

FCC C2PC Test Report

FCC ID : SQG-WB50NBT
Equipment : Wireless 802.11abgn + BT4.1 intelligent module
Model No. : WB50NBT
Brand Name : Laird Connectivity
Applicant : Laird Connectivity
Address : W66N220 Commerce Court, Cedarburg, Wisconsin 53012, USA
Standard : 47 CFR FCC Part 15.247
Received Date : Apr. 02, 2020
Tested Date : May 26 ~ Jun. 04, 2020

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:



Along Chen / Assistant Manager

Approved by:



Gary Chang / Manager



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Release Record

Report No.	Version	Description	Issued Date
FR631002-07AC	Rev. 01	Initial issue	Jun. 29, 2020

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	[dBuV]: 15.714MHz 24.76(Margin -25.24dB) - AV	Pass
15.247(d) 15.209	Radiated Emissions	[dBuV/m at 3m]: 2483.50MHz 52.44(Margin -1.56dB) - AV	Pass
15.247(b)(3)	Maximum Output Power	Max Power [dBm]: 24.79	Pass
15.247(a)(2)	6dB Bandwidth	Meet the requirement of limit	Pass
15.247(e)	Power Spectral Density	Meet the requirement of limit	Pass
15.203	Antenna Requirement	Meet the requirement of limit	Pass

Declaration of Conformity:

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

Comments and Explanations:

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

1 General Description

1.1 Information

This is a Class II Permissive Change report (C2PC).

This report is issued as a supplementary report to the original project no. FR631002AC. The modification is concerned with

- ✧ adding new antennas.
- ✧ Updated brand name and applicant.
- ✧ decreasing output power by software setting

In this test report, relative test items have been re-tested and its data was recorded in the following sections.

1.1.1 Specification of the Equipment under Test (EUT)

RF General Information					
Frequency Range (MHz)	IEEE Std. 802.11	Ch. Freq. (MHz)	Channel Number	Transmit Chains (N _{TX})	Data Rate / MCS
2400-2483.5	b	2412-2462	1-11 [11]	1 2	1-11 Mbps
2400-2483.5	g	2412-2462	1-11 [11]	1 2	6-54 Mbps
2400-2483.5	n (HT20)	2412-2462	1-11 [11]	1 2 2	MCS 0-7 MCS 0-7 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 modulation.
 Note 4: The device supports TX antenna diversity function. The conducted power of single chain is same for 1TX and 2TX operating mode. Therefore, Ant1+Ant2 configuration is chosen for final testing.

1.1.2 Antenna Details (New set of antennas were marked in boldface.)

Ant. No.	Model	Type	Connector	Operating Frequencies (MHz) / Antenna Gain (dBi)				
				2400~2483.5	5150~5250	5250~5350	5470~5725	5725~5850
1	Laird MAF94051	Dipole	RP-SMA	2.1	2.4	2.6	3.4	3.4
2	Laird NanoBlade-IP04	PCB Dipole	IPEX MHF	2	3.9	3.9	4	4
3	Laird MAF95310 Mini NanoBlade Flex	PCB Dipole	IPEX MHF	2.79	3.38			
4	Laird NanoBlue-IP04	PCB Dipole	IPEX MHF	2	---	---	---	---
5	Ethertronics WLAN_1000146	Isolated Magnetic Dipole	IPEX MHF	2.5	3.5			
6	Ethertronics 1004450	PCB Dipole	U.FI	1.3	2.69	2.69	2	1.9
7	Ethertronics 1004788	Dipole	U.FI	2.2	2.7			
8	Ethertronics 1004791	Dipole	U.FI	1.8	2.6			

1.1.3 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	3.3Vdc from host
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1.1.4 Accessories

N/A

1.1.5 Channel List

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

1.1.6 Test Tool and Duty Cycle

Test Tool	Tera Term, V4.8		
Duty Cycle and Duty Factor	Mode	Duty Cycle (%)	Duty Factor (dB)
	11b	99.66%	0.01
	11g	98.29%	0.07
	HT20	98.17%	0.08

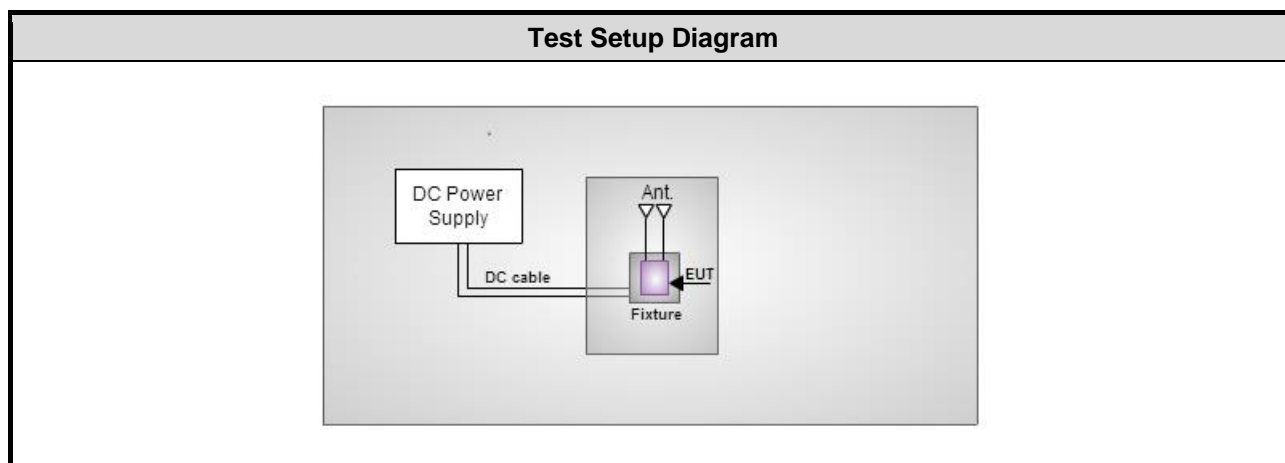
1.1.7 Power Index of Test Tool

Modulation Mode	Test Frequency (MHz)	Power Index
11b	2412	13.5
11b	2462	11
11g	2412	14.5
11g	2462	12.5
HT20	2412	13.5
HT20	2437	19.5
HT20	2462	11

1.2 Local Support Equipment List

Support Equipment List						
No.	Equipment	Brand	Model	S/N	FCC ID	Remarks
1	DC Power Supply	GW INSTEK	GPC-3060D	EM884797	---	---
2	Notebook	DELL	Latitude E6430	9ZFB4X1	DoC	---
3	Fixture	---	---	---	---	Provided by applicant

1.3 Test Setup Chart



Note: The support notebook was disconnected from EUT and removed from test table when EUT is set to transmit continuously.

1.4 The Equipment List

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Tested Date	Jun. 04, 2020				
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until
Receiver	R&S	ESR3	101658	Dec. 12, 2019	Dec. 11, 2020
LISN	R&S	ENV216	101579	Mar. 12, 2020	Mar. 11, 2021
RF Cable-CON	Woken	CFD200-NL	CFD200-NL-001	Oct. 22, 2019	Oct. 21, 2020
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)				
Tested Date	May 26 ~ May 31, 2020				
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until
Spectrum Analyzer	R&S	FSV40	101499	Jan. 09, 2020	Jan. 08, 2021
Receiver	R&S	ESR3	101657	Feb. 14, 2020	Feb. 13, 2021
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-685	Apr. 29, 2020	Apr. 28, 2021
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1206	Dec. 27, 2019	Dec. 26, 2020
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Nov. 15, 2019	Nov. 14, 2020
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 13, 2019	Nov. 12, 2020
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Oct. 07, 2019	Oct. 06, 2020
Preamplifier	EMC	EMC02325	980187	Aug. 14, 2019	Aug. 13, 2020
Preamplifier	Agilent	83017A	MY53270014	Aug. 07, 2019	Aug. 06, 2020
Preamplifier	EMC	EMC184045B	980192	Aug. 01, 2019	Jul. 31, 2020
RF cable-3M	HUBER+SUHNER	SUCOFLEX104	MY22620/4	Sep. 27, 2019	Sep. 26, 2020
RF cable-8M	EMC	EMC104-SM-SM-8000	181107	Sep. 27, 2019	Sep. 26, 2020
RF cable-1M	HUBER+SUHNER	SUCOFLEX104	MY22624/4	Sep. 27, 2019	Sep. 26, 2020
LF cable-0.8M	EMC	EMC8D-NM-NM-800	EMC8D-NM-NM-800-001	Sep. 27, 2019	Sep. 26, 2020
LF cable-3M	EMC	EMC8D-NM-NM-3000	131103	Sep. 27, 2019	Sep. 26, 2020
LF cable-13M	EMC	EMC8D-NM-NM-13000	131104	Sep. 27, 2019	Sep. 26, 2020
Measurement Software	AUDIX	e3	6.120210g	NA	NA

Note: Calibration Interval of instruments listed above is one year.

Test Item	RF Conducted				
Test Site	(TH01-WS)				
Tested Date	Jun. 05, 2020				
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until
Spectrum Analyzer	R&S	FSV40	101063	Apr. 30, 2020	Apr. 29, 2021
Power Meter	Anritsu	ML2495A	1241002	Oct. 23, 2019	Oct. 22, 2020
Power Sensor	Anritsu	MA2411B	1207366	Oct. 23, 2019	Oct. 22, 2020
DC POWER SOURCE	GW INSTEK	GPC-6030D	GES855395	Oct. 29, 2019	Oct. 28, 2020
Measurement Software	Sporton	Sporton_1	1.3.30	NA	NA

Note: Calibration Interval of instruments listed above is one year.

1.5 Test Standards

47 CFR FCC Part 15.247

ANSI C63.10-2013

FCC KDB 558074 D01 15.247 Meas Guidance v05r02

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

1.6 Deviation from Test Standard and Measurement Procedure

None

1.7 Measurement Uncertainty

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

Measurement Uncertainty	
Parameters	Uncertainty
Bandwidth	± 34.130 Hz
Conducted power	± 0.808 dB
Power density	± 0.583 dB
Conducted emission	± 2.715 dB
AC conducted emission	± 2.92 dB
Radiated emission ≤ 1 GHz	± 3.96 dB
Radiated emission > 1 GHz	± 4.51 dB

2 Test Configuration

2.1 Testing Condition

Test Item	Test Site	Ambient Condition	Tested By
AC Conduction	CO01-WS	25°C / 62%	Alex Tsai
Radiated Emissions	03CH03-WS	24-25°C / 63-68%	Brad Wu Roger Lu
RF Conducted	TH01-WS	24°C / 67%	Aska Huang

- FCC Designation No.: TW0009
- FCC site registration No.: 207696
- ISSED#: 10807A
- CAB identifier: TW2732

2.2 Testing Facility

Test Laboratory	International Certification Corp.
Test Site	CO01-WS, TH01-WS
Address of Test Site	No. 3-1, Lane 6, Wen San 3rd St., Kwei Shan District, Tao Yuan City 333, Taiwan, R.O.C.
Test Site	03CH03-WS
Address of Test Site	No. 14-1, Lane 19, Wen San 3rd St., Kwei Shan District, Tao Yuan City 333, Taiwan, R.O.C.

2.3 The Worst Test Modes and Channel Details

Test item	Modulation Mode	Test Frequency (MHz)	Data Rate	Test Configuration
Conducted Emissions	HT20	2437	MCS 0	4
Radiated Emissions ≤ 1 GHz	HT20	2437	MCS 0	1, 2, 3, 4
Radiated Emissions > 1 GHz	11b 11g HT20	2412 / 2437 / 2462 2412 / 2437 / 2462 2412 / 2437 / 2462	1 Mbps 6 Mbps MCS 0	4
Radiated Emissions > 1 GHz	11b 11g HT20	2412 / 2462 2412 / 2462 2412 / 2437 / 2462	1 Mbps 6 Mbps MCS 0	1, 2, 3
Maximum Output Power 6dB bandwidth Power spectral density	11b 11g HT20	2412 / 2462 2412 / 2462 2412 / 2437 / 2462	1 Mbps 6 Mbps MCS 0	2

NOTE:

- The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The **Z-plane** results were found as the worst case and were shown in this report.
- The following antennas are used for final testing for this module: (See item 1.1.2 for more details.)
 - Configuration 1 : Antenna MAF94051
 - Configuration 2 : Antenna MAF95310 Mini NanoBlade Flex
 - Configuration 3 : Antenna WLAN_1000146
 - Configuration 4 : Antenna 1004788 & 1004791

3 Transmitter Test Results

3.1 Conducted Emissions

3.1.1 Limit of Conducted Emissions

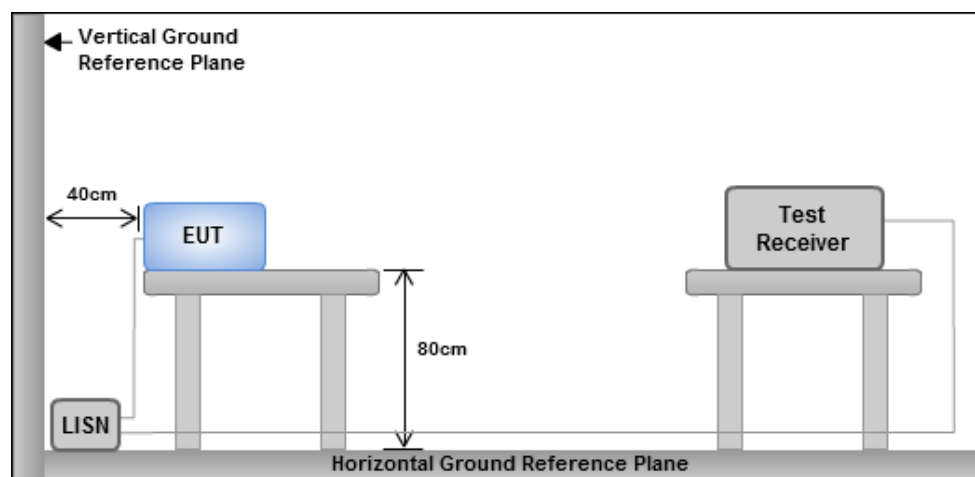
Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

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

3.1.2 Test Procedures

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

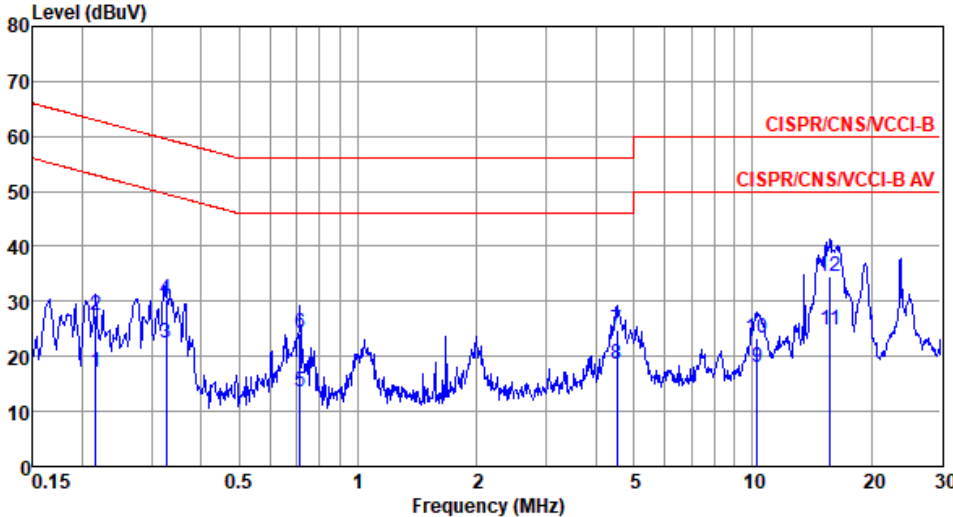
3.1.3 Test Setup



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

3.1.4 Test Result of Conducted Emissions

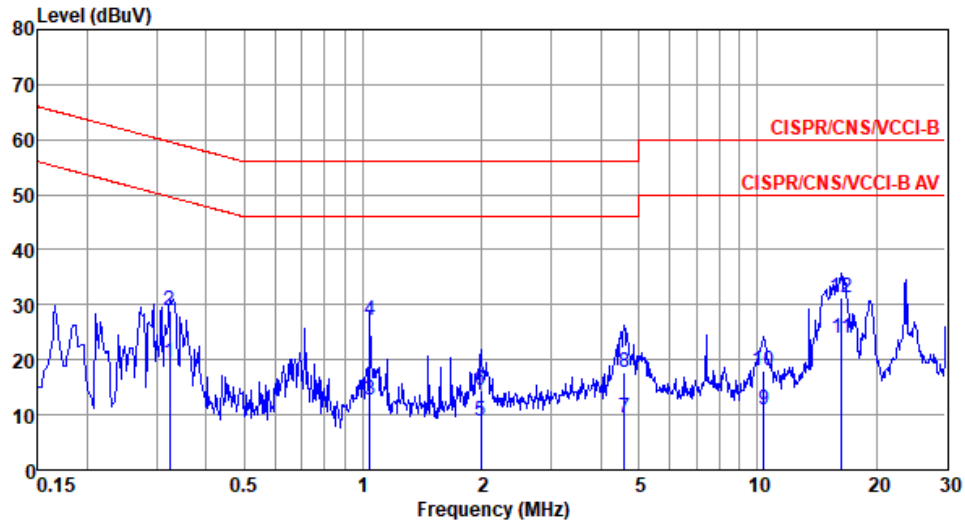
Modulation	HT20	Test Freq. (MHz)	2437
Power Phase	Line		



	Freq	Level	Limit	Over	Read	LISN	cable	Remark
	MHz	dBuV	Line	Limit	Level	factor	loss	
			dBuV	dB	dBuV	dB	dB	
1	0.216	17.07	52.96	-35.89	7.38	9.63	0.06	Average
2	0.216	27.43	62.96	-35.53	17.74	9.63	0.06	QP
3	0.327	22.53	49.53	-27.00	12.83	9.63	0.07	Average
4	0.327	30.40	59.53	-29.13	20.70	9.63	0.07	QP
5	0.712	13.49	46.00	-32.51	3.75	9.63	0.11	Average
6	0.712	24.32	56.00	-31.68	14.58	9.63	0.11	QP
7	4.525	24.79	56.00	-31.21	14.83	9.66	0.30	QP
8	4.525	18.52	56.00	-37.48	8.56	9.66	0.30	QP
9	10.288	17.99	50.00	-32.01	7.90	9.69	0.40	Average
10	10.288	23.39	60.00	-36.61	13.30	9.69	0.40	QP
11*	15.718	24.76	50.00	-25.24	14.44	9.71	0.61	Average
12	15.718	34.54	60.00	-25.46	24.22	9.71	0.61	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	0.323	19.54	49.62	-30.08	9.82	9.65	0.07	Average
2	0.323	28.91	59.62	-30.71	19.19	9.65	0.07	QP
3	1.043	12.67	46.00	-33.33	2.90	9.65	0.12	Average
4	1.043	27.18	56.00	-28.82	17.41	9.65	0.12	QP
5	1.991	8.84	46.00	-37.16	-1.00	9.66	0.18	Average
6	1.991	14.54	56.00	-41.46	4.70	9.66	0.18	QP
7	4.598	9.46	46.00	-36.54	-0.53	9.68	0.31	Average
8	4.598	17.75	56.00	-38.25	7.76	9.68	0.31	QP
9	10.397	10.89	50.00	-39.11	0.74	9.74	0.41	Average
10	10.397	17.92	60.00	-42.08	7.77	9.74	0.41	QP
11*	16.312	24.03	50.00	-25.97	13.60	9.81	0.62	Average
12	16.312	31.35	60.00	-28.65	20.92	9.81	0.62	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

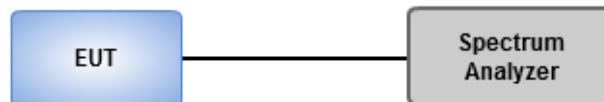
6dB Bandwidth

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

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
802.11b_Nss1,(1Mbps)_2TX	7.536M	11.65M	11M6G1D	6.594M	10.999M
802.11g_Nss1,(6Mbps)_2TX	16.377M	16.498M	16M5D1D	16.014M	16.425M
802.11n HT20_Nss1,(MCS0)_2TX	17.536M	18.017M	18M0D1D	16.377M	17.583M

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

Result

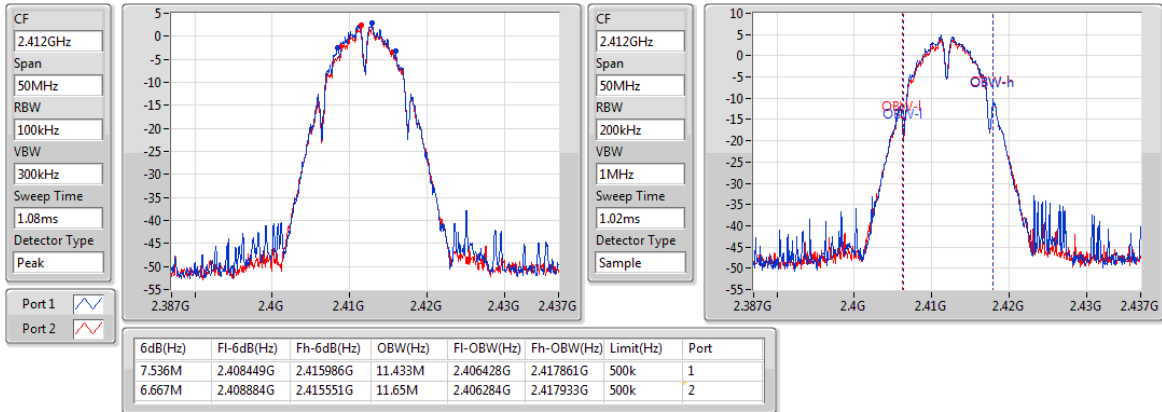
Mode	Result	Limit (Hz)	Port 1- N dB (Hz)	Port 1- OBW (Hz)	Port 2- N dB (Hz)	Port 2- OBW (Hz)
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	7.536M	11.433M	6.667M	11.65M
2462MHz	Pass	500k	6.594M	11.288M	6.594M	10.999M
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	16.014M	16.498M	16.304M	16.425M
2462MHz	Pass	500k	16.377M	16.425M	16.304M	16.425M
802.11n HT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	17.246M	17.583M	17.536M	17.656M
2437MHz	Pass	500k	16.377M	18.017M	17.246M	17.8M
2462MHz	Pass	500k	17.174M	17.583M	17.319M	17.583M

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

802.11b_Nss1,(1Mbps)_2TX

EBW

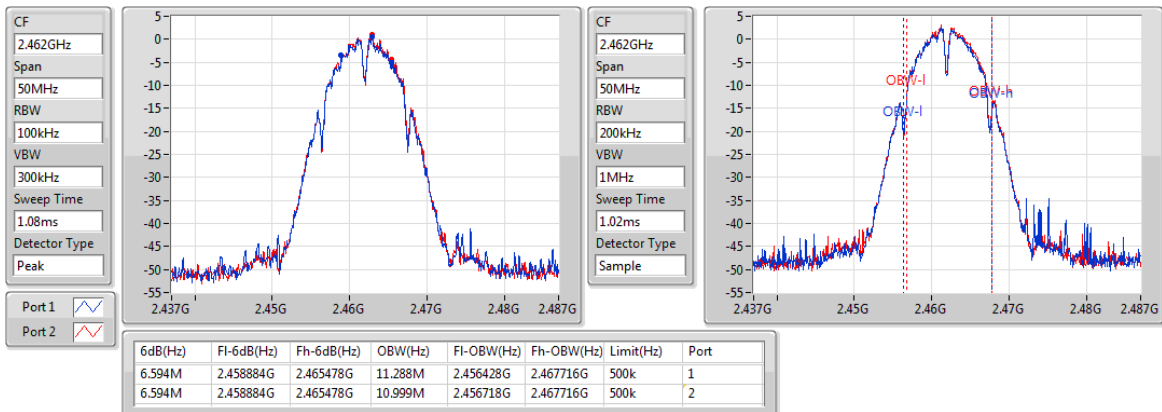
2412MHz



802.11b_Nss1,(1Mbps)_2TX

EBW

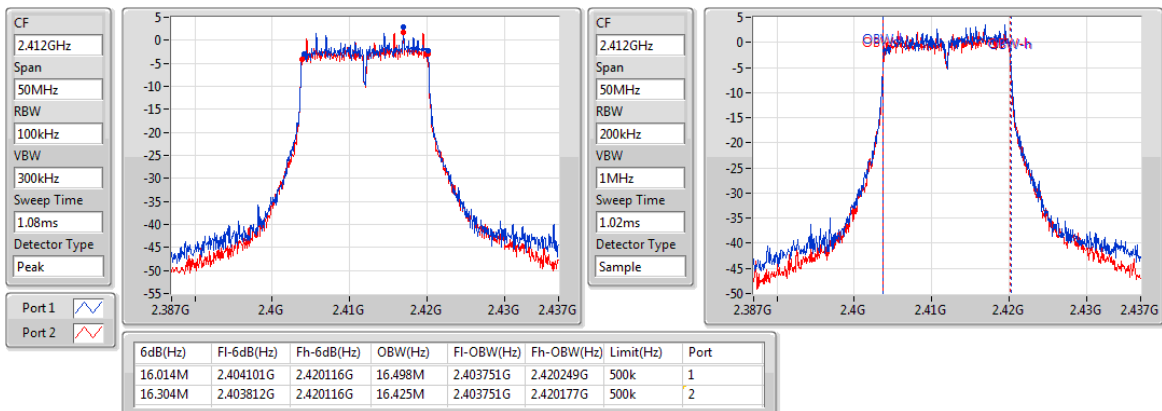
2462MHz



802.11g_Nss1,(6Mbps)_2TX

EBW

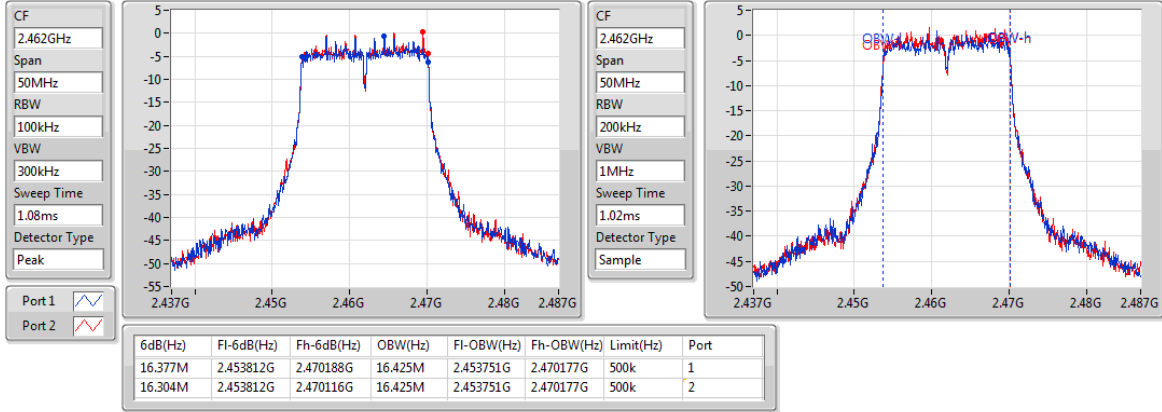
2412MHz



802.11g_Nss1,(6Mbps)_2TX

EBW

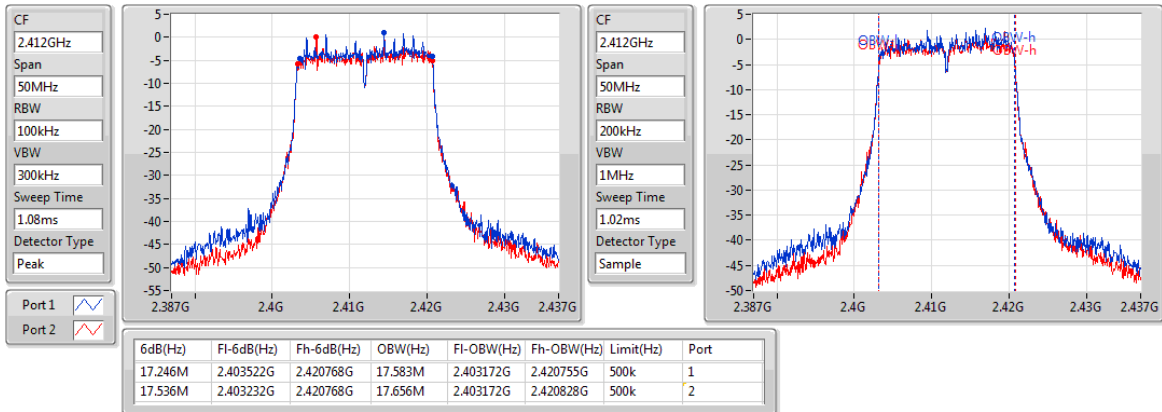
2462MHz



802.11n HT20_Nss1,(MCS0)_2TX

EBW

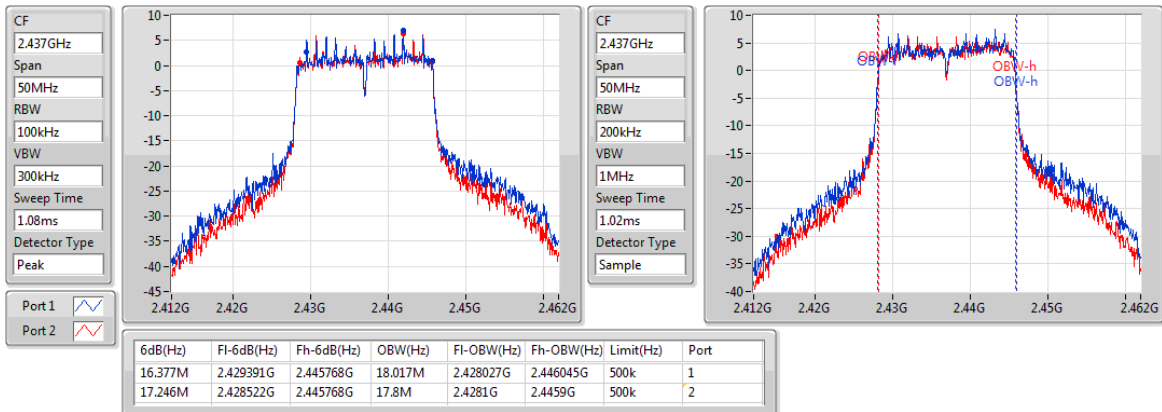
2412MHz



802.11n HT20_Nss1,(MCS0)_2TX

EBW

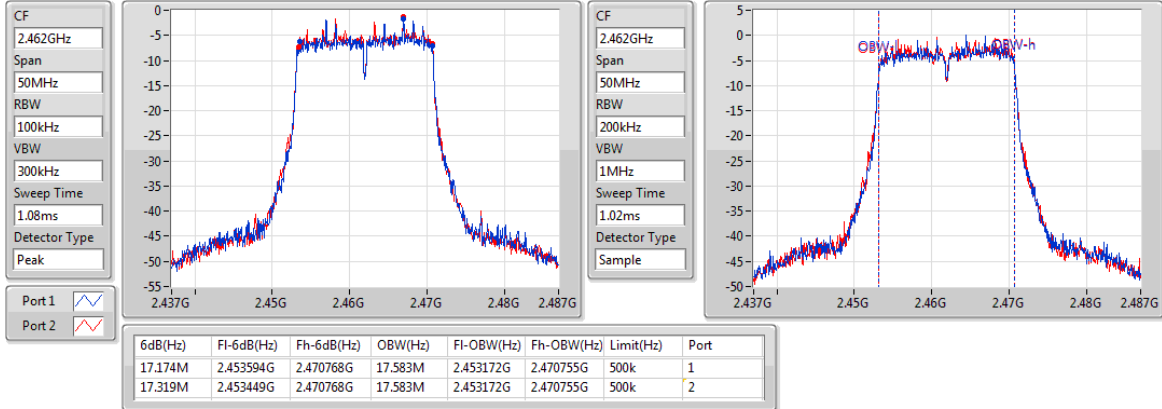
2437MHz



802.11n HT20_Nss1,(MCS0)_2TX

EBW

2462MHz



3.3 RF Output Power

3.3.1 Limit of RF Output Power

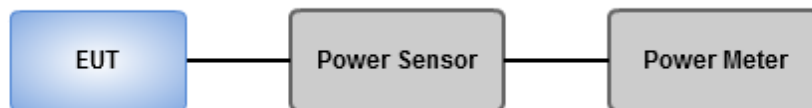
Conducted power shall not exceed 1Watt.

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

3.3.2 Test Procedures

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

3.3.3 Test Setup



3.3.4 Test Result of Maximum Output Power

Summary of Peak Conducted Output Power

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11b_Nss1,(1Mbps)_2TX	18.75	0.07499
802.11g_Nss1,(6Mbps)_2TX	22.45	0.17579
802.11n HT20_Nss1,(MCS0)_2TX	24.79	0.30130

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	2.79	15.95	15.51	18.75	30.00	21.54	36.00
2462MHz	Pass	2.79	13.74	14.26	17.02	30.00	19.81	36.00
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	2.79	19.72	19.15	22.45	30.00	25.24	36.00
2462MHz	Pass	2.79	17.95	18.26	21.12	30.00	23.91	36.00
802.11n HT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	2.79	18.96	18.43	21.71	30.00	24.50	36.00
2437MHz	Pass	2.79	21.86	21.69	24.79	30.00	27.58	36.00
2462MHz	Pass	2.79	16.62	17.22	19.94	30.00	22.73	36.00

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

Summary of Conducted (Average) Output Power

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11b_Nss1,(1Mbps)_2TX	15.54	0.03581
802.11g_Nss1,(6Mbps)_2TX	16.34	0.04305
802.11n HT20_Nss1,(MCS0)_2TX	20.38	0.10914

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	2.79	12.78	12.27	15.54	-	18.33	-
2462MHz	Pass	2.79	10.61	11.11	13.88	-	16.67	-
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	2.79	13.59	13.06	16.34	-	19.13	-
2462MHz	Pass	2.79	11.57	11.97	14.78	-	17.57	-
802.11n HT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	2.79	12.62	12.05	15.35	-	18.14	-
2437MHz	Pass	2.79	17.62	17.11	20.38	-	23.17	-
2462MHz	Pass	2.79	10.01	10.38	13.21	-	16.00	-

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

Note : Conducted average output power is for reference only

3.4 Power Spectral Density

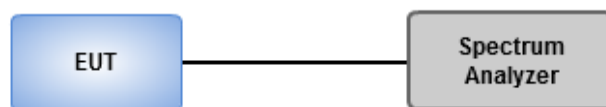
3.4.1 Limit of Power Spectral Density

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

3.4.2 Test Procedures

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

3.4.3 Test Setup



3.4.4 Test Result of Power Spectral Density

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
802.11b_Nss1,(1Mbps)_2TX	-6.04
802.11g_Nss1,(6Mbps)_2TX	-11.62
802.11n HT20_Nss1,(MCS0)_2TX	-7.77

Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	5.80	-8.66	-9.47	-6.04	8.00
2462MHz	Pass	5.80	-11.00	-10.62	-7.80	8.00
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	5.80	-14.14	-14.62	-11.62	8.00
2462MHz	Pass	5.80	-16.56	-15.15	-13.72	8.00
802.11n HT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	5.80	-14.66	-15.22	-12.99	8.00
2437MHz	Pass	5.80	-10.12	-9.91	-7.77	8.00
2462MHz	Pass	5.80	-17.05	-17.12	-15.36	8.00

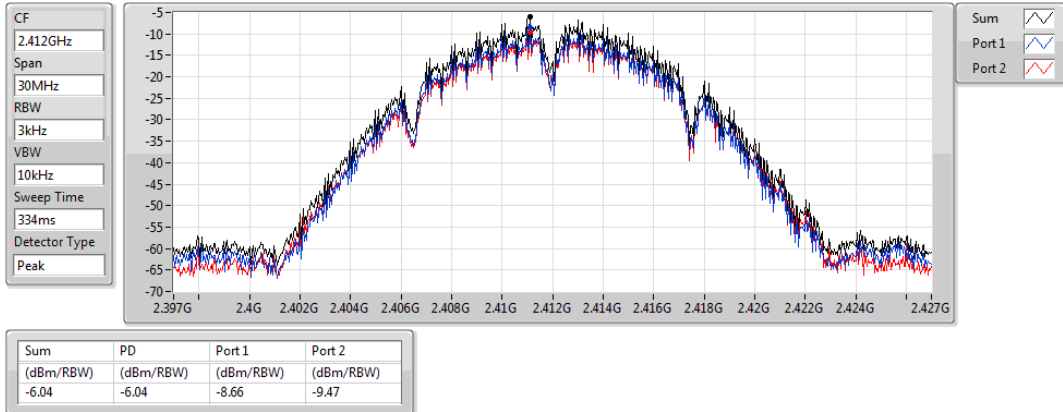
DG = Directional Gain= $2.79 + 10 \cdot \log(2/1) = 5.8$ dBi;

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

802.11b_Nss1,(1Mbps)_2TX

PSD

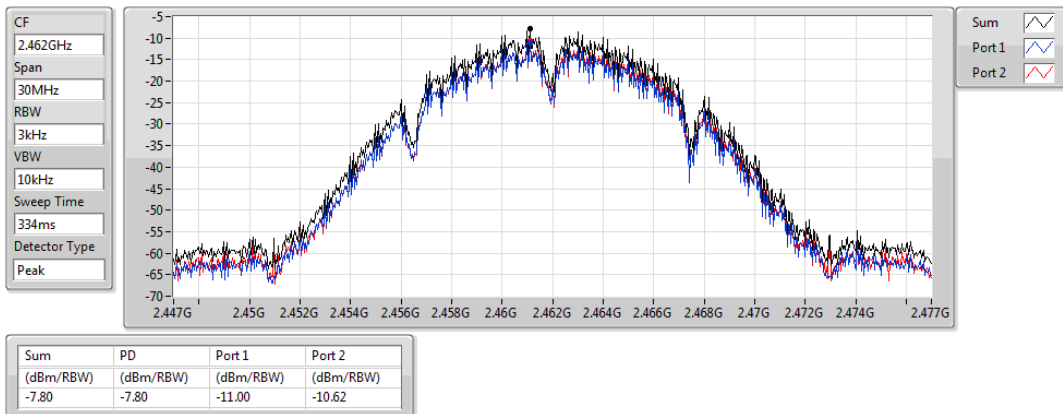
2412MHz



802.11b_Nss1,(1Mbps)_2TX

PSD

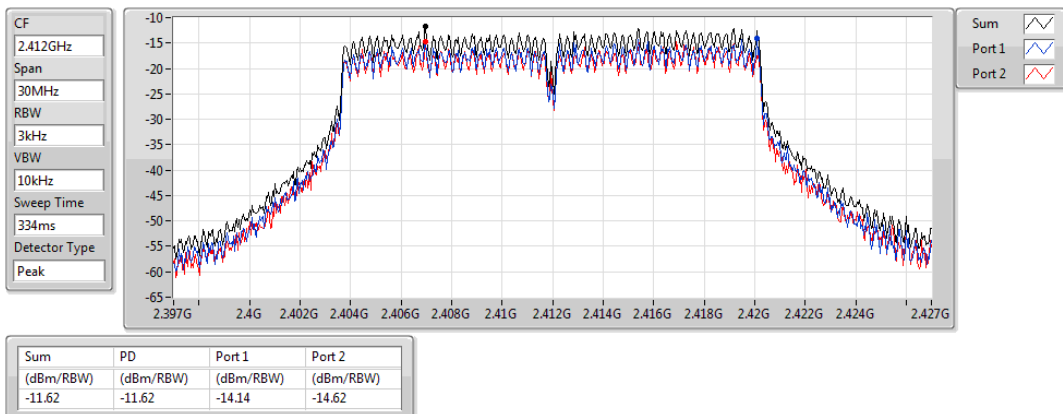
2462MHz



802.11g_Nss1,(6Mbps)_2TX

PSD

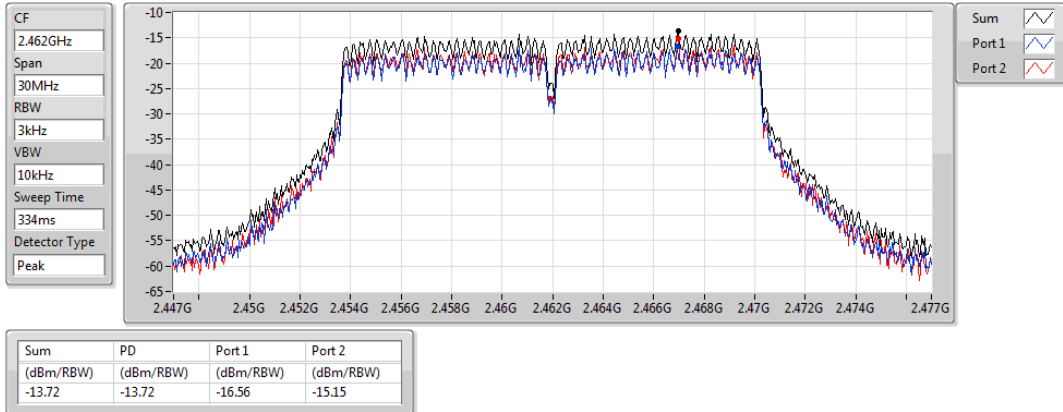
2412MHz



802.11g_Nss1,(6Mbps)_2TX

PSD

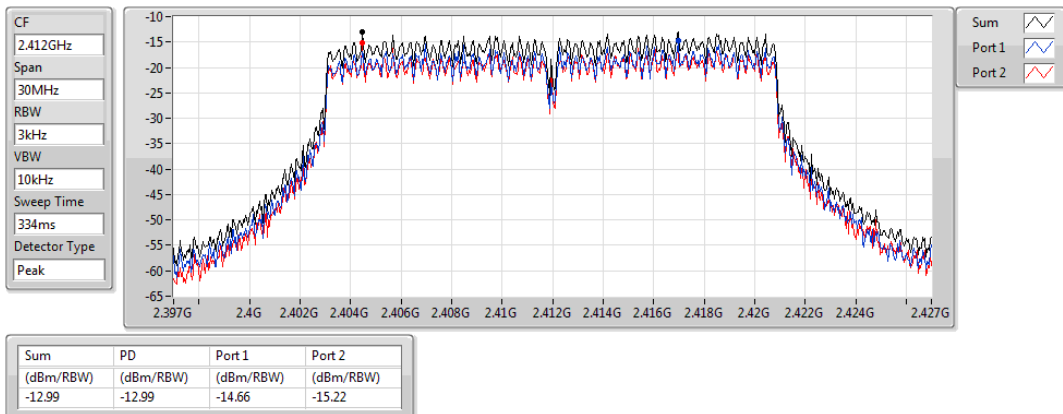
2462MHz



802.11n HT20_Nss1,(MCS0)_2TX

PSD

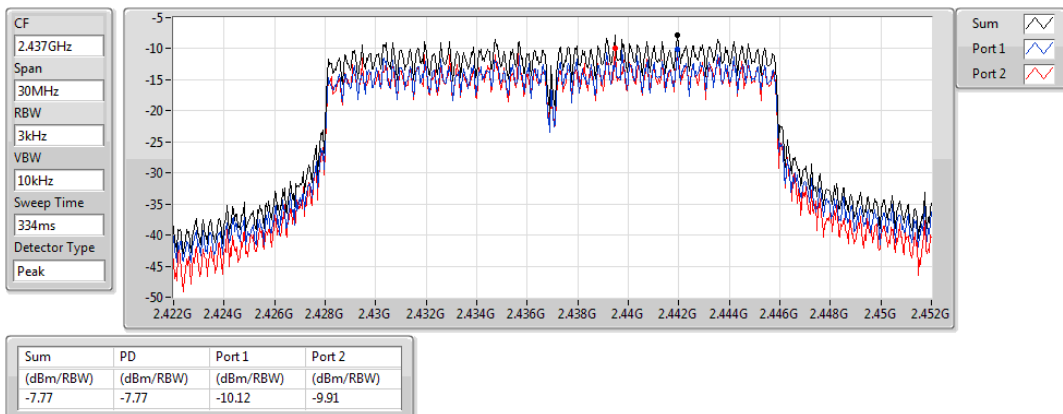
2412MHz



802.11n HT20_Nss1,(MCS0)_2TX

PSD

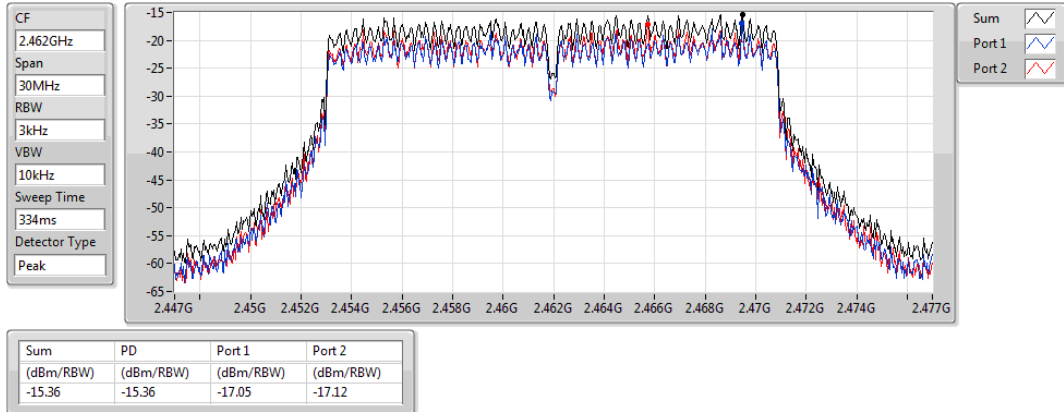
2437MHz



802.11n HT20_Nss1,(MCS0)_2TX

PSD

2462MHz



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

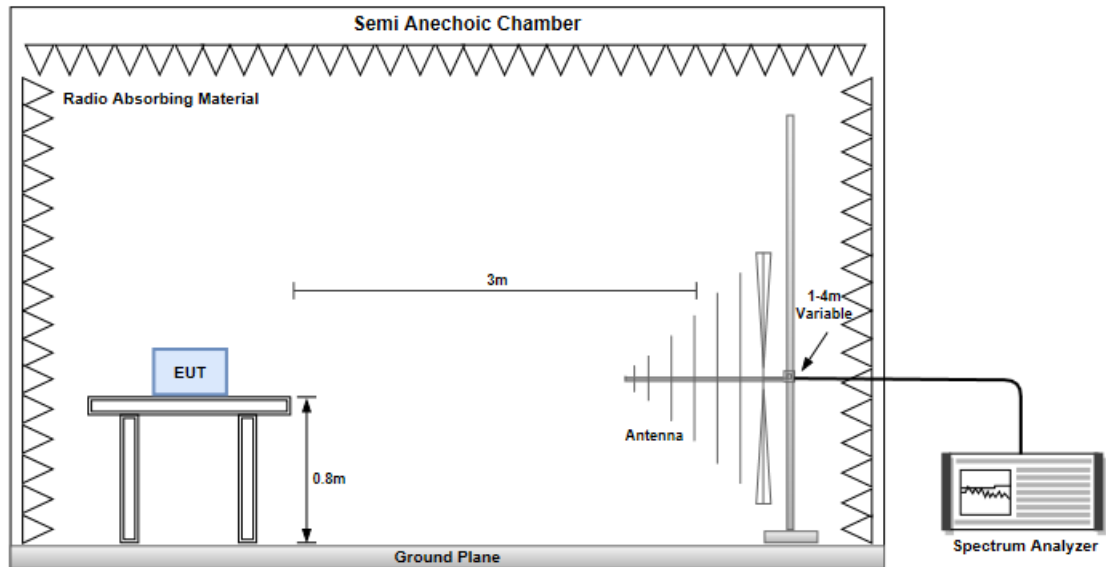
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission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

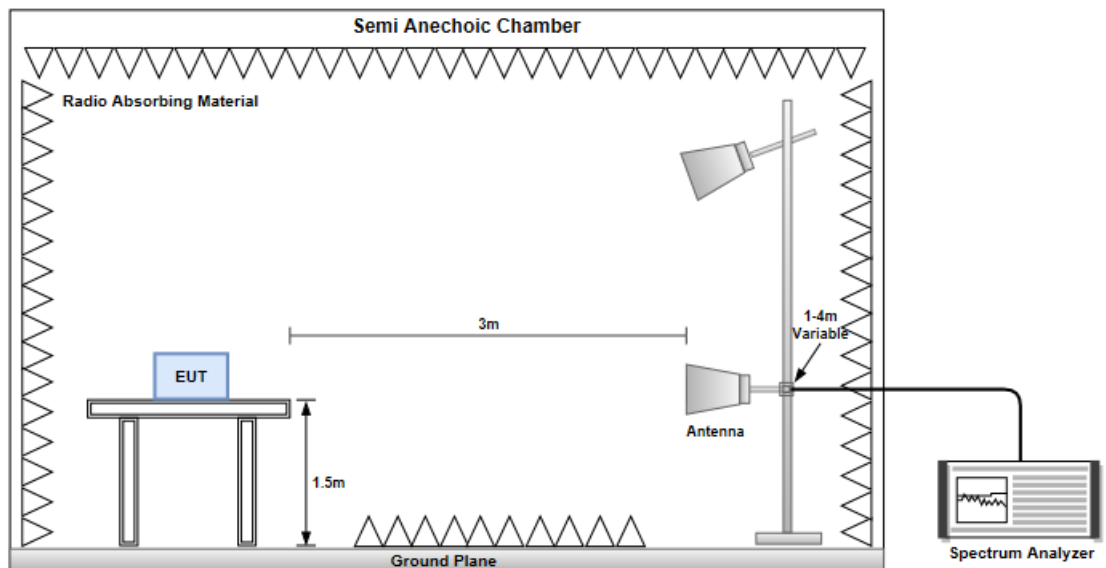
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above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

3.5.3 Test Setup

Radiated Emissions below 1 GHz



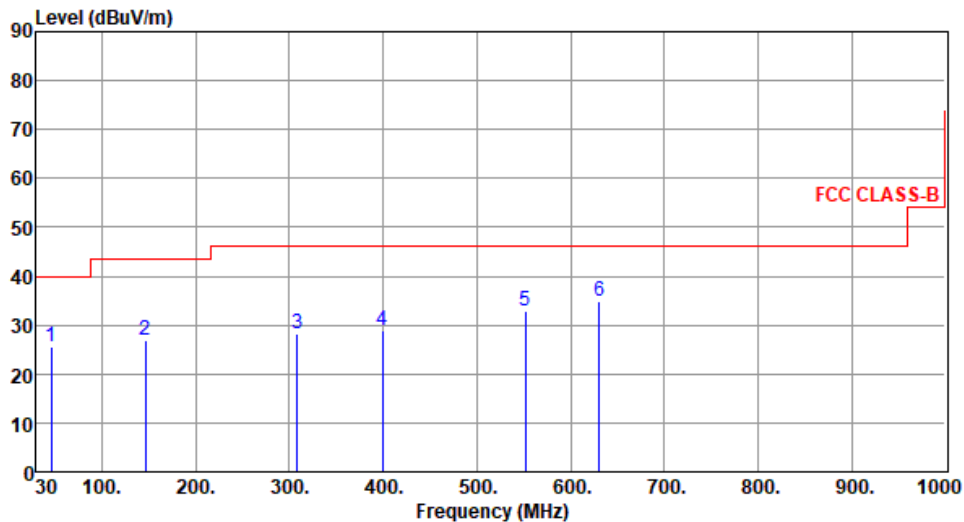
Radiated Emissions above 1 GHz



Configuration 1 : Antenna MAF94051

3.5.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)

Modulation	HT20	Test Freq. (MHz)	2437
Polarization	Horizontal		

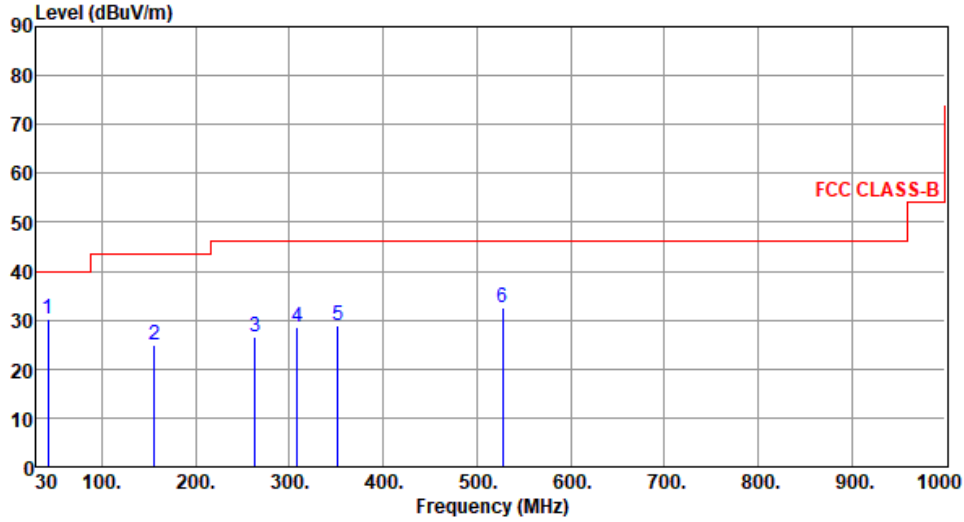


The graph displays the Level (dBuV/m) on the y-axis (0 to 90) against Frequency (MHz) on the x-axis (30 to 1000). A red line represents the FCC CLASS-B limit, which is 40 dBuV/m from 30 to 100 MHz, 45 dBuV/m from 100 to 300 MHz, and 50 dBuV/m from 300 to 1000 MHz. Six blue vertical lines indicate measured peaks at 45.52, 146.40, 308.39, 399.57, 551.86, and 630.43 MHz, labeled 1 through 6 respectively.

	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	45.52	25.70	40.00	-14.30	34.46	-8.76	Peak	---	---
2	146.40	26.82	43.50	-16.68	35.89	-9.07	Peak	---	---
3	308.39	28.15	46.00	-17.85	36.37	-8.22	Peak	---	---
4	399.57	28.97	46.00	-17.03	34.63	-5.66	Peak	---	---
5	551.86	32.95	46.00	-13.05	35.17	-2.22	Peak	---	---
6	630.43	34.95	46.00	-11.05	34.83	0.12	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		

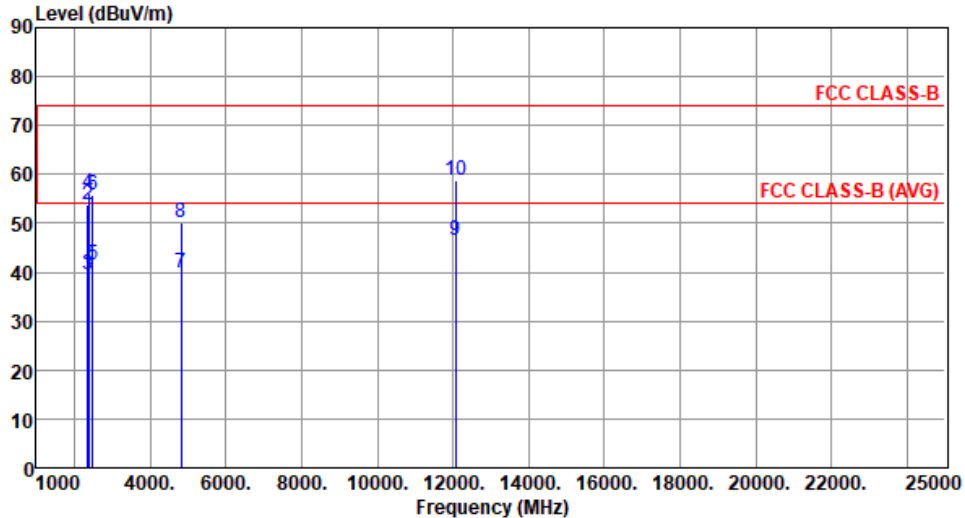


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	42.61	30.29	40.00	-9.71	39.11	-8.82	Peak	---	---
2	156.10	25.04	43.50	-18.46	34.06	-9.02	Peak	---	---
3	263.77	26.51	46.00	-19.49	36.25	-9.74	Peak	---	---
4	308.39	28.45	46.00	-17.55	36.67	-8.22	Peak	---	---
5	352.04	28.82	46.00	-17.18	36.02	-7.20	Peak	---	---
6	527.61	32.65	46.00	-13.35	35.20	-2.55	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

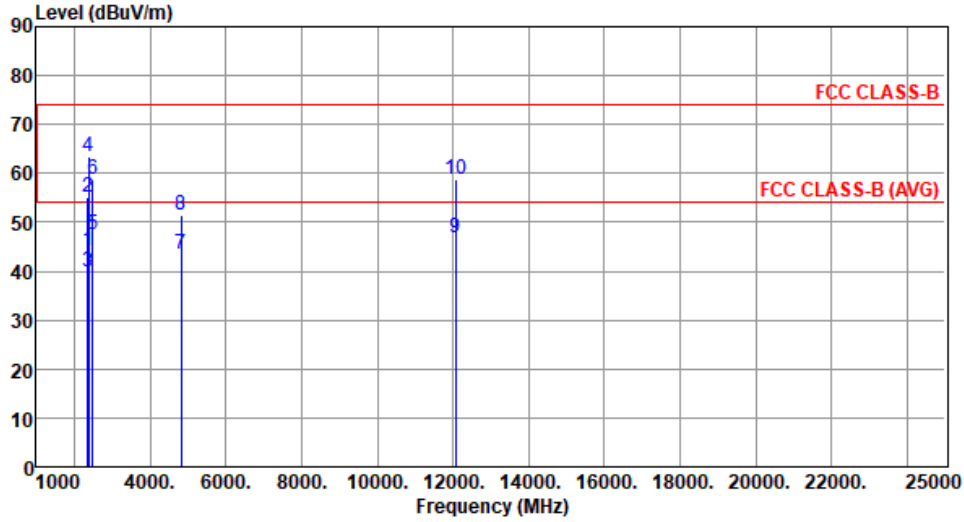
Modulation	11b	Test Freq. (MHz)	2412
Polarization	Horizontal		



	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2360.00	39.44	54.00	-14.56	39.12	0.32	Average	102	147
2	2360.00	53.88	74.00	-20.12	53.56	0.32	Peak	102	147
3	2390.00	39.49	54.00	-14.51	39.25	0.24	Average	102	147
4	2390.00	56.15	74.00	-17.85	55.91	0.24	Peak	102	147
5	2490.00	41.57	54.00	-12.43	41.31	0.26	Average	102	147
6	2490.00	55.63	74.00	-18.37	55.37	0.26	Peak	102	147
7	4824.00	39.75	54.00	-14.25	33.25	6.50	Average	100	46
8	4824.00	50.08	74.00	-23.92	43.58	6.50	Peak	100	46
9	12060.00	46.65	54.00	-7.35	30.41	16.24	Average	100	20
10	12060.00	58.70	74.00	-15.30	42.46	16.24	Peak	100	20

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		



The graph plots Level (dBuV/m) on the y-axis (0 to 90) against Frequency (MHz) on the x-axis (1000 to 25000). Two horizontal red lines represent the FCC CLASS-B limit at approximately 75 dBuV/m and the FCC CLASS-B (AVG) limit at approximately 55 dBuV/m. Ten peaks are identified and labeled with numbers 1 through 10. Peak 10 is the highest, reaching approximately 60 dBuV/m at 12060 MHz. Other peaks are clustered between 2300 and 4800 MHz.

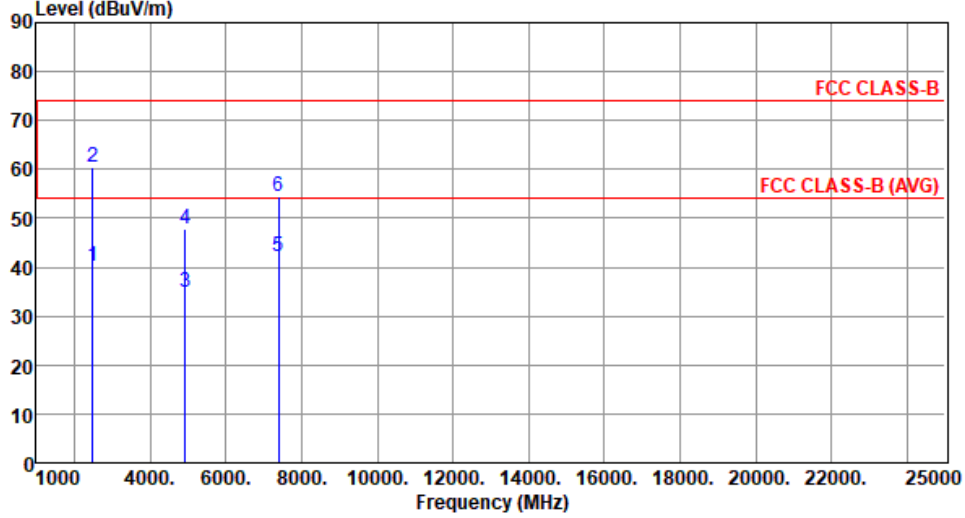
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2360.00	44.25	54.00	-9.75	43.93	0.32	Average	111	45
2	2360.00	55.18	74.00	-18.82	54.86	0.32	Peak	111	45
3	2390.00	39.85	54.00	-14.15	39.61	0.24	Average	166	40
4	2390.00	63.33	74.00	-10.67	63.09	0.24	Peak	166	40
5	2490.00	47.36	54.00	-6.64	47.10	0.26	Average	139	301
6	2490.00	58.93	74.00	-15.07	58.67	0.26	Peak	139	301
7	4824.00	43.63	54.00	-10.37	37.13	6.50	Average	100	32
8	4824.00	51.42	74.00	-22.58	44.92	6.50	Peak	100	32
9	12060.00	46.80	54.00	-7.20	30.56	16.24	Average	100	40
10	12060.00	58.77	74.00	-15.23	42.53	16.24	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).

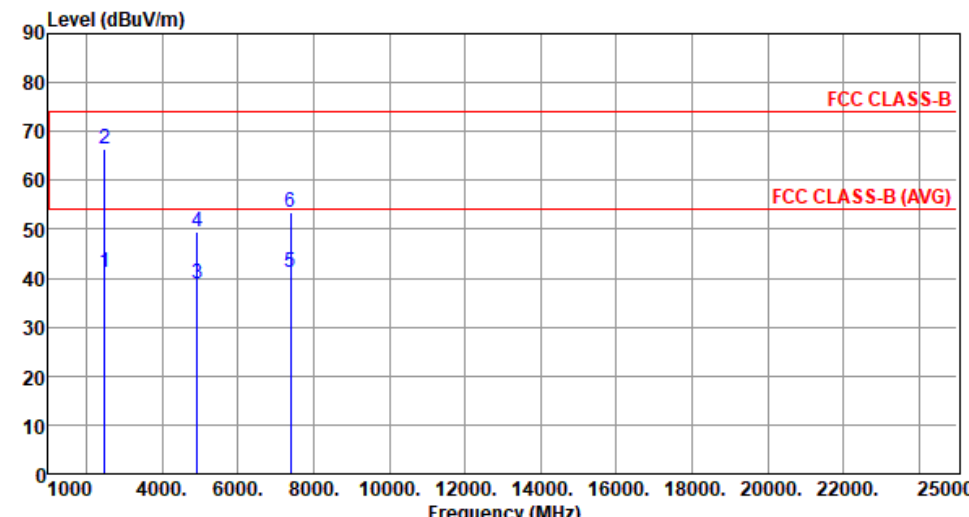
Modulation	11b	Test Freq. (MHz)	2462
Polarization	Horizontal		



	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	40.11	54.00	-13.89	39.86	0.25	Average	164	155
2	2483.50	60.39	74.00	-13.61	60.14	0.25	Peak	164	155
3	4924.00	34.76	54.00	-19.24	28.25	6.51	Average	100	120
4	4924.00	47.74	74.00	-26.26	41.23	6.51	Peak	100	120
5	7386.00	42.18	54.00	-11.82	30.37	11.81	Average	100	50
6	7386.00	54.36	74.00	-19.64	42.55	11.81	Peak	100	50

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	41.02	54.00	-12.98	40.77	0.25	Average	152	41
2	2483.50	66.41	74.00	-7.59	66.16	0.25	Peak	152	41
3	4924.00	38.80	54.00	-15.20	32.29	6.51	Average	103	19
4	4924.00	49.45	74.00	-24.55	42.94	6.51	Peak	103	19
5	7386.00	41.26	54.00	-12.74	29.45	11.81	Average	100	30
6	7386.00	53.37	74.00	-20.63	41.56	11.81	Peak	100	30

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).

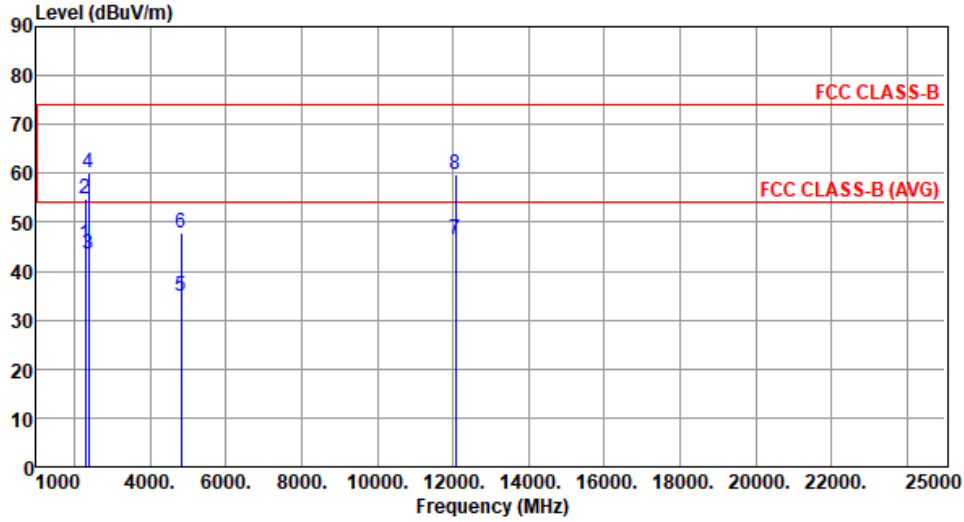
3.5.6 Transmitter Radiated Unwanted Emissions (Above 1GHz) for 11g

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	2288.00	40.03	54.00	-13.97	39.58	0.45	Average	125	206
2	2288.00	52.91	74.00	-21.09	52.46	0.45	Peak	125	206
3	2390.00	40.36	54.00	-13.64	40.12	0.24	Average	125	206
4	2390.00	53.83	74.00	-20.17	53.59	0.24	Peak	125	206
5	4824.00	34.62	54.00	-19.38	28.12	6.50	Average	100	5
6	4824.00	48.02	74.00	-25.98	41.52	6.50	Peak	100	5
7	12060.00	46.55	54.00	-7.45	30.31	16.24	Average	100	70
8	12060.00	59.52	74.00	-14.48	43.28	16.24	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).

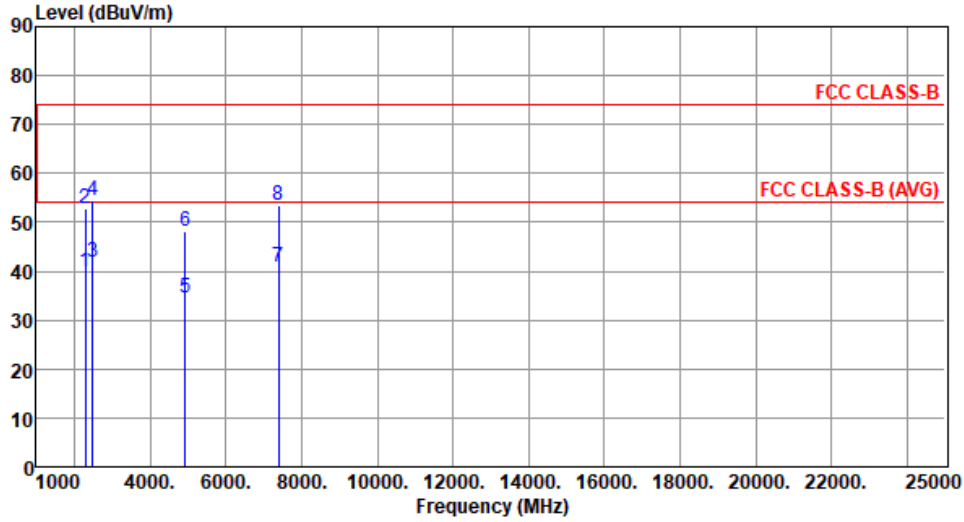
Modulation	11g	Test Freq. (MHz)	2412
Polarization	Vertical		



	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	45.33	54.00	-8.67	44.88	0.45	Average	105	9
2	2288.00	54.72	74.00	-19.28	54.27	0.45	Peak	105	9
3	2390.00	43.51	54.00	-10.49	43.27	0.24	Average	105	9
4	2390.00	60.09	74.00	-13.91	59.85	0.24	Peak	105	9
5	4824.00	34.75	54.00	-19.25	28.25	6.50	Average	100	30
6	4824.00	47.95	74.00	-26.05	41.45	6.50	Peak	100	30
7	12060.00	46.48	54.00	-7.52	30.24	16.24	Average	100	40
8	12060.00	59.69	74.00	-14.31	43.45	16.24	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).

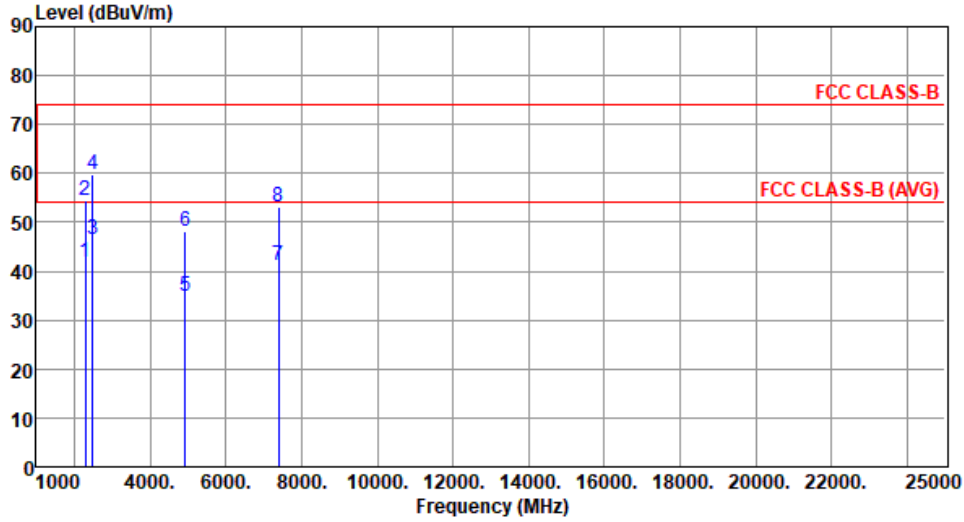
Modulation	11g	Test Freq. (MHz)	2462
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	40.00	54.00	-14.00	39.55	0.45	Average	127	204
2	2288.00	52.78	74.00	-21.22	52.33	0.45	Peak	127	204
3	2483.50	41.82	54.00	-12.18	41.57	0.25	Average	127	204
4	2483.50	54.52	74.00	-19.48	54.27	0.25	Peak	127	204
5	4924.00	34.64	54.00	-19.36	28.13	6.51	Average	100	80
6	4924.00	48.15	74.00	-25.85	41.64	6.51	Peak	100	80
7	7386.00	40.98	54.00	-13.02	29.17	11.81	Average	100	50
8	7386.00	53.36	74.00	-20.64	41.55	11.81	Peak	100	50

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		



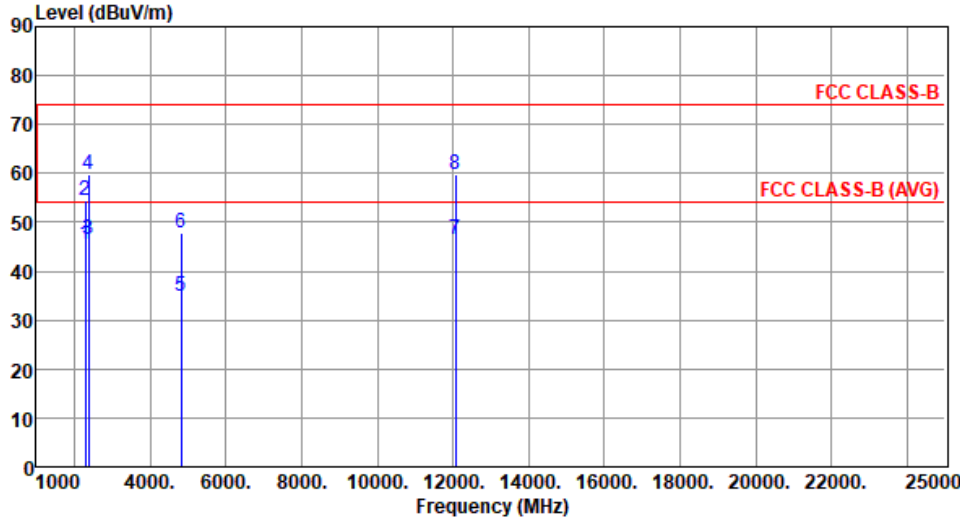
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	41.71	54.00	-12.29	41.26	0.45	Average	100	6
2	2288.00	54.60	74.00	-19.40	54.15	0.45	Peak	100	6
3	2483.50	46.42	54.00	-7.58	46.17	0.25	Average	100	6
4	2483.50	59.92	74.00	-14.08	59.67	0.25	Peak	100	6
5	4924.00	34.77	54.00	-19.23	28.26	6.51	Average	100	30
6	4924.00	48.09	74.00	-25.91	41.58	6.51	Peak	100	30
7	7386.00	41.06	54.00	-12.94	29.25	11.81	Average	100	50
8	7386.00	53.29	74.00	-20.71	41.48	11.81	Peak	100	50

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					
<div><div><div>Level (dBuV/m)</div><div><div><div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div>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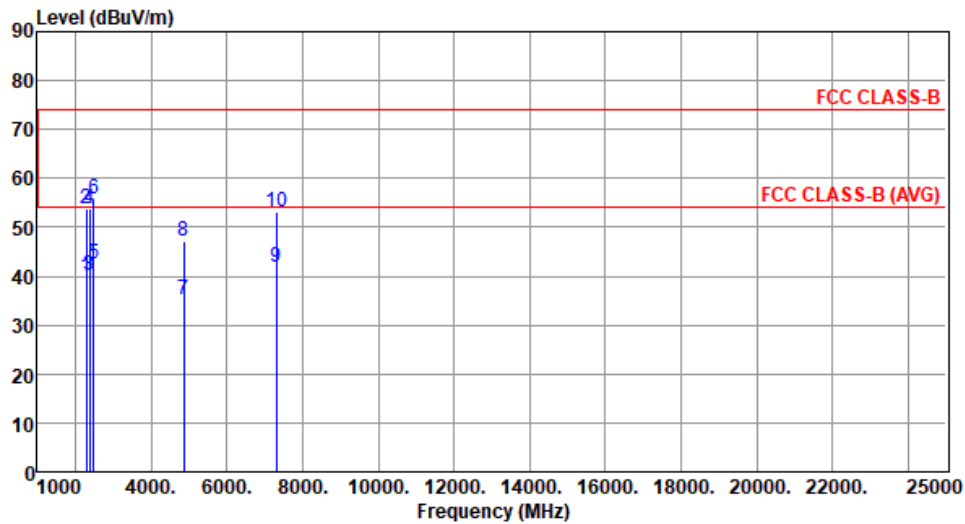
Modulation	HT20	Test Freq. (MHz)	2412
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	45.65	54.00	-8.35	45.20	0.45	Average	104	11
2	2288.00	54.60	74.00	-19.40	54.15	0.45	Peak	104	11
3	2390.00	46.50	54.00	-7.50	46.26	0.24	Average	104	11
4	2390.00	59.74	74.00	-14.26	59.50	0.24	Peak	104	11
5	4824.00	34.76	54.00	-19.24	28.26	6.50	Average	100	30
6	4824.00	47.82	74.00	-26.18	41.32	6.50	Peak	100	30
7	12060.00	46.60	54.00	-7.40	30.36	16.24	Average	100	90
8	12060.00	59.66	74.00	-14.34	43.42	16.24	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		



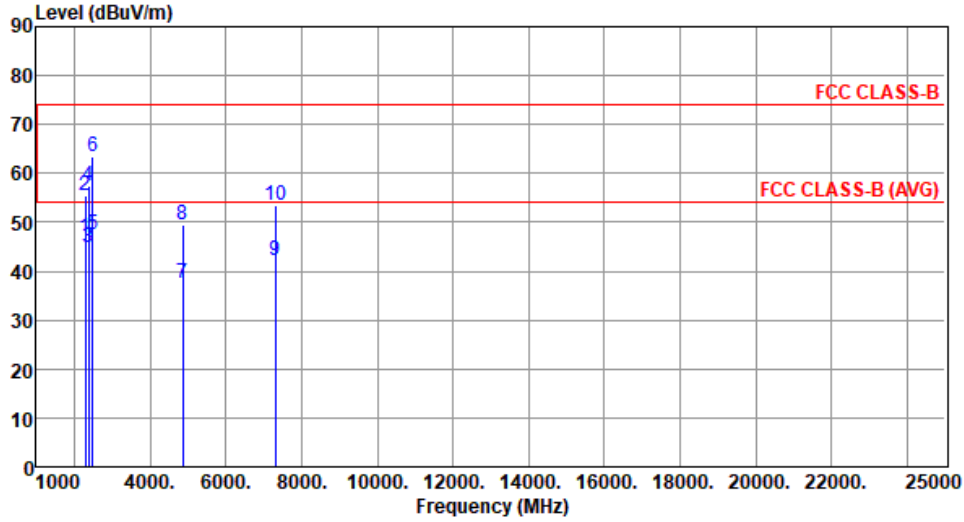
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	39.70	54.00	-14.30	39.25	0.45	Average	123	203
2	2288.00	53.69	74.00	-20.31	53.24	0.45	Peak	123	203
3	2390.00	40.13	54.00	-13.87	39.89	0.24	Average	123	203
4	2390.00	53.66	74.00	-20.34	53.42	0.24	Peak	123	203
5	2483.50	42.48	54.00	-11.52	42.23	0.25	Average	123	203
6	2483.50	55.64	74.00	-18.36	55.39	0.25	Peak	123	203
7	4874.00	35.04	54.00	-18.96	28.56	6.48	Average	100	40
8	4874.00	47.04	74.00	-26.96	40.56	6.48	Peak	100	40
9	7311.00	41.96	54.00	-12.04	30.20	11.76	Average	100	20
10	7311.00	53.20	74.00	-20.80	41.44	11.76	Peak	100	20

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		

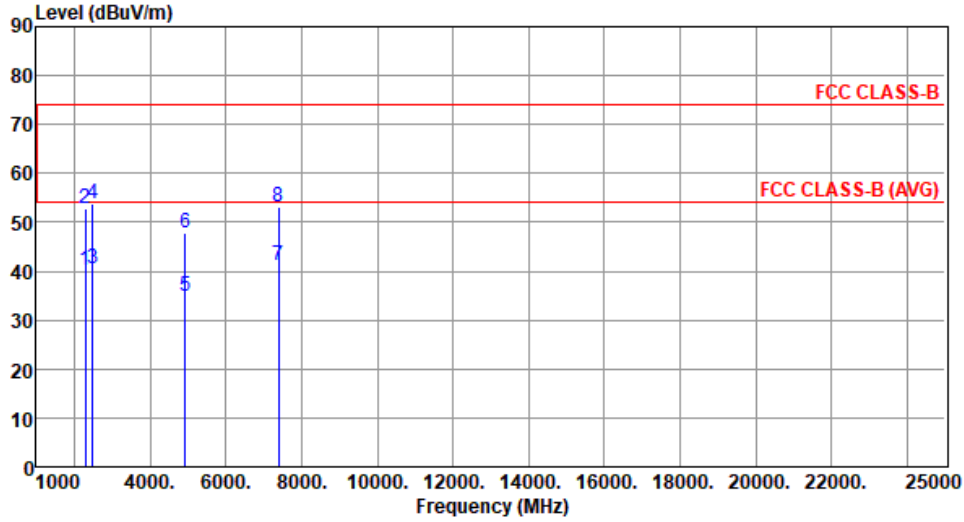


The graph displays the emission level in dBuV/m against frequency in MHz. Two horizontal red lines represent the FCC CLASS-B limit at approximately 74 dBuV/m and the FCC CLASS-B (AVG) limit at approximately 54 dBuV/m. Ten specific emission peaks are identified and numbered 1 through 10. Peaks 1-6 are clustered between 2288 MHz and 2483 MHz, peaks 7-8 are at 4874 MHz, and peaks 9-10 are at 7311 MHz. Peak 10 is the highest, exceeding the FCC CLASS-B limit.

	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	46.71	54.00	-7.29	46.26	0.45	Average	100	14
2	2288.00	55.51	74.00	-18.49	55.06	0.45	Peak	100	14
3	2390.00	44.76	54.00	-9.24	44.52	0.24	Average	100	14
4	2390.00	57.57	74.00	-16.43	57.33	0.24	Peak	100	14
5	2483.50	47.44	54.00	-6.56	47.19	0.25	Average	100	14
6	2483.50	63.36	74.00	-10.64	63.11	0.25	Peak	100	14
7	4874.00	37.45	54.00	-16.55	30.97	6.48	Average	141	1
8	4874.00	49.43	74.00	-24.57	42.95	6.48	Peak	141	1
9	7311.00	42.24	54.00	-11.76	30.48	11.76	Average	100	50
10	7311.00	53.34	74.00	-20.66	41.58	11.76	Peak	100	50

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).

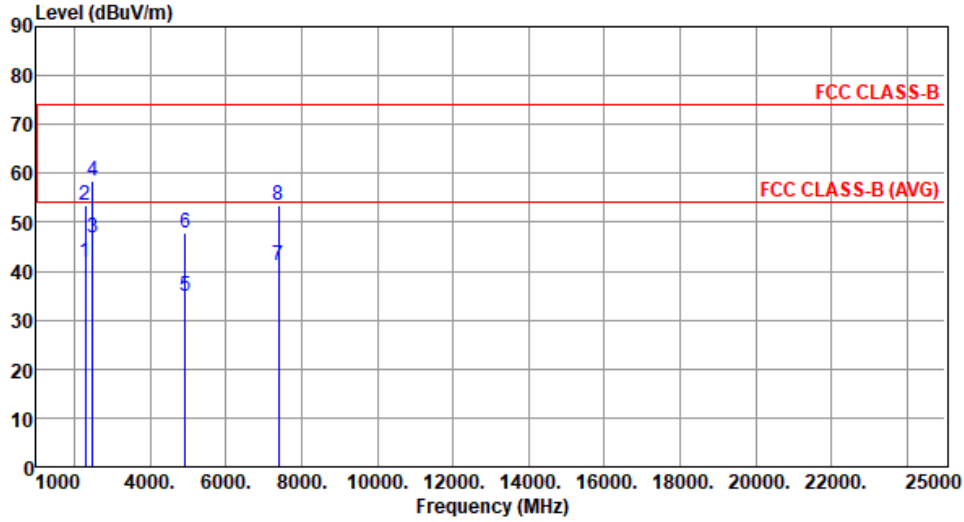
Modulation	HT20	Test Freq. (MHz)	2462
Polarization	Horizontal		



	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	40.09	54.00	-13.91	39.64	0.45	Average	122	206
2	2288.00	52.87	74.00	-21.13	52.42	0.45	Peak	122	206
3	2483.50	40.52	54.00	-13.48	40.27	0.25	Average	122	206
4	2483.50	53.81	74.00	-20.19	53.56	0.25	Peak	122	206
5	4924.00	34.85	54.00	-19.15	28.34	6.51	Average	100	30
6	4924.00	47.77	74.00	-26.23	41.26	6.51	Peak	100	30
7	7386.00	41.04	54.00	-12.96	29.23	11.81	Average	100	50
8	7386.00	53.15	74.00	-20.85	41.34	11.81	Peak	100	50

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		



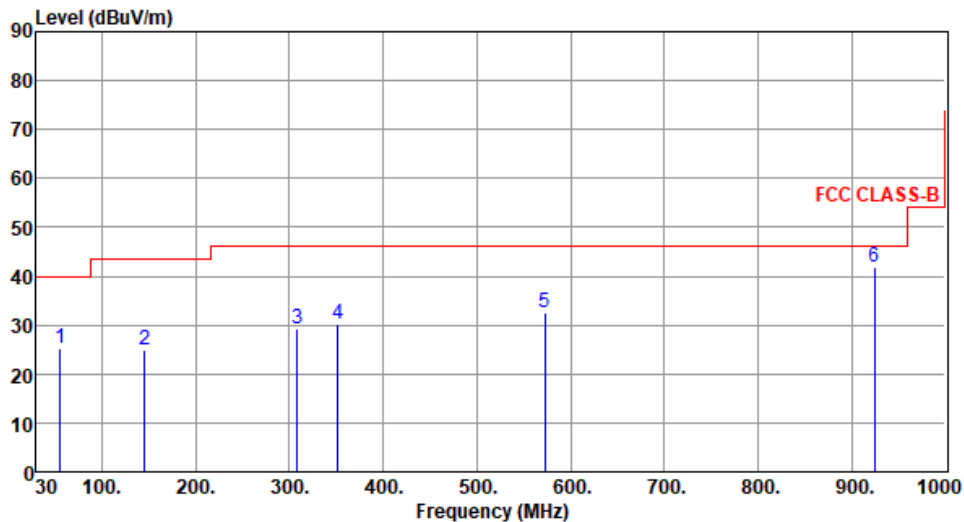
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	41.95	54.00	-12.05	41.50	0.45	Average	100	9
2	2288.00	53.60	74.00	-20.40	53.15	0.45	Peak	100	9
3	2483.50	46.68	54.00	-7.32	46.43	0.25	Average	100	9
4	2483.50	58.35	74.00	-15.65	58.10	0.25	Peak	100	9
5	4924.00	34.98	54.00	-19.02	28.47	6.51	Average	100	100
6	4924.00	47.84	74.00	-26.16	41.33	6.51	Peak	100	100
7	7386.00	41.17	54.00	-12.83	29.36	11.81	Average	100	20
8	7386.00	53.36	74.00	-20.64	41.55	11.81	Peak	100	20

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).

Configuration 2 : Antenna MAF95310 Mini NanoBlade Flex

3.5.8 Transmitter Radiated Unwanted Emissions (Below 1GHz)

Modulation	HT20	Test Freq. (MHz)	2437
Polarization	Horizontal		

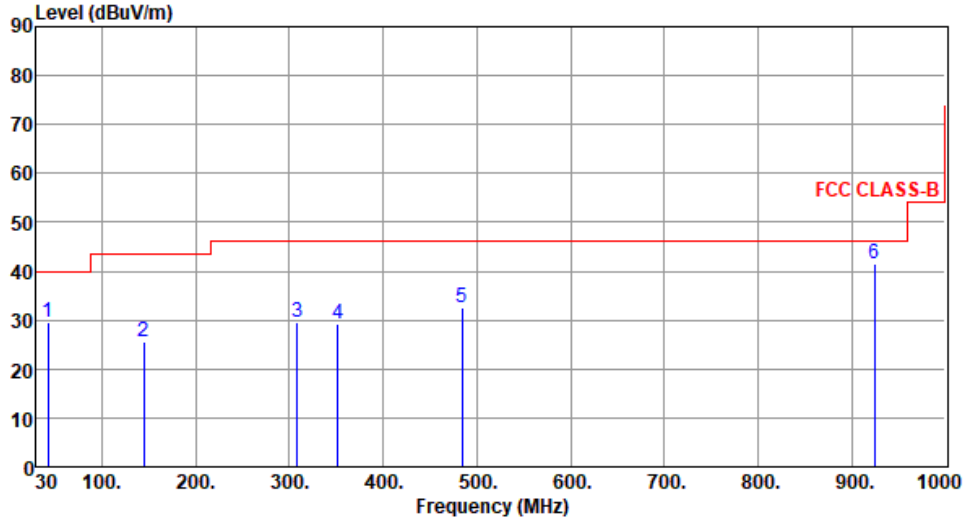


The graph displays the radiated unwanted emissions for the antenna. The y-axis represents the Level in dBuV/m, ranging from 0 to 90. The x-axis represents the Frequency in MHz, ranging from 30 to 1000. A red line indicates the FCC CLASS-B limit, which is 40 dBuV/m from 30 MHz to 100 MHz, 45 dBuV/m from 100 MHz to 300 MHz, and 50 dBuV/m from 300 MHz to 1000 MHz. Six measured peaks are labeled with numbers 1 through 6, corresponding to the data in the table below.

	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	55.22	25.29	40.00	-14.71	34.40	-9.11	Peak	---	---
2	145.43	24.84	43.50	-18.66	34.00	-9.16	Peak	---	---
3	308.39	29.11	46.00	-16.89	37.33	-8.22	Peak	---	---
4	352.04	30.14	46.00	-15.86	37.34	-7.20	Peak	---	---
5	572.23	32.57	46.00	-13.43	34.27	-1.70	Peak	---	---
6	924.34	41.71	46.00	-4.29	36.77	4.94	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		

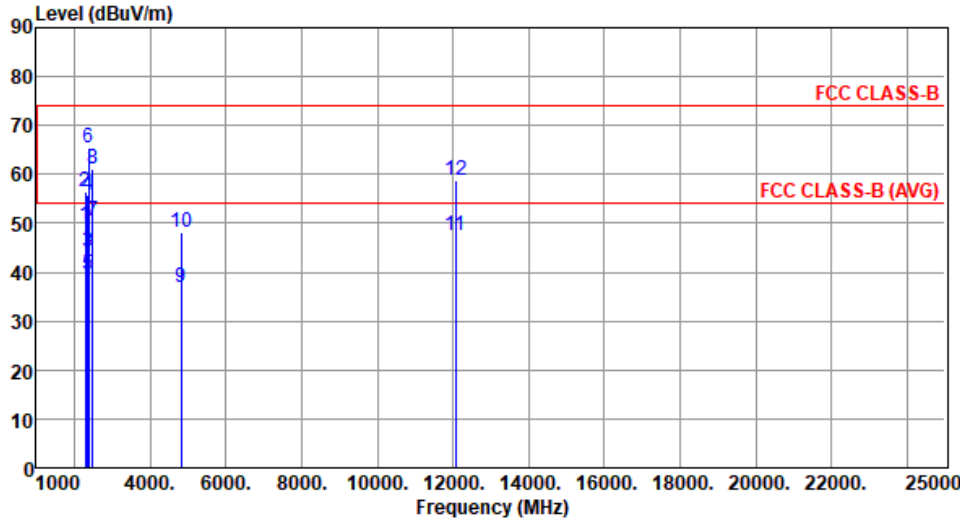


	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	42.61	29.68	40.00	-10.32	38.50	-8.82	Peak	---	---
2	144.46	25.70	43.50	-17.80	34.81	-9.11	Peak	---	---
3	308.39	29.41	46.00	-16.59	37.63	-8.22	Peak	---	---
4	352.04	29.13	46.00	-16.87	36.33	-7.20	Peak	---	---
5	483.96	32.54	46.00	-13.46	35.94	-3.40	Peak	---	---
6	924.34	41.64	46.00	-4.36	36.70	4.94	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.

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

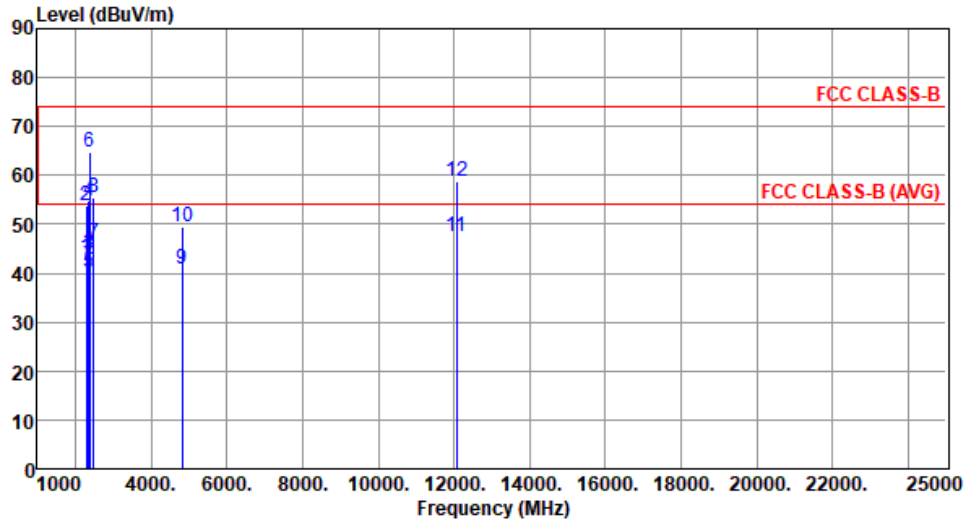
Modulation	11b	Test Freq. (MHz)	2412
Polarization	Horizontal		



	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	49.39	54.00	-4.61	48.94	0.45	Average	178	172
2	2288.00	56.42	74.00	-17.58	55.97	0.45	Peak	178	172
3	2360.00	44.07	54.00	-9.93	43.75	0.32	Average	251	326
4	2360.00	55.66	74.00	-18.34	55.34	0.32	Peak	251	326
5	2390.00	39.66	54.00	-14.34	39.42	0.24	Average	251	326
6	2390.00	65.57	74.00	-8.43	65.33	0.24	Peak	251	326
7	2490.00	50.46	54.00	-3.54	50.20	0.26	Average	166	217
8	2490.00	60.97	74.00	-13.03	60.71	0.26	Peak	166	217
9	4824.00	36.75	54.00	-17.25	30.25	6.50	Average	100	195
10	4824.00	48.08	74.00	-25.92	41.58	6.50	Peak	100	195
11	12060.00	47.55	54.00	-6.45	31.31	16.24	Average	100	40
12	12060.00	58.79	74.00	-15.21	42.55	16.24	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	11b	Test Freq. (MHz)	2412
Polarization	Vertical		



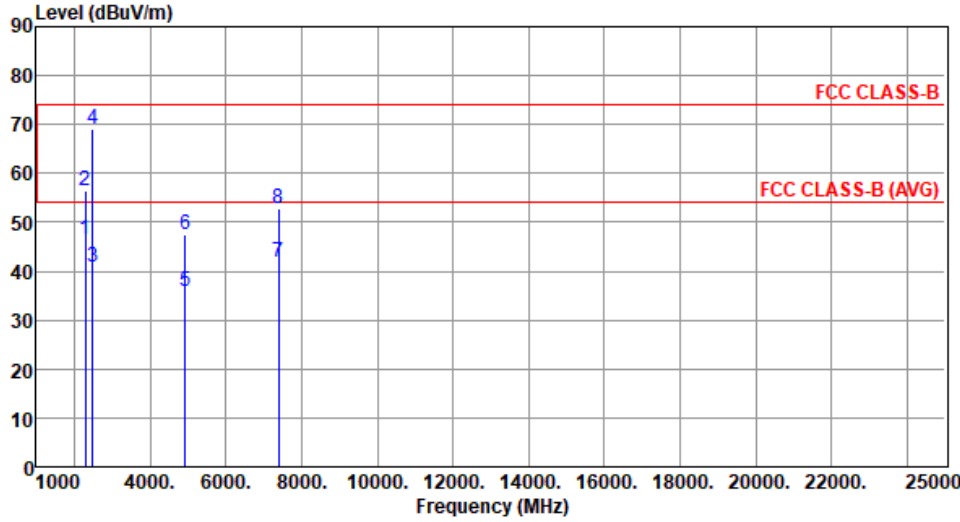
	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	43.01	54.00	-10.99	42.56	0.45	Average	103	217
2	2288.00	53.90	74.00	-20.10	53.45	0.45	Peak	103	217
3	2360.00	43.73	54.00	-10.27	43.41	0.32	Average	103	217
4	2360.00	54.88	74.00	-19.12	54.56	0.32	Peak	103	217
5	2390.00	40.32	54.00	-13.68	40.08	0.24	Average	103	217
6	2390.00	64.79	74.00	-9.21	64.55	0.24	Peak	103	217
7	2490.00	46.15	54.00	-7.85	45.89	0.26	Average	103	217
8	2490.00	55.54	74.00	-18.46	55.28	0.26	Peak	103	217
9	4824.00	40.70	54.00	-13.30	34.20	6.50	Average	200	5
10	4824.00	49.64	74.00	-24.36	43.14	6.50	Peak	200	5
11	12060.00	47.50	54.00	-6.50	31.26	16.24	Average	100	50
12	12060.00	58.78	74.00	-15.22	42.54	16.24	Peak	100	50

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).

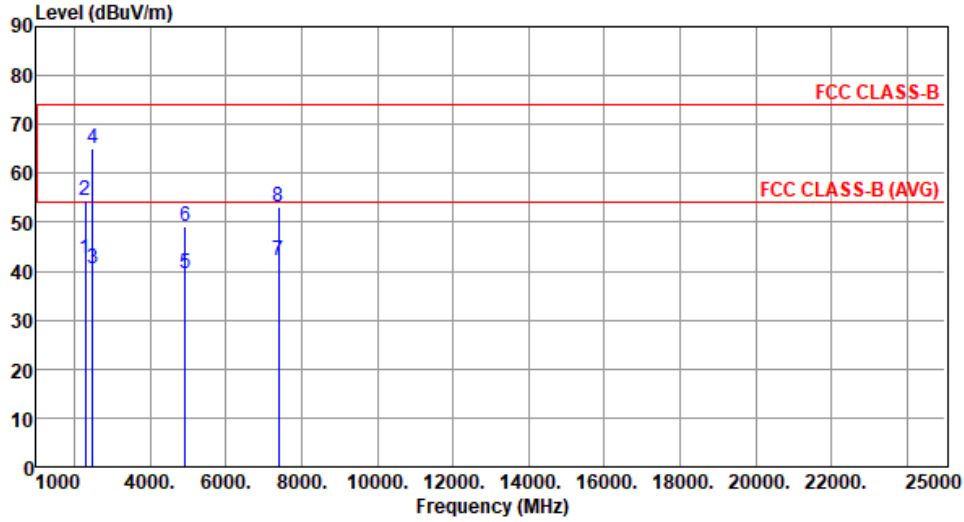
Modulation	11b	Test Freq. (MHz)	2462
Polarization	Horizontal		



	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	46.59	54.00	-7.41	46.14	0.45	Average	177	171
2	2288.00	56.43	74.00	-17.57	55.98	0.45	Peak	177	171
3	2483.50	41.01	54.00	-12.99	40.76	0.25	Average	246	327
4	2483.50	69.12	74.00	-4.88	68.87	0.25	Peak	246	327
5	4924.00	35.90	54.00	-18.10	29.39	6.51	Average	100	193
6	4924.00	47.62	74.00	-26.38	41.11	6.51	Peak	100	193
7	7386.00	41.76	54.00	-12.24	29.95	11.81	Average	100	50
8	7386.00	52.93	74.00	-21.07	41.12	11.81	Peak	100	50

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		

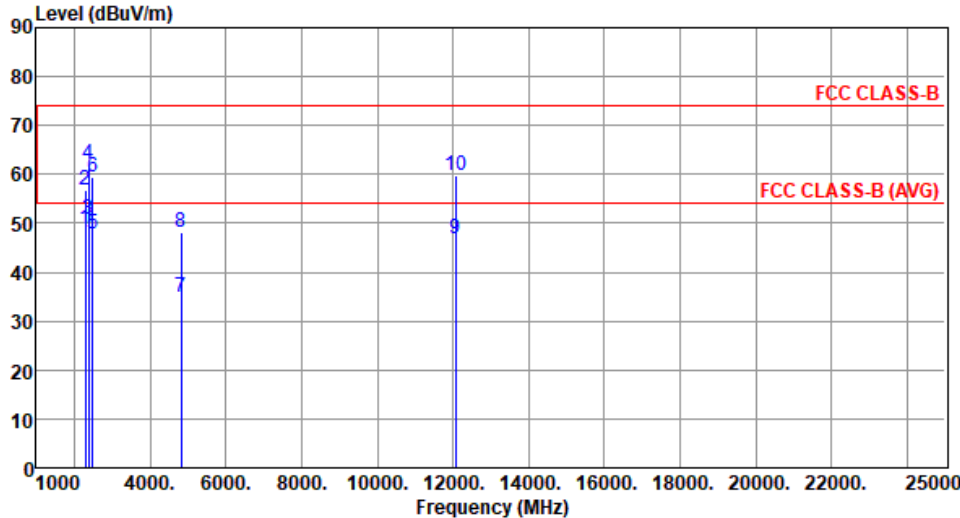


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	42.60	54.00	-11.40	42.15	0.45	Average	104	220
2	2288.00	54.50	74.00	-19.50	54.05	0.45	Peak	104	220
3	2483.50	40.47	54.00	-13.53	40.22	0.25	Average	104	220
4	2483.50	64.94	74.00	-9.06	64.69	0.25	Peak	104	220
5	4924.00	39.59	54.00	-14.41	33.08	6.51	Average	198	8
6	4924.00	49.23	74.00	-24.77	42.72	6.51	Peak	198	8
7	7386.00	42.02	54.00	-11.98	30.21	11.81	Average	100	40
8	7386.00	53.14	74.00	-20.86	41.33	11.81	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).

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

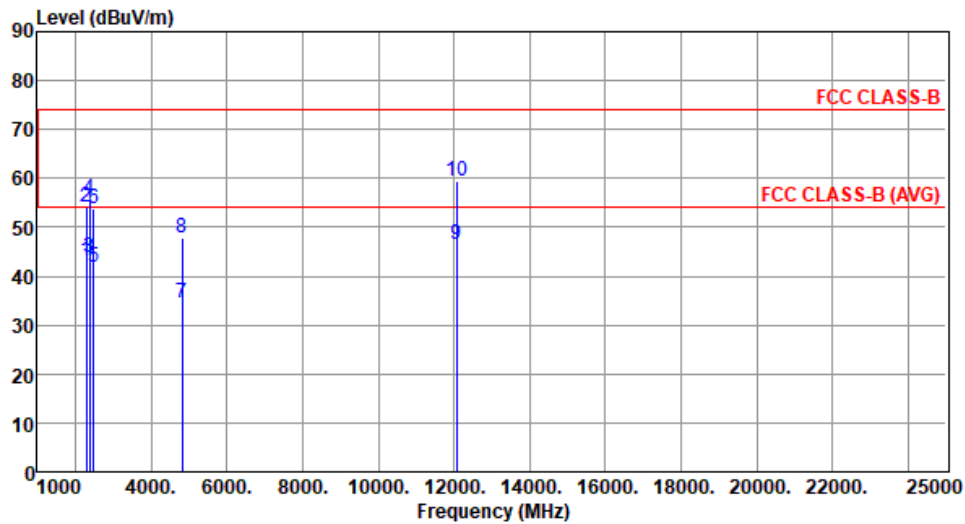
Modulation	11g	Test Freq. (MHz)	2412
Polarization	Horizontal		



	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	48.90	54.00	-5.10	48.45	0.45	Average	177	164
2	2288.00	56.73	74.00	-17.27	56.28	0.45	Peak	177	164
3	2390.00	50.77	54.00	-3.23	50.53	0.24	Average	177	182
4	2390.00	62.09	74.00	-11.91	61.85	0.24	Peak	177	182
5	2490.00	47.76	54.00	-6.24	47.50	0.26	Average	177	182
6	2490.00	59.32	74.00	-14.68	59.06	0.26	Peak	177	182
7	4824.00	34.75	54.00	-19.25	28.25	6.50	Average	100	30
8	4824.00	48.07	74.00	-25.93	41.57	6.50	Peak	100	30
9	12060.00	46.77	54.00	-7.23	30.53	16.24	Average	100	90
10	12060.00	59.69	74.00	-14.31	43.45	16.24	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	11g	Test Freq. (MHz)	2412
Polarization	Vertical		



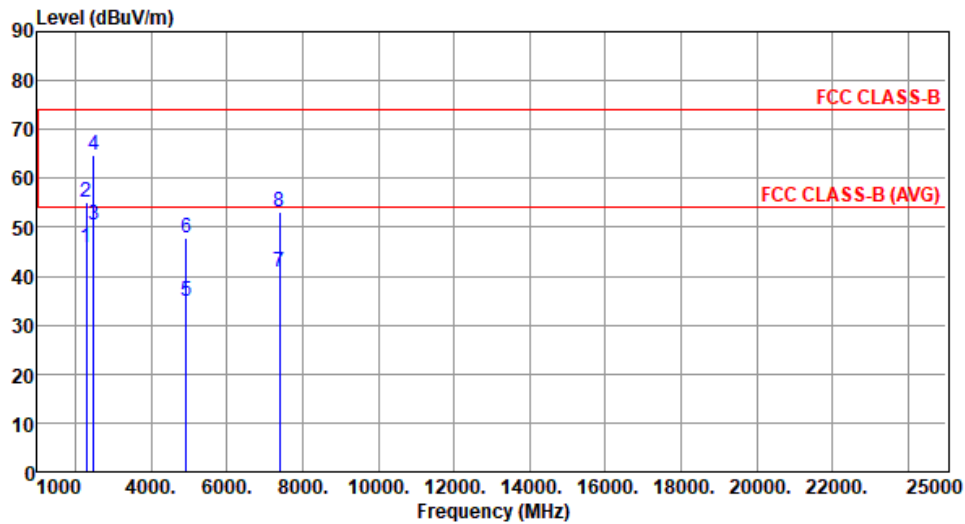
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	43.01	54.00	-10.99	42.56	0.45	Average	100	228
2	2288.00	54.04	74.00	-19.96	53.59	0.45	Peak	100	228
3	2390.00	43.70	54.00	-10.30	43.46	0.24	Average	100	228
4	2390.00	55.93	74.00	-18.07	55.69	0.24	Peak	100	228
5	2490.00	41.81	54.00	-12.19	41.55	0.26	Average	100	228
6	2490.00	53.84	74.00	-20.16	53.58	0.26	Peak	100	228
7	4824.00	34.62	54.00	-19.38	28.12	6.50	Average	100	90
8	4824.00	47.82	74.00	-26.18	41.32	6.50	Peak	100	90
9	12060.00	46.66	54.00	-7.34	30.42	16.24	Average	100	50
10	12060.00	59.57	74.00	-14.43	43.33	16.24	Peak	100	50

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		



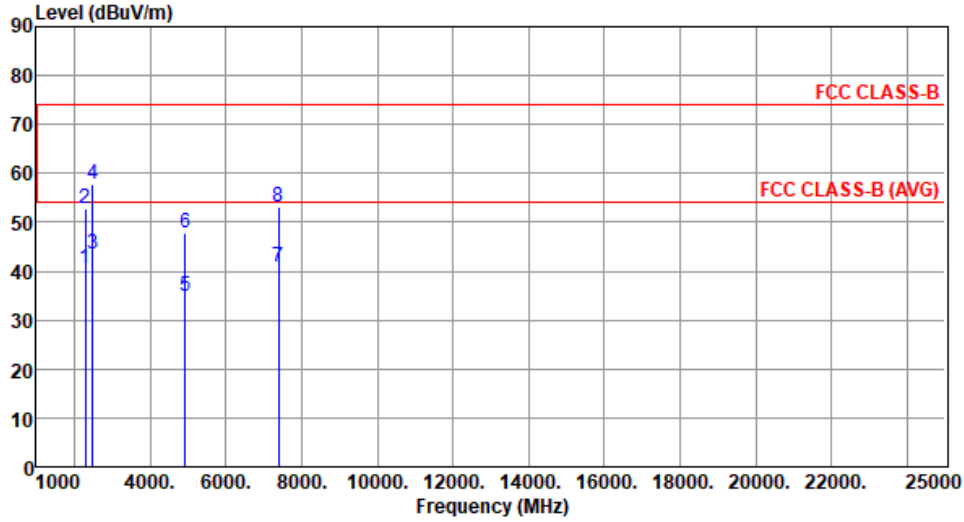
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	45.91	54.00	-8.09	45.46	0.45	Average	175	164
2	2288.00	55.20	74.00	-18.80	54.75	0.45	Peak	175	164
3	2483.50	50.56	54.00	-3.44	50.31	0.25	Average	175	207
4	2483.50	64.74	74.00	-9.26	64.49	0.25	Peak	175	207
5	4924.00	34.77	54.00	-19.23	28.26	6.51	Average	100	30
6	4924.00	47.87	74.00	-26.13	41.36	6.51	Peak	100	30
7	7386.00	41.01	54.00	-12.99	29.20	11.81	Average	100	50
8	7386.00	53.28	74.00	-20.72	41.47	11.81	Peak	100	50

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		

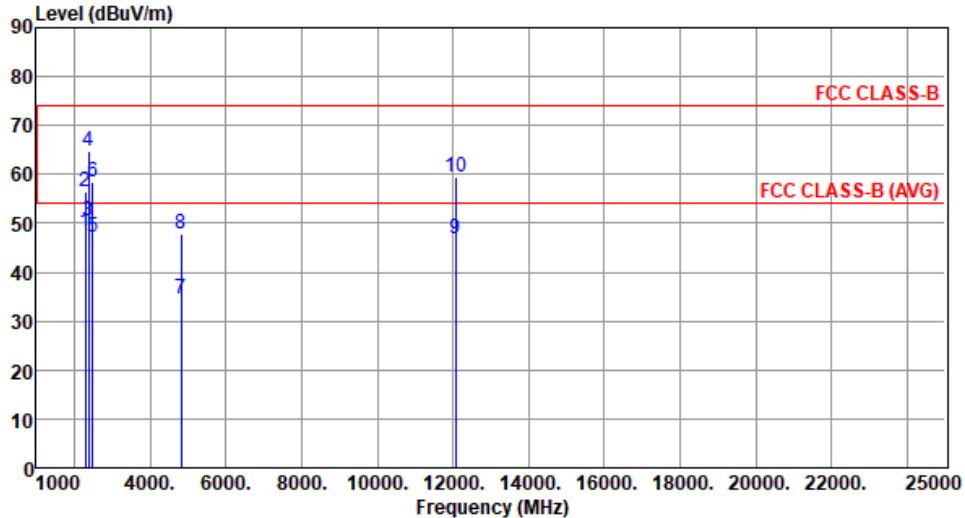


	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	40.60	54.00	-13.40	40.15	0.45	Average	100	226
2	2288.00	52.91	74.00	-21.09	52.46	0.45	Peak	100	226
3	2483.50	43.48	54.00	-10.52	43.23	0.25	Average	100	226
4	2483.50	57.82	74.00	-16.18	57.57	0.25	Peak	100	226
5	4924.00	34.82	54.00	-19.18	28.31	6.51	Average	100	60
6	4924.00	47.73	74.00	-26.27	41.22	6.51	Peak	100	60
7	7386.00	40.99	54.00	-13.01	29.18	11.81	Average	100	90
8	7386.00	53.16	74.00	-20.84	41.35	11.81	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).

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

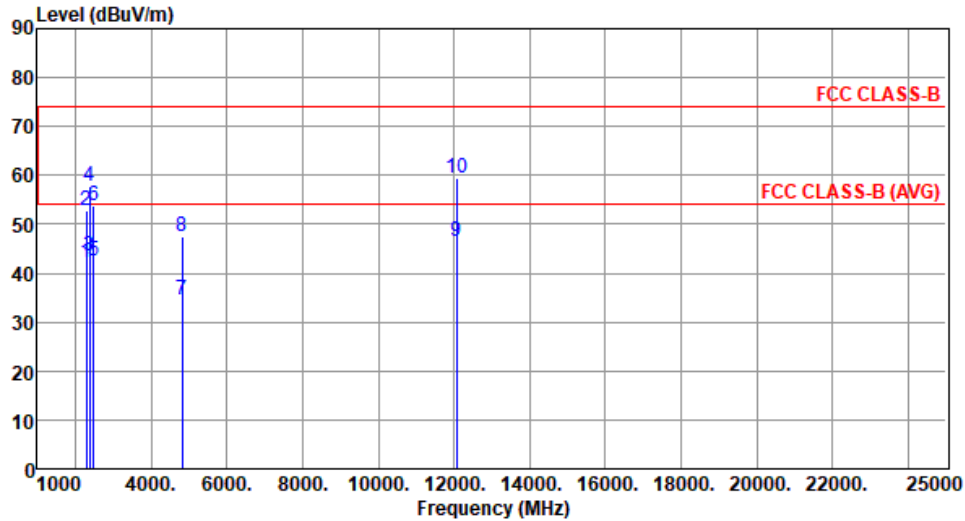
Modulation	HT20	Test Freq. (MHz)	2412
Polarization	Horizontal		



	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	48.18	54.00	-5.82	47.73	0.45	Average	177	171
2	2288.00	56.31	74.00	-17.69	55.86	0.45	Peak	177	171
3	2390.00	50.36	54.00	-3.64	50.12	0.24	Average	177	171
4	2390.00	64.65	74.00	-9.35	64.41	0.24	Peak	177	171
5	2490.00	47.31	54.00	-6.69	47.05	0.26	Average	177	171
6	2490.00	58.38	74.00	-15.62	58.12	0.26	Peak	177	171
7	4824.00	34.70	54.00	-19.30	28.20	6.50	Average	100	20
8	4824.00	47.74	74.00	-26.26	41.24	6.50	Peak	100	20
9	12060.00	46.71	54.00	-7.29	30.47	16.24	Average	100	60
10	12060.00	59.58	74.00	-14.42	43.34	16.24	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		



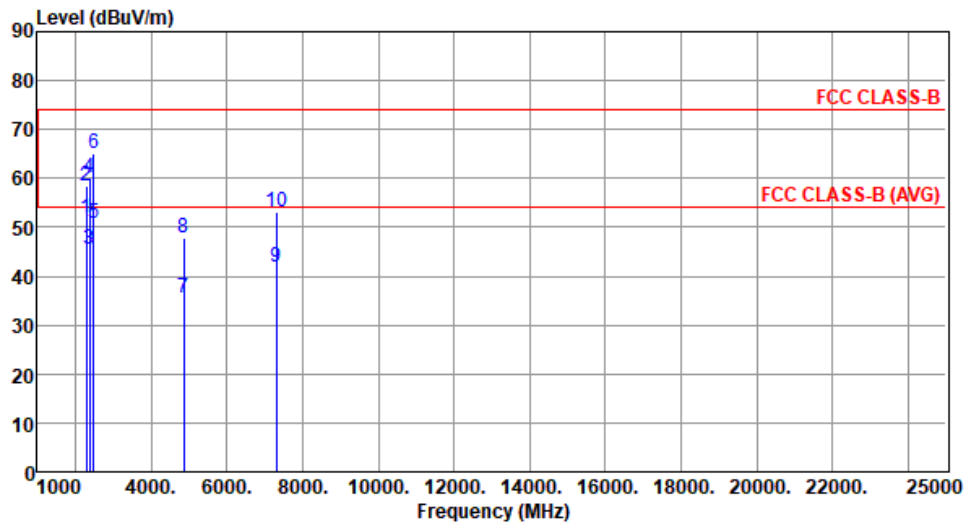
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	42.01	54.00	-11.99	41.56	0.45	Average	100	224
2	2288.00	52.92	74.00	-21.08	52.47	0.45	Peak	100	224
3	2390.00	43.52	54.00	-10.48	43.28	0.24	Average	100	224
4	2390.00	57.70	74.00	-16.30	57.46	0.24	Peak	100	224
5	2490.00	42.48	54.00	-11.52	42.22	0.26	Average	100	224
6	2490.00	53.84	74.00	-20.16	53.58	0.26	Peak	100	224
7	4824.00	34.68	54.00	-19.32	28.18	6.50	Average	100	30
8	4824.00	47.64	74.00	-26.36	41.14	6.50	Peak	100	30
9	12060.00	46.56	54.00	-7.44	30.32	16.24	Average	100	50
10	12060.00	59.46	74.00	-14.54	43.22	16.24	Peak	100	50

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		



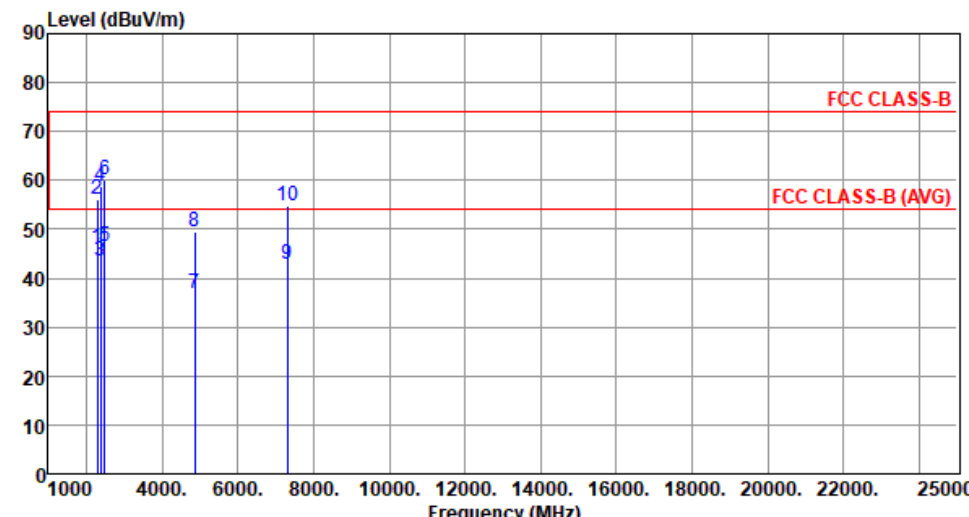
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	51.88	54.00	-2.12	51.43	0.45	Average	178	169
2	2288.00	58.53	74.00	-15.47	58.08	0.45	Peak	178	169
3	2390.00	45.60	54.00	-8.40	45.36	0.24	Average	178	206
4	2390.00	60.19	74.00	-13.81	59.95	0.24	Peak	178	206
5	2483.50	50.82	54.00	-3.18	50.57	0.25	Average	178	206
6	2483.50	65.07	74.00	-8.93	64.82	0.25	Peak	178	206
7	4874.00	35.69	54.00	-18.31	29.21	6.48	Average	100	50
8	4874.00	47.74	74.00	-26.26	41.26	6.48	Peak	100	50
9	7311.00	41.89	54.00	-12.11	30.13	11.76	Average	100	20
10	7311.00	52.99	74.00	-21.01	41.23	11.76	Peak	100	20

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).

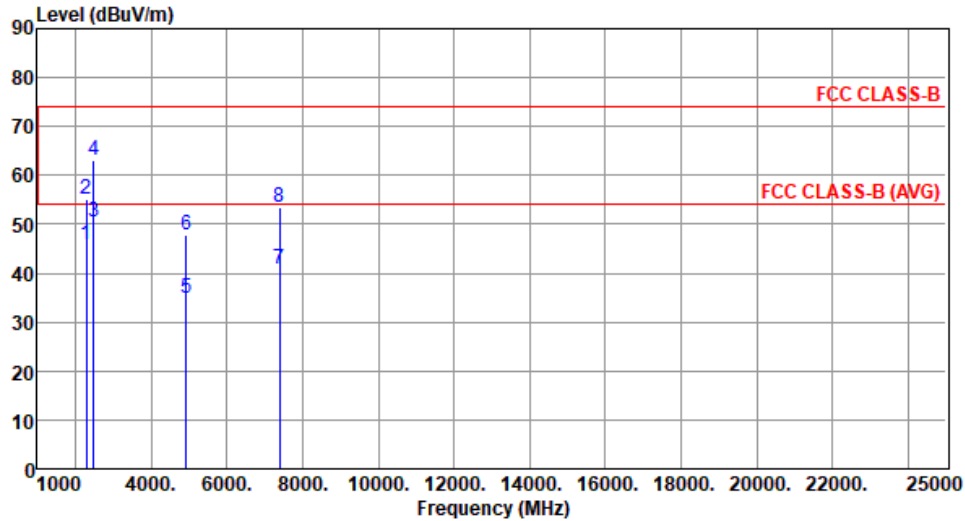
Modulation	HT20	Test Freq. (MHz)	2437
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	46.28	54.00	-7.72	45.83	0.45	Average	100	229
2	2288.00	56.07	74.00	-17.93	55.62	0.45	Peak	100	229
3	2390.00	43.63	54.00	-10.37	43.39	0.24	Average	100	229
4	2390.00	58.66	74.00	-15.34	58.42	0.24	Peak	100	229
5	2483.50	46.51	54.00	-7.49	46.26	0.25	Average	100	229
6	2483.50	60.14	74.00	-13.86	59.89	0.25	Peak	100	229
7	4874.00	36.96	54.00	-17.04	30.48	6.48	Average	198	13
8	4874.00	49.46	74.00	-24.54	42.98	6.48	Peak	198	13
9	7311.00	42.82	54.00	-11.18	31.06	11.76	Average	122	14
10	7311.00	54.79	74.00	-19.21	43.03	11.76	Peak	122	14

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		



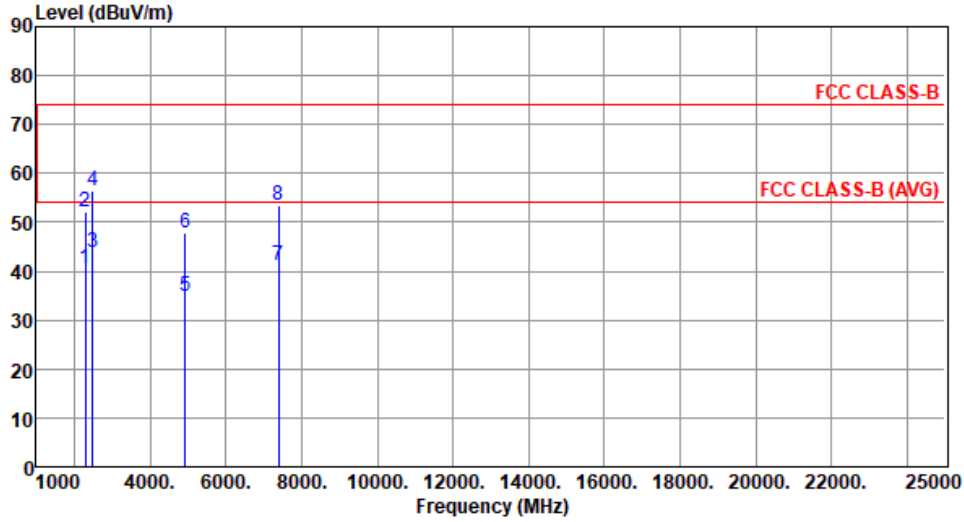
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	45.71	54.00	-8.29	45.26	0.45	Average	174	170
2	2288.00	55.04	74.00	-18.96	54.59	0.45	Peak	174	170
3	2483.50	50.47	54.00	-3.53	50.22	0.25	Average	174	206
4	2483.50	63.12	74.00	-10.88	62.87	0.25	Peak	174	206
5	4924.00	34.86	54.00	-19.14	28.35	6.51	Average	100	100
6	4924.00	47.73	74.00	-26.27	41.22	6.51	Peak	100	100
7	7386.00	40.97	54.00	-13.03	29.16	11.81	Average	100	30
8	7386.00	53.36	74.00	-20.64	41.55	11.81	Peak	100	30

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		



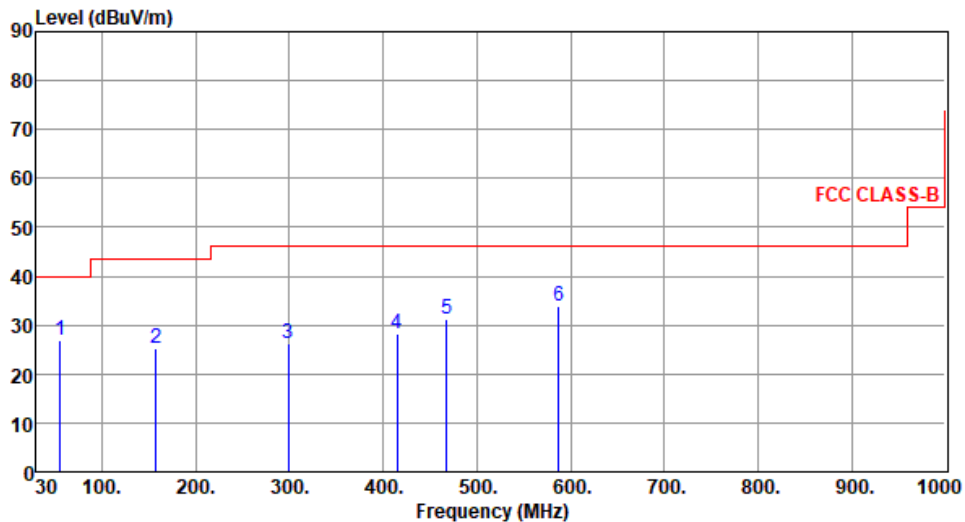
	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	40.56	54.00	-13.44	40.11	0.45	Average	100	226
2	2288.00	52.04	74.00	-21.96	51.59	0.45	Peak	100	226
3	2483.50	43.81	54.00	-10.19	43.56	0.25	Average	100	226
4	2483.50	56.51	74.00	-17.49	56.26	0.25	Peak	100	226
5	4924.00	34.76	54.00	-19.24	28.25	6.51	Average	100	70
6	4924.00	47.84	74.00	-26.16	41.33	6.51	Peak	100	70
7	7386.00	41.02	54.00	-12.98	29.21	11.81	Average	100	50
8	7386.00	53.48	74.00	-20.52	41.67	11.81	Peak	100	50

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).

Configuration 3 : Antenna WLAN_1000146

3.5.12 Transmitter Radiated Unwanted Emissions (Below 1GHz)

Modulation	HT20	Test Freq. (MHz)	2437
Polarization	Horizontal		

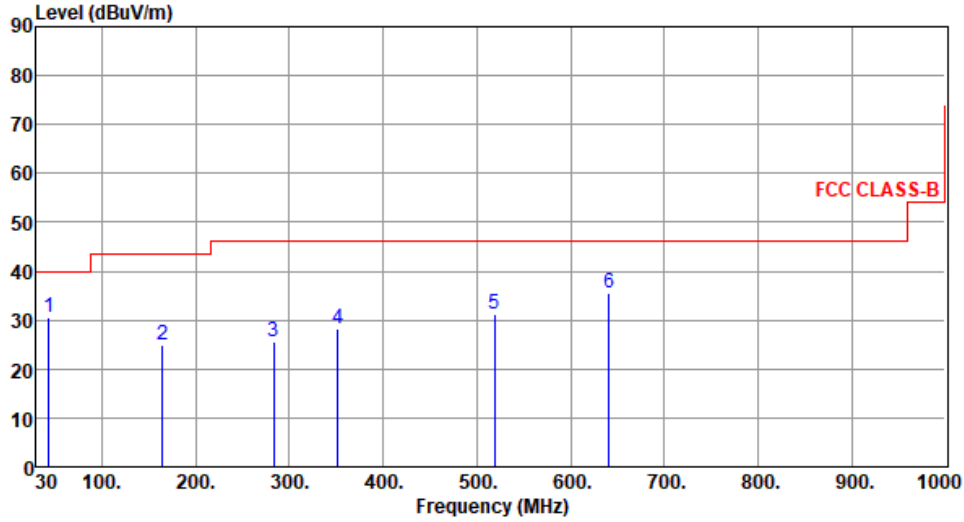


The graph displays the radiated unwanted emissions for the WLAN_1000146 antenna. The y-axis represents the Level in dBuV/m, ranging from 0 to 90. The x-axis represents the Frequency in MHz, ranging from 30 to 1000. A red line indicates the FCC CLASS-B limit, which is 40 dBuV/m from 30 MHz to 100 MHz, 45 dBuV/m from 100 MHz to 300 MHz, and 50 dBuV/m from 300 MHz to 1000 MHz. Six measured peaks are shown as blue vertical lines, labeled 1 through 6. The peak levels are approximately 27, 25, 26, 28, 31, and 34 dBuV/m respectively. Below the graph is a table summarizing the data for these peaks.

	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	55.22	26.78	40.00	-13.22	35.89	-9.11	Peak	---	---
2	158.04	25.08	43.50	-18.42	34.10	-9.02	Peak	---	---
3	298.69	26.19	46.00	-19.81	34.66	-8.47	Peak	---	---
4	415.09	28.34	46.00	-17.66	33.69	-5.35	Peak	---	---
5	467.47	31.11	46.00	-14.89	34.74	-3.63	Peak	---	---
6	587.75	33.77	46.00	-12.23	34.76	-0.99	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		



The graph displays the emission level in dBuV/m against frequency in MHz. A red line indicates the FCC CLASS-B limit, which is 40 dBuV/m from 30 to 100 MHz, 45 dBuV/m from 100 to 300 MHz, and 50 dBuV/m from 300 to 1000 MHz. Six blue vertical lines represent measured peaks at the following frequencies: 43.58 MHz, 164.83 MHz, 283.17 MHz, 352.04 MHz, 518.88 MHz, and 641.10 MHz. The peak levels are 30.69, 24.96, 25.73, 28.19, 31.17, and 35.56 dBuV/m respectively.

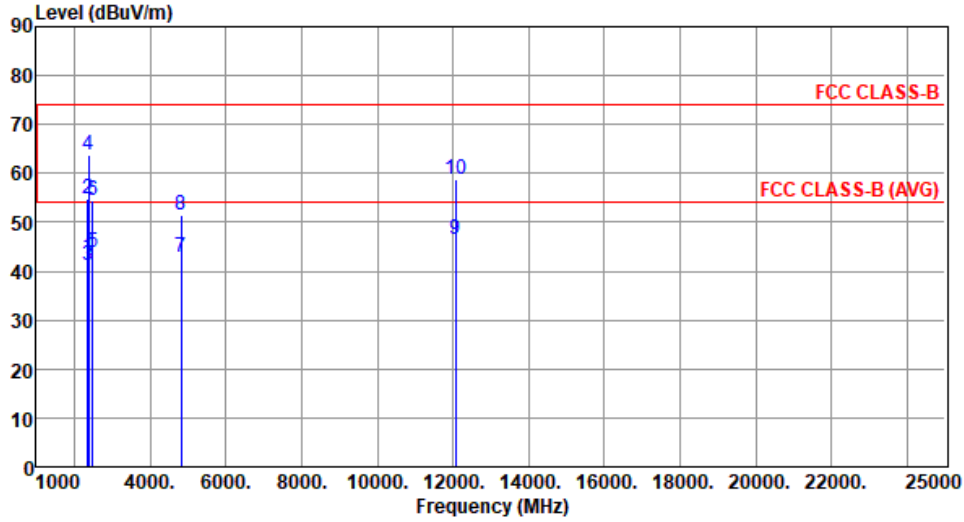
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	43.58	30.69	40.00	-9.31	39.47	-8.78	Peak	---	---
2	164.83	24.96	43.50	-18.54	34.05	-9.09	Peak	---	---
3	283.17	25.73	46.00	-20.27	34.63	-8.90	Peak	---	---
4	352.04	28.19	46.00	-17.81	35.39	-7.20	Peak	---	---
5	518.88	31.17	46.00	-14.83	33.76	-2.59	Peak	---	---
6	641.10	35.56	46.00	-10.44	35.07	0.49	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.

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

Modulation	11b			Test Freq. (MHz)		2412			
Polarization	Horizontal								
<div><div><div>Level 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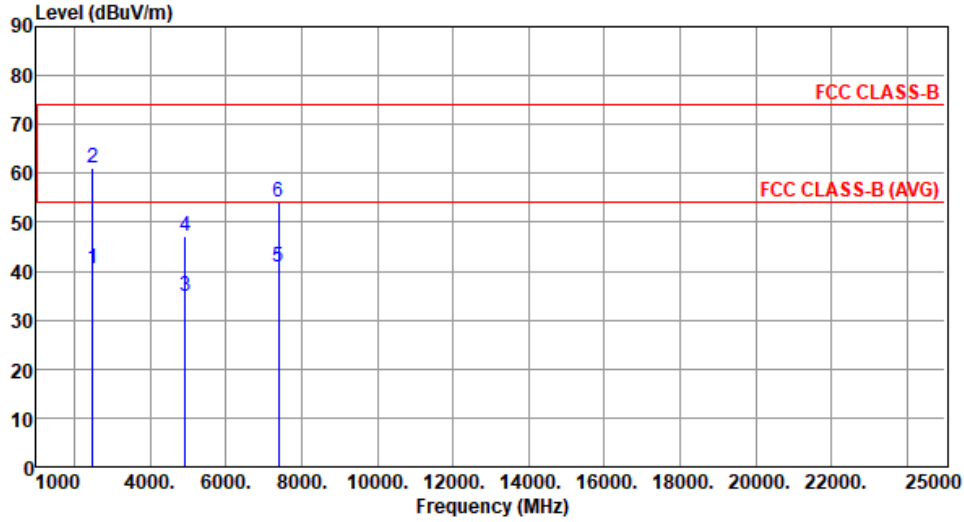
Modulation	11b	Test Freq. (MHz)	2412
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2360.00	42.78	54.00	-11.22	42.46	0.32	Average	100	297
2	2360.00	54.91	74.00	-19.09	54.59	0.32	Peak	100	297
3	2390.00	41.10	54.00	-12.90	40.86	0.24	Average	100	297
4	2390.00	63.62	74.00	-10.38	63.38	0.24	Peak	100	297
5	2490.00	43.72	54.00	-10.28	43.46	0.26	Average	100	297
6	2490.00	54.60	74.00	-19.40	54.34	0.26	Peak	100	297
7	4824.00	42.71	54.00	-11.29	36.21	6.50	Average	100	1
8	4824.00	51.59	74.00	-22.41	45.09	6.50	Peak	100	1
9	12060.00	46.39	54.00	-7.61	30.15	16.24	Average	100	30
10	12060.00	58.71	74.00	-15.29	42.47	16.24	Peak	100	30

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).

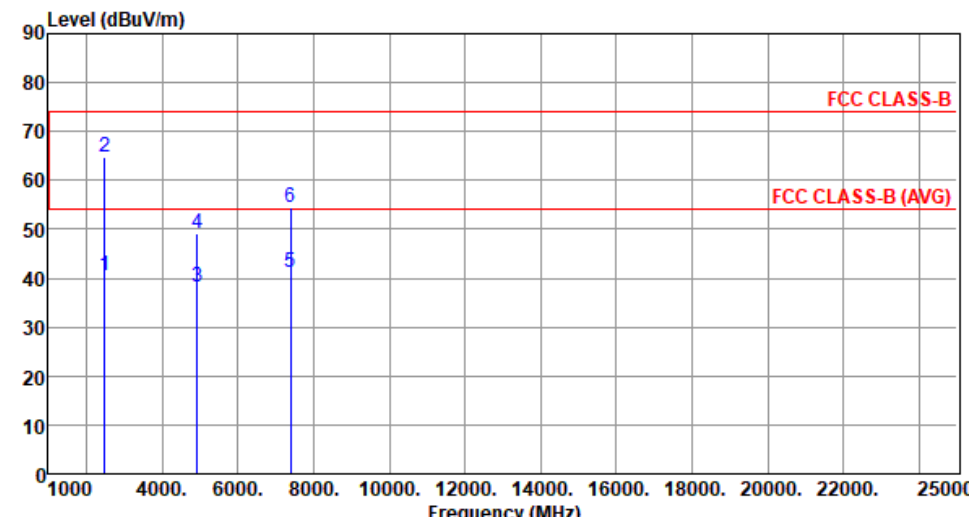
Modulation	11b	Test Freq. (MHz)	2462
Polarization	Horizontal		



	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	40.57	54.00	-13.43	40.32	0.25	Average	121	29
2	2483.50	60.99	74.00	-13.01	60.74	0.25	Peak	121	29
3	4924.00	34.78	54.00	-19.22	28.27	6.51	Average	100	60
4	4924.00	47.09	74.00	-26.91	40.58	6.51	Peak	100	60
5	7386.00	40.95	54.00	-13.05	29.14	11.81	Average	100	40
6	7386.00	54.23	74.00	-19.77	42.42	11.81	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	11b	Test Freq. (MHz)	2462
Polarization	Vertical		

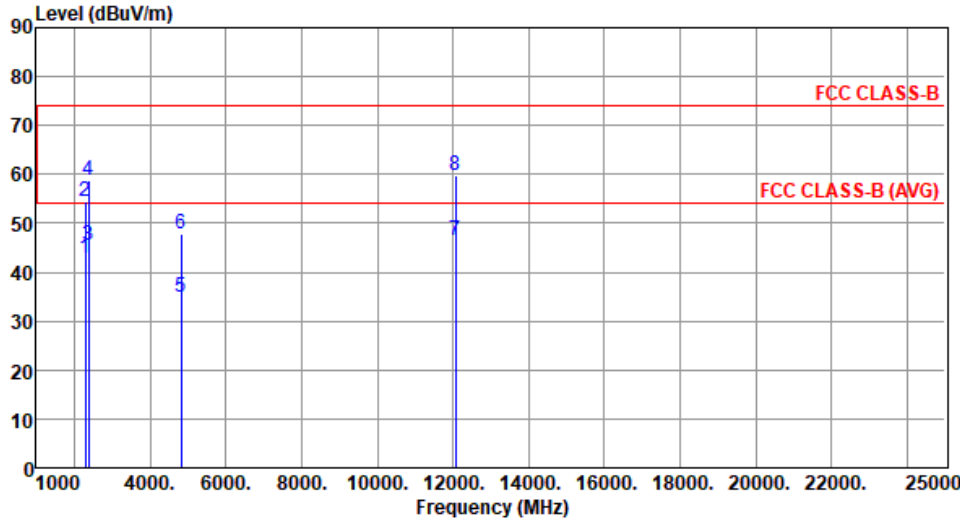


	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	40.45	54.00	-13.55	40.20	0.25	Average	217	311
2	2483.50	64.63	74.00	-9.37	64.38	0.25	Peak	217	311
3	4924.00	38.04	54.00	-15.96	31.53	6.51	Average	100	355
4	4924.00	49.05	74.00	-24.95	42.54	6.51	Peak	100	355
5	7386.00	41.07	54.00	-12.93	29.26	11.81	Average	100	30
6	7386.00	54.35	74.00	-19.65	42.54	11.81	Peak	100	30

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).

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

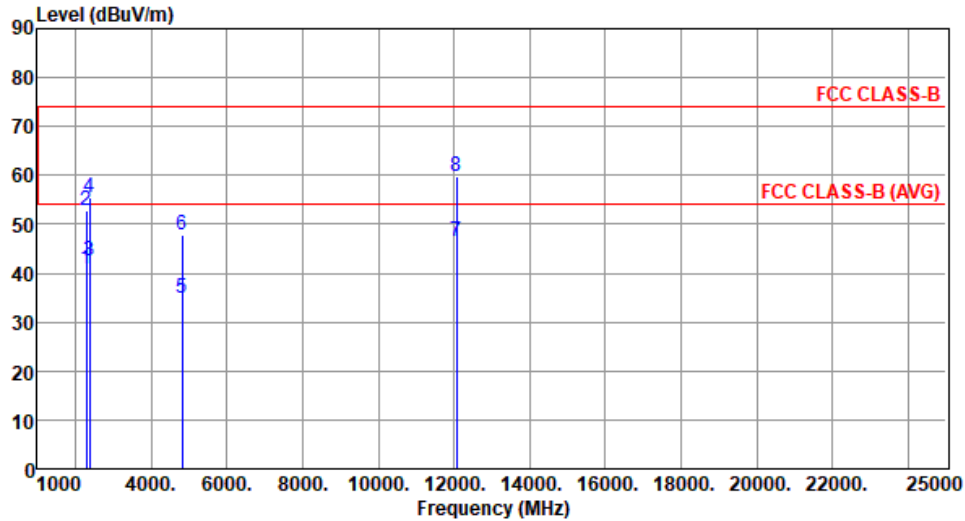
Modulation	11g	Test Freq. (MHz)	2412
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	42.87	54.00	-11.13	42.42	0.45	Average	190	295
2	2288.00	54.61	74.00	-19.39	54.16	0.45	Peak	190	295
3	2390.00	45.38	54.00	-8.62	45.14	0.24	Average	190	295
4	2390.00	58.64	74.00	-15.36	58.40	0.24	Peak	190	295
5	4824.00	34.73	54.00	-19.27	28.23	6.50	Average	100	30
6	4824.00	47.75	74.00	-26.25	41.25	6.50	Peak	100	30
7	12060.00	46.49	54.00	-7.51	30.25	16.24	Average	100	90
8	12060.00	59.79	74.00	-14.21	43.55	16.24	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	11g	Test Freq. (MHz)	2412
Polarization	Vertical		



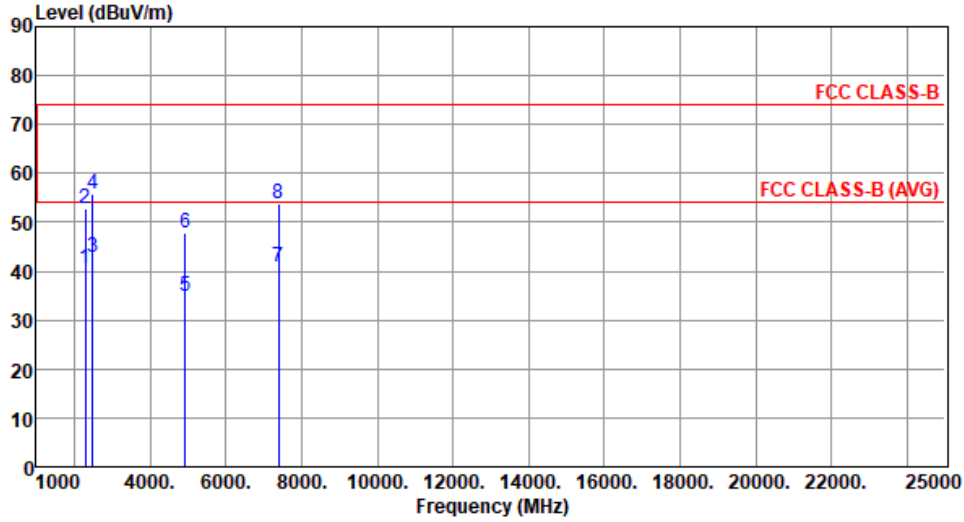
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	40.71	54.00	-13.29	40.26	0.45	Average	265	15
2	2288.00	52.91	74.00	-21.09	52.46	0.45	Peak	265	15
3	2390.00	42.50	54.00	-11.50	42.26	0.24	Average	265	15
4	2390.00	55.61	74.00	-18.39	55.37	0.24	Peak	265	15
5	4824.00	34.71	54.00	-19.29	28.21	6.50	Average	100	90
6	4824.00	47.80	74.00	-26.20	41.30	6.50	Peak	100	90
7	12060.00	46.42	54.00	-7.58	30.18	16.24	Average	100	80
8	12060.00	59.68	74.00	-14.32	43.44	16.24	Peak	100	80

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).

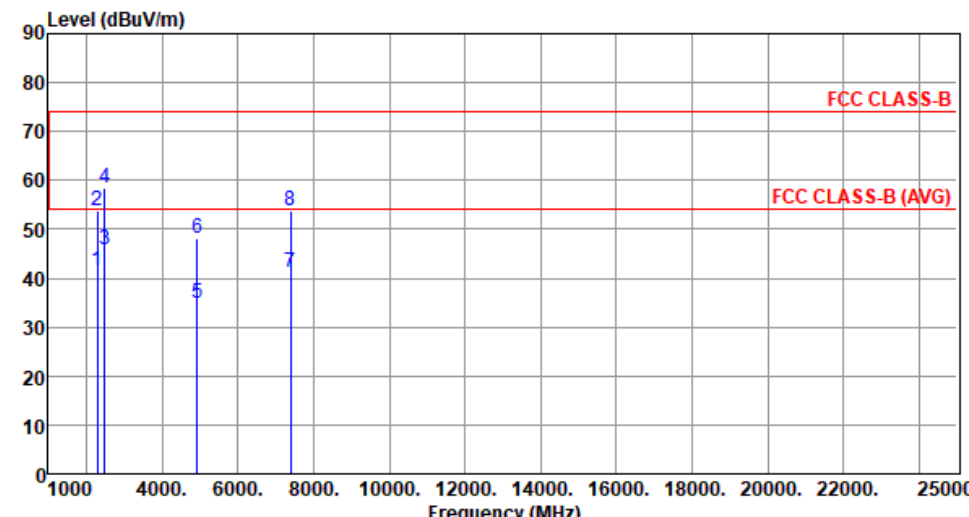
Modulation	11g	Test Freq. (MHz)	2462
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	40.60	54.00	-13.40	40.15	0.45	Average	263	17
2	2288.00	52.70	74.00	-21.30	52.25	0.45	Peak	263	17
3	2483.50	42.72	54.00	-11.28	42.47	0.25	Average	263	17
4	2483.50	55.65	74.00	-18.35	55.40	0.25	Peak	263	17
5	4924.00	34.82	54.00	-19.18	28.31	6.51	Average	100	25
6	4924.00	47.93	74.00	-26.07	41.42	6.51	Peak	100	25
7	7386.00	40.92	54.00	-13.08	29.11	11.81	Average	100	80
8	7386.00	53.67	74.00	-20.33	41.86	11.81	Peak	100	80

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		

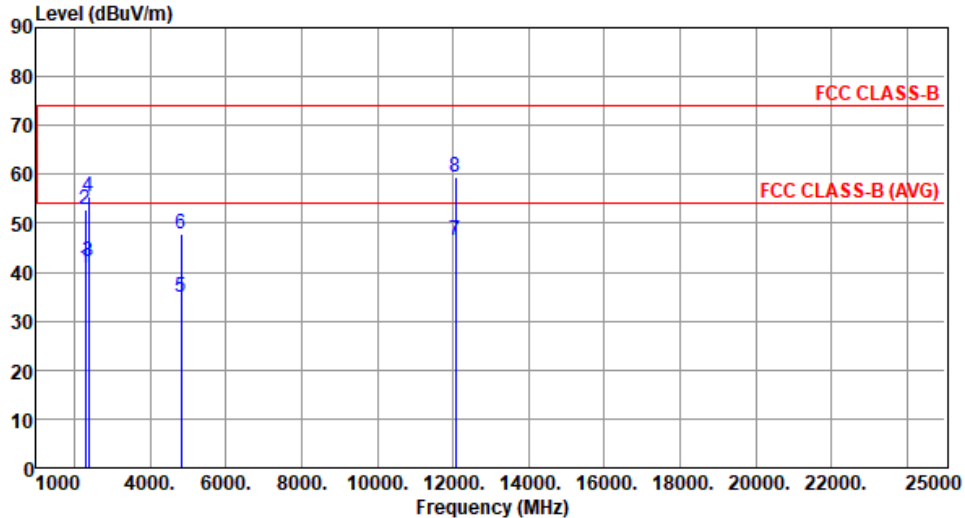


	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	41.60	54.00	-12.40	41.15	0.45	Average	196	284
2	2288.00	53.92	74.00	-20.08	53.47	0.45	Peak	196	284
3	2483.50	45.82	54.00	-8.18	45.57	0.25	Average	196	284
4	2483.50	58.48	74.00	-15.52	58.23	0.25	Peak	196	284
5	4924.00	34.93	54.00	-19.07	28.42	6.51	Average	100	30
6	4924.00	48.07	74.00	-25.93	41.56	6.51	Peak	100	30
7	7386.00	41.06	54.00	-12.94	29.25	11.81	Average	100	40
8	7386.00	53.94	74.00	-20.06	42.13	11.81	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).

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

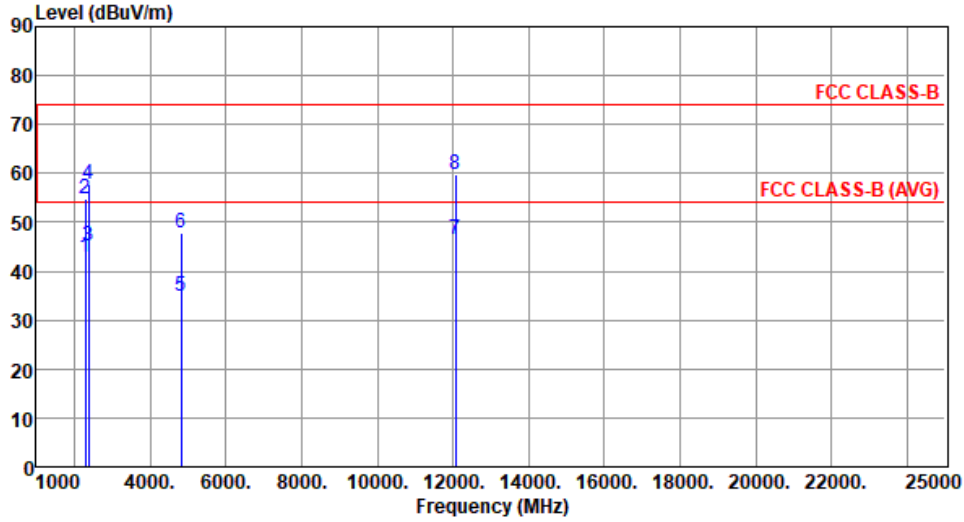
Modulation	HT20	Test Freq. (MHz)	2412
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	40.71	54.00	-13.29	40.26	0.45	Average	268	19
2	2288.00	52.80	74.00	-21.20	52.35	0.45	Peak	268	19
3	2390.00	42.25	54.00	-11.75	42.01	0.24	Average	268	19
4	2390.00	55.58	74.00	-18.42	55.34	0.24	Peak	268	19
5	4824.00	34.71	54.00	-19.29	28.21	6.50	Average	100	60
6	4824.00	47.75	74.00	-26.25	41.25	6.50	Peak	100	60
7	12060.00	46.48	54.00	-7.52	30.24	16.24	Average	100	50
8	12060.00	59.59	74.00	-14.41	43.35	16.24	Peak	100	50

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).

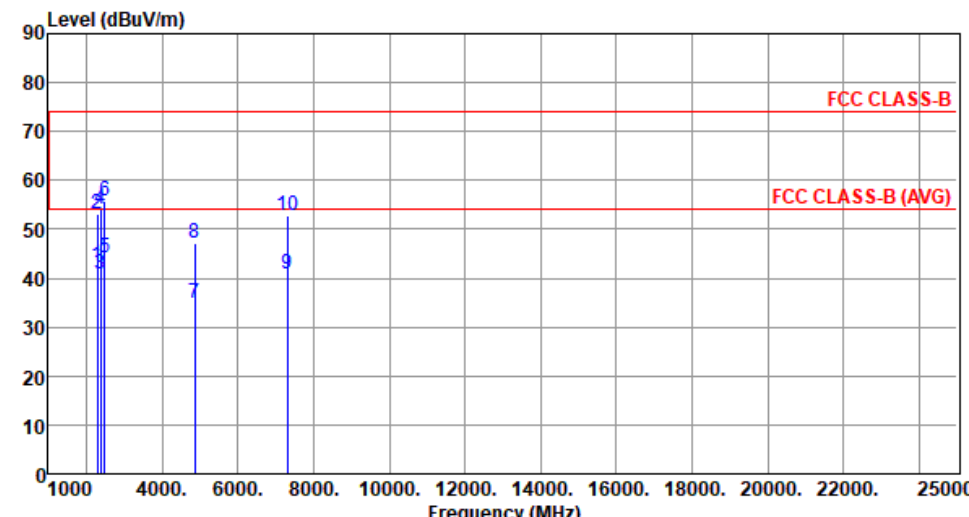
Modulation	HT20	Test Freq. (MHz)	2412
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	42.77	54.00	-11.23	42.32	0.45	Average	252	305
2	2288.00	54.90	74.00	-19.10	54.45	0.45	Peak	252	305
3	2390.00	45.28	54.00	-8.72	45.04	0.24	Average	252	305
4	2390.00	57.62	74.00	-16.38	57.38	0.24	Peak	252	305
5	4824.00	34.80	54.00	-19.20	28.30	6.50	Average	100	90
6	4824.00	47.84	74.00	-26.16	41.34	6.50	Peak	100	90
7	12060.00	46.58	54.00	-7.42	30.34	16.24	Average	100	80
8	12060.00	59.65	74.00	-14.35	43.41	16.24	Peak	100	80

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).

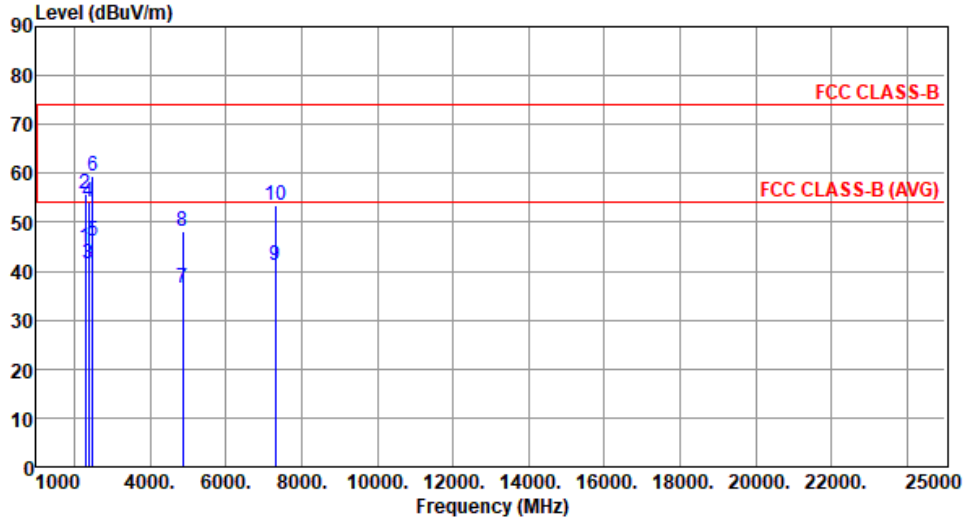
Modulation	HT20	Test Freq. (MHz)	2437
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	42.58	54.00	-11.42	42.13	0.45	Average	219	29
2	2288.00	53.24	74.00	-20.76	52.79	0.45	Peak	219	29
3	2390.00	40.85	54.00	-13.15	40.61	0.24	Average	243	14
4	2390.00	54.04	74.00	-19.96	53.80	0.24	Peak	243	14
5	2483.50	44.14	54.00	-9.86	43.89	0.25	Average	262	14
6	2483.50	55.66	74.00	-18.34	55.41	0.25	Peak	262	14
7	4874.00	34.73	54.00	-19.27	28.25	6.48	Average	100	50
8	4874.00	47.07	74.00	-26.93	40.59	6.48	Peak	100	50
9	7311.00	40.99	54.00	-13.01	29.23	11.76	Average	100	30
10	7311.00	52.87	74.00	-21.13	41.11	11.76	Peak	100	30

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).

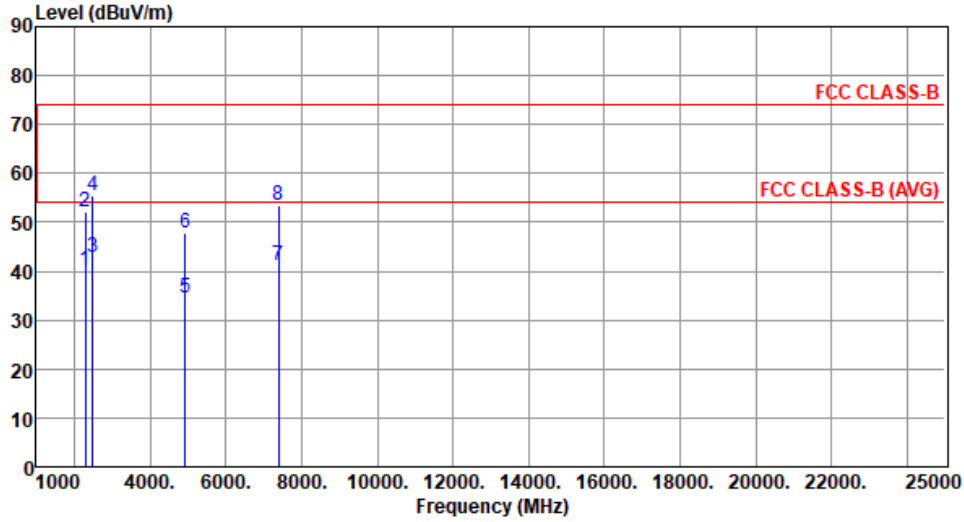
Modulation	HT20	Test Freq. (MHz)	2437
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	44.80	54.00	-9.20	44.35	0.45	Average	244	301
2	2288.00	55.71	74.00	-18.29	55.26	0.45	Peak	244	301
3	2390.00	41.60	54.00	-12.40	41.36	0.24	Average	244	301
4	2390.00	54.08	74.00	-19.92	53.84	0.24	Peak	244	301
5	2483.50	46.24	54.00	-7.76	45.99	0.25	Average	244	301
6	2483.50	59.33	74.00	-14.67	59.08	0.25	Peak	244	301
7	4874.00	36.47	54.00	-17.53	29.99	6.48	Average	115	23
8	4874.00	48.06	74.00	-25.94	41.58	6.48	Peak	115	23
9	7311.00	41.31	54.00	-12.69	29.55	11.76	Average	100	50
10	7311.00	53.32	74.00	-20.68	41.56	11.76	Peak	100	50

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).

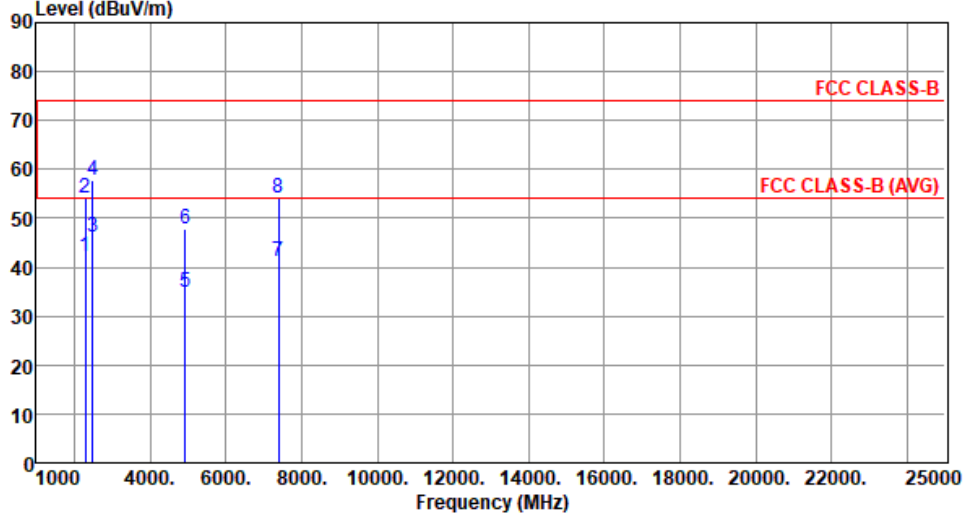
Modulation	HT20	Test Freq. (MHz)	2462
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	40.04	54.00	-13.96	39.59	0.45	Average	267	15
2	2288.00	52.03	74.00	-21.97	51.58	0.45	Peak	267	15
3	2483.50	42.81	54.00	-11.19	42.56	0.25	Average	267	15
4	2483.50	55.39	74.00	-18.61	55.14	0.25	Peak	267	15
5	4924.00	34.68	54.00	-19.32	28.17	6.51	Average	100	50
6	4924.00	47.74	74.00	-26.26	41.23	6.51	Peak	100	50
7	7386.00	41.05	54.00	-12.95	29.24	11.81	Average	100	20
8	7386.00	53.36	74.00	-20.64	41.55	11.81	Peak	100	20

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		



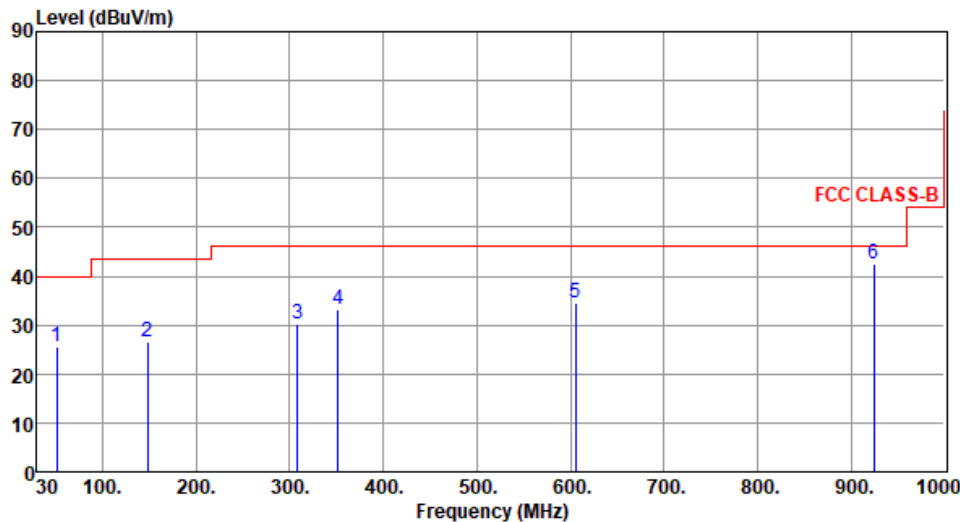
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	42.01	54.00	-11.99	41.56	0.45	Average	135	287
2	2288.00	54.14	74.00	-19.86	53.69	0.45	Peak	135	287
3	2483.50	46.12	54.00	-7.88	45.87	0.25	Average	135	287
4	2483.50	57.85	74.00	-16.15	57.60	0.25	Peak	135	287
5	4924.00	34.78	54.00	-19.22	28.27	6.51	Average	100	30
6	4924.00	47.75	74.00	-26.25	41.24	6.51	Peak	100	30
7	7386.00	41.12	54.00	-12.88	29.31	11.81	Average	100	70
8	7386.00	53.97	74.00	-20.03	42.16	11.81	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).

Configuration 4 : Antenna 1004788 & 1004791

3.5.16 Transmitter Radiated Unwanted Emissions (Below 1GHz)

Modulation	HT20	Test Freq. (MHz)	2437
Polarization	Horizontal		

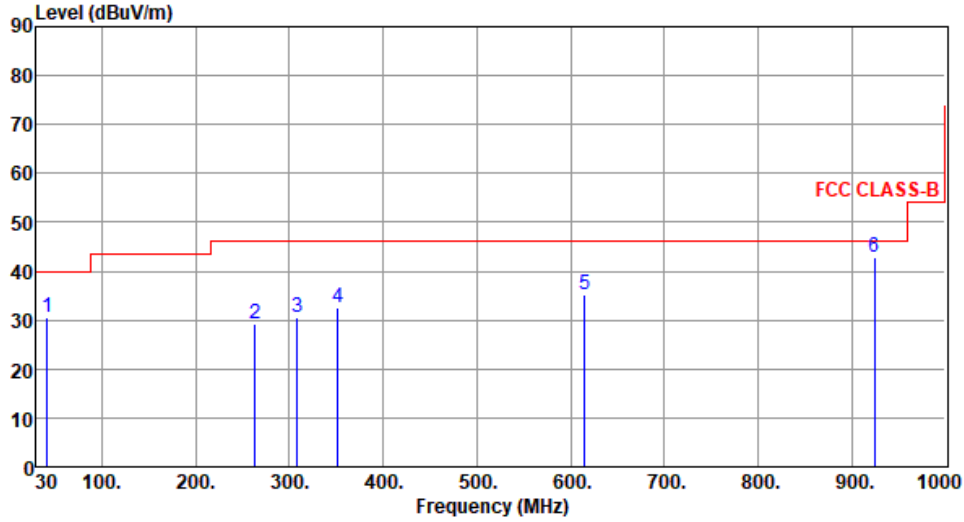


The graph displays the radiated unwanted emissions for FCC CLASS-B. The y-axis represents the Level in dBUV/m, ranging from 0 to 90. The x-axis represents the Frequency in MHz, ranging from 30 to 1000. A red line indicates the FCC CLASS-B limit, which is 40 dBUV/m from 30 to 200 MHz, 45 dBUV/m from 200 to 900 MHz, and 50 dBUV/m from 900 to 1000 MHz. Six measured peaks are labeled with numbers 1 through 6, corresponding to the data in the table below.

	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	51.34	25.44	40.00	-14.56	34.44	-9.00	Peak	---	---
2	148.34	26.40	43.50	-17.10	35.42	-9.02	Peak	---	---
3	308.39	30.32	46.00	-15.68	38.54	-8.22	Peak	---	---
4	352.04	33.34	46.00	-12.66	40.54	-7.20	Peak	---	---
5	605.21	34.46	46.00	-11.54	34.81	-0.35	Peak	---	---
6	924.34	42.51	46.00	-3.49	37.57	4.94	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		

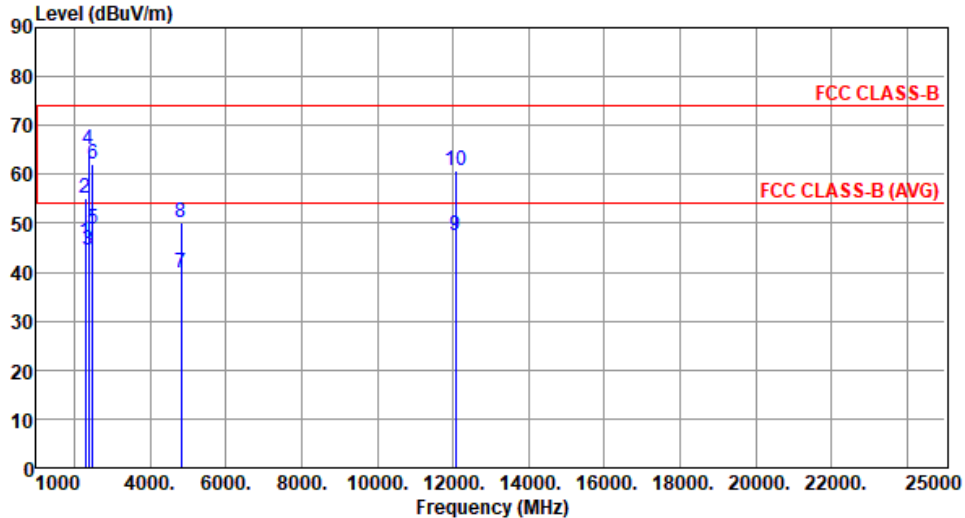


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	41.64	30.58	40.00	-9.42	39.50	-8.92	Peak	---	---
2	263.77	29.14	46.00	-16.86	38.88	-9.74	Peak	---	---
3	308.39	30.49	46.00	-15.51	38.71	-8.22	Peak	---	---
4	352.04	32.38	46.00	-13.62	39.58	-7.20	Peak	---	---
5	614.91	35.05	46.00	-10.95	35.16	-0.11	Peak	---	---
6	924.34	42.89	46.00	-3.11	37.95	4.94	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.

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

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

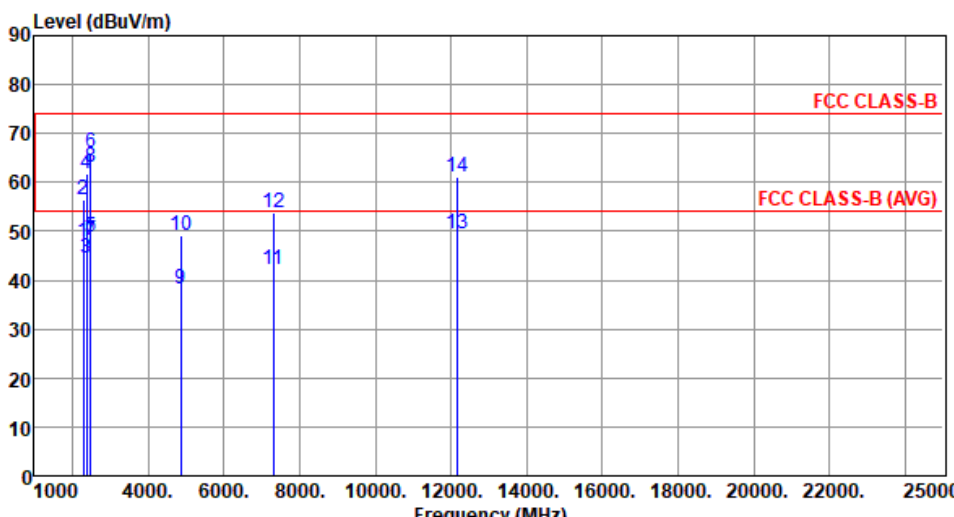


	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	46.10	54.00	-7.90	45.65	0.45	Average	100	359
2	2288.00	55.07	74.00	-18.93	54.62	0.45	Peak	100	359
3	2390.00	44.46	54.00	-9.54	44.22	0.24	Average	320	6
4	2390.00	65.20	74.00	-8.80	64.96	0.24	Peak	320	6
5	2489.00	48.88	54.00	-5.12	48.62	0.26	Average	305	345
6	2489.00	62.07	74.00	-11.93	61.81	0.26	Peak	305	345
7	4824.00	39.75	54.00	-14.25	33.25	6.50	Average	102	315
8	4824.00	50.05	74.00	-23.95	43.55	6.50	Peak	102	315
9	12060.00	47.58	54.00	-6.42	31.34	16.24	Average	100	15
10	12060.00	60.84	74.00	-13.16	44.60	16.24	Peak	100	15

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		
<div><div><div>Level (dBuV/m)</div><div><div><div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div>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Modulation	11b	Test Freq. (MHz)	2437
Polarization	Horizontal		



The spectrum plot shows the emission level in dBUV/m across a frequency range from 1000 to 25000 MHz. The y-axis ranges from 0 to 90 dBUV/m. Two horizontal red lines represent the FCC CLASS-B limits: a solid line at approximately 75 dBUV/m and an average line at approximately 55 dBUV/m. Several peaks are identified and numbered 1 through 14, with their corresponding emission levels and frequencies listed in the table below.

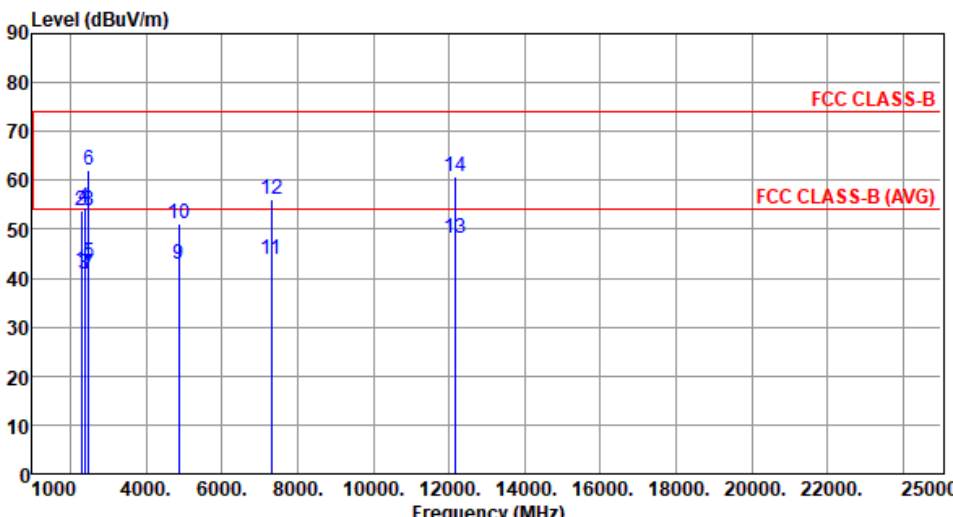
	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	47.95	54.00	-6.05	47.50	0.45	Average	100	358
2	2288.00	56.46	74.00	-17.54	56.01	0.45	Peak	100	358
3	2390.00	44.61	54.00	-9.39	44.37	0.24	Average	313	19
4	2390.00	61.78	74.00	-12.22	61.54	0.24	Peak	313	19
5	2483.50	48.88	54.00	-5.12	48.63	0.25	Average	313	19
6	2483.50	66.08	74.00	-7.92	65.83	0.25	Peak	313	19
7	2496.00	48.15	54.00	-5.85	47.90	0.25	Average	297	16
8	2496.00	63.15	74.00	-10.85	62.90	0.25	Peak	297	16
9	4874.00	38.24	54.00	-15.76	31.76	6.48	Average	101	318
10	4874.00	49.31	74.00	-24.69	42.83	6.48	Peak	101	318
11	7311.00	42.32	54.00	-11.68	30.56	11.76	Average	219	97
12	7311.00	53.93	74.00	-20.07	42.17	11.76	Peak	219	97
13	12185.00	49.32	54.00	-4.68	33.00	16.32	Average	227	284
14	12185.00	60.97	74.00	-13.03	44.65	16.32	Peak	227	284

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).

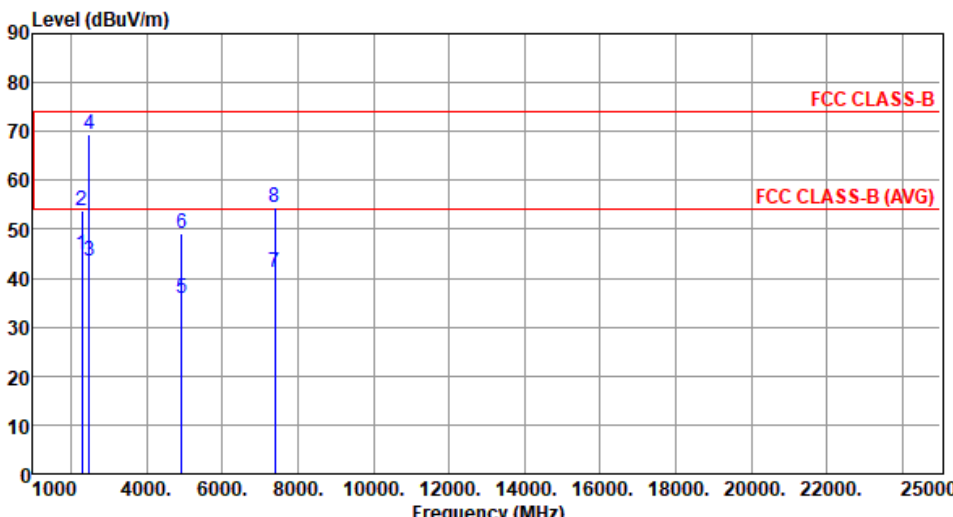
Modulation	11b	Test Freq. (MHz)	2437
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	41.53	54.00	-12.47	41.08	0.45	Average	231	229
2	2288.00	53.91	74.00	-20.09	53.46	0.45	Peak	231	229
3	2390.00	40.84	54.00	-13.16	40.60	0.24	Average	205	216
4	2390.00	54.36	74.00	-19.64	54.12	0.24	Peak	205	216
5	2483.50	43.13	54.00	-10.87	42.88	0.25	Average	205	216
6	2483.50	61.95	74.00	-12.05	61.70	0.25	Peak	205	216
7	2496.00	40.81	54.00	-13.19	40.56	0.25	Average	205	216
8	2496.00	53.84	74.00	-20.16	53.59	0.25	Peak	205	216
9	4874.00	42.81	54.00	-11.19	36.33	6.48	Average	144	0
10	4874.00	51.16	74.00	-22.84	44.68	6.48	Peak	144	0
11	7311.00	43.81	54.00	-10.19	32.05	11.76	Average	237	353
12	7311.00	56.25	74.00	-17.75	44.49	11.76	Peak	237	353
13	12185.00	48.10	54.00	-5.90	31.78	16.32	Average	100	300
14	12185.00	60.77	74.00	-13.23	44.45	16.32	Peak	100	300

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).

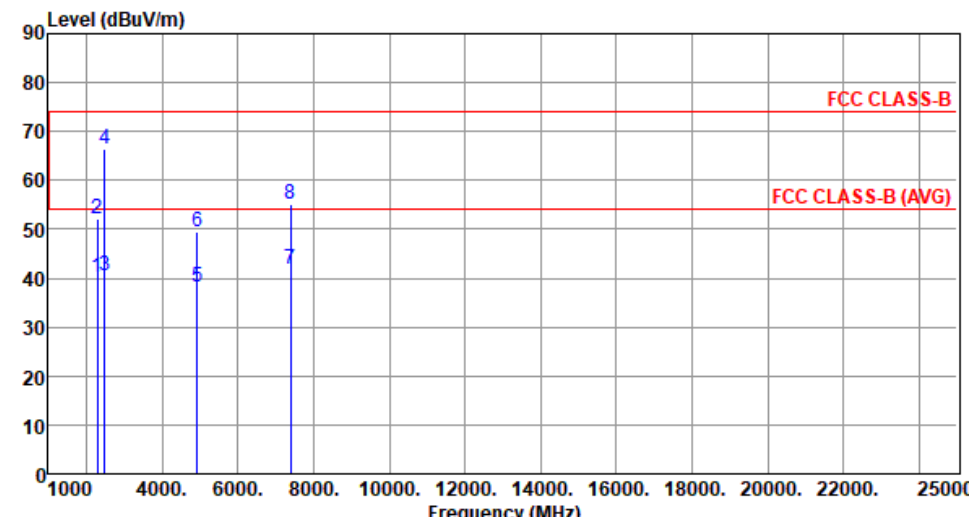
Modulation	11b	Test Freq. (MHz)	2462
Polarization	Horizontal		



	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	44.70	54.00	-9.30	44.25	0.45	Average	100	16
2	2288.00	53.69	74.00	-20.31	53.24	0.45	Peak	100	16
3	2483.50	43.42	54.00	-10.58	43.17	0.25	Average	335	356
4	2483.50	69.50	74.00	-4.50	69.25	0.25	Peak	335	356
5	4924.00	35.72	54.00	-18.28	29.21	6.51	Average	100	320
6	4924.00	49.07	74.00	-24.93	42.56	6.51	Peak	100	320
7	7386.00	41.27	54.00	-12.73	29.46	11.81	Average	100	50
8	7386.00	54.40	74.00	-19.60	42.59	11.81	Peak	100	50

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		

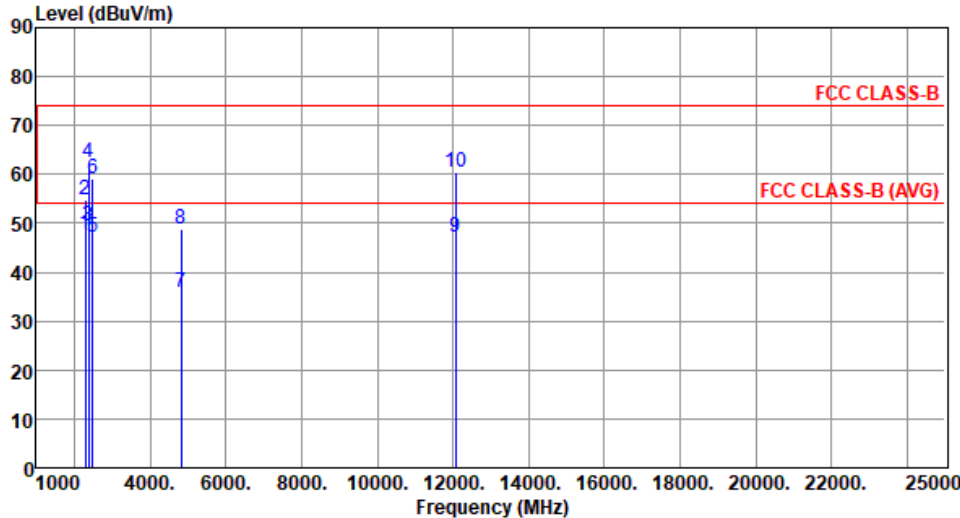


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	40.13	54.00	-13.87	39.68	0.45	Average	216	217
2	2288.00	52.01	74.00	-21.99	51.56	0.45	Peak	216	217
3	2483.50	40.47	54.00	-13.53	40.22	0.25	Average	203	217
4	2483.50	66.39	74.00	-7.61	66.14	0.25	Peak	203	217
5	4924.00	38.35	54.00	-15.65	31.84	6.51	Average	160	359
6	4924.00	49.63	74.00	-24.37	43.12	6.51	Peak	160	359
7	7386.00	41.87	54.00	-12.13	30.06	11.81	Average	100	356
8	7386.00	55.12	74.00	-18.88	43.31	11.81	Peak	100	356

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).

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

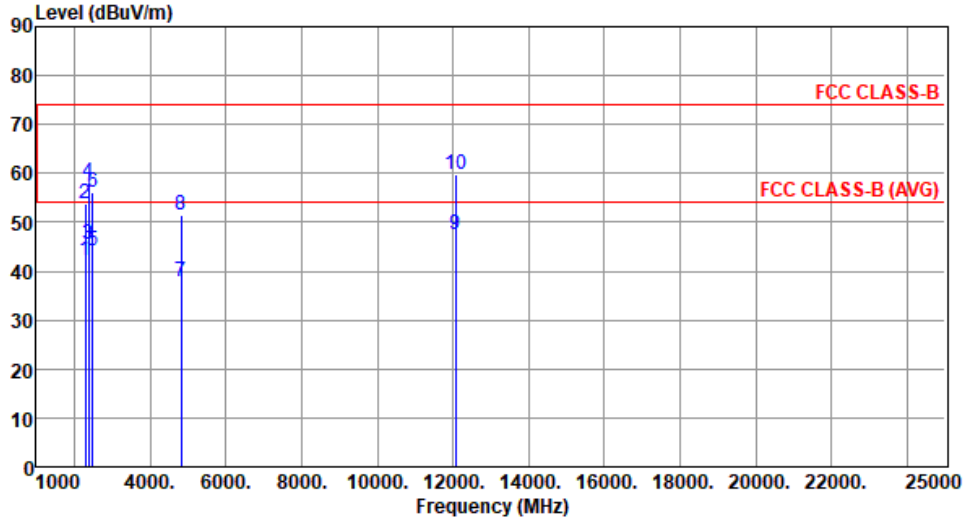
Modulation	11g	Test Freq. (MHz)	2412
Polarization	Horizontal		



	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	47.82	54.00	-6.18	47.37	0.45	Average	100	4
2	2288.00	54.86	74.00	-19.14	54.41	0.45	Peak	100	4
3	2390.00	49.59	54.00	-4.41	49.35	0.24	Average	218	1
4	2390.00	62.37	74.00	-11.63	62.13	0.24	Peak	218	1
5	2496.00	47.15	54.00	-6.85	46.90	0.25	Average	218	1
6	2496.00	59.18	74.00	-14.82	58.93	0.25	Peak	218	1
7	4824.00	35.76	54.00	-18.24	29.26	6.50	Average	100	94
8	4824.00	48.91	74.00	-25.09	42.41	6.50	Peak	100	94
9	12060.00	47.16	54.00	-6.84	30.92	16.24	Average	100	43
10	12060.00	60.32	74.00	-13.68	44.08	16.24	Peak	100	43

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).

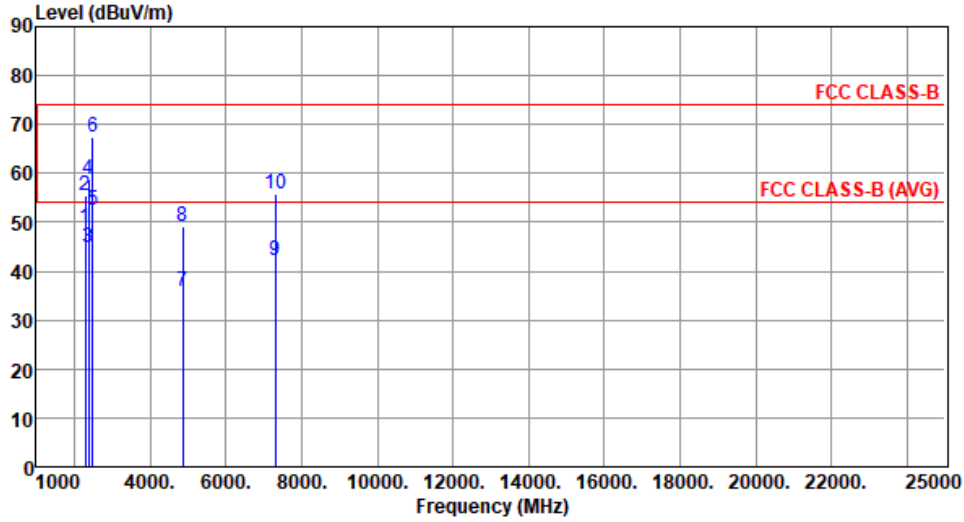
Modulation	11g	Test Freq. (MHz)	2412
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	42.04	54.00	-11.96	41.59	0.45	Average	231	292
2	2288.00	53.95	74.00	-20.05	53.50	0.45	Peak	231	292
3	2390.00	45.41	54.00	-8.59	45.17	0.24	Average	350	248
4	2390.00	58.26	74.00	-15.74	58.02	0.24	Peak	350	248
5	2496.00	44.05	54.00	-9.95	43.80	0.25	Average	350	248
6	2496.00	56.06	74.00	-17.94	55.81	0.25	Peak	350	248
7	4824.00	38.02	54.00	-15.98	31.52	6.50	Average	125	26
8	4824.00	51.34	74.00	-22.66	44.84	6.50	Peak	125	26
9	12060.00	47.42	54.00	-6.58	31.18	16.24	Average	100	35
10	12060.00	59.88	74.00	-14.12	43.64	16.24	Peak	100	35

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).

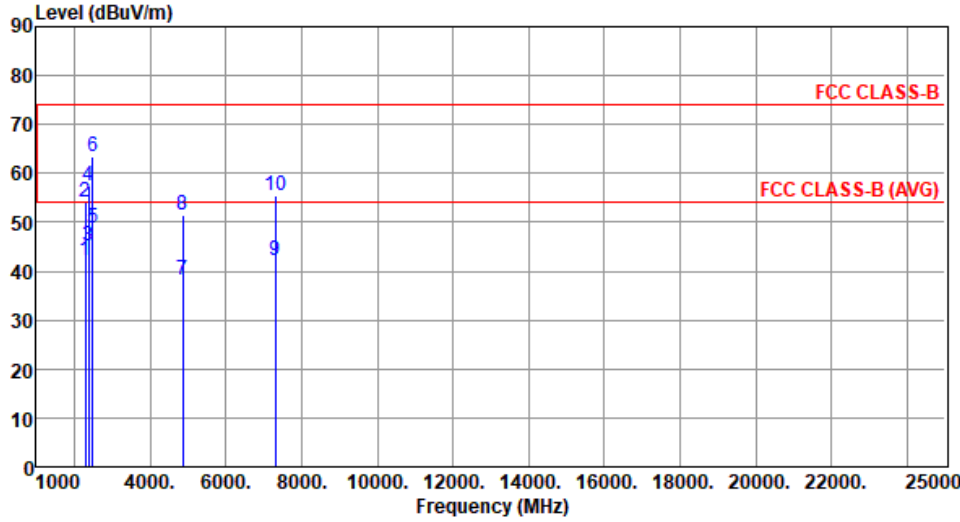
Modulation	11g	Test Freq. (MHz)	2437
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	48.95	54.00	-5.05	48.50	0.45	Average	100	1
2	2288.00	55.47	74.00	-18.53	55.02	0.45	Peak	100	1
3	2390.00	44.70	54.00	-9.30	44.46	0.24	Average	344	328
4	2390.00	58.85	74.00	-15.15	58.61	0.24	Peak	344	328
5	2483.50	52.44	54.00	-1.56	52.19	0.25	Average	333	2
6	2483.50	67.32	74.00	-6.68	67.07	0.25	Peak	333	2
7	4874.00	35.82	54.00	-18.18	29.34	6.48	Average	100	125
8	4874.00	49.03	74.00	-24.97	42.55	6.48	Peak	100	125
9	7311.00	42.16	54.00	-11.84	30.40	11.76	Average	100	25
10	7311.00	55.68	74.00	-18.32	43.92	11.76	Peak	100	25

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).

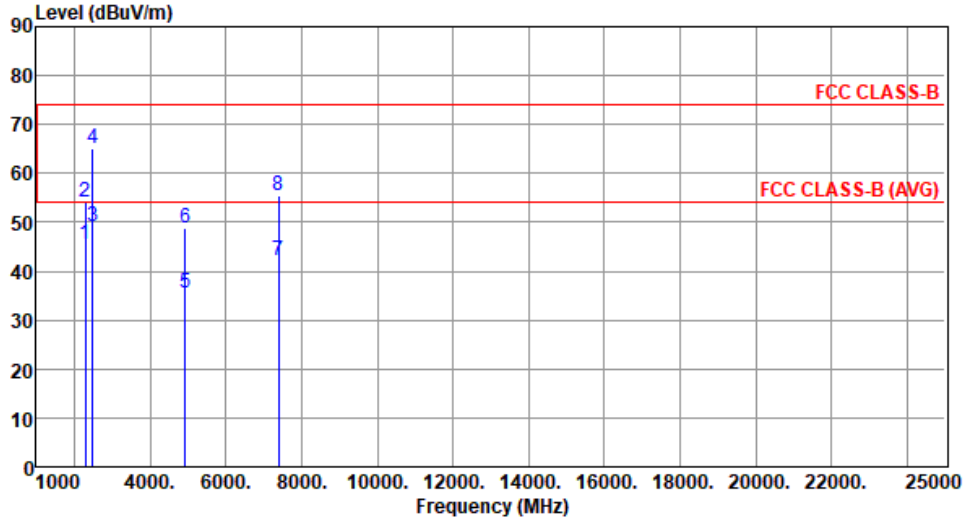
Modulation	11g	Test Freq. (MHz)	2437
Polarization	Vertical		



	Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn
	MHz	level	dBUV/m	dB	reading	dB		High	Table
		dBUV/m			dBUV			cm	deg
1	2288.00	42.14	54.00	-11.86	41.69	0.45	Average	244	286
2	2288.00	54.10	74.00	-19.90	53.65	0.45	Peak	244	286
3	2390.00	45.00	54.00	-9.00	44.76	0.24	Average	350	250
4	2390.00	57.40	74.00	-16.60	57.16	0.24	Peak	350	250
5	2483.50	48.78	54.00	-5.22	48.53	0.25	Average	350	250
6	2483.50	63.41	74.00	-10.59	63.16	0.25	Peak	350	250
7	4874.00	38.08	54.00	-15.92	31.60	6.48	Average	131	11
8	4874.00	51.37	74.00	-22.63	44.89	6.48	Peak	131	11
9	7311.00	42.09	54.00	-11.91	30.33	11.76	Average	100	19
10	7311.00	55.60	74.00	-18.40	43.84	11.76	Peak	100	19

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).

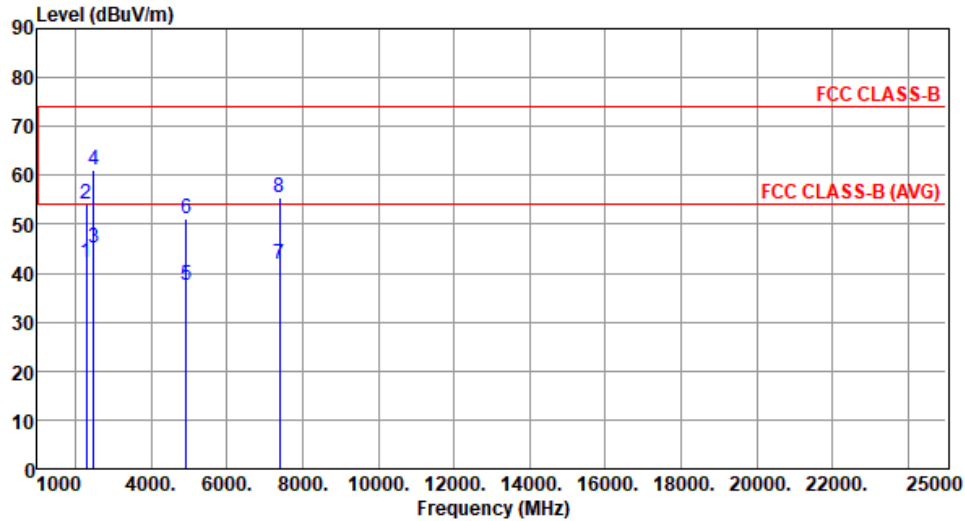
Modulation	11g	Test Freq. (MHz)	2462
Polarization	Horizontal		



	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	45.36	54.00	-8.64	44.91	0.45	Average	100	25
2	2288.00	54.02	74.00	-19.98	53.57	0.45	Peak	100	25
3	2483.50	49.28	54.00	-4.72	49.03	0.25	Average	236	2
4	2483.50	65.22	74.00	-8.78	64.97	0.25	Peak	236	2
5	4924.00	35.54	54.00	-18.46	29.03	6.51	Average	100	116
6	4924.00	48.89	74.00	-25.11	42.38	6.51	Peak	100	116
7	7386.00	42.05	54.00	-11.95	30.24	11.81	Average	100	55
8	7386.00	55.59	74.00	-18.41	43.78	11.81	Peak	100	55

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	2288.00	42.26	54.00	-11.74	41.81	0.45	Average	215	269
2	2288.00	54.28	74.00	-19.72	53.83	0.45	Peak	215	269
3	2483.50	45.16	54.00	-8.84	44.91	0.25	Average	350	246
4	2483.50	60.98	74.00	-13.02	60.73	0.25	Peak	350	246
5	4924.00	37.69	54.00	-16.31	31.18	6.51	Average	124	26
6	4924.00	51.15	74.00	-22.85	44.64	6.51	Peak	124	26
7	7386.00	41.95	54.00	-12.05	30.14	11.81	Average	100	22
8	7386.00	55.48	74.00	-18.52	43.67	11.81	Peak	100	22

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

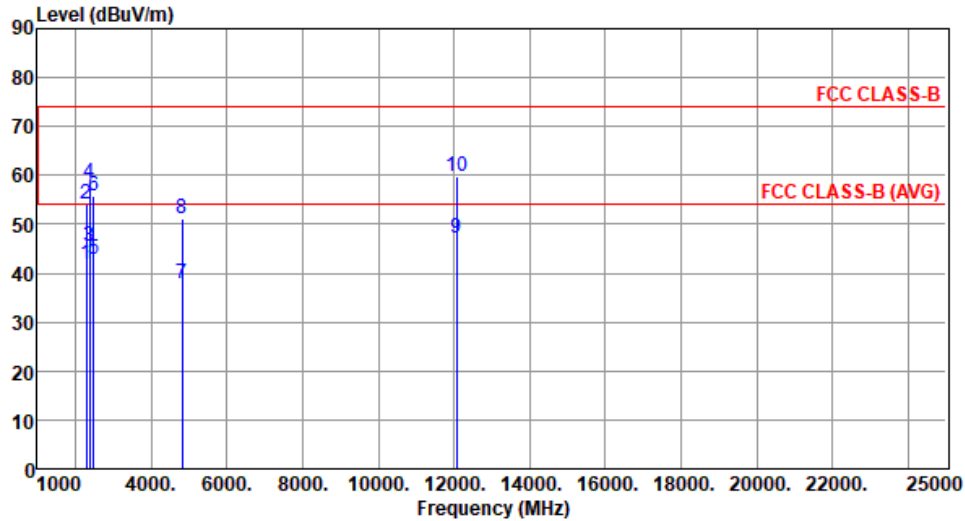
*Factor includes antenna factor , cable loss and amplifier gain

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

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

Modulation	HT20	Test Freq. (MHz)	2412
Polarization	Horizontal		
<div><div><div>Level (dBuV/m)</div><div><div><div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div>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Modulation	HT20	Test Freq. (MHz)	2412
Polarization	Vertical		



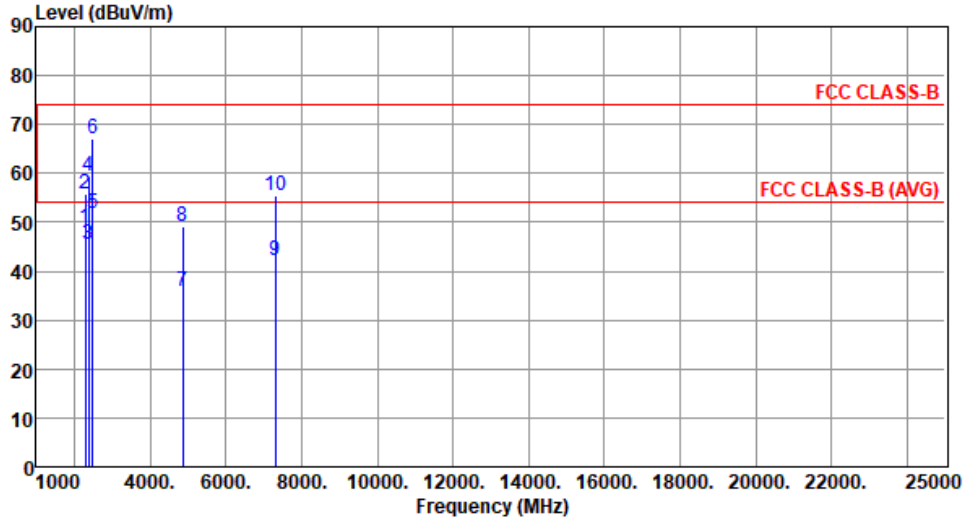
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	41.91	54.00	-12.09	41.46	0.45	Average	233	295
2	2288.00	54.01	74.00	-19.99	53.56	0.45	Peak	233	295
3	2390.00	45.45	54.00	-8.55	45.21	0.24	Average	233	295
4	2390.00	58.45	74.00	-15.55	58.21	0.24	Peak	233	295
5	2496.00	42.91	54.00	-11.09	42.66	0.25	Average	233	295
6	2496.00	55.91	74.00	-18.09	55.66	0.25	Peak	233	295
7	4824.00	37.95	54.00	-16.05	31.45	6.50	Average	125	27
8	4824.00	51.17	74.00	-22.83	44.67	6.50	Peak	125	27
9	12060.00	47.26	54.00	-6.74	31.02	16.24	Average	100	40
10	12060.00	59.78	74.00	-14.22	43.54	16.24	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).

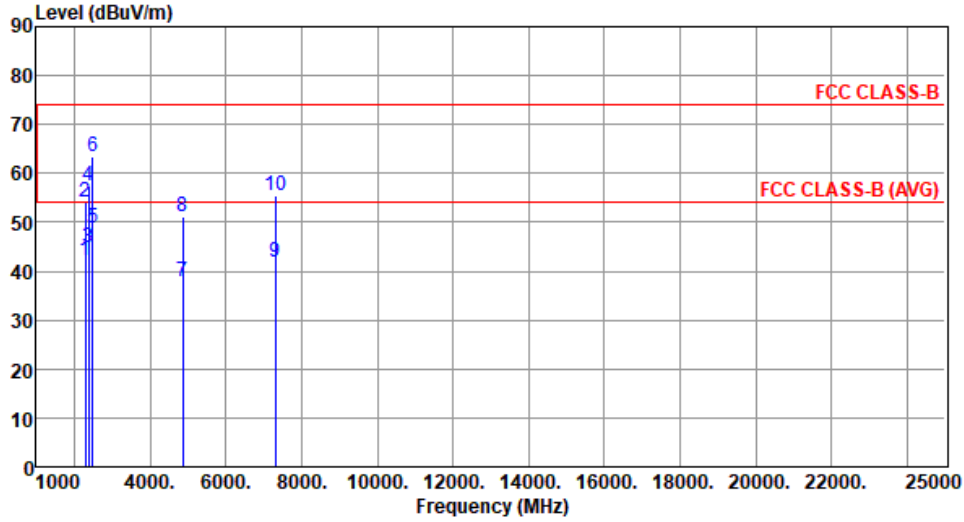
Modulation	HT20	Test Freq. (MHz)	2437
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	48.91	54.00	-5.09	48.46	0.45	Average	100	3
2	2288.00	55.65	74.00	-18.35	55.20	0.45	Peak	100	3
3	2390.00	45.62	54.00	-8.38	45.38	0.24	Average	349	3
4	2390.00	59.50	74.00	-14.50	59.26	0.24	Peak	349	3
5	2483.50	51.89	54.00	-2.11	51.64	0.25	Average	333	3
6	2483.50	67.22	74.00	-6.78	66.97	0.25	Peak	333	3
7	4874.00	35.73	54.00	-18.27	29.25	6.48	Average	100	126
8	4874.00	49.09	74.00	-24.91	42.61	6.48	Peak	100	126
9	7311.00	42.10	54.00	-11.90	30.34	11.76	Average	100	30
10	7311.00	55.60	74.00	-18.40	43.84	11.76	Peak	100	30

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).

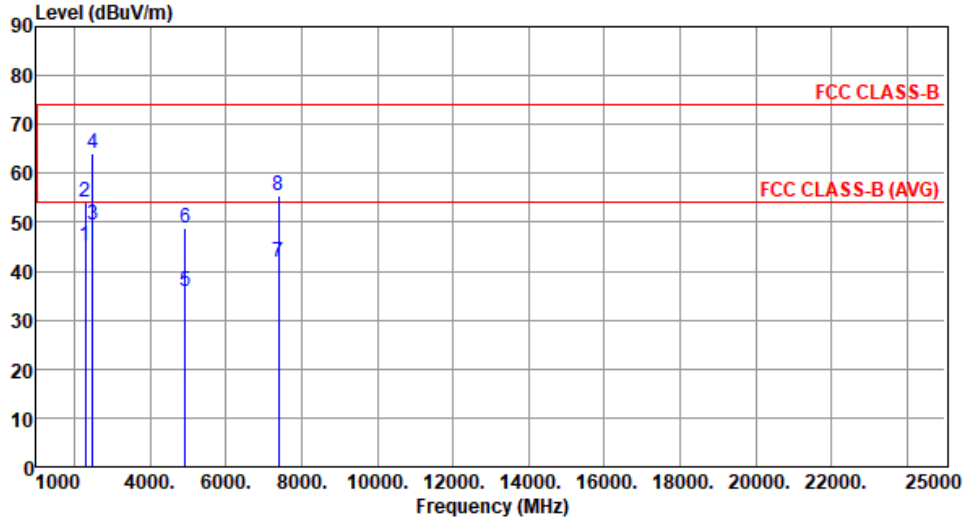
Modulation	HT20	Test Freq. (MHz)	2437
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	42.03	54.00	-11.97	41.58	0.45	Average	245	250
2	2288.00	54.01	74.00	-19.99	53.56	0.45	Peak	245	250
3	2390.00	44.89	54.00	-9.11	44.65	0.24	Average	344	246
4	2390.00	57.50	74.00	-16.50	57.26	0.24	Peak	344	246
5	2483.50	48.67	54.00	-5.33	48.42	0.25	Average	344	246
6	2483.50	63.55	74.00	-10.45	63.30	0.25	Peak	344	246
7	4874.00	38.01	54.00	-15.99	31.53	6.48	Average	126	12
8	4874.00	51.14	74.00	-22.86	44.66	6.48	Peak	126	12
9	7311.00	42.00	54.00	-12.00	30.24	11.76	Average	100	20
10	7311.00	55.31	74.00	-18.69	43.55	11.76	Peak	100	20

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).

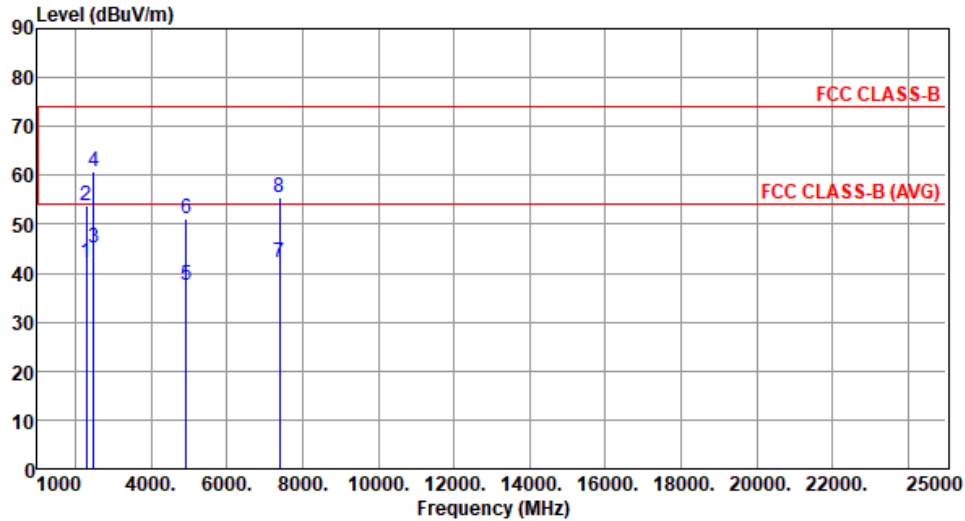
Modulation	HT20	Test Freq. (MHz)	2462
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2288.00	45.30	54.00	-8.70	44.85	0.45	Average	100	15
2	2288.00	54.06	74.00	-19.94	53.61	0.45	Peak	100	15
3	2483.50	49.64	54.00	-4.36	49.39	0.25	Average	234	4
4	2483.50	64.24	74.00	-9.76	63.99	0.25	Peak	234	4
5	4924.00	35.72	54.00	-18.28	29.21	6.51	Average	100	50
6	4924.00	48.97	74.00	-25.03	42.46	6.51	Peak	100	50
7	7386.00	41.94	54.00	-12.06	30.13	11.81	Average	100	40
8	7386.00	55.46	74.00	-18.54	43.65	11.81	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	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	2288.00	42.10	54.00	-11.90	41.65	0.45	Average	216	267
2	2288.00	53.91	74.00	-20.09	53.46	0.45	Peak	216	267
3	2483.50	45.14	54.00	-8.86	44.89	0.25	Average	344	248
4	2483.50	60.91	74.00	-13.09	60.66	0.25	Peak	344	248
5	4924.00	37.66	54.00	-16.34	31.15	6.51	Average	125	30
6	4924.00	51.07	74.00	-22.93	44.56	6.51	Peak	125	30
7	7386.00	42.03	54.00	-11.97	30.22	11.81	Average	100	50
8	7386.00	55.40	74.00	-18.60	43.59	11.81	Peak	100	50

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

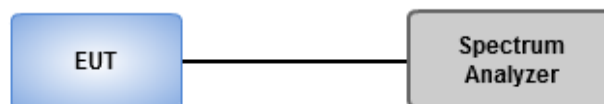
Reference level measurement

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

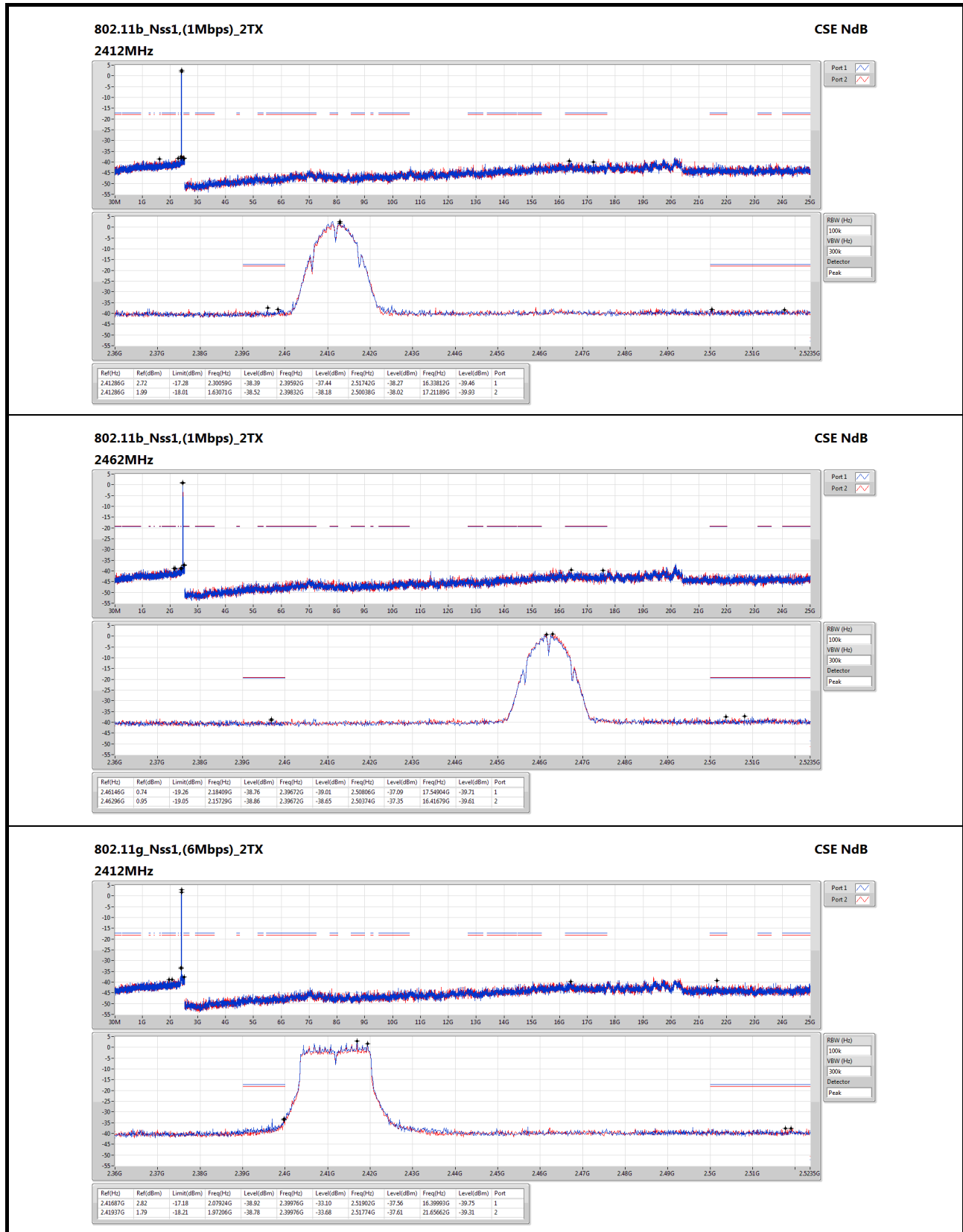
Emission level measurement

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



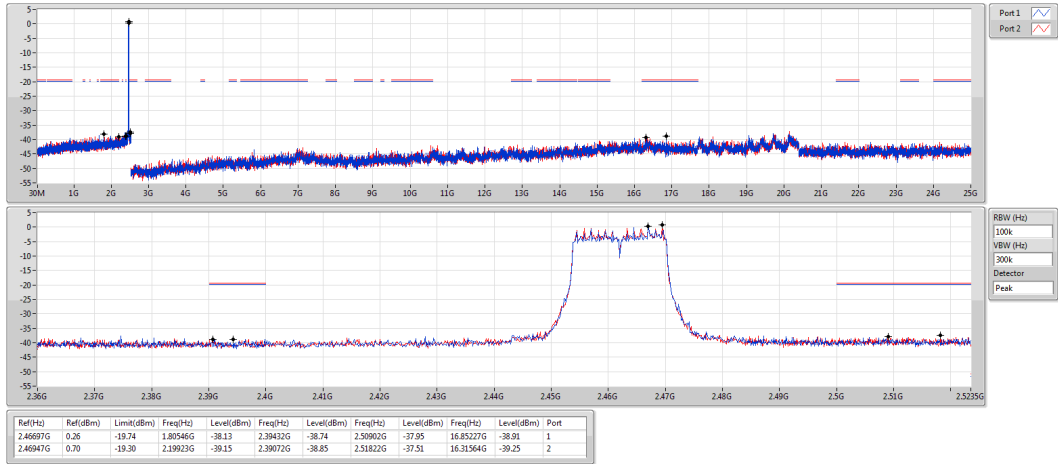
3.6.4 Unwanted Emissions into Non-Restricted Frequency Bands



802.11g_Nss1,(6Mbps)_2TX

CSE NdB

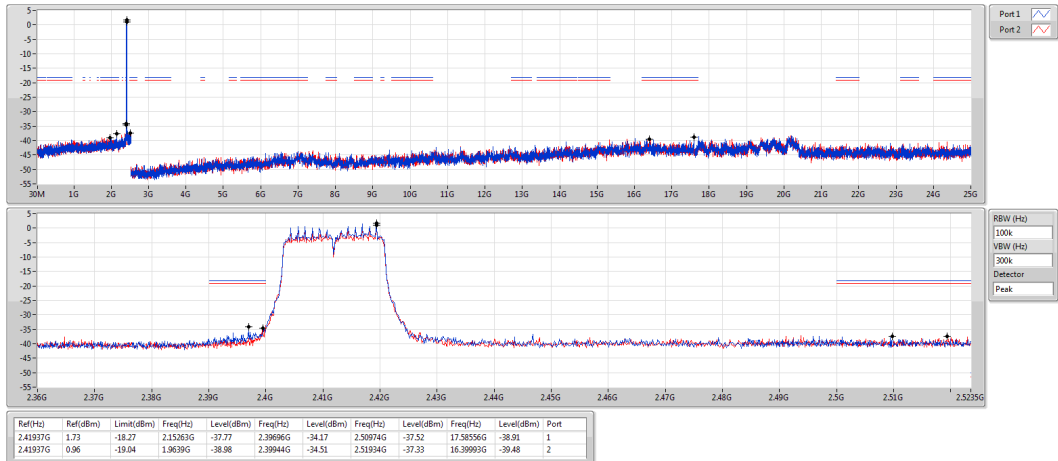
2462MHz



802.11n HT20_Nss1,(MCS0)_2TX

CSE NdB

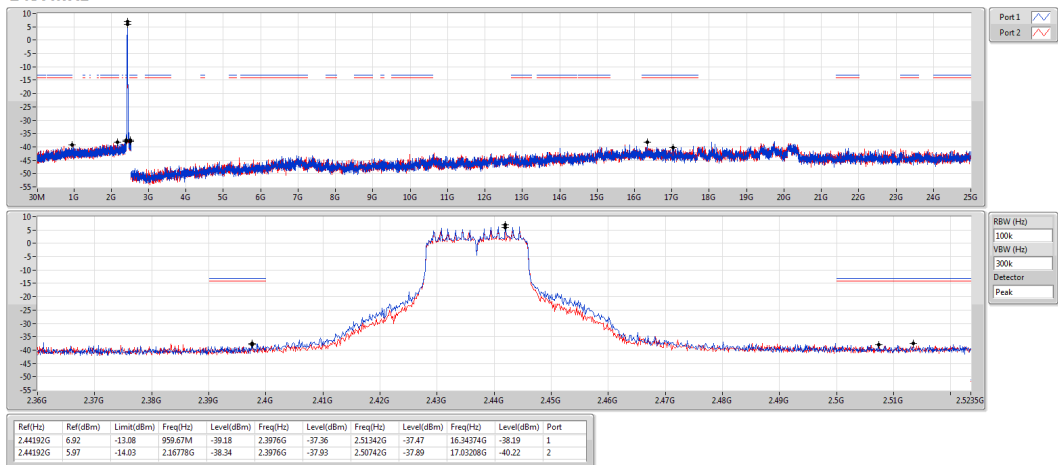
2412MHz



802.11n HT20_Nss1,(MCS0)_2TX

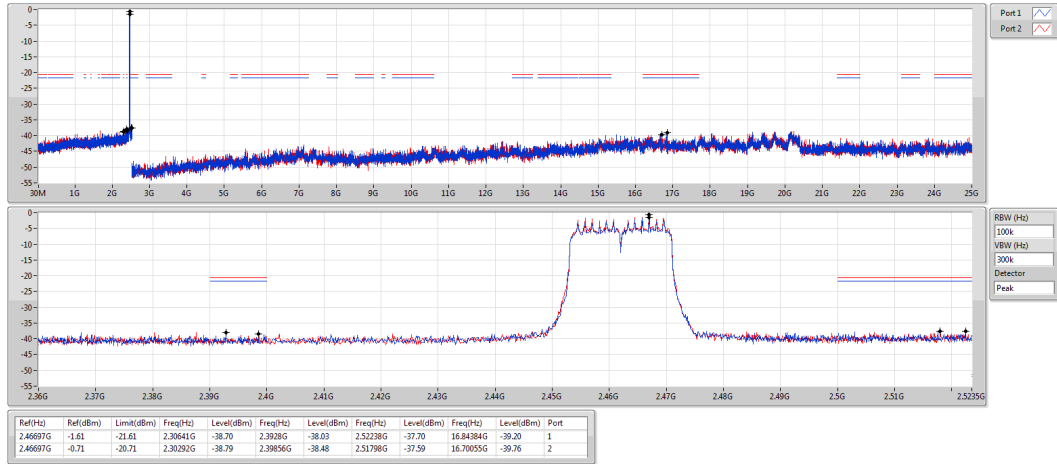
CSE NdB

2437MHz



802.11n HT20_Nss1,(MCS0)_2TX
2462MHz

CSE NdB



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

Tel: 886-2-2601-1640

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

Kwei Shan

Tel: 886-3-271-8666

No. 3-1, Lane 6, Wen San 3rd St.,
Kwei Shan District, Tao Yuan City
333, Taiwan, R.O.C.

Kwei Shan Site II

Tel: 886-3-271-8640

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.

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==END==