FCC C2PC Test Report

FCC ID	:	**TLZ-NM230NF**
Equipment	:	**IEEE 802.11 b/g/n Wireless LAN and Bluetooth combo M.2 1216 module**
Model No.	:	**AW-NM230NF-H**
Brand Name	:	**AzureWave**
Applicant	:	**AzureWave Technologies, Inc.**
Address	:	**8F, No. 94, Baozhong Rd., Xindian Dist., New Taipei City, Taiwan 231**
Standard	:	**47 CFR FCC Part 15.247**
Received Date	:	**Jul. 21, 2017**
Tested Date	:	**Jul. 31 ~ Aug. 09, 2017**

We, International Certification Corp., would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It may be duplicated completely for legal use with the approval of the applicant. It shall not be reproduced except in full without the written approval of our laboratory.

Reviewed by: **Approved by:**

Along Chen / Assistant Manager **Gary Chang / Manager**

Testing Laboratory 2732

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Release Record

Report No.	Version	Description	Issued Date
FR550703-05AC	Rev. 01	Initial issue	Aug. 18, 2017

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	[dBuV]: 0.523MHz 36.92 (Margin -19.08dB) - QP	Pass
15.247(d) 15.209	Radiated Emissions	[dBuV/m at 3m]: 2390.00MHz 53.43 (Margin -0.57dB) - AV	Pass

1 General Description

1.1 Information

This report is prepared for FCC class II change.
This report is issued as a supplementary report to original ICC report no. FR550703AC. The modification is concerned with additional Monopole antennas. In this report, conducted emission and radiated emission tests had been re-tested and only its data was presented 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	1-11 Mbps
2400-2483.5	g	2412-2462	1-11 [11]	1	6-54 Mbps
2400-2483.5	n (HT20)	2412-2462	1-11 [11]	1	MCS 0-7
Note 1: RF output power specifies that Maximum Peak Conducted Output Power. Note 2: 802.11b uses a combination of DSSS-DBPSK, DQPSK, CCK modulation. Note 3: 802.11g/n uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.					

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

Ant. No.	Brand	Model	Type	Connector	Gain (dBi)
1	Walsin	RFMTA340715IMLB301	PIFA	I-PEX	3
2	**JOYMAX**	**IHX-323XRSXX-999**	**Monopole**	**I-Pex**	**2.36**

1.1.3 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	3.3Vdc from host

1.1.4 Accessories

N/A

1.1.5 Channel List

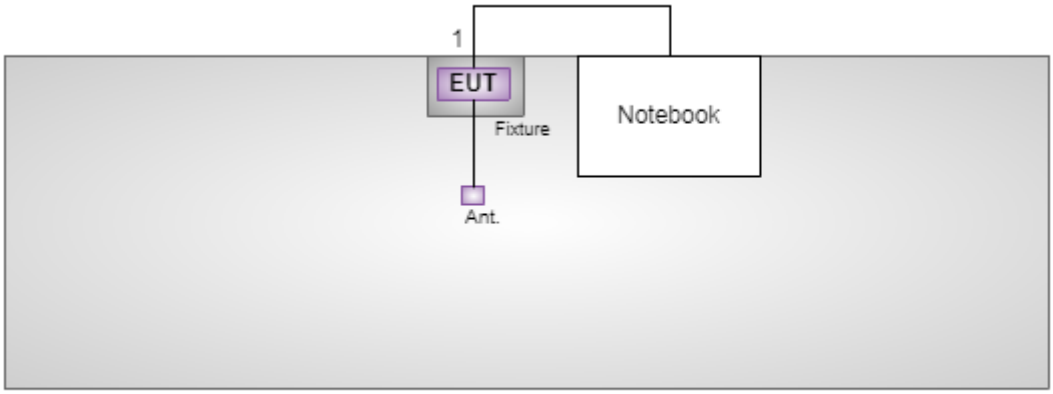
Channel	Frequency(MHz)
1	2412
2	2417
3	2422
4	2427
5	2432
6	2437
7	2442
8	2447
9	2452
10	2457
11	2462

1.2 Local Support Equipment List

Support Equipment List					
No.	**Equipment**	**Brand**	**Model**	**FCC ID**	**Signal cable / Length (m)**
1	Notebook	DELL	Latitude E5420	DoC	USB, 1m non-shielded.

1.3 Test Setup Chart

Test Setup Diagram



1. USB, 1m non-shielded.

1.4 The Equipment List

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Receiver	R&S	ESR3	101657	Dec. 21, 2016	Dec. 20, 2017
LISN	SCHWARZBECK	Schwarzbeck 8127	8127-667	Nov. 08, 2016	Nov. 07, 2017
RF Cable-CON	EMC	EMCCFD300-BM-BM-6000	50821	Dec. 20, 2016	Dec. 19, 2017
Measurement Software	AUDIX	e3	6.120210k	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	Radiated Emission				
Test Site	966 chamber1 / (03CH01-WS)				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101498	Nov. 25, 2016	Nov. 24, 2017
Receiver	R&S	ESR3	101658	Nov. 24, 2016	Nov. 23, 2017
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Jul. 25, 2017	Jul. 24, 2018
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1096	Dec. 21, 2016	Dec. 20, 2017
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Oct. 25, 2016	Oct. 24, 2017
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 10, 2016	Nov. 09, 2017
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Dec. 09, 2016	Dec. 08, 2017
Preamplifier	EMC	EMC02325	980225	Jul. 28, 2017	Jul. 27, 2018
Preamplifier	Agilent	83017A	MY39501308	Oct. 06, 2016	Oct. 05, 2017
Preamplifier	EMC	EMC184045B	980192	Aug. 24, 2016	Aug. 23, 2017
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16014/4	Dec. 09, 2016	Dec. 08, 2017
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16019/4	Dec. 09, 2016	Dec. 08, 2017
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16139/4	Dec. 09, 2016	Dec. 08, 2017
LF cable 1M	EMC	EMCCFD400-NM-NM-1000	16052	Dec. 09, 2016	Dec. 08, 2017
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-001	Dec. 09, 2016	Dec. 08, 2017
LF cable 10M	Woken	CFD400NL-LW	CFD400NL-002	Dec. 09, 2016	Dec. 08, 2017
Measurement Software	AUDIX	e3	6.120210g	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

1.5 Test Standards

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

47 CFR FCC Part 15.247
ANSI C63.10-2013
FCC KDB 558074 D01 DTS Meas Guidance v04

1.6 Measurement Uncertainty

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

Measurement Uncertainty	
Parameters	**Uncertainty**
AC conducted emission	±2.90 dB
Radiated emission ≤ 1GHz	±3.66 dB
Radiated emission > 1GHz	±5.63 dB

2 Test Configuration

2.1 Testing Condition

Test Item	Test Site	Ambient Condition	Tested By
AC Conduction	CO01-WS	20°C / 57%	Alex Tsai
Radiated Emissions	03CH01-WS	23°C / 64%	Vincent Yeh

- FCC Designation No.: TW2732
- FCC site registration No.: 181692
- IC site registration No.: 10807A-1

2.2 The Worst Test Modes and Channel Details

Test item	Modulation Mode	Test Frequency (MHz)	Data Rate	Test Configuration
Conducted Emissions	11g	2437	6 Mbps	---
Radiated Emissions ≤1GHz	11g	2437	6 Mbps	---
Radiated Emissions >1GHz	11b 11g HT20	2412 / 2437 / 2462 2412 / 2437 / 2462 2412 / 2437 / 2462	1 Mbps 6 Mbps MCS 0	---
NOTE: 1. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The **Y-plane** results were found as the worst case and were shown in this report.				

3 Transmitter Test Results

3.1 Conducted Emissions

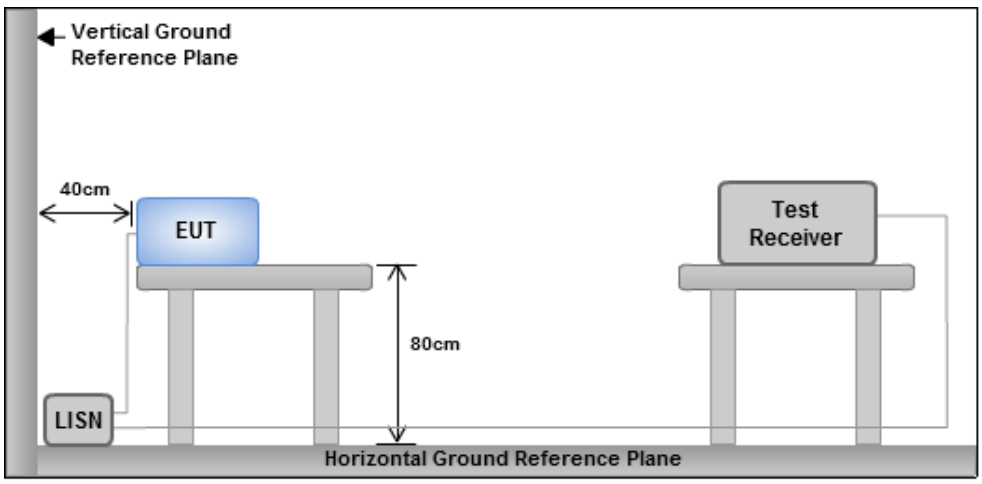
3.1.1 Limit of Conducted Emissions

Conducted Emissions Limit		
Frequency Emission (MHz)	**Quasi-Peak**	**Average**
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50
Note 1: * Decreases with the logarithm of the frequency.		

3.1.2 Test Procedures

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

3.1.3 Test Setup

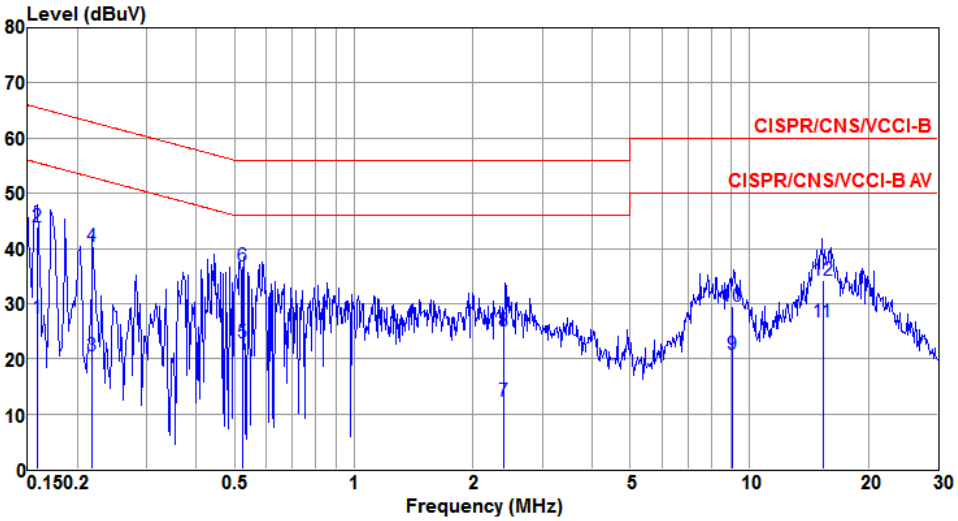


Note: 1. Support units were connected to second LISN.

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

3.1.4 Test Result of Conducted Emissions

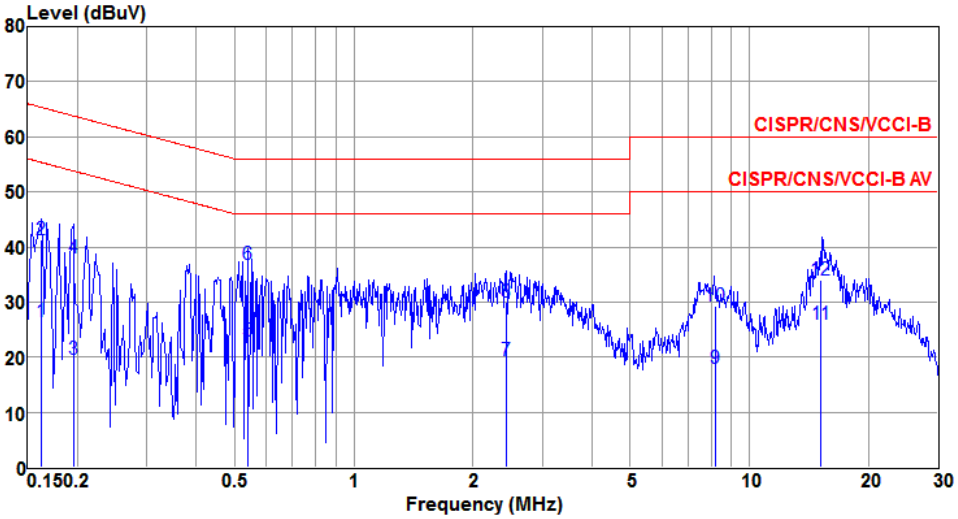
Modulation	11g	Test Freq. (MHz)	2437
Power Phase	Line		



	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.159	27.39	55.52	-28.13	27.27	0.08	0.04	Average
2	0.159	43.86	65.52	-21.66	43.74	0.08	0.04	QP
3	0.219	20.50	52.88	-32.38	20.37	0.09	0.04	Average
4	0.219	40.38	62.88	-22.50	40.25	0.09	0.04	QP
5	0.523	22.99	46.00	-23.01	22.89	0.06	0.04	Average
6@	0.523	36.92	56.00	-19.08	36.82	0.06	0.04	QP
7	2.395	12.23	46.00	-33.77	12.02	0.14	0.07	Average
8	2.395	25.09	56.00	-30.91	24.88	0.14	0.07	QP
9	9.088	20.67	50.00	-29.33	20.26	0.20	0.21	Average
10	9.088	29.42	60.00	-30.58	29.01	0.20	0.21	QP
11	15.333	26.56	50.00	-23.44	26.01	0.32	0.23	Average
12	15.333	34.19	60.00	-25.81	33.64	0.32	0.23	QP

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

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



	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.162	26.51	55.34	-28.83	26.37	0.10	0.04	Average
2	0.162	41.32	65.34	-24.02	41.18	0.10	0.04	QP
3	0.195	19.62	53.80	-34.18	19.49	0.09	0.04	Average
4	0.195	37.95	63.80	-25.85	37.82	0.09	0.04	QP
5	0.538	22.81	46.00	-23.19	22.65	0.12	0.04	Average
6@	0.538	36.74	56.00	-19.26	36.58	0.12	0.04	QP
7	2.435	19.38	46.00	-26.62	19.16	0.15	0.07	Average
8	2.435	29.88	56.00	-26.12	29.66	0.15	0.07	QP
9	8.190	18.06	50.00	-31.94	17.58	0.27	0.21	Average
10	8.190	29.22	60.00	-30.78	28.74	0.27	0.21	QP
11	15.185	25.90	50.00	-24.10	25.30	0.37	0.23	Average
12	15.185	34.00	60.00	-26.00	33.40	0.37	0.23	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 Unwanted Emissions into Restricted Frequency Bands

3.2.1 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.

3.2.2 Test Procedures

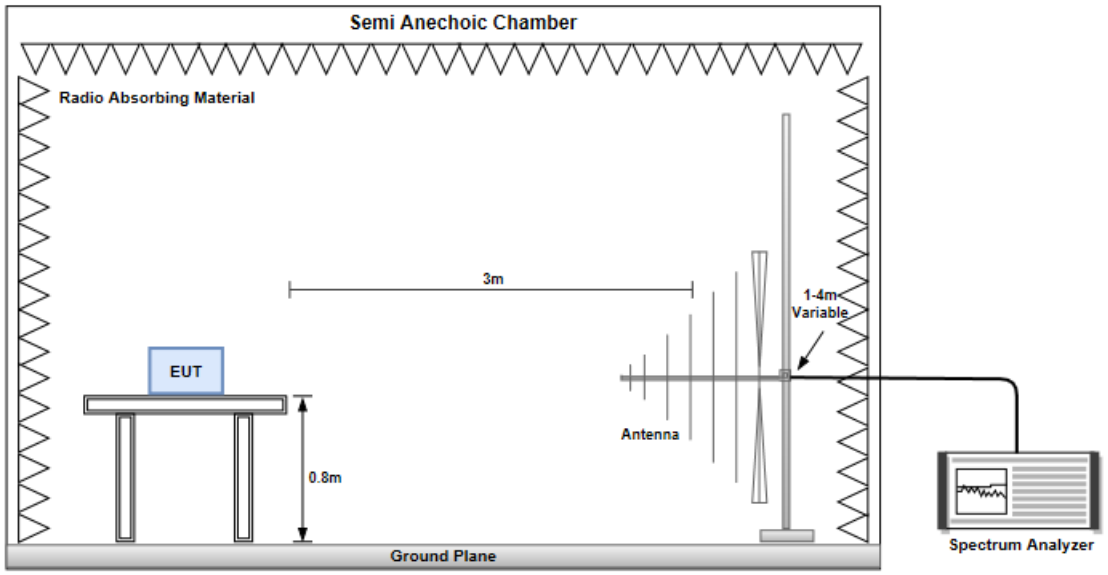
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission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

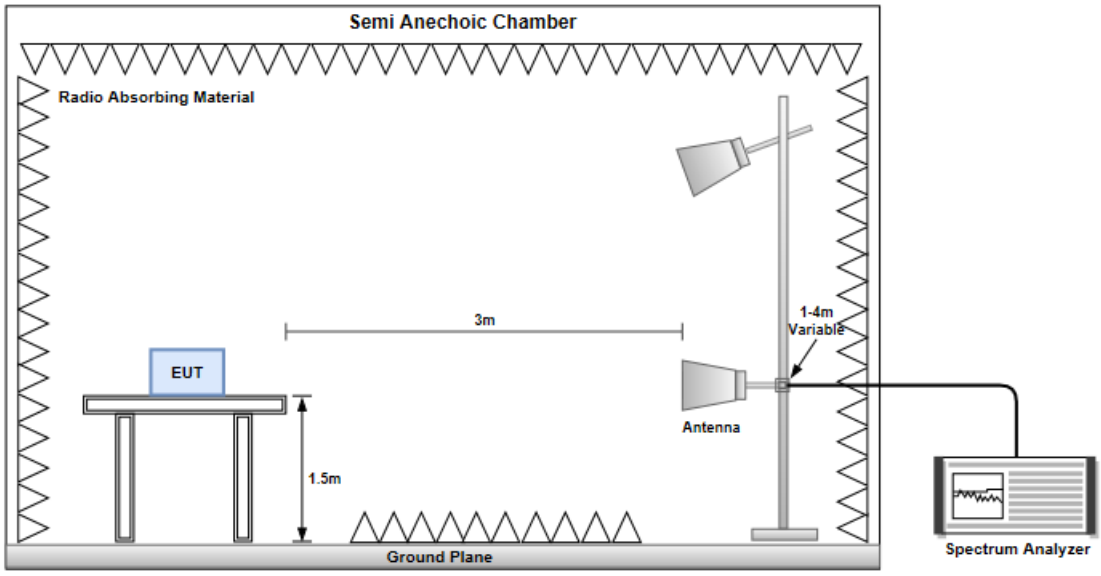
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above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

3.2.3 Test Setup

Radiated Emissions below 1 GHz

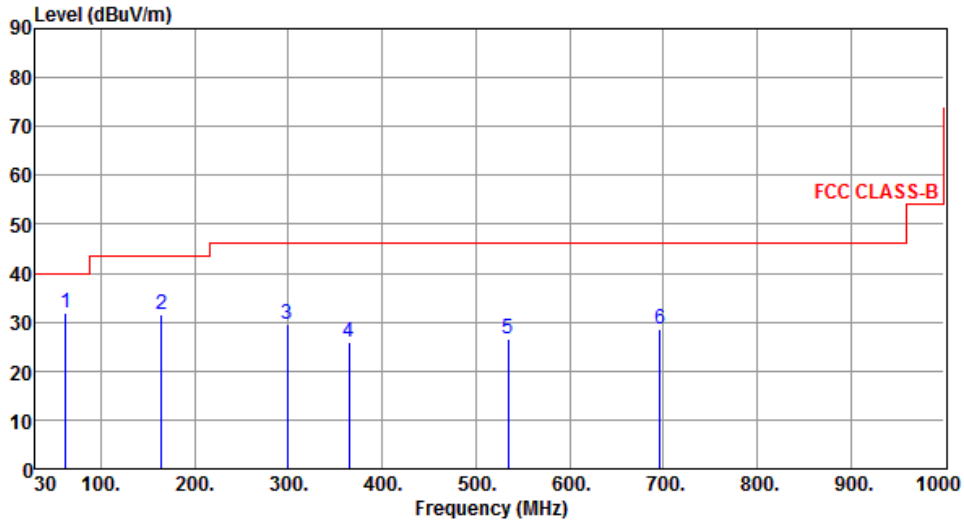


Radiated Emissions above 1 GHz



3.2.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)

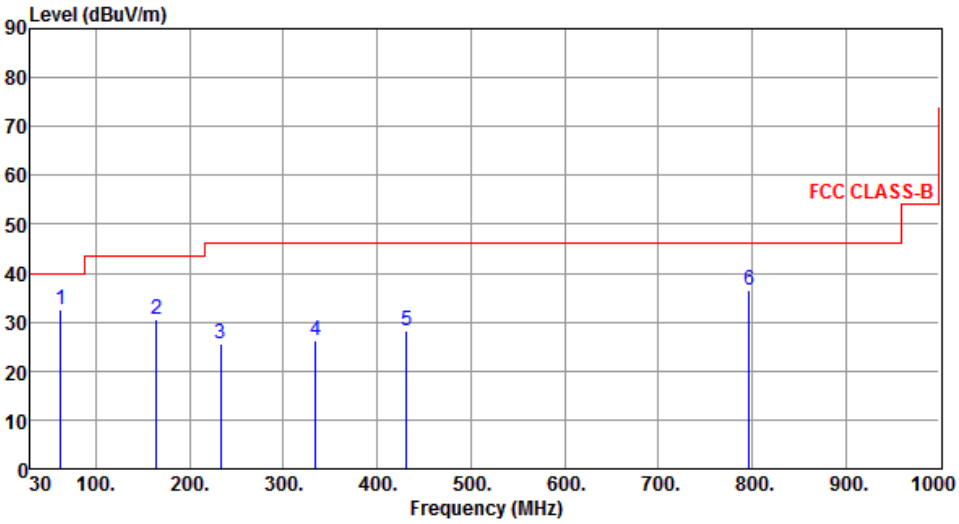
Modulation	11g	Test Freq. (MHz)	2437
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	62.01	31.72	40.00	-8.28	40.78	-9.06	Peak	---	---
2	164.83	31.56	43.50	-11.94	39.85	-8.29	Peak	---	---
3	298.69	29.67	46.00	-16.33	37.39	-7.72	Peak	---	---
4	364.65	25.98	46.00	-20.02	32.10	-6.12	Peak	---	---
5	534.40	26.52	46.00	-19.48	29.01	-2.49	Peak	---	---
6	696.39	28.48	46.00	-17.52	28.15	0.33	Peak	---	---

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

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

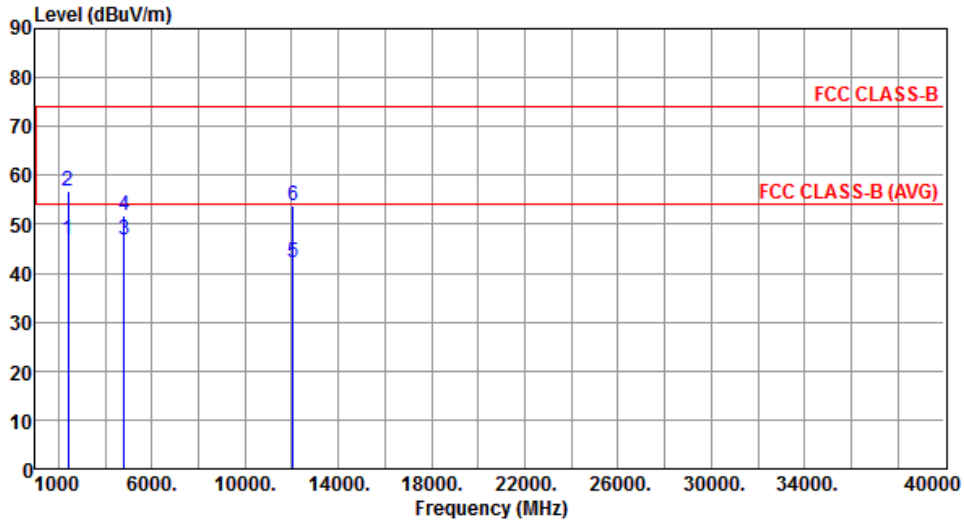


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	62.01	32.46	40.00	-7.54	41.52	-9.06	Peak	---	---
2	164.83	30.70	43.50	-12.80	38.99	-8.29	Peak	---	---
3	232.73	25.45	46.00	-20.55	35.47	-10.02	Peak	---	---
4	334.58	26.24	46.00	-19.76	33.14	-6.90	Peak	---	---
5	431.58	28.22	46.00	-17.78	32.53	-4.31	Peak	---	---
6	797.27	36.51	46.00	-9.49	34.38	2.13	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.

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

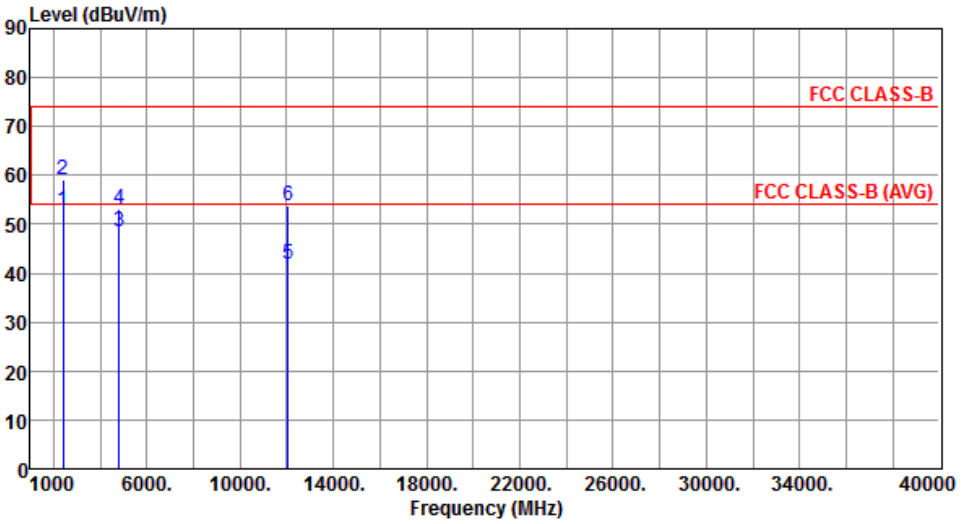
Modulation	11b	Test Freq. (MHz)	2412
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	46.79	54.00	-7.21	49.97	-3.18	Average	100	127
2	2390.00	56.88	74.00	-17.12	60.06	-3.18	Peak	100	127
3	4824.00	46.87	54.00	-7.13	43.09	3.78	Average	204	61
4	4824.00	51.79	74.00	-22.21	48.01	3.78	Peak	204	61
5	12060.00	42.08	54.00	-11.92	28.50	13.58	Average	100	165
6	12060.00	53.96	74.00	-20.04	40.38	13.58	Peak	100	165

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

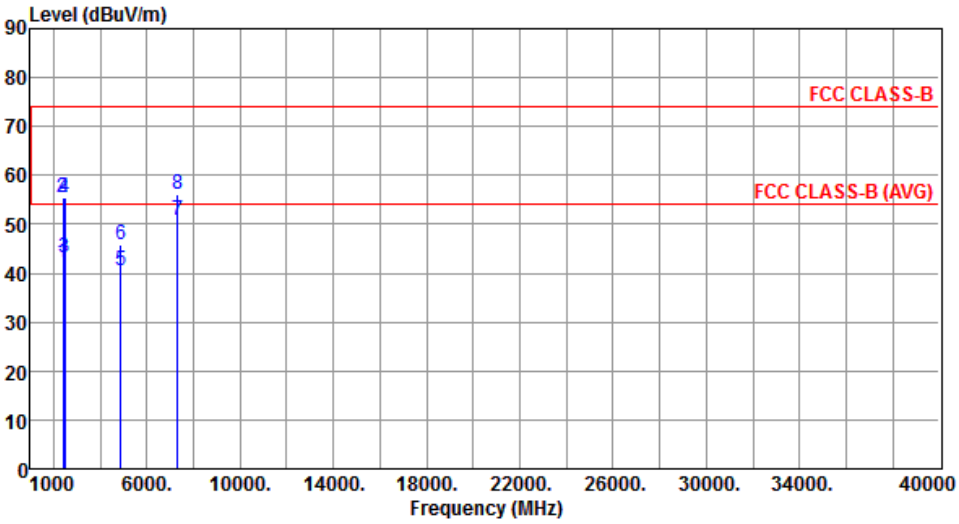
Modulation	11b	Test Freq. (MHz)	2412
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	52.73	54.00	-1.27	55.91	-3.18	Average	100	346
2	2390.00	59.07	74.00	-14.93	62.25	-3.18	Peak	100	346
3	4824.00	48.61	54.00	-5.39	44.83	3.78	Average	316	91
4	4824.00	53.06	74.00	-20.94	49.28	3.78	Peak	316	91
5	12060.00	41.90	54.00	-12.10	28.32	13.58	Average	100	111
6	12060.00	53.83	74.00	-20.17	40.25	13.58	Peak	100	111

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

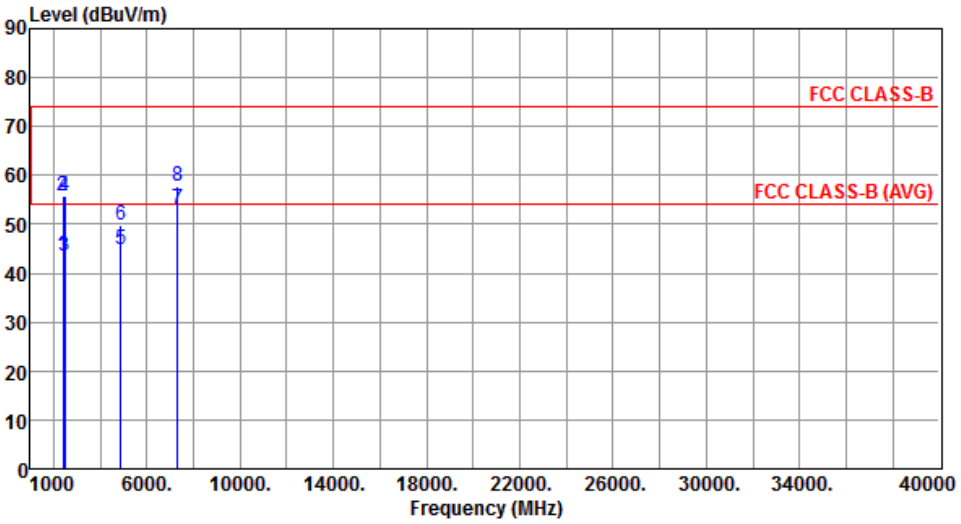
Modulation	11b	Test Freq. (MHz)	2437
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	42.33	54.00	-11.67	45.51	-3.18	Average	100	126
2	2390.00	55.50	74.00	-18.50	58.68	-3.18	Peak	100	126
3	2483.50	43.10	54.00	-10.90	45.90	-2.80	Average	100	126
4	2483.50	55.42	74.00	-18.58	58.22	-2.80	Peak	100	126
5	4874.00	40.54	54.00	-13.46	36.60	3.94	Average	267	51
6	4874.00	45.90	74.00	-28.10	41.96	3.94	Peak	267	51
7	7311.00	50.79	54.00	-3.21	42.38	8.41	Average	160	282
8	7311.00	56.25	74.00	-17.75	47.84	8.41	Peak	160	282

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

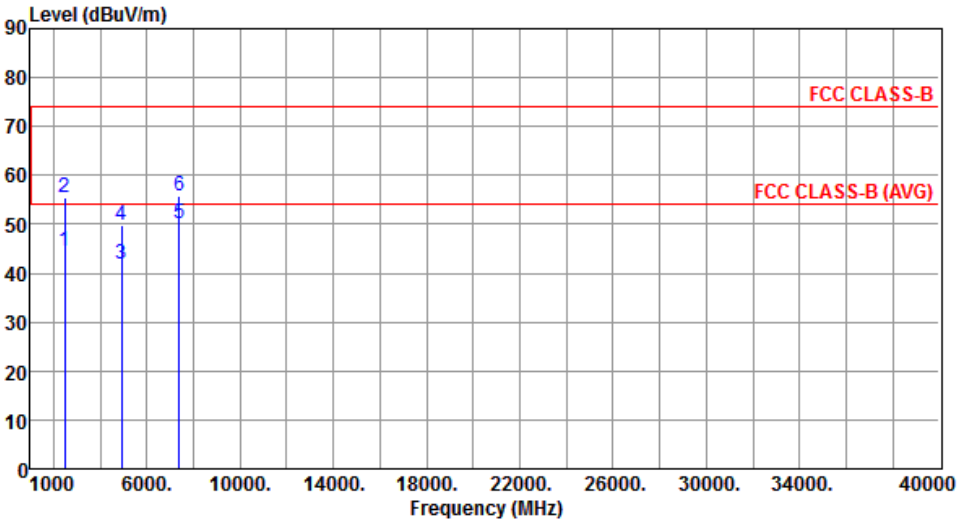
Modulation	11b	Test Freq. (MHz)	2437
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	43.55	54.00	-10.45	46.73	-3.18	Average	100	1
2	2390.00	55.85	74.00	-18.15	59.03	-3.18	Peak	100	1
3	2483.50	43.53	54.00	-10.47	46.33	-2.80	Average	100	1
4	2483.50	55.81	74.00	-18.19	58.61	-2.80	Peak	100	1
5	4874.00	44.85	54.00	-9.15	40.91	3.94	Average	335	129
6	4874.00	49.87	74.00	-24.13	45.93	3.94	Peak	335	129
7	7311.00	52.99	54.00	-1.01	44.58	8.41	Average	320	355
8	7311.00	57.72	74.00	-16.28	49.31	8.41	Peak	320	355

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).

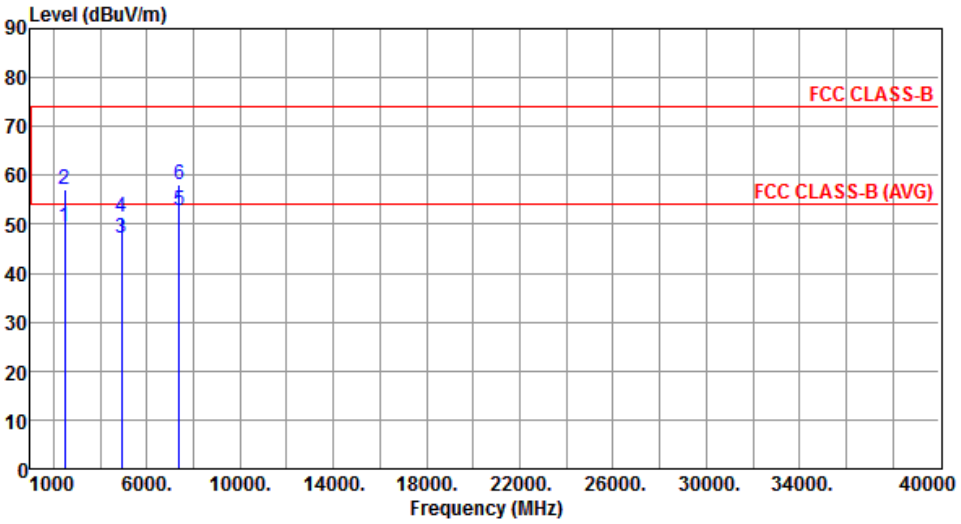
Modulation	11b	Test Freq. (MHz)	2462
Polarization	Horizontal		



	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	44.45	54.00	-9.55	47.25	-2.80	Average	100	138
2	2483.50	55.52	74.00	-18.48	58.32	-2.80	Peak	100	138
3	4924.00	41.98	54.00	-12.02	37.88	4.10	Average	193	23
4	4924.00	49.68	74.00	-24.32	45.58	4.10	Peak	193	23
5	7386.00	50.02	54.00	-3.98	41.58	8.44	Average	100	339
6	7386.00	55.76	74.00	-18.24	47.32	8.44	Peak	100	339

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		

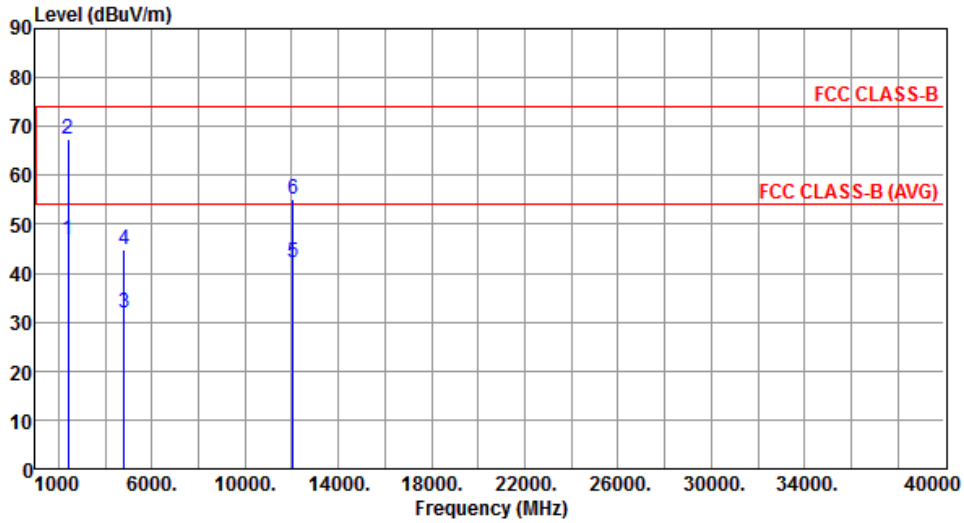


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	49.45	54.00	-4.55	52.25	-2.80	Average	100	321
2	2483.50	57.24	74.00	-16.76	60.04	-2.80	Peak	100	321
3	4924.00	47.22	54.00	-6.78	43.12	4.10	Average	321	106
4	4924.00	51.51	74.00	-22.49	47.41	4.10	Peak	321	106
5	7386.00	52.79	54.00	-1.21	44.35	8.44	Average	318	4
6	7386.00	58.12	74.00	-15.88	49.68	8.44	Peak	318	4

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).

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

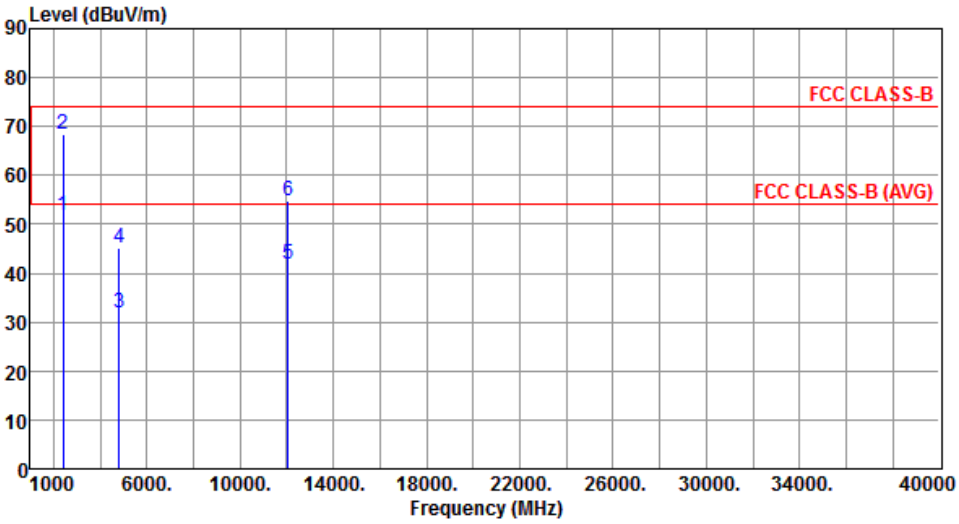
Modulation	11g	Test Freq. (MHz)	2412
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	46.94	54.00	-7.06	50.12	-3.18	Average	100	128
2	2390.00	67.25	74.00	-6.75	70.43	-3.18	Peak	100	128
3	4824.00	32.01	54.00	-21.99	28.23	3.78	Average	100	165
4	4824.00	44.81	74.00	-29.19	41.03	3.78	Peak	100	165
5	12060.00	42.21	54.00	-11.79	28.63	13.58	Average	100	196
6	12060.00	54.96	74.00	-19.04	41.38	13.58	Peak	100	196

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

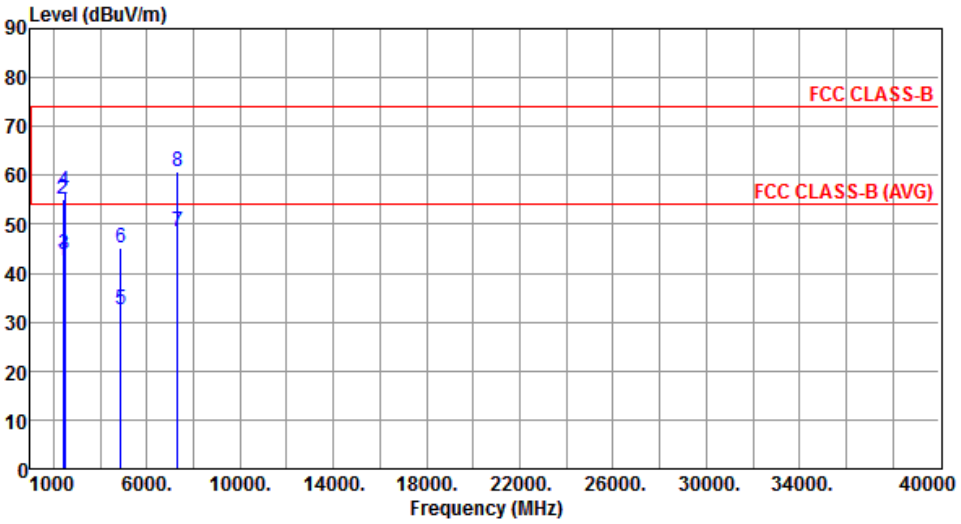
Modulation	11g	Test Freq. (MHz)	2412
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	51.94	54.00	-2.06	55.12	-3.18	Average	100	1
2	2390.00	68.51	74.00	-5.49	71.69	-3.18	Peak	100	1
3	4824.00	32.03	54.00	-21.97	28.25	3.78	Average	100	215
4	4824.00	45.12	74.00	-28.88	41.34	3.78	Peak	100	215
5	12060.00	41.82	54.00	-12.18	28.24	13.58	Average	100	215
6	12060.00	54.73	74.00	-19.27	41.15	13.58	Peak	100	215

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

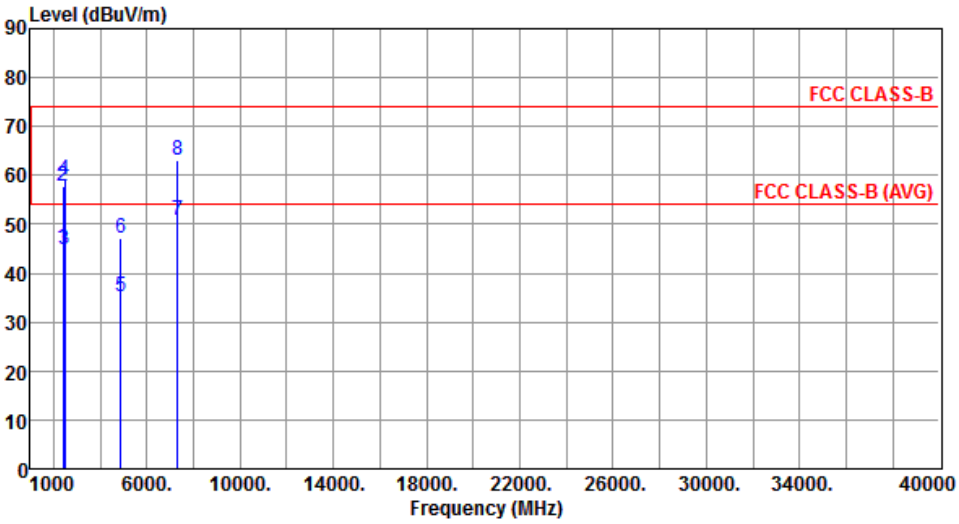
Modulation	11g	Test Freq. (MHz)	2437
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	42.48	54.00	-11.52	45.66	-3.18	Average	100	139
2	2390.00	55.00	74.00	-19.00	58.18	-3.18	Peak	100	139
3	2483.50	43.71	54.00	-10.29	46.51	-2.80	Average	100	139
4	2483.50	56.73	74.00	-17.27	59.53	-2.80	Peak	100	139
5	4874.00	32.64	54.00	-21.36	28.70	3.94	Average	266	54
6	4874.00	45.33	74.00	-28.67	41.39	3.94	Peak	266	54
7	7311.00	48.52	54.00	-5.48	40.11	8.41	Average	160	280
8	7311.00	60.93	74.00	-13.07	52.52	8.41	Peak	160	280

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

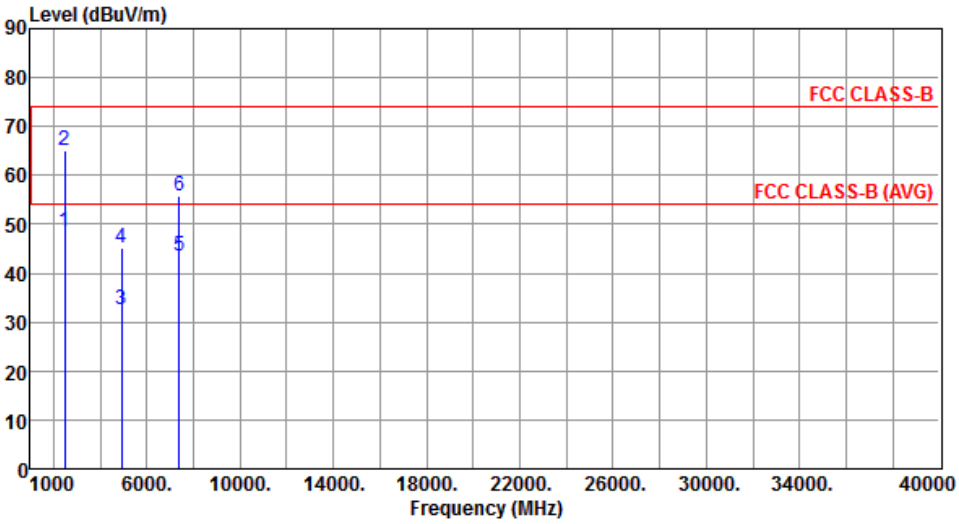
Modulation	11g	Test Freq. (MHz)	2437
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	45.11	54.00	-8.89	48.29	-3.18	Average	100	1
2	2390.00	57.85	74.00	-16.15	61.03	-3.18	Peak	100	1
3	2483.50	44.77	54.00	-9.23	47.57	-2.80	Average	100	1
4	2483.50	59.15	74.00	-14.85	61.95	-2.80	Peak	100	1
5	4874.00	35.32	54.00	-18.68	31.38	3.94	Average	332	132
6	4874.00	47.26	74.00	-26.74	43.32	3.94	Peak	332	132
7	7311.00	50.70	54.00	-3.30	42.29	8.41	Average	320	351
8	7311.00	62.99	74.00	-11.01	54.58	8.41	Peak	320	351

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

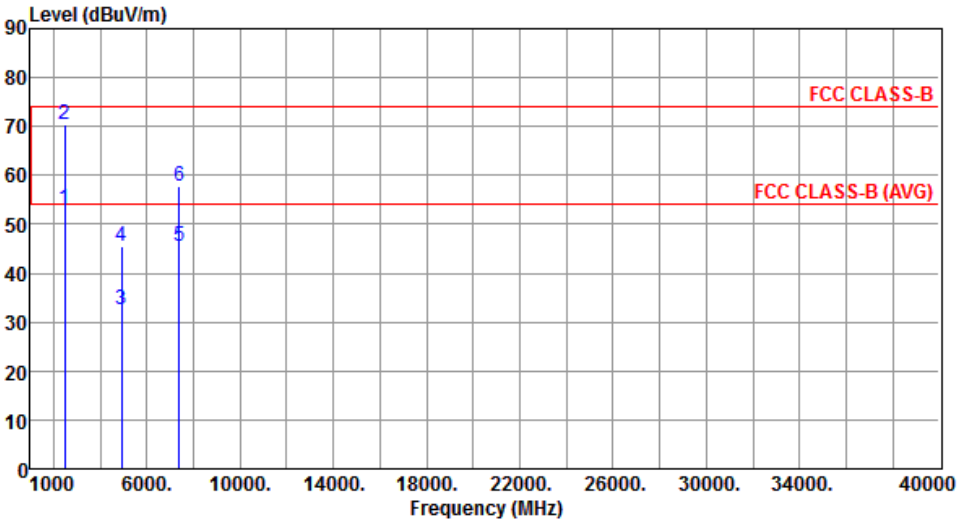
Modulation	11g	Test Freq. (MHz)	2462
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	48.63	54.00	-5.37	51.43	-2.80	Average	100	138
2	2483.50	65.22	74.00	-8.78	68.02	-2.80	Peak	100	138
3	4924.00	32.51	54.00	-21.49	28.41	4.10	Average	100	154
4	4924.00	45.32	74.00	-28.68	41.22	4.10	Peak	100	154
5	7386.00	43.60	54.00	-10.40	35.16	8.44	Average	160	278
6	7386.00	55.75	74.00	-18.25	47.31	8.44	Peak	160	278

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

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

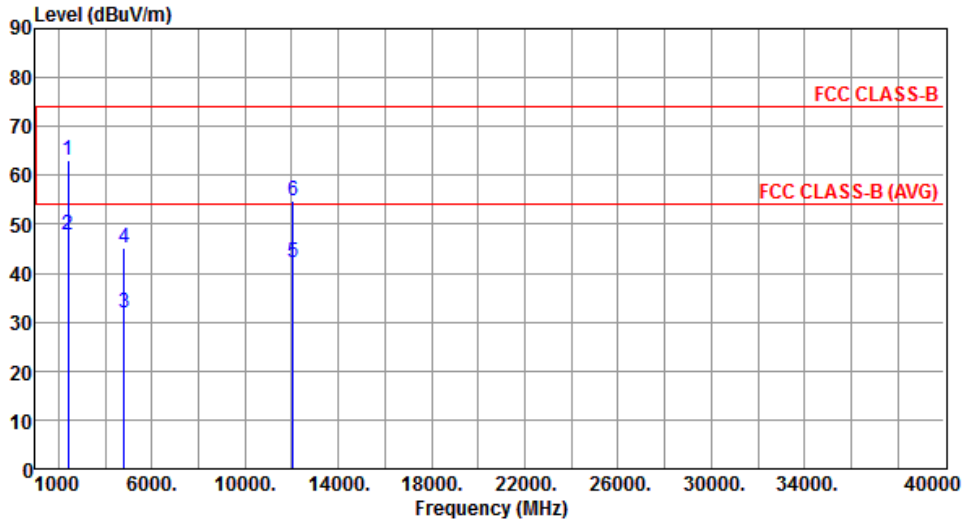


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	52.99	54.00	-1.01	55.79	-2.80	Average	100	323
2	2483.50	70.26	74.00	-3.74	73.06	-2.80	Peak	100	323
3	4924.00	32.54	54.00	-21.46	28.44	4.10	Average	100	151
4	4924.00	45.48	74.00	-28.52	41.38	4.10	Peak	100	151
5	7386.00	45.55	54.00	-8.45	37.11	8.44	Average	318	350
6	7386.00	57.69	74.00	-16.31	49.25	8.44	Peak	318	350

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).

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

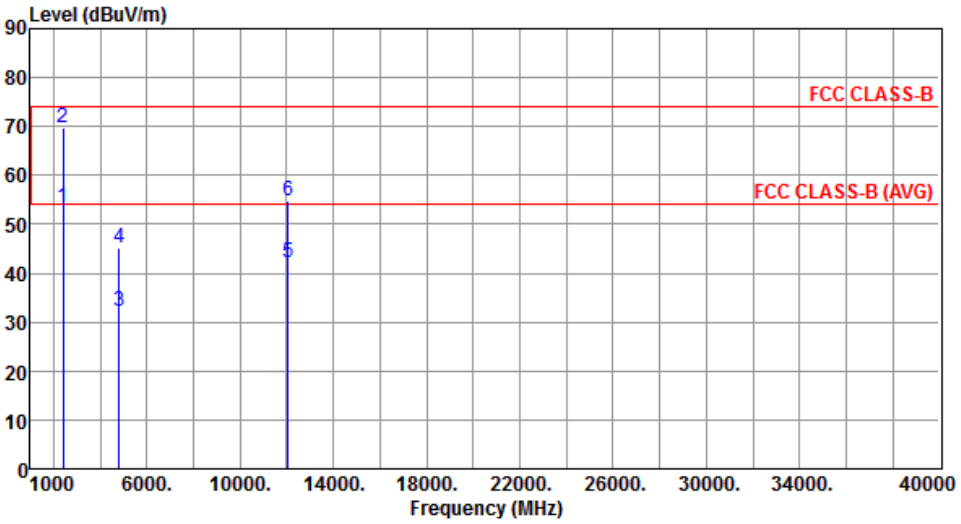
Modulation	HT20	Test Freq. (MHz)	2412
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	63.02	74.00	-10.98	66.20	-3.18	Peak	100	128
2	2390.00	47.77	74.00	-26.23	50.95	-3.18	Peak	100	128
3	4824.00	31.91	54.00	-22.09	28.13	3.78	Average	100	144
4	4824.00	45.07	74.00	-28.93	41.29	3.78	Peak	100	144
5	12060.00	42.03	54.00	-11.97	28.45	13.58	Average	100	196
6	12060.00	54.77	74.00	-19.23	41.19	13.58	Peak	100	196

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

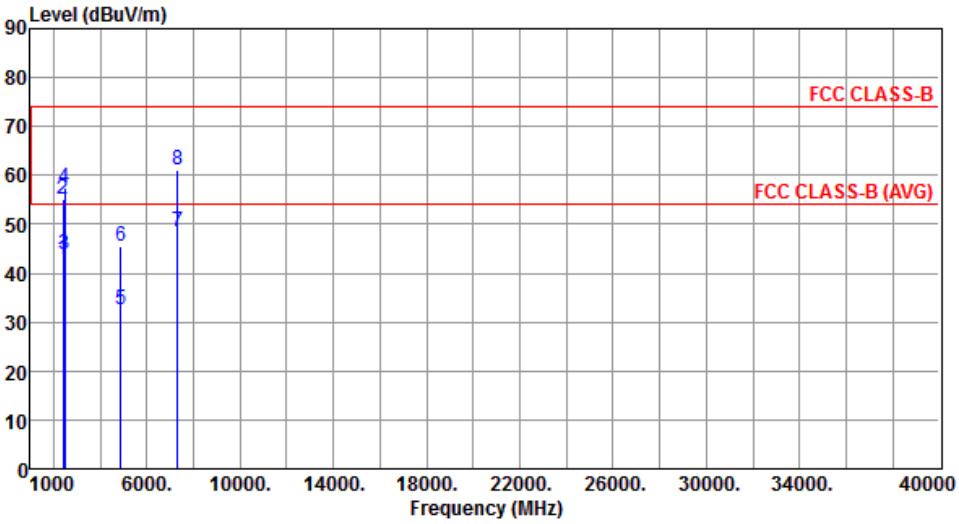
Modulation	HT20	Test Freq. (MHz)	2412
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	53.43	54.00	-0.57	56.61	-3.18	Average	100	0
2	2390.00	69.61	74.00	-4.39	72.79	-3.18	Peak	100	0
3	4824.00	32.07	54.00	-21.93	28.29	3.78	Average	100	156
4	4824.00	45.17	74.00	-28.83	41.39	3.78	Peak	100	156
5	12060.00	42.09	54.00	-11.91	28.51	13.58	Average	100	174
6	12060.00	54.95	74.00	-19.05	41.37	13.58	Peak	100	174

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

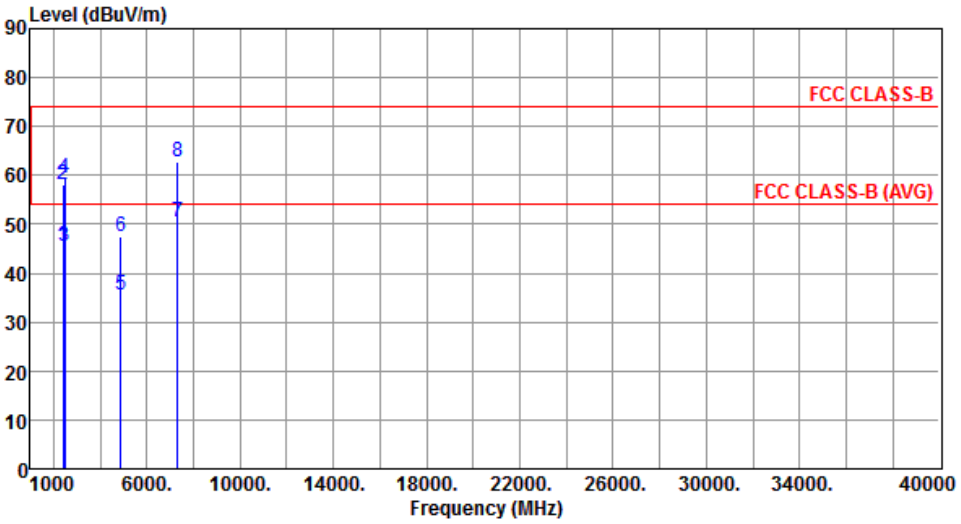
Modulation	HT20	Test Freq. (MHz)	2437
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	42.75	54.00	-11.25	45.93	-3.18	Average	100	138
2	2390.00	55.07	74.00	-18.93	58.25	-3.18	Peak	100	138
3	2483.50	43.92	54.00	-10.08	46.72	-2.80	Average	100	138
4	2483.50	57.33	74.00	-16.67	60.13	-2.80	Peak	100	138
5	4874.00	32.50	54.00	-21.50	28.56	3.94	Average	263	53
6	4874.00	45.40	74.00	-28.60	41.46	3.94	Peak	263	53
7	7311.00	48.59	54.00	-5.41	40.18	8.41	Average	158	282
8	7311.00	61.02	74.00	-12.98	52.61	8.41	Peak	158	282

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

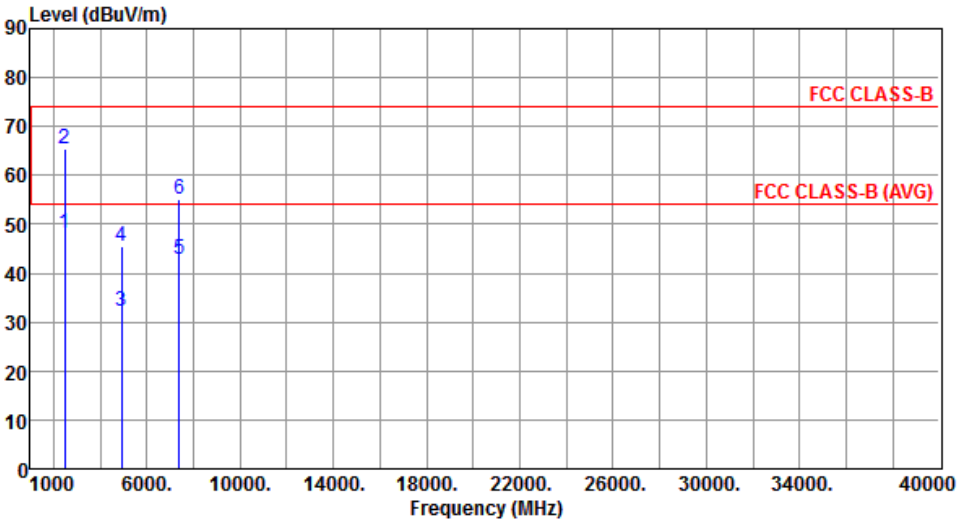
Modulation	HT20	Test Freq. (MHz)	2437
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	45.35	54.00	-8.65	48.53	-3.18	Average	100	0
2	2390.00	58.06	74.00	-15.94	61.24	-3.18	Peak	100	0
3	2483.50	45.45	54.00	-8.55	48.25	-2.80	Average	100	0
4	2483.50	59.51	74.00	-14.49	62.31	-2.80	Peak	100	0
5	4874.00	35.38	54.00	-18.62	31.44	3.94	Average	330	131
6	4874.00	47.37	74.00	-26.63	43.43	3.94	Peak	330	131
7	7311.00	50.57	54.00	-3.43	42.16	8.41	Average	319	352
8	7311.00	62.79	74.00	-11.21	54.38	8.41	Peak	319	352

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

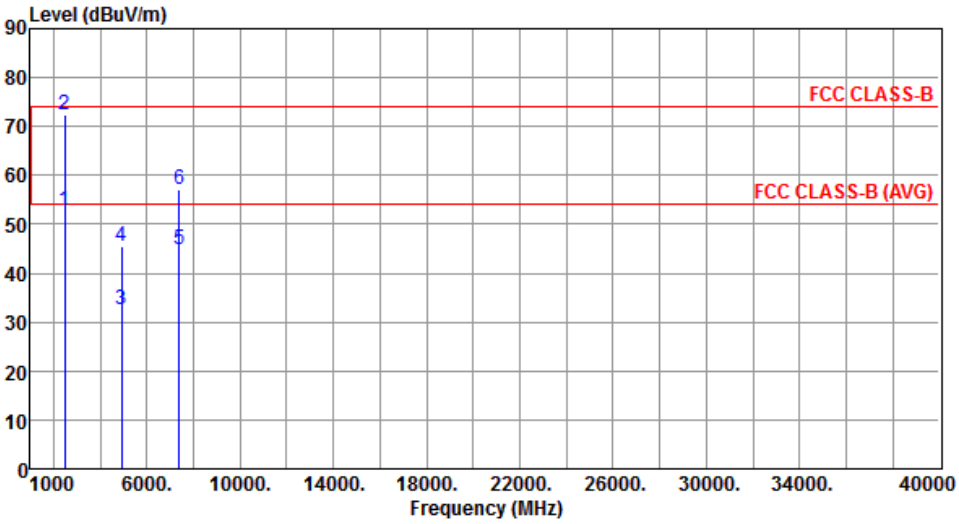
Modulation	HT20	Test Freq. (MHz)	2462
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	48.11	54.00	-5.89	50.91	-2.80	Average	100	138
2	2483.50	65.43	74.00	-8.57	68.23	-2.80	Peak	100	138
3	4924.00	32.34	54.00	-21.66	28.24	4.10	Average	100	144
4	4924.00	45.40	74.00	-28.60	41.30	4.10	Peak	100	144
5	7386.00	42.98	54.00	-11.02	34.54	8.44	Average	158	279
6	7386.00	55.26	74.00	-18.74	46.82	8.44	Peak	158	279

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

Modulation	HT20	Test Freq. (MHz)	2462
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	52.81	54.00	-1.19	55.61	-2.80	Average	100	322
2	2483.50	72.25	74.00	-1.75	75.05	-2.80	Peak	100	322
3	4924.00	32.54	54.00	-21.46	28.44	4.10	Average	100	183
4	4924.00	45.35	74.00	-28.65	41.25	4.10	Peak	100	183
5	7386.00	44.87	54.00	-9.13	36.43	8.44	Average	319	348
6	7386.00	57.17	74.00	-16.83	48.73	8.44	Peak	319	348

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).

4 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corp (EMC and Wireless Communication Laboratory), it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

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

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

If you have any suggestion, please feel free to contact us as below information.

Tel: 886-3-271-8666
Fax: 886-3-318-0155
Email: ICC_Service@icertifi.com.tw

==END==