FCC RF Test Report

APPLICANT	:	Clarinox Technologies
EQUIPMENT	:	Koala Connect
BRAND NAME	:	Koala Connect
MODEL NAME	:	KM-153103
FCC ID	:	2AN5P1531
STANDARD	:	FCC Part 15 Subpart C §15.247
CLASSIFICATION	:	(DTS) Digital Transmission System

This is a variant report. The product was received on Oct. 20, 2017 and testing was completed on Dec. 22, 2017. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

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

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager

Testing Laboratory
1190

SPORTON INTERNATIONAL INC.
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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR7O2010C	Rev. 01	Initial issue of report	Dec. 27, 2017
FR7O2010C	Rev. 02	Change antenna gain with -1.4 dBi and update appendix a and appendix b.	May 17, 2018

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
-	15.247(a)(2)	6dB Bandwidth	≥ 0.5MHz	Not required	-
-	-	99% Bandwidth	-	Not required	-
3.1	15.247(b)	Power Output Measurement	≤ 30dBm	Pass	-
-	15.247(e)	Power Spectral Density	≤ 8dBm/3kHz	Not required	-
-	15.247(d)	Conducted Band Edges	≤ 20dBc	Not required	-
		Conducted Spurious Emission		Not required	-
3.2	15.247(d)	Radiated Band Edges and Radiated Spurious Emission	15.209(a) & 15.247(d)	Pass	Under limit 3.02 dB at 4824.000 MHz
-	15.207	AC Conducted Emission	15.207(a)	Not required	-
3.3	15.203 & 15.247(b)	Antenna Requirement	N/A	Pass	-

Note:
1. Not required means after assessing, test items are not necessary to carry out.
2. This is a variant report which can be referred Product Equality Declaration. All the test cases were performed on original report which can be referred to Sporton Report Number FR4O2349C. Based on the original report, the conducted power and radiated emission test cases were verified.

1 General Description

1.1 Applicant

Clarinox Technologies
28/296 Bay Rd, Cheltenham, VIC 3192, Australia

1.2 Manufacturer

Jorjin Technologies. Inc.
17F., No.239, Sec. 1, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan (R.O.C.)

1.3 Product Feature of Equipment Under Test

Bluetooth and Wi-Fi 2.4GHz 802.11b/g/n

Product Specification subjective to this standard	
Antenna Type	WLAN: Chip Antenna Bluetooth: Chip Antenna

1.4 Modification of EUT

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

1.5 Testing Location

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation No. TW1190 and TW0007 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC Test.

Test Site	SPORTON INTERNATIONAL INC.
Test Site Location	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978
Test Site No.	**Sporton Site No.**
	TH05-HY

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

Test Site	SPORTON INTERNATIONAL INC.
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.**
	03CH11-HY

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

1.6 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 v04
- 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

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: radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

2.1 Carrier Frequency and Channel

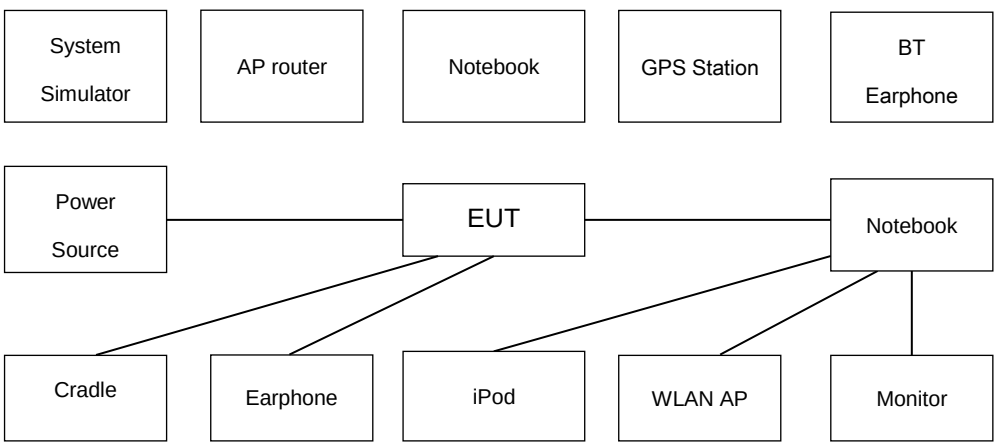
Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
2400-2483.5 MHz	1	2412	7	2442
	2	2417	8	2447
	3	2422	9	2452
	4	2427	10	2457
	5	2432	11	2462
	6	2437	-	-

2.2 Test Mode

Final test mode of conducted test items and radiated spurious emissions are considering the modulation and worse data rates as below table.

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

2.3 Connection Diagram of Test System



This example is connection diagram of EUT test configurations.

. For detail, please refer to test mode configuration and setup photographs for each test item.

2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Notebook-41	Lenovo	G480	N/A	N/A	N/A
2.	Notebook-40	Lenovo	IdeaPad (80O7)	N/A	N/A	N/A

2.5 EUT Operation Test Setup

The RF test items, programmed RF utility, “RTTT” installed in the notebook make the EUT provide functions like channel selection and power level for continuous transmitting and receiving signals.

3 Test Result

3.1 Output Power Measurement

3.1.1 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 of directional gain greater than 6dBi are 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.

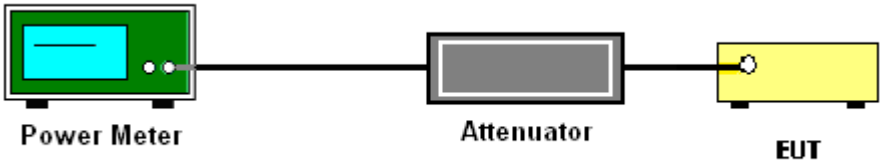
3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.1.3 Test Procedures

1. The testing follows the Measurement Procedure of FCC KDB No. 558074 DTS D01 Meas. Guidance v04 section 9.1.2 PKPM1 Peak power meter method.
2. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Measure the conducted output power and record the results in the test report.

3.1.4 Test Setup



3.1.5 Test Result of Peak Output Power

Please refer to Appendix A.

3.1.6 Test Result of Average output Power (Reporting Only)

Please refer to Appendix A.

3.2 Radiated Band Edges and Spurious Emission Measurement

3.2.1 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

3.2.2 Measuring Instruments

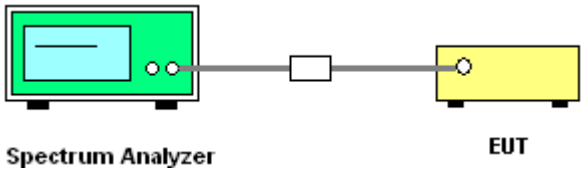
The measuring equipment is listed in the section 4 of this test report.

3.2.3 Test Procedures

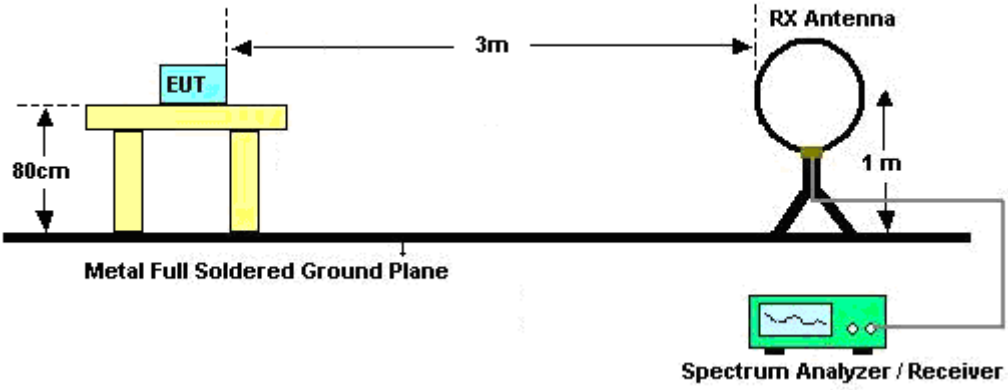
1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v04.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test 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 measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
7. 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.

3.2.4 Test Setup

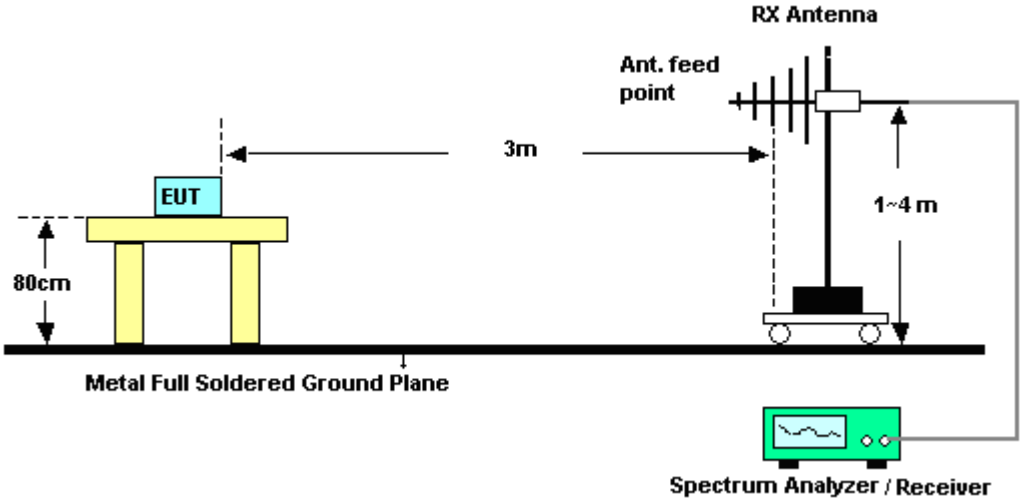
For Conducted Measurement:



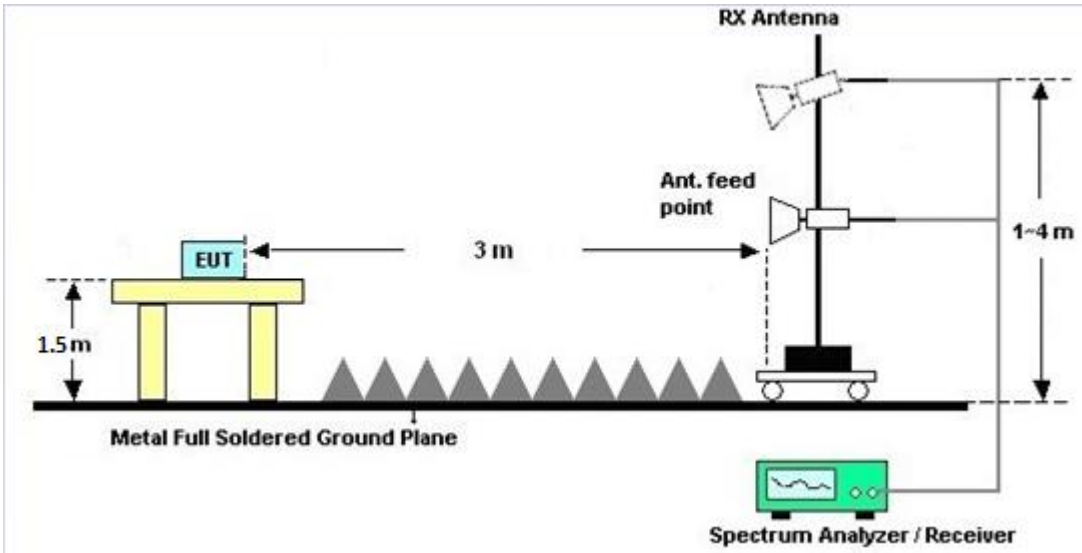
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.2.5 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 semi-Anechoic chamber, and the result came out very similar.

3.2.6 Test Result of Conducted Spurious at Band Edges in the Restricted Band

Please refer to Appendix B and C.

3.2.7 Test Result of Conducted Spurious Emission in the Restricted Band

Please refer to Appendix B and C.

3.2.8 Test Result of Cabinet Radiated Spurious at Band Edges

Please refer to Appendix D and E.

3.2.9 Duty Cycle

Please refer to Appendix F.

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

Please refer to Appendix D and E.

3.3 Antenna Requirements

3.3.1 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. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the rule.

3.3.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.3.3 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 Meter	Anritsu	ML2495A	1132003	N/A	Aug. 09, 2017	Dec. 15, 2017 ~ Dec. 20, 2017	Aug. 08, 2018	Conducted (TH05-HY)
Power Sensor	Anritsu	MA2411B	1126017	300MHz~40GHz	Aug. 09, 2017	Dec. 15, 2017 ~ Dec. 20, 2017	Aug. 08, 2018	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100057	9kHz-40GHz	Nov. 21, 2017	Dec. 15, 2017 ~ Dec. 20, 2017	Nov. 20, 2018	Conducted (TH05-HY)
Spectrum Analyzer	Aglient	N9030A	MY52350276	3Hz~44GHz	Mar. 23, 2017	Dec. 14, 2017~ Dec. 20,2017	Mar. 22, 2018	CSE (TH05-HY)
Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz, VSWR : 2.5:1 max	Jul. 18, 2017	Dec. 12, 2017~ Dec. 22, 2017	Jul. 17, 2018	Radiation (03CH11-HY)
Amplifier	SONOMA	310N	187312	9kHz~1GHz	Nov. 10, 2016	Dec. 12, 2017~ Dec. 22, 2017	Nov. 09, 2018	Radiation (03CH11-HY)
Bilog Antenna	TESEQ	CBL 6111D&N-6-06	35414&AT-N0602	30MHz~1GHz	Oct. 14, 2017	Dec. 12, 2017~ Dec. 22, 2017	Oct. 13, 2018	Radiation (03CH11-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1326	1GHz ~ 18GHz	Oct. 16, 2017	Dec. 12, 2017~ Dec. 22, 2017	Oct. 15, 2018	Radiation (03CH11-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Nov. 24, 2017	Dec. 12, 2017~ Dec. 22, 2017	Nov. 23, 2019	Radiation (03CH11-HY)
Preamplifier	Keysight	83017A	MY53270080	1GHz~26.5GHz	Nov. 10, 2016	Dec. 12, 2017~ Dec. 22, 2017	Nov. 09, 2018	Radiation (03CH11-HY)
Preamplifier	Jet-Power	JPA0118-55-303	1710001800054001	1GHZ~18GHZ	Dec. 07, 2017	Dec. 12, 2017~ Dec. 22, 2017	Dec. 06, 2018	Radiation (03CH11-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200486	10Hz ~ 44GHz	Oct. 19, 2017	Dec. 12, 2017~ Dec. 22, 2017	Oct. 18, 2018	Radiation (03CH11-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1~4m	N/A	Dec. 12, 2017~ Dec. 22, 2017	N/A	Radiation (03CH11-HY)
Turn Table	EMEC	TT 2000	N/A	0~360 Degree	N/A	Dec. 12, 2017~ Dec. 22, 2017	N/A	Radiation (03CH11-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170584	18GHz- 40GHz	Nov. 29, 2017	Dec. 12, 2017~ Dec. 22, 2017	Nov. 28, 2018	Radiation (03CH11-HY)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.20

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.50

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.20

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Ethan Lin	Temperature:	21~25	°C
Test Date:	2017/12/15~2017/12/20	Relative Humidity:	51~54	%

Report Number : FR7O2010C

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	17.95	-		30.00	-	-1.40	-	16.55	-	36.00	36.00	Pass
11b	1Mbps	1	6	2437	17.71	-		30.00	-	-1.40	-	16.31	-	36.00	36.00	Pass
11b	1Mbps	1	11	2462	17.68	-		30.00	-	-1.40	-	16.28	-	36.00	36.00	Pass
11g	6Mbps	1	1	2412	19.56	-		30.00	-	-1.40	-	18.16	-	36.00	36.00	Pass
11g	6Mbps	1	6	2437	19.95	-		30.00	-	-1.40	-	18.55	-	36.00	36.00	Pass
11g	6Mbps	1	11	2462	19.74	-		30.00	-	-1.40	-	18.34	-	36.00	36.00	Pass
HT20	MCS0	1	1	2412	19.54	-		30.00	-	-1.40	-	18.14	-	36.00	36.00	Pass
HT20	MCS0	1	6	2437	20.01	-		30.00	-	-1.40	-	18.61	-	36.00	36.00	Pass
HT20	MCS0	1	11	2462	19.74	-		30.00	-	-1.40	-	18.34	-	36.00	36.00	Pass
HT40	MCS0	1	3	2422	18.90	-		30.00	-	-1.40	-	17.50	-	36.00	36.00	Pass
HT40	MCS0	1	6	2437	19.50	-		30.00	-	-1.40	-	18.10	-	36.00	36.00	Pass
HT40	MCS0	1	9	2452	19.24	-		30.00	-	-1.40	-	17.84	-	36.00	36.00	Pass

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

Report Number : FR7O2010C

TEST RESULTS DATA
Average Output Power

2.4GHz Band									
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)		
					Ant 1	Ant 2	Ant 1	Ant 2	SUM
11b	1Mbps	1	1	2412	0.19	-	15.99	-	
11b	1Mbps	1	6	2437	0.19	-	15.81	-	
11b	1Mbps	1	11	2462	0.19	-	15.66	-	
11g	6Mbps	1	1	2412	1.10	-	11.89	-	
11g	6Mbps	1	6	2437	1.10	-	16.15	-	
11g	6Mbps	1	11	2462	1.10	-	11.68	-	
HT20	MCS0	1	1	2412	1.17	-	11.45	-	
HT20	MCS0	1	6	2437	1.17	-	15.64	-	
HT20	MCS0	1	11	2462	1.17	-	11.68	-	
HT40	MCS0	1	3	2422	1.13	-	9.21	-	
HT40	MCS0	1	6	2437	1.13	-	12.54	-	
HT40	MCS0	1	9	2452	1.13	-	9.86	-	

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

Appendix B. Conducted Spurious Emission

Test Engineer :	Hao Hsu, Jacky Hung, and Ken Wu	**Temperature :**	26~28°C
		Relative Humidity :	52~57%

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBm)	Over Limit (dB)	Limit Line (dBm)	Read Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	Aux Factor (dB)	Aux2 Factor (dB)	Peak Avg. (P/A)
802.11b CH 01 2412MHz		2383.185	-42	-20.8	-21.2	-46.56	2	2.06	0.5	0	P
		2386.65	-46.14	-4.94	-41.2	-50.7	2	2.06	0.5	0	A
	*	2412	11.7	-	-	7.12	2	2.08	0.5	0	P
	*	2412	8.56	-	-	3.98	2	2.08	0.5	0	A
802.11b CH 06 2437MHz		2386.72	-47.41	-26.21	-21.2	-51.97	2	2.06	0.5	0	P
		2386.86	-55.48	-14.28	-41.2	-60.04	2	2.06	0.5	0	A
	*	2437	11.61	-	-	7.03	2	2.08	0.5	0	P
	*	2437	8.54	-	-	3.96	2	2.08	0.5	0	A
		2493.98	-46.17	-24.97	-21.2	-50.78	2	2.11	0.5	0	P
		2485.16	-55.21	-14.01	-41.2	-59.81	2	2.1	0.5	0	A
802.11b CH 11 2462MHz	*	2462	11.64	-	-	7.04	2	2.1	0.5	0	P
	*	2462	8.48	-	-	3.88	2	2.1	0.5	0	A
		2483.83	-41.76	-20.56	-21.2	-46.36	2	2.1	0.5	0	P
		2487.56	-47.52	-6.32	-41.2	-52.12	2	2.1	0.5	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)	Cable Loss (dB)	Aux Factor (dB)	Aux2 Factor (dB)	Peak Avg. (P/A)
802.11b CH 01 2412MHz		4824	-65.86	-44.66	-21.2	-72.24	2	3.05	0.53	0.8	P
802.11b CH 06 2437MHz		4874	-63.24	-42.04	-21.2	-69.64	2	3.07	0.52	0.81	P
		7311	-61.54	-39.34	-21.2	-67.98	2	4.01	0.44	0.99	P
802.11b CH 11 2462MHz		4924	-62.73	-41.53	-21.2	-69.13	2	3.08	0.51	0.81	P
		7386	-63.92	-43.72	-21.2	-71.43	2	4.05	0.48	0.98	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 Ant. 1	Note	Frequency (MHz)	Level (dBm)	Over Limit (dB)	Limit Line (dBm)	Read Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	Aux Factor (dB)	Aux2 Factor (dB)	Peak Avg. (P/A)
802.11g CH 01 2412MHz		2389.17	-31.85	-10.65	-21.2	-36.41	2	2.06	0.5	0	P
		2389.695	-46.34	-5.14	-41.2	-50.9	2	2.06	0.5	0	A
	*	2412	11.09	-	-	6.51	2	2.08	0.5	0	P
	*	2412	2.05	-	-	-2.53	2	2.08	0.5	0	A
802.11g CH 06 2437MHz		2389.8	-34.53	-13.33	-21.2	-39.09	2	2.06	0.5	0	P
		2389.24	-49.58	-8.38	-41.2	-54.14	2	2.06	0.5	0	A
	*	2437	15.03	-	-	10.45	2	2.08	0.5	0	P
	*	2437	6.64	-	-	2.06	2	2.08	0.5	0	A
		2483.62	-37.19	-15.99	-21.2	-41.79	2	2.1	0.5	0	P
		2483.48	-51.87	-10.67	-41.2	-56.47	2	2.1	0.5	0	A
802.11g CH 11 2462MHz	*	2462	10.51	-	-	5.91	2	2.1	0.5	0	P
	*	2462	2.19	-	-	-2.41	2	2.1	0.5	0	A
		2483.92	-27.25	-6.05	-21.2	-31.85	2	2.1	0.5	0	P
		2483.56	-46.33	-5.13	-41.2	-50.93	2	2.1	0.5	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)	Cable Loss (dB)	Aux Factor (dB)	Aux2 Factor (dB)	Peak Avg. (P/A)
802.11g CH 01 2412MHz		4824	-71.29	-50.09	-21.2	-77.67	2	3.05	0.53	0.8	P
802.11g CH 06 2437MHz		4874	-62.9	-41.7	-21.2	-69.3	2	3.07	0.52	0.81	P
		7311	-57.15	-35.95	-21.2	-64.59	2	4.01	0.44	0.99	P
802.11g CH 11 2462MHz		4924	-69.79	-48.59	-21.2	-76.19	2	3.08	0.51	0.81	P
		7386	-69.46	-48.26	-21.2	-76.97	2	4.05	0.48	0.98	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 Ant. 1	Note	Frequency (MHz)	Level (dBm)	Over Limit (dB)	Limit Line (dBm)	Read Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	Aux Factor (dB)	Aux2 Factor (dB)	Peak Avg. (P/A)
802.11n HT20 CH 01 2412MHz		2389.905	-30.67	-9.47	-21.2	-35.23	2	2.06	0.5	0	P
		2389.8	-45.8	-5.6	-41.2	-50.36	2	2.06	0.5	0	A
	*	2412	11.03	-	-	6.45	2	2.08	0.5	0	P
	*	2412	1.89	-	-	-2.69	2	2.08	0.5	0	A
802.11n HT20 CH 06 2437MHz		2389.94	-33.27	-12.07	-21.2	-37.83	2	2.06	0.5	0	P
		2389.1	-51.44	-10.24	-41.2	-56	2	2.06	0.5	0	A
	*	2437	14.54	-	-	9.96	2	2.08	0.5	0	P
	*	2437	6.06	-	-	1.48	2	2.08	0.5	0	A
		2484.88	-37.32	-16.12	-21.2	-41.92	2	2.1	0.5	0	P
		2483.55	-53.11	-11.91	-41.2	-57.71	2	2.1	0.5	0	A
802.11n HT20 CH 11 2462MHz	*	2462	10.61	-	-	6.01	2	2.1	0.5	0	P
	*	2462	2.03	-	-	-2.57	2	2.1	0.5	0	A
		2484.16	-31.98	-10.78	-21.2	-36.58	2	2.1	0.5	0	P
		2483.52	-45.84	-4.66	-41.2	-50.44	2	2.1	0.5	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)	Cable Loss (dB)	Aux Factor (dB)	Aux2 Factor (dB)	Peak Avg. (P/A)
802.11n HT20 CH 01 2412MHz		4824	-72.58	-51.38	-21.2	-78.96	2	3.05	0.53	0.8	P
802.11n HT20 CH 06 2437MHz		4874	-65.07	-43.87	-21.2	-71.47	2	3.07	0.52	0.81	P
		7311	-57.62	-36.42	-21.2	-65.06	2	4.01	0.44	0.99	P
802.11n HT20 CH 11 2462MHz		4924	-70.22	-49.02	-21.2	-76.62	2	3.08	0.51	0.81	P
		7386	-69.58	-48.38	-21.2	-77.09	2	4.05	0.48	0.98	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 HT40 (Band Edge)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBm)	Over Limit (dB)	Limit Line (dBm)	Read Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	Aux Factor (dB)	Aux2 Factor (dB)	Peak Avg. (P/A)
802.11n HT40 CH 03 2422MHz		2389.66	-30.69	-9.49	-21.2	-35.25	2	2.06	0.5	0	P
		2389.38	-45.89	-5.68	-41.2	-50.45	2	2.06	0.5	0	A
	*	2422	5.86	-	-	1.28	2	2.08	0.5	0	P
	*	2422	-4.15	-	-	-8.73	2	2.08	0.5	0	A
		2499.44	-46.04	-24.84	-21.2	-50.65	2	2.11	0.5	0	P
		2484.46	-56.82	-15.62	-41.2	-61.42	2	2.1	0.5	0	A
802.11n HT40 CH 06 2437MHz		2386.58	-30.57	-9.37	-21.2	-35.13	2	2.06	0.5	0	P
		2389.94	-46.09	-4.89	-41.2	-50.65	2	2.06	0.5	0	A
	*	2437	8.62	-	-	4.04	2	2.08	0.5	0	P
	*	2437	-0.61	-	-	-5.19	2	2.08	0.5	0	A
		2491.81	-34.56	-13.36	-21.2	-39.17	2	2.11	0.5	0	P
		2483.69	-48.7	-7.5	-41.2	-53.3	2	2.1	0.5	0	A
802.11n HT40 CH 09 2452MHz		2383.5	-48.33	-27.13	-21.2	-52.89	2	2.06	0.5	0	P
		2388.26	-57.27	-16.07	-41.2	-61.83	2	2.06	0.5	0	A
	*	2452	5.77	-	-	1.17	2	2.1	0.5	0	P
	*	2452	-3.31	-	-	-7.91	2	2.1	0.5	0	A
		2484.46	-28.85	-7.65	-21.2	-33.45	2	2.1	0.5	0	P
		2485.3	-45.65	-4.45	-41.2	-50.25	2	2.1	0.5	0	A
Remark	3. No other spurious found. 4. All results are PASS against Peak and Average limit line.										

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT40 (Harmonic)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBm)	Over Limit (dB)	Limit Line (dBm)	Read Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	Aux Factor (dB)	Aux2 Factor (dB)	Peak Avg. (P/A)
802.11n HT40 CH 03 2422MHz		4844	-73.42	-52.22	-21.2	-79.8	2	3.05	0.52	0.81	P
		7266	-72.01	-50.81	-21.2	-79.41	2	3.99	0.42	0.99	
802.11n HT40 CH 06 2437MHz		4874	-70.6	-49.4	-21.2	-77	2	3.07	0.52	0.81	P
		7311	-65.93	-44.73	-21.2	-73.37	2	4.01	0.44	0.99	P
802.11n HT40 CH 09 2452MHz		4904	-73.07	-51.87	-21.2	-79.47	2	3.08	0.51	0.81	P
		7356	-70.99	-49.79	-21.2	-78.47	2	4.03	0.47	0.98	P
Remark	3. No other spurious found. 4. All results are PASS against Peak and Average limit line.										

Emission below 1GHz

2.4GHz WIFI 802.11n HT40 (LF)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Gain	Cable Loss	Aux Factor	Aux2 Factor	Peak Avg.
1		(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dBi)	(dB)	(dB)	(dB)	(P/A)
2.4GHz 802.11n HT40 LF		74.82	-88.03	-32.83	-55.2	-95.16	2	0.34	0.09	4.7	P
		112.35	-88.04	-36.34	-51.7	-95.22	2	0.41	0.07	4.7	P
		152.58	-88.2	-36.5	-51.7	-95.5	2	0.46	0.14	4.7	P
		480.6	-86.85	-37.65	-49.2	-94.46	2	0.81	0.1	4.7	P
		652.8	-86.46	-37.26	-49.2	-94.27	2	0.99	0.12	4.7	P
		703.2	-79.85	-30.65	-49.2	-87.7	2	1.03	0.12	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.
AUX Factor	Connector lose、High/Low pass filter
AUX2 Factor	Grounding factor
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	Cable	Aux	Aux2	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	2.09	0.94	0	P
		2386.125	-48.1	-6.9	-41.2	-53.13	2	2.09	0.94	0	A

1. Level(dBm) =

Antenna Factor(dB) + Cable Loss(dB) + Read Level(dBm) + Aux Factor(dB) + Aux2 Factor(dB)

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

For Peak Limit @ 2386.545MHz:

1. Level(dBm)

= Antenna Factor(dB) + Cable Loss(dB) + Read Level(dBm) + Aux Factor(dB) + Aux2 Factor(dB)

= 2(dB) + 2.09(dB) – 44.06(dBm) + 0.94(dB)

= -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 Factor(dB) + Cable Loss(dB) + Read Level(dBm) + Aux Factor(dB) + Aux2 Factor(dB)

= 2(dB) + 2.09(dB) – 53.13(dBm) + 0.94(dB)

= -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 C. Conducted Spurious Emission Plots

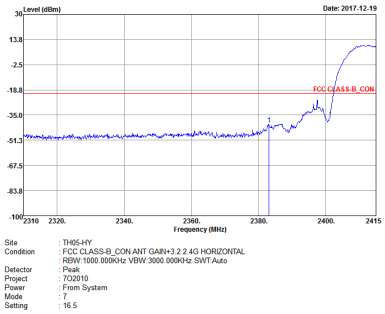
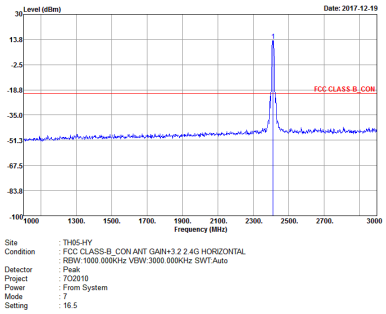
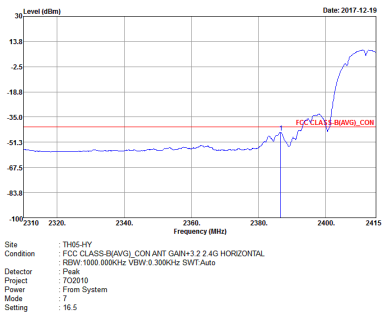
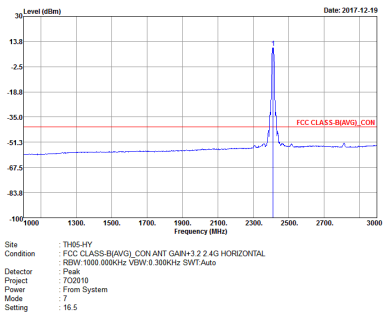
Test Engineer :	Rebecca Lee and Karl Hou	**Temperature :**	22~24°C
		Relative Humidity :	51~55%

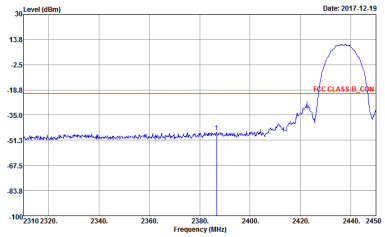
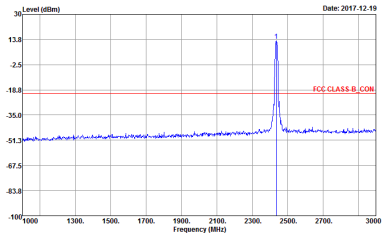
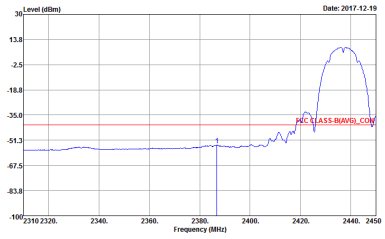
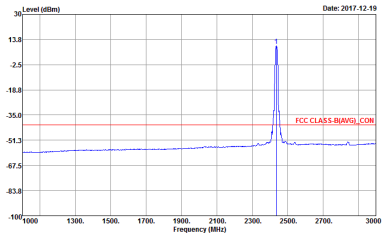
Note symbol

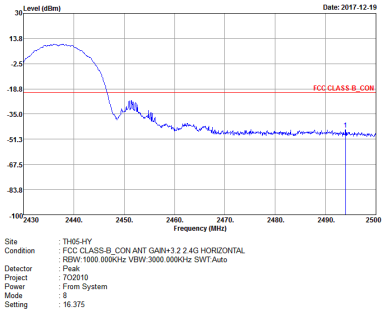
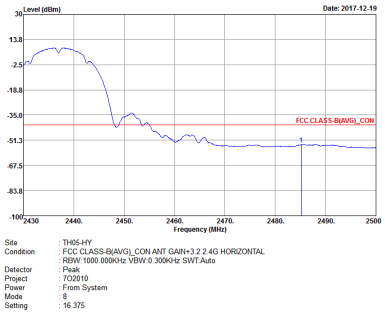
-L	**Low channel location**
-R	**High channel location**

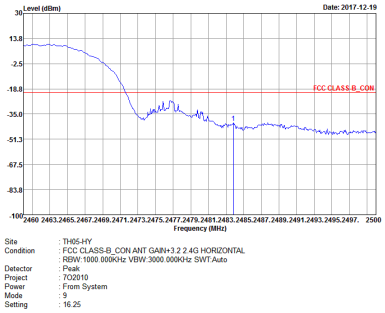
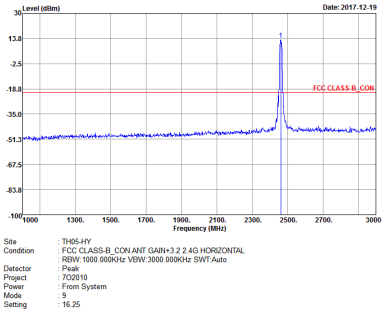
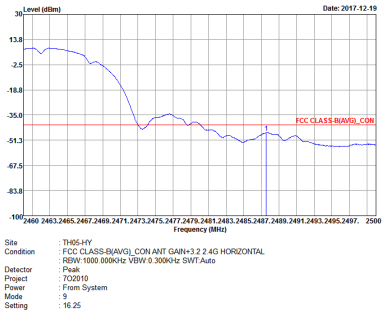
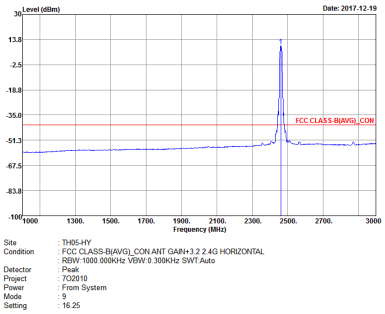
2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge)

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

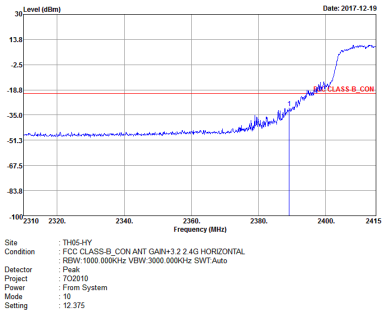
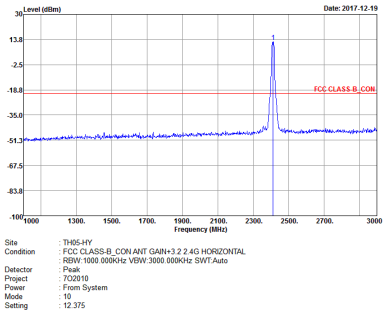
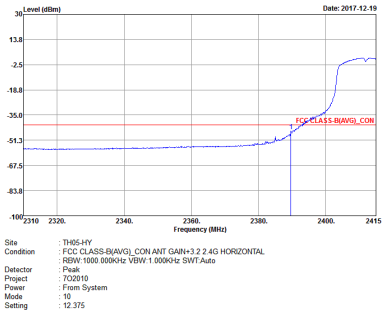
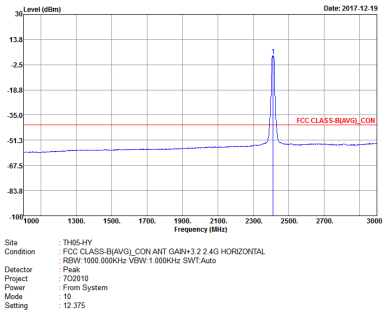
WIFI	2.4GHz 2400~2483.5MHz Band Edge	
ANT	802.11b CH06 2437MHz - L	
1	CSE	Fundamental
Peak	 Site : TH05-HY Condition : FCC CLASS-B_CON ANT GAIN+3.2 2.4G HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 7O2010 Power : From System Mode : 8 Setting : 16.375	 Site : TH05-HY Condition : FCC CLASS-B_CON ANT GAIN+3.2 2.4G HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 7O2010 Power : From System Mode : 8 Setting : 16.375
Avg.	 Site : TH05-HY Condition : FCC CLASS-B(AVG)_CON ANT GAIN+3.2 2.4G HORIZONTAL : RBW:1000.000KHz VBW:0.300KHz SWT:Auto Detector : Peak Project : 7O2010 Power : From System Mode : 8 Setting : 16.375	 Site : TH05-HY Condition : FCC CLASS-B(AVG)_CON ANT GAIN+3.2 2.4G HORIZONTAL : RBW:1000.000KHz VBW:0.300KHz SWT:Auto Detector : Peak Project : 7O2010 Power : From System Mode : 8 Setting : 16.375

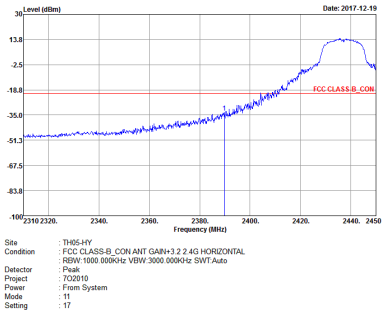
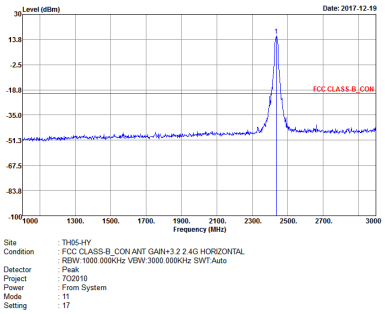
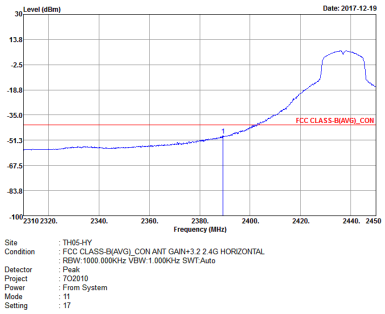
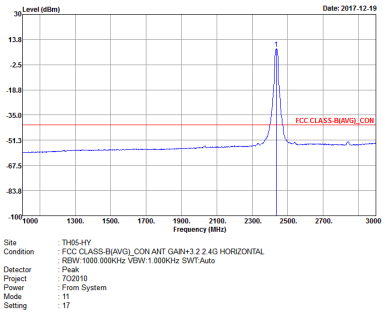
WIFI	2.4GHz 2400~2483.5MHz Band Edge	
ANT	802.11b CH06 2437MHz - R	
1	CSE	Fundamental
Peak		Left blank
Avg.		Left blank

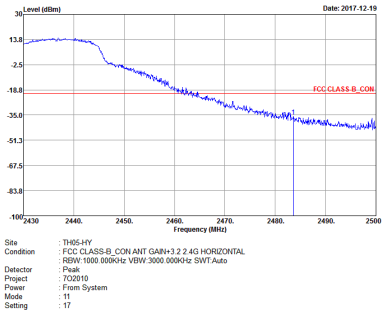
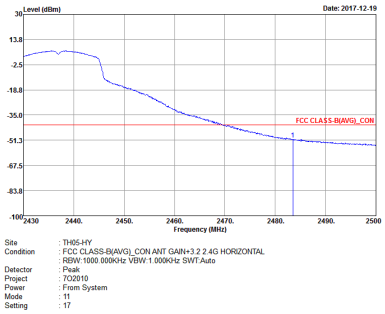
WIFI	2.4GHz 2400~2483.5MHz Band Edge	
ANT	802.11b CH11 2462MHz	
1	CSE	Fundamental
Peak		
Avg.		

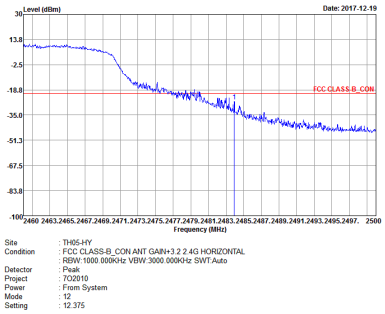
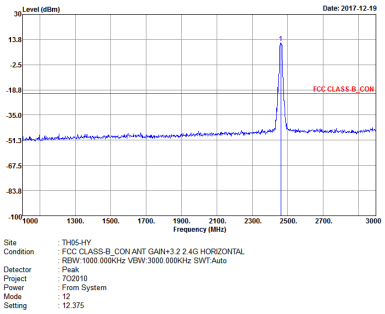
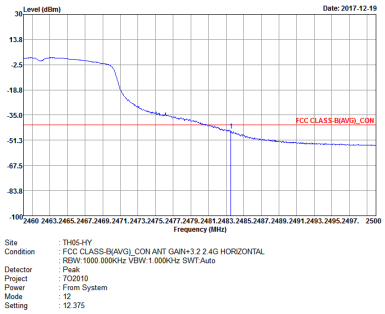
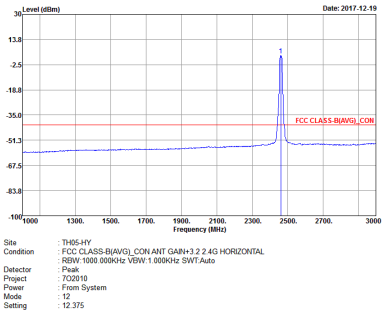
2.4GHz 2400~2483.5MHz

WIFI 802.11g (Band Edge)

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

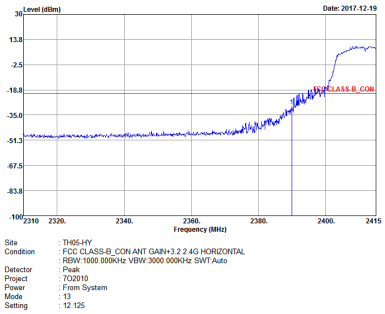
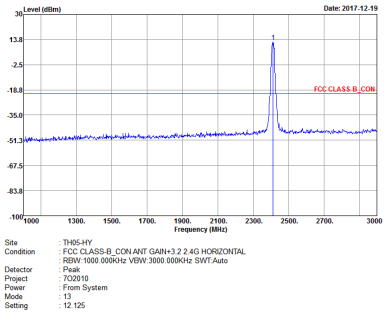
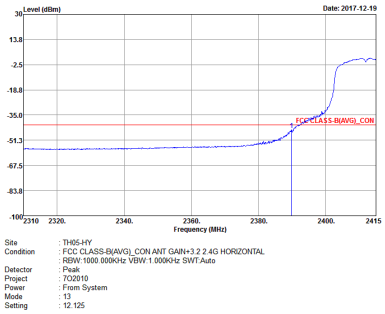
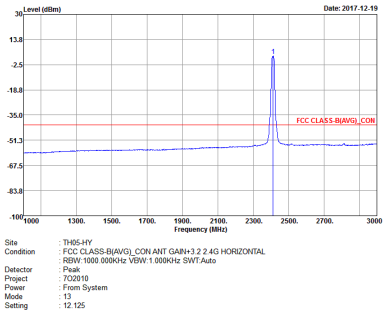
WIFI	2.4GHz 2400~2483.5MHz Band Edge	
ANT	802.11g CH06 2437MHz - L	
1	CSE	Fundamental
Peak		
Avg.		

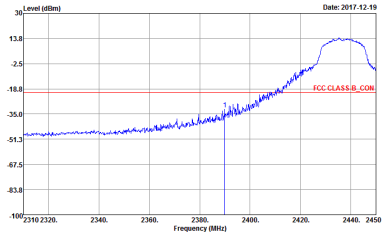
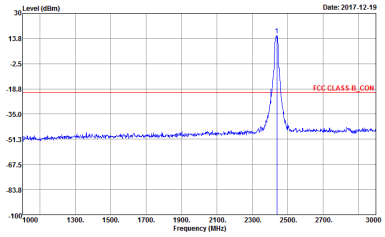
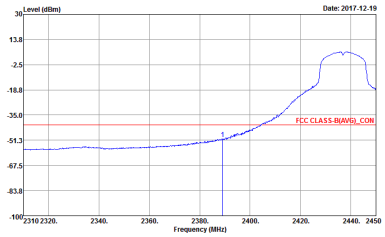
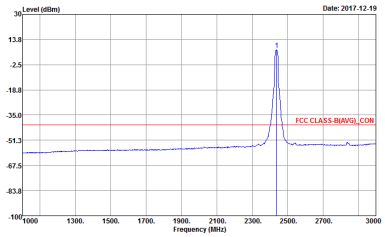
WIFI	2.4GHz 2400~2483.5MHz Band Edge	
ANT	802.11g CH06 2437MHz - R	
1	CSE	Fundamental
Peak		Left blank
Avg.		Left blank

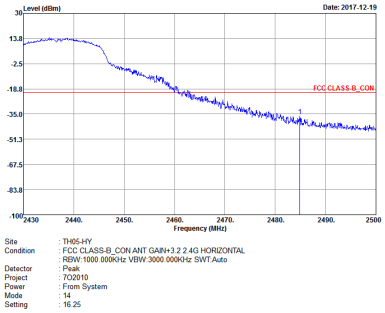
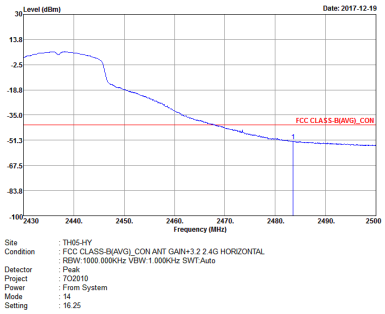
WIFI	2.4GHz 2400~2483.5MHz Band Edge	
ANT	802.11g CH11 2462MHz	
1	CSE	Fundamental
Peak		
Avg.		

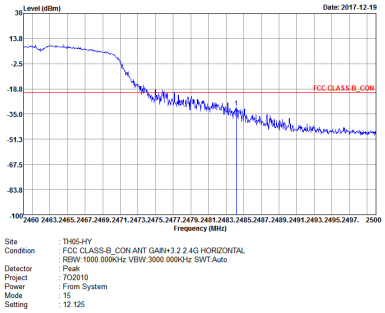
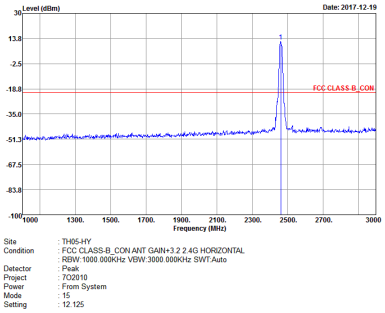
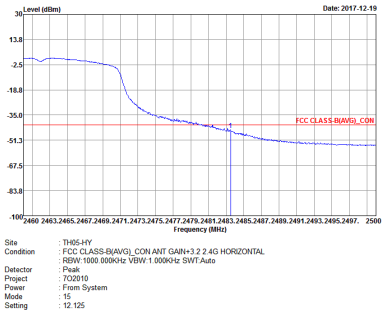
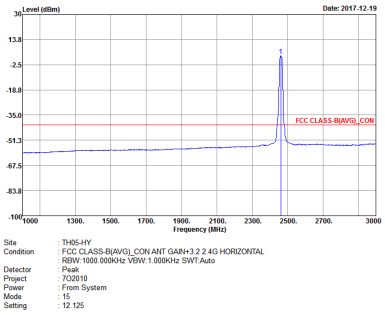
2.4GHz 2400~2483.5MHz

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.		

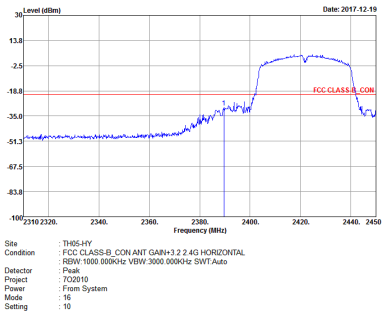
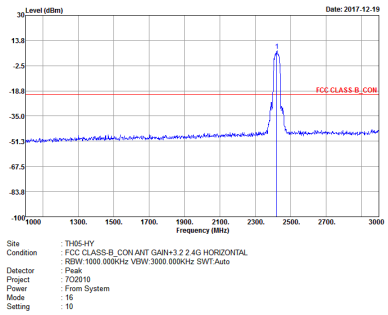
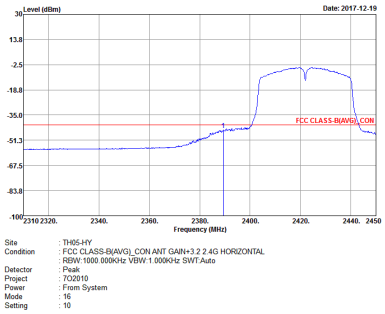
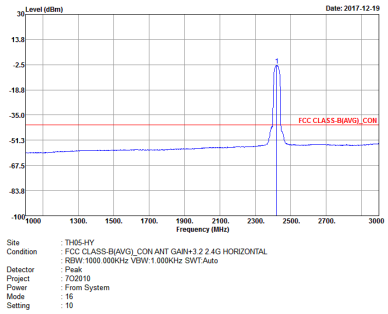
WIFI	2.4GHz 2400~2483.5MHz Band Edge	
ANT	802.11n HT20 CH06 2437MHz - L	
1	CSE	Fundamental
Peak	 Site : TH05-HY Condition : FCC CLASS-B_CON ANT GAIN+3.2 2.4G HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 7O2010 Power : From System Mode : 14 Setting : 16.25	 Site : TH05-HY Condition : FCC CLASS-B_CON ANT GAIN+3.2 2.4G HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 7O2010 Power : From System Mode : 14 Setting : 16.25
Avg.	 Site : TH05-HY Condition : FCC CLASS-B(AVG)_CON ANT GAIN+3.2 2.4G HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak Project : 7O2010 Power : From System Mode : 14 Setting : 16.25	 Site : TH05-HY Condition : FCC CLASS-B(AVG)_CON ANT GAIN+3.2 2.4G HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak Project : 7O2010 Power : From System Mode : 14 Setting : 16.25

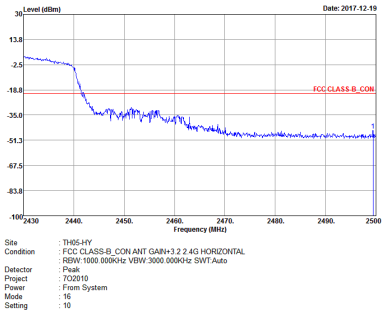
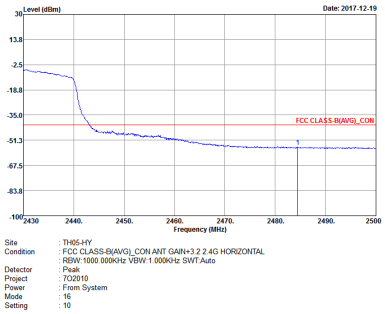
WIFI	2.4GHz 2400~2483.5MHz Band Edge	
ANT	802.11n HT20 CH06 2437MHz - R	
1	CSE	Fundamental
Peak		Left blank
Avg.		Left blank

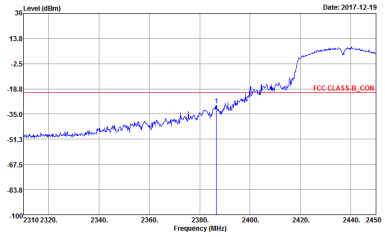
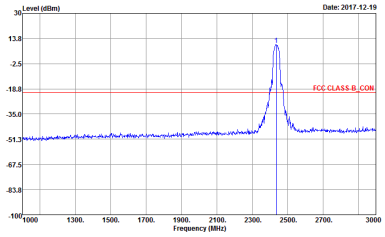
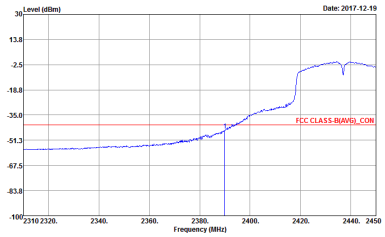
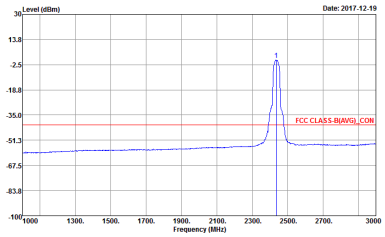
WIFI	2.4GHz 2400~2483.5MHz Band Edge	
ANT	802.11n HT20 CH11 2462MHz	
1	CSE	Fundamental
Peak		
Avg.		

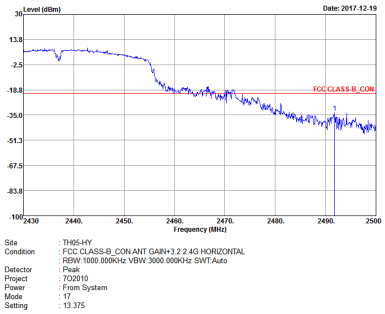
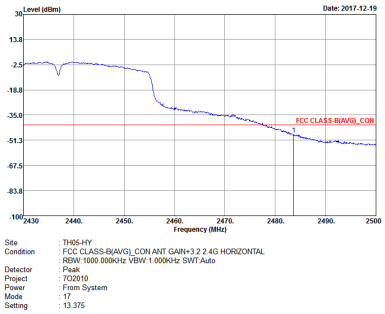
2.4GHz 2400~2483.5MHz

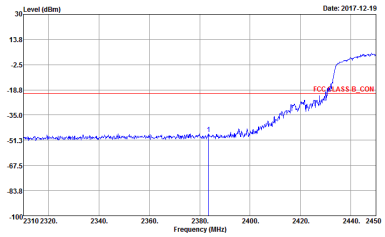
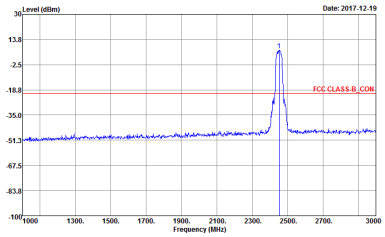
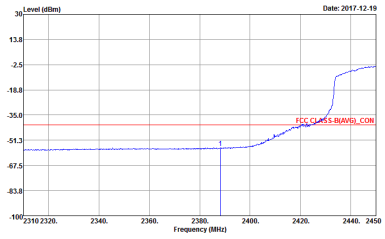
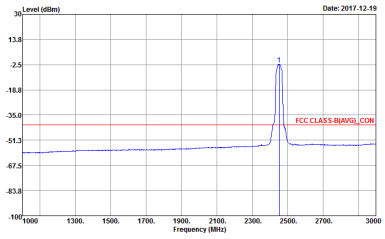
WIFI 802.11n HT40 (Band Edge)

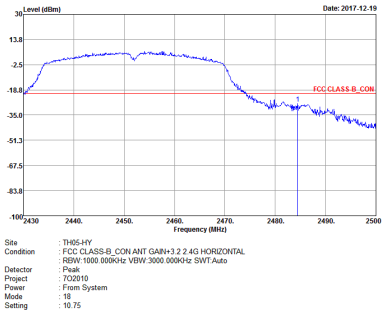
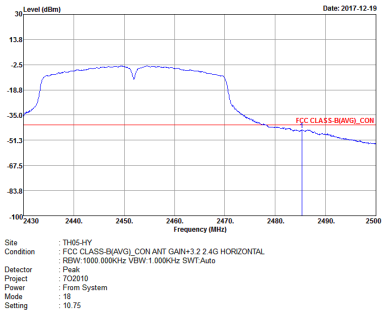
WIFI	2.4GHz 2400~2483.5MHz Band Edge	
ANT	802.11n HT40 CH03 2422MHz - L	
1	CSE	Fundamental
Peak		
Avg.		

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

WIFI	2.4GHz 2400~2483.5MHz Band Edge	
ANT	802.11n HT40 CH06 2437MHz - L	
1	CSE	Fundamental
Peak	 Site : TH05-HY Condition : FCC CLASS-B_CON ANT GAIN+3.2 2.4G HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 7O2010 Power : From System Mode : 17 Setting : 13.375	 Site : TH05-HY Condition : FCC CLASS-B_CON ANT GAIN+3.2 2.4G HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 7O2010 Power : From System Mode : 17 Setting : 13.375
Avg.	 Site : TH05-HY Condition : FCC CLASS-B(AVG)_CON ANT GAIN+3.2 2.4G HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak Project : 7O2010 Power : From System Mode : 17 Setting : 13.375	 Site : TH05-HY Condition : FCC CLASS-B(AVG)_CON ANT GAIN+3.2 2.4G HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak Project : 7O2010 Power : From System Mode : 17 Setting : 13.375

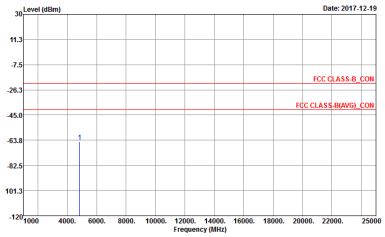
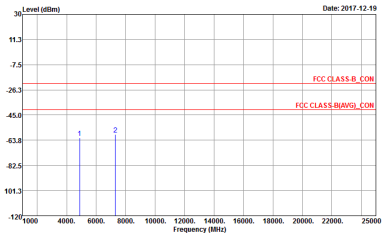
WIFI	2.4GHz 2400~2483.5MHz Band Edge	
ANT	802.11n HT40 CH06 2437MHz - R	
1	CSE	Fundamental
Peak		Left blank
Avg.		Left blank

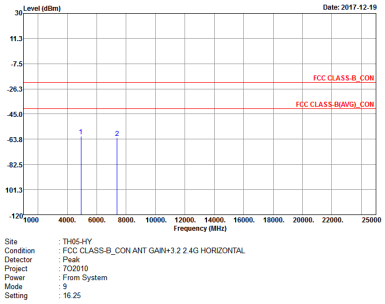
WIFI	2.4GHz 2400~2483.5MHz Band Edge	
ANT	802.11n HT40 CH09 2452MHz - L	
1	CSE	Fundamental
Peak	 Site : TH05-HY Condition : FCC CLASS-B_CON ANT GAIN+3.2 2.4G HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 7O2010 Power : From System Mode : 18 Setting : 10.75	 Site : TH05-HY Condition : FCC CLASS-B_CON ANT GAIN+3.2 2.4G HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 7O2010 Power : From System Mode : 18 Setting : 10.75
Avg.	 Site : TH05-HY Condition : FCC CLASS-B(AVG)_CON ANT GAIN+3.2 2.4G HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak Project : 7O2010 Power : From System Mode : 18 Setting : 10.75	 Site : TH05-HY Condition : FCC CLASS-B(AVG)_CON ANT GAIN+3.2 2.4G HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak Project : 7O2010 Power : From System Mode : 18 Setting : 10.75

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

2.4GHz 2400~2483.5MHz

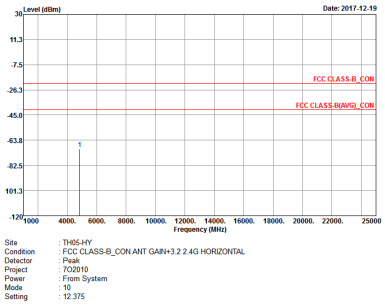
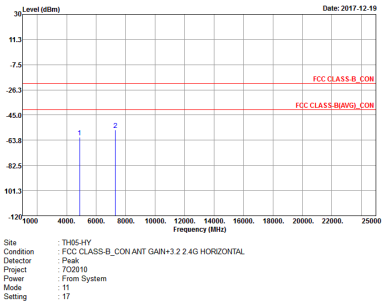
WIFI 802.11b (Harmonic)

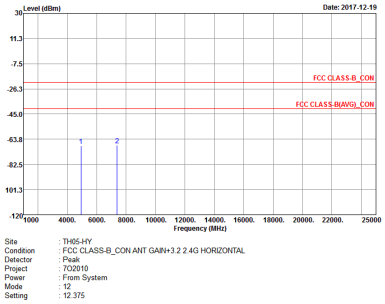
WIFI	2.4GHz 2400~2483.5MHz Harmonic	
ANT	802.11b	
1	CH01 2412MHz	CH06 2437MHz
Peak Avg.	 Site : TH05-HY Condition : FCC CLASS-B_CON ANT GAIN+3.2 2.4G HORIZONTAL Detector : Peak Project : 7O2010 Power : From System Mode : 7 Setting : 16.5	 Site : TH05-HY Condition : FCC CLASS-B_CON ANT GAIN+3.2 2.4G HORIZONTAL Detector : Peak Project : 7O2010 Power : From System Mode : 8 Setting : 16.375

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

2.4GHz 2400~2483.5MHz

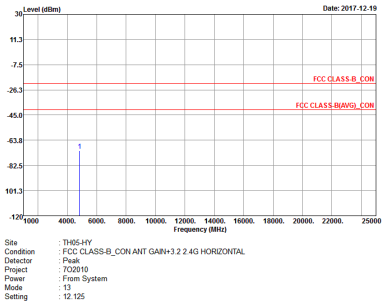
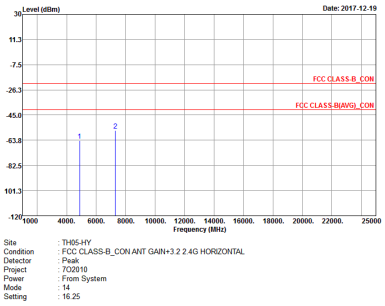
WIFI 802.11g (Harmonic)

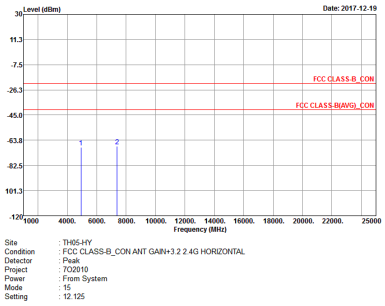
WIFI	2.4GHz 2400~2483.5MHz Harmonic	
ANT	802.11g	
1	CH01 2412MHz	CH06 2437MHz
Peak Avg.	 	

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

2.4GHz 2400~2483.5MHz

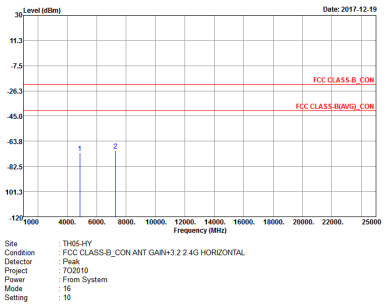
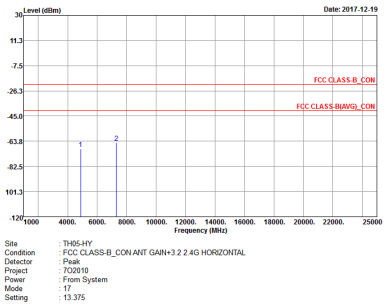
WIFI 802.11n HT20 (Harmonic)

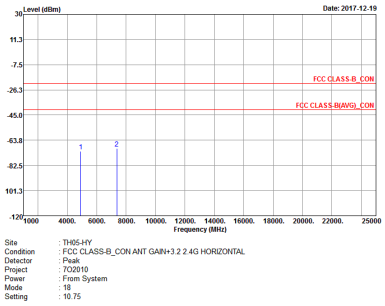
WIFI	2.4GHz 2400~2483.5MHz Harmonic	
ANT	802.11n HT20	
1	CH01 2412MHz	CH06 2437MHz
Peak Avg.	 Site : TH05-HY Condition : FCC CLASS-B_CON ANT GAIN+3.2 2.4G HORIZONTAL Detector : Peak Project : 7O2010 Power : From System Mode : 13 Setting : 12.125	 Site : TH05-HY Condition : FCC CLASS-B_CON ANT GAIN+3.2 2.4G HORIZONTAL Detector : Peak Project : 7O2010 Power : From System Mode : 14 Setting : 16.25

WIFI	2.4GHz 2400~2483.5MHz Harmonic	
ANT	802.11n HT20	
1	CH11 2462MHz	-
Peak Avg.		Left blank

2.4GHz 2400~2483.5MHz

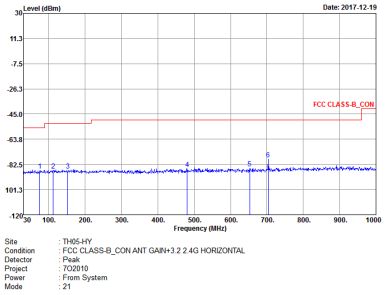
WIFI 802.11n HT40 (Harmonic)

WIFI	2.4GHz 2400~2483.5MHz Harmonic	
ANT	802.11n HT40	
1	CH01 2422MHz	CH06 2437MHz
Peak Avg.		

WIFI	2.4GHz 2400~2483.5MHz Harmonic	
ANT	802.11n HT40	
1	CH09 2452MHz	-
Peak Avg.		Left blank

Emission below 1GHz

2.4GHz WIFI 802.11n HT40 (LF)

WIFI	2.4GHz 2400~2483.5MHz	
ANT	802.11n HT40	
1	LF	-
QP / Peak		Left blank

Appendix D. Cabinet Radiated Spurious Emission

Test Engineer :	Hao Hsu, Jacky Hung, and Ken Wu	Temperature :	26~28°C
		Relative Humidity :	52~57%

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 01 2412MHz		2375.625	52.51	-21.49	74	42.8	27.09	6.29	33.6	100	0	P	H
		2386.02	41.57	-12.43	54	31.75	27.13	6.36	33.6	100	0	A	H
	*	2412	79.22	-	-	69.33	27.18	6.37	33.59	100	0	P	H
	*	2412	75.83	-	-	65.94	27.18	6.37	33.59	100	0	A	H
													H
		2337.93	52.05	-21.95	74	42.51	27	6.22	33.61	322	102	P	V
		2384.235	41.67	-12.33	54	31.89	27.09	6.36	33.6	322	102	A	V
	*	2412	78.45	-	-	68.56	27.18	6.37	33.59	322	102	P	V
	*	2412	75.11	-	-	65.22	27.18	6.37	33.59	322	102	A	V
													V
802.11b CH 06 2437MHz		2381.12	52.35	-21.65	74	42.57	27.09	6.36	33.6	100	4	P	H
		2384.2	41.69	-12.31	54	31.91	27.09	6.36	33.6	100	4	A	H
	*	2437	79.05	-	-	69.06	27.27	6.38	33.59	100	4	P	H
	*	2437	75.7	-	-	65.71	27.27	6.38	33.59	100	4	A	H
		2491.81	52.06	-21.94	74	41.91	27.4	6.39	33.57	100	4	P	H
		2487.19	42	-12	54	31.9	27.36	6.39	33.58	100	4	A	H
		2314.06	52.19	-21.81	74	42.81	26.91	6.15	33.61	310	102	P	V
		2381.68	41.71	-12.29	54	31.93	27.09	6.36	33.6	310	102	A	V
	*	2437	77.18	-	-	67.19	27.27	6.38	33.59	310	102	P	V
	*	2437	73.77	-	-	63.78	27.27	6.38	33.59	310	102	A	V
		2496.71	52.84	-21.16	74	42.69	27.4	6.39	33.57	310	102	P	V
		2492.72	41.95	-12.05	54	31.8	27.4	6.39	33.57	310	102	A	V

802.11b CH 11 2462MHz	*	2462	78.14	-	-	68.1	27.31	6.38	33.58	117	3	P	H
	*	2462	74.67	-	-	64.63	27.31	6.38	33.58	117	3	A	H
		2490.12	52.83	-21.17	74	42.69	27.4	6.39	33.58	117	3	P	H
		2493.8	41.99	-12.01	54	31.84	27.4	6.39	33.57	117	3	A	H
													H
													H
	*	2462	75.4	-	-	65.36	27.31	6.38	33.58	281	97	P	V
	*	2462	72.02	-	-	61.98	27.31	6.38	33.58	281	97	A	V
		2491.24	52.79	-21.21	74	42.65	27.4	6.39	33.58	281	97	P	V
		2486.48	42.05	-11.95	54	31.95	27.36	6.39	33.58	281	97	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 01 2412MHz		4824	52.46	-21.54	74	69.68	31.29	9.59	58.53	112	291	P	H
		4824	50.98	-3.02	54	68.2	31.29	9.59	58.53	112	291	A	H
													H
													H
		4824	47.83	-26.17	74	65.05	31.29	9.59	58.53	100	0	P	V
													V
													V
													V
802.11b CH 06 2437MHz		4874	51.66	-22.34	74	68.81	31.38	9.56	58.52	100	290	P	H
		4874	49.82	-4.18	54	66.97	31.38	9.56	58.52	100	290	A	H
		7311	43.77	-30.23	74	54.67	36.28	11.31	58.95	100	0	P	H
													H
		4874	47.95	-26.05	74	65.1	31.38	9.56	58.52	100	0	P	V
		7311	43.62	-30.38	74	54.52	36.28	11.31	58.95	100	0	P	V
													V
													V
802.11b CH 11 2462MHz		4924	50.96	-23.04	74	68	31.48	9.55	58.51	100	291	P	H
		4924	49.12	-4.88	54	66.16	31.48	9.55	58.51	100	291	A	H
		7386	43.03	-30.97	74	53.76	36.47	11.3	58.88	100	0	P	H
													H
		4924	47.68	-26.32	74	64.72	31.48	9.55	58.51	100	0	P	V
		7386	43.43	-30.57	74	54.16	36.47	11.3	58.88	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11g (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)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 01 2412MHz		2330.79	51.9	-22.1	74	42.41	26.95	6.22	33.61	100	0	P	H
		2387.385	42.17	-11.83	54	32.35	27.13	6.36	33.6	100	0	A	H
	*	2412	77.98	-	-	68.09	27.18	6.37	33.59	100	0	P	H
	*	2412	69.66	-	-	59.77	27.18	6.37	33.59	100	0	A	H
													H
													H
		2385.18	51.97	-22.03	74	42.19	27.09	6.36	33.6	324	101	P	V
		2380.98	42.23	-11.77	54	32.45	27.09	6.36	33.6	324	101	A	V
	*	2412	77.23	-	-	67.34	27.18	6.37	33.59	324	101	P	V
	*	2412	68.75	-	-	58.86	27.18	6.37	33.59	324	101	A	V
													V
													V
802.11g CH 06 2437MHz		2387.76	52.44	-21.56	74	42.62	27.13	6.36	33.6	100	5	P	H
		2380.4	42.08	-11.92	54	32.3	27.09	6.36	33.6	100	5	A	H
	*	2437	82.76	-	-	72.77	27.27	6.38	33.59	100	5	P	H
	*	2437	73.99	-	-	64	27.27	6.38	33.59	100	5	A	H
		2486.24	51.78	-22.22	74	41.68	27.36	6.39	33.58	100	5	P	H
		2485.68	42.44	-11.56	54	32.34	27.36	6.39	33.58	100	5	A	H
		2353.84	51.56	-22.44	74	41.97	27.04	6.22	33.6	307	100	P	V
		2381.84	42.15	-11.85	54	32.37	27.09	6.36	33.6	307	100	A	V
	*	2437	81.49	-	-	71.5	27.27	6.38	33.59	307	100	P	V
	*	2437	72.73	-	-	62.74	27.27	6.38	33.59	307	100	A	V
		2486.56	52.73	-21.27	74	42.63	27.36	6.39	33.58	307	100	P	V
		2493.52	42.39	-11.61	54	32.24	27.4	6.39	33.57	307	100	A	V

802.11g CH 11 2462MHz	*	2462	76.49	-	-	66.45	27.31	6.38	33.58	116	5	P	H
	*	2462	68.04	-	-	58	27.31	6.38	33.58	116	5	A	H
		2485.04	52.29	-21.71	74	42.19	27.36	6.39	33.58	116	5	P	H
		2492.72	42.64	-11.36	54	32.49	27.4	6.39	33.57	116	5	A	H
													H
													H
	*	2462	74.28	-	-	64.24	27.31	6.38	33.58	281	98	P	V
	*	2462	65.59	-	-	55.55	27.31	6.38	33.58	281	98	A	V
		2496.88	52.46	-21.54	74	42.31	27.4	6.39	33.57	281	98	P	V
		2493.44	42.52	-11.48	54	32.37	27.4	6.39	33.57	281	98	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11g (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 01 2412MHz		4824	48.8	-25.2	74	66.02	31.29	9.59	58.53	100	0	P	H
													H
													H
													H
		4824	45.05	-28.95	74	62.27	31.29	9.59	58.53	100	0	P	V
													V
													V
													V
802.11g CH 06 2437MHz		4874	49.19	-24.81	74	66.34	31.38	9.56	58.52	100	0	P	H
		7311	44.87	-29.13	74	55.77	36.28	11.31	58.95	100	0	P	H
													H
													H
		4874	44.68	-29.32	74	61.83	31.38	9.56	58.52	100	0	P	V
		7311	45.29	-28.71	74	56.19	36.28	11.31	58.95	100	0	P	V
													V
													V
802.11g CH 11 2462MHz		4924	47.48	-26.52	74	64.52	31.48	9.55	58.51	100	0	P	H
		7386	42.23	-31.77	74	52.96	36.47	11.3	58.88	100	0	P	H
													H
													H
		4924	45.75	-28.25	74	62.79	31.48	9.55	58.51	100	0	P	V
		7386	43.26	-30.74	74	53.99	36.47	11.3	58.88	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 01 2412MHz		2381.715	52.15	-21.85	74	42.37	27.09	6.36	33.6	100	0	P	H
		2377.725	42.07	-11.93	54	32.36	27.09	6.29	33.6	100	0	A	H
	*	2412	77.97	-	-	68.08	27.18	6.37	33.59	100	0	P	H
	*	2412	69.14	-	-	59.25	27.18	6.37	33.59	100	0	A	H
													H
													H
		2342.13	52.43	-21.57	74	42.88	27	6.22	33.6	323	102	P	V
		2386.545	42.33	-11.67	54	32.51	27.13	6.36	33.6	323	102	A	V
	*	2412	77.24	-	-	67.35	27.18	6.37	33.59	323	102	P	V
	*	2412	68.44	-	-	58.55	27.18	6.37	33.59	323	102	A	V
													V
													V
802.11n HT20 CH 06 2437MHz		2362.96	52.07	-21.93	74	42.41	27.04	6.29	33.6	100	3	P	H
		2390	42.14	-11.86	54	32.31	27.13	6.36	33.59	100	3	A	H
	*	2437	81.7	-	-	71.71	27.27	6.38	33.59	100	3	P	H
	*	2437	73.33	-	-	63.34	27.27	6.38	33.59	100	3	A	H
		2486.8	52.22	-21.78	74	42.12	27.36	6.39	33.58	100	3	P	H
		2495.84	42.47	-11.53	54	32.32	27.4	6.39	33.57	100	3	A	H
		2333.84	51.75	-22.25	74	42.26	26.95	6.22	33.61	309	100	P	V
		2380.88	42.21	-11.79	54	32.43	27.09	6.36	33.6	309	100	A	V
	*	2437	80.07	-	-	70.08	27.27	6.38	33.59	309	100	P	V
	*	2437	71.34	-	-	61.35	27.27	6.38	33.59	309	100	A	V
		2488.4	51.75	-22.25	74	41.61	27.4	6.39	33.58	309	100	P	V
		2491.36	42.59	-11.41	54	32.45	27.4	6.39	33.58	309	100	A	V

802.11n HT20 CH 11 2462MHz	*	2462	77.05	-	-	67.01	27.31	6.38	33.58	117	4	P	H
	*	2462	68.69	-	-	58.65	27.31	6.38	33.58	117	4	A	H
		2499.2	51.86	-22.14	74	41.71	27.4	6.39	33.57	117	4	P	H
		2496.64	42.6	-11.4	54	32.45	27.4	6.39	33.57	117	4	A	H
													H
													H
	*	2462	74.92	-	-	64.88	27.31	6.38	33.58	284	99	P	V
	*	2462	65.98	-	-	55.94	27.31	6.38	33.58	284	99	A	V
		2486.68	52.85	-21.15	74	42.75	27.36	6.39	33.58	284	99	P	V
		2492.92	42.54	-11.46	54	32.39	27.4	6.39	33.57	284	99	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 01 2412MHz		4824	46.64	-27.36	74	63.86	31.29	9.59	58.53	100	0	P	H
													H
													H
													H
		4824	45.91	-28.09	74	63.13	31.29	9.59	58.53	100	0	P	V
													V
													V
													V
802.11n HT20 CH 06 2437MHz		4874	47.79	-26.21	74	64.94	31.38	9.56	58.52	100	0	P	H
		7311	47.06	-26.94	74	57.96	36.28	11.31	58.95	100	0	P	H
													H
													H
		4874	45.95	-28.05	74	63.1	31.38	9.56	58.52	100	0	P	V
		7311	43.79	-30.21	74	54.69	36.28	11.31	58.95	100	0	P	V
													V
													V
802.11n HT20 CH 11 2462MHz		4924	46.32	-27.68	74	63.36	31.48	9.55	58.51	100	0	P	H
		7386	42.91	-31.09	74	53.64	36.47	11.3	58.88	100	0	P	H
													H
													H
		4924	46.95	-27.05	74	63.99	31.48	9.55	58.51	100	0	P	V
		7386	42.61	-31.39	74	53.34	36.47	11.3	58.88	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 03 2422MHz		2361.9	52.01	-21.99	74	42.35	27.04	6.29	33.6	100	2	P	H
		2357.25	42.79	-11.21	54	33.13	27.04	6.29	33.6	100	2	A	H
	*	2422	72.9	-	-	62.97	27.22	6.37	33.59	100	2	P	H
	*	2422	64.66	-	-	54.73	27.22	6.37	33.59	100	2	A	H
		2496.08	52.35	-21.65	74	42.2	27.4	6.39	33.57	100	2	P	H
		2499.04	43.06	-10.94	54	32.91	27.4	6.39	33.57	100	2	A	H
		2377.8	52.23	-21.77	74	42.52	27.09	6.29	33.6	323	101	P	V
		2377.5	43.05	-10.95	54	33.34	27.09	6.29	33.6	323	101	A	V
	*	2422	71.72	-	-	61.79	27.22	6.37	33.59	323	101	P	V
	*	2422	63.8	-	-	53.87	27.22	6.37	33.59	323	101	A	V
		2493.44	51.91	-22.09	74	41.76	27.4	6.39	33.57	323	101	P	V
		2492.56	43.33	-10.67	54	33.18	27.4	6.39	33.57	323	101	A	V
802.11n HT40 CH 06 2437MHz		2340.9	51.64	-22.36	74	42.09	27	6.22	33.6	100	2	P	H
		2384.25	43.11	-10.89	54	33.33	27.09	6.36	33.6	100	2	A	H
	*	2437	75.82	-	-	65.83	27.27	6.38	33.59	100	2	P	H
	*	2437	67.91	-	-	57.92	27.27	6.38	33.59	100	2	A	H
		2498.4	52.52	-21.48	74	42.37	27.4	6.39	33.57	100	2	P	H
		2486.72	43.13	-10.87	54	33.03	27.36	6.39	33.58	100	2	A	H
		2344.95	52.39	-21.61	74	42.84	27	6.22	33.6	308	100	P	V
		2378.25	42.74	-11.26	54	33.03	27.09	6.29	33.6	308	100	A	V
	*	2437	75.56	-	-	65.57	27.27	6.38	33.59	308	100	P	V
	*	2437	67.35	-	-	57.36	27.27	6.38	33.59	308	100	A	V
		2488.64	53.11	-20.89	74	42.97	27.4	6.39	33.58	308	100	P	V
		2499.2	43	-11	54	32.85	27.4	6.39	33.57	308	100	A	V

802.11n HT40 CH 09 2452MHz		2342.4	52.01	-21.99	74	42.46	27	6.22	33.6	119	3	P	H
		2389.5	43.04	-10.96	54	33.22	27.13	6.36	33.6	119	3	A	H
	*	2452	72.67	-	-	62.67	27.27	6.38	33.58	119	3	P	H
	*	2452	64.85	-	-	54.85	27.27	6.38	33.58	119	3	A	H
		2487.68	51.68	-22.32	74	41.54	27.4	6.39	33.58	119	3	P	H
		2498.56	42.97	-11.03	54	32.82	27.4	6.39	33.57	119	3	A	H
		2367.45	52.22	-21.78	74	42.56	27.04	6.29	33.6	295	99	P	V
		2385.3	42.89	-11.11	54	33.11	27.09	6.36	33.6	295	99	A	V
	*	2452	70.6	-	-	60.6	27.27	6.38	33.58	295	99	P	V
	*	2452	62.75	-	-	52.75	27.27	6.38	33.58	295	99	A	V
		2497.2	51.86	-22.14	74	41.71	27.4	6.39	33.57	295	99	P	V
		2487.44	43.39	-10.61	54	33.29	27.36	6.39	33.58	295	99	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT40 (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 03 2422MHz		4844	41.08	-32.92	74	58.28	31.32	9.58	58.53	100	0	P	H
		7266	42.63	-31.37	74	53.58	36.21	11.32	58.98	100	0	P	H
													H
													H
		4844	39.26	-34.74	74	56.46	31.32	9.58	58.53	100	0	P	V
		7266	42.14	-31.86	74	53.09	36.21	11.32	58.98	100	0	P	V
													V
													V
802.11n HT40 CH 06 2437MHz		4874	41.72	-32.28	74	58.87	31.38	9.56	58.52	100	0	P	H
		7311	42.4	-31.6	74	53.3	36.28	11.31	58.95	100	0	P	H
													H
													H
		4874	40.76	-33.24	74	57.91	31.38	9.56	58.52	100	0	P	V
		7311	41.89	-32.11	74	52.79	36.28	11.31	58.95	100	0	P	V
													V
													V
802.11n HT40 CH 09 2452MHz		4904	40.77	-33.23	74	57.86	31.44	9.56	58.52	100	0	P	H
		7356	41.89	-32.11	74	52.69	36.4	11.3	58.91	100	0	P	H
													H
													H
		4904	39.56	-34.44	74	56.65	31.44	9.56	58.52	100	0	P	V
		7356	42.04	-31.96	74	52.84	36.4	11.3	58.91	100	0	P	V
													V
													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 Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
2.4GHz 802.11b LF		85.62	28.12	-11.88	40	45.48	13.88	1.22	32.48	-	-	P	H
		205.77	26.01	-17.49	43.5	41.6	15.02	1.72	32.39	-	-	P	H
		297.03	26.73	-19.27	46	37.64	19.14	2.22	32.37	-	-	P	H
		301.4	33.51	-12.49	46	44.33	19.23	2.22	32.37	-	-	P	H
		479.9	33	-13	46	38.79	23.76	2.77	32.37	-	-	P	H
		955.2	34.24	-11.76	46	30.3	31.02	3.9	31.15	100	0	P	H
													H
													H
													H
													H
													H
													H
		30.27	35.6	-4.4	40	42.89	24.36	0.82	32.5	100	0	P	V
		54.84	35.54	-4.46	40	54.75	12.25	1.02	32.49	-	-	P	V
		122.88	28.51	-14.99	43.5	41.91	17.51	1.51	32.46	-	-	P	V
		805.4	31.84	-14.16	46	32.02	28.28	3.53	32.15	--		P	V
		918.1	32.68	-13.32	46	30.68	29.54	3.79	31.49	-	-	P	V
		958.7	34.41	-11.59	46	30.31	31.14	3.9	31.12	-	-	P	V
													V
													V
													V
													V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

Note symbol

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

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

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	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. Level(dBμV/m) =

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

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

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)

= Antenna Factor(dB/m) + Cable 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) + Cable 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 E. Cabinet Radiated Spurious Emission Plots

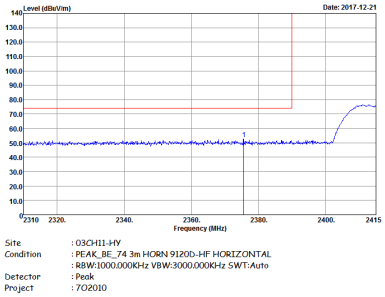
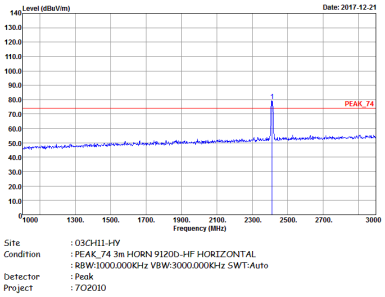
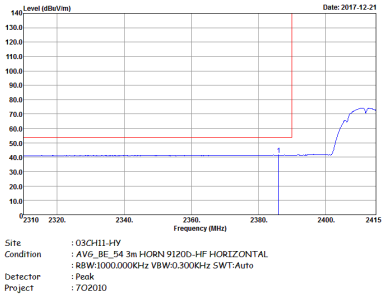
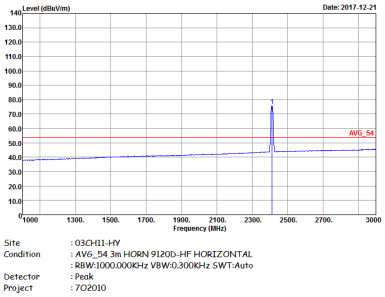
Test Engineer :	Hao Hsu, Jacky Hung, and Ken Wu	**Temperature :**	26~28°C
		Relative Humidity :	52~57%

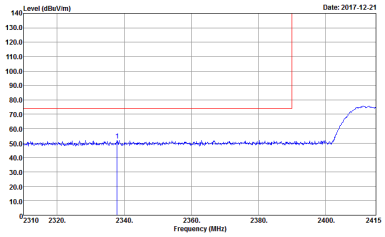
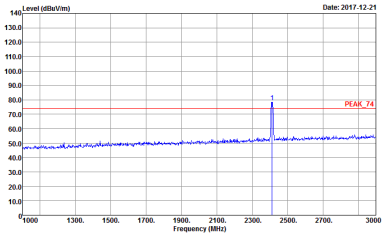
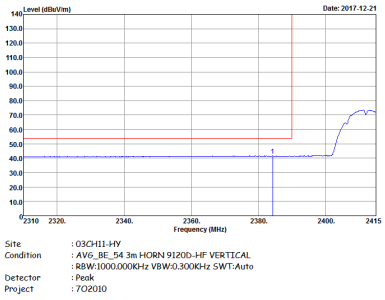
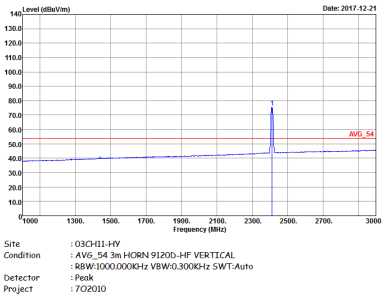
Note symbol

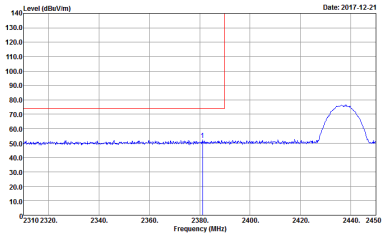
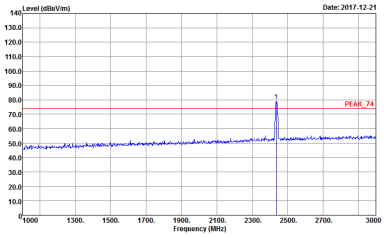
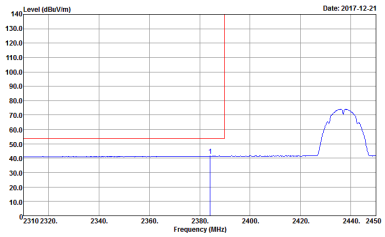
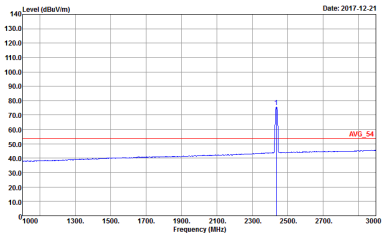
-L	**Low channel location**
-R	**High channel location**

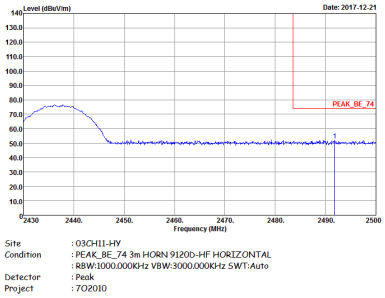
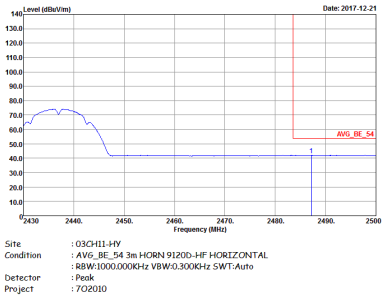
2.4GHz 2400~2483.5MHz

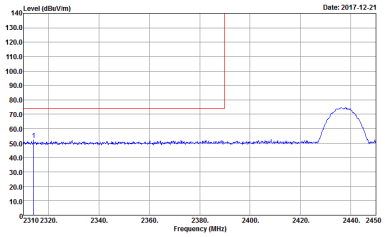
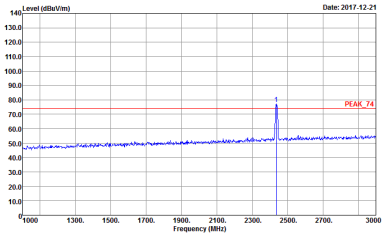
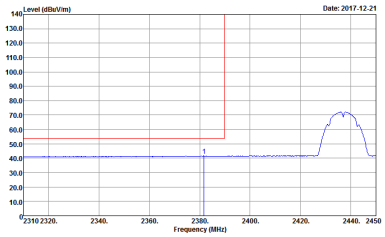
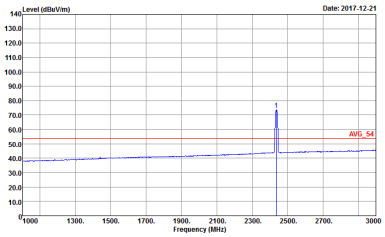
WIFI 802.11b (Band Edge @ 3m)

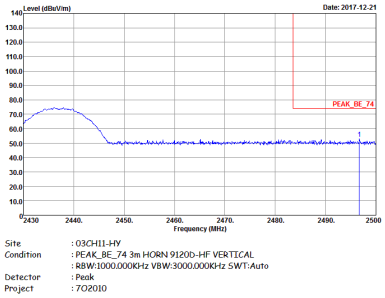
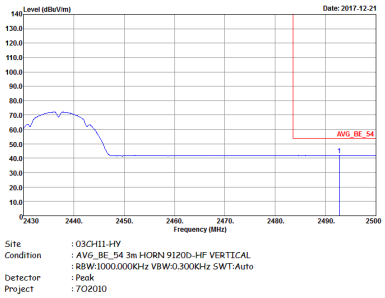
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

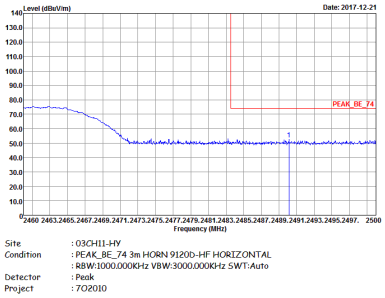
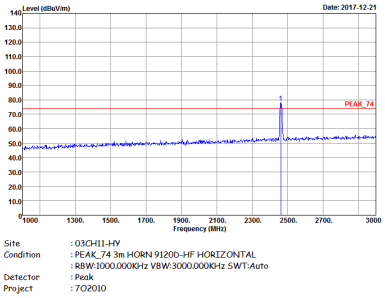
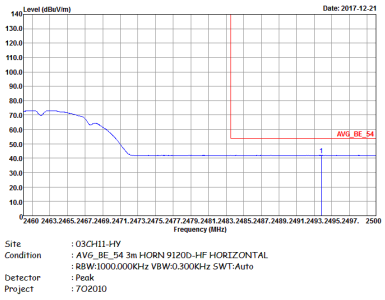
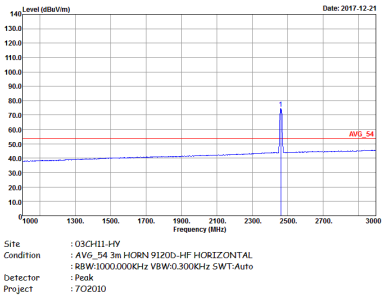
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
1	Vertical	Fundamental
Peak		
Avg.		

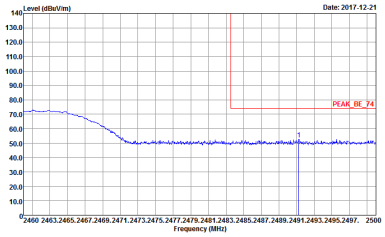
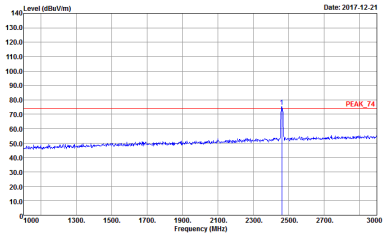
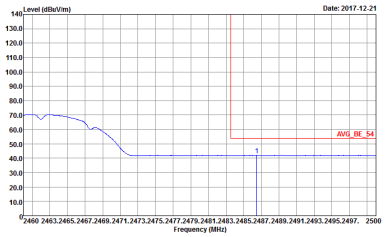
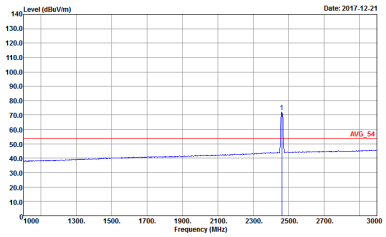
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 7O2010	 Site : 03CH11-HY Condition : PEAK_74 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 7O2010
Avg.	 Site : 03CH11-HY Condition : AVG_BE_54 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:0.300KHz SWT:Auto Detector : Peak Project : 7O2010	 Site : 03CH11-HY Condition : AVG_54 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:0.300KHz SWT:Auto Detector : Peak Project : 7O2010

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	 Site : 03CH11-HY Condition : PEAK_BE_74 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 7O2010	 Site : 03CH11-HY Condition : PEAK_74 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 7O2010
Avg.	 Site : 03CH11-HY Condition : AVG_BE_54 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:0.300KHz SWT:Auto Detector : Peak Project : 7O2010	 Site : 03CH11-HY Condition : AVG_54 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:0.300KHz SWT:Auto Detector : Peak Project : 7O2010

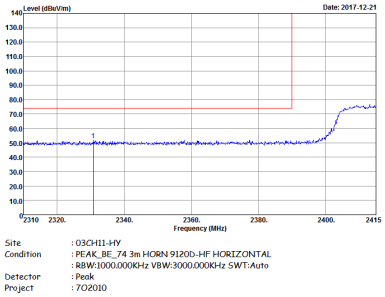
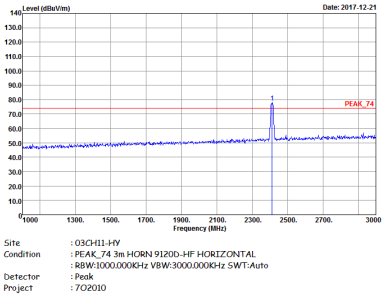
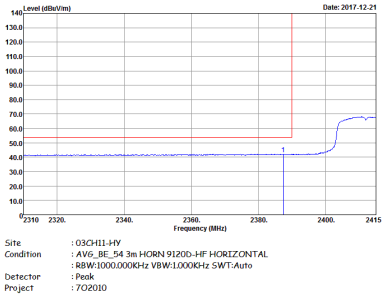
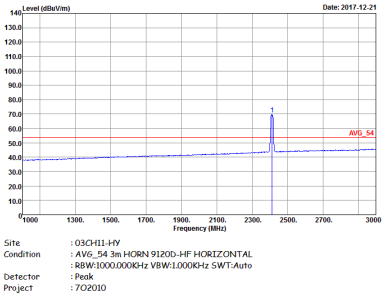
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

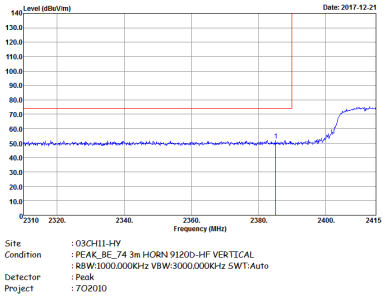
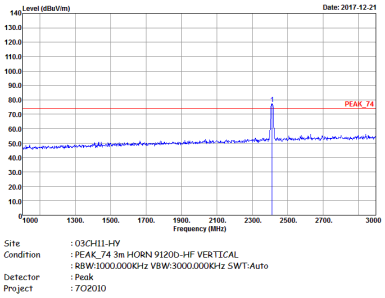
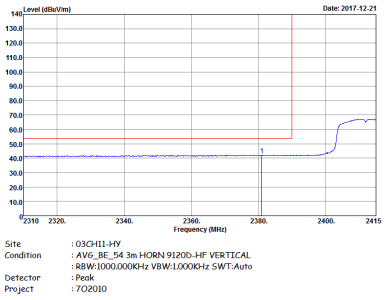
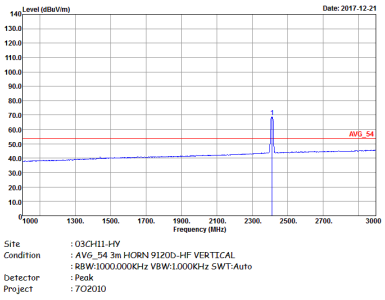
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

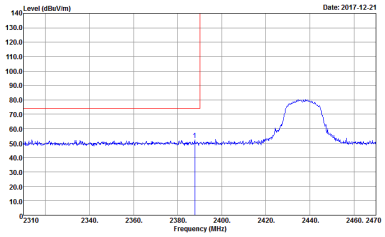
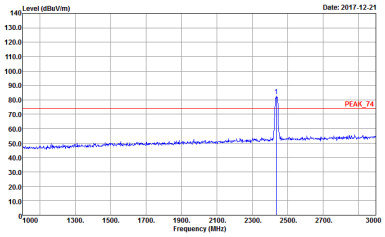
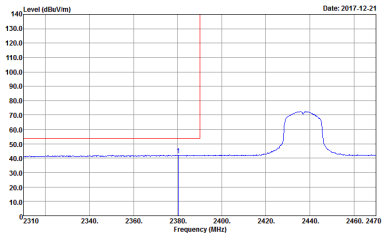
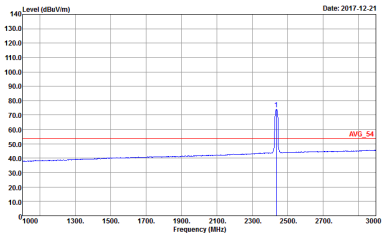
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
1	Vertical	Fundamental
Peak		
Avg.		

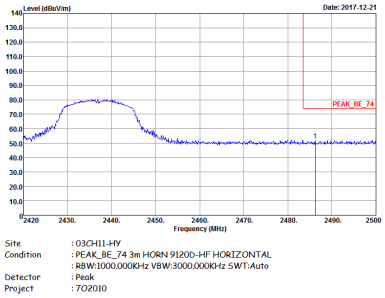
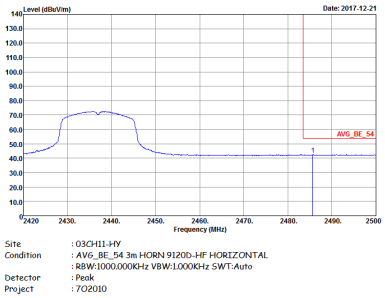
2.4GHz 2400~2483.5MHz

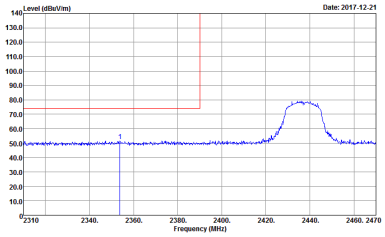
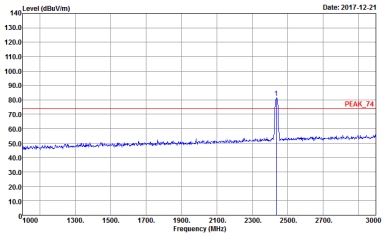
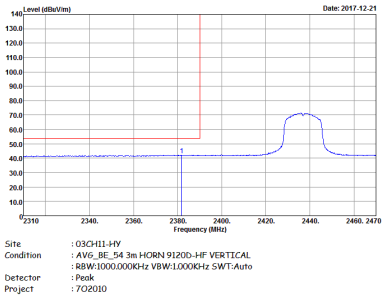
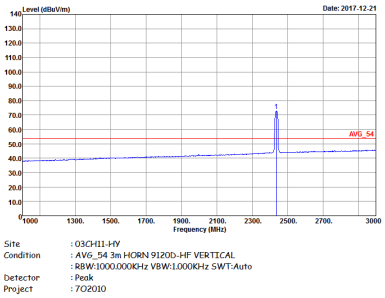
WIFI 802.11g (Band Edge @ 3m)

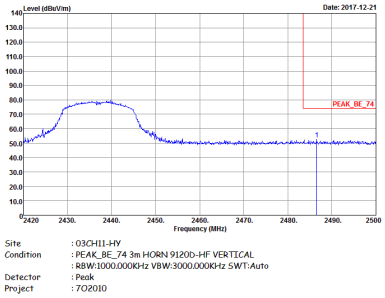
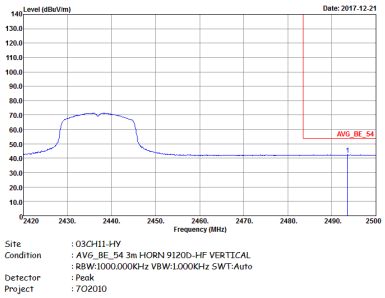
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

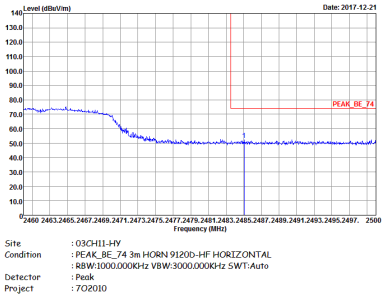
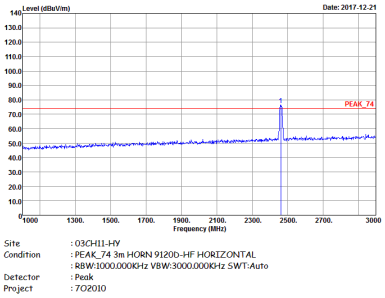
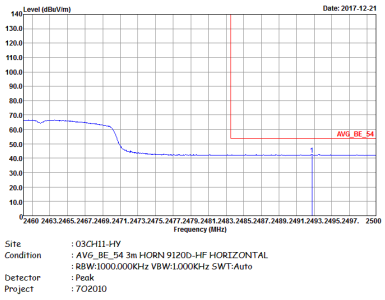
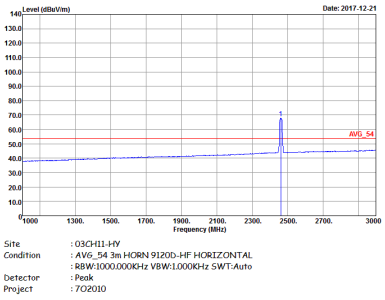
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
1	Vertical	Fundamental
Peak		
Avg.		

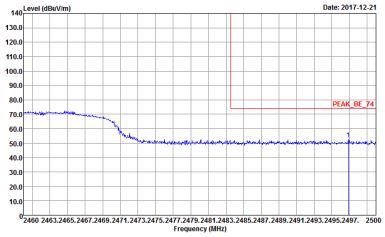
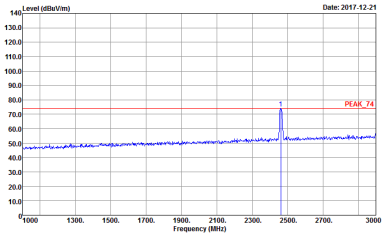
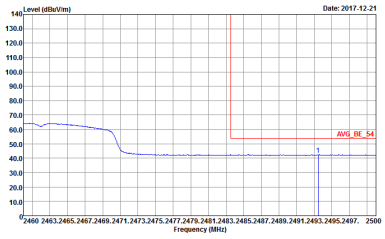
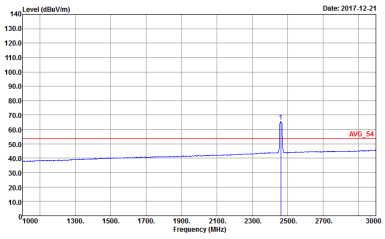
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		

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.		

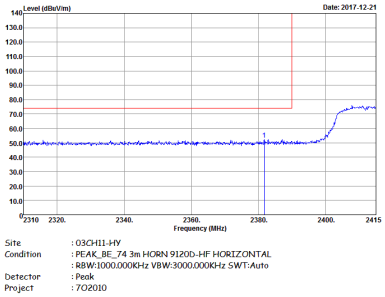
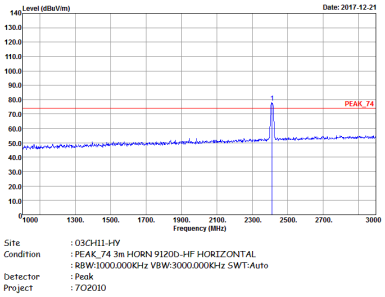
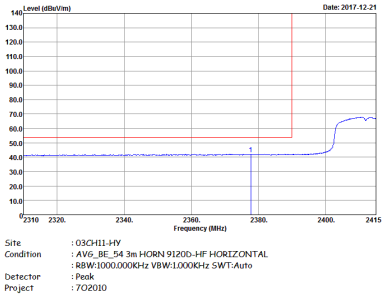
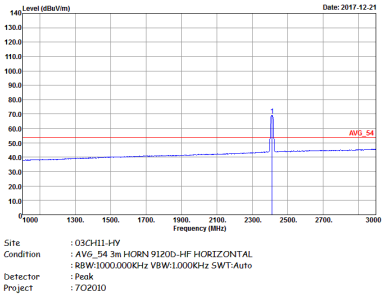
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

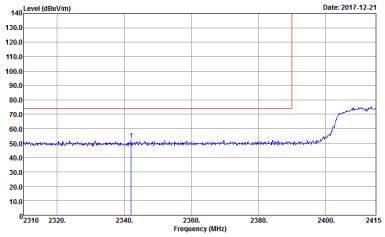
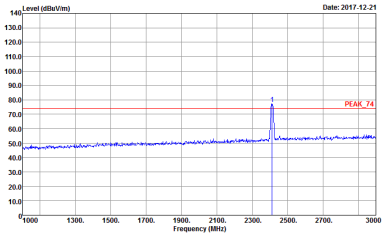
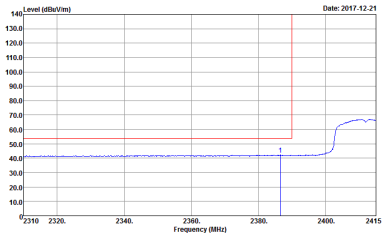
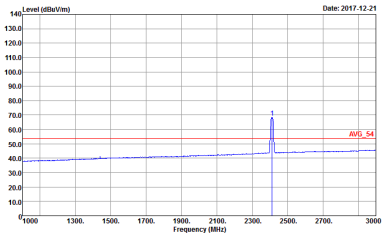
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

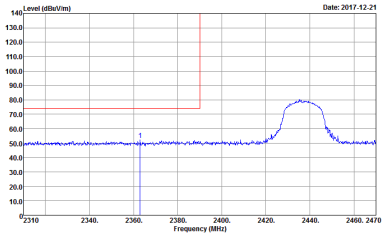
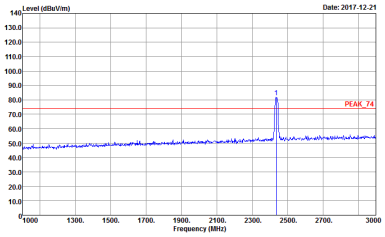
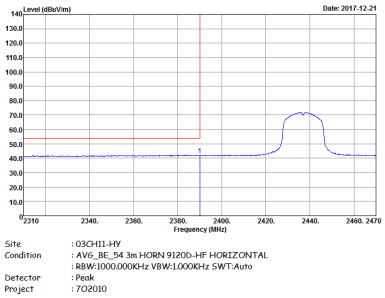
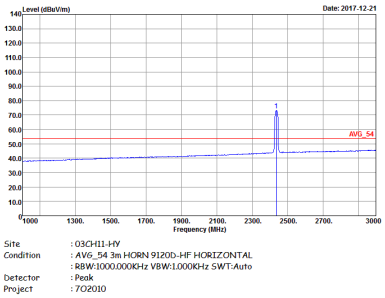
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz	
1	Vertical	Fundamental
Peak		
Avg.		

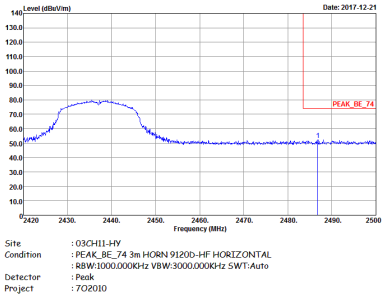
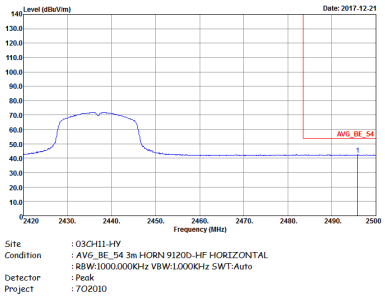
2.4GHz 2400~2483.5MHz

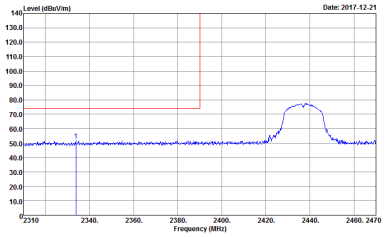
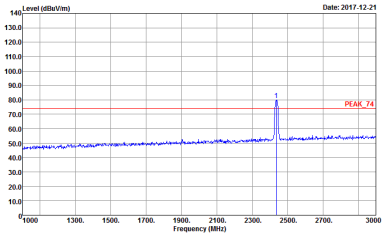
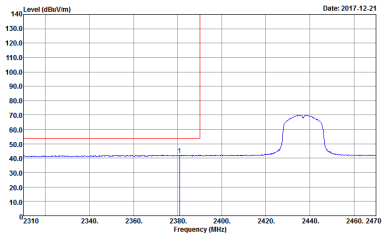
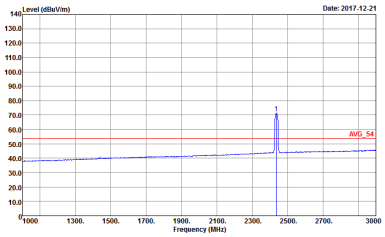
WIFI 802.11n HT20 (Band Edge @ 3m)

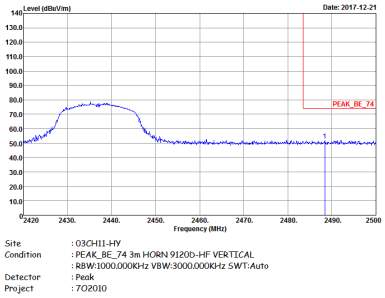
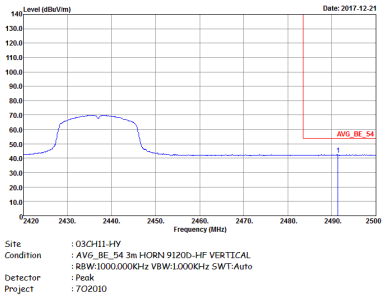
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

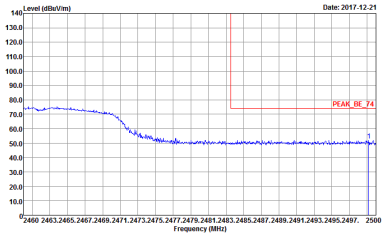
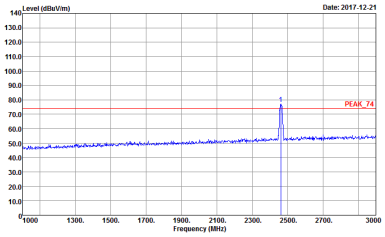
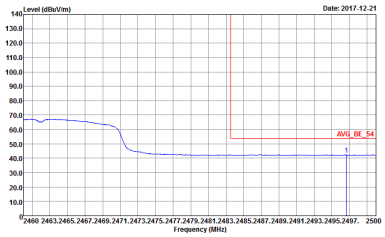
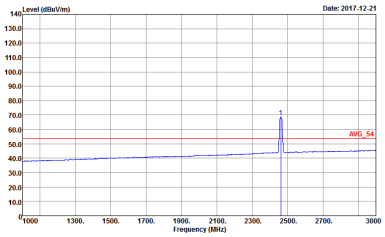
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
1	Vertical	Fundamental
Peak		
Avg.		

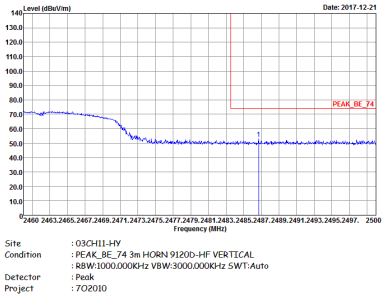
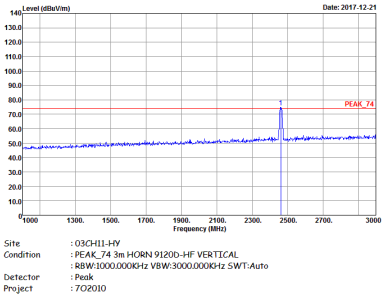
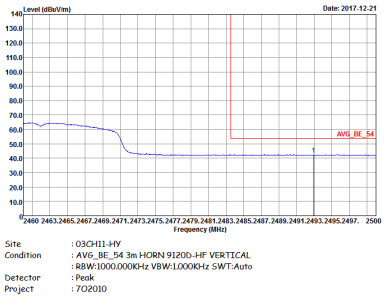
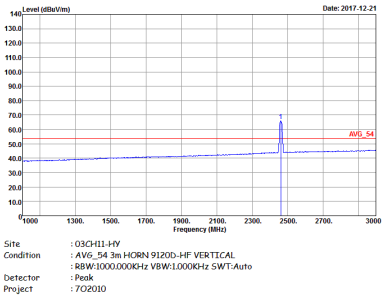
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		

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

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

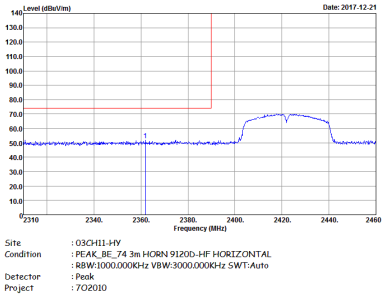
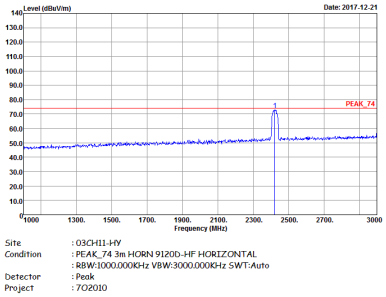
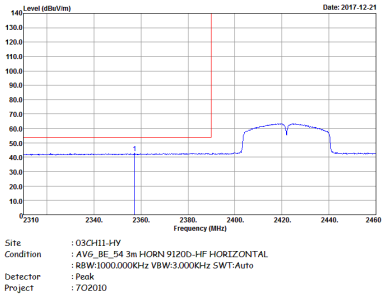
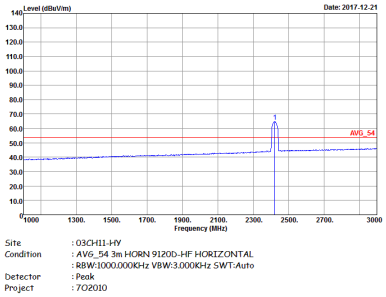
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

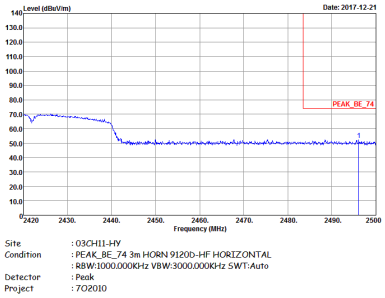
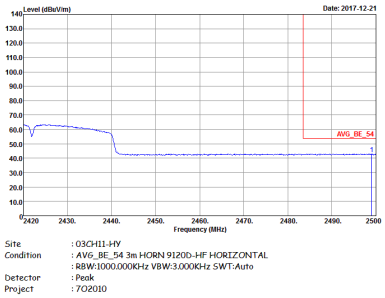
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 7O2010	 Site : 03CH11-HY Condition : PEAK_74 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 7O2010
Avg.	 Site : 03CH11-HY Condition : AVG_BE_54 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak Project : 7O2010	 Site : 03CH11-HY Condition : AVG_54 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak Project : 7O2010

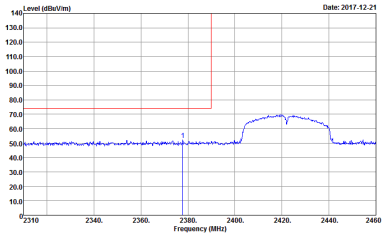
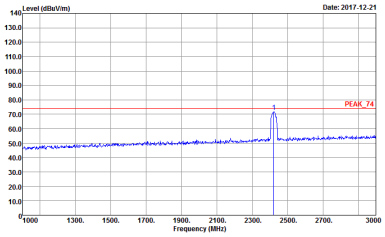
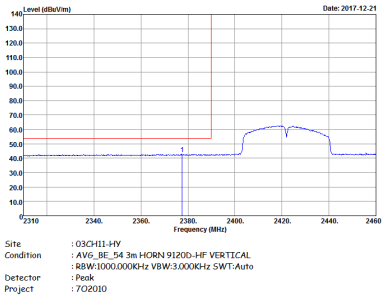
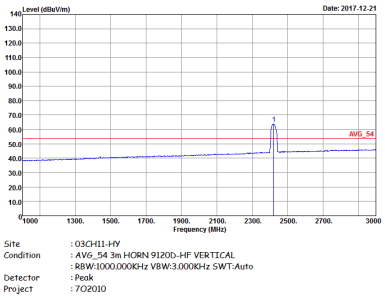
WIFI	2.4GHz 2400~2483.5MHz Fundamental @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
1	Vertical	Fundamental
Peak		
Avg.		

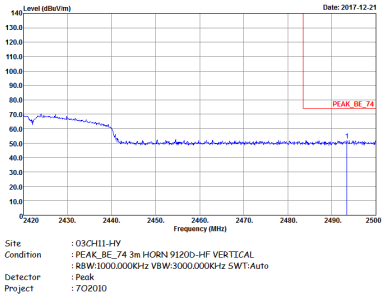
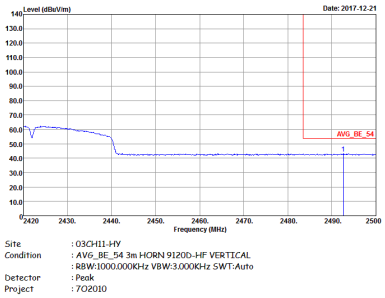
2.4GHz 2400~2483.5MHz

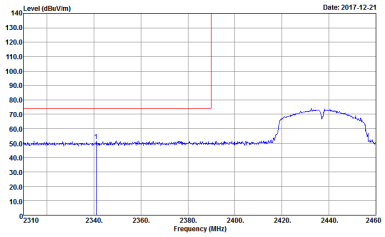
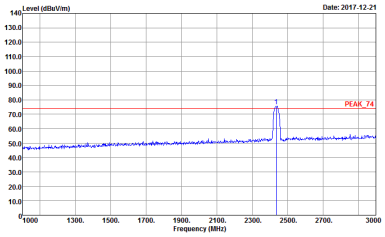
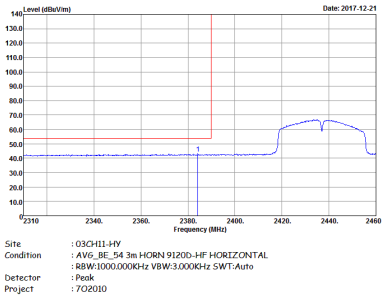
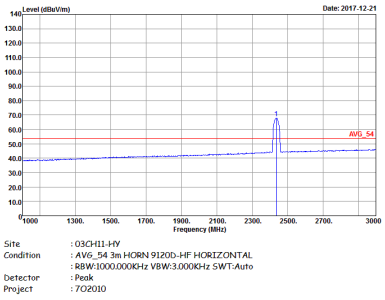
WIFI 802.11n HT40 (Band Edge @ 3m)

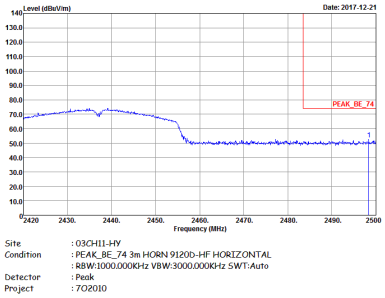
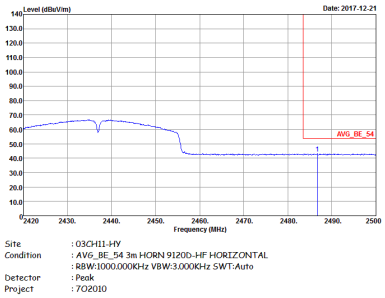
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH03 2422MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		

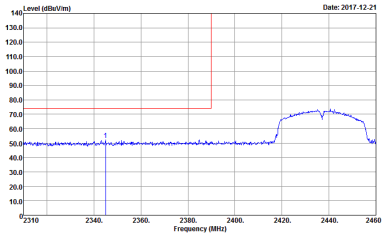
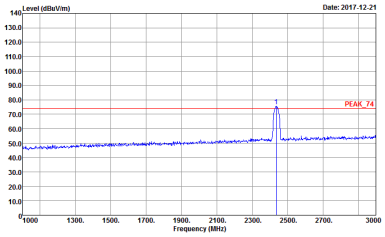
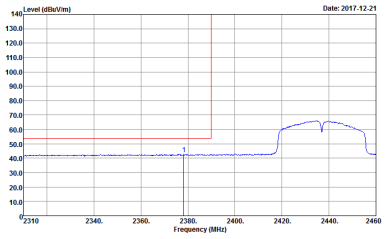
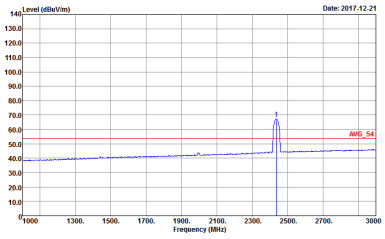
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH03 2422MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

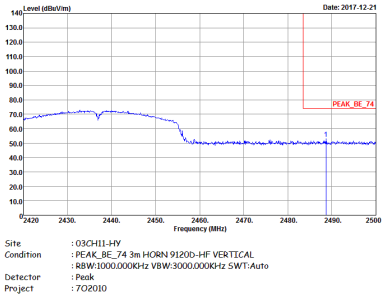
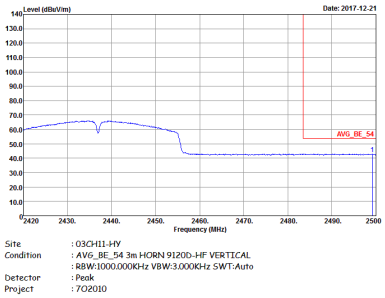
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH03 2422MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		

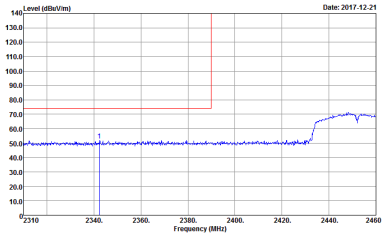
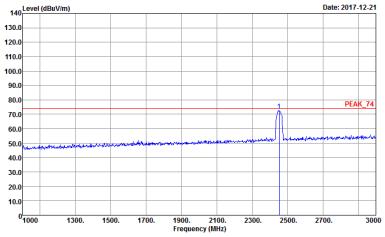
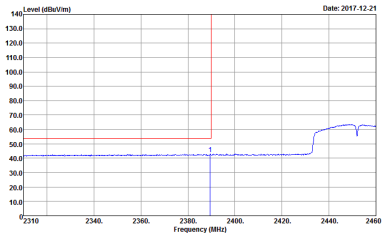
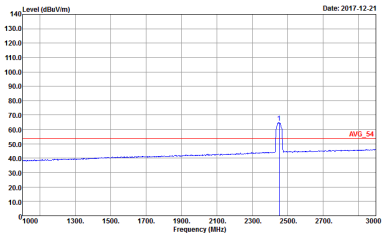
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH03 2422MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

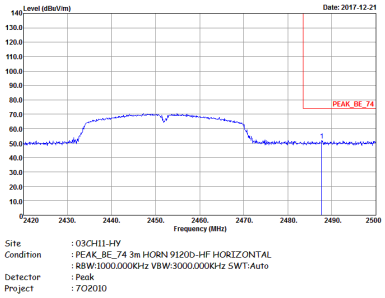
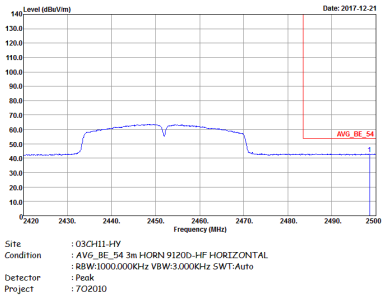
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		

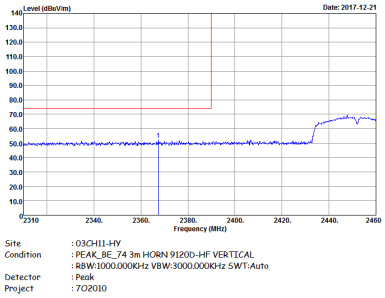
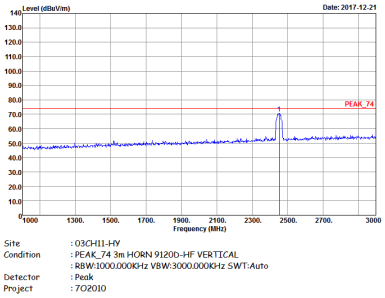
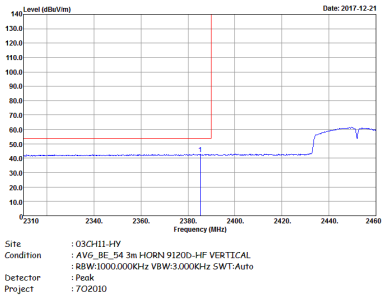
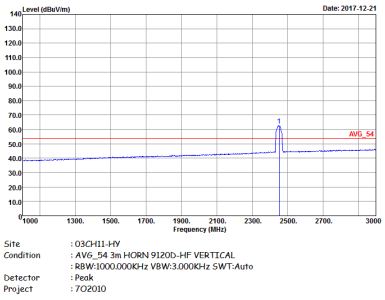
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH06 2437MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

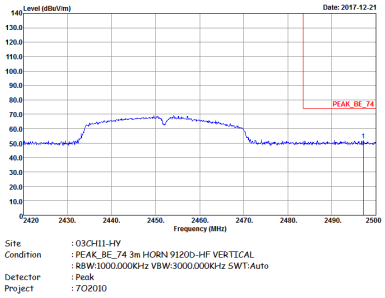
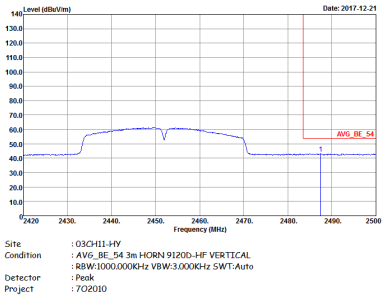
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH06 2437MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		

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

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

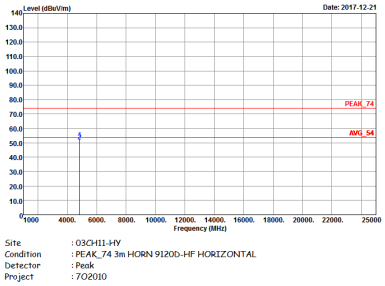
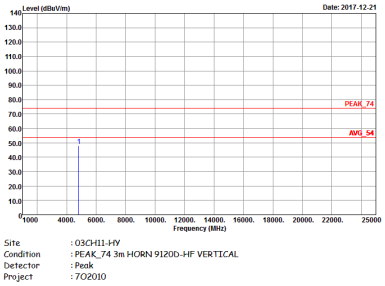
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH09 2452MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

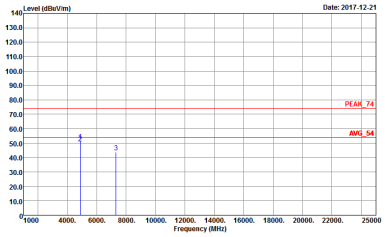
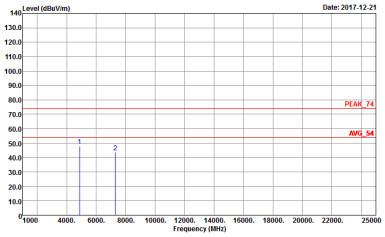
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH09 2452MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		

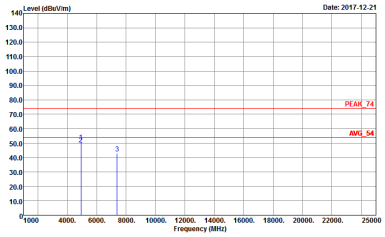
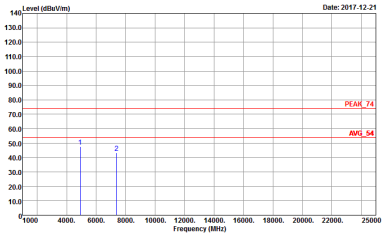
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH09 2452MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Harmonic @ 3m)

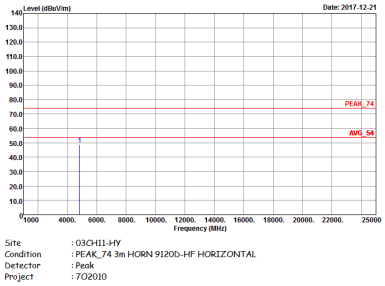
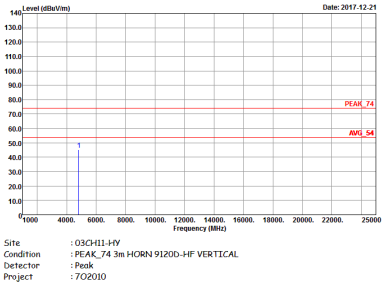
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH01 2412MHz	
1	Horizontal	Vertical
Peak Avg.		

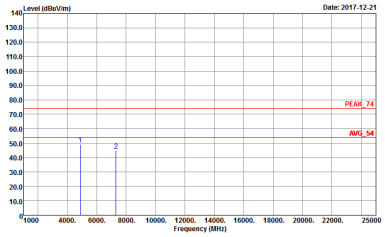
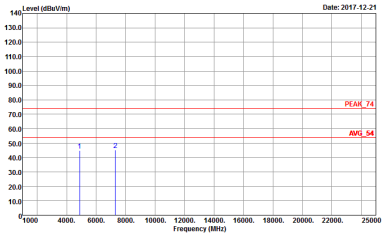
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH06 2437MHz	
1	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HY Condition : PEAK_74 3m HORN 9120D-HF HORIZONTAL Detector : Peak Project : 7O2010	 Site : 03CH11-HY Condition : PEAK_74 3m HORN 9120D-HF VERTICAL Detector : Peak Project : 7O2010

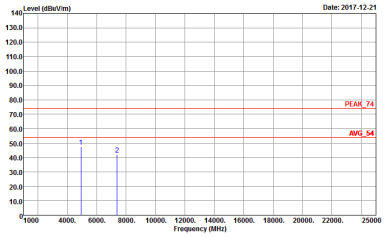
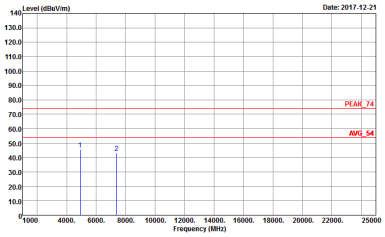
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH11 2462MHz	
1	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HY Condition : PEAK_74 3m HORN 9120D-HF HORIZONTAL Detector : Peak Project : 7O2010	 Site : 03CH11-HY Condition : PEAK_74 3m HORN 9120D-HF VERTICAL Detector : Peak Project : 7O2010

2.4GHz 2400~2483.5MHz

WIFI 802.11g (Harmonic @ 3m)

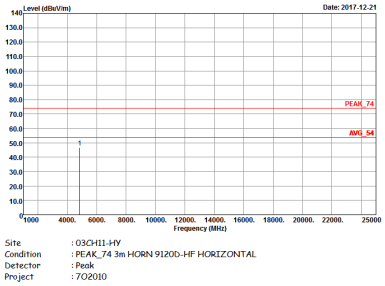
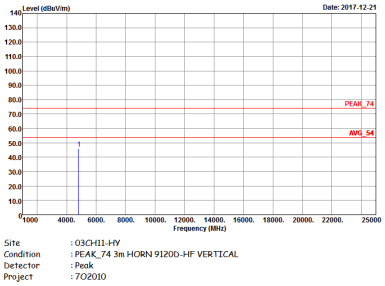
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH01 2412MHz	
1	Horizontal	Vertical
Peak Avg.		

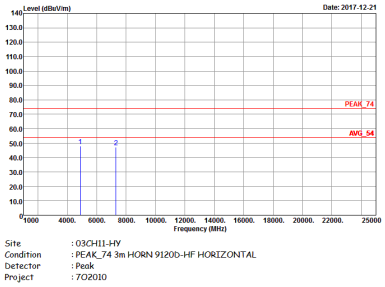
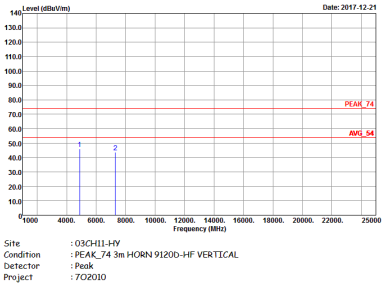
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH06 2437MHz	
1	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HY Condition : PEAK_74 3m HORN 9120D-HF HORIZONTAL Detector : Peak Project : 7O2010	 Site : 03CH11-HY Condition : PEAK_74 3m HORN 9120D-HF VERTICAL Detector : Peak Project : 7O2010

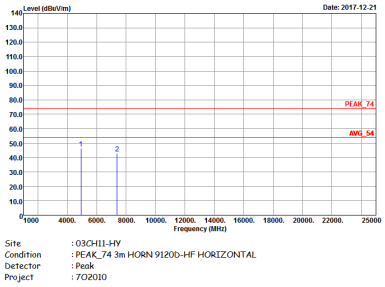
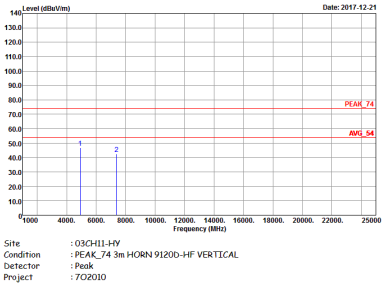
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH11 2462MHz	
1	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HY Condition : PEAK_74 3m HORN 9120D-HF HORIZONTAL Detector : Peak Project : 7O2010	 Site : 03CH11-HY Condition : PEAK_74 3m HORN 9120D-HF VERTICAL Detector : Peak Project : 7O2010

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

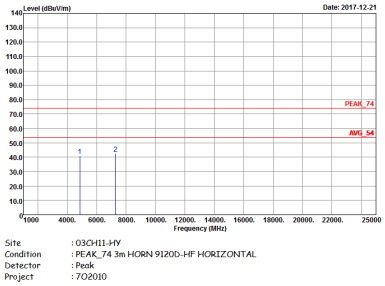
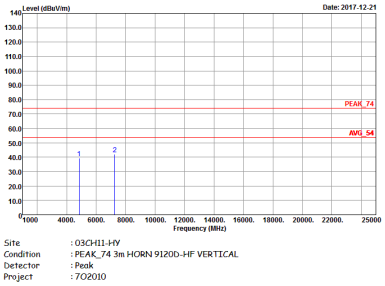
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
1	Horizontal	Vertical
Peak Avg.		

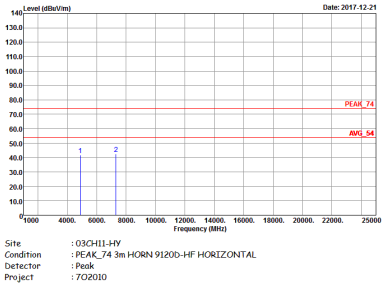
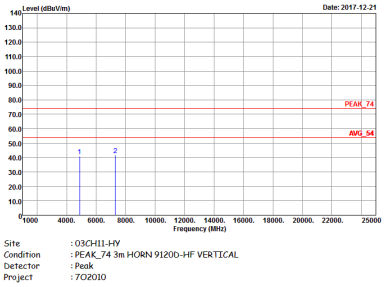
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH06 2437MHz	
1	Horizontal	Vertical
Peak Avg.		

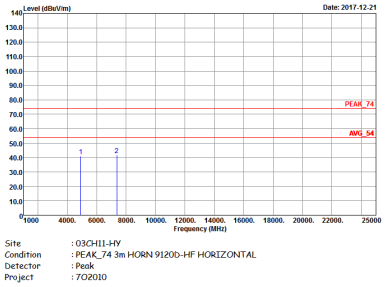
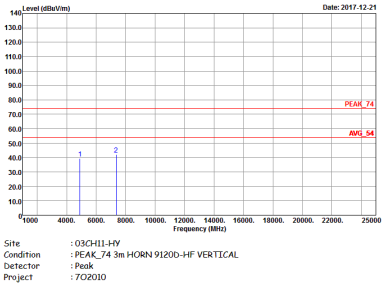
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
1	Horizontal	Vertical
Peak Avg.		

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT40 (Harmonic @ 3m)

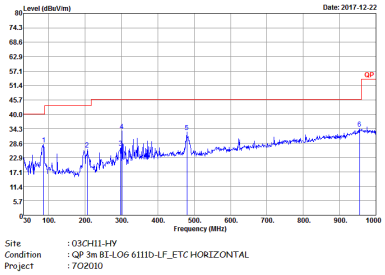
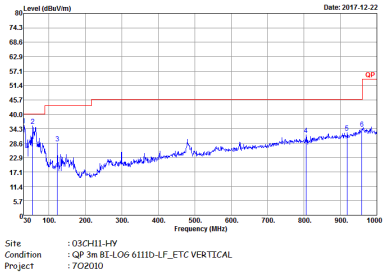
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT40 CH03 2422MHz	
1	Horizontal	Vertical
Peak Avg.		

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

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

Emission below 1GHz

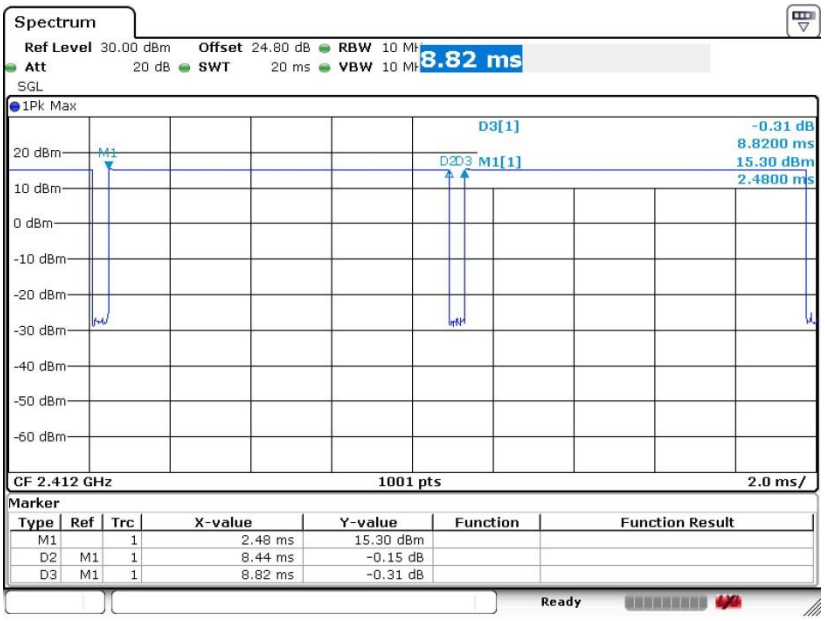
2.4GHz WIFI 802.11b (LF)

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

Appendix F. Duty Cycle Plots

Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
1	802.11b	95.69	8440	0.12	300Hz
1	802.11g	77.56	1400	0.71	1kHz
1	2.4GHz 802.11n HT20	76.39	1310	0.76	
1	2.4GHz 802.11n HT40	77.06	1310	0.76	

802.11b



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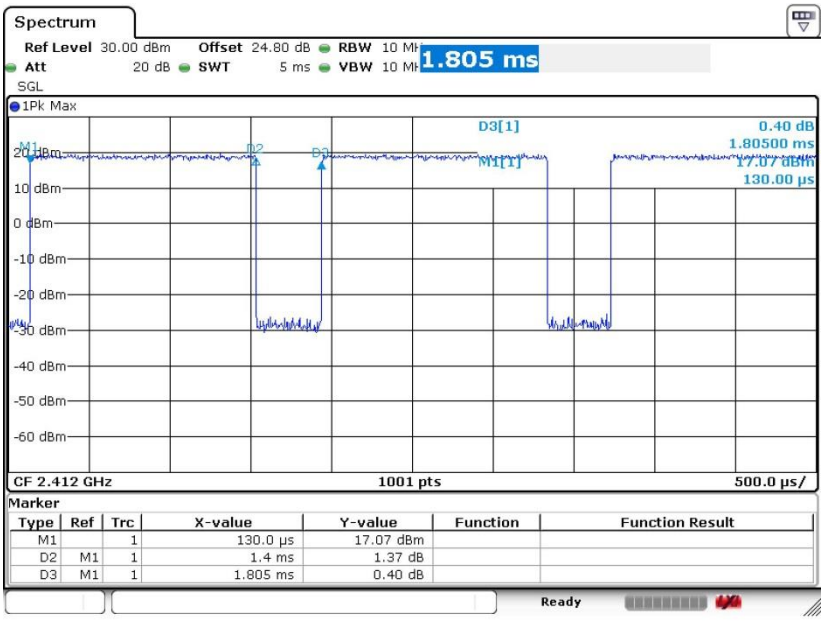
802.11g



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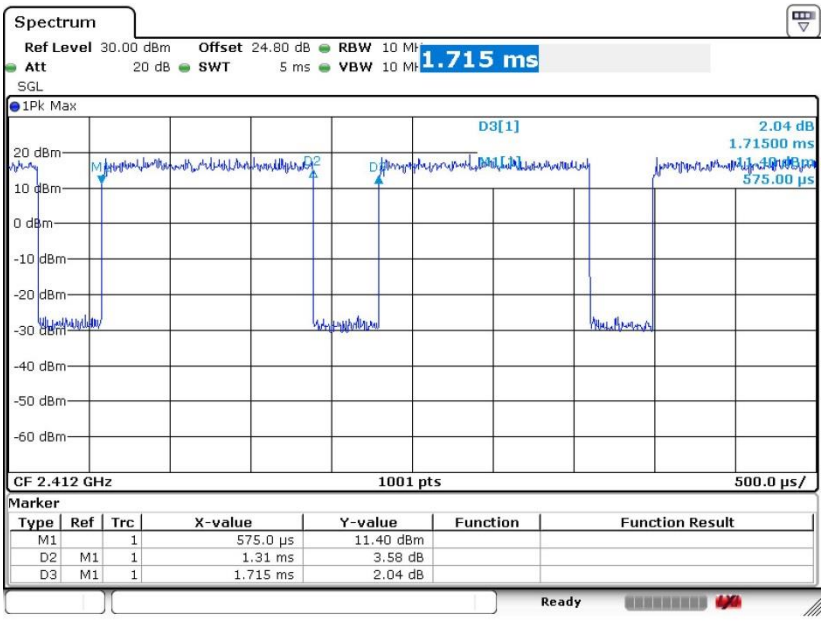
802.11n HT20



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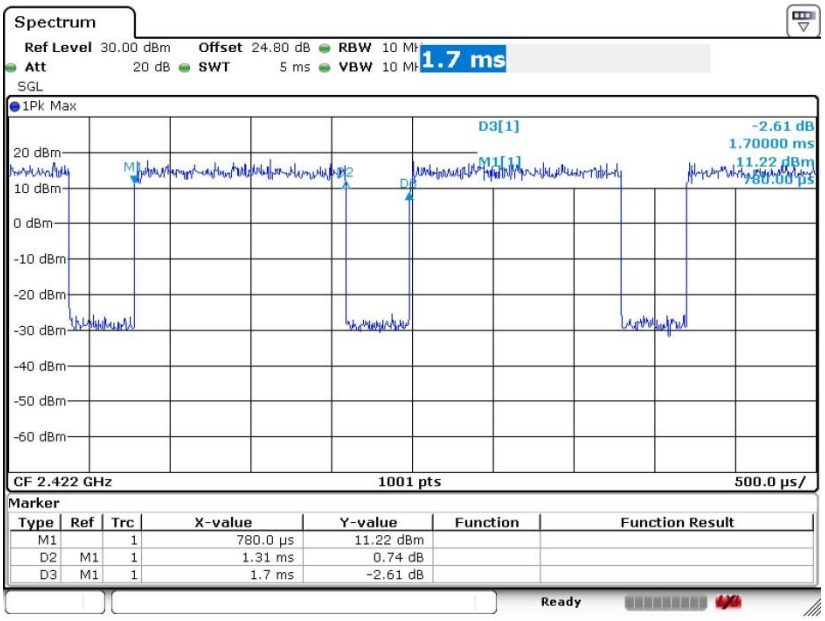
802.11n HT40



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