FCC C2PC Test Report

FCC ID	:	**NKR-DNURW1**
Equipment	:	**802.11 b/g/n USB Module**
Model No.	:	**DNUR-W1**
Brand Name	:	**WNC**
Applicant	:	**Wistron NeWeb Corp.**
Address	:	**20 Park Avenue II, Hsinchu Science Park, Hsinchu 308, Taiwan, R.O.C.**
Standard	:	**47 CFR FCC Part 15.247**
Received Date	:	**Nov. 08, 2016**
Tested Date	:	**Nov. 11 ~ Nov. 18, 2016**

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

Reviewed by: **Approved by:**

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

Testing Laboratory 2732

Table of Contents

Release Record

Report No.	Version	Description	Issued Date
FR492904-01	Rev. 01	Initial issue	Dec. 01, 2016

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	[dBuV]: 0.398MHz 36.15 (Margin -11.75dB) - AV	Pass
15.247(d) 15.209	Radiated Emissions	[dBuV/m at 3m]: 4924.00MHz 52.98 (Margin -1.02dB) - AV	Pass
15.247(b)(3)	Maximum Output Power	Max Power [dBm]: 24.85	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

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

This report is issued as a supplementary report to original ICC report no. FR492904. The modifications are concerned with following items:

- ✧ Connector type is changed from 5pins to 8pins.
- ✧ Adding external antenna type.
- ✧ Location L12(0.5pF) is removed, C237 changed from 1.5pF to 1.2pF and C238 changed from 0.8pF to 1.8pF. The circuit design slightly adjusted for impedance matching.

All tests had been re-tested and presented in the following sections.

1.1.1 Specification of the Equipment under Test (EUT)

RF General Information					
Frequency Range (MHz)	**IEEE Std. 802.11**	**Ch. Freq. (MHz)**	**Channel Number**	**Transmit Chains (N_{TX})**	**Data Rate / MCS**
2400-2483.5	b	2412-2462	1-11 [11]	1	1-11 Mbps
2400-2483.5	g	2412-2462	1-11 [11]	1	6-54 Mbps
2400-2483.5	n (HT20)	2412-2462	1-11 [11]	1	MCS 0-7
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	3.2	I-PEX	---

1.1.3 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	3.3Vdc from host.

1.1.4 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	---	---

1.1.5 Test Tool and Duty Cycle

Test Tool	MT7601, V1.0.7.0		
Duty Cycle and Duty Factor	Mode	Duty cycle (%)	Duty factor (dB)
	11b	100.00%	0.00
	11g	100.00%	0.00
	HT20	100.00%	0.00
	HT40	100.00%	0.00

1.1.6 Power Setting

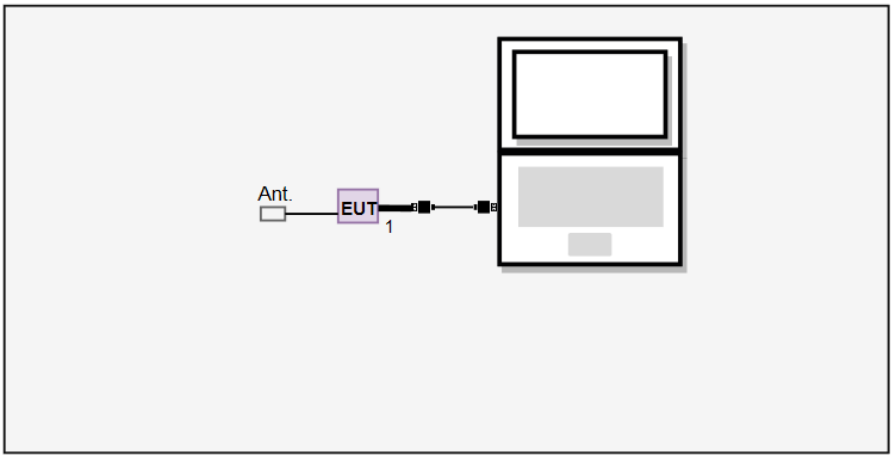
Modulation Mode	Test Frequency (MHz)	Power Set
11b	2412	29
11b	2437	29
11b	2462	26
11g	2412	1F
11g	2437	24
11g	2462	1E
HT20	2412	1F
HT20	2437	24
HT20	2462	1E
HT40	2422	1A
HT40	2437	1F
HT40	2452	19

1.2 Local Support Equipment List

Support Equipment List					
No.	Equipment	Brand	Model	FCC ID	Signal cable / Length (m)
1	Notebook	DELL	Latitude E6430	DoC	USB, 0.5m shielded.

1.3 Test Setup Chart

Test Setup Diagram



1. 0.5m USB cable+fixture cable

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	ESR-3	102052	Apr. 19, 2016	Apr. 18, 2017
LISN	SCHWARZBECK	Schwarzbeck 8127	8127-666	Nov. 26, 2015	Nov. 25, 2016
RF Cable-CON	EMC	EMCCFD300-BM-BM-6000	50821	Dec. 21, 2015	Dec. 20, 2016
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	Agilent	N9010A	MY53400091	Sep. 09, 2016	Sep. 08, 2017
Receiver	Agilent	N9038A	MY53290044	Oct. 06, 2016	Oct. 05, 2017
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-685	Apr. 26, 2016	Apr. 25, 2017
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1206	Feb. 24, 2016	Feb. 23, 2017
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Oct. 25, 2016	Oct. 24, 2017
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 10, 2016	Nov. 09, 2017
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Dec. 10, 2015	Dec. 09, 2016
Preamplifier	EMC	EMC02325	980187	Sep. 08, 2016	Sep. 07, 2017
Preamplifier	Agilent	83017A	MY53270014	Aug. 22, 2016	Aug. 21, 2017
Preamplifier	EMC	EMC184045B	980192	Aug. 24, 2016	Aug. 23, 2017
RF cable-3M	HUBER+SUHNER	SUCOFLEX104	MY22620/4	Feb. 05, 2016	Feb. 04, 2017
RF cable-8M	HUBER+SUHNER	SUCOFLEX104	MY22600/4	Feb. 05, 2016	Feb. 04, 2017
RF cable-1M	HUBER+SUHNER	SUCOFLEX104	MY22624/4	Feb. 05, 2016	Feb. 04, 2017
LF cable-0.8M	EMC	EMC8D-NM-NM-800	EMC8D-NM-NM-800 -001	Feb. 05, 2016	Feb. 04, 2017
LF cable-3M	EMC	EMC8D-NM-NM-300 0	131103	Feb. 05, 2016	Feb. 04, 2017
LF cable-13M	EMC	EMC8D-NM-NM-130 00	131104	Feb. 05, 2016	Feb. 04, 2017
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. 17, 2016	Feb. 16, 2017
Power Meter	Anritsu	ML2495A	1241002	Oct. 06, 2016	Oct. 05, 2017
Power Sensor	Anritsu	MA2411B	1207366	Oct. 06, 2016	Oct. 05, 2017
DC POWER SOURCE	GW INSTEK	GPC-6030D	EM892433	Oct. 20, 2016	Oct. 19, 2017
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 v03r05

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	22°C / 60%	Howard Huang
Radiated Emissions	03CH03-WS	22-24°C / 63-67%	Vincent Yeh Aska Huang
RF Conducted	TH01-WS	23°C / 66%	Alex Huang

- 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
Conducted Emissions	11g	2437	6 Mbps	---
Radiated Emissions ≤1GHz	11g	2437	6 Mbps	---
Radiated Emissions >1GHz Maximum Output Power 6dB bandwidth Power spectral density	11b 11g HT20 HT40	2412 / 2437 / 2462 2412 / 2437 / 2462 2412 / 2437 / 2462 2422 / 2437 / 2452	1 Mbps 6 Mbps MCS 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 **Z-plane** results were found as the worst case and were shown in this report.
2. The antenna will be placed in metal plate for further use.

3 Transmitter Test Results

3.1 Conducted Emissions

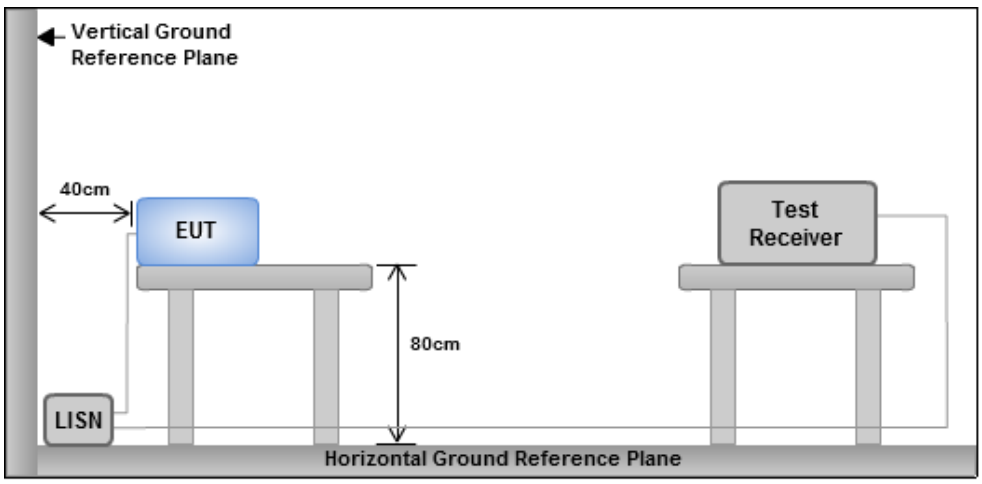
3.1.1 Limit of Conducted Emissions

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

3.1.2 Test Procedures

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

3.1.3 Test Setup

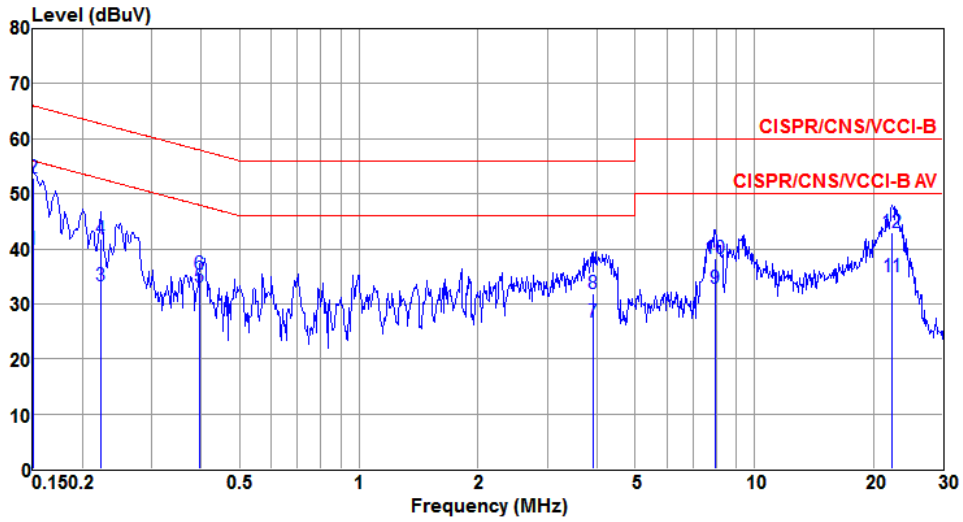


Note: 1. Support units were connected to second LISN.

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

3.1.4 Test Result of Conducted Emissions

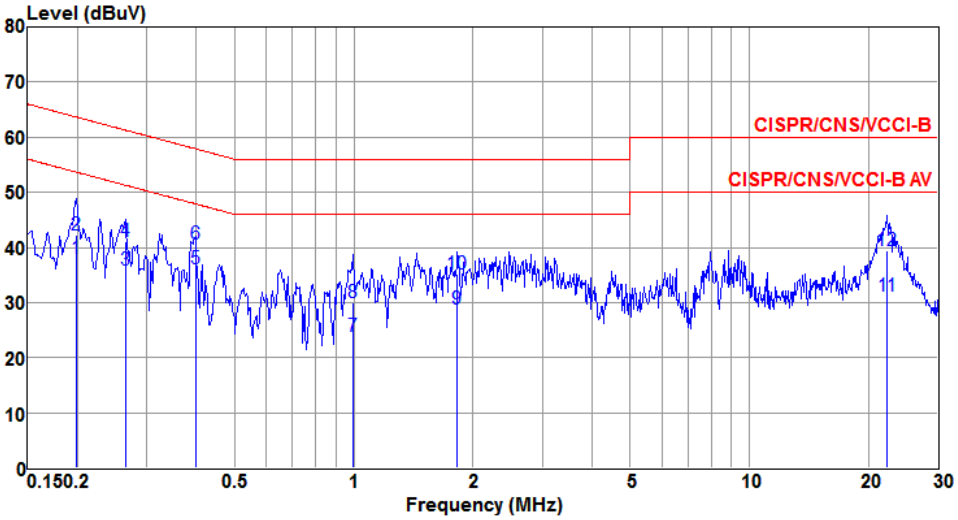
Modulation	11g	Test Freq. (MHz)	2437
Power Phase	Line		



	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.150	39.94	56.00	-16.06	39.85	0.07	0.02	Average
2@	0.150	52.93	66.00	-13.07	52.84	0.07	0.02	QP
3	0.222	33.39	52.74	-19.35	33.28	0.09	0.02	Average
4	0.222	41.88	62.74	-20.86	41.77	0.09	0.02	QP
5	0.395	32.98	47.96	-14.98	32.89	0.06	0.03	Average
6	0.395	35.38	57.96	-22.58	35.29	0.06	0.03	QP
7	3.922	26.60	46.00	-19.40	26.31	0.17	0.12	Average
8	3.922	31.96	56.00	-24.04	31.67	0.17	0.12	QP
9	7.977	32.80	50.00	-17.20	32.46	0.19	0.15	Average
10	7.977	38.30	60.00	-21.70	37.96	0.19	0.15	QP
11	22.298	34.84	50.00	-15.16	34.22	0.41	0.21	Average
12	22.298	42.90	60.00	-17.10	42.28	0.41	0.21	QP

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

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



	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.199	38.11	53.67	-15.56	38.00	0.09	0.02	Average
2	0.199	42.20	63.67	-21.47	42.09	0.09	0.02	QP
3	0.264	35.95	51.29	-15.34	35.82	0.11	0.02	Average
4	0.264	41.07	61.29	-20.22	40.94	0.11	0.02	QP
5@	0.398	36.15	47.90	-11.75	35.99	0.13	0.03	Average
6	0.398	40.59	57.90	-17.31	40.43	0.13	0.03	QP
7	0.994	23.94	46.00	-22.06	23.79	0.09	0.06	Average
8	0.994	29.90	56.00	-26.10	29.75	0.09	0.06	QP
9	1.829	28.86	46.00	-17.14	28.63	0.15	0.08	Average
10	1.829	35.08	56.00	-20.92	34.85	0.15	0.08	QP
11	22.298	31.08	50.00	-18.92	30.44	0.43	0.21	Average
12	22.298	39.43	60.00	-20.57	38.79	0.43	0.21	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

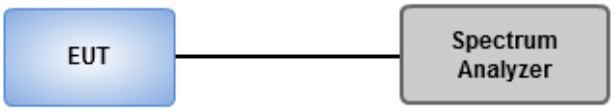
6dB Bandwidth

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.

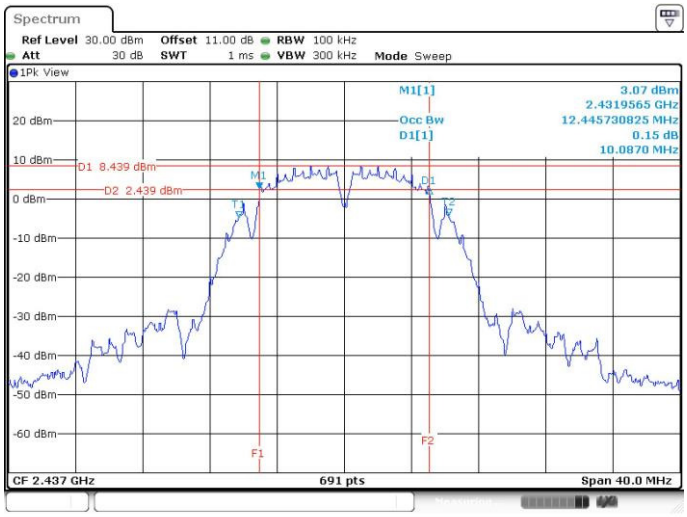
3.2.3 Test Setup



3.2.4 Test Result of 6dB and Occupied Bandwidth

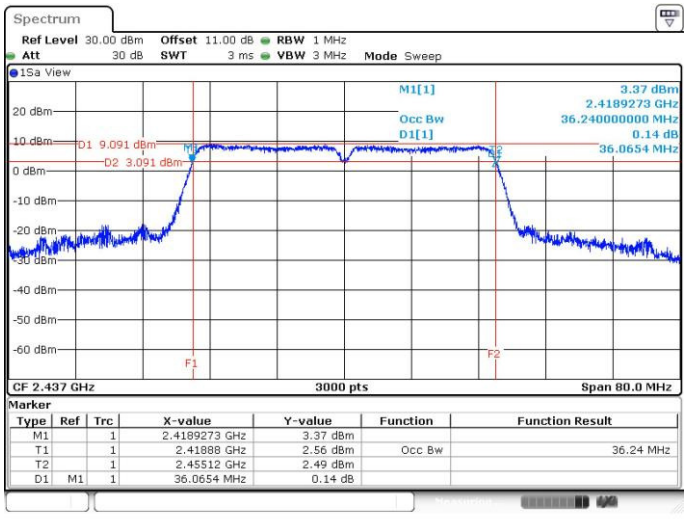
Modulation Mode	N_{TX}	Freq. (MHz)	6dB Bandwidth (MHz)				Limit (kHz)
			Chain 0	Chain 1	Chain 2	Chain 3	
11b	1	2412	10.09	---	---	---	500
11b	1	2437	10.09	---	---	---	500
11b	1	2462	10.09	---	---	---	500
11g	1	2412	16.58	---	---	---	500
11g	1	2437	16.52	---	---	---	500
11g	1	2462	16.58	---	---	---	500
HT20	1	2412	17.62	---	---	---	500
HT20	1	2437	17.62	---	---	---	500
HT20	1	2462	17.62	---	---	---	500
HT40	1	2422	36.41	---	---	---	500
HT40	1	2437	36.41	---	---	---	500
HT40	1	2452	36.41	---	---	---	500

Worst Plot



Modulation Mode	N_{TX}	Freq. (MHz)	99% Occupied Bandwidth (MHz)			
			Chain 0	Chain 1	Chain 2	Chain 3
11b	1	2412	12.59	---	---	---
11b	1	2437	12.56	---	---	---
11b	1	2462	12.43	---	---	---
11g	1	2412	16.84	---	---	---
11g	1	2437	16.96	---	---	---
11g	1	2462	16.80	---	---	---
HT20	1	2412	17.59	---	---	---
HT20	1	2437	17.69	---	---	---
HT20	1	2462	17.61	---	---	---
HT40	1	2422	36.16	---	---	---
HT40	1	2437	36.24	---	---	---
HT40	1	2452	36.13	---	---	---

Worst Plot



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)							Ant. Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)
			Chain 0	Chain 1	Chain 2	Chain 3	Total Power (mW)	Total Power (dBm)	Limit (dBm)			
11b	1	2412	22.39	---	---	---	173.380	22.39	30.00	3.20	25.59	36.00
11b	1	2437	22.42	---	---	---	174.582	22.42	30.00	3.20	25.62	36.00
11b	1	2462	22.21	---	---	---	166.341	22.21	30.00	3.20	25.41	36.00
11g	1	2412	23.57	---	---	---	227.510	23.57	30.00	3.20	26.77	36.00
11g	1	2437	24.85	---	---	---	305.492	**24.85**	30.00	3.20	28.05	36.00
11g	1	2462	23.32	---	---	---	214.783	23.32	30.00	3.20	26.52	36.00
HT20	1	2412	23.41	---	---	---	219.280	23.41	30.00	3.20	26.61	36.00
HT20	1	2437	24.61	---	---	---	289.068	24.61	30.00	3.20	27.81	36.00
HT20	1	2462	23.19	---	---	---	208.449	23.19	30.00	3.20	26.39	36.00
HT40	1	2422	22.23	---	---	---	167.109	22.23	30.00	3.20	25.43	36.00
HT40	1	2437	23.49	---	---	---	223.357	23.49	30.00	3.20	26.69	36.00
HT40	1	2452	21.72	---	---	---	148.594	21.72	30.00	3.20	24.92	36.00

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	19.38	---	---	---	86.696	**19.38**	---
11b	1	2437	19.37	---	---	---	86.497	19.37	---
11b	1	2462	17.81	---	---	---	60.395	17.81	---
11g	1	2412	16.06	---	---	---	40.365	16.06	---
11g	1	2437	18.22	---	---	---	66.374	18.22	---
11g	1	2462	15.27	---	---	---	33.651	15.27	---
HT20	1	2412	16.05	---	---	---	40.272	16.05	---
HT20	1	2437	18.12	---	---	---	64.863	18.12	---
HT20	1	2462	15.19	---	---	---	33.037	15.19	---
HT40	1	2422	14.08	---	---	---	25.586	14.08	---
HT40	1	2437	16.08	---	---	---	40.551	16.08	---
HT40	1	2452	13.32	---	---	---	21.478	13.32	---

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

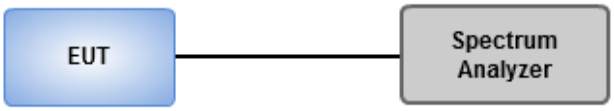
☒ Maximum peak conducted output power was used to demonstrate compliance to the fundamental output power limit.

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

☐ 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.

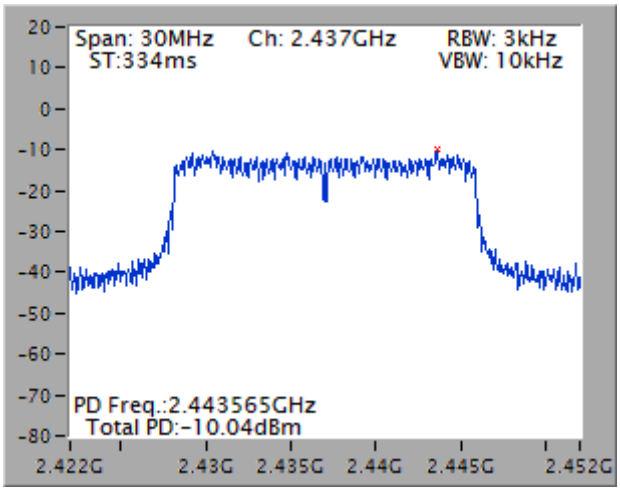
3.4.3 Test Setup



3.4.4 Test Result of Power Spectral Density

Modulation Mode	N_{TX}	Freq. (MHz)	Total Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)
11b	1	2412	-11.08	8.00
11b	1	2437	-10.61	8.00
11b	1	2462	-11.92	8.00
11g	1	2412	-12.52	8.00
11g	1	2437	-10.73	8.00
11g	1	2462	-13.28	8.00
HT20	1	2412	-12.15	8.00
HT20	1	2437	-10.04	8.00
HT20	1	2462	-12.90	8.00
HT40	1	2422	-16.48	8.00
HT40	1	2437	-13.92	8.00
HT40	1	2452	-17.89	8.00

Worst Plot



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

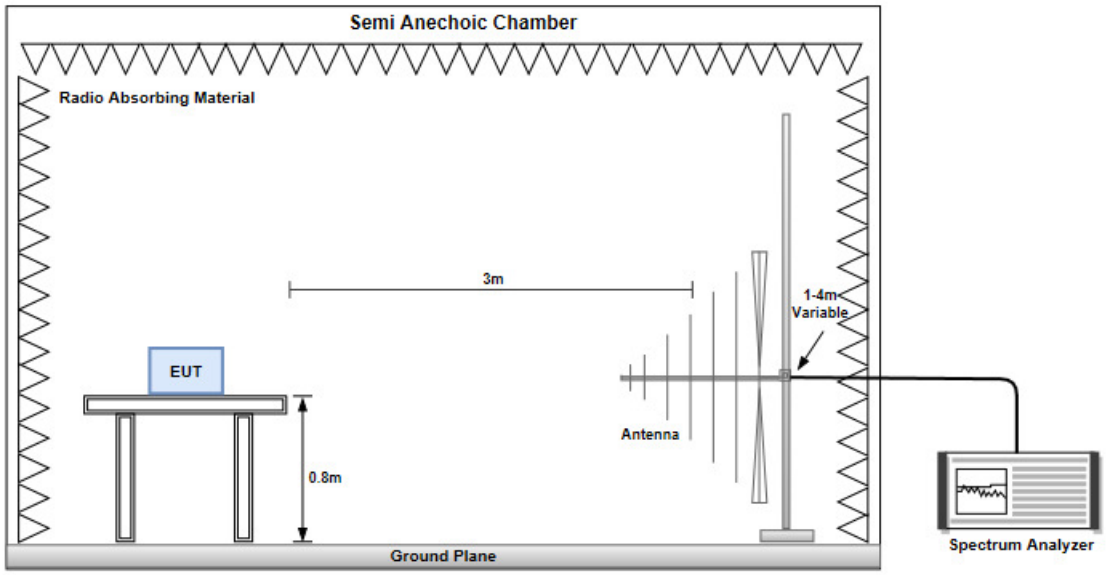
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission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

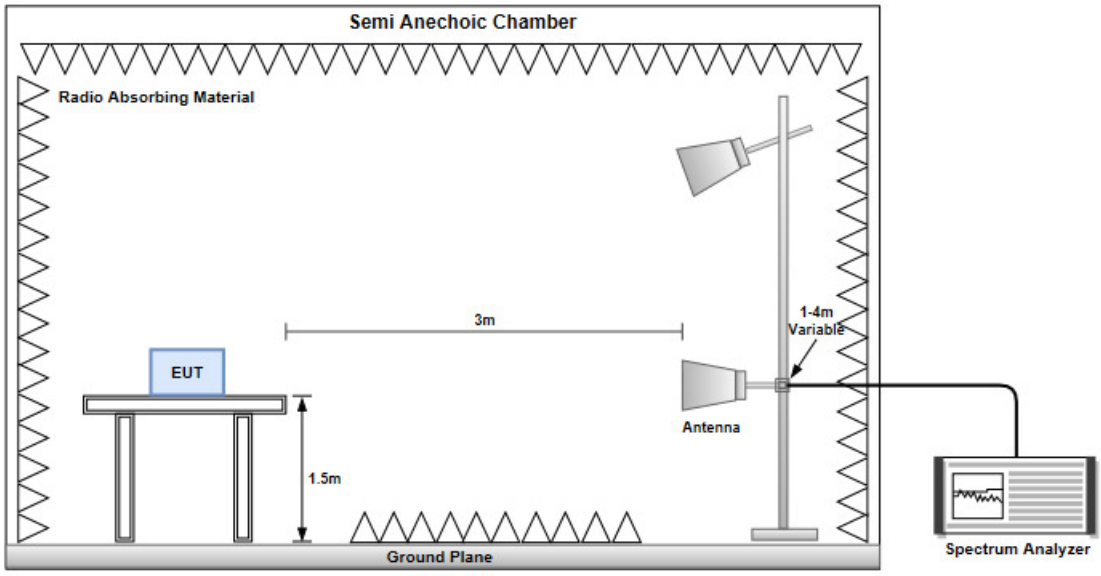
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above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

3.5.3 Test Setup

Radiated Emissions below 1 GHz

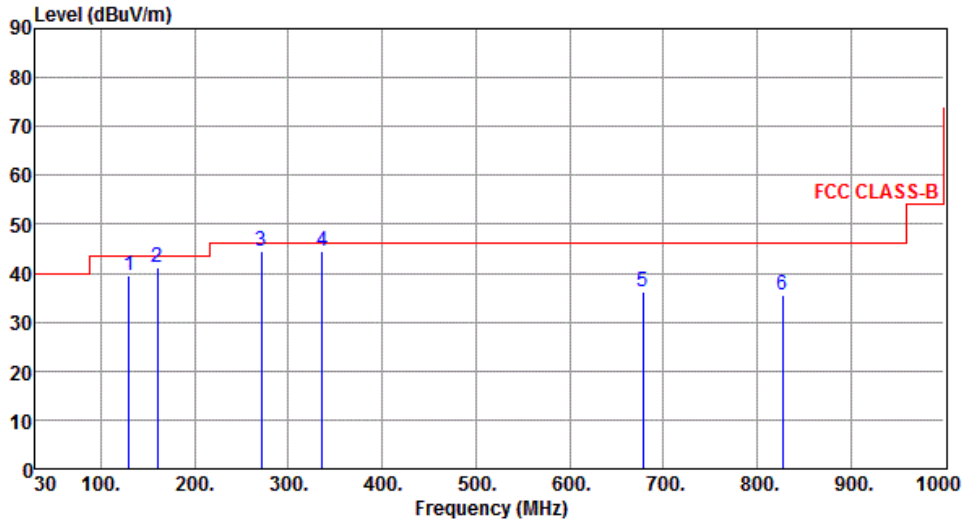


Radiated Emissions above 1 GHz



3.5.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)

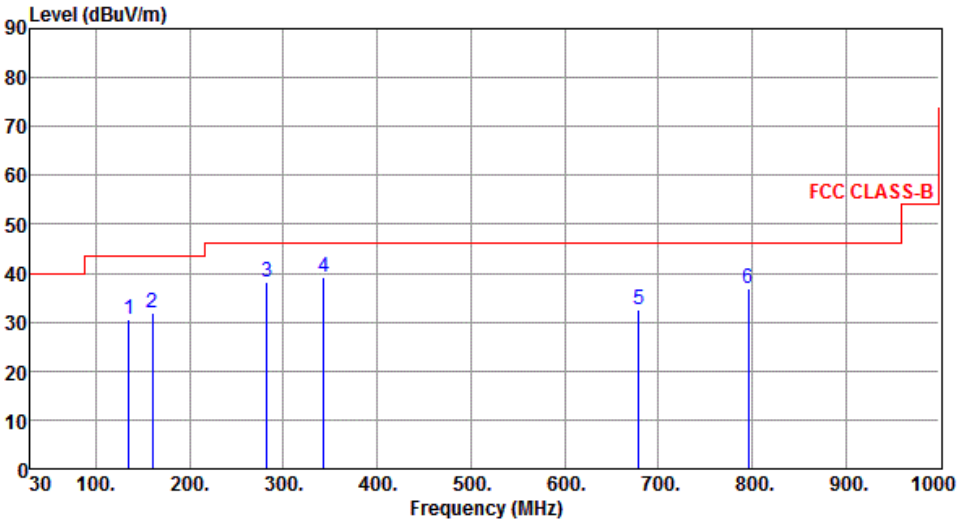
Modulation	11g	Test Freq. (MHz)	2437
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	129.91	39.40	43.50	-4.10	49.19	-9.79	Peak	---	---
2	160.00	41.17	43.50	-2.33	49.22	-8.05	QP	200	185
3	271.00	44.49	46.00	-1.51	53.03	-8.54	QP	104	201
4	336.40	44.56	46.00	-1.44	51.27	-6.71	QP	100	307
5	677.96	36.06	46.00	-9.94	35.70	0.36	Peak	---	---
6	827.34	35.59	46.00	-10.41	32.54	3.05	Peak	---	---

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

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

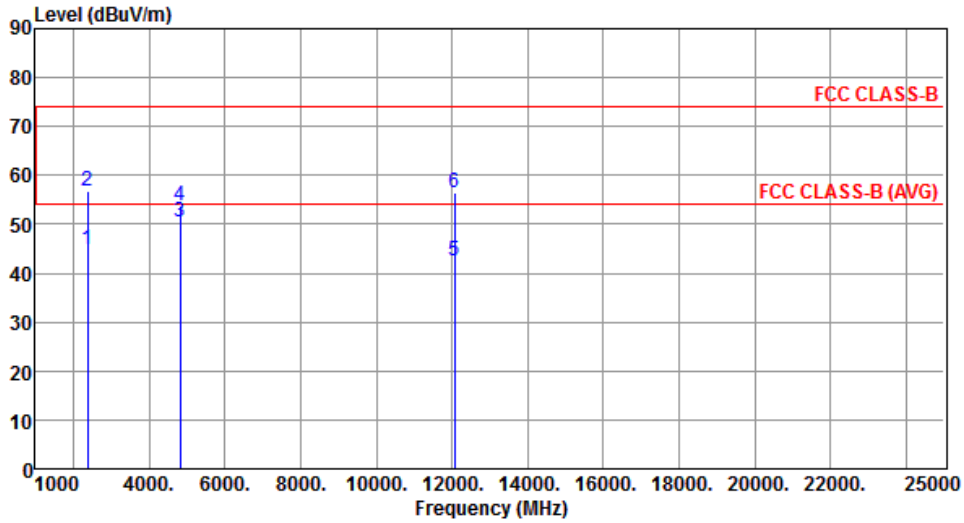


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	134.76	30.47	43.50	-13.03	39.65	-9.18	Peak	---	---
2	159.98	32.00	43.50	-11.50	40.05	-8.05	Peak	---	---
3	282.20	38.19	46.00	-7.81	46.30	-8.11	Peak	---	---
4	343.31	39.10	46.00	-6.90	45.63	-6.53	Peak	---	---
5	678.93	32.67	46.00	-13.33	32.30	0.37	Peak	---	---
6	796.30	36.72	46.00	-9.28	34.18	2.54	Peak	---	---

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

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

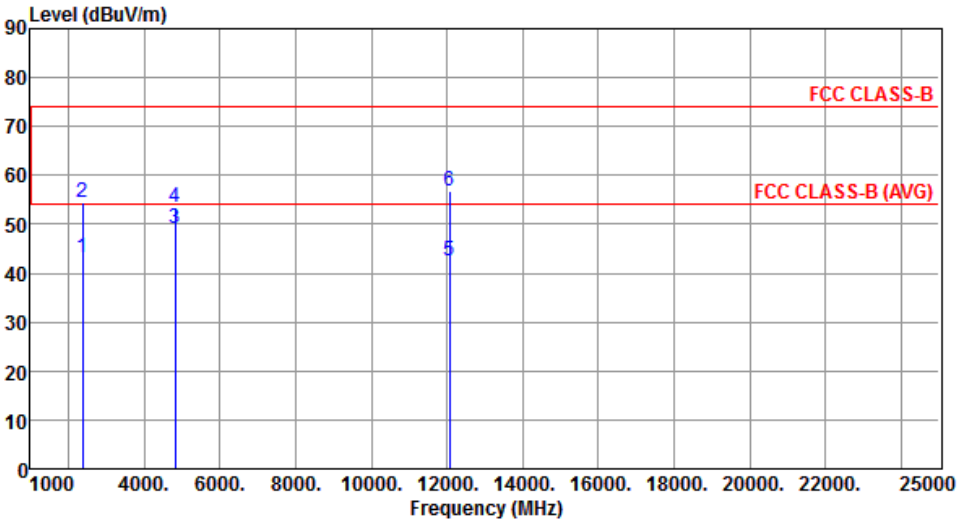
Modulation	11b	Test Freq. (MHz)	2412
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	44.77	54.00	-9.23	45.88	-1.11	Average	192	66
2	2390.00	56.65	74.00	-17.35	57.76	-1.11	Peak	192	66
3	4824.00	50.54	54.00	-3.46	45.23	5.31	Average	209	359
4	4824.00	53.75	74.00	-20.25	48.44	5.31	Peak	209	359
5	12060.00	42.43	54.00	-11.57	27.40	15.03	Average	100	23
6	12060.00	56.39	74.00	-17.61	41.36	15.03	Peak	100	23

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

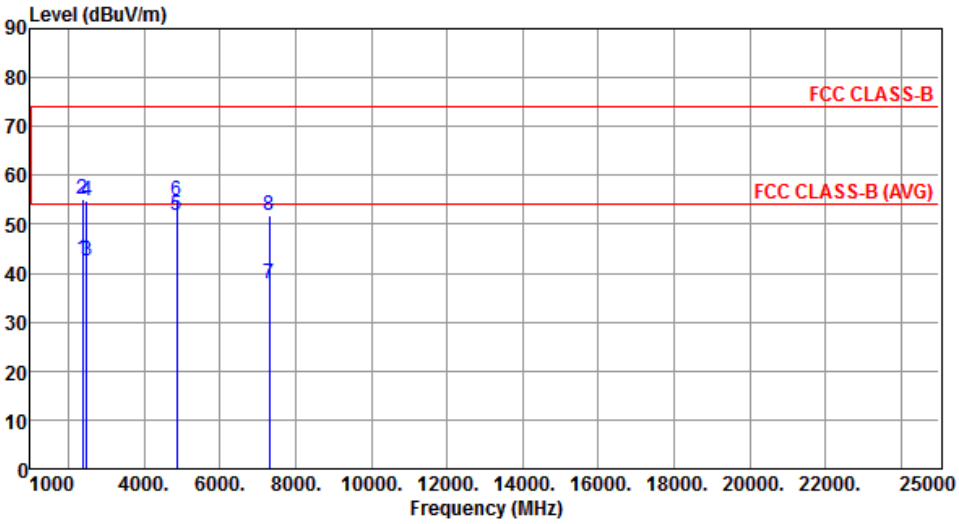
Modulation	11b	Test Freq. (MHz)	2412
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	43.28	54.00	-10.72	44.39	-1.11	Average	360	10
2	2390.00	54.43	74.00	-19.57	55.54	-1.11	Peak	360	10
3	4824.00	49.02	54.00	-4.98	43.71	5.31	Average	244	356
4	4824.00	53.63	74.00	-20.37	48.32	5.31	Peak	244	356
5	12060.00	42.60	54.00	-11.40	27.57	15.03	Average	100	43
6	12060.00	56.75	74.00	-17.25	41.72	15.03	Peak	100	43

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

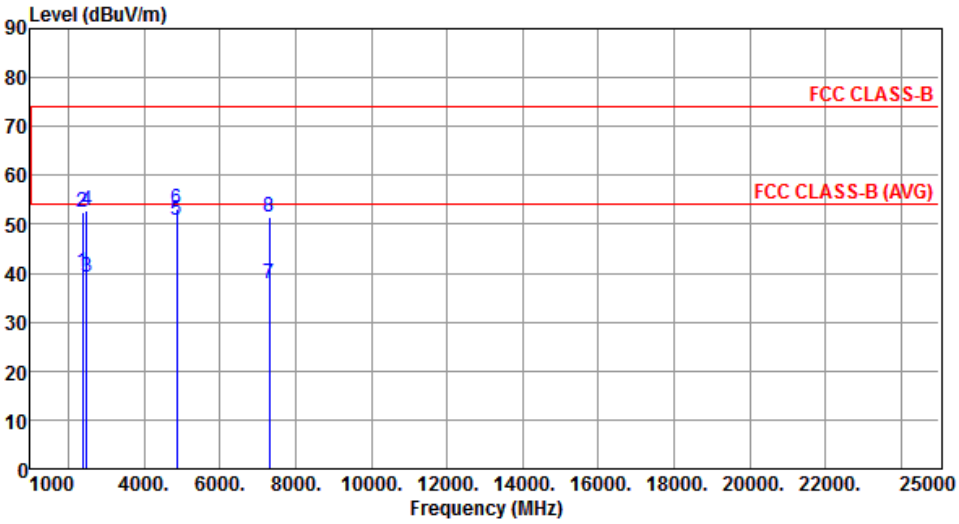
Modulation	11b	Test Freq. (MHz)	2437
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	42.69	54.00	-11.31	43.80	-1.11	Average	191	65
2	2390.00	55.09	74.00	-18.91	56.20	-1.11	Peak	191	65
3	2483.50	42.48	54.00	-11.52	43.10	-0.62	Average	191	65
4	2483.50	54.72	74.00	-19.28	55.34	-0.62	Peak	191	65
5	4874.00	51.84	54.00	-2.16	46.41	5.43	Average	217	355
6	4874.00	54.76	74.00	-19.24	49.33	5.43	Peak	217	355
7	7311.00	37.82	54.00	-16.18	27.56	10.26	Average	222	135
8	7311.00	51.70	74.00	-22.30	41.44	10.26	Peak	222	135

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

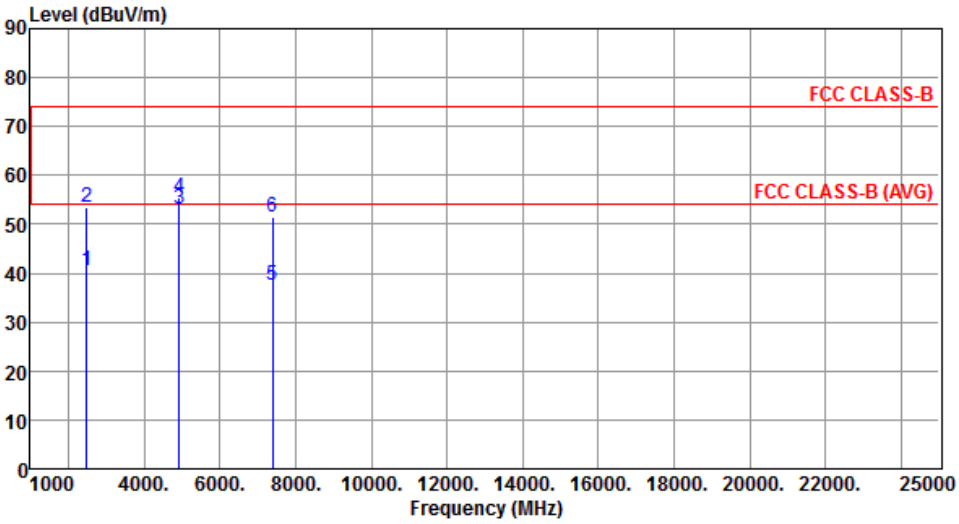
Modulation	11b	Test Freq. (MHz)	2437
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	40.24	54.00	-13.76	41.35	-1.11	Average	354	10
2	2390.00	52.54	74.00	-21.46	53.65	-1.11	Peak	354	10
3	2483.50	39.33	54.00	-14.67	39.95	-0.62	Average	354	10
4	2483.50	52.77	74.00	-21.23	53.39	-0.62	Peak	354	10
5	4874.00	50.73	54.00	-3.27	45.30	5.43	Average	209	358
6	4874.00	53.30	74.00	-20.70	47.87	5.43	Peak	209	358
7	7311.00	37.87	54.00	-16.13	27.61	10.26	Average	100	50
8	7311.00	51.50	74.00	-22.50	41.24	10.26	Peak	100	50

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

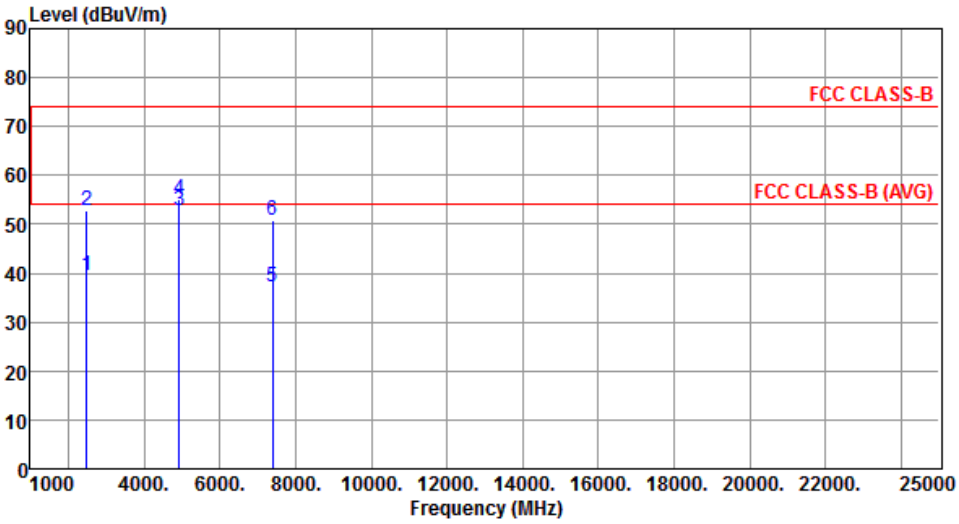
Modulation	11b	Test Freq. (MHz)	2462
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	40.47	54.00	-13.53	41.09	-0.62	Average	188	61
2	2483.50	53.34	74.00	-20.66	53.96	-0.62	Peak	188	61
3	4924.00	52.98	54.00	-1.02	47.43	5.55	Average	197	0
4	4924.00	55.61	74.00	-18.39	50.06	5.55	Peak	197	0
5	7386.00	37.51	54.00	-16.49	27.12	10.39	Average	100	42
6	7386.00	51.41	74.00	-22.59	41.02	10.39	Peak	100	42

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

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

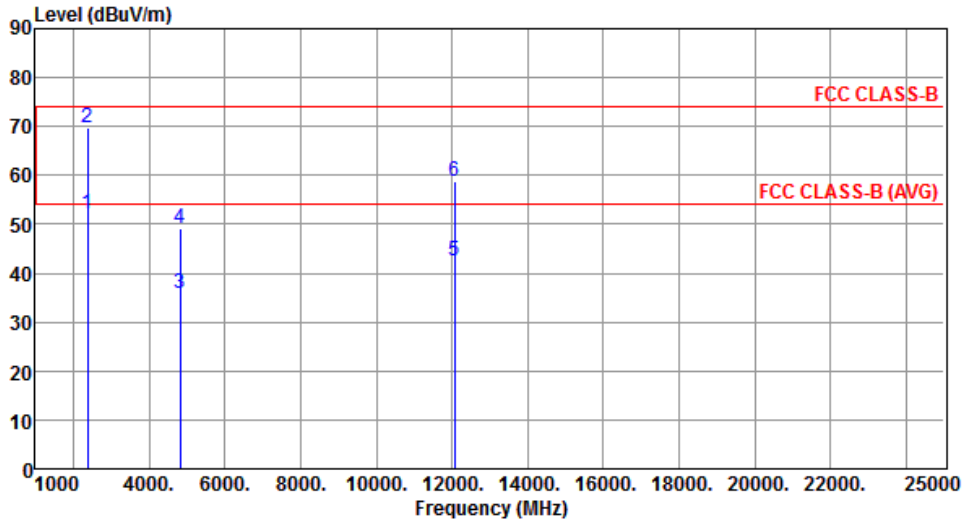


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	39.65	54.00	-14.35	40.27	-0.62	Average	308	10
2	2483.50	52.71	74.00	-21.29	53.33	-0.62	Peak	308	10
3	4924.00	52.90	54.00	-1.10	47.35	5.55	Average	198	1
4	4924.00	55.27	74.00	-18.73	49.72	5.55	Peak	198	1
5	7386.00	37.05	54.00	-16.95	26.66	10.39	Average	100	152
6	7386.00	50.70	74.00	-23.30	40.31	10.39	Peak	100	152

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

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

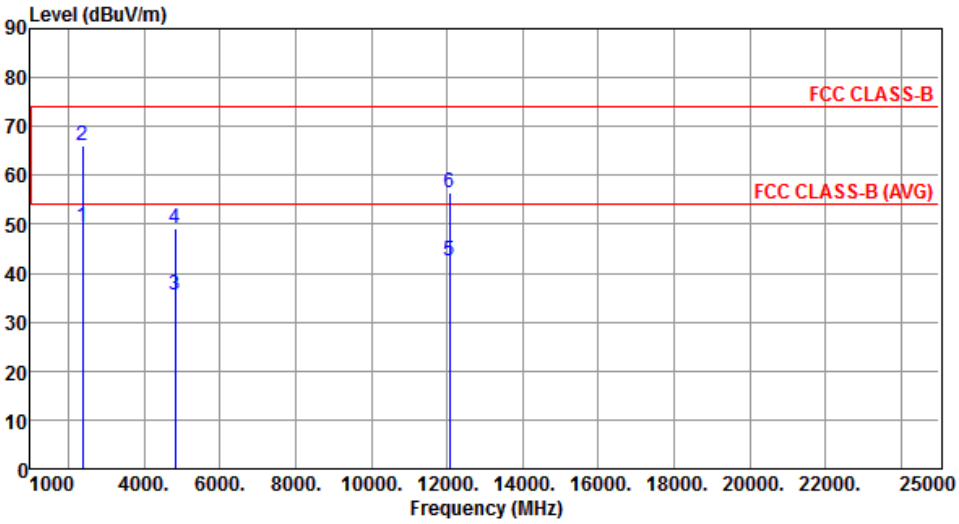
Modulation	11g	Test Freq. (MHz)	2412
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	52.15	54.00	-1.85	53.26	-1.11	Average	173	66
2	2390.00	69.78	74.00	-4.22	70.89	-1.11	Peak	173	66
3	4824.00	35.95	54.00	-18.05	30.64	5.31	Average	195	358
4	4824.00	49.10	74.00	-24.90	43.79	5.31	Peak	195	358
5	12060.00	42.42	54.00	-11.58	27.39	15.03	Average	100	68
6	12060.00	58.87	74.00	-15.13	43.84	15.03	Peak	100	68

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

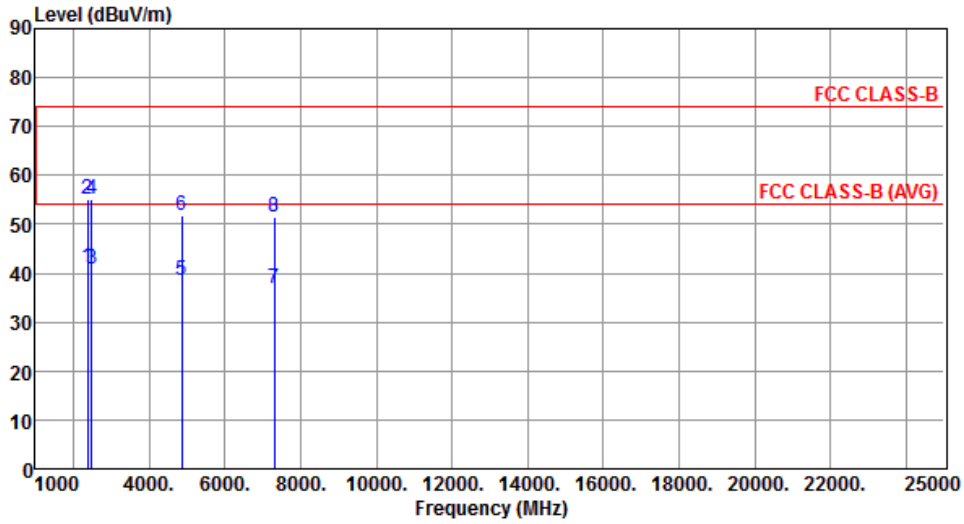
Modulation	11g	Test Freq. (MHz)	2412
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	49.63	54.00	-4.37	50.74	-1.11	Average	360	10
2	2390.00	66.22	74.00	-7.78	67.33	-1.11	Peak	360	10
3	4824.00	35.62	54.00	-18.38	30.31	5.31	Average	200	1
4	4824.00	48.99	74.00	-25.01	43.68	5.31	Peak	200	1
5	12060.00	42.39	54.00	-11.61	27.36	15.03	Average	100	38
6	12060.00	56.60	74.00	-17.40	41.57	15.03	Peak	100	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).

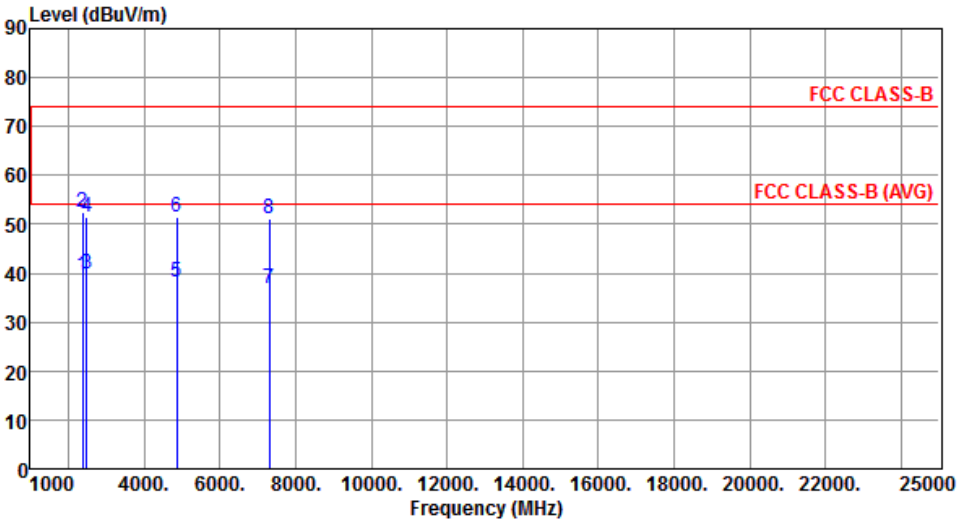
Modulation	11g	Test Freq. (MHz)	2437
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	41.18	54.00	-12.82	42.29	-1.11	Average	215	62
2	2390.00	55.26	74.00	-18.74	56.37	-1.11	Peak	215	62
3	2483.50	40.97	54.00	-13.03	41.59	-0.62	Average	215	62
4	2483.50	55.24	74.00	-18.76	55.86	-0.62	Peak	215	62
5	4874.00	38.60	54.00	-15.40	33.17	5.43	Average	215	357
6	4874.00	51.69	74.00	-22.31	46.26	5.43	Peak	215	357
7	7311.00	36.82	54.00	-17.18	26.56	10.26	Average	100	24
8	7311.00	51.47	74.00	-22.53	41.21	10.26	Peak	100	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).

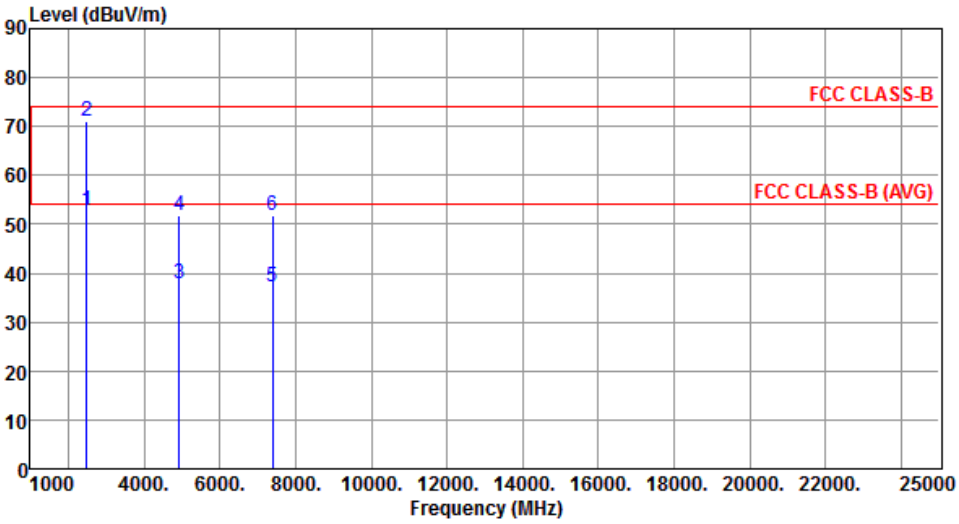
Modulation	11g	Test Freq. (MHz)	2437
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	39.52	54.00	-14.48	40.63	-1.11	Average	353	10
2	2390.00	52.46	74.00	-21.54	53.57	-1.11	Peak	353	10
3	2483.50	39.82	54.00	-14.18	40.44	-0.62	Average	353	10
4	2483.50	51.44	74.00	-22.56	52.06	-0.62	Peak	353	10
5	4874.00	38.07	54.00	-15.93	32.64	5.43	Average	215	358
6	4874.00	51.46	74.00	-22.54	46.03	5.43	Peak	215	358
7	7311.00	36.78	54.00	-17.22	26.52	10.26	Average	100	67
8	7311.00	51.09	74.00	-22.91	40.83	10.26	Peak	100	67

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

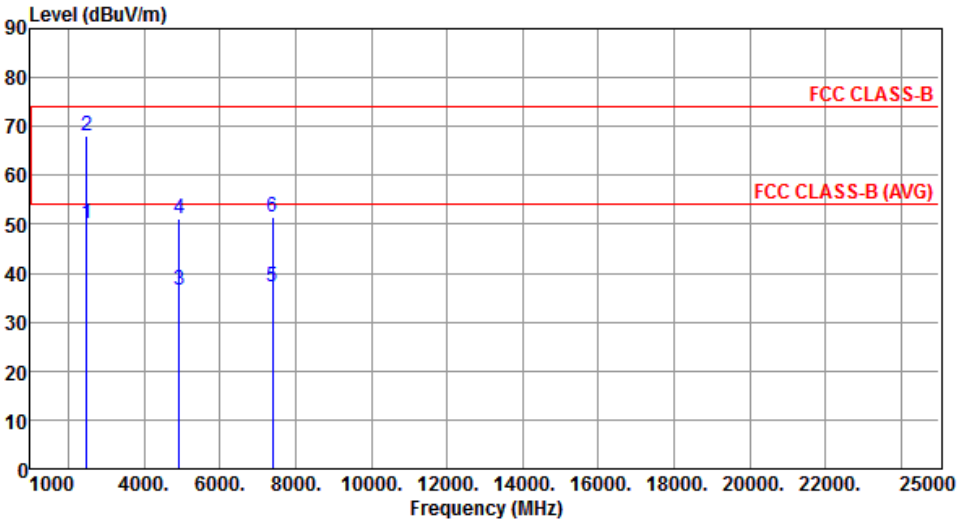
Modulation	11g	Test Freq. (MHz)	2462
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	52.70	54.00	-1.30	53.32	-0.62	Average	234	55
2	2483.50	71.17	74.00	-2.83	71.79	-0.62	Peak	234	55
3	4924.00	37.71	54.00	-16.29	32.16	5.55	Average	200	358
4	4924.00	51.66	74.00	-22.34	46.11	5.55	Peak	200	358
5	7386.00	37.35	54.00	-16.65	26.96	10.39	Average	100	155
6	7386.00	51.70	74.00	-22.30	41.31	10.39	Peak	100	155

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

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

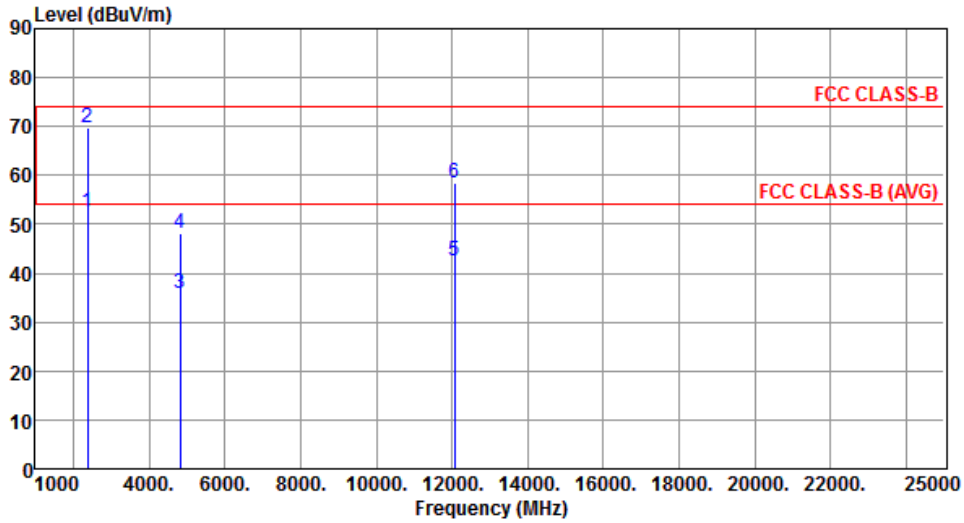


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	50.28	54.00	-3.72	50.90	-0.62	Average	339	10
2	2483.50	68.02	74.00	-5.98	68.64	-0.62	Peak	339	10
3	4924.00	36.67	54.00	-17.33	31.12	5.55	Average	220	0
4	4924.00	50.98	74.00	-23.02	45.43	5.55	Peak	220	0
5	7386.00	37.07	54.00	-16.93	26.68	10.39	Average	100	53
6	7386.00	51.63	74.00	-22.37	41.24	10.39	Peak	100	53

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

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

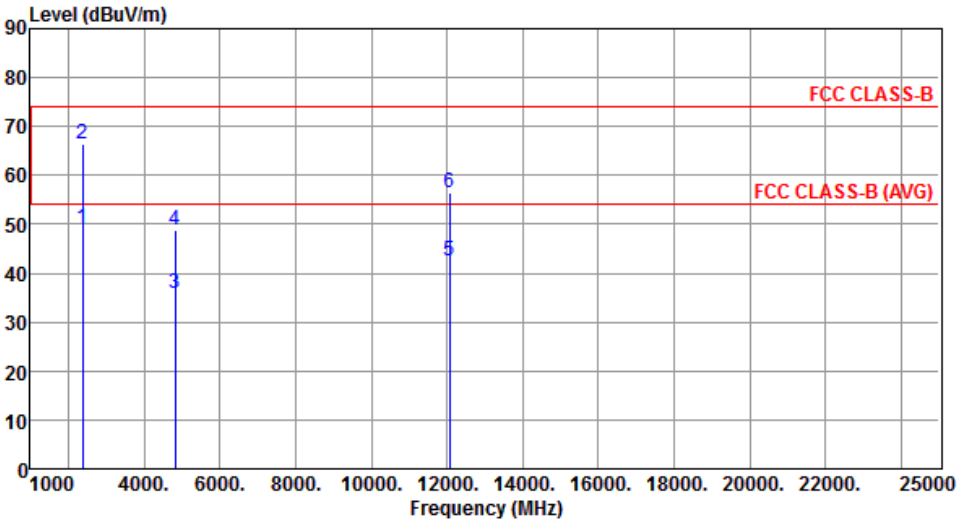
Modulation	HT20	**Test Freq. (MHz)**	2412
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	52.31	54.00	-1.69	53.42	-1.11	Average	172	65
2	2390.00	69.85	74.00	-4.15	70.96	-1.11	Peak	172	65
3	4824.00	35.88	54.00	-18.12	30.57	5.31	Average	192	357
4	4824.00	48.13	74.00	-25.87	42.82	5.31	Peak	192	357
5	12060.00	42.48	54.00	-11.52	27.45	15.03	Average	100	65
6	12060.00	58.48	74.00	-15.52	43.45	15.03	Peak	100	65

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

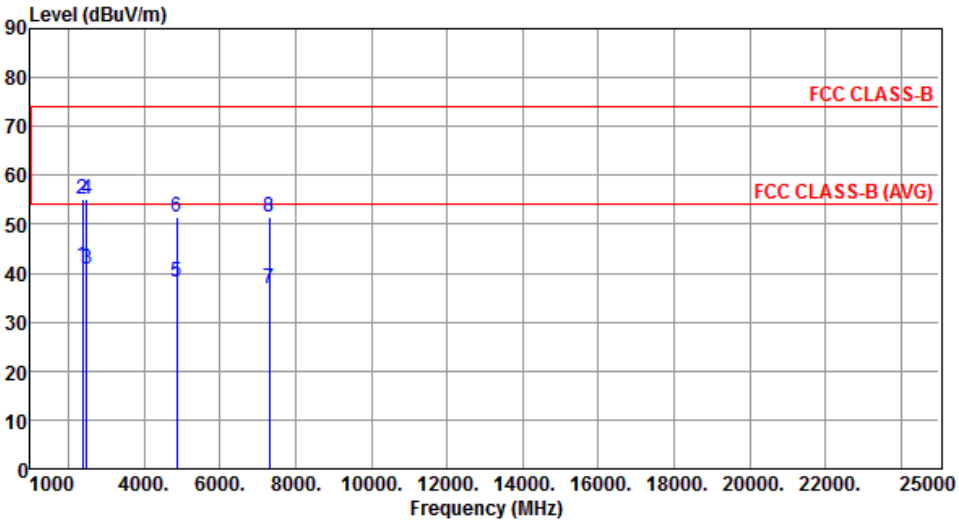
Modulation	HT20	Test Freq. (MHz)	2412
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	49.17	54.00	-4.83	50.28	-1.11	Average	360	9
2	2390.00	66.38	74.00	-7.62	67.49	-1.11	Peak	360	9
3	4824.00	35.79	54.00	-18.21	30.48	5.31	Average	200	0
4	4824.00	48.75	74.00	-25.25	43.44	5.31	Peak	200	0
5	12060.00	42.46	54.00	-11.54	27.43	15.03	Average	100	35
6	12060.00	56.42	74.00	-17.58	41.39	15.03	Peak	100	35

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

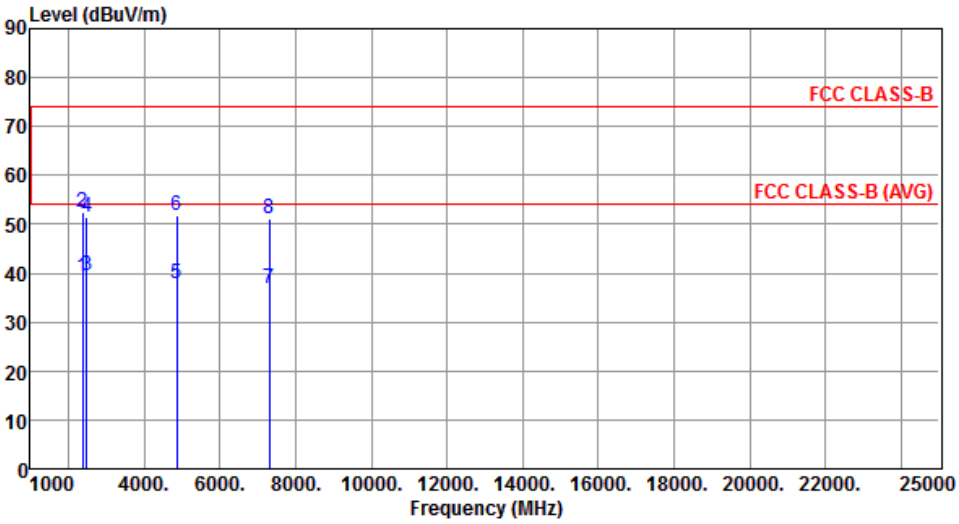
Modulation	HT20	Test Freq. (MHz)	2437
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	41.53	54.00	-12.47	42.64	-1.11	Average	216	60
2	2390.00	55.05	74.00	-18.95	56.16	-1.11	Peak	216	60
3	2483.50	40.80	54.00	-13.20	41.42	-0.62	Average	216	60
4	2483.50	55.10	74.00	-18.90	55.72	-0.62	Peak	216	60
5	4874.00	38.22	54.00	-15.78	32.79	5.43	Average	212	358
6	4874.00	51.39	74.00	-22.61	45.96	5.43	Peak	212	358
7	7311.00	36.93	54.00	-17.07	26.67	10.26	Average	100	23
8	7311.00	51.58	74.00	-22.42	41.32	10.26	Peak	100	23

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

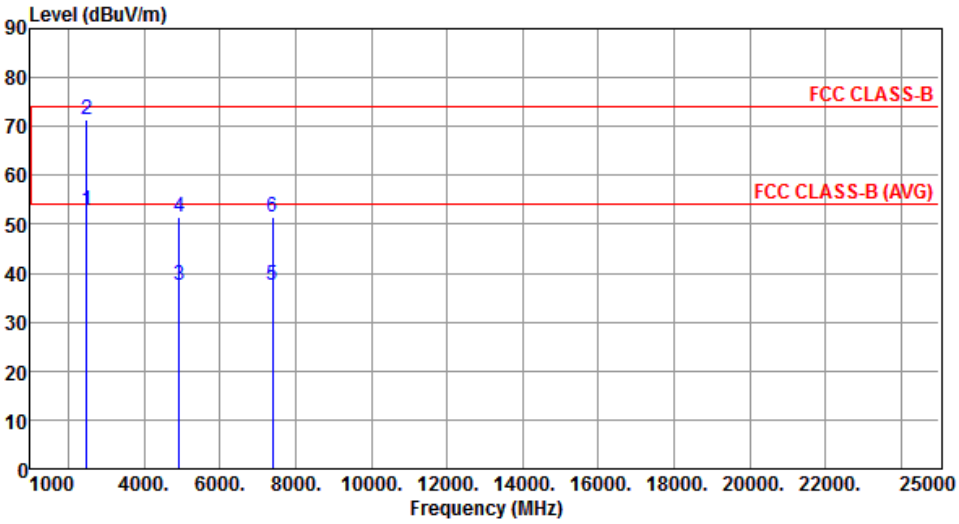
Modulation	HT20	Test Freq. (MHz)	2437
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	39.27	54.00	-14.73	40.38	-1.11	Average	350	10
2	2390.00	52.35	74.00	-21.65	53.46	-1.11	Peak	350	10
3	2483.50	39.65	54.00	-14.35	40.27	-0.62	Average	350	10
4	2483.50	51.55	74.00	-22.45	52.17	-0.62	Peak	350	10
5	4874.00	37.81	54.00	-16.19	32.38	5.43	Average	216	356
6	4874.00	51.68	74.00	-22.32	46.25	5.43	Peak	216	356
7	7311.00	36.94	54.00	-17.06	26.68	10.26	Average	100	65
8	7311.00	50.98	74.00	-23.02	40.72	10.26	Peak	100	65

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

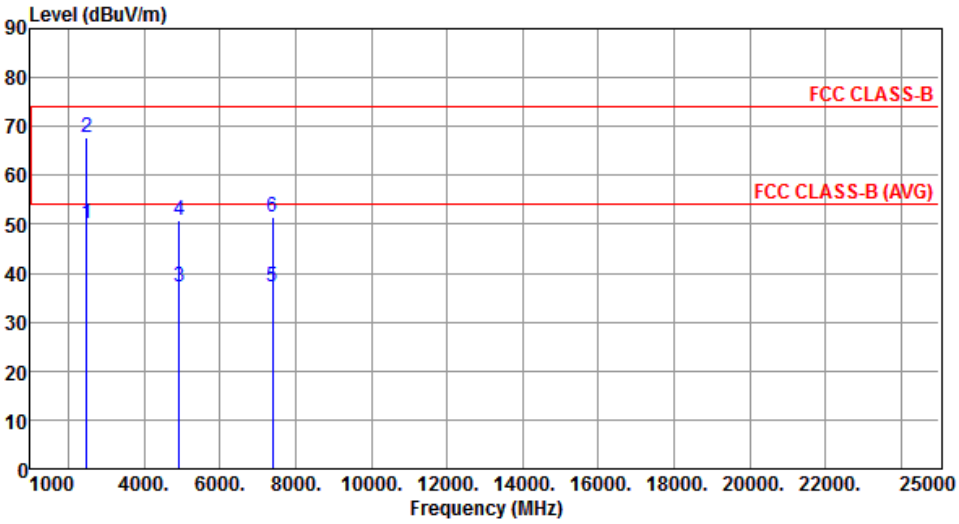
Modulation	HT20	Test Freq. (MHz)	2462
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	52.85	54.00	-1.15	53.47	-0.62	Average	235	57
2	2483.50	71.34	74.00	-2.66	71.96	-0.62	Peak	235	57
3	4924.00	37.63	54.00	-16.37	32.08	5.55	Average	199	359
4	4924.00	51.51	74.00	-22.49	45.96	5.55	Peak	199	359
5	7386.00	37.50	54.00	-16.50	27.11	10.39	Average	100	152
6	7386.00	51.47	74.00	-22.53	41.08	10.39	Peak	100	152

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

Modulation	HT20	Test Freq. (MHz)	2462
Polarization	Vertical		

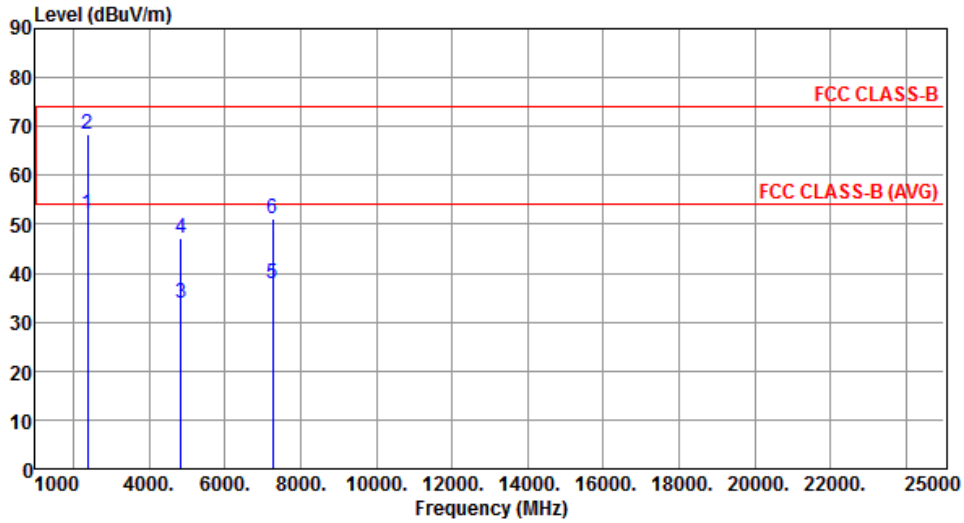


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	50.06	54.00	-3.94	50.68	-0.62	Average	336	9
2	2483.50	67.91	74.00	-6.09	68.53	-0.62	Peak	336	9
3	4924.00	37.09	54.00	-16.91	31.54	5.55	Average	218	1
4	4924.00	50.83	74.00	-23.17	45.28	5.55	Peak	218	1
5	7386.00	37.11	54.00	-16.89	26.72	10.39	Average	100	50
6	7386.00	51.44	74.00	-22.56	41.05	10.39	Peak	100	50

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

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

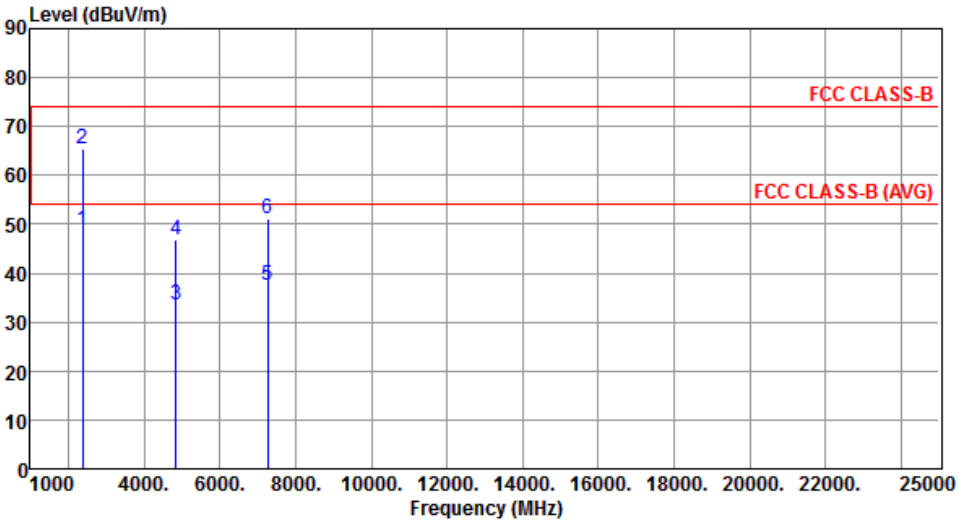
Modulation	HT40	**Test Freq. (MHz)**	2422
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	52.18	54.00	-1.82	53.29	-1.11	Average	146	71
2	2390.00	68.48	74.00	-5.52	69.59	-1.11	Peak	146	71
3	4844.00	33.71	54.00	-20.29	28.35	5.36	Average	195	358
4	4844.00	47.01	74.00	-26.99	41.65	5.36	Peak	195	358
5	7266.00	37.83	54.00	-16.17	27.65	10.18	Average	100	35
6	7266.00	51.20	74.00	-22.80	41.02	10.18	Peak	100	35

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

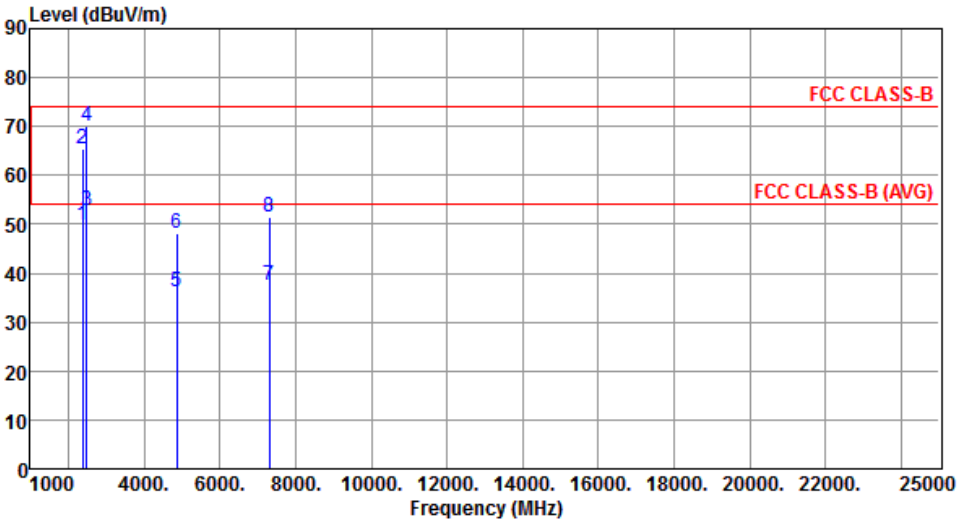
Modulation	HT40	Test Freq. (MHz)	2422
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	48.76	54.00	-5.24	49.87	-1.11	Average	311	10
2	2390.00	65.33	74.00	-8.67	66.44	-1.11	Peak	311	10
3	4844.00	33.46	54.00	-20.54	28.10	5.36	Average	195	1
4	4844.00	46.74	74.00	-27.26	41.38	5.36	Peak	195	1
5	7266.00	37.56	54.00	-16.44	27.38	10.18	Average	100	45
6	7266.00	51.24	74.00	-22.76	41.06	10.18	Peak	100	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).

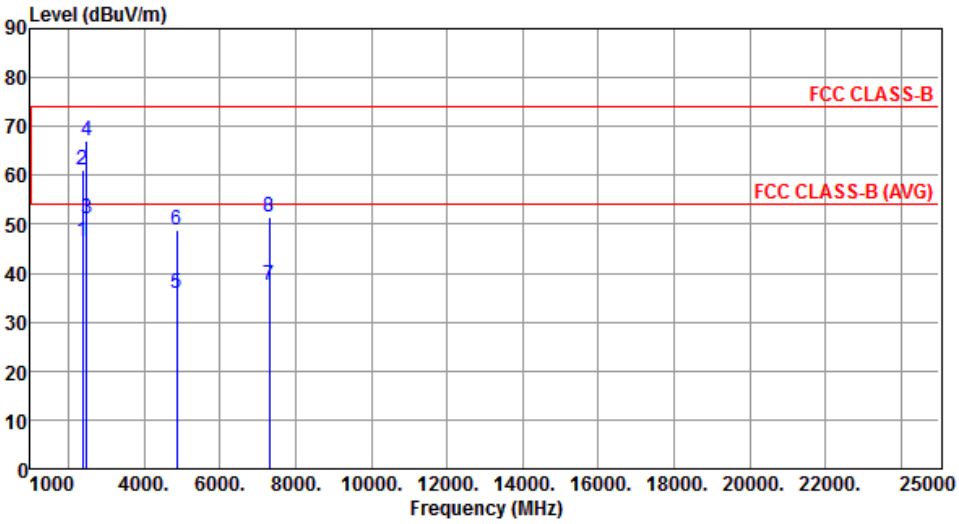
Modulation	HT40	Test Freq. (MHz)	2437
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	49.77	54.00	-4.23	50.88	-1.11	Average	167	67
2	2390.00	65.35	74.00	-8.65	66.46	-1.11	Peak	167	67
3	2483.50	52.80	54.00	-1.20	53.42	-0.62	Average	167	67
4	2483.50	70.04	74.00	-3.96	70.66	-0.62	Peak	167	67
5	4874.00	36.08	54.00	-17.92	30.65	5.43	Average	195	357
6	4874.00	48.24	74.00	-25.76	42.81	5.43	Peak	195	357
7	7311.00	37.64	54.00	-16.36	27.38	10.26	Average	100	22
8	7311.00	51.64	74.00	-22.36	41.38	10.26	Peak	100	22

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

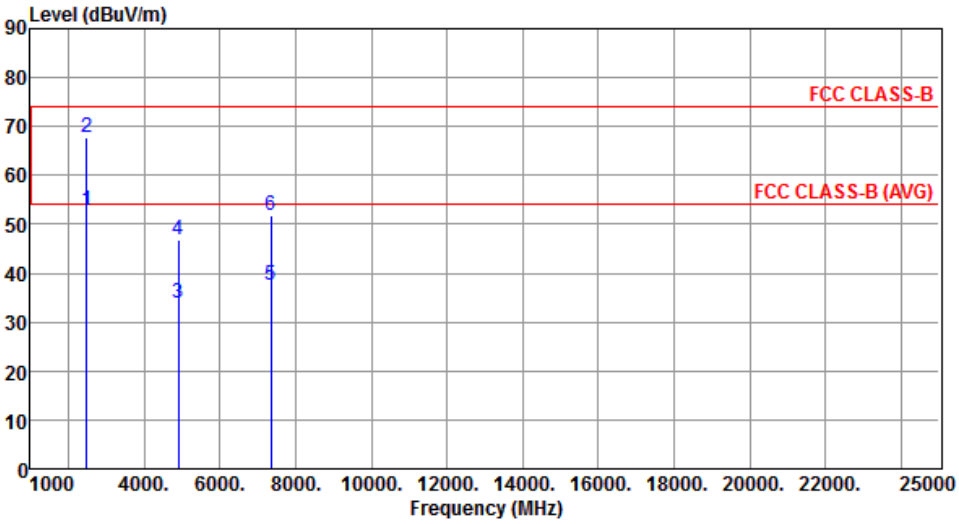
Modulation	HT40	Test Freq. (MHz)	2437
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	46.60	54.00	-7.40	47.71	-1.11	Average	354	10
2	2390.00	61.07	74.00	-12.93	62.18	-1.11	Peak	354	10
3	2483.50	51.18	54.00	-2.82	51.80	-0.62	Average	354	10
4	2483.50	67.22	74.00	-6.78	67.84	-0.62	Peak	354	10
5	4874.00	35.88	54.00	-18.12	30.45	5.43	Average	200	0
6	4874.00	48.78	74.00	-25.22	43.35	5.43	Peak	200	0
7	7311.00	37.50	54.00	-16.50	27.24	10.26	Average	100	45
8	7311.00	51.49	74.00	-22.51	41.23	10.26	Peak	100	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).

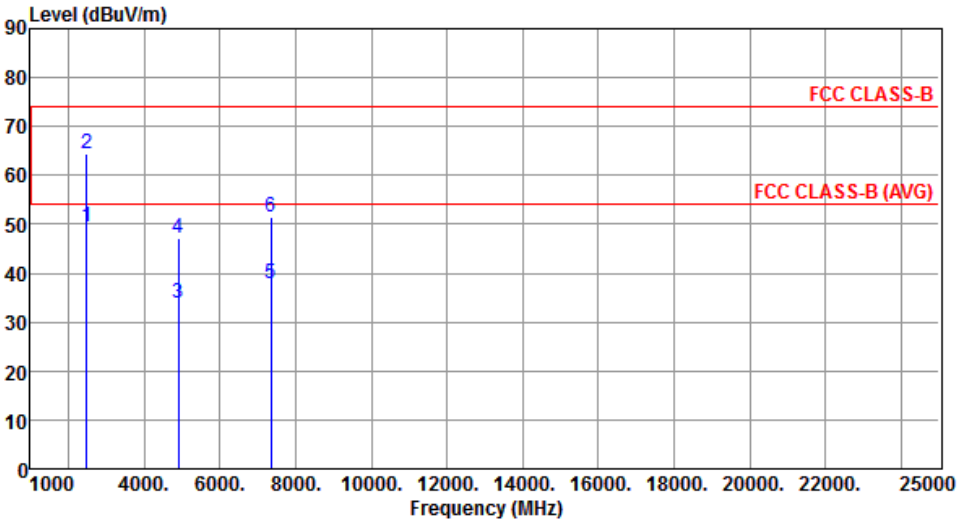
Modulation	HT40	Test Freq. (MHz)	2452
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	52.73	54.00	-1.27	53.35	-0.62	Average	100	325
2	2483.50	67.78	74.00	-6.22	68.40	-0.62	Peak	100	325
3	4904.00	33.88	54.00	-20.12	28.37	5.51	Average	190	359
4	4904.00	46.92	74.00	-27.08	41.41	5.51	Peak	190	359
5	7356.00	37.60	54.00	-16.40	27.25	10.35	Average	100	38
6	7356.00	51.78	74.00	-22.22	41.43	10.35	Peak	100	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)	2452
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	49.43	54.00	-4.57	50.05	-0.62	Average	351	11
2	2483.50	64.50	74.00	-9.50	65.12	-0.62	Peak	351	11
3	4904.00	33.75	54.00	-20.25	28.24	5.51	Average	200	0
4	4904.00	47.19	74.00	-26.81	41.68	5.51	Peak	200	0
5	7356.00	37.78	54.00	-16.22	27.43	10.35	Average	100	36
6	7356.00	51.62	74.00	-22.38	41.27	10.35	Peak	100	36

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

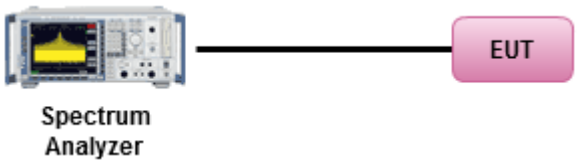
1. Set RBW=100kHz, VBW = 300kHz , Detector = Peak, Sweep time = Auto
2. Trace = max hold , Allow Trace to fully stabilize
3. Use the peak marker function to determine the maximum PSD level

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

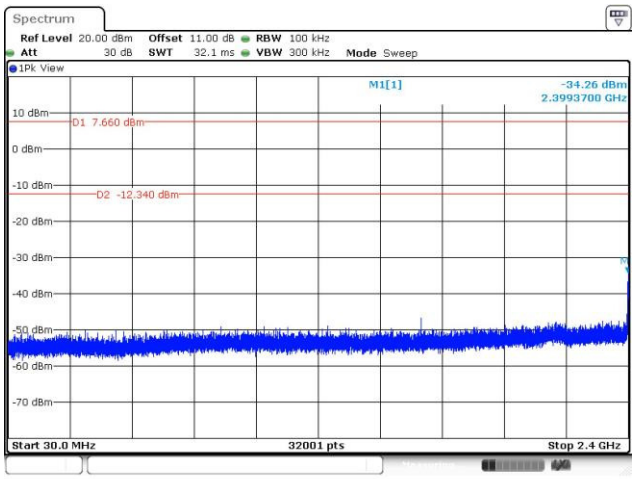
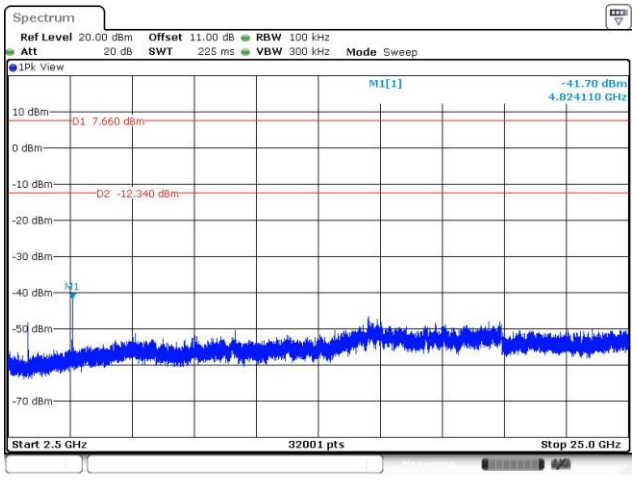
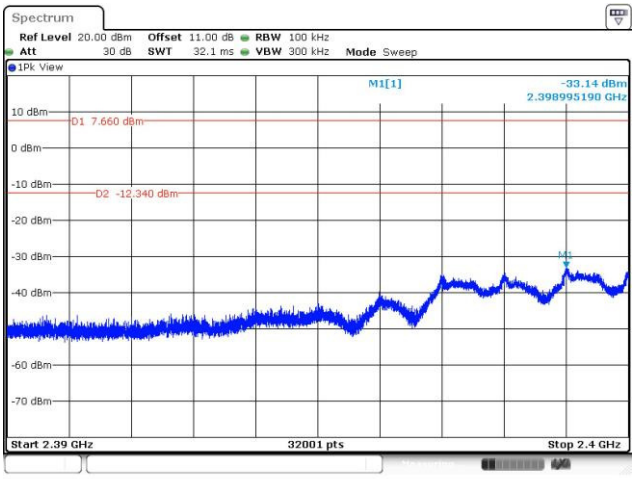
3.6.4 Test Setup

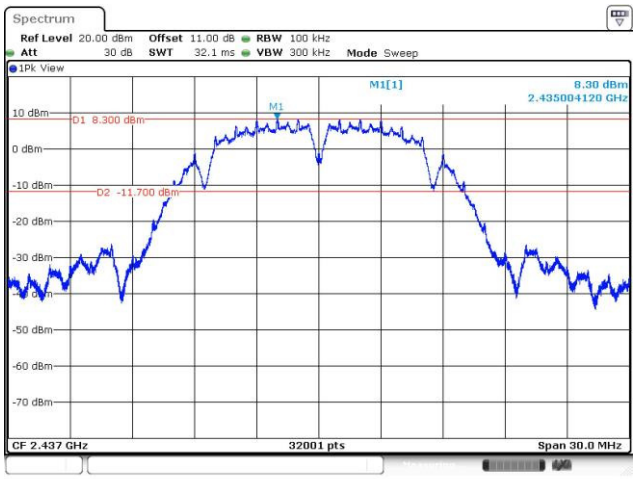
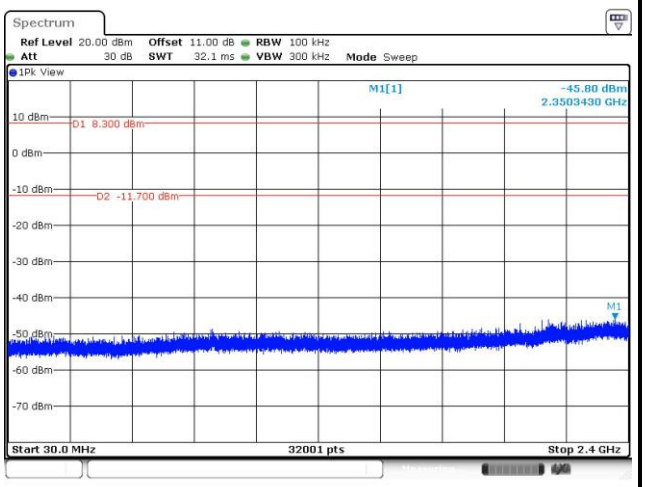
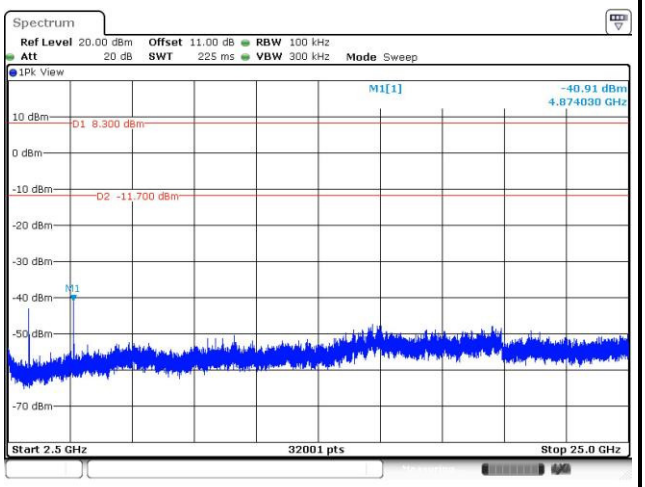
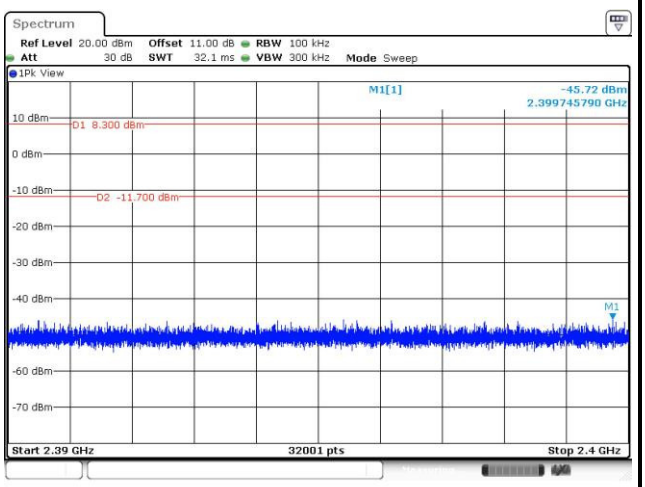
Transmitter Radiated Bandedge Emissions

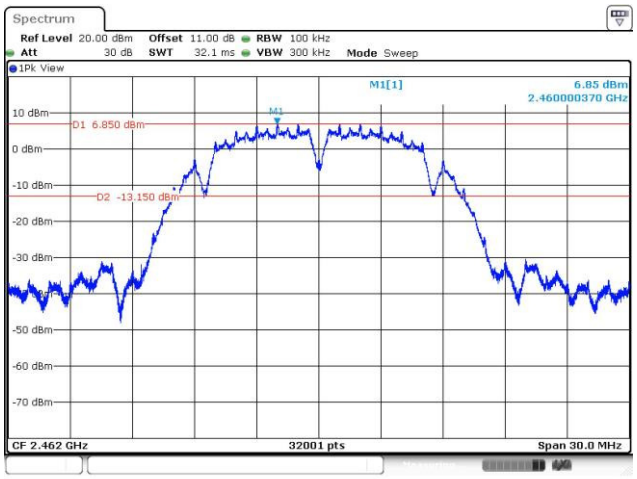
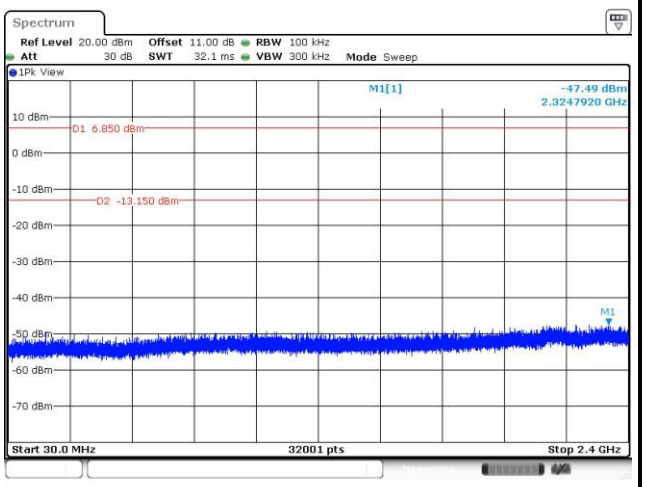
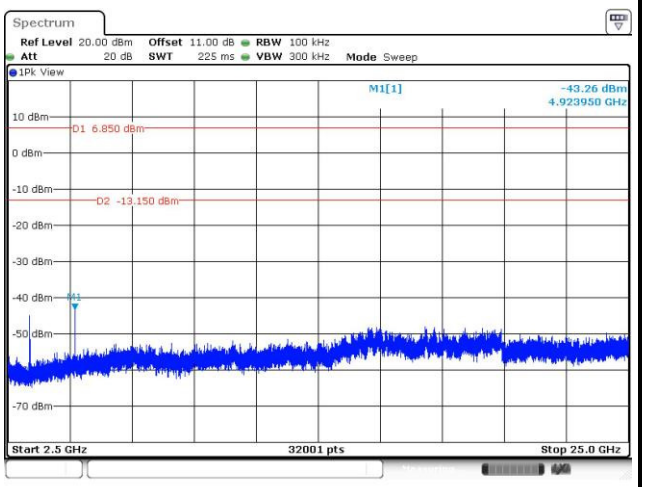
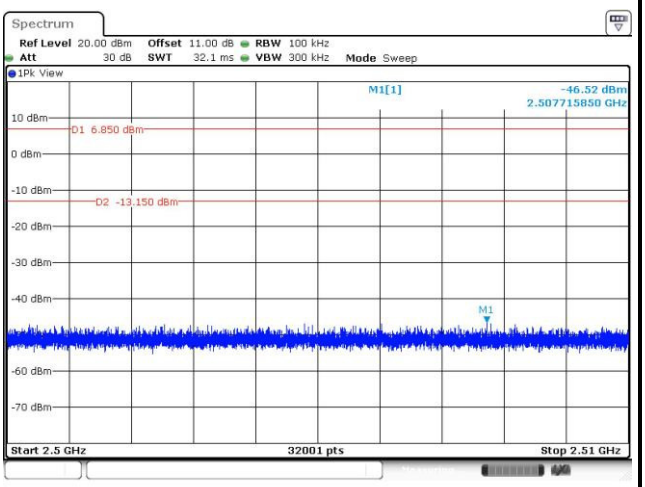


3.6.5 Unwanted Emissions into Non-Restricted Frequency Bands

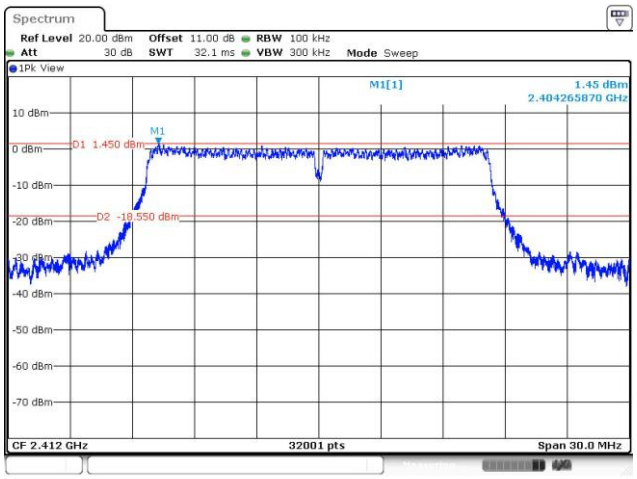
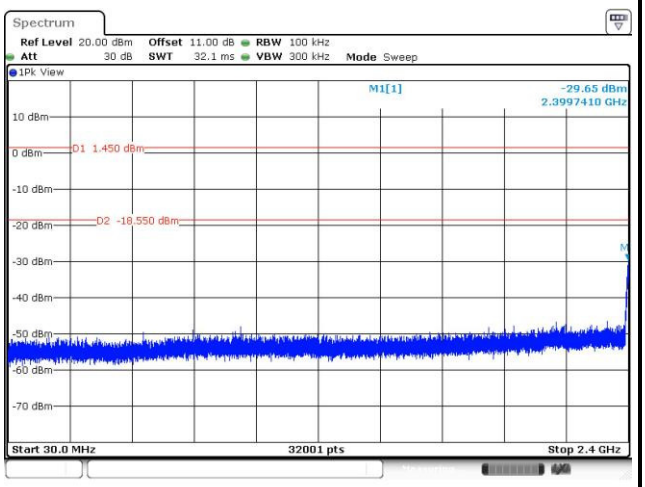
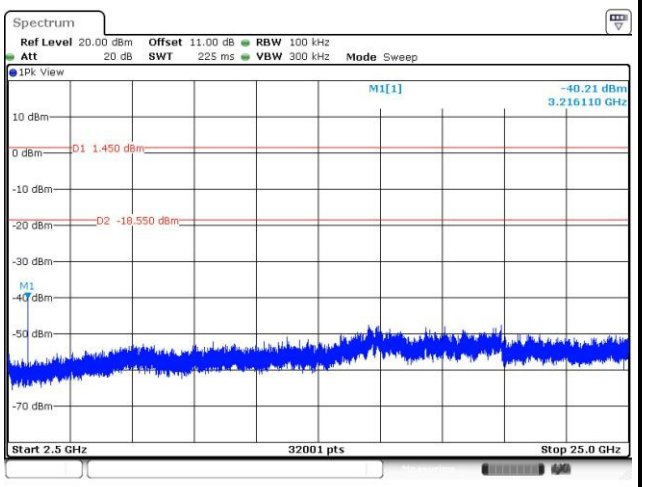
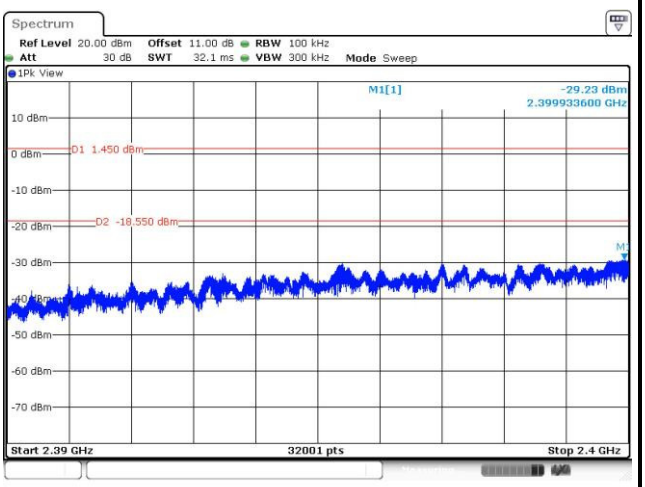
802.11b

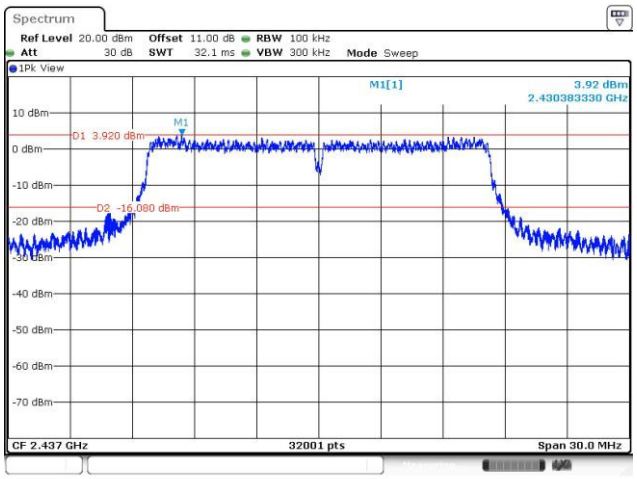
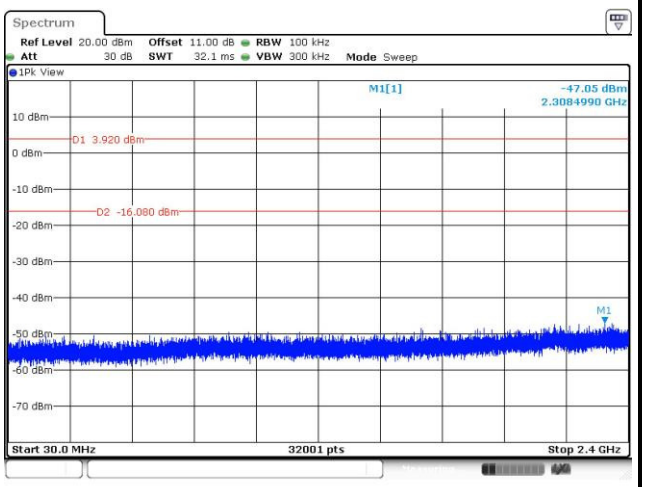
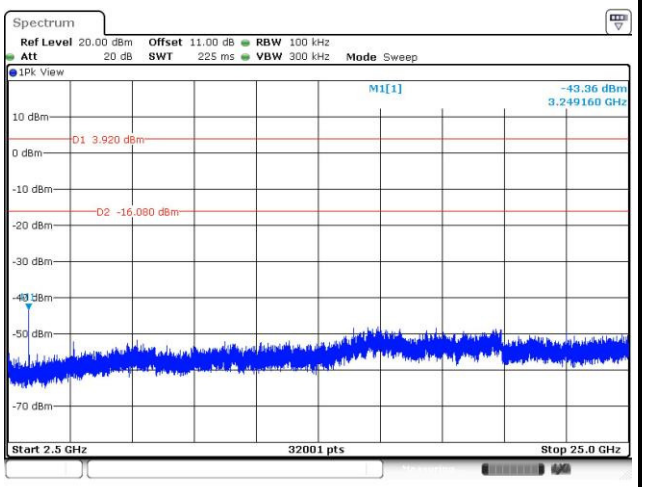
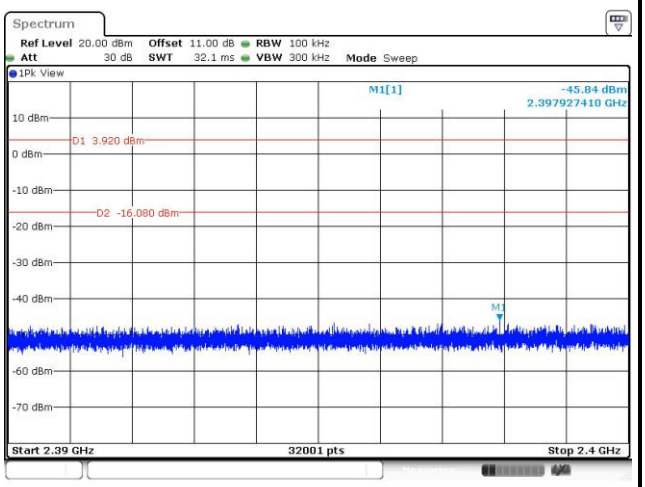
Reference Level	Tx 2412MHz / 30MHz~25GHz (down 20dBc)
	
---	
---	

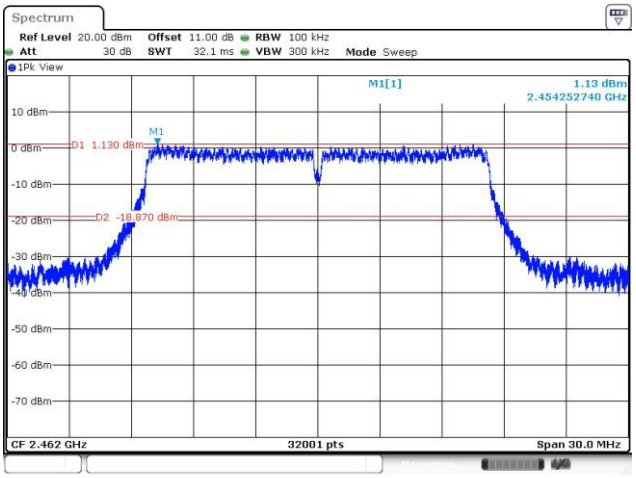
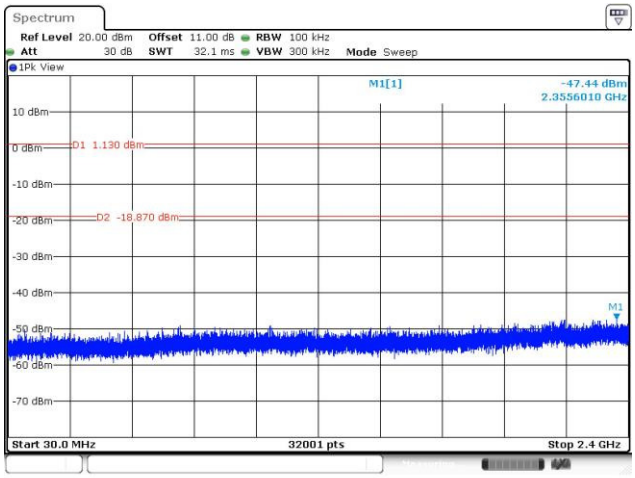
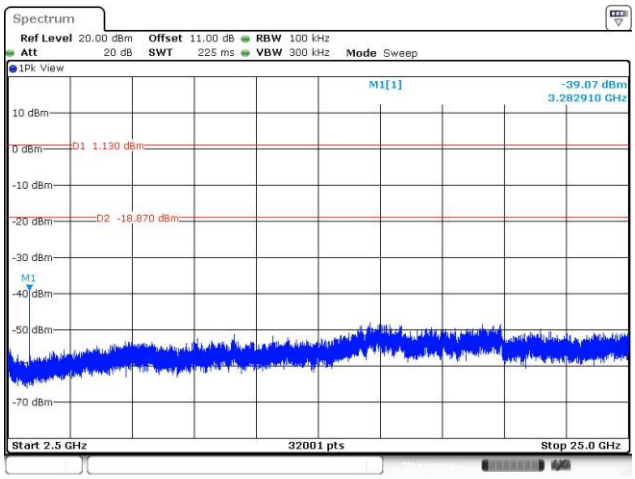
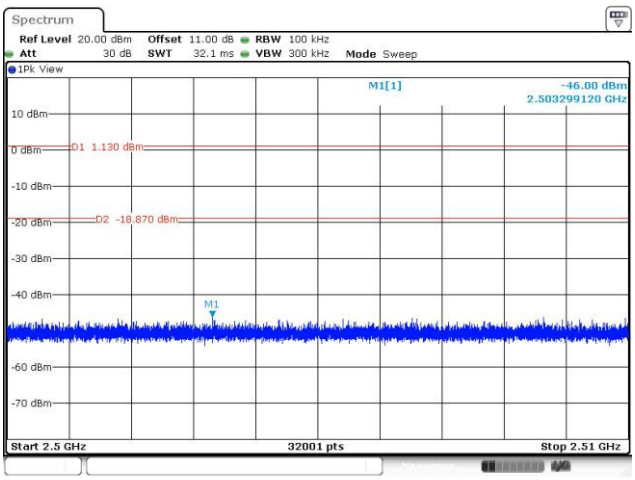
Reference Level	Tx 2437MHz / 30MHz~25GHz (down 20dBc)
	
---	
---	

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

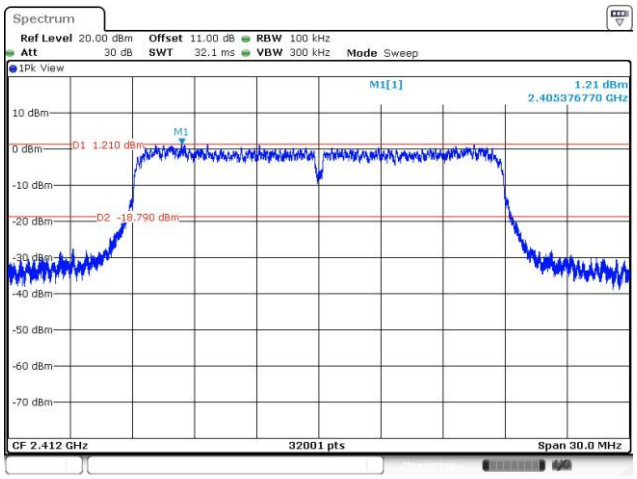
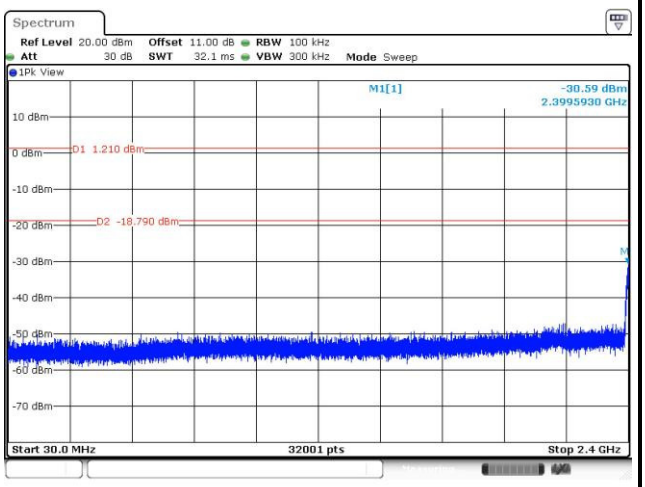
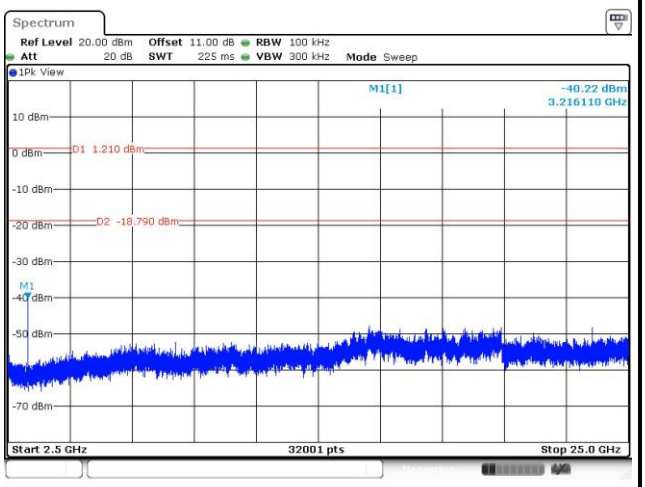
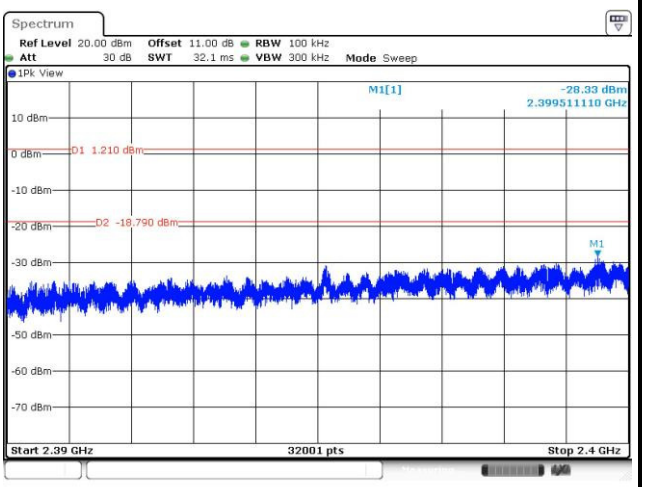
802.11g

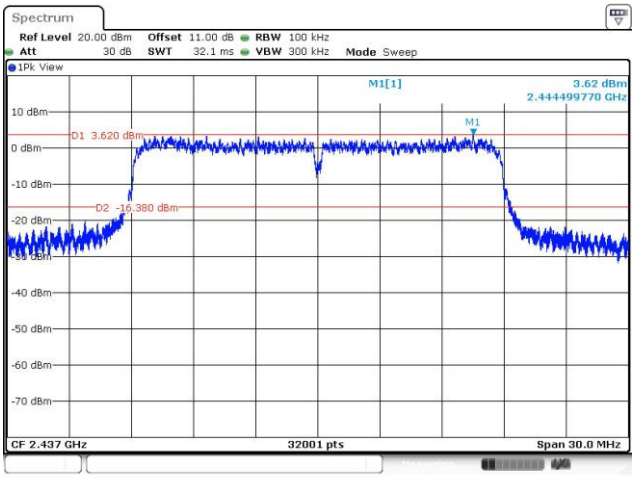
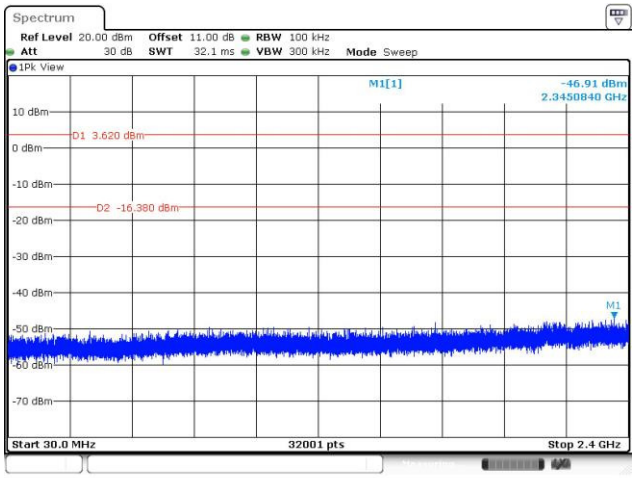
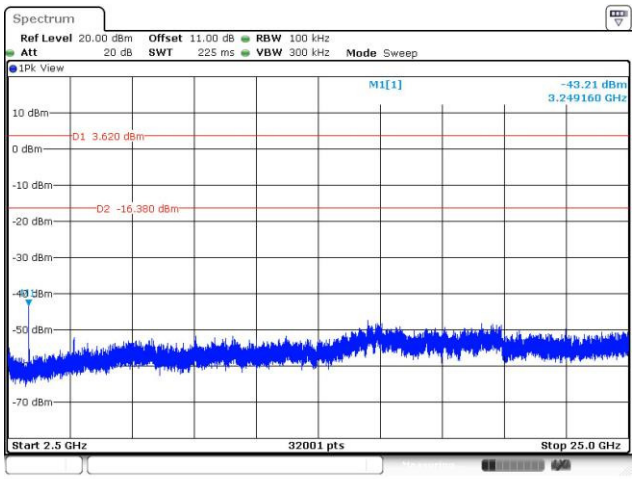
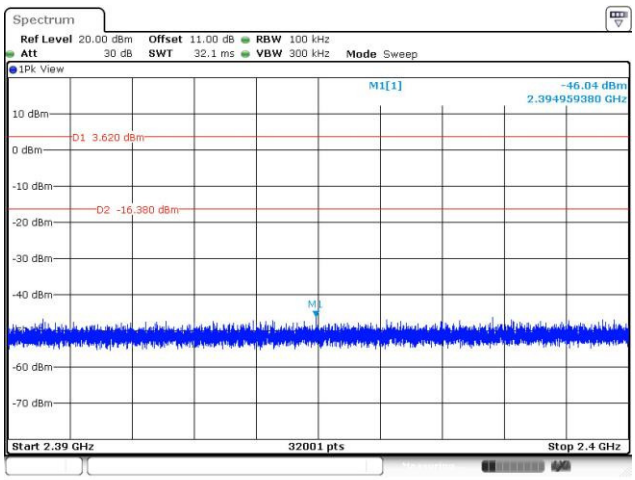
Reference Level	Tx 2412MHz / 30MHz~25GHz (down 20dBc)
	
---	
---	

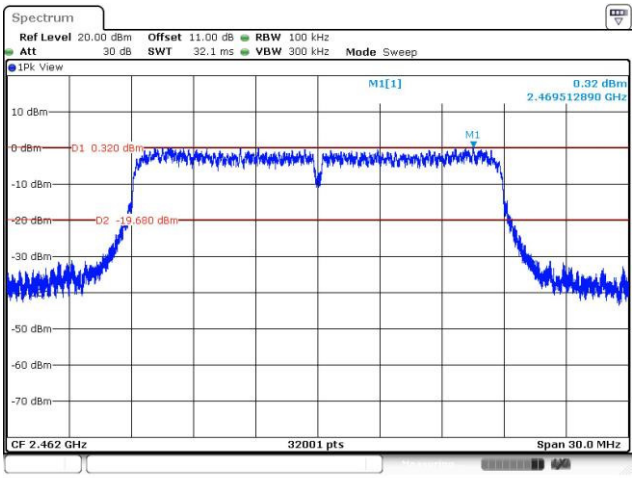
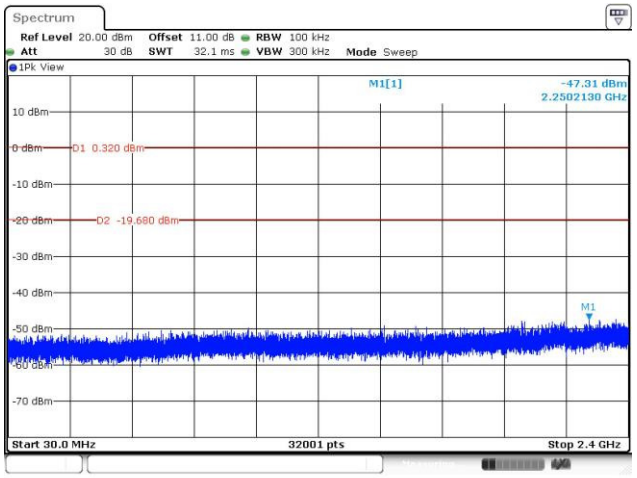
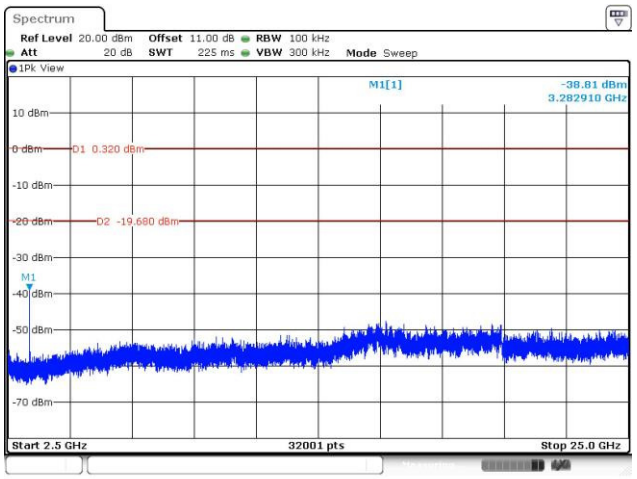
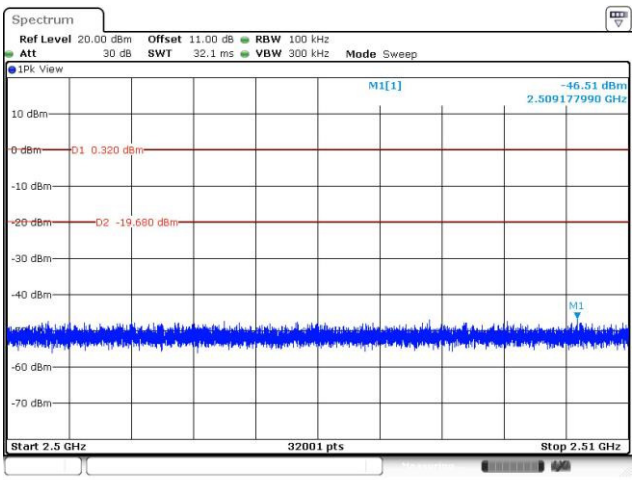
Reference Level	Tx 2437MHz / 30MHz~25GHz (down 20dBc)
	
---	
---	

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

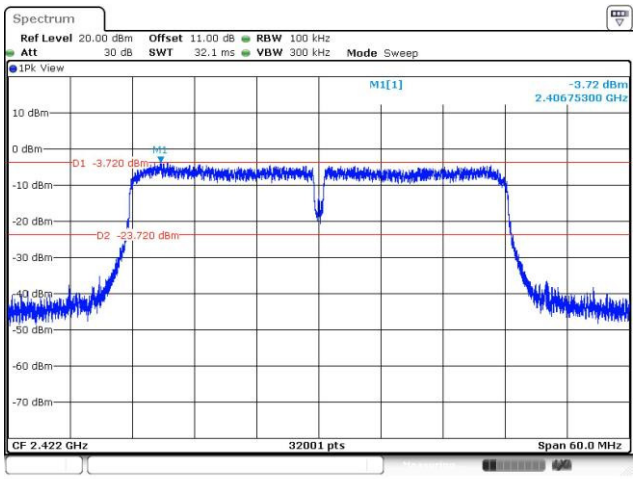
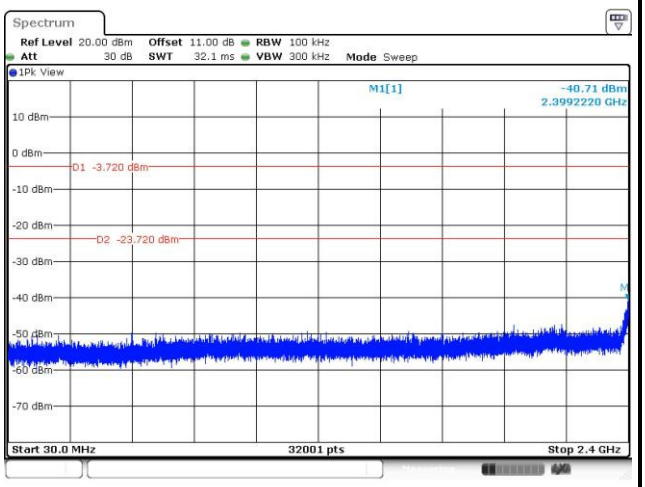
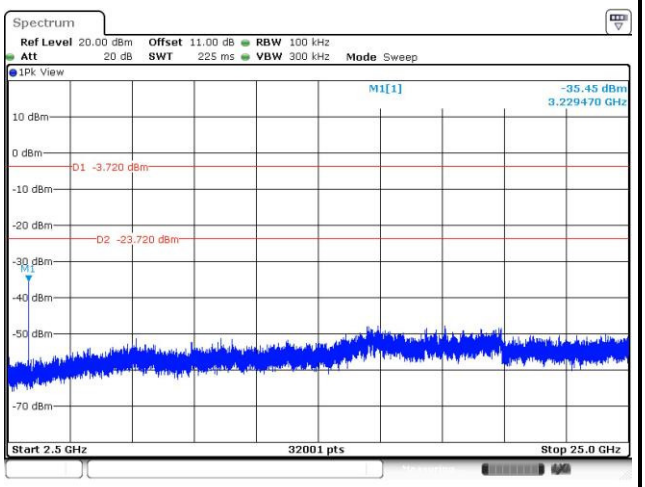
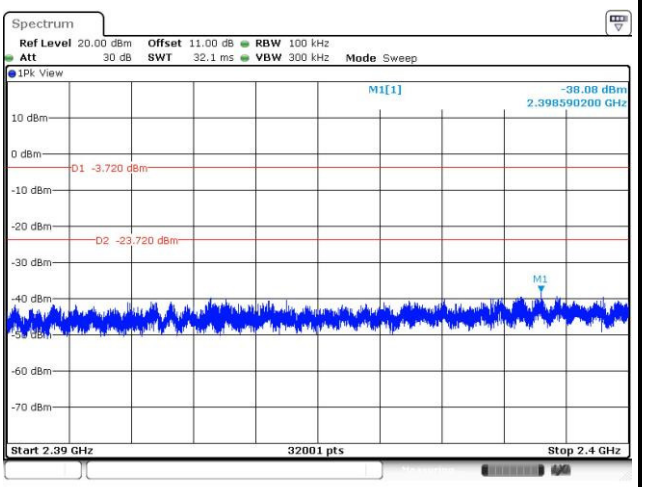
802.11n HT20

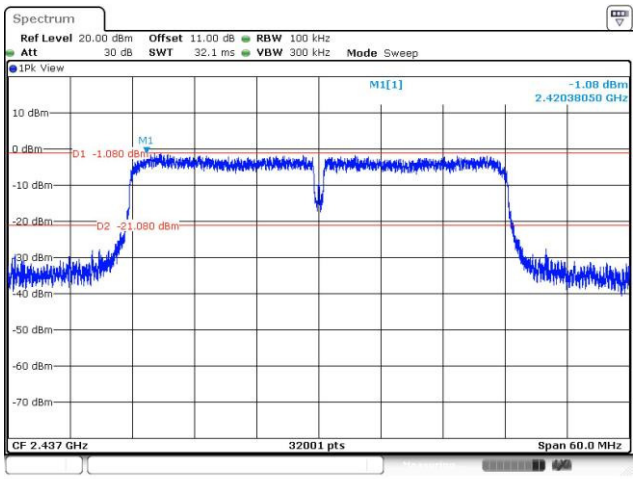
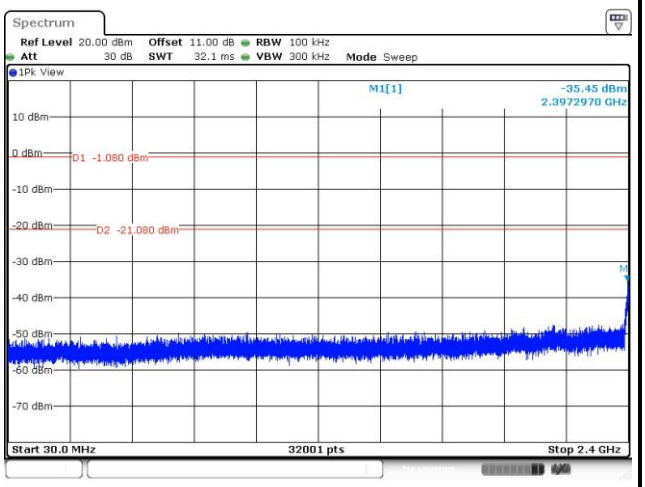
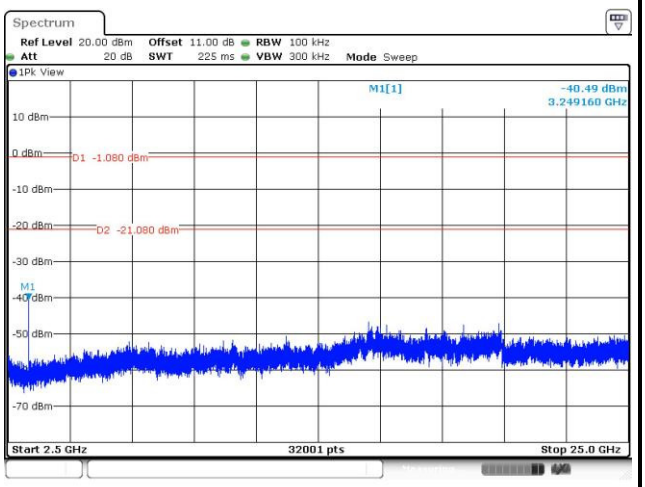
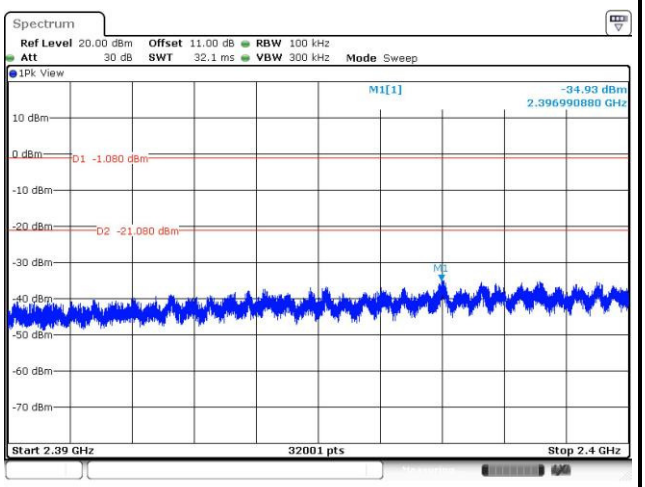
Reference Level	Tx 2412MHz / 30MHz~25GHz (down 20dBc)
	
---	
---	

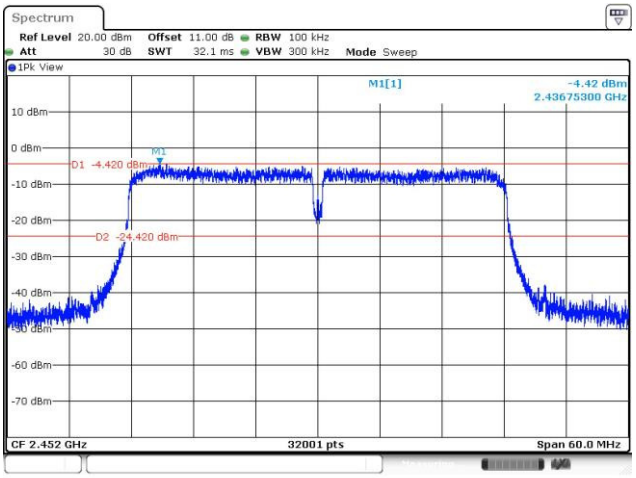
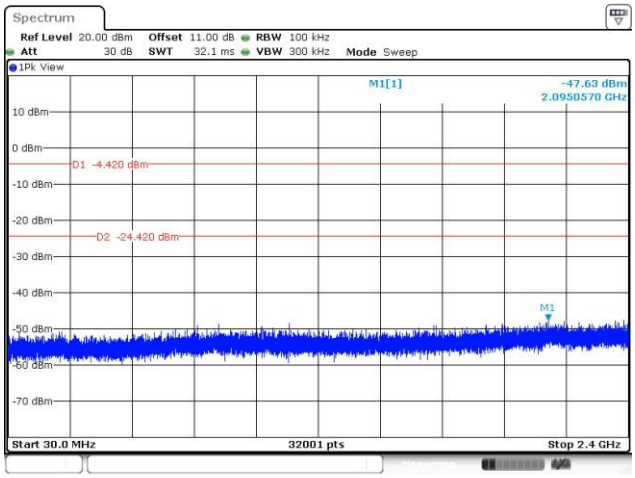
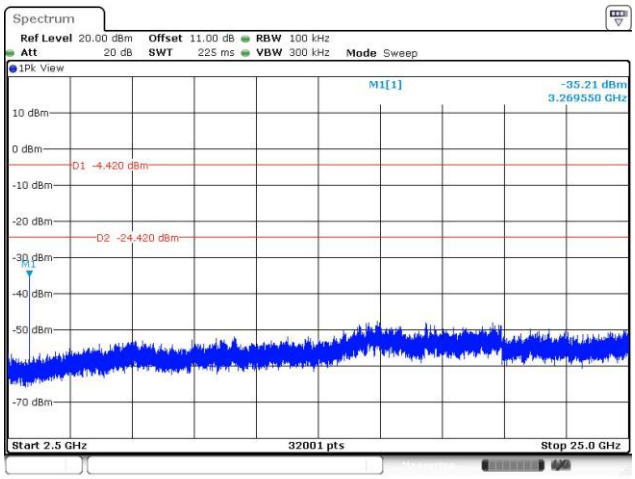
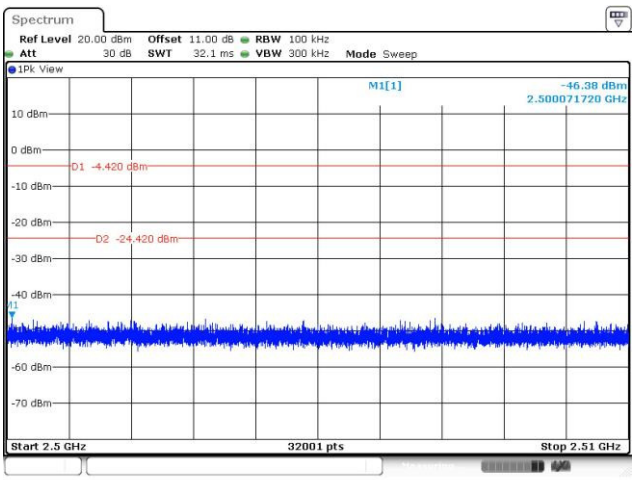
Reference Level	Tx 2437MHz / 30MHz~25GHz (down 20dBc)
	
---	
---	

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

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

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

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

Tel: 886-3-271-8666
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