

# FCC Test Report

**FCC ID** : I88WAC6303D-S  
**Equipment** : 802.11ac Wave 2 Dual-Radio Unified Pro  
Access Point  
**Model No.** : WAC6303D-S  
**Multiple Listing** : Refer to item 1.1.1 for more details  
**Brand Name** : ZYXEL  
**Applicant** : Zyxel Communications Corporation  
**Address** : No.2 Industry East RD. IX, Hsinchu Science  
Park, Hsinchu 30075, Taiwan, R.O.C.  
**Standard** : 47 CFR FCC Part 15.247  
**Received Date** : Jun. 22, 2017  
**Tested Date** : Sep. 13 ~ Oct. 12, 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:

  
\_\_\_\_\_  
Along Chen / Assistant Manager

Approved by:

  
\_\_\_\_\_  
Gary Chang / Manager



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## Release Record

Report No.	Version	Description	Issued Date
FR762203AC	Rev. 01	Initial issue	Nov. 13, 2017

## Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	[dBuV]: 0.561MHz 38.71 (Margin -7.29dB) - AV	Pass
15.247(d) 15.209	Radiated Emissions	[dBuV/m at 3m]: 2483.50MHz 53.85 (Margin -0.15dB) - AV	Pass
15.247(b)(3)	Maximum Output Power	Refer to FR762202AC	Pass
15.247(a)(2)	6dB Bandwidth	Refer to FR762202AC	Pass
15.247(e)	Power Spectral Density	Refer to FR762202AC	Pass
15.203	Antenna Requirement	Meet the requirement of limit	Pass

# 1 General Description

## 1.1 Information

### 1.1.1 Product Details

The following models are provided to this EUT.

Brand Name	Model Name	Product Name
ZYPEL	WAC6303D-S	802.11ac Wave 2 Dual-Radio Unified Pro Access Point
	NWA1123-AC SHD	802.11ac Wave 2 Dual-Radio Nebula Cloud Managed Access Point
<ul style="list-style-type: none"> <li>✦ All models are electrically identical, different model names are for marketing purpose.</li> <li>✦ The above models, model <b>WAC6303D-S</b> was selected as a representative one for the final test and only its data was recorded in this report.</li> </ul>		

### 1.1.2 Specification of the Equipment under Test (EUT)

RF General Information					
Frequency Range (MHz)	IEEE Std. 802.11	Ch. Freq. (MHz)	Channel Number	Transmit Chains (N <sub>TX</sub> )	Data Rate / MCS
2400-2483.5	b	2412-2462	1-11 [11]	2	1-11 Mbps
2400-2483.5	g	2412-2462	1-11 [11]	2	6-54 Mbps
2400-2483.5	n (HT20)	2412-2462	1-11 [11]	2	MCS 0-15
2400-2483.5	n (HT40)	2422-2452	3-9 [7]	2	MCS 0-15
SW Version: V5.10(ABGL.0)b4 Note 1: RF output power specifies that Maximum Peak Conducted Output Power. Note 2: 802.11b uses a combination of DSSS-DBPSK, DQPSK, CCK modulation. Note 3: 802.11g/n uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation.. Note 4: 802.11n supports beamforming function.					

### 1.1.3 Antenna Details

Model	Type	Connector	Operating Frequencies (MHz) / Antenna Gain (dBi)		
			2400~2483.5	5150~5250	5725~5850
AD32	Direction	UFL	1.12	---	---
AD32	Direction	UFL	---	1.29	1.07

### 1.1.4 Power Supply Type of Equipment under Test (EUT)

<b>Power Supply Type</b>	From AC adapter: 12Vdc From PoE: 54Vdc
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### 1.1.5 Accessories

N/A

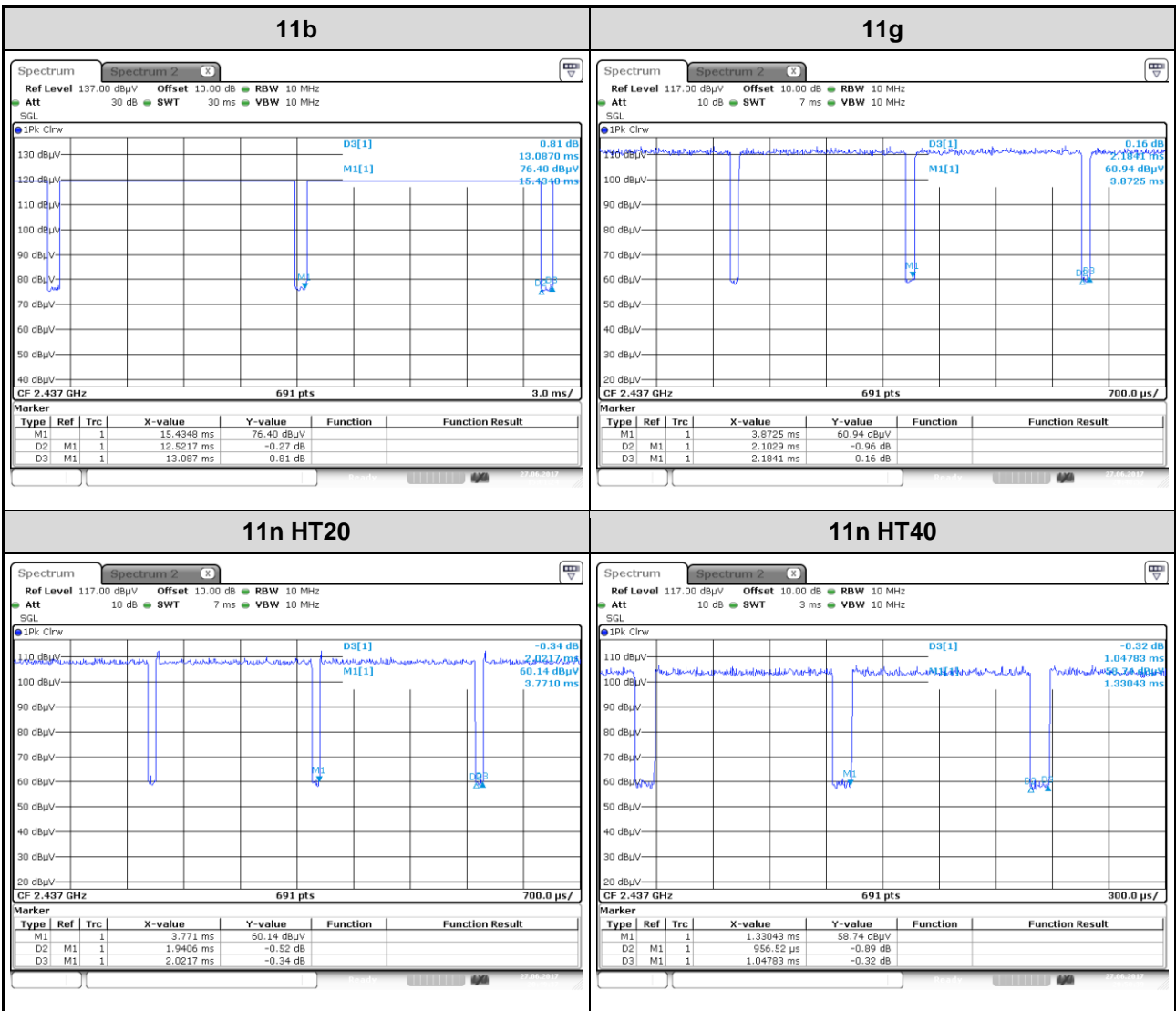
### 1.1.6 Channel List

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

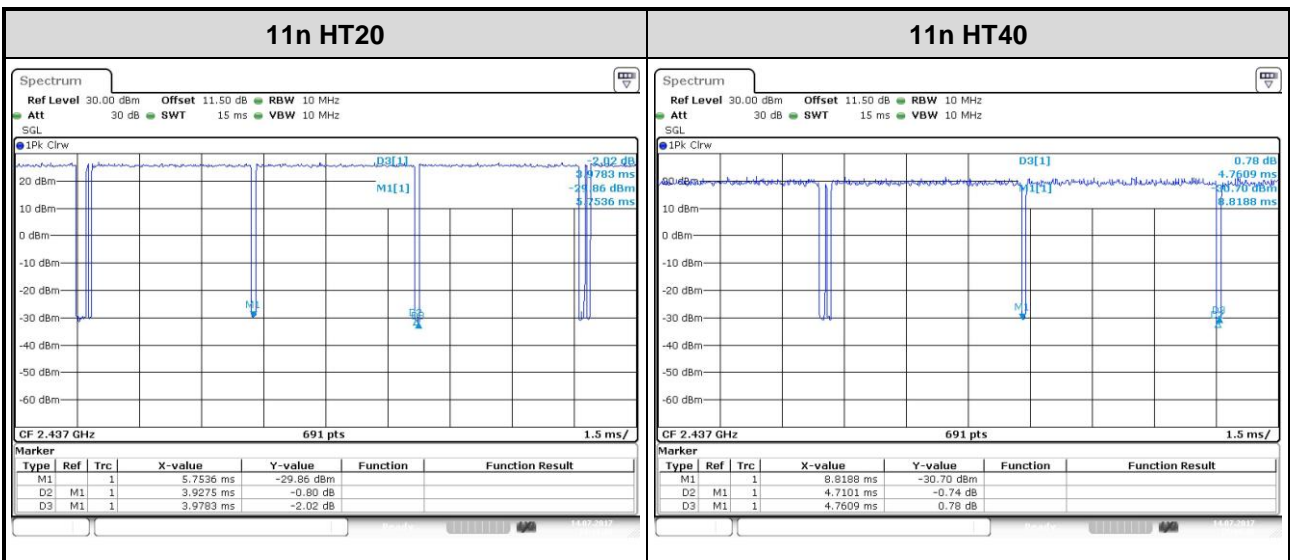
### 1.1.7 Test Tool and Duty Cycle

Test Tool	putty, V0.6				
Duty Cycle and Duty Factor	Mode	Non-beamforming		Beamforming	
		Duty cycle (%)	Duty factor (dB)	Duty cycle (%)	Duty factor (dB)
	11b	95.68%	0.19	---	---
	11g	96.28%	0.16	---	---
	HT20	95.99%	0.18	98.72%	0.06
HT40	91.29%	0.40	98.93%	0.05	

### Non-beamforming mode



### Beamforming mode



## 1.2 Local Support Equipment List

### *Non-beamforming mode*

Support Equipment List					
No.	Equipment	Brand	Model	S/N	Signal cable / Length (m)
1	Notebook	DELL	Latitude E6430	9ZFB4X1	RJ45, 10m non-shielded.
2	POE	ZYXEL	GS1900-8HP	---	---
3	Adapter	APD	WA-24Q12R	---	---

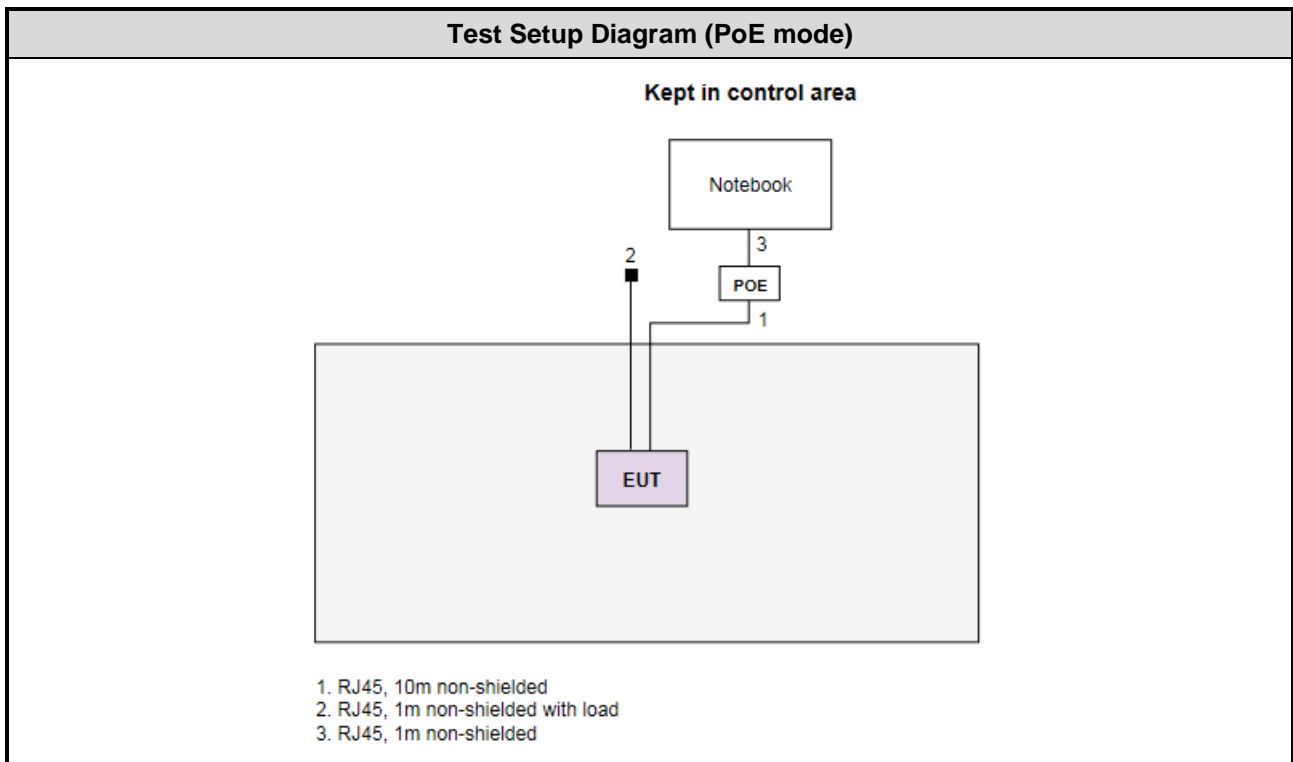
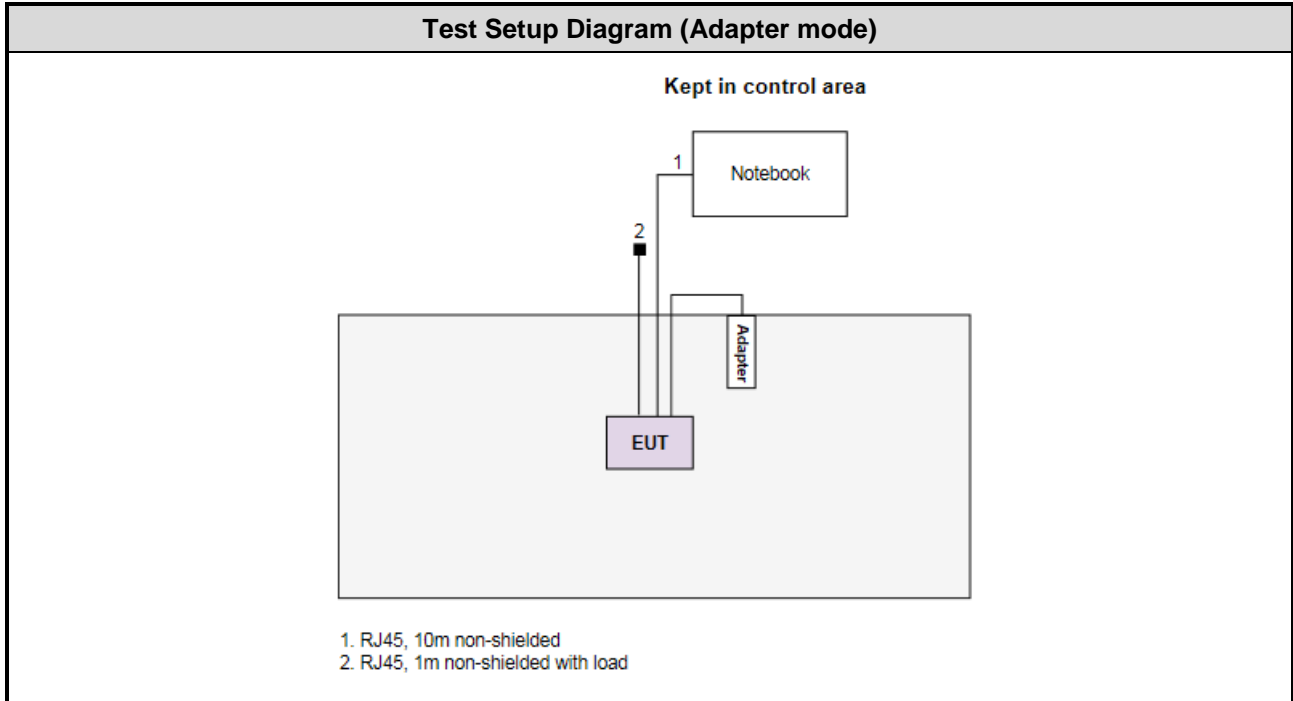
### *Beamforming mode*

Support Equipment List					
No.	Equipment	Brand	Model	S/N	Signal cable / Length (m)
1	Notebook	DELL	Latitude E6430	9ZFB4X1	RJ45, 10m non-shielded.
2	Client	ASUS	PCE-AC68	---	---
3	POE	ZYXEL	GS1900-8HP	---	---
4	Adapter	APD	WA-24Q12R	---	---

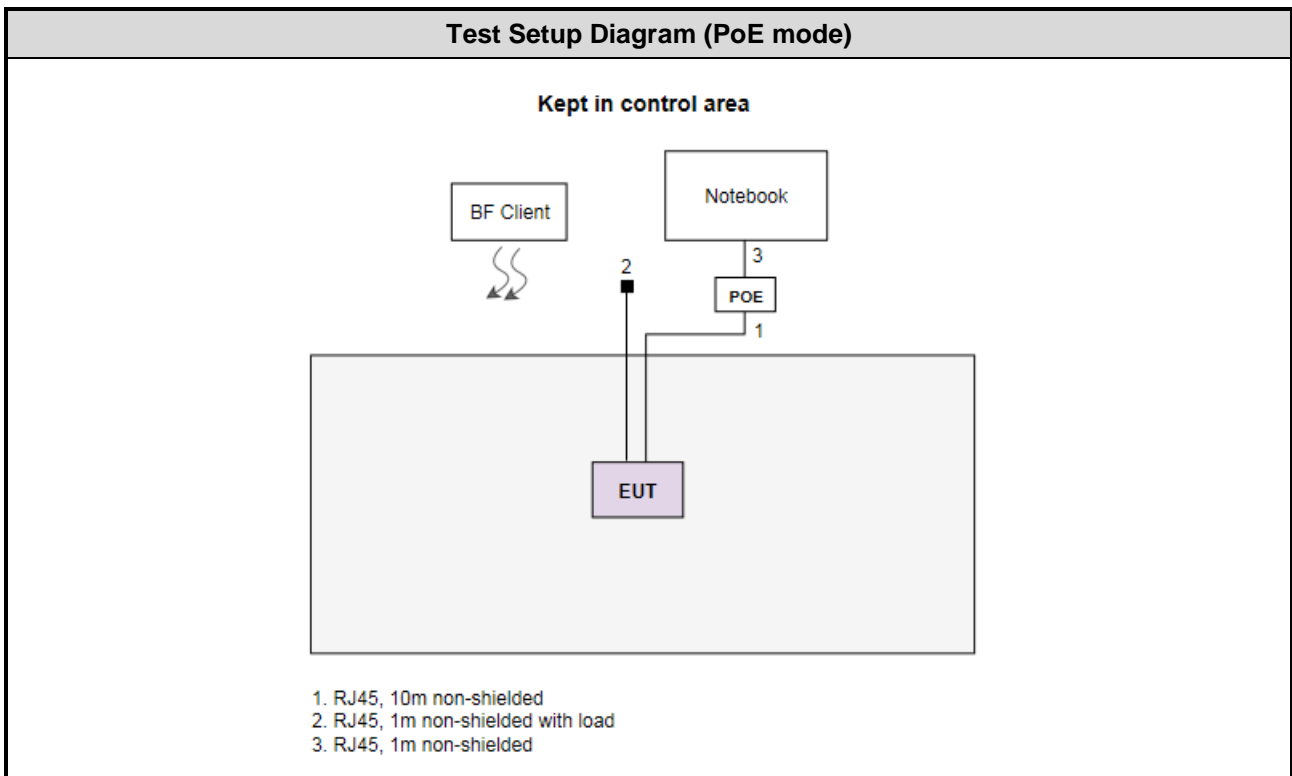
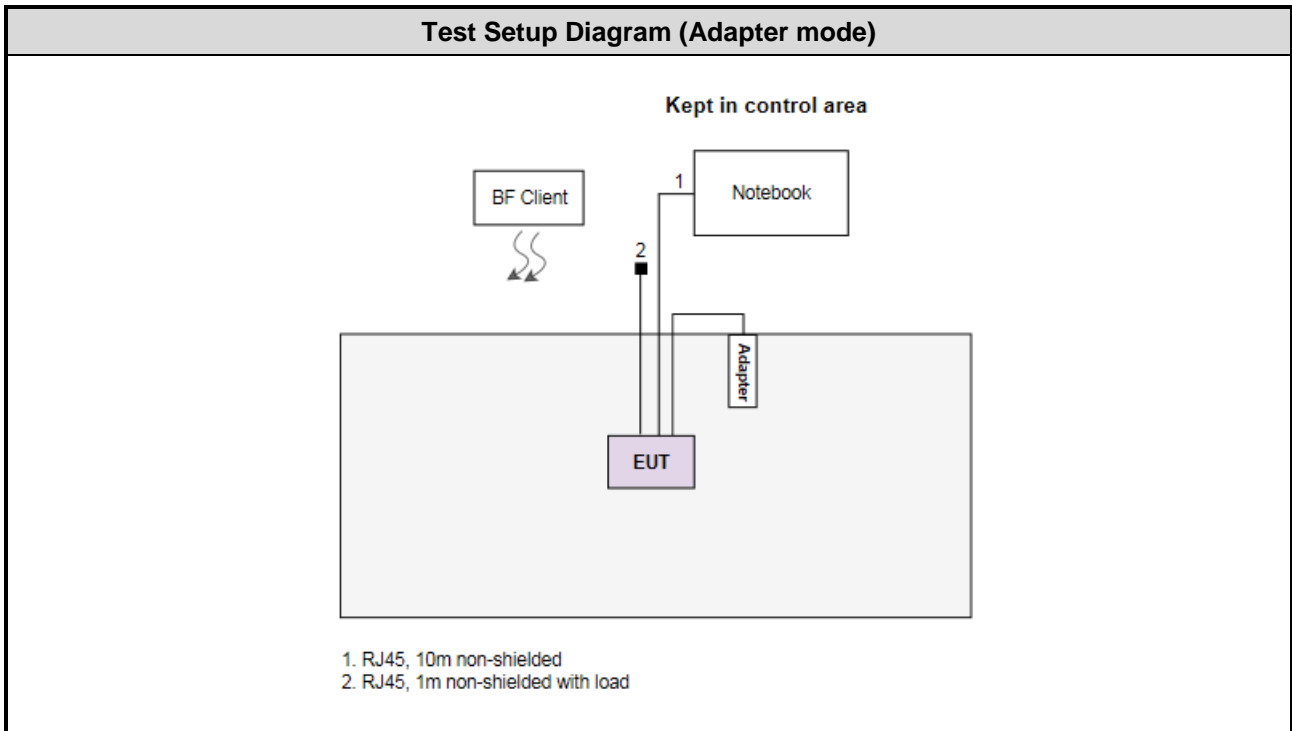


## 1.3 Test Setup Chart

### Non-beamforming mode



**Beamforming mode**



## 1.4 The Equipment List

<b>Test Item</b>	Conducted Emission				
<b>Test Site</b>	Conduction room 1 / (CO01-WS)				
<b>Tested Date</b>	Oct. 06, 2017				
<b>Instrument</b>	<b>Manufacturer</b>	<b>Model No.</b>	<b>Serial No.</b>	<b>Calibration Date</b>	<b>Calibration Until</b>
Receiver	R&S	ESR3	101657	Dec. 21, 2016	Dec. 20, 2017
LISN	R&S	ENV216	101579	Jan. 19, 2017	Jan. 18, 2018
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.					

<b>Test Item</b>	Radiated Emission				
<b>Test Site</b>	966 chamber 3 / (03CH03-WS)				
<b>Tested Date</b>	Sep. 13, 2017				
<b>Instrument</b>	<b>Manufacturer</b>	<b>Model No.</b>	<b>Serial No.</b>	<b>Calibration Date</b>	<b>Calibration Until</b>
Spectrum Analyzer	ROHDE&SCHWARZ	FSV40	101486	Nov. 15, 2016	Nov. 14, 2017
Receiver	Agilent	N9038A	MY53290044	Oct. 06, 2016	Oct. 05, 2017
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-685	Apr. 28, 2017	Apr. 27, 2018
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1206	Feb. 09, 2017	Feb. 08, 2018
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	980187	Sep. 04, 2017	Sep. 03, 2018
Preamplifier	Agilent	83017A	MY53270014	Aug. 21, 2017	Aug. 20, 2018
Preamplifier	EMC	EMC184045B	980192	Aug. 22, 2017	Aug. 21, 2018
RF cable-3M	HUBER+SUHNER	SUCOFLEX104	MY22620/4	Feb. 04, 2017	Feb. 03, 2018
RF cable-8M	HUBER+SUHNER	SUCOFLEX104	MY22600/4	Feb. 04, 2017	Feb. 03, 2018
RF cable-1M	HUBER+SUHNER	SUCOFLEX104	MY22624/4	Feb. 04, 2017	Feb. 03, 2018
LF cable-0.8M	EMC	EMC8D-NM-NM-800	EMC8D-NM-NM-800-001	Feb. 04, 2017	Feb. 03, 2018
LF cable-3M	EMC	EMC8D-NM-NM-3000	131103	Feb. 04, 2017	Feb. 03, 2018
LF cable-13M	EMC	EMC8D-NM-NM-13000	131104	Feb. 04, 2017	Feb. 03, 2018
Measurement Software	AUDIX	e3	6.120210g	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

<b>Test Item</b>	Radiated Emission				
<b>Test Site</b>	966 chamber 3 / (03CH03-WS)				
<b>Tested Date</b>	Oct. 12, 2017				
<b>Instrument</b>	<b>Manufacturer</b>	<b>Model No.</b>	<b>Serial No.</b>	<b>Calibration Date</b>	<b>Calibration Until</b>
Spectrum Analyzer	ROHDE&SCHWARZ	FSV40	101486	Nov. 15, 2016	Nov. 14, 2017
Receiver	Agilent	N9038A	MY53290044	Sep. 26, 2017	Sep. 25, 2018
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-685	Apr. 28, 2017	Apr. 27, 2018
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1206	Feb. 09, 2017	Feb. 08, 2018
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	980187	Sep. 04, 2017	Sep. 03, 2018
Preamplifier	Agilent	83017A	MY53270014	Aug. 21, 2017	Aug. 20, 2018
Preamplifier	EMC	EMC184045B	980192	Aug. 22, 2017	Aug. 21, 2018
RF cable-3M	HUBER+SUHNER	SUCOFLEX104	MY22620/4	Feb. 04, 2017	Feb. 03, 2018
RF cable-8M	HUBER+SUHNER	SUCOFLEX104	MY22600/4	Feb. 04, 2017	Feb. 03, 2018
RF cable-1M	HUBER+SUHNER	SUCOFLEX104	MY22624/4	Feb. 04, 2017	Feb. 03, 2018
LF cable-0.8M	EMC	EMC8D-NM-NM-800	EMC8D-NM-NM-800-001	Feb. 04, 2017	Feb. 03, 2018
LF cable-3M	EMC	EMC8D-NM-NM-3000	131103	Feb. 04, 2017	Feb. 03, 2018
LF cable-13M	EMC	EMC8D-NM-NM-13000	131104	Feb. 04, 2017	Feb. 03, 2018
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

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

## 1.6 Measurement Uncertainty

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

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

## 2 Test Configuration

### 2.1 Testing Condition

Test Item	Test Site	Ambient Condition	Tested By
AC Conduction	CO01-WS	23°C / 59%	Alex Tsai
Radiated Emissions	03CH03-WS	24-25°C / 64-66%	Aska Huang Brad Wu

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

### 2.2 The Worst Test Modes and Channel Details

Test item	Modulation Mode	Test Frequency (MHz)	Data Rate	Test Configuration
<b>Non-beamforming mode</b>				
Conducted Emissions	11g	2437	6 Mbps	1, 2
Radiated Emissions ≤1GHz	11g	2437	6 Mbps	1, 2
Radiated Emissions >1GHz	11b	2412 / 2437 / 2462	1 Mbps	1
	11g	2412 / 2437 / 2462	6 Mbps	
	HT20	2412 / 2437 / 2462	MCS 0	
	HT40	2422 / 2437 / 2452	MCS 0	
<b>Beamforming mode</b>				
Conducted Emissions	HT20	2437	MCS 0	1, 2
Radiated Emissions ≤1GHz	HT20	2437	MCS 0	1, 2
Radiated Emissions >1GHz	HT20	2412 / 2437 / 2462	MCS 0	1
	HT40	2422 / 2437 / 2452	MCS 0	
<b>NOTE:</b>				
1. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The <b>X-plane</b> results were found as the worst case and were shown in this report.				
2. This device can be powered by <b>AC adapter</b> or <b>POE</b> . Each power supply was selected for final testing as below configuration.				
1) Test configuration 1: POE mode				
2) Test configuration 2: Adapter mode				

## 3 Transmitter Test Results

### 3.1 Conducted Emissions

#### 3.1.1 Limit of Conducted Emissions

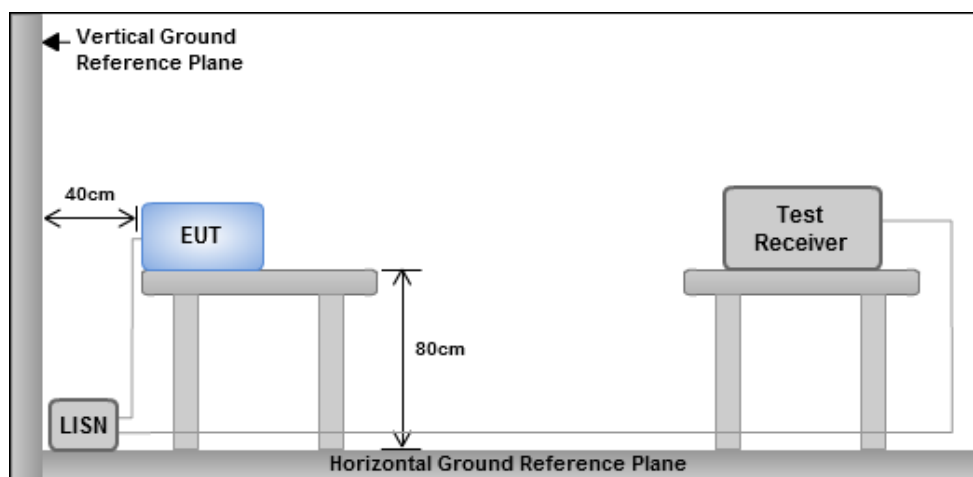
Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

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  $\Omega$  LISN port.
3. AC conducted emission measurements is made over frequency range from 150 kHz to 30 MHz.
4. This measurement was performed with AC 120V / 60Hz.

#### 3.1.3 Test Setup

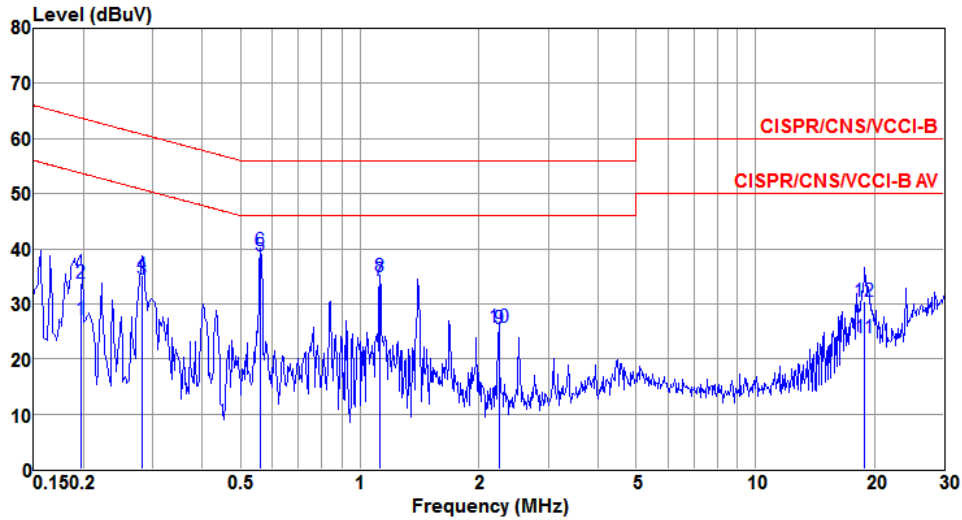


- Note: 1. Support units were connected to second LISN.  
 2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

### 3.1.4 Test Result of Conducted Emissions

#### Non-beamforming mode

Modulation	11g	Test Freq. (MHz)	2437
Power Phase	Line	Test configuration	1

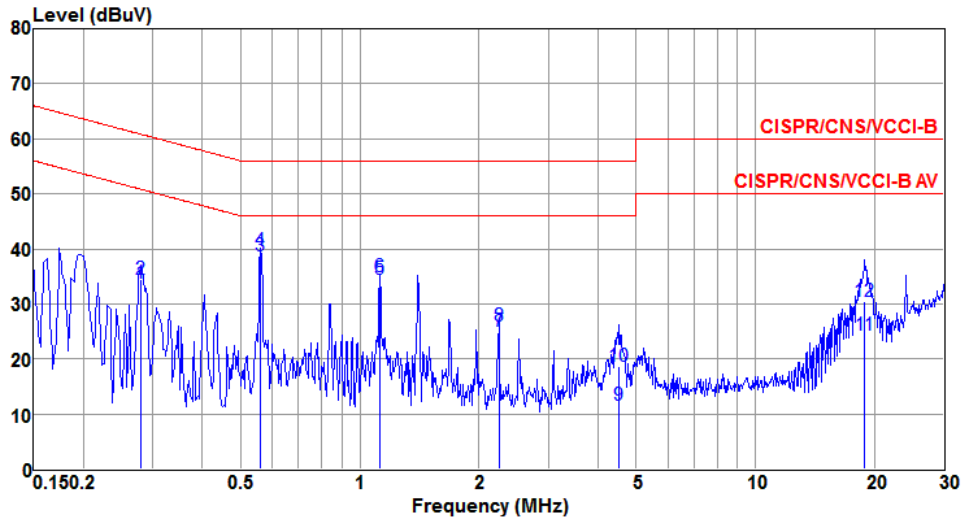


	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1	0.198	27.18	53.71	-26.53	17.64	9.50	0.04	Average
2	0.198	33.70	63.71	-30.01	24.16	9.50	0.04	QP
3	0.282	34.42	50.76	-16.34	24.83	9.55	0.04	Average
4	0.282	35.09	60.76	-25.67	25.50	9.55	0.04	QP
5@	0.562	38.68	46.00	-7.32	29.09	9.55	0.04	Average
6	0.562	39.57	56.00	-16.43	29.98	9.55	0.04	QP
7	1.123	34.25	46.00	-11.75	24.72	9.49	0.04	Average
8	1.123	34.91	56.00	-21.09	25.38	9.49	0.04	QP
9	2.247	25.46	46.00	-20.54	15.79	9.61	0.06	Average
10	2.247	25.62	56.00	-30.38	15.95	9.61	0.06	QP
11	18.920	23.94	50.00	-26.06	13.98	9.71	0.25	Average
12	18.920	30.41	60.00	-29.59	20.45	9.71	0.25	QP

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



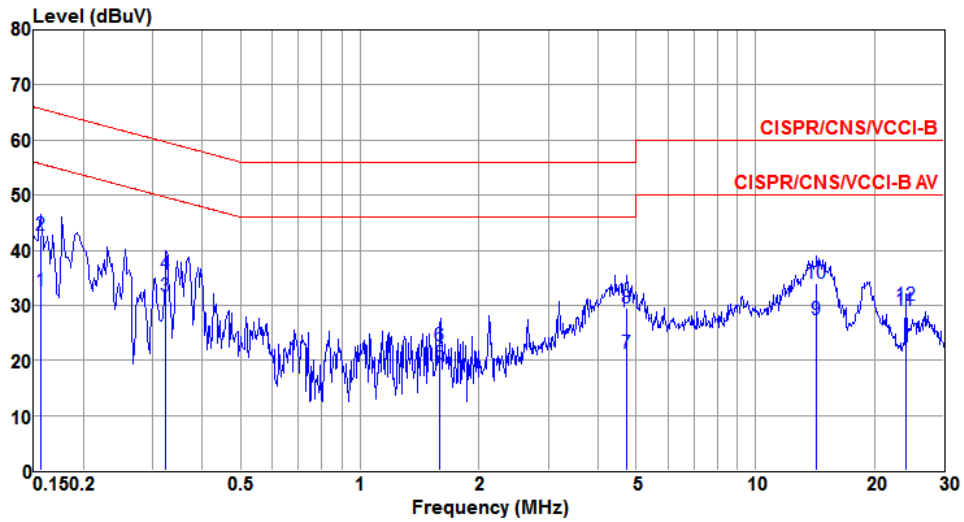
<b>Modulation</b>	11g	<b>Test Freq. (MHz)</b>	2437
<b>Power Phase</b>	Neutral	<b>Test configuration</b>	1



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1	0.279	33.77	50.85	-17.08	24.16	9.57	0.04	Average
2	0.279	34.37	60.85	-26.48	24.76	9.57	0.04	QP
3@	0.561	38.68	46.00	-7.32	29.05	9.59	0.04	Average
4	0.561	39.57	56.00	-16.43	29.94	9.59	0.04	QP
5	1.124	34.41	46.00	-11.59	24.72	9.65	0.04	Average
6	1.124	34.98	56.00	-21.02	25.29	9.65	0.04	QP
7	2.246	25.11	46.00	-20.89	15.50	9.55	0.06	Average
8	2.246	26.09	56.00	-29.91	16.48	9.55	0.06	QP
9	4.525	11.68	46.00	-34.32	1.80	9.71	0.17	Average
10	4.525	18.63	56.00	-37.37	8.75	9.71	0.17	QP
11	18.920	24.34	50.00	-25.66	14.38	9.71	0.25	Average
12	18.920	30.46	60.00	-29.54	20.50	9.71	0.25	QP

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

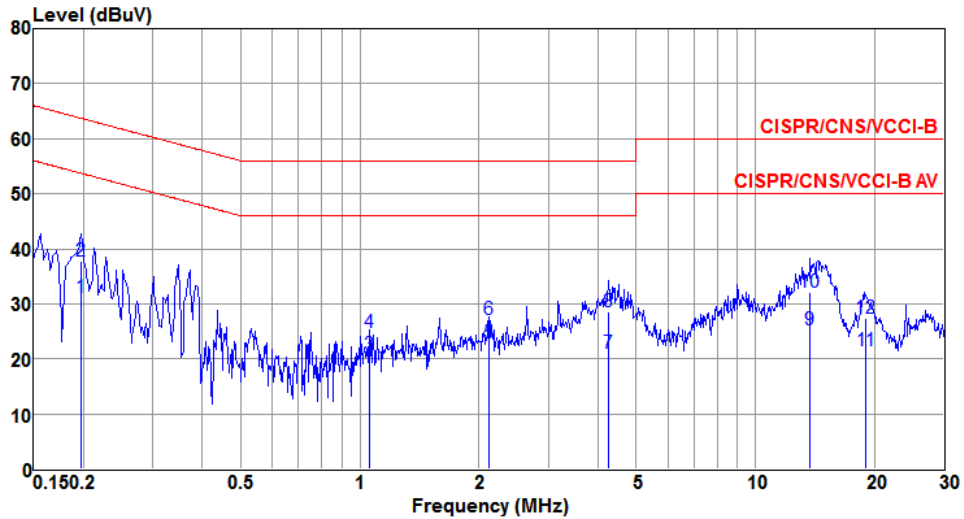
<b>Modulation</b>	11g	<b>Test Freq. (MHz)</b>	2437
<b>Power Phase</b>	Line	<b>Test configuration</b>	2



	Freq MHz	Level dBUV	Limit Line dBUV	Over Limit dB	Read Level dBUV	LISN factor dB	cable loss dB	Remark
1	0.156	32.54	55.69	-23.15	23.00	9.50	0.04	Average
2	0.156	42.65	65.69	-23.04	33.11	9.50	0.04	QP
3@	0.323	31.73	49.62	-17.89	22.12	9.57	0.04	Average
4	0.323	35.65	59.62	-23.97	26.04	9.57	0.04	QP
5	1.591	19.38	46.00	-26.62	9.76	9.58	0.04	Average
6	1.591	22.74	56.00	-33.26	13.12	9.58	0.04	QP
7	4.721	21.14	46.00	-24.86	11.46	9.51	0.17	Average
8	4.721	29.42	56.00	-26.58	19.74	9.51	0.17	QP
9	14.288	27.39	50.00	-22.61	17.47	9.69	0.23	Average
10	14.288	33.90	60.00	-26.10	23.98	9.69	0.23	QP
11	24.001	29.01	50.00	-20.99	19.09	9.64	0.28	Average
12	24.001	29.94	60.00	-30.06	20.02	9.64	0.28	QP

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

<b>Modulation</b>	11g	<b>Test Freq. (MHz)</b>	2437
<b>Power Phase</b>	Neutral	<b>Test configuration</b>	2

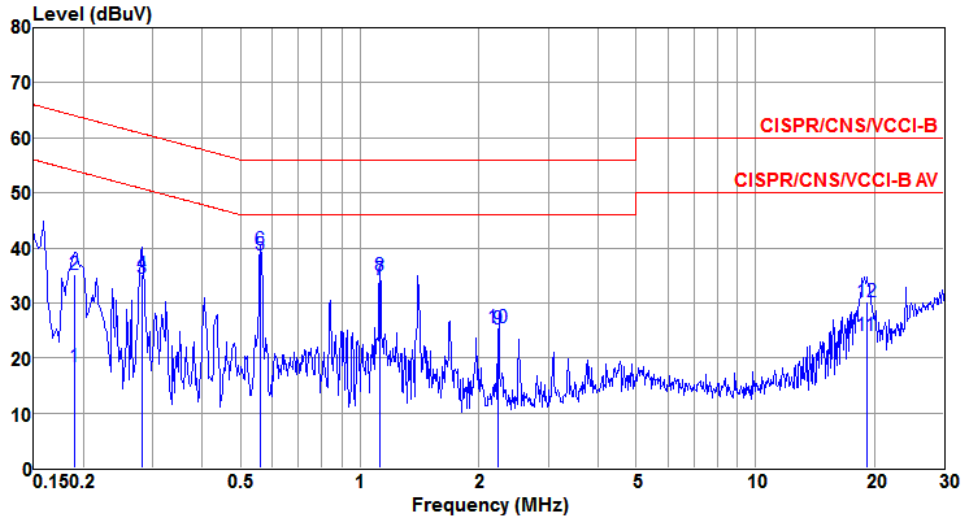


	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1@	0.198	31.18	53.71	-22.53	21.54	9.60	0.04	Average
2	0.198	37.78	63.71	-25.93	28.14	9.60	0.04	QP
3	1.060	20.78	46.00	-25.22	11.08	9.66	0.04	Average
4	1.060	24.71	56.00	-31.29	15.01	9.66	0.04	QP
5	2.120	23.00	46.00	-23.00	13.41	9.54	0.05	Average
6	2.120	27.07	56.00	-28.93	17.48	9.54	0.05	QP
7	4.247	20.94	46.00	-25.06	11.06	9.72	0.16	Average
8	4.247	28.48	56.00	-27.52	18.60	9.72	0.16	QP
9	13.768	25.29	50.00	-24.71	15.38	9.68	0.23	Average
10	13.768	32.17	60.00	-27.83	22.26	9.68	0.23	QP
11	19.021	21.56	50.00	-28.44	11.59	9.72	0.25	Average
12	19.021	27.30	60.00	-32.70	17.33	9.72	0.25	QP

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

### Beamforming mode

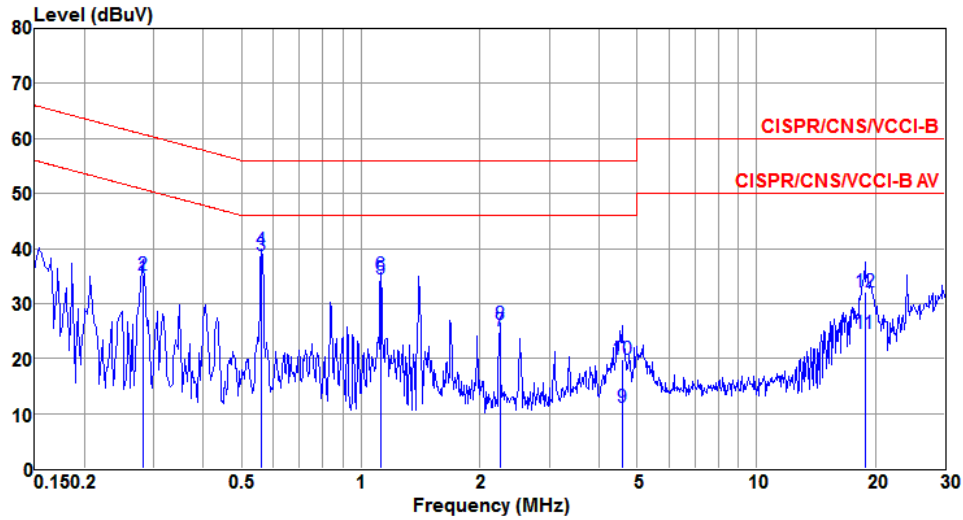
Modulation	HT20	Test Freq. (MHz)	2437
Power Phase	Line	Test configuration	1



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1	0.189	18.51	54.06	-35.55	8.97	9.50	0.04	Average
2	0.189	35.07	64.06	-28.99	25.53	9.50	0.04	QP
3	0.282	34.54	50.76	-16.22	24.95	9.55	0.04	Average
4	0.282	35.23	60.76	-25.53	25.64	9.55	0.04	QP
5	0.561	38.67	46.00	-7.33	29.08	9.55	0.04	Average
6	0.561	39.55	56.00	-16.45	29.96	9.55	0.04	QP
7	1.123	34.29	46.00	-11.71	24.76	9.49	0.04	Average
8	1.123	34.91	56.00	-21.09	25.38	9.49	0.04	QP
9	2.244	25.27	46.00	-20.73	15.60	9.61	0.06	Average
10	2.244	25.39	56.00	-30.61	15.72	9.61	0.06	QP
11	19.122	24.04	50.00	-25.96	14.08	9.71	0.25	Average
12	19.122	30.14	60.00	-29.86	20.18	9.71	0.25	QP

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

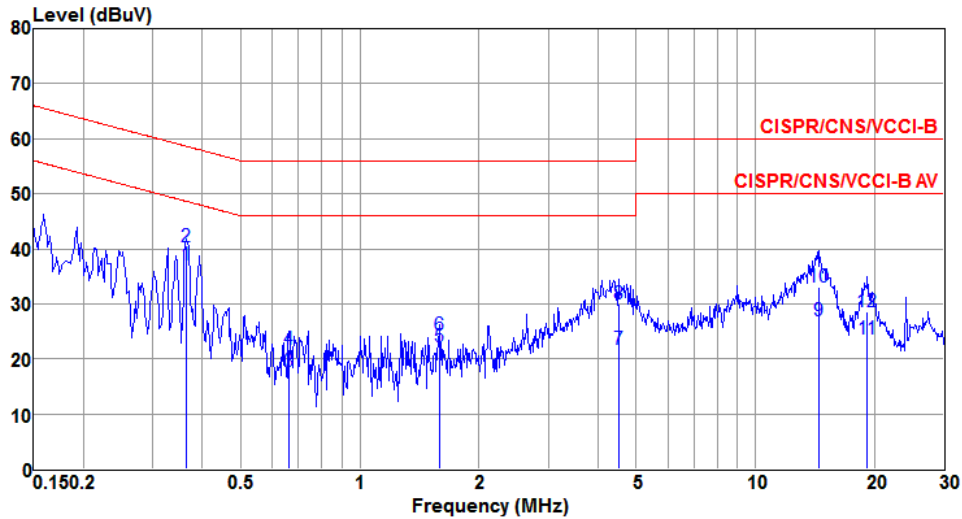
<b>Modulation</b>	HT20	<b>Test Freq. (MHz)</b>	2437
<b>Power Phase</b>	Neutral	<b>Test configuration</b>	1



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1	0.282	34.58	50.76	-16.18	24.97	9.57	0.04	Average
2	0.282	35.29	60.76	-25.47	25.68	9.57	0.04	QP
3	0.561	38.71	46.00	-7.29	29.08	9.59	0.04	Average
4	0.561	39.57	56.00	-16.43	29.94	9.59	0.04	QP
5	1.123	34.58	46.00	-11.42	24.89	9.65	0.04	Average
6	1.123	35.18	56.00	-20.82	25.49	9.65	0.04	QP
7	2.245	25.12	46.00	-20.88	15.51	9.55	0.06	Average
8	2.245	26.10	56.00	-29.90	16.49	9.55	0.06	QP
9	4.574	11.15	46.00	-34.85	1.27	9.71	0.17	Average
10	4.574	19.77	56.00	-36.23	9.89	9.71	0.17	QP
11	18.820	24.62	50.00	-25.38	14.66	9.71	0.25	Average
12	18.820	32.17	60.00	-27.83	22.21	9.71	0.25	QP

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

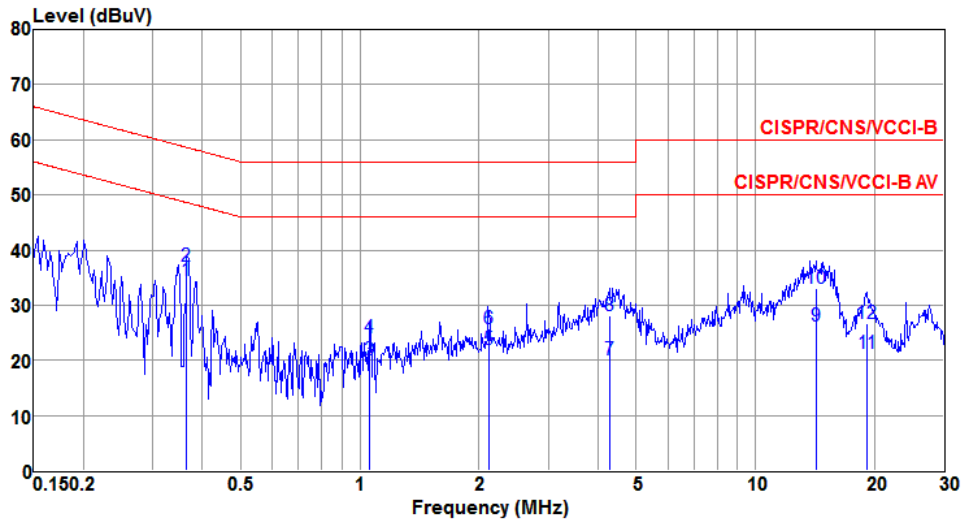
<b>Modulation</b>	HT20	<b>Test Freq. (MHz)</b>	2437
<b>Power Phase</b>	Line	<b>Test configuration</b>	2



	Freq	Level	Limit	Over	Read	LISN	cable	
	MHz	dBuV	Line	Limit	Level	factor	loss	Remark
			dBuV	dB	dBuV	dB	dB	
1@	0.363	37.03	48.65	-11.62	27.40	9.59	0.04	Average
2	0.363	40.44	58.65	-18.21	30.81	9.59	0.04	QP
3	0.661	17.61	46.00	-28.39	8.05	9.52	0.04	Average
4	0.661	21.68	56.00	-34.32	12.12	9.52	0.04	QP
5	1.591	22.10	46.00	-23.90	12.48	9.58	0.04	Average
6	1.591	24.37	56.00	-31.63	14.75	9.58	0.04	QP
7	4.501	21.80	46.00	-24.20	12.13	9.50	0.17	Average
8	4.501	29.89	56.00	-26.11	20.22	9.50	0.17	QP
9	14.517	26.94	50.00	-23.06	17.02	9.69	0.23	Average
10	14.517	32.97	60.00	-27.03	23.05	9.69	0.23	QP
11	19.224	23.61	50.00	-26.39	13.64	9.71	0.26	Average
12	19.224	28.51	60.00	-31.49	18.54	9.71	0.26	QP

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

<b>Modulation</b>	HT20	<b>Test Freq. (MHz)</b>	2437
<b>Power Phase</b>	Neutral	<b>Test configuration</b>	2



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1@	0.365	34.43	48.61	-14.18	24.84	9.55	0.04	Average
2	0.365	36.97	58.61	-21.64	27.38	9.55	0.04	QP
3	1.057	20.02	46.00	-25.98	10.32	9.66	0.04	Average
4	1.057	24.09	56.00	-31.91	14.39	9.66	0.04	QP
5	2.116	22.00	46.00	-24.00	12.41	9.54	0.05	Average
6	2.116	25.85	56.00	-30.15	16.26	9.54	0.05	QP
7	4.269	20.11	46.00	-25.89	10.23	9.72	0.16	Average
8	4.269	28.17	56.00	-27.83	18.29	9.72	0.16	QP
9	14.213	26.22	50.00	-23.78	16.30	9.69	0.23	Average
10	14.213	33.11	60.00	-26.89	23.19	9.69	0.23	QP
11	19.224	21.35	50.00	-28.65	11.37	9.72	0.26	Average
12	19.224	26.60	60.00	-33.40	16.62	9.72	0.26	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB).  
 Note 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:**  
Quasi-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.

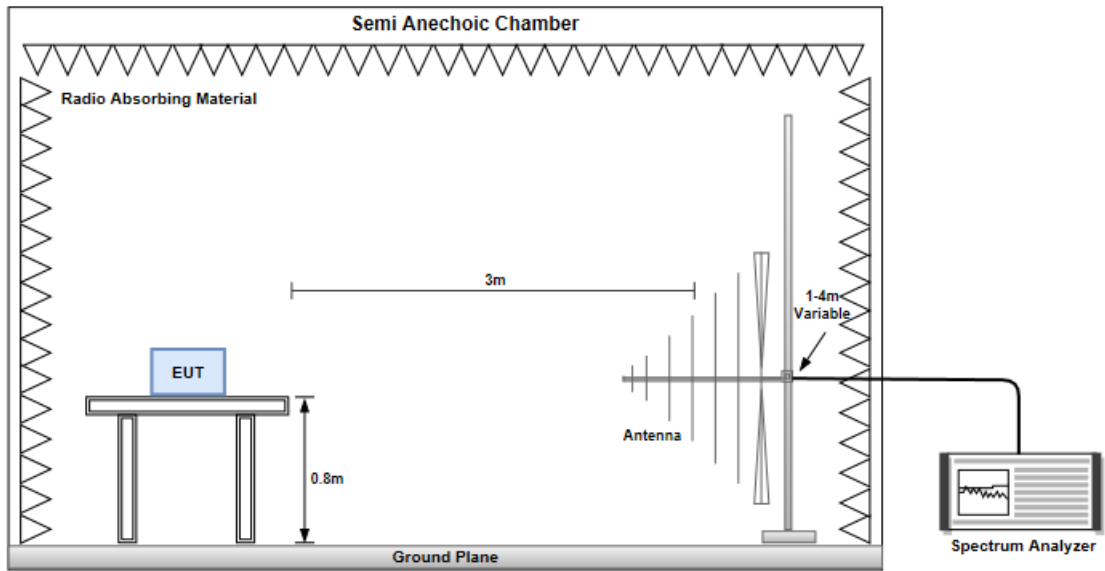
**Note:**

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.

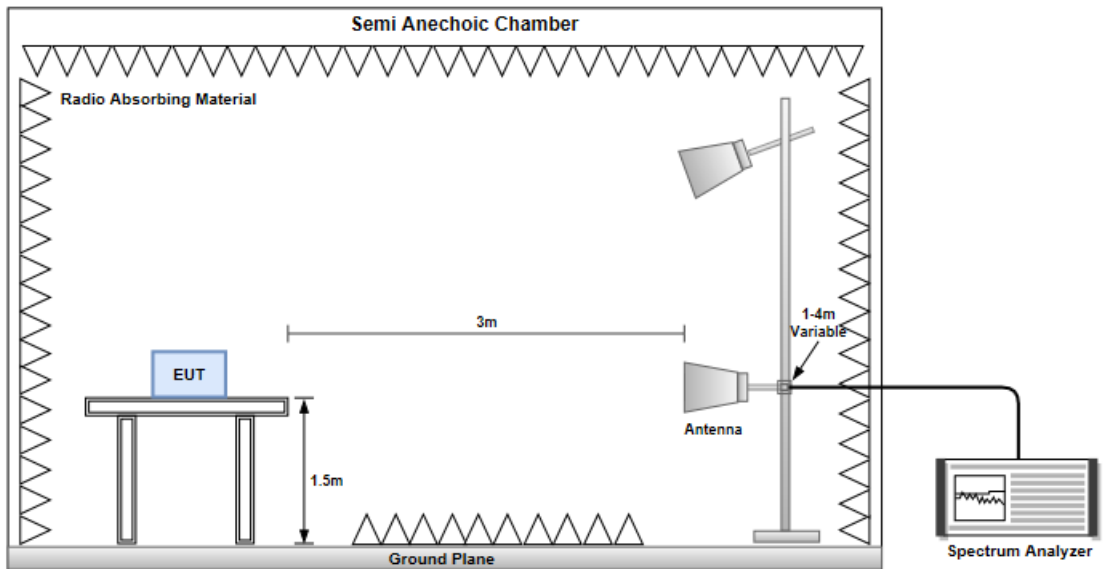


### 3.2.3 Test Setup

#### Radiated Emissions below 1 GHz



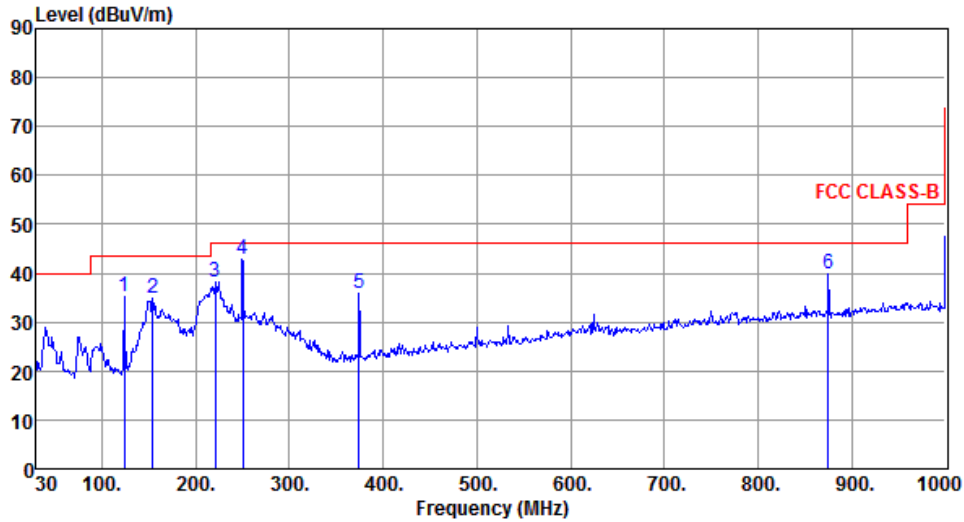
#### Radiated Emissions above 1 GHz



### Non-beamforming mode

#### 3.2.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)

Modulation	11g	Test Freq. (MHz)	2437
Polarization	Horizontal	Test Configuration	1



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	124.09	35.37	43.50	-8.13	45.90	-10.53	Peak	---	---
2	154.16	34.71	43.50	-8.79	43.08	-8.37	Peak	---	---
3	221.09	38.17	46.00	-7.83	49.06	-10.89	Peak	---	---
4	250.00	42.95	46.00	-3.05	52.32	-9.37	QP	100	108
5	374.35	35.72	46.00	-10.28	41.78	-6.06	Peak	---	---
6	874.87	39.75	46.00	-6.25	36.51	3.24	Peak	---	---

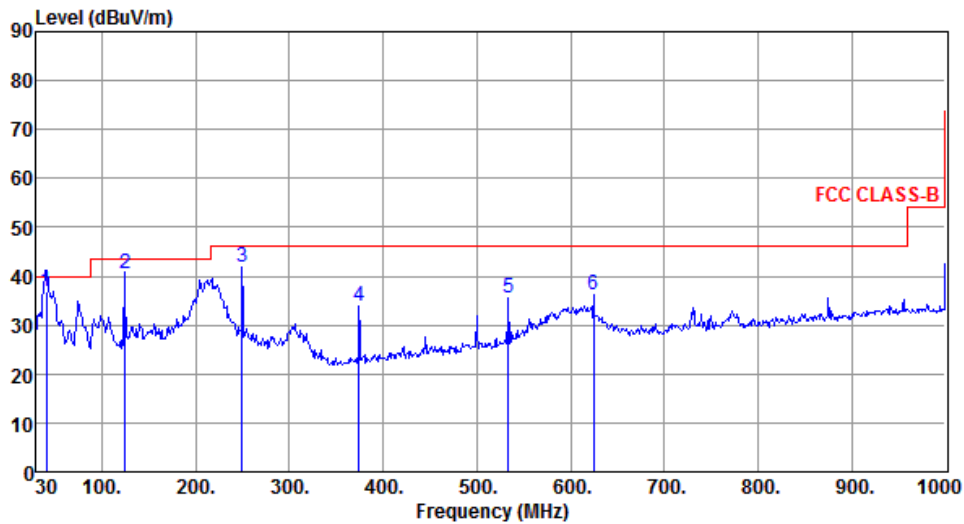
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*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.

<b>Modulation</b>	11g	<b>Test Freq. (MHz)</b>	2437
<b>Polarization</b>	Vertical	<b>Test Configuration</b>	1



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	40.56	36.98	40.00	-3.02	45.69	-8.71	QP	100	12
2	125.00	40.49	43.50	-3.01	50.94	-10.45	QP	100	86
3	249.22	41.71	46.00	-4.29	51.10	-9.39	Peak	---	---
4	374.35	33.86	46.00	-12.14	39.92	-6.06	Peak	---	---
5	533.43	35.64	46.00	-10.36	38.30	-2.66	Peak	---	---
6	624.61	36.35	46.00	-9.65	37.06	-0.71	Peak	---	---

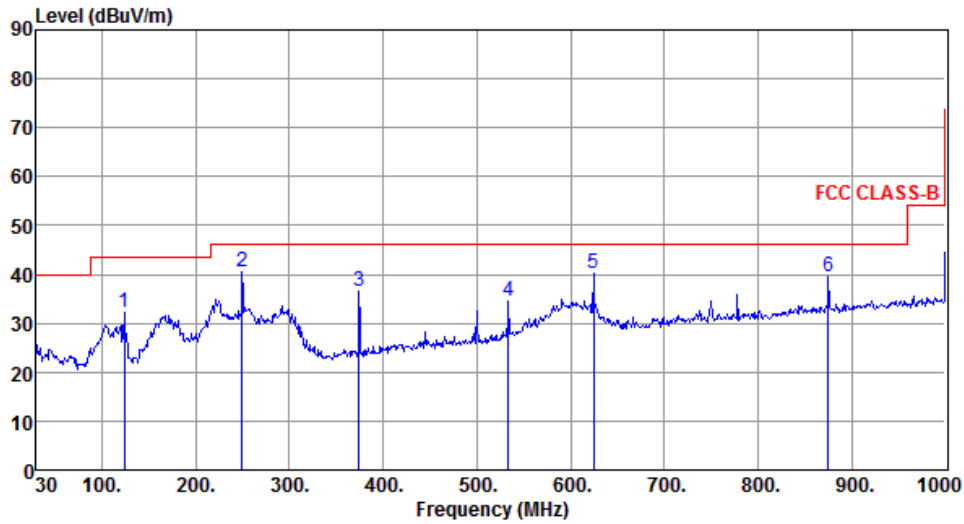
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*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.

<b>Modulation</b>	11g	<b>Test Freq. (MHz)</b>	2437
<b>Polarization</b>	Horizontal	<b>Test Configuration</b>	2



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	124.09	32.24	43.50	-11.26	42.77	-10.53	Peak	---	---
2	249.22	40.64	46.00	-5.36	50.03	-9.39	Peak	---	---
3	374.35	36.66	46.00	-9.34	42.72	-6.06	Peak	---	---
4	533.43	34.52	46.00	-11.48	37.18	-2.66	Peak	---	---
5	624.61	40.35	46.00	-5.65	41.06	-0.71	Peak	---	---
6	874.87	39.67	46.00	-6.33	36.43	3.24	Peak	---	---

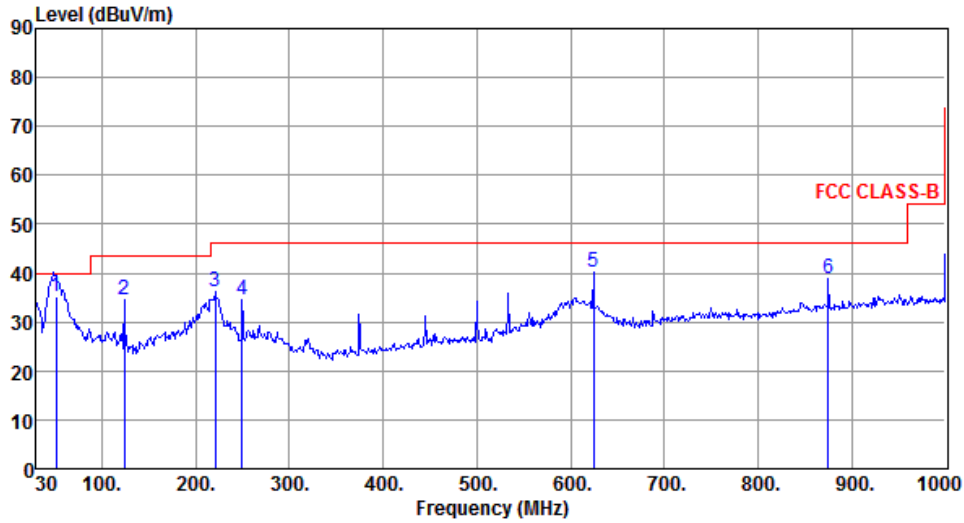
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*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.

<b>Modulation</b>	11g	<b>Test Freq. (MHz)</b>	2437
<b>Polarization</b>	Vertical	<b>Test Configuration</b>	2



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	51.20	35.09	40.00	-4.91	43.34	-8.25	QP	100	81
2	124.09	34.47	43.50	-9.03	45.00	-10.53	Peak	---	---
3	221.09	36.11	46.00	-9.89	47.00	-10.89	Peak	---	---
4	249.22	34.52	46.00	-11.48	43.91	-9.39	Peak	---	---
5	624.61	40.21	46.00	-5.79	40.92	-0.71	Peak	---	---
6	874.87	38.83	46.00	-7.17	35.59	3.24	Peak	---	---

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

\*Factor includes antenna factor , cable loss and amplifier gain

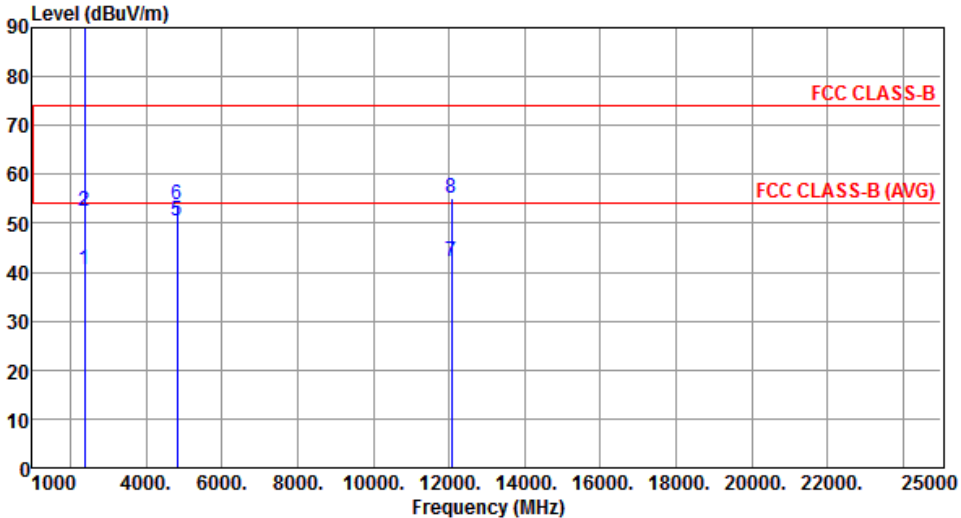
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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

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

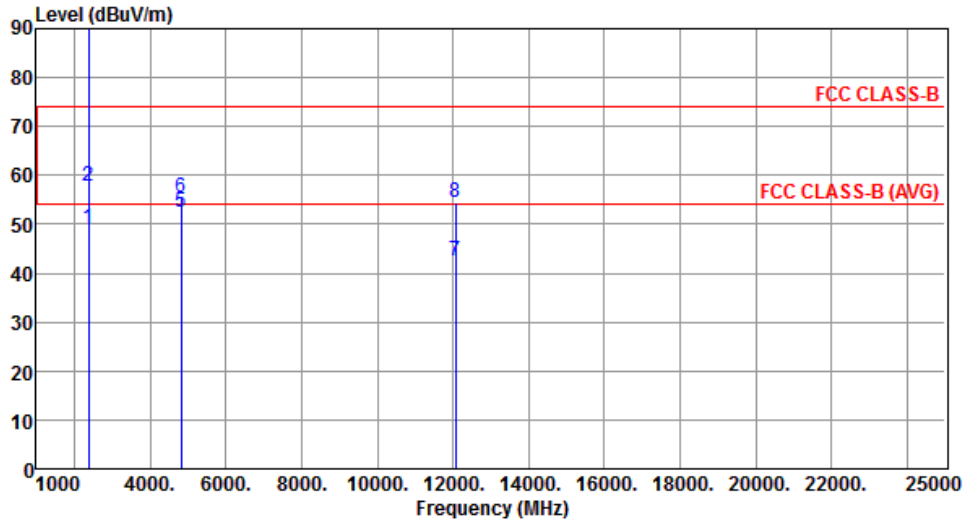


The graph displays the radiated unwanted emission levels in dBUV/m across a frequency range from 1000 MHz to 25000 MHz. Two horizontal red lines represent the FCC CLASS-B limit at approximately 75 dBUV/m and the FCC CLASS-B (AVG) limit at approximately 55 dBUV/m. Several peaks are identified with blue vertical lines and numbered 1 through 8. The most significant peak is at 2412 MHz, which exceeds both the CLASS-B and CLASS-B (AVG) limits.

	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	40.58	54.00	-13.42	42.55	-1.97	Average	295	255
2	2390.00	52.39	74.00	-21.61	54.36	-1.97	Peak	295	255
3 *	2412.00	104.32			106.20	-1.88	Average	295	255
4 *	2412.00	106.68			108.56	-1.88	Peak	295	255
5	4824.00	50.35	54.00	-3.65	45.68	4.67	Average	354	256
6	4824.00	53.84	74.00	-20.16	49.17	4.67	Peak	354	256
7	12060.00	42.32	54.00	-11.68	28.49	13.83	Average	100	118
8	12060.00	55.13	74.00	-18.87	41.30	13.83	Peak	100	118

Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor\* (dB)  
\*Factor includes antenna factor , cable loss and amplifier gain  
Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).  
Note 3: "\*" is Peak / Average value of fundamental frequency

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



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	49.16	54.00	-4.84	51.13	-1.97	Average	345	163
2	2390.00	57.93	74.00	-16.07	59.90	-1.97	Peak	345	163
3 *	2412.00	112.58			114.46	-1.88	Average	345	163
4 *	2412.00	115.16			117.04	-1.88	Peak	345	163
5	4824.00	52.58	54.00	-1.42	47.91	4.67	Average	306	335
6	4824.00	55.50	74.00	-18.50	50.83	4.67	Peak	306	335
7	12060.00	42.60	54.00	-11.40	28.77	13.83	Average	100	235
8	12060.00	54.61	74.00	-19.39	40.78	13.83	Peak	100	235

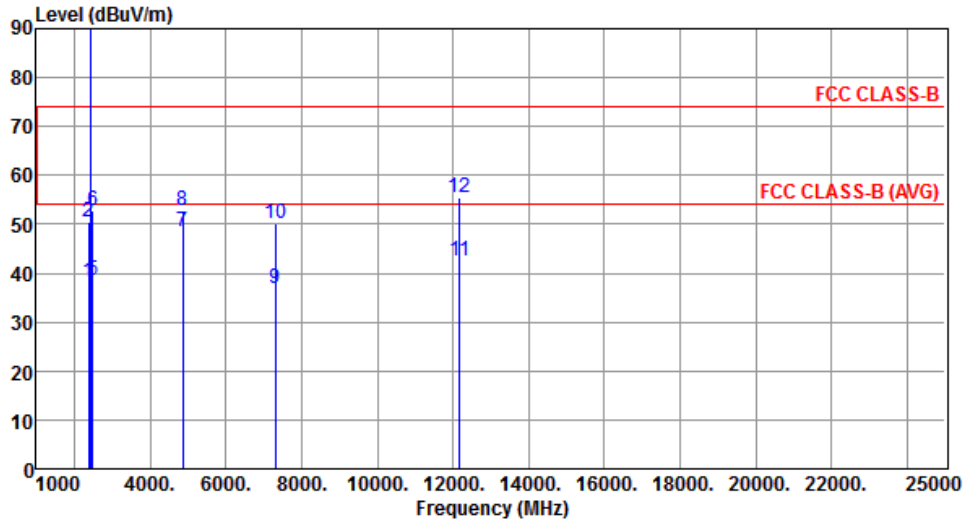
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "\*" is Peak / Average value of fundamental frequency

<b>Modulation</b>	11b	<b>Test Freq. (MHz)</b>	2437
<b>Polarization</b>	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	38.16	54.00	-15.84	40.13	-1.97	Average	256	263
2	2390.00	50.42	74.00	-23.58	52.39	-1.97	Peak	256	263
3 *	2437.00	104.66			106.44	-1.78	Average	256	263
4 *	2437.00	107.19			108.97	-1.78	Peak	256	263
5	2483.50	38.54	54.00	-15.46	40.16	-1.62	Average	256	263
6	2483.50	52.65	74.00	-21.35	54.27	-1.62	Peak	256	263
7	4874.00	48.49	54.00	-5.51	43.72	4.77	Average	317	260
8	4874.00	52.65	74.00	-21.35	47.88	4.77	Peak	317	260
9	7311.00	36.99	54.00	-17.01	27.68	9.31	Average	100	106
10	7311.00	50.19	74.00	-23.81	40.88	9.31	Peak	100	106
11	12185.00	42.62	54.00	-11.38	28.95	13.67	Average	100	270
12	12185.00	55.42	74.00	-18.58	41.75	13.67	Peak	100	270

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

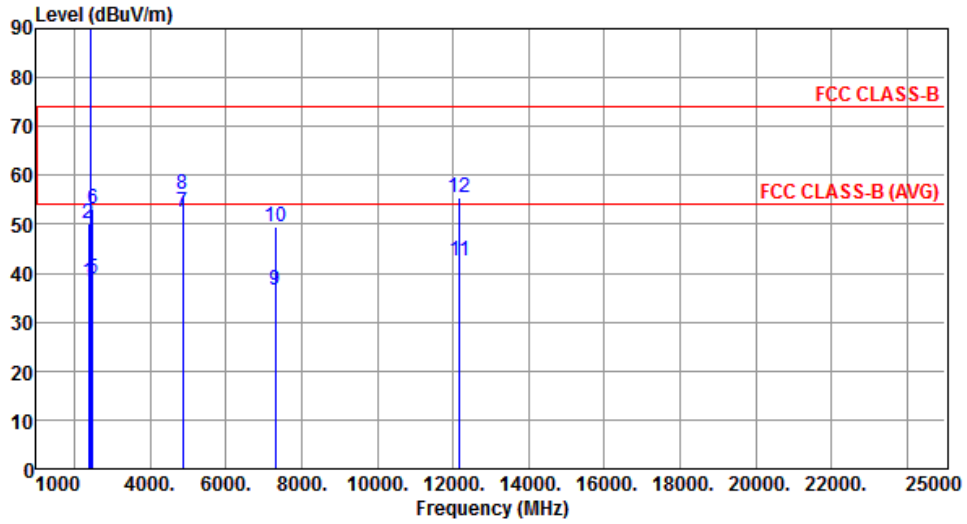
\*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "\*" is Peak / Average value of fundamental frequency



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



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	38.21	54.00	-15.79	40.18	-1.97	Average	371	169
2	2390.00	50.26	74.00	-23.74	52.23	-1.97	Peak	371	169
3 *	2437.00	111.69			113.47	-1.78	Average	371	169
4 *	2437.00	114.27			116.05	-1.78	Peak	371	169
5	2483.50	38.98	54.00	-15.02	40.60	-1.62	Average	317	169
6	2483.50	53.02	74.00	-20.98	54.64	-1.62	Peak	317	169
7	4874.00	52.62	54.00	-1.38	47.85	4.77	Average	288	328
8	4874.00	56.28	74.00	-17.72	51.51	4.77	Peak	288	328
9	7311.00	36.55	54.00	-17.45	27.24	9.31	Average	100	64
10	7311.00	49.37	74.00	-24.63	40.06	9.31	Peak	100	64
11	12185.00	42.58	54.00	-11.42	28.91	13.67	Average	100	215
12	12185.00	55.31	74.00	-18.69	41.64	13.67	Peak	100	215

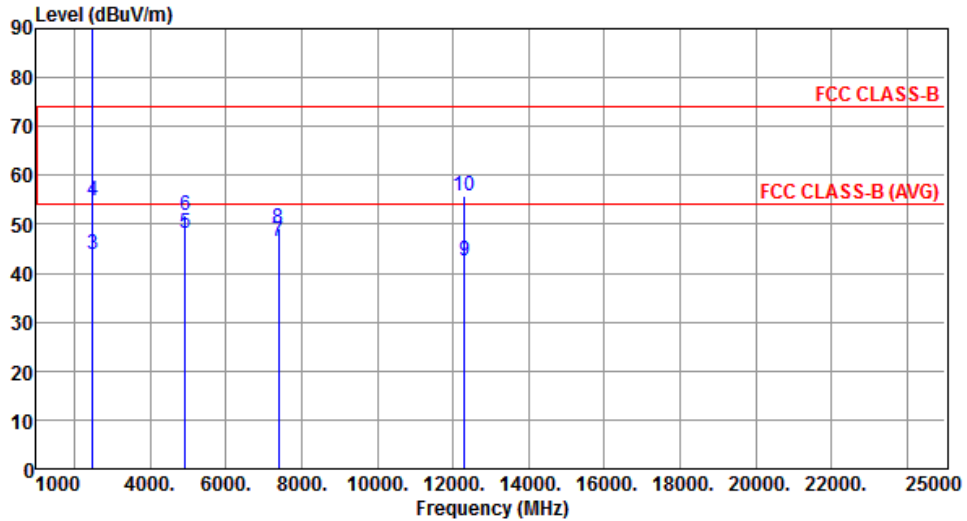
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "\*" is Peak / Average value of fundamental frequency

<b>Modulation</b>	11b	<b>Test Freq. (MHz)</b>	2462
<b>Polarization</b>	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	*	2462.00	104.47			106.16	-1.69	Average	315	254
2	*	2462.00	107.02			108.71	-1.69	Peak	315	254
3		2483.50	43.86	54.00	-10.14	45.48	-1.62	Average	315	254
4		2483.50	54.84	74.00	-19.16	56.46	-1.62	Peak	315	254
5		4924.00	48.12	54.00	-5.88	43.26	4.86	Average	390	250
6		4924.00	51.90	74.00	-22.10	47.04	4.86	Peak	390	250
7		7386.00	46.35	54.00	-7.65	36.77	9.58	Average	100	124
8		7386.00	49.12	74.00	-24.88	39.54	9.58	Peak	100	124
9		12310.00	42.49	54.00	-11.51	28.99	13.50	Average	100	262
10		12310.00	55.69	74.00	-18.31	42.19	13.50	Peak	100	262

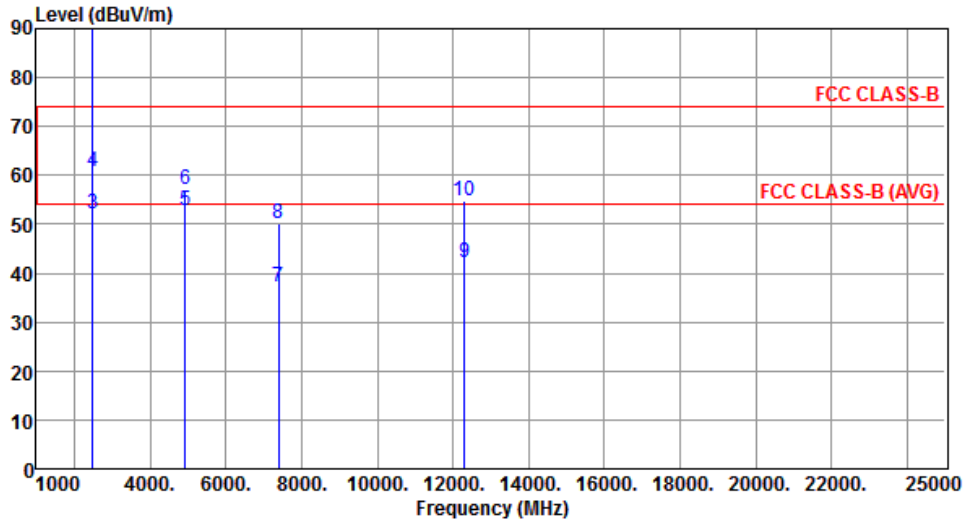
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "\*" is Peak / Average value of fundamental frequency

<b>Modulation</b>	11b	<b>Test Freq. (MHz)</b>	2462
<b>Polarization</b>	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	*	2462.00	112.25			113.94	-1.69	Average	315	164
2	*	2462.00	114.90			116.59	-1.69	Peak	315	164
3		2483.50	52.05	54.00	-1.95	53.67	-1.62	Average	315	164
4		2483.50	60.93	74.00	-13.07	62.55	-1.62	Peak	315	164
5		4924.00	52.93	54.00	-1.07	48.07	4.86	Average	310	336
6		4924.00	57.25	74.00	-16.75	52.39	4.86	Peak	310	336
7		7386.00	37.07	54.00	-16.93	27.49	9.58	Average	100	73
8		7386.00	50.02	74.00	-23.98	40.44	9.58	Peak	100	73
9		12310.00	42.22	54.00	-11.78	28.72	13.50	Average	100	204
10		12310.00	54.81	74.00	-19.19	41.31	13.50	Peak	100	204

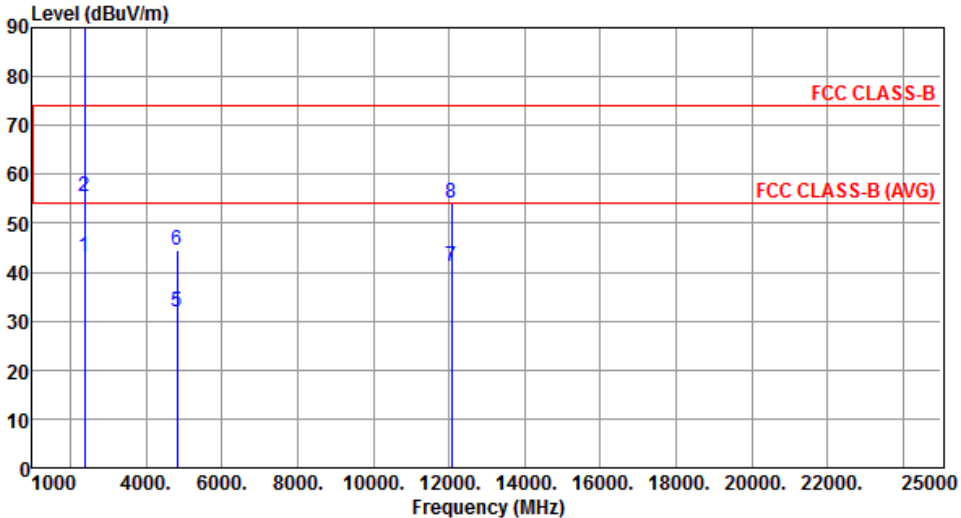
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

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

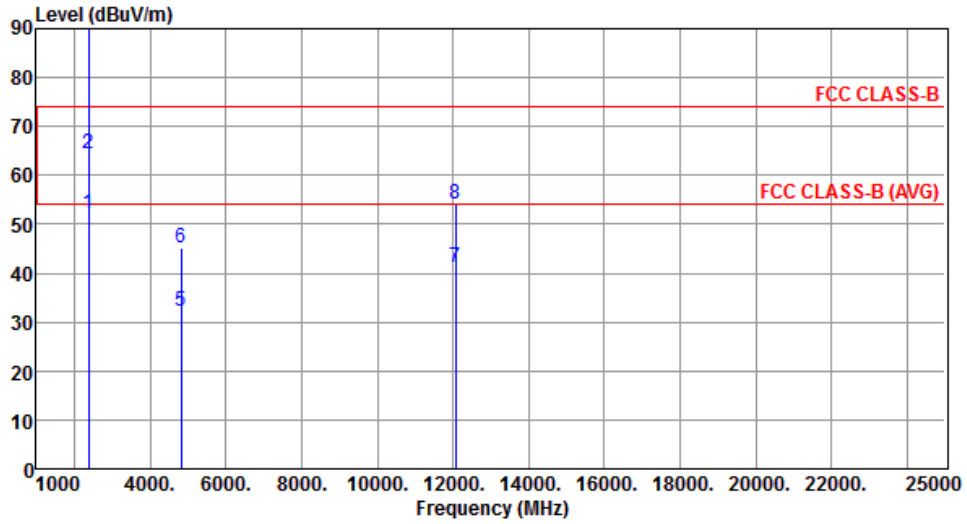
Note 3: "\*" is Peak / Average value of fundamental frequency

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

Modulation	11g	Test Freq. (MHz)	2412						
Polarization	Horizontal								
									
	Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB		cm	deg
1	2390.00	43.31	54.00	-10.69	45.28	-1.97	Average	258	263
2	2390.00	55.42	74.00	-18.58	57.39	-1.97	Peak	258	263
3 *	2412.00	93.06			94.94	-1.88	Average	258	263
4 *	2412.00	103.22			105.10	-1.88	Peak	258	263
5	4824.00	31.93	54.00	-22.07	27.26	4.67	Average	100	42
6	4824.00	44.59	74.00	-29.41	39.92	4.67	Peak	100	42
7	12060.00	41.33	54.00	-12.67	27.50	13.83	Average	100	231
8	12060.00	54.17	74.00	-19.83	40.34	13.83	Peak	100	231

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

<b>Modulation</b>	11g	<b>Test Freq. (MHz)</b>	2412
<b>Polarization</b>	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	52.26	54.00	-1.74	54.23	-1.97	Average	293	138
2	2390.00	64.38	74.00	-9.62	66.35	-1.97	Peak	293	138
3 *	2412.00	100.64			102.52	-1.88	Average	293	138
4 *	2412.00	111.54			113.42	-1.88	Peak	293	138
5	4824.00	32.35	54.00	-21.65	27.68	4.67	Average	100	174
6	4824.00	45.31	74.00	-28.69	40.64	4.67	Peak	100	174
7	12060.00	41.21	54.00	-12.79	27.38	13.83	Average	100	294
8	12060.00	54.26	74.00	-19.74	40.43	13.83	Peak	100	294

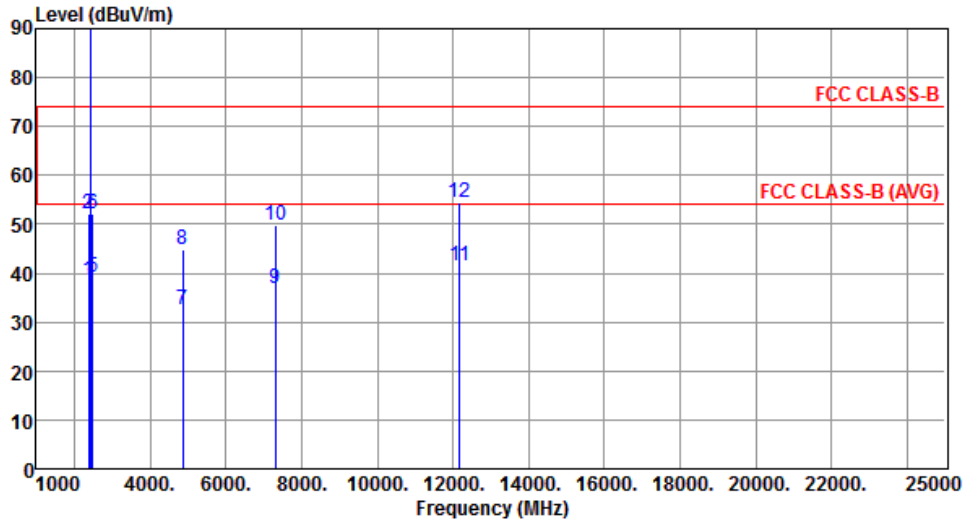
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "\*" is Peak / Average value of fundamental frequency

<b>Modulation</b>	11g	<b>Test Freq. (MHz)</b>	2437
<b>Polarization</b>	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	38.51	54.00	-15.49	40.48	-1.97	Average	262	163
2	2390.00	52.09	74.00	-21.91	54.06	-1.97	Peak	262	163
3 *	2437.00	96.96			98.74	-1.78	Average	262	163
4 *	2437.00	106.33			108.11	-1.78	Peak	262	163
5	2483.50	39.21	54.00	-14.79	40.83	-1.62	Average	262	163
6	2483.50	52.19	74.00	-21.81	53.81	-1.62	Peak	262	163
7	4874.00	32.53	54.00	-21.47	27.76	4.77	Average	100	55
8	4874.00	44.93	74.00	-29.07	40.16	4.77	Peak	100	55
9	7311.00	36.88	54.00	-17.12	27.57	9.31	Average	100	311
10	7311.00	49.69	74.00	-24.31	40.38	9.31	Peak	100	311
11	12185.00	41.50	54.00	-12.50	27.83	13.67	Average	100	234
12	12185.00	54.55	74.00	-19.45	40.88	13.67	Peak	100	234

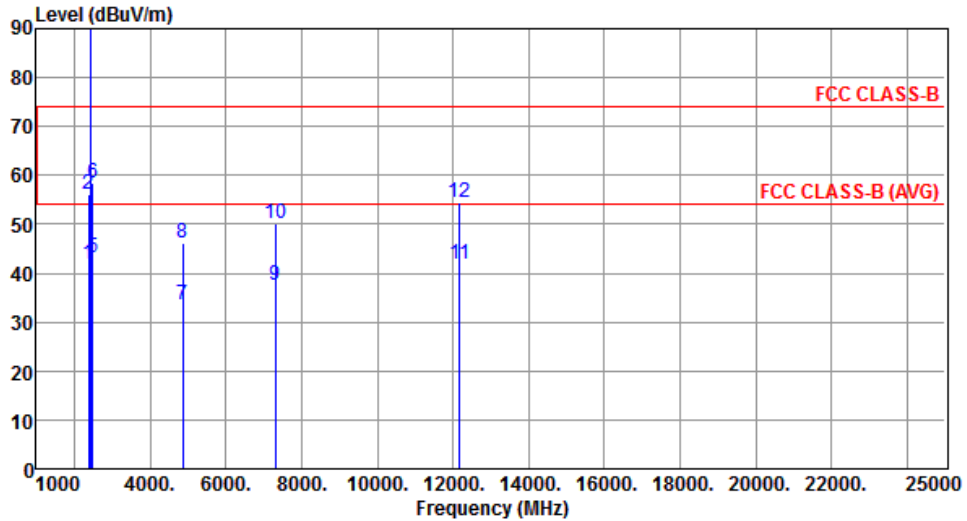
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "\*" is Peak / Average value of fundamental frequency

<b>Modulation</b>	11g	<b>Test Freq. (MHz)</b>	2437
<b>Polarization</b>	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	41.83	54.00	-12.17	43.80	-1.97	Average	378	153
2	2390.00	56.23	74.00	-17.77	58.20	-1.97	Peak	378	153
3 *	2437.00	106.71			108.49	-1.78	Average	378	153
4 *	2437.00	116.92			118.70	-1.78	Peak	378	153
5	2483.50	43.19	54.00	-10.81	44.81	-1.62	Average	378	153
6	2483.50	58.59	74.00	-15.41	60.21	-1.62	Peak	378	153
7	4874.00	33.44	54.00	-20.56	28.67	4.77	Average	276	177
8	4874.00	46.23	74.00	-27.77	41.46	4.77	Peak	276	177
9	7311.00	37.55	54.00	-16.45	28.24	9.31	Average	100	253
10	7311.00	50.19	74.00	-23.81	40.88	9.31	Peak	100	253
11	12185.00	41.80	54.00	-12.20	28.13	13.67	Average	100	294
12	12185.00	54.39	74.00	-19.61	40.72	13.67	Peak	100	294

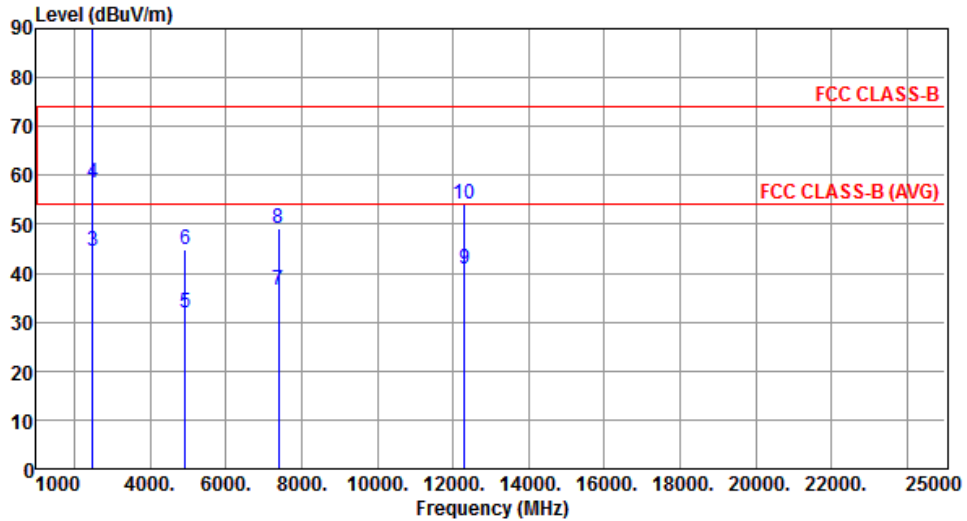
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "\*" is Peak / Average value of fundamental frequency

<b>Modulation</b>	11g	<b>Test Freq. (MHz)</b>	2462
<b>Polarization</b>	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	*	2462.00	93.05			94.74	-1.69	Average	271	147
2	*	2462.00	102.97			104.66	-1.69	Peak	271	147
3		2483.50	44.41	54.00	-9.59	46.03	-1.62	Average	271	147
4		2483.50	58.40	74.00	-15.60	60.02	-1.62	Peak	271	147
5		4924.00	32.02	54.00	-21.98	27.16	4.86	Average	100	49
6		4924.00	44.68	74.00	-29.32	39.82	4.86	Peak	100	49
7		7386.00	36.57	54.00	-17.43	26.99	9.58	Average	100	294
8		7386.00	49.32	74.00	-24.68	39.74	9.58	Peak	100	294
9		12310.00	40.88	54.00	-13.12	27.38	13.50	Average	100	245
10		12310.00	54.00	74.00	-20.00	40.50	13.50	Peak	100	245

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

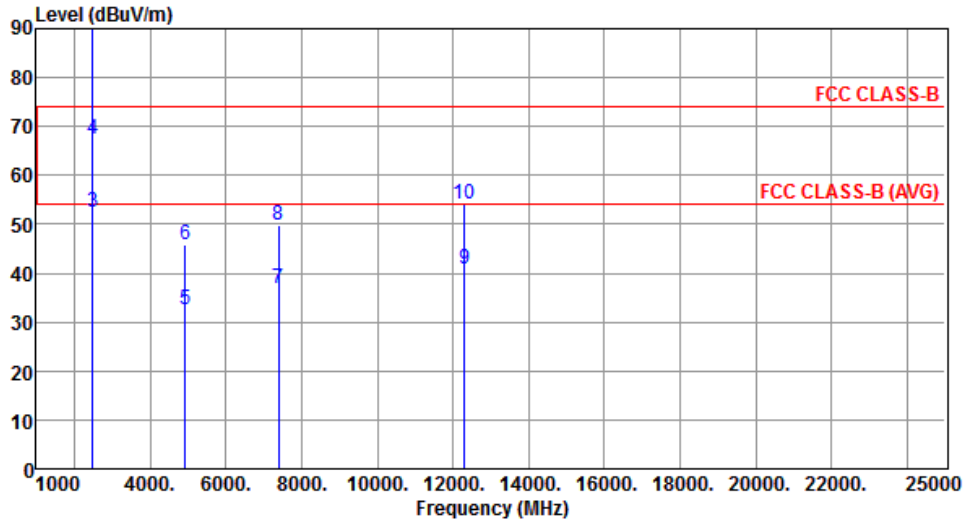
\*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "\*" is Peak / Average value of fundamental frequency



<b>Modulation</b>	11g	<b>Test Freq. (MHz)</b>	2462
<b>Polarization</b>	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	*	2462.00	102.75			104.44	-1.69	Average	262	142
2	*	2462.00	113.02			114.71	-1.69	Peak	262	142
3		2483.50	52.55	54.00	-1.45	54.17	-1.62	Average	262	142
4		2483.50	67.49	74.00	-6.51	69.11	-1.62	Peak	262	142
5		4924.00	32.68	54.00	-21.32	27.82	4.86	Average	284	180
6		4924.00	45.84	74.00	-28.16	40.98	4.86	Peak	284	180
7		7386.00	36.92	54.00	-17.08	27.34	9.58	Average	100	224
8		7386.00	49.91	74.00	-24.09	40.33	9.58	Peak	100	224
9		12310.00	40.97	54.00	-13.03	27.47	13.50	Average	100	302
10		12310.00	54.01	74.00	-19.99	40.51	13.50	Peak	100	302

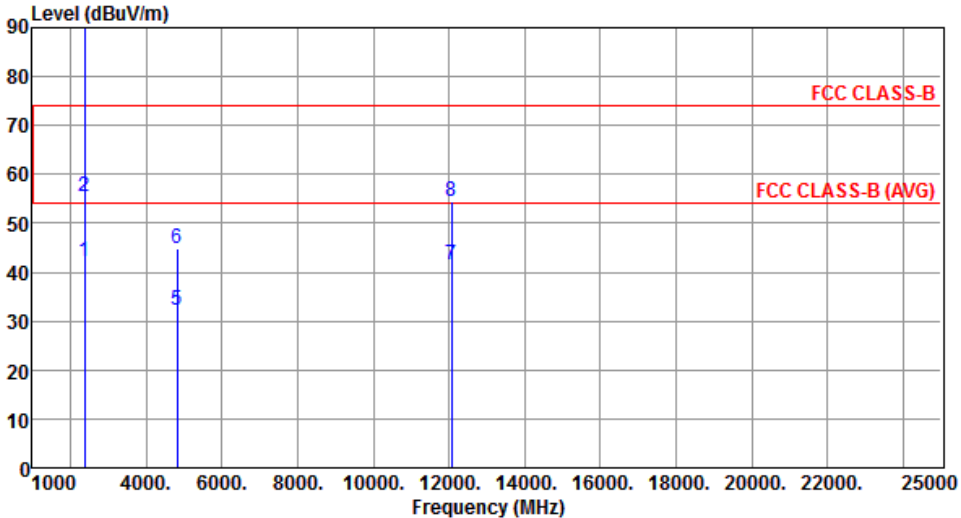
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

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

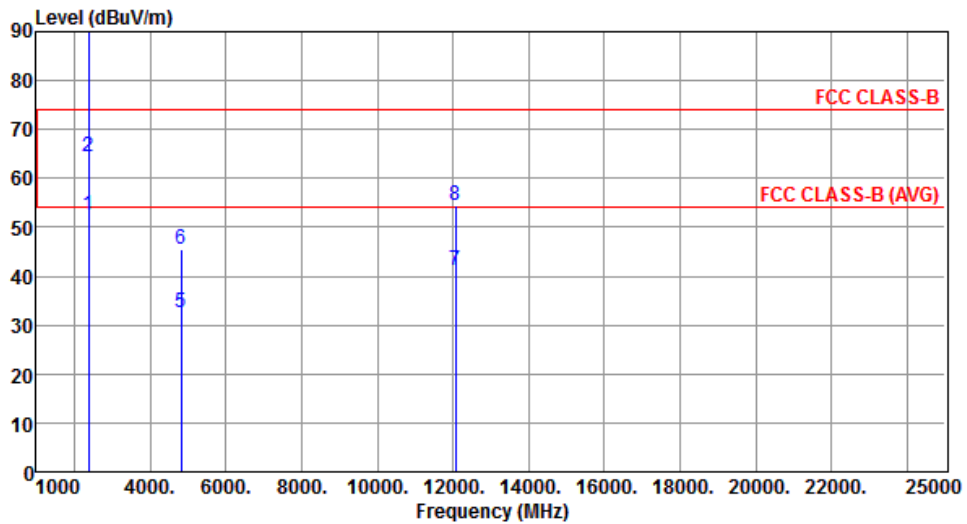
Note 3: "\*" is Peak / Average value of fundamental frequency

### 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	42.15	54.00	-11.85	44.12	-1.97	Average	286	145
2	2390.00	55.56	74.00	-18.44	57.53	-1.97	Peak	286	145
3 *	2412.00	90.38			92.26	-1.88	Average	286	145
4 *	2412.00	99.94			101.82	-1.88	Peak	286	145
5	4824.00	32.06	54.00	-21.94	27.39	4.67	Average	100	46
6	4824.00	44.75	74.00	-29.25	40.08	4.67	Peak	100	46
7	12060.00	41.50	54.00	-12.50	27.67	13.83	Average	100	308
8	12060.00	54.35	74.00	-19.65	40.52	13.83	Peak	100	308

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

<b>Modulation</b>	HT20	<b>Test Freq. (MHz)</b>	2412
<b>Polarization</b>	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	52.46	54.00	-1.54	54.43	-1.97	Average	313	146
2	2390.00	64.35	74.00	-9.65	66.32	-1.97	Peak	313	146
3 *	2412.00	100.00			101.88	-1.88	Average	313	146
4 *	2412.00	110.10			111.98	-1.88	Peak	313	146
5	4824.00	32.61	54.00	-21.39	27.94	4.67	Average	100	165
6	4824.00	45.52	74.00	-28.48	40.85	4.67	Peak	100	165
7	12060.00	41.28	54.00	-12.72	27.45	13.83	Average	100	286
8	12060.00	54.50	74.00	-19.50	40.67	13.83	Peak	100	286

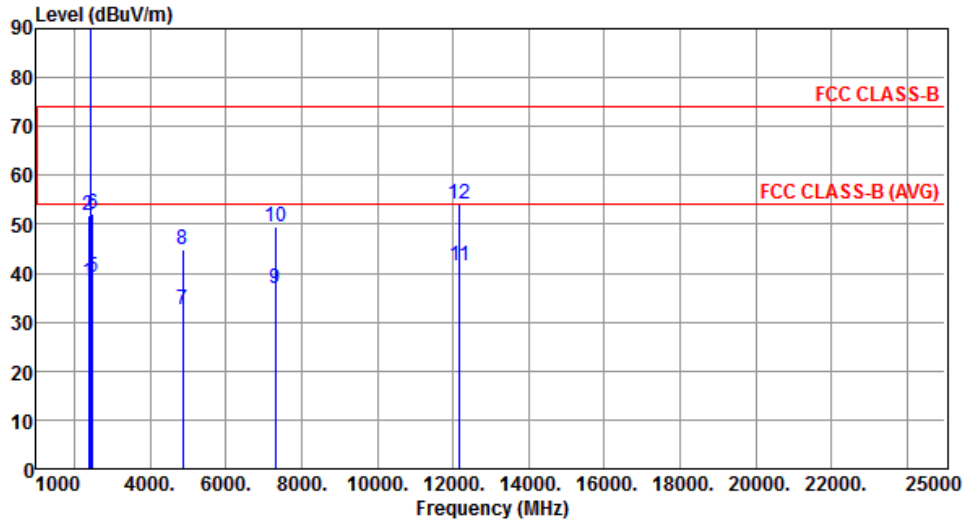
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "\*" is Peak / Average value of fundamental frequency

<b>Modulation</b>	HT20	<b>Test Freq. (MHz)</b>	2437
<b>Polarization</b>	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	38.32	54.00	-15.68	40.29	-1.97	Average	266	159
2	2390.00	51.87	74.00	-22.13	53.84	-1.97	Peak	266	159
3 *	2437.00	96.37			98.15	-1.78	Average	266	159
4 *	2437.00	105.94			107.72	-1.78	Peak	266	159
5	2483.50	39.10	54.00	-14.90	40.72	-1.62	Average	266	159
6	2483.50	52.03	74.00	-21.97	53.65	-1.62	Peak	266	159
7	4874.00	32.39	54.00	-21.61	27.62	4.77	Average	100	62
8	4874.00	44.85	74.00	-29.15	40.08	4.77	Peak	100	62
9	7311.00	36.76	54.00	-17.24	27.45	9.31	Average	100	303
10	7311.00	49.53	74.00	-24.47	40.22	9.31	Peak	100	303
11	12185.00	41.40	54.00	-12.60	27.73	13.67	Average	100	226
12	12185.00	54.30	74.00	-19.70	40.63	13.67	Peak	100	226

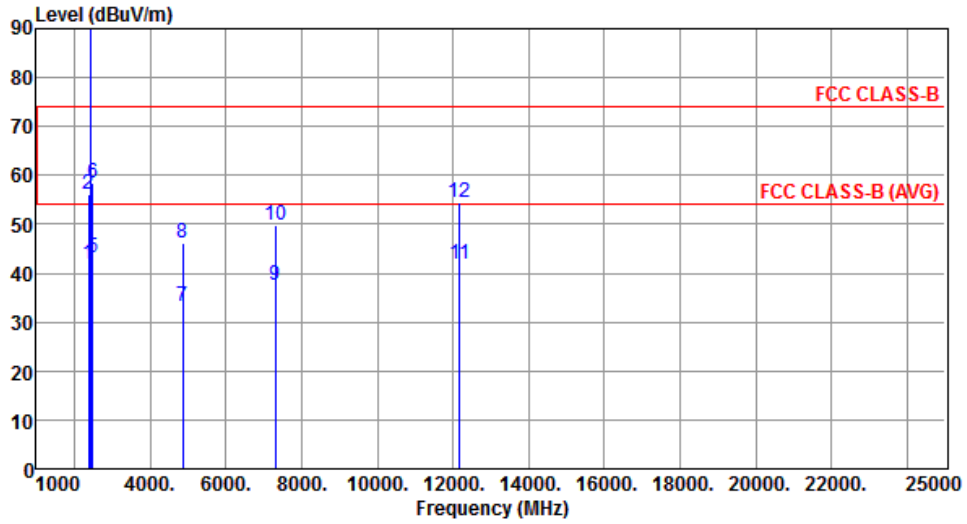
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "\*" is Peak / Average value of fundamental frequency

<b>Modulation</b>	HT20	<b>Test Freq. (MHz)</b>	2437
<b>Polarization</b>	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	41.70	54.00	-12.30	43.67	-1.97	Average	373	155
2	2390.00	56.12	74.00	-17.88	58.09	-1.97	Peak	373	155
3 *	2437.00	106.07			107.85	-1.78	Average	373	155
4 *	2437.00	116.05			117.83	-1.78	Peak	373	155
5	2483.50	43.13	54.00	-10.87	44.75	-1.62	Average	373	155
6	2483.50	58.51	74.00	-15.49	60.13	-1.62	Peak	373	155
7	4874.00	33.38	54.00	-20.62	28.61	4.77	Average	267	173
8	4874.00	46.09	74.00	-27.91	41.32	4.77	Peak	267	173
9	7311.00	37.47	54.00	-16.53	28.16	9.31	Average	100	250
10	7311.00	49.95	74.00	-24.05	40.64	9.31	Peak	100	250
11	12185.00	41.91	54.00	-12.09	28.24	13.67	Average	100	285
12	12185.00	54.35	74.00	-19.65	40.68	13.67	Peak	100	285

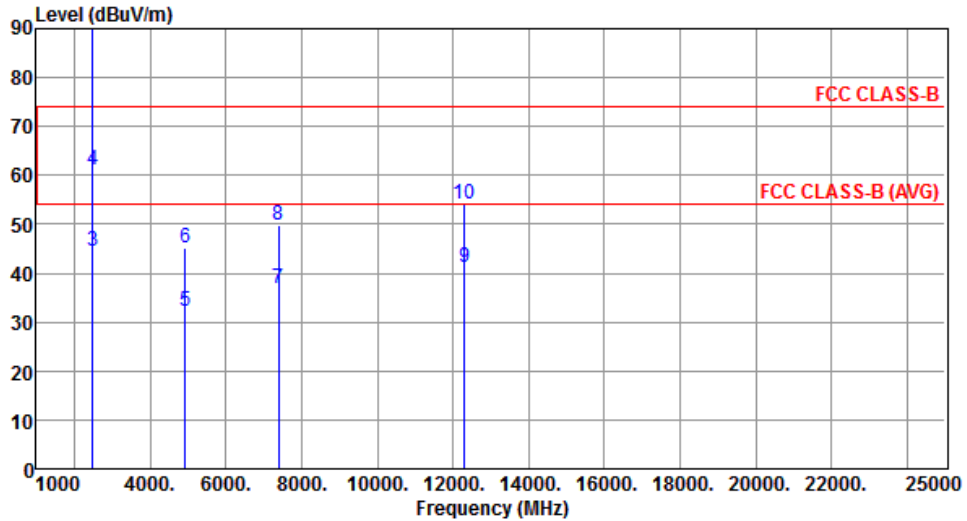
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "\*" is Peak / Average value of fundamental frequency

<b>Modulation</b>	HT20	<b>Test Freq. (MHz)</b>	2462
<b>Polarization</b>	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	*	2462.00	92.84			94.53	-1.69	Average	259	152
2	*	2462.00	102.78			104.47	-1.69	Peak	259	152
3		2483.50	44.64	54.00	-9.36	46.26	-1.62	Average	259	152
4		2483.50	61.26	74.00	-12.74	62.88	-1.62	Peak	259	152
5		4924.00	32.25	54.00	-21.75	27.39	4.86	Average	100	55
6		4924.00	45.02	74.00	-28.98	40.16	4.86	Peak	100	55
7		7386.00	36.94	54.00	-17.06	27.36	9.58	Average	100	296
8		7386.00	49.69	74.00	-24.31	40.11	9.58	Peak	100	296
9		12310.00	41.22	54.00	-12.78	27.72	13.50	Average	100	239
10		12310.00	54.25	74.00	-19.75	40.75	13.50	Peak	100	239

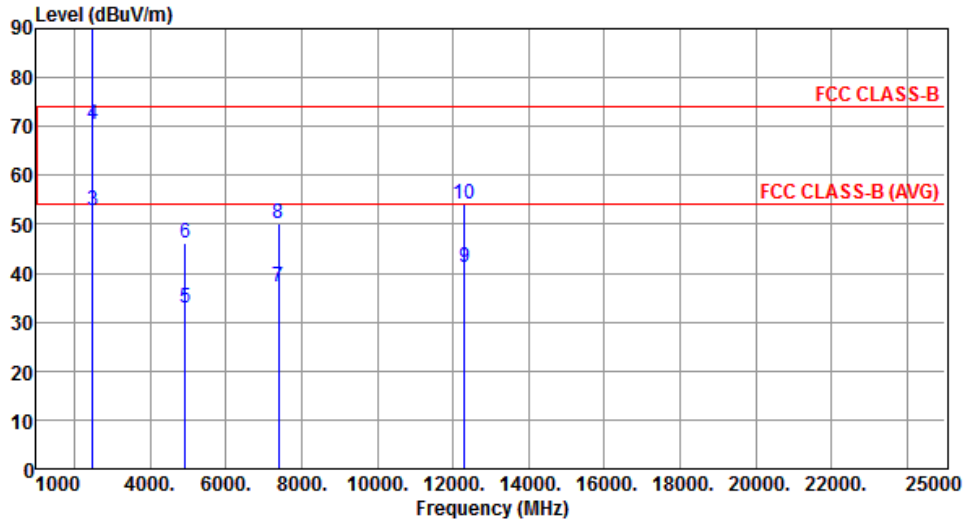
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "\*" is Peak / Average value of fundamental frequency

<b>Modulation</b>	HT20	<b>Test Freq. (MHz)</b>	2462
<b>Polarization</b>	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	*	2462.00	101.95			103.64	-1.69	Average	293	142
2	*	2462.00	111.54			113.23	-1.69	Peak	293	142
3		2483.50	52.80	54.00	-1.20	54.42	-1.62	Average	293	142
4		2483.50	70.46	74.00	-3.54	72.08	-1.62	Peak	293	142
5		4924.00	32.92	54.00	-21.08	28.06	4.86	Average	278	183
6		4924.00	46.12	74.00	-27.88	41.26	4.86	Peak	278	183
7		7386.00	37.07	54.00	-16.93	27.49	9.58	Average	100	218
8		7386.00	50.09	74.00	-23.91	40.51	9.58	Peak	100	218
9		12310.00	41.25	54.00	-12.75	27.75	13.50	Average	100	292
10		12310.00	54.17	74.00	-19.83	40.67	13.50	Peak	100	292

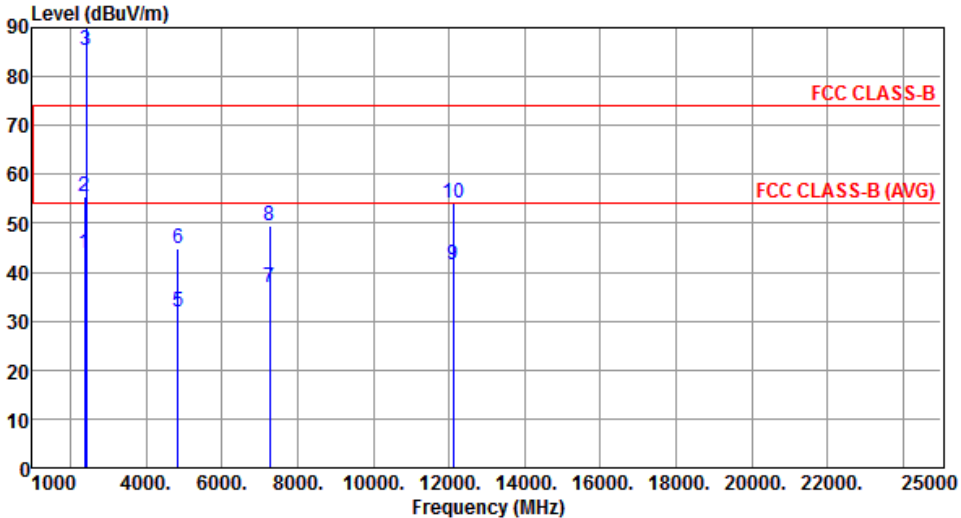
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "\*" is Peak / Average value of fundamental frequency

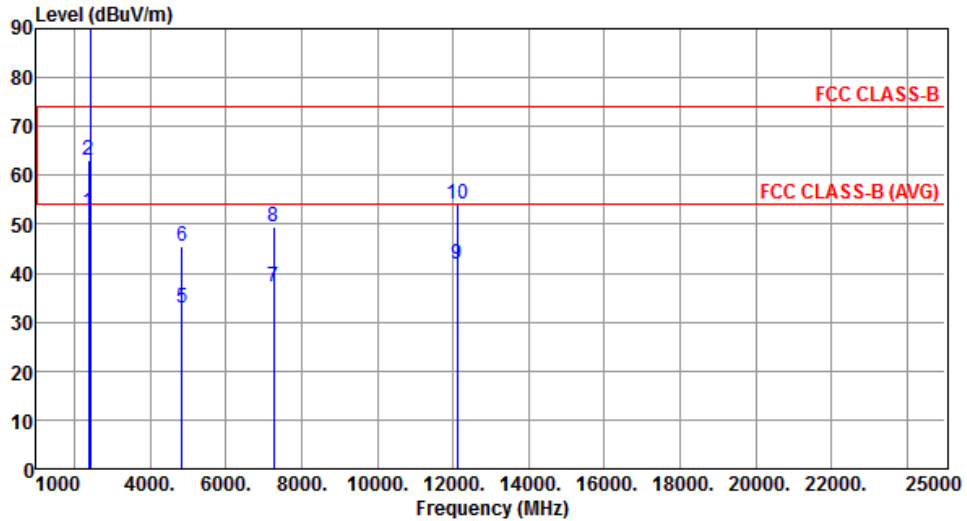
### 3.2.8 Transmitter Radiated Unwanted Emissions (Above 1GHz) for HT40

Modulation	HT40	Test Freq. (MHz)	2422						
Polarization	Horizontal								
									
	Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB		cm	deg
1	2390.00	43.96	54.00	-10.04	45.93	-1.97	Average	239	157
2	2390.00	55.59	74.00	-18.41	57.56	-1.97	Peak	239	157
3 *	2422.00	85.33			87.17	-1.84	Average	239	157
4 *	2422.00	95.02			96.86	-1.84	Peak	239	157
5	4844.00	31.95	54.00	-22.05	27.25	4.70	Average	100	53
6	4844.00	44.79	74.00	-29.21	40.09	4.70	Peak	100	53
7	7266.00	36.72	54.00	-17.28	27.57	9.15	Average	100	277
8	7266.00	49.32	74.00	-24.68	40.17	9.15	Peak	100	277
9	12110.00	41.41	54.00	-12.59	27.64	13.77	Average	100	242
10	12110.00	54.23	74.00	-19.77	40.46	13.77	Peak	100	242

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



<b>Modulation</b>	HT40	<b>Test Freq. (MHz)</b>	2422
<b>Polarization</b>	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	52.36	54.00	-1.64	54.33	-1.97	Average	278	148
2	2390.00	63.25	74.00	-10.75	65.22	-1.97	Peak	278	148
3 *	2422.00	94.33			96.17	-1.84	Average	278	148
4 *	2422.00	104.33			106.17	-1.84	Peak	278	148
5	4844.00	32.95	54.00	-21.05	28.25	4.70	Average	274	175
6	4844.00	45.57	74.00	-28.43	40.87	4.70	Peak	274	175
7	7266.00	37.07	54.00	-16.93	27.92	9.15	Average	100	244
8	7266.00	49.41	74.00	-24.59	40.26	9.15	Peak	100	244
9	12110.00	41.94	54.00	-12.06	28.17	13.77	Average	100	285
10	12110.00	54.26	74.00	-19.74	40.49	13.77	Peak	100	285

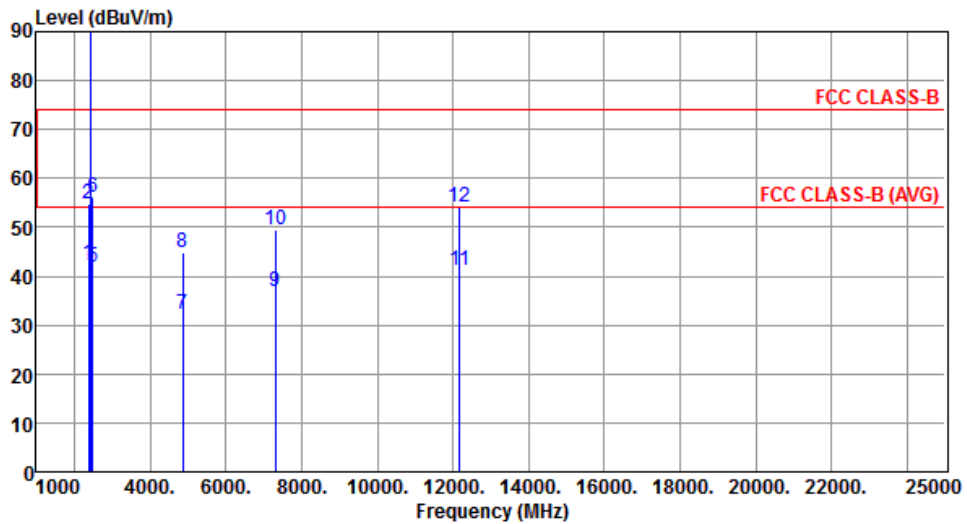
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "\*" is Peak / Average value of fundamental frequency

<b>Modulation</b>	HT40	<b>Test Freq. (MHz)</b>	2437
<b>Polarization</b>	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	42.57	54.00	-11.43	44.54	-1.97	Average	237	156
2	2390.00	54.73	74.00	-19.27	56.70	-1.97	Peak	237	156
3 *	2437.00	89.96			91.74	-1.78	Average	237	156
4 *	2437.00	99.10			100.88	-1.78	Peak	237	156
5	2483.50	41.84	54.00	-12.16	43.46	-1.62	Average	237	156
6	2483.50	56.03	74.00	-17.97	57.65	-1.62	Peak	237	156
7	4874.00	32.29	54.00	-21.71	27.52	4.77	Average	100	58
8	4874.00	44.93	74.00	-29.07	40.16	4.77	Peak	100	58
9	7311.00	36.79	54.00	-17.21	27.48	9.31	Average	100	311
10	7311.00	49.65	74.00	-24.35	40.34	9.31	Peak	100	311
11	12185.00	41.33	54.00	-12.67	27.66	13.67	Average	100	219
12	12185.00	54.20	74.00	-19.80	40.53	13.67	Peak	100	219

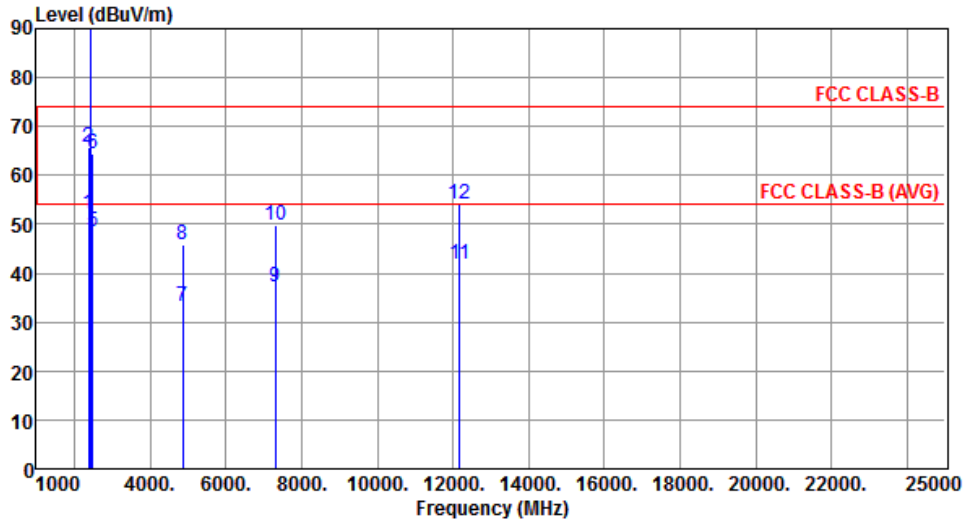
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "\*" is Peak / Average value of fundamental frequency

<b>Modulation</b>	HT40	<b>Test Freq. (MHz)</b>	2437
<b>Polarization</b>	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	52.23	54.00	-1.77	54.20	-1.97	Average	287	143
2	2390.00	65.73	74.00	-8.27	67.70	-1.97	Peak	287	143
3 *	2437.00	99.10			100.88	-1.78	Average	287	143
4 *	2437.00	109.37			111.15	-1.78	Peak	287	143
5	2483.50	48.64	54.00	-5.36	50.26	-1.62	Average	287	143
6	2483.50	64.40	74.00	-9.60	66.02	-1.62	Peak	287	143
7	4874.00	33.13	54.00	-20.87	28.36	4.77	Average	270	176
8	4874.00	45.83	74.00	-28.17	41.06	4.77	Peak	270	176
9	7311.00	37.33	54.00	-16.67	28.02	9.31	Average	100	243
10	7311.00	49.69	74.00	-24.31	40.38	9.31	Peak	100	243
11	12185.00	41.86	54.00	-12.14	28.19	13.67	Average	100	294
12	12185.00	54.16	74.00	-19.84	40.49	13.67	Peak	100	294

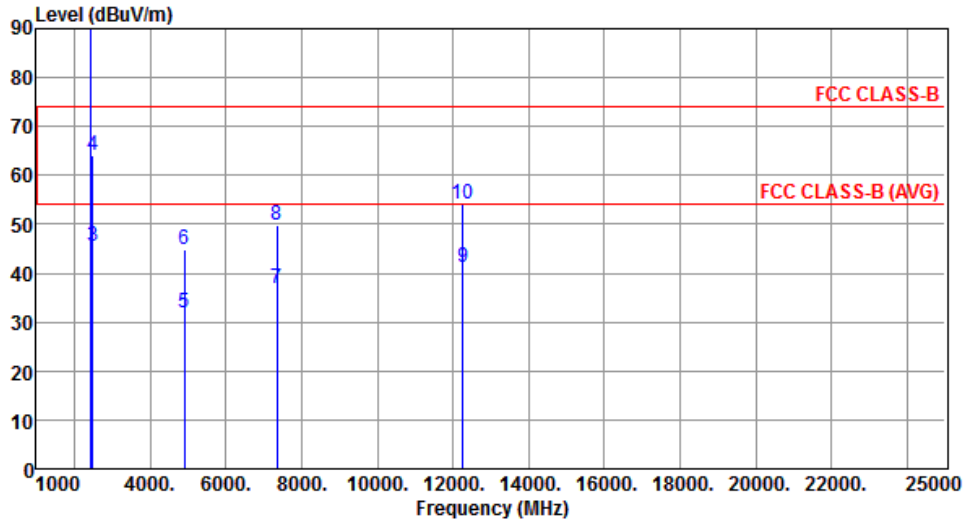
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "\*" is Peak / Average value of fundamental frequency

<b>Modulation</b>	HT40	<b>Test Freq. (MHz)</b>	2452
<b>Polarization</b>	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	*	2452.00	89.44			91.17	-1.73	Average	264	150
2	*	2452.00	99.04			100.77	-1.73	Peak	264	150
3		2483.50	45.46	54.00	-8.54	47.08	-1.62	Average	264	150
4		2483.50	64.18	74.00	-9.82	65.80	-1.62	Peak	264	150
5		4904.00	32.04	54.00	-21.96	27.22	4.82	Average	100	57
6		4904.00	44.95	74.00	-29.05	40.13	4.82	Peak	100	57
7		7356.00	36.89	54.00	-17.11	27.42	9.47	Average	100	292
8		7356.00	49.73	74.00	-24.27	40.26	9.47	Peak	100	292
9		12260.00	41.15	54.00	-12.85	27.58	13.57	Average	100	245
10		12260.00	54.19	74.00	-19.81	40.62	13.57	Peak	100	245

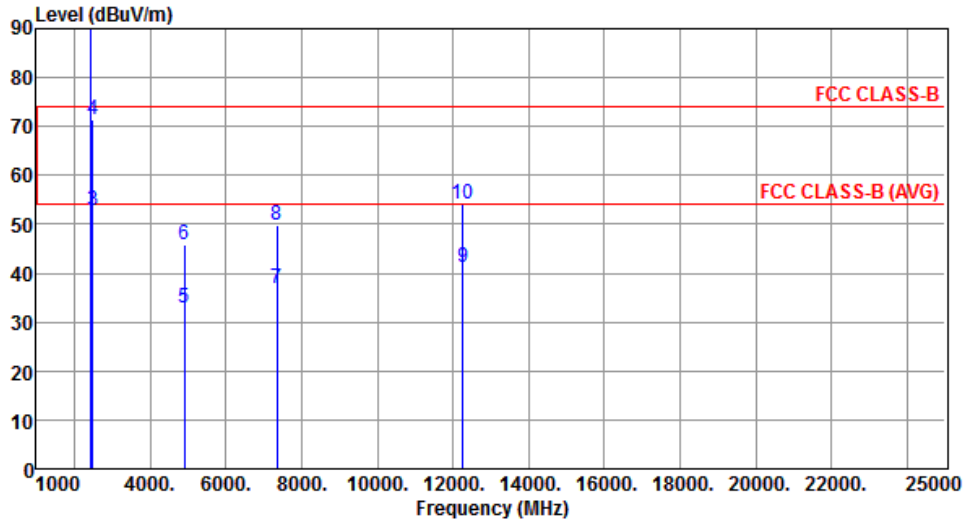
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "\*" is Peak / Average value of fundamental frequency

<b>Modulation</b>	HT40	<b>Test Freq. (MHz)</b>	2452
<b>Polarization</b>	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	*	2452.00	98.38			100.11	-1.73	Average	297	140
2	*	2452.00	108.07			109.80	-1.73	Peak	297	140
3		2483.50	52.86	54.00	-1.14	54.48	-1.62	Average	297	140
4		2483.50	71.38	74.00	-2.62	73.00	-1.62	Peak	297	140
5		4904.00	32.74	54.00	-21.26	27.92	4.82	Average	271	177
6		4904.00	45.90	74.00	-28.10	41.08	4.82	Peak	271	177
7		7356.00	36.93	54.00	-17.07	27.46	9.47	Average	100	204
8		7356.00	49.85	74.00	-24.15	40.38	9.47	Peak	100	204
9		12260.00	41.12	54.00	-12.88	27.55	13.57	Average	100	306
10		12260.00	54.06	74.00	-19.94	40.49	13.57	Peak	100	306

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

\*Factor includes antenna factor , cable loss and amplifier gain

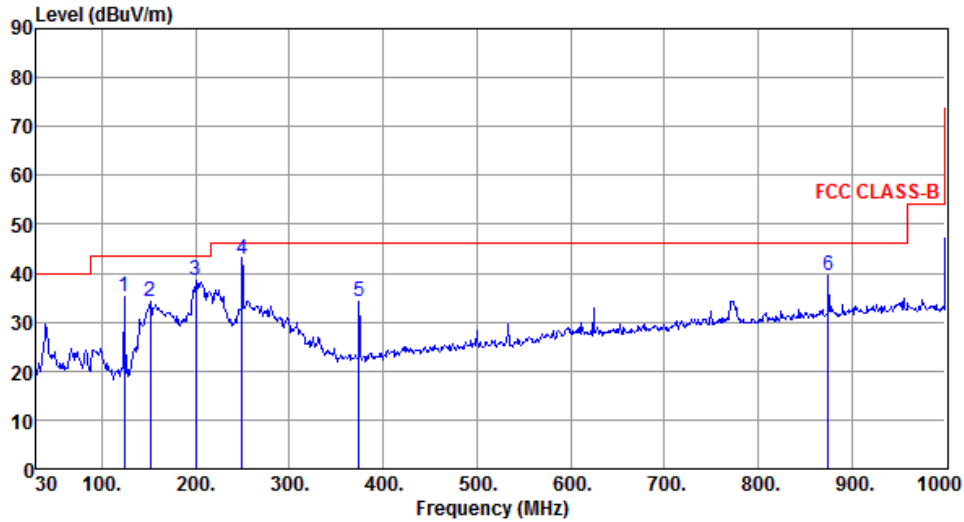
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: "\*" is Peak / Average value of fundamental frequency

## Beamforming mode

### 3.2.9 Transmitter Radiated Unwanted Emissions (Below 1GHz)

Modulation	HT20	Test Freq. (MHz)	2437
Polarization	Horizontal	Test Configuration	1



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	124.09	35.19	43.50	-8.31	45.72	-10.53	Peak	---	---
2	151.25	34.25	43.50	-9.25	42.65	-8.40	Peak	---	---
3	199.75	38.63	43.50	-4.87	49.74	-11.11	Peak	---	---
4	249.22	42.96	46.00	-3.04	52.35	-9.39	QP	100	115
5	374.35	34.15	46.00	-11.85	40.21	-6.06	Peak	---	---
6	874.87	39.59	46.00	-6.41	36.35	3.24	Peak	---	---

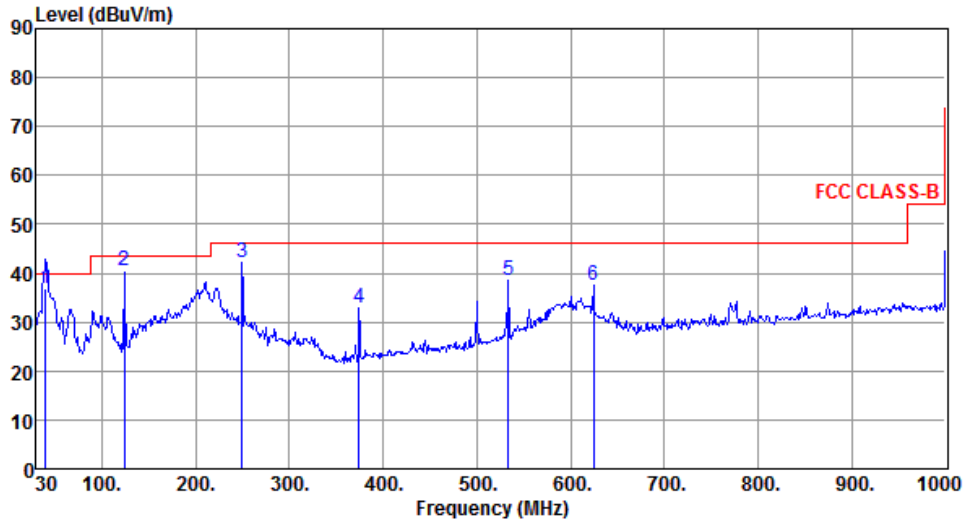
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*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.

<b>Modulation</b>	HT20	<b>Test Freq. (MHz)</b>	2437
<b>Polarization</b>	Vertical	<b>Test Configuration</b>	1



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	39.70	36.74	40.00	-3.26	45.52	-8.78	QP	100	13
2	124.09	40.42	43.50	-3.08	50.95	-10.53	QP	100	92
3	249.22	42.34	46.00	-3.66	51.73	-9.39	Peak	---	---
4	374.35	32.82	46.00	-13.18	38.88	-6.06	Peak	---	---
5	533.43	38.40	46.00	-7.60	41.06	-2.66	Peak	---	---
6	624.61	37.42	46.00	-8.58	38.13	-0.71	Peak	---	---

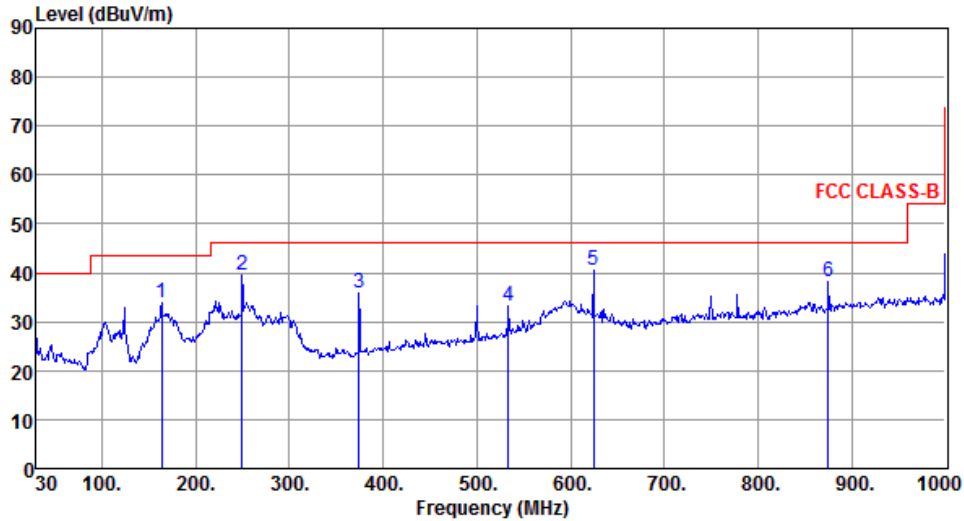
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*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.

<b>Modulation</b>	HT20	<b>Test Freq. (MHz)</b>	2437
<b>Polarization</b>	Horizontal	<b>Test Configuration</b>	2



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	163.86	33.87	43.50	-9.63	42.26	-8.39	Peak	---	---
2	249.22	39.48	46.00	-6.52	48.87	-9.39	Peak	---	---
3	374.35	35.87	46.00	-10.13	41.93	-6.06	Peak	---	---
4	533.43	33.36	46.00	-12.64	36.02	-2.66	Peak	---	---
5	624.61	40.48	46.00	-5.52	41.19	-0.71	Peak	---	---
6	874.87	38.29	46.00	-7.71	35.05	3.24	Peak	---	---

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

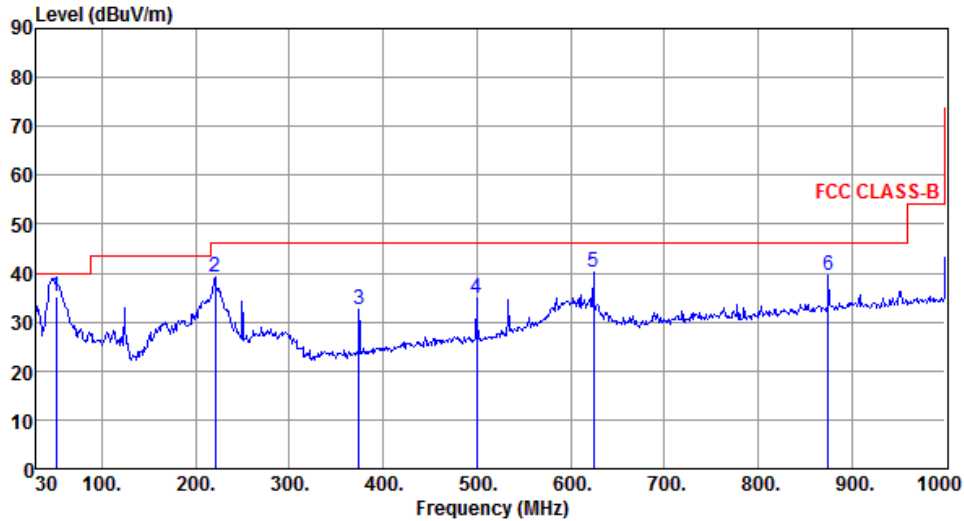
\*Factor includes antenna factor , cable loss and amplifier gain

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.



<b>Modulation</b>	HT20	<b>Test Freq. (MHz)</b>	2437
<b>Polarization</b>	Vertical	<b>Test Configuration</b>	2



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	51.36	35.11	40.00	-4.89	43.36	-8.25	QP	100	79
2	221.09	39.07	46.00	-6.93	49.96	-10.89	Peak	---	---
3	374.35	32.63	46.00	-13.37	38.69	-6.06	Peak	---	---
4	499.48	34.74	46.00	-11.26	38.10	-3.36	Peak	---	---
5	624.61	40.18	46.00	-5.82	40.89	-0.71	Peak	---	---
6	874.87	39.65	46.00	-6.35	36.41	3.24	Peak	---	---

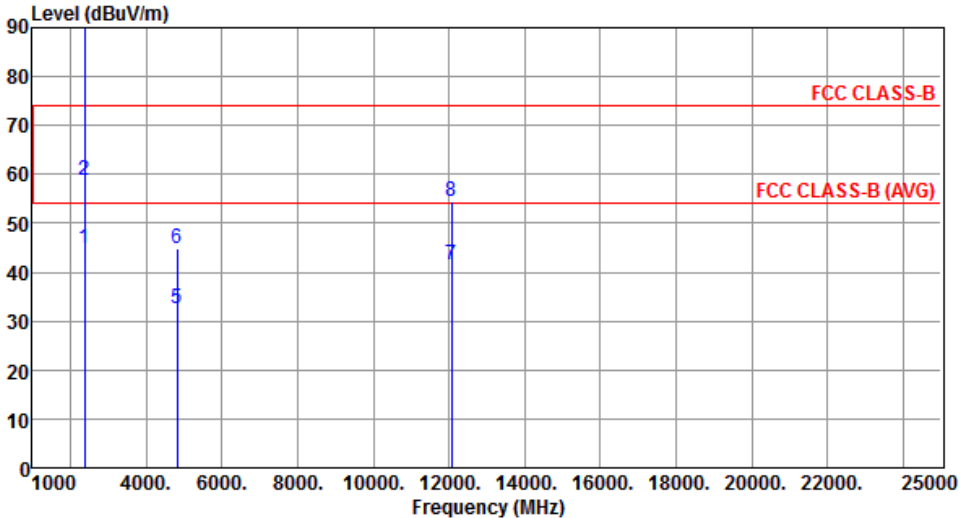
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

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

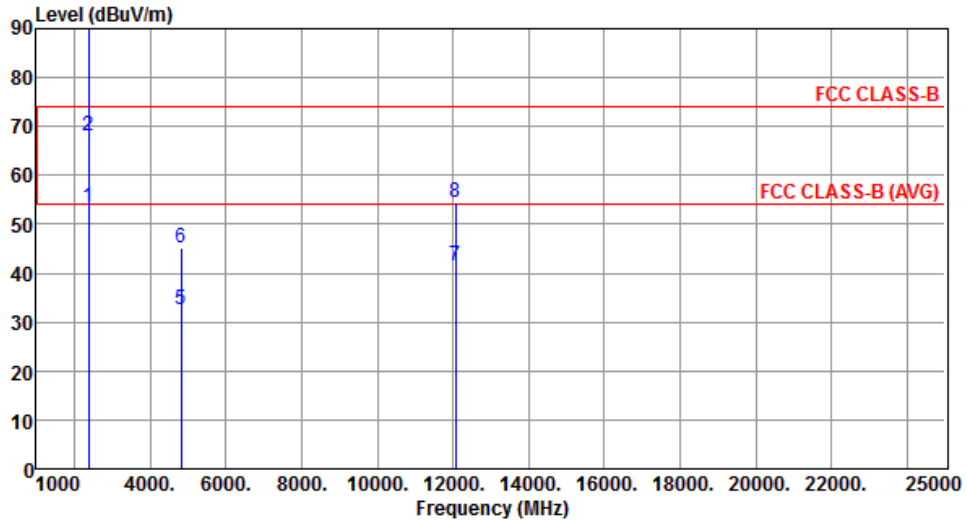
Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

### 3.2.10 Transmitter Radiated Unwanted Emissions (Above 1GHz) for HT20

Modulation	HT20	Test Freq. (MHz)	2412						
Polarization	Horizontal								
									
	Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB		cm	deg
1	2390.00	44.71	54.00	-9.29	46.68	-1.97	Average	167	169
2	2390.00	58.86	74.00	-15.14	60.83	-1.97	Peak	167	169
3 *	2412.00	91.26			93.14	-1.88	Average	167	169
4 *	2412.00	101.86			103.74	-1.88	Peak	167	169
5	4824.00	32.53	54.00	-21.47	27.86	4.67	Average	100	53
6	4824.00	44.90	74.00	-29.10	40.23	4.67	Peak	100	53
7	12060.00	41.66	54.00	-12.34	27.83	13.83	Average	100	312
8	12060.00	54.57	74.00	-19.43	40.74	13.83	Peak	100	312

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

<b>Modulation</b>	HT20	<b>Test Freq. (MHz)</b>	2412
<b>Polarization</b>	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	53.55	54.00	-0.45	55.52	-1.97	Average	365	125
2	2390.00	68.06	74.00	-5.94	70.03	-1.97	Peak	365	125
3 *	2412.00	101.61			103.49	-1.88	Average	365	125
4 *	2412.00	113.34			115.22	-1.88	Peak	365	125
5	4824.00	32.43	54.00	-21.57	27.76	4.67	Average	100	175
6	4824.00	45.30	74.00	-28.70	40.63	4.67	Peak	100	175
7	12060.00	41.50	54.00	-12.50	27.67	13.83	Average	100	271
8	12060.00	54.31	74.00	-19.69	40.48	13.83	Peak	100	271

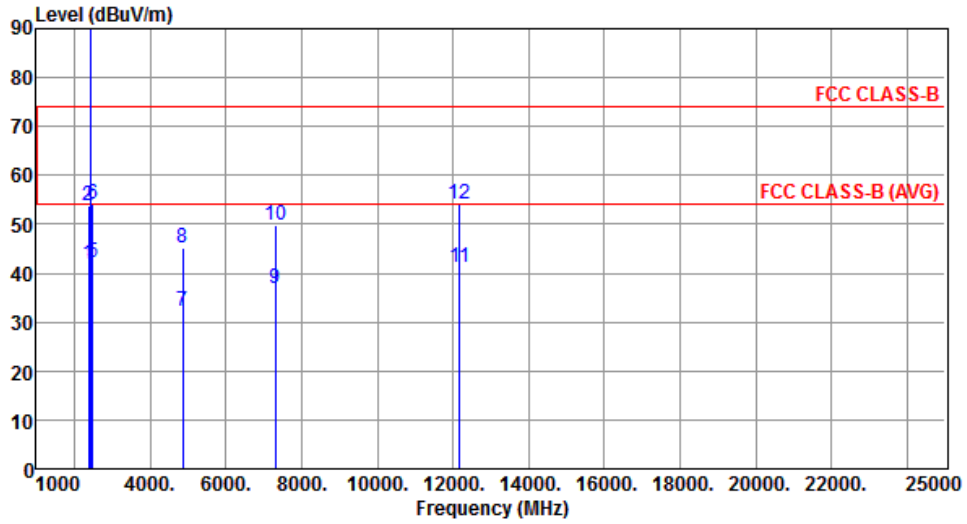
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "\*" is Peak / Average value of fundamental frequency

<b>Modulation</b>	HT20	<b>Test Freq. (MHz)</b>	2437
<b>Polarization</b>	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	41.85	54.00	-12.15	43.82	-1.97	Average	179	209
2	2390.00	53.74	74.00	-20.26	55.71	-1.97	Peak	179	209
3 *	2437.00	95.75			97.53	-1.78	Average	179	209
4 *	2437.00	106.17			107.95	-1.78	Peak	179	209
5	2483.50	42.15	54.00	-11.85	43.77	-1.62	Average	179	209
6	2483.50	54.00	74.00	-20.00	55.62	-1.62	Peak	179	209
7	4874.00	32.33	54.00	-21.67	27.56	4.77	Average	100	53
8	4874.00	45.12	74.00	-28.88	40.35	4.77	Peak	100	53
9	7311.00	36.93	54.00	-17.07	27.62	9.31	Average	100	312
10	7311.00	49.73	74.00	-24.27	40.42	9.31	Peak	100	312
11	12185.00	41.32	54.00	-12.68	27.65	13.67	Average	100	243
12	12185.00	54.22	74.00	-19.78	40.55	13.67	Peak	100	243

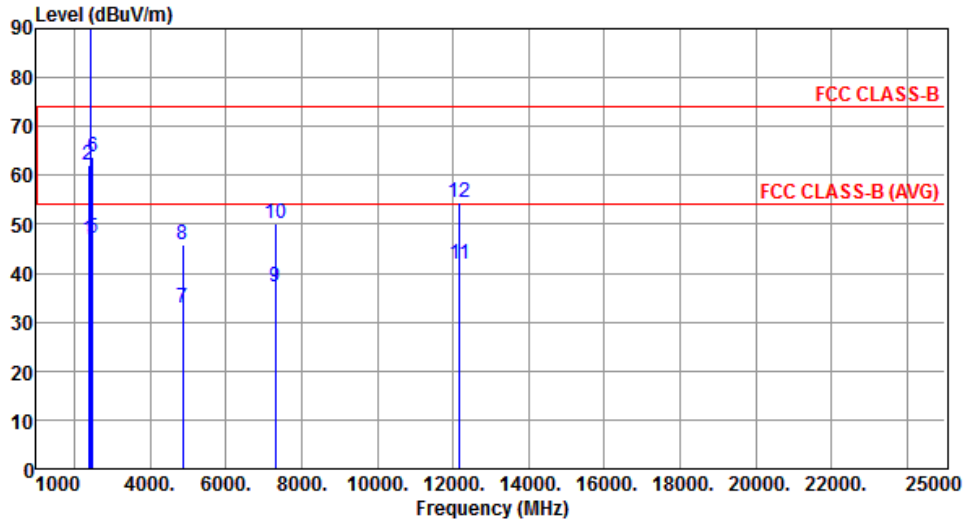
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "\*" is Peak / Average value of fundamental frequency

<b>Modulation</b>	HT20	<b>Test Freq. (MHz)</b>	2437
<b>Polarization</b>	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	46.71	54.00	-7.29	48.68	-1.97	Average	353	127
2	2390.00	61.96	74.00	-12.04	63.93	-1.97	Peak	353	127
3 *	2437.00	106.44			108.22	-1.78	Average	353	127
4 *	2437.00	116.14			117.92	-1.78	Peak	353	127
5	2483.50	47.10	54.00	-6.90	48.72	-1.62	Average	353	127
6	2483.50	63.87	74.00	-10.13	65.49	-1.62	Peak	353	127
7	4874.00	33.04	54.00	-20.96	28.27	4.77	Average	100	196
8	4874.00	45.73	74.00	-28.27	40.96	4.77	Peak	100	196
9	7311.00	37.17	54.00	-16.83	27.86	9.31	Average	100	241
10	7311.00	50.06	74.00	-23.94	40.75	9.31	Peak	100	241
11	12185.00	42.01	54.00	-11.99	28.34	13.67	Average	162	241
12	12185.00	54.40	74.00	-19.60	40.73	13.67	Peak	162	241

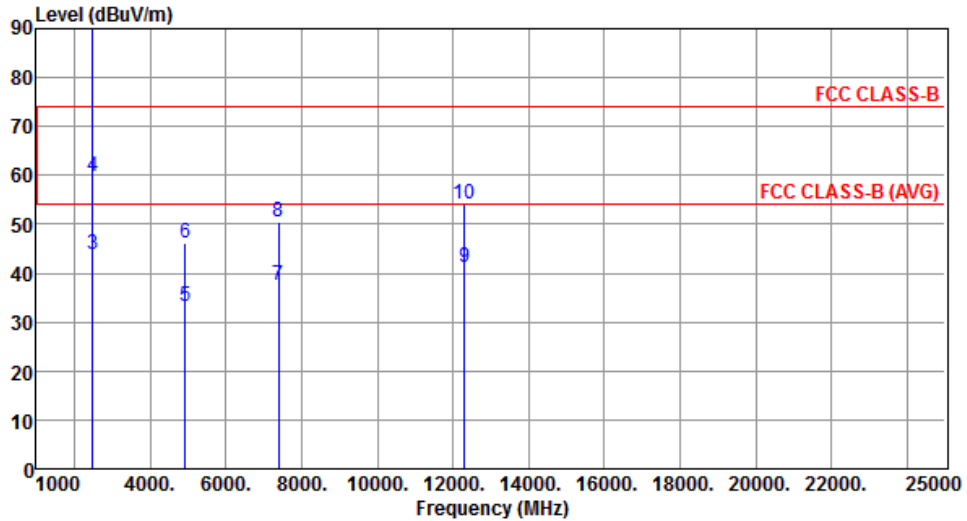
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "\*" is Peak / Average value of fundamental frequency

<b>Modulation</b>	HT20	<b>Test Freq. (MHz)</b>	2462
<b>Polarization</b>	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	*	2462.00	93.60			95.29	-1.69	Average	210	91
2	*	2462.00	104.61			106.30	-1.69	Peak	210	91
3		2483.50	44.00	54.00	-10.00	45.62	-1.62	Average	210	91
4		2483.50	59.82	74.00	-14.18	61.44	-1.62	Peak	210	91
5		4924.00	33.14	54.00	-20.86	28.28	4.86	Average	100	156
6		4924.00	46.17	74.00	-27.83	41.31	4.86	Peak	100	156
7		7386.00	37.40	54.00	-16.60	27.82	9.58	Average	100	137
8		7386.00	50.63	74.00	-23.37	41.05	9.58	Peak	100	137
9		12310.00	41.06	54.00	-12.94	27.56	13.50	Average	100	148
10		12310.00	54.18	74.00	-19.82	40.68	13.50	Peak	100	148

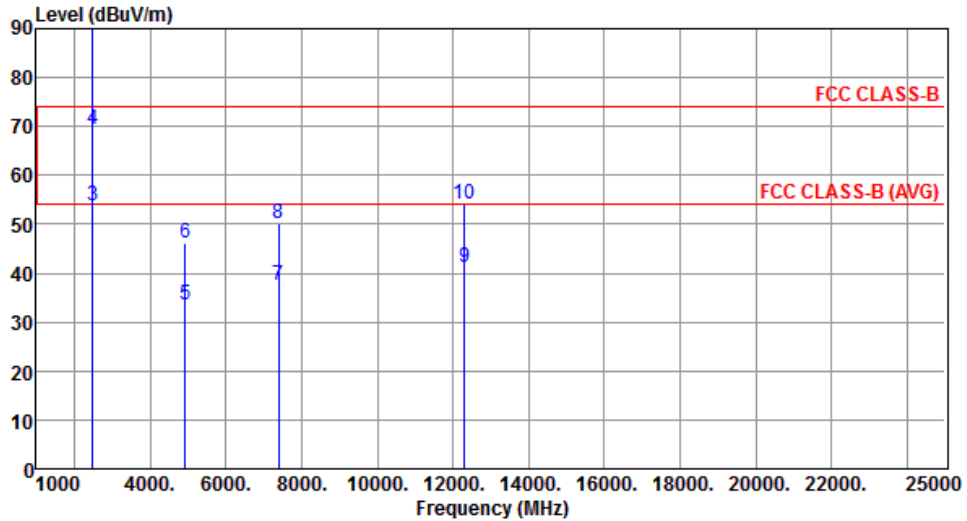
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "\*" is Peak / Average value of fundamental frequency

<b>Modulation</b>	HT20	<b>Test Freq. (MHz)</b>	2462
<b>Polarization</b>	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	*	2462.00	103.42			105.11	-1.69	Average	347	149
2	*	2462.00	114.28			115.97	-1.69	Peak	347	149
3		2483.50	53.71	54.00	-0.29	55.33	-1.62	Average	347	149
4		2483.50	69.57	74.00	-4.43	71.19	-1.62	Peak	347	149
5		4924.00	33.41	54.00	-20.59	28.55	4.86	Average	100	185
6		4924.00	46.31	74.00	-27.69	41.45	4.86	Peak	100	185
7		7386.00	37.42	54.00	-16.58	27.84	9.58	Average	100	138
8		7386.00	50.13	74.00	-23.87	40.55	9.58	Peak	100	138
9		12310.00	41.18	54.00	-12.82	27.68	13.50	Average	100	193
10		12310.00	54.05	74.00	-19.95	40.55	13.50	Peak	100	193

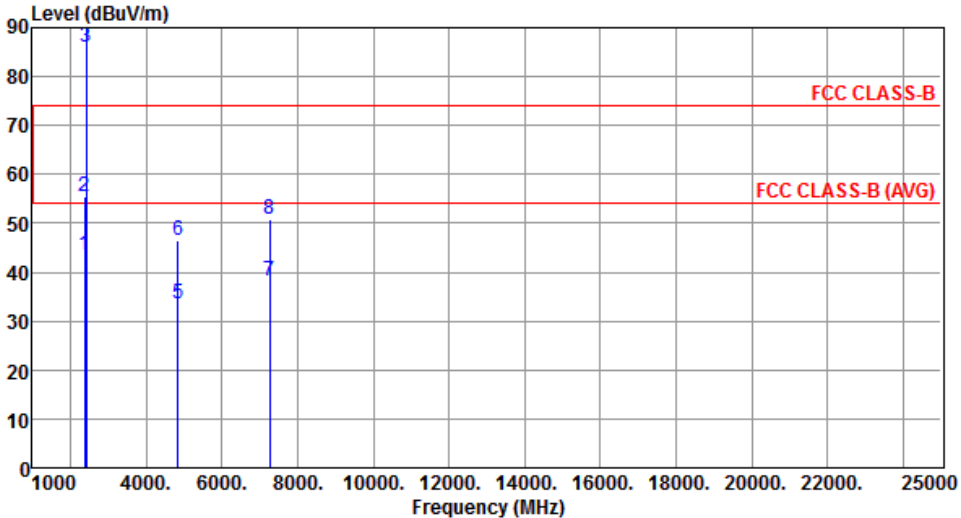
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "\*" is Peak / Average value of fundamental frequency

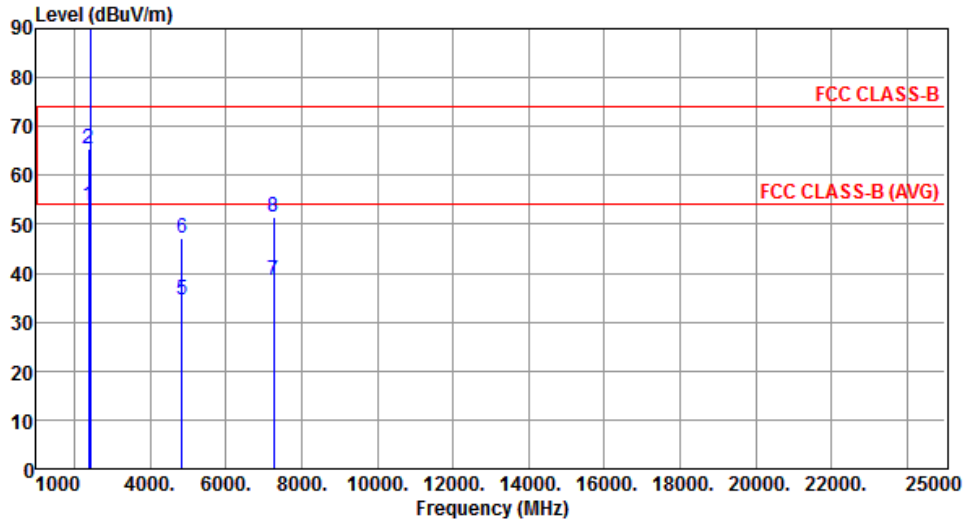
### 3.2.11 Transmitter Radiated Unwanted Emissions (Above 1GHz) for HT40

Modulation	HT40	Test Freq. (MHz)	2422						
Polarization	Horizontal								
									
	Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB		cm	deg
1	2390.00	43.44	54.00	-10.56	45.41	-1.97	Average	192	147
2	2390.00	55.31	74.00	-18.69	57.28	-1.97	Peak	192	147
3 *	2422.00	85.90			87.74	-1.84	Average	192	147
4 *	2422.00	96.81			98.65	-1.84	Peak	192	147
5	4844.00	33.65	54.00	-20.35	28.95	4.70	Average	101	44
6	4844.00	46.39	74.00	-27.61	41.69	4.70	Peak	101	44
7	7266.00	38.21	54.00	-15.79	29.06	9.15	Average	101	52
8	7266.00	50.85	74.00	-23.15	41.70	9.15	Peak	101	52

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



<b>Modulation</b>	HT40	<b>Test Freq. (MHz)</b>	2422
<b>Polarization</b>	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	53.74	54.00	-0.26	55.71	-1.97	Average	328	142
2	2390.00	65.48	74.00	-8.52	67.45	-1.97	Peak	328	142
3 *	2422.00	97.74			99.58	-1.84	Average	328	142
4 *	2422.00	108.57			110.41	-1.84	Peak	328	142
5	4844.00	34.65	54.00	-19.35	29.95	4.70	Average	101	56
6	4844.00	47.14	74.00	-26.86	42.44	4.70	Peak	101	56
7	7266.00	38.45	54.00	-15.55	29.30	9.15	Average	101	41
8	7266.00	51.62	74.00	-22.38	42.47	9.15	Peak	101	41

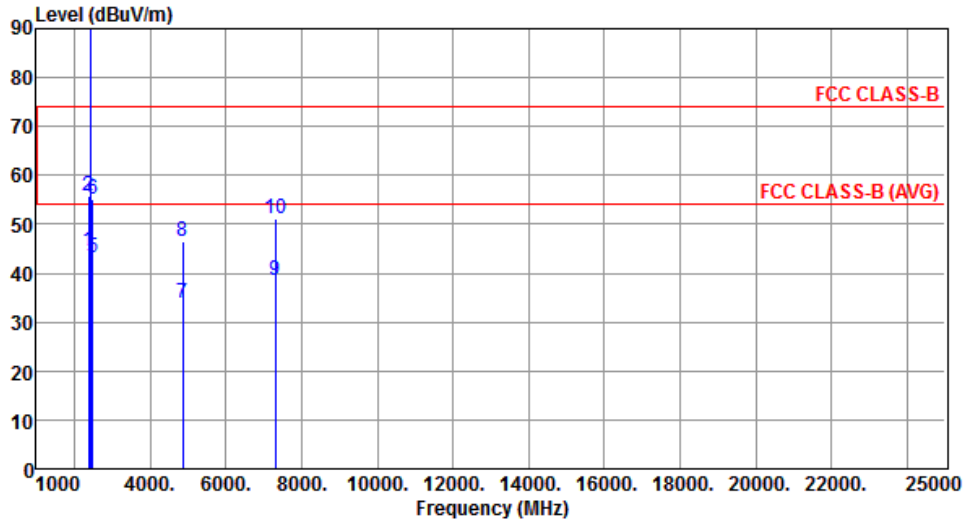
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "\*" is Peak / Average value of fundamental frequency

<b>Modulation</b>	HT40	<b>Test Freq. (MHz)</b>	2437
<b>Polarization</b>	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	44.36	54.00	-9.64	46.33	-1.97	Average	192	145
2	2390.00	55.92	74.00	-18.08	57.89	-1.97	Peak	192	145
3 *	2437.00	89.24			91.02	-1.78	Average	192	145
4 *	2437.00	99.95			101.73	-1.78	Peak	192	145
5	2483.50	43.25	54.00	-10.75	44.87	-1.62	Average	192	145
6	2483.50	55.08	74.00	-18.92	56.70	-1.62	Peak	192	145
7	4874.00	33.92	54.00	-20.08	29.15	4.77	Average	101	58
8	4874.00	46.55	74.00	-27.45	41.78	4.77	Peak	101	58
9	7311.00	38.42	54.00	-15.58	29.11	9.31	Average	101	61
10	7311.00	50.98	74.00	-23.02	41.67	9.31	Peak	101	61

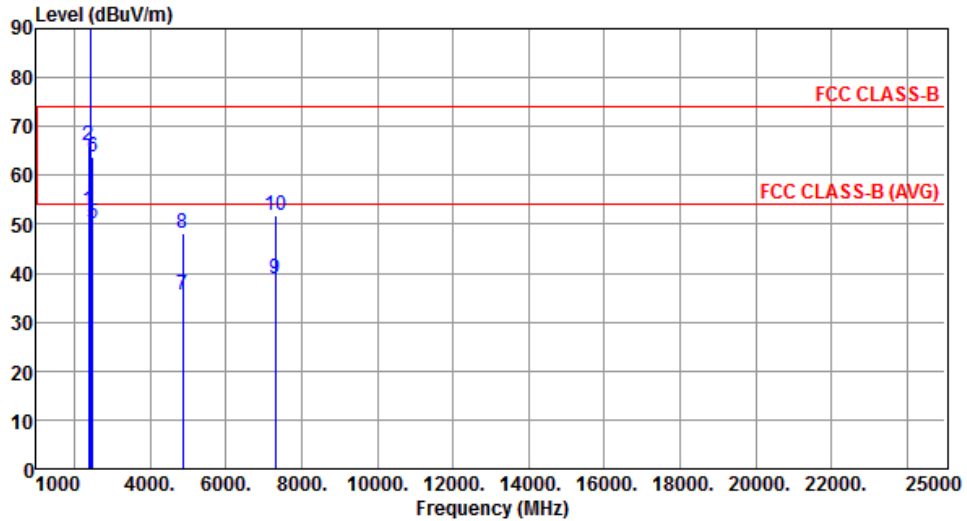
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "\*" is Peak / Average value of fundamental frequency

<b>Modulation</b>	HT40	<b>Test Freq. (MHz)</b>	2437
<b>Polarization</b>	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	52.96	54.00	-1.04	54.93	-1.97	Average	328	142
2	2390.00	66.18	74.00	-7.82	68.15	-1.97	Peak	328	142
3 *	2437.00	100.86			102.64	-1.78	Average	328	143
4 *	2437.00	112.49			114.27	-1.78	Peak	328	143
5	2483.50	50.06	54.00	-3.94	51.68	-1.62	Average	328	142
6	2483.50	63.77	74.00	-10.23	65.39	-1.62	Peak	328	142
7	4874.00	35.68	54.00	-18.32	30.91	4.77	Average	101	52
8	4874.00	48.22	74.00	-25.78	43.45	4.77	Peak	101	52
9	7311.00	38.96	54.00	-15.04	29.65	9.31	Average	101	45
10	7311.00	51.84	74.00	-22.16	42.53	9.31	Peak	101	45

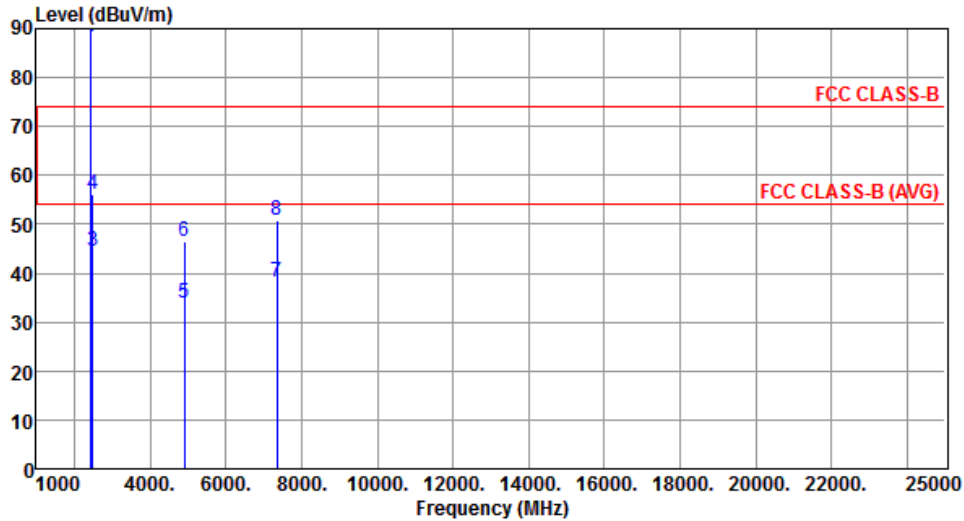
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "\*" is Peak / Average value of fundamental frequency

<b>Modulation</b>	HT40	<b>Test Freq. (MHz)</b>	2452
<b>Polarization</b>	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	*	2452.00	88.36			90.09	-1.73	Average	192	149
2	*	2452.00	99.04			100.77	-1.73	Peak	192	149
3		2483.50	44.52	54.00	-9.48	46.14	-1.62	Average	192	149
4		2483.50	56.19	74.00	-17.81	57.81	-1.62	Peak	192	149
5		4904.00	33.81	54.00	-20.19	28.99	4.82	Average	101	61
6		4904.00	46.34	74.00	-27.66	41.52	4.82	Peak	101	61
7		7356.00	38.26	54.00	-15.74	28.79	9.47	Average	100	59
8		7356.00	50.65	74.00	-23.35	41.18	9.47	Peak	100	59

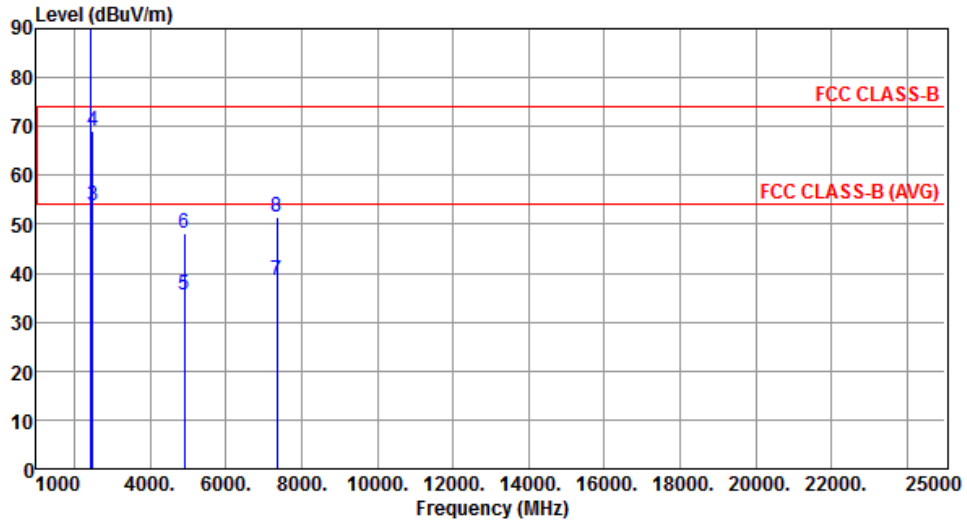
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

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

Note 3: "\*" is Peak / Average value of fundamental frequency

<b>Modulation</b>	HT40	<b>Test Freq. (MHz)</b>	2452
<b>Polarization</b>	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	*	2452.00	99.86			101.59	-1.73	Average	303	146
2	*	2452.00	111.83			113.56	-1.73	Peak	303	146
3		2483.50	53.85	54.00	-0.15	55.47	-1.62	Average	303	146
4		2483.50	69.21	74.00	-4.79	70.83	-1.62	Peak	303	146
5		4904.00	35.56	54.00	-18.44	30.74	4.82	Average	101	44
6		4904.00	48.03	74.00	-25.97	43.21	4.82	Peak	101	44
7		7356.00	38.65	54.00	-15.35	29.18	9.47	Average	100	49
8		7356.00	51.52	74.00	-22.48	42.05	9.47	Peak	100	49

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

## 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>.

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