FCC Test Report

FCC ID	:	**UCZ- B861AJ-Z**
Equipment	:	**4K Battery Video Doorbell**
Model No.	:	**B861AJ-Z**
Brand Name	:	**LOREX**
Applicant	:	**Lorex Technology Inc.**
Address	:	**250 Royal Crest Court, Markham, ON L3R 3S1 Canada**
Standard	:	**47 CFR FCC Part 15.247**
Received Date	:	**Aug. 08, 2023**
Tested Date	:	**Dec. 05, 2023 ~ Jan. 11, 2024**

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

Release Record

Report No.	Version	Description	Issued Date
FR380801AC	Rev. 01	Initial issue	Mar. 05, 2024

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	AC Power Line Conducted Emission	[dBuV]: 0.755MHz 25.72 (Margin -20.28dB) - AV	Pass
15.247(d) 15.209	Unwanted Emissions	[dBuV/m at 3m]: 4824.00MHz 53.38 (Margin -0.62dB) - AV	Pass
15.247(b)(3)	Conducted Output Power	Max Power [dBm]: 27.01	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]	1	1-11 Mbps
2400-2483.5	g	2412-2462	1-11 [11]	1	6-54 Mbps
2400-2483.5	n (HT20)	2412-2462	1-11 [11]	1	MCS 0-7
Note 1: RF output power specifies that Maximum Conducted (Average) Output Power. Note 2: OFDM - BPSK, QPSK, 16QAM and 64QAM modulation.					

1.1.2 Antenna Details

Ant. No.	Brand/ Model	Type	Connector	Gain (dBi)
1	LYNwave/ALX22P-052AA1-00	PIFA	ipex	2.3
2	LYNwave/ALX22P-052AA2-00	PIFA	ipex	3.7

1.1.3 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	3.635Vdc from battery 5Vdc from adapter

1.1.4 Accessories

Accessories		
No.	**Equipment**	**Description**
1	Rechargeable Li-Ion Battery	Model: FT18650R-2P Rating: 3.635Vdc, 6800mAh/24.72Wh
2	USB Cable (for charging use only)	1m non-shielded without core

1.1.5 Channel List

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

1.1.6 Test Tool and Duty Cycle

Test Tool	SheldonTest, version: 20230410		
Duty Cycle and Duty Factor	**Mode**	**Duty Cycle (%)**	**Duty Factor (dB)**
	11b	100.00%	0.00
	11g	100.00%	0.00
	HT20	100.00%	0.00

1.1.7 Power Index of Test Tool

Modulation Mode	Test Frequency (MHz)	Power Index
11b	2412	28
11b	2437	28
11b	2462	29
11g	2412	28
11g	2437	36
11g	2462	31
HT20	2412	27
HT20	2437	36
HT20	2462	30

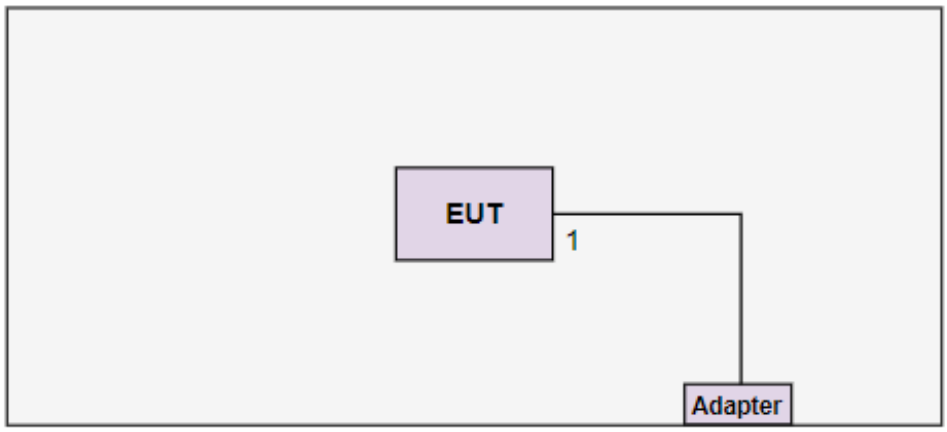
1.2 Local Support Equipment List

Support Equipment List					
No.	**Equipment**	**Brand**	**Model**	**FCC ID**	**Remarks**
1	Adapter	Samsung	ETA-U90JWS	---	Provided by applicant.
2	Fixture	---	---	---	Provided by applicant.
3	Laptop	DELL	Latitude 5400	DoC	---

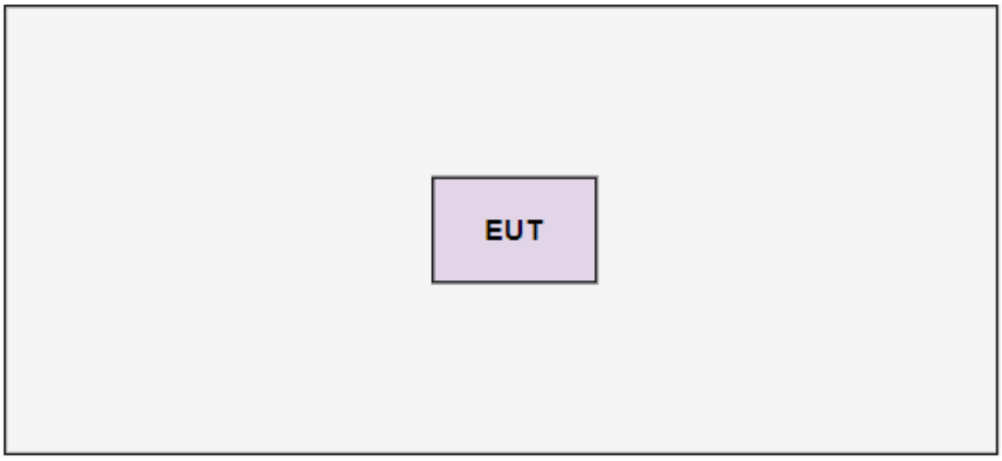
The fixture and support Laptop were disconnected from EUT and was removed from test table after sending command from Laptop to control EUT to transmit continuously.

1.3 Test Setup Chart

Test Setup Diagram (Charger mode)



No.	Signal cable / Length (m)
1	USB, 1m non-shielded.

Test Setup Diagram (Battery mode)


1.4 The Equipment List

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Tested Date	Dec. 05, 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 chamber3 / (03CH03-WS)				
Tested Date	Jan. 10, 2024				
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	101499	Mar. 16, 2023	Mar. 15, 2024
Loop Antenna	R&S	HFH2-Z2	100330	Oct. 31, 2023	Oct. 30, 2024
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-685	Jul. 04, 2023	Jul. 03, 2024
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1206	Dec. 14, 2023	Dec. 13, 2024
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Oct. 30, 2023	Oct. 29, 2024
Preamplifier	EMC	EMC02325	980187	Jul. 10, 2023	Jul. 09, 2024
Preamplifier	EMC	EMC118A45SE	980897	Aug. 01, 2023	Jul. 31, 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-0.8M	EMC	EMC8D-NM-NM-800	EMC8D-NM-NM-800 -001	Sep. 22, 2023	Sep. 21, 2024
LF cable-3M	EMC	EMC8D-NM-NM-300 0	131103	Sep. 22, 2023	Sep. 21, 2024
LF cable-13M	EMC	EMC8D-NM-NM-130 00	131104	Sep. 22, 2023	Sep. 21, 2024
RF cable-3M	HUBER+SUHNER	SUCOFLEX104	MY22620/4	Sep. 22, 2023	Sep. 21, 2024
RF cable-8M	EMC	EMC104-SM-SM-80 00	181107	Sep. 22, 2023	Sep. 21, 2024
HIGHPASS FILTER	WI	WHK3.1-18G-10SS	43	Sep. 27, 2023	Sep. 26, 2024
Attenuator	Pasternack	PE7005-10	10-3	Sep. 27, 2023	Sep. 26, 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	Jan. 11, 2024				
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	1241002	Nov. 21, 2023	Nov. 20, 2024
Power Sensor	Anritsu	MA2411B	1207366	Nov. 21, 2023	Nov. 20, 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

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
Unwanted Emission ≤ 1GHz	±3.41 dB
Unwanted Emission > 1GHz	±4.59 dB

2 Test Configuration

2.1 Testing Facility

Test Laboratory	International Certification Corporation
Test Site	CO01-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.)
Test Site	03CH03-WS
Address of Test Site	No.14-1, Lane 19, Wen San 3rd St., Kwei Shan Dist., Tao Yuan City 33381, Taiwan (R.O.C.)

- FCC Designation No.: TW0009
- FCC site registration No.: 207696
- ISED#: 10807C
- 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	HT20	2437	MCS 0	1
Unwanted Emissions ≤ 1GHz	HT20	2437	MCS 0	1, 2
Unwanted Emissions >1GHz Conducted Output Power 6dB bandwidth Power spectral density	HT20	2412 / 2437 / 2462	MCS 0	1

NOTE:

1. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The **Z-plane** results were found as the worst case and were shown in this report.
2. The EUT had been tested by following test configurations.
   1) Configuration 1: Battery mode
   2) Configuration 2: Charger mode

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

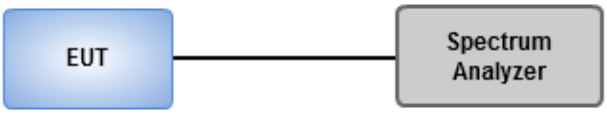
6dB Bandwidth

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	23°C / 65%	**Tested By**	Brad Wu

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 <= 6dBi, no any corresponding reduction is in output power limit.

Antenna gain > 6dBi

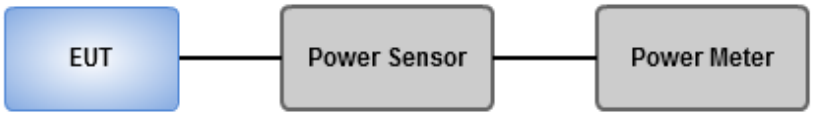
Non Fixed, point to point operations.
The conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dB

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	23°C / 65%	**Tested By**	Brad Wu

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 ≥ 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.

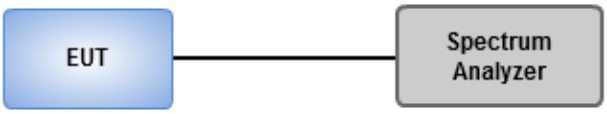
3 Sweep time = auto couple.

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	23°C / 65%	**Tested By**	Brad Wu

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:
Qusai-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

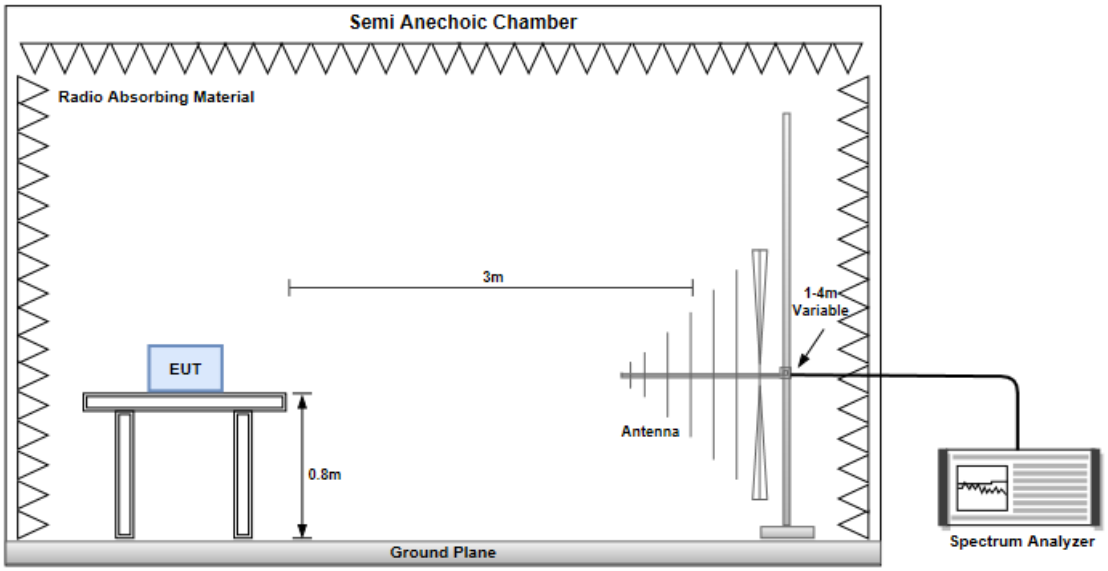
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission 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:

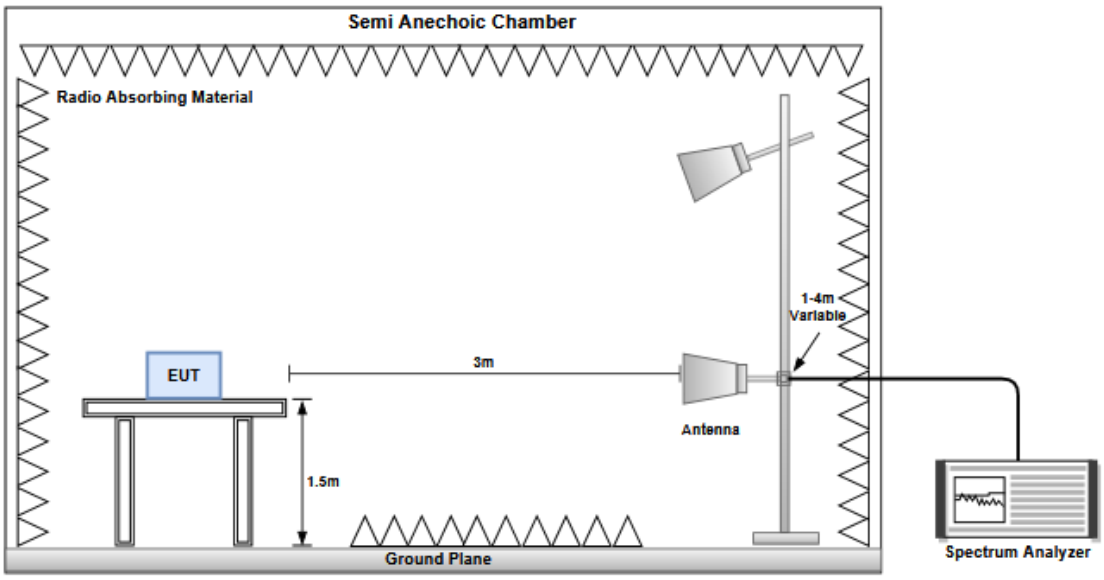
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above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

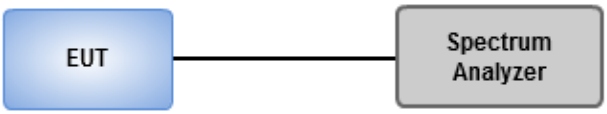
Reference level measurement

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	23°C / 65%	**Tested By**	Brad Wu

Refer to Appendix E.

3.6 AC Power Line Conducted Emissions

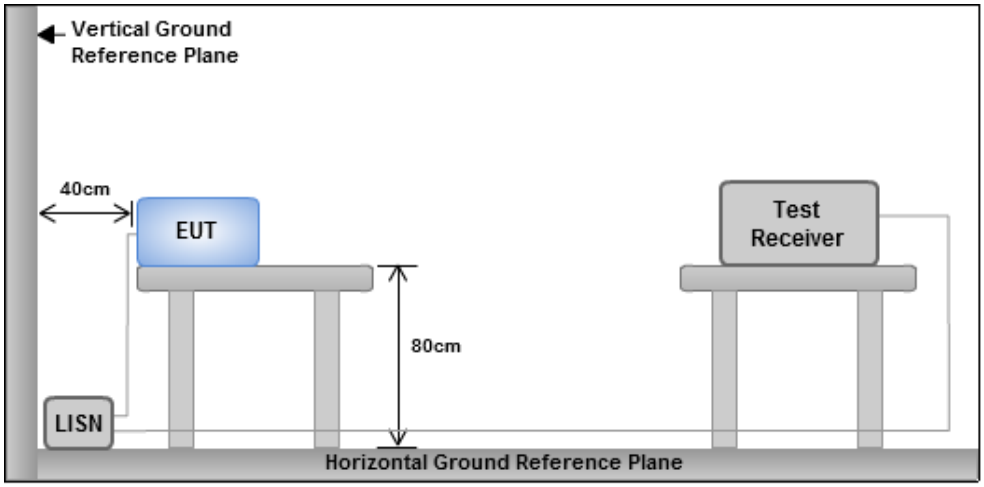
3.6.1 Limit of AC Power Line Conducted Emissions

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	**Kwei Shan**	**Kwei Shan Site II**
Tel: 886-2-2601-1640	Tel: 886-3-271-8666	Tel: 886-3-271-8640
No.30-2, Ding Fwu Tsuen, Lin Kou District, New Taipei City, Taiwan (R.O.C.)	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.)	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)_1TX	9.55M	14.123M	14M1G1D	9.025M	14.093M
802.11g_Nss1,(6Mbps)_1TX	16.3M	16.844M	16M8D1D	16.25M	16.448M
802.11n HT20_Nss1,(MCS0)_1TX	17.55M	17.891M	17M9D1D	17.525M	17.566M

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

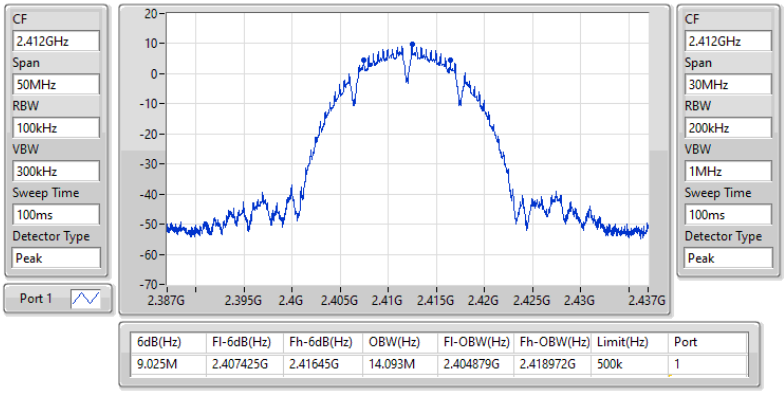
Result

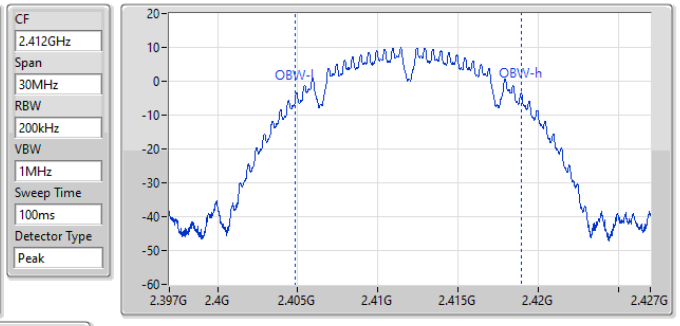
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
802.11b_Nss1,(1Mbps)_1TX	-	-	-	-
2412MHz	Pass	500k	9.025M	14.093M
2437MHz	Pass	500k	9.05M	14.093M
2462MHz	Pass	500k	9.55M	14.123M
802.11g_Nss1,(6Mbps)_1TX	-	-	-	-
2412MHz	Pass	500k	16.3M	16.448M
2437MHz	Pass	500k	16.25M	16.844M
2462MHz	Pass	500k	16.3M	16.492M
802.11n HT20_Nss1,(MCS0)_1TX	-	-	-	-
2412MHz	Pass	500k	17.525M	17.566M
2437MHz	Pass	500k	17.55M	17.891M
2462MHz	Pass	500k	17.525M	17.566M

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)_1TX **EBW**

2412MHz

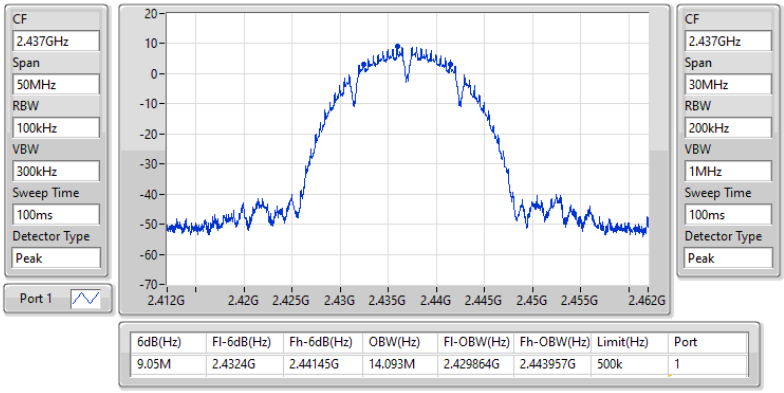


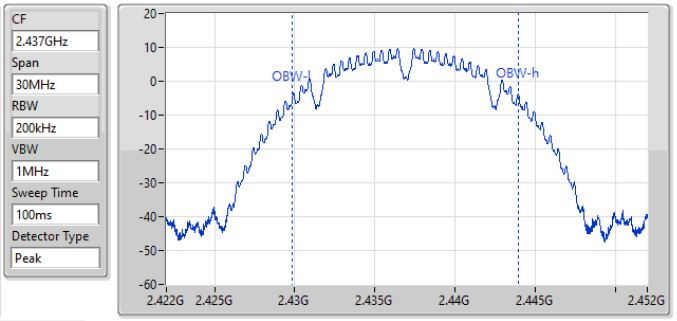


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
9.025M	2.407425G	2.41645G	14.093M	2.404879G	2.418972G	500k	1

2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_1TX **EBW**

2437MHz

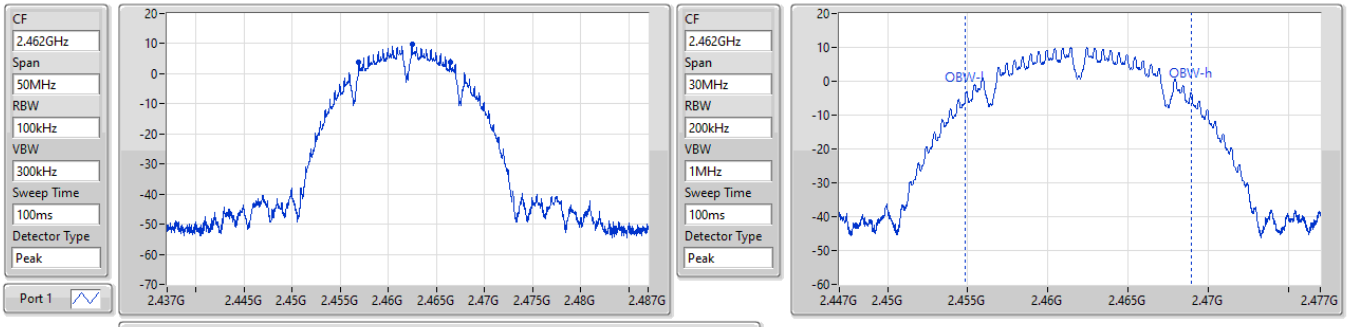




6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
9.05M	2.4324G	2.44145G	14.093M	2.429864G	2.443957G	500k	1

2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_1TX **EBW**

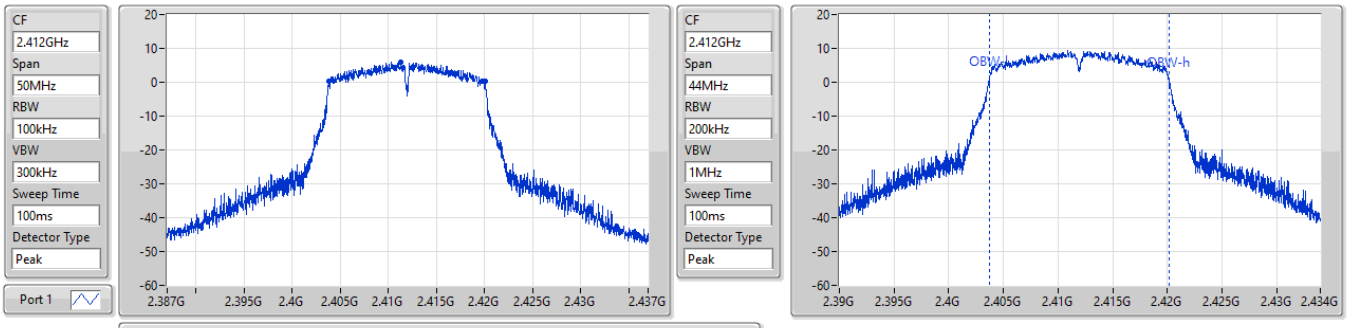
2462MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
9.55M	2.456925G	2.466475G	14.123M	2.454849G	2.468972G	500k	1

2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_1TX **EBW**

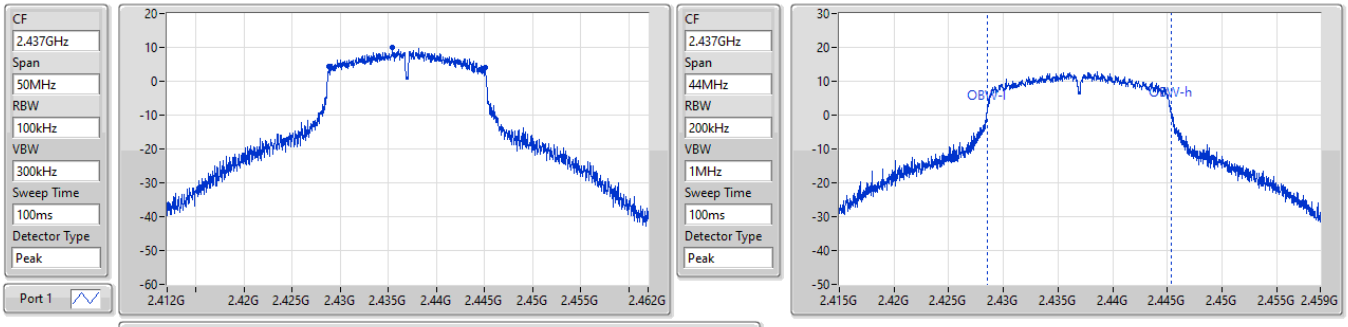
2412MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.3M	2.403775G	2.420075G	16.448M	2.40371G	2.420158G	500k	1

2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_1TX **EBW**

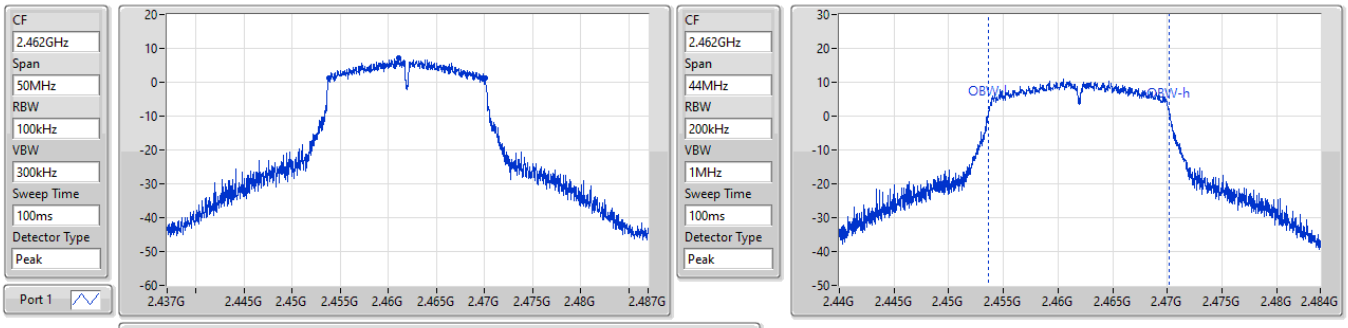
2437MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.25M	2.428825G	2.445075G	16.844M	2.42849G	2.445334G	500k	1

2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_1TX **EBW**

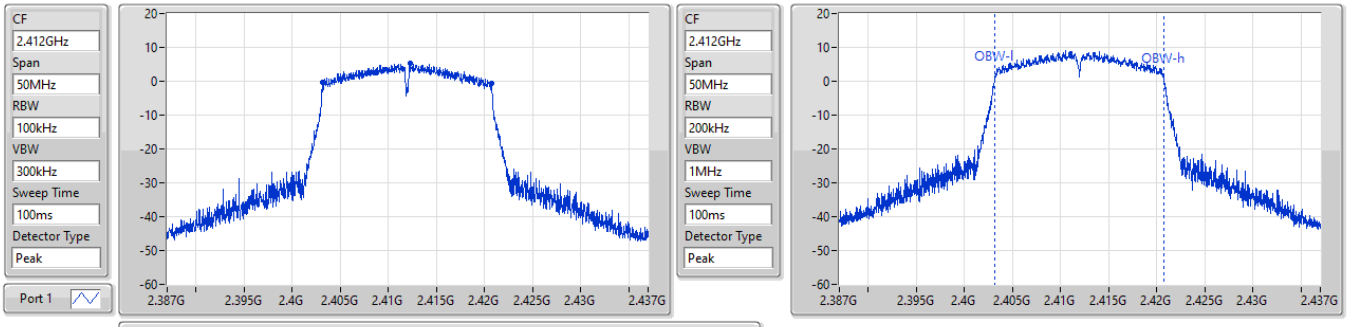
2462MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.3M	2.453775G	2.470075G	16.492M	2.453666G	2.470158G	500k	1

2.4-2.4835GHz_802.11n HT20_Nss1,(MCS0)_1TX **EBW**

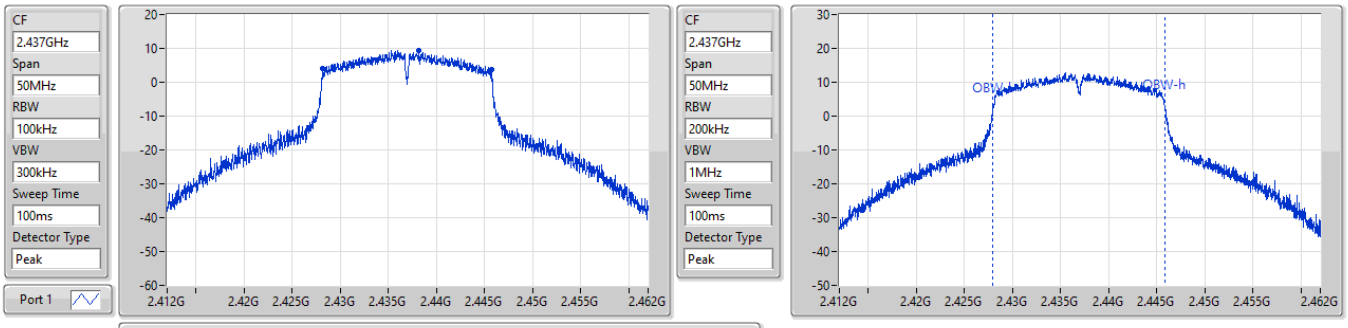
2412MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
17.525M	2.403175G	2.4207G	17.566M	2.403154G	2.420721G	500k	1

2.4-2.4835GHz_802.11n HT20_Nss1,(MCS0)_1TX **EBW**

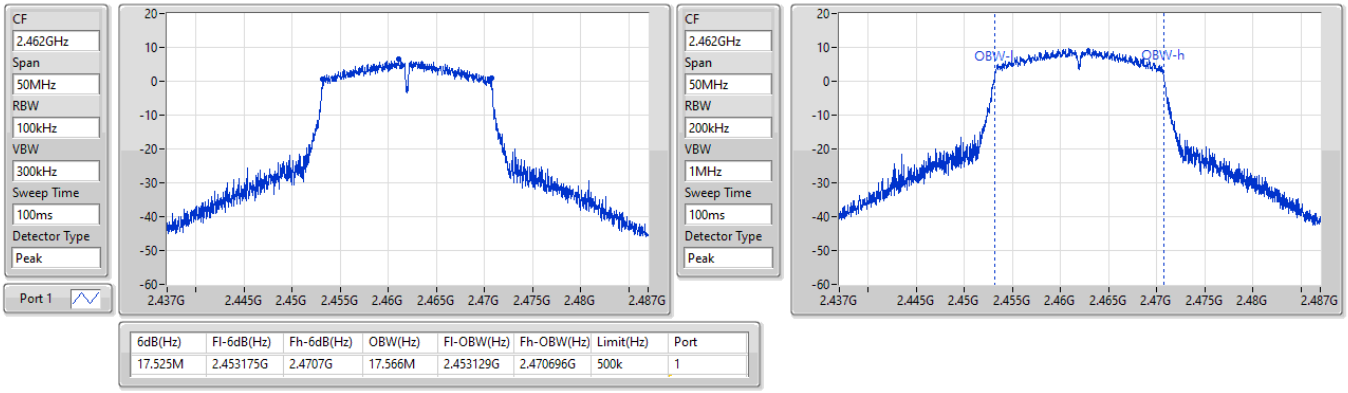
2437MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
17.55M	2.42815G	2.4457G	17.891M	2.427955G	2.445846G	500k	1

2.4-2.4835GHz_802.11n HT20_Nss1,(MCS0)_1TX **EBW**

2462MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
17.525M	2.453175G	2.4707G	17.566M	2.453129G	2.470696G	500k	1

Summary

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11b_Nss1,(1Mbps)_1TX	20.67	0.11668
802.11g_Nss1,(6Mbps)_1TX	26.96	0.49659
802.11n HT20_Nss1,(MCS0)_1TX	27.01	0.50234

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11b_Nss1,(1Mbps)_1TX	-	-	-	-	-	-	-
2412MHz	Pass	3.70	20.48	20.48	30.00	24.18	36.00
2437MHz	Pass	3.70	20.31	20.31	30.00	24.01	36.00
2462MHz	Pass	3.70	20.67	20.67	30.00	24.37	36.00
802.11g_Nss1,(6Mbps)_1TX	-	-	-	-	-	-	-
2412MHz	Pass	3.70	26.87	26.87	30.00	30.57	36.00
2437MHz	Pass	3.70	26.96	26.96	30.00	30.66	36.00
2462MHz	Pass	3.70	26.86	26.86	30.00	30.56	36.00
802.11n HT20_Nss1,(MCS0)_1TX	-	-	-	-	-	-	-
2412MHz	Pass	3.70	26.79	26.79	30.00	30.49	36.00
2437MHz	Pass	3.70	27.01	27.01	30.00	30.71	36.00
2462MHz	Pass	3.70	26.73	26.73	30.00	30.43	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)_1TX	18.61	0.07261
802.11g_Nss1,(6Mbps)_1TX	22.15	0.16406
802.11n HT20_Nss1,(MCS0)_1TX	22.18	0.16520

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11b_Nss1,(1Mbps)_1TX	-	-	-	-	-	-	-
2412MHz	Pass	3.70	18.5	18.50	-	22.20	-
2437MHz	Pass	3.70	18.38	18.38	-	22.08	-
2462MHz	Pass	3.70	18.61	18.61	-	22.31	-
802.11g_Nss1,(6Mbps)_1TX	-	-	-	-	-	-	-
2412MHz	Pass	3.70	19.28	19.28	-	22.98	-
2437MHz	Pass	3.70	22.15	22.15	-	25.85	-
2462MHz	Pass	3.70	20.02	20.02	-	23.72	-
802.11n HT20_Nss1,(MCS0)_1TX	-	-	-	-	-	-	-
2412MHz	Pass	3.70	18.39	18.39	-	22.09	-
2437MHz	Pass	3.70	22.18	22.18	-	25.88	-
2462MHz	Pass	3.70	19.36	19.36	-	23.06	-

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)_1TX	-4.37
802.11g_Nss1,(6Mbps)_1TX	-1.44
802.11n HT20_Nss1,(MCS0)_1TX	-2.57

RBW = 3kHz;

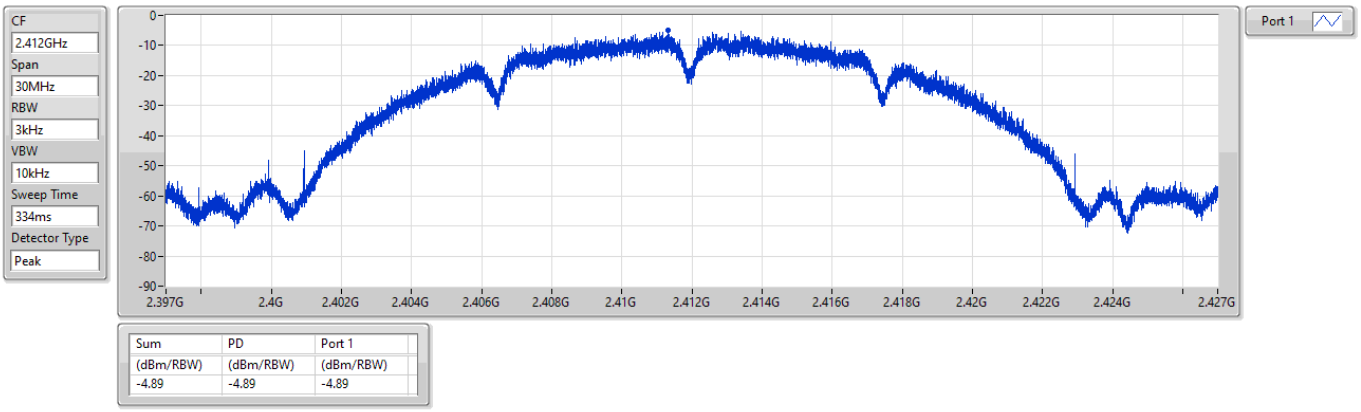
Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
802.11b_Nss1,(1Mbps)_1TX	-	-	-	-	-
2412MHz	Pass	3.70	-4.89	-4.89	8.00
2437MHz	Pass	3.70	-4.37	-4.37	8.00
2462MHz	Pass	3.70	-4.44	-4.44	8.00
802.11g_Nss1,(6Mbps)_1TX	-	-	-	-	-
2412MHz	Pass	3.70	-5.19	-5.19	8.00
2437MHz	Pass	3.70	-1.44	-1.44	8.00
2462MHz	Pass	3.70	-4.47	-4.47	8.00
802.11n HT20_Nss1,(MCS0)_1TX	-	-	-	-	-
2412MHz	Pass	3.70	-5.89	-5.89	8.00
2437MHz	Pass	3.70	-2.57	-2.57	8.00
2462MHz	Pass	3.70	-5.34	-5.34	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;

2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_1TX **PSD**

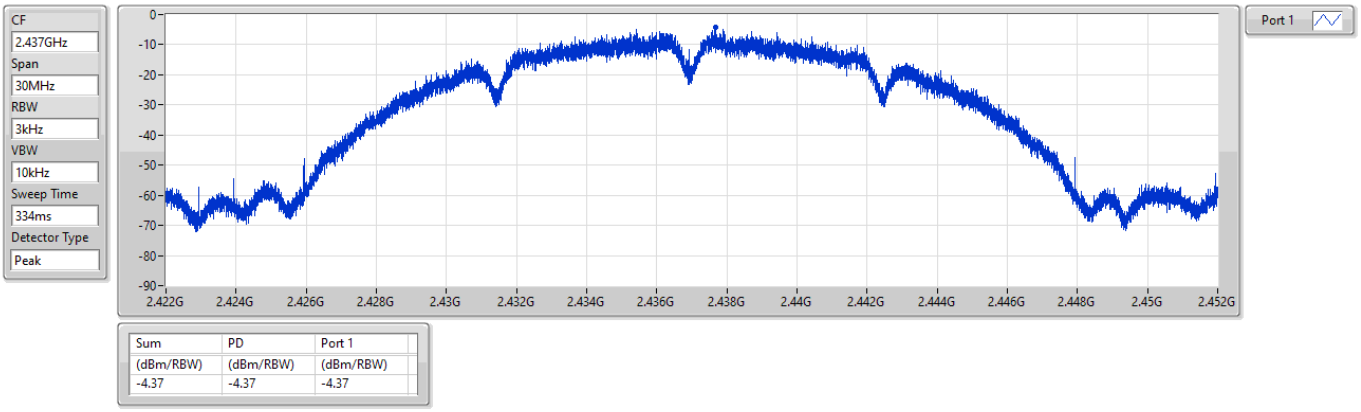
2412MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-4.89	-4.89	-4.89

2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_1TX **PSD**

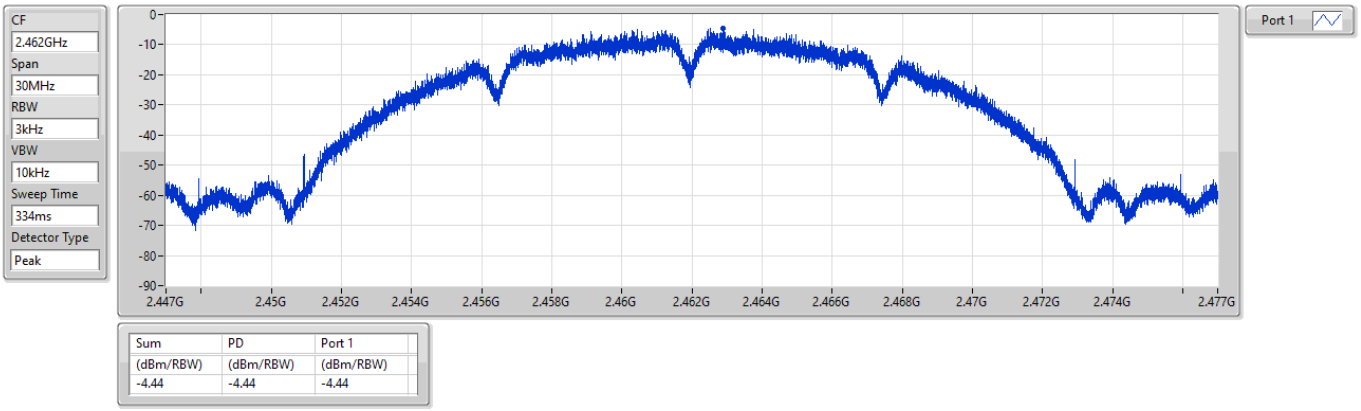
2437MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-4.37	-4.37	-4.37

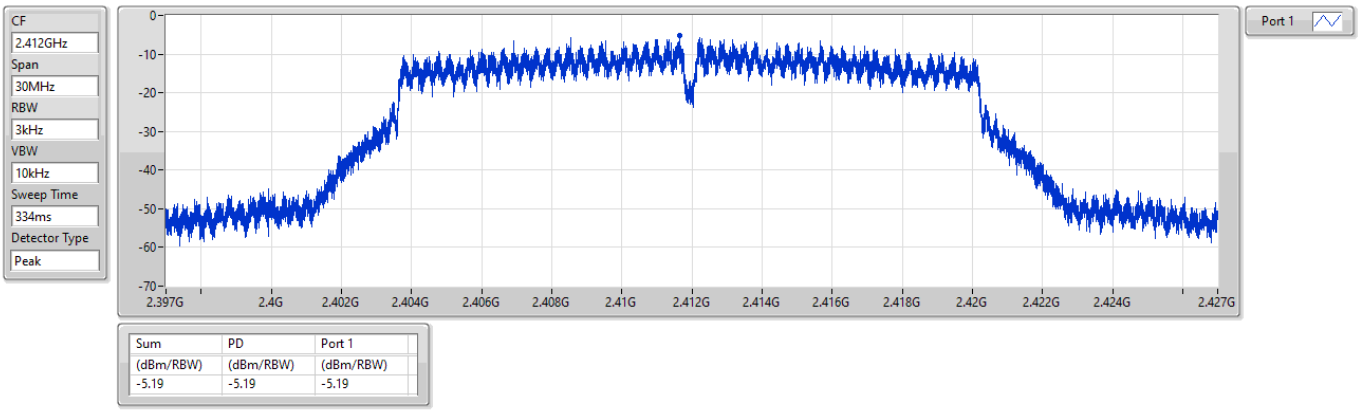
2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_1TX **PSD**

2462MHz



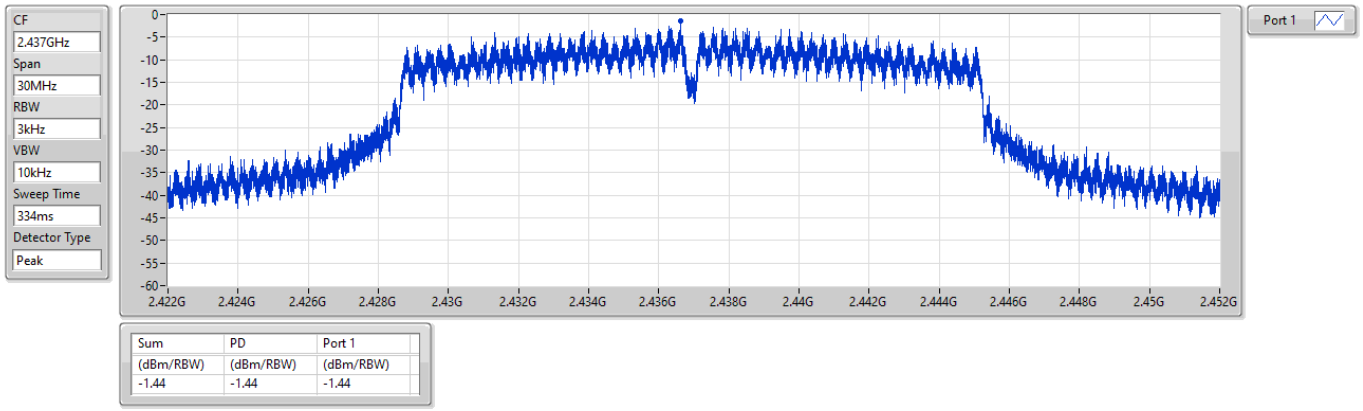
2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_1TX **PSD**

2412MHz



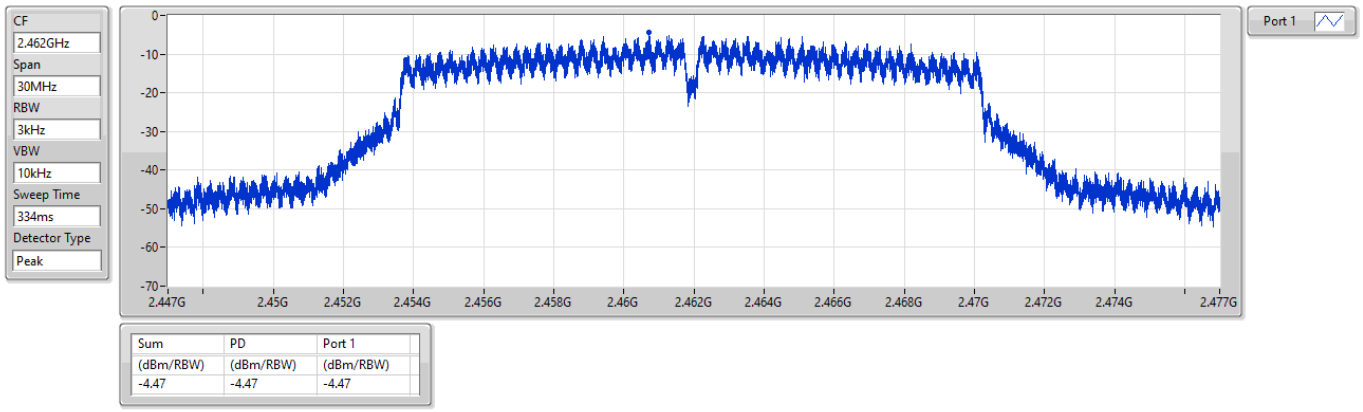
2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_1TX **PSD**

2437MHz



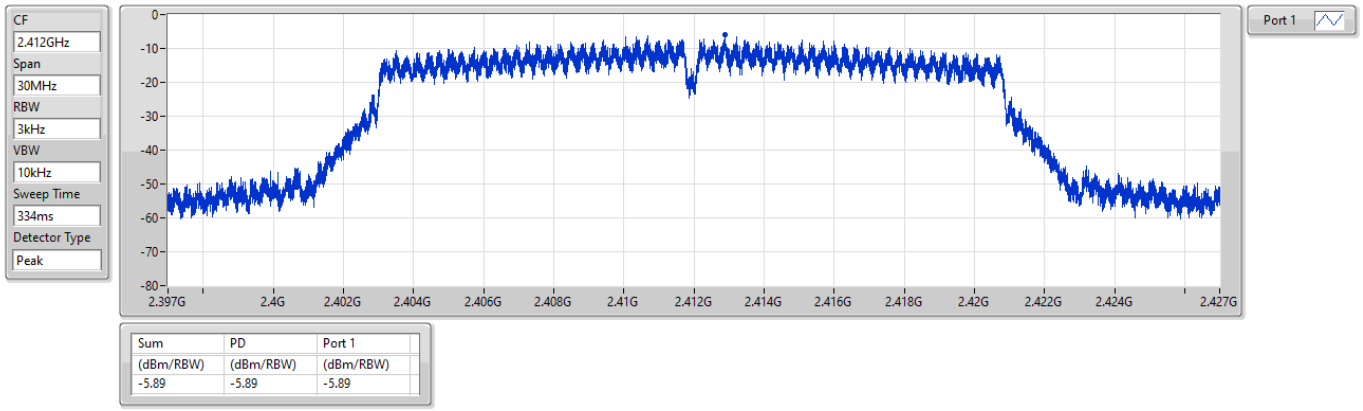
2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_1TX **PSD**

2462MHz



2.4-2.4835GHz_802.11n HT20_Nss1,(MCS0)_1TX **PSD**

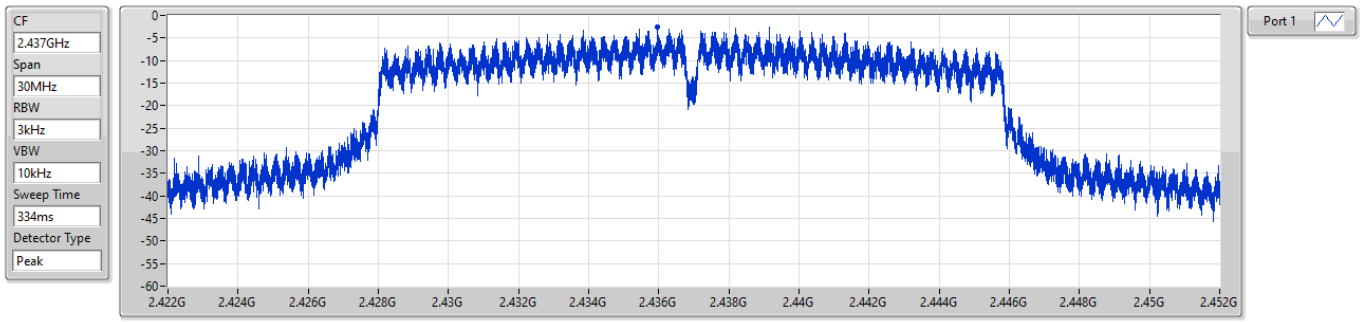
2412MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-5.89	-5.89	-5.89

2.4-2.4835GHz_802.11n HT20_Nss1,(MCS0)_1TX **PSD**

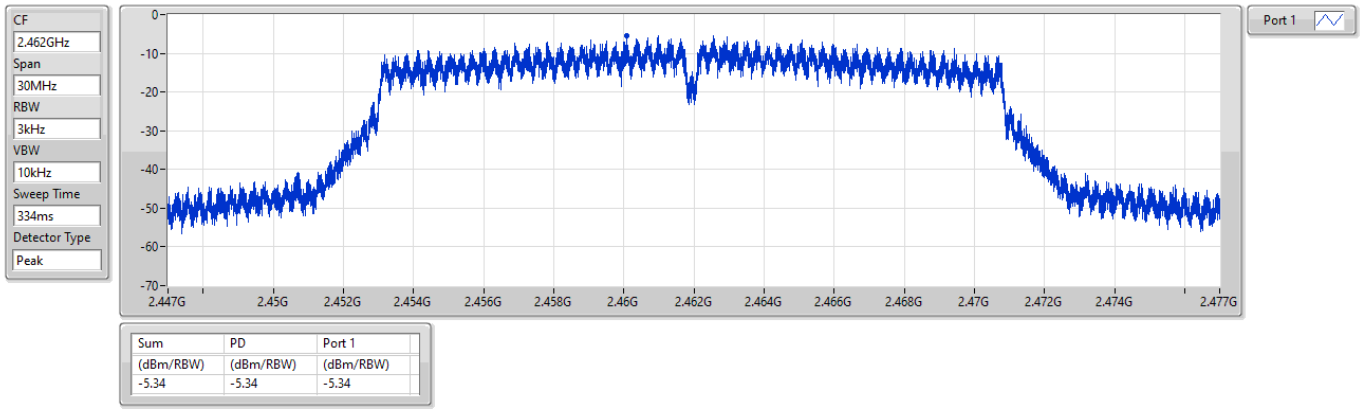
2437MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-2.57	-2.57	-2.57

2.4-2.4835GHz_802.11n HT20_Nss1,(MCS0)_1TX **PSD**

2462MHz

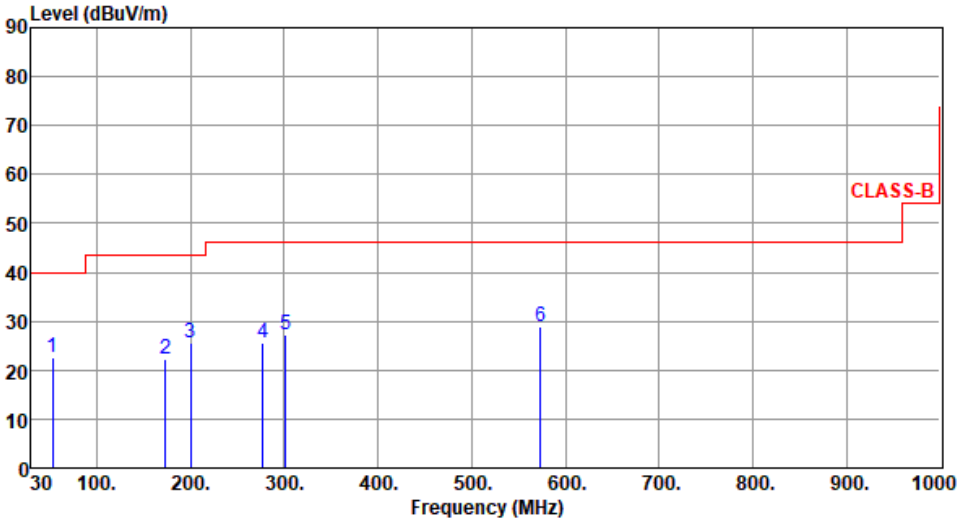


Unwanted Emissions (Below 1GHz)

Charger mode

Modulation	HT20	**Test Freq. (MHz)**	2437
Polarization	Horizontal		

Test By :Paul Lin Temperature(℃):23 Humidity(%):64

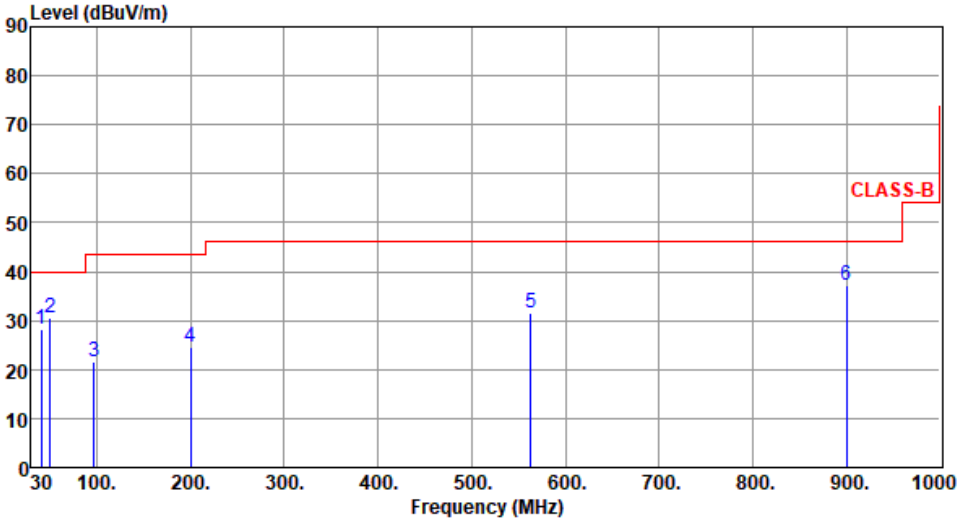


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	52.85	22.53	40.00	-17.47	30.69	-8.16	Peak	---	---
2	173.14	22.13	43.50	-21.37	31.39	-9.26	Peak	---	---
3	200.41	25.68	43.50	-17.82	37.44	-11.76	Peak	---	---
4	276.89	25.67	46.00	-20.33	34.28	-8.61	Peak	---	---
5	301.05	27.11	46.00	-18.89	34.99	-7.88	Peak	---	---
6	573.48	28.98	46.00	-17.02	29.94	-0.96	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.

Modulation	HT20	**Test Freq. (MHz)**	2437
Polarization	Vertical		

Test By :Paul Lin Temperature(℃):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	40.31	28.37	40.00	-11.63	37.09	-8.72	Peak	---	---
2	50.15	30.46	40.00	-9.54	38.56	-8.10	Peak	---	---
3	97.25	21.66	43.50	-21.84	35.29	-13.63	Peak	---	---
4	199.96	24.43	43.50	-19.07	36.18	-11.75	Peak	---	---
5	563.14	31.57	46.00	-14.43	32.75	-1.18	Peak	---	---
6	900.14	37.18	46.00	-8.82	31.48	5.70	Peak	---	---

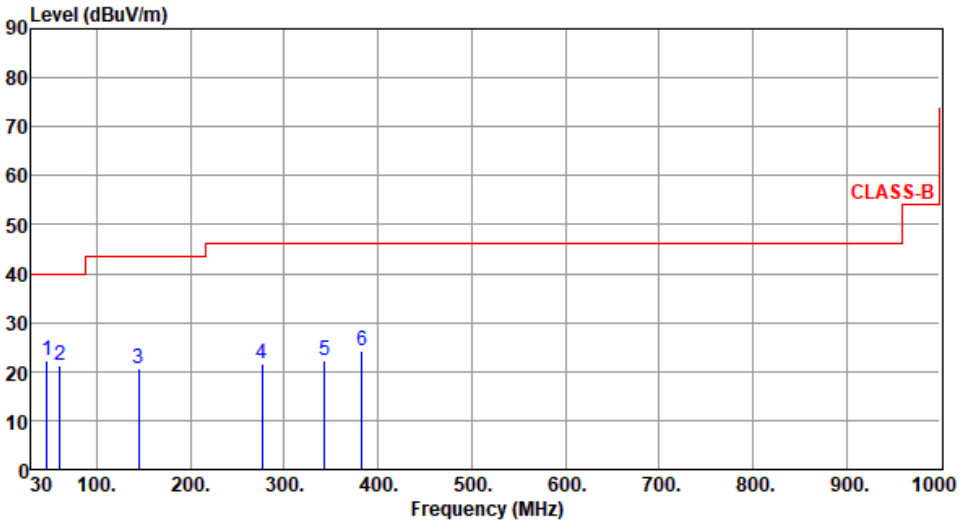
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).
Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

Unwanted Emissions (Below 1GHz)

Battery mode

Modulation	HT20	**Test Freq. (MHz)**	2437
Polarization	Horizontal		

Test By :Paul Lin Temperature(℃):23 Humidity(%):64

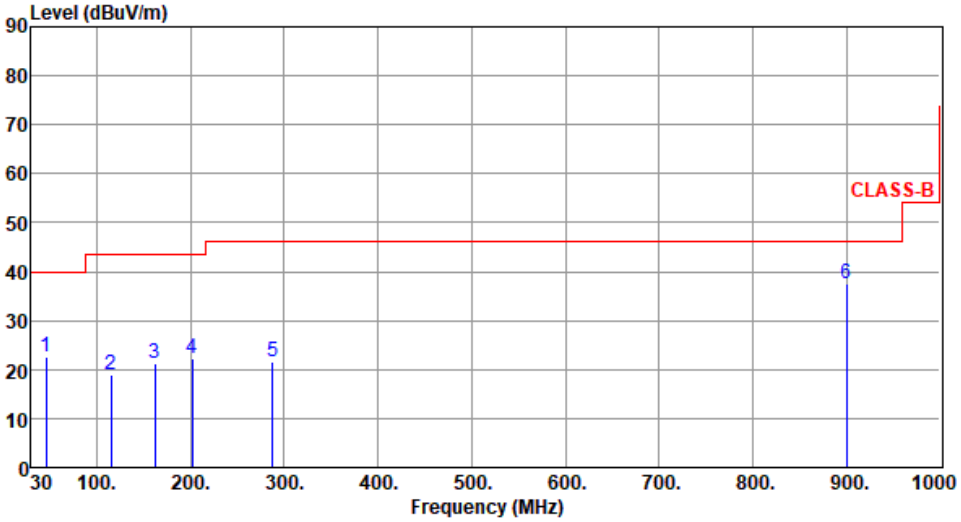


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	46.86	22.14	40.00	-17.86	30.31	-8.17	Peak	---	---
2	60.29	21.37	40.00	-18.63	30.28	-8.91	Peak	---	---
3	144.91	20.73	43.50	-22.77	29.47	-8.74	Peak	---	---
4	276.03	21.56	46.00	-24.44	30.22	-8.66	Peak	---	---
5	342.95	22.37	46.00	-23.63	29.04	-6.67	Peak	---	---
6	382.95	24.39	46.00	-21.61	29.79	-5.40	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.

Modulation	HT20	**Test Freq. (MHz)**	2437
Polarization	Vertical		

Test By :Paul Lin Temperature(℃):23 Humidity(%):64



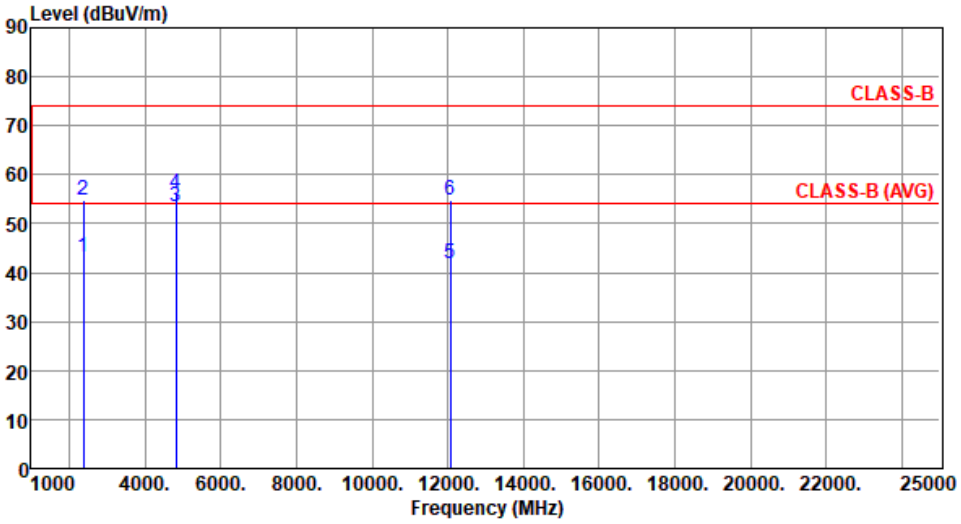
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	46.18	22.46	40.00	-17.54	30.44	-7.98	Peak	---	---
2	115.04	18.77	43.50	-24.73	30.02	-11.25	Peak	---	---
3	162.17	21.17	43.50	-22.33	29.83	-8.66	Peak	---	---
4	202.13	22.25	43.50	-21.25	34.03	-11.78	Peak	---	---
5	287.24	21.43	46.00	-24.57	29.68	-8.25	Peak	---	---
6	900.14	37.65	46.00	-8.35	31.95	5.70	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 :Paul Lin Temperature(℃):23 Humidity(%):62

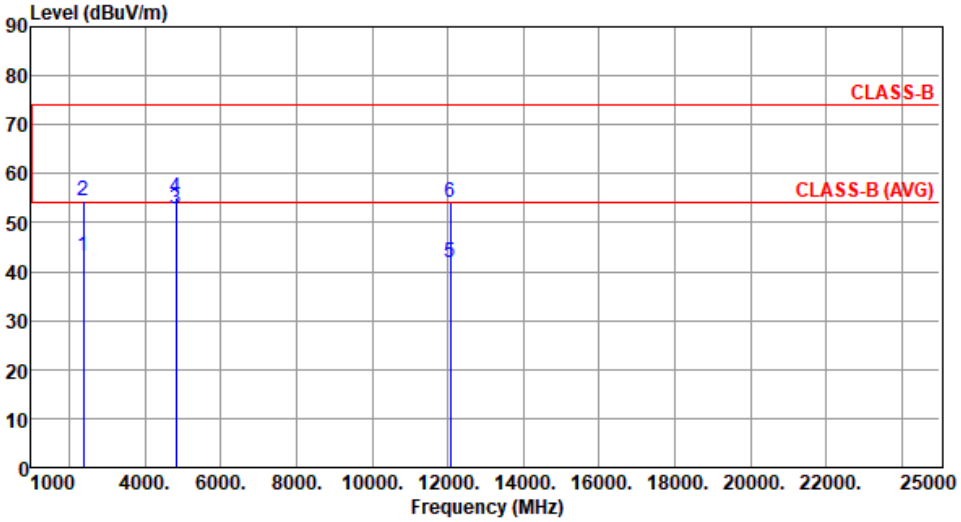


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	43.30	54.00	-10.70	46.93	-3.63	Average	256	8
2	2390.00	54.79	74.00	-19.21	58.42	-3.63	Peak	256	8
3	4824.00	53.38	54.00	-0.62	53.27	0.11	Average	177	24
4	4824.00	55.99	74.00	-18.01	55.88	0.11	Peak	177	24
5	12060.00	41.72	54.00	-12.28	34.08	7.64	Average	100	56
6	12060.00	54.80	74.00	-19.20	47.06	7.74	Peak	100	56

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 :Paul Lin Temperature(℃):23 Humidity(%):62

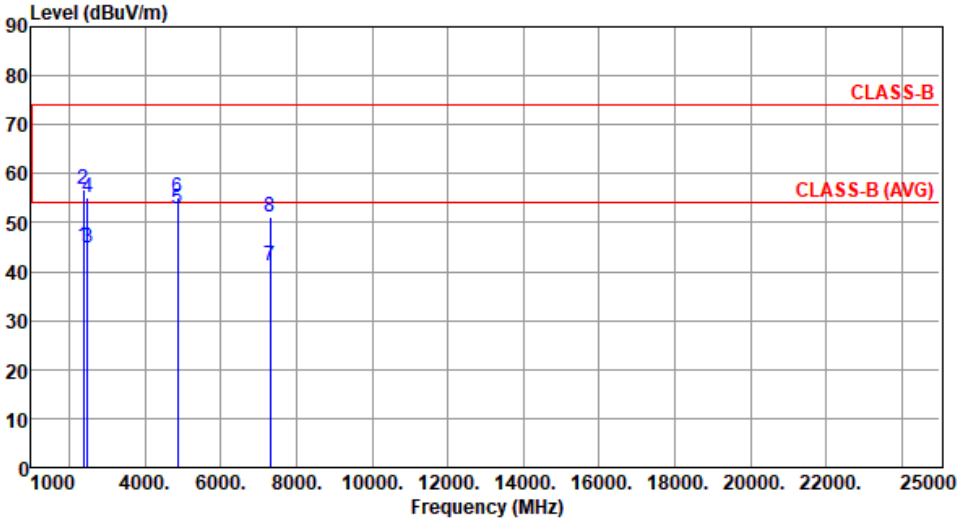


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	43.03	54.00	-10.97	46.66	-3.63	Average	237	333
2	2390.00	54.55	74.00	-19.45	58.18	-3.63	Peak	237	333
3	4824.00	52.86	54.00	-1.14	52.75	0.11	Average	194	106
4	4824.00	55.26	74.00	-18.74	55.15	0.11	Peak	194	106
5	12060.00	41.71	54.00	-12.29	33.97	7.74	Average	100	25
6	12060.00	54.26	74.00	-19.74	46.52	7.74	Peak	100	25

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)**	2437
Polarization	Horizontal		

Test By :Paul Lin Temperature(℃):23 Humidity(%):62

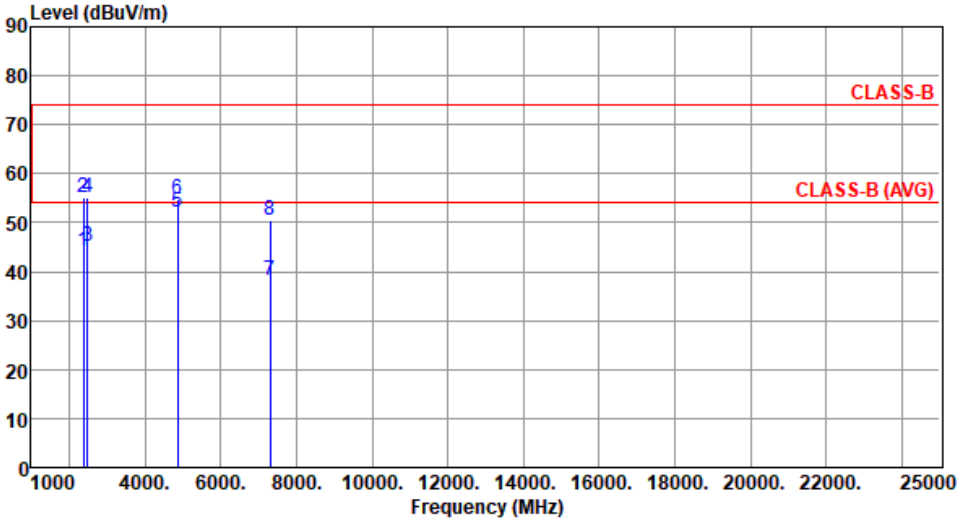


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	45.31	54.00	-8.69	48.94	-3.63	Average	250	8
2	2390.00	56.89	74.00	-17.11	60.52	-3.63	Peak	250	8
3	2483.50	44.81	54.00	-9.19	48.73	-3.92	Average	250	8
4	2483.50	54.97	74.00	-19.03	58.89	-3.92	Peak	250	8
5	4874.00	52.76	54.00	-1.24	52.71	0.05	Average	183	35
6	4874.00	54.99	74.00	-19.01	54.94	0.05	Peak	183	35
7	7311.00	41.30	54.00	-12.70	35.92	5.38	Average	106	154
8	7311.00	51.30	74.00	-22.70	45.92	5.38	Peak	106	154

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)	2437
Polarization	Vertical		

Test By :Paul Lin Temperature(℃):23 Humidity(%):62

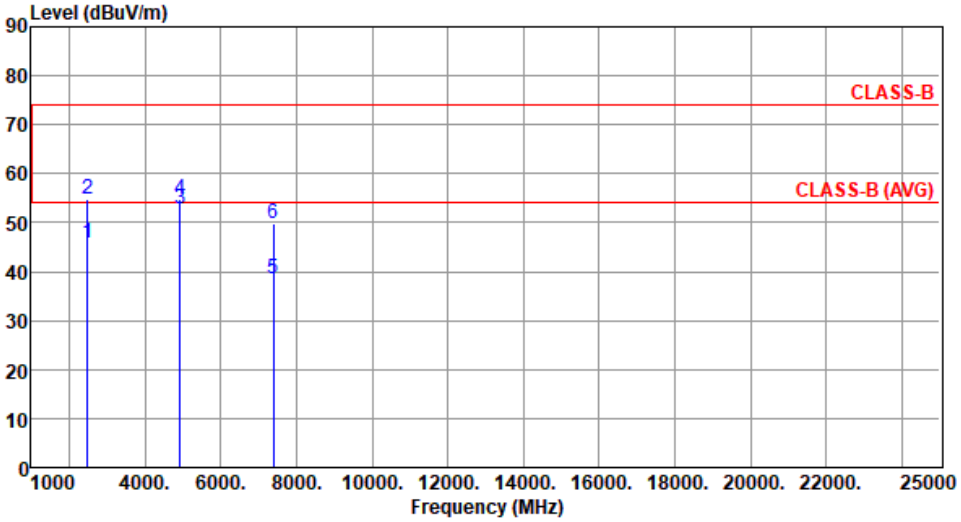


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	44.12	54.00	-9.88	47.75	-3.63	Average	233	303
2	2390.00	55.01	74.00	-18.99	58.64	-3.63	Peak	233	303
3	2483.50	45.28	54.00	-8.72	49.20	-3.92	Average	233	303
4	2483.50	55.12	74.00	-18.88	59.04	-3.92	Peak	233	303
5	4874.00	52.23	54.00	-1.77	52.18	0.05	Average	193	104
6	4874.00	54.65	74.00	-19.35	54.60	0.05	Peak	193	104
7	7311.00	38.24	54.00	-15.76	32.86	5.38	Average	219	224
8	7311.00	50.36	74.00	-23.64	44.98	5.38	Peak	219	224

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)**	2462
Polarization	Horizontal		

Test By :Paul Lin Temperature(℃):23 Humidity(%):62

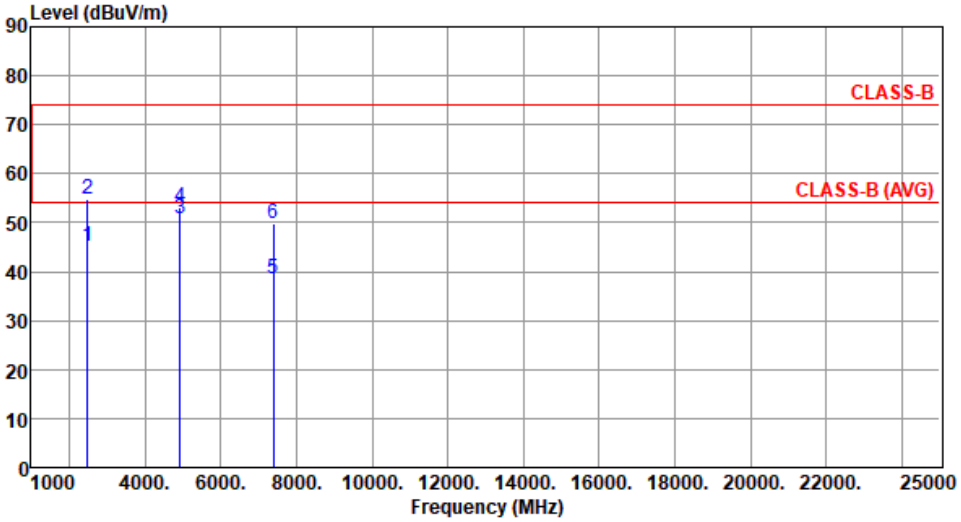


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2483.50	45.82	54.00	-8.18	49.74	-3.92	Average	224	7
2	2483.50	54.78	74.00	-19.22	58.70	-3.92	Peak	224	7
3	4924.00	52.87	54.00	-1.13	52.87	0.00	Average	184	35
4	4924.00	54.90	74.00	-19.10	54.90	0.00	Peak	184	35
5	7386.00	38.48	54.00	-15.52	33.15	5.33	Average	108	154
6	7386.00	49.94	74.00	-24.06	44.61	5.33	Peak	108	154

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)**	2462
Polarization	Vertical		

Test By :Paul Lin Temperature(℃):23 Humidity(%):62



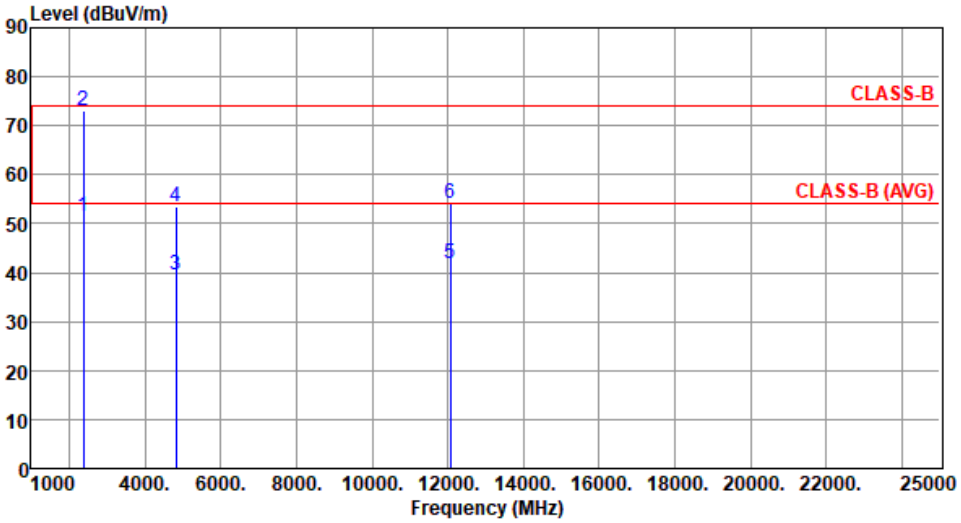
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2483.50	45.12	54.00	-8.88	49.04	-3.92	Average	189	328
2	2483.50	54.81	74.00	-19.19	58.73	-3.92	Peak	189	328
3	4924.00	50.84	54.00	-3.16	50.84	0.00	Average	220	72
4	4924.00	53.11	74.00	-20.89	53.11	0.00	Peak	220	72
5	7386.00	38.61	54.00	-15.39	33.28	5.33	Average	220	225
6	7386.00	49.77	74.00	-24.23	44.44	5.33	Peak	220	225

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 :Paul Lin Temperature(℃):23 Humidity(%):62

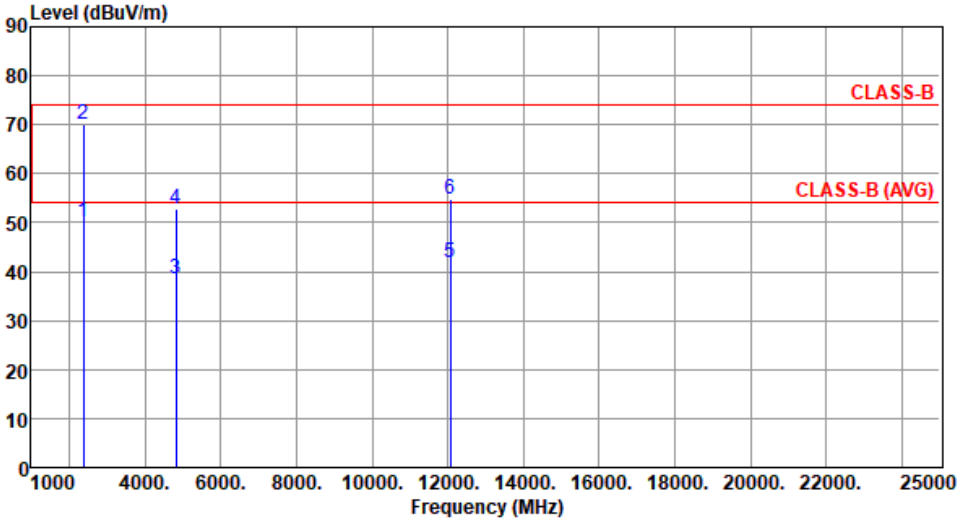


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	51.33	54.00	-2.67	54.96	-3.63	Average	163	358
2	2390.00	73.15	74.00	-0.85	76.78	-3.63	Peak	163	358
3	4824.00	39.39	54.00	-14.61	39.28	0.11	Average	179	19
4	4824.00	53.37	74.00	-20.63	53.26	0.11	Peak	179	19
5	12060.00	42.00	54.00	-12.00	34.26	7.74	Average	100	56
6	12060.00	54.16	74.00	-19.84	46.42	7.74	Peak	100	56

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 :Paul Lin Temperature(℃):23 Humidity(%):62

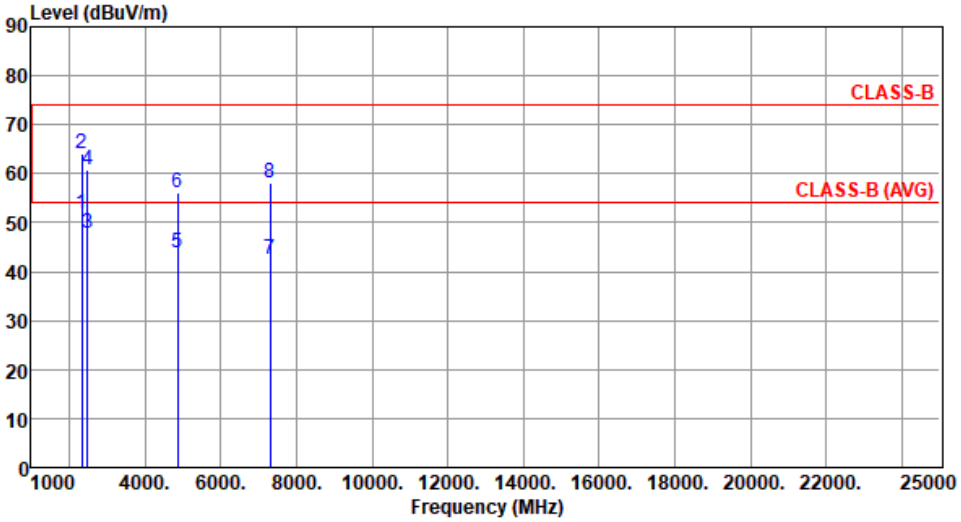


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	50.02	54.00	-3.98	53.65	-3.63	Average	213	314
2	2390.00	70.11	74.00	-3.89	73.74	-3.63	Peak	213	314
3	4824.00	38.53	54.00	-15.47	38.42	0.11	Average	155	53
4	4824.00	52.85	74.00	-21.15	52.74	0.11	Peak	155	53
5	12060.00	41.97	54.00	-12.03	34.23	7.74	Average	100	105
6	12060.00	54.89	74.00	-19.11	47.15	7.74	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).

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

Test By :Paul Lin Temperature(℃):23 Humidity(%):62

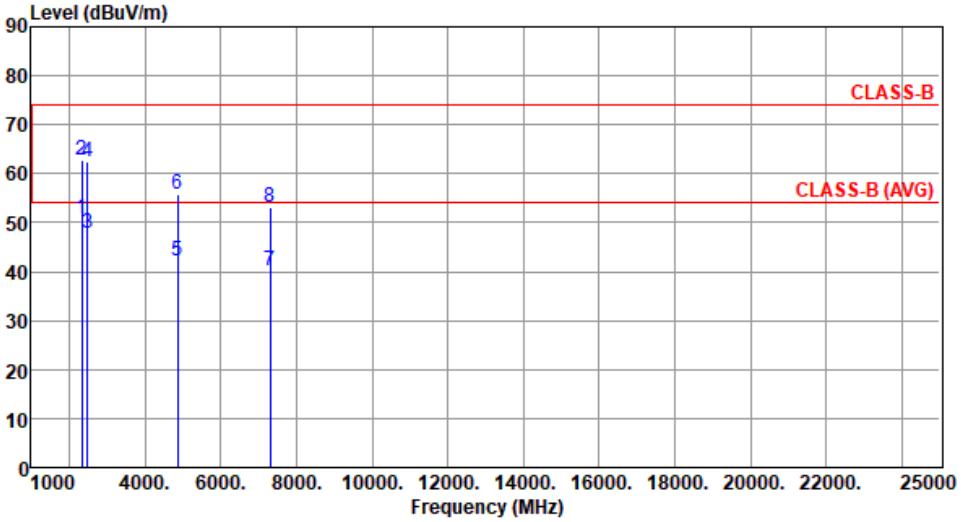


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2340.00	51.80	54.00	-2.20	55.31	-3.51	Average	272	354
2	2340.00	63.98	74.00	-10.02	67.49	-3.51	Peak	272	354
3	2483.50	47.81	54.00	-6.19	51.73	-3.92	Average	272	354
4	2483.50	60.77	74.00	-13.23	64.69	-3.92	Peak	272	354
5	4874.00	43.67	54.00	-10.33	43.62	0.05	Average	182	34
6	4874.00	56.05	74.00	-17.95	56.00	0.05	Peak	182	34
7	7311.00	42.62	54.00	-11.38	37.24	5.38	Average	153	157
8	7311.00	58.10	74.00	-15.90	52.72	5.38	Peak	153	157

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 :Paul Lin Temperature(℃):23 Humidity(%):62

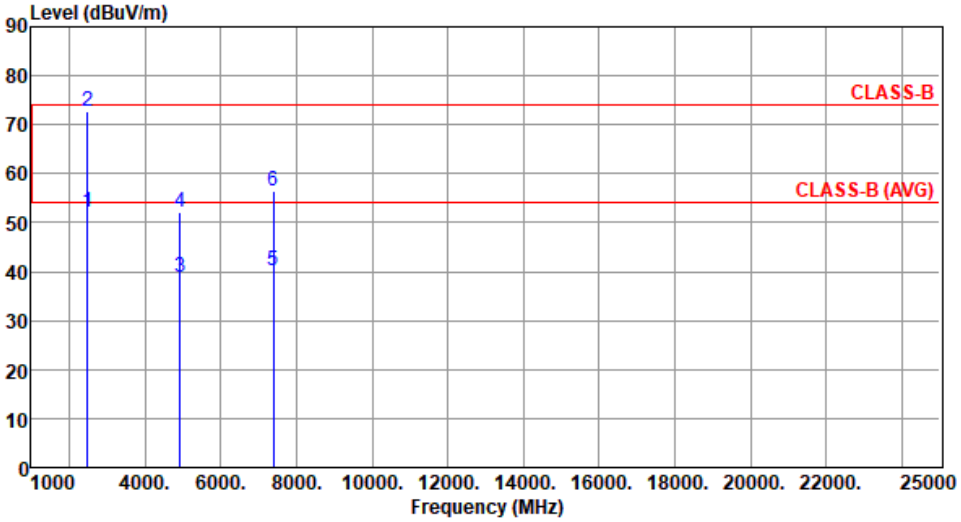


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2340.00	50.67	54.00	-3.33	54.18	-3.51	Average	234	343
2	2340.00	62.72	74.00	-11.28	66.23	-3.51	Peak	234	343
3	2483.50	47.81	54.00	-6.19	51.73	-3.92	Average	234	343
4	2483.50	62.32	74.00	-11.68	66.24	-3.92	Peak	234	343
5	4874.00	42.04	54.00	-11.96	41.99	0.05	Average	172	48
6	4874.00	55.65	74.00	-18.35	55.60	0.05	Peak	172	48
7	7311.00	40.24	54.00	-13.76	34.86	5.38	Average	156	247
8	7311.00	53.18	74.00	-20.82	47.80	5.38	Peak	156	247

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)**	2462
Polarization	Horizontal		

Test By :Paul Lin Temperature(℃):23 Humidity(%):62

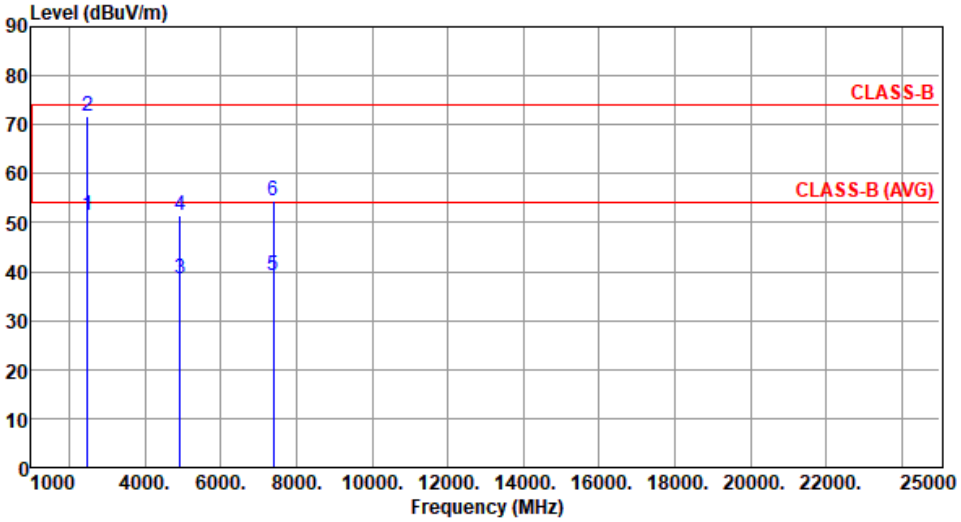


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2483.50	52.17	54.00	-1.83	56.09	-3.92	Average	181	345
2	2483.50	72.73	74.00	-1.27	76.65	-3.92	Peak	181	345
3	4924.00	38.90	54.00	-15.10	38.90	0.00	Average	126	2
4	4924.00	51.99	74.00	-22.01	51.99	0.00	Peak	126	2
5	7386.00	40.14	54.00	-13.86	34.81	5.33	Average	143	158
6	7386.00	56.31	74.00	-17.69	50.98	5.33	Peak	143	158

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)**	2462
Polarization	Vertical		

Test By :Paul Lin Temperature(℃):23 Humidity(%):62



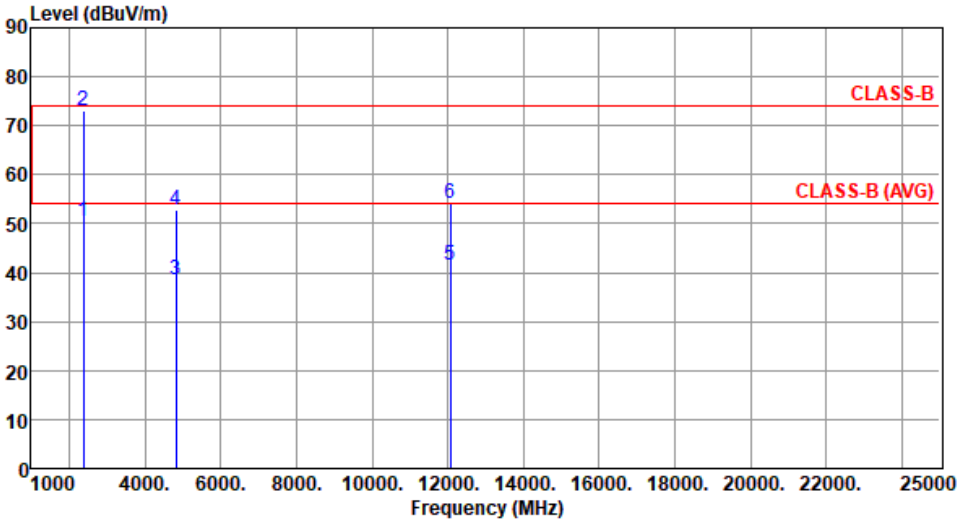
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2483.50	51.43	54.00	-2.57	55.35	-3.92	Average	190	337
2	2483.50	71.66	74.00	-2.34	75.58	-3.92	Peak	190	337
3	4924.00	38.42	54.00	-15.58	38.42	0.00	Average	172	63
4	4924.00	51.37	74.00	-22.63	51.37	0.00	Peak	172	63
5	7386.00	39.23	54.00	-14.77	33.90	5.33	Average	169	245
6	7386.00	54.52	74.00	-19.48	49.19	5.33	Peak	169	245

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 HT20

Modulation	HT20	**Test Freq. (MHz)**	2412
Polarization	Horizontal		

Test By :Paul Lin Temperature(℃):23 Humidity(%):62

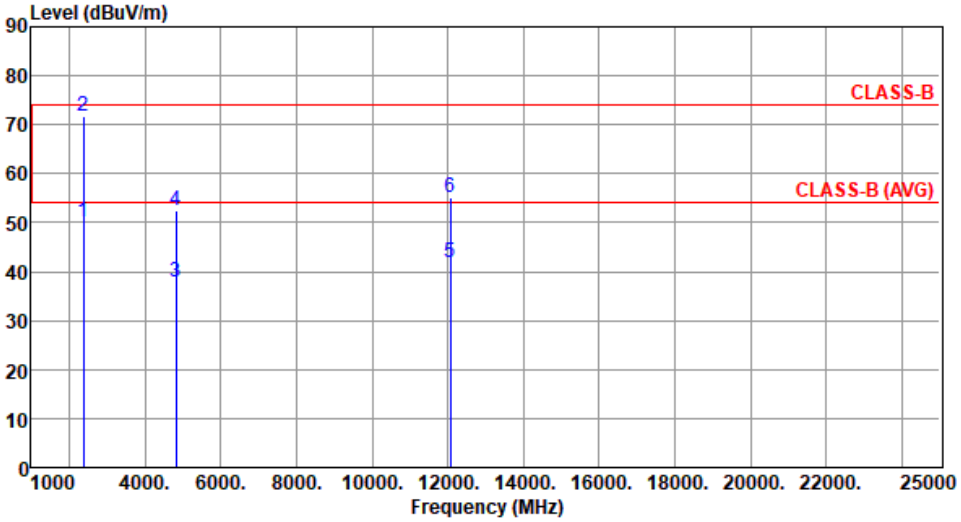


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	50.48	54.00	-3.52	54.11	-3.63	Average	163	357
2	2390.00	73.12	74.00	-0.88	76.75	-3.63	Peak	163	357
3	4824.00	38.41	54.00	-15.59	38.30	0.11	Average	154	20
4	4824.00	52.73	74.00	-21.27	52.62	0.11	Peak	154	20
5	12060.00	41.66	54.00	-12.34	33.92	7.74	Average	100	79
6	12060.00	54.20	74.00	-19.80	46.46	7.74	Peak	100	79

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)**	2412
Polarization	Vertical		

Test By :Paul Lin Temperature(℃):23 Humidity(%):62

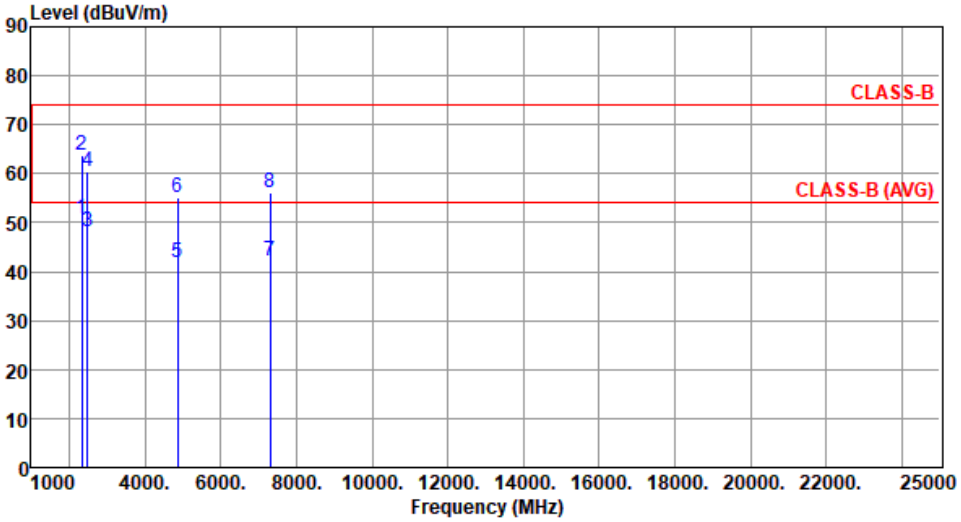


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	50.01	54.00	-3.99	53.64	-3.63	Average	214	316
2	2390.00	71.78	74.00	-2.22	75.41	-3.63	Peak	214	316
3	4824.00	38.00	54.00	-16.00	37.89	0.11	Average	172	65
4	4824.00	52.56	74.00	-21.44	52.45	0.11	Peak	172	65
5	12060.00	41.91	54.00	-12.09	34.17	7.74	Average	100	76
6	12060.00	55.19	74.00	-18.81	47.45	7.74	Peak	100	76

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)**	2437
Polarization	Horizontal		

Test By :Paul Lin Temperature(℃):23 Humidity(%):62

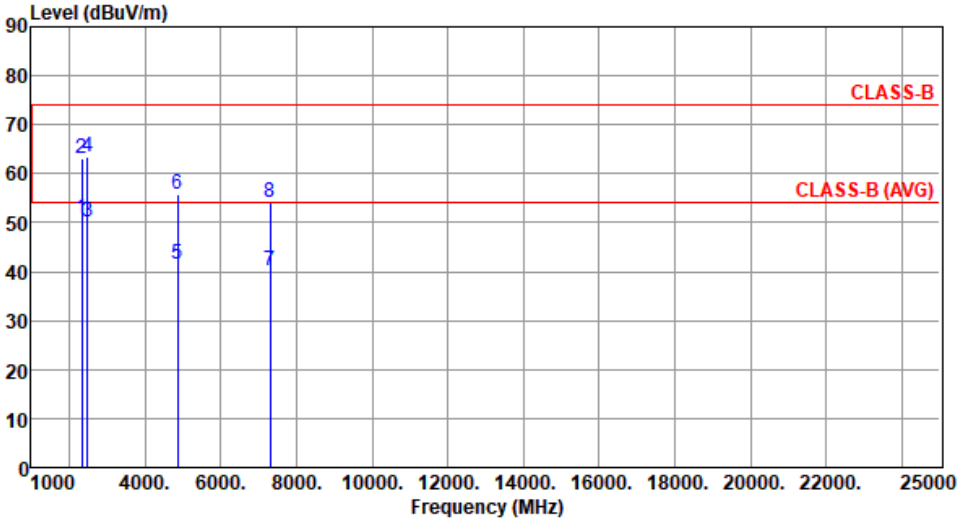


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2340.00	50.81	54.00	-3.19	54.32	-3.51	Average	274	353
2	2340.00	63.69	74.00	-10.31	67.20	-3.51	Peak	274	353
3	2483.50	48.13	54.00	-5.87	52.05	-3.92	Average	274	353
4	2483.50	60.33	74.00	-13.67	64.25	-3.92	Peak	274	353
5	4874.00	41.79	54.00	-12.21	41.74	0.05	Average	182	35
6	4874.00	55.19	74.00	-18.81	55.14	0.05	Peak	182	35
7	7311.00	42.19	54.00	-11.81	36.81	5.38	Average	152	156
8	7311.00	56.24	74.00	-17.76	50.86	5.38	Peak	152	156

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)**	2437
Polarization	Vertical		

Test By :Paul Lin Temperature(℃):23 Humidity(%):62

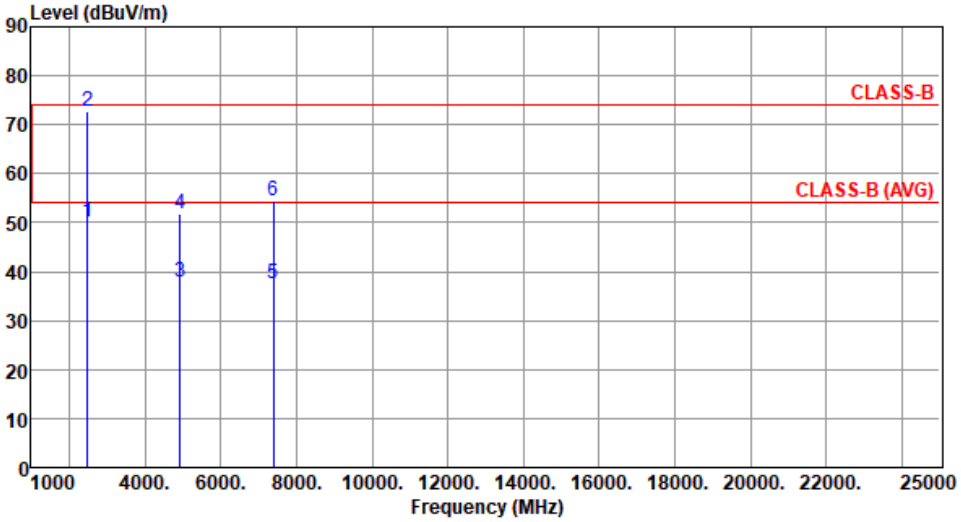


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2340.00	50.86	54.00	-3.14	54.37	-3.51	Average	210	303
2	2340.00	63.26	74.00	-10.74	66.77	-3.51	Peak	210	303
3	2483.50	50.22	54.00	-3.78	54.14	-3.92	Average	210	303
4	2483.50	63.48	74.00	-10.52	67.40	-3.92	Peak	210	303
5	4874.00	41.42	54.00	-12.58	41.37	0.05	Average	175	67
6	4874.00	55.90	74.00	-18.10	55.85	0.05	Peak	175	67
7	7311.00	40.16	54.00	-13.84	34.78	5.38	Average	171	246
8	7311.00	53.99	74.00	-20.01	48.61	5.38	Peak	171	246

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	Horizontal		

Test By :Paul Lin Temperature(℃):23 Humidity(%):62

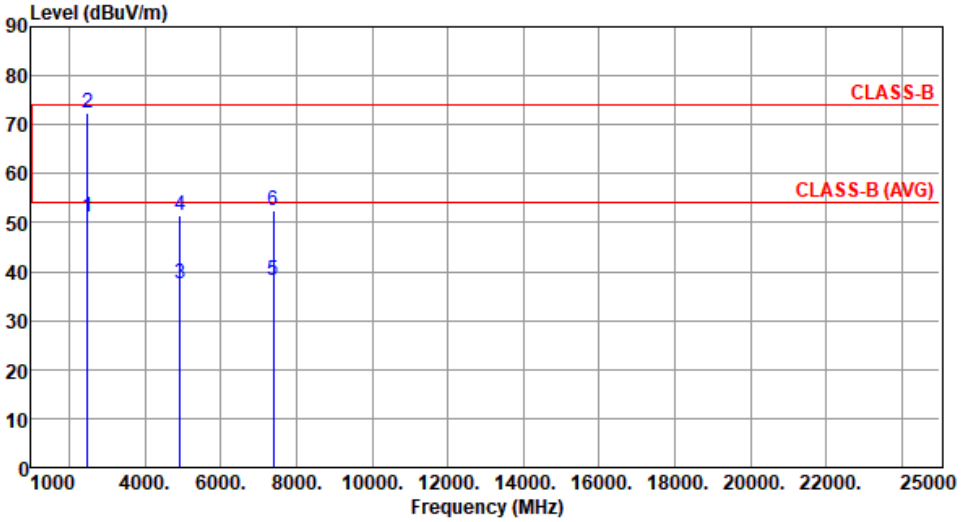


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2483.50	50.15	54.00	-3.85	54.07	-3.92	Average	185	345
2	2483.50	72.65	74.00	-1.35	76.57	-3.92	Peak	185	345
3	4924.00	37.86	54.00	-16.14	37.86	0.00	Average	131	22
4	4924.00	51.68	74.00	-22.32	51.68	0.00	Peak	131	22
5	7386.00	37.66	54.00	-16.34	32.33	5.33	Average	150	158
6	7386.00	54.48	74.00	-19.52	49.15	5.33	Peak	150	158

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 :Paul Lin Temperature(℃):23 Humidity(%):62

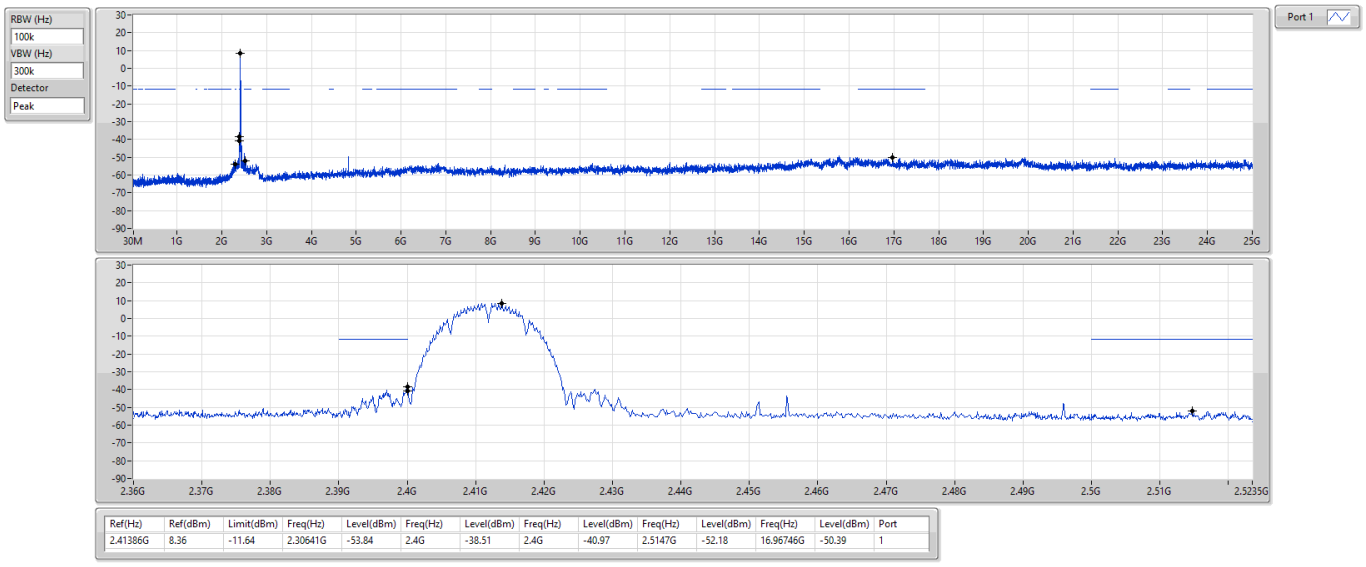


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2483.50	51.03	54.00	-2.97	54.95	-3.92	Average	187	339
2	2483.50	72.35	74.00	-1.65	76.27	-3.92	Peak	187	339
3	4924.00	37.42	54.00	-16.58	37.42	0.00	Average	173	63
4	4924.00	51.36	74.00	-22.64	51.36	0.00	Peak	173	63
5	7386.00	38.12	54.00	-15.88	32.79	5.33	Average	173	244
6	7386.00	52.41	74.00	-21.59	47.08	5.33	Peak	173	244

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)_1TX **CSENdB**

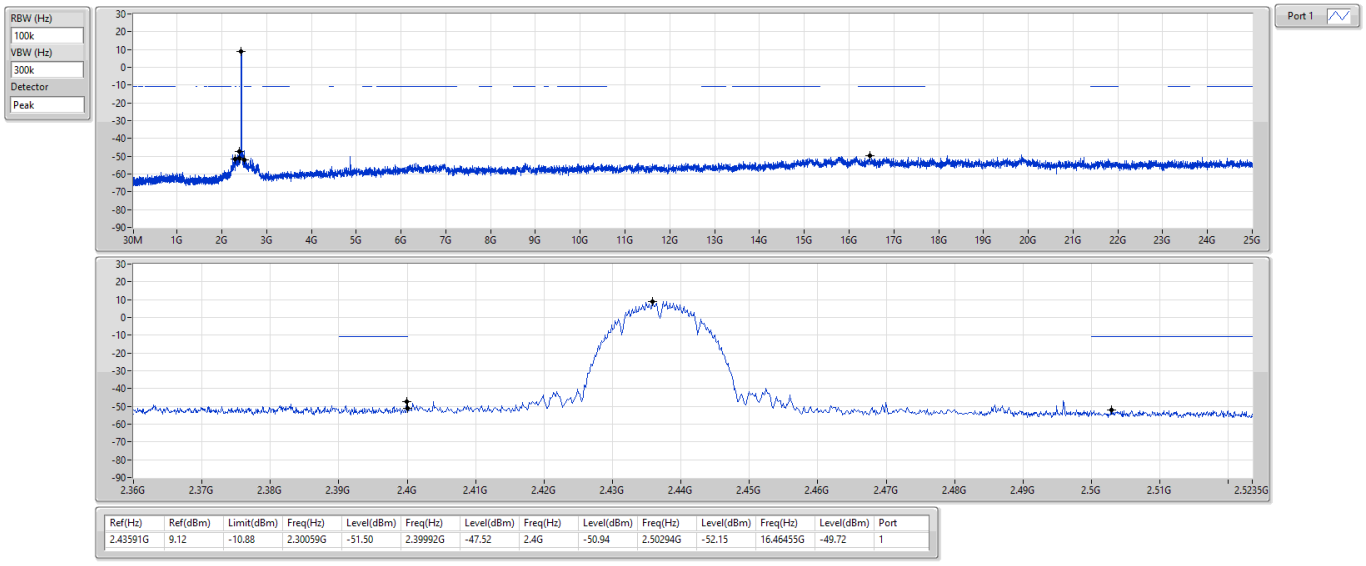
2412MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.41386G	8.36	-11.64	2.30641G	-53.84	2.4G	-38.51	2.4G	-40.97	2.5147G	-52.18	16.96746G	-50.39	1

2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_1TX **CSENdB**

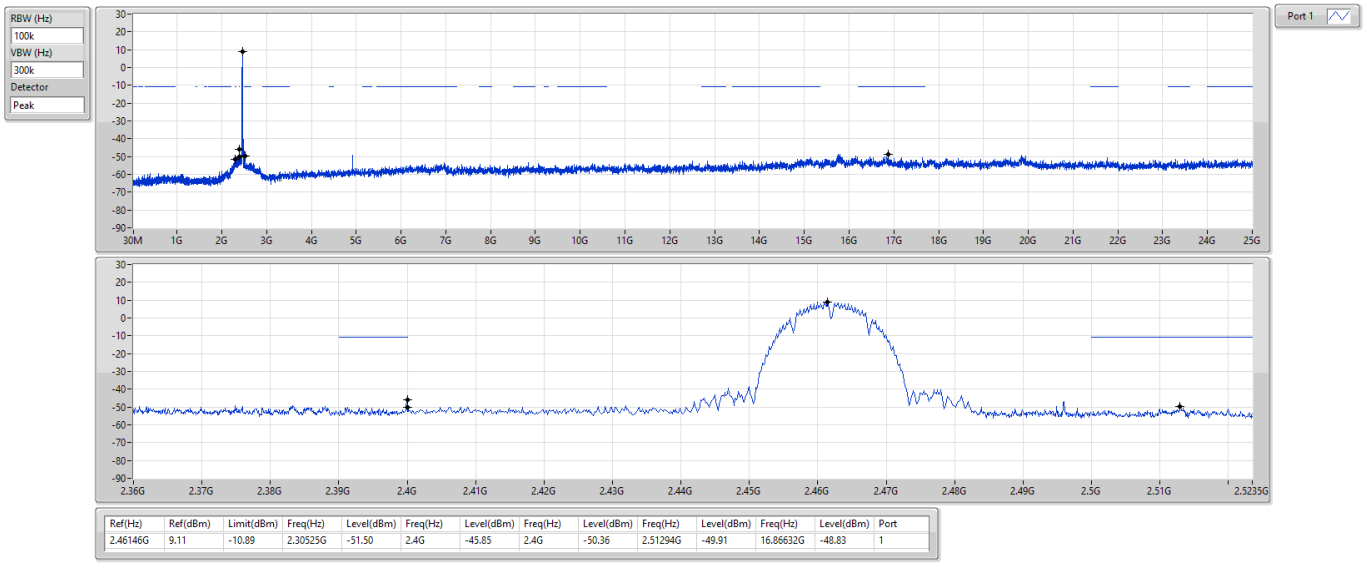
2437MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.43591G	9.12	-10.88	2.30059G	-51.50	2.39992G	-47.52	2.4G	-50.94	2.50294G	-52.15	16.46455G	-49.72	1

2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_1TX **CSENdB**

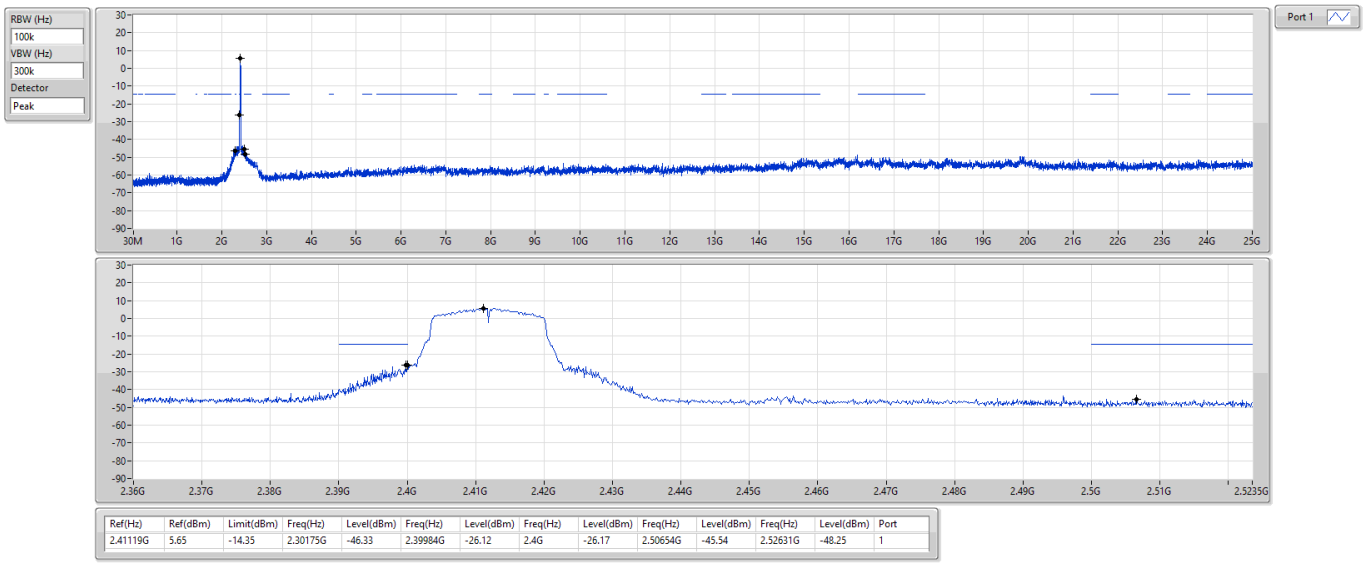
2462MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.46146G	9.11	-10.89	2.30525G	-51.50	2.4G	-45.85	2.4G	-50.36	2.51294G	-49.91	16.86632G	-48.83	1

2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_1TX **CSENdB**

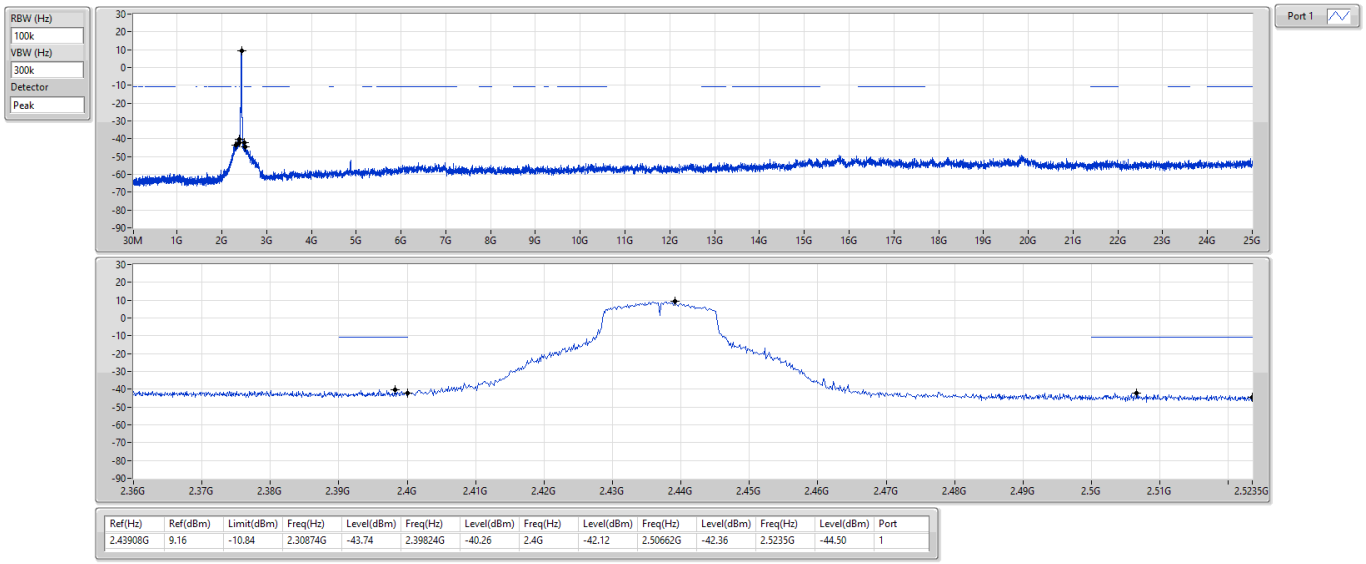
2412MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.41119G	5.65	-14.35	2.30175G	-46.33	2.39984G	-26.12	2.4G	-26.17	2.50654G	-45.54	2.52631G	-48.25	1

2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_1TX **CSENdB**

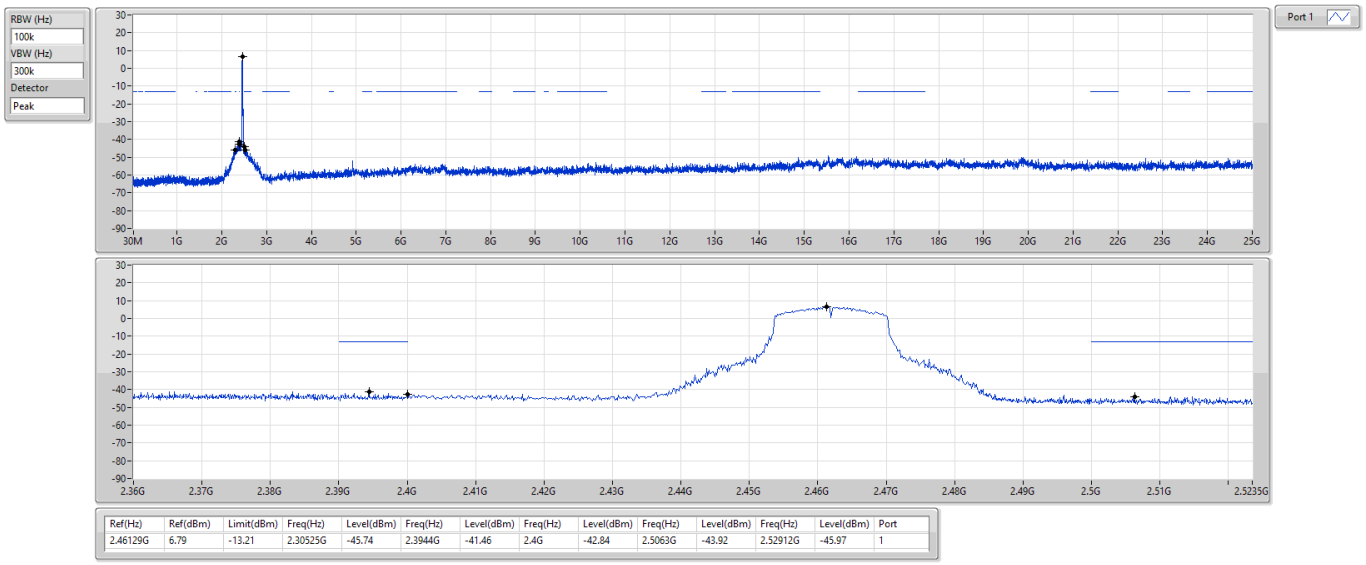
2437MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.43908G	9.16	-10.84	2.30874G	-43.74	2.39824G	-40.26	2.4G	-42.12	2.50662G	-42.36	2.5235G	-44.50	1

2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_1TX **CSENdB**

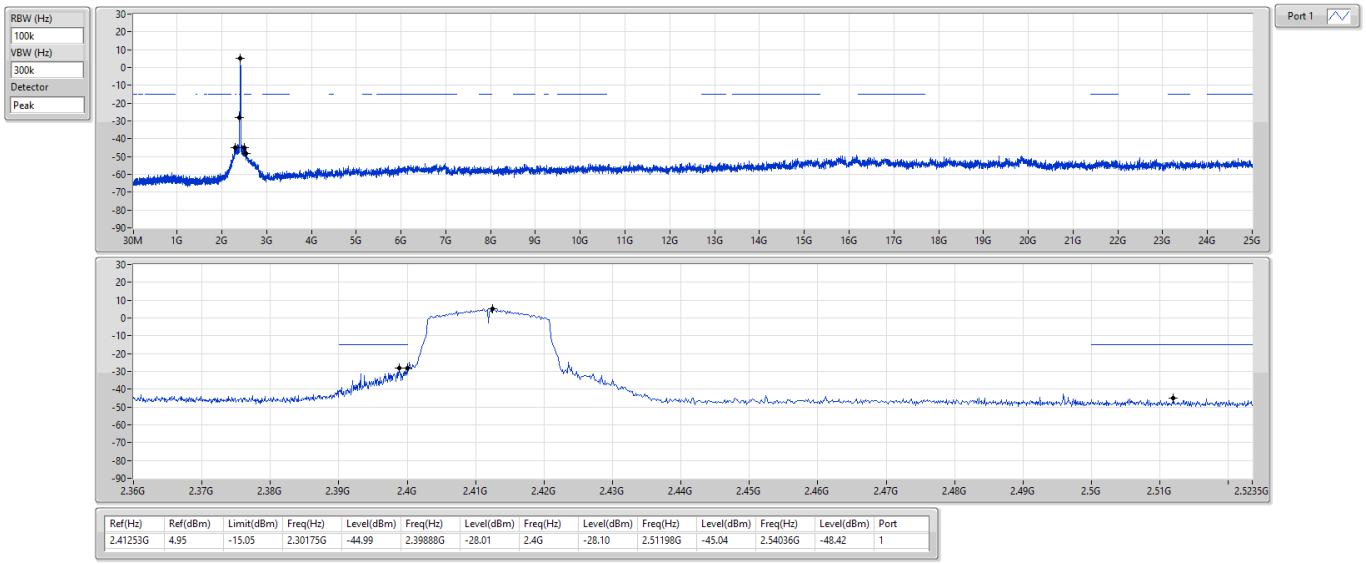
2462MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.46129G	6.79	-13.21	2.30525G	-45.74	2.3944G	-41.46	2.4G	-42.84	2.5063G	-43.92	2.52912G	-45.97	1

2.4-2.4835GHz_802.11n HT20_Nss1,(MCS0)_1TX **CSENdB**

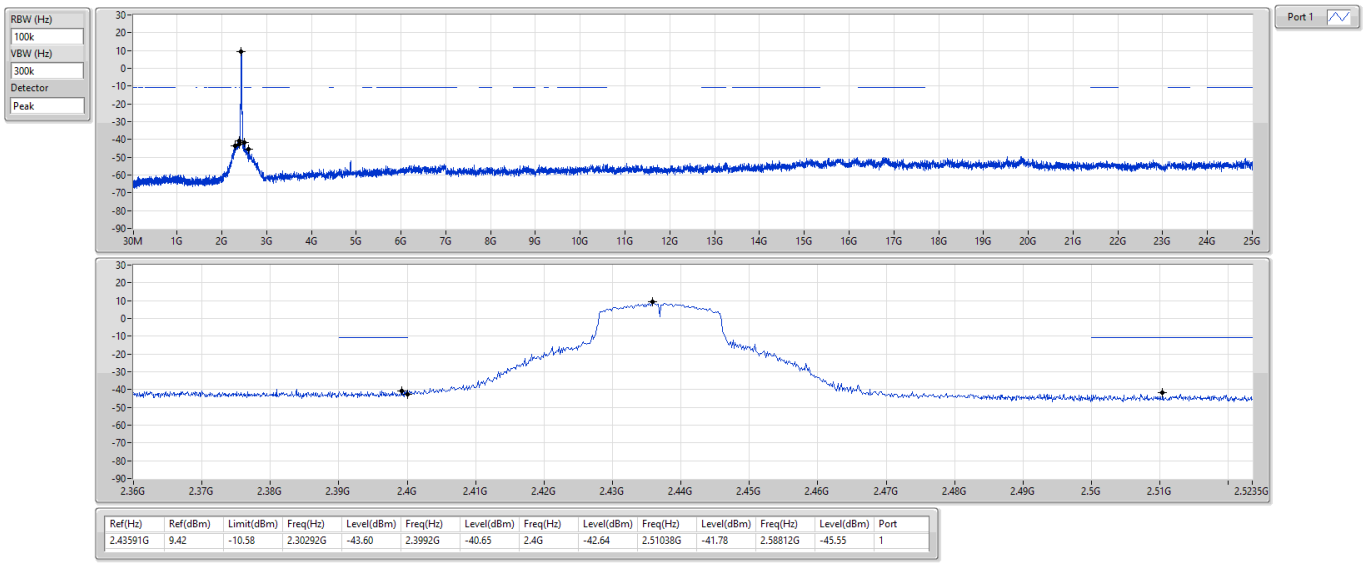
2412MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.41253G	4.95	-15.05	2.30175G	-44.99	2.39888G	-28.01	2.4G	-28.10	2.51198G	-45.04	2.54036G	-48.42	1

2.4-2.4835GHz_802.11n HT20_Nss1,(MCS0)_1TX **CSENdB**

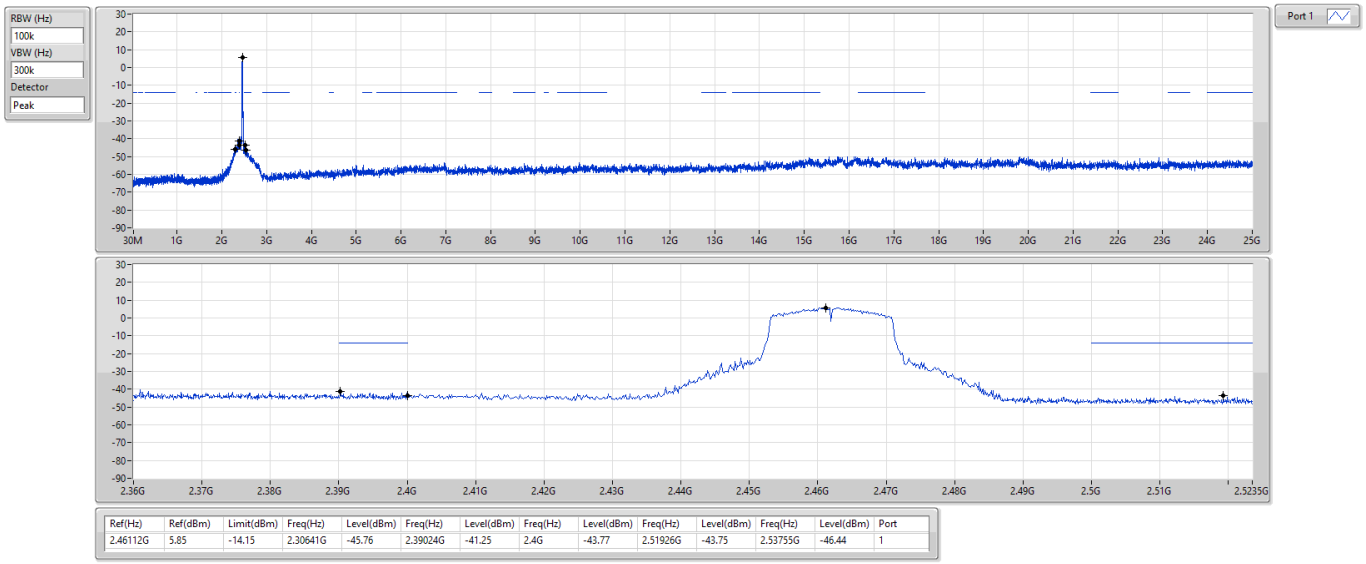
2437MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.43591G	9.42	-10.58	2.30292G	-43.60	2.3992G	-40.65	2.4G	-42.64	2.51038G	-41.78	2.58812G	-45.55	1

2.4-2.4835GHz_802.11n HT20_Nss1,(MCS0)_1TX **CSENdB**

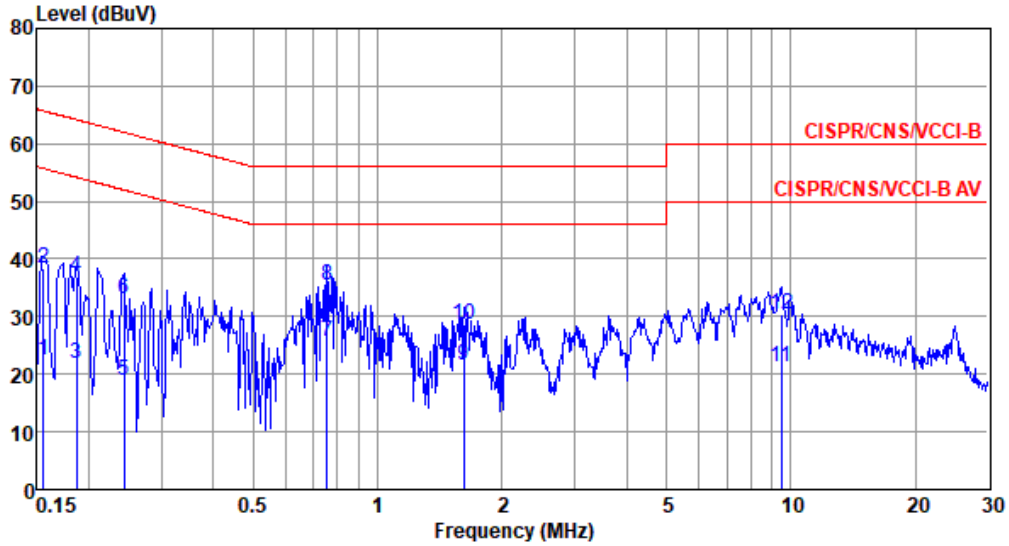
2462MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.46112G	5.85	-14.15	2.30641G	-45.76	2.39024G	-41.25	2.4G	-43.77	2.51926G	-43.75	2.53755G	-46.44	1

Modulation Mode	HT20	**Test Freq. (MHz)**	2437
Power Phase	Line		

Test by : Joe Liao Temperature: 25°C Humidity: 65%

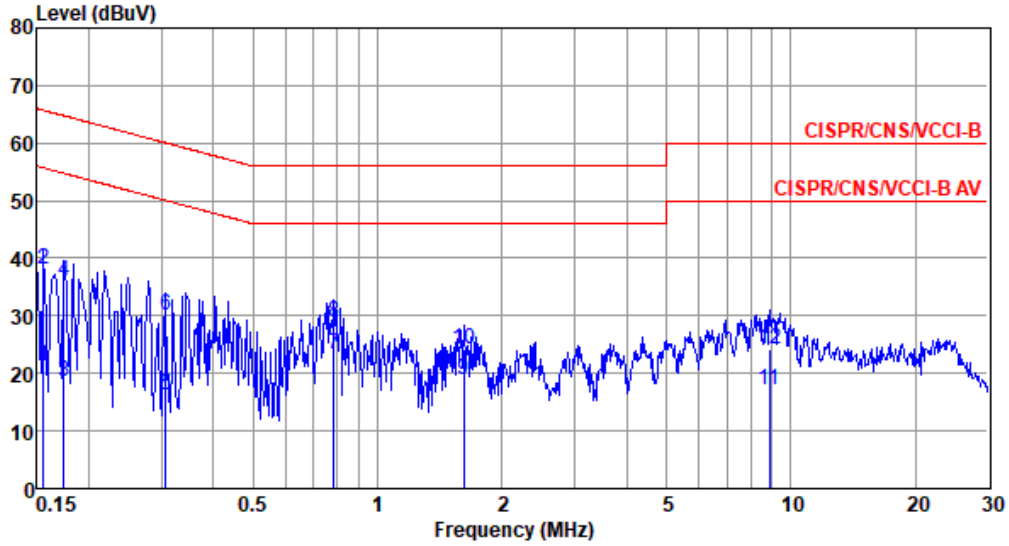


	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Cable loss	Aux	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	dB	
1	0.156	22.39	55.69	-33.30	12.47	9.63	0.08	0.21	Average
2	0.156	38.49	65.69	-27.20	28.57	9.63	0.08	0.21	QP
3	0.186	21.76	54.20	-32.44	11.84	9.62	0.06	0.24	Average
4	0.186	36.92	64.20	-27.28	27.00	9.62	0.06	0.24	QP
5	0.243	18.98	52.00	-33.02	9.02	9.62	0.07	0.27	Average
6	0.243	33.14	62.00	-28.86	23.18	9.62	0.07	0.27	QP
7*	0.755	25.72	46.00	-20.28	15.65	9.63	0.09	0.35	Average
8	0.755	35.35	56.00	-20.65	25.28	9.63	0.09	0.35	QP
9	1.619	21.53	46.00	-24.47	11.43	9.63	0.10	0.37	Average
10	1.619	28.74	56.00	-27.26	18.64	9.63	0.10	0.37	QP
11	9.502	21.35	50.00	-28.65	10.87	9.69	0.34	0.45	Average
12	9.502	30.48	60.00	-29.52	20.00	9.69	0.34	0.45	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	HT20	**Test Freq. (MHz)**	2437
Power Phase	Neutral		

Test by : Joe Liao Temperature: 25°C Humidity: 65%



	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Cable loss	Aux	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	dB	
1	0.156	21.24	55.69	-34.45	11.40	9.63	0.08	0.13	Average
2	0.156	38.01	65.69	-27.68	28.17	9.63	0.08	0.13	QP
3	0.174	18.49	54.77	-36.28	8.64	9.63	0.07	0.15	Average
4	0.174	35.94	64.77	-28.83	26.09	9.63	0.07	0.15	QP
5	0.307	16.27	50.06	-33.79	6.36	9.62	0.07	0.22	Average
6	0.307	29.99	60.06	-30.07	20.08	9.62	0.07	0.22	QP
7*	0.783	23.18	46.00	-22.82	13.17	9.63	0.09	0.29	Average
8	0.783	28.88	56.00	-27.12	18.87	9.63	0.09	0.29	QP
9	1.619	18.93	46.00	-27.07	8.86	9.64	0.10	0.33	Average
10	1.619	24.30	56.00	-31.70	14.23	9.64	0.10	0.33	QP
11	8.869	17.14	50.00	-32.86	6.69	9.70	0.33	0.42	Average
12	8.869	24.34	60.00	-35.66	13.89	9.70	0.33	0.42	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).