FCC RADIO TEST REPORT

FCC ID	:	**PY7-15465A**
Equipment	:	**GSM/WCDMA/LTE Phone with BT, DTS/UNII a/b/g/n/ac, GPS, FM Receiver and NFC**
Brand Name	:	**SONY**
Applicant	:	**Sony Corporation 1-7-1 Konan Minato-ku Tokyo, 108-0076 Japan**
Manufacturer	:	**Sony Corporation 1-7-1 Konan Minato-ku Tokyo, 108-0076 Japan**
Standard	:	**FCC Part 15 Subpart C §15.247**
Test Date(s)	:	**Oct. 19, 2021 ~ Dec. 22, 2021**

We, Sporton International (Kunshan) Inc., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

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

Jason Jia

Reviewed by: Jason Jia / Supervisor

Alex Wang

Approved by: Alex Wang / Manager

ACCREDITED Cert #5145.02

Sporton International (Kunshan) Inc.

No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China

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History of this test report

Report No.	Version	Description	Issued Date
FR1O1906C	01	Initial issue of report	Nov. 30, 2021
FR1O1906C	02	1. Update the 99%BW test plot 2. Update the CSE HE20 CH11 test plot on Page 25	Dec. 24, 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 6.78 dB at 40.670 MHz
3.6	15.207	AC Conducted Emission	Pass	Under limit 8.76 dB at 0.172 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.

1 General Description

1.1 Product Feature of Equipment Under Test

GSM/WCDMA/LTE, Bluetooth, DTS/UNII a/b/g/n/ac, NFC, FM Receiver and GNSS.

Standards-related Product Specification	
Antenna Type / Gain	PIFA Antenna with gain -1.5 dBi

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

EUT Information List			
HW Version	**SW Version**	**S/N**	**Performed Test Item**
A	0.48	HQ618X02D2	RF conducted measurement
	0.106	HQ61B2014B	Radiated Spurious Emission
	0.106	HQ618X0253	AC Conducted Emission

Note: For other wireless features of this EUT, test report will be issued separately.

1.2 Modification of EUT

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

1.3 Testing Location

Sporton International (Kunshan) Inc. is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Test Firm	Sporton International (Kunshan) Inc.		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158 FAX : +86-512-57900958		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	CO01-KS 03CH05-KS TH01-KS	CN1257	314309

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.
- FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ANSI C63.10-2013

Remark:

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

2 Test Configuration of Equipment Under Test

a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, the measured emission level of the EUT was maximized by rotating the EUT on a turntable, adjusting the orientation of the EUT and EUT antenna in three orthogonal axis (X: flat, Y: portrait, Z: landscape), and adjusting the measurement antenna orientation, following C63.10 exploratory test procedures and find X plane as worst plane.

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

Remark: Since the verify power, the same operating range bandwidth and smaller power can be covered by the higher power.

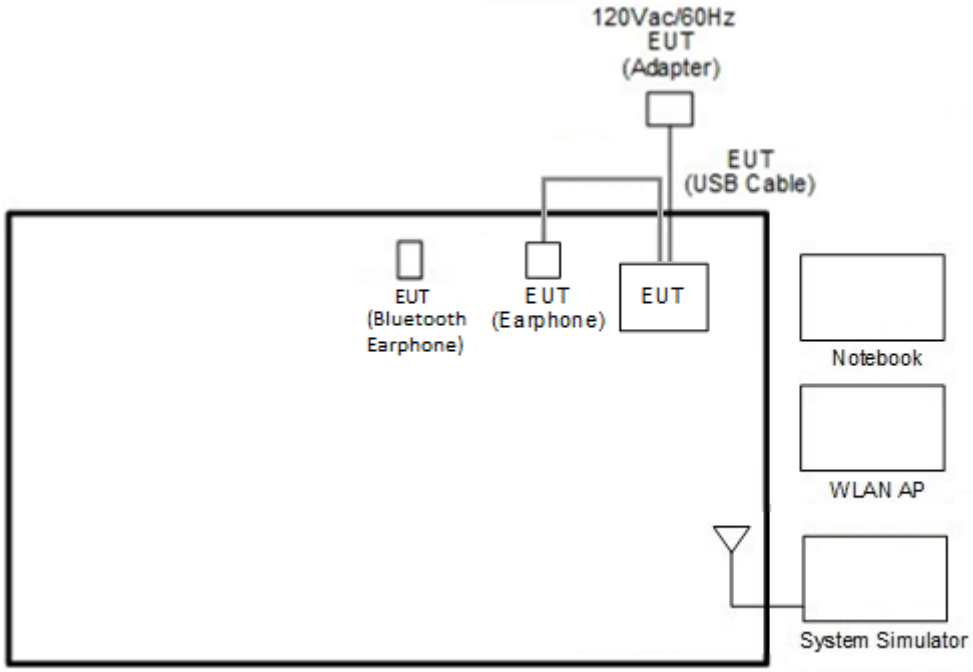
Test Cases	
AC Conducted Emission	Mode 1 : GSM850 Idle + Bluetooth Link + WLAN (2.4GHz) Link + Earphone + USB Cable (Charging from AC Adapter)

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

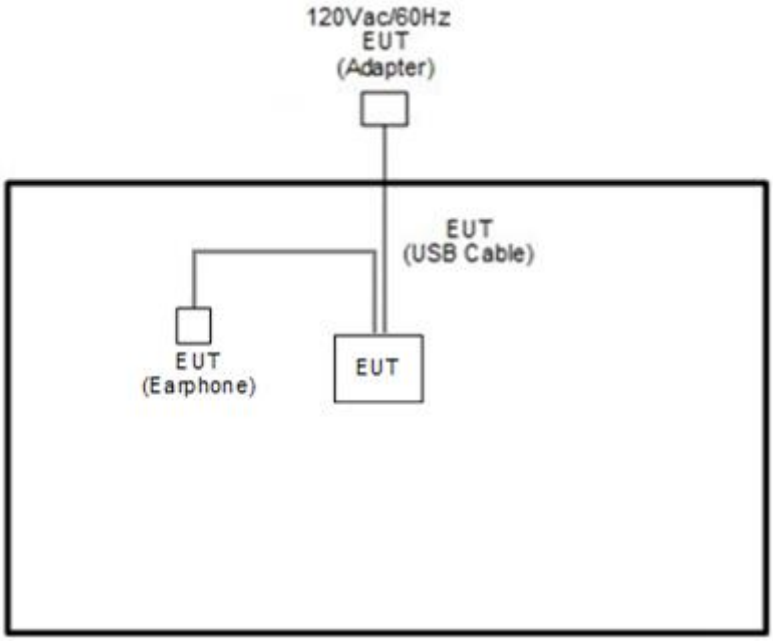
Remark: For radiation spurious emission, the final modulation and the worst data rate was reference the max RF conducted power.

2.3 Connection Diagram of Test System

<AC Conducted Emission Mode>



<WLAN TX Mode>



2.4 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Base Station	Anritus	MT8821C	N/A	N/A	Unshielded,1.8m
2.	Notebook	Lenovo	G480	QDS-BRCM1050I	N/A	shielded cable DC O/P 1.8m , Unshielded AC I/P cable 1.8m
3.	WLAN AP	D-link	DIR-655	KA21R655B1	N/A	Unshielded,1.8m
4.	SD Card	Kingston	8GB	N/A	N/A	N/A

2.5 EUT Operation Test Setup

The RF test items, utility “FTM” 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

For AC power line conducted emissions, the EUT was set to connect with the WLAN AP under large package sizes transmission.

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 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.

Offset = RF cable loss.

Following shows an offset computation example with cable loss 5.5 dB.

Offset(dB) = RF cable loss(dB).

= 5.5 (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.

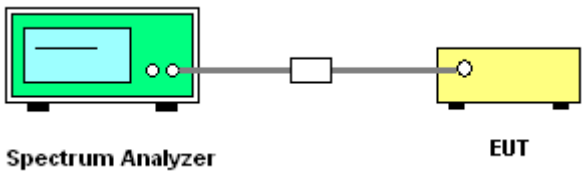
3.1.2 Measuring Instruments

See list of measuring equipment of this test report.

3.1.3 Test Procedures

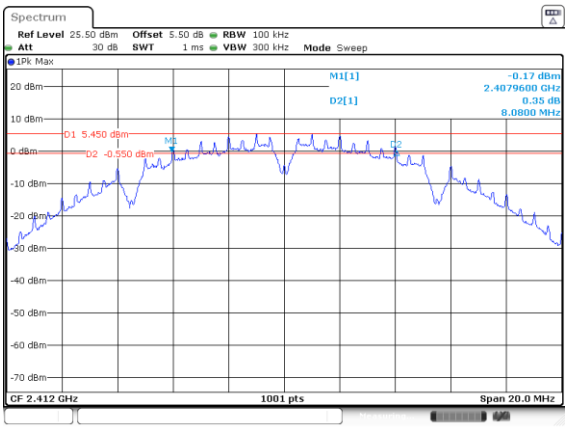
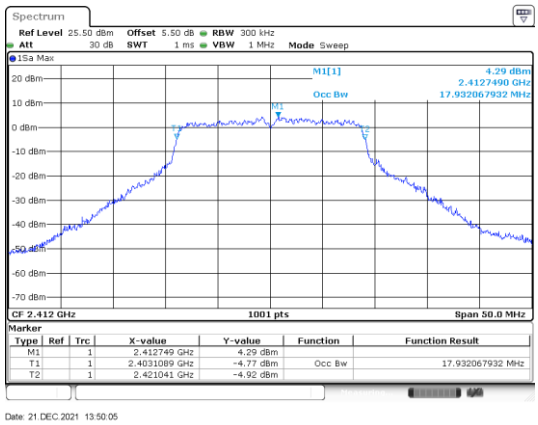
1. The testing follows the ANSI C63.10 Section 6.9.3 (OBW) and 11.8.1 (6dB BW).
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set the maximum power setting and enable the EUT to transmit 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 2400-2483.5 MHz, the limit for output power is 30 dBm. If transmitting antenna with directional gain greater than 6 dBi 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 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

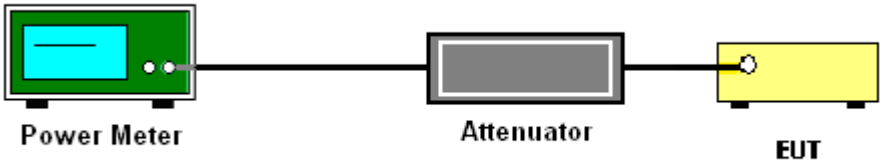
3.2.2 Measuring Instruments

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 the maximum power setting and enable the EUT to 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 8 dBm in any 3 kHz band at any time interval of continuous transmission.

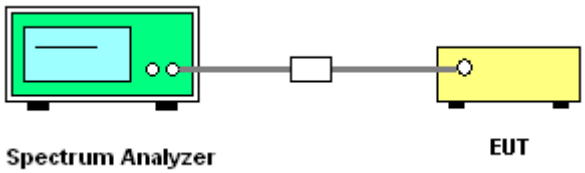
3.3.2 Measuring Instruments

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 the maximum power setting and enable the EUT to 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.

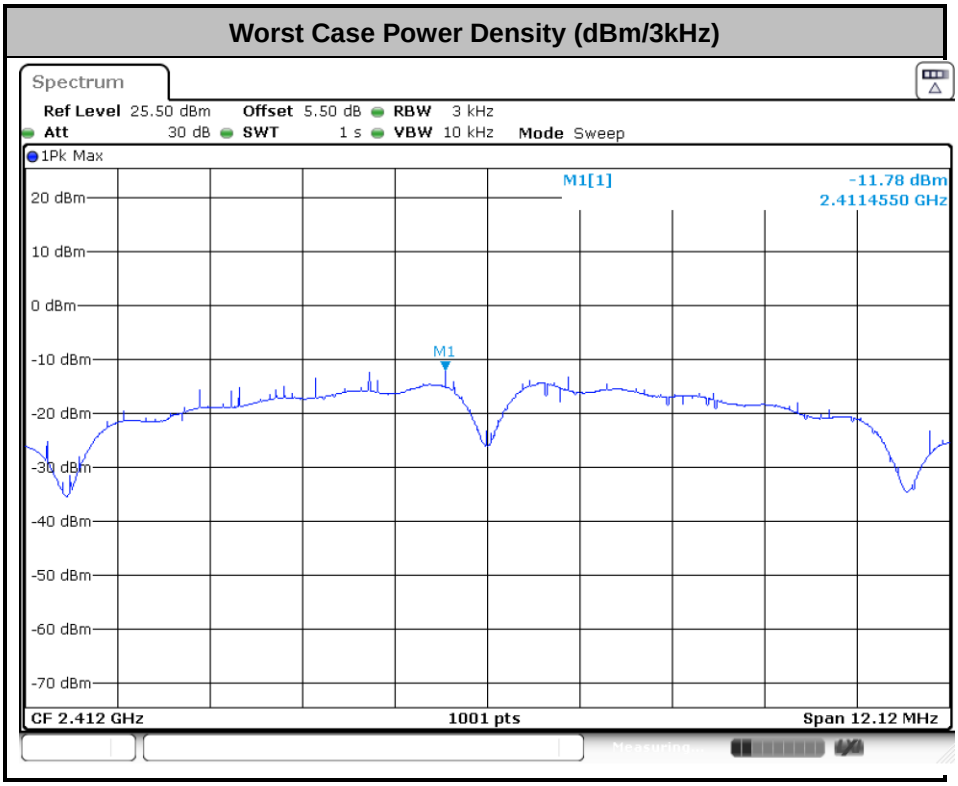
3.3.4 Test Setup



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 the maximum power setting and enable the EUT to 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.

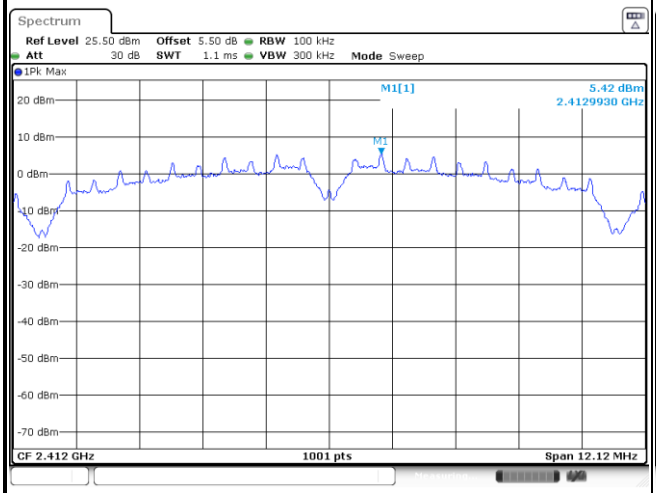
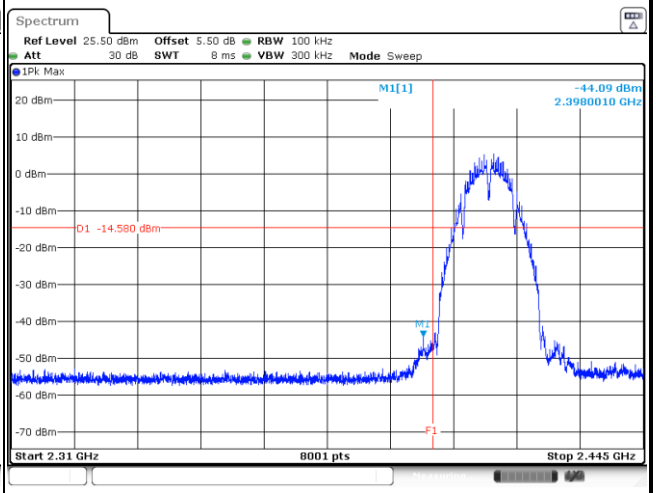
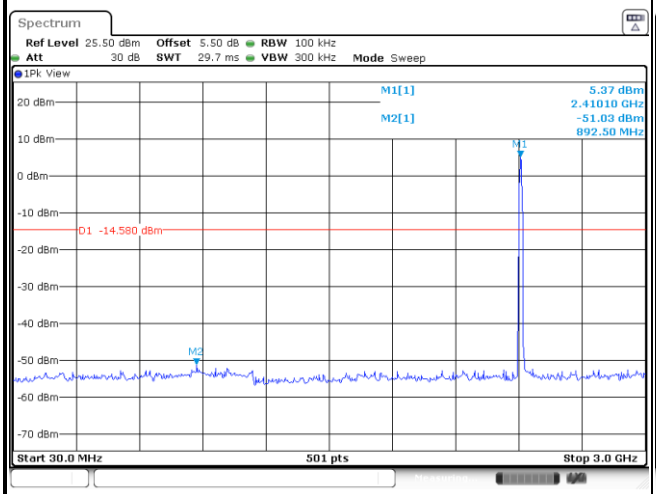
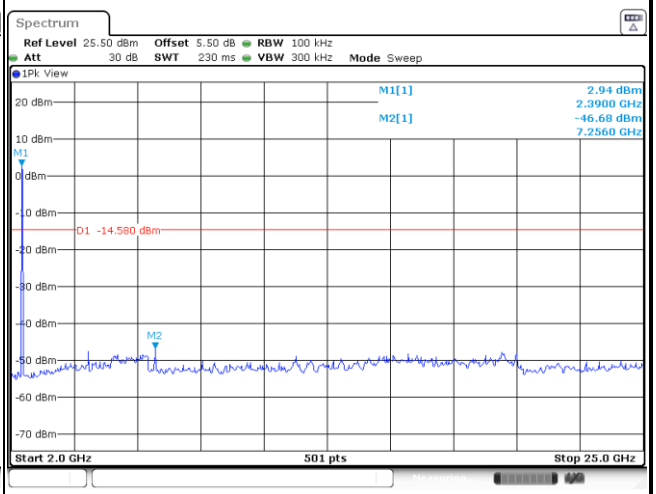
3.4.4 Test Setup

3.4.5 Test Result of Conducted Band Edges and Spurious Emission

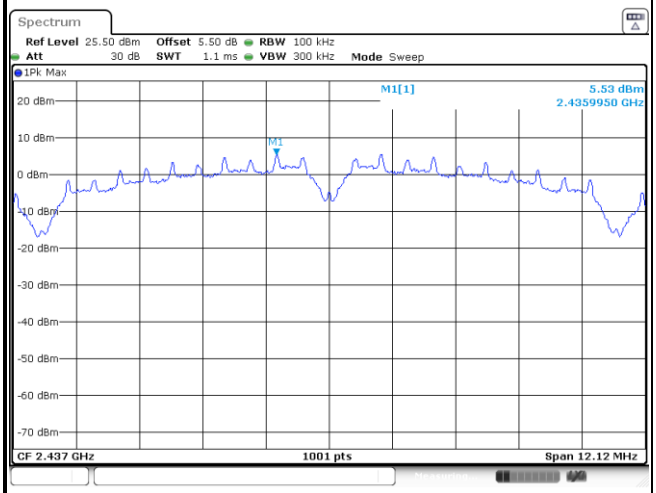
Test Engineer :	Jack Fan	Temperature :	21~25℃
		Relative Humidity :	51~54%

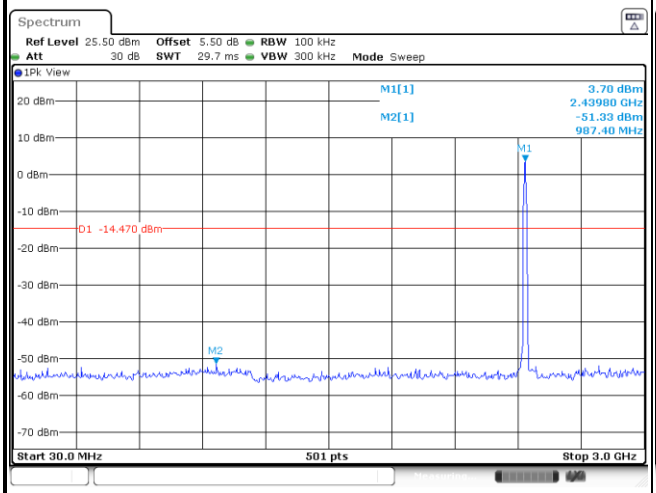
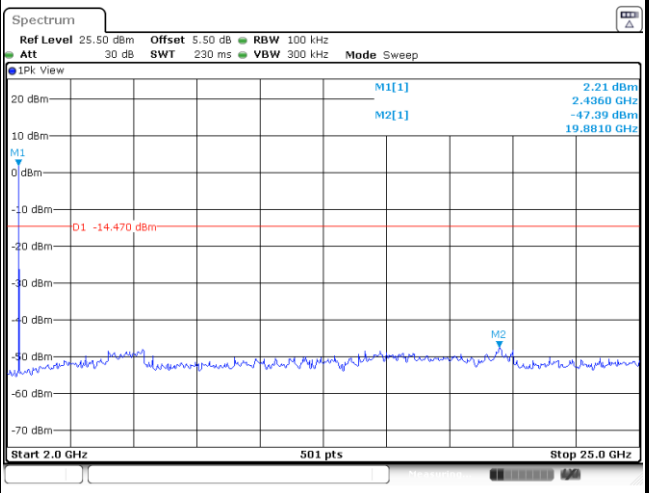
Number of TX = 1, Ant. 1 (Measured)

Test Mode :	802.11b	Test Channel :	01

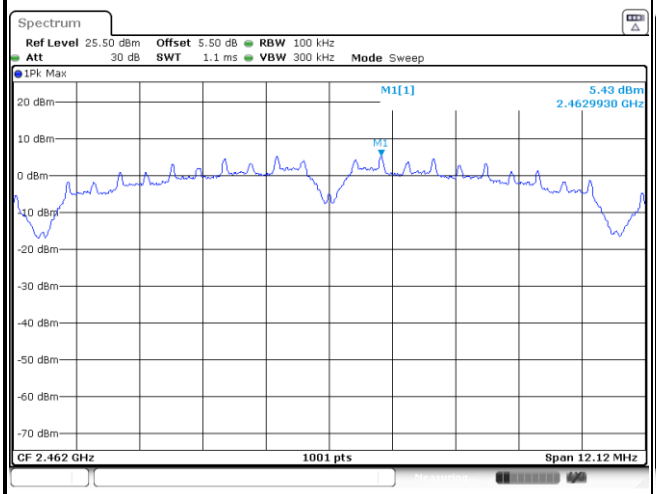
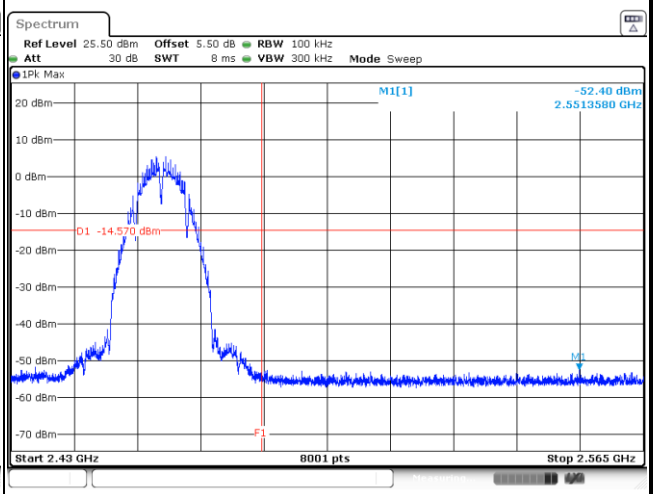
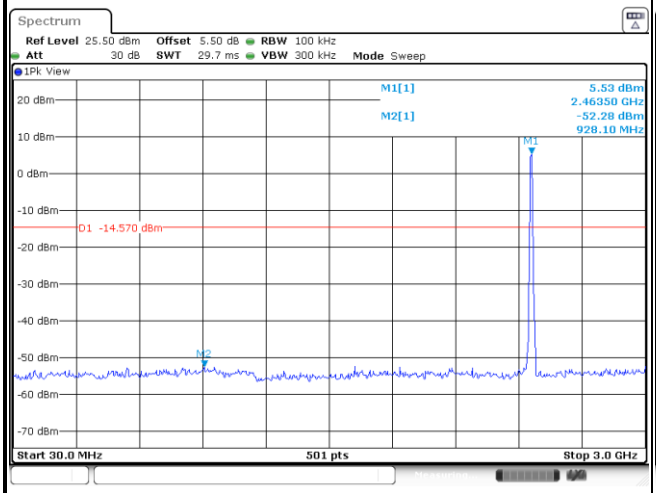
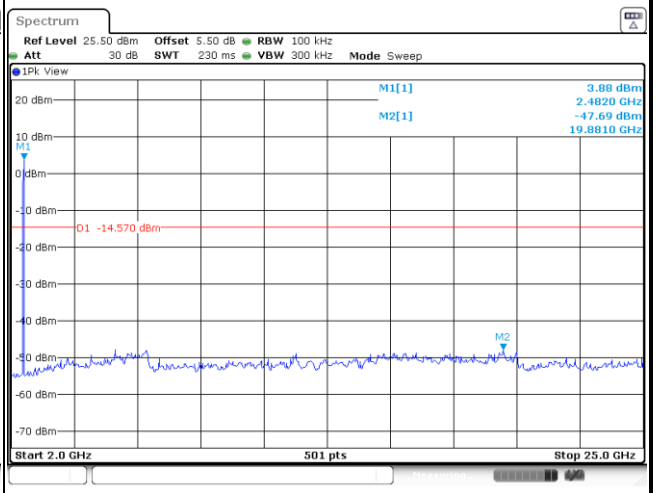
100kHz PSD reference Level	Low Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11b	Test Channel :	06

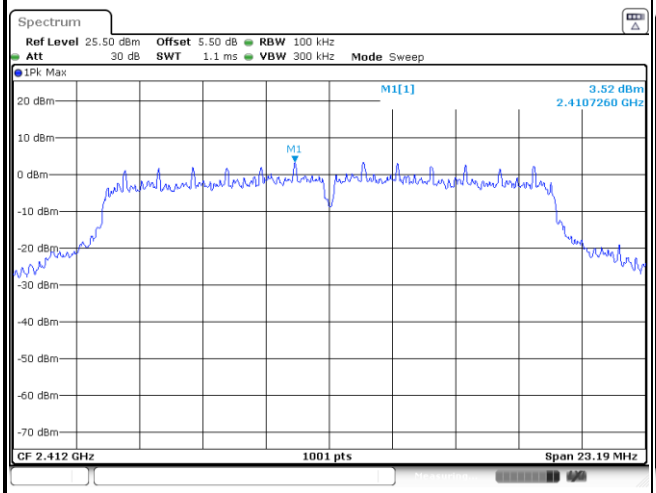
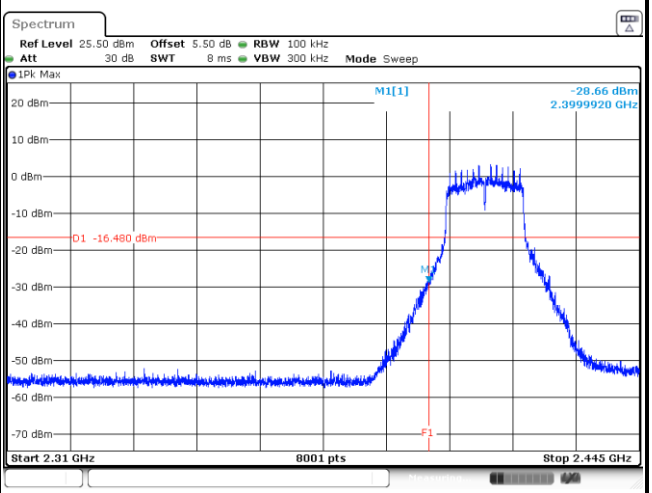
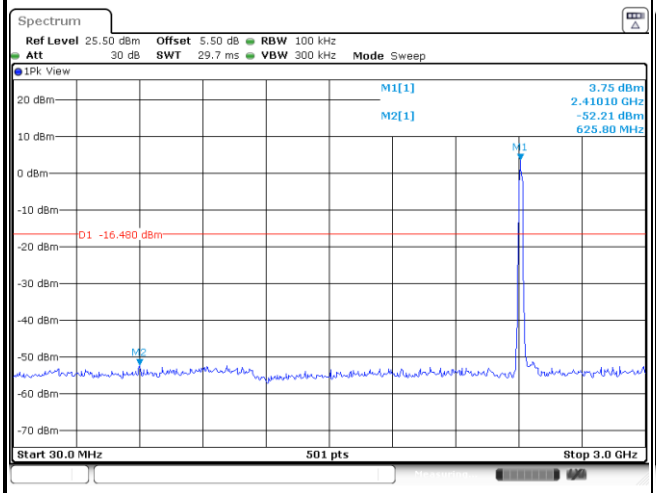
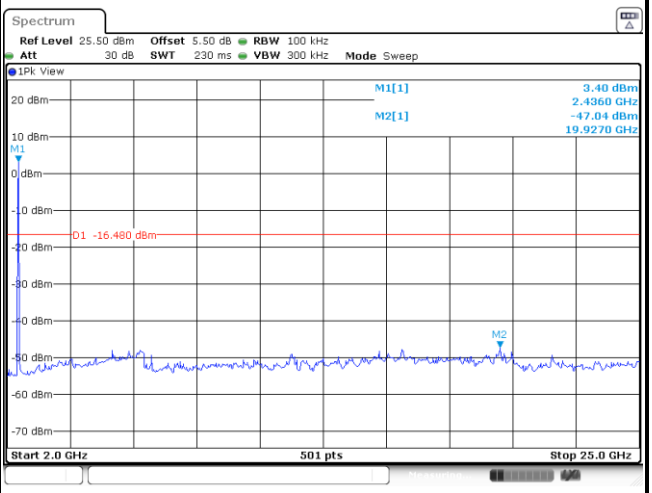
100kHz PSD reference Level	Mid Channel Plot
	

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

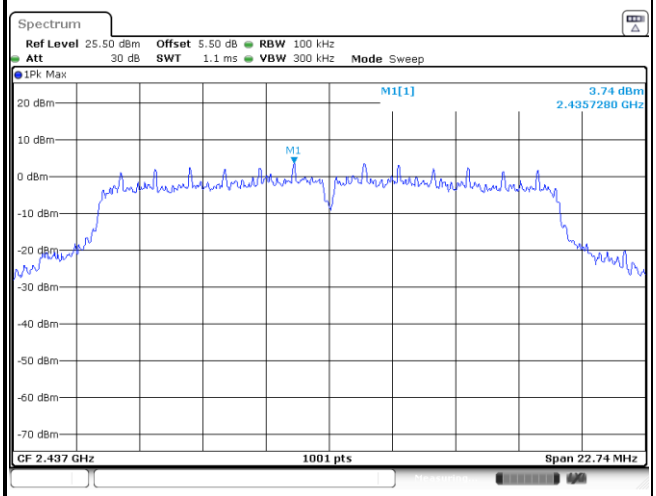
Test Mode :	802.11b	Test Channel :	11

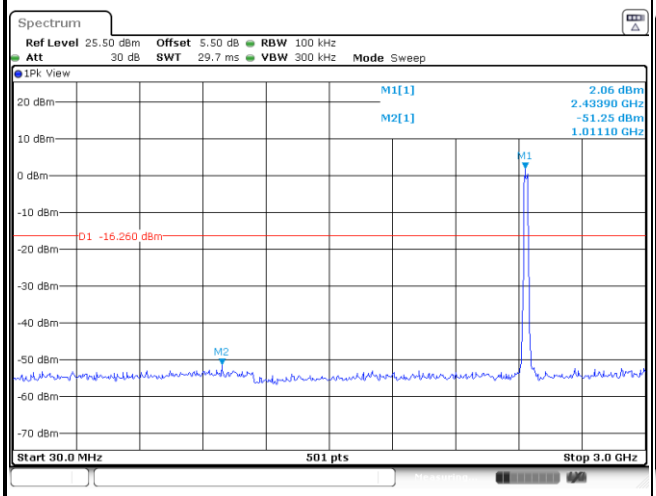
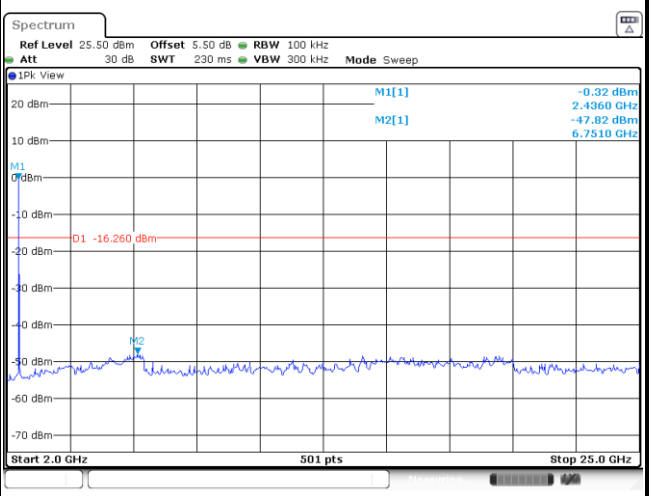
100kHz PSD reference Level	High Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11g	Test Channel :	01

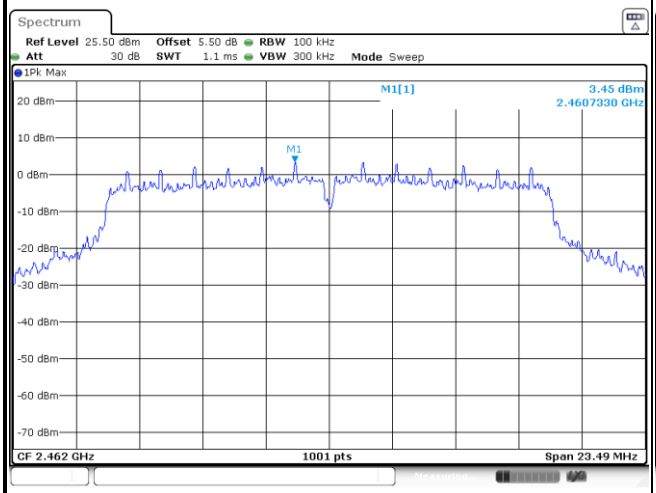
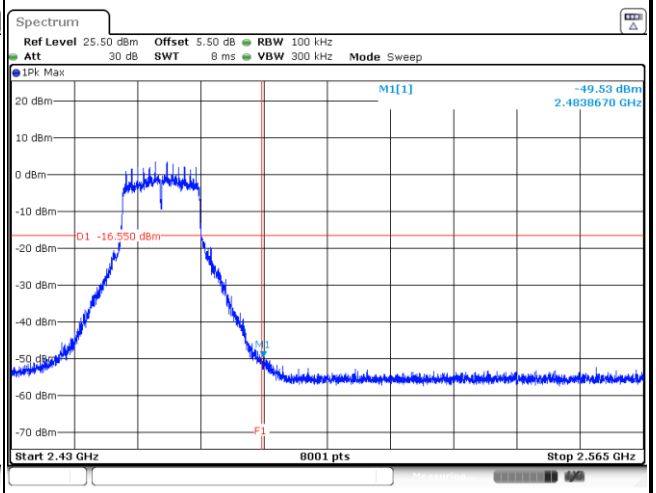
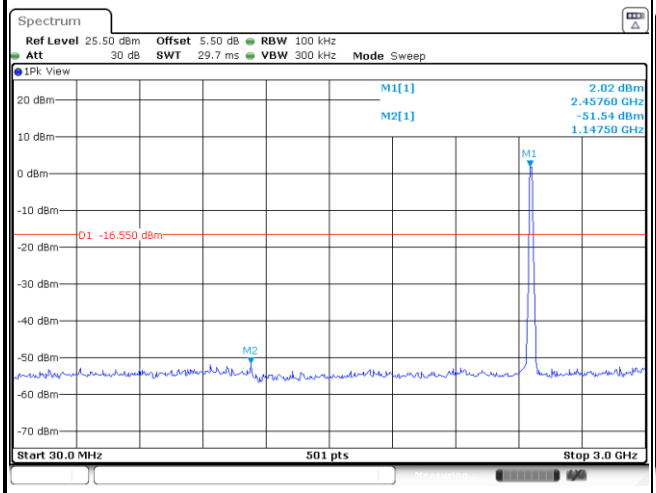
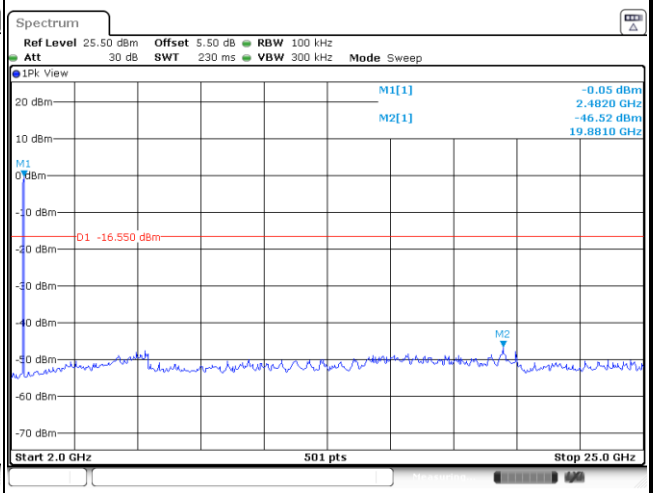
100kHz PSD reference Level	Low Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11g	Test Channel :	06

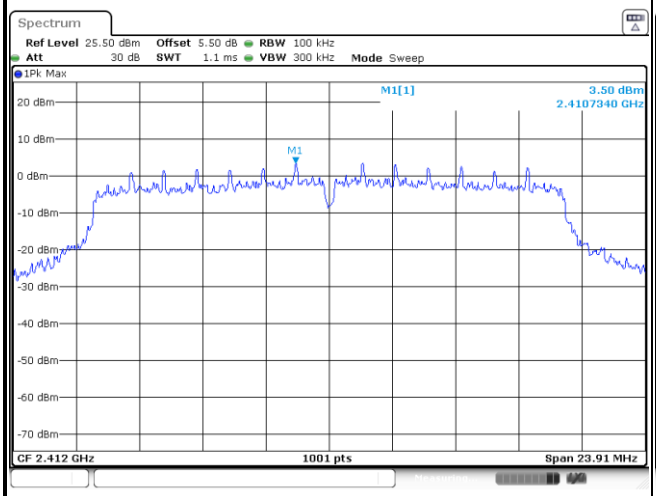
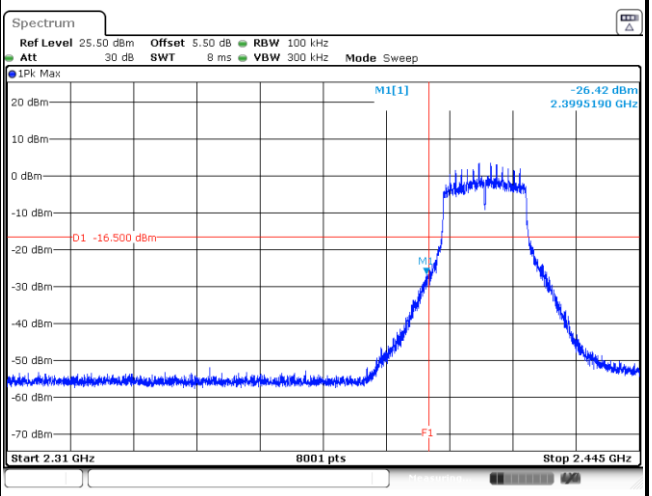
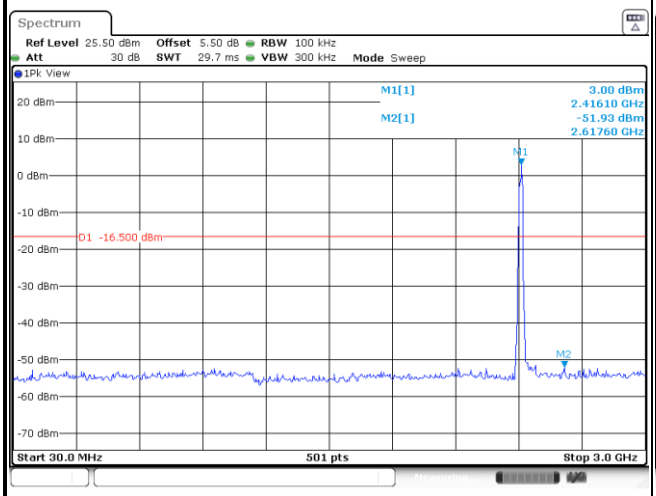
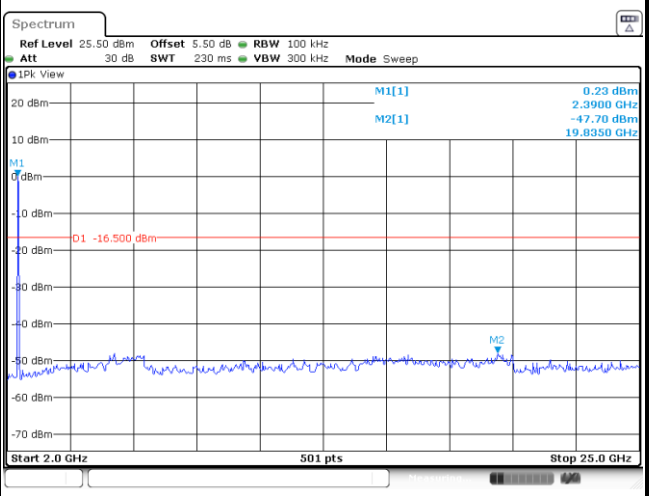
100kHz PSD reference Level	Mid Channel Plot
	

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

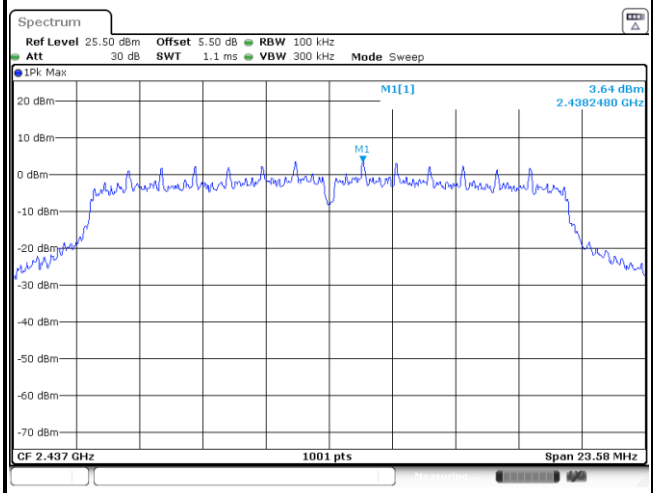
Test Mode :	802.11g	Test Channel :	11

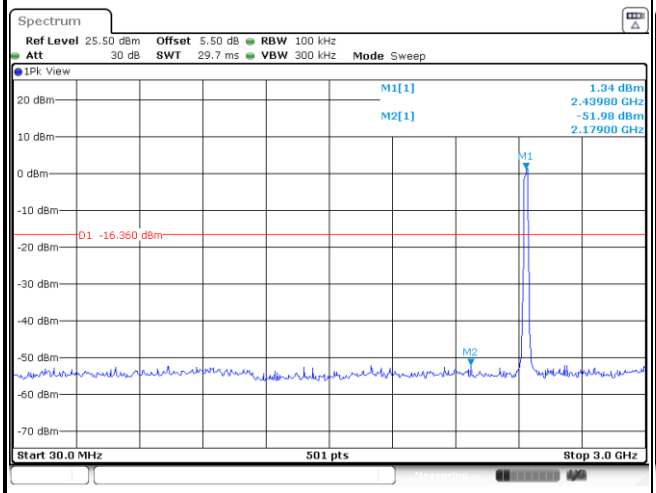
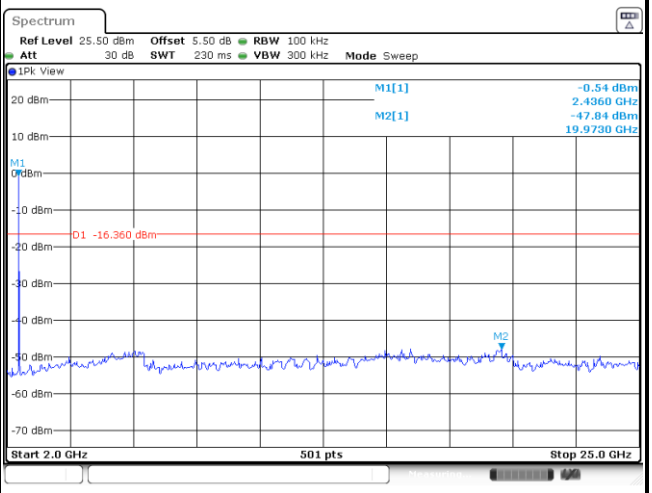
100kHz PSD reference Level	High Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11n HT20	Test Channel :	01

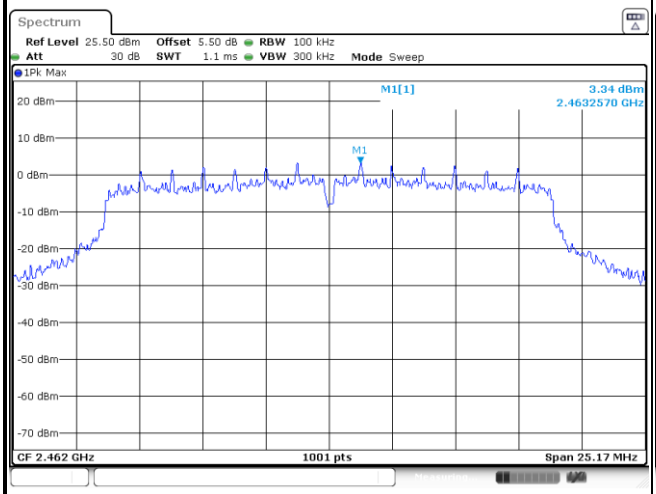
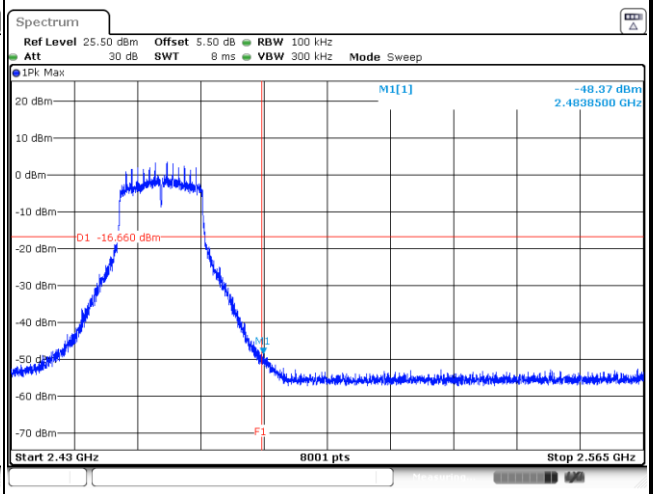
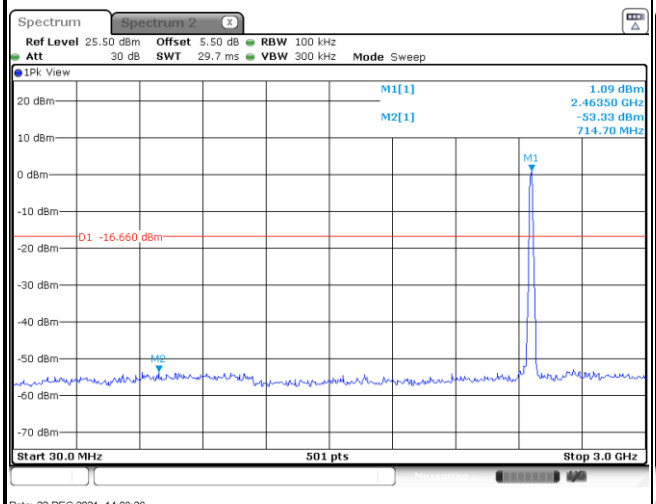
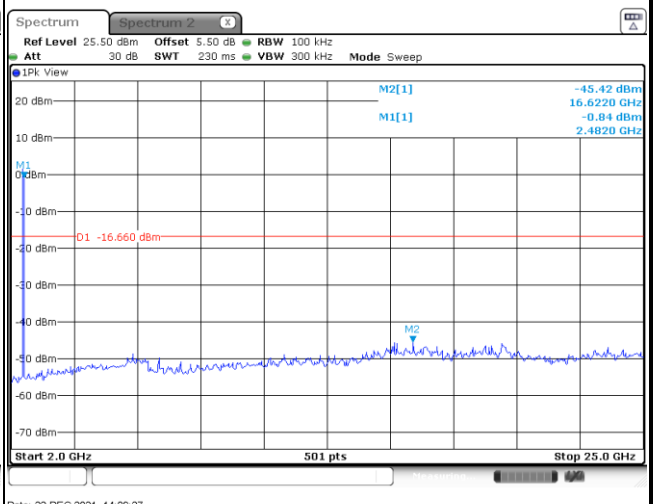
100kHz PSD reference Level	Low Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

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**
	

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

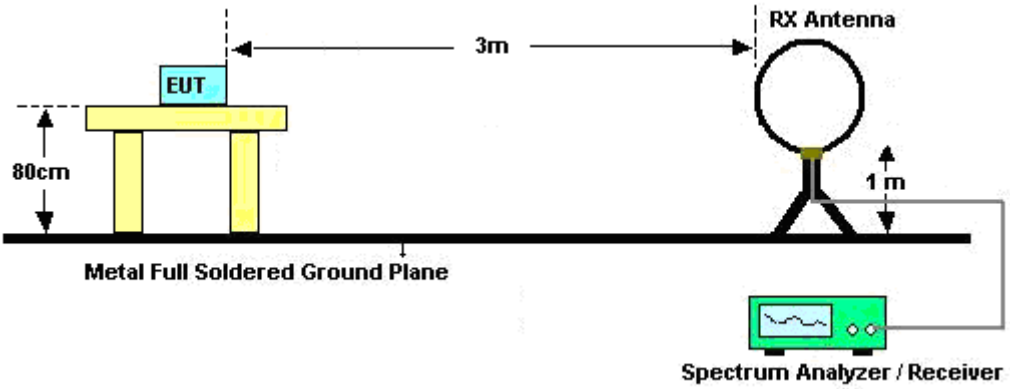
See list of measuring equipment of this test report.

3.5.3 Test Procedures

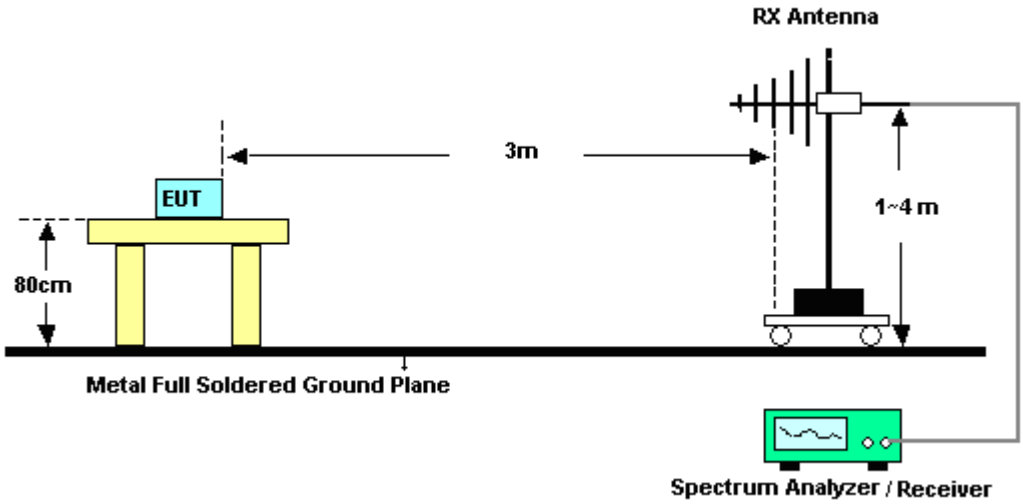
1. The testing follows the ANSI C63.10 Section 11.12.1 Radiated emission measurements.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT was placed on a turntable with 0.8 meter for frequency below 1 GHz and 1.5 meter for frequency above 1 GHz 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 1 GHz, 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 1 GHz, the emission level of the EUT in peak mode was 20 dB 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= 3 MHz 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

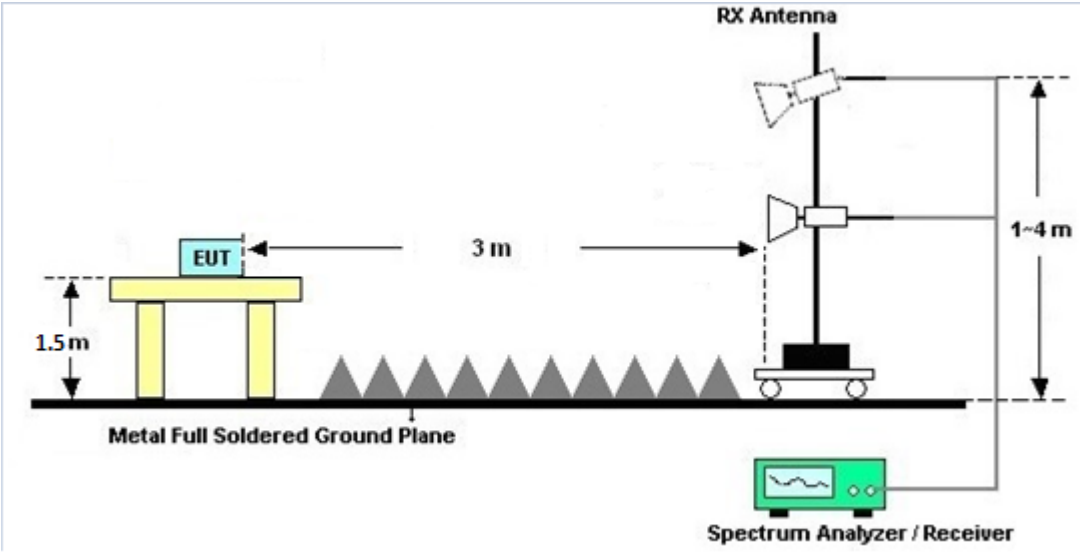
For radiated emissions below 30MHz



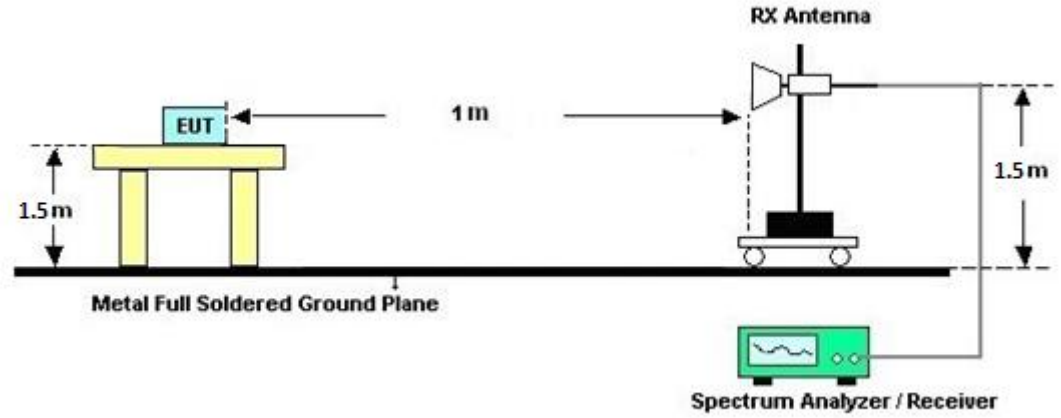
For radiated emissions from 30MHz to 1GHz



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 adequate comparison measurement 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.

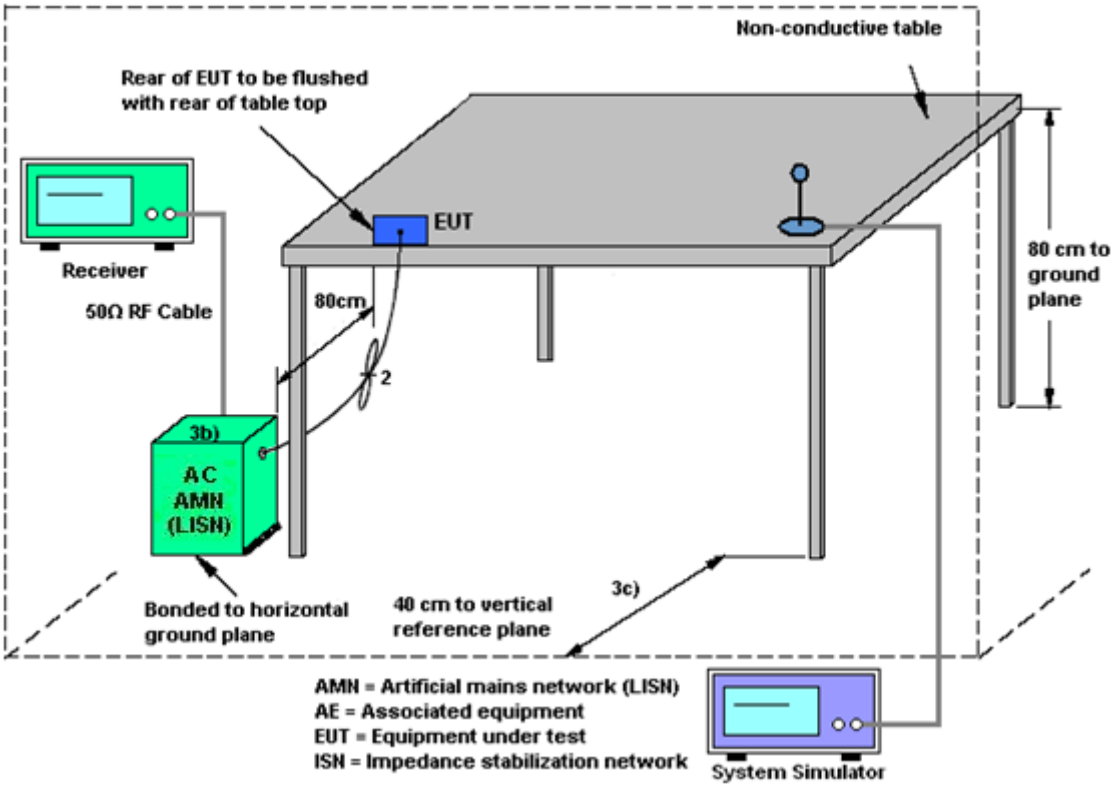
3.6.2 Measuring Instruments

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 shall 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



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

3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.7.3 Antenna Gain

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

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Nov. 01, 2020	Oct. 19, 2021~ Oct. 21, 2021	Oct. 31, 2021	Conducted (TH01-KS)
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Oct. 14, 2021	Dec. 21, 2021~ Dec. 22, 2021	Oct. 13, 2022	Conducted (TH01-KS)
Pulse Power Senor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 07, 2021	Oct. 19, 2021~ Dec. 22, 2021	Jan. 06, 2022	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 07, 2021	Oct. 19, 2021~ Dec. 22, 2021	Jan. 06, 2022	Conducted (TH01-KS)
EMI Test Receiver	Keysight	N9038A	MY56400004	3Hz~8.5GHz;Max 30dBm	Oct. 16, 2021	Nov. 24, 2021	Oct. 15, 2022	Radiation (03CH05-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz-44G,MAX 30dB	Apr.13, 2021	Nov. 24, 2021	Apr. 12, 2022	Radiation (03CH05-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 30, 2021	Nov. 24, 2021	Oct. 29, 2022	Radiation (03CH05-KS)
Bilog Antenna	TeseQ	CBL6111D	49922	30MHz-1GHz	Jun. 4 ,2021	Nov. 24, 2021	Jun. 3, 2022	Radiation (03CH05-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00218652	1GHz~18GHz	Apr. 24, 2021	Nov. 24, 2021	Apr. 23, 2022	Radiation (03CH05-KS)
SHF-EHF Horn	Com-power	AH-840	101115	18GHz~40GHz	Nov. 09, 20210	Nov. 24, 2021	Nov. 08, 2022	Radiation (03CH05-KS)
Amplifier	SONOMA	310N	187289	9KHz-1GHz	Apr. 12, 2021	Nov. 24, 2021	Apr. 11, 2022	Radiation (03CH05-KS)
Amplifier	MITEQ	EM18G40GGA	060728	18~40GHz	Jan. 07, 2021	Nov. 24, 2021	Jan. 06, 2022	Radiation (03CH05-KS)
high gain Amplifier	MITEQ	AMF-7D-00101800-30-10P	2012228	1Ghz-18Ghz	Oct. 16, 2021	Nov. 24, 2021	Oct. 15, 2022	Radiation (03CH05-KS)
Amplifier	Keysight	83017A	MY53270316	500MHz~26.5GHz	Oct. 16, 2021	Nov. 24, 2021	Oct. 15, 2022	Radiation (03CH05-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Nov. 24, 2021	NCR	Radiation (03CH05-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Nov. 24, 2021	NCR	Radiation (03CH05-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Nov. 24, 2021	NCR	Radiation (03CH05-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz;	Apr. 21, 2021	Oct. 27, 2021	Apr. 20, 2022	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060103	9kHz~30MHz	Oct. 14, 2021	Oct. 27, 2021	Oct. 13, 2022	Conduction (CO01-KS)
AC LISN	R&S	ENV216	100334	9kHz~30MHz	Oct. 14, 2021	Oct. 27, 2021	Oct. 13, 2022	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	AC 0V~300V, 45Hz~1000Hz	Oct. 14, 2021	Oct. 27, 2021	Oct. 13, 2022	Conduction (CO01-KS)

NCR: No Calibration Required

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.94dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.0dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.0dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.0dB**

Appendix A. Conducted Test Results

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Jack Fan	Temperature:	21~25	°C
Test Date:	2021/10/19~2021/12/22	Relative Humidity:	51~54	%

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

2.4GHz Band								
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Occupied BW (MHz)	6dB BW (MHz)	6dB BW Limit (MHz)	Pass/Fail
11b	1Mbps	1	1	2412	13.94	8.08	0.50	Pass
11b	1Mbps	1	6	2437	13.84	8.08	0.50	Pass
11b	1Mbps	1	11	2462	13.84	8.08	0.50	Pass
11g	6Mbps	1	1	2412	16.73	15.46	0.50	Pass
11g	6Mbps	1	6	2437	16.73	15.16	0.50	Pass
11g	6Mbps	1	11	2462	16.68	15.66	0.50	Pass
HT20	MCS0	1	1	2412	17.93	15.94	0.50	Pass
HT20	MCS0	1	6	2437	17.88	15.72	0.50	Pass
HT20	MCS0	1	11	2462	17.83	16.78	0.50	Pass

TEST RESULTS DATA
Peak Power Table

2.4GHz Band										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak Conducted Power (dBm)	Conducted Power Limit (dBm)	DG (dBi)	EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
11b	1Mbps	1	1	2412	15.84	30.00	-1.50	14.34	36.00	Pass
11b	1Mbps	1	6	2437	16.09	30.00	-1.50	14.59	36.00	Pass
11b	1Mbps	1	11	2462	15.96	30.00	-1.50	14.46	36.00	Pass
11g	6Mbps	1	1	2412	17.98	30.00	-1.50	16.48	36.00	Pass
11g	6Mbps	1	6	2437	18.34	30.00	-1.50	16.84	36.00	Pass
11g	6Mbps	1	11	2462	18.27	30.00	-1.50	16.77	36.00	Pass
HT20	MCS0	1	1	2412	18.18	30.00	-1.50	16.68	36.00	Pass
HT20	MCS0	1	6	2437	18.35	30.00	-1.50	16.85	36.00	Pass
HT20	MCS0	1	11	2462	18.37	30.00	-1.50	16.87	36.00	Pass

TEST RESULTS DATA
Average Power Table
(Reporting Only)

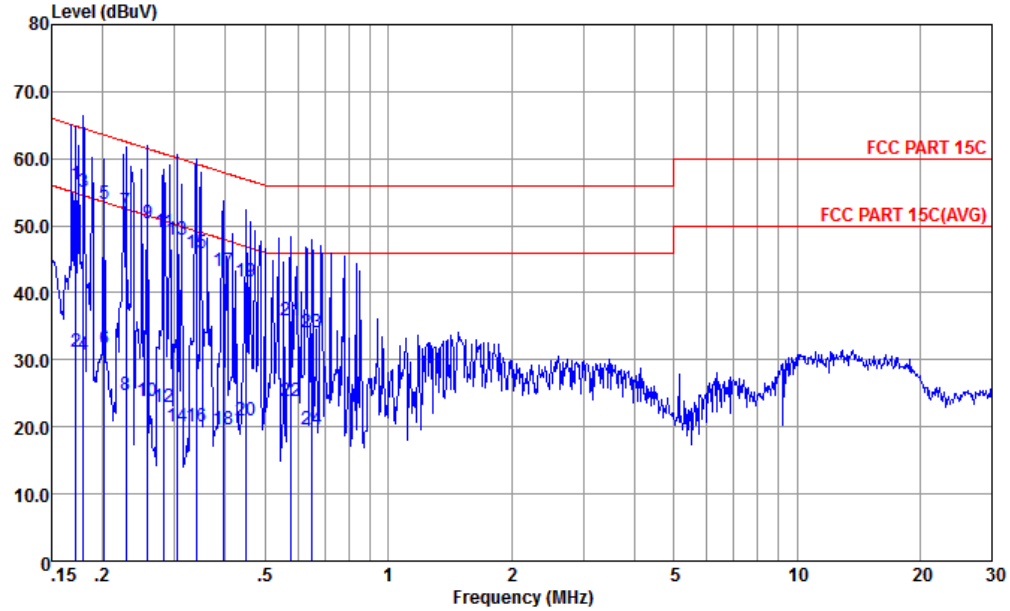
2.4GHz Band						
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)
11b	1Mbps	1	1	2412	0.00	13.64
11b	1Mbps	1	6	2437	0.00	13.89
11b	1Mbps	1	11	2462	0.00	13.86
11g	6Mbps	1	1	2412	0.08	13.04
11g	6Mbps	1	6	2437	0.08	13.25
11g	6Mbps	1	11	2462	0.08	13.21
HT20	MCS0	1	1	2412	0.08	13.13
HT20	MCS0	1	6	2437	0.08	13.20
HT20	MCS0	1	11	2462	0.08	13.14

TEST RESULTS DATA
Peak Power Density

2.4GHz Band								
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak PSD (dBm /3kHz)	DG (dBi)	Peak PSD Limit (dBm /3kHz)	Pass/Fail
11b	1Mbps	1	1	2412	-11.78	-1.50	8.00	Pass
11b	1Mbps	1	6	2437	-11.84	-1.50	8.00	Pass
11b	1Mbps	1	11	2462	-12.24	-1.50	8.00	Pass
11g	6Mbps	1	1	2412	-13.13	-1.50	8.00	Pass
11g	6Mbps	1	6	2437	-13.33	-1.50	8.00	Pass
11g	6Mbps	1	11	2462	-13.24	-1.50	8.00	Pass
HT20	MCS0	1	1	2412	-13.12	-1.50	8.00	Pass
HT20	MCS0	1	6	2437	-12.75	-1.50	8.00	Pass
HT20	MCS0	1	11	2462	-13.56	-1.50	8.00	Pass

Appendix B. AC Conducted Emission Test Results

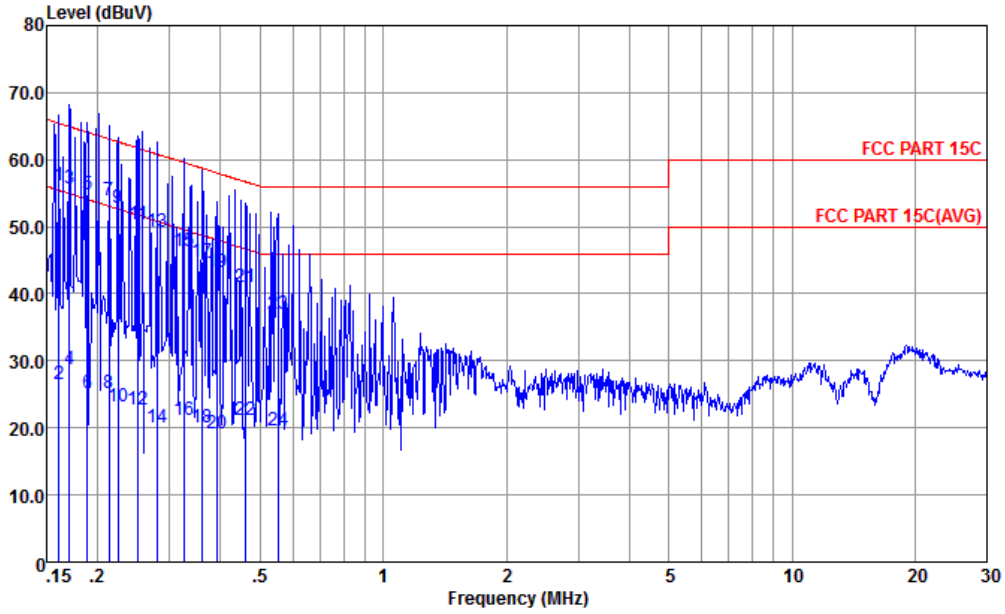
Test Engineer :	Amos Zhang	**Temperature :**	25.3~26.2℃
		Relative Humidity :	38~40%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : CO01-KS
Condition : FCC PART 15C LISN-L-060105-CN02 LINE

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	*	0.172	56.10	-8.76	64.86	45.60	0.08	10.42	QP
2		0.172	31.10	-23.76	54.86	20.60	0.08	10.42	Average
3		0.180	55.09	-9.41	64.50	44.60	0.08	10.41	QP
4		0.180	30.79	-23.71	54.50	20.30	0.08	10.41	Average
5		0.202	53.35	-10.19	63.54	42.90	0.09	10.36	QP
6		0.202	31.75	-21.79	53.54	21.30	0.09	10.36	Average
7		0.228	52.04	-10.48	62.52	41.60	0.09	10.35	QP
8		0.228	24.64	-27.88	52.52	14.20	0.09	10.35	Average
9		0.258	50.33	-11.18	61.51	39.90	0.10	10.33	QP
10		0.258	23.93	-27.58	51.51	13.50	0.10	10.33	Average
11		0.283	48.92	-11.80	60.72	38.50	0.10	10.32	QP
12		0.283	22.92	-27.80	50.72	12.50	0.10	10.32	Average
13		0.305	47.91	-12.19	60.10	37.49	0.11	10.31	QP
14		0.305	20.01	-30.09	50.10	9.59	0.11	10.31	Average
15		0.339	45.90	-13.32	59.22	35.50	0.11	10.29	QP
16		0.339	20.00	-29.22	49.22	9.60	0.11	10.29	Average
17		0.396	43.29	-14.66	57.95	32.90	0.12	10.27	QP
18		0.396	19.69	-28.26	47.95	9.30	0.12	10.27	Average
19		0.447	41.58	-15.35	56.93	31.21	0.12	10.25	QP
20		0.447	20.98	-25.95	46.93	10.61	0.12	10.25	Average
21		0.579	35.88	-20.12	56.00	25.50	0.14	10.24	QP
22		0.579	23.88	-22.12	46.00	13.50	0.14	10.24	Average
23		0.651	34.19	-21.81	56.00	23.80	0.15	10.24	QP
24		0.651	19.59	-26.41	46.00	9.20	0.15	10.24	Average

Test Engineer :	Amos Zhang	Temperature :	25.3~26.2℃
		Relative Humidity :	38~40%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : CO01-KS
Condition : FCC PART 15C LISN-N-060105-CN02 NEUTRAL

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1		0.161	56.11	-9.32	65.43	45.51	0.15	10.45	QP
2		0.161	26.51	-28.92	55.43	15.91	0.15	10.45	Average
3	*	0.170	55.68	-9.26	64.94	45.09	0.16	10.43	QP
4		0.170	28.78	-26.16	54.94	18.19	0.16	10.43	Average
5		0.188	54.75	-9.36	64.11	44.20	0.16	10.39	QP
6		0.188	25.15	-28.96	54.11	14.60	0.16	10.39	Average
7		0.213	53.83	-9.27	63.10	43.30	0.17	10.36	QP
8		0.213	25.13	-27.97	53.10	14.60	0.17	10.36	Average
9		0.224	52.72	-9.94	62.66	42.20	0.17	10.35	QP
10		0.224	23.12	-29.54	52.66	12.60	0.17	10.35	Average
11		0.251	50.42	-11.31	61.73	39.91	0.18	10.33	QP
12		0.251	22.72	-29.01	51.73	12.21	0.18	10.33	Average
13		0.279	49.31	-11.54	60.85	38.80	0.19	10.32	QP
14		0.279	20.11	-30.74	50.85	9.60	0.19	10.32	Average
15		0.325	46.40	-13.17	59.57	35.90	0.20	10.30	QP
16		0.325	21.10	-28.47	49.57	10.60	0.20	10.30	Average
17		0.361	44.69	-14.00	58.69	34.20	0.21	10.28	QP
18		0.361	20.09	-28.60	48.69	9.60	0.21	10.28	Average
19		0.391	43.28	-14.75	58.03	32.80	0.21	10.27	QP
20		0.391	19.08	-28.95	48.03	8.60	0.21	10.27	Average
21		0.461	41.07	-15.60	56.67	30.60	0.22	10.25	QP
22		0.461	21.07	-25.60	46.67	10.60	0.22	10.25	Average
23		0.552	37.07	-18.93	56.00	26.59	0.24	10.24	QP
24		0.552	19.67	-26.33	46.00	9.19	0.24	10.24	Average

Note:

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

Appendix C. Radiated Spurious Emission

Test Engineer :	Henzy LI	Temperature :	27~30°C
		Relative Humidity :	55~60%

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

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		2315.2	52.94	-21.06	74	49.32	30.41	7.58	34.37	100	279	P	H
		2389.95	41.69	-12.31	54	37.81	30.5	7.72	34.34	100	279	A	H
	*	2414	97.41	-	-	93.4	30.57	7.75	34.31	100	279	P	H
	*	2414	94.21	-	-	90.2	30.57	7.75	34.31	100	279	A	H
		2354.72	53.28	-20.72	74	49.52	30.46	7.66	34.36	384	61	P	V
		2389.69	41.65	-12.35	54	37.77	30.5	7.72	34.34	384	61	A	V
	*	2412	93.8	-	-	89.79	30.57	7.75	34.31	384	61	P	V
	*	2414	90.65	-	-	86.64	30.57	7.75	34.31	384	61	A	V
802.11b CH 11 2462MHz		2487.88	54.45	-19.55	74	49.89	30.93	7.89	34.26	100	244	P	H
		2483.5	43.27	-10.73	54	38.81	30.86	7.86	34.26	100	244	A	H
	*	2464	102.09	-	-	97.73	30.79	7.83	34.26	100	244	P	H
	*	2464	98.98	-	-	94.62	30.79	7.83	34.26	100	244	A	H
		2491.9	54.08	-19.92	74	49.49	30.93	7.89	34.23	400	52	P	V
		2483.5	42.42	-11.58	54	37.96	30.86	7.86	34.26	400	52	A	V
	*	2464	94.42	-	-	90.06	30.79	7.83	34.26	400	52	P	V
	*	2464	91.29	-	-	86.93	30.79	7.83	34.26	400	52	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 802.11b (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)
802.11b CH 01 2412MHz		4824	45.79	-28.21	74	60.01	34.61	11.21	60.04	300	0	P	H
		4824	46.25	-27.75	74	60.47	34.61	11.21	60.04	300	360	P	V
802.11b CH 06 2437MHz		4872	41.44	-32.56	74	55.5	34.69	11.28	60.03	300	0	P	H
		7308	44.99	-29.01	74	55.1	36.68	13.72	60.51	300	0	P	H
		4872	42.78	-31.22	74	56.84	34.69	11.28	60.03	300	360	P	V
		7308	44.57	-29.43	74	54.68	36.68	13.72	60.51	300	360	P	V
802.11b CH 11 2462MHz		4926	42.31	-31.69	74	56.21	34.77	11.35	60.02	300	0	P	H
		7386	44.04	-29.96	74	54.13	36.64	13.8	60.53	300	0	P	H
		4926	43.91	-30.09	74	57.81	34.77	11.35	60.02	300	360	P	V
		7386	44.49	-29.51	74	54.58	36.64	13.8	60.53	300	360	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		2339.64	53.02	-20.98	74	49.3	30.45	7.63	34.36	123	272	P	H
		2389.95	42.93	-11.07	54	39.05	30.5	7.72	34.34	123	272	A	H
	*	2414	100.76	-	-	96.75	30.57	7.75	34.31	123	272	P	H
	*	2414	92.54	-	-	88.53	30.57	7.75	34.31	123	272	A	H
		2341.46	53.41	-20.59	74	49.69	30.45	7.63	34.36	101	207	P	V
		2389.95	41.63	-12.37	54	37.75	30.5	7.72	34.34	101	207	A	V
	*	2412	92.57	-	-	88.56	30.57	7.75	34.31	101	207	P	V
	*	2412	84.66	-	-	80.65	30.57	7.75	34.31	101	207	A	V
802.11g CH 11 2462MHz		2483.98	55.75	-18.25	74	51.29	30.86	7.86	34.26	113	247	P	H
		2483.5	43.87	-10.13	54	39.41	30.86	7.86	34.26	113	247	A	H
	*	2466	100.71	-	-	96.35	30.79	7.83	34.26	113	247	P	H
	*	2464	92.58	-	-	88.22	30.79	7.83	34.26	113	247	A	H
		2484.76	53.51	-20.49	74	49.05	30.86	7.86	34.26	296	50	P	V
		2483.5	42.98	-11.02	54	38.52	30.86	7.86	34.26	296	50	A	V
	*	2464	98.09	-	-	93.73	30.79	7.83	34.26	296	50	P	V
	*	2462	90.38	-	-	86.04	30.79	7.83	34.28	296	50	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 802.11g (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	43.12	-30.88	74	57.34	34.61	11.21	60.04	300	0	P	H
		4824	43.97	-30.03	74	58.19	34.61	11.21	60.04	300	360	P	V
802.11g CH 06 2437MHz		4872	40.99	-33.01	74	55.05	34.69	11.28	60.03	300	0	P	H
		7308	44.19	-29.81	74	54.3	36.68	13.72	60.51	300	0	P	H
		4872	41.26	-32.74	74	55.32	34.69	11.28	60.03	300	360	P	V
		7308	44.5	-29.5	74	54.61	36.68	13.72	60.51	300	360	P	V
802.11g CH 11 2462MHz		4926	42.65	-31.35	74	56.55	34.77	11.35	60.02	300	0	P	H
		7386	44.11	-29.89	74	54.2	36.64	13.8	60.53	300	0	P	H
		4926	42.56	-31.44	74	56.46	34.77	11.35	60.02	300	360	P	V
		7386	43.76	-30.24	74	53.85	36.64	13.8	60.53	300	360	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)
		2389.56	53.82	-20.18	74	49.94	30.5	7.72	34.34	169	276	P	H
		2389.95	42.97	-11.03	54	39.09	30.5	7.72	34.34	169	276	A	H
802.11n	*	2410	100.22	-	-	96.24	30.57	7.75	34.34	169	276	P	H
HT20	*	2414	92.04	-	-	88.03	30.57	7.75	34.31	169	276	A	H
CH 01		2376.04	53.03	-20.97	74	49.21	30.48	7.69	34.35	389	4	P	V
2412MHz		2389.95	42.14	-11.86	54	38.26	30.5	7.72	34.34	389	4	A	V
	*	2412	95.23	-	-	91.22	30.57	7.75	34.31	389	4	P	V
	*	2412	86.9	-	-	82.89	30.57	7.75	34.31	389	4	A	V
		2484.34	56.69	-17.31	74	52.23	30.86	7.86	34.26	101	249	P	H
		2483.5	45.69	-8.31	54	41.23	30.86	7.86	34.26	101	249	A	H
802.11n	*	2466	103.43	-	-	99.07	30.79	7.83	34.26	101	249	P	H
HT20	*	2464	95.55	-	-	91.19	30.79	7.83	34.26	101	249	A	H
CH 11		2483.68	53.55	-20.45	74	49.09	30.86	7.86	34.26	324	84	P	V
2462MHz		2483.62	42.65	-11.35	54	38.19	30.86	7.86	34.26	324	84	A	V
	*	2464	95.52	-	-	91.16	30.79	7.83	34.26	324	84	P	V
	*	2464	86.74	-	-	82.38	30.79	7.83	34.26	324	84	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 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)
802.11n HT20 CH 01 2412MHz		4824	43.56	-30.44	74	57.78	34.61	11.21	60.04	300	0	P	H
		4824	45.83	-28.17	74	60.05	34.61	11.21	60.04	300	360	P	V
802.11n HT20 CH 06 2437MHz		4872	41.04	-32.96	74	55.1	34.69	11.28	60.03	300	0	P	H
		7308	44.63	-29.37	74	54.74	36.68	13.72	60.51	300	0	P	H
		4872	41.32	-32.68	74	55.38	34.69	11.28	60.03	300	360	P	V
		7308	44.58	-29.42	74	54.69	36.68	13.72	60.51	300	360	P	V
802.11n HT20 CH 11 2462MHz		4926	41.86	-32.14	74	55.76	34.77	11.35	60.02	300	0	P	H
		7386	44.29	-29.71	74	54.38	36.64	13.8	60.53	300	0	P	H
		4926	42.54	-31.46	74	56.44	34.77	11.35	60.02	300	360	P	V
		7386	45.24	-28.76	74	55.33	36.64	13.8	60.53	300	360	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Emission below 1GHz

2.4GHz WIFI 802.11n HT20 (LF)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz 802.11n HT20 LF		40.67	31.95	-8.05	40	51.49	19.38	0.96	39.88	-	-	P	H
		46.49	32.98	-7.02	40	55.34	16.53	1.03	39.92	-	-	P	H
		108.57	28.26	-15.24	43.5	47.48	18	1.57	38.79	-	-	P	H
		187.14	32.95	-10.55	43.5	52.96	16.61	2.08	38.7	-	-	P	H
		264.74	31.76	-14.24	46	48.02	19.64	2.48	38.38	-	-	P	H
		749.74	25.48	-20.52	46	28.94	26.5	4.19	34.15	-	-	P	H
		40.67	33.22	-6.78	40	52.76	19.38	0.96	39.88	-	-	P	V
		109.54	30.19	-13.31	43.5	49.43	17.98	1.58	38.8	-	-	P	V
		163.86	28.51	-14.99	43.5	48.47	17.17	1.95	39.08	-	-	P	V
		187.14	30.1	-13.4	43.5	50.11	16.61	2.08	38.7	-	-	P	V
		238.55	30.15	-15.85	46	47.61	18.68	2.36	38.5	-	-	P	V
		827.34	30.33	-15.67	46	32.2	27.06	4.39	33.32	-	-	P	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

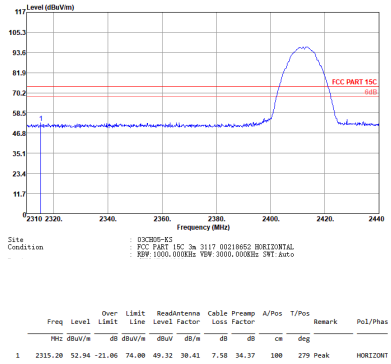
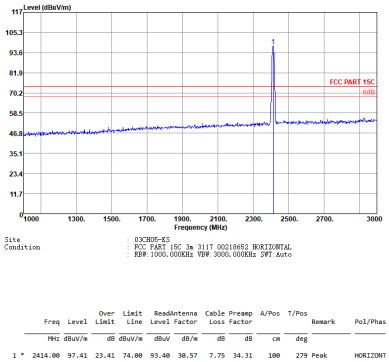
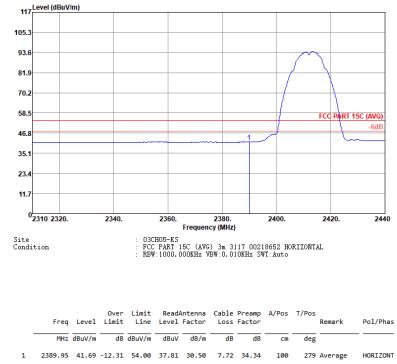
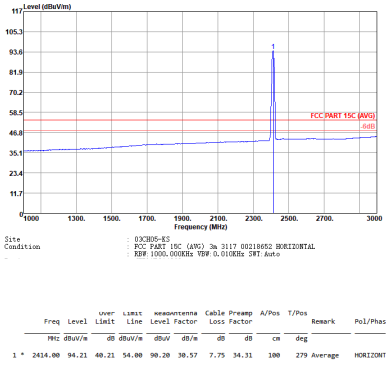
Test Engineer :	Henzy LI	**Temperature :**	27~30°C
		Relative Humidity :	55~60%

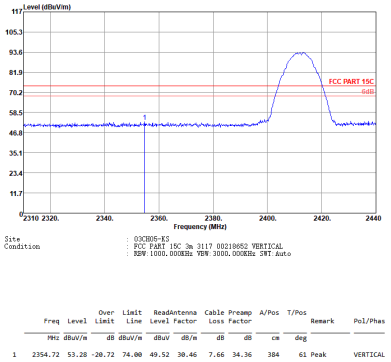
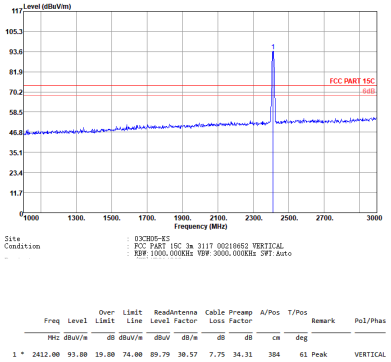
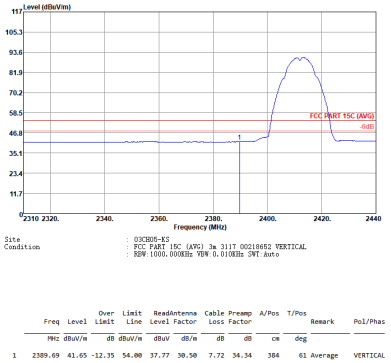
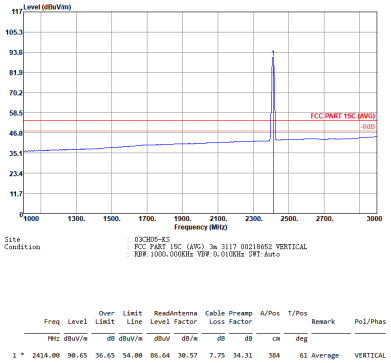
Note symbol

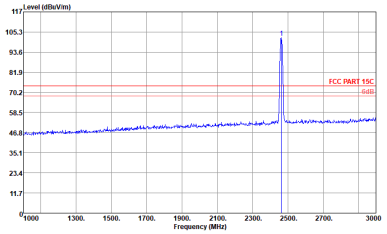
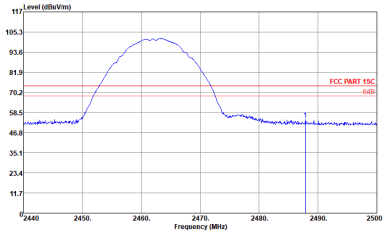
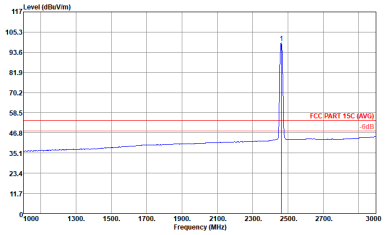
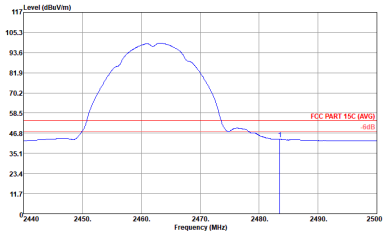
-L	**Low channel location**
-R	**High channel location**

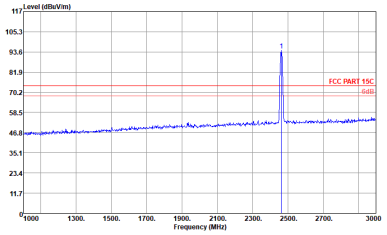
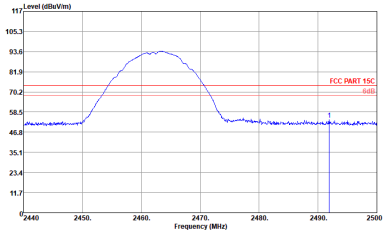
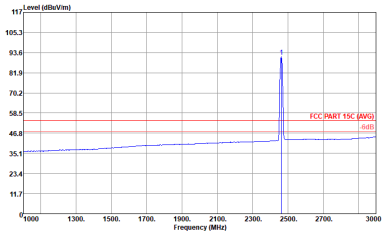
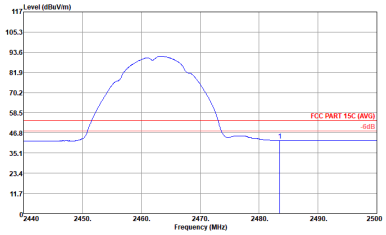
2.4GHz 2400~2483.5MHz

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.		

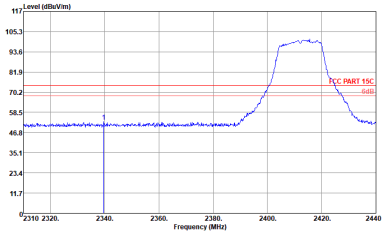
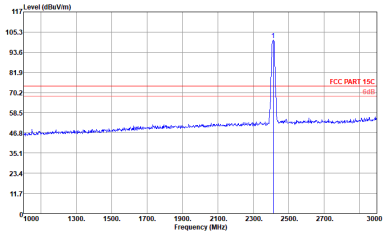
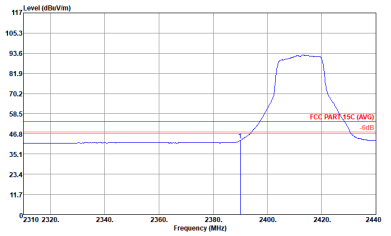
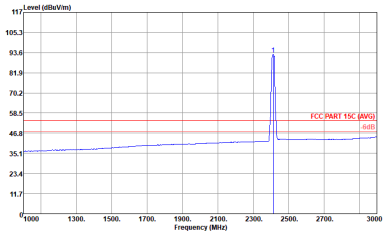
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH05-KS Condition : FCC PART 15C 3m 3117 00218652 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 2354.72 53.28 -20.72 74.00 49.52 30.46 7.66 34.36 384 61 Peak VERTICAL	 Site : 03CH05-KS Condition : FCC PART 15C 3m 3117 00218652 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 * 2412.00 93.80 19.80 74.00 89.79 30.57 7.75 34.31 384 61 Peak VERTICAL
Avg.	 Site : 03CH05-KS Condition : FCC PART 15C (AVG) 3m 3117 00218652 VERTICAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 2389.69 41.65 -12.35 54.00 37.77 30.50 7.72 34.34 384 61 Average VERTICAL	 Site : 03CH05-KS Condition : FCC PART 15C (AVG) 3m 3117 00218652 VERTICAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 * 2414.00 90.65 36.65 54.00 86.64 30.57 7.75 34.31 384 61 Average VERTICAL

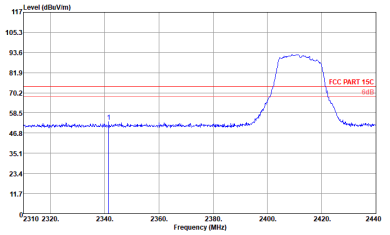
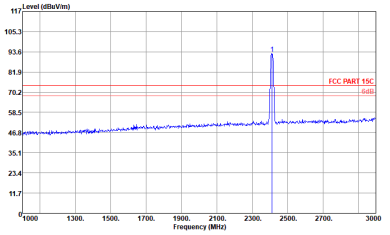
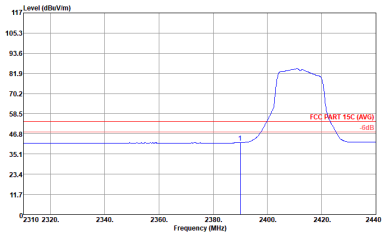
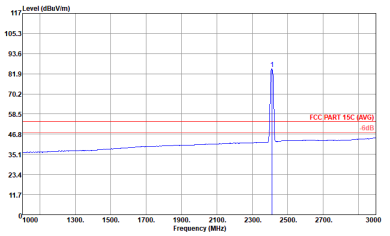
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CH05-KS Condition : FCC PART 15C 3m 3117 00218652 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Freq Level Over Limit Limit ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 * 2464.00 102.09 28.09 74.00 97.73 30.79 7.83 34.26 100 244 Peak HORIZONT	 Site : 03CH05-KS Condition : FCC PART 15C 3m 3117 00218652 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Freq Level Over Limit Limit ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 2487.88 54.45 -19.55 74.00 49.89 30.93 7.89 34.26 100 244 Peak HORIZONT
Avg.	 Site : 03CH05-KS Condition : FCC PART 15C (AVG) 3m 3117 00218652 HORIZONTAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Freq Level Over Limit Limit ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 * 2464.00 98.98 44.98 54.00 94.62 30.79 7.83 34.26 100 244 Average HORIZONT	 Site : 03CH05-KS Condition : FCC PART 15C (AVG) 3m 3117 00218652 HORIZONTAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Freq Level Over Limit Limit ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 2483.50 43.27 -10.73 54.00 38.81 30.86 7.86 34.26 100 244 Average HORIZONT

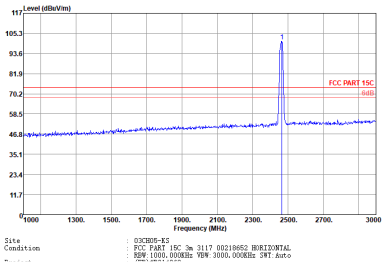
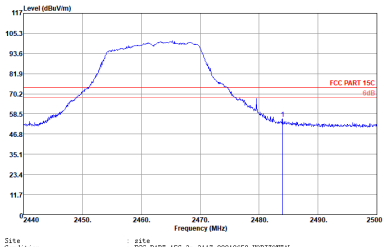
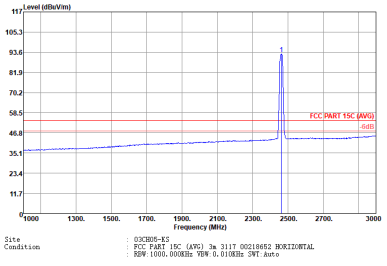
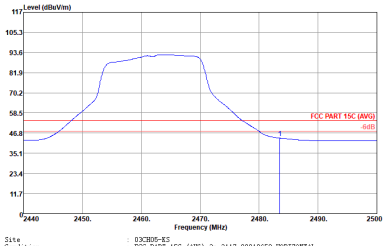
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
1	Vertical	Fundamental
Peak	 Freq Level Over Limit Limit Read Level Antenna Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 * 2464.00 94.42 20.42 74.00 90.86 30.79 7.83 34.26 400 52 Peak VERTICAL	 Freq Level Over Limit Limit Read Level Antenna Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 2491.90 54.08 -19.92 74.00 49.49 30.93 7.89 34.23 400 52 Peak VERTICAL
Avg.	 Freq Level Over Limit Limit Read Level Antenna Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 * 2464.00 91.29 37.29 54.00 86.93 30.79 7.83 34.26 400 52 Average VERTICAL	 Freq Level Over Limit Limit Read Level Antenna Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 2483.50 42.42 -11.58 54.00 37.96 30.86 7.86 34.26 400 52 Average VERTICAL

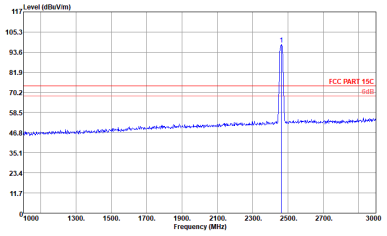
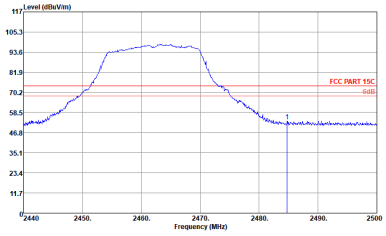
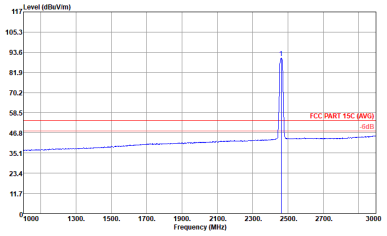
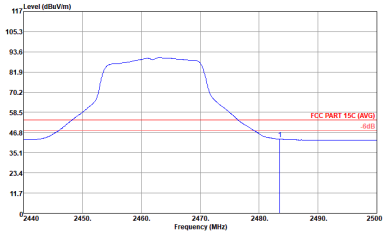
2.4GHz 2400~2483.5MHz

WIFI 802.11g (Band Edge @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CH05-KS Condition : FCC PART 15C 3m 3117 00218652 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Freq Level Over Limit Limit ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 2339.64 53.02 -20.98 74.00 49.30 30.45 7.63 34.36 123 272 Peak HORIZONT	 Site : 03CH05-KS Condition : FCC PART 15C 3m 3117 00218652 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Freq Level Over Limit Limit ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 * 2414.00 100.76 26.76 74.00 96.75 30.57 7.75 34.31 123 272 Peak HORIZONT
Avg.	 Site : 03CH05-KS Condition : FCC PART 15C (AVG) 3m 3117 00218652 HORIZONTAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Freq Level Over Limit Limit ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 2389.95 42.93 -11.07 54.00 39.05 30.50 7.72 34.34 123 272 Average HORIZONT	 Site : 03CH05-KS Condition : FCC PART 15C (AVG) 3m 3117 00218652 HORIZONTAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Freq Level Over Limit Limit ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 * 2414.00 92.54 38.54 54.00 88.53 30.57 7.75 34.31 123 272 Average HORIZONT

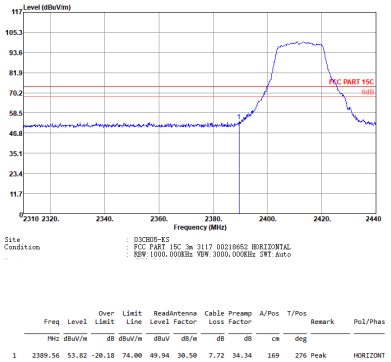
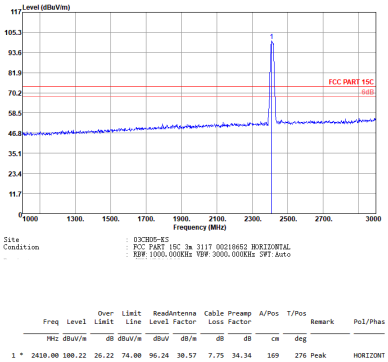
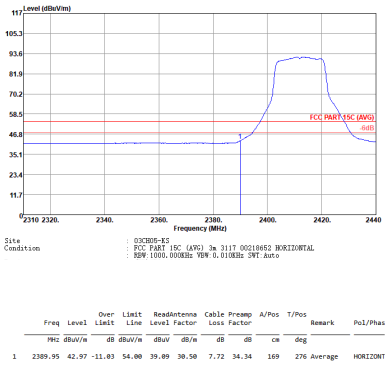
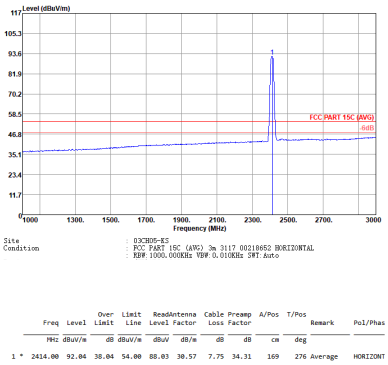
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH05-KS Condition : FCC PART 15C 3m 3117 00218652 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Factor Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 2341.46 53.41 -20.59 74.00 49.69 30.45 7.63 34.36 101 207 Peak VERTICAL	 Site : 03CH05-KS Condition : FCC PART 15C 3m 3117 00218652 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Factor Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 * 2412.00 92.57 18.57 74.00 88.56 30.57 7.75 34.31 101 207 Peak VERTICAL
Avg.	 Site : 03CH05-KS Condition : FCC PART 15C (AVG) 3m 3117 00218652 VERTICAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Factor Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 2389.95 41.63 -12.37 54.00 37.75 30.50 7.72 34.34 101 207 Average VERTICAL	 Site : 03CH05-KS Condition : FCC PART 15C (AVG) 3m 3117 00218652 VERTICAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Factor Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 * 2412.00 84.66 30.66 54.00 80.65 30.57 7.75 34.31 101 207 Average VERTICAL

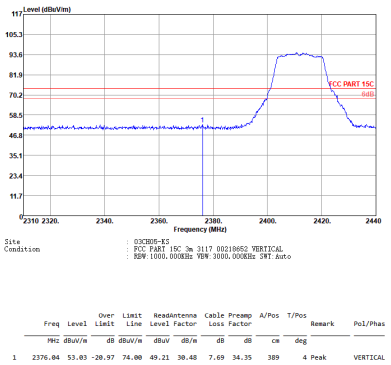
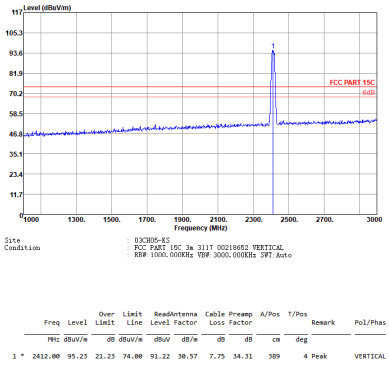
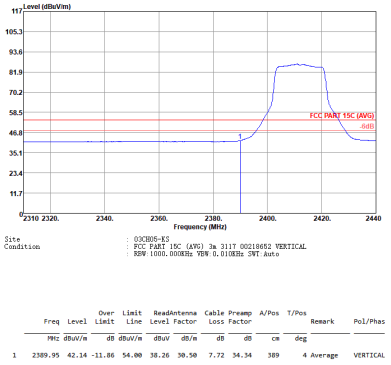
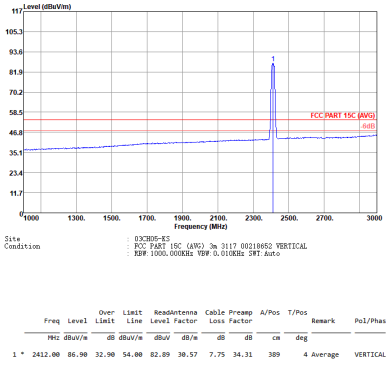
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CH05-KS Condition : FCC PART 15C 3m 3117 00218652 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Freq Level Over Limit Limit Read Level Antenna Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 * 2466.00 100.71 26.71 74.00 96.35 30.79 7.83 34.26 113 247 Peak HORIZONT	 Site : site Condition : FCC PART 15C 3m 3117 00218652 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Freq Level Over Limit Limit Read Level Antenna Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 2483.98 55.75 -18.25 74.00 51.29 30.86 7.86 34.26 113 247 Peak HORIZONT
Avg.	 Site : 03CH05-KS Condition : FCC PART 15C (AVG) 3m 3117 00218652 HORIZONTAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Freq Level Over Limit Limit Read Level Antenna Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 * 2464.00 92.58 38.58 54.00 88.22 30.79 7.83 34.26 113 247 Average HORIZONT	 Site : 03CH05-KS Condition : FCC PART 15C (AVG) 3m 3117 00218652 HORIZONTAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Freq Level Over Limit Limit Read Level Antenna Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 2483.50 43.87 -10.13 54.00 39.41 30.86 7.86 34.26 113 247 Average HORIZONT

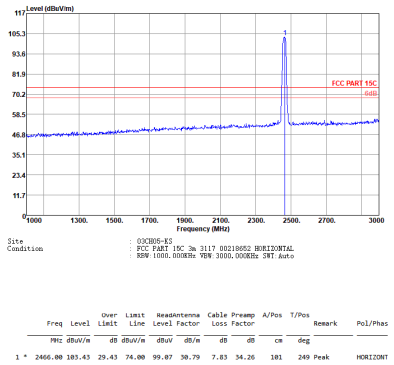
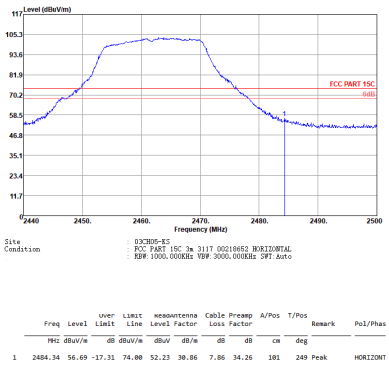
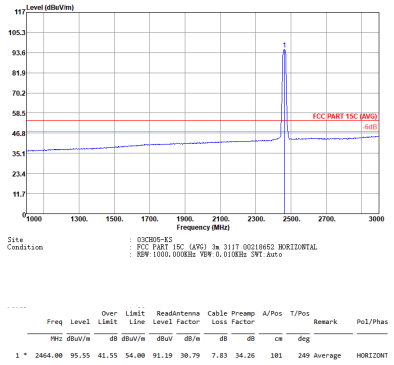
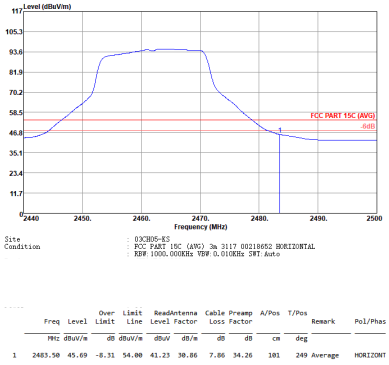
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH05-KS Condition : FCC PART 15C 3m 3117 00218652 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Freq / Level / Over Limit / Limit Line / ReadAntenna Level Factor / Cable Loss Factor / Preamp Factor / A/Pos / T/Pos / Remark / Pol/Phas MHz / dBuV/m / dB / dBuV/m / dBuV / dB/m / dB / dB / cm / deg 1 * 2464.00 98.09 24.09 74.00 93.73 30.79 7.83 34.26 296 50 Peak VERTICAL	 Site : 03CH05-KS Condition : FCC PART 15C 3m 3117 00218652 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Freq / Level / Over Limit / Limit Line / ReadAntenna Level Factor / Cable Loss Factor / Preamp Factor / A/Pos / T/Pos / Remark / Pol/Phas MHz / dBuV/m / dB / dBuV/m / dBuV / dB/m / dB / dB / cm / deg 1 2484.76 53.51 -20.49 74.00 49.05 30.86 7.86 34.26 296 50 Peak VERTICAL
Avg.	 Site : 03CH05-KS Condition : FCC PART 15C (AVG) 3m 3117 00218652 VERTICAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Freq / Level / Over Limit / Limit Line / ReadAntenna Level Factor / Cable Loss Factor / Preamp Factor / A/Pos / T/Pos / Remark / Pol/Phas MHz / dBuV/m / dB / dBuV/m / dBuV / dB/m / dB / dB / cm / deg 1 * 2462.00 90.38 36.38 54.00 86.04 30.79 7.83 34.28 296 50 Average VERTICAL	 Site : 03CH05-KS Condition : FCC PART 15C (AVG) 3m 3117 00218652 VERTICAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Freq / Level / Over Limit / Limit Line / ReadAntenna Level Factor / Cable Loss Factor / Preamp Factor / A/Pos / T/Pos / Remark / Pol/Phas MHz / dBuV/m / dB / dBuV/m / dBuV / dB/m / dB / dB / cm / deg 1 2483.50 42.98 -11.02 54.00 38.52 30.86 7.86 34.26 296 50 Average VERTICAL

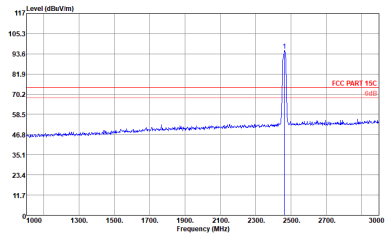
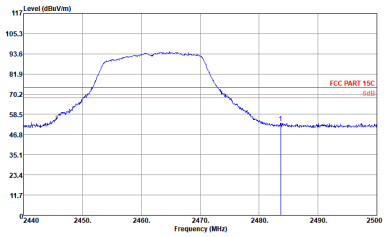
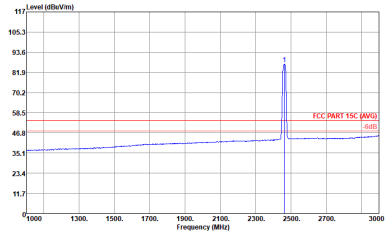
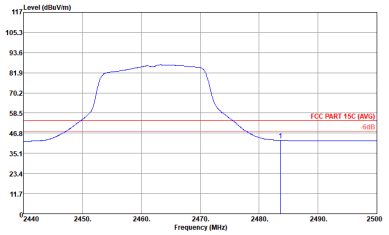
2.4GHz 2400~2483.5MHz

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.		

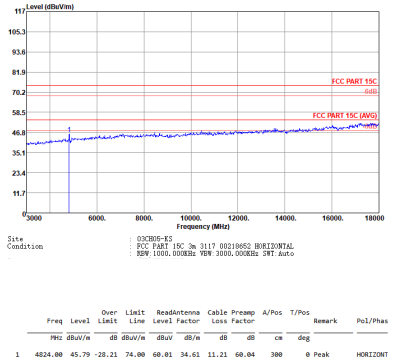
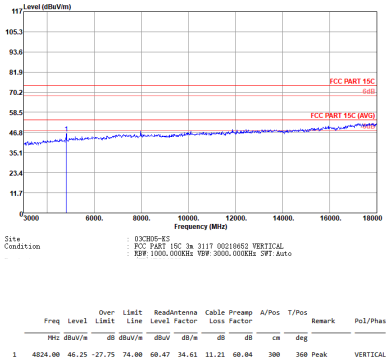
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH05-KS Condition : FCC PART 15C 3m 3117 00218652 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Factor Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 2376.04 53.03 -20.97 74.00 49.21 30.48 7.69 34.35 389 4 Peak VERTICAL	 Site : 03CH05-KS Condition : FCC PART 15C 3m 3117 00218652 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Factor Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 * 2412.00 95.23 21.23 74.00 91.22 30.57 7.75 34.31 389 4 Peak VERTICAL
Avg.	 Site : 03CH05-KS Condition : FCC PART 15C (AVG) 3m 3117 00218652 VERTICAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Factor Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 2389.95 42.14 -11.86 54.00 38.26 30.50 7.72 34.34 389 4 Average VERTICAL	 Site : 03CH05-KS Condition : FCC PART 15C (AVG) 3m 3117 00218652 VERTICAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Factor Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 * 2412.00 86.90 32.90 54.00 82.89 30.57 7.75 34.31 389 4 Average VERTICAL

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CH05-KS Condition : FCC PART 15C 3m 3117 00218652 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Freq Level Over Limit Limit ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 * 2466.00 103.43 29.43 74.00 99.07 30.79 7.83 34.26 101 249 Peak HORIZONT	 Site : 03CH05-KS Condition : FCC PART 15C 3m 3117 00218652 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Freq Level Over Limit Limit ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 2484.34 56.69 -17.31 74.00 52.23 30.86 7.86 34.26 101 249 Peak HORIZONT
Avg.	 Site : 03CH05-KS Condition : FCC PART 15C (AVG) 3m 3117 00218652 HORIZONTAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Freq Level Over Limit Limit ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 * 2464.00 95.55 41.55 54.00 91.19 30.79 7.83 34.26 101 249 Average HORIZONT	 Site : 03CH05-KS Condition : FCC PART 15C (AVG) 3m 3117 00218652 HORIZONTAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Freq Level Over Limit Limit ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 2483.50 45.69 -8.31 54.00 41.23 30.86 7.86 34.26 101 249 Average HORIZONT

WIFI	2.4GHz 2400~2483.5MHz Fundamental @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH05-KS Condition : FCC PART 15C 3m 3117 00218652 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Freq Level Over Limit Limit Read Level Antenna Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 * 2464.00 95.52 21.52 74.00 91.16 30.79 7.83 34.26 324 84 Peak VERTICAL	 Site : 03CH05-KS Condition : FCC PART 15C 3m 3117 00218652 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Freq Level Over Limit Limit Read Level Antenna Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 2483.68 53.55 -20.45 74.00 49.09 30.86 7.86 34.26 324 84 Peak VERTICAL
Avg.	 Site : 03CH05-KS Condition : FCC PART 15C (AVG) 3m 3117 00218652 VERTICAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Freq Level Over Limit Limit Read Level Antenna Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 * 2464.00 86.74 32.74 54.00 82.38 30.79 7.83 34.26 324 84 Average VERTICAL	 Site : 03CH05-KS Condition : FCC PART 15C (AVG) 3m 3117 00218652 VERTICAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Freq Level Over Limit Limit Read Level Antenna Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 2483.62 42.65 -11.35 54.00 38.19 30.86 7.86 34.26 324 84 Average VERTICAL

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Harmonic @ 3m)

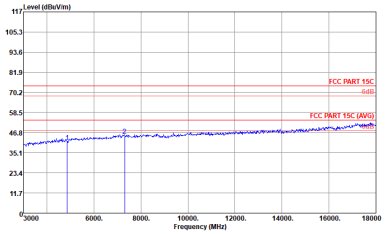
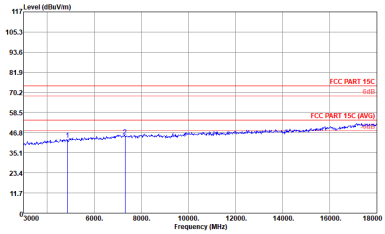
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH01 2412MHz	
1	Horizontal	Vertical
Peak Avg.		

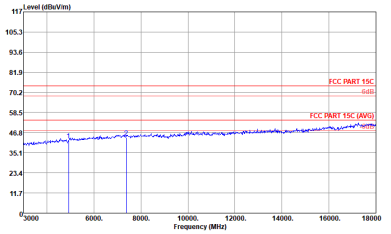
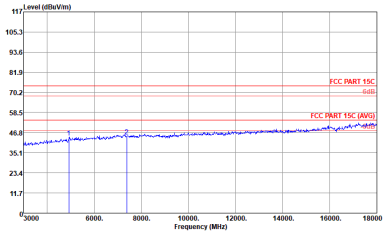
Site : 03CH05-KS
Condition : FCC PART 15C 3m 3117 00210652 HORIZONTAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phas
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg		
1	4824.00	45.79	-28.21	74.00	60.01	34.61	11.21	60.04	300	0	Peak	HORIZONT

Site : 03CH05-KS
Condition : FCC PART 15C 3m 3117 00210652 VERTICAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

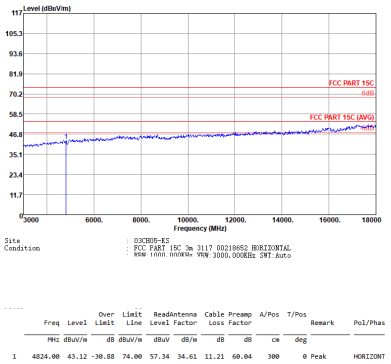
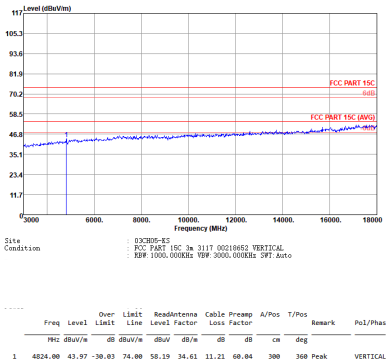
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phas
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg		
1	4824.00	46.25	-27.75	74.00	60.47	34.61	11.21	60.04	300	360	Peak	VERTICAL

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH06 2437MHz	
1	Horizontal	Vertical
Peak Avg.	 Site : 03CH06-KS Condition : FCC PART 15C 3m 3117 00218652 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Freq / Level / Over Limit / Limit Line / ReadAntenna Level / Cable Loss / Preamp Factor / A/Pos / T/Pos / Remark / Pol/Phas MHz / dBuV/m / dB / dBuV/m / dBuV / dB/m / dB / dB / cm / deg 1 4872.00 41.44 -32.56 74.00 55.50 34.69 11.28 60.03 300 0 Peak HORIZONT 2 7308.00 44.99 -29.01 74.00 55.10 36.68 13.72 60.51 300 0 Peak HORIZONT	 Site : 03CH06-KS Condition : FCC PART 15C 3m 3117 00218652 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Freq / Level / Over Limit / Limit Line / ReadAntenna Level / Cable Loss / Preamp Factor / A/Pos / T/Pos / Remark / Pol/Phas MHz / dBuV/m / dB / dBuV/m / dBuV / dB/m / dB / dB / cm / deg 1 4872.00 42.78 -31.22 74.00 56.84 34.69 11.28 60.03 300 360 Peak VERTICAL 2 7308.00 44.57 -29.43 74.00 54.68 36.68 13.72 60.51 300 360 Peak VERTICAL

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH11 2462MHz	
1	Horizontal	Vertical
Peak Avg.	 Over Limit Read Antenna Cable Preamp A/Pos T/Pos Freq Level Limit Line Level Factor Loss Factor Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 4926.00 42.31 -31.69 74.00 56.21 34.77 11.35 60.02 300 0 Peak HORIZONT 2 7386.00 44.04 -29.96 74.00 54.13 36.64 13.80 60.53 300 0 Peak HORIZONT	 Over Limit Read Antenna Cable Preamp A/Pos T/Pos Freq Level Limit Line Level Factor Loss Factor Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 4926.00 43.91 -30.09 74.00 57.81 34.77 11.35 60.02 300 360 Peak VERTICAL 2 7386.00 44.49 -29.51 74.00 54.58 36.64 13.80 60.53 300 360 Peak VERTICAL

2.4GHz 2400~2483.5MHz

WIFI 802.11g (Harmonic @ 3m)

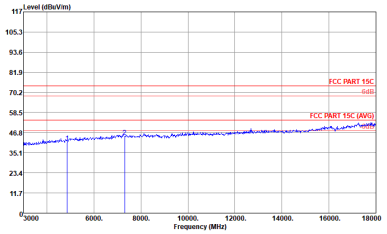
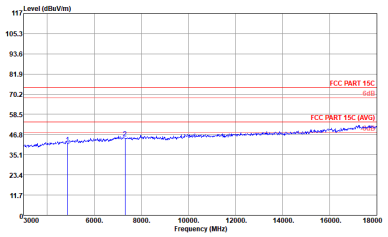
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH01 2412MHz	
1	Horizontal	Vertical
Peak Avg.		

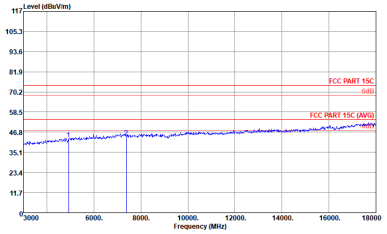
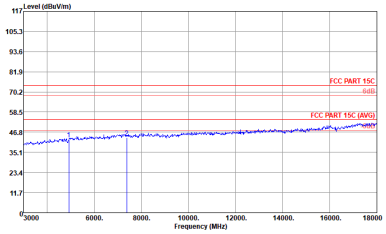
Site : 03CH05-KS
Condition : FCC PART 15C 3m 3117 00210652 HORIZONTAL
RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	A/Pos	T/Pos	Remark	Pol/Phas
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	cm	deg		
1	4824.00	43.12	-30.88	74.00	57.34	34.61	11.21	60.04	300	0 Peak	HORIZONT

Site : 03CH05-KS
Condition : FCC PART 15C 3m 3117 00210652 VERTICAL
RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

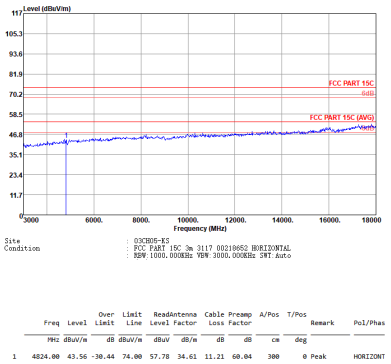
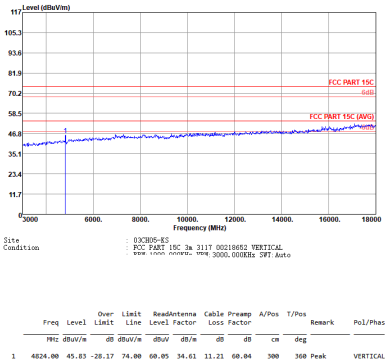
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	A/Pos	T/Pos	Remark	Pol/Phas
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	cm	deg		
1	4824.00	43.97	-30.03	74.00	58.19	34.61	11.21	60.04	300	360 Peak	VERTICAL

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH06 2437MHz	
1	Horizontal	Vertical
Peak Avg.	 Site : 03CH05-KS Condition : FCC PART 15C 3m 3117 00218652 HORIZONTAL RBW 1000.000KHz VBW 3000.000KHz SWT Auto Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 4872.00 40.99 -33.01 74.00 55.05 34.69 11.28 60.03 300 0 Peak HORIZONT 2 7308.00 44.19 -29.81 74.00 54.30 36.68 13.72 60.51 300 0 Peak HORIZONT	 Site : 03CH05-KS Condition : FCC PART 15C 3m 3117 00218652 VERTICAL RBW 1000.000KHz VBW 3000.000KHz SWT Auto Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 4872.00 41.26 -32.74 74.00 55.32 34.69 11.28 60.03 300 360 Peak VERTICAL 2 7308.00 44.50 -29.50 74.00 54.61 36.68 13.72 60.51 300 360 Peak VERTICAL

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH11 2462MHz	
1	Horizontal	Vertical
Peak Avg.	 Site : 03CH05-KS Condition : FCC PART 15C 3m 3117 00210652 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Freq / Level / Over Limit / Limit Line / ReadAntenna Level / Cable Factor / Preamp Loss / A/Pos / T/Pos / Remark / Pol/Phas MHz / dBuV/m / dB / dBuV/m / dBuV / dB/m / dB / dB / cm / deg 1 4926.00 42.65 -31.35 74.00 56.55 34.77 11.35 60.02 300 0 Peak HORIZONT 2 7386.00 44.11 -29.89 74.00 54.20 36.64 13.80 60.53 300 0 Peak HORIZONT	 Site : 03CH05-KS Condition : FCC PART 15C 3m 3117 00210652 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Freq / Level / Over Limit / Limit Line / ReadAntenna Level / Cable Factor / Preamp Loss / A/Pos / T/Pos / Remark / Pol/Phas MHz / dBuV/m / dB / dBuV/m / dBuV / dB/m / dB / dB / cm / deg 1 4926.00 42.56 -31.44 74.00 56.46 34.77 11.35 60.02 300 360 Peak VERTICAL 2 7386.00 43.76 -30.24 74.00 53.85 36.64 13.80 60.53 300 360 Peak VERTICAL

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

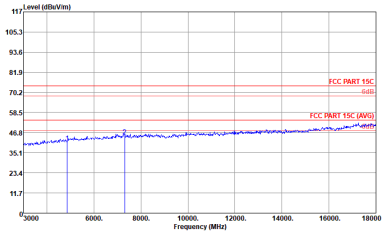
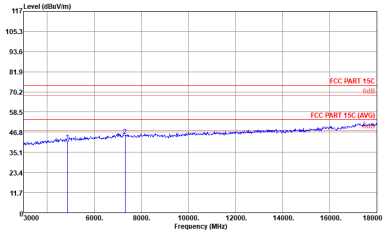
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
1	Horizontal	Vertical
Peak Avg.		

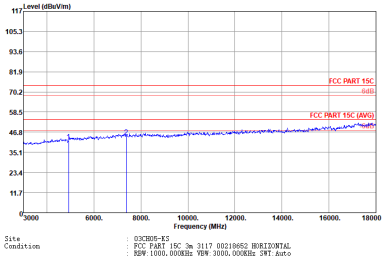
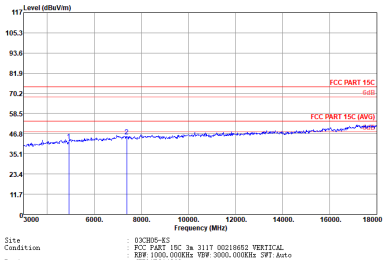
Site : 03CH05-KS
Condition : FCC PART 15C 3m 3117 00210652 HORIZONTAL
RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phas
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg		
1	4824.00	43.56	-30.44	74.00	57.78	34.61	11.21	60.04	300	0	Peak	HORIZONT

Site : 03CH05-KS
Condition : FCC PART 15C 3m 3117 00210652 VERTICAL
RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

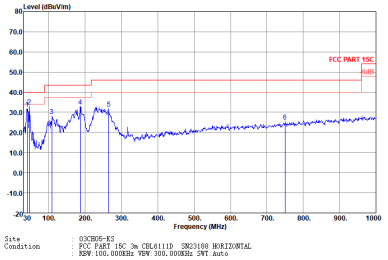
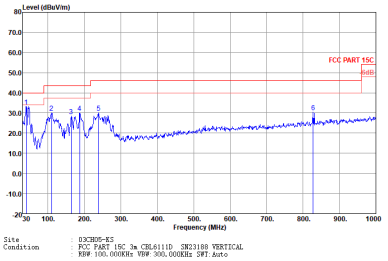
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phas
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg		
1	4824.00	45.83	-28.17	74.00	60.05	34.61	11.21	60.04	300	360	Peak	VERTICAL

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH06 2437MHz	
1	Horizontal	Vertical
Peak Avg.	 Site : 03CH06-KS Condition : FCC PART 15C 3m 3117 00210652 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 4872.00 41.04 -32.96 74.00 55.10 34.69 11.28 60.03 300 0 Peak HORIZONT 2 7308.00 44.65 -29.37 74.00 54.74 36.68 13.72 60.51 300 0 Peak HORIZONT	 Site : 03CH06-KS Condition : FCC PART 15C 3m 3117 00210652 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 4872.00 41.32 -32.68 74.00 55.38 34.69 11.28 60.03 300 360 Peak VERTICAL 2 7308.00 44.58 -29.42 74.00 54.69 36.68 13.72 60.51 300 360 Peak VERTICAL

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
1	Horizontal	Vertical
Peak Avg.	 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 4926.00 41.86 -32.14 74.00 55.76 34.77 11.35 60.02 300 0 Peak HORIZONT 2 7386.00 44.29 -29.71 74.00 54.38 36.64 13.80 60.53 300 0 Peak HORIZONT	 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 4926.00 42.54 -31.46 74.00 56.44 34.77 11.35 60.02 300 360 Peak VERTICAL 2 7386.00 45.24 -28.76 74.00 55.33 36.64 13.80 60.53 300 360 Peak VERTICAL

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		

Site : 03CH05-KS
Condition : FCC PART 15C 3m CBL6111D SN23188 HORIZONTAL
RBW:100.000KHz VBW:300.000KHz SWT:Auto

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	A/Pos Factor	T/Pos	Remark	Pol/Phas
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	cm	deg		
1	40.67	31.95	-8.05	40.00	51.49	19.38	0.96	39.88	---	---	Peak	HORIZONT
2	46.49	32.98	-7.02	40.00	55.34	16.53	1.03	39.92	---	---	Peak	HORIZONT
3	108.57	28.26	-15.24	43.50	47.48	18.00	1.57	38.79	---	---	Peak	HORIZONT
4	187.14	32.95	-10.55	43.50	52.96	16.61	2.08	38.70	---	---	Peak	HORIZONT
5	264.74	31.76	-14.24	46.00	48.02	19.64	2.48	38.38	---	---	Peak	HORIZONT
6	749.74	25.48	-20.52	46.00	28.94	26.50	4.19	34.15	---	---	Peak	HORIZONT

Site : 03CH05-KS
Condition : FCC PART 15C 3m CBL6111D SN23188 VERTICAL
RBW:100.000KHz VBW:300.000KHz SWT:Auto

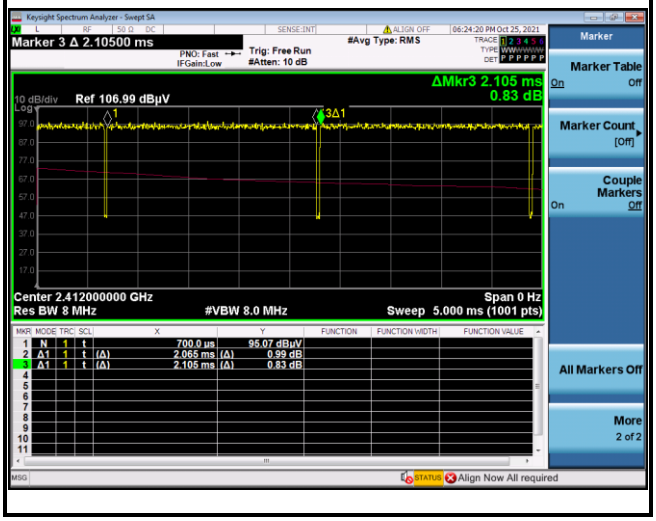
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	A/Pos Factor	T/Pos	Remark	Pol/Phas
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	cm	deg		
1	40.67	33.22	-6.78	40.00	52.76	19.38	0.96	39.88	---	---	Peak	VERTICAL
2	109.54	30.19	-13.31	43.50	49.43	17.98	1.58	38.80	---	---	Peak	VERTICAL
3	163.86	28.51	-14.99	43.50	48.47	17.17	1.95	39.08	---	---	Peak	VERTICAL
4	187.14	30.10	-13.40	43.50	50.11	16.61	2.08	38.70	---	---	Peak	VERTICAL
5	238.55	30.15	-15.85	46.00	47.61	18.68	2.36	38.50	---	---	Peak	VERTICAL
6	827.34	30.33	-15.67	46.00	32.20	27.06	4.39	33.32	---	---	Peak	VERTICAL

Appendix E. Duty Cycle Plots

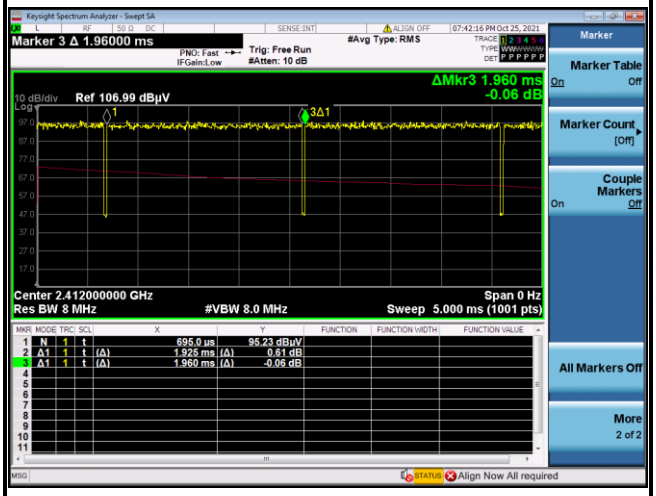
Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting	Duty Factor(dB)
WLAN 2.4GHz 802.11b	100	-	-	10Hz	0
WLAN 2.4GHz 802.11g	98.10	-	-	10Hz	0.08
WLAN 2.4GHz 802.11n-HT20	98.21	-	-	10Hz	0.08

802.11b-DVT1

802.11g-DVT1



802.11n HT20-DVT1



————THE END————