test Mode	802.11b	1 to 11	1,6,11	DSSS	QPSK	2	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

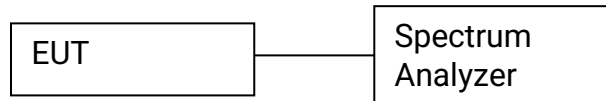
Duty Cycle of Test Signal

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

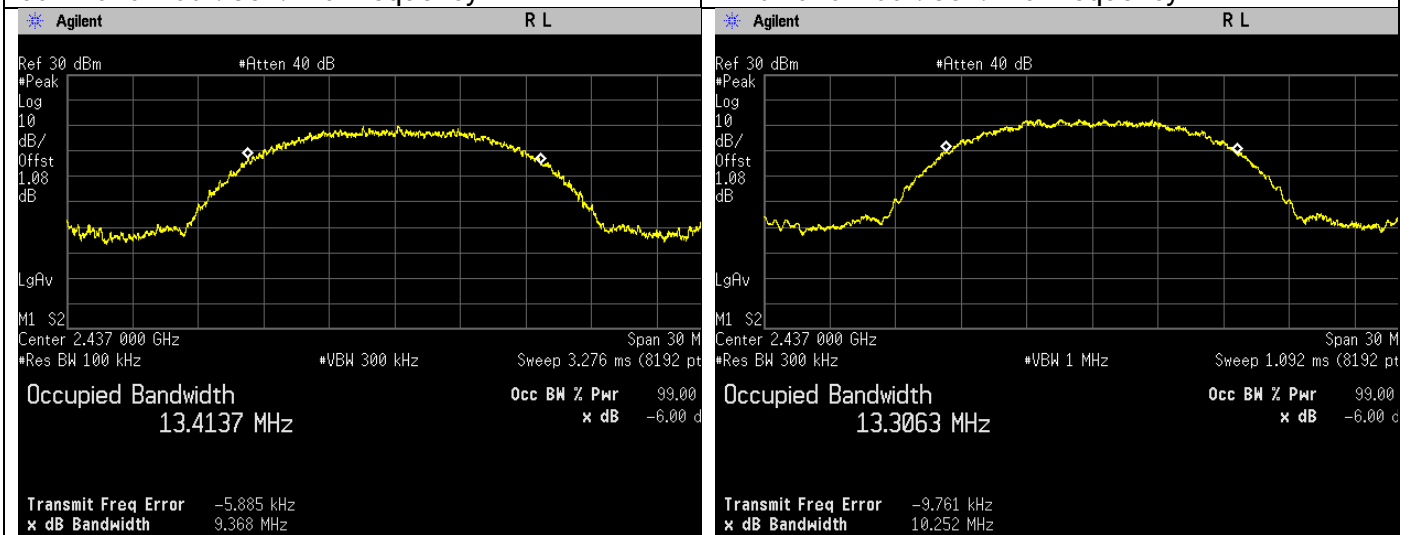
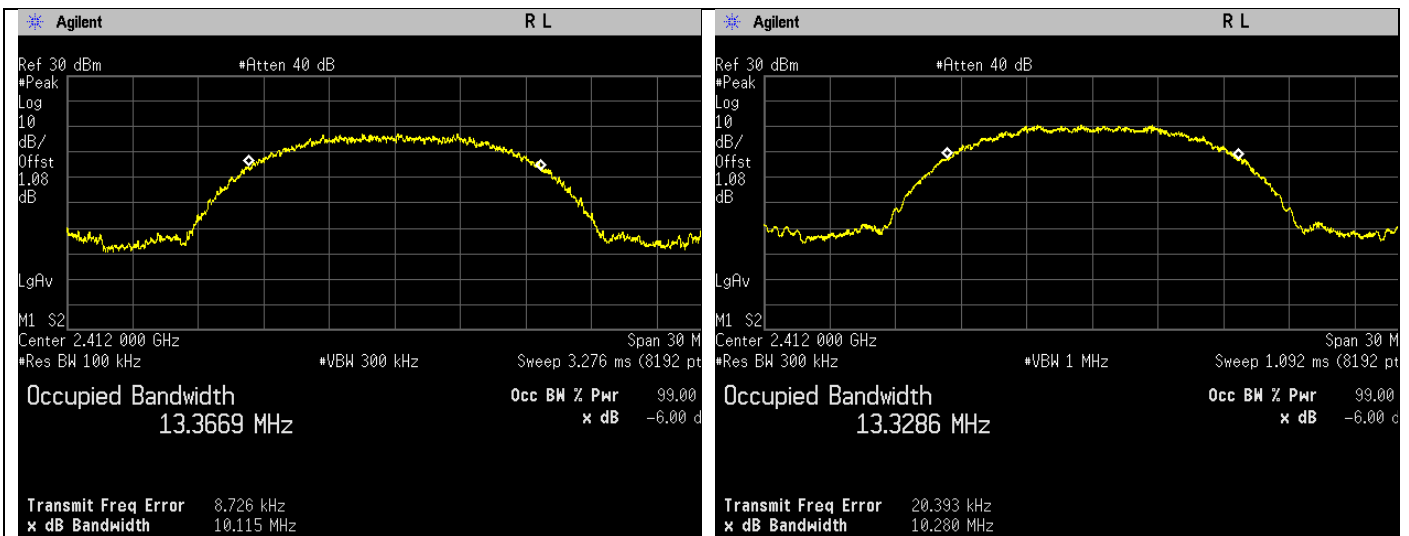
6.1.2. Test Limits:

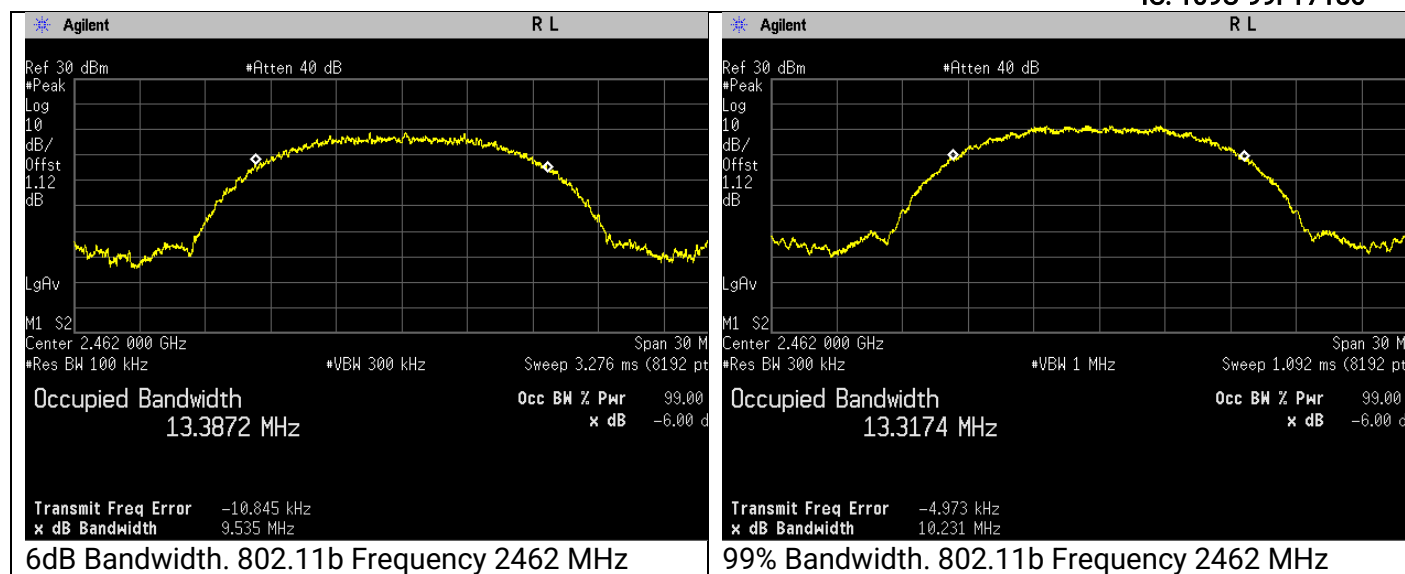
Normal Condition (25 ° C)
≥500 kHz

6.1.3. Test Data:

802.11 b

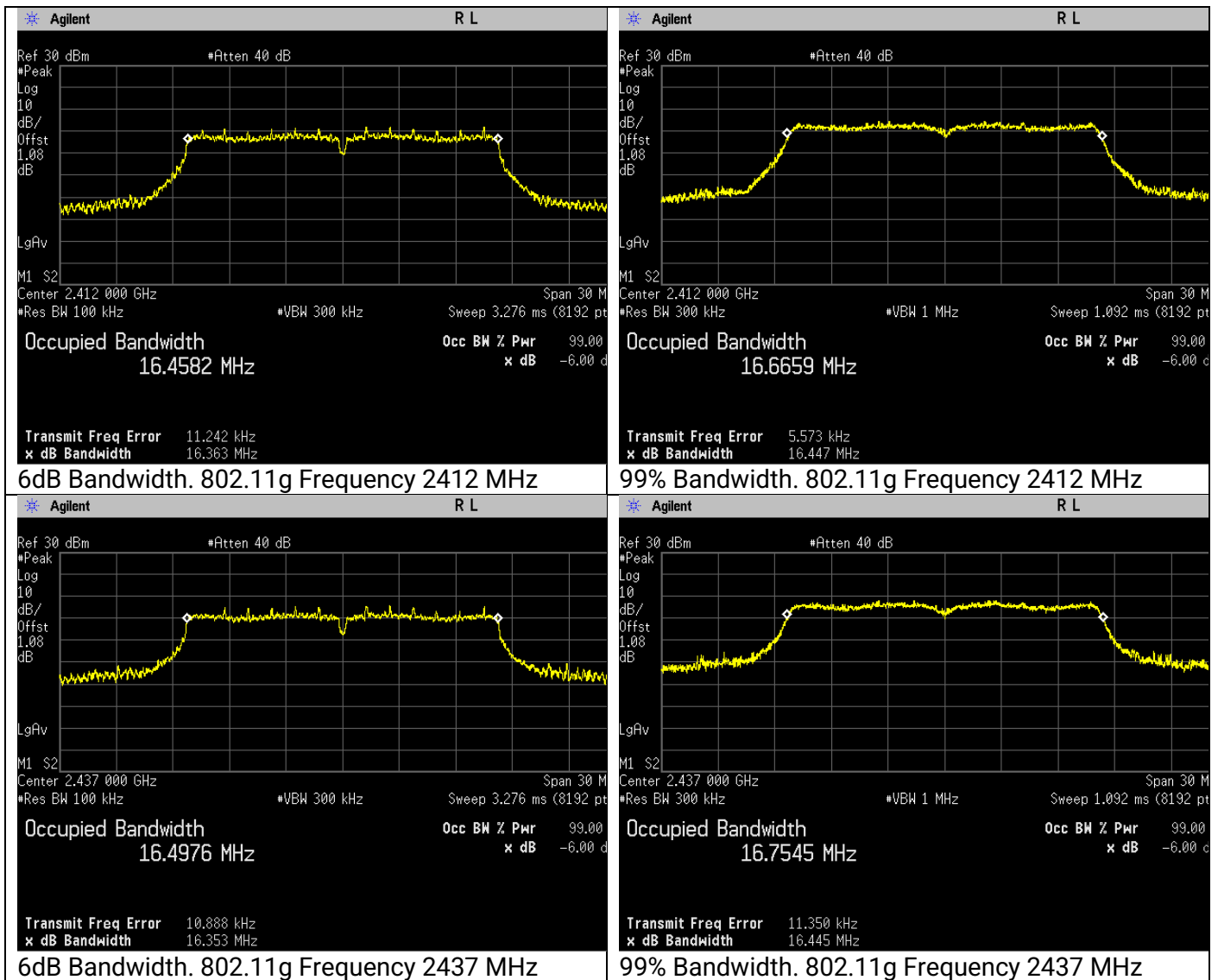
Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Status
802.11b	OFDM	BPSK	5.5	2412	10.115	13.329	Pass
802.11b	OFDM	BPSK	5.5	2437	9.368	13.306	Pass
802.11b	OFDM	BPSK	5.5	2462	9.535	13.317	Pass

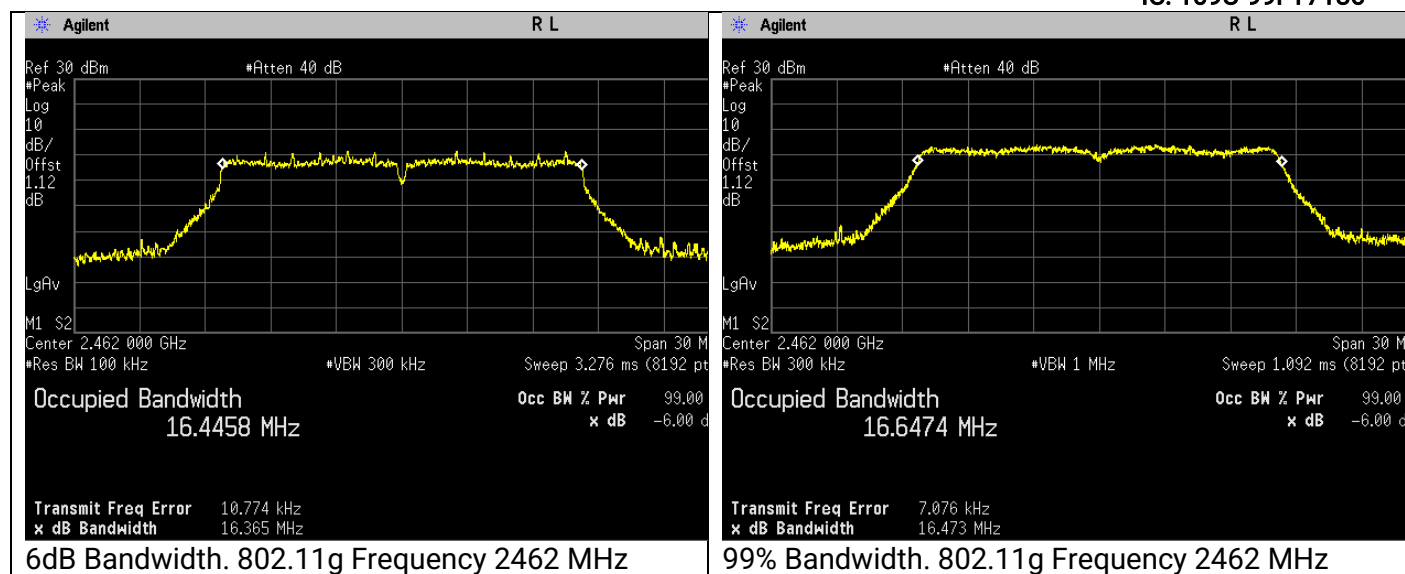




802.11g

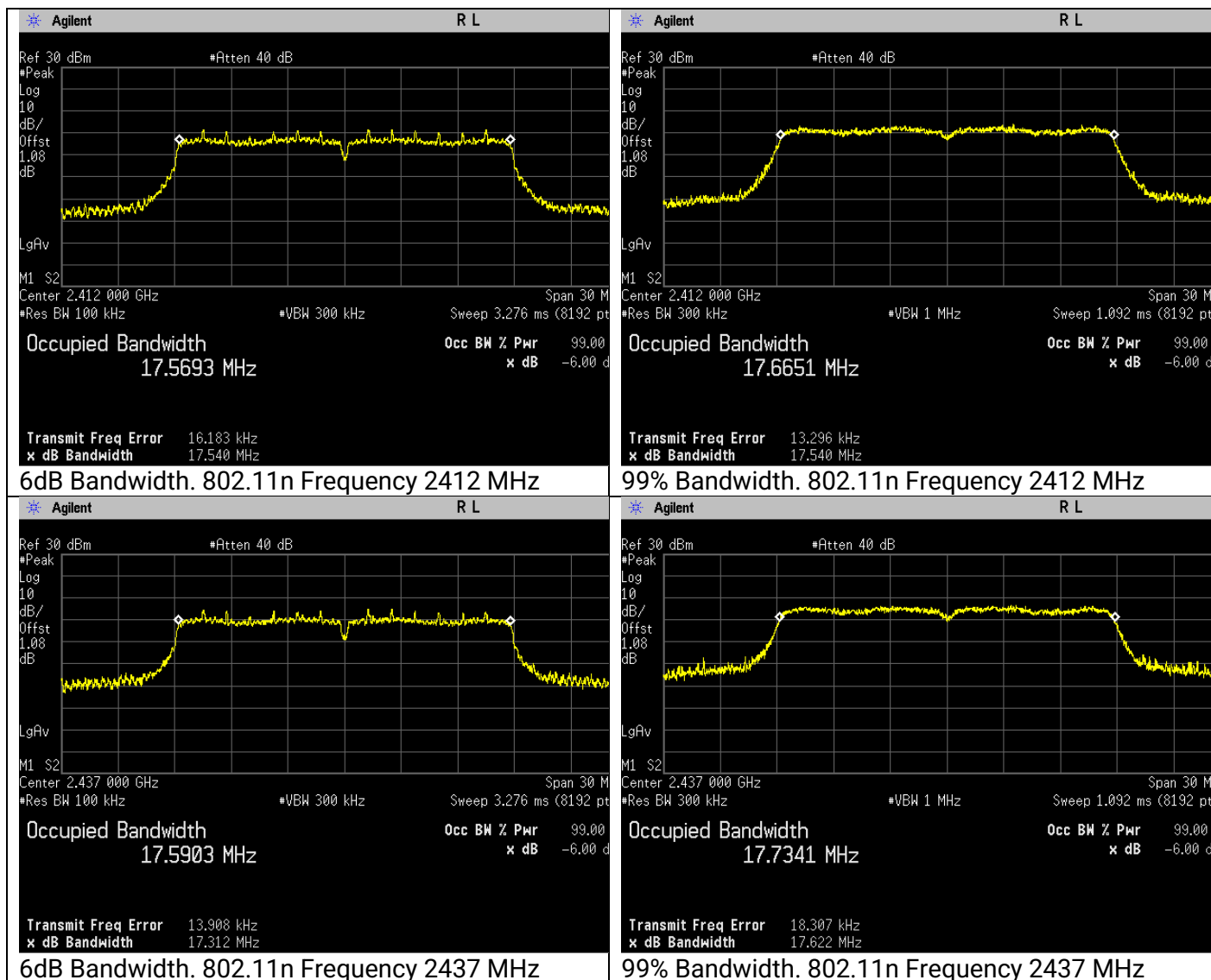
Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Status
802.11g	OFDM	BPSK	6	2412	16.363	16.666	Pass
802.11g	OFDM	BPSK	6	2437	16.353	16.755	Pass
802.11g	OFDM	BPSK	6	2462	16.365	16.647	Pass

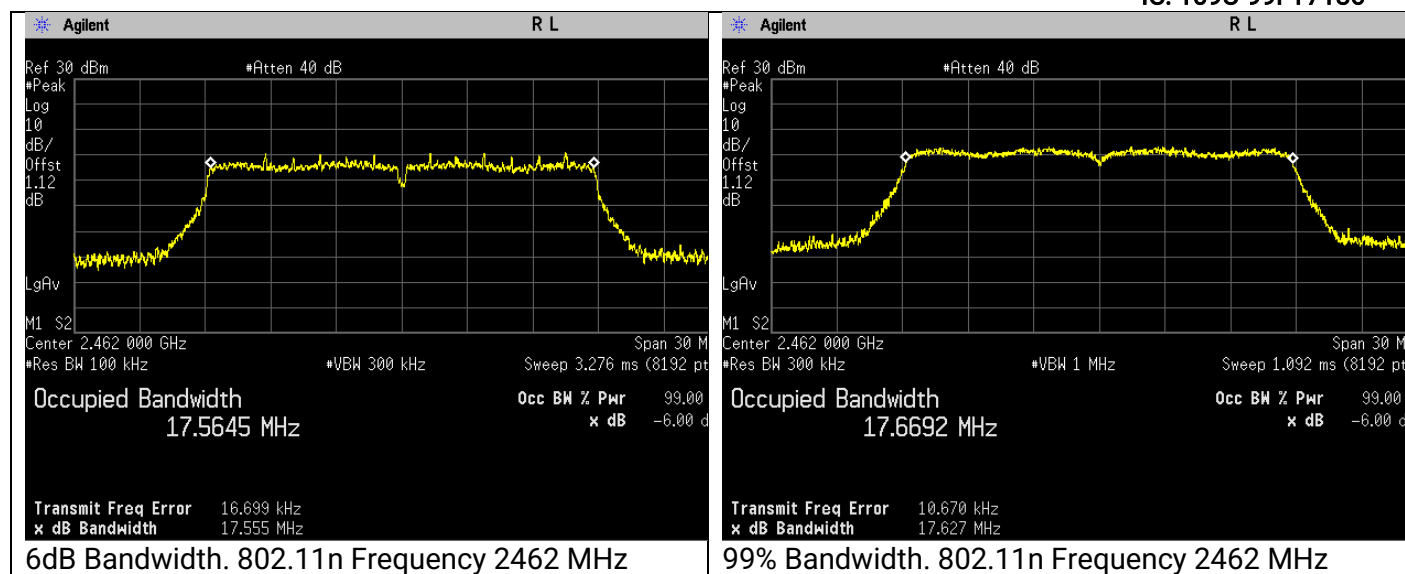




802.11n (HT20)

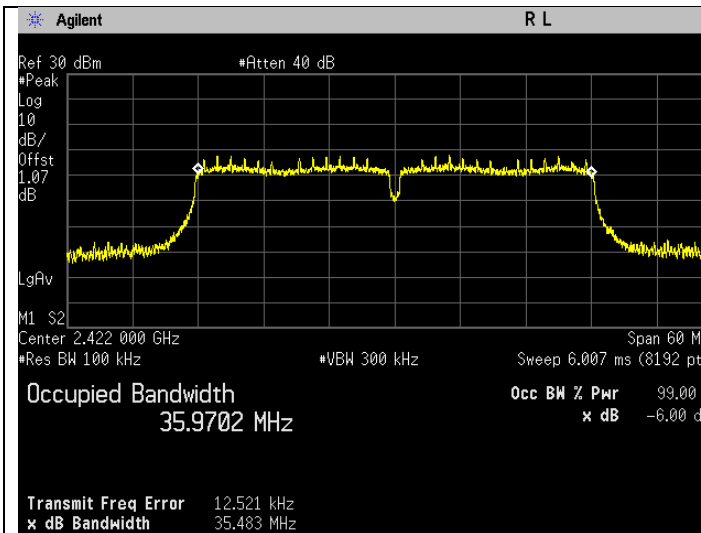
Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Status
802.11n	OFDM	BPSK	6.5	2412	17.540	17.665	Pass
802.11n	OFDM	BPSK	6.5	2437	17.312	17.734	Pass
802.11n	OFDM	BPSK	6.5	2462	17.555	17.669	Pass



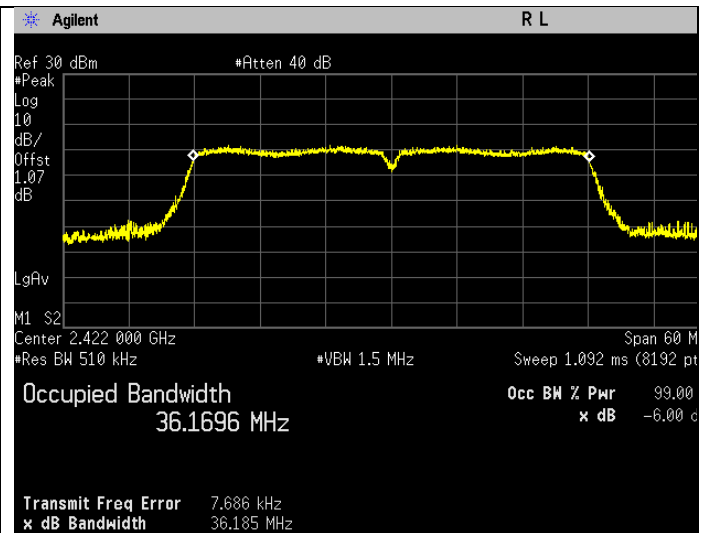


802.11n (HT40)

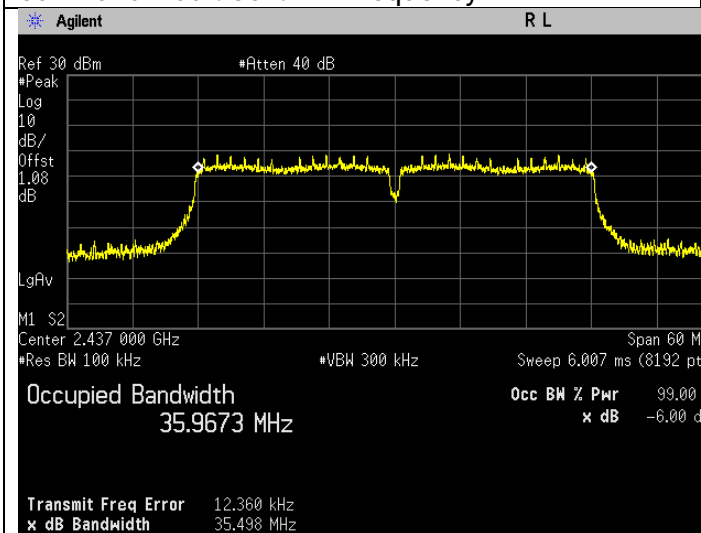
Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Status
802.11n	OFDM	BPSK	13.5	2422	35.483	36.170	Pass
802.11n	OFDM	BPSK	13.5	2437	35.498	36.176	Pass
802.11n	OFDM	BPSK	13.5	2452	35.686	36.179	Pass



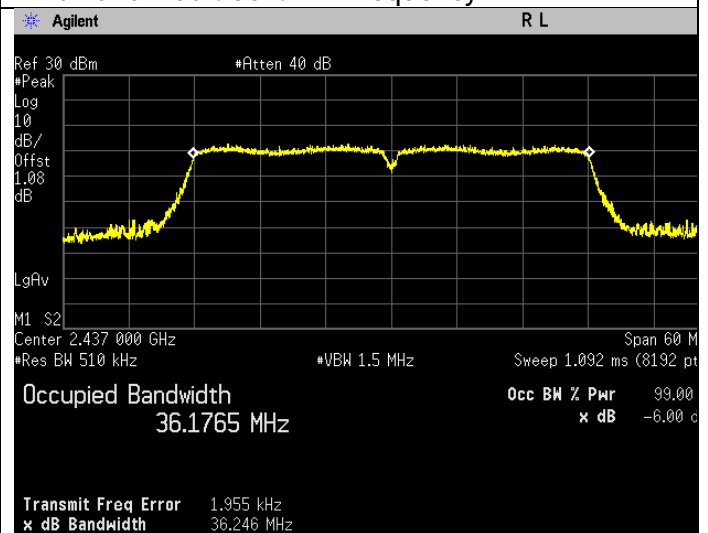
6dB Bandwidth. 802.11n Frequency 2422 MHz



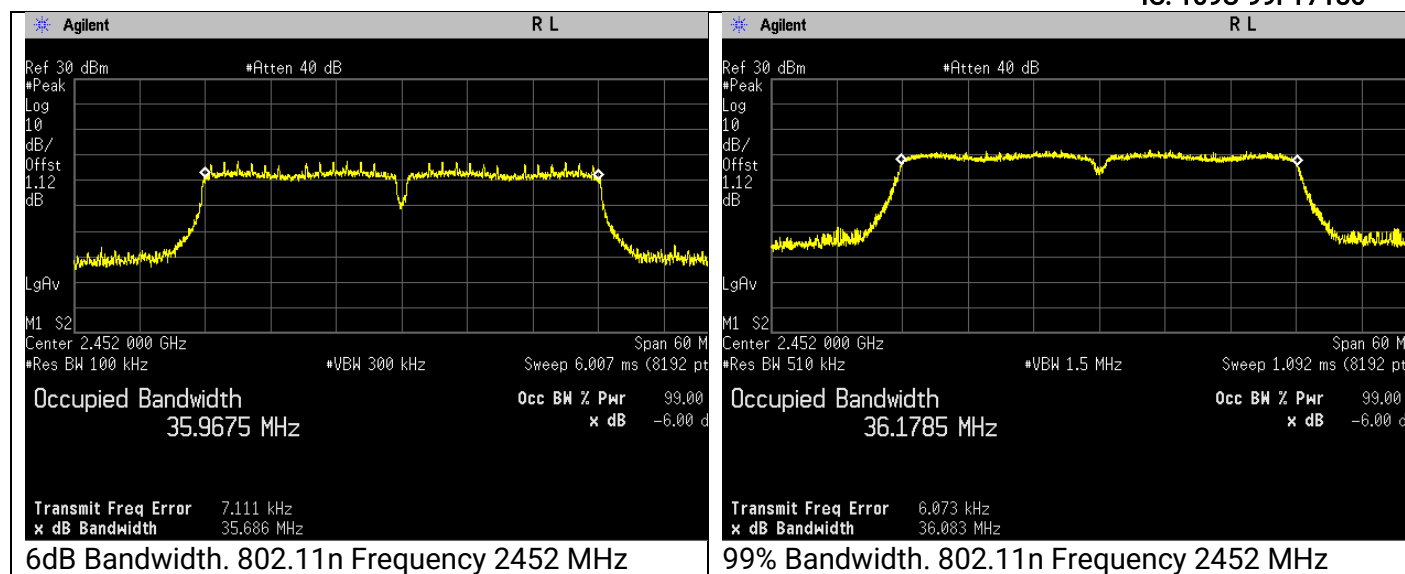
99% Bandwidth. 802.11n Frequency 2422 MHz



6dB Bandwidth. 802.11n Frequency 2437 MHz

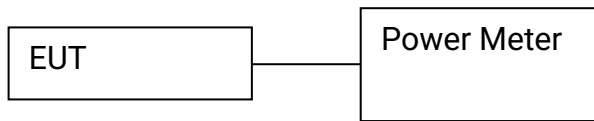


99% Bandwidth. 802.11n Frequency 2437 MHz



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	OFDM	BPSK	5.5	2412	18.800	Pass
802.11b	OFDM	BPSK	5.5	2437	20.420	Pass
802.11b	OFDM	BPSK	5.5	2462	19.685	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	20.120	Pass
802.11g	OFDM	BPSK	6	2437	22.270	Pass
802.11g	OFDM	BPSK	6	2462	20.285	Pass

802.11n (HT20)

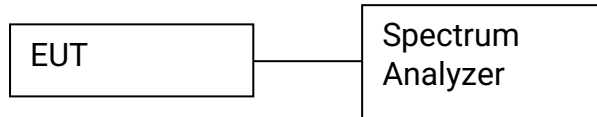
Test Conditions				Test Frequency	Results	
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Output Power (dBm)	Status
802.11n	OFDM	BPSK	6.5	2412	19.720	Pass
802.11n	OFDM	BPSK	6.5	2437	21.880	Pass
802.11n	OFDM	BPSK	6.5	2462	19.825	Pass

802.11n (HT40)

Test Conditions				Test Frequency	Results	
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Output Power (dBm)	Status
802.11n	OFDM	BPSK	13.5	2422	18.880	Pass
802.11n	OFDM	BPSK	13.5	2437	19.910	Pass
802.11n	OFDM	BPSK	13.5	2452	18.795	Pass

6.3.Duty Cycle of the test signal

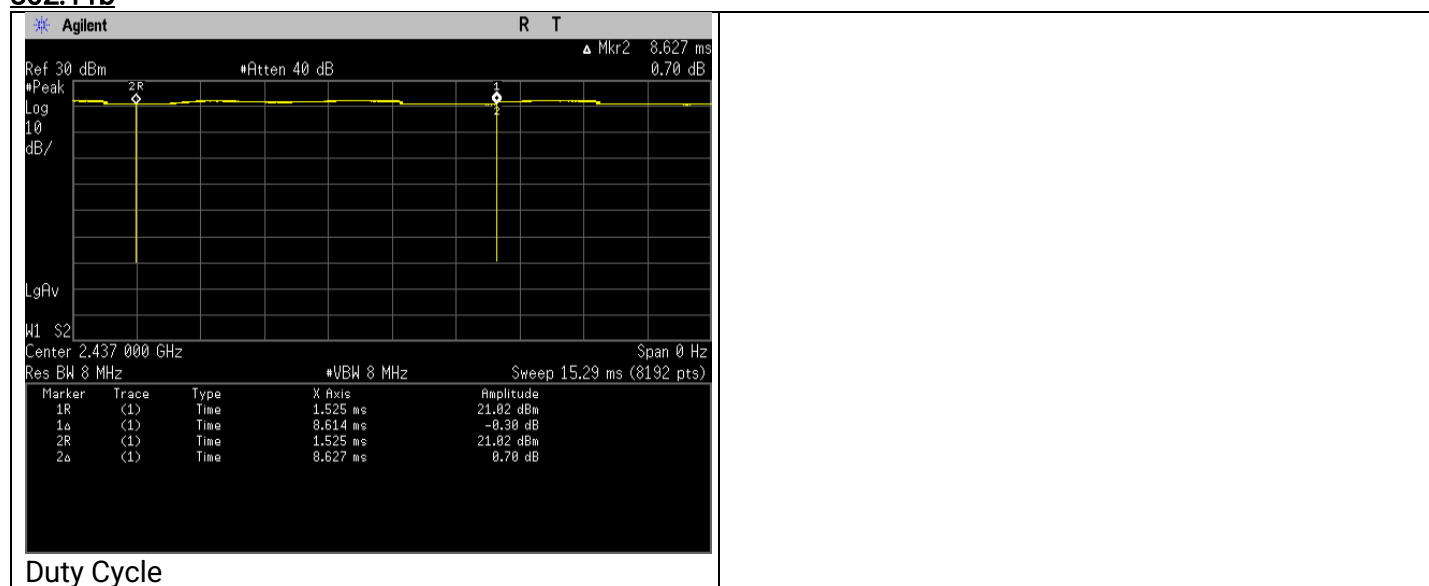
6.3.1. Test Setup



- 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 $\geq$ RBW.
 - c. Set the span $\geq [1.5 \times \text{DTS bandwidth}]$.
 - d. Detector = Peak.
 - e. Sweep time = 10ms or others that allow to measure accurate duty cycle.
 - f. Trace mode = max hold.
 - g. Allow trace to fully stabilize.
- 5) Record the duty cycle as X and save the plot.
- 6) Measure every antenna port by repeat the step above for MIMO measurement.

6.3.2. Test Data

802.11b

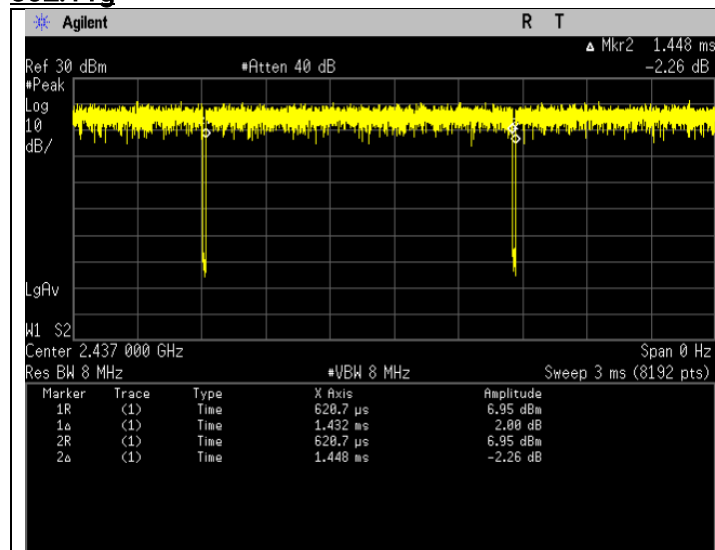


On time (ms)	8.614
On + Off Time (ms)	8.627
Duty cycle	0.9985
Duty Cycle factor	0.007

*Duty cycle = On time/ On +off time

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

802.11g



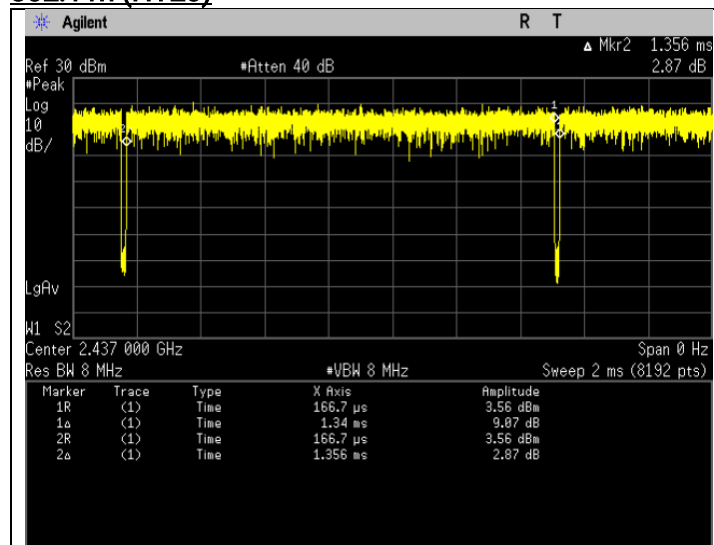
Duty Cycle

On time (ms)	1.432
On + Off Time (ms)	1.448
Duty cycle	0.989
Duty Cycle factor	0.048

*Duty cycle = On time/ On +off time

*Duty Cycle factor = $10 \cdot \log(1/\text{Duty Cycle})$

802.11n (HT20)



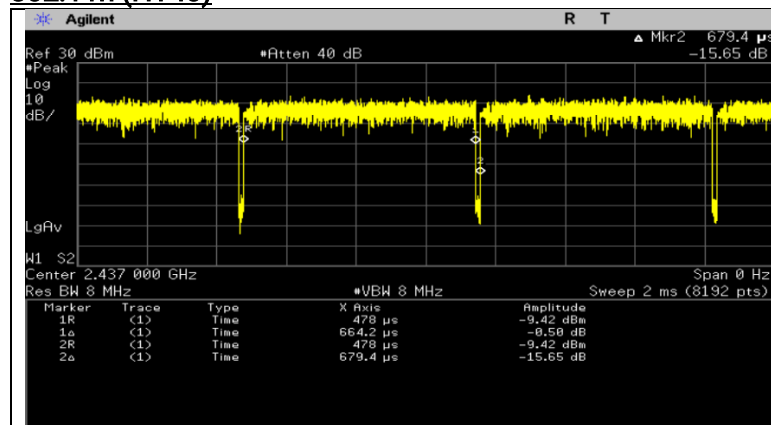
Duty Cycle

On time (ms)	1.340
On + Off Time (ms)	1.356
Duty cycle	0.9882
Duty Cycle factor	0.052

*Duty cycle = On time/ On +off time

*Duty Cycle factor = $10 \cdot \log(1/\text{Duty Cycle})$

802.11n (HT40)



Duty Cycle

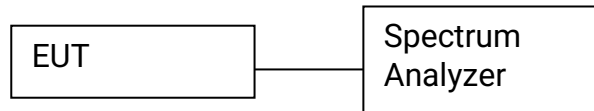
On time (ms)	0.664
On + Off Time (ms)	0.679
Duty cycle	0.9776
Duty Cycle factor	0.098

*Duty cycle = On time/ On +off time

*Duty Cycle factor = $10 \cdot \log(1/\text{Duty Cycle})$

6.4. Maximum Peak Power Spectral Density

6.4.1. Test Setup



Maximum Peak

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

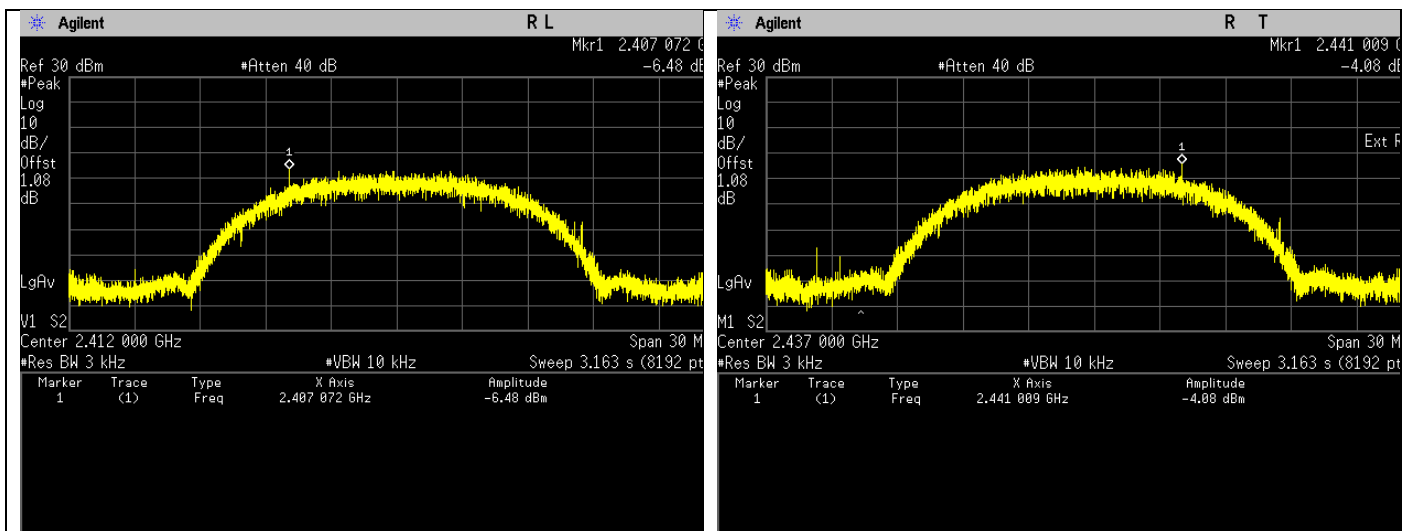
6.4.2. Test Limits

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

6.4.3. Test Result

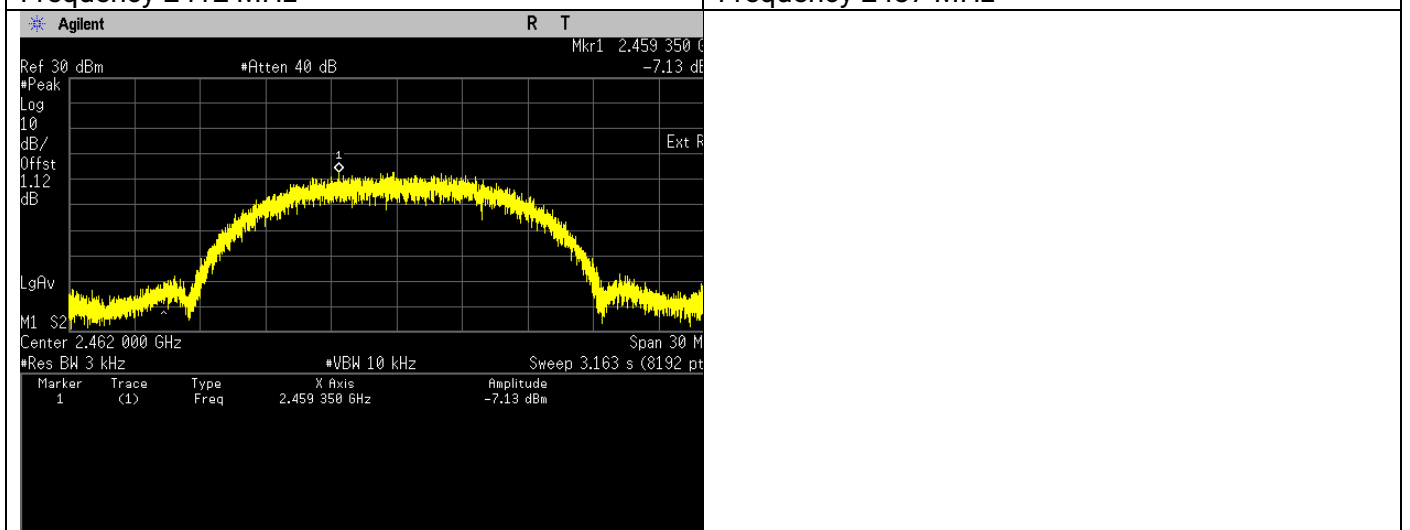
802.11b

Test Conditions				Test Frequency	Results	
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Power (dBm/3kHz)	Status
802.11b	OFDM	BPSK	5.5	2412	-6.48	Pass
802.11b	OFDM	BPSK	5.5	2437	-4.08	Pass
802.11b	OFDM	BPSK	5.5	2462	-7.13	Pass



Maximum Power Spectral Density. 802.11b
Frequency 2412 MHz

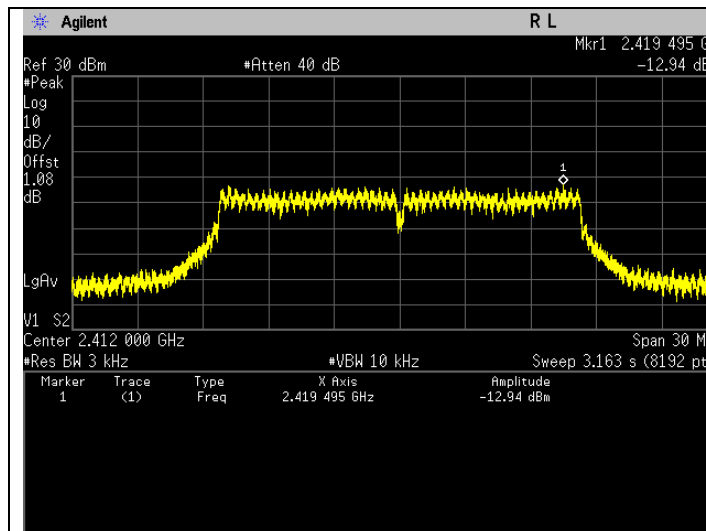
Maximum Power Spectral Density. 802.11b
Frequency 2437 MHz



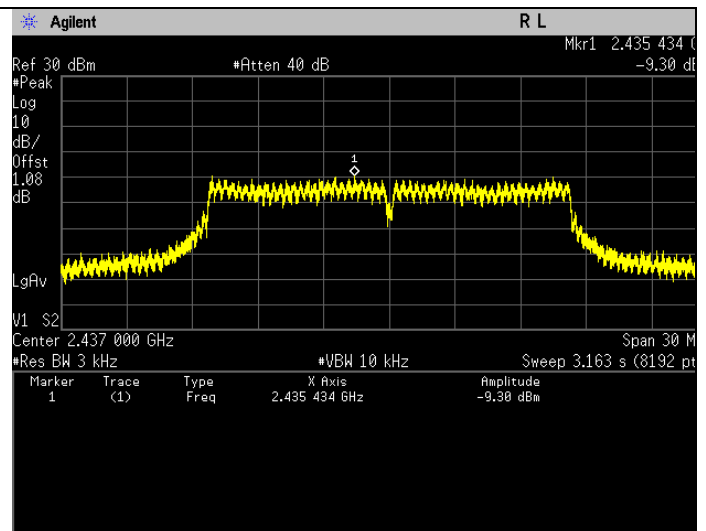
Maximum Power Spectral Density. 802.11b
Frequency 2462 MHz

802.11g

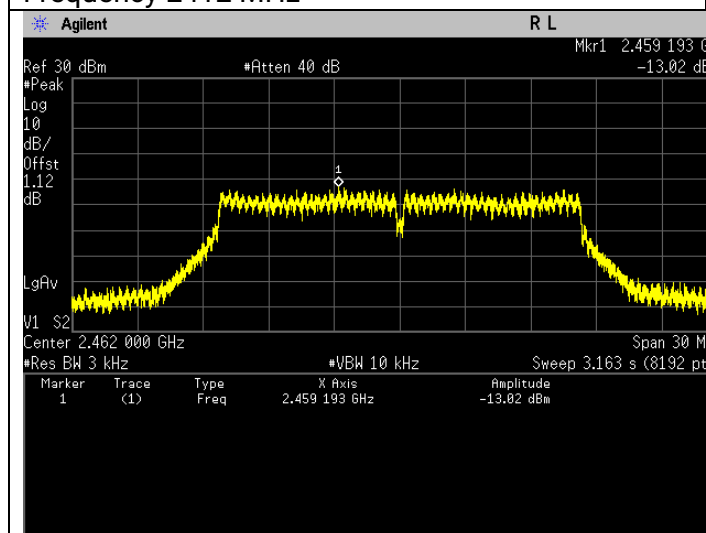
Test Conditions				Test Frequency	Results	
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Power (dBm/3kHz)	Status
802.11g	OFDM	BPSK	6	2412	-12.94	Pass
802.11g	OFDM	BPSK	6	2437	-9.30	Pass
802.11g	OFDM	BPSK	6	2462	-13.02	Pass



Maximum Power Spectral Density. 802.11g
 Frequency 2412 MHz



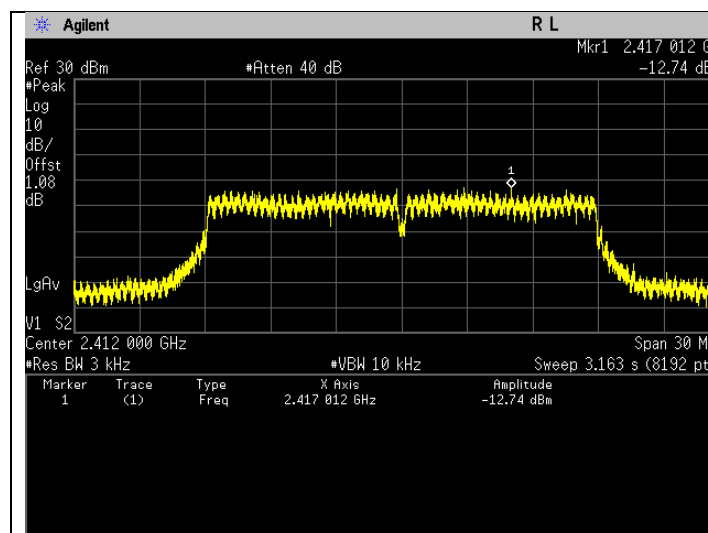
Maximum Power Spectral Density. 802.11g
 Frequency 2437 MHz



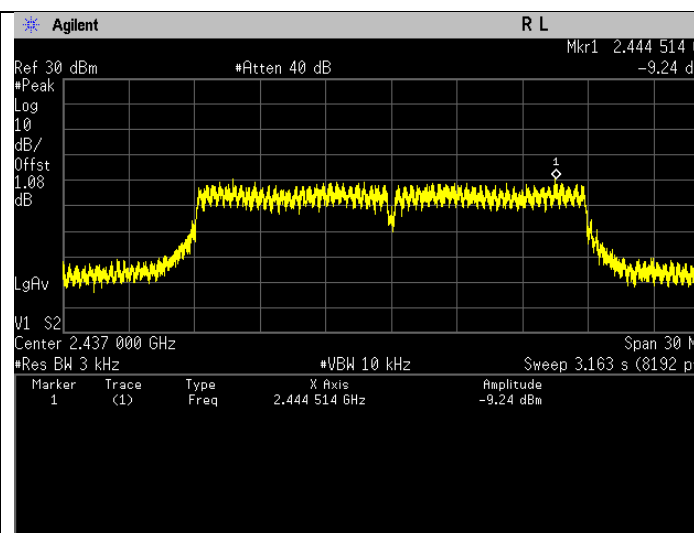
Maximum Power Spectral Density. 802.11g
 Frequency 2462 MHz

802.11n (HT20)

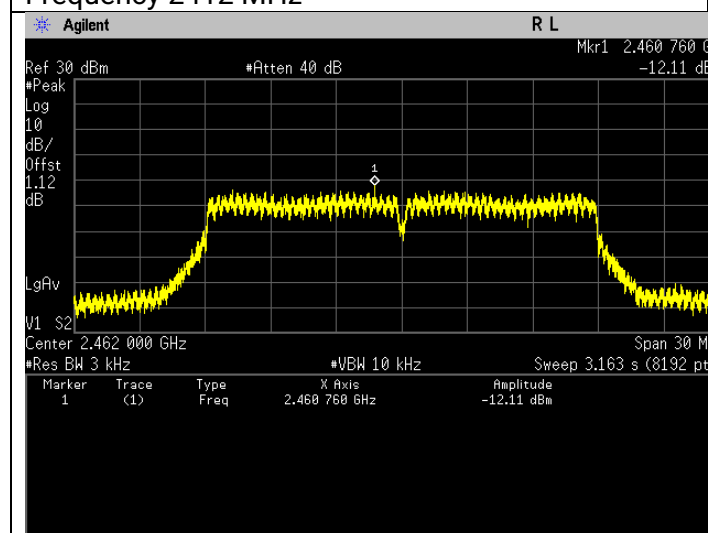
Test Conditions				Test Frequency	Results	
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Power (dBm/3kHz)	Status
802.11n	OFDM	BPSK	6.5	2412	-12.74	Pass
802.11n	OFDM	BPSK	6.5	2437	-9.24	Pass
802.11n	OFDM	BPSK	6.5	2462	-12.11	Pass



Maximum Power Spectral Density. 802.11n
 Frequency 2412 MHz



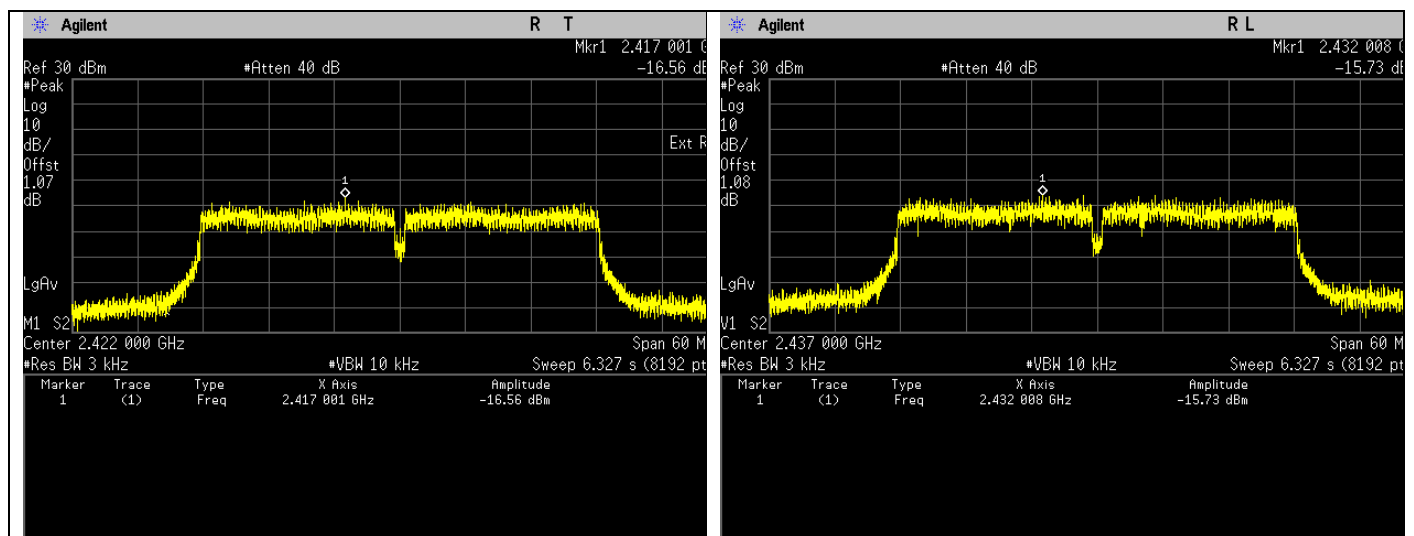
Maximum Power Spectral Density. 802.11n
 Frequency 2437 MHz



Maximum Power Spectral Density. 802.11n
 Frequency 2462 MHz

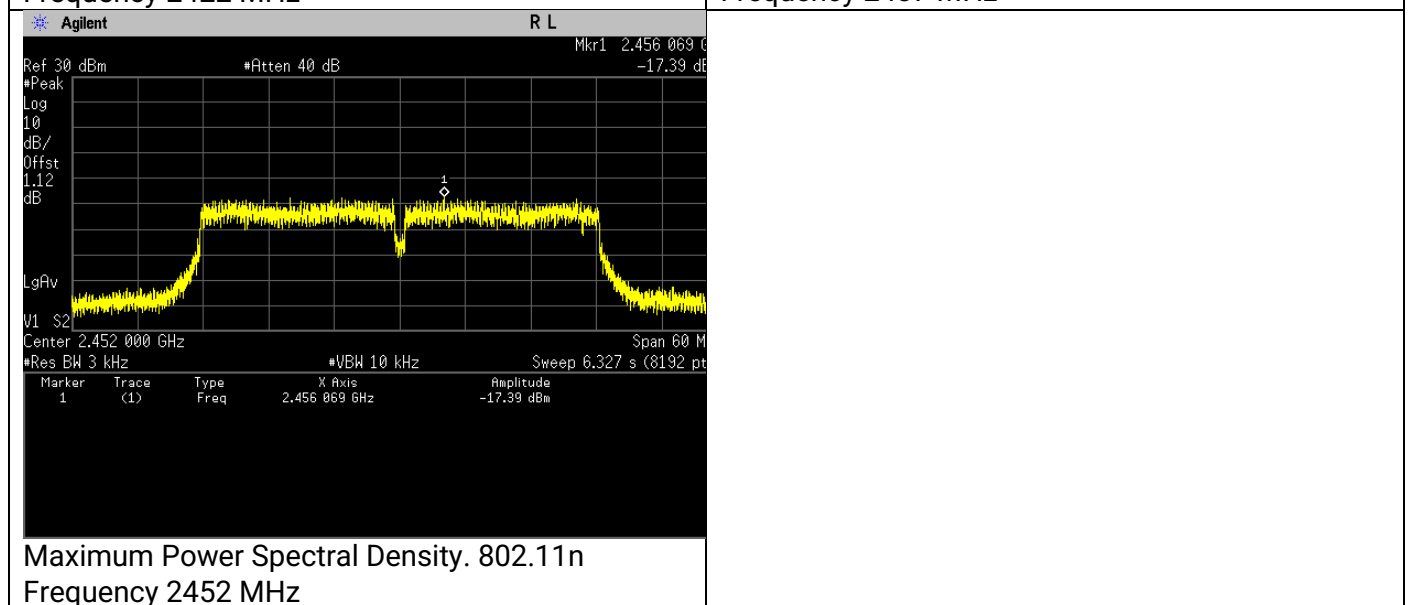
802.11n (HT40)

Test Conditions				Test Frequency	Results	
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Power (dBm/3kHz)	Status
802.11n	OFDM	BPSK	13.5	2422	-16.56	Pass
802.11n	OFDM	BPSK	13.5	2437	-15.73	Pass
802.11n	OFDM	BPSK	13.5	2452	-17.39	Pass



Maximum Power Spectral Density. 802.11n
 Frequency 2422 MHz

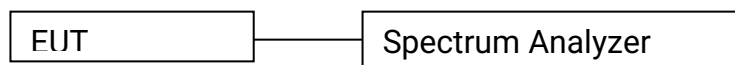
Maximum Power Spectral Density. 802.11n
 Frequency 2437 MHz



Maximum Power Spectral Density. 802.11n
 Frequency 2452 MHz

6.5. Conducted Spurious Emission

6.5.1. Test Setup



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

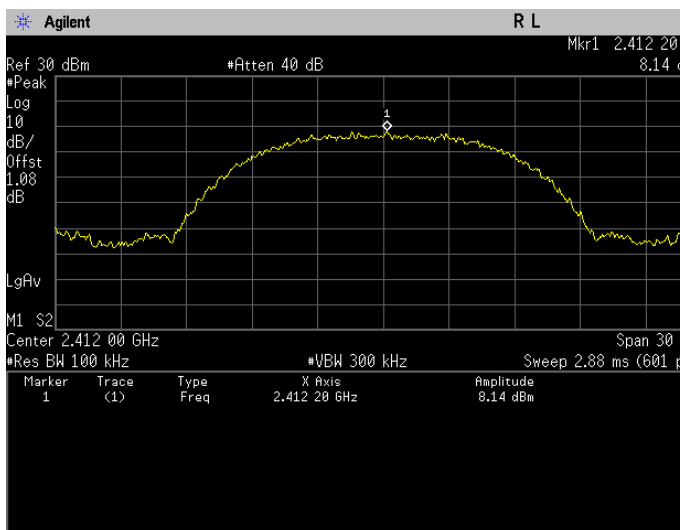
6.5.2. Test Limits:

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

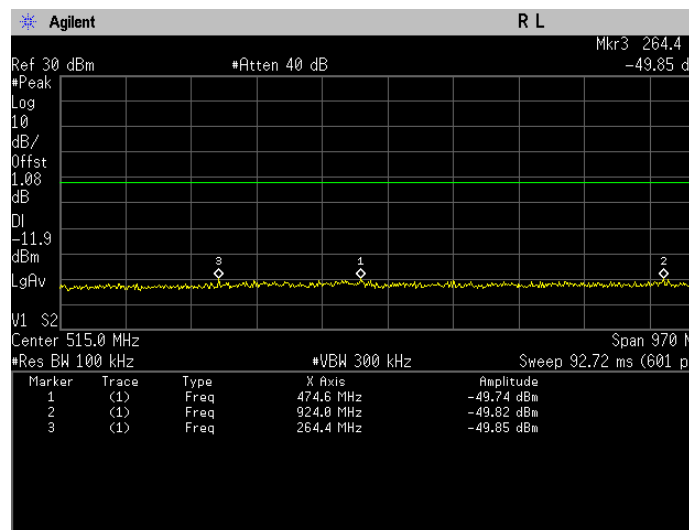
6.5.3. Test Result

802.11b

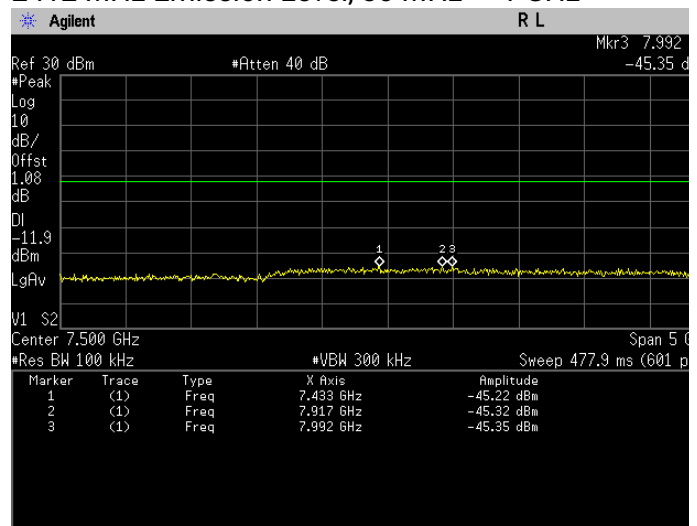
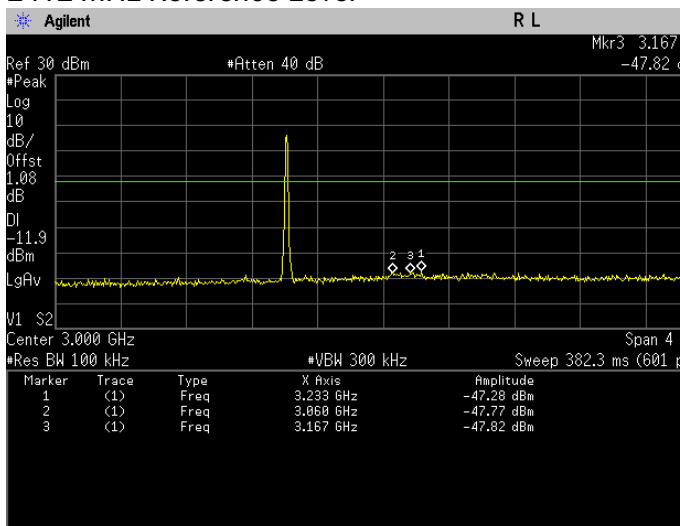
Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Spurs (MHz)	Level (dBm)	Status
802.11b	OFDM	BPSK	5.5	2412	14017.000	-41.12	Pass
					24958.000	-41.36	Pass
					24258.000	-41.52	Pass
802.11b	OFDM	BPSK	5.5	2437	24183.000	-42.21	Pass
					24450.000	-42.36	Pass
					14050.000	-42.41	Pass
802.11b	OFDM	BPSK	5.5	2462	24792.000	-41.21	Pass
					24558.000	-41.38	Pass
					23908.000	-41.45	Pass



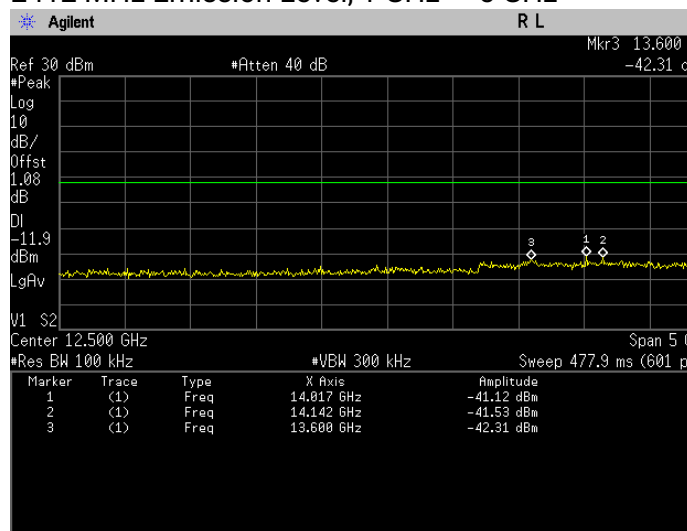
Conducted Emissions(Peak). 802.11b, Frequency 2412 MHz Reference Level



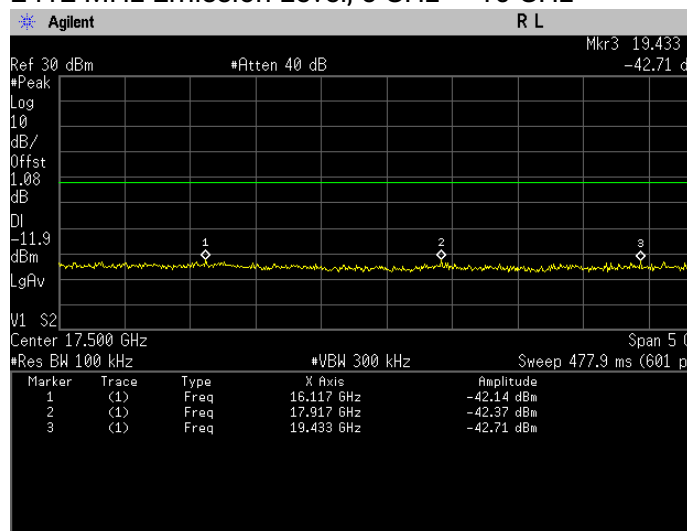
Conducted Emissions(Peak). 802.11b, Frequency 2412 MHz Emission Level, 30 MHz -> 1 GHz



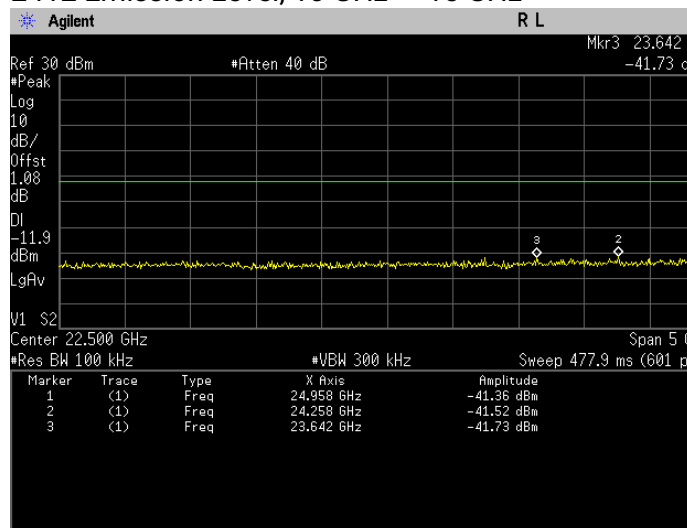
Conducted Emissions(Peak). 802.11b, Frequency
2412 MHz Emission Level, 1 GHz -> 5 GHz



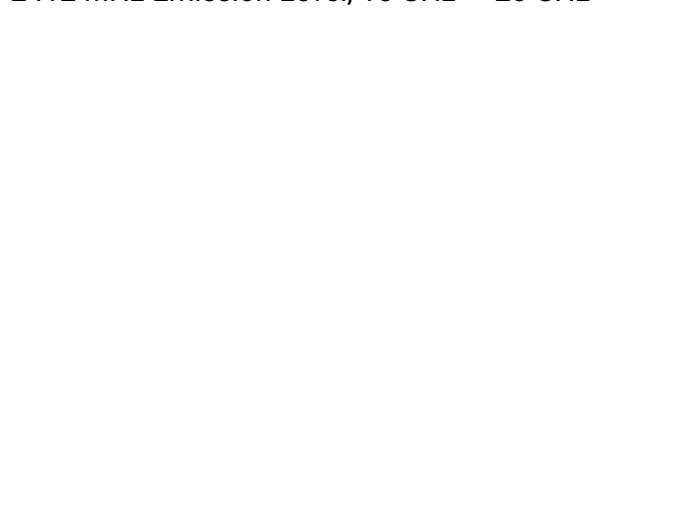
Conducted Emissions(Peak). 802.11b, Frequency
2412 MHz Emission Level, 5 GHz -> 10 GHz



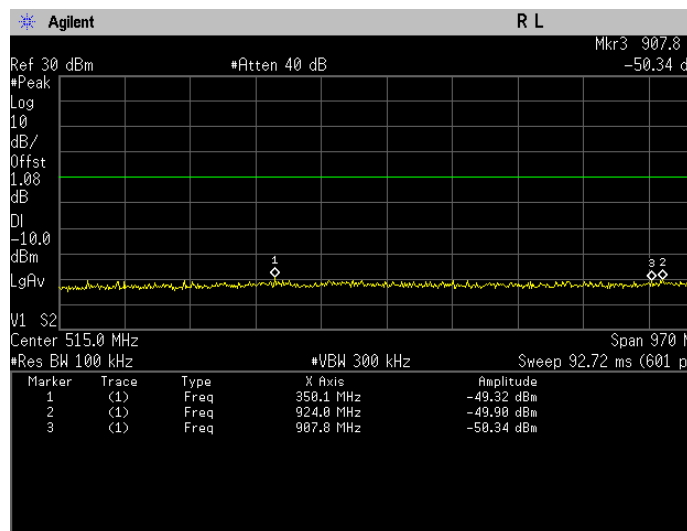
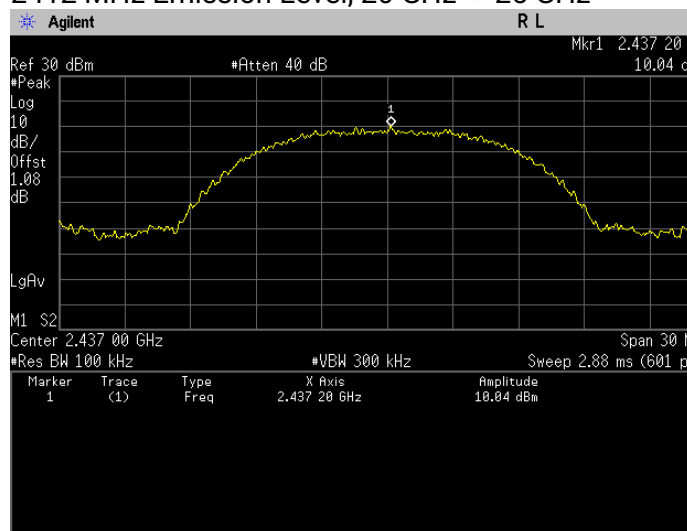
Conducted Emissions(Peak). 802.11b, Frequency
2412 MHz Emission Level, 10 GHz -> 15 GHz



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

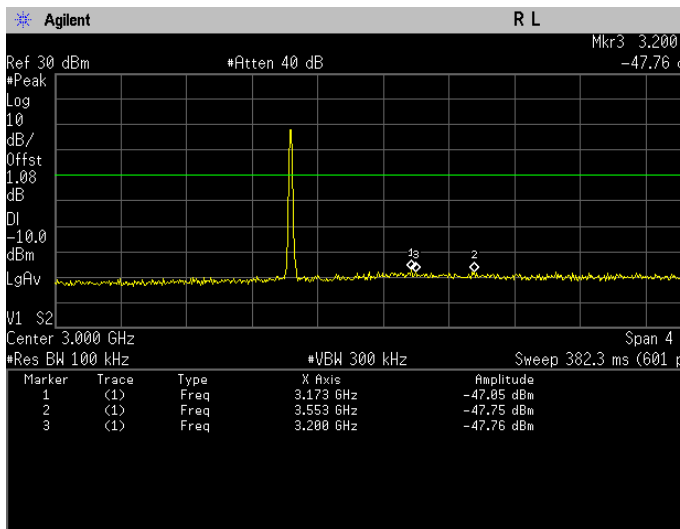


Conducted Emissions(Peak). 802.11b, Frequency
2412 MHz Emission Level, 20 GHz -> 25 GHz

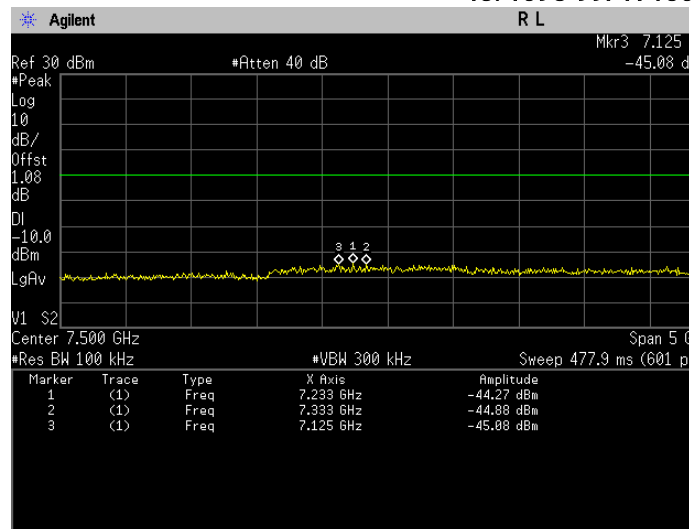


Conducted Emissions(Peak). 802.11b, Frequency
2437 MHz Reference Level

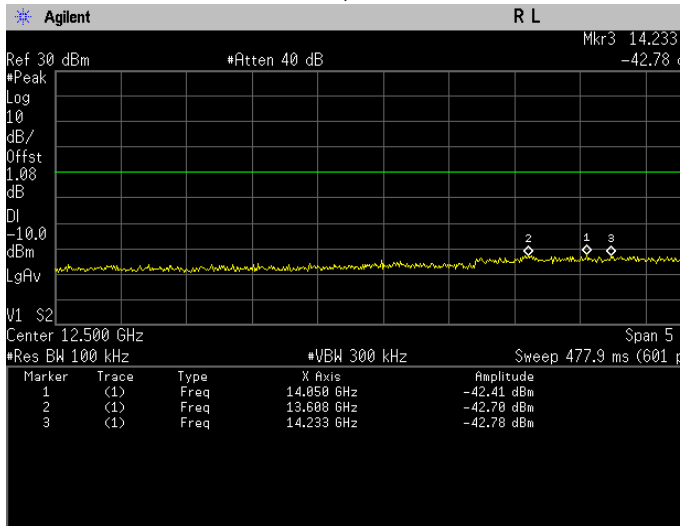
Conducted Emissions(Peak). 802.11b, Frequency
2437 MHz Emission Level, 30 MHz -> 1 GHz



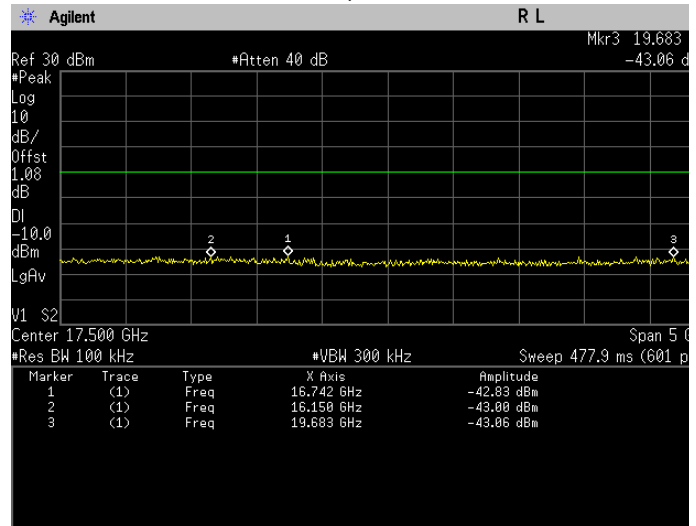
Conducted Emissions(Peak). 802.11b, Frequency 2437 MHz Emission Level, 1 GHz -> 5 GHz



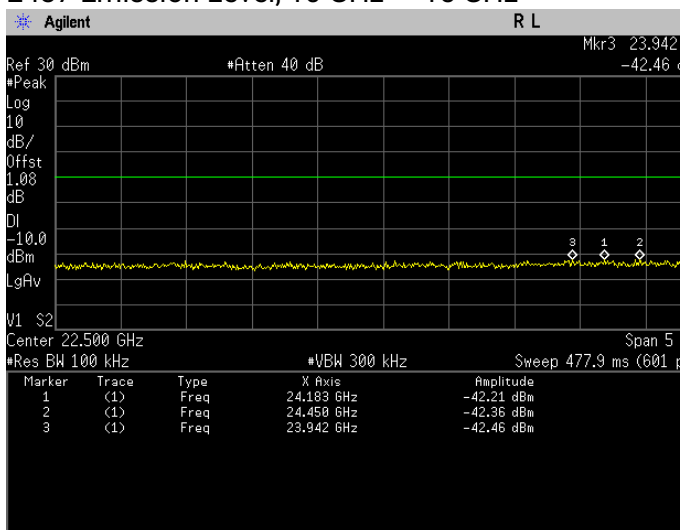
Conducted Emissions(Peak). 802.11b, Frequency 2437 MHz Emission Level, 5 GHz -> 10 GHz



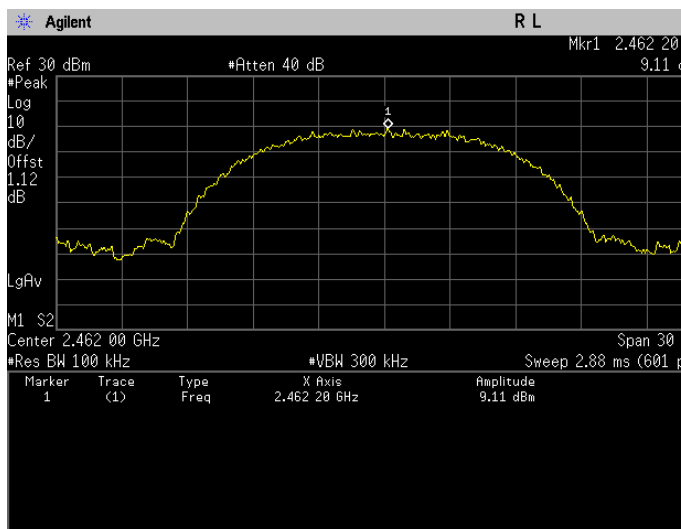
Conducted Emissions(Peak). 802.11b, Frequency 2437 MHz Emission Level, 10 GHz -> 15 GHz



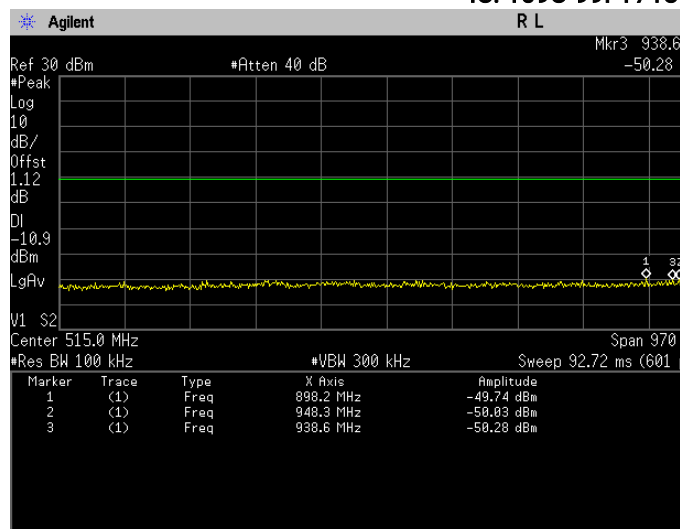
Conducted Emissions(Peak). 802.11b, Frequency 2437 MHz Emission Level, 15 GHz -> 20 GHz



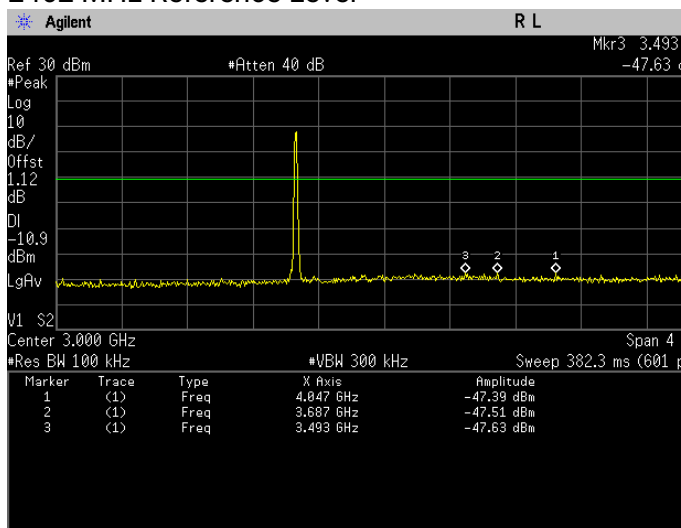
Conducted Emissions(Peak). 802.11b, Frequency 2437 MHz Emission Level, 20 GHz -> 25 GHz



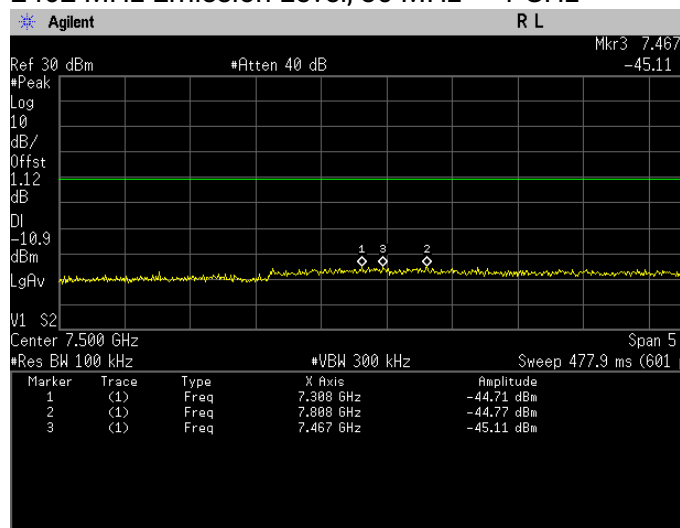
Conducted Emissions(Peak). 802.11b, Frequency 2462 MHz Reference Level



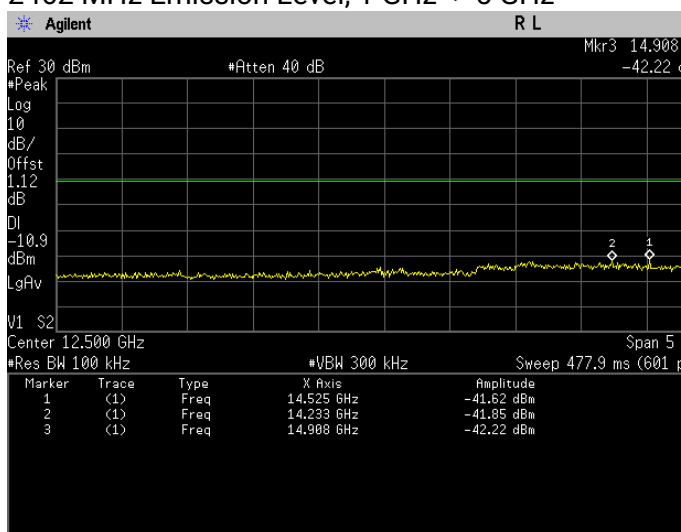
Conducted Emissions(Peak). 802.11b, Frequency 2462 MHz Emission Level, 30 MHz -> 1 GHz



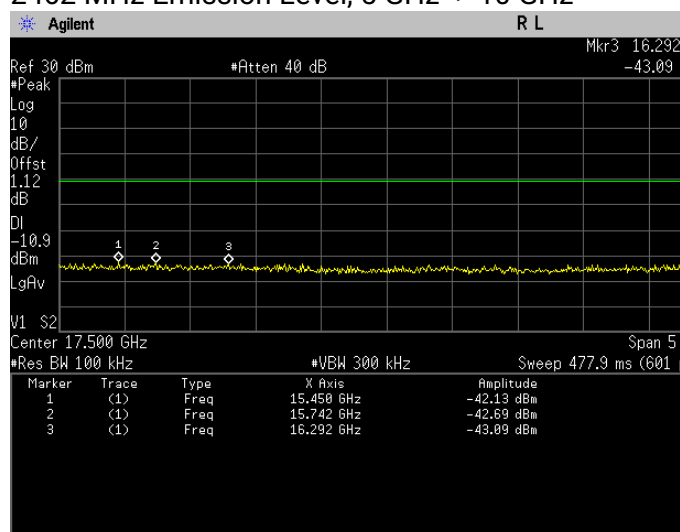
Conducted Emissions(Peak). 802.11b, Frequency 2462 MHz Emission Level, 1 GHz -> 5 GHz



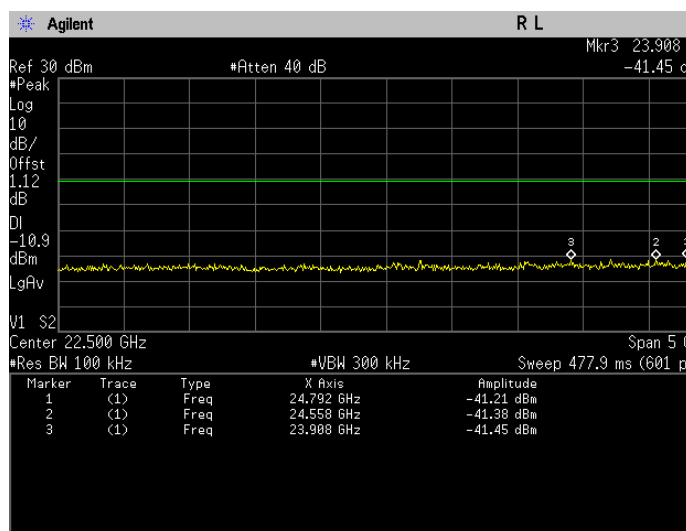
Conducted Emissions(Peak). 802.11b, Frequency 2462 MHz Emission Level, 5 GHz -> 10 GHz



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



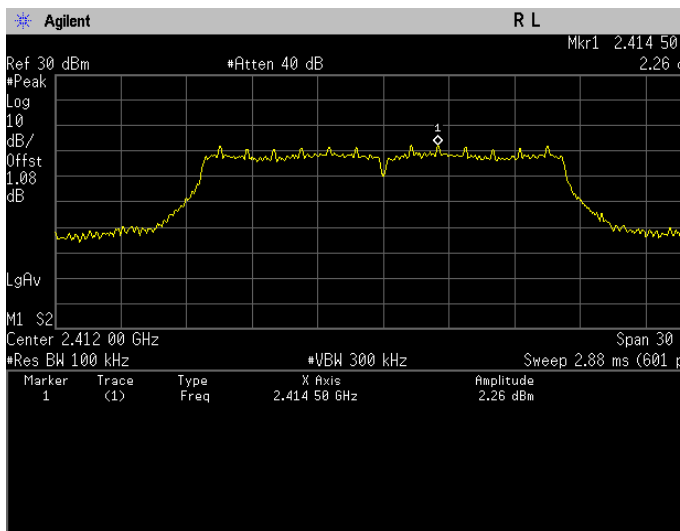
Conducted Emissions(Peak). 802.11b, Frequency 2462 MHz Emission Level, 15 GHz -> 20 GHz



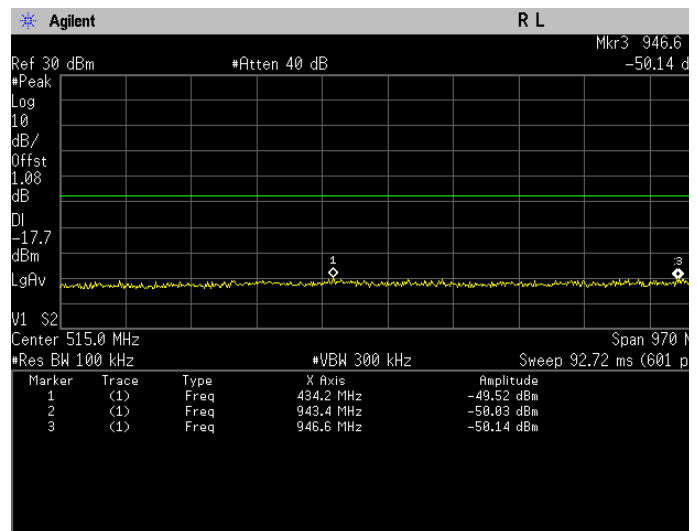
Conducted Emissions(Peak). 802.11b, Frequency
 2462 MHz Emission Level, 20 GHz -> 25 GHz

802.11g

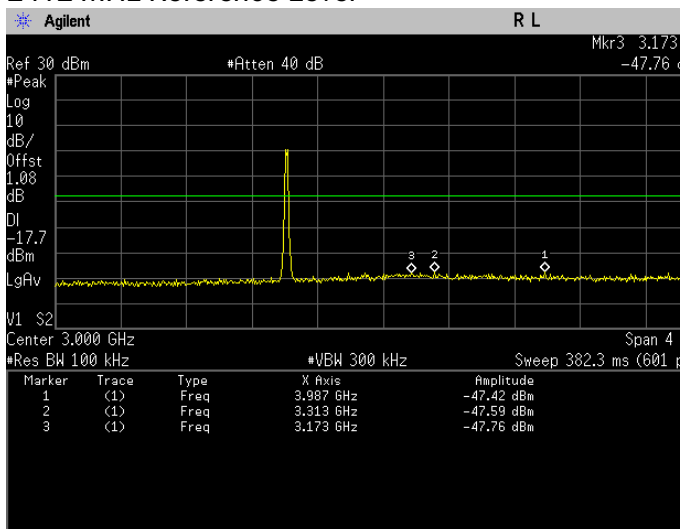
Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Spurs (MHz)	Level (dBm)	Status
802.11g	OFDM	BPSK	6	2412	13633.000	-40.91	Pass
					24900.000	-41.60	Pass
					24833.000	-41.64	Pass
802.11g	OFDM	BPSK	6	2437	24858.000	-40.21	Pass
					24233.000	-41.78	Pass
					13608.000	-41.95	Pass
802.11g	OFDM	BPSK	6	2462	14208.000	-41.29	Pass
					24200.000	-41.75	Pass
					24858.000	-41.82	Pass



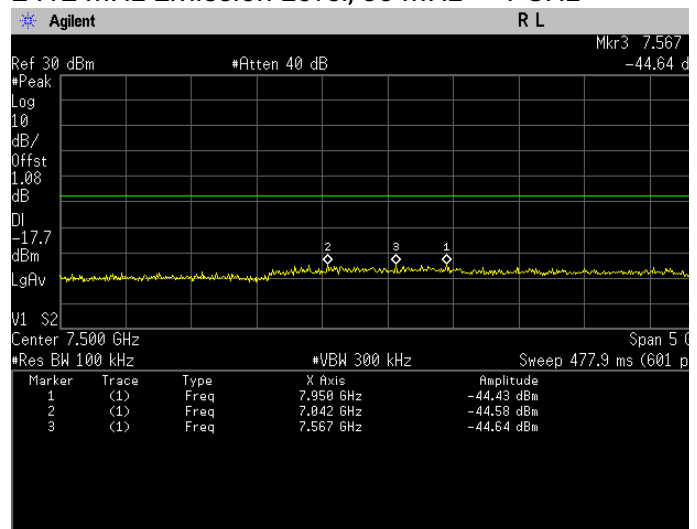
Conducted Emissions(Peak). 802.11g, Frequency 2412 MHz Reference Level



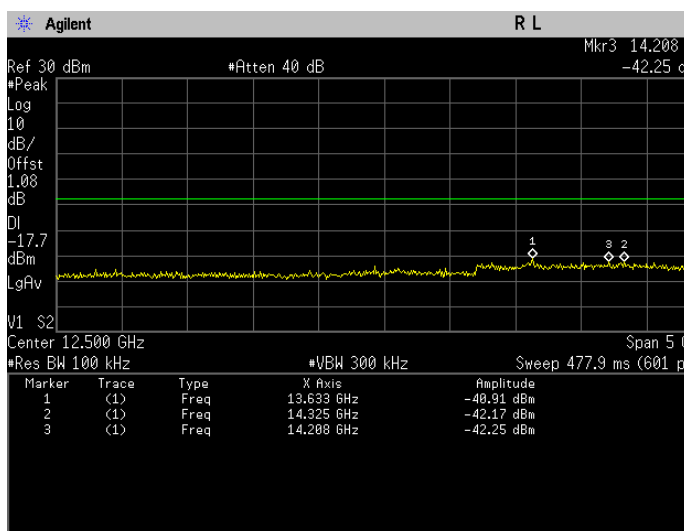
Conducted Emissions(Peak). 802.11g, Frequency 2412 MHz Emission Level, 30 MHz -> 1 GHz



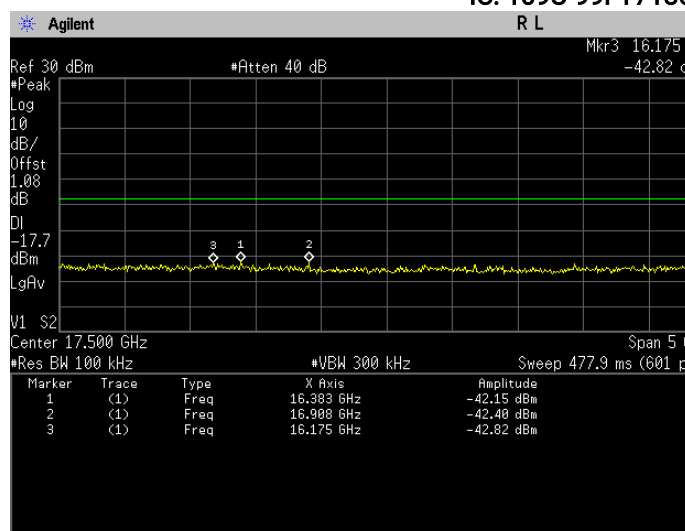
Conducted Emissions(Peak). 802.11g, Frequency 2412 MHz Emission Level, 1 GHz -> 5 GHz



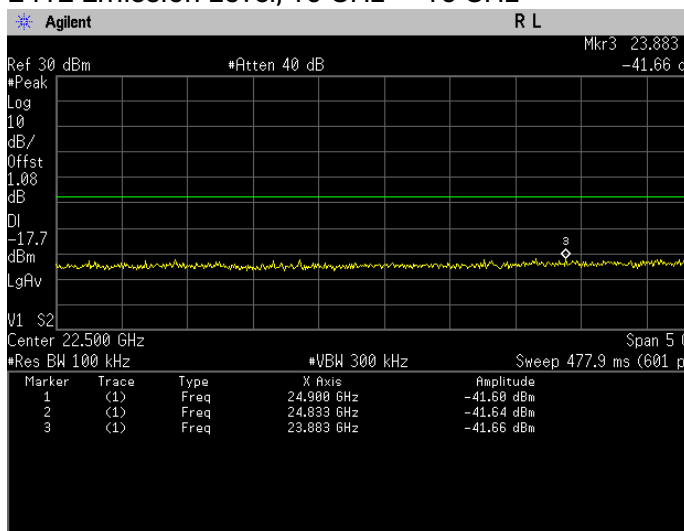
Conducted Emissions(Peak). 802.11g, Frequency 2412 MHz Emission Level, 5 GHz -> 10 GHz



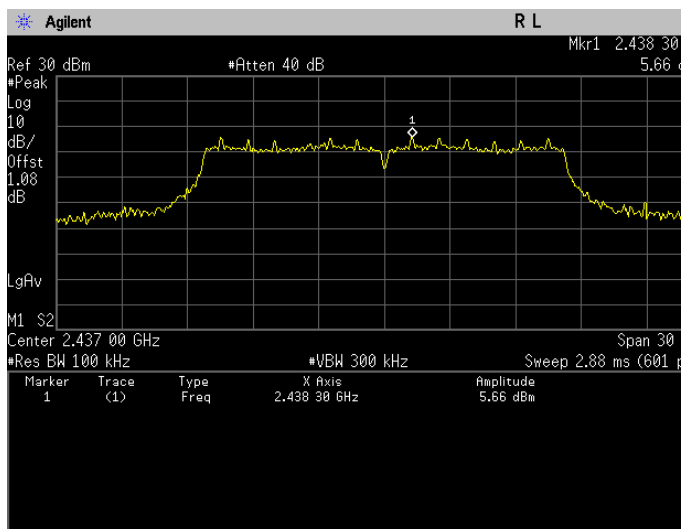
Conducted Emissions(Peak). 802.11g, Frequency 2412 Emission Level, 10 GHz -> 15 GHz



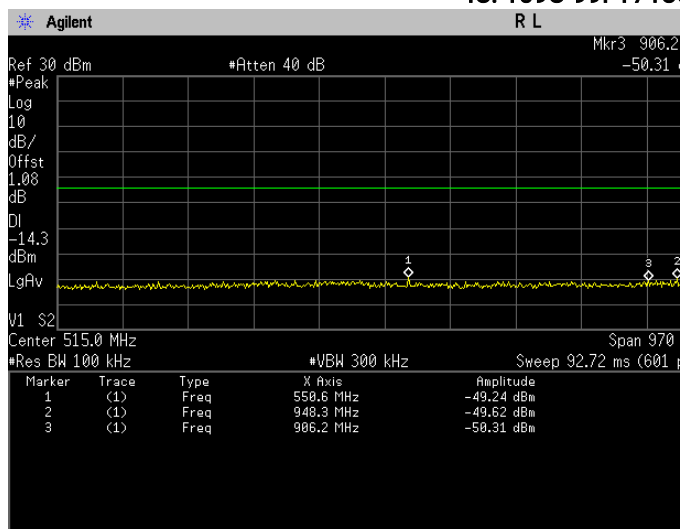
Conducted Emissions(Peak). 802.11g, Frequency 2412 MHz Emission Level, 15 GHz -> 20 GHz



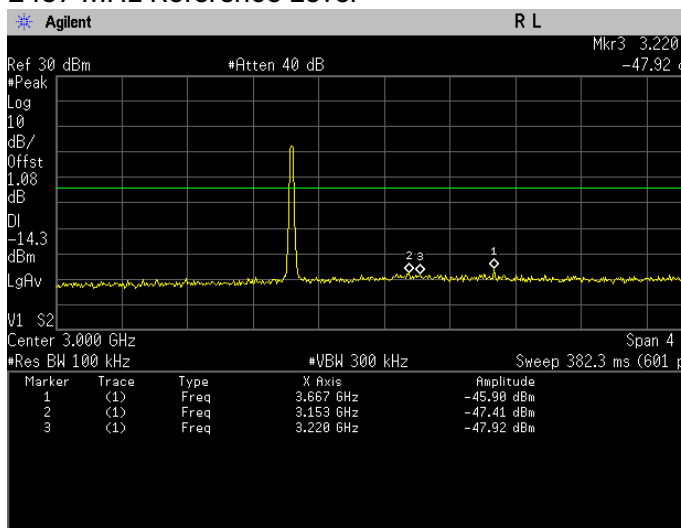
Conducted Emissions(Peak). 802.11g, Frequency 2412 MHz Emission Level, 20 GHz -> 25 GHz



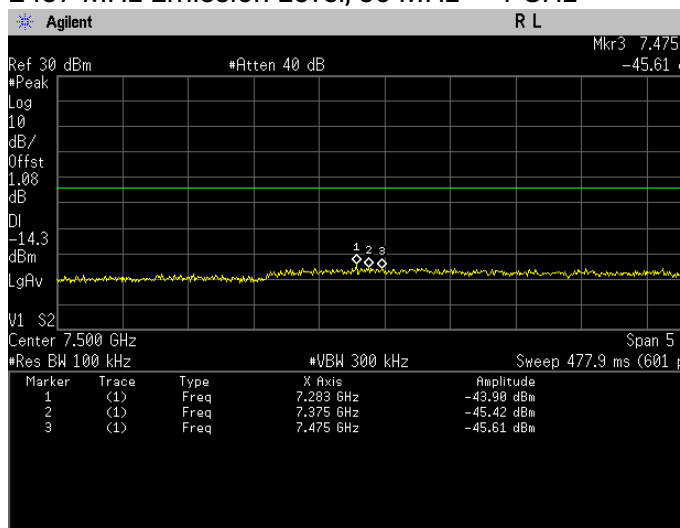
Conducted Emissions(Peak). 802.11g, Frequency 2437 MHz Reference Level



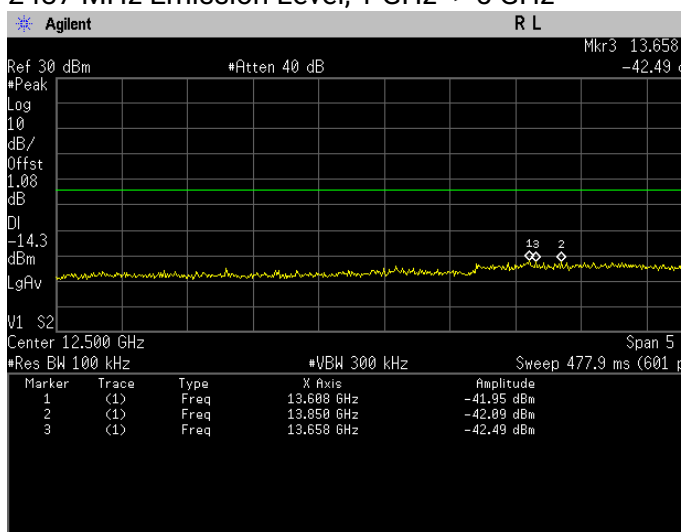
Conducted Emissions(Peak). 802.11g, Frequency 2437 MHz Emission Level, 30 MHz -> 1 GHz



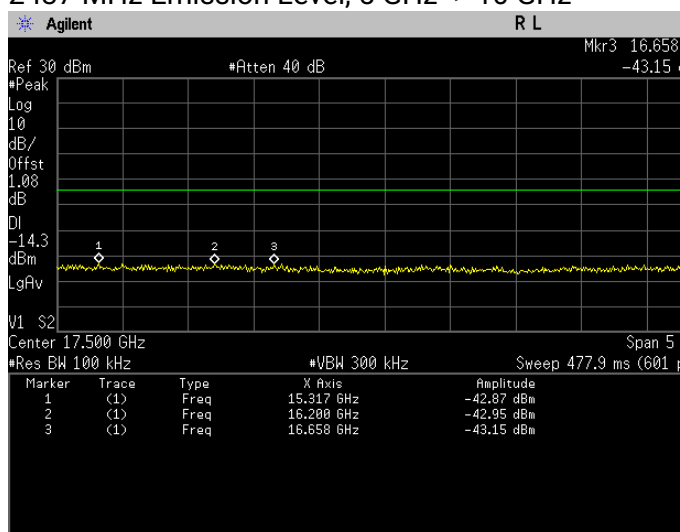
Conducted Emissions(Peak). 802.11g, Frequency 2437 MHz Emission Level, 1 GHz -> 5 GHz



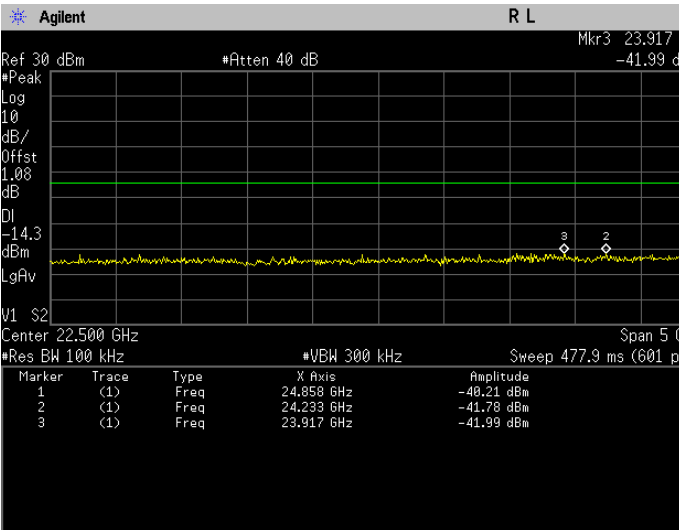
Conducted Emissions(Peak). 802.11g, Frequency 2437 MHz Emission Level, 5 GHz -> 10 GHz



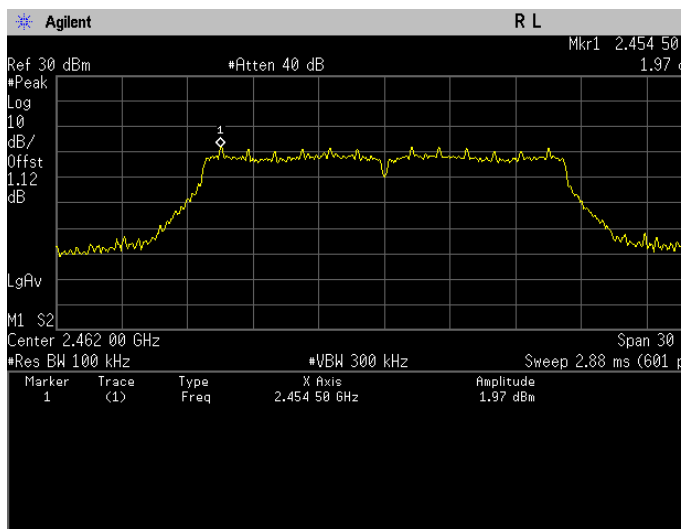
Conducted Emissions(Peak). 802.11g, Frequency 2437 MHz Emission Level, 10 GHz -> 15 GHz



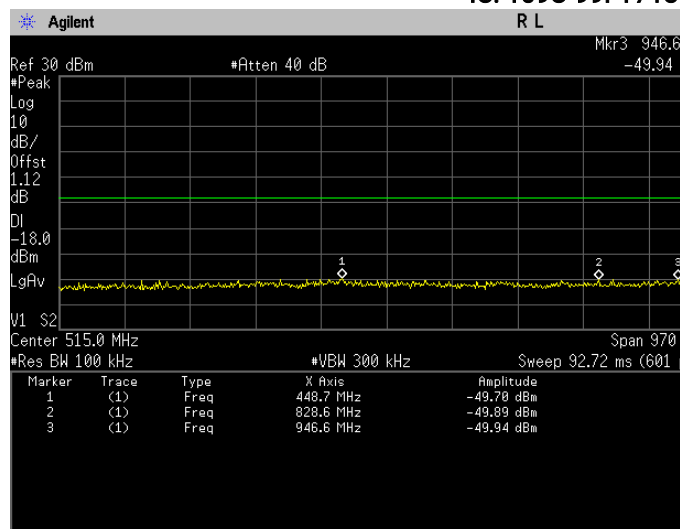
Conducted Emissions(Peak). 802.11g, Frequency 2437 MHz Emission Level, 15 GHz -> 20 GHz



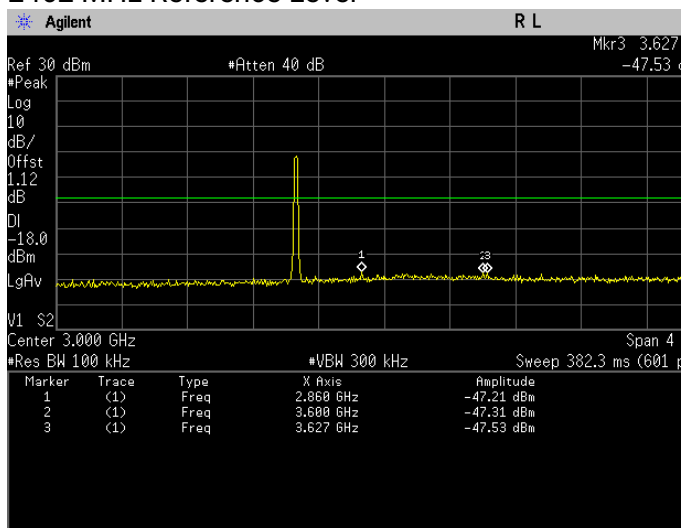
Conducted Emissions(Peak). 802.11g, Frequency 2437 MHz Emission Level, 20 GHz -> 25 GHz



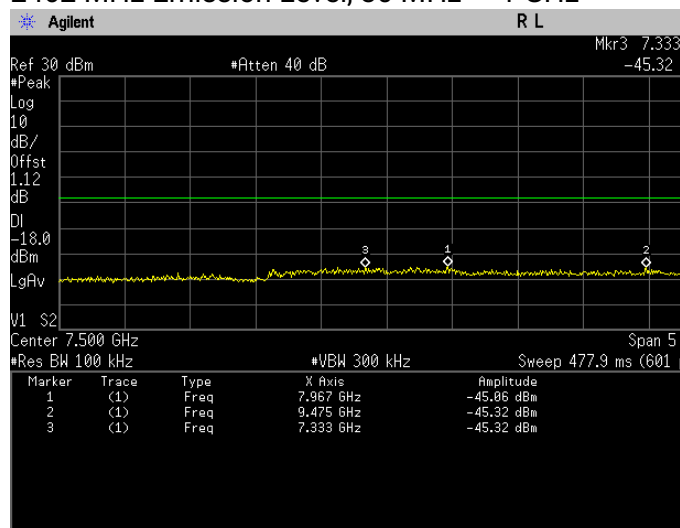
Conducted Emissions(Peak). 802.11g, Frequency 2462 MHz Reference Level



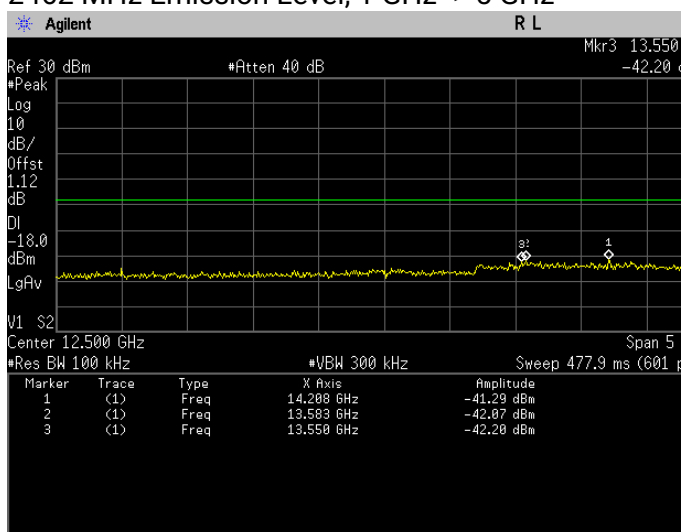
Conducted Emissions(Peak). 802.11g, Frequency 2462 MHz Emission Level, 30 MHz -> 1 GHz



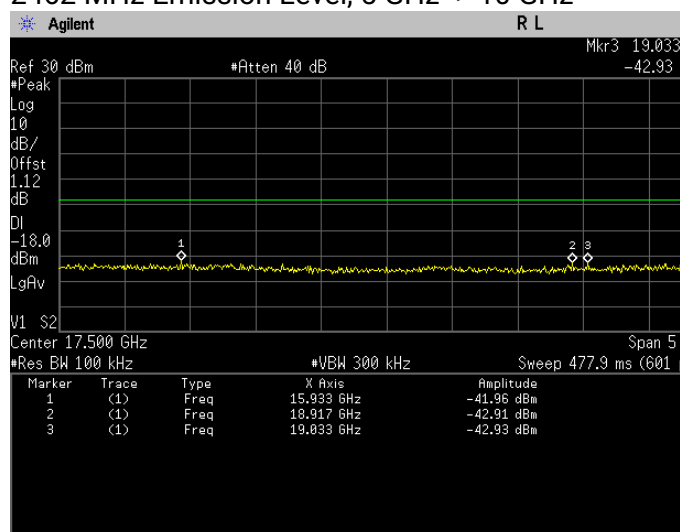
Conducted Emissions(Peak). 802.11g, Frequency 2462 MHz Emission Level, 1 GHz -> 5 GHz



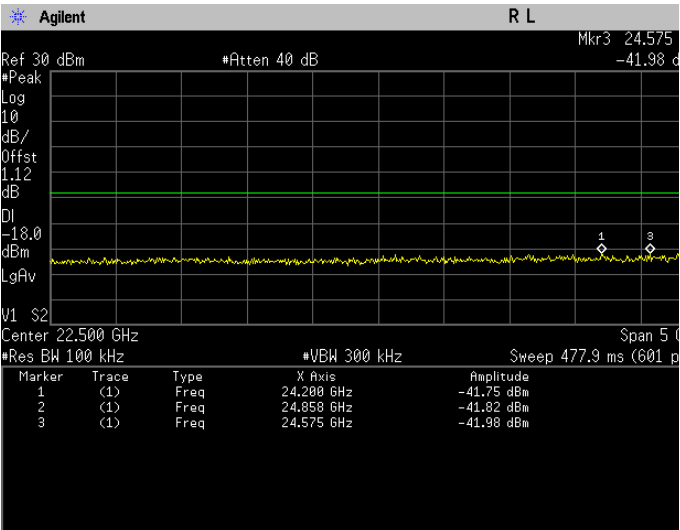
Conducted Emissions(Peak). 802.11g, Frequency 2462 MHz Emission Level, 5 GHz -> 10 GHz



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



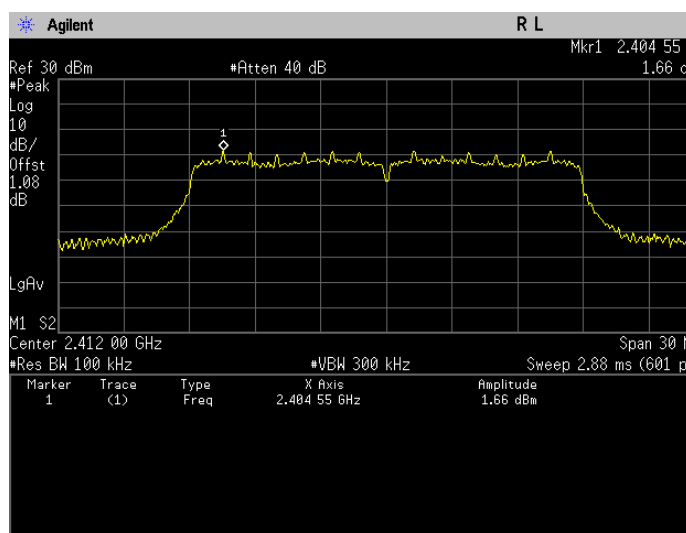
Conducted Emissions(Peak). 802.11g, Frequency 2462 MHz Emission Level, 15 GHz -> 20 GHz



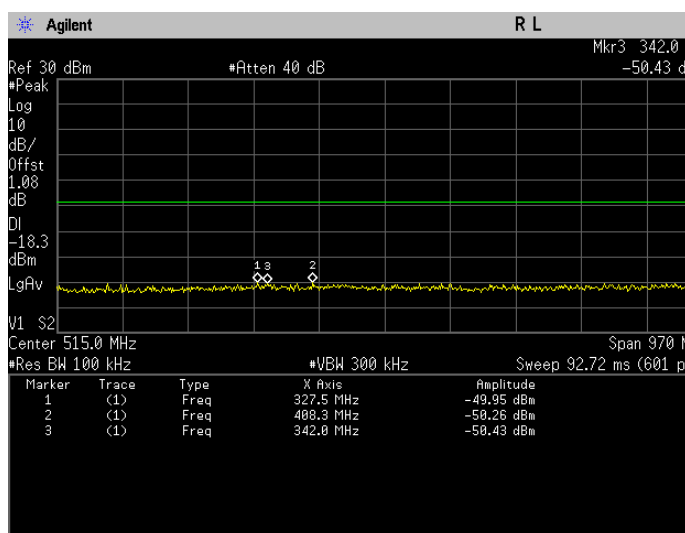
Conducted Emissions(Peak). 802.11g, Frequency 2462 MHz Emission Level, 20 GHz -> 25 GHz

802.11n (HT20)

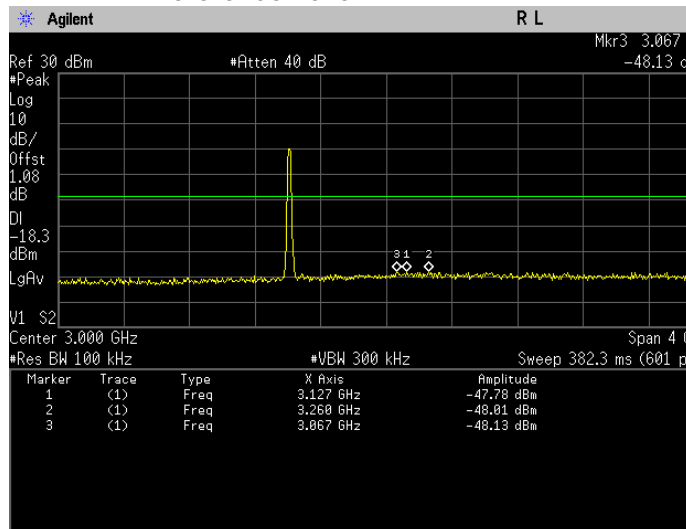
Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Spurs (MHz)	Level (dBm)	Status
802.11n	OFDM	BPSK	6.5	2412	24200.000	-41.04	Pass
					15158.000	-41.50	Pass
					13633.000	-41.59	Pass
802.11n	OFDM	BPSK	6.5	2437	24708.000	-41.65	Pass
					22558.000	-41.69	Pass
					24942.000	-41.82	Pass
802.11n	OFDM	BPSK	6.5	2462	24783.000	-41.62	Pass
					24758.000	-41.89	Pass
					24942.000	-41.96	Pass



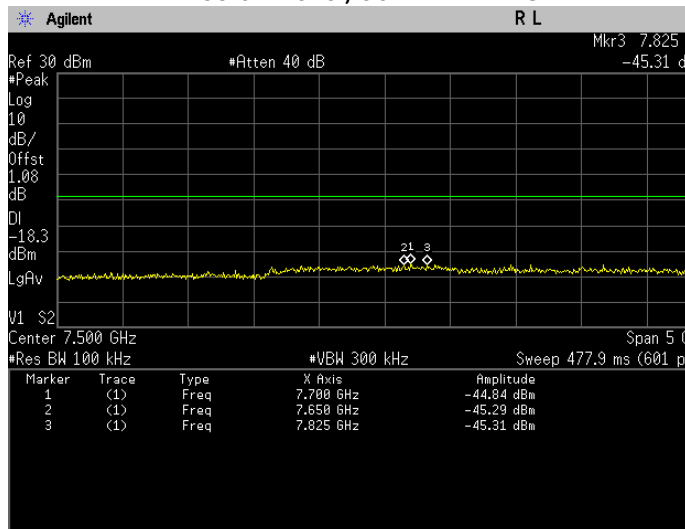
Conducted Emissions(Peak). 802.11n, Frequency 2412 MHz Reference Level



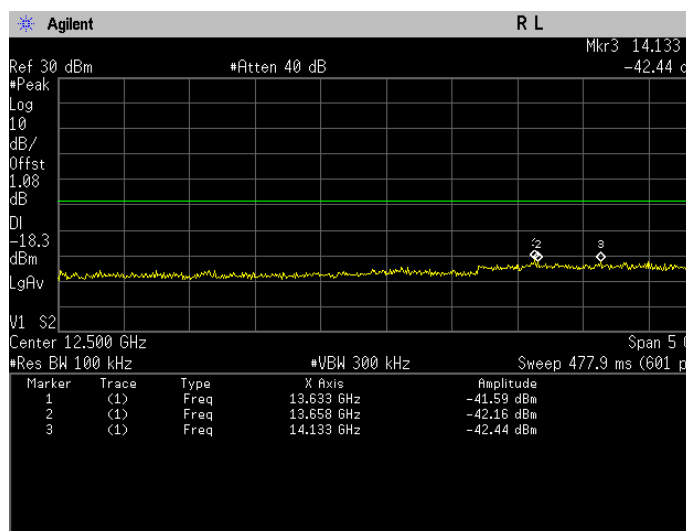
Conducted Emissions(Peak). 802.11n, Frequency 2412 MHz Emission Level, 30 MHz -> 1 GHz



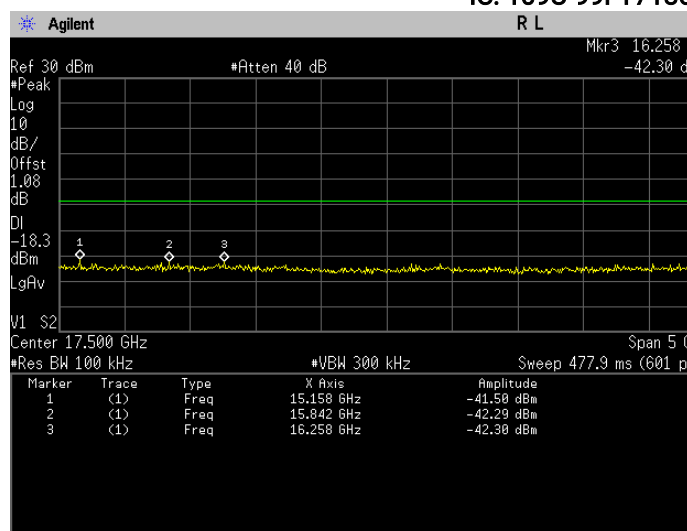
Conducted Emissions(Peak). 802.11n, Frequency 2412 MHz Emission Level, 1 GHz -> 5 GHz



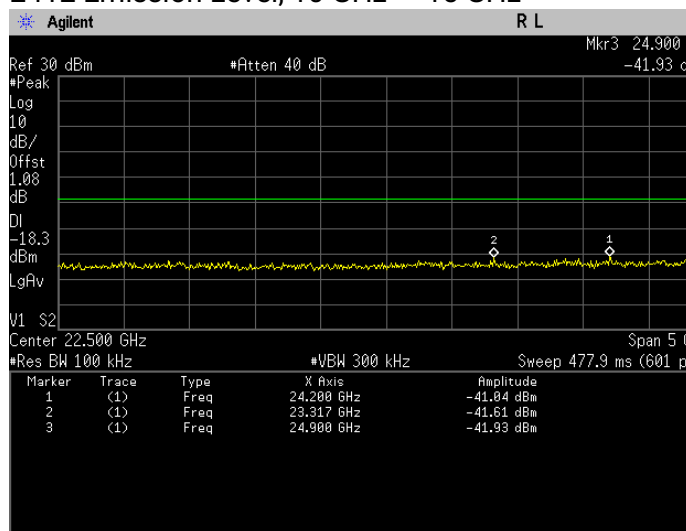
Conducted Emissions(Peak). 802.11n, Frequency 2412 MHz Emission Level, 5 GHz -> 10 GHz



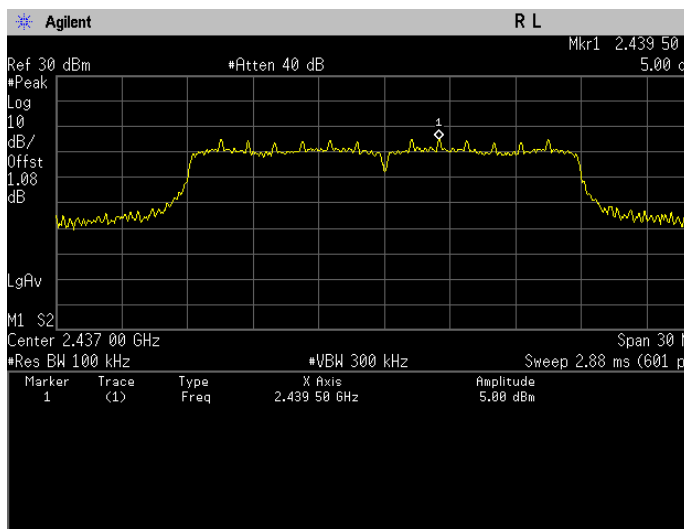
Conducted Emissions(Peak). 802.11n, Frequency 2412 Emission Level, 10 GHz -> 15 GHz



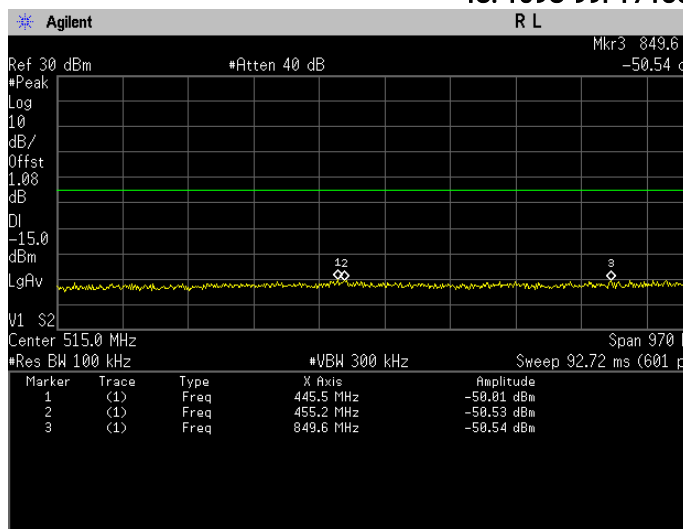
Conducted Emissions(Peak). 802.11n, Frequency 2412 MHz Emission Level, 15 GHz -> 20 GHz



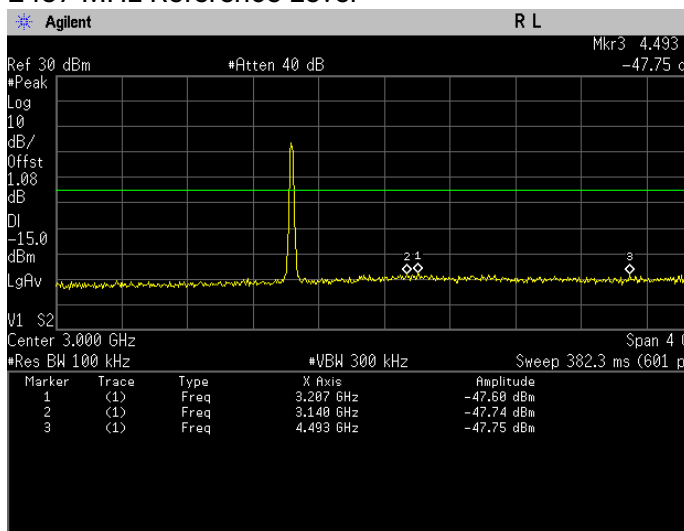
Conducted Emissions(Peak). 802.11n, Frequency 2412 MHz Emission Level, 20 GHz -> 25 GHz



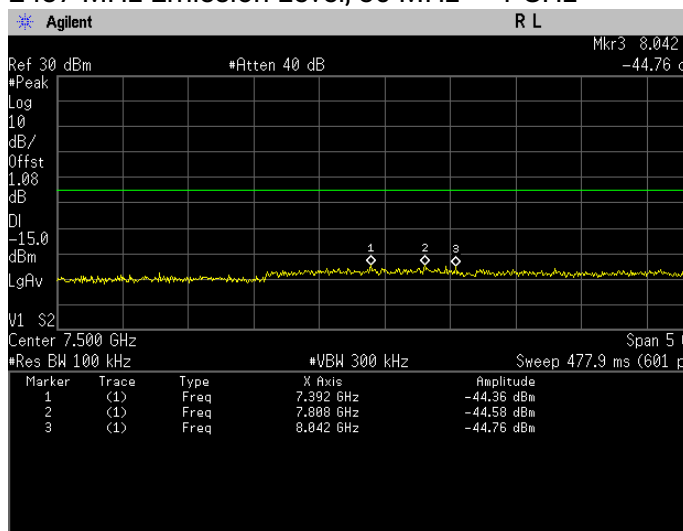
Conducted Emissions(Peak). 802.11n, Frequency 2437 MHz Reference Level



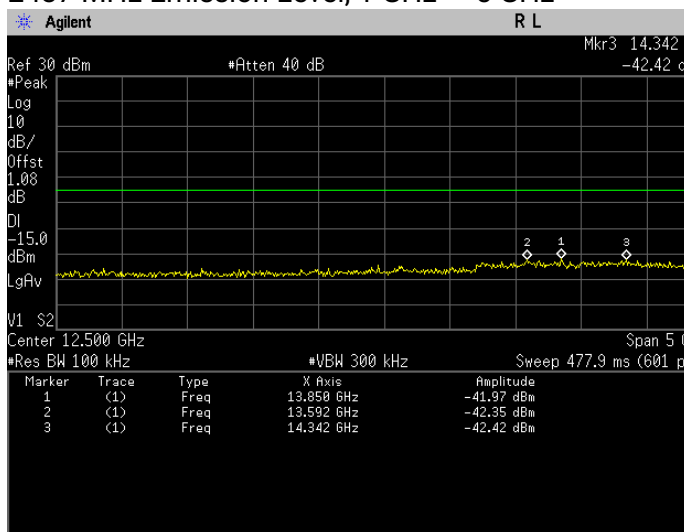
Conducted Emissions(Peak). 802.11n, Frequency 2437 MHz Emission Level, 30 MHz -> 1 GHz



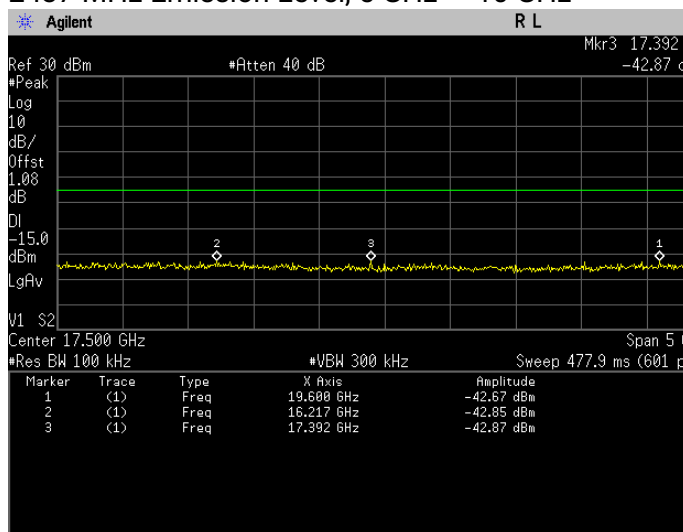
Conducted Emissions(Peak). 802.11n, Frequency 2437 MHz Emission Level, 1 GHz -> 5 GHz



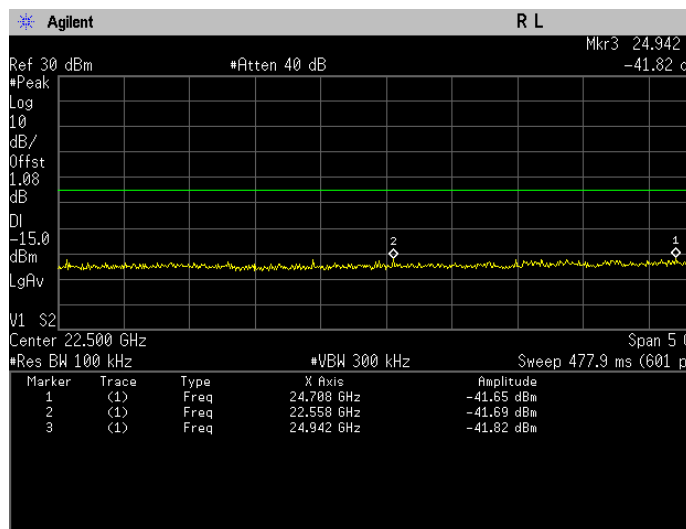
Conducted Emissions(Peak). 802.11n, Frequency 2437 MHz Emission Level, 5 GHz -> 10 GHz



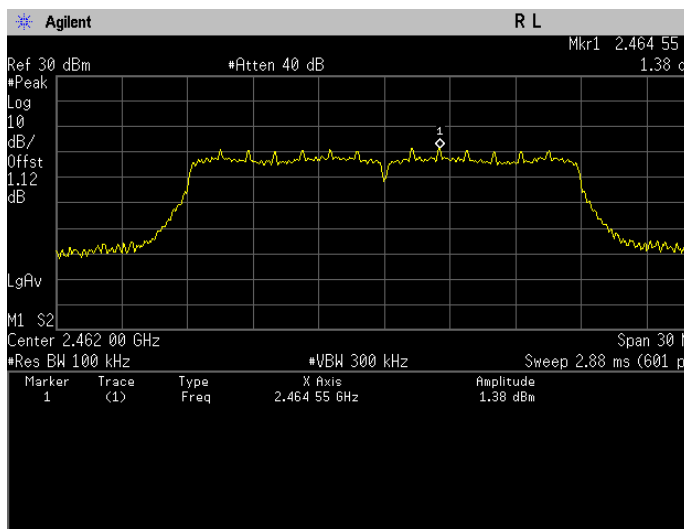
Conducted Emissions(Peak). 802.11n, Frequency 2437 MHz Emission Level, 10 GHz -> 15 GHz



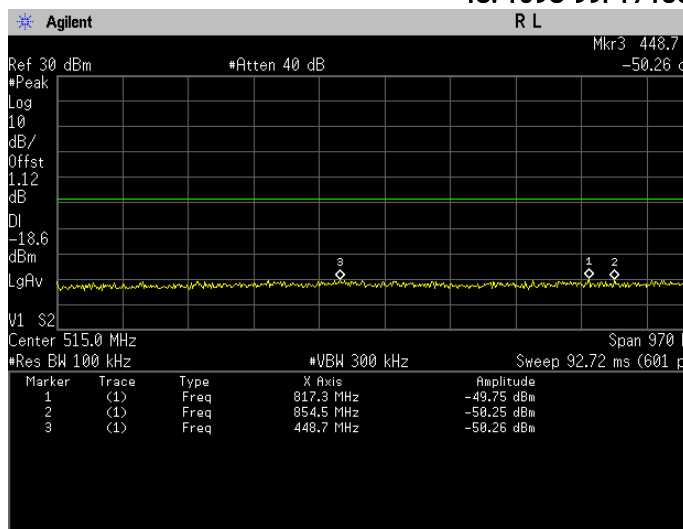
Conducted Emissions(Peak). 802.11n, Frequency 2437 MHz Emission Level, 15 GHz -> 20 GHz



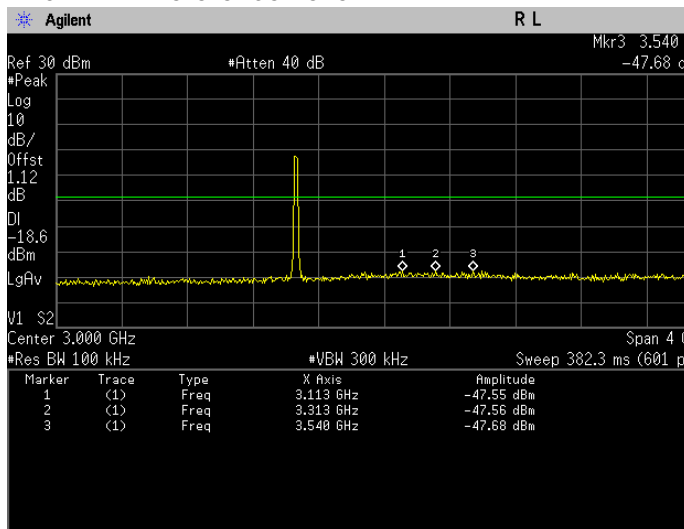
Conducted Emissions(Peak). 802.11n, Frequency
 2437 MHz Emission Level, 20 GHz -> 25 GHz



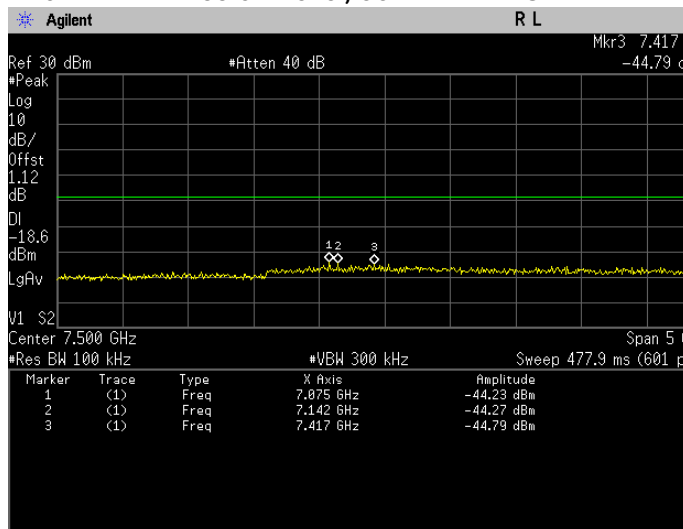
Conducted Emissions(Peak). 802.11n, Frequency 2462 MHz Reference Level



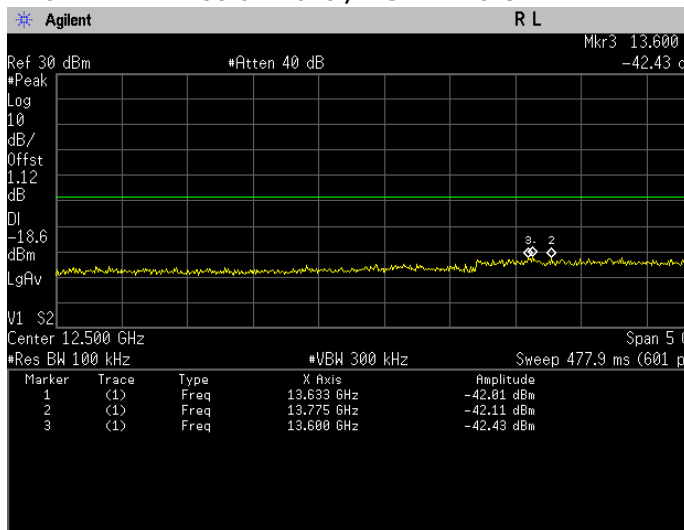
Conducted Emissions(Peak). 802.11n, Frequency 2462 MHz Emission Level, 30 MHz -> 1 GHz



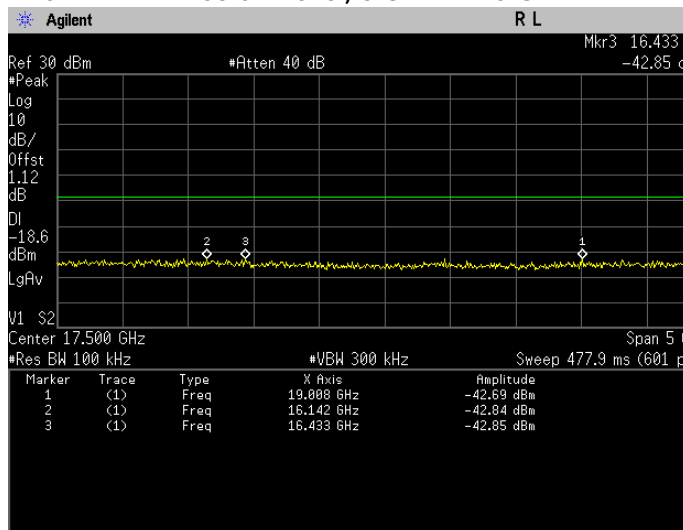
Conducted Emissions(Peak). 802.11n, Frequency 2462 MHz Emission Level, 1 GHz -> 5 GHz



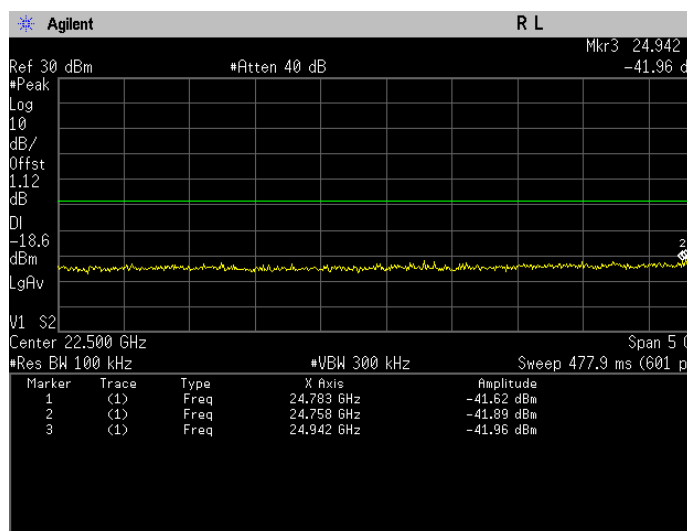
Conducted Emissions(Peak). 802.11n, Frequency 2462 MHz Emission Level, 5 GHz -> 10 GHz



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



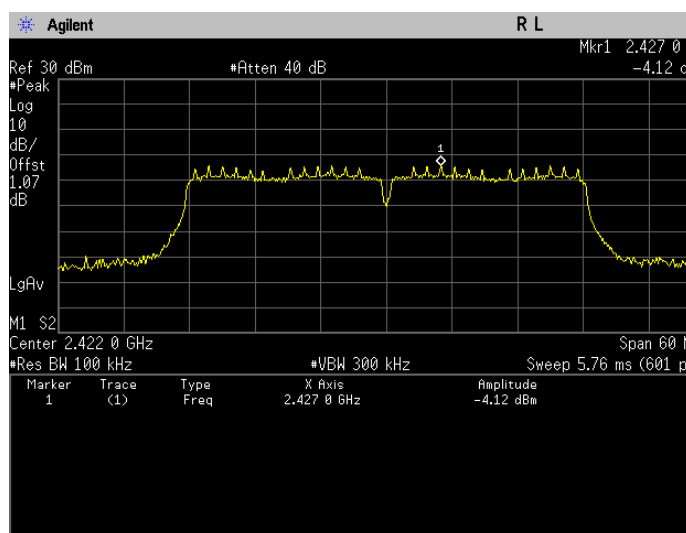
Conducted Emissions(Peak). 802.11n, Frequency 2462 MHz Emission Level, 15 GHz -> 20 GHz



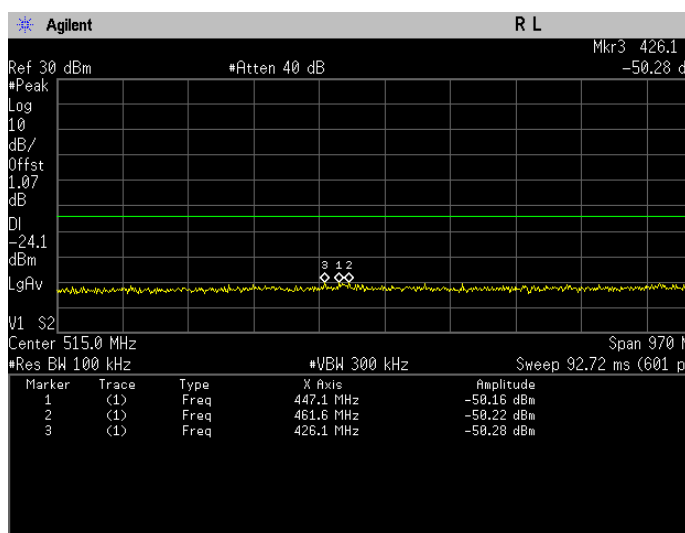
Conducted Emissions(Peak). 802.11n, Frequency
2462 MHz Emission Level, 20 GHz -> 25 GHz

802.11n (HT40)

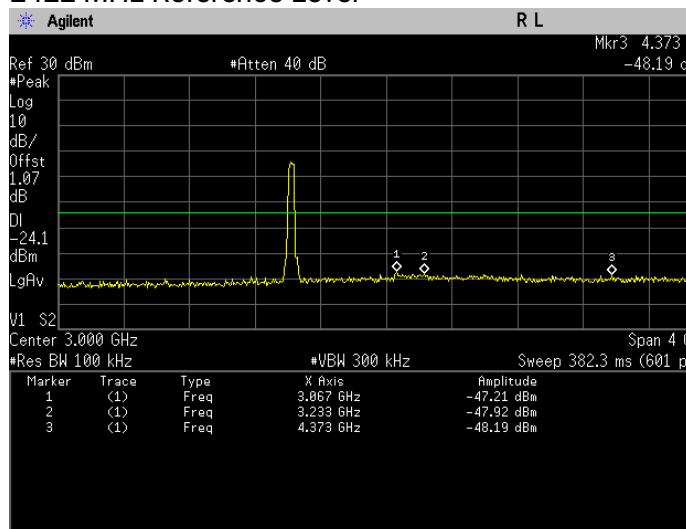
Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Spurs (MHz)	Level (dBm)	Status
802.11n	OFDM	BPSK	13.5	2422	13608.000	-41.71	Pass
					24825.000	-41.88	Pass
					24808.000	-41.90	Pass
802.11n	OFDM	BPSK	13.5	2437	13625.000	-41.54	Pass
					24850.000	-41.80	Pass
					24783.000	-41.82	Pass
802.11n	OFDM	BPSK	13.5	2452	24900.000	-40.63	Pass
					24942.000	-40.87	Pass
					24858.000	-41.89	Pass



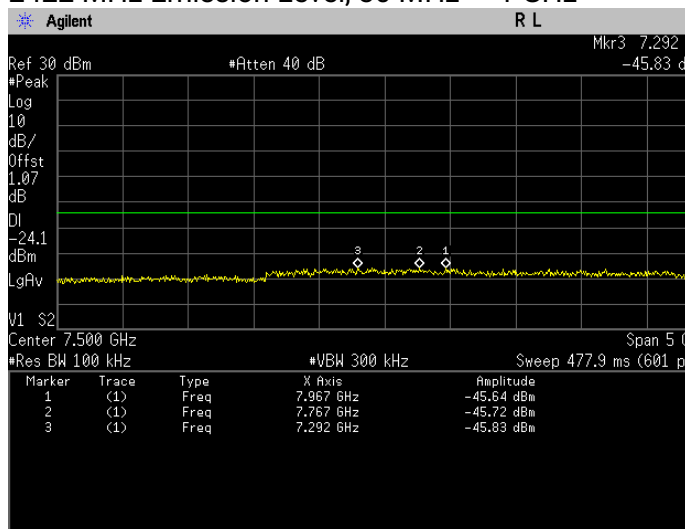
Conducted Emissions(Peak). 802.11n, Frequency 2422 MHz Reference Level



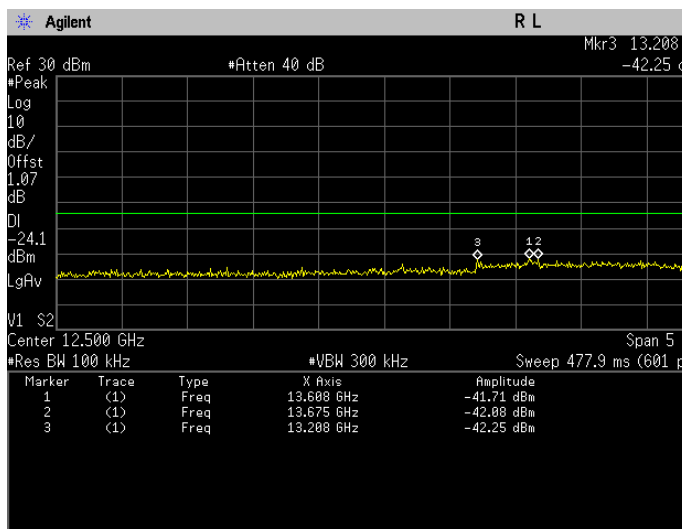
Conducted Emissions(Peak). 802.11n, Frequency 2422 MHz Emission Level, 30 MHz -> 1 GHz



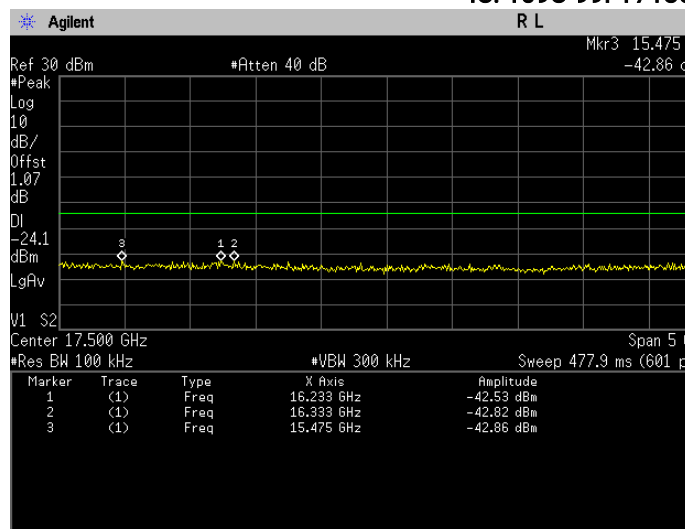
Conducted Emissions(Peak). 802.11n, Frequency 2422 MHz Emission Level, 1 GHz -> 5 GHz



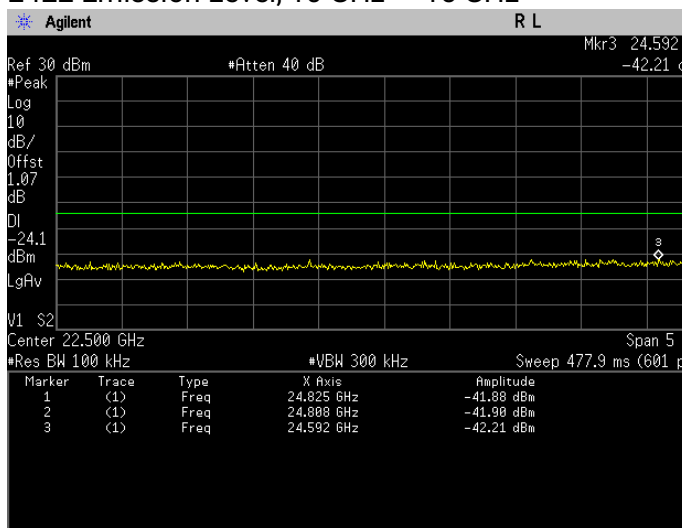
Conducted Emissions(Peak). 802.11n, Frequency 2422 MHz Emission Level, 5 GHz -> 10 GHz



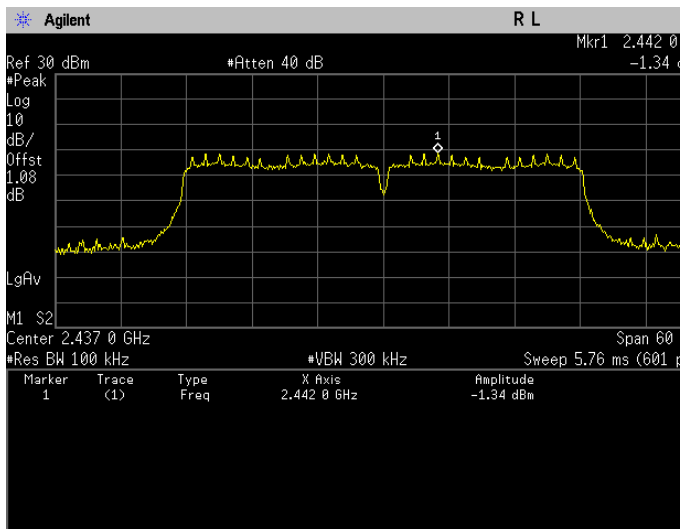
Conducted Emissions(Peak). 802.11n, Frequency 2422 Emission Level, 10 GHz -> 15 GHz



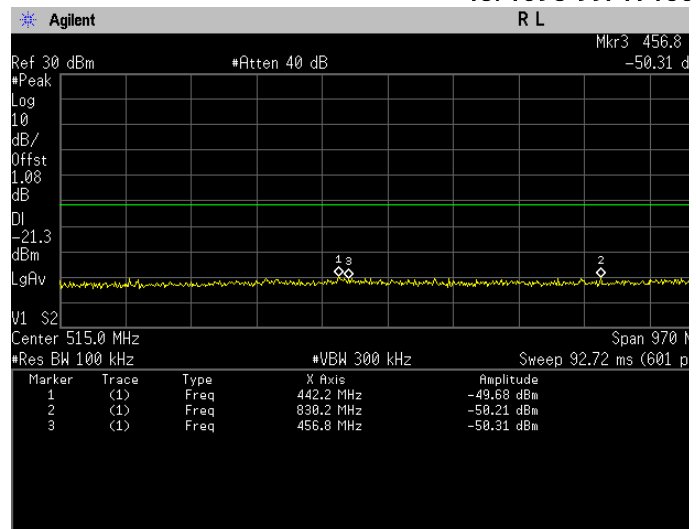
Conducted Emissions(Peak). 802.11n, Frequency 2422 MHz Emission Level, 15 GHz -> 20 GHz



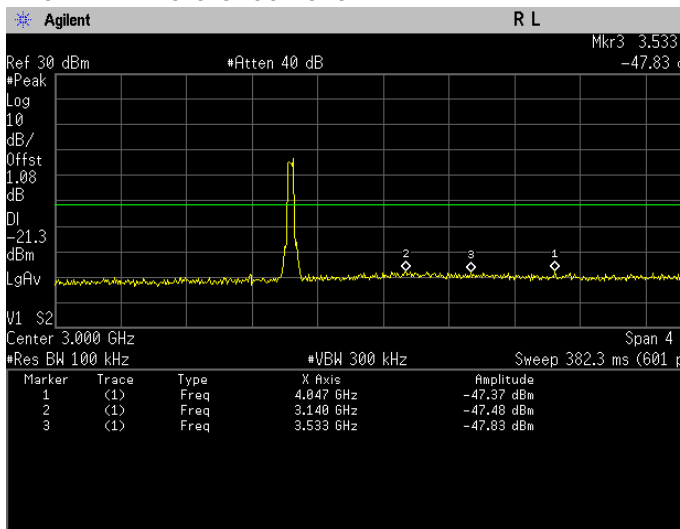
Conducted Emissions(Peak). 802.11n, Frequency 2422 MHz Emission Level, 20 GHz -> 25 GHz



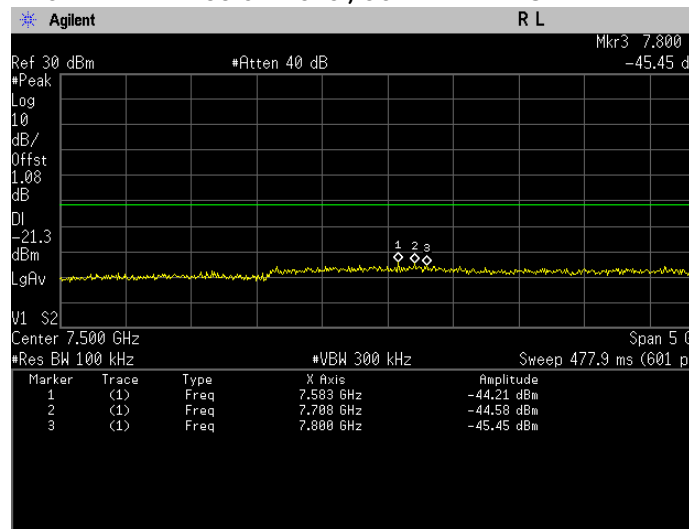
Conducted Emissions(Peak). 802.11n, Frequency 2437 MHz Reference Level



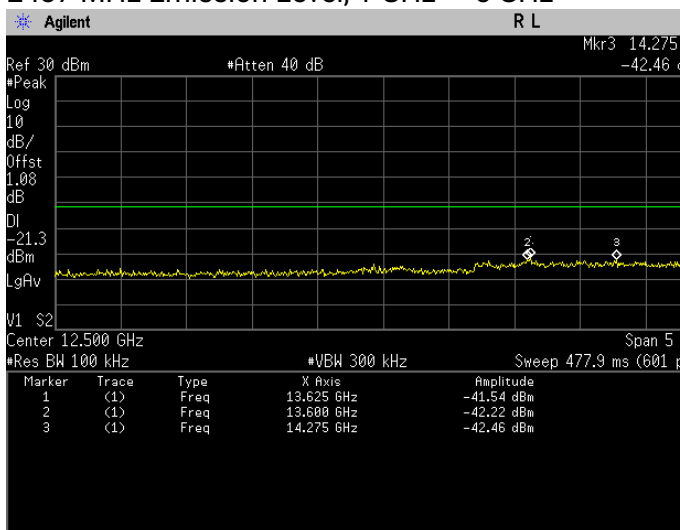
Conducted Emissions(Peak). 802.11n, Frequency 2437 MHz Emission Level, 30 MHz -> 1 GHz



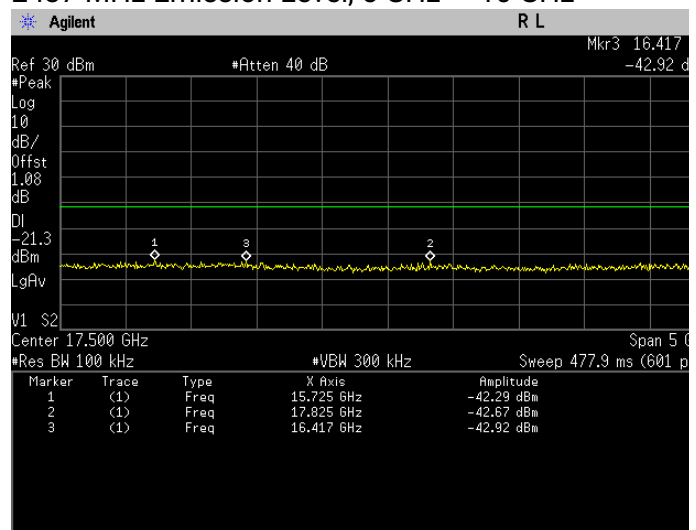
Conducted Emissions(Peak). 802.11n, Frequency 2437 MHz Emission Level, 1 GHz -> 5 GHz



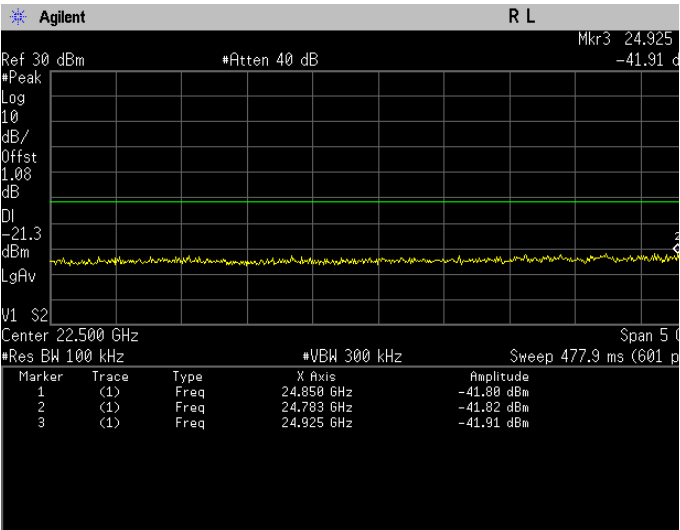
Conducted Emissions(Peak). 802.11n, Frequency 2437 MHz Emission Level, 5 GHz -> 10 GHz



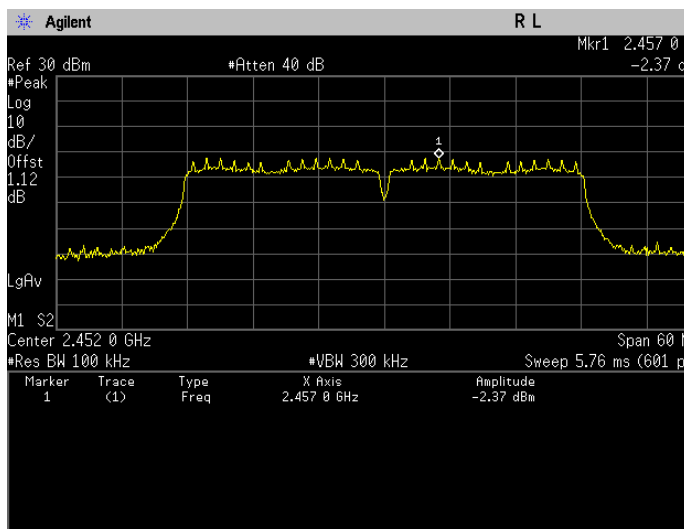
Conducted Emissions(Peak). 802.11n, Frequency 2437 MHz Emission Level, 10 GHz -> 15 GHz



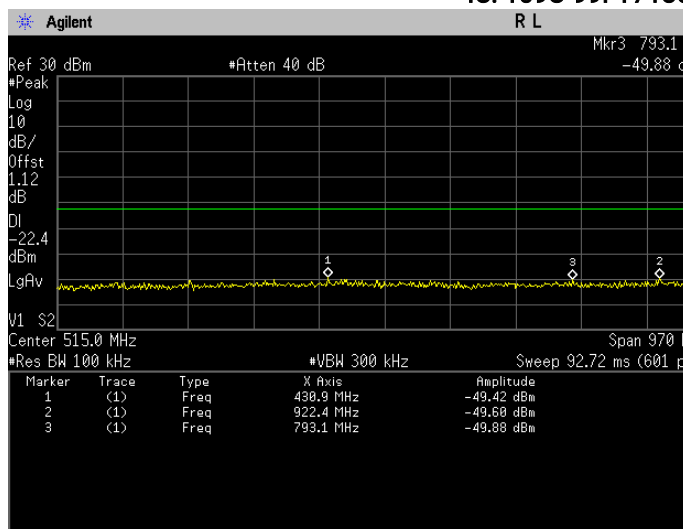
Conducted Emissions(Peak). 802.11n, Frequency 2437 MHz Emission Level, 15 GHz -> 20 GHz



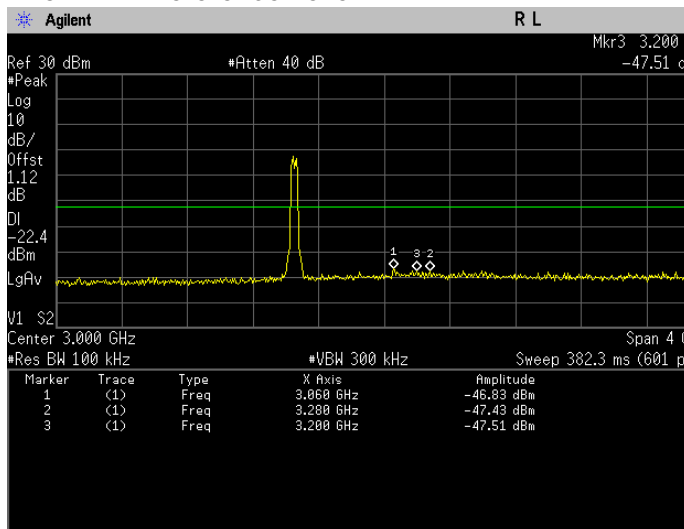
Conducted Emissions(Peak). 802.11n, Frequency 2437 MHz Emission Level, 20 GHz -> 25 GHz



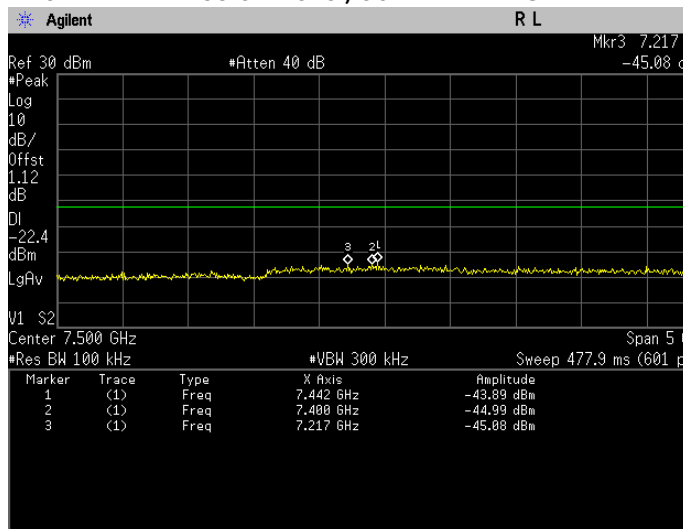
Conducted Emissions(Peak). 802.11n, Frequency 2452 MHz Reference Level



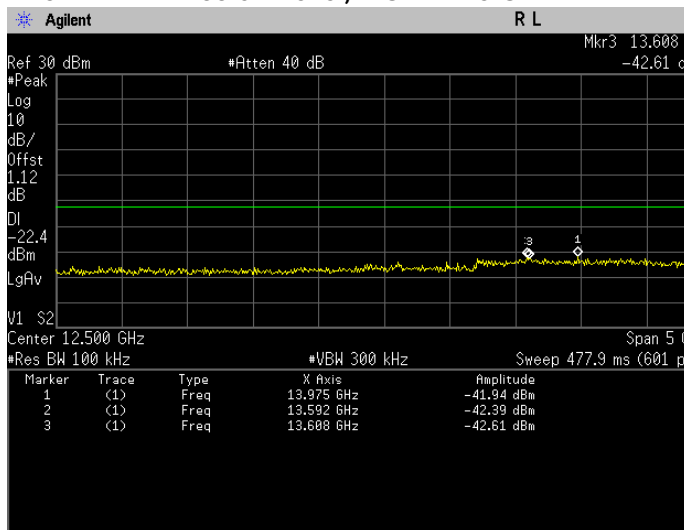
Conducted Emissions(Peak). 802.11n, Frequency 2452 MHz Emission Level, 30 MHz -> 1 GHz



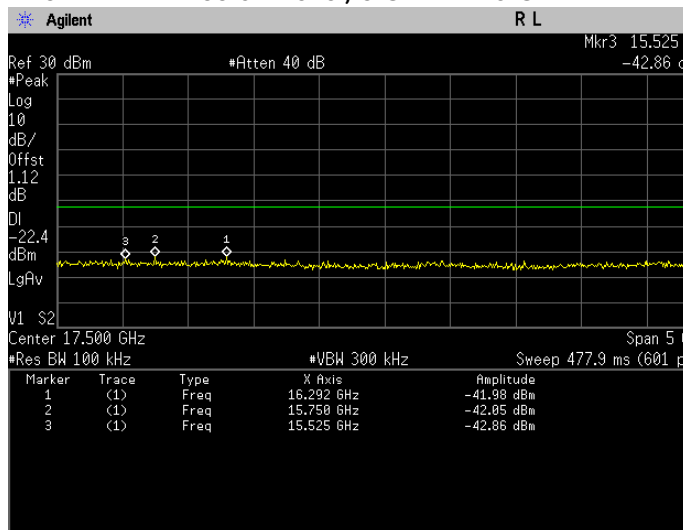
Conducted Emissions(Peak). 802.11n, Frequency 2452 MHz Emission Level, 1 GHz -> 5 GHz



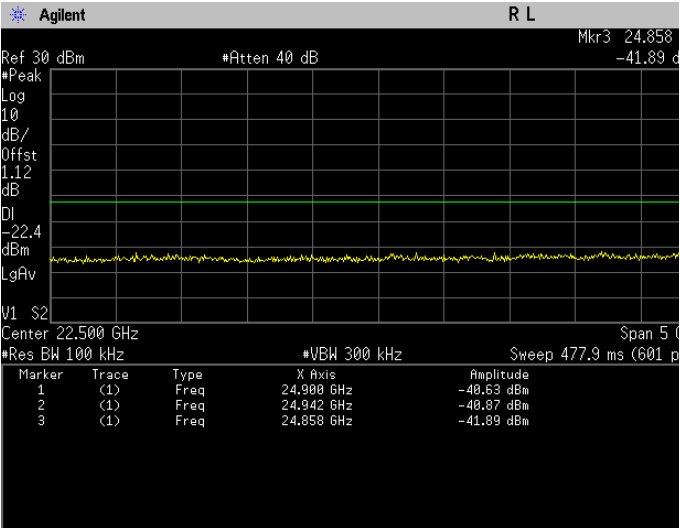
Conducted Emissions(Peak). 802.11n, Frequency 2452 MHz Emission Level, 5 GHz -> 10 GHz



Conducted Emissions(Peak). 802.11n, Frequency 2452 MHz Emission Level, 10 GHz -> 15 GHz



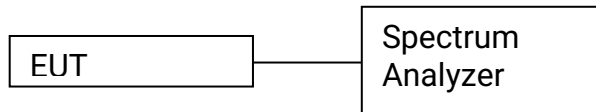
Conducted Emissions(Peak). 802.11n, Frequency 2452 MHz Emission Level, 15 GHz -> 20 GHz



Conducted Emissions(Peak). 802.11n, Frequency 2452 MHz Emission Level, 20 GHz -> 25 GHz

6.6. Band edge Conducted Spurious Emission

6.6.1. Test Setup



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

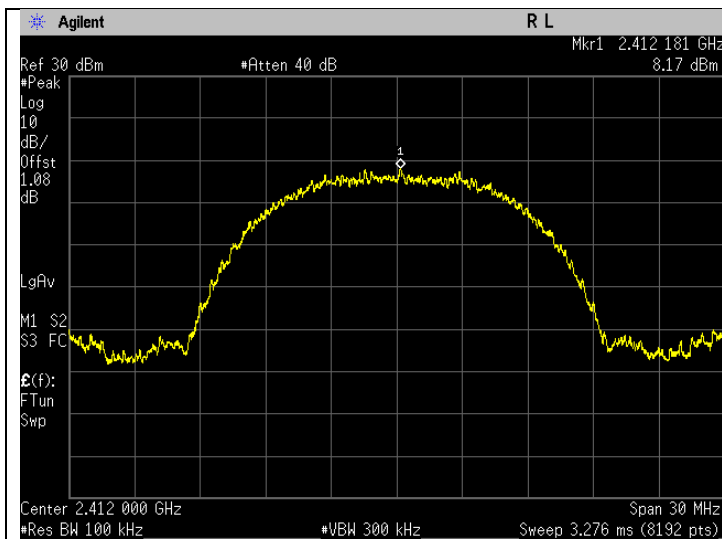
6.6.2. Test Limits:

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

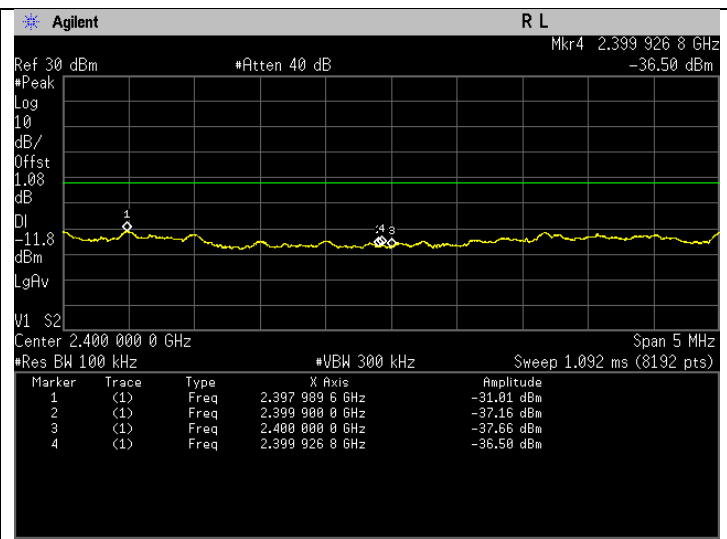
6.6.3. Test Result

802.11b

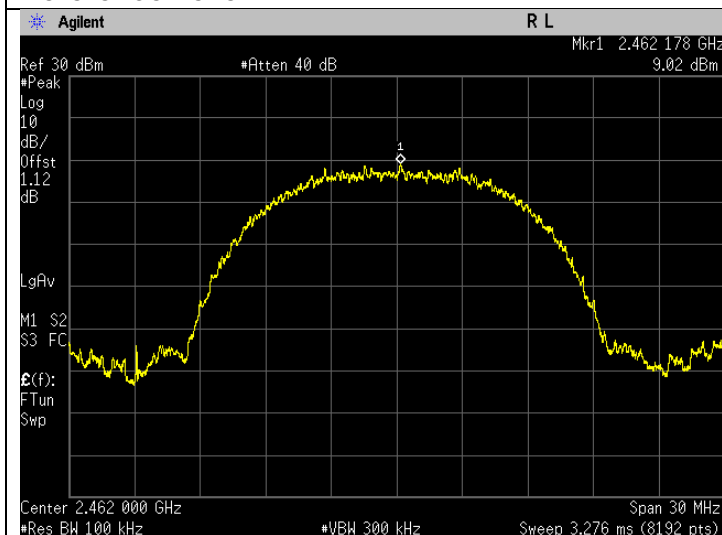
Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Frequencies (MHz)	Power (dBm)	Status
802.11b	OFDM	BPSK	5.5	2412	2399.93	-36.50	Pass
802.11b	OFDM	BPSK	5.5	2462	2483.54	-41.73	Pass



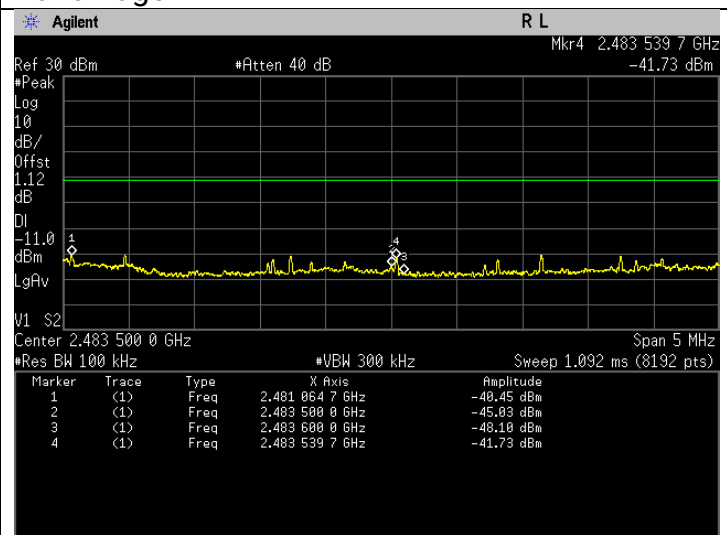
Band Edge(Peak). 802.11b Frequency 2412 MHz
Reference Level



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



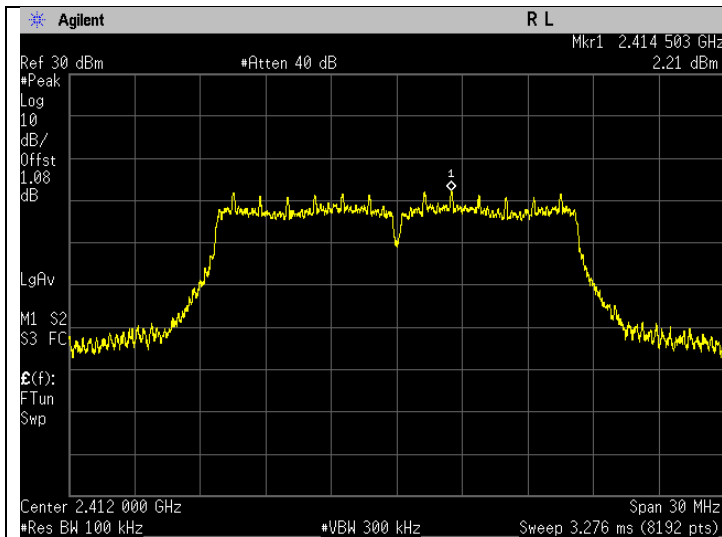
Band Edge(Peak). 802.11b Frequency 2462 MHz
Reference Level



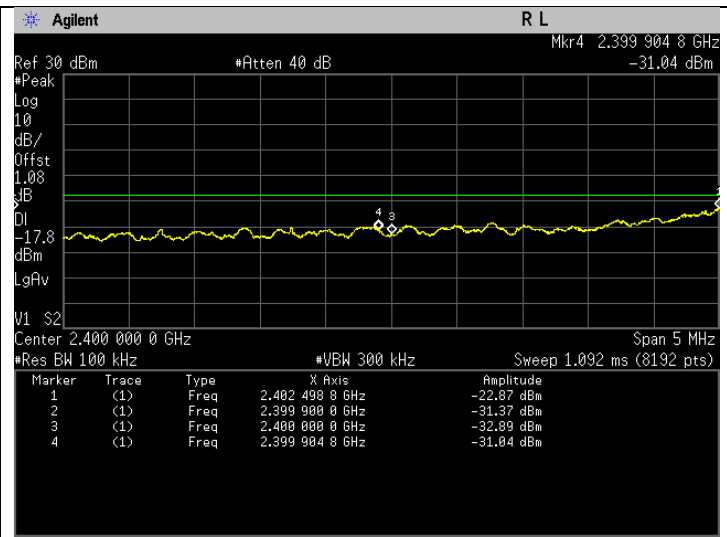
Band Edge(Peak). 802.11b Frequency 2462 MHz
Band Edge

802.11g

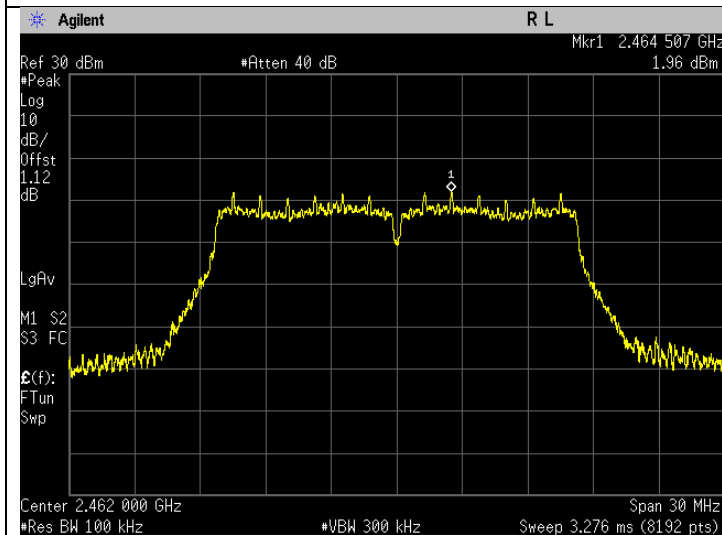
Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Frequencies (MHz)	Power (dBm)	Status
802.11g	OFDM	BPSK	6	2412	2399.90	-31.04	Pass
802.11g	OFDM	BPSK	6	2462	2483.60	-43.36	Pass



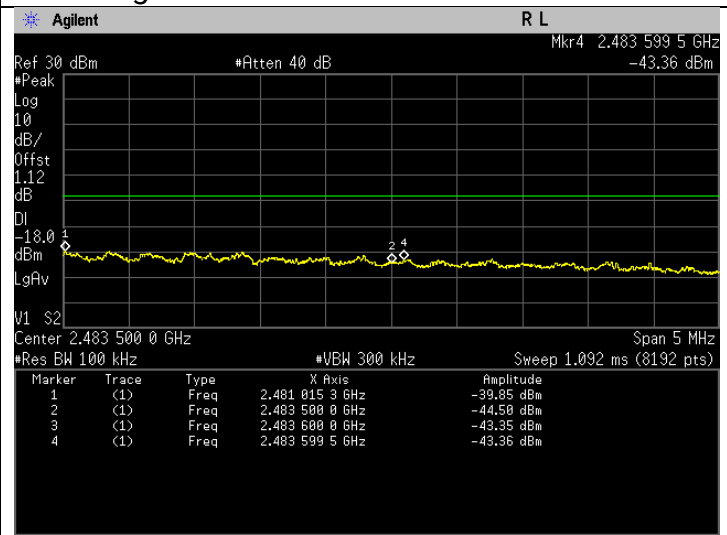
Band Edge(Peak). 802.11g Frequency 2412 MHz
Reference Level



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



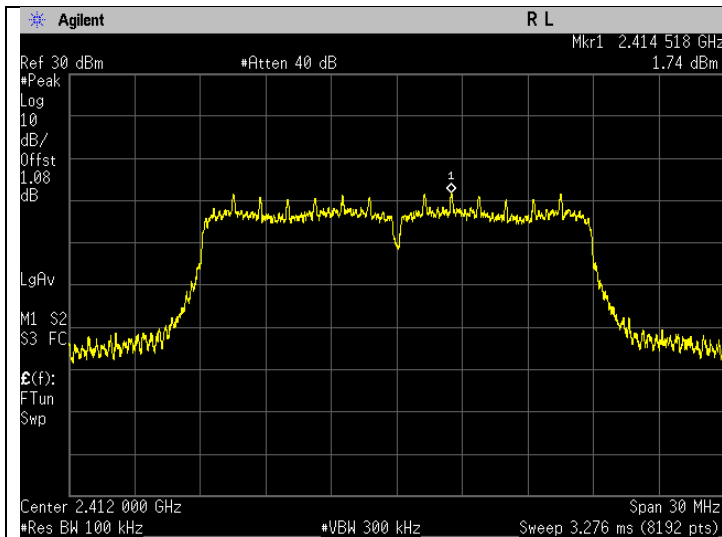
Band Edge(Peak). 802.11g Frequency 2462 MHz
Reference Level



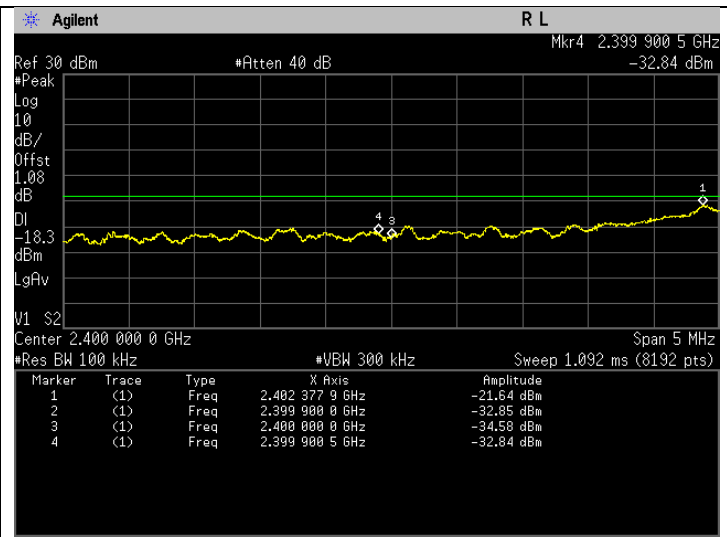
Band Edge(Peak). 802.11g Frequency 2462 MHz
Band Edge

802.11n (HT20)

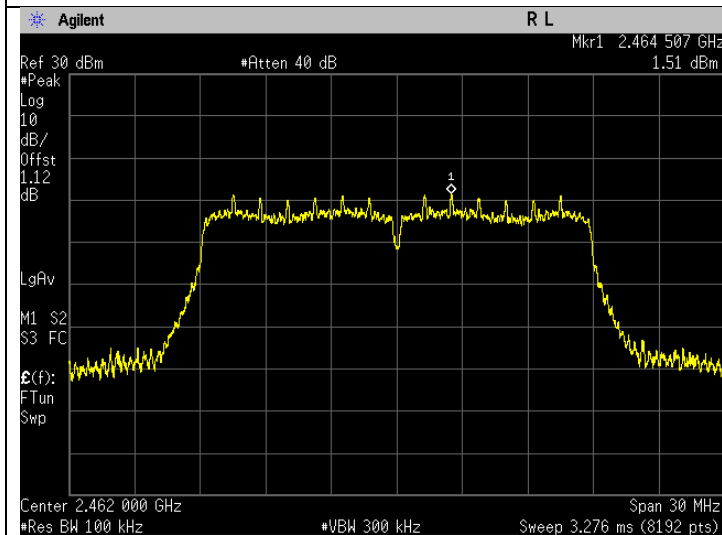
Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Frequencies (MHz)	Power (dBm)	Status
802.11n	OFDM	BPSK	6.5	2412	2399.90	-32.84	Pass
802.11n	OFDM	BPSK	6.5	2462	2483.54	-42.22	Pass



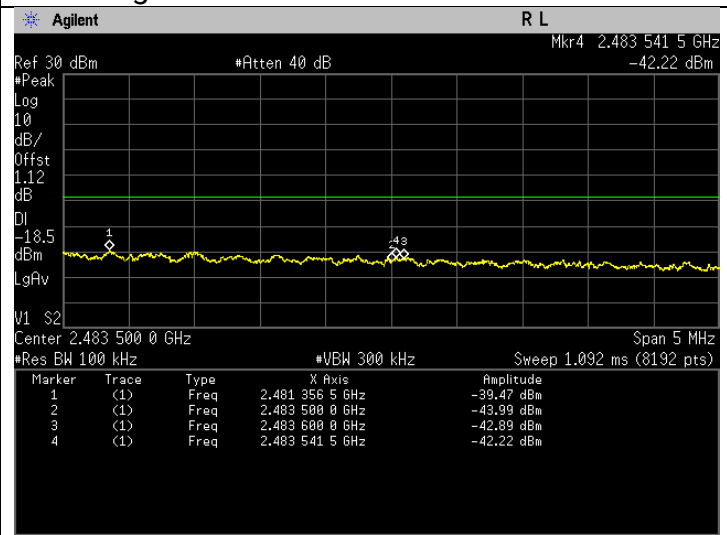
Band Edge(Peak). 802.11n Frequency 2412 MHz
Reference Level



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



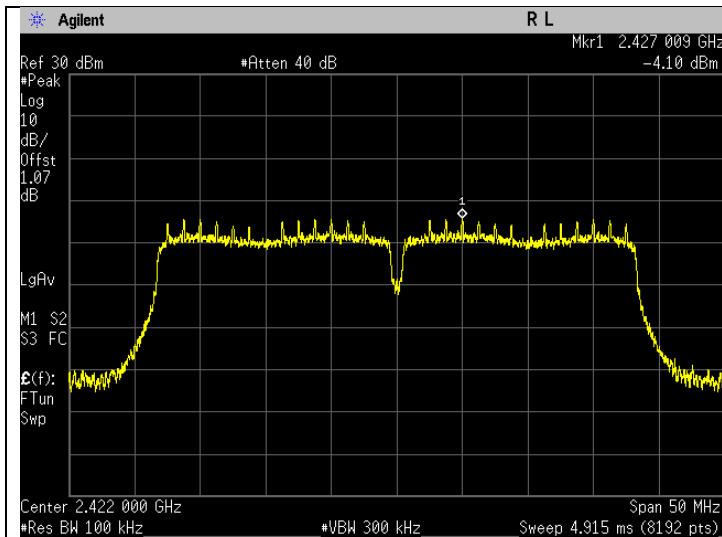
Band Edge(Peak). 802.11n Frequency 2462 MHz
Reference Level



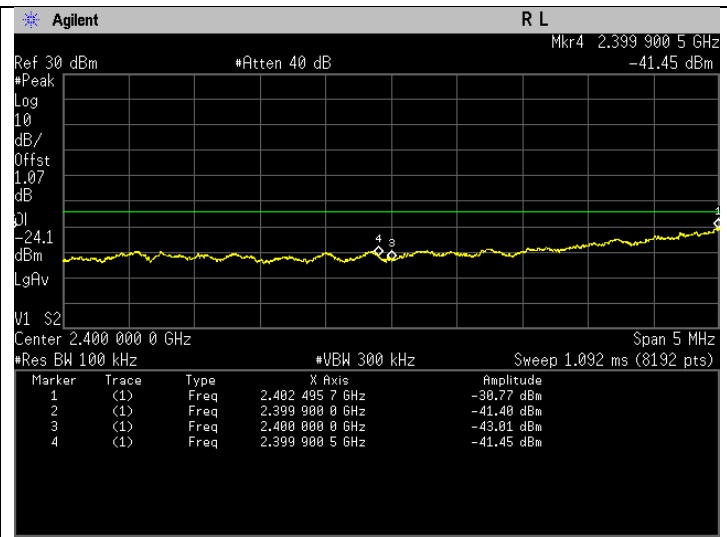
Band Edge(Peak). 802.11n Frequency 2462 MHz
Band Edge

802.11n (HT40)

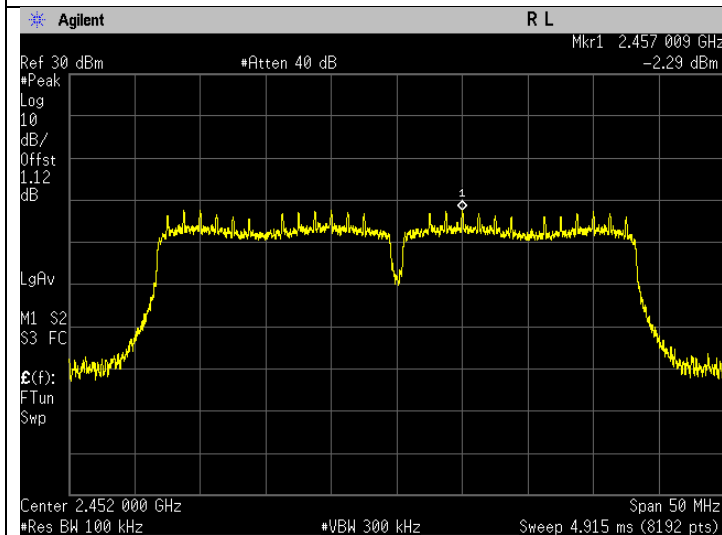
Test Conditions				Test Frequency	Results		
Standard	Modulation Type	Modulation Technology	Data Rate (mbps)	Tx (MHz)	Frequencies (MHz)	Power (dBm)	Status
802.11n	OFDM	BPSK	13.5	2422	2399.90	-41.45	Pass
802.11n	OFDM	BPSK	13.5	2452	2483.59	-39.47	Pass



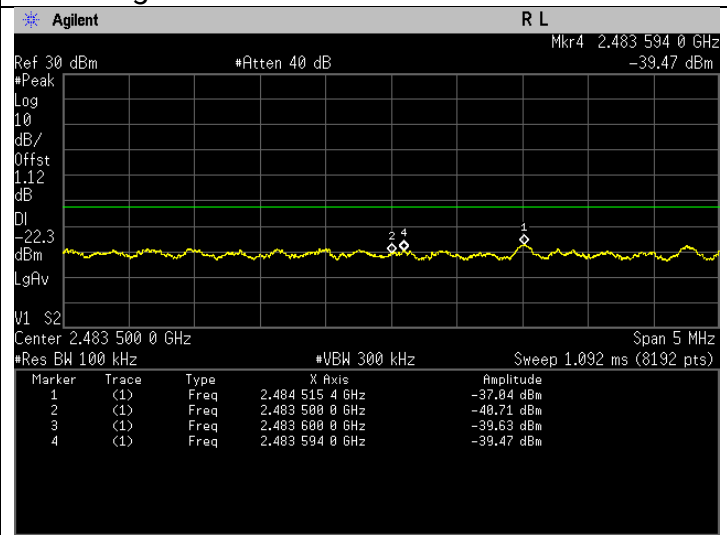
Band Edge(Peak). 802.11n Frequency 2422 MHz
Reference Level



Band Edge(Peak). 802.11n Frequency 2422 MHz
Band Edge



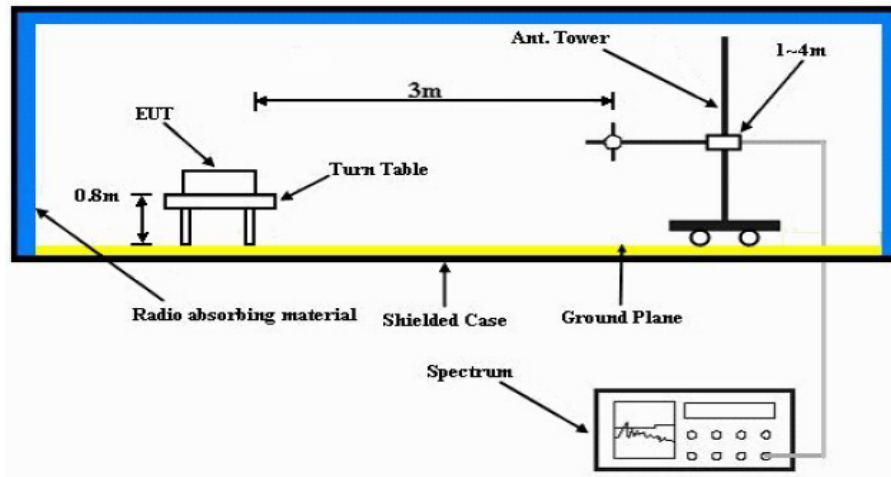
Band Edge(Peak). 802.11n Frequency 2452 MHz
Reference Level



Band Edge(Peak). 802.11n Frequency 2452 MHz
Band Edge

6.7. Radiated Emission within restricted Bands

6.7.1. Test Setup



- 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.
- The EUT is set 3m away from the interference-receiving antenna, which is mounted on the top of a variable-height antenna tower.
- 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.
- 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.
- The test-receiver system is set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- 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:

- The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection at frequency below 1GHz.
- 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.
- 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:

- The lower limit shall apply at the transition frequencies.
- Emission level (dBuV/m) = 20 log Emission level (uV/m).
- 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.

Test: WIFI SAC Restricted Band Edge	EMC SR ID#: 1057N00-EMC-00026
Model Number: VX650	S/N: 9903EBA0048
Battery: PMNN4893A	
Accessory: NA	
Test Channel: Low	Test Frequency: 2412.0000 MHz
Test Standard: ANSI C63.10-2013	Worst Case Plane: Z-Plane
Modulation: 802.11b	Softpot power (15)

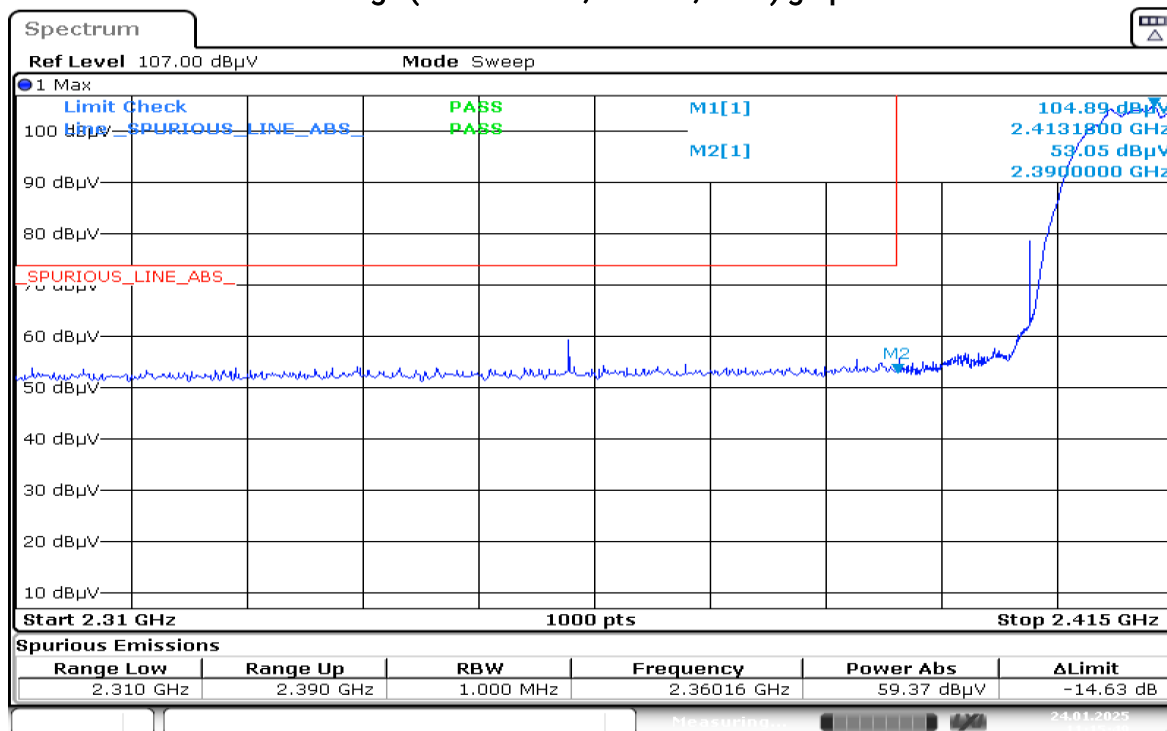
Vertical Radiated Emission Result

[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

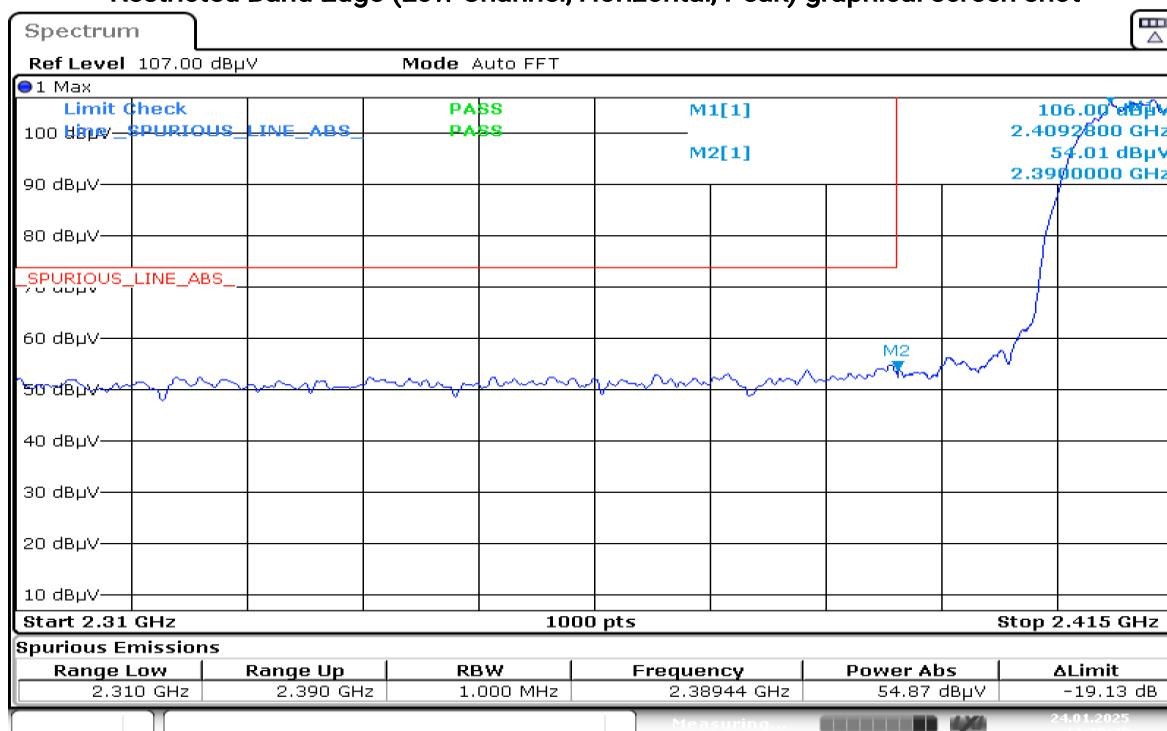
Temperature (degC): 22.5	Humidity (%): 63.1
Test Performed by: Aiman	Test Date: Fri, 24 Jan, 2025
System MU: 5.84dB	

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



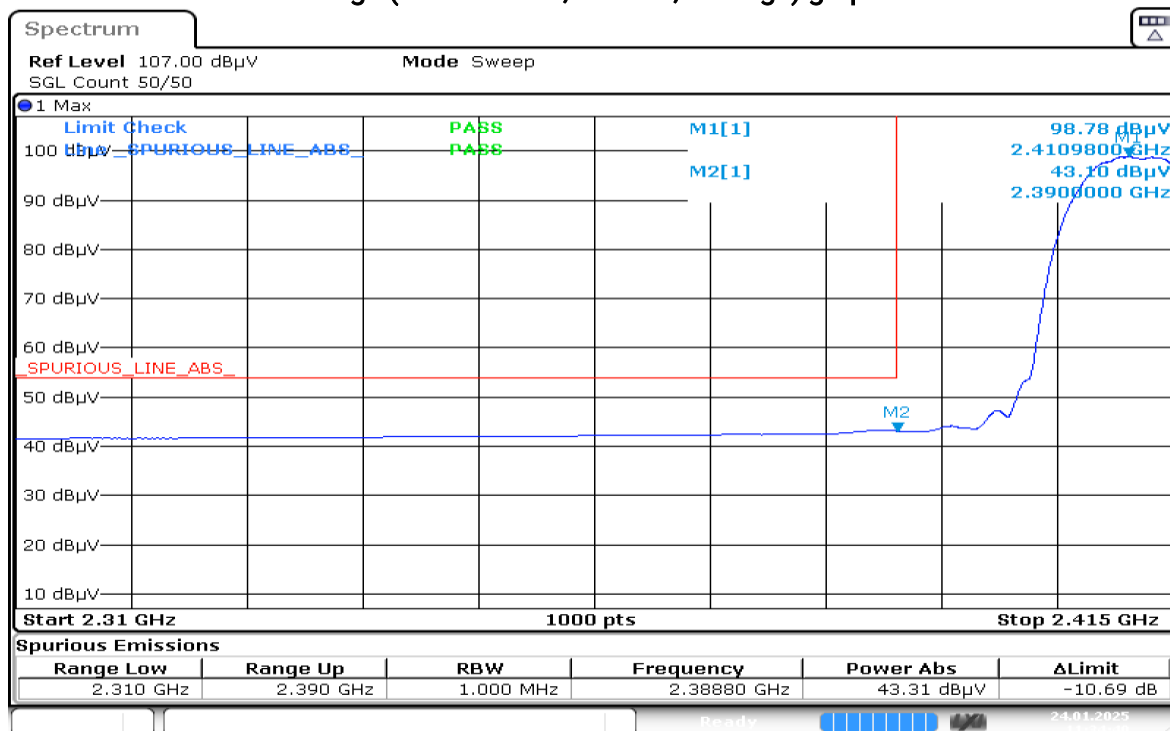
Date: 24.JAN.2025 11:15:50

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



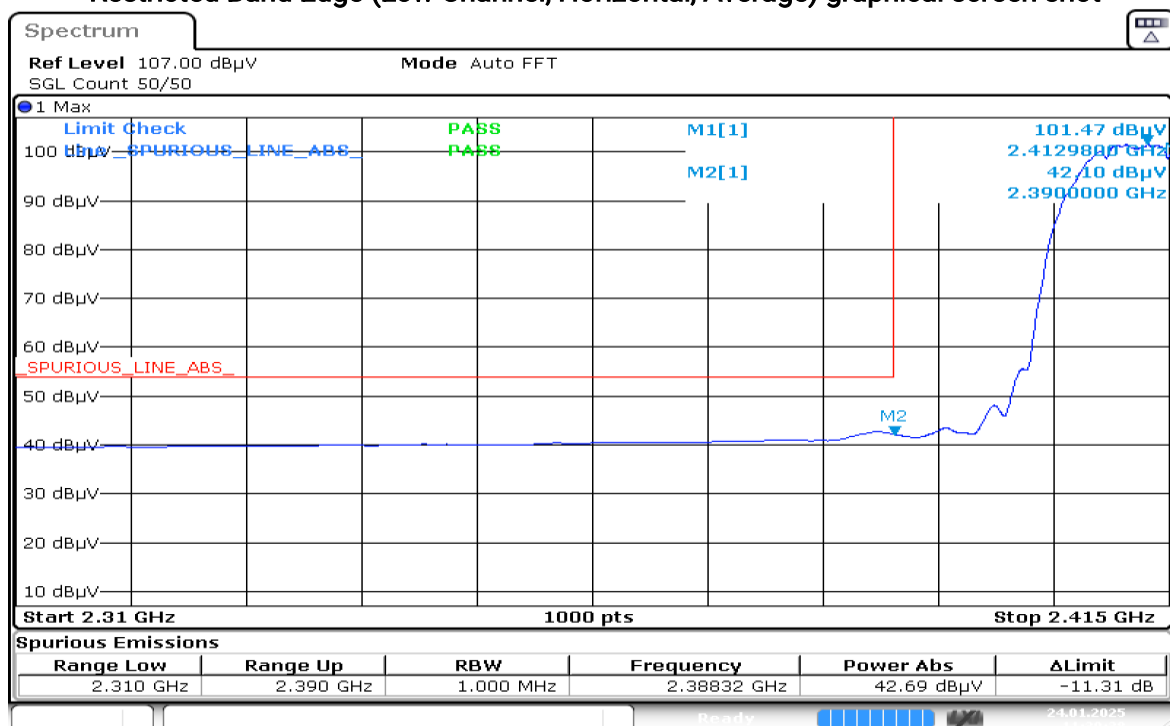
Date: 24.JAN.2025 11:19:48

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



Date: 24.JAN.2025 11:34:41

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



Date: 24.JAN.2025 11:39:38

Test: WIFI SAC Restricted Band Edge	EMC SR ID#: 1057N00-EMC-00026
Model Number: VX650	S/N: 9903EBA0048
Battery: PMNN4893A	
Accessory: NA	
Test Channel: High	Test Frequency: 2462.0000 MHz
Test Standard: ANSI C63.10-2013	Worst Case Plane: Z-Plane
Modulation: 802.11b	Softpot power (16)

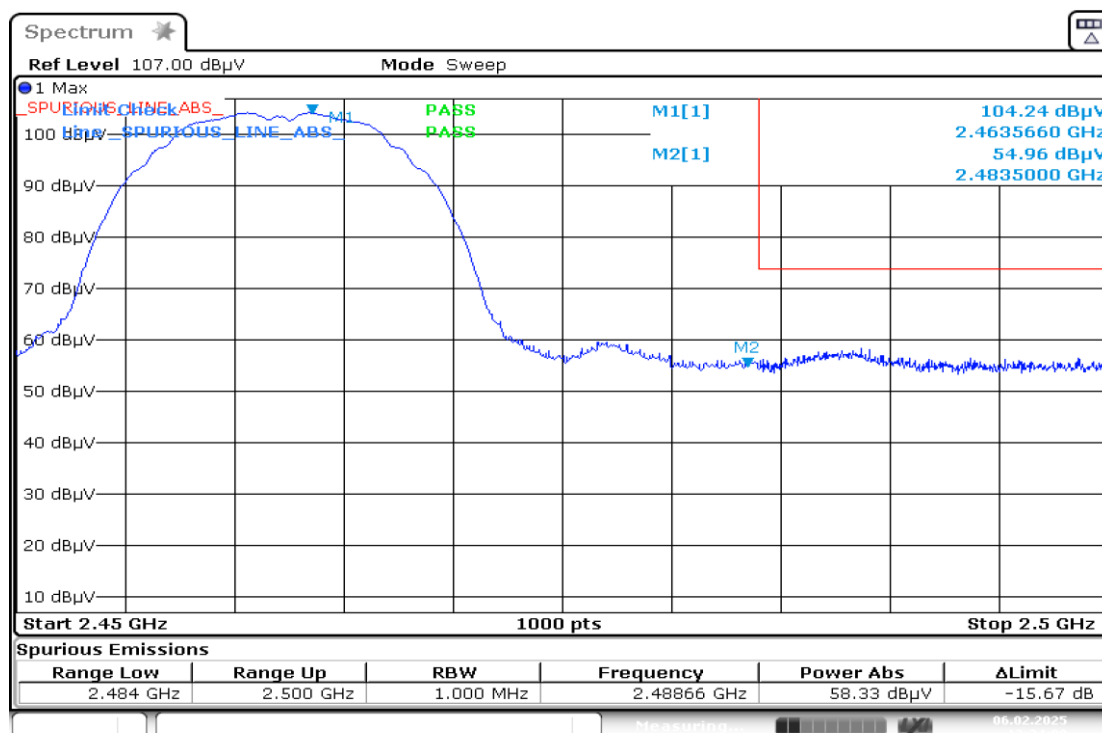
Restricted Band Edge (High Channel) tabular data

[illegible]

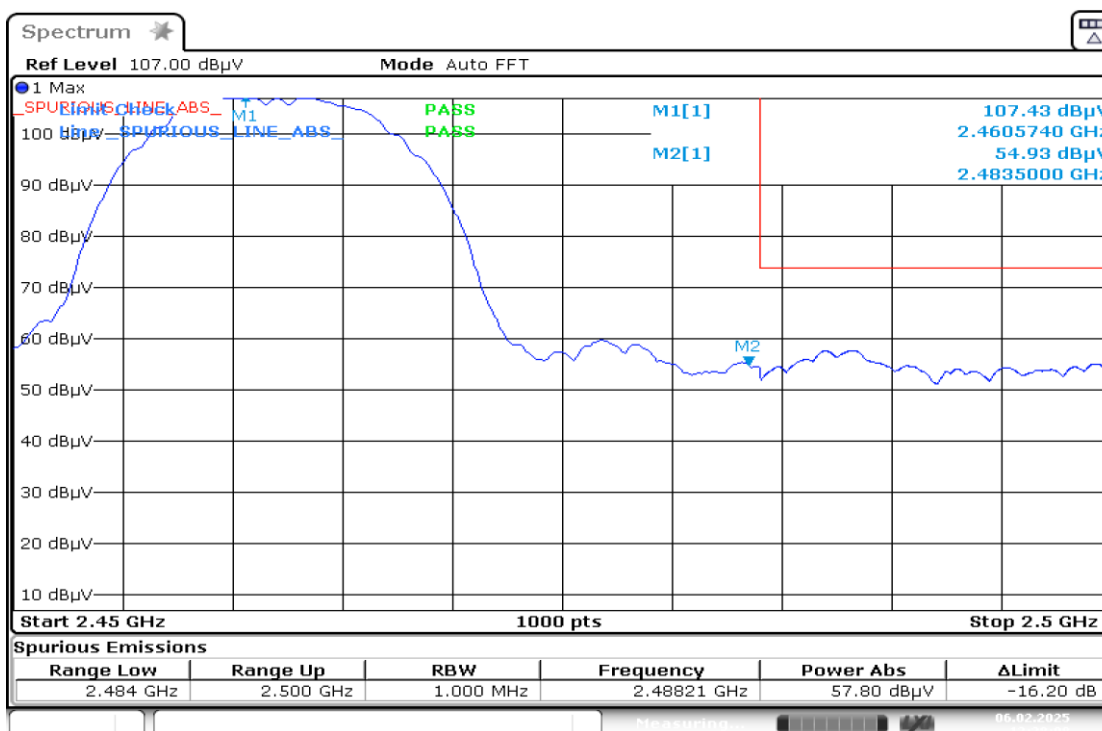
Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

Temperature (degC): 22.5	Humidity (%): 63.1
Test Performed by: Aiman	Test Date: Fri, 24 Jan, 2025
System MU: 5.84dB	

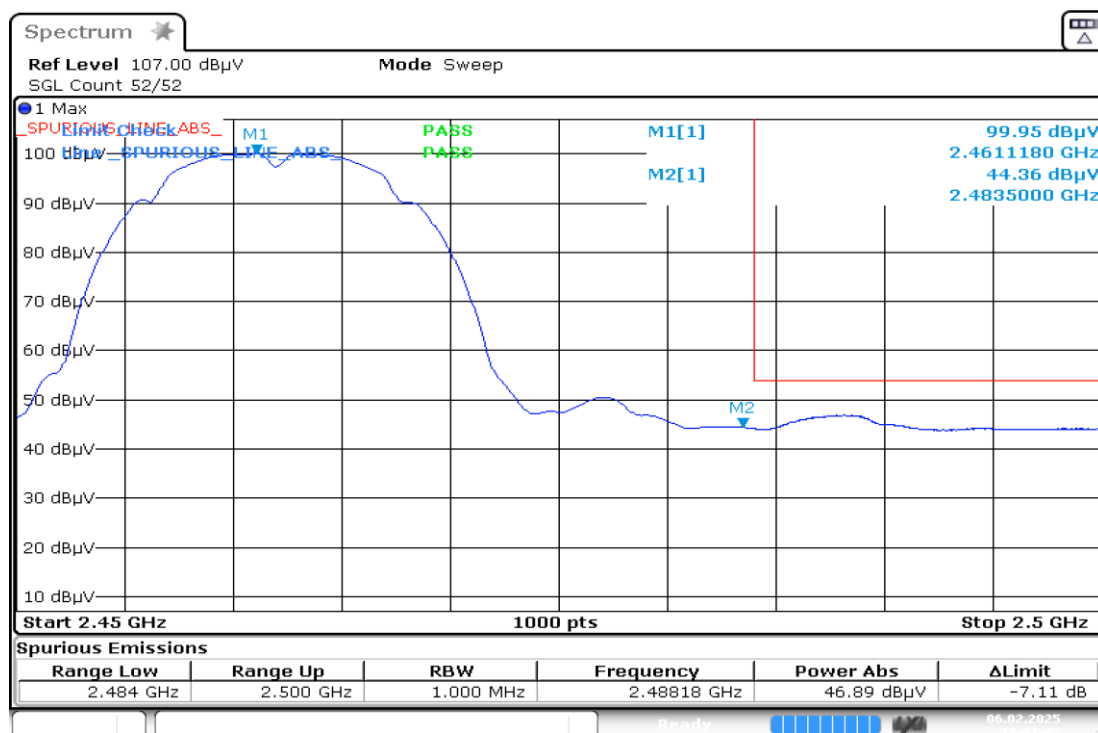
Restricted Band Edge (High Channel, Vertical, Peak) graphical screen shot



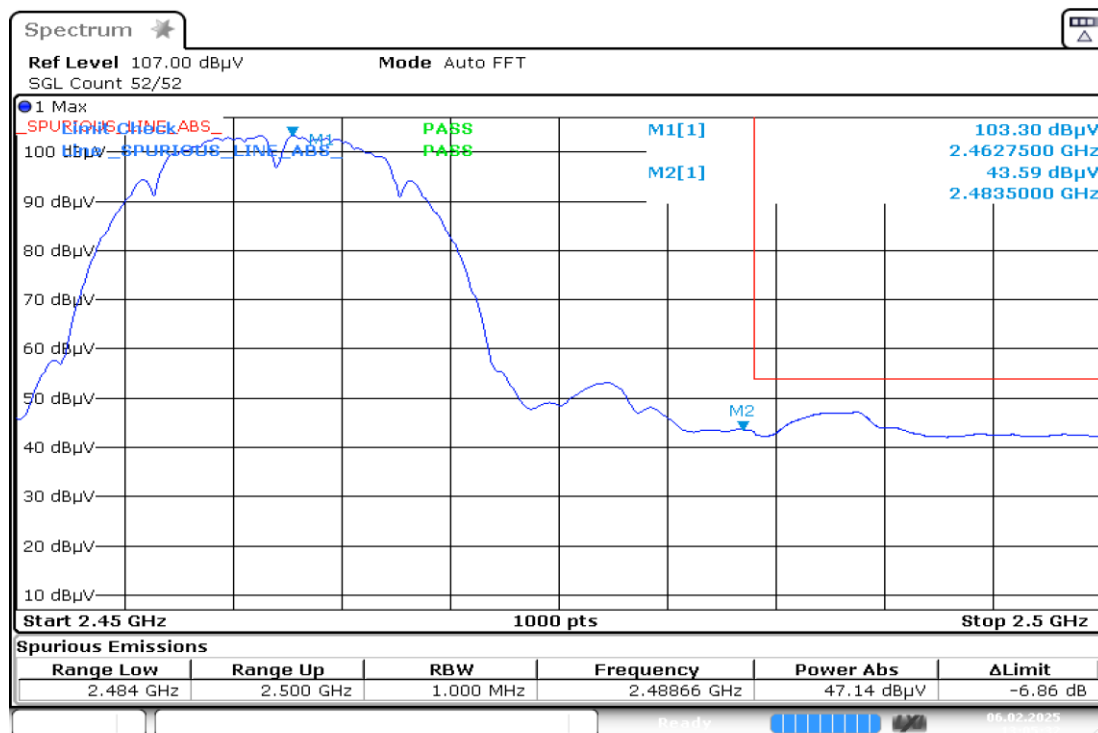
Restricted Band Edge (High Channel, Horizontal, Peak) graphical screen shot



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



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



Test: WIFI SAC Restricted Band Edge	EMC SR ID#: 1057N00-EMC-00026
Model Number: VX650	S/N: 9903EBA0048
Battery: PMNN4893A	
Accessory: NA	
Test Channel: Low	Test Frequency: 2412.0000 MHz
Test Standard: ANSI C63.10-2013	Worst Case Plane: Z-Plane
Modulation: 802.11g	Softpot power (11)

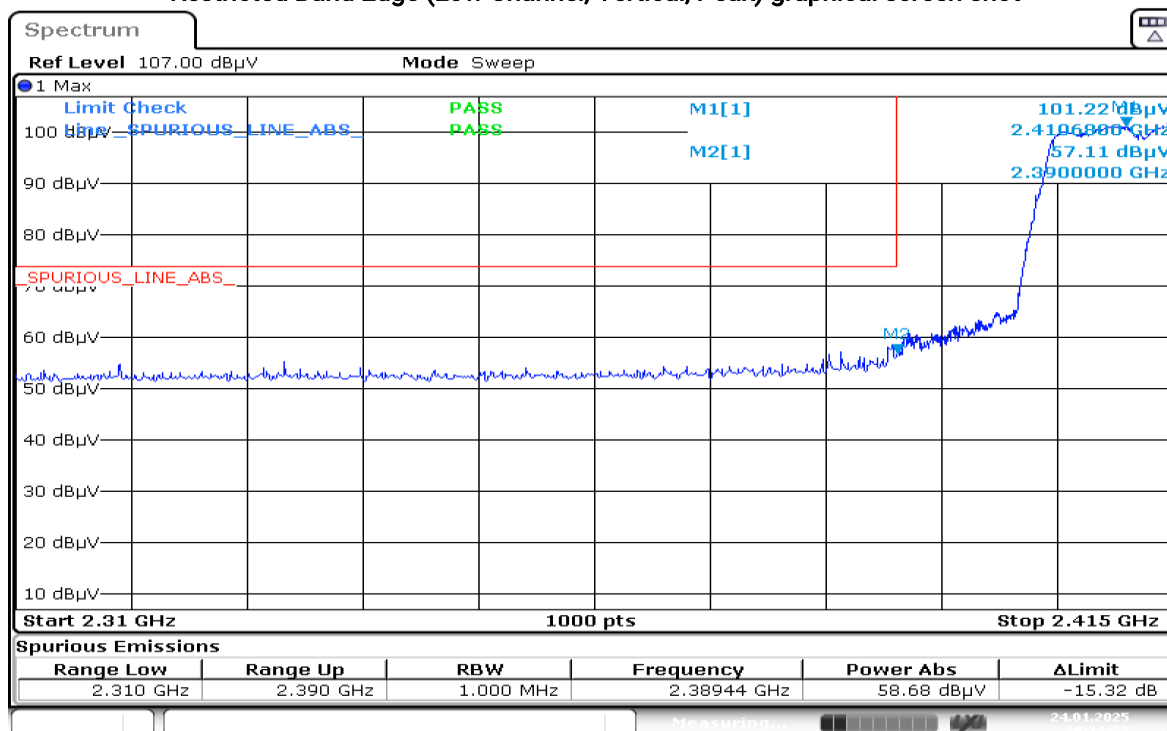
Vertical Radiated Emission Result

[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

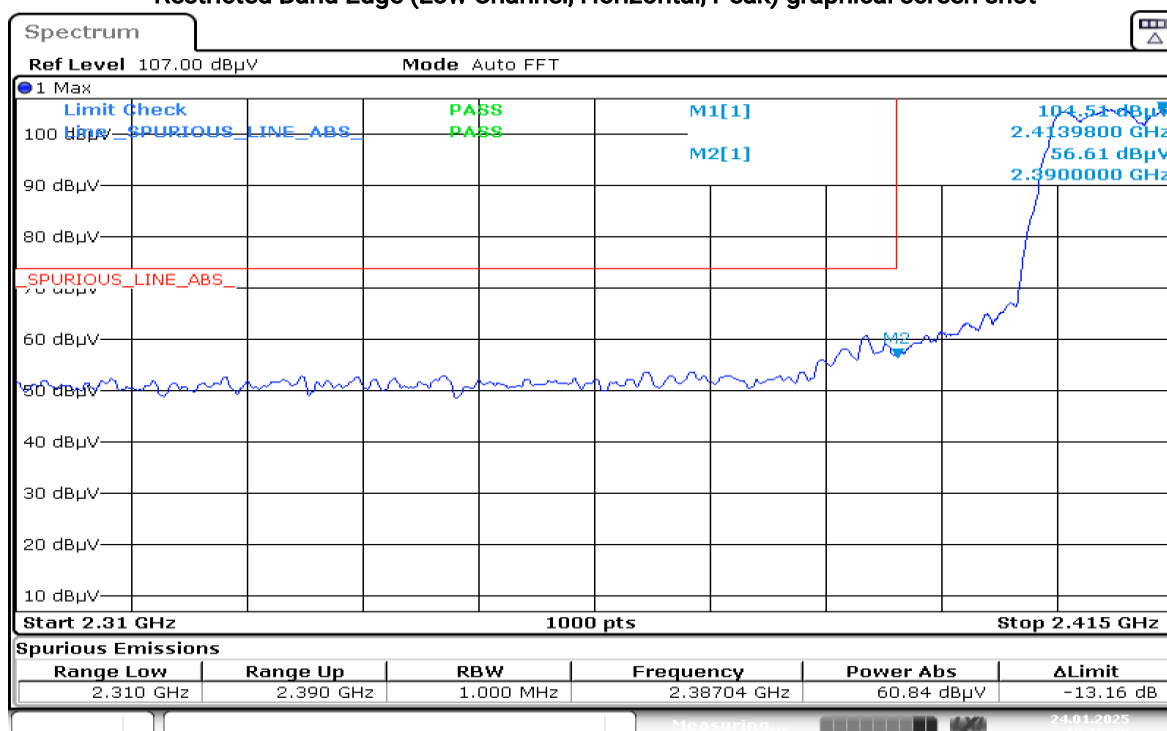
Temperature (degC): 22.5	Humidity (%): 63.1
Test Performed by: Aiman	Test Date: Fri, 24 Jan, 2025
System MU: 5.84dB	

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



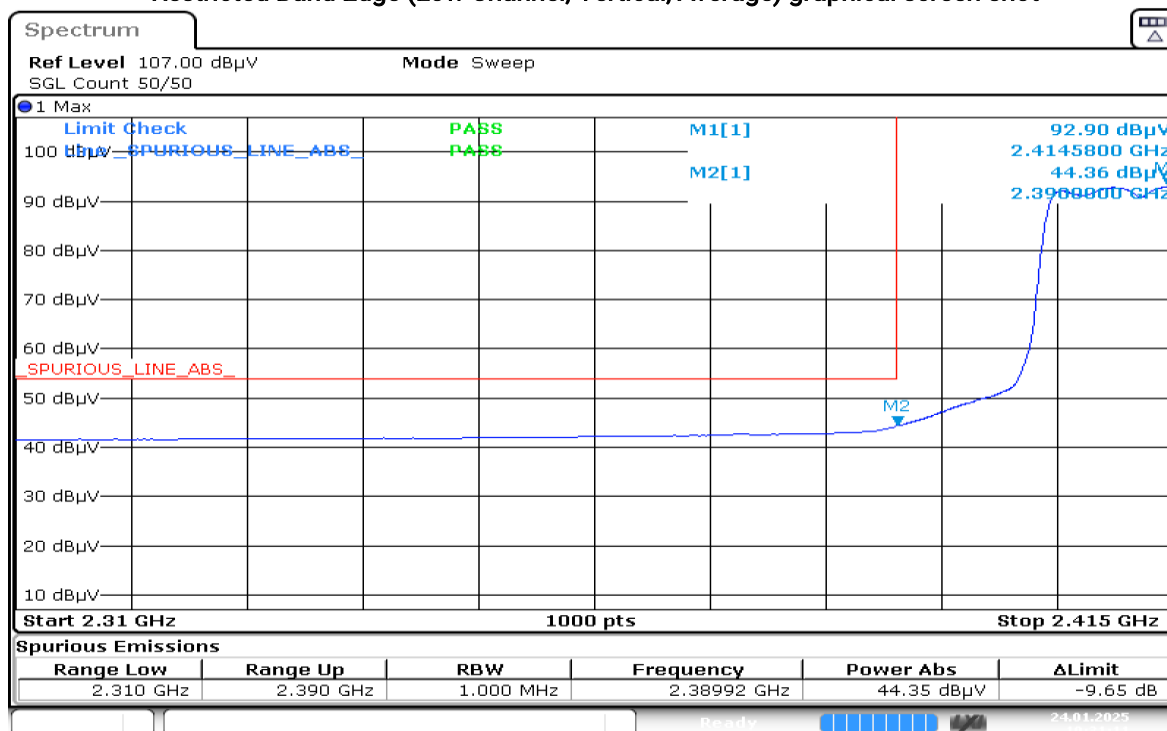
Date: 24.JAN.2025 10:11:55

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



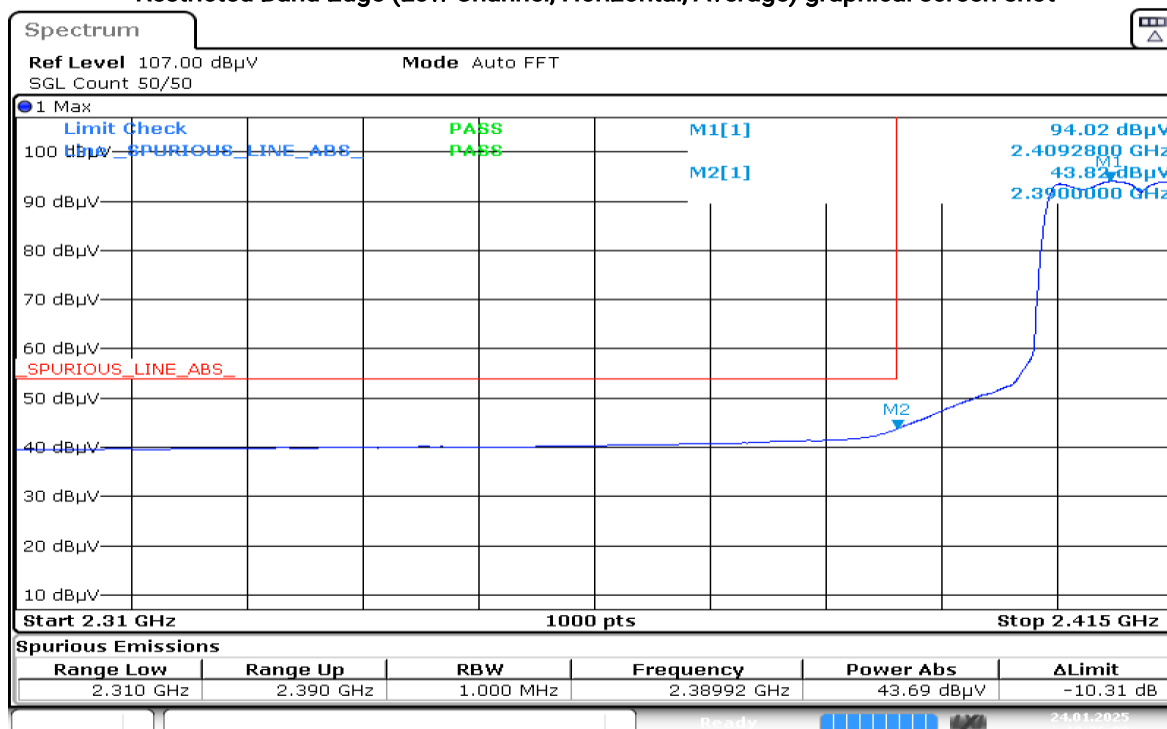
Date: 24.JAN.2025 10:15:59

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



Date: 24.JAN.2025 10:31:11

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



Date: 24.JAN.2025 10:36:10

Test: WIFI SAC Restricted Band Edge	EMC SR ID#: 1057N00-EMC-00026
Model Number: VX650	S/N: 9903EBA0048
Battery: PMNN4893A	
Accessory: NA	
Test Channel: High	Test Frequency: 2462.0000 MHz
Test Standard: ANSI C63.10-2013	Worst Case Plane: Z-Plane
Modulation: 802.11g	Softpot power (11)

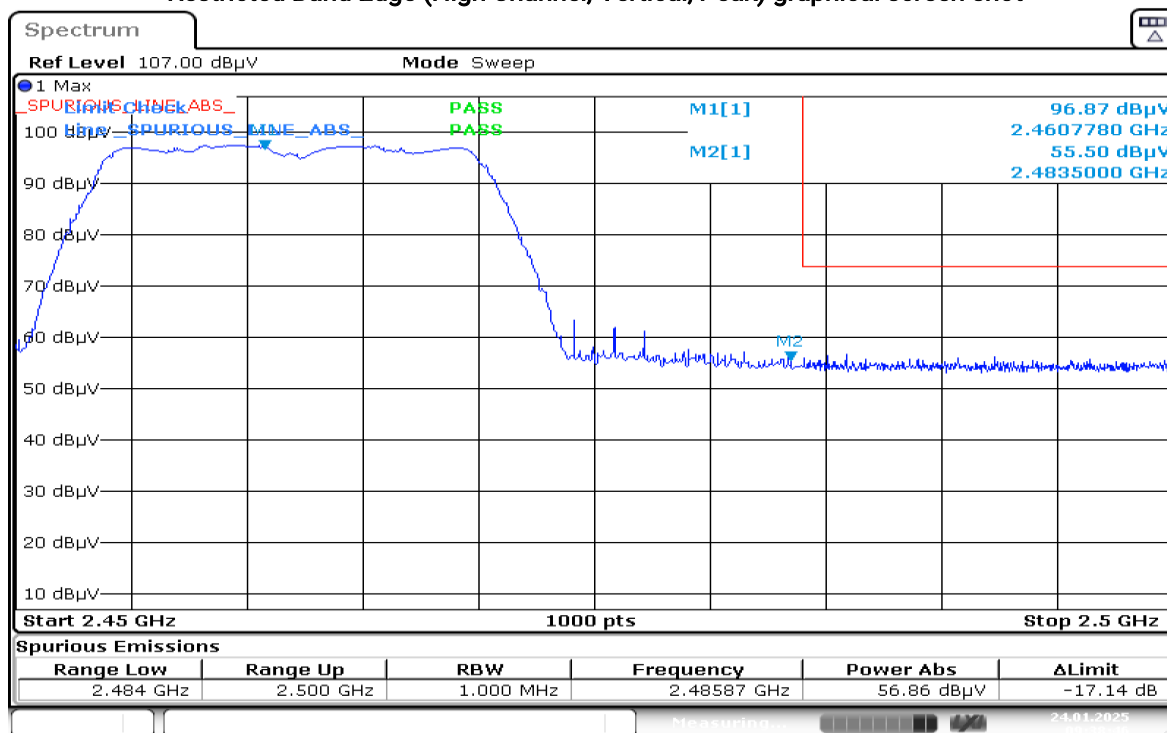
Vertical Radiated Emission Result

[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

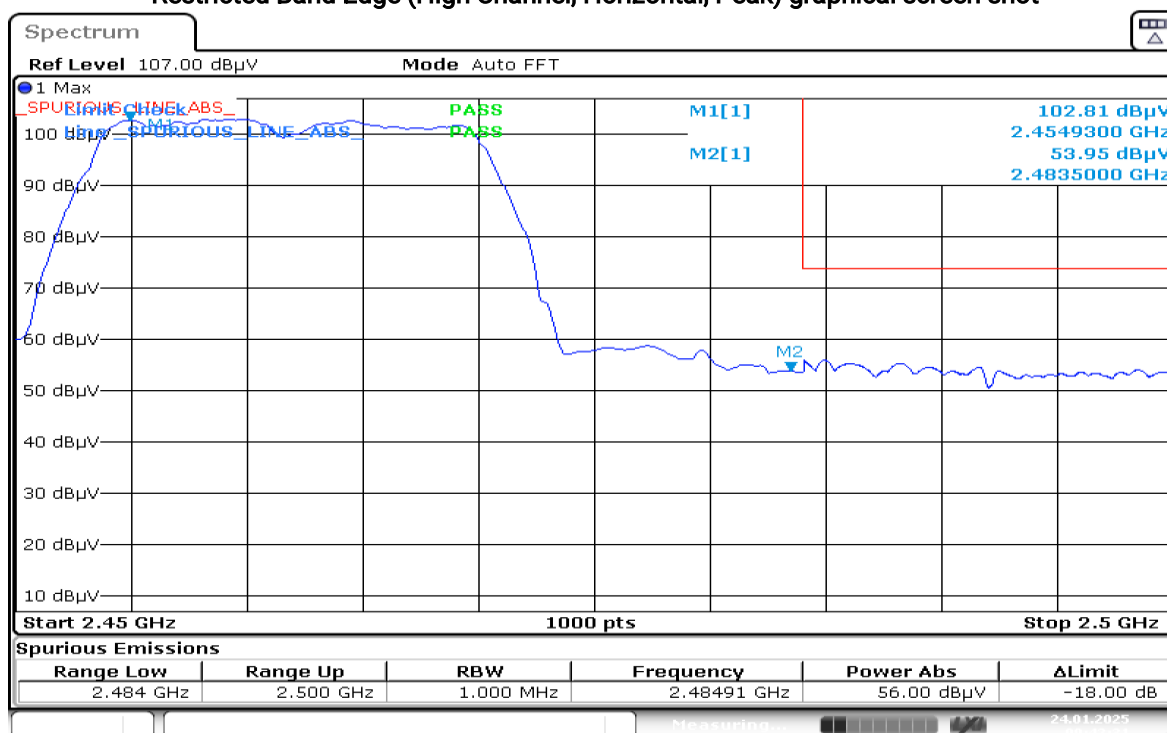
Temperature (degC): 22.5	Humidity (%): 63.1
Test Performed by: Aiman	Test Date: Fri, 24 Jan, 2025
System MU: 5.84dB	

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



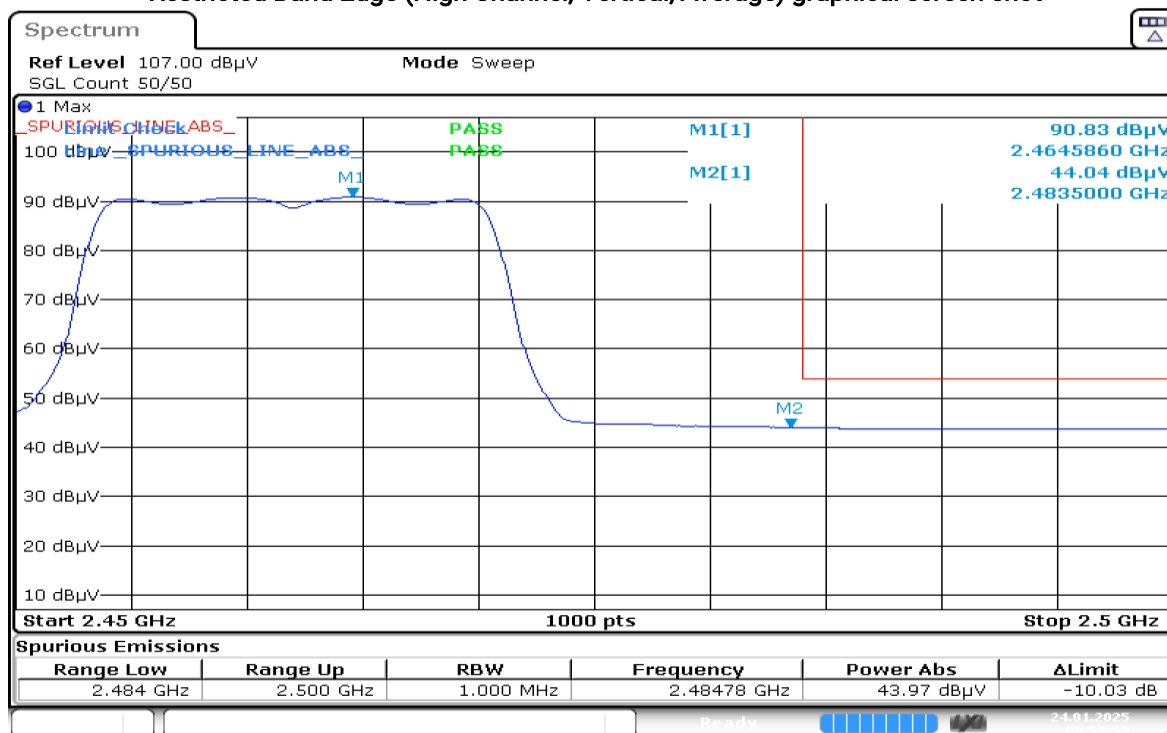
Date: 24.JAN.2025 09:38:47

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



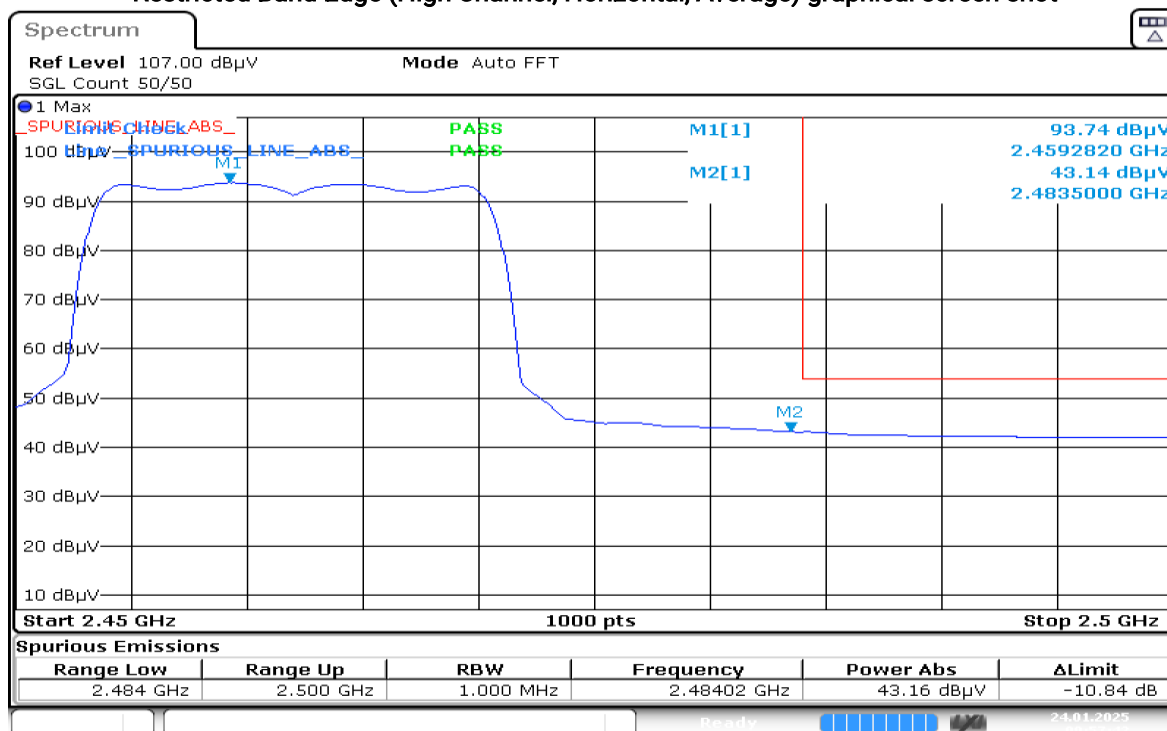
Date: 24.JAN.2025 09:42:31

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



Date: 24.JAN.2025 09:52:59

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



Date: 24.JAN.2025 09:57:43

Test: WIFI SAC Restricted Band Edge	EMC SR ID#: 1057N00-EMC-00026
Model Number: VX650	S/N: 9903EBA0048
Battery: PMNN4893A	
Accessory: NA	
Test Channel: Low	Test Frequency: 2412.0000 MHz
Test Standard: ANSI C63.10-2013	Worst Case Plane: Z-Plane
Modulation: 802.11n_20	Softpot power (10)

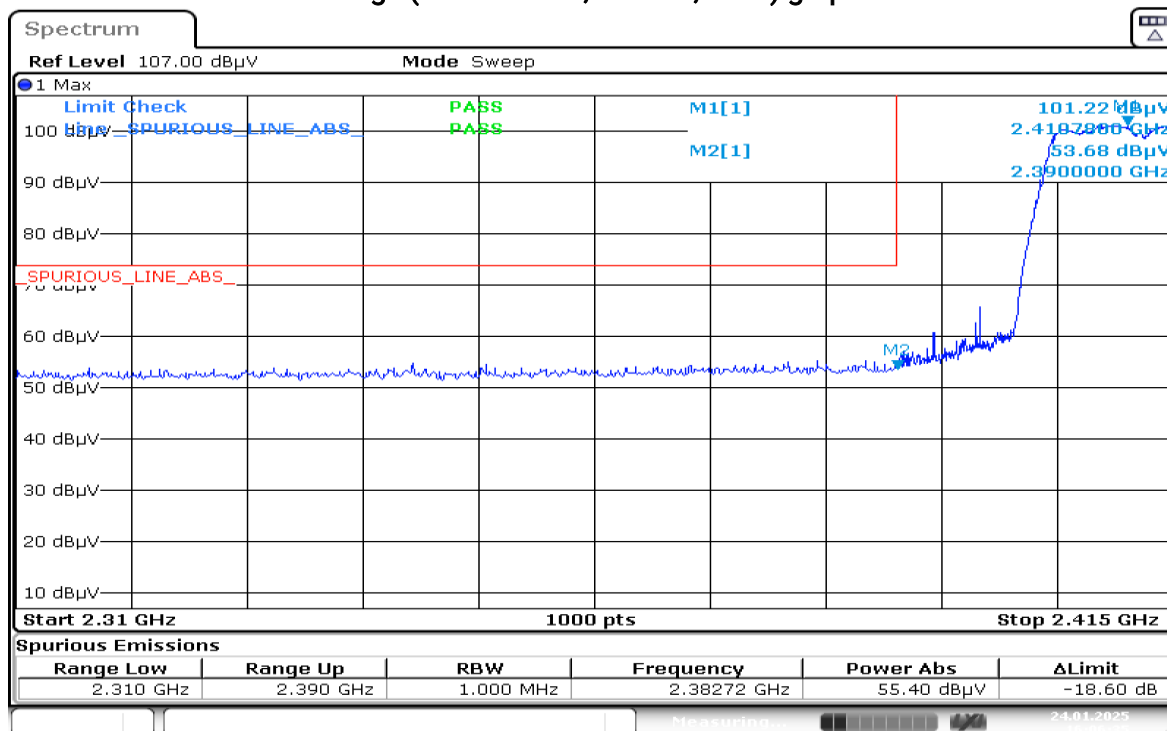
Vertical Radiated Emission Result

[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

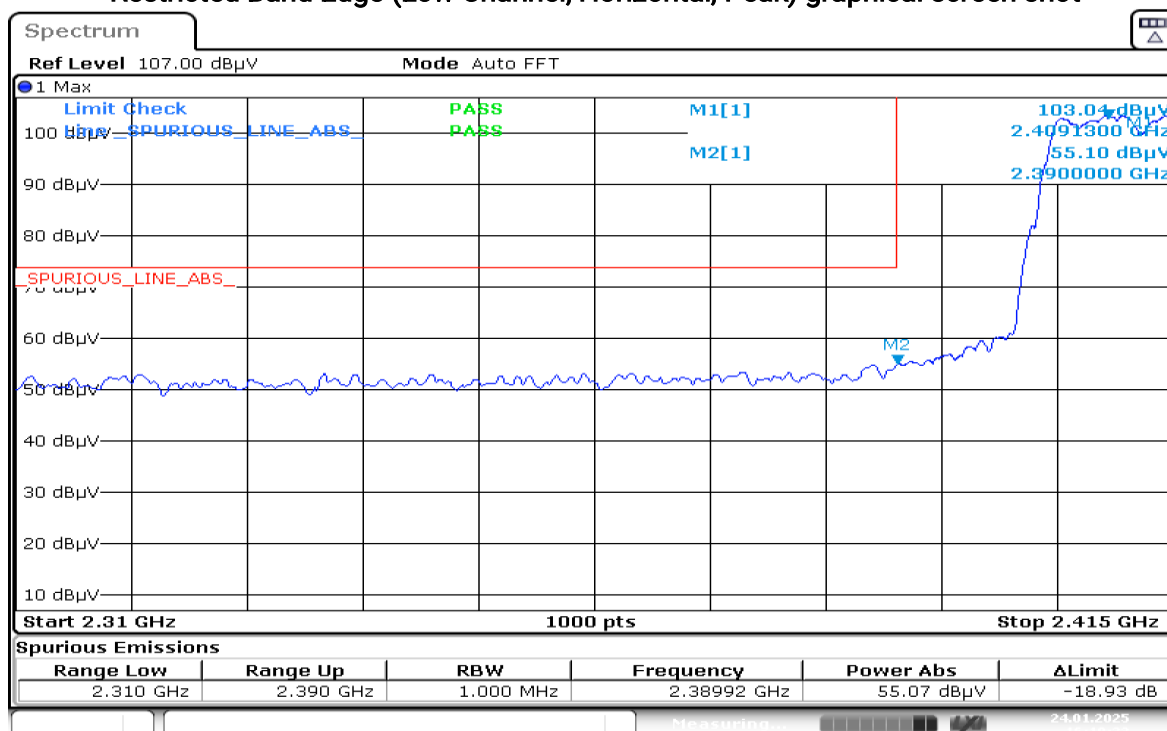
Temperature (degC): 22.5	Humidity (%): 63.1
Test Performed by: Aiman	Test Date: Fri, 24 Jan, 2025
System MU: 5.84dB	

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



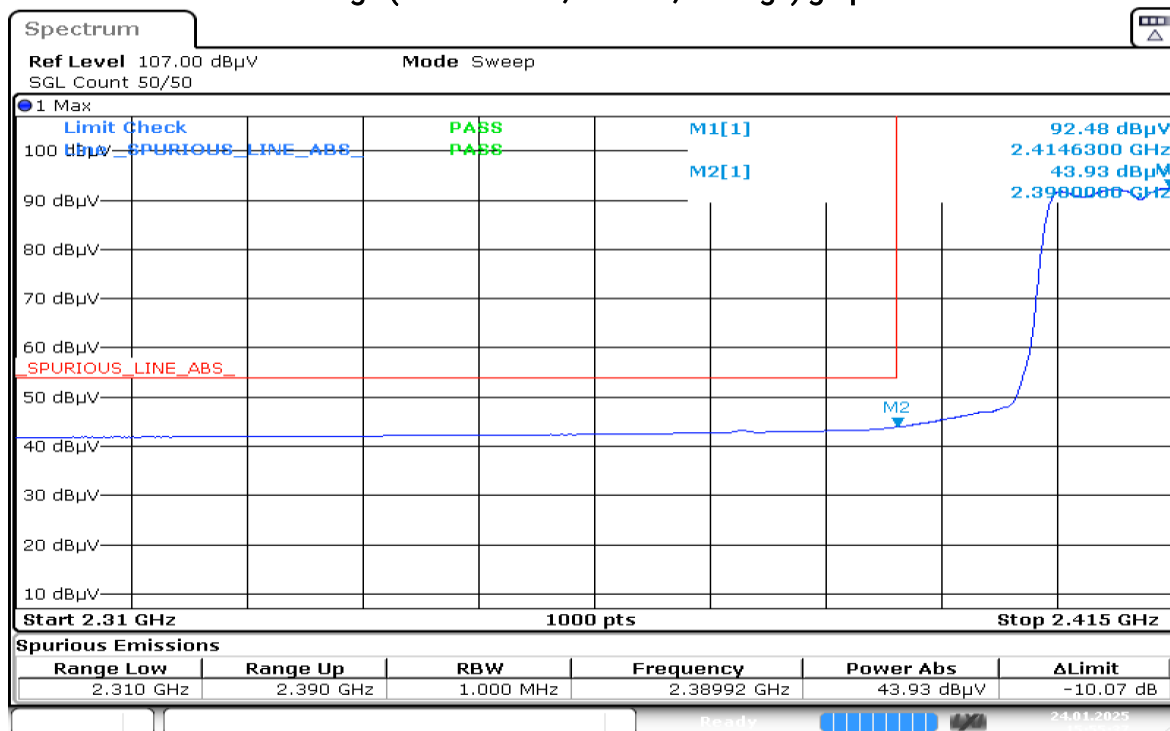
Date: 24.JAN.2025 16:06:36

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



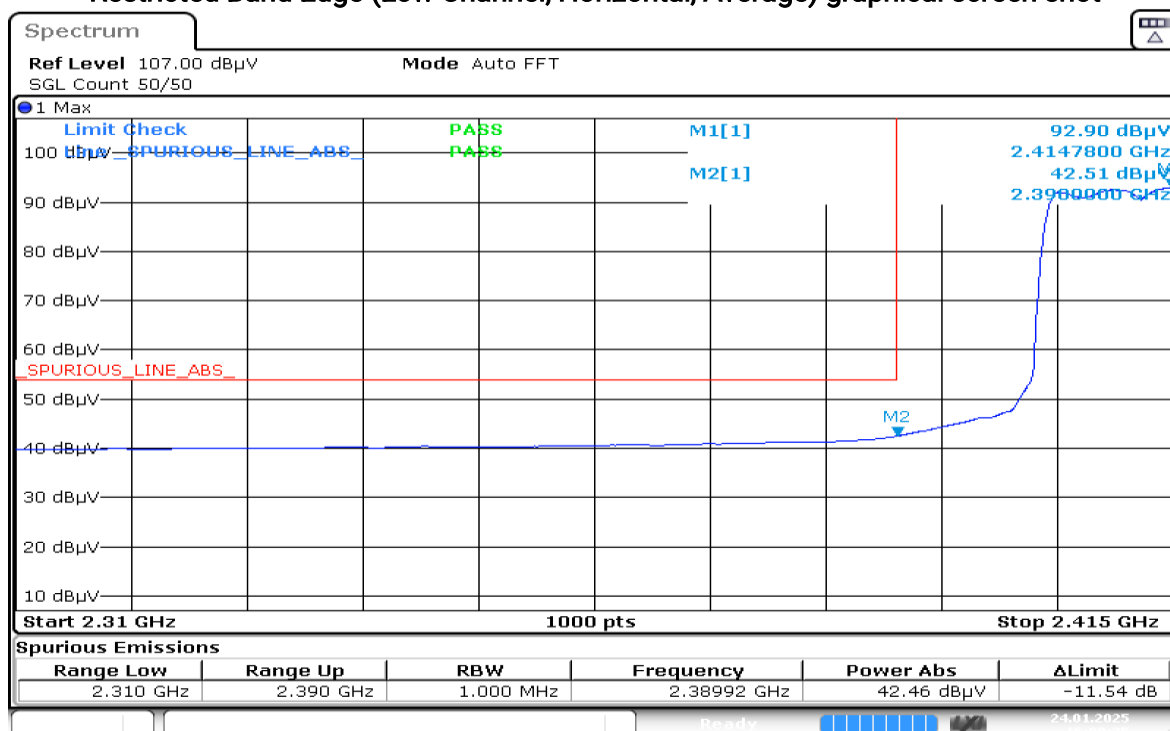
Date: 24.JAN.2025 16:10:33

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



Date: 24.JAN.2025 15:55:38

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



Date: 24.JAN.2025 16:00:35

Test: WIFI SAC Restricted Band Edge	EMC SR ID#: 1057N00-EMC-00026
Model Number: VX650	S/N: 9903EBA0048
Battery: PMNN4893A	
Accessory: NA	
Test Channel: High	Test Frequency: 2462.0000 MHz
Test Standard: ANSI C63.10-2013	Worst Case Plane: Z-Plane
Modulation: 802.11n_20	Softpot power (10)

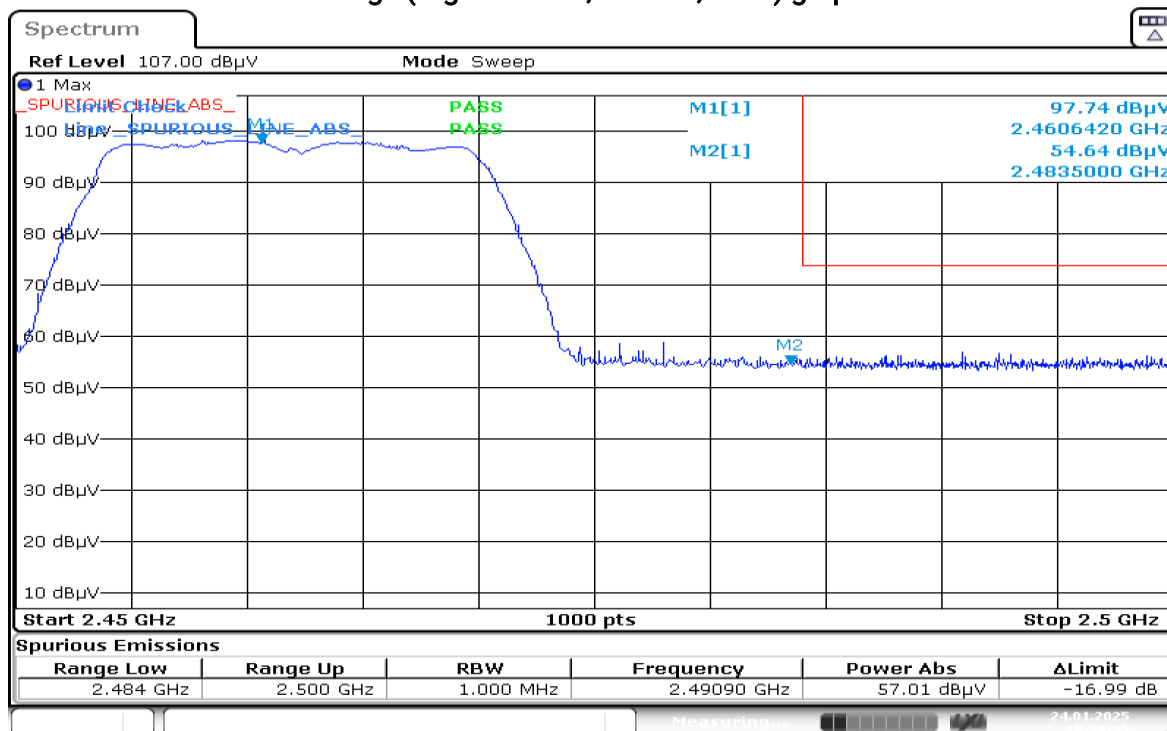
Restricted Band Edge (High Channel) tabular data

[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

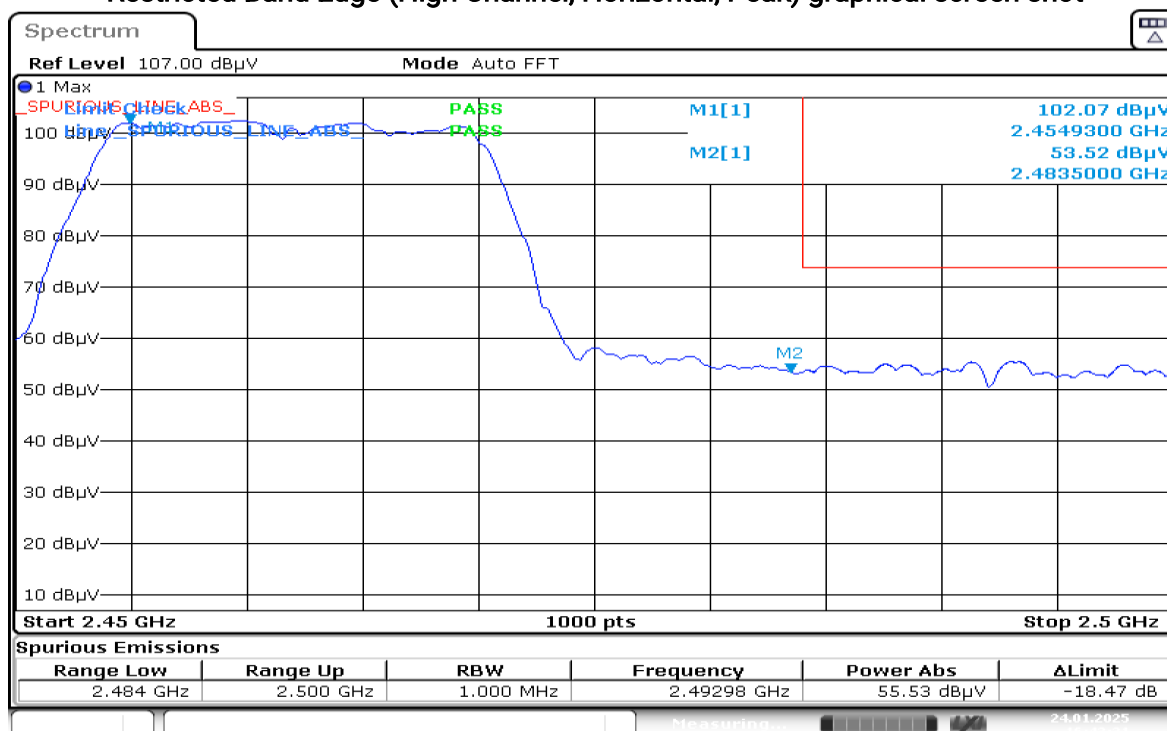
Temperature (degC): 22.5	Humidity (%): 63.1
Test Performed by: Aiman	Test Date: Fri, 24 Jan, 2025
Svstem MU: 5.84dB	

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



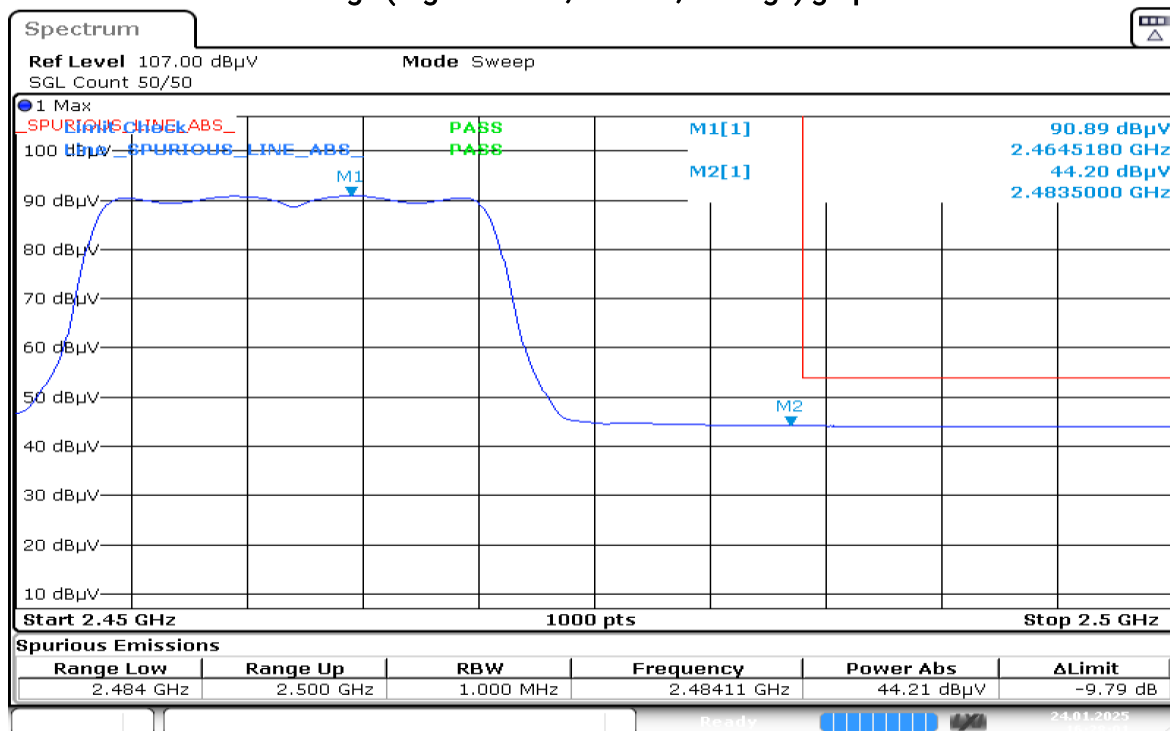
Date: 24.JAN.2025 16:39:35

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



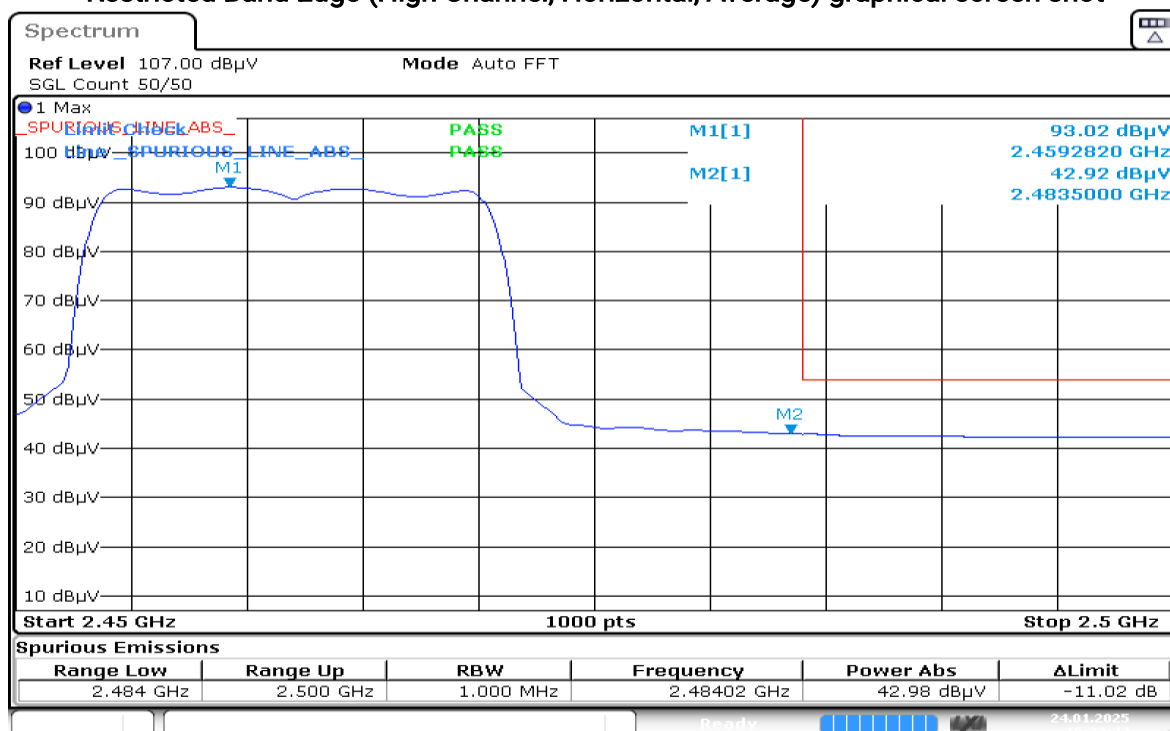
Date: 24.JAN.2025 16:43:31

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



Date: 24.JAN.2025 16:28:01

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



Date: 24.JAN.2025 16:32:45

Test: WIFI SAC Restricted Band Edge	EMC SR ID#: 1057N00-EMC-00026
Model Number: VX650	S/N: 9903EBA0048
Battery: PMNN4893A	
Accessory: NA	
Test Channel: Low	Test Frequency: 2422.0000 MHz
Test Standard: ANSI C63.10-2013	Worst Case Plane: Z-Plane
Modulation: 802.11n_40	Softpot power (9)

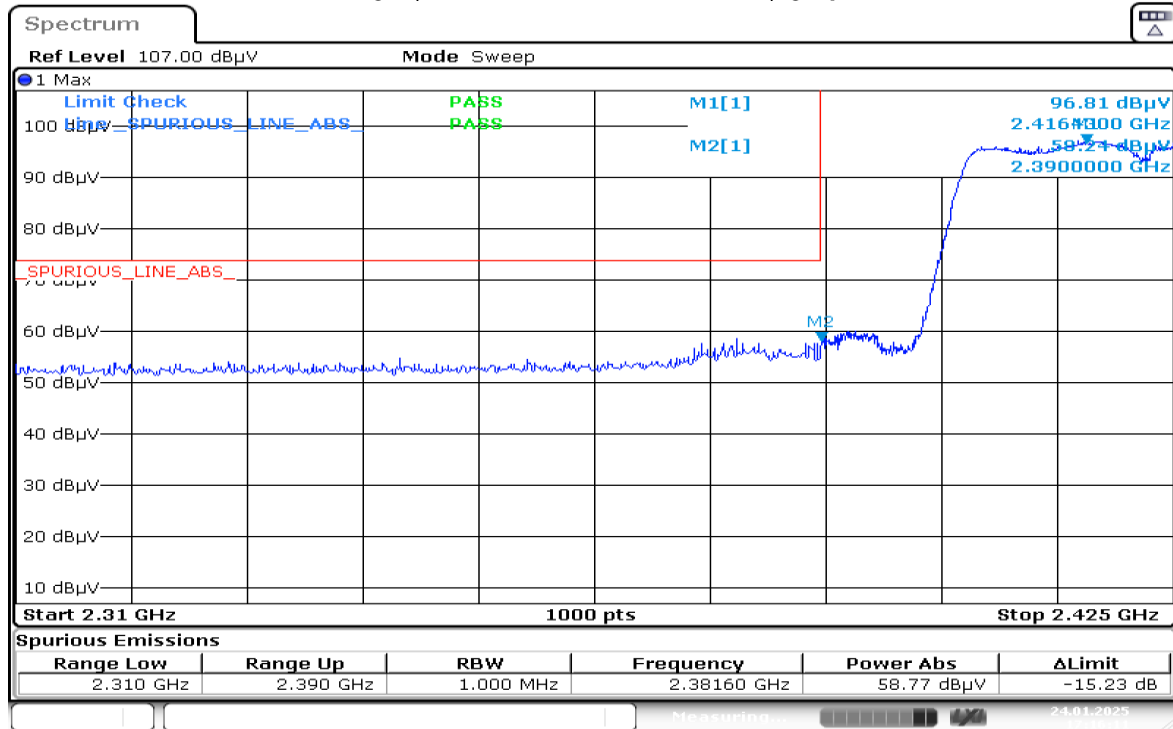
Vertical Radiated Emission Result

[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

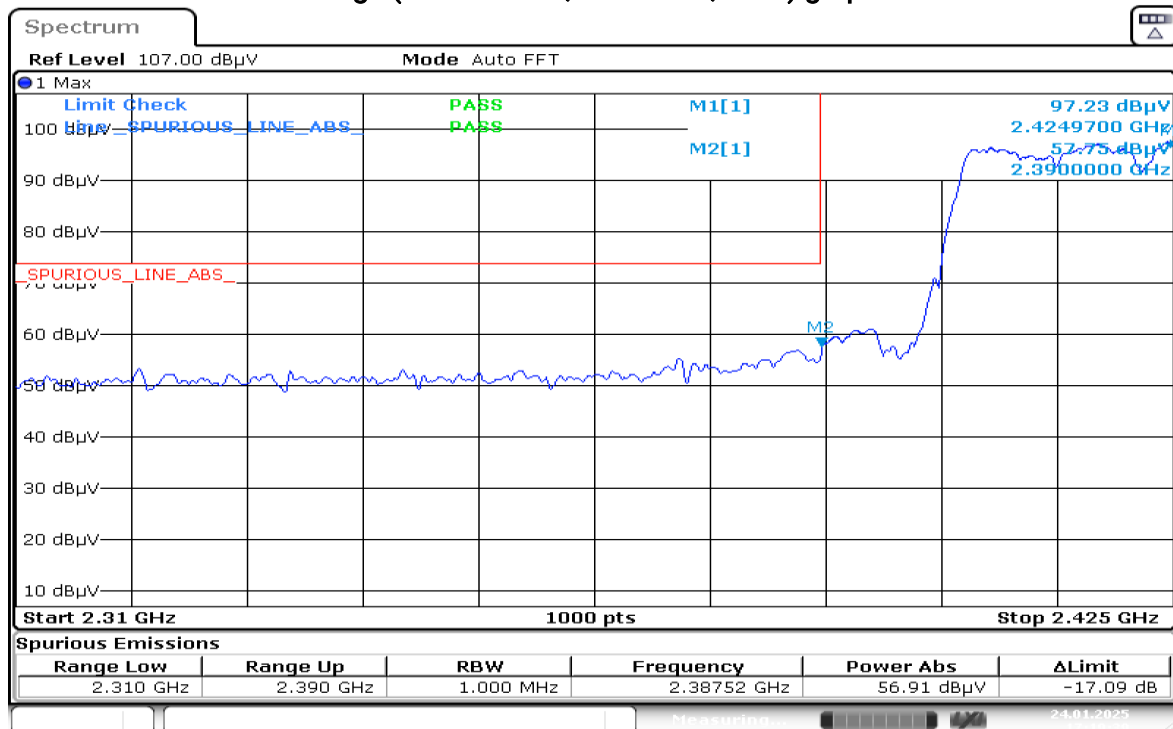
Temperature (degC): 22.5	Humidity (%): 63.1
Test Performed by: Aiman	Test Date: Fri, 24 Jan, 2025
Svstem MU: 5.84dB	

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



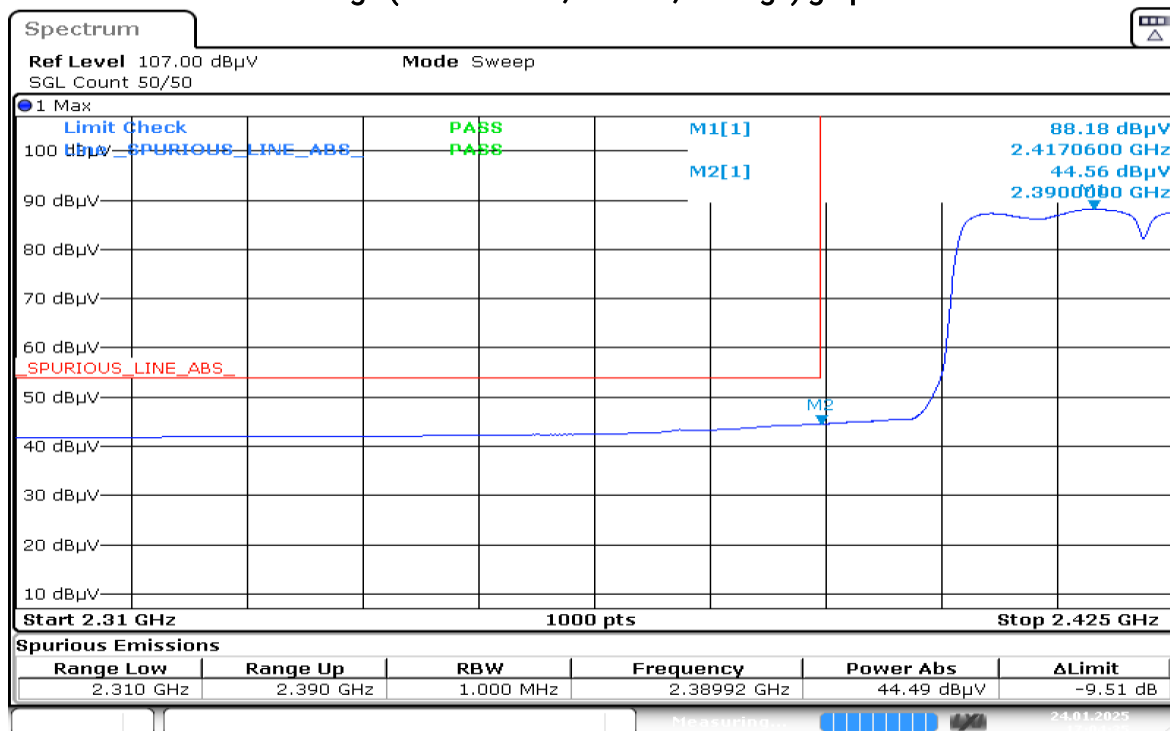
Date: 24.JAN.2025 17:16:11

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



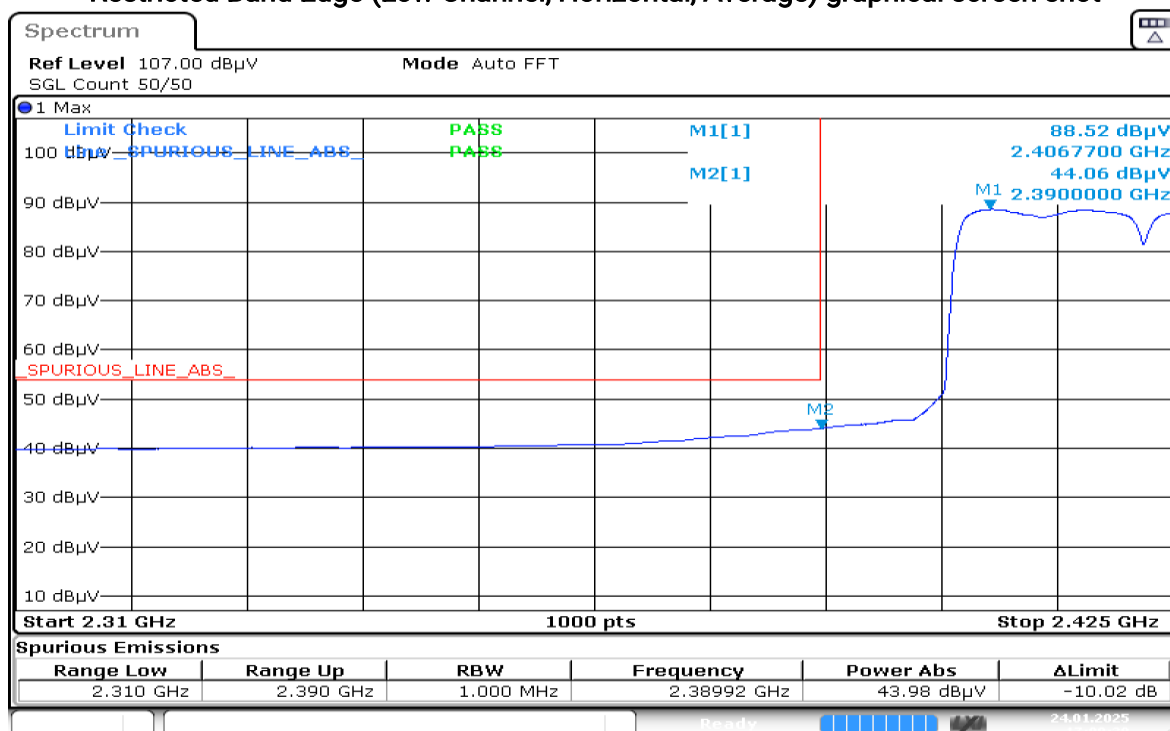
Date: 24.JAN.2025 17:19:39

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



Date: 24.JAN.2025 17:04:36

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



Date: 24.JAN.2025 17:09:39

Test: WIFI SAC Restricted Band Edge	EMC SR ID#: 1057N00-EMC-00026
Model Number: VX650	S/N: 9903EBA0048
Battery: PMNN4893A	
Accessory: NA	
Test Channel: High	Test Frequency: 2452.0000 MHz
Test Standard: ANSI C63.10-2013	Worst Case Plane: Z-Plane
Modulation: 802.11n_40	Softpot power (9)

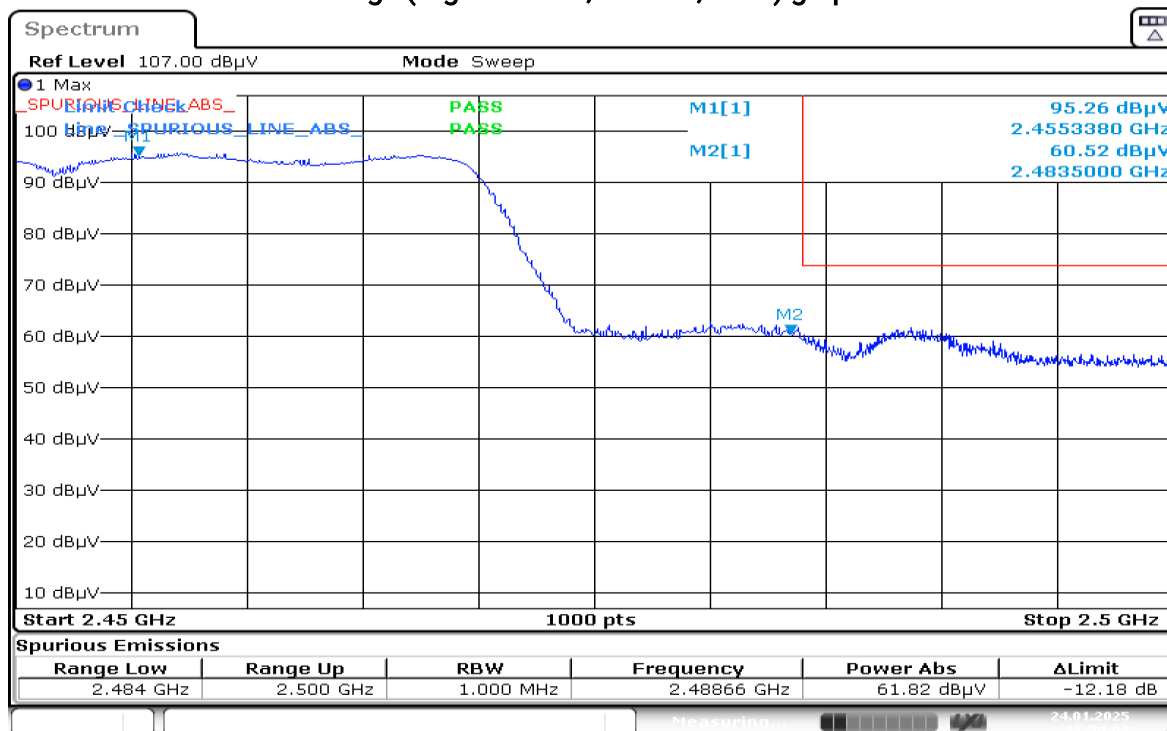
Vertical Radiated Emission Result

[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

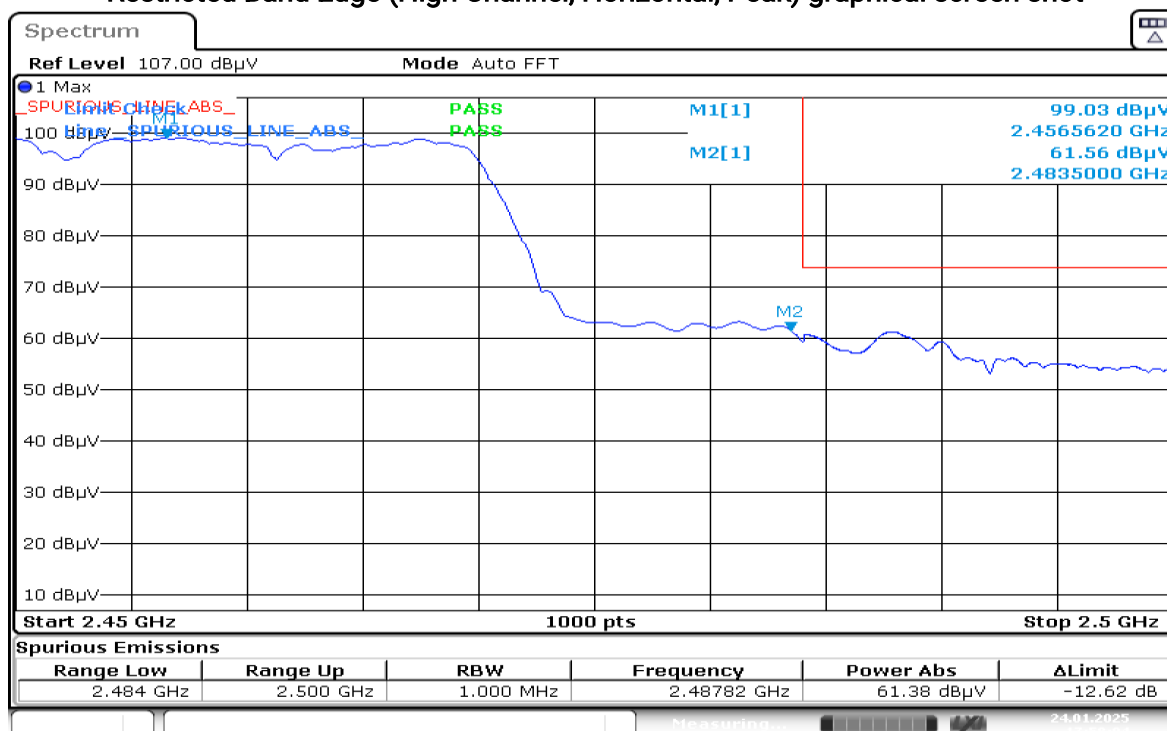
Temperature (degC): 22.5	Humidity (%): 63.1
Test Performed by: Aiman	Test Date: Sat, 25 Jan, 2025
Svstem MU: 5.84dB	

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



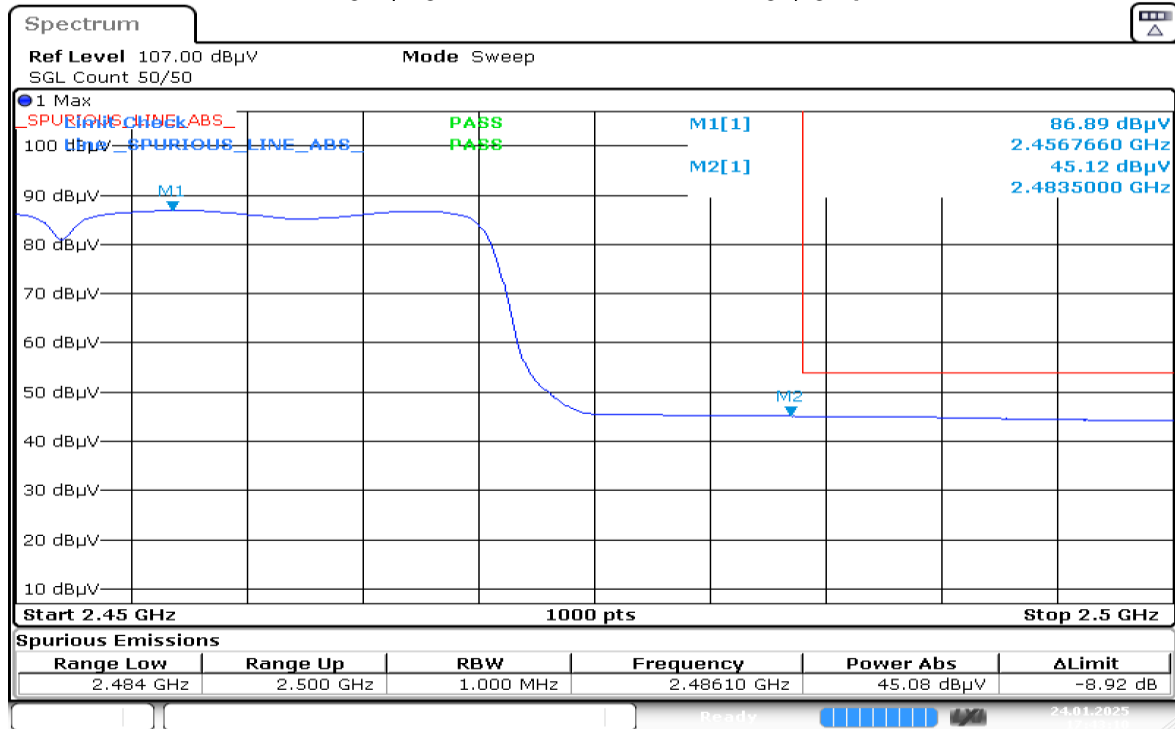
Date: 24.JAN.2025 17:54:04

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



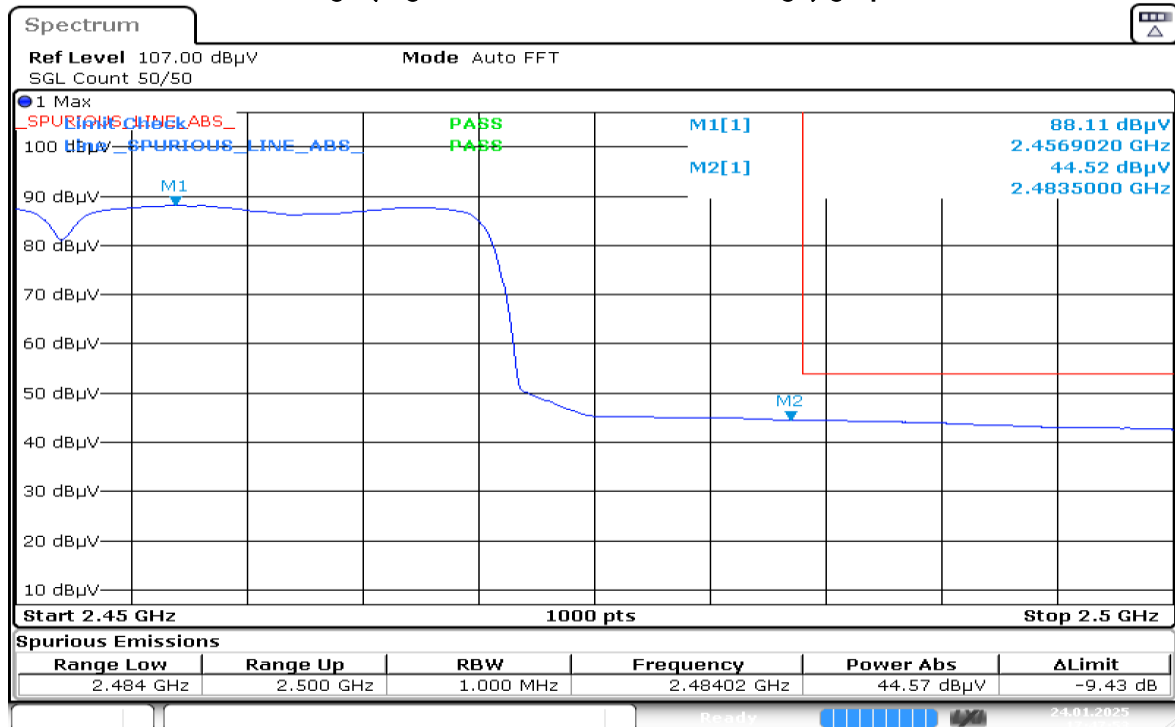
Date: 24.JAN.2025 17:58:04

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



Date: 24.JAN.2025 17:43:11

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



Date: 24.JAN.2025 17:47:53

Test: WIFI SAC Transmitter Radiated Emission	EMC SR ID#: 1057N00-EMC-00026
Model Number: VX650	S/N: 9903EBA0048
Battery: PMNN4893A	
Accessory: NA	
Test Channel: Low	Test Frequency: 2412.0000 MHz
Test Standard: ANSI C63.10-2013	Worst Case Plane: Z-Plane
Modulation: 802.11b	Softpot power (15)

Radiated Emission (Low Channel) tabular data

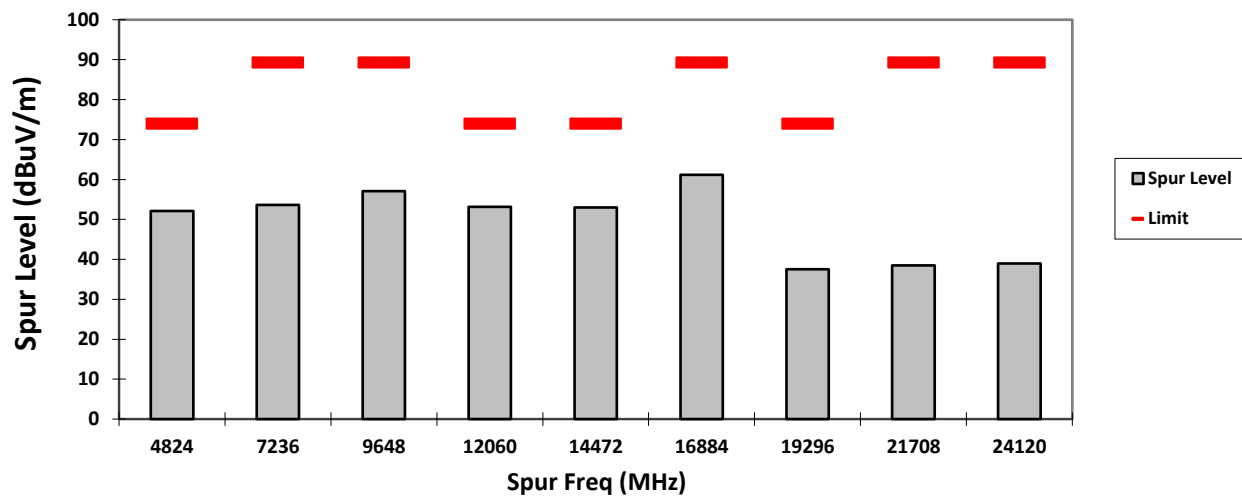
Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBμV/m)	Spur level PK (dBμV/m)	Spur level AV (dBμV/m)	Limit QPK (dBμV/m)	Limit PK (dBμV/m)	Limit AV (dBμV/m)	Margin QPK (dB)	Margin PK (dB)	Margin AV (dB)	Carrier PK Power (dBμV/m)
4824	-	52.1062**	-	-	74.0000	-	-	21.8938	-	-
7236	-	53.6460**	-	-	89.2736	-	-	35.6276	-	109.2736
9648	-	57.0702**	-	-	89.2736	-	-	32.2034	-	109.2736
12060	-	53.1266**	52.0779**	-	74.0000	54.0000	-	20.8734	1.9221	-
14472	-	52.9770**	51.8414**	-	74.0000	54.0000	-	21.0230	2.1586	-
16884	-	61.1807**	-	-	89.2736	-	-	28.0929	-	109.2736
19296	-	37.4995**	-	-	74.0000	-	-	36.5005	-	-
21708	-	38.4560**	-	-	89.2736	-	-	50.8176	-	109.2736
24120	-	38.9670**	-	-	89.2736	-	-	50.3066	-	109.2736
Horizontal Radiated Emission Result										
4824	-	49.2804**	-	-	74.0000	-	-	24.7196	-	-
7236	-	54.7278**	-	-	89.2736	-	-	34.5458	-	109.2736
9648	-	56.1469**	-	-	89.2736	-	-	33.1267	-	109.2736
12060	-	52.9456**	52.1660**	-	74.0000	54.0000	-	21.0544	1.8340	-
14472	-	52.6384**	51.8374**	-	74.0000	54.0000	-	21.3616	2.1626	-
16884	-	61.2694**	-	-	89.2736	-	-	28.0042	-	109.2736
19296	-	38.6044**	-	-	74.0000	-	-	35.3956	-	-
21708	-	37.7483**	-	-	89.2736	-	-	51.5253	-	109.2736
24120	-	37.4347**	-	-	89.2736	-	-	51.8389	-	109.2736

Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

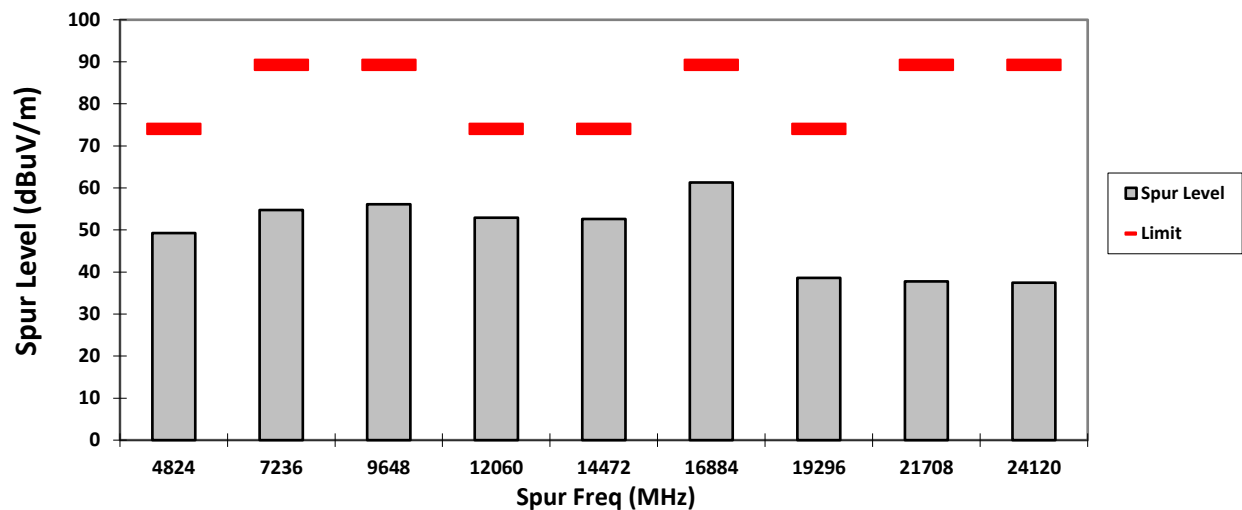
Temperature (degC): 22.5	Humidity (%): 63.1
Test Performed by: Aiman	Test Date: Thu, 23 Jan, 2025
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)	

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.

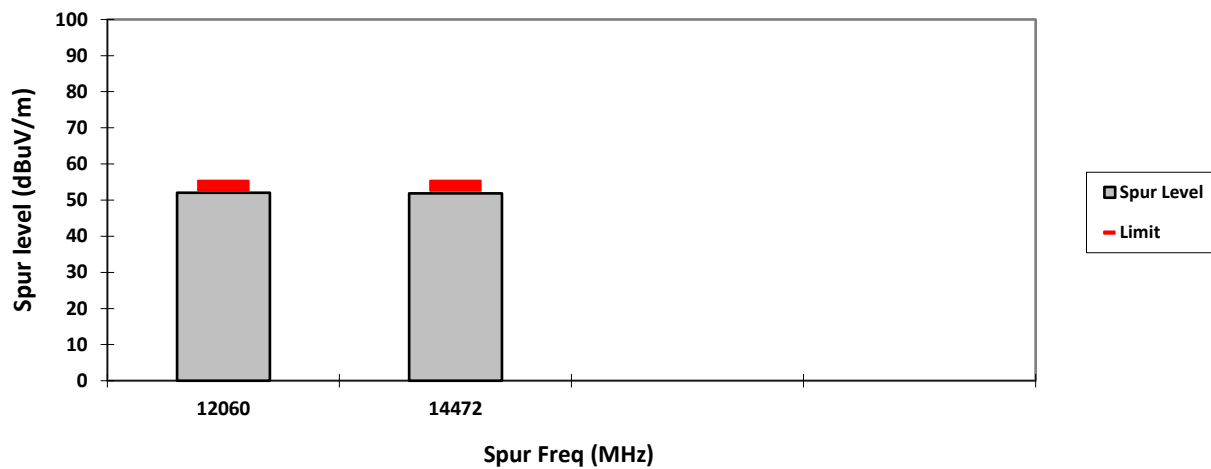
VERTICAL, PK



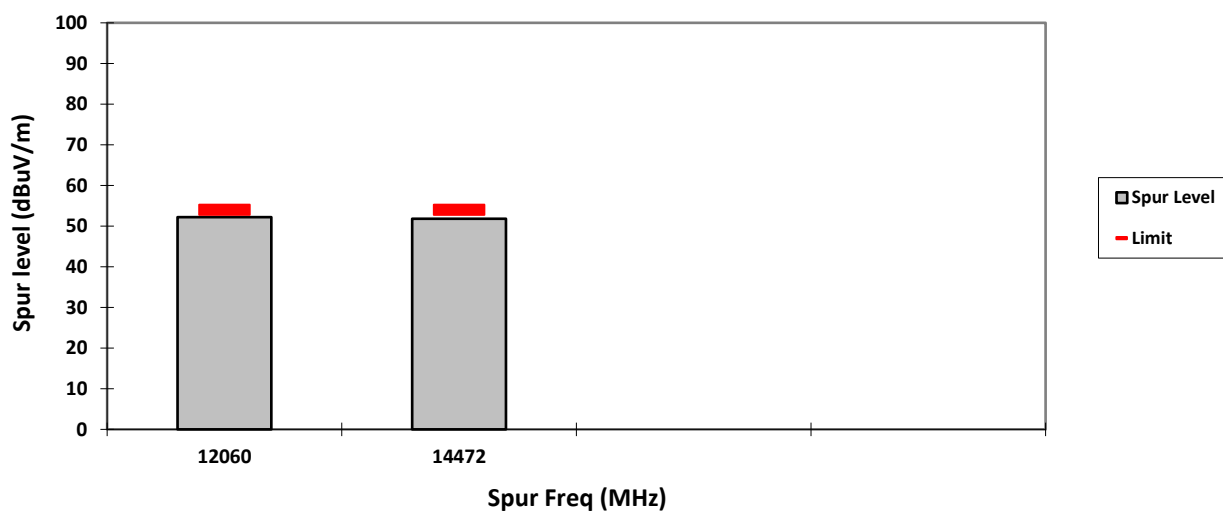
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Test: WIFI SAC Transmitter Radiated Emission	EMC SR ID#: 1057N00-EMC-00026
Model Number: VX650	S/N: 9903EBA0048
Battery: PMNN4893A	
Accessory: NA	
Test Channel: Mid	Test Frequency: 2437.0000 MHz
Test Standard: ANSI C63.10-2013	Worst Case Plane: Z-Plane
Modulation: 802.11b	Softpot power (18)

Radiated Emission (Mid Channel) tabular data

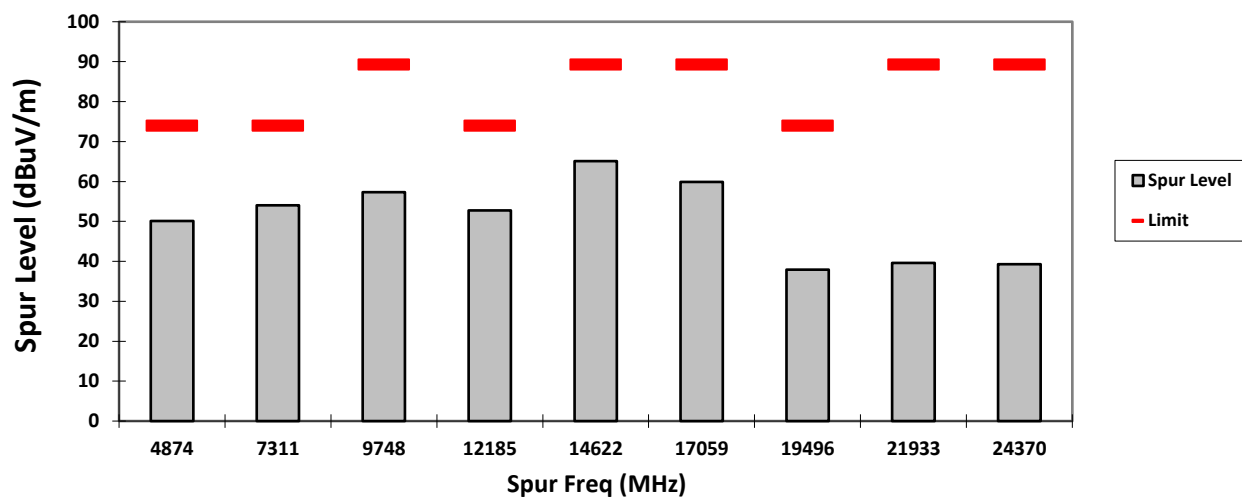
[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

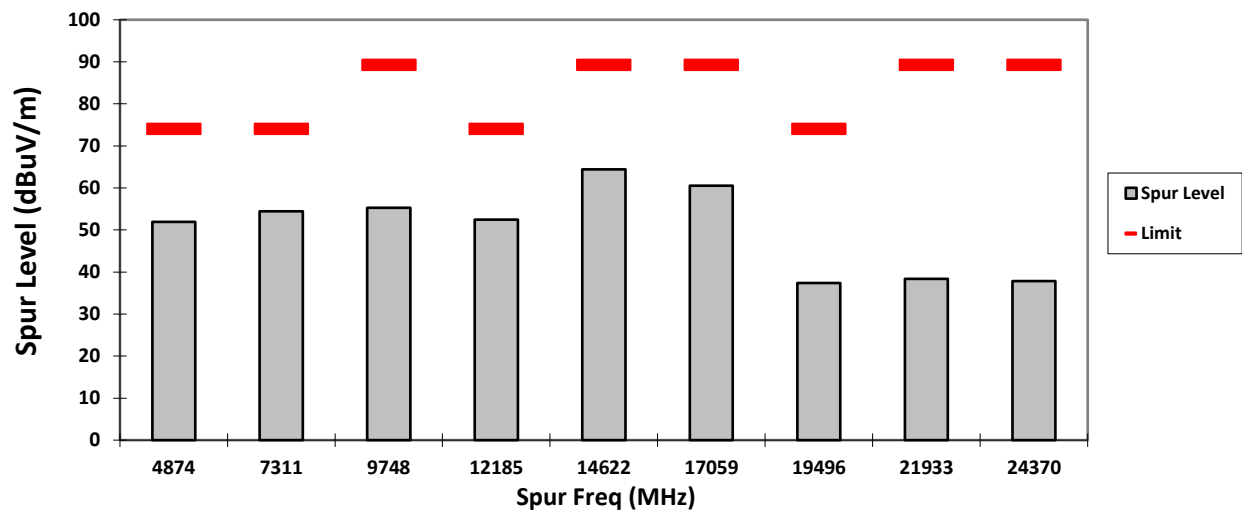
Temperature (degC): 22.5	Humidity (%): 63.1
Test Performed by: Aiman	Test Date: Thu, 23 Jan, 2025
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)	

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.

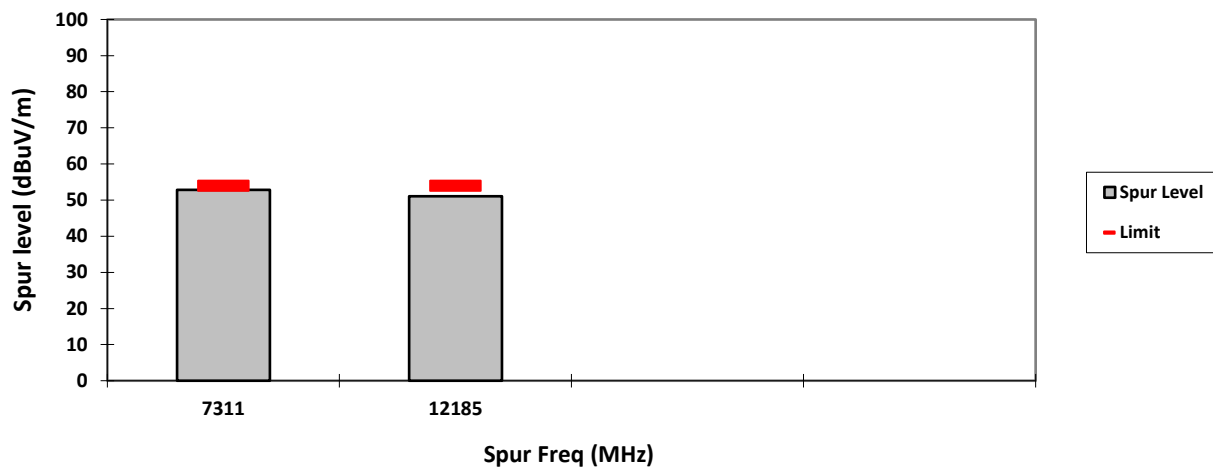
VERTICAL, PK



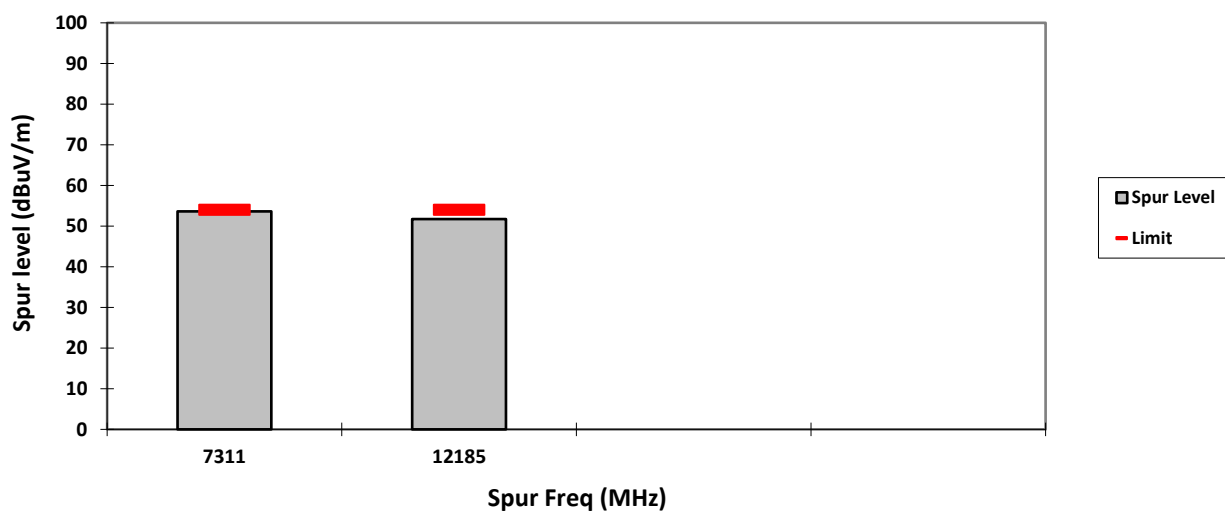
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Test: WIFI SAC Transmitter Radiated Emission	EMC SR ID#: 1057N00-EMC-00026
Model Number: VX650	S/N: 9903EBA0048
Battery: PMNN4893A	
Accessory: NA	
Test Channel: High	Test Frequency: 2462.0000 MHz
Test Standard: ANSI C63.10-2013	Worst Case Plane: Z-Plane
Modulation: 802.11b	Softpot power (16)

Radiated Emission (High Channel) tabular data

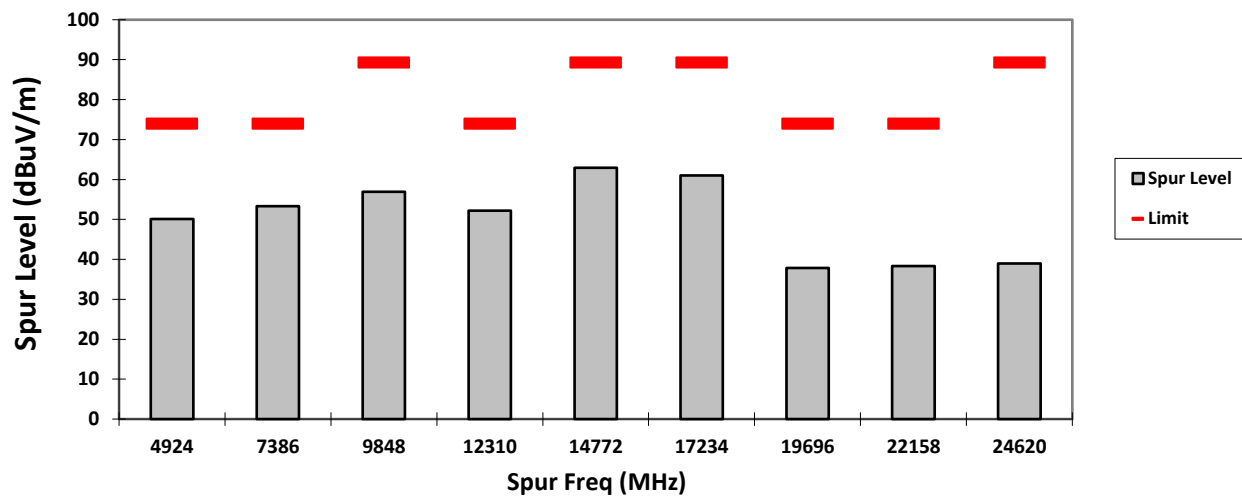
Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBμV/m)	Spur level PK (dBμV/m)	Spur level AV (dBμV/m)	Limit QPK (dBμV/m)	Limit PK (dBμV/m)	Limit AV (dBμV/m)	Margin QPK (dB)	Margin PK (dB)	Margin AV (dB)	Carrier PK Power (dBμV/m)
4924	-	50.0723**	-	-	74.0000	-	-	23.9277	-	-
7386	-	53.3518**	52.3788**	-	74.0000	54.0000	-	20.6482	1.6212	-
9848	-	56.9387**	-	-	89.2736	-	-	32.3349	-	109.2736
12310	-	52.2195**	51.1187**	-	74.0000	54.0000	-	21.7805	2.8813	-
14772	-	62.9339**	-	-	89.2736	-	-	26.3397	-	109.2736
17234	-	61.0318**	-	-	89.2736	-	-	28.2418	-	109.2736
19696	-	37.8179**	-	-	74.0000	-	-	36.1821	-	-
22158	-	38.2958**	-	-	74.0000	-	-	35.7042	-	-
24620	-	38.9791**	-	-	89.2736	-	-	50.2945	-	109.2736
Horizontal Radiated Emission Result										
4924	-	51.4533**	-	-	74.0000	-	-	22.5467	-	-
7386	-	53.6737**	53.033**	-	74.0000	54.0000	-	20.3263	0.9670	-
9848	-	56.9500**	-	-	89.2736	-	-	32.3236	-	109.2736
12310	-	52.7507**	51.6836**	-	74.0000	54.0000	-	21.2493	2.3164	-
14772	-	62.7355**	-	-	89.2736	-	-	26.5381	-	109.2736
17234	-	62.5574**	-	-	89.2736	-	-	26.7162	-	109.2736
19696	-	37.3624**	-	-	74.0000	-	-	36.6376	-	-
22158	-	39.2748**	-	-	74.0000	-	-	34.7252	-	-
24620	-	38.1384**	-	-	89.2736	-	-	51.1352	-	109.2736

Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

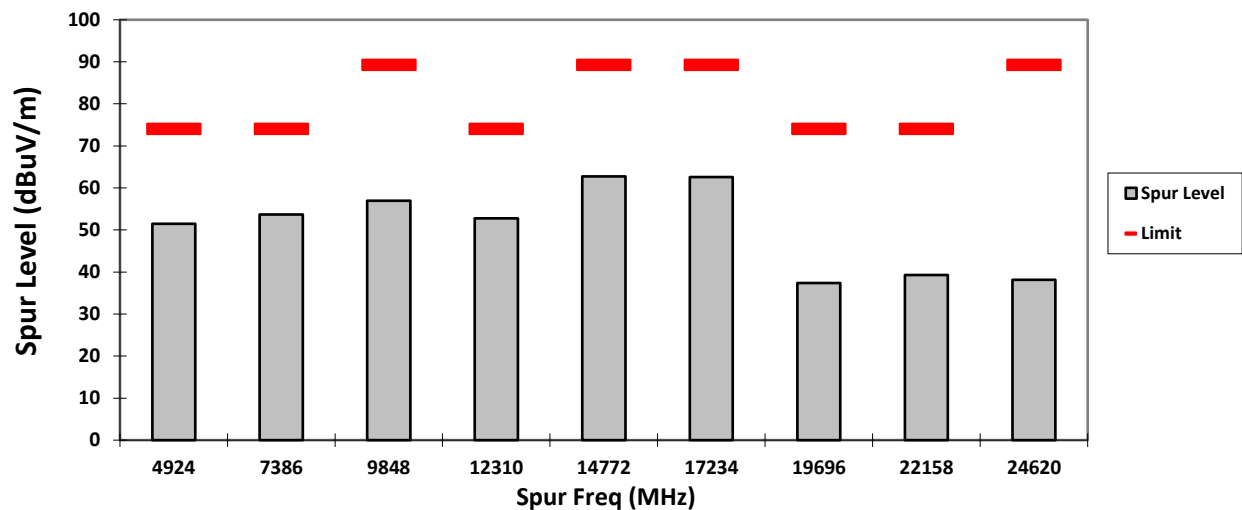
Temperature (degC): 22.5	Humidity (%): 63.1
Test Performed by: Aiman	Test Date: Thu, 23 Jan, 2025
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)	

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.

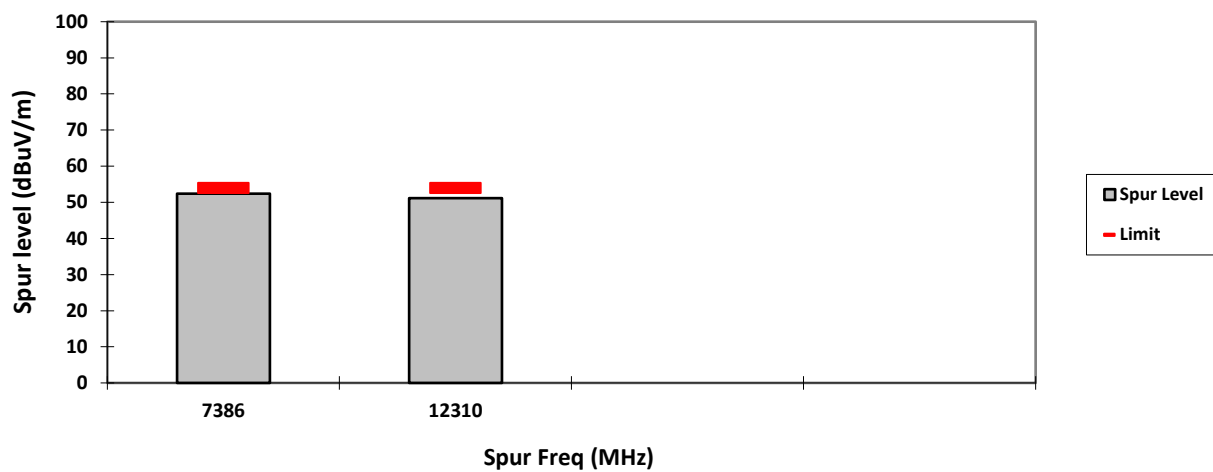
VERTICAL, PK



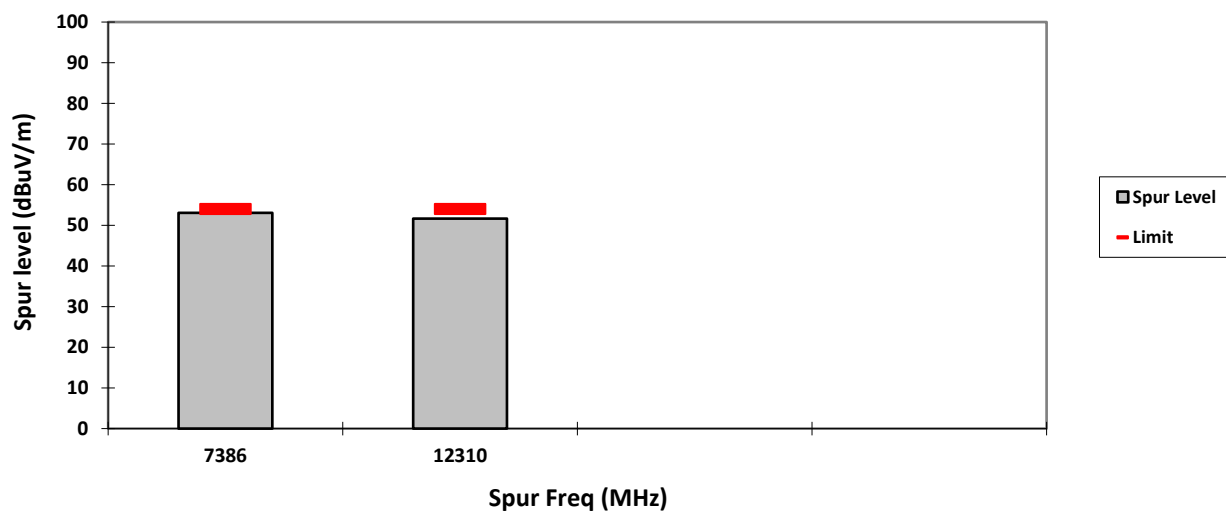
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Test: WIFI SAC Transmitter Radiated Emission	EMC SR ID#: 1057N00-EMC-00026
Model Number: VX650	S/N: 9903EBA0048
Battery: PMNN4893A	
Accessory: NA	
Test Channel: Low	Test Frequency: 2412.0000 MHz
Test Standard: ANSI C63.10-2013	Worst Case Plane: Z-Plane
Modulation: 802.11g	Softpot power (11)

Radiated Emission (Low Channel) tabular data

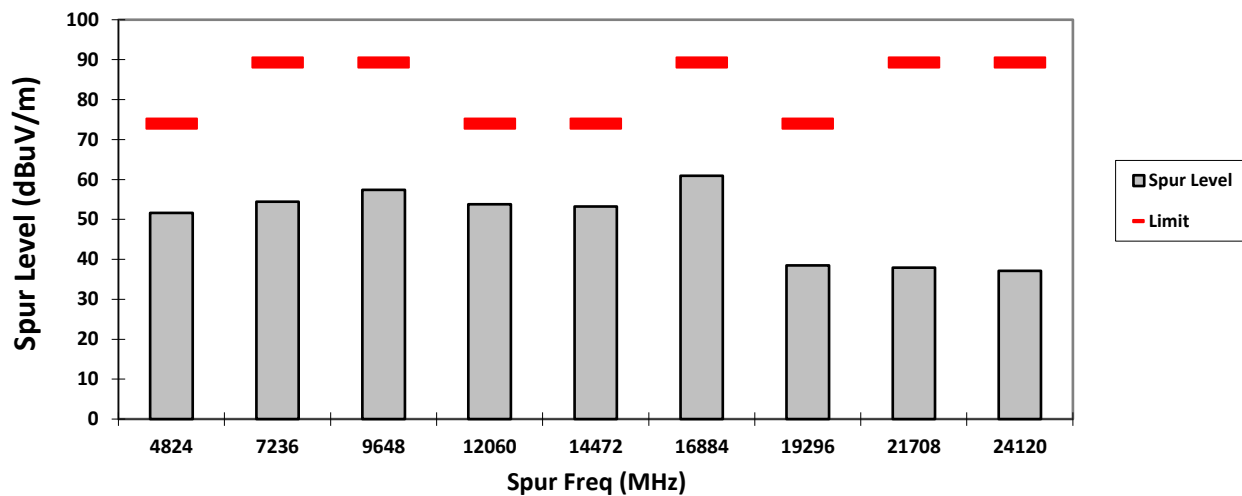
[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

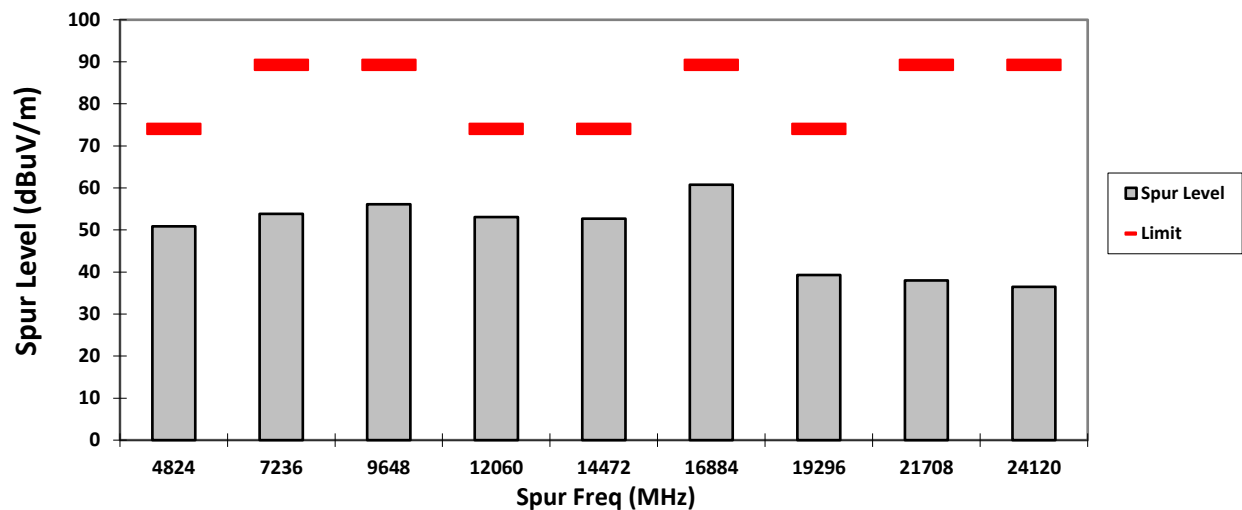
Temperature (degC): 22.5	Humidity (%): 63.1
Test Performed by: Aiman	Test Date: Thu, 23 Jan, 2025
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)	

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.

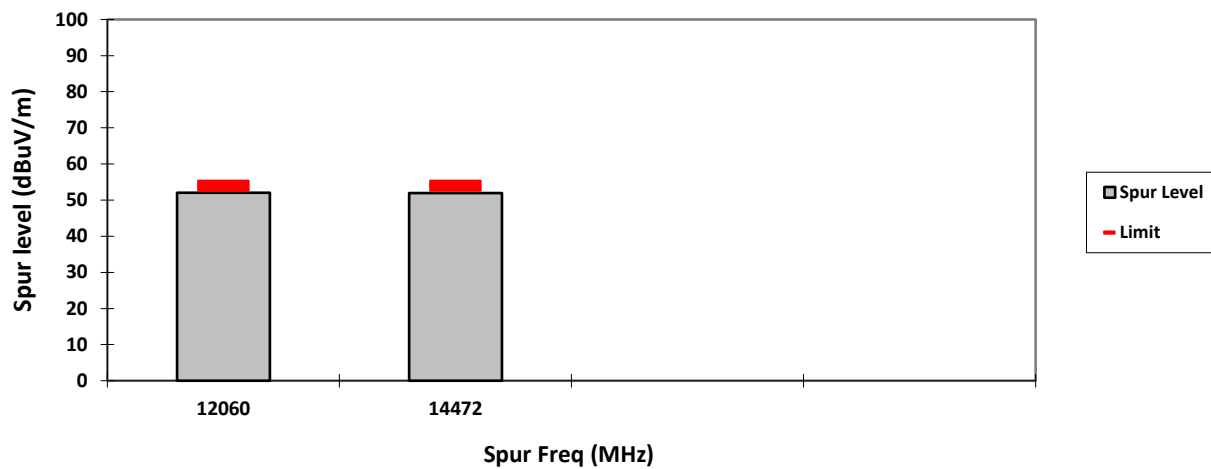
VERTICAL, PK



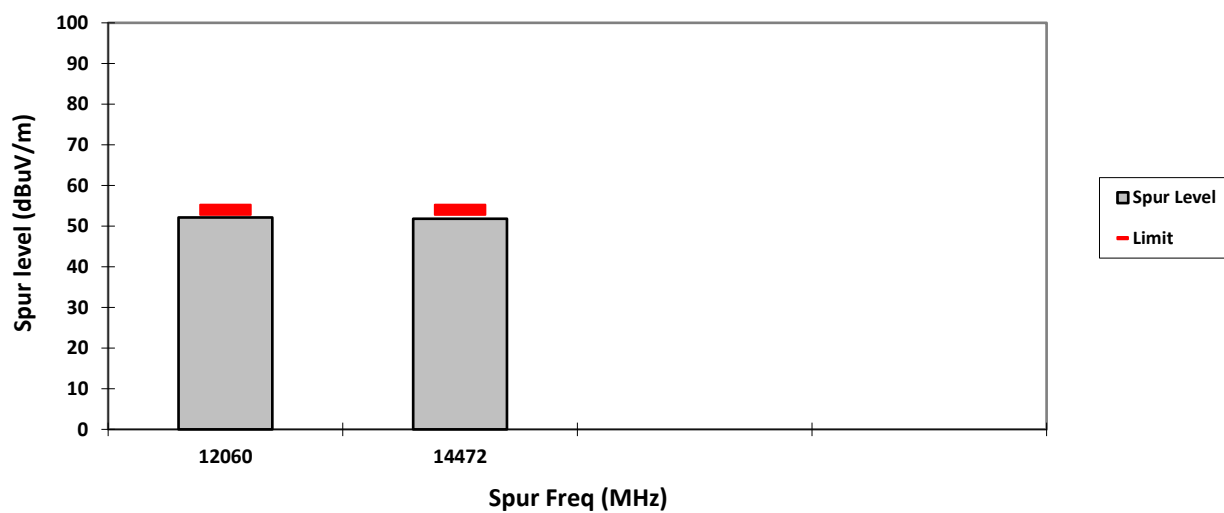
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Test: WIFI SAC Transmitter Radiated Emission	EMC SR ID#: 1057N00-EMC-00026
Model Number: VX650	S/N: 9903EBA0048
Battery: PMNN4893A	
Accessory: NA	
Test Channel: Mid	Test Frequency: 2437.0000 MHz
Test Standard: ANSI C63.10-2013	Worst Case Plane: Z-Plane
Modulation: 802.11g	Softspot power (16)

Radiated Emission (Mid Channel) tabular data

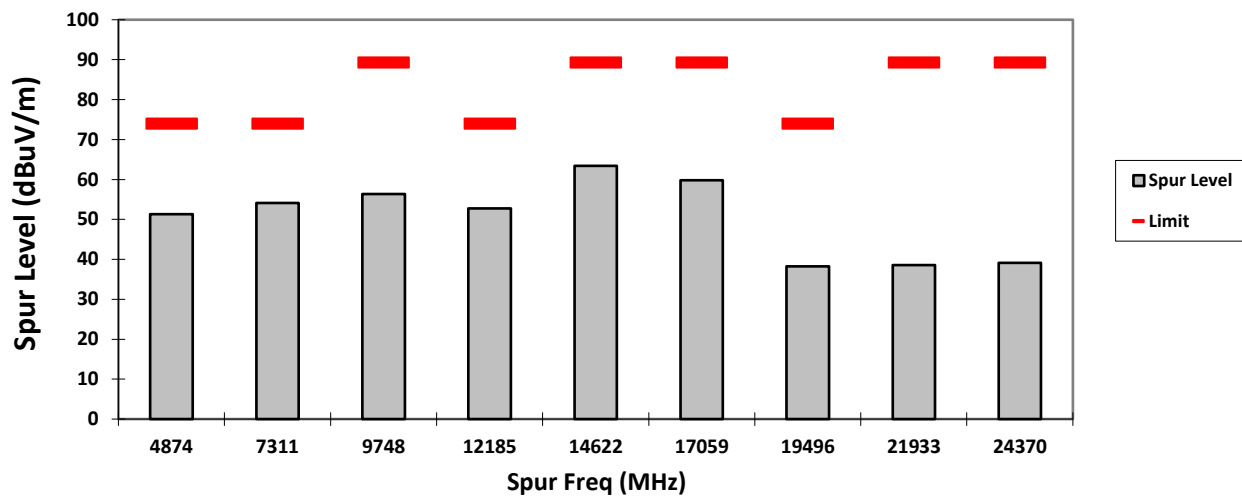
[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

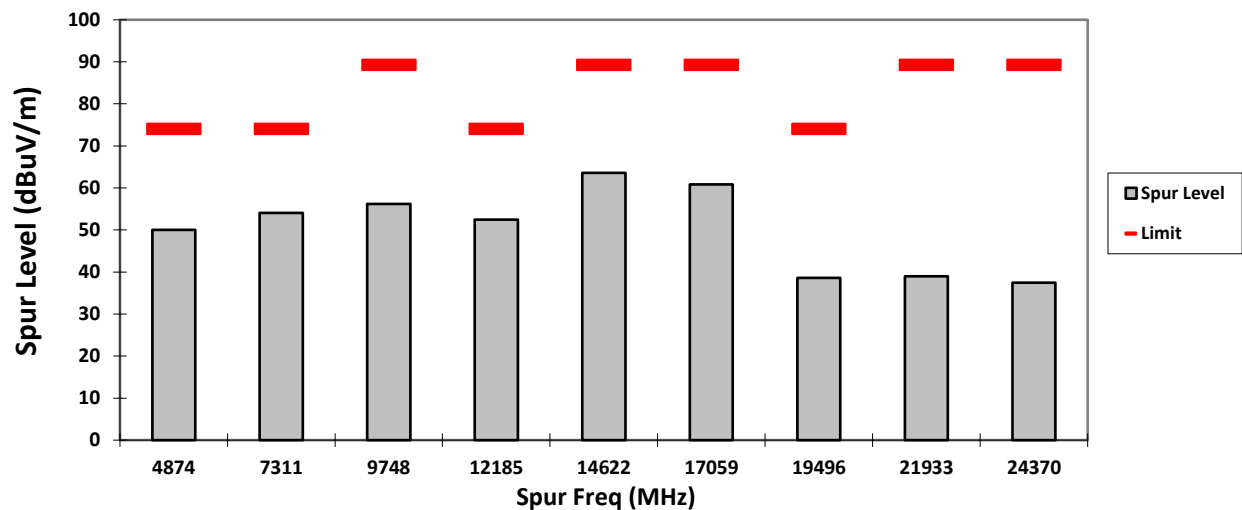
Temperature (degC): 22.5	Humidity (%): 63.1
Test Performed by: Aiman	Test Date: Thu, 23 Jan, 2025
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)	

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.

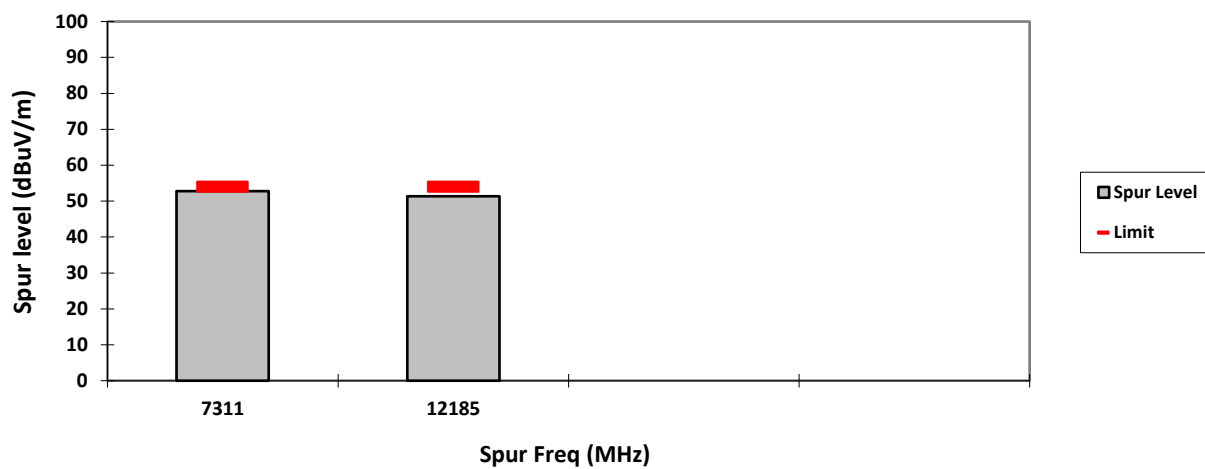
VERTICAL, PK



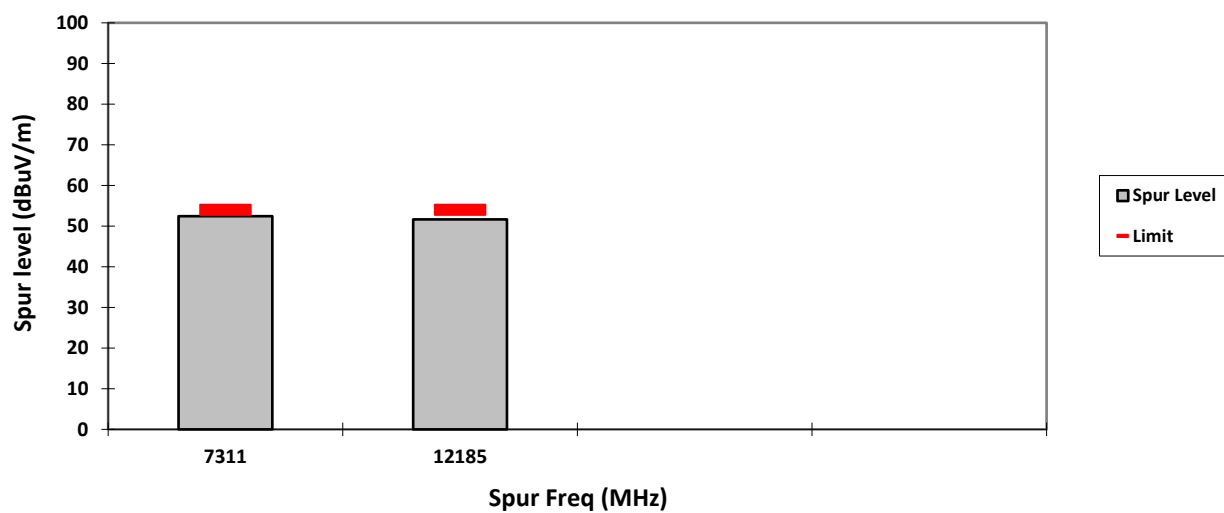
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Test: WIFI SAC Transmitter Radiated Emission	EMC SR ID#: 1057N00-EMC-00026
Model Number: VX650	S/N: 9903EBA0048
Battery: PMNN4893A	
Accessory: NA	
Test Channel: High	Test Frequency: 2462.0000 MHz
Test Standard: ANSI C63.10-2013	Worst Case Plane: Z-Plane
Modulation: 802.11g	Softspot power (11)

Radiated Emission (High Channel) tabular data

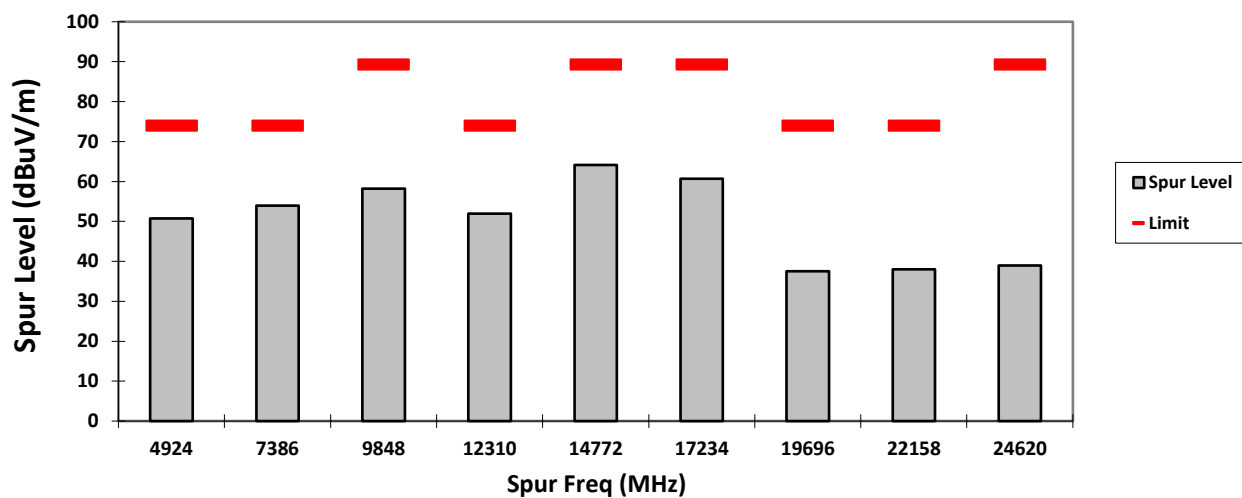
[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

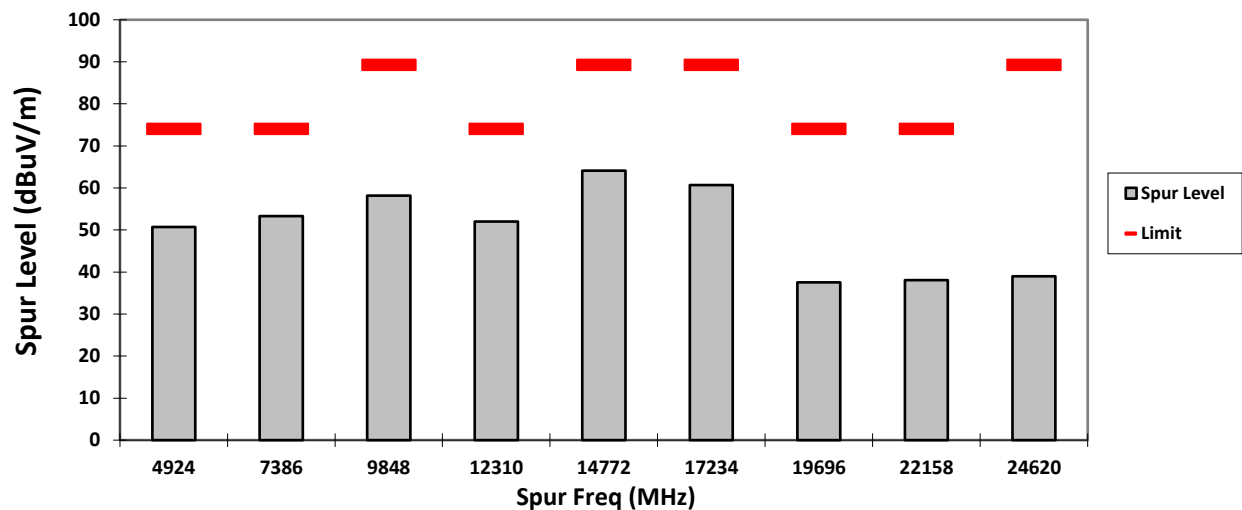
Temperature (degC): 22.5	Humidity (%): 63.1
Test Performed by: Aiman	Test Date: Thu, 23 Jan, 2025
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)	

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.

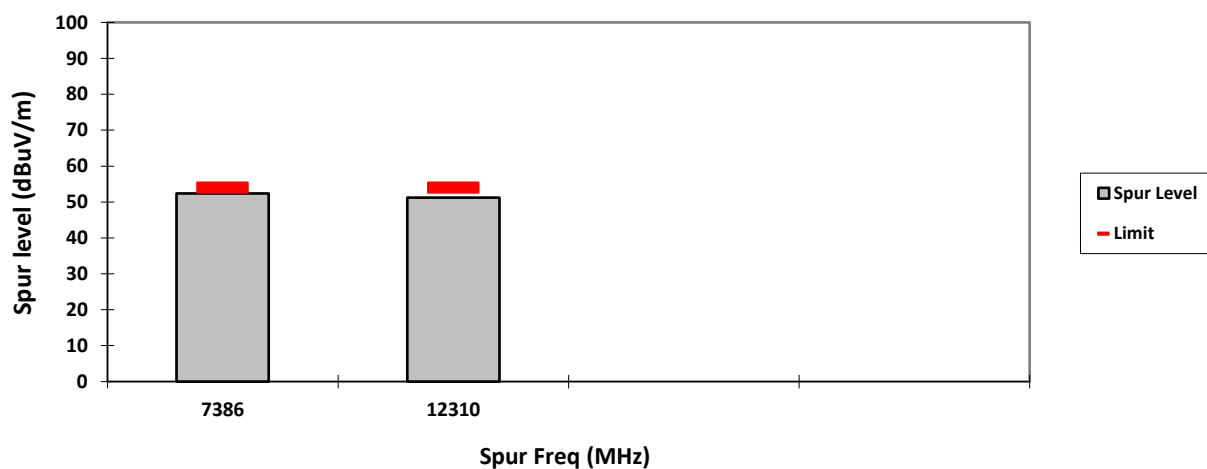
VERTICAL, PK



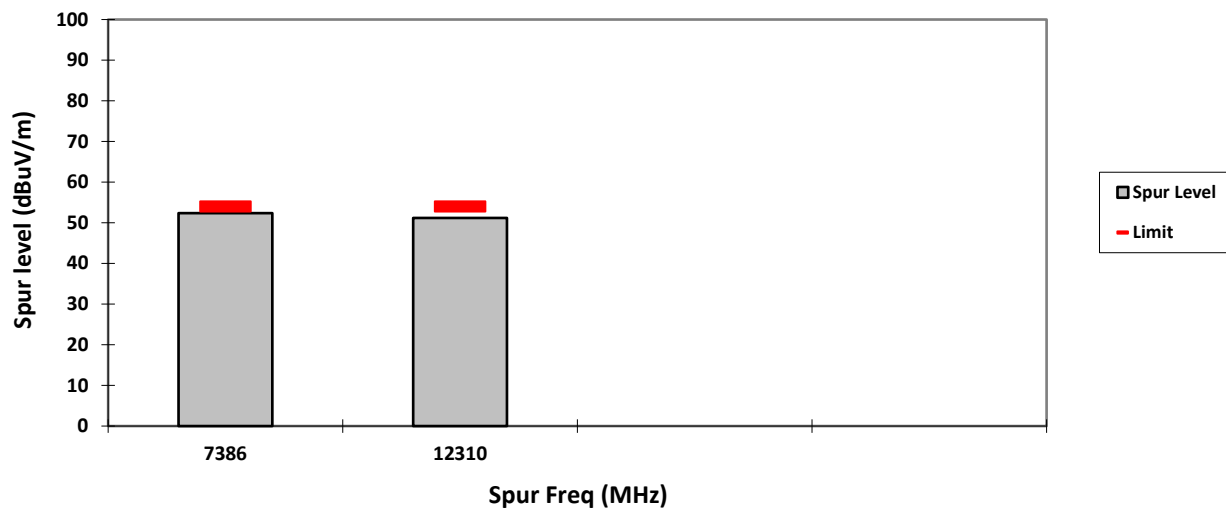
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Test: WIFI SAC Transmitter Radiated Emission	EMC SR ID#: 1057N00-EMC-00026
Model Number: VX650	S/N: 9903EBA0048
Battery: PMNN4893A	
Accessory: NA	
Test Channel: Low	Test Frequency: 2412.0000 MHz
Test Standard: ANSI C63.10-2013	Worst Case Plane: Z-Plane
Modulation: 802.11n20	Softpot power (10)

Radiated Emission (Low Channel) tabular data

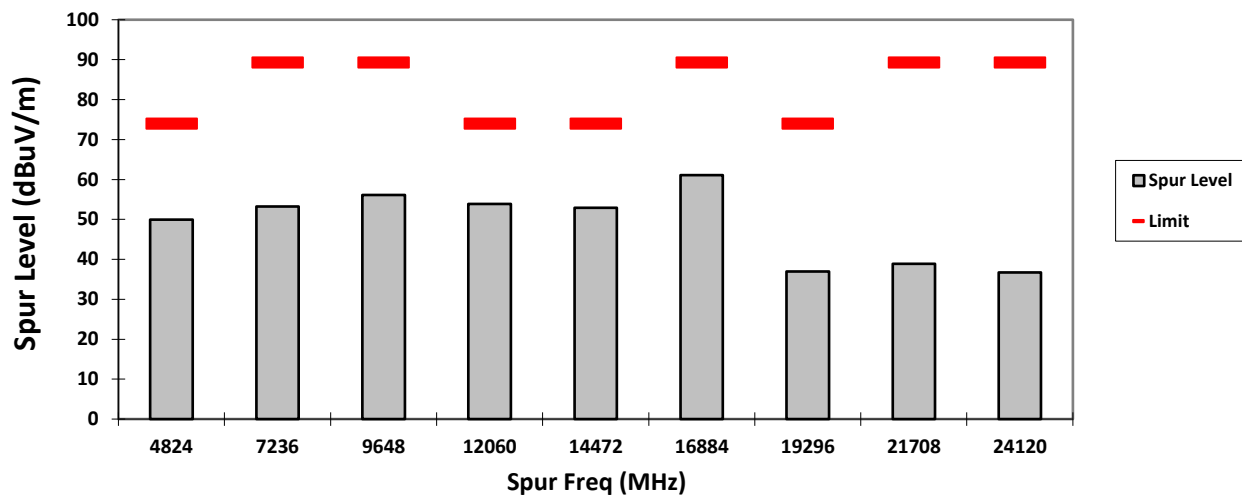
[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

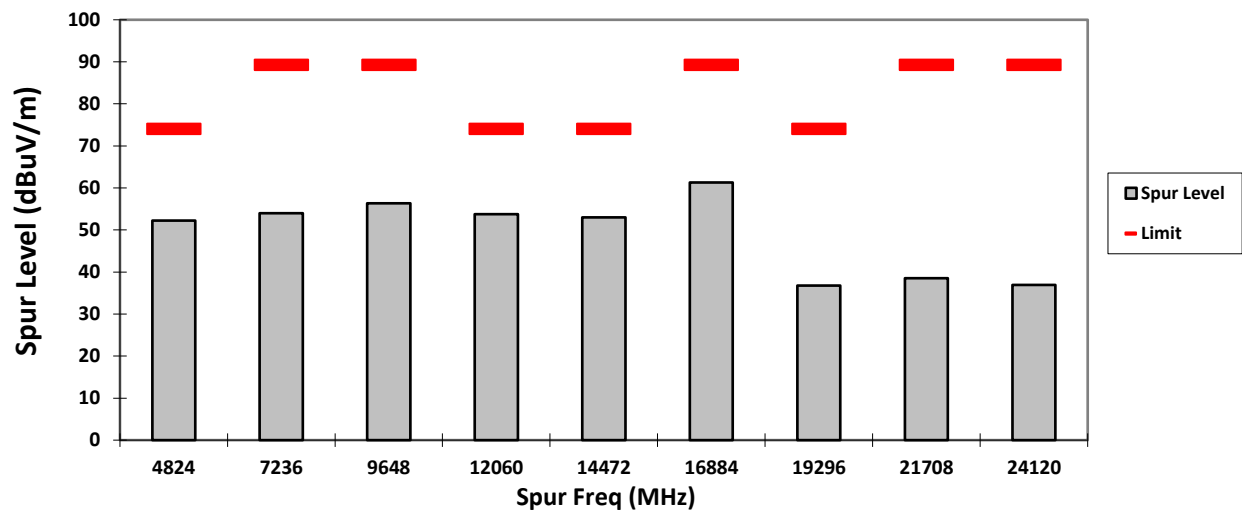
Temperature (degC): 22.5	Humidity (%): 63.1
Test Performed by: Aiman	Test Date: Thu, 23 Jan, 2025
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)	

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.

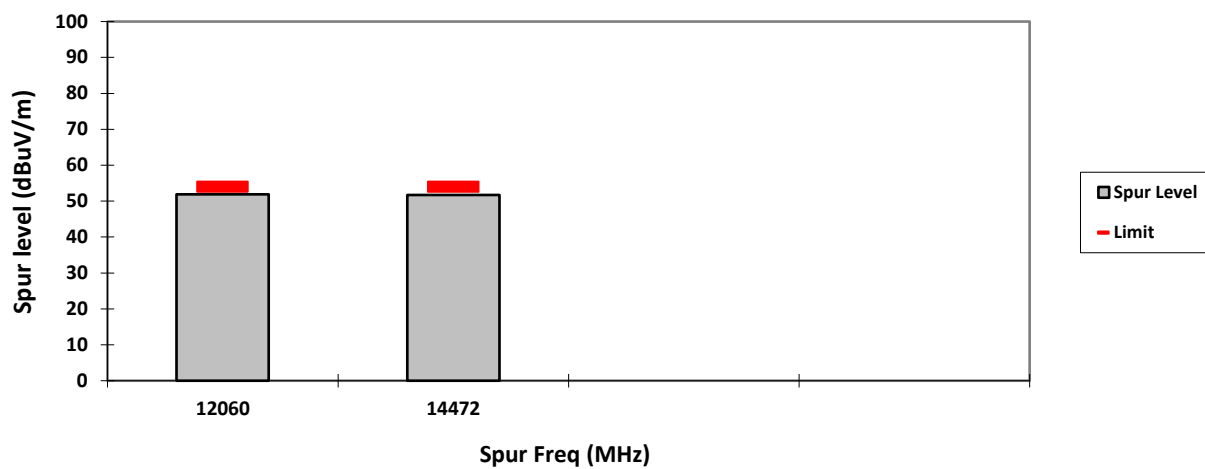
VERTICAL, PK



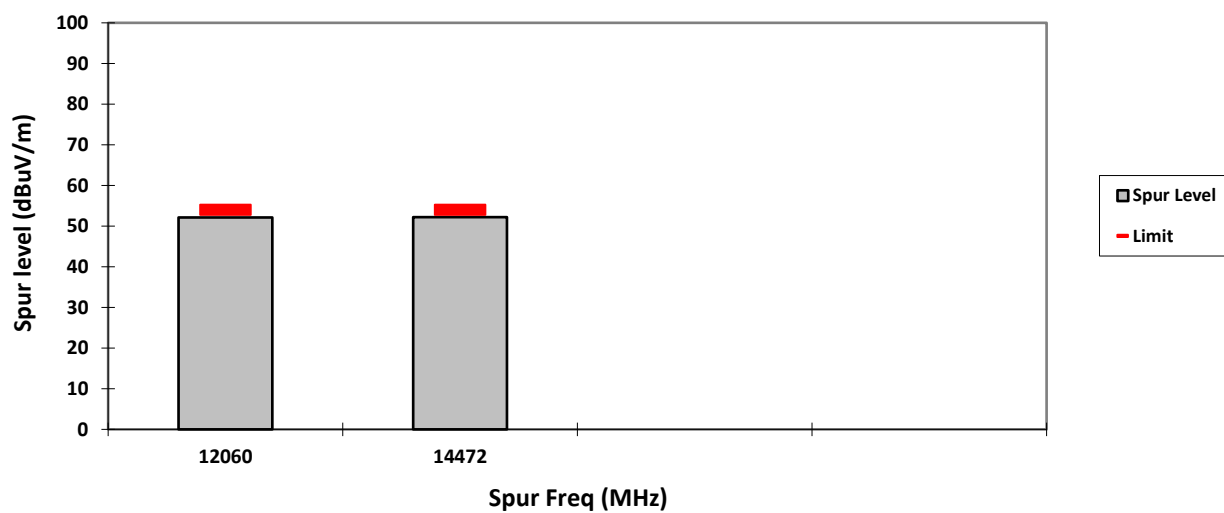
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Test: WIFI SAC Transmitter Radiated Emission	EMC SR ID#: 1057N00-EMC-00026
Model Number: VX650	S/N: 9903EBA0048
Battery: PMNN4893A	
Accessory: NA	
Test Channel: Mid	Test Frequency: 2437.0000 MHz
Test Standard: ANSI C63.10-2013	Worst Case Plane: Z-Plane
Modulation: 802.11n20	Softpot power (15)

Radiated Emission (Mid Channel) tabular data

[illegible]

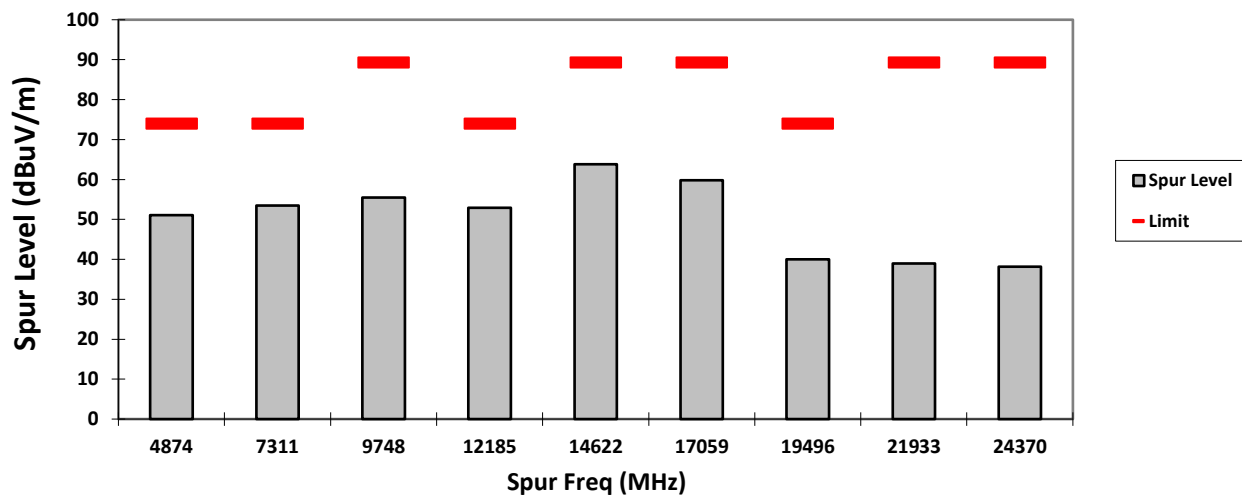
Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

Temperature (degC): 22.5	Humidity (%): 63.1
Test Performed by: Aiman	Test Date: Thu, 23 Jan, 2025
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)	

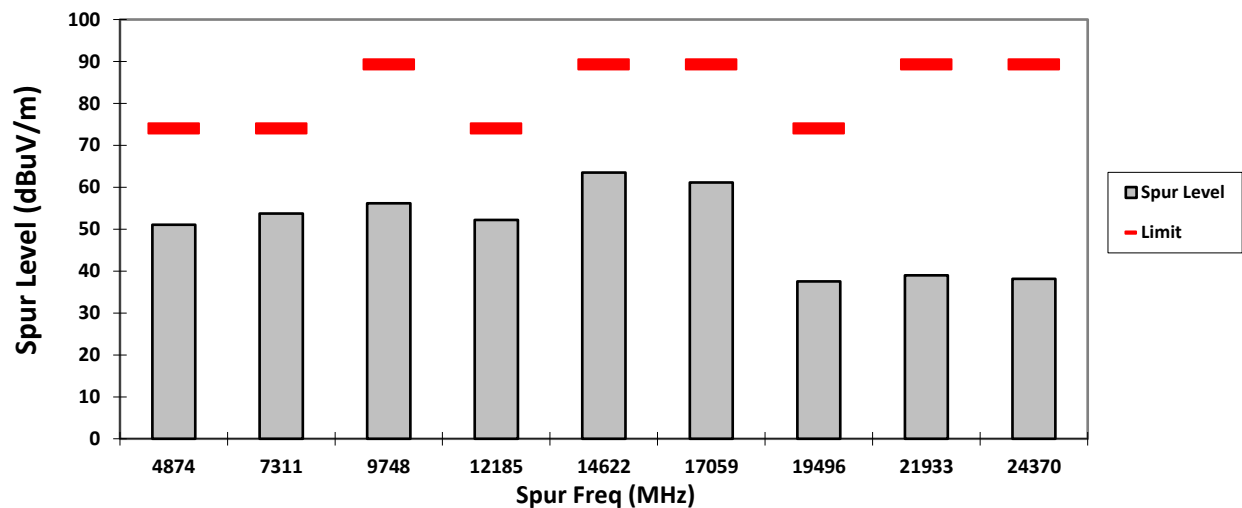
Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.

*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.

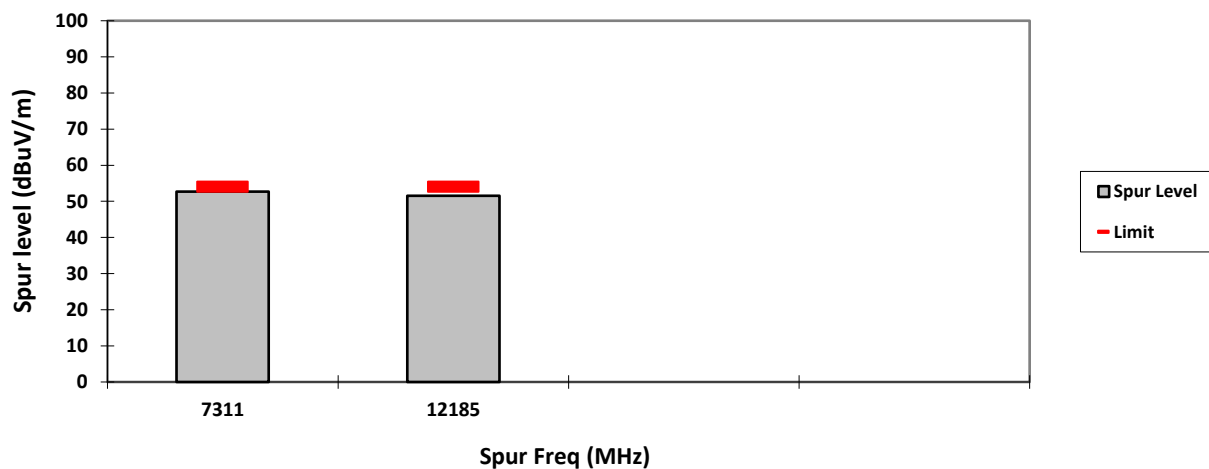
VERTICAL, PK



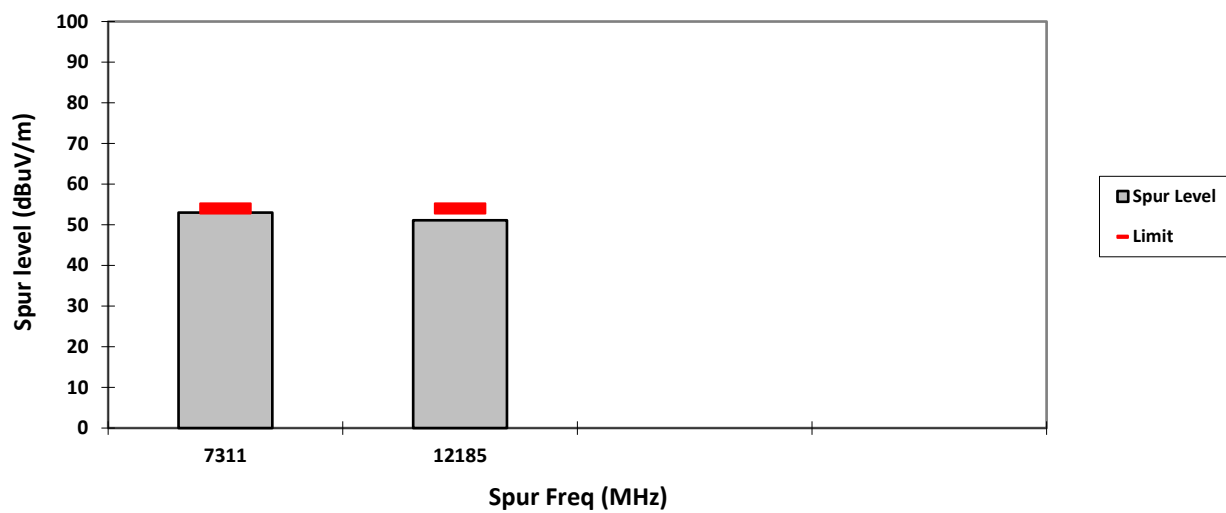
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Test: WIFI SAC Transmitter Radiated Emission	EMC SR ID#: 1057N00-EMC-00026
Model Number: VX650	S/N: 9903EBA0048
Battery: PMNN4893A	
Accessory: NA	
Test Channel: High	Test Frequency: 2462.0000 MHz
Test Standard: ANSI C63.10-2013	Worst Case Plane: Z-Plane
Modulation: 802.11n20	Softpot power (10)

Radiated Emission (High Channel) tabular data

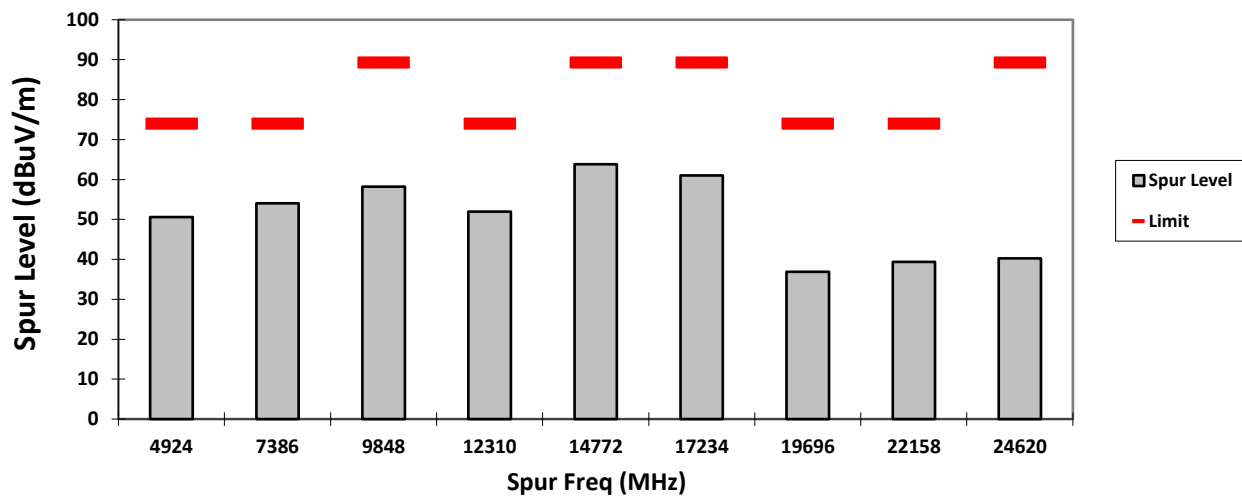
Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dB)	Margin PK (dB)	Margin AV (dB)	Carrier PK Power (dBµV/m)
4924.0000	-	50.5640**	-	-	74.0000	-	-	23.4360	-	-
7386.0000	-	54.0405**	52.5627**	-	74.0000	54.0000	-	19.9595	1.4373	109.2736
9848.0000	-	58.1966**	-	-	89.2736	-	-	31.0770	-	109.2736
12310.000	-	51.9756**	51.3147**	-	74.0000	54.0000	-	22.0244	2.6853	-
14772.000	-	63.7772**	-	-	89.2736	-	-	25.4964	-	-
17234.000	-	60.9759**	-	-	89.2736	-	-	28.2977	-	109.2736
19696.000	-	36.9065**	-	-	74.0000	-	-	37.0935	-	-
22158.000	-	39.3378**	-	-	74.0000	-	-	34.6622	-	109.2736
24620.000	-	40.2745**	-	-	89.2736	-	-	48.9991	-	109.2736
Horizontal 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 (dB)	Margin PK (dB)	Margin AV (dB)	Carrier PK Power (dBµV/m)
4924.0000	-	52.6651**	-	-	74.0000	-	-	21.3349	-	-
7386.0000	-	53.9785**	52.6516**	-	74.0000	54.0000	-	20.0215	1.3484	109.2736
9848.0000	-	57.5327**	-	-	89.2736	-	-	31.7409	-	109.2736
12310.000	-	52.8153**	51.1251**	-	74.0000	54.0000	-	21.1847	2.8749	-
14772.000	-	64.4026**	-	-	89.2736	-	-	24.8710	-	-
17234.000	-	61.2716**	-	-	89.2736	-	-	28.0020	-	109.2736
19696.000	-	37.7104**	-	-	74.0000	-	-	36.2896	-	-
22158.000	-	38.2086**	-	-	74.0000	-	-	35.7914	-	109.2736
24620.000	-	38.3630**	-	-	89.2736	-	-	50.9106	-	109.2736

Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

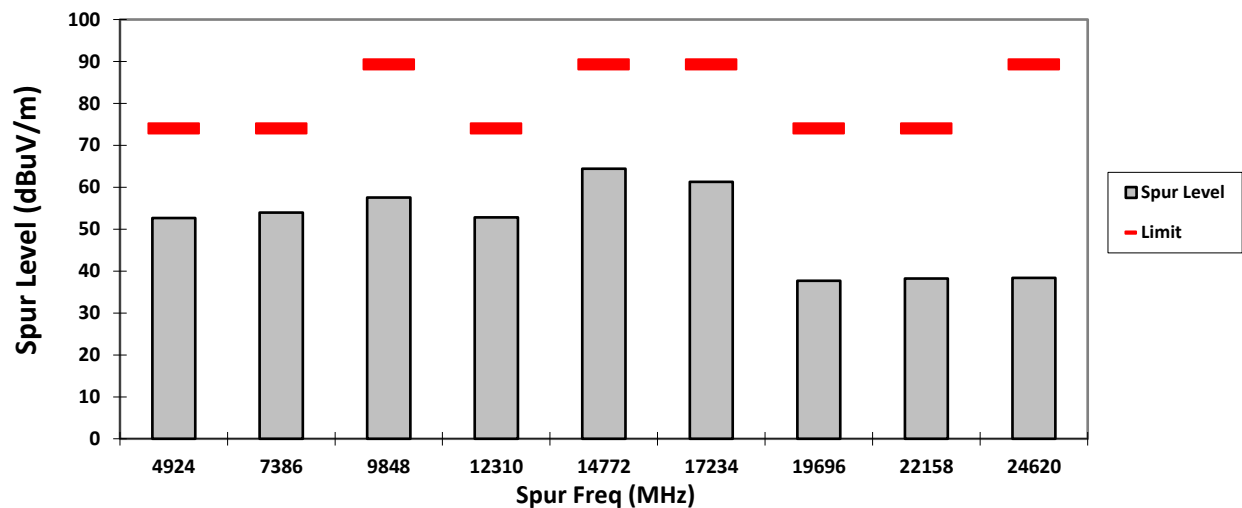
Temperature (degC): 22.5	Humidity (%): 63.1
Test Performed by: Aiman	Test Date: Thu, 23 Jan, 2025
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)	

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.

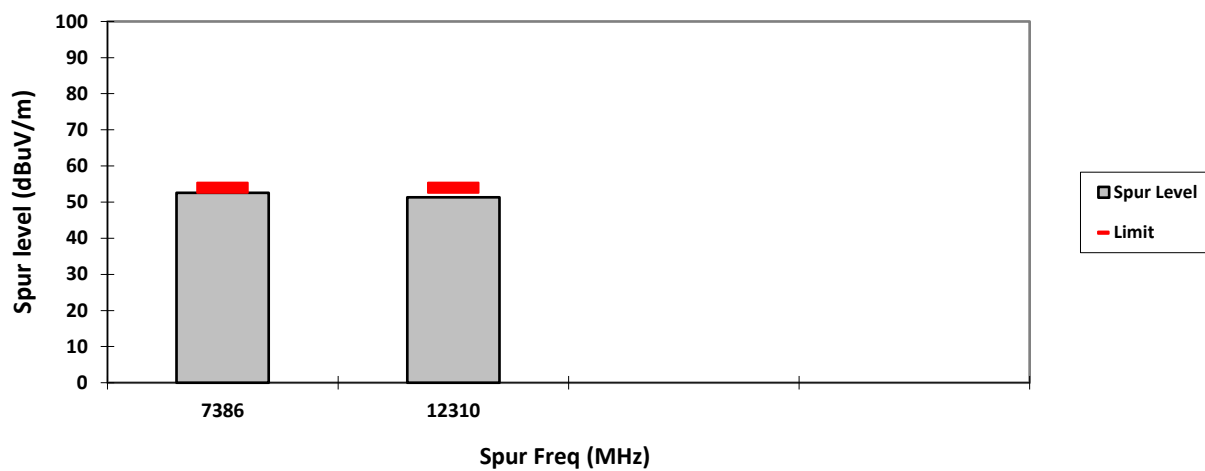
VERTICAL, PK



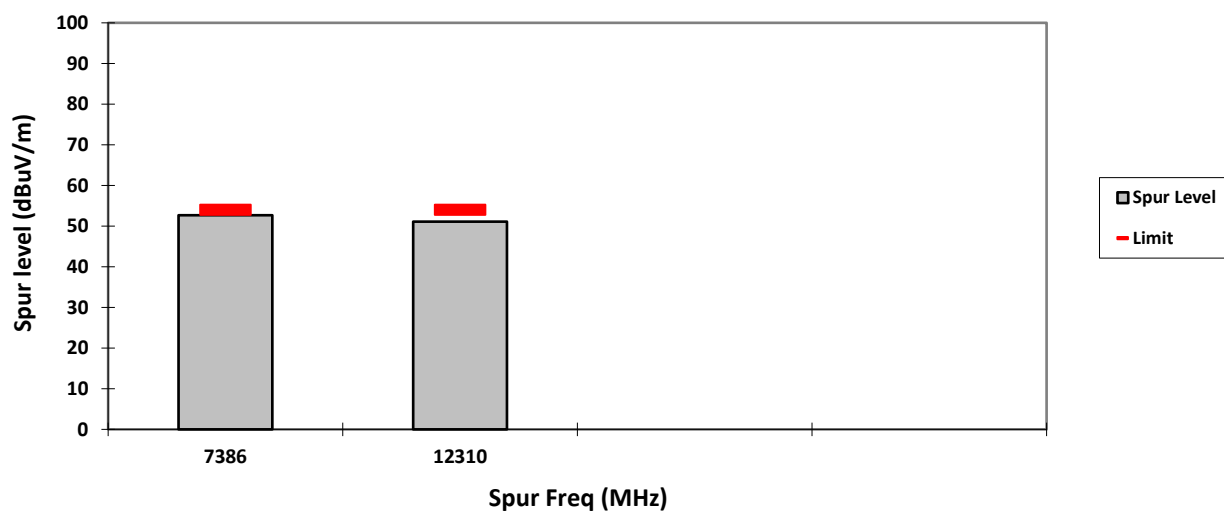
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Test: WIFI SAC Transmitter Radiated Emission	EMC SR ID#: 1057N00-EMC-00026
Model Number: VX650	S/N: 9903EBA0048
Battery: PMNN4893A	
Accessory: NA	
Test Channel: Low	Test Frequency: 2422.0000 MHz
Test Standard: ANSI C63.10-2013	Worst Case Plane: Z-Plane
Modulation: 802.11n40	Softpot power (9)

Radiated Emission (Low Channel) tabular data

[illegible]

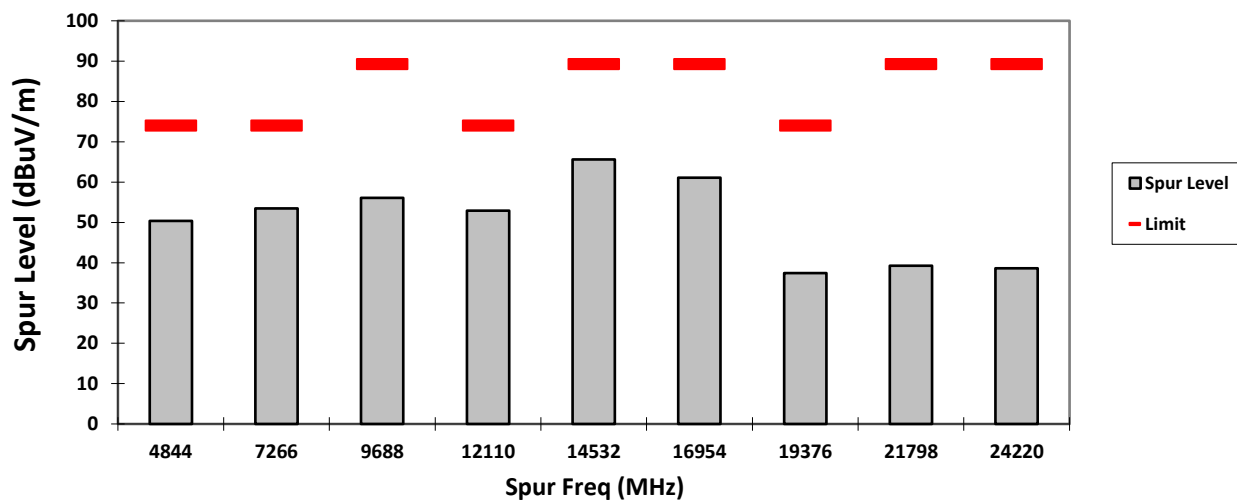
Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

Temperature (degC): 22.5	Humidity (%): 63.1
Test Performed by: Aiman	Test Date: Thu, 23 Jan, 2025
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)	

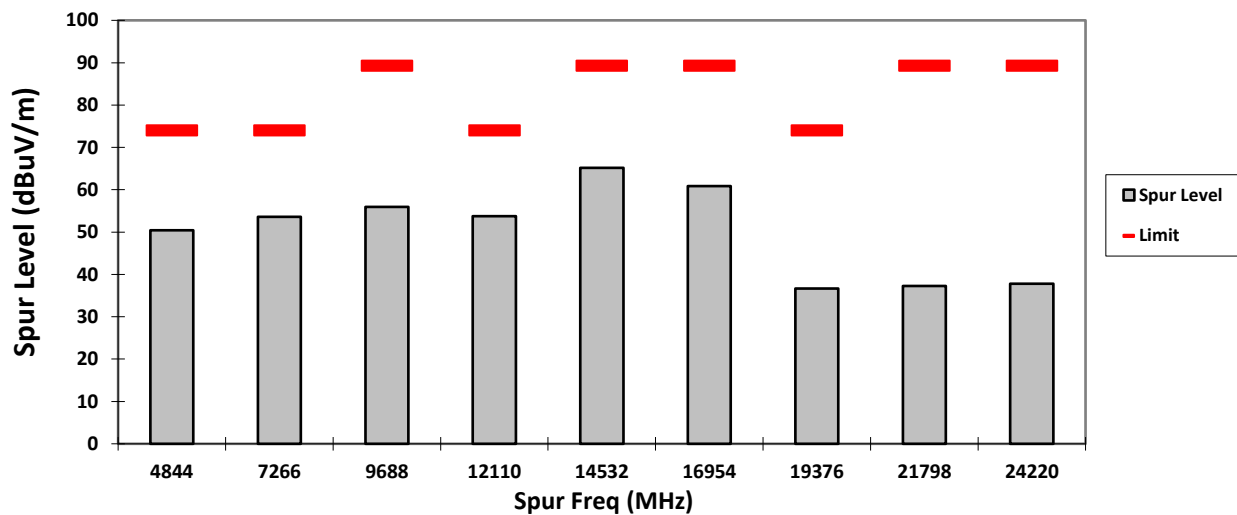
Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.

*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.

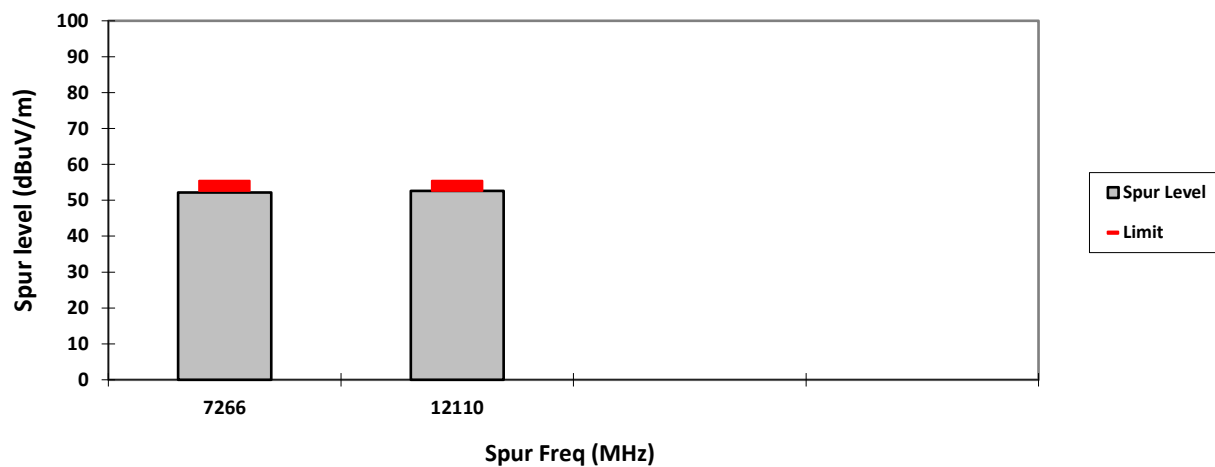
VERTICAL, PK



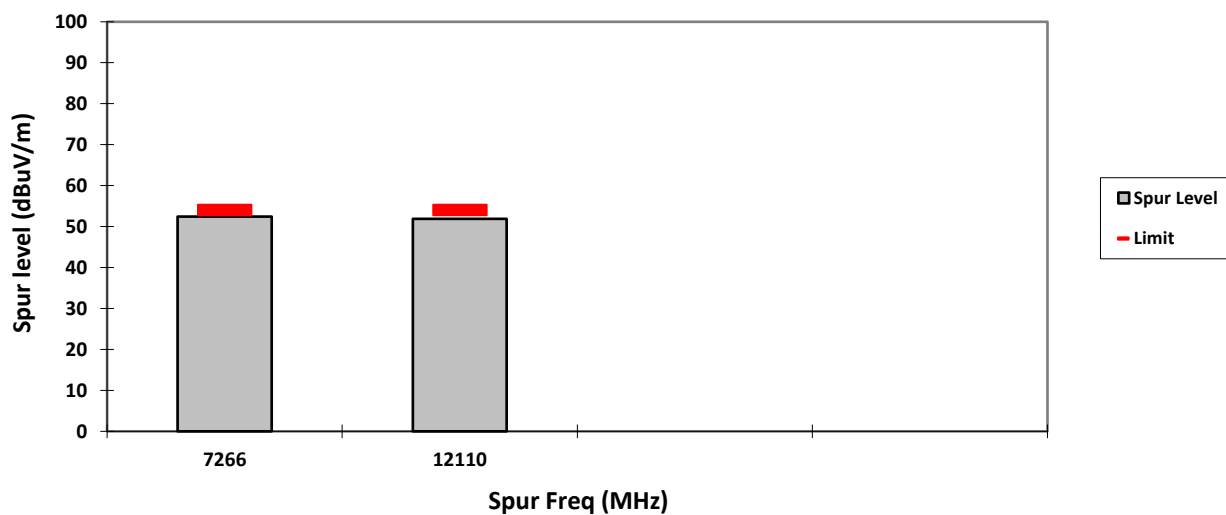
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Test: WIFI SAC Transmitter Radiated Emission	EMC SR ID#: 1057N00-EMC-00026
Model Number: VX650	S/N: 9903EBA0048
Battery: PMNN4893A	
Accessory: NA	
Test Channel: Mid	Test Frequency: 2437.0000 MHz
Test Standard: ANSI C63.10-2013	Worst Case Plane: Z-Plane
Modulation: 802.11n40	Softpot power (11)

Radiated Emission (Mid Channel) tabular data

[illegible]

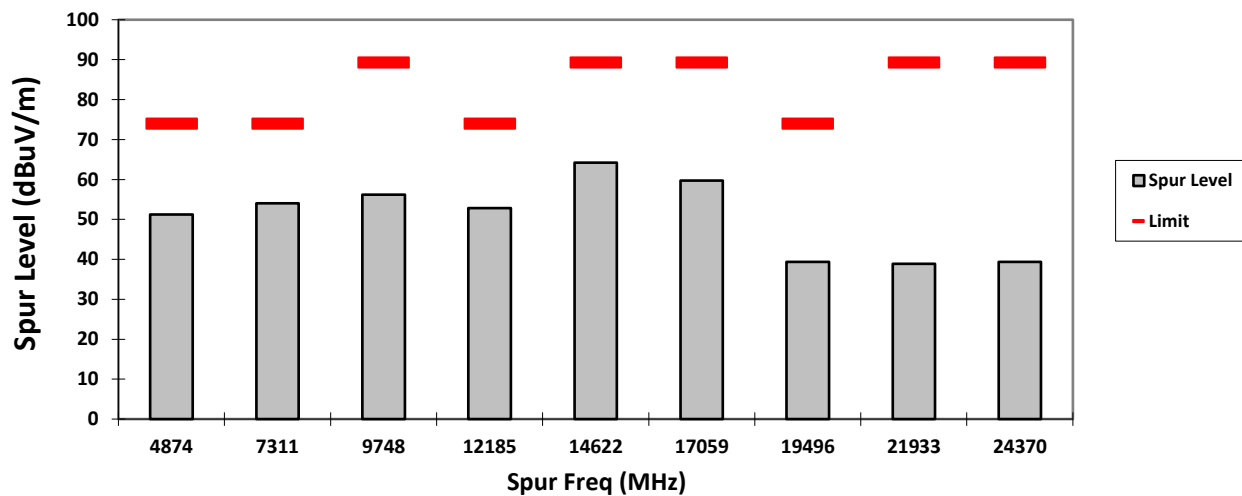
Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

Temperature (degC): 22.5	Humidity (%): 63.1
Test Performed by: Aiman	Test Date: Thu, 23 Jan, 2025
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)	

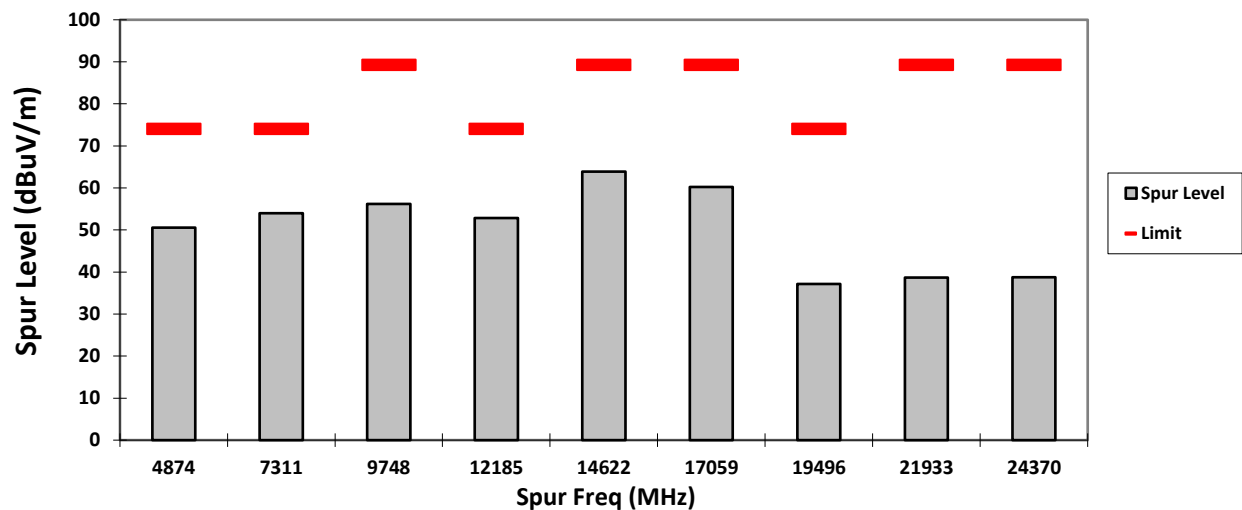
Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.

*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.

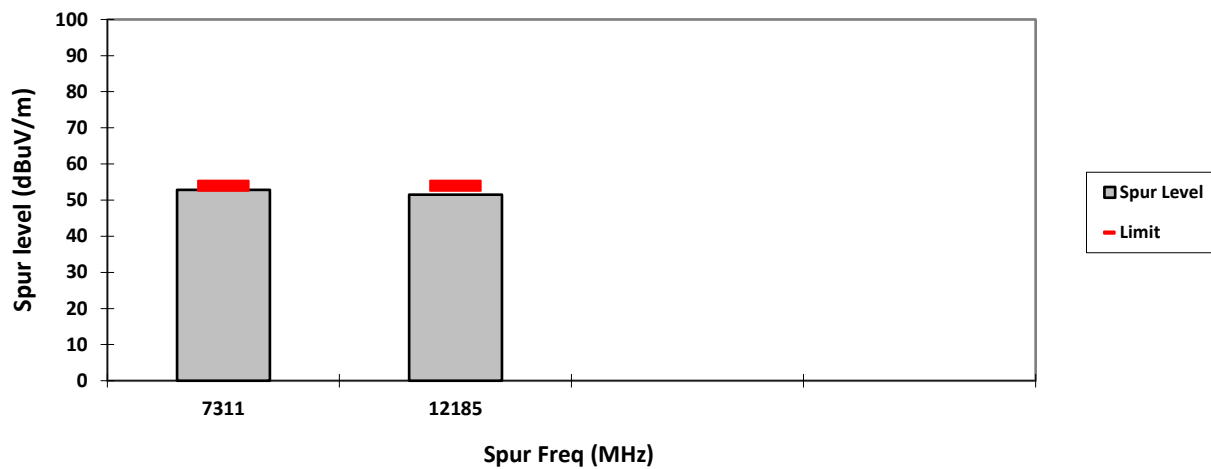
VERTICAL, PK



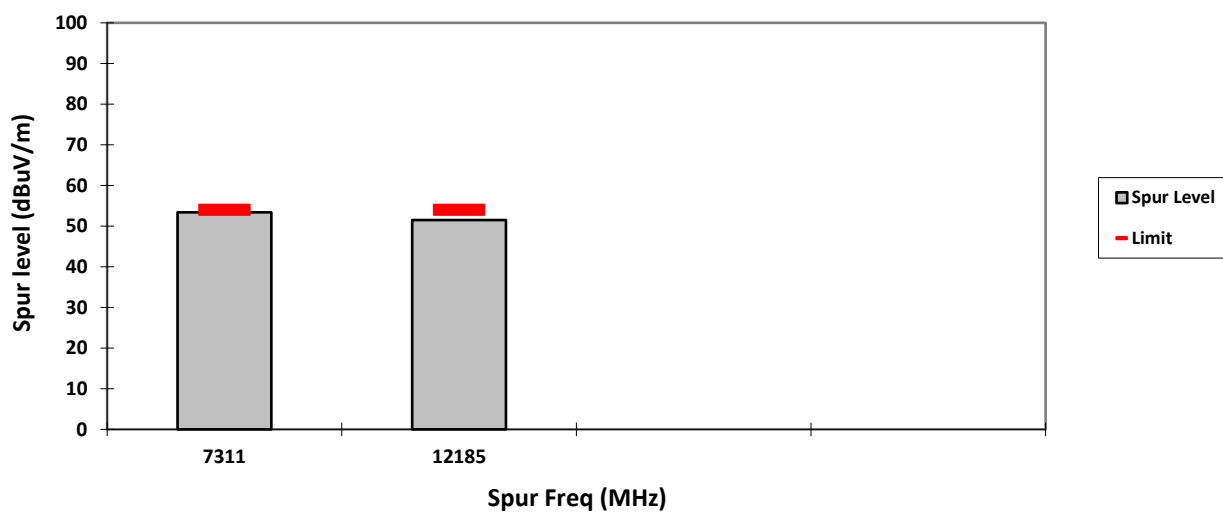
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Test: WIFI SAC Transmitter Radiated Emission	EMC SR ID#: 1057N00-EMC-00026
Model Number: VX650	S/N: 9903EBA0048
Battery: PMNN4893A	
Accessory: NA	
Test Channel: High	Test Frequency: 2452.0000 MHz
Test Standard: ANSI C63.10-2013	Worst Case Plane: Z-Plane
Modulation: 802.11n40	Softspot power (9)

Radiated Emission (High Channel) tabular data

[illegible]

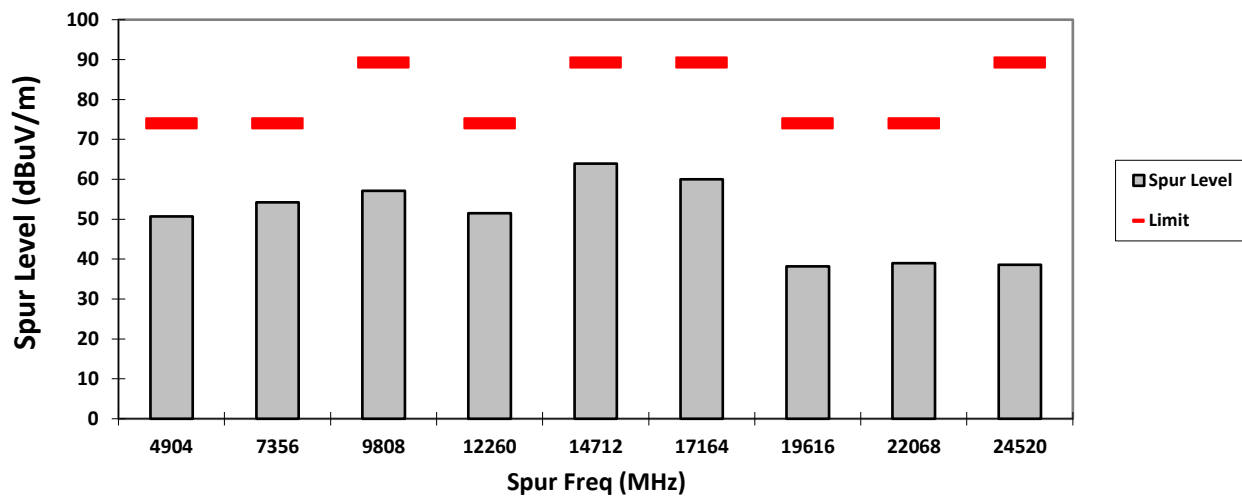
Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

Temperature (degC): 22.5	Humidity (%): 63.1
Test Performed by: Aiman	Test Date: Thu, 23 Jan, 2025
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)	

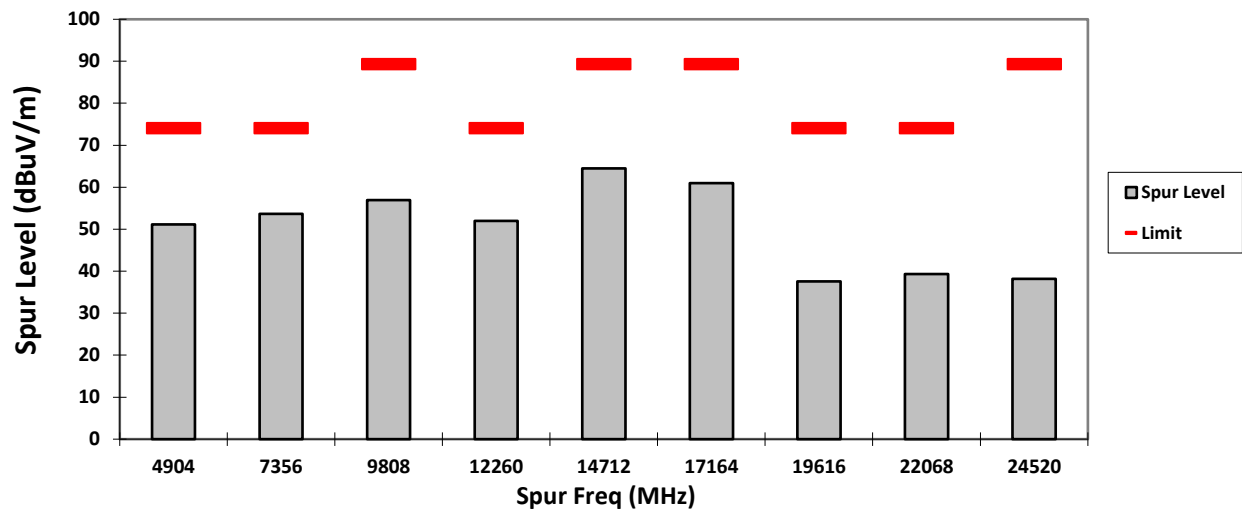
Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.

*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.

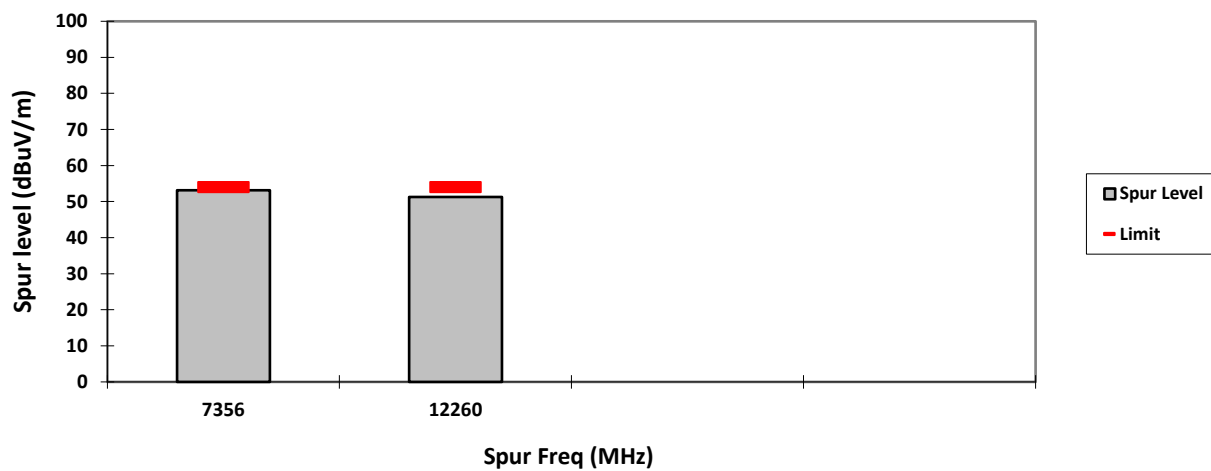
VERTICAL, PK



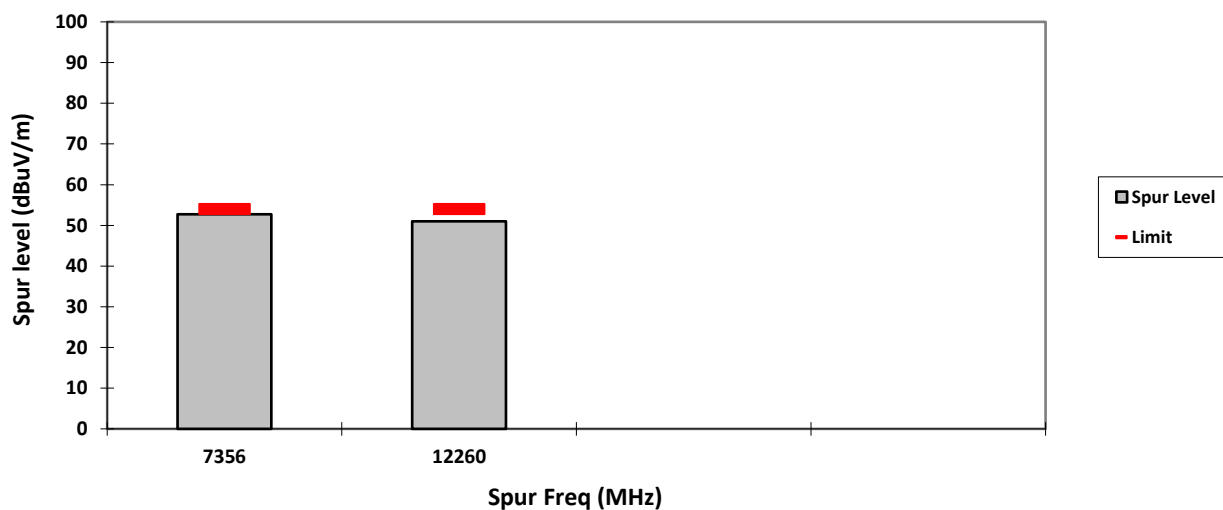
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Test: WIFI SAC Transmitter Radiated Emission	EMC SR ID#: 1057N00-EMC-00030
Model Number: VX650	S/N: 9903EBA0048
Battery: PMNN4893A	
Accessory: USB C + Laptop(AH422508)	
Test Channel: Mid	Test Frequency: 2437.0000 MHz
Test Standard: ANSI C63.10-2013	Worst Case Plane: Z-Plane
Modulation: 802.11b	

Radiated Emission (Mid Channel) tabular data

[illegible]

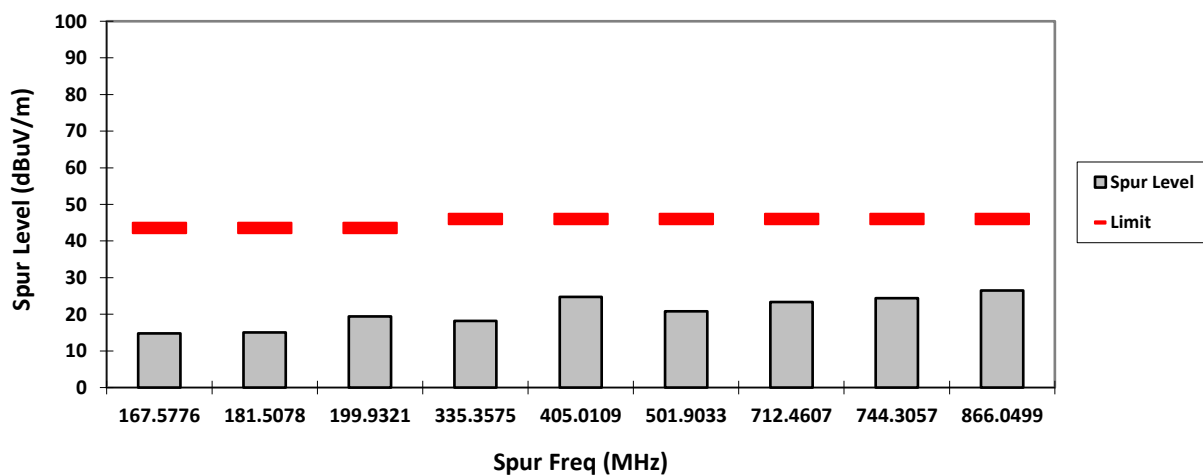
Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

Temperature (degC): 22.5	Humidity (%): 63.2
Test Performed by: Aiman	Test Date: Wed, 5 Feb, 2025
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)	

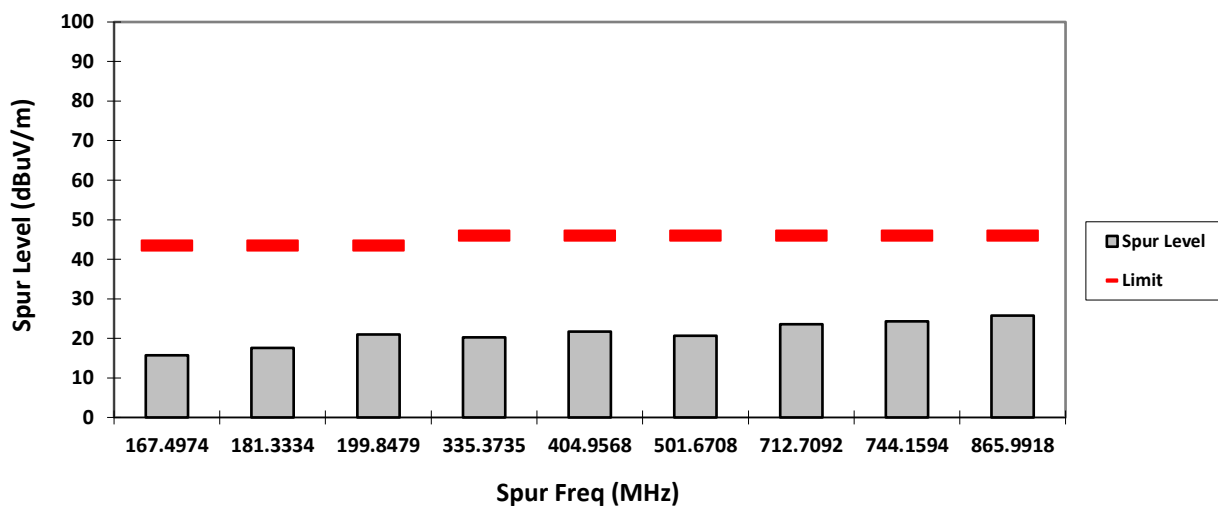
Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.

*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.

VERTICAL, QPK

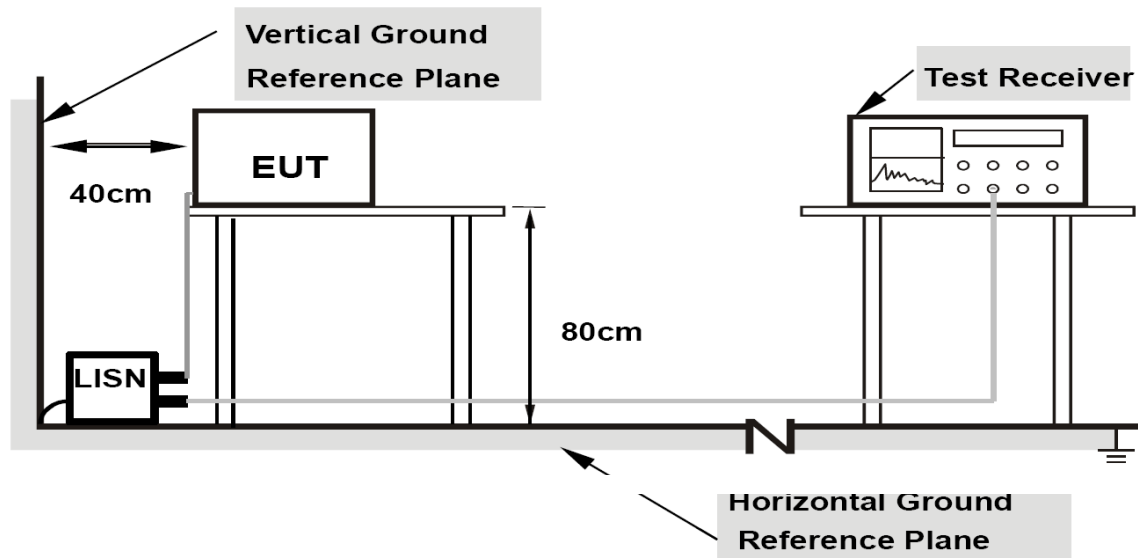


HORIZONTAL, QPK



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(μ V)	
	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.

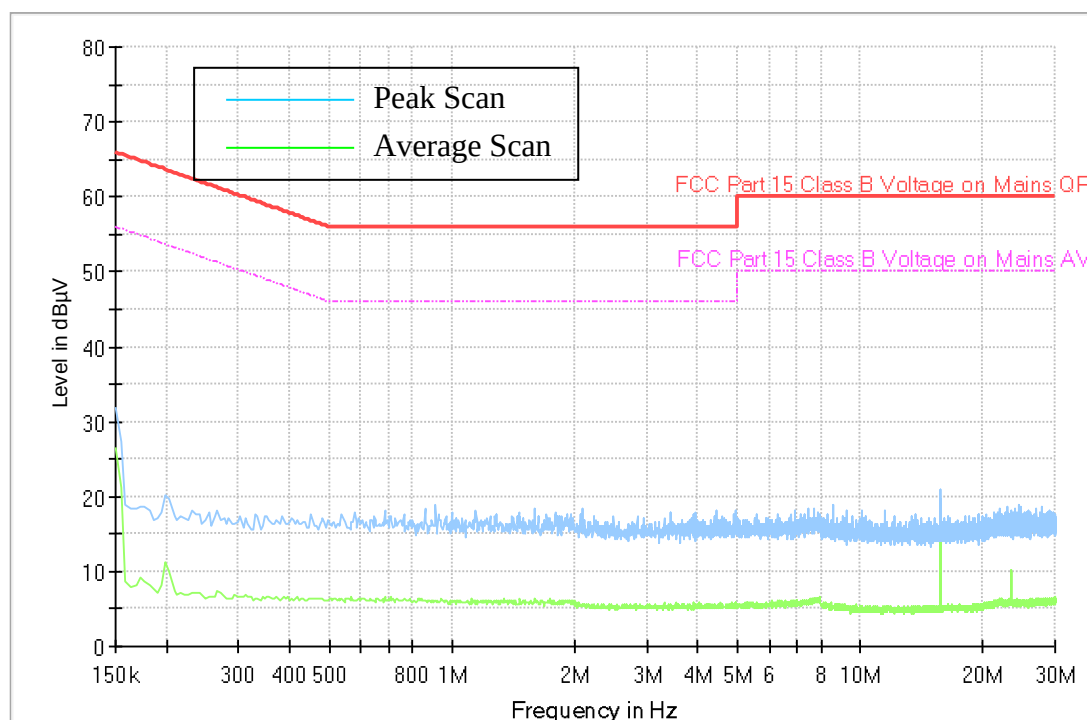
Table 2: Limits for Conducted Disturbance at the Mains Ports of Class B ITE

6.8.3. Test Result

120 VAC, 60Hz

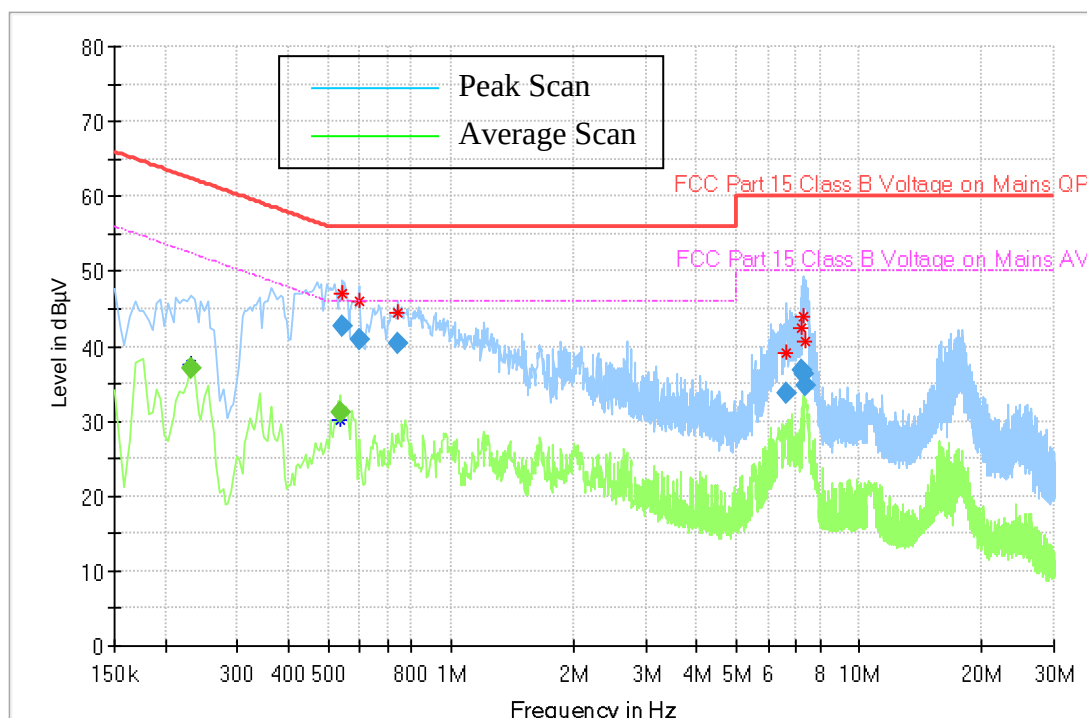
1) Ambient

Full Spectrum



2) Ambient Laptop

Full Spectrum

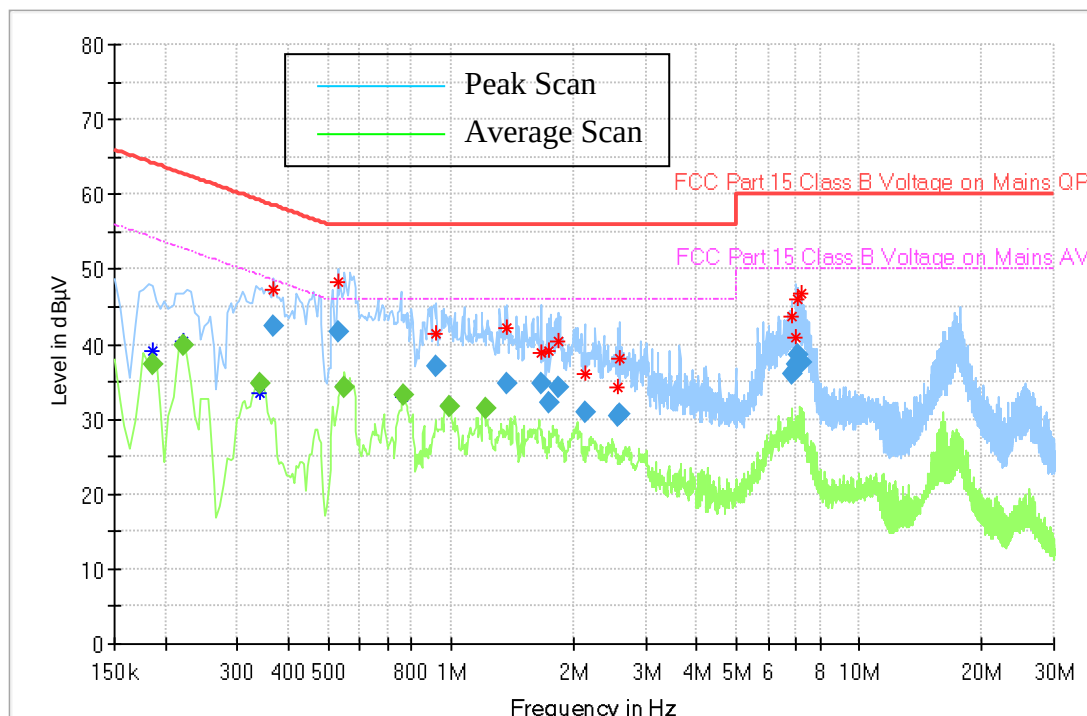


QuasiPeak and Average Measurement

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.231000	—	37.04	52.41	15.37	L1	ON	10.3
0.537000	—	31.24	46.00	14.76	L1	ON	10.6
0.541500	42.67	—	56.00	13.33	N	ON	10.6
0.595500	40.86	—	56.00	15.14	N	ON	10.6
0.744000	40.43	—	56.00	15.57	N	ON	10.5
6.630000	33.67	—	60.00	26.33	L1	ON	10.4
7.228500	36.81	—	60.00	23.19	L1	ON	10.4
7.273500	36.30	—	60.00	23.70	L1	ON	10.4
7.368000	34.85	—	60.00	25.15	L1	ON	10.4

3) Laptop + VRSM Standby

Full Spectrum

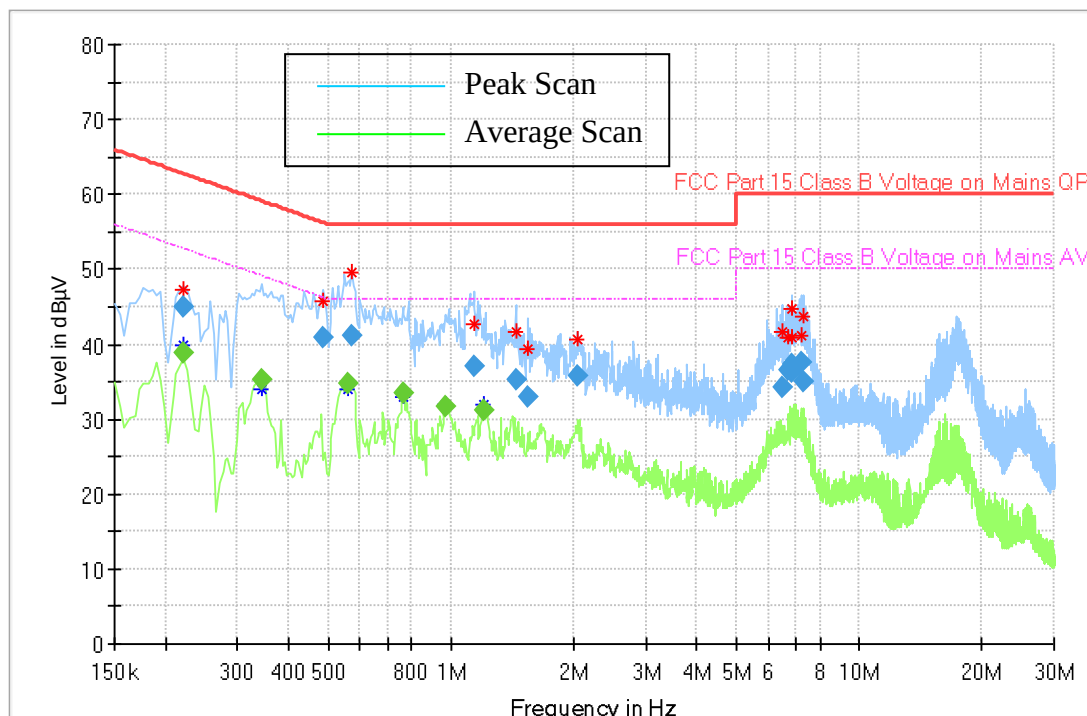


QuasiPeak and Average Measurement

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Line	Filter	Corr. (dB)
0.186000	—	37.27	54.21	16.94	N	ON	10.6
0.222000	—	39.88	52.74	12.86	N	ON	10.4
0.339000	—	34.72	49.23	14.51	N	ON	10.5
0.366000	42.36	—	58.59	16.23	N	ON	10.6
0.528000	41.76	—	56.00	14.24	N	ON	10.6
0.550500	—	34.20	46.00	11.80	N	ON	10.6
0.766500	—	33.17	46.00	12.83	L1	ON	10.5
0.924000	37.01	—	56.00	18.99	N	ON	10.4
0.991500	—	31.57	46.00	14.43	L1	ON	10.4
1.212000	—	31.41	46.00	14.59	L1	ON	10.4
1.374000	34.73	—	56.00	21.27	N	ON	10.3
1.666500	34.67	—	56.00	21.33	N	ON	10.3
1.738500	32.28	—	56.00	23.72	N	ON	10.3
1.828500	34.30	—	56.00	21.70	L1	ON	10.3
2.125500	31.01	—	56.00	24.99	L1	ON	10.3
2.575500	30.33	—	56.00	25.67	L1	ON	10.3
2.584500	30.65	—	56.00	25.35	L1	ON	10.3
6.810000	35.95	—	60.00	24.05	N	ON	10.4
7.026000	37.32	—	60.00	22.68	L1	ON	10.4
7.080000	38.47	—	60.00	21.53	L1	ON	10.4
7.246500	37.64	—	60.00	22.36	L1	ON	10.4

4) Laptop + VRSM TX WiFi 2.4GHz 802.11g

Full Spectrum



QuasiPeak and Average Measurement

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.222000	—	38.94	52.74	13.80	N	ON	10.4
0.222000	44.96	—	62.74	17.78	L1	ON	10.4
0.343500	—	35.40	49.12	13.72	N	ON	10.5
0.487500	40.83	—	56.21	15.38	N	ON	10.6
0.559500	—	34.84	46.00	11.16	N	ON	10.6
0.573000	41.26	—	56.00	14.74	L1	ON	10.6
0.766500	—	33.44	46.00	12.56	L1	ON	10.5
0.973500	—	31.62	46.00	14.38	L1	ON	10.4
1.140000	37.04	—	56.00	18.96	N	ON	10.4
1.198500	—	31.12	46.00	14.88	L1	ON	10.4
1.441500	35.24	—	56.00	20.76	L1	ON	10.3
1.545000	33.03	—	56.00	22.98	L1	ON	10.3
2.044500	35.91	—	56.00	20.09	N	ON	10.3
6.481500	34.34	—	60.00	25.66	N	ON	10.4
6.720000	36.63	—	60.00	23.37	L1	ON	10.4
6.814500	36.18	—	60.00	23.82	N	ON	10.4
6.828000	37.35	—	60.00	22.65	L1	ON	10.4
7.206000	37.63	—	60.00	22.37	L1	ON	10.4
7.291500	35.04	—	60.00	24.96	N	ON	10.4

END OF TEST REPORT