FCC RADIO TEST REPORT

FCC ID	:	**Z64-CC3135MOD**
Equipment	:	**Dual-Band Wi-Fi® Network Processor Module**
Brand Name	:	**Texas Instruments**
Model Name	:	**CC3135MODRNMMOB**
Marketing Name	:	**SimpleLink™ Wi-Fi CC3135MOD Dual-Band Network Processor Module**
Applicant	:	**Texas Instruments Incorported 12500 TI BLVD., Dallas Texas, 75243**
Manufacturer	:	**Texas Instruments Incorported 12500 TI BLVD., Dallas Texas, 75243**
Standard	:	**FCC Part 15 Subpart C §15.247**

The product was received on Dec. 19, 2018 and testing was started from May 20, 2019 and completed on Aug. 06, 2019. We, SPORTON INTERNATIONAL INC., EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

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

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

Approved by: Jones Tsai

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)

Table of Contents

History of this test report

Report No.	Version	Description	Issued Date
FR8D1931A	01	Initial issue of report	Aug. 08, 2019

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.1	15.247(a)(2)	6dB Bandwidth	Pass	-
3.1	2.1049	99% Occupied Bandwidth	Reporting only	-
3.2	15.247(b)	Power Output Measurement	Pass	-
3.3	15.247(e)	Power Spectral Density	Pass	-
3.4	15.247(d)	Conducted Band Edges	Pass	-
		Conducted Spurious Emission	Pass	-
3.5	15.247(d)	Radiated Band Edges and Radiated Spurious Emission	Pass	Under limit 6.41 dB at 714.82 MHz
3.6	15.207	AC Conducted Emission	Pass	Under limit 12.53 dB at 0.17925 MHz
3.7	15.203 & 15.247(b)	Antenna Requirement	Pass	-

Remark: Not required means after assessing, test items are not necessary to carry out.

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

Reviewed by: Wii Chang

Report Producer: Dara Chiu

1 General Description

1.1 Product Feature of Equipment Under Test

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

Antenna Information					
	Antenna Type	Brand Name	Model	2.4GHz Gain(dBi)	5GHz Gain(dBi)
1.	Chip	Pulse	W3078	1.7	4.3
2.		Yageo	ANT5320LL04R2455A	2.17	3.51
3.		Ethertronics	M830520	1	2.6
4.	PCB		1000423	-0.6	4.5
5.		Laird	CAF94504	2	4
6.			CAF94505	2	4
7.	Dipole	LSR	001-0012	2	2
8.			080-0013	2	2
9.			080-0014	2	2
10.	PIFA		001-0016	2.5	3
11.			001-0021	2.5	3
Note: The EUT used a dual-band chip antenna (Antenna 3 from Ethertronics)					

1.2 Modification of EUT

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

1.3 Testing Location

Test Site	SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory	
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978	
Test Site No.	**Sporton Site No.**	
	TH05-HY	CO05-HY

Test Site	SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
Test Site No.	**Sporton Site No.**
	03CH15-HY

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

FCC designation No.: TW1190 and TW0007

1.4 Applicable Standards

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

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

Remark:

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

2 Test Configuration of Equipment Under Test

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

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

2.1 Carrier Frequency and Channel

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

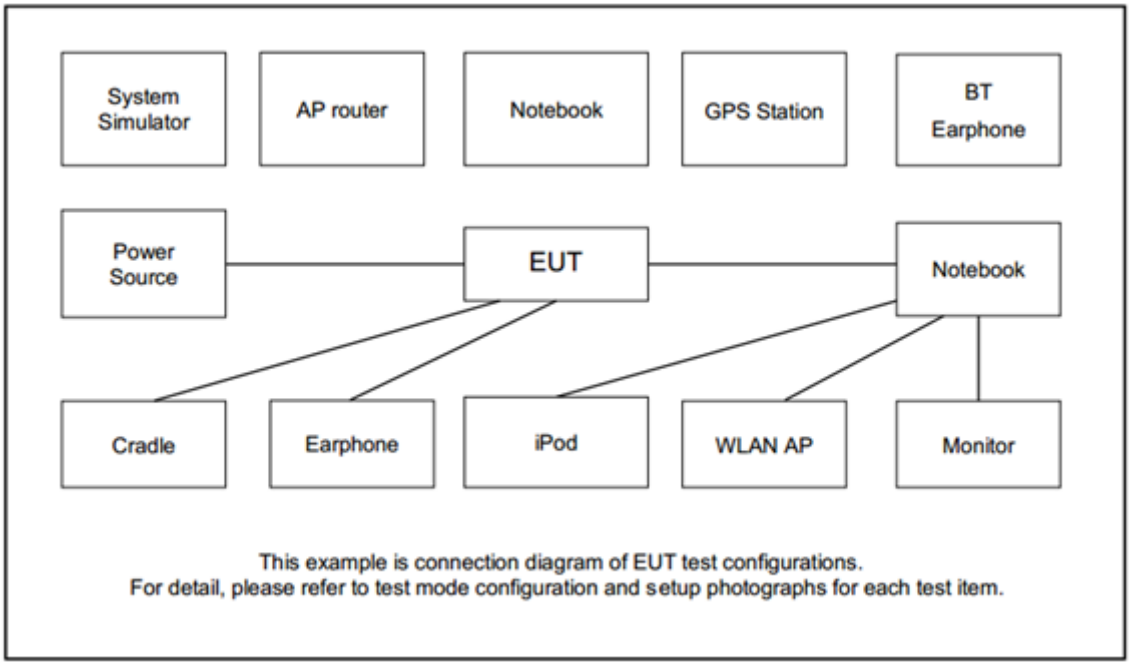
2.2 Test Mode

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

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

Test Cases	
AC Conducted Emission	Mode 1 :WLAN 2.4G Link + USB Cable(Charging from Notebook)

2.3 Connection Diagram of Test System



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	ASUS	RT-AC1750	MSQ-RTAC66U	N/A	Unshielded,1.8m
2.	WLAN AP	D-Link	DIR-865L	KA2IR865LA1	N/A	Unshielded,1.8m
3.	Notebook	Lenovo	L570	NA	N/A	AC I/P：Unshielded, 1.2m DC O/P：Shielded, 1.8m
4.	Notebook	Dell	Latitude E3340	FCC DoC	N/A	AC I/P：Unshielded, 1.2m DC O/P：Shielded, 1.8m
5.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0m	N/A

2.5 EUT Operation Test Setup

The RF test items, utility “CC31XX/CC32XX Radio Tool v1.0.3.10” was installed in Notebook which was programmed in order to make the EUT get into the engineering modes to provide channel selection, power level, data rate and the application type and for continuous transmitting signals.

2.6 Measurement Results Explanation Example

For all conducted test items:

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

Example:
The spectrum analyzer offset is derived from RF cable loss and attenuator factor.
Offset = RF cable loss + attenuator factor.
Following shows an offset computation example with cable loss 12 dB and 10dB attenuator.

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).
= 12 + 10 = 22 (dB)

3 Test Result

3.1 6dB and 99% Bandwidth Measurement

3.1.1 Limit of 6dB and 99% Bandwidth

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

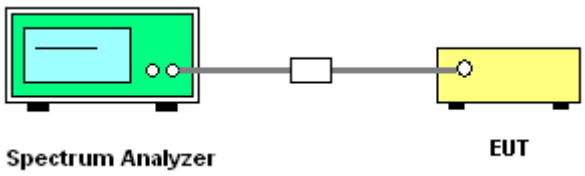
3.1.2 Measuring Instruments

See list of measuring equipment of this test report.

3.1.3 Test Procedures

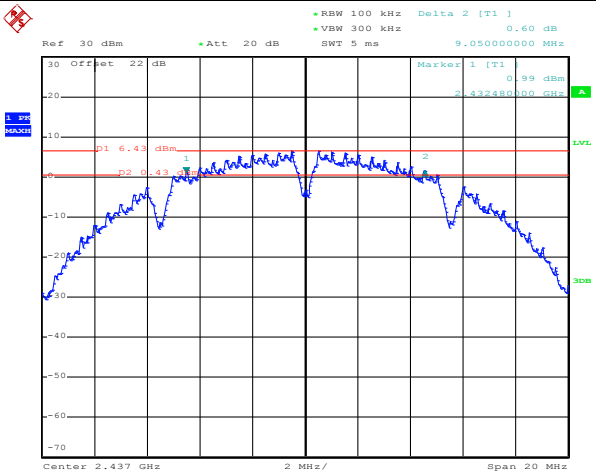
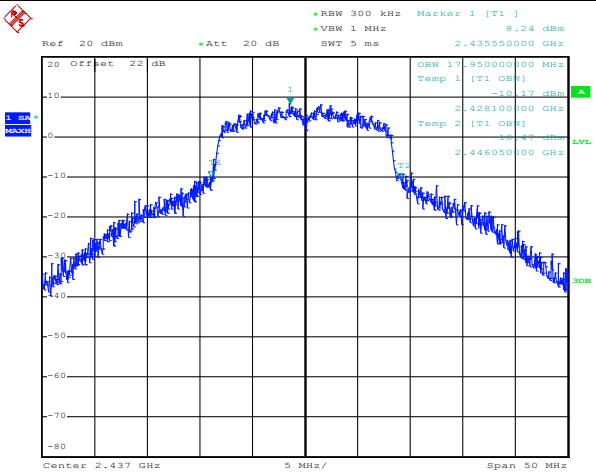
1. The testing follows the ANSI C63.10 Section 6.9.3 (OBW) and 11.8.1 (6dB BW).
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit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

3.1.4 Test Setup



3.1.5 Test Result of 6dB and 99% Occupied Bandwidth

Please refer to Appendix A.

Minimum 6dB Bandwidth	Maximum 99% Occupied Bandwidth
	
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Note: The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

3.2 Output Power Measurement

3.2.1 Limit of Output Power

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

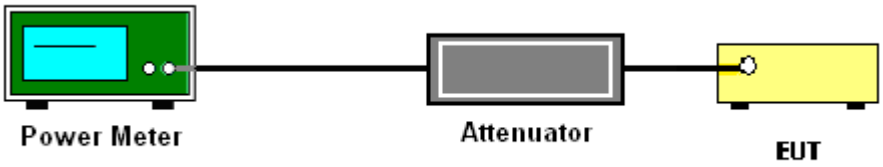
3.2.2 Measuring Instruments

See list of measuring equipment of this test report.

3.2.3 Test Procedures

1. For Peak Power, the testing follows ANSI C63.10 Section 11.9.1.3 PKPM1
2. For Average Power, the testing follows ANSI C63.10 Section 11.9.2.3.2 Method AVGPM-G
3. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
4. Set to the maximum power setting and enable the EUT transmit continuously.
5. Measure the conducted output power and record the results in the test report.

3.2.4 Test Setup



3.2.5 Test Result of Peak Output Power

Please refer to Appendix A.

3.2.6 Test Result of Average Output Power (Reporting Only)

Please refer to Appendix A.

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

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

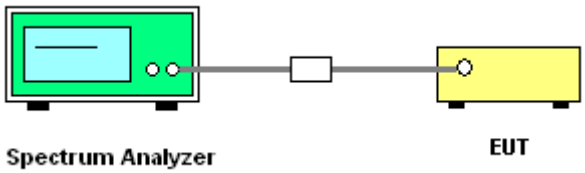
3.3.2 Measuring Instruments

See list of measuring equipment of this test report.

3.3.3 Test Procedures

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

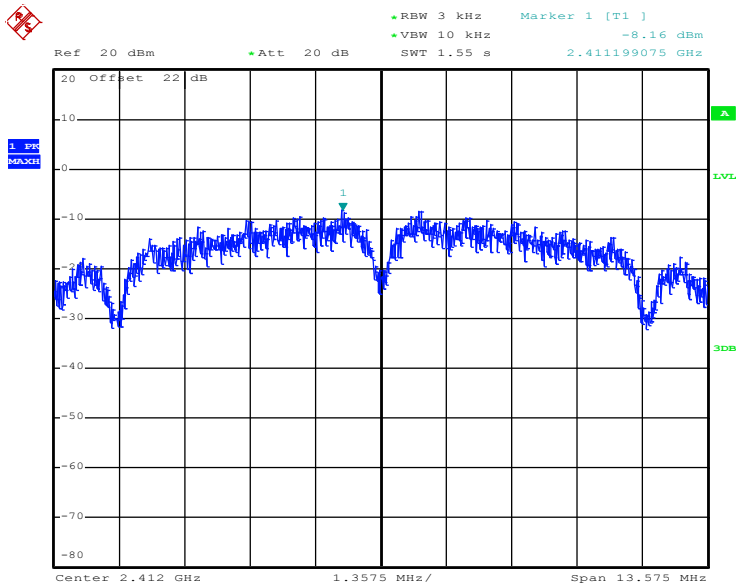
3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

Worst Case Power Density (dBm/3kHz)



3.4 Conducted Band Edges and Spurious Emission Measurement

3.4.1 Limit of Conducted Band Edges and Spurious Emission Measurement

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

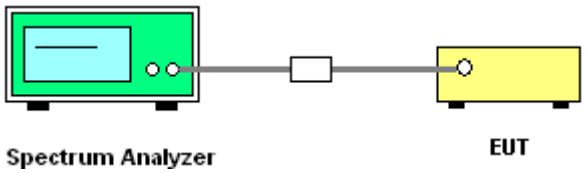
3.4.2 Measuring Instruments

See list of measuring equipment of this test report.

3.4.3 Test Procedures

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

3.4.4 Test Setup

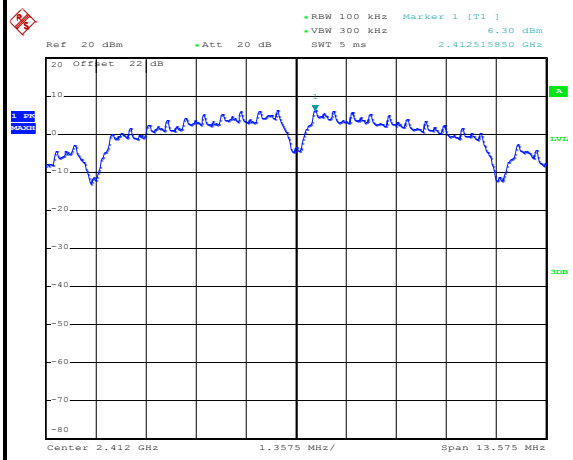


3.4.5 Test Result of Conducted Band Edges and Spurious Emission

Test Engineer :	Leo Lee	**Temperature :**	21~25℃
		Relative Humidity :	51~54%

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

100kHz PSD reference Level



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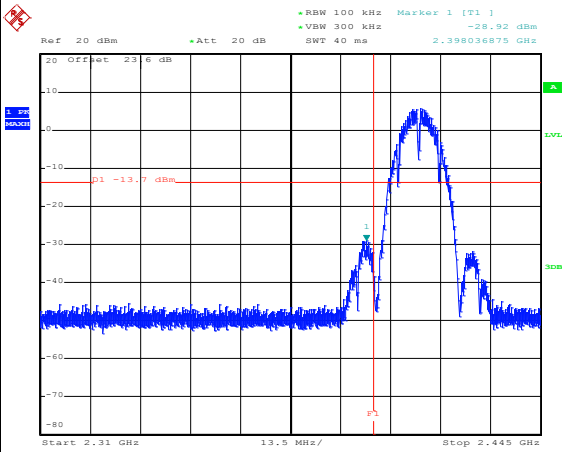
Channel Plot



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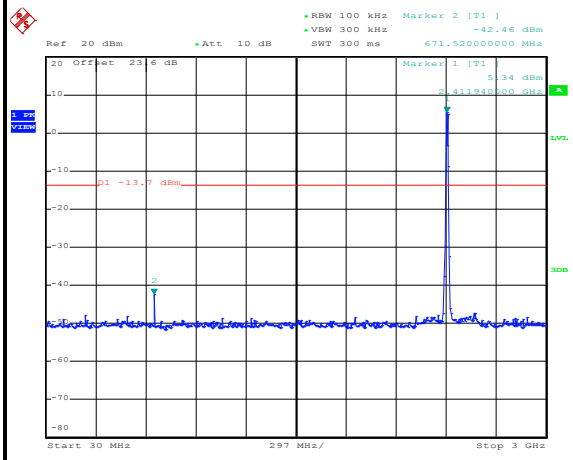
Spurious Emission 30MHz~3GHz



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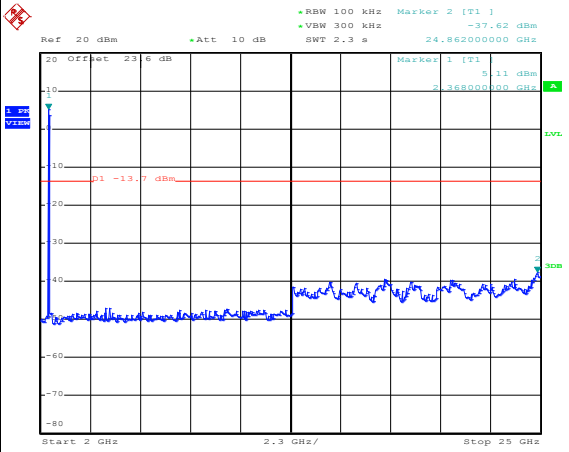
Spurious Emission 2GHz~25GHz



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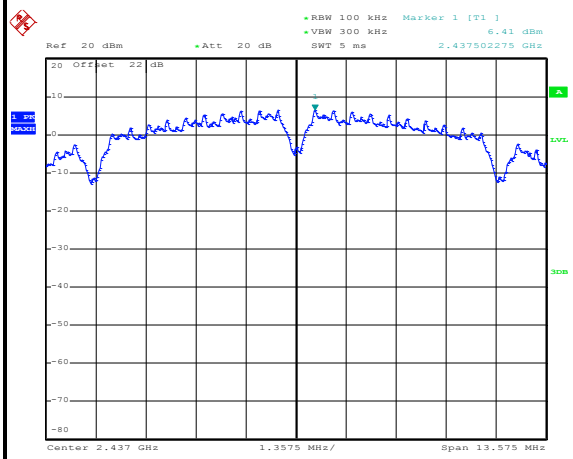
Test Mode :	802.11b	Test Channel :	06

100kHz PSD reference Level



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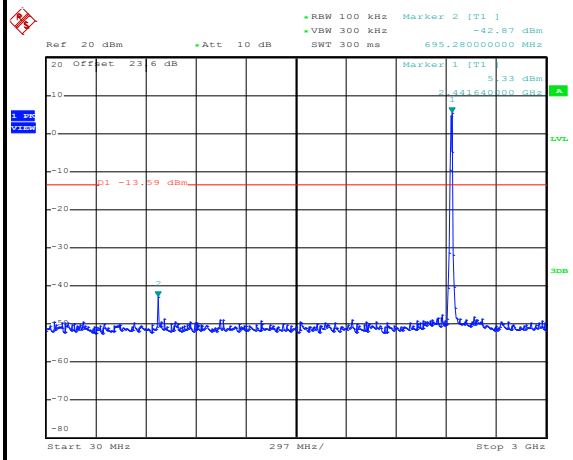
Spurious Emission 30MHz~3GHz



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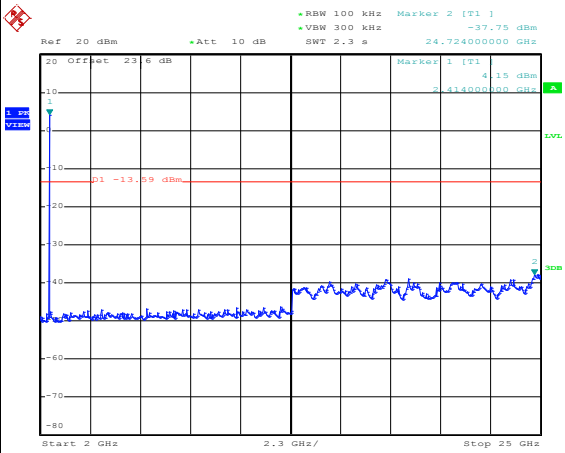
Spurious Emission 2GHz~25GHz



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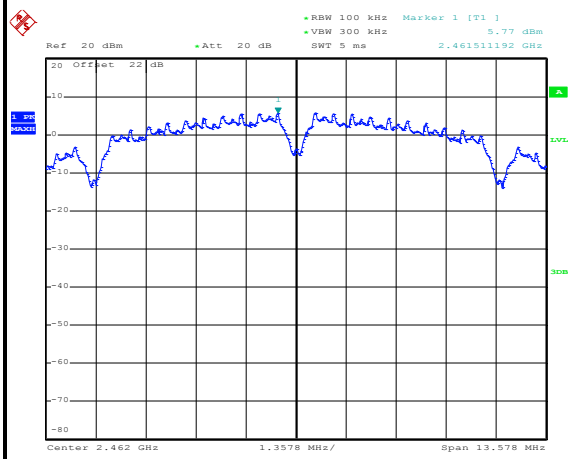
Test Mode :	802.11b	Test Channel :	11

100kHz PSD reference Level



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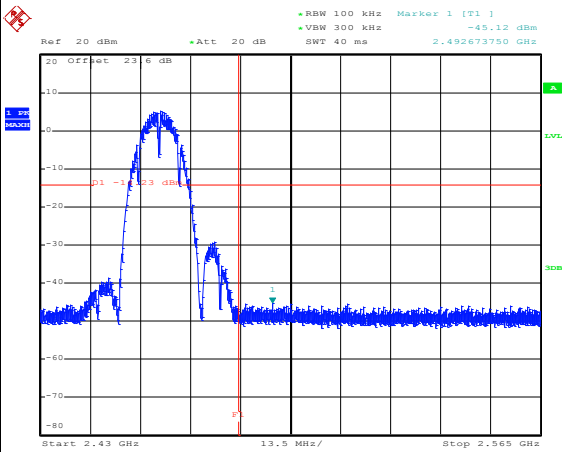
Channel Plot



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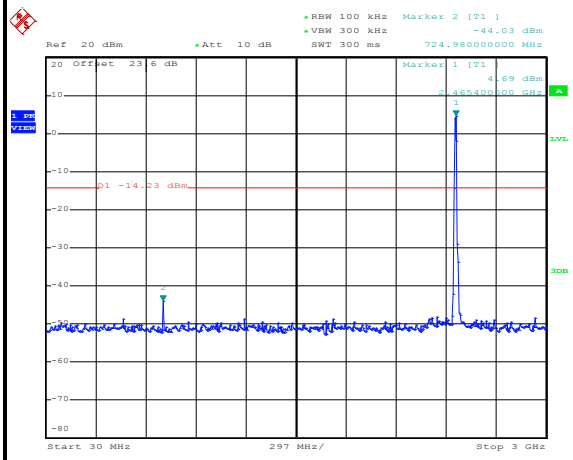
Spurious Emission 30MHz~3GHz



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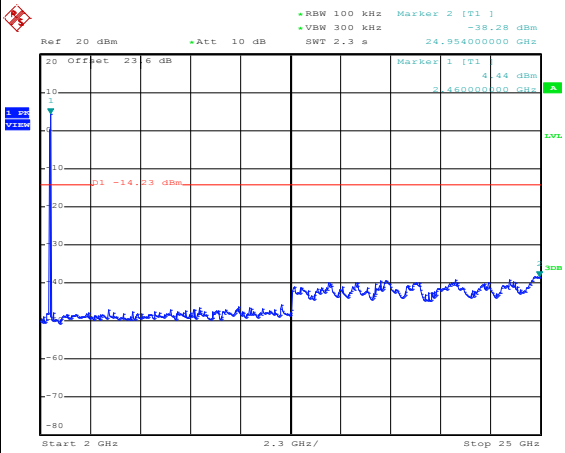
Spurious Emission 2GHz~25GHz



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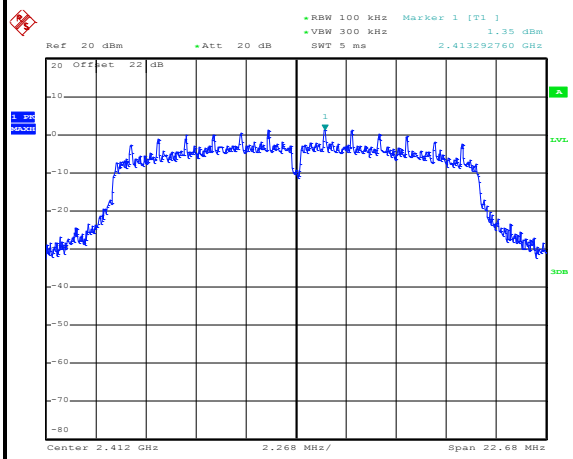
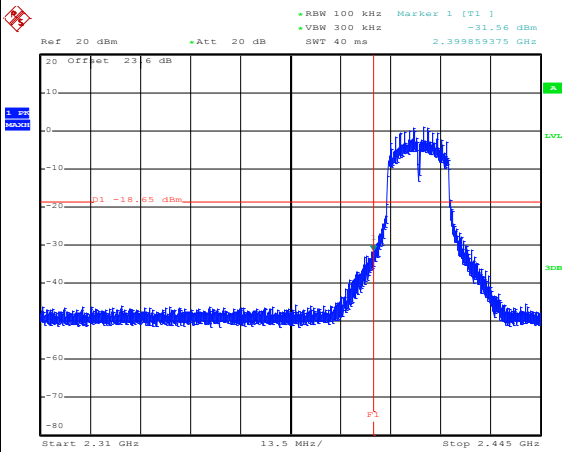
Test Mode :	802.11g	Test Channel :	01

100kHz PSD reference Level



Date: 3.AUG.2019 01:02:07

Channel Plot



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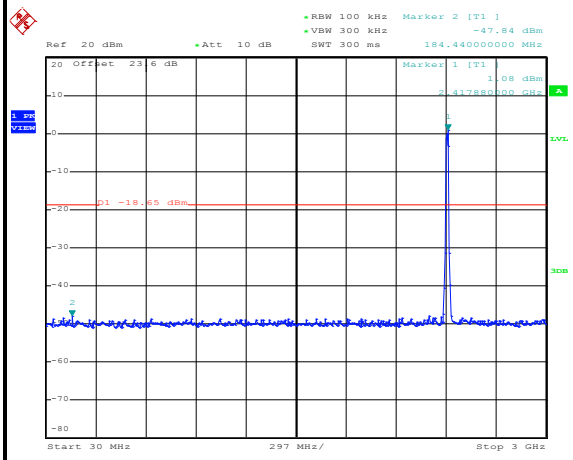
Spurious Emission 30MHz~3GHz



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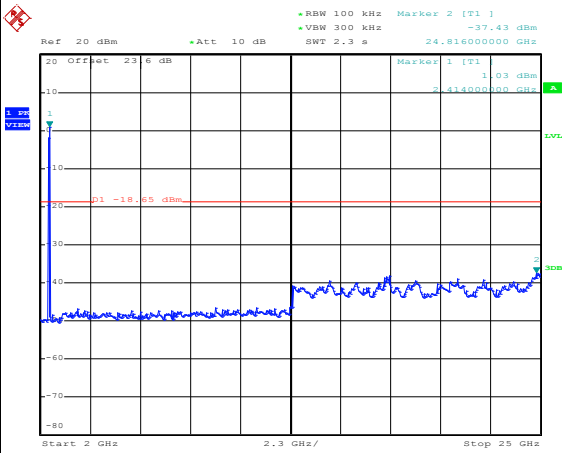
Spurious Emission 2GHz~25GHz



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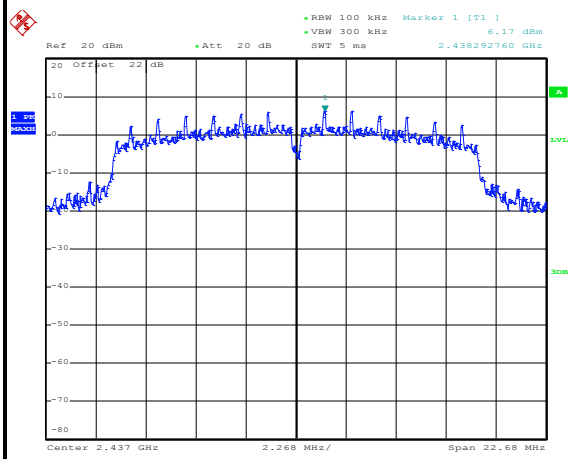
Test Mode :	802.11g	Test Channel :	06

100kHz PSD reference Level



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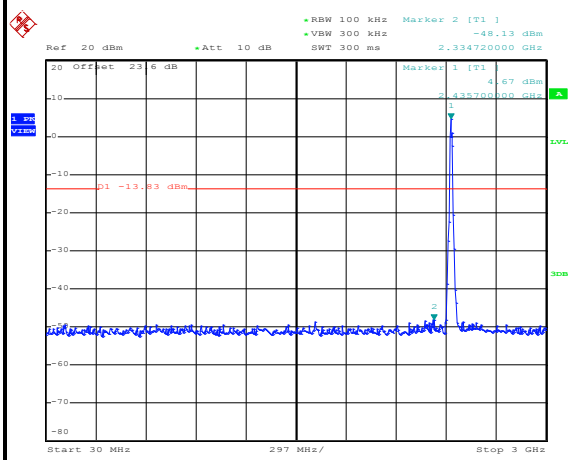
Spurious Emission 30MHz~3GHz



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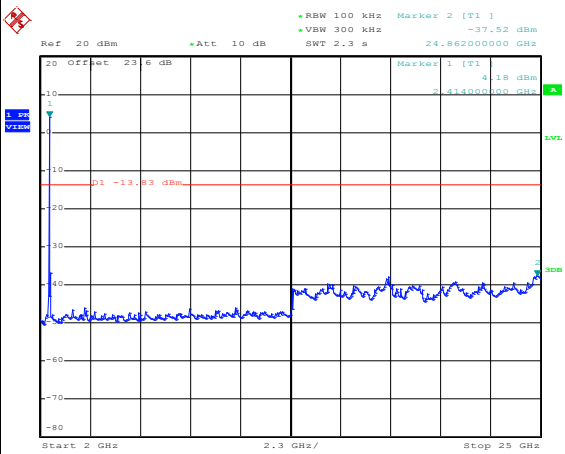
Spurious Emission 2GHz~25GHz



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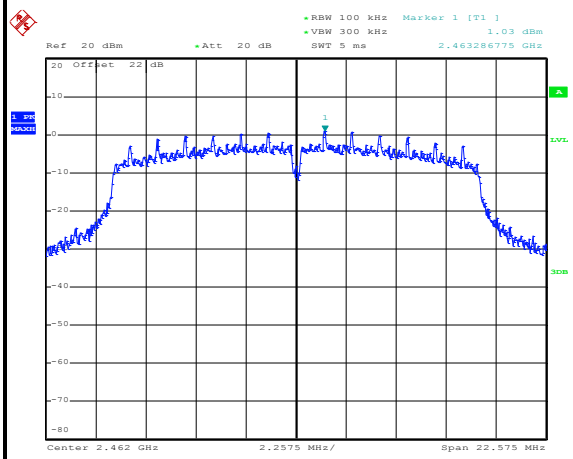
Test Mode :	802.11g	Test Channel :	11

100kHz PSD reference Level



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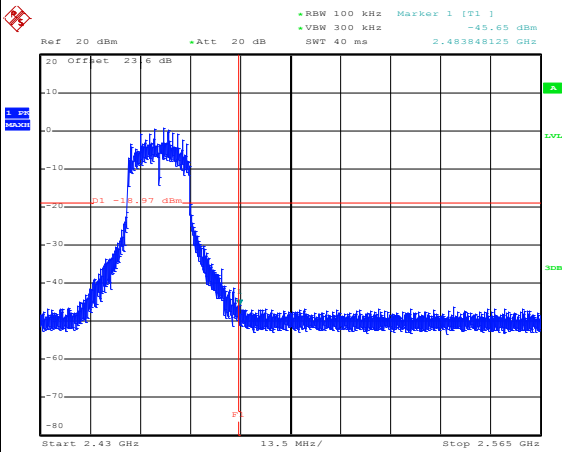
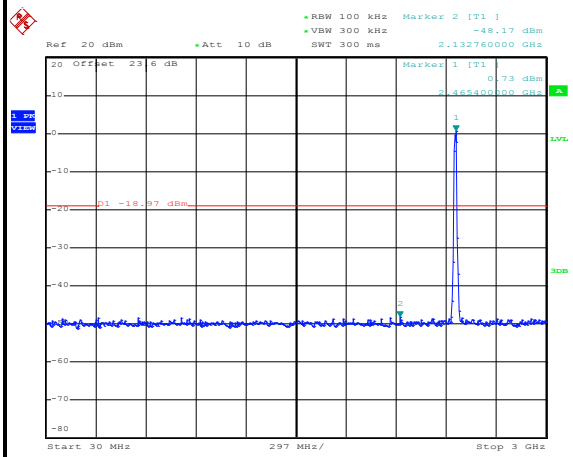
Channel Plot



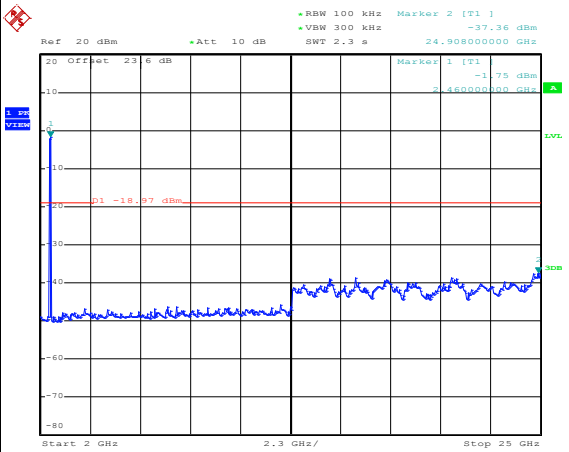
Date: 6.AUG.2019 14:39:30

Spurious Emission 30MHz~3GHz



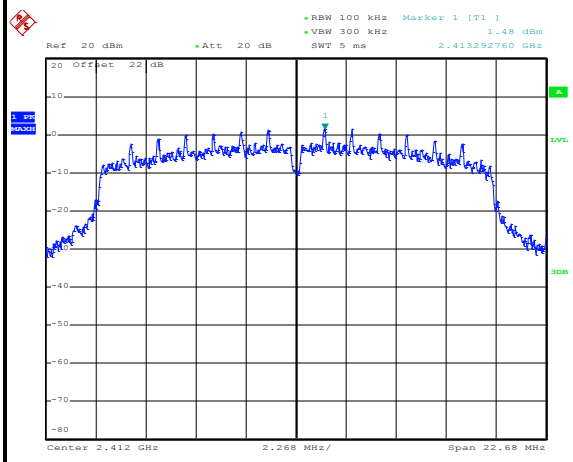
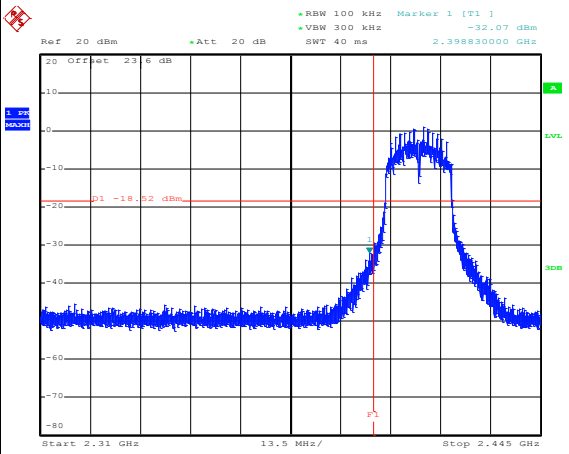
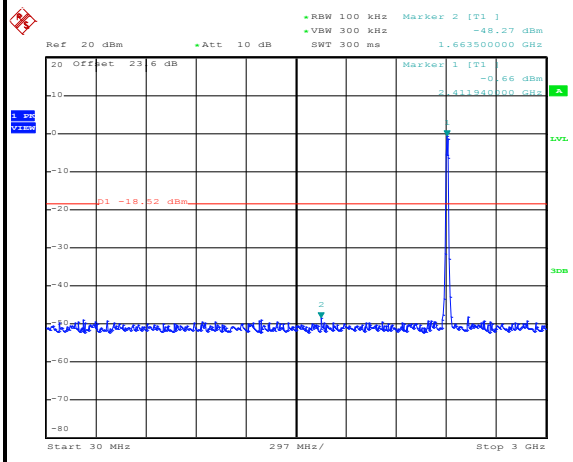
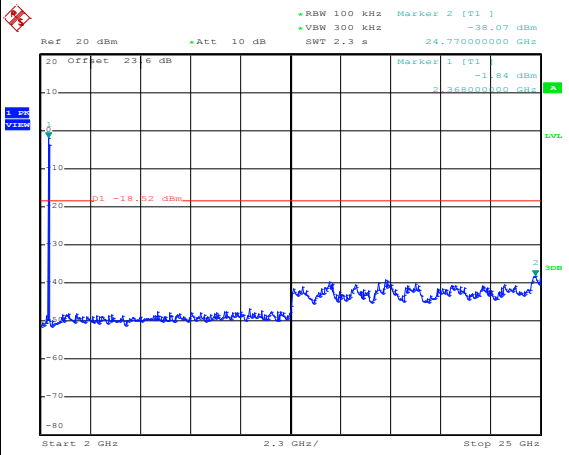
Date: 6.AUG.2019 14:41:46

Spurious Emission 2GHz~25GHz

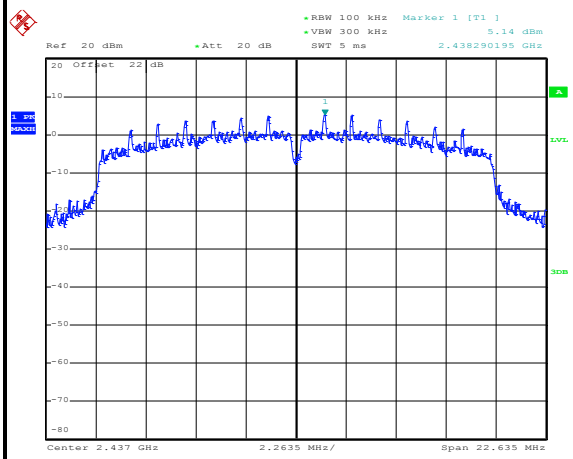


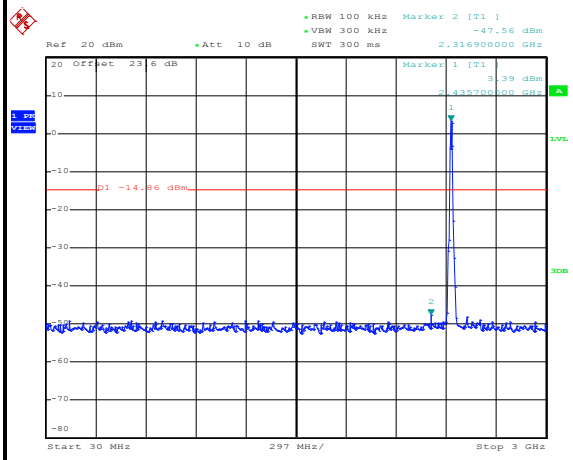
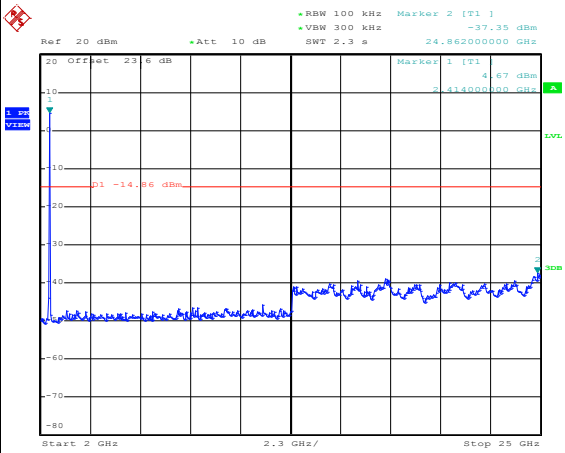
Date: 6.AUG.2019 14:43:25

Test Mode :	802.11n HT20	Test Channel :	01

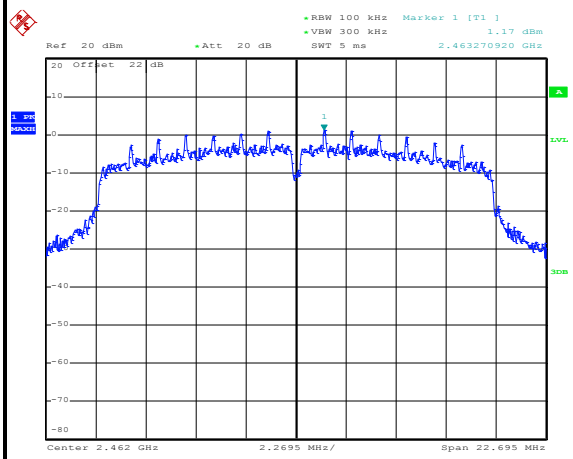
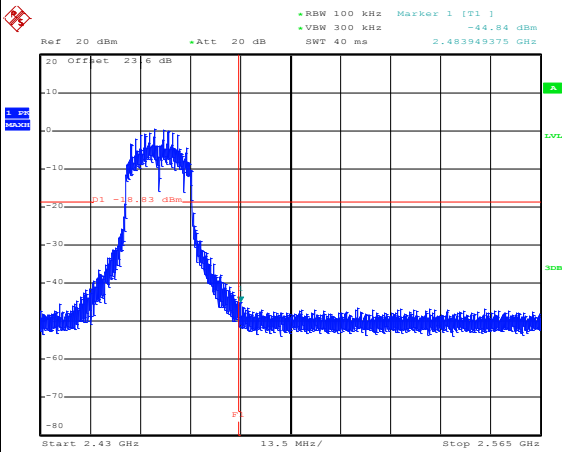
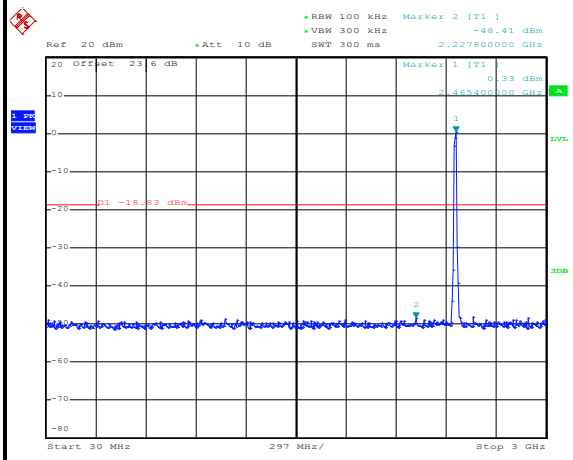
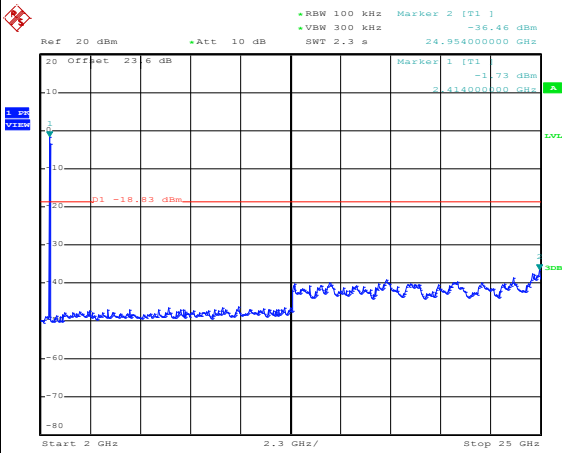
100kHz PSD reference Level	Channel Plot
	
Date: 3.AUG.2019 01:38:59	Date: 6.AUG.2019 14:47:03
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 6.AUG.2019 14:47:30	Date: 6.AUG.2019 14:48:10

Test Mode :	802.11n HT20	Test Channel :	06

100kHz PSD reference Level	
 Date: 3.AUG.2019 01:51:01	

Spurious Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz
 Date: 6.AUG.2019 14:49:18	 Date: 6.AUG.2019 14:50:08

Test Mode :	802.11n HT20	Test Channel :	11

100kHz PSD reference Level	Channel Plot
	
Date: 3.AUG.2019 01:57:38	Date: 6.AUG.2019 14:51:24
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 6.AUG.2019 14:52:51	Date: 6.AUG.2019 14:54:35

3.5 Radiated Band Edges and Spurious Emission Measurement

3.5.1 Limit of Radiated band edge and Spurious Emission Measurement

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

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

3.5.2 Measuring Instruments

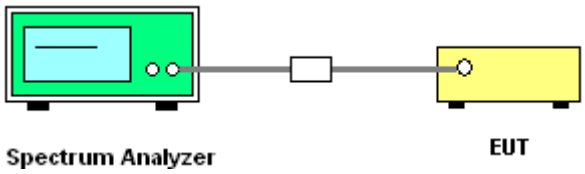
See list of measuring equipment of this test report.

3.5.3 Test Procedures

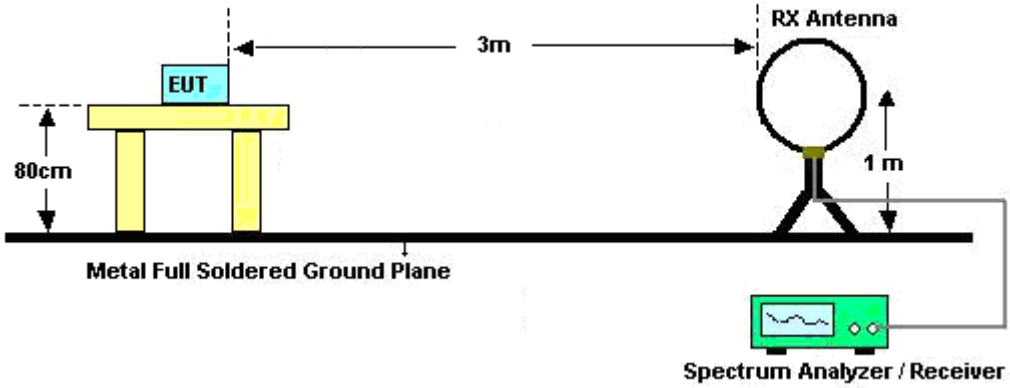
1. The testing follows the ANSI C63.10 Section 11.12.1 Radiated emission measurements.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the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

3.5.4 Test Setup

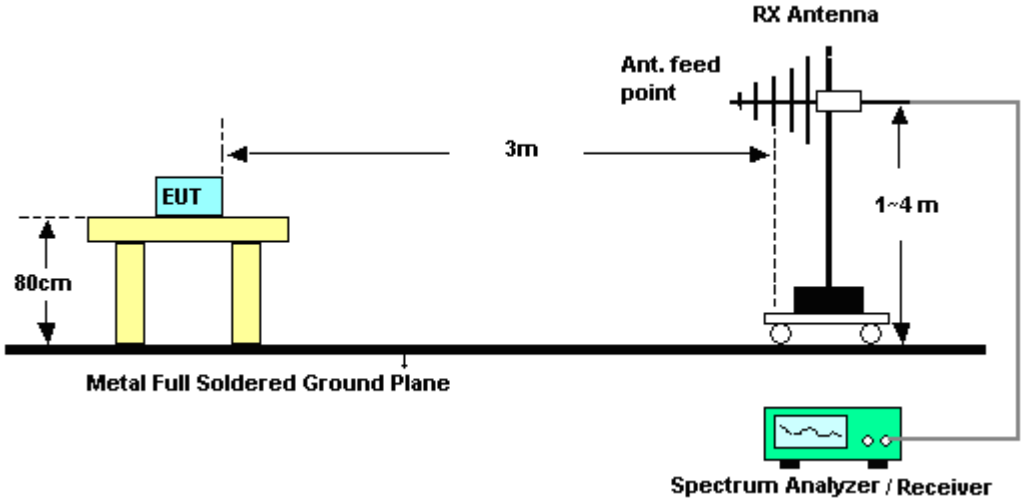
For Conducted Measurement Setup:



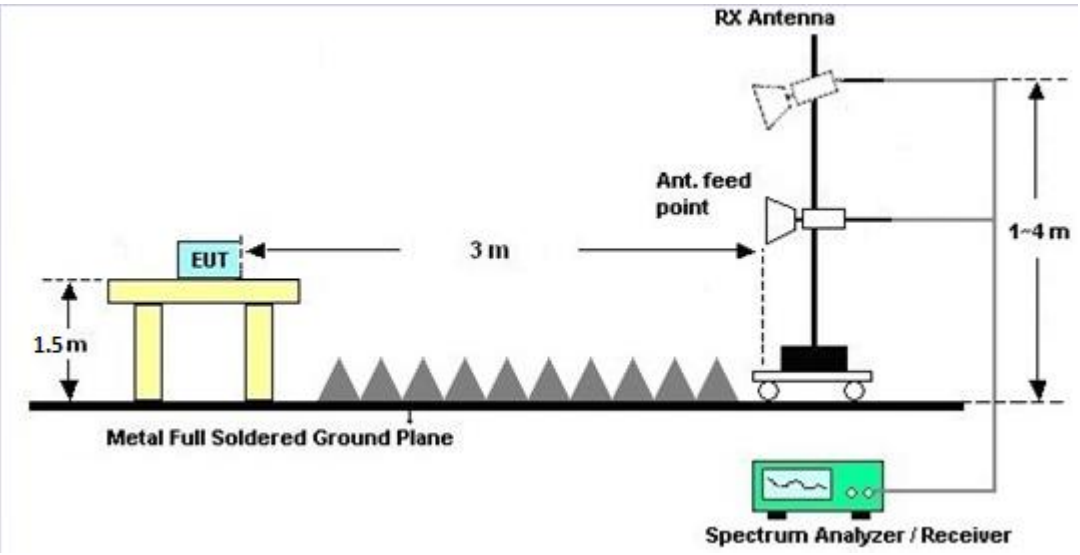
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

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

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

3.5.6 Test Result of Conduced Spurious at Band Edges in the Restricted Band

Please refer to Appendix C and D.

3.5.7 Test Result of Conduced Spurious Emission in the Restricted Band

Please refer to Appendix C and D.

3.5.8 Test Result of Cabinet Radiated Spurious at Band Edges

Please refer to Appendix E and F.

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

Please refer to Appendix E and F.

3.5.10 Duty Cycle

Please refer to Appendix G.

3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

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

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

*Decreases with the logarithm of the frequency.

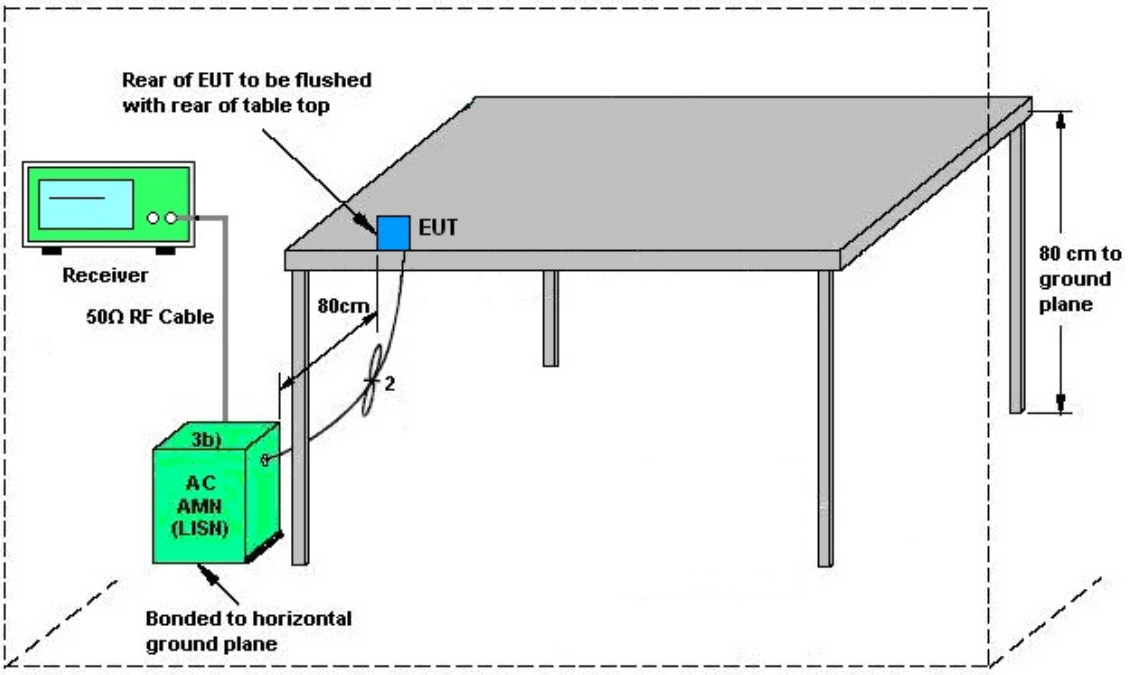
3.6.2 Measuring Instruments

See list of measuring equipment of this test report.

3.6.3 Test Procedures

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

3.6.4 Test Setup



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

3.6.5 Test Result of AC Conducted Emission

Please refer to Appendix B.

3.7 Antenna Requirements

3.7.1 Standard Applicable

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

3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.7.3 Antenna Gain

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

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Power Sensor	DARE	RPR3006W	16I00054SNO10	10MHz~6GHz	Dec. 19, 2018	Jul. 29, 2019~ Aug. 06, 2019	Dec. 18, 2019	Conducted (TH05-HY)
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 28, 2019	Jul. 29, 2019~ Aug. 06, 2019	Sep. 27, 2019	Conducted (TH05-HY)
Power Sensor	Anritsu	MA2411B	1207349	300MHz~40GHz	Sep. 28, 2019	Jul. 29, 2019~ Aug. 06, 2019	Sep. 27, 2019	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100057	9kHz-40GHz	Nov. 21, 2018	Jul. 29, 2019~ Aug. 06, 2019	Nov. 20, 2019	Conducted (TH05-HY)
Switch Box & RF Cable	EM	EMSW18	SW1070903	N/A	Dec. 19, 2018	Jul. 29, 2019~ Aug. 06, 2019	Dec. 18, 2019	Conducted (TH05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	May. 20, 2019	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102388	9KHz~3.6GHz	Nov. 12, 2018	May. 20, 2019	Nov. 11, 2019	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Nov. 14, 2018	May. 20, 2019	Nov. 13, 2019	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100081	9kHz~30MHz	Nov. 09, 2018	May. 20, 2019	Nov. 08, 2019	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32 V10.30	N/A	N/A	N/A	May. 20, 2019	N/A	Conduction (CO05-HY)
LF Cable	HUBER + SUHNER	RG-214/U	LF01	N/A	Dec. 31, 2018	May. 20, 2019	Dec. 30, 2019	Conduction (CO05-HY)
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100851	N/A	Dec. 31, 2018	May. 20, 2019	Dec. 30, 2019	Conduction (CO05-HY)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Jan. 07, 2019	Jun. 31, 2019~ Aug. 01, 2019	Jan. 06, 2020	Radiation (03CH15-HY)
Bilog Antenna	TESEQ	CBL6111D&00800N1D01N-06	41912&05	30MHz to 1GHz	Feb. 12, 2019	Jun. 31, 2019~ Aug. 01, 2019	Feb. 11, 2020	Radiation (03CH15-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1620	1G~18GHz	Oct. 17, 2018	Jun. 31, 2019~ Aug. 01, 2019	Oct. 16, 2019	Radiation (03CH15-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170584	18GHz- 40GHz	Dec. 05, 2018	Jun. 31, 2019~ Aug. 01, 2019	Dec. 04, 2019	Radiation (03CH15-HY)
Amplifier	SONOMA	310N	363440	9kHz~1GHz	Dec. 28, 2018	Jun. 31, 2019~ Aug. 01, 2019	Dec. 27, 2019	Radiation (03CH15-HY)
Preamplifier	Jet-Power	JPA0118-55-303	1710001800055007	1GHz~18GHz	Apr. 01, 2019	Jun. 31, 2019~ Aug. 01, 2019	Mar. 31, 2020	Radiation (03CH15-HY)
Preamplifier	Keysight	83017A	MY53270195	1GHz~26.5GHz	Aug. 23, 2018	Jun. 31, 2019~ Aug. 01, 2019	Aug. 22, 2019	Radiation (03CH15-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz ~ 40GHz	Dec. 06, 2018	Jun. 31, 2019~ Aug. 01, 2019	Dec. 05, 2019	Radiation (03CH15-HY)
EMI Test Receiver	Keysight	N9038A (MXE)	MY54130085	20Hz ~ 8.4GHz	Nov. 01, 2018	Jun. 31, 2019~ Aug. 01, 2019	Oct. 31, 2019	Radiation (03CH15-HY)
EMI Test Receiver	Rohde & Schwarz	ESU26	100390	20Hz~26.5GHz	Dec. 27, 2018	Jun. 31, 2019~ Aug. 01, 2019	Dec. 26, 2019	Radiation (03CH15-HY)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Jun. 31, 2019~ Aug. 01, 2019	N/A	Radiation (03CH15-HY)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Jun. 31, 2019~ Aug. 01, 2019	N/A	Radiation (03CH15-HY)
Software	Audix	E3 6.2009-8-24(k5)	RK-000451	N/A	N/A	Jun. 31, 2019~ Aug. 01, 2019	N/A	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY36980/4	30M-18G	Apr. 15, 2019	Jun. 31, 2019~ Aug. 01, 2019	Apr. 14, 2020	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9838/4	30M-18G	Apr. 15, 2019	Jun. 31, 2019~ Aug. 01, 2019	Apr. 14, 2020	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY802430/4	30M~18GHz	May. 13, 2019	Jun. 31, 2019~ Aug. 01, 2019	May. 12, 2020	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	MY2859/2	30MHz-40GHz	Mar. 13, 2019	Jun. 31, 2019~ Aug. 01, 2019	Mar. 12, 2020	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	MY4274/2	30MHz-40GHz	Mar. 13, 2019	Jun. 31, 2019~ Aug. 01, 2019	Mar. 12, 2020	Radiation (03CH15-HY)
Filter	Wainwright	WLK4-1000-1530-8000-40SS	SN11	1G Low Pass	Sep. 16, 2018	Jun. 31, 2019~ Aug. 01, 2019	Sep. 15, 2019	Radiation (03CH15-HY)
Filter	Wainwright	WHKX12-2700-3000-18000-60ST	SN1	3 GHz Highpass	Sep. 16, 2018	Jun. 31, 2019~ Aug. 01, 2019	Sep. 15, 2019	Radiation (03CH15-HY)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.7dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.2dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.5dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.2dB**

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Leo Li/ Shiming Liu	Temperature:	21~25	°C
Test Date:	2019/7/29~2019/8/6	Relative Humidity:	51~54	%

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

2.4GHz Band										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Occupied BW (MHz)		6dB BW (MHz)		6dB BW Limit (MHz)	Pass/Fail
					Ant 1	Ant 2	Ant 1	Ant 2		
11b	1Mbps	1	1	2412	14.30	-	9.05	-	0.50	Pass
11b	1Mbps	1	6	2437	14.35	-	9.05	-	0.50	Pass
11b	1Mbps	1	11	2462	14.30	-	9.05	-	0.50	Pass
11g	6Mbps	1	1	2412	16.50	-	15.12	-	0.50	Pass
11g	6Mbps	1	6	2437	17.95	-	15.12	-	0.50	Pass
11g	6Mbps	1	11	2462	16.55	-	15.05	-	0.50	Pass
HT20	MCS0	1	1	2412	17.60	-	15.12	-	0.50	Pass
HT20	MCS0	1	6	2437	17.85	-	15.09	-	0.50	Pass
HT20	MCS0	1	11	2462	17.60	-	15.13	-	0.50	Pass

TEST RESULTS DATA
Peak Output Power

2.4GHz Band																
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak Conducted Power (dBm)			Conducted Power Limit (dBm)		DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)		Pass /Fail
					Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	
11b	1Mbps	1	1	2412	17.78	-	-	30.00	-	2.50	-	20.28	-	36.00	-	Pass
11b	1Mbps	1	6	2437	17.97	-	-	30.00	-	2.50	-	20.47	-	36.00	-	Pass
11b	1Mbps	1	11	2462	17.45	-	-	30.00	-	2.50	-	19.95	-	36.00	-	Pass
11g	6Mbps	1	1	2412	18.81	-	-	30.00	-	2.50	-	21.31	-	36.00	-	Pass
11g	6Mbps	1	6	2437	19.74	-	-	30.00	-	2.50	-	22.24	-	36.00	-	Pass
11g	6Mbps	1	11	2462	18.88	-	-	30.00	-	2.50	-	21.38	-	36.00	-	Pass
HT20	MCS0	1	1	2412	18.81	-	-	30.00	-	2.50	-	21.31	-	36.00	-	Pass
HT20	MCS0	1	6	2437	19.23	-	-	30.00	-	2.50	-	21.73	-	36.00	-	Pass
HT20	MCS0	1	11	2462	18.86	-	-	30.00	-	2.50	-	21.36	-	36.00	-	Pass

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

TEST RESULTS DATA
Average Output Power
(Reporting Only)

2.4GHz Band							
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power (dBm)		
					Ant 1	Ant 2	SUM
11b	1Mbps	1	1	2412	15.40	-	-
11b	1Mbps	1	6	2437	16.00	-	
11b	1Mbps	1	11	2462	15.80	-	
11g	6Mbps	1	1	2412	11.00	-	
11g	6Mbps	1	6	2437	15.60	-	
11g	6Mbps	1	11	2462	11.10	-	
HT20	MCS0	1	1	2412	10.80	-	
HT20	MCS0	1	6	2437	15.40	-	
HT20	MCS0	1	11	2462	11.00	-	

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

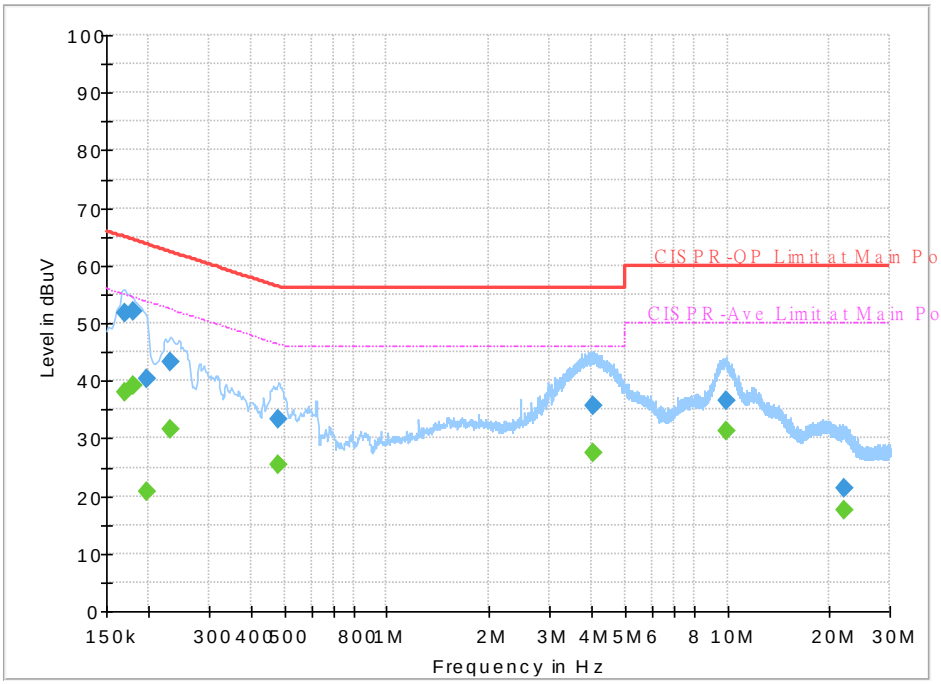
TEST RESULTS DATA
Peak Power Spectral Density

2.4GHz Band												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak PSD (dBm/3kHz)			DG (dBi)		Peak PSD Limit (dBm/3kHz)		Pass/Fail
					Ant 1	Ant 2	Worse + 3.01	Ant 1	Ant 2	Ant 1	Ant 2	
11b	1Mbps	1	1	2412	-8.16	-	-	2.50	-	8.00	-	Pass
11b	1Mbps	1	6	2437	-8.19	-	-	2.50	-	8.00	-	Pass
11b	1Mbps	1	11	2462	-9.24	-	-	2.50	-	8.00	-	Pass
11g	6Mbps	1	1	2412	-14.81	-	-	2.50	-	8.00	-	Pass
11g	6Mbps	1	6	2437	-11.12	-	-	2.50	-	8.00	-	Pass
11g	6Mbps	1	11	2462	-14.81	-	-	2.50	-	8.00	-	Pass
HT20	MCS0	1	1	2412	-15.77	-	-	2.50	-	8.00	-	Pass
HT20	MCS0	1	6	2437	-11.23	-	-	2.50	-	8.00	-	Pass
HT20	MCS0	1	11	2462	-15.13	-	-	2.50	-	8.00	-	Pass

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

Appendix B. AC Conducted Emission Test Results

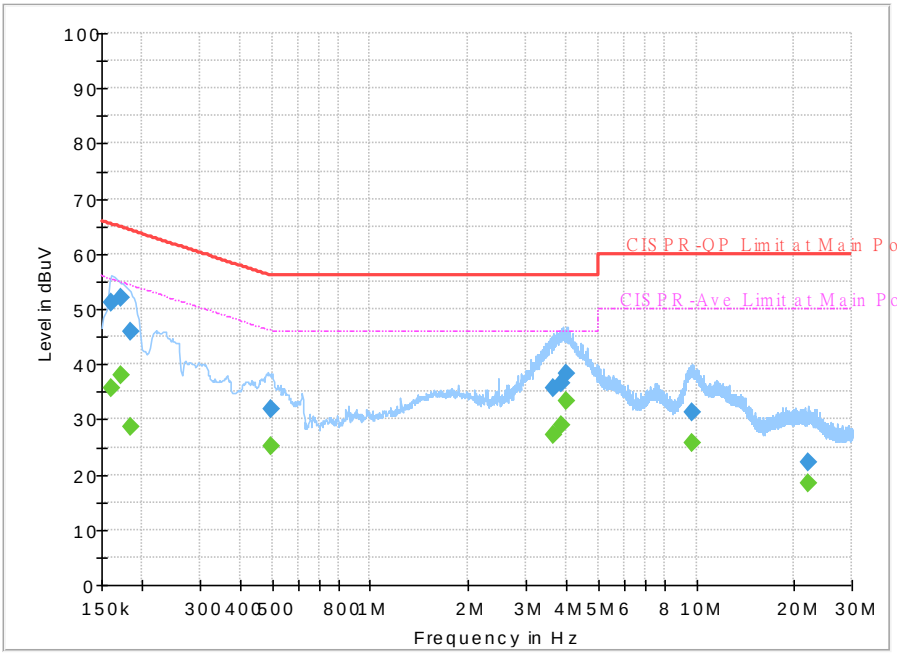
Test Engineer :	Jimmy Chang	Temperature :	24~26℃
		Relative Humidity :	51~53%
Test Voltage :	120Vac / 60Hz	Phase :	Line



Final Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.170250	51.84	---	64.95	13.11	L1	OFF	19.5
0.170250	---	38.09	54.95	16.86	L1	OFF	19.5
0.179250	51.99	---	64.52	12.53	L1	OFF	19.5
0.179250	---	39.15	54.52	15.37	L1	OFF	19.5
0.197250	40.40	---	63.73	23.33	L1	OFF	19.5
0.197250	---	20.66	53.73	33.07	L1	OFF	19.5
0.231000	43.33	---	62.41	19.08	L1	OFF	19.5
0.231000	---	31.57	52.41	20.84	L1	OFF	19.5
0.480750	33.42	---	56.33	22.91	L1	OFF	19.5
0.480750	---	25.37	46.33	20.96	L1	OFF	19.5
4.038000	35.68	---	56.00	20.32	L1	OFF	19.6
4.038000	---	27.62	46.00	18.38	L1	OFF	19.6
9.881250	36.49	---	60.00	23.51	L1	OFF	19.7
9.881250	---	31.34	50.00	18.66	L1	OFF	19.7
22.022250	21.27	---	60.00	38.73	L1	OFF	19.8
22.022250	---	17.45	50.00	32.55	L1	OFF	19.8

Test Engineer :	Jimmy Chang	Temperature :	24~26℃
		Relative Humidity :	51~53%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral



Final Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.161250	---	35.53	55.40	19.87	N	OFF	19.5
0.161250	51.19	---	65.40	14.21	N	OFF	19.5
0.172500	---	37.92	54.84	16.92	N	OFF	19.5
0.172500	52.11	---	64.84	12.73	N	OFF	19.5
0.183750	---	28.61	54.31	25.70	N	OFF	19.5
0.183750	46.04	---	64.31	18.27	N	OFF	19.5
0.498750	---	25.14	46.02	20.88	N	OFF	19.5
0.498750	31.83	---	56.02	24.19	N	OFF	19.5
3.648750	---	27.21	46.00	18.79	N	OFF	19.6
3.648750	35.53	---	56.00	20.47	N	OFF	19.6
3.864750	---	28.82	46.00	17.18	N	OFF	19.6
3.864750	36.52	---	56.00	19.48	N	OFF	19.6
4.013250	---	33.26	46.00	12.74	N	OFF	19.6
4.013250	38.32	---	56.00	17.68	N	OFF	19.6
9.744000	---	25.80	50.00	24.20	N	OFF	19.7
9.744000	31.18	---	60.00	28.82	N	OFF	19.7
21.975000	---	18.44	50.00	31.56	N	OFF	19.9
21.975000	22.12	---	60.00	37.88	N	OFF	19.9

Appendix C. Conducted Spurious Emission

Test Engineer :	Rebecca Li	Temperature :	23~25°C
		Relative Humidity :	52~58%

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Gain	Path Loss	MIMO Factor	Grounding Factor	Peak Avg.
1		(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dBi)	(dB)	(dB)	(dB)	(P/A)
802.11b CH 01 2412MHz		2372.685	-39.36	-18.16	-21.2	-43.98	2.5	2.12	0	0	P
		2386.44	-50.28	-9.08	-41.2	-54.91	2.5	2.13	0	0	A
	*	2412	10.36	-	-	5.71	2.5	2.15	0	0	P
	*	2412	7.31	-	-	2.66	2.5	2.15	0	0	A
802.11b CH 06 2437MHz		2355.22	-40.64	-19.44	-21.2	-45.26	2.5	2.12	0	0	P
		2356.34	-49.46	-8.26	-41.2	-54.08	2.5	2.12	0	0	A
	*	2437	10.69	-	-	6.03	2.5	2.16	0	0	P
	*	2437	7.6	-	-	2.94	2.5	2.16	0	0	A
		2490.34	-39.27	-18.07	-21.2	-43.96	2.5	2.19	0	0	P
		2488.8	-51.7	-10.5	-41.2	-56.39	2.5	2.19	0	0	A
802.11b CH 11 2462MHz	*	2462	10.65	-	-	5.98	2.5	2.17	0	0	P
	*	2462	7.6	-	-	2.93	2.5	2.17	0	0	A
		2486.84	-35.23	-14.03	-21.2	-39.92	2.5	2.19	0	0	P
		2483.55	-49.88	-8.68	-41.2	-54.57	2.5	2.19	0	0	A
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)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBm)	Over Limit (dB)	Limit Line (dBm)	Read Level (dBm)	Antenna Gain (dBi)	Path Loss (dB)	MIMO Factor (dB)	Grounding Factor (dB)	Peak Avg. (P/A)
802.11b CH 01 2412MHz		4018.7	-50.81	-29.61	-21.2	-56.82	2.5	3.51	0	0	P
		4824	-58.17	-36.97	-21.2	-64.35	2.5	3.68	0	0	P
802.11b CH 06 2437MHz		4061.4	-52.25	-31.05	-21.2	-58.3	2.5	3.55	0	0	P
		4874	-64.68	-43.48	-21.2	-70.87	2.5	3.69	0	0	P
		7311	-60.13	-38.93	-21.2	-67.31	2.5	4.68	0	0	P
802.11b CH 11 2462MHz		4098	-54.28	-33.08	-21.2	-60.35	2.5	3.57	0	0	P
		4924	-60.11	-38.91	-21.2	-66.3	2.5	3.69	0	0	P
		7386	-60.65	-39.45	-21.2	-67.91	2.5	4.76	0	0	P
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)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	MIMO	Grounding	Peak
Ant.				Limit	Line	Level	Gain	Loss	Factor	Factor	Avg.
1		(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dBi)	(dB)	(dB)	(dB)	(P/A)
802.11g CH 01 2412MHz		2389.485	-37.56	-16.36	-21.2	-42.19	2.5	2.13	0	0	P
		2389.59	-48.5	-7.3	-41.2	-53.13	2.5	2.13	0	0	A
	*	2412	7.38	-	-	2.73	2.5	2.15	0	0	P
	*	2412	-0.11	-	-	-4.76	2.5	2.15	0	0	A
802.11g CH 06 2437MHz		2386.16	-40.36	-19.16	-21.2	-44.99	2.5	2.13	0	0	P
		2387.14	-51.05	-9.85	-41.2	-55.68	2.5	2.13	0	0	A
	*	2437	12.41	-	-	7.75	2.5	2.16	0	0	P
	*	2437	4.71	-	-	0.05	2.5	2.16	0	0	A
		2484.74	-36.78	-15.58	-21.2	-41.47	2.5	2.19	0	0	P
		2484.46	-50.64	-9.44	-41.2	-55.33	2.5	2.19	0	0	A
802.11g CH 11 2462MHz	*	2462	8.2	-	-	3.53	2.5	2.17	0	0	P
	*	2462	0.13	-	-	-4.54	2.5	2.17	0	0	A
		2484.84	-32.6	-11.4	-21.2	-37.29	2.5	2.19	0	0	P
		2483.64	-47.62	-6.42	-41.2	-52.31	2.5	2.19	0	0	A

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)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBm)	Over Limit (dB)	Limit Line (dBm)	Read Level (dBm)	Antenna Gain (dBi)	Path Loss (dB)	MIMO Factor (dB)	Grounding Factor (dB)	Peak Avg. (P/A)
802.11g CH 01 2412MHz		4018.7	-55.3	-34.1	-21.2	-61.31	2.5	3.51	0	0	P
		4824	-67.66	-46.46	-21.2	-73.84	2.5	3.68	0	0	P
802.11g CH 06 2437MHz		4061.4	-54.37	-33.17	-21.2	-60.42	2.5	3.55	0	0	P
		4874	-68.99	-47.79	-21.2	-75.18	2.5	3.69	0	0	P
		7311	-64.28	-43.08	-21.2	-71.46	2.5	4.68	0	0	P
802.11g CH 11 2462MHz		4104.1	-58.29	-37.09	-21.2	-64.36	2.5	3.57	0	0	P
		4924	-69.15	-47.95	-21.2	-75.34	2.5	3.69	0	0	P
		7386	-69.68	-48.48	-21.2	-76.94	2.5	4.79	0	0	P
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)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	MIMO	Grounding	Peak
Ant.				Limit	Line	Level	Gain	Loss	Factor	Factor	Avg.
1		(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dBi)	(dB)	(dB)	(dB)	(P/A)
802.11n		2388.33	-35.59	-14.39	-21.2	-40.22	2.5	2.13	0	0	P
HT20		2389.275	-47.85	-6.65	-41.2	-52.48	2.5	2.13	0	0	A
CH 01	*	2412	6.75	-	-	2.1	2.5	2.15	0	0	P
2412MHz	*	2412	-0.65	-	-	-5.3	2.5	-0.65	0	0	A
		2360.82	-40.77	-19.57	-21.2	-45.39	2.5	2.12	0	0	P
802.11n		2376.5	-50.89	-9.69	-41.2	-55.52	2.5	2.13	0	0	A
HT20	*	2437	12.25	-	-	7.59	2.5	2.16	0	0	P
CH 06	*	2437	4.09	-	-	-0.57	2.5	2.16	0	0	A
2437MHz		2483.97	-38.34	-17.14	-21.2	-43.03	2.5	2.19	0	0	P
		2484.95	-50.94	-9.74	-41.2	-55.63	2.5	2.19	0	0	A
802.11n	*	2462	7.42	-	-	2.75	2.5	2.17	0	0	P
HT20	*	2462	-0.57	-	-	-5.24	2.5	2.17	0	0	A
CH 11		2484.04	-31.05	-9.85	-21.2	-35.74	2.5	2.19	0	0	P
2462MHz		2483.68	-46.88	-5.68	-41.2	-51.57	2.5	2.19	0	0	A

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)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBm)	Over Limit (dB)	Limit Line (dBm)	Read Level (dBm)	Antenna Gain (dBi)	Path Loss (dB)	MIMO Factor (dB)	Grounding Factor (dB)	Peak Avg. (P/A)
802.11n HT20 CH 01 2412MHz		4018.7	-55.63	-34.43	-21.2	-61.64	2.5	3.51	0	0	P
		4824	-69.11	-47.91	-21.2	-75.29	2.5	3.68	0	0	P
802.11n HT20 CH 06 2437MHz		4055.3	-54.37	-33.17	-21.2	-60.41	2.5	3.54	0	0	P
		4874	-69.68	-48.48	-21.2	-75.87	2.5	3.69	0	0	P
		7311	-64.81	-43.61	-21.2	-71.99	2.5	4.68	0	0	P
802.11n HT20 CH 11 2462MHz		4098	-58.2	-37	-21.2	-64.27	2.5	3.57	0	0	P
		4924	-68.92	-47.72	-21.2	-75.11	2.5	3.69	0	0	P
		7386	-69.45	-48.25	-21.2	-76.71	2.5	4.76	0	0	P
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	MIMO	Grounding	Peak
Ant.				Limit	Line	Level	Gain	Loss	Factor	Factor	Avg.
1		(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dBi)	(dB)	(dB)	(dB)	(P/A)
2.4GHz 802.11n HT20 LF		64.56	-82.37	-27.17	-55.2	-90.09	2.5	0.52	0	4.7	P
		154.74	-81.06	-29.36	-51.7	-88.96	2.5	0.7	0	4.7	P
		233.31	-81.22	-32.02	-49.2	-89.21	2.5	0.79	0	4.7	P
		403.6	-81.44	-32.24	-49.2	-89.61	2.5	0.97	0	4.7	P
		777.4	-80.27	-31.07	-49.2	-88.83	2.5	1.36	0	4.7	P
		823.6	-78.53	-29.33	-49.2	-87.14	2.5	1.41	0	4.7	P

Remark

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

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

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	MIMO	Grounding	Peak
Ant.				Limit	Line	Level	Gain	Loss	Factor	Factor	Avg.
1		(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dBi)	(dB)	(dB)	(dB)	(P/A)
802.11b CH 01 2412MHz		2386.545	-39.03	-17.83	-21.2	-44.06	2	3.03	0	0	P
		2386.125	-48.1	-6.9	-41.2	-53.13	2	3.03	0	0	A

1. Level(dBm) =

Antenna Gain(dBi) + Path Loss(dB) + Read Level(dBm) + MIMO Factor(dB) + Grounding Factor(dB)

2. Over Limit(dB) = Level(dBm) – Limit Line(dBm)

For Peak Limit @ 2386.545MHz:

1. Level(dBm)

= Antenna Gain(dBi) + Path Loss(dB) + Read Level(dBm) + MIMO Factor(dB) + Grounding Factor(dB)

= 2(dB) + 3.03(dB) – 44.06(dBm)

= -39.03(dBm)

2. Over Limit(dB)

= Level(dBm) – Limit Line(dBm)

= -39.03(dBm) + 21.2(dBm)

= -17.83(dB)

For Average Limit @ 2386.125MHz:

1. Level(dBm)

= Antenna Gain(dBi) + Path Loss(dB) + Read Level(dBm) + MIMO Factor(dB) + Grounding Factor(dB)

= 2(dBi) + 3.03(dB) – 53.13(dBm)

= -48.1(dBm)

2. Over Limit(dB)

= Level(dBµV/m) – Limit Line(dBµV/m)

= 43.54(dBµV/m) – 54(dBµV/m)

= -6.9(dB)

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

Appendix D. Conducted Spurious Emission Plots

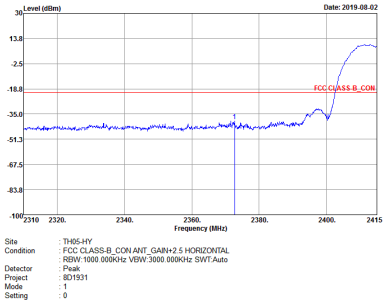
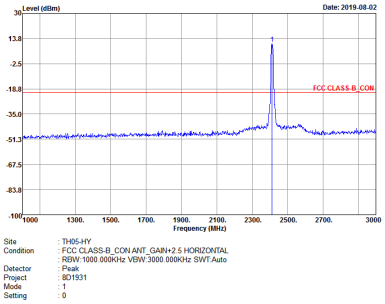
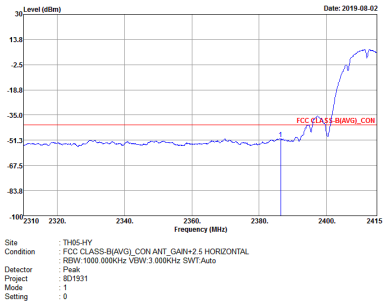
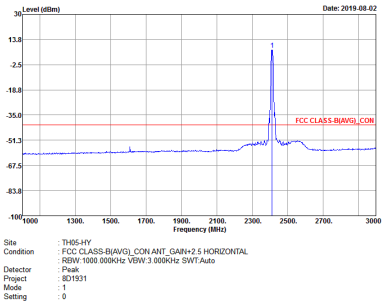
Test Engineer :	Rebecca Li	**Temperature :**	23~25°C
		Relative Humidity :	52~58%

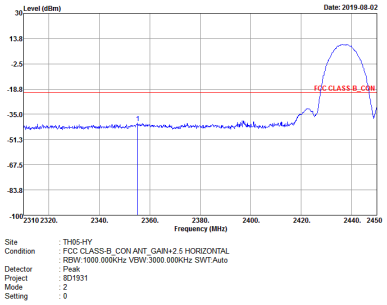
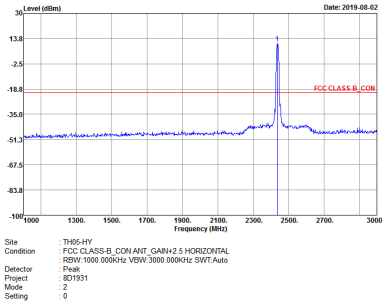
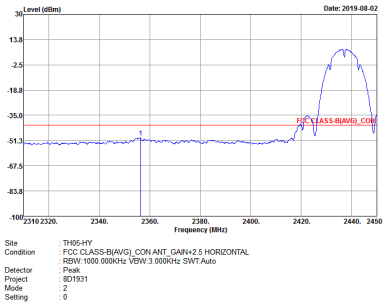
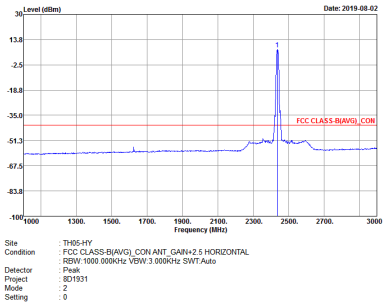
Note symbol

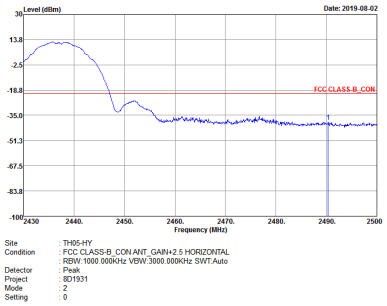
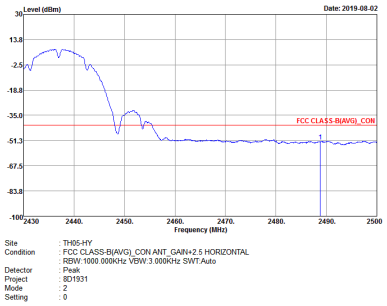
-L	**Low channel location**
-R	**High channel location**

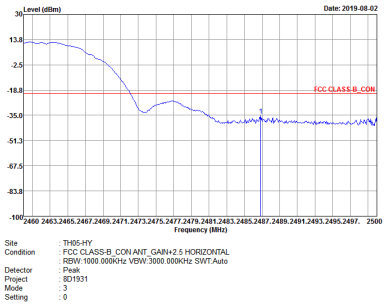
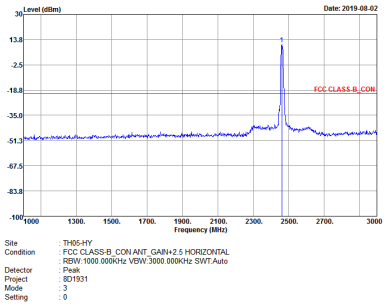
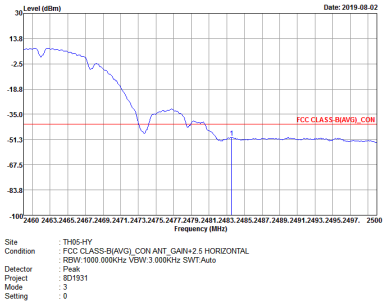
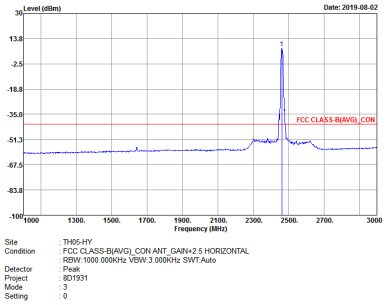
2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge)

WIFI	2.4GHz 2400~2483.5MHz Band Edge	
ANT	802.11b CH01 2412MHz	
1	CSE	Fundamental
Peak		
Avg.		

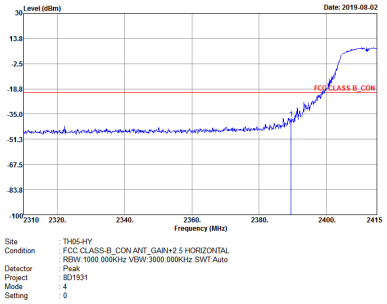
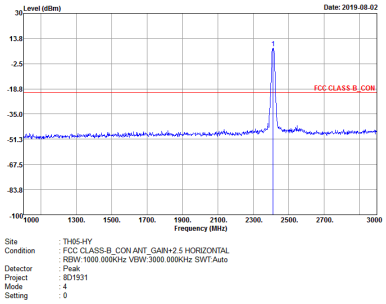
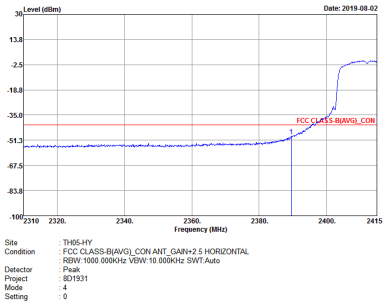
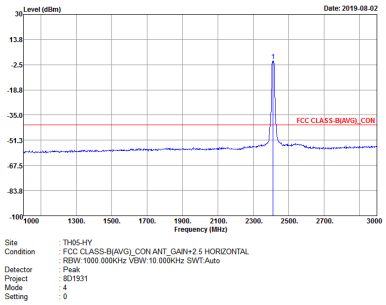
WIFI	2.4GHz 2400~2483.5MHz Band Edge	
ANT	802.11b CH06 2437MHz - L	
1	CSE	Fundamental
Peak		
Avg.		

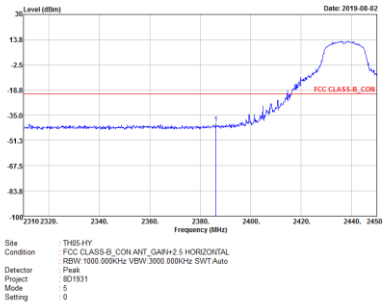
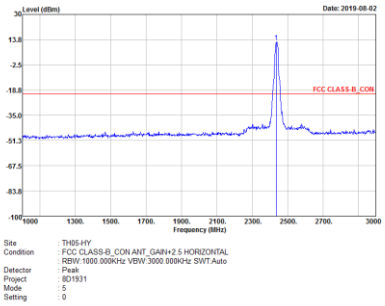
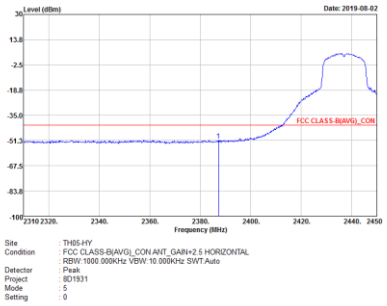
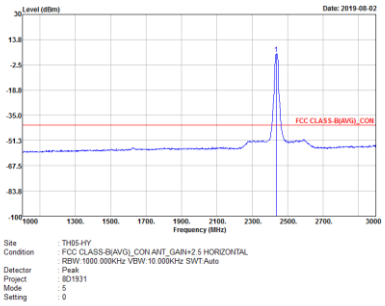
WIFI	2.4GHz 2400~2483.5MHz Band Edge	
ANT	802.11b CH06 2437MHz - R	
1	CSE	Fundamental
Peak		Left blank
Avg.		Left blank

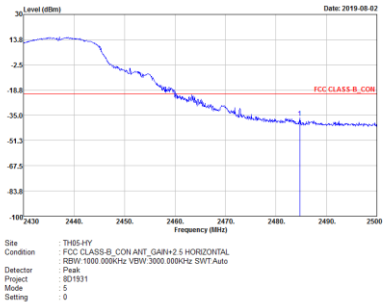
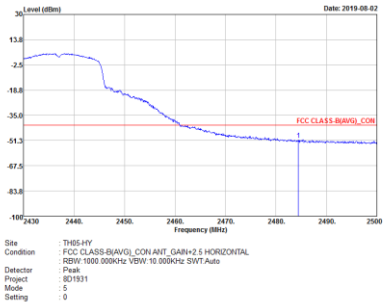
WIFI	2.4GHz 2400~2483.5MHz Band Edge	
ANT	802.11b CH11 2462MHz	
1	CSE	Fundamental
Peak		
Avg.		

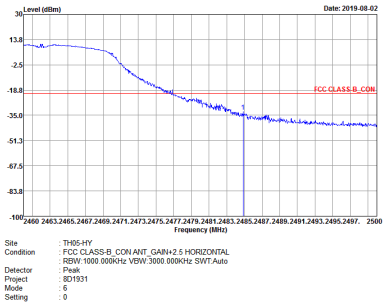
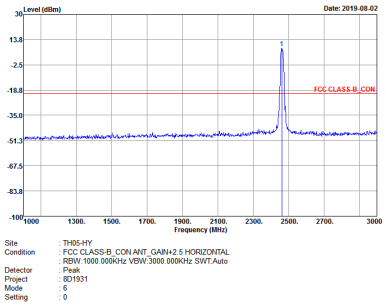
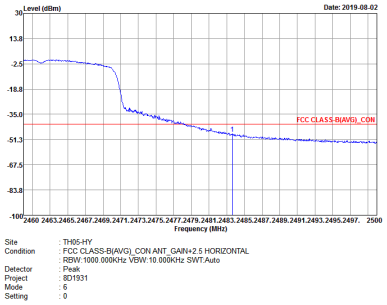
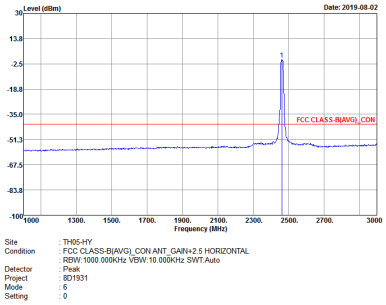
2.4GHz 2400~2483.5MHz

WIFI 802.11g (Band Edge)

WIFI	2.4GHz 2400~2483.5MHz Band Edge	
ANT	802.11g CH01 2412MHz	
1	CSE	Fundamental
Peak		
Avg.		

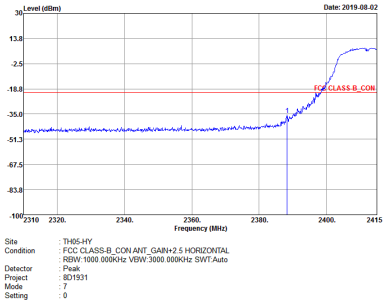
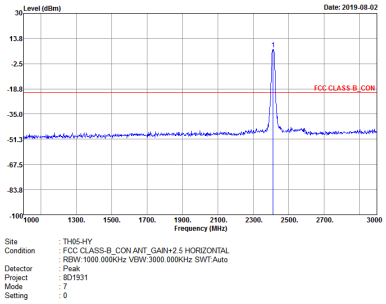
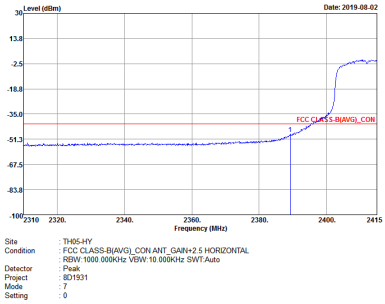
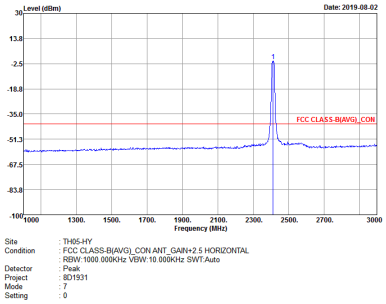
WIFI	2.4GHz 2400~2483.5MHz Band Edge	
ANT	802.11g CH06 2437MHz - L	
1	CSE	Fundamental
Peak		
Avg.		

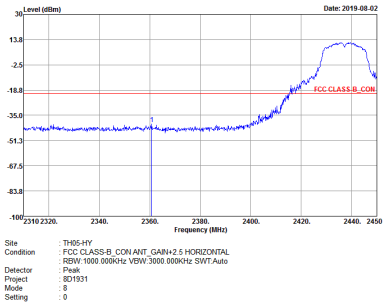
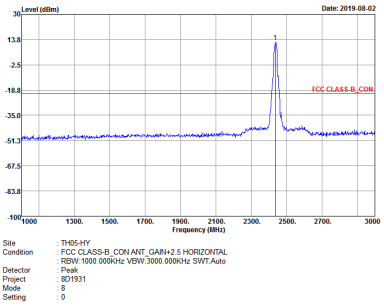
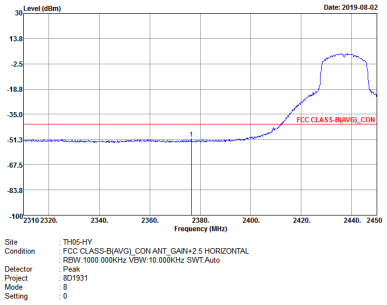
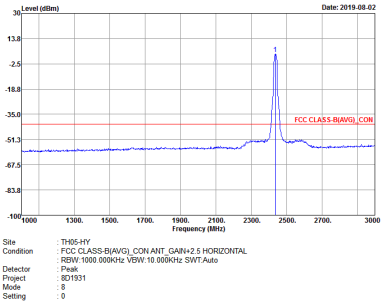
WIFI	2.4GHz 2400~2483.5MHz Band Edge	
ANT	802.11g CH06 2437MHz - R	
1	CSE	Fundamental
Peak		Left blank
Avg.		Left blank

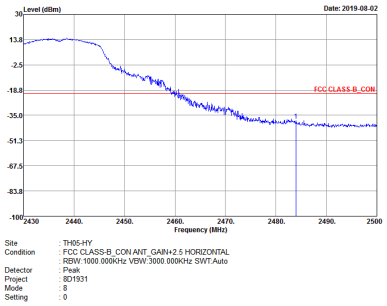
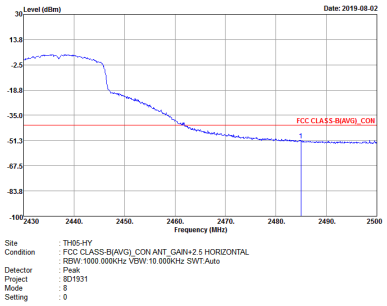
WIFI	2.4GHz 2400~2483.5MHz Band Edge	
ANT	802.11g CH11 2462MHz	
1	CSE	Fundamental
Peak		
Avg.		

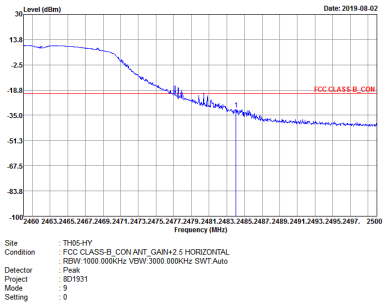
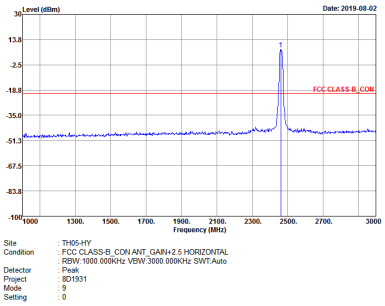
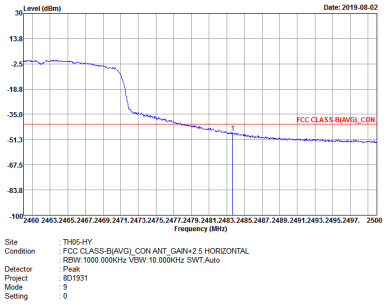
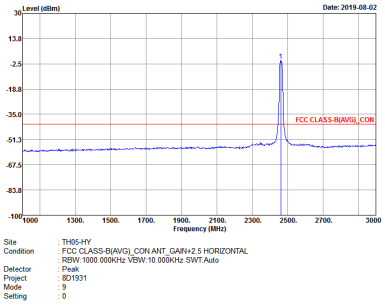
2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Band Edge)

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

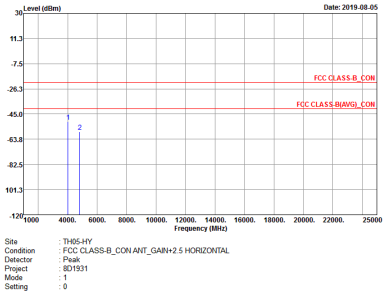
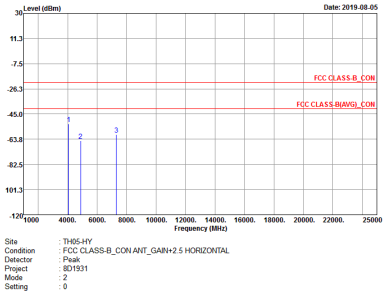
WIFI	2.4GHz 2400~2483.5MHz Band Edge	
ANT	802.11n HT20 CH06 2437MHz - L	
1	CSE	Fundamental
Peak		
Avg.		

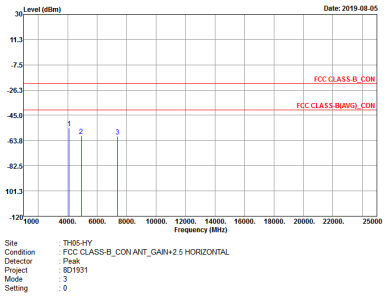
WIFI	2.4GHz 2400~2483.5MHz Band Edge	
ANT	802.11n HT20 CH06 2437MHz - R	
1	CSE	Fundamental
Peak		Left blank
Avg.		Left blank

WIFI	2.4GHz 2400~2483.5MHz Band Edge	
ANT	802.11n HT20 CH11 2462MHz	
1	CSE	Fundamental
Peak		
Avg.		

2.4GHz 2400~2483.5MHz

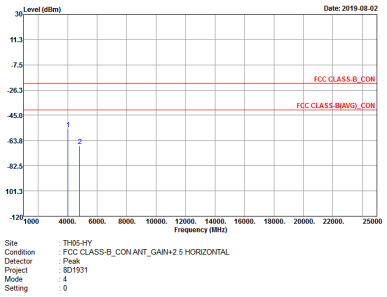
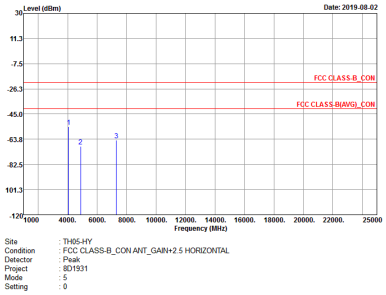
WIFI 802.11b (Harmonic)

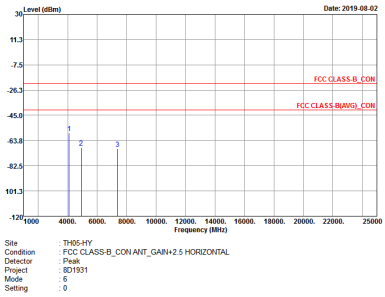
WIFI	2.4GHz 2400~2483.5MHz Harmonic	
ANT	802.11b	
1	CH01 2412MHz	CH06 2437MHz
Peak Avg.		

WIFI	2.4GHz 2400~2483.5MHz Harmonic	
ANT	802.11b	
1	CH11 2462MHz	-
Peak Avg.	 Site : TH05-HY Condition : FCC CLASS-B_CON ANT_GAIN+2.5 HORIZONTAL Detector : Peak Project : 8D1931 Mode : 3 Setting : 0	Left blank

2.4GHz 2400~2483.5MHz

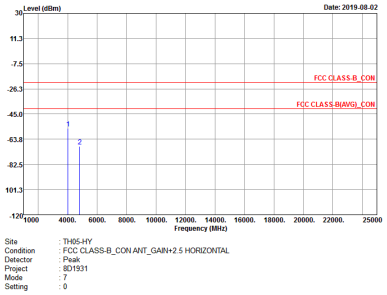
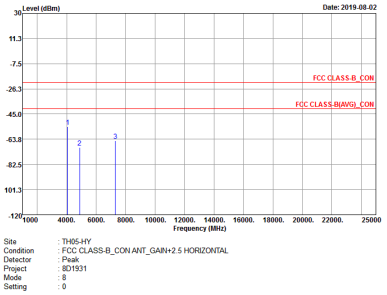
WIFI 802.11g (Harmonic)

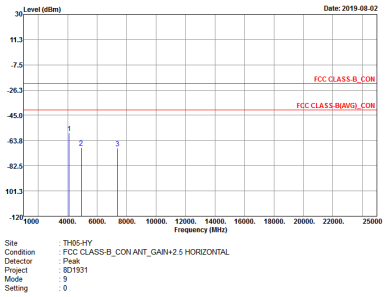
WIFI	2.4GHz 2400~2483.5MHz Harmonic	
ANT	802.11g	
1	CH01 2412MHz	CH06 2437MHz
Peak Avg.		

WIFI	2.4GHz 2400~2483.5MHz Harmonic	
ANT	802.11g	
1	CH11 2462MHz	-
Peak Avg.		Left blank

2.4GHz 2400~2483.5MHz

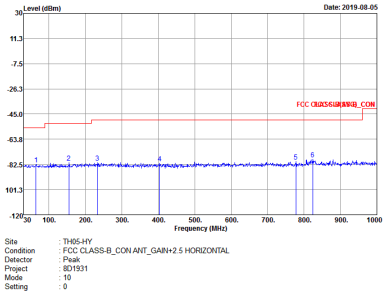
WIFI 802.11n HT20 (Harmonic)

WIFI	2.4GHz 2400~2483.5MHz Harmonic	
ANT	802.11n HT20	
1	CH01 2412MHz	CH06 2437MHz
Peak Avg.		

WIFI	2.4GHz 2400~2483.5MHz Harmonic	
ANT	802.11n HT20	
1	CH11 2462MHz	-
Peak Avg.	 Site : TH05-HY Condition : FCC CLASS-B_CON ANT_GAIN+2.5 HORIZONTAL Detector : Peak Project : 8D1931 Mode : 9 Setting : 0	Left blank

Emission below 1GHz

2.4GHz WIFI 802.11n HT20 (LF)

WIFI	2.4GHz 2400~2483.5MHz	
ANT	802.11n HT20	
1		
QP / Peak		Left blank

Appendix E. Cabinet Radiated Spurious Emission

Test Engineer :	Karl Hou, Big Show Wang	Temperature :	23~26°C
		Relative Humidity :	50~65%

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2368.065	53.73	-20.27	74	40.93	27.67	16.13	31	301	278	P	H
		2359.875	44.64	-9.36	54	31.85	27.67	16.12	31	301	278	A	H
	*	2412	77.67	-	-	64.87	27.6	16.18	30.98	301	278	P	H
	*	2412	74.23	-	-	61.43	27.6	16.18	30.98	301	278	A	H
		2342.235	53.29	-20.71	74	40.51	27.7	16.09	31.01	373	352	P	V
		2371.005	44.66	-9.34	54	31.9	27.63	16.13	31	373	352	A	V
	*	2412	75.36	-	-	62.56	27.6	16.18	30.98	373	352	P	V
	*	2412	71.9	-	-	59.1	27.6	16.18	30.98	373	352	A	V
802.11b CH 06 2437MHz		2316.58	53.93	-20.07	74	41.06	27.83	16.06	31.02	400	136	P	H
		2359.7	44.25	-9.75	54	31.46	27.67	16.12	31	400	136	A	H
	*	2437	78.03	-	-	65.19	27.6	16.21	30.97	400	136	P	H
	*	2437	74.77	-	-	61.93	27.6	16.21	30.97	400	136	A	H
		2493.63	53.35	-20.65	74	40.63	27.4	16.26	30.94	400	136	P	H
		2499.65	44.31	-9.69	54	31.58	27.4	16.27	30.94	400	136	A	H
		2340.94	54.21	-19.79	74	41.43	27.7	16.09	31.01	400	59	P	V
		2319.38	44.38	-9.62	54	31.56	27.77	16.07	31.02	400	59	A	V
	*	2437	75.39	-	-	62.55	27.6	16.21	30.97	400	59	P	V
	*	2437	71.97	-	-	59.13	27.6	16.21	30.97	400	59	A	V
		2488.73	54.03	-19.97	74	41.32	27.4	16.26	30.95	400	59	P	V
		2494.05	44.21	-9.79	54	31.49	27.4	16.26	30.94	400	59	A	V

802.11b CH 11 2462MHz	*	2462	75.92	-	-	63.12	27.53	16.23	30.96	338	283	P	H
	*	2462	72.54	-	-	59.74	27.53	16.23	30.96	338	283	A	H
		2496.48	53.35	-20.65	74	40.62	27.4	16.27	30.94	338	283	P	H
		2484.52	44.31	-9.69	54	31.54	27.47	16.25	30.95	338	283	A	H
	*	2462	76.15	-	-	63.35	27.53	16.23	30.96	362	77	P	V
	*	2462	72.9	-	-	60.1	27.53	16.23	30.96	362	77	A	V
		2486.2	53.47	-20.53	74	40.69	27.47	16.26	30.95	362	77	P	V
		2497.6	44.56	-9.44	54	31.83	27.4	16.27	30.94	362	77	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		4020	48.75	-25.25	74	70.18	29.73	8.9	60.06	100	0	P	H
		4824	40.81	-33.19	74	59.08	31.3	9.59	59.16	100	0	P	H
		4020	47	-27	74	68.43	29.73	8.9	60.06	100	0	P	V
		4824	43.4	-30.6	74	61.67	31.3	9.59	59.16	100	0	P	V
802.11b CH 06 2437MHz		4065	46.88	-27.12	74	68.13	29.8	8.92	59.97	100	0	P	H
		4874	41.34	-32.66	74	59.63	31.3	9.58	59.17	100	0	P	H
		7311	43.37	-30.63	74	54.69	36.2	11.66	59.18	100	0	P	H
		4065	46.5	-27.5	74	67.75	29.8	8.92	59.97	100	0	P	V
		4874	43.33	-30.67	74	61.62	31.3	9.58	59.17	100	0	P	V
		7311	46.66	-27.34	74	57.98	36.2	11.66	59.18	100	0	P	V
802.11b CH 11 2462MHz		4095	46.56	-27.44	74	67.74	29.8	8.93	59.91	100	0	P	H
		4924	40.97	-33.03	74	59.21	31.37	9.57	59.18	100	0	P	H
		7386	44.68	-29.32	74	55.66	36.5	11.67	59.15	100	0	P	H
		4095	46.64	-27.36	74	67.82	29.8	8.93	59.91	100	0	P	V
		4924	44.4	-29.6	74	62.64	31.37	9.57	59.18	100	0	P	V
		7386	45.61	-28.39	74	56.59	36.5	11.67	59.15	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11g (Band Edge @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 01 2412MHz		2384.865	53.81	-20.19	74	41.02	27.63	16.15	30.99	329	136	P	H
		2352.84	46.19	-7.81	54	33.42	27.67	16.11	31.01	329	136	A	H
	*	2412	75.26	-	-	62.46	27.6	16.18	30.98	329	136	P	H
	*	2412	68.16	-	-	55.36	27.6	16.18	30.98	329	136	A	H
		2358.51	54.01	-19.99	74	41.23	27.67	16.12	31.01	328	347	P	V
		2328.165	46.36	-7.64	54	33.53	27.77	16.08	31.02	328	347	A	V
	*	2412	73.44	-	-	60.64	27.6	16.18	30.98	328	347	P	V
	*	2412	66.01	-	-	53.21	27.6	16.18	30.98	328	347	A	V
802.11g CH 06 2437MHz		2315.74	53.18	-20.82	74	40.31	27.83	16.06	31.02	100	315	P	H
		2313.36	45.99	-8.01	54	33.13	27.83	16.06	31.03	100	315	A	H
	*	2437	78.49	-	-	65.65	27.6	16.21	30.97	100	315	P	H
	*	2437	72.03	-	-	59.19	27.6	16.21	30.97	100	315	A	H
		2493.07	53.27	-20.73	74	40.55	27.4	16.26	30.94	100	315	P	H
		2493.84	45.72	-8.28	54	33	27.4	16.26	30.94	100	315	A	H
		2330.16	53.04	-20.96	74	40.21	27.77	16.08	31.02	370	347	P	V
		2314.76	45.89	-8.11	54	33.03	27.83	16.06	31.03	370	347	A	V
	*	2437	76.05	-	-	63.21	27.6	16.21	30.97	370	347	P	V
	*	2437	69.53	-	-	56.69	27.6	16.21	30.97	370	347	A	V
		2493.14	53.08	-20.92	74	40.36	27.4	16.26	30.94	370	347	P	V
		2496.71	45.78	-8.22	54	33.05	27.4	16.27	30.94	370	347	A	V

802.11g CH 11 2462MHz	*	2462	76.98	-	-	64.18	27.53	16.23	30.96	352	126	P	H
	*	2462	69.94	-	-	57.14	27.53	16.23	30.96	352	126	A	H
		2485.56	53.63	-20.37	74	40.85	27.47	16.26	30.95	352	126	P	H
		2487.44	46.06	-7.94	54	33.28	27.47	16.26	30.95	352	126	A	H
	*	2462	73.61	-	-	60.81	27.53	16.23	30.96	363	68	P	V
	*	2462	66.53	-	-	53.73	27.53	16.23	30.96	363	68	A	V
		2496.24	53.34	-20.66	74	40.61	27.4	16.27	30.94	363	68	P	V
		2492.56	46.06	-7.94	54	33.34	27.4	16.26	30.94	363	68	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		4020	44.98	-29.02	74	66.41	29.73	8.9	60.06	100	0	P	H
		4824	36.59	-37.41	74	54.86	31.3	9.59	59.16	100	0	P	H
		4020	43.91	-30.09	74	65.34	29.73	8.9	60.06	100	0	P	V
		4824	35.59	-38.41	74	53.86	31.3	9.59	59.16	100	0	P	V
802.11g CH 06 2437MHz		4065	46.85	-27.15	74	68.1	29.8	8.92	59.97	100	0	P	H
		4874	40.13	-33.87	74	58.42	31.3	9.58	59.17	100	0	P	H
		7311	48.06	-25.94	74	59.38	36.2	11.66	59.18	100	0	P	H
		4065	46.73	-27.27	74	67.98	29.8	8.92	59.97	100	0	P	V
		4874	40.32	-33.68	74	58.61	31.3	9.58	59.17	100	0	P	V
		7311	49.35	-24.65	74	60.67	36.2	11.66	59.18	100	0	P	V
802.11g CH 11 2462MHz		4095	44.03	-29.97	74	65.21	29.8	8.93	59.91	100	0	P	H
		4924	36.74	-37.26	74	54.98	31.37	9.57	59.18	100	0	P	H
		7386	42.35	-31.65	74	53.33	36.5	11.67	59.15	100	0	P	H
		4095	43.81	-30.19	74	64.99	29.8	8.93	59.91	100	0	P	V
		4924	36.2	-37.8	74	54.44	31.37	9.57	59.18	100	0	P	V
		7386	45.91	-28.09	74	56.89	36.5	11.67	59.15	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		2389.38	53.98	-20.02	74	41.21	27.6	16.16	30.99	370	137	P	H
		2349.9	46.37	-7.63	54	33.58	27.7	16.1	31.01	370	137	A	H
802.11n	*	2412	74.42	-	-	61.62	27.6	16.18	30.98	370	137	P	H
HT20	*	2412	67.63	-	-	54.83	27.6	16.18	30.98	370	137	A	H
CH 01		2374.89	53.84	-20.16	74	41.07	27.63	16.14	31	318	68	P	V
2412MHz		2311.89	46.56	-7.44	54	33.7	27.83	16.06	31.03	318	68	A	V
	*	2412	71.87	-	-	59.07	27.6	16.18	30.98	318	68	P	V
	*	2412	65.15	-	-	52.35	27.6	16.18	30.98	318	68	A	V
		2375.94	53.72	-20.28	74	40.95	27.63	16.14	31	100	312	P	H
		2348.22	45.92	-8.08	54	33.13	27.7	16.1	31.01	100	312	A	H
	*	2437	76.88	-	-	64.04	27.6	16.21	30.97	100	312	P	H
	*	2437	70.2	-	-	57.36	27.6	16.21	30.97	100	312	A	H
802.11n		2495.38	52.87	-21.13	74	40.14	27.4	16.27	30.94	100	312	P	H
HT20		2494.33	45.7	-8.3	54	32.98	27.4	16.26	30.94	100	312	A	H
CH 06		2340.52	53.32	-20.68	74	40.54	27.7	16.09	31.01	400	51	P	V
2437MHz		2361.8	45.87	-8.13	54	33.08	27.67	16.12	31	400	51	A	V
	*	2437	73.79	-	-	60.95	27.6	16.21	30.97	400	51	P	V
	*	2437	67.57	-	-	54.73	27.6	16.21	30.97	400	51	A	V
		2498.25	53.05	-20.95	74	40.32	27.4	16.27	30.94	400	51	P	V
		2487.61	45.73	-8.27	54	33.02	27.4	16.26	30.95	400	51	A	V

	*	2464	76.64	-	-	63.84	27.53	16.23	30.96	352	127	P	H
	*	2460	69.72	-	-	56.92	27.53	16.23	30.96	352	127	A	H
802.11n		2487.24	54.36	-19.64	74	41.58	27.47	16.26	30.95	352	127	P	H
HT20		2484.96	46.38	-7.62	54	33.61	27.47	16.25	30.95	352	127	A	H
CH 11	*	2462	72.95	-	-	60.15	27.53	16.23	30.96	353	71	P	V
2462MHz	*	2462	66.6	-	-	53.8	27.53	16.23	30.96	353	71	A	V
		2485.76	53.82	-20.18	74	41.04	27.47	16.26	30.95	353	71	P	V
		2496	46.11	-7.89	54	33.38	27.4	16.27	30.94	353	71	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		4020	46.11	-27.89	74	67.54	29.73	8.9	60.06	100	0	P	H
		4824	35.77	-38.23	74	54.04	31.3	9.59	59.16	100	0	P	H
		4020	44.53	-29.47	74	65.96	29.73	8.9	60.06	100	0	P	V
		4824	37.02	-36.98	74	55.29	31.3	9.59	59.16	100	0	P	V
802.11n HT20 CH 06 2437MHz		4065	48.21	-25.79	74	69.46	29.8	8.92	59.97	100	0	P	H
		4874	41.86	-32.14	74	60.15	31.3	9.58	59.17	100	0	P	H
		7311	46.34	-27.66	74	57.66	36.2	11.66	59.18	100	0	P	H
		4065	48.26	-25.74	74	69.51	29.8	8.92	59.97	100	0	P	V
		4874	42.86	-31.14	74	61.15	31.3	9.58	59.17	100	0	P	V
		7311	56.98	-17.02	74	68.3	36.2	11.66	59.18	351	214	P	V
		7311	43.01	-10.99	54	54.33	36.2	11.66	59.18	351	214	A	V
802.11n HT20 CH 11 2462MHz		4095	46.99	-27.01	74	68.17	29.8	8.93	59.91	100	0	P	H
		4924	38.6	-35.4	74	56.84	31.37	9.57	59.18	100	0	P	H
		7386	44.15	-29.85	74	55.13	36.5	11.67	59.15	100	0	P	H
		4095	45.85	-28.15	74	67.03	29.8	8.93	59.91	100	0	P	V
		4924	38.86	-35.14	74	57.1	31.37	9.57	59.18	100	0	P	V
		7386	45.46	-28.54	74	56.44	36.5	11.67	59.15	100	0	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 802.11b (LF)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz 802.11b LF		80.44	26.51	-13.49	40	44.34	13.5	1.21	32.54	-	-	P	H
		137.67	28.07	-15.43	43.5	41.4	17.6	1.57	32.5	-	-	P	H
		167.74	30.85	-12.65	43.5	45.7	15.83	1.82	32.5	-	-	P	H
		429.64	31.13	-14.87	46	38.34	22.7	2.65	32.56	-	-	P	H
		480.08	34.96	-11.04	46	41.14	23.6	2.79	32.57	-	-	P	H
		714.82	39.59	-6.41	46	41.62	26.89	3.45	32.37	100	0	P	H
		30	31.04	-8.96	40	37.76	25.2	0.7	32.62	100	0	P	V
		76.56	25.63	-14.37	40	44	13	1.18	32.55	-	-	P	V
		167.74	25.34	-18.16	43.5	40.19	15.83	1.82	32.5	-	-	P	V
		239.52	24.35	-21.65	46	37.56	17.24	2.06	32.51	-	-	P	V
		480.08	33.91	-12.09	46	40.09	23.6	2.79	32.57	-	-	P	V
		721.61	32.5	-13.5	46	34.14	27.26	3.46	32.36	-	-	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 F. Cabinet Radiated Spurious Emission Plots

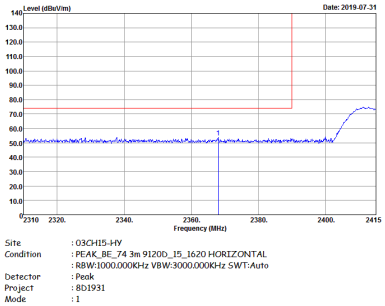
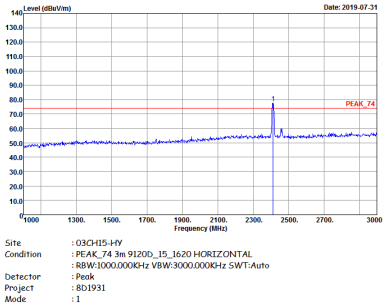
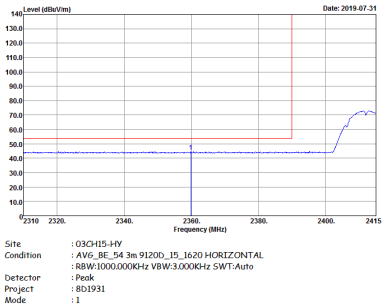
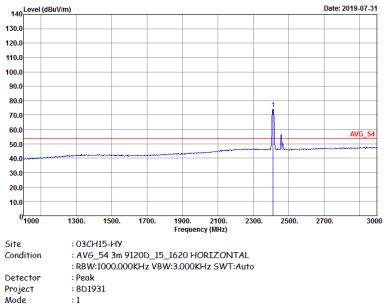
Test Engineer :	Karl Hou, Big Show Wang	**Temperature :**	23~26°C
		Relative Humidity :	50~65%

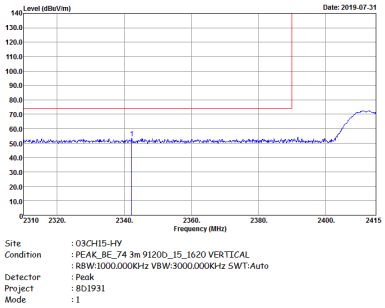
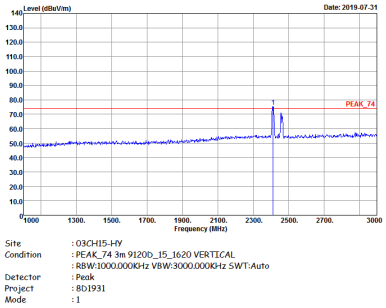
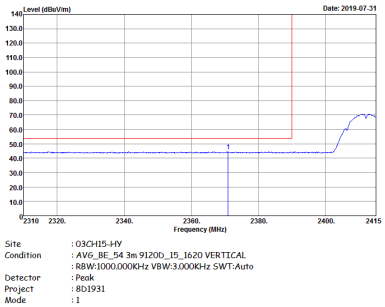
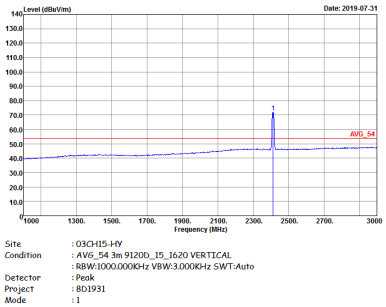
Note symbol

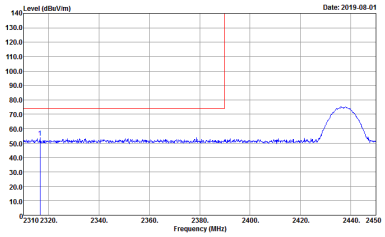
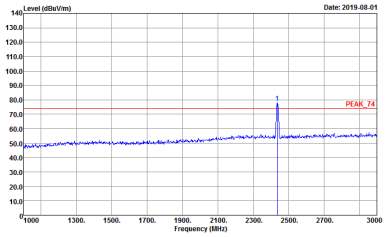
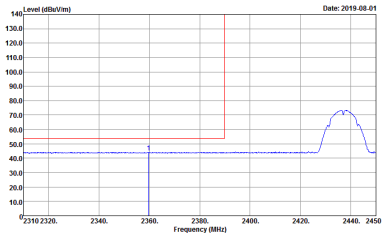
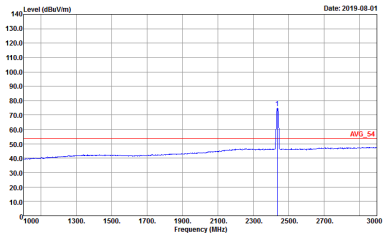
-L	**Low channel location**
-R	**High channel location**

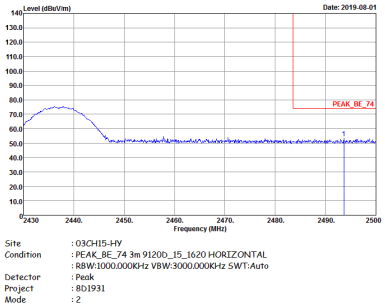
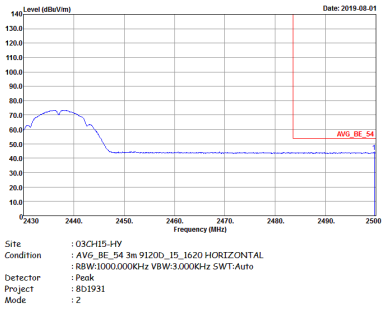
2.4GHz 2400~2483.5MHz

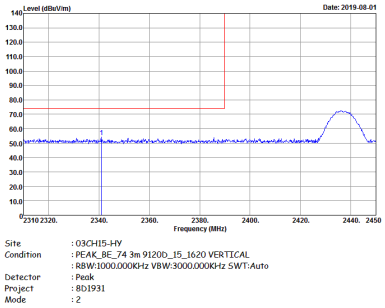
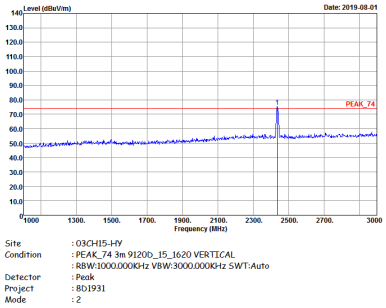
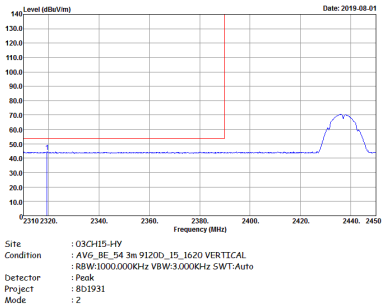
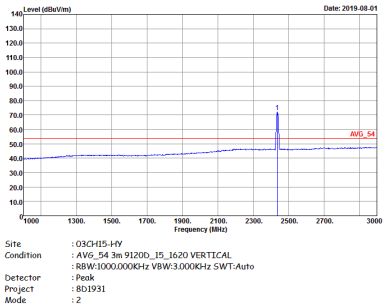
WIFI 802.11b (Band Edge @ 3m)

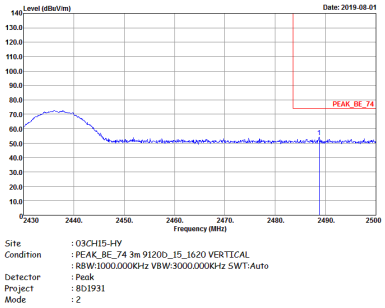
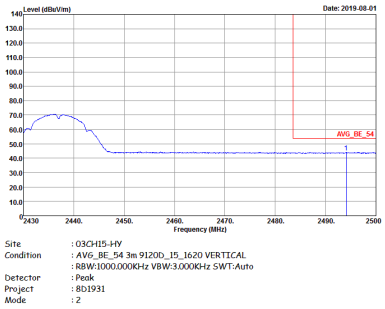
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

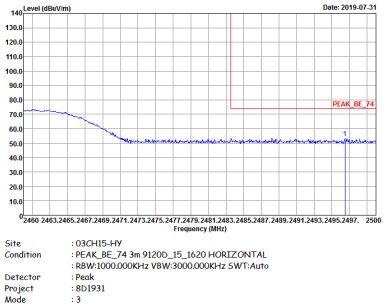
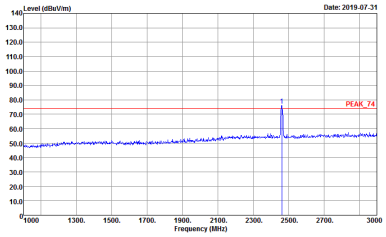
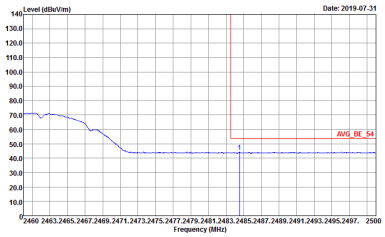
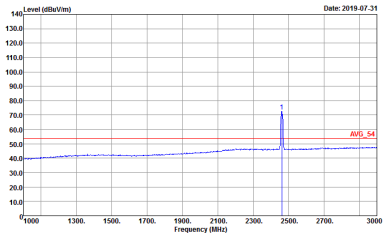
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
1	Vertical	Fundamental
Peak		
Avg.		

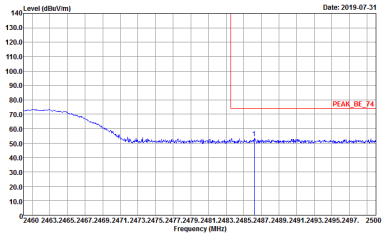
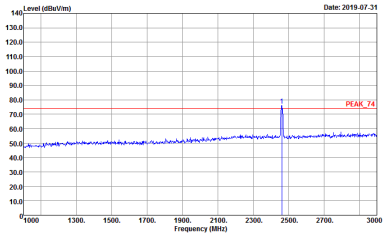
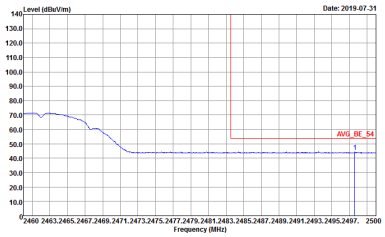
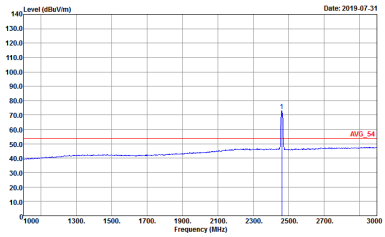
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 9120D_15_1620 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D1931 Mode : 2	 Site : 03CH15-HY Condition : PEAK_74 3m 9120D_15_1620 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D1931 Mode : 2
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m 9120D_15_1620 HORIZONTAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto Detector : Peak Project : 8D1931 Mode : 2	 Site : 03CH15-HY Condition : AVG_54 3m 9120D_15_1620 HORIZONTAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto Detector : Peak Project : 8D1931 Mode : 2

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

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

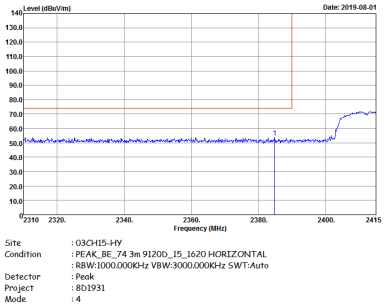
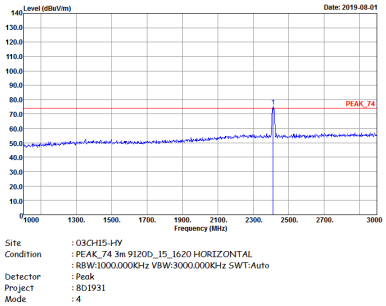
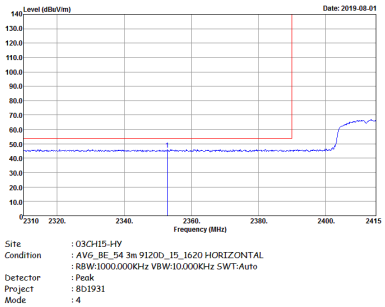
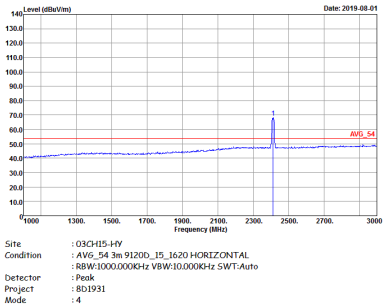
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

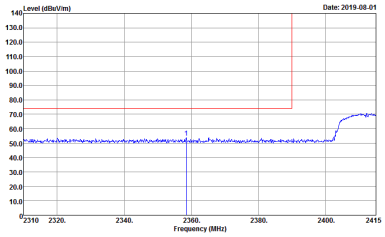
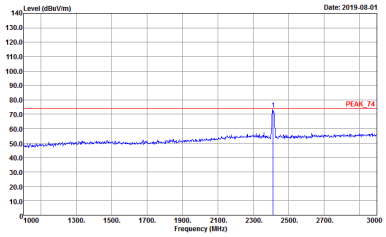
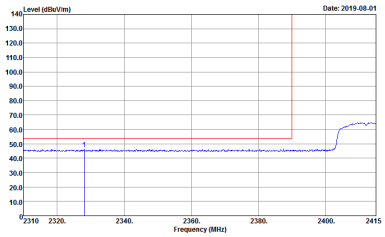
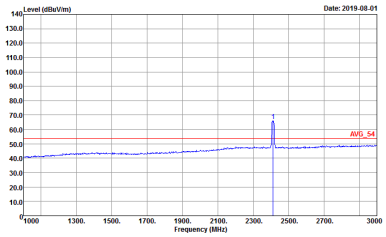
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 9120D_15_1620 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D1931 Mode : 3	 Site : 03CH15-HY Condition : PEAK_74 3m 9120D_15_1620 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D1931 Mode : 3
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m 9120D_15_1620 HORIZONTAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto Detector : Peak Project : 8D1931 Mode : 3	 Site : 03CH15-HY Condition : AVG_54 3m 9120D_15_1620 HORIZONTAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto Detector : Peak Project : 8D1931 Mode : 3

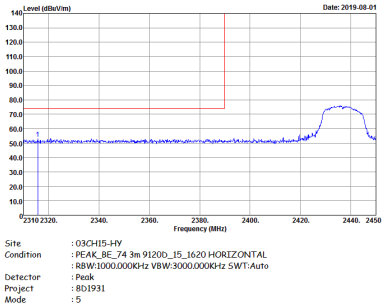
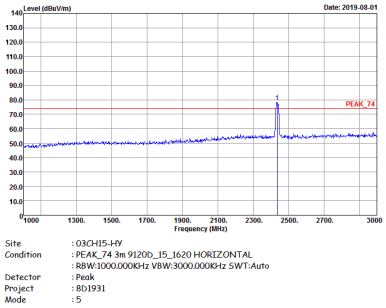
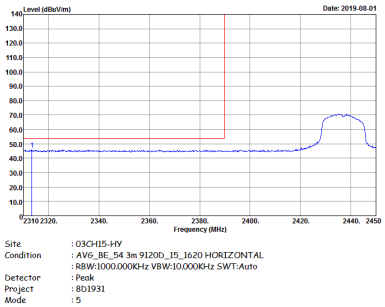
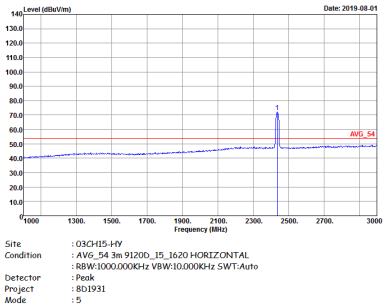
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 9120D_15_1620 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D1931 Mode : 3	 Site : 03CH15-HY Condition : PEAK_74 3m 9120D_15_1620 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D1931 Mode : 3
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m 9120D_15_1620 VERTICAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto Detector : Peak Project : 8D1931 Mode : 3	 Site : 03CH15-HY Condition : AVG_54 3m 9120D_15_1620 VERTICAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto Detector : Peak Project : 8D1931 Mode : 3

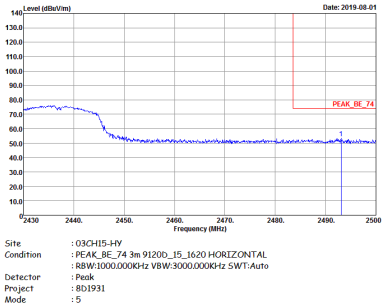
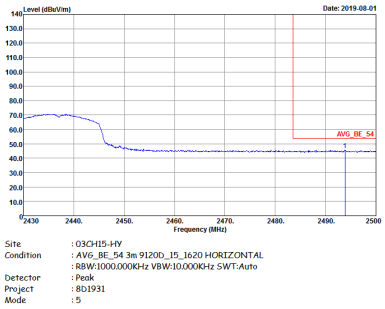
2.4GHz 2400~2483.5MHz

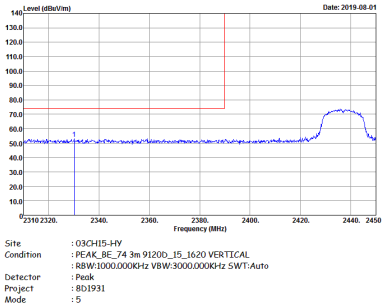
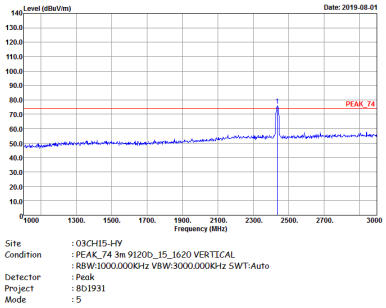
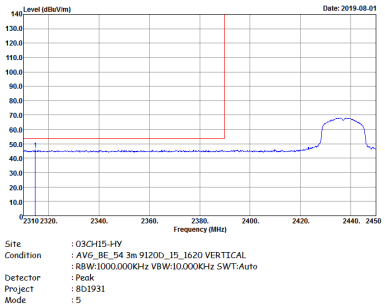
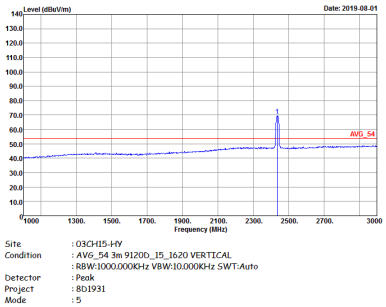
WIFI 802.11g (Band Edge @ 3m)

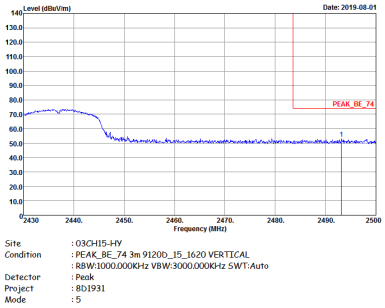
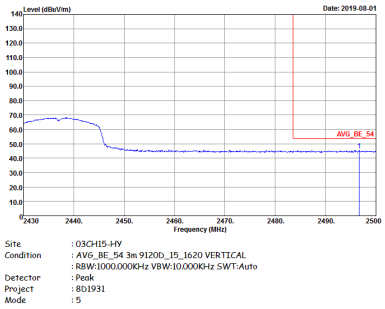
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

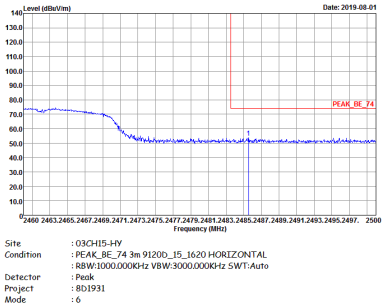
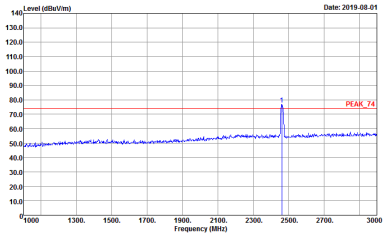
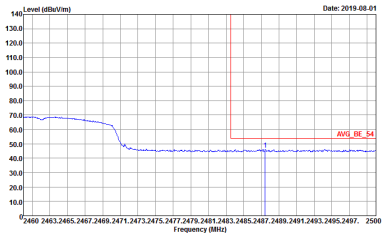
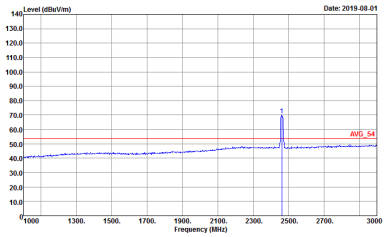
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 9120D_15_1620 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D1931 Mode : 4	 Site : 03CH15-HY Condition : PEAK_74 3m 9120D_15_1620 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D1931 Mode : 4
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m 9120D_15_1620 VERTICAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto Detector : Peak Project : 8D1931 Mode : 4	 Site : 03CH15-HY Condition : AVG_54 3m 9120D_15_1620 VERTICAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto Detector : Peak Project : 8D1931 Mode : 4

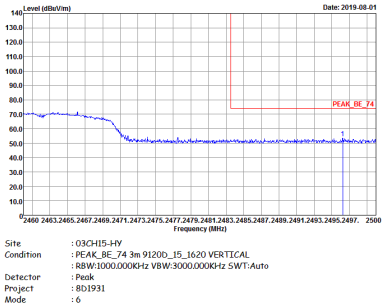
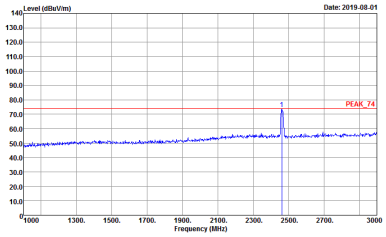
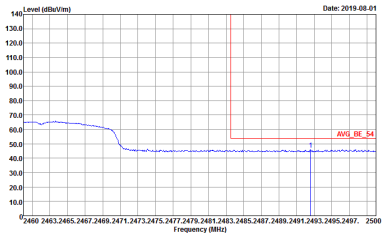
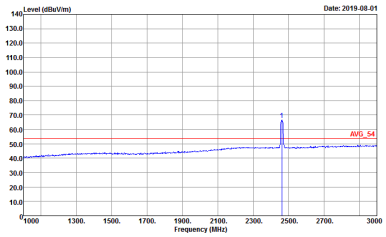
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		

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

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

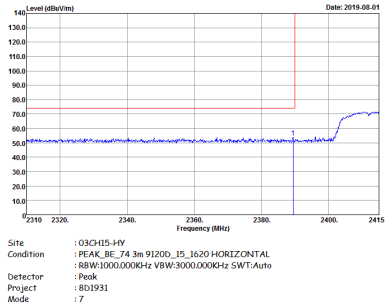
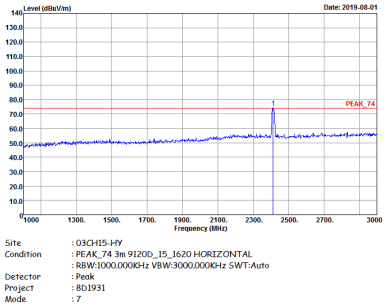
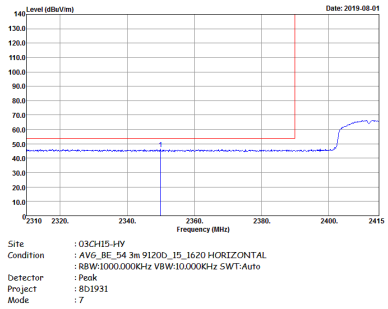
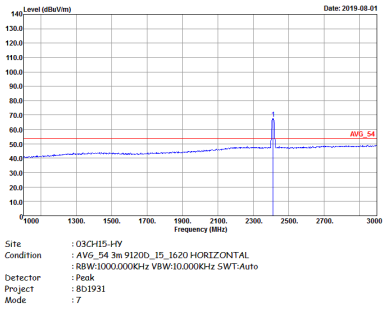
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - R	
1	Vertical	Fundamental
Peak		Left Blank
Avg.		Left Blank

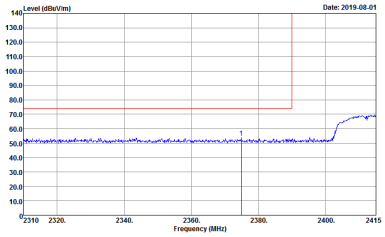
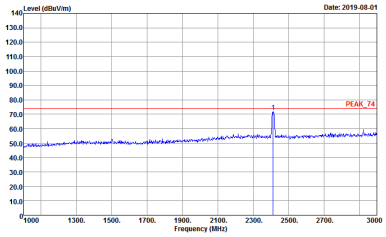
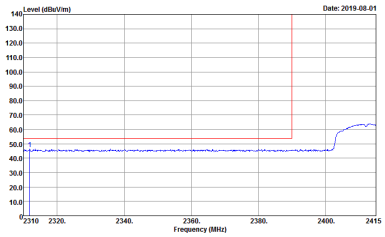
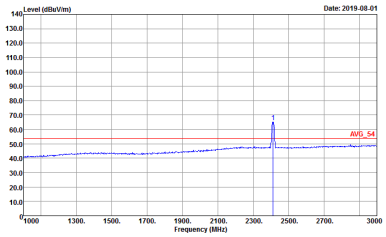
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 9120D_15_1620 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D1931 Mode : 6	 Site : 03CH15-HY Condition : PEAK_74 3m 9120D_15_1620 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D1931 Mode : 6
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m 9120D_15_1620 HORIZONTAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto Detector : Peak Project : 8D1931 Mode : 6	 Site : 03CH15-HY Condition : AVG_54 3m 9120D_15_1620 HORIZONTAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto Detector : Peak Project : 8D1931 Mode : 6

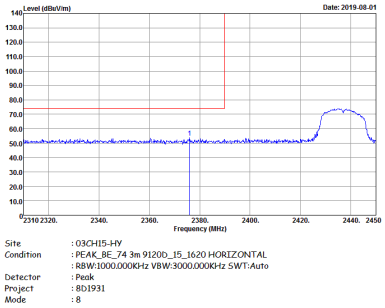
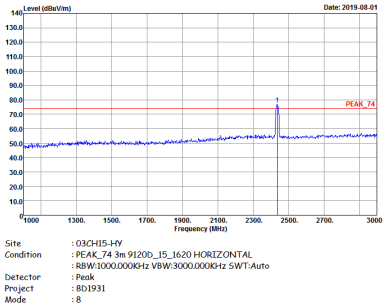
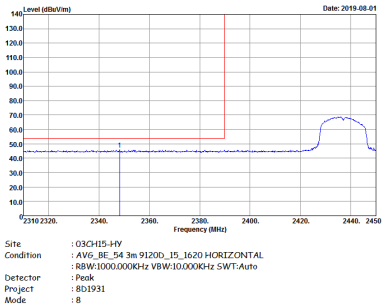
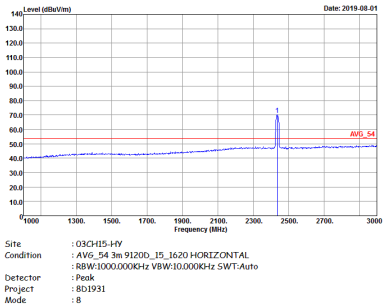
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 9120D_15_1620 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D1931 Mode : 6	 Site : 03CH15-HY Condition : PEAK_74 3m 9120D_15_1620 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D1931 Mode : 6
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m 9120D_15_1620 VERTICAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto Detector : Peak Project : 8D1931 Mode : 6	 Site : 03CH15-HY Condition : AVG_54 3m 9120D_15_1620 VERTICAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto Detector : Peak Project : 8D1931 Mode : 6

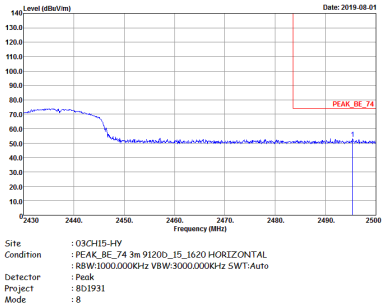
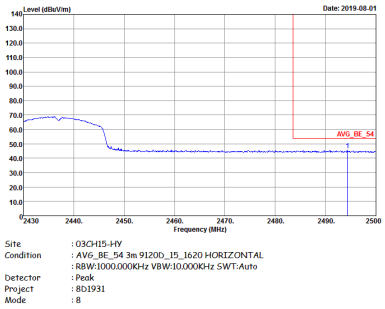
2.4GHz 2400~2483.5MHz

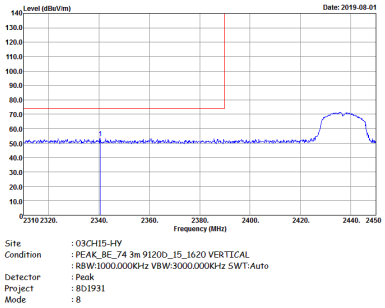
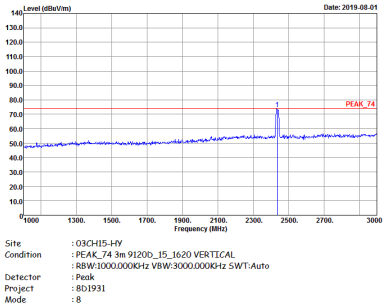
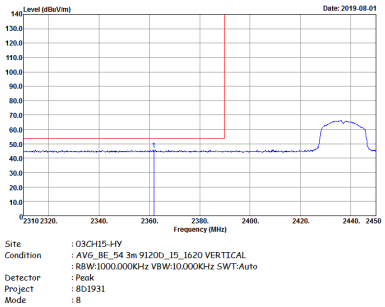
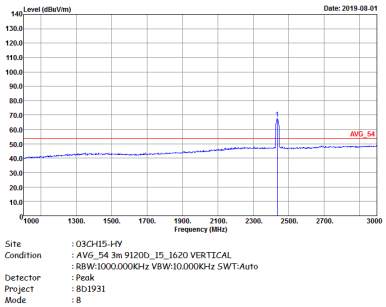
WIFI 802.11n HT20 (Band Edge @ 3m)

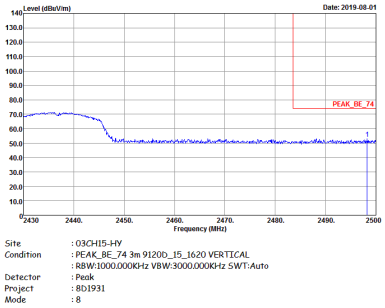
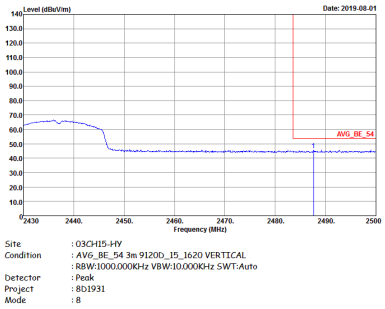
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

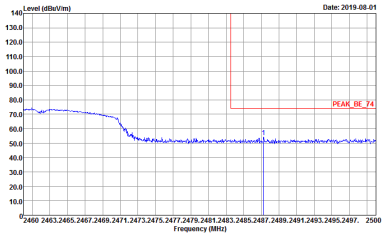
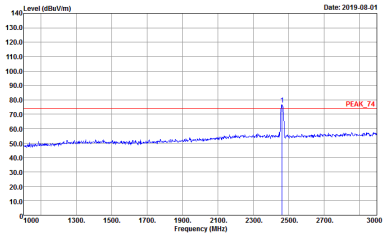
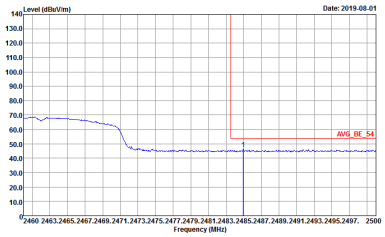
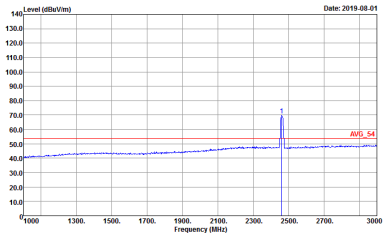
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
1	Vertical	Fundamental
Peak		
Avg.		

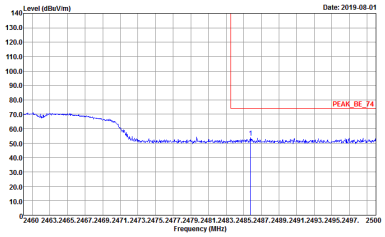
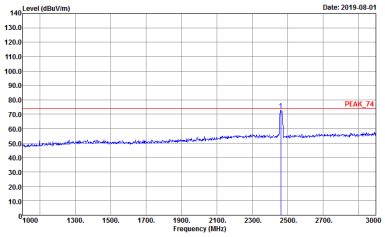
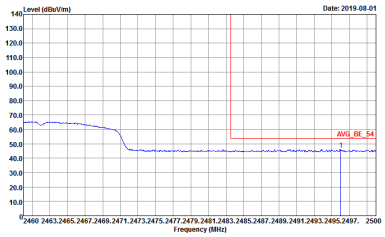
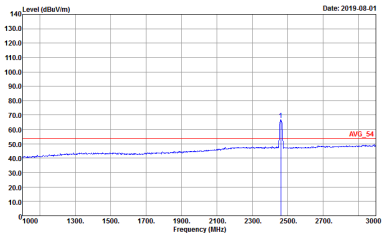
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		

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

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

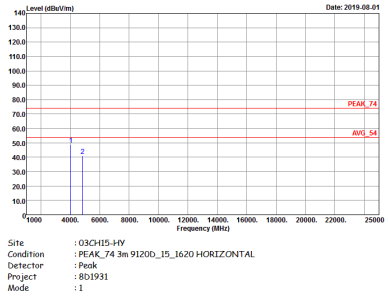
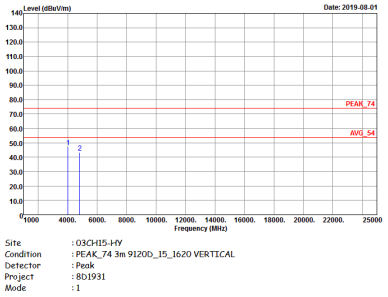
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - R	
1	Vertical	Fundamental
Peak		Left Blank
Avg.		Left Blank

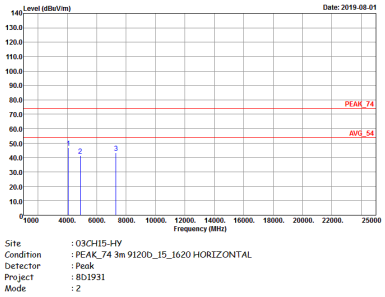
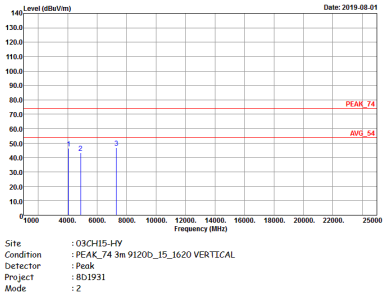
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 9120D_15_1620 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D1931 Mode : 9	 Site : 03CH15-HY Condition : PEAK_74 3m 9120D_15_1620 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D1931 Mode : 9
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m 9120D_15_1620 HORIZONTAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto Detector : Peak Project : 8D1931 Mode : 9	 Site : 03CH15-HY Condition : AVG_54 3m 9120D_15_1620 HORIZONTAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto Detector : Peak Project : 8D1931 Mode : 9

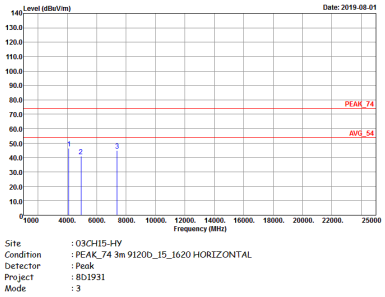
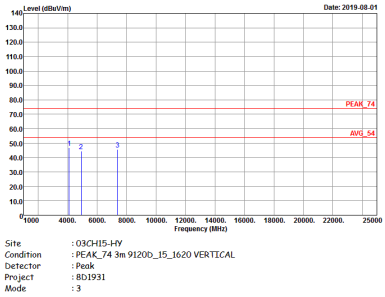
WIFI	2.4GHz 2400~2483.5MHz Fundamental @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 9120D_15_1620 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D1931 Mode : 9	 Site : 03CH15-HY Condition : PEAK_74 3m 9120D_15_1620 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D1931 Mode : 9
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m 9120D_15_1620 VERTICAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto Detector : Peak Project : 8D1931 Mode : 9	 Site : 03CH15-HY Condition : AVG_54 3m 9120D_15_1620 VERTICAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto Detector : Peak Project : 8D1931 Mode : 9

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Harmonic @ 3m)

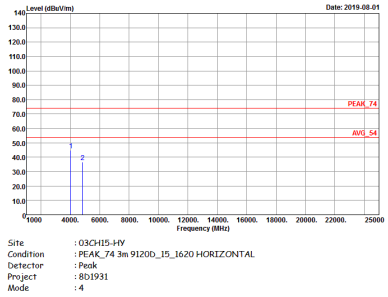
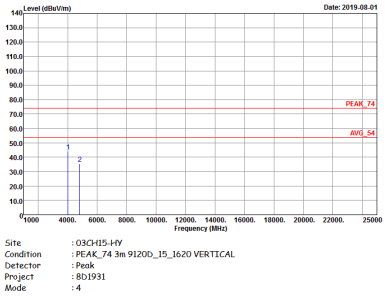
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH01 2412MHz	
1	Horizontal	Vertical
Peak Avg.		

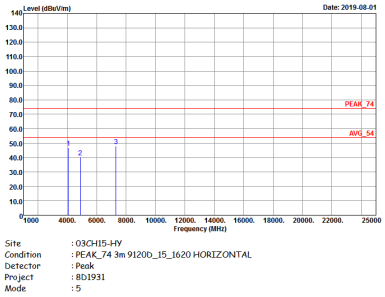
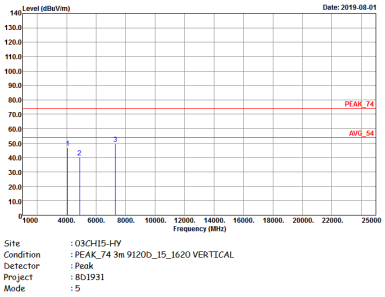
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH06 2437MHz	
1	Horizontal	Vertical
Peak Avg.		

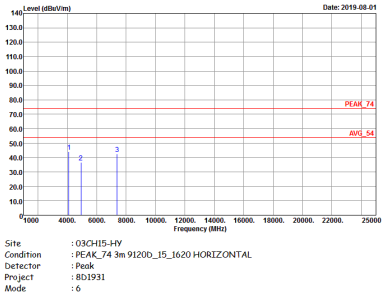
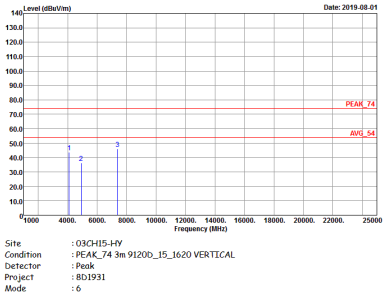
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH11 2462MHz	
1	Horizontal	Vertical
Peak Avg.		

2.4GHz 2400~2483.5MHz

WIFI 802.11g (Harmonic @ 3m)

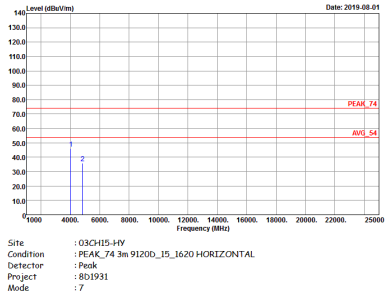
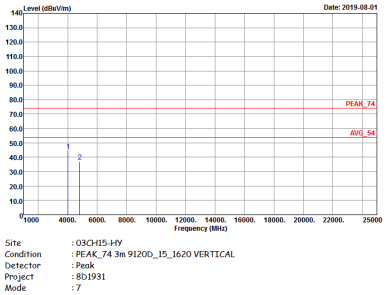
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH01 2412MHz	
1	Horizontal	Vertical
Peak Avg.		

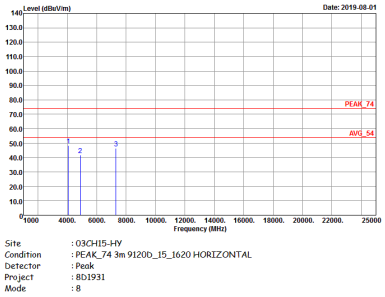
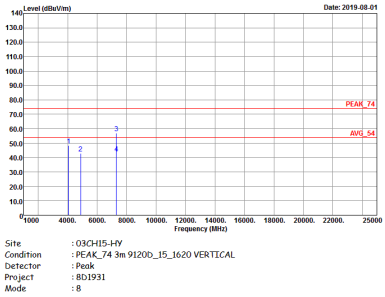
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH06 2437MHz	
1	Horizontal	Vertical
Peak Avg.	 Site : 03CH15-HY Condition : PEAK_74 3m 9120D_15_1620 HORIZONTAL Detector : Peak Project : BD1931 Mode : 5	 Site : 03CH15-HY Condition : PEAK_74 3m 9120D_15_1620 VERTICAL Detector : Peak Project : BD1931 Mode : 5

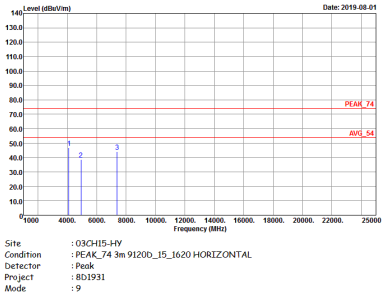
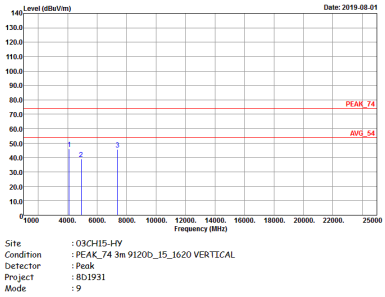
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH11 2462MHz	
1	Horizontal	Vertical
Peak Avg.		

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

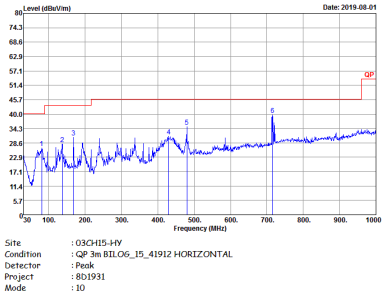
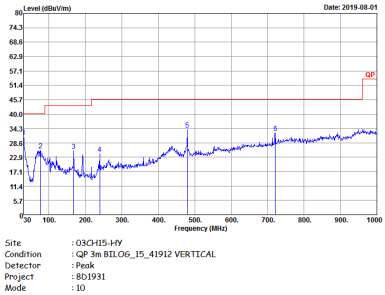
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
1	Horizontal	Vertical
Peak Avg.		

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH06 2437MHz	
1	Horizontal	Vertical
Peak Avg.	 Site : 03CH15-HY Condition : PEAK_74 3m 9120D_15_1620 HORIZONTAL Detector : Peak Project : 8D1931 Mode : 8	 Site : 03CH15-HY Condition : PEAK_74 3m 9120D_15_1620 VERTICAL Detector : Peak Project : 8D1931 Mode : 8

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

Emission below 1GHz

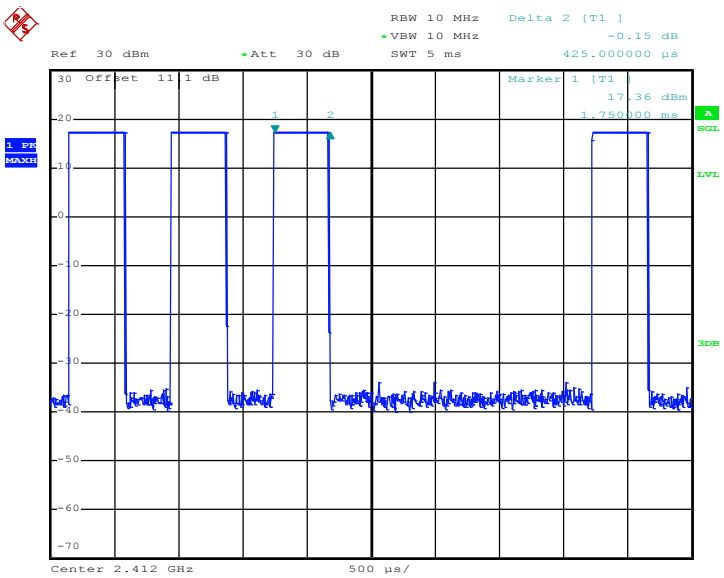
2.4GHz WIFI 802.11n HT20 (LF)

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

Appendix G. Duty Cycle Plots

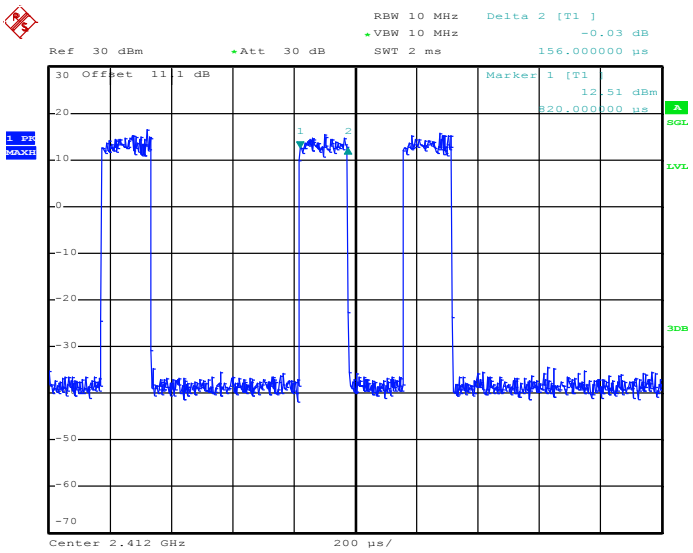
Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
802.11b	51.00	425	2.35	3kHz
802.11g	30.40	156	6.41	10kHz
802.11n HT20	30.50	156	6.41	10kHz

802.11b



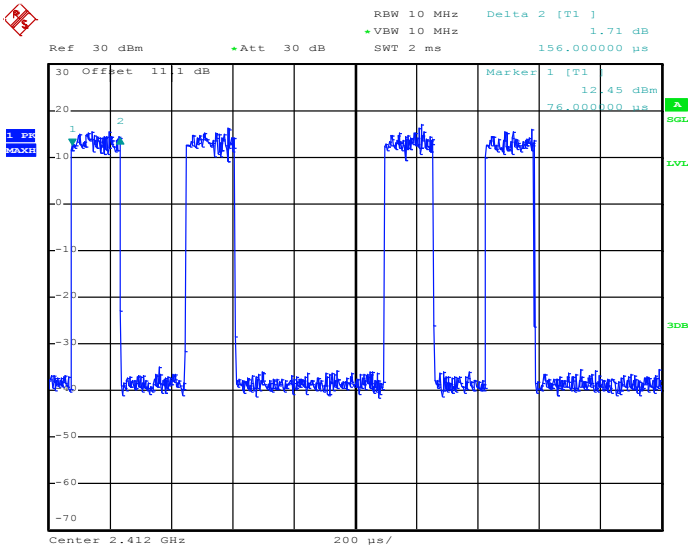
Date: 29.JUL.2019 16:30:08

802.11g



Date: 29.JUL.2019 16:41:14

802.11n HT20



Date: 29.JUL.2019 16:45:49