FCC Test Report

FCC ID	:	**I88EMG3415-B10A**
Equipment	:	**Dual-Band Wireless AC/N Gigabit Ethernet Gateway**
Model No.	:	**EMG3415-B10A**
Brand Name	:	**ZYXEL**
Applicant	:	**Zyxel Communications Corporation**
Address	:	**No.2 Industry East RD. IX, Hsinchu Science Park, Hsinchu 30075, Taiwan, R.O.C**
Standard	:	**47 CFR FCC Part 15.247**
Received Date	:	**Jun. 17, 2016**
Tested Date	:	**Jun. 25, 2016 ~ May 17, 2017**

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

Reviewed by: **Approved by:**

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

Testing Laboratory 2732

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Release Record

Report No.	Version	Description	Issued Date
FR651003-02AC	Rev. 01	Initial issue	Jun. 16, 2017
FR651003-02AC	Rev. 02	Updated signature	Jul. 07, 2017

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	[dBuV]: 0.156MHz 44.18 (Margin -21.51dB) - QP	Pass
15.247(d) 15.209	Radiated Emissions	[dBuV/m at 3m]: 4924.00MHz 53.88 (Margin -0.12dB) – AV [dBuV/m at 3m]: 7311.00MHz 53.88 (Margin -0.12dB) - AV	Pass
15.247(b)(3)	Maximum Output Power	Max Power [dBm]: 26.98	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]	2	6-54 Mbps
2400-2483.5	n (HT20)	2412-2462	1-11 [11]	2	MCS 0-15
2400-2483.5	n (HT40)	2422-2452	3-9 [7]	2	MCS 0-15
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

Model	**Type**	**Connector**	**Frequencies (MHz) / Antenna Gain (dBi)**		
			2400~2483.5	**5150~5250**	**5725~5850**
A1	Dipole	UFL	--	-0.54	-0.56
A2	Dipole	UFL	--	-0.54	-0.56
A3	Dipole	UFL	--	-0.54	-0.56
A4	Dipole	UFL	--	-0.54	-0.56
B1	Dipole	UFL	2.9	--	--
B2	Dipole	UFL	1.3	--	--

1.1.3 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	12Vdc from adapter

1.1.4 Accessories

Accessories		
No.	**Equipment**	**Description**
1	AC adapter	Brand: APD Model: WA-30J12FU Power Rating: I/P: 100-240Vac, 50/60Hz, 0.9A O/P: 12Vdc, 2.5A Power Line: 1.5m non-shielded without core
2	AC adapter	Brand: SHENZHEN FRECOM ELECTRONICS.CO., LTD Model: F30L2-120250SPAU Power Rating: I/P: 100-240Vac, 50/60Hz, 0.8A O/P: 12Vdc, 2.5A Power Line: 1.45m non-shielded without core
3	RJ45	1.7m non-shielded without core
Support Units (provided by applicant)		
No.	**Equipment**	**Description**
1	BF Client	Product: Dual-Band Wireless AC/N VDSL2 Bonding Gateway with USB Brand: ZYXEL Model: XMG3512-B10A

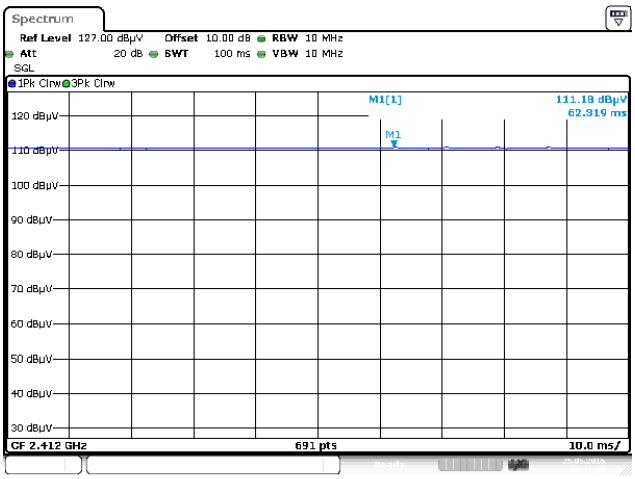
1.1.5 Channel List

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	---	---

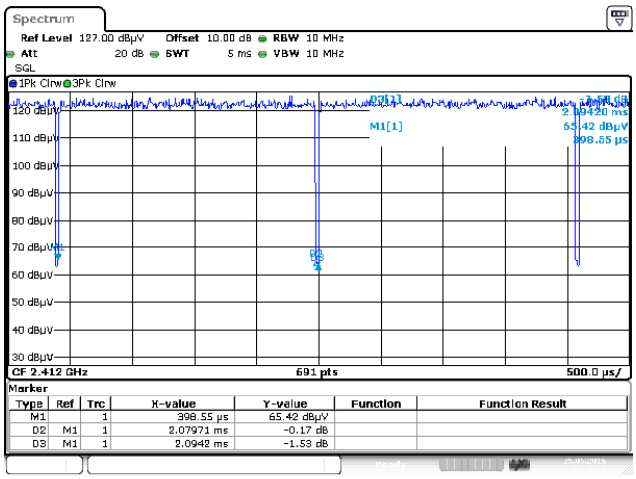
1.1.6 Test Tool and Duty Cycle

Test Tool	MTool, version: 2.0.1.0		
Duty Cycle and Duty Factor	Mode	Duty cycle (%)	Duty factor (dB)
	11b	100.00%	0.00
	11g	99.31%	0.03
	HT20	99.26%	0.03
	HT40	98.22%	0.08

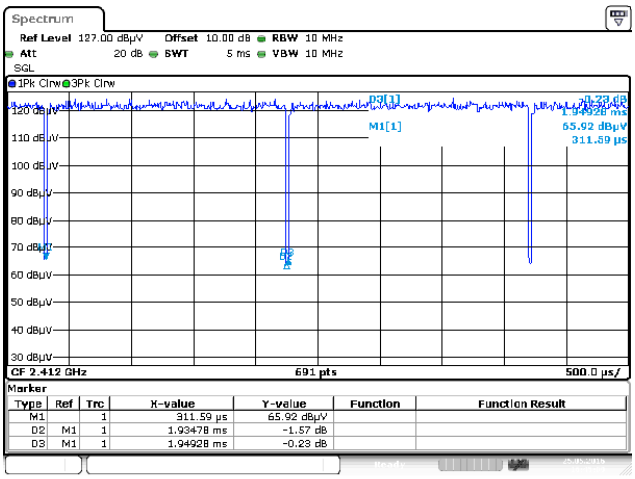
11b



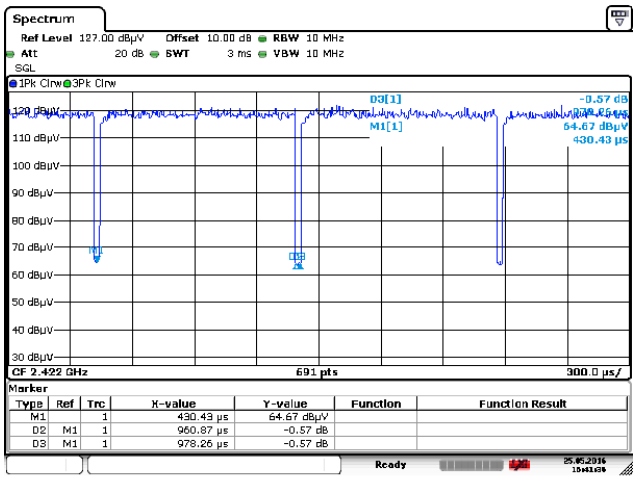
11g



11n HT20



11n HT40



1.1.7 Power Setting

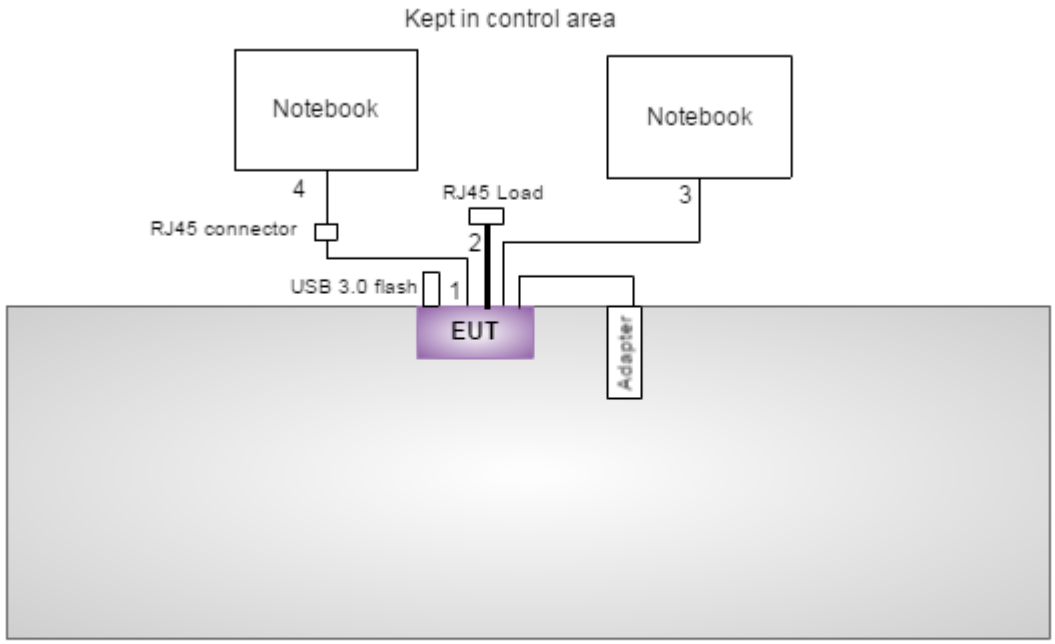
Modulation Mode	Test Frequency (MHz)	Power Set
11b	2412	83
11b	2437	84
11b	2462	82
11g	2412	76
11g	2437	96
11g	2462	80
HT20	2412	74
HT20	2437	96
HT20	2462	74
HT40	2422	70
HT40	2437	80
HT40	2452	72

1.2 Local Support Equipment List

Support Equipment List					
No.	**Equipment**	**Brand**	**Model**	**S/N**	**Signal cable / Length (m)**
1	Notebook	DELL	Latitude E6430	9ZFB4X1	RJ45, 10m non-shielded.
2	Notebook	DELL	Latitude E5420	B6FT9T1	RJ45, 10m non-shielded.
3	USB 3.0 flash	Kingston	DTSE9G2/8GB	CX4T6	---
4	RJ45 Load	ICC	---	---	RJ45, 1m (x3) non-shielded.

1.3 Test Setup Chart

Test Setup Diagram



1. RJ45, 10m non-shielded.
2. RJ45, 1m (x3) non-shielded.
3. RJ45, 10m non-shielded.
4. RJ45, 1.7m non-shielded.

1.4 The Equipment List

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Tested Date	May 17, 2017				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Receiver	R&S	ESR3	101657	Dec. 21, 2016	Dec. 20, 2017
LISN	R&S	ENV216	101579	Jan. 19, 2017	Jan. 18, 2018
RF Cable-CON	EMC	EMCCFD300-BM-BM-6000	50821	Dec. 20, 2016	Dec. 19, 2017
Measurement Software	AUDIX	e3	6.120210k	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	Radiated Emission				
Test Site	966 chamber 2 / (03CH02-WS)				
Tested Date	Jun. 25, 2016				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101499	Dec. 17, 2015	Dec. 16, 2016
Receiver	R&S	ESR3	101657	Jan. 12, 2016	Jan. 11, 2017
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-523	Nov. 09, 2015	Nov. 08, 2016
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1095	Oct. 07, 2015	Oct. 06, 2016
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Nov. 04, 2015	Nov. 03, 2016
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 16, 2015	Nov. 15, 2016
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Dec. 10, 2015	Dec. 09, 2016
Preamplifier	Burgeon	BPA-530	100218	Nov. 03, 2015	Nov. 02, 2016
Preamplifier	Agilent	83017A	MY39501309	Sep. 22, 2015	Sep. 21, 2016
Preamplifier	EMC	EMC184045B	980192	Sep. 01, 2015	Aug. 31, 2016
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16140/4	Dec. 10, 2015	Dec. 09, 2016
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16018/4	Dec. 10, 2015	Dec. 09, 2016
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16015/4	Dec. 10, 2015	Dec. 09, 2016
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-003	Dec. 10, 2015	Dec. 09, 2016
LF cable 10M	EMCC	CFD400-E	CFD400-001	Dec. 10, 2015	Dec. 09, 2016
Measurement Software	AUDIX	e3	6.120210g	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	Radiated Emission				
Test Site	966 chamber 2 / (03CH02-WS)				
Tested Date	May 13, 2017				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101499	Dec. 16, 2016	Dec. 15, 2017
Receiver	R&S	ESR3	101657	Dec. 21, 2016	Dec. 20, 2017
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-523	Nov. 07, 2016	Nov. 06, 2017
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1095	Sep. 21, 2016	Sep. 20, 2017
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Oct. 25, 2016	Oct. 24, 2017
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 10, 2016	Nov. 09, 2017
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Dec. 09, 2016	Dec. 08, 2017
Preamplifier	EMC	EMC02325	980194	Sep. 26, 2016	Sep. 25, 2017
Preamplifier	Agilent	83017A	MY39501309	Sep. 29, 2016	Sep. 28, 2017
Preamplifier	EMC	EMC184045B	980192	Aug. 24, 2016	Aug. 23, 2017
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16140/4	Dec. 09, 2016	Dec. 08, 2017
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16018/4	Dec. 09, 2016	Dec. 08, 2017
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16015/4	Dec. 09, 2016	Dec. 08, 2017
LF cable 1M	EMC	EMCCFD400-NM-NM-1000	16051	Dec. 09, 2016	Dec. 08, 2017
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-003	Dec. 09, 2016	Dec. 08, 2017
LF cable 10M	EMCC	CFD400-E	CFD400-001	Dec. 09, 2016	Dec. 08, 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)				
Tested Date	Sep. 05 ~ Sep. 08, 2016				
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	Sep. 21, 2015	Sep. 20, 2016
Power Sensor	Anritsu	MA2411B	1207366	Sep. 21, 2015	Sep. 20, 2016
AC POWER SOURCE	APC	AFC-500W	F312060012	Oct. 26, 2015	Oct. 25, 2016
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 v04
FCC KDB 662911 D01 Multiple Transmitter Output v02r01

1.6 Measurement Uncertainty

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

Measurement Uncertainty	
Parameters	**Uncertainty**
Bandwidth	±34.134 Hz
Conducted power	±0.808 dB
Power density	±0.463 dB
Conducted emission	±2.670 dB
AC conducted emission	±2.90 dB
Radiated emission ≤ 1GHz	±3.87 dB
Radiated emission > 1GHz	±5.60 dB

2 Test Configuration

2.1 Testing Condition

Test Item	Test Site	Ambient Condition	Tested By
AC Conduction	CO01-WS	22°C / 57%	Alex Tsai
Radiated Emissions	03CH02-WS	23°C / 64% 24°C / 62%	Felix Sung Vincent Yeh
RF Conducted	TH01-WS	23°C / 64%	Brad Wu

- FCC Designation No.: TW2732
- FCC site registration No.: 181692
- IC site registration No.: 10807A-2

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	2
Radiated Emissions ≤1GHz	HT20	2437	MCS 0	1
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	1

NOTE:

Test configurations are listed as below:

1) Configuration 1: APD adapter

2) Configuration 2: F30L2-120250SPAU adapter

3 Transmitter Test Results

3.1 Conducted Emissions

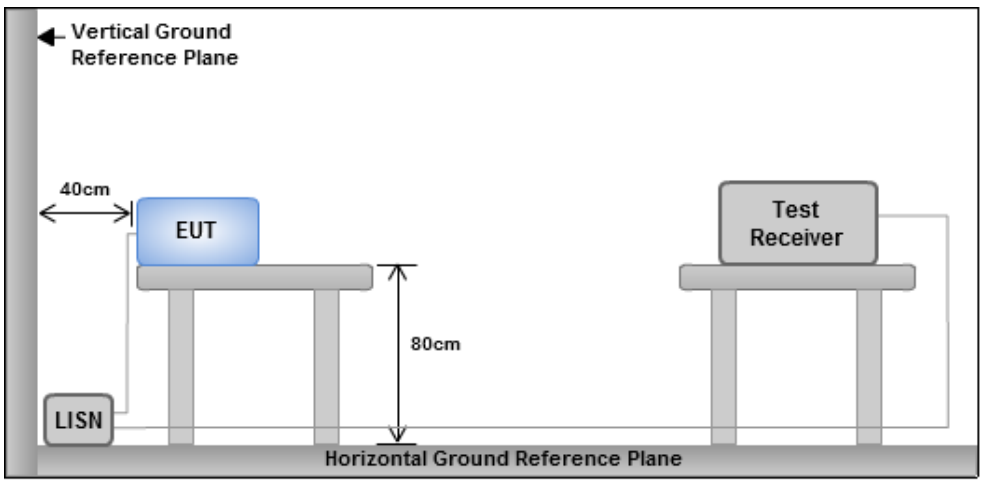
3.1.1 Limit of Conducted Emissions

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

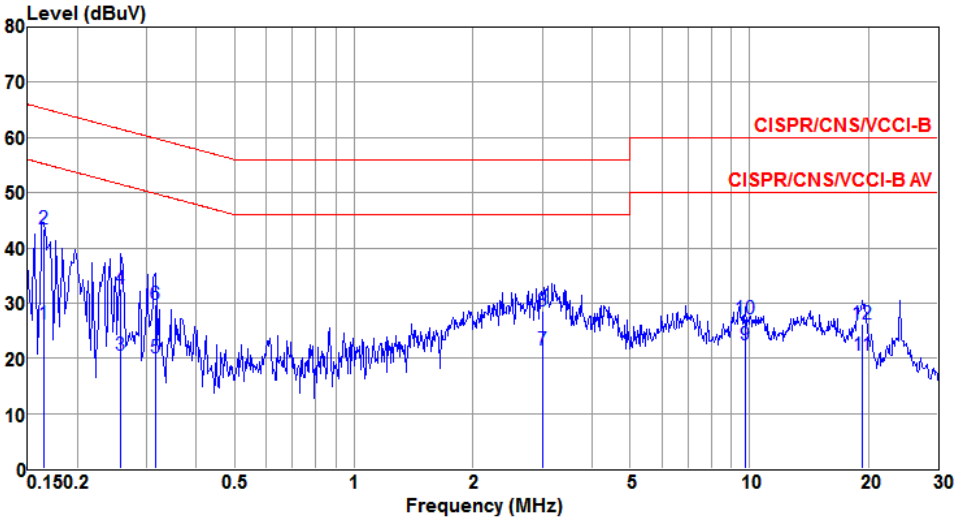


Note: 1. Support units were connected to second LISN.

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

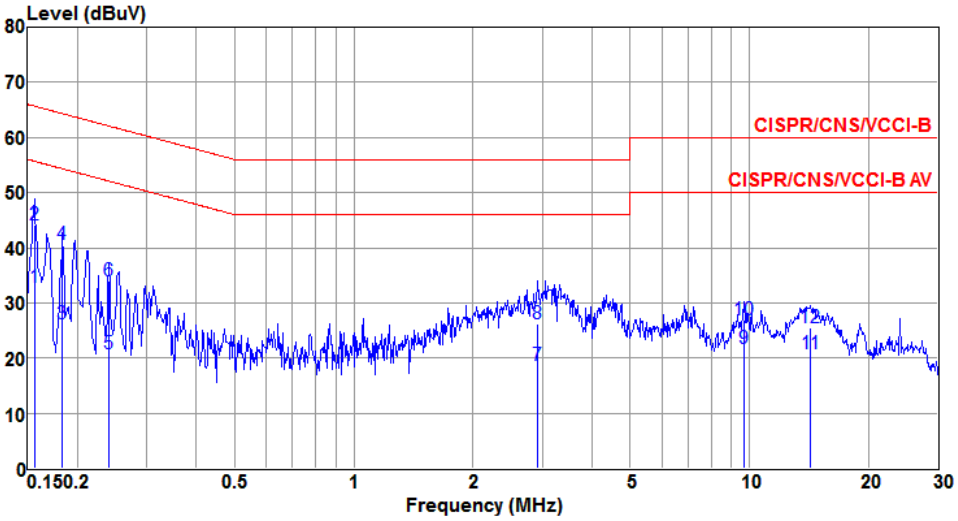
Modulation	HT20	Test Freq. (MHz)	2437
Power Phase	Line		



	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.165	26.23	55.21	-28.98	16.69	9.50	0.04	Average
2@	0.165	43.32	65.21	-21.89	33.78	9.50	0.04	QP
3	0.258	20.52	51.51	-30.99	10.94	9.54	0.04	Average
4	0.258	32.60	61.51	-28.91	23.02	9.54	0.04	QP
5	0.315	20.10	49.84	-29.74	10.49	9.57	0.04	Average
6	0.315	29.76	59.84	-30.08	20.15	9.57	0.04	QP
7	3.000	21.54	46.00	-24.46	11.88	9.55	0.11	Average
8	3.000	28.46	56.00	-27.54	18.80	9.55	0.11	QP
9	9.757	22.35	50.00	-27.65	12.47	9.66	0.22	Average
10	9.757	27.25	60.00	-32.75	17.37	9.66	0.22	QP
11	19.326	20.61	50.00	-29.39	10.64	9.71	0.26	Average
12	19.326	26.26	60.00	-33.74	16.29	9.71	0.26	QP

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

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	0.156	32.80	55.69	-22.89	23.18	9.58	0.04	Average
2@	0.156	44.18	65.69	-21.51	34.56	9.58	0.04	QP
3	0.183	26.22	54.33	-28.11	16.59	9.59	0.04	Average
4	0.183	40.54	64.33	-23.79	30.91	9.59	0.04	QP
5	0.240	20.86	52.08	-31.22	11.24	9.58	0.04	Average
6	0.240	33.98	62.08	-28.10	24.36	9.58	0.04	QP
7	2.915	18.65	46.00	-27.35	8.91	9.63	0.11	Average
8	2.915	26.24	56.00	-29.76	16.50	9.63	0.11	QP
9	9.705	21.76	50.00	-28.24	11.89	9.65	0.22	Average
10	9.705	27.01	60.00	-32.99	17.14	9.65	0.22	QP
11	14.288	20.73	50.00	-29.27	10.81	9.69	0.23	Average
12	14.288	25.60	60.00	-34.40	15.68	9.69	0.23	QP

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

3.2 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

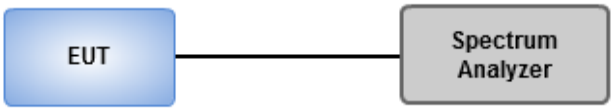
6dB Bandwidth

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.

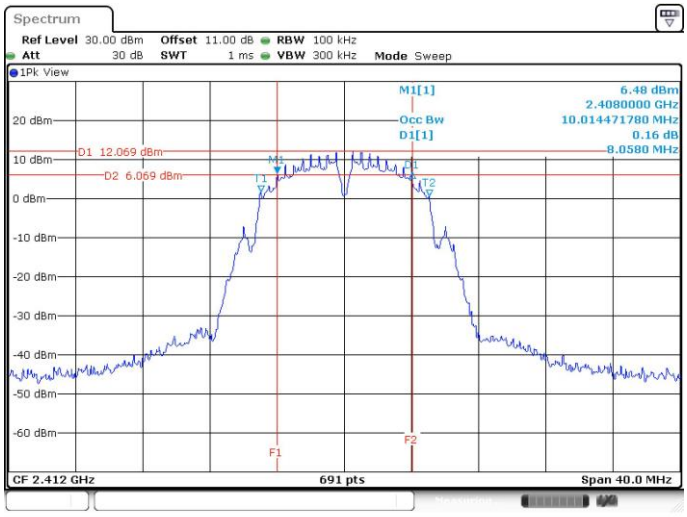
3.2.3 Test Setup



3.2.4 Test Result of 6dB and Occupied Bandwidth

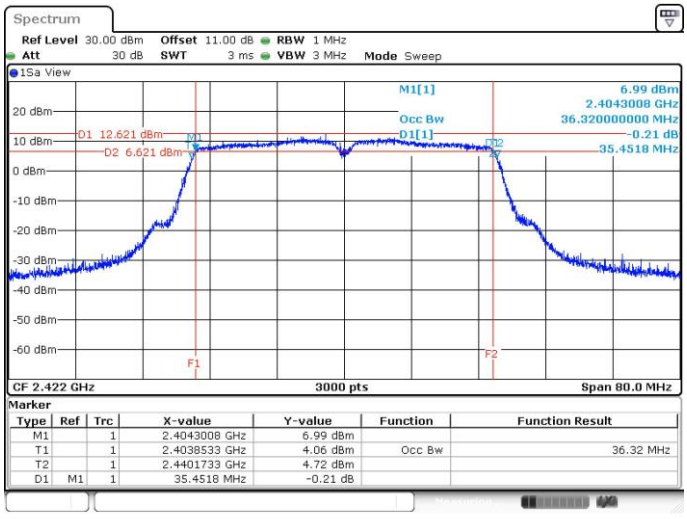
Modulation Mode	N_{TX}	Freq. (MHz)	6dB Bandwidth (MHz)				Limit (kHz)
			Chain 0	Chain 1	Chain 2	Chain 3	
11b	1	2412	8.06	---	---	---	500
11b	1	2437	8.06	---	---	---	500
11b	1	2462	8.06	---	---	---	500
11g	2	2412	16.35	16.35	---	---	500
11g	2	2437	16.35	16.35	---	---	500
11g	2	2462	16.35	16.35	---	---	500
HT20	2	2412	17.57	17.62	---	---	500
HT20	2	2437	17.62	17.62	---	---	500
HT20	2	2462	17.57	17.57	---	---	500
HT40	2	2422	35.25	35.48	---	---	500
HT40	2	2437	35.48	35.13	---	---	500
HT40	2	2452	35.59	35.83	---	---	500

Worst Plot



Modulation Mode	N_{TX}	Freq. (MHz)	99% Occupied Bandwidth (MHz)			
			Chain 0	Chain 1	Chain 2	Chain 3
11b	1	2412	10.17	---	---	---
11b	1	2437	10.16	---	---	---
11b	1	2462	10.16	---	---	---
11g	2	2412	16.91	16.81	---	---
11g	2	2437	17.01	16.95	---	---
11g	2	2462	16.92	16.80	---	---
HT20	2	2412	17.85	17.75	---	---
HT20	2	2437	17.97	17.88	---	---
HT20	2	2462	17.85	17.76	---	---
HT40	2	2422	36.32	36.29	---	---
HT40	2	2437	36.32	36.32	---	---
HT40	2	2452	36.32	36.32	---	---

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)	Conducted (Average) Output Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)
			Chain 0	Chain 1	Chain 2	Chain 3			
11b	1	2412	20.82	---	---	---	120.781	20.82	30.00
11b	1	2437	21.05	---	---	---	127.350	21.05	30.00
11b	1	2462	20.71	---	---	---	117.761	20.71	30.00
11g	2	2412	19.19	18.75	---	---	157.974	21.99	30.00
11g	2	2437	23.88	23.61	---	---	473.958	26.76	30.00
11g	2	2462	20.38	19.55	---	---	199.301	23.00	30.00
HT20	2	2412	18.65	18.22	---	---	139.657	21.45	30.00
HT20	2	2437	24.06	23.88	---	---	499.026	**26.98**	30.00
HT20	2	2462	18.83	17.82	---	---	136.918	21.36	30.00
HT40	2	2422	17.22	17.02	---	---	103.073	20.13	30.00
HT40	2	2437	19.52	19.43	---	---	177.237	22.49	30.00
HT40	2	2452	17.58	17.24	---	---	110.246	20.42	30.00

Note: Directional gain = $10 * \log((10^{2.9/20}+10^{1.3/20})^2/2) = 5.15$ dBi < 6 dBi

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

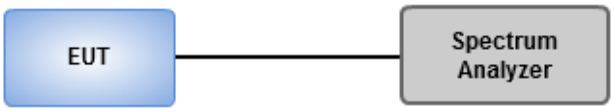
☐ Maximum peak conducted output power was used to demonstrate compliance to the fundamental output power limit.

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 = 30kHz, VBW =100 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



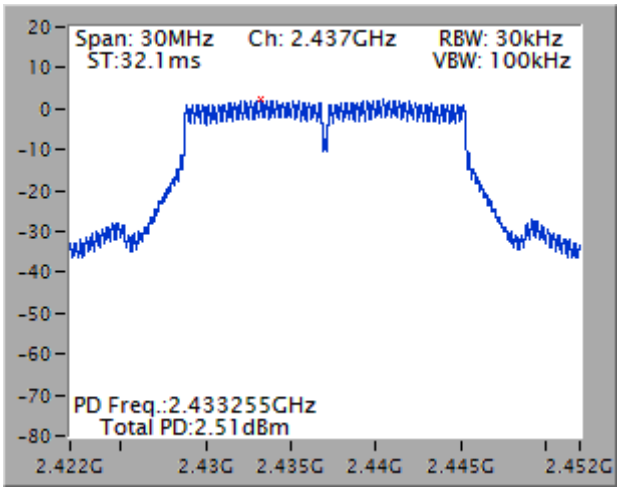
3.4.4 Test Result of Power Spectral Density

Modulation Mode	N_{TX}	Freq. (MHz)	Total Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)
11b	1	2412	-0.16	8.00
11b	1	2437	0.07	8.00
11b	1	2462	-0.43	8.00
11g	2	2412	-2.58	8.00
11g	2	2437	2.51	8.00
11g	2	2462	-1.28	8.00
HT20	2	2412	-3.22	8.00
HT20	2	2437	2.27	8.00
HT20	2	2462	-3.35	8.00
HT40	2	2422	-5.99	8.00
HT40	2	2437	-4.49	8.00
HT40	2	2452	-6.69	8.00

Note:

1. Test result for 2TX is bin-by-bin summing measured value of each TX port.
2. Directional gain = 10 * log((10$^{2.9/20}$+10$^{1.3/20}$)^2/2) = 5.15 dBi < 6 dBi

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

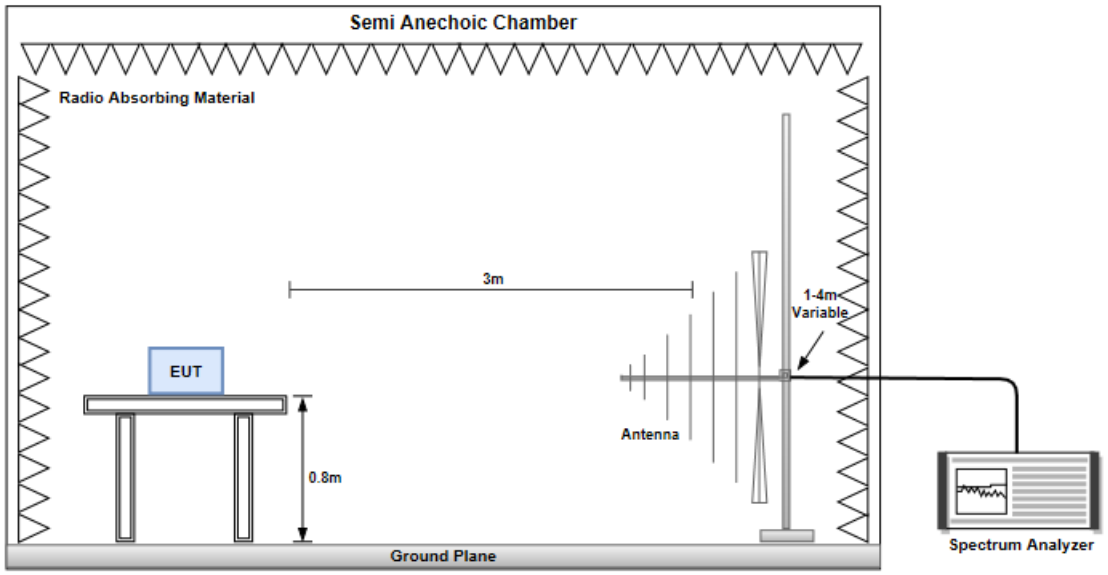
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission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

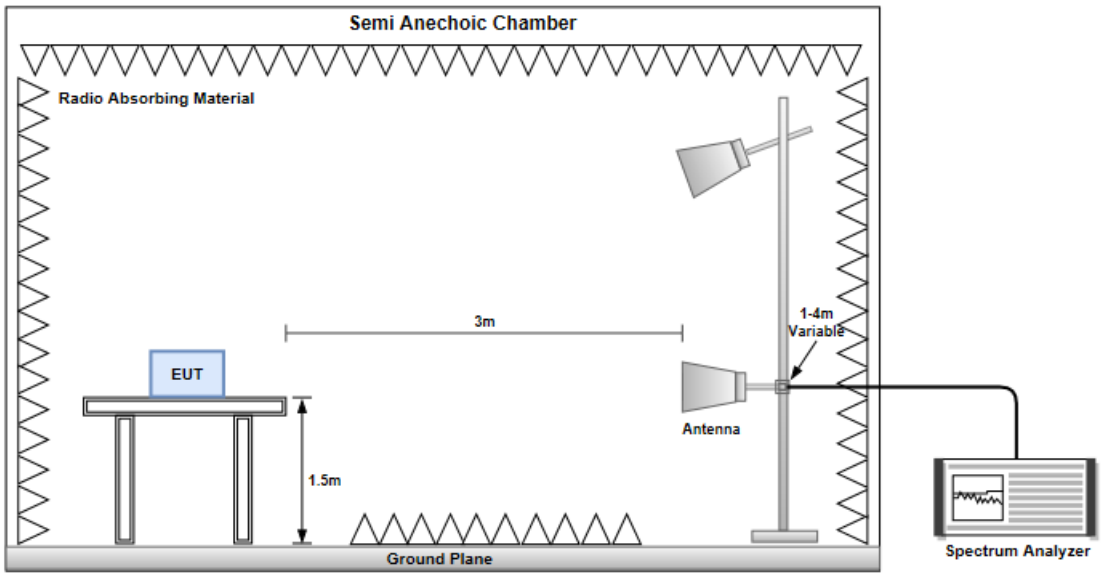
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above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

3.5.3 Test Setup

Radiated Emissions below 1 GHz

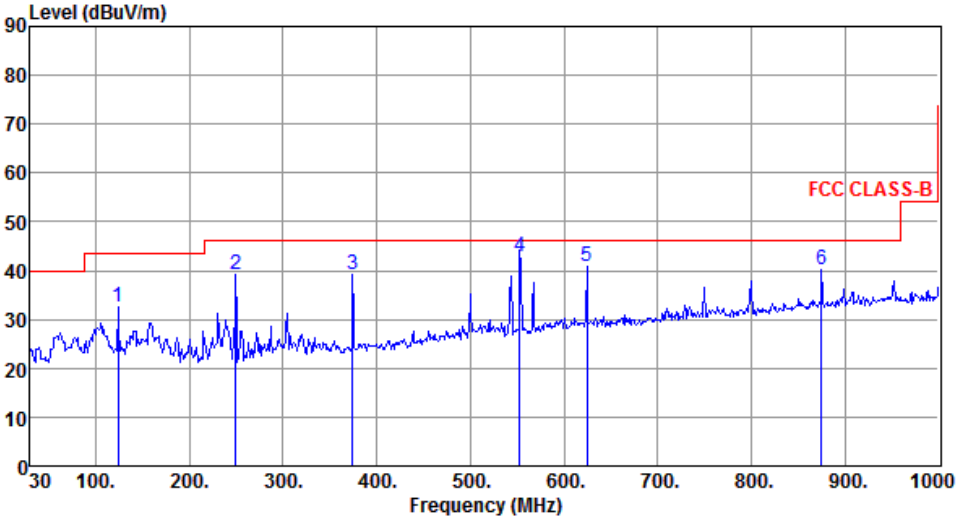


Radiated Emissions above 1 GHz



3.5.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)

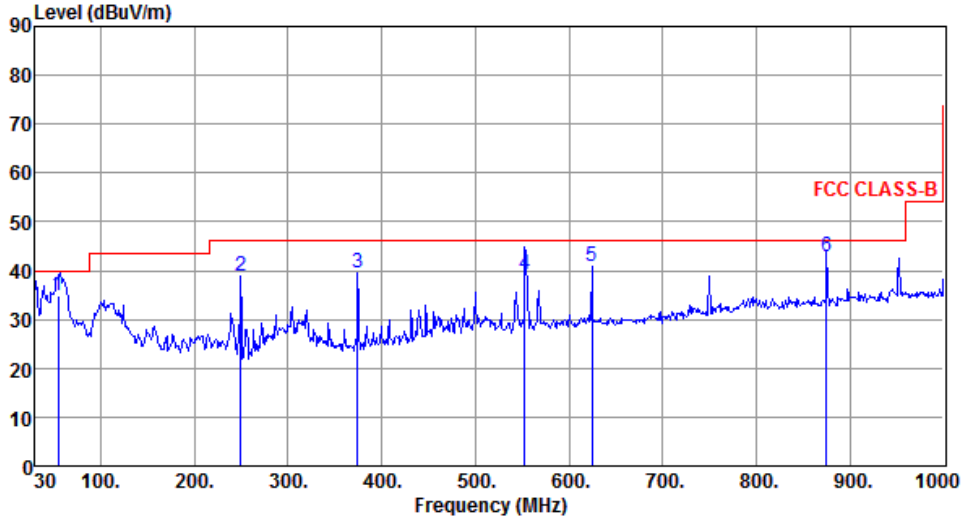
Modulation	HT20	**Test Freq. (MHz)**	2437
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	124.09	32.44	43.50	-11.06	42.15	-9.71	Peak	---	---
2	249.22	39.28	46.00	-6.72	48.77	-9.49	Peak	---	---
3	374.35	39.12	46.00	-6.88	44.86	-5.74	Peak	---	---
4	552.83	42.86	46.00	-3.14	44.38	-1.52	Peak	---	---
5	624.61	40.84	46.00	-5.16	41.04	-0.20	Peak	---	---
6	874.87	40.16	46.00	-5.84	36.29	3.87	Peak	---	---

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

Modulation	HT20	Test Freq. (MHz)	2437
Polarization	Vertical		

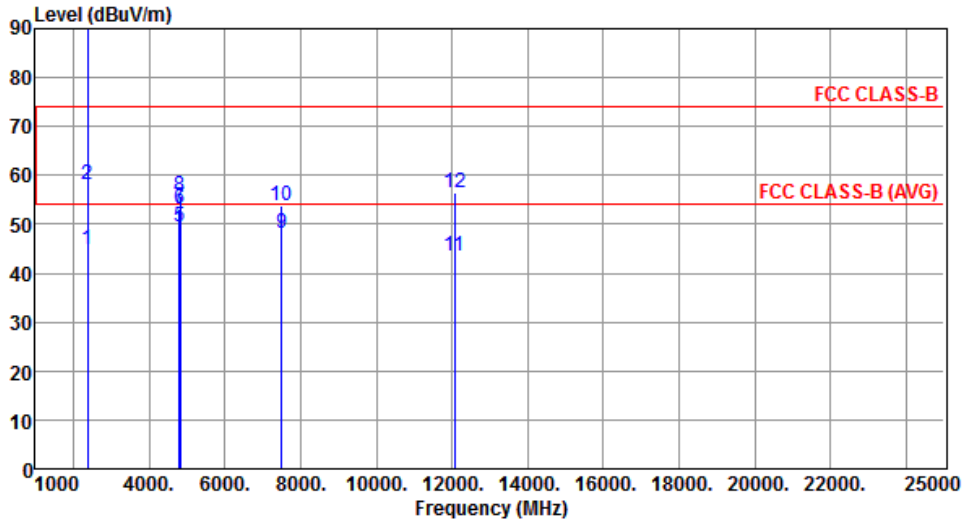


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	54.31	34.83	40.00	-5.17	43.49	-8.66	QP	100	38
2	249.22	38.90	46.00	-7.10	48.39	-9.49	Peak	---	---
3	374.35	39.58	46.00	-6.42	45.32	-5.74	Peak	---	---
4	552.83	39.32	46.00	-6.68	40.84	-1.52	QP	100	69
5	624.61	40.82	46.00	-5.18	41.02	-0.20	Peak	---	---
6	874.87	42.73	46.00	-3.27	38.86	3.87	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

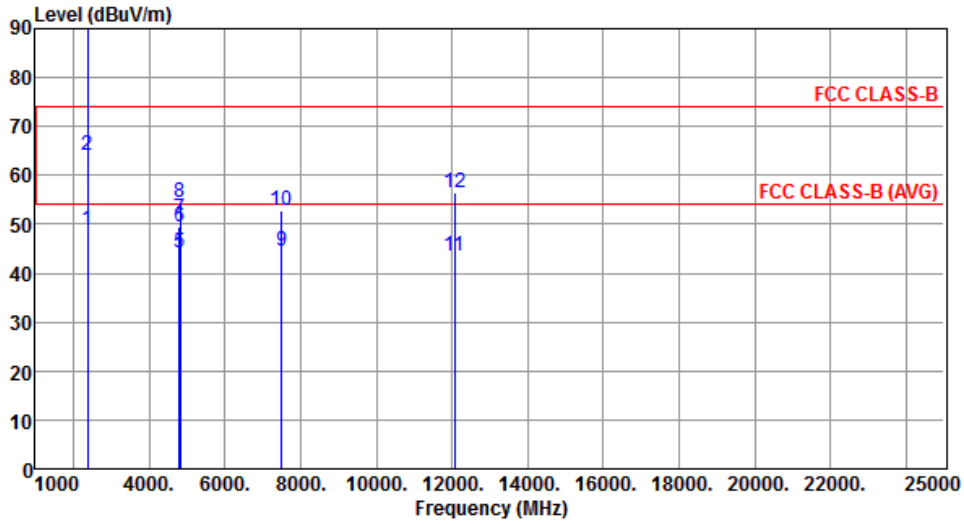
Modulation	11b	Test Freq. (MHz)	2412
Polarization	Horizontal		



		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	44.67	54.00	-9.33	47.73	-3.06	Average	282	111
2		2390.00	58.15	74.00	-15.85	61.21	-3.06	Peak	282	111
3	*	2412.00	104.23			107.20	-2.97	Average	282	111
4	*	2412.00	106.65			109.62	-2.97	Peak	282	111
5		4800.00	49.55	54.00	-4.45	45.35	4.20	Average	199	206
6		4800.00	53.03	74.00	-20.97	48.83	4.20	Peak	199	206
7		4824.00	53.48	54.00	-0.52	49.22	4.26	Average	107	142
8		4824.00	55.92	74.00	-18.08	51.66	4.26	Peak	107	142
9		7500.00	48.21	54.00	-5.79	38.68	9.53	Average	188	322
10		7500.00	53.96	74.00	-20.04	44.43	9.53	Peak	188	322
11		12060.00	43.53	54.00	-10.47	29.68	13.85	Average	111	226
12		12060.00	56.38	74.00	-17.62	42.53	13.85	Peak	111	226

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

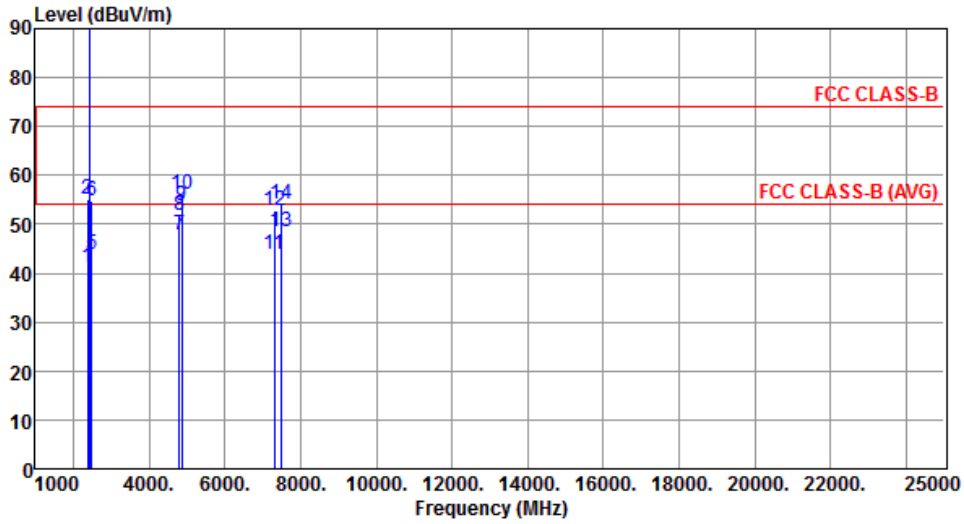
Modulation	11b	Test Freq. (MHz)	2412
Polarization	Vertical		



		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	48.80	54.00	-5.20	51.86	-3.06	Average	180	256
2		2390.00	64.16	74.00	-9.84	67.22	-3.06	Peak	180	256
3	*	2412.00	109.41			112.38	-2.97	Average	180	256
4	*	2412.00	111.96			114.93	-2.97	Peak	180	256
5		4800.00	44.33	54.00	-9.67	40.13	4.20	Average	139	266
6		4800.00	49.59	74.00	-24.41	45.39	4.20	Peak	139	266
7		4824.00	51.03	54.00	-2.97	46.77	4.26	Average	115	76
8		4824.00	54.41	74.00	-19.59	50.15	4.26	Peak	115	76
9		7500.00	44.64	54.00	-9.36	35.11	9.53	Average	222	266
10		7500.00	52.66	74.00	-21.34	43.13	9.53	Peak	222	266
11		12060.00	43.58	54.00	-10.42	29.73	13.85	Average	116	222
12		12060.00	56.53	74.00	-17.47	42.68	13.85	Peak	116	222

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

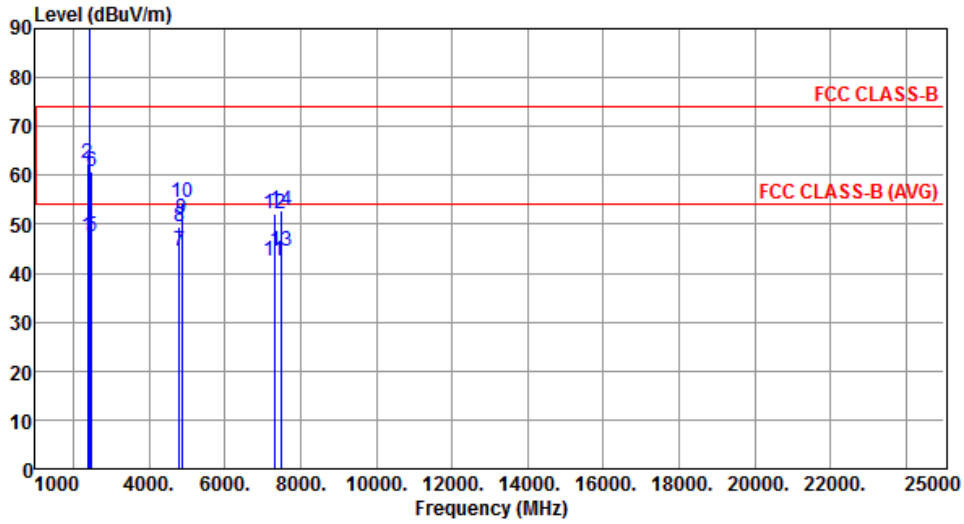
Modulation	11b	Test Freq. (MHz)	2437
Polarization	Horizontal		



		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	41.27	54.00	-12.73	44.33	-3.06	Average	305	114
2		2390.00	55.27	74.00	-18.73	58.33	-3.06	Peak	305	114
3	*	2437.00	104.67			107.55	-2.88	Average	305	114
4	*	2437.00	107.32			110.20	-2.88	Peak	305	114
5		2483.50	43.83	54.00	-10.17	46.52	-2.69	Average	305	114
6		2483.50	54.83	74.00	-19.17	57.52	-2.69	Peak	305	114
7		4800.00	47.98	54.00	-6.02	43.78	4.20	Average	222	311
8		4800.00	51.73	74.00	-22.27	47.53	4.20	Peak	222	311
9		4874.00	53.83	54.00	-0.17	49.43	4.40	Average	151	141
10		4874.00	56.23	74.00	-17.77	51.83	4.40	Peak	151	141
11		7311.00	43.86	54.00	-10.14	34.65	9.21	Average	199	132
12		7311.00	52.76	74.00	-21.24	43.55	9.21	Peak	199	132
13		7500.00	48.42	54.00	-5.58	38.89	9.53	Average	188	329
14		7500.00	54.18	74.00	-19.82	44.65	9.53	Peak	188	329

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

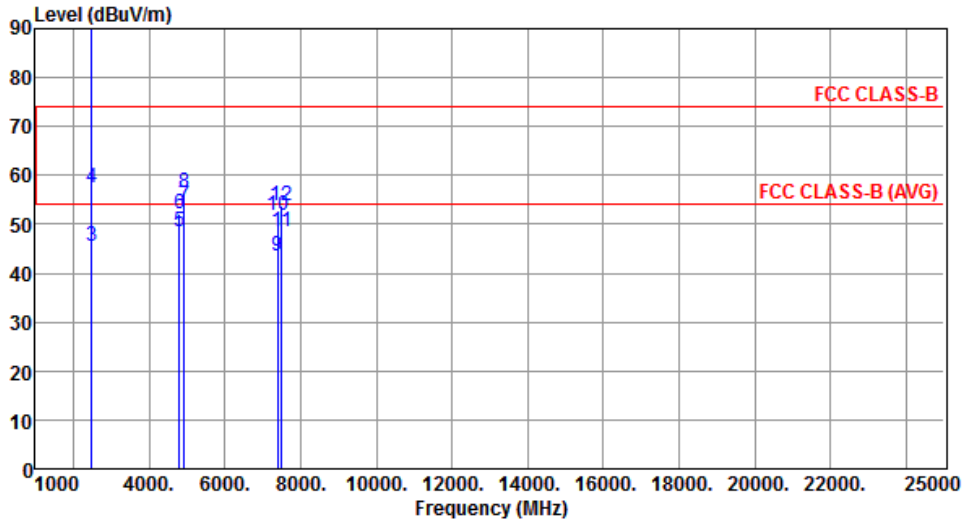
Modulation	11b	Test Freq. (MHz)	2437
Polarization	Vertical		



		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	47.56	54.00	-6.44	50.62	-3.06	Average	180	255
2		2390.00	62.49	74.00	-11.51	65.55	-3.06	Peak	180	255
3	*	2437.00	109.25			112.13	-2.88	Average	180	255
4	*	2437.00	111.89			114.77	-2.88	Peak	180	255
5		2483.50	47.49	54.00	-6.51	50.18	-2.69	Average	180	255
6		2483.50	60.78	74.00	-13.22	63.47	-2.69	Peak	180	255
7		4800.00	44.42	54.00	-9.58	40.22	4.20	Average	144	299
8		4800.00	49.33	74.00	-24.67	45.13	4.20	Peak	144	299
9		4874.00	51.04	54.00	-2.96	46.64	4.40	Average	149	80
10		4874.00	54.39	74.00	-19.61	49.99	4.40	Peak	149	80
11		7311.00	42.40	54.00	-11.60	33.19	9.21	Average	100	111
12		7311.00	52.10	74.00	-21.90	42.89	9.21	Peak	100	111
13		7500.00	44.52	54.00	-9.48	34.99	9.53	Average	221	289
14		7500.00	52.72	74.00	-21.28	43.19	9.53	Peak	221	289

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

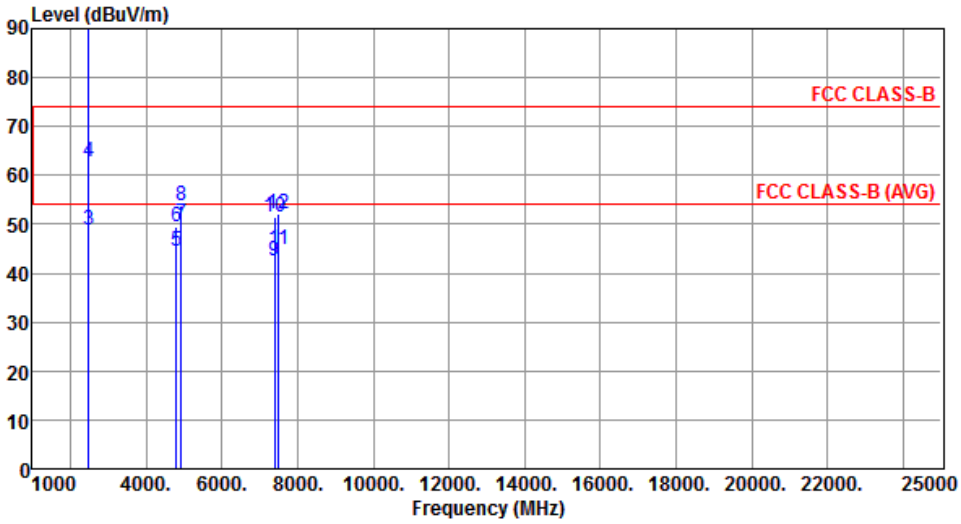
Modulation	11b	Test Freq. (MHz)	2462
Polarization	Horizontal		



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	2462.00	103.19			105.97	-2.78	Average	181	136
2	*	2462.00	105.88			108.66	-2.78	Peak	181	136
3		2483.50	45.62	54.00	-8.38	48.31	-2.69	Average	181	136
4		2483.50	57.52	74.00	-16.48	60.21	-2.69	Peak	181	136
5		4800.00	48.35	54.00	-5.65	44.15	4.20	Average	218	320
6		4800.00	52.13	74.00	-21.87	47.93	4.20	Peak	218	320
7		4924.00	53.88	54.00	-0.12	49.35	4.53	Average	144	142
8		4924.00	56.48	74.00	-17.52	51.95	4.53	Peak	144	142
9		7386.00	43.64	54.00	-10.36	34.25	9.39	Average	190	122
10		7386.00	51.91	74.00	-22.09	42.52	9.39	Peak	190	122
11		7500.00	48.36	54.00	-5.64	38.83	9.53	Average	185	322
12		7500.00	53.78	74.00	-20.22	44.25	9.53	Peak	185	322

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

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

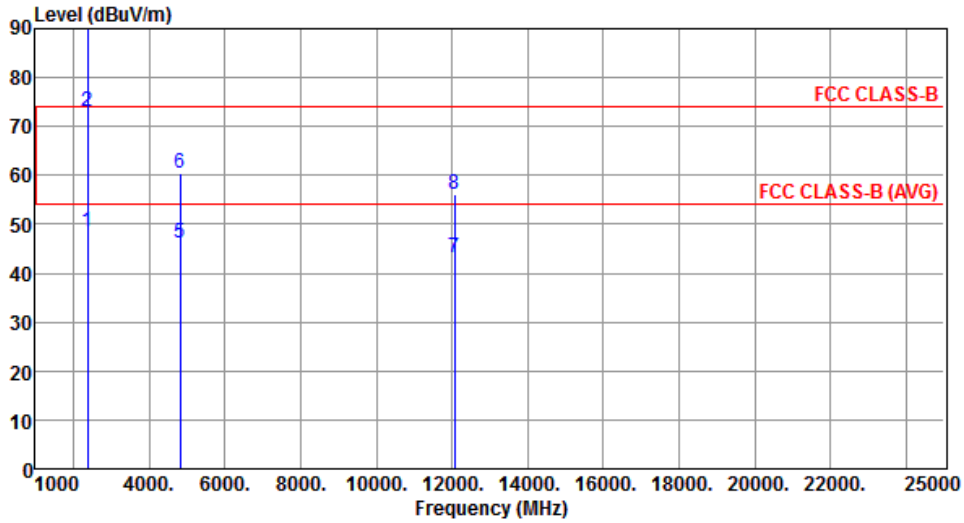


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	2462.00	108.87			111.65	-2.78	Average	197	251
2	*	2462.00	111.51			114.29	-2.78	Peak	197	251
3		2483.50	48.92	54.00	-5.08	51.61	-2.69	Average	197	251
4		2483.50	62.61	74.00	-11.39	65.30	-2.69	Peak	197	251
5		4800.00	44.36	54.00	-9.64	40.16	4.20	Average	144	298
6		4800.00	49.52	74.00	-24.48	45.32	4.20	Peak	144	298
7		4924.00	50.08	54.00	-3.92	45.55	4.53	Average	104	58
8		4924.00	53.65	74.00	-20.35	49.12	4.53	Peak	104	58
9		7386.00	42.53	54.00	-11.47	33.14	9.39	Average	100	87
10		7386.00	51.57	74.00	-22.43	42.18	9.39	Peak	100	87
11		7500.00	44.72	54.00	-9.28	35.19	9.53	Average	230	288
12		7500.00	52.06	74.00	-21.94	42.53	9.53	Peak	230	288

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

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

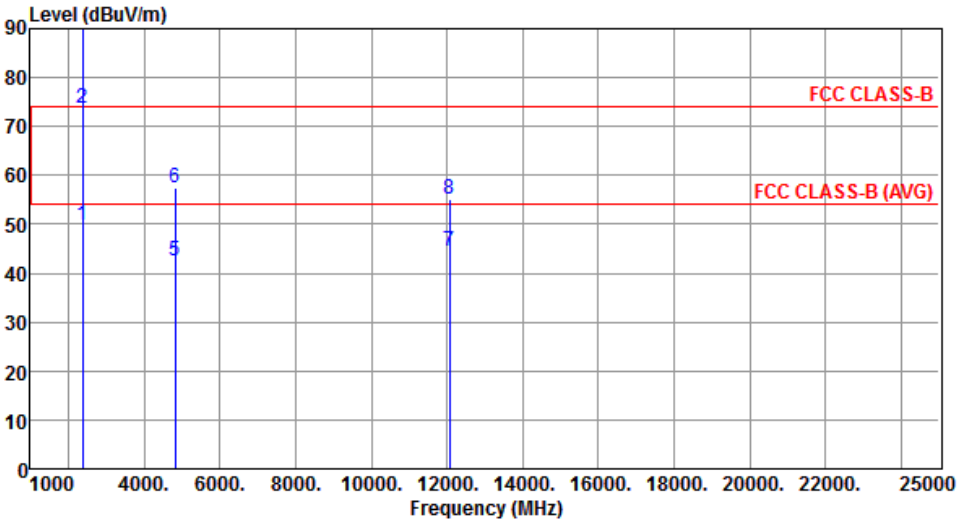
Modulation	11g	Test Freq. (MHz)	2412
Polarization	Horizontal		



		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	48.55	54.00	-5.45	51.61	-3.06	Average	175	255
2		2390.00	73.13	74.00	-0.87	76.19	-3.06	Peak	175	255
3	*	2412.00	103.32			106.29	-2.97	Average	175	255
4	*	2412.00	114.68			117.65	-2.97	Peak	175	255
5		4824.00	46.13	54.00	-7.87	41.87	4.26	Average	299	49
6		4824.00	60.45	74.00	-13.55	56.19	4.26	Peak	299	49
7		12060.00	43.32	54.00	-10.68	29.47	13.85	Average	111	221
8		12060.00	56.20	74.00	-17.80	42.35	13.85	Peak	111	221

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

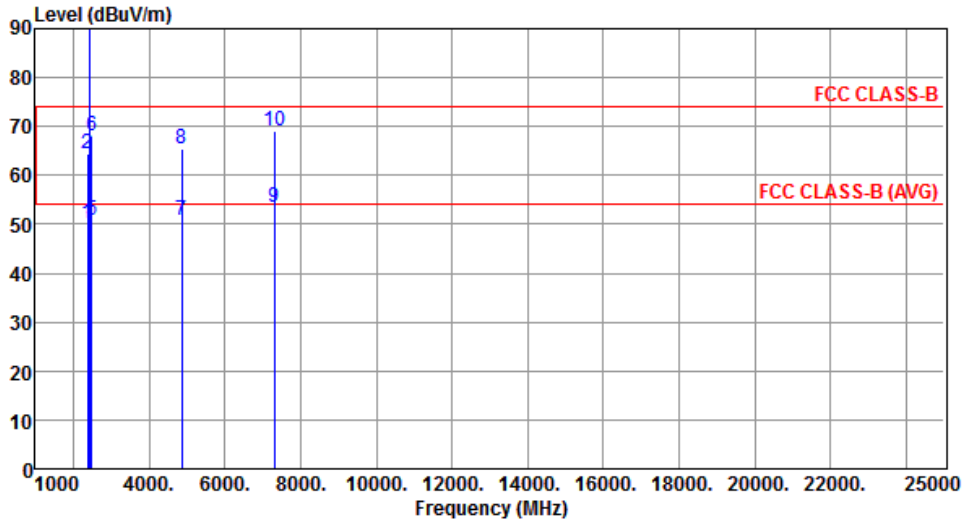
Modulation	11g	Test Freq. (MHz)	2412
Polarization	Vertical		



		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	49.76	54.00	-4.24	52.82	-3.06	Average	179	265
2		2390.00	73.80	74.00	-0.20	76.86	-3.06	Peak	179	265
3	*	2412.00	104.66			107.63	-2.97	Average	179	265
4	*	2412.00	115.55			118.52	-2.97	Peak	179	265
5		4824.00	42.51	54.00	-11.49	38.25	4.26	Average	303	35
6		4824.00	57.47	74.00	-16.53	53.21	4.26	Peak	303	35
7		12060.00	44.50	54.00	-9.50	30.65	13.85	Average	221	199
8		12060.00	55.24	74.00	-18.76	41.39	13.85	Peak	221	199

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

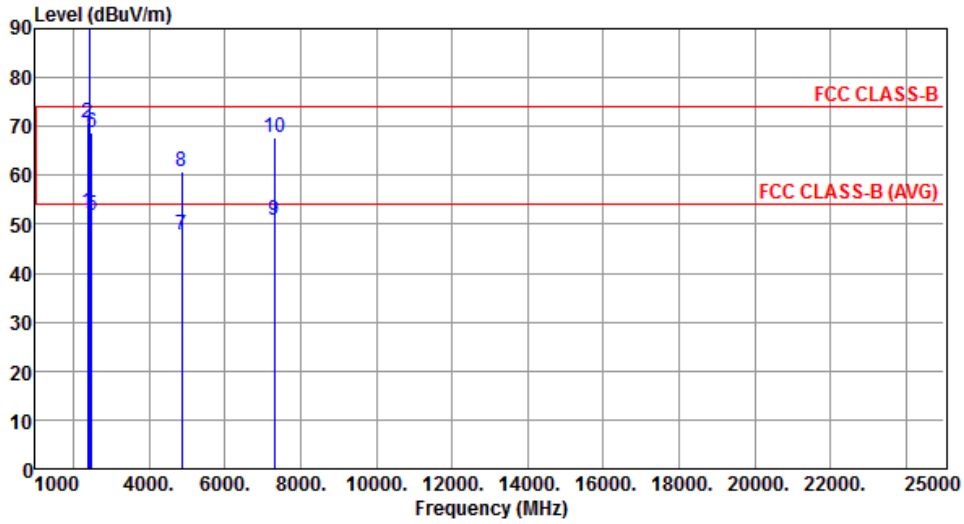
Modulation	11g	Test Freq. (MHz)	2437
Polarization	Horizontal		



		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	50.06	54.00	-3.94	53.12	-3.06	Average	172	255
2		2390.00	64.47	74.00	-9.53	67.53	-3.06	Peak	172	255
3	*	2437.00	108.03			110.91	-2.88	Average	172	255
4	*	2437.00	119.44			122.32	-2.88	Peak	172	255
5		2483.50	50.79	54.00	-3.21	53.48	-2.69	Average	172	255
6		2483.50	67.95	74.00	-6.05	70.64	-2.69	Peak	172	255
7		4874.00	50.95	54.00	-3.05	46.55	4.40	Average	321	35
8		4874.00	65.27	74.00	-8.73	60.87	4.40	Peak	321	35
9		7311.00	53.56	54.00	-0.44	44.35	9.21	Average	178	120
10		7311.00	69.07	74.00	-4.93	59.86	9.21	Peak	178	120

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

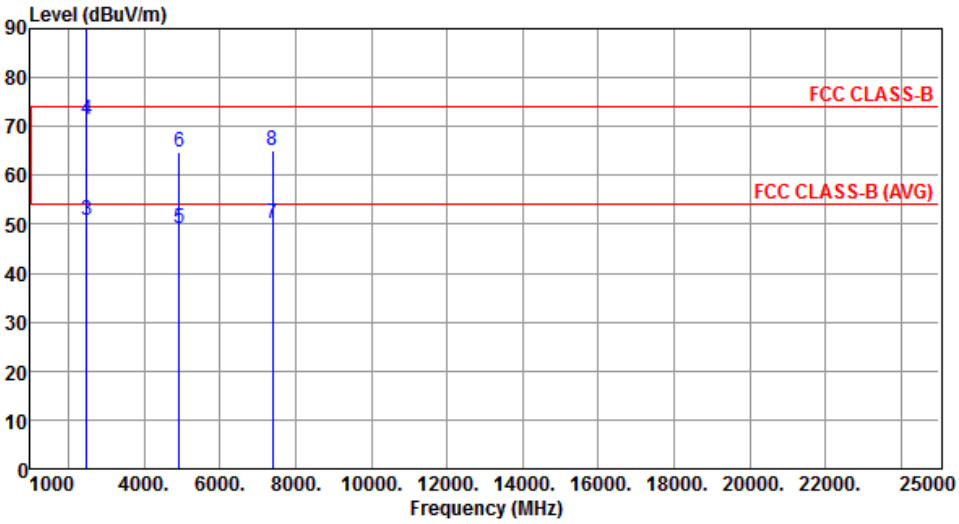
Modulation	11g	Test Freq. (MHz)	2437
Polarization	Vertical		



		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	52.43	54.00	-1.57	55.49	-3.06	Average	177	271
2		2390.00	70.73	74.00	-3.27	73.79	-3.06	Peak	177	271
3	*	2437.00	110.55			113.43	-2.88	Average	175	283
4	*	2437.00	121.45			124.33	-2.88	Peak	175	283
5		2483.50	51.79	54.00	-2.21	54.48	-2.69	Average	175	283
6		2483.50	68.63	74.00	-5.37	71.32	-2.69	Peak	175	283
7		4874.00	47.93	54.00	-6.07	43.53	4.40	Average	299	266
8		4874.00	60.93	74.00	-13.07	56.53	4.40	Peak	299	266
9		7311.00	50.74	54.00	-3.26	41.53	9.21	Average	196	120
10		7311.00	67.87	74.00	-6.13	58.66	9.21	Peak	196	120

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

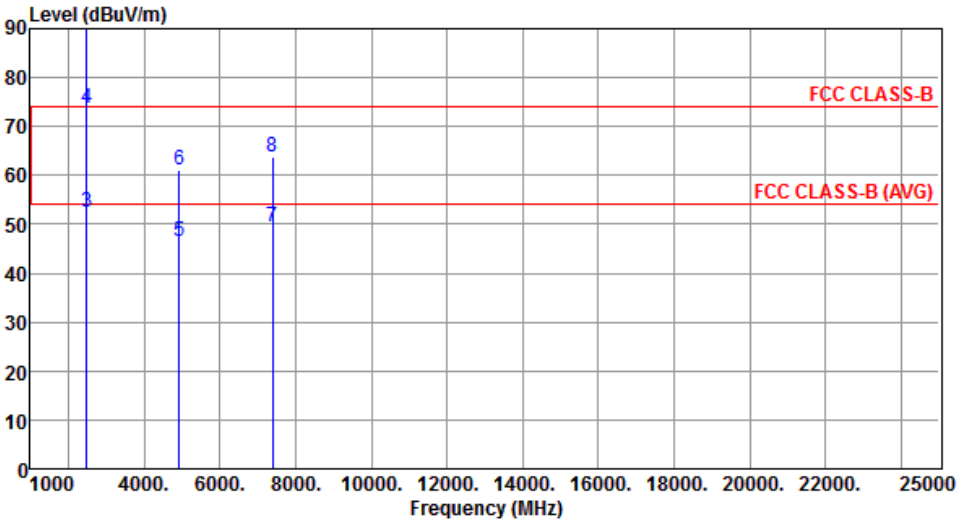
Modulation	11g	Test Freq. (MHz)	2462
Polarization	Horizontal		



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	2462.00	103.75			106.53	-2.78	Average	180	248
2	*	2462.00	115.38			118.16	-2.78	Peak	180	248
3		2483.50	50.85	54.00	-3.15	53.54	-2.69	Average	180	248
4		2483.50	71.41	74.00	-2.59	74.10	-2.69	Peak	180	248
5		4924.00	49.00	54.00	-5.00	44.47	4.53	Average	295	52
6		4924.00	64.85	74.00	-9.15	60.32	4.53	Peak	295	52
7		7386.00	50.21	54.00	-3.79	40.82	9.39	Average	199	14
8		7386.00	64.93	74.00	-9.07	55.54	9.39	Peak	199	14

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

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

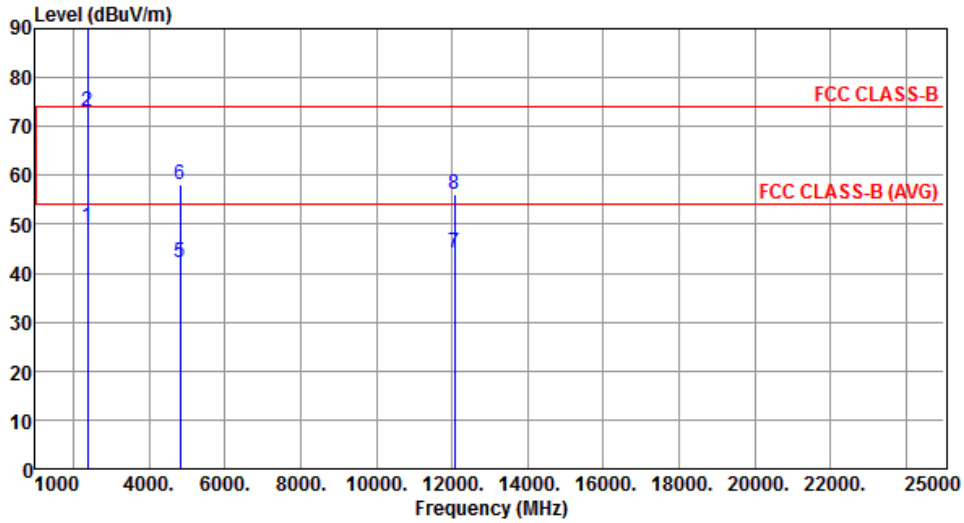


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	2462.00	106.24			109.02	-2.78	Average	186	276
2	*	2462.00	117.48			120.26	-2.78	Peak	186	276
3		2483.50	52.51	54.00	-1.49	55.20	-2.69	Average	186	275
4		2483.50	73.59	74.00	-0.41	76.28	-2.69	Peak	186	275
5		4924.00	46.64	54.00	-7.36	42.11	4.53	Average	311	59
6		4924.00	61.12	74.00	-12.88	56.59	4.53	Peak	311	59
7		7386.00	49.51	54.00	-4.49	40.12	9.39	Average	200	135
8		7386.00	63.70	74.00	-10.30	54.31	9.39	Peak	200	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).
Note 3:"*" is Peak / Average value of fundamental frequency

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

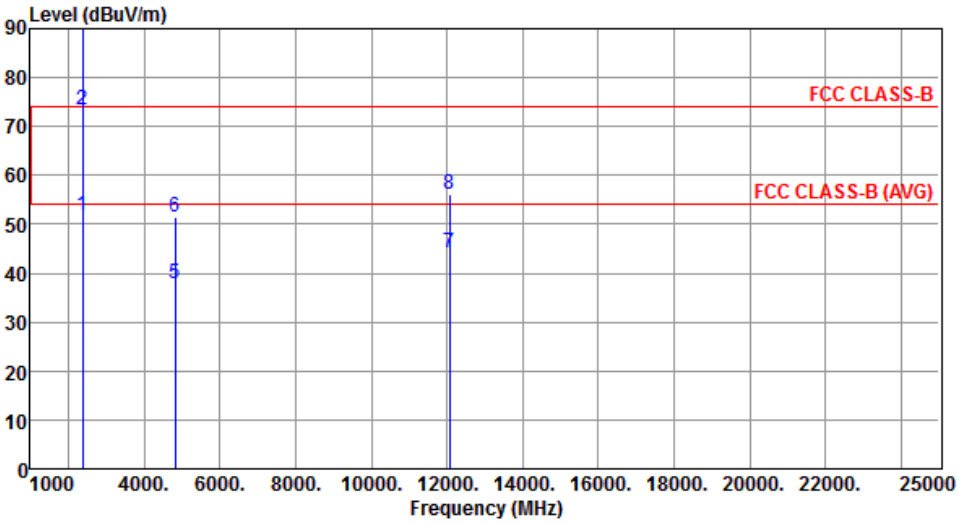
Modulation	HT20	Test Freq. (MHz)	2412
Polarization	Horizontal		



		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	49.49	54.00	-4.51	52.55	-3.06	Average	177	255
2		2390.00	73.16	74.00	-0.84	76.22	-3.06	Peak	177	255
3	*	2412.00	101.91			104.88	-2.97	Average	177	255
4	*	2412.00	113.86			116.83	-2.97	Peak	177	255
5		4824.00	42.32	54.00	-11.68	38.06	4.26	Average	299	47
6		4824.00	58.25	74.00	-15.75	53.99	4.26	Peak	299	47
7		12060.00	44.20	54.00	-9.80	30.35	13.85	Average	266	165
8		12060.00	56.19	74.00	-17.81	42.34	13.85	Peak	266	165

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

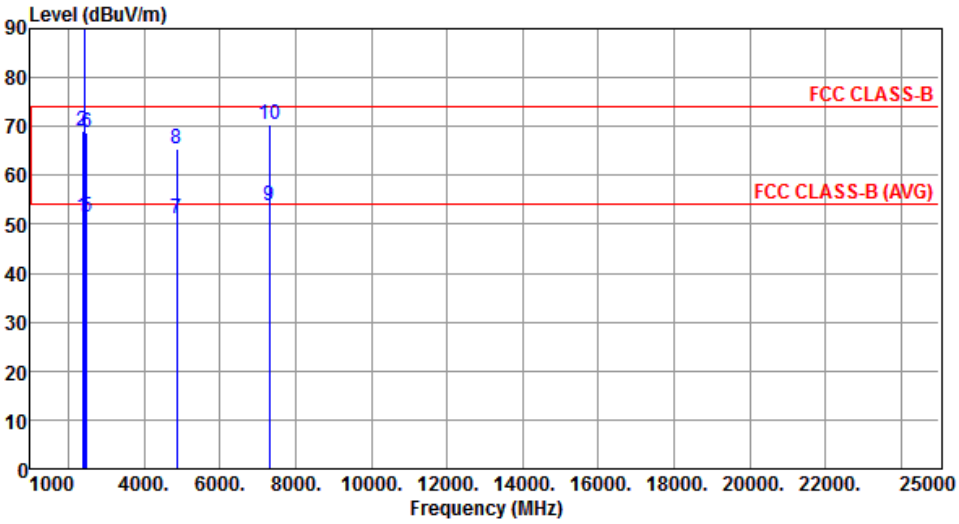
Modulation	HT20	Test Freq. (MHz)	2412
Polarization	Vertical		



		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	51.65	54.00	-2.35	54.71	-3.06	Average	210	283
2		2390.00	73.53	74.00	-0.47	76.59	-3.06	Peak	210	283
3	*	2412.00	103.62			106.59	-2.97	Average	210	283
4	*	2412.00	114.95			117.92	-2.97	Peak	210	283
5		4824.00	37.87	54.00	-16.13	33.61	4.26	Average	222	68
6		4824.00	51.57	74.00	-22.43	47.31	4.26	Peak	222	68
7		12060.00	44.04	54.00	-9.96	30.19	13.85	Average	211	183
8		12060.00	56.14	74.00	-17.86	42.29	13.85	Peak	211	183

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

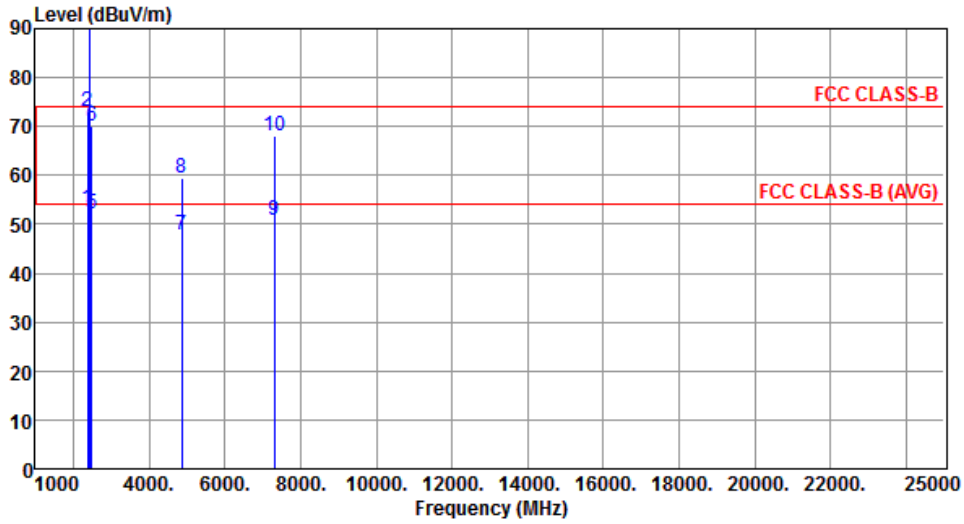
Modulation	HT20	Test Freq. (MHz)	2437
Polarization	Horizontal		



		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	51.49	54.00	-2.51	54.55	-3.06	Average	173	256
2		2390.00	69.05	74.00	-4.95	72.11	-3.06	Peak	173	256
3	*	2437.00	107.86			110.74	-2.88	Average	173	256
4	*	2437.00	119.71			122.59	-2.88	Peak	173	256
5		2483.50	51.33	54.00	-2.67	54.02	-2.69	Average	173	256
6		2483.50	68.65	74.00	-5.35	71.34	-2.69	Peak	173	256
7		4874.00	51.02	54.00	-2.98	46.62	4.40	Average	311	46
8		4874.00	65.33	74.00	-8.67	60.93	4.40	Peak	311	46
9		7311.00	53.88	54.00	-0.12	44.67	9.21	Average	175	120
10		7311.00	70.49	74.00	-3.51	61.28	9.21	Peak	175	120

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

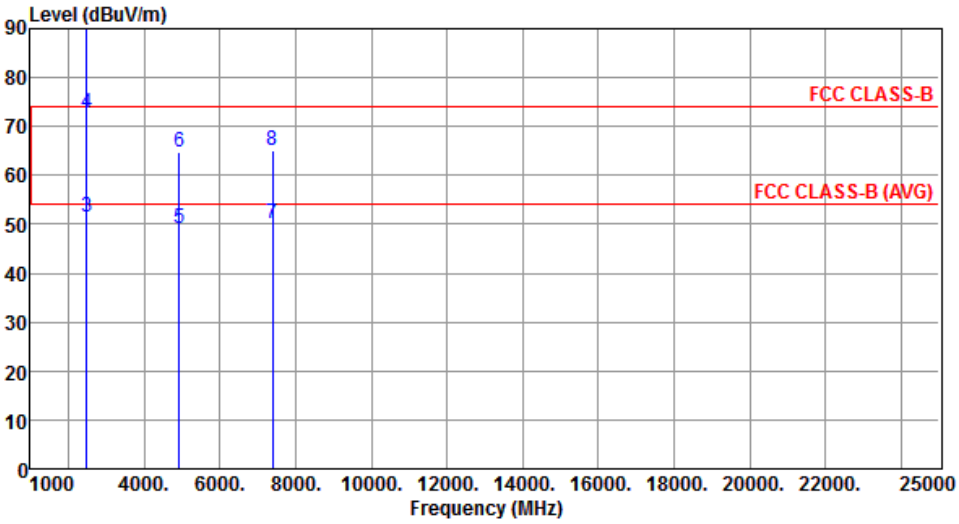
Modulation	HT20	Test Freq. (MHz)	2437
Polarization	Vertical		



		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	53.10	54.00	-0.90	56.16	-3.06	Average	181	276
2		2390.00	72.93	74.00	-1.07	75.99	-3.06	Peak	181	276
3	*	2437.00	110.71			113.59	-2.88	Average	181	276
4	*	2437.00	121.71			124.59	-2.88	Peak	181	276
5		2483.50	52.07	54.00	-1.93	54.76	-2.69	Average	181	276
6		2483.50	70.09	74.00	-3.91	72.78	-2.69	Peak	181	276
7		4874.00	47.97	54.00	-6.03	43.57	4.40	Average	303	256
8		4874.00	59.29	74.00	-14.71	54.89	4.40	Peak	303	256
9		7311.00	50.80	54.00	-3.20	41.59	9.21	Average	205	122
10		7311.00	68.08	74.00	-5.92	58.87	9.21	Peak	205	122

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

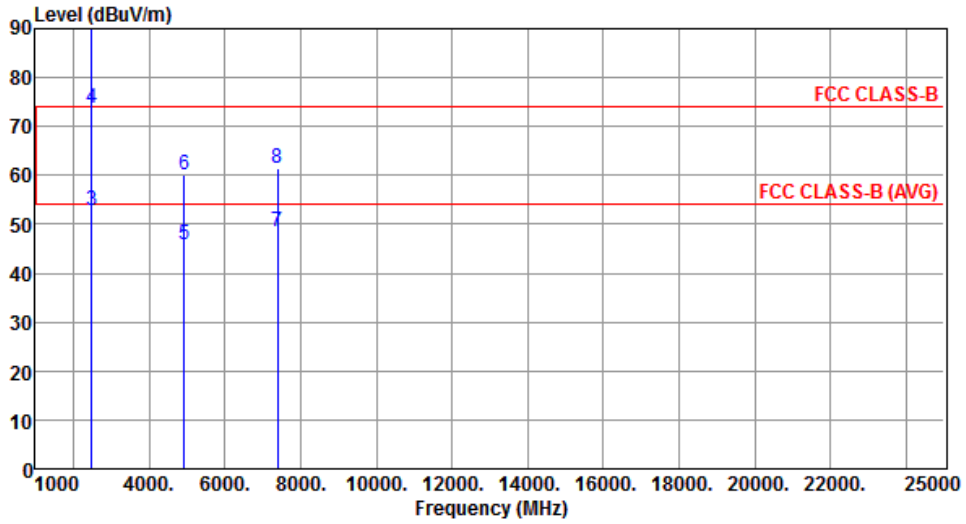
Modulation	HT20	Test Freq. (MHz)	2462
Polarization	Horizontal		



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	2462.00	101.87			104.65	-2.78	Average	181	255
2	*	2462.00	113.75			116.53	-2.78	Peak	181	255
3		2483.50	51.62	54.00	-2.38	54.31	-2.69	Average	181	255
4		2483.50	72.62	74.00	-1.38	75.31	-2.69	Peak	181	255
5		4924.00	49.00	54.00	-5.00	44.47	4.53	Average	295	52
6		4924.00	64.85	74.00	-9.15	60.32	4.53	Peak	295	52
7		7386.00	50.21	54.00	-3.79	40.82	9.39	Average	199	14
8		7386.00	64.93	74.00	-9.07	55.54	9.39	Peak	199	14

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

Modulation	HT20	Test Freq. (MHz)	2462
Polarization	Vertical		

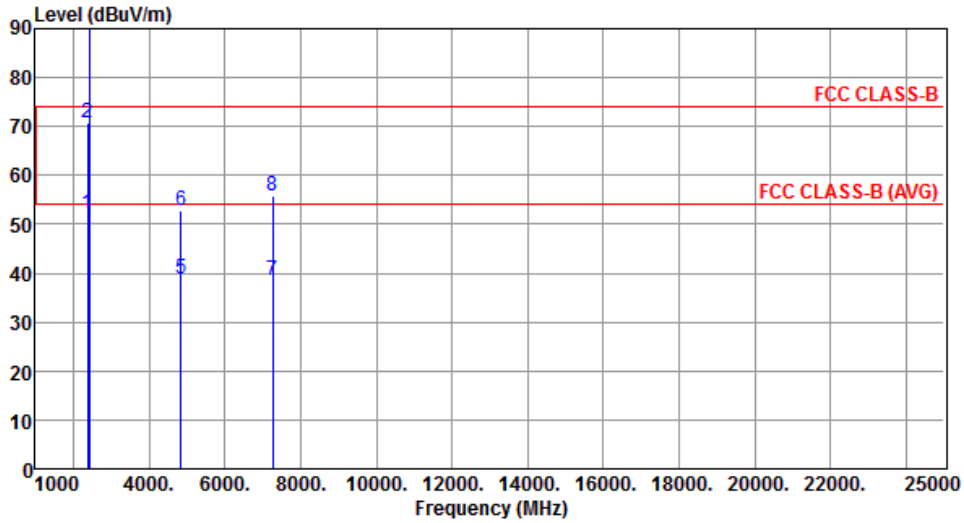


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	2462.00	104.11			106.89	-2.78	Average	182	276
2	*	2462.00	116.75			119.53	-2.78	Peak	182	276
3		2483.50	52.83	54.00	-1.17	55.52	-2.69	Average	182	276
4		2483.50	73.68	74.00	-0.32	76.37	-2.69	Peak	182	276
5		4924.00	45.88	54.00	-8.12	41.35	4.53	Average	333	59
6		4924.00	60.15	74.00	-13.85	55.62	4.53	Peak	333	59
7		7386.00	48.64	54.00	-5.36	39.25	9.39	Average	222	139
8		7386.00	61.55	74.00	-12.45	52.16	9.39	Peak	222	139

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

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

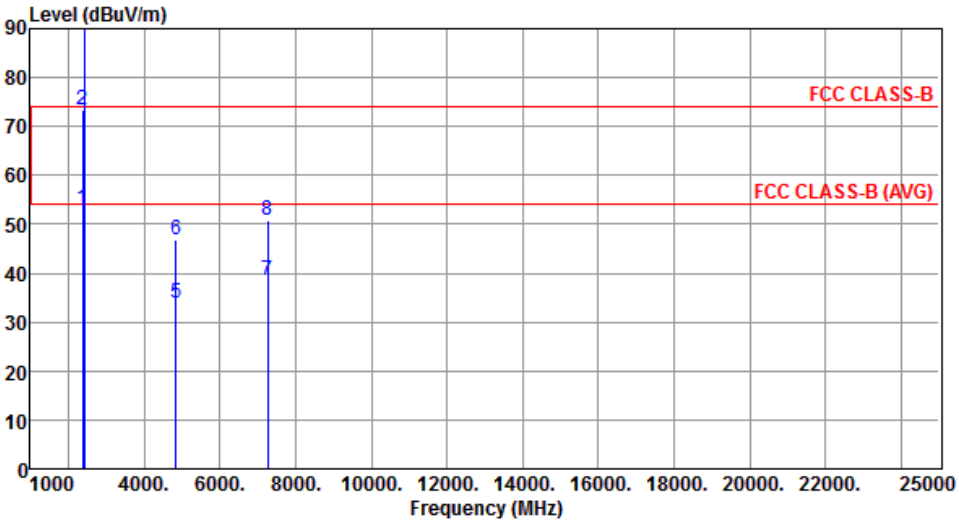
Modulation	HT40	Test Freq. (MHz)	2422
Polarization	Horizontal		



		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	52.13	54.00	-1.87	55.19	-3.06	Average	171	254
2		2390.00	70.57	74.00	-3.43	73.63	-3.06	Peak	171	254
3	*	2422.00	96.93			99.86	-2.93	Average	171	254
4	*	2422.00	110.60			113.53	-2.93	Peak	171	254
5		4844.00	38.94	54.00	-15.06	34.62	4.32	Average	111	153
6		4844.00	52.71	74.00	-21.29	48.39	4.32	Peak	111	153
7		7266.00	38.50	54.00	-15.50	29.39	9.11	Average	111	143
8		7266.00	55.89	74.00	-18.11	46.78	9.11	Peak	111	143

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

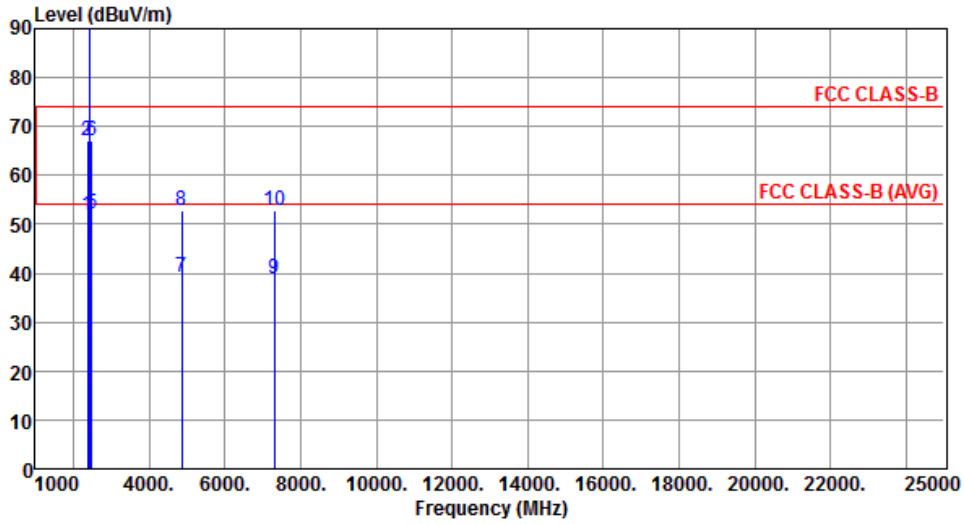
Modulation	HT40	Test Freq. (MHz)	2422
Polarization	Vertical		



		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	53.26	54.00	-0.74	56.32	-3.06	Average	211	281
2		2390.00	73.49	74.00	-0.51	76.55	-3.06	Peak	211	281
3	*	2422.00	99.40			102.33	-2.93	Average	211	281
4	*	2422.00	111.64			114.57	-2.93	Peak	211	281
5		4844.00	33.75	54.00	-20.25	29.43	4.32	Average	111	183
6		4844.00	46.97	74.00	-27.03	42.65	4.32	Peak	111	183
7		7266.00	38.43	54.00	-15.57	29.32	9.11	Average	123	225
8		7266.00	50.97	74.00	-23.03	41.86	9.11	Peak	123	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).
Note 3:"*" is Peak / Average value of fundamental frequency

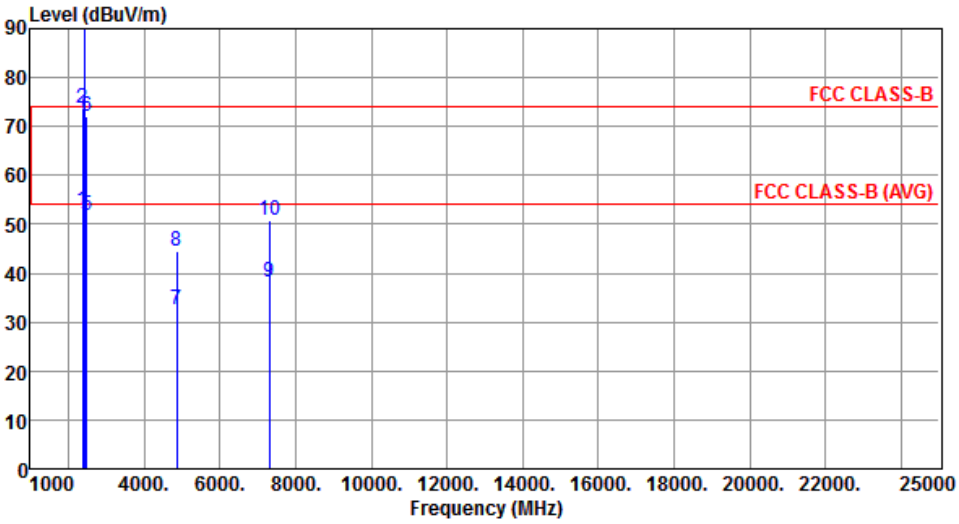
Modulation	HT40	Test Freq. (MHz)	2437
Polarization	Horizontal		



		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	51.93	54.00	-2.07	54.99	-3.06	Average	188	251
2		2390.00	67.13	74.00	-6.87	70.19	-3.06	Peak	188	251
3	*	2437.00	100.23			103.11	-2.88	Average	188	251
4	*	2437.00	112.71			115.59	-2.88	Peak	188	251
5		2483.50	52.17	54.00	-1.83	54.86	-2.69	Average	188	251
6		2483.50	67.04	74.00	-6.96	69.73	-2.69	Peak	188	251
7		4874.00	39.29	54.00	-14.71	34.89	4.40	Average	125	133
8		4874.00	52.96	74.00	-21.04	48.56	4.40	Peak	125	133
9		7311.00	38.99	54.00	-15.01	29.78	9.21	Average	166	127
10		7311.00	52.79	74.00	-21.21	43.58	9.21	Peak	166	127

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

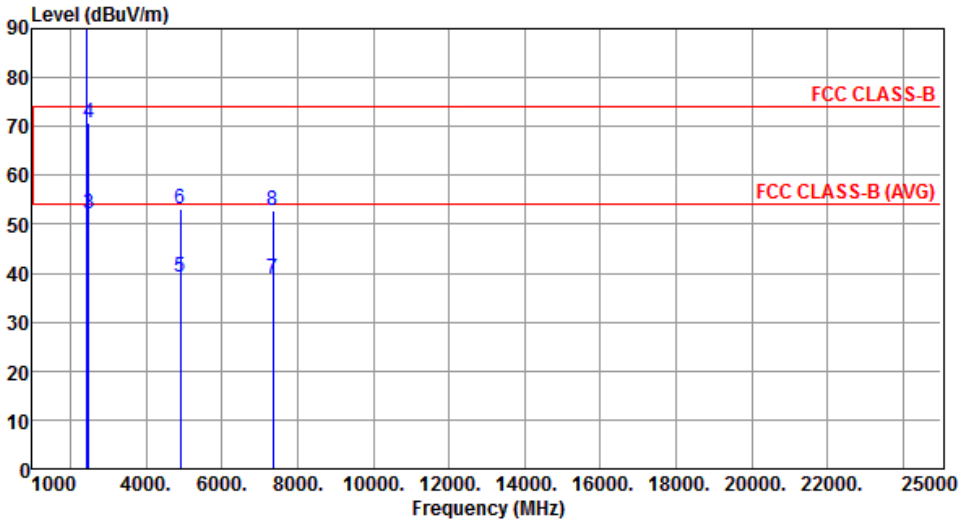
Modulation	HT40	Test Freq. (MHz)	2437
Polarization	Vertical		



		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	52.76	54.00	-1.24	55.82	-3.06	Average	203	272
2		2390.00	73.62	74.00	-0.38	76.68	-3.06	Peak	203	272
3	*	2437.00	102.61			105.49	-2.88	Average	203	272
4	*	2437.00	114.27			117.15	-2.88	Peak	203	272
5		2483.50	51.82	54.00	-2.18	54.51	-2.69	Average	203	272
6		2483.50	71.92	74.00	-2.08	74.61	-2.69	Peak	203	272
7		4874.00	32.59	54.00	-21.41	28.19	4.40	Average	111	69
8		4874.00	44.58	74.00	-29.42	40.18	4.40	Peak	111	69
9		7311.00	38.19	54.00	-15.81	28.98	9.21	Average	111	135
10		7311.00	50.86	74.00	-23.14	41.65	9.21	Peak	111	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).
Note 3:"*" is Peak / Average value of fundamental frequency

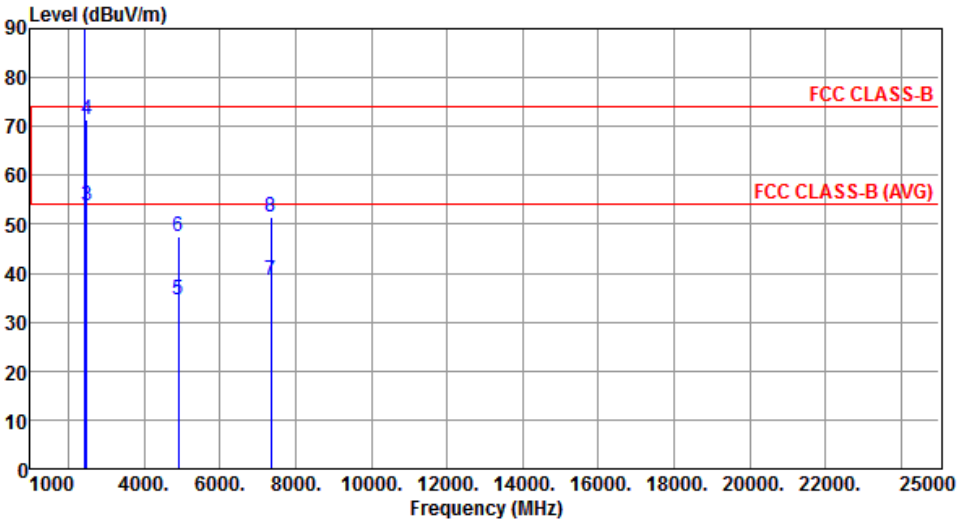
Modulation	HT40	Test Freq. (MHz)	2452
Polarization	Horizontal		



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	2452.00	97.90			100.71	-2.81	Average	168	254
2	*	2452.00	110.79			113.60	-2.81	Peak	168	254
3		2483.50	52.18	54.00	-1.82	54.87	-2.69	Average	168	254
4		2483.50	70.85	74.00	-3.15	73.54	-2.69	Peak	168	254
5		4904.00	39.34	54.00	-14.66	34.86	4.48	Average	111	135
6		4904.00	53.21	74.00	-20.79	48.73	4.48	Peak	111	135
7		7356.00	39.00	54.00	-15.00	29.69	9.31	Average	182	123
8		7356.00	52.97	74.00	-21.03	43.66	9.31	Peak	182	123

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

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	*	2452.00	100.33			103.14	-2.81	Average	195	273
2	*	2452.00	112.26			115.07	-2.81	Peak	195	273
3		2483.50	53.68	54.00	-0.32	56.37	-2.69	Average	195	273
4		2483.50	71.51	74.00	-2.49	74.20	-2.69	Peak	195	273
5		4904.00	34.65	54.00	-19.35	30.17	4.48	Average	122	58
6		4904.00	47.36	74.00	-26.64	42.88	4.48	Peak	122	58
7		7356.00	38.49	54.00	-15.51	29.18	9.31	Average	111	108
8		7356.00	51.64	74.00	-22.36	42.33	9.31	Peak	111	108

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

3.6 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 30 dB relative to the maximum in-band peak PSD level in 100 kHz

3.6.2 Test Procedures

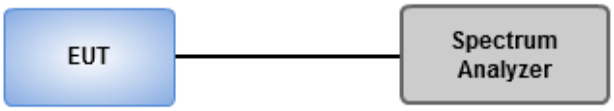
Reference level measurement

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

Emission level measurement

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

3.6.3 Test Setup



3.6.4 Test Result of Emissions in non-restricted frequency bands

This test item is performed on each TX output individually without summing or adding 10 log(N_{ANT}) since measurements are made relative to the in-band emissions on the individual outputs. Only worst test result of each operating mode is presented.

3.6.5 Unwanted Emissions into Non-Restricted Frequency Bands

Unwanted Emissions into Non-Restricted Frequency Bands								
Modulation		11b			**N_{TX}**	1		
Test Ch. Freq. (MHz)	**In-band PSD [i] (dBuV/100kHz)**	**Non-restricted Band (MHz)**	**NBE Freq. (MHz)**	**Out-band PSD [o] (dBuV/100kHz)**	**[i] – [o] (dB)**	**Limit (dB)**	**Level Type**	**Pol. note 1**
2412	110.18	30-1000	374.26	42.17	68.01	30	PK	V
		1000-2390	2388.61	49.92	60.26	30	PK	V
		2390-2400	2399.99	60.43	49.75	30	PK	V
		2500-18000	4825.00	50.31	59.87	30	PK	V
		18000-25000	24426.00	49.21	60.97	30	PK	V
2437	109.34	30-1000	374.35	41.92	67.42	30	PK	V
		1000-2390	2388.61	49.83	59.51	30	PK	V
		2390-2400	2394.11	52.17	57.17	30	PK	V
		2500-18000	4871.50	50.40	58.94	30	PK	V
		18000-25000	24412.00	48.99	60.35	30	PK	V
2462	107.08	30-1000	374.35	41.92	65.16	30	PK	V
		1000-2390	2387.22	47.49	59.59	30	PK	V
		2390-2400	2397.62	42.73	64.35	30	PK	V
		2500-18000	2515.50	49.43	57.65	30	PK	V
		18000-25000	24636.00	49.52	57.56	30	PK	V

Note: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical).

Unwanted Emissions into Non-Restricted Frequency Bands								
Modulation		11g			**N_{TX}**	2		
Test Ch. Freq. (MHz)	**In-band PSD [i] (dBuV/100kHz)**	**Non-restricted Band (MHz)**	**NBE Freq. (MHz)**	**Out-band PSD [o] (dBuV/100kHz)**	**[i] – [o] (dB)**	**Limit (dB)**	**Level Type**	**Pol. note 1**
2412	109.41	30-1000	249.37	42.26	67.15	30	PK	V
		1000-2390	2387.22	58.59	50.82	30	PK	V
		2390-2400	2398.25	71.23	38.18	30	PK	V
		2500-18000	2500.00	48.24	61.17	30	PK	V
		18000-25000	23873.00	50.13	59.28	30	PK	V
2437	114.21	30-1000	249.22	42.06	72.15	30	PK	V
		1000-2390	2388.61	53.89	60.32	30	PK	V
		2390-2400	2397.34	62.75	51.46	30	PK	V
		2500-18000	17984.50	52.74	61.47	30	PK	V
		18000-25000	24209.00	49.15	65.06	30	PK	V
2462	109.36	30-1000	249.63	42.28	67.08	30	PK	V
		1000-2390	2385.83	51.40	57.96	30	PK	V
		2390-2400	2392.35	52.35	57.01	30	PK	V
		2500-18000	17922.50	52.28	57.08	30	PK	V
		18000-25000	24678.00	51.18	58.18	30	PK	V

Note: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical).

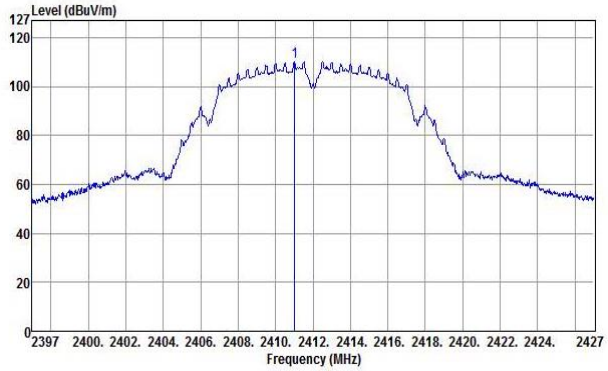
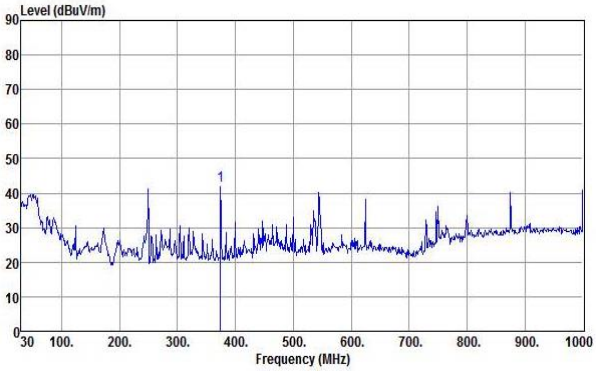
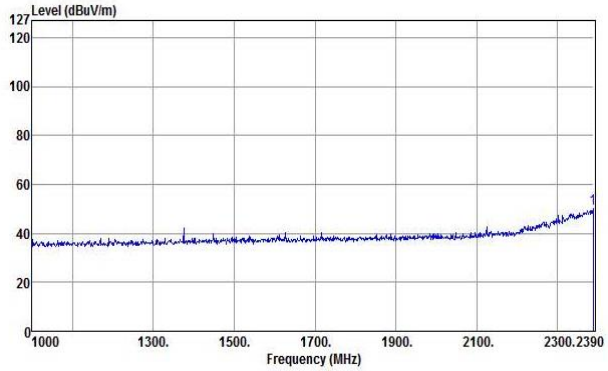
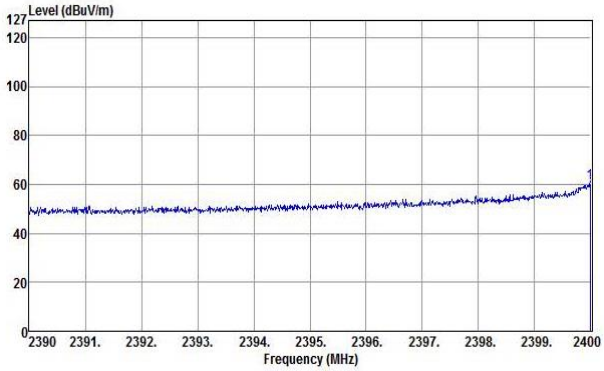
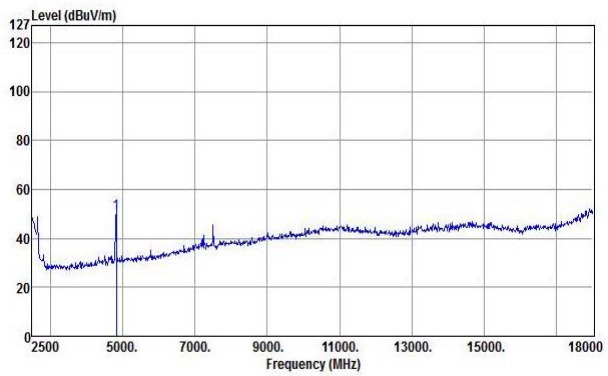
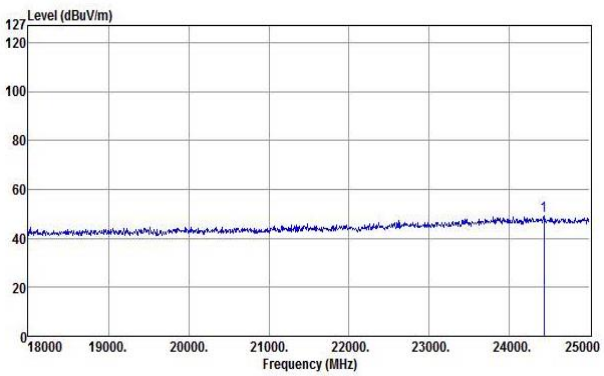
Unwanted Emissions into Non-Restricted Frequency Bands								
Modulation		HT20			**N_{TX}**	2		
Test Ch. Freq. (MHz)	**In-band PSD [i] (dBuV/100kHz)**	**Non-restricted Band (MHz)**	**NBE Freq. (MHz)**	**Out-band PSD [o] (dBuV/100kHz)**	**[i] – [o] (dB)**	**Limit (dB)**	**Level Type**	**Pol. note 1**
2412	109.52	30-1000	374.35	41.37	68.15	30	PK	V
		1000-2390	2390.00	60.36	49.16	30	PK	V
		2390-2400	2399.47	77.00	32.52	30	PK	V
		2500-18000	17938.00	52.66	56.86	30	PK	V
		18000-25000	24076.00	50.44	59.08	30	PK	V
2437	115.37	30-1000	374.38	41.58	73.79	30	PK	V
		1000-2390	2388.61	56.99	58.38	30	PK	V
		2390-2400	2399.43	63.71	51.66	30	PK	V
		2500-18000	17938.00	52.37	63.00	30	PK	V
		18000-25000	23985.00	50.51	64.86	30	PK	V
2462	109.66	30-1000	374.66	41.86	67.80	30	PK	V
		1000-2390	2384.44	50.19	59.47	30	PK	V
		2390-2400	2397.64	51.50	58.16	30	PK	V
		2500-18000	17938.00	52.03	57.63	30	PK	V
		18000-25000	24230.00	50.35	59.31	30	PK	V

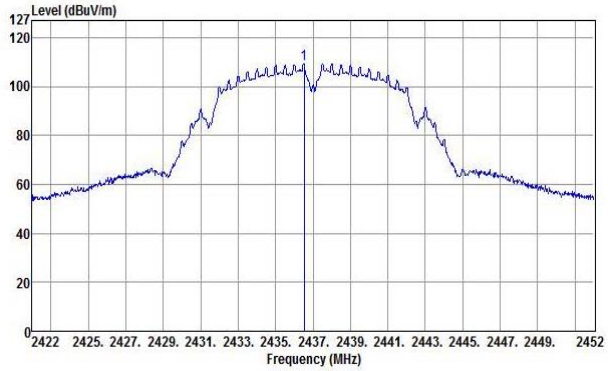
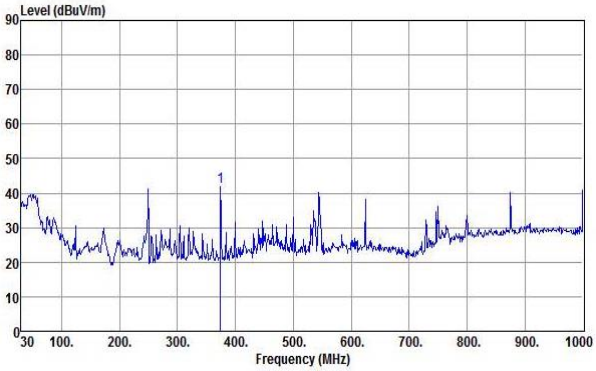
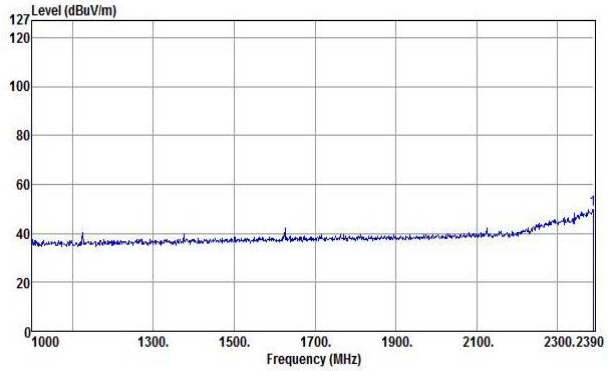
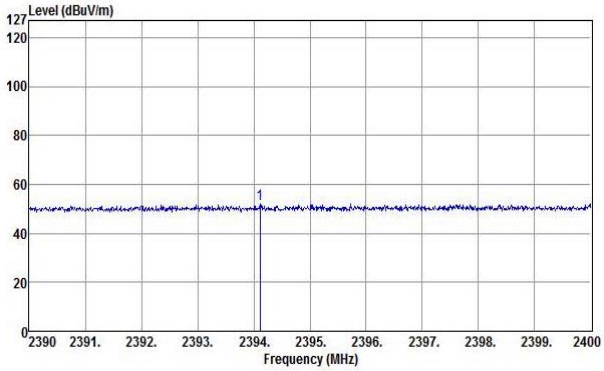
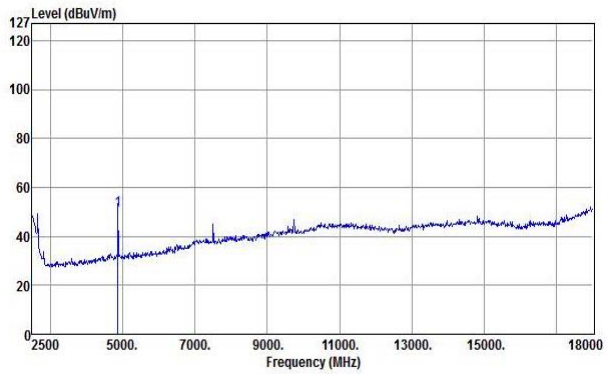
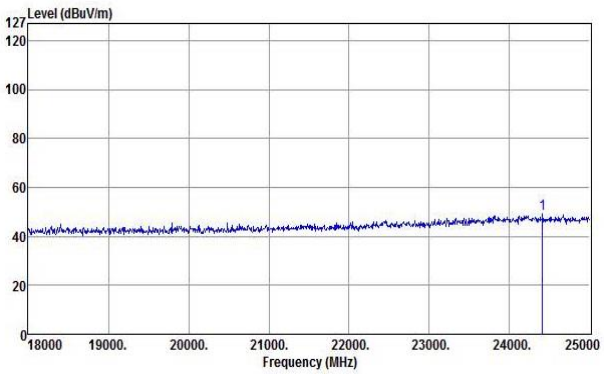
Note: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical).

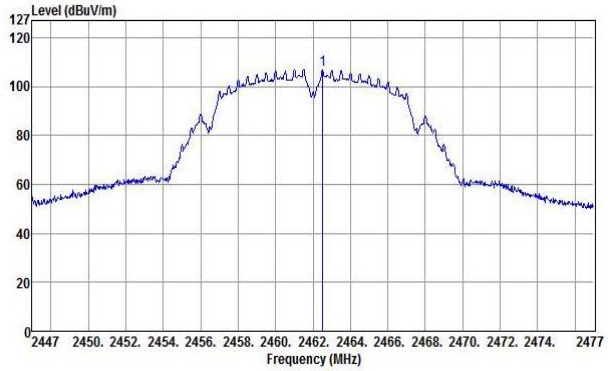
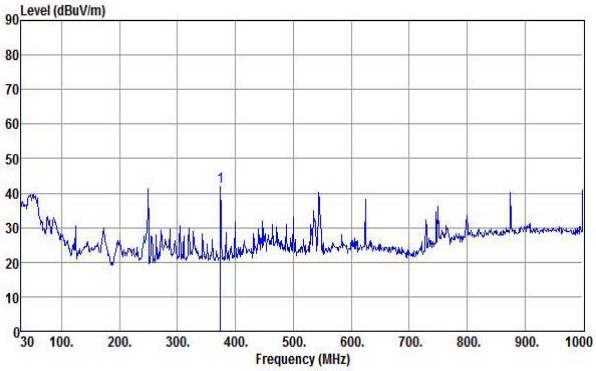
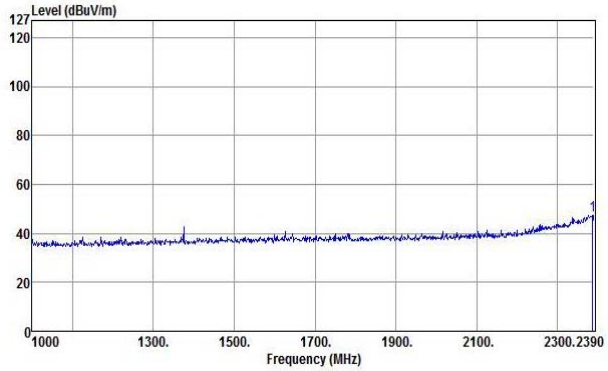
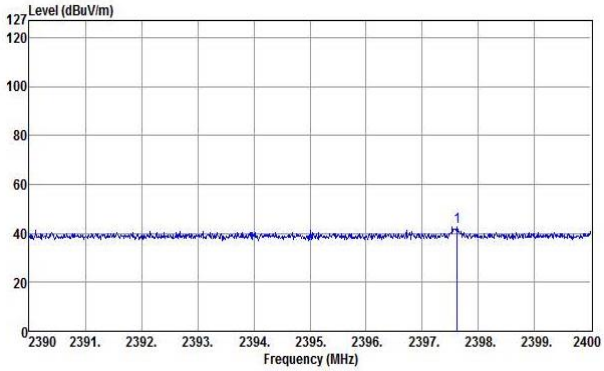
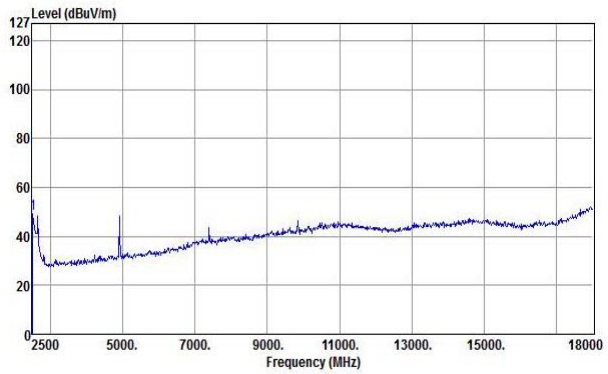
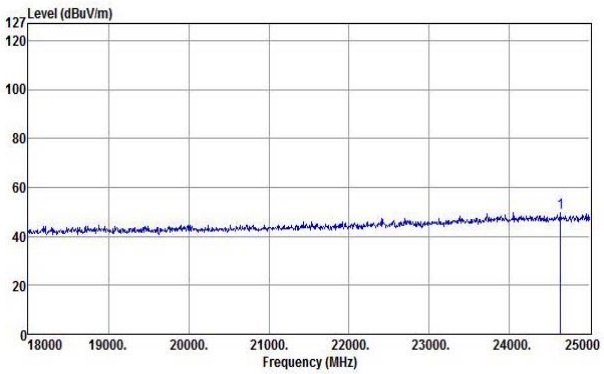
Unwanted Emissions into Non-Restricted Frequency Bands								
Modulation		HT40			**N_{TX}**	2		
Test Ch. Freq. (MHz)	**In-band PSD [i] (dBuV/100kHz)**	**Non-restricted Band (MHz)**	**NBE Freq. (MHz)**	**Out-band PSD [o] (dBuV/100kHz)**	**[i] – [o] (dB)**	**Limit (dB)**	**Level Type**	**Pol. note 1**
2422	106.32	30-1000	874.87	40.70	65.62	30	PK	V
		1000-2390	2388.61	57.62	48.70	30	PK	V
		2390-2400	2399.88	76.18	30.14	30	PK	V
		2500-18000	17891.50	50.07	56.25	30	PK	V
		18000-25000	24244.00	50.81	55.51	30	PK	V
2437	108.75	30-1000	874.82	40.98	67.77	30	PK	V
		1000-2390	2385.83	60.27	48.48	30	PK	V
		2390-2400	2397.62	67.55	41.20	30	PK	V
		2500-18000	18000.00	51.37	57.38	30	PK	V
		18000-25000	24377.00	51.46	57.29	30	PK	V
2452	105.61	30-1000	874.82	41.27	64.34	30	PK	V
		1000-2390	2387.22	49.24	56.37	30	PK	V
		2390-2400	2397.05	52.06	53.55	30	PK	V
		2500-18000	17984.50	50.60	55.01	30	PK	V
		18000-25000	24062.00	50.48	55.13	30	PK	V

Note: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical).

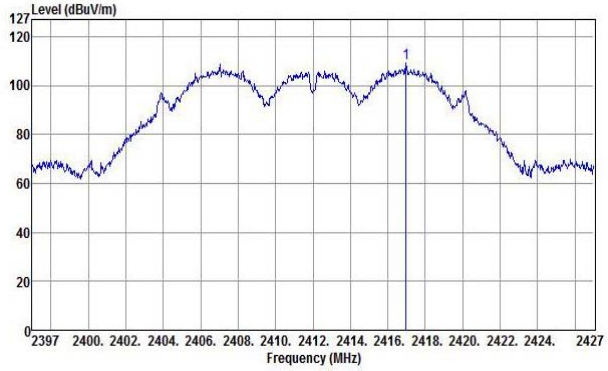
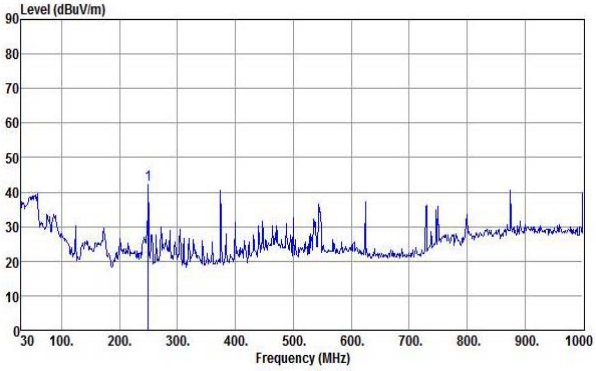
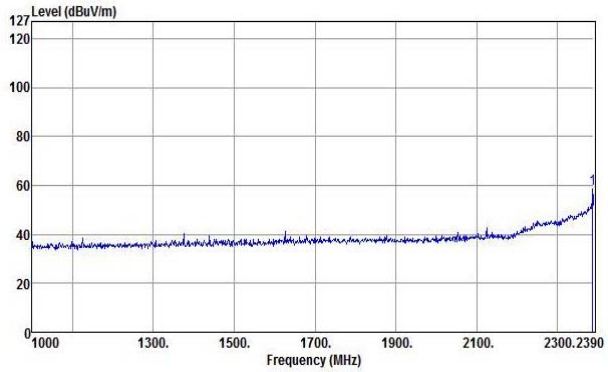
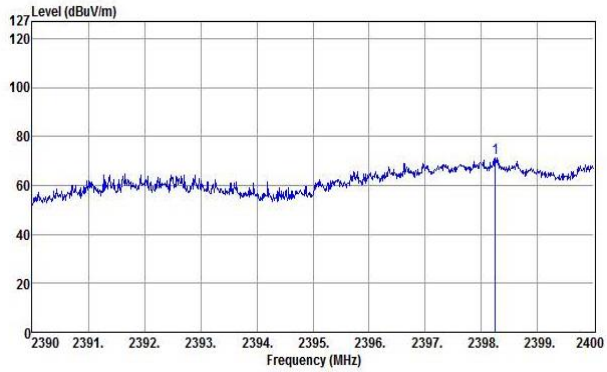
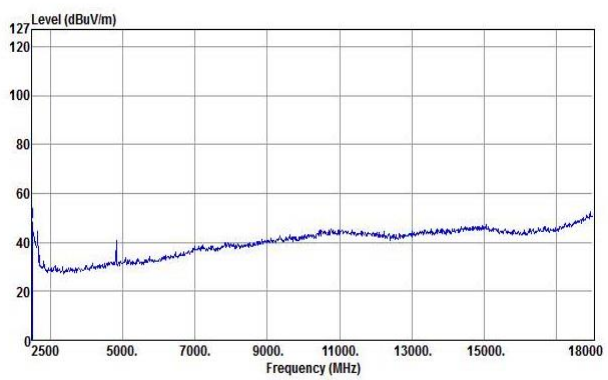
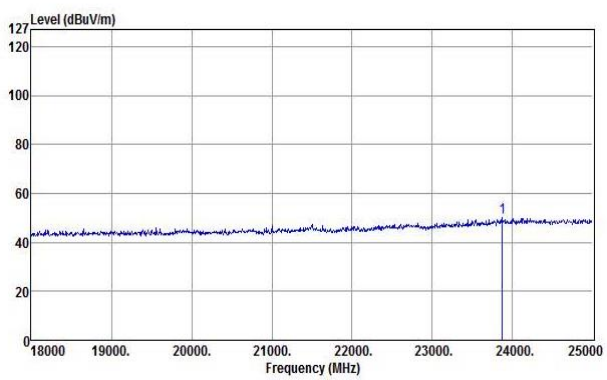
802.11b

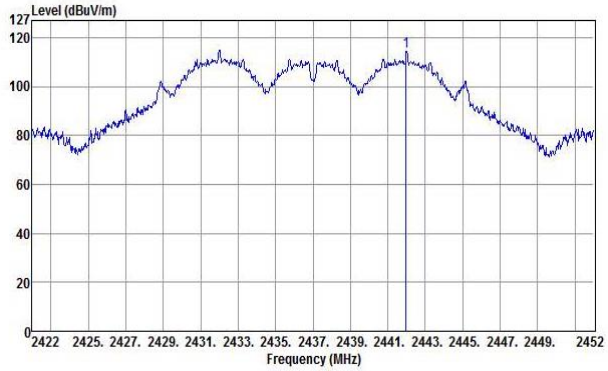
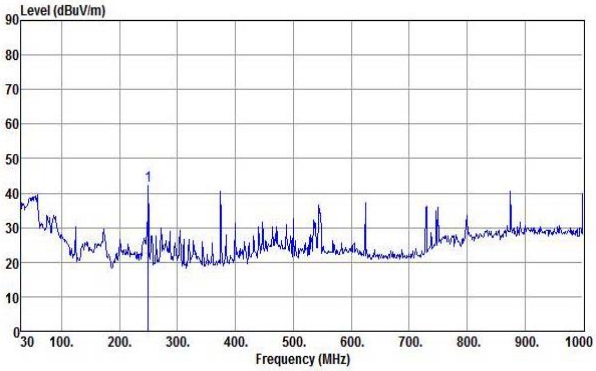
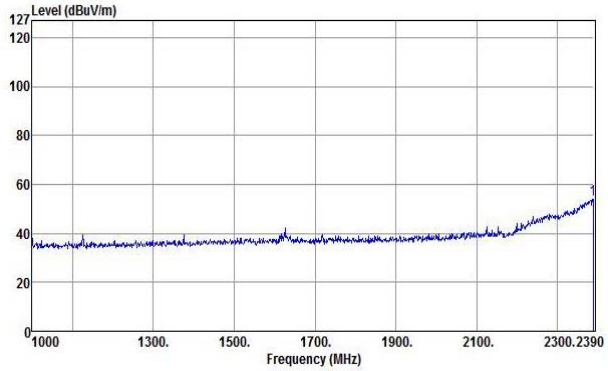
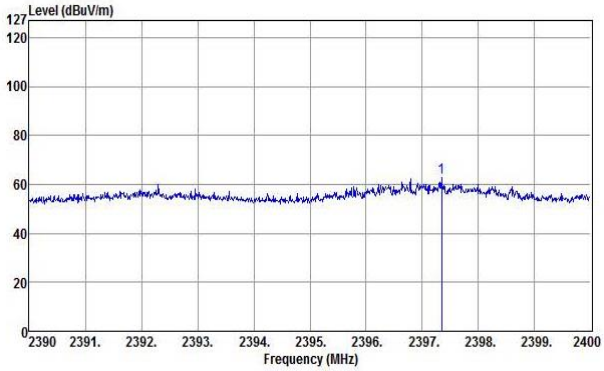
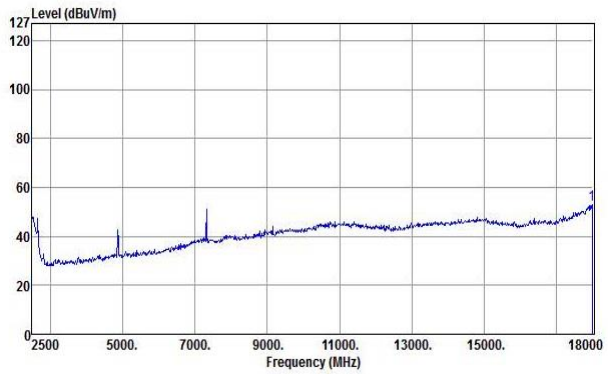
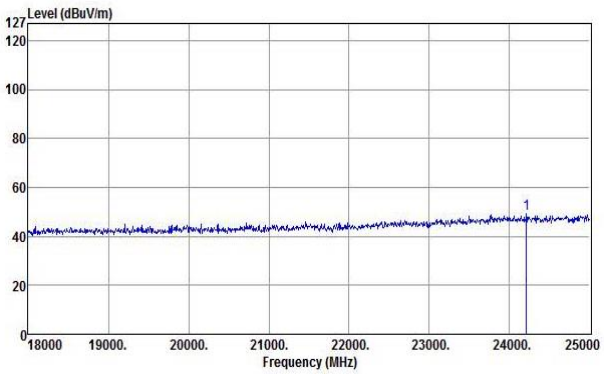
Reference Level	Tx 2412MHz / 30MHz~25GHz (down 30dBc)
	
	
	

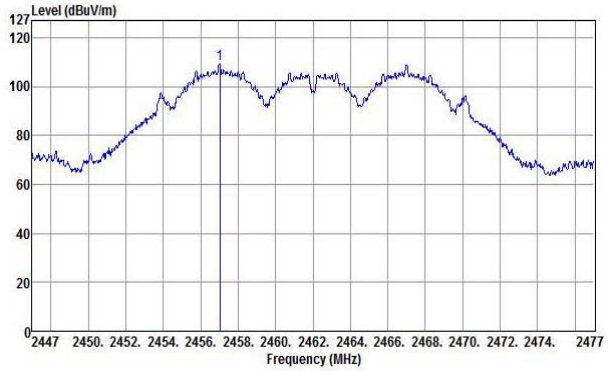
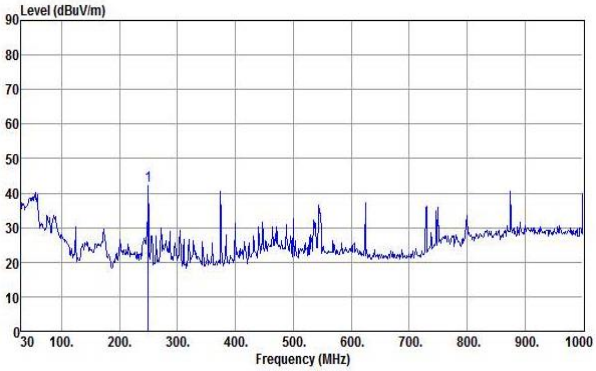
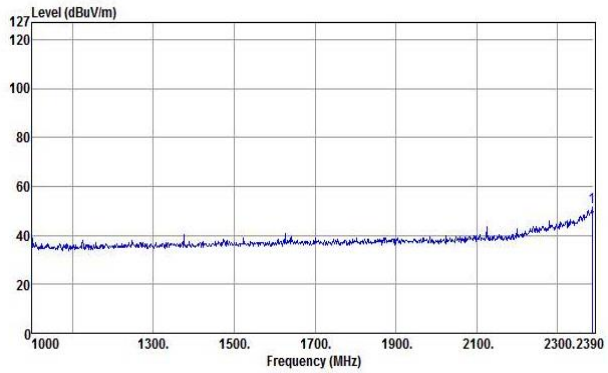
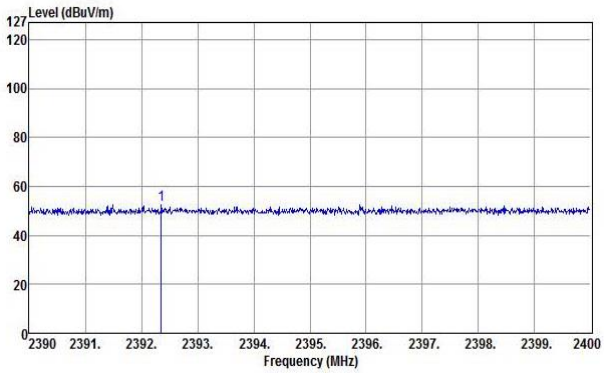
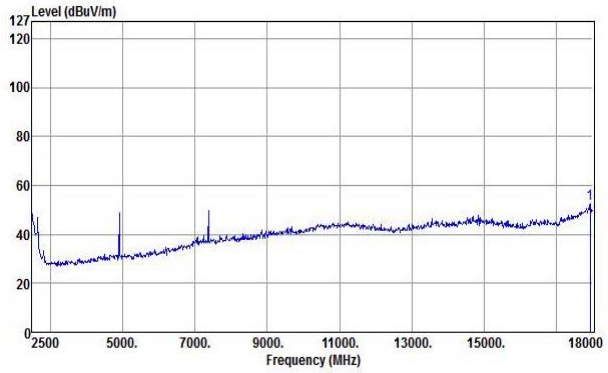
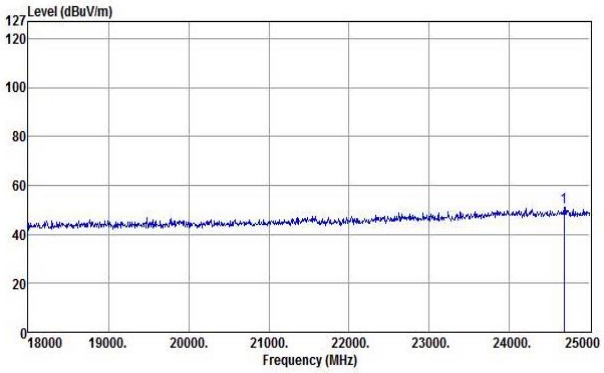
Reference Level	Tx 2437MHz / 30MHz~25GHz (down 30dBc)
	
	
	

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

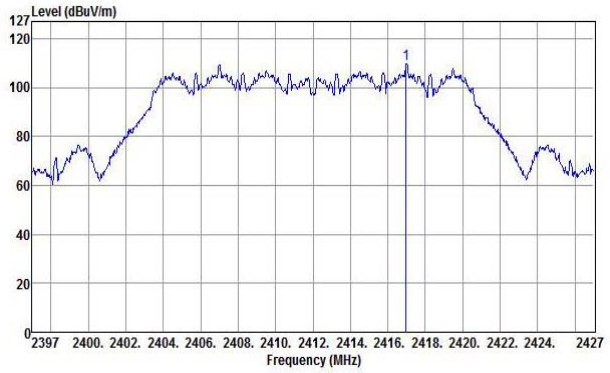
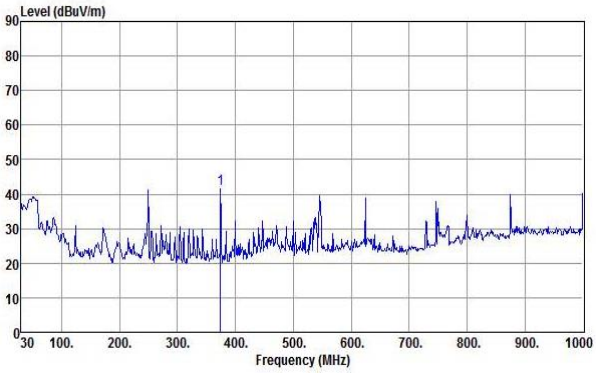
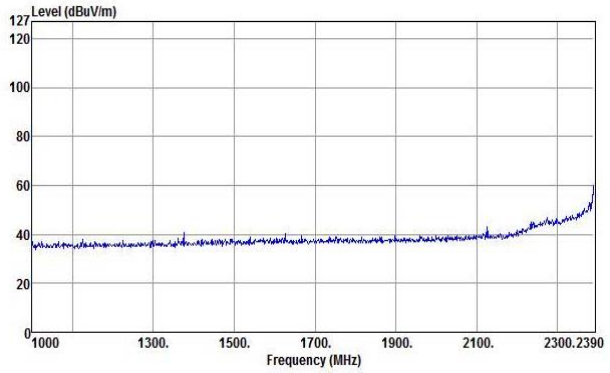
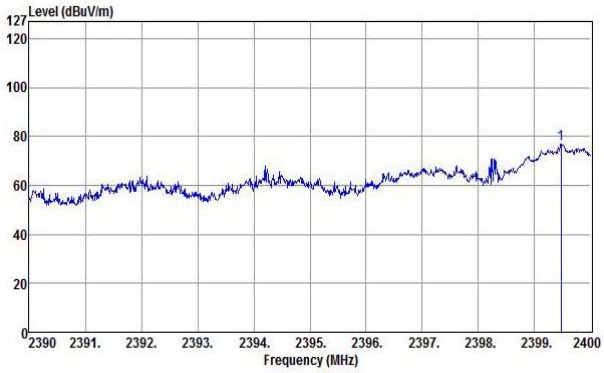
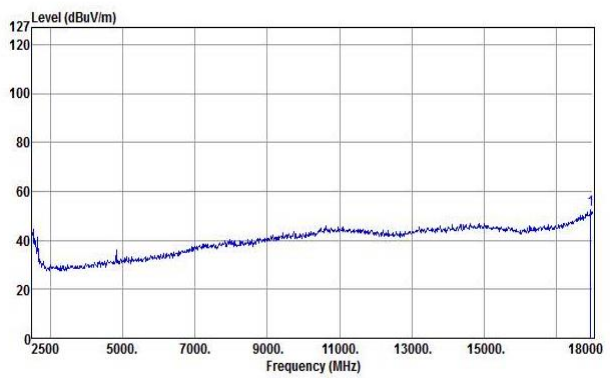
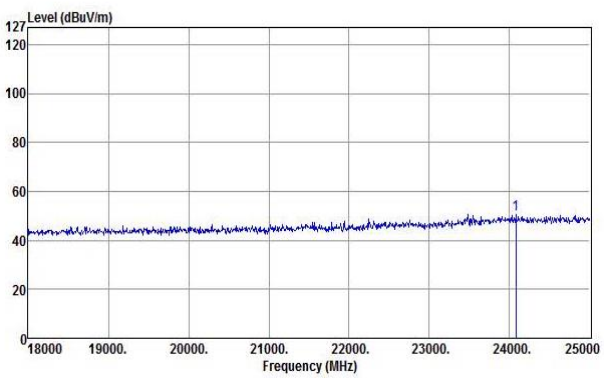
802.11g

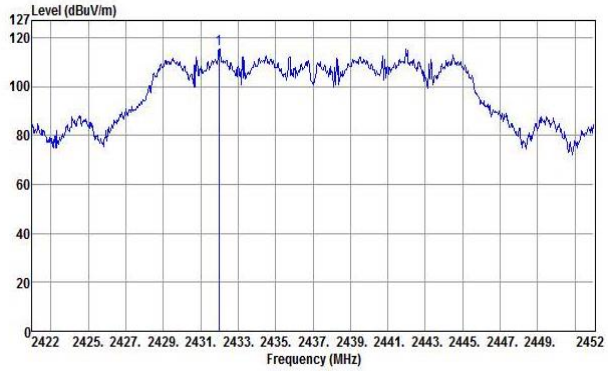
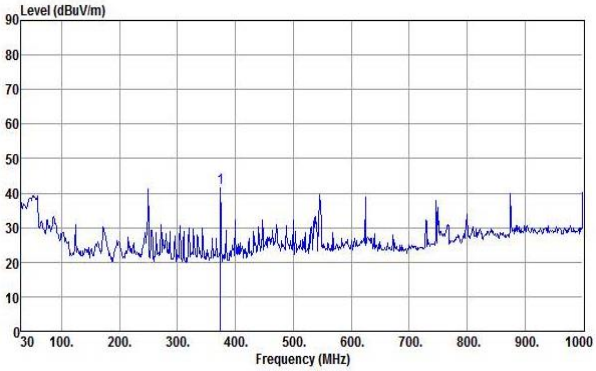
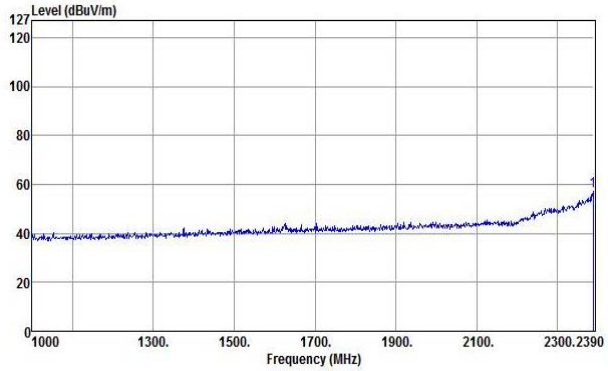
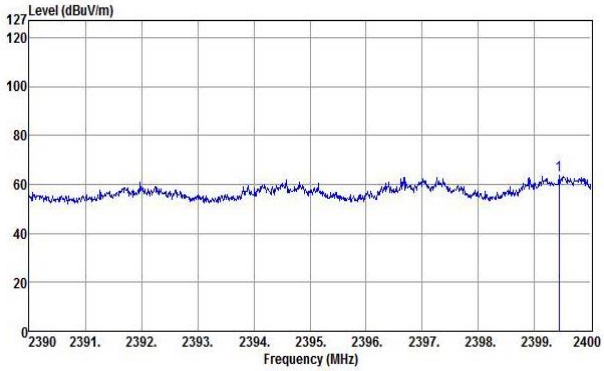
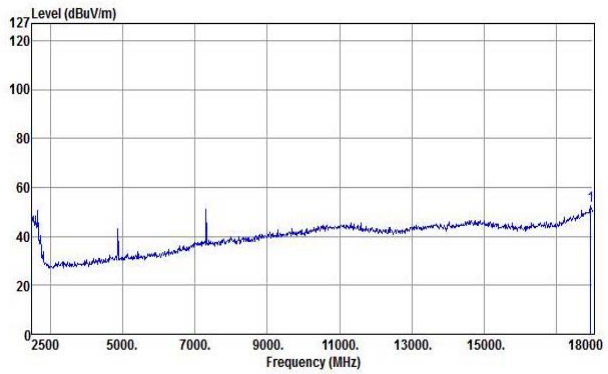
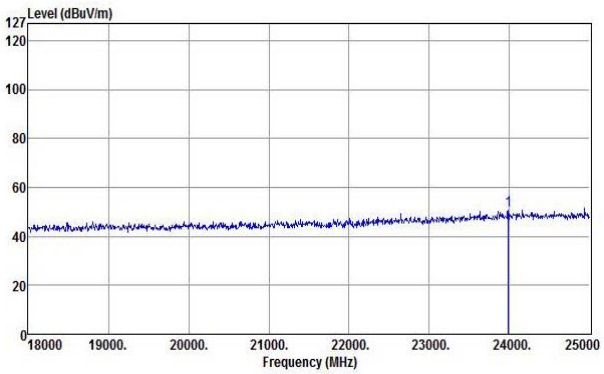
Reference Level	Tx 2412MHz / 30MHz~25GHz (down 30dBc)
	
	
	

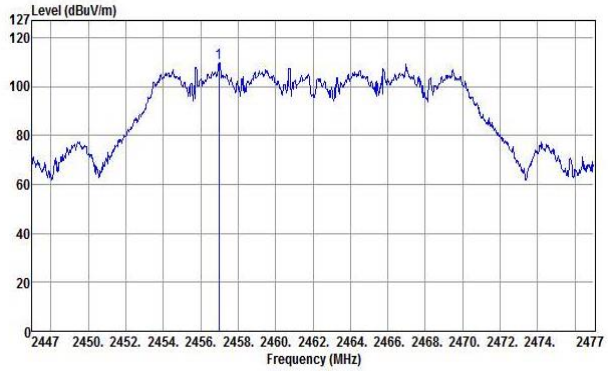
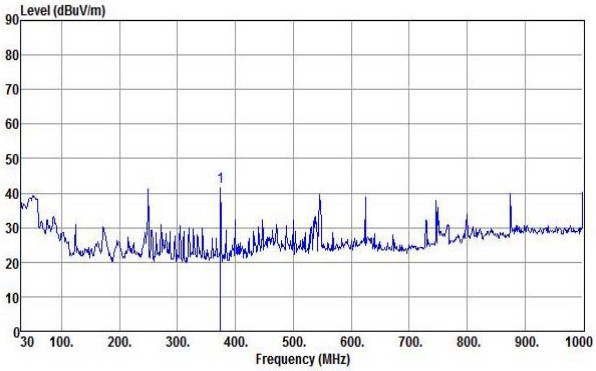
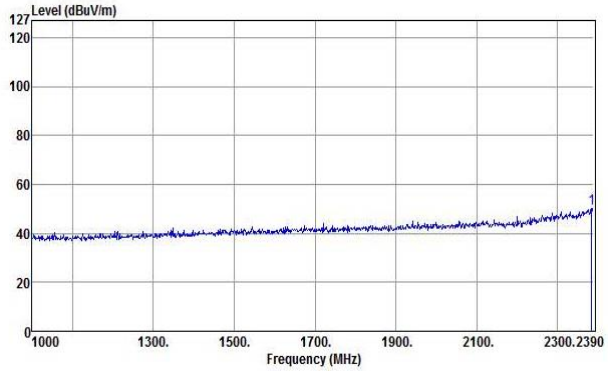
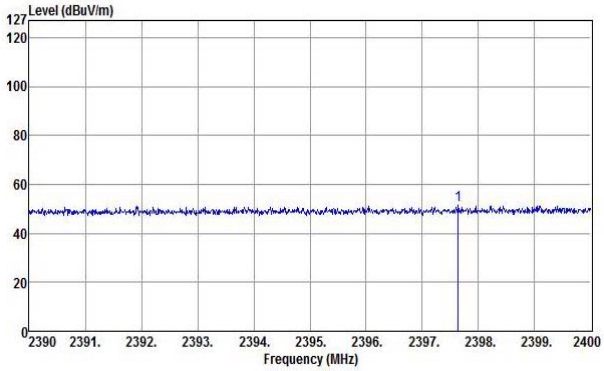
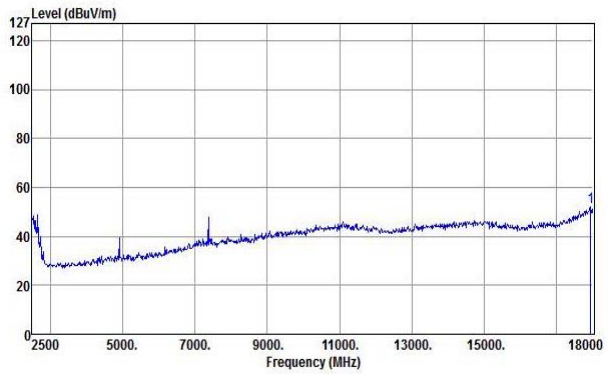
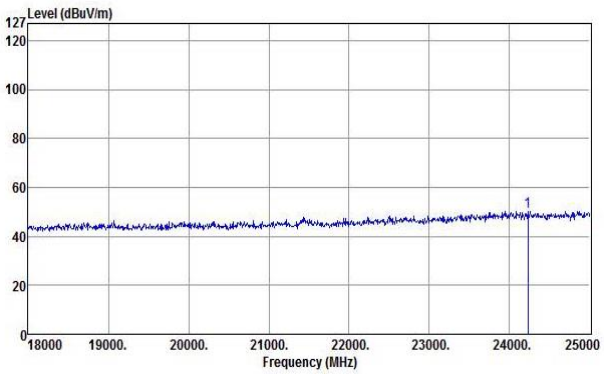
Reference Level	Tx 2437MHz / 30MHz~25GHz (down 30dBc)
	
	
	

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

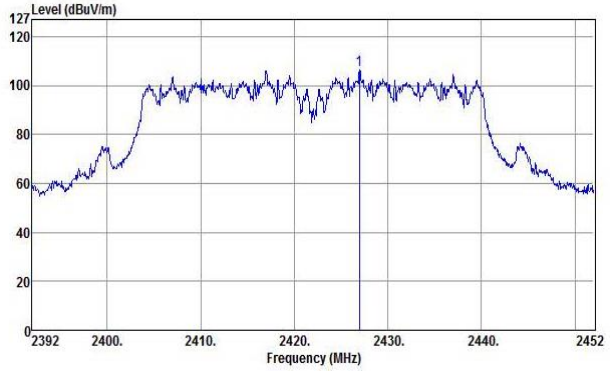
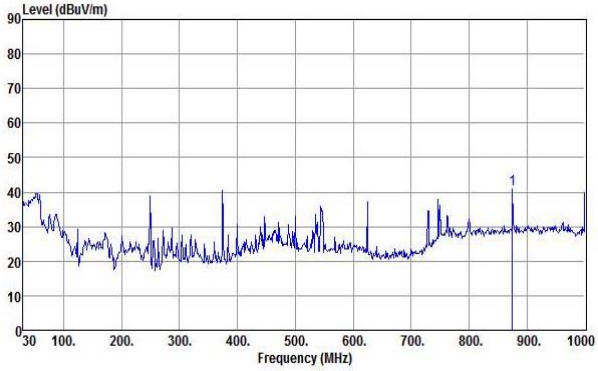
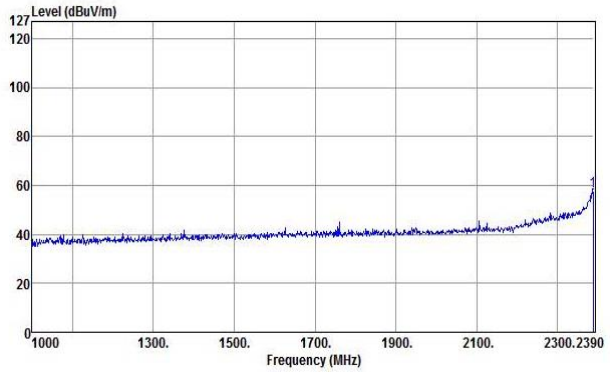
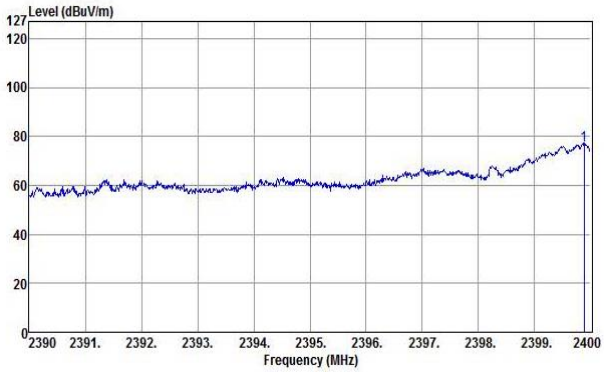
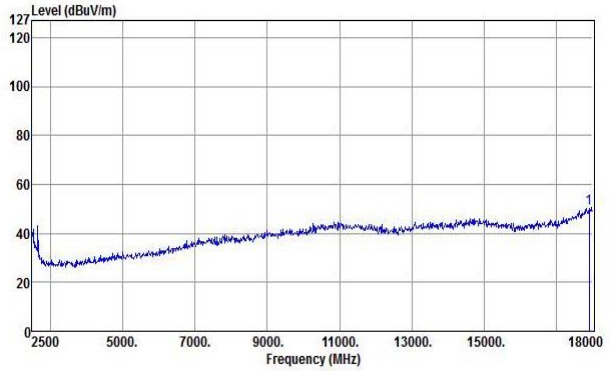
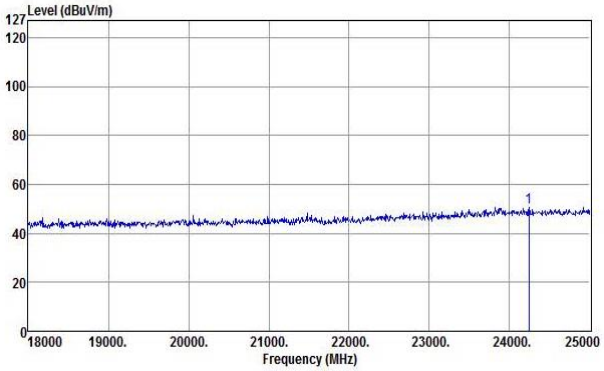
HT20

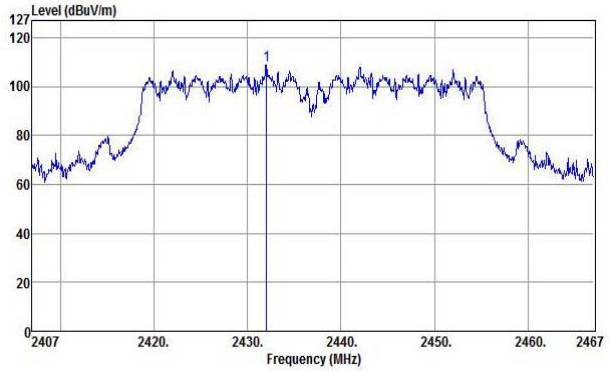
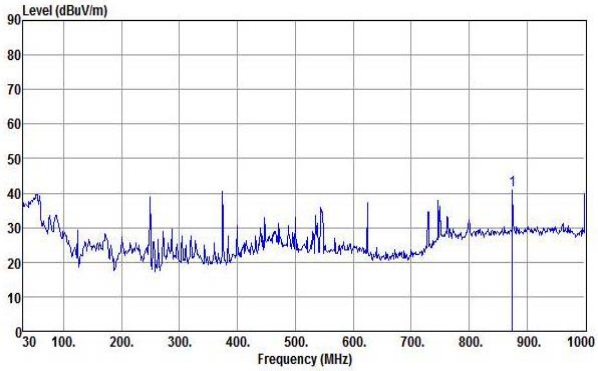
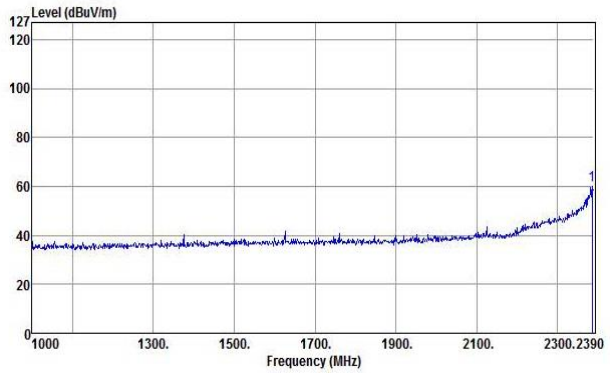
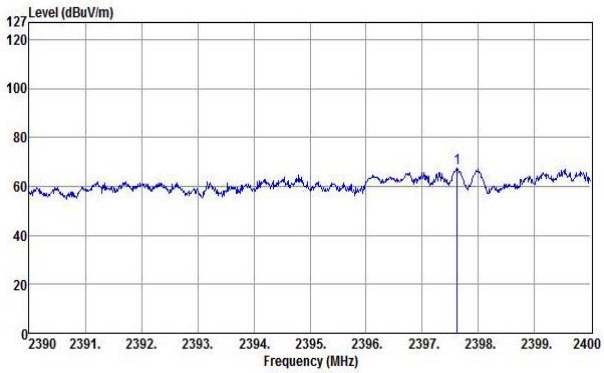
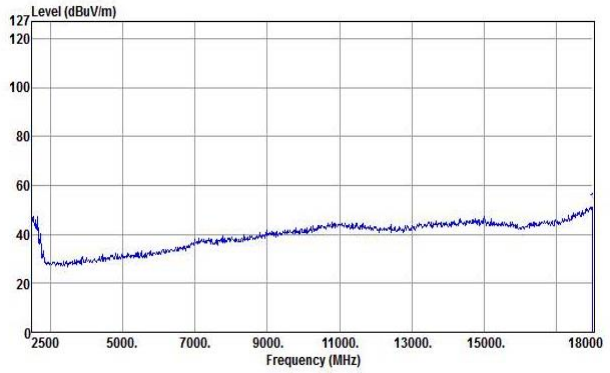
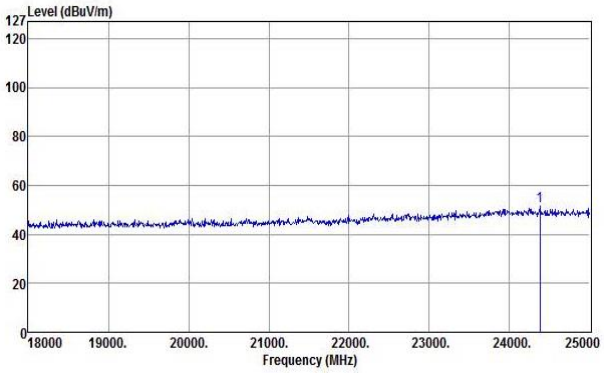
Reference Level	Tx 2412MHz / 30MHz~25GHz (down 30dBc)
	
	
	

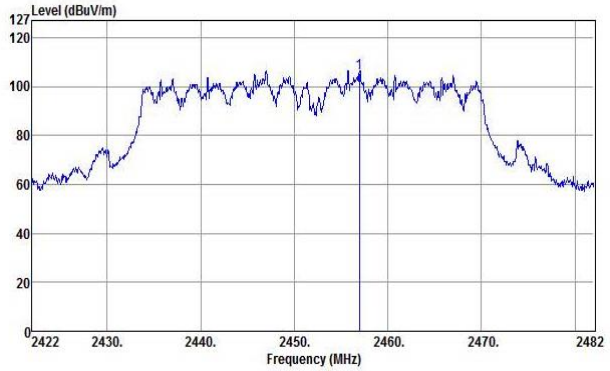
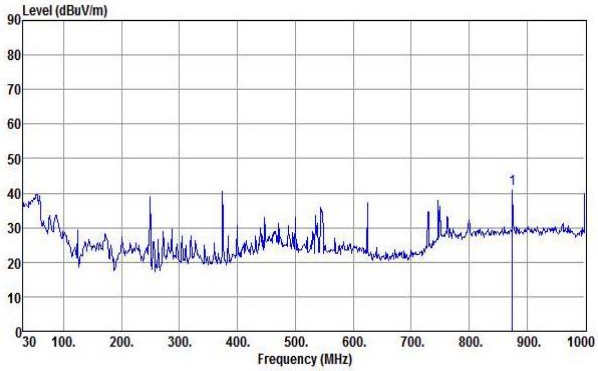
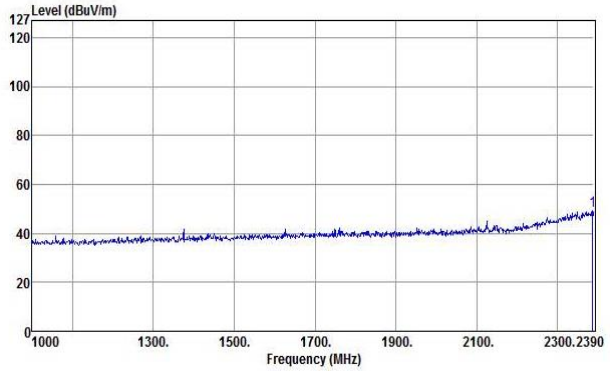
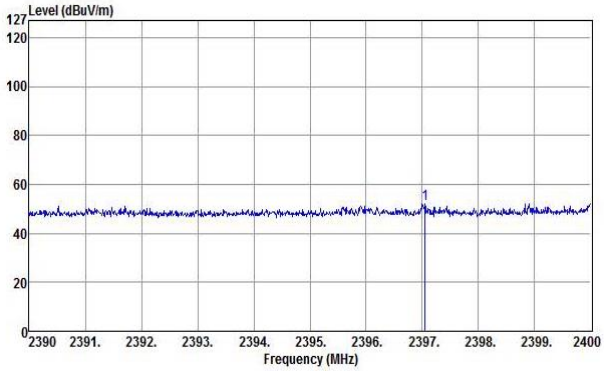
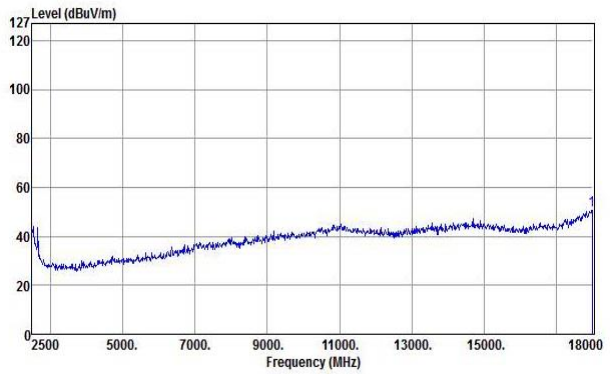
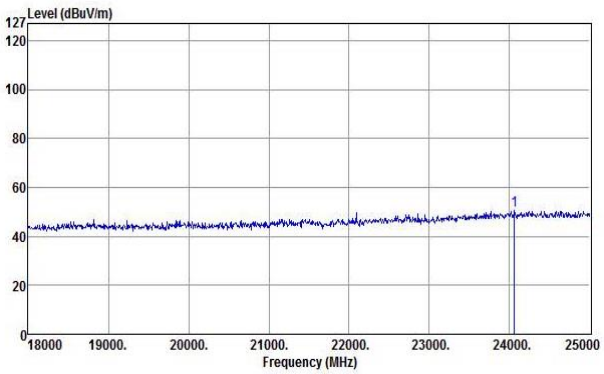
Reference Level	Tx 2437MHz / 30MHz~25GHz (down 30dBc)
	
	
	

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

HT40

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

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

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

4 Test laboratory information

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

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

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

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

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

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

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