FCC Test Report

FCC ID	:	**P27RP582B**
Equipment	:	**WiFi 6 Tri-Band Router**
Model No.	:	**RP582B**
Brand Name	:	**Sercomm**
Applicant	:	**Sercomm Corporation**
Address	:	**8F, No. 3-1, YuanQu St., NanKang, Taipei 115, Taiwan, R.O.C.**
Standard	:	**47 CFR FCC Part 15.247**
Received Date	:	**Jan. 11, 2022**
Tested Date	:	**Jan. 24 ~ Feb. 11, 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**

Table of Contents

1 GENERAL DESCRIPTION 5

1.1 Information 5
1.2 Local Support Equipment List 9
1.3 Test Setup Chart 9
1.4 The Equipment List 11
1.5 Test Standards 12
1.6 Reference Guidance 12
1.7 Deviation from Test Standard and Measurement Procedure 12
1.8 Measurement Uncertainty 12

2 TEST CONFIGURATION 13

2.1 Testing Facility 13
2.2 The Worst Test Modes and Channel Details 13

3 TRANSMITTER TEST RESULTS 14

3.1 Conducted Emissions 14
3.2 6dB and Occupied Bandwidth 19
3.3 RF Output Power 28
3.4 Power Spectral Density 31
3.5 Unwanted Emissions into Restricted Frequency Bands 40
3.6 Emissions in Non-Restricted Frequency Bands 82

4 TEST LABORATORY INFORMATION 89

Release Record

Report No.	Version	Description	Issued Date
FR211102AC	Rev. 01	Initial issue	Mar. 11, 2022

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	[dBuV]: 0.352MHz 42.25 (Margin -6.66dB) - AV	Pass
15.247(d) 15.209	Radiated Emissions	[dBuV/m at 3m]: 2390.00MHz 73.70 (Margin -0.30dB) – PK	Pass
15.247(b)(3)	Maximum Output Power	Max Power [dBm]: ***Non-beamforming mode*** 28.23 ***Beamforming mode*** 26.25	Pass
15.247(a)(2)	6dB Bandwidth	Meet the requirement of limit	Pass
15.247(e)	Power Spectral Density	Meet the requirement of limit	Pass
15.203	Antenna Requirement	Meet the requirement of limit	Pass

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

1 General Description

1.1 Information

1.1.1 Specification of the Equipment under Test (EUT)

RF General Information					
Frequency Range (MHz)	IEEE Std. 802.11	Ch. Freq. (MHz)	Channel Number	Transmit Chains (N_{TX})	Data Rate / MCS
2400-2483.5	b	2412-2462	1-11 [11]	2	1-11 Mbps
2400-2483.5	g	2412-2462	1-11 [11]	2	6-54 Mbps
2400-2483.5	n (HT20)	2412-2462	1-11 [11]	2	MCS 0-15
2400-2483.5	n (HT40)	2422-2452	3-9 [7]	2	MCS 0-15
2400-2483.5	ac (VHT20)	2412-2462	1-11 [11]	2	MCS 0-9
2400-2483.5	ac (VHT40)	2422-2452	3-9 [7]	2	MCS 0-9
2400-2483.5	ax (HE20)	2412-2462	1-11 [11]	2	MCS 0-11
2400-2483.5	ax (HE40)	2422-2452	3-9 [7]	2	MCS 0-11

Note 1: RF output power specifies that Maximum Conducted (Average) Output Power.
Note 2: DSSS-DBPSK, DQPSK, CCK modulation
OFDM/OFDMA- BPSK, QPSK, 16QAM, 64QAM, 256QAM and 1024QAM modulation.
Note 3: 802.11ax supports beamforming function.

1.1.2 Antenna Details

Ant. No.	Model	Type	Connector	Operating Frequencies (MHz) / Antenna Gain (dBi)			Remarks
				2400~2483.5	5150~5250	5725~5850	
1	Ant1	Dipole	I-PEX	2.46	4.31	2.16	Radio1, 3
2	Ant2	Dipole	I-PEX	3.43	2.63	3.85	Radio1, 3
3	Ant3	Dipole	I-PEX	---	3.35	3.4	Radio2
4	Ant4	Dipole	I-PEX	---	2.19	3.32	Radio2
5	Ant5	Dipole	I-PEX	---	2.62	2.69	Radio2
6	Ant6	Dipole	I-PEX	---	4.23	4.11	Radio2

1.1.3 Radio Details

Radio	Function
1	2.4 GHz, 2T2R
2	5.15 GHz ~ 5.25 GHz, 4T4R
3	5.725 GHz ~ 5.85 GHz, 2T2R

1.1.4 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	12Vdc from adapter

1.1.5 Accessories

Accessories		
No.	**Equipment**	**Description**
1	AC adapter	Brand: Leader Model: MU24D1120200-A1 Power Rating: I/P: 100-240Vac, 50/60Hz, 0.7A O/P: 12Vdc, 2.0A Line: 1.45m non-shielded w/o core.
2	AC adapter	Brand: Acbel Model: WAM003 ID:GMAG Power Rating: I/P: 100-240Vac, 50/60Hz, 0.7A. O/P: 12Vdc, 2.0A, 24W Line: 1.45m non-shielded w/o core.

1.1.6 Channel List

Frequency band (MHz)		2400~2483.5	
802.11bg / n HT20 / ac VHT20 / ax HE20		802.11n HT40 / ac VHT40 / ax HE40	
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	Non-beamforming: accessMTool, Version:V3.2.1.5 Beamforming: Lantest, Version: V2.0.0.2				
Duty Cycle and Duty Factor	Mode	Non-beamforming		Beamforming	
		Duty cycle (%)	Duty factor (dB)	Duty cycle (%)	Duty factor (dB)
	11b	96.11%	0.17	---	---
	11g	96.00%	0.18	---	---
	ax HE20-OFDMA	98.31%	0.07	89.87%	0.46
	ax HE40-OFDMA	98.31%	0.07	93.12%	0.31

1.1.8 Power Index of Test Tool

Modulation Mode	Test Frequency (MHz)	Power Index	
		Non-Beamforming	Beamforming
11b	2412	100	---
11b	2437	102	---
11b	2462	100	---
11g	2412	72	---
11g	2437	98	---
11g	2462	74	---
ax HE20-OFDMA	2412	70	66
ax HE20-OFDMA	2437	98	94
ax HE20-OFDMA	2462	72	70
ax HE40-OFDMA	2422	64	60
ax HE40-OFDMA	2437	72	68
ax HE40-OFDMA	2452	68	64

1.2 Local Support Equipment List

Non-beamforming mode

Support Equipment List					
No.	**Equipment**	**Brand**	**Model**	**FCC ID**	**Remarks**
1	Notebook	DELL	Latitude 5400	---	---
2	Notebook	DELL	Latitude E6440	---	---

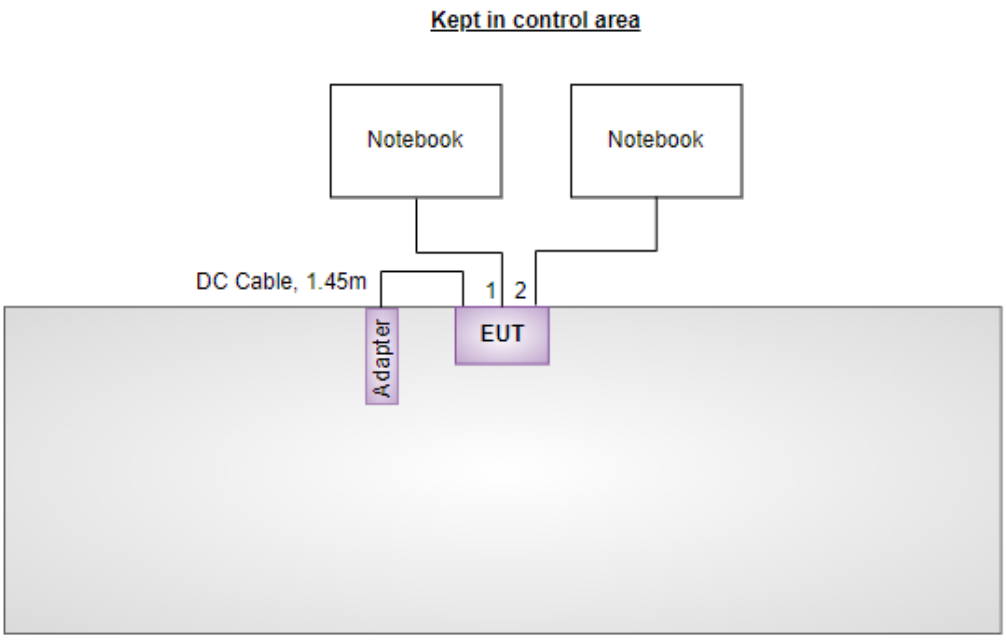
Beamforming mode

Support Equipment List					
No.	**Equipment**	**Brand**	**Model**	**FCC ID**	**Remarks**
1	Notebook	DELL	Latitude 5400	---	---
2	Notebook	DELL	Latitude E6440	---	---
3	BF Client	---	RP582B	---	Provided by applicant.

1.3 Test Setup Chart

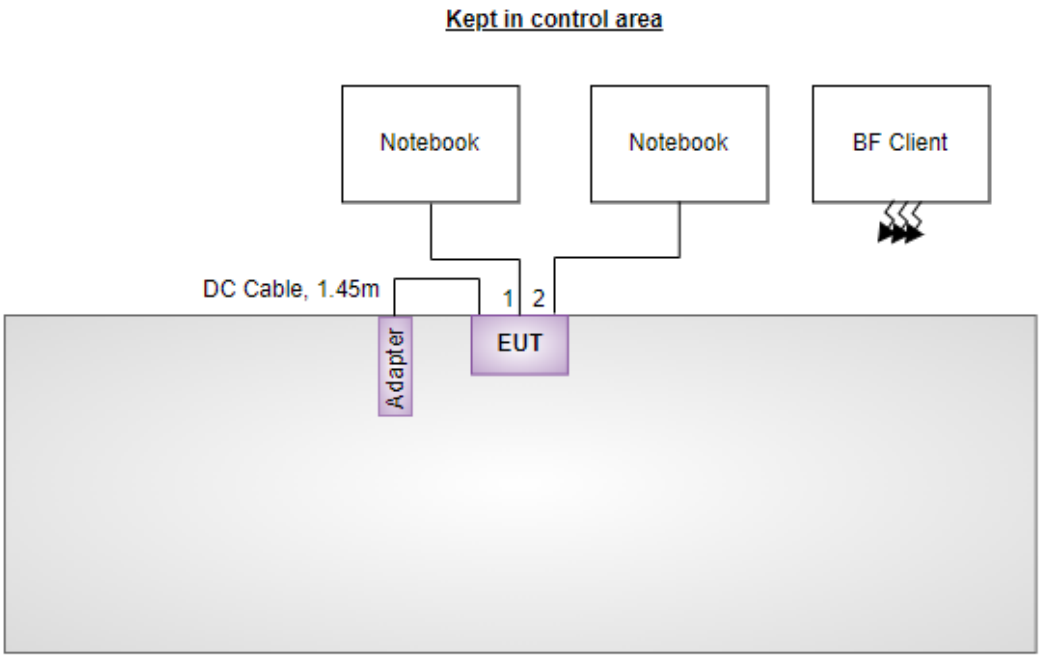
Non-beamforming mode

Test Setup Diagram



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

Beamforming mode

Test Setup Diagram


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

1.4 The Equipment List

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Tested Date	Feb. 07, 2022				
Instrument	**Brand**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Receiver	R&S	ESR3	101657	Mar. 12, 2021	Mar. 11, 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. 24 ~ Feb. 08, 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	101498	Nov. 29, 2021	Nov. 28, 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	Feb. 11, 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 (Mbps) / MCS	Test Configuration
Non-beamforming mode				
Conducted Emissions	11b	2437	1 Mbps	--
Radiated Emissions ≤1GHz	11b	2437	1 Mbps	--
Maximum Output Power	11b 11g ax HE20-OFDMA ax HE40-OFDMA	2412 / 2437 / 2462 2412 / 2437 / 2462 2412 / 2437 / 2462 2422 / 2437 / 2452	1 Mbps 6 Mbps MCS 0 MCS 0	--
Radiated Emissions >1GHz 6dB bandwidth Power spectral density	11b 11g ax HE20-OFDMA ax HE40-OFDMA	2412 / 2437 / 2462 2412 / 2437 / 2462 2412 / 2437 / 2462 2422 / 2437 / 2452	1 Mbps 6 Mbps MCS 0 MCS 0	--
Beamforming mode				
Conducted Emissions	ax HE20-OFDMA	2462	MCS 0	--
Radiated Emissions ≤1GHz	ax HE20-OFDMA	2462	MCS 0	--
Maximum Output Power	ax HE20-OFDMA ax HE40-OFDMA	2412 / 2437 / 2462 2422 / 2437 / 2452	MCS 0 MCS 0	--
Radiated Emissions >1GHz 6dB bandwidth Power spectral density	ax HE20-OFDMA ax HE40-OFDMA	2412 / 2437 / 2462 2422 / 2437 / 2452	MCS 0 MCS 0	--
Note: Two adapters (Leader and Acbel) had been covered during the pretest, and found that Leader was the worst case and was selected for final test.				

3 Transmitter Test Results

3.1 Conducted Emissions

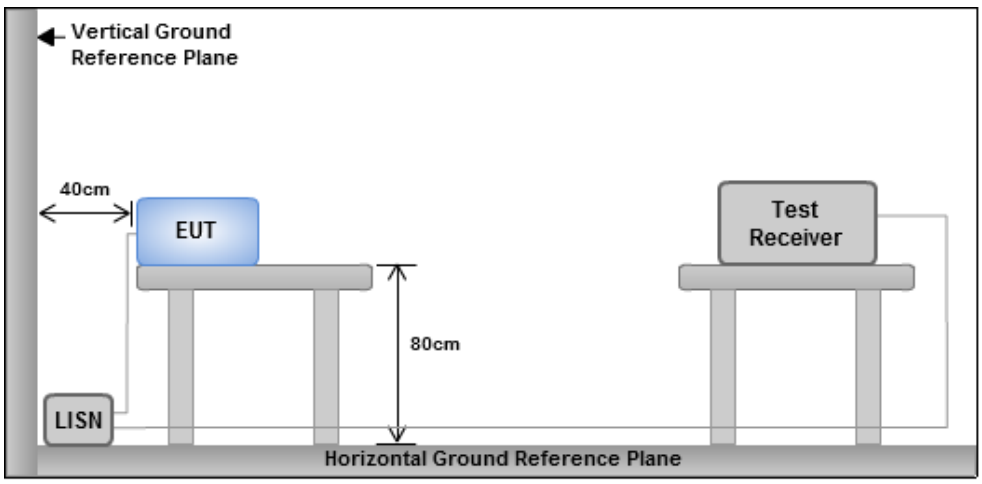
3.1.1 Limit of Conducted Emissions

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.

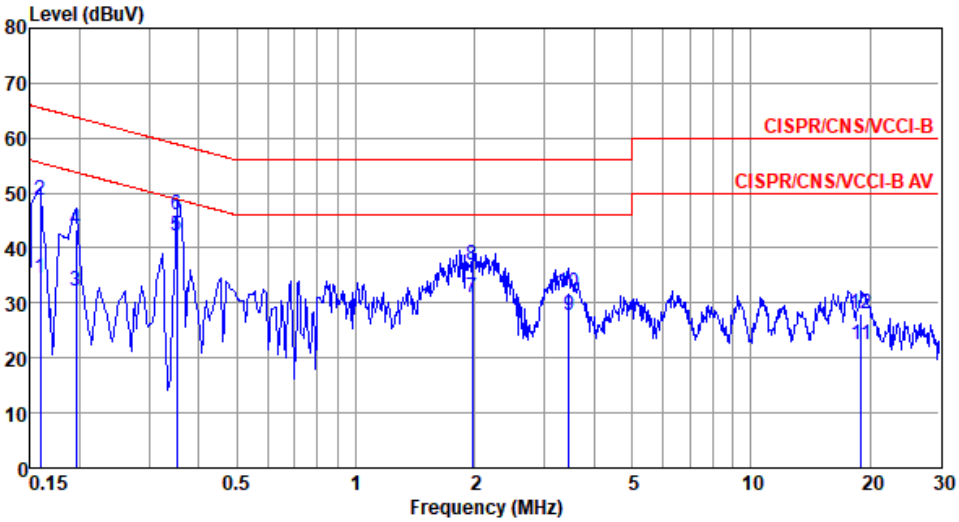
2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

3.1.4 Test Result of Conducted Emissions

Non-beamforming mode

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

Test by : Joe Liao Temperature: 18°C Humidity: 60%

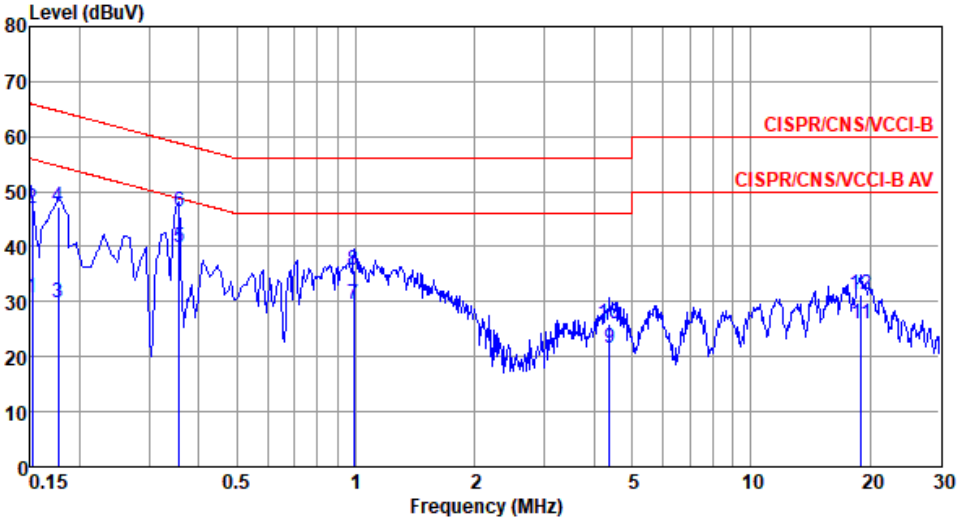


	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Cable loss	Aux	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	dB	
1	0.159	34.46	55.52	-21.06	24.52	9.66	0.08	0.20	Average
2	0.159	48.70	65.52	-16.82	38.76	9.66	0.08	0.20	QP
3	0.195	32.26	53.80	-21.54	22.31	9.65	0.08	0.22	Average
4	0.195	43.31	63.80	-20.49	33.36	9.65	0.08	0.22	QP
5*	0.352	42.25	48.91	-6.66	32.20	9.64	0.08	0.33	Average
6	0.352	45.93	58.91	-12.98	35.88	9.64	0.08	0.33	QP
7	1.970	30.92	46.00	-15.08	20.67	9.66	0.20	0.39	Average
8	1.970	37.02	56.00	-18.98	26.77	9.66	0.20	0.39	QP
9	3.454	27.90	46.00	-18.10	17.61	9.67	0.21	0.41	Average
10	3.454	31.91	56.00	-24.09	21.62	9.67	0.21	0.41	QP
11	19.021	22.53	50.00	-27.47	11.58	9.68	0.64	0.63	Average
12	19.021	27.94	60.00	-32.06	16.99	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	11b	Test Freq. (MHz)	2437
Power Phase	Neutral		

Test by : Joe Liao Temperature: 18°C Humidity: 60%



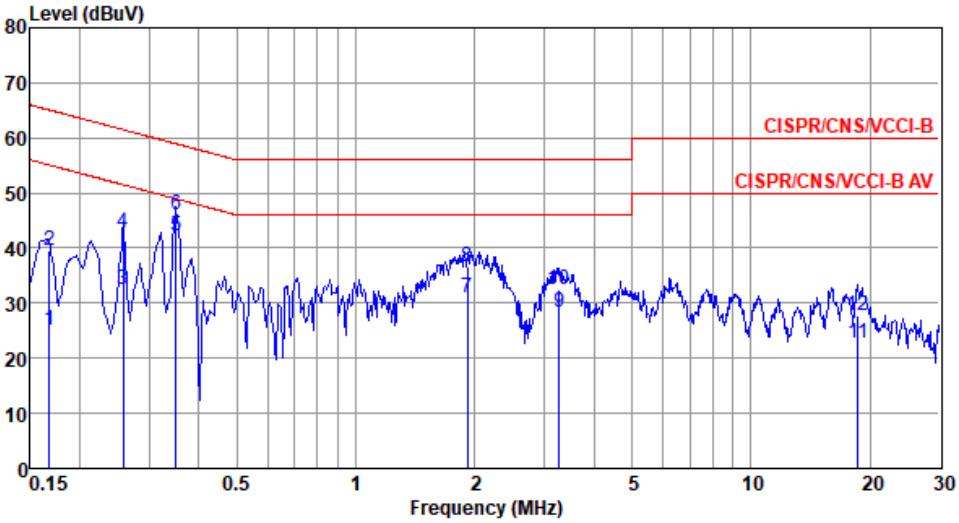
	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Cable loss	Aux	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	dB	
1	0.152	30.62	55.91	-25.29	20.69	9.69	0.08	0.16	Average
2	0.152	46.90	65.91	-19.01	36.97	9.69	0.08	0.16	QP
3	0.177	29.81	54.64	-24.83	19.88	9.68	0.08	0.17	Average
4	0.177	47.27	64.64	-17.37	37.34	9.68	0.08	0.17	QP
5*	0.358	39.96	48.78	-8.82	30.02	9.67	0.08	0.19	Average
6	0.358	46.41	58.78	-12.37	36.47	9.67	0.08	0.19	QP
7	0.989	29.38	46.00	-16.62	19.26	9.68	0.16	0.28	Average
8	0.989	35.68	56.00	-20.32	25.56	9.68	0.16	0.28	QP
9	4.384	21.62	46.00	-24.38	11.35	9.71	0.23	0.33	Average
10	4.384	26.01	56.00	-29.99	15.74	9.71	0.23	0.33	QP
11	19.021	25.96	50.00	-24.04	15.04	9.83	0.64	0.45	Average
12	19.021	31.22	60.00	-28.78	20.30	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).

Beamforming mode

Modulation	ax HE20-OFDMA	**Test Freq. (MHz)**	2462
Power Phase	Line		

Test by : Joe Liao Temperature: 18°C Humidity: 60%

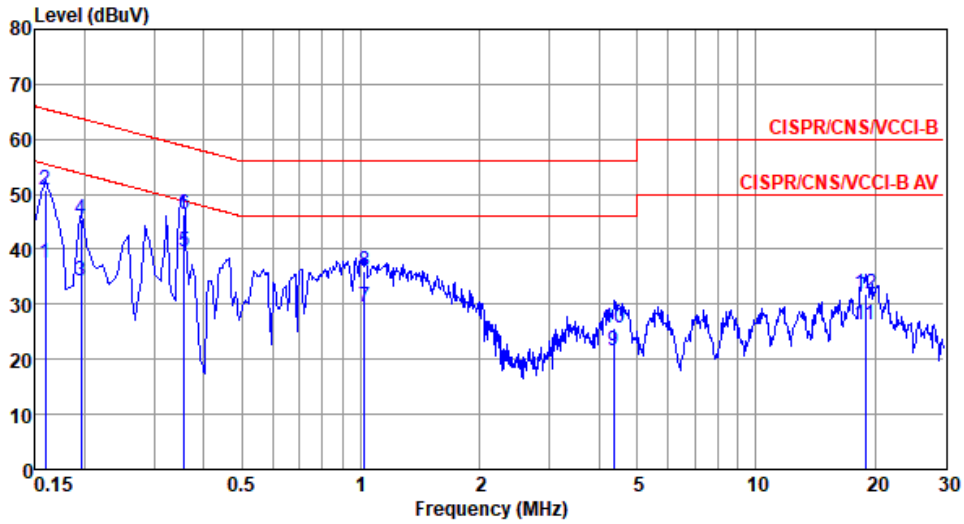


	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Cable loss	Aux	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	dB	
1	0.168	24.96	55.08	-30.12	15.01	9.66	0.08	0.21	Average
2	0.168	39.70	65.08	-25.38	29.75	9.66	0.08	0.21	QP
3	0.258	32.49	51.51	-19.02	22.49	9.65	0.08	0.27	Average
4	0.258	42.93	61.51	-18.58	32.93	9.65	0.08	0.27	QP
5*	0.351	42.21	48.95	-6.74	32.16	9.64	0.08	0.33	Average
6	0.351	45.97	58.95	-12.98	35.92	9.64	0.08	0.33	QP
7	1.918	31.03	46.00	-14.97	20.78	9.66	0.20	0.39	Average
8	1.918	36.73	56.00	-19.27	26.48	9.66	0.20	0.39	QP
9	3.276	28.26	46.00	-17.74	17.97	9.67	0.21	0.41	Average
10	3.276	32.54	56.00	-23.46	22.25	9.67	0.21	0.41	QP
11	18.622	22.86	50.00	-27.14	11.93	9.68	0.63	0.62	Average
12	18.622	27.79	60.00	-32.21	16.86	9.68	0.63	0.62	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	ax HE20-OFDMA	Test Freq. (MHz)	2462
Power Phase	Neutral		

Test by : Joe Liao Temperature: 18°C Humidity: 60%



	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Cable loss	Aux	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	dB	
1	0.159	37.60	55.52	-17.92	27.67	9.69	0.08	0.16	Average
2	0.159	50.75	65.52	-14.77	40.82	9.69	0.08	0.16	QP
3	0.195	34.16	53.80	-19.64	24.22	9.68	0.08	0.18	Average
4	0.195	45.34	63.80	-18.46	35.40	9.68	0.08	0.18	QP
5*	0.358	39.67	48.78	-9.11	29.73	9.67	0.08	0.19	Average
6	0.358	46.34	58.78	-12.44	36.40	9.67	0.08	0.19	QP
7	1.021	29.63	46.00	-16.37	19.51	9.68	0.16	0.28	Average
8	1.021	35.96	56.00	-20.04	25.84	9.68	0.16	0.28	QP
9	4.361	21.41	46.00	-24.59	11.14	9.71	0.23	0.33	Average
10	4.361	25.58	56.00	-30.42	15.31	9.71	0.23	0.33	QP
11	18.920	26.25	50.00	-23.75	15.33	9.83	0.64	0.45	Average
12	18.920	31.78	60.00	-28.22	20.86	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

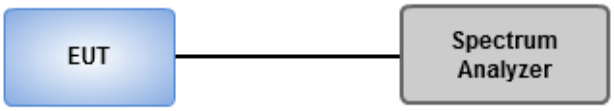
6dB Bandwidth

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 / 65%	Tested By	Alex Huang

Non-beamforming mode

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	8.043M	11.577M	11M6G1D	7.029M	10.999M
802.11g_Nss1,(6Mbps)_2TX	16.377M	17.149M	17M1D1D	16.377M	16.643M
802.11ax HEW20_Nss1,(MCS0)_2TX-OFDMA	19.058M	19.175M	19M2D1D	18.913M	18.958M
802.11ax HEW40_Nss1,(MCS0)_2TX-OFDMA	37.681M	37.627M	37M6D1D	37.246M	37.482M

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;

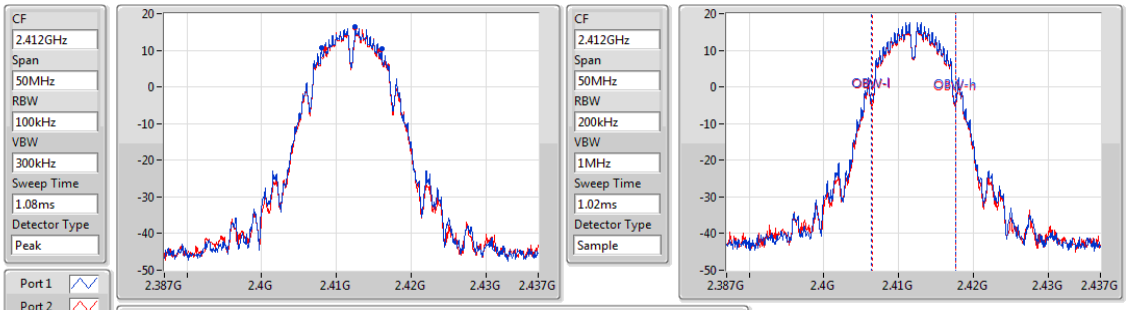
Result

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	8.043M	11.288M	7.536M	11.071M
2437MHz	Pass	500k	7.101M	11.577M	7.536M	11.433M
2462MHz	Pass	500k	7.029M	10.999M	7.029M	10.999M
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	16.377M	16.715M	16.377M	16.643M
2437MHz	Pass	500k	16.377M	17.149M	16.377M	17.004M
2462MHz	Pass	500k	16.377M	16.643M	16.377M	16.643M
802.11ax HEW20_Nss1,(MCS0)_2TX-OFDMA	-	-	-	-	-	-
2412MHz	Pass	500k	18.986M	19.03M	18.913M	18.958M
2437MHz	Pass	500k	18.986M	19.175M	18.913M	19.103M
2462MHz	Pass	500k	18.986M	18.958M	19.058M	18.958M
802.11ax HEW40_Nss1,(MCS0)_2TX-OFDMA	-	-	-	-	-	-
2422MHz	Pass	500k	37.391M	37.482M	37.536M	37.482M
2437MHz	Pass	500k	37.246M	37.482M	37.391M	37.627M
2452MHz	Pass	500k	37.391M	37.482M	37.681M	37.627M

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

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

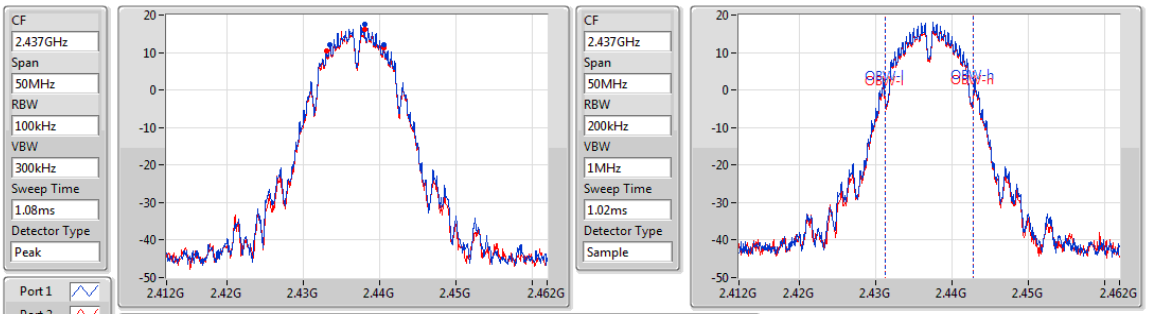
2412MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
8.043M	2.408014G	2.416058G	11.288M	2.406356G	2.417644G	500k	1
7.536M	2.408449G	2.415986G	11.071M	2.406501G	2.417572G	500k	2

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

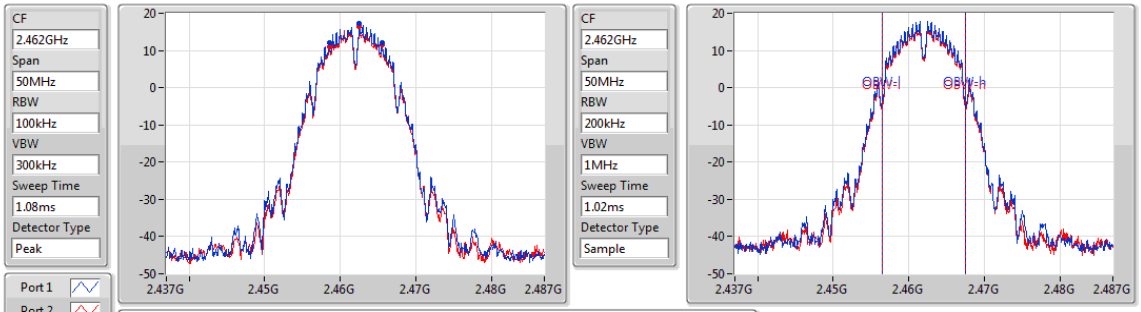
2437MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
7.101M	2.433449G	2.440551G	11.577M	2.431211G	2.442789G	500k	1
7.536M	2.433014G	2.440551G	11.433M	2.431284G	2.442716G	500k	2

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

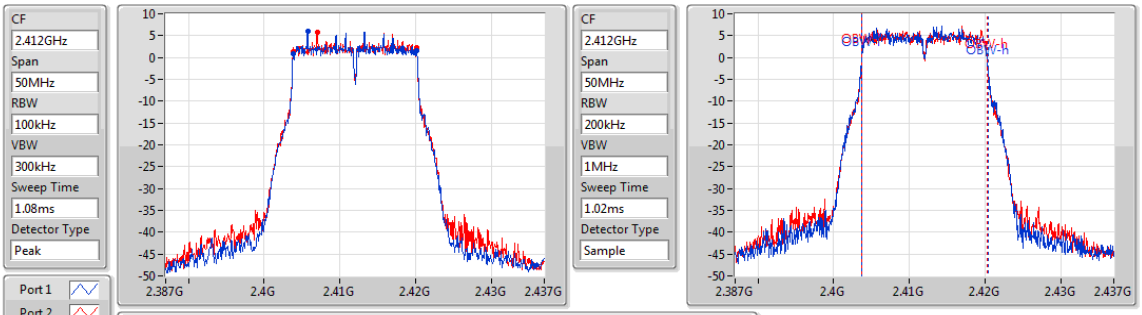
2462MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
7.029M	2.458522G	2.465551G	10.999M	2.456501G	2.467499G	500k	1
7.029M	2.458522G	2.465551G	10.999M	2.456501G	2.467499G	500k	2

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

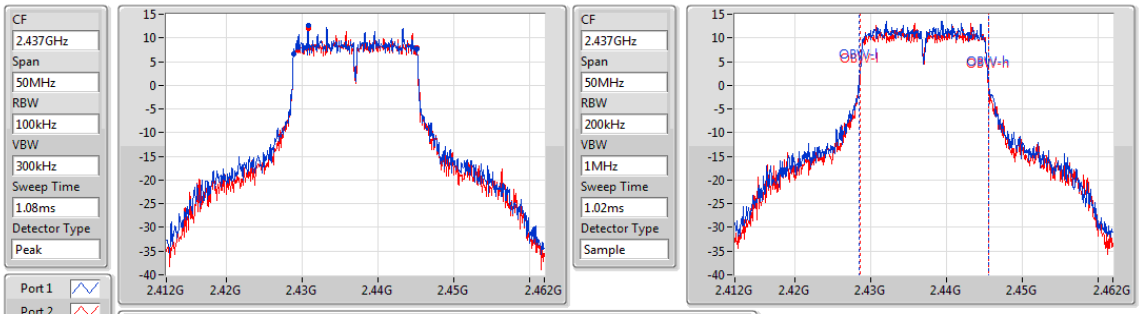
2412MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.377M	2.403812G	2.420188G	16.715M	2.403679G	2.420394G	500k	1
16.377M	2.403812G	2.420188G	16.643M	2.403679G	2.420321G	500k	2

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

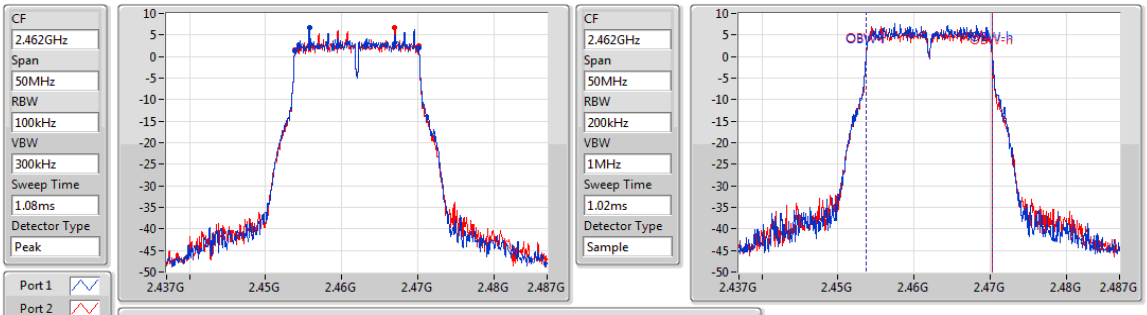
2437MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.377M	2.428812G	2.445188G	17.149M	2.428462G	2.445611G	500k	1
16.377M	2.428812G	2.445188G	17.004M	2.428534G	2.445538G	500k	2

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

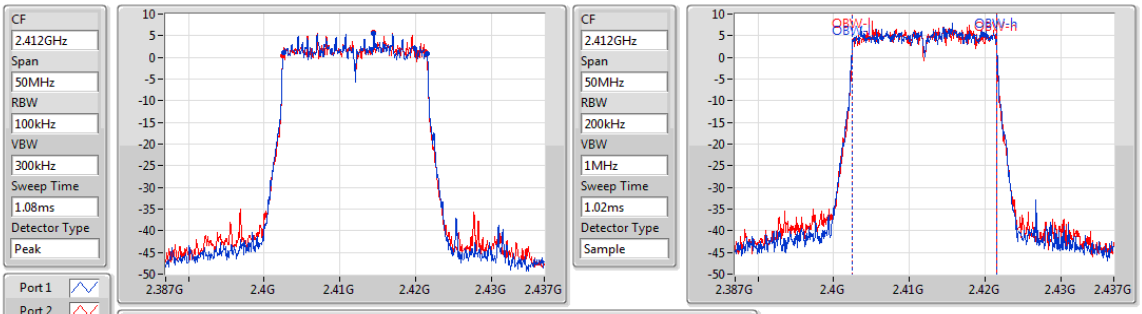
2462MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.377M	2.453812G	2.470188G	16.643M	2.453679G	2.470321G	500k	1
16.377M	2.453812G	2.470188G	16.643M	2.453679G	2.470321G	500k	2

802.11ax HEW20_Nss1,(MCS0)_2TX **EBW**

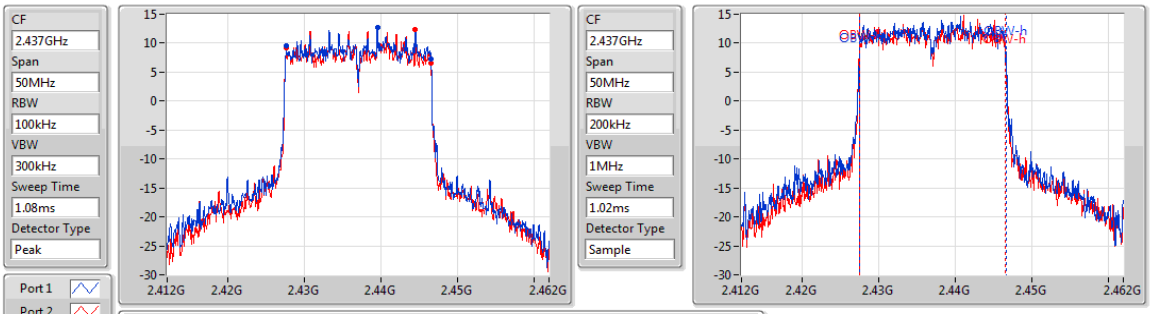
2412MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
18.986M	2.40258G	2.421565G	19.03M	2.402449G	2.421479G	500k	1
18.913M	2.402507G	2.42142G	18.958M	2.402521G	2.421479G	500k	2

802.11ax HEW20_Nss1,(MCS0)_2TX **EBW**

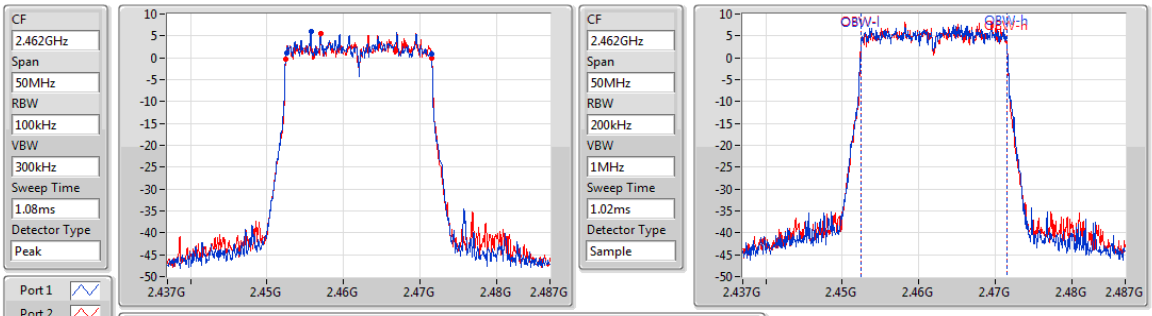
2437MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
18.986M	2.42758G	2.446565G	19.175M	2.427449G	2.446624G	500k	1
18.913M	2.42758G	2.446493G	19.103M	2.427449G	2.446551G	500k	2

802.11ax HEW20_Nss1,(MCS0)_2TX **EBW**

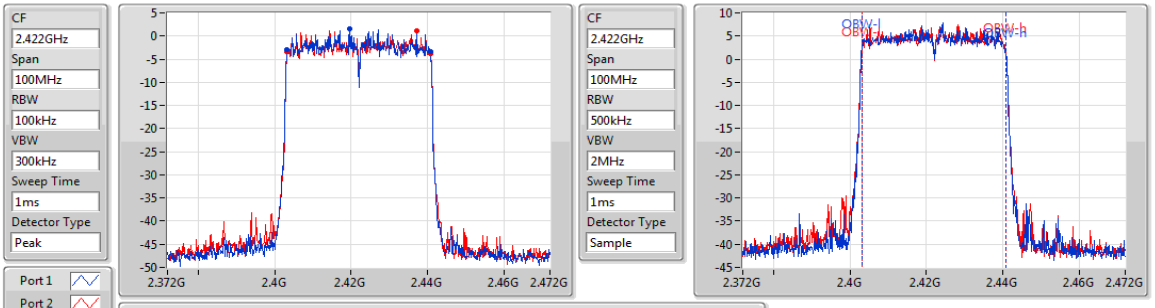
2462MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
18.986M	2.45258G	2.471565G	18.958M	2.452521G	2.471479G	500k	1
19.058M	2.452507G	2.471565G	18.958M	2.452521G	2.471479G	500k	2

802.11ax HEW40_Nss1,(MCS0)_2TX **EBW**

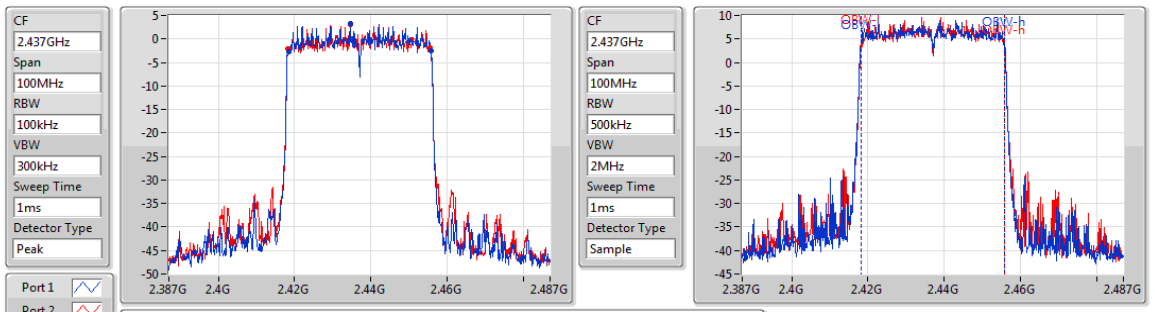
2422MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
37.391M	2.403304G	2.440696G	37.482M	2.403187G	2.440669G	500k	1
37.536M	2.403304G	2.440841G	37.482M	2.403187G	2.440669G	500k	2

802.11ax HEW40_Nss1,(MCS0)_2TX **EBW**

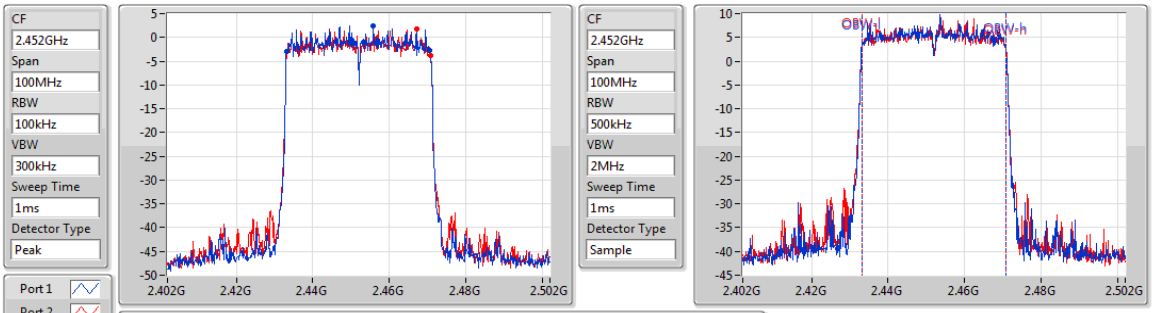
2437MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
37.246M	2.418449G	2.455696G	37.482M	2.418187G	2.455669G	500k	1
37.391M	2.418159G	2.455551G	37.627M	2.418187G	2.455813G	500k	2

802.11ax HEW40_Nss1,(MCS0)_2TX **EBW**

2452MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
37.391M	2.433159G	2.470551G	37.482M	2.433187G	2.470669G	500k	1
37.681M	2.433159G	2.470841G	37.627M	2.433187G	2.470813G	500k	2

Beamforming mode

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_2TX-OFDMA	17.536M	19.03M	19M0D1D	7.101M	18.958M
802.11ax HEW40-BF_Nss1,(MCS0)_2TX-OFDMA	35.072M	37.482M	37M5D1D	8.406M	37.337M

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;

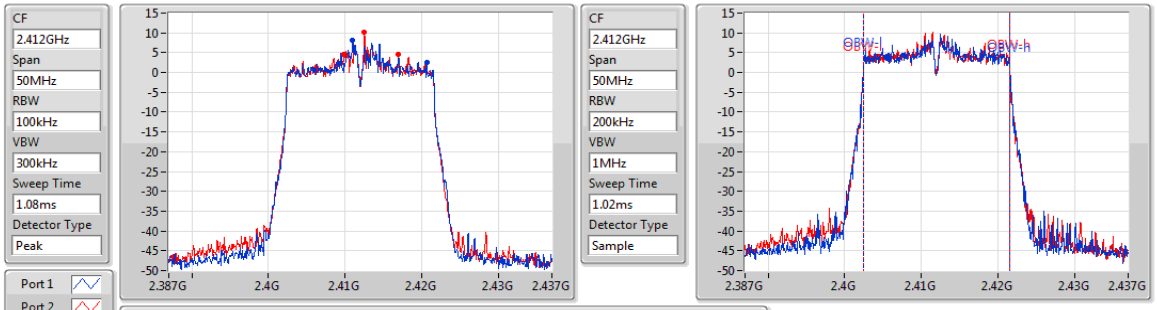
Result

Mode	Result	Limit (Hz)	Port 1 -N dB (Hz)	Port 1 -OBW (Hz)	Port 2 -N dB (Hz)	Port 2 -OBW (Hz)
802.11ax HEW20-BF_Nss1,(MCS0)_2TX-OFDMA	-	-	-	-	-	-
2412MHz	Pass	500k	11.594M	18.958M	7.101M	18.958M
2437MHz	Pass	500k	13.841M	19.03M	15.072M	19.03M
2462MHz	Pass	500k	17.536M	18.958M	13.768M	18.958M
802.11ax HEW40-BF_Nss1,(MCS0)_2TX-OFDMA	-	-	-	-	-	-
2422MHz	Pass	500k	27.246M	37.482M	35.072M	37.337M
2437MHz	Pass	500k	8.406M	37.482M	11.594M	37.482M
2452MHz	Pass	500k	19.565M	37.482M	26.522M	37.482M

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

802.11ax HEW20-BF_Nss1,(MCS0)_2TX EBW

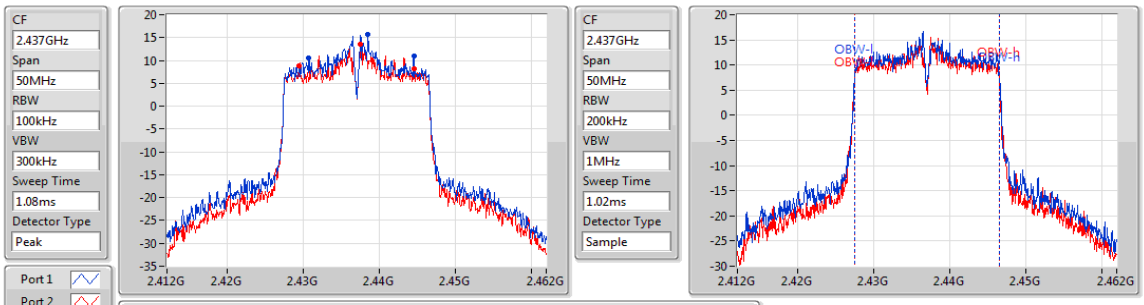
2412MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
11.594M	2.409101G	2.420696G	18.958M	2.402521G	2.421479G	500k	1
7.101M	2.409899G	2.417G	18.958M	2.402521G	2.421479G	500k	2

802.11ax HEW20-BF_Nss1,(MCS0)_2TX EBW

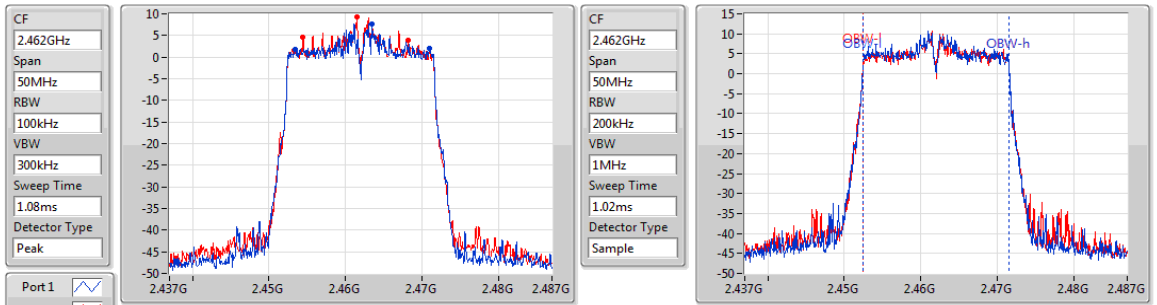
2437MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
13.841M	2.430696G	2.444536G	19.03M	2.427521G	2.446551G	500k	1
15.072M	2.429464G	2.444536G	19.03M	2.427449G	2.446479G	500k	2

802.11ax HEW20-BF_Nss1,(MCS0)_2TX EBW

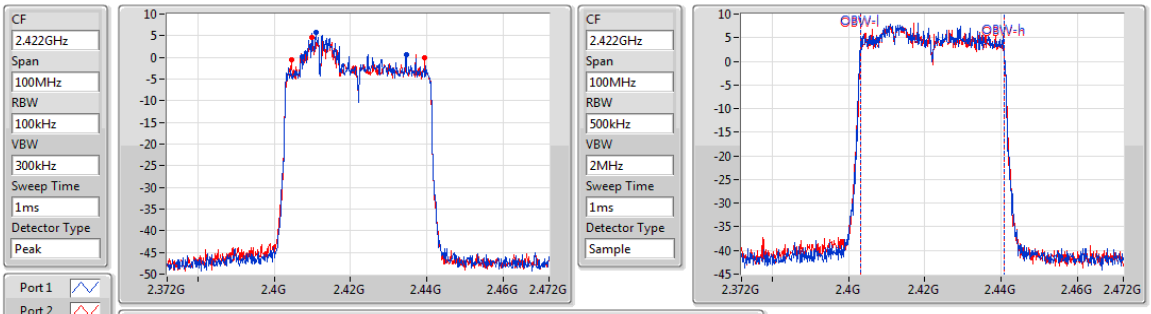
2462MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
17.536M	2.453449G	2.470986G	18.958M	2.452521G	2.471479G	500k	1
13.768M	2.454464G	2.468232G	18.958M	2.452521G	2.471479G	500k	2

802.11ax HEW40-BF_Nss1,(MCS0)_2TX **EBW**

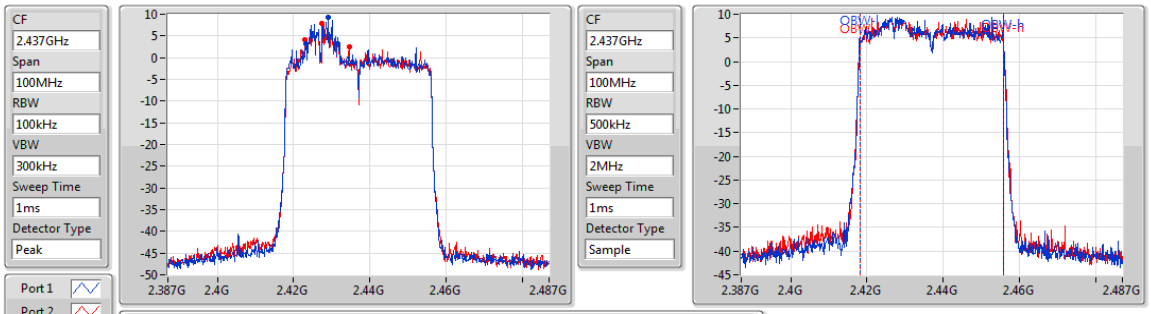
2422MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
27.246M	2.407362G	2.434609G	37.482M	2.403187G	2.440669G	500k	1
35.072M	2.404464G	2.439536G	37.337M	2.403331G	2.440669G	500k	2

802.11ax HEW40-BF_Nss1,(MCS0)_2TX **EBW**

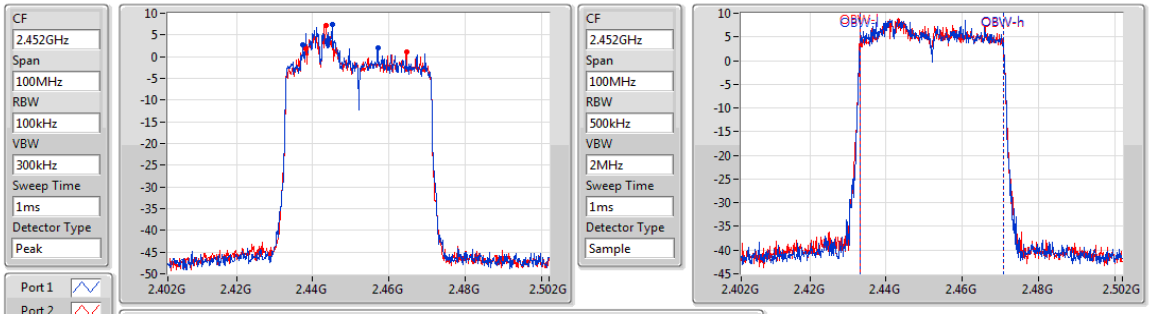
2437MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
8.406M	2.423232G	2.431638G	37.482M	2.418187G	2.455669G	500k	1
11.594M	2.422942G	2.434536G	37.482M	2.418187G	2.455669G	500k	2

802.11ax HEW40-BF_Nss1,(MCS0)_2TX **EBW**

2452MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
19.565M	2.437507G	2.457072G	37.482M	2.433187G	2.470669G	500k	1
26.522M	2.438087G	2.464609G	37.482M	2.433187G	2.470669G	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 / 65%	Tested By	Alex Huang

Non-beamforming mode

Summary of Conducted (Average) Output Power

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11b_Nss1,(1Mbps)_2TX	28.23	0.66527
802.11g_Nss1,(6Mbps)_2TX	27.02	0.50350
802.11ax HEW20_Nss1,(MCS0)_2TX-OFDMA	27.30	0.53703
802.11ax HEW40_Nss1,(MCS0)_2TX-OFDMA	20.57	0.11402

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	3.43	25.11	24.73	27.93	30.00	31.36	36.00
2437MHz	Pass	3.43	25.52	24.89	28.23	30.00	31.66	36.00
2462MHz	Pass	3.43	25.05	24.43	27.76	30.00	31.19	36.00
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	3.43	18.01	17.85	20.94	30.00	24.37	36.00
2437MHz	Pass	3.43	24.19	23.82	27.02	30.00	30.45	36.00
2462MHz	Pass	3.43	18.43	18.33	21.39	30.00	24.82	36.00
802.11ax HEW20_Nss1,(MCS0)_2TX-OFDMA	-	-	-	-	-	-	-	-
2412MHz	Pass	3.43	17.92	17.79	20.87	30.00	24.30	36.00
2437MHz	Pass	3.43	24.51	24.05	27.30	30.00	30.73	36.00
2462MHz	Pass	3.43	18.07	18.08	21.09	30.00	24.52	36.00
802.11ax HEW40_Nss1,(MCS0)_2TX-OFDMA	-	-	-	-	-	-	-	-
2422MHz	Pass	3.43	15.95	15.76	18.87	30.00	22.30	36.00
2437MHz	Pass	3.43	17.53	17.59	20.57	30.00	24.00	36.00
2452MHz	Pass	3.43	16.71	16.53	19.63	30.00	23.06	36.00

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

Beamforming mode

Summary of Conducted (Average) Output Power

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_2TX-OFDMA	26.25	0.42170
802.11ax HEW40-BF_Nss1,(MCS0)_2TX-OFDMA	20.39	0.10940

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11ax HEW20-BF_Nss1,(MCS0)_2TX-OFDMA	-	-	-	-	-	-	-	-
2412MHz	Pass	5.97	16.82	16.7	19.77	30.00	25.74	36.00
2437MHz	Pass	5.97	23.29	23.18	26.25	30.00	32.22	36.00
2462MHz	Pass	5.97	17.53	17.55	20.55	30.00	26.52	36.00
802.11ax HEW40-BF_Nss1,(MCS0)_2TX-OFDMA	-	-	-	-	-	-	-	-
2422MHz	Pass	5.97	15.82	15.58	18.71	30.00	24.68	36.00
2437MHz	Pass	5.97	17.24	17.52	20.39	30.00	26.36	36.00
2452MHz	Pass	5.97	16.51	16.32	19.43	30.00	25.40	36.00

DG = Directional Gain= $10 * \log((10^{2.46/20}+10^{3.43/200})^2/2) = 5.97$ dBi;
Port X = Port X output power

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

Average PSD, duty cycle ≥ 98%

1. Set the RBW = 3 kHz, VBW = 10 kHz.
2. Detector = RMS, Sweep time = auto couple.
3. Employ trace averaging (RMS) mode over a minimum of 100 traces.
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.

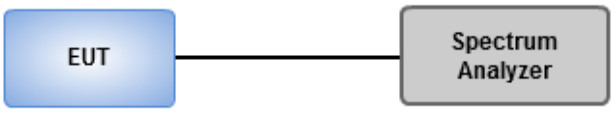
2 Detector = RMS, Sweep time = auto couple.

3 Employ trace averaging (RMS) mode over a minimum of 100 traces.

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 / 65%	Tested By	Alex Huang

Non-beamforming mode

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
802.11b_Nss1,(1Mbps)_2TX	-1.48
802.11g_Nss1,(6Mbps)_2TX	-3.88
802.11ax HEW20_Nss1,(MCS0)_2TX-OFDMA	-4.52
802.11ax HEW40_Nss1,(MCS0)_2TX-OFDMA	-13.84

RBW= 3 kHz

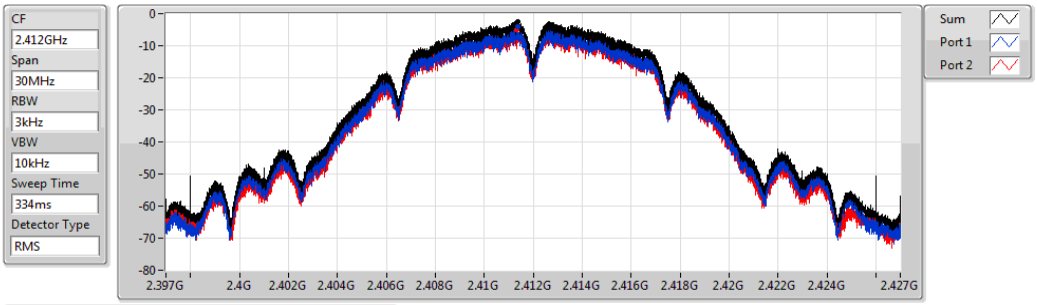
Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	5.97	-3.91	-4.91	-2.42	8.00
2437MHz	Pass	5.97	-3.27	-4.08	-1.48	8.00
2462MHz	Pass	5.97	-3.70	-4.43	-1.64	8.00
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	5.97	-13.23	-12.45	-9.81	8.00
2437MHz	Pass	5.97	-6.51	-7.30	-3.88	8.00
2462MHz	Pass	5.97	-12.78	-11.52	-9.15	8.00
802.11ax HEW20_Nss1,(MCS0)_2TX-OFDMA	-	-	-	-	-	-
2412MHz	Pass	5.97	-13.31	-14.04	-10.78	8.00
2437MHz	Pass	5.97	-7.34	-7.08	-4.52	8.00
2462MHz	Pass	5.97	-13.22	-12.95	-10.53	8.00
802.11ax HEW40_Nss1,(MCS0)_2TX-OFDMA	-	-	-	-	-	-
2422MHz	Pass	5.97	-17.93	-17.65	-14.93	8.00
2437MHz	Pass	5.97	-16.88	-16.16	-13.84	8.00
2452MHz	Pass	5.97	-16.94	-17.05	-14.33	8.00

DG = Directional Gain= $10 * \log((10^{2.46/20}+10^{3.43/200})^2/2) = 5.97$ dBi;
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density;
Port X = Port X power density;
RBW= 3 kHz

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

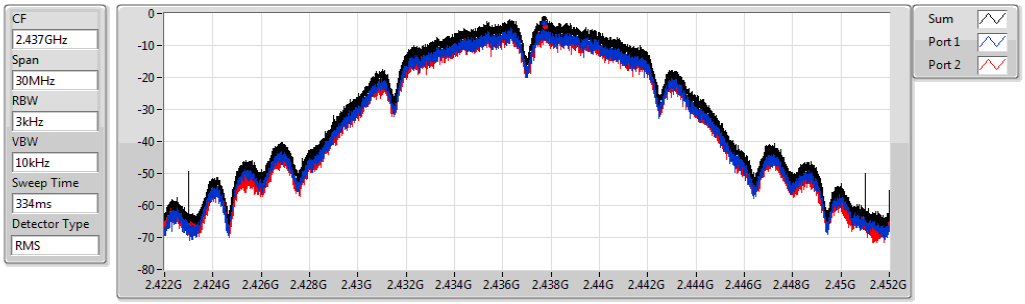
2412MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-2.42	-2.42	-3.91	-4.91

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

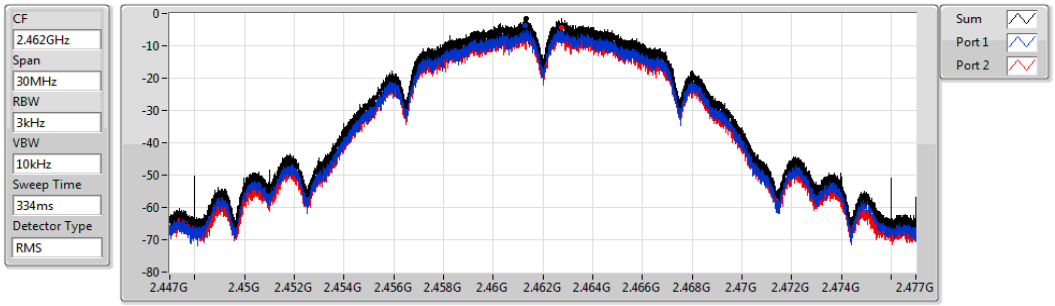
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-1.48	-1.48	-3.27	-4.08

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

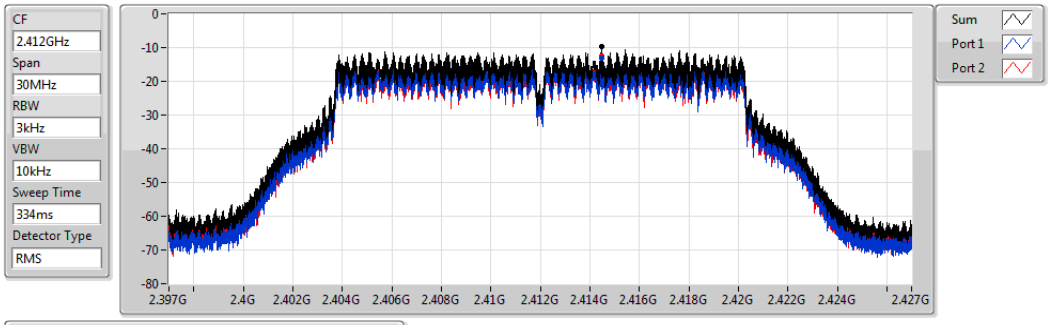
2462MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-1.64	-1.64	-3.70	-4.43

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

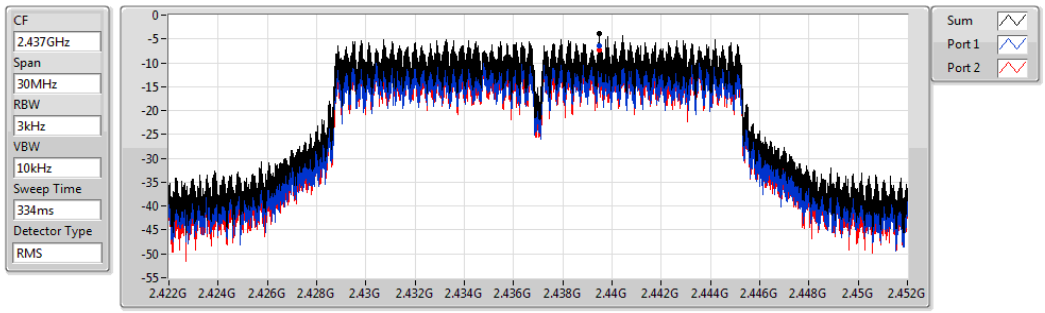
2412MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-9.81	-9.81	-13.23	-12.45

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

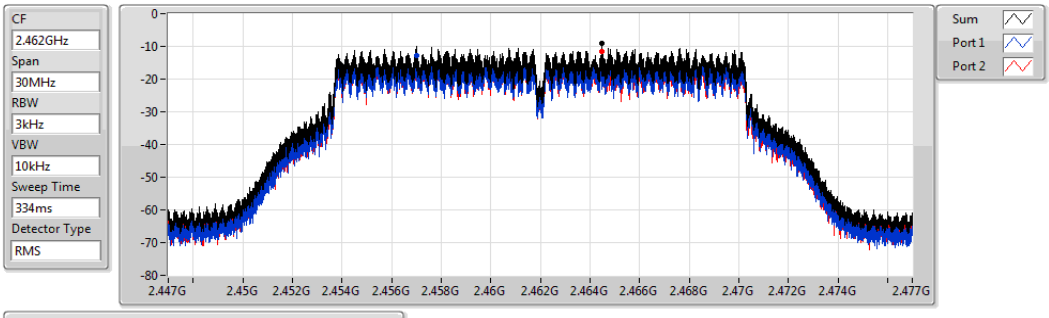
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-3.88	-3.88	-6.51	-7.30

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

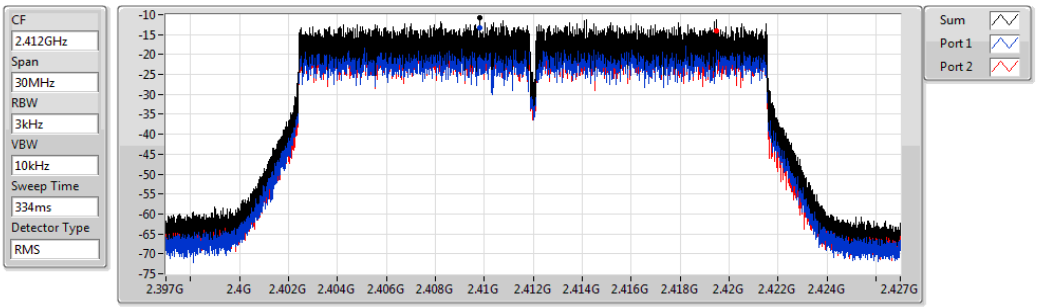
2462MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-9.15	-9.15	-12.78	-11.52

802.11ax HEW20_Nss1,(MCS0)_2TX **PSD**

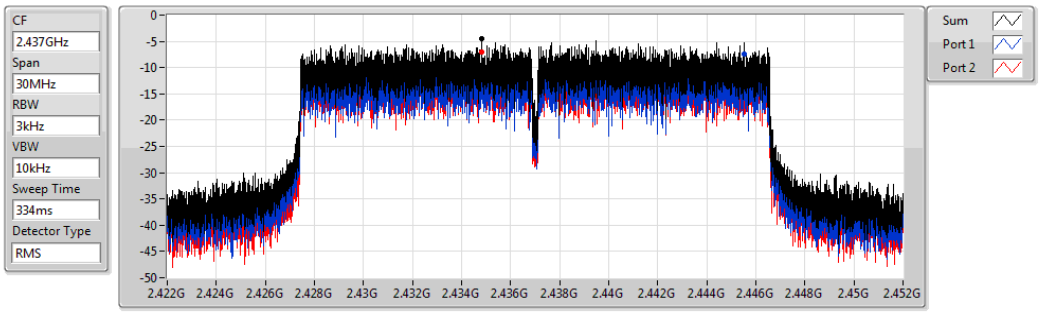
2412MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-10.78	-10.78	-13.31	-14.04

802.11ax HEW20_Nss1,(MCS0)_2TX **PSD**

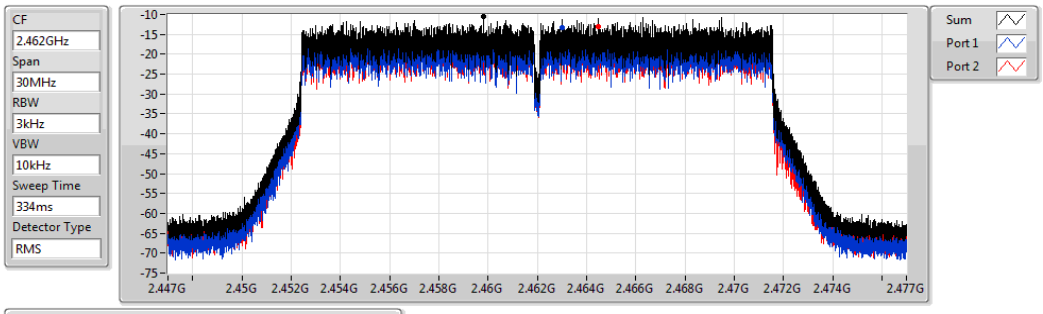
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-4.52	-4.52	-7.34	-7.08

802.11ax HEW20_Nss1,(MCS0)_2TX **PSD**

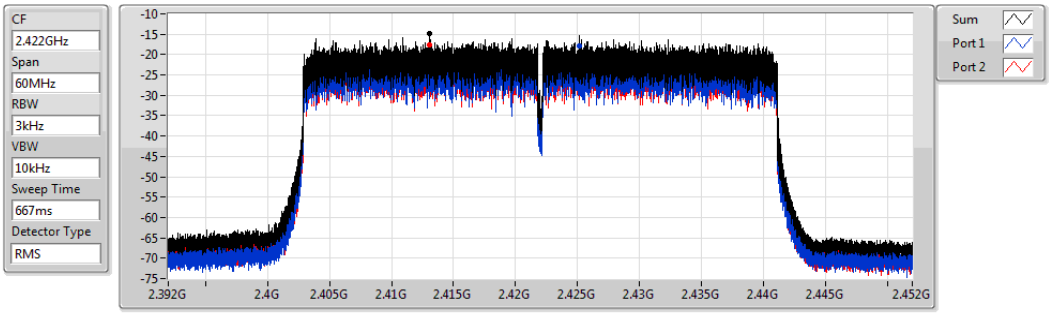
2462MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-10.53	-10.53	-13.22	-12.95

802.11ax HEW40_Nss1,(MCS0)_2TX **PSD**

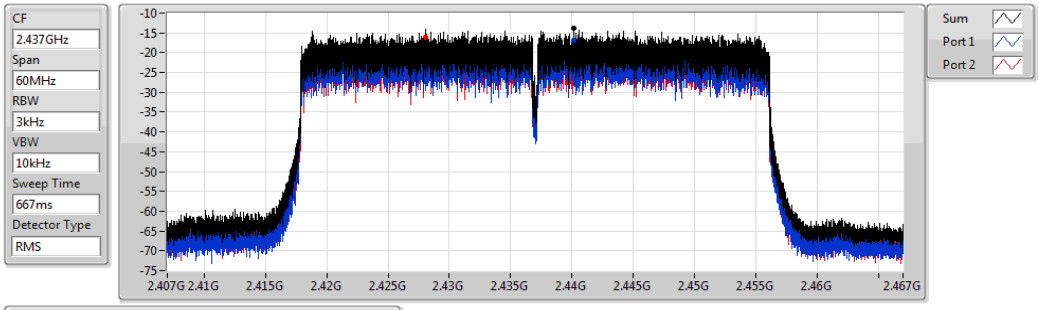
2422MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-14.93	-14.93	-17.93	-17.65

802.11ax HEW40_Nss1,(MCS0)_2TX **PSD**

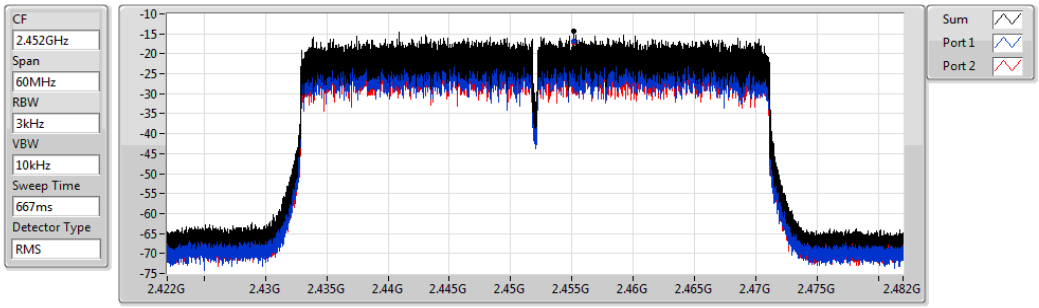
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-13.84	-13.84	-16.88	-16.16

802.11ax HEW40_Nss1,(MCS0)_2TX **PSD**

2452MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-14.33	-14.33	-16.94	-17.05

Beamforming mode

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
802.11ax HEW20-BF_Nss1,(MCS0)_2TX-OFDMA	-6.51
802.11ax HEW40-BF_Nss1,(MCS0)_2TX-OFDMA	-16.33

RBW= 3 kHz

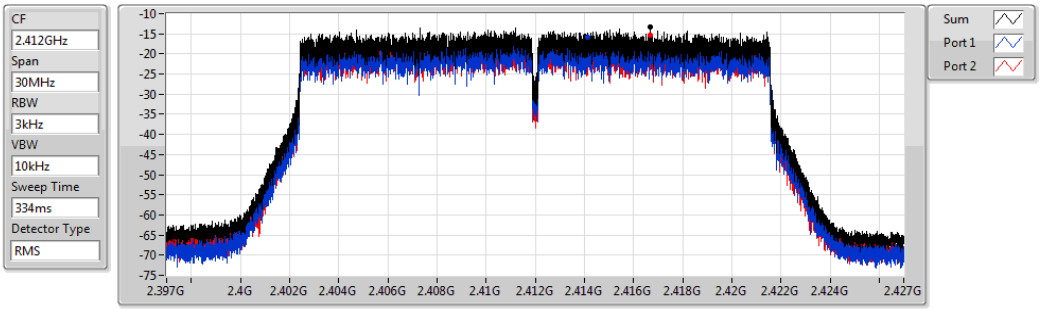
Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
802.11ax HEW20-BF_Nss1,(MCS0)_2TX-OFDMA	-	-	-	-	-	-
2412MHz	Pass	5.97	-15.82	-15.29	-13.25	8.00
2437MHz	Pass	5.97	-8.63	-9.30	-6.51	8.00
2462MHz	Pass	5.97	-15.39	-14.09	-11.82	8.00
802.11ax HEW40-BF_Nss1,(MCS0)_2TX-OFDMA	-	-	-	-	-	-
2422MHz	Pass	5.97	-19.98	-18.33	-17.49	8.00
2437MHz	Pass	5.97	-18.24	-18.17	-16.46	8.00
2452MHz	Pass	5.97	-19.03	-19.12	-16.33	8.00

DG = Directional Gain= $10 * \log((10^{2.46/20}+10^{3.43/200})^2/2) = 5.97$ dBi;
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;
RBW= 3 kHz

802.11ax HEW20-BF_Nss1,(MCS0)_2TX **PSD**

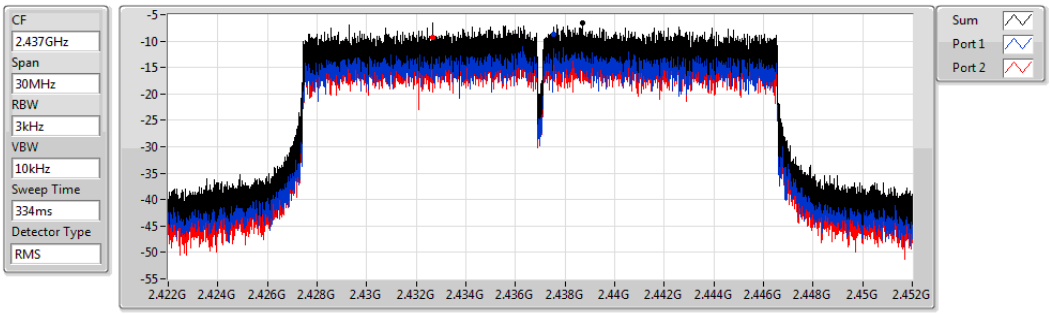
2412MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-13.25	-13.25	-15.82	-15.29

802.11ax HEW20-BF_Nss1,(MCS0)_2TX **PSD**

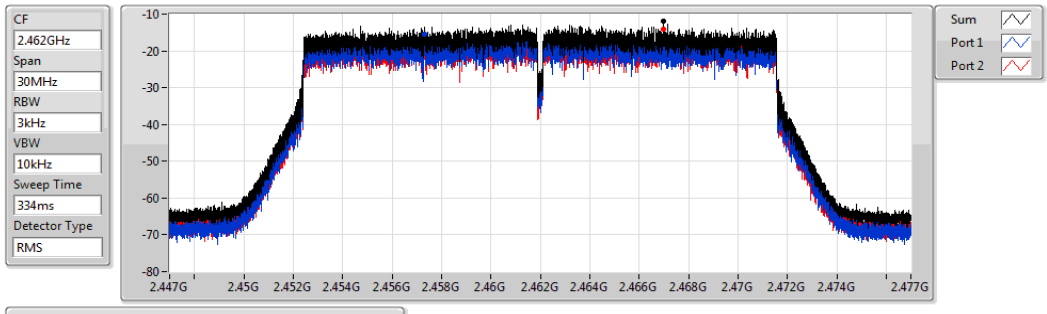
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-6.51	-6.51	-8.63	-9.30

802.11ax HEW20-BF_Nss1,(MCS0)_2TX **PSD**

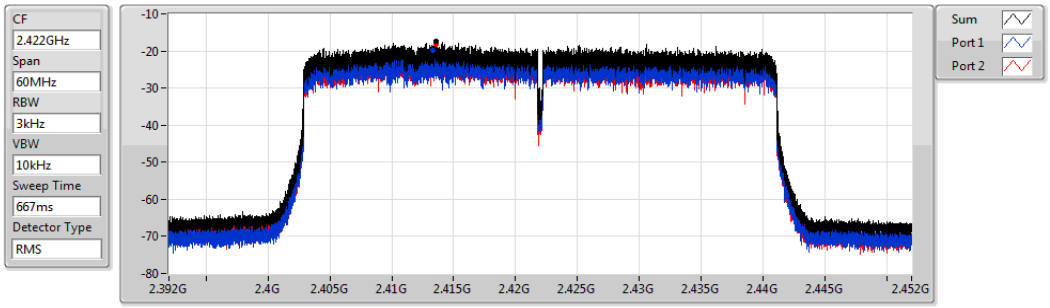
2462MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-11.82	-11.82	-15.39	-14.09

802.11ax HEW40-BF_Nss1,(MCS0)_2TX **PSD**

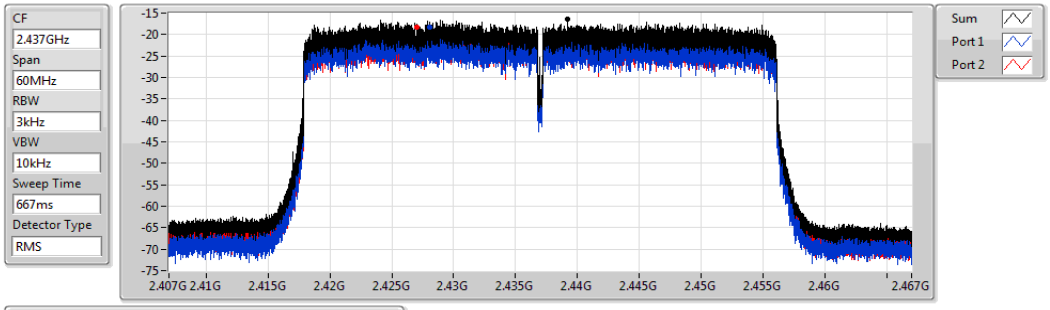
2422MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-17.49	-17.49	-19.98	-18.33

802.11ax HEW40-BF_Nss1,(MCS0)_2TX **PSD**

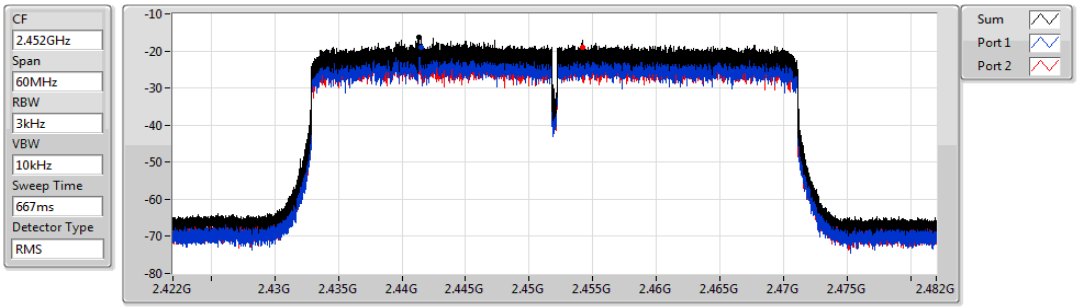
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-16.46	-16.46	-18.24	-18.17

802.11ax HEW40-BF_Nss1,(MCS0)_2TX **PSD**

2452MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-16.33	-16.33	-19.03	-19.12

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

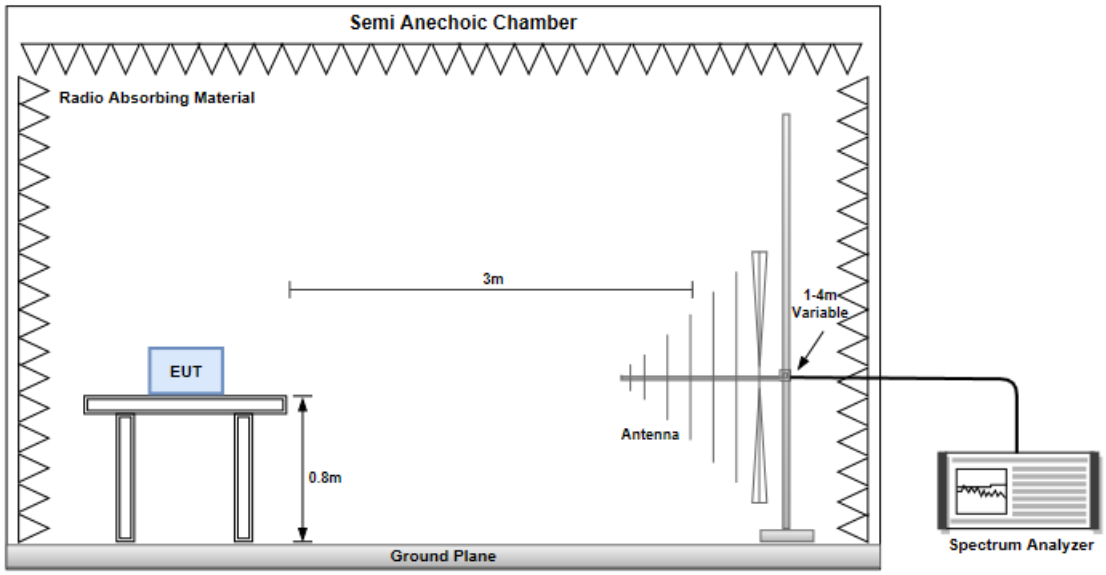
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission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

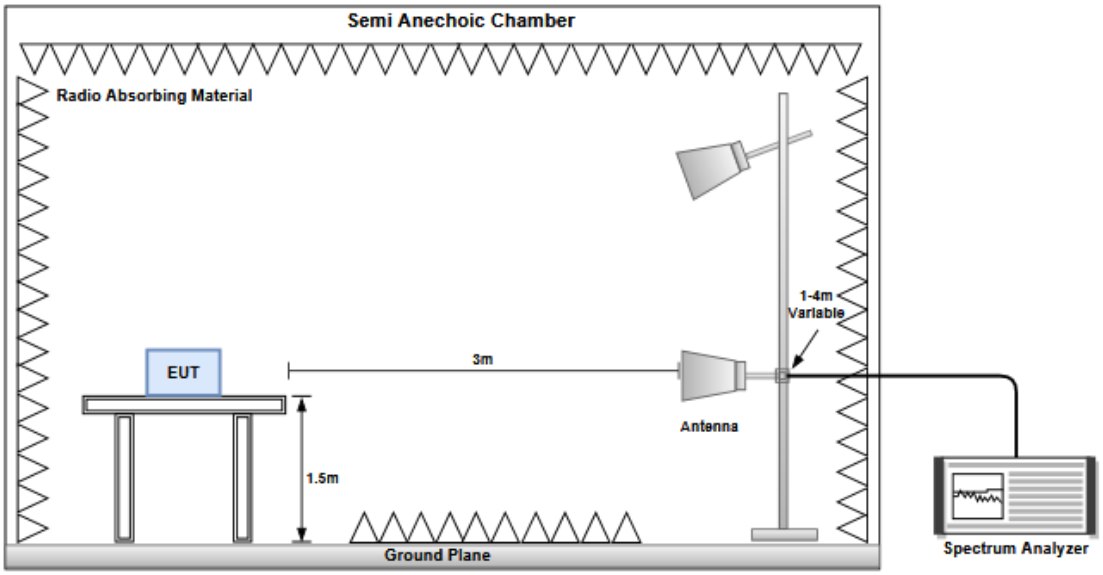
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above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

3.5.3 Test Setup

Radiated Emissions below 1 GHz



Radiated Emissions above 1 GHz

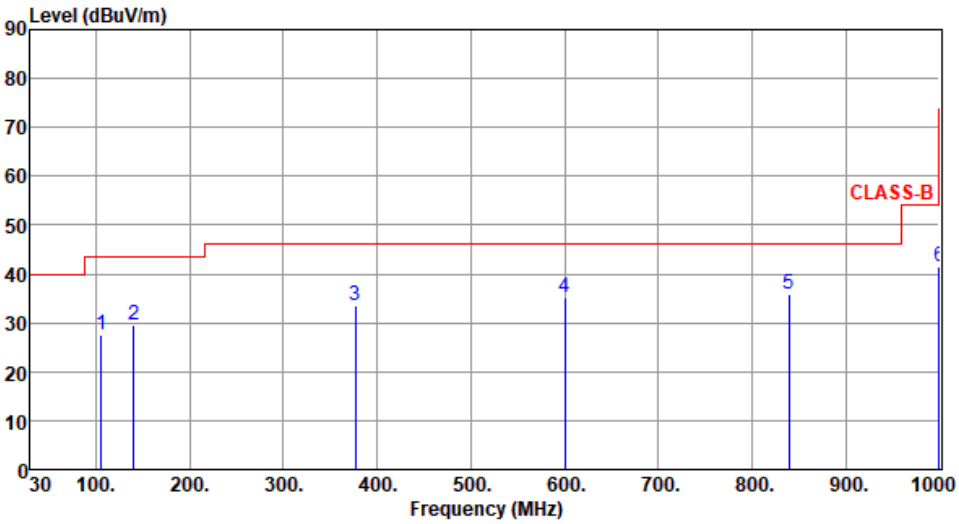


Non-beamforming mode

3.5.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)

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

Test By :Akun Chung Temperature(℃):22 Humidity(%):65

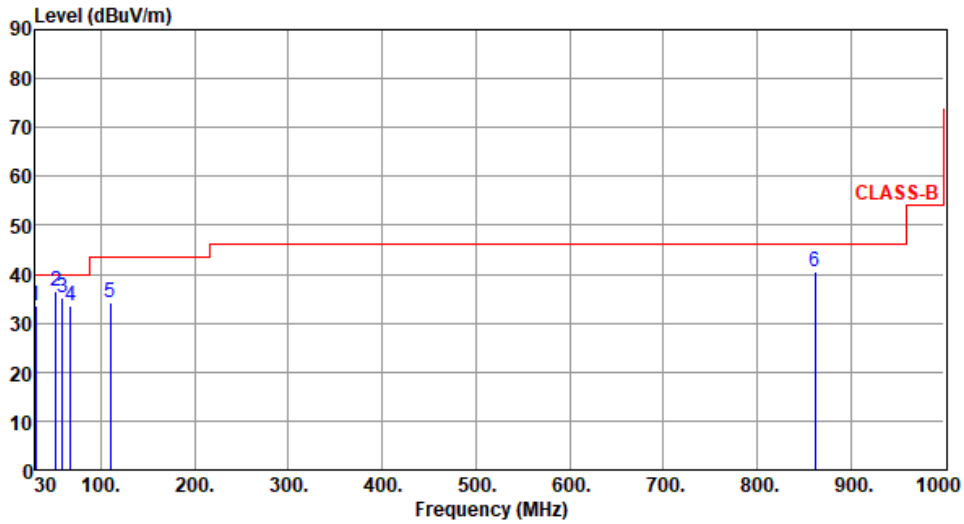


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	105.33	27.44	43.50	-16.06	39.75	-12.31	Peak	---	---
2	140.33	29.64	43.50	-13.86	38.88	-9.24	Peak	---	---
3	377.15	33.66	46.00	-12.34	39.95	-6.29	Peak	---	---
4	600.12	35.11	46.00	-10.89	36.12	-1.01	Peak	---	---
5	839.21	35.81	46.00	-10.19	33.33	2.48	Peak	---	---
6	999.89	41.42	54.00	-12.58	36.75	4.67	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	11b	Test Freq. (MHz)	2437
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):22 Humidity(%):65



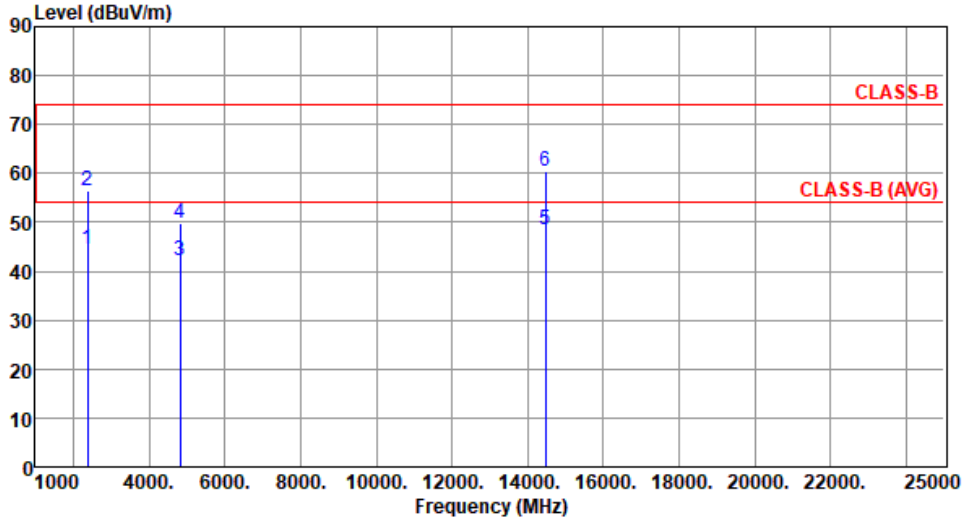
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	30.25	33.45	40.00	-6.55	43.39	-9.94	Peak	---	---
2	51.60	36.43	40.00	-3.57	45.21	-8.78	Peak	---	---
3	59.26	35.11	40.00	-4.89	44.43	-9.32	Peak	---	---
4	67.16	33.68	40.00	-6.32	43.98	-10.30	Peak	---	---
5	110.26	34.15	43.50	-9.35	45.85	-11.70	Peak	---	---
6	862.26	40.55	46.00	-5.45	37.67	2.88	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 :Akun Chung Temperature(℃):23 Humidity(%):68

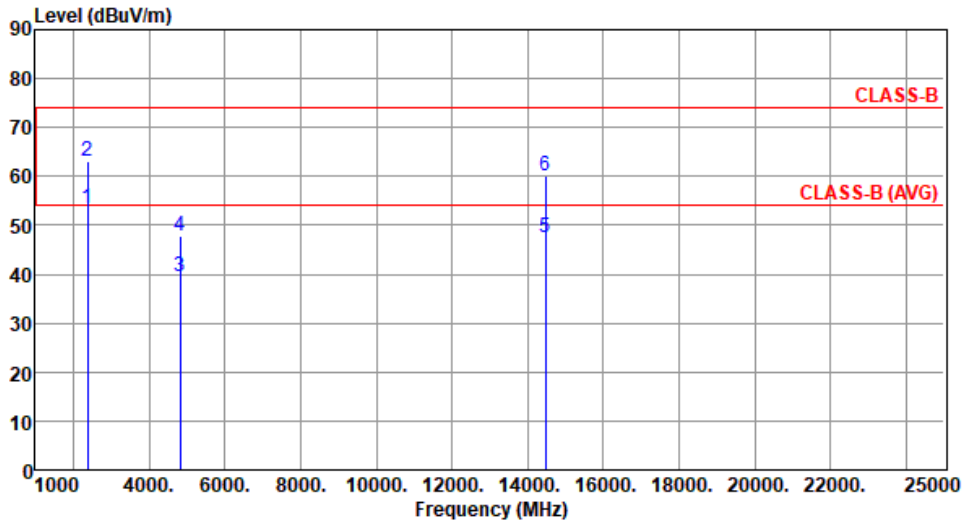


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	44.47	54.00	-9.53	47.22	-2.75	Average	100	151
2	2390.00	56.47	74.00	-17.53	59.22	-2.75	Peak	100	151
3	4824.00	42.25	54.00	-11.75	38.11	4.14	Average	105	329
4	4824.00	49.72	74.00	-24.28	45.58	4.14	Peak	105	329
5	14472.00	48.37	54.00	-5.63	30.88	17.49	Average	100	325
6	14472.00	60.37	74.00	-13.63	42.88	17.49	Peak	100	325

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 :Akun Chung Temperature(℃):23 Humidity(%):68

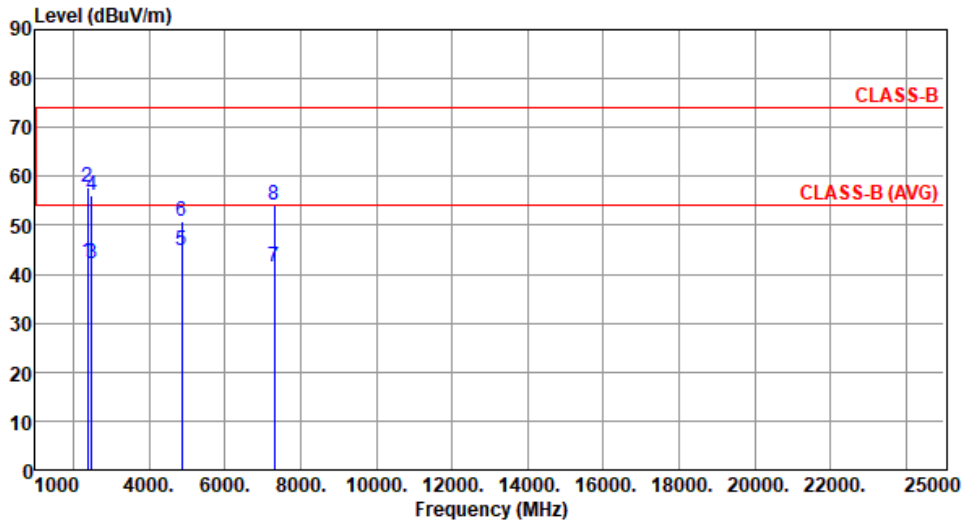


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	53.53	54.00	-0.47	56.28	-2.75	Average	100	203
2	2390.00	63.24	74.00	-10.76	65.99	-2.75	Peak	100	203
3	4824.00	39.40	54.00	-14.60	35.26	4.14	Average	115	333
4	4824.00	47.81	74.00	-26.19	43.67	4.14	Peak	115	333
5	14472.00	47.64	54.00	-6.36	30.15	17.49	Average	100	300
6	14472.00	60.04	74.00	-13.96	42.55	17.49	Peak	100	300

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 :Akun Chung Temperature(℃):23 Humidity(%):68

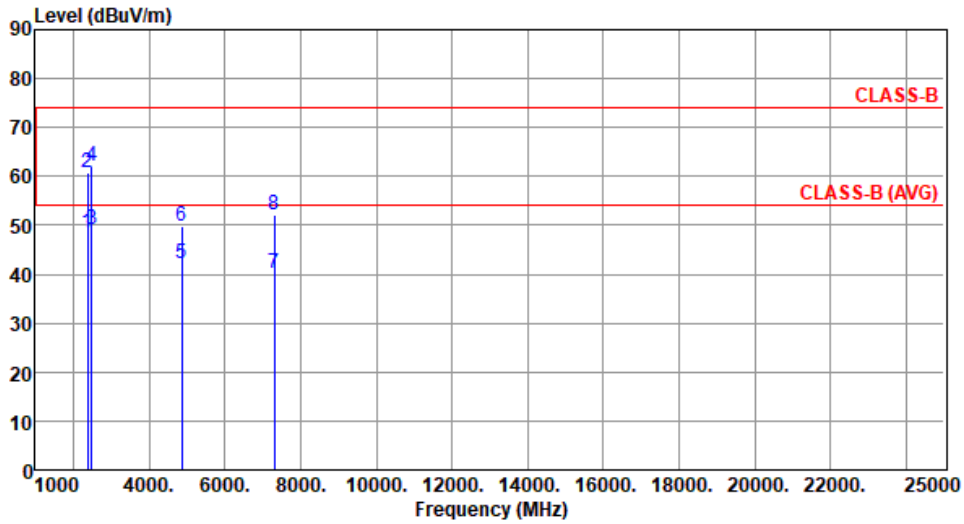


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	42.66	54.00	-11.34	45.41	-2.75	Average	100	147
2	2390.00	57.81	74.00	-16.19	60.56	-2.75	Peak	100	147
3	2483.50	42.20	54.00	-11.80	44.90	-2.70	Average	100	147
4	2483.50	56.29	74.00	-17.71	58.99	-2.70	Peak	100	147
5	4874.00	44.98	54.00	-9.02	40.85	4.13	Average	112	339
6	4874.00	50.81	74.00	-23.19	46.68	4.13	Peak	112	339
7	7311.00	41.46	54.00	-12.54	32.18	9.28	Average	205	21
8	7311.00	54.27	74.00	-19.73	44.99	9.28	Peak	205	21

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 :Akun Chung Temperature(℃):23 Humidity(%):68

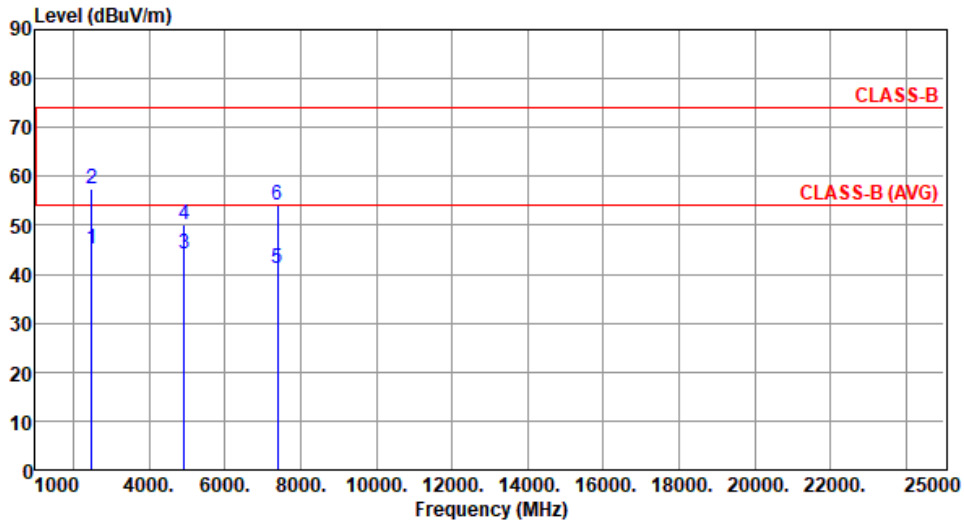


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	48.61	54.00	-5.39	51.36	-2.75	Average	100	259
2	2390.00	60.90	74.00	-13.10	63.65	-2.75	Peak	100	259
3	2483.50	49.29	54.00	-4.71	51.99	-2.70	Average	100	259
4	2483.50	62.25	74.00	-11.75	64.95	-2.70	Peak	100	259
5	4874.00	42.11	54.00	-11.89	37.98	4.13	Average	155	278
6	4874.00	49.94	74.00	-24.06	45.81	4.13	Peak	155	278
7	7311.00	40.17	54.00	-13.83	30.89	9.28	Average	111	135
8	7311.00	52.13	74.00	-21.87	42.85	9.28	Peak	111	135

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 :Roger Lu Temperature(℃):23 Humidity(%):68

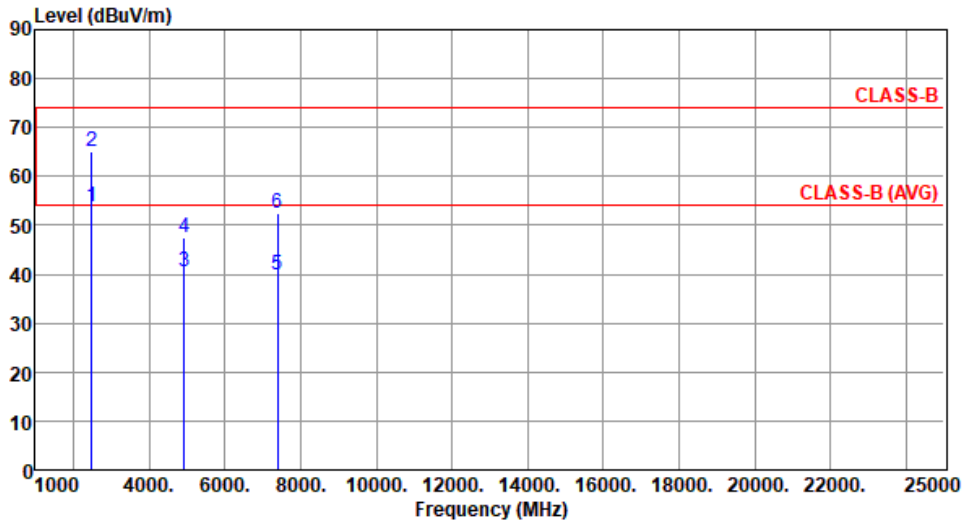


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2483.50	45.25	54.00	-8.75	47.95	-2.70	Average	100	149
2	2483.50	57.36	74.00	-16.64	60.06	-2.70	Peak	100	149
3	4924.00	44.01	54.00	-9.99	39.95	4.06	Average	115	345
4	4924.00	50.02	74.00	-23.98	45.96	4.06	Peak	115	345
5	7386.00	41.12	54.00	-12.88	31.87	9.25	Average	202	25
6	7386.00	54.02	74.00	-19.98	44.77	9.25	Peak	202	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)	2462
Polarization	Vertical		

Test By :Roger Lu Temperature(℃):23 Humidity(%):68



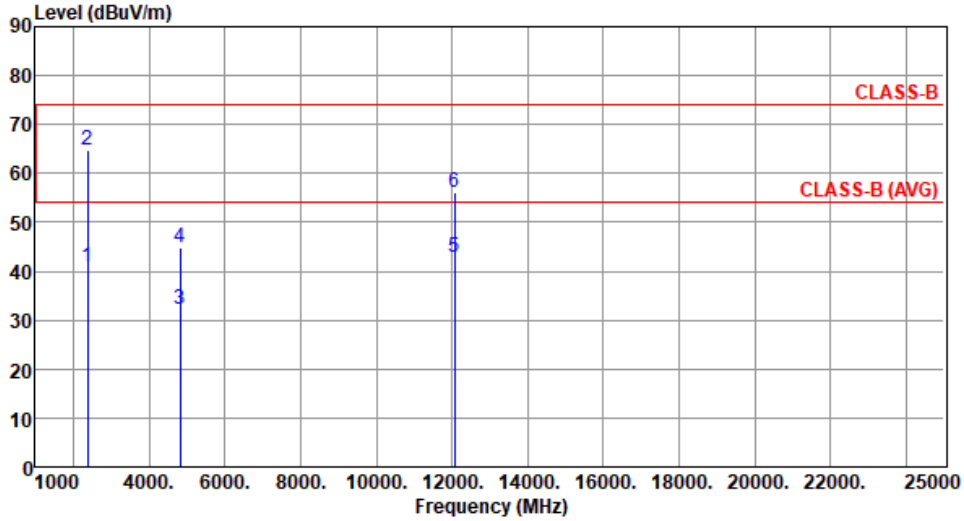
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2483.50	53.69	54.00	-0.31	56.39	-2.70	Average	103	292
2	2483.50	65.15	74.00	-8.85	67.85	-2.70	Peak	103	292
3	4924.00	40.60	54.00	-13.40	36.54	4.06	Average	116	337
4	4924.00	47.43	74.00	-26.57	43.37	4.06	Peak	116	337
5	7386.00	39.81	54.00	-14.19	30.56	9.25	Average	112	138
6	7386.00	52.59	74.00	-21.41	43.34	9.25	Peak	112	138

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).

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(%):65

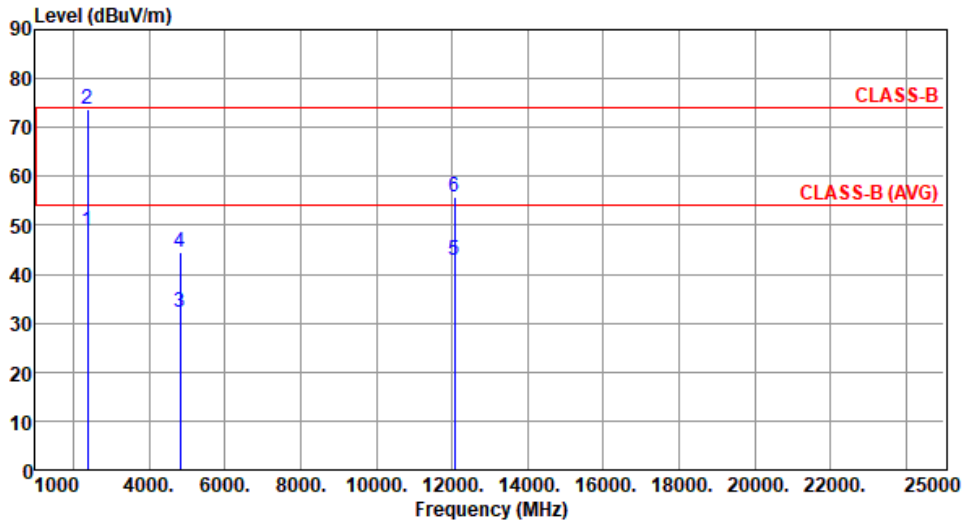


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	40.93	54.00	-13.07	43.68	-2.75	Average	100	142
2	2390.00	64.73	74.00	-9.27	67.48	-2.75	Peak	100	142
3	4824.00	32.29	54.00	-21.71	28.15	4.14	Average	100	60
4	4824.00	44.72	74.00	-29.28	40.58	4.14	Peak	100	60
5	12060.00	42.93	54.00	-11.07	29.14	13.79	Average	100	40
6	12060.00	56.15	74.00	-17.85	42.36	13.79	Peak	100	40

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 :Roger Lu Temperature(℃):22 Humidity(%):65

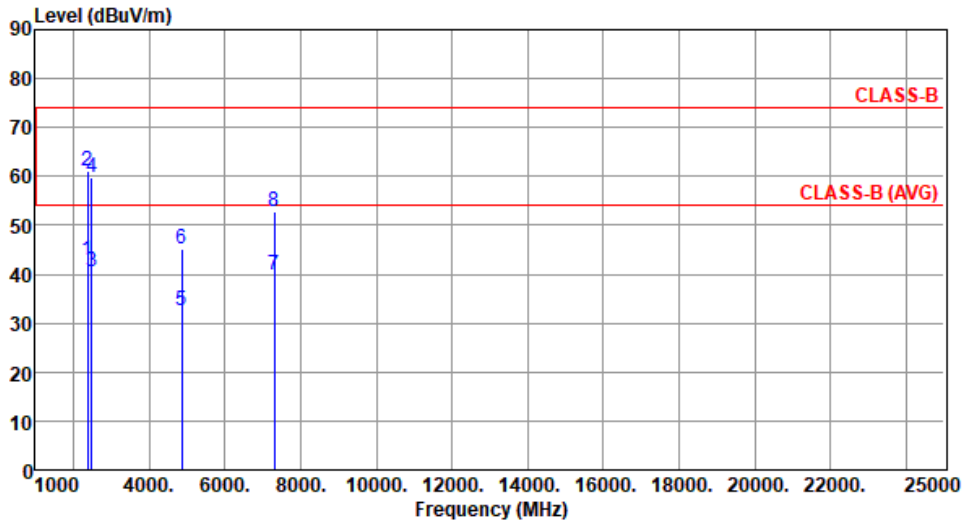


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	48.70	54.00	-5.30	51.45	-2.75	Average	197	255
2	2390.00	73.58	74.00	-0.42	76.33	-2.75	Peak	197	255
3	4824.00	32.20	54.00	-21.80	28.06	4.14	Average	100	30
4	4824.00	44.56	74.00	-29.44	40.42	4.14	Peak	100	30
5	12060.00	42.83	54.00	-11.17	29.04	13.79	Average	100	80
6	12060.00	55.93	74.00	-18.07	42.14	13.79	Peak	100	80

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 :Roger Lu Temperature(℃):22 Humidity(%):65

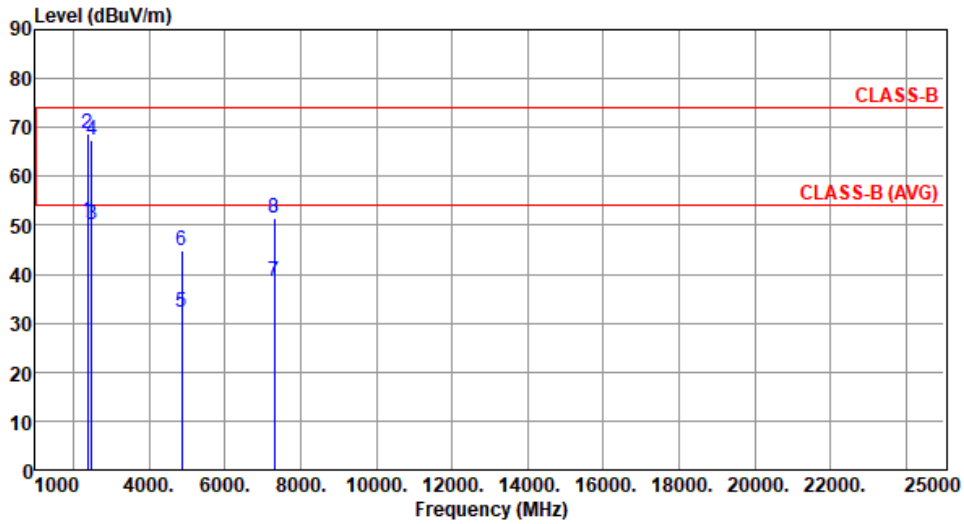


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	42.84	54.00	-11.16	45.59	-2.75	Average	105	142
2	2390.00	61.10	74.00	-12.90	63.85	-2.75	Peak	105	142
3	2483.50	40.56	54.00	-13.44	43.26	-2.70	Average	105	142
4	2483.50	59.68	74.00	-14.32	62.38	-2.70	Peak	105	142
5	4874.00	32.56	54.00	-21.44	28.43	4.13	Average	100	346
6	4874.00	45.27	74.00	-28.73	41.14	4.13	Peak	100	346
7	7311.00	39.92	54.00	-14.08	30.64	9.28	Average	189	20
8	7311.00	52.89	74.00	-21.11	43.61	9.28	Peak	189	20

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 :Roger Lu Temperature(℃):22 Humidity(%):65

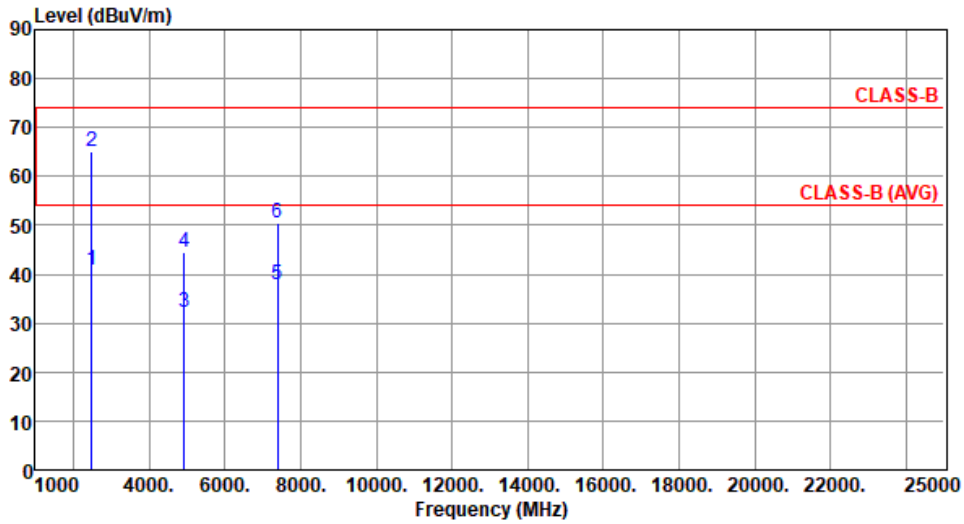


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	50.66	54.00	-3.34	53.41	-2.75	Average	185	262
2	2390.00	68.82	74.00	-5.18	71.57	-2.75	Peak	185	262
3	2483.50	50.06	54.00	-3.94	52.76	-2.70	Average	185	262
4	2483.50	67.32	74.00	-6.68	70.02	-2.70	Peak	185	262
5	4874.00	32.15	54.00	-21.85	28.02	4.13	Average	100	270
6	4874.00	44.71	74.00	-29.29	40.58	4.13	Peak	100	270
7	7311.00	38.53	54.00	-15.47	29.25	9.28	Average	100	130
8	7311.00	51.38	74.00	-22.62	42.10	9.28	Peak	100	130

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 :Roger Lu Temperature(℃):22 Humidity(%):65

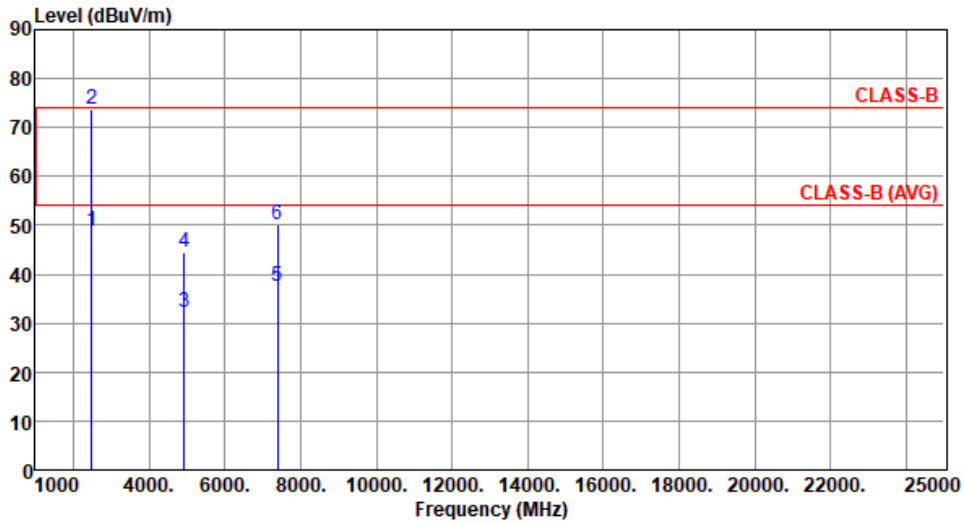


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2483.50	40.88	54.00	-13.12	43.58	-2.70	Average	100	149
2	2483.50	65.09	74.00	-8.91	67.79	-2.70	Peak	100	149
3	4924.00	32.27	54.00	-21.73	28.21	4.06	Average	100	90
4	4924.00	44.55	74.00	-29.45	40.49	4.06	Peak	100	90
5	7386.00	37.72	54.00	-16.28	28.47	9.25	Average	100	80
6	7386.00	50.41	74.00	-23.59	41.16	9.25	Peak	100	80

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 :Roger Lu Temperature(℃):22 Humidity(%):65



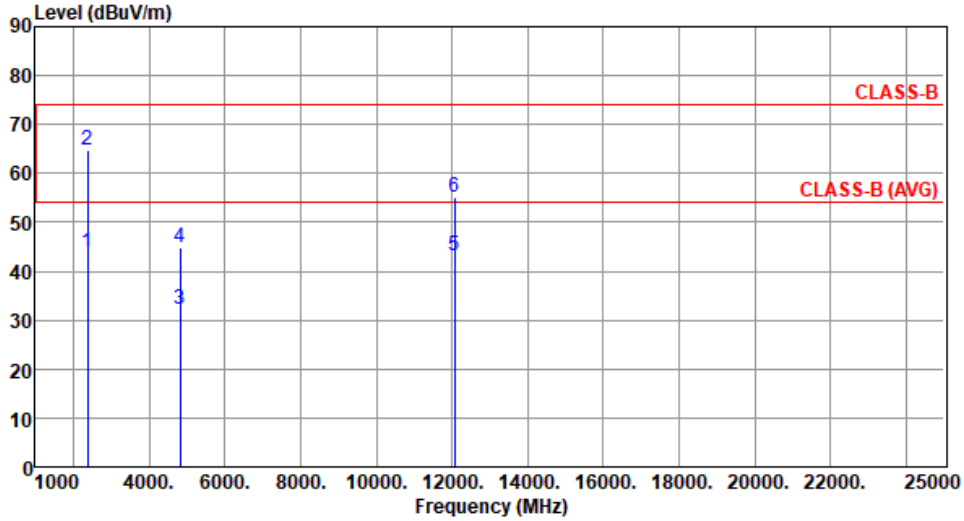
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2483.50	48.76	54.00	-5.24	51.46	-2.70	Average	175	268
2	2483.50	73.67	74.00	-0.33	76.37	-2.70	Peak	175	268
3	4924.00	32.17	54.00	-21.83	28.11	4.06	Average	100	70
4	4924.00	44.41	74.00	-29.59	40.35	4.06	Peak	100	70
5	7386.00	37.50	54.00	-16.50	28.25	9.25	Average	100	60
6	7386.00	50.31	74.00	-23.69	41.06	9.25	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).

3.5.7 Transmitter Radiated Unwanted Emissions (Above 1GHz) for ax HE20-OFDMA

Modulation	ax HE20-OFDMA	Test Freq. (MHz)	2412
Polarization	Horizontal		

Test By :Roger Lu Temperature(℃):22 Humidity(%):65

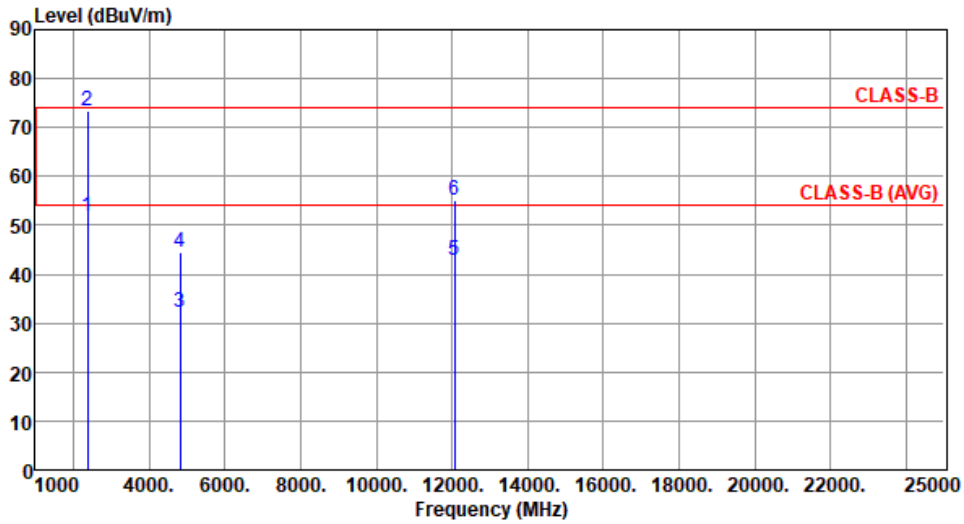


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	43.83	54.00	-10.17	46.58	-2.75	Average	100	158
2	2390.00	64.80	74.00	-9.20	67.55	-2.75	Peak	100	158
3	4824.00	32.25	54.00	-21.75	28.11	4.14	Average	100	50
4	4824.00	44.81	74.00	-29.19	40.67	4.14	Peak	100	50
5	12060.00	43.04	54.00	-10.96	29.25	13.79	Average	100	90
6	12060.00	55.15	74.00	-18.85	41.36	13.79	Peak	100	90

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	ax HE20-OFDMA	Test Freq. (MHz)	2412
Polarization	Vertical		

Test By :Roger Lu Temperature(℃):22 Humidity(%):65

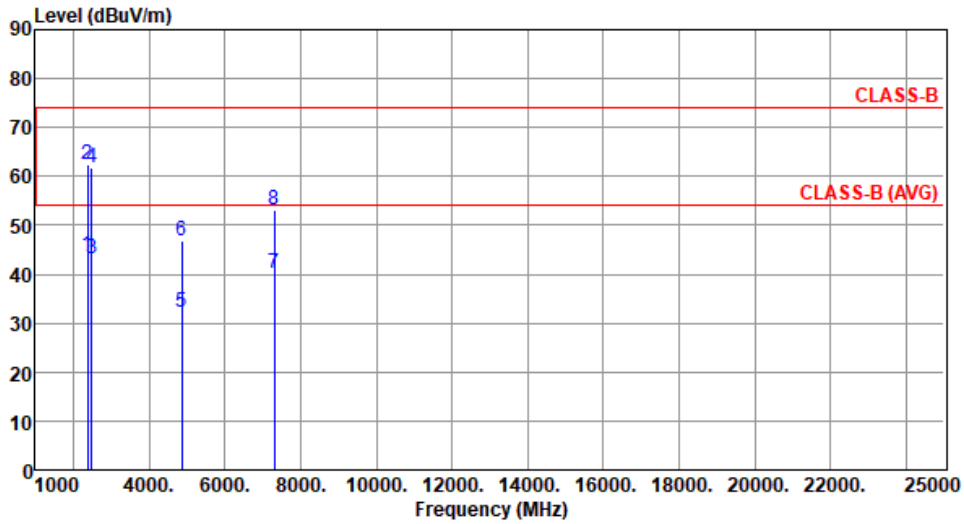


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	51.68	54.00	-2.32	54.43	-2.75	Average	194	257
2	2390.00	73.53	74.00	-0.47	76.28	-2.75	Peak	194	257
3	4824.00	32.17	54.00	-21.83	28.03	4.14	Average	100	20
4	4824.00	44.60	74.00	-29.40	40.46	4.14	Peak	100	20
5	12060.00	42.96	54.00	-11.04	29.17	13.79	Average	100	30
6	12060.00	55.00	74.00	-19.00	41.21	13.79	Peak	100	30

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	ax HE20-OFDMA	Test Freq. (MHz)	2437
Polarization	Horizontal		

Test By :Roger Lu Temperature(℃):22 Humidity(%):65

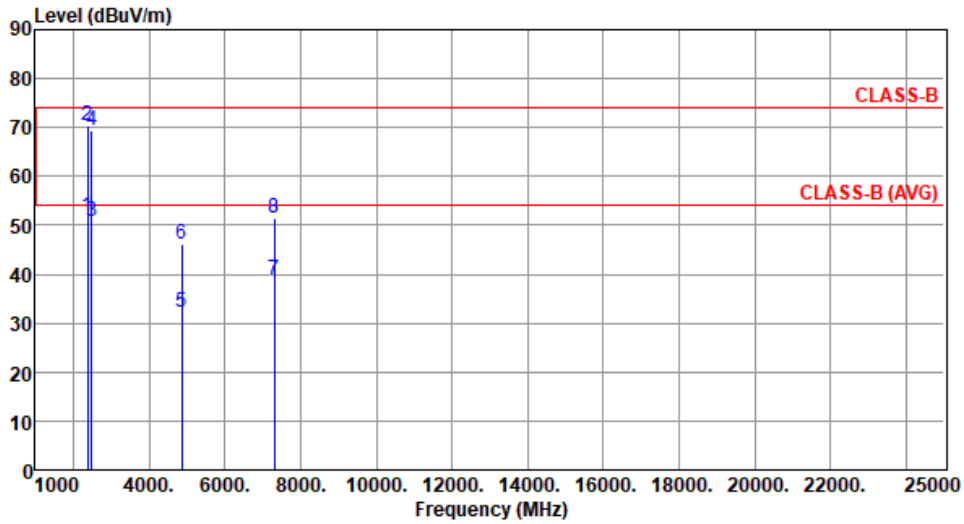


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	43.83	54.00	-10.17	46.58	-2.75	Average	100	152
2	2390.00	62.54	74.00	-11.46	65.29	-2.75	Peak	100	152
3	2483.50	43.17	54.00	-10.83	45.87	-2.70	Average	100	152
4	2483.50	61.63	74.00	-12.37	64.33	-2.70	Peak	100	152
5	4874.00	32.38	54.00	-21.62	28.25	4.13	Average	100	343
6	4874.00	46.69	74.00	-27.31	42.56	4.13	Peak	100	343
7	7311.00	40.17	54.00	-13.83	30.89	9.28	Average	182	25
8	7311.00	53.23	74.00	-20.77	43.95	9.28	Peak	182	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	ax HE20-OFDMA	Test Freq. (MHz)	2437
Polarization	Vertical		

Test By :Roger Lu Temperature(℃):22 Humidity(%):65

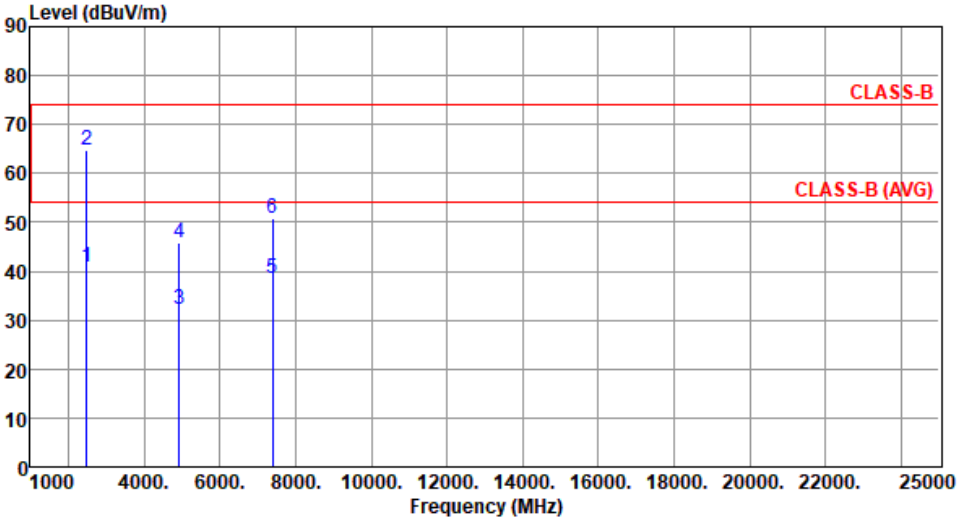


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	51.66	54.00	-2.34	54.41	-2.75	Average	159	257
2	2390.00	70.34	74.00	-3.66	73.09	-2.75	Peak	159	257
3	2483.50	50.84	54.00	-3.16	53.54	-2.70	Average	159	257
4	2483.50	69.36	74.00	-4.64	72.06	-2.70	Peak	159	257
5	4874.00	32.26	54.00	-21.74	28.13	4.13	Average	100	340
6	4874.00	46.29	74.00	-27.71	42.16	4.13	Peak	100	340
7	7311.00	38.86	54.00	-15.14	29.58	9.28	Average	100	140
8	7311.00	51.62	74.00	-22.38	42.34	9.28	Peak	100	140

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	ax HE20-OFDMA	**Test Freq. (MHz)**	2462
Polarization	Horizontal		

Test By :Roger Lu Temperature(℃):22 Humidity(%):65

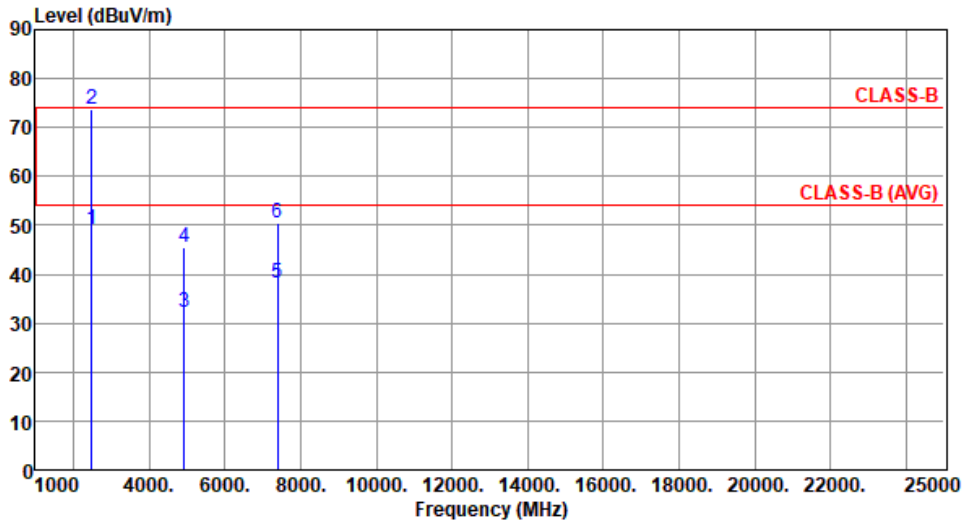


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2483.50	40.88	54.00	-13.12	43.58	-2.70	Average	100	148
2	2483.50	64.79	74.00	-9.21	67.49	-2.70	Peak	100	148
3	4924.00	32.23	54.00	-21.77	28.17	4.06	Average	100	80
4	4924.00	45.71	74.00	-28.29	41.65	4.06	Peak	100	80
5	7386.00	38.41	54.00	-15.59	29.16	9.25	Average	100	30
6	7386.00	50.72	74.00	-23.28	41.47	9.25	Peak	100	30

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	ax HE20-OFDMA	Test Freq. (MHz)	2462
Polarization	Vertical		

Test By :Roger Lu Temperature(℃):22 Humidity(%):65



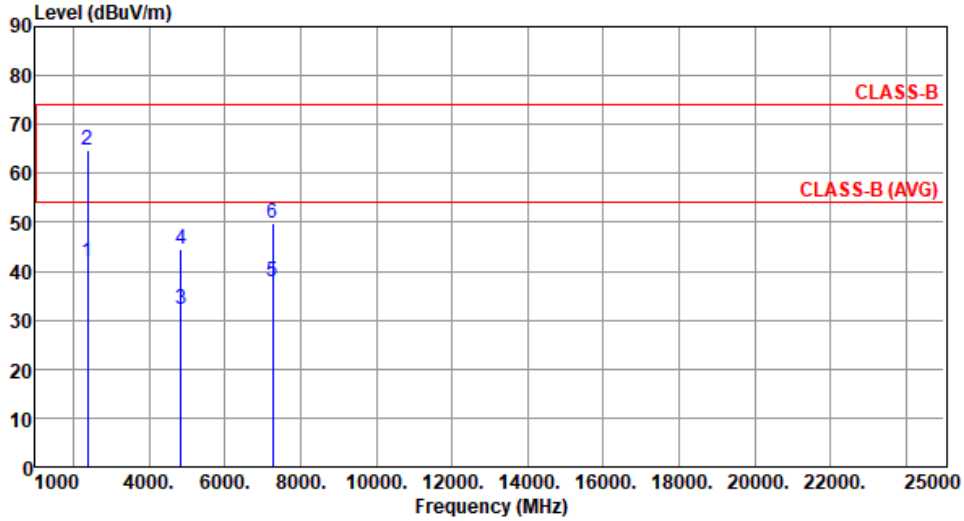
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2483.50	49.08	54.00	-4.92	51.78	-2.70	Average	203	255
2	2483.50	73.58	74.00	-0.42	76.28	-2.70	Peak	203	255
3	4924.00	32.09	54.00	-21.91	28.03	4.06	Average	100	50
4	4924.00	45.46	74.00	-28.54	41.40	4.06	Peak	100	50
5	7386.00	38.27	54.00	-15.73	29.02	9.25	Average	100	70
6	7386.00	50.51	74.00	-23.49	41.26	9.25	Peak	100	70

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).

3.5.8 Transmitter Radiated Unwanted Emissions (Above 1GHz) for ax HE40-OFDMA

Modulation	ax HE40-OFDMA	Test Freq. (MHz)	2422
Polarization	Horizontal		

Test By :Roger Lu Temperature(℃):22 Humidity(%):65

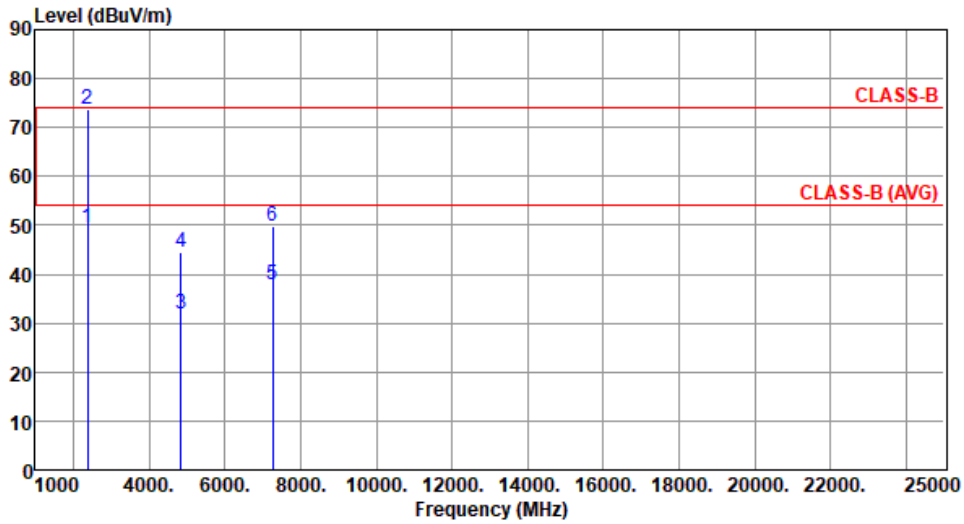


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	41.92	54.00	-12.08	44.67	-2.75	Average	100	149
2	2390.00	64.89	74.00	-9.11	67.64	-2.75	Peak	100	149
3	4844.00	32.11	54.00	-21.89	27.95	4.16	Average	100	90
4	4844.00	44.62	74.00	-29.38	40.46	4.16	Peak	100	90
5	7266.00	37.91	54.00	-16.09	28.68	9.23	Average	100	80
6	7266.00	49.83	74.00	-24.17	40.60	9.23	Peak	100	80

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	ax HE40-OFDMA	Test Freq. (MHz)	2422
Polarization	Vertical		

Test By :Roger Lu Temperature(℃):22 Humidity(%):65

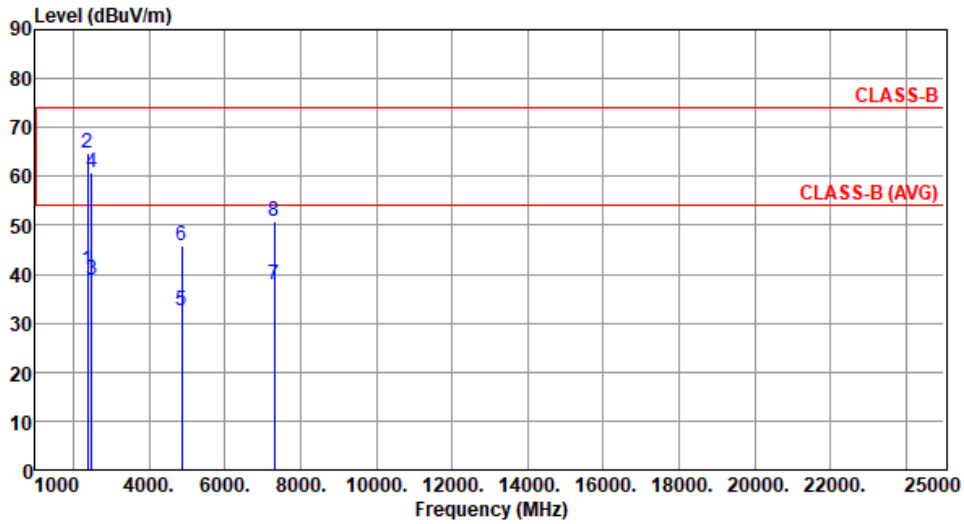


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	49.46	54.00	-4.54	52.21	-2.75	Average	191	257
2	2390.00	73.63	74.00	-0.37	76.38	-2.75	Peak	191	257
3	4844.00	32.04	54.00	-21.96	27.88	4.16	Average	100	30
4	4844.00	44.54	74.00	-29.46	40.38	4.16	Peak	100	30
5	7266.00	37.70	54.00	-16.30	28.47	9.23	Average	100	40
6	7266.00	49.83	74.00	-24.17	40.60	9.23	Peak	100	40

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	ax HE40-OFDMA	Test Freq. (MHz)	2437
Polarization	Horizontal		

Test By :Roger Lu Temperature(℃):22 Humidity(%):65

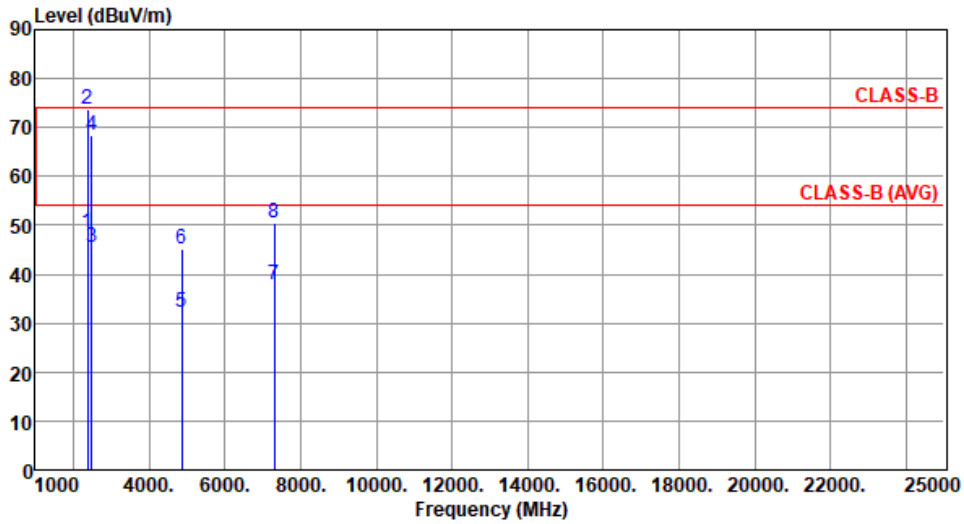


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	40.72	54.00	-13.28	43.47	-2.75	Average	100	149
2	2390.00	64.73	74.00	-9.27	67.48	-2.75	Peak	100	149
3	2483.50	38.86	54.00	-15.14	41.56	-2.70	Average	100	149
4	2483.50	60.77	74.00	-13.23	63.47	-2.70	Peak	100	149
5	4874.00	32.60	54.00	-21.40	28.47	4.13	Average	100	90
6	4874.00	45.69	74.00	-28.31	41.56	4.13	Peak	100	90
7	7311.00	37.95	54.00	-16.05	28.67	9.28	Average	100	40
8	7311.00	50.77	74.00	-23.23	41.49	9.28	Peak	100	40

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	ax HE40-OFDMA	Test Freq. (MHz)	2437
Polarization	Vertical		

Test By :Roger Lu Temperature(℃):22 Humidity(%):65

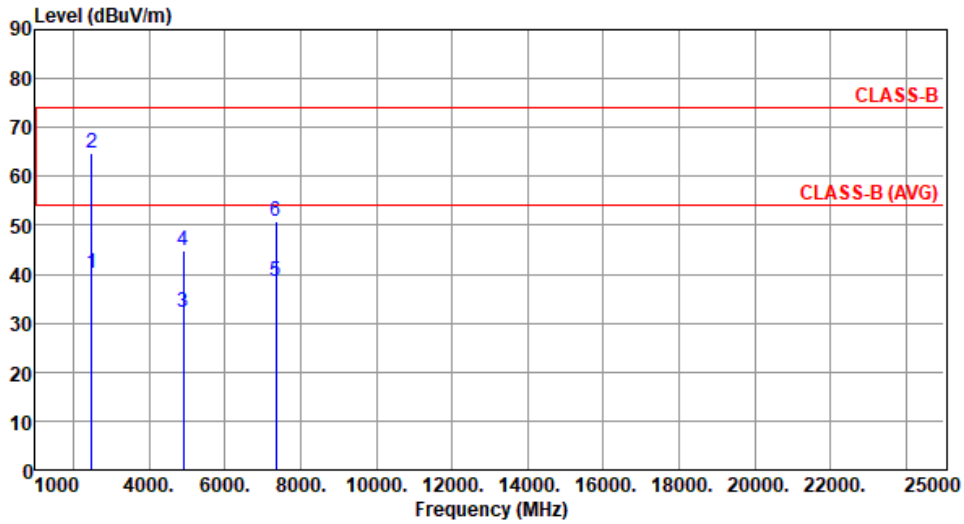


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	48.37	54.00	-5.63	51.12	-2.75	Average	187	258
2	2390.00	73.62	74.00	-0.38	76.37	-2.75	Peak	187	258
3	2483.50	45.60	54.00	-8.40	48.30	-2.70	Average	187	258
4	2483.50	68.42	74.00	-5.58	71.12	-2.70	Peak	187	258
5	4874.00	32.35	54.00	-21.65	28.22	4.13	Average	100	30
6	4874.00	45.27	74.00	-28.73	41.14	4.13	Peak	100	30
7	7311.00	37.73	54.00	-16.27	28.45	9.28	Average	100	60
8	7311.00	50.54	74.00	-23.46	41.26	9.28	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).

Modulation	ax HE40-OFDMA	Test Freq. (MHz)	2452
Polarization	Horizontal		

Test By :Roger Lu Temperature(℃):22 Humidity(%):65

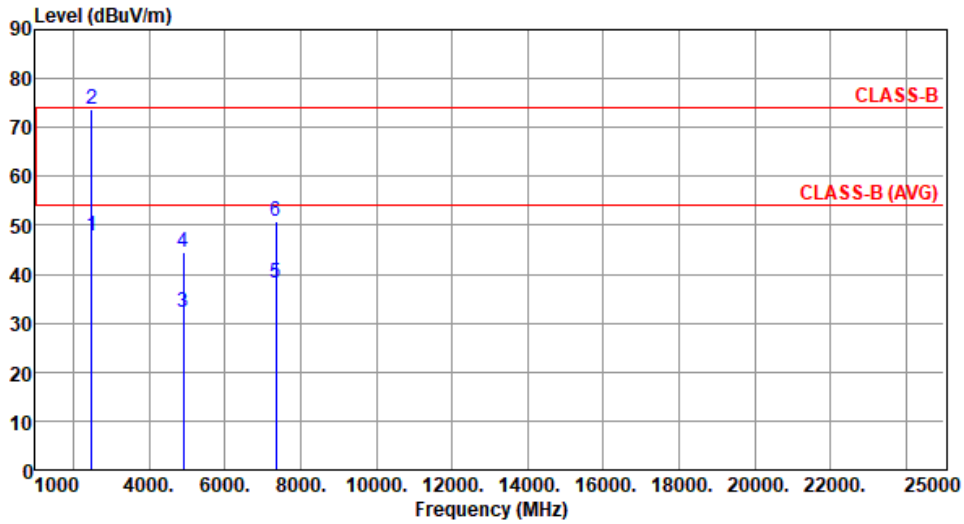


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2483.50	40.19	54.00	-13.81	42.89	-2.70	Average	100	242
2	2483.50	64.77	74.00	-9.23	67.47	-2.70	Peak	100	242
3	4904.00	32.35	54.00	-21.65	28.26	4.09	Average	100	80
4	4904.00	44.76	74.00	-29.24	40.67	4.09	Peak	100	80
5	7356.00	38.42	54.00	-15.58	29.16	9.26	Average	100	40
6	7356.00	50.93	74.00	-23.07	41.67	9.26	Peak	100	40

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	ax HE40-OFDMA	Test Freq. (MHz)	2452
Polarization	Vertical		

Test By :Roger Lu Temperature(℃):22 Humidity(%):65



	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	47.95	54.00	-6.05	50.65	-2.70	Average	161	257
2	2483.50	73.69	74.00	-0.31	76.39	-2.70	Peak	161	257
3	4904.00	32.20	54.00	-21.80	28.11	4.09	Average	100	70
4	4904.00	44.55	74.00	-29.45	40.46	4.09	Peak	100	70
5	7356.00	38.31	54.00	-15.69	29.05	9.26	Average	100	30
6	7356.00	50.80	74.00	-23.20	41.54	9.26	Peak	100	30

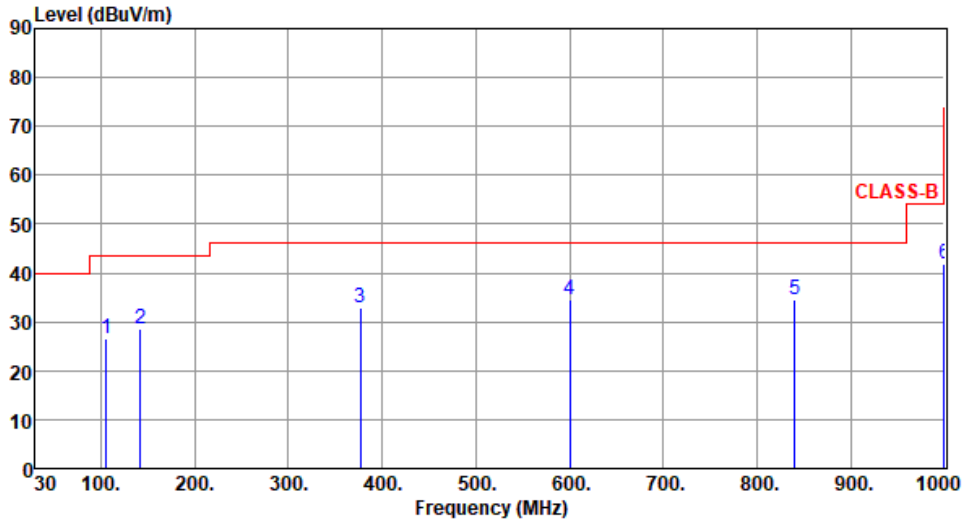
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Beamforming mode

3.5.9 Transmitter Radiated Unwanted Emissions (Below 1GHz)

Modulation	ax HE20-OFDMA	**Test Freq. (MHz)**	2462
Polarization	Horizontal		

Test By :Akun Chung Temperature(℃):22 Humidity(%):65

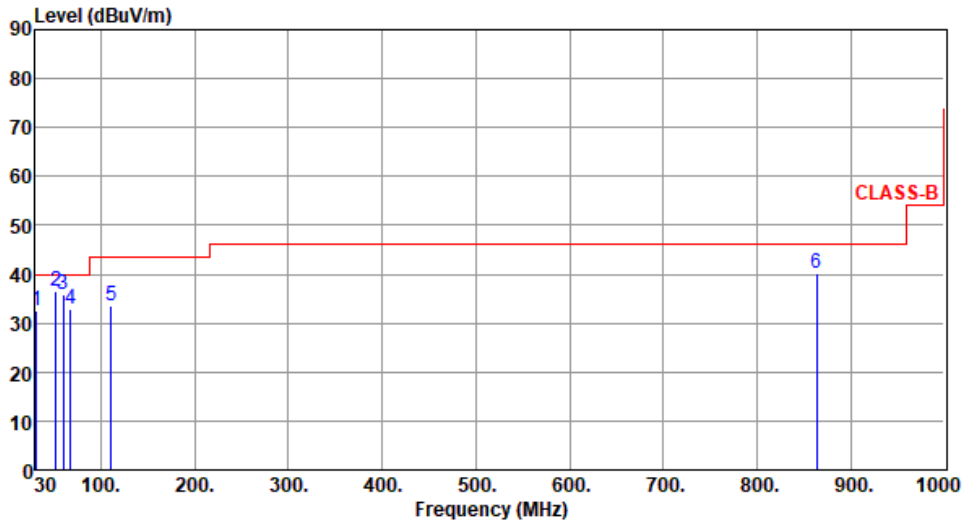


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	105.95	26.58	43.50	-16.92	38.82	-12.24	Peak	---	---
2	141.65	28.55	43.50	-14.95	37.72	-9.17	Peak	---	---
3	376.50	32.81	46.00	-13.19	39.11	-6.30	Peak	---	---
4	600.59	34.61	46.00	-11.39	35.62	-1.01	Peak	---	---
5	840.15	34.62	46.00	-11.38	32.13	2.49	Peak	---	---
6	999.66	41.75	54.00	-12.25	37.08	4.67	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	ax HE20-OFDMA	Test Freq. (MHz)	2462
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):22 Humidity(%):65



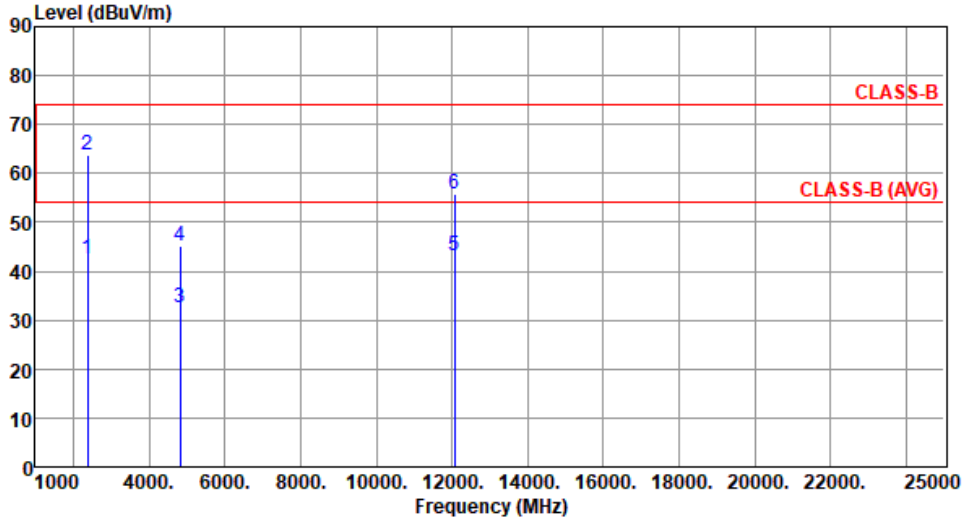
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	30.85	32.64	40.00	-7.36	42.59	-9.95	Peak	---	---
2	51.89	36.37	40.00	-3.63	45.16	-8.79	Peak	---	---
3	59.58	35.91	40.00	-4.09	45.15	-9.24	Peak	---	---
4	67.26	32.91	40.00	-7.09	43.19	-10.28	Peak	---	---
5	111.31	33.54	43.50	-9.96	45.14	-11.60	Peak	---	---
6	863.54	40.15	46.00	-5.85	37.27	2.88	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.

3.5.10 Transmitter Radiated Unwanted Emissions (Above 1GHz) for ax HE20-OFDMA

Modulation	ax HE20-OFDMA	Test Freq. (MHz)	2412
Polarization	Horizontal		

Test By :Akun Chung Temperature(℃):23 Humidity(%):66

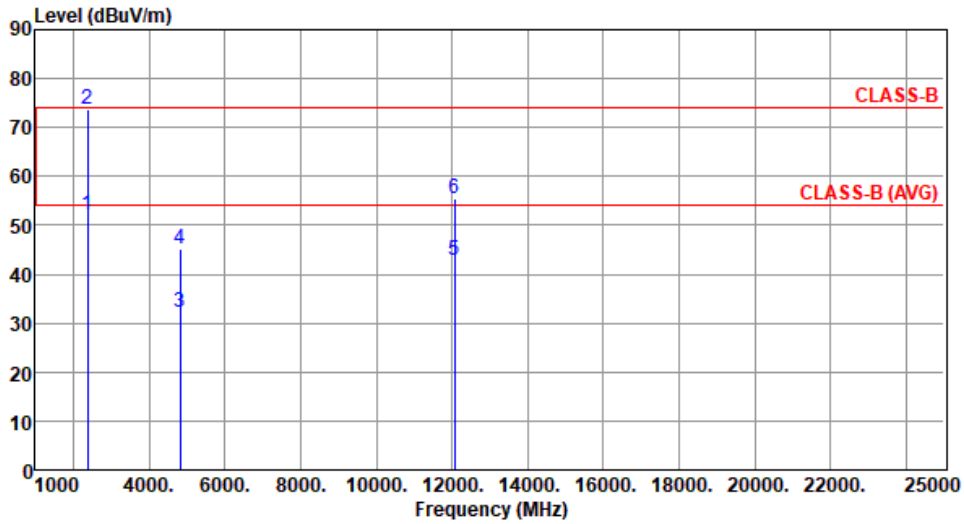


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	42.37	54.00	-11.63	45.12	-2.75	Average	126	279
2	2390.00	63.79	74.00	-10.21	66.54	-2.75	Peak	126	279
3	4824.00	32.69	54.00	-21.31	28.55	4.14	Average	100	40
4	4824.00	45.30	74.00	-28.70	41.16	4.14	Peak	100	40
5	12060.00	43.04	54.00	-10.96	29.25	13.79	Average	100	60
6	12060.00	55.90	74.00	-18.10	42.11	13.79	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).

Modulation	ax HE20-OFDMA	Test Freq. (MHz)	2412
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):23 Humidity(%):66

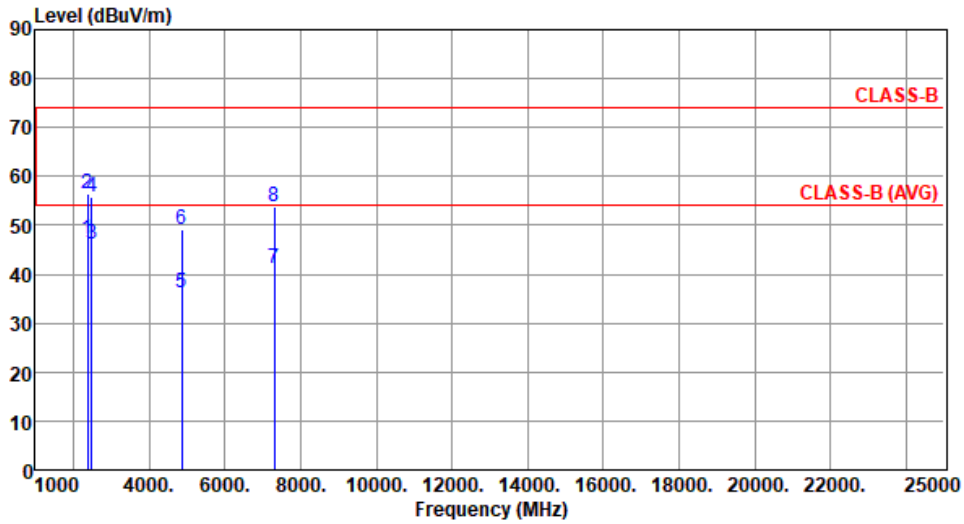


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	52.01	54.00	-1.99	54.76	-2.75	Average	224	236
2	2390.00	73.70	74.00	-0.30	76.45	-2.75	Peak	224	236
3	4824.00	32.29	54.00	-21.71	28.15	4.14	Average	100	30
4	4824.00	45.09	74.00	-28.91	40.95	4.14	Peak	100	30
5	12060.00	42.80	54.00	-11.20	29.01	13.79	Average	100	40
6	12060.00	55.46	74.00	-18.54	41.67	13.79	Peak	100	40

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	ax HE20-OFDMA	Test Freq. (MHz)	2437
Polarization	Horizontal		

Test By :Akun Chung Temperature(℃):23 Humidity(%):66

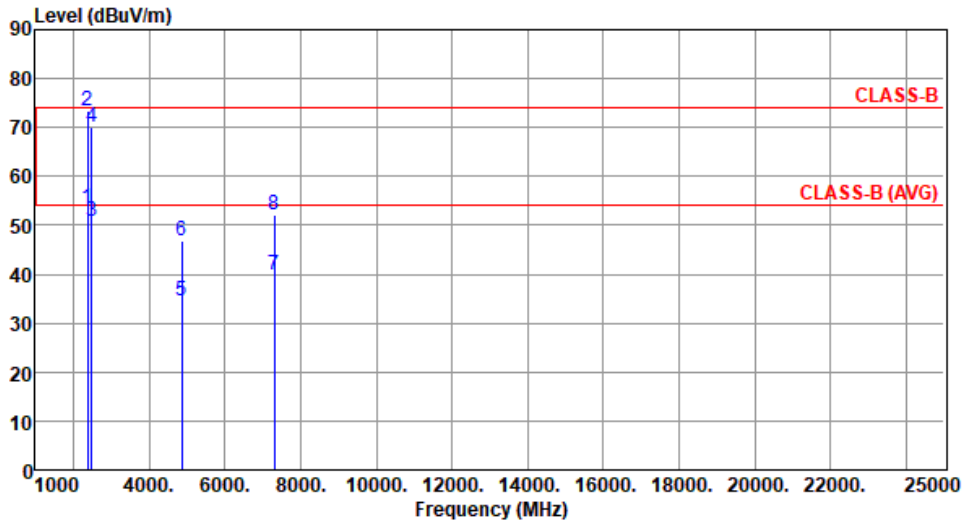


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	47.03	54.00	-6.97	49.78	-2.75	Average	125	277
2	2390.00	56.55	74.00	-17.45	59.30	-2.75	Peak	125	277
3	2483.50	46.25	54.00	-7.75	48.95	-2.70	Average	125	277
4	2483.50	55.82	74.00	-18.18	58.52	-2.70	Peak	125	277
5	4874.00	36.08	54.00	-17.92	31.95	4.13	Average	100	355
6	4874.00	49.01	74.00	-24.99	44.88	4.13	Peak	100	355
7	7311.00	41.05	54.00	-12.95	31.77	9.28	Average	100	345
8	7311.00	53.75	74.00	-20.25	44.47	9.28	Peak	100	345

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	ax HE20-OFDMA	Test Freq. (MHz)	2437
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):23 Humidity(%):66

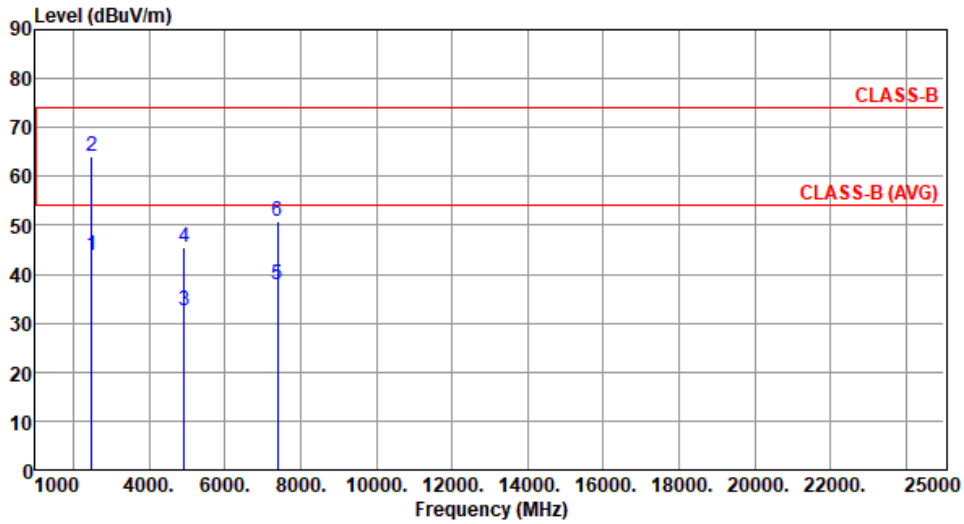


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	53.60	54.00	-0.40	56.35	-2.75	Average	181	258
2	2390.00	73.25	74.00	-0.75	76.00	-2.75	Peak	181	258
3	2483.50	50.96	54.00	-3.04	53.66	-2.70	Average	154	254
4	2483.50	69.96	74.00	-4.04	72.66	-2.70	Peak	154	254
5	4874.00	34.57	54.00	-19.43	30.44	4.13	Average	100	255
6	4874.00	46.98	74.00	-27.02	42.85	4.13	Peak	100	255
7	7311.00	39.84	54.00	-14.16	30.56	9.28	Average	100	240
8	7311.00	52.05	74.00	-21.95	42.77	9.28	Peak	100	240

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	ax HE20-OFDMA	Test Freq. (MHz)	2462
Polarization	Horizontal		

Test By :Akun Chung Temperature(℃):23 Humidity(%):66

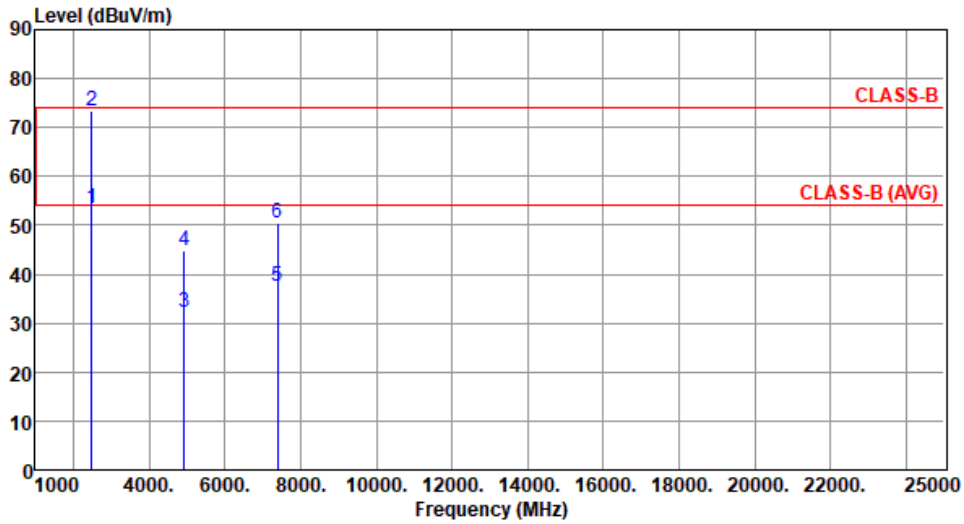


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2483.50	43.97	54.00	-10.03	46.67	-2.70	Average	128	275
2	2483.50	64.16	74.00	-9.84	66.86	-2.70	Peak	128	275
3	4924.00	32.49	54.00	-21.51	28.43	4.06	Average	100	90
4	4924.00	45.42	74.00	-28.58	41.36	4.06	Peak	100	90
5	7386.00	37.84	54.00	-16.16	28.59	9.25	Average	100	30
6	7386.00	50.80	74.00	-23.20	41.55	9.25	Peak	100	30

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	ax HE20-OFDMA	Test Freq. (MHz)	2462
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):23 Humidity(%):66



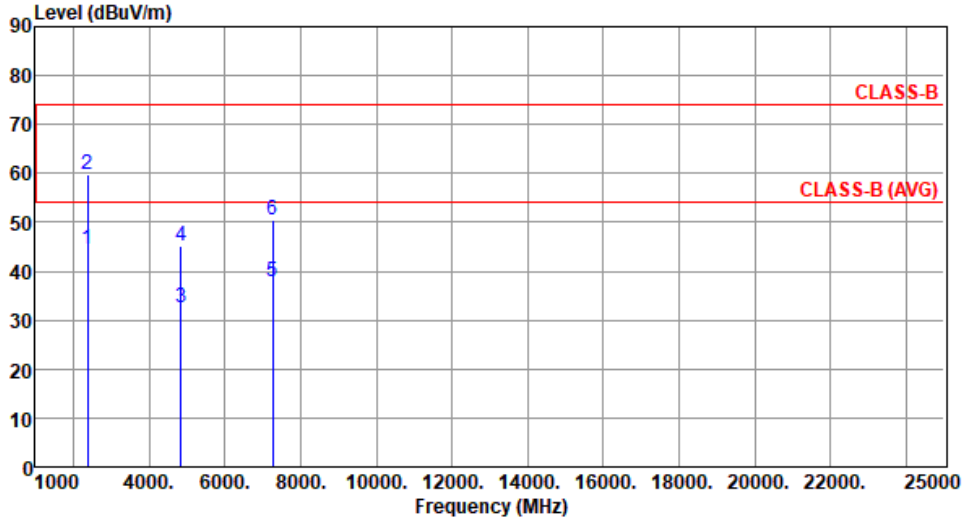
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2483.50	53.36	54.00	-0.64	56.06	-2.70	Average	151	263
2	2483.50	73.52	74.00	-0.48	76.22	-2.70	Peak	151	263
3	4924.00	32.31	54.00	-21.69	28.25	4.06	Average	100	70
4	4924.00	44.75	74.00	-29.25	40.69	4.06	Peak	100	70
5	7386.00	37.62	54.00	-16.38	28.37	9.25	Average	100	20
6	7386.00	50.47	74.00	-23.53	41.22	9.25	Peak	100	20

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).

3.5.11 Transmitter Radiated Unwanted Emissions (Above 1GHz) for ax HE40-OFDMA

Modulation	ax HE40-OFDMA	Test Freq. (MHz)	2422
Polarization	Horizontal		

Test By :Akun Chung Temperature(℃):23 Humidity(%):66

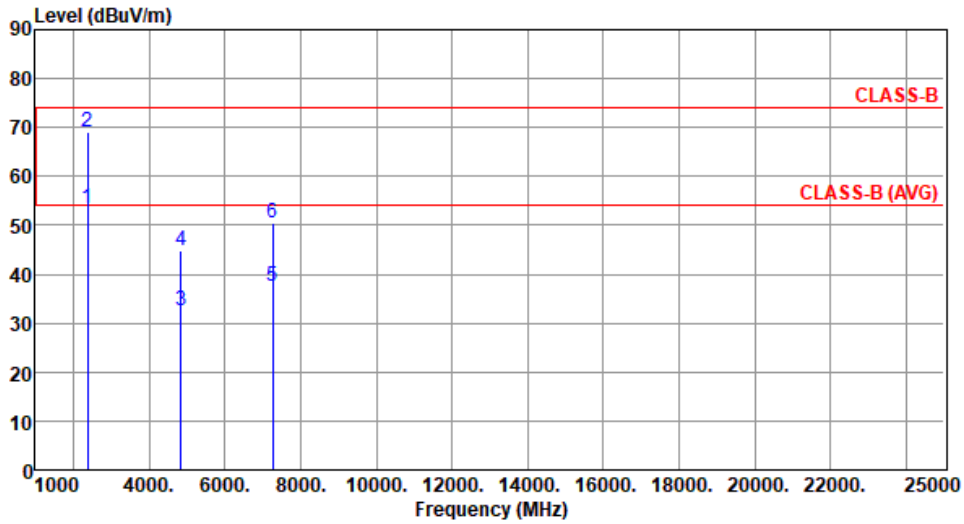


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	44.50	54.00	-9.50	47.25	-2.75	Average	120	272
2	2390.00	59.67	74.00	-14.33	62.42	-2.75	Peak	120	272
3	4844.00	32.61	54.00	-21.39	28.45	4.16	Average	100	60
4	4844.00	45.14	74.00	-28.86	40.98	4.16	Peak	100	60
5	7266.00	37.81	54.00	-16.19	28.58	9.23	Average	100	90
6	7266.00	50.52	74.00	-23.48	41.29	9.23	Peak	100	90

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	ax HE40-OFDMA	Test Freq. (MHz)	2422
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):23 Humidity(%):66

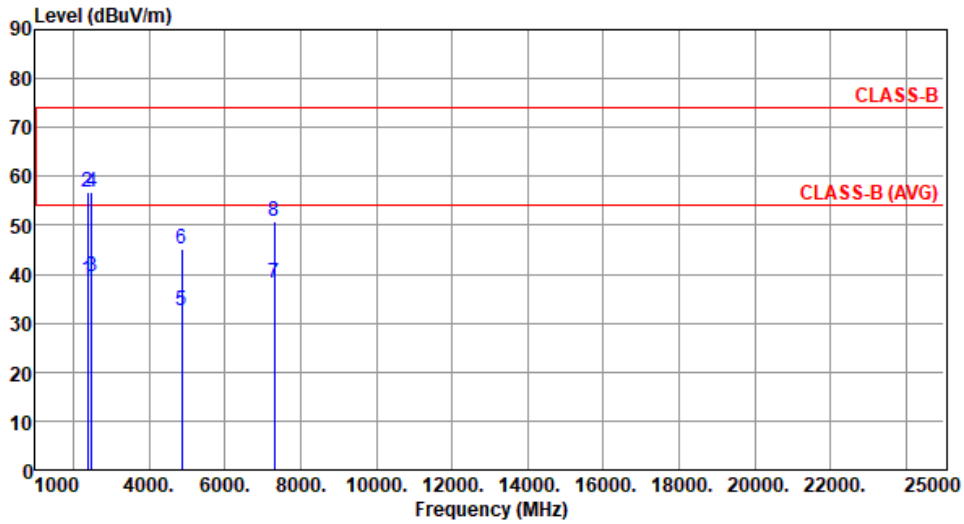


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	53.58	54.00	-0.42	56.33	-2.75	Average	209	253
2	2390.00	69.10	74.00	-4.90	71.85	-2.75	Peak	209	253
3	4844.00	32.39	54.00	-21.61	28.23	4.16	Average	100	40
4	4844.00	44.83	74.00	-29.17	40.67	4.16	Peak	100	40
5	7266.00	37.58	54.00	-16.42	28.35	9.23	Average	100	80
6	7266.00	50.35	74.00	-23.65	41.12	9.23	Peak	100	80

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	ax HE40-OFDMA	Test Freq. (MHz)	2437
Polarization	Horizontal		

Test By :Akun Chung Temperature(℃):23 Humidity(%):66

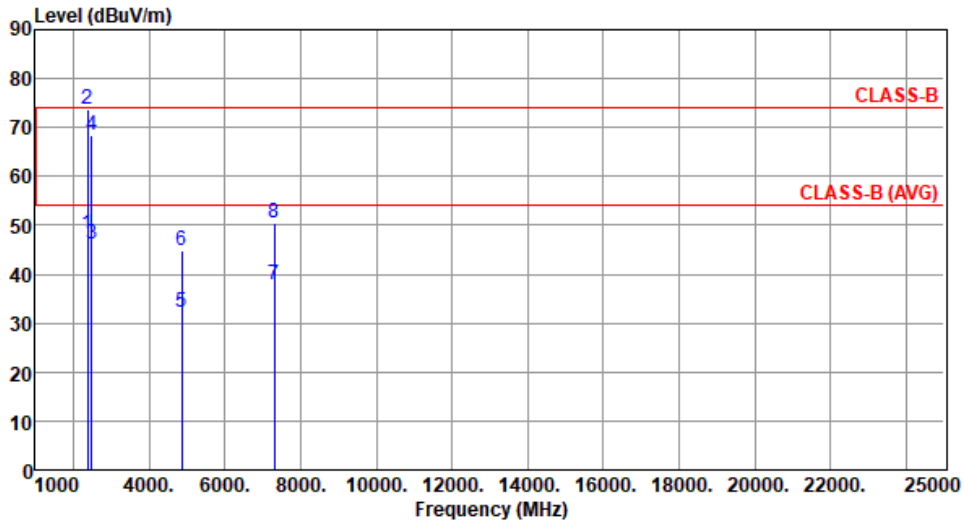


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	38.84	54.00	-15.16	41.59	-2.75	Average	131	275
2	2390.00	56.81	74.00	-17.19	59.56	-2.75	Peak	131	275
3	2483.50	39.56	54.00	-14.44	42.26	-2.70	Average	131	275
4	2483.50	56.72	74.00	-17.28	59.42	-2.70	Peak	131	275
5	4874.00	32.69	54.00	-21.31	28.56	4.13	Average	100	40
6	4874.00	45.29	74.00	-28.71	41.16	4.13	Peak	100	40
7	7311.00	38.13	54.00	-15.87	28.85	9.28	Average	100	20
8	7311.00	50.84	74.00	-23.16	41.56	9.28	Peak	100	20

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	ax HE40-OFDMA	Test Freq. (MHz)	2437
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):23 Humidity(%):66

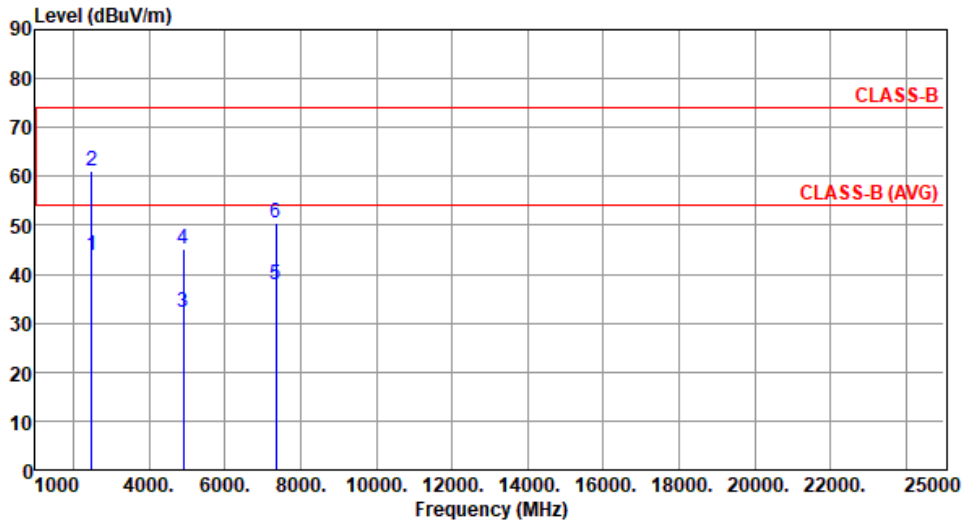


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	48.11	54.00	-5.89	50.86	-2.75	Average	110	241
2	2390.00	73.61	74.00	-0.39	76.36	-2.75	Peak	110	241
3	2483.50	46.29	54.00	-7.71	48.99	-2.70	Average	110	241
4	2483.50	68.26	74.00	-5.74	70.96	-2.70	Peak	110	241
5	4874.00	32.38	54.00	-21.62	28.25	4.13	Average	100	30
6	4874.00	45.00	74.00	-29.00	40.87	4.13	Peak	100	30
7	7311.00	37.95	54.00	-16.05	28.67	9.28	Average	100	50
8	7311.00	50.50	74.00	-23.50	41.22	9.28	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).

Modulation	ax HE40-OFDMA	Test Freq. (MHz)	2452
Polarization	Horizontal		

Test By :Akun Chung Temperature(℃):23 Humidity(%):66

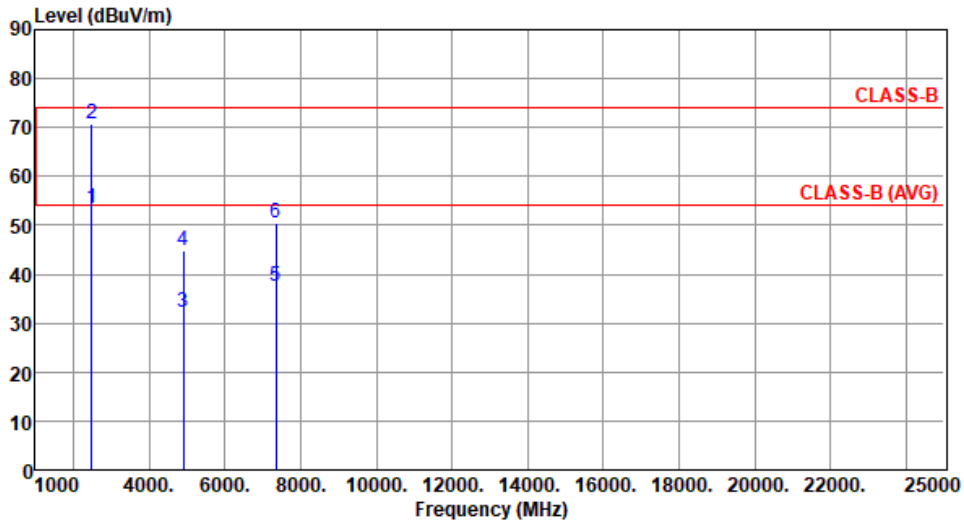


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2483.50	43.88	54.00	-10.12	46.58	-2.70	Average	124	276
2	2483.50	60.97	74.00	-13.03	63.67	-2.70	Peak	124	276
3	4904.00	32.35	54.00	-21.65	28.26	4.09	Average	100	80
4	4904.00	45.25	74.00	-28.75	41.16	4.09	Peak	100	80
5	7356.00	37.81	54.00	-16.19	28.55	9.26	Average	100	70
6	7356.00	50.61	74.00	-23.39	41.35	9.26	Peak	100	70

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	ax HE40-OFDMA	Test Freq. (MHz)	2452
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):23 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	2483.50	53.60	54.00	-0.40	56.30	-2.70	Average	197	259
2	2483.50	70.85	74.00	-3.15	73.55	-2.70	Peak	197	259
3	4904.00	32.20	54.00	-21.80	28.11	4.09	Average	100	30
4	4904.00	44.98	74.00	-29.02	40.89	4.09	Peak	100	30
5	7356.00	37.68	54.00	-16.32	28.42	9.26	Average	100	40
6	7356.00	50.47	74.00	-23.53	41.21	9.26	Peak	100	40

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).

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 30 dB relative to the maximum in-band peak PSD level in 100 kHz.

3.6.2 Test Procedures

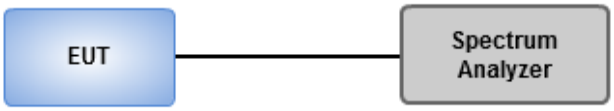
Reference level measurement

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



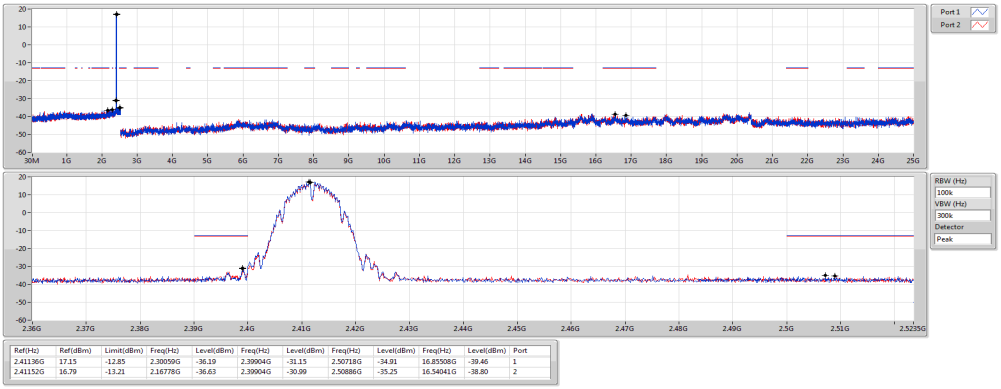
3.6.4 Unwanted Emissions into Non-Restricted Frequency Bands

Ambient Condition	20°C / 65%	Tested By	Alex Huang

Non-beamforming mode

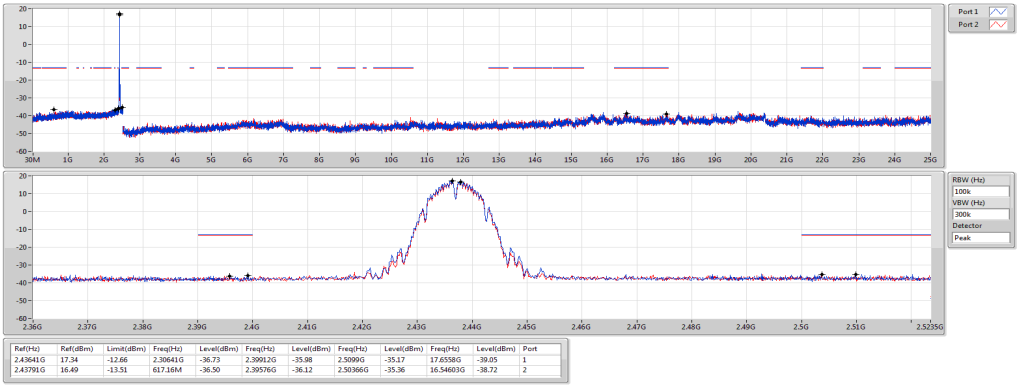
802.11b_Nss1,(1Mbps)_2TX CSE NdB

2412MHz



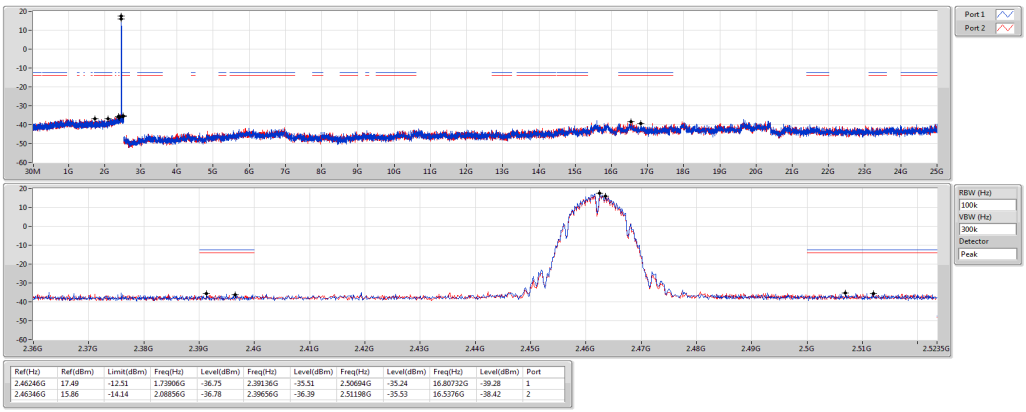
802.11b_Nss1,(1Mbps)_2TX CSE NdB

2437MHz



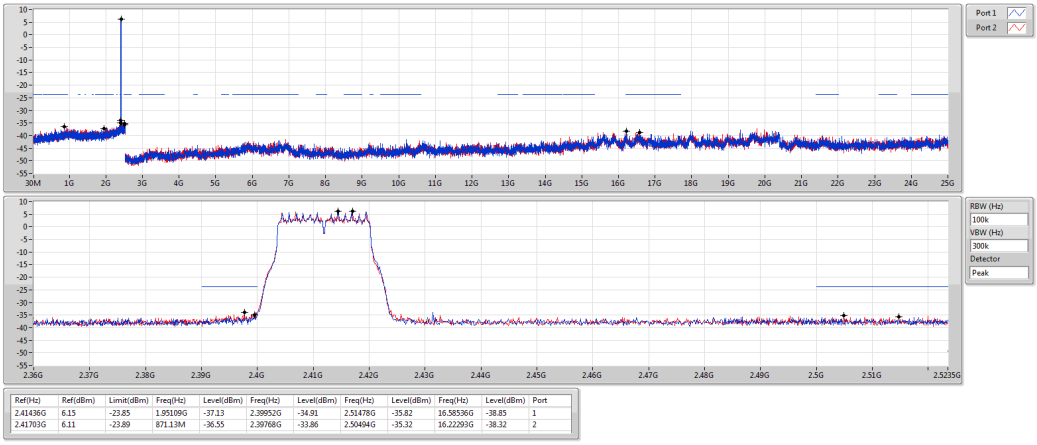
802.11b_Nss1,(1Mbps)_2TX CSE NdB

2462MHz



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

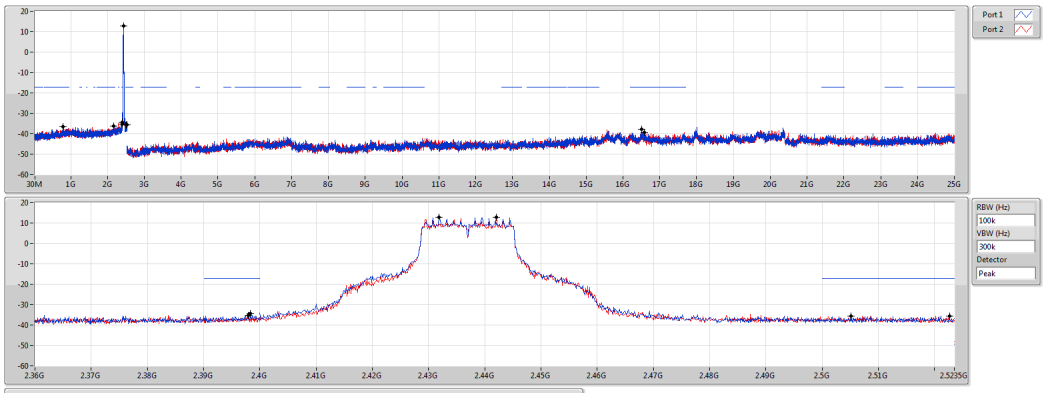
2412MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.4186G	6.15	-23.85	1.95109G	-37.13	2.39952G	-34.91	2.51478G	-35.82	16.58536G	-38.85	1
2.41703G	6.11	-23.89	871.13M	-36.55	2.39768G	-33.86	2.50494G	-35.32	16.22293G	-38.32	2

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

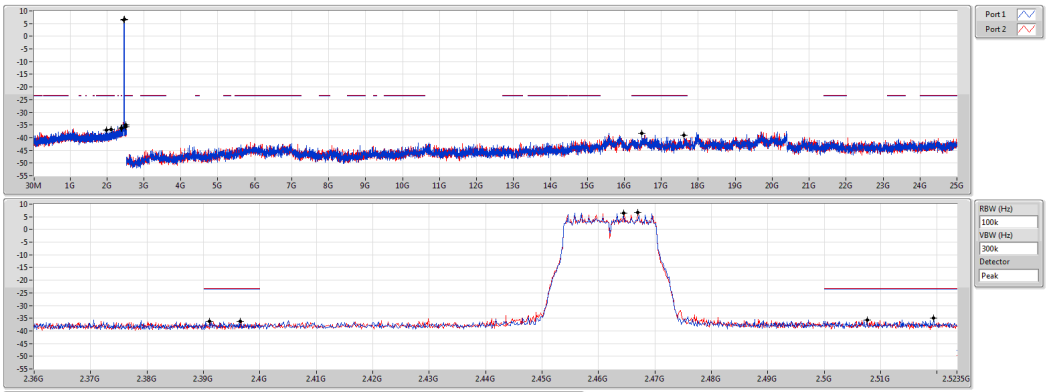
2437MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.4319G	12.67	-17.33	798.9M	-36.66	2.39832G	-34.50	2.5051G	-35.54	16.58817G	-39.46	1
2.44208G	12.67	-17.33	2.16778G	-36.26	2.39792G	-35.16	2.52262G	-35.58	16.50669G	-37.96	2

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

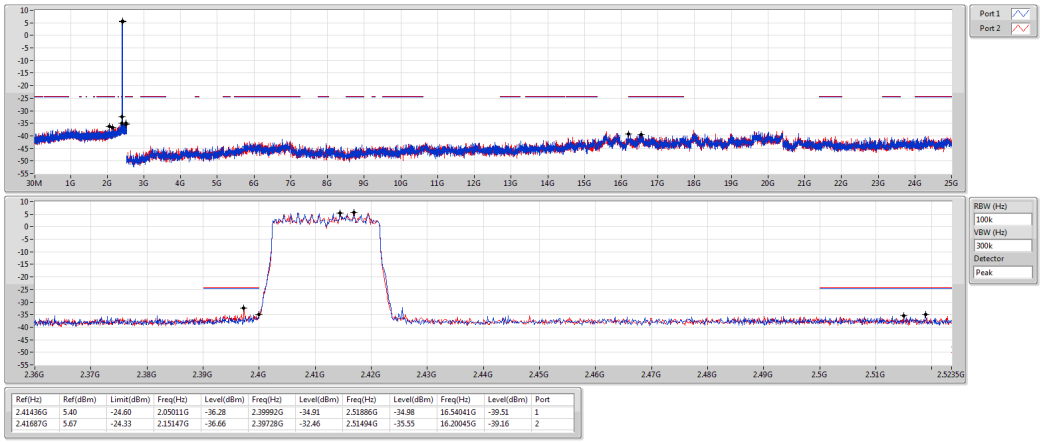
2462MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.46446G	6.56	-23.44	2.11419G	-36.70	2.39648G	-36.27	2.51934G	-35.05	16.47579G	-38.35	1
2.46697G	6.77	-23.23	1.97672G	-36.92	2.39112G	-36.29	2.50758G	-35.60	17.61366G	-38.95	2

802.11ax HEW20_Nss1,(MCS0)_2TX **CSE NdB**

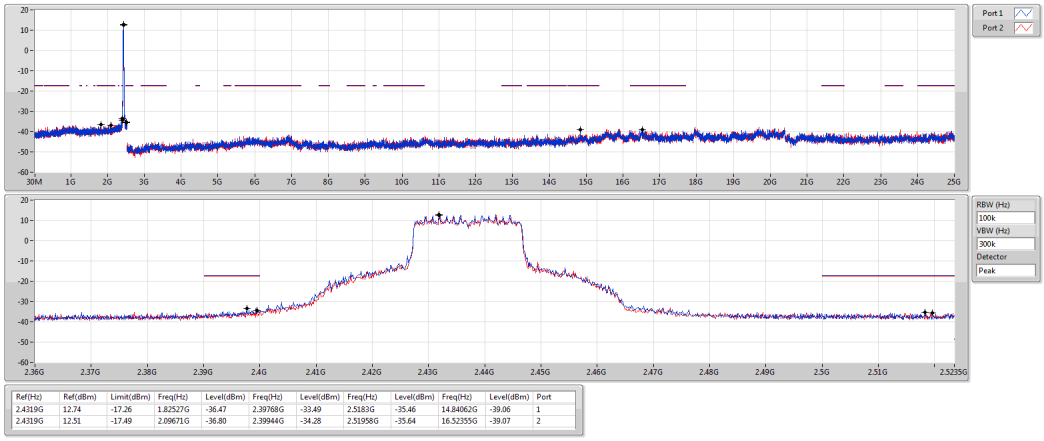
2412MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.41436G	5.40	-24.60	2.05011G	-36.28	2.39992G	-34.91	2.51886G	-34.98	16.54041G	-39.51	1
2.41687G	5.67	-24.33	2.15147G	-36.66	2.39728G	-32.46	2.51494G	-35.55	16.20045G	-39.16	2

802.11ax HEW20_Nss1,(MCS0)_2TX **CSE NdB**

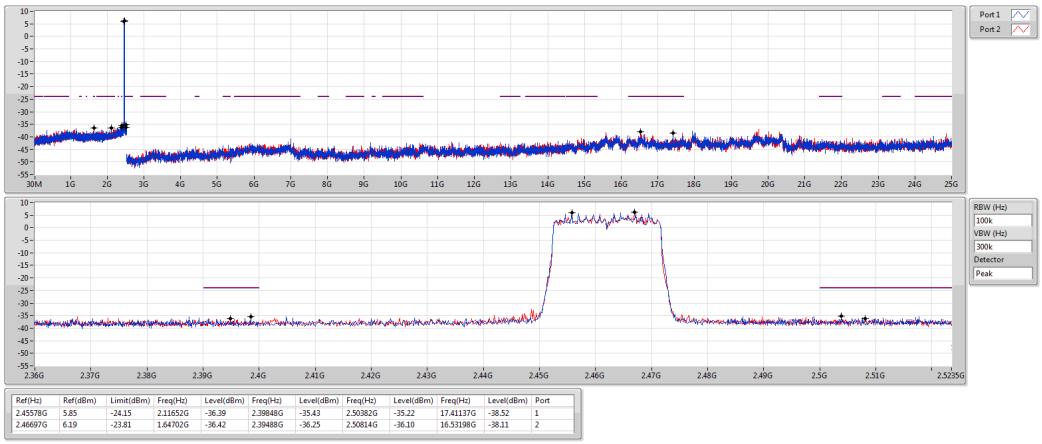
2437MHz



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	12.74	-17.26	1.82527G	-36.47	2.39768G	-33.49	2.5183G	-35.46	14.84062G	-39.06	1
2.4319G	12.51	-17.49	2.09671G	-36.80	2.39944G	-34.28	2.51958G	-35.64	16.52355G	-39.07	2

802.11ax HEW20_Nss1,(MCS0)_2TX **CSE NdB**

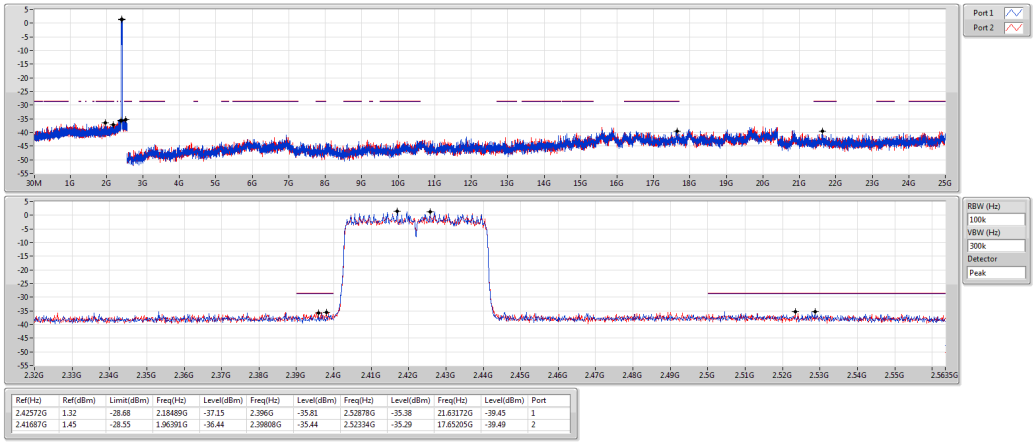
2462MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.45578G	5.85	-24.15	2.11652G	-36.39	2.39848G	-35.43	2.50382G	-35.22	17.41137G	-38.52	1
2.46697G	6.19	-23.81	1.64702G	-36.42	2.39488G	-36.25	2.50814G	-36.10	16.53198G	-38.11	2

802.11ax HEW40_Nss1,(MCS0)_2TX **CSE NdB**

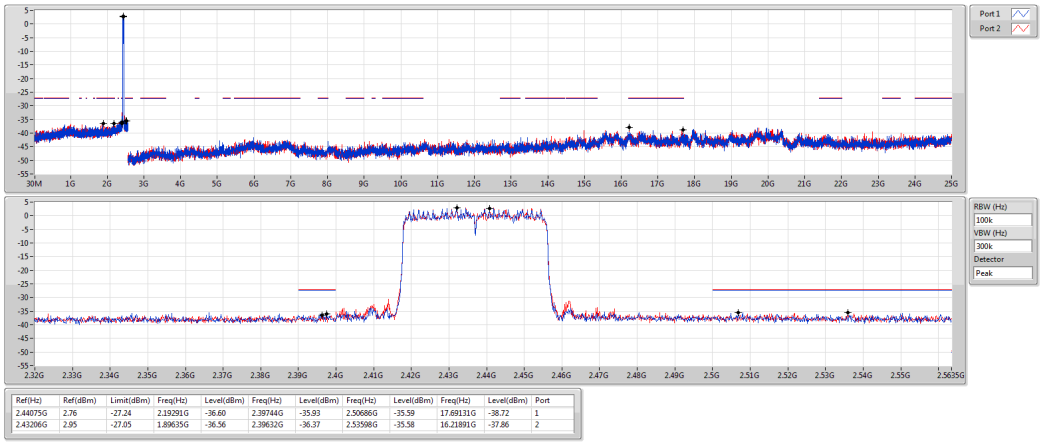
2422MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.42572G	1.32	-28.68	2.18489G	-37.15	2.396G	-35.81	2.52878G	-35.38	21.63172G	-39.45	1
2.41687G	1.45	-28.55	1.96391G	-36.44	2.39808G	-35.44	2.52334G	-35.29	17.65205G	-39.49	2

802.11ax HEW40_Nss1,(MCS0)_2TX **CSE NdB**

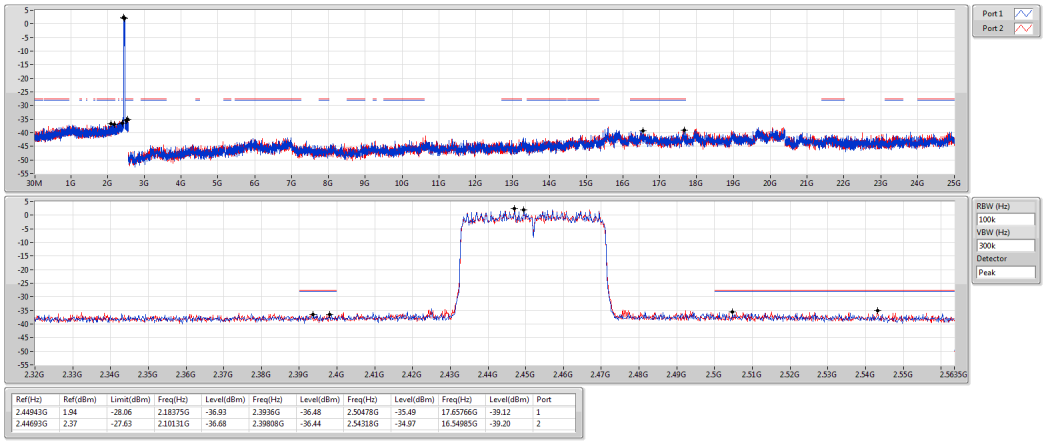
2437MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44075G	2.76	-27.24	2.19291G	-36.60	2.39744G	-35.93	2.50686G	-35.59	17.69131G	-38.72	1
2.43206G	2.95	-27.05	1.89635G	-36.56	2.39632G	-36.37	2.53598G	-35.58	16.21891G	-37.86	2

802.11ax HEW40_Nss1,(MCS0)_2TX **CSE NdB**

2452MHz

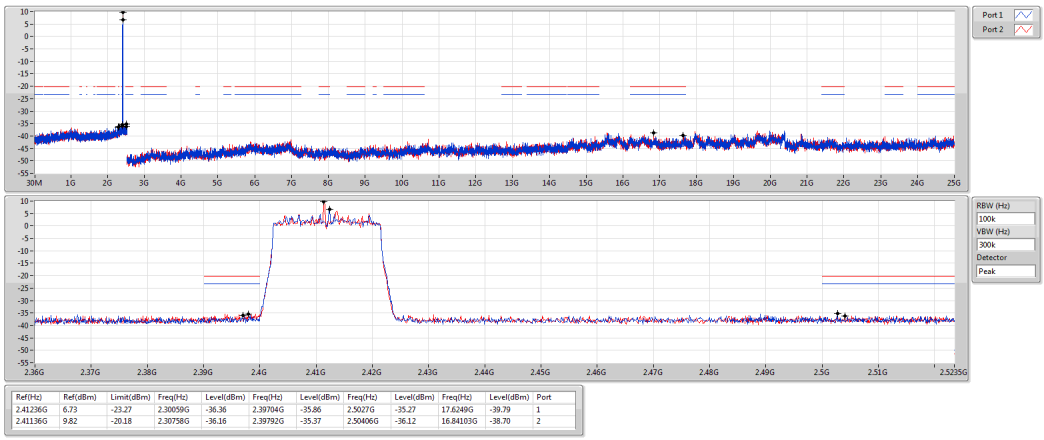


Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44943G	1.94	-28.06	2.18375G	-36.93	2.3936G	-36.48	2.50478G	-35.49	17.65766G	-39.12	1
2.44693G	2.37	-27.63	2.10131G	-36.68	2.39808G	-36.44	2.54318G	-34.97	16.54985G	-39.20	2

Beamforming mode

802.11ax HEW20-BF_Nss1,(MCS0)_2TX **CSE NdB**

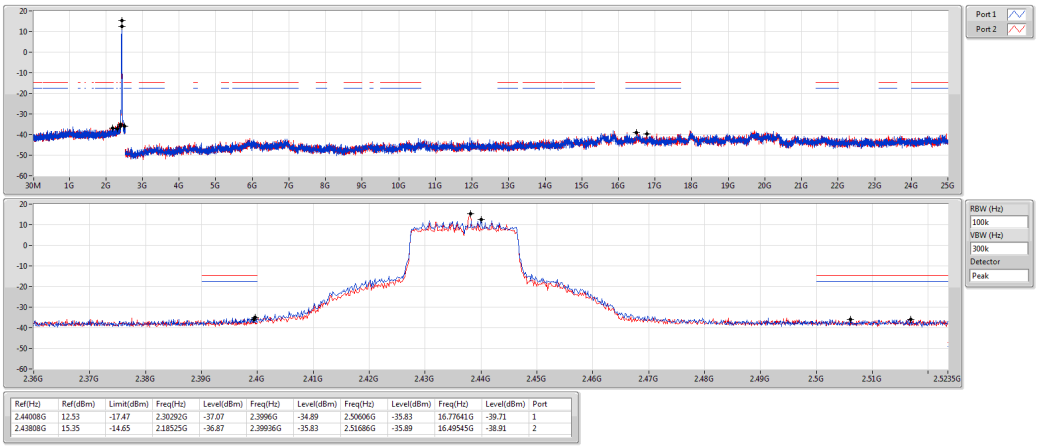
2412MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.41236G	6.73	-23.27	2.30059G	-36.36	2.39704G	-35.86	2.5027G	-35.27	17.6249G	-39.79	1
2.41136G	9.82	-20.18	2.30758G	-36.16	2.39792G	-35.37	2.50406G	-36.12	16.84103G	-38.70	2

802.11ax HEW20-BF_Nss1,(MCS0)_2TX **CSE NdB**

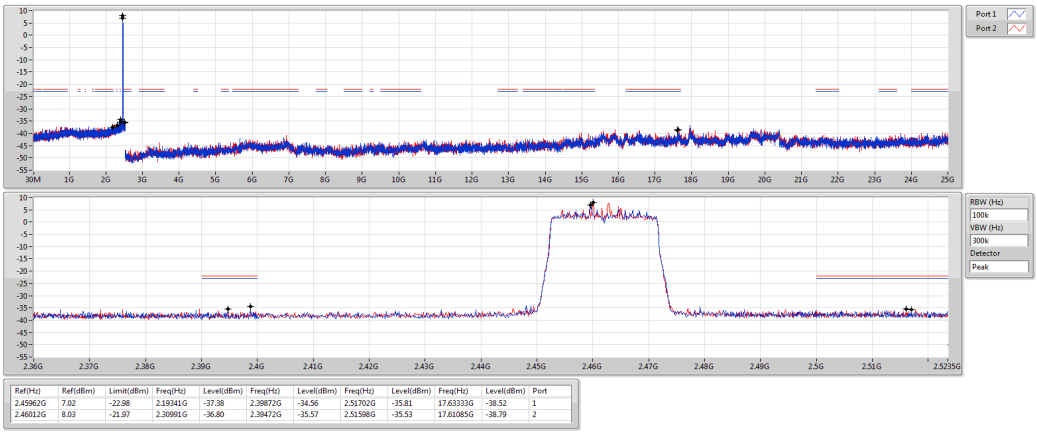
2437MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44008G	12.53	-17.47	2.30292G	-37.07	2.3996G	-34.89	2.50606G	-35.83	16.77641G	-39.71	1
2.43808G	15.35	-14.65	2.18525G	-36.87	2.39936G	-35.83	2.51686G	-35.89	16.49545G	-38.91	2

802.11ax HEW20-BF_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
2.45962G	7.02	-22.98	2.19341G	-37.38	2.39872G	-34.56	2.51702G	-35.81	17.63333G	-38.52	1
2.46012G	8.03	-21.97	2.30991G	-36.80	2.39472G	-35.57	2.51598G	-35.53	17.61085G	-38.79	2

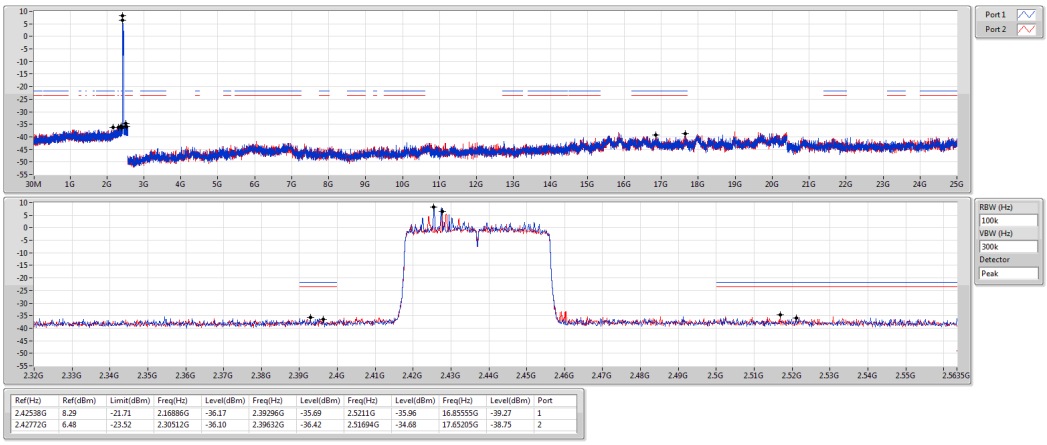
802.11ax HEW40-BF_Nss1,(MCS0)_2TX **CSE NdB**

2422MHz

Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.41136G	6.54	-23.46	1.85399G	-36.61	2.39728G	-35.54	2.51486G	-35.60	16.52461G	-39.12	1
2.41303G	4.50	-25.50	2.30626G	-37.47	2.39184G	-36.15	2.5067G	-35.52	16.55827G	-38.72	2

802.11ax HEW40-BF_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
2.42538G	8.29	-21.71	2.16886G	-36.17	2.39296G	-35.69	2.5211G	-35.96	16.85555G	-39.27	1
2.42772G	6.48	-23.52	2.30512G	-36.10	2.39632G	-36.42	2.51694G	-34.68	17.65205G	-38.75	2

802.11ax HEW40-BF_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
2.44492G	6.10	-23.90	2.17688G	-36.58	2.39872G	-36.87	2.52078G	-36.16	16.50498G	-38.22	1
2.43908G	6.84	-23.16	769.67M	-36.97	2.39472G	-36.78	2.50414G	-36.07	16.83592G	-39.29	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

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