FCC RADIO TEST REPORT

FCC ID	**:**	**SWX-GBE**
Equipment	**:**	**GigaBeam**
Brand Name	**:**	**Ubiquiti**
Model Name	**:**	**GBE**
Marketing Name	**:**	**GigaBeam**
Applicant	**:**	**Ubiquiti Netwroks, Inc. 685 Third Avenue, 27th Floor New York, New York 10017 USA**
Manufacturer	**:**	**Ubiquiti Netwroks, Inc. 685 Third Avenue, 27th Floor New York, New York 10017 USA**
Standard	**:**	**FCC Part 15 Subpart C §15.247**

The product was received on Jul. 02, 2019 and testing was started from Jul. 03, 2019 and completed on Jul. 11, 2019. We, Sporton International (USA) Inc., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by A2LA or any agency of government.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International (USA) Inc., the test report shall not be reproduced except in full.

Approved by: Ken Chen

Sporton International (USA) Inc.

1175 Montague Expressway, Milpitas, CA 95035

Table of Contents

History of this test report

Report No.	Version	Description	Issued Date
FR190701001A	01	Initial issue of report	Jul. 19, 2019

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.1	15.247(a)(2)	6dB Bandwidth	Pass	-
3.1	2.1049	99% Occupied Bandwidth	Reporting only	-
3.2	15.247(b)	Power Output Measurement	Pass	-
3.3	15.247(e)	Power Spectral Density	Pass	-
3.4	15.247(d)	Conducted Band Edges	Pass	-
		Conducted Spurious Emission	Pass	-
3.5	15.247(d)	Radiated Band Edges and Radiated Spurious Emission	Pass	Under limit 1.53 dB at 7560.000 MHz
3.6	15.207	AC Conducted Emission	Pass	Under limit 5.78 dB at 0.570 MHz
3.7	15.203 & 15.247(b)	Antenna Requirement	Pass	-

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Report Producer: Elise Chang

1 General Description

1.1 Product Feature of Equipment Under Test

Wi-Fi 2.4GHz 802.11n, Wi-Fi 5GHz 802.11n/ac, Wi-Fi 60GHz 802.11ad, and GNSS

Product Specification subjective to this standard	
Antenna Type	WLAN 2.4GHz: Internal Antenna WLAN 5GHz: Internal Antenna Wi-Fi 60GHz: Antenna Array (SWL-14 Sector) GPS/Glonass/SBAS: Patch Antenna

1.2 Modification of EUT

No modifications are made to the EUT during all test items.

1.3 Testing Location

Test Site	Sporton International (USA) Inc.		
Test Site Location	1175 Montague Expressway, Milpitas, CA 95035 TEL : 408 9043300		
Test Site No.	**Sporton Site No.**		
	TH01-CA	CO01-CA	03CH01-CA

Note: The test site complies with ANSI C63.4 2014 requirement.

1.4 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart C §15.247
- FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v05r02
- FCC KDB 414788 D01 Radiated Test Site v01r01.
- ANSI C63.10-2013

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Z plane) were recorded in this report.

b. AC power line Conducted Emission was tested under maximum output power.

2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
2400-2483.5 MHz	1	2412	7	2442
	2	2417	8	2447
	3	2422	9	2452
	4	2427	10	2457
	5	2432	11	2462
	6	2437		

2.2 Test Mode

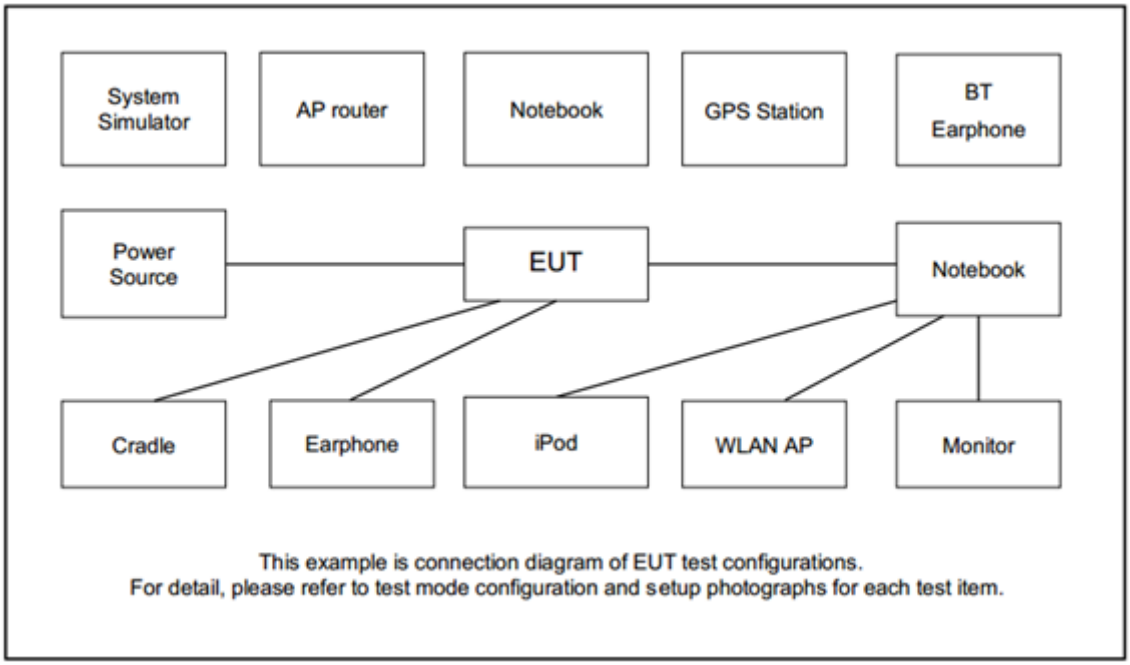
Final test modes are considering the modulation and worse data rates as below table.

MIMO Antenna

Modulation	Data Rate
802.11n HT20	MCS0

Test Cases	
AC Conducted Emission	Mode 1 :60GHz Tx + PoE Charging

2.3 Connection Diagram of Test System



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Laptop	TOSHIBA	E45w-C4200X	CJ6UPA5165WB	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m

2.5 EUT Operation Test Setup

The RF test items, utility “QRCT” was installed in Notebook which was programmed in order to make the EUT get into the engineering modes to provide channel selection, power level, data rate and the application type and for continuous transmitting signals.

2.6 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example:
The spectrum analyzer offset is derived from RF cable loss and attenuator factor.
Offset = RF cable loss + attenuator factor.
Following shows an offset computation example with cable loss 4.2 dB and 10dB attenuator.

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).
= 4.2 + 10 = 14.2 (dB)

3 Test Result

3.1 6dB and 99% Bandwidth Measurement

3.1.1 Limit of 6dB and 99% Bandwidth

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

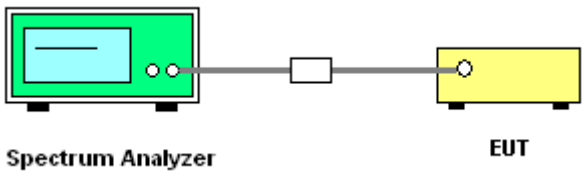
3.1.2 Measuring Instruments

See list of measuring equipment of this test report.

3.1.3 Test Procedures

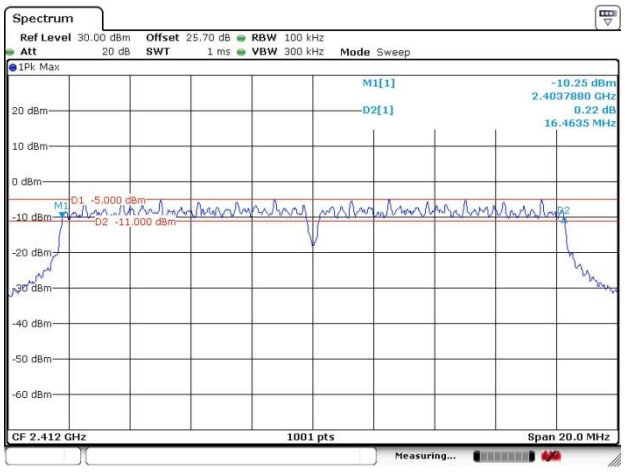
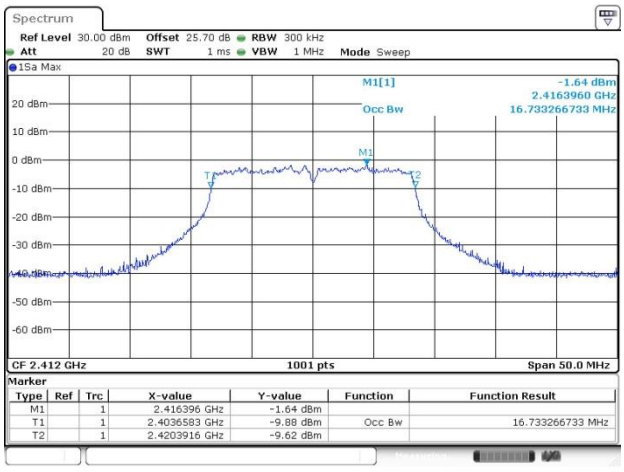
1. The testing follows the ANSI C63.10 Section 6.9.3 (OBW) and 11.8.1 (6dB BW).
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 kHz.
5. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) is set 1-5% of the emission bandwidth and set the Video bandwidth (VBW) ≥ 3 * RBW.
6. Measure and record the results in the test report.

3.1.4 Test Setup



3.1.5 Test Result of 6dB and 99% Occupied Bandwidth

Please refer to Appendix A.

Minimum 6dB Bandwidth	Maximum 99% Occupied Bandwidth
	

Note: The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

3.2 Output Power Measurement

3.2.1 Limit of Output Power

For systems using digital modulation in the 2400-2483.5MHz, the limit for peak output power is 30dBm. If transmitting antenna with directional gain greater than 6dBi is used, the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

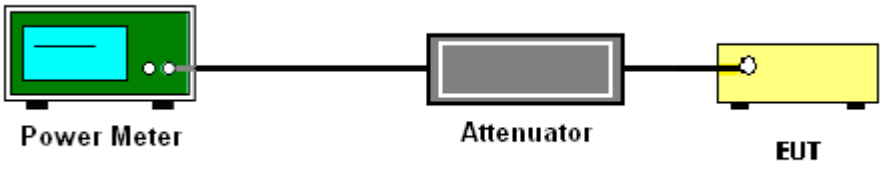
3.2.2 Measuring Instruments

See list of measuring equipment of this test report.

3.2.3 Test Procedures

1. For Average Power, the testing follows ANSI C63.10 Section 11.9.2.3.2 Method AVGPM-G
2. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Measure the conducted output power and record the results in the test report.

3.2.4 Test Setup



3.2.5 Test Result of Average Output Power

Please refer to Appendix A.

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

The peak power spectral density shall not be greater than 8dBm in any 3kHz band at any time interval of continuous transmission.

3.3.2 Measuring Instruments

See list of measuring equipment of this test report.

3.3.3 Test Procedures

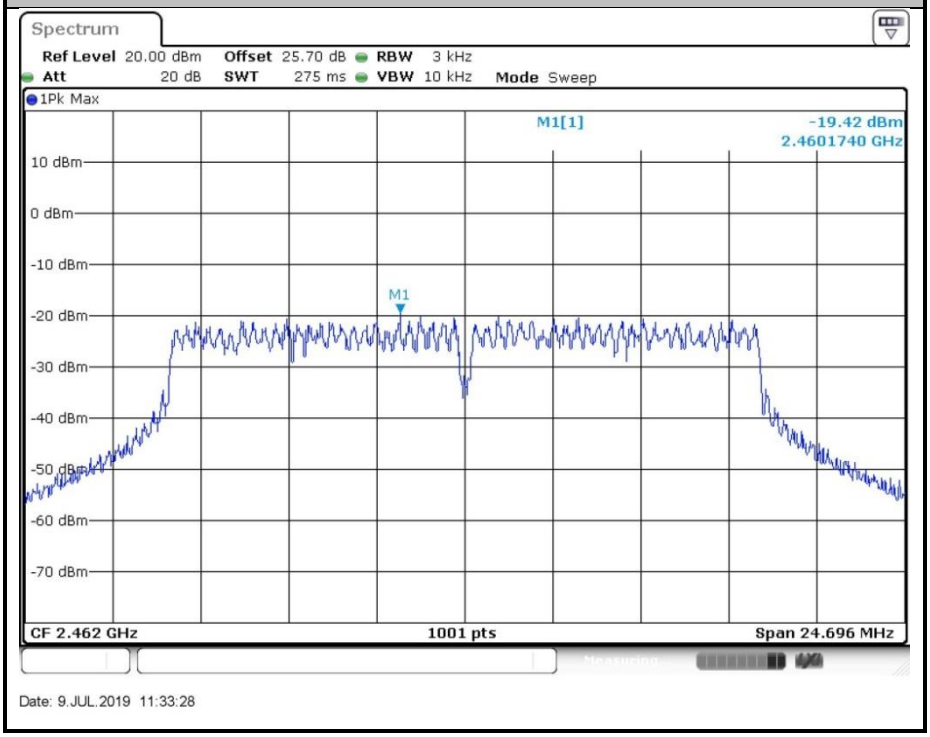
1. The testing follows the ANSI C63.10 Section 11.10.2 Method PKPSD.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 3 kHz. Video bandwidth VBW = 10 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)
5. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level.
6. Measure and record the results in the test report.

3.3.4 Test Setup

3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

Worst Case Power Density (dBm/3kHz)



3.4 Conducted Band Edges and Spurious Emission Measurement

3.4.1 Limit of Conducted Band Edges and Spurious Emission Measurement

In any 100 kHz bandwidth outside of the authorized frequency band, the emissions which fall in the non-restricted bands shall be attenuated at least 20 dB / 30dB relative to the maximum PSD level in 100 kHz by RF conducted measurement.

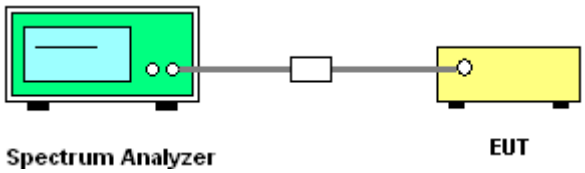
3.4.2 Measuring Instruments

See list of measuring equipment of this test report.

3.4.3 Test Procedures

1. The testing follows the ANSI C63.10 Section 11.11.3 Emission level measurement.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d).
5. Measure and record the results in the test report.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

3.4.4 Test Setup

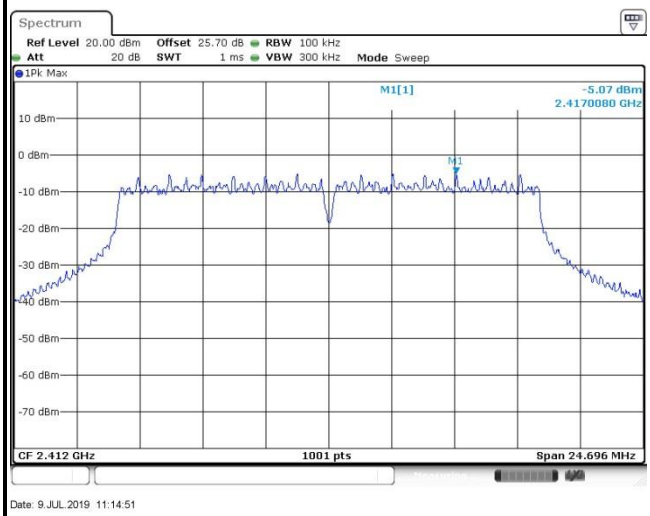
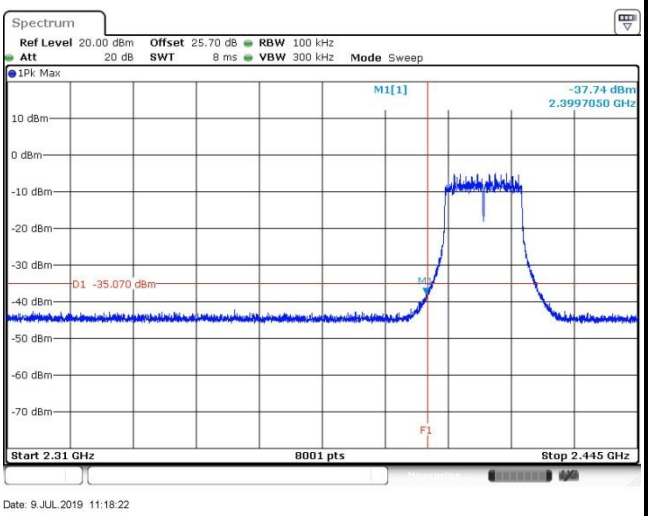
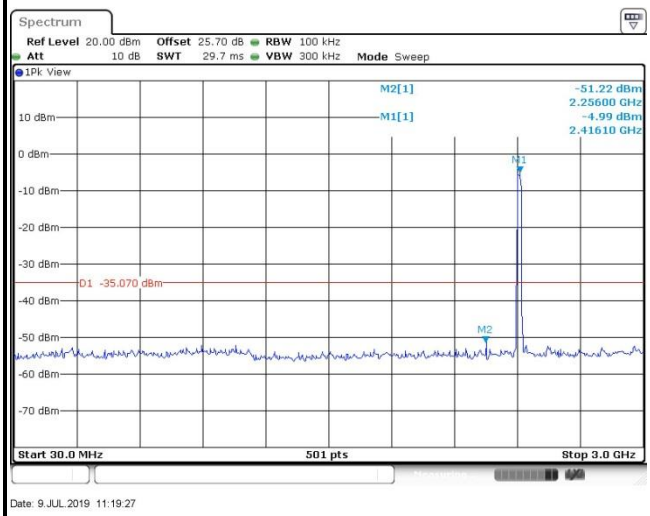
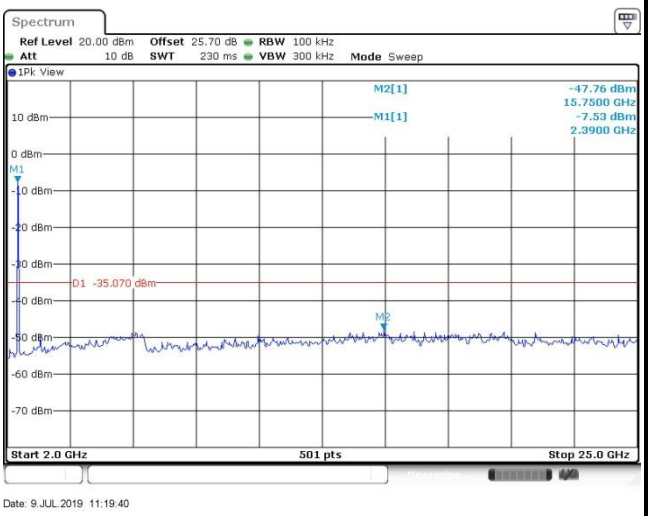


3.4.5 Test Result of Conducted Band Edges and Spurious Emission

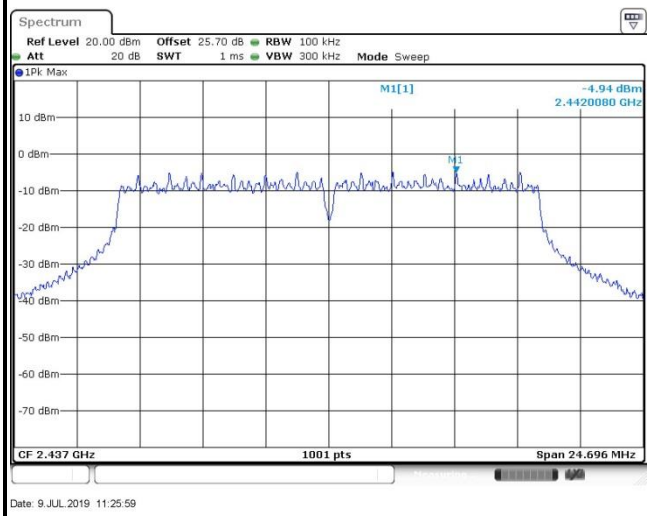
Test Engineer :	Jordan Huang	Temperature :	21~25℃
		Relative Humidity :	51~54%

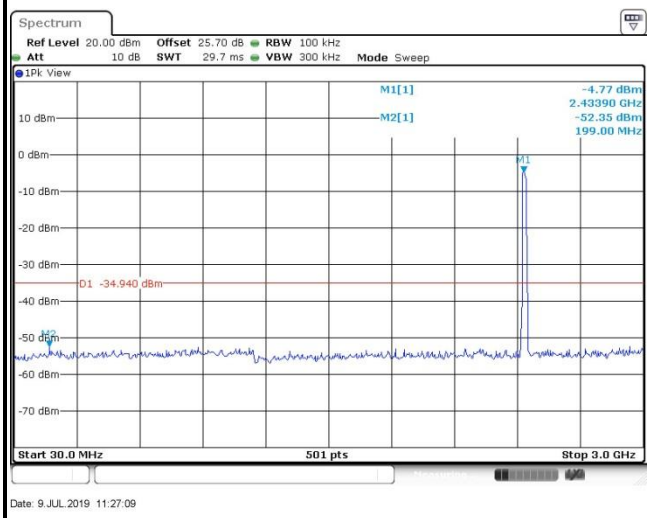
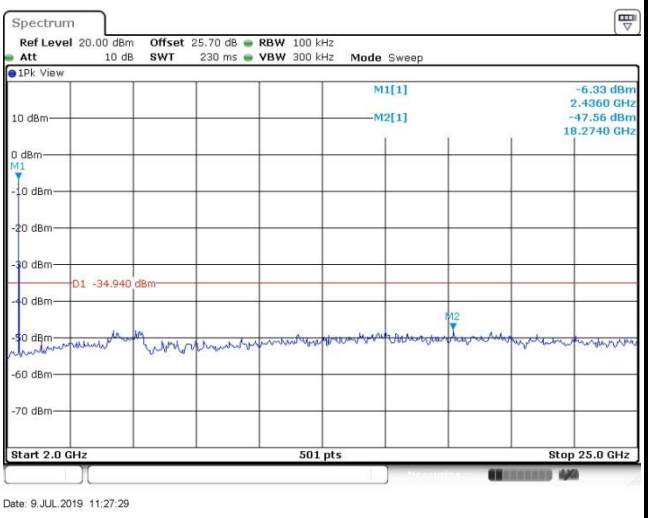
Number of TX = 1, Ant. 1 (Measured)

Test Mode :	802.11n HT20	Test Channel :	01

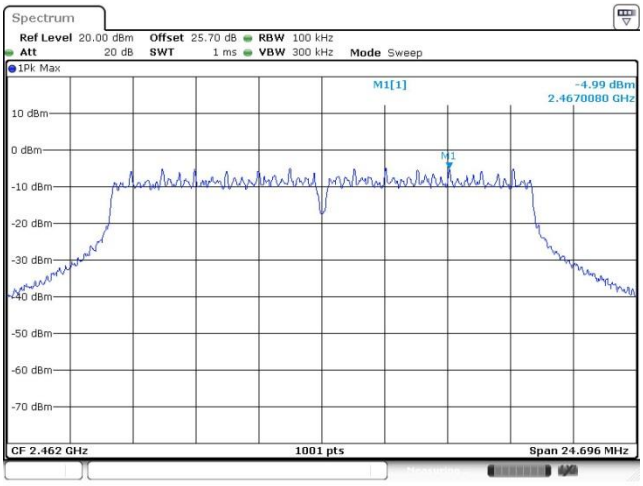
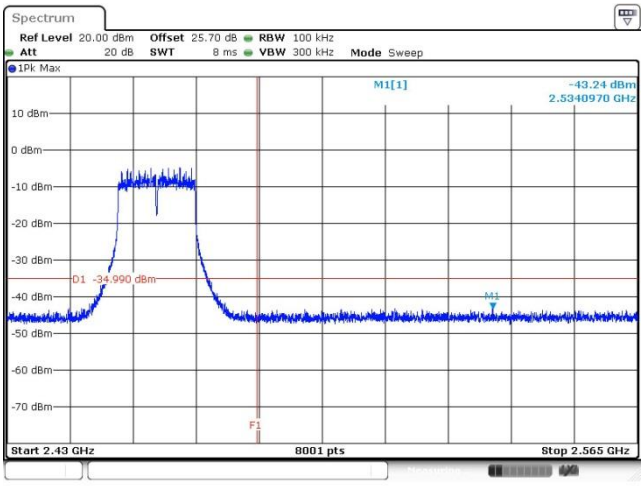
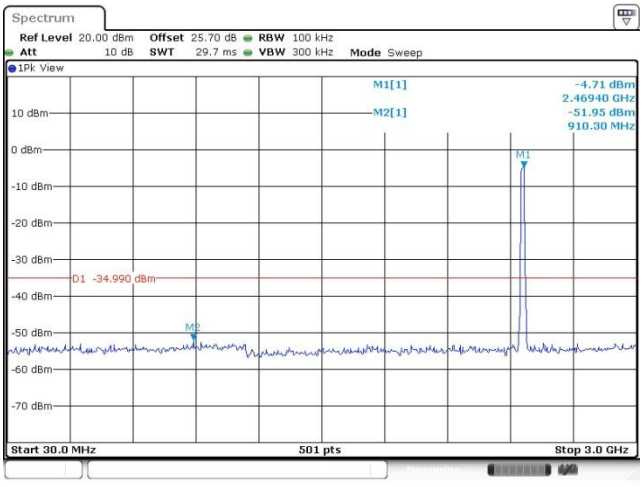
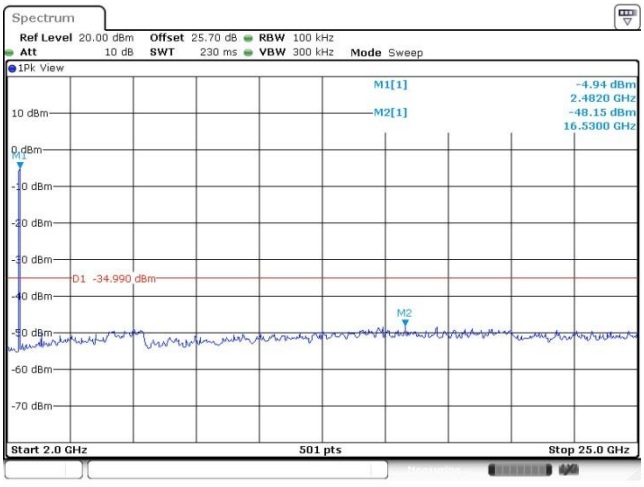
100kHz PSD reference Level	Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11n HT20	Test Channel :	06

100kHz PSD reference Level	Channel Plot
	

Spurious Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz
	

Test Mode :	802.11n HT20	Test Channel :	11

100kHz PSD reference Level	Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

3.5 Radiated Band Edges and Spurious Emission Measurement

3.5.1 Limit of Radiated band edge and Spurious Emission Measurement

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the limits as below.

Frequency (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

3.5.2 Measuring Instruments

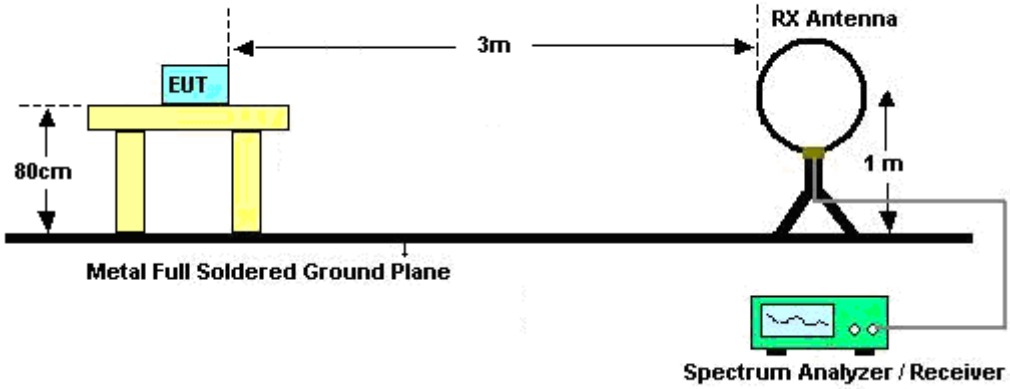
See list of measuring equipment of this test report.

3.5.3 Test Procedures

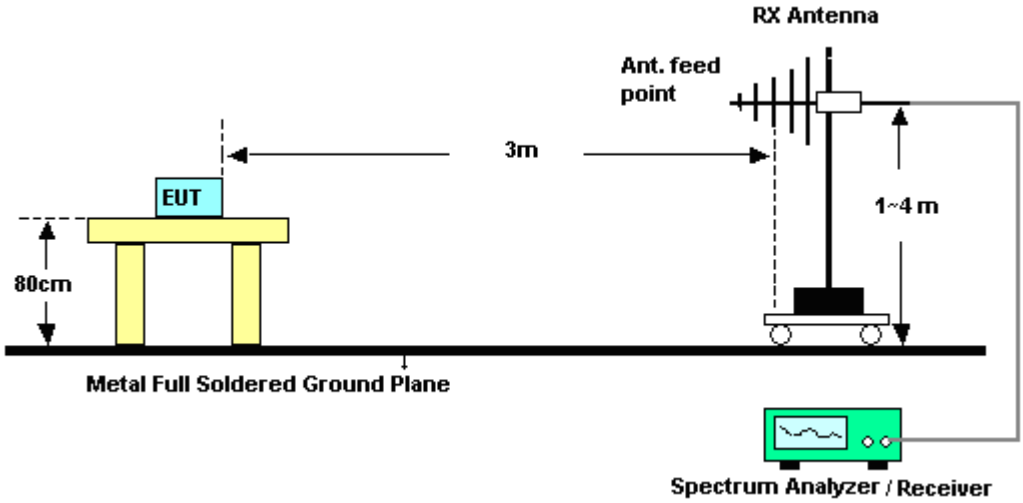
1. The testing follows the ANSI C63.10 Section 11.12.1 Radiated emission measurements.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
8. Use the following spectrum analyzer settings:
   (1) Span shall wide enough to fully capture the emission being measured;
   (2) Set RBW=100 kHz for f < 1 GHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold;
   (3) Set RBW = 1 MHz, VBW= 3MHz for f ≥ 1 GHz for peak measurement.
   For average measurement:
   - VBW = 10 Hz, when duty cycle is no less than 98 percent.
   - VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

3.5.4 Test Setup

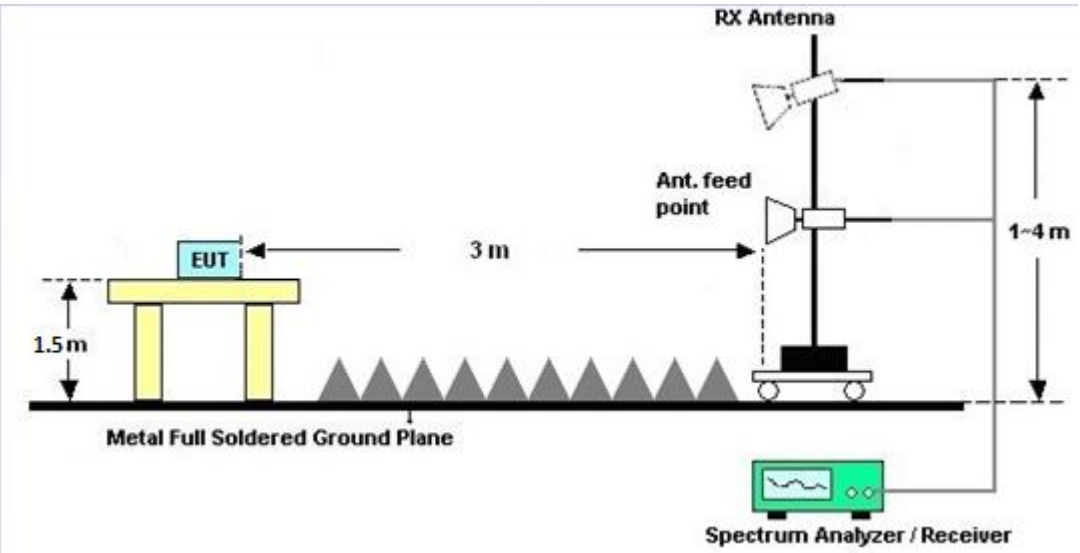
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.5.5 Test Results of Radiated Spurious Emissions (9kHz ~ 30MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

There is a comparison data of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.

3.5.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix C and D.

3.5.7 Duty Cycle

Please refer to Appendix E.

3.5.8 Test Result of Radiated Spurious Emission (30MHz ~ 10th Harmonic)

Please refer to Appendix C and D.

3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

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

*Decreases with the logarithm of the frequency.

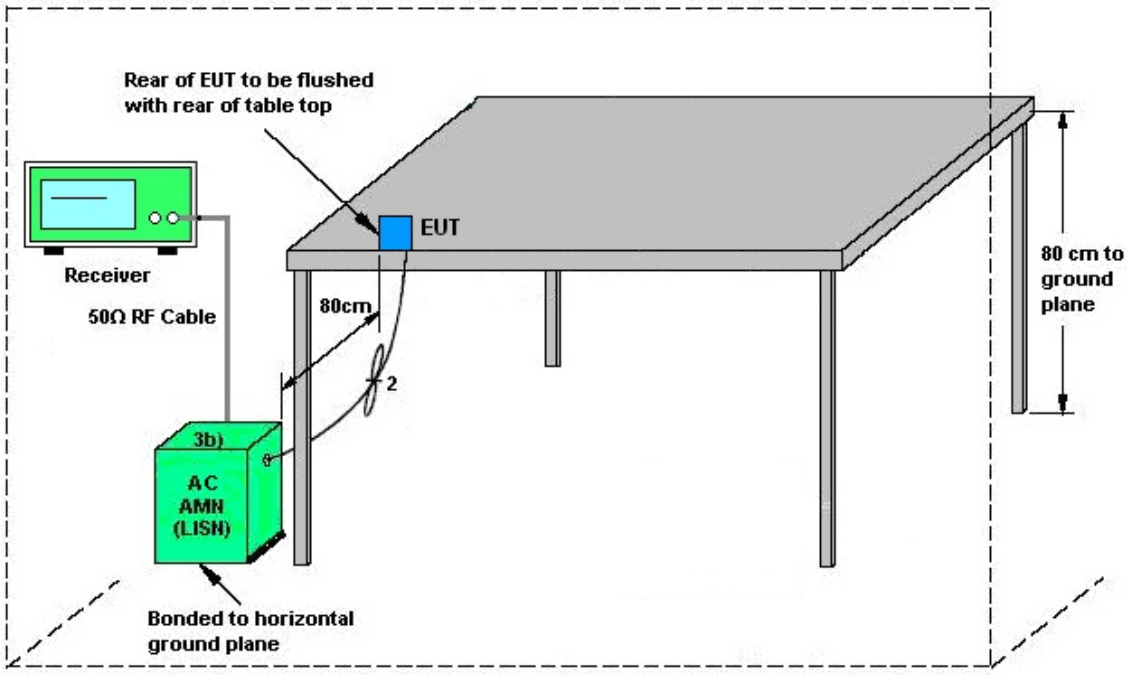
3.6.2 Measuring Instruments

See list of measuring equipment of this test report.

3.6.3 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF bandwidth = 9kHz) with Maximum Hold Mode.

3.6.4 Test Setup



AMN = Artificial mains network (LISN)
AE = Associated equipment
EUT = Equipment under test
ISN = Impedance stabilization network

3.6.5 Test Result of AC Conducted Emission

Please refer to Appendix B.

3.7 Antenna Requirements

3.7.1 Standard Applicable

If directional gain of transmitting Antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. The use of a permanently attached Antenna or of an Antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the rule.

3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.7.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Bilog Antenna	TESEQ	6111D	50392	30MHz~1GHz	May 15, 2019	Jul. 07, 2019~ Jul. 11, 2019	May 14, 2020	Radiation (03CH01-CA)
Horn Antenna	SCHWARZBECK	BBHA 9120D	01894	1GHz~18GHz	Jul. 30, 2018	Jul. 07, 2019~ Jul. 11, 2019	Jul. 29, 2019	Radiation (03CH01-CA)
Amplifier	SONOMA	310N	372241	N/A	Aug. 02, 2018	Jul. 07, 2019~ Jul. 11, 2019	Aug. 01, 2019	Radiation (03CH01-CA)
Preamplifier	Keysight	83017A	MY53270321	1GHz~26.5GHz	Sep. 27, 2018	Jul. 07, 2019~ Jul. 11, 2019	Sep. 26, 2019	Radiation (03CH01-CA)
Preamplifier	Jet-Power	JPA0118-55-303	1710001800055000	1GHz~18GHz	Jul. 31, 2018	Jul. 07, 2019~ Jul. 11, 2019	Jul. 30, 2019	Radiation (03CH01-CA)
EMI Test Receiver	R&S	ESU26	100049	20Hz~26.5GHz	Aug. 23, 2018	Jul. 07, 2019~ Jul. 11, 2019	Aug. 22, 2019	Radiation (03CH01-CA)
Filter	Wainwright	WLK12-1200-1272-11000-40SS	SN1	1.2G Low Pass	Aug. 03, 2018	Jul. 07, 2019~ Jul. 11, 2019	Aug. 02, 2019	Radiation (03CH01-CA)
Filter	Wainwright	WHKX12-2700-3000-18000-60ST	SN9	3G Highpass	Aug. 03, 2018	Jul. 07, 2019~ Jul. 11, 2019	Aug. 02, 2019	Radiation (03CH01-CA)
Notch Filter	Wainwright	WRCJV10-2375-2400-2483-2508-40SS	SN4	Notch Filter	Aug. 03, 2018	Jul. 07, 2019~ Jul. 11, 2019	Aug. 02, 2019	Radiation (03CH01-CA)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Jul. 07, 2019~ Jul. 11, 2019	N/A	Radiation (03CH01-CA)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Jul. 07, 2019~ Jul. 11, 2019	N/A	Radiation (03CH01-CA)
LISN	TESEQ	NNB51	47407	N/A	Jun. 26, 2019	Jul. 03, 2019	Jun. 25, 2020	Conduction (CO01-CA)
EMI Test Receiver	R&S	ESU26	100123	20Hz~26.5GHz	Aug. 28, 2018	Jul. 03, 2019	Aug. 27, 2019	Conduction (CO01-CA)
Pulse limiter with 10dB attenuation	R&S	VTSD 9561-F N	9561-F-N00412	N/A	Jun. 11, 2019	Jul. 03, 2019	Jun. 10, 2020	Conduction (CO01-CA)
Power Meter	Anritsu	ML2495A	1804004	N/A	Aug. 09, 2018	Jul. 09, 2019	Aug. 08, 2019	Conducted (TH01-CA)
Power Sensor	Anritsu	MA2411B	1726149	300MHz~40GHz	Aug. 09, 2018	Jul. 09, 2019	Aug. 08, 2019	Conducted (TH01-CA)
Spectrum Analyzer	Rohde & Schwarz	FSV 40	101089	10Hz~40GHz	Aug. 23, 2018	Jul. 09, 2019	Aug. 22, 2019	Conducted (TH01-CA)
Temperature & Humidity Chamber	ESPEC	SH-642	93012171	N/A	Apr. 12, 2019	Jul. 09, 2019	Apr. 11, 2020	Conducted (TH01-CA)

5 Uncertainty of Evaluation

Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**1.7**

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.4**

Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**6.5**

Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.9**

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Jordan Huang	Temperature:	21~25	°C
Test Date:	2019/7/9	Relative Humidity:	51~54	%

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

2.4GHz Band										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Occupied BW (MHz)		6dB BW (MHz)		6dB BW Limit (MHz)	Pass/Fail
					Ant 1	Ant 2	Ant 1	Ant 2		
HT20	MCS0	1	1	2412	16.73	-	16.46	-	0.50	Pass
HT20	MCS0	1	6	2437	16.73	-	16.46	-	0.50	Pass
HT20	MCS0	1	11	2462	16.73	-	16.46	-	0.50	Pass

TEST RESULTS DATA
Average Output Power

2.4GHz Band																
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power (dBm)			Conducted Power Limit (dBm)		DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)		Pass /Fail
					Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	
HT20	MCS0	1	1	2412	6.66	-	-	30.00	-	2.00	-	8.66	-	36.00	-	Pass
HT20	MCS0	1	6	2437	6.81	-		30.00	-	2.00	-	8.81	-	36.00	-	Pass
HT20	MCS0	1	11	2462	6.85	-		30.00	-	2.00	-	8.85	-	36.00	-	Pass

Note: Measured power (dBm) has offset with cable loss.

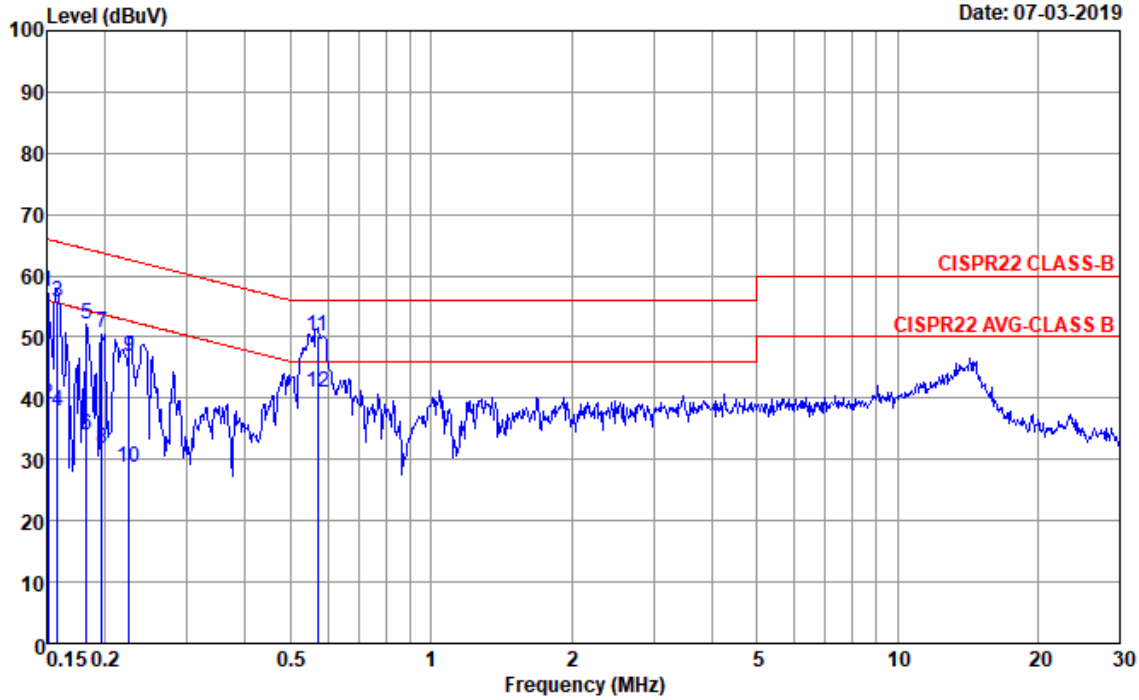
TEST RESULTS DATA
Peak Power Spectral Density

2.4GHz Band												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak PSD (dBm/3kHz)			DG (dBi)		Peak PSD Limit (dBm/3kHz)		Pass/Fail
					Ant 1	Ant 2	Worse + 3.01	Ant 1	Ant 2	Ant 1	Ant 2	
HT20	MCS0	1	1	2412	-19.76	-	-	2.00	-	8.00	-	Pass
HT20	MCS0	1	6	2437	-19.74	-	-	2.00	-	8.00	-	Pass
HT20	MCS0	1	11	2462	-19.42	-	-	2.00	-	8.00	-	Pass

Measured power density (dBm) has offset with cable loss.

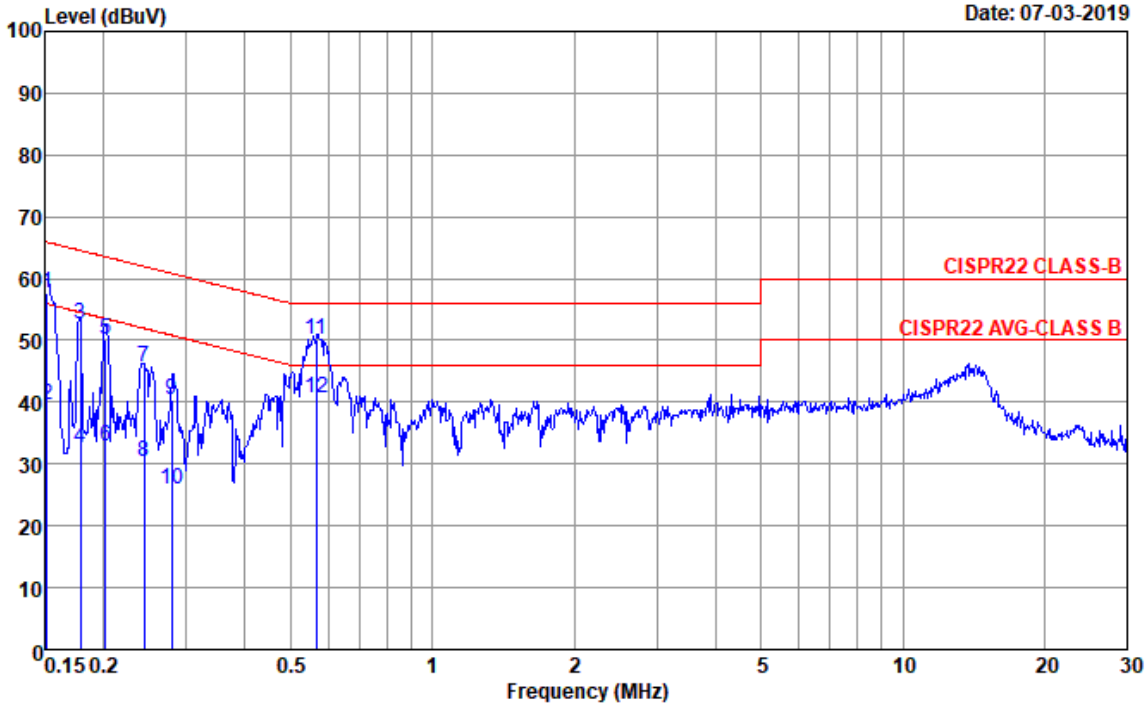
Appendix B. AC Conducted Emission Test Results

Test Engineer :	Leo Liu	**Temperature :**	20~23℃
		Relative Humidity :	47~50%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Aux Factor	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	dB	
1	0.15	57.26	-8.70	65.96	37.30	9.84	0.06	10.06	QP
2	0.15	39.06	-26.94	66.00	19.10	9.84	0.06	10.06	Average
3	0.16	55.76	-9.80	65.56	35.80	9.84	0.06	10.06	QP
4	0.16	37.76	-28.24	66.00	17.80	9.84	0.06	10.06	Average
5	0.18	52.17	-12.20	64.37	32.20	9.84	0.07	10.06	QP
6	0.18	34.07	-31.93	66.00	14.10	9.84	0.07	10.06	Average
7	0.20	50.57	-13.19	63.76	30.60	9.84	0.07	10.06	QP
8	0.20	31.67	-34.33	66.00	11.70	9.84	0.07	10.06	Average
9	0.23	46.68	-15.93	62.61	26.70	9.85	0.07	10.06	QP
10	0.23	28.58	-37.42	66.00	8.60	9.85	0.07	10.06	Average
11	0.57	50.22	-5.78	56.00	30.21	9.86	0.07	10.08	QP
12	0.57	41.02	-18.98	60.00	21.01	9.86	0.07	10.08	Average

Test Engineer :	Leo Liu	Temperature :	20~23℃
		Relative Humidity :	47~50%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Aux Factor	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	dB	
1	0.15	57.58	-8.33	65.91	37.60	9.86	0.06	10.06	QP
2	0.15	39.58	-26.33	65.91	19.60	9.86	0.06	10.06	Average
3	0.18	52.59	-11.96	64.55	32.60	9.86	0.07	10.06	QP
4	0.18	32.69	-31.86	64.55	12.70	9.86	0.07	10.06	Average
5	0.20	50.19	-13.35	63.54	30.20	9.86	0.07	10.06	QP
6	0.20	32.99	-30.55	63.54	13.00	9.86	0.07	10.06	Average
7	0.24	45.59	-16.36	61.95	25.60	9.86	0.07	10.06	QP
8	0.24	30.29	-31.66	61.95	10.30	9.86	0.07	10.06	Average
9	0.28	40.30	-20.55	60.85	20.30	9.86	0.07	10.07	QP
10	0.28	25.90	-34.95	60.85	5.90	9.86	0.07	10.07	Average
11	0.57	50.03	-5.97	56.00	30.01	9.87	0.07	10.08	QP
12	0.57	40.63	-15.37	56.00	20.61	9.87	0.07	10.08	Average

Appendix C. Radiated Spurious Emission

Test Engineer :	Leo Liu	Temperature :	21~23°C
		Relative Humidity :	47~49%

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1+2		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
		2380.56	55.03	-18.97	74	42.16	27.29	16.92	31.34	207	347	P	H
		2389.38	45.92	-8.08	54	33.02	27.31	16.93	31.34	207	347	A	H
	*	2412	88	14	74	74.98	27.37	16.97	31.32	207	347	P	H
	*	2412	77.63	23.63	54	64.61	27.37	16.97	31.32	207	347	A	H
802.11n													H
HT20													H
CH 01		2315.88	55.2	-18.8	74	42.66	27.12	16.81	31.39	100	341	P	V
2412MHz		2378.67	46.1	-7.9	54	33.25	27.28	16.91	31.34	100	341	A	V
	*	2412	80.74	6.74	74	67.72	27.37	16.97	31.32	100	341	P	V
	*	2412	71.2	17.2	54	58.18	27.37	16.97	31.32	100	341	A	V
													V
													V

		2388.4	55.49	-18.51	74	42.59	27.31	16.93	31.34	208	348	P	H
		2386.86	45.64	-8.36	54	32.74	27.31	16.93	31.34	208	348	A	H
	*	2437	88.31	14.31	74	75.16	27.44	17.01	31.3	208	348	P	H
	*	2437	78.73	24.73	54	65.58	27.44	17.01	31.3	208	348	A	H
		2494.47	57.08	-16.92	74	43.64	27.59	17.11	31.26	208	348	P	H
		2497.48	46.6	-7.4	54	33.16	27.59	17.11	31.26	208	348	A	H
													H
802.11n													H
HT20													
CH 06		2338	54.99	-19.01	74	42.33	27.18	16.85	31.37	114	337	P	V
2437MHz		2388.68	46.04	-7.96	54	33.14	27.31	16.93	31.34	114	337	A	V
	*	2437	76.7	2.7	74	63.55	27.44	17.01	31.3	114	337	P	V
	*	2437	66.52	12.52	54	53.37	27.44	17.01	31.3	114	337	A	V
		2498.32	56.3	-17.7	74	42.85	27.6	17.11	31.26	114	337	P	V
		2494.12	46.47	-7.53	54	33.04	27.58	17.11	31.26	114	337	A	V
													V
													V
	*	2462	88.48	14.48	74	75.22	27.5	7.07	31.29	205	347	P	H
	*	2462	78.18	24.18	54	64.92	27.5	7.07	31.29	205	347	A	H
		2496.6	57.04	-16.96	74	43.6	27.59	7.13	31.26	205	347	P	H
		2499.24	46.53	-7.47	54	33.08	27.6	7.13	31.26	205	347	A	H
802.11n													H
HT20													H
CH 11	*	2462	85.71	11.71	74	72.45	27.5	7.07	31.29	100	341	P	V
2462MHz	*	2462	75.66	21.66	54	62.4	27.5	7.07	31.29	100	341	A	V
		2499.52	55.56	-18.44	74	42.11	27.6	7.13	31.26	100	341	P	V
		2492.88	46.45	-7.55	54	33.03	27.58	7.12	31.26	100	341	A	V
													V
													V

Remark

1. No other spurious found.
2. All results are PASS against Peak and Average limit line.

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 01 2412MHz		4824	39.95	-34.05	74	54.34	31.28	10.24	56.47	100	0	P	H
		7560	52.43	-21.57	74	59.2	36.56	12.71	56.44	188	222	P	H
		7560	51.63	-2.37	54	58.4	36.56	12.71	56.44	188	222	A	H
		14595	56.65	-17.35	74	58.25	42.47	17.05	61.52	165	135	P	H
		14595	51.38	-2.62	54	52.98	42.47	17.05	61.52	165	135	A	H
													V
		4824	39.79	-34.21	74	54.18	31.28	10.24	56.47	100	0	P	V
		7560	50.46	-23.54	74	57.23	36.56	12.71	56.44	100	10	P	V
		7560	43.84	-10.16	54	50.61	36.56	12.71	56.44	100	10	A	V
		14670	54.87	-19.13	74	56.55	42.29	17.08	61.46	100	188	P	V
		14670	45.43	-8.57	54	47.11	42.29	17.08	61.46	100	188	A	V
802.11n HT20 CH 06 2437MHz		4874	39.55	-34.45	74	53.82	31.37	10.26	56.45	100	0	P	H
		7311	44.26	-29.74	74	52.1	35.97	12.42	56.63	100	0	P	H
		7560	54.35	-19.65	74	61.12	36.56	12.71	56.44	200	222	P	H
		7560	51.46	-2.54	54	58.23	36.56	12.71	56.44	200	222	A	H
		14625	64.05	-9.95	74	65.69	42.4	17.06	61.5	166	135	P	H
		14625	51.05	-2.95	54	52.69	42.4	17.06	61.5	166	135	A	H
		4874	40.11	-33.89	74	54.38	31.37	10.26	56.45	100	0	P	V
		7311	44.44	-29.56	74	52.28	35.97	12.42	56.63	100	0	P	V
		7560	51.23	-22.77	74	58	36.56	12.71	56.44	102	5	P	V
		7560	44.26	-9.74	54	51.03	36.56	12.71	56.44	102	5	A	V
		14640	53.91	-20.09	74	55.57	42.36	17.07	61.49	102	188	P	V
		14640	44.04	-9.96	54	45.7	42.36	17.07	61.49	102	188	A	V

802.11n HT20 CH 11 2462MHz		4924	42.81	-31.19	74	56.96	31.46	10.29	56.43	100	0	P	H
		7386	44.94	-29.06	74	52.37	36.18	12.51	56.54	100	0	P	H
		7560	55.58	-18.42	74	62.35	36.56	12.71	56.44	198	226	P	H
		7560	52.47	-1.53	54	59.24	36.56	12.71	56.44	198	226	A	H
		14625	64.38	-9.62	74	66.02	42.4	17.06	61.5	170	137	P	H
		14625	51.59	-2.41	54	53.23	42.4	17.06	61.5	170	137	A	H
		4924	40.48	-33.52	74	54.63	31.46	10.29	56.43	100	0	P	V
		7386	45.78	-28.22	74	53.21	36.18	12.51	56.54	100	0	P	V
		7560	51.4	-22.6	74	58.17	36.56	12.71	56.44	100	2	P	V
		7560	44.93	-9.07	54	51.7	36.56	12.71	56.44	100	2	A	V
		14610	55.98	-18.02	74	57.6	42.44	17.05	61.51	100	199	P	V
		14610	45.11	-8.89	54	46.73	42.44	17.05	61.51	100	199	A	V
													V

Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.

2.4GHz 2400~2483.5MHz

Emission below 1GHz

2.4GHz WIFI 802.11n HT20 (LF)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1+2		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
		104.69	33.01	-10.49	43.5	47.04	16.57	1.75	32.35	100	0		H
		158.04	30.82	-12.68	43.5	44.38	16.7	2.08	32.34	-	-		H
		218.18	29.98	-16.02	46	44.73	15.12	2.49	32.36	-	-		H
		362.71	30.42	-15.58	46	38.82	20.95	3.12	32.47	-	-		H
		837.04	31.76	-14.24	46	30.45	28.58	4.71	31.98	-	-		H
		934.04	33.68	-12.32	46	29.72	30.24	5.01	31.29	-	-		H
													H
													H
													H
													H
2.4GHz													H
802.11n													H
HT20		45.52	36.41	-3.59	40	50.79	16.64	1.39	32.41	100	0		V
LF		101.78	28.03	-15.47	43.5	42.39	16.26	1.73	32.35	-	-		V
		226.91	28.02	-17.98	46	41.96	15.89	2.54	32.37	-	-		V
		407.33	27	-19	46	34.07	22.14	3.28	32.49	-	-		V
		747.8	31.25	-14.75	46	31.08	28.2	4.34	32.37	-	-		V
		941.8	35.01	-10.99	46	30.63	30.57	5.03	31.22	-	-		V
													V
													V
													V
													V
													V
													V

Remark

1. No other spurious found.
2. All results are PASS against limit line.

Note symbol

*	**Fundamental Frequency** which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is **over limit** line.
P/A	**P**eak or **A**verage
H/V	**H**orizontal or **V**ertical

A calculation example for radiated spurious emission is shown as below:

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Path Loss(dB) = Cable loss(dB) + Filter loss(dB) + Attenuator loss(dB)
2. Level(dBμV/m) =

Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

3. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)

= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)

= 55.45 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m) – 74(dBμV/m)

= -18.55(dB)

For Average Limit @ 2390MHz:

1. Level(dBμV/m)

= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)

= 43.54 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 43.54(dBμV/m) – 54(dBμV/m)

= -10.46(dB)

Both peak and average measured complies with the limit line, so test result is "PASS".

Appendix D. Radiated Spurious Emission Plots

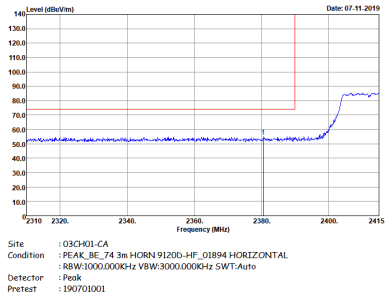
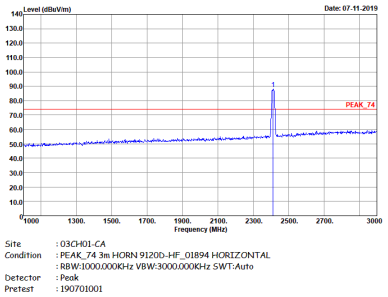
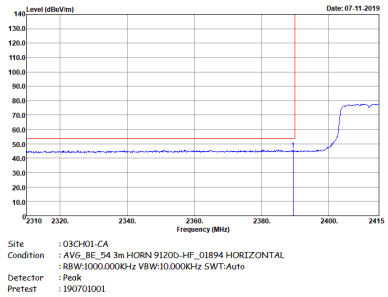
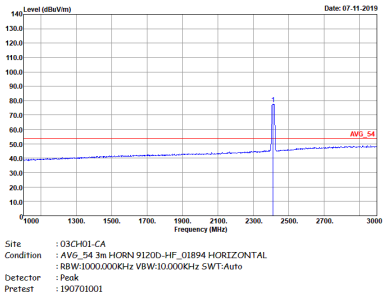
Test Engineer :	Leo Liu	**Temperature :**	21~23°C
		Relative Humidity :	47~49%

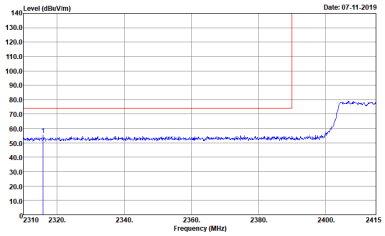
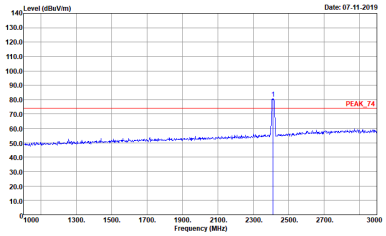
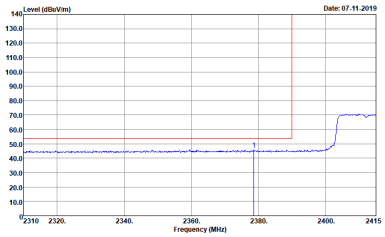
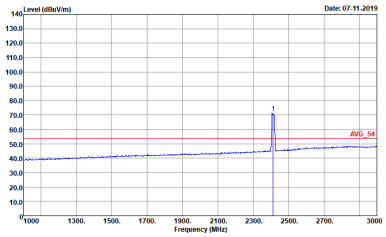
Note symbol

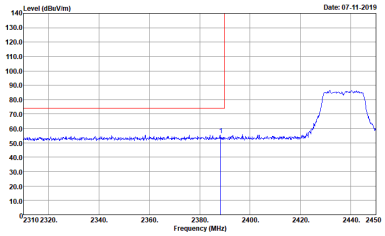
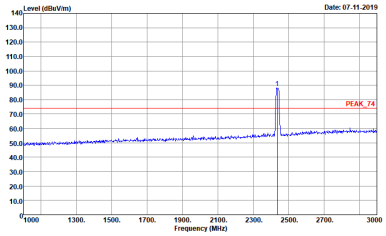
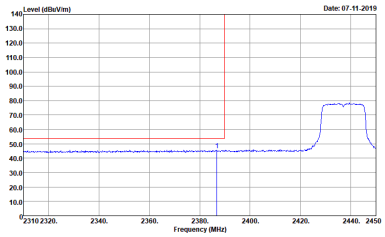
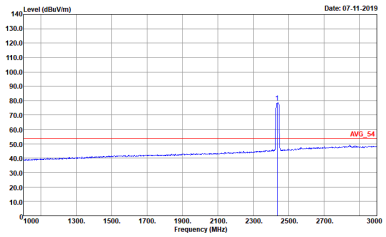
-L	**Low channel location**
-R	**High channel location**

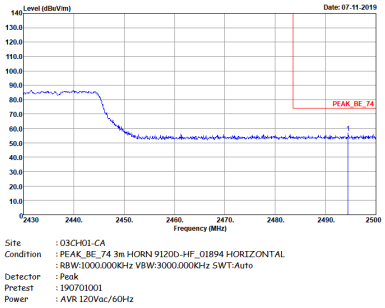
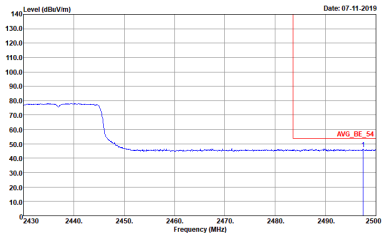
2.4GHz 2400~2483.5MHz

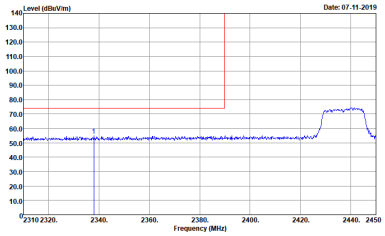
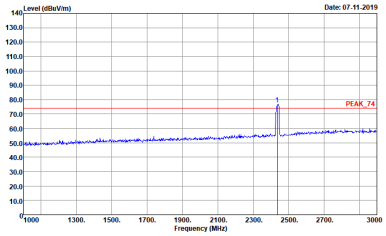
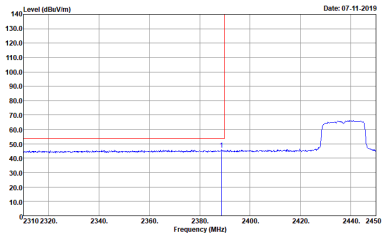
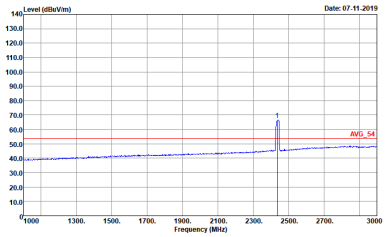
WIFI 802.11n HT20 (Band Edge @ 3m)

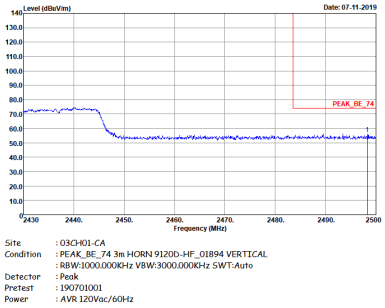
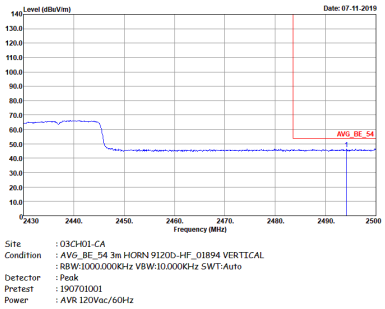
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
1+2	Horizontal	Fundamental
Peak		
Avg.		

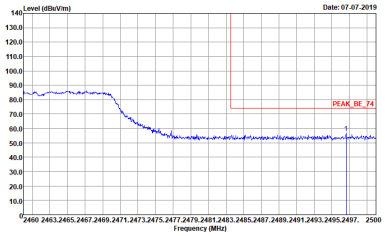
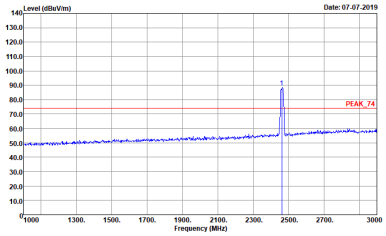
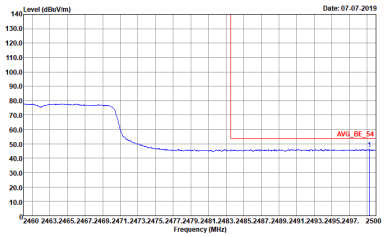
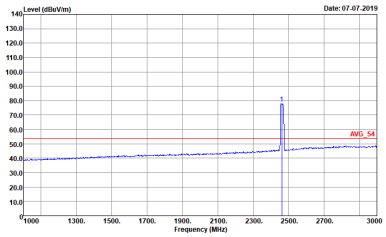
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
1+2	Vertical	Fundamental
Peak	 Site : 03CH01-CA Condition : PEAK_BE_74 3m HORN 9120D-HF_01894 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Pretest : 190701001	 Site : 03CH01-CA Condition : PEAK_74 3m HORN 9120D-HF_01894 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Pretest : 190701001
Avg.	 Site : 03CH01-CA Condition : AVG_BE_54 3m HORN 9120D-HF_01894 VERTICAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto Detector : Peak Pretest : 190701001	 Site : 03CH01-CA Condition : AVG_54 3m HORN 9120D-HF_01894 VERTICAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto Detector : Peak Pretest : 190701001

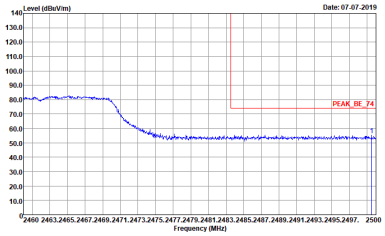
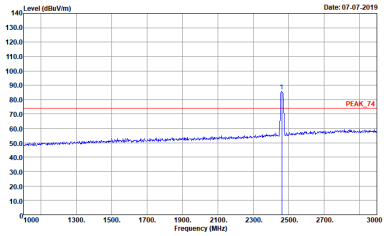
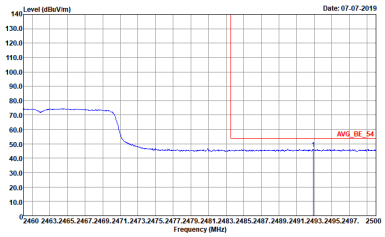
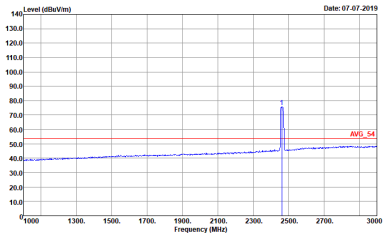
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - L	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH01-CA Condition : PEAK_BE_74 3m HORN 9120D-HF_01894 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Pretest : 190701001 Power : AVR 120Vac/60Hz	 Site : 03CH01-CA Condition : PEAK_74 3m HORN 9120D-HF_01894 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Pretest : 190701001 Power : AVR 120Vac/60Hz
Avg.	 Site : 03CH01-CA Condition : AVG_BE_54 3m HORN 9120D-HF_01894 HORIZONTAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto Detector : Peak Pretest : 190701001 Power : AVR 120Vac/60Hz	 Site : 03CH01-CA Condition : AVG_54 3m HORN 9120D-HF_01894 HORIZONTAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto Detector : Peak Pretest : 190701001 Power : AVR 120Vac/60Hz

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - R	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH01-CA Condition : PEAK_BE_74 3m HORN 9120D-HF_01894 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Pretest : 190701001 Power : AVR 120Vac/60Hz	Left blank
Avg.	 Site : 03CH01-CA Condition : AVG_BE_54 3m HORN 9120D-HF_01894 HORIZONTAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto Detector : Peak Pretest : 190701001 Power : AVR 120Vac/60Hz	Left blank

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - L	
1+2	Vertical	Fundamental
Peak	 Site : 03CH01-CA Condition : PEAK_BE_74 3m HORN 9120D-HF_01894 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Pretest : 190701001 Power : AVR 120Vac/60Hz	 Site : 03CH01-CA Condition : PEAK_74 3m HORN 9120D-HF_01894 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Pretest : 190701001 Power : AVR 120Vac/60Hz
Avg.	 Site : 03CH01-CA Condition : AVG_BE_54 3m HORN 9120D-HF_01894 VERTICAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto Detector : Peak Pretest : 190701001 Power : AVR 120Vac/60Hz	 Site : 03CH01-CA Condition : AVG_54 3m HORN 9120D-HF_01894 VERTICAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto Detector : Peak Pretest : 190701001 Power : AVR 120Vac/60Hz

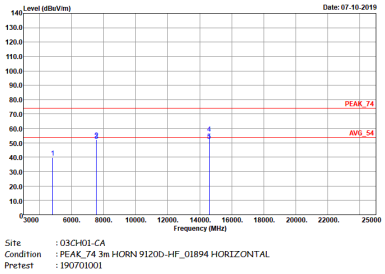
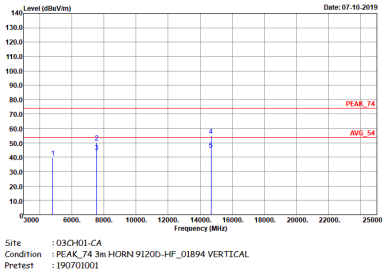
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - R	
1+2	Vertical	Fundamental
Peak	 Site : 03CH01-CA Condition : PEAK_BE_74 3m HORN 9120D-HF_01894 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Pretest : 190701001 Power : AVR 120Vac/60Hz	Left Blank
Avg.	 Site : 03CH01-CA Condition : AVG_BE_54 3m HORN 9120D-HF_01894 VERTICAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto Detector : Peak Pretest : 190701001 Power : AVR 120Vac/60Hz	Left Blank

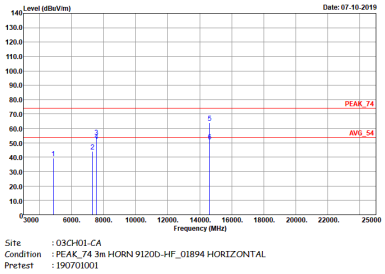
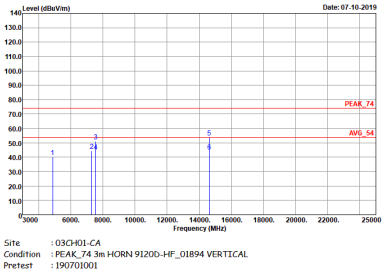
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH01-CA Condition : PEAK_BE_74 3m HORN 9120D-HF_01894 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Pretest : 190701001 Power : AVR 120Vac/60Hz	 Site : 03CH01-CA Condition : PEAK_74 3m HORN 9120D-HF_01894 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Pretest : 190701001 Power : AVR 120Vac/60Hz
Avg.	 Site : 03CH01-CA Condition : AVG_BE_54 3m HORN 9120D-HF_01894 HORIZONTAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto Detector : Peak Pretest : 190701001 Power : AVR 120Vac/60Hz	 Site : 03CH01-CA Condition : AVG_54 3m HORN 9120D-HF_01894 HORIZONTAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto Detector : Peak Pretest : 190701001 Power : AVR 120Vac/60Hz

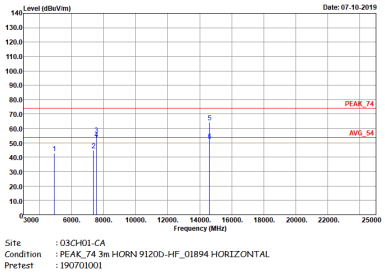
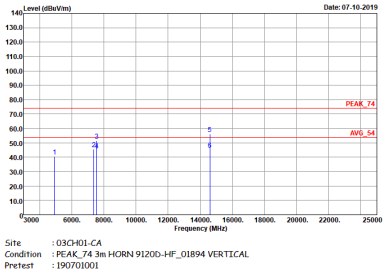
WIFI	2.4GHz 2400~2483.5MHz Fundamental @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
1+2	Vertical	Fundamental
Peak	 Site : 03CH01-CA Condition : PEAK_BE_74 3m HORN 9120D-HF_01894 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Pretest : 190701001 Power : AVR 120Vac/60Hz	 Site : 03CH01-CA Condition : PEAK_74 3m HORN 9120D-HF_01894 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Pretest : 190701001 Power : AVR 120Vac/60Hz
Avg.	 Site : 03CH01-CA Condition : AVG_BE_54 3m HORN 9120D-HF_01894 VERTICAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto Detector : Peak Pretest : 190701001 Power : AVR 120Vac/60Hz	 Site : 03CH01-CA Condition : AVG_54 3m HORN 9120D-HF_01894 VERTICAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto Detector : Peak Pretest : 190701001 Power : AVR 120Vac/60Hz

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

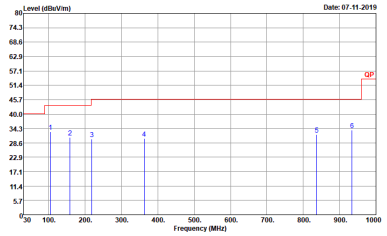
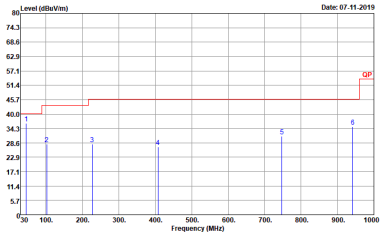
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
1+2	Horizontal	Vertical
Peak Avg.		

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH06 2437MHz	
1+2	Horizontal	Vertical
Peak Avg.	 Site : 03CH01-CA Condition : PEAK_74 3m HORN 9120D-HF_01894 HORIZONTAL Pretest : 190701001	 Site : 03CH01-CA Condition : PEAK_74 3m HORN 9120D-HF_01894 VERTICAL Pretest : 190701001

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
1+2	Horizontal	Vertical
Peak Avg.	 Site : 03CH01-CA Condition : PEAK_74 3m HORN 9120D-HF_01894 HORIZONTAL Pretest : 190701001	 Site : 03CH01-CA Condition : PEAK_74 3m HORN 9120D-HF_01894 VERTICAL Pretest : 190701001

Emission below 1GHz

2.4GHz WIFI 802.11n HT20 (LF)

WIFI	2.4GHz 2400~2483.5MHz	
ANT	802.11n HT20 LF	
1+2	Horizontal	Vertical
QP / Peak		

Site : 03CH01-CA
Condition : QP 3m BILOG 6111D-LF_50392 HORIZONTAL
Pretest : 190701001
Power : AVR 120Vac/60Hz

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	104.69	33.01	-10.49	43.50	47.04	16.57	1.69	32.35	100	0	Peak
2	158.04	30.82	-12.68	43.50	44.38	16.70	2.00	32.34	---	---	Peak
3	218.18	29.98	-16.02	46.00	44.73	15.12	2.36	32.36	---	---	Peak
4	362.71	30.42	-15.58	46.00	38.82	20.95	2.98	32.47	---	---	Peak
5	837.04	31.76	-14.24	46.00	30.45	28.58	4.35	31.98	---	---	Peak
6	934.04	33.68	-12.32	46.00	29.72	30.24	4.62	31.29	---	---	Peak

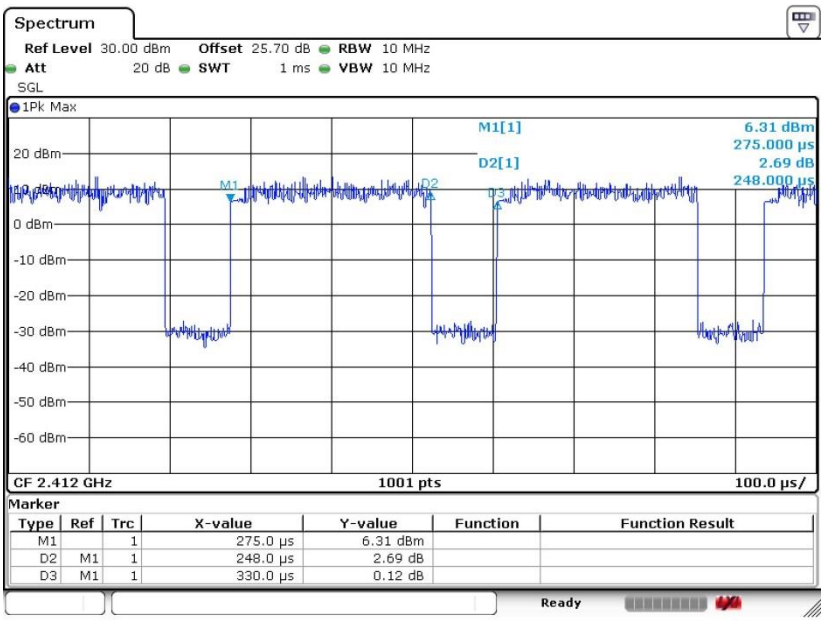
Site : 03CH01-CA
Condition : QP 3m BILOG 6111D-LF_50392 VERTICAL
Pretest : 190701001
Power : AVR 120Vac/60Hz

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	45.52	36.41	-3.59	40.00	50.79	16.64	1.31	32.41	100	0	Peak
2	101.78	28.03	-15.47	43.50	42.39	16.26	1.67	32.35	---	---	Peak
3	226.91	28.02	-17.98	46.00	41.96	15.89	2.41	32.37	---	---	Peak
4	407.33	27.00	-19.00	46.00	34.07	22.14	3.09	32.49	---	---	Peak
5	747.00	31.25	-14.75	46.00	31.08	28.20	4.05	32.37	---	---	Peak
6	941.80	35.01	-10.99	46.00	30.63	30.57	4.63	31.22	---	---	Peak

Appendix E. Duty Cycle Plots

Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting	Duty Factor(dB)
1	2.4GHz 802.11n HT20	75.15	248	4.03	10kHz	1.24

802.11n HT20



Date: 9.JUL.2019 11:04:23