FCC Test Report

FCC ID	:	**2ACF3BUZZILIGHT**
Equipment	:	**Buzzi Light**
Model No.	:	**Buzzi Light**
Brand Name	:	**Blackloud Inc.**
Applicant	:	**Blackloud Inc.**
Address	:	**42 Corporate Park #250 Irvine, CA 92606 USA**
Standard	:	**47 CFR FCC Part 15.247**
Received Date	:	**Aug. 29, 2015**
Tested Date	:	**Sep. 02 ~ Sep. 21, 2015**

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.

Approved & Reviewed by:

Gary Chang / Manager

Testing Laboratory
2732

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Release Record

Report No.	Version	Description	Issued Date
FR582901AC	Rev. 01	Initial issue	Oct. 15, 2015

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	[dBuV]: 1.450MHz 36.88 (Margin -9.12dB) - AV	Pass
15.247(d) 15.209	Radiated Emissions	[dBuV/m at 3m]: 2483.50MHz 52.95 (Margin -1.05dB) - AV	Pass
15.247(b)(3)	Maximum Output Power	Max Power [dBm]: 25.95	Pass
15.247(a)(2)	6dB Bandwidth	Meet the requirement of limit	Pass
15.247(e)	Power Spectral Density	Meet the requirement of limit	Pass
15.203	Antenna Requirement	Meet the requirement of limit	Pass

1 General Description

1.1 Information

1.1.1 Specification of the Equipment under Test (EUT)

RF General Information					
Frequency Range (MHz)	**IEEE Std. 802.11**	**Ch. Freq. (MHz)**	**Channel Number**	**Transmit Chains (N_{TX})**	**Data Rate / MCS**
2400-2483.5	b	2412-2462	1-11 [11]	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
2400-2483.5	n (HT40)	2422-2452	3-9 [7]	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

Ant. No.	Type	Gain (dBi)	Connector	Remark
1	PIFA	1.2	N/A	---

1.1.3 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	100-120Vac

1.1.4 Accessories

N/A

1.1.5 Channel List

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

1.1.6 Test Tool and Duty Cycle

Test Tool	Putty, v.0.60.0.0		
Duty Cycle and Duty Factor	Mode	Duty cycle (%)	Duty factor (dB)
	11b	98.49%	0.07
	11g	95.18%	0.21
	HT20	87.93%	0.56
	HT40	88.79%	0.52

1.1.7 Power Setting

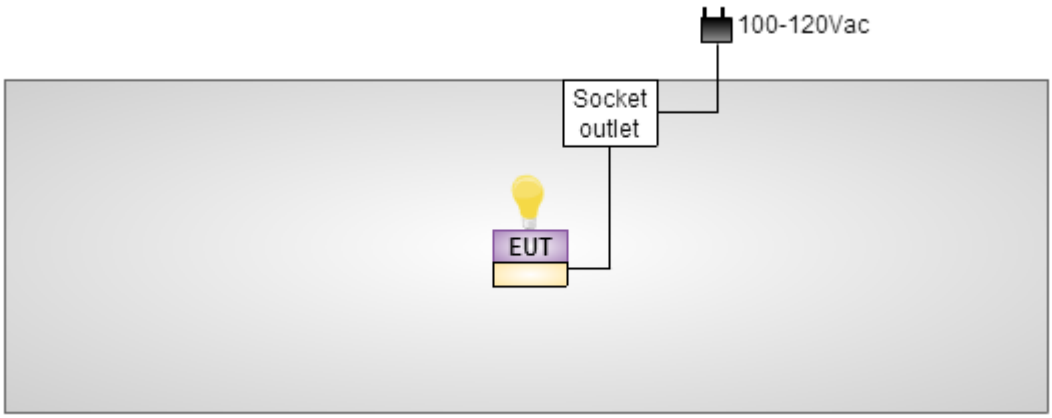
Modulation Mode	Test Frequency (MHz)	Power Set
11b	2412	22
11b	2437	21
11b	2462	21
11g	2412	28
11g	2437	31
11g	2462	23
HT20	2412	28
HT20	2437	31
HT20	2462	22
HT40	2422	24
HT40	2437	22
HT40	2452	17

1.2 Local Support Equipment List

Support Equipment List					
No.	**Equipment**	**Brand**	**Model**	**FCC ID**	**Signal cable / Length (m)**
1	Light bulb	tfc	PS75(200W)	---	---
2	Lamp load	ICC	---	---	AC cable, 0.5m non-shielded.

1.3 Test Setup Chart

Test Setup Diagram



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**
EMC Receiver	R&S	ESCS 30	100169	Oct. 17, 2014	Oct. 16, 2015
LISN	SCHWARZBECK	Schwarzbeck 8127	8127-667	Nov. 17, 2014	Nov. 16, 2015
RF Cable-CON	Woken	CFD200-NL	CFD200-NL-001	Dec. 31, 2014	Dec. 30, 2015
Measurement Software	AUDIX	e3	6.120210k	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	Radiated Emission				
Test Site	966 chamber 3 / (03CH03-WS)				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101498	Dec. 09, 2014	Dec. 08, 2015
Receiver	Agilent	N9038A	MY53290044	Oct. 21, 2014	Oct. 20, 2015
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-562	Jan. 19, 2015	Jan. 18, 2016
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1206	Feb. 03, 2015	Feb. 02, 2016
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Nov. 10, 2014	Nov. 09, 2015
Loop Antenna	R&S	HFH2-Z2	11900	Nov. 10, 2014	Nov. 09, 2015
Preamplifier	EMC	EMC02325	980187	Sep. 26, 2014	Sep. 25, 2015
Preamplifier	Agilent	83017A	MY39501308	Oct. 09, 2014	Oct. 08, 2015
Preamplifier	EMC	EMC184045B	980192	Sep. 01, 2015	Aug. 31, 2016
RF cable-3M	HUBER+SUHNER	SUCOFLEX104	MY22620/4	Feb. 09, 2015	Feb. 08, 2016
RF cable-8M	HUBER+SUHNER	SUCOFLEX104	MY22601/4	Feb. 09, 2015	Feb. 08, 2016
RF cable-1M	HUBER+SUHNER	SUCOFLEX104	MY22624/4	Feb. 09, 2015	Feb. 08, 2016
LF cable-0.8M	EMC	EMC8D-NM-NM-800	EMC8D-NM-NM-800-001	Feb. 09, 2015	Feb. 08, 2016
LF cable-3M	EMC	EMC8D-NM-NM-3000	131103	Feb. 09, 2015	Feb. 08, 2016
LF cable-13M	EMC	EMC8D-NM-NM-13000	131104	Feb. 09, 2015	Feb. 08, 2016
Measurement Software	AUDIX	e3	6.120210g	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	RF Conducted				
Test Site	(TH01-WS)				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101063	Feb. 03, 2015	Feb. 02, 2016
Power Meter	Anritsu	ML2495A	1241002	Sep. 29, 2014	Sep. 28, 2015
Power Sensor	Anritsu	MA2411B	1207366	Sep. 29, 2014	Sep. 28, 2015
Measurement Software	Sporton	Sporton_1	1.3.30	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

1.5 Test Standards

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

47 CFR FCC Part 15.247
ANSI C63.10-2013
FCC KDB 558074 D01 DTS Meas Guidance v03r03

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	±2.92 dB
Radiated emission ≤ 1GHz	±3.99 dB
Radiated emission > 1GHz	±5.52 dB

2 Test Configuration

2.1 Testing Condition

Test Item	Test Site	Ambient Condition	Tested By
AC Conduction	CO01-WS	22°C / 56%	Kevin Ma
Radiated Emissions	03CH03-WS	20-25°C / 64-66%	Aska Huang Brad Wu Warren Lee
RF Conducted	TH01-WS	21°C / 64%	Felix Sung

- FCC site registration No.: 390588
- 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
Conducted Emissions	HT20	2437	MCS 0	---
Radiated Emissions ≤1GHz	HT20	2437	MCS 0	---
Radiated Emissions >1GHz Maximum Output Power 6dB bandwidth Power spectral density	11b 11g HT20 HT40	2412 / 2437 / 2462 2412 / 2437 / 2462 2412 / 2437 / 2462 2422 / 2437 / 2452	1 Mbps 6 Mbps MCS 0 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

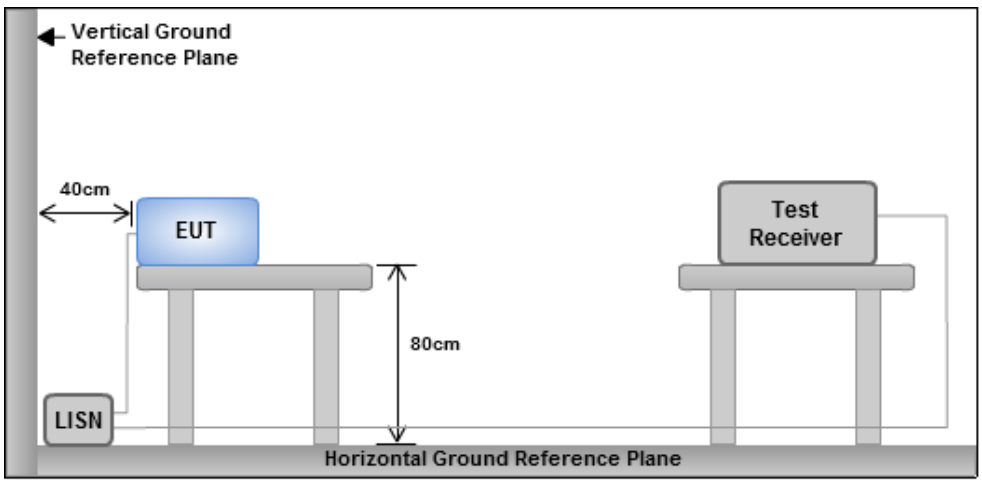
3.1.1 Limit of Conducted Emissions

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

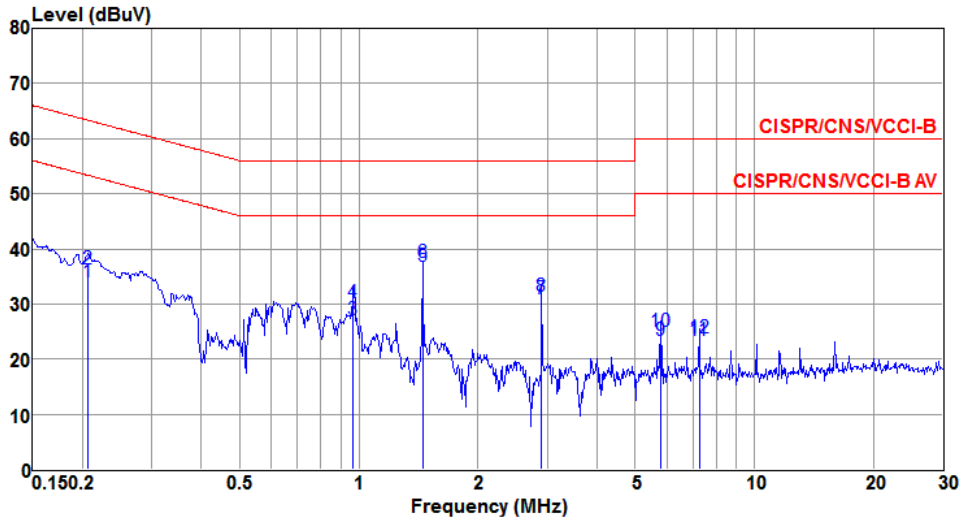


Note: 1. Support units were connected to second LISN.

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

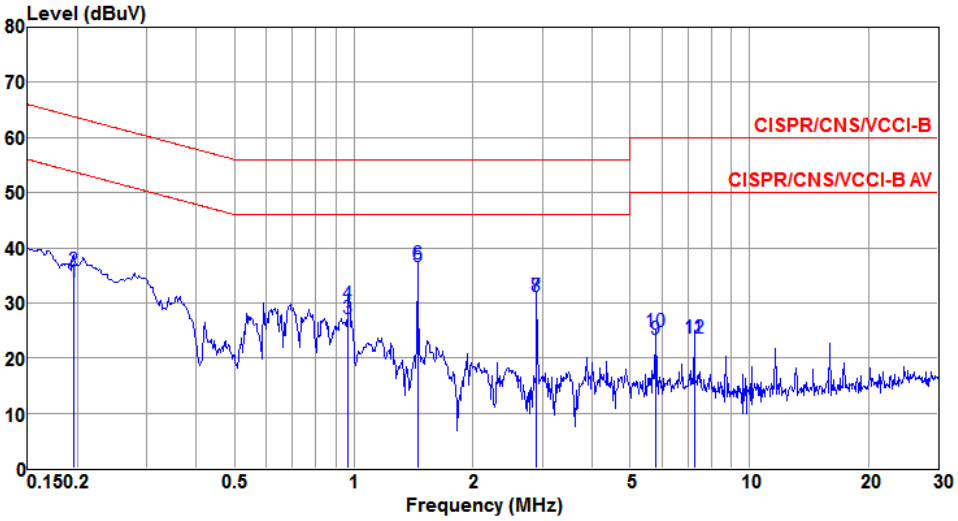
Modulation	HT20	Test Freq. (MHz)	2437
Power Phase	Line		



	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.207	33.99	53.32	-19.33	33.65	0.25	0.09	Average
2	0.207	36.40	63.32	-26.92	36.06	0.25	0.09	QP
3	0.968	27.20	46.00	-18.80	26.95	0.09	0.16	Average
4	0.968	30.29	56.00	-25.71	30.04	0.09	0.16	QP
5@	1.450	36.88	46.00	-9.12	36.30	0.38	0.20	Average
6	1.450	37.46	56.00	-18.54	36.88	0.38	0.20	QP
7	2.900	31.00	46.00	-15.00	30.29	0.43	0.28	Average
8	2.900	31.28	56.00	-24.72	30.57	0.43	0.28	QP
9	5.801	23.28	50.00	-26.72	22.55	0.42	0.31	Average
10	5.801	24.99	60.00	-35.01	24.26	0.42	0.31	QP
11	7.252	23.33	50.00	-26.67	22.51	0.52	0.30	Average
12	7.252	23.96	60.00	-36.04	23.14	0.52	0.30	QP

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

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



	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.195	33.70	53.80	-20.10	33.32	0.29	0.09	Average
2	0.195	35.77	63.80	-28.03	35.39	0.29	0.09	QP
3	0.968	27.06	46.00	-18.94	26.63	0.27	0.16	Average
4	0.968	29.83	56.00	-26.17	29.40	0.27	0.16	QP
5@	1.451	36.57	46.00	-9.43	36.13	0.24	0.20	Average
6	1.451	37.00	56.00	-19.00	36.56	0.24	0.20	QP
7	2.901	31.16	46.00	-14.84	30.38	0.50	0.28	Average
8	2.901	31.18	56.00	-24.82	30.40	0.50	0.28	QP
9	5.802	23.47	50.00	-26.53	22.51	0.65	0.31	Average
10	5.802	24.83	60.00	-35.17	23.87	0.65	0.31	QP
11	7.255	23.49	50.00	-26.51	22.59	0.60	0.30	Average
12	7.255	23.67	60.00	-36.33	22.77	0.60	0.30	QP

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

3.2 6dB and Occupied Bandwidth

3.2.1 Limit of 6dB Bandwidth

The minimum 6dB bandwidth shall be at least 500 kHz.

3.2.2 Test Procedures

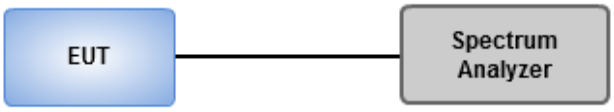
6dB Bandwidth

1. Set resolution bandwidth (RBW) = 100 kHz, Video bandwidth = 300 kHz.
2. Detector = Peak, Trace mode = max hold.
3. Sweep = auto couple, Allow the trace to stabilize.
4. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6dB relative to the maximum level measured in the fundamental emission.

Occupied Bandwidth

1. Set resolution bandwidth (RBW) = 1 MHz, Video bandwidth = 3 MHz.
2. Detector = Sample, Trace mode = max hold.
3 Sweep = auto couple, Allow the trace to stabilize.
4. Use the OBW measurement function of spectrum analyzer to measure the occupied bandwidth.

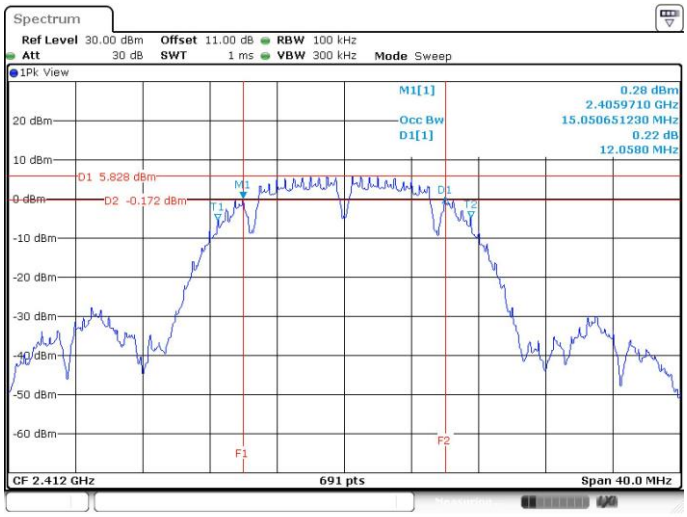
3.2.3 Test Setup



3.2.4 Test Result of 6dB and Occupied Bandwidth

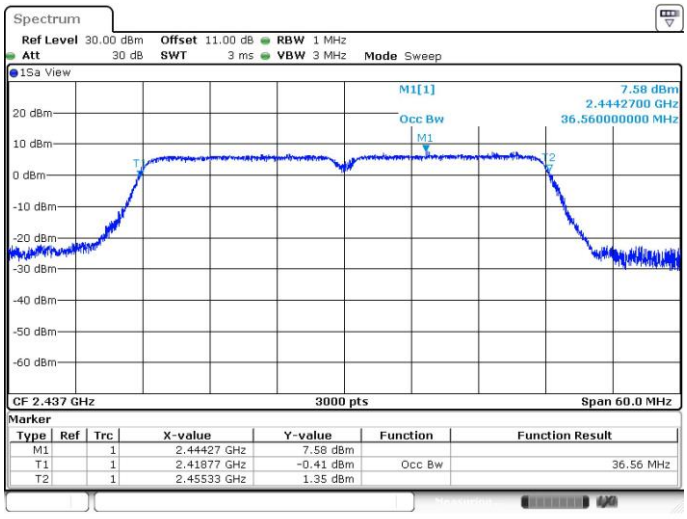
Modulation Mode	N_{TX}	Freq. (MHz)	6dB Bandwidth (MHz)				Limit (kHz)
			Chain 0	Chain 1	Chain 2	Chain 3	
11b	1	2412	12.06	---	---	---	500
11b	1	2437	12.06	---	---	---	500
11b	1	2462	12.06	---	---	---	500
11g	1	2412	16.35	---	---	---	500
11g	1	2437	16.35	---	---	---	500
11g	1	2462	16.35	---	---	---	500
HT20	1	2412	16.93	---	---	---	500
HT20	1	2437	17.28	---	---	---	500
HT20	1	2462	17.10	---	---	---	500
HT40	1	2422	35.71	---	---	---	500
HT40	1	2437	35.71	---	---	---	500
HT40	1	2452	35.71	---	---	---	500

Worst Plots



Modulation Mode	N_{TX}	Freq. (MHz)	99% Occupied Bandwidth (MHz)			
			Chain 0	Chain 1	Chain 2	Chain 3
11b	1	2412	15.12	---	---	---
11b	1	2437	15.09	---	---	---
11b	1	2462	15.08	---	---	---
11g	1	2412	16.84	---	---	---
11g	1	2437	16.83	---	---	---
11g	1	2462	16.82	---	---	---
HT20	1	2412	17.78	---	---	---
HT20	1	2437	17.82	---	---	---
HT20	1	2462	17.70	---	---	---
HT40	1	2422	36.52	---	---	---
HT40	1	2437	36.56	---	---	---
HT40	1	2452	36.52	---	---	---

Worst Plots



3.3 RF Output Power

3.3.1 Limit of RF Output Power

Conducted power shall not exceed 1Watt.

☒ Antenna gain <= 6dBi, no any corresponding reduction is in output power limit.

☐ Antenna gain > 6dBi

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

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

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

3.3.2 Test Procedures

☒ Maximum Peak Conducted Output Power

☐ **Spectrum analyzer**

1. Set RBW = 1MHz, VBW = 3MHz, Detector = Peak.
2. Sweep time = auto, Trace mode = max hold, Allow trace to fully stabilize.
3. Use the spectrum analyzer channel power measurement function with the band limits set equal to the DTS bandwidth edges.

☒ **Power meter**

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

☒ Maximum Conducted Output Power (For reference only)

☒ **Power meter**

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

3.3.3 Test Setup

3.3.4 Test Result of Maximum Output Power

Modulation Mode	N_{TX}	Freq. (MHz)	Peak conducted output power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)
			Chain 0	Chain 1	Chain 2	Chain 3			
11b	1	2412	19.38	---	---	---	86.696	19.38	30.00
11b	1	2437	19.09	---	---	---	81.096	19.09	30.00
11b	1	2462	18.97	---	---	---	78.886	18.97	30.00
11g	1	2412	23.93	---	---	---	247.172	23.93	30.00
11g	1	2437	25.29	---	---	---	338.065	25.29	30.00
11g	1	2462	22.6	---	---	---	181.970	22.60	30.00
HT20	1	2412	25.02	---	---	---	317.687	25.02	30.00
HT20	1	2437	25.95	---	---	---	393.550	**25.95**	30.00
HT20	1	2462	23.2	---	---	---	208.930	23.20	30.00
HT40	1	2422	22.83	---	---	---	191.867	22.83	30.00
HT40	1	2437	22.55	---	---	---	179.887	22.55	30.00
HT40	1	2452	20.69	---	---	---	117.220	20.69	30.00

Modulation Mode	N_{TX}	Freq. (MHz)	Conducted (average) output power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)
			Chain 0	Chain 1	Chain 2	Chain 3			
11b	1	2412	17.07	---	---	---	50.933	17.07	30.00
11b	1	2437	16.71	---	---	---	46.881	16.71	30.00
11b	1	2462	16.63	---	---	---	46.026	16.63	30.00
11g	1	2412	15.25	---	---	---	33.497	15.25	30.00
11g	1	2437	16.94	---	---	---	49.431	16.94	30.00
11g	1	2462	13.66	---	---	---	23.227	13.66	30.00
HT20	1	2412	15.44	---	---	---	34.995	15.44	30.00
HT20	1	2437	17.11	---	---	---	51.404	**17.11**	30.00
HT20	1	2462	13.4	---	---	---	21.878	13.40	30.00
HT40	1	2422	14.08	---	---	---	25.586	14.08	30.00
HT40	1	2437	13.68	---	---	---	23.335	13.68	30.00
HT40	1	2452	11.07	---	---	---	12.794	11.07	30.00

Note: Conducted average output power is for reference only.

3.4 Power Spectral Density

3.4.1 Limit of Power Spectral Density

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

3.4.2 Test Procedures

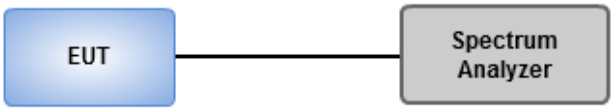
☒ Maximum peak conducted output power was used to demonstrate compliance to the fundamental output power limit.

1. Set the RBW = 30kHz, VBW = 100kHz.
2. Detector = Peak, Sweep time = auto couple.
3. Trace mode = max hold, allow trace to fully stabilize.
4. Use the peak marker function to determine the maximum amplitude level.

☐ Maximum (average) conducted output power was used to demonstrate compliance to the fundamental output power limit.

1. Set the RBW = 100kHz, VBW = 300 kHz.
2. Detector = RMS, Sweep time = auto couple.
3. Set the sweep time to: ≥ 10 x (number of measurement points in sweep) x (maximum data rate per stream).
4. Perform the measurement over a single sweep.
5. Use the peak marker function to determine the maximum amplitude level.

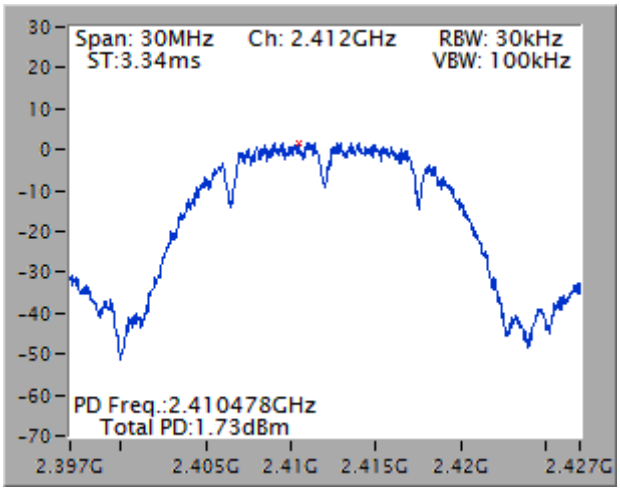
3.4.3 Test Setup



3.4.4 Test Result of Power Spectral Density

Modulation Mode	N_{TX}	Freq. (MHz)	Total Power Spectral Density (dBm/30kHz)	Limit (dBm/3kHz)
11b	1	2412	1.73	8.00
11b	1	2437	1.07	8.00
11b	1	2462	0.99	8.00
11g	1	2412	-1.53	8.00
11g	1	2437	-0.13	8.00
11g	1	2462	-2.84	8.00
HT20	1	2412	-0.92	8.00
HT20	1	2437	0.63	8.00
HT20	1	2462	-3.21	8.00
HT40	1	2422	-6.22	8.00
HT40	1	2437	-6.76	8.00
HT40	1	2452	-9.76	8.00

Worst Plots



3.5 Unwanted Emissions into Restricted Frequency Bands

3.5.1 Limit of Unwanted Emissions into Restricted Frequency Bands

Restricted Band Emissions Limit			
Frequency Range (MHz)	**Field Strength (uV/m)**	**Field Strength (dBuV/m)**	**Measure Distance (m)**
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

Note 1:
Qusai-Peak value is measured for frequency below 1GHz except for 9–90 kHz, 110–490 kHz frequency band. Peak and average value are measured for frequency above 1GHz. The limit on average radio frequency emission is as above table. The limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit
Note 2:
Measurements may be performed at a distance other than what is specified provided. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor as below, Frequency at or above 30 MHz: 20 dB/decade Frequency below 30 MHz: 40 dB/decade.

3.5.2 Test Procedures

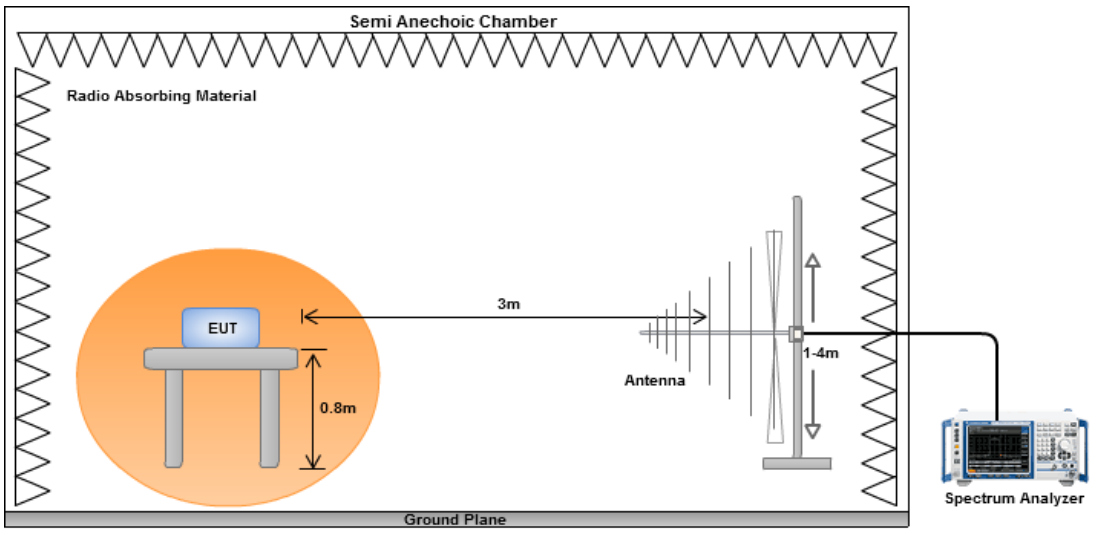
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission frequency. The EUT is placed at test table. For emissions testing at or below 1 GHz, the table height is 80 cm above the reference ground plane. For emission measurements above 1 GHz, the table height is 1.5 m
2. Measurement is made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna is varied in height (1m ~ 4m) above the reference ground plane to obtain the maximum signal strength. Distance between EUT and antenna is 3 m.
3. This investigation is performed with the EUT rotated 360°, the antenna height scanned between 1 m and 4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations.

Note:

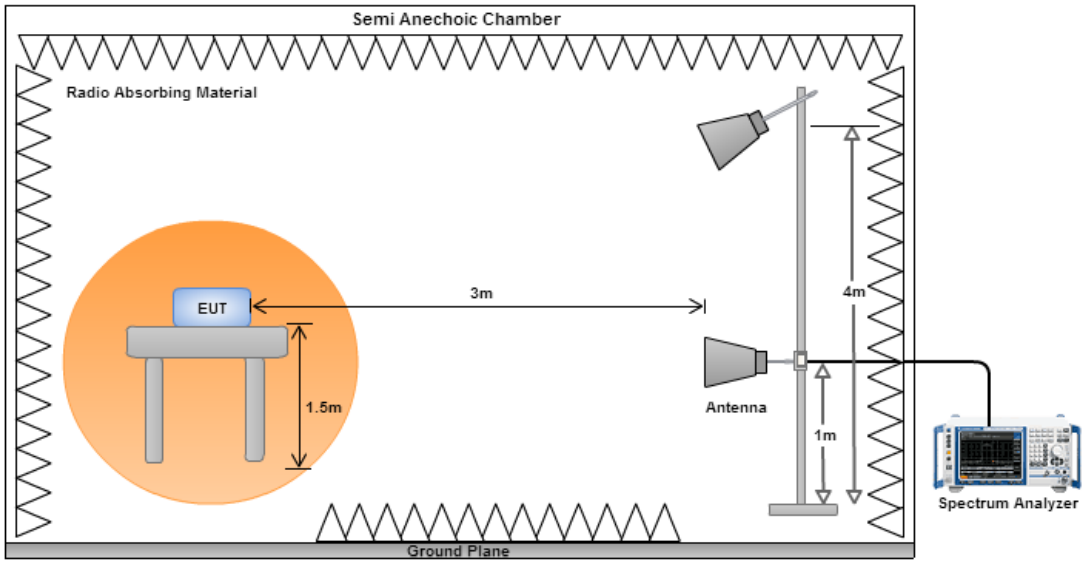
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above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

3.5.3 Test Setup

Radiated Emissions below 1 GHz

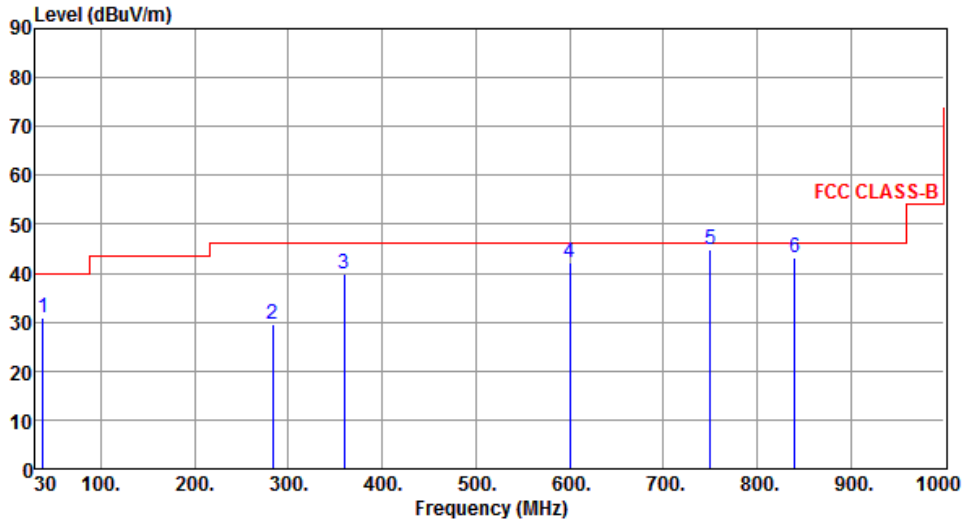


Radiated Emissions above 1 GHz



3.5.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)

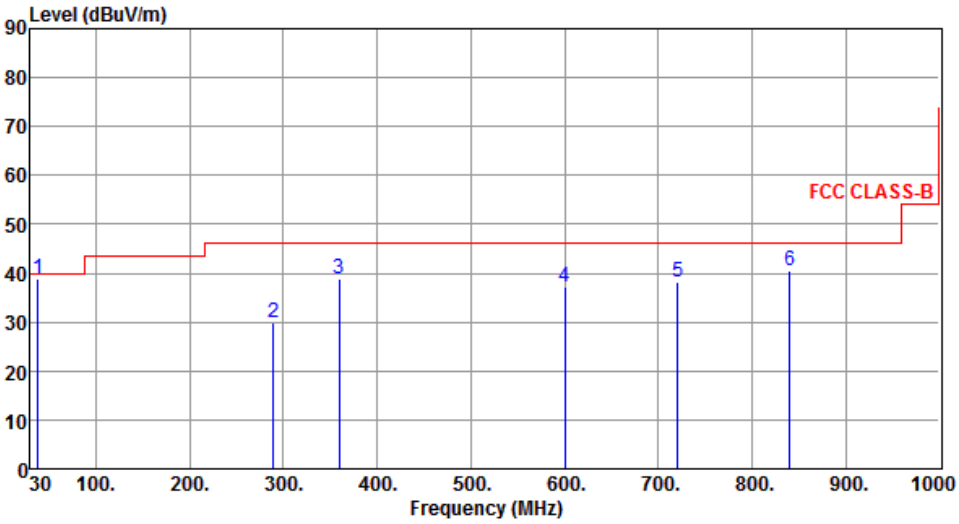
Modulation	HT20	Test Freq. (MHz)	2437
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	37.76	30.82	40.00	-9.18	44.12	-13.30	Peak	---	---
2	283.17	29.53	46.00	-16.47	42.83	-13.30	Peak	---	---
3	359.80	39.86	46.00	-6.14	51.04	-11.18	Peak	---	---
4	600.36	42.19	46.00	-3.81	47.91	-5.72	Peak	---	---
5	750.00	44.78	46.00	-1.22	47.97	-3.19	QP	110	139
6	840.00	43.07	46.00	-2.93	44.96	-1.89	QP	100	156

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

Modulation	HT20	Test Freq. (MHz)	2437
Polarization	Vertical		

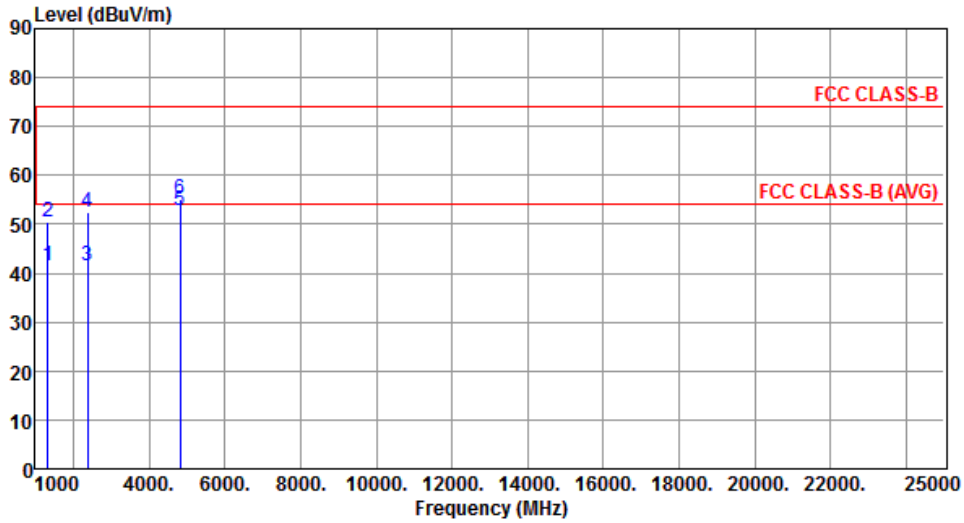


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	38.12	38.91	40.00	-1.09	52.19	-13.28	QP	100	277
2	288.99	29.83	46.00	-16.17	42.94	-13.11	Peak	---	---
3	359.80	38.90	46.00	-7.10	50.08	-11.18	Peak	---	---
4	600.36	37.23	46.00	-8.77	42.95	-5.72	Peak	---	---
5	720.64	38.28	46.00	-7.72	42.13	-3.85	Peak	---	---
6	839.95	40.39	46.00	-5.61	42.28	-1.89	Peak	---	---

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

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

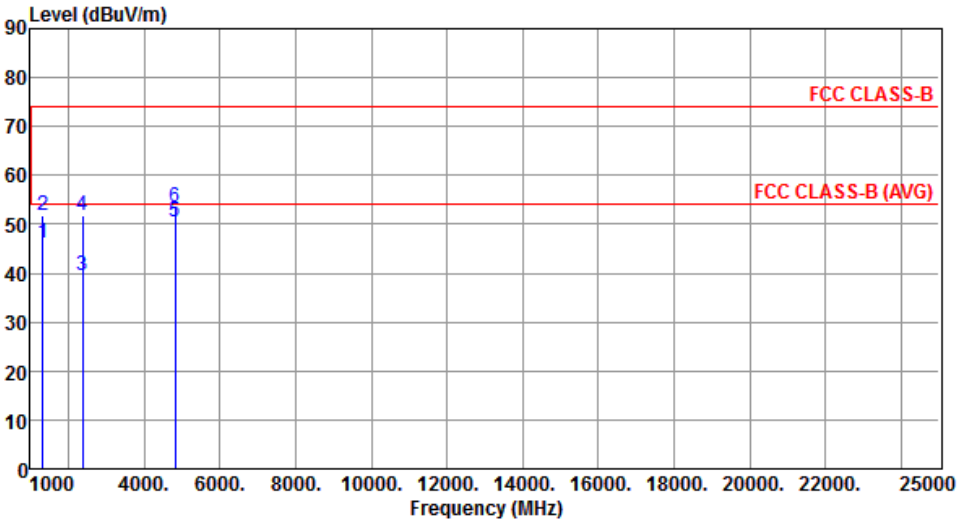
Modulation	11b	Test Freq. (MHz)	2412
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1320.00	41.52	54.00	-12.48	48.66	-7.14	Average	200	207
2	1320.00	50.64	74.00	-23.36	57.78	-7.14	Peak	200	207
3	2390.00	41.55	54.00	-12.45	45.03	-3.48	Average	199	218
4	2390.00	52.50	74.00	-21.50	55.98	-3.48	Peak	199	218
5	4824.00	52.77	54.00	-1.23	49.75	3.02	Average	171	111
6	4824.00	55.26	74.00	-18.74	52.24	3.02	Peak	171	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).

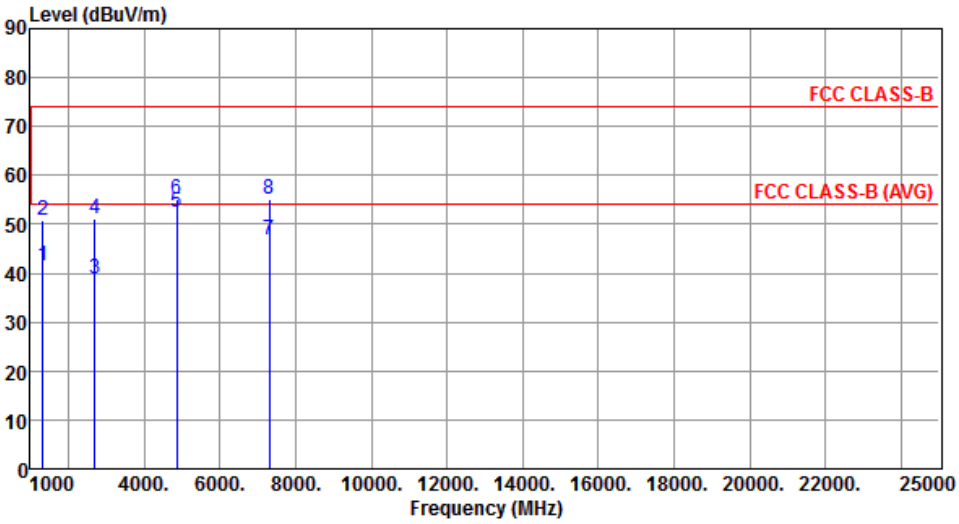
Modulation	11b	Test Freq. (MHz)	2412
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1320.00	46.30	54.00	-7.70	53.44	-7.14	Average	213	255
2	1320.00	51.86	74.00	-22.14	59.00	-7.14	Peak	213	255
3	2390.00	39.55	54.00	-14.45	43.03	-3.48	Average	274	1
4	2390.00	51.66	74.00	-22.34	55.14	-3.48	Peak	274	1
5	4824.00	50.57	54.00	-3.43	47.55	3.02	Average	156	15
6	4824.00	53.32	74.00	-20.68	50.30	3.02	Peak	156	15

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

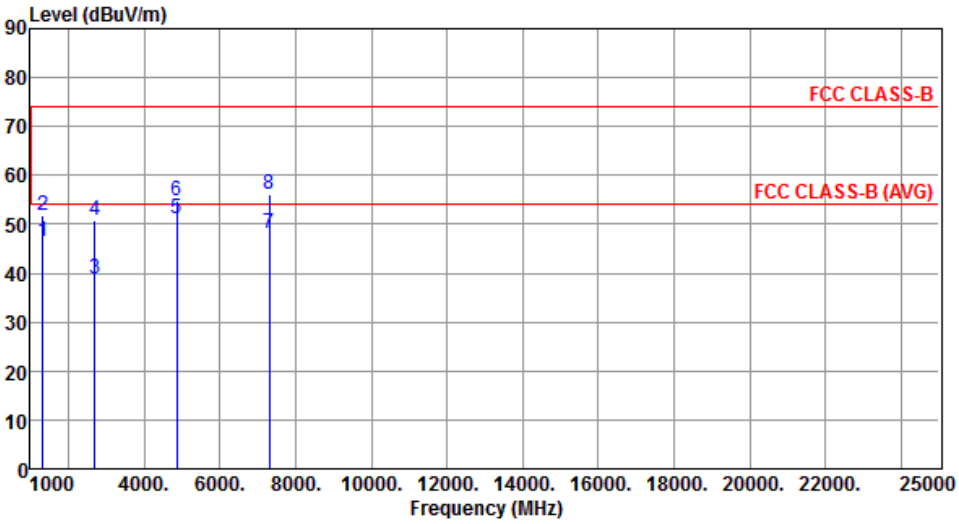
Modulation	11b	Test Freq. (MHz)	2437
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1320.00	41.65	54.00	-12.35	48.79	-7.14	Average	200	209
2	1320.00	50.81	74.00	-23.19	57.95	-7.14	Peak	200	209
3	2692.00	39.02	54.00	-14.98	41.53	-2.51	Average	198	217
4	2692.00	51.17	74.00	-22.83	53.68	-2.51	Peak	198	217
5	4874.00	52.50	54.00	-1.50	49.46	3.04	Average	104	313
6	4874.00	55.14	74.00	-18.86	52.10	3.04	Peak	104	313
7	7311.00	46.69	54.00	-7.31	37.76	8.93	Average	104	313
8	7311.00	54.97	74.00	-19.03	46.04	8.93	Peak	104	313

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).

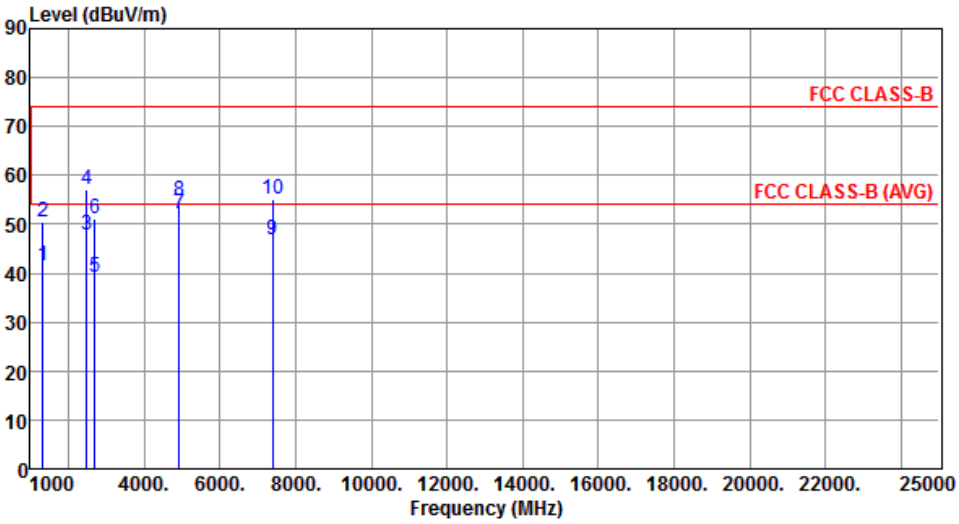
Modulation	11b	Test Freq. (MHz)	2437
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1320.00	46.38	54.00	-7.62	53.52	-7.14	Average	215	256
2	1320.00	51.92	74.00	-22.08	59.06	-7.14	Peak	215	256
3	2692.00	39.02	54.00	-14.98	41.53	-2.51	Average	270	2
4	2692.00	50.93	74.00	-23.07	53.44	-2.51	Peak	270	2
5	4874.00	51.29	54.00	-2.71	48.25	3.04	Average	143	6
6	4874.00	54.89	74.00	-19.11	51.85	3.04	Peak	143	6
7	7311.00	48.31	54.00	-5.69	39.38	8.93	Average	122	225
8	7311.00	56.06	74.00	-17.94	47.13	8.93	Peak	122	225

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).

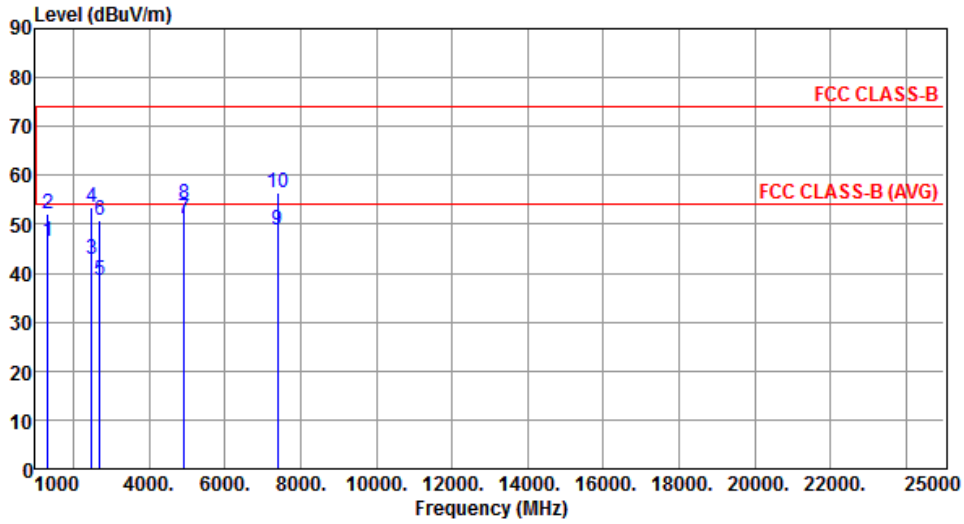
Modulation	11b	Test Freq. (MHz)	2462
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1320.00	41.36	54.00	-12.64	48.50	-7.14	Average	204	209
2	1320.00	50.64	74.00	-23.36	57.78	-7.14	Peak	204	209
3	2483.50	47.77	54.00	-6.23	50.97	-3.20	Average	195	203
4	2483.50	57.11	74.00	-16.89	60.31	-3.20	Peak	195	203
5	2712.00	39.24	54.00	-14.76	41.68	-2.44	Average	195	215
6	2712.00	51.09	74.00	-22.91	53.53	-2.44	Peak	195	215
7	4924.00	52.15	54.00	-1.85	49.07	3.08	Average	101	85
8	4924.00	54.85	74.00	-19.15	51.77	3.08	Peak	101	85
9	7386.00	46.95	54.00	-7.05	37.82	9.13	Average	105	316
10	7386.00	55.12	74.00	-18.88	45.99	9.13	Peak	105	316

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		

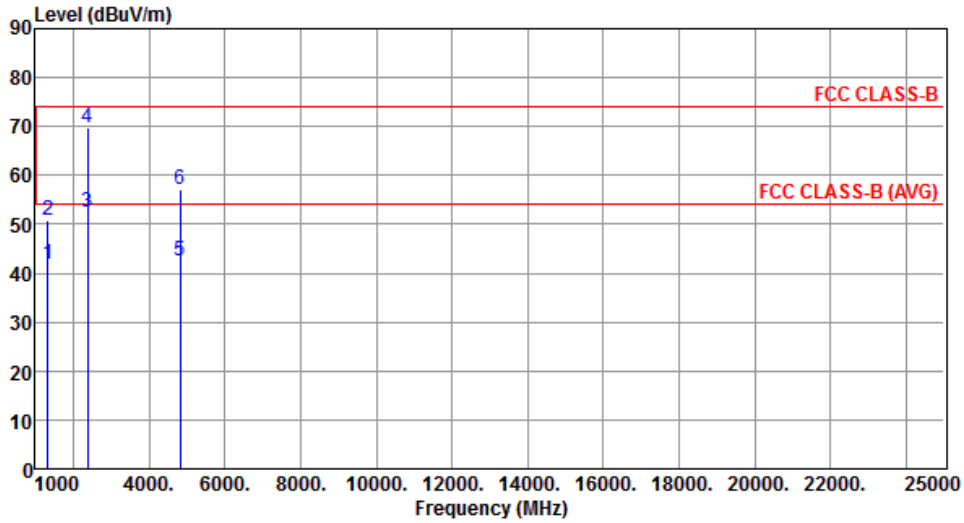


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1320.00	46.49	54.00	-7.51	53.63	-7.14	Average	219	256
2	1320.00	52.08	74.00	-21.92	59.22	-7.14	Peak	219	256
3	2483.50	42.69	54.00	-11.31	45.89	-3.20	Average	279	11
4	2483.50	53.61	74.00	-20.39	56.81	-3.20	Peak	279	11
5	2712.00	38.58	54.00	-15.42	41.02	-2.44	Average	255	12
6	2712.00	50.94	74.00	-23.06	53.38	-2.44	Peak	255	12
7	4924.00	51.16	54.00	-2.84	48.08	3.08	Average	145	9
8	4924.00	54.18	74.00	-19.82	51.10	3.08	Peak	145	9
9	7386.00	48.71	54.00	-5.29	39.58	9.13	Average	122	226
10	7386.00	56.35	74.00	-17.65	47.22	9.13	Peak	122	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).

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

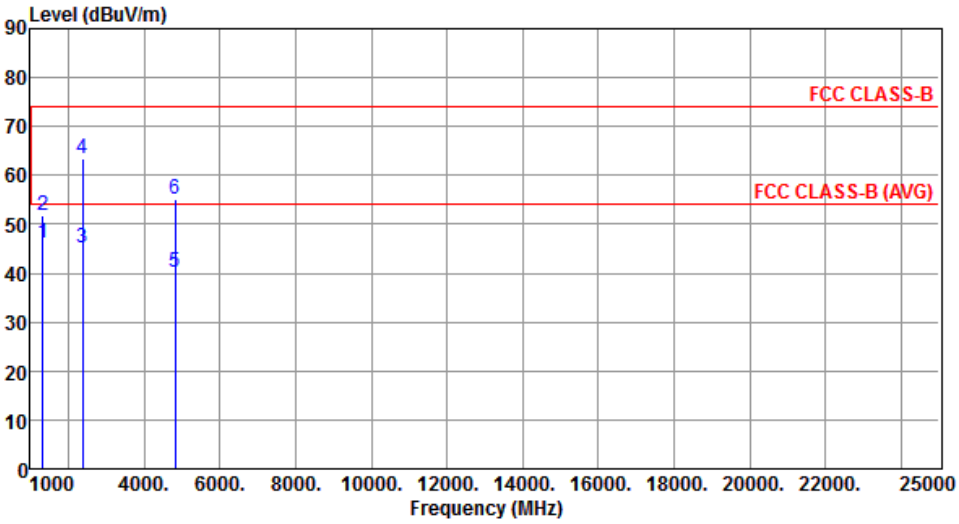
Modulation	11g	Test Freq. (MHz)	2412
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1320.00	41.68	54.00	-12.32	48.82	-7.14	Average	202	207
2	1320.00	50.74	74.00	-23.26	57.88	-7.14	Peak	202	207
3	2390.00	52.44	54.00	-1.56	55.92	-3.48	Average	234	195
4	2390.00	69.77	74.00	-4.23	73.25	-3.48	Peak	234	195
5	4824.00	42.51	54.00	-11.49	39.49	3.02	Average	186	75
6	4824.00	57.28	74.00	-16.72	54.26	3.02	Peak	186	75

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).

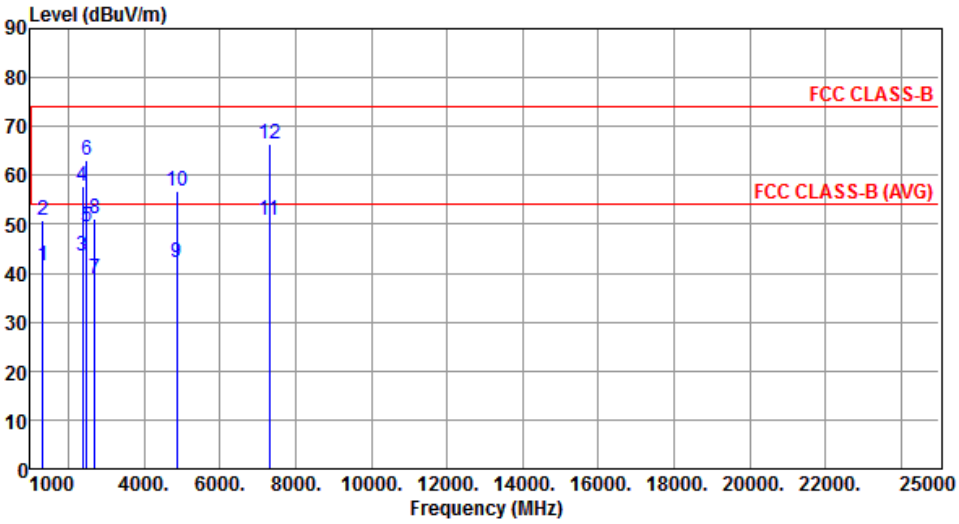
Modulation	11g	Test Freq. (MHz)	2412
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1320.00	46.11	54.00	-7.89	53.25	-7.14	Average	215	255
2	1320.00	51.68	74.00	-22.32	58.82	-7.14	Peak	215	255
3	2390.00	45.33	54.00	-8.67	48.81	-3.48	Average	271	1
4	2390.00	63.45	74.00	-10.55	66.93	-3.48	Peak	271	1
5	4824.00	40.12	54.00	-13.88	37.10	3.02	Average	160	22
6	4824.00	55.06	74.00	-18.94	52.04	3.02	Peak	160	22

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

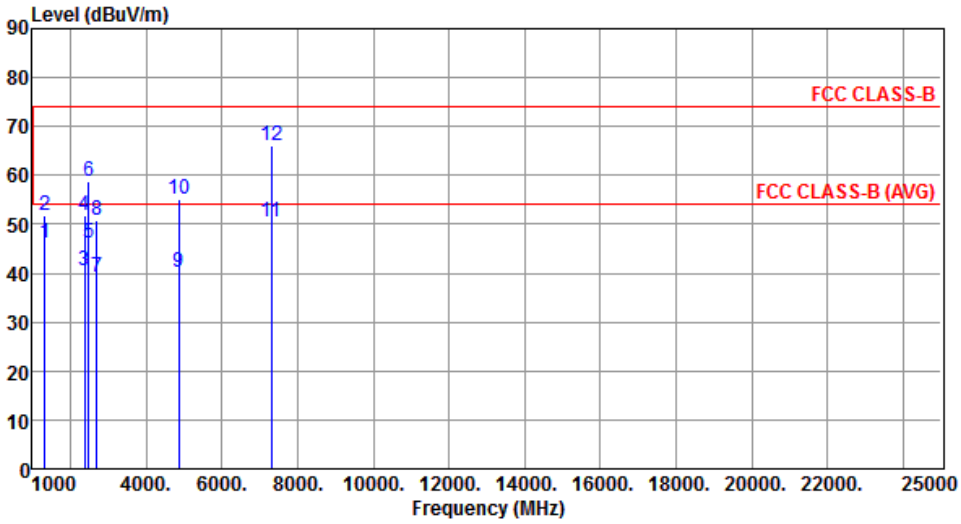
Modulation	11g	Test Freq. (MHz)	2437
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1320.00	41.52	54.00	-12.48	48.66	-7.14	Average	204	211
2	1320.00	50.65	74.00	-23.35	57.79	-7.14	Peak	204	211
3	2390.00	43.59	54.00	-10.41	47.07	-3.48	Average	233	203
4	2390.00	57.94	74.00	-16.06	61.42	-3.48	Peak	233	203
5	2483.50	49.45	54.00	-4.55	52.65	-3.20	Average	233	203
6	2483.50	62.97	74.00	-11.03	66.17	-3.20	Peak	233	203
7	2692.00	39.01	54.00	-14.99	41.52	-2.51	Average	195	215
8	2692.00	51.02	74.00	-22.98	53.53	-2.51	Peak	195	215
9	4874.00	42.21	54.00	-11.79	39.17	3.04	Average	188	342
10	4874.00	56.91	74.00	-17.09	53.87	3.04	Peak	188	342
11	7311.00	50.95	54.00	-3.05	42.02	8.93	Average	190	69
12	7311.00	66.42	74.00	-7.58	57.49	8.93	Peak	190	69

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).

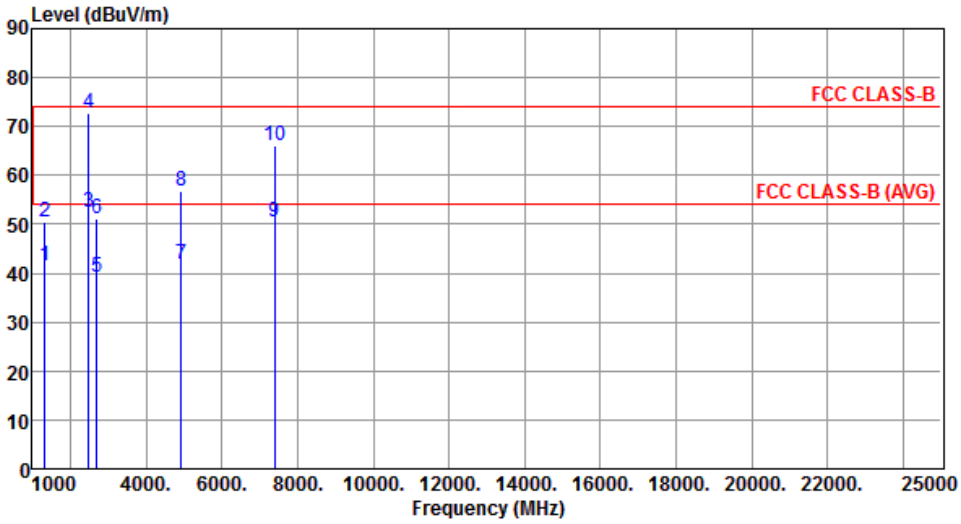
Modulation	11g	Test Freq. (MHz)	2437
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1320.00	46.25	54.00	-7.75	53.39	-7.14	Average	209	248
2	1320.00	51.74	74.00	-22.26	58.88	-7.14	Peak	209	248
3	2390.00	40.42	54.00	-13.58	43.90	-3.48	Average	274	2
4	2390.00	51.88	74.00	-22.12	55.36	-3.48	Peak	274	2
5	2483.50	46.31	54.00	-7.69	49.51	-3.20	Average	274	2
6	2483.50	58.84	74.00	-15.16	62.04	-3.20	Peak	274	2
7	2692.00	39.10	54.00	-14.90	41.61	-2.51	Average	275	5
8	2692.00	50.84	74.00	-23.16	53.35	-2.51	Peak	275	5
9	4874.00	40.17	54.00	-13.83	37.13	3.04	Average	182	302
10	4874.00	55.25	74.00	-18.75	52.21	3.04	Peak	182	302
11	7311.00	50.40	54.00	-3.60	41.47	8.93	Average	147	213
12	7311.00	66.11	74.00	-7.89	57.18	8.93	Peak	147	213

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).

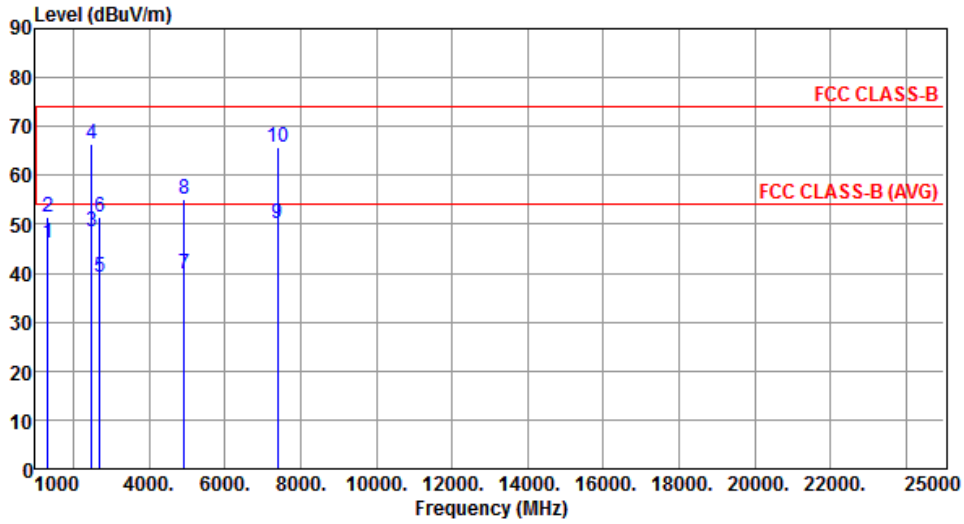
Modulation	11g	Test Freq. (MHz)	2462
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1320.00	41.39	54.00	-12.61	48.53	-7.14	Average	208	215
2	1320.00	50.54	74.00	-23.46	57.68	-7.14	Peak	208	215
3	2483.50	52.36	54.00	-1.64	55.56	-3.20	Average	250	196
4	2483.50	72.67	74.00	-1.33	75.87	-3.20	Peak	250	196
5	2712.00	39.21	54.00	-14.79	41.65	-2.44	Average	196	215
6	2712.00	51.24	74.00	-22.76	53.68	-2.44	Peak	196	215
7	4924.00	41.85	54.00	-12.15	38.77	3.08	Average	190	349
8	4924.00	56.69	74.00	-17.31	53.61	3.08	Peak	190	349
9	7386.00	50.52	54.00	-3.48	41.39	9.13	Average	186	74
10	7386.00	66.13	74.00	-7.87	57.00	9.13	Peak	186	74

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		

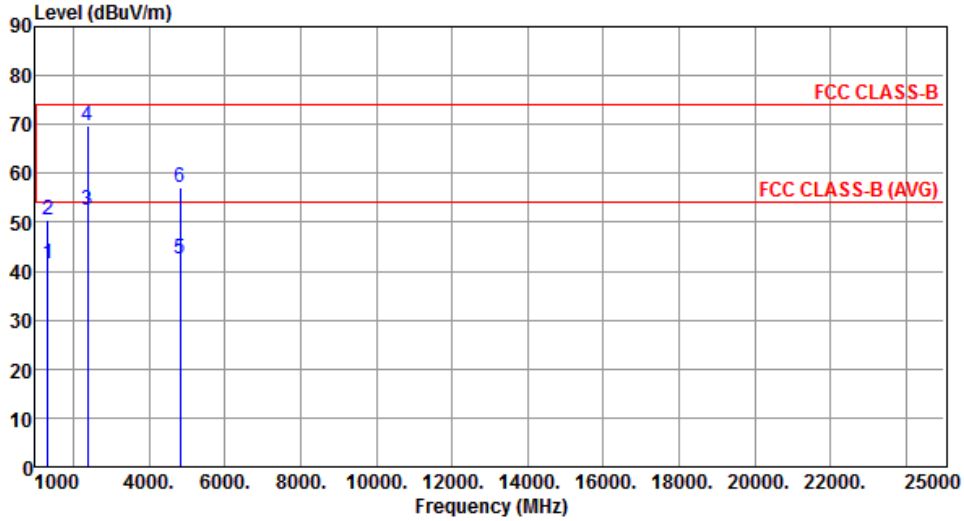


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1320.00	46.05	54.00	-7.95	53.19	-7.14	Average	210	248
2	1320.00	51.52	74.00	-22.48	58.66	-7.14	Peak	210	248
3	2483.50	48.44	54.00	-5.56	51.64	-3.20	Average	276	4
4	2483.50	66.51	74.00	-7.49	69.71	-3.20	Peak	276	4
5	2712.00	39.18	54.00	-14.82	41.62	-2.44	Average	265	5
6	2712.00	51.42	74.00	-22.58	53.86	-2.44	Peak	265	5
7	4924.00	39.86	54.00	-14.14	36.78	3.08	Average	185	302
8	4924.00	55.03	74.00	-18.97	51.95	3.08	Peak	185	302
9	7386.00	50.12	54.00	-3.88	40.99	9.13	Average	142	220
10	7386.00	65.84	74.00	-8.16	56.71	9.13	Peak	142	220

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

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

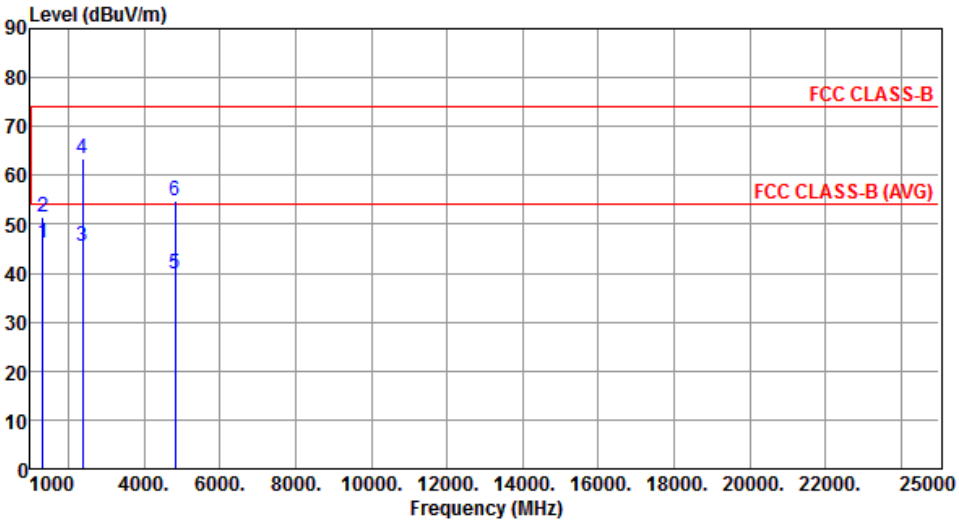
Modulation	HT20	Test Freq. (MHz)	2412
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1320.00	41.52	54.00	-12.48	48.66	-7.14	Average	209	207
2	1320.00	50.64	74.00	-23.36	57.78	-7.14	Peak	209	207
3	2390.00	52.56	54.00	-1.44	56.04	-3.48	Average	238	196
4	2390.00	69.89	74.00	-4.11	73.37	-3.48	Peak	238	196
5	4824.00	42.35	54.00	-11.65	39.33	3.02	Average	179	75
6	4824.00	57.14	74.00	-16.86	54.12	3.02	Peak	179	75

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).

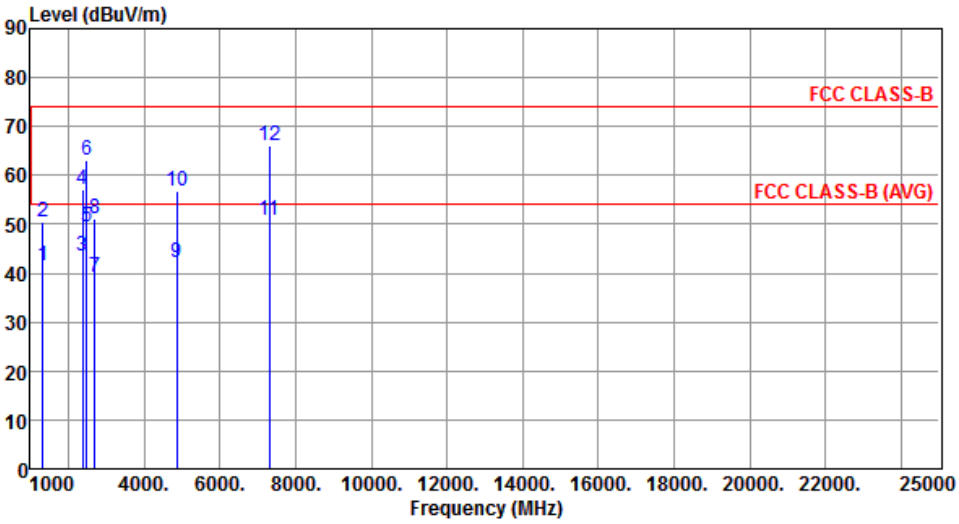
Modulation	HT20	Test Freq. (MHz)	2412
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1320.00	46.02	54.00	-7.98	53.16	-7.14	Average	216	251
2	1320.00	51.49	74.00	-22.51	58.63	-7.14	Peak	216	251
3	2390.00	45.46	54.00	-8.54	48.94	-3.48	Average	274	1
4	2390.00	63.52	74.00	-10.48	67.00	-3.48	Peak	274	1
5	4824.00	39.88	54.00	-14.12	36.86	3.02	Average	156	24
6	4824.00	54.76	74.00	-19.24	51.74	3.02	Peak	156	24

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).

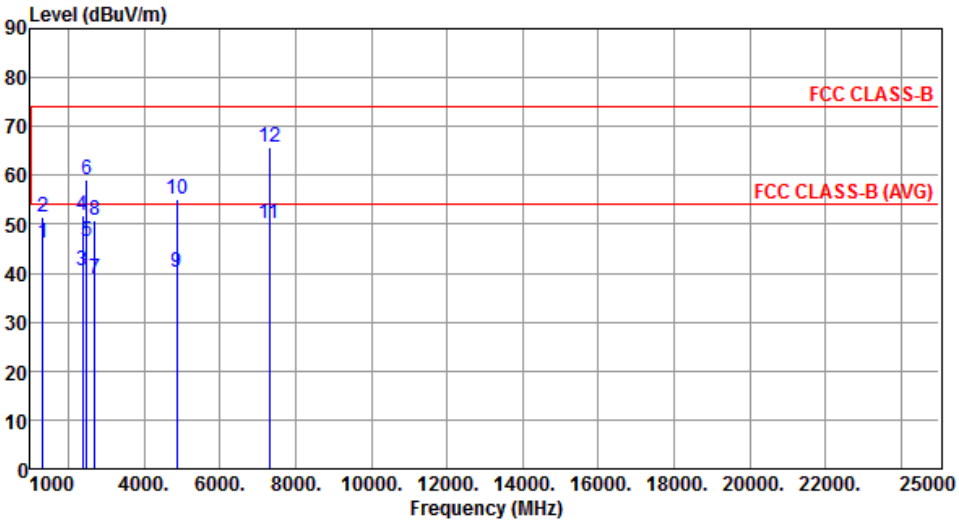
Modulation	HT20	Test Freq. (MHz)	2437
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1320.00	41.36	54.00	-12.64	48.50	-7.14	Average	205	211
2	1320.00	50.48	74.00	-23.52	57.62	-7.14	Peak	205	211
3	2390.00	43.65	54.00	-10.35	47.13	-3.48	Average	236	203
4	2390.00	57.01	74.00	-16.99	60.49	-3.48	Peak	236	203
5	2483.50	49.56	54.00	-4.44	52.76	-3.20	Average	236	203
6	2483.50	63.11	74.00	-10.89	66.31	-3.20	Peak	236	203
7	2692.00	39.05	54.00	-14.95	41.56	-2.51	Average	195	215
8	2692.00	51.24	74.00	-22.76	53.75	-2.51	Peak	195	215
9	4874.00	42.06	54.00	-11.94	39.02	3.04	Average	191	342
10	4874.00	56.75	74.00	-17.25	53.71	3.04	Peak	191	342
11	7311.00	50.82	54.00	-3.18	41.89	8.93	Average	195	69
12	7311.00	66.19	74.00	-7.81	57.26	8.93	Peak	195	69

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).

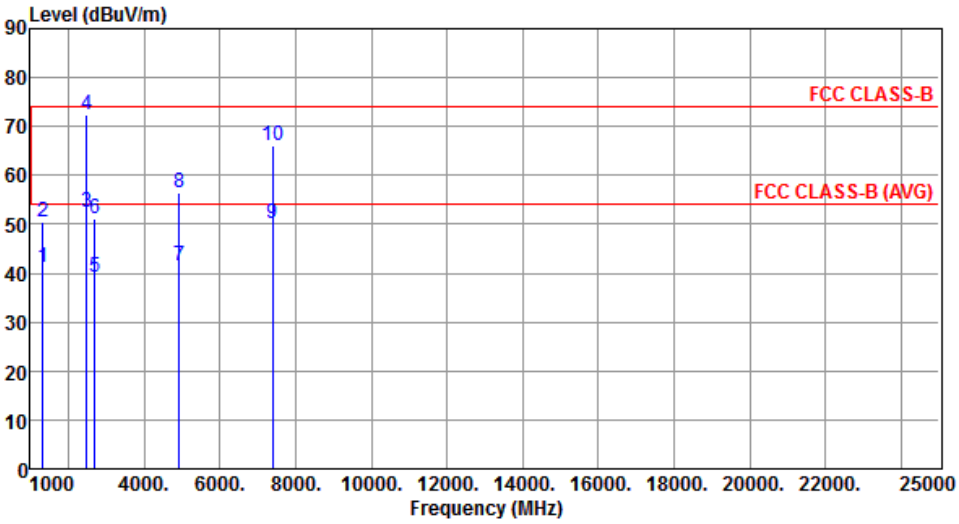
Modulation	HT20	Test Freq. (MHz)	2437
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1320.00	46.02	54.00	-7.98	53.16	-7.14	Average	210	248
2	1320.00	51.55	74.00	-22.45	58.69	-7.14	Peak	210	248
3	2390.00	40.56	54.00	-13.44	44.04	-3.48	Average	276	2
4	2390.00	51.93	74.00	-22.07	55.41	-3.48	Peak	276	2
5	2483.50	46.45	54.00	-7.55	49.65	-3.20	Average	276	2
6	2483.50	58.97	74.00	-15.03	62.17	-3.20	Peak	276	2
7	2692.00	38.91	54.00	-15.09	41.42	-2.51	Average	251	3
8	2692.00	50.97	74.00	-23.03	53.48	-2.51	Peak	251	3
9	4874.00	40.06	54.00	-13.94	37.02	3.04	Average	184	302
10	4874.00	55.13	74.00	-18.87	52.09	3.04	Peak	184	302
11	7311.00	50.21	54.00	-3.79	41.28	8.93	Average	151	213
12	7311.00	65.87	74.00	-8.13	56.94	8.93	Peak	151	213

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).

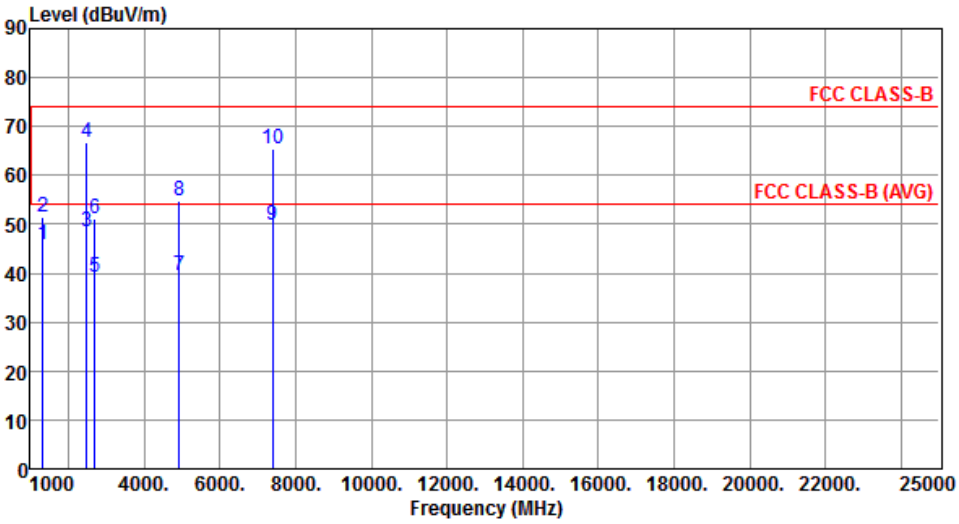
Modulation	HT20	Test Freq. (MHz)	2462
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1320.00	41.24	54.00	-12.76	48.38	-7.14	Average	210	215
2	1320.00	50.36	74.00	-23.64	57.50	-7.14	Peak	210	215
3	2483.50	52.46	54.00	-1.54	55.66	-3.20	Average	248	201
4	2483.50	72.54	74.00	-1.46	75.74	-3.20	Peak	248	201
5	2712.00	39.17	54.00	-14.83	41.61	-2.44	Average	196	215
6	2712.00	51.11	74.00	-22.89	53.55	-2.44	Peak	196	215
7	4924.00	41.52	54.00	-12.48	38.44	3.08	Average	192	349
8	4924.00	56.38	74.00	-17.62	53.30	3.08	Peak	192	349
9	7386.00	50.21	54.00	-3.79	41.08	9.13	Average	184	74
10	7386.00	65.94	74.00	-8.06	56.81	9.13	Peak	184	74

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		

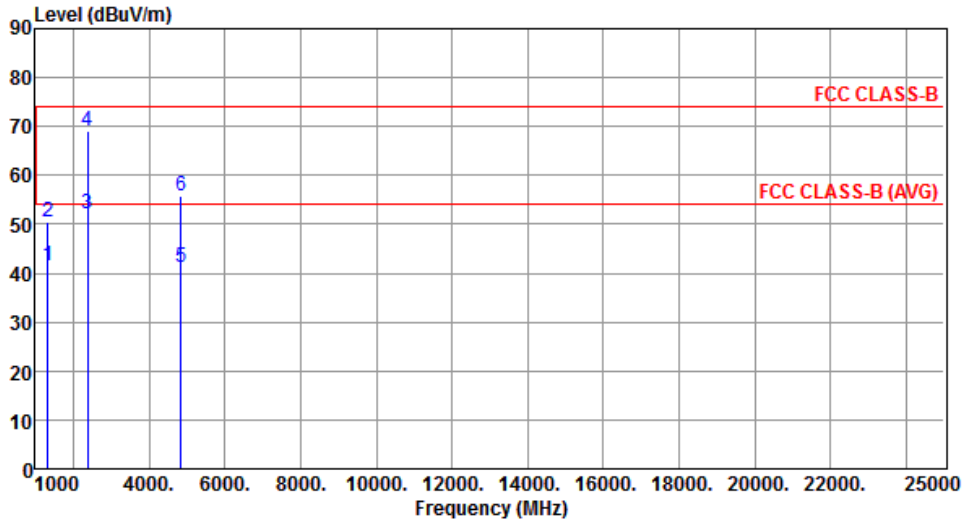


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1320.00	45.82	54.00	-8.18	52.96	-7.14	Average	211	248
2	1320.00	51.36	74.00	-22.64	58.50	-7.14	Peak	211	248
3	2483.50	48.57	54.00	-5.43	51.77	-3.20	Average	274	4
4	2483.50	66.69	74.00	-7.31	69.89	-3.20	Peak	274	4
5	2712.00	39.09	54.00	-14.91	41.53	-2.44	Average	255	6
6	2712.00	51.03	74.00	-22.97	53.47	-2.44	Peak	255	6
7	4924.00	39.62	54.00	-14.38	36.54	3.08	Average	191	302
8	4924.00	54.81	74.00	-19.19	51.73	3.08	Peak	191	302
9	7386.00	49.96	54.00	-4.04	40.83	9.13	Average	145	220
10	7386.00	65.51	74.00	-8.49	56.38	9.13	Peak	145	220

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

3.5.8 Transmitter Radiated Unwanted Emissions (Above 1GHz) for HT40

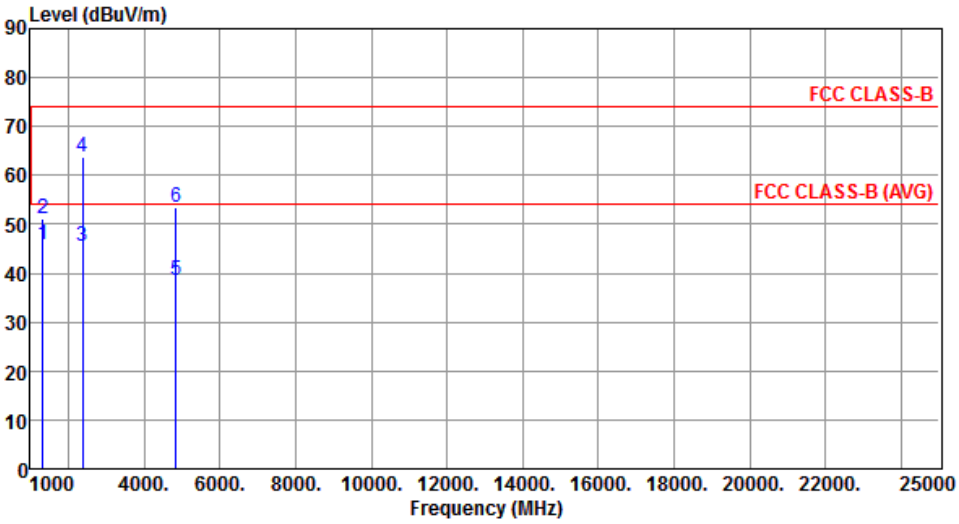
Modulation	HT40	Test Freq. (MHz)	2422
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1320.00	41.36	54.00	-12.64	48.50	-7.14	Average	211	207
2	1320.00	50.42	74.00	-23.58	57.56	-7.14	Peak	211	207
3	2390.00	52.20	54.00	-1.80	55.68	-3.48	Average	261	209
4	2390.00	69.24	74.00	-4.76	72.72	-3.48	Peak	261	209
5	4844.00	41.26	54.00	-12.74	38.23	3.03	Average	185	91
6	4844.00	55.92	74.00	-18.08	52.89	3.03	Peak	185	91

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

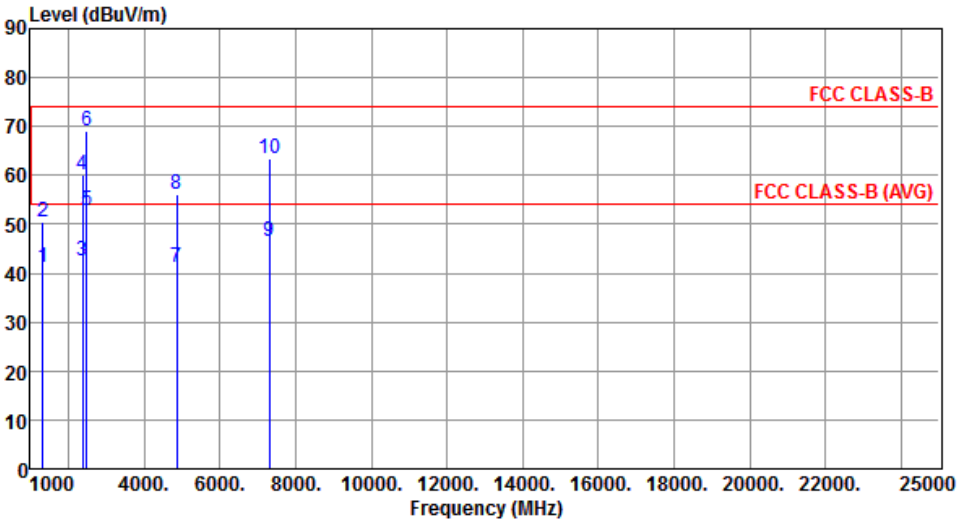
Modulation	HT40	Test Freq. (MHz)	2422
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1320.00	45.86	54.00	-8.14	53.00	-7.14	Average	211	251
2	1320.00	51.24	74.00	-22.76	58.38	-7.14	Peak	211	251
3	2390.00	45.65	54.00	-8.35	49.13	-3.48	Average	276	5
4	2390.00	63.68	74.00	-10.32	67.16	-3.48	Peak	276	5
5	4844.00	38.69	54.00	-15.31	35.66	3.03	Average	161	38
6	4844.00	53.45	74.00	-20.55	50.42	3.03	Peak	161	38

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

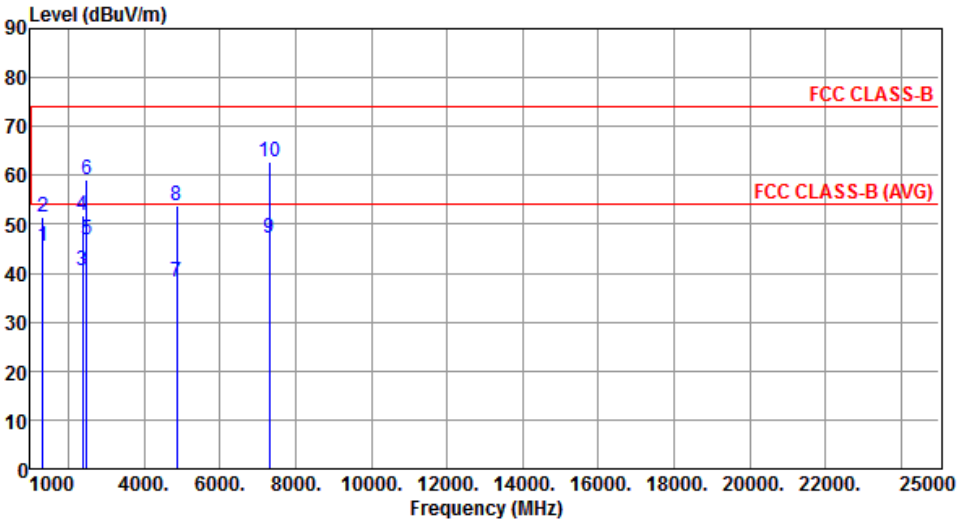
Modulation	HT40	Test Freq. (MHz)	2437
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1320.00	41.21	54.00	-12.79	48.35	-7.14	Average	208	211
2	1320.00	50.35	74.00	-23.65	57.49	-7.14	Peak	208	211
3	2390.00	42.67	54.00	-11.33	46.15	-3.48	Average	258	208
4	2390.00	60.11	74.00	-13.89	63.59	-3.48	Peak	258	208
5	2483.50	52.95	54.00	-1.05	56.15	-3.20	Average	258	208
6	2483.50	69.18	74.00	-4.82	72.38	-3.20	Peak	258	208
7	4874.00	41.25	54.00	-12.75	38.21	3.04	Average	196	342
8	4874.00	56.24	74.00	-17.76	53.20	3.04	Peak	196	342
9	7311.00	46.36	54.00	-7.64	37.43	8.93	Average	196	69
10	7311.00	63.58	74.00	-10.42	54.65	8.93	Peak	196	69

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

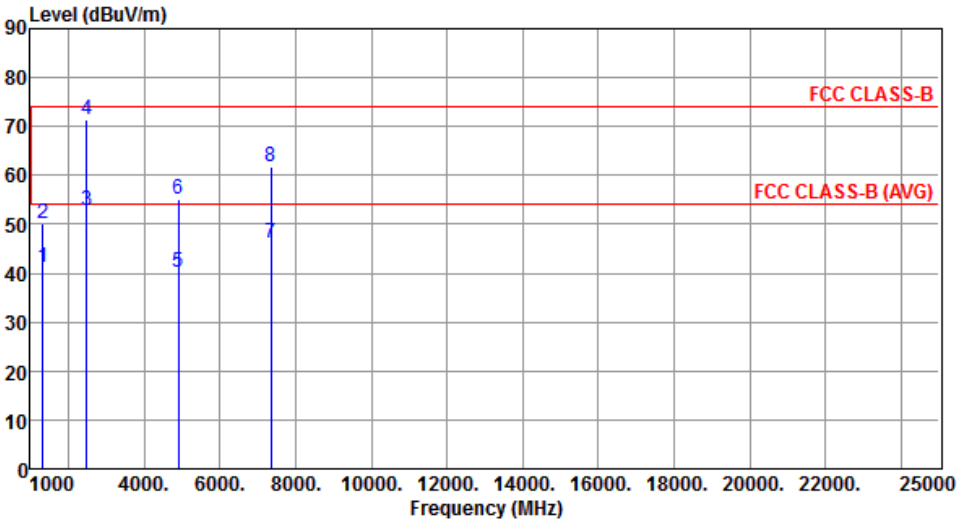
Modulation	HT40	Test Freq. (MHz)	2437
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1320.00	45.51	54.00	-8.49	52.65	-7.14	Average	211	253
2	1320.00	51.36	74.00	-22.64	58.50	-7.14	Peak	211	253
3	2390.00	40.51	54.00	-13.49	43.99	-3.48	Average	272	1
4	2390.00	51.96	74.00	-22.04	55.44	-3.48	Peak	272	1
5	2483.50	46.95	54.00	-7.05	50.15	-3.20	Average	272	1
6	2483.50	59.11	74.00	-14.89	62.31	-3.20	Peak	272	1
7	4874.00	38.25	54.00	-15.75	35.21	3.04	Average	181	302
8	4874.00	53.96	74.00	-20.04	50.92	3.04	Peak	181	302
9	7311.00	47.05	54.00	-6.95	38.12	8.93	Average	180	302
10	7311.00	62.64	74.00	-11.36	53.71	8.93	Peak	180	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).

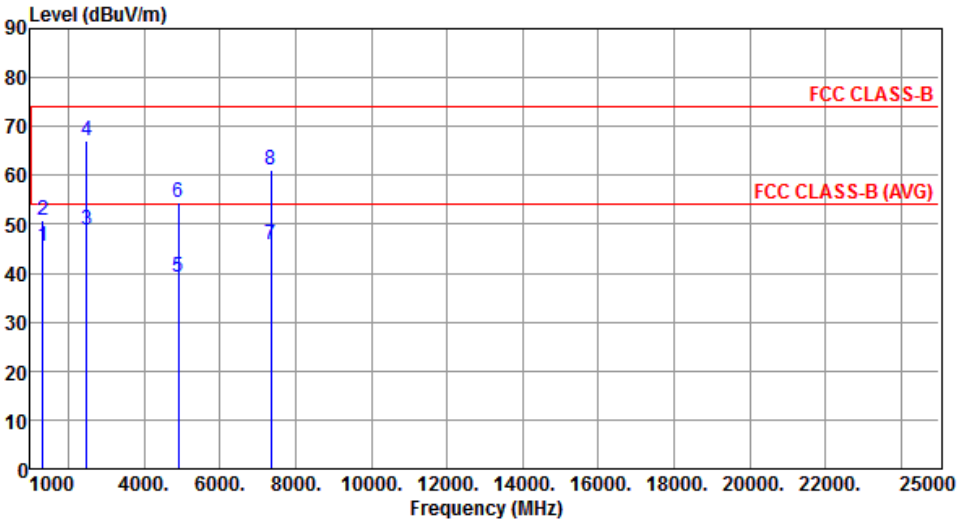
Modulation	HT40	Test Freq. (MHz)	2452
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1320.00	41.16	54.00	-12.84	48.30	-7.14	Average	215	215
2	1320.00	50.04	74.00	-23.96	57.18	-7.14	Peak	215	215
3	2483.50	52.68	54.00	-1.32	55.88	-3.20	Average	249	197
4	2483.50	71.55	74.00	-2.45	74.75	-3.20	Peak	249	197
5	4904.00	40.25	54.00	-13.75	37.18	3.07	Average	196	349
6	4904.00	55.24	74.00	-18.76	52.17	3.07	Peak	196	349
7	7356.00	46.06	54.00	-7.94	37.01	9.05	Average	189	74
8	7356.00	61.82	74.00	-12.18	52.77	9.05	Peak	189	74

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

Modulation	HT40	Test Freq. (MHz)	2452
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1320.00	45.43	54.00	-8.57	52.57	-7.14	Average	206	248
2	1320.00	50.91	74.00	-23.09	58.05	-7.14	Peak	206	248
3	2483.50	48.69	54.00	-5.31	51.89	-3.20	Average	278	9
4	2483.50	66.95	74.00	-7.05	70.15	-3.20	Peak	278	9
5	4904.00	39.14	54.00	-14.86	36.07	3.07	Average	196	302
6	4904.00	54.62	74.00	-19.38	51.55	3.07	Peak	196	302
7	7356.00	45.88	54.00	-8.12	36.83	9.05	Average	151	220
8	7356.00	61.02	74.00	-12.98	51.97	9.05	Peak	151	220

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

3.6 Emissions in Non-Restricted Frequency Bands

3.6.1 Emissions in Non-Restricted Frequency Bands Limit

Peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz

3.6.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.6.3 Test Procedures

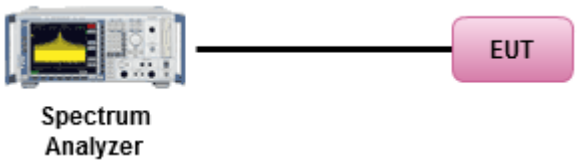
Reference level measurement

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

Emission level measurement

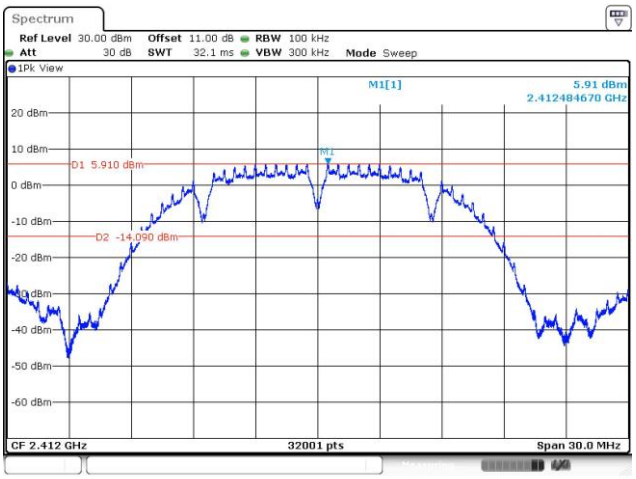
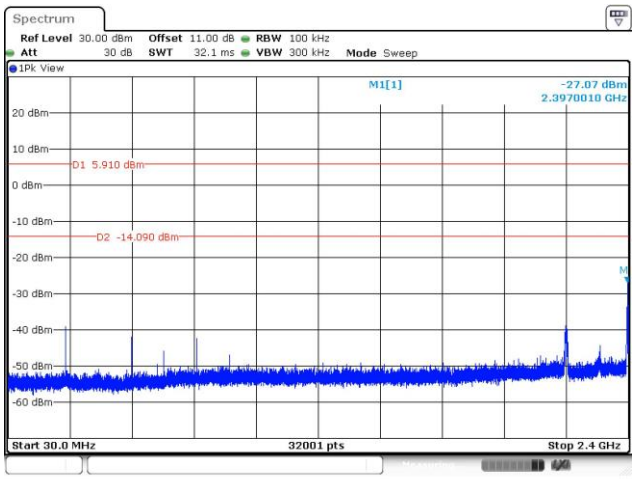
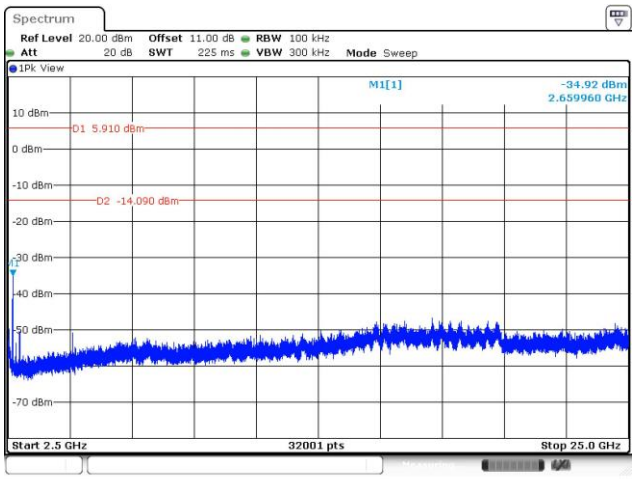
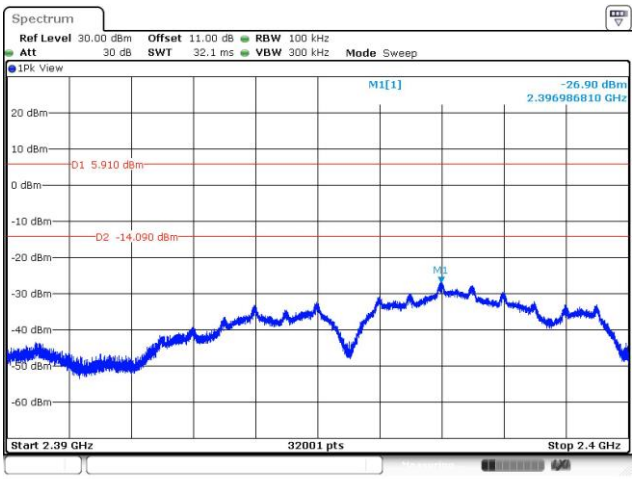
1. Set RBW=100kHz, VBW = 300kHz , Detector = Peak, Sweep time = Auto
2. Trace = max hold , Allow Trace to fully stabilize
3. Scan Frequency range is up to 25GHz
4. Use the peak marker function to determine the maximum amplitude level

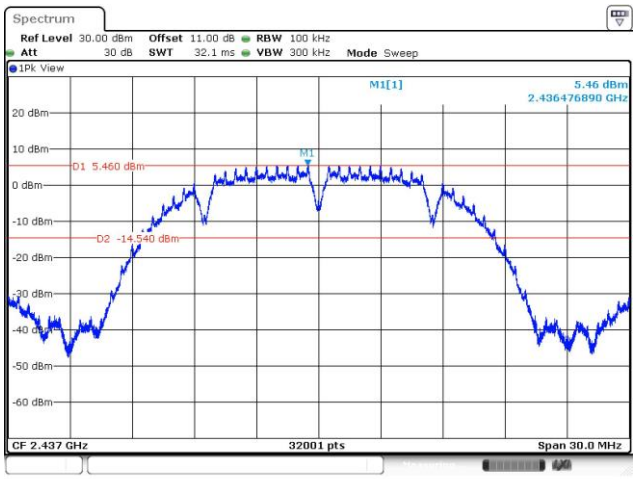
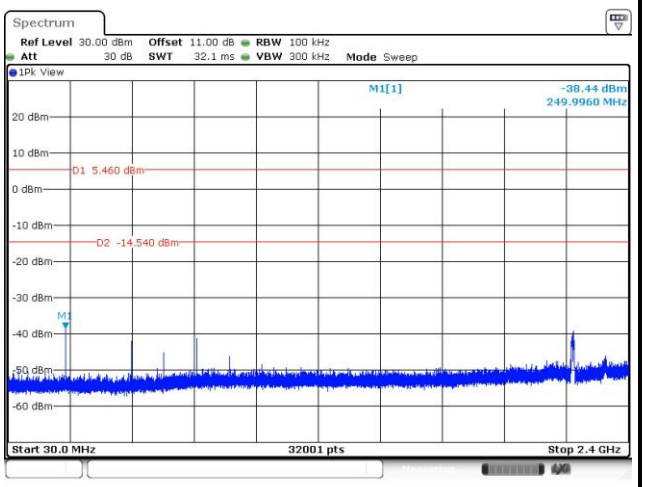
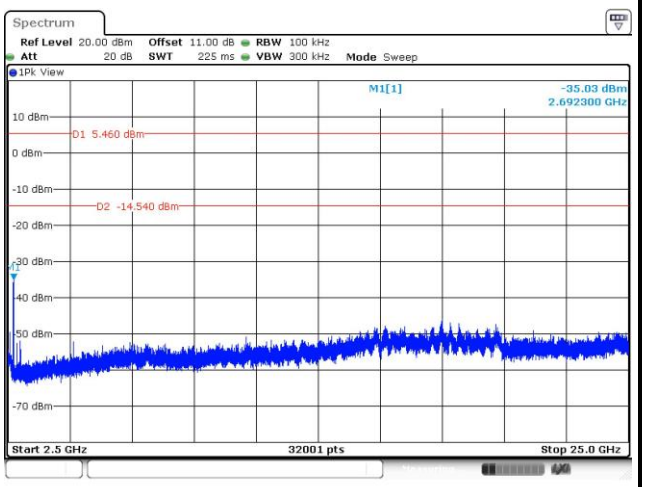
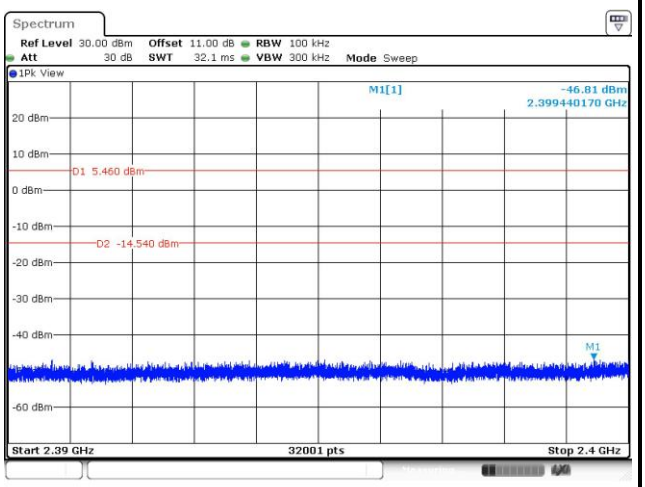
3.6.4 Test Setup

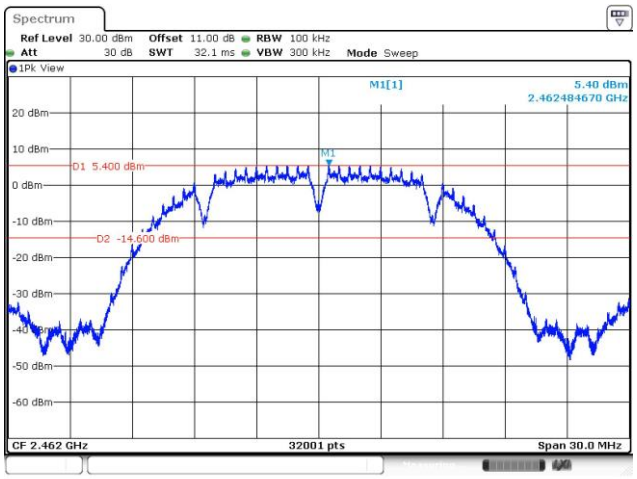
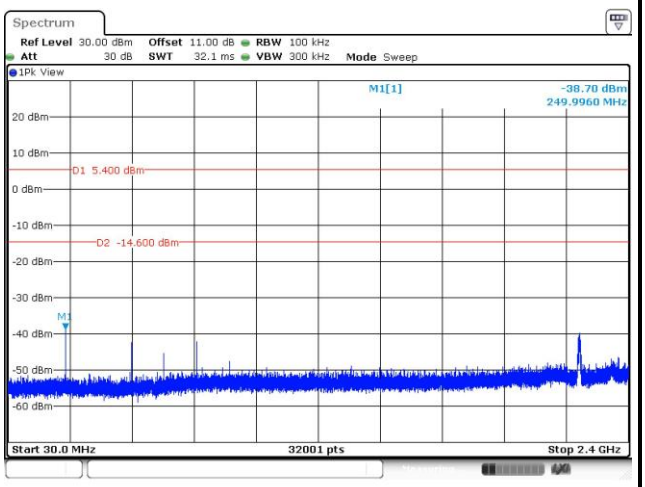
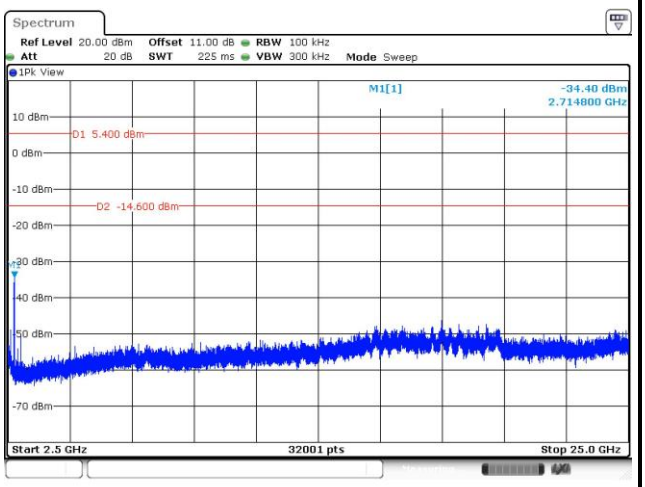
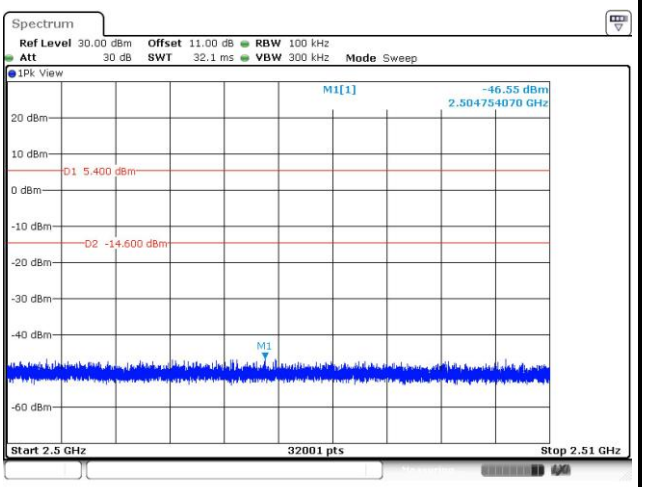
Transmitter Radiated Bandedge Emissions


3.6.5 Unwanted Emissions into Non-Restricted Frequency Bands

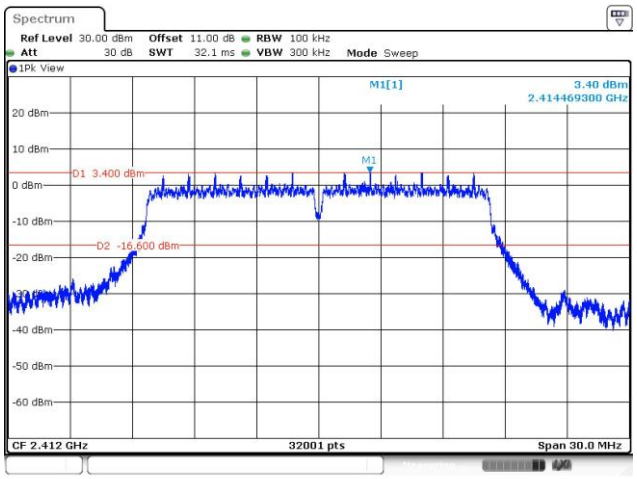
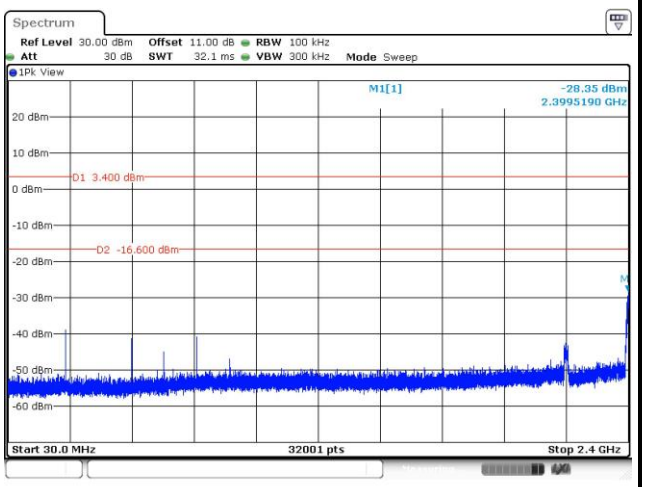
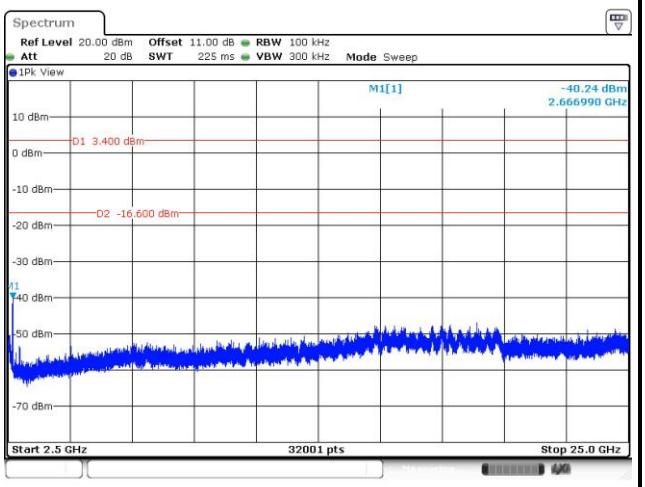
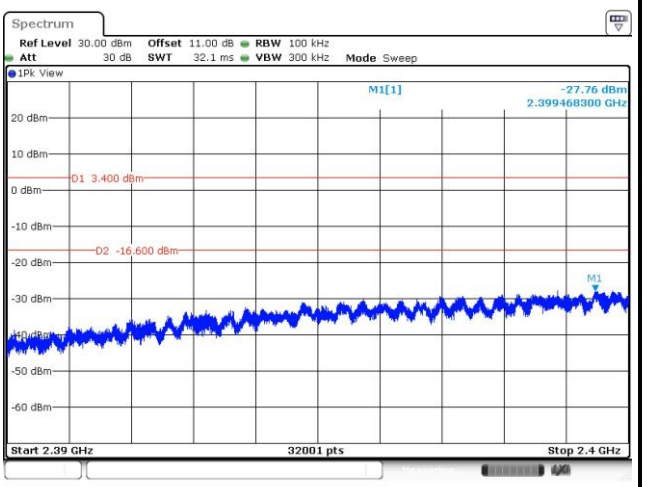
802.11b

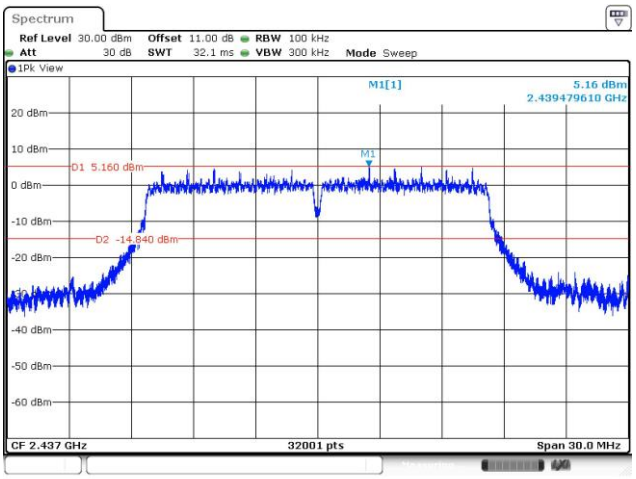
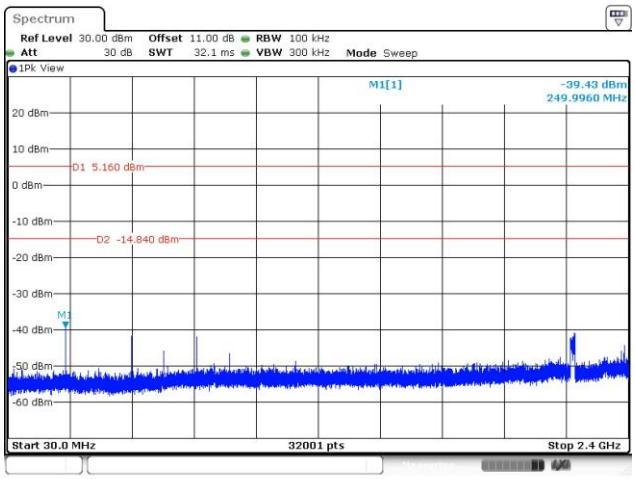
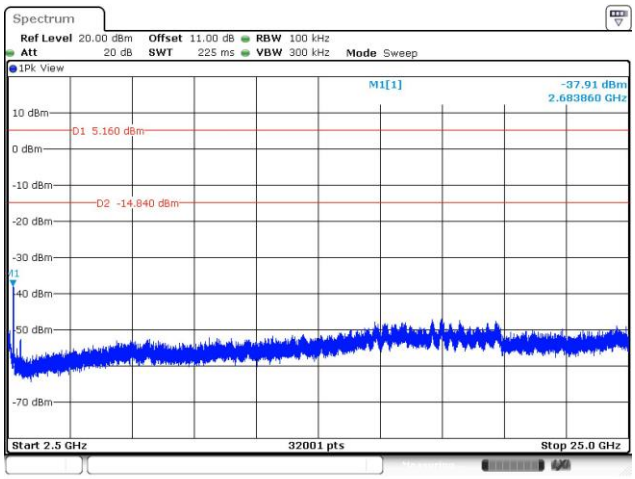
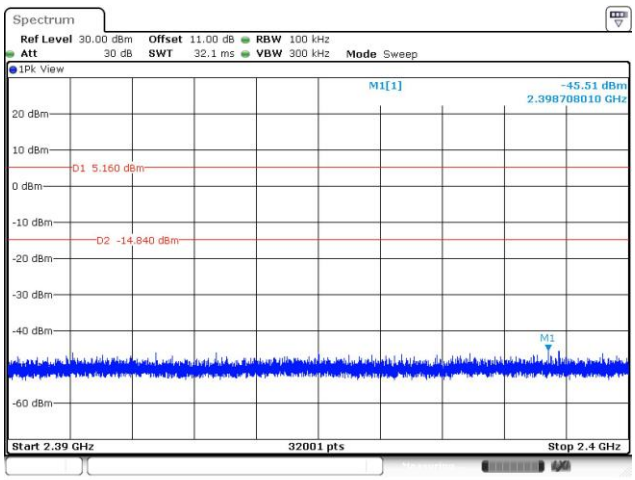
Reference Level	Tx 2412MHz / 30MHz~25GHz (down 20dBc)
	
---	
---	

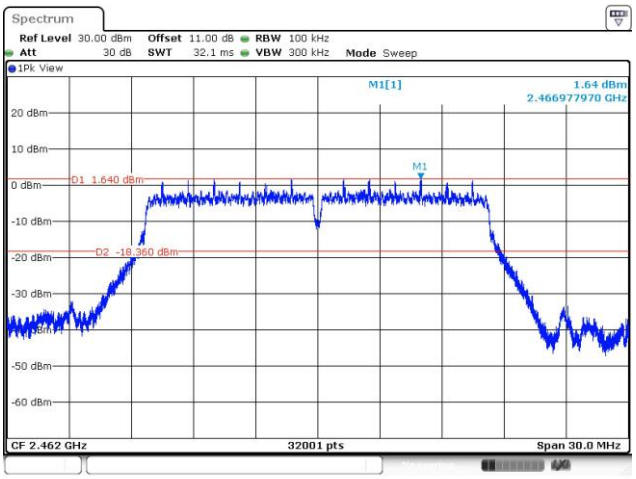
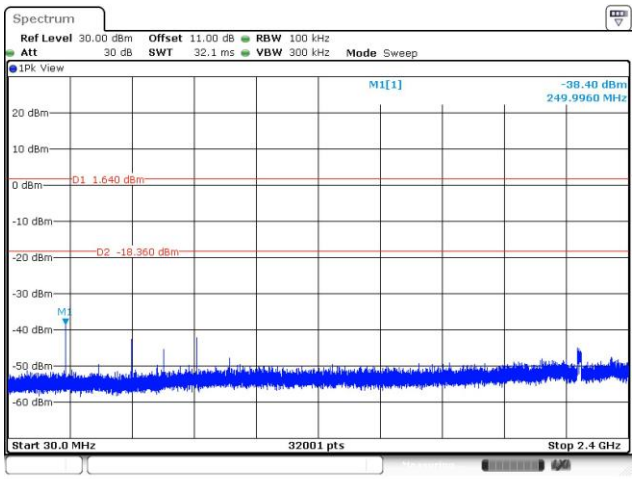
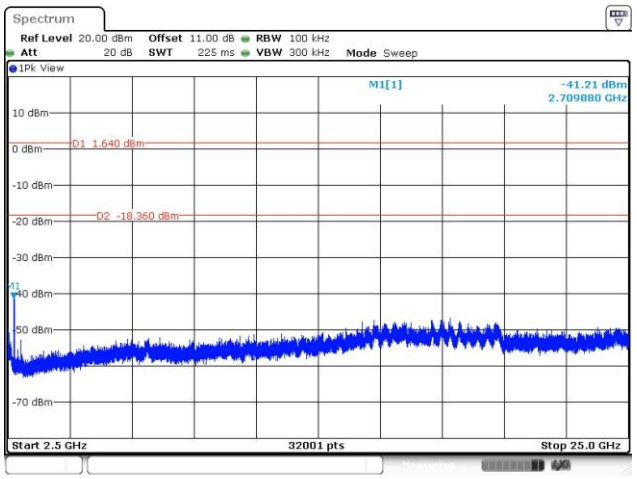
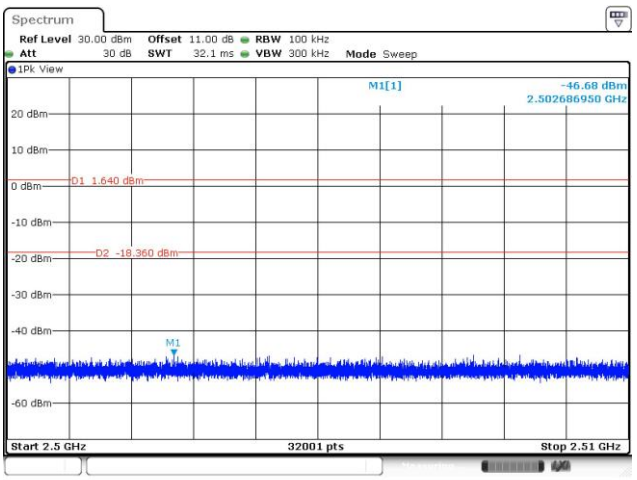
Reference Level	Tx 2437MHz / 30MHz~25GHz (down 20dBc)
	
---	
---	

Reference Level	Tx 2462MHz / 30MHz~25GHz (down 20dBc)
	
---	
---	

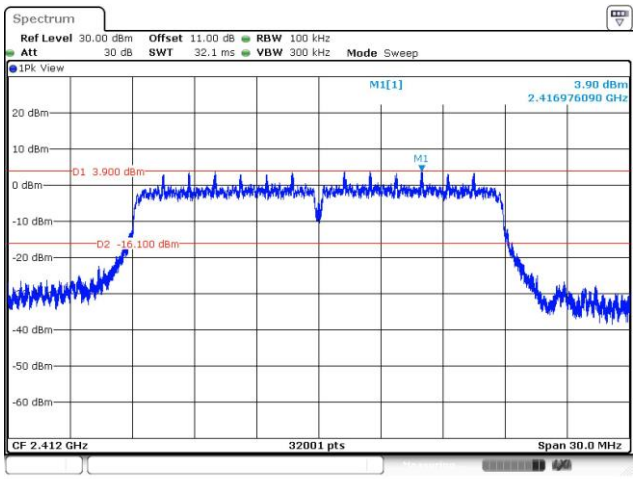
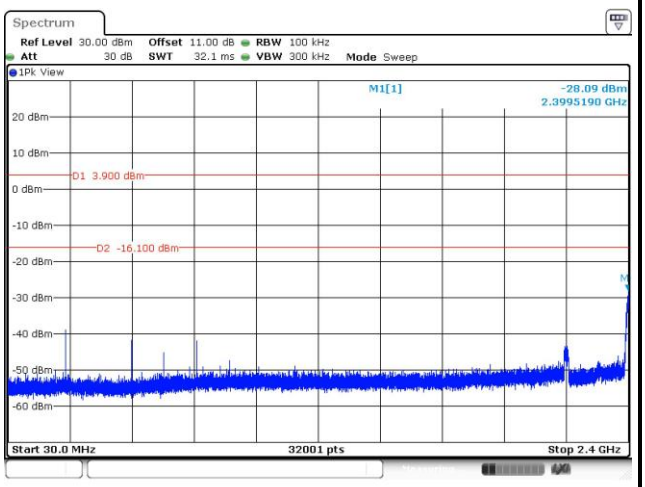
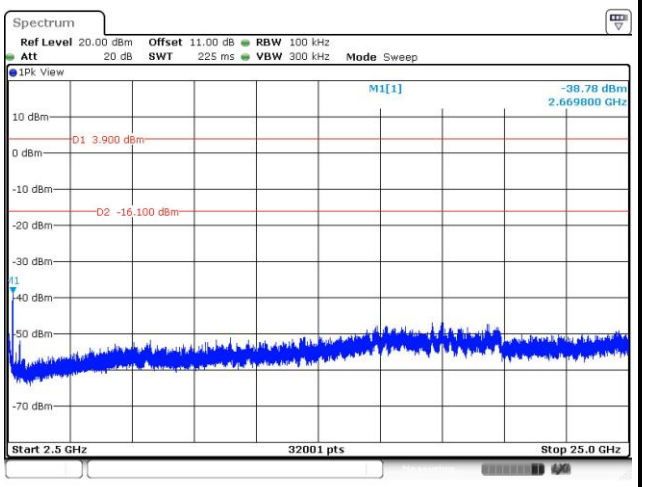
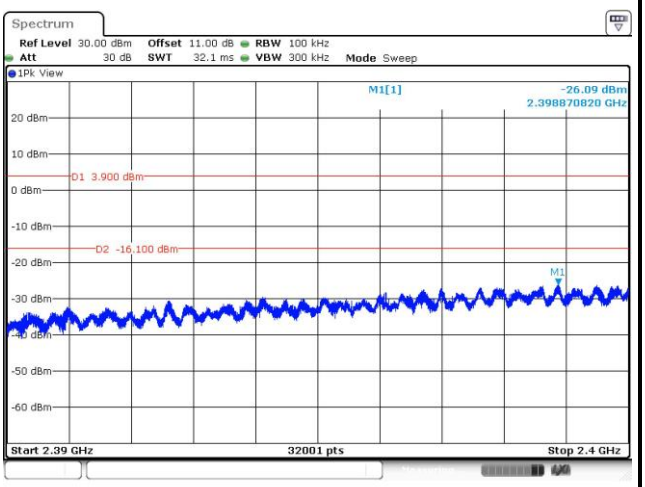
802.11g

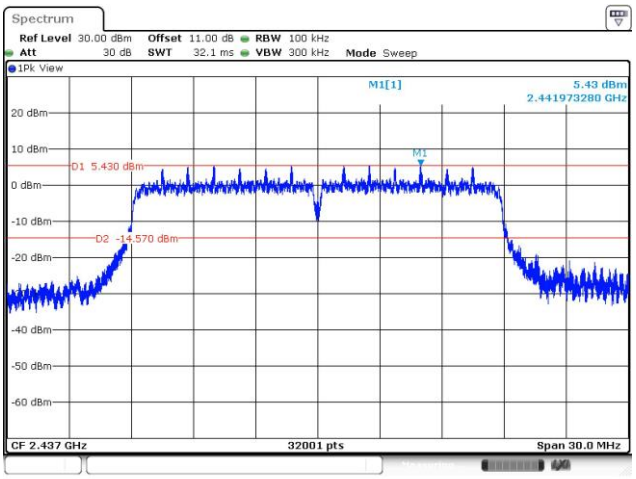
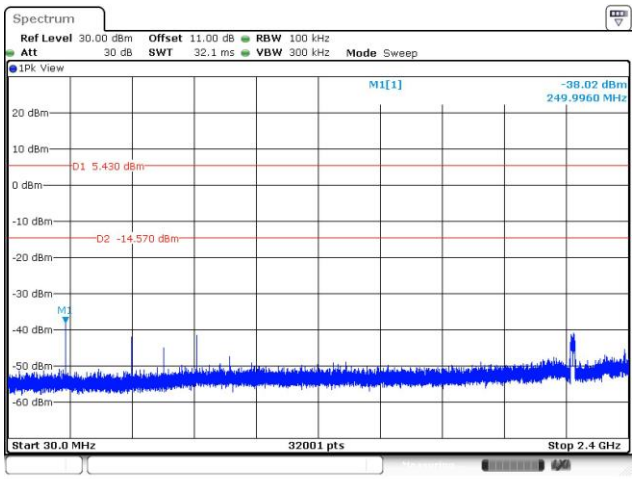
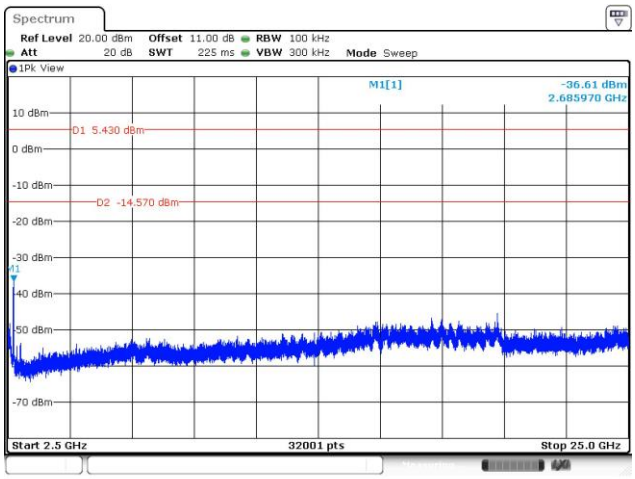
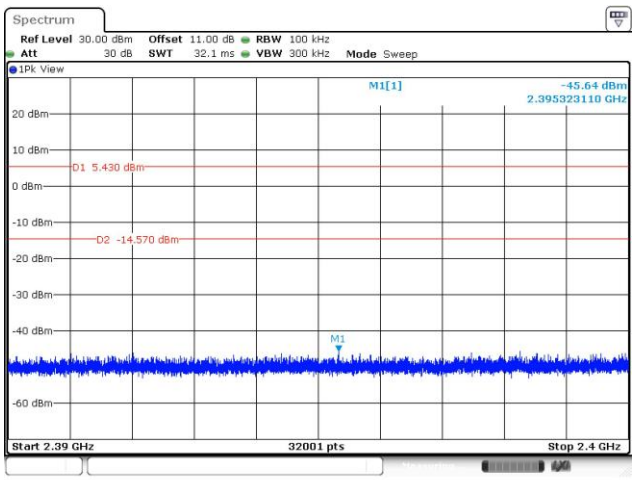
Reference Level	Tx 2412MHz / 30MHz~25GHz (down 20dBc)
	
---	
---	

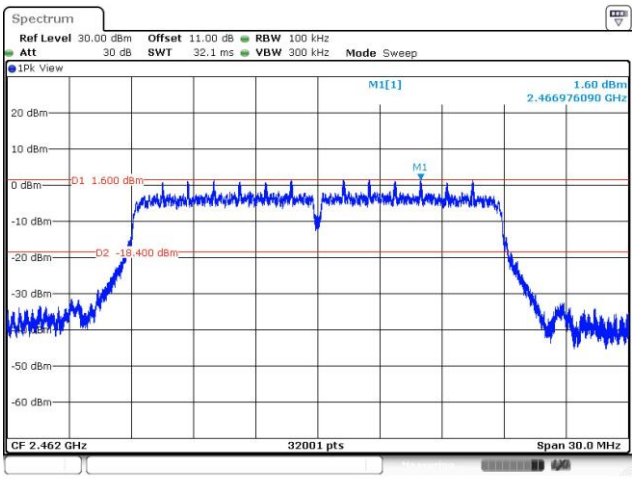
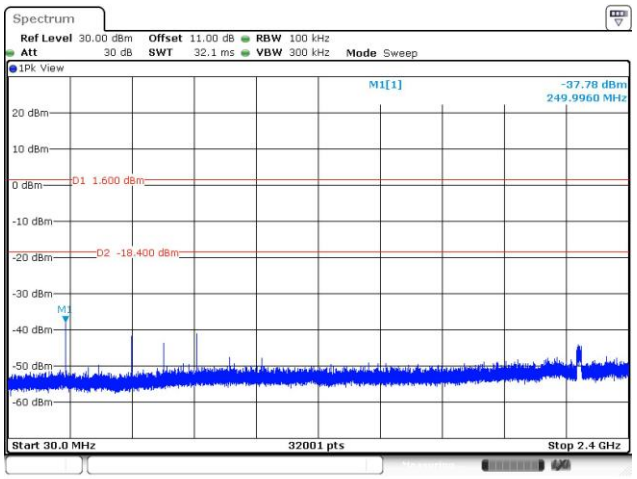
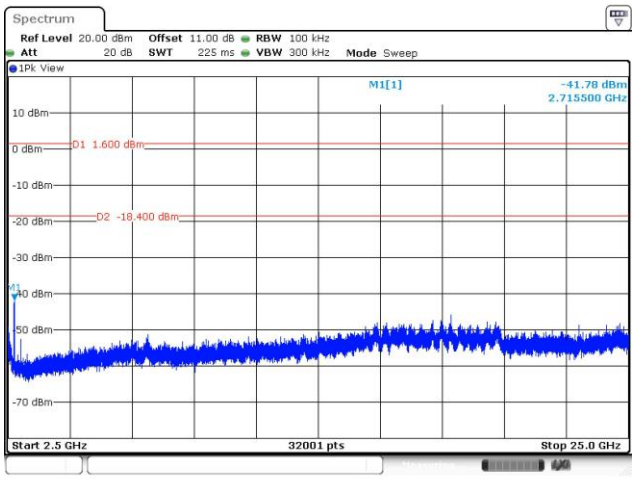
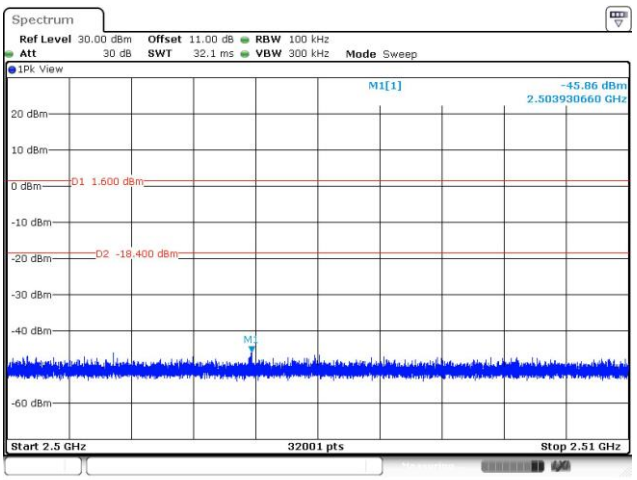
Reference Level	Tx 2437MHz / 30MHz~25GHz (down 20dBc)
	
---	
---	

Reference Level	Tx 2462MHz / 30MHz~25GHz (down 20dBc)
	
---	
---	

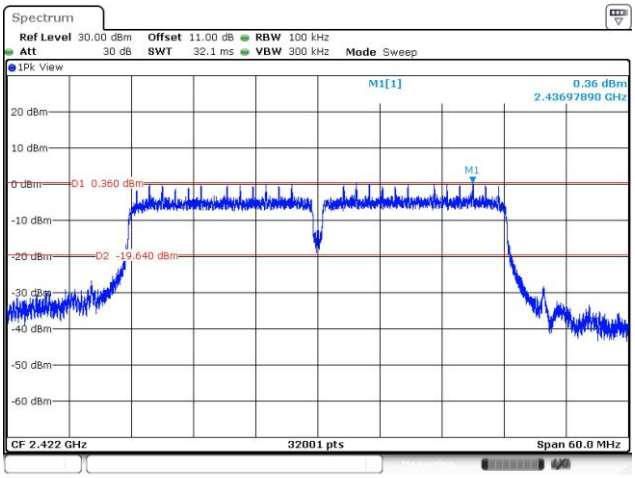
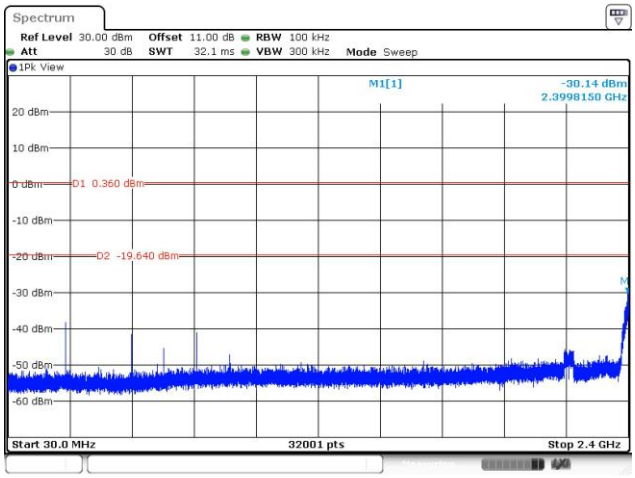
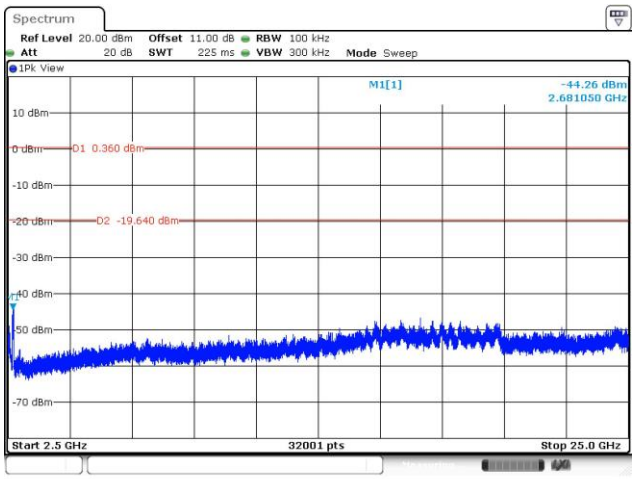
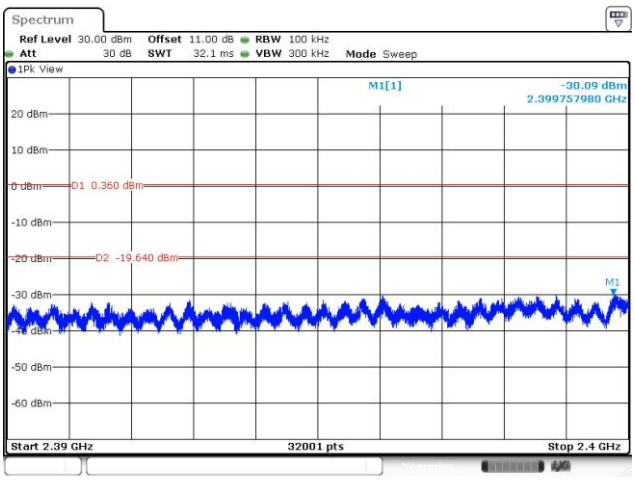
802.11n HT20

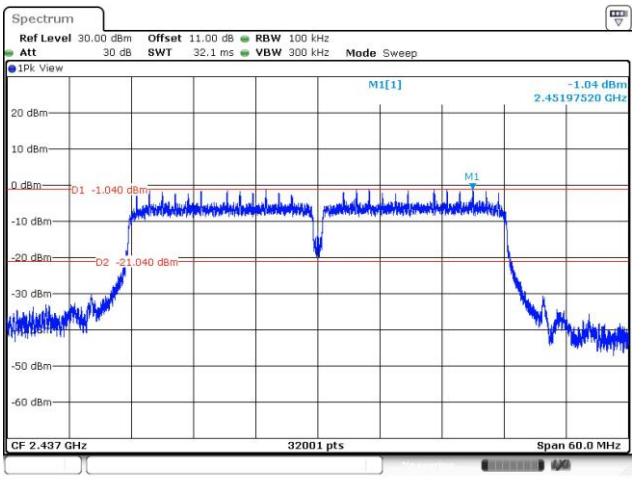
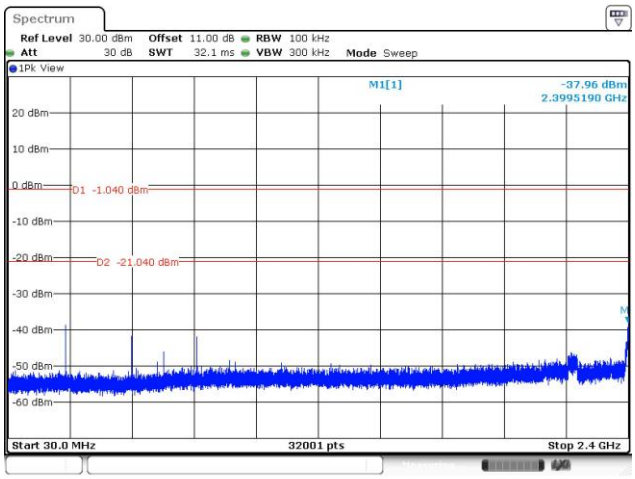
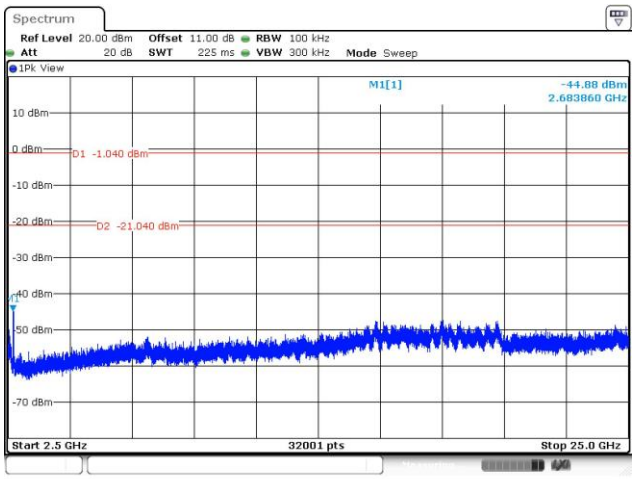
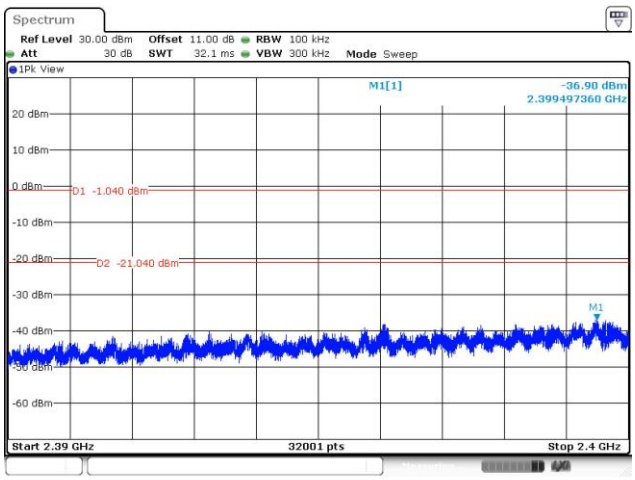
Reference Level	Tx 2412MHz / 30MHz~25GHz (down 20dBc)
	
---	
---	

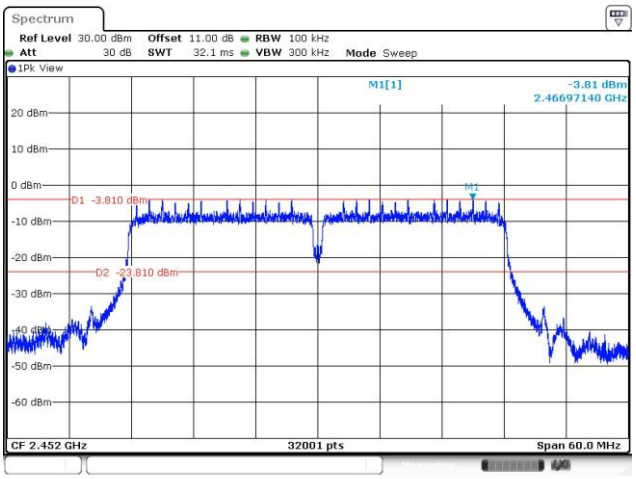
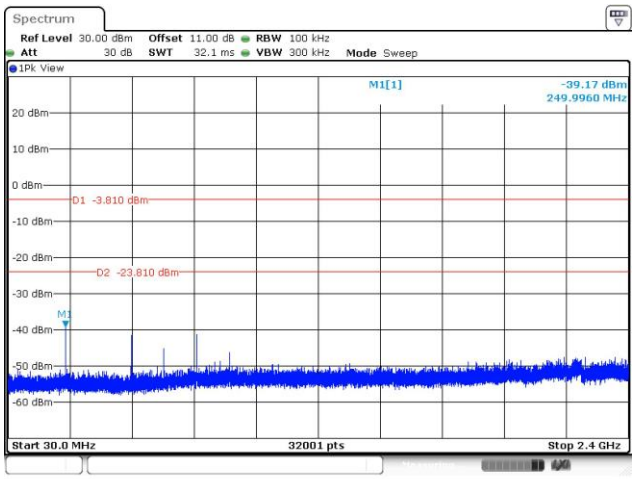
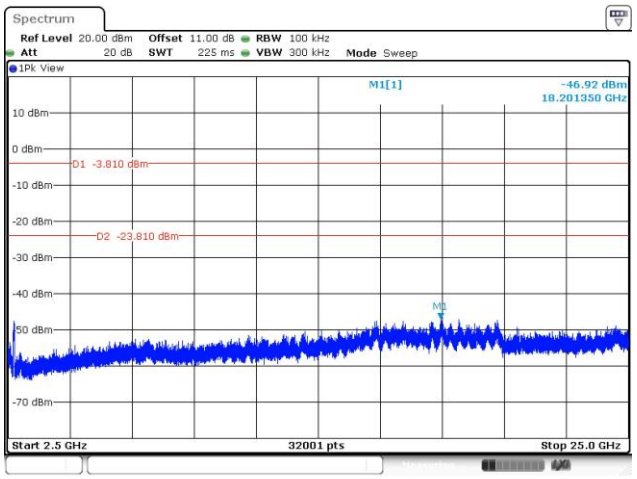
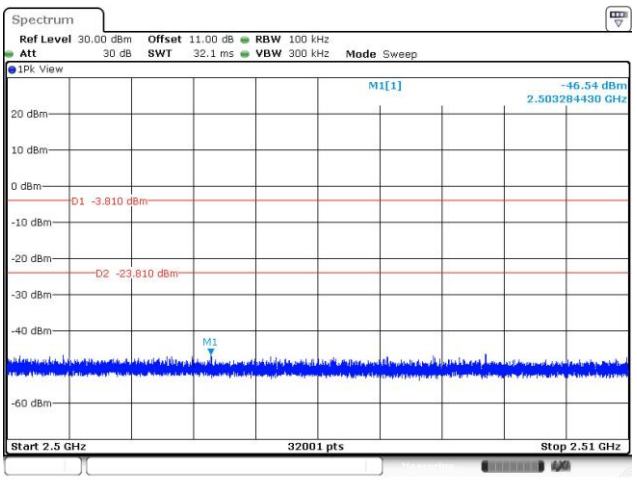
Reference Level	Tx 2437MHz / 30MHz~25GHz (down 20dBc)
	
---	
---	

Reference Level	Tx 2462MHz / 30MHz~25GHz (down 20dBc)
	
---	
---	

802.11n HT40

Reference Level	Tx 2422MHz / 30MHz~25GHz (down 20dBc)
	
---	
---	

Reference Level	Tx 2437MHz / 30MHz~25GHz (down 20dBc)
	
---	
---	

Reference Level	Tx 2452MHz / 30MHz~25GHz (down 20dBc)
	
---	
---	

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, 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 Hsiang. 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 Hsiang, Tao Yuan Hsien 333, Taiwan, R.O.C.	No. 14-1, Lane 19, Wen San 3rd St., Kwei Shan Hsiang, Tao Yuan Hsien 333, Taiwan, R.O.C.

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

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Email: ICC_Service@icertifi.com.tw

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