FCC Test Report

FCC ID	:	**UIDSBG10**
Equipment	:	**SBG10**
Model No.	:	**SBG10**
Brand Name	:	**ARRIS**
Applicant	:	**ARRIS**
Address	:	**3871 Lakefield Drive Suite 300,SUWANEE, Georgia, 30024**
Standard	:	**47 CFR FCC Part 15.247**
Received Date	:	**Mar. 22, 2018**
Tested Date	:	**Mar. 22 ~ Mar. 30, 2018**

We, International Certification Corp., 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 may be duplicated completely for legal use with the approval of the applicant. 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**

Testing Laboratory 2732

Table of Contents

1 GENERAL DESCRIPTION 5

1.1 Information 5
1.2 Local Support Equipment List 8
1.3 Test Setup Chart 9
1.4 The Equipment List 10
1.5 Test Standards 11
1.6 Measurement Uncertainty 11

2 TEST CONFIGURATION 12

2.1 Testing Condition 12
2.2 The Worst Test Modes and Channel Details 12

3 TRANSMITTER TEST RESULTS 13

3.1 Conducted Emissions 13
3.2 6dB and Occupied Bandwidth 18
3.3 RF Output Power 27
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 91

Release Record

Report No.	Version	Description	Issued Date
FR832202AC	Rev. 01	Initial issue	Apr. 20, 2018

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	[dBuV]: 0.381MHz 37.67 (Margin -10.58dB) - AV	Pass
15.247(d) 15.209	Radiated Emissions	[dBuV/m at 3m]: 2390.00MHz 53.89 (Margin -0.11dB) - AV	Pass
15.247(b)(3)	Maximum Output Power	Max Power [dBm]: ***Non-beamforming mode*** 27.03 ***Beamforming mode*** 25.95	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

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]	1	MCS 0-7
2400-2483.5	n (HT20)	2412-2462	1-11 [11]	2	MCS 8-15
2400-2483.5	n (HT40)	2422-2452	3-9 [7]	1	MCS 0-7
2400-2483.5	n (HT40)	2422-2452	3-9 [7]	2	MCS 8-15
Note 1: RF output power specifies that Maximum Peak Conducted Output Power. Note 2: 802.11b uses a combination of DSSS-DBPSK, DQPSK, CCK modulation. Note 3: 802.11g/n uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation.. Note 4: 802.11n supports beamforming function.					

1.1.2 Antenna Details

Model	**Type**	**Connector**	**Operating Frequencies (MHz) / Antenna Gain (dBi)**		
			2400~2483.5	**5150~5250**	**5725~5850**
Metal	PIFA	NA	3.6	4.75	4.75
Metal	PIFA	NA	3.6	4.75	4.75

1.1.3 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	12Vdc from AC adapter

1.1.4 Accessories

Accessories		
No.	**Equipment**	**Description**
1	AC adapter	Brand: APD Model: WB-24K12FU Power Rating: I/P: 100-120Vac, 60Hz, 0.7A Max O/P: 12Vdc, 2A Power Line: 1.77m non-shielded without core
2	AC adapter	Brand: Netbit Model: NBS18D120200VU Power Rating: I/P: 100-120Vac, 50/60Hz, 0.6A O/P: 12Vdc, 2A Power Line: 1.8m non-shielded without core
3	AC adapter	Brand: APD Model: WB-18R12FU Power Rating: I/P: 100-120Vac, 60Hz, 0.6A Max O/P: 12Vdc, 1.5A Power Line: 1.77m non-shielded without core

1.1.5 Channel List

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

1.1.6 Test Tool and Duty Cycle

Test Tool	Putty, v0.60.0.0				
Duty Cycle and Duty Factor	Mode	Non-beamforming		Beamforming	
		Duty cycle (%)	Duty factor (dB)	Duty cycle (%)	Duty factor (dB)
	11b	98.17%	0.08	---	---
	11g	95.41%	0.20	---	---
	HT20	91.24%	0.40	100.00%	0.00
	HT40	88.82%	0.51	100.00%	0.00

1.1.7 Power Setting

Modulation Mode	Test Frequency (MHz)	Power Set	
		Non-beamforming	Beamforming
11b	2412	32	---
11b	2437	32	---
11b	2462	30	---
11g	2412	31	---
11g	2437	32	---
11g	2462	28	---
HT20	2412	30	31
HT20	2437	30	31
HT20	2462	26	24
HT40	2422	28	27
HT40	2437	28	29
HT40	2452	24	21

1.2 Local Support Equipment List

Non-beamforming mode

Support Equipment List					
No.	**Equipment**	**Brand**	**Model**	**S/N**	**Signal cable / Length (m)**
1	Notebook	DELL	Latitude E6430	C0GB4X1	RJ45, 10m non-shielded.

Beamforming mode

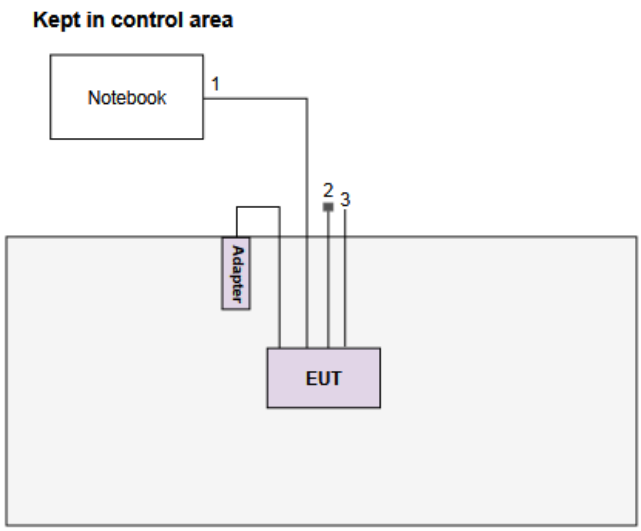
Support Equipment List					
No.	**Equipment**	**Brand**	**Model**	**S/N**	**Signal cable / Length (m)**
1	Notebook	DELL	Latitude E6430	C0GB4X1	RJ45, 10m non-shielded.
2	Notebook	DELL	Latitude E6430	G3GB4X1	RJ45, 1m non-shielded.
3	BF Client	ARRIS	SBG10	---	---

Note: No.3 is provided by applicant.

1.3 Test Setup Chart

Non-beamforming mode

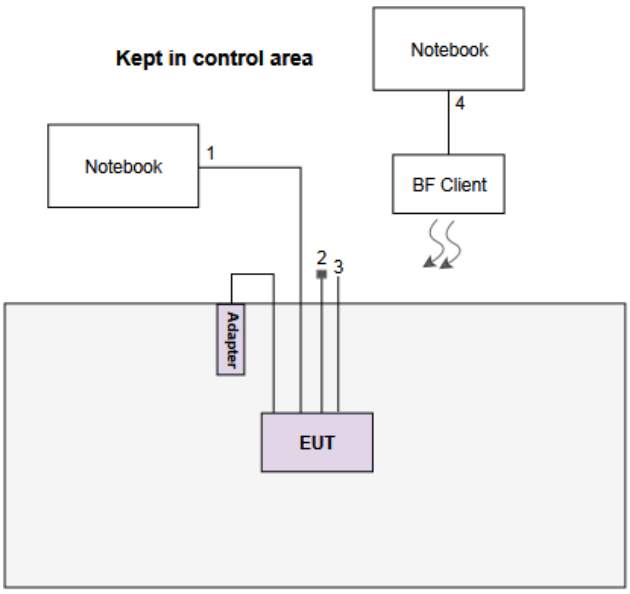
Test Setup Diagram



1. RJ45, 10m non-shielded
2. RJ45, 1.5m non-shielded with load
3. Coaxial, 1m shielded

Beamforming mode

Test Setup Diagram



1. RJ45, 10m non-shielded
2. RJ45, 1.5m non-shielded with load
3. Coaxial, 1m shielded
4. RJ45, 1m non-shielded

1.4 The Equipment List

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Receiver	R&S	ESR3	101657	Jan. 05, 2018	Jan. 04, 2019
LISN	SCHWARZBECK	Schwarzbeck 8127	8127-667	Nov. 13, 2017	Nov. 12, 2018
RF Cable-CON	EMC	EMCCFD300-BM-BM-6000	50821	Dec. 18, 2017	Dec. 17, 2018
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 chamber 3 / (03CH03-WS)				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101499	Jan. 03, 2018	Jan. 02, 2019
Receiver	R&S	ESR3	101658	Nov. 20, 2017	Nov. 19, 2018
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-685	Apr. 28, 2017	Apr. 27, 2018
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1206	Jan. 18, 2018	Jan. 17, 2019
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Nov. 23, 2017	Nov. 22, 2018
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 13, 2017	Nov. 12, 2018
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Dec. 07, 2017	Dec. 06, 2018
Preamplifier	EMC	EMC02325	980187	Sep. 04, 2017	Sep. 03, 2018
Preamplifier	Agilent	83017A	MY53270014	Aug. 21, 2017	Aug. 20, 2018
Preamplifier	EMC	EMC184045B	980192	Aug. 22, 2017	Aug. 21, 2018
RF cable-3M	HUBER+SUHNER	SUCOFLEX104	MY22620/4	Nov. 27, 2017	Nov. 26, 2018
RF cable-8M	HUBER+SUHNER	SUCOFLEX104	MY32487/4	Nov. 27, 2017	Nov. 26, 2018
RF cable-1M	HUBER+SUHNER	SUCOFLEX104	MY22624/4	Nov. 27, 2017	Nov. 26, 2018
LF cable-0.8M	EMC	EMC8D-NM-NM-800	EMC8D-NM-NM-800-001	Nov. 27, 2017	Nov. 26, 2018
LF cable-3M	EMC	EMC8D-NM-NM-3000	131103	Nov. 27, 2017	Nov. 26, 2018
LF cable-13M	EMC	EMC8D-NM-NM-13000	131104	Nov. 27, 2017	Nov. 26, 2018
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)				
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until
Spectrum Analyzer	R&S	FSV40	101486	Nov. 21, 2017	Nov. 20, 2018
Power Meter	Anritsu	ML2495A	1241002	Oct. 16, 2017	Oct. 15, 2018
Power Sensor	Anritsu	MA2411B	1207366	Oct. 16, 2017	Oct. 15, 2018
AC POWER SOURCE	APC	AFC-500W	F312060012	Dec. 01, 2017	Nov. 30, 2018
Measurement Software	Sporton	Sporton_1	1.3.30	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

1.5 Test Standards

According to the specification of EUT, the EUT must comply with following standards and KDB documents.

47 CFR FCC Part 15.247
ANSI C63.10-2013
FCC KDB 558074 D01 DTS Meas Guidance v04
FCC KDB 662911 D01 Multiple Transmitter Output v02r01

1.6 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)

Measurement Uncertainty	
Parameters	Uncertainty
Bandwidth	±34.134 Hz
Conducted power	±0.808 dB
Power density	±0.463 dB
Conducted emission	±2.670 dB
AC conducted emission	±2.90 dB
Radiated emission ≤ 1GHz	±3.66 dB
Radiated emission > 1GHz	±5.37 dB

2 Test Configuration

2.1 Testing Condition

Test Item	Test Site	Ambient Condition	Tested By
AC Conduction	CO01-WS	21°C / 58%	Alex Tsai
Radiated Emissions	03CH03-WS	20-23°C / 63-68%	Vincent Yeh Akun Chung
RF Conducted	TH01-WS	21°C / 63%	Brad Wu

- FCC Designation No.: TW0009
- FCC site registration No.: 207696
- IC site registration No.: 10807C-1

2.2 The Worst Test Modes and Channel Details

Non-beamforming mode

Test item	Modulation Mode	Test Frequency (MHz)	Data Rate	Test Configuration
Conducted Emissions	11g	2437	6 Mbps	---
Radiated Emissions ≤1GHz	11g	2437	6 Mbps	---
Radiated Emissions >1GHz Maximum Output Power 6dB bandwidth Power spectral density	11b 11g HT20 HT40	2412 / 2437 / 2462 2412 / 2437 / 2462 2412 / 2437 / 2462 2422 / 2437 / 2452	1 Mbps 6 Mbps MCS 8 MCS 8	---
Note: 1) Three adapters had been covered during the pretest and found that **Adapter: NBS18D120200VU** was the worst case for Conducted Emission Test and **Adapter: WB-24K12FU** was the worst case for Radiated Emission Test.				

Beamforming mode

Test item	Modulation Mode	Test Frequency (MHz)	Data Rate	Test Configuration
Conducted Emissions	HT20	2437	MCS 8	---
Radiated Emissions ≤1GHz	HT20	2437	MCS 8	---
Radiated Emissions >1GHz Maximum Output Power 6dB bandwidth Power spectral density	HT20 HT40	2412 / 2437 / 2462 2422 / 2437 / 2452	MCS 8 MCS 8	---
Note: 1) Three adapters had been covered during the pretest and found that **Adapter: NBS18D120200VU** was the worst case for Conducted Emission Test and **Adapter: WB-24K12FU** was the worst case for Radiated Emission Test.				

3 Transmitter Test Results

3.1 Conducted Emissions

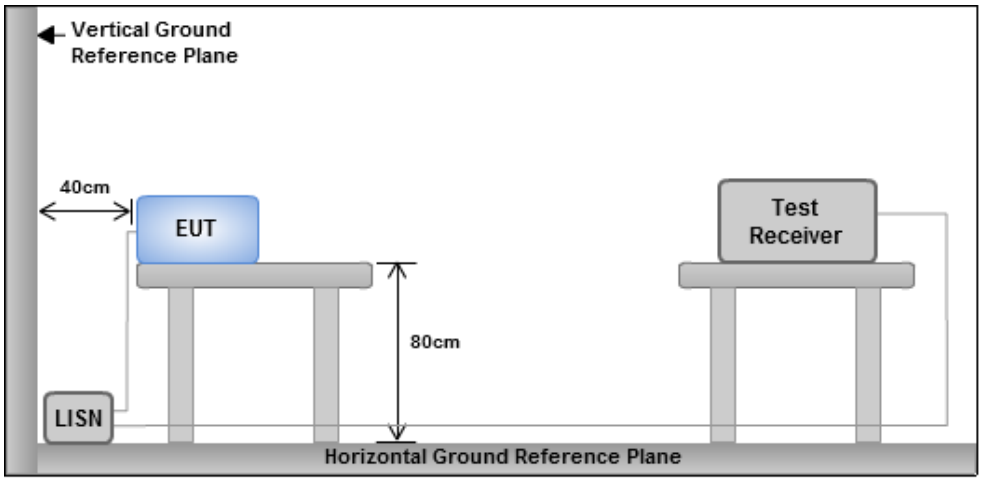
3.1.1 Limit of Conducted Emissions

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

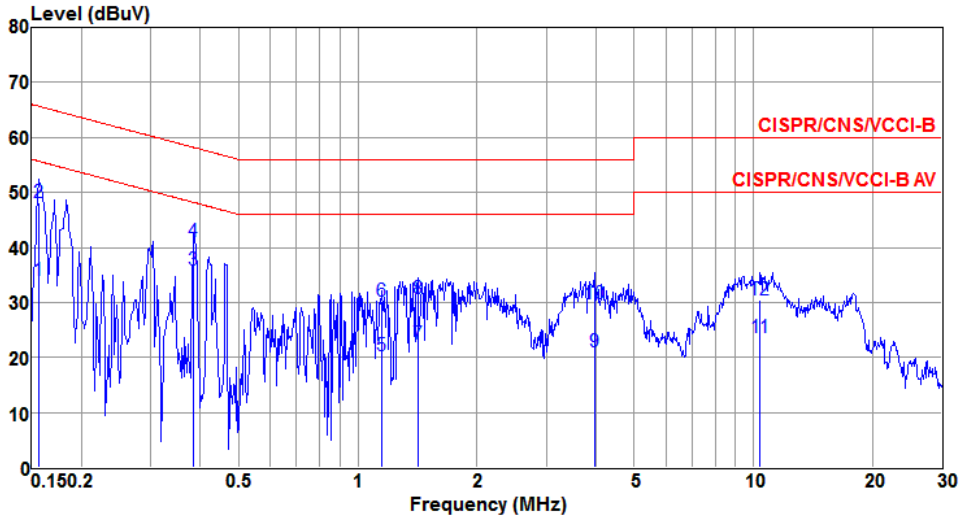


Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

3.1.4 Test Result of Conducted Emissions

Non-beamforming mode

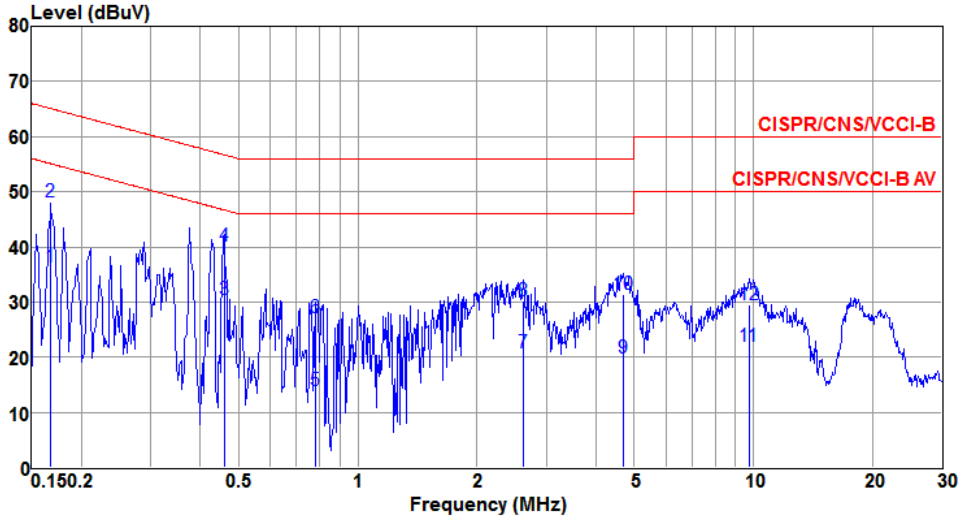
Modulation	11g	**Test Freq. (MHz)**	2437
Power Phase	Line		



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1	0.156	33.91	55.69	-21.78	33.63	0.27	0.01	Average
2	0.156	48.11	65.69	-17.58	47.83	0.27	0.01	QP
3@	0.383	35.95	48.21	-12.26	35.59	0.34	0.02	Average
4	0.383	41.00	58.21	-17.21	40.64	0.34	0.02	QP
5	1.153	20.25	46.00	-25.75	19.81	0.40	0.04	Average
6	1.153	30.19	56.00	-25.81	29.75	0.40	0.04	QP
7	1.418	22.50	46.00	-23.50	22.02	0.41	0.07	Average
8	1.418	30.59	56.00	-25.41	30.11	0.41	0.07	QP
9	3.964	20.95	46.00	-25.05	20.26	0.47	0.22	Average
10	3.964	29.80	56.00	-26.20	29.11	0.47	0.22	QP
11	10.397	23.62	50.00	-26.38	22.72	0.58	0.32	Average
12	10.397	30.51	60.00	-29.49	29.61	0.58	0.32	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB).
2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

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

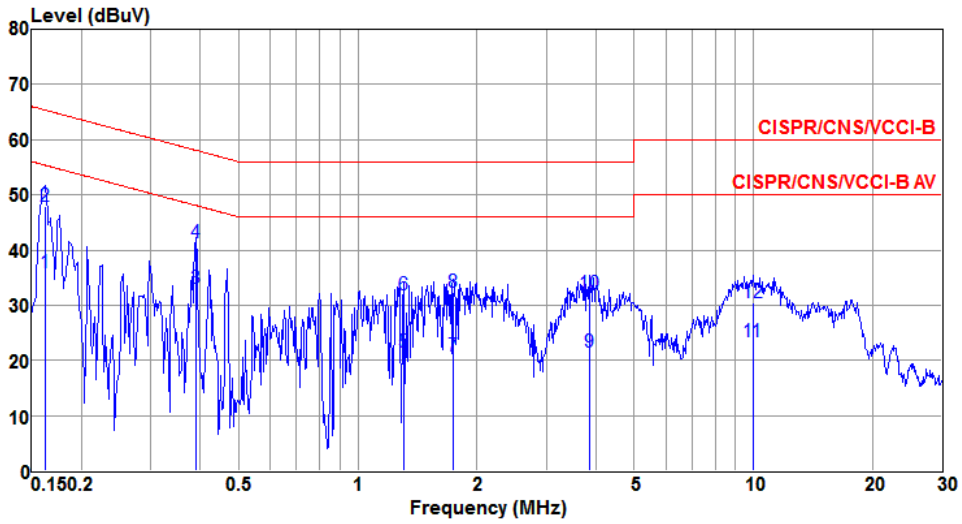


	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1	0.168	36.33	55.08	-18.75	36.17	0.14	0.02	Average
2	0.168	48.25	65.08	-16.83	48.09	0.14	0.02	QP
3@	0.459	30.49	46.71	-16.22	30.27	0.20	0.02	Average
4	0.459	40.14	56.71	-16.57	39.92	0.20	0.02	QP
5	0.783	13.82	46.00	-32.18	13.55	0.24	0.03	Average
6	0.783	27.19	56.00	-28.81	26.92	0.24	0.03	QP
7	2.622	20.75	46.00	-25.25	20.27	0.33	0.15	Average
8	2.622	30.17	56.00	-25.83	29.69	0.33	0.15	QP
9	4.696	19.91	46.00	-26.09	19.30	0.37	0.24	Average
10	4.696	31.49	56.00	-24.51	30.88	0.37	0.24	QP
11	9.757	21.90	50.00	-28.10	21.12	0.46	0.32	Average
12	9.757	29.60	60.00	-30.40	28.82	0.46	0.32	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB).
2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

Beamforming mode

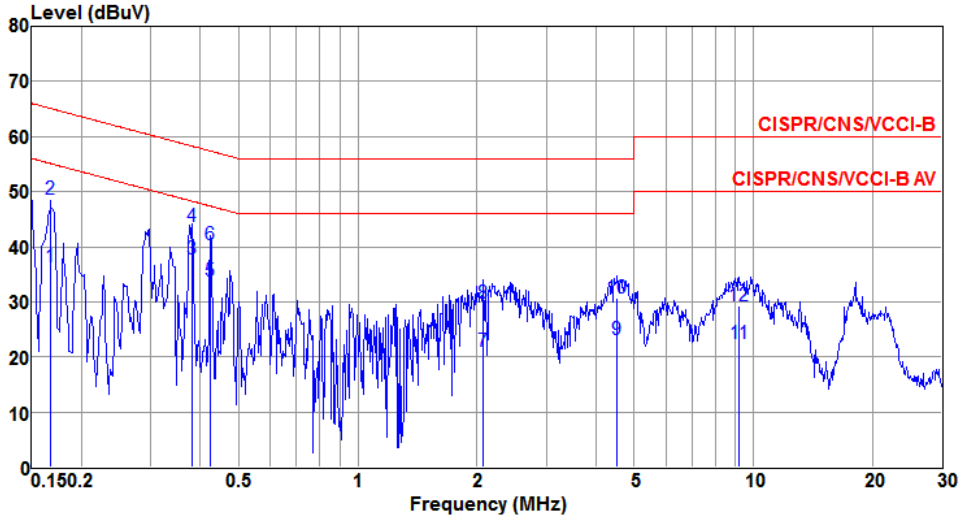
Modulation	HT20	**Test Freq. (MHz)**	2437
Power Phase	Line		



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1	0.162	35.86	55.34	-19.48	35.56	0.28	0.02	Average
2	0.162	47.86	65.34	-17.48	47.56	0.28	0.02	QP
3@	0.389	32.95	48.08	-15.13	32.59	0.34	0.02	Average
4	0.389	41.38	58.08	-16.70	41.02	0.34	0.02	QP
5	1.303	21.50	46.00	-24.50	21.03	0.41	0.06	Average
6	1.303	31.83	56.00	-24.17	31.36	0.41	0.06	QP
7	1.744	20.78	46.00	-25.22	20.27	0.42	0.09	Average
8	1.744	32.26	56.00	-23.74	31.75	0.42	0.09	QP
9	3.840	21.38	46.00	-24.62	20.70	0.47	0.21	Average
10	3.840	32.19	56.00	-23.81	31.51	0.47	0.21	QP
11	9.966	23.39	50.00	-26.61	22.50	0.57	0.32	Average
12	9.966	30.57	60.00	-29.43	29.68	0.57	0.32	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB).
2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

Modulation	HT20	Test Freq. (MHz)	2437
Power Phase	Neutral		



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1	0.168	36.35	55.08	-18.73	36.19	0.14	0.02	Average
2	0.168	48.55	65.08	-16.53	48.39	0.14	0.02	QP
3@	0.381	37.67	48.25	-10.58	37.46	0.19	0.02	Average
4	0.381	43.68	58.25	-14.57	43.47	0.19	0.02	QP
5	0.424	33.81	47.37	-13.56	33.60	0.19	0.02	Average
6	0.424	40.47	57.37	-16.90	40.26	0.19	0.02	QP
7	2.077	21.03	46.00	-24.97	20.61	0.31	0.11	Average
8	2.077	29.68	56.00	-26.32	29.26	0.31	0.11	QP
9	4.525	23.13	46.00	-22.87	22.54	0.36	0.23	Average
10	4.525	30.68	56.00	-25.32	30.09	0.36	0.23	QP
11	9.204	22.46	50.00	-27.54	21.70	0.45	0.31	Average
12	9.204	29.35	60.00	-30.65	28.59	0.45	0.31	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (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

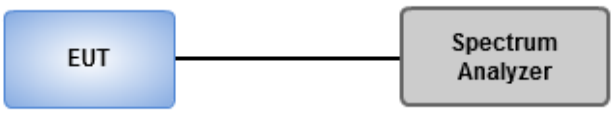
6dB Bandwidth

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

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	9.058M	14.038M	14M0G1D	8.043M	13.242M
802.11g_Nss1,(6Mbps)_2TX	16.377M	16.643M	16M6D1D	15.29M	16.425M
802.11n HT20_Nss2,(MCS8)_2TX	17.029M	17.583M	17M6D1D	15.362M	17.511M
802.11n HT40_Nss2,(MCS8)_2TX	34.203M	36.035M	36M0D1D	31.304M	35.745M

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;

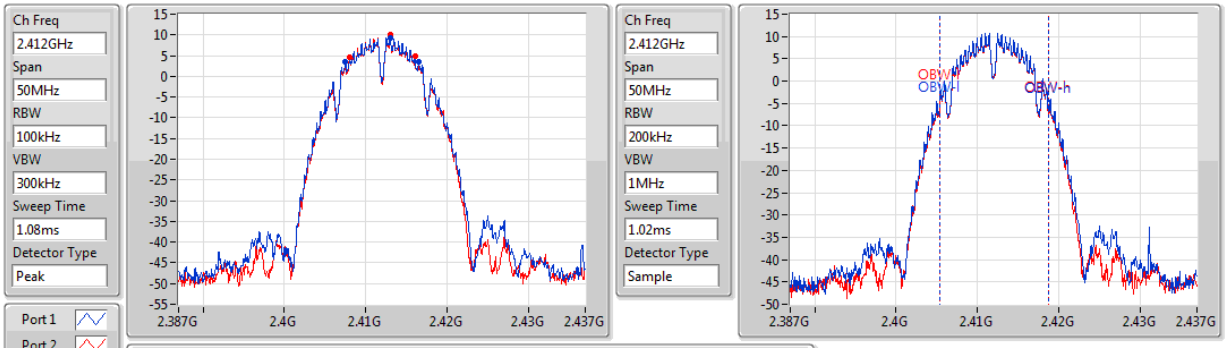
Result

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	8.986M	13.459M	8.043M	13.314M
2437MHz	Pass	500k	8.551M	13.676M	8.623M	13.314M
2462MHz	Pass	500k	8.551M	14.038M	9.058M	13.242M
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	16.087M	16.498M	15.29M	16.498M
2437MHz	Pass	500k	15.29M	16.643M	16.304M	16.498M
2462MHz	Pass	500k	16.377M	16.643M	16.377M	16.425M
802.11n HT20_Nss2,(MCS8)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	15.652M	17.583M	17.029M	17.511M
2437MHz	Pass	500k	15.362M	17.583M	15.652M	17.583M
2462MHz	Pass	500k	16.957M	17.583M	16.304M	17.583M
802.11n HT40_Nss2,(MCS8)_2TX	-	-	-	-	-	-
2422MHz	Pass	500k	31.594M	35.745M	33.768M	35.745M
2437MHz	Pass	500k	31.739M	35.89M	31.304M	35.89M
2452MHz	Pass	500k	34.203M	36.035M	32.609M	35.745M

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

802.11b_Nss1,(1Mbps)_2TX EBW

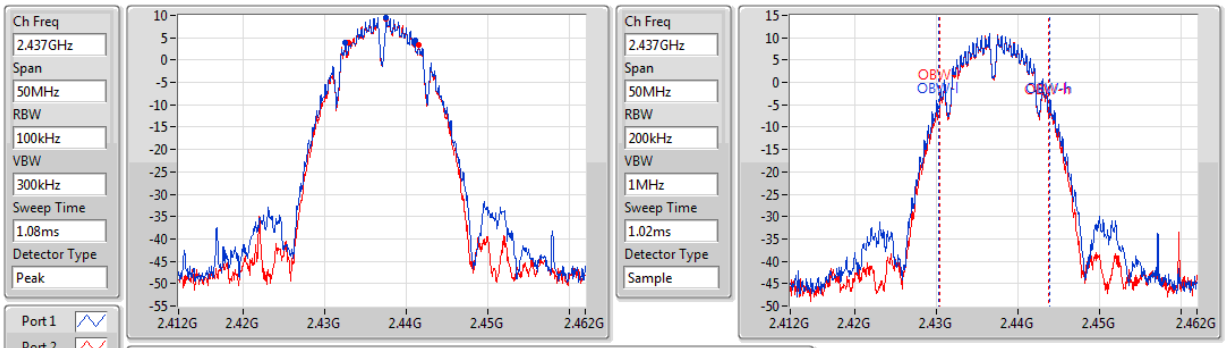
2412MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
8.986M	2.407507G	2.416493G	13.459M	2.405343G	2.418802G	500k	1
8.043M	2.408014G	2.416058G	13.314M	2.405415G	2.418729G	500k	2

802.11b_Nss1,(1Mbps)_2TX EBW

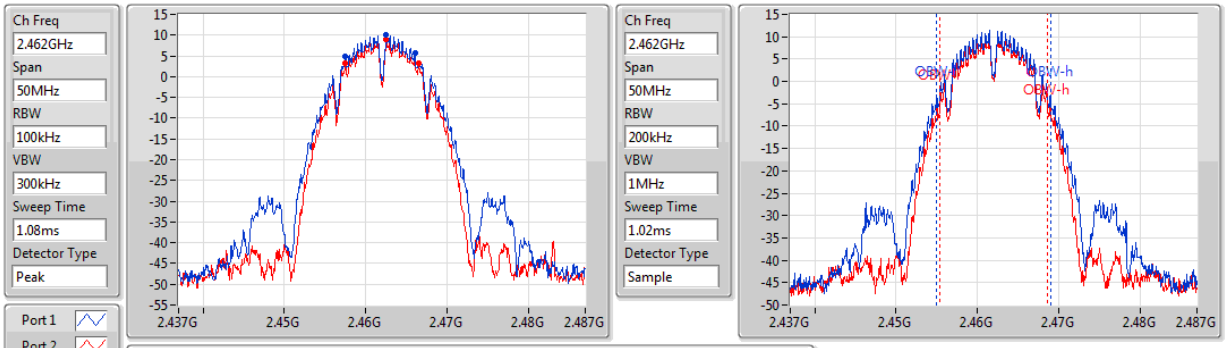
2437MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
8.551M	2.432507G	2.441058G	13.676M	2.430198G	2.443874G	500k	1
8.623M	2.432942G	2.441565G	13.314M	2.430415G	2.443729G	500k	2

802.11b_Nss1,(1Mbps)_2TX EBW

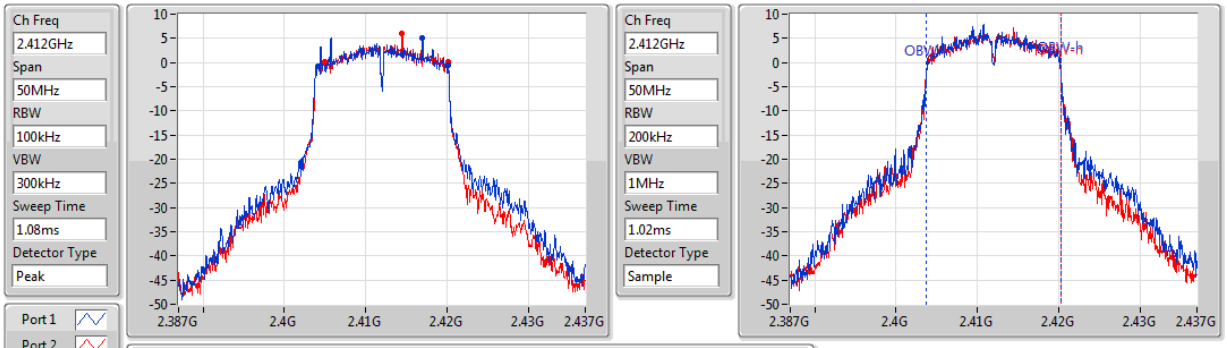
2462MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
8.551M	2.457507G	2.466058G	14.038M	2.454981G	2.469019G	500k	1
9.058M	2.457507G	2.466565G	13.242M	2.455415G	2.468657G	500k	2

802.11g_Nss1,(6Mbps)_2TX EBW

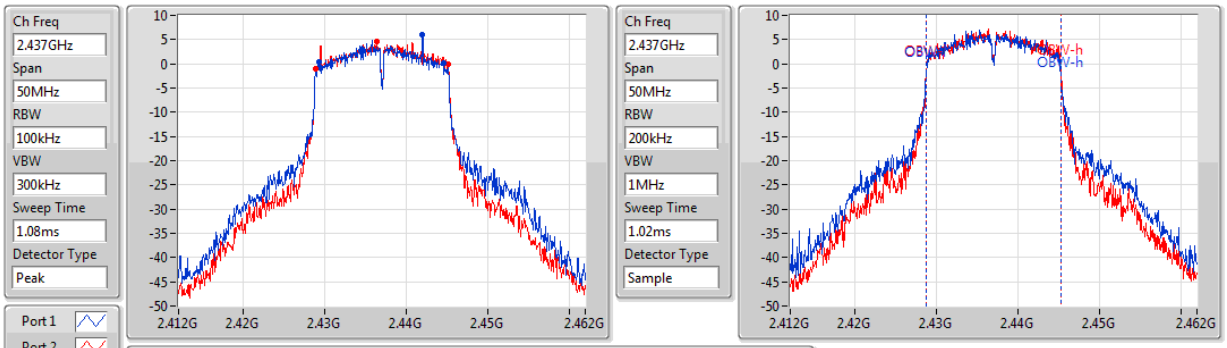
2412MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.087M	2.404101G	2.420188G	16.498M	2.403751G	2.420249G	500k	1
15.29M	2.404899G	2.420188G	16.498M	2.403751G	2.420249G	500k	2

802.11g_Nss1,(6Mbps)_2TX EBW

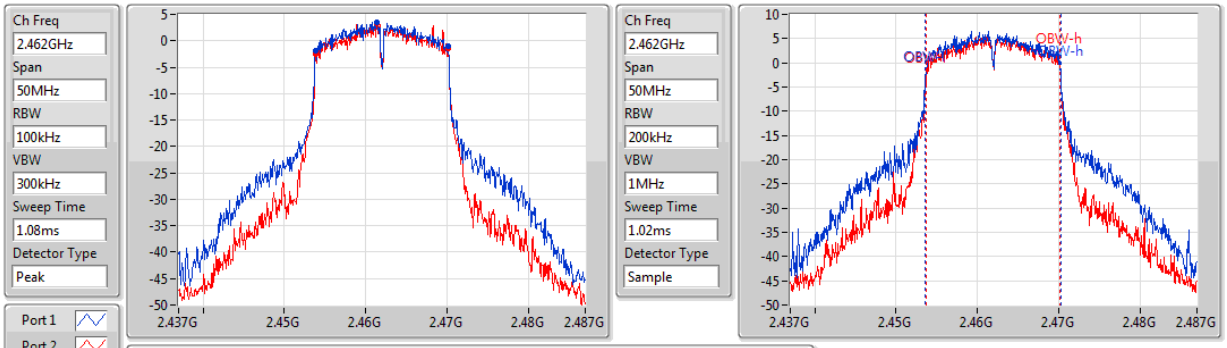
2437MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
15.29M	2.429246G	2.444536G	16.643M	2.428679G	2.445321G	500k	1
16.304M	2.428884G	2.445188G	16.498M	2.428751G	2.445249G	500k	2

802.11g_Nss1,(6Mbps)_2TX EBW

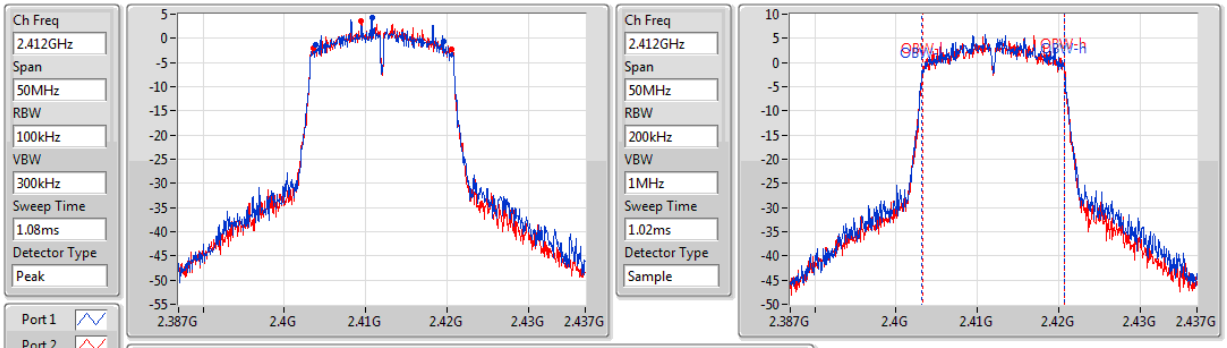
2462MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.377M	2.453812G	2.470188G	16.643M	2.453606G	2.470249G	500k	1
16.377M	2.453812G	2.470188G	16.425M	2.453751G	2.470177G	500k	2

802.11n HT20_Nss2,(MCS8)_2TX EBW

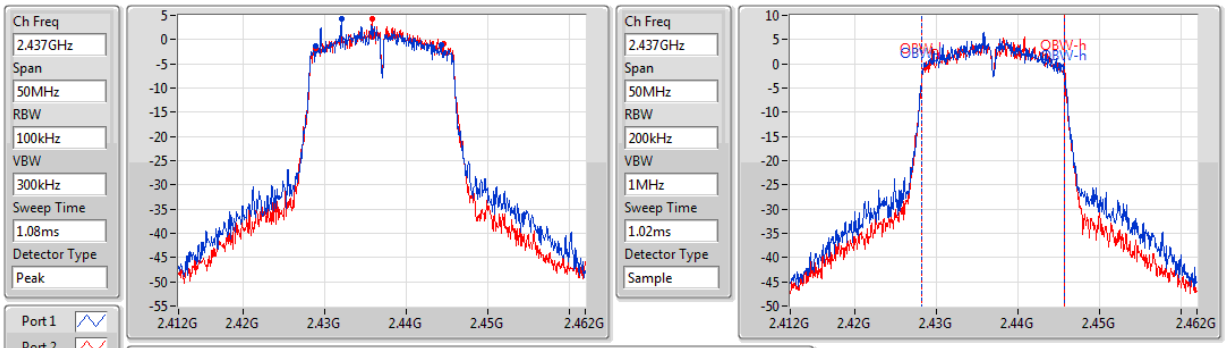
2412MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
15.652M	2.403884G	2.419536G	17.583M	2.403172G	2.420755G	500k	1
17.029M	2.403522G	2.420551G	17.511M	2.403245G	2.420755G	500k	2

802.11n HT20_Nss2,(MCS8)_2TX EBW

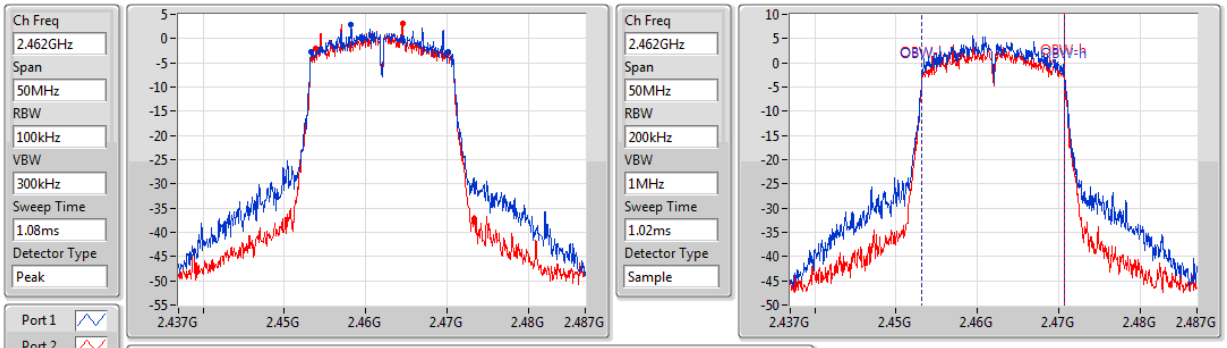
2437MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
15.362M	2.428884G	2.444246G	17.583M	2.428172G	2.445755G	500k	1
15.652M	2.428884G	2.444536G	17.583M	2.428172G	2.445755G	500k	2

802.11n HT20_Nss2,(MCS8)_2TX EBW

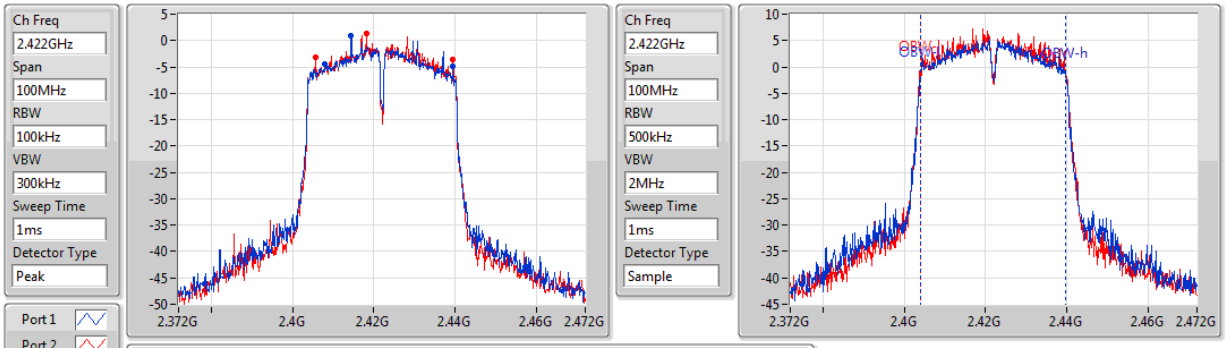
2462MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.957M	2.453232G	2.470188G	17.583M	2.453172G	2.470755G	500k	1
16.304M	2.453884G	2.470188G	17.583M	2.453172G	2.470755G	500k	2

802.11n HT40_Nss2,(MCS8)_2TX EBW

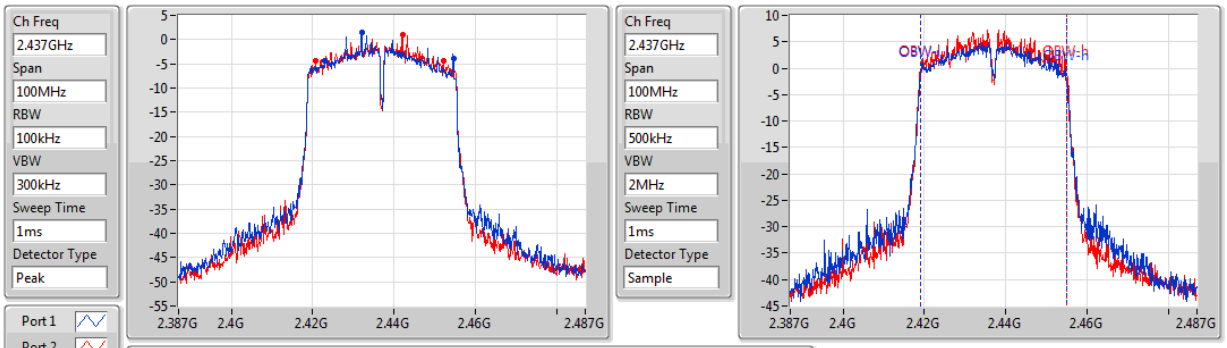
2422MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
31.594M	2.407942G	2.439536G	35.745M	2.404055G	2.4398G	500k	1
33.768M	2.405768G	2.439536G	35.745M	2.404055G	2.4398G	500k	2

802.11n HT40_Nss2,(MCS8)_2TX EBW

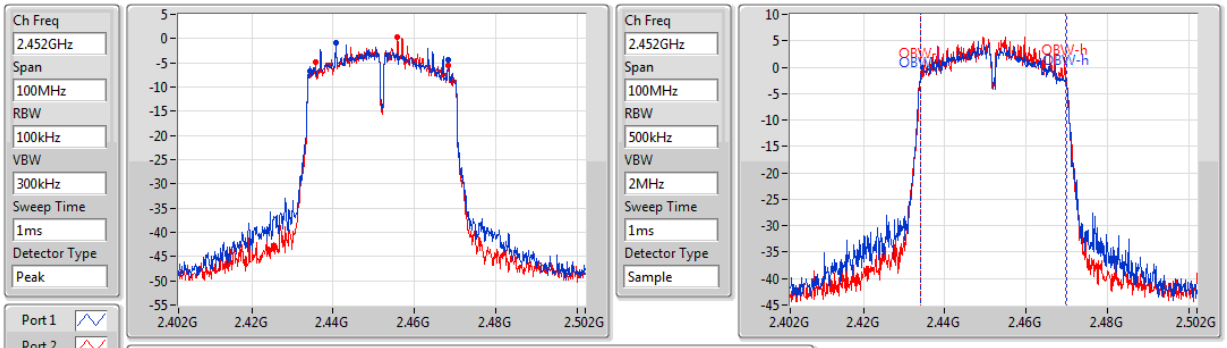
2437MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
31.739M	2.422942G	2.454681G	35.89M	2.419055G	2.454945G	500k	1
31.304M	2.420768G	2.452072G	35.89M	2.419055G	2.454945G	500k	2

802.11n HT40_Nss2,(MCS8)_2TX EBW

2452MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
34.203M	2.434174G	2.468377G	36.035M	2.43391G	2.469945G	500k	1
32.609M	2.435768G	2.468377G	35.745M	2.434055G	2.4698G	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	-	-	-	-	-
802.11n HT20-BF_Nss2,(MCS8)_2TX	17.754M	17.728M	17M7D1D	16.957M	17.583M
802.11n HT40-BF_Nss2,(MCS8)_2TX	35.942M	36.324M	36M3D1D	31.014M	35.89M

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;

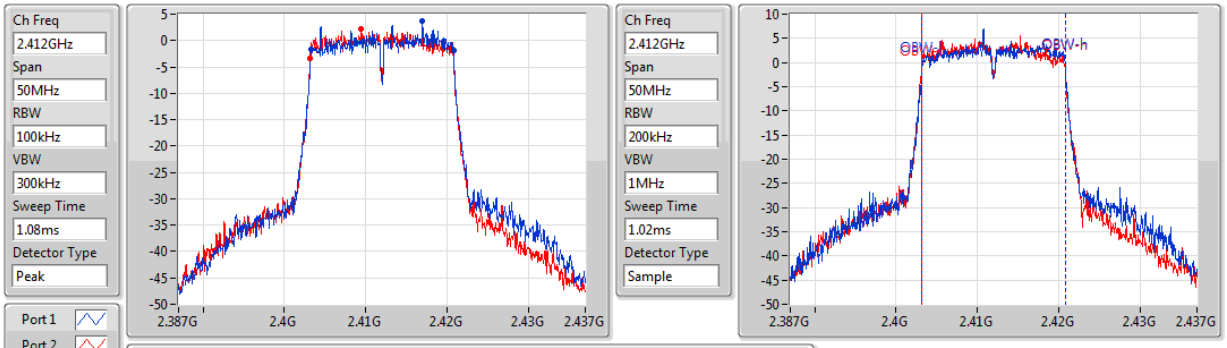
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)
802.11n HT20-BF_Nss2,(MCS8)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	17.609M	17.656M	17.754M	17.728M
2437MHz	Pass	500k	17.754M	17.728M	16.957M	17.656M
2462MHz	Pass	500k	17.536M	17.728M	16.957M	17.583M
802.11n HT40-BF_Nss2,(MCS8)_2TX	-	-	-	-	-	-
2422MHz	Pass	500k	34.783M	36.324M	33.623M	36.179M
2437MHz	Pass	500k	35.942M	36.324M	33.623M	36.179M
2452MHz	Pass	500k	31.014M	36.179M	35.797M	35.89M

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

802.11n HT20-BF_Nss2,(MCS8)_2TX EBW

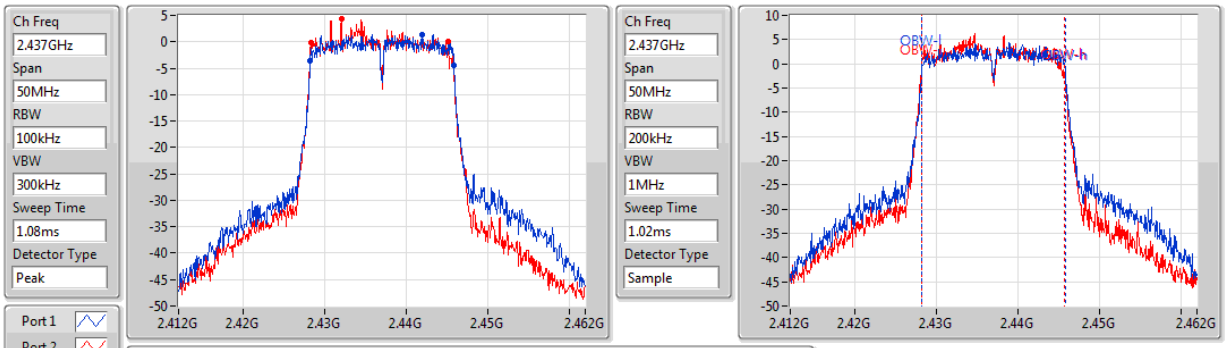
2412MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
17.609M	2.403232G	2.420841G	17.656M	2.403172G	2.420828G	500k	1
17.754M	2.403087G	2.420841G	17.728M	2.4031G	2.420828G	500k	2

802.11n HT20-BF_Nss2,(MCS8)_2TX EBW

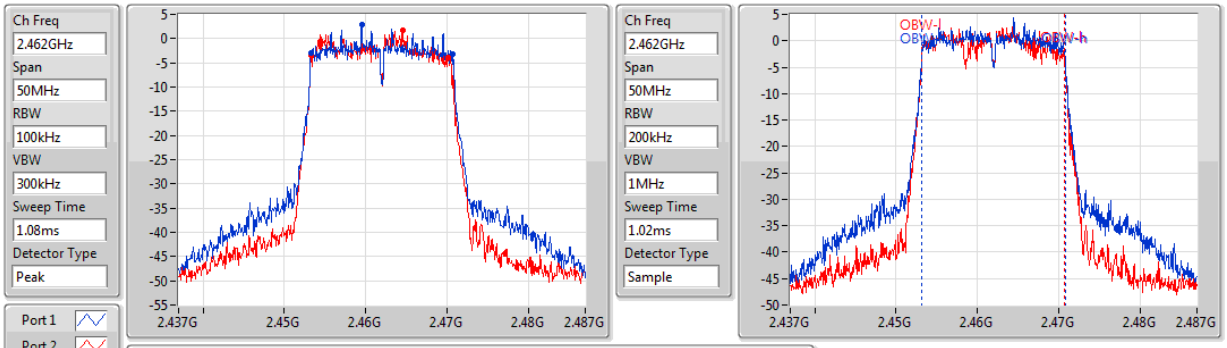
2437MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
17.754M	2.428159G	2.445913G	17.728M	2.428172G	2.4459G	500k	1
16.957M	2.428232G	2.445188G	17.656M	2.4281G	2.445755G	500k	2

802.11n HT20-BF_Nss2,(MCS8)_2TX EBW

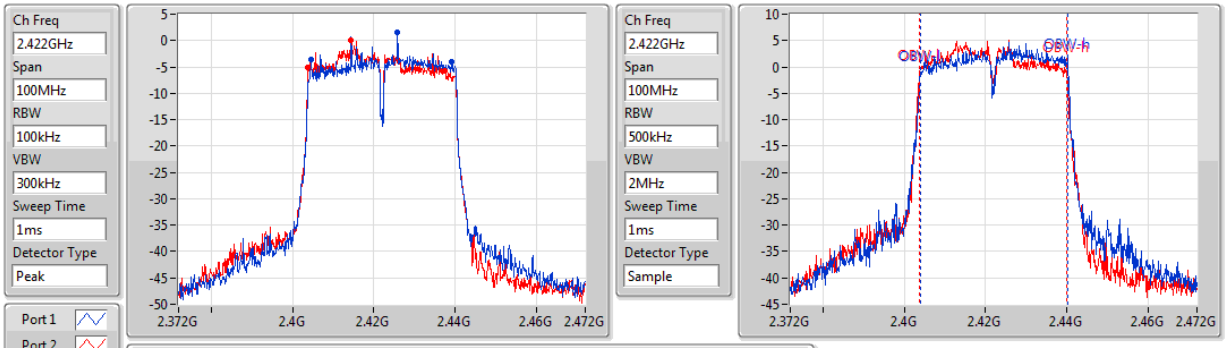
2462MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
17.536M	2.453232G	2.470768G	17.728M	2.4531G	2.470828G	500k	1
16.957M	2.453232G	2.470188G	17.583M	2.453172G	2.470755G	500k	2

802.11n HT40-BF_Nss2,(MCS8)_2TX EBW

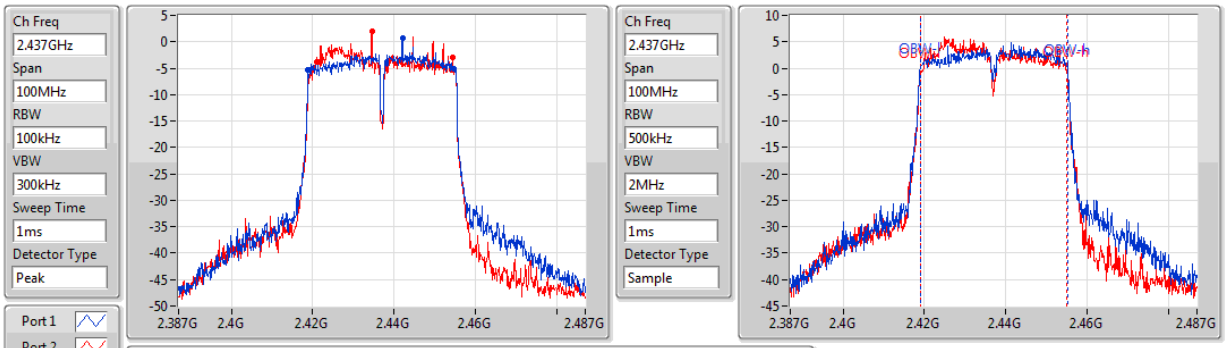
2422MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
34.783M	2.404464G	2.439246G	36.324M	2.40391G	2.440234G	500k	1
33.623M	2.403884G	2.437507G	36.179M	2.403766G	2.439945G	500k	2

802.11n HT40-BF_Nss2,(MCS8)_2TX EBW

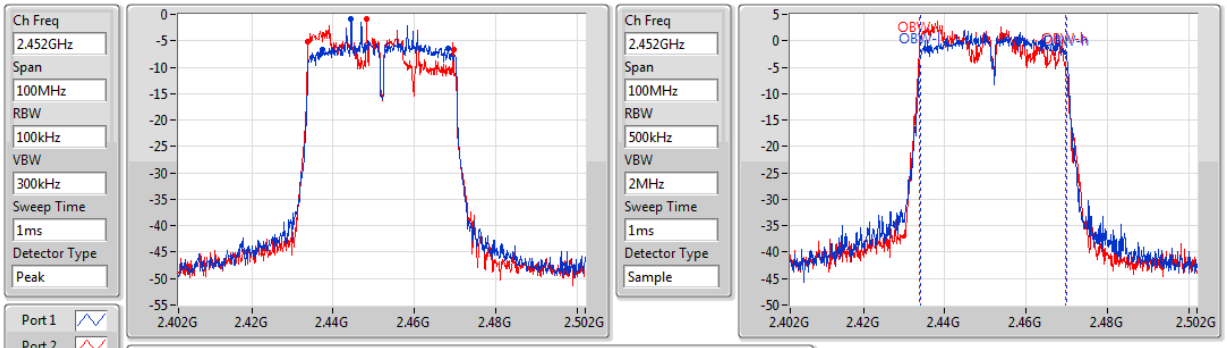
2437MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
35.942M	2.418884G	2.454826G	36.324M	2.41891G	2.455234G	500k	1
33.623M	2.420913G	2.454536G	36.179M	2.41891G	2.45509G	500k	2

802.11n HT40-BF_Nss2,(MCS8)_2TX EBW

2452MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
31.014M	2.437362G	2.468377G	36.179M	2.43391G	2.47009G	500k	1
35.797M	2.433884G	2.469681G	35.89M	2.433766G	2.469656G	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.

Antenna gain > 6dBi

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

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

Systems operating in the 5725–5850 MHz band that are used exclusively for fixed, point-to-point operations ,no any corresponding reduction is in transmitter peak output power

3.3.2 Test Procedures

Maximum Peak Conducted Output Power

A broadband Peak 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.

Maximum Conducted Output Power

A broadband Average 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

Non-beamforming mode

Summary of Peak Conducted Output Power (dBm)

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11b_Nss1,(1Mbps)_2TX	24.15	0.26002
802.11g_Nss1,(6Mbps)_2TX	27.03	0.50466
802.11n HT20_Nss2,(MCS8)_2TX	26.15	0.41210
802.11n HT40_Nss2,(MCS8)_2TX	25.46	0.35156

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	3.60	20.99	21.28	24.15	30.00	27.75	36.00
2437MHz	Pass	3.60	20.75	21.23	24.01	30.00	27.61	36.00
2462MHz	Pass	3.60	21.23	20.27	23.79	30.00	27.39	36.00
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	3.60	23.67	24.25	26.98	30.00	30.58	36.00
2437MHz	Pass	3.60	23.06	24.80	27.03	30.00	30.63	36.00
2462MHz	Pass	3.60	23.46	23.21	26.35	30.00	29.95	36.00
802.11n HT20_Nss2,(MCS8)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	3.60	22.16	23.18	25.71	30.00	29.31	36.00
2437MHz	Pass	3.60	22.51	23.69	26.15	30.00	29.75	36.00
2462MHz	Pass	3.60	21.77	22.81	25.33	30.00	28.93	36.00
802.11n HT40_Nss2,(MCS8)_2TX	-	-	-	-	-	-	-	-
2422MHz	Pass	3.60	21.67	23.06	25.43	30.00	29.03	36.00
2437MHz	Pass	3.60	21.79	23.02	25.46	30.00	29.06	36.00
2452MHz	Pass	3.60	21.34	21.18	24.27	30.00	27.87	36.00

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

Summary of Conducted (Average) Output Power (dBm)

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11b_Nss1,(1Mbps)_2TX	21.91	0.15524
802.11g_Nss1,(6Mbps)_2TX	20.53	0.11298
802.11n HT20_Nss2,(MCS8)_2TX	18.67	0.07362
802.11n HT40_Nss2,(MCS8)_2TX	17.90	0.06166

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	3.60	18.76	19.03	21.91	30.00	25.51	-
2437MHz	Pass	3.60	18.75	19.01	21.89	30.00	25.49	-
2462MHz	Pass	3.60	19.18	18.12	21.69	30.00	25.29	-
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	3.60	16.92	17.07	20.01	30.00	23.61	-
2437MHz	Pass	3.60	17.04	17.96	20.53	30.00	24.13	-
2462MHz	Pass	3.60	16.68	16.16	19.44	30.00	23.04	-
802.11n HT20_Nss2,(MCS8)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	3.60	15.33	15.93	18.65	30.00	22.25	-
2437MHz	Pass	3.60	15.35	15.94	18.67	30.00	22.27	-
2462MHz	Pass	3.60	14.65	14.41	17.54	30.00	21.14	-
802.11n HT40_Nss2,(MCS8)_2TX	-	-	-	-	-	-	-	-
2422MHz	Pass	3.60	14.61	15.16	17.90	30.00	21.50	-
2437MHz	Pass	3.60	14.55	15.13	17.86	30.00	21.46	-
2452MHz	Pass	3.60	14.01	14.05	17.04	30.00	20.64	-

DG = Directional Gain; **Port X** = Port X output power
Note : Conducted average output power is for reference only

Beamforming mode

Summary of Peak Conducted Output Power (dBm)

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11n HT20-BF_Nss2,(MCS8)_2TX	25.95	0.39355
802.11n HT40-BF_Nss2,(MCS8)_2TX	25.26	0.33574

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11n HT20-BF_Nss2,(MCS8)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	6.61	22.08	23.12	25.64	29.39	32.25	36.00
2437MHz	Pass	6.61	22.29	23.51	25.95	29.39	32.56	36.00
2462MHz	Pass	6.61	21.87	21.38	24.64	29.39	31.25	36.00
802.11n HT40-BF_Nss2,(MCS8)_2TX	-	-	-	-	-	-	-	-
2422MHz	Pass	6.61	21.77	22.31	25.06	29.39	31.67	36.00
2437MHz	Pass	6.61	21.89	22.59	25.26	29.39	31.87	36.00
2452MHz	Pass	6.61	20.42	20.28	23.36	29.39	29.97	36.00

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

Summary of Conducted (Average) Output Power (dBm)

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11n HT20-BF_Nss2,(MCS8)_2TX	18.53	0.07129
802.11n HT40-BF_Nss2,(MCS8)_2TX	17.53	0.05662

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11n HT20-BF_Nss2,(MCS8)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	6.61	15.51	15.53	18.53	29.39	25.14	-
2437MHz	Pass	6.61	15.29	15.61	18.46	29.39	25.07	-
2462MHz	Pass	6.61	13.32	12.51	15.94	29.39	22.55	-
802.11n HT40-BF_Nss2,(MCS8)_2TX	-	-	-	-	-	-	-	-
2422MHz	Pass	6.61	13.56	13.82	16.70	29.39	23.31	-
2437MHz	Pass	6.61	14.25	14.77	17.53	29.39	24.14	-
2452MHz	Pass	6.61	11.54	11.33	14.45	29.39	21.06	-

DG = Directional Gain; **Port X** = Port X output power
Note : Conducted average output power is for reference only

Remarks:
Directional gain = 3.6+10* log(2/1) = 6.61 dBi > 6 dBi.
Limit shall be reduced to 30 dBm – (6.61 dBi – 6 dBi) = 29.39 dBm.

3.4 Power Spectral Density

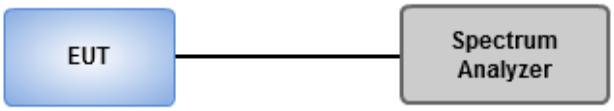
3.4.1 Limit of Power Spectral Density

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

3.4.2 Test Procedures

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

3.4.3 Test Setup



3.4.4 Test Result of Power Spectral Density

Non-beamforming mode

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
802.11b_Nss1,(1Mbps)_2TX	-4.87
802.11g_Nss1,(6Mbps)_2TX	-6.39
802.11n HT20_Nss2,(MCS8)_2TX	-8.55
802.11n HT40_Nss2,(MCS8)_2TX	-11.36

RBW=3kHz.

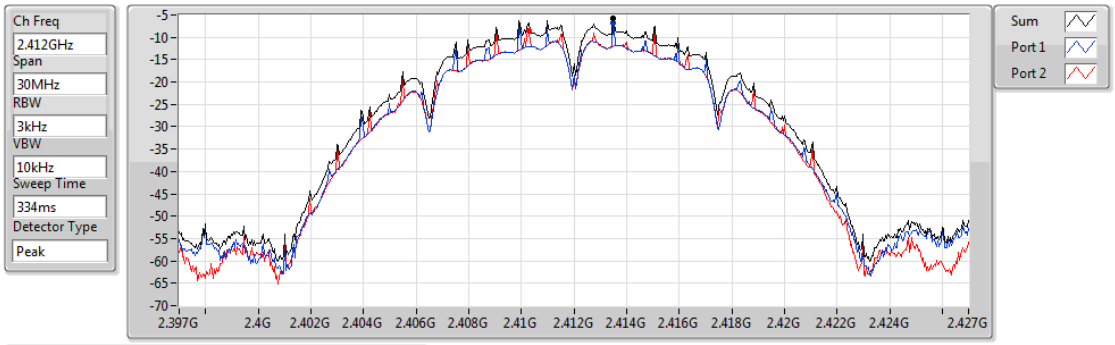
Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	6.61	-6.80	-8.48	-5.66	7.39
2437MHz	Pass	6.61	-5.91	-6.94	-4.87	7.39
2462MHz	Pass	6.61	-6.96	-7.12	-5.78	7.39
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	6.61	-10.02	-8.56	-6.39	7.39
2437MHz	Pass	6.61	-9.03	-9.65	-6.84	7.39
2462MHz	Pass	6.61	-10.03	-10.76	-7.74	7.39
802.11n HT20_Nss2,(MCS8)_2TX	-	-	-	-	-	-
2412MHz	Pass	3.60	-10.77	-11.10	-8.55	8.00
2437MHz	Pass	3.60	-10.53	-11.57	-8.79	8.00
2462MHz	Pass	3.60	-11.34	-11.12	-9.40	8.00
802.11n HT40_Nss2,(MCS8)_2TX	-	-	-	-	-	-
2422MHz	Pass	3.60	-14.11	-14.73	-11.70	8.00
2437MHz	Pass	3.60	-13.47	-13.97	-11.36	8.00
2452MHz	Pass	3.60	-15.51	-15.38	-12.94	8.00

DG = Directional Gain; RBW=3kHz;
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;
Directional gain = 3.6+10* log(2/1) = 6.61 dBi > 6 dBi for 11 b/ g .
Limit shall be reduced to 8 dBm – (6.61 dBi – 6 dBi) = 7.39 dBm.

802.11b_Nss1,(1Mbps)_2TX PSD

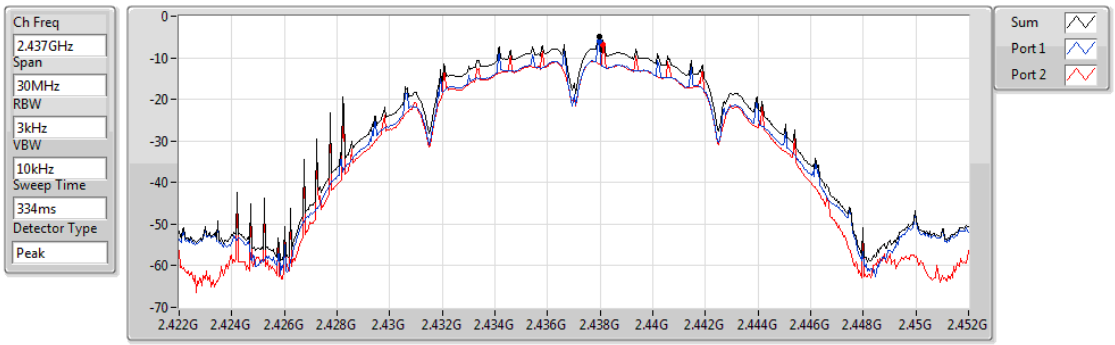
2412MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-5.66	-5.66	-6.80	-8.48

802.11b_Nss1,(1Mbps)_2TX PSD

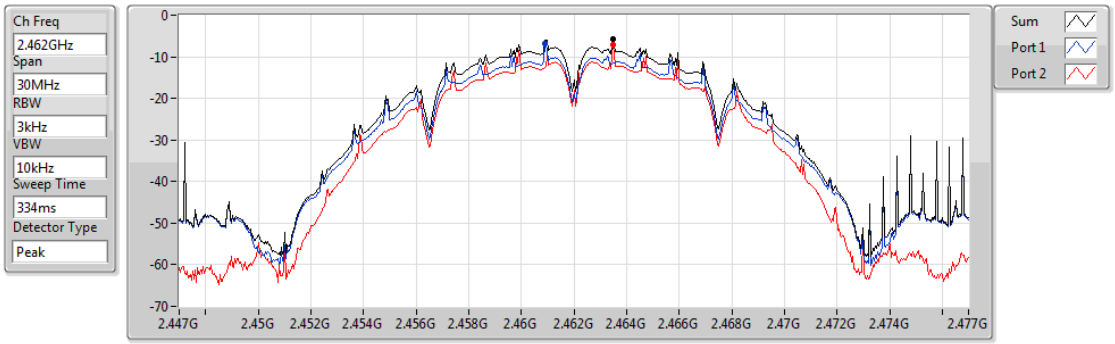
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-4.87	-4.87	-5.91	-6.94

802.11b_Nss1,(1Mbps)_2TX PSD

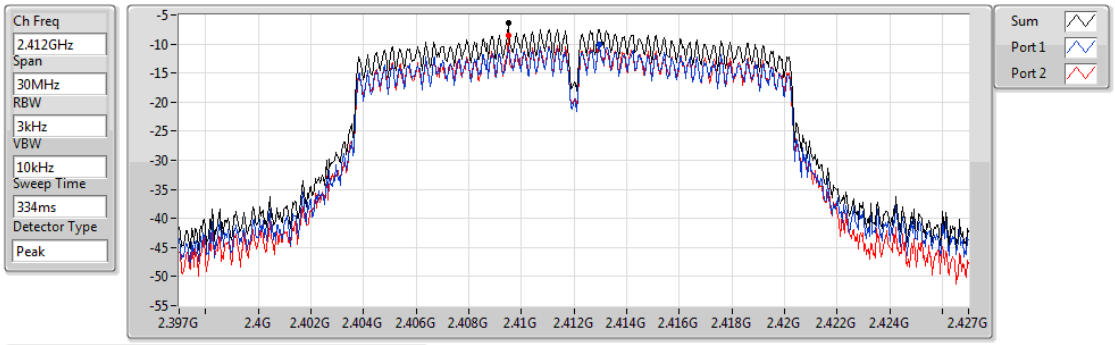
2462MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-5.78	-5.78	-6.96	-7.12

802.11g_Nss1,(6Mbps)_2TX PSD

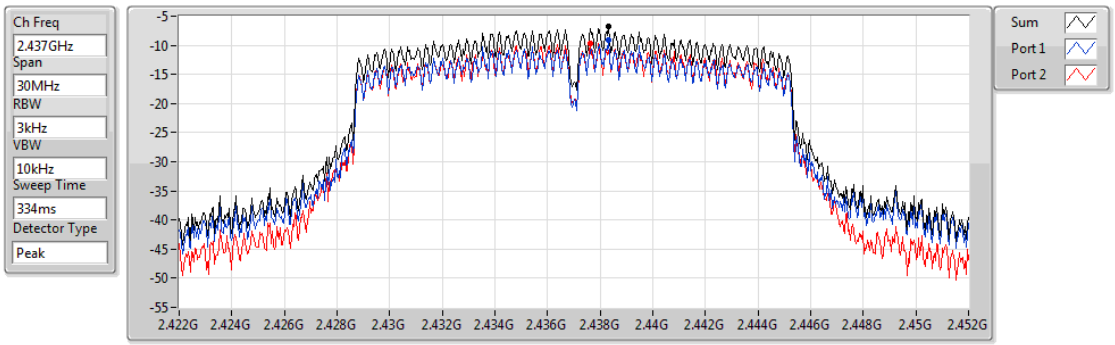
2412MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-6.39	-6.39	-10.02	-8.56

802.11g_Nss1,(6Mbps)_2TX PSD

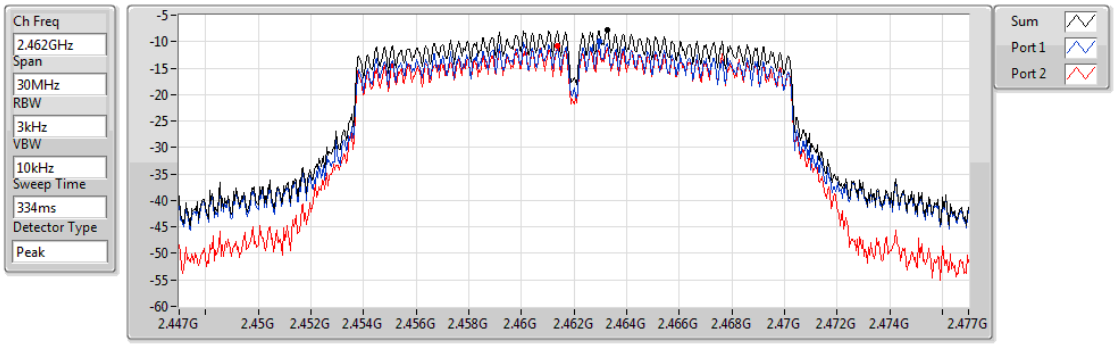
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-6.84	-6.84	-9.03	-9.65

802.11g_Nss1,(6Mbps)_2TX PSD

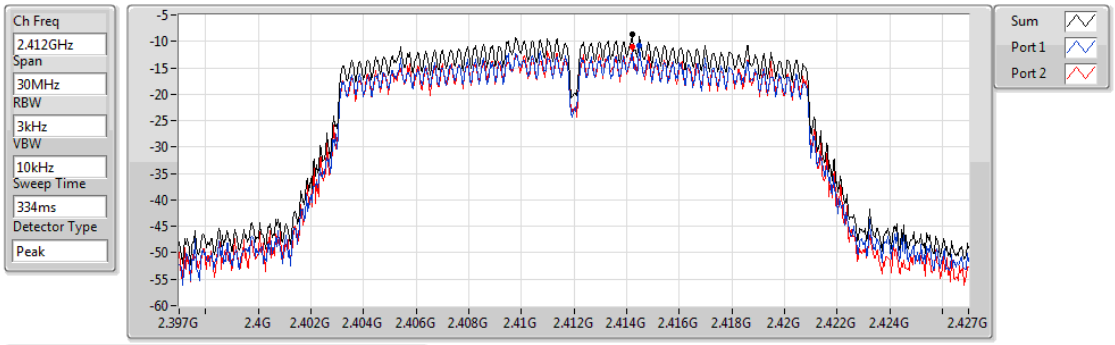
2462MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-7.74	-7.74	-10.03	-10.76

802.11n HT20_Nss2,(MCS8)_2TX PSD

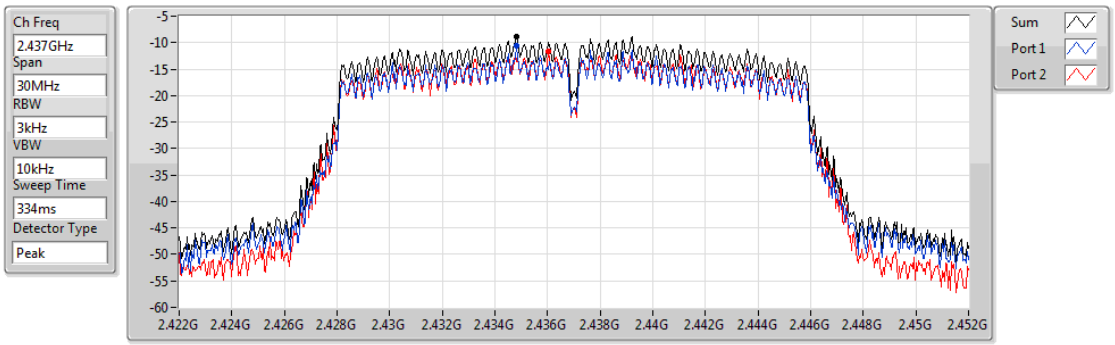
2412MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.55	-8.55	-10.77	-11.10

802.11n HT20_Nss2,(MCS8)_2TX PSD

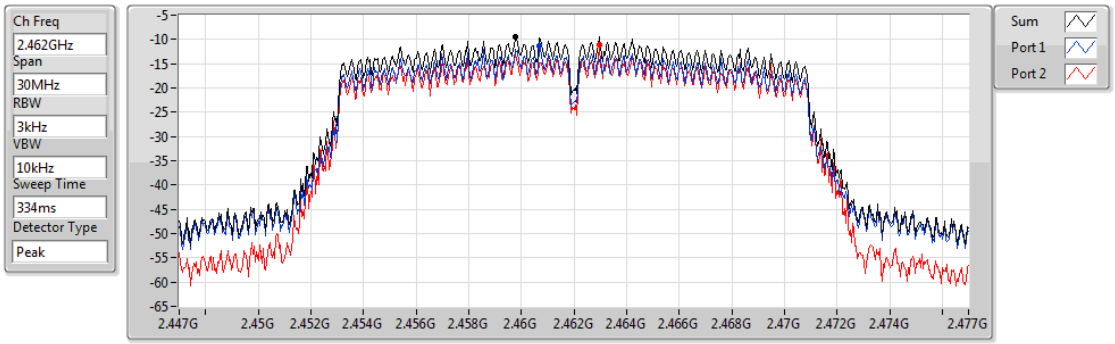
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.79	-8.79	-10.53	-11.57

802.11n HT20_Nss2,(MCS8)_2TX PSD

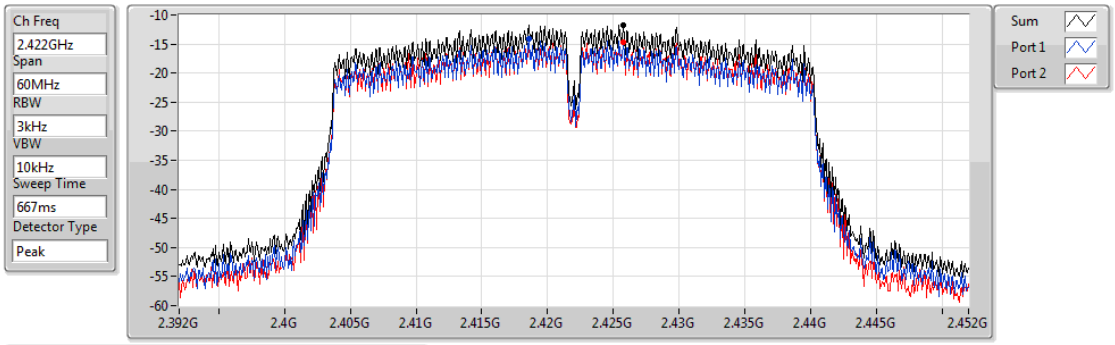
2462MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-9.40	-9.40	-11.34	-11.12

802.11n HT40_Nss2,(MCS8)_2TX PSD

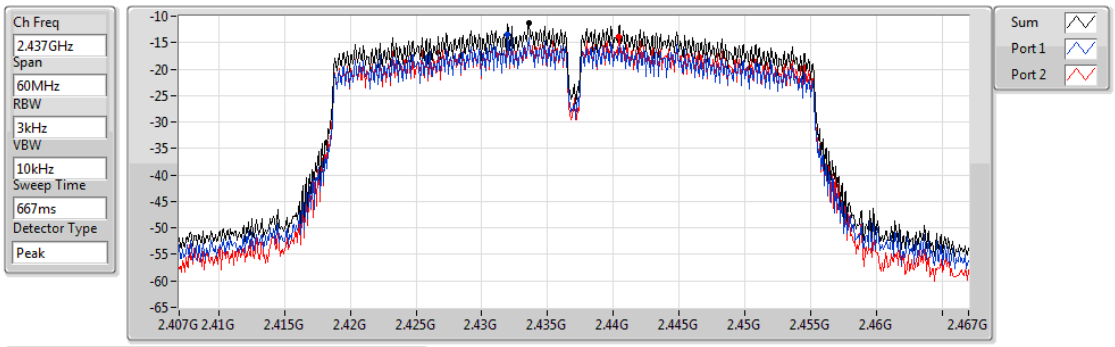
2422MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-11.70	-11.70	-14.11	-14.73

802.11n HT40_Nss2,(MCS8)_2TX PSD

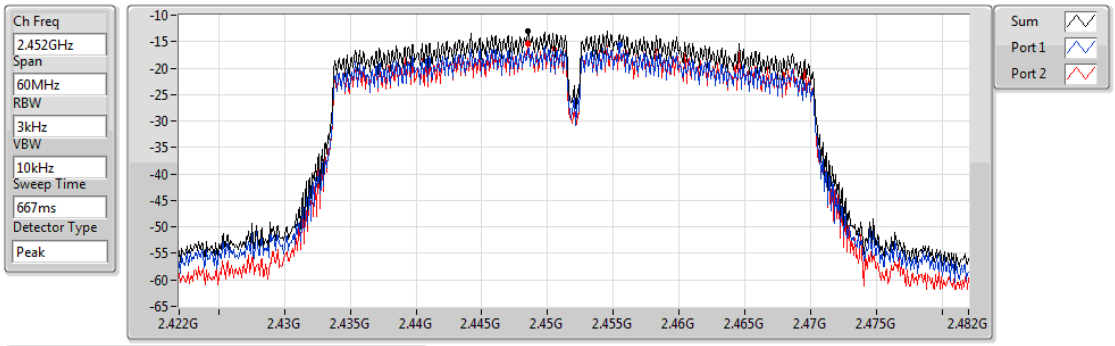
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-11.36	-11.36	-13.47	-13.97

802.11n HT40_Nss2,(MCS8)_2TX PSD

2452MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-12.94	-12.94	-15.51	-15.38

Beamforming mode

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
802.11n HT20-BF_Nss2,(MCS8)_2TX	-8.23
802.11n HT40-BF_Nss2,(MCS8)_2TX	-11.32

RBW=3kHz.

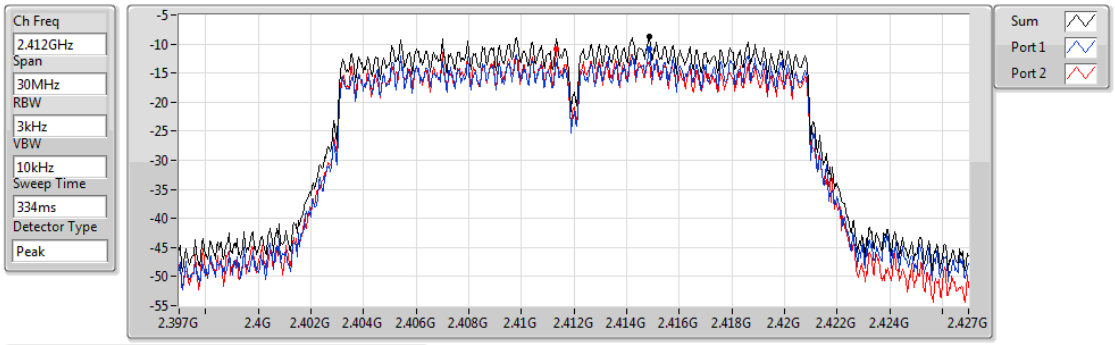
Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
802.11n HT20-BF_Nss2,(MCS8)_2TX	-	-	-	-	-	-
2412MHz	Pass	6.61	-10.89	-10.89	-8.79	7.39
2437MHz	Pass	6.61	-11.22	-10.46	-8.23	7.39
2462MHz	Pass	6.61	-12.97	-13.06	-11.05	7.39
802.11n HT40-BF_Nss2,(MCS8)_2TX	-	-	-	-	-	-
2422MHz	Pass	6.61	-15.47	-14.95	-12.24	7.39
2437MHz	Pass	6.61	-14.00	-12.62	-11.32	7.39
2452MHz	Pass	6.61	-15.92	-16.90	-14.47	7.39

DG = Directional Gain; RBW=3kHz;
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;
Directional gain = 3.6+10* log(2/1) = 6.61 dBi > 6 dBi.
Limit shall be reduced to 8 dBm – (6.61 dBi – 6 dBi) = 7.39 dBm.

802.11n HT20-BF_Nss2,(MCS8)_2TX PSD

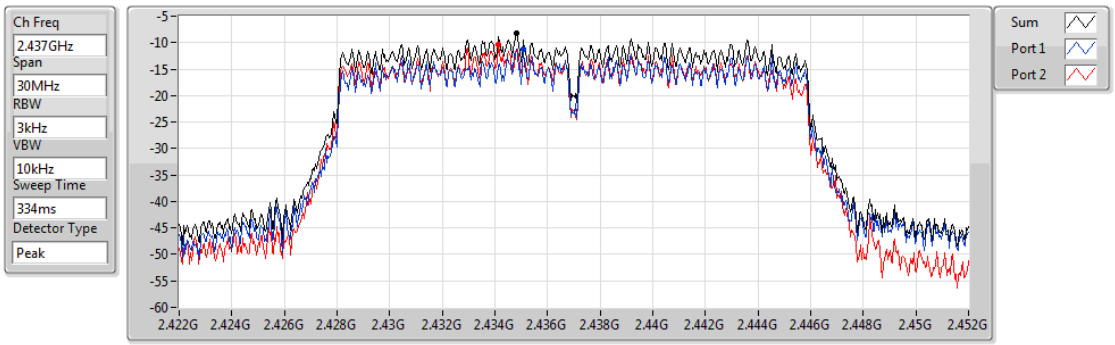
2412MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.79	-8.79	-10.89	-10.89

802.11n HT20-BF_Nss2,(MCS8)_2TX PSD

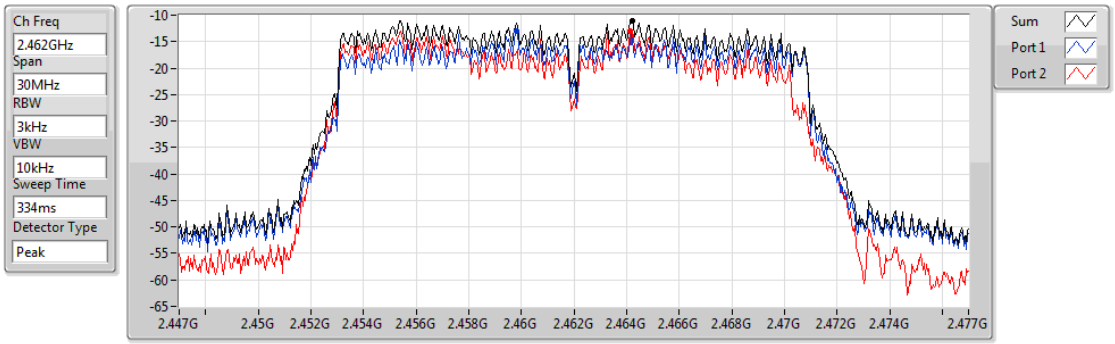
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.23	-8.23	-11.22	-10.46

802.11n HT20-BF_Nss2,(MCS8)_2TX PSD

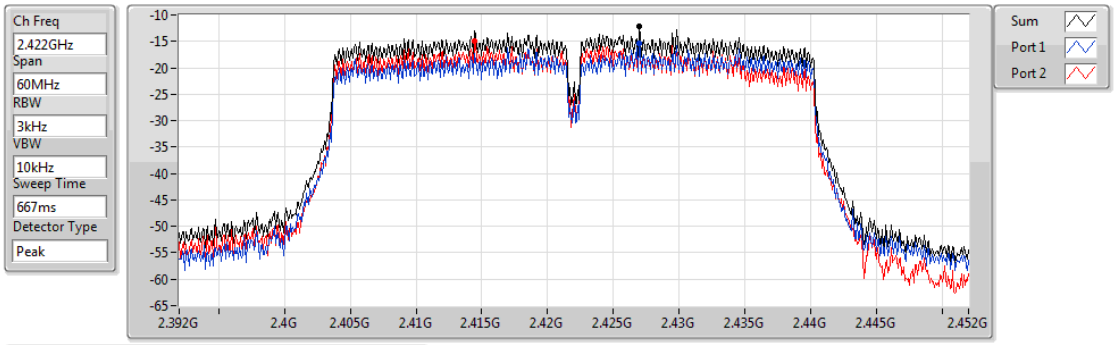
2462MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-11.05	-11.05	-12.97	-13.06

802.11n HT40-BF_Nss2,(MCS8)_2TX PSD

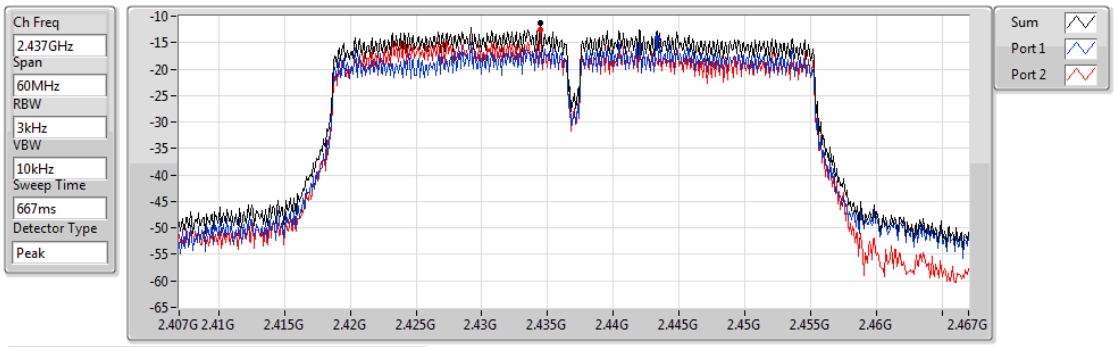
2422MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-12.24	-12.24	-15.47	-14.95

802.11n HT40-BF_Nss2,(MCS8)_2TX PSD

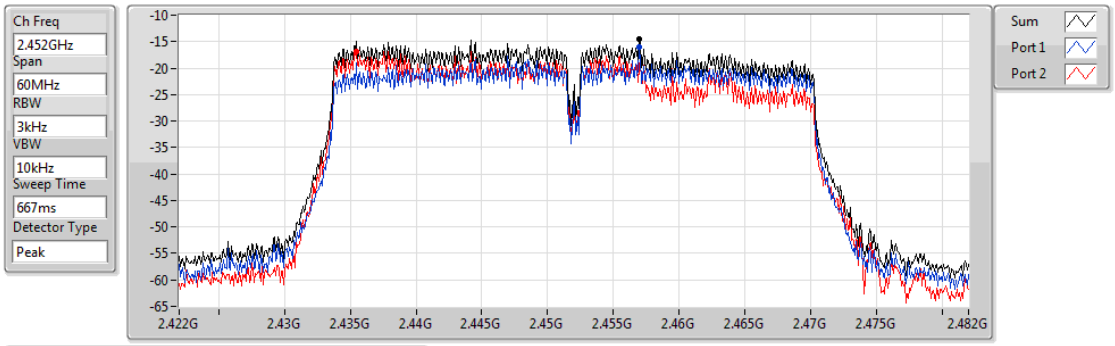
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-11.32	-11.32	-14.00	-12.62

802.11n HT40-BF_Nss2,(MCS8)_2TX PSD

2452MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-14.47	-14.47	-15.92	-16.90

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

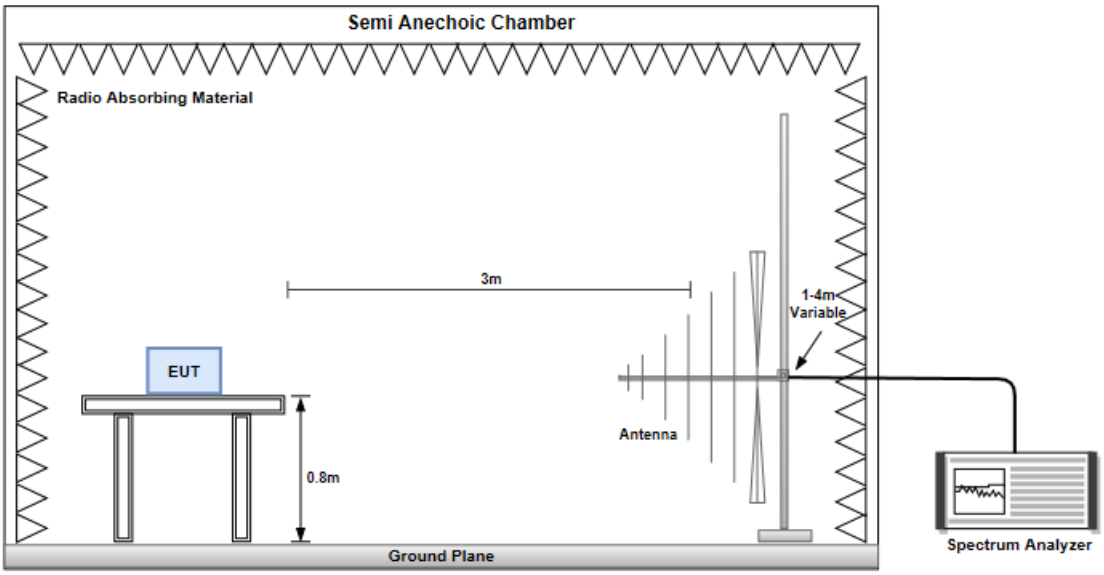
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission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

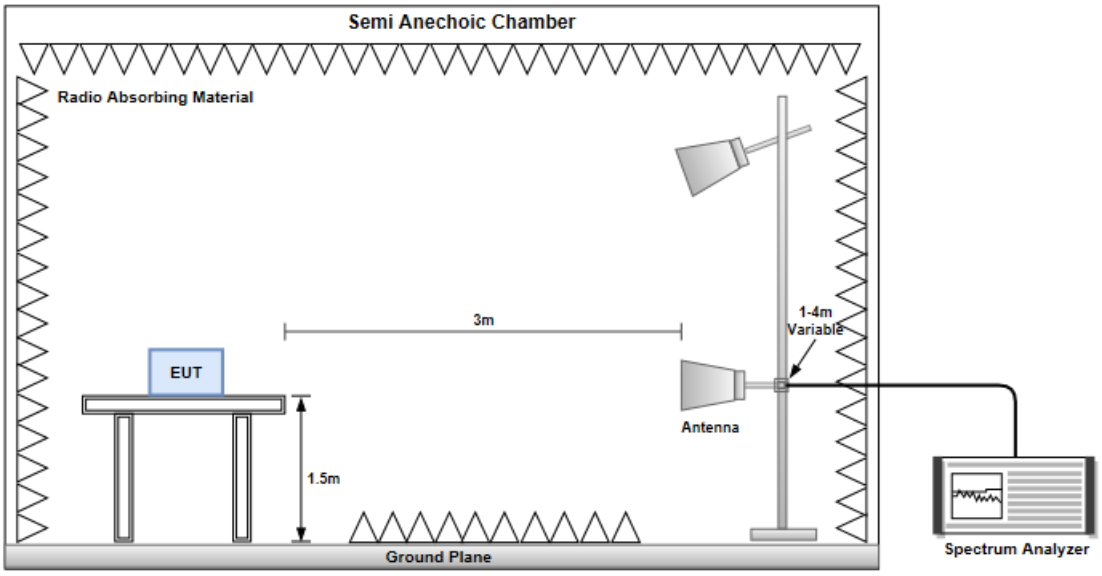
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above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

3.5.3 Test Setup

Radiated Emissions below 1 GHz



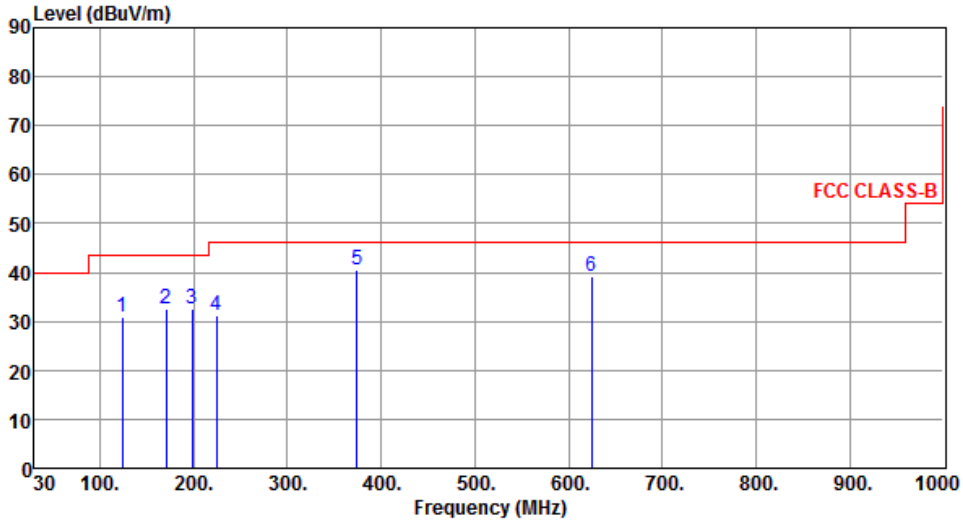
Radiated Emissions above 1 GHz



Non-beamforming mode

3.5.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)

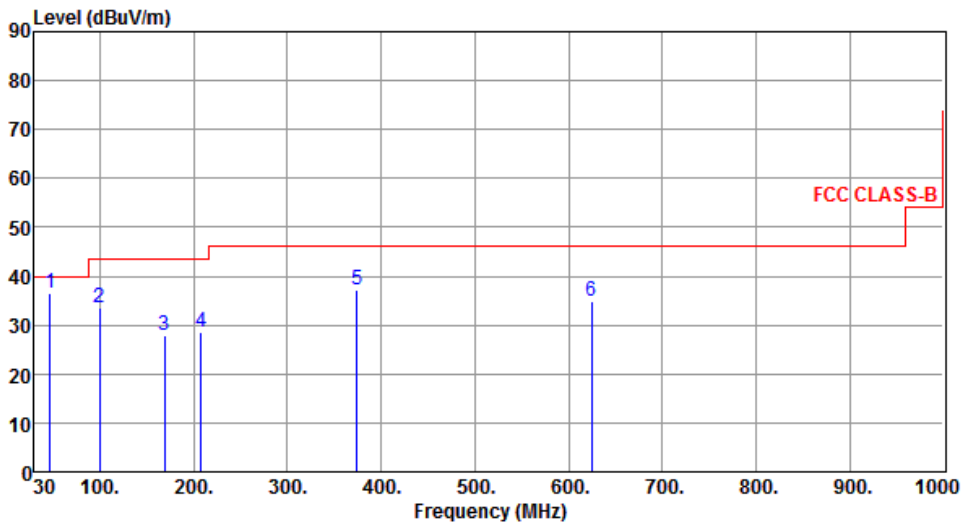
Modulation	11g	**Test Freq. (MHz)**	2437
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	124.09	30.94	43.50	-12.56	41.16	-10.22	Peak	---	---
2	170.65	32.47	43.50	-11.03	40.80	-8.33	Peak	---	---
3	198.78	32.70	43.50	-10.80	43.43	-10.73	Peak	---	---
4	224.00	31.12	46.00	-14.88	41.51	-10.39	Peak	---	---
5	374.35	40.46	46.00	-5.54	46.17	-5.71	Peak	---	---
6	624.61	39.06	46.00	-6.94	39.36	-0.30	Peak	---	---

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

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

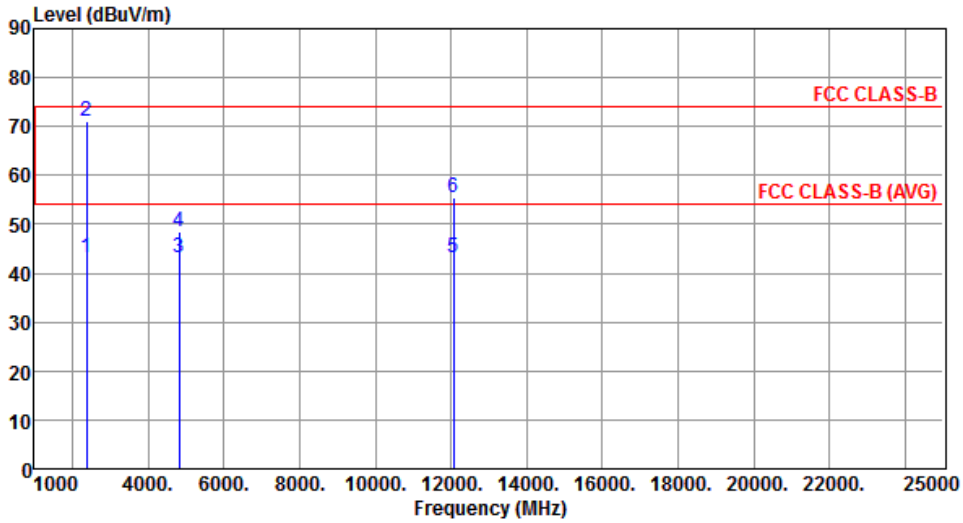


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	46.45	36.65	40.00	-3.35	44.69	-8.04	QP	100	116
2	99.84	33.63	43.50	-9.87	46.82	-13.19	Peak	---	---
3	168.71	27.80	43.50	-15.70	36.02	-8.22	Peak	---	---
4	207.51	28.62	43.50	-14.88	39.30	-10.68	Peak	---	---
5	374.35	37.10	46.00	-8.90	42.81	-5.71	Peak	---	---
6	624.61	35.00	46.00	-11.00	35.30	-0.30	Peak	---	---

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

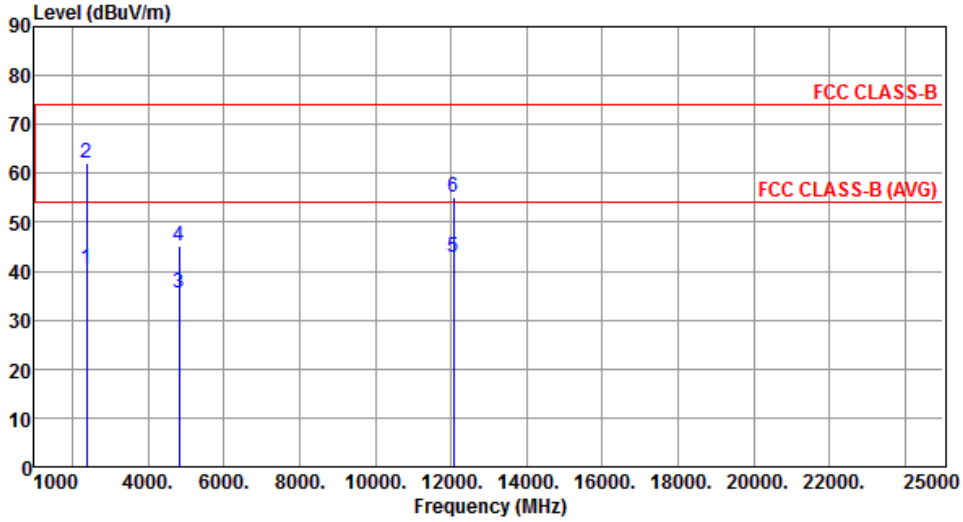
Modulation	11b	**Test Freq. (MHz)**	2412
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	43.18	54.00	-10.82	44.39	-1.21	Average	241	229
2	2390.00	71.17	74.00	-2.83	72.38	-1.21	Peak	241	229
3	4824.00	43.29	54.00	-10.71	37.62	5.67	Average	169	261
4	4824.00	48.49	74.00	-25.51	42.82	5.67	Peak	169	261
5	12060.00	43.25	54.00	-10.75	27.58	15.67	Average	100	238
6	12060.00	55.42	74.00	-18.58	39.75	15.67	Peak	100	238

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

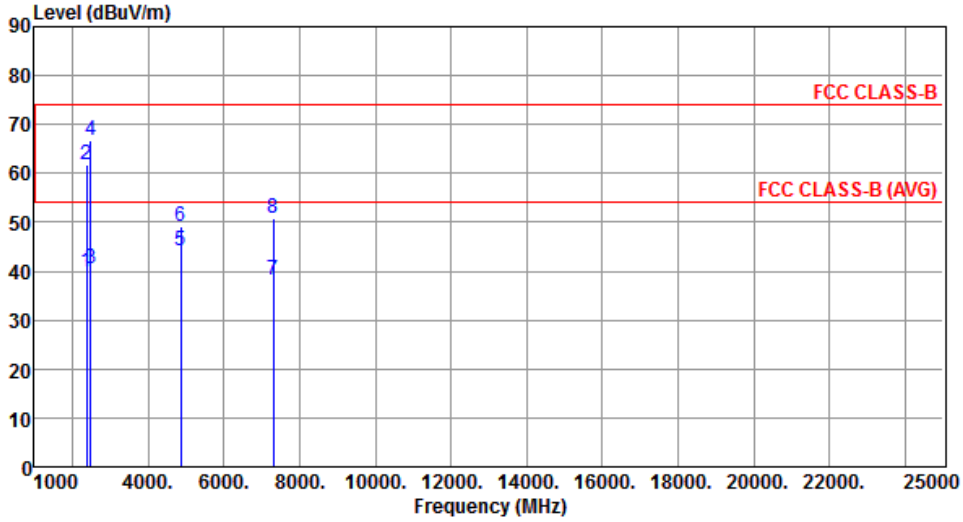
Modulation	11b	Test Freq. (MHz)	2412
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	40.45	54.00	-13.55	41.66	-1.21	Average	100	11
2	2390.00	61.99	74.00	-12.01	63.20	-1.21	Peak	100	11
3	4824.00	35.52	54.00	-18.48	29.85	5.67	Average	100	308
4	4824.00	45.12	74.00	-28.88	39.45	5.67	Peak	100	308
5	12060.00	42.99	54.00	-11.01	27.32	15.67	Average	100	118
6	12060.00	55.18	74.00	-18.82	39.51	15.67	Peak	100	118

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

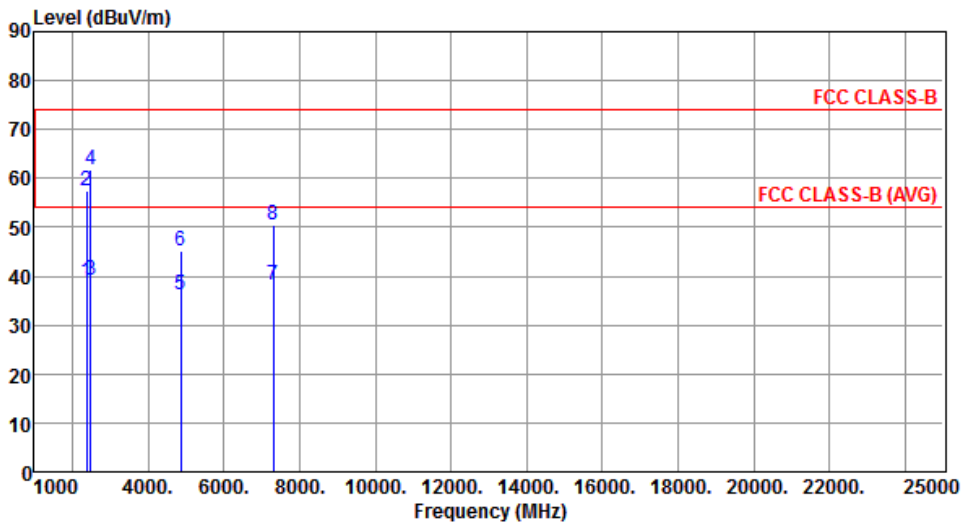
Modulation	11b	Test Freq. (MHz)	2437
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	39.99	54.00	-14.01	41.20	-1.21	Average	264	232
2	2390.00	61.69	74.00	-12.31	62.90	-1.21	Peak	264	232
3	2483.50	40.44	54.00	-13.56	41.30	-0.86	Average	264	232
4	2483.50	66.84	74.00	-7.16	67.70	-0.86	Peak	264	232
5	4874.00	44.23	54.00	-9.77	38.42	5.81	Average	166	260
6	4874.00	49.27	74.00	-24.73	43.46	5.81	Peak	166	260
7	7311.00	38.12	54.00	-15.88	27.17	10.95	Average	100	122
8	7311.00	50.80	74.00	-23.20	39.85	10.95	Peak	100	122

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

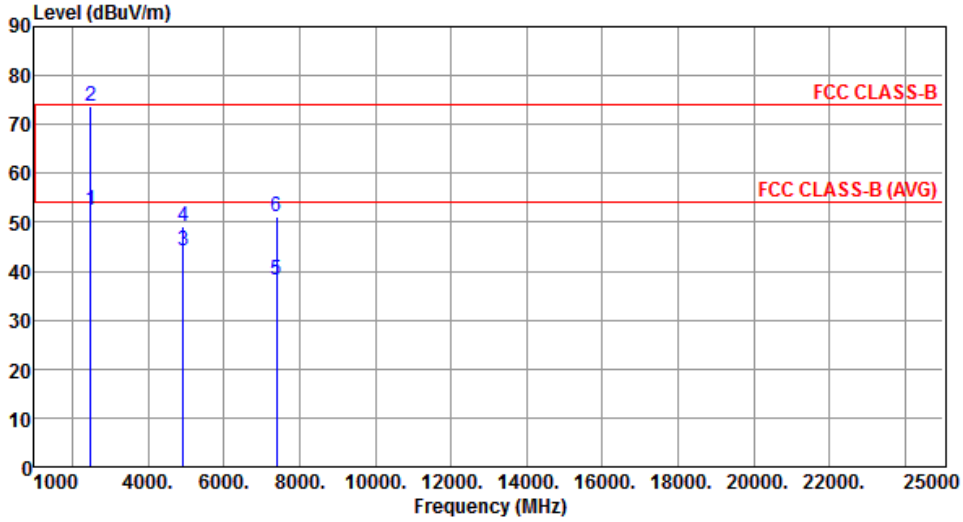
Modulation	11b	Test Freq. (MHz)	2437
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	38.71	54.00	-15.29	39.92	-1.21	Average	100	186
2	2390.00	57.35	74.00	-16.65	58.56	-1.21	Peak	100	186
3	2483.50	39.07	54.00	-14.93	39.93	-0.86	Average	100	186
4	2483.50	61.63	74.00	-12.37	62.49	-0.86	Peak	100	186
5	4874.00	36.14	54.00	-17.86	30.33	5.81	Average	100	303
6	4874.00	45.04	74.00	-28.96	39.23	5.81	Peak	100	303
7	7311.00	38.09	54.00	-15.91	27.14	10.95	Average	100	215
8	7311.00	50.57	74.00	-23.43	39.62	10.95	Peak	100	215

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

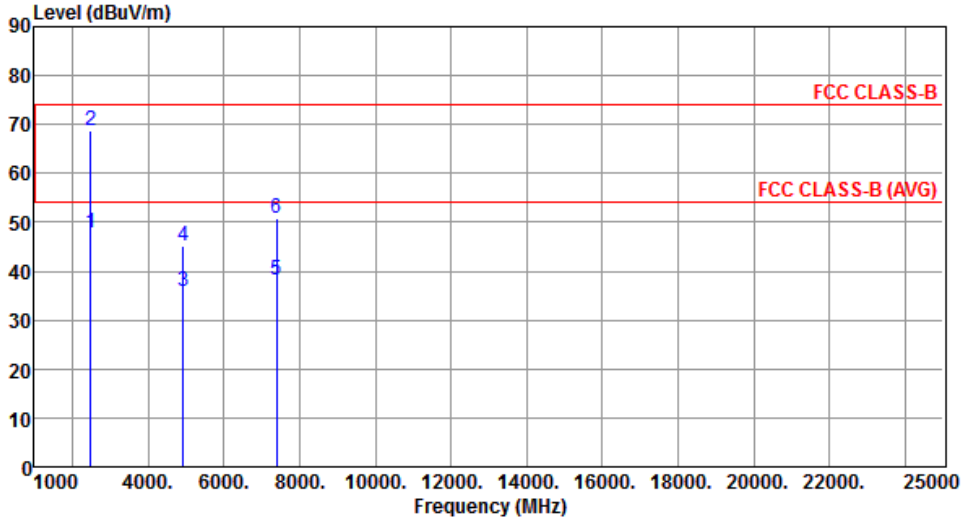
Modulation	11b	Test Freq. (MHz)	2462
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	52.60	54.00	-1.40	53.46	-0.86	Average	232	238
2	2483.50	73.84	74.00	-0.16	74.70	-0.86	Peak	232	238
3	4924.00	44.21	54.00	-9.79	38.26	5.95	Average	162	251
4	4924.00	49.13	74.00	-24.87	43.18	5.95	Peak	162	251
5	7386.00	38.33	54.00	-15.67	27.06	11.27	Average	100	131
6	7386.00	51.06	74.00	-22.94	39.79	11.27	Peak	100	131

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

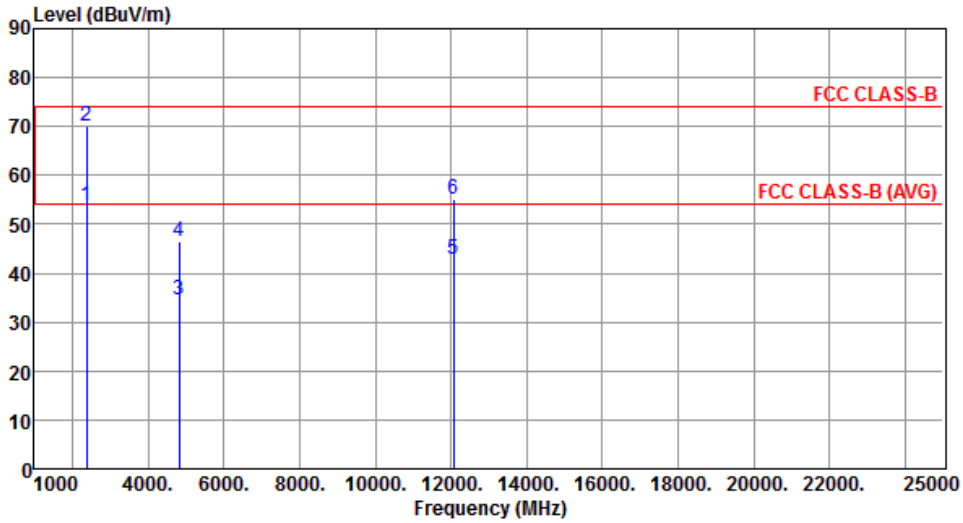


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	47.89	54.00	-6.11	48.75	-0.86	Average	100	10
2	2483.50	68.84	74.00	-5.16	69.70	-0.86	Peak	100	10
3	4924.00	36.01	54.00	-17.99	30.06	5.95	Average	100	292
4	4924.00	45.08	74.00	-28.92	39.13	5.95	Peak	100	292
5	7386.00	38.33	54.00	-15.67	27.06	11.27	Average	100	215
6	7386.00	50.79	74.00	-23.21	39.52	11.27	Peak	100	215

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

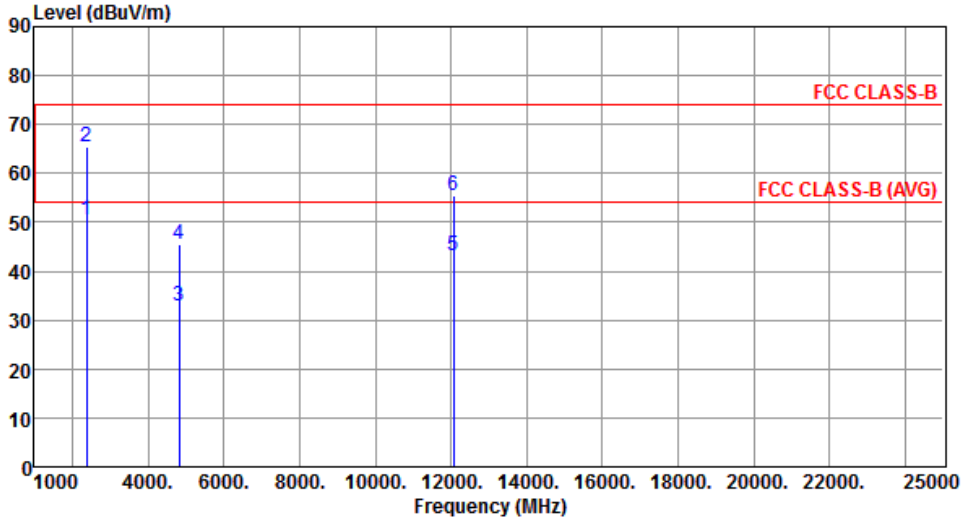
Modulation	11g	**Test Freq. (MHz)**	2412
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	53.89	54.00	-0.11	55.10	-1.21	Average	216	235
2	2390.00	70.12	74.00	-3.88	71.33	-1.21	Peak	216	235
3	4824.00	34.53	54.00	-19.47	28.86	5.67	Average	163	258
4	4824.00	46.33	74.00	-27.67	40.66	5.67	Peak	163	258
5	12060.00	42.90	54.00	-11.10	27.23	15.67	Average	100	241
6	12060.00	55.11	74.00	-18.89	39.44	15.67	Peak	100	241

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

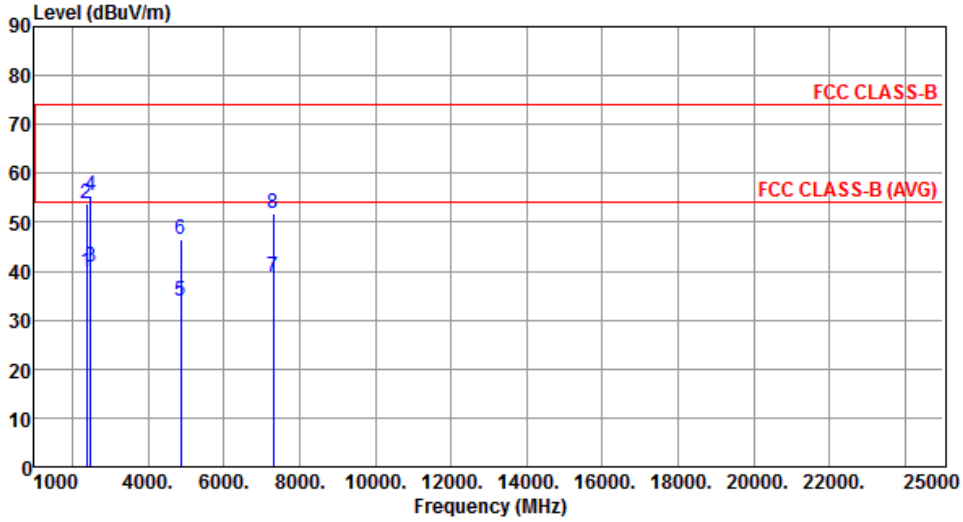
Modulation	11g	Test Freq. (MHz)	2412
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	50.43	54.00	-3.57	51.64	-1.21	Average	100	184
2	2390.00	65.46	74.00	-8.54	66.67	-1.21	Peak	100	184
3	4824.00	32.92	54.00	-21.08	27.25	5.67	Average	100	322
4	4824.00	45.49	74.00	-28.51	39.82	5.67	Peak	100	322
5	12060.00	43.18	54.00	-10.82	27.51	15.67	Average	100	126
6	12060.00	55.53	74.00	-18.47	39.86	15.67	Peak	100	126

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

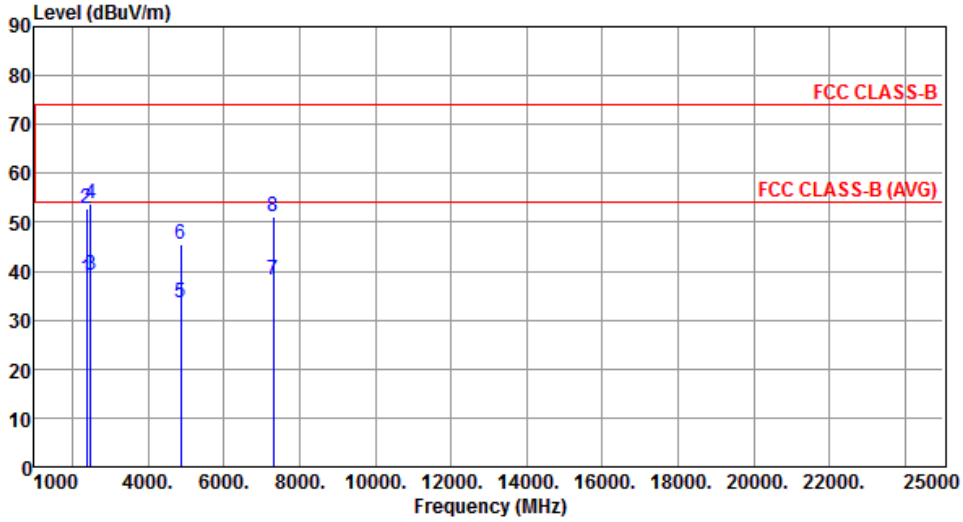
Modulation	11g	Test Freq. (MHz)	2437
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	39.82	54.00	-14.18	41.03	-1.21	Average	209	242
2	2390.00	53.84	74.00	-20.16	55.05	-1.21	Peak	209	242
3	2483.50	41.01	54.00	-12.99	41.87	-0.86	Average	209	242
4	2483.50	55.48	74.00	-18.52	56.34	-0.86	Peak	209	242
5	4874.00	34.00	54.00	-20.00	28.19	5.81	Average	170	264
6	4874.00	46.55	74.00	-27.45	40.74	5.81	Peak	170	264
7	7311.00	38.86	54.00	-15.14	27.91	10.95	Average	100	145
8	7311.00	51.73	74.00	-22.27	40.78	10.95	Peak	100	145

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

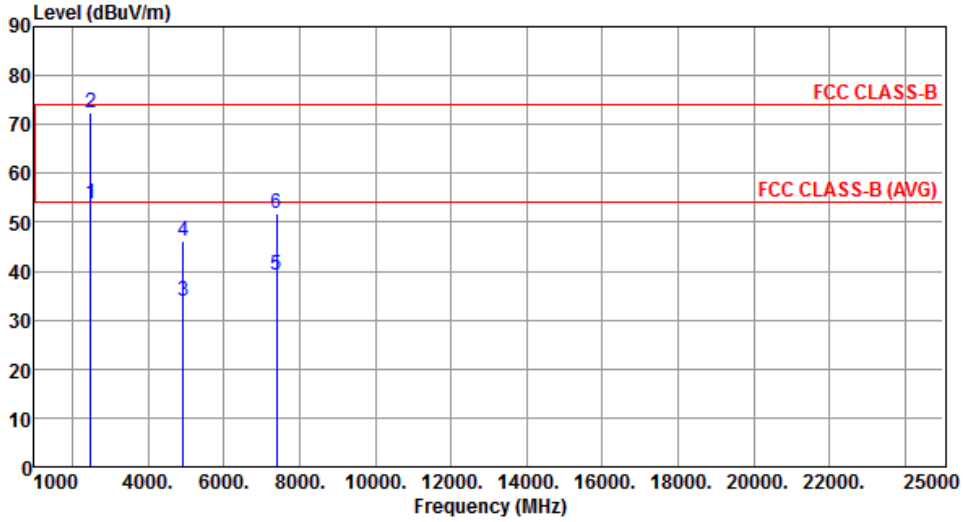
Modulation	11g	Test Freq. (MHz)	2437
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	38.39	54.00	-15.61	39.60	-1.21	Average	100	183
2	2390.00	52.72	74.00	-21.28	53.93	-1.21	Peak	100	183
3	2483.50	39.02	54.00	-14.98	39.88	-0.86	Average	100	183
4	2483.50	53.81	74.00	-20.19	54.67	-0.86	Peak	100	183
5	4874.00	33.56	54.00	-20.44	27.75	5.81	Average	100	329
6	4874.00	45.37	74.00	-28.63	39.56	5.81	Peak	100	329
7	7311.00	38.07	54.00	-15.93	27.12	10.95	Average	100	206
8	7311.00	51.27	74.00	-22.73	40.32	10.95	Peak	100	206

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

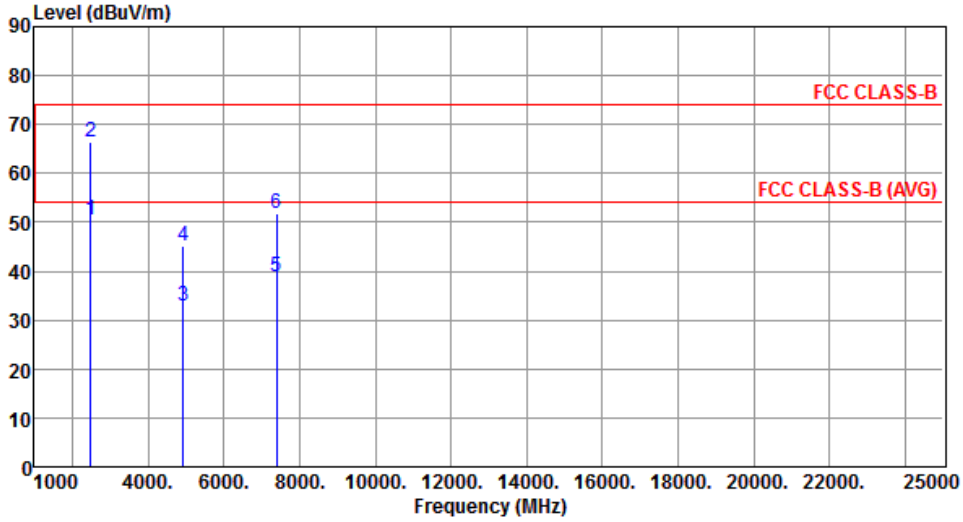
Modulation	11g	Test Freq. (MHz)	2462
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	53.85	54.00	-0.15	54.71	-0.86	Average	234	265
2	2483.50	72.53	74.00	-1.47	73.39	-0.86	Peak	234	265
3	4924.00	33.77	54.00	-20.23	27.82	5.95	Average	167	262
4	4924.00	46.08	74.00	-27.92	40.13	5.95	Peak	167	262
5	7386.00	39.03	54.00	-14.97	27.76	11.27	Average	100	152
6	7386.00	51.95	74.00	-22.05	40.68	11.27	Peak	100	152

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

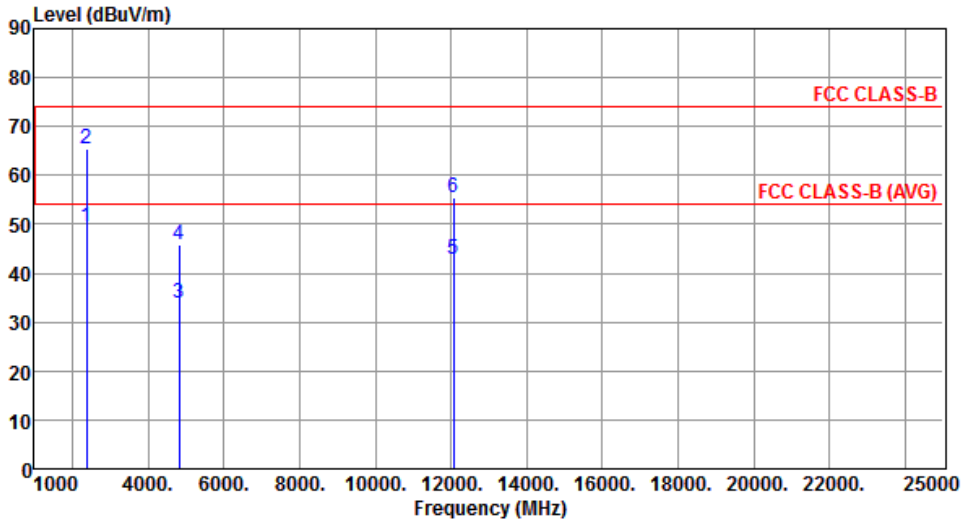


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	50.36	54.00	-3.64	51.22	-0.86	Average	100	12
2	2483.50	66.37	74.00	-7.63	67.23	-0.86	Peak	100	12
3	4924.00	33.00	54.00	-21.00	27.05	5.95	Average	100	321
4	4924.00	45.29	74.00	-28.71	39.34	5.95	Peak	100	321
5	7386.00	38.81	54.00	-15.19	27.54	11.27	Average	100	211
6	7386.00	51.73	74.00	-22.27	40.46	11.27	Peak	100	211

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*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 HT20

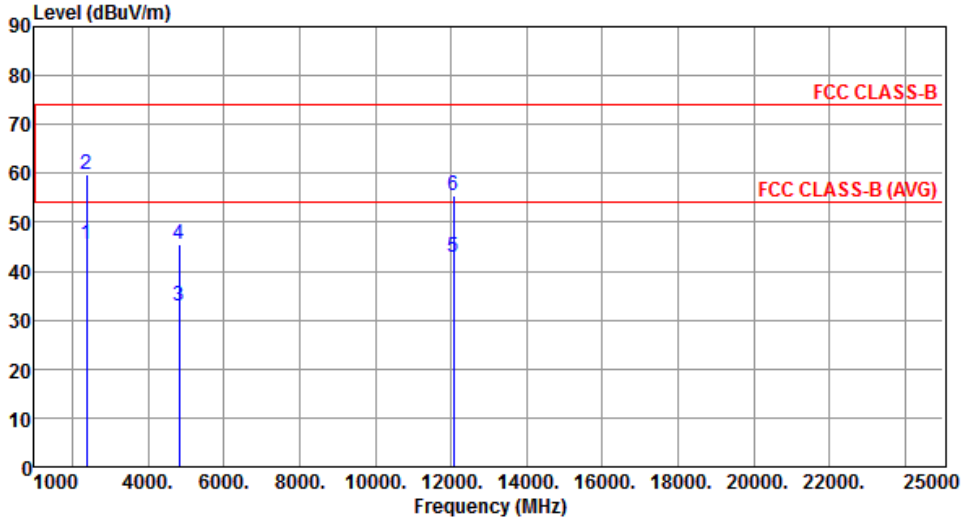
Modulation	HT20	**Test Freq. (MHz)**	2412
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	49.58	54.00	-4.42	50.79	-1.21	Average	200	225
2	2390.00	65.36	74.00	-8.64	66.57	-1.21	Peak	200	225
3	4824.00	33.90	54.00	-20.10	28.23	5.67	Average	166	260
4	4824.00	45.96	74.00	-28.04	40.29	5.67	Peak	166	260
5	12060.00	42.96	54.00	-11.04	27.29	15.67	Average	100	239
6	12060.00	55.52	74.00	-18.48	39.85	15.67	Peak	100	239

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

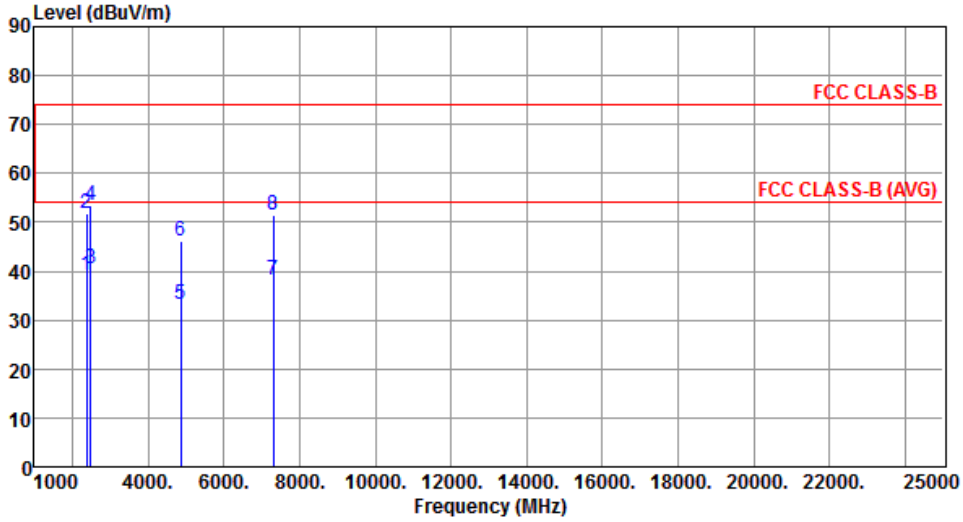
Modulation	HT20	Test Freq. (MHz)	2412
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	45.37	54.00	-8.63	46.58	-1.21	Average	100	186
2	2390.00	59.77	74.00	-14.23	60.98	-1.21	Peak	100	186
3	4824.00	32.80	54.00	-21.20	27.13	5.67	Average	100	318
4	4824.00	45.35	74.00	-28.65	39.68	5.67	Peak	100	318
5	12060.00	42.96	54.00	-11.04	27.29	15.67	Average	100	122
6	12060.00	55.33	74.00	-18.67	39.66	15.67	Peak	100	122

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

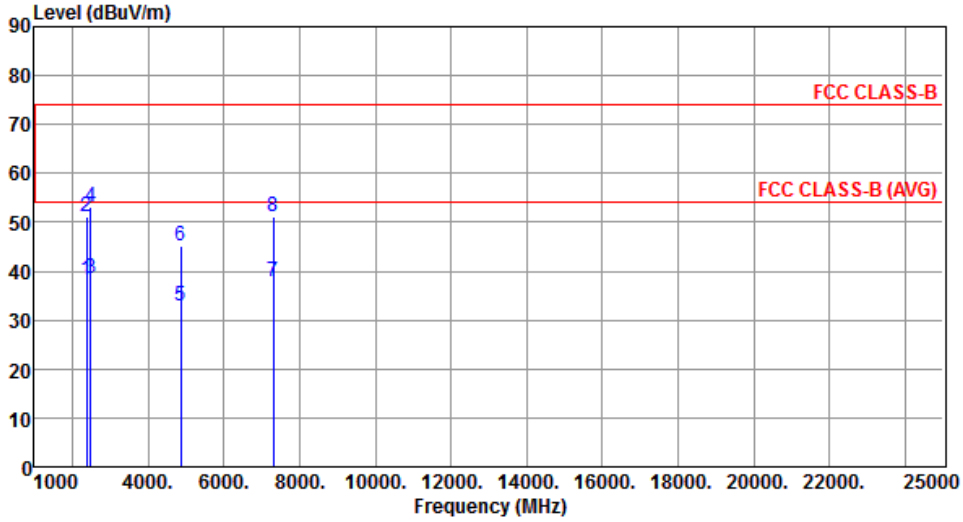
Modulation	HT20	Test Freq. (MHz)	2437
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	39.07	54.00	-14.93	40.28	-1.21	Average	241	258
2	2390.00	51.75	74.00	-22.25	52.96	-1.21	Peak	241	258
3	2483.50	40.51	54.00	-13.49	41.37	-0.86	Average	241	258
4	2483.50	53.48	74.00	-20.52	54.34	-0.86	Peak	241	258
5	4874.00	33.27	54.00	-20.73	27.46	5.81	Average	171	262
6	4874.00	46.07	74.00	-27.93	40.26	5.81	Peak	171	262
7	7311.00	38.30	54.00	-15.70	27.35	10.95	Average	100	147
8	7311.00	51.32	74.00	-22.68	40.37	10.95	Peak	100	147

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

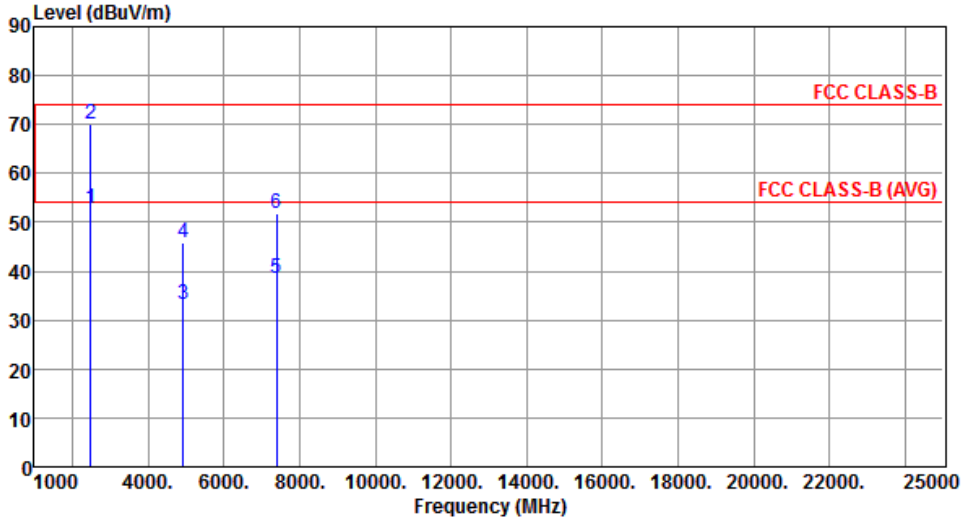
Modulation	HT20	Test Freq. (MHz)	2437
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	38.28	54.00	-15.72	39.49	-1.21	Average	100	188
2	2390.00	51.27	74.00	-22.73	52.48	-1.21	Peak	100	188
3	2483.50	38.66	54.00	-15.34	39.52	-0.86	Average	100	188
4	2483.50	53.07	74.00	-20.93	53.93	-0.86	Peak	100	188
5	4874.00	33.03	54.00	-20.97	27.22	5.81	Average	100	325
6	4874.00	45.25	74.00	-28.75	39.44	5.81	Peak	100	325
7	7311.00	38.00	54.00	-16.00	27.05	10.95	Average	100	211
8	7311.00	51.02	74.00	-22.98	40.07	10.95	Peak	100	211

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

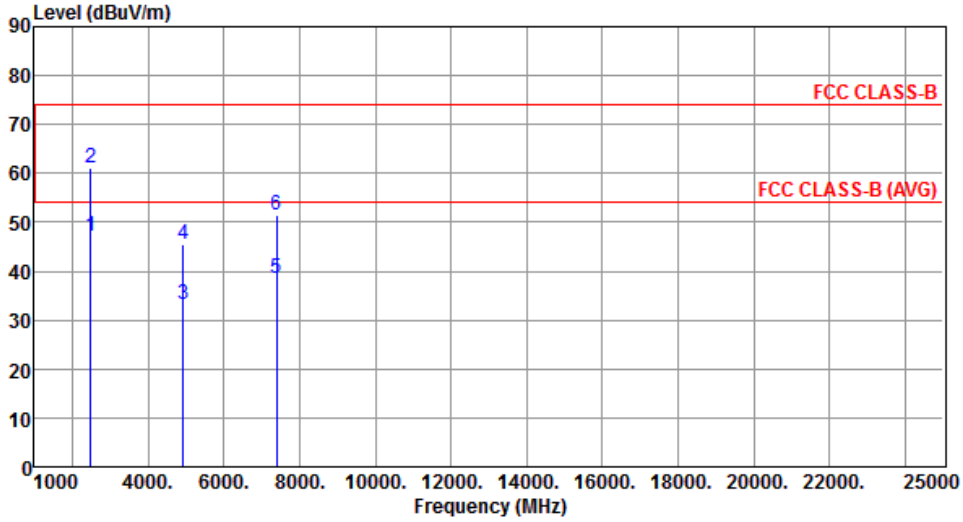
Modulation	HT20	Test Freq. (MHz)	2462
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	52.94	54.00	-1.06	53.80	-0.86	Average	228	251
2	2483.50	70.04	74.00	-3.96	70.90	-0.86	Peak	228	251
3	4924.00	33.19	54.00	-20.81	27.24	5.95	Average	163	260
4	4924.00	45.80	74.00	-28.20	39.85	5.95	Peak	163	260
5	7386.00	38.62	54.00	-15.38	27.35	11.27	Average	100	147
6	7386.00	51.65	74.00	-22.35	40.38	11.27	Peak	100	147

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

Modulation	HT20	Test Freq. (MHz)	2462
Polarization	Vertical		

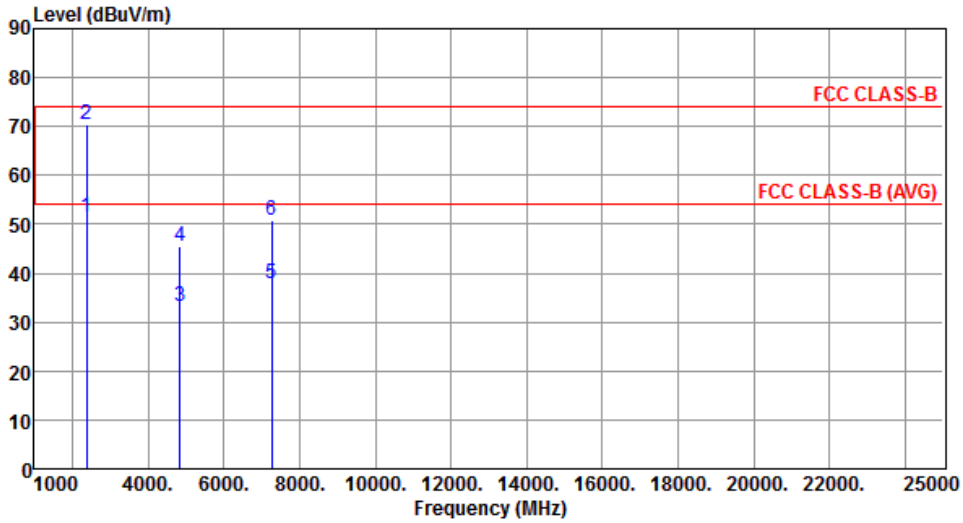


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	47.16	54.00	-6.84	48.02	-0.86	Average	100	342
2	2483.50	61.19	74.00	-12.81	62.05	-0.86	Peak	100	342
3	4924.00	33.10	54.00	-20.90	27.15	5.95	Average	100	305
4	4924.00	45.47	74.00	-28.53	39.52	5.95	Peak	100	305
5	7386.00	38.40	54.00	-15.60	27.13	11.27	Average	100	206
6	7386.00	51.45	74.00	-22.55	40.18	11.27	Peak	100	206

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*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 HT40

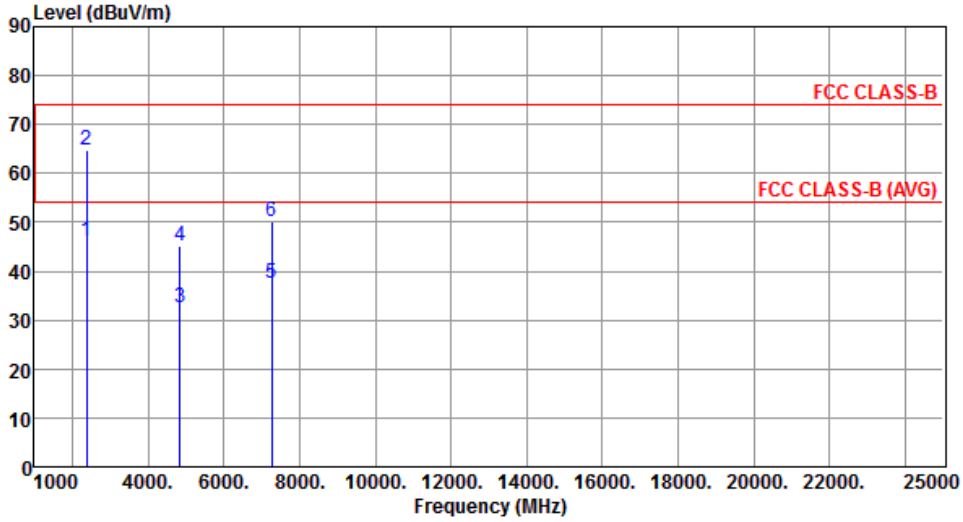
Modulation	HT40	**Test Freq. (MHz)**	2422
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	51.45	54.00	-2.55	52.66	-1.21	Average	217	240
2	2390.00	70.25	74.00	-3.75	71.46	-1.21	Peak	217	240
3	4844.00	33.18	54.00	-20.82	27.45	5.73	Average	158	263
4	4844.00	45.55	74.00	-28.45	39.82	5.73	Peak	158	263
5	7266.00	37.91	54.00	-16.09	27.16	10.75	Average	100	311
6	7266.00	50.66	74.00	-23.34	39.91	10.75	Peak	100	311

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

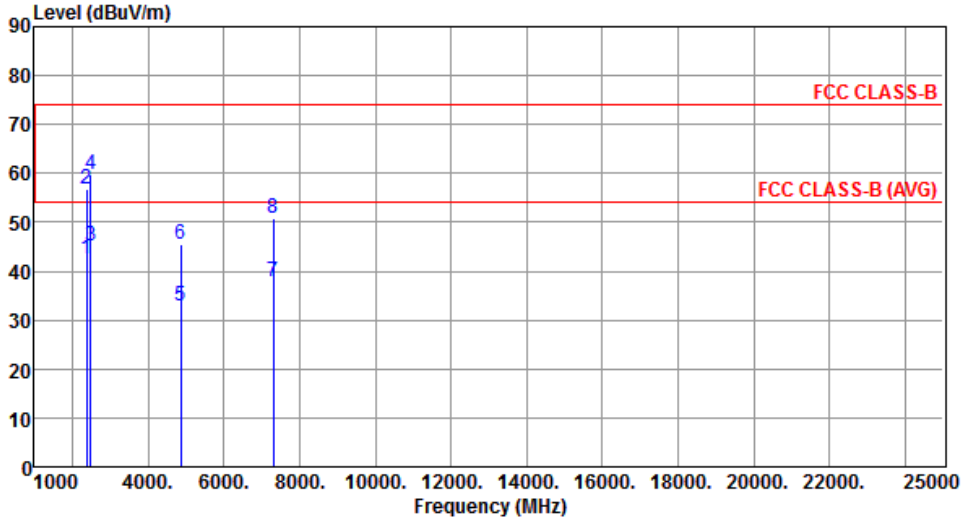
Modulation	HT40	Test Freq. (MHz)	2422
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	46.31	54.00	-7.69	47.52	-1.21	Average	100	181
2	2390.00	64.81	74.00	-9.19	66.02	-1.21	Peak	100	181
3	4844.00	32.71	54.00	-21.29	26.98	5.73	Average	100	313
4	4844.00	45.27	74.00	-28.73	39.54	5.73	Peak	100	313
5	7266.00	37.60	54.00	-16.40	26.85	10.75	Average	100	132
6	7266.00	50.30	74.00	-23.70	39.55	10.75	Peak	100	132

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

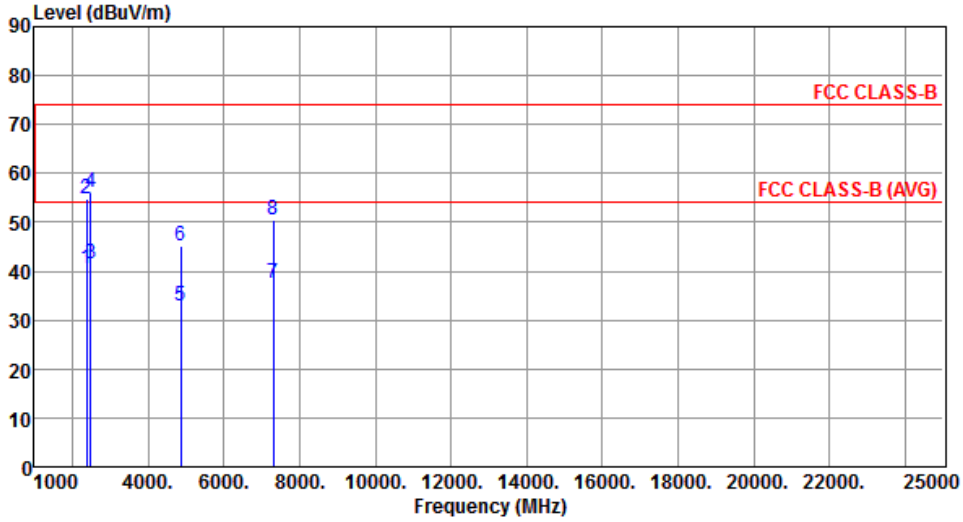
Modulation	HT40	Test Freq. (MHz)	2437
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	42.41	54.00	-11.59	43.62	-1.21	Average	238	262
2	2390.00	56.94	74.00	-17.06	58.15	-1.21	Peak	238	262
3	2483.50	45.25	54.00	-8.75	46.11	-0.86	Average	238	262
4	2483.50	59.89	74.00	-14.11	60.75	-0.86	Peak	238	262
5	4874.00	32.90	54.00	-21.10	27.09	5.81	Average	175	260
6	4874.00	45.56	74.00	-28.44	39.75	5.81	Peak	175	260
7	7311.00	37.87	54.00	-16.13	26.92	10.95	Average	100	156
8	7311.00	50.85	74.00	-23.15	39.90	10.95	Peak	100	156

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

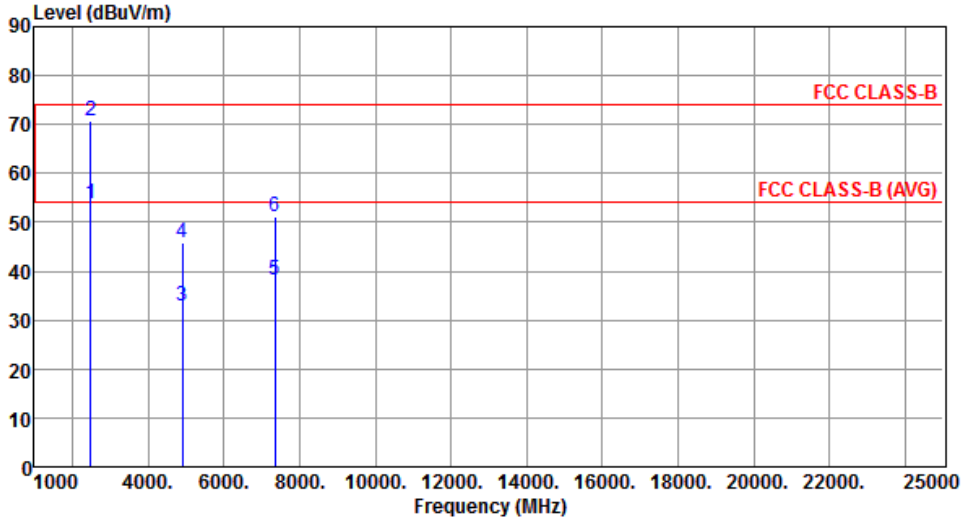
Modulation	HT40	Test Freq. (MHz)	2437
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	40.36	54.00	-13.64	41.57	-1.21	Average	100	182
2	2390.00	54.79	74.00	-19.21	56.00	-1.21	Peak	100	182
3	2483.50	41.65	54.00	-12.35	42.51	-0.86	Average	100	182
4	2483.50	56.04	74.00	-17.96	56.90	-0.86	Peak	100	182
5	4874.00	32.76	54.00	-21.24	26.95	5.81	Average	100	315
6	4874.00	45.32	74.00	-28.68	39.51	5.81	Peak	100	315
7	7311.00	37.69	54.00	-16.31	26.74	10.95	Average	100	216
8	7311.00	50.49	74.00	-23.51	39.54	10.95	Peak	100	216

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

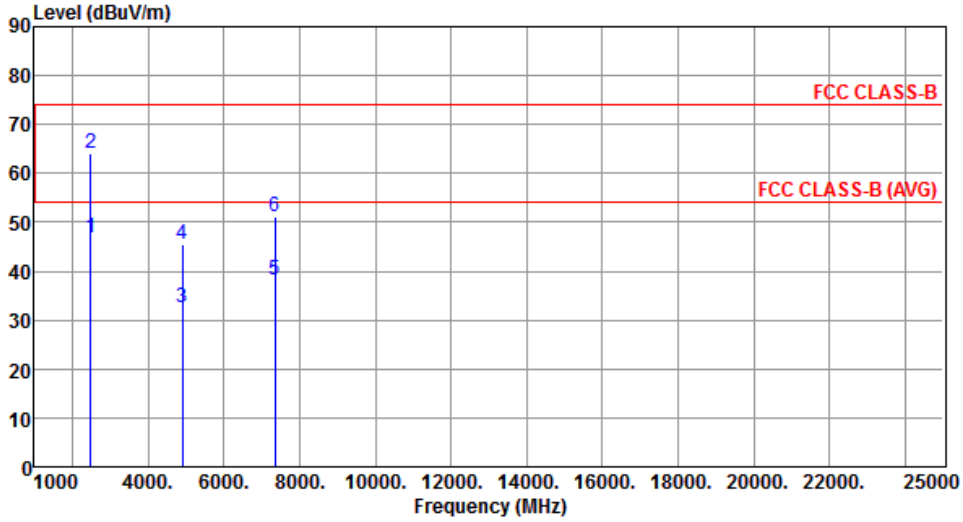
Modulation	HT40	Test Freq. (MHz)	2452
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	53.86	54.00	-0.14	54.72	-0.86	Average	233	255
2	2483.50	70.72	74.00	-3.28	71.58	-0.86	Peak	233	255
3	4904.00	32.96	54.00	-21.04	27.06	5.90	Average	161	248
4	4904.00	45.78	74.00	-28.22	39.88	5.90	Peak	161	248
5	7356.00	38.08	54.00	-15.92	26.94	11.14	Average	100	152
6	7356.00	51.19	74.00	-22.81	40.05	11.14	Peak	100	152

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

Modulation	HT40	Test Freq. (MHz)	2452
Polarization	Vertical		



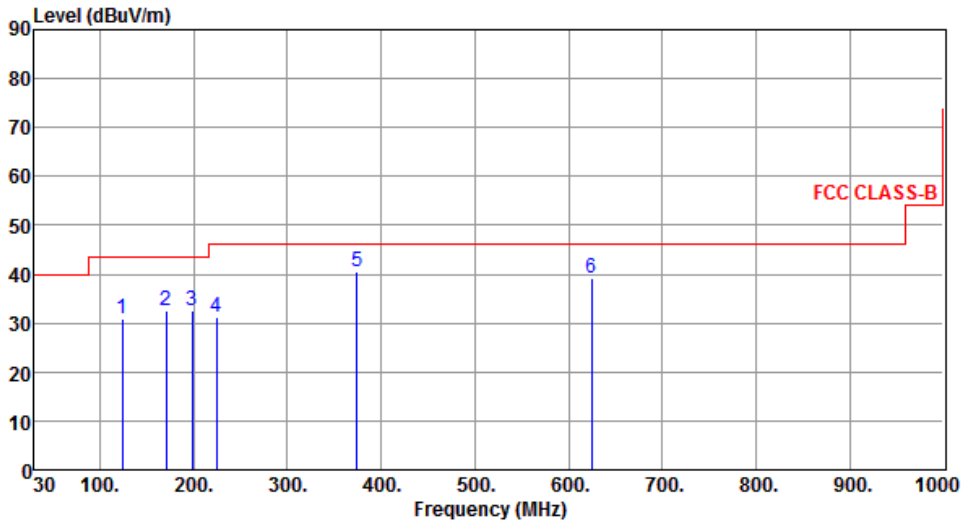
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	46.76	54.00	-7.24	47.62	-0.86	Average	100	186
2	2483.50	64.19	74.00	-9.81	65.05	-0.86	Peak	100	186
3	4904.00	32.54	54.00	-21.46	26.64	5.90	Average	100	308
4	4904.00	45.61	74.00	-28.39	39.71	5.90	Peak	100	308
5	7356.00	38.12	54.00	-15.88	26.98	11.14	Average	100	210
6	7356.00	51.07	74.00	-22.93	39.93	11.14	Peak	100	210

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

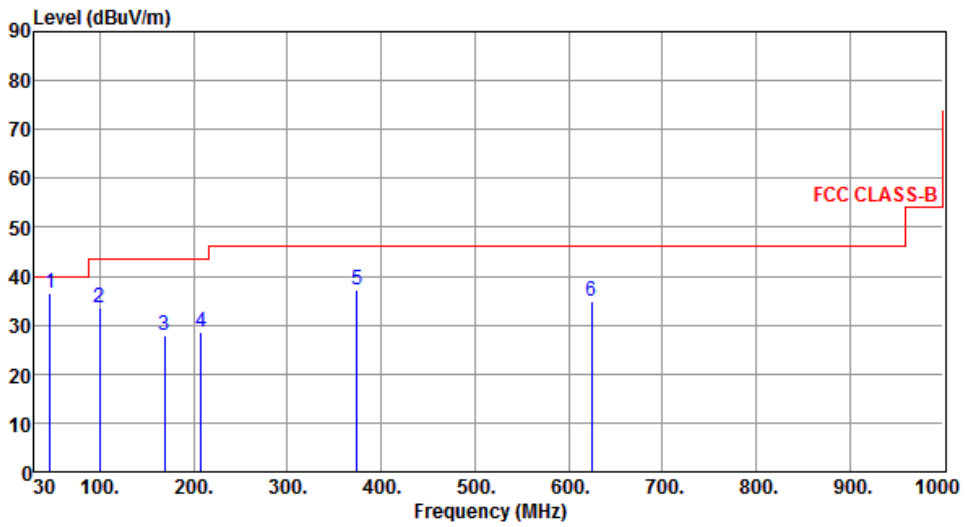
Modulation	HT20	**Test Freq. (MHz)**	2437
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	124.14	30.86	43.50	-12.64	41.08	-10.22	Peak	---	---
2	170.47	32.55	43.50	-10.95	40.86	-8.31	Peak	---	---
3	198.68	32.71	43.50	-10.79	43.44	-10.73	Peak	---	---
4	224.02	31.23	46.00	-14.77	41.62	-10.39	Peak	---	---
5	374.49	40.36	46.00	-5.64	46.06	-5.70	Peak	---	---
6	624.55	39.12	46.00	-6.88	39.42	-0.30	Peak	---	---

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

Modulation	HT20	Test Freq. (MHz)	2437
Polarization	Vertical		

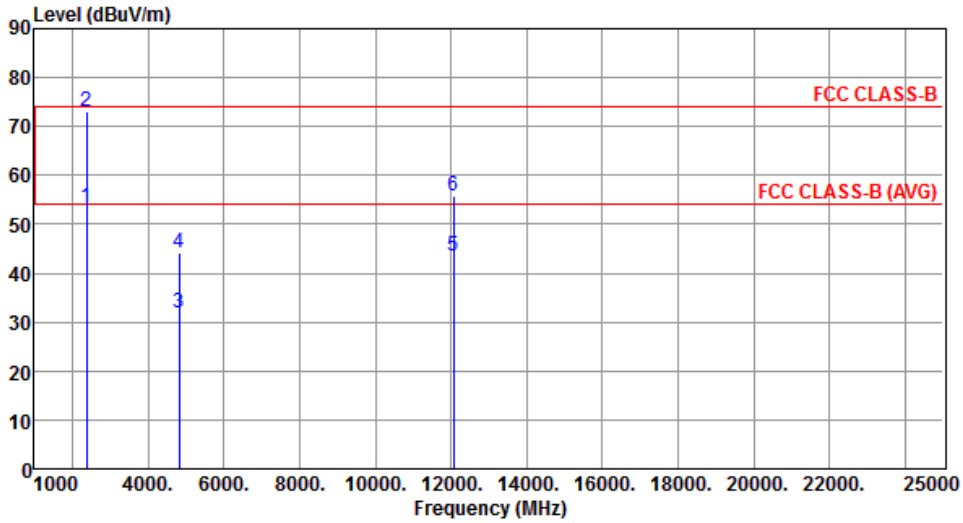


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	46.48	36.57	40.00	-3.43	44.61	-8.04	QP	100	115
2	99.77	33.59	43.50	-9.91	46.78	-13.19	Peak	---	---
3	168.66	27.84	43.50	-15.66	36.06	-8.22	Peak	---	---
4	207.49	28.55	43.50	-14.95	39.24	-10.69	Peak	---	---
5	374.47	37.12	46.00	-8.88	42.82	-5.70	Peak	---	---
6	624.58	35.02	46.00	-10.98	35.32	-0.30	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*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 HT20

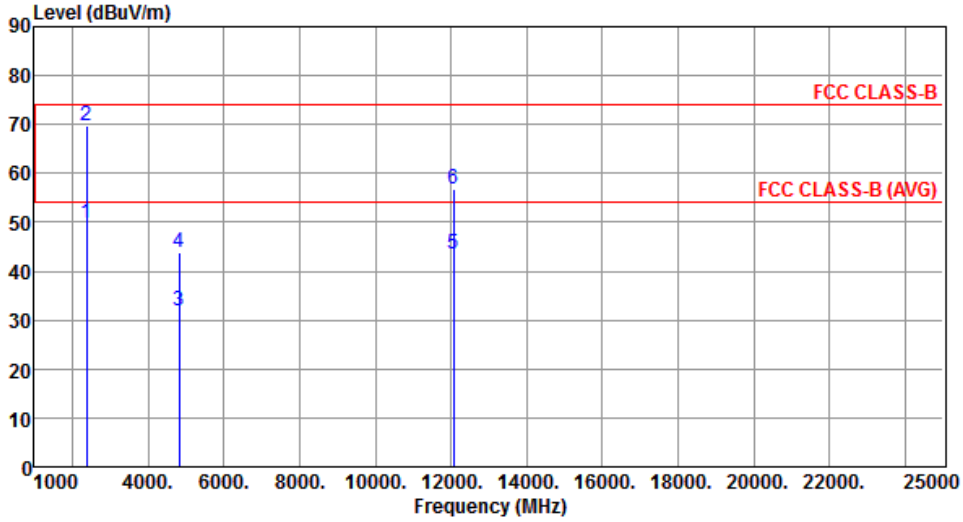
Modulation	HT20	Test Freq. (MHz)	2412
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	53.49	54.00	-0.51	54.70	-1.21	Average	195	209
2	2390.00	73.08	74.00	-0.92	74.29	-1.21	Peak	195	209
3	4824.00	31.99	54.00	-22.01	26.32	5.67	Average	100	80
4	4824.00	44.03	74.00	-29.97	38.36	5.67	Peak	100	80
5	12060.00	43.37	54.00	-10.63	27.70	15.67	Average	100	60
6	12060.00	55.79	74.00	-18.21	40.12	15.67	Peak	100	60

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

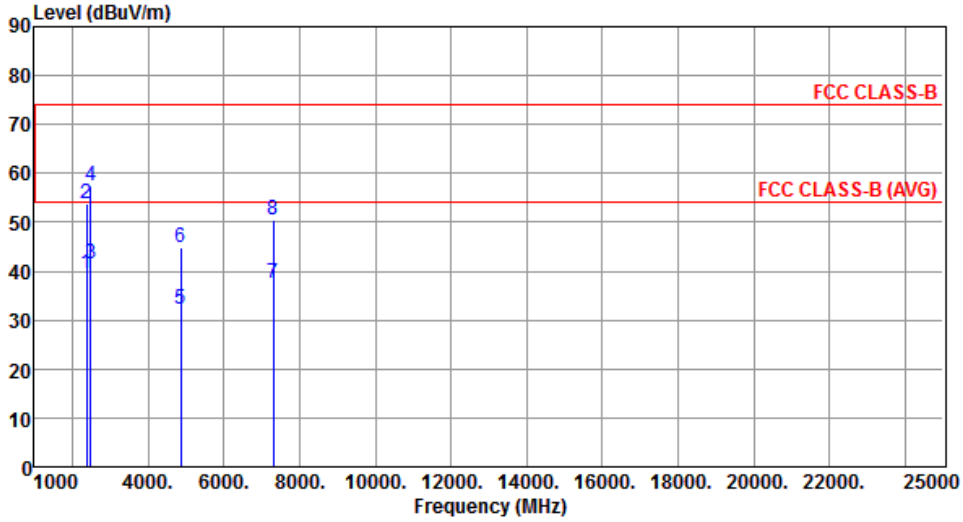
Modulation	HT20	Test Freq. (MHz)	2412
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	49.77	54.00	-4.23	50.98	-1.21	Average	126	4
2	2390.00	69.64	74.00	-4.36	70.85	-1.21	Peak	126	4
3	4824.00	31.88	54.00	-22.12	26.21	5.67	Average	100	60
4	4824.00	43.82	74.00	-30.18	38.15	5.67	Peak	100	60
5	12060.00	43.42	54.00	-10.58	27.75	15.67	Average	100	90
6	12060.00	56.93	74.00	-17.07	41.26	15.67	Peak	100	90

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

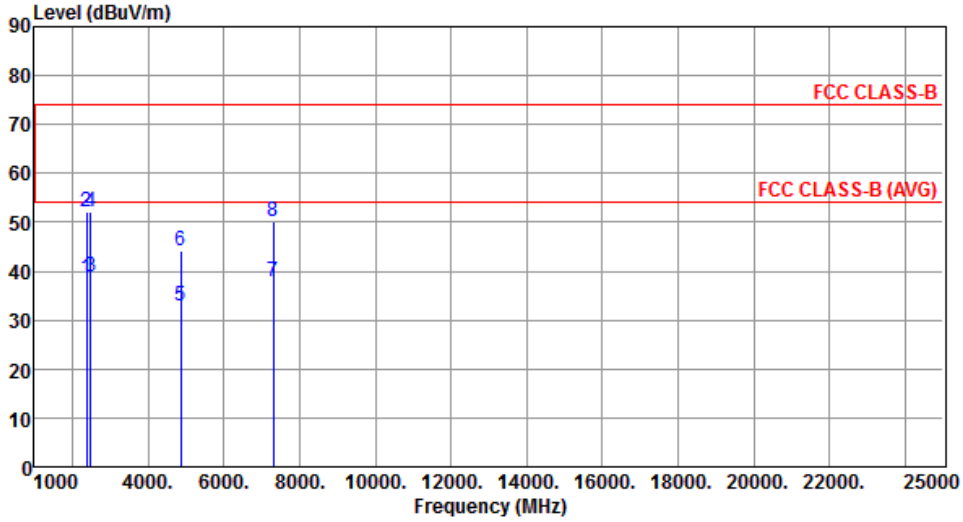
Modulation	HT20	Test Freq. (MHz)	2437
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	39.65	54.00	-14.35	40.86	-1.21	Average	166	245
2	2390.00	53.69	74.00	-20.31	54.90	-1.21	Peak	166	245
3	2483.50	41.63	54.00	-12.37	42.49	-0.86	Average	166	245
4	2483.50	57.44	74.00	-16.56	58.30	-0.86	Peak	166	245
5	4874.00	32.22	54.00	-21.78	26.41	5.81	Average	100	100
6	4874.00	44.99	74.00	-29.01	39.18	5.81	Peak	100	100
7	7311.00	37.68	54.00	-16.32	26.73	10.95	Average	100	70
8	7311.00	50.64	74.00	-23.36	39.69	10.95	Peak	100	70

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

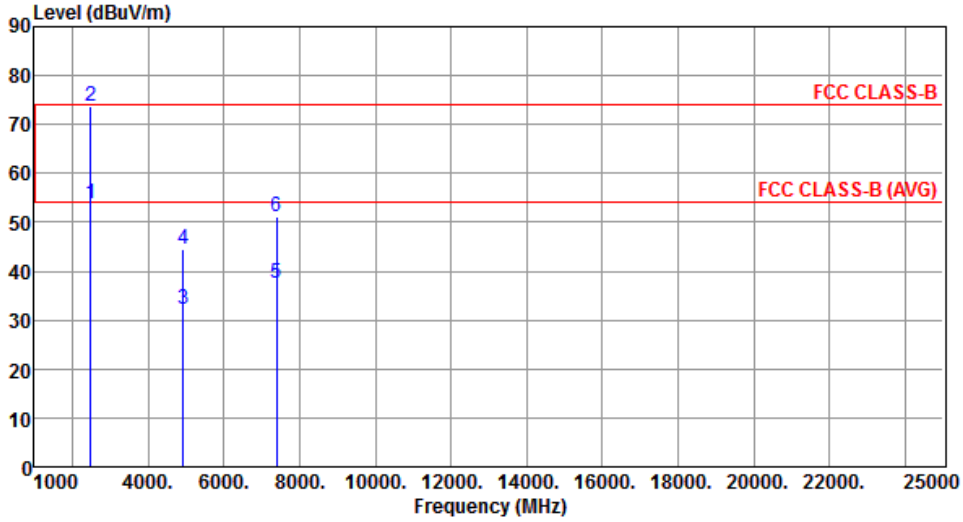
Modulation	HT20	Test Freq. (MHz)	2437
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	38.54	54.00	-15.46	39.75	-1.21	Average	105	356
2	2390.00	52.06	74.00	-21.94	53.27	-1.21	Peak	105	356
3	2483.50	38.78	54.00	-15.22	39.64	-0.86	Average	105	356
4	2483.50	52.23	74.00	-21.77	53.09	-0.86	Peak	105	356
5	4874.00	32.72	54.00	-21.28	26.91	5.81	Average	100	30
6	4874.00	44.24	74.00	-29.76	38.43	5.81	Peak	100	30
7	7311.00	37.75	54.00	-16.25	26.80	10.95	Average	100	60
8	7311.00	50.11	74.00	-23.89	39.16	10.95	Peak	100	60

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

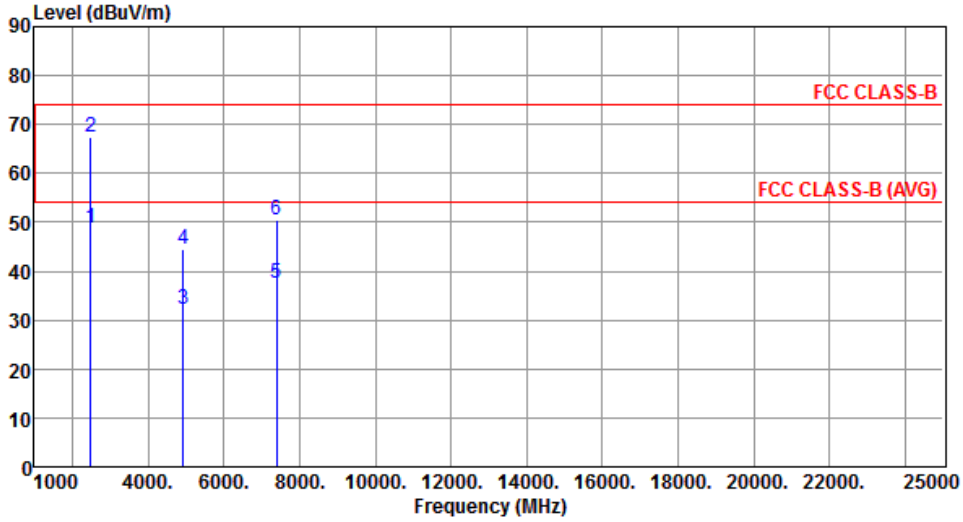
Modulation	HT20	Test Freq. (MHz)	2462
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	53.78	54.00	-0.22	54.64	-0.86	Average	207	263
2	2483.50	73.88	74.00	-0.12	74.74	-0.86	Peak	207	263
3	4924.00	32.07	54.00	-21.93	26.12	5.95	Average	100	300
4	4924.00	44.51	74.00	-29.49	38.56	5.95	Peak	100	300
5	7386.00	37.52	54.00	-16.48	26.25	11.27	Average	100	250
6	7386.00	51.01	74.00	-22.99	39.74	11.27	Peak	100	250

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

Modulation	HT20	Test Freq. (MHz)	2462
Polarization	Vertical		

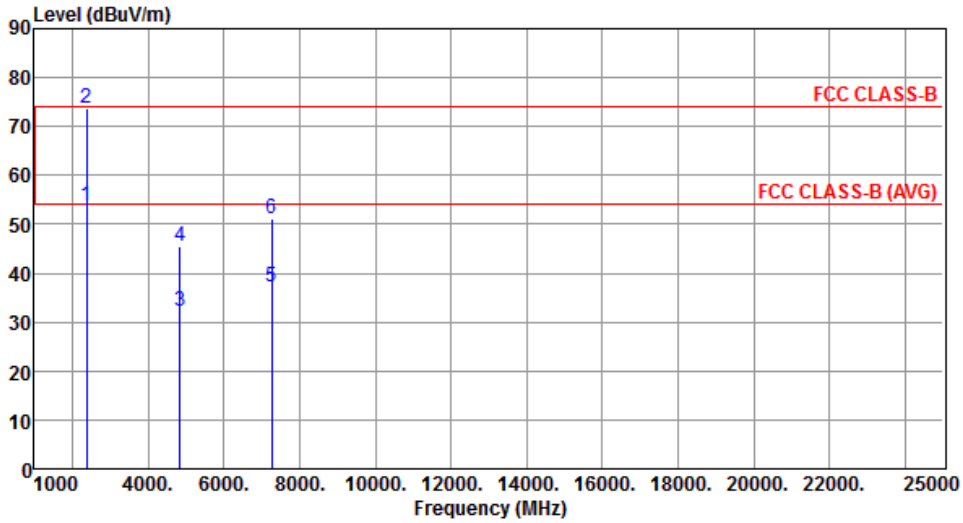


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	48.66	54.00	-5.34	49.52	-0.86	Average	100	3
2	2483.50	67.43	74.00	-6.57	68.29	-0.86	Peak	100	3
3	4924.00	32.10	54.00	-21.90	26.15	5.95	Average	100	15
4	4924.00	44.54	74.00	-29.46	38.59	5.95	Peak	100	15
5	7386.00	37.62	54.00	-16.38	26.35	11.27	Average	100	60
6	7386.00	50.54	74.00	-23.46	39.27	11.27	Peak	100	60

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*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 HT40

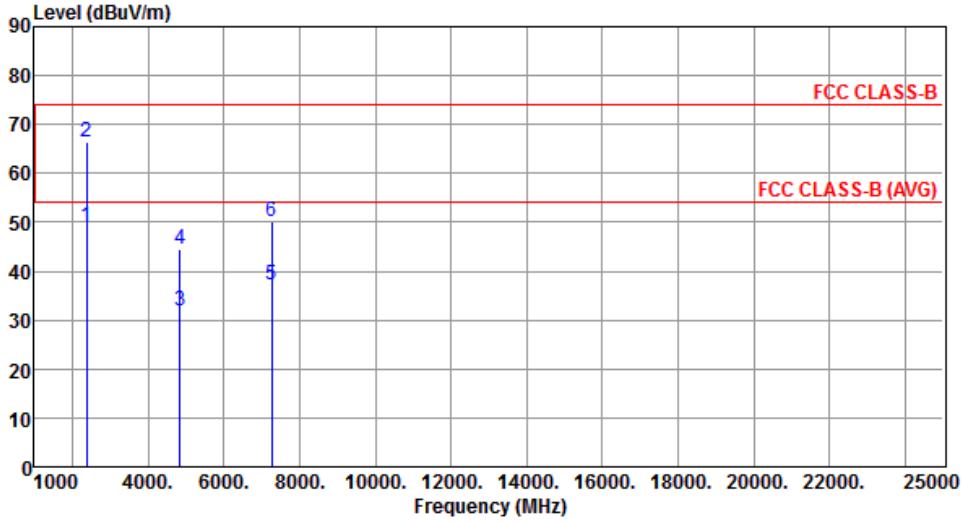
Modulation	HT40	**Test Freq. (MHz)**	2422
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	53.87	54.00	-0.13	55.08	-1.21	Average	217	281
2	2390.00	73.80	74.00	-0.20	75.01	-1.21	Peak	217	281
3	4844.00	32.08	54.00	-21.92	26.35	5.73	Average	100	20
4	4844.00	45.36	74.00	-28.64	39.63	5.73	Peak	100	20
5	7266.00	37.33	54.00	-16.67	26.58	10.75	Average	100	60
6	7266.00	51.01	74.00	-22.99	40.26	10.75	Peak	100	60

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

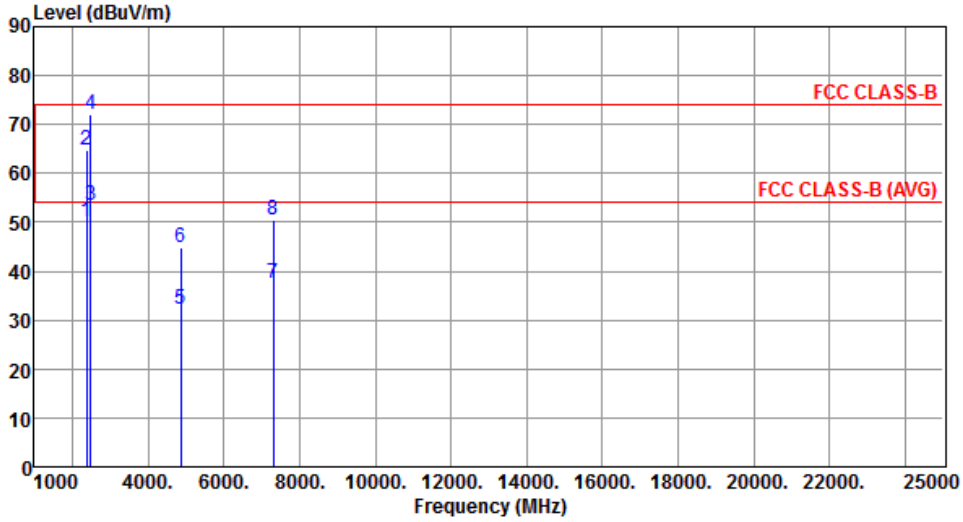
Modulation	HT40	Test Freq. (MHz)	2422
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	49.28	54.00	-4.72	50.49	-1.21	Average	132	7
2	2390.00	66.51	74.00	-7.49	67.72	-1.21	Peak	132	7
3	4844.00	31.94	54.00	-22.06	26.21	5.73	Average	100	50
4	4844.00	44.57	74.00	-29.43	38.84	5.73	Peak	100	50
5	7266.00	37.13	54.00	-16.87	26.38	10.75	Average	100	90
6	7266.00	50.02	74.00	-23.98	39.27	10.75	Peak	100	90

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

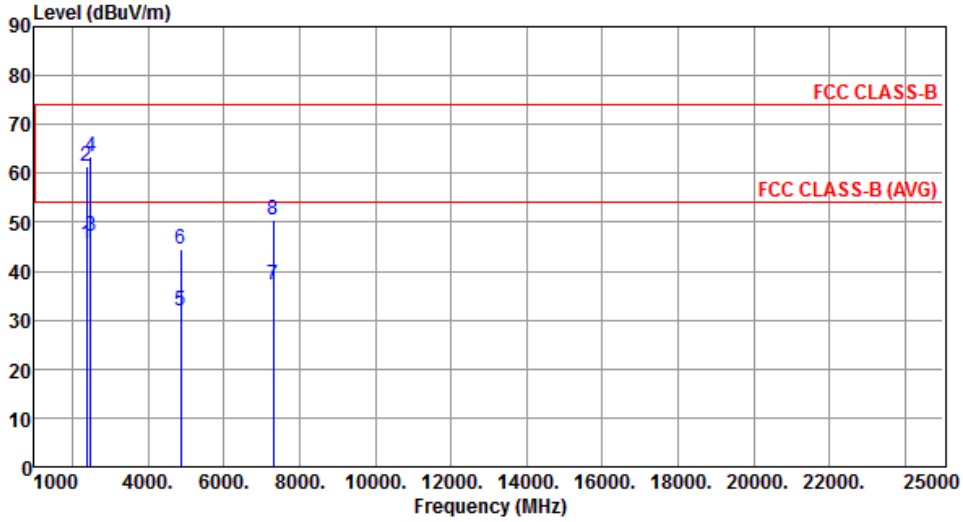
Modulation	HT40	Test Freq. (MHz)	2437
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	49.98	54.00	-4.02	51.19	-1.21	Average	213	266
2	2390.00	64.67	74.00	-9.33	65.88	-1.21	Peak	213	266
3	2483.50	53.50	54.00	-0.50	54.36	-0.86	Average	236	266
4	2483.50	72.18	74.00	-1.82	73.04	-0.86	Peak	236	266
5	4874.00	32.15	54.00	-21.85	26.34	5.81	Average	100	200
6	4874.00	44.96	74.00	-29.04	39.15	5.81	Peak	100	200
7	7311.00	37.39	54.00	-16.61	26.44	10.95	Average	100	40
8	7311.00	50.59	74.00	-23.41	39.64	10.95	Peak	100	40

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

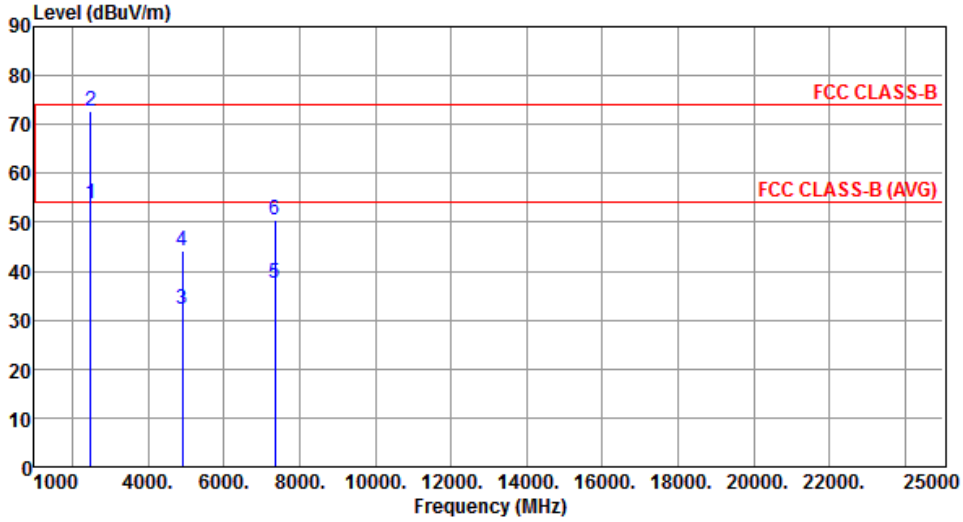
Modulation	HT40	Test Freq. (MHz)	2437
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	45.65	54.00	-8.35	46.86	-1.21	Average	100	359
2	2390.00	61.43	74.00	-12.57	62.64	-1.21	Peak	100	359
3	2483.50	47.30	54.00	-6.70	48.16	-0.86	Average	100	359
4	2483.50	63.46	74.00	-10.54	64.32	-0.86	Peak	100	359
5	4874.00	31.95	54.00	-22.05	26.14	5.81	Average	100	50
6	4874.00	44.50	74.00	-29.50	38.69	5.81	Peak	100	50
7	7311.00	37.17	54.00	-16.83	26.22	10.95	Average	100	70
8	7311.00	50.62	74.00	-23.38	39.67	10.95	Peak	100	70

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

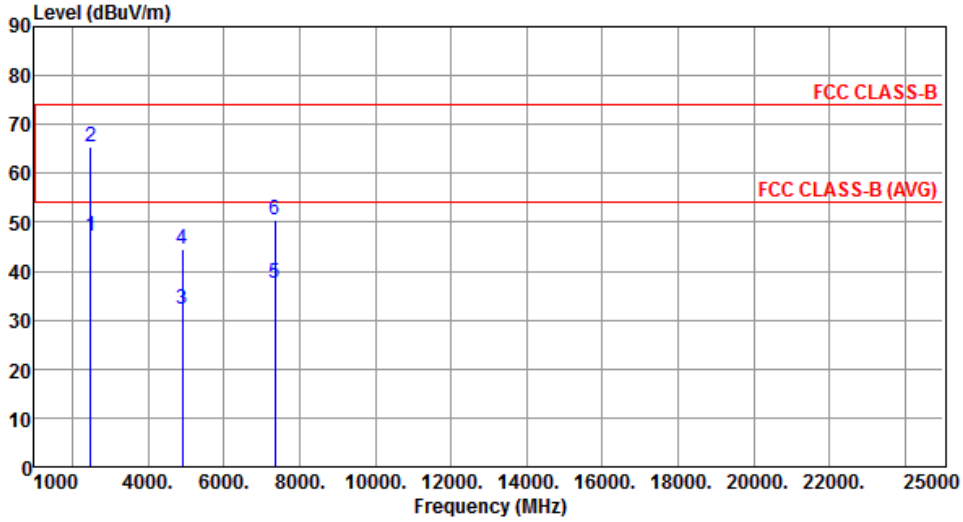
Modulation	HT40	Test Freq. (MHz)	2452
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	53.88	54.00	-0.12	54.74	-0.86	Average	208	256
2	2483.50	72.58	74.00	-1.42	73.44	-0.86	Peak	208	256
3	4904.00	32.11	54.00	-21.89	26.21	5.90	Average	100	200
4	4904.00	44.26	74.00	-29.74	38.36	5.90	Peak	100	200
5	7356.00	37.62	54.00	-16.38	26.48	11.14	Average	100	60
6	7356.00	50.62	74.00	-23.38	39.48	11.14	Peak	100	60

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

Modulation	HT40	Test Freq. (MHz)	2452
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	47.07	54.00	-6.93	47.93	-0.86	Average	133	356
2	2483.50	65.27	74.00	-8.73	66.13	-0.86	Peak	133	356
3	4904.00	32.28	54.00	-21.72	26.38	5.90	Average	100	130
4	4904.00	44.57	74.00	-29.43	38.67	5.90	Peak	100	130
5	7356.00	37.60	54.00	-16.40	26.46	11.14	Average	100	150
6	7356.00	50.41	74.00	-23.59	39.27	11.14	Peak	100	150

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*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 20 dB relative to the maximum in-band peak PSD level in 100 kHz

3.6.2 Test Procedures

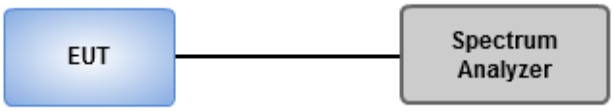
Reference level measurement

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

Emission level measurement

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

3.6.3 Test Setup



Non-beamforming mode

3.6.4 Unwanted Emissions into Non-Restricted Frequency Bands

Summary

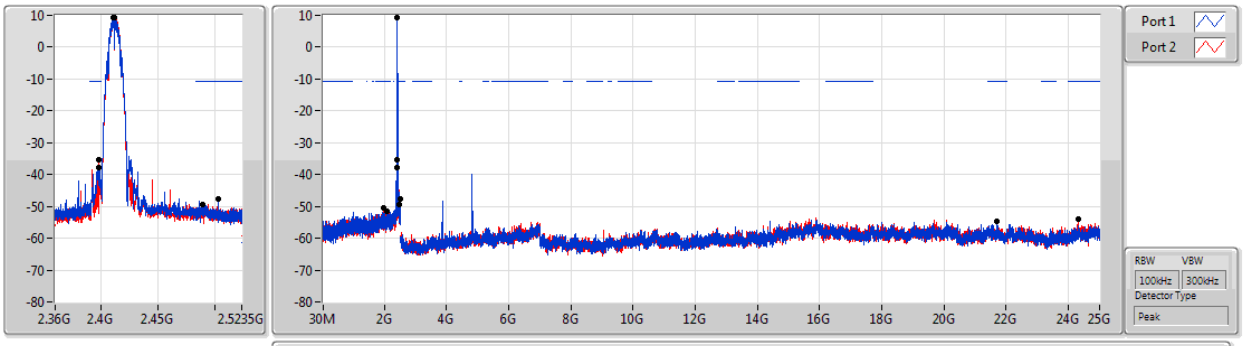
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-
802.11b_Nss1,(1Mbps)_2TX	Pass	2.412358G	9.20	-10.80	1.960405G	-50.62	2.39776G	-35.26	2.4891G	-49.25	24.311657G	-53.95	2
802.11g_Nss1,(6Mbps)_2TX	Pass	2.419539G	4.45	-15.55	2.17826G	-50.52	2.39992G	-24.55	2.50078G	-48.05	24.696567G	-54.79	2
802.11n HT20_Nss2,(MCS8)_2TX	Pass	2.413193G	4.52	-15.48	2.30175G	-51.04	2.39992G	-29.65	2.5079G	-49.19	6.18436G	-54.64	1
802.11n HT40_Nss2,(MCS8)_2TX	Pass	2.425718G	2.15	-17.85	2.04978G	-50.56	2.3984G	-33.12	2.48414G	-49.75	24.974759G	-54.95	2

Result

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.411356G	9.32	-10.68	2.076905G	-51.63	2.398G	-37.93	2.50294G	-47.76	21.679097G	-54.73	1
2412MHz	Pass	2.412358G	9.20	-10.80	1.960405G	-50.62	2.39776G	-35.26	2.4891G	-49.25	24.311657G	-53.95	2
2437MHz	Pass	2.437575G	9.51	-10.49	2.132825G	-51.56	2.39768G	-45.14	2.49574G	-48.87	24.702186G	-54.53	1
2437MHz	Pass	2.436573G	9.26	-10.74	2.060595G	-51.66	2.39464G	-50.35	2.51502G	-49.13	15.253628G	-54.98	2
2462MHz	Pass	2.462625G	9.43	-10.57	1.951085G	-51.45	2.39296G	-49.73	2.48358G	-38.87	17.658613G	-55.02	1
2462MHz	Pass	2.461623G	8.80	-11.20	2.165445G	-51.12	2.39592G	-49.53	2.4963G	-44.39	15.242389G	-54.00	2
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.416867G	5.91	-14.09	1.81711G	-51.31	2.39992G	-23.43	2.49294G	-49.22	6.951371G	-54.11	1
2412MHz	Pass	2.419539G	4.45	-15.55	2.17826G	-50.52	2.39992G	-24.55	2.50078G	-48.05	24.696567G	-54.79	2
2437MHz	Pass	2.436406G	4.17	-15.83	2.093215G	-51.14	2.3968G	-48.47	2.51094G	-48.71	6.822131G	-54.77	1
2437MHz	Pass	2.436406G	4.93	-15.07	2.11069G	-51.76	2.39192G	-49.45	2.49646G	-47.59	16.388691G	-54.91	2
2462MHz	Pass	2.460788G	6.91	-13.09	2.30641G	-49.96	2.39912G	-49.12	2.48358G	-38.69	15.3042G	-54.70	1
2462MHz	Pass	2.465798G	4.75	-15.25	2.097875G	-50.81	2.3968G	-49.87	2.48382G	-44.55	16.425215G	-54.61	2
802.11n HT20_Nss2,(MCS8)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.413193G	4.52	-15.48	2.30175G	-51.04	2.39992G	-29.65	2.5079G	-49.19	6.18436G	-54.64	1
2412MHz	Pass	2.413193G	4.43	-15.57	2.307575G	-50.61	2.39952G	-31.66	2.48638G	-49.45	17.641756G	-54.78	2
2437MHz	Pass	2.433233G	3.21	-16.79	2.095545G	-50.54	2.3928G	-49.53	2.49062G	-49.29	15.028863G	-54.15	1
2437MHz	Pass	2.441917G	4.65	-15.35	2.30408G	-51.06	2.39528G	-49.21	2.49606G	-48.33	16.352167G	-54.93	2
2462MHz	Pass	2.455778G	3.51	-16.49	1.774005G	-51.19	2.39432G	-49.25	2.4839G	-42.52	6.838988G	-55.04	1
2462MHz	Pass	2.456947G	3.19	-16.81	2.300585G	-51.34	2.39464G	-49.82	2.48806G	-49.03	17.669851G	-54.24	2
802.11n HT40_Nss2,(MCS8)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	2.414529G	1.08	-18.92	1.906655G	-51.56	2.39904G	-34.54	2.49038G	-49.34	15.335478G	-54.65	1
2422MHz	Pass	2.425718G	2.15	-17.85	2.04978G	-50.56	2.3984G	-33.12	2.48414G	-49.75	24.974759G	-54.95	2
2437MHz	Pass	2.439412G	0.91	-19.09	2.15054G	-51.69	2.39856G	-42.87	2.48798G	-48.41	5.749483G	-50.54	1
2437MHz	Pass	2.432064G	0.79	-19.21	1.862G	-51.72	2.39936G	-43.12	2.51134G	-48.83	16.401211G	-53.81	2
2452MHz	Pass	2.457114G	0.47	-19.53	1.824215G	-51.98	2.39136G	-49.37	2.48446G	-42.97	14.945643G	-54.34	1
2452MHz	Pass	2.460788G	-2.05	-22.05	2.30626G	-50.95	2.39648G	-51.03	2.48414G	-47.22	15.268168G	-54.67	2

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

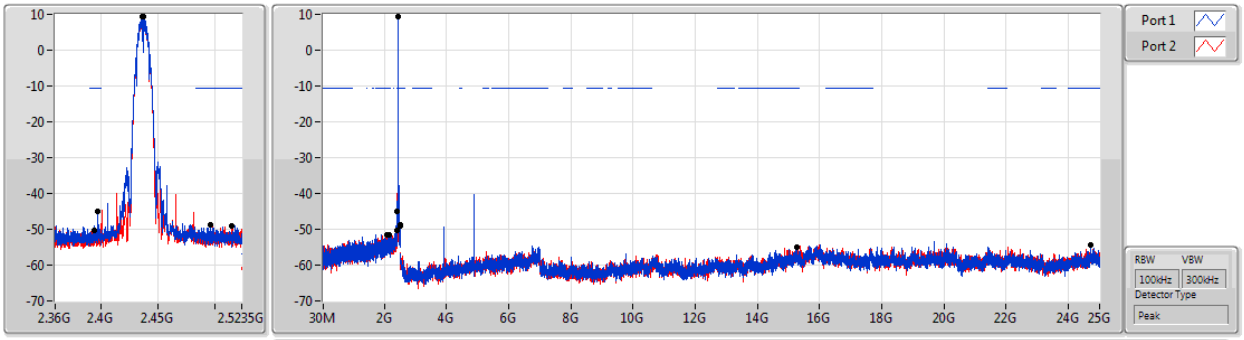
2412MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.411356G	9.32	-10.68	2.076905G	-51.63	2.398G	-37.93	2.50294G	-47.76	21.679097G	-54.73	1
2.412358G	9.20	-10.80	1.960405G	-50.62	2.39776G	-35.26	2.4891G	-49.25	24.311657G	-53.95	2

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

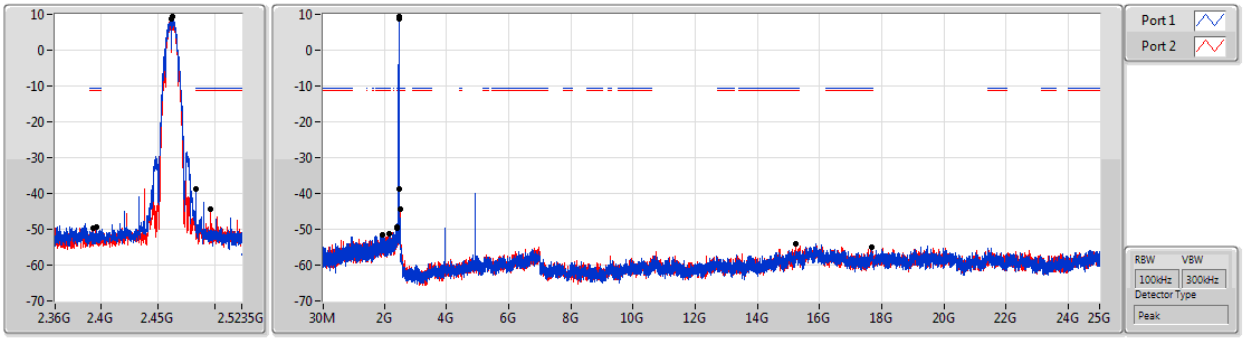
2437MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.437575G	9.51	-10.49	2.132825G	-51.56	2.39768G	-45.14	2.49574G	-48.87	24.702186G	-54.53	1
2.436573G	9.26	-10.74	2.060595G	-51.66	2.39464G	-50.35	2.51502G	-49.13	15.253628G	-54.98	2

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

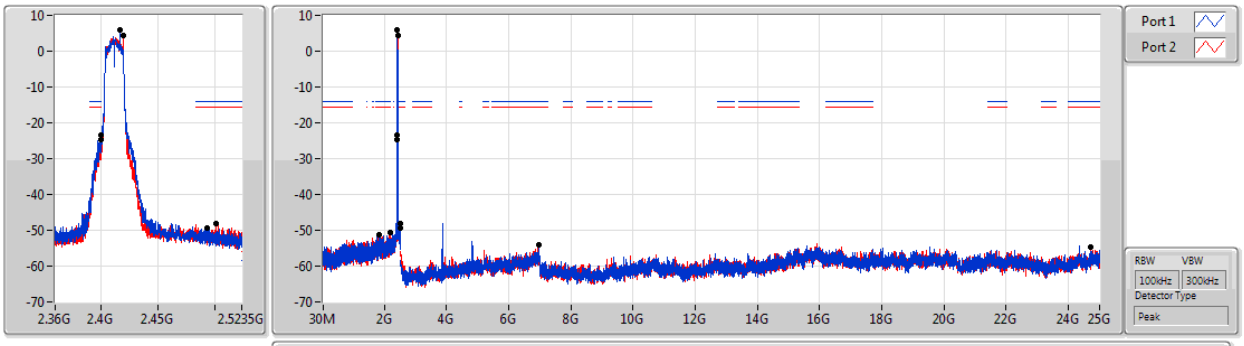
2462MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.462625G	9.43	-10.57	1.951085G	-51.45	2.39296G	-49.73	2.48358G	-38.87	17.658613G	-55.02	1
2.461623G	8.80	-11.20	2.165445G	-51.12	2.39592G	-49.53	2.4963G	-44.39	15.242389G	-54.00	2

802.11g_Nss1,(6Mbps)_2TX — CSE NdB

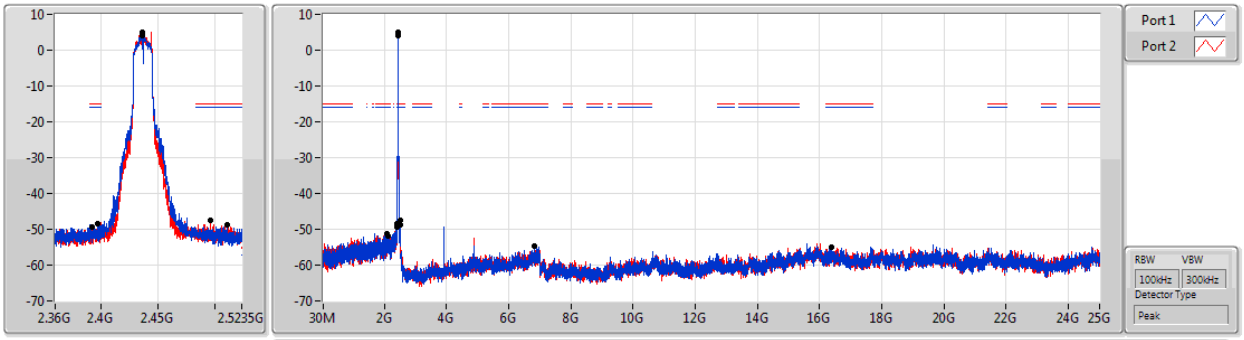
2412MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.416867G	5.91	-14.09	1.81711G	-51.31	2.39992G	-23.43	2.49294G	-49.22	6.951371G	-54.11	1
2.419539G	4.45	-15.55	2.17826G	-50.52	2.39992G	-24.55	2.50078G	-48.05	24.696567G	-54.79	2

802.11g_Nss1,(6Mbps)_2TX — CSE NdB

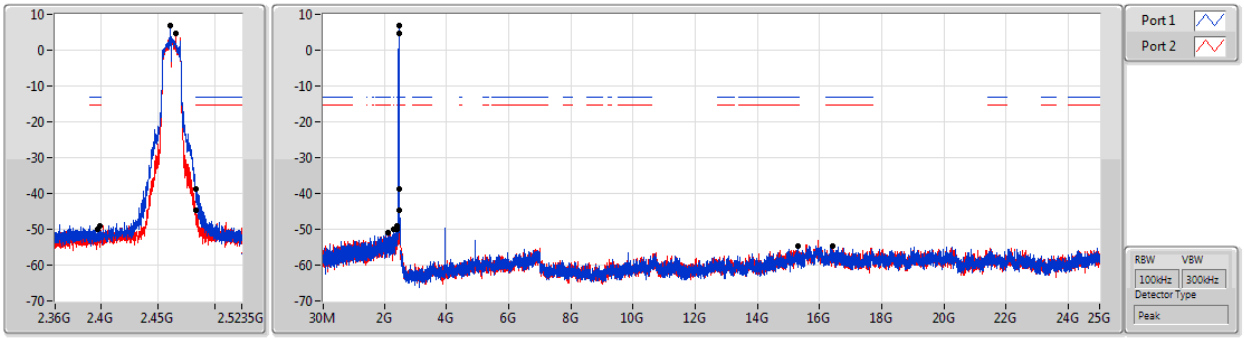
2437MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.436406G	4.17	-15.83	2.093215G	-51.14	2.3968G	-48.47	2.51094G	-48.71	6.822131G	-54.77	1
2.436406G	4.93	-15.07	2.11069G	-51.76	2.39192G	-49.45	2.49646G	-47.59	16.388691G	-54.91	2

802.11g_Nss1,(6Mbps)_2TX — CSE NdB

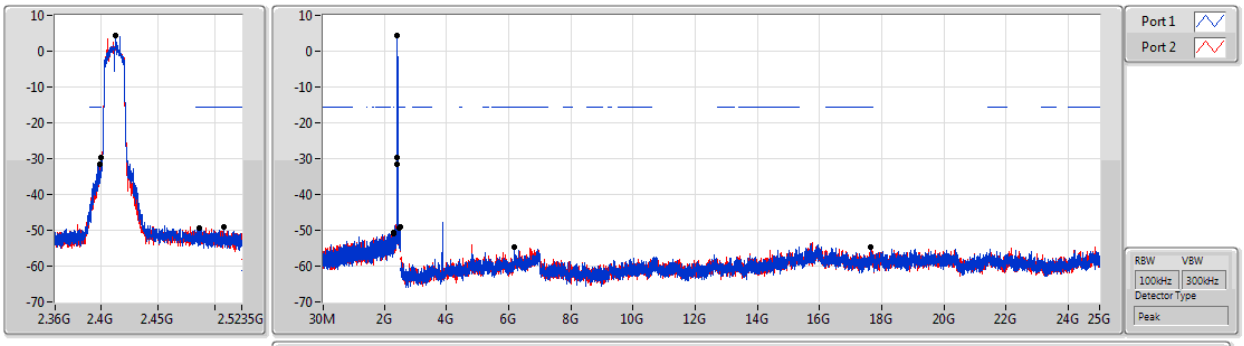
2462MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.460788G	6.91	-13.09	2.30641G	-49.96	2.39912G	-49.12	2.48358G	-38.69	15.3042G	-54.70	1
2.465798G	4.75	-15.25	2.097875G	-50.81	2.3968G	-49.87	2.48382G	-44.55	16.425215G	-54.61	2

802.11n HT20_Nss2,(MCS8)_2TX — CSE NdB

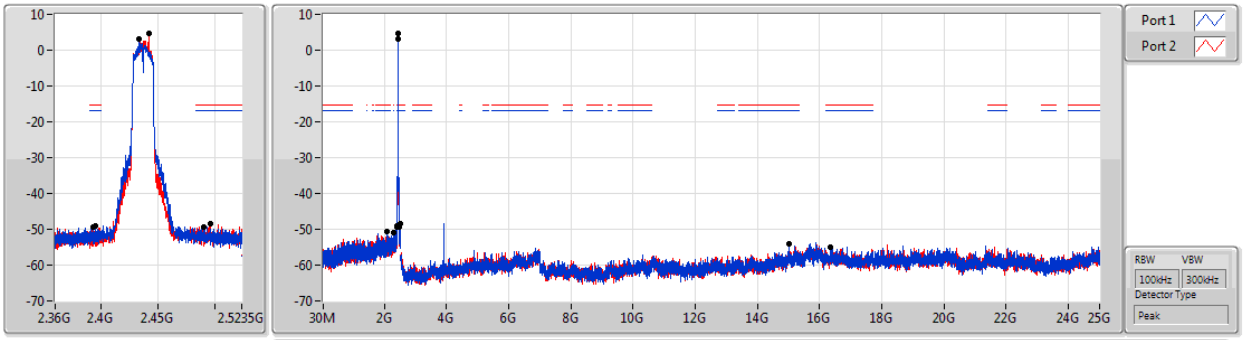
2412MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.413193G	4.52	-15.48	2.30175G	-51.04	2.39992G	-29.65	2.5079G	-49.19	6.18436G	-54.64	1
2.413193G	4.43	-15.57	2.307575G	-50.61	2.39952G	-31.66	2.48638G	-49.45	17.641756G	-54.78	2

802.11n HT20_Nss2,(MCS8)_2TX — CSE NdB

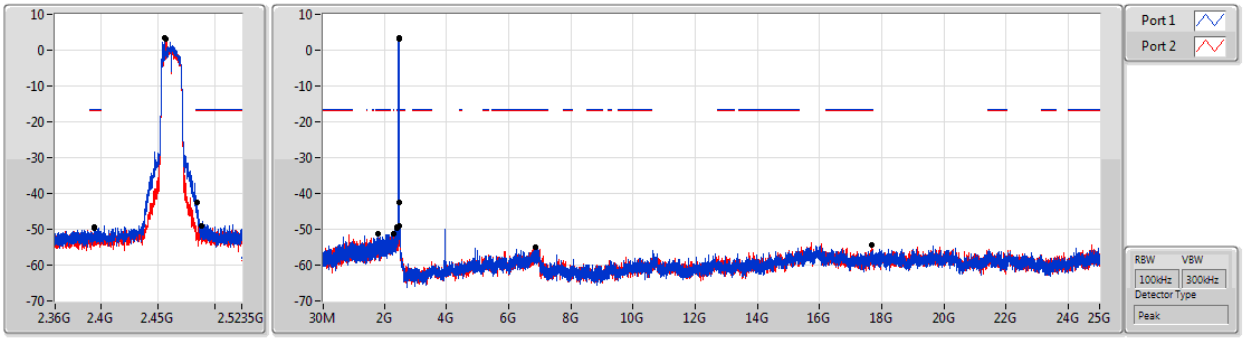
2437MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.433233G	3.21	-16.79	2.095545G	-50.54	2.3928G	-49.53	2.49062G	-49.29	15.028863G	-54.15	1
2.441917G	4.65	-15.35	2.30408G	-51.06	2.39528G	-49.21	2.49606G	-48.33	16.352167G	-54.93	2

802.11n HT20_Nss2,(MCS8)_2TX — CSE NdB

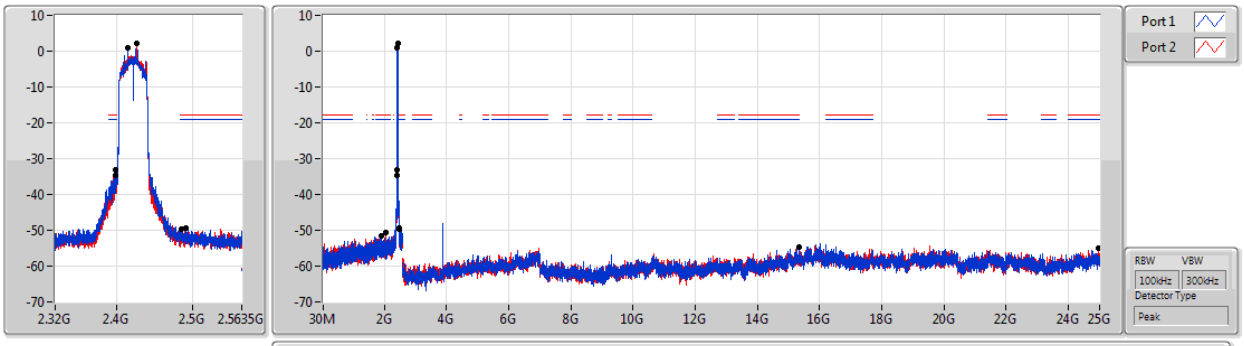
2462MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.455778G	3.51	-16.49	1.774005G	-51.19	2.39432G	-49.25	2.4839G	-42.52	6.838988G	-55.04	1
2.456947G	3.19	-16.81	2.300585G	-51.34	2.39464G	-49.82	2.48806G	-49.03	17.669851G	-54.24	2

802.11n HT40_Nss2,(MCS8)_2TX — CSE NdB

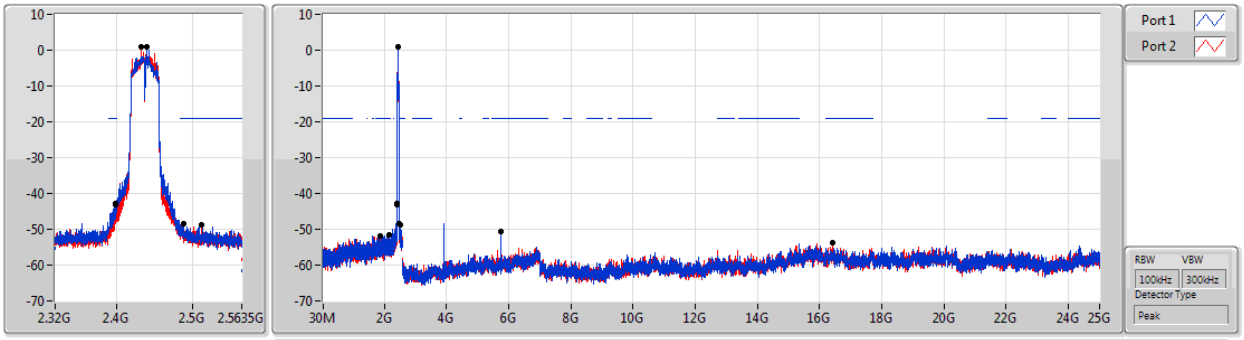
2422MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.414529G	1.08	-18.92	1.906655G	-51.56	2.39904G	-34.54	2.49038G	-49.34	15.335478G	-54.65	1
2.425718G	2.15	-17.85	2.04978G	-50.56	2.3984G	-33.12	2.48414G	-49.75	24.974759G	-54.95	2

802.11n HT40_Nss2,(MCS8)_2TX — CSE NdB

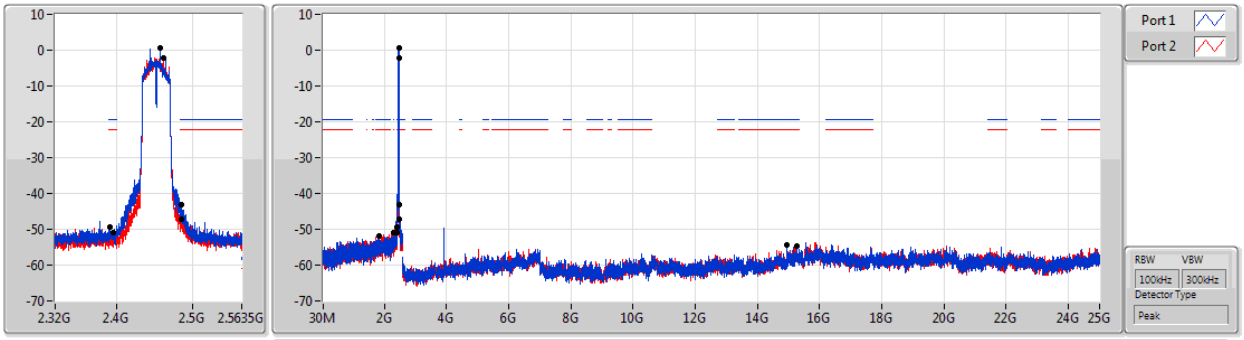
2437MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.439412G	0.91	-19.09	2.15054G	-51.69	2.39856G	-42.87	2.48798G	-48.41	5.749483G	-50.54	1
2.432064G	0.79	-19.21	1.862G	-51.72	2.39936G	-43.12	2.51134G	-48.83	16.401211G	-53.81	2

802.11n HT40_Nss2,(MCS8)_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
2.457114G	0.47	-19.53	1.824215G	-51.98	2.39136G	-49.37	2.48446G	-42.97	14.945643G	-54.34	1
2.460788G	-2.05	-22.05	2.30626G	-50.95	2.39648G	-51.03	2.48414G	-47.22	15.268168G	-54.67	2

Beamforming mode

3.6.5 Unwanted Emissions into Non-Restricted Frequency Bands

Summary

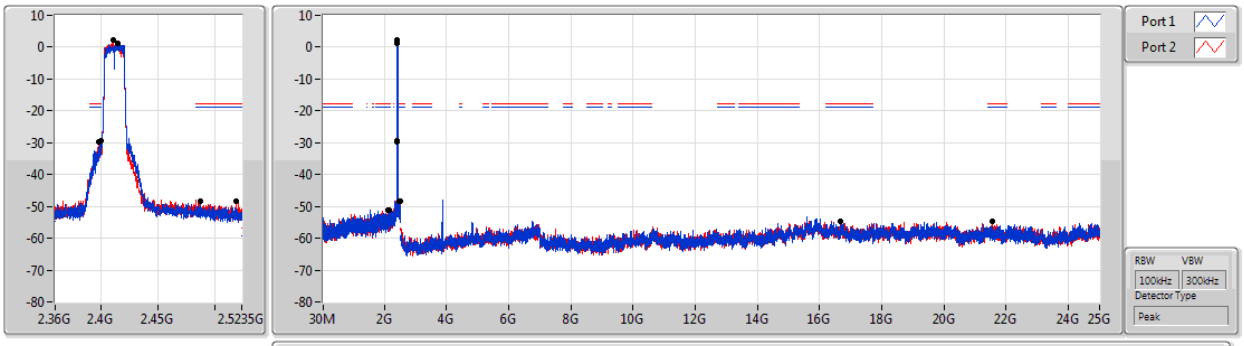
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-
802.11n HT20-BF_Nss2,(MCS8)_2TX	Pass	2.414863G	1.10	-18.90	2.13865G	-51.12	2.39984G	-29.47	2.48694G	-48.52	16.672457G	-54.63	1
802.11n HT40-BF_Nss2,(MCS8)_2TX	Pass	2.414529G	-0.28	-20.28	1.826505G	-51.61	2.39616G	-35.31	2.52142G	-49.22	6.997513G	-54.84	2

Result

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
802.11n HT20-BF_Nss2,(MCS8)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.414863G	1.10	-18.90	2.13865G	-51.12	2.39984G	-29.47	2.48694G	-48.52	16.672457G	-54.63	1
2412MHz	Pass	2.410688G	2.13	-17.87	2.10137G	-51.03	2.39832G	-29.62	2.51838G	-48.46	21.544238G	-54.55	2
2437MHz	Pass	2.430728G	3.67	-16.33	2.30408G	-51.58	2.39384G	-49.39	2.48454G	-48.72	24.842665G	-54.53	1
2437MHz	Pass	2.435738G	3.05	-16.95	1.855555G	-50.96	2.39008G	-50.12	2.49198G	-48.86	24.763997G	-54.74	2
2462MHz	Pass	2.457114G	1.15	-18.85	2.307575G	-51.35	2.39048G	-48.99	2.48358G	-44.34	16.399929G	-54.66	1
2462MHz	Pass	2.466967G	1.90	-18.10	2.144475G	-51.01	2.3976G	-50.41	2.48382G	-48.65	15.284533G	-53.82	2
802.11n HT40-BF_Nss2,(MCS8)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	2.418203G	-0.58	-20.58	2.12306G	-51.32	2.39456G	-36.06	2.5107G	-48.93	16.297443G	-54.80	1
2422MHz	Pass	2.414529G	-0.28	-20.28	1.826505G	-51.61	2.39616G	-35.31	2.52142G	-49.22	6.997513G	-54.84	2
2437MHz	Pass	2.430728G	1.93	-18.07	1.99024G	-51.45	2.39984G	-40.04	2.48382G	-46.43	16.350729G	-54.51	1
2437MHz	Pass	2.432064G	2.45	-17.55	2.307405G	-50.82	2.39904G	-38.89	2.4843G	-45.91	24.767221G	-54.45	2
2452MHz	Pass	2.444422G	-0.84	-20.84	1.81391G	-51.65	2.39232G	-49.78	2.48382G	-45.59	6.787171G	-54.36	1
2452MHz	Pass	2.448263G	-1.33	-21.33	1.71544G	-50.15	2.39136G	-50.11	2.48414G	-48.90	6.966663G	-54.55	2

802.11n HT20-BF_Nss2,(MCS8)_2TX **CSE NdB**

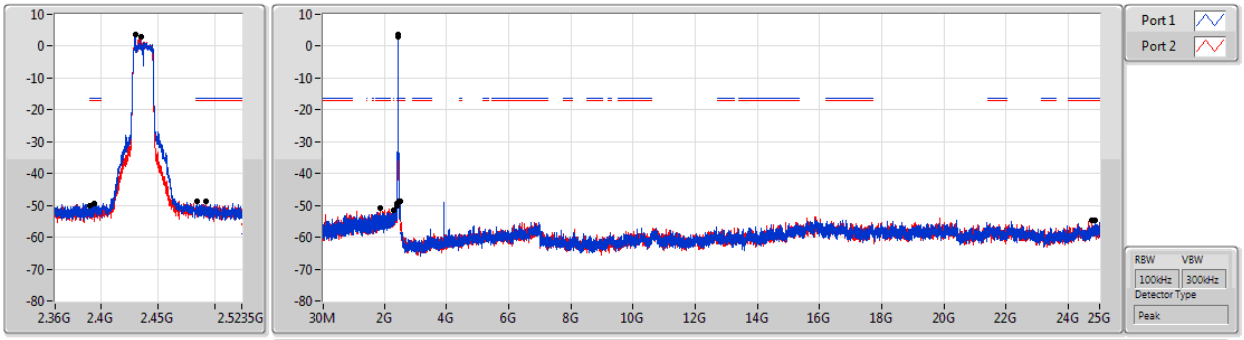
2412MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.414863G	1.10	-18.90	2.13865G	-51.12	2.39984G	-29.47	2.48694G	-48.52	16.672457G	-54.63	1
2.410688G	2.13	-17.87	2.10137G	-51.03	2.39832G	-29.62	2.51838G	-48.46	21.544238G	-54.55	2

802.11n HT20-BF_Nss2,(MCS8)_2TX **CSE NdB**

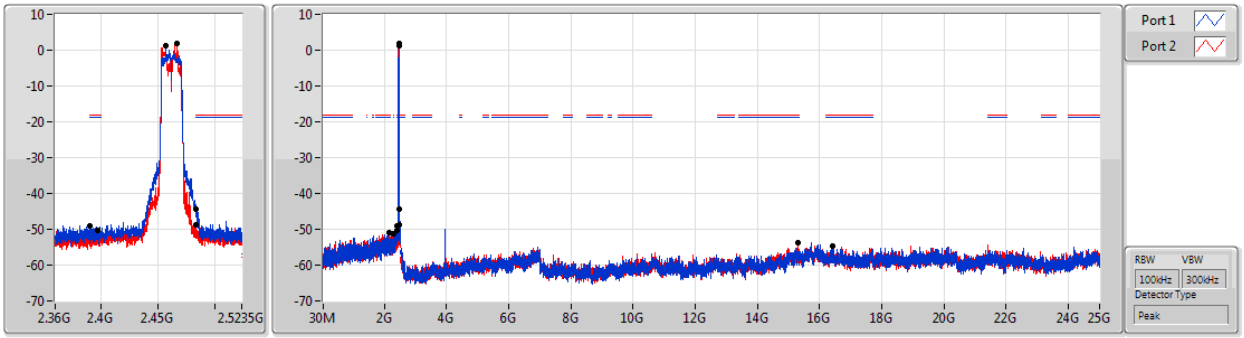
2437MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.430728G	3.67	-16.33	2.30408G	-51.58	2.39384G	-49.39	2.48454G	-48.72	24.842665G	-54.53	1
2.435738G	3.05	-16.95	1.855555G	-50.96	2.39008G	-50.12	2.49198G	-48.86	24.763997G	-54.74	2

802.11n HT20-BF_Nss2,(MCS8)_2TX **CSE NdB**

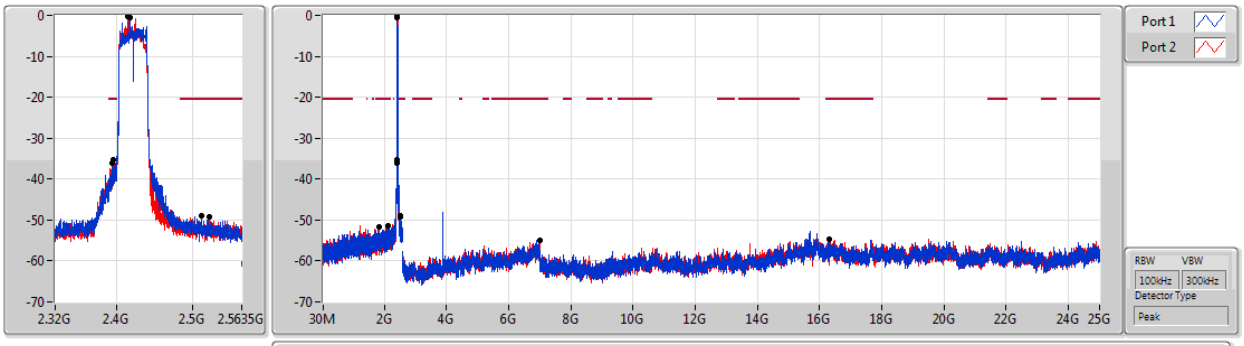
2462MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.457114G	1.15	-18.85	2.307575G	-51.35	2.39048G	-48.99	2.48358G	-44.34	16.399929G	-54.66	1
2.466967G	1.90	-18.10	2.144475G	-51.01	2.3976G	-50.41	2.48382G	-48.65	15.284533G	-53.82	2

802.11n HT40-BF_Nss2,(MCS8)_2TX — CSE NdB

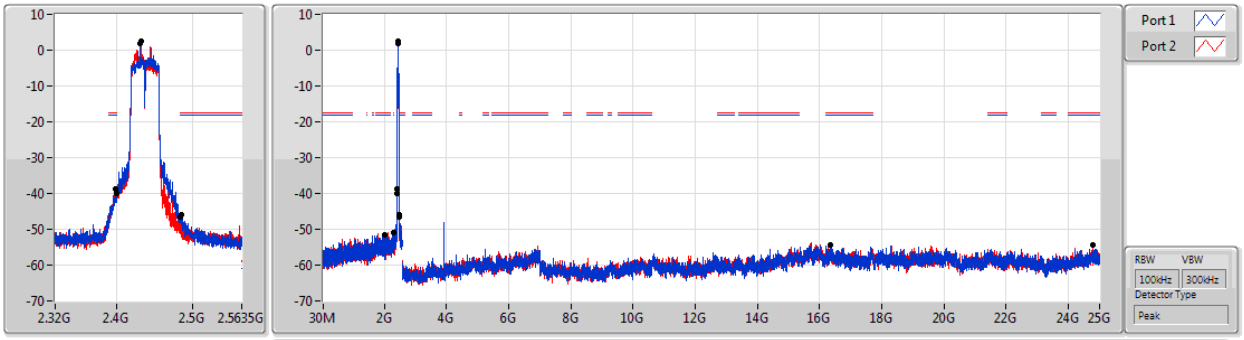
2422MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.418203G	-0.58	-20.58	2.12306G	-51.32	2.39456G	-36.06	2.5107G	-48.93	16.297443G	-54.80	1
2.414529G	-0.28	-20.28	1.826505G	-51.61	2.39616G	-35.31	2.52142G	-49.22	6.997513G	-54.84	2

802.11n HT40-BF_Nss2,(MCS8)_2TX — CSE NdB

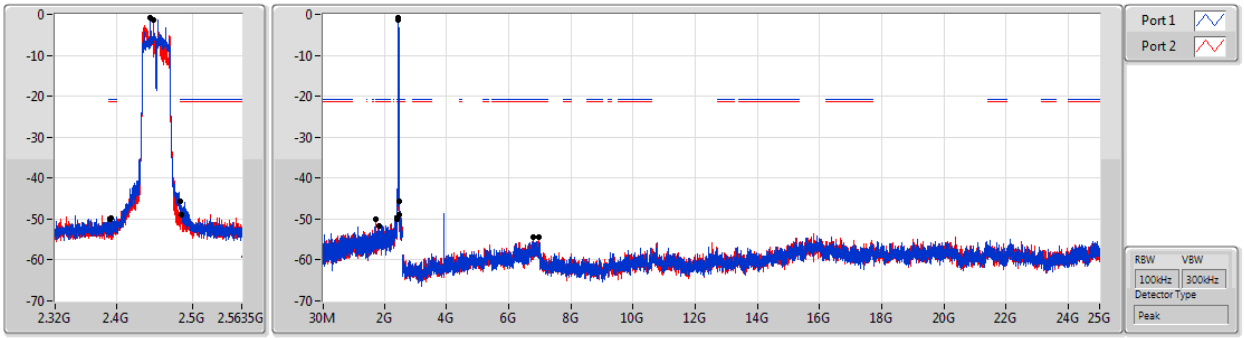
2437MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.430728G	1.93	-18.07	1.99024G	-51.45	2.39984G	-40.04	2.48382G	-46.43	16.350729G	-54.51	1
2.432064G	2.45	-17.55	2.307405G	-50.82	2.39904G	-38.89	2.4843G	-45.91	24.767221G	-54.45	2

802.11n HT40-BF_Nss2,(MCS8)_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
2.444422G	-0.84	-20.84	1.81391G	-51.65	2.39232G	-49.78	2.48382G	-45.59	6.787171G	-54.36	1
2.448263G	-1.33	-21.33	1.71544G	-50.15	2.39136G	-50.11	2.48414G	-48.90	6.966663G	-54.55	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 Corp (EMC and Wireless Communication Laboratory), it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

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

Linkou	**Kwei Shan**	**Kwei Shan Site II**
Tel: 886-2-2601-1640	Tel: 886-3-271-8666	Tel: 886-3-271-8640
No. 30-2, Ding Fwu Tsuen, Lin Kou District, New Taipei City, Taiwan, R.O.C.	No. 3-1, Lane 6, Wen San 3rd St., Kwei Shan District, Tao Yuan City 333, Taiwan, R.O.C.	No. 14-1, Lane 19, Wen San 3rd St., Kwei Shan District, 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: 886-3-318-0155
Email: ICC_Service@icertifi.com.tw

═END═