

Partial FCC Test Report

Report No.: RF160526C29A

FCC ID: PPD-QCNFA324

Test Model: QCNFA324

Received Date: Oct. 20, 2017

Test Date: Nov. 10, 2017 ~ Nov. 20, 2017

Issued Date: Nov. 27, 2017

Applicant: Qualcomm Atheros, Inc.

Address: 1700 Technology Drive, San Jose, CA95110

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

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R.O.C

FCC Registration / 788550 / TW0003

Designation Number: 427177 / TW0011



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Table of Contents

Release Control Record	3
1 Certificate of Conformity	4
2 Summary of Test Results.....	5
2.1 Measurement Uncertainty.....	5
2.2 Modification Record	5
3 General Information	6
3.1 General Description of EUT	6
3.2 Description of Test Modes.....	7
3.2.1 Test Mode Applicability and Tested Channel Detail.....	8
3.3 Description of Support Units	9
3.3.1 Configuration of System under Test	9
3.4 General Description of Applied Standards.....	9
4 Test Types and Results	10
4.1 Radiated Emission and Bandedge Measurement	10
4.1.1 Limits of Radiated Emission and Bandedge Measurement	10
4.1.2 Test Instruments	11
4.1.3 Test Procedures.....	12
4.1.4 Deviation from Test Standard	12
4.1.5 Test Set Up	13
4.1.6 EUT Operating Conditions.....	14
4.1.7 Test Results	15
4.2 Conducted Emission Measurement.....	67
4.2.1 Limits of Conducted Emission Measurement	67
4.2.2 Test Instruments	67
4.2.3 Test Procedures.....	68
4.2.4 Deviation from Test Standard	68
4.2.5 Test Setup.....	68
4.2.6 EUT Operating Conditions.....	68
4.2.7 Test Results	69
5 Pictures of Test Arrangements.....	73
Appendix – Information on the Testing Laboratories	74

Release Control Record

Issue No.	Description	Date Issued
RF160526C29A	Original Release	Nov. 27, 2017

1 Certificate of Conformity

Product: 2x2 802.11A/B/G/N/AC WiFi + Bluetooth Module

Brand: Qualcomm Atheros

Test Model: QCNFA324

Sample Status: Identical Prototype

Applicant: Qualcomm Atheros, Inc.

Test Date: Nov. 10, 2017 ~ Nov. 20, 2017

Standards: 47 CFR FCC Part 15, Subpart C (Section 15.247)
ANSI C63.10:2013

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by : Evonne Liu, **Date:** Nov. 27, 2017
Evonne Liu / Specialist

Approved by : Dylan Chiou, **Date:** Nov. 27, 2017
Dylan Chiou / Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	Pass	Meet the requirement of limit. Minimum passing margin is -20.05 dB at 1.57400 MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -1.01 dB at 2389.38 MHz.
15.247(d)	Antenna Port Emission	N/A	Refer to Note
15.247(a)(2)	6 dB Bandwidth	N/A	Refer to Note
15.247(b)	Conducted power	N/A	Refer to Note
15.247(e)	Power Spectral Density	N/A	Refer to Note
15.203	Antenna Requirement	N/A	Refer to Note

Note: Only test item of Conducted Emission and Radiated Emissions were performed for this report. For other test data, please refer to BV Report No.: RF140808E04 for WLAN/BT module (Brand: Qualcomm Atheros, Model: QCNFA324). The power has been verified and confirmed to be same as the original power, therefore the power test result is not performed in this test report.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT:

The listed uncertainties are the worst case uncertainty for the entire range of measurement. Please note that the uncertainty values are provided for informational purposes only and are not used in determining the PASS/FAIL results.

Measurement	Frequency	Expended Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150 kHz ~ 30 MHz	2.44 dB
Radiated Emissions up to 1 GHz	30 MHz ~ 200 MHz	2.0153 dB
	200 MHz ~1000 MHz	2.0224 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	1.0121 dB
	18 GHz ~ 40 GHz	1.1508 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	2x2 802.11A/B/G/N/AC WiFi + Bluetooth Module
Brand	Qualcomm Atheros
Test Model	QCNFA324
Status of EUT	Identical Prototype
Power Supply Rating	3.3 Vdc (Host equipment)
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: 11.0 / 5.5 / 2.0 / 1.0 Mbps 802.11g: 54.0 / 48.0 / 36.0 / 24.0 / 18.0 / 12.0 / 9.0 / 6.0 Mbps 802.11n: up to MCS7
Operating Frequency	2412 ~ 2462 MHz
Number of Channel	11 for 802.11b, 802.11g, 802.11n (HT20) 7 for 802.11n (HT40)
Antenna Type	Refer to Note as below
Antenna Connector	N/A
Accessory Device	N/A
Data Cable Supplied	N/A

Note:

- The EUT is authorized for use in specific End-product. Please refer to below table for more details.

Item	Brand	Model
Industrial Computer	Dell	N02PC

- The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and two receivers.

Modulation Mode	Tx Function
802.11b	2TX
802.11g	2TX
802.11n (HT20)	2TX
802.11n (HT40)	2TX

- The antenna information is listed as below.

Antenna Type	Brand Name	Parts Number	Antenna Gain (dBi)		
			2.4GHz	5.15~5.725GHz	5.725~5.85GHz
Dipole	Laird	WLAN Main Antenna: PDV24515-DE1 WLAN Aux Antenna: PDV24515-DE1	Main: 2.9 Aux: 2.9	Main: 4.0 Aux: 4.0	Main: 3.9 Aux: 3.9
Monopole	Taoglas Antenna Solution Ltd.	WLAN Main Antenna: MA761.B.BICG.014 WLAN Aux Antenna: MA761.B.BICG.014	Main: 2.82 Aux: 2.79	Main: 4.11 Aux: 4.51	Main: 4.11 Aux: 4.51

* The EUT antenna is a specific antenna: Professional installation antenna. It complies with the standard requirement.

- The End-product contains following accessory devices.

Product	Brand	Model	Description
Adapter	DELL	DA180PM111	I/P: 100-240 Vac, 50-60 Hz, 2.34 A O/P: 19.5 Vdc, 9.23 A

5. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 Description of Test Modes

11 channels are provided for 802.11b, 802.11g and 802.11n (HT20):

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

7 channels are provided for 802.11n (HT40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
3	2422	7	2442
4	2427	8	2447
5	2432	9	2452
6	2437		

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To				Description
	RE $\geq$ 1G	RE<1G	PLC	APCM	
A	√	√	√	-	Dipole Antenna
B	√	√	√	-	Monopole Antenna

Where **RE $\geq$ 1G:** Radiated Emission above 1 GHz
RE<1G: Radiated Emission below 1 GHz
PLC: Power Line Conducted Emission
APCM: Antenna Port Conducted Measurement

NOTE:

- The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on X-plane for Mode A and Z-plan for Mode B.
- "-" means no effect.

Radiated Emission Test (Above 1 GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A, B	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	MCS0
	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	MCS0

Radiated Emission Test (Below 1 GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A, B	802.11n (HT40)	3 to 9	6	OFDM	BPSK	MCS0

Power Line Conducted Emission Test:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A, B	802.11n (HT40)	3 to 9	6	OFDM	BPSK	MCS0

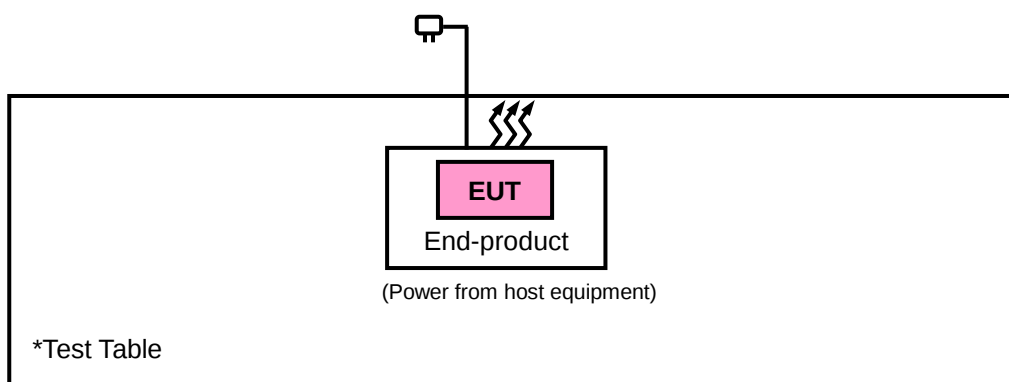
Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested by
RE $\geq$ 1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Karl Lee
RE<1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Karl Lee
PLC	25 deg. C, 65 % RH	120 Vac, 60 Hz	Getaz Yang

3.3 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units.

3.3.1 Configuration of System under Test



3.4 General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C (15.247)

558074 D01 DTS Meas Guidance v04

662911 D01 Multiple Transmitter Output v02r01

ANSI C63.10-2013

All test items have been performed and recorded as per the above standards.

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20 dB below the highest level of the desired power:

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F (kHz)	300
0.490 ~ 1.705	24000/F (kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any condition of modulation.

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Agilent Technologies	N9038A	MY52260177	Jul. 05, 2017	Jul. 04, 2018
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Dec. 13, 2016	Dec. 12, 2017
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Dec. 16, 2016	Dec. 15, 2017
HORN Antenna ETS-Lindgren	3117	00143293	Dec. 29, 2016	Dec. 28, 2017
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Dec. 14, 2016	Dec. 13, 2017
Fixed Attenuator Mini-Circuits	MDCS18N-10	MDCS18N-10-01	Apr. 17, 2017	Apr. 16, 2018
Bluetooth Tester	CBT	100980	Jun. 28, 2017	Jun. 27, 2019
Loop Antenna	HLA 6121	45745	May 19, 2017	May 18, 2018
Preamplifier Agilent	310N	187226	Jun. 23, 2017	Jun. 22, 2018
Preamplifier Agilent	83017A	MY39501357	Jun. 23, 2017	Jun. 22, 2018
Power Meter Anritsu	ML2495A	1012010	Aug. 15, 2017	Aug. 14, 2018
Power Sensor Anritsu	MA2411B	1315050	Aug. 15, 2017	Aug. 14, 2018
RF signal cable ETS-LINDGREN	5D-FB	Cable-CH1-01(R FC-SMS-100-SM S-120+RFC-SMS -100-SMS-400)	Jun. 23, 2017	Jun. 22, 2018
RF signal cable ETS-LINDGREN	8D-FB	Cable-CH1-02(R FC-SMS-100-SM S-24)	Jun. 23, 2017	Jun. 22, 2018
Software BV ADT	E3 8.130425b	NA	NA	NA
Antenna Tower MF	NA	NA	NA	NA
Turn Table MF	NA	NA	NA	NA
Antenna Tower & Turn Table Controller MF	MF-7802	NA	NA	NA

- Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HsinTien Chamber 1.
3. The horn antenna and preamplifier (model: 83017A) are used only for the measurement of emission frequency above 1 GHz if tested.
4. The IC Site Registration No. is IC7450I-1.

4.1.3 Test Procedures

- a. The EUT was placed on the top of a rotating table 0.8 meters (for below 1 GHz) / 1.5 meters (for above 1 GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detected function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

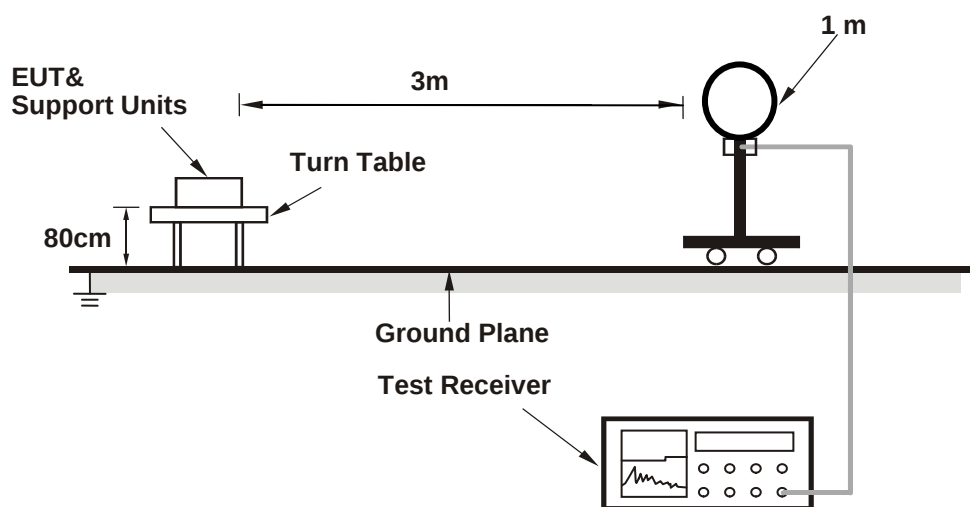
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz & 360 KHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1/T for Average (Duty cycle < 98 %) detection at frequency above 1 GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz (Duty cycle ≥ 98 %) for Average detection (AV) at frequency above 1 GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

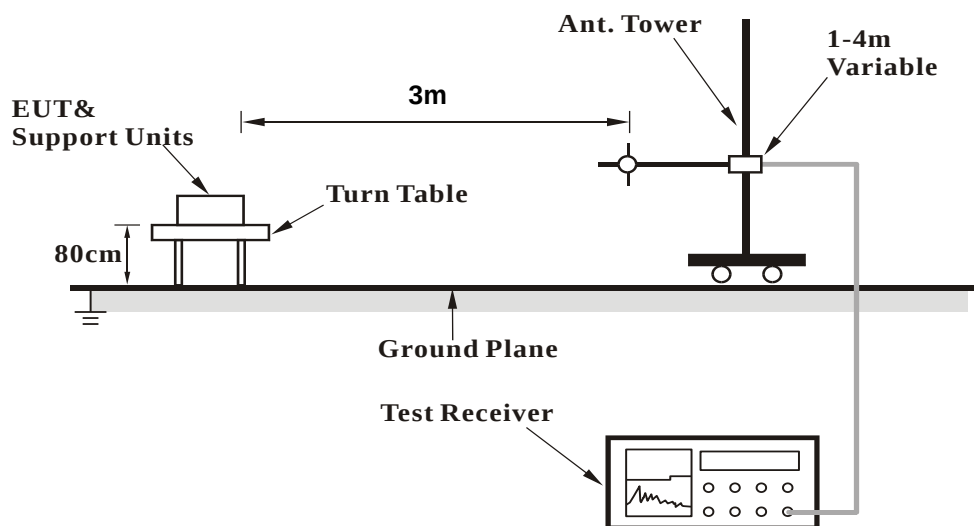
No deviation.

4.1.5 Test Set Up

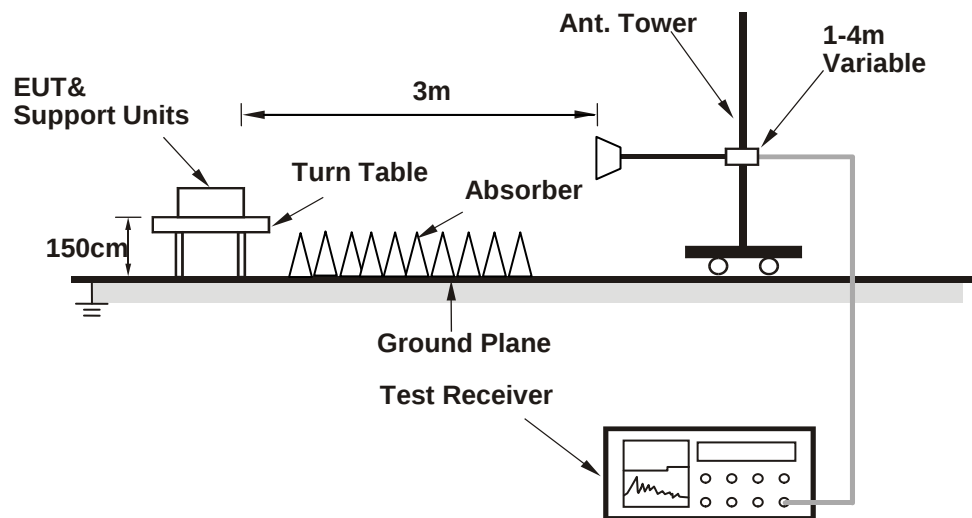
<Radiated emission below 30 MHz>



<Frequency Range below 1 GHz>



<Frequency Range above 1 GHz>



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.6 EUT Operating Conditions

- Placed the EUT on a testing table.
- Use the software to control the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

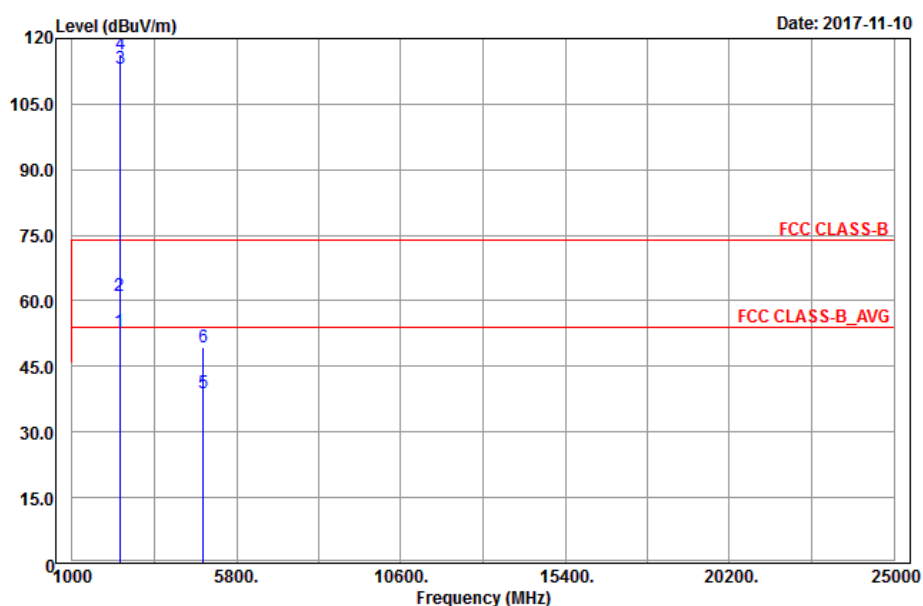
Above 1 GHz Data :

Mode A

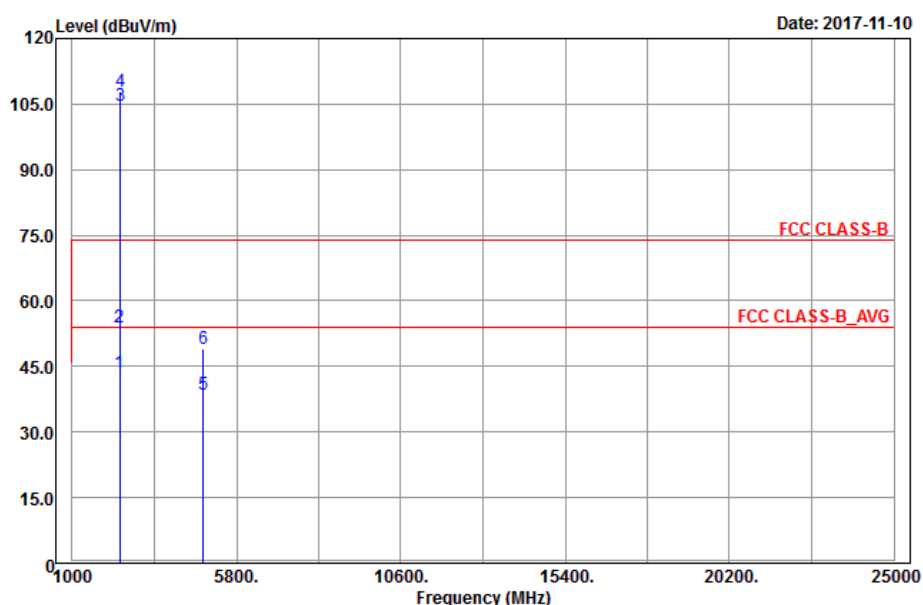
802.11b

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Horizontal



Vertical



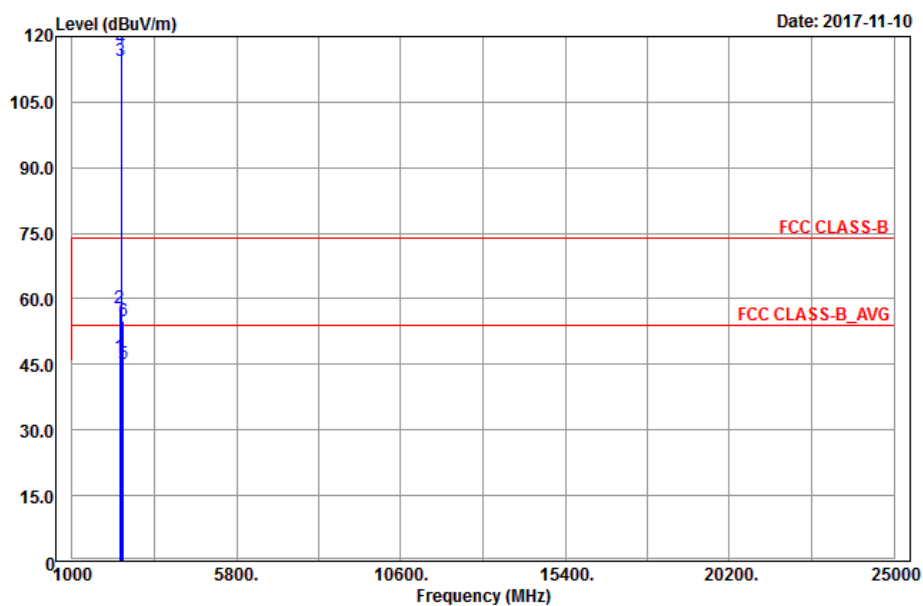
Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2387.4	52.98	51.27	54	-1.02	31.8	5.4	35.49	246	108	Average
2387.4	61.16	59.45	74	-12.84	31.8	5.4	35.49	246	108	Peak
2412	113.17	111.4			31.81	5.43	35.47	253	125	Average
2412	116.25	114.48			31.81	5.43	35.47	253	125	Peak
4824	38.93	30.8	54	-15.07	33.97	8.26	34.1	135	49	Average
4824	49.27	41.14	74	-24.73	33.97	8.26	34.1	135	49	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2387.4	43.56	41.85	54	-10.44	31.8	5.4	35.49	276	309	Average
2387.4	54.04	52.33	74	-19.96	31.8	5.4	35.49	276	309	Peak
2412	104.77	103			31.81	5.43	35.47	276	309	Average
2412	107.81	106.04			31.81	5.43	35.47	276	309	Peak
4824	38.74	30.61	54	-15.26	33.97	8.26	34.1	134	225	Average
4824	49.05	40.92	74	-24.95	33.97	8.26	34.1	134	225	Peak

Remarks:

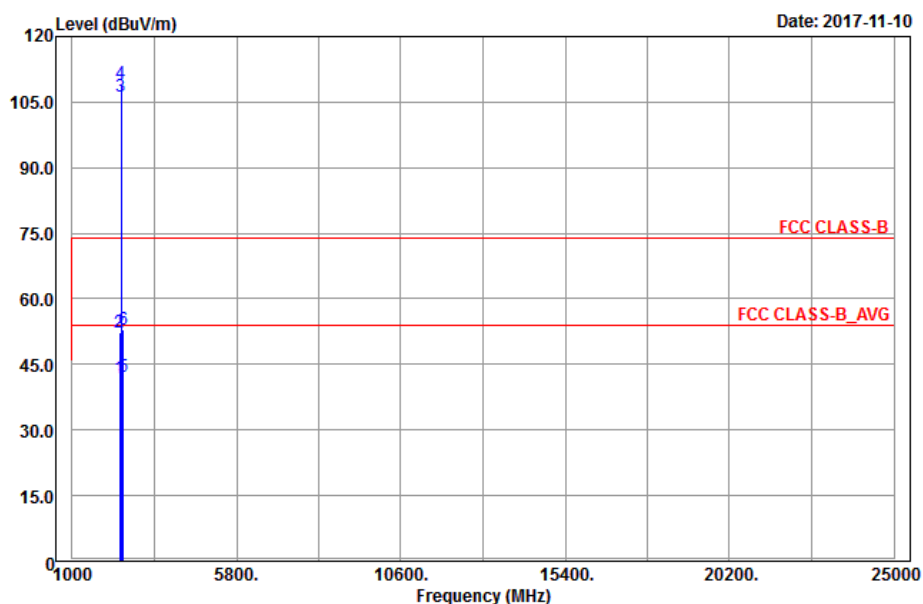
- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2412 MHz: Fundamental frequency.

EUT Test Condition		Measurement Detail	
Channel	Channel 6	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Horizontal



Vertical



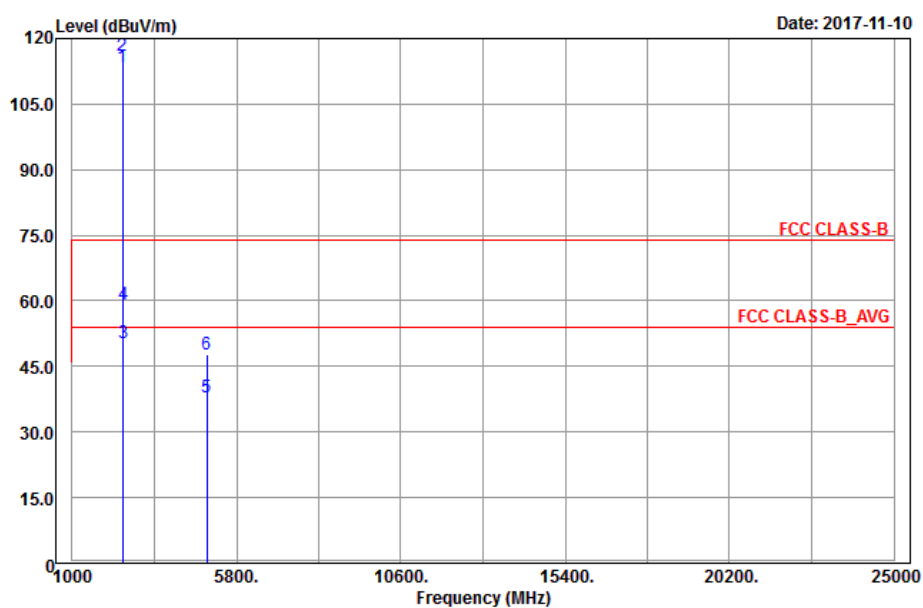
Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2389.11	46.91	45.2	54	-7.09	31.8	5.4	35.49	252	123	Average
2389.11	57.79	56.08	74	-16.21	31.8	5.4	35.49	252	123	Peak
2437	114.54	112.69			31.85	5.46	35.46	252	123	Average
2437	117.33	115.48			31.85	5.46	35.46	252	123	Peak
2484.88	45.28	43.29	54	-8.72	31.88	5.53	35.42	252	123	Average
2484.88	55	53.01	74	-19	31.88	5.53	35.42	252	123	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2378.58	41.74	40.08	54	-12.26	31.78	5.37	35.49	307	308	Average
2378.58	52.33	50.67	74	-21.67	31.78	5.37	35.49	307	308	Peak
2437	106.38	104.53			31.85	5.46	35.46	307	308	Average
2437	109.05	107.2			31.85	5.46	35.46	307	308	Peak
2485.36	42.15	40.16	54	-11.85	31.88	5.53	35.42	307	308	Average
2485.36	52.86	50.87	74	-21.14	31.88	5.53	35.42	307	308	Peak

Remarks:

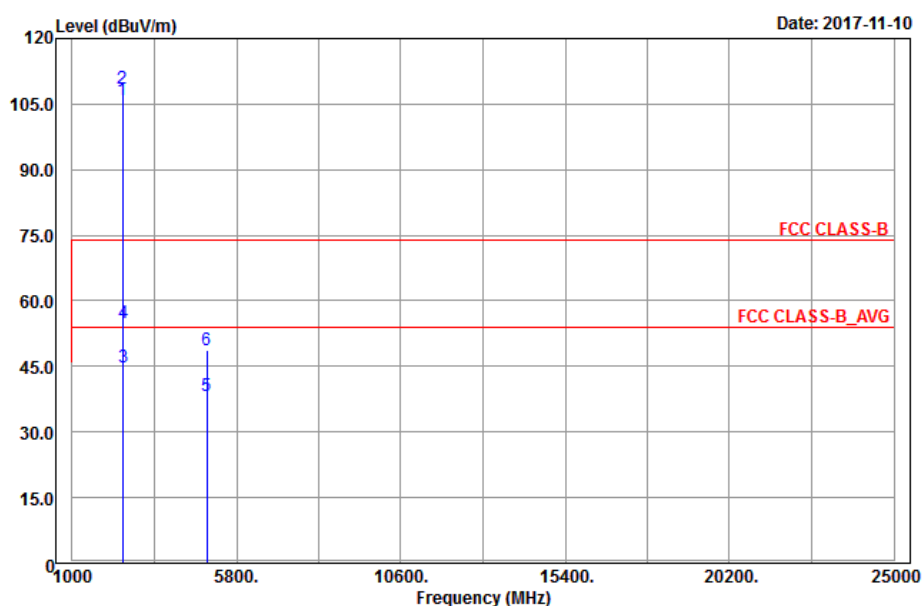
- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2437 MHz: Fundamental frequency.

EUT Test Condition		Measurement Detail	
Channel	Channel 11	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Horizontal



Vertical



Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2462	113.45	111.52			31.87	5.5	35.44	236	122	Average
2462	116.23	114.3			31.87	5.5	35.44	236	122	Peak
2485.44	50.26	48.27	54	-3.74	31.88	5.53	35.42	230	111	Average
2485.44	59.22	57.23	74	-14.78	31.88	5.53	35.42	230	111	Peak
4924	38.04	29.79	54	-15.96	33.99	8.28	34.02	169	304	Average
4924	47.72	39.47	74	-26.28	33.99	8.28	34.02	169	304	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2462	105.79	103.86			31.87	5.5	35.44	338	308	Average
2462	108.58	106.65			31.87	5.5	35.44	338	308	Peak
2487.28	44.75	42.76	54	-9.25	31.88	5.53	35.42	324	247	Average
2487.28	54.85	52.86	74	-19.15	31.88	5.53	35.42	324	247	Peak
4924	38.34	30.09	54	-15.66	33.99	8.28	34.02	157	224	Average
4924	48.82	40.57	74	-25.18	33.99	8.28	34.02	157	224	Peak

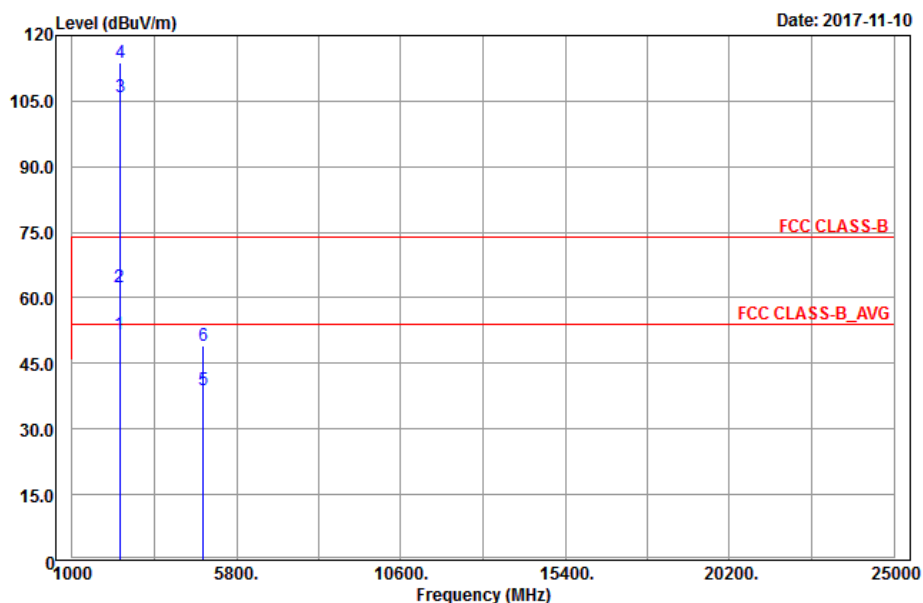
Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2462 MHz: Fundamental frequency.

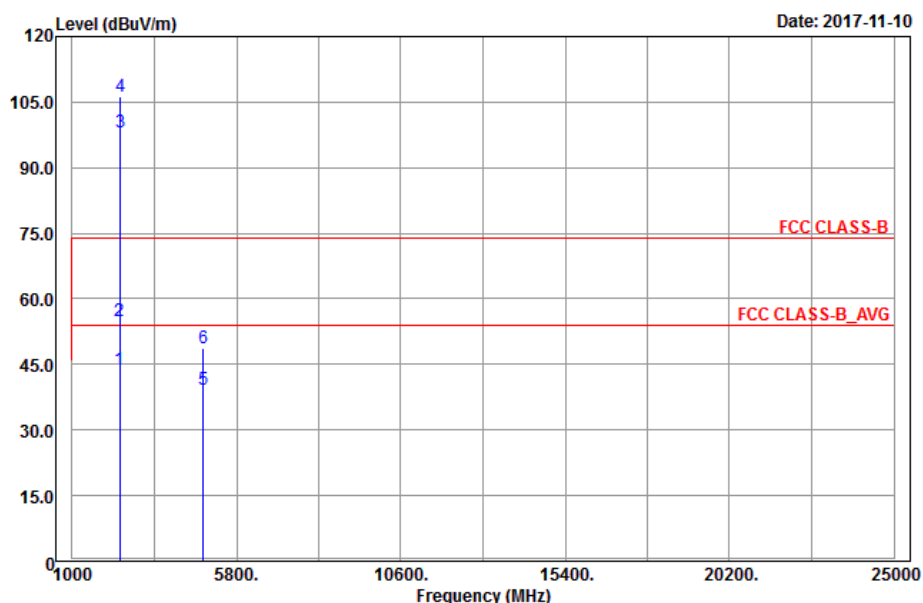
802.11g

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Horizontal



Vertical



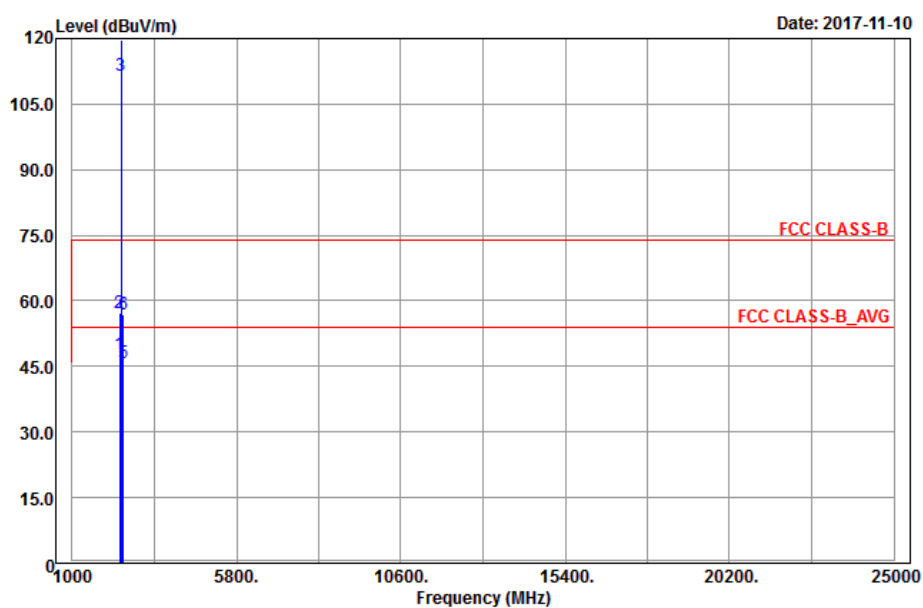
Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2389.92	51.71	49.98	54	-2.29	31.8	5.4	35.47	251	131	Average
2389.92	62.61	60.88	74	-11.39	31.8	5.4	35.47	251	131	Peak
2412	105.78	104.01			31.81	5.43	35.47	253	125	Average
2412	113.71	111.94			31.81	5.43	35.47	253	125	Peak
4824	39.07	30.94	54	-14.93	33.97	8.26	34.1	136	340	Average
4824	49.11	40.98	74	-24.89	33.97	8.26	34.1	136	340	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2383.35	43.74	42.05	54	-10.26	31.78	5.4	35.49	276	309	Average
2383.35	54.78	53.09	74	-19.22	31.78	5.4	35.49	276	309	Peak
2412	98.04	96.27			31.81	5.43	35.47	276	309	Average
2412	106.38	104.61			31.81	5.43	35.47	276	309	Peak
4824	39.16	31.03	54	-14.84	33.97	8.26	34.1	155	104	Average
4824	48.73	40.6	74	-25.27	33.97	8.26	34.1	155	104	Peak

Remarks:

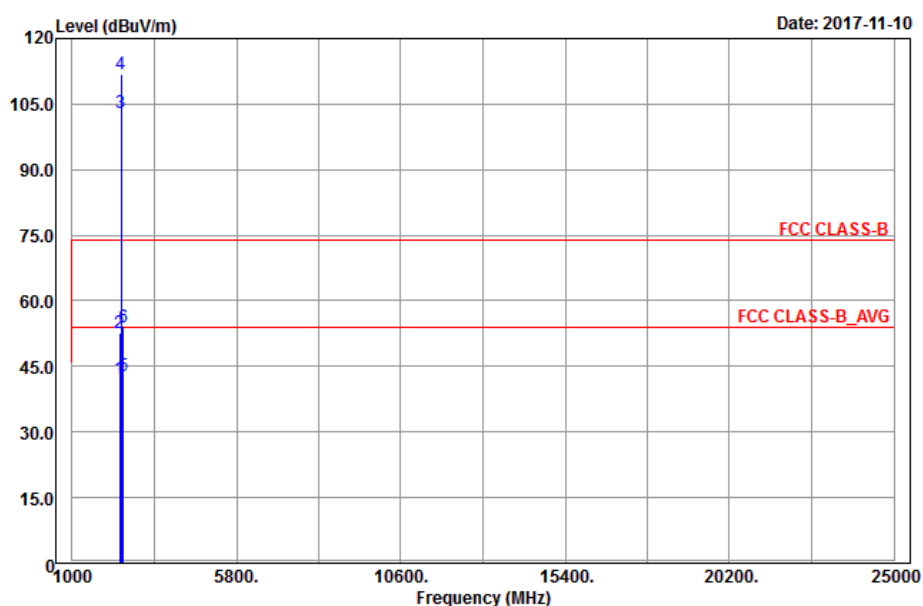
- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2412 MHz: Fundamental frequency.

EUT Test Condition		Measurement Detail	
Channel	Channel 6	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Horizontal



Vertical



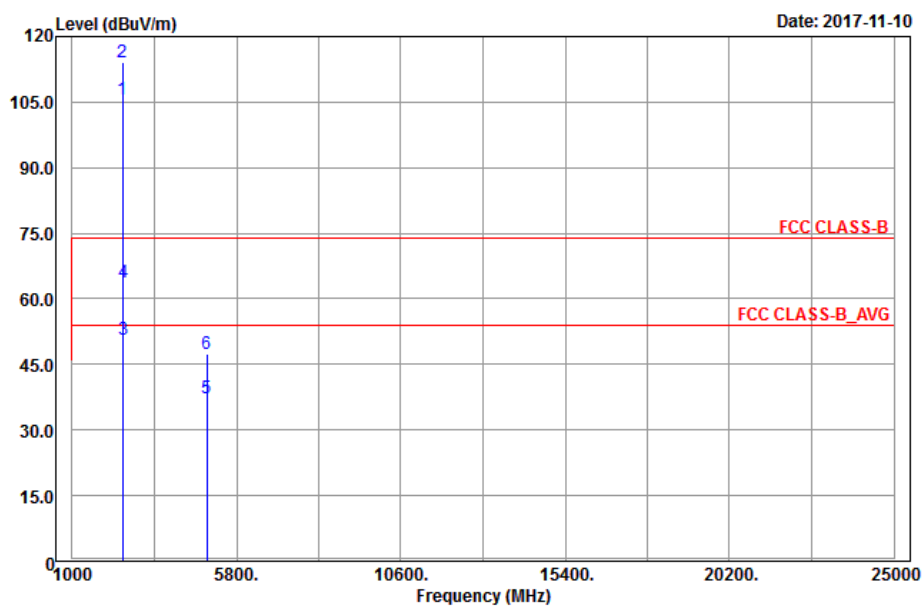
Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2389.02	47.77	46.06	54	-6.23	31.8	5.4	35.49	242	123	Average
2389.02	57.31	55.6	74	-16.69	31.8	5.4	35.49	242	123	Peak
2437	111.51	109.66			31.85	5.46	35.46	252	123	Average
2437	119.72	117.87			31.85	5.46	35.46	252	123	Peak
2485.04	45.9	43.91	54	-8.1	31.88	5.53	35.42	242	123	Average
2485.04	56.96	54.97	74	-17.04	31.88	5.53	35.42	242	123	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2389.65	42.23	40.52	54	-11.77	31.8	5.4	35.49	307	308	Average
2389.65	52.77	51.06	74	-21.23	31.8	5.4	35.49	307	308	Peak
2437	103.09	101.24			31.85	5.46	35.46	307	308	Average
2437	111.74	109.89			31.85	5.46	35.46	307	308	Peak
2488.92	42.74	40.73	54	-11.26	31.9	5.53	35.42	307	308	Average
2488.92	54.02	52.01	74	-19.98	31.9	5.53	35.42	307	308	Peak

Remarks:

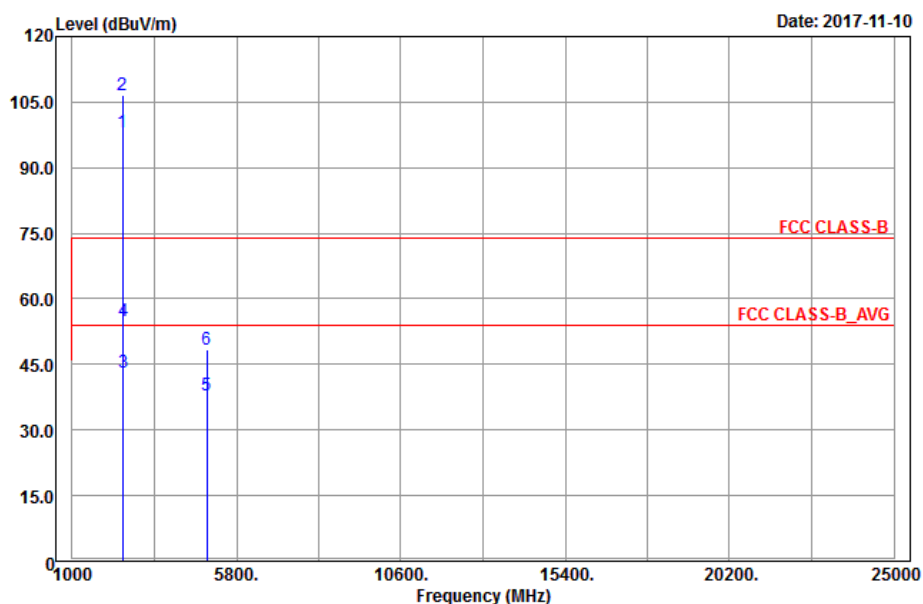
- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2437 MHz: Fundamental frequency.

EUT Test Condition		Measurement Detail	
Channel	Channel 11	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Horizontal



Vertical



Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2462	105.51	103.58			31.87	5.5	35.44	236	122	Average
2462	114.03	112.1			31.87	5.5	35.44	236	122	Peak
2483.56	50.53	48.57	54	-3.47	31.88	5.5	35.42	205	122	Average
2483.56	63.87	61.91	74	-10.13	31.88	5.5	35.42	205	122	Peak
4924	37.26	29.01	54	-16.74	33.99	8.28	34.02	132	38	Average
4924	47.53	39.28	74	-26.47	33.99	8.28	34.02	132	38	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2462	98.08	96.15			31.87	5.5	35.44	322	304	Average
2462	106.73	104.8			31.87	5.5	35.44	322	304	Peak
2483.52	43.32	41.36	54	-10.68	31.88	5.5	35.42	322	304	Average
2483.52	55.03	53.07	74	-18.97	31.88	5.5	35.42	322	304	Peak
4924	37.92	29.67	54	-16.08	33.99	8.28	34.02	163	117	Average
4924	48.54	40.29	74	-25.46	33.99	8.28	34.02	163	117	Peak

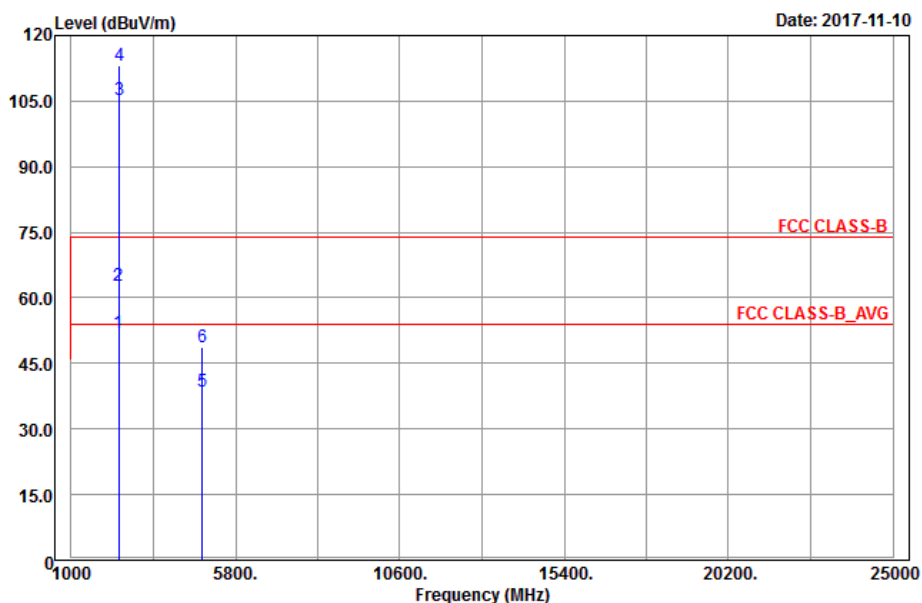
Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2462 MHz: Fundamental frequency.

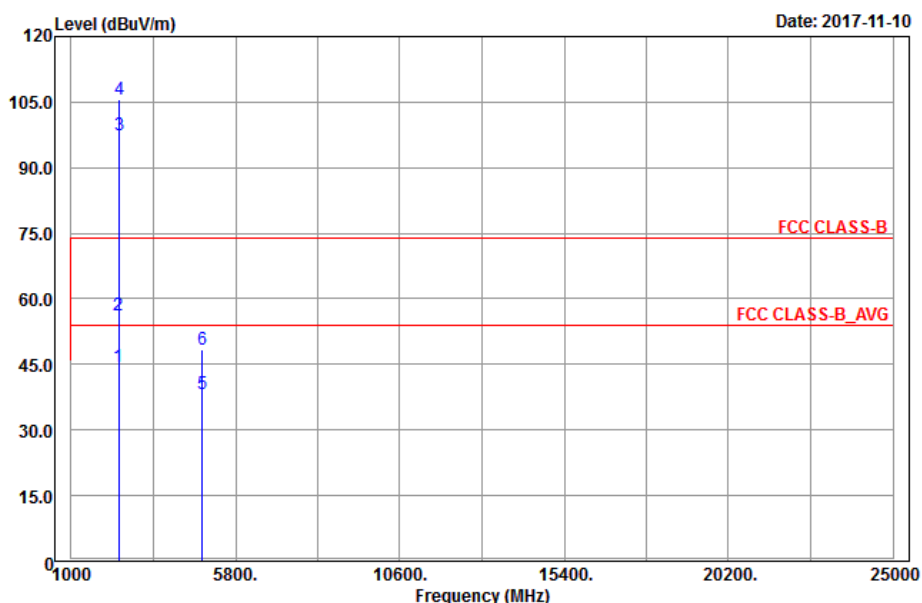
802.11n (HT20)

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Horizontal



Vertical



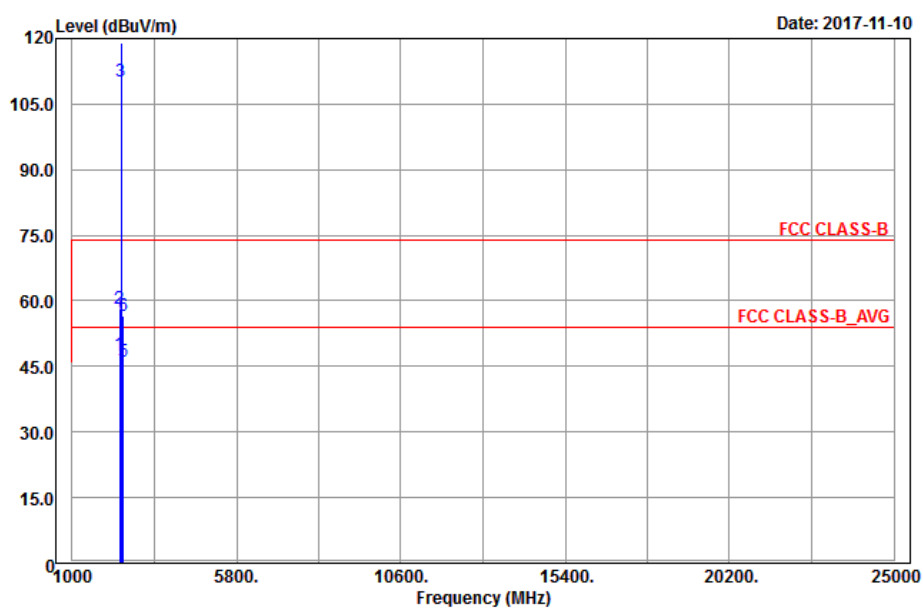
Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2389.92	51.84	50.11	54	-2.16	31.8	5.4	35.47	244	124	Average
2389.92	62.77	61.04	74	-11.23	31.8	5.4	35.47	244	124	Peak
2412	105.13	103.36			31.81	5.43	35.47	253	125	Average
2412	113.23	111.46			31.81	5.43	35.47	253	125	Peak
4824	38.53	30.4	54	-15.47	33.97	8.26	34.1	122	48	Average
4824	48.7	40.57	74	-25.3	33.97	8.26	34.1	122	48	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2389.65	44.42	42.71	54	-9.58	31.8	5.4	35.49	276	309	Average
2389.65	56.1	54.39	74	-17.9	31.8	5.4	35.49	276	309	Peak
2412	97.38	95.61			31.81	5.43	35.47	276	309	Average
2412	105.53	103.76			31.81	5.43	35.47	276	309	Peak
4824	38.19	30.06	54	-15.81	33.97	8.26	34.1	128	151	Average
4824	48.39	40.26	74	-25.61	33.97	8.26	34.1	128	151	Peak

Remarks:

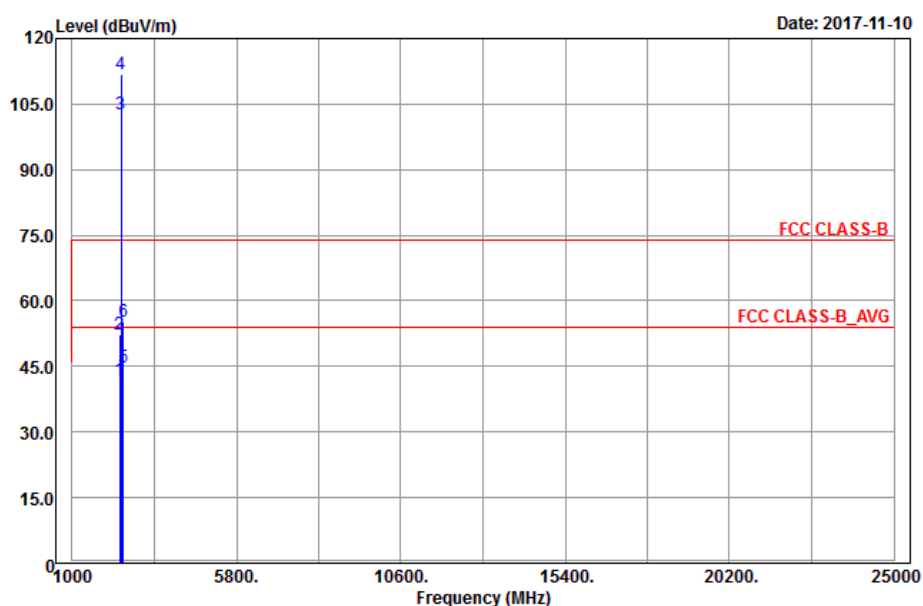
- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2412 MHz: Fundamental frequency.

EUT Test Condition		Measurement Detail	
Channel	Channel 6	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Horizontal



Vertical



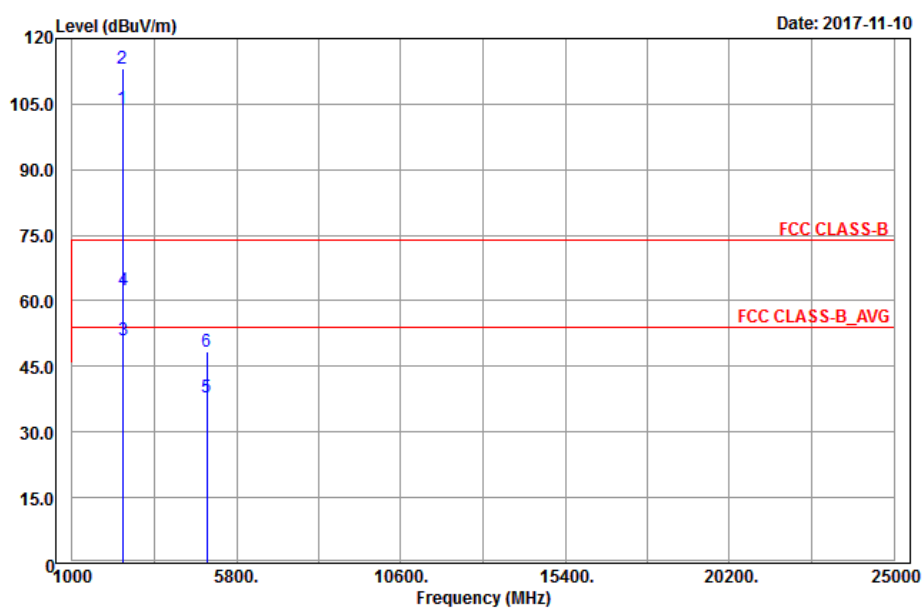
Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2389.2	47.87	46.16	54	-6.13	31.8	5.4	35.49	253	114	Average
2389.2	58.13	56.42	74	-15.87	31.8	5.4	35.49	253	114	Peak
2437	110.23	108.38			31.85	5.46	35.46	256	123	Average
2437	119.18	117.33			31.85	5.46	35.46	256	123	Peak
2485.24	46.02	44.03	54	-7.98	31.88	5.53	35.42	253	114	Average
2485.24	56.48	54.49	74	-17.52	31.88	5.53	35.42	253	114	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2389.29	41.83	40.12	54	-12.17	31.8	5.4	35.49	307	308	Average
2389.29	52.37	50.66	74	-21.63	31.8	5.4	35.49	307	308	Peak
2437	102.78	100.93			31.85	5.46	35.46	307	308	Average
2437	111.71	109.86			31.85	5.46	35.46	307	308	Peak
2484.84	44.74	42.75	54	-9.26	31.88	5.53	35.42	307	308	Average
2484.84	55.4	53.41	74	-18.6	31.88	5.53	35.42	307	308	Peak

Remarks:

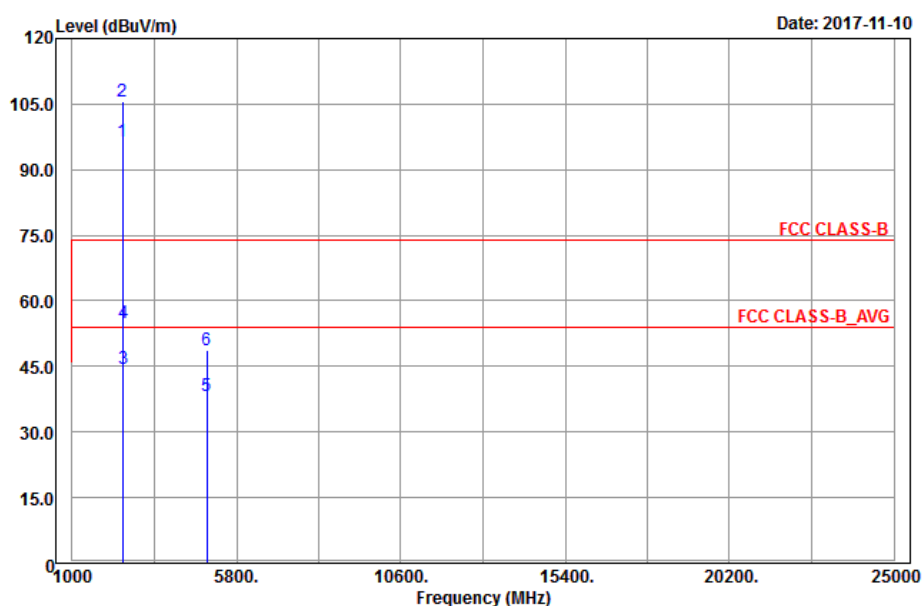
- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2437 MHz: Fundamental frequency.

EUT Test Condition		Measurement Detail	
Channel	Channel 11	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Horizontal



Vertical



Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2462	104.09	102.16			31.87	5.5	35.44	236	122	Average
2462	113.01	111.08			31.87	5.5	35.44	236	122	Peak
2483.56	51.04	49.08	54	-2.96	31.88	5.5	35.42	224	116	Average
2483.56	62.37	60.41	74	-11.63	31.88	5.5	35.42	224	116	Peak
4924	37.93	29.68	54	-16.07	33.99	8.28	34.02	165	283	Average
4924	48.29	40.04	74	-25.71	33.99	8.28	34.02	165	283	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2462	96.46	94.53			31.87	5.5	35.44	338	308	Average
2462	105.54	103.61			31.87	5.5	35.44	338	308	Peak
2483.52	44.45	42.49	54	-9.55	31.88	5.5	35.42	338	298	Average
2483.52	54.94	52.98	74	-19.06	31.88	5.5	35.42	338	298	Peak
4924	38.39	30.14	54	-15.61	33.99	8.28	34.02	148	231	Average
4924	48.82	40.57	74	-25.18	33.99	8.28	34.02	148	231	Peak

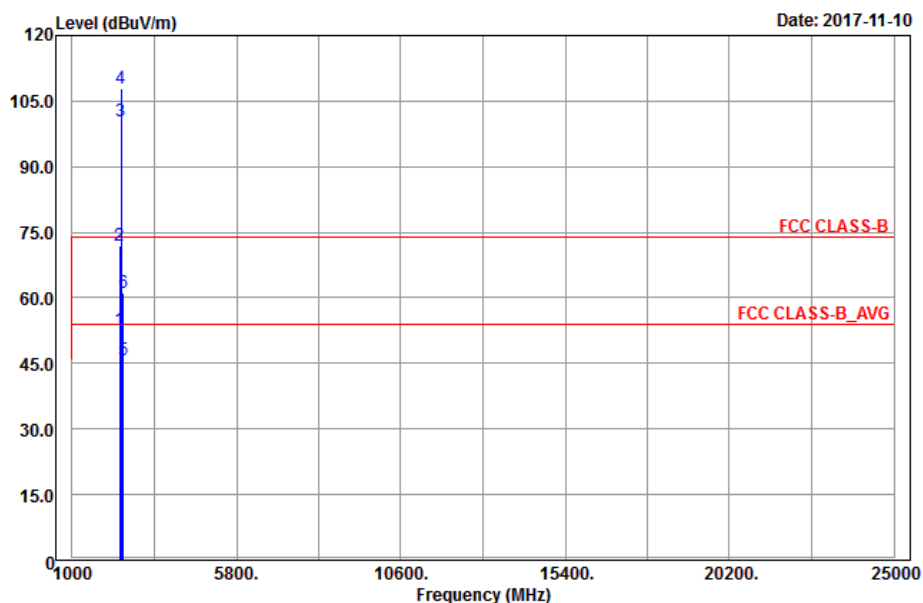
Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2462 MHz: Fundamental frequency.

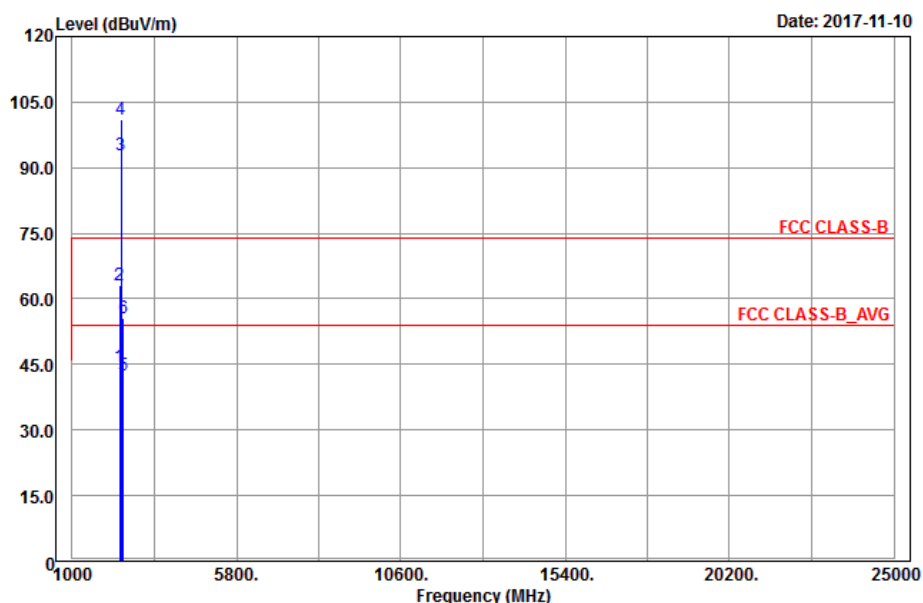
802.11n (HT40)

EUT Test Condition		Measurement Detail	
Channel	Channel 3	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Horizontal



Vertical



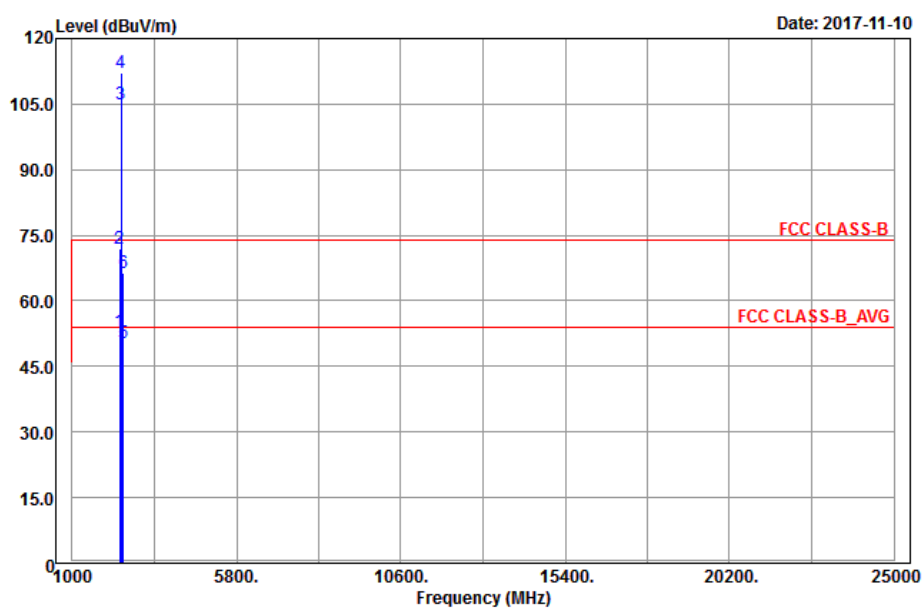
Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2389.92	52.67	50.94	54	-1.33	31.8	5.4	35.47	251	47	Average
2389.92	72.04	70.31	74	-1.96	31.8	5.4	35.47	251	47	Peak
2422	100.31	98.51			31.83	5.43	35.46	261	124	Average
2422	107.93	106.13			31.83	5.43	35.46	261	124	Peak
2483.56	45.94	43.98	54	-8.06	31.88	5.5	35.42	251	47	Average
2483.56	61.11	59.15	74	-12.89	31.88	5.5	35.42	251	47	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2389.92	44.63	42.9	54	-9.37	31.8	5.4	35.47	266	295	Average
2389.92	63	61.27	74	-11	31.8	5.4	35.47	266	295	Peak
2422	92.99	91.19			31.83	5.43	35.46	298	310	Average
2422	100.89	99.09			31.83	5.43	35.46	298	310	Peak
2484.2	42.4	40.41	54	-11.6	31.88	5.53	35.42	266	295	Average
2484.2	55.46	53.47	74	-18.54	31.88	5.53	35.42	266	295	Peak

Remarks:

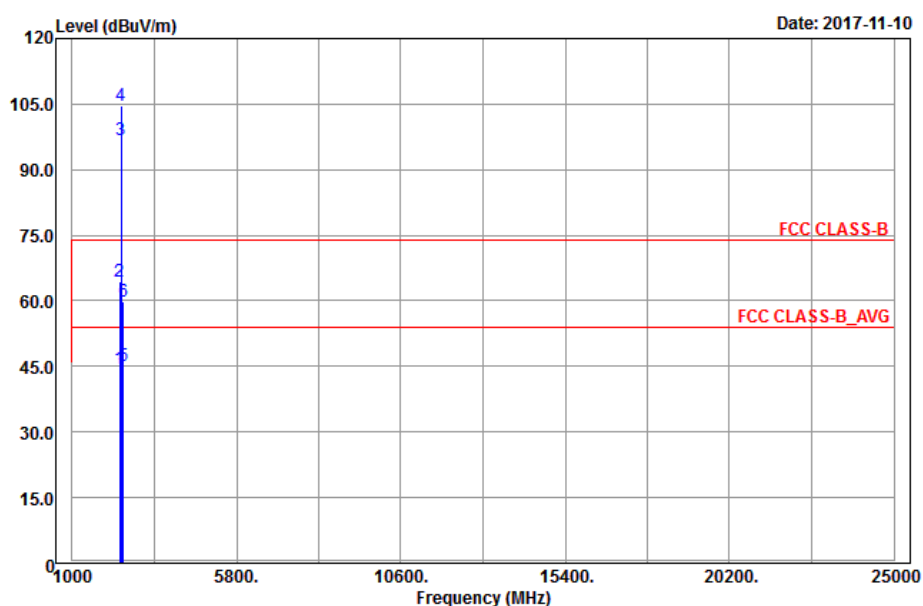
- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2422 MHz: Fundamental frequency.

EUT Test Condition		Measurement Detail	
Channel	Channel 6	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Horizontal



Vertical



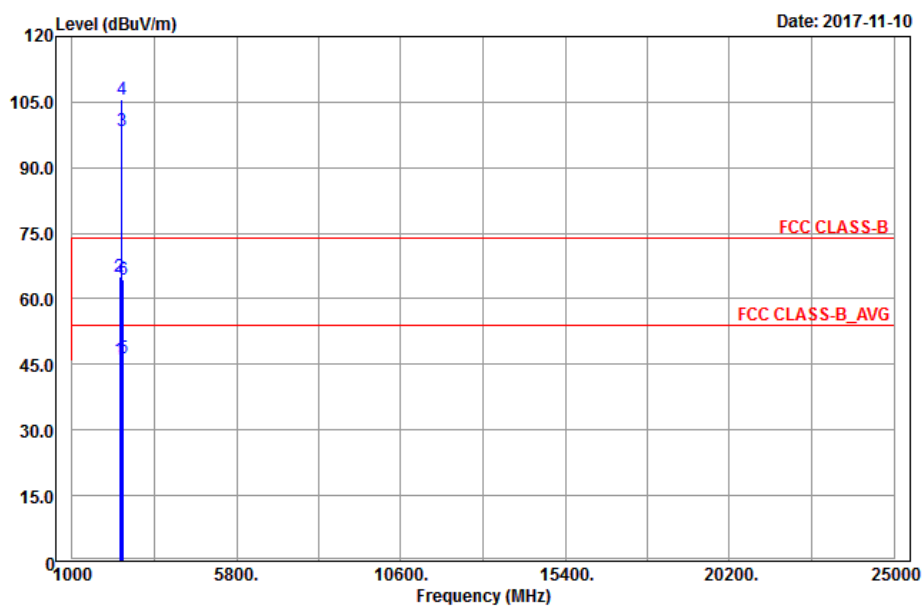
Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2389.38	52.99	51.28	54	-1.01	31.8	5.4	35.49	236	101	Average
2389.38	71.81	70.1	74	-2.19	31.8	5.4	35.49	236	101	Peak
2437	104.93	103.08			31.85	5.46	35.46	252	123	Average
2437	112.27	110.42			31.85	5.46	35.46	252	123	Peak
2483.52	50.29	48.33	54	-3.71	31.88	5.5	35.42	236	101	Average
2483.52	66.42	64.46	74	-7.58	31.88	5.5	35.42	236	101	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2389.92	44.42	42.69	54	-9.58	31.8	5.4	35.47	295	320	Average
2389.92	64.31	62.58	74	-9.69	31.8	5.4	35.47	295	320	Peak
2437	96.79	94.94			31.85	5.46	35.46	307	308	Average
2437	104.56	102.71			31.85	5.46	35.46	307	308	Peak
2484.96	45.14	43.15	54	-8.86	31.88	5.53	35.42	295	320	Average
2484.96	59.86	57.87	74	-14.14	31.88	5.53	35.42	295	320	Peak

Remarks:

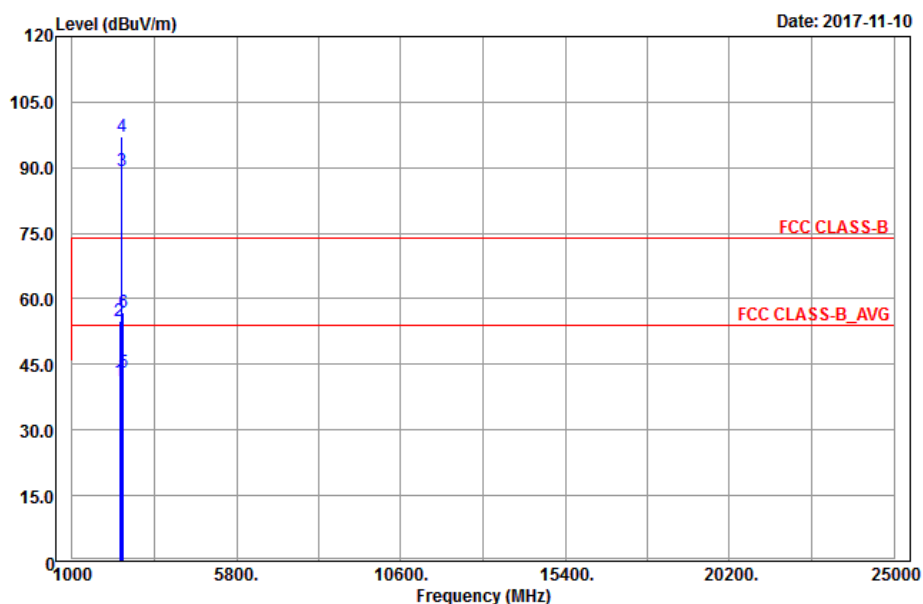
- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2437 MHz: Fundamental frequency.

EUT Test Condition		Measurement Detail	
Channel	Channel 9	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Horizontal



Vertical



Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2388.48	46.08	44.37	54	-7.92	31.8	5.4	35.49	246	115	Average
2388.48	65.17	63.46	74	-8.83	31.8	5.4	35.49	246	115	Peak
2452	98.27	96.4			31.85	5.46	35.44	254	123	Average
2452	105.69	103.82			31.85	5.46	35.44	254	123	Peak
2483.68	46.57	44.61	54	-7.43	31.88	5.5	35.42	246	115	Average
2483.68	64.55	62.59	74	-9.45	31.88	5.5	35.42	246	115	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2389.83	41.32	39.59	54	-12.68	31.8	5.4	35.47	338	308	Average
2389.83	54.89	53.16	74	-19.11	31.8	5.4	35.47	338	308	Peak
2452	89.37	87.5			31.85	5.46	35.44	338	308	Average
2452	97.09	95.22			31.85	5.46	35.44	338	308	Peak
2485.04	43.16	41.17	54	-10.84	31.88	5.53	35.42	335	308	Average
2485.04	57.05	55.06	74	-16.95	31.88	5.53	35.42	335	308	Peak

Remarks:

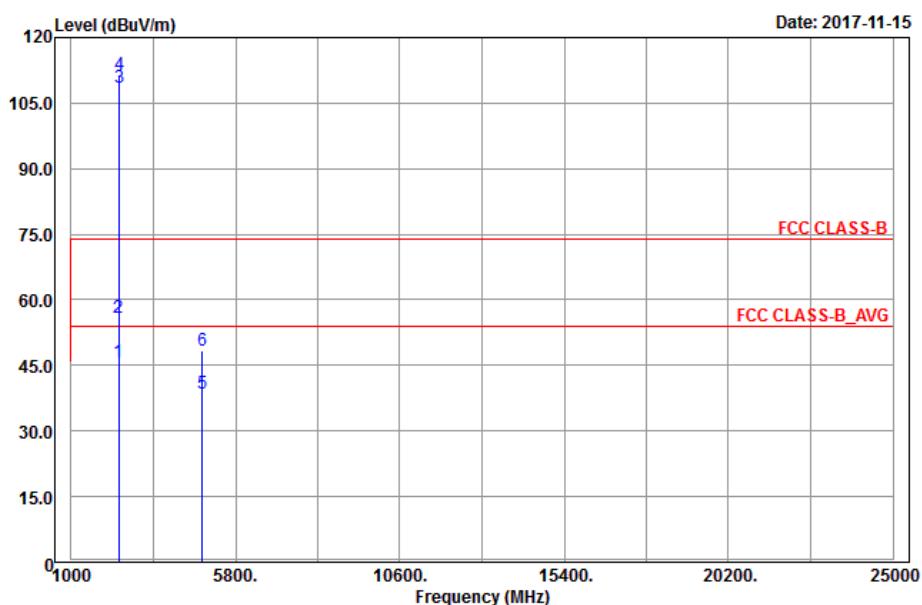
- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2452 MHz: Fundamental frequency.

Mode B

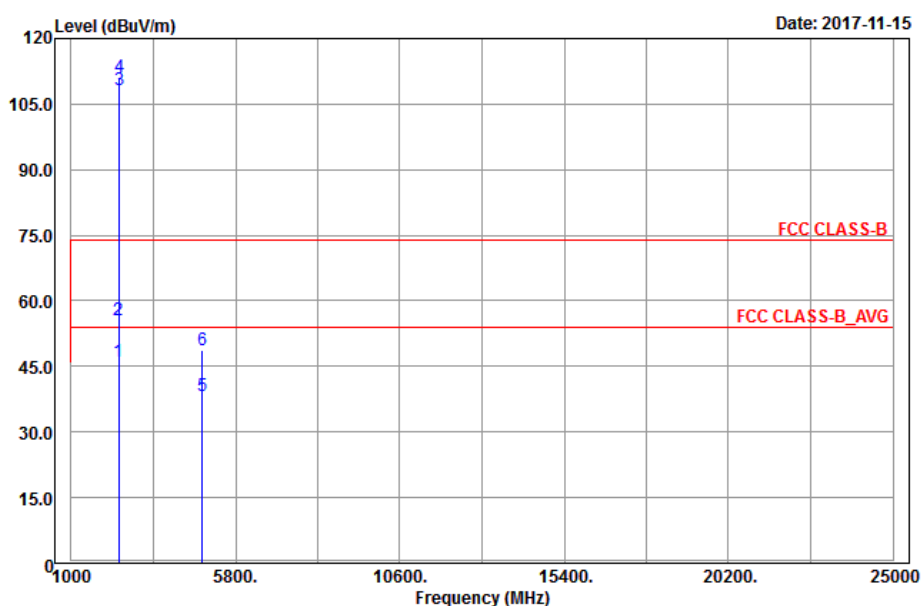
802.11b

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Horizontal



Vertical



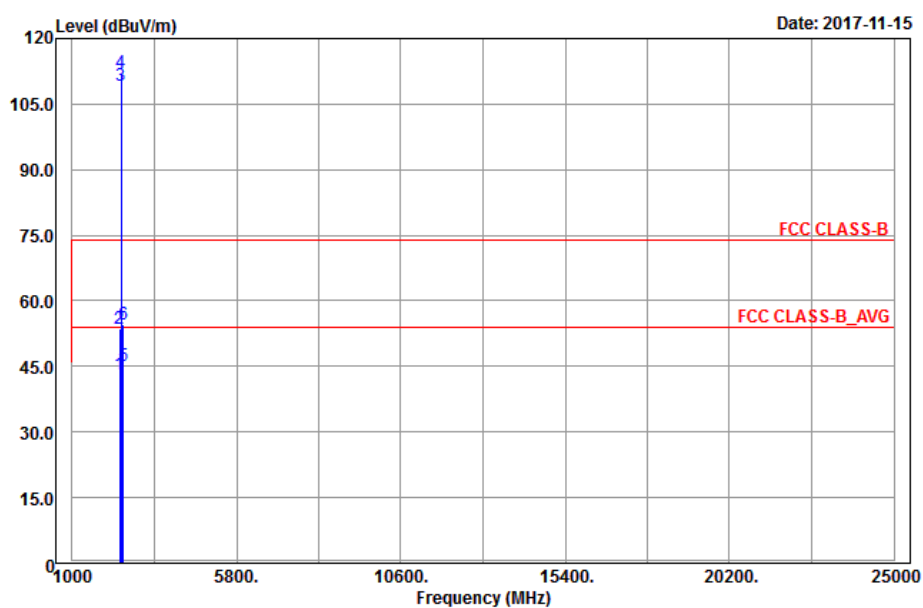
Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2388.21	45.93	44.22	54	-8.07	31.8	5.4	35.49	252	115	Average
2388.21	55.81	54.1	74	-18.19	31.8	5.4	35.49	252	115	Peak
2412	108.66	106.89			31.81	5.43	35.47	258	115	Average
2412	111.54	109.77			31.81	5.43	35.47	258	115	Peak
4824	38.47	30.34	54	-15.53	33.97	8.26	34.1	196	340	Average
4824	48.54	40.41	74	-25.46	33.97	8.26	34.1	196	340	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2387.94	46.16	44.45	54	-7.84	31.8	5.4	35.49	324	143	Average
2387.94	55.59	53.88	74	-18.41	31.8	5.4	35.49	324	143	Peak
2412	108.37	106.6			31.81	5.43	35.47	324	156	Average
2412	111.22	109.45			31.81	5.43	35.47	324	156	Peak
4824	38.35	30.22	54	-15.65	33.97	8.26	34.1	136	211	Average
4824	48.62	40.49	74	-25.38	33.97	8.26	34.1	100	360	Peak

Remarks:

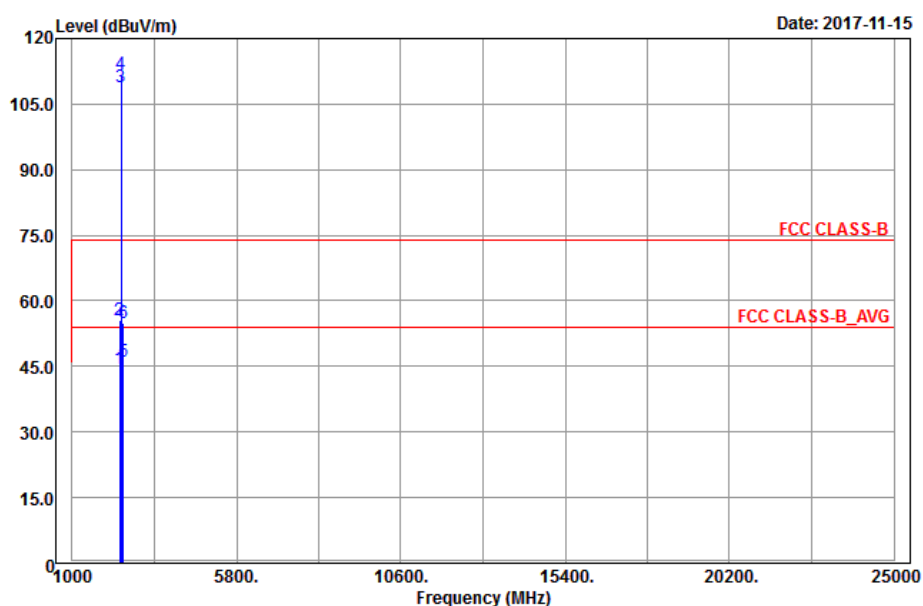
- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2412 MHz: Fundamental frequency.

EUT Test Condition		Measurement Detail	
Channel	Channel 6	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Horizontal



Vertical



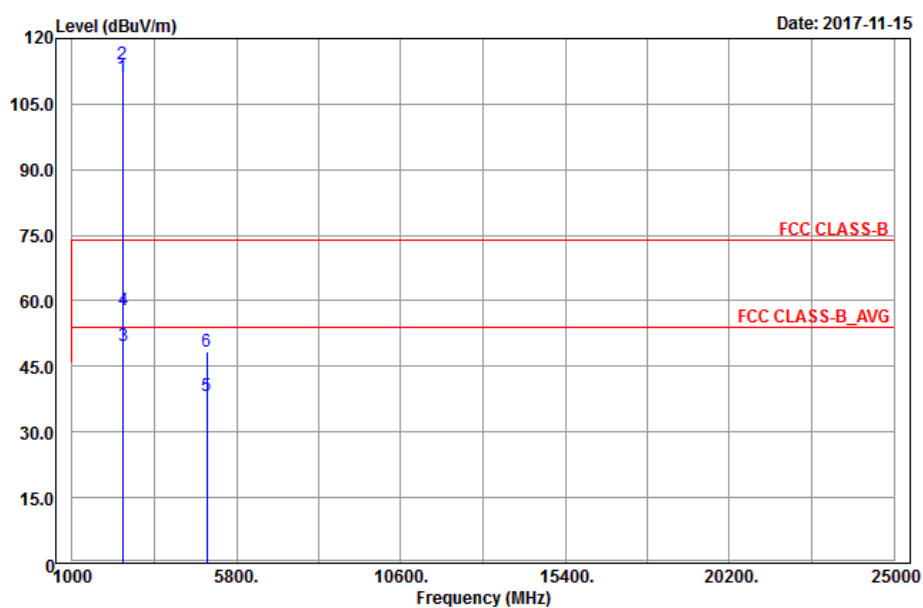
Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2389.47	43.18	41.47	54	-10.82	31.8	5.4	35.49	258	115	Average
2389.47	53.6	51.89	74	-20.4	31.8	5.4	35.49	258	115	Peak
2437	109.18	107.33			31.85	5.46	35.46	258	115	Average
2437	112.22	110.37			31.85	5.46	35.46	258	115	Peak
2484.96	45.06	43.07	54	-8.94	31.88	5.53	35.42	258	115	Average
2484.96	54.7	52.71	74	-19.3	31.88	5.53	35.42	258	115	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2389.92	44.59	42.86	54	-9.41	31.8	5.4	35.47	298	154	Average
2389.92	55.64	53.91	74	-18.36	31.8	5.4	35.47	298	154	Peak
2437	108.88	107.03			31.85	5.46	35.46	298	154	Average
2437	111.74	109.89			31.85	5.46	35.46	298	154	Peak
2485	46.18	44.19	54	-7.82	31.88	5.53	35.42	298	154	Average
2485	55.01	53.02	74	-18.99	31.88	5.53	35.42	298	154	Peak

Remarks:

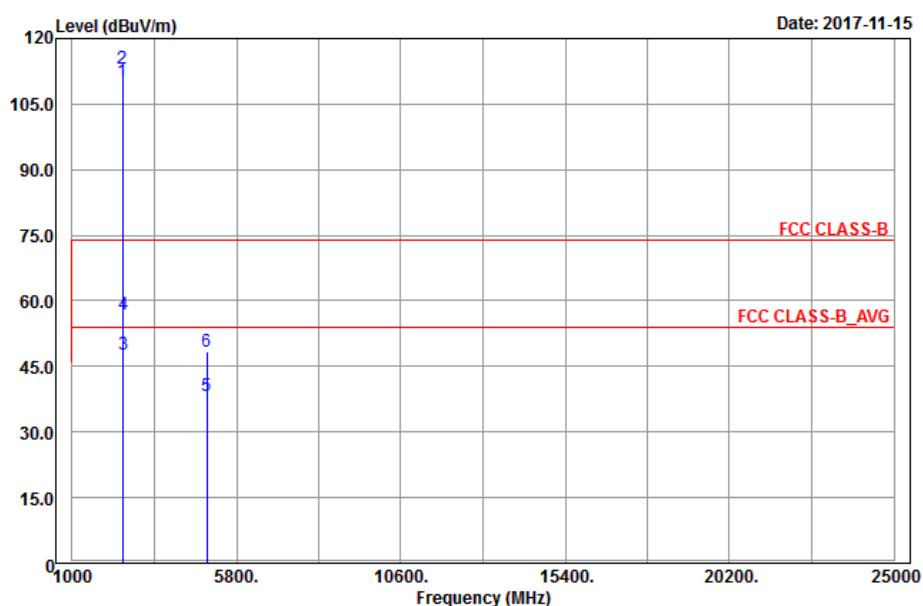
- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2437 MHz: Fundamental frequency.

EUT Test Condition		Measurement Detail	
Channel	Channel 11	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Horizontal



Vertical



Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2462	111.28	109.35			31.87	5.5	35.44	294	153	Average
2462	114.05	112.12			31.87	5.5	35.44	294	153	Peak
2488.96	49.63	47.62	54	-4.37	31.9	5.53	35.42	275	150	Average
2488.96	57.75	55.74	74	-16.25	31.9	5.53	35.42	275	150	Peak
4924	38.11	29.86	54	-15.89	33.99	8.28	34.02	163	273	Average
4924	48.38	40.13	74	-25.62	33.99	8.28	34.02	163	273	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2462	110.04	108.11			31.87	5.5	35.44	258	115	Average
2462	113.04	111.11			31.87	5.5	35.44	258	115	Peak
2489.32	47.76	45.75	54	-6.24	31.9	5.53	35.42	261	122	Average
2489.32	56.94	54.93	74	-17.06	31.9	5.53	35.42	261	122	Peak
4924	38.15	29.9	54	-15.85	33.99	8.28	34.02	174	342	Average
4924	48.44	40.19	74	-25.56	33.99	8.28	34.02	174	342	Peak

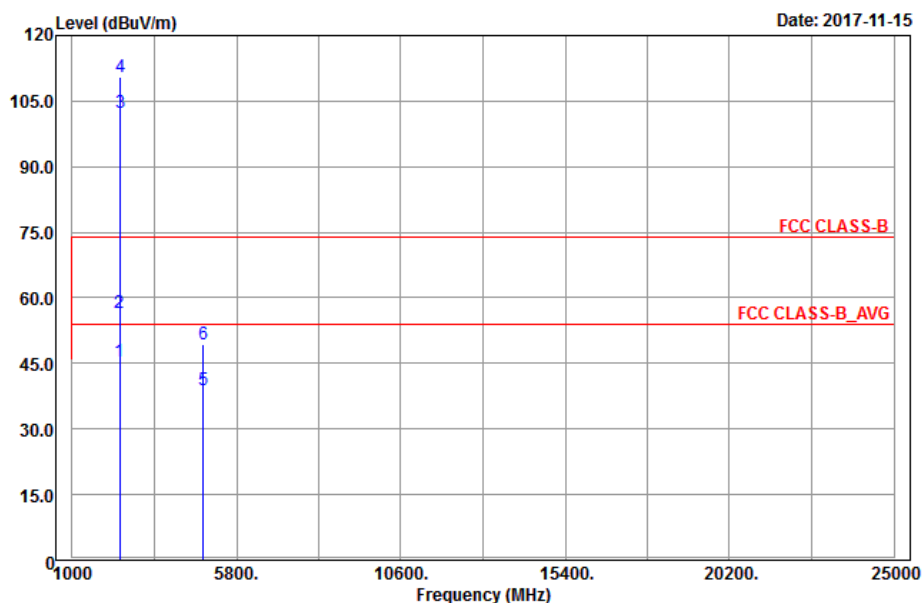
Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2462 MHz: Fundamental frequency.

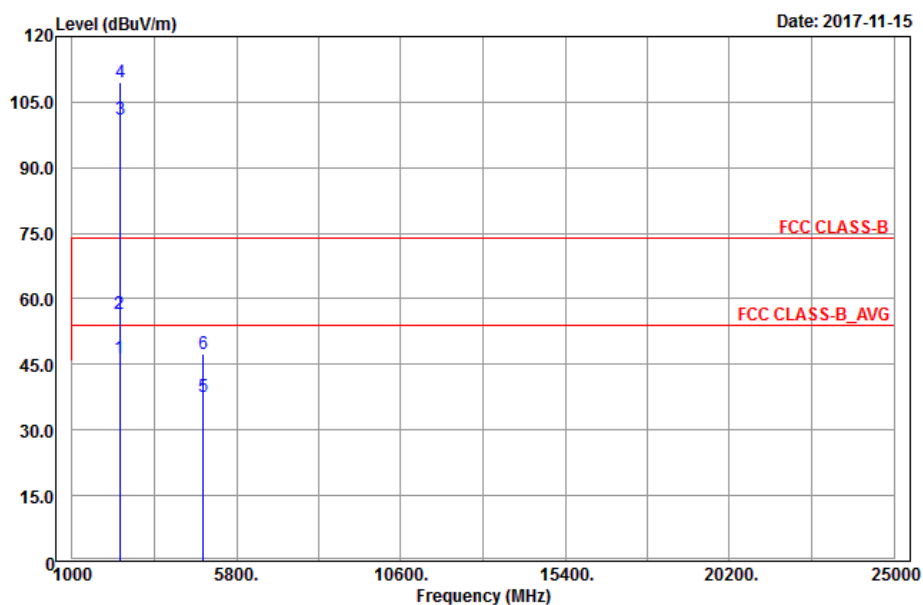
802.11g

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Horizontal



Vertical



Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2389.92	45.56	43.83	54	-8.44	31.8	5.4	35.47	249	103	Average
2389.92	56.48	54.75	74	-17.52	31.8	5.4	35.47	249	103	Peak
2412	102.22	100.45			31.81	5.43	35.47	258	115	Average
2412	110.39	108.62			31.81	5.43	35.47	258	115	Peak
4824	38.75	30.62	54	-15.25	33.97	8.26	34.1	196	236	Average
4824	49.21	41.08	74	-24.79	33.97	8.26	34.1	196	236	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2389.92	46.48	44.75	54	-7.52	31.8	5.4	35.47	318	127	Average
2389.92	56.44	54.71	74	-17.56	31.8	5.4	35.47	318	127	Peak
2412	101.12	99.35			31.81	5.43	35.47	324	156	Average
2412	109.48	107.71			31.81	5.43	35.47	324	156	Peak
4824	37.46	29.33	54	-16.54	33.97	8.26	34.1	133	162	Average
4824	47.32	39.19	74	-26.68	33.97	8.26	34.1	133	162	Peak

Remarks:

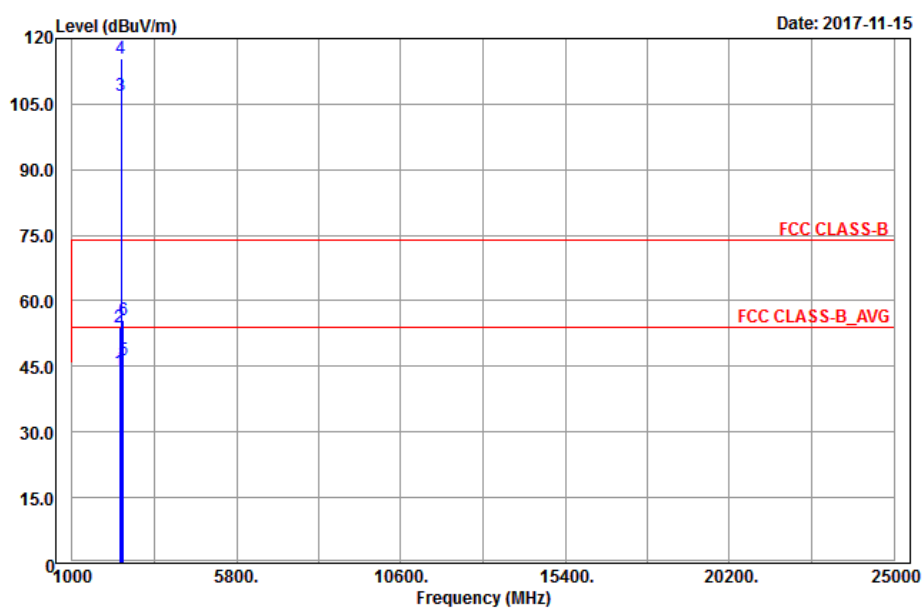
1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor

Margin value = Emission level – Limit value

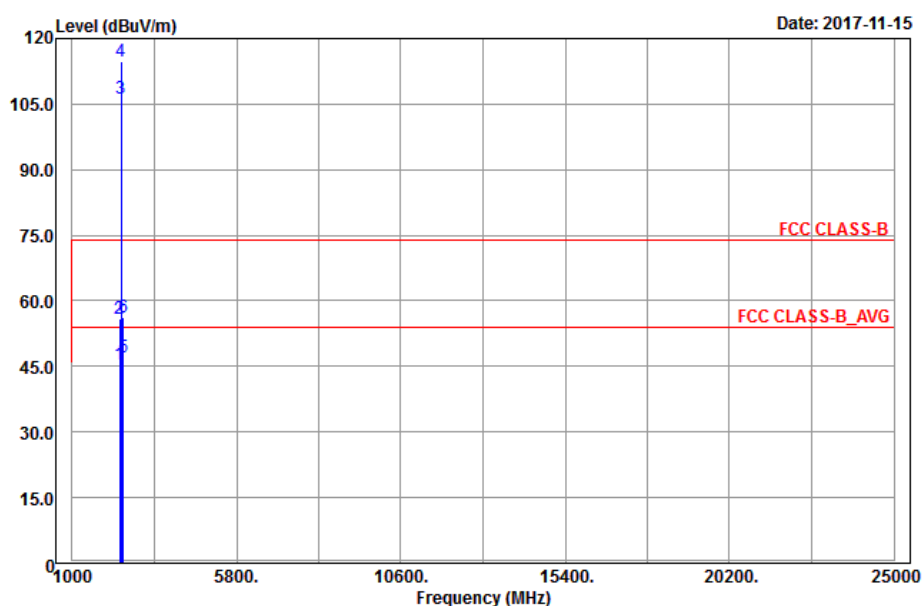
2. 2412 MHz: Fundamental frequency.

EUT Test Condition		Measurement Detail	
Channel	Channel 6	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Horizontal



Vertical



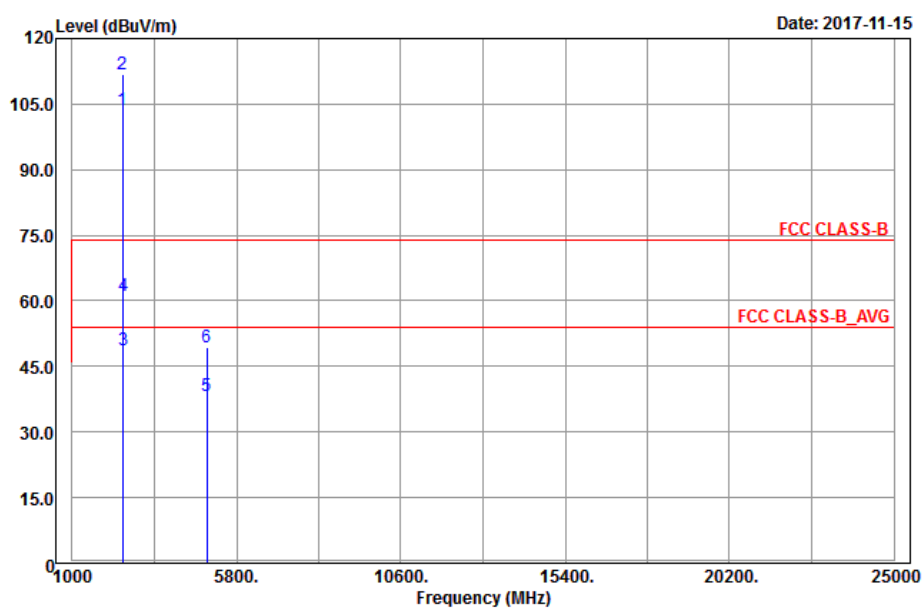
Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2389.02	43.73	42.02	54	-10.27	31.8	5.4	35.49	258	115	Average
2389.02	53.81	52.1	74	-20.19	31.8	5.4	35.49	258	115	Peak
2437	106.95	105.1			31.85	5.46	35.46	258	115	Average
2437	115.34	113.49			31.85	5.46	35.46	258	115	Peak
2485	46.36	44.37	54	-7.64	31.88	5.53	35.42	258	115	Average
2485	55.46	53.47	74	-18.54	31.88	5.53	35.42	258	115	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2389.29	45.32	43.61	54	-8.68	31.8	5.4	35.49	298	154	Average
2389.29	55.87	54.16	74	-18.13	31.8	5.4	35.49	298	154	Peak
2437	106.11	104.26			31.85	5.46	35.46	298	154	Average
2437	114.76	112.91			31.85	5.46	35.46	298	154	Peak
2485.2	46.96	44.97	54	-7.04	31.88	5.53	35.42	298	154	Average
2485.2	56.25	54.26	74	-17.75	31.88	5.53	35.42	298	154	Peak

Remarks:

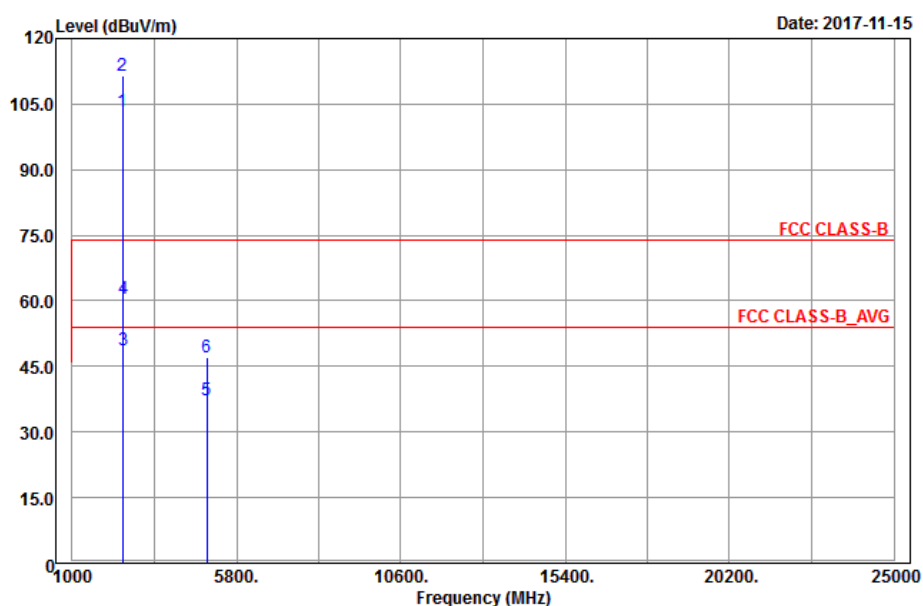
- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2437 MHz: Fundamental frequency.

EUT Test Condition		Measurement Detail	
Channel	Channel 11	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Horizontal



Vertical



Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2462	103.51	101.58			31.87	5.5	35.44	294	153	Average
2462	111.89	109.96			31.87	5.5	35.44	294	153	Peak
2483.52	48.8	46.84	54	-5.2	31.88	5.5	35.42	263	165	Average
2483.52	61.03	59.07	74	-12.97	31.88	5.5	35.42	263	165	Peak
4924	38.36	30.11	54	-15.64	33.99	8.28	34.02	153	46	Average
4924	49.3	41.05	74	-24.7	33.99	8.28	34.02	153	46	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2462	103.28	101.35			31.87	5.5	35.44	258	115	Average
2462	111.55	109.62			31.87	5.5	35.44	258	115	Peak
2483.52	48.67	46.71	54	-5.33	31.88	5.5	35.42	250	79	Average
2483.52	60.6	58.64	74	-13.4	31.88	5.5	35.42	250	79	Peak
4924	37.36	29.11	54	-16.64	33.99	8.28	34.02	160	302	Average
4924	47.21	38.96	74	-26.79	33.99	8.28	34.02	160	302	Peak

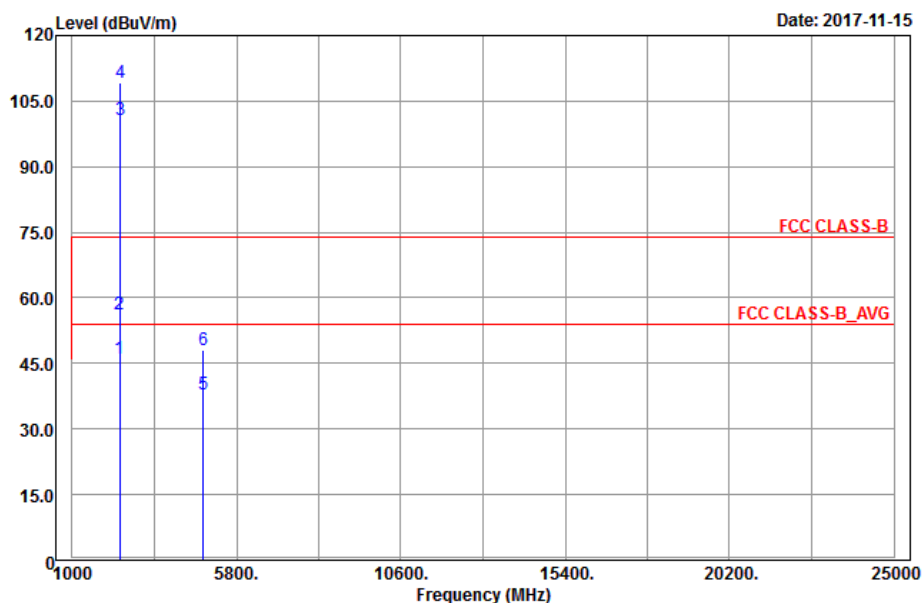
Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2462 MHz: Fundamental frequency.

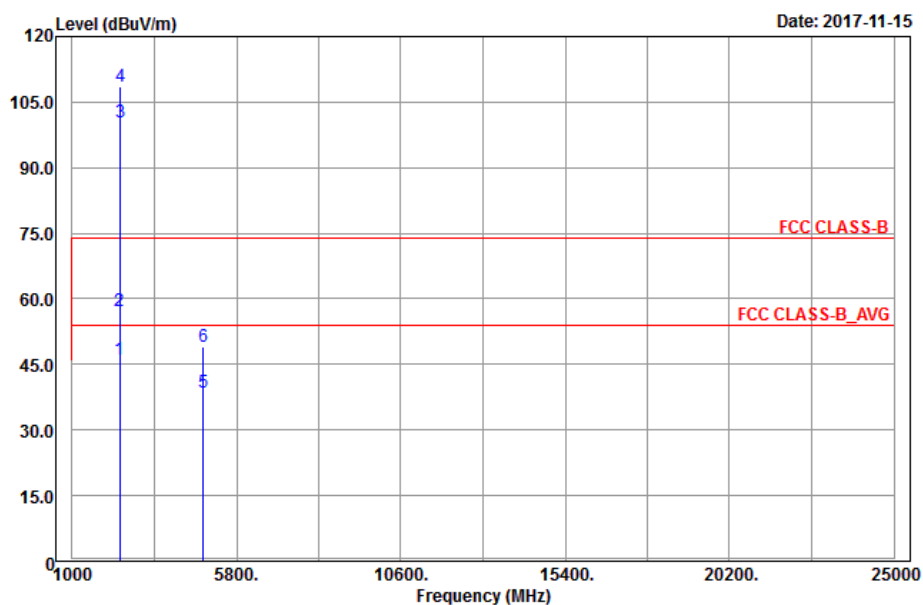
802.11n (HT20)

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Horizontal



Vertical



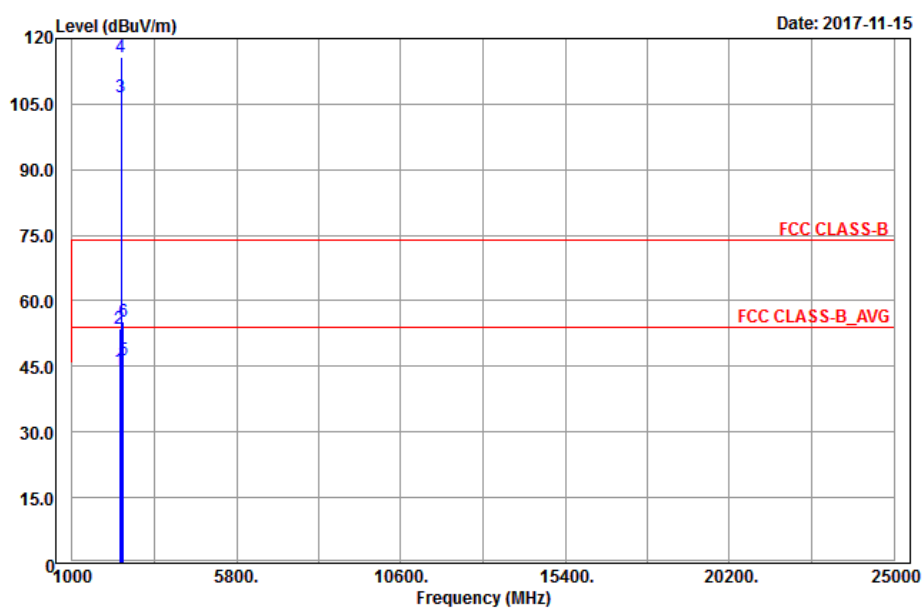
Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2389.92	45.99	44.26	54	-8.01	31.8	5.4	35.47	236	89	Average
2389.92	56.13	54.4	74	-17.87	31.8	5.4	35.47	236	89	Peak
2412	100.73	98.96			31.81	5.43	35.47	258	115	Average
2412	109.08	107.31			31.81	5.43	35.47	258	115	Peak
4824	38.07	29.94	54	-15.93	33.97	8.26	34.1	129	125	Average
4824	48.15	40.02	74	-25.85	33.97	8.26	34.1	129	125	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2389.92	46.17	44.44	54	-7.83	31.8	5.4	35.47	326	145	Average
2389.92	57.22	55.49	74	-16.78	31.8	5.4	35.47	326	145	Peak
2412	100.5	98.73			31.81	5.43	35.47	324	156	Average
2412	108.57	106.8			31.81	5.43	35.47	324	156	Peak
4824	38.63	30.5	54	-15.37	33.97	8.26	34.1	132	287	Average
4824	49.12	40.99	74	-24.88	33.97	8.26	34.1	132	287	Peak

Remarks:

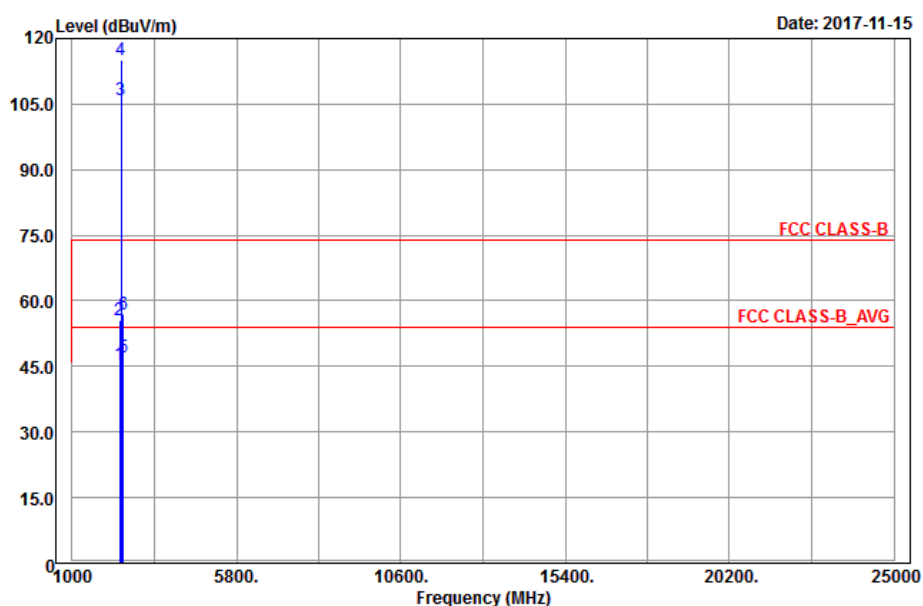
- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2412 MHz: Fundamental frequency.

EUT Test Condition		Measurement Detail	
Channel	Channel 6	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Horizontal



Vertical



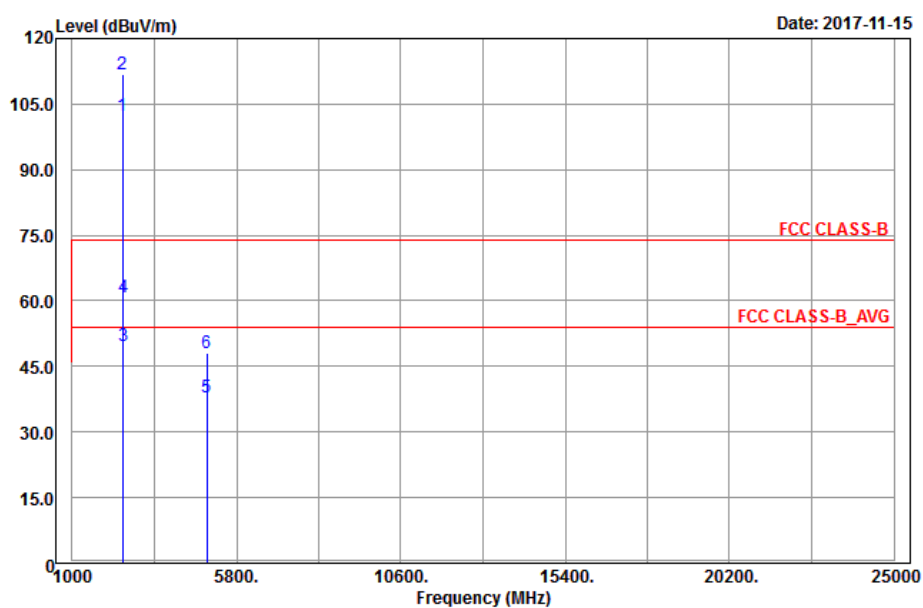
Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2389.02	44.22	42.51	54	-9.78	31.8	5.4	35.49	258	115	Average
2389.02	53.68	51.97	74	-20.32	31.8	5.4	35.49	258	115	Peak
2437	106.52	104.67			31.85	5.46	35.46	258	115	Average
2437	115.65	113.8			31.85	5.46	35.46	258	115	Peak
2485.08	46.33	44.34	54	-7.67	31.88	5.53	35.42	258	115	Average
2485.08	55.23	53.24	74	-18.77	31.88	5.53	35.42	258	115	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2389.11	45.49	43.78	54	-8.51	31.8	5.4	35.49	298	154	Average
2389.11	55.43	53.72	74	-18.57	31.8	5.4	35.49	298	154	Peak
2437	106.03	104.18			31.85	5.46	35.46	298	154	Average
2437	114.96	113.11			31.85	5.46	35.46	298	154	Peak
2485.24	47.14	45.15	54	-6.86	31.88	5.53	35.42	298	154	Average
2485.24	56.86	54.87	74	-17.14	31.88	5.53	35.42	298	154	Peak

Remarks:

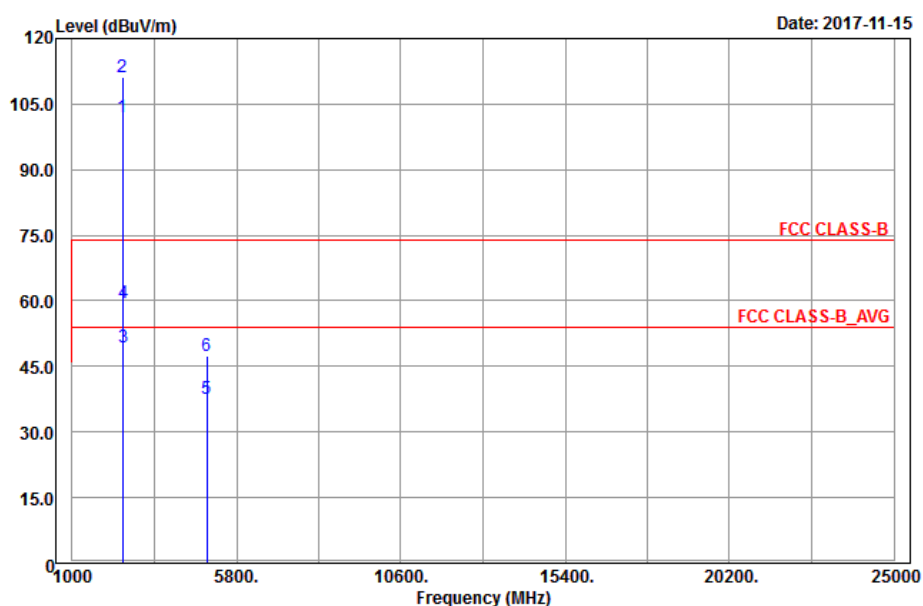
- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2437 MHz: Fundamental frequency.

EUT Test Condition		Measurement Detail	
Channel	Channel 11	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Horizontal



Vertical



Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2462	102.24	100.31			31.87	5.5	35.44	294	153	Average
2462	111.76	109.83			31.87	5.5	35.44	294	153	Peak
2483.56	49.73	47.77	54	-4.27	31.88	5.5	35.42	282	159	Average
2483.56	60.83	58.87	74	-13.17	31.88	5.5	35.42	282	159	Peak
4924	37.94	29.69	54	-16.06	33.99	8.28	34.02	137	268	Average
4924	48.11	39.86	74	-25.89	33.99	8.28	34.02	137	268	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2462	101.96	100.03			31.87	5.5	35.44	258	115	Average
2462	111.26	109.33			31.87	5.5	35.44	258	115	Peak
2483.68	49.24	47.28	54	-4.76	31.88	5.5	35.42	247	105	Average
2483.68	59.45	57.49	74	-14.55	31.88	5.5	35.42	247	105	Peak
4924	37.48	29.23	54	-16.52	33.99	8.28	34.02	105	195	Average
4924	47.28	39.03	74	-26.72	33.99	8.28	34.02	105	195	Peak

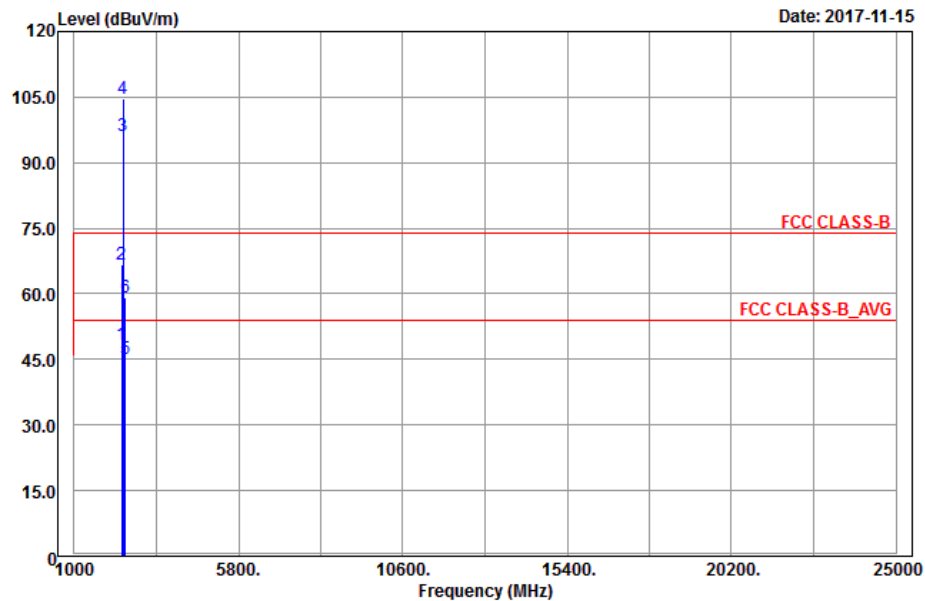
Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2462 MHz: Fundamental frequency.

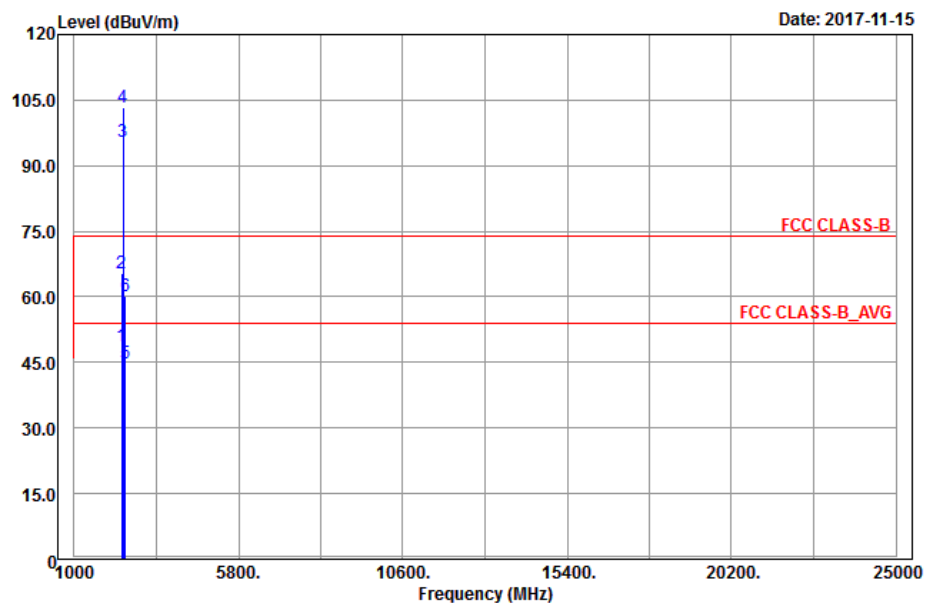
802.11n (HT40)

EUT Test Condition		Measurement Detail	
Channel	Channel 3	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Horizontal



Vertical



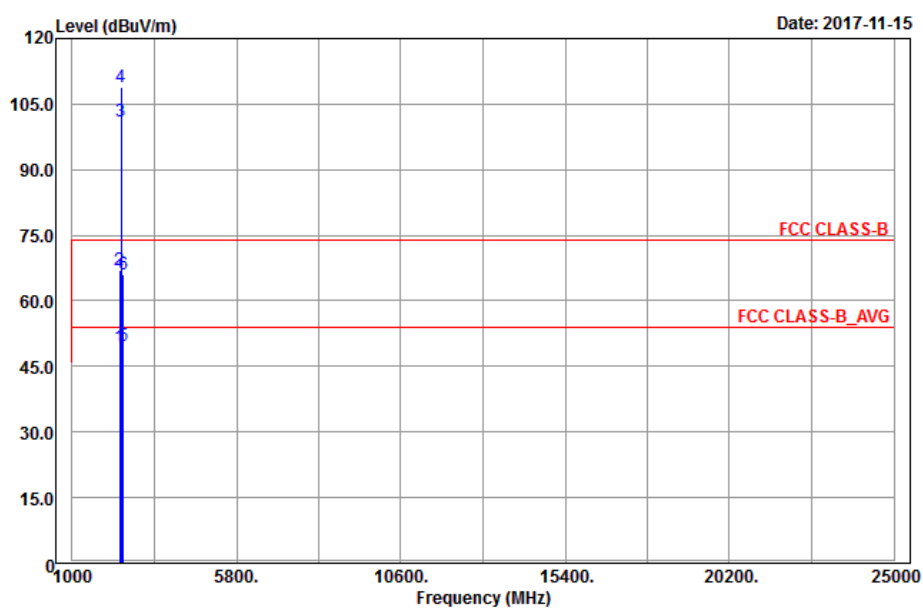
Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2389.92	48.41	46.68	54	-5.59	31.8	5.4	35.47	237	106	Average
2389.92	66.55	64.82	74	-7.45	31.8	5.4	35.47	237	106	Peak
2422	96.16	94.36			31.83	5.43	35.46	258	115	Average
2422	104.48	102.68			31.83	5.43	35.46	258	115	Peak
2485.04	45.03	43.04	54	-8.97	31.88	5.53	35.42	237	106	Average
2485.04	59.16	57.17	74	-14.84	31.88	5.53	35.42	237	106	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2387.85	48.78	47.07	54	-5.22	31.8	5.4	35.49	288	174	Average
2387.85	65.54	63.83	74	-8.46	31.8	5.4	35.49	288	174	Peak
2422	95.48	93.68			31.83	5.43	35.46	324	156	Average
2422	103.19	101.39			31.83	5.43	35.46	324	156	Peak
2484.52	44.94	42.95	54	-9.06	31.88	5.53	35.42	288	174	Average
2484.52	60.25	58.26	74	-13.75	31.88	5.53	35.42	288	174	Peak

Remarks:

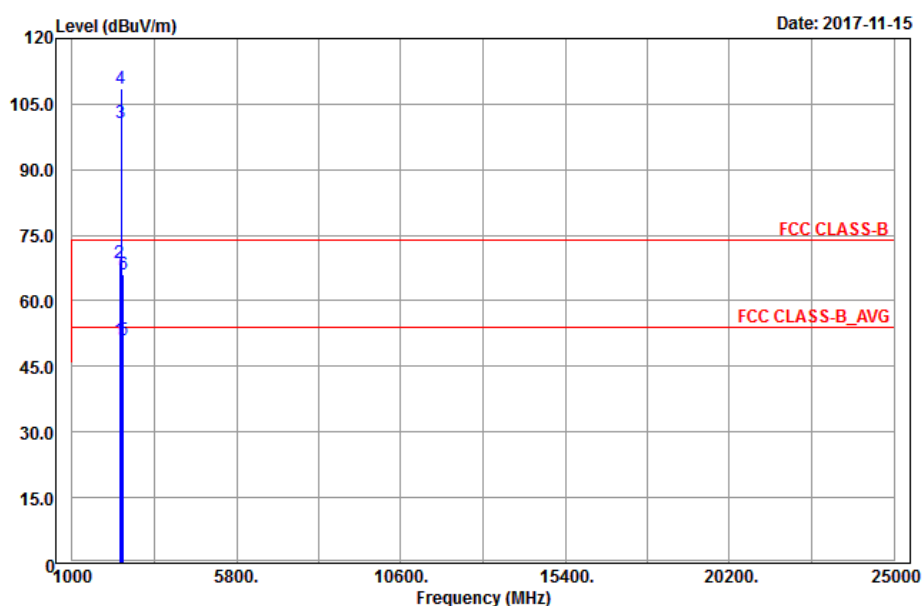
- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2422 MHz: Fundamental frequency.

EUT Test Condition		Measurement Detail	
Channel	Channel 6	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Horizontal



Vertical



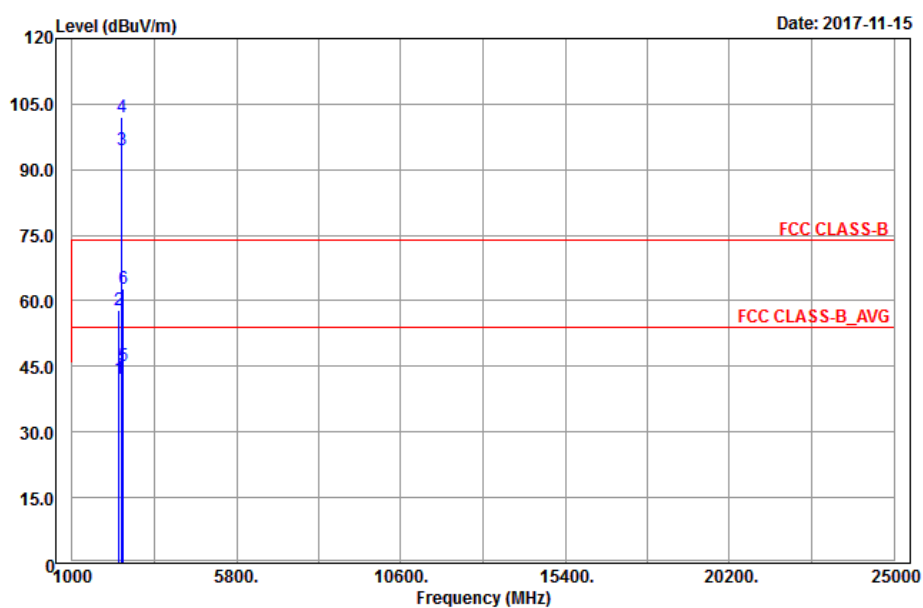
Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2389.56	49.4	47.69	54	-4.6	31.8	5.4	35.49	258	115	Average
2389.56	66.99	65.28	74	-7.01	31.8	5.4	35.49	258	115	Peak
2437	100.98	99.13			31.85	5.46	35.46	258	115	Average
2437	108.83	106.98			31.85	5.46	35.46	258	115	Peak
2483.92	49.62	47.66	54	-4.38	31.88	5.5	35.42	258	115	Average
2483.92	66.16	64.2	74	-7.84	31.88	5.5	35.42	258	115	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2389.92	50.97	49.24	54	-3.03	31.8	5.4	35.47	278	132	Average
2389.92	68.82	67.09	74	-5.18	31.8	5.4	35.47	278	132	Peak
2437	100.61	98.76			31.85	5.46	35.46	298	154	Average
2437	108.52	106.67			31.85	5.46	35.46	298	154	Peak
2483.56	50.89	48.93	54	-3.11	31.88	5.5	35.42	278	132	Average
2483.56	65.93	63.97	74	-8.07	31.88	5.5	35.42	278	132	Peak

Remarks:

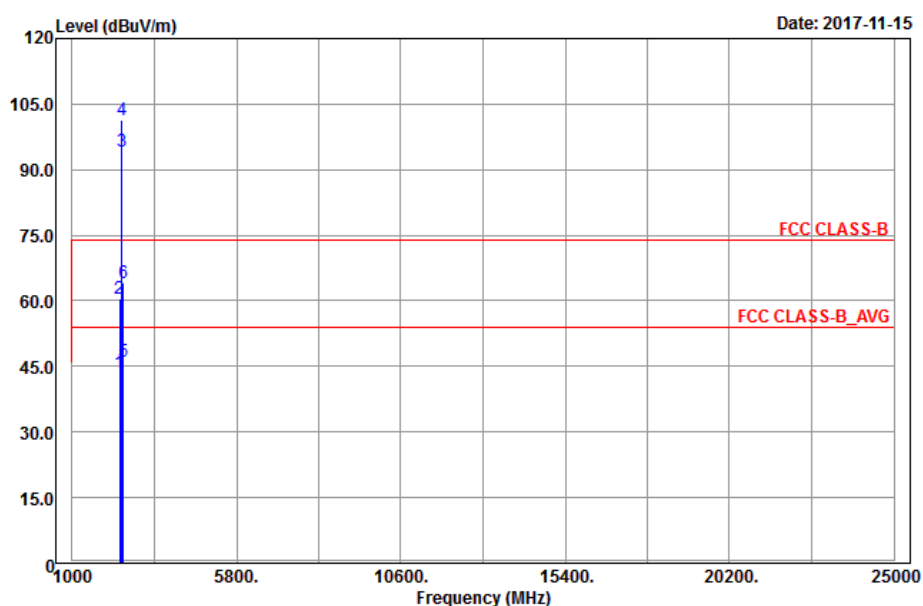
- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2437 MHz: Fundamental frequency.

EUT Test Condition		Measurement Detail	
Channel	Channel 9	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Horizontal



Vertical



Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2372.64	42.25	40.59	54	-11.75	31.78	5.37	35.49	277	120	Average
2372.64	57.91	56.25	74	-16.09	31.78	5.37	35.49	277	120	Peak
2452	94.37	92.5			31.85	5.46	35.44	294	153	Average
2452	101.86	99.99			31.85	5.46	35.44	294	153	Peak
2485.92	45.13	43.14	54	-8.87	31.88	5.53	35.42	277	120	Average
2485.92	62.87	60.88	74	-11.13	31.88	5.53	35.42	277	120	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2385.6	43.53	41.82	54	-10.47	31.8	5.4	35.49	264	115	Average
2385.6	60.36	58.65	74	-13.64	31.8	5.4	35.49	264	115	Peak
2452	94.1	92.23			31.85	5.46	35.44	285	115	Average
2452	101.42	99.55			31.85	5.46	35.44	285	115	Peak
2485.12	46.25	44.26	54	-7.75	31.88	5.53	35.42	264	115	Average
2485.12	64.01	62.02	74	-9.99	31.88	5.53	35.42	264	115	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2452 MHz: Fundamental frequency.

9 kHz ~ 30 MHz Data:

The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

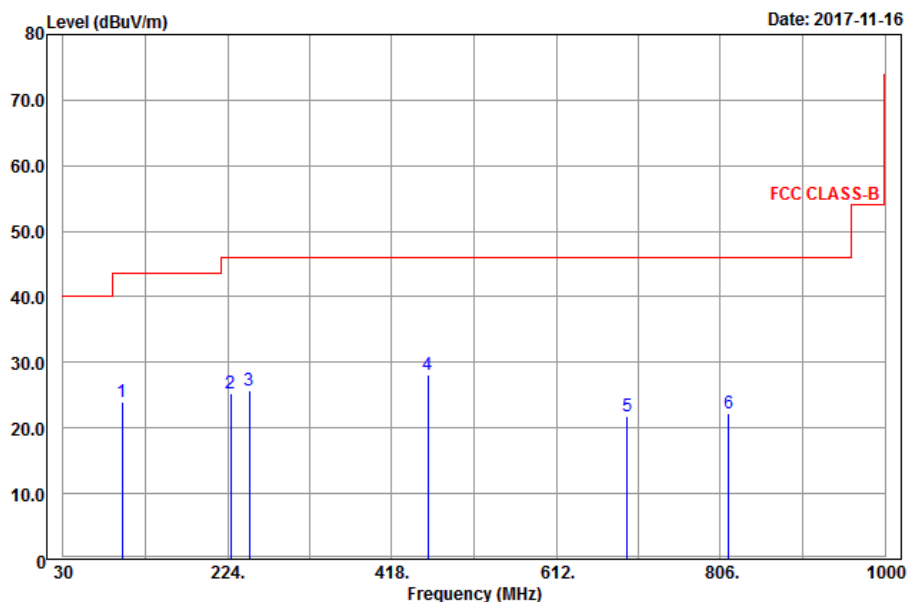
30 MHz ~ 1 GHz Worst-Case Data:

Mode A

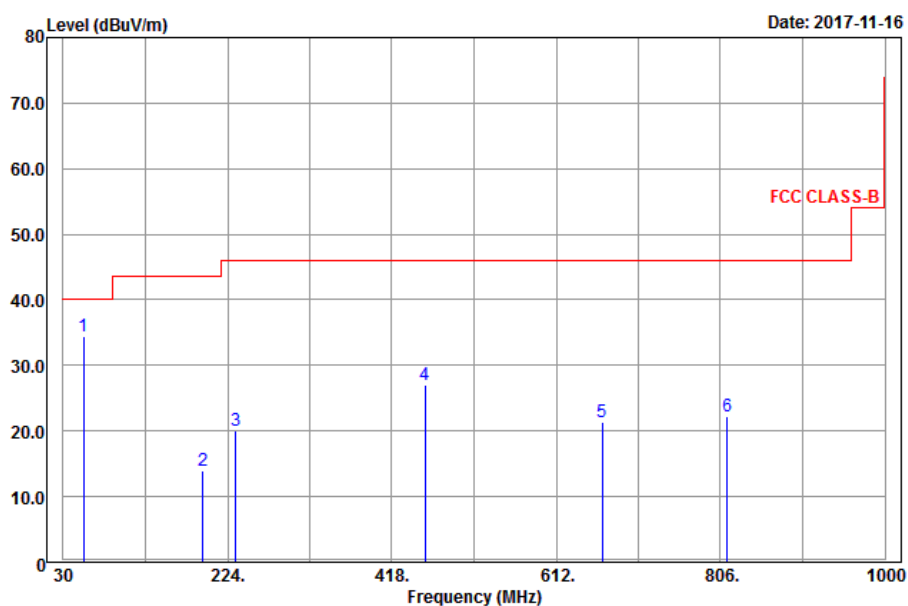
802.11n (HT40)

EUT Test Condition		Measurement Detail	
Channel	Channel 6	Frequency Range	30 MHz ~ 1 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Quasi-peak (QP)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Horizontal



Vertical



Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
99.39	23.93	42.63	43.5	-19.57	12.28	1.28	32.26	143	236	Peak
227.64	25.29	43.95	46	-20.71	11.68	1.85	32.19	116	187	Peak
249.78	25.75	43.68	46	-20.25	12.32	1.85	32.1	105	95	Peak
461	28.09	41.93	46	-17.91	15.73	2.56	32.13	124	176	Peak
696.2	21.75	31.55	46	-24.25	19.18	3.11	32.09	191	85	Peak
815.9	22.18	30.25	46	-23.82	20.58	3.32	31.97	124	221	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
54.03	34.52	51.63	40	-5.48	14.22	0.9	32.23	142	22	Peak
194.97	13.91	33.64	43.5	-29.59	10.94	1.61	32.28	105	113	Peak
233.58	20.11	38.53	46	-25.89	11.89	1.85	32.16	165	9	Peak
457.5	26.97	40.94	46	-19.03	15.68	2.49	32.14	157	156	Peak
666.8	21.27	31.64	46	-24.73	18.71	3.05	32.13	126	295	Peak
813.8	22.26	30.38	46	-23.74	20.55	3.32	31.99	124	205	Peak

Remarks:

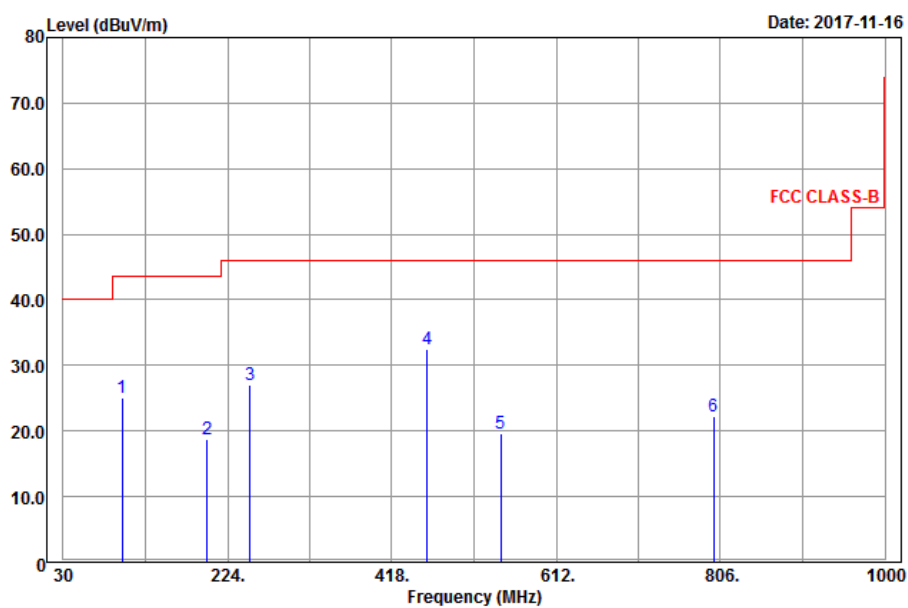
1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value

Mode B

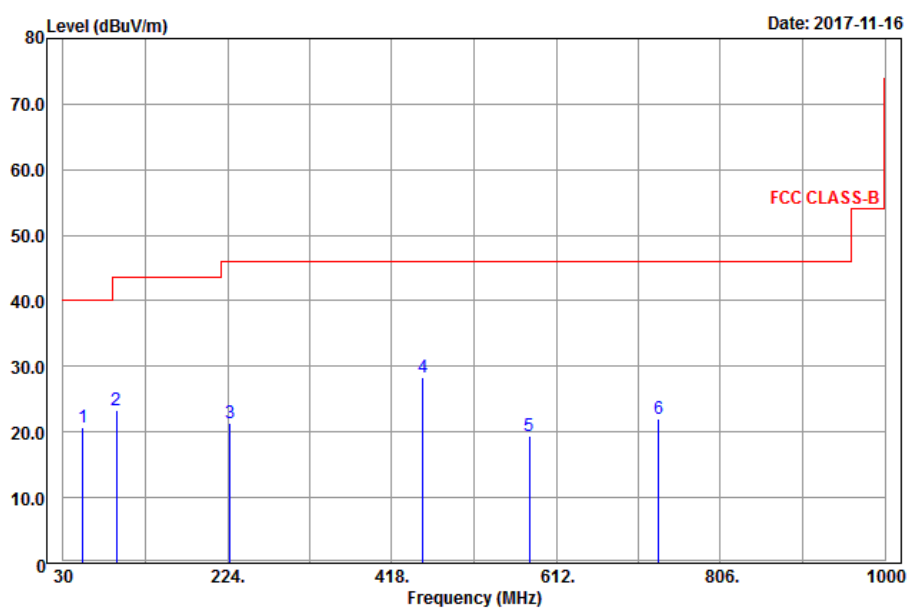
802.11n (HT40)

EUT Test Condition		Measurement Detail	
Channel	Channel 6	Frequency Range	30 MHz ~ 1 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Quasi-peak (QP)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Horizontal



Vertical



Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
99.93	25.13	43.83	43.5	-18.37	12.28	1.28	32.26	158	262	Peak
200.1	18.68	38.25	43.5	-24.82	11.08	1.65	32.3	107	8	Peak
250.86	27.06	44.88	46	-18.94	12.34	1.94	32.1	124	270	Peak
459.6	32.46	46.33	46	-13.54	15.71	2.56	32.14	157	222	Peak
546.4	19.72	32.15	46	-26.28	17	2.76	32.19	197	163	Peak
798.4	22.25	30.68	46	-23.75	20.31	3.32	32.06	124	310	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
53.22	20.76	37.79	40	-19.24	14.3	0.9	32.23	109	253	Peak
92.91	23.3	42.91	43.5	-20.2	11.16	1.11	31.88	157	7	Peak
227.1	21.33	40.04	46	-24.67	11.63	1.85	32.19	105	116	Peak
454.7	28.33	42.34	46	-17.67	15.64	2.49	32.14	105	242	Peak
580	19.45	31.19	46	-26.55	17.64	2.82	32.2	194	6	Peak
733.3	22.11	31.44	46	-23.89	19.64	3.16	32.13	136	3	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value

4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies.
 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver ROHDE & SCHWARZ	ESCS 30	100288	Aug. 17, 2017	Aug. 16, 2018
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Sep. 05, 2017	Sep. 04, 2018
LISN/AMN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Mar. 10, 2017	Mar. 09, 2018
LISN/AMN ROHDE & SCHWARZ (Peripheral)	ENV216	101196	Apr. 20, 2017	Apr. 19, 2018
Software ADT	BV ADT_Cond_ V7.3.7.3	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Shielded Room 1.
 3. The VCCI Site Registration No. is C-2040.

4.2.3 Test Procedures

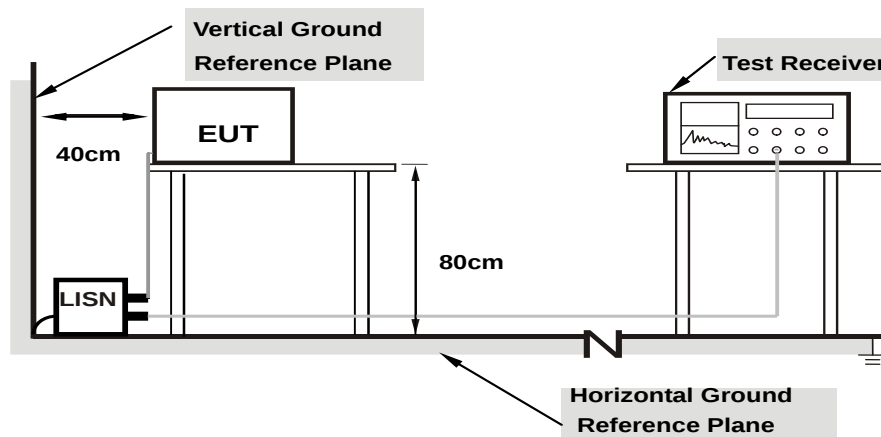
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/50 uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit – 20 dB) was not recorded.

NOTE: All modes of operation were investigated and the worst-case emissions are reported.

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.6 EUT Operating Conditions

- Placed the EUT on a testing table.
- Use the software to control the EUT under transmission condition continuously at specific channel frequency.

4.2.7 Test Results

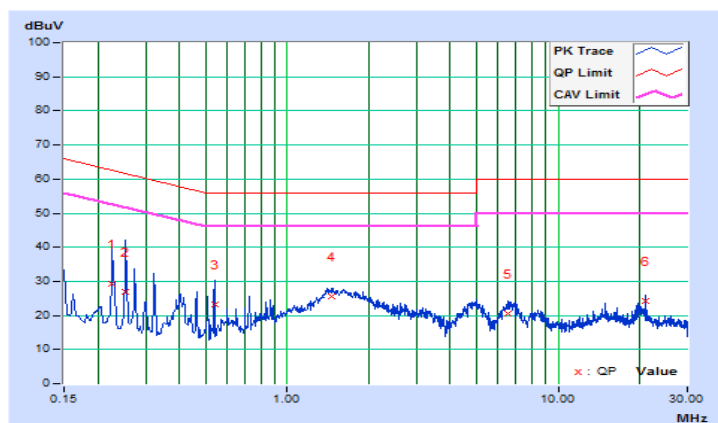
Mode A

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Getaz Yang	Test Date	2017/11/20

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.22624	10.40	18.76	1.69	29.16	12.09	62.59	52.59	-33.43	-40.50
2	0.25400	10.40	16.42	2.11	26.82	12.51	61.63	51.63	-34.81	-39.12
3	0.53800	10.41	12.99	-3.06	23.40	7.35	56.00	46.00	-32.60	-38.65
4	1.46600	10.44	15.18	12.89	25.62	23.33	56.00	46.00	-30.38	-22.67
5	6.54600	10.68	9.77	5.33	20.45	16.01	60.00	50.00	-39.55	-33.99
6	21.01000	11.39	12.70	8.74	24.09	20.13	60.00	50.00	-35.91	-29.87

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

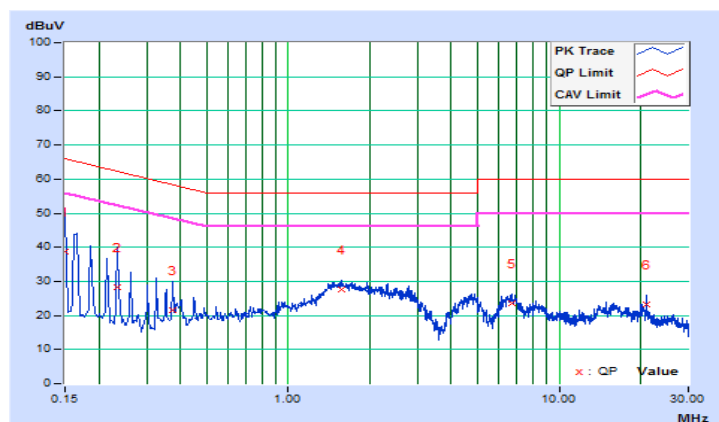


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Getaz Yang	Test Date	2017/11/20

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.15	28.73	6.84	38.88	16.99	66.00	56.00	-27.12	-39.01
2	0.23400	10.16	18.04	1.72	28.20	11.88	62.31	52.31	-34.11	-40.43
3	0.37400	10.17	11.44	8.08	21.61	18.25	58.41	48.41	-36.80	-30.16
4	1.57400	10.22	17.29	15.73	27.51	25.95	56.00	46.00	-28.49	-20.05
5	6.66600	10.44	13.03	9.52	23.47	19.96	60.00	50.00	-36.53	-30.04
6	21.01800	10.99	12.08	7.73	23.07	18.72	60.00	50.00	-36.93	-31.28

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



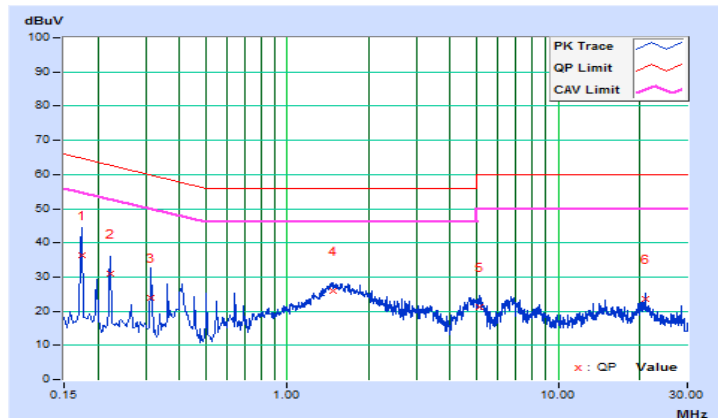
Mode B

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Getaz Yang	Test Date	2017/11/20

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17400	10.39	25.83	4.55	36.22	14.94	64.77	54.77	-28.55	-39.83
2	0.22200	10.40	20.59	1.98	30.99	12.38	62.74	52.74	-31.75	-40.36
3	0.31400	10.40	13.46	-1.76	23.86	8.64	59.86	49.86	-36.00	-41.22
4	1.46873	10.44	15.62	13.32	26.06	23.76	56.00	46.00	-29.94	-22.24
5	5.11000	10.61	10.76	7.73	21.37	18.34	60.00	50.00	-38.63	-31.66
6	20.99000	11.39	12.13	7.83	23.52	19.22	60.00	50.00	-36.48	-30.78

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

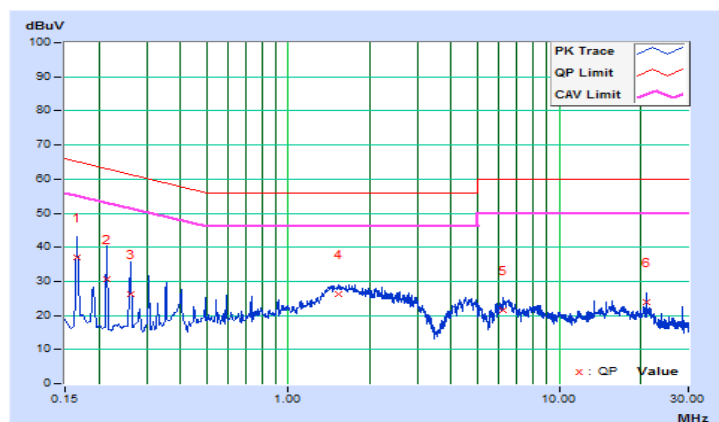


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Getaz Yang	Test Date	2017/11/20

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16600	10.16	26.78	4.43	36.94	14.59	65.16	55.16	-28.22	-40.57
2	0.21400	10.16	20.48	1.48	30.64	11.64	63.05	53.05	-32.41	-41.41
3	0.26200	10.16	16.14	1.19	26.30	11.35	61.37	51.37	-35.07	-40.02
4	1.52794	10.21	16.16	14.68	26.37	24.89	56.00	46.00	-29.63	-21.11
5	6.24600	10.42	11.14	8.37	21.56	18.79	60.00	50.00	-38.44	-31.21
6	20.99000	10.99	12.78	8.41	23.77	19.40	60.00	50.00	-36.23	-30.60

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

Appendix – Information on the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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Web Site: www.bureauveritas-adt.com

The address and road map of all our labs can be found in our web site also.

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