FCC RADIO TEST REPORT

FCC ID	:	**U8G-P1930LITER6**
Equipment	:	**PEPWAVE / peplink Wireless Product**
Brand Name	:	**PEPWAVE / peplink**
Model Name	:	**MAX BR1 Mini** **MAX BR1 Mini LTE** **MAX BR1 Mini LTEA** **Pepwave MAX BR1 Mini** **Pepwave MAX BR1 Mini LTE** **Pepwave MAX BR1 Mini LTEA** **Peplink MAX BR1 Mini** **Peplink MAX BR1 Mini LTE** **Peplink MAX BR1 Mini LTEA** **MAX-BR1-MINI-LTE-US-T** **MAX-BR1-MINI-LTEA-W-T**
Applicant	:	**PISMO LABS TECHNOLOGY LIMITED** **A8, 5/F, HK Spinners Industrial Building, Phase 6, 481 Castle Peak Road, Cheung Sha Wan, Hong Kong**
Manufacturer	:	**PISMO LABS TECHNOLOGY LIMITED** **A8, 5/F, HK Spinners Industrial Building, Phase 6, 481 Castle Peak Road, Cheung Sha Wan, Hong Kong**
Standard	:	**FCC Part 15 Subpart C §15.247**

The product was received on Jan. 14, 2021 and testing was started from Jan. 21, 2021 and completed on Feb. 17, 2021. 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 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 333, Taiwan (R.O.C.)

Table of Contents

History of this test report

Report No.	Version	Description	Issued Date
FR111328	01	Initial issue of report	Mar. 17, 2021

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 1.02 dB at 2390.000 MHz
3.6	15.207	AC Conducted Emission	Pass	Under limit 20.76 dB at 16.103 MHz
3.7	15.203 & 15.247(b)	Antenna Requirement	Pass	-

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

Reviewed by: Wii Chang

Report Producer: Amy Chen

1 General Description

1.1 Product Feature of Equipment Under Test

Wi-Fi 2.4GHz 802.11b/g/n.

Product Specification subjective to this standard	
Antenna Type	WLAN: Omni-directional Antenna

Antenna information		
2400 MHz ~ 2483.5 MHz	Peak Gain (dBi)	5.33

Remark: The above EUT's information was declared by manufacturer. Please refer to Comments and Explanations in report summary.

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 333, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978
Test Site No.	**Sporton Site No.**
	TH05-HY, CO05-HY

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

Test Site	Sporton International Inc. Wensan Laboratory
Test Site Location	No.58 , Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
Test Site No.	**Sporton Site No.**
	03CH16-HY (TAF Code: 3786)
Remark	The Radiated Spurious Emission test item subcontracted to Sporton International Inc. Wensan Laboratory.

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:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. The TAF code is not including all the FCC KDB listed without accreditation.
3. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z and Ant. degree (0 and 90). The worst cases (Y plane for degree 0) were recorded in this report.

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

2.1 Carrier Frequency and Channel

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

2.2 Test Mode

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

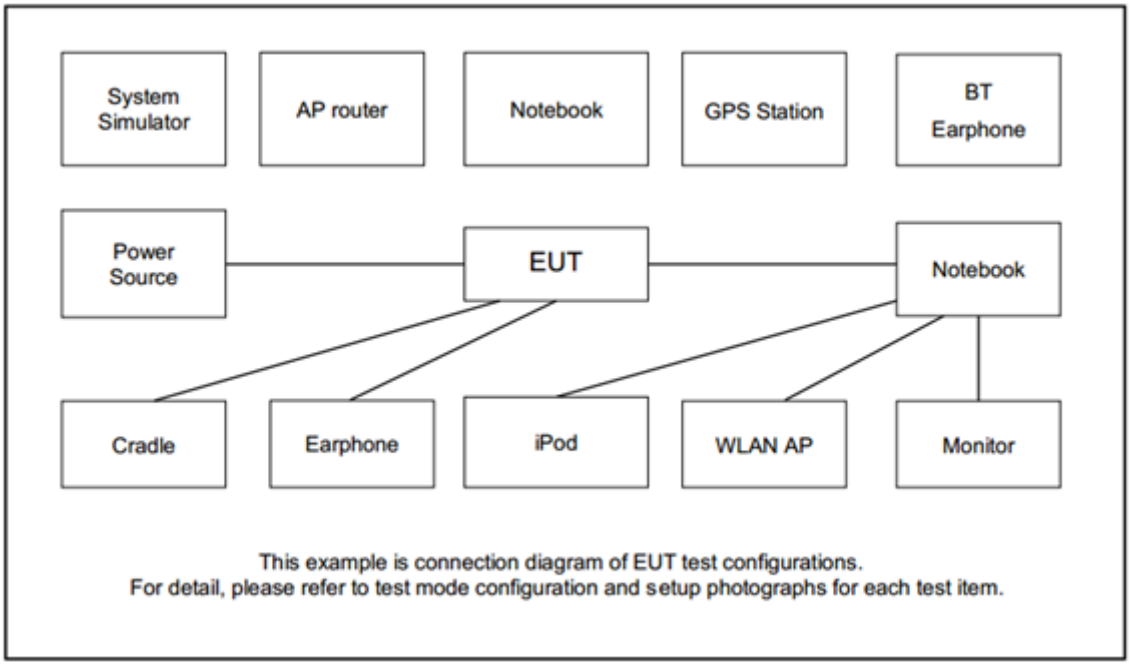
Modulation	Data Rate
802.11b	1 Mbps
802.11g	6 Mbps
802.11n HT20	MCS0
802.11n HT40	MCS0

Test Cases	
AC Conducted Emission	Mode 1 ： WLAN (2.4GHz) Link + LAN Link + WAN Link + Adapter

Ch. #	2400-2483.5 MHz			
	802.11b	802.11g	802.11n HT20	802.11n HT40
Low	01	01	01	03
Middle	06	06	06	06
High	11	11	11	09

Remark: For radiation spurious emission, the final modulation and the worst data rate was reference the max RF conducted power.

2.3 Connection Diagram of Test System



2.4 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Notebook	Dell	Latitude 3400	FCC DoC	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 “ART2” 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.

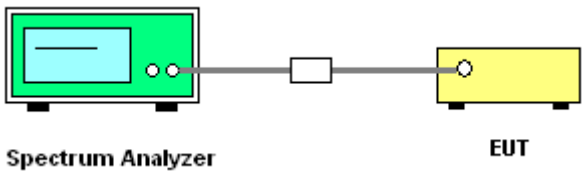
3.1.2 Measuring Instruments

See list of measuring equipment of this test report.

3.1.3 Test Procedures

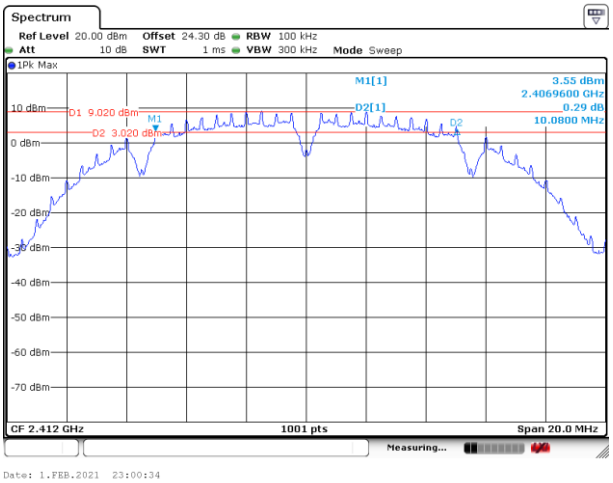
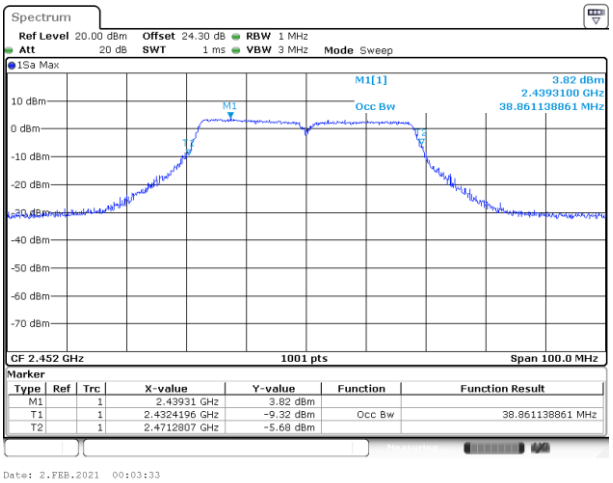
1. The testing follows the ANSI C63.10 Section 6.9.3 (OBW) and 11.8.1 (6dB BW).
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit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

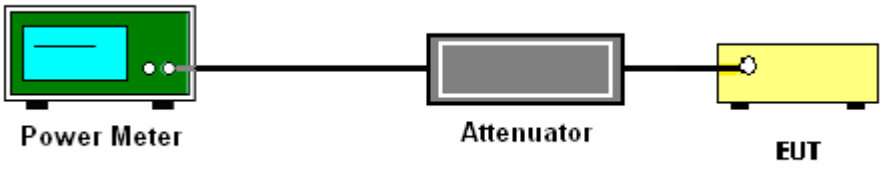
3.2.2 Measuring Instruments

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

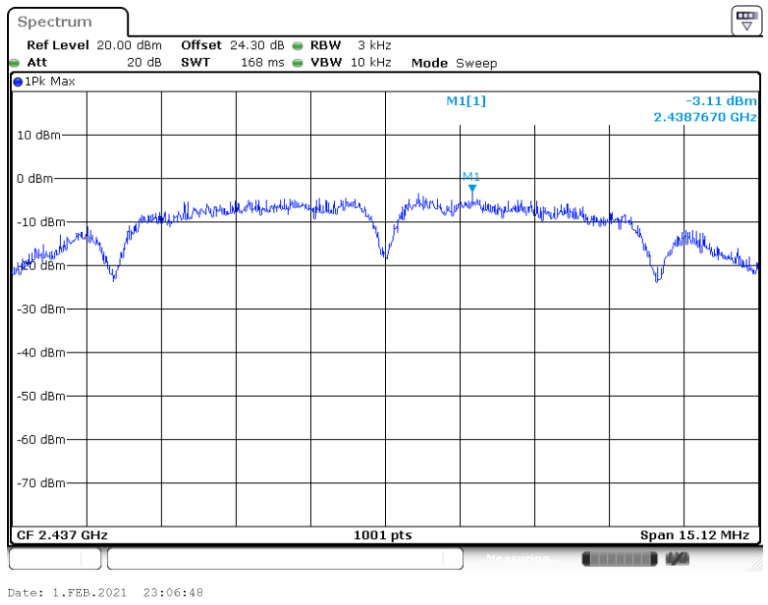
1. The testing follows the ANSI C63.10 Section 11.10.2 Method PKPSD.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.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

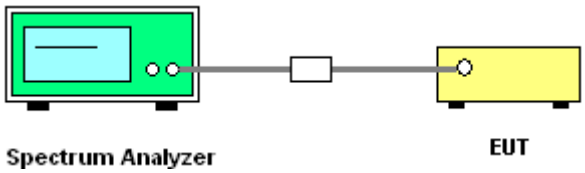
3.4.2 Measuring Instruments

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

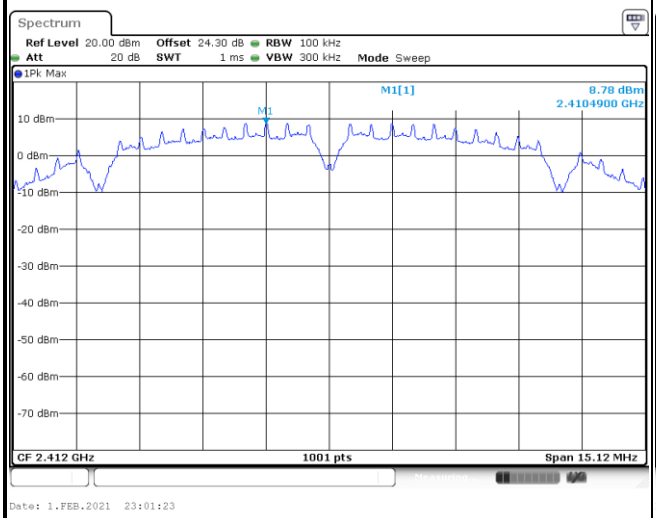
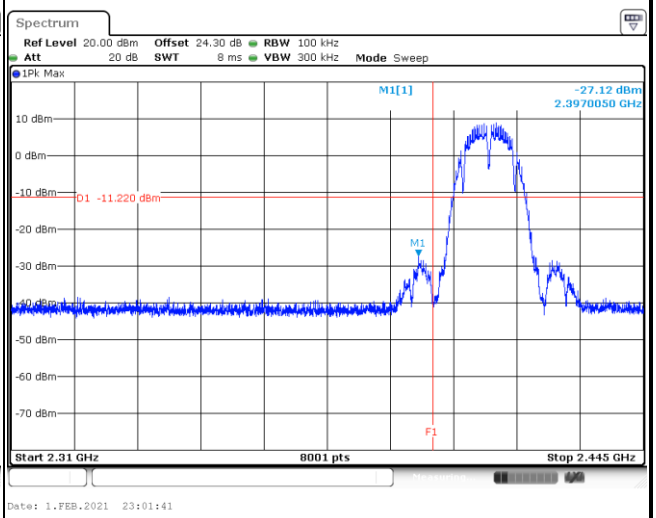
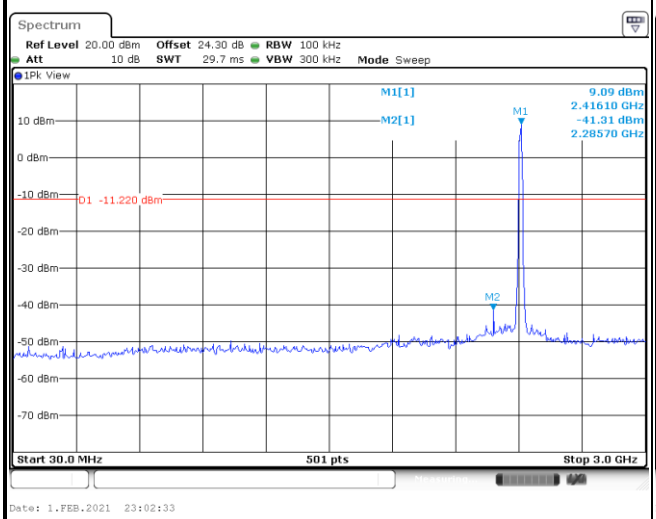
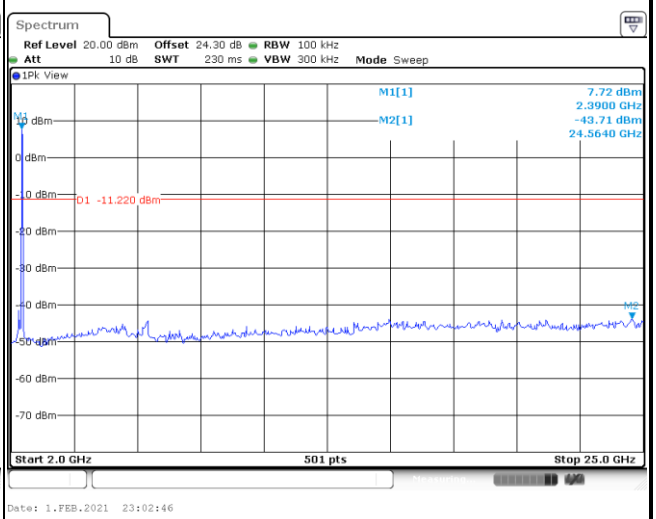


3.4.5 Test Result of Conducted Band Edges and Spurious Emission

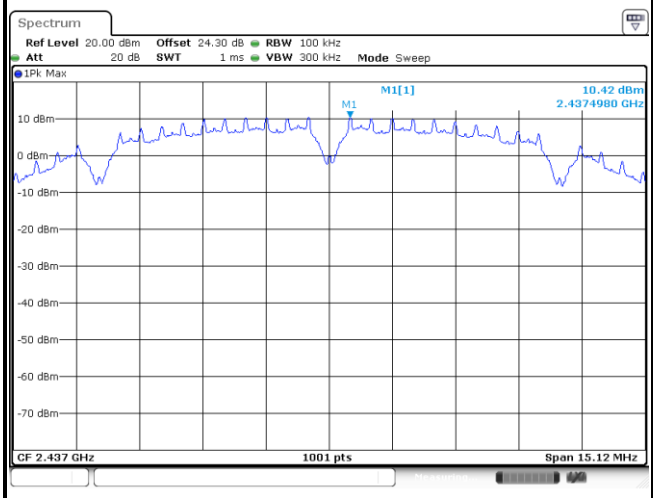
Test Engineer :	Ching Chen and Junyu Jhou	**Temperature :**	24.1~24.7℃
		Relative Humidity :	57.5~58.9%

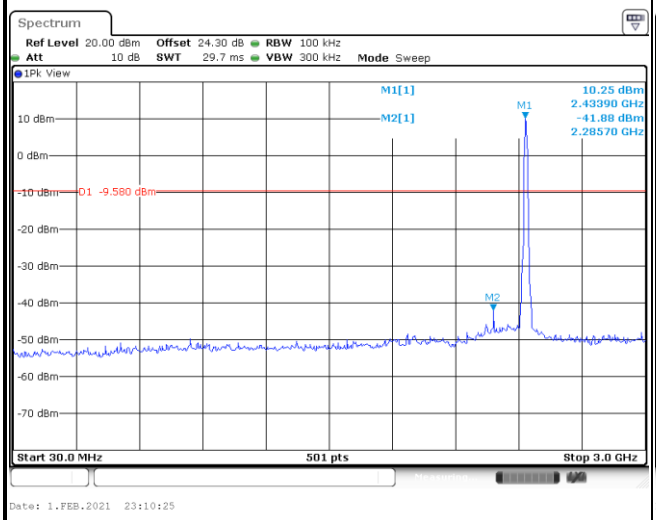
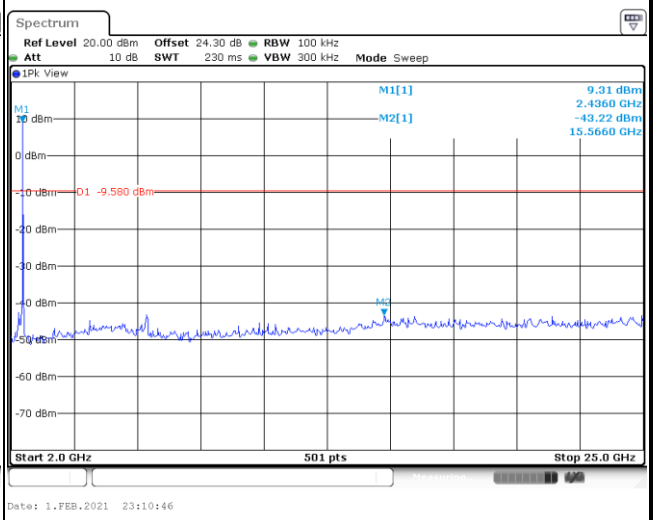
Number of TX = 1, Ant. 1 (Measured)

Test Mode :	802.11b	**Test Channel :**	01

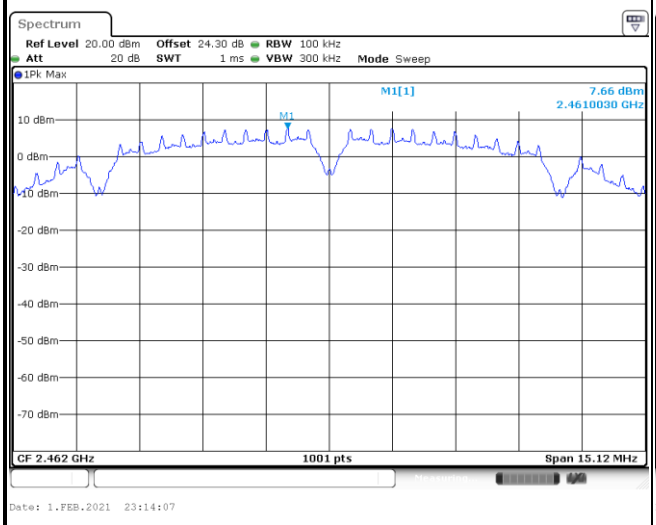
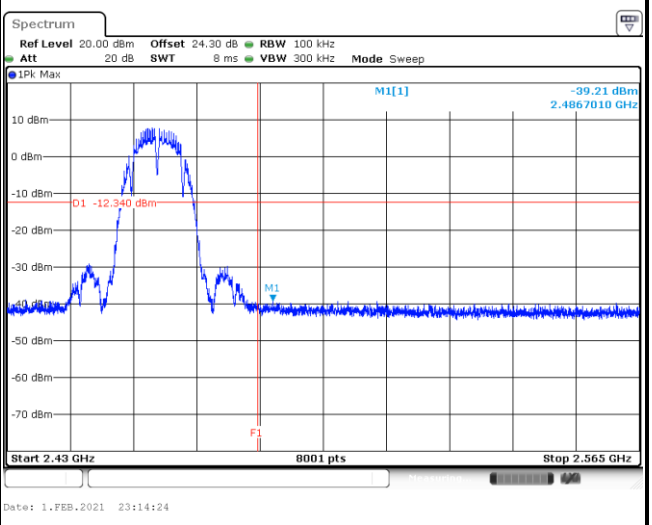
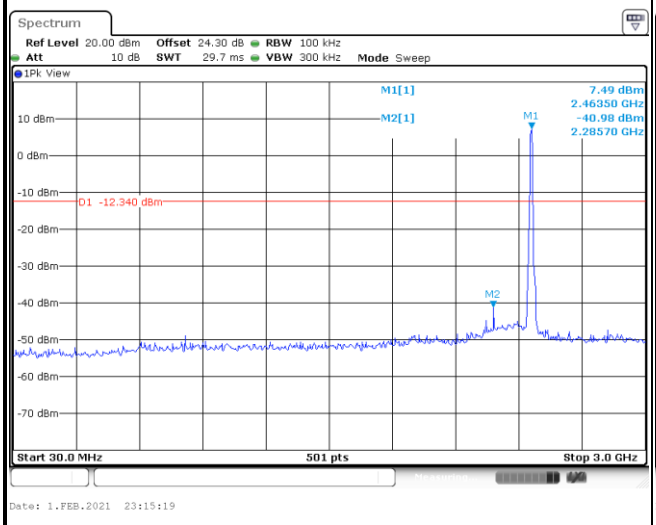
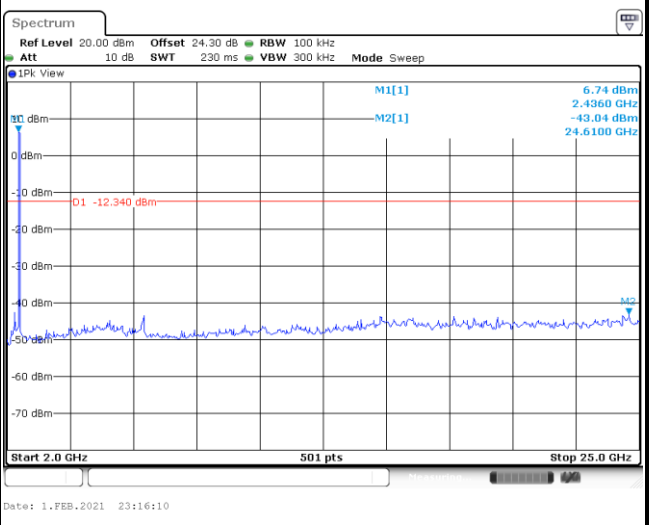
100kHz PSD reference Level	Low Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11b	Test Channel :	06

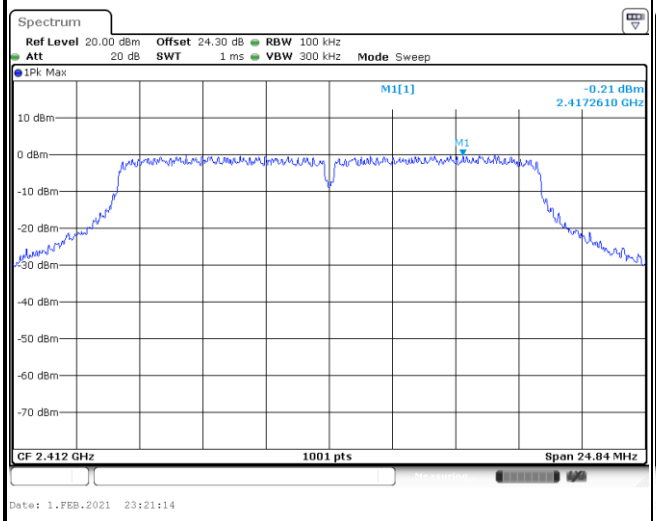
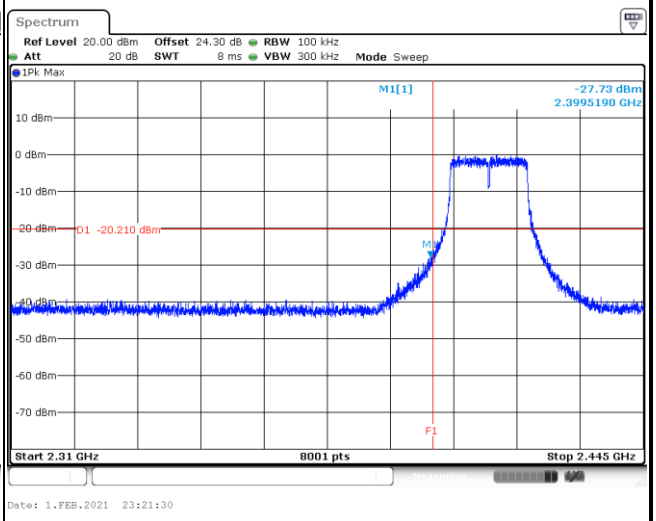
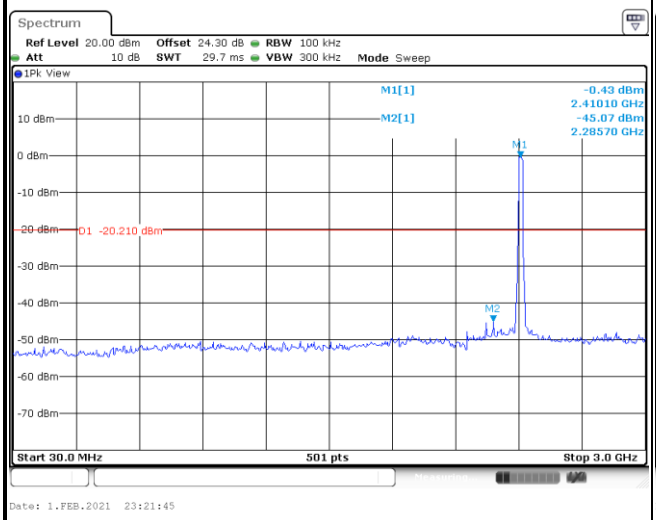
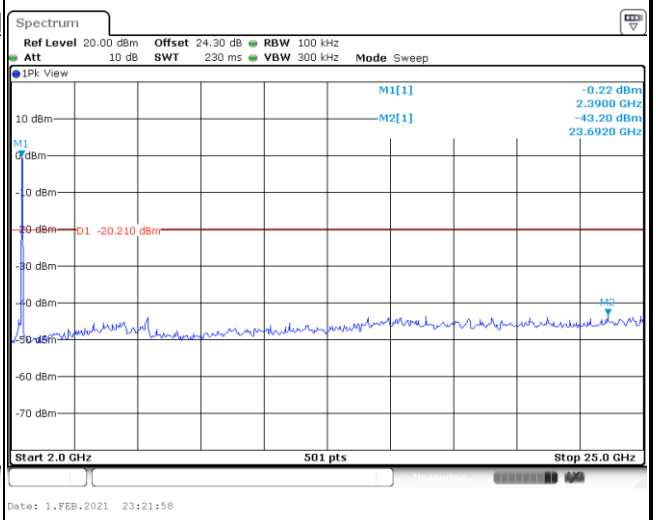
100kHz PSD reference Level	Mid Channel Plot
	

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

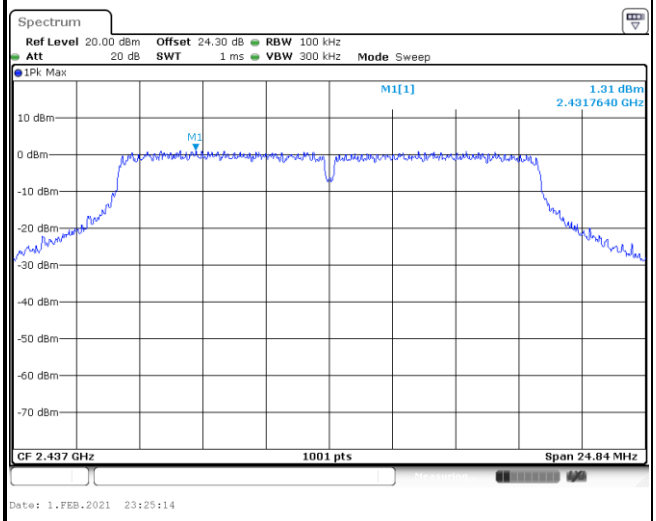
Test Mode :	802.11b	Test Channel :	11

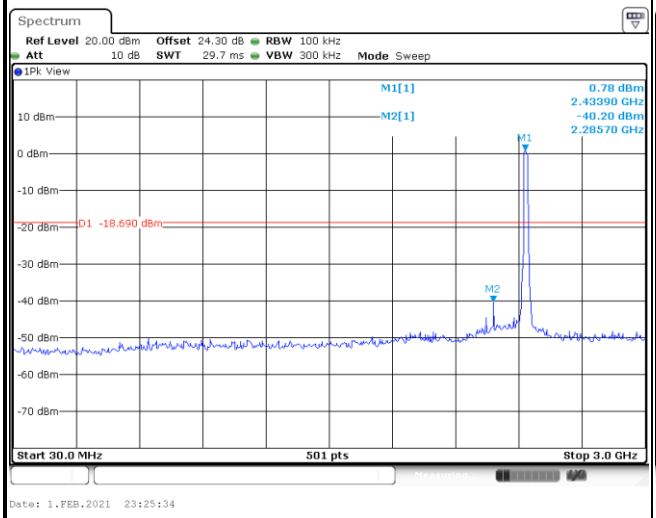
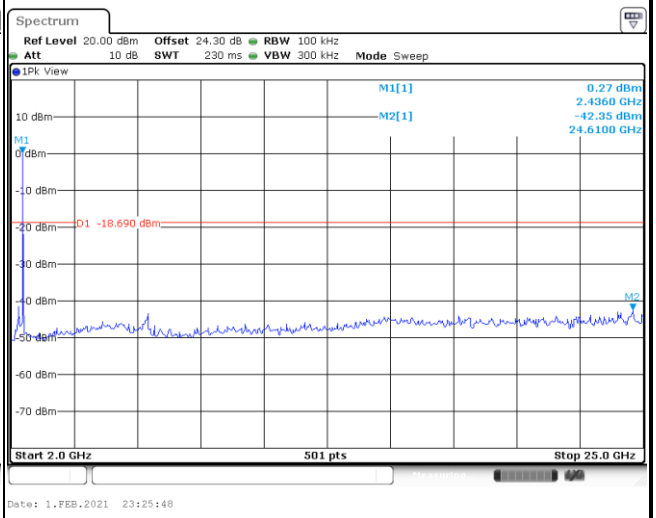
100kHz PSD reference Level	High Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11g	Test Channel :	01

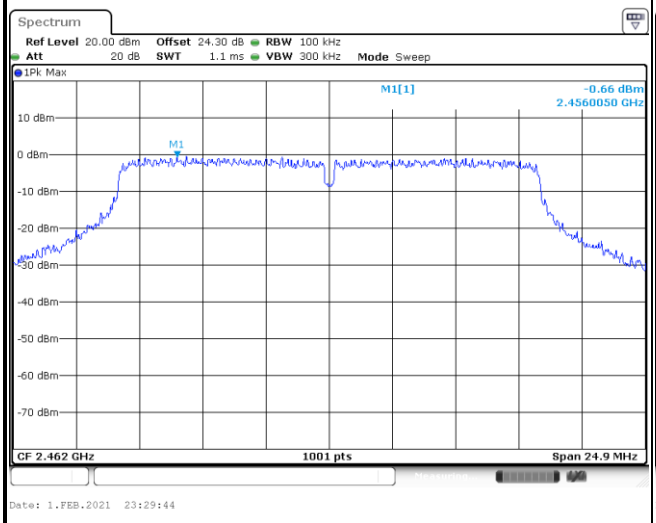
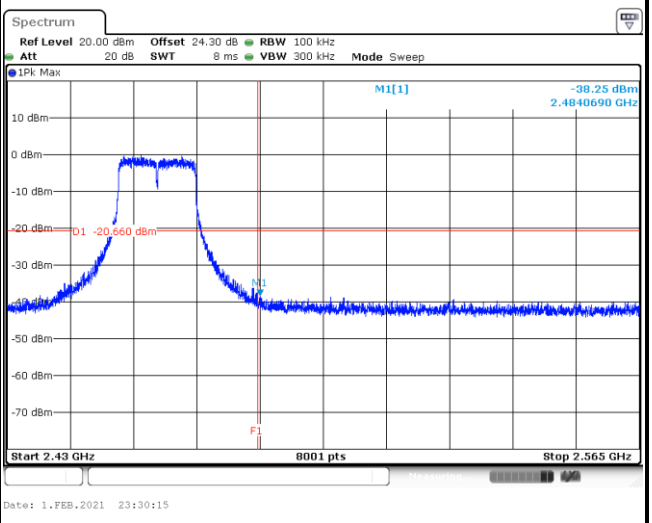
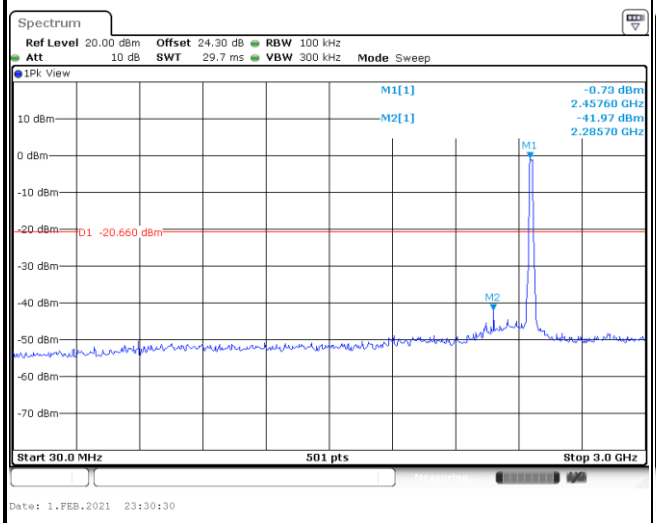
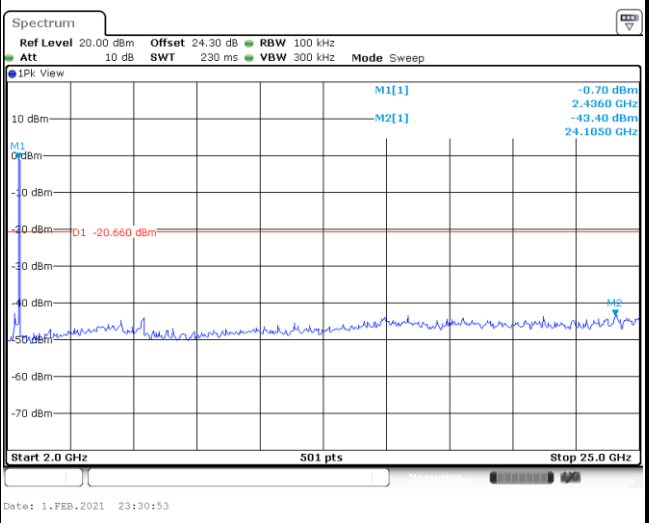
100kHz PSD reference Level	Low Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11g	Test Channel :	06

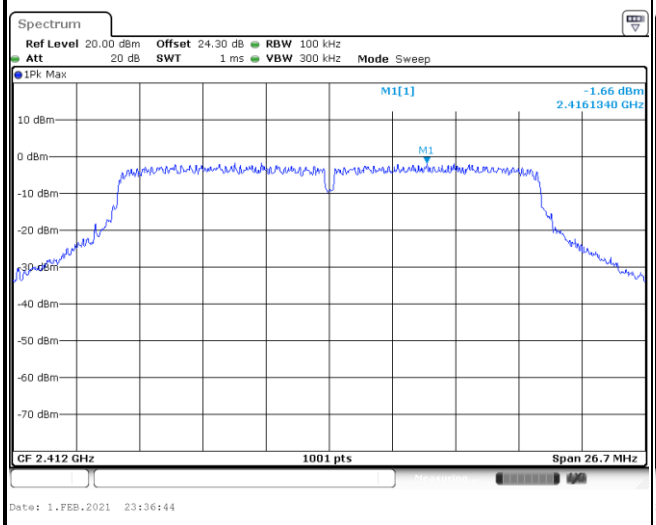
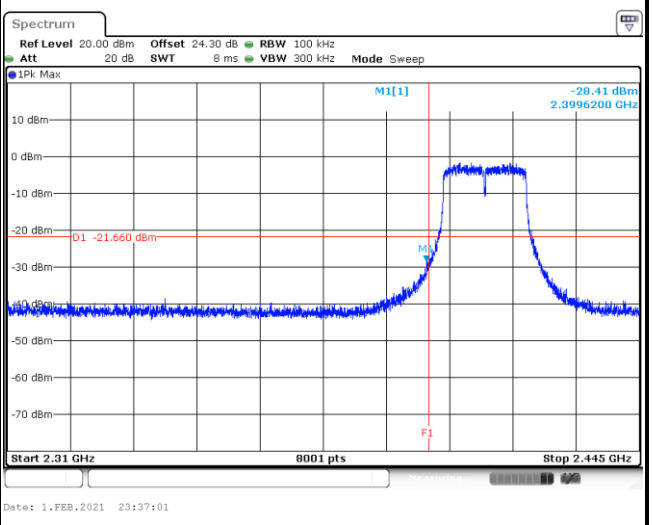
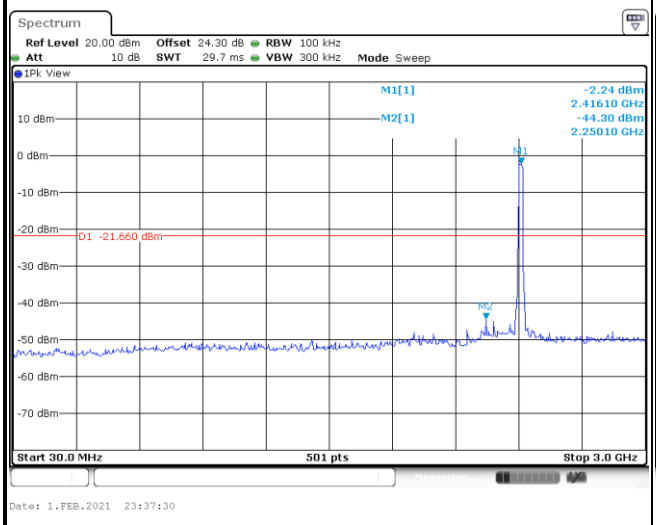
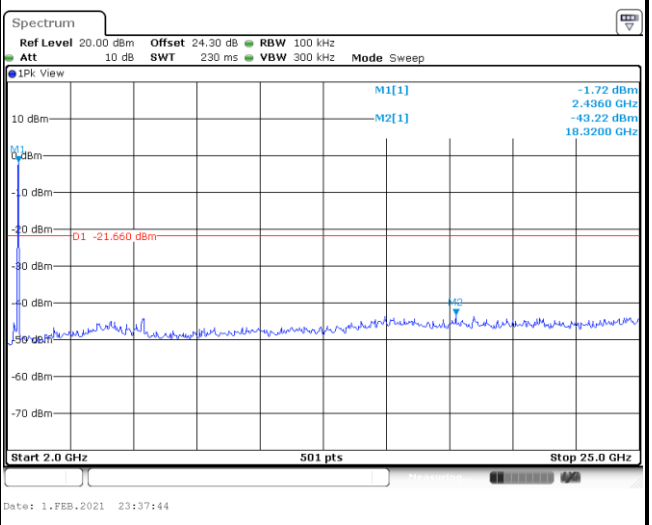
100kHz PSD reference Level	Mid Channel Plot
	

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

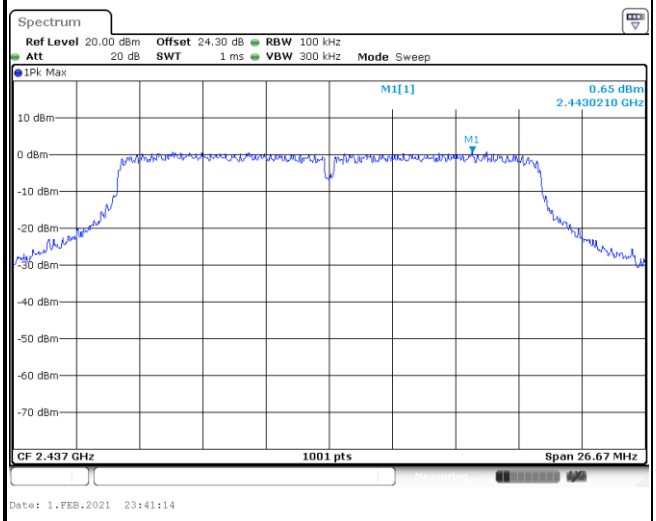
Test Mode :	802.11g	Test Channel :	11

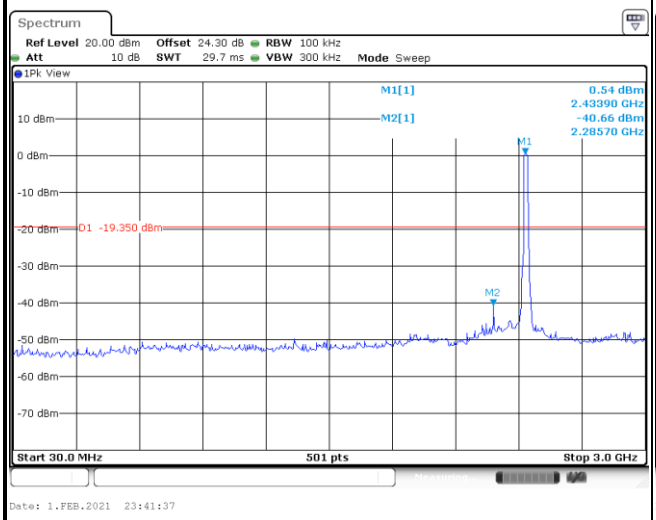
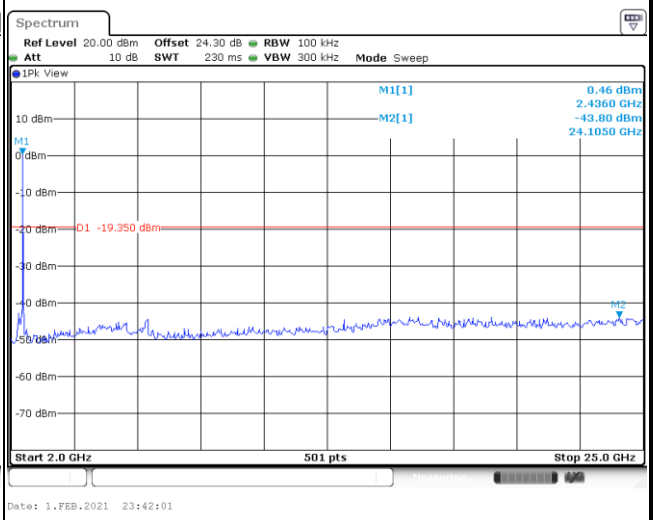
100kHz PSD reference Level	High Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11n HT20	Test Channel :	01

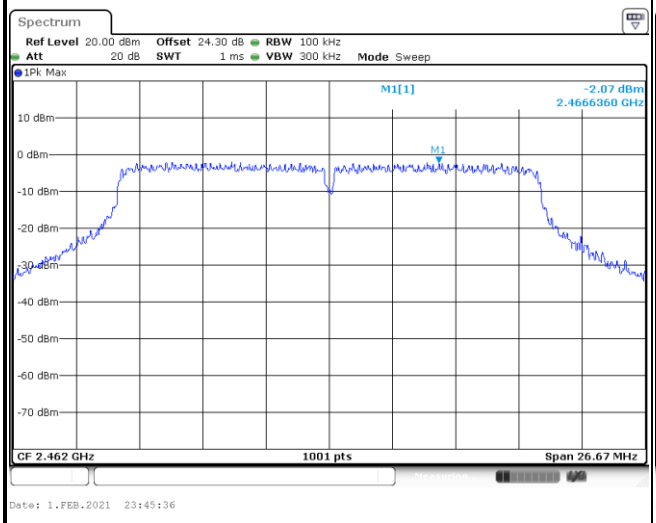
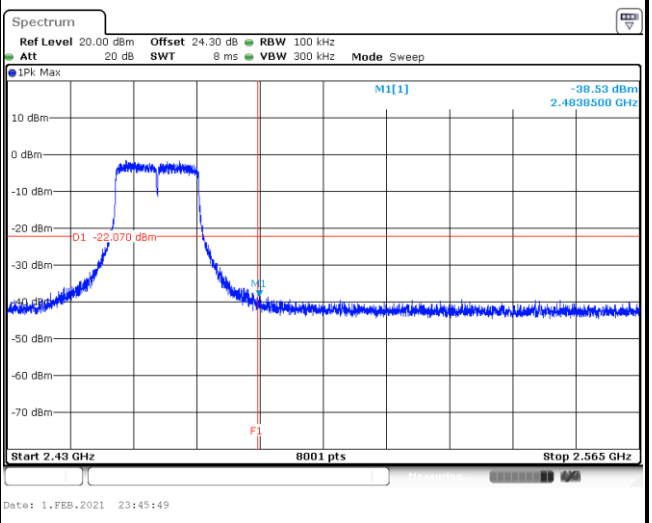
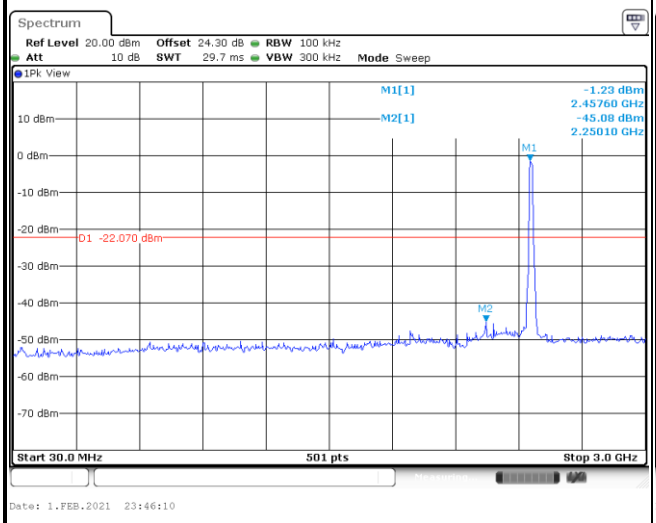
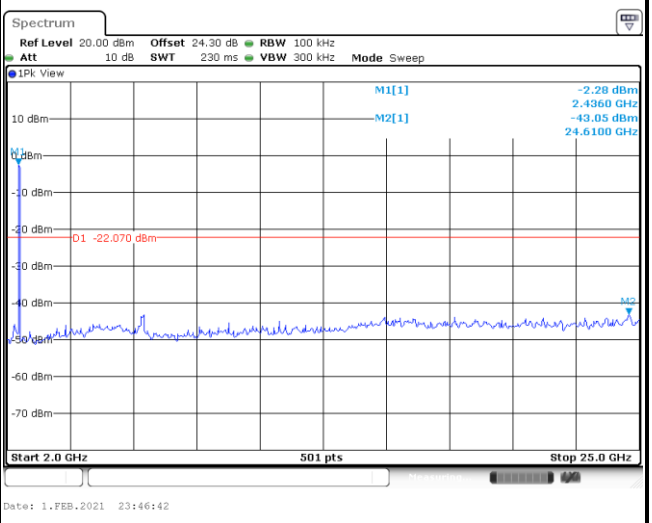
100kHz PSD reference Level	Low Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11n HT20	Test Channel :	06

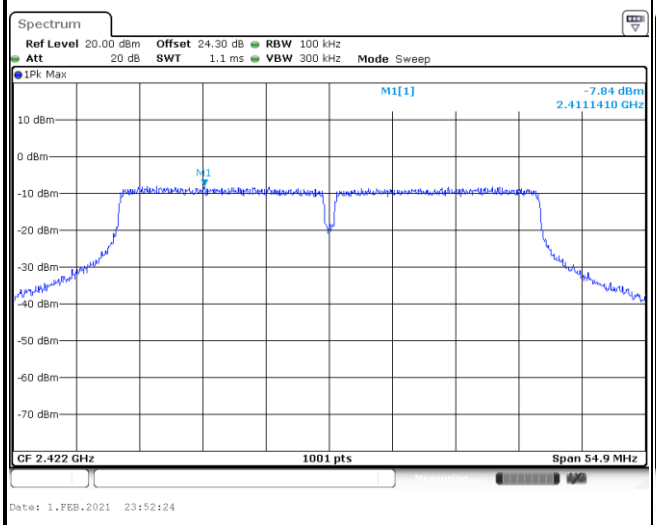
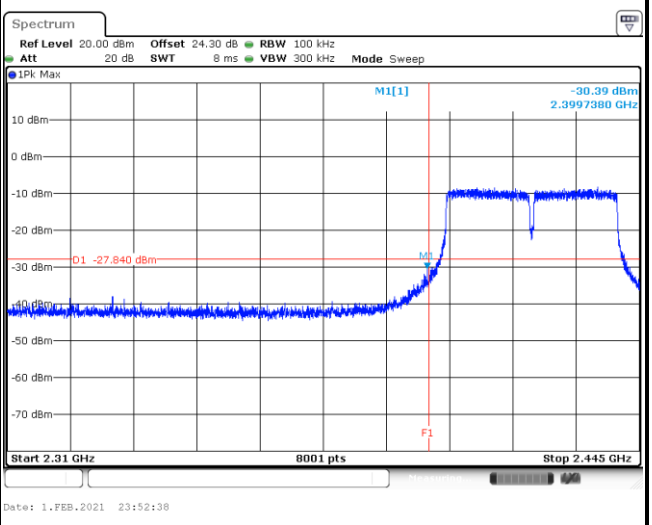
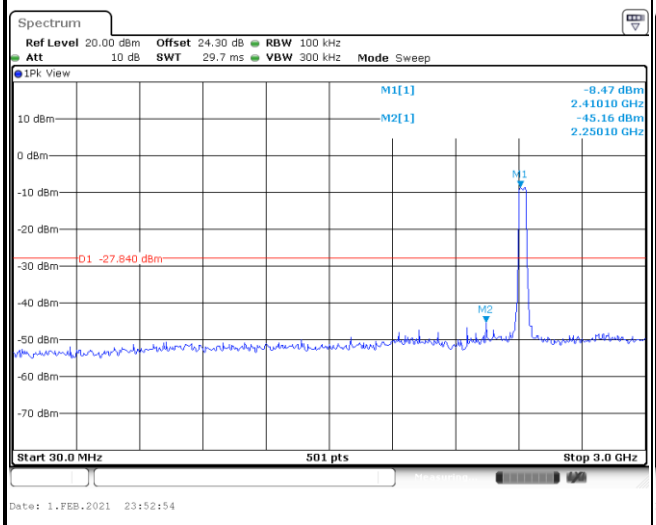
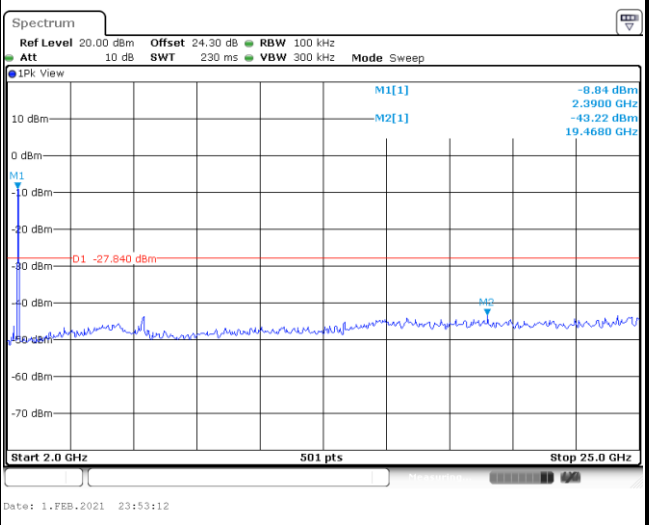
100kHz PSD reference Level	Mid Channel Plot
	

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

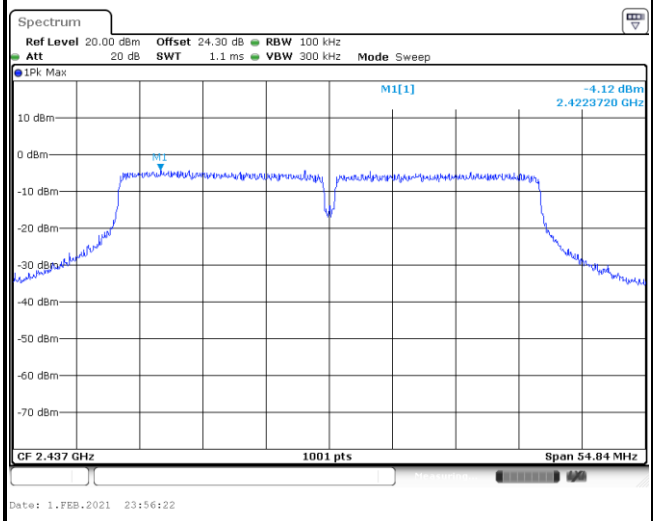
Test Mode :	802.11n HT20	Test Channel :	11

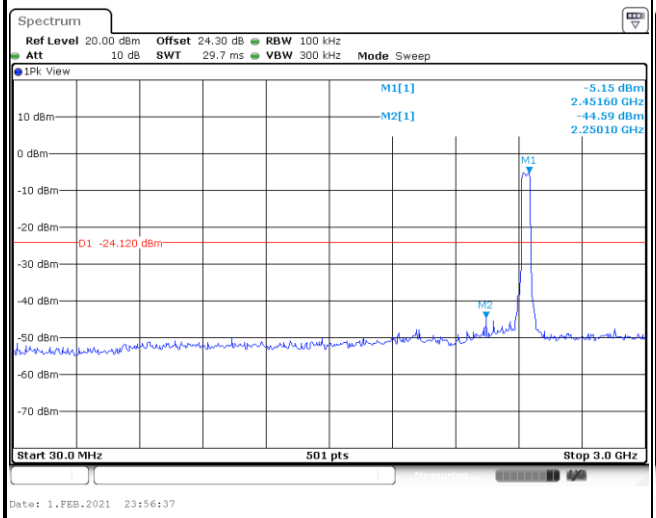
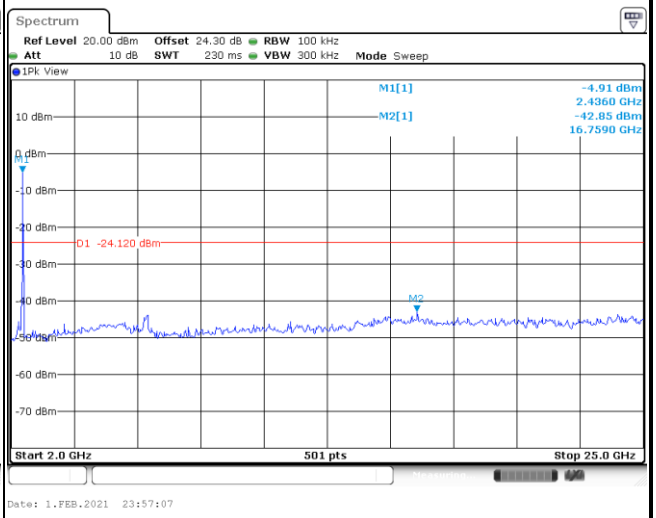
100kHz PSD reference Level	High Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11n HT40	Test Channel :	03

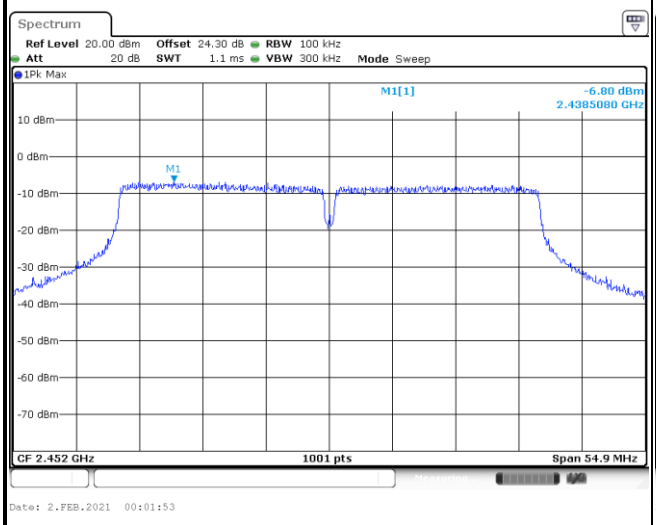
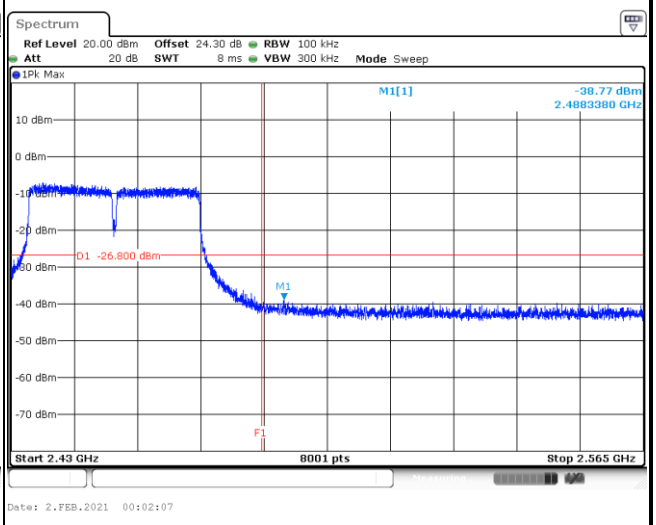
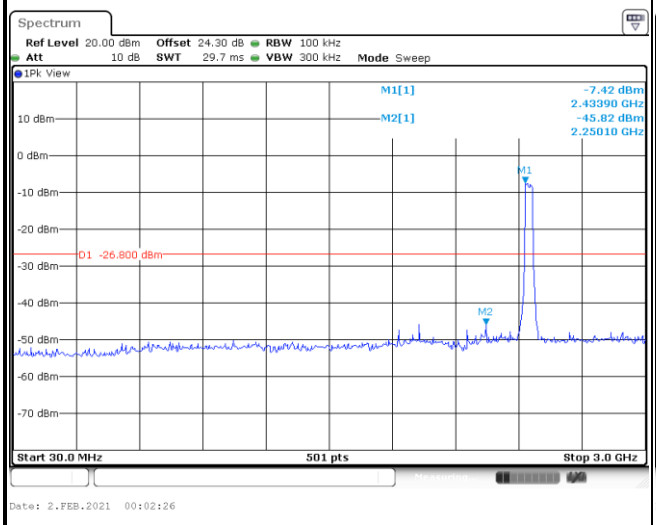
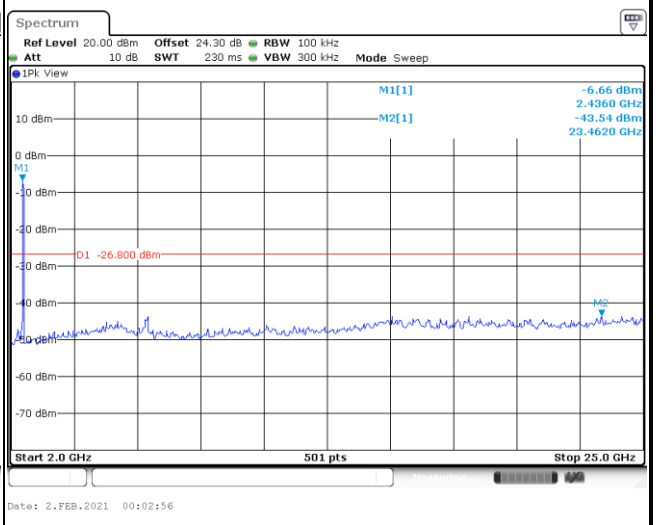
100kHz PSD reference Level	Low Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

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

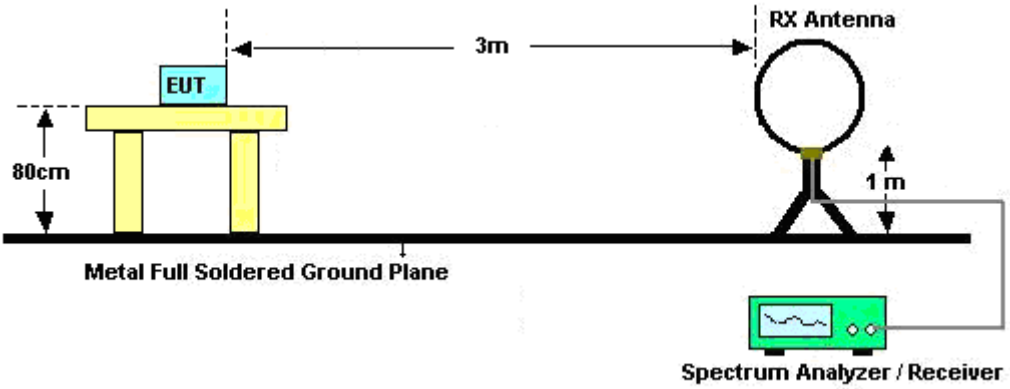
See list of measuring equipment of this test report.

3.5.3 Test Procedures

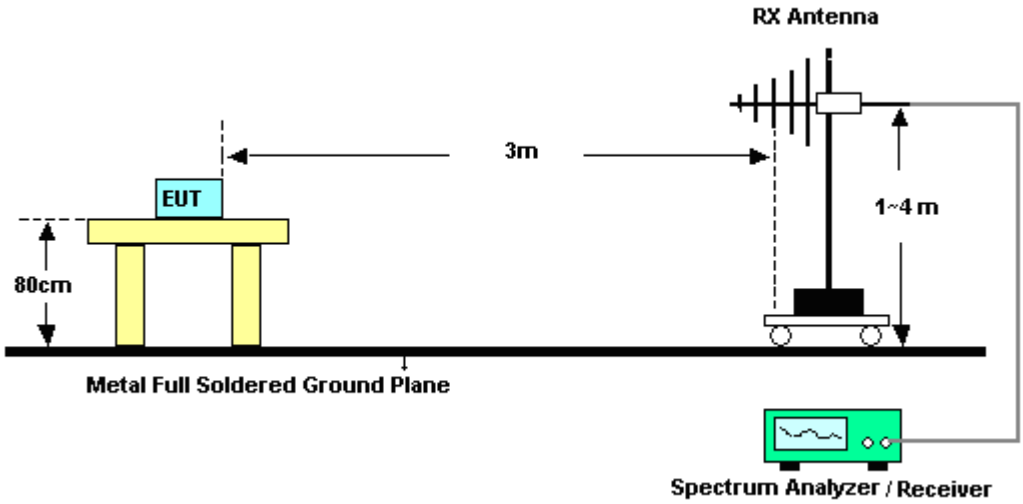
1. The testing follows the ANSI C63.10 Section 11.12.1 Radiated emission measurements.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the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

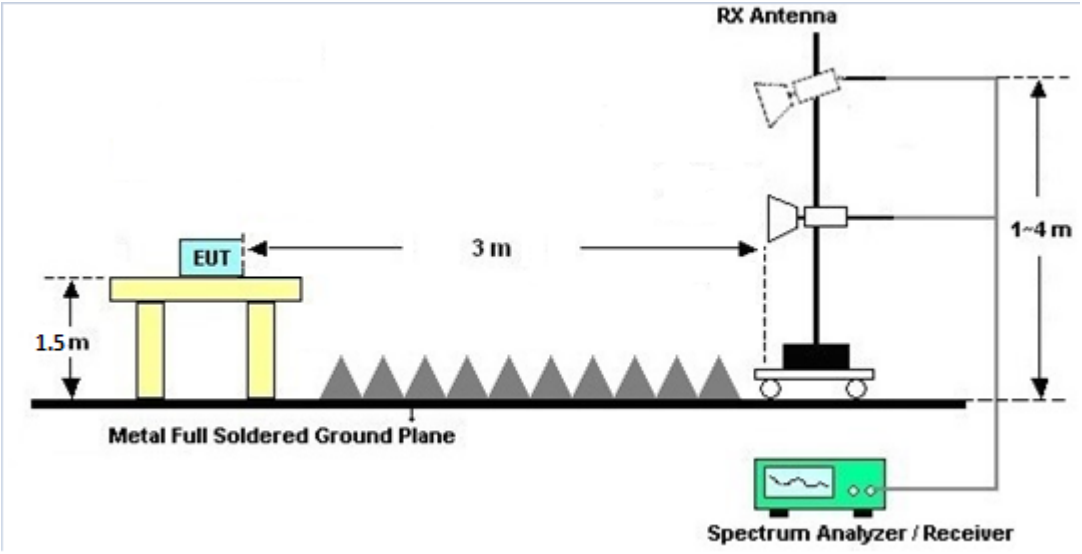
For radiated emissions below 30MHz



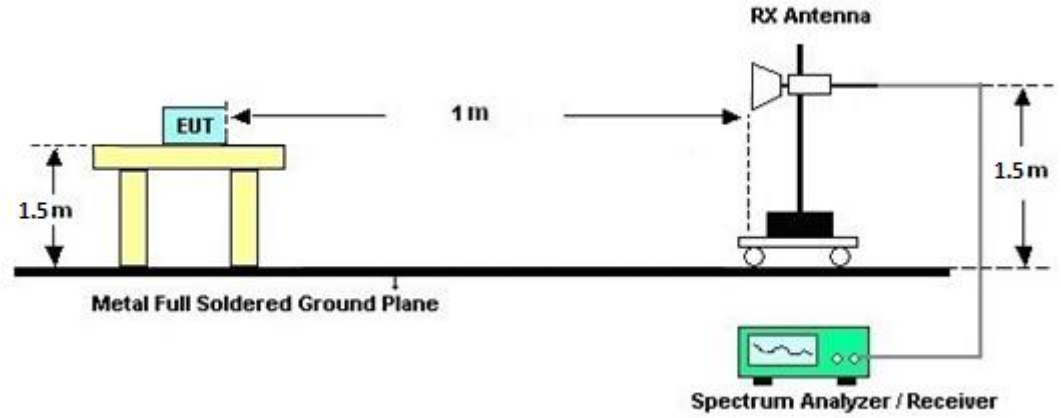
For radiated emissions from 30MHz to 1GHz



For radiated test from 1GHz to 18GHz



For radiated test above 18GHz



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.

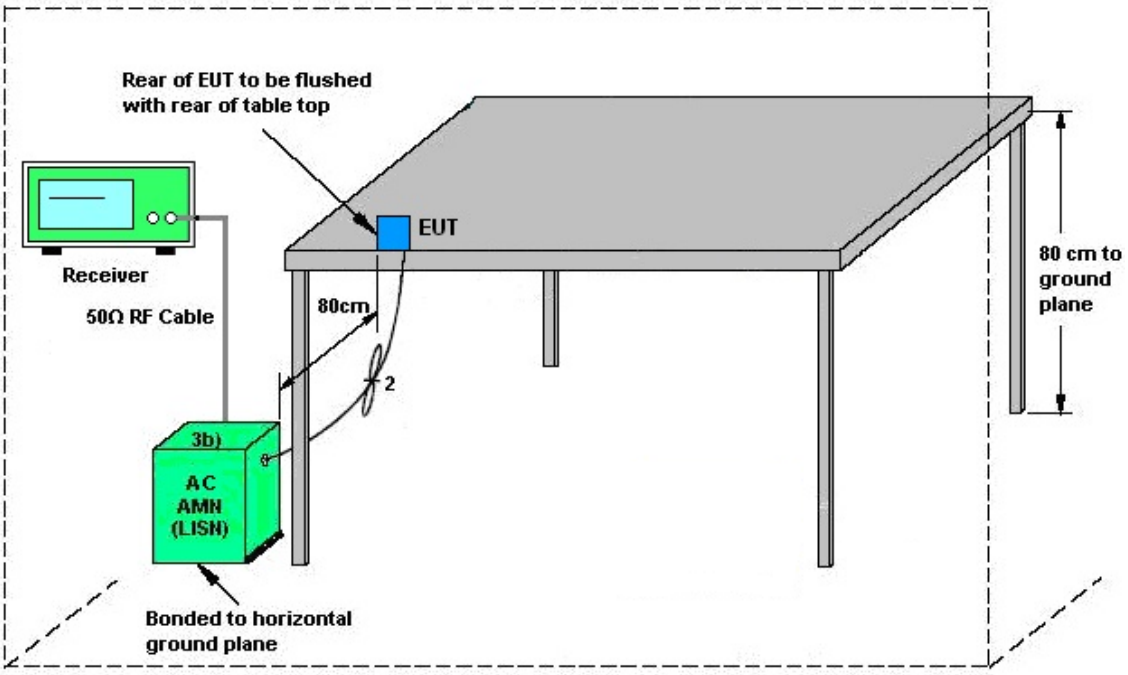
3.6.2 Measuring Instruments

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	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Jul. 14, 2020	Jan. 26, 2021~ Jan. 28, 2021	Jul. 13, 2021	Radiation (03CH16-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00802N1D01N-06	47020 & 06	30MHz to 1GHz	Oct. 11, 2020	Jan. 26, 2021~ Jan. 28, 2021	Oct. 10, 2021	Radiation (03CH16-HY)
Amplifier	SONOMA	310N	371607	9kHz~1G	Sep. 30. 2020	Jan. 26, 2021~ Jan. 28, 2021	Sep. 29. 2021	Radiation (03CH16-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1522	1G~18GHz	Sep. 29, 2020	Jan. 26, 2021~ Jan. 28, 2021	Sep. 28, 2021	Radiation (03CH16-HY)
Amplifier	EMCI	EMC051845SE	980729	1-18GHz	Jul. 10, 2020	Jan. 26, 2021~ Jan. 28, 2021	Jul. 09, 2021	Radiation (03CH16-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170576	18GHz ~40GHz	May 22, 2010	Jan. 26, 2021~ Jan. 28, 2021	May 21, 2021	Radiation (03CH16-HY)
Preamplifier	Keysight	83017A	MY53270264	1GHz~26.5GHz	Dec. 10, 2020	Jan. 26, 2021~ Jan. 28, 2021	Dec. 09, 2021	Radiation (03CH16-HY)
EMI Test Receiver	Keysight	N9038A (MXE)	MY57290111	3Hz~26.5GHz	Dec. 11, 2020	Jan. 26, 2021~ Jan. 28, 2021	Dec. 10, 2021	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY11680/4PE	NA	Aug. 29, 2020	Jan. 26, 2021~ Jan. 28, 2021	Aug. 28, 2021	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY11688/4PE	NA	Aug. 29, 2020	Jan. 26, 2021~ Jan. 28, 2021	Aug. 28, 2021	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	EC-A5-300-5757	NA	Aug. 29, 2020	Jan. 26, 2021~ Jan. 28, 2021	Aug. 28, 2021	Radiation (03CH16-HY)
Software	Audix	E3 6.2009-8-24	RK-001136	N/A	N/A	Jan. 26, 2021~ Jan. 28, 2021	N/A	Radiation (03CH16-HY)
Controller	ChainTek	3000-1	N/A	Control Turn table & Ant Mast	N/A	Jan. 26, 2021~ Jan. 28, 2021	N/A	Radiation (03CH16-HY)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Jan. 26, 2021~ Jan. 28, 2021	N/A	Radiation (03CH16-HY)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Jan. 26, 2021~ Jan. 28, 2021	N/A	Radiation (03CH16-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Feb. 10, 2021~ Feb. 17, 2021	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102388	9kHz~3.6GHz	Nov. 30, 2020	Feb. 10, 2021~ Feb. 17, 2021	Nov. 29, 2021	Conduction (CO05-HY)
Hygrometer	Testo	608-H1	34913912	N/A	Nov. 18, 2020	Feb. 10, 2021~ Feb. 17, 2021	Nov. 17, 2021	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100081	9kHz~30MHz	Nov. 16, 2020	Feb. 10, 2021~ Feb. 17, 2021	Nov. 15, 2021	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32 V10.30	N/A	N/A	N/A	Feb. 10, 2021~ Feb. 17, 2021	N/A	Conduction (CO05-HY)
LISN Cable	MVE	RG-400	260260	N/A	Dec. 31, 2020	Feb. 10, 2021~ Feb. 17, 2021	Dec. 30, 2021	Conduction (CO05-HY)
Pulse Limiter	SCHWARZBECK	ESHVTSD 9561-F N3-Z2	109561-F N003730851	9kHz-200MHz	Nov. 02, 2020	Feb. 10, 2021~ Feb. 17, 2021	Nov. 01, 2021	Conduction (CO05-HY)
Hygrometer	Testo	608-H1	34893241	N/A	Mar. 02. 2020	Jan. 21, 2021~ Feb. 02, 2021	Mar. 01, 2021	Conducted (TH05-HY)
Power Sensor	DARE	RPR3006W	16I00054SNO12	10MHz~6GHz	Dec. 16, 2020	Jan. 21, 2021~ Feb. 02, 2021	Dec. 15, 2021	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101566	10Hz ~ 40GHz	Jul. 22, 2020	Jan. 21, 2021~ Feb. 02, 2021	Jul. 21, 2021	Conducted (TH05-HY)
Switch Box & RF Cable	EM Electronics	EMSW18SE	SW200302	N/A	Mar. 17, 2020	Jan. 21, 2021~ Feb. 02, 2021	Mar. 16, 2021	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))	**2.3**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.5**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**6.3**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.7**

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Ching Chen and Junyu Jhou	Temperature:	24.1~24.7	°C
Test Date:	2021/1/21~2021/2/2	Relative Humidity:	57.5~58.9	%

Report Number : FR111328

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

2.4GHz Band Single Antenna										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Occupied BW (MHz)		6dB BW (MHz)		6dB BW Limit (MHz)	Pass/Fail
					Ant1	Ant2	Ant1	Ant2		
11b	1Mbps	1	1	2412	14.04	-	10.08	-	0.50	Pass
11b	1Mbps	1	6	2437	14.09	-	10.08	-	0.50	Pass
11b	1Mbps	1	11	2462	13.99	-	10.08	-	0.50	Pass
11g	6Mbps	1	1	2412	17.13	-	16.56	-	0.50	Pass
11g	6Mbps	1	6	2437	17.18	-	16.56	-	0.50	Pass
11g	6Mbps	1	11	2462	17.13	-	16.60	-	0.50	Pass
HT20	MCS0	1	1	2412	18.23	-	17.80	-	0.50	Pass
HT20	MCS0	1	6	2437	18.23	-	17.78	-	0.50	Pass
HT20	MCS0	1	11	2462	18.23	-	17.78	-	0.50	Pass
HT40	MCS0	1	3	2422	38.56	-	36.60	-	0.50	Pass
HT40	MCS0	1	6	2437	38.46	-	36.56	-	0.50	Pass
HT40	MCS0	1	9	2452	38.86	-	36.60	-	0.50	Pass

Report Number : FR111328

TEST RESULTS DATA
Peak Output Power

2.4GHz Band Single Antenna																
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
					Ant1	Ant2	SUM	Ant1	Ant2	Ant1	Ant2	Ant1	Ant2	Ant1	Ant2	
11b	1Mbps	1	1	2412	20.76	-		30.00	-	5.33	-	26.09	-	36.00	-	Pass
11b	1Mbps	1	6	2437	22.41	-		30.00	-	5.33	-	27.74	-	36.00	-	Pass
11b	1Mbps	1	11	2462	19.83	-		30.00	-	5.33	-	25.16	-	36.00	-	Pass
11g	6Mbps	1	1	2412	23.68	-		30.00	-	5.33	-	29.01	-	36.00	-	Pass
11g	6Mbps	1	6	2437	24.66	-		30.00	-	5.33	-	29.99	-	36.00	-	Pass
11g	6Mbps	1	11	2462	23.41	-		30.00	-	5.33	-	28.74	-	36.00	-	Pass
HT20	MCS0	1	1	2412	22.42	-		30.00	-	5.33	-	27.75	-	36.00	-	Pass
HT20	MCS0	1	6	2437	24.76	-		30.00	-	5.33	-	30.09	-	36.00	-	Pass
HT20	MCS0	1	11	2462	22.63	-		30.00	-	5.33	-	27.96	-	36.00	-	Pass
HT40	MCS0	1	3	2422	19.38	-		30.00	-	5.33	-	24.71	-	36.00	-	Pass
HT40	MCS0	1	6	2437	22.50	-		30.00	-	5.33	-	27.83	-	36.00	-	Pass
HT40	MCS0	1	9	2452	20.20	-		30.00	-	5.33	-	25.53	-	36.00	-	Pass

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

Report Number : FR111328

TEST RESULTS DATA
Average Output Power

2.4GHz Band Single Antenna																
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power (dBm)			Conducted Power Limit (dBm)		DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)		Pass /Fail
					Ant1	Ant2	SUM	Ant1	Ant2	Ant1	Ant2	Ant1	Ant2	Ant1	Ant2	
11b	1Mbps	1	1	2412	19.10	-		30.00	-	5.33	-	24.43	-	36.00	-	Pass
11b	1Mbps	1	6	2437	20.20	-		30.00	-	5.33	-	25.53	-	36.00	-	Pass
11b	1Mbps	1	11	2462	18.10	-		30.00	-	5.33	-	23.43	-	36.00	-	Pass
11g	6Mbps	1	1	2412	15.10	-		30.00	-	5.33	-	20.43	-	36.00	-	Pass
11g	6Mbps	1	6	2437	15.90	-		30.00	-	5.33	-	21.23	-	36.00	-	Pass
11g	6Mbps	1	11	2462	14.70	-		30.00	-	5.33	-	20.03	-	36.00	-	Pass
HT20	MCS0	1	1	2412	13.60	-		30.00	-	5.33	-	18.93	-	36.00	-	Pass
HT20	MCS0	1	6	2437	15.80	-		30.00	-	5.33	-	21.13	-	36.00	-	Pass
HT20	MCS0	1	11	2462	13.70	-		30.00	-	5.33	-	19.03	-	36.00	-	Pass
HT40	MCS0	1	3	2422	9.80	-		30.00	-	5.33	-	15.13	-	36.00	-	Pass
HT40	MCS0	1	6	2437	13.20	-		30.00	-	5.33	-	18.53	-	36.00	-	Pass
HT40	MCS0	1	9	2452	11.10	-		30.00	-	5.33	-	16.43	-	36.00	-	Pass

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

TEST RESULTS DATA
Peak Power Spectral Density

2.4GHz Band Single Antenna												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak PSD (dBm/3kHz)			DG (dBi)		Peak PSD Limit (dBm/3kHz)		Pass/Fail
					Ant1	Ant2	Worse + 3.01	Ant1	Ant2	Ant1	Ant2	
11b	1Mbps	1	1	2412	-5.04	-		5.33	-	8.00	-	Pass
11b	1Mbps	1	6	2437	-3.11	-		5.33	-	8.00	-	Pass
11b	1Mbps	1	11	2462	-5.65	-		5.33	-	8.00	-	Pass
11g	6Mbps	1	1	2412	-11.58	-		5.33	-	8.00	-	Pass
11g	6Mbps	1	6	2437	-9.37	-		5.33	-	8.00	-	Pass
11g	6Mbps	1	11	2462	-12.17	-		5.33	-	8.00	-	Pass
HT20	MCS0	1	1	2412	-12.91	-		5.33	-	8.00	-	Pass
HT20	MCS0	1	6	2437	-9.77	-		5.33	-	8.00	-	Pass
HT20	MCS0	1	11	2462	-13.30	-		5.33	-	8.00	-	Pass
HT40	MCS0	1	3	2422	-19.66	-		5.33	-	8.00	-	Pass
HT40	MCS0	1	6	2437	-15.66	-		5.33	-	8.00	-	Pass
HT40	MCS0	1	9	2452	-18.04	-		5.33	-	8.00	-	Pass

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

Appendix B. AC Conducted Emission Test Results

Test Engineer :	Tom Lee and Howard Huang	**Temperature :**	23~26℃
		Relative Humidity :	40~50%

Appendix C. Radiated Spurious Emission

Test Engineer :	Karl Hou, Caster Liao, and Andy Yan	Temperature :	20~25°C
		Relative Humidity :	50~60%

2.4GHz 2400~2483.5MHz

WIFI 802.11b (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)
802.11b CH 01 2412MHz		2386.755	59.61	-14.39	74	43.83	27.58	18.48	30.28	368	98	P	H
		2386.44	50.11	-3.89	54	34.34	27.58	18.47	30.28	368	98	A	H
	*	2412	112.44	-	-	96.71	27.48	18.52	30.27	368	98	P	H
	*	2412	109.29	-	-	93.56	27.48	18.52	30.27	368	98	A	H
													H
													H
		2346.015	57.19	-16.81	74	41.27	27.81	18.4	30.29	380	181	P	V
		2386.335	46.37	-7.63	54	30.6	27.58	18.47	30.28	380	181	A	V
	*	2412	103.93	-	-	88.2	27.48	18.52	30.27	380	181	P	V
	*	2412	100.76	-	-	85.03	27.48	18.52	30.27	380	181	A	V
													V
													V
802.11b CH 06 2437MHz		2356.34	62.56	-11.44	74	46.67	27.76	18.42	30.29	113	96	P	H
		2389.94	50.7	-3.3	54	34.94	27.56	18.48	30.28	113	96	A	H
	*	2437	112.15	-	-	96.42	27.43	18.57	30.27	113	96	P	H
	*	2437	109.1	-	-	93.37	27.43	18.57	30.27	113	96	A	H
		2491.6	59.89	-14.11	74	44.06	27.4	18.68	30.25	113	96	P	H
		2483.9	48.9	-5.1	54	33.09	27.4	18.66	30.25	113	96	A	H
		2386.58	56.95	-17.05	74	41.17	27.58	18.48	30.28	302	6	P	V
		2389.94	45.24	-8.76	54	29.48	27.56	18.48	30.28	302	6	A	V
	*	2437	102.59	-	-	86.86	27.43	18.57	30.27	302	6	P	V
	*	2437	99.58	-	-	83.85	27.43	18.57	30.27	302	6	A	V
		2497.27	56.9	-17.1	74	41.06	27.4	18.69	30.25	302	6	P	V
		2486.56	45.36	-8.64	54	29.54	27.4	18.67	30.25	302	6	A	V

802.11b CH 11 2462MHz	*	2462	111.25	-	-	95.49	27.4	18.62	30.26	105	98	P	H
	*	2462	108.08	-	-	92.32	27.4	18.62	30.26	105	98	A	H
		2488.04	60.3	-13.7	74	44.48	27.4	18.67	30.25	105	98	P	H
		2487.84	50.3	-3.7	54	34.48	27.4	18.67	30.25	105	98	A	H
													H
													H
	*	2462	103.44	-	-	87.68	27.4	18.62	30.26	366	180	P	V
	*	2462	100.25	-	-	84.49	27.4	18.62	30.26	366	180	A	V
		2493.76	57.29	-16.71	74	41.46	27.4	18.68	30.25	366	180	P	V
		2487.88	45.08	-8.92	54	29.26	27.4	18.67	30.25	366	180	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. 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)
		2288	61.27	-12.73	74	45.37	27.92	18.29	30.31	361	96	P	H
		2288	50.88	-3.12	54	34.98	27.92	18.29	30.31	361	96	A	H
802.11b		4824	48.01	-25.99	74	58.86	31.15	13.36	55.36	100	0	P	H
CH 01													
2412MHz		4824	51.68	-22.32	74	62.53	31.15	13.36	55.36	102	340	P	V
		4824	49.29	-4.71	54	60.14	31.15	13.36	55.36	102	340	A	V
		2288	61.54	-12.46	74	45.64	27.92	18.29	30.31	100	110	P	H
		2288	52.28	-1.72	54	36.38	27.92	18.29	30.31	100	110	A	H
		4874	48.67	-25.33	74	59.53	31.15	13.36	55.37	100	0	P	H
802.11b		7311	46.19	-27.81	74	49.87	36.42	16.16	56.26	100	0	P	H
CH 06													
2437MHz		4874	53.51	-20.49	74	64.37	31.15	13.36	55.37	100	340	P	V
		4874	51.82	-2.18	54	62.68	31.15	13.36	55.37	100	340	A	V
		7311	46.39	-27.61	74	50.07	36.42	16.16	56.26	100	0	P	V
		2288	60.86	-13.14	74	44.96	27.92	18.29	30.31	361	102	P	H
		2288	50.61	-3.39	54	34.71	27.92	18.29	30.31	361	102	A	H
		4924	49.06	-24.94	74	59.88	31.2	13.36	55.38	100	0	P	H
802.11b		7386	46.28	-27.72	74	49.77	36.43	16.36	56.28	100	0	P	H
CH 11													
2462MHz		4924	52.6	-21.4	74	63.42	31.2	13.36	55.38	110	340	P	V
		4924	51.28	-2.72	54	62.1	31.2	13.36	55.38	110	340	A	V
		7386	46.81	-27.19	74	50.3	36.43	16.36	56.28	100	0	P	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. 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)
802.11g CH 01 2412MHz		2389.695	65.98	-8.02	74	50.22	27.56	18.48	30.28	109	267	P	H
		2390	52.84	-1.16	54	37.08	27.56	18.48	30.28	109	267	A	H
	*	2412	110.17	-	-	94.44	27.48	18.52	30.27	109	267	P	H
	*	2412	102.44	-	-	86.71	27.48	18.52	30.27	109	267	A	H
													H
													H
		2389.905	58.04	-15.96	74	42.28	27.56	18.48	30.28	399	1	P	V
		2390	45.75	-8.25	54	29.99	27.56	18.48	30.28	399	1	A	V
	*	2412	99.98	-	-	84.25	27.48	18.52	30.27	399	1	P	V
	*	2412	92.37	-	-	76.64	27.48	18.52	30.27	399	1	A	V
													V
													V
802.11g CH 06 2437MHz		2384.2	61.63	-12.37	74	45.85	27.59	18.47	30.28	111	98	P	H
		2389.94	51.49	-2.51	54	35.73	27.56	18.48	30.28	111	98	A	H
	*	2437	111.41	-	-	95.68	27.43	18.57	30.27	111	98	P	H
	*	2437	103.78	-	-	88.05	27.43	18.57	30.27	111	98	A	H
		2495.52	60.06	-13.94	74	44.22	27.4	18.69	30.25	111	98	P	H
		2483.5	49.33	-4.67	54	33.52	27.4	18.66	30.25	111	98	A	H
		2388.26	57.47	-16.53	74	41.7	27.57	18.48	30.28	361	177	P	V
		2319.94	45.59	-8.41	54	29.68	27.86	18.35	30.3	361	177	A	V
	*	2437	102.79	-	-	87.06	27.43	18.57	30.27	361	177	P	V
	*	2437	94.86	-	-	79.13	27.43	18.57	30.27	361	177	A	V
		2492.16	57.57	-16.43	74	41.74	27.4	18.68	30.25	361	177	P	V
		2484.04	45.21	-8.79	54	29.4	27.4	18.66	30.25	361	177	A	V

802.11g CH 11 2462MHz	*	2462	110.25	-	-	94.49	27.4	18.62	30.26	351	263	P	H
	*	2462	102.59	-	-	86.83	27.4	18.62	30.26	351	263	A	H
		2483.68	67.15	-6.85	74	51.34	27.4	18.66	30.25	351	263	P	H
		2483.52	52.63	-1.37	54	36.82	27.4	18.66	30.25	351	263	A	H
													H
													H
	*	2462	100.8	-	-	85.04	27.4	18.62	30.26	400	183	P	V
	*	2462	93.05	-	-	77.29	27.4	18.62	30.26	400	183	A	V
		2483.64	56.61	-17.39	74	40.8	27.4	18.66	30.25	400	183	P	V
		2483.52	45.87	-8.13	54	30.06	27.4	18.66	30.25	400	183	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. 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)
802.11g CH 01 2412MHz		4824	41.82	-32.18	74	52.67	31.15	13.36	55.36	100	0	P	H
													H
		4824	42.37	-31.63	74	53.22	31.15	13.36	55.36	100	0	P	V
802.11g CH 06 2437MHz		2288	62.14	-11.86	74	46.24	27.92	18.29	30.31	100	100	P	H
		2288	52.72	-1.28	54	36.82	27.92	18.29	30.31	100	100	A	H
		4874	41.72	-32.28	74	52.58	31.15	13.36	55.37	100	0	P	H
		7311	45.65	-28.35	74	49.33	36.42	16.16	56.26	100	0	P	H
		4874	45.34	-28.66	74	56.2	31.15	13.36	55.37	100	0	P	V
		7311	45.02	-28.98	74	48.7	36.42	16.16	56.26	100	0	P	V
802.11g CH 11 2462MHz		4924	42.24	-31.76	74	53.06	31.2	13.36	55.38	100	0	P	H
		7386	45.35	-28.65	74	48.84	36.43	16.36	56.28	100	0	P	H
		4924	43.3	-30.7	74	54.12	31.2	13.36	55.38	100	0	P	V
		7386	45.84	-28.16	74	49.33	36.43	16.36	56.28	100	0	P	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)
		2388.015	65.45	-8.55	74	49.68	27.57	18.48	30.28	110	258	P	H
		2390	52.98	-1.02	54	37.22	27.56	18.48	30.28	110	258	A	H
	*	2412	108.13	-	-	92.4	27.48	18.52	30.27	110	258	P	H
	*	2412	100.4	-	-	84.67	27.48	18.52	30.27	110	258	A	H
802.11n													H
HT20													H
CH 01		2389.695	58.58	-15.42	74	42.82	27.56	18.48	30.28	378	185	P	V
2412MHz		2390	47.58	-6.42	54	31.82	27.56	18.48	30.28	378	185	A	V
	*	2412	99.7	-	-	83.97	27.48	18.52	30.27	378	185	P	V
	*	2412	92.08	-	-	76.35	27.48	18.52	30.27	378	185	A	V
													V
													V
		2389.38	61.91	-12.09	74	46.15	27.56	18.48	30.28	110	255	P	H
		2389.8	51.23	-2.77	54	35.47	27.56	18.48	30.28	110	255	A	H
	*	2437	111.04	-	-	95.31	27.43	18.57	30.27	110	255	P	H
	*	2437	103.32	-	-	87.59	27.43	18.57	30.27	110	255	A	H
802.11n		2497.27	60.05	-13.95	74	44.21	27.4	18.69	30.25	110	255	P	H
HT20		2499.02	48.63	-5.37	54	32.79	27.4	18.69	30.25	110	255	A	H
CH 06		2348.78	57.6	-16.4	74	41.68	27.8	18.41	30.29	361	187	P	V
2437MHz		2319.94	45.46	-8.54	54	29.55	27.86	18.35	30.3	361	187	A	V
	*	2437	102.26	-	-	86.53	27.43	18.57	30.27	361	187	P	V
	*	2437	94.35	-	-	78.62	27.43	18.57	30.27	361	187	A	V
		2490.62	56.65	-17.35	74	40.82	27.4	18.68	30.25	361	187	P	V
		2485.72	45.07	-8.93	54	29.25	27.4	18.67	30.25	361	187	A	V

	*	2462	108.86	-	-	93.1	27.4	18.62	30.26	351	263	P	H
	*	2462	101.33	-	-	85.57	27.4	18.62	30.26	351	263	A	H
		2483.6	66.16	-7.84	74	50.35	27.4	18.66	30.25	351	263	P	H
		2483.52	52.9	-1.1	54	37.09	27.4	18.66	30.25	351	263	A	H
802.11n													H
HT20													H
CH 11	*	2462	99.76	-	-	84	27.4	18.62	30.26	353	170	P	V
2462MHz	*	2462	92.01	-	-	76.25	27.4	18.62	30.26	353	170	A	V
		2483.72	57.65	-16.35	74	41.84	27.4	18.66	30.25	353	170	P	V
		2483.52	47	-7	54	31.19	27.4	18.66	30.25	353	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 802.11n HT20 (Harmonic @ 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)
		4824	41.82	-32.18	74	52.67	31.15	13.36	55.36	100	0	P	H
802.11n													
HT20													
CH 01		4824	42.37	-31.63	74	53.22	31.15	13.36	55.36	100	0	P	V
2412MHz													
		2288	61.96	-12.04	74	46.06	27.92	18.29	30.31	100	99	P	H
		2288	52.83	-1.17	54	36.93	27.92	18.29	30.31	100	99	A	H
		4874	42.24	-31.76	74	53.1	31.15	13.36	55.37	100	0	P	H
802.11n		7311	45.61	-28.39	74	49.29	36.42	16.16	56.26	100	0	P	H
HT20													
CH 06													
2437MHz		4874	43.81	-30.19	74	54.67	31.15	13.36	55.37	100	0	P	V
		7311	45.3	-28.7	74	48.98	36.42	16.16	56.26	100	0	P	V
		4924	41.52	-32.48	74	52.34	31.2	13.36	55.38	100	0	P	H
		7386	45.62	-28.38	74	49.11	36.43	16.36	56.28	100	0	P	H
802.11n													
HT20													
CH 11		4924	43.59	-30.41	74	54.41	31.2	13.36	55.38	100	0	P	V
2462MHz		7386	45.42	-28.58	74	48.91	36.43	16.36	56.28	100	0	P	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. 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)
		2389.94	65.24	-8.76	74	49.48	27.56	18.48	30.28	110	99	P	H
		2389.94	52.73	-1.27	54	36.97	27.56	18.48	30.28	110	99	A	H
	*	2422	103	-	-	87.27	27.46	18.54	30.27	110	99	P	H
	*	2422	94.71	-	-	78.98	27.46	18.54	30.27	110	99	A	H
802.11n		2493.77	58.36	-15.64	74	42.53	27.4	18.68	30.25	110	99	P	H
HT40		2496.92	45.92	-8.08	54	30.08	27.4	18.69	30.25	110	99	A	H
CH 03		2388.68	59.37	-14.63	74	43.6	27.57	18.48	30.28	378	190	P	V
2422MHz		2389.94	46.89	-7.11	54	31.13	27.56	18.48	30.28	378	190	A	V
	*	2422	93.21	-	-	77.48	27.46	18.54	30.27	378	190	P	V
	*	2422	85.47	-	-	69.74	27.46	18.54	30.27	378	190	A	V
		2486.91	56.34	-17.66	74	40.52	27.4	18.67	30.25	378	190	P	V
		2497.83	44.46	-9.54	54	28.62	27.4	18.69	30.25	378	190	A	V
		2388.82	66.95	-7.05	74	51.18	27.57	18.48	30.28	116	98	P	H
		2389.94	52.75	-1.25	54	36.99	27.56	18.48	30.28	116	98	A	H
	*	2437	105.33	-	-	89.6	27.43	18.57	30.27	116	98	P	H
	*	2437	97.67	-	-	81.94	27.43	18.57	30.27	116	98	A	H
802.11n		2486.77	60.62	-13.38	74	44.8	27.4	18.67	30.25	116	98	P	H
HT40		2483.5	49.9	-4.1	54	34.09	27.4	18.66	30.25	116	98	A	H
CH 06		2325.4	57.41	-16.59	74	41.5	27.85	18.36	30.3	400	187	P	V
2437MHz		2359.98	45.29	-8.71	54	29.41	27.74	18.43	30.29	400	187	A	V
	*	2437	96.39	-	-	80.66	27.43	18.57	30.27	400	187	P	V
	*	2437	88.26	-	-	72.53	27.43	18.57	30.27	400	187	A	V
		2483.48	57.73	-92.27	150	41.92	27.4	18.66	30.25	400	187	P	V
		2484.32	44.86	-9.14	54	29.05	27.4	18.66	30.25	400	187	A	V

		2389.38	58.08	-15.92	74	42.32	27.56	18.48	30.28	108	100	P	H
		2375.1	46.74	-7.26	54	30.92	27.65	18.45	30.28	108	100	A	H
	*	2452	102.6	-	-	86.86	27.4	18.6	30.26	108	100	P	H
	*	2452	94.91	-	-	79.17	27.4	18.6	30.26	108	100	A	H
802.11n		2484.04	65.25	-8.75	74	49.44	27.4	18.66	30.25	108	100	P	H
HT40		2483.5	52.58	-1.42	54	36.77	27.4	18.66	30.25	108	100	A	H
CH 09		2328.06	56.45	-17.55	74	40.54	27.84	18.37	30.3	361	170	P	V
2452MHz		2319.94	44.91	-9.09	54	29	27.86	18.35	30.3	361	170	A	V
	*	2452	94.5	-	-	78.76	27.4	18.6	30.26	361	170	P	V
	*	2452	86.36	-	-	70.62	27.4	18.6	30.26	361	170	A	V
		2491.25	57.51	-16.49	74	41.68	27.4	18.68	30.25	361	170	P	V
		2483.5	45.98	-8.02	54	30.17	27.4	18.66	30.25	361	170	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. 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)
		4844	40.67	-33.33	74	51.49	31.19	13.36	55.37	100	0	P	H
		7266	45.1	-28.9	74	49.04	36.26	16.05	56.25	100	0	P	H
802.11n													
HT40													
CH 03		4844	40.5	-33.5	74	51.32	31.19	13.36	55.37	100	0	P	V
2422MHz		7266	45.81	-28.19	74	49.75	36.26	16.05	56.25	100	0	P	V
		4874	40.55	-33.45	74	51.41	31.15	13.36	55.37	100	0	P	H
		7311	45.58	-28.42	74	49.26	36.42	16.16	56.26	100	0	P	H
802.11n													
HT40													
CH 06		4874	41.24	-32.76	74	52.1	31.15	13.36	55.37	100	0	P	V
2437MHz		7311	46.18	-27.82	74	49.86	36.42	16.16	56.26	100	0	P	V
		4904	40.4	-33.6	74	51.3	31.12	13.36	55.38	100	0	P	H
		7356	45.75	-28.25	74	49.25	36.49	16.28	56.27	100	0	P	H
802.11n													
HT40													
CH 09		4904	40.8	-33.2	74	51.7	31.12	13.36	55.38	100	0	P	V
2452MHz		7356	45.83	-28.17	74	49.33	36.49	16.28	56.27	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Emission above 18GHz

2.4GHz WIFI 802.11n HT20 (SHF)

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)
		20366	39.9	-34.1	74	44.31	37.95	11.22	53.58	150	0	P	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
2.4GHz													H
802.11n													H
HT20		22494	41.16	-32.84	74	43.67	38.69	12.3	53.5	150	0	P	V
SHF													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V

Remark

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

Emission below 1GHz

2.4GHz WIFI 802.11n HT20 (LF)

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)
		117.3	28.69	-14.81	43.5	42.19	17.45	1.7	32.65	-	-	P	H
		235.64	39.95	-6.05	46	53.3	16.85	2.58	32.78	110	158	Q	H
		450.01	31.6	-14.4	46	37.3	23.23	3.59	32.52	-	-	P	H
		674.08	32.68	-13.32	46	34.19	26.49	4.47	32.47	-	-	P	H
		836.07	31.47	-14.53	46	30.24	28.89	5.04	32.7	-	-	P	H
		913.67	34.98	-11.02	46	32.35	29.5	5.34	32.21	-	-	P	H
													H
													H
													H
													H
2.4GHz													H
802.11n													H
HT20		77.53	27.69	-12.31	40	45.84	13.25	1.31	32.71	-	-	P	V
LF		238.55	32.25	-13.75	46	45.26	17.17	2.59	32.77	-	-	P	V
		450.01	28.49	-17.51	46	34.19	23.23	3.59	32.52	-	-	P	V
		589.69	27.73	-18.27	46	30.5	25.72	4.18	32.67	-	-	P	V
		713.85	34.14	-11.86	46	35.06	26.92	4.62	32.46	-	-	P	V
		903.97	36.56	-9.44	46	34.35	29.26	5.31	32.36	100	0	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

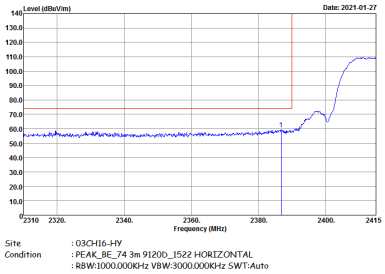
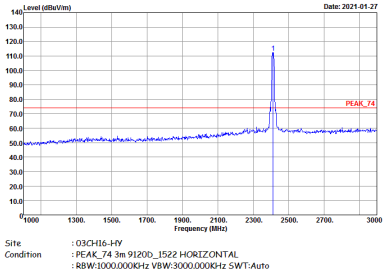
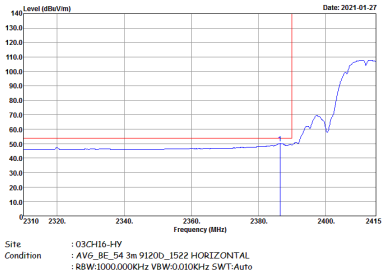
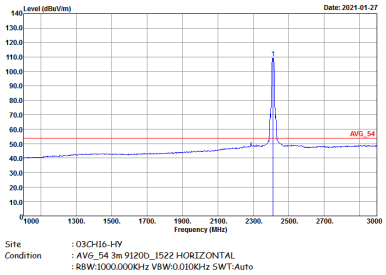
Test Engineer :	Karl Hou, Caster Liao, and Andy Yan	**Temperature :**	20~25°C
		Relative Humidity :	50~60%

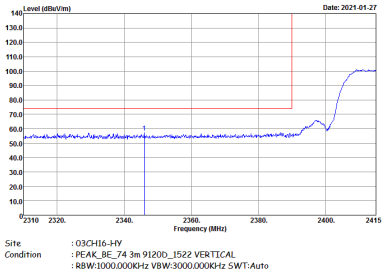
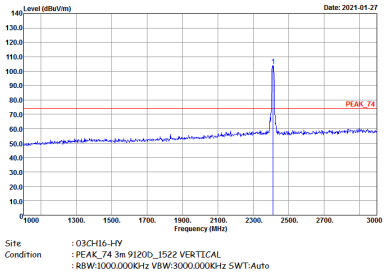
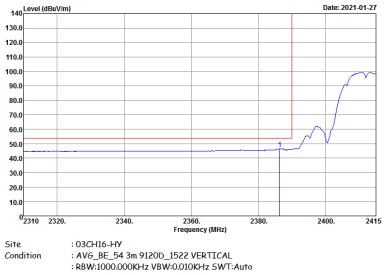
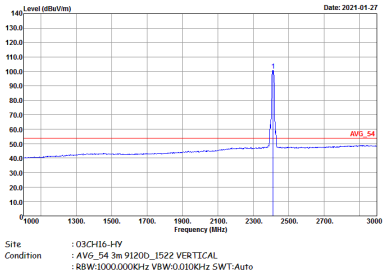
Note symbol

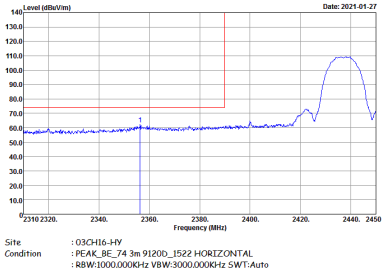
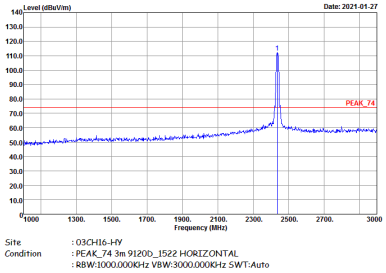
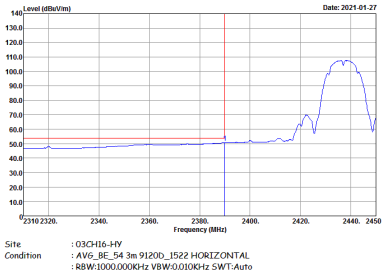
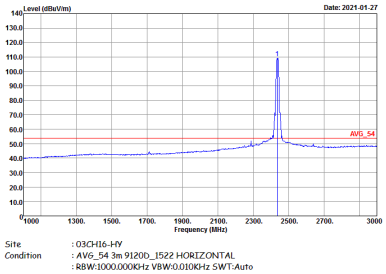
-L	**Low channel location**
-R	**High channel location**

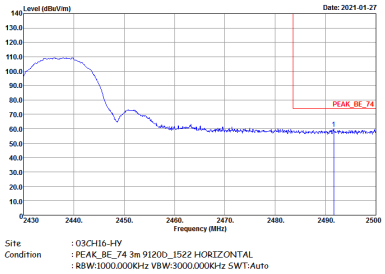
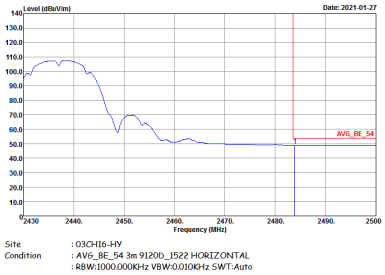
2.4GHz 2400~2483.5MHz

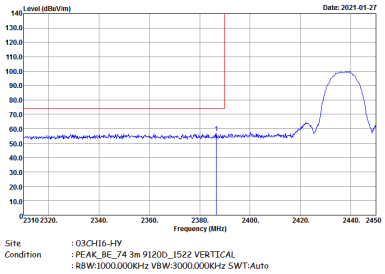
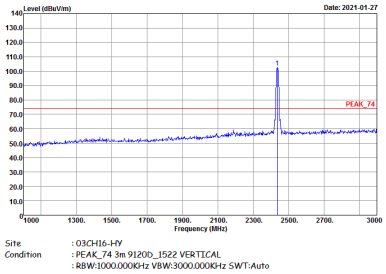
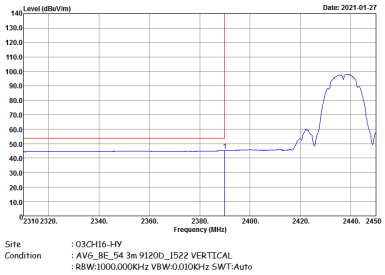
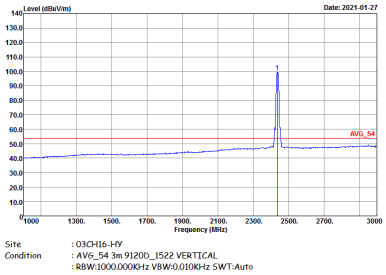
WIFI 802.11b (Band Edge @ 3m)

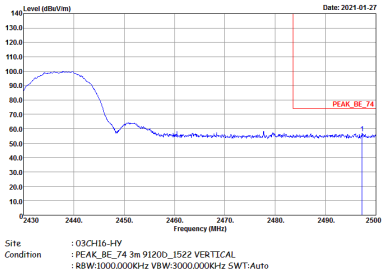
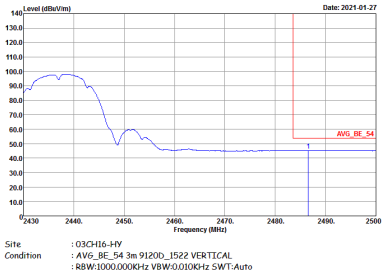
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

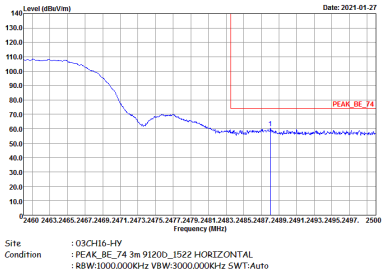
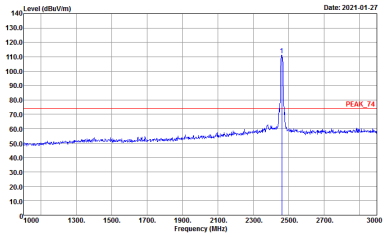
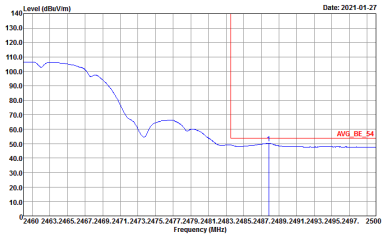
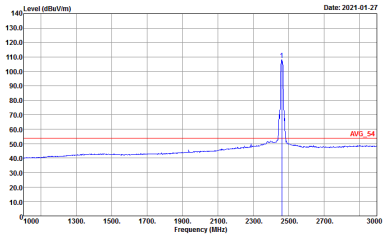
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
1	Vertical	Fundamental
Peak		
Avg.		

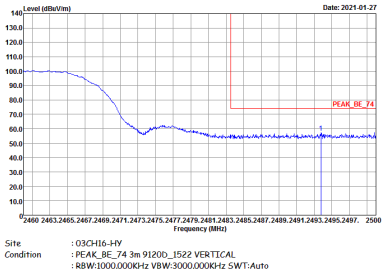
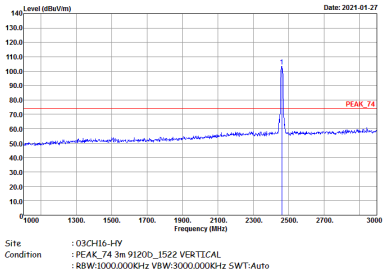
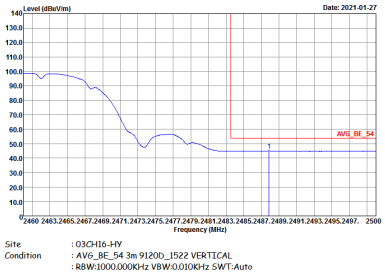
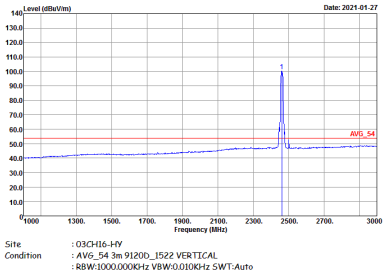
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		

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

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

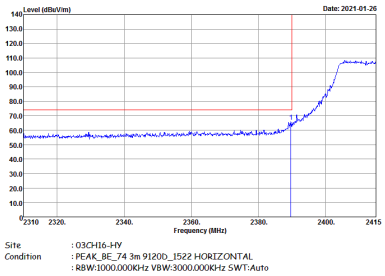
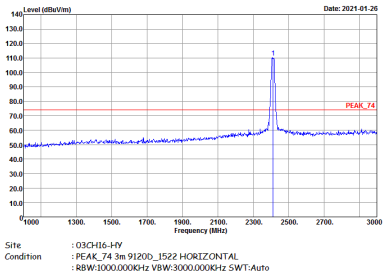
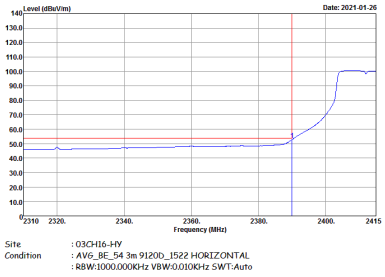
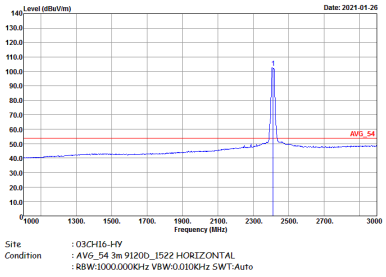
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

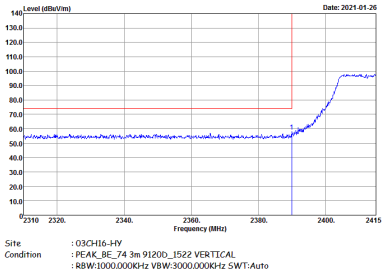
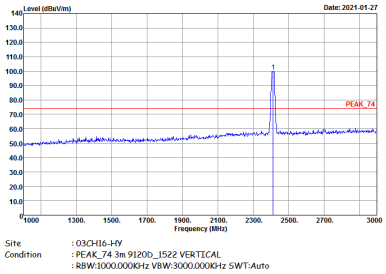
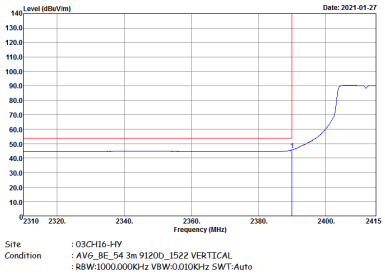
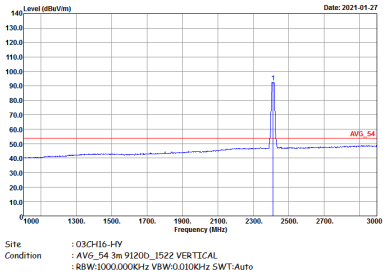
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 9120D_1522 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH16-HY Condition : PEAK_74 3m 9120D_1522 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH16-HY Condition : AVG_BE_54 3m 9120D_1522 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CH16-HY Condition : AVG_54 3m 9120D_1522 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto

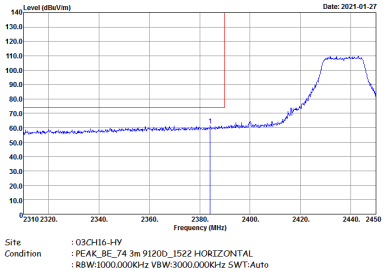
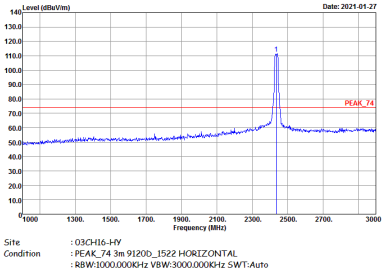
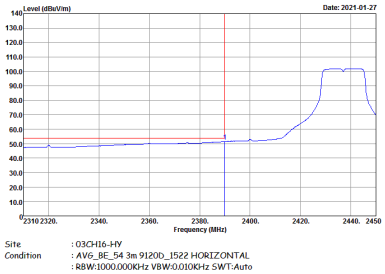
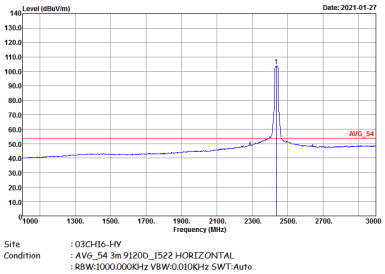
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH16-HY Condition : PEAK_74 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH16-HY Condition : AVG_BE_54 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CH16-HY Condition : AVG_54 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto

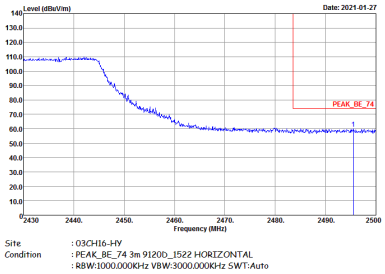
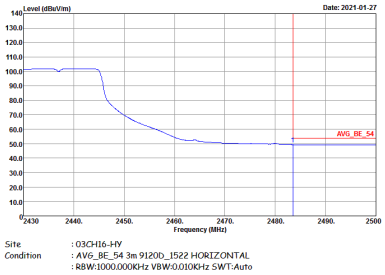
2.4GHz 2400~2483.5MHz

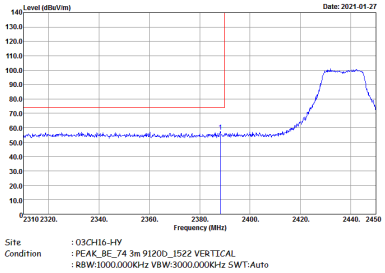
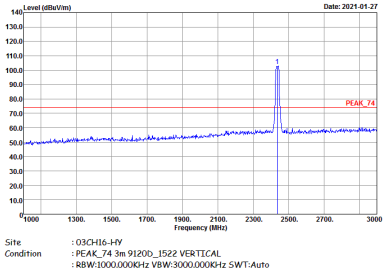
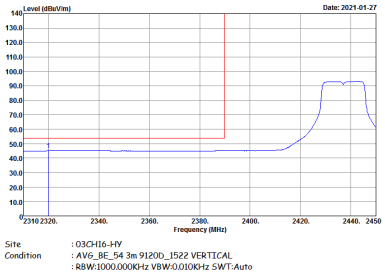
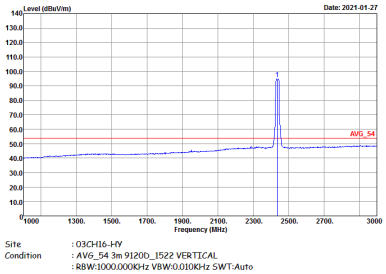
WIFI 802.11g (Band Edge @ 3m)

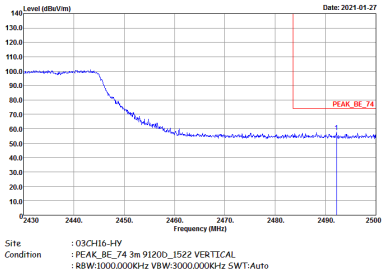
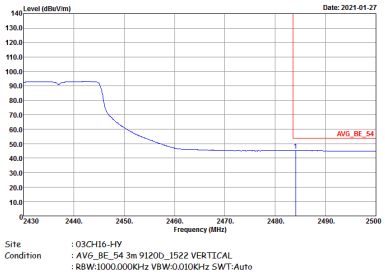
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

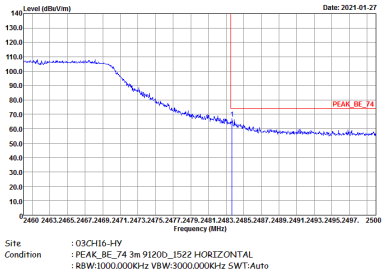
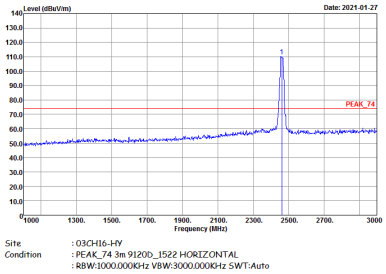
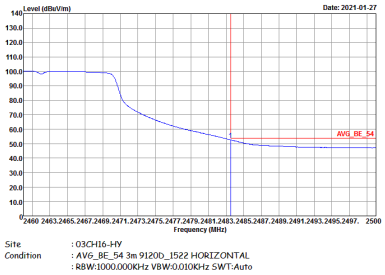
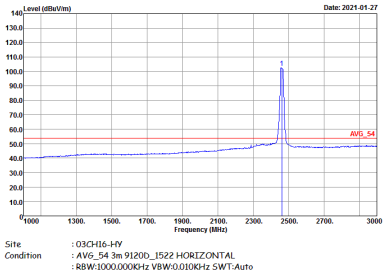
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
1	Vertical	Fundamental
Peak		
Avg.		

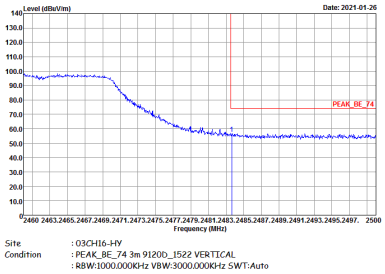
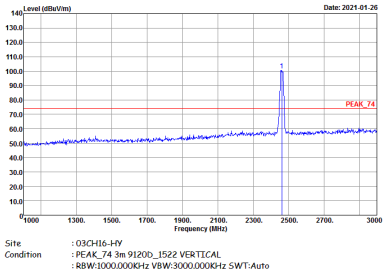
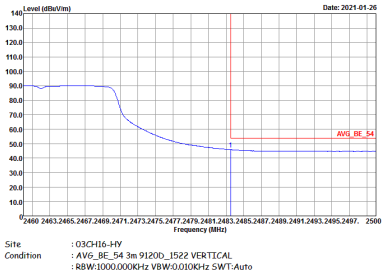
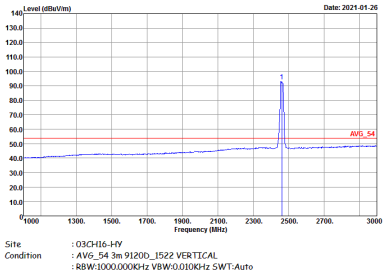
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 9120D_1522 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH16-HY Condition : PEAK_74 3m 9120D_1522 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH16-HY Condition : AVG_BE_54 3m 9120D_1522 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CH16-HY Condition : AVG_54 3m 9120D_1522 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto

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

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

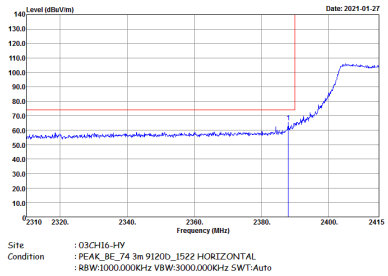
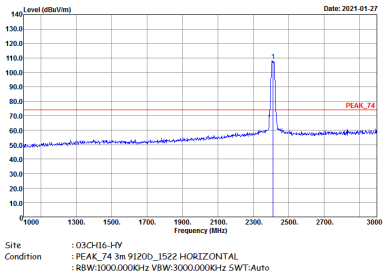
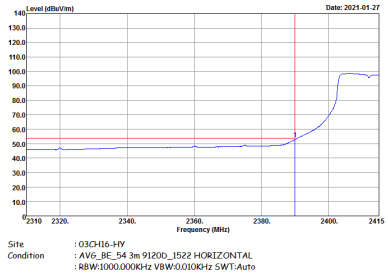
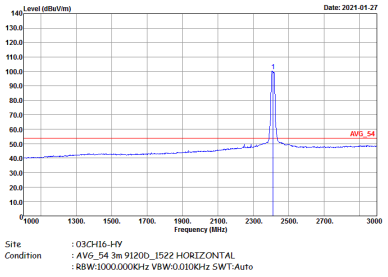
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - R	
1	Vertical	Fundamental
Peak		Left Blank
Avg.		Left Blank

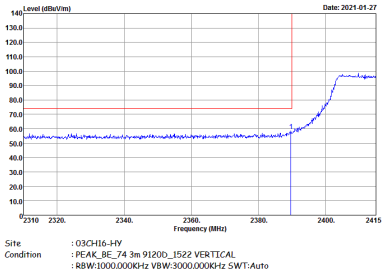
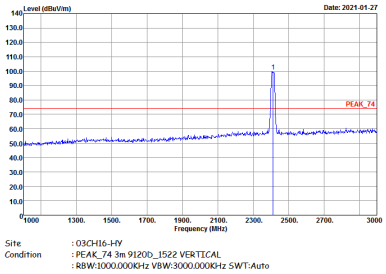
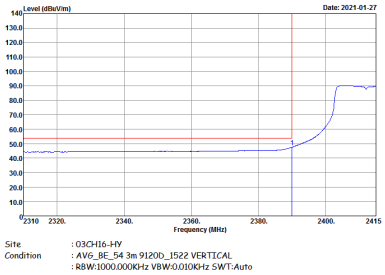
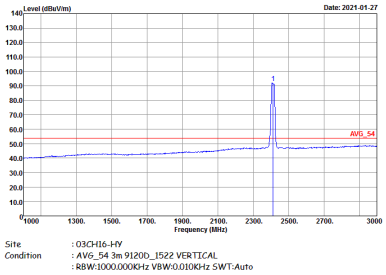
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 9120D_1522 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH16-HY Condition : PEAK_74 3m 9120D_1522 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH16-HY Condition : AVG_BE_54 3m 9120D_1522 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CH16-HY Condition : AVG_54 3m 9120D_1522 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto

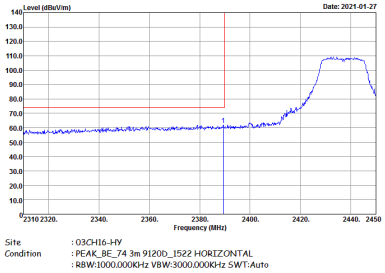
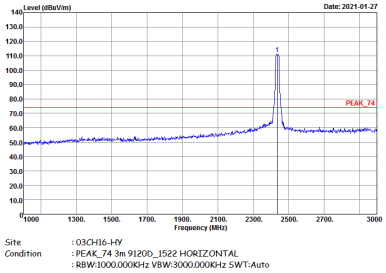
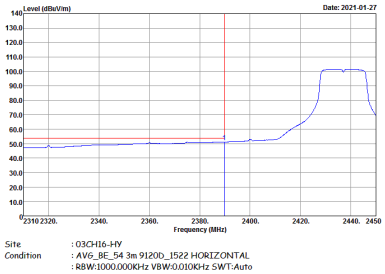
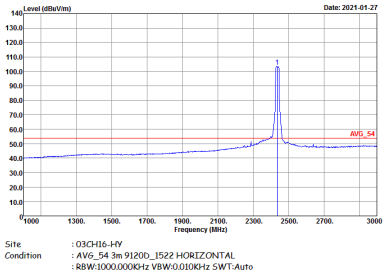
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz	
1	Vertical	Fundamental
Peak		
Avg.		

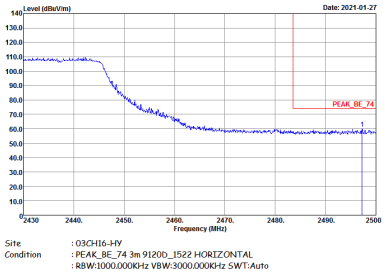
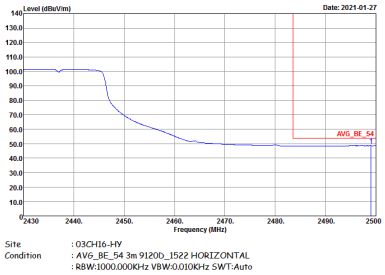
2.4GHz 2400~2483.5MHz

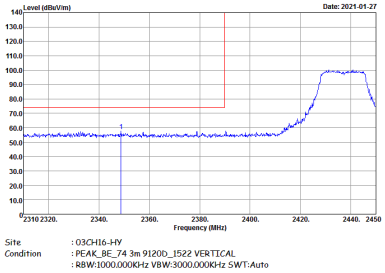
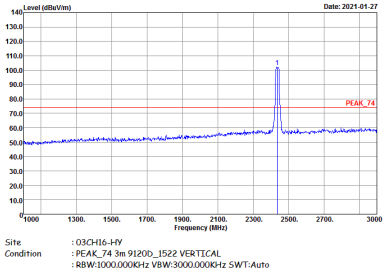
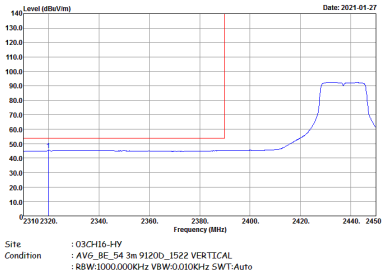
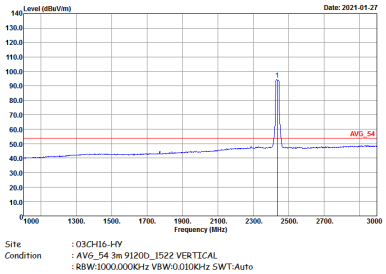
WIFI 802.11n HT20 (Band Edge @ 3m)

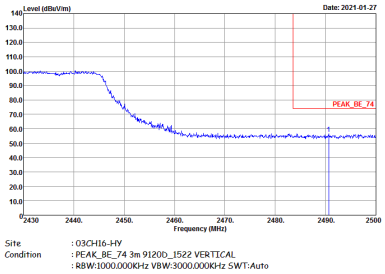
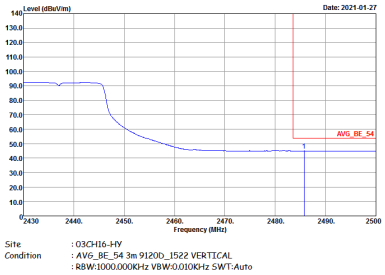
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

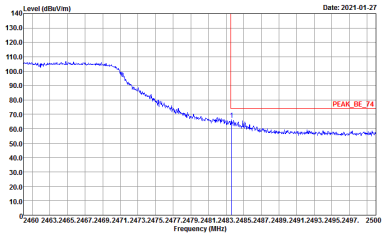
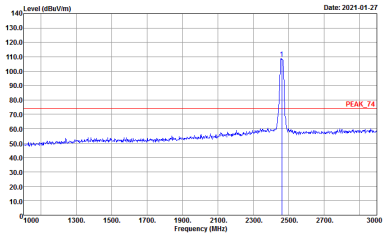
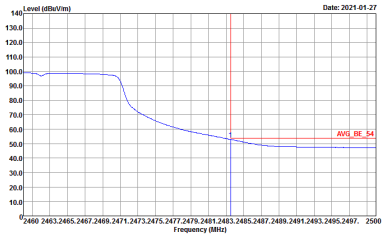
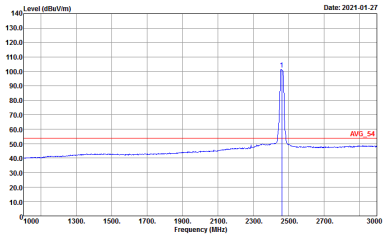
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
1	Vertical	Fundamental
Peak		
Avg.		

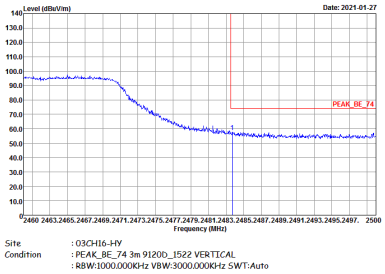
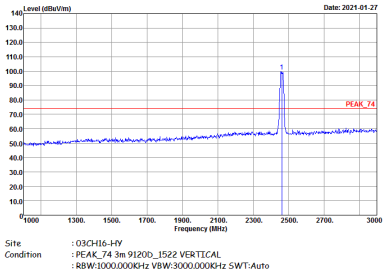
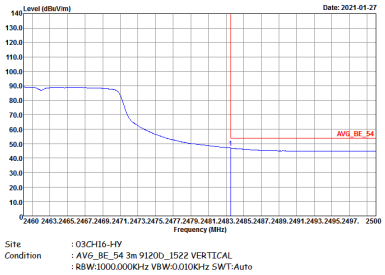
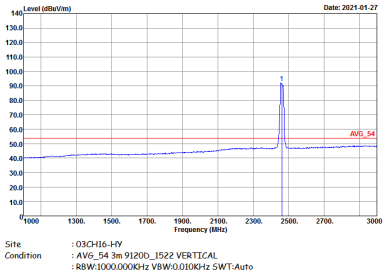
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		

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

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

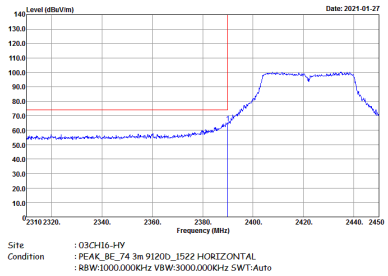
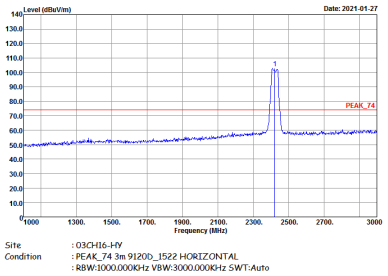
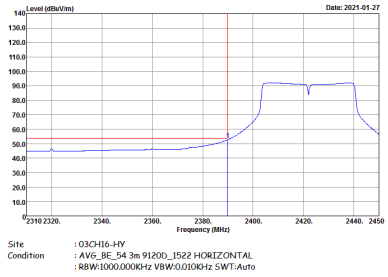
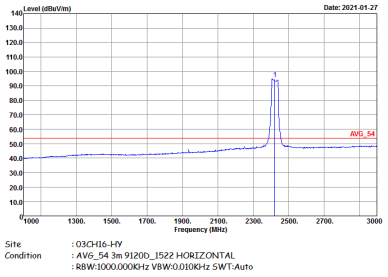
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - R	
1	Vertical	Fundamental
Peak		Left Blank
Avg.		Left Blank

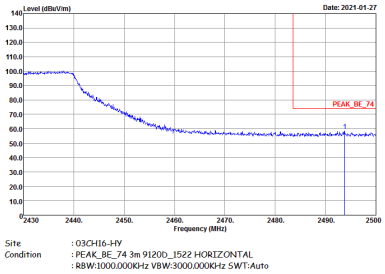
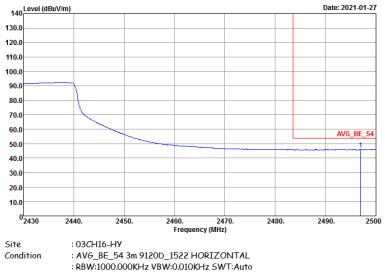
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 9120D_1522 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH16-HY Condition : PEAK_74 3m 9120D_1522 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH16-HY Condition : AVG_BE_54 3m 9120D_1522 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CH16-HY Condition : AVG_54 3m 9120D_1522 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto

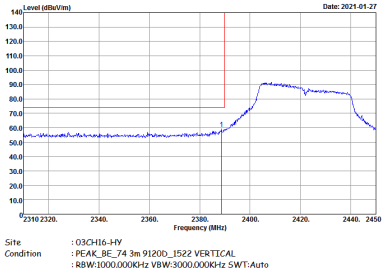
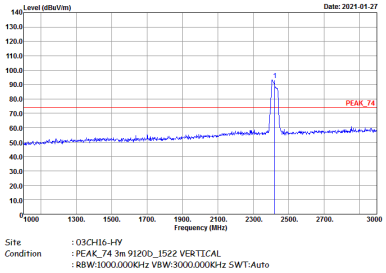
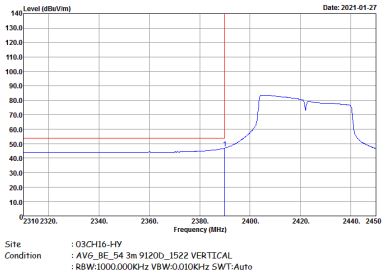
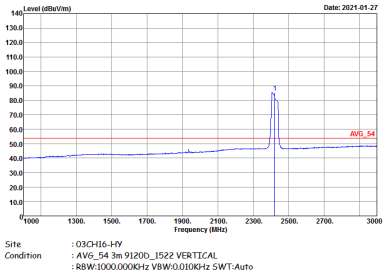
WIFI	2.4GHz 2400~2483.5MHz Fundamental @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH16-HV Condition : PEAK_BE_74 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH16-HV Condition : PEAK_74 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH16-HV Condition : AVG_BE_54 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CH16-HV Condition : AVG_54 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto

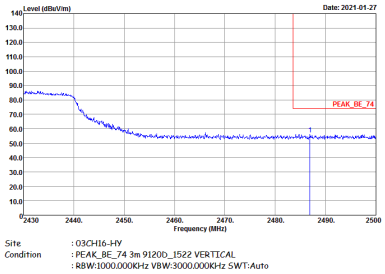
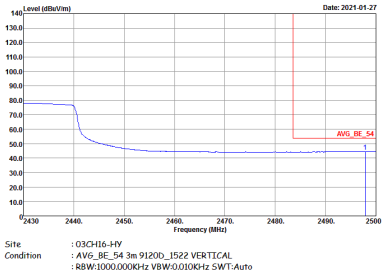
2.4GHz 2400~2483.5MHz

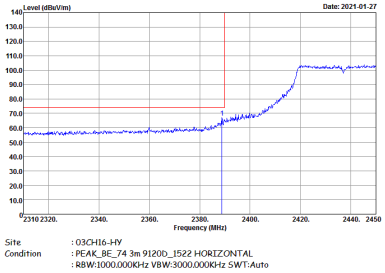
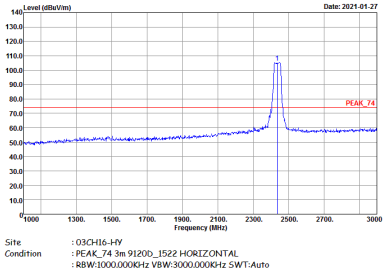
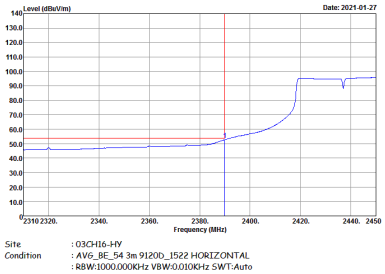
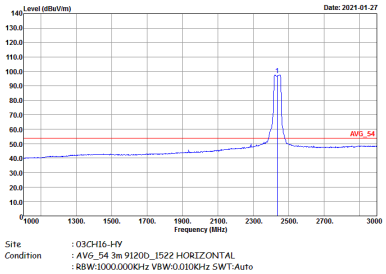
WIFI 802.11n HT40 (Band Edge @ 3m)

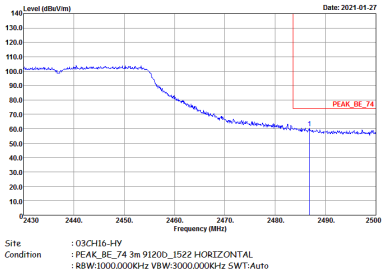
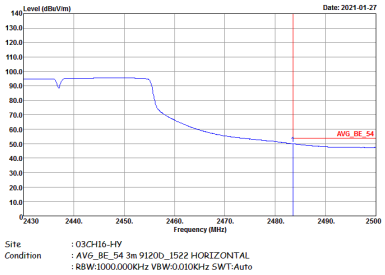
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH03 2422MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		

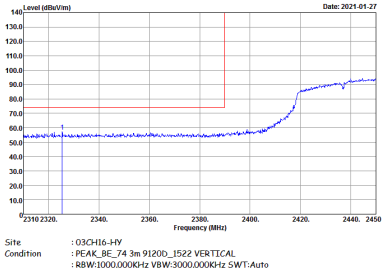
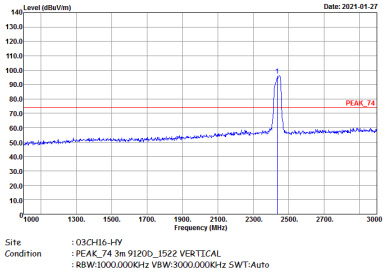
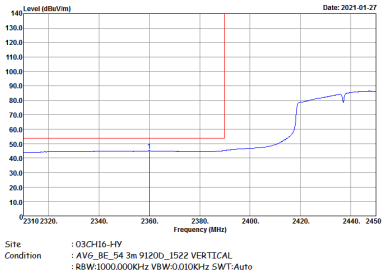
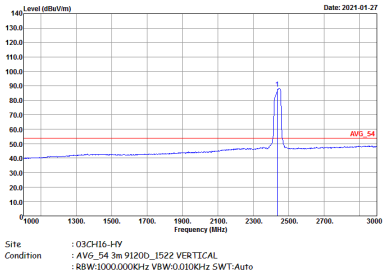
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH03 2422MHz - R	
1	Horizontal	Fundamental
Peak		Left Blank
Avg.		Left Blank

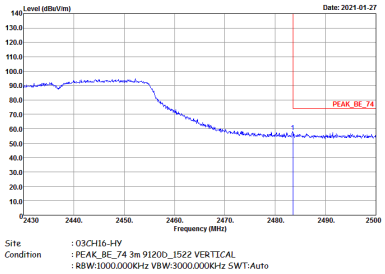
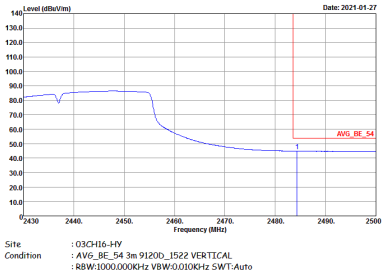
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH03 2422MHz - L	
1	Vertical	Fundamental
Peak	 Site : 03CH16-HV Condition : PEAK_BE_74 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH16-HV Condition : PEAK_74 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH16-HV Condition : AVG_BE_54 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CH16-HV Condition : AVG_54 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto

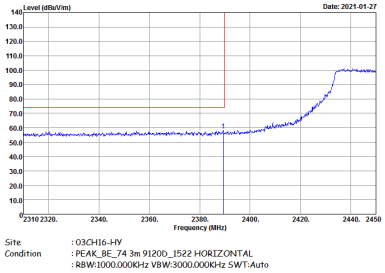
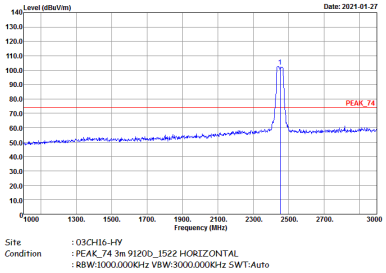
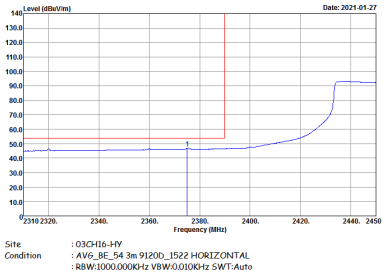
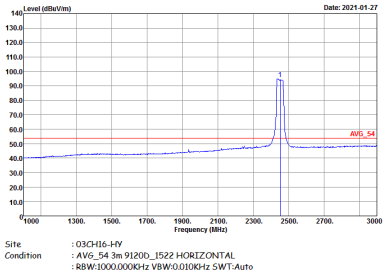
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH03 2422MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

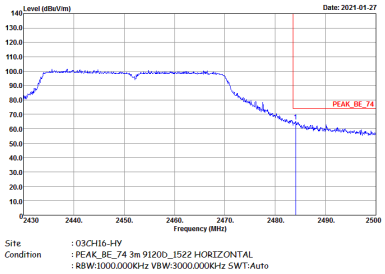
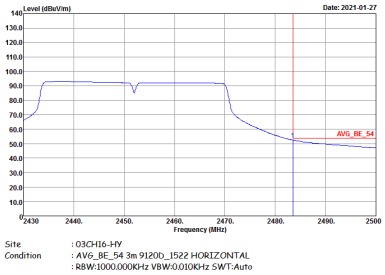
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		

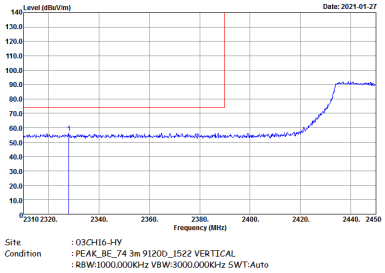
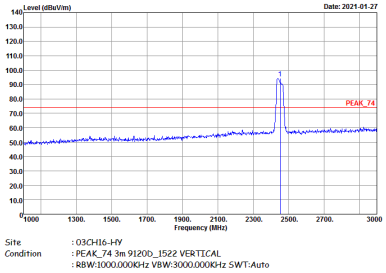
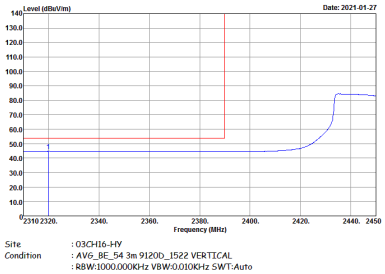
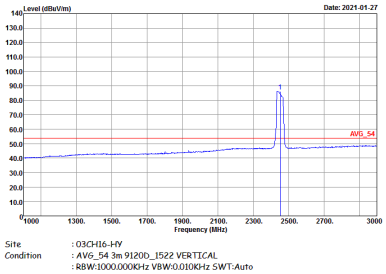
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH06 2437MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

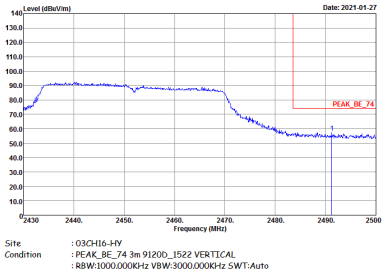
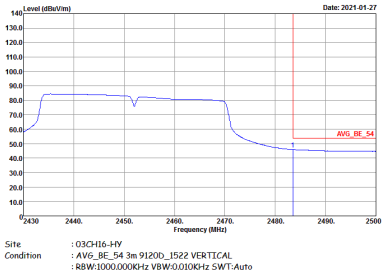
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH06 2437MHz - L	
1	Vertical	Fundamental
Peak	 Site : 03CH16-HV Condition : PEAK_BE_74 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH16-HV Condition : PEAK_74 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH16-HV Condition : AVG_BE_54 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CH16-HV Condition : AVG_54 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto

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

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

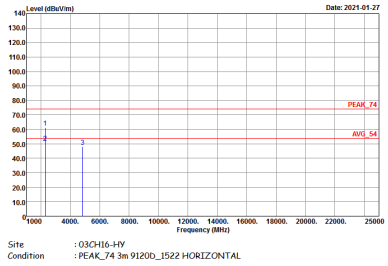
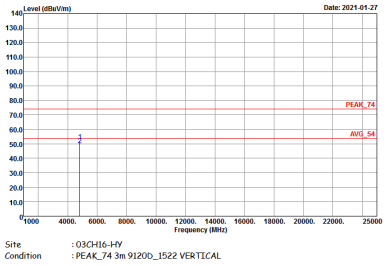
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH09 2452MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

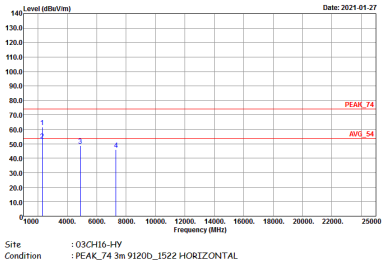
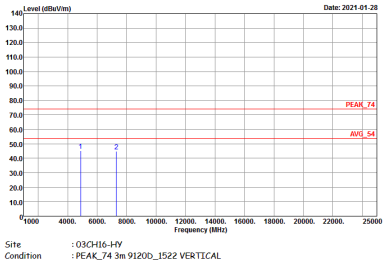
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH09 2452MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		

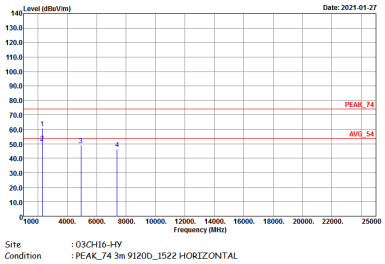
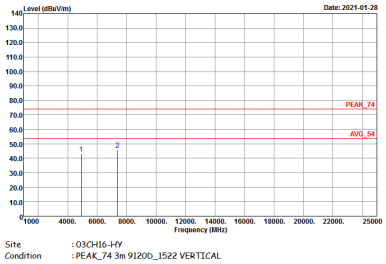
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH09 2452MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Harmonic @ 3m)

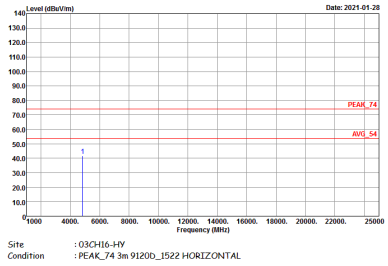
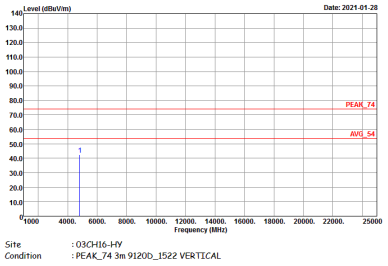
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH01 2412MHz	
1	Horizontal	Vertical
Peak Avg.		

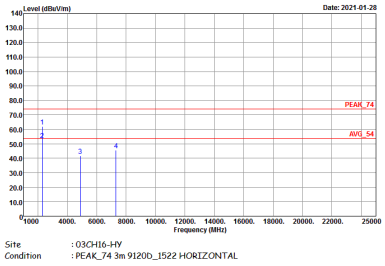
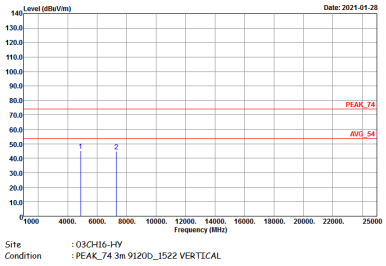
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH06 2437MHz	
1	Horizontal	Vertical
Peak Avg.		

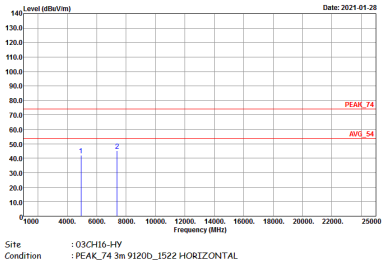
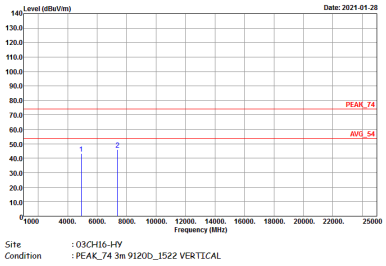
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH11 2462MHz	
1	Horizontal	Vertical
Peak Avg.		

2.4GHz 2400~2483.5MHz

WIFI 802.11g (Harmonic @ 3m)

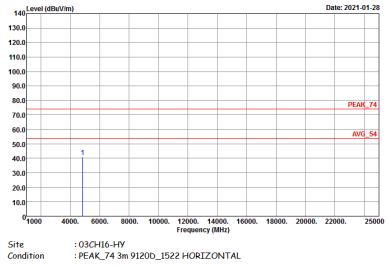
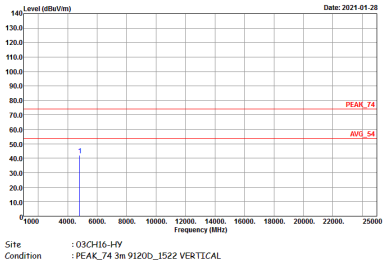
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH01 2412MHz	
1	Horizontal	Vertical
Peak Avg.		

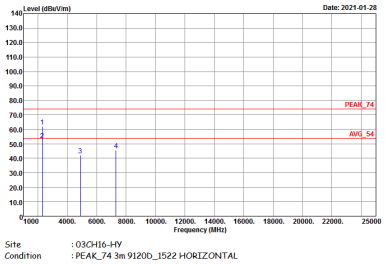
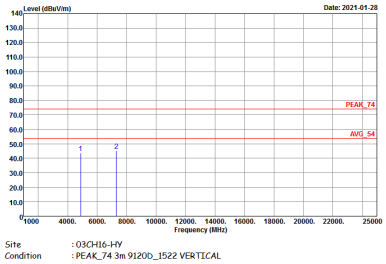
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH06 2437MHz	
1	Horizontal	Vertical
Peak Avg.		

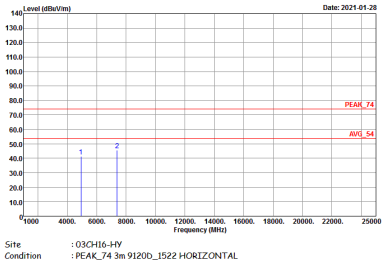
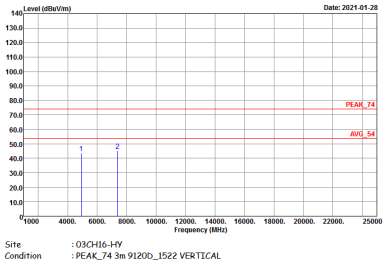
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH11 2462MHz	
1	Horizontal	Vertical
Peak Avg.		

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

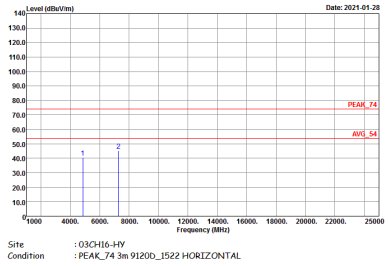
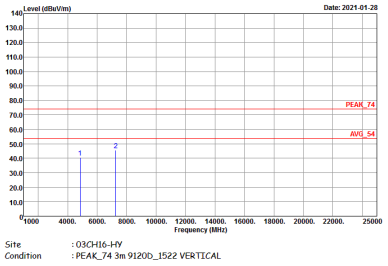
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
1	Horizontal	Vertical
Peak Avg.		

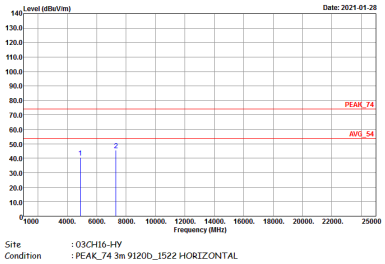
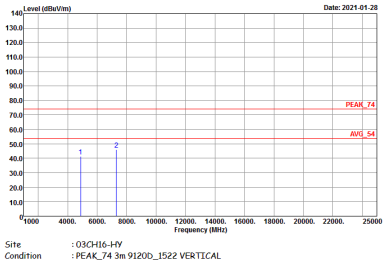
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH06 2437MHz	
1	Horizontal	Vertical
Peak Avg.		

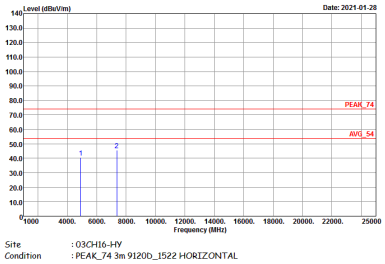
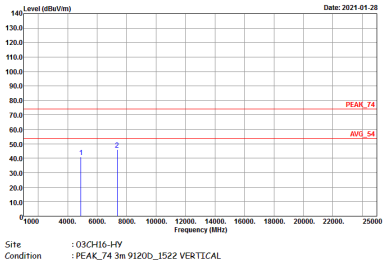
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
1	Horizontal	Vertical
Peak Avg.		

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT40 (Harmonic @ 3m)

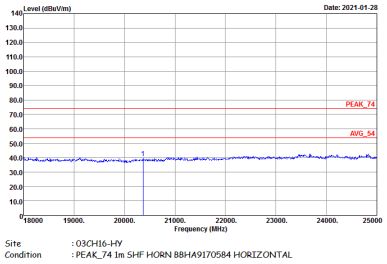
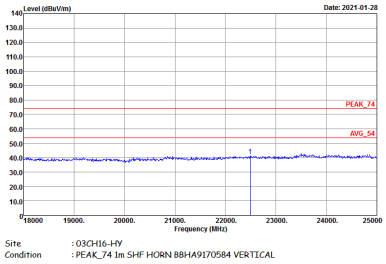
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT40 CH03 2422MHz	
1	Horizontal	Vertical
Peak Avg.		

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT40 CH06 2437MHz	
1	Horizontal	Vertical
Peak Avg.		

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

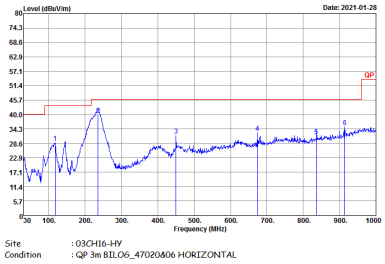
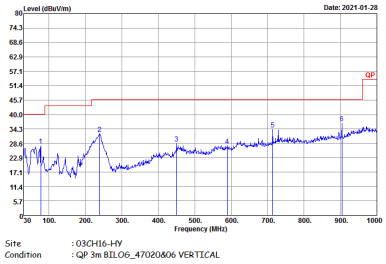
Emission above 18GHz

2.4GHz WIFI 802.11n HT20 (SHF)

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

Emission below 1GHz

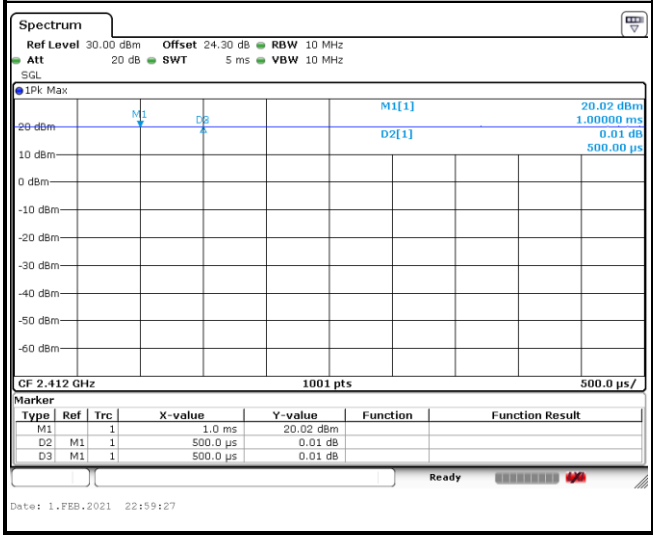
2.4GHz WIFI 802.11n HT20 (LF)

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

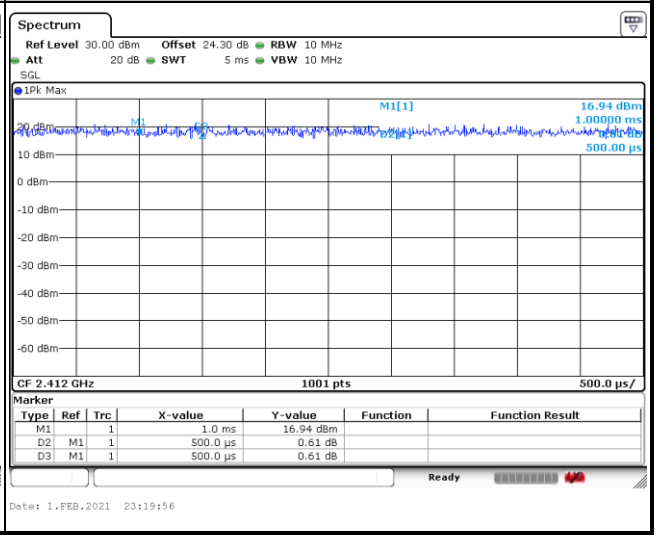
Appendix E. Duty Cycle Plots

Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting	Duty Factor(dB)
1	802.11b	100.00	-	-	10Hz	0.00
1	802.11g	100.00	-	-	10Hz	0.00
1	2.4GHz 802.11n HT20	100.00	-	-	10Hz	0.00
1	2.4GHz 802.11n HT40	100.00	-	-	10Hz	0.00

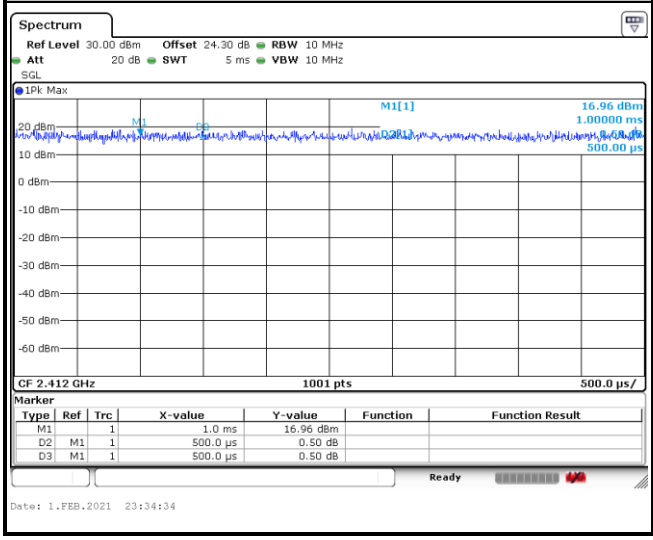
802.11b



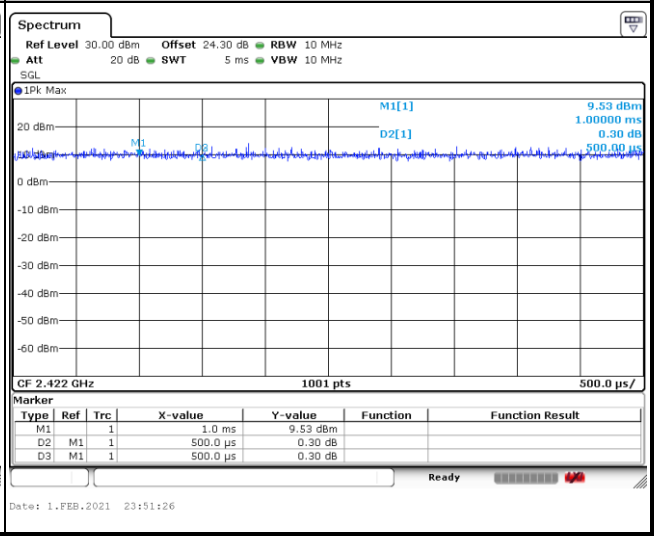
802.11g



802.11n HT20



802.11n HT40



THE END