FCC Test Report

FCC ID	:	**I88NR7112**
Equipment	:	**5G NR Outdoor Router**
Model No.	:	**NR7112** **(Please refer to section 1.1.1 for more details)**
Brand Name	:	**ZYXEL** **(Please refer to section 1.1.1 for more details)**
Applicant	:	**Zyxel Communications Corporation**
Address	:	**No.2 Industry East RD. IX, Hsinchu Science Park, Hsinchu 30075, Taiwan, R.O.C**
Standard	:	**47 CFR FCC Part 15.247**
Received Date	:	**Dec. 14, 2021**
Tested Date	:	**Jan. 14 ~ Jan. 26, 2022**

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**

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Release Record

Report No.	Version	Description	Issued Date
FR1D1401AC	Rev. 01	Initial issue	Apr. 15, 2022

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	[dBuV]: 0.168MHz 51.16 (Margin -13.92dB) - QP	Pass
15.247(d) 15.209	Radiated Emissions	[dBuV/m at 3m]: 7386.00MHz 53.85 (Margin -0.15dB) - AV	Pass
15.247(b)(3)	Maximum Output Power	Max Power [dBm]: 26.39	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 Product Details

The following models are provided to this EUT.

Brand Name	Model Name	Product Name	Description
ZYXEL	NR7112	5G NR Outdoor Router	for marketing purpose.
Vodafone	MachineLink 5G	5G NR Outdoor Router	

- All models are electrically identical, different model names are for marketing purpose.
- The above models, model **NR7112** was selected as a representative one for the final test and only its data was recorded in this report.

1.1.2 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 Peak Conducted Output Power.
Note 2: 802.11b uses a combination of DSSS-DBPSK, DQPSK, CCK modulation.
Note 3: 802.11g/n uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.

1.1.3 Antenna Details

Ant. No.	Model	Type	Connector	Antenna Gain (dBi)
1	WiFi_0	PIFA	No	4.1
2	WiFi_1	PIFA	No	4

1.1.4 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	56Vdc from PoE

1.1.5 Accessories

Accessories		
No.	**Equipment**	**Description**
1	PoE	Brand: PHIHONG Model: POE16R-1AFG6 Power Rating: I/P: 100-240Vac, 50-60Hz, 0.8A O/P: 56Vdc, 0.275A, 15.4W, 32-44VA
2	RJ45	1.75m non-shielded w/o core

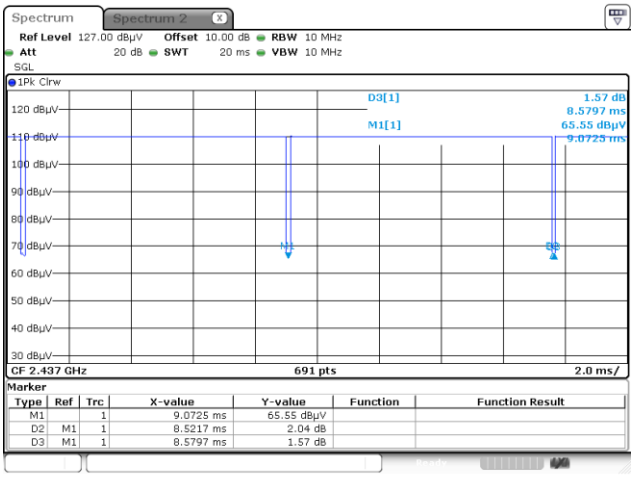
1.1.6 Channel List

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	---	---

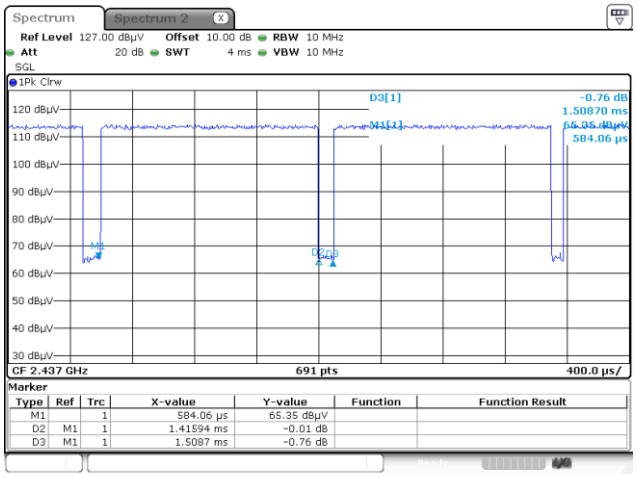
1.1.7 Test Tool and Duty Cycle

Test Tool	QA Tool, Version:0.0.2.33		
Duty Cycle and Duty Factor	**Mode**	**Duty Cycle (%)**	**Duty Factor (dB)**
	11b	99.32%	0.03
	11g	93.85%	0.28
	HT20	91.94%	0.36
	HT40	90.78%	0.42

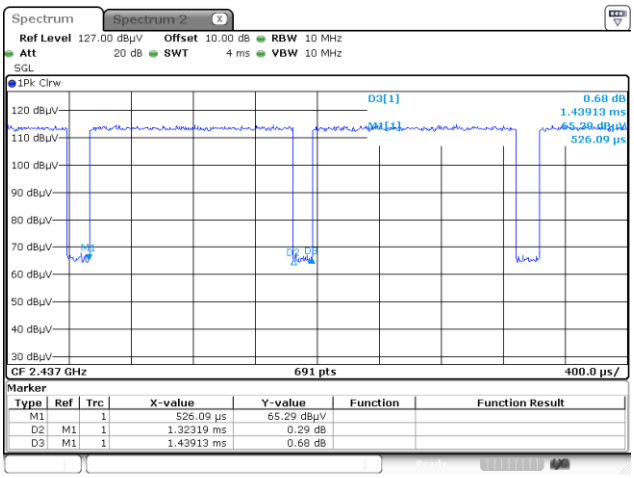
11b



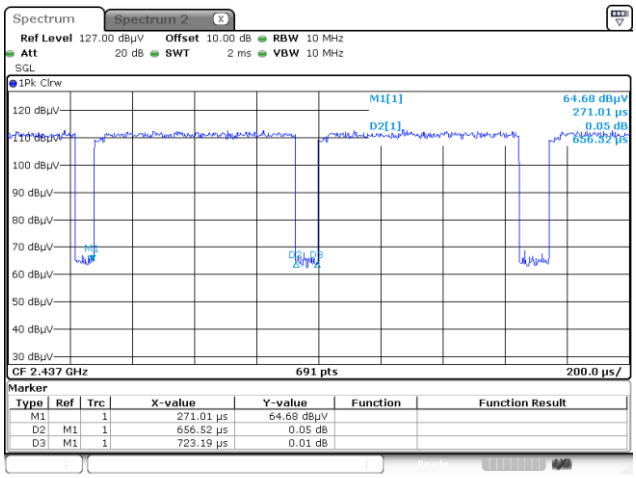
11g



HT20



HT40



1.1.8 Power Index of Test Tool

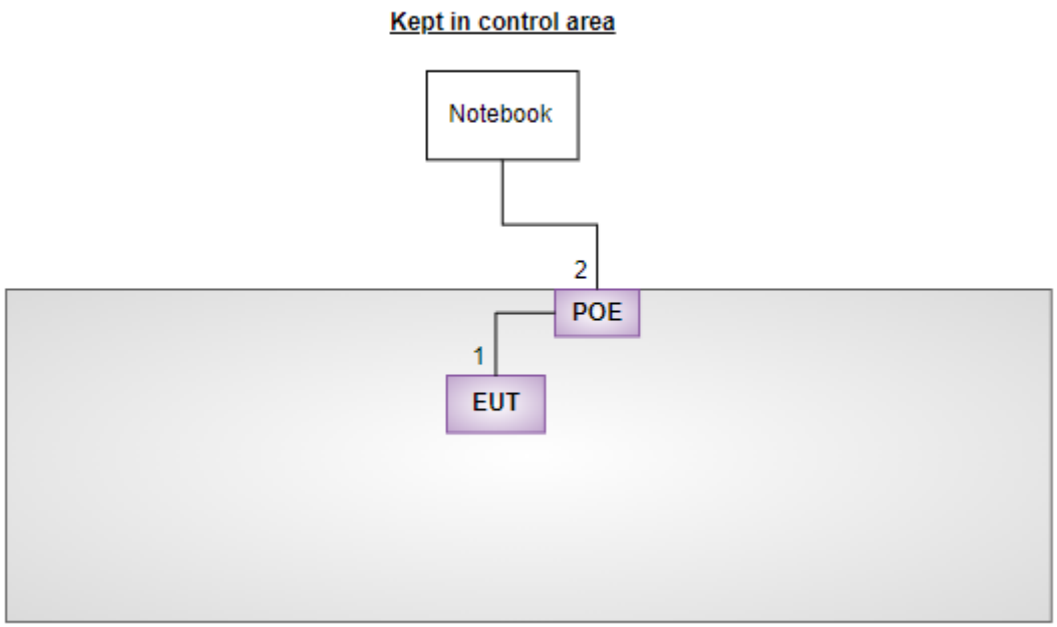
Modulation Mode	Test Frequency (MHz)	Power Index
11b	2412	7
11b	2437	5
11b	2462	4.5
11g	2412	11.5
11g	2437	12
11g	2462	12
HT20	2412	10.5
HT20	2437	12
HT20	2462	12
HT40	2422	8
HT40	2437	12.5
HT40	2452	10.5

1.2 Local Support Equipment List

Support Equipment List					
No.	**Equipment**	**Brand**	**Model**	**FCC ID**	**Remarks**
1	Notebook	DELL	Latitude 5400	DoC	---

1.3 Test Setup Chart

Test Setup Diagram



No.	Signal cable / Length (m)
1	RJ45, 1.75m non-shielded.
2	RJ45, 10m non-shielded.

1.4 The Equipment List

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Tested Date	Jan. 26, 2022				
Instrument	**Brand**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Receiver	R&S	ESR3	101658	Feb. 08, 2021	Feb. 07, 2022
LISN	R&S	ENV216	101579	Mar. 17, 2021	Mar. 16, 2022
LISN (Support Unit)	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	8127477	Feb. 25, 2021	Feb. 24, 2022
RF Cable-CON	Woken	CFD200-NL	CFD200-NL-001	Oct. 19, 2021	Oct. 18, 2022
50 ohm terminal (Support Unit)	NA	50	04	May 25, 2021	May 24, 2022
Measurement Software	AUDIX	e3	6.120210k	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	Radiated Emission				
Test Site	966 chamber1 / (03CH01-WS)				
Tested Date	Jan. 14 ~ Jan. 18, 2022				
Instrument	**Brand**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Receiver	R&S	ESR3	101657	Mar. 12, 2021	Mar. 11, 2022
Spectrum Analyzer	R&S	FSV40	101063	Apr. 19, 2021	Apr. 18, 2022
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 08, 2021	Nov. 07, 2022
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Jun. 30, 2021	Jun. 29, 2022
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1096	Dec. 03, 2021	Dec. 02, 2022
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170508	Jan. 11, 2022	Jan. 10, 2023
Preamplifier	EMC	EMC02325	980225	Jun. 29, 2021	Jun. 28, 2022
Preamplifier	Agilent	83017A	MY39501308	Sep. 28, 2021	Sep. 27, 2022
Preamplifier	EMC	EMC184045B	980192	Jul. 14, 2021	Jul. 13, 2022
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Oct. 05, 2021	Oct. 04, 2022
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-001	Oct. 05, 2021	Oct. 04, 2022
LF cable 11M	EMC	EMCCFD400-NW-NW-11000	200801	Oct. 05, 2021	Oct. 04, 2022
LF cable 1M	EMC	EMCCFD400-NM-NM-1000	160502	Oct. 05, 2021	Oct. 04, 2022
RF Cable	EMC	EMC104-35M-35M-8000	210920	Oct. 05, 2021	Oct. 04, 2022
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16019/4	Oct. 05, 2021	Oct. 04, 2022
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. 21, 2022				
Instrument	**Brand**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101498	Nov. 29, 2021	Nov. 28, 2022
Power Meter	Anritsu	ML2495A	1241002	Nov. 07, 2021	Nov. 06, 2022
Power Sensor	Anritsu	MA2411B	1207366	Nov. 07, 2021	Nov. 06, 2022
Measurement Software	Sporton	SENSE-15247_DTS	V5.10	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
- ISED#: 10807A
- CAB identifier: TW2732

2.2 The Worst Test Modes and Channel Details

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

3 Transmitter Test Results

3.1 Conducted Emissions

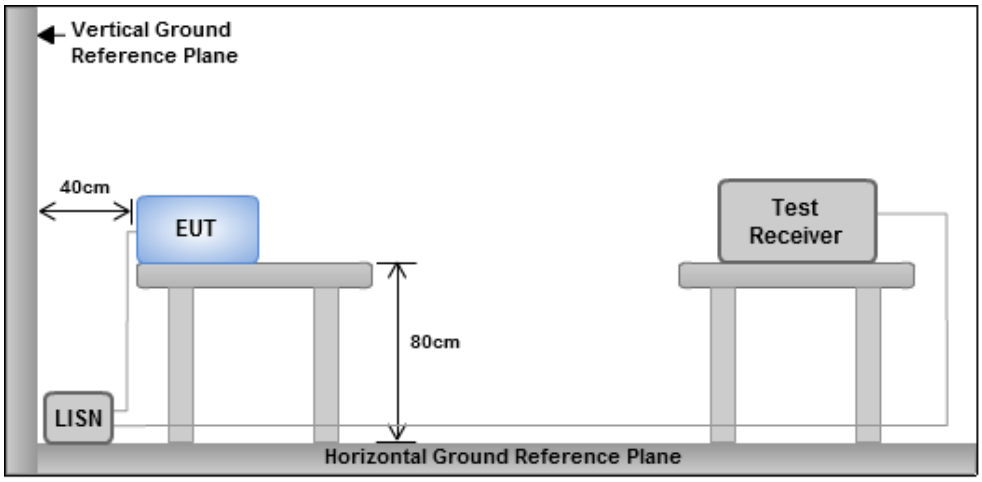
3.1.1 Limit of Conducted Emissions

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.		

3.1.2 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.

3.1.3 Test Setup

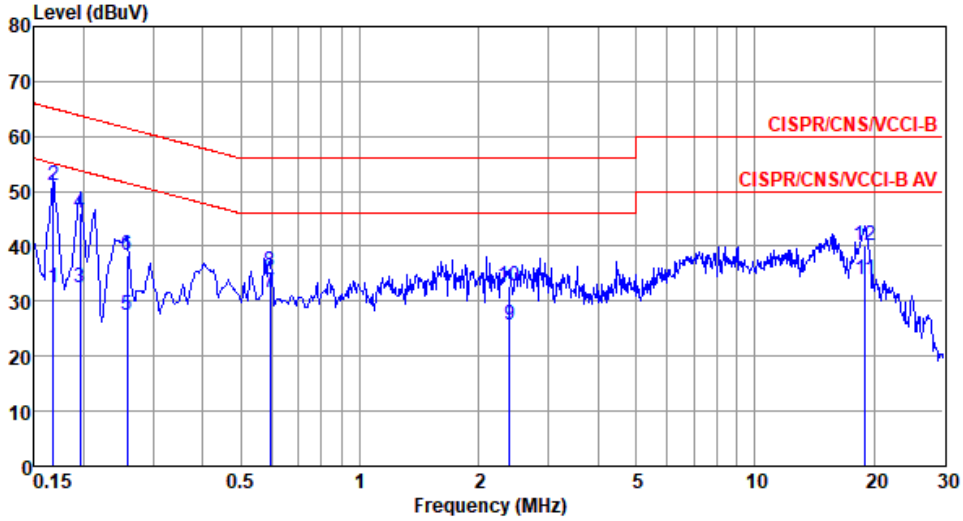


Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

3.1.4 Test Result of Conducted Emissions

Modulation	11g	Test Freq. (MHz)	2437
Power Phase	Line		

Test by : Joe Liao Temperature: 19°C Humidity: 60%

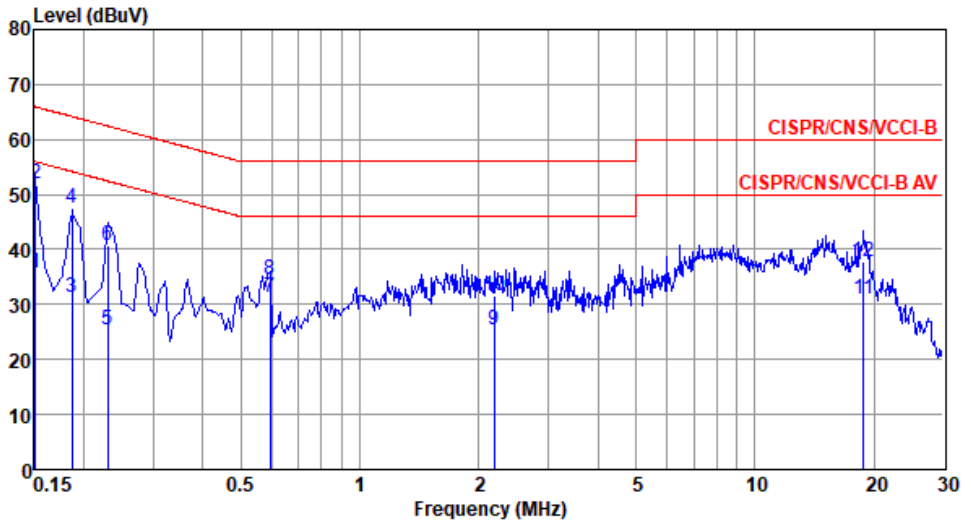


	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	Factor dB	Cable loss dB	Aux dB	Remark
1	0.168	32.40	55.08	-22.68	22.45	9.66	0.08	0.21	Average
2*	0.168	51.16	65.08	-13.92	41.21	9.66	0.08	0.21	QP
3	0.195	32.35	53.80	-21.45	22.40	9.65	0.08	0.22	Average
4	0.195	46.19	63.80	-17.61	36.24	9.65	0.08	0.22	QP
5	0.258	27.59	51.51	-23.92	17.59	9.65	0.08	0.27	Average
6	0.258	38.42	61.51	-23.09	28.42	9.65	0.08	0.27	QP
7	0.592	31.68	46.00	-14.32	21.57	9.64	0.11	0.36	Average
8	0.592	35.45	56.00	-20.55	25.34	9.64	0.11	0.36	QP
9	2.396	25.62	46.00	-20.38	15.36	9.66	0.20	0.40	Average
10	2.396	32.78	56.00	-23.22	22.52	9.66	0.20	0.40	QP
11	19.021	33.93	50.00	-16.07	22.98	9.68	0.64	0.63	Average
12	19.021	40.09	60.00	-19.91	29.14	9.68	0.64	0.63	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	11g	Test Freq. (MHz)	2437
Power Phase	Neutral		

Test by : Joe Liao Temperature: 19°C Humidity: 60%



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	Factor dB	Cable loss dB	Aux dB	Remark
1	0.151	35.85	55.96	-20.11	25.92	9.69	0.08	0.16	Average
2*	0.151	51.87	65.96	-14.09	41.94	9.69	0.08	0.16	QP
3	0.186	31.42	54.20	-22.78	21.49	9.68	0.08	0.17	Average
4	0.186	47.42	64.20	-16.78	37.49	9.68	0.08	0.17	QP
5	0.230	25.44	52.44	-27.00	15.50	9.68	0.08	0.18	Average
6	0.230	40.61	62.44	-21.83	30.67	9.68	0.08	0.18	QP
7	0.592	31.37	46.00	-14.63	21.36	9.67	0.11	0.23	Average
8	0.592	34.68	56.00	-21.32	24.67	9.67	0.11	0.23	QP
9	2.190	25.39	46.00	-20.61	15.20	9.69	0.20	0.30	Average
10	2.190	31.51	56.00	-24.49	21.32	9.69	0.20	0.30	QP
11	18.820	31.09	50.00	-18.91	20.17	9.83	0.64	0.45	Average
12	18.820	37.87	60.00	-22.13	26.95	9.83	0.64	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).

3.2 6dB and Occupied Bandwidth

3.2.1 Limit of 6dB Bandwidth

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

3.2.2 Test Procedures

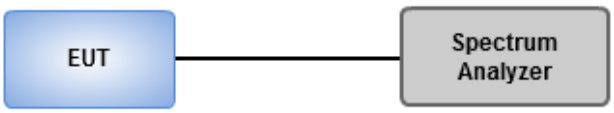
6dB Bandwidth

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.

3.2.3 Test Setup



3.2.4 Test Result of 6dB and Occupied Bandwidth

Ambient Condition	20°C / 67%	Tested By	Aska Huang

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	9.565M	14.182M	14M2G1D	9.058M	14.11M
802.11g_Nss1,(6Mbps)_2TX	16.377M	16.715M	16M7D1D	15.797M	16.498M
802.11n HT20_Nss1,(MCS0)_2TX	17.536M	17.8M	17M8D1D	16.957M	17.728M
802.11n HT40_Nss1,(MCS0)_2TX	35.797M	36.469M	36M5D1D	35.652M	36.179M

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;

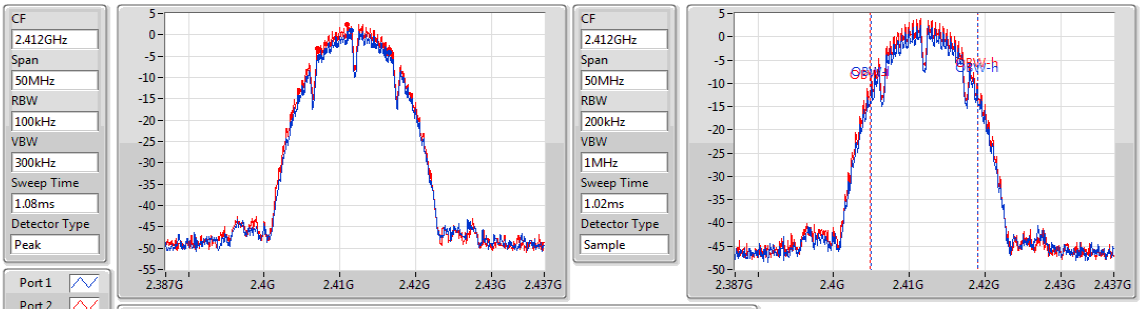
Result

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	9.275M	14.11M	9.565M	14.182M
2437MHz	Pass	500k	9.565M	14.11M	9.565M	14.182M
2462MHz	Pass	500k	9.058M	14.182M	9.565M	14.182M
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	15.797M	16.715M	16.087M	16.643M
2437MHz	Pass	500k	16.232M	16.715M	16.377M	16.643M
2462MHz	Pass	500k	16.232M	16.715M	16.377M	16.498M
802.11n HT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	17.536M	17.728M	16.957M	17.728M
2437MHz	Pass	500k	17.174M	17.8M	17.536M	17.8M
2462MHz	Pass	500k	17.319M	17.8M	17.536M	17.728M
802.11n HT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	500k	35.652M	36.324M	35.652M	36.179M
2437MHz	Pass	500k	35.652M	36.324M	35.652M	36.469M
2452MHz	Pass	500k	35.652M	36.324M	35.797M	36.324M

Port X-N dB = Port **X** 6dB down bandwidth; **Port X-OBW** = Port **X** 99% occupied bandwidth;

802.11b_Nss1,(1Mbps)_2TX **EBW**

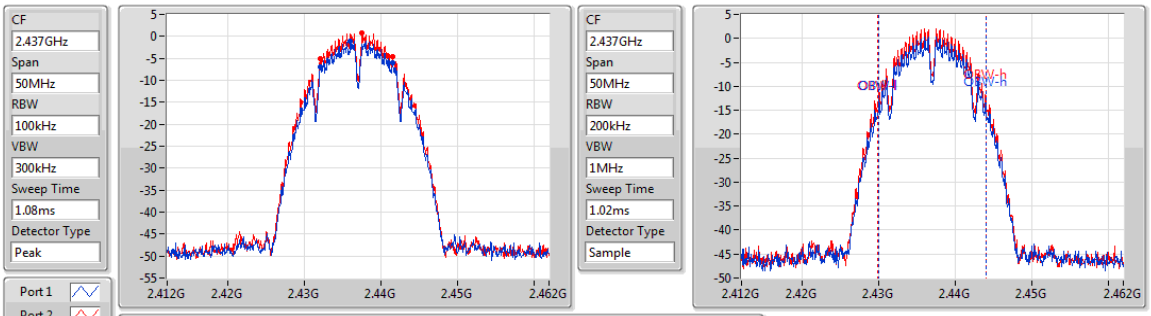
2412MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
9.275M	2.40729G	2.416565G	14.11M	2.404909G	2.419019G	500k	1
9.565M	2.407G	2.416565G	14.182M	2.404836G	2.419019G	500k	2

802.11b_Nss1,(1Mbps)_2TX **EBW**

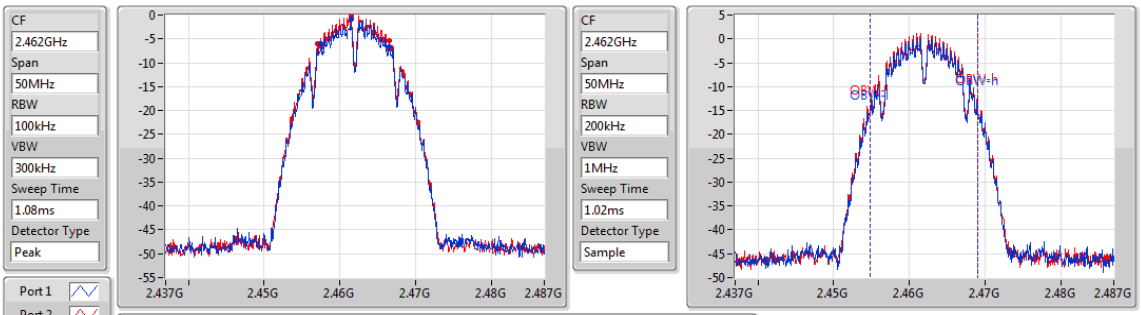
2437MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
9.565M	2.432G	2.441565G	14.11M	2.429909G	2.444019G	500k	1
9.565M	2.432G	2.441565G	14.182M	2.429836G	2.444019G	500k	2

802.11b_Nss1,(1Mbps)_2TX **EBW**

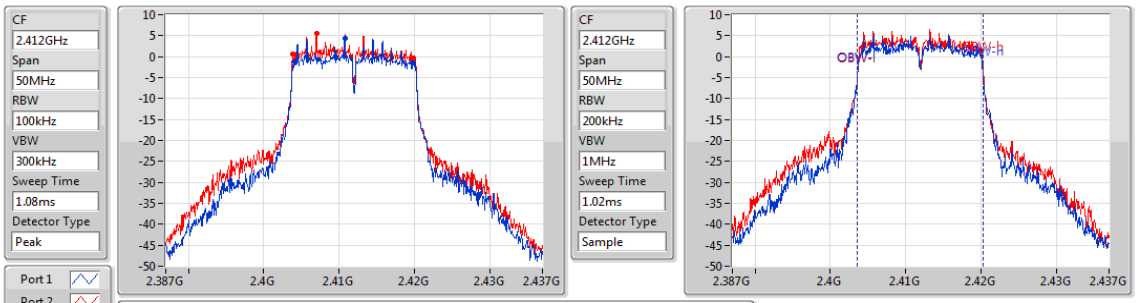
2462MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
9.058M	2.457507G	2.466565G	14.182M	2.454836G	2.469019G	500k	1
9.565M	2.457G	2.466565G	14.182M	2.454836G	2.469019G	500k	2

802.11g_Nss1,(6Mbps)_2TX **EBW**

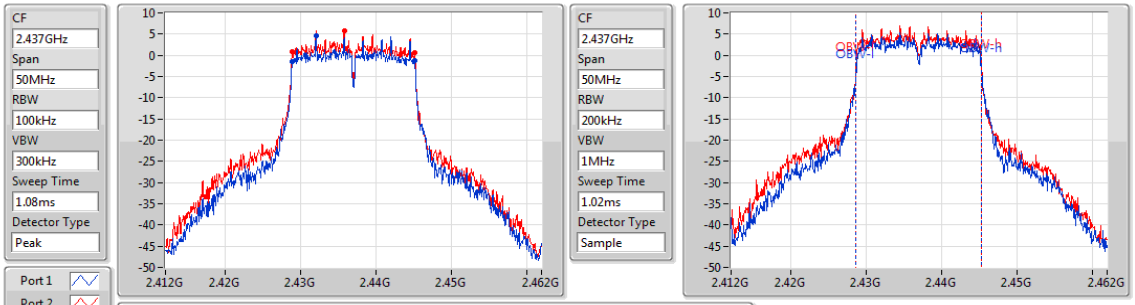
2412MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
15.797M	2.404101G	2.419899G	16.715M	2.403534G	2.420249G	500k	1
16.087M	2.403812G	2.419899G	16.643M	2.403606G	2.420249G	500k	2

802.11g_Nss1,(6Mbps)_2TX **EBW**

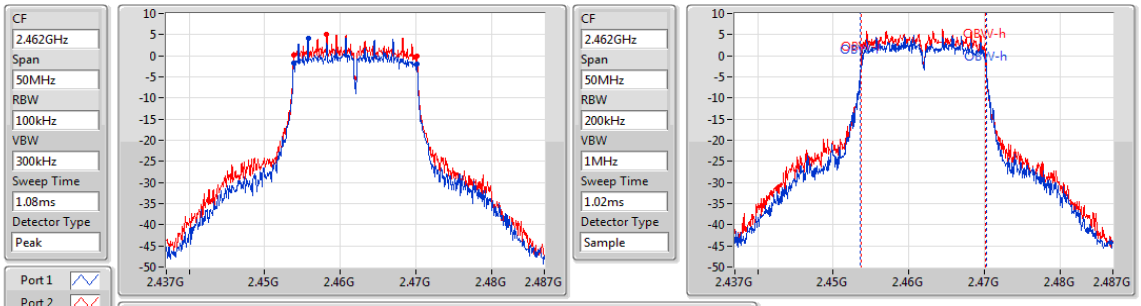
2437MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.232M	2.428884G	2.445116G	16.715M	2.428606G	2.445321G	500k	1
16.377M	2.428812G	2.445188G	16.643M	2.428606G	2.445249G	500k	2

802.11g_Nss1,(6Mbps)_2TX **EBW**

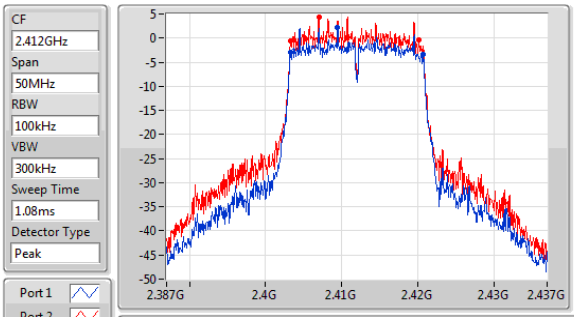
2462MHz

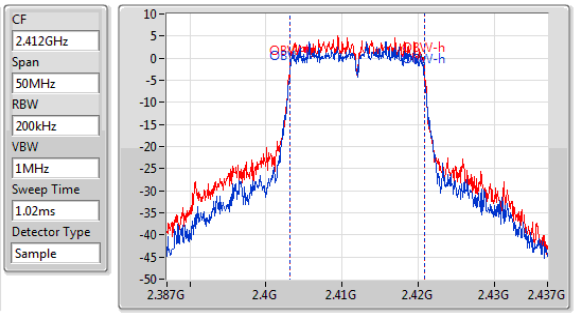


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.232M	2.453884G	2.470116G	16.715M	2.453606G	2.470321G	500k	1
16.377M	2.453812G	2.470188G	16.498M	2.453679G	2.470177G	500k	2

802.11n HT20_Nss1,(MCS0)_2TX EBW

2412MHz

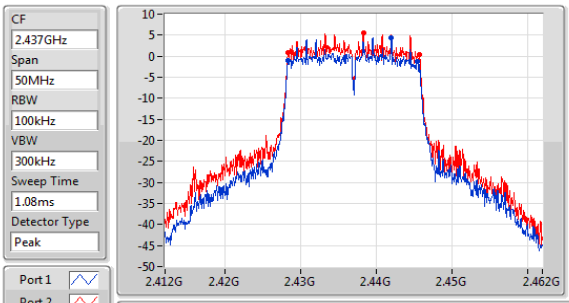


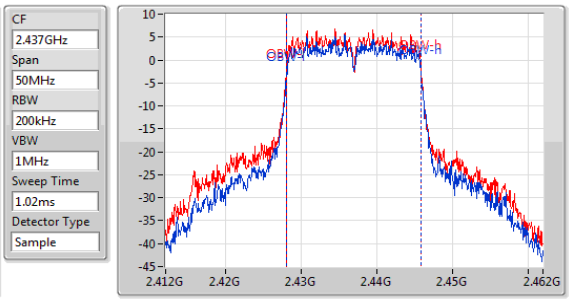


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
17.536M	2.403232G	2.420768G	17.728M	2.4031G	2.420828G	500k	1
16.957M	2.403232G	2.420188G	17.728M	2.4031G	2.420828G	500k	2

802.11n HT20_Nss1,(MCS0)_2TX EBW

2437MHz

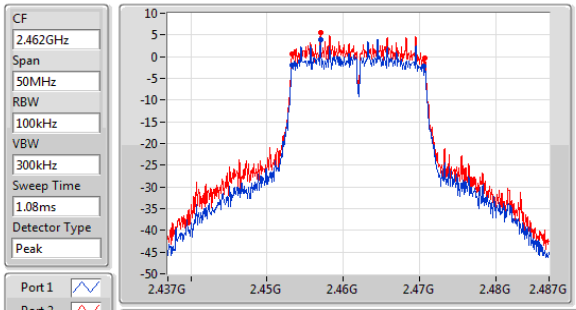


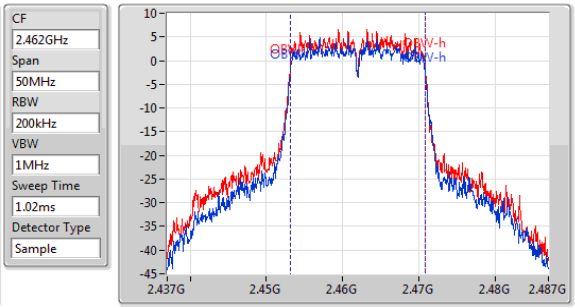


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
17.174M	2.428232G	2.445406G	17.8M	2.428027G	2.445828G	500k	1
17.536M	2.428232G	2.445768G	17.8M	2.428027G	2.445828G	500k	2

802.11n HT20_Nss1,(MCS0)_2TX EBW

2462MHz

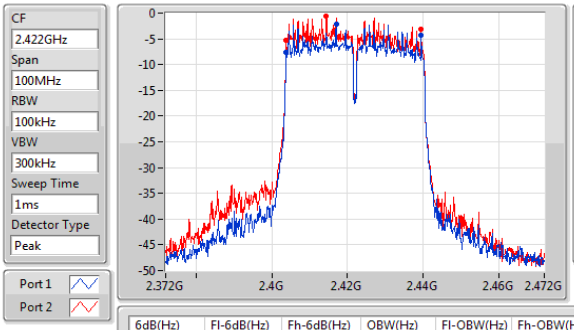


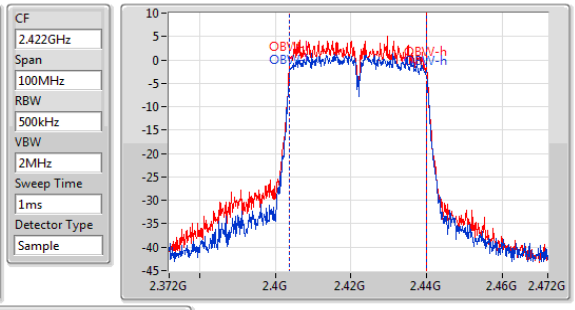


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
17.319M	2.453232G	2.470551G	17.8M	2.4531G	2.4709G	500k	1
17.536M	2.453232G	2.470768G	17.728M	2.4531G	2.470828G	500k	2

802.11n HT40_Nss1,(MCS0)_2TX EBW

2422MHz

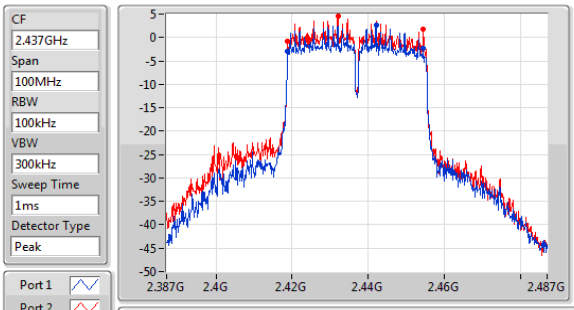


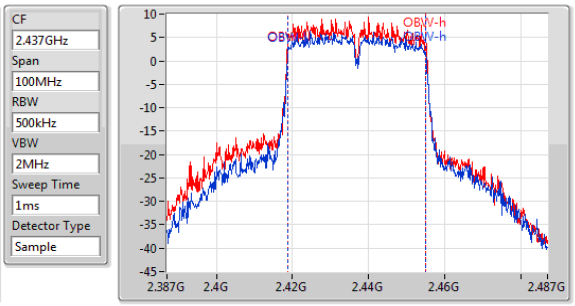


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
35.652M	2.403884G	2.439536G	36.324M	2.403766G	2.44009G	500k	1
35.652M	2.403884G	2.439536G	36.179M	2.403766G	2.439945G	500k	2

802.11n HT40_Nss1,(MCS0)_2TX EBW

2437MHz

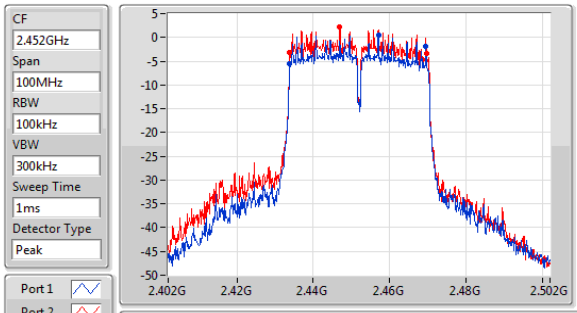


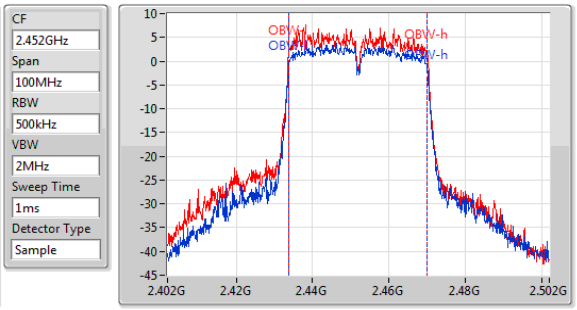


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
35.652M	2.418884G	2.454536G	36.324M	2.418766G	2.45509G	500k	1
35.652M	2.418884G	2.454536G	36.469M	2.418621G	2.45509G	500k	2

802.11n HT40_Nss1,(MCS0)_2TX EBW

2452MHz





6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
35.652M	2.433884G	2.469536G	36.324M	2.433766G	2.47009G	500k	1
35.797M	2.433884G	2.469681G	36.324M	2.433766G	2.47009G	500k	2

3.3 RF Output Power

3.3.1 Limit of RF Output Power

Conducted power shall not exceed 1Watt.

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

3.3.2 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.

3.3.3 Test Setup

3.3.4 Test Result of Maximum Output Power

Ambient Condition	20°C / 67%	Tested By	Aska Huang

Summary of Peak Conducted Output Power

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11b_Nss1,(1Mbps)_2TX	15.94	0.03926
802.11g_Nss1,(6Mbps)_2TX	26.39	0.43551
802.11n HT20_Nss1,(MCS0)_2TX	26.17	0.41400
802.11n HT40_Nss1,(MCS0)_2TX	26.24	0.42073

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	4.10	12.93	12.93	15.94	30.00	20.04	36.00
2437MHz	Pass	4.10	10.56	12.54	14.67	30.00	18.77	36.00
2462MHz	Pass	4.10	9.85	11.63	13.84	30.00	17.94	36.00
802.11g_Nss1,(6Mbps)_2TX								
2412MHz	Pass	4.10	22.28	23.42	25.90	30.00	30.00	36.00
2437MHz	Pass	4.10	22.75	23.93	26.39	30.00	30.49	36.00
2462MHz	Pass	4.10	22.31	23.67	26.05	30.00	30.15	36.00
802.11n HT20_Nss1,(MCS0)_2TX								
2412MHz	Pass	4.10	21.58	22.82	25.25	30.00	29.35	36.00
2437MHz	Pass	4.10	22.48	23.75	26.17	30.00	30.27	36.00
2462MHz	Pass	4.10	22.12	23.26	25.74	30.00	29.84	36.00
802.11n HT40_Nss1,(MCS0)_2TX								
2422MHz	Pass	4.10	19.53	20.86	23.26	30.00	27.36	36.00
2437MHz	Pass	4.10	22.62	23.77	26.24	30.00	30.34	36.00
2452MHz	Pass	4.10	21.49	22.71	25.15	30.00	29.25	36.00

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

Summary of Conducted (Average) Output Power

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11b_Nss1,(1Mbps)_2TX	14.79	0.03013
802.11g_Nss1,(6Mbps)_2TX	19.36	0.08630
802.11n HT20_Nss1,(MCS0)_2TX	19.35	0.08610
802.11n HT40_Nss1,(MCS0)_2TX	20.06	0.10139

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	4.10	11.02	12.42	14.79	-	18.89	-
2437MHz	Pass	4.10	8.88	10.56	12.81	-	16.91	-
2462MHz	Pass	4.10	7.95	9.68	11.91	-	16.01	-
802.11g_Nss1,(6Mbps)_2TX								
2412MHz	Pass	4.10	15.13	16.55	18.91	-	23.01	-
2437MHz	Pass	4.10	15.62	16.97	19.36	-	23.46	-
2462MHz	Pass	4.10	15.21	16.65	19.00	-	23.10	-
802.11n HT20_Nss1,(MCS0)_2TX								
2412MHz	Pass	4.10	14.07	15.62	17.92	-	22.02	-
2437MHz	Pass	4.10	15.5	17.05	19.35	-	23.45	-
2462MHz	Pass	4.10	15.14	16.58	18.93	-	23.03	-
802.11n HT40_Nss1,(MCS0)_2TX								
2422MHz	Pass	4.10	11.72	13.07	15.46	-	19.56	-
2437MHz	Pass	4.10	16.32	17.68	20.06	-	24.16	-
2452MHz	Pass	4.10	14.41	15.78	18.16	-	22.26	-

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

Note : Conducted average output power is for reference only

3.4 Power Spectral Density

3.4.1 Limit of Power Spectral Density

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

3.4.2 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 = 30 kHz, VBW = 100 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 = 30 kHz, VBW = 100 kHz. Detector = RMS.

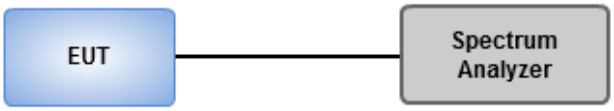
2 Set the sweep time to: ≥ 10 (number of measurement points in sweep) x (total on/off period of the transmitted signal).

3 Perform the measurement over a single sweep.

4 Use the peak marker function to determine the maximum amplitude level.

5 Add 10 log (1/x), where x is the duty cycle.

3.4.3 Test Setup



3.4.4 Test Result of Power Spectral Density

Ambient Condition	20°C / 67%	Tested By	Aska Huang

Summary

Mode	PD (dBm/3kHz)
2.4-2.4835GHz	-
802.11b_Nss1,(1Mbps)_2TX	2.52
802.11g_Nss1,(6Mbps)_2TX	-7.84
802.11n HT20_Nss1,(MCS0)_2TX	-8.11
802.11n HT40_Nss1,(MCS0)_2TX	-10.06

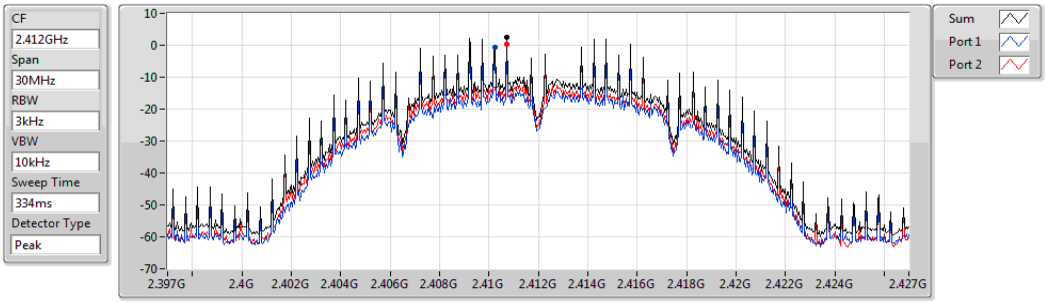
Result

Mode	Result	DG (dBi)	Port 1 (dBm/3kHz)	Port 2 (dBm/3kHz)	PD (dBm/3kHz)	PD Limit (dBm/3kHz)
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	7.06	-0.64	0.22	2.52	6.94
2437MHz	Pass	7.06	-1.81	-1.03	1.25	6.94
2462MHz	Pass	7.06	-1.89	-1.00	1.59	6.94
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	7.06	-11.75	-10.35	-8.96	6.94
2437MHz	Pass	7.06	-10.97	-9.96	-7.84	6.94
2462MHz	Pass	7.06	-11.23	-11.00	-8.76	6.94
802.11n HT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	7.06	-12.19	-10.19	-8.16	6.94
2437MHz	Pass	7.06	-11.65	-9.92	-8.11	6.94
2462MHz	Pass	7.06	-12.40	-10.41	-8.31	6.94
802.11n HT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	7.06	-17.78	-15.51	-14.23	6.94
2437MHz	Pass	7.06	-13.68	-12.07	-10.06	6.94
2452MHz	Pass	7.06	-15.66	-13.33	-11.60	6.94

DG = Directional Gain = $10\text{xlog}(10^{4.1/20} + 10^{4/20})^2/2$ = 7.06 dBi > 6 dBi, Limit shall be reduced to 8 dBm – (7.06 dBi – 6 dBi) = 6.94 dBm;
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density;
Port X = Port X power density;

802.11b_Nss1,(1Mbps)_2TX **PSD**

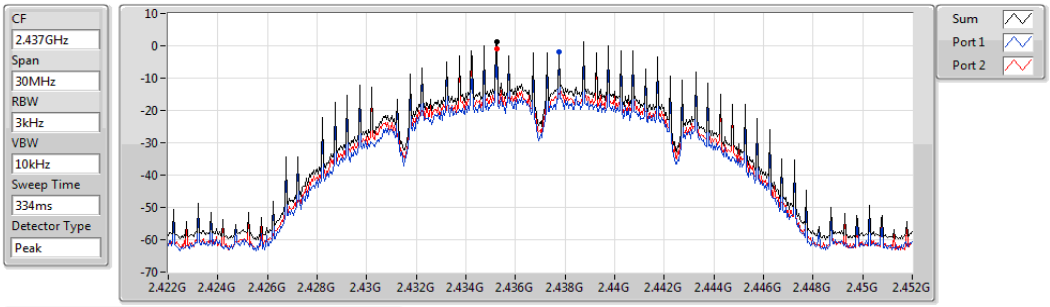
2412MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
2.52	2.52	-0.64	0.22

802.11b_Nss1,(1Mbps)_2TX **PSD**

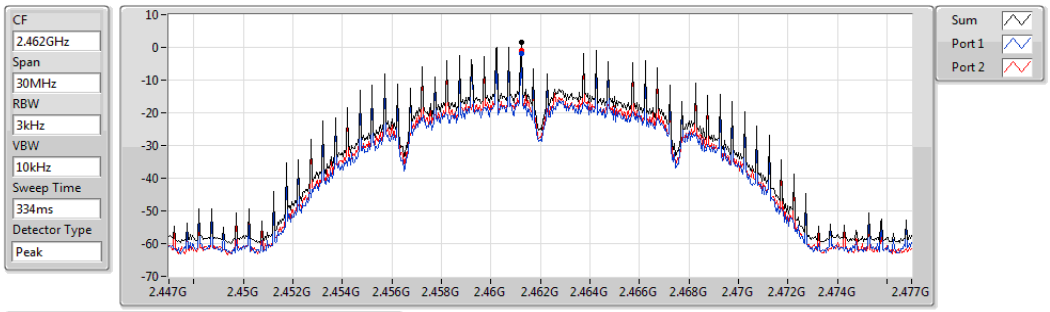
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
1.25	1.25	-1.81	-1.03

802.11b_Nss1,(1Mbps)_2TX **PSD**

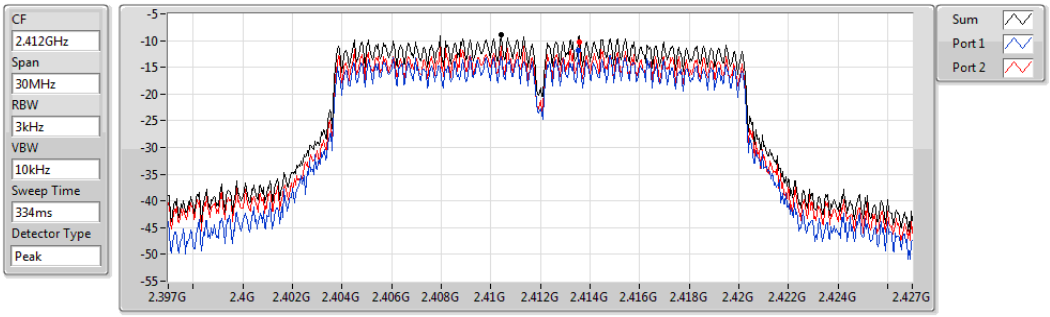
2462MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
1.59	1.59	-1.89	-1.00

802.11g_Nss1,(6Mbps)_2TX **PSD**

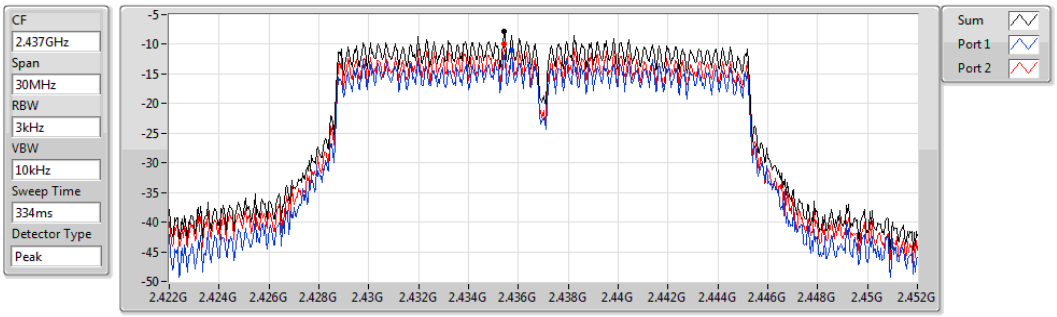
2412MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.96	-8.96	-11.75	-10.35

802.11g_Nss1,(6Mbps)_2TX **PSD**

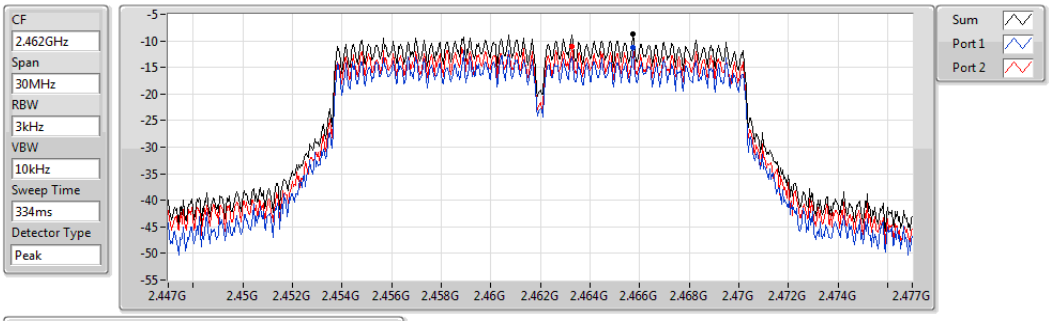
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-7.84	-7.84	-10.97	-9.96

802.11g_Nss1,(6Mbps)_2TX **PSD**

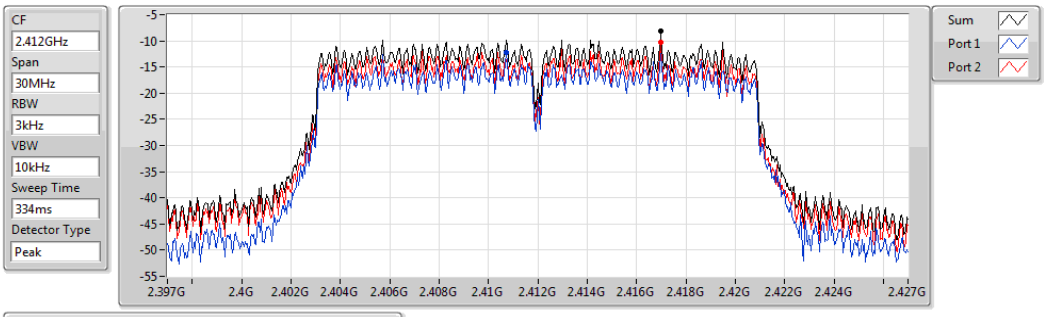
2462MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.76	-8.76	-11.23	-11.00

802.11n HT20_Nss1,(MCS0)_2TX **PSD**

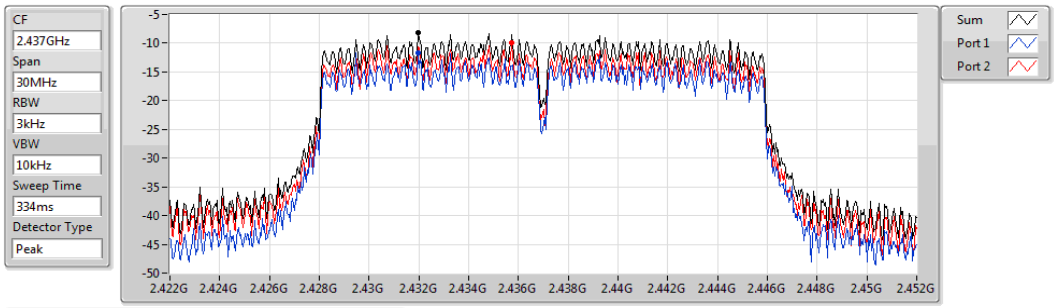
2412MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.16	-8.16	-12.19	-10.19

802.11n HT20_Nss1,(MCS0)_2TX **PSD**

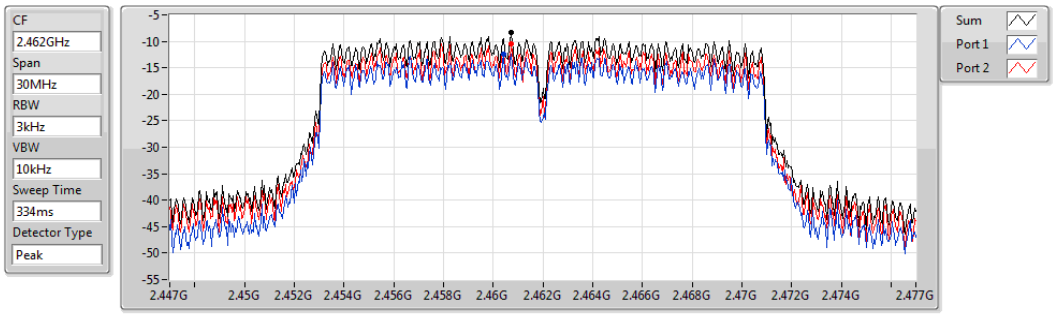
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.11	-8.11	-11.65	-9.92

802.11n HT20_Nss1,(MCS0)_2TX **PSD**

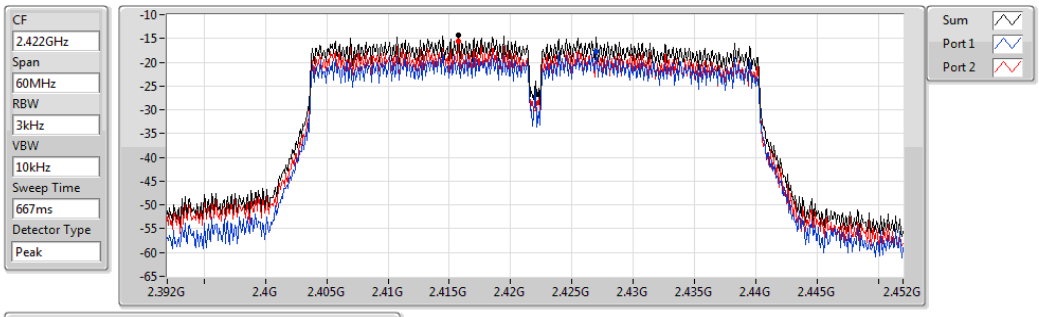
2462MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.31	-8.31	-12.40	-10.41

802.11n HT40_Nss1,(MCS0)_2TX **PSD**

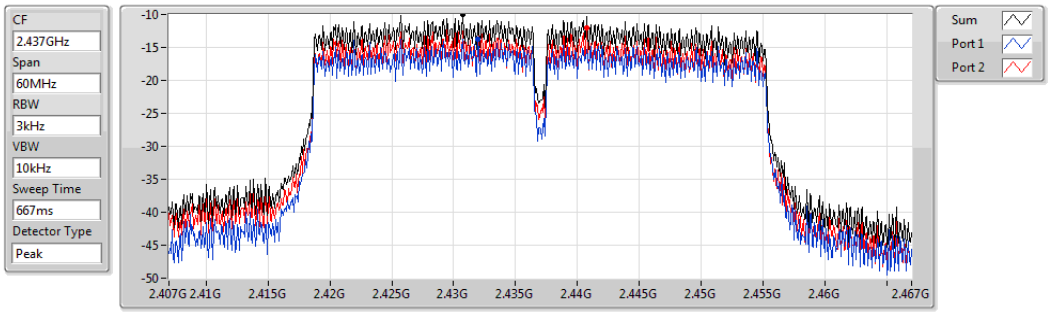
2422MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-14.23	-14.23	-17.78	-15.51

802.11n HT40_Nss1,(MCS0)_2TX **PSD**

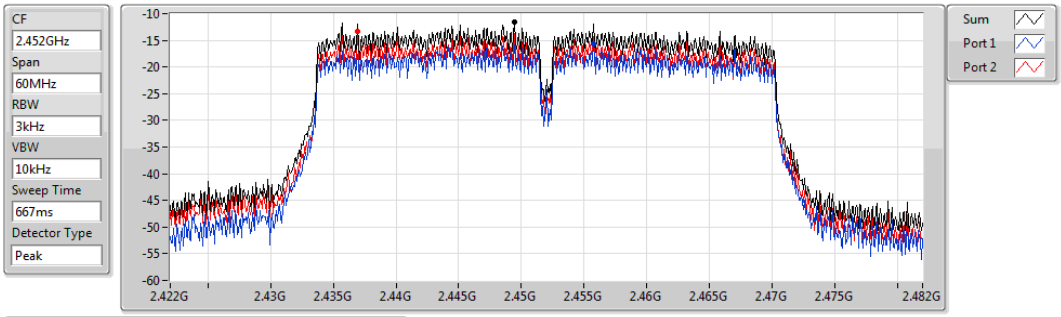
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-10.06	-10.06	-13.68	-12.07

802.11n HT40_Nss1,(MCS0)_2TX **PSD**

2452MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-11.60	-11.60	-15.66	-13.33

3.5 Unwanted Emissions into Restricted Frequency Bands

3.5.1 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.

3.5.2 Test Procedures

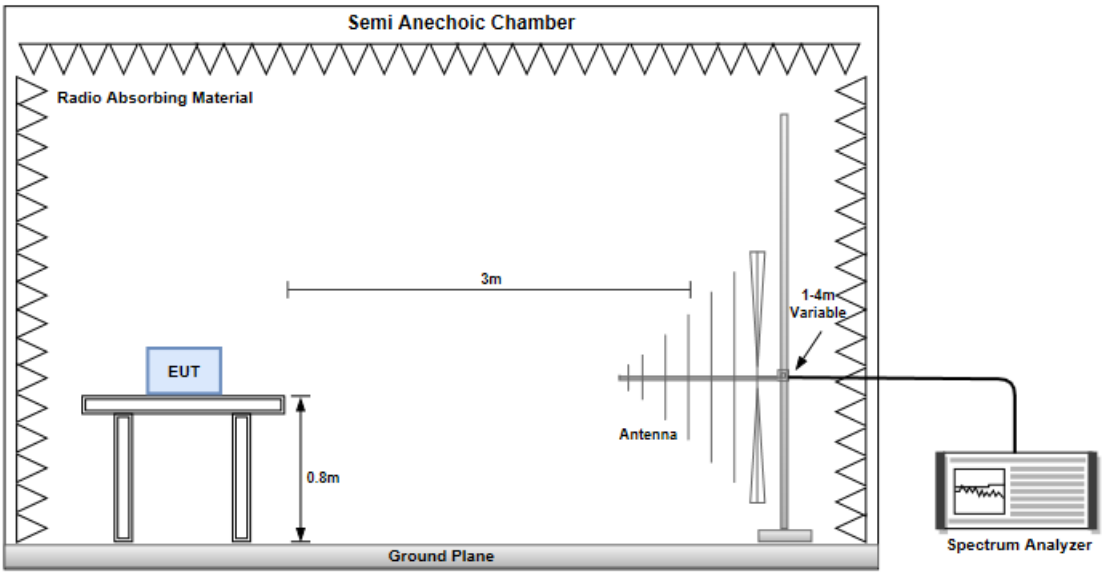
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission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

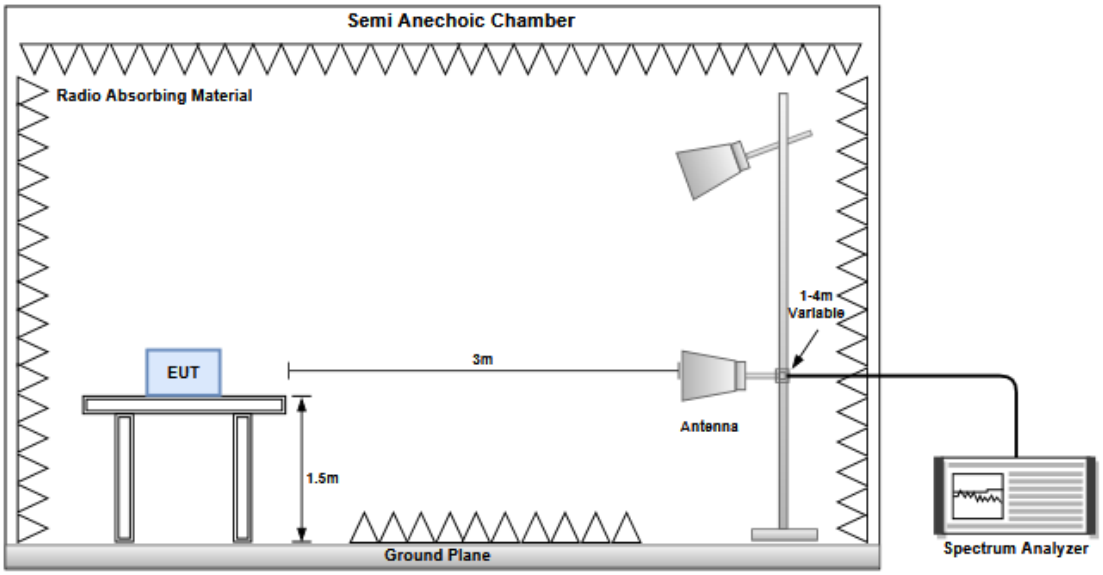
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above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

3.5.3 Test Setup

Radiated Emissions below 1 GHz



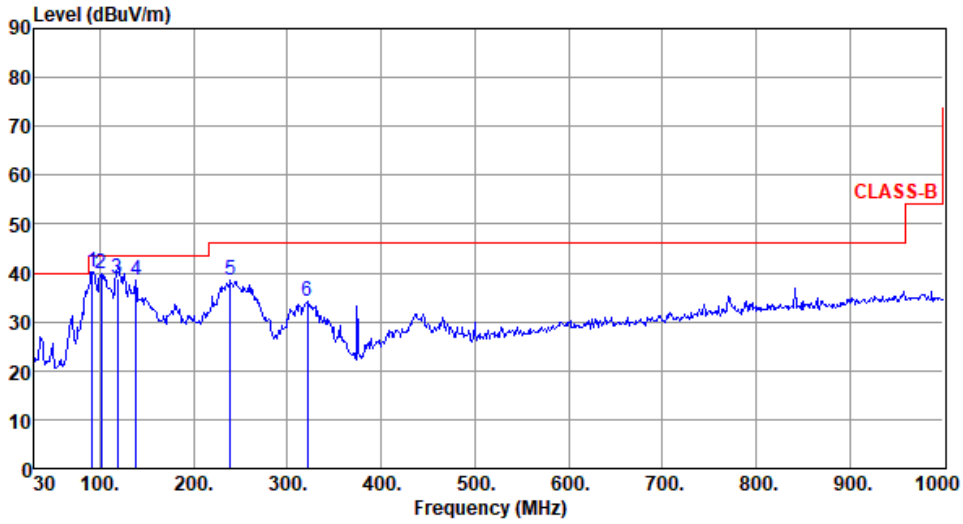
Radiated Emissions above 1 GHz



3.5.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)

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

Test By :Brad Wu Temperature(℃):22 Humidity(%):66

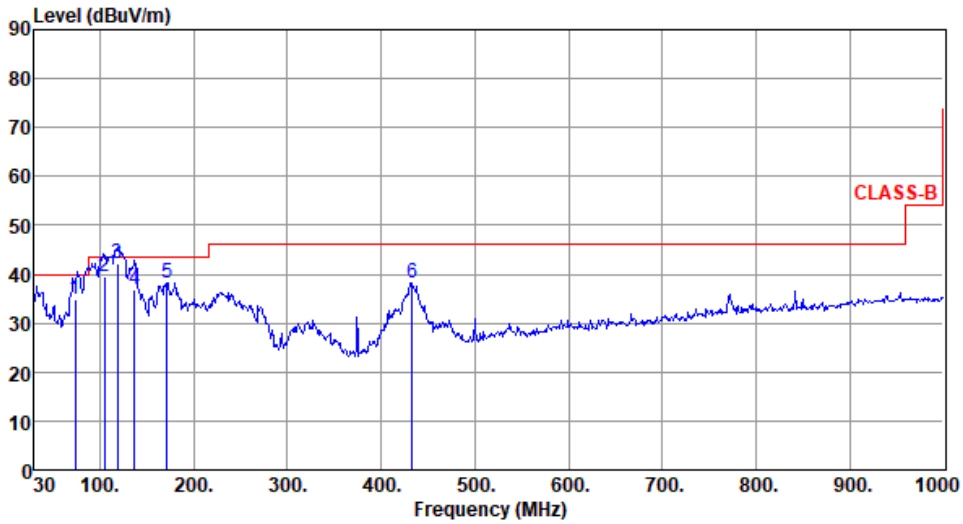


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	92.08	40.32	43.50	-3.18	54.91	-14.59	Peak	---	---
2	101.78	39.71	43.50	-3.79	52.63	-12.92	Peak	---	---
3	118.27	38.88	43.50	-4.62	49.74	-10.86	QP	100	124
4	138.64	38.44	43.50	-5.06	47.72	-9.28	Peak	---	---
5	239.52	38.60	46.00	-7.40	49.04	-10.44	Peak	---	---
6	321.00	34.06	46.00	-11.94	41.52	-7.46	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	11g	Test Freq. (MHz)	2437
Polarization	Vertical		

Test By :Brad Wu Temperature(℃):22 Humidity(%):66



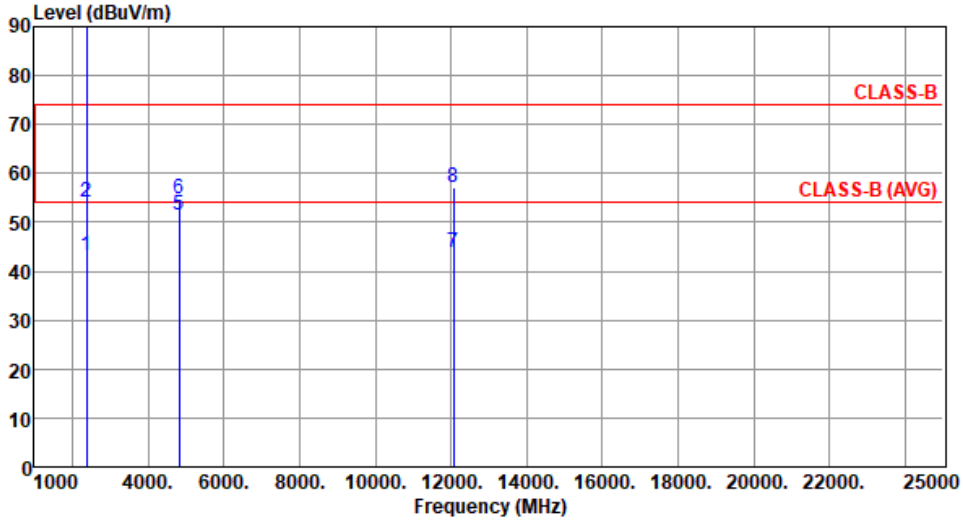
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	73.68	34.82	40.00	-5.18	46.69	-11.87	QP	100	265
2	104.52	39.68	43.50	-3.82	52.16	-12.48	QP	100	125
3	118.27	42.16	43.50	-1.34	53.02	-10.86	QP	100	225
4	136.70	36.95	43.50	-6.55	46.40	-9.45	QP	100	215
5	171.62	38.21	43.50	-5.29	47.36	-9.15	Peak	---	---
6	433.52	38.27	46.00	-7.73	42.99	-4.72	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.

3.5.5 Transmitter Radiated Unwanted Emissions (Above 1GHz) for 11b

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

Test By :Roger Lu Temperature(℃):22 Humidity(%):67

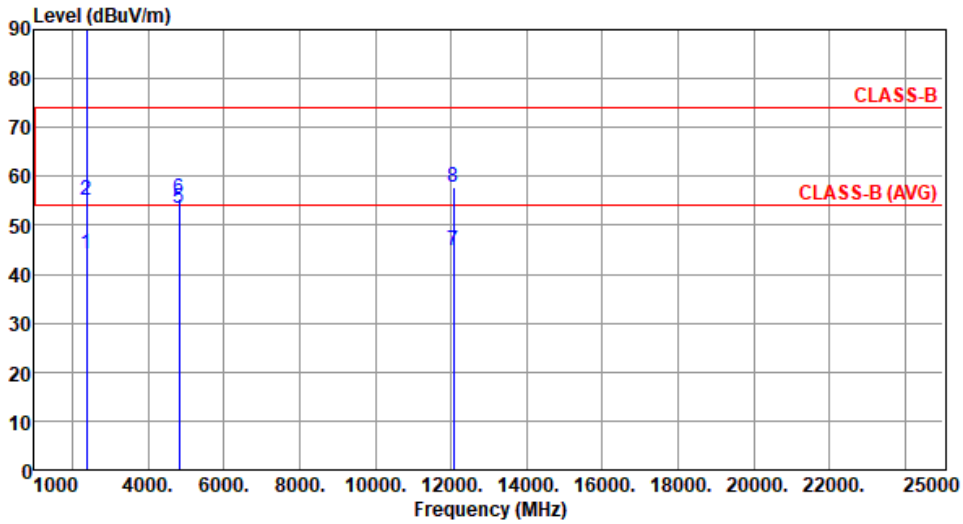


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1		2390.00	43.20	54.00	-10.80	45.95	-2.75	Average	262	35
2		2390.00	54.03	74.00	-19.97	56.78	-2.75	Peak	262	35
3	*	2412.00	96.24			99.01	-2.77	Average	262	35
4	*	2412.00	98.57			101.34	-2.77	Peak	262	35
5		4824.00	51.64	54.00	-2.36	47.50	4.14	Average	278	356
6		4824.00	54.95	74.00	-19.05	50.81	4.14	Peak	278	356
7		12060.00	43.93	54.00	-10.07	30.14	13.79	Average	100	10
8		12060.00	57.28	74.00	-16.72	43.49	13.79	Peak	100	10

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:"*" is Peak / Average value of fundamental frequency

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

Test By :Roger Lu Temperature(℃):22 Humidity(%):67

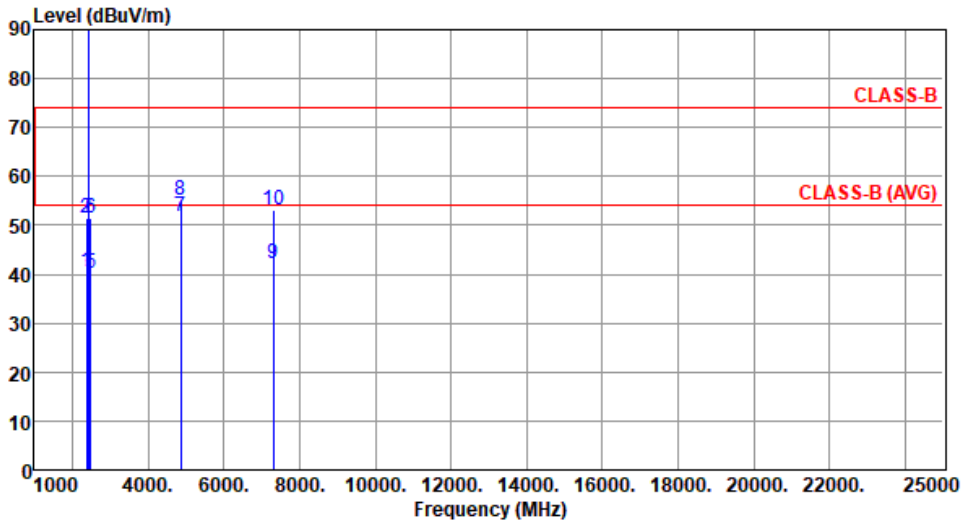


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1		2390.00	44.26	54.00	-9.74	47.01	-2.75	Average	106	32
2		2390.00	55.17	74.00	-18.83	57.92	-2.75	Peak	106	32
3	*	2412.00	97.28			100.05	-2.77	Average	106	32
4	*	2412.00	99.67			102.44	-2.77	Peak	106	32
5		4824.00	53.54	54.00	-0.46	49.40	4.14	Average	202	352
6		4824.00	55.44	74.00	-18.56	51.30	4.14	Peak	202	352
7		12060.00	44.91	54.00	-9.09	31.12	13.79	Average	100	355
8		12060.00	57.83	74.00	-16.17	44.04	13.79	Peak	100	355

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:"*" is Peak / Average value of fundamental frequency

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

Test By :Roger Lu Temperature(℃):22 Humidity(%):67

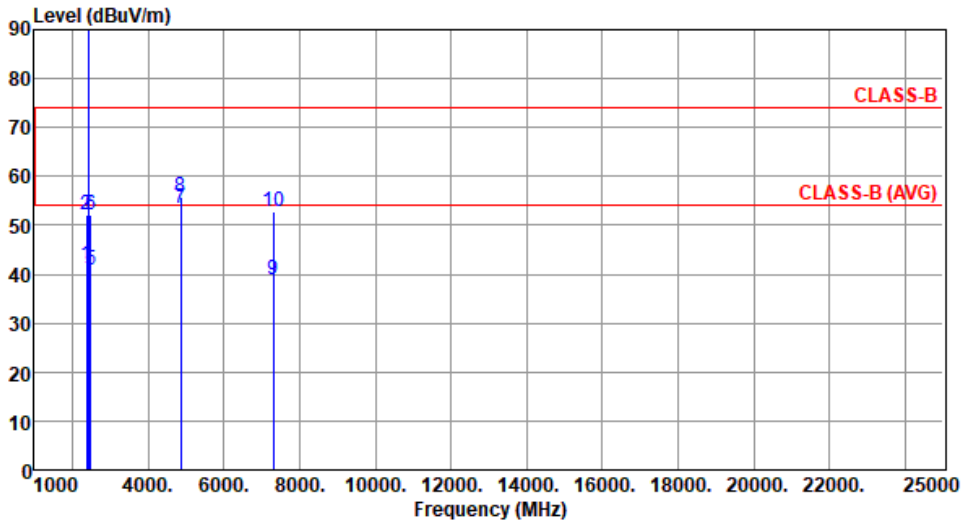


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1		2390.00	40.50	54.00	-13.50	43.25	-2.75	Average	269	38
2		2390.00	51.54	74.00	-22.46	54.29	-2.75	Peak	269	38
3	*	2437.00	93.76			96.56	-2.80	Average	269	38
4	*	2437.00	96.68			99.48	-2.80	Peak	269	38
5		2483.50	40.19	54.00	-13.81	42.89	-2.70	Average	269	38
6		2483.50	51.33	74.00	-22.67	54.03	-2.70	Peak	269	38
7		4874.00	51.77	54.00	-2.23	47.64	4.13	Average	278	358
8		4874.00	55.03	74.00	-18.97	50.90	4.13	Peak	278	358
9		7311.00	42.23	54.00	-11.77	32.95	9.28	Average	222	3
10		7311.00	53.10	74.00	-20.90	43.82	9.28	Peak	222	3

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:"*" is Peak / Average value of fundamental frequency

Modulation	11b	Test Freq. (MHz)	2437
Polarization	Vertical		

Test By :Roger Lu Temperature(℃):22 Humidity(%):67

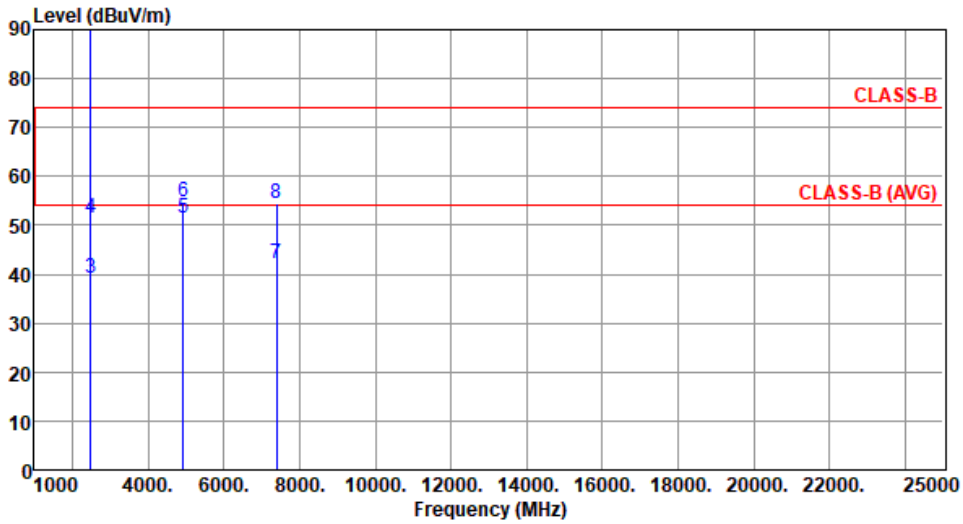


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1		2390.00	41.86	54.00	-12.14	44.61	-2.75	Average	104	45
2		2390.00	52.27	74.00	-21.73	55.02	-2.75	Peak	104	45
3	*	2437.00	94.93			97.73	-2.80	Average	104	45
4	*	2437.00	97.82			100.62	-2.80	Peak	104	45
5		2483.50	40.89	54.00	-13.11	43.59	-2.70	Average	104	45
6		2483.50	51.98	74.00	-22.02	54.68	-2.70	Peak	104	45
7		4874.00	53.55	54.00	-0.45	49.42	4.13	Average	189	341
8		4874.00	55.82	74.00	-18.18	51.69	4.13	Peak	189	341
9		7311.00	38.91	54.00	-15.09	29.63	9.28	Average	104	45
10		7311.00	52.89	74.00	-21.11	43.61	9.28	Peak	104	45

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:"*" is Peak / Average value of fundamental frequency

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

Test By :Roger Lu Temperature(℃):22 Humidity(%):67

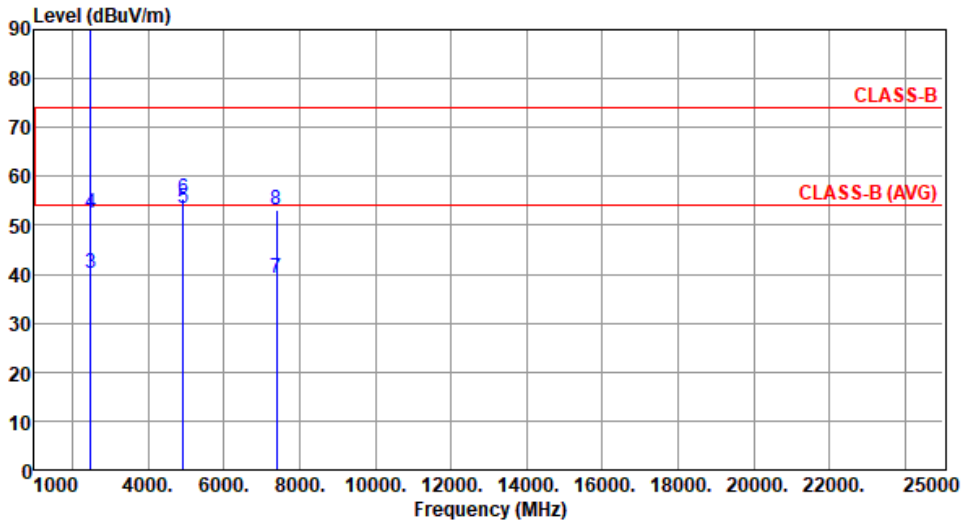


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	*	2462.00	92.34			95.11	-2.77	Average	255	36
2	*	2462.00	94.99			97.76	-2.77	Peak	255	36
3		2483.50	39.35	54.00	-14.65	42.05	-2.70	Average	255	36
4		2483.50	51.49	74.00	-22.51	54.19	-2.70	Peak	255	36
5		4924.00	51.43	54.00	-2.57	47.37	4.06	Average	281	361
6		4924.00	54.84	74.00	-19.16	50.78	4.06	Peak	281	361
7		7386.00	42.34	54.00	-11.66	33.09	9.25	Average	100	15
8		7386.00	54.33	74.00	-19.67	45.08	9.25	Peak	100	15

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:"*" is Peak / Average value of fundamental frequency

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

Test By :Roger Lu Temperature(℃):22 Humidity(%):67



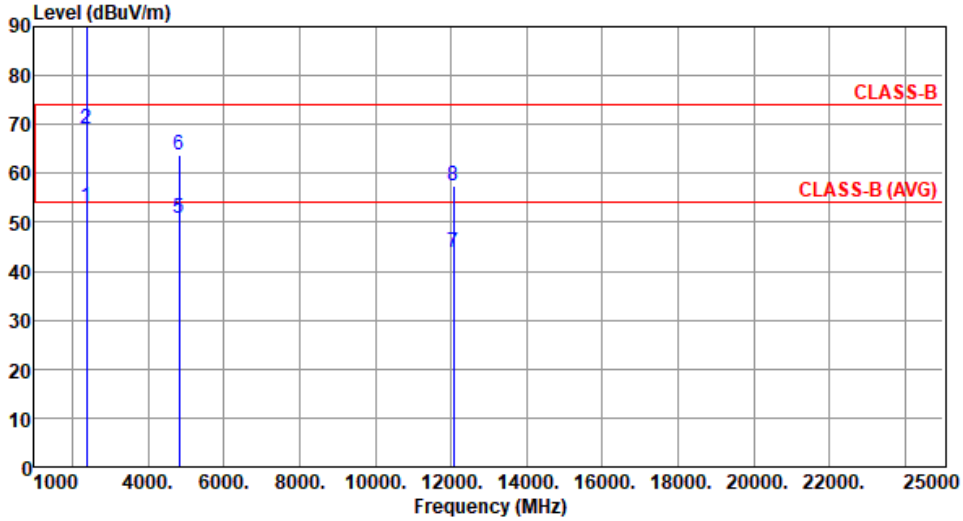
		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	*	2462.00	93.51			96.28	-2.77	Average	104	58
2	*	2462.00	96.16			98.93	-2.77	Peak	104	58
3		2483.50	40.30	54.00	-13.70	43.00	-2.70	Average	104	58
4		2483.50	52.31	74.00	-21.69	55.01	-2.70	Peak	104	58
5		4924.00	53.63	54.00	-0.37	49.57	4.06	Average	195	349
6		4924.00	55.32	74.00	-18.68	51.26	4.06	Peak	195	349
7		7386.00	39.25	54.00	-14.75	30.00	9.25	Average	105	51
8		7386.00	53.06	74.00	-20.94	43.81	9.25	Peak	105	51

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:"*" is Peak / Average value of fundamental frequency

3.5.6 Transmitter Radiated Unwanted Emissions (Above 1GHz) for 11g

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

Test By :Roger Lu Temperature(℃):22 Humidity(%):67

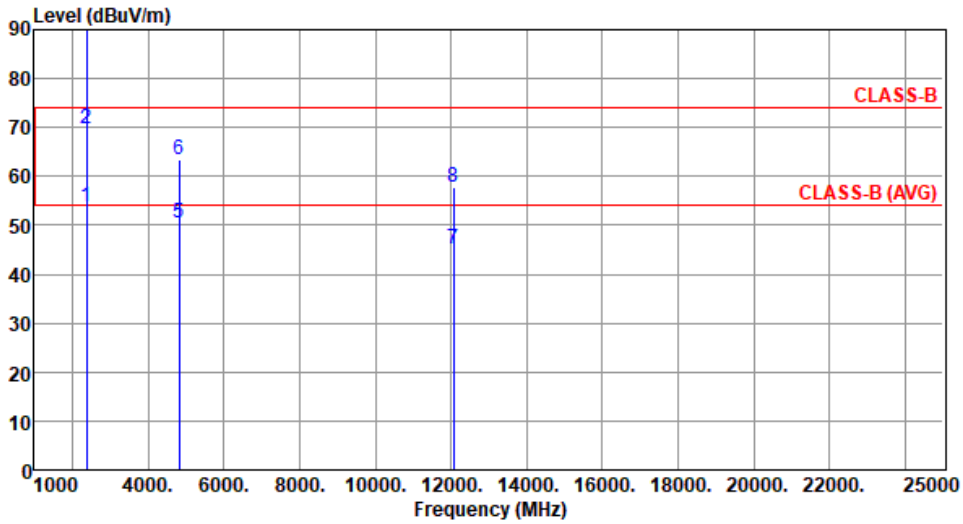


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1		2390.00	53.03	54.00	-0.97	55.78	-2.75	Average	263	34
2		2390.00	68.92	74.00	-5.08	71.67	-2.75	Peak	263	34
3	*	2412.00	93.64			96.41	-2.77	Average	263	34
4	*	2412.00	103.65			106.42	-2.77	Peak	263	34
5		4824.00	50.82	54.00	-3.18	46.68	4.14	Average	100	35
6		4824.00	63.91	74.00	-10.09	59.77	4.14	Peak	100	35
7		12060.00	43.98	54.00	-10.02	30.19	13.79	Average	100	5
8		12060.00	57.42	74.00	-16.58	43.63	13.79	Peak	100	5

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:"*" is Peak / Average value of fundamental frequency

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

Test By :Roger Lu Temperature(℃):22 Humidity(%):67

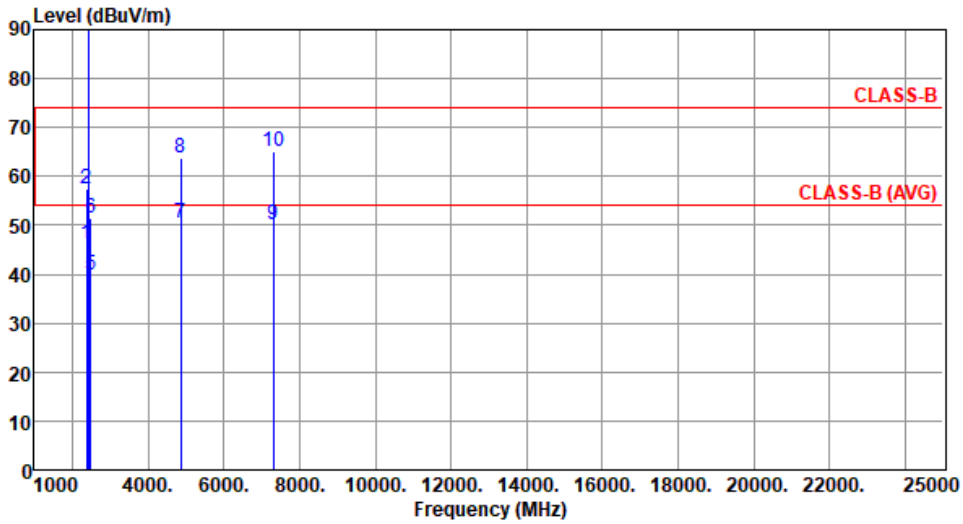


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1		2390.00	53.72	54.00	-0.28	56.47	-2.75	Average	100	47
2		2390.00	69.58	74.00	-4.42	72.33	-2.75	Peak	100	47
3	*	2412.00	94.52			97.29	-2.77	Average	100	47
4	*	2412.00	104.91			107.68	-2.77	Peak	100	47
5		4824.00	50.51	54.00	-3.49	46.37	4.14	Average	194	351
6		4824.00	63.59	74.00	-10.41	59.45	4.14	Peak	194	351
7		12060.00	45.04	54.00	-8.96	31.25	13.79	Average	100	358
8		12060.00	57.91	74.00	-16.09	44.12	13.79	Peak	100	358

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:"*" is Peak / Average value of fundamental frequency

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

Test By :Roger Lu Temperature(℃):22 Humidity(%):67

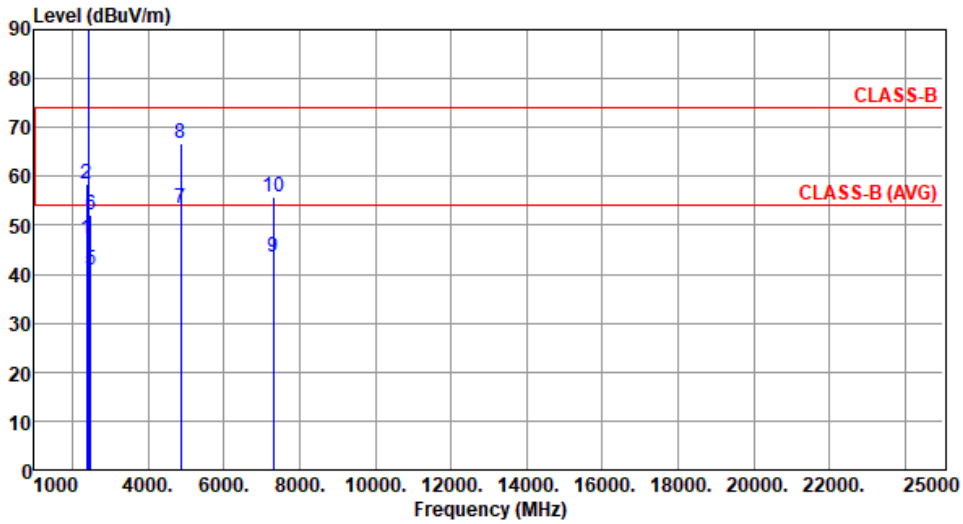


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1		2390.00	46.00	54.00	-8.00	48.75	-2.75	Average	262	35
2		2390.00	57.30	74.00	-16.70	60.05	-2.75	Peak	262	35
3	*	2437.00	95.33			98.13	-2.80	Average	262	35
4	*	2437.00	105.66			108.46	-2.80	Peak	262	35
5		2483.50	39.75	54.00	-14.25	42.45	-2.70	Average	262	35
6		2483.50	51.43	74.00	-22.57	54.13	-2.70	Peak	262	35
7		4874.00	50.56	54.00	-3.44	46.43	4.13	Average	100	27
8		4874.00	63.78	74.00	-10.22	59.65	4.13	Peak	100	27
9		7311.00	50.23	54.00	-3.77	40.95	9.28	Average	224	10
10		7311.00	65.18	74.00	-8.82	55.90	9.28	Peak	224	10

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:"*" is Peak / Average value of fundamental frequency

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

Test By :Roger Lu Temperature(℃):22 Humidity(%):67

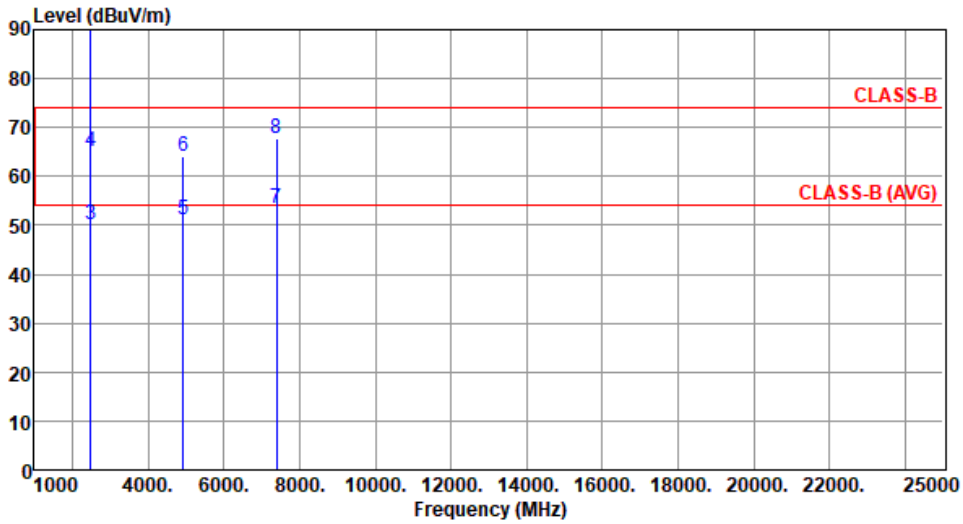


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1		2390.00	47.23	54.00	-6.77	49.98	-2.75	Average	100	45
2		2390.00	58.43	74.00	-15.57	61.18	-2.75	Peak	100	45
3	*	2437.00	96.38			99.18	-2.80	Average	100	45
4	*	2437.00	106.32			109.12	-2.80	Peak	100	45
5		2483.50	40.90	54.00	-13.10	43.60	-2.70	Average	100	45
6		2483.50	51.98	74.00	-22.02	54.68	-2.70	Peak	100	45
7		4874.00	53.61	54.00	-0.39	49.48	4.13	Average	194	350
8		4874.00	66.69	74.00	-7.31	62.56	4.13	Peak	194	350
9		7311.00	43.59	54.00	-10.41	34.31	9.28	Average	154	340
10		7311.00	55.81	74.00	-18.19	46.53	9.28	Peak	154	340

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:"*" is Peak / Average value of fundamental frequency

Modulation	11g	Test Freq. (MHz)	2462
Polarization	Horizontal		

Test By :Roger Lu Temperature(℃):22 Humidity(%):67

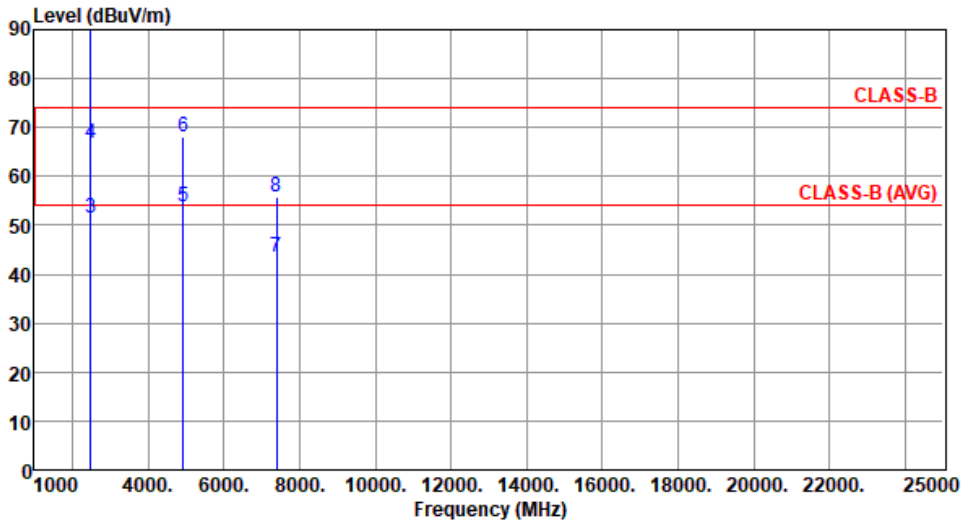


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	*	2462.00	93.43			96.20	-2.77	Average	263	30
2	*	2462.00	103.27			106.04	-2.77	Peak	263	30
3		2483.50	50.29	54.00	-3.71	52.99	-2.70	Average	263	30
4		2483.50	64.94	74.00	-9.06	67.64	-2.70	Peak	263	30
5		4924.00	51.08	54.00	-2.92	47.02	4.06	Average	100	29
6		4924.00	64.25	74.00	-9.75	60.19	4.06	Peak	100	29
7		7386.00	53.53	54.00	-0.47	44.28	9.25	Average	160	335
8		7386.00	67.71	74.00	-6.29	58.46	9.25	Peak	160	335

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:"*" is Peak / Average value of fundamental frequency

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

Test By :Roger Lu Temperature(℃):22 Humidity(%):67



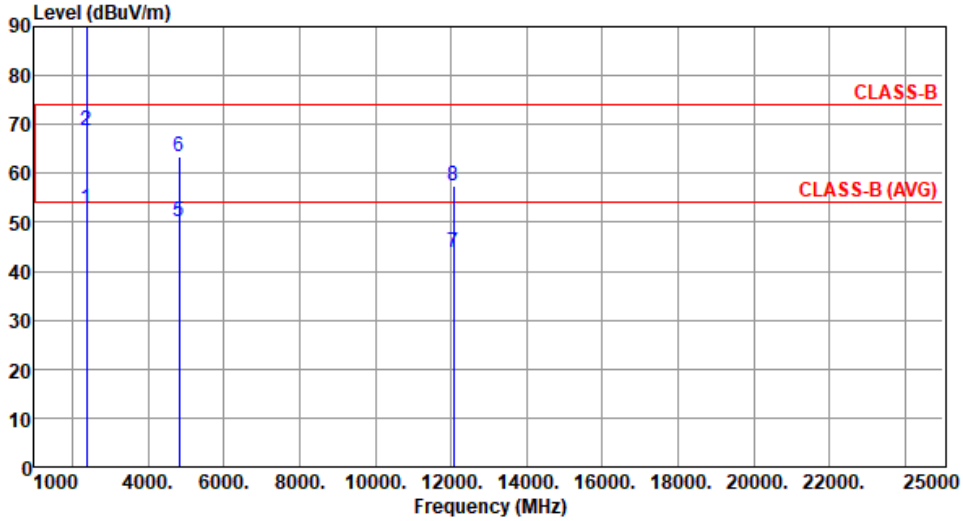
		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	*	2462.00	94.19			96.96	-2.77	Average	100	32
2	*	2462.00	104.28			107.05	-2.77	Peak	100	32
3		2483.50	51.54	54.00	-2.46	54.24	-2.70	Average	100	32
4		2483.50	66.77	74.00	-7.23	69.47	-2.70	Peak	100	32
5		4924.00	53.68	54.00	-0.32	49.62	4.06	Average	206	348
6		4924.00	68.11	74.00	-5.89	64.05	4.06	Peak	206	348
7		7386.00	43.55	54.00	-10.45	34.30	9.25	Average	152	339
8		7386.00	55.86	74.00	-18.14	46.61	9.25	Peak	152	339

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:"*" is Peak / Average value of fundamental frequency

3.5.7 Transmitter Radiated Unwanted Emissions (Above 1GHz) for HT20

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

Test By :Roger Lu Temperature(℃):22 Humidity(%):67

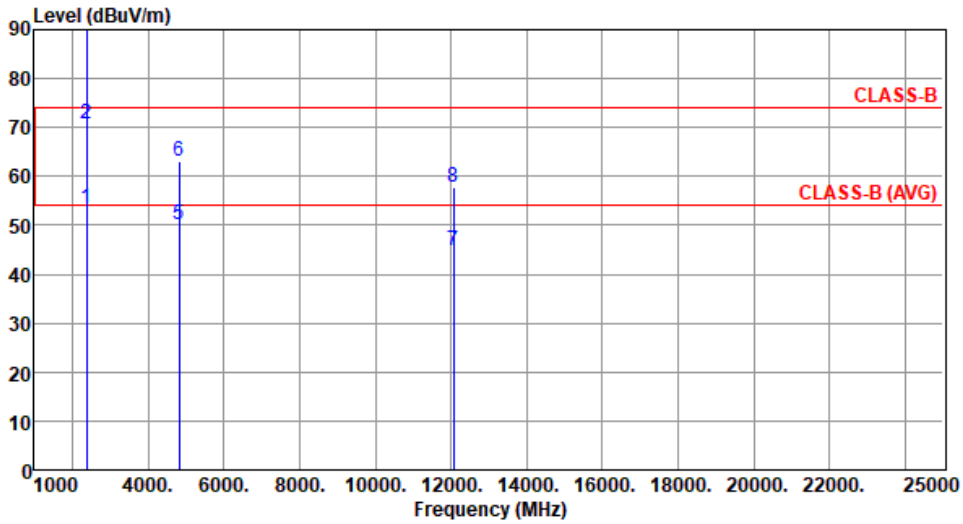


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1		2390.00	52.85	54.00	-1.15	55.60	-2.75	Average	261	33
2		2390.00	68.67	74.00	-5.33	71.42	-2.75	Peak	261	33
3	*	2412.00	92.54			95.31	-2.77	Average	261	33
4	*	2412.00	102.41			105.18	-2.77	Peak	261	33
5		4824.00	50.22	54.00	-3.78	46.08	4.14	Average	100	38
6		4824.00	63.35	74.00	-10.65	59.21	4.14	Peak	100	38
7		12060.00	43.81	54.00	-10.19	30.02	13.79	Average	100	9
8		12060.00	57.29	74.00	-16.71	43.50	13.79	Peak	100	9

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:"*" is Peak / Average value of fundamental frequency

Modulation	HT20	Test Freq. (MHz)	2412
Polarization	Vertical		

Test By :Roger Lu Temperature(℃):22 Humidity(%):67

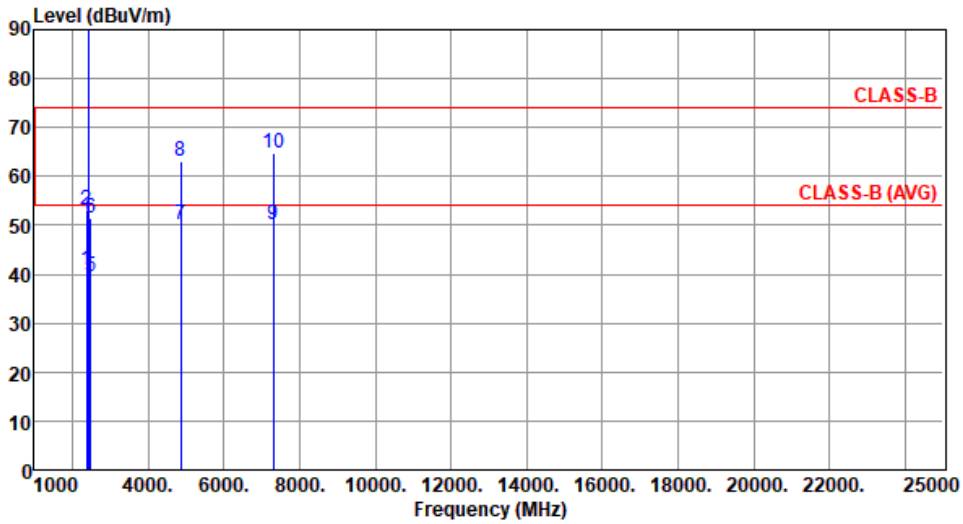


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1		2390.00	53.58	54.00	-0.42	56.33	-2.75	Average	111	47
2		2390.00	70.57	74.00	-3.43	73.32	-2.75	Peak	111	47
3	*	2412.00	93.44			96.21	-2.77	Average	111	47
4	*	2412.00	103.11			105.88	-2.77	Peak	111	47
5		4824.00	50.22	54.00	-3.78	46.08	4.14	Average	195	355
6		4824.00	63.15	74.00	-10.85	59.01	4.14	Peak	195	355
7		12060.00	44.96	54.00	-9.04	31.17	13.79	Average	100	352
8		12060.00	57.85	74.00	-16.15	44.06	13.79	Peak	100	352

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:"*" is Peak / Average value of fundamental frequency

Modulation	HT20	Test Freq. (MHz)	2437
Polarization	Horizontal		

Test By :Roger Lu Temperature(℃):22 Humidity(%):67

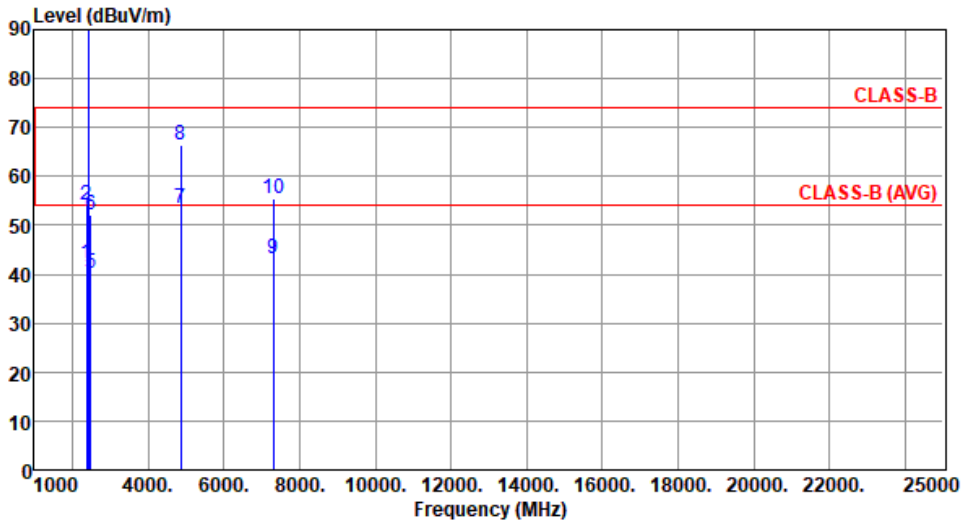


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1		2390.00	41.00	54.00	-13.00	43.75	-2.75	Average	254	39
2		2390.00	53.04	74.00	-20.96	55.79	-2.75	Peak	254	39
3	*	2437.00	94.87			97.67	-2.80	Average	254	39
4	*	2437.00	105.08			107.88	-2.80	Peak	254	39
5		2483.50	39.42	54.00	-14.58	42.12	-2.70	Average	254	39
6		2483.50	51.36	74.00	-22.64	54.06	-2.70	Peak	254	39
7		4874.00	50.14	54.00	-3.86	46.01	4.13	Average	100	35
8		4874.00	63.25	74.00	-10.75	59.12	4.13	Peak	100	35
9		7311.00	50.05	54.00	-3.95	40.77	9.28	Average	225	16
10		7311.00	64.86	74.00	-9.14	55.58	9.28	Peak	225	16

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:"*" is Peak / Average value of fundamental frequency

Modulation	HT20	Test Freq. (MHz)	2437
Polarization	Vertical		

Test By :Roger Lu Temperature(℃):22 Humidity(%):67

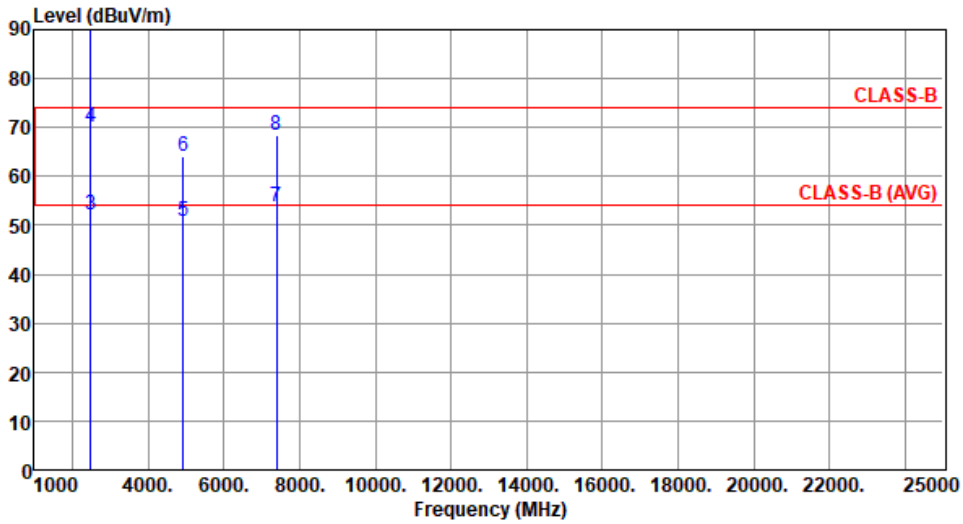


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1		2390.00	42.16	54.00	-11.84	44.91	-2.75	Average	102	45
2		2390.00	54.06	74.00	-19.94	56.81	-2.75	Peak	102	45
3	*	2437.00	96.02			98.82	-2.80	Average	102	45
4	*	2437.00	106.15			108.95	-2.80	Peak	102	45
5		2483.50	40.19	54.00	-13.81	42.89	-2.70	Average	102	45
6		2483.50	52.01	74.00	-21.99	54.71	-2.70	Peak	102	45
7		4874.00	53.55	54.00	-0.45	49.42	4.13	Average	195	351
8		4874.00	66.36	74.00	-7.64	62.23	4.13	Peak	195	351
9		7311.00	43.22	54.00	-10.78	33.94	9.28	Average	158	342
10		7311.00	55.44	74.00	-18.56	46.16	9.28	Peak	158	342

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:"*" is Peak / Average value of fundamental frequency

Modulation	HT20	Test Freq. (MHz)	2462
Polarization	Horizontal		

Test By :Roger Lu Temperature(℃):22 Humidity(%):67

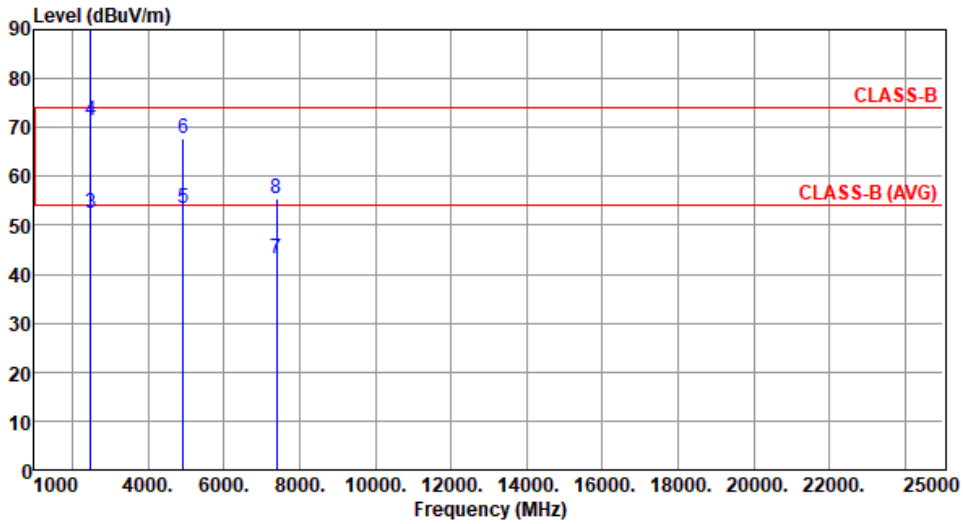


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	*	2462.00	93.57			96.34	-2.77	Average	257	31
2	*	2462.00	103.41			106.18	-2.77	Peak	257	31
3		2483.50	51.99	54.00	-2.01	54.69	-2.70	Average	257	31
4		2483.50	70.20	74.00	-3.80	72.90	-2.70	Peak	257	31
5		4924.00	50.95	54.00	-3.05	46.89	4.06	Average	100	31
6		4924.00	64.08	74.00	-9.92	60.02	4.06	Peak	100	31
7		7386.00	53.85	54.00	-0.15	44.60	9.25	Average	155	339
8		7386.00	68.37	74.00	-5.63	59.12	9.25	Peak	155	339

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:"*" is Peak / Average value of fundamental frequency

Modulation	HT20	Test Freq. (MHz)	2462
Polarization	Vertical		

Test By :Roger Lu Temperature(℃):22 Humidity(%):67



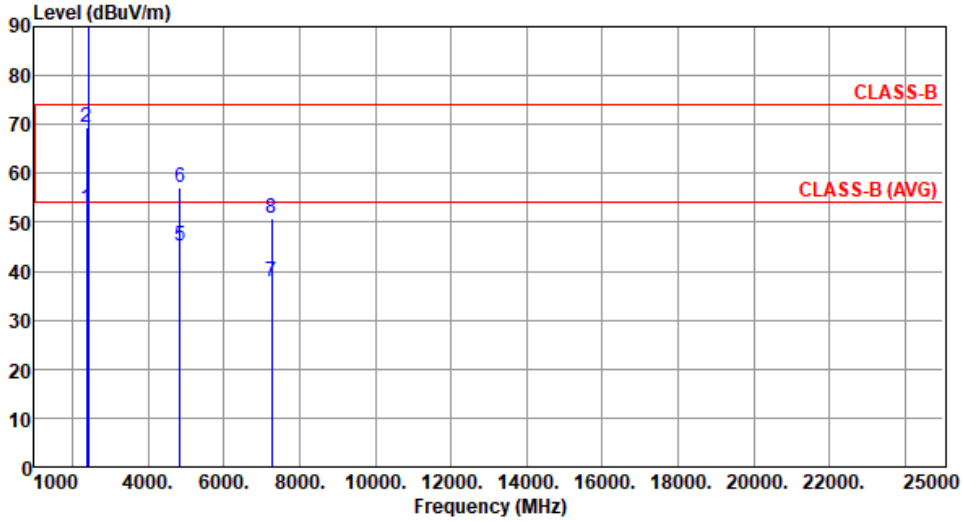
		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	*	2462.00	94.82			97.59	-2.77	Average	107	48
2	*	2462.00	104.65			107.42	-2.77	Peak	107	48
3		2483.50	52.63	54.00	-1.37	55.33	-2.70	Average	107	48
4		2483.50	71.39	74.00	-2.61	74.09	-2.70	Peak	107	48
5		4924.00	53.34	54.00	-0.66	49.28	4.06	Average	205	355
6		4924.00	67.85	74.00	-6.15	63.79	4.06	Peak	205	355
7		7386.00	43.26	54.00	-10.74	34.01	9.25	Average	149	335
8		7386.00	55.52	74.00	-18.48	46.27	9.25	Peak	149	335

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:"*" is Peak / Average value of fundamental frequency

3.5.8 Transmitter Radiated Unwanted Emissions (Above 1GHz) for HT40

Modulation	HT40	**Test Freq. (MHz)**	2422
Polarization	Horizontal		

Test By :Roger Lu Temperature(℃):22 Humidity(%):67

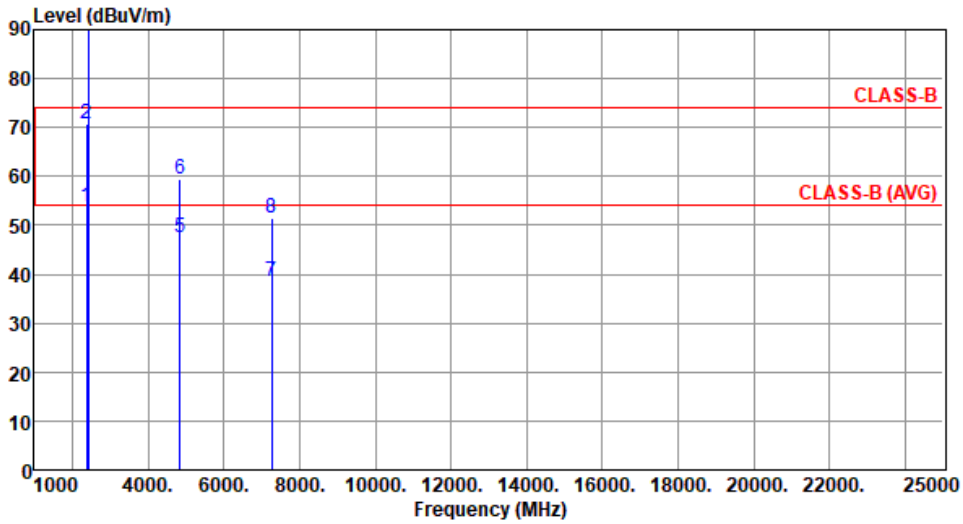


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1		2390.00	52.76	54.00	-1.24	55.51	-2.75	Average	262	31
2		2390.00	69.35	74.00	-4.65	72.10	-2.75	Peak	262	31
3	*	2422.00	89.80			92.59	-2.79	Average	262	31
4	*	2422.00	98.53			101.32	-2.79	Peak	262	31
5		4844.00	45.19	54.00	-8.81	41.03	4.16	Average	277	356
6		4844.00	57.22	74.00	-16.78	53.06	4.16	Peak	277	356
7		7266.00	37.83	54.00	-16.17	28.60	9.23	Average	100	50
8		7266.00	50.80	74.00	-23.20	41.57	9.23	Peak	100	50

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:"*" is Peak / Average value of fundamental frequency

Modulation	HT40	Test Freq. (MHz)	2422
Polarization	Vertical		

Test By :Roger Lu Temperature(℃):22 Humidity(%):67

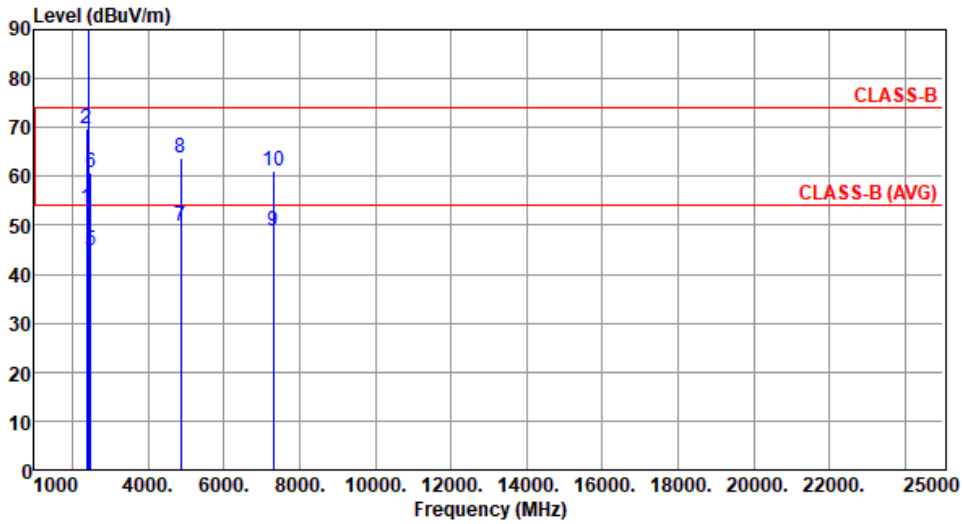


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1		2390.00	53.74	54.00	-0.26	56.49	-2.75	Average	100	45
2		2390.00	70.82	74.00	-3.18	73.57	-2.75	Peak	100	45
3	*	2422.00	90.12			92.91	-2.79	Average	100	45
4	*	2422.00	99.19			101.98	-2.79	Peak	100	45
5		4844.00	47.42	54.00	-6.58	43.26	4.16	Average	253	21
6		4844.00	59.32	74.00	-14.68	55.16	4.16	Peak	253	21
7		7266.00	38.36	54.00	-15.64	29.13	9.23	Average	100	60
8		7266.00	51.37	74.00	-22.63	42.14	9.23	Peak	100	60

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:"*" is Peak / Average value of fundamental frequency

Modulation	HT40	Test Freq. (MHz)	2437
Polarization	Horizontal		

Test By :Roger Lu Temperature(℃):22 Humidity(%):67

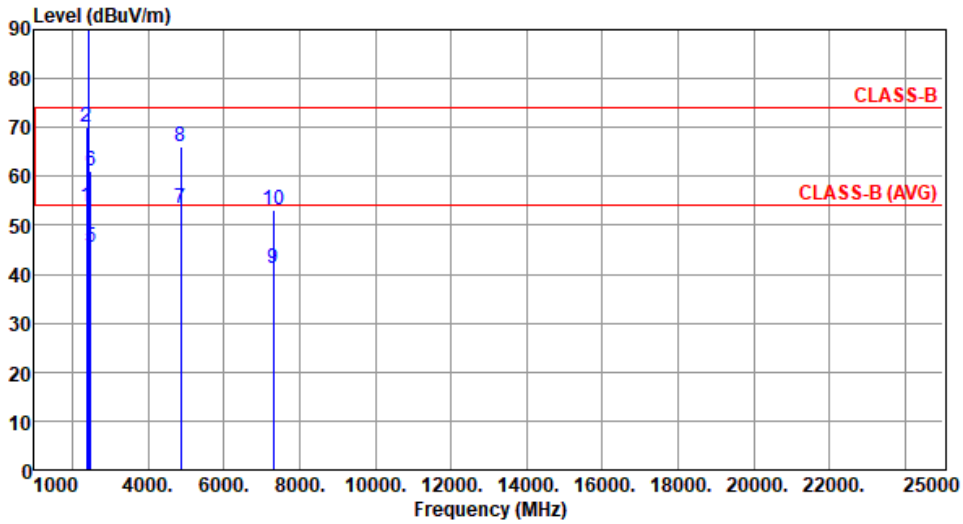


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1		2390.00	53.58	54.00	-0.42	56.33	-2.75	Average	258	30
2		2390.00	69.78	74.00	-4.22	72.53	-2.75	Peak	258	30
3	*	2437.00	92.43			95.23	-2.80	Average	258	30
4	*	2437.00	101.77			104.57	-2.80	Peak	258	30
5		2483.50	44.90	54.00	-9.10	47.60	-2.70	Average	258	30
6		2483.50	60.87	74.00	-13.13	63.57	-2.70	Peak	258	30
7		4874.00	49.94	54.00	-4.06	45.81	4.13	Average	265	293
8		4874.00	63.78	74.00	-10.22	59.65	4.13	Peak	265	293
9		7311.00	48.88	54.00	-5.12	39.60	9.28	Average	165	2
10		7311.00	61.12	74.00	-12.88	51.84	9.28	Peak	165	2

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:"*" is Peak / Average value of fundamental frequency

Modulation	HT40	Test Freq. (MHz)	2437
Polarization	Vertical		

Test By :Roger Lu Temperature(℃):22 Humidity(%):67

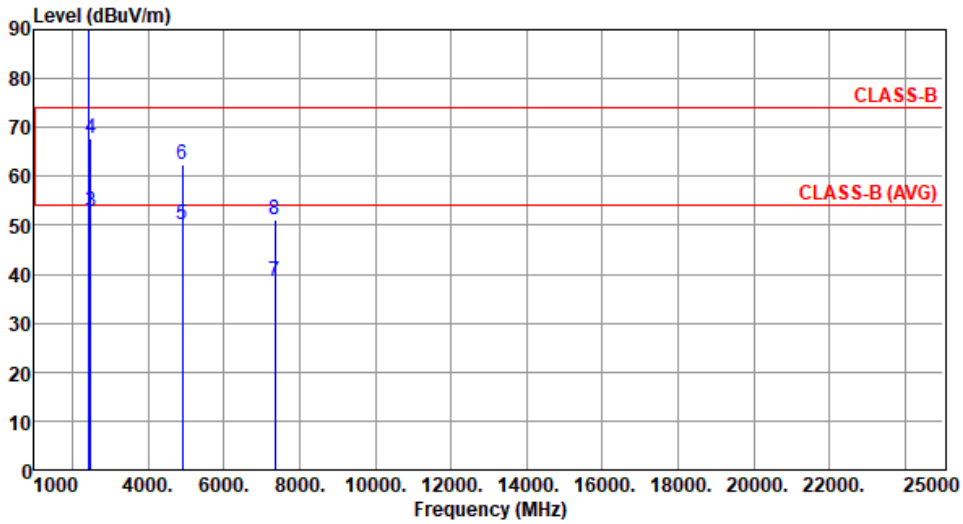


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1		2390.00	53.74	54.00	-0.26	56.49	-2.75	Average	100	50
2		2390.00	70.17	74.00	-3.83	72.92	-2.75	Peak	100	50
3	*	2437.00	93.54			96.34	-2.80	Average	100	50
4	*	2437.00	102.38			105.18	-2.80	Peak	100	50
5		2483.50	45.40	54.00	-8.60	48.10	-2.70	Average	100	50
6		2483.50	61.15	74.00	-12.85	63.85	-2.70	Peak	100	50
7		4874.00	53.59	54.00	-0.41	49.46	4.13	Average	256	18
8		4874.00	65.98	74.00	-8.02	61.85	4.13	Peak	256	18
9		7311.00	41.12	54.00	-12.88	31.84	9.28	Average	155	352
10		7311.00	53.12	74.00	-20.88	43.84	9.28	Peak	155	352

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:"*" is Peak / Average value of fundamental frequency

Modulation	HT40	Test Freq. (MHz)	2452
Polarization	Horizontal		

Test By :Roger Lu Temperature(℃):22 Humidity(%):67

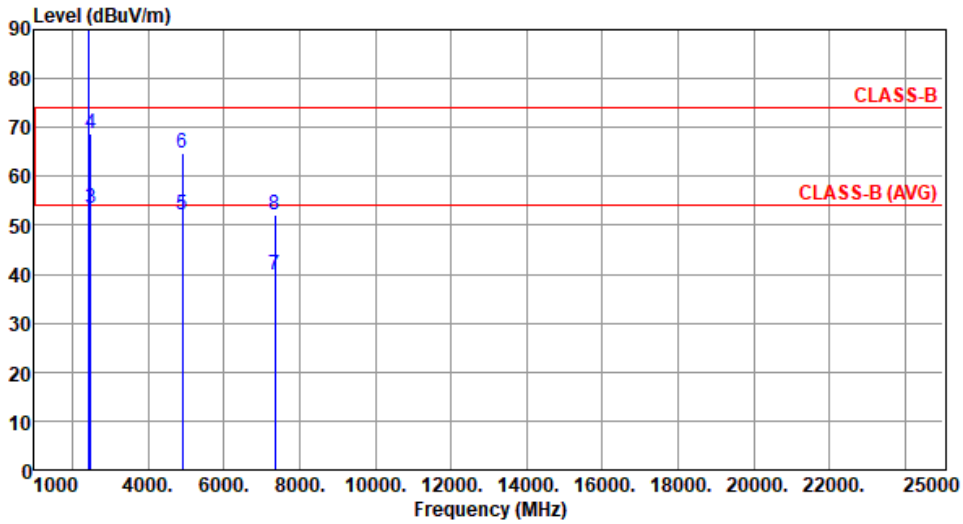


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	*	2452.00	90.59			93.40	-2.81	Average	255	32
2	*	2452.00	99.83			102.64	-2.81	Peak	255	32
3		2483.50	52.69	54.00	-1.31	55.39	-2.70	Average	255	32
4		2483.50	67.70	74.00	-6.30	70.40	-2.70	Peak	255	32
5		4904.00	50.04	54.00	-3.96	45.95	4.09	Average	275	350
6		4904.00	62.52	74.00	-11.48	58.43	4.09	Peak	275	350
7		7356.00	38.38	54.00	-15.62	29.12	9.26	Average	100	60
8		7356.00	51.15	74.00	-22.85	41.89	9.26	Peak	100	60

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:"*" is Peak / Average value of fundamental frequency

Modulation	HT40	Test Freq. (MHz)	2452
Polarization	Vertical		

Test By :Roger Lu Temperature(℃):22 Humidity(%):67



		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	*	2452.00	91.69			94.50	-2.81	Average	100	48
2	*	2452.00	100.71			103.52	-2.81	Peak	100	48
3		2483.50	53.53	54.00	-0.47	56.23	-2.70	Average	100	48
4		2483.50	68.84	74.00	-5.16	71.54	-2.70	Peak	100	48
5		4904.00	52.30	54.00	-1.70	48.21	4.09	Average	254	15
6		4904.00	64.77	74.00	-9.23	60.68	4.09	Peak	254	15
7		7356.00	39.82	54.00	-14.18	30.56	9.26	Average	142	355
8		7356.00	52.05	74.00	-21.95	42.79	9.26	Peak	142	355

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:"*" is Peak / Average value of fundamental frequency

3.6 Emissions in Non-Restricted Frequency Bands

3.6.1 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.

3.6.2 Test Procedures

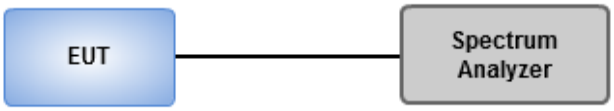
Reference level measurement

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

3.6.3 Test Setup

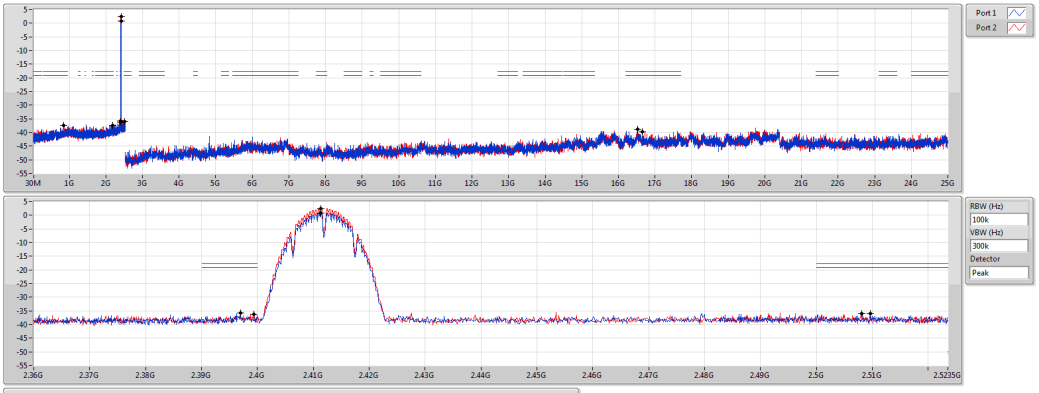


3.6.4 Unwanted Emissions into Non-Restricted Frequency Bands

Ambient Condition	20°C / 67%	Tested By	Aska Huang

802.11b_Nss1,(1Mbps)_2TX **CSE NdB**

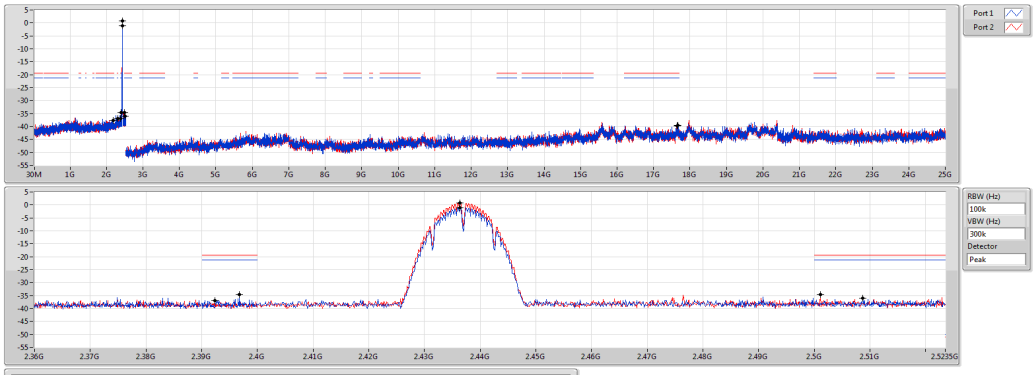
2412MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.41136G	0.85	-19.15	2.19341G	-37.50	2.39696G	-35.79	2.50966G	-36.02	16.52074G	-38.91	1
2.41136G	2.34	-17.66	850.16M	-37.45	2.39936G	-36.24	2.50806G	-36.04	16.6556G	-39.85	2

802.11b_Nss1,(1Mbps)_2TX **CSE NdB**

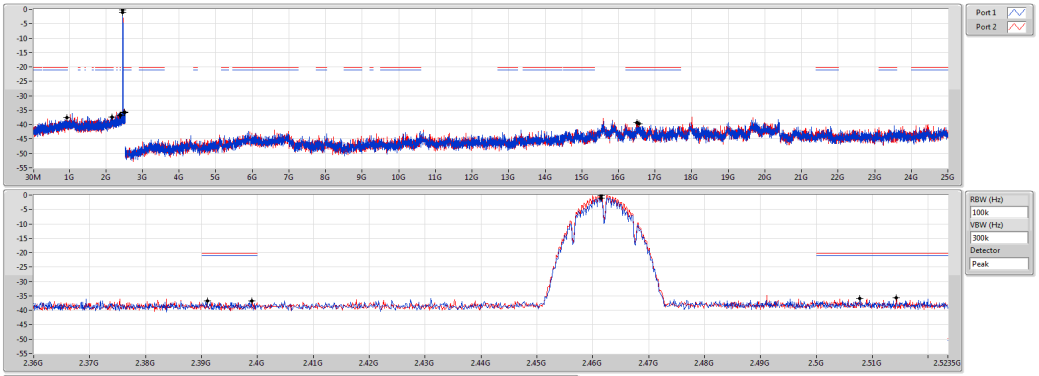
2437MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.43641G	-1.15	-21.15	2.30758G	-36.96	2.3968G	-34.66	2.5087G	-35.97	17.65861G	-39.42	1
2.43641G	0.67	-19.33	2.18875G	-37.68	2.39232G	-37.07	2.5011G	-34.53	17.65299G	-39.85	2

802.11b_Nss1,(1Mbps)_2TX **CSE NdB**

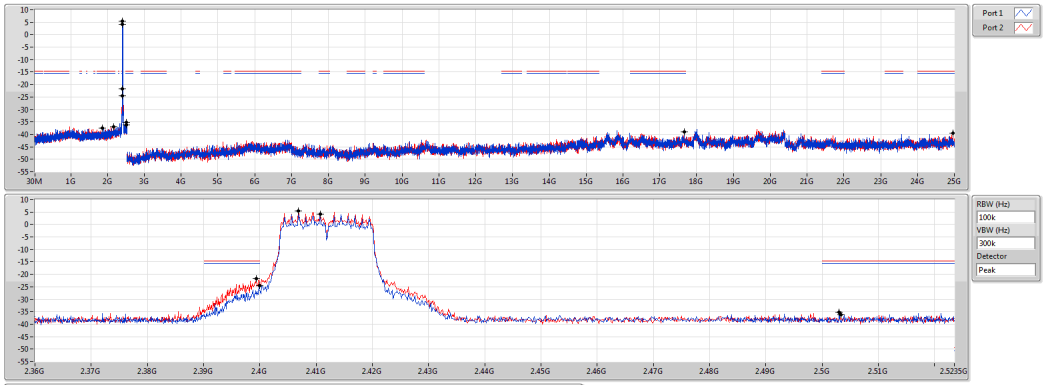
2462MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.46146G	-1.02	-21.02	942.2M	-37.58	2.39896G	-36.67	2.50774G	-35.89	16.5685G	-39.64	1
2.46146G	-0.11	-20.11	2.15846G	-37.42	2.39104G	-36.82	2.51422G	-35.60	16.50107G	-39.27	2

802.11g_Nss1,(6Mbps)_2TX **CSE NdB**

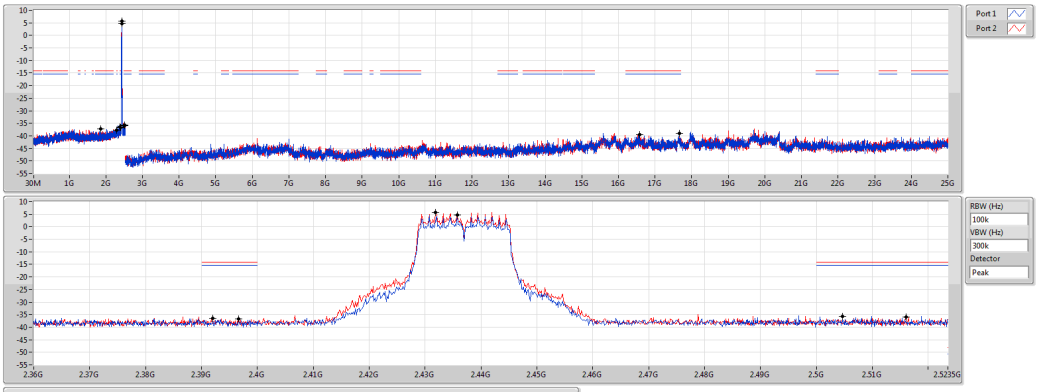
2412MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.41069G	4.24	-15.76	1.86022G	-37.59	2.39992G	-24.54	2.50302G	-35.24	17.66985G	-38.94	1
2.40685G	5.40	-14.60	2.1736G	-36.89	2.39936G	-21.79	2.50334G	-36.09	24.96067G	-39.59	2

802.11g_Nss1,(6Mbps)_2TX **CSE NdB**

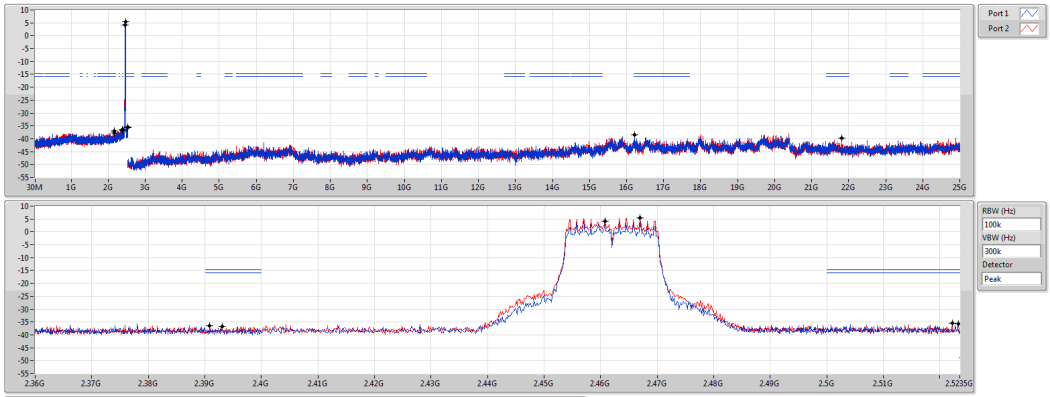
2437MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.43574G	4.56	-15.44	1.86022G	-37.30	2.392G	-36.35	2.5047G	-35.66	16.57693G	-39.58	1
2.4319G	5.81	-14.19	2.30175G	-37.64	2.39664G	-36.70	2.51598G	-36.01	17.65861G	-39.08	2

802.11g_Nss1,(6Mbps)_2TX **CSE NdB**

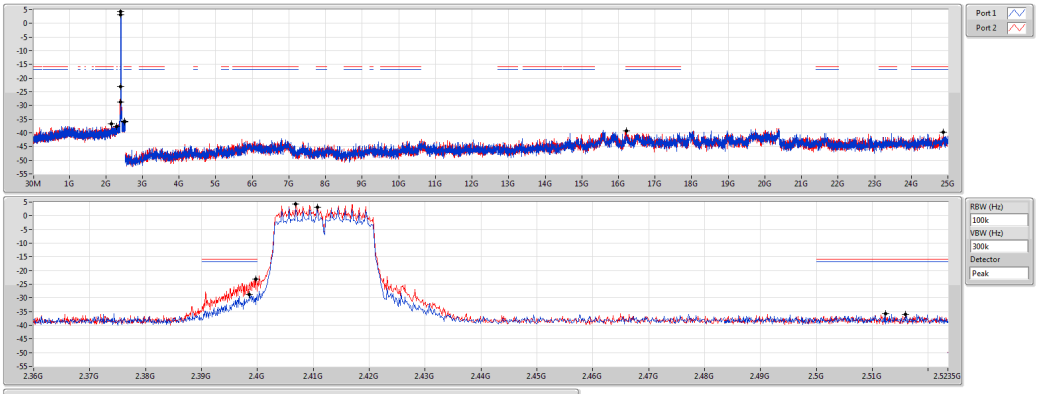
2462MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.46079G	4.16	-15.84	2.17244G	-37.65	2.39304G	-36.70	2.52326G	-35.69	16.22293G	-38.52	1
2.46697G	5.42	-14.58	2.16661G	-37.03	2.39088G	-36.45	2.52214G	-35.51	21.80553G	-39.81	2

802.11n HT20_Nss1,(MCS0)_2TX **CSE NdB**

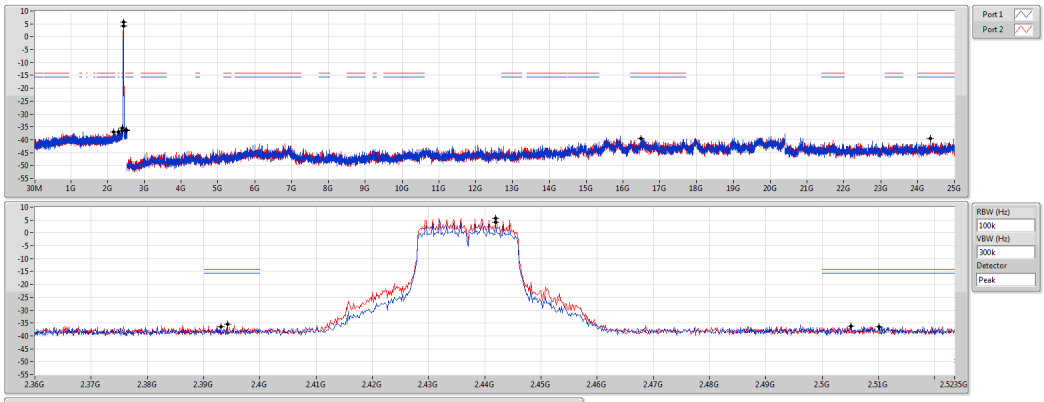
2412MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.41069G	3.21	-16.79	2.30175G	-37.61	2.39856G	-28.73	2.51230G	-35.84	16.22574G	-39.28	1
2.40685G	4.18	-15.82	2.15729G	-36.63	2.39976G	-23.09	2.51159G	-35.95	24.87076G	-39.85	2

802.11n HT20_Nss1,(MCS0)_2TX **CSE NdB**

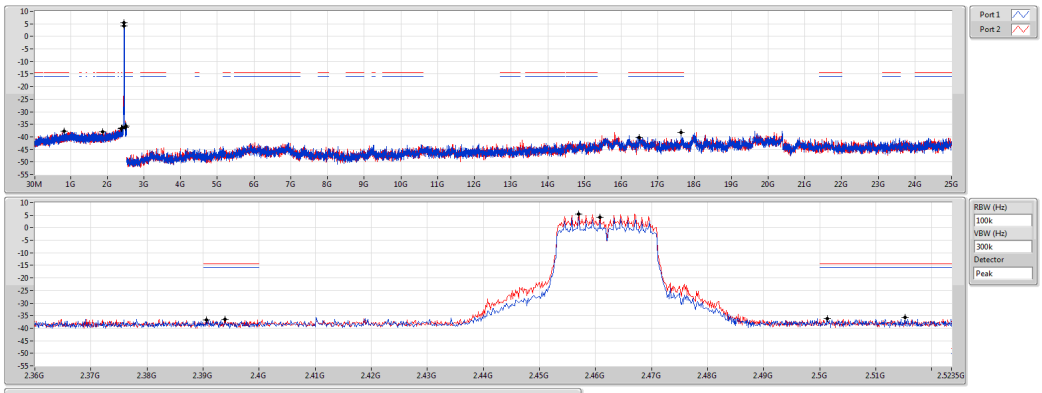
2437MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44192G	4.23	-15.77	2.30059G	-36.88	2.39304G	-36.39	2.50518G	-36.25	16.49264G	-39.47	1
2.44192G	5.79	-14.21	2.16894G	-37.09	2.39424G	-35.43	2.51014G	-36.41	24.34537G	-39.54	2

802.11n HT20_Nss1,(MCS0)_2TX **CSE NdB**

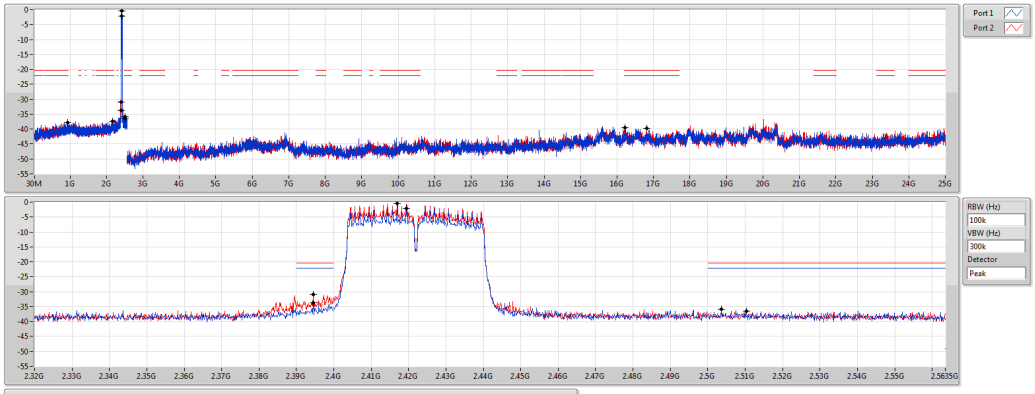
2462MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.46079G	4.16	-15.84	1.8742G	-37.90	2.39056G	-36.82	2.51518G	-35.64	17.6249G	-38.30	1
2.45695G	5.53	-14.47	829.19M	-37.65	2.39392G	-36.53	2.50134G	-36.20	16.49545G	-40.25	2

802.11n HT40_Nss1,(MCS0)_2TX **CSE NdB**

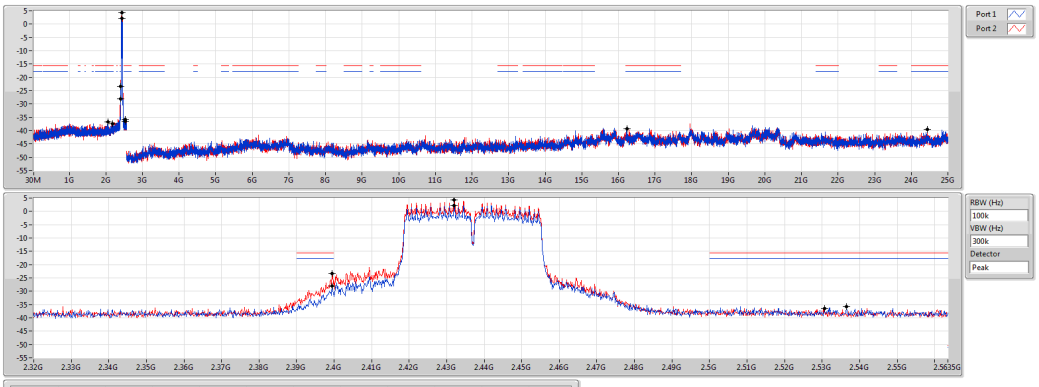
2422MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.41937G	-2.13	-22.13	2.1723G	-37.48	2.39456G	-33.78	2.50366G	-35.98	16.21611G	-39.61	1
2.41687G	-0.37	-20.37	935.7M	-37.91	2.39456G	-31.00	2.51038G	-36.60	16.81348G	-39.64	2

802.11n HT40_Nss1,(MCS0)_2TX **CSE NdB**

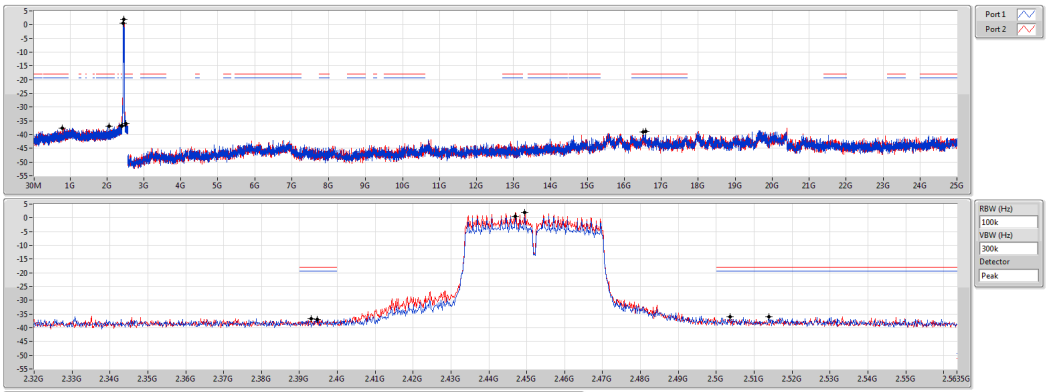
2437MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.4319G	2.30	-17.70	2.04978G	-36.74	2.39952G	-27.99	2.53646G	-35.80	16.22013G	-39.25	1
2.4319G	4.29	-15.71	2.17688G	-37.37	2.39952G	-23.25	2.5307G	-36.38	24.4447G	-39.46	2

802.11n HT40_Nss1,(MCS0)_2TX **CSE NdB**

2452MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44693G	0.66	-19.34	2.06238G	-36.84	2.39472G	-37.04	2.5139G	-36.07	16.50778G	-39.13	1
2.44943G	1.96	-18.04	784.56M	-37.57	2.39312G	-36.68	2.50366G	-36.10	16.58351G	-38.79	2

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 333, 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══