

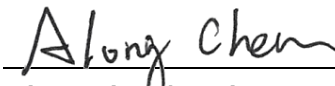
FCC Test Report

FCC ID : 2AWC2-SRDT101
Equipment : NUWA Service Robot - Collibot
Model No. : SR-DT101
Brand Name : NUWA ROBOTICS
Applicant : NUWA ROBOTICS (HK) LIMITED TAIWAN
BRANCH
Address : 6F., No. 102, Dunhua N. Rd., Songshan Dist.,
Taipei City
Standard : 47 CFR FCC Part 15.247
Received Date : Nov. 17, 2023
Tested Date : Nov. 17 ~ Dec. 08, 2023

We, International Certification Corporation, would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It shall not be reproduced except in full without the written approval of our laboratory.

Reviewed by:

Approved by:


Along Chen / Assistant Manager

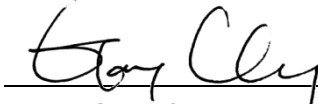

Gary Chang / Manager

Table of Contents

1	GENERAL DESCRIPTION	5
1.1	Information.....	5
1.2	Local Support Equipment List	8
1.3	Test Setup Chart	8
1.4	The Equipment List	9
1.5	Test Standards	10
1.6	Reference Guidance	10
1.7	Deviation from Test Standard and Measurement Procedure.....	10
1.8	Measurement Uncertainty	10
2	TEST CONFIGURATION.....	11
2.1	Testing Facility	11
2.2	The Worst Test Modes and Channel Details	11
3	TRANSMITTER TEST RESULTS	12
3.1	6dB and Occupied Bandwidth.....	12
3.2	Conducted Output Power	13
3.3	Power Spectral Density	14
3.4	Unwanted Emissions into Restricted Frequency Bands	15
3.5	Emissions in Non-Restricted Frequency Bands.....	17
3.6	AC Power Line Conducted Emissions	18
4	TEST LABORATORY INFORMATION	19
Appendix A. 6dB and Occupied Bandwidth		
Appendix B. Conducted Output Power		
Appendix C. Power Spectral Density		
Appendix D. Unwanted Emissions into Restricted Frequency Bands		
Appendix E. Emissions in Non-Restricted Frequency Bands		
Appendix F. AC Power Line Conducted Emissions		

Release Record

Report No.	Version	Description	Issued Date
FR3O3001-02AC	Rev. 01	Initial issue	Sep. 23, 2024

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	AC Power Line Conducted Emission	[dBuV]: 0.354MHz 36.31 (Margin -12.56dB) - AV	Pass
15.247(d) 15.209	Unwanted Emissions	[dBuV/m at 3m]: 2483.50MHz 52.85 (Margin -1.15dB) - AV	Pass
15.247(b)(3)	Conducted Output Power	Power [dBm]: 23.34	Pass
15.247(a)(2)	6dB Bandwidth	Meet the requirement of limit	Pass
15.247(e)	Power Spectral Density	Meet the requirement of limit	Pass
15.203	Antenna Requirement	Meet the requirement of limit	Pass

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

1 General Description

1.1 Information

1.1.1 Specification of the Equipment under Test (EUT)

RF General Information					
Frequency Range (MHz)	IEEE Std. 802.11	Ch. Freq. (MHz)	Channel Number	Transmit Chains (N _{TX})	Data Rate / MCS
2400-2483.5	b	2412-2462	1-11 [11]	2	1-11 Mbps
2400-2483.5	g	2412-2462	1-11 [11]	2	6-54 Mbps
2400-2483.5	n (HT20)	2412-2462	1-11 [11]	2	MCS 0-15
2400-2483.5	n (HT40)	2422-2452	3-9 [7]	2	MCS 0-15
Note 1: RF output power specifies that Maximum Conducted (Average) Output Power. Note 2: DSSS-DBPSK, DQPSK, CCK modulation OFDM - BPSK, QPSK, 16QAM, 64QAM modulation.					

1.1.2 Antenna Details

Ant. No.	Brand/ Model	Type	Connector	Operating Frequencies (MHz) / Antenna Gain (dBi)		
				2400~2483.5	5150~5250	5725~5850
1	INPAQ/WA-P-LB-03-162	PCB	No	2.47	3.08	4.31
2	INPAQ/WA-P-LB-03-163	PCB	No	2.43	3.16	4.41

1.1.3 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	28.0Vdc from adapter 25.6Vdc from battery
-------------------	--

1.1.4 Accessories

Accessories		
No.	Equipment	Description
1	AC adapter	Brand: TC-TEK Model: FY28010000 I/P: 100-240V~50/60Hz 4A 350VA O/P: 28.0V=10.0A 280.0W Power Line: DC 1m non-shielded with one core AC 1.2m non-shielded without core
2	charging cradle	Brand: Matsutek Model: RVDS-NW01BK
3	Li-ion Battery	Brand: Moai Model: NW-8S5P Battery rated capacity: 30Ah/768Wh Battery nominal voltage: 25.6V

1.1.5 Channel List

Frequency band (MHz)		2400~2483.5	
802.11 b / g / n HT20		802.11n HT40	
Channel	Frequency(MHz)	Channel	Frequency(MHz)
1	2412	3	2422
2	2417	4	2427
3	2422	5	2432
4	2427	6	2437
5	2432	7	2442
6	2437	8	2447
7	2442	9	2452
8	2447	---	---
9	2452	---	---
10	2457	---	---
11	2462	---	---

1.1.6 Test Tool and Duty Cycle

Test Tool	QRCT, v4.0		
Duty Cycle and Duty Factor	Mode	Duty Cycle (%)	Duty Factor (dB)
	11b	100.00%	0.00
	11g	96.79%	0.14
	HT20	96.59%	0.15
	HT40	92.37%	0.34

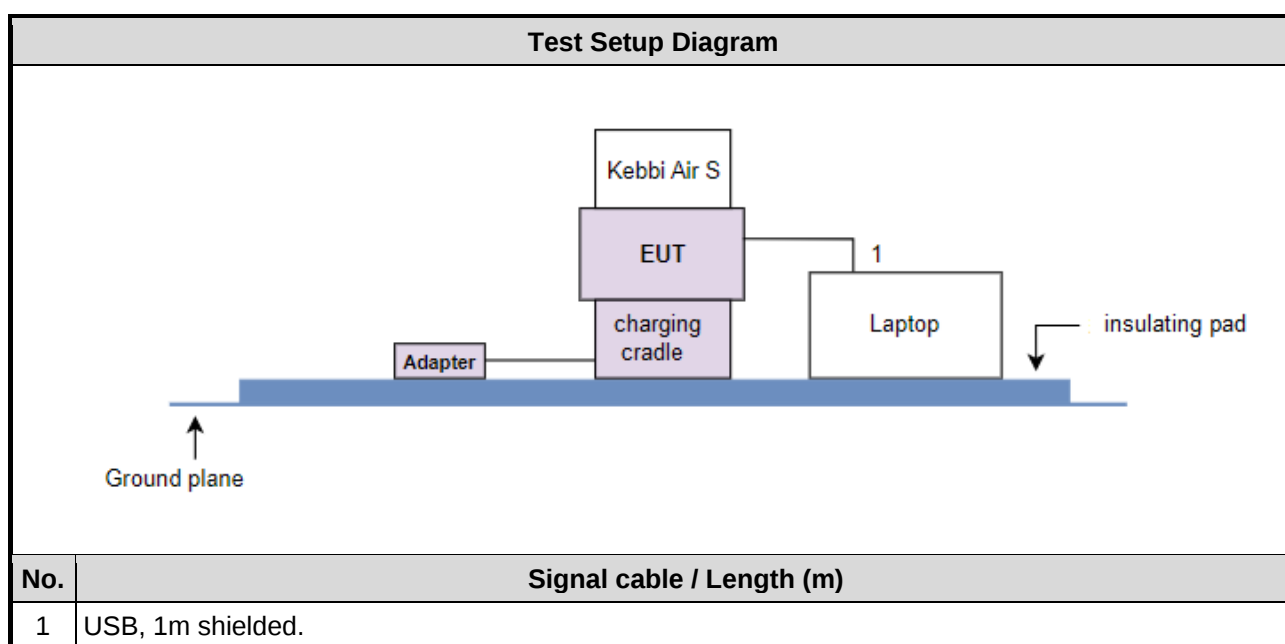
1.1.7 Power Index of Test Tool

Modulation Mode	Test Frequency (MHz)	Power Index
11b	2412	15
11b	2437	17
11b	2462	17
11g	2412	15.5
11g	2437	15.5
11g	2462	15.5
HT20	2412	15.5
HT20	2437	15.5
HT20	2462	15.5
HT40	2422	14
HT40	2437	14
HT40	2452	13.5

1.2 Local Support Equipment List

Support Equipment List					
No.	Equipment	Brand	Model	FCC ID	Remarks
1	Kebbi Air S	NUWAROBOTICS	AIR-H203	---	Provided by applicant.
2	Laptop	DELL	Latitude E5470	DoC	---

1.3 Test Setup Chart



1.4 The Equipment List

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Tested Date	Dec. 08, 2023				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
Receiver	R&S	ESR3	101658	Feb. 17, 2023	Feb. 16, 2024
LISN	R&S	ENV216	101579	May 09, 2023	May 08, 2024
RF Cable-CON	Woken	CFD200-NL	CFD200-NL-001	Oct. 11, 2023	Oct. 10, 2024
LISN (Support Unit)	SCHWARZBECK	Schwarzbeck 8127	8127667	Jan. 03, 2023	Jan. 02, 2024
50 ohm terminal (Support Unit)	NA	50	01	Jun. 14, 2023	Jun. 13, 2024
Measurement Software	Sporton	SENSE-EMI	V5.11.6	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	Radiated Emission				
Test Site	966 chamber1 / (03CH01-WS)				
Tested Date	Nov. 17 ~ Dec. 05, 2023				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
Receiver	R&S	ESR3	101657	Mar. 03, 2023	Mar. 02, 2024
Spectrum Analyzer	R&S	FSV40	101910	Apr. 14, 2023	Apr. 13, 2024
Loop Antenna	R&S	HFH2-Z2	100330	Oct. 31, 2023	Oct. 30, 2024
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Jul. 31, 2023	Jul. 30, 2024
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1095	Sep. 01, 2023	Aug. 31, 2024
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Oct. 30, 2023	Oct. 29, 2024
Preamplifier	EMC	EMC02325	980225	Jun. 28, 2023	Jun. 27, 2024
Preamplifier	EMC	EMC118A45SE	980898	Jul. 14, 2023	Jul. 13, 2024
Preamplifier	EMC	EMC184045SE	980903	Jul. 17, 2023	Jul. 16, 2024
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Oct. 03, 2023	Oct. 02, 2024
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-001	Oct. 03, 2023	Oct. 02, 2024
LF cable 11M	EMC	EMCCFD400-NW-N W-11000	200801	Oct. 03, 2023	Oct. 02, 2024
LF cable 1M	EMC	EMCCFD400-NM-N M-1000	160502	Oct. 03, 2023	Oct. 02, 2024
RF Cable	EMC	EMC104-35M-35M-8000	210920	Oct. 03, 2023	Oct. 02, 2024
RF Cable	EMC	EMC104-35M-35M-3000	210922	Oct. 03, 2023	Oct. 02, 2024
Attenuator	Pasternack	PE7005-10	10-1	Oct. 05, 2023	Oct. 04, 2024
HIGHPASS FILTER 3.1-18G	WHK	WHK3.1/18G-10SS	39	Oct. 05, 2023	Oct. 04, 2024
Measurement Software	AUDIX	e3	6.120210g	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	RF Conducted				
Test Site	(TH01-WS)				
Tested Date	Dec. 07, 2023				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
Spectrum Analyzer	R&S	FSV40	101910	Apr. 14, 2023	Apr. 13, 2024
Power Meter	Anritsu	ML2495A	1241001	Jan. 11, 2023	Jan. 10, 2024
Power Sensor	Anritsu	MA2411B	1911228	Jan. 11, 2023	Jan. 10, 2024
Attenuator	Pasternack	PE7005-10	10-2	Oct. 05, 2023	Oct. 04, 2024
Measurement Software	Sporton	SENSE-15247_DTS	V5.11	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

1.5 Test Standards

47 CFR FCC Part 15.247
ANSI C63.10-2013

1.6 Reference Guidance

FCC KDB 558074 D01 15.247 Meas Guidance v05r02
FCC KDB 662911 D01 Multiple Transmitter Output v02r01

1.7 Deviation from Test Standard and Measurement Procedure

None

1.8 Measurement Uncertainty

The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)).

Measurement Uncertainty	
Parameters	Uncertainty
Bandwidth	±34.130 Hz
Conducted power	±0.808 dB
Power density	±0.583 dB
Conducted emission	±2.715 dB
AC conducted emission	±2.92 dB
Radiated emission ≤ 1GHz	±3.41 dB
Radiated emission > 1GHz	±4.59 dB

2 Test Configuration

2.1 Testing Facility

Test Laboratory	International Certification Corporation
Test Site	CO01-WS, 03CH01-WS, TH01-WS
Address of Test Site	No.3-1, Lane 6, Wen San 3rd St., Kwei Shan Dist., Tao Yuan City 33381, Taiwan (R.O.C.)

- FCC Designation No.: TW2732
- FCC site registration No.: 181692
- ISSED#: 10807A
- CAB identifier: TW2732

2.2 The Worst Test Modes and Channel Details

Test item	Modulation Mode	Test Frequency (MHz)	Data Rate	Test Configuration
AC Power Line Conducted Emission	11b	2462	6 Mbps	---
Unwanted Emissions ≤ 1GHz	11b	2462	6 Mbps	---
Unwanted Emissions >1GHz	11b	2412 / 2437 / 2462	1 Mbps	---
Conducted Output Power	11g	2412 / 2437 / 2462	6 Mbps	
6dB bandwidth	HT20	2412 / 2437 / 2462	MCS 0	
Power spectral density	HT40	2422 / 2437 / 2452	MCS 0	

3 Transmitter Test Results

3.1 6dB and Occupied Bandwidth

3.1.1 Limit of 6dB Bandwidth

The minimum 6dB bandwidth shall be at least 500 kHz.

3.1.2 Test Procedures

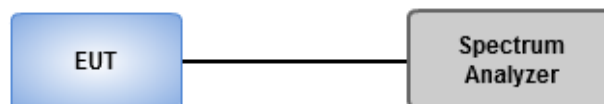
6dB Bandwidth

1. Set resolution bandwidth (RBW) = 100 kHz, Video bandwidth = 300 kHz.
2. Detector = Peak, Trace mode = max hold.
3. Sweep = auto couple, Allow the trace to stabilize.
4. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6dB relative to the maximum level measured in the fundamental emission.

Occupied Bandwidth

1. Set resolution bandwidth (RBW) = 1% ~ 5 % of OBW, Video bandwidth = 3 x RBW
2. Detector = Sample, Trace mode = max hold.
3. Sweep = auto couple, Allow the trace to stabilize.
4. Use the OBW measurement function of spectrum analyzer to measure the occupied bandwidth.

3.1.3 Test Setup



3.1.4 Test Results

Ambient Condition	21°C / 63%	Tested By	Akun Chung
-------------------	------------	-----------	------------

Refer to Appendix A.

3.2 Conducted Output Power

3.2.1 Limit of Conducted Output Power

Conducted power shall not exceed 1Watt.

Antenna gain $\leq 6\text{dBi}$, no any corresponding reduction is in output power limit.

Antenna gain $> 6\text{dBi}$

Non Fixed, point to point operations.

The conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dB

Fixed, point to point operations

Systems operating in the 2400–2483.5 MHz band that are used exclusively for fixed, point-to-point Operations, maximum peak output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

3.2.2 Test Procedures

A broadband RF power meter is used for output power measurement. The video bandwidth of power meter is greater than DTS bandwidth of EUT. If duty cycle of test signal is not 100 %, trigger and gating function of power meter will be enabled to capture transmission burst for measuring output power.

3.2.3 Test Setup



3.2.4 Test Results

Ambient Condition	21°C / 63%	Tested By	Akun Chung
-------------------	------------	-----------	------------

Refer to Appendix B.

3.3 Power Spectral Density

3.3.1 Limit of Power Spectral Density

Power spectral density shall not be greater than 8 dBm in any 3 kHz band.

3.3.2 Test Procedures

Peak PSD

1. Set the RBW = 3 kHz, VBW = 10 kHz.
2. Detector = Peak, Sweep time = auto couple.
3. Trace mode = max hold, allow trace to fully stabilize.
4. Use the peak marker function to determine the maximum amplitude level.

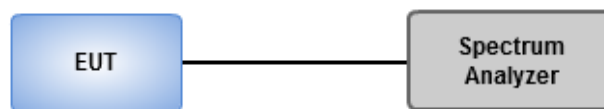
Average PSD, duty cycle $\geq 98\%$

1. Set the RBW = 3 kHz, VBW = 10 kHz.
2. Detector = RMS, Sweep time = auto couple.
3. Sweep time = auto couple.
4. Employ trace averaging (RMS) mode over a minimum of 100 traces.
5. Use the peak marker function to determine the maximum amplitude level.

Average PSD, duty cycle $< 98\%$

1. Set the RBW = 3 kHz, VBW = 10 kHz
2. Detector = RMS, Sweep time = auto couple.
3. Sweep time = auto couple.
4. Employ trace averaging (RMS) mode over a minimum of 100 traces.
5. Use the peak marker function to determine the maximum amplitude level.
6. Add $10 \log (1/x)$, where x is the duty cycle.

3.3.3 Test Setup



3.3.4 Test Results

Ambient Condition	21°C / 63%	Tested By	Akun Chung
-------------------	------------	-----------	------------

Refer to Appendix C.

3.4 Unwanted Emissions into Restricted Frequency Bands

3.4.1 Limit of Unwanted Emissions into Restricted Frequency Bands

Restricted Band Emissions Limit			
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

Note 1:
Quasi-Peak value is measured for frequency below 1GHz except for 9~90 kHz, 110~490 kHz frequency band. Peak and average value are measured for frequency above 1GHz. The limit on average radio frequency emission is as above table. The limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit

Note 2:
Measurements may be performed at a distance other than what is specified provided. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor as below, Frequency at or above 30 MHz: 20 dB/decade Frequency below 30 MHz: 40 dB/decade.

3.4.2 Test Procedures

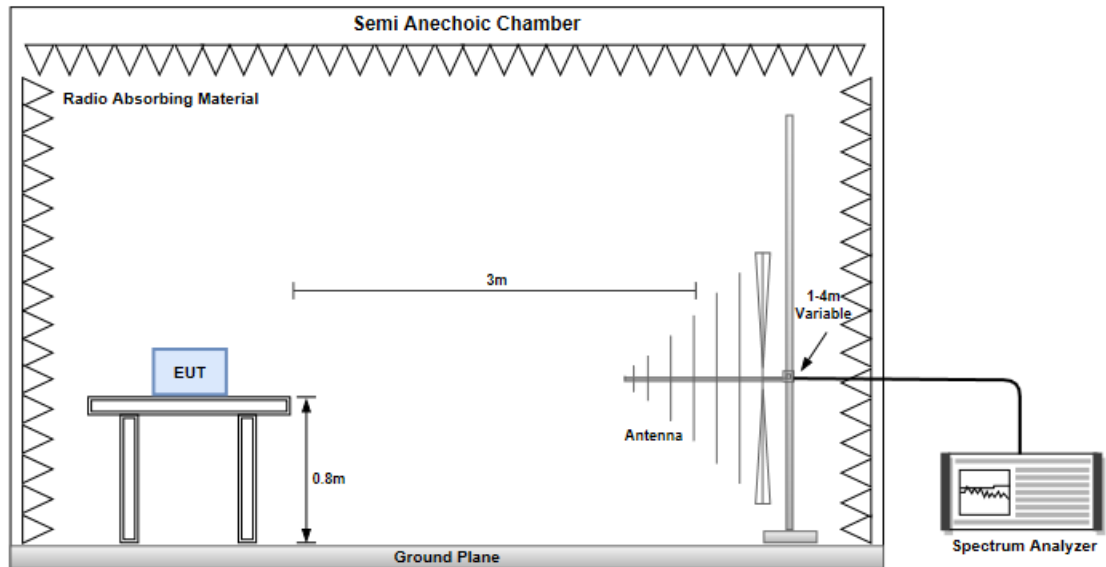
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission frequency. The EUT is placed at test table. For emissions testing at or below 1 GHz, the table height is 80 cm above the reference ground plane. For emission measurements above 1 GHz, the table height is 1.5 m
2. Measurement is made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna is varied in height (1m ~ 4m) above the reference ground plane to obtain the maximum signal strength. Distance between EUT and antenna is 3 m.
3. This investigation is performed with the EUT rotated 360°, the antenna height scanned between 1 m and 4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations.

Note:

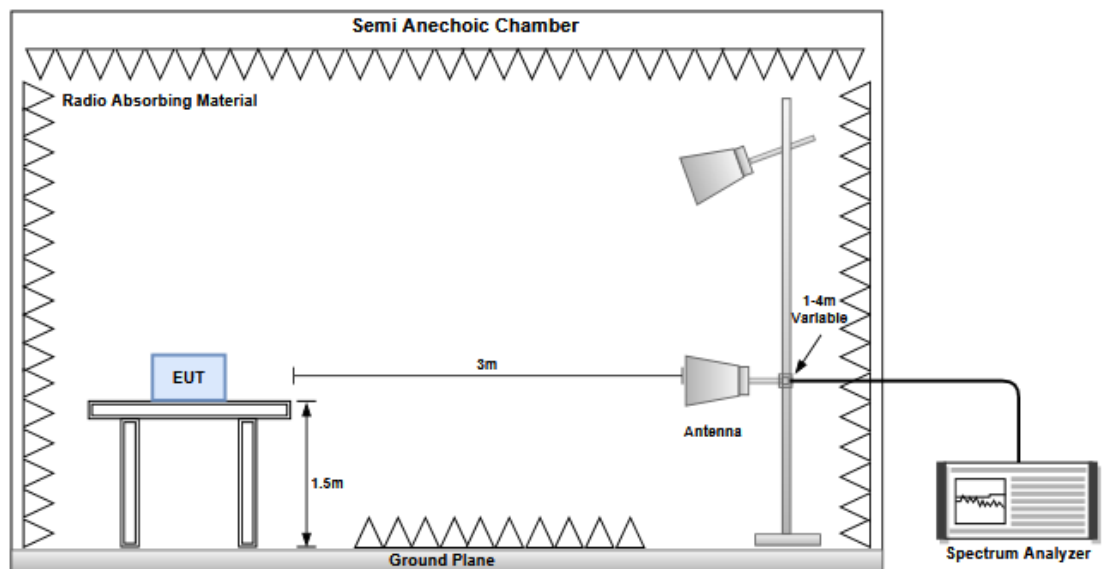
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above 1GHz.

3.4.3 Test Setup

Radiated Emissions below 1 GHz



Radiated Emissions above 1 GHz



3.4.4 Test Results

Refer to Appendix D.

3.5 Emissions in Non-Restricted Frequency Bands

3.5.1 Emissions in Non-Restricted Frequency Bands Limit

Peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz.

3.5.2 Test Procedures

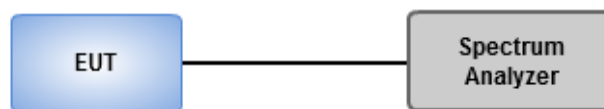
Reference level measurement

1. Set RBW=100kHz, VBW = 300kHz , Detector = Peak, Sweep time = Auto
2. Trace = max hold , Allow Trace to fully stabilize
3. Use the peak marker function to determine the maximum PSD level

Emission level measurement

1. Set RBW=100kHz, VBW = 300kHz , Detector = Peak, Sweep time = Auto
2. Trace = max hold , Allow Trace to fully stabilize
3. Scan Frequency range is up to 25GHz
4. Use the peak marker function to determine the maximum amplitude level

3.5.3 Test Setup



3.5.4 Test Results

Ambient Condition	21°C / 63%	Tested By	Akun Chung
-------------------	------------	-----------	------------

Refer to Appendix E.

3.6 AC Power Line Conducted Emissions

3.6.1 Limit of AC Power Line Conducted Emissions

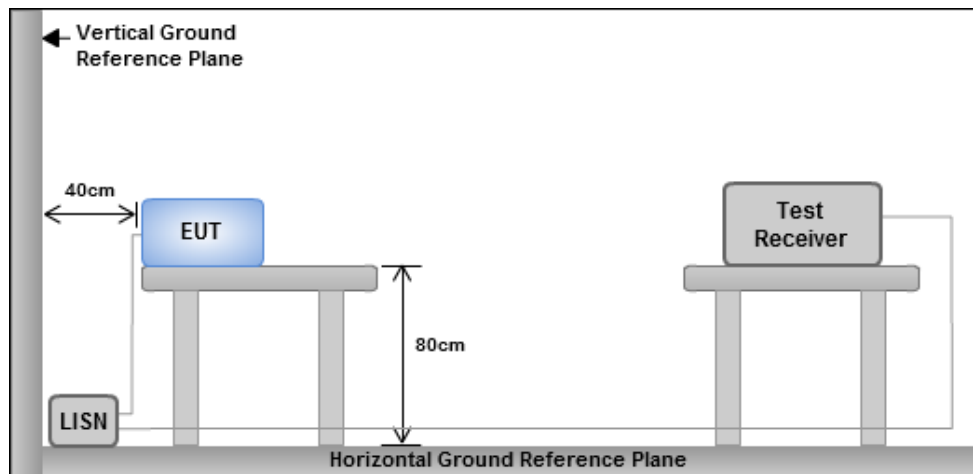
Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

Note 1: * Decreases with the logarithm of the frequency.

3.6.2 Test Procedures

1. The device is placed on a test table, raised 80 cm above the reference ground plane. The vertical conducting plane is located 40 cm to the rear of the device.
2. The device is connected to line impedance stabilization network (LISN) and other accessories are connected to other LISN. Measured levels of AC power line conducted emission are across the 50 Ω LISN port.
3. AC conducted emission measurements is made over frequency range from 150 kHz to 30 MHz.
4. This measurement was performed with AC 120V / 60Hz.

3.6.3 Test Setup



- Note: 1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

3.6.4 Test Results

Refer to Appendix F.

4 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corporation (EMC and Wireless Communication Laboratory), it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan District. Location map can be found on our website <http://www.icertifi.com.tw>.

Linkou

Tel: 886-2-2601-1640

No.30-2, Ding Fwu Tsuen, Lin Kou
District, New Taipei City, Taiwan
(R.O.C.)

Kwei Shan

Tel: 886-3-271-8666

No.3-1, Lane 6, Wen San 3rd
St., Kwei Shan Dist., Tao Yuan
City 33381, Taiwan (R.O.C.)
No.2-1, Lane 6, Wen San 3rd
St., Kwei Shan Dist., Tao Yuan
City 33381, Taiwan (R.O.C.)

Kwei Shan Site II

Tel: 886-3-271-8640

No.14-1, Lane 19, Wen San 3rd
St., Kwei Shan Dist., Tao Yuan
City 33381, Taiwan (R.O.C.)

If you have any suggestion, please feel free to contact us as below information.

Tel: 886-3-271-8666

Fax: 886-3-318-0345

Email: ICC_Service@icertifi.com.tw

==END==

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
802.11b_Nss1,(1Mbps)_2TX	7.55M	12.859M	12M9G1D	7.05M	12.423M
802.11g_Nss1,(6Mbps)_2TX	16.275M	16.686M	16M7D1D	15.25M	16.585M
802.11n HT20_Nss1,(MCS0)_2TX	17.275M	17.858M	17M9D1D	15.9M	17.714M
802.11n HT40_Nss1,(MCS0)_2TX	35.7M	36.446M	36M4D1D	35M	36.195M

Max-N dB = Maximum 6dB down bandwidth; Max-OBW = Maximum 99% occupied bandwidth;

Min-N dB = Minimum 6dB down bandwidth; Min-OBW = Minimum 99% occupied bandwidth

Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	7.525M	12.788M	7.05M	12.598M
2437MHz	Pass	500k	7.075M	12.745M	7.05M	12.793M
2462MHz	Pass	500k	7.55M	12.859M	7.525M	12.423M
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	16.05M	16.686M	16.275M	16.676M
2437MHz	Pass	500k	15.25M	16.607M	15.65M	16.585M
2462MHz	Pass	500k	15.3M	16.615M	15.925M	16.592M
802.11n HT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	17.275M	17.807M	15.9M	17.858M
2437MHz	Pass	500k	15.925M	17.768M	15.95M	17.714M
2462MHz	Pass	500k	16.925M	17.773M	16.5M	17.792M
802.11n HT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	500k	35.3M	36.308M	35M	36.206M
2437MHz	Pass	500k	35.05M	36.195M	35.1M	36.236M
2452MHz	Pass	500k	35.35M	36.306M	35.7M	36.446M

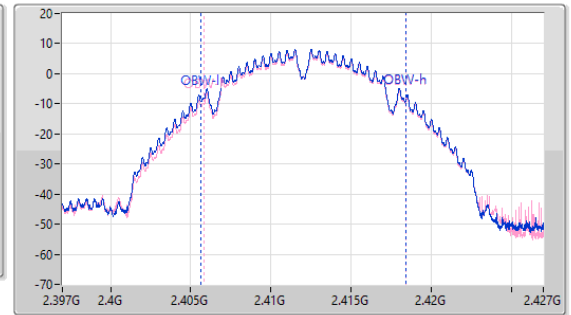
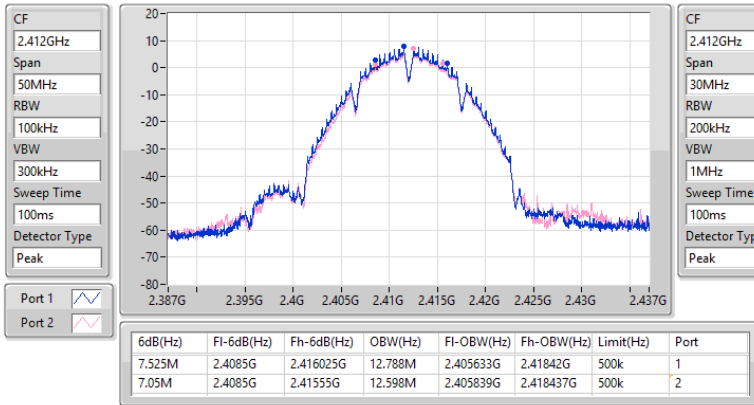
Port X-N dB = Port X 6dB down bandwidth;

Port X-OBW = Port X 99% occupied bandwidth

2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_2TX

EBW

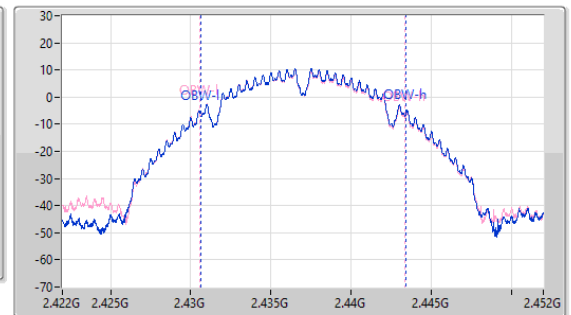
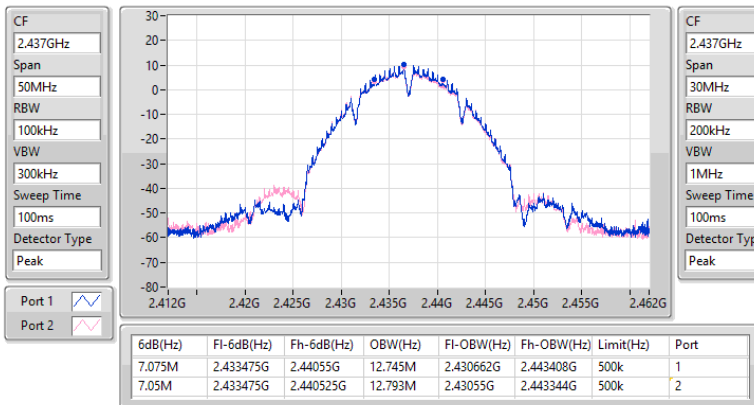
2412MHz



2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_2TX

EBW

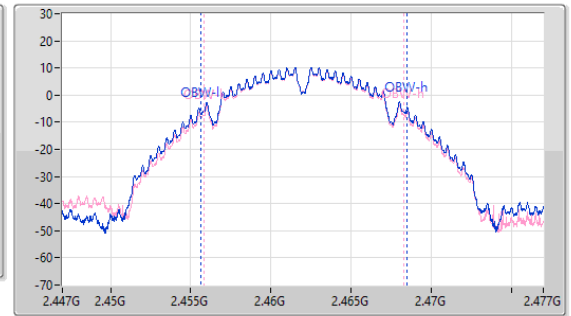
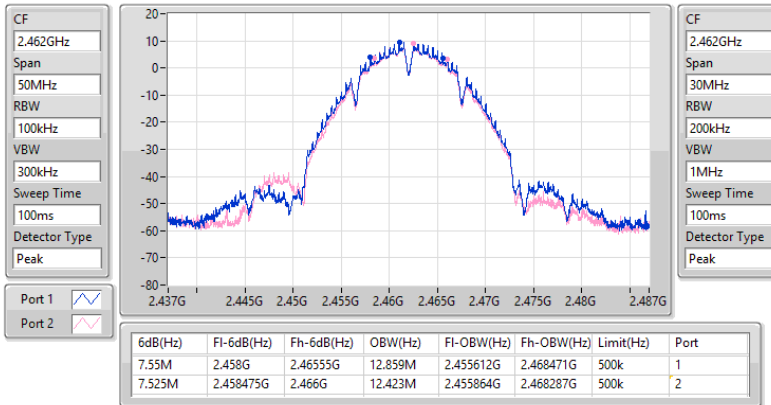
2437MHz



2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_2TX

EBW

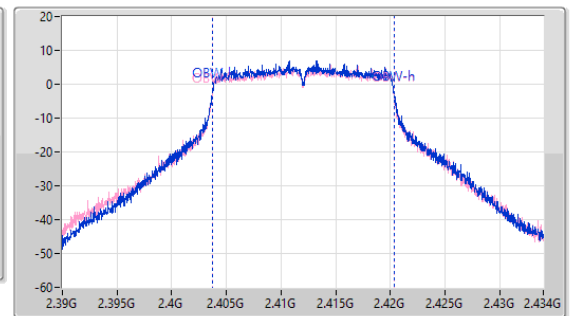
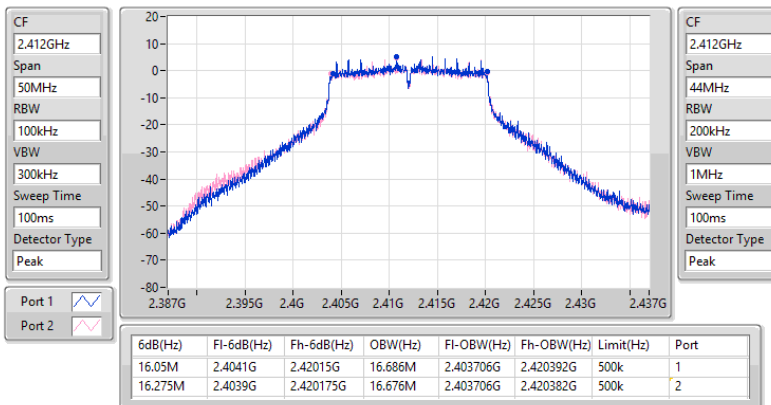
2462MHz



2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_2TX

EBW

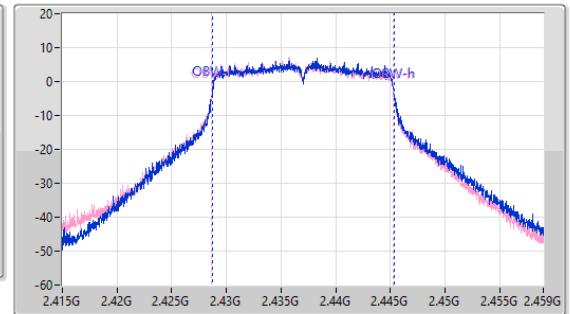
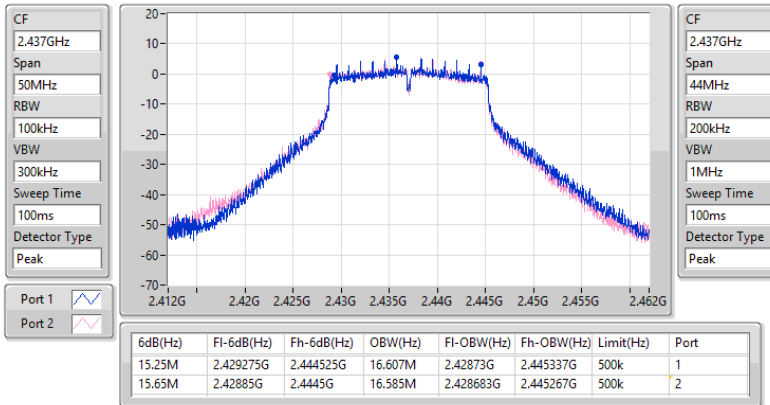
2412MHz



2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_2TX

EBW

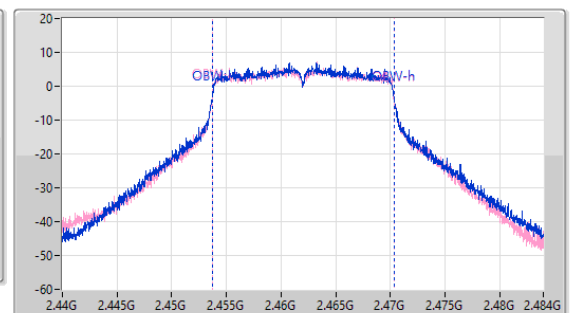
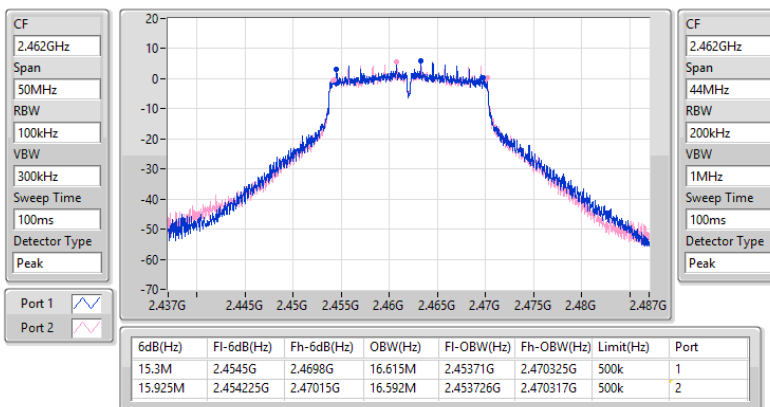
2437MHz



2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_2TX

EBW

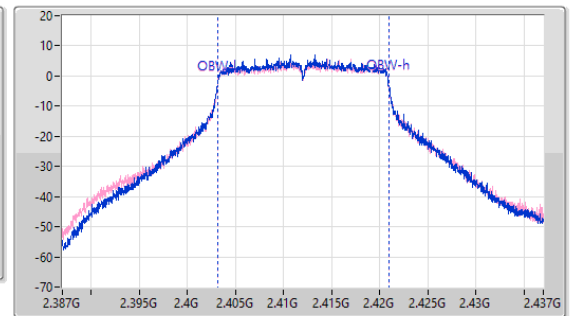
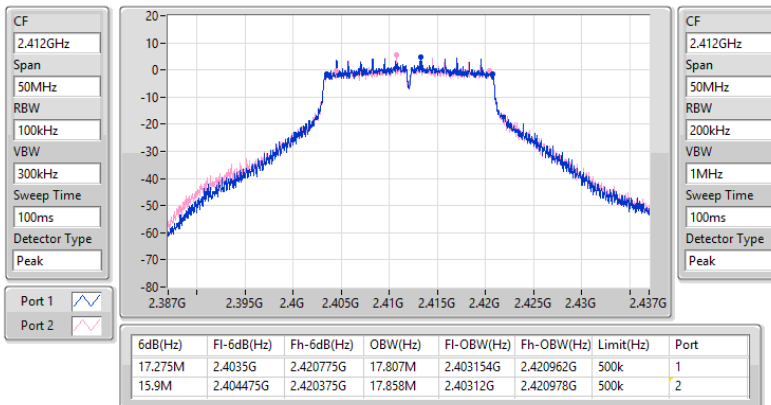
2462MHz



2.4-2.4835GHz_802.11n_HT20_Nss1,(MCS0)_2TX

EBW

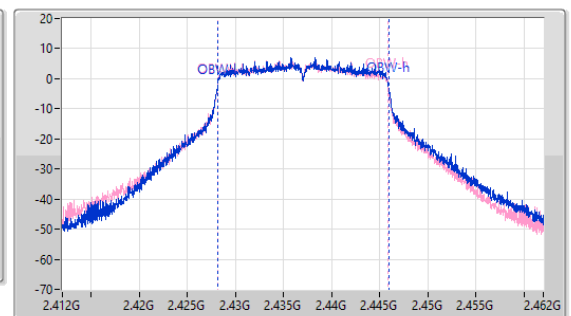
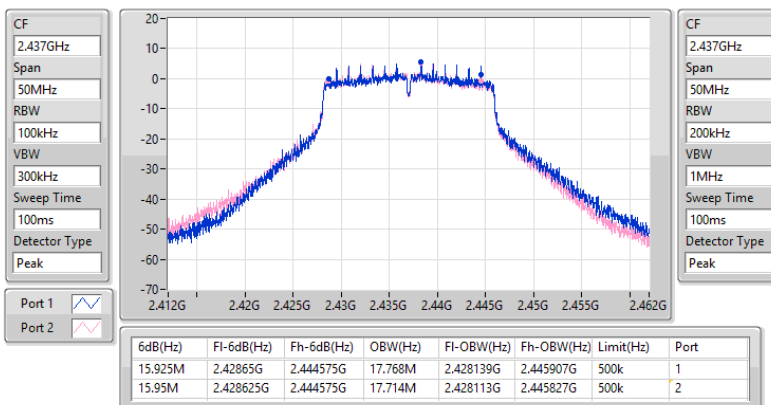
2412MHz



2.4-2.4835GHz_802.11n_HT20_Nss1,(MCS0)_2TX

EBW

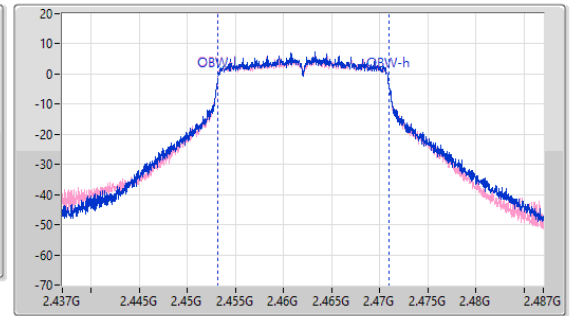
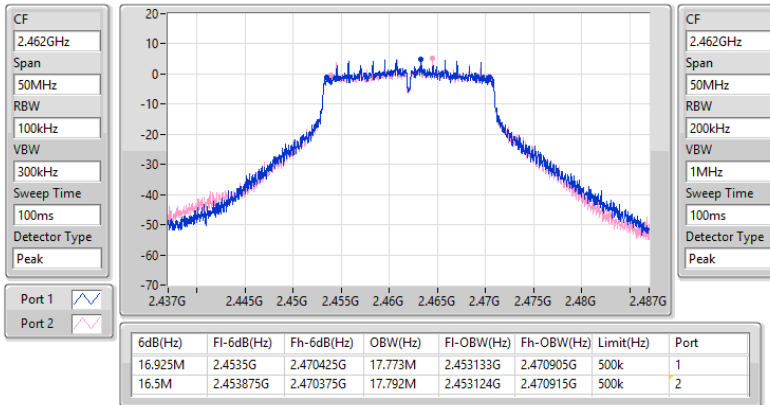
2437MHz



2.4-2.4835GHz_802.11n HT20_Nss1,(MCS0)_2TX

EBW

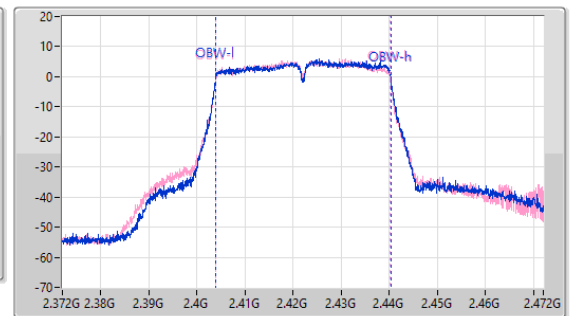
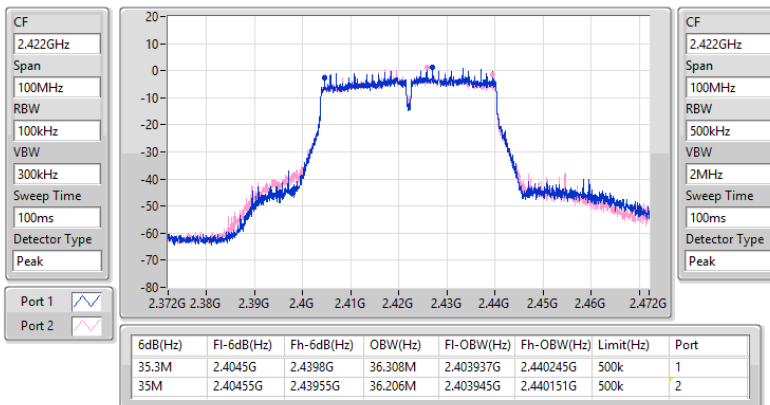
2462MHz



2.4-2.4835GHz_802.11n HT40_Nss1,(MCS0)_2TX

EBW

2422MHz

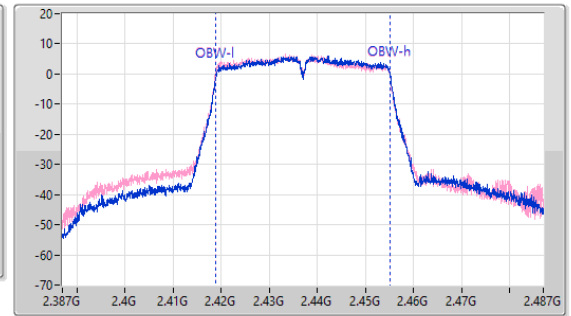
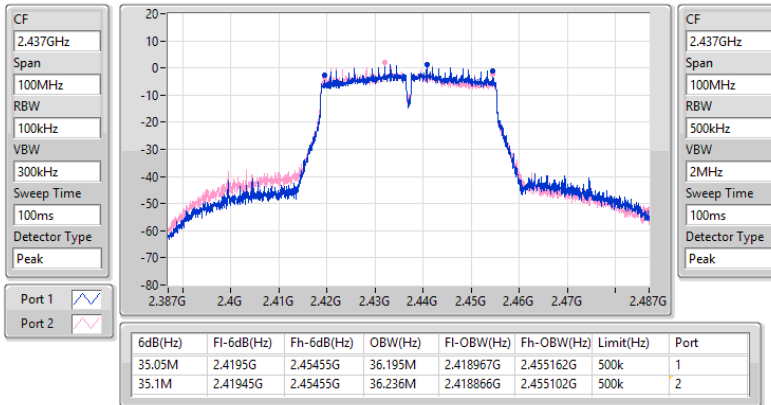




2.4-2.4835GHz_802.11n_HT40_Nss1,(MCS0)_2TX

EBW

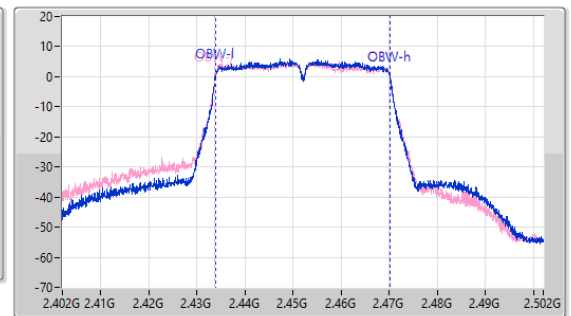
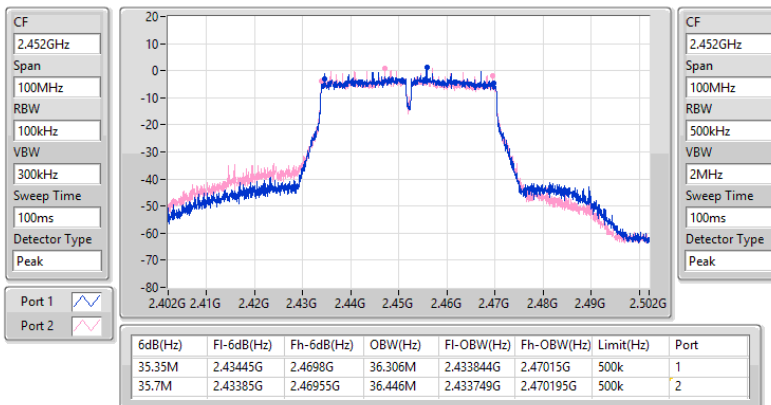
2437MHz



2.4-2.4835GHz_802.11n_HT40_Nss1,(MCS0)_2TX

EBW

2452MHz





Conducted Output Power(Peak)

Appendix B.1

Summary

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11b_Nss1,(1Mbps)_2TX	23.34	0.21577
802.11g_Nss1,(6Mbps)_2TX	23.03	0.20091
802.11n HT20_Nss1,(MCS0)_2TX	23.01	0.19999
802.11n HT40_Nss1,(MCS0)_2TX	23.26	0.21184

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	2.47	18.41	17.62	21.04	30.00	23.51	36.00
2437MHz	Pass	2.47	20.11	20.05	23.09	30.00	25.56	36.00
2462MHz	Pass	2.47	20.31	20.35	23.34	30.00	25.81	36.00
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	2.47	19.85	19.65	22.76	30.00	25.23	36.00
2437MHz	Pass	2.47	19.81	19.98	22.91	30.00	25.38	36.00
2462MHz	Pass	2.47	20.08	19.96	23.03	30.00	25.50	36.00
802.11n HT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	2.47	19.89	19.56	22.74	30.00	25.21	36.00
2437MHz	Pass	2.47	19.86	19.84	22.86	30.00	25.33	36.00
2462MHz	Pass	2.47	20.12	19.88	23.01	30.00	25.48	36.00
802.11n HT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
2422MHz	Pass	2.47	20.14	19.98	23.07	30.00	25.54	36.00
2437MHz	Pass	2.47	20.28	20.21	23.26	30.00	25.73	36.00
2452MHz	Pass	2.47	19.64	19.41	22.54	30.00	25.01	36.00

DG = Directional Gain; Port X = Port X output power

Summary

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11b_Nss1,(1Mbps)_2TX	20.49	0.11194
802.11g_Nss1,(6Mbps)_2TX	18.44	0.06982
802.11n HT20_Nss1,(MCS0)_2TX	18.28	0.06730
802.11n HT40_Nss1,(MCS0)_2TX	17.55	0.05689

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	2.47	15.61	14.64	18.16	-	20.63	-
2437MHz	Pass	2.47	17.27	16.95	20.12	-	22.59	-
2462MHz	Pass	2.47	17.51	17.45	20.49	-	22.96	-
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	2.47	15.34	15.02	18.19	-	20.66	-
2437MHz	Pass	2.47	15.32	15.35	18.35	-	20.82	-
2462MHz	Pass	2.47	15.54	15.32	18.44	-	20.91	-
802.11n HT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	2.47	15.18	14.81	18.01	-	20.48	-
2437MHz	Pass	2.47	15.16	15.11	18.15	-	20.62	-
2462MHz	Pass	2.47	15.38	15.16	18.28	-	20.75	-
802.11n HT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
2422MHz	Pass	2.47	14.33	14.23	17.29	-	19.76	-
2437MHz	Pass	2.47	14.62	14.45	17.55	-	20.02	-
2452MHz	Pass	2.47	13.95	13.62	16.80	-	19.27	-

DG = Directional Gain; Port X = Port X output power

Note : Conducted average output power is for reference

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
802.11b_Nss1,(1Mbps)_2TX	-2.36
802.11g_Nss1,(6Mbps)_2TX	-5.29
802.11n HT20_Nss1,(MCS0)_2TX	-7.91
802.11n HT40_Nss1,(MCS0)_2TX	-11.30

RBW = 3kHz;

Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	5.46	-6.09	-7.81	-5.10	8.00
2437MHz	Pass	5.46	-4.54	-4.33	-2.36	8.00
2462MHz	Pass	5.46	-3.92	-4.73	-2.37	8.00
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	5.46	-8.38	-8.23	-5.29	8.00
2437MHz	Pass	5.46	-9.75	-7.71	-6.75	8.00
2462MHz	Pass	5.46	-7.85	-8.84	-7.16	8.00
802.11n HT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	5.46	-9.84	-10.95	-8.35	8.00
2437MHz	Pass	5.46	-9.54	-9.36	-8.05	8.00
2462MHz	Pass	5.46	-10.07	-10.39	-7.91	8.00
802.11n HT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	5.46	-13.54	-13.98	-11.92	8.00
2437MHz	Pass	5.46	-12.89	-12.62	-11.30	8.00
2452MHz	Pass	5.46	-13.20	-12.53	-11.58	8.00

DG = Directional Gain; RBW = 3kHz;

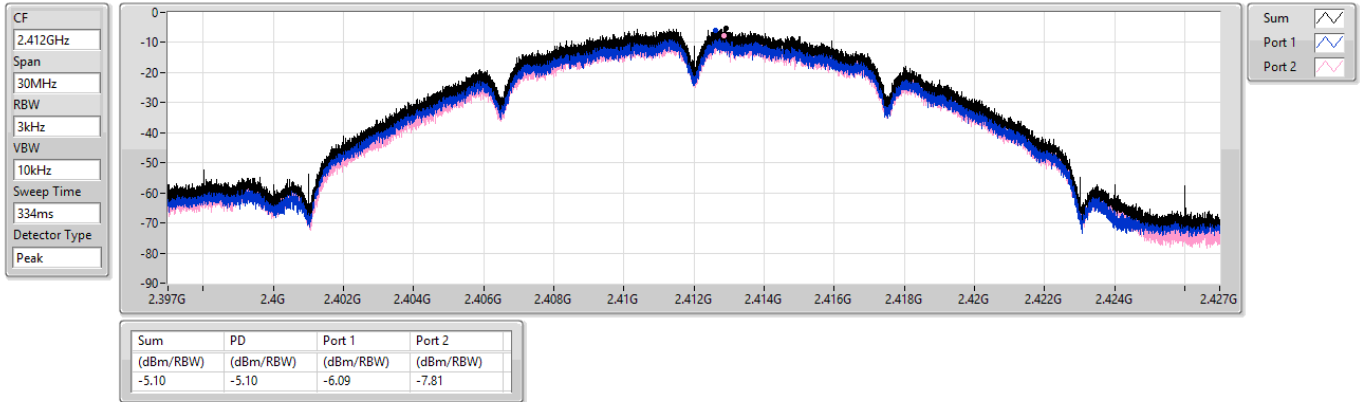
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; Port X = Port X Power Density;

Directional Gain = $10 * \log((10^{2.47/20} + 10^{2.43/20})^2 / 2) = 5.46 \text{ dBi}$

2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_2TX

PSD

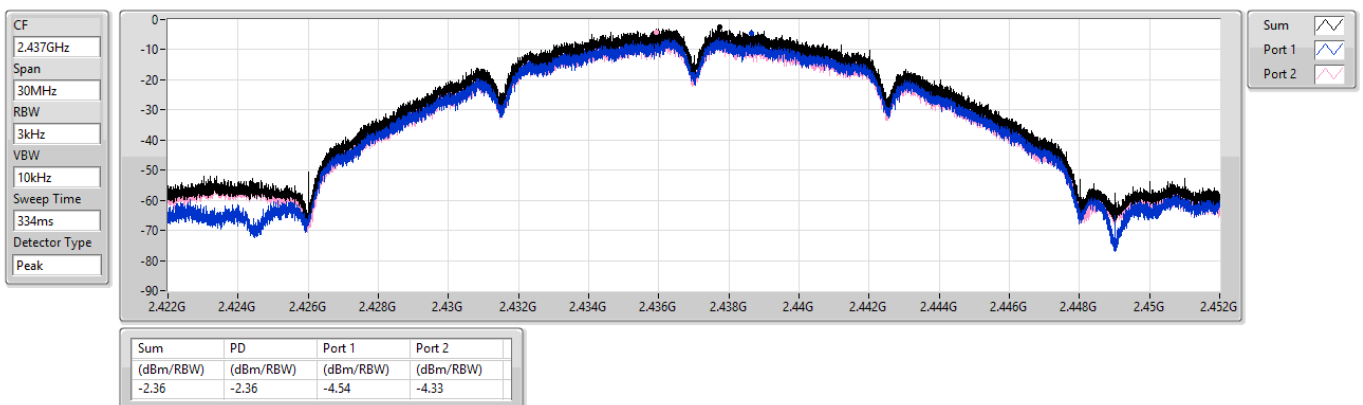
2412MHz



2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_2TX

PSD

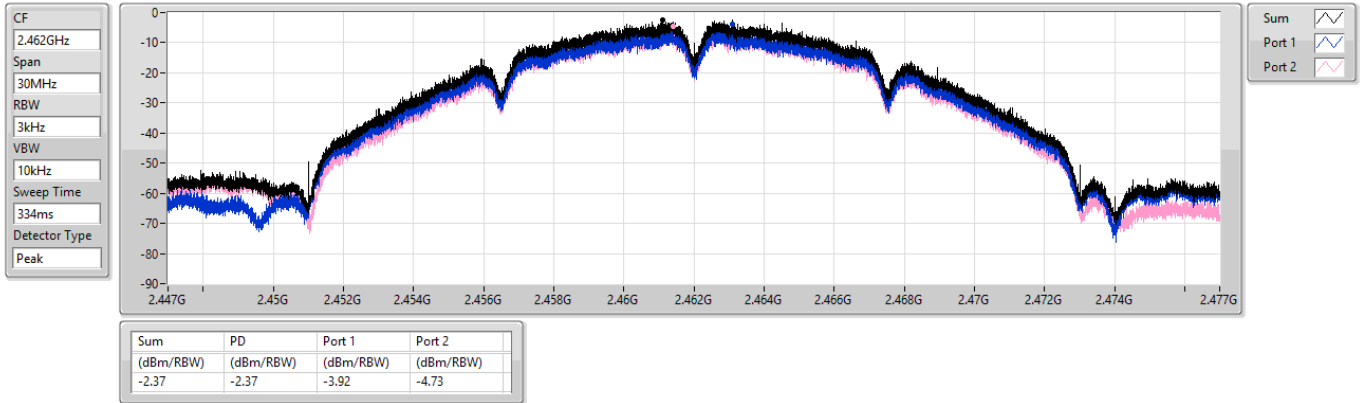
2437MHz



2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_2TX

PSD

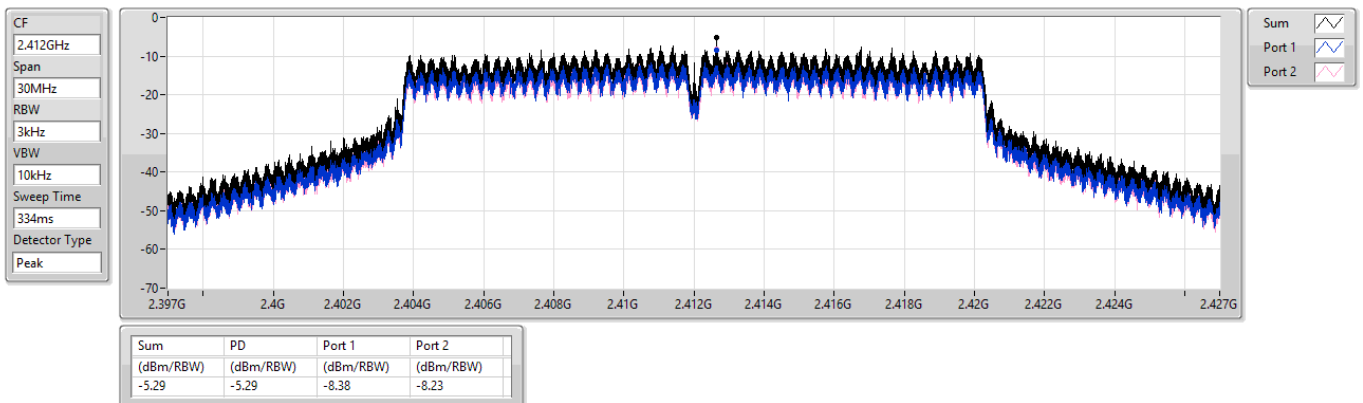
2462MHz



2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_2TX

PSD

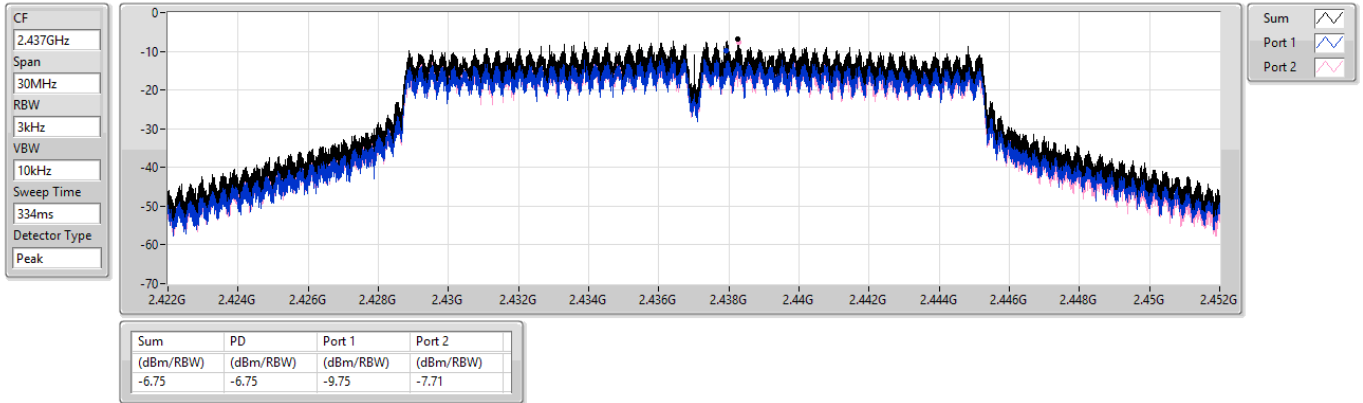
2412MHz



2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_2TX

PSD

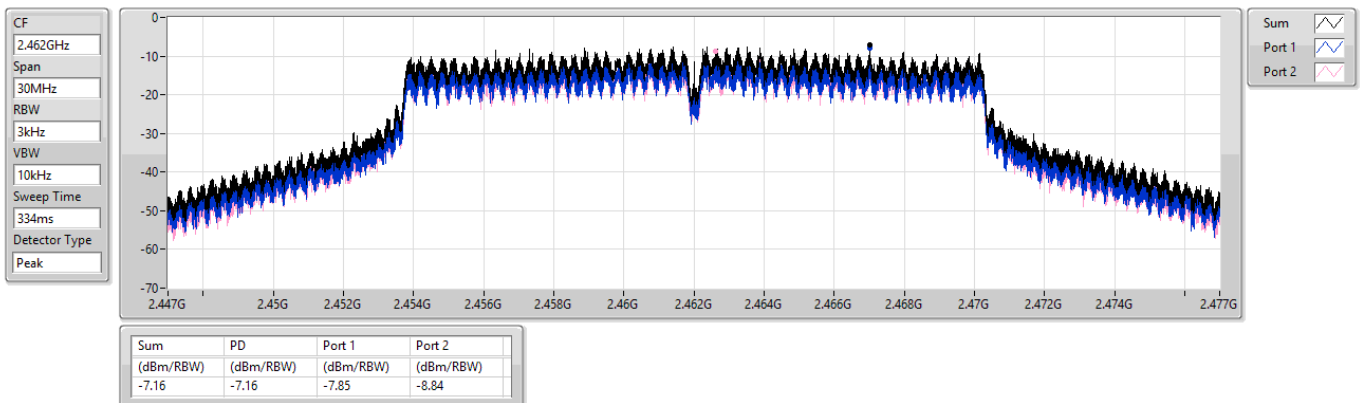
2437MHz



2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_2TX

PSD

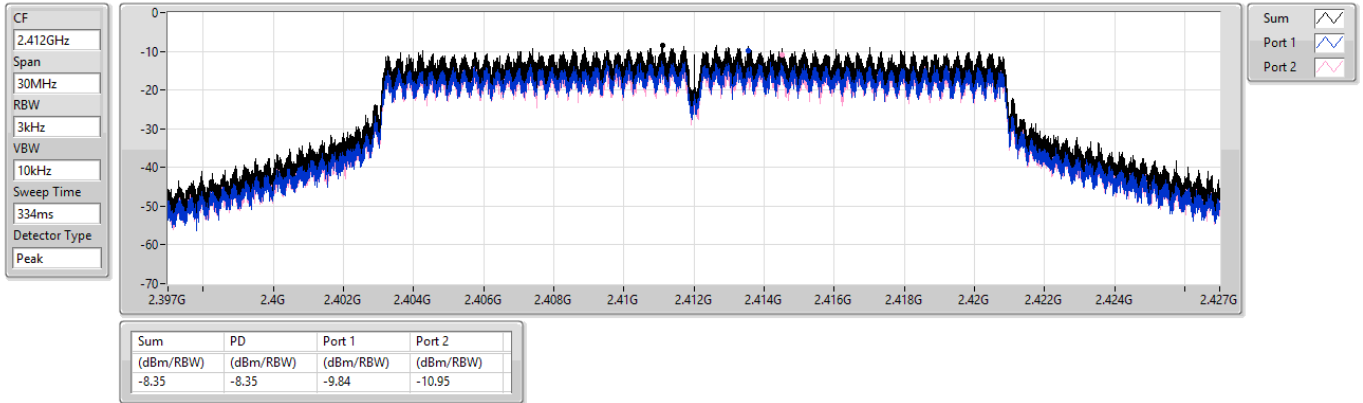
2462MHz



2.4-2.4835GHz_802.11n HT20_Nss1,(MCS0)_2TX

PSD

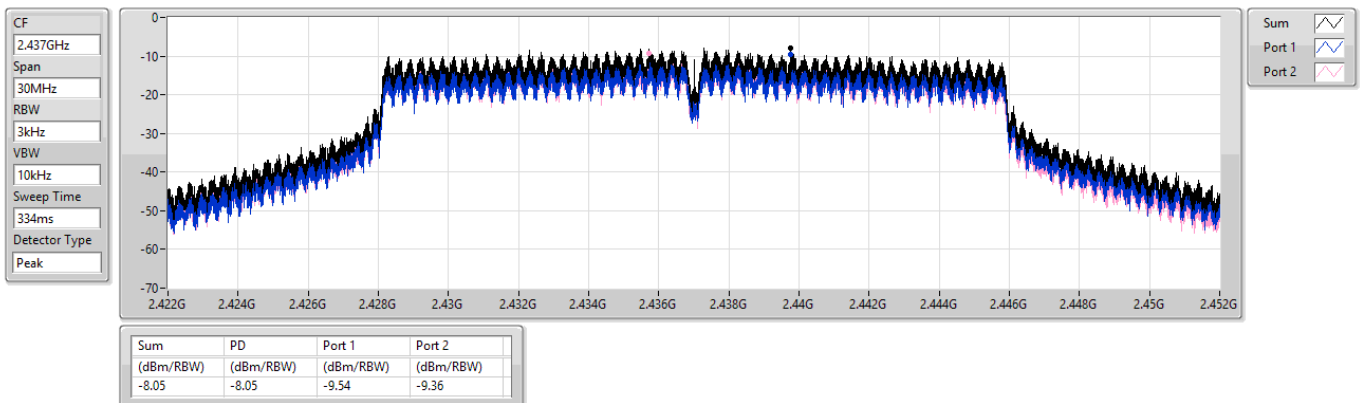
2412MHz



2.4-2.4835GHz_802.11n HT20_Nss1,(MCS0)_2TX

PSD

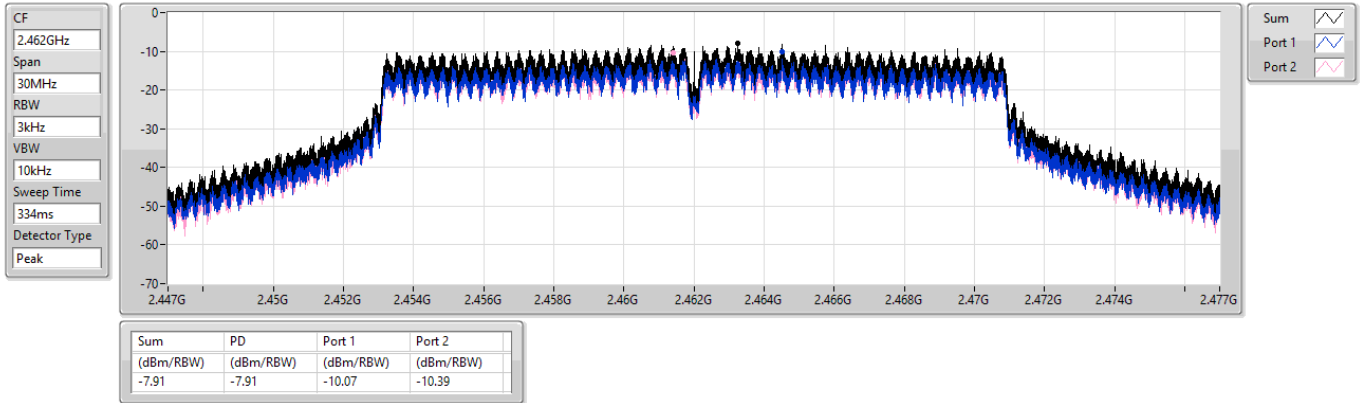
2437MHz



2.4-2.4835GHz_802.11n HT20_Nss1,(MCS0)_2TX

PSD

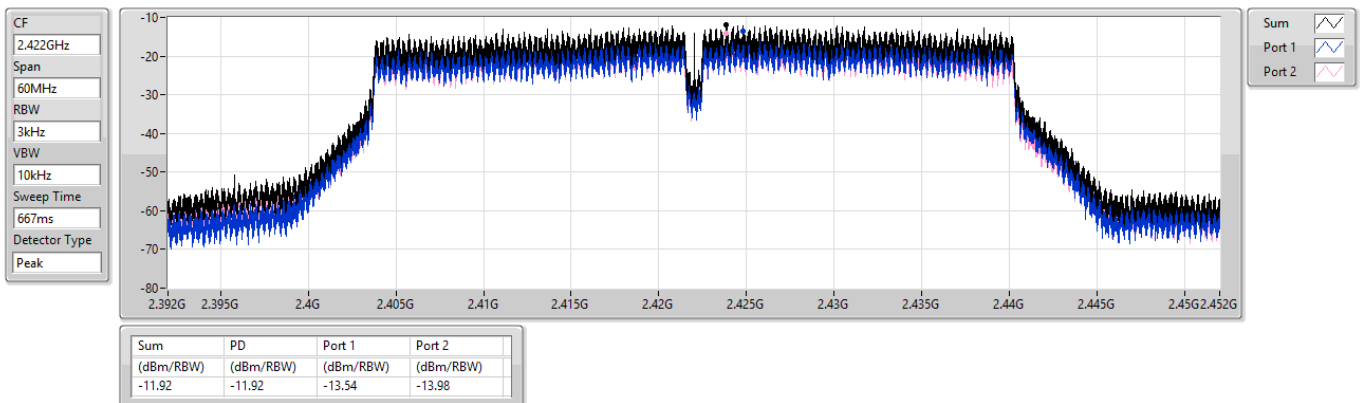
2462MHz



2.4-2.4835GHz_802.11n HT40_Nss1,(MCS0)_2TX

PSD

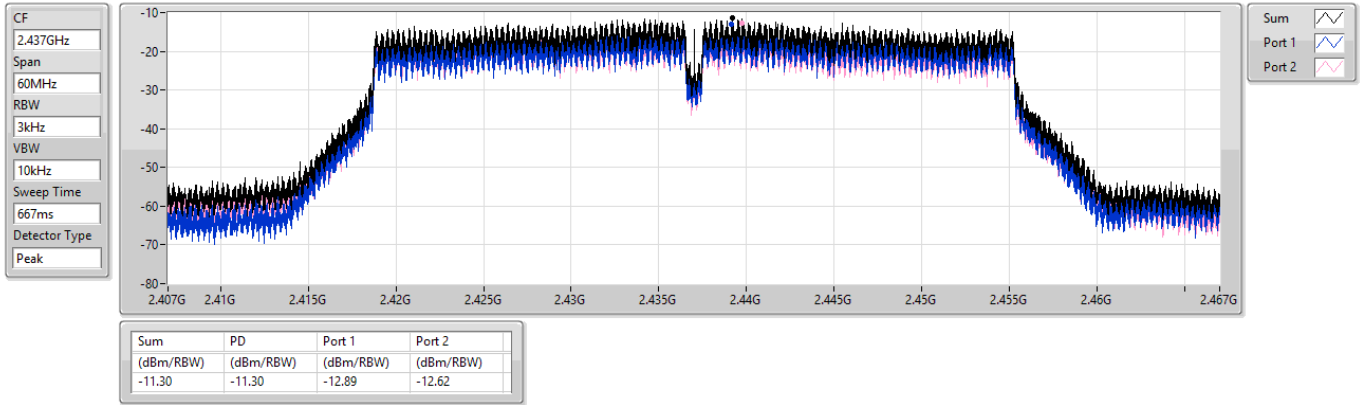
2422MHz



2.4-2.4835GHz_802.11n HT40_Nss1,(MCS0)_2TX

PSD

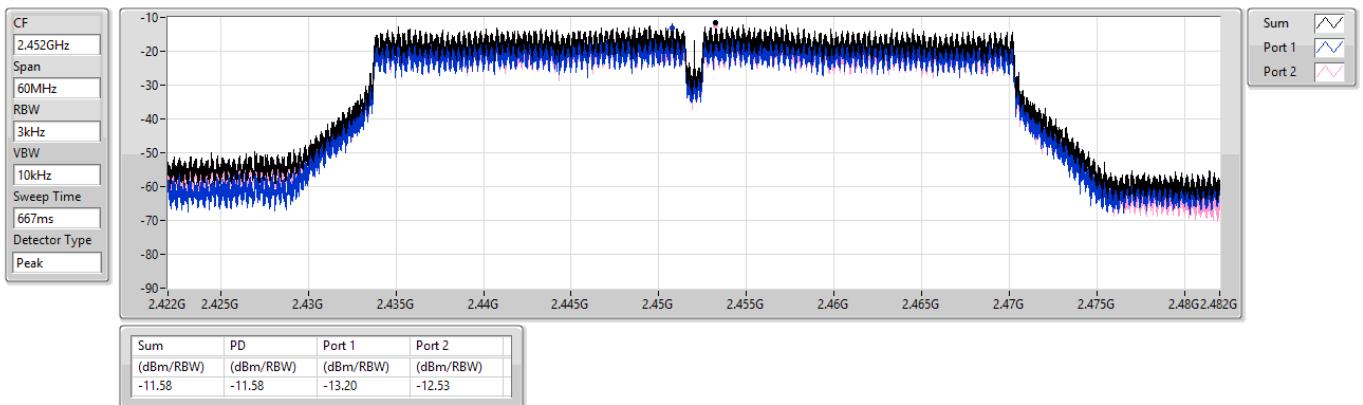
2437MHz



2.4-2.4835GHz_802.11n HT40_Nss1,(MCS0)_2TX

PSD

2452MHz





Unwanted Emissions (Below 1GHz)

Modulation	11b	Test Freq. (MHz)	2462																																																																						
Polarization	Horizontal																																																																								
Test By :Brad Wu Temperature(°C):23 Humidity(%):64																																																																									
Level (dBuV/m) Frequency (MHz) CLASS-B <table><tr><th></th><th>Freq. MHz</th><th>Emission level dBuV/m</th><th>Limit dBuV/m</th><th>Margin dB</th><th>SA reading dBuV</th><th>Factor dB/m</th><th>Remark</th><th>ANT High cm</th><th>Turn Table deg</th></tr><tr><td>1</td><td>114.39</td><td>33.00</td><td>43.50</td><td>-10.50</td><td>44.44</td><td>-11.44</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>2</td><td>155.13</td><td>35.07</td><td>43.50</td><td>-8.43</td><td>43.63</td><td>-8.56</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>3</td><td>239.52</td><td>40.45</td><td>46.00</td><td>-5.55</td><td>50.78</td><td>-10.33</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>4</td><td>321.97</td><td>40.82</td><td>46.00</td><td>-5.18</td><td>48.18</td><td>-7.36</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>5</td><td>485.90</td><td>38.59</td><td>46.00</td><td>-7.41</td><td>41.90</td><td>-3.31</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>6</td><td>960.23</td><td>47.56</td><td>54.00</td><td>-6.44</td><td>42.26</td><td>5.30</td><td>Peak</td><td>---</td><td>---</td></tr></table>					Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg	1	114.39	33.00	43.50	-10.50	44.44	-11.44	Peak	---	---	2	155.13	35.07	43.50	-8.43	43.63	-8.56	Peak	---	---	3	239.52	40.45	46.00	-5.55	50.78	-10.33	Peak	---	---	4	321.97	40.82	46.00	-5.18	48.18	-7.36	Peak	---	---	5	485.90	38.59	46.00	-7.41	41.90	-3.31	Peak	---	---	6	960.23	47.56	54.00	-6.44	42.26	5.30	Peak	---	---
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg																																																																
1	114.39	33.00	43.50	-10.50	44.44	-11.44	Peak	---	---																																																																
2	155.13	35.07	43.50	-8.43	43.63	-8.56	Peak	---	---																																																																
3	239.52	40.45	46.00	-5.55	50.78	-10.33	Peak	---	---																																																																
4	321.97	40.82	46.00	-5.18	48.18	-7.36	Peak	---	---																																																																
5	485.90	38.59	46.00	-7.41	41.90	-3.31	Peak	---	---																																																																
6	960.23	47.56	54.00	-6.44	42.26	5.30	Peak	---	---																																																																
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m) *Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m). Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.																																																																									

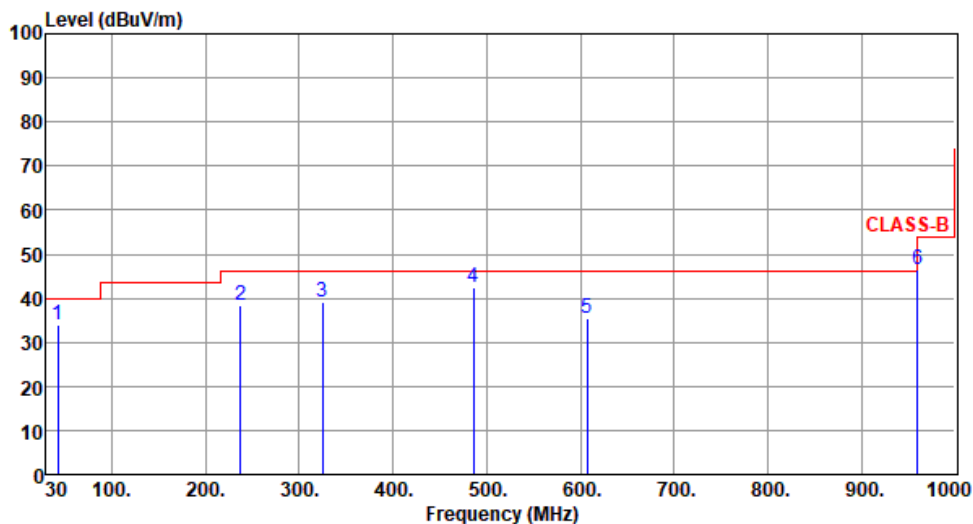


Unwanted Emissions into Restricted Frequency Bands

Appendix D

Modulation	11b	Test Freq. (MHz)	2462
Polarization	Vertical		

Test By :Brad Wu Temperature(°C):23 Humidity(%):64



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	42.61	33.91	40.00	-6.09	42.30	-8.39	QP	100	346
2	237.58	38.20	46.00	-7.80	48.73	-10.53	Peak	---	---
3	324.88	39.09	46.00	-6.91	46.39	-7.30	Peak	---	---
4	485.90	42.56	46.00	-3.44	45.87	-3.31	Peak	---	---
5	607.15	35.58	46.00	-10.42	35.98	-0.40	Peak	---	---
6	960.23	46.34	54.00	-7.66	41.04	5.30	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.



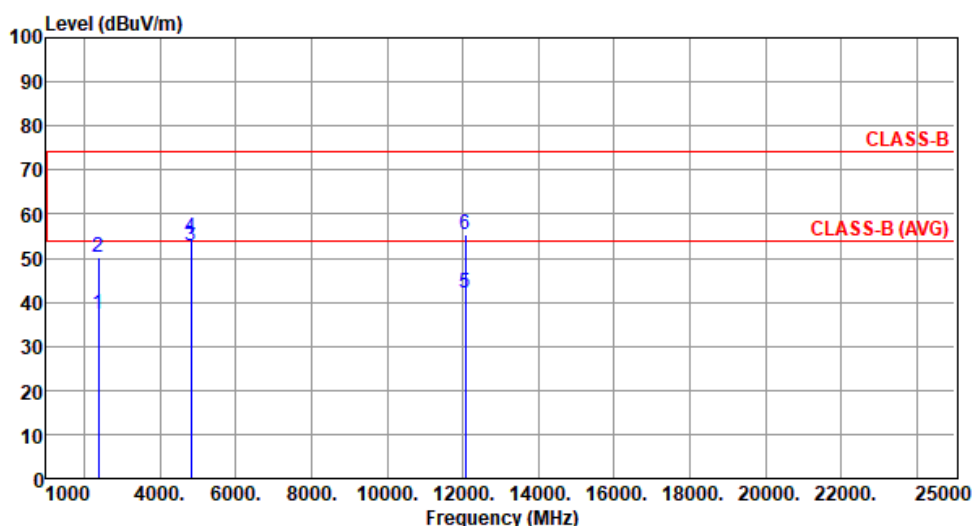
Unwanted Emission (Above 1GHz) for 11b

Modulation	11b	Test Freq. (MHz)	2412
Polarization	Horizontal		

Test By :Sean Yu

Temperature(°C):24

Humidity(%):61



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	37.41	54.00	-16.59	41.73	-4.32	Average	226	335
2	2390.00	50.18	74.00	-23.82	54.50	-4.32	Peak	226	335
3	4824.00	52.72	54.00	-1.28	53.18	-0.46	Average	144	1
4	4824.00	54.70	74.00	-19.30	55.16	-0.46	Peak	144	1
5	12060.00	41.99	54.00	-12.01	35.77	6.22	Average	100	147
6	12060.00	55.45	74.00	-18.55	49.23	6.22	Peak	100	147

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).



Modulation	11b	Test Freq. (MHz)	2412
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):24 Humidity(%):61			
Level (dBUV/m) <			



Modulation	11b	Test Freq. (MHz)	2437
Polarization	Horizontal		
Test By :Sean Yu Temperature(°C):24 Humidity(%):61			
Level (dBuV/m)			



Modulation	11b	Test Freq. (MHz)	2437
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):24 Humidity(%):61			
Level (dBuV/m) <			



Modulation	11b	Test Freq. (MHz)	2462
Polarization	Horizontal		
Test By :Brad Wu Temperature(°C):24 Humidity(%):61			
Level (dBuV/m) <			



Unwanted Emissions into Restricted Frequency Bands

Appendix D

Modulation	11b	Test Freq. (MHz)	2462						
Polarization	Vertical								
Test By :Brad Wu Temperature(°C):24 Humidity(%):61									
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2483.50	39.83	54.00	-14.17	44.25	-4.42	Average	100	46
2	2483.50	55.35	74.00	-18.65	59.77	-4.42	Peak	100	46
3	4924.00	43.68	54.00	-10.32	44.12	-0.44	Average	100	6
4	4924.00	48.97	74.00	-25.03	49.41	-0.44	Peak	100	6
5	7386.00	37.48	54.00	-16.52	32.45	5.03	Average	100	105
6	7386.00	50.29	74.00	-23.71	45.26	5.03	Peak	100	105
Note 1: Emission Level (dBUV/m) = SA Reading (dBUV) + Factor* (dB/m) *Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).									



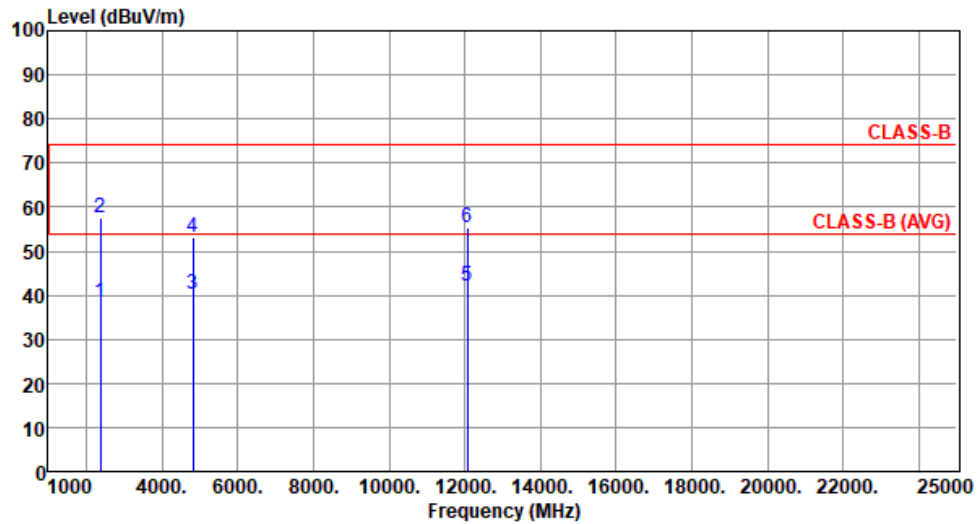
Unwanted Emissions (Above 1GHz) for 11g

Modulation	11g	Test Freq. (MHz)	2412
Polarization	Horizontal		

Test By :Brad Wu

Temperature(°C):24

Humidity(%):61



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	38.43	54.00	-15.57	42.75	-4.32	Average	112	251
2	2390.00	57.60	74.00	-16.40	61.92	-4.32	Peak	112	251
3	4824.00	40.06	54.00	-13.94	40.52	-0.46	Average	146	3
4	4824.00	53.13	74.00	-20.87	53.59	-0.46	Peak	146	3
5	12060.00	41.98	54.00	-12.02	35.76	6.22	Average	100	22
6	12060.00	55.18	74.00	-18.82	48.96	6.22	Peak	100	22

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

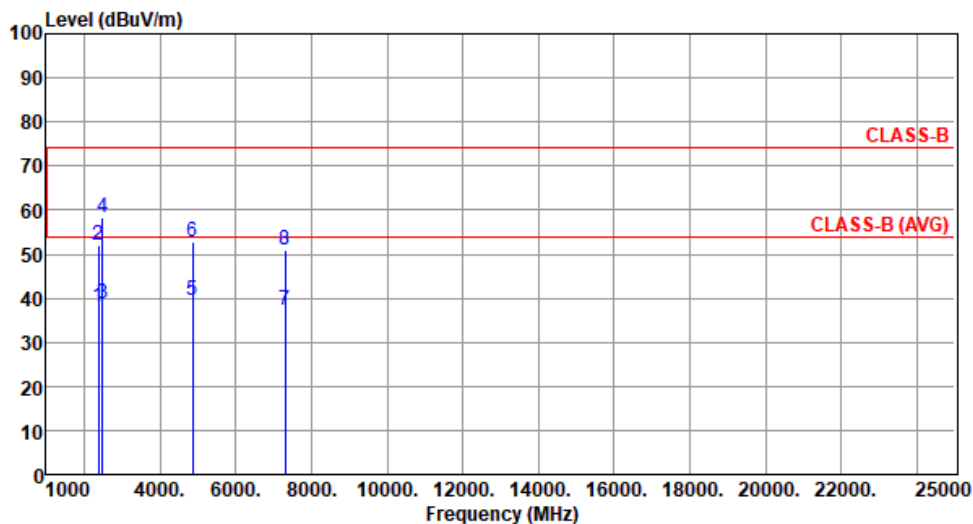


Modulation	11g	Test Freq. (MHz)	2412
Polarization	Vertical		
Test By :Brad Wu Temperature(°C):24 Humidity(%):61			
Level (dBuV/m)			



Modulation	11g	Test Freq. (MHz)	2437
Polarization	Horizontal		

Test By :Brad Wu Temperature(°C):24 Humidity(%):61



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	37.86	54.00	-16.14	42.18	-4.32	Average	113	305
2	2390.00	51.85	74.00	-22.15	56.17	-4.32	Peak	113	305
3	2483.50	38.64	54.00	-15.36	43.06	-4.42	Average	113	305
4	2483.50	58.24	74.00	-15.76	62.66	-4.42	Peak	113	305
5	4874.00	39.44	54.00	-14.56	39.89	-0.45	Average	146	5
6	4874.00	52.90	74.00	-21.10	53.35	-0.45	Peak	146	5
7	7311.00	37.20	54.00	-16.80	32.04	5.16	Average	100	19
8	7311.00	50.78	74.00	-23.22	45.62	5.16	Peak	100	19

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).



Modulation	11g	Test Freq. (MHz)	2437
Polarization	Vertical		
Test By :Brad Wu Temperature(°C):24 Humidity(%):61			
Level (dBuV/m)			



Modulation	11g	Test Freq. (MHz)	2462
Polarization	Horizontal		
Test By :Brad Wu Temperature(°C):24 Humidity(%):61			
Level (dBuV/m)			



Unwanted Emissions into Restricted Frequency Bands

Appendix D

Modulation	11g	Test Freq. (MHz)	2462
Polarization	Vertical		
Test By :Brad Wu Temperature(°C):24 Humidity(%):61			
Level (dBuV/m) <			



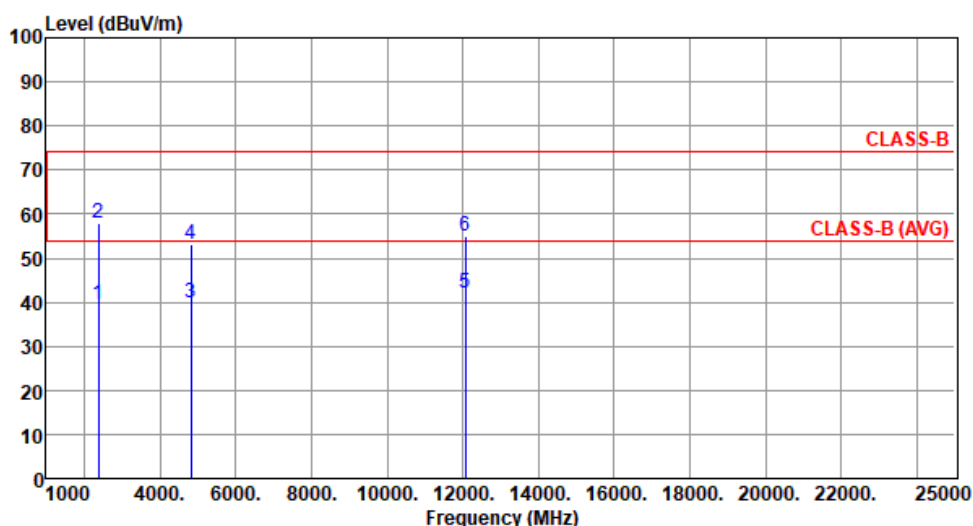
Unwanted Emissions (Above 1GHz) for HT20

Modulation	HT20	Test Freq. (MHz)	2412
Polarization	Horizontal		

Test By :Brad Wu

Temperature(°C):24

Humidity(%):61



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	39.52	54.00	-14.48	43.84	-4.32	Average	113	249
2	2390.00	57.84	74.00	-16.16	62.16	-4.32	Peak	113	249
3	4824.00	39.95	54.00	-14.05	40.41	-0.46	Average	141	1
4	4824.00	53.04	74.00	-20.96	53.50	-0.46	Peak	141	1
5	12060.00	41.93	54.00	-12.07	35.71	6.22	Average	100	36
6	12060.00	55.12	74.00	-18.88	48.90	6.22	Peak	100	36

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).



Unwanted Emissions into Restricted Frequency Bands

Appendix D

Modulation	HT20	Test Freq. (MHz)	2412
Polarization	Vertical		
Test By :Brad Wu Temperature(°C):24 Humidity(%):61			
Level (dBUV/m) <			



Modulation	HT20	Test Freq. (MHz)	2437
Polarization	Horizontal		
Test By :Brad Wu Temperature(°C):24 Humidity(%):61			
Level (dBuV/m) </			



Modulation	HT20	Test Freq. (MHz)	2437
Polarization	Vertical		
Test By :Brad Wu Temperature(°C):24 Humidity(%):61			
Level (dBuV/m) </			



Unwanted Emissions into Restricted Frequency Bands

Appendix D

Modulation	HT20	Test Freq. (MHz)	2462																																																																						
Polarization	Horizontal																																																																								
Test By :Brad Wu Temperature(°C):24 Humidity(%):61																																																																									
<table><tr><th></th><th>Freq. MHz</th><th>Emission level dBuV/m</th><th>Limit dBuV/m</th><th>Margin dB</th><th>SA reading dBuV</th><th>Factor dB/m</th><th>Remark</th><th>ANT High cm</th><th>Turn Table deg</th></tr><tr><td>1</td><td>2483.50</td><td>42.91</td><td>54.00</td><td>-11.09</td><td>47.33</td><td>-4.42</td><td>Average</td><td>105</td><td>244</td></tr><tr><td>2</td><td>2483.50</td><td>57.46</td><td>74.00</td><td>-16.54</td><td>61.88</td><td>-4.42</td><td>Peak</td><td>105</td><td>244</td></tr><tr><td>3</td><td>4924.00</td><td>39.28</td><td>54.00</td><td>-14.72</td><td>39.72</td><td>-0.44</td><td>Average</td><td>142</td><td>9</td></tr><tr><td>4</td><td>4924.00</td><td>57.65</td><td>74.00</td><td>-16.35</td><td>58.09</td><td>-0.44</td><td>Peak</td><td>142</td><td>9</td></tr><tr><td>5</td><td>7386.00</td><td>37.21</td><td>54.00</td><td>-16.79</td><td>32.18</td><td>5.03</td><td>Average</td><td>100</td><td>46</td></tr><tr><td>6</td><td>7386.00</td><td>50.77</td><td>74.00</td><td>-23.23</td><td>45.74</td><td>5.03</td><td>Peak</td><td>100</td><td>46</td></tr></table>					Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg	1	2483.50	42.91	54.00	-11.09	47.33	-4.42	Average	105	244	2	2483.50	57.46	74.00	-16.54	61.88	-4.42	Peak	105	244	3	4924.00	39.28	54.00	-14.72	39.72	-0.44	Average	142	9	4	4924.00	57.65	74.00	-16.35	58.09	-0.44	Peak	142	9	5	7386.00	37.21	54.00	-16.79	32.18	5.03	Average	100	46	6	7386.00	50.77	74.00	-23.23	45.74	5.03	Peak	100	46
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg																																																																
1	2483.50	42.91	54.00	-11.09	47.33	-4.42	Average	105	244																																																																
2	2483.50	57.46	74.00	-16.54	61.88	-4.42	Peak	105	244																																																																
3	4924.00	39.28	54.00	-14.72	39.72	-0.44	Average	142	9																																																																
4	4924.00	57.65	74.00	-16.35	58.09	-0.44	Peak	142	9																																																																
5	7386.00	37.21	54.00	-16.79	32.18	5.03	Average	100	46																																																																
6	7386.00	50.77	74.00	-23.23	45.74	5.03	Peak	100	46																																																																
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m) *Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).																																																																									



Modulation	HT20	Test Freq. (MHz)	2462																																																																						
Polarization	Vertical																																																																								
Test By :Brad Wu Temperature(°C):24 Humidity(%):61																																																																									
Level (dBuV/m) 100 90 80 70 60 50 40 30 20 10 0 1000 4000 6000 8000 10000 12000 14000 16000 18000 20000 22000 25000 CLASS-B CLASS-B (AVG) 2 1 4 3 6 5 Frequency (MHz) <table><tr><th></th><th>Freq. MHz</th><th>Emission level dBuV/m</th><th>Limit dBuV/m</th><th>Margin dB</th><th>SA reading dBuV</th><th>Factor dB/m</th><th>Remark</th><th>ANT High cm</th><th>Turn Table deg</th></tr><tr><td>1</td><td>2483.50</td><td>49.12</td><td>54.00</td><td>-4.88</td><td>53.54</td><td>-4.42</td><td>Average</td><td>100</td><td>84</td></tr><tr><td>2</td><td>2483.50</td><td>64.31</td><td>74.00</td><td>-9.69</td><td>68.73</td><td>-4.42</td><td>Peak</td><td>100</td><td>84</td></tr><tr><td>3</td><td>4924.00</td><td>34.12</td><td>54.00</td><td>-19.88</td><td>34.56</td><td>-0.44</td><td>Average</td><td>100</td><td>26</td></tr><tr><td>4</td><td>4924.00</td><td>47.44</td><td>74.00</td><td>-26.56</td><td>47.88</td><td>-0.44</td><td>Peak</td><td>100</td><td>26</td></tr><tr><td>5</td><td>7386.00</td><td>37.22</td><td>54.00</td><td>-16.78</td><td>32.19</td><td>5.03</td><td>Average</td><td>100</td><td>49</td></tr><tr><td>6</td><td>7386.00</td><td>50.38</td><td>74.00</td><td>-23.62</td><td>45.35</td><td>5.03</td><td>Peak</td><td>100</td><td>49</td></tr></table> Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m) *Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).					Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg	1	2483.50	49.12	54.00	-4.88	53.54	-4.42	Average	100	84	2	2483.50	64.31	74.00	-9.69	68.73	-4.42	Peak	100	84	3	4924.00	34.12	54.00	-19.88	34.56	-0.44	Average	100	26	4	4924.00	47.44	74.00	-26.56	47.88	-0.44	Peak	100	26	5	7386.00	37.22	54.00	-16.78	32.19	5.03	Average	100	49	6	7386.00	50.38	74.00	-23.62	45.35	5.03	Peak	100	49
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg																																																																
1	2483.50	49.12	54.00	-4.88	53.54	-4.42	Average	100	84																																																																
2	2483.50	64.31	74.00	-9.69	68.73	-4.42	Peak	100	84																																																																
3	4924.00	34.12	54.00	-19.88	34.56	-0.44	Average	100	26																																																																
4	4924.00	47.44	74.00	-26.56	47.88	-0.44	Peak	100	26																																																																
5	7386.00	37.22	54.00	-16.78	32.19	5.03	Average	100	49																																																																
6	7386.00	50.38	74.00	-23.62	45.35	5.03	Peak	100	49																																																																



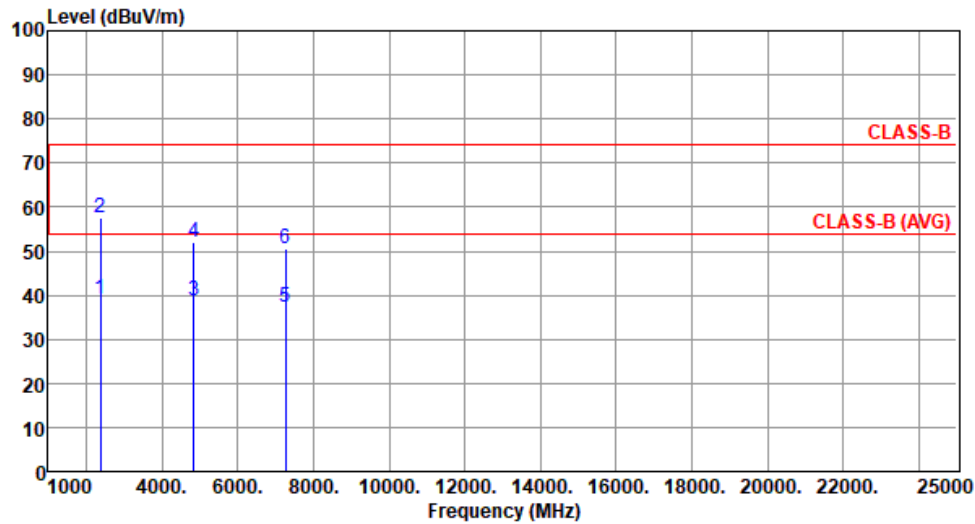
Unwanted Emissions (Above 1GHz) for HT40

Modulation	HT40	Test Freq. (MHz)	2422
Polarization	Horizontal		

Test By :Brad Wu

Temperature(°C):24

Humidity(%):61



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	39.24	54.00	-14.76	43.56	-4.32	Average	115	344
2	2390.00	57.69	74.00	-16.31	62.01	-4.32	Peak	115	344
3	4844.00	38.68	54.00	-15.32	39.14	-0.46	Average	145	6
4	4844.00	52.14	74.00	-21.86	52.60	-0.46	Peak	145	6
5	7266.00	37.09	54.00	-16.91	31.88	5.21	Average	100	29
6	7266.00	50.51	74.00	-23.49	45.30	5.21	Peak	100	29

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).



Modulation	HT40	Test Freq. (MHz)	2422
Polarization	Vertical		
Test By :Brad Wu Temperature(°C):24 Humidity(%):61			
Level (dBuV/m) </			



Modulation	HT40	Test Freq. (MHz)	2437
Polarization	Horizontal		
Test By :Brad Wu Temperature(°C):24 Humidity(%):61			
Level (dBUV/m)			



Modulation	HT40	Test Freq. (MHz)	2437
Polarization	Vertical		
Test By :Brad Wu Temperature(°C):24 Humidity(%):61			
Level (dBuV/m)			

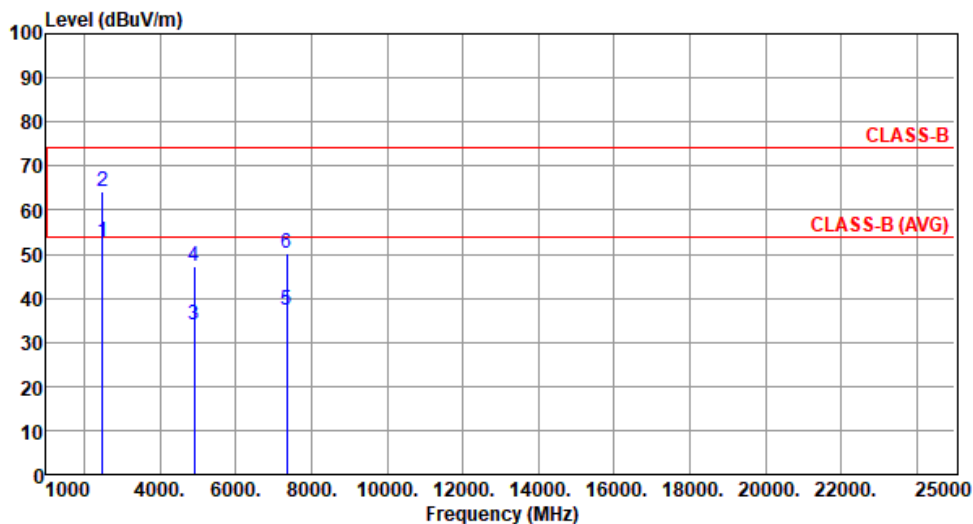


Modulation	HT40	Test Freq. (MHz)	2452
Polarization	Horizontal		
Test By :Brad Wu Temperature(°C):24 Humidity(%):61			
Level (dBuV/m)			



Modulation	HT40	Test Freq. (MHz)	2452
Polarization	Vertical		

Test By :Brad Wu Temperature(°C):24 Humidity(%):61



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2483.50	52.85	54.00	-1.15	57.27	-4.42	Average	100	86
2	2483.50	64.06	74.00	-9.94	68.48	-4.42	Peak	100	86
3	4904.00	33.95	54.00	-20.05	34.40	-0.45	Average	108	14
4	4904.00	47.26	74.00	-26.74	47.71	-0.45	Peak	108	14
5	7356.00	37.11	54.00	-16.89	32.06	5.05	Average	100	26
6	7356.00	50.25	74.00	-23.75	45.20	5.05	Peak	100	26

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)

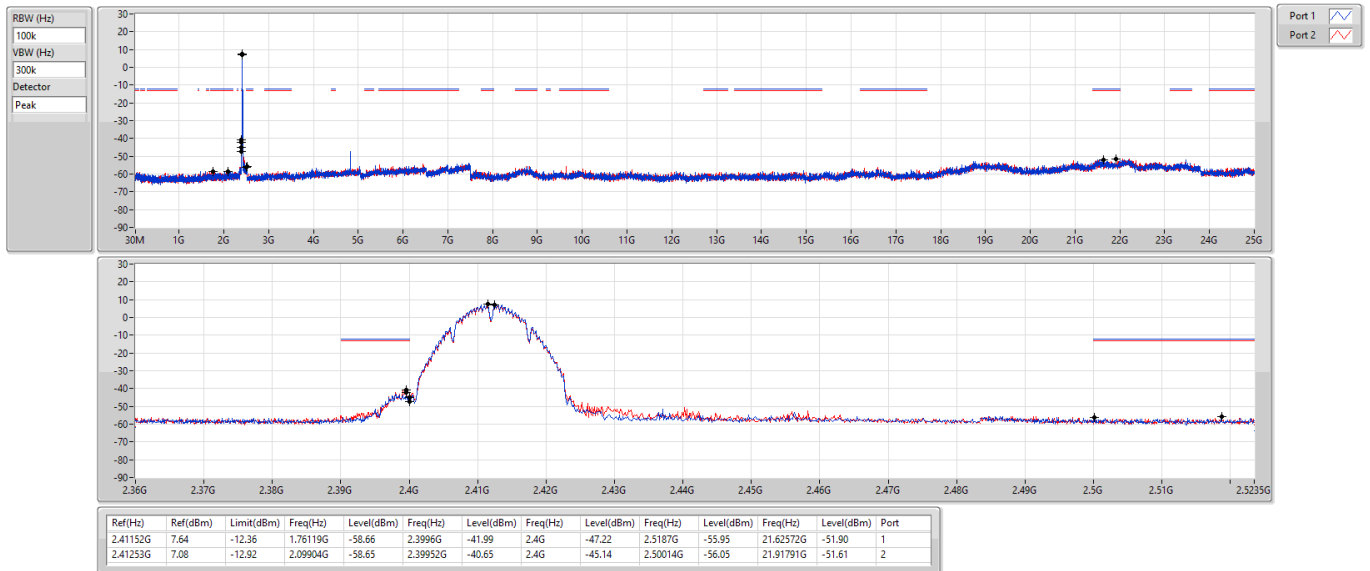
*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_2TX

CSendB

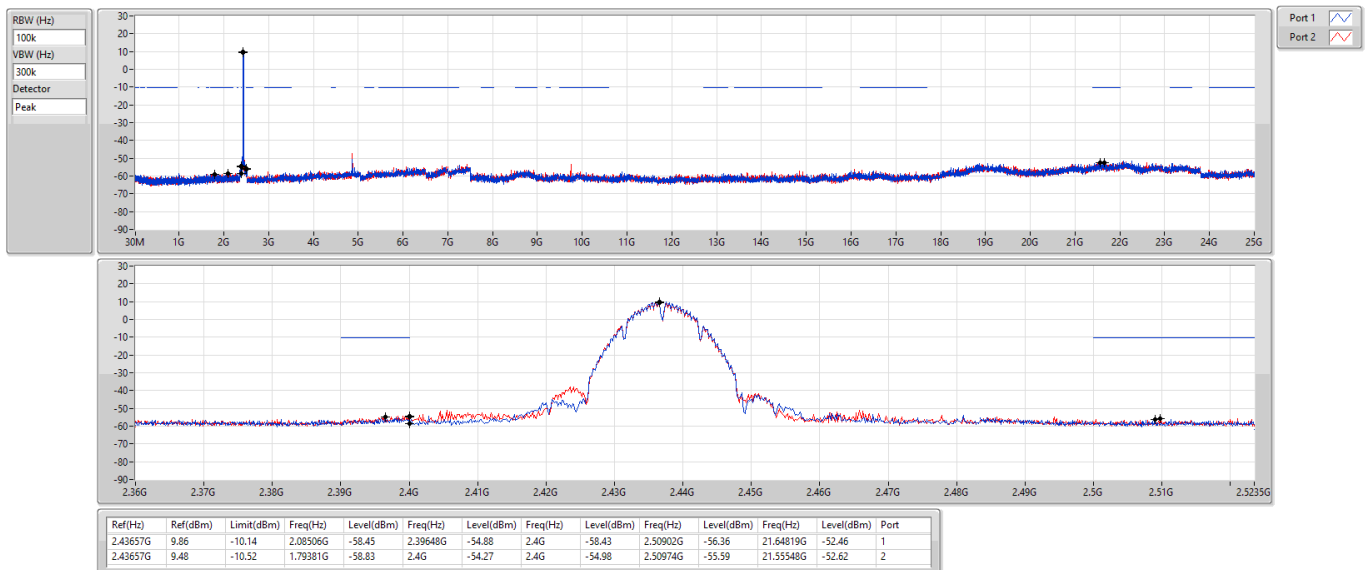
2412MHz



2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_2TX

CSendB

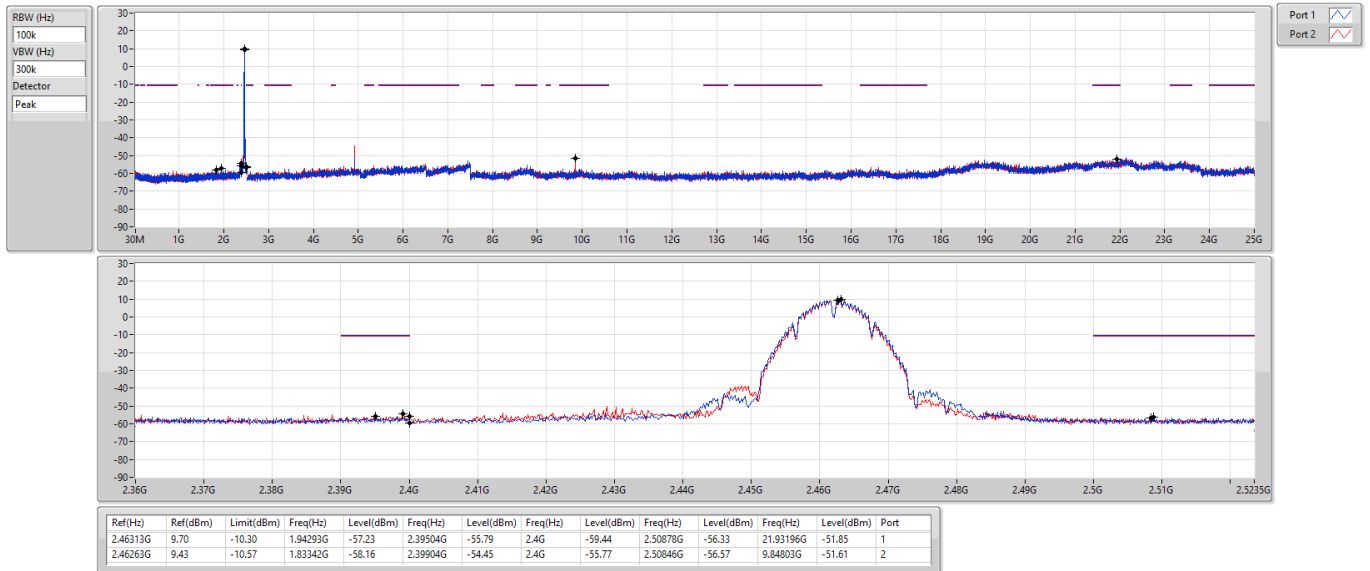
2437MHz



2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_2TX

CSEndB

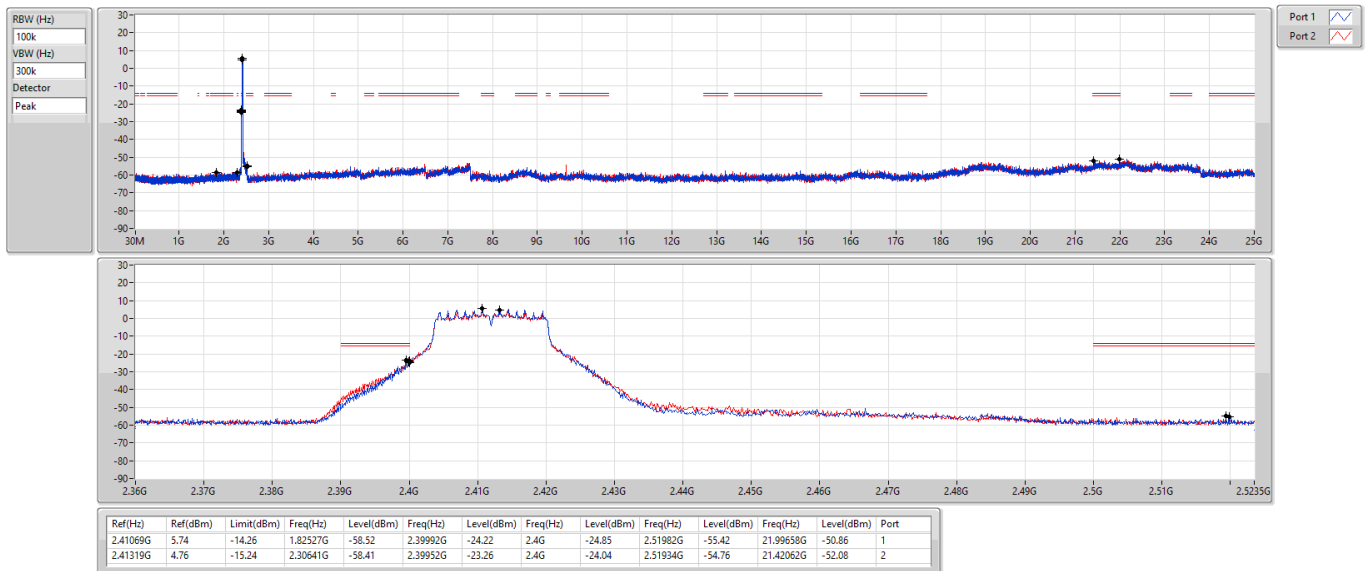
2462MHz



2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_2TX

CSEndB

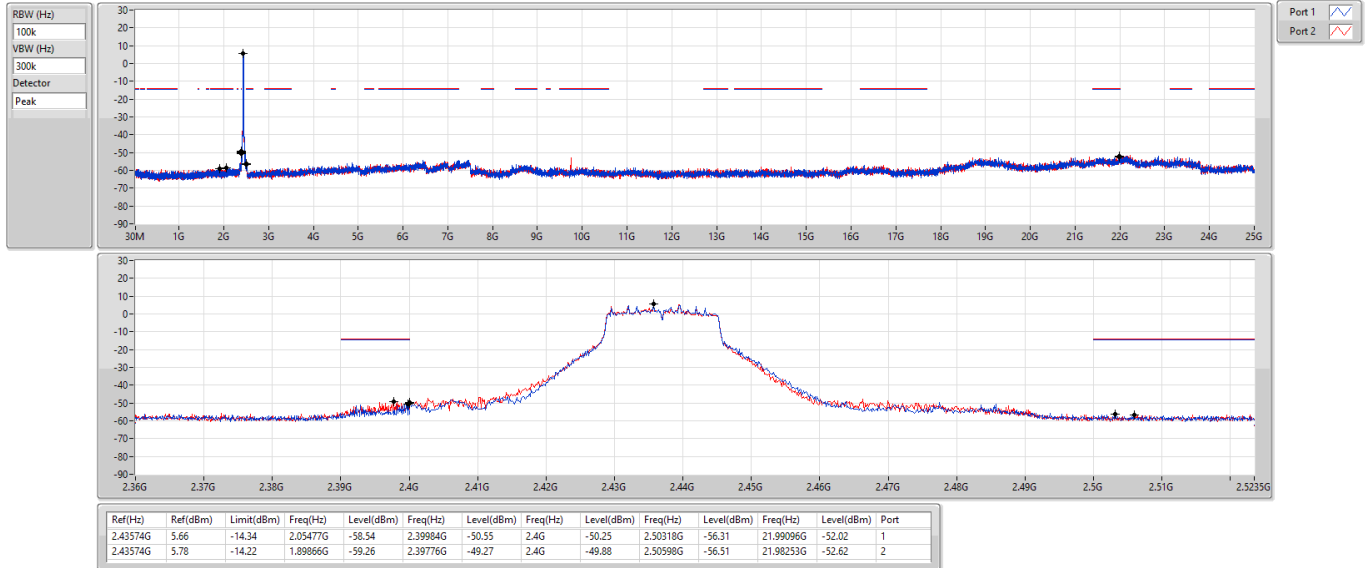
2412MHz



2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_2TX

CSEndB

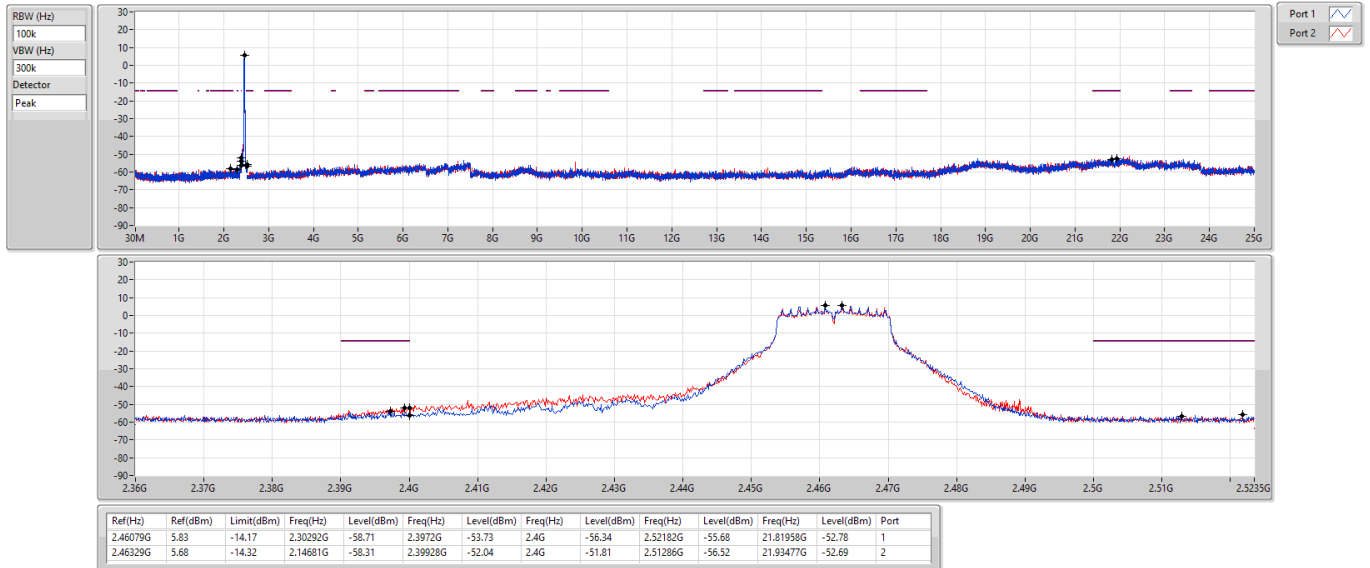
2437MHz



2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_2TX

CSEndB

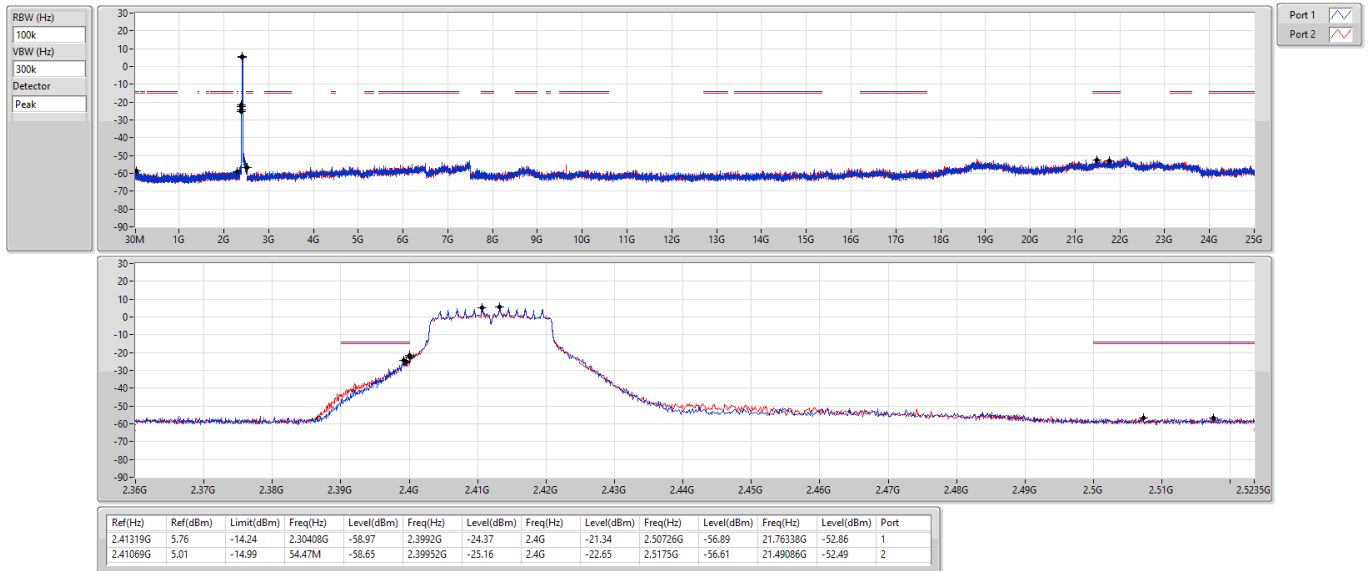
2462MHz



2.4-2.4835GHz_802.11n HT20_Nss1,(MCS0)_2TX

CSEndB

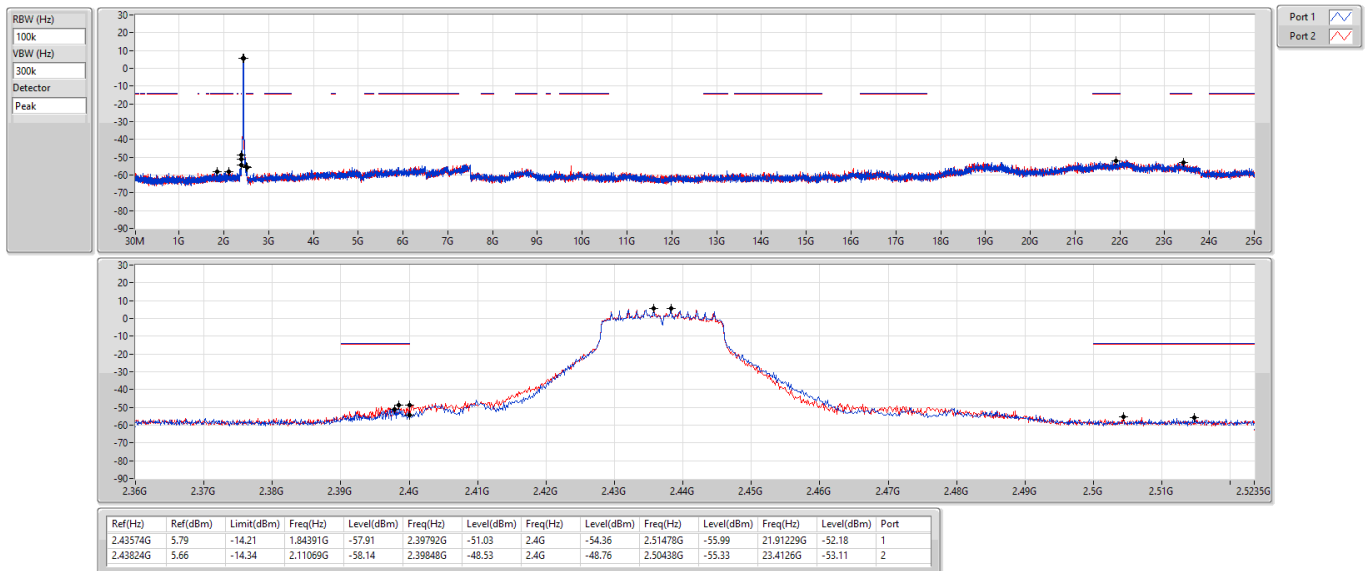
2412MHz



2.4-2.4835GHz_802.11n HT20_Nss1,(MCS0)_2TX

CSEndB

2437MHz

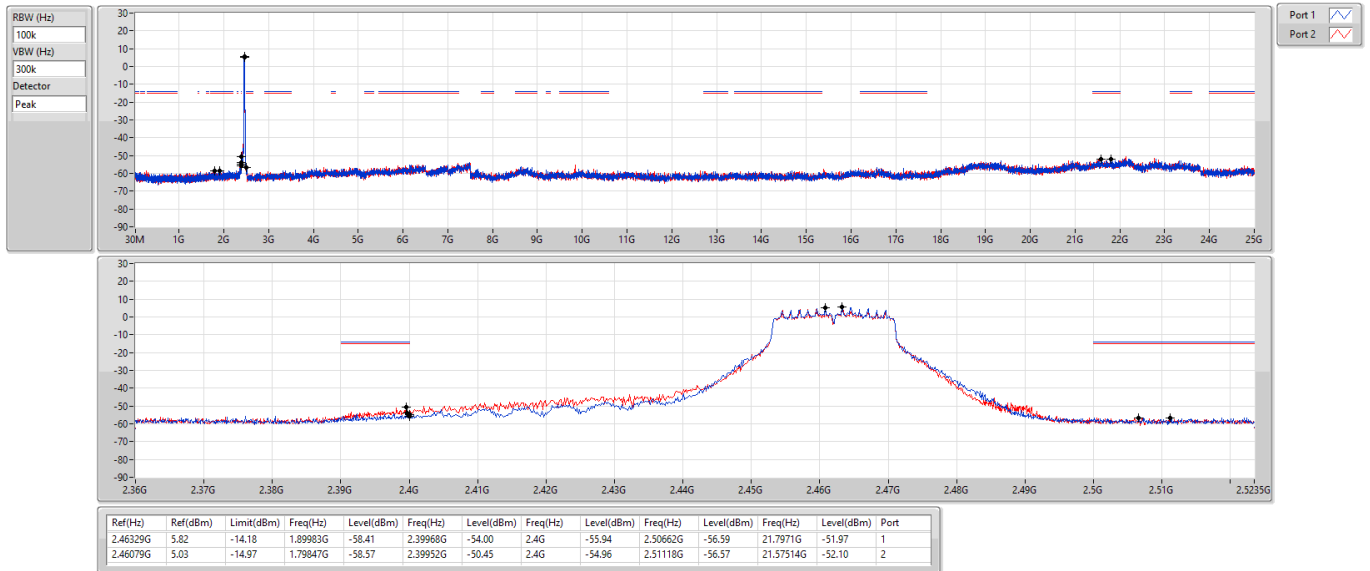




2.4-2.4835GHz_802.11n HT20_Nss1,(MCS0)_2TX

CSEndB

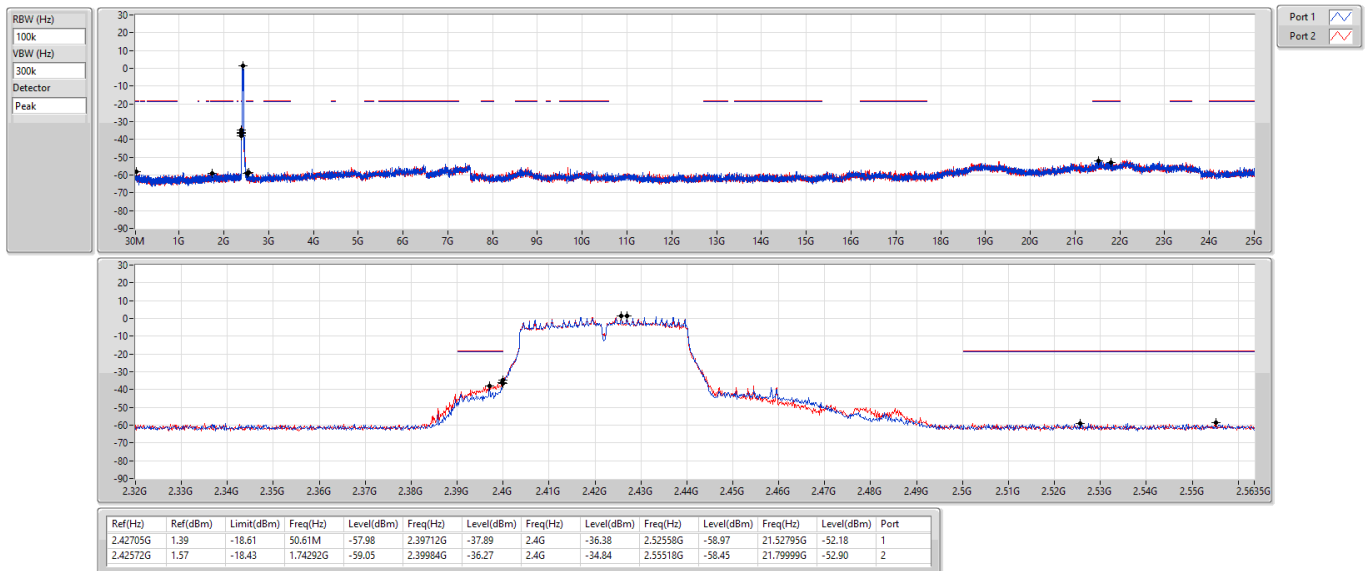
2462MHz



2.4-2.4835GHz_802.11n HT40_Nss1,(MCS0)_2TX

CSEndB

2422MHz

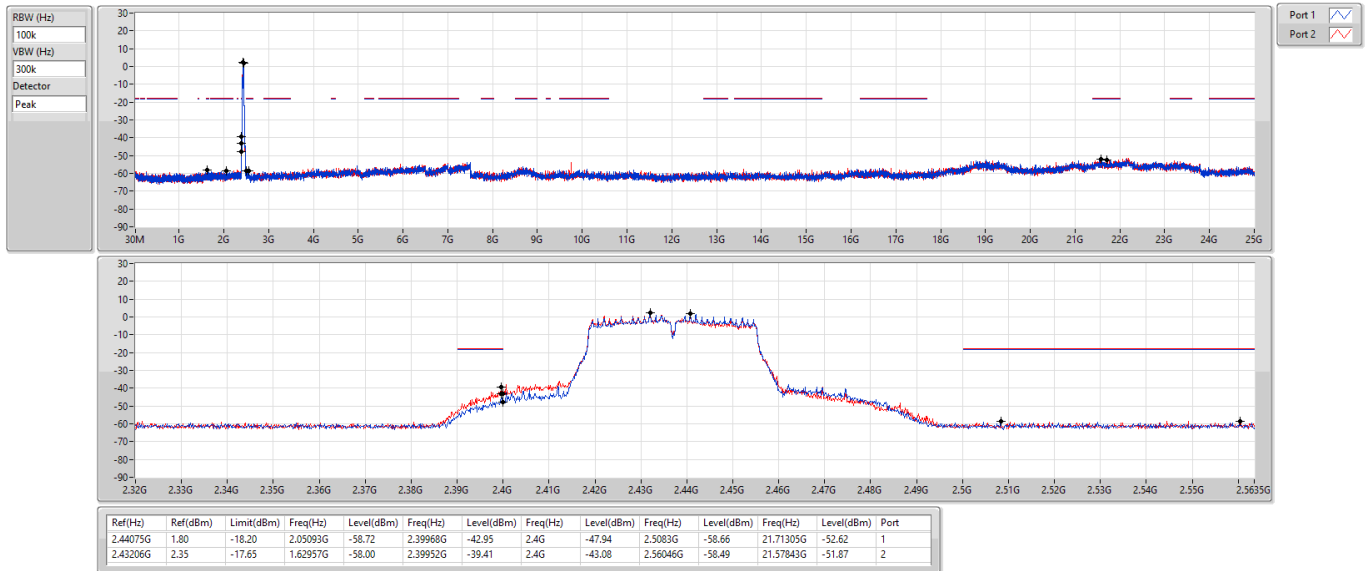




2.4-2.4835GHz_802.11n HT40_Nss1,(MCS0)_2TX

CSEndB

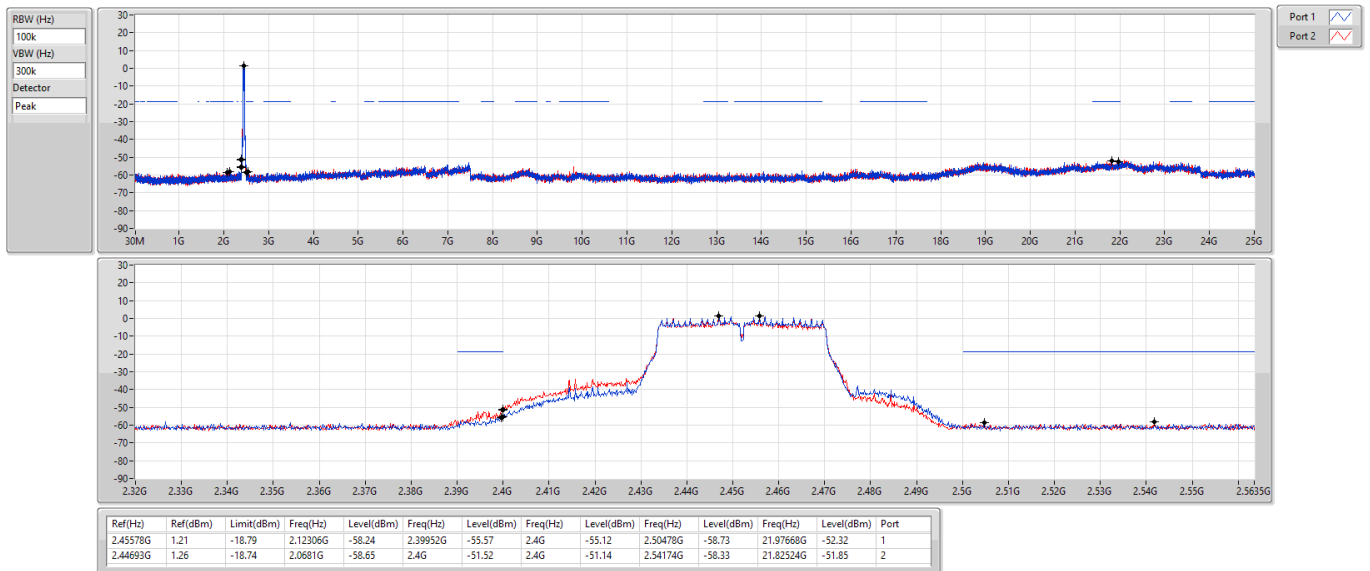
2437MHz



2.4-2.4835GHz_802.11n HT40_Nss1,(MCS0)_2TX

CSEndB

2452MHz



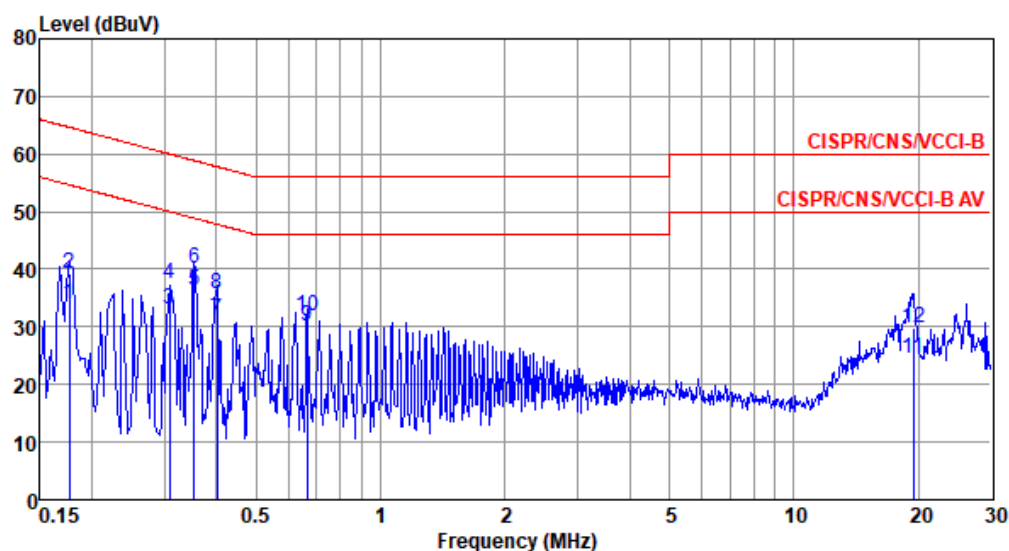


Modulation Mode	11b	Test Freq. (MHz)	2462
Power Phase	Line		

Test by : Joe Liao

Temperature: 20°C

Humidity: 61%



	Freq MHz	Level dBUV	Limit Line dBUV	Over Limit dB	Read Level dBUV	Factor dB	Cable loss dB	Aux dB	Remark
1	0.177	33.90	54.64	-20.74	24.21	9.62	0.07	0.00	Average
2	0.177	39.14	64.64	-25.50	29.45	9.62	0.07	0.00	QP
3	0.308	33.18	50.02	-16.84	23.49	9.62	0.07	0.00	Average
4	0.308	37.42	60.02	-22.60	27.73	9.62	0.07	0.00	QP
5*	0.354	36.31	48.87	-12.56	26.61	9.62	0.08	0.00	Average
6	0.354	40.20	58.87	-18.67	30.50	9.62	0.08	0.00	QP
7	0.402	31.17	47.81	-16.64	21.47	9.62	0.08	0.00	Average
8	0.402	35.74	57.81	-22.07	26.04	9.62	0.08	0.00	QP
9	0.665	30.08	46.00	-15.92	20.36	9.63	0.09	0.00	Average
10	0.665	31.92	56.00	-24.08	22.20	9.63	0.09	0.00	QP
11	19.428	24.46	50.00	-25.54	14.28	9.68	0.50	0.00	Average
12	19.428	29.89	60.00	-30.11	19.71	9.68	0.50	0.00	QP

Note 1: Level (dBUV) = Read Level (dBUV) + LISN Factor (dB) + Cable Loss (dB) + Aux (dB).

2: Over Limit (dB) = Level (dBUV) - Limit Line (dBUV).

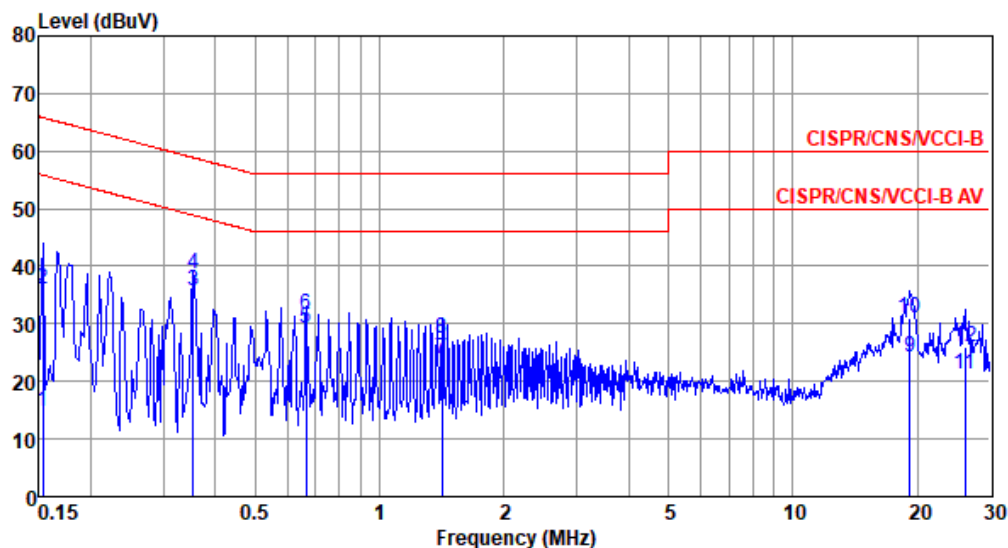


Modulation Mode	11b	Test Freq. (MHz)	2462
Power Phase	Neutral		

Test by : Joe Liao

Temperature: 20°C

Humidity: 61%



	Freq MHz	Level dBUV	Limit Line dBUV	Over Limit dB	Read Level dBUV	Factor dB	Cable loss dB	Aux dB	Remark
1	0.153	14.76	55.82	-41.06	5.05	9.63	0.08	0.00	Average
2	0.153	36.03	65.82	-29.79	26.32	9.63	0.08	0.00	QP
3*	0.354	35.76	48.87	-13.11	26.06	9.62	0.08	0.00	Average
4	0.354	38.60	58.87	-20.27	28.90	9.62	0.08	0.00	QP
5	0.665	29.27	46.00	-16.73	19.55	9.63	0.09	0.00	Average
6	0.665	31.67	56.00	-24.33	21.95	9.63	0.09	0.00	QP
7	1.418	23.79	46.00	-22.21	14.05	9.64	0.10	0.00	Average
8	1.418	27.57	56.00	-28.43	17.83	9.64	0.10	0.00	QP
9	19.224	24.27	50.00	-25.73	13.98	9.79	0.50	0.00	Average
10	19.224	31.12	60.00	-28.88	20.83	9.79	0.50	0.00	QP
11	26.139	21.12	50.00	-28.88	10.78	9.79	0.55	0.00	Average
12	26.139	26.04	60.00	-33.96	15.70	9.79	0.55	0.00	QP

Note 1: Level (dBUV) = Read Level (dBUV) + LISN Factor (dB) + Cable Loss (dB) + Aux (dB).

2: Over Limit (dB) = Level (dBUV) – Limit Line (dBUV).