FCC RADIO TEST REPORT

FCC ID	:	**TYM-J100**
Equipment	:	**Wireless Module**
Brand Name	:	**AVAYA**
Model Name	:	**J100**
Marketing Name	:	**J100 Wireless Module**
Applicant	:	**AVAYA** **250 Sidney Street, Belleville, Ontario, K8P 3Z3, Canada**
Manufacturer	:	**Wistron Corporation** **21th Fl., 88, Sec.1, Hsin Tai Wu Rd.,Hsichih, Taipei Hsien 221,Taiwan, R.O.C.**
Standard	:	**FCC Part 15 Subpart C §15.247**

The product was received on Aug. 05, 2019 and testing was started from Sep. 16, 2019 and completed on Sep. 26, 2019. We, SPORTON INTERNATIONAL INC., EMC & Wireless Communications Laboratory, 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 TAF or any agency of government.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Louis Wu

Approved by: Louis Wu

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)

Table of Contents

History of this test report

Report No.	Version	Description	Issued Date
FR980514C	01	Initial issue of report	Nov. 08, 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 1.55 dB at 4824.000 MHz
3.6	15.207	AC Conducted Emission	Pass	Under limit 12.13 dB at 0.8490 MHz

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.

Reviewed by: Wii Chang

Report Producer: Tina Chuang

1 General Description

1.1 Product Feature of Equipment Under Test

Bluetooth, and Wi-Fi 2.4GHz 802.11b/g/n and Wi-Fi 5GHz 802.11a/n/ac

Product Specification subjective to this standard	
Antenna Type	WLAN: Chip antenna Bluetooth: Chip 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 INC. EMC & Wireless Communications Laboratory	
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978	
Test Site No.	**Sporton Site No.**	
	CO05-HY	TH05-HY

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

Test Site	SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
Test Site No.	**Sporton Site No.**
	03CH13-HY

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

FCC designation No.: TW1190 and TW0007

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: All test items were verified and recorded according to the standards and without any deviation during the test.

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).

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		

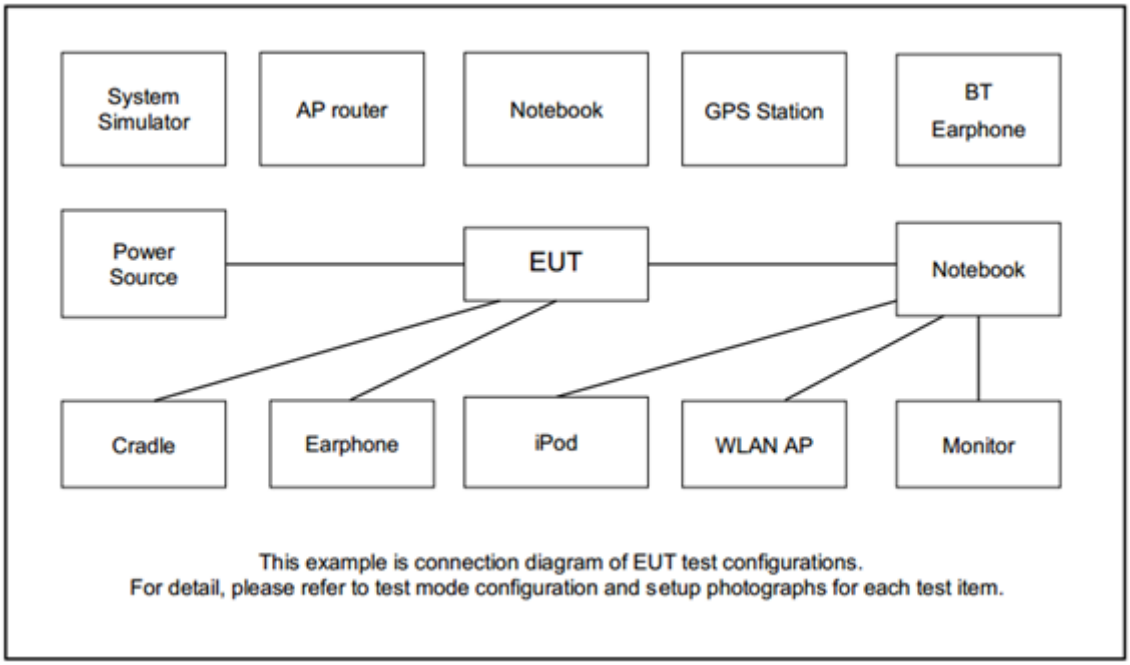
2.2 Test Mode

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

Modulation	Data Rate
802.11b	**1 Mbps**
802.11g	**6 Mbps**
802.11n HT20	**MCS0**
802.11n HT40	**MCS0**

Test Cases	
AC Conducted Emission	Mode 1 :WLAN (2.4 GHz) Tx Mode 2 Bluetooth Tx
Remark: The worst case of conducted emission is mode 2. ; only the test data of it was reported.	

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.	Adapter	Phihong	PSAC12R-050	N/A	N/A	N/A
2.	Main board	DELL	N/A	N/A	N/A	N/A
3.	Notebook	DELL	Latitude E5480	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	Notebook	DELL	Latitude E3340	FCC DoC/ Contains FCC ID: PD97260NGU	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 “cmd” 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.

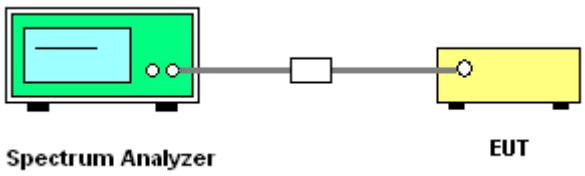
3.1.2 Measuring Instruments

See list of measuring equipment of this test report.

3.1.3 Test Procedures

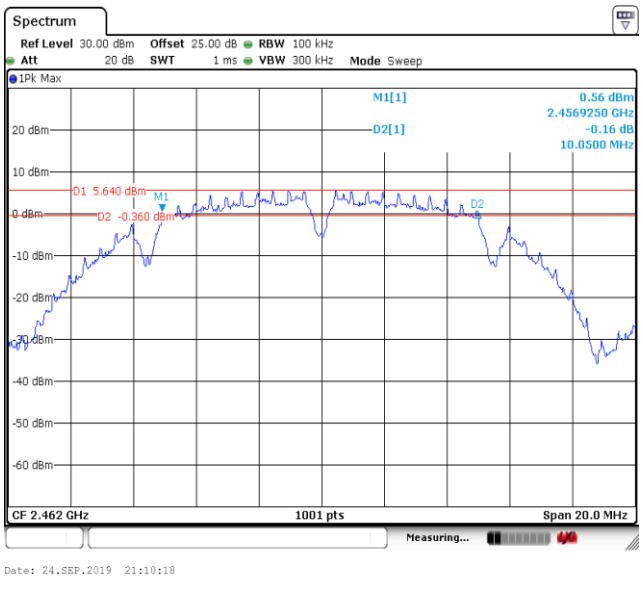
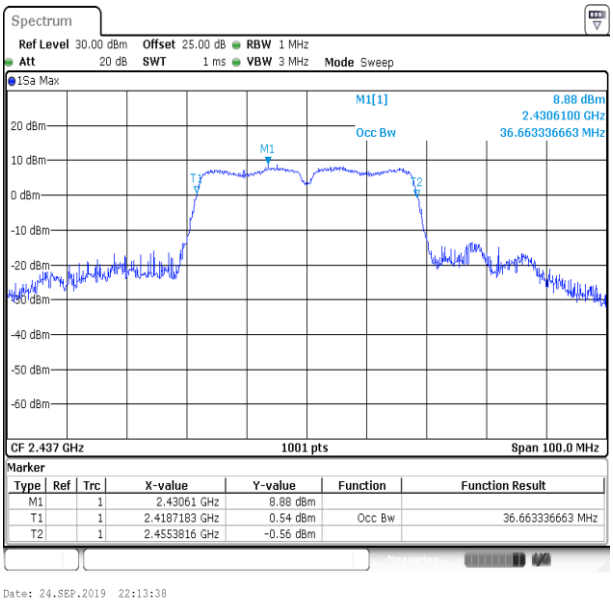
1. The testing follows the ANSI C63.10 Section 6.9.3 (OBW) and 11.8.1 (6dB BW).
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit 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.

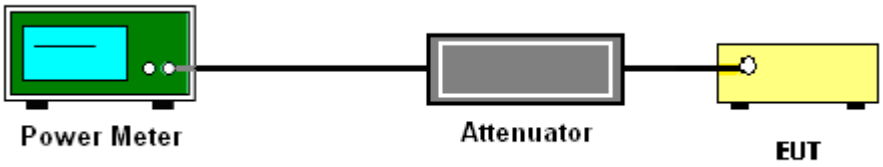
3.2.2 Measuring Instruments

See list of measuring equipment of this test report.

3.2.3 Test Procedures

1. For Peak Power, the testing follows ANSI C63.10 Section 11.9.1.3 PKPM1
2. For Average Power, the testing follows ANSI C63.10 Section 11.9.2.3.2 Method AVGPM-G
3. 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.
4. Set to the maximum power setting and enable the EUT transmit continuously.
5. Measure the conducted output power and record the results in the test report.

3.2.4 Test Setup



3.2.5 Test Result of Peak Output Power

Please refer to Appendix A.

3.2.6 Test Result of Average Output Power (Reporting Only)

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

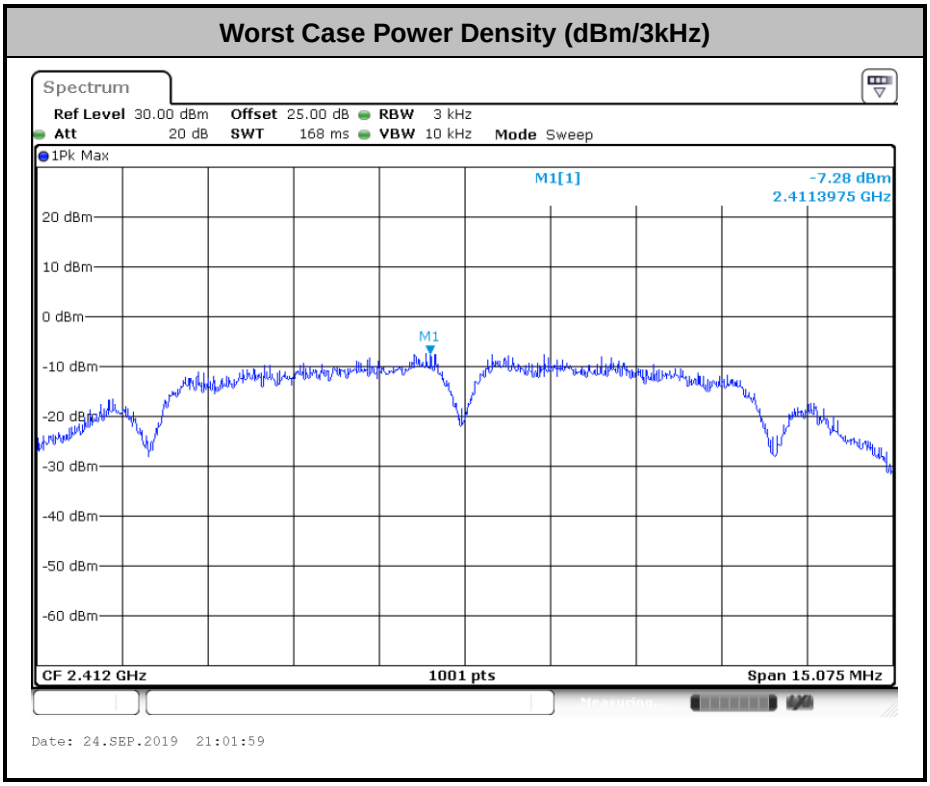
1. The testing follows the ANSI C63.10 Section 11.10.2 Method PKPSD.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
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.

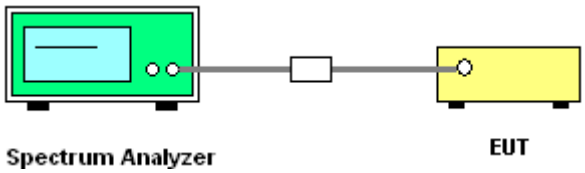
3.4.2 Measuring Instruments

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

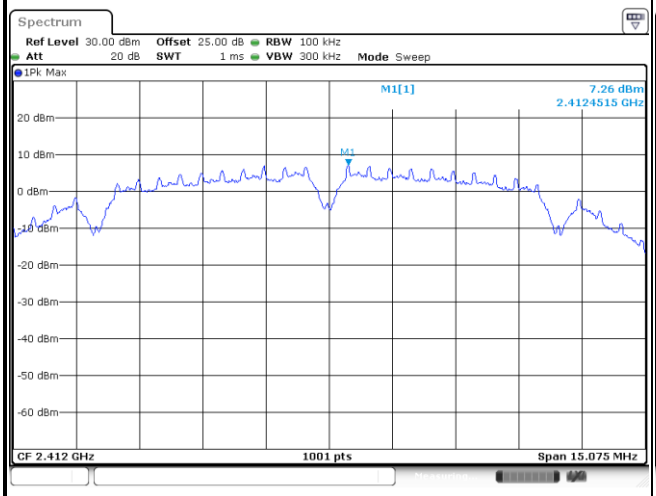
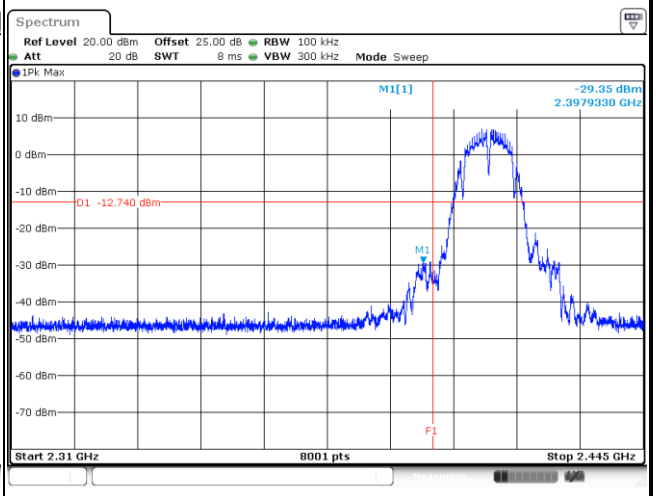
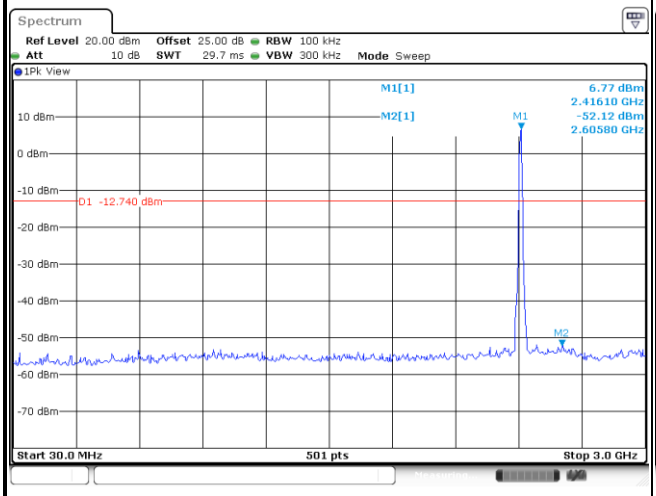
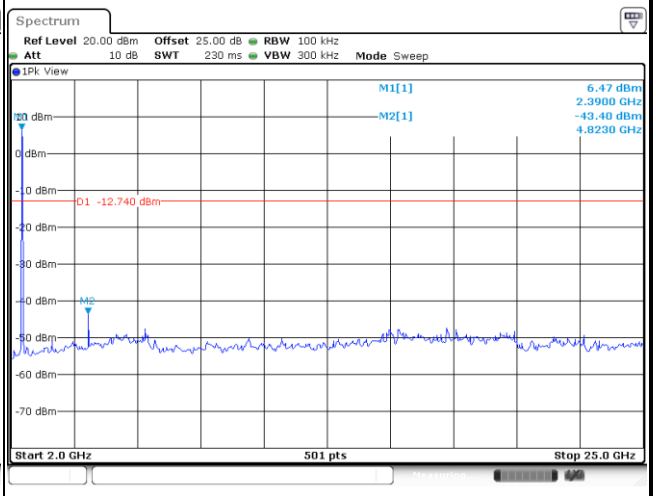


3.4.5 Test Result of Conducted Band Edges and Spurious Emission

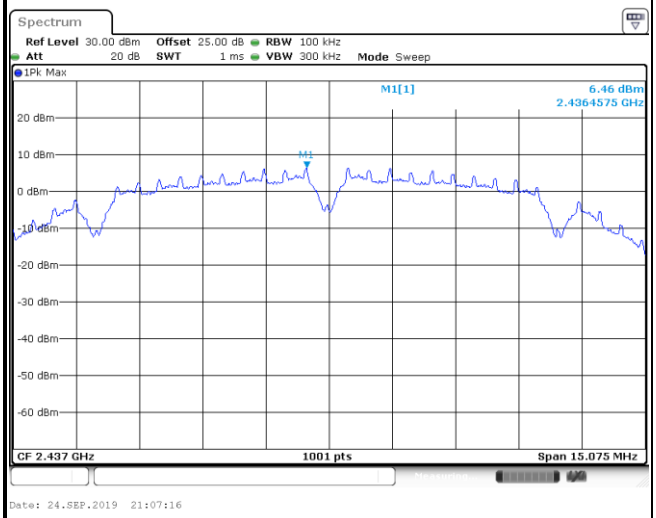
Test Engineer :	Derek Hsu	Temperature :	21~25℃
		Relative Humidity :	51~54%

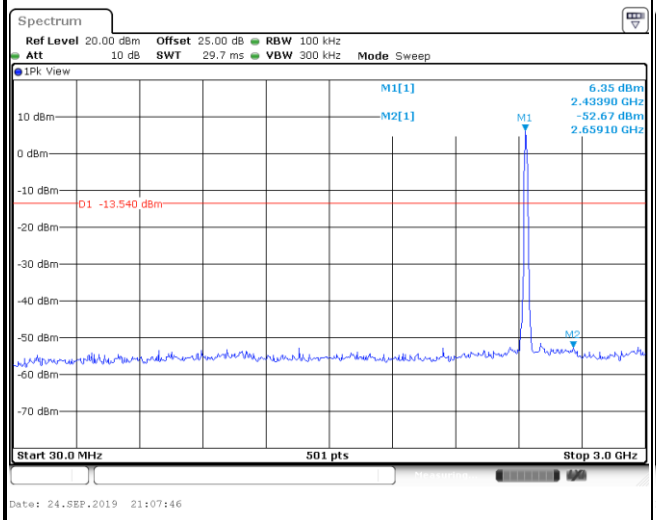
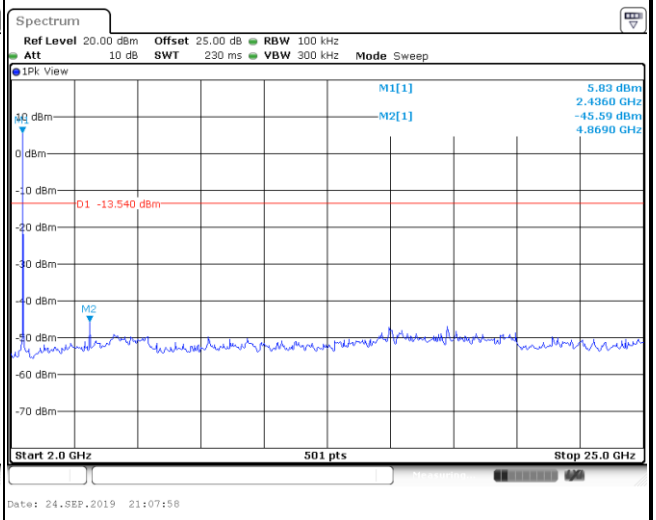
Number of TX = 1, Ant. 1 (Measured)

Test Mode :	802.11b	Test Channel :	01

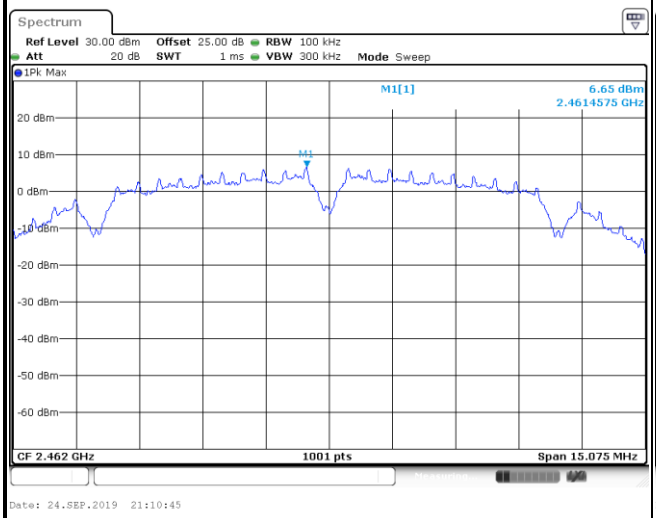
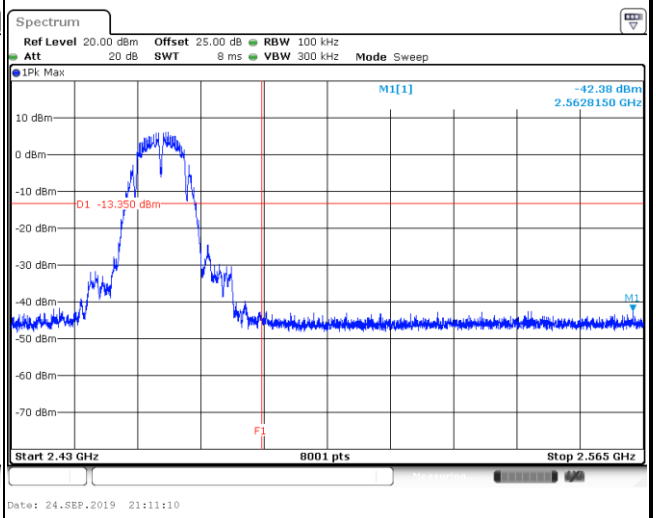
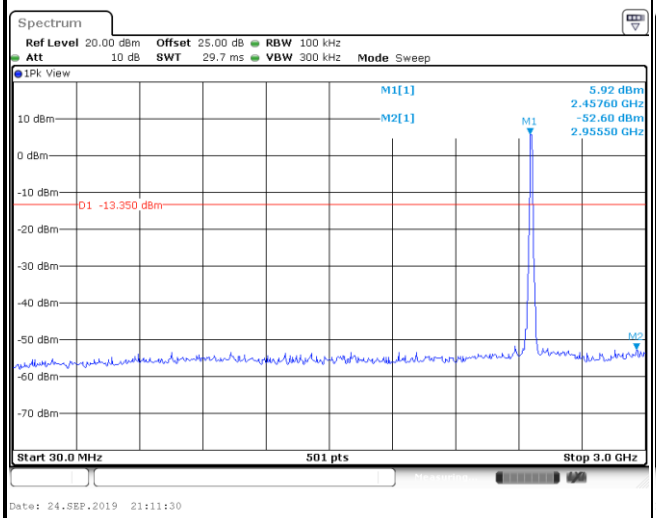
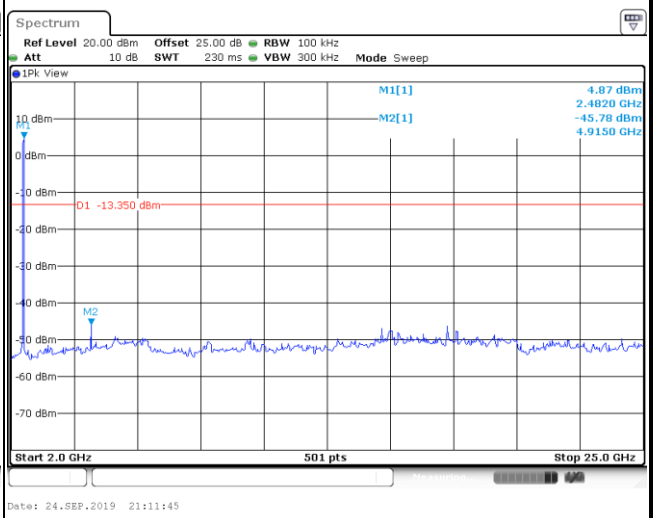
100kHz PSD reference Level	Low Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11b	Test Channel :	06

100kHz PSD reference Level	Mid Channel Plot
	

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

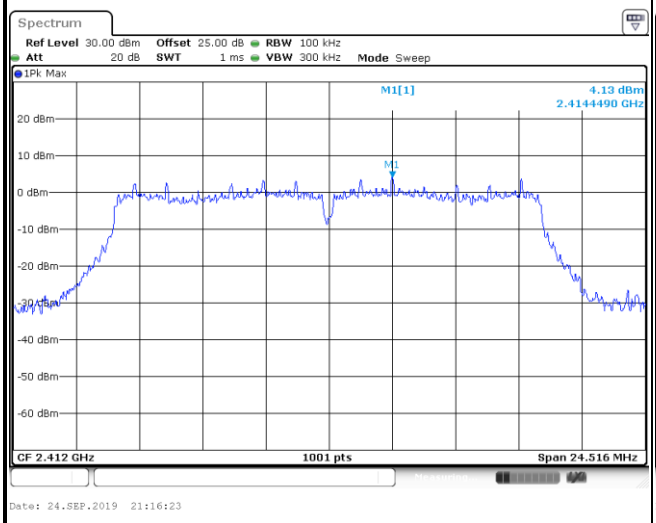
Test Mode :	802.11b	Test Channel :	11

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

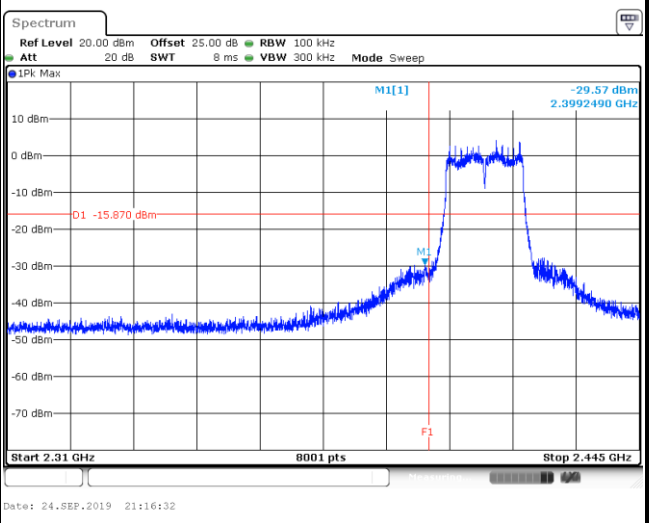
Test Mode :	802.11g	Test Channel :	01

WLAN 802.11g Channel 01

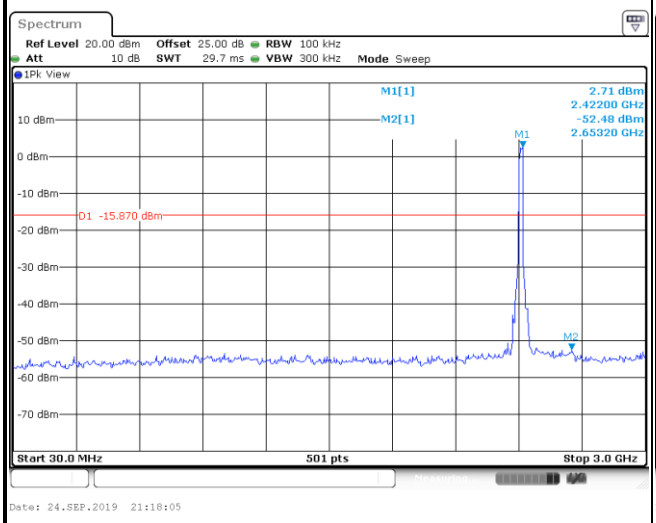
100kHz PSD reference Level



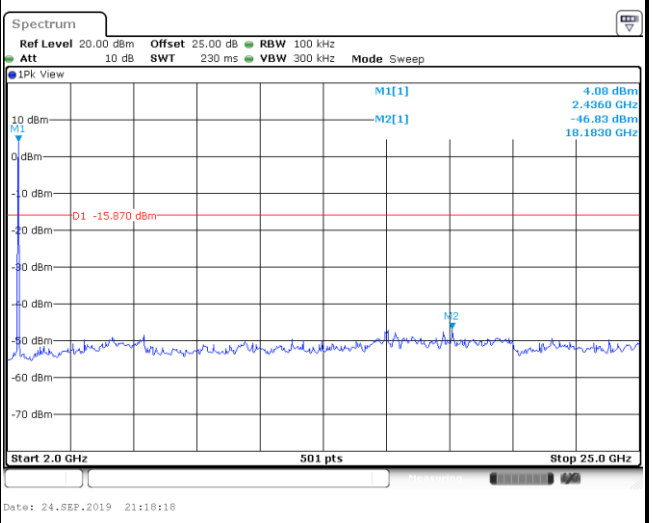
Low Channel Plot



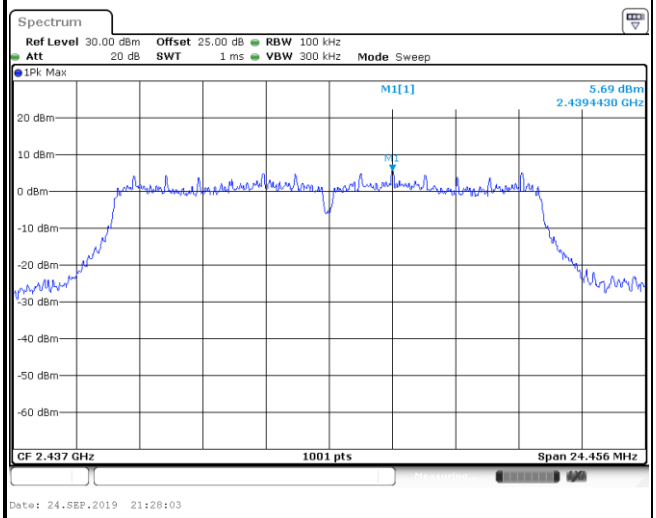
Spurious Emission 30MHz~3GHz

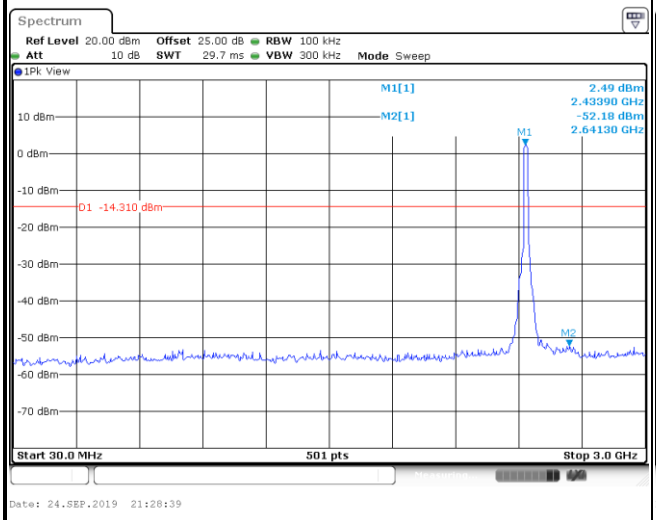
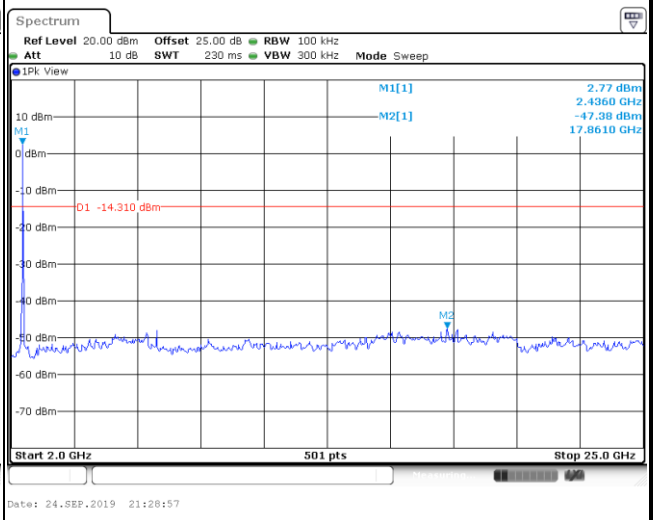


Spurious Emission 2GHz~25GHz

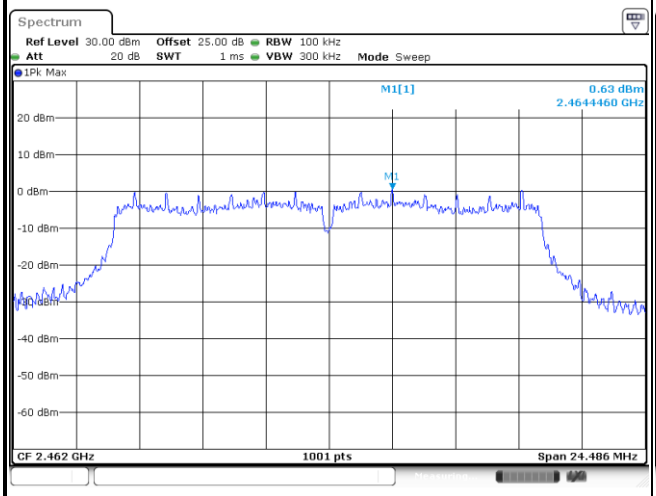
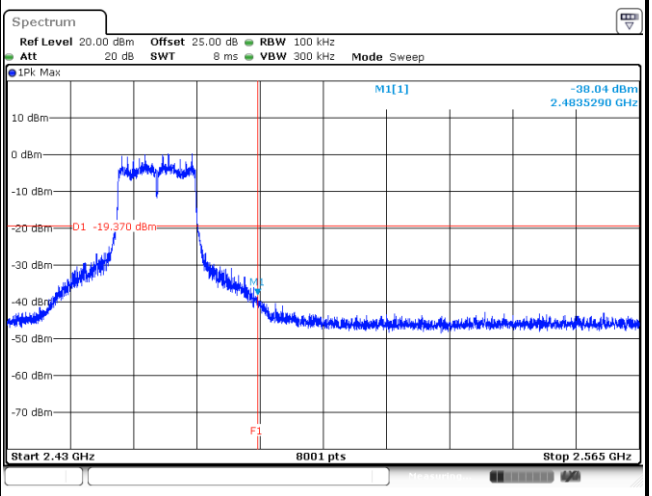
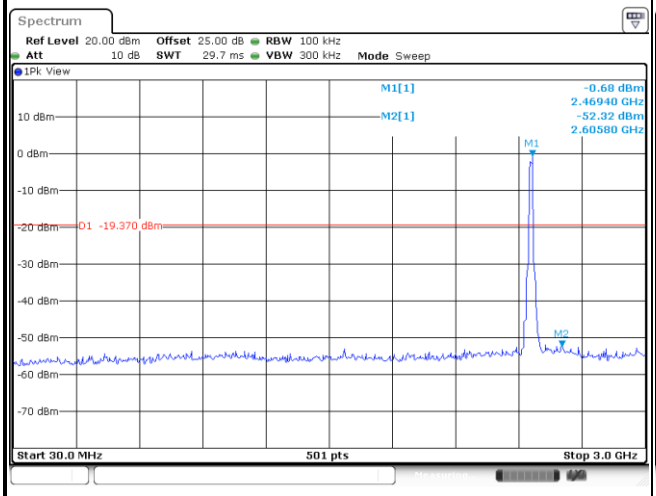
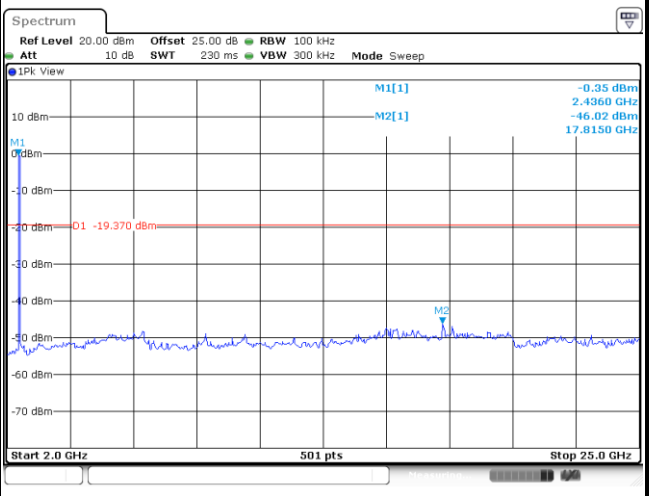


Test Mode :	802.11g	Test Channel :	06

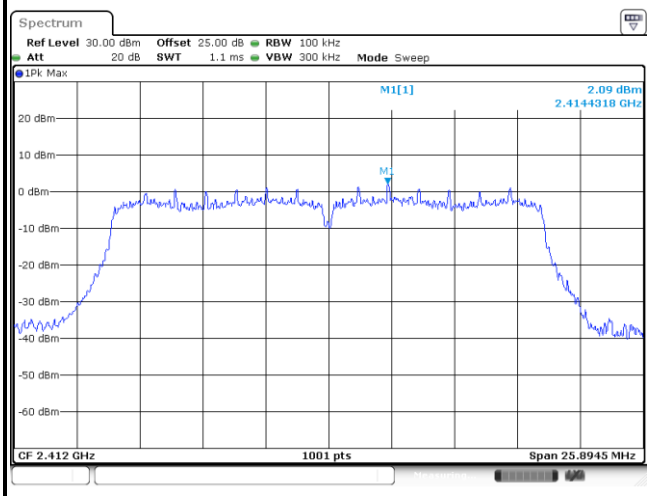
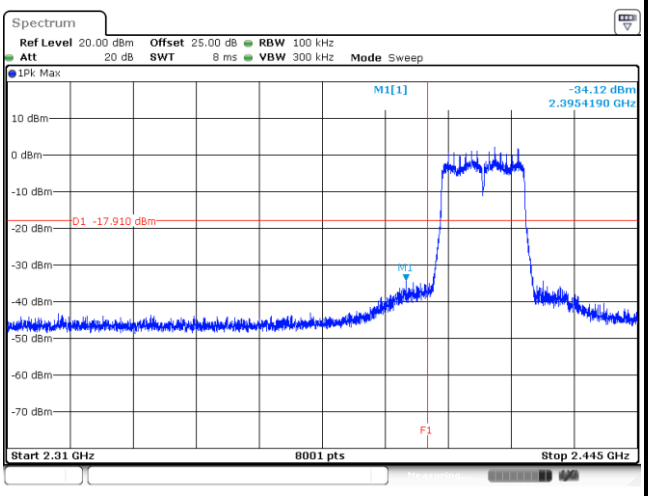
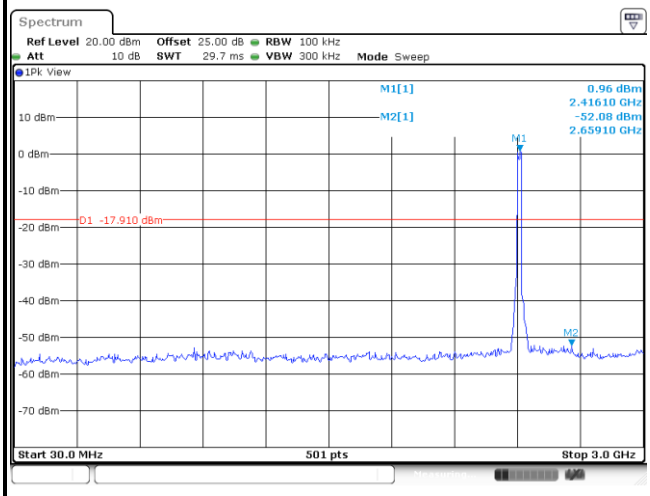
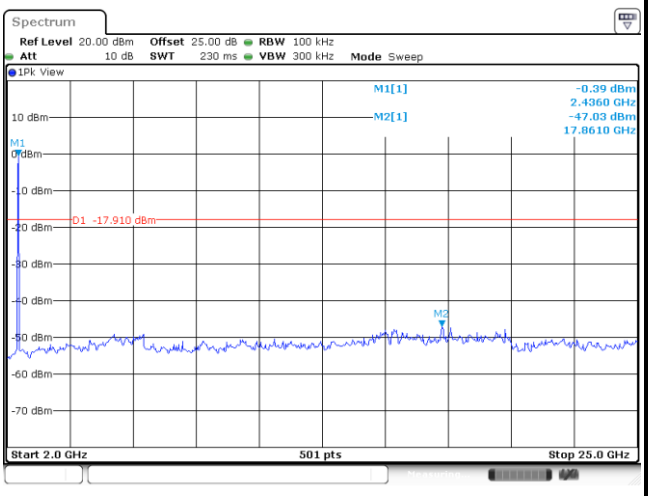
100kHz PSD reference Level	Mid Channel Plot
	

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

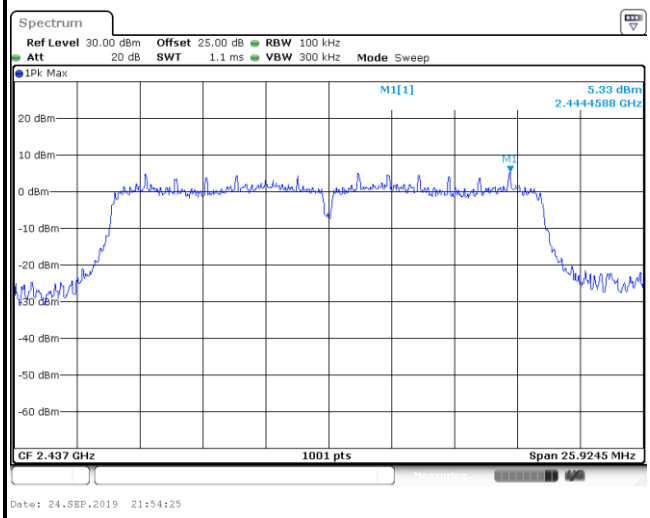
Test Mode :	802.11g	Test Channel :	11

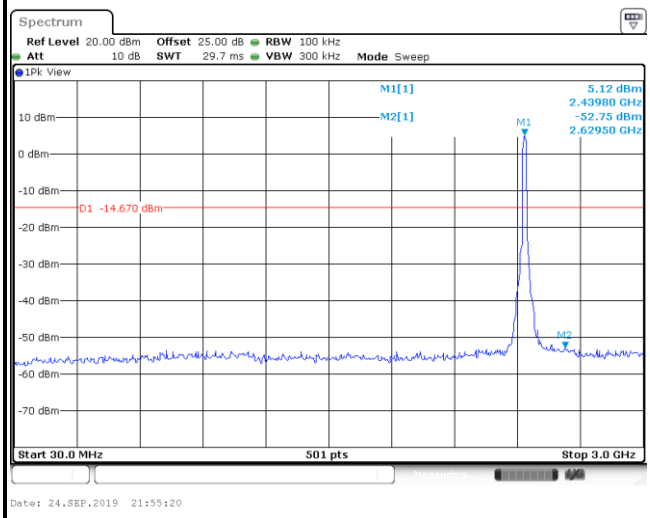
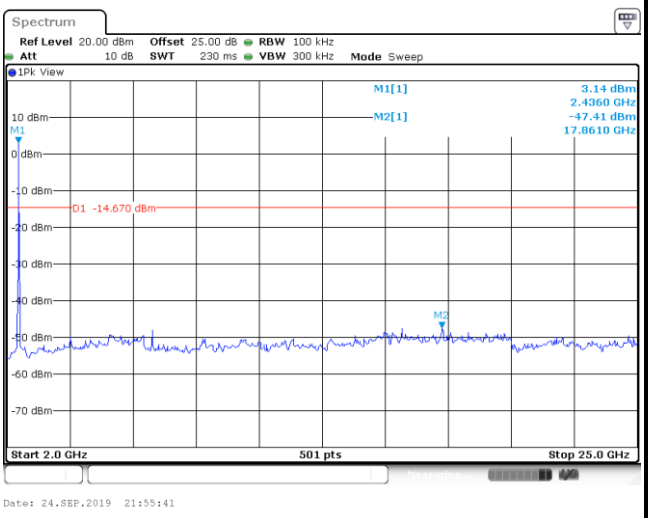
100kHz PSD reference Level	High Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11n HT20	Test Channel :	01

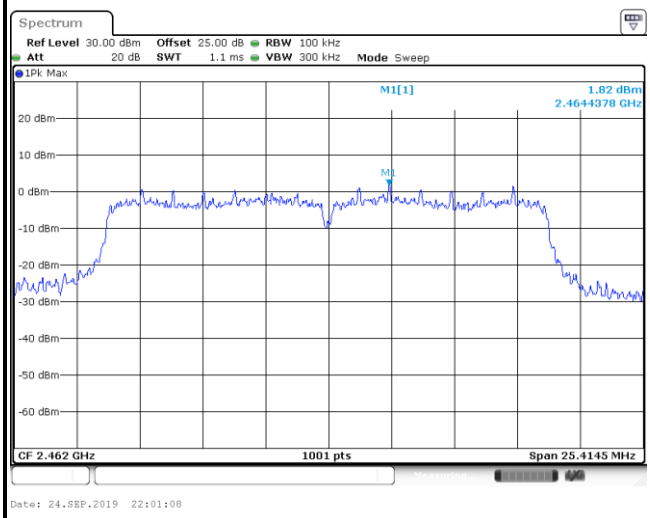
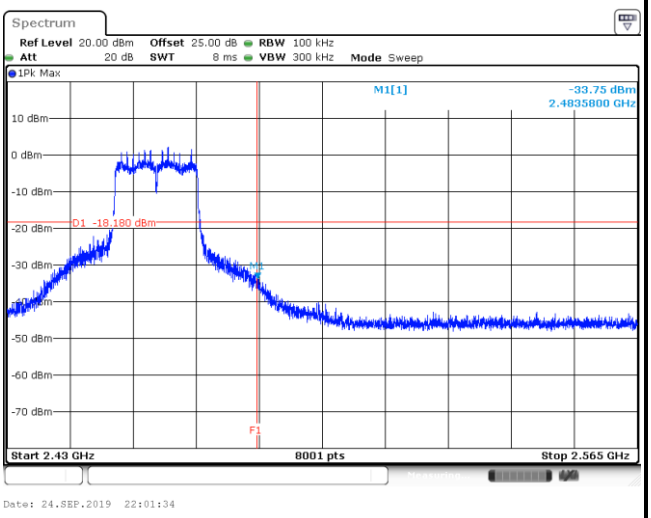
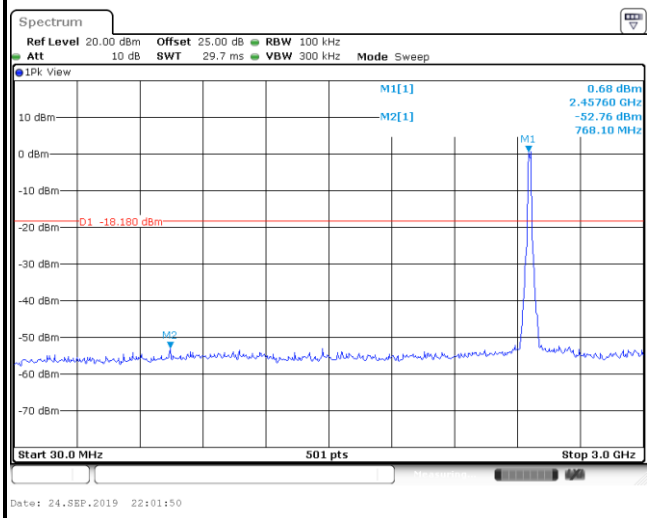
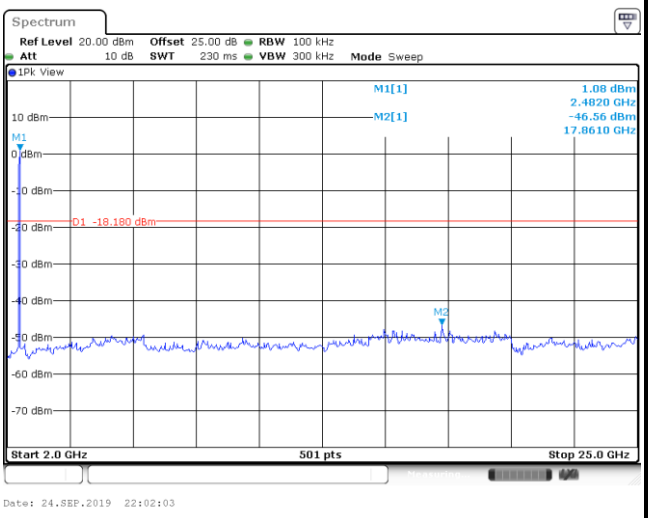
100kHz PSD reference Level	Low Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11n HT20	Test Channel :	06

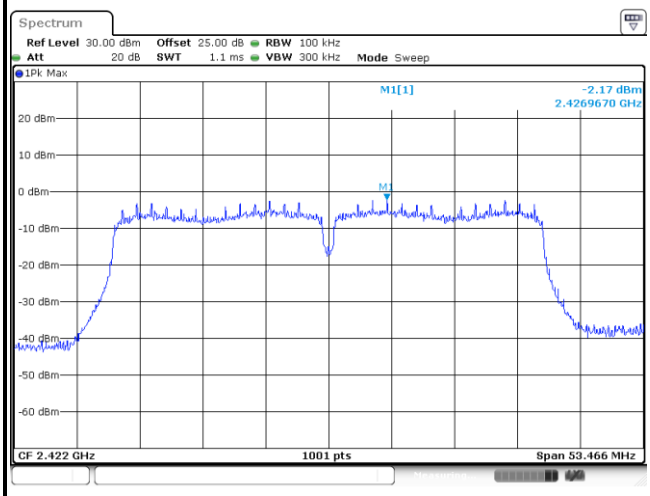
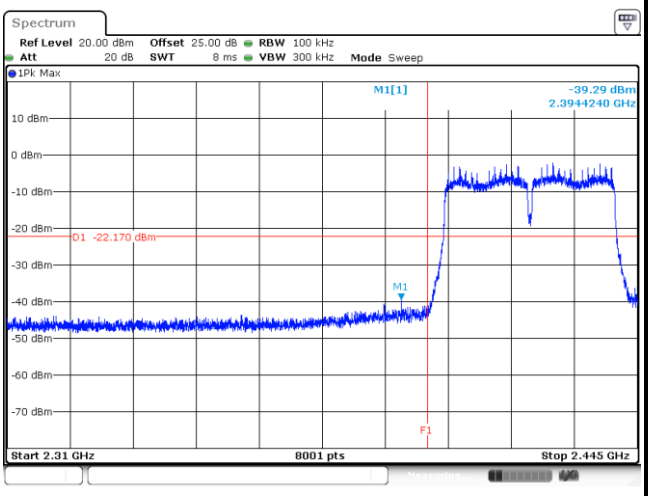
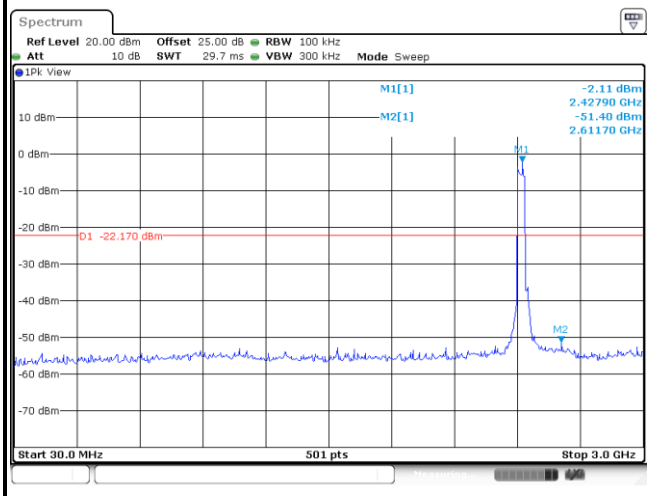
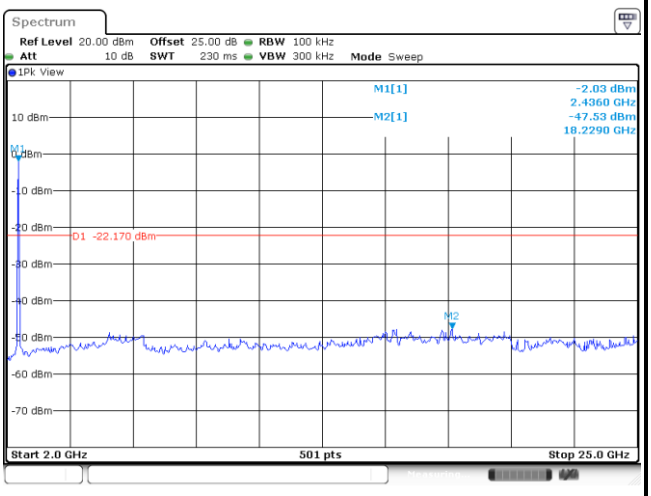
100kHz PSD reference Level	Mid Channel Plot
	

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

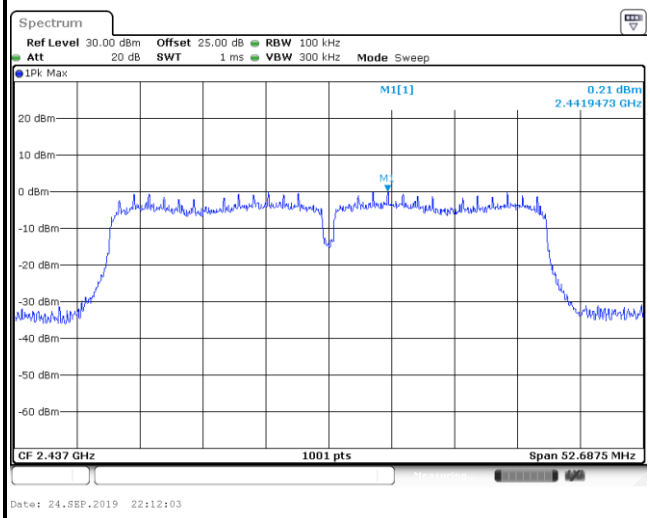
Test Mode :	802.11n HT20	Test Channel :	11

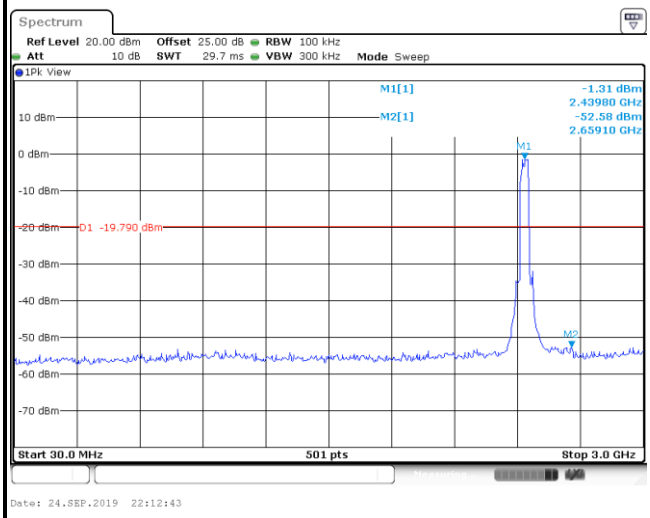
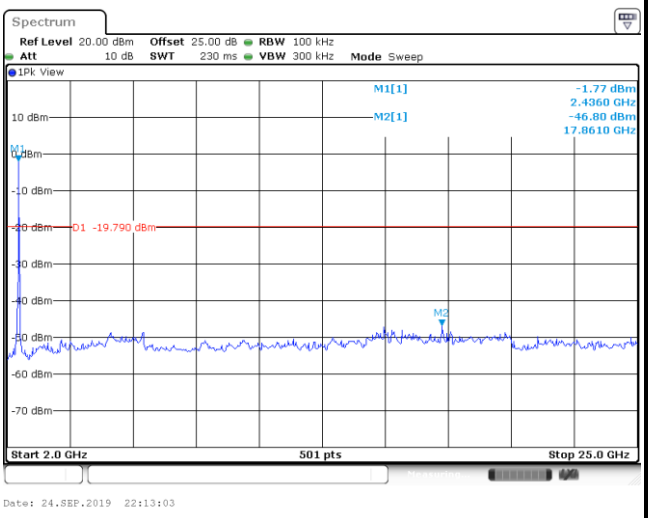
100kHz PSD reference Level	High Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11n HT40	Test Channel :	03

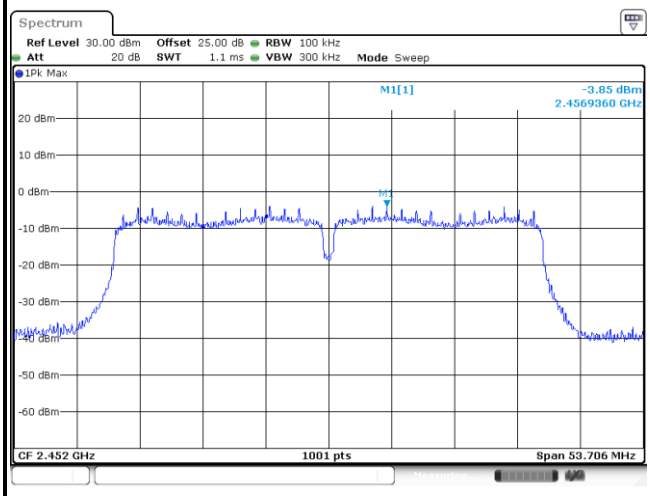
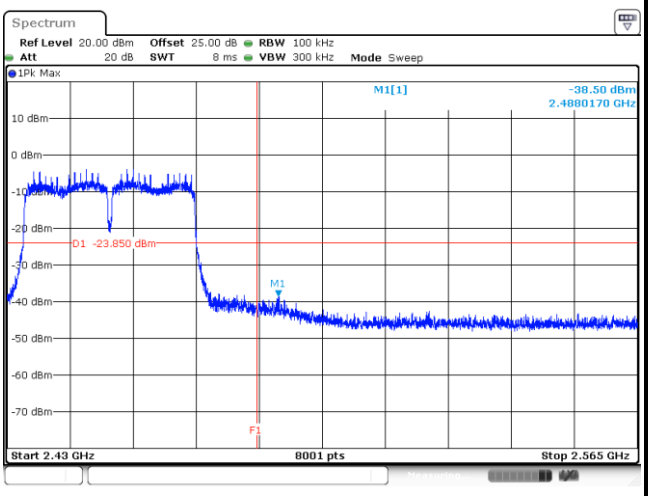
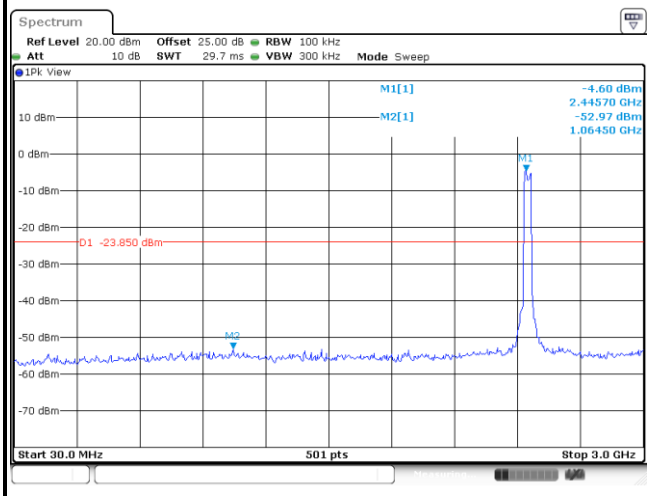
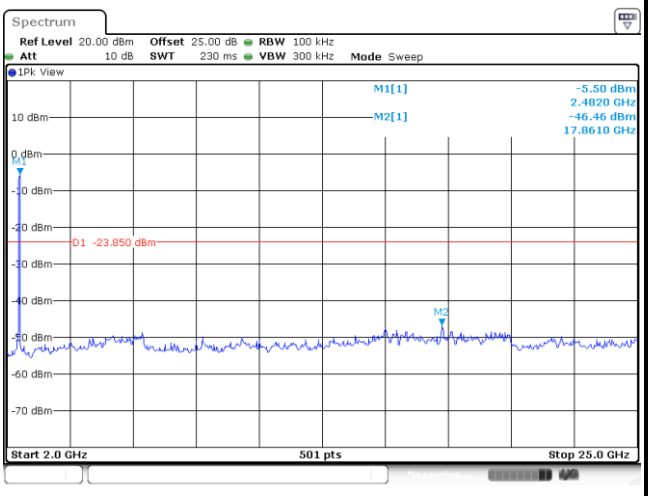
100kHz PSD reference Level	Low Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11n HT40	Test Channel :	06

100kHz PSD reference Level	Mid Channel Plot
	

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

Test Mode :	802.11n HT40	Test Channel :	09

100kHz PSD reference Level	High 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

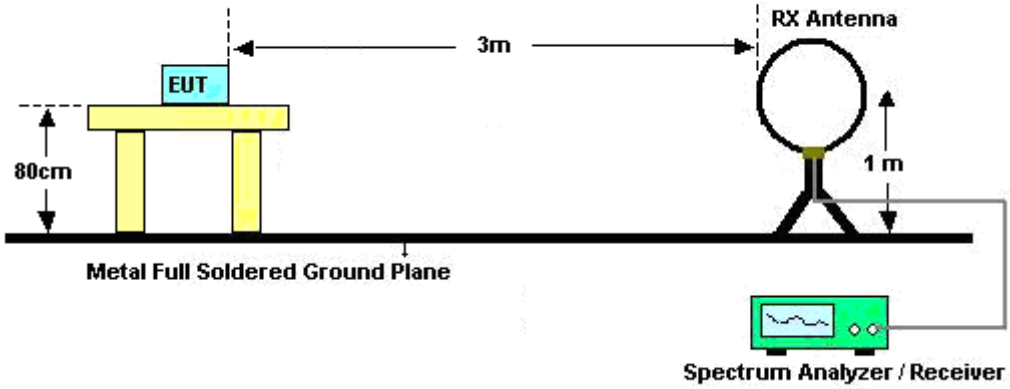
See list of measuring equipment of this test report.

3.5.3 Test Procedures

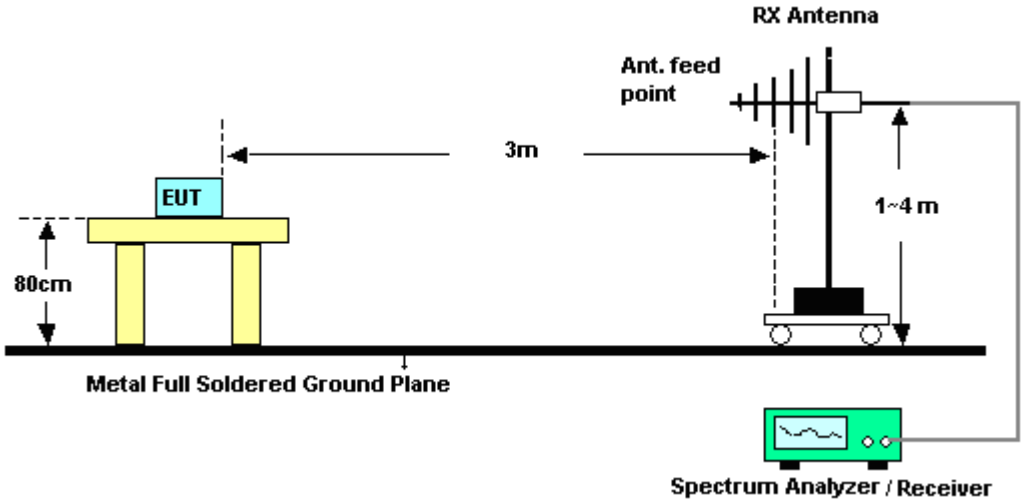
1. The testing follows the ANSI C63.10 Section 11.12.1 Radiated emission measurements.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the 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

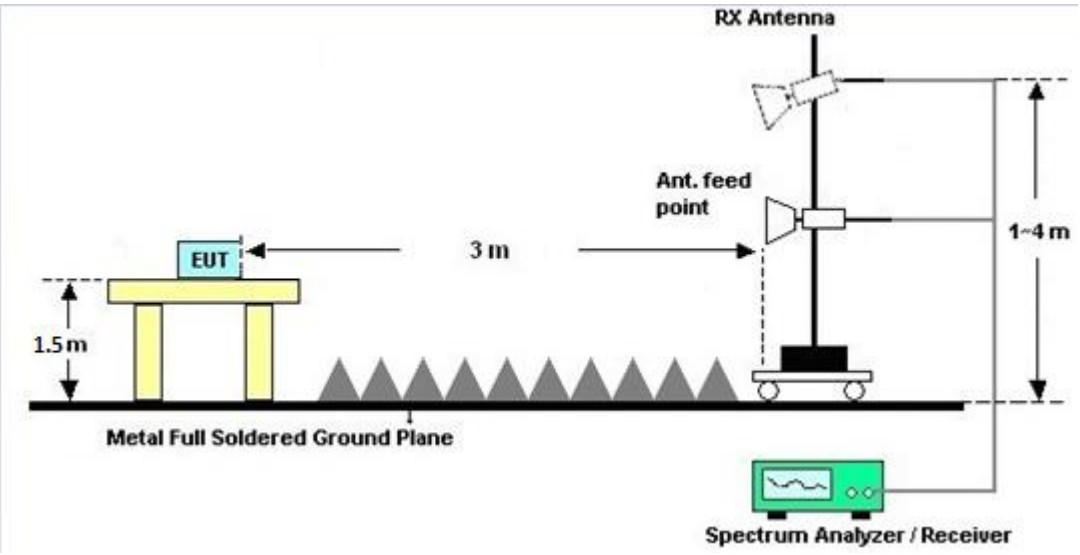
For radiated emissions below 30MHz



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.

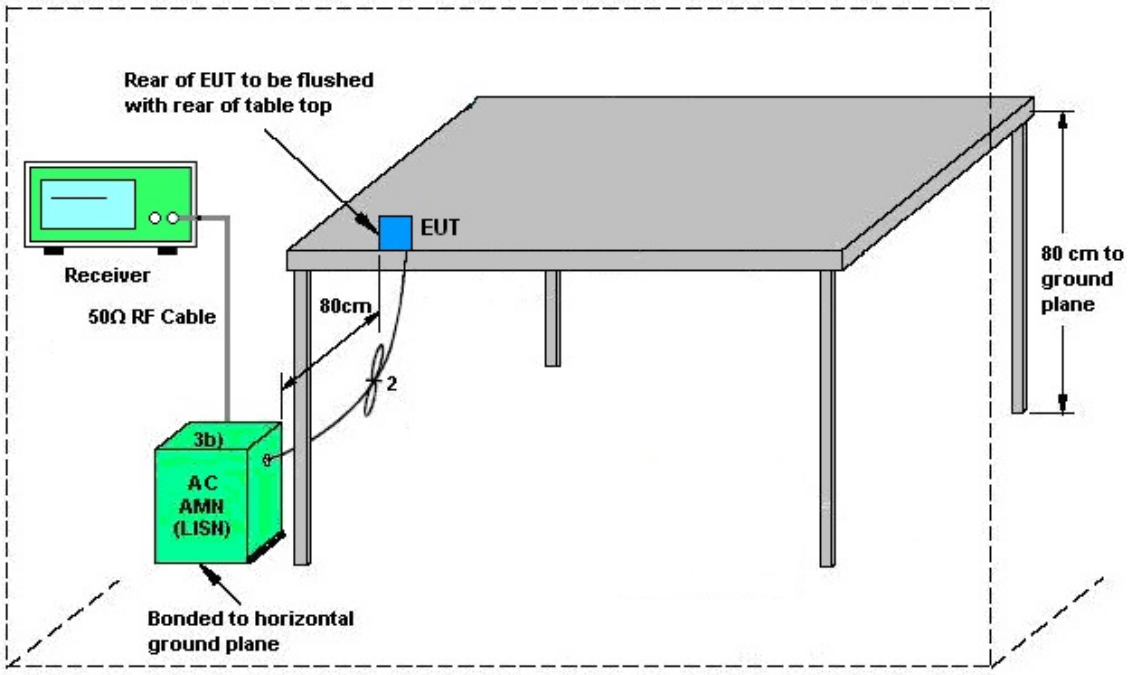
3.6.2 Measuring Instruments

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
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Jan. 07, 2019	Sep. 18, 2019~ Sep. 21, 2019	Jan. 06, 2020	Radiation (03CH13-HY)
Bilog Antenna	TESEQ	CBL 6111D& 00800N1D01 N-06	40103 & 07	30MHz~1GHz	Apr. 30, 2019	Sep. 18, 2019~ Sep. 21, 2019	Apr. 29, 2020	Radiation (03CH13-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1241	1GHz~18GHz	Jul. 02, 2019	Sep. 18, 2019~ Sep. 21, 2019	Jul. 01, 2020	Radiation (03CH13-HY)
Preamplifier	MITEQ	AMF-7D-00101800-30-10P	1590074	1GHz~18GHz	May 20, 2019	Sep. 18, 2019~ Sep. 21, 2019	May 19, 2020	Radiation (03CH13-HY)
Preamplifier	Keysight	83017A	MY53270147	1GHz~26.5GHz	Mar. 15, 2019	Sep. 18, 2019~ Sep. 21, 2019	Mar. 14, 2020	Radiation (03CH13-HY)
Amplifier	SONOMA	310N	187282	9kHz~1GHz	Dec. 18, 2018	Sep. 18, 2019~ Sep. 21, 2019	Dec. 17, 2019	Radiation (03CH13-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz~40GHz	Dec. 06, 2018	Sep. 18, 2019~ Sep. 21, 2019	Dec. 05, 2019	Radiation (03CH13-HY)
Spectrum Analyzer	Keysight	N9010A	MY55370526	10Hz~44GHz	Mar. 19, 2019	Sep. 18, 2019~ Sep. 21, 2019	Mar. 18, 2020	Radiation (03CH13-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126E	0030/126E	30M-18G	Feb. 13, 2019	Sep. 18, 2019~ Sep. 21, 2019	Feb. 12, 2020	Radiation (03CH13-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	804793/4	30M-18G	Feb. 13, 2019	Sep. 18, 2019~ Sep. 21, 2019	Feb. 12, 2020	Radiation (03CH13-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY24961/4	30M-18G	Feb. 13, 2019	Sep. 18, 2019~ Sep. 21, 2019	Feb. 12, 2020	Radiation (03CH13-HY)
Spectrum Analyzer	Keysight	N9010A	MY55370526	10Hz~44GHz	Mar. 19, 2019	Sep. 18, 2019~ Sep. 21, 2019	Mar. 18, 2020	Radiation (03CH13-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Sep. 18, 2019~ Sep. 21, 2019	N/A	Radiation (03CH13-HY)
Software	AUDIX	E3 6.2009-8-24c	RK-001124	N/A	N/A	Sep. 18, 2019~ Sep. 21, 2019	N/A	Radiation (03CH13-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Sep. 18, 2019~ Sep. 21, 2019	N/A	Radiation (03CH13-HY)
EMI Test Receiver	Keysight	N9038A(MXE)	MY54130085	20Hz ~ 8.4GHz	Nov. 01, 2018	Sep. 18, 2019~ Sep. 21, 2019	Oct. 31, 2019	Radiation (03CH13-HY)
Filter	Wainwright	WLKS1200-12SS	SN2	1.2GHz Low Pass Filter	Mar. 22, 2019	Sep. 18, 2019~ Sep. 21, 2019	Mar. 21, 2020	Radiation (03CH13-HY)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Sep. 26, 2019	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102388	9kHz~3.6GHz	Nov. 12, 2018	Sep. 26, 2019	Nov. 11, 2019	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Nov. 14, 2018	Sep. 26, 2019	Nov. 13, 2019	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32 V10.30	N/A	N/A	N/A	Sep. 26, 2019	N/A	Conduction (CO05-HY)
LF Cable	HUBER + SUHNER	RG-214/U	LF01	N/A	Dec. 31, 2018	Sep. 26, 2019	Dec. 30, 2019	Conduction (CO05-HY)
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100851	N/A	Dec. 31, 2018	Sep. 26, 2019	Dec. 30, 2019	Conduction (CO05-HY)
Power Meter	Anritsu	ML2495A	1218006	N/A	Oct. 08, 2018	Sep. 16, 2019~ Sep. 24, 2019	Oct. 07, 2019	Conducted (TH05-HY)
Power Sensor	Anritsu	MA2411B	1207363	300MHz~40GHz	Oct. 08, 2018	Sep. 16 2019~ Sep. 24 2019	Oct. 07, 2019	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSV40	101397	10Hz~40GHz	Nov. 13, 2018	Sep. 16 2019~ Sep. 24 2019	Nov. 12, 2019	Conducted (TH05-HY)
Switch Box & RF Cable	Burgeon	ETF-058	EC1208382	N/A	Mar. 27, 2019	Sep. 16 2019~ Sep. 24 2019	Mar. 26, 2020	Conducted (TH05-HY)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.2**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.9**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.4**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.3**

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Derek Hsu	Temperature:	21~25	°C
Test Date:	2019/9/16~2019/09/24	Relative Humidity:	51~54	%
TX Tool	DutApiClass	TX Tool Version	2.0.0.96	

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		
11b	1Mbps	1	1	2412	13.44	-	10.05	-	0.50	Pass
11b	1Mbps	1	6	2437	13.39	-	10.05	-	0.50	Pass
11b	1Mbps	1	11	2462	13.44	-	10.05	-	0.50	Pass
11g	6Mbps	1	1	2412	16.83	-	16.34	-	0.50	Pass
11g	6Mbps	1	6	2437	17.03	-	16.30	-	0.50	Pass
11g	6Mbps	1	11	2462	16.93	-	16.32	-	0.50	Pass
HT20	MCS0	1	1	2412	17.68	-	17.26	-	0.50	Pass
HT20	MCS0	1	6	2437	17.93	-	17.28	-	0.50	Pass
HT20	MCS0	1	11	2462	18.03	-	16.94	-	0.50	Pass
HT40	MCS0	1	3	2422	36.46	-	35.64	-	0.50	Pass
HT40	MCS0	1	6	2437	36.66	-	35.13	-	0.50	Pass
HT40	MCS0	1	9	2452	36.36	-	35.80	-	0.50	Pass

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TEST RESULTS DATA
Peak Output Power

2.4GHz Band																
Mod.	Data Rate	NTx	CH.	Freq. (MHz)	Peak 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	
11b	1Mbps	1	1	2412	19.27	-	-	30.00	-	2.10	-	21.37	-	36.00	-	Pass
11b	1Mbps	1	6	2437	18.51	-	-	30.00	-	2.10	-	20.61	-	36.00	-	Pass
11b	1Mbps	1	11	2462	18.50	-	-	30.00	-	2.10	-	20.60	-	36.00	-	Pass
11g	6Mbps	1	1	2412	23.46	-	-	30.00	-	2.10	-	25.56	-	36.00	-	Pass
11g	6Mbps	1	6	2437	24.10	-	-	30.00	-	2.10	-	26.20	-	36.00	-	Pass
11g	6Mbps	1	11	2462	22.75	-	-	30.00	-	2.10	-	24.85	-	36.00	-	Pass
HT20	MCS0	1	1	2412	22.63	-	-	30.00	-	2.10	-	24.73	-	36.00	-	Pass
HT20	MCS0	1	6	2437	24.21	-	-	30.00	-	2.10	-	26.31	-	36.00	-	Pass
HT20	MCS0	1	11	2462	23.16	-	-	30.00	-	2.10	-	25.26	-	36.00	-	Pass
HT40	MCS0	1	3	2422	21.75	-	-	30.00	-	2.10	-	23.85	-	36.00	-	Pass
HT40	MCS0	1	6	2437	23.14	-	-	30.00	-	2.10	-	25.24	-	36.00	-	Pass
HT40	MCS0	1	9	2452	20.57	-	-	30.00	-	2.10	-	22.67	-	36.00	-	Pass

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

TEST RESULTS DATA
Average Output Power

2.4GHz Band									
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)		
					Ant 1	Ant 2	Ant 1	Ant 2	SUM
11b	1Mbps	1	1	2412	0.03	-	16.40	-	-
11b	1Mbps	1	6	2437	0.03	-	15.58	-	
11b	1Mbps	1	11	2462	0.03	-	15.56	-	
11g	6Mbps	1	1	2412	0.16	-	14.61	-	
11g	6Mbps	1	6	2437	0.16	-	16.66	-	
11g	6Mbps	1	11	2462	0.16	-	11.63	-	
HT20	MCS0	1	1	2412	0.19	-	12.65	-	
HT20	MCS0	1	6	2437	0.19	-	16.70	-	
HT20	MCS0	1	11	2462	0.19	-	12.69	-	
HT40	MCS0	1	3	2422	0.38	-	11.92	-	
HT40	MCS0	1	6	2437	0.38	-	13.84	-	
HT40	MCS0	1	9	2452	0.38	-	10.54	-	

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

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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	
11b	1Mbps	1	1	2412	-7.28	-	-	2.10	-	8.00	-	Pass
11b	1Mbps	1	6	2437	-7.76	-	-	2.10	-	8.00	-	Pass
11b	1Mbps	1	11	2462	-7.57	-	-	2.10	-	8.00	-	Pass
11g	6Mbps	1	1	2412	-11.51	-	-	2.10	-	8.00	-	Pass
11g	6Mbps	1	6	2437	-9.42	-	-	2.10	-	8.00	-	Pass
11g	6Mbps	1	11	2462	-14.72	-	-	2.10	-	8.00	-	Pass
HT20	MCS0	1	1	2412	-12.90	-	-	2.10	-	8.00	-	Pass
HT20	MCS0	1	6	2437	-9.43	-	-	2.10	-	8.00	-	Pass
HT20	MCS0	1	11	2462	-12.34	-	-	2.10	-	8.00	-	Pass
HT40	MCS0	1	3	2422	-16.25	-	-	2.10	-	8.00	-	Pass
HT40	MCS0	1	6	2437	-14.51	-	-	2.10	-	8.00	-	Pass
HT40	MCS0	1	9	2452	-17.96	-	-	2.10	-	8.00	-	Pass

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

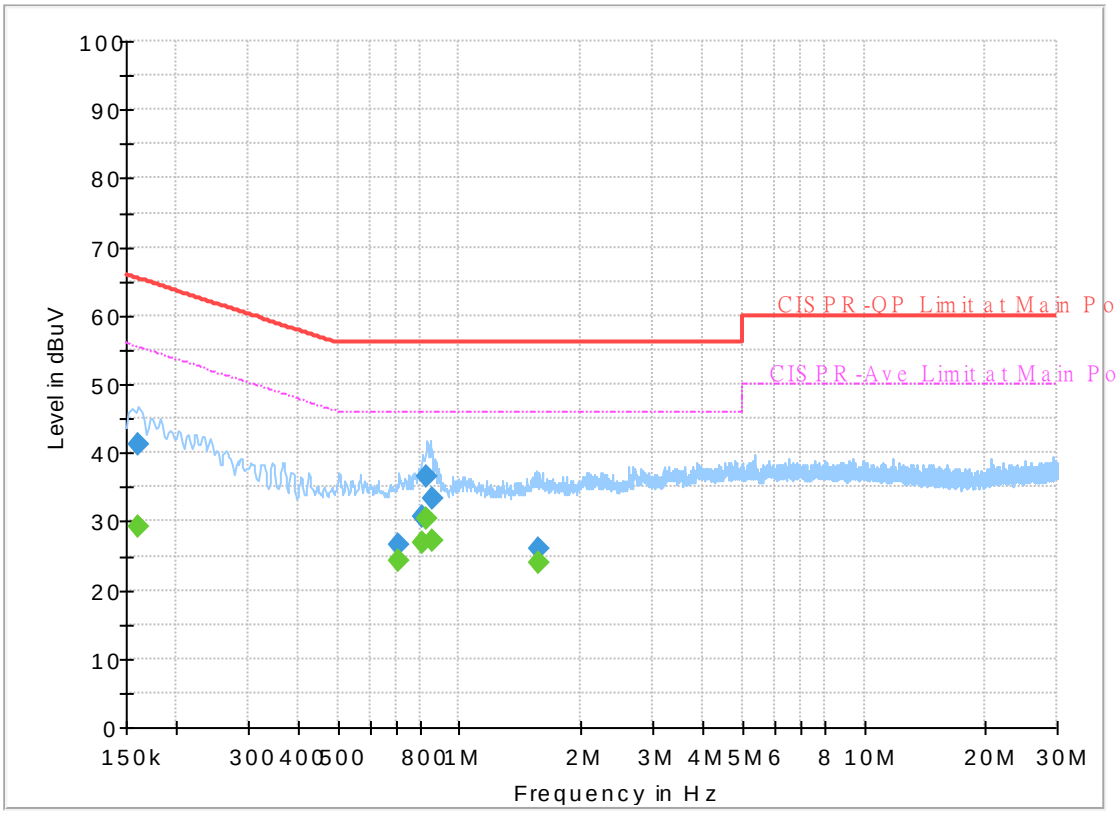
Appendix B. AC Conducted Emission Test Results

Test Engineer :	Howard Lin	**Temperature :**	25.9~26.4℃
		Relative Humidity :	52.8~53.2%

EUT Information

Report NO :	980514
Test Mode :	Mode 2
Test Voltage :	120Vac/60Hz
Phase :	Line

Full Spectrum



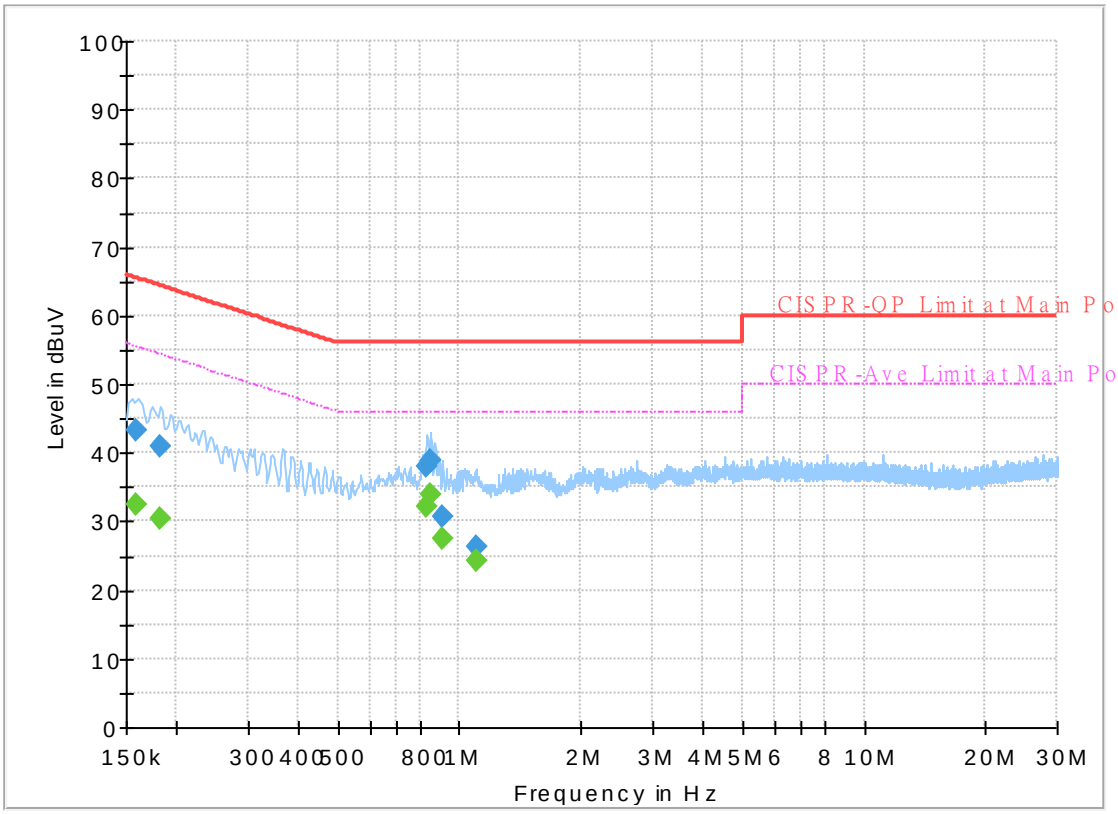
Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.161250	---	29.37	55.40	26.03	L1	OFF	19.4
0.161250	41.15	---	65.40	24.25	L1	OFF	19.4
0.710250	---	24.14	46.00	21.86	L1	OFF	19.4
0.710250	26.49	---	56.00	29.51	L1	OFF	19.4
0.807000	---	26.84	46.00	19.16	L1	OFF	19.4
0.807000	30.77	---	56.00	25.23	L1	OFF	19.4
0.831750	---	30.29	46.00	15.71	L1	OFF	19.5
0.831750	36.52	---	56.00	19.48	L1	OFF	19.5
0.854250	---	27.08	46.00	18.92	L1	OFF	19.5
0.854250	33.29	---	56.00	22.71	L1	OFF	19.5
1.560750	---	24.06	46.00	21.94	L1	OFF	19.5
1.560750	26.16	---	56.00	29.84	L1	OFF	19.5

EUT Information

Report NO :	980514
Test Mode :	Mode 2
Test Voltage :	120Vac/60Hz
Phase :	Neutral

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.159000	---	32.37	55.52	23.15	N	OFF	19.5
0.159000	43.14	---	65.52	22.38	N	OFF	19.5
0.181500	---	30.40	54.42	24.02	N	OFF	19.5
0.181500	40.86	---	64.42	23.56	N	OFF	19.5
0.829500	---	32.08	46.00	13.92	N	OFF	19.5
0.829500	38.01	---	56.00	17.99	N	OFF	19.5
0.849750	---	33.87	46.00	12.13	N	OFF	19.5
0.849750	38.97	---	56.00	17.03	N	OFF	19.5
0.910500	---	27.55	46.00	18.45	N	OFF	19.5
0.910500	30.84	---	56.00	25.16	N	OFF	19.5
1.097250	---	24.26	46.00	21.74	N	OFF	19.5
1.097250	26.44	---	56.00	29.56	N	OFF	19.5

Appendix C. Radiated Spurious Emission

Test Engineer :	Ryan Lin, J.C. Liang and Wilson Wu	Temperature :	21.5~23.5°C
		Relative Humidity :	46.5~49.5%

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI Ant. 1	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)
802.11b CH 01 2412MHz		2389.905	54.75	-19.25	74	42.77	27.64	13.92	29.58	396	224	P	H
		2389.695	46	-8	54	34.02	27.64	13.92	29.58	396	224	A	H
	*	2412	107.89	-	-	95.95	27.58	13.94	29.58	396	224	P	H
	*	2412	104.73	-	-	92.79	27.58	13.94	29.58	396	224	A	H
													H
													H
		2389.275	54.57	-19.43	74	42.59	27.64	13.92	29.58	393	188	P	V
		2389.38	47.23	-6.77	54	35.25	27.64	13.92	29.58	393	188	A	V
	*	2412	108.65	-	-	96.71	27.58	13.94	29.58	393	188	P	V
	*	2412	105.5	-	-	93.56	27.58	13.94	29.58	393	188	A	V
													V
													V
802.11b CH 06 2437MHz		2365.72	53.14	-20.86	74	41.09	27.74	13.9	29.59	381	224	P	H
		2363.06	43.49	-10.51	54	31.43	27.75	13.9	29.59	381	224	A	H
	*	2437	106.85	-	-	94.94	27.53	13.96	29.58	381	224	P	H
	*	2437	103.57	-	-	91.66	27.53	13.96	29.58	381	224	A	H
		2490.13	53.7	-20.3	74	41.76	27.5	14.01	29.57	381	224	P	H
		2483.9	42.04	-11.96	54	30.11	27.5	14	29.57	381	224	A	H
		2359.56	53.75	-20.25	74	41.68	27.76	13.9	29.59	388	189	P	V
		2363.62	43.86	-10.14	54	31.8	27.75	13.9	29.59	388	189	A	V
	*	2437	107.22	-	-	95.31	27.53	13.96	29.58	388	189	P	V
	*	2437	104.07	-	-	92.16	27.53	13.96	29.58	388	189	A	V
		2490.76	52.69	-21.31	74	40.75	27.5	14.01	29.57	388	189	P	V
		2485.23	41.94	-12.06	54	30.01	27.5	14	29.57	388	189	A	V

802.11b CH 11 2462MHz	*	2462	107.15	-	-	95.24	27.5	13.98	29.57	376	226	P	H
	*	2462	103.92	-	-	92.01	27.5	13.98	29.57	376	226	A	H
		2484.12	54.63	-19.37	74	42.7	27.5	14	29.57	376	226	P	H
		2483.52	47.11	-6.89	54	35.18	27.5	14	29.57	376	226	A	H
													H
													H
	*	2462	107.18	-	-	95.27	27.5	13.98	29.57	390	170	P	V
	*	2462	104.1	-	-	92.19	27.5	13.98	29.57	390	170	A	V
		2483.72	54.98	-19.02	74	43.05	27.5	14	29.57	390	170	P	V
		2484.64	46.92	-7.08	54	34.99	27.5	14	29.57	390	170	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 802.11b (Harmonic @ 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		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		4824	53.83	-20.17	74	73.79	31.15	6.44	57.55	400	103	P	H
		4824	52.45	-1.55	54	72.41	31.15	6.44	57.55	400	103	A	H
													H
													H
		4824	49.05	-24.95	74	69.01	31.15	6.44	57.55	100	0	P	V
													V
													V
													V
802.11b CH 06 2437MHz		4874	53.39	-20.61	74	73.06	31.2	6.58	57.45	398	112	P	H
		4874	52.04	-1.96	54	71.71	31.2	6.58	57.45	398	112	A	H
		7311	45.1	-28.9	74	57.34	36.78	8.25	57.27	100	0	P	H
													H
		4874	48.32	-25.68	74	67.99	31.2	6.58	57.45	100	0	P	V
		7311	45.22	-28.78	74	57.46	36.78	8.25	57.27	100	0	P	V
													V
													V
802.11b CH 11 2462MHz		4924	53.73	-20.27	74	73.11	31.25	6.72	57.35	400	103	P	H
		4924	52.41	-1.59	54	71.79	31.25	6.72	57.35	400	103	A	H
		7386	46.24	-27.76	74	58.81	36.63	8.16	57.36	100	0	P	H
													H
		4924	51.3	-22.7	74	70.68	31.25	6.72	57.35	304	48	P	V
		4924	49.75	-4.25	54	69.13	31.25	6.72	57.35	304	48	A	V
		7386	46.49	-27.51	74	59.06	36.63	8.16	57.36	100	0	P	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 802.11g (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		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11g CH 01 2412MHz		2387.28	63.48	-10.52	74	51.49	27.65	13.92	29.58	400	224	P	H
		2390	51.52	-2.48	54	39.54	27.64	13.92	29.58	400	224	A	H
	*	2412	107.85	-	-	95.91	27.58	13.94	29.58	400	224	P	H
	*	2412	100.11	-	-	88.17	27.58	13.94	29.58	400	224	A	H
													H
													H
		2388.225	63.33	-10.67	74	51.34	27.65	13.92	29.58	394	187	P	V
		2390	51.73	-2.27	54	39.75	27.64	13.92	29.58	394	187	A	V
	*	2412	108.81	-	-	96.87	27.58	13.94	29.58	394	187	P	V
	*	2412	100.3	-	-	88.36	27.58	13.94	29.58	394	187	A	V
													V
													V
802.11g CH 06 2437MHz		2384.06	58.04	-15.96	74	46.04	27.66	13.92	29.58	385	225	P	H
		2364.88	44.39	-9.61	54	32.34	27.74	13.9	29.59	385	225	A	H
	*	2437	109.79	-	-	97.88	27.53	13.96	29.58	385	225	P	H
	*	2437	102.31	-	-	90.4	27.53	13.96	29.58	385	225	A	H
		2484.18	60.12	-13.88	74	48.19	27.5	14	29.57	385	225	P	H
		2483.69	45.33	-8.67	54	33.4	27.5	14	29.57	385	225	A	H
		2387.56	57.47	-16.53	74	45.48	27.65	13.92	29.58	395	152	P	V
		2364.6	44.48	-9.52	54	32.43	27.74	13.9	29.59	395	152	A	V
	*	2437	110.27	-	-	98.36	27.53	13.96	29.58	395	152	P	V
	*	2437	102.76	-	-	90.85	27.53	13.96	29.58	395	152	A	V
		2484.53	59.99	-14.01	74	48.06	27.5	14	29.57	395	152	P	V
		2483.55	45.51	-8.49	54	33.58	27.5	14	29.57	395	152	A	V

802.11g CH 11 2462MHz	*	2462	106.24	-	-	94.33	27.5	13.98	29.57	376	224	P	H
	*	2462	98.43	-	-	86.52	27.5	13.98	29.57	376	224	A	H
		2483.68	63.86	-10.14	74	51.93	27.5	14	29.57	376	224	P	H
		2483.76	48.68	-5.32	54	36.75	27.5	14	29.57	376	224	A	H
													H
													H
	*	2462	105.42	-	-	93.51	27.5	13.98	29.57	389	165	P	V
	*	2462	97.96	-	-	86.05	27.5	13.98	29.57	389	165	A	V
		2483.72	64.9	-9.1	74	52.97	27.5	14	29.57	389	165	P	V
		2483.52	49.4	-4.6	54	37.47	27.5	14	29.57	389	165	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 802.11g (Harmonic @ 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		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
		4824	48.97	-25.03	74	68.93	31.15	6.44	57.55	100	0	P	H
		12060	56.73	-17.27	74	63.34	39.08	10.65	56.34	356	351	P	H
		12060	40.32	-13.68	54	46.93	39.08	10.65	56.34	356	351	A	H
802.11g													H
CH 01													H
2412MHz		4824	43.08	-30.92	74	63.04	31.15	6.44	57.55	100	0	P	V
		12060	57.87	-16.13	74	64.48	39.08	10.65	56.34	224	198	P	V
		12060	40.25	-13.75	54	46.86	39.08	10.65	56.34	224	198	A	V
													V
		4874	53.44	-20.56	74	73.11	31.2	6.58	57.45	393	85	P	H
		4874	43.51	-10.49	54	63.18	31.2	6.58	57.45	393	85	A	H
		7311	57.23	-16.77	74	69.47	36.78	8.25	57.27	328	332	P	H
		7311	43.98	-10.02	54	56.22	36.78	8.25	57.27	328	332	A	H
802.11g		12180	59.19	-14.81	74	65.84	39.04	10.72	56.41	373	2	P	H
CH 06		12180	44.02	-9.98	54	50.67	39.04	10.72	56.41	373	2	A	H
2437MHz		4874	46.99	-27.01	74	66.66	31.2	6.58	57.45	100	0	P	V
		7311	59.83	-14.17	74	72.07	36.78	8.25	57.27	282	41	P	V
		7311	47.96	-6.04	54	60.2	36.78	8.25	57.27	282	41	A	V
		12180	59.53	-14.47	74	66.18	39.04	10.72	56.41	100	240	P	V
		12180	44.62	-9.38	54	51.27	39.04	10.72	56.41	100	240	A	V

802.11g CH 11 2462MHz		4924	45.62	-28.38	74	65	31.25	6.72	57.35	100	0	P	H
		7386	43.91	-30.09	74	56.48	36.63	8.16	57.36	100	0	P	H
													H
													H
		4924	43.33	-30.67	74	62.71	31.25	6.72	57.35	100	0	P	V
		7386	43.43	-30.57	74	56	36.63	8.16	57.36	100	0	P	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 (Band Edge @ 3m)

WIFI Ant. 1	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)
		2389.065	63.06	-10.94	74	51.08	27.64	13.92	29.58	396	224	P	H
		2389.905	48.79	-5.21	54	36.81	27.64	13.92	29.58	396	224	A	H
	*	2412	105.51	-	-	93.57	27.58	13.94	29.58	396	224	P	H
	*	2412	97.71	-	-	85.77	27.58	13.94	29.58	396	224	A	H
802.11n													H
HT20													H
CH 01		2389.59	64.9	-9.1	74	52.92	27.64	13.92	29.58	400	187	P	V
2412MHz		2389.59	49.48	-4.52	54	37.5	27.64	13.92	29.58	400	187	A	V
	*	2412	106.17	-	-	94.23	27.58	13.94	29.58	400	187	P	V
	*	2412	98.45	-	-	86.51	27.58	13.94	29.58	400	187	A	V
													V
													V
		2388.26	61.13	-12.87	74	49.14	27.65	13.92	29.58	387	224	P	H
		2389.24	45.03	-8.97	54	33.05	27.64	13.92	29.58	387	224	A	H
	*	2437	109.61	-	-	97.7	27.53	13.96	29.58	387	224	P	H
	*	2437	101.77	-	-	89.86	27.53	13.96	29.58	387	224	A	H
802.11n		2483.83	65.31	-8.69	74	53.38	27.5	14	29.57	387	224	P	H
HT20		2483.9	47.52	-6.48	54	35.59	27.5	14	29.57	387	224	A	H
CH 06		2386.72	60.48	-13.52	74	48.49	27.65	13.92	29.58	394	153	P	V
2437MHz		2389.8	44.5	-9.5	54	32.52	27.64	13.92	29.58	394	153	A	V
	*	2437	110.43	-	-	98.52	27.53	13.96	29.58	394	153	P	V
	*	2437	102.33	-	-	90.42	27.53	13.96	29.58	394	153	A	V
		2483.55	66.72	-7.28	74	54.79	27.5	14	29.57	394	153	P	V
		2483.52	48.08	-5.92	54	36.15	27.5	14	29.57	394	153	A	V

	*	2462	106.28	-	-	94.37	27.5	13.98	29.57	378	225	P	H
	*	2462	98.59	-	-	86.68	27.5	13.98	29.57	378	225	A	H
		2483.76	64.53	-9.47	74	52.6	27.5	14	29.57	378	225	P	H
		2483.6	50.71	-3.29	54	38.78	27.5	14	29.57	378	225	A	H
802.11n													H
HT20													H
CH 11	*	2462	106.35	-	-	94.44	27.5	13.98	29.57	389	169	P	V
2462MHz	*	2462	98.72	-	-	86.81	27.5	13.98	29.57	389	169	A	V
		2484.8	65.42	-8.58	74	53.49	27.5	14	29.57	389	169	P	V
		2483.52	51.82	-2.18	54	39.89	27.5	14	29.57	389	169	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.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
		4824	44.86	-29.14	74	64.82	31.15	6.44	57.55	100	0	P	H
													H
802.11n													H
HT20													H
CH 01		4824	40.84	-33.16	74	60.8	31.15	6.44	57.55	100	0	P	V
2412MHz													V
													V
													V
		4874	48.88	-25.12	74	68.55	31.2	6.58	57.45	100	0	P	H
		7311	57.96	-16.04	74	70.2	36.78	8.25	57.27	304	337	P	H
		7311	44.37	-9.63	54	56.61	36.78	8.25	57.27	304	337	A	H
802.11n		12180	59.74	-14.26	74	66.39	39.04	10.72	56.41	400	328	P	H
HT20		12180	43.79	-10.21	54	50.44	39.04	10.72	56.41	400	328	A	H
CH 06		4874	46.41	-27.59	74	66.08	31.2	6.58	57.45	100	0	P	V
2437MHz		7311	60.47	-13.53	74	72.71	36.78	8.25	57.27	280	40	P	V
		7311	47.11	-6.89	54	59.35	36.78	8.25	57.27	280	40	A	V
		12180	59.98	-14.02	74	66.63	39.04	10.72	56.41	100	228	P	V
		12180	45.49	-8.51	54	52.14	39.04	10.72	56.41	100	228	A	V
		4924	47.16	-26.84	74	66.54	31.25	6.72	57.35	100	0	P	H
		7386	47.26	-26.74	74	59.83	36.63	8.16	57.36	100	0	P	H
802.11n													H
HT20													H
CH 11		4924	42.84	-31.16	74	62.22	31.25	6.72	57.35	100	0	P	V
2462MHz		7386	51.97	-22.03	74	64.54	36.63	8.16	57.36	316	43	P	V
		7386	36.44	-17.56	54	49.01	36.63	8.16	57.36	316	43	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

WIFI 802.11n HT40 (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		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
		2389.1	61.95	-12.05	74	49.97	27.64	13.92	29.58	384	224	P	H
		2389.1	48.6	-5.4	54	36.62	27.64	13.92	29.58	384	224	A	H
	*	2422	101.64	-	-	89.71	27.56	13.95	29.58	384	224	P	H
	*	2422	94.2	-	-	82.27	27.56	13.95	29.58	384	224	A	H
802.11n		2489.5	60	-14	74	48.06	27.5	14.01	29.57	384	224	P	H
HT40		2490.34	45.67	-8.33	54	33.73	27.5	14.01	29.57	384	224	A	H
CH 03		2389.24	63.18	-10.82	74	51.2	27.64	13.92	29.58	355	157	P	V
2422MHz		2388.12	49.22	-4.78	54	37.23	27.65	13.92	29.58	355	157	A	V
	*	2422	102.51	-	-	90.58	27.56	13.95	29.58	355	157	P	V
	*	2422	95.03	-	-	83.1	27.56	13.95	29.58	355	157	A	V
		2488.87	59.42	-14.58	74	47.48	27.5	14.01	29.57	355	157	P	V
		2489.22	45.7	-8.3	54	33.76	27.5	14.01	29.57	355	157	A	V
		2388.54	59.87	-14.13	74	47.88	27.65	13.92	29.58	384	225	P	H
		2389.66	49.19	-4.81	54	37.21	27.64	13.92	29.58	384	225	A	H
	*	2437	103.82	-	-	91.91	27.53	13.96	29.58	384	225	P	H
	*	2437	96.07	-	-	84.16	27.53	13.96	29.58	384	225	A	H
802.11n		2484.67	66.61	-7.39	74	54.68	27.5	14	29.57	384	225	P	H
HT40		2483.83	50.73	-3.27	54	38.8	27.5	14	29.57	384	225	A	H
CH 06		2389.52	61.56	-12.44	74	49.58	27.64	13.92	29.58	304	164	P	V
2437MHz		2389.38	49.62	-4.38	54	37.64	27.64	13.92	29.58	304	164	A	V
	*	2437	104.35	-	-	92.44	27.53	13.96	29.58	304	164	P	V
	*	2437	96.94	-	-	85.03	27.53	13.96	29.58	304	164	A	V
		2484.53	66.43	-7.57	74	54.5	27.5	14	29.57	304	164	P	V
		2483.83	51.53	-2.47	54	39.6	27.5	14	29.57	304	164	A	V

		2371.88	53.57	-20.43	74	41.54	27.71	13.91	29.59	375	226	P	H
		2384.34	44.01	-9.99	54	32.01	27.66	13.92	29.58	375	226	A	H
	*	2452	101.06	-	-	89.17	27.5	13.97	29.58	375	226	P	H
	*	2452	93.43	-	-	81.54	27.5	13.97	29.58	375	226	A	H
802.11n		2488.31	64.85	-9.15	74	52.91	27.5	14.01	29.57	375	226	P	H
HT40		2488.1	50.52	-3.48	54	38.59	27.5	14	29.57	375	226	A	H
CH 09		2389.1	53.46	-20.54	74	41.48	27.64	13.92	29.58	302	165	P	V
2452MHz		2387.56	44.23	-9.77	54	32.24	27.65	13.92	29.58	302	165	A	V
	*	2452	101.67	-	-	89.78	27.5	13.97	29.58	302	165	P	V
	*	2452	93.37	-	-	81.48	27.5	13.97	29.58	302	165	A	V
		2487.75	67.38	-6.62	74	55.45	27.5	14	29.57	302	165	P	V
		2487.19	50.8	-3.2	54	38.87	27.5	14	29.57	302	165	A	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 HT40 (Harmonic @ 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		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
		4844	41.63	-32.37	74	61.46	31.19	6.49	57.51	100	0	P	H
		7266	44.13	-29.87	74	56.39	36.66	8.3	57.22	100	0	P	H
802.11n													H
HT40													H
CH 03		4844	38.7	-35.3	74	58.53	31.19	6.49	57.51	100	0	P	V
2422MHz		7266	43.67	-30.33	74	55.93	36.66	8.3	57.22	100	0	P	V
													V
													V
		4874	43.83	-30.17	74	63.5	31.2	6.58	57.45	100	0	P	H
		7311	44.78	-29.22	74	57.02	36.78	8.25	57.27	100	0	P	H
802.11n													H
HT40													H
CH 06		4874	40.97	-33.03	74	60.64	31.2	6.58	57.45	100	0	P	V
2437MHz		7311	44.59	-29.41	74	56.83	36.78	8.25	57.27	100	0	P	V
													V
													V
		4904	41.4	-32.6	74	60.92	31.21	6.66	57.39	100	0	P	H
		7356	42.54	-31.46	74	54.98	36.69	8.2	57.33	100	0	P	H
802.11n													H
HT40													H
CH 09		4904	38.53	-35.47	74	58.05	31.21	6.66	57.39	100	0	P	V
2452MHz		7356	43.79	-30.21	74	56.23	36.69	8.2	57.33	100	0	P	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

Emission below 1GHz

2.4GHz WIFI 802.11b (LF)

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		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz 802.11b LF		134.76	35.34	-8.16	43.5	49.23	17.3	1	32.19	100	0	P	H
		160.95	33.5	-10	43.5	48.58	16.01	1.08	32.17	-	-	P	H
		237.58	29.03	-16.97	46	43.2	16.66	1.31	32.14	-	-	P	H
		431.58	29.52	-16.48	46	37.58	22.33	1.77	32.16	-	-	P	H
		600.36	29.78	-16.22	46	34.69	25.21	2.12	32.24	-	-	P	H
		957.32	33.69	-12.31	46	31.28	30.65	2.68	30.92	-	-	P	H
													H
													H
													H
													H
													H
													H
		42.61	30.92	-9.08	40	44.66	18.03	0.52	32.29	100	0	P	V
		134.76	31.71	-11.79	43.5	45.6	17.3	1	32.19	-	-	P	V
		431.58	27.4	-18.6	46	35.46	22.33	1.77	32.16	-	-	P	V
		600.36	30.95	-15.05	46	35.86	25.21	2.12	32.24	-	-	P	V
		914.64	32.69	-13.31	46	32.28	29.08	2.62	31.29	-	-	P	V
		957.32	33.37	-12.63	46	30.96	30.65	2.68	30.92	-	-	P	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		(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

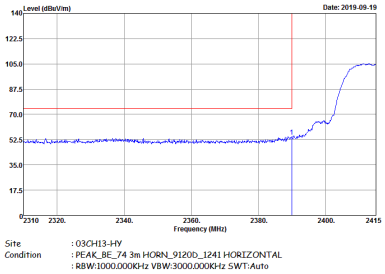
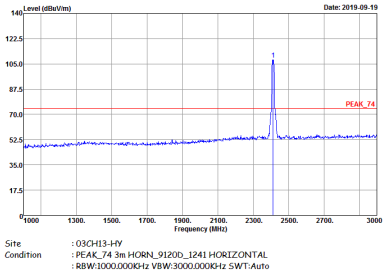
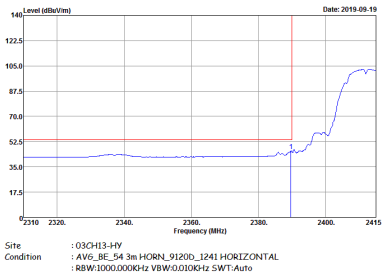
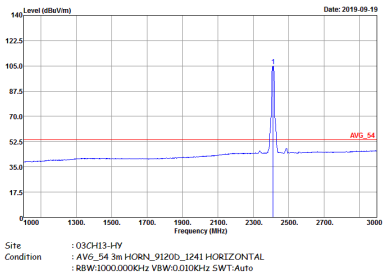
Test Engineer :	Ryan Lin, J.C. Liang and Wilson Wu	**Temperature :**	21.5~23.5°C
		Relative Humidity :	46.5~49.5%

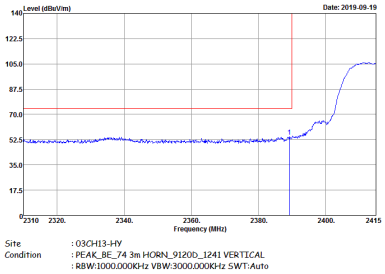
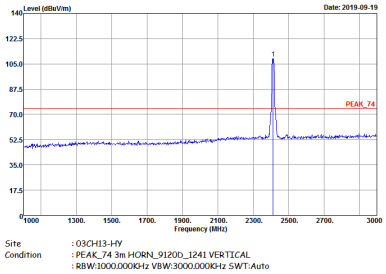
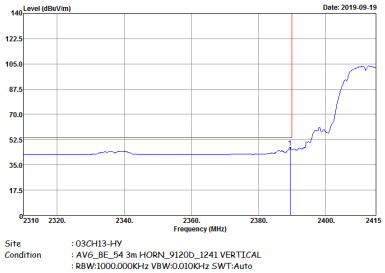
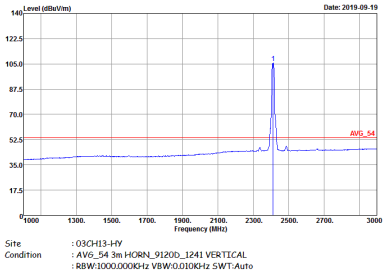
Note symbol

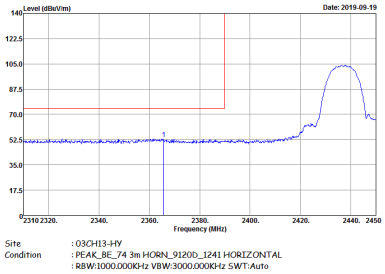
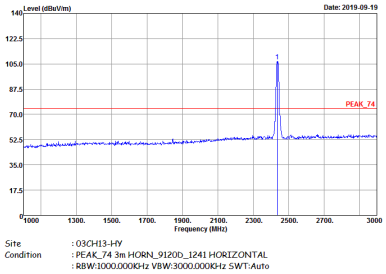
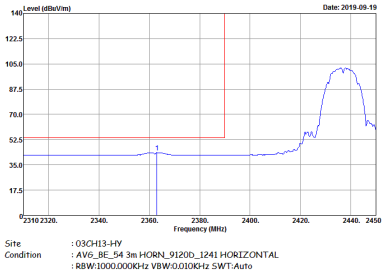
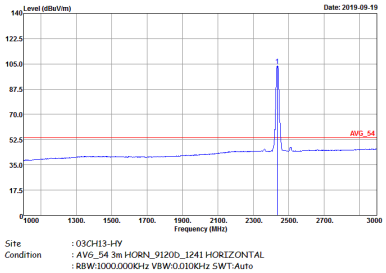
-L	**Low channel location**
-R	**High channel location**

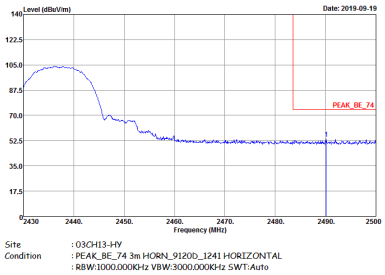
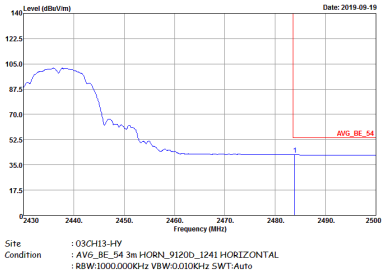
2.4GHz 2400~2483.5MHz

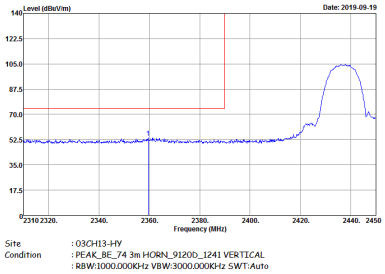
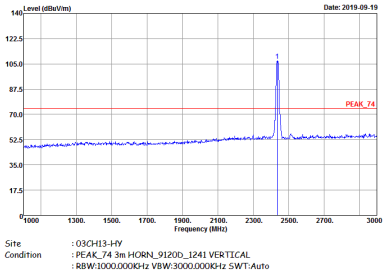
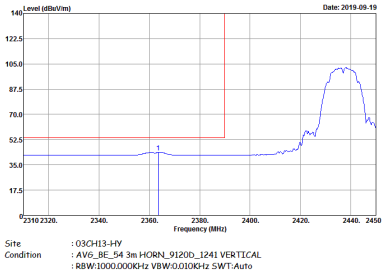
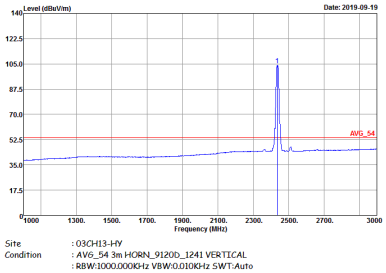
WIFI 802.11b (Band Edge @ 3m)

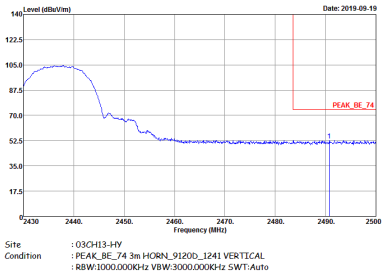
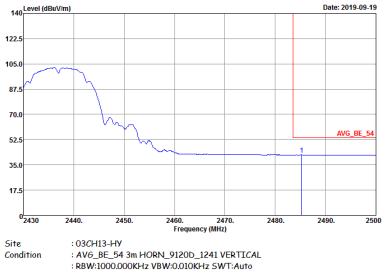
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11b CH01 2412MHz	
	Horizontal	Fundamental
Peak		
Avg.		

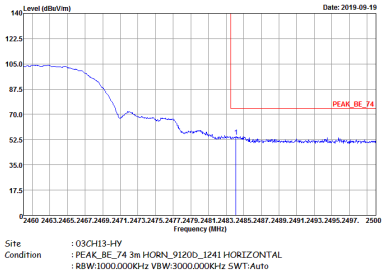
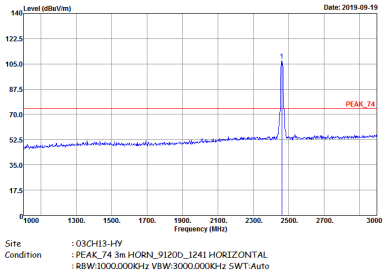
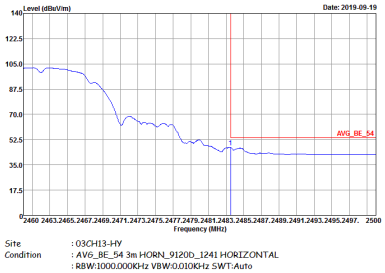
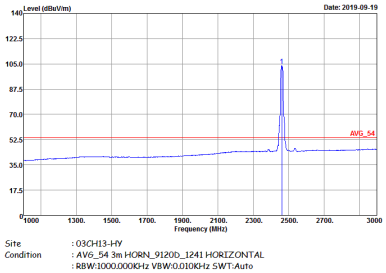
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11b CH01 2412MHz	
	Vertical	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CH13-HY Condition : AVG_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto

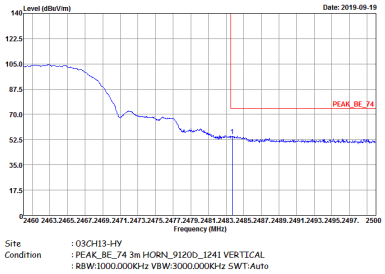
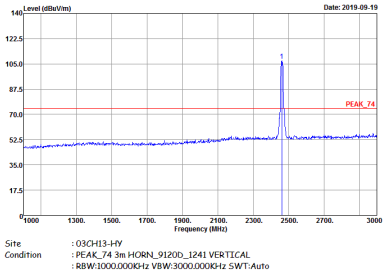
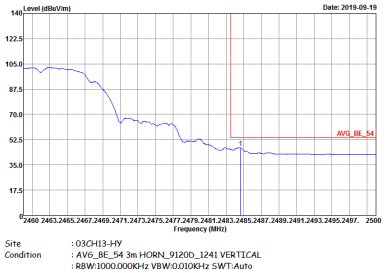
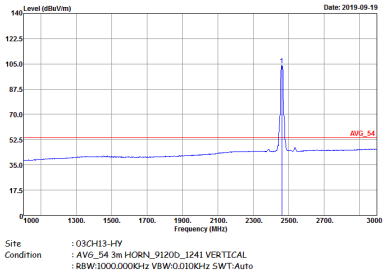
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11b CH06 2437MHz - L	
	Horizontal	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11b CH06 2437MHz - R	
	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11b CH06 2437MHz - L	
	Vertical	Fundamental
Peak		
Avg.		

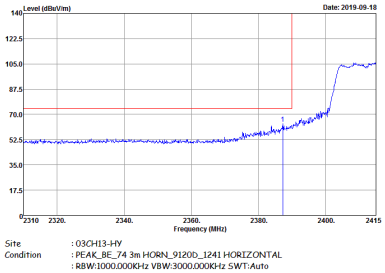
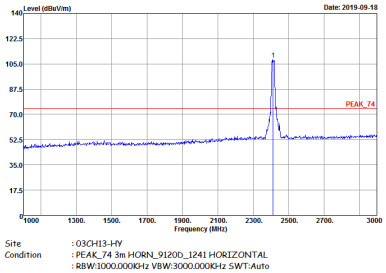
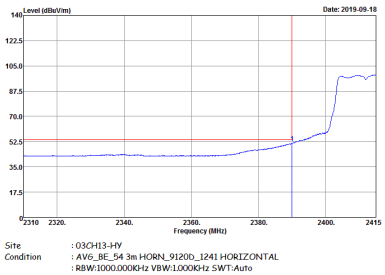
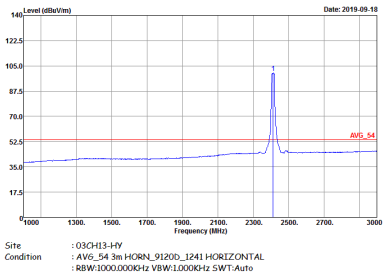
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11b CH06 2437MHz - R	
	Vertical	Fundamental
Peak	 Site : 03CH13-HV Condition : PEAK_BE_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank
Avg.	 Site : 03CH13-HV Condition : AVG_BE_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto	Left blank

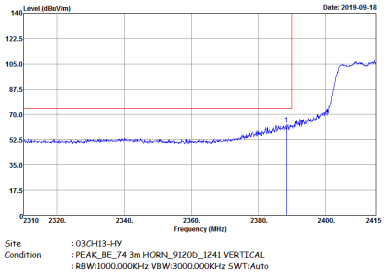
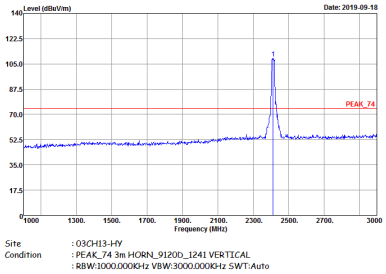
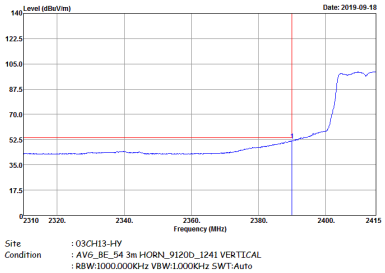
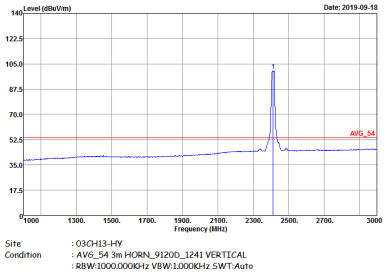
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11b CH11 2462MHz	
	Horizontal	Fundamental
Peak		
Avg.		

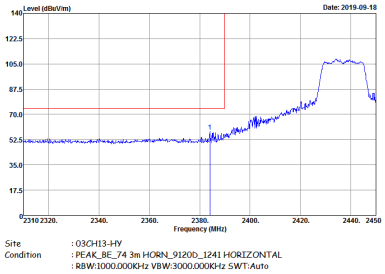
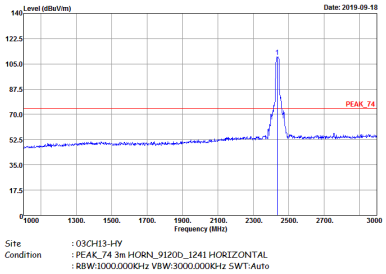
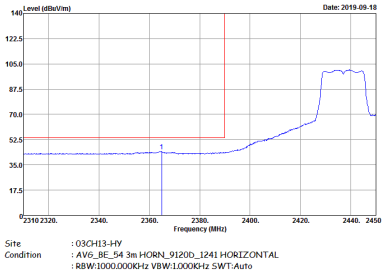
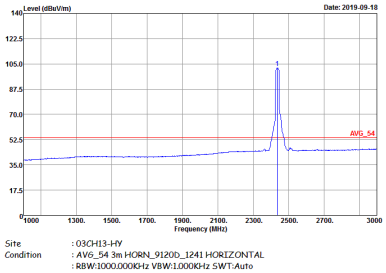
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11b CH11 2462MHz	
	Vertical	Fundamental
Peak		
Avg.		

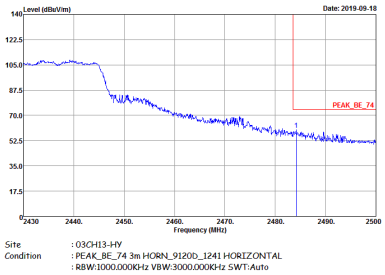
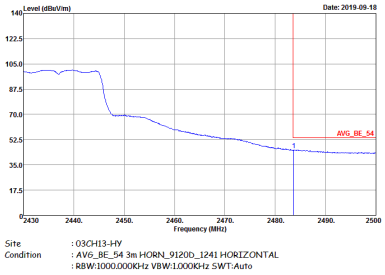
2.4GHz 2400~2483.5MHz

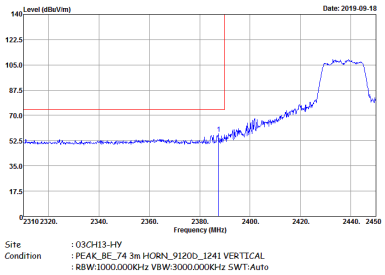
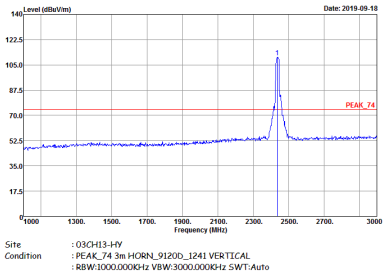
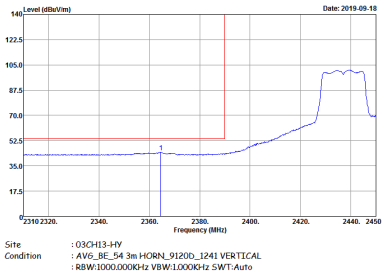
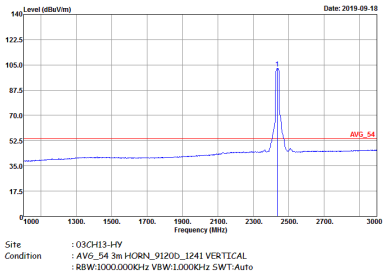
WIFI 802.11g (Band Edge @ 3m)

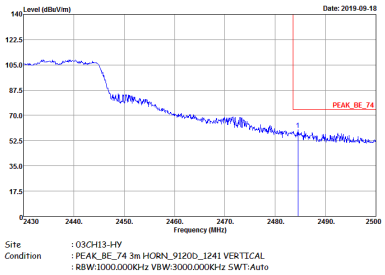
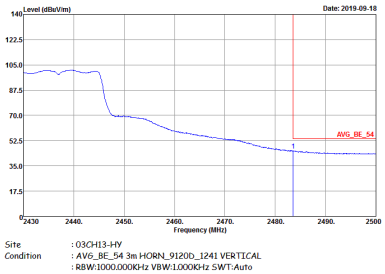
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11g CH01 2412MHz	
	Horizontal	Fundamental
Peak		
Avg.		

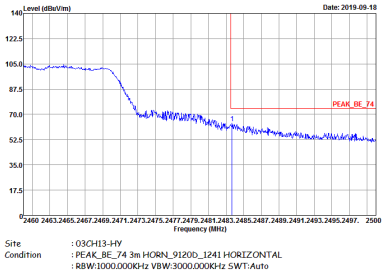
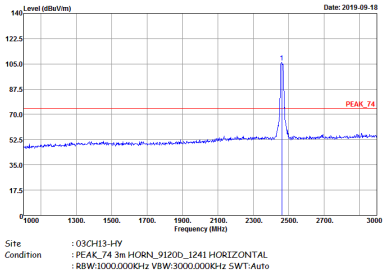
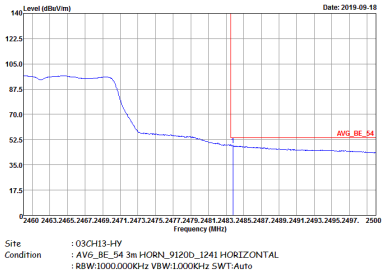
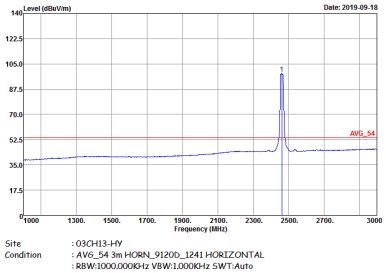
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11g CH01 2412MHz	
	Vertical	Fundamental
Peak		
Avg.		

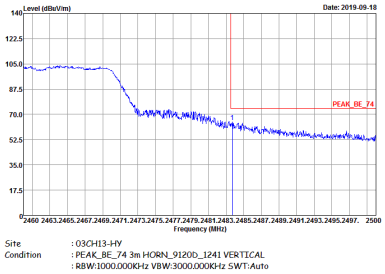
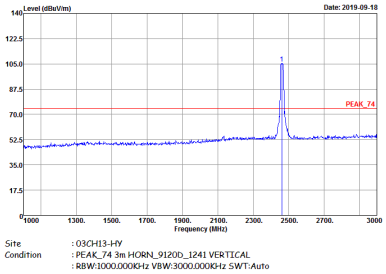
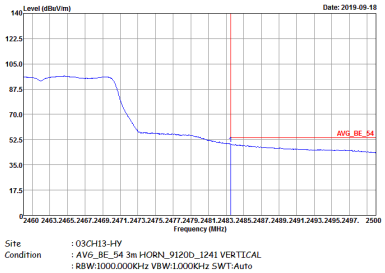
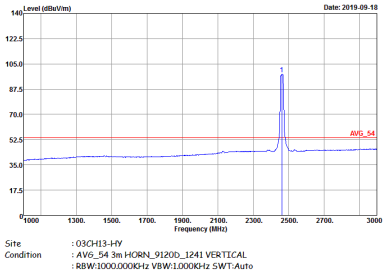
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11g CH06 2437MHz - L	
	Horizontal	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11g CH06 2437MHz - R	
	Horizontal	Fundamental
Peak	 Site : 03CH13-HV Condition : PEAK_BE_74 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank
Avg.	 Site : 03CH13-HV Condition : AVG_BE_54 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto	Left blank

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11g CH06 2437MHz - L	
	Vertical	Fundamental
Peak		
Avg.		

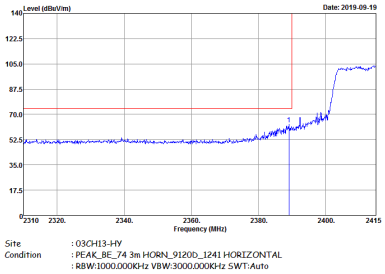
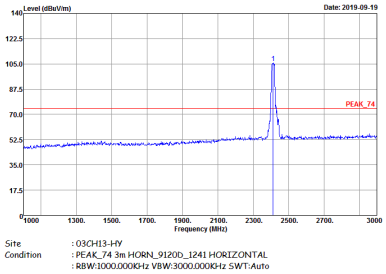
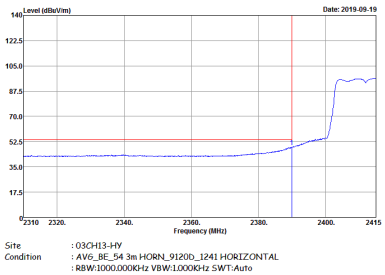
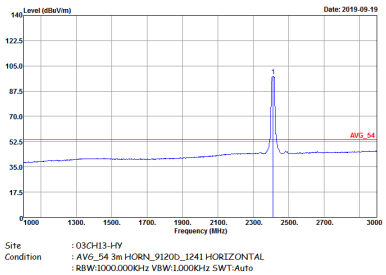
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11g CH06 2437MHz - R	
	Vertical	Fundamental
Peak		Left Blank
Avg.		Left Blank

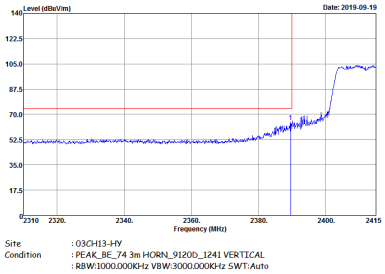
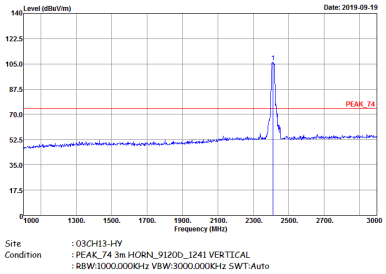
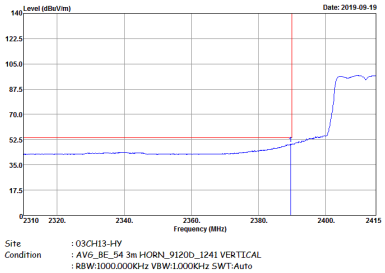
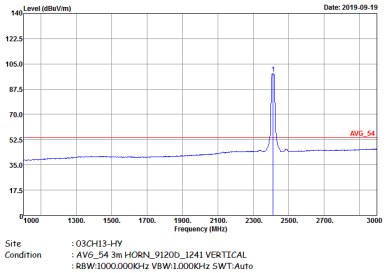
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11g CH11 2462MHz	
	Horizontal	Fundamental
Peak		
Avg.		

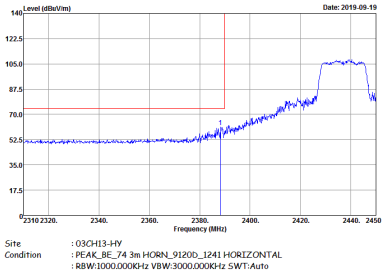
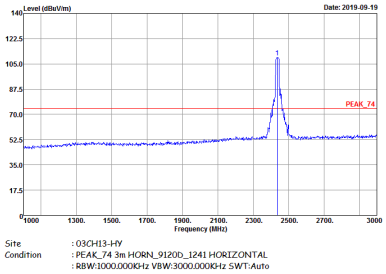
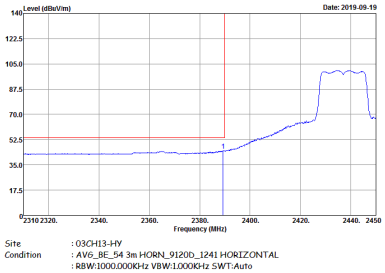
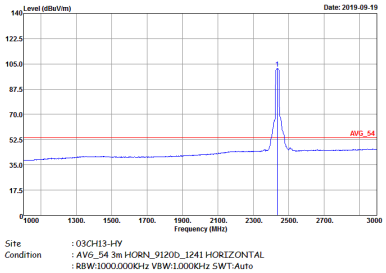
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11g CH11 2462MHz	
	Vertical	Fundamental
Peak		
Avg.		

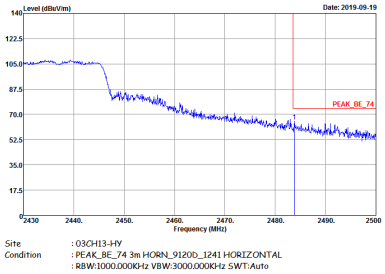
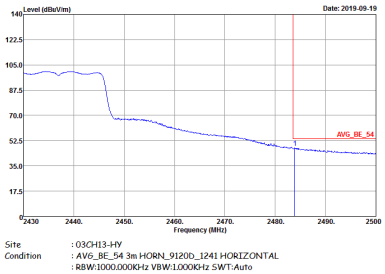
2.4GHz 2400~2483.5MHz

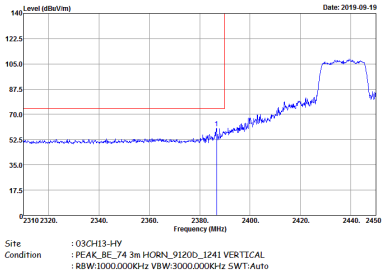
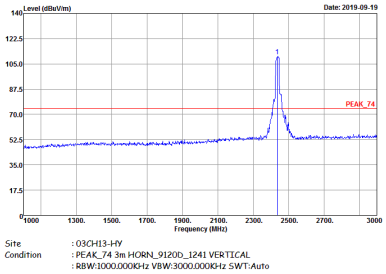
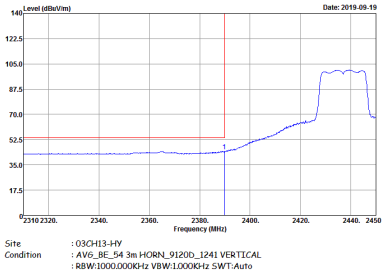
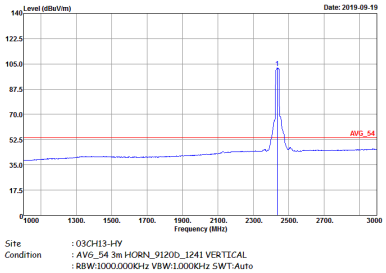
WIFI 802.11n HT20 (Band Edge @ 3m)

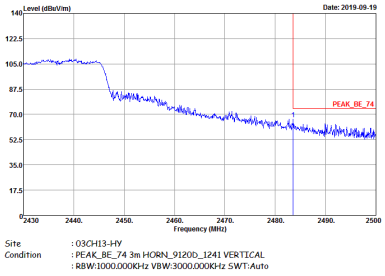
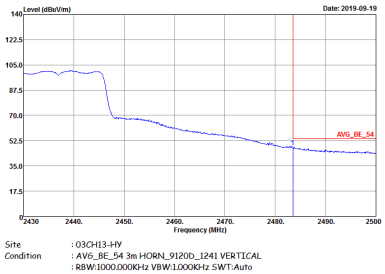
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH01 2412MHz	
	Horizontal	Fundamental
Peak		
Avg.		

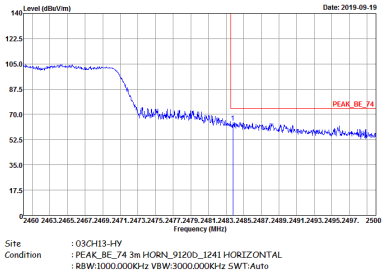
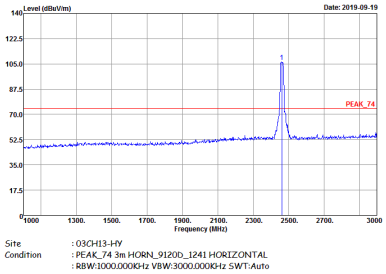
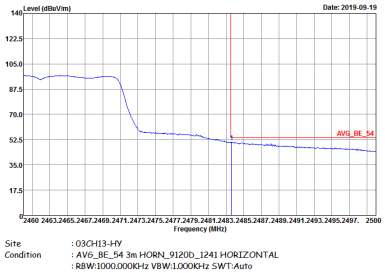
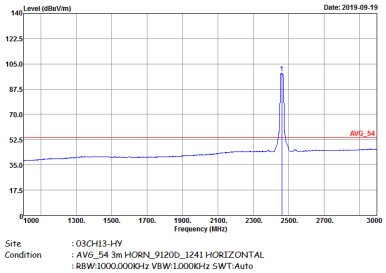
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH01 2412MHz	
	Vertical	Fundamental
Peak		
Avg.		

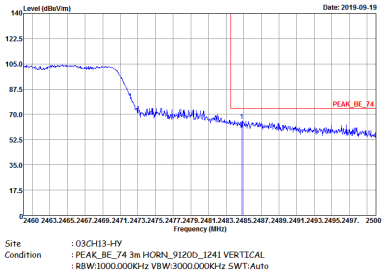
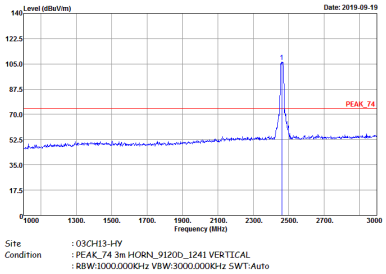
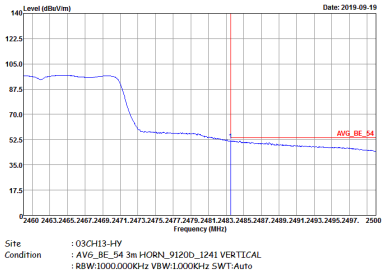
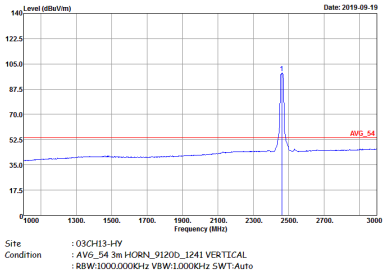
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH06 2437MHz - L	
	Horizontal	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH06 2437MHz - R	
	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH06 2437MHz - L	
	Vertical	Fundamental
Peak		
Avg.		

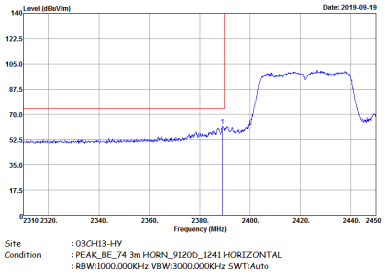
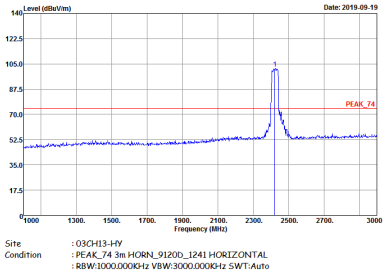
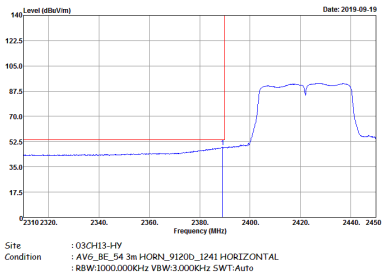
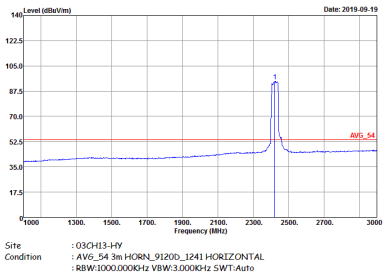
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH06 2437MHz - R	
	Vertical	Fundamental
Peak		Left Blank
Avg.		Left Blank

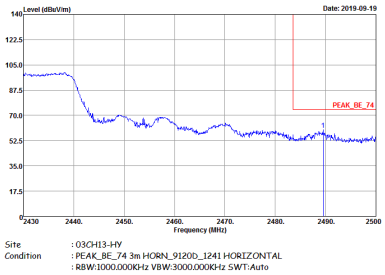
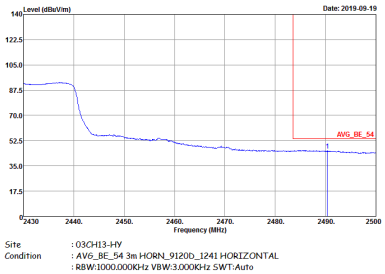
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH11 2462MHz	
	Horizontal	Fundamental
Peak		
Avg.		

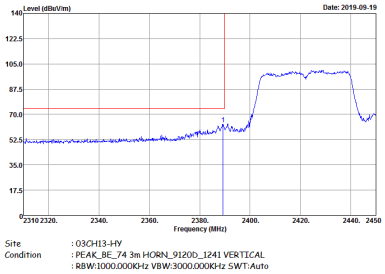
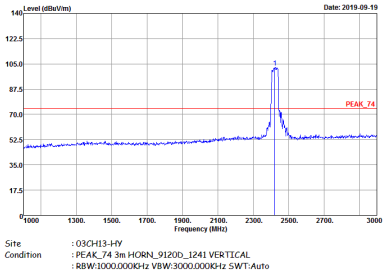
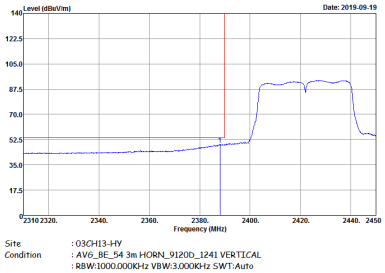
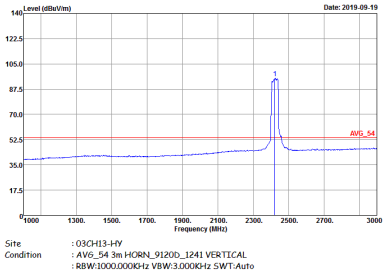
WIFI	2.4GHz 2400~2483.5MHz Fundamental @ 3m	
	802.11n HT20 CH11 2462MHz	
	Vertical	Fundamental
Peak		
Avg.		

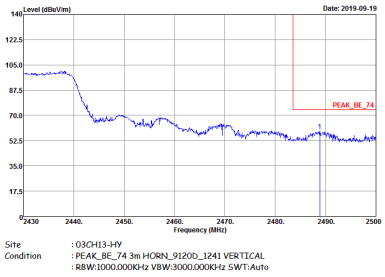
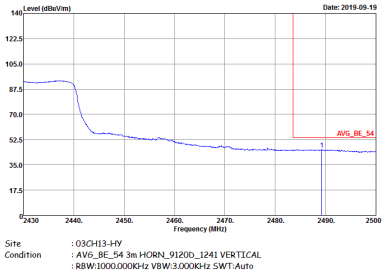
2.4GHz 2400~2483.5MHz

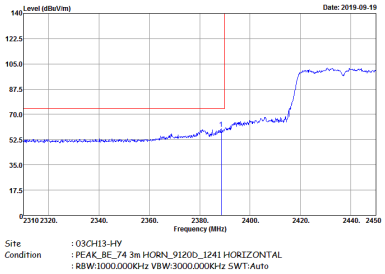
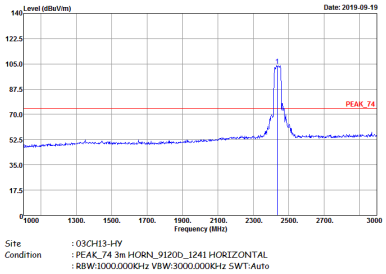
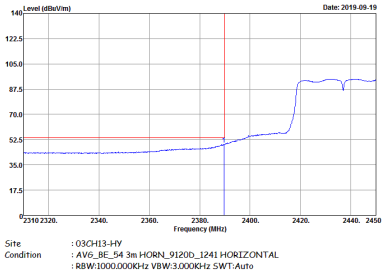
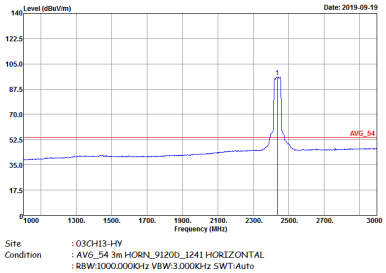
WIFI 802.11n HT40 (Band Edge @ 3m)

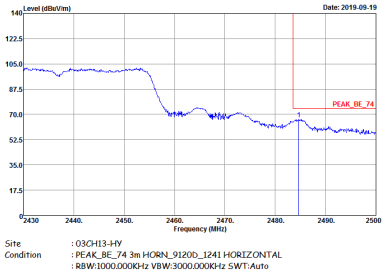
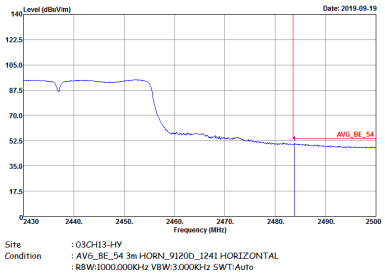
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT40 CH03 2422MHz - L	
	Horizontal	Fundamental
Peak		
Avg.		

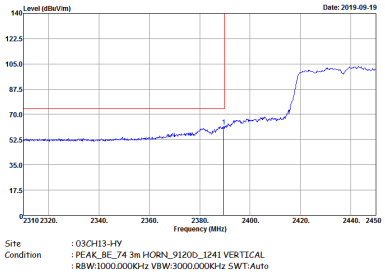
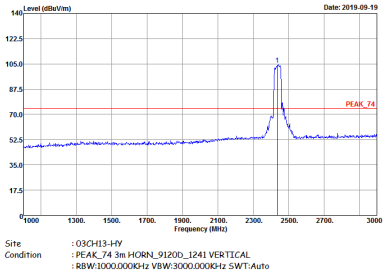
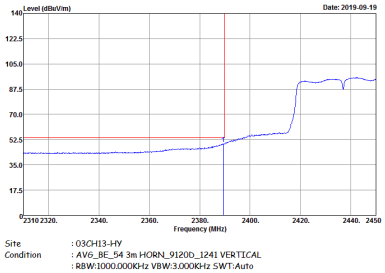
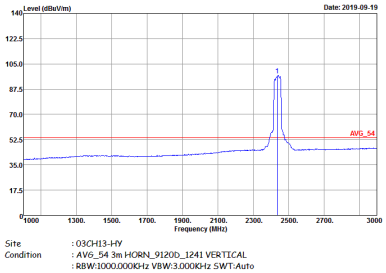
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT40 CH03 2422MHz - R	
	Horizontal	Fundamental
Peak		Left Blank
Avg.		Left Blank

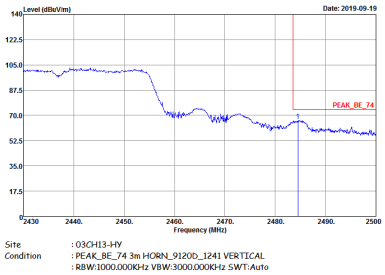
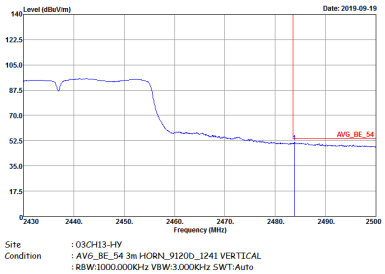
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT40 CH03 2422MHz - L	
	Vertical	Fundamental
Peak		
Avg.		

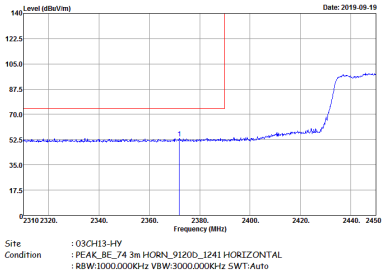
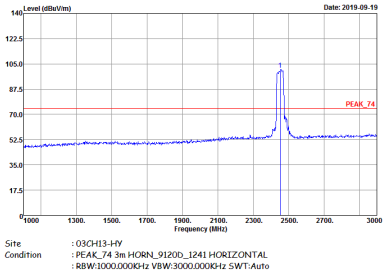
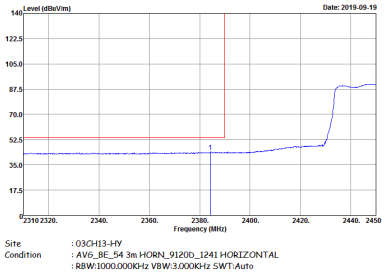
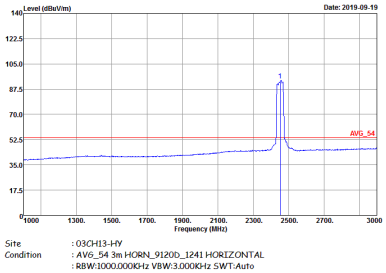
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT40 CH03 2422MHz - R	
	Vertical	Fundamental
Peak	 Site : 03CH13-HV Condition : PEAK_BE_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank
Avg.	 Site : 03CH13-HV Condition : AVG_BE_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto	Left blank

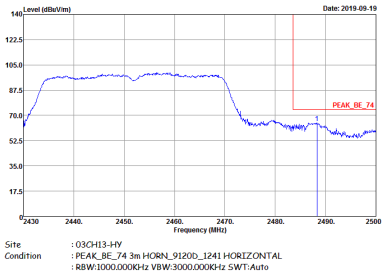
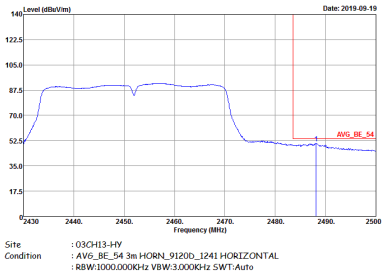
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT40 CH06 2437MHz - L	
	Horizontal	Fundamental
Peak		
Avg.		

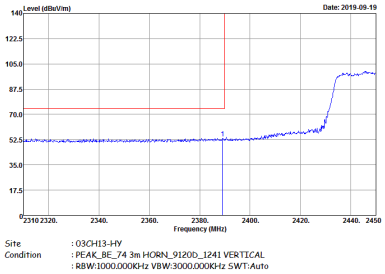
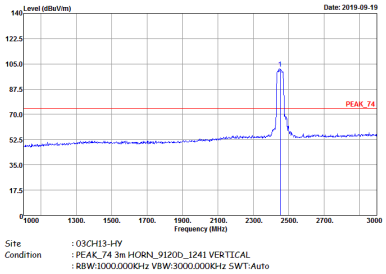
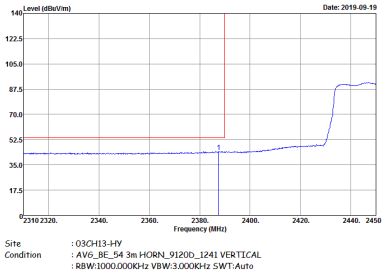
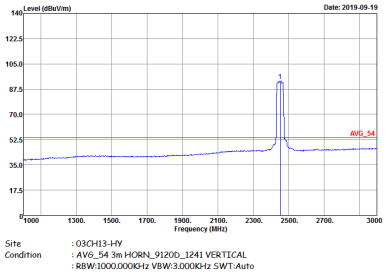
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT40 CH06 2437MHz - R	
	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

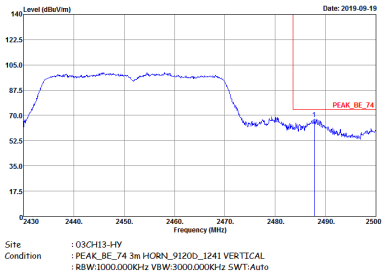
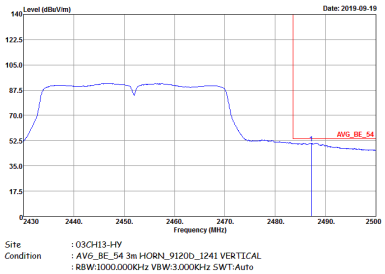
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT40 CH06 2437MHz - L	
	Vertical	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto	 Site : 03CH13-HY Condition : AVG_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT40 CH06 2437MHz - R	
	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT40 CH09 2452MHz - L	
	Horizontal	Fundamental
Peak		
Avg.		

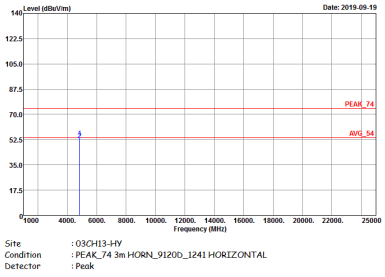
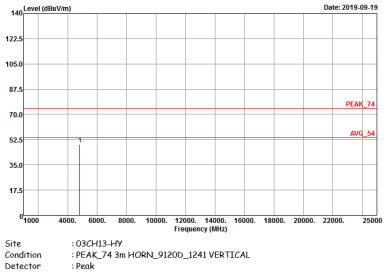
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT40 CH09 2452MHz - R	
	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

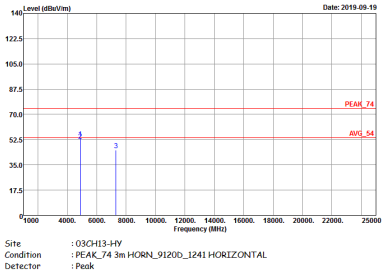
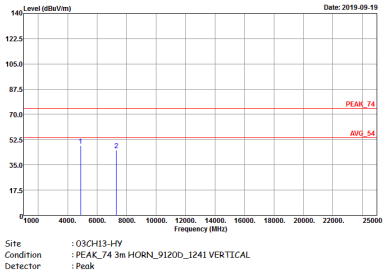
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT40 CH09 2452MHz - L	
	Vertical	Fundamental
Peak		
Avg.		

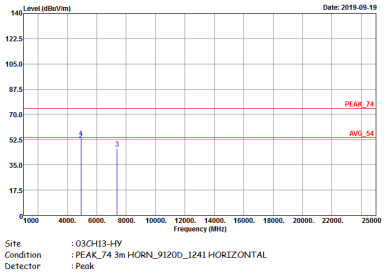
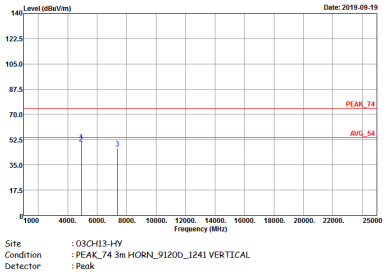
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT40 CH09 2452MHz - R	
	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Harmonic @ 3m)

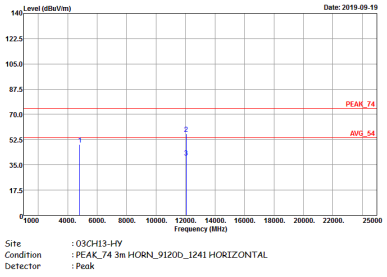
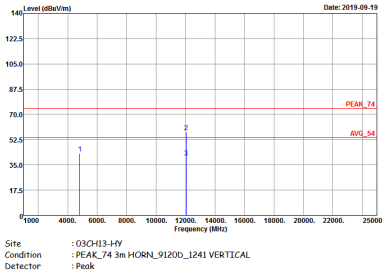
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	802.11b CH01 2412MHz	
	Horizontal	Vertical
Peak Avg.		

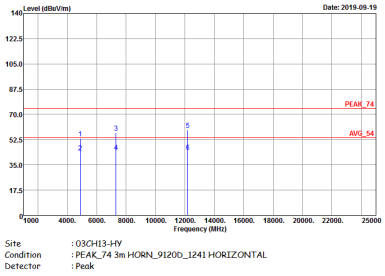
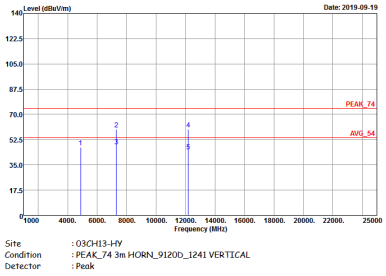
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	802.11b CH06 2437MHz	
	Horizontal	Vertical
Peak Avg.		

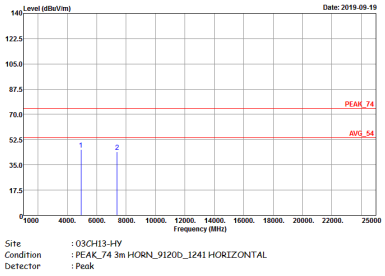
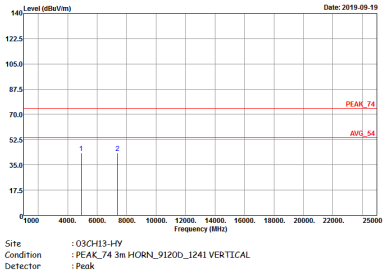
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	802.11b CH11 2462MHz	
	Horizontal	Vertical
Peak Avg.		

2.4GHz 2400~2483.5MHz

WIFI 802.11g (Harmonic @ 3m)

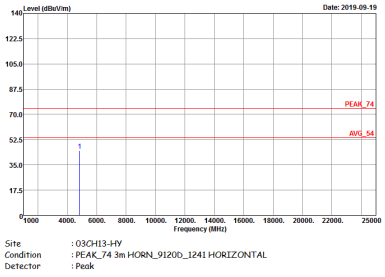
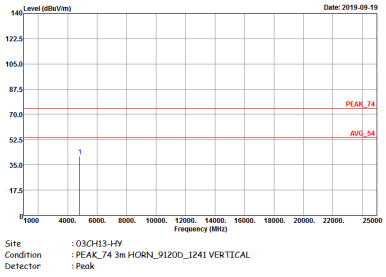
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	802.11g CH01 2412MHz	
	Horizontal	Vertical
Peak Avg.		

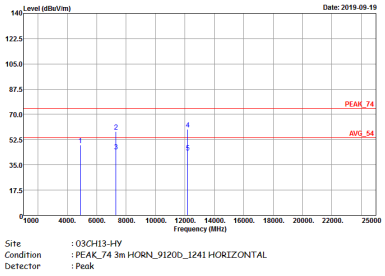
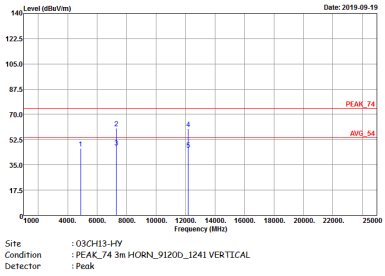
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	802.11g CH06 2437MHz	
	Horizontal	Vertical
Peak Avg.		

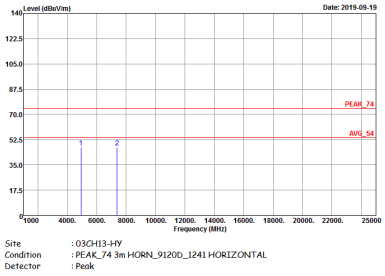
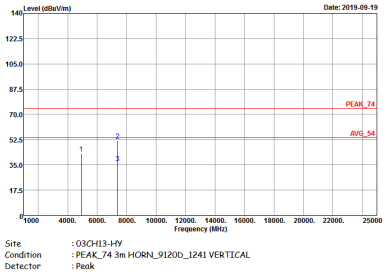
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	802.11g CH11 2462MHz	
	Horizontal	Vertical
Peak Avg.		

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

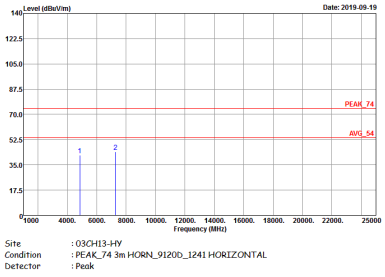
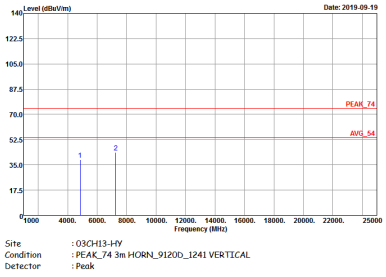
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	802.11n HT20 CH01 2412MHz	
	Horizontal	Vertical
Peak Avg.		

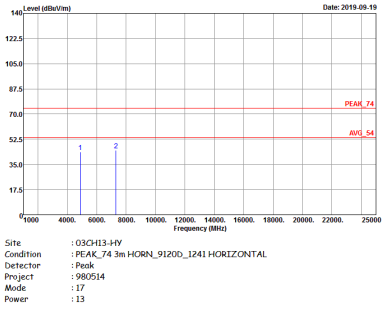
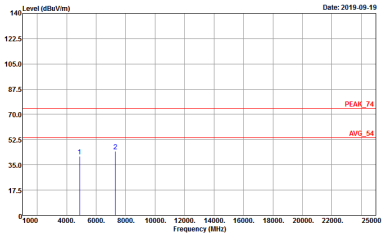
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	802.11n HT20 CH06 2437MHz	
	Horizontal	Vertical
Peak Avg.		

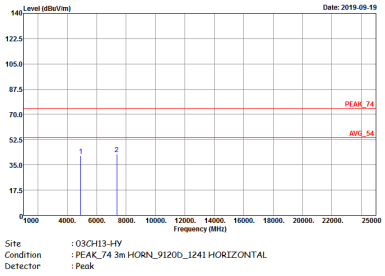
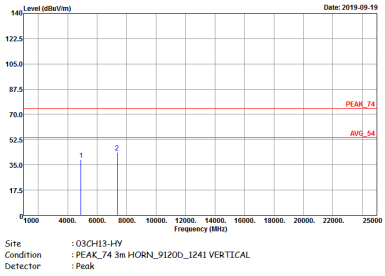
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	802.11n HT20 CH11 2462MHz	
	Horizontal	Vertical
Peak Avg.		

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT40 (Harmonic @ 3m)

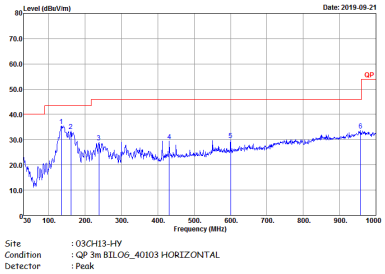
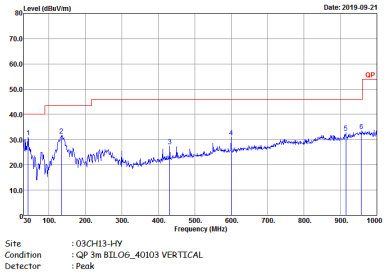
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	802.11n HT40 CH03 2422MHz	
	Horizontal	Vertical
Peak Avg.		

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	802.11n HT40 CH06 2437MHz	
	Horizontal	Vertical
Peak Avg.	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_9120D_1241 HORIZONTAL Detector : Peak Project : 980514 Mode : 17 Power : 13	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_9120D_1241 VERTICAL Detector : Peak

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	802.11n HT40 CH09 2452MHz	
	Horizontal	Vertical
Peak Avg.		

Emission below 1GHz

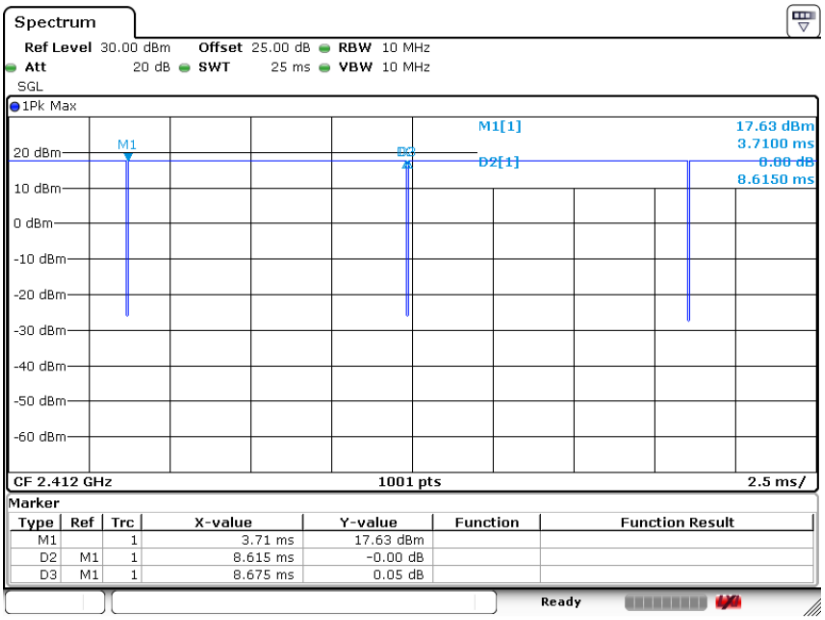
2.4GHz WIFI 802.11b (LF)

WIFI	2.4GHz 2400~2483.5MHz	
	802.11b LF	
	Horizontal	Vertical
QP / Peak		

Appendix E. Duty Cycle Plots

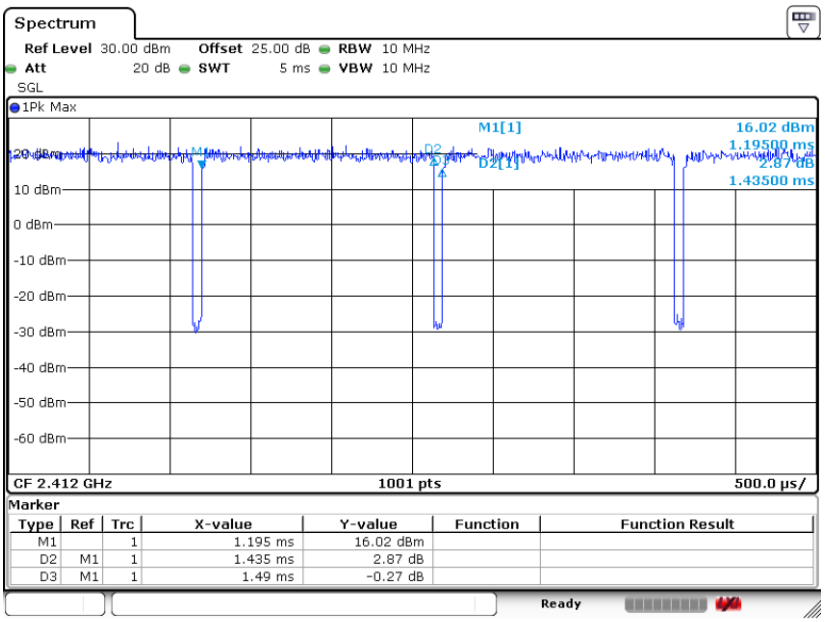
Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting	Duty Factor(dB)
802.11b	99.31	-	-	10Hz	0.03
802.11g	96.31	1435	0.70	1kHz	0.16
2.4GHz 802.11n HT20	95.71	1340	0.75	1kHz	0.19
2.4GHz 802.11n HT40	91.67	660	1.52	3kHz	0.38

802.11b



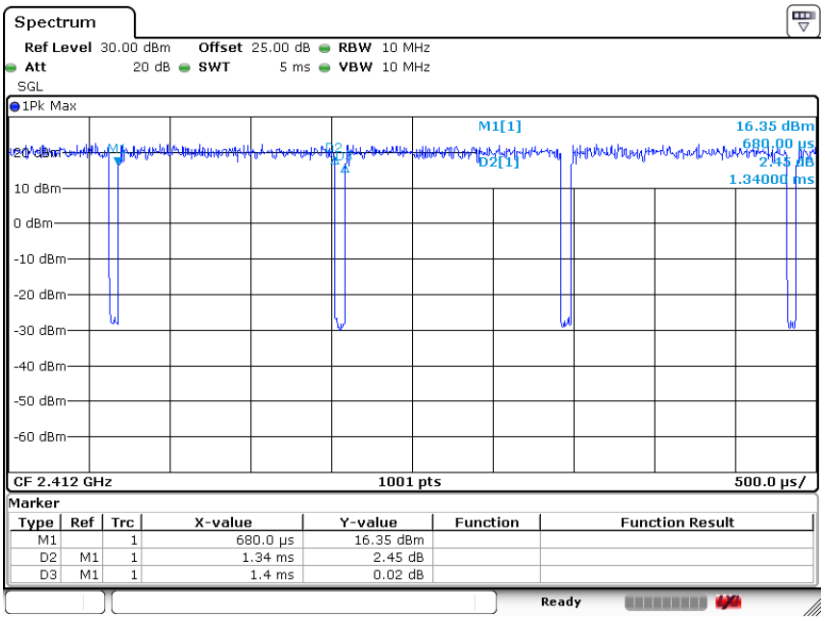
Date: 16.SEP.2019 20:32:59

802.11g



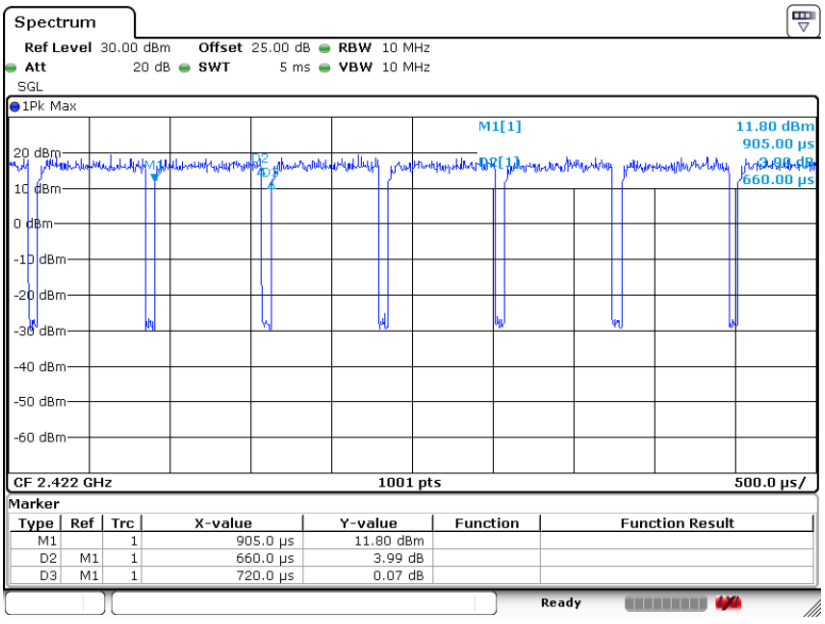
Date: 16.SEP.2019 20:57:01

802.11n HT20



Date: 16.SEP.2019 21:22:24

802.11n HT40



Date: 16.SEP.2019 21:31:03