FCC RF Test Report

APPLICANT	:	Ubiquiti Networks, Inc.
EQUIPMENT	:	Front Row Camera
BRAND NAME	:	ULABS
MODEL NAME	:	FR
FCC ID	:	SWX-FR
STANDARD	:	FCC Part 15 Subpart C §15.247
CLASSIFICATION	:	(DTS) Digital Transmission System

The product was received on Mar. 21, 2017 and testing was completed on Mar. 30, 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

TAF Testing Laboratory 1190

SPORTON INTERNATIONAL INC.
No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C.

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR741250C	Rev. 01	Initial issue of report	Apr. 25, 2017

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	6dB Bandwidth	≥ 0.5MHz	Pass	-
3.1	-	99% Bandwidth	-	Pass	-
3.2	15.247(b)	Power Output Measurement	≤ 30dBm	Pass	-
3.3	15.247(e)	Power Spectral Density	≤ 8dBm/3kHz	Pass	-
3.4	15.247(d)	Conducted Band Edges	≤ 20dBc	Pass	-
		Conducted Spurious Emission		Pass	-
3.5	15.247(d)	Radiated Band Edges and Radiated Spurious Emission	15.209(a) & 15.247(d)	Pass	Under limit 0.48 dB at 2483.520 MHz
3.6	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 8.00 dB at 0.182 MHz
3.7	15.203 & 15.247(b)	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Ubiquiti Networks, Inc.
2580 Orchard Parkway San Jose, CA 95131

1.2 Manufacturer

Ubiquiti Networks, Inc.
2580 Orchard Parkway San Jose, CA 95131

1.3 Product Feature of Equipment Under Test

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

Product Specification subjective to this standard	
Antenna Type	WLAN: Internal Antenna Bluetooth: Internal 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. 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	CO05-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.**
	03CH13-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

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

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

2.1 Carrier Frequency and Channel

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

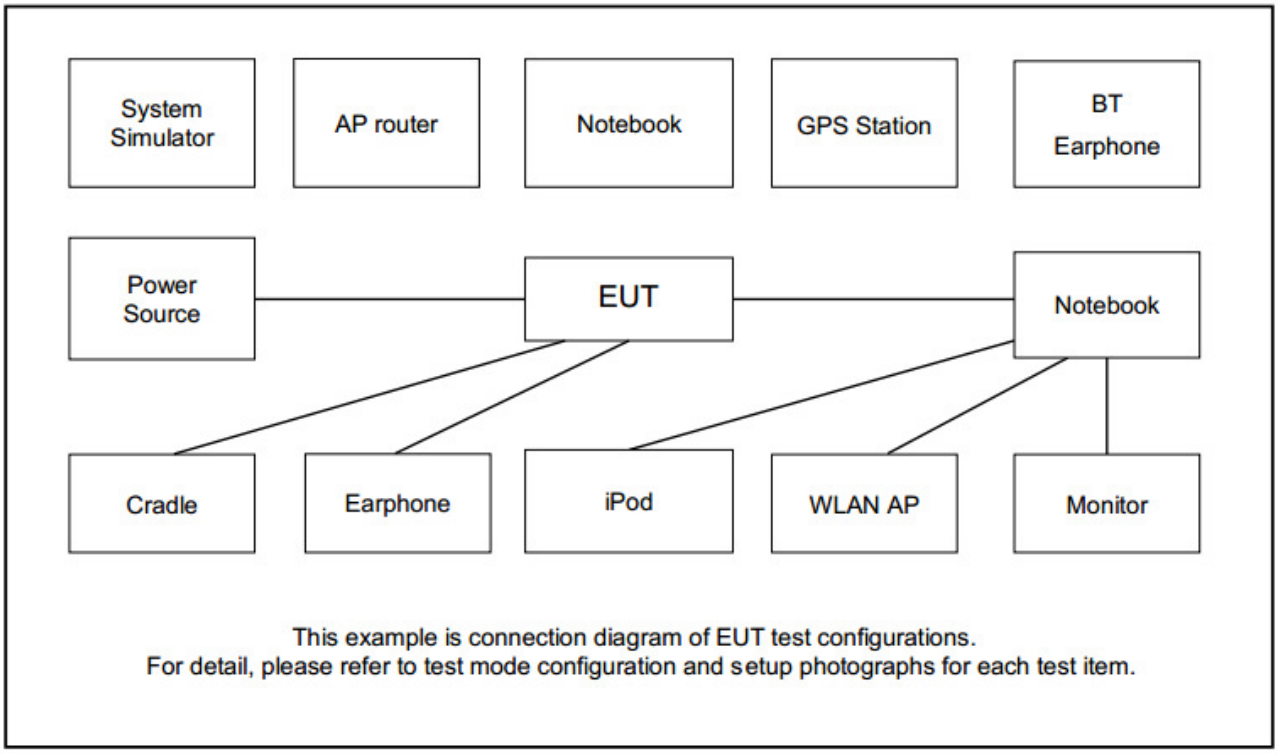
2.2 Test Mode

Final test 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

Test Cases	
AC Conducted Emission	Mode 1 : Bluetooth Link + WLAN (2.4GHz) Link + Camera (Front) + USB Cable (Data Link with Notebook)

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.	Bluetooth Earphone	Sony Ericsson	MW600	PY7DDA-2029	N/A	N/A
2.	WLAN AP	ASUS	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded, 1.8 m
3.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A
4.	Notebook	DELL	Latitude E6320	FCC DoC/ Contains FCC ID: QDS-BRCM1054	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m

2.5 EUT Operation Test Setup

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

2.6 Measurement Results Explanation Example

For all conducted test items:

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

Example :

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.2 dB and 10dB attenuator.

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

= 4.2 + 10 = 14.2 (dB)

3 Test Result

3.1 6dB and 99% Bandwidth Measurement

3.1.1 Limit of 6dB and 99% Bandwidth

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

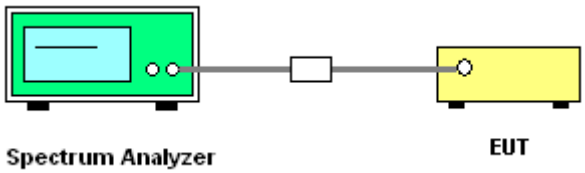
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

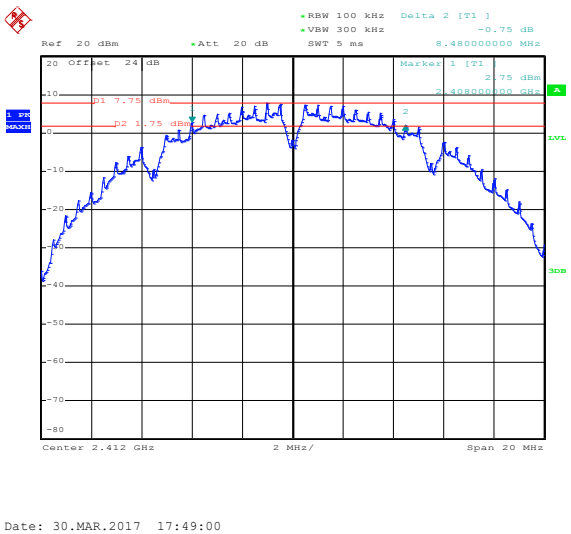
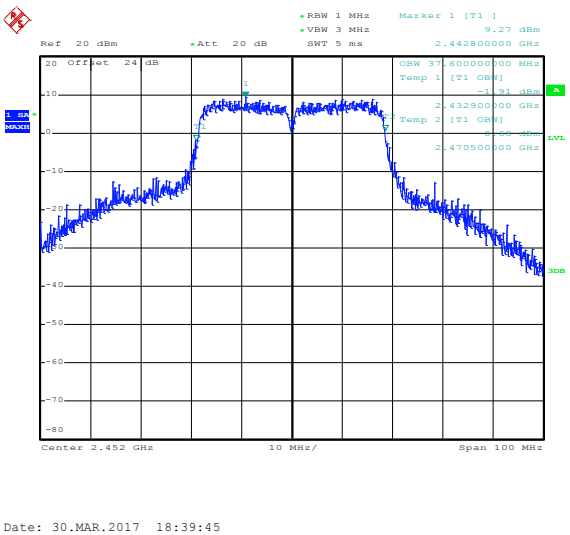
1. The testing follows FCC KDB Publication No. 558074 DTS D01 Meas. Guidance v04.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 kHz.
5. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) = 1MHz and set the Video bandwidth (VBW) = 3MHz.
6. Measure and record the results in the test report.

3.1.4 Test Setup



3.1.5 Test Result of 6dB and 99% Occupied Bandwidth

Please refer to Appendix A.

Minimum 6dB Bandwidth	Maximum 99% Occupied Bandwidth
	

3.2 Output Power Measurement

3.2.1 Limit of Output Power

For systems using digital modulation in the 2400-2483.5MHz, the limit for peak output power is 30dBm. If transmitting antenna 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.

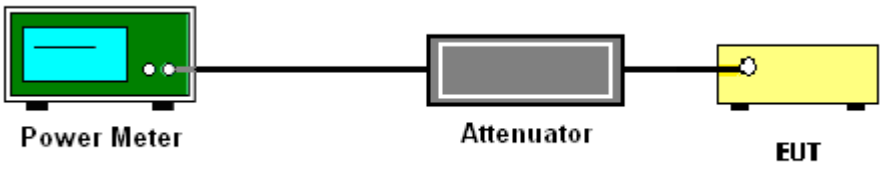
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

1. The testing follows 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.

3.2.4 Test Setup



3.2.5 Test Result of Peak Output Power

Please refer to Appendix A.

3.2.6 Test Result of Average output Power (Reporting Only)

Please refer to Appendix A.

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

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

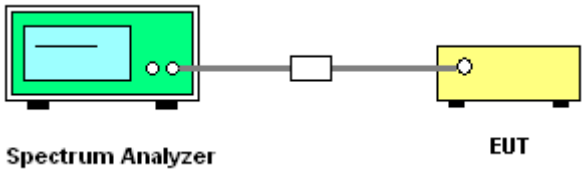
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

1. The testing follows Measurement Procedure 10.2 Method PKPSD of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v04
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 3 kHz. Video bandwidth VBW = 10 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)
5. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level.
6. Measure and record the results in the test report.

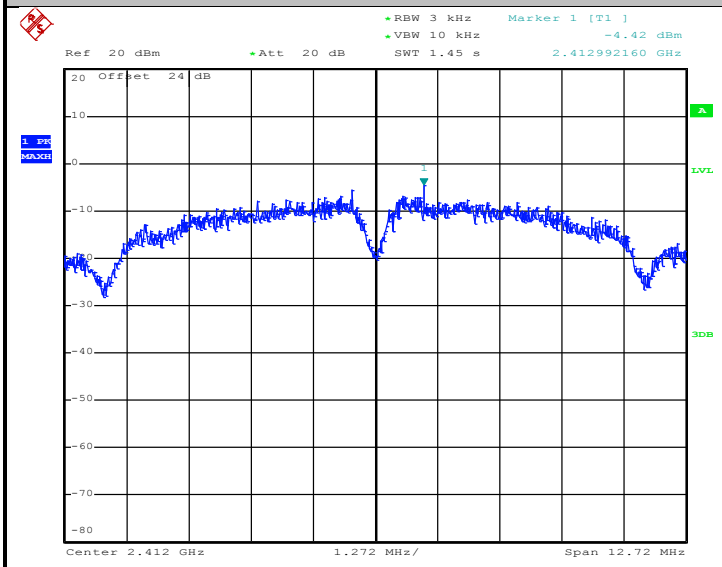
3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

Worst Case Power Density (dBm/3kHz)



3.4 Conducted Band Edges and Spurious Emission Measurement

3.4.1 Limit of Conducted Band Edges and Spurious Emission Measurement

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

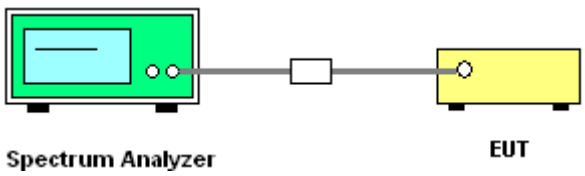
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v04.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d).
5. Measure and record the results in the test report.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

3.4.4 Test Setup

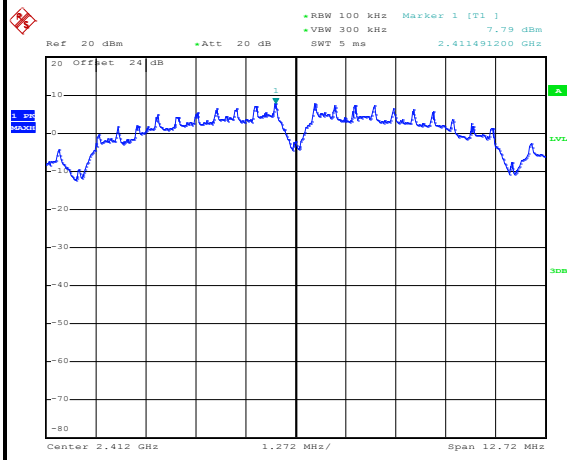


3.4.5 Test Result of Conducted Band Edges and Spurious Emission

Test Mode :	802.11b	**Temperature :**	21~25°C
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	01	**Test Engineer :**	Derek Hsu

WLAN 802.11b Channel 01

100kHz PSD reference Level



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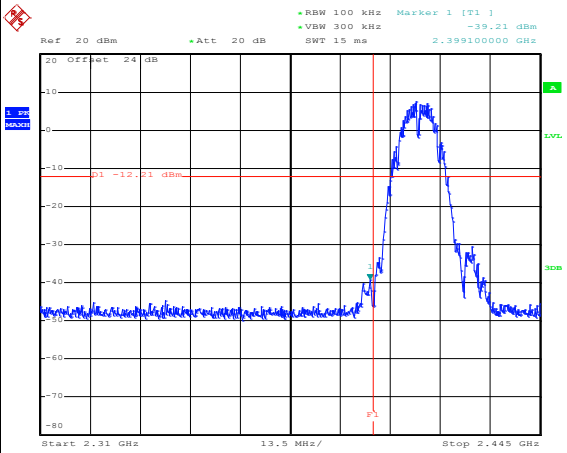
Low Channel Plot



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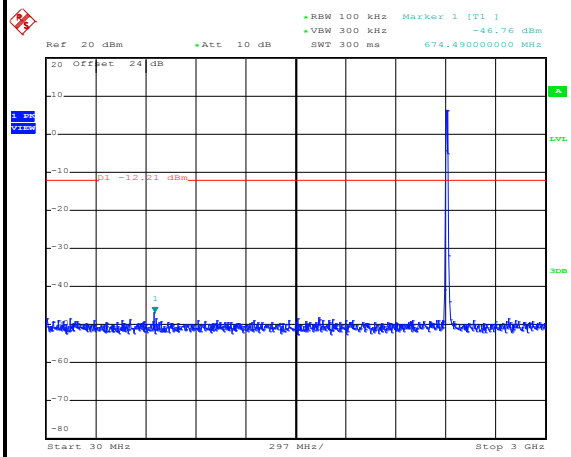
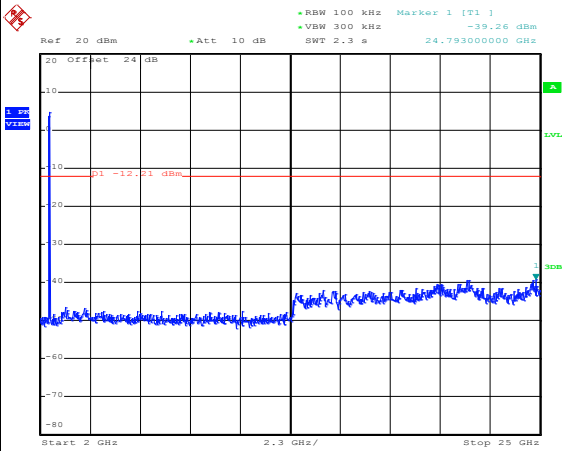
Spurious Emission 30MHz~3GHz



Date: 30.MAR.2017 17:50:17

Spurious Emission 2GHz~25GHz



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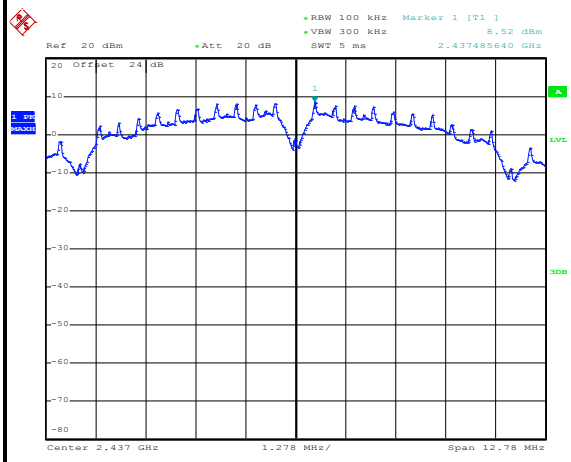
Test Mode :	802.11b	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~54%
Test Channel :	06	Test Engineer :	Derek Hsu

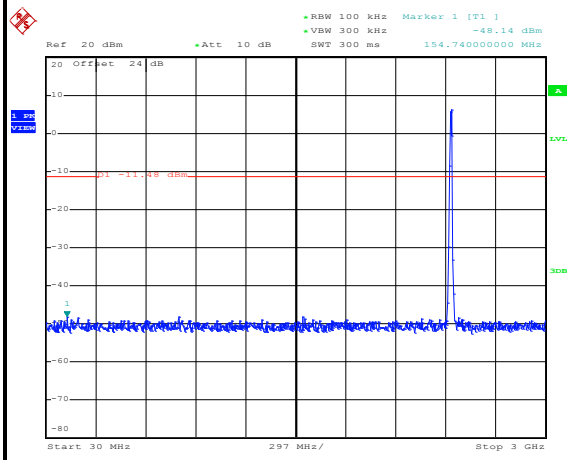
WLAN 802.11b Channel 06

100kHz PSD reference Level



Date: 30.MAR.2017 17:53:26

Spurious Emission 30MHz~3GHz



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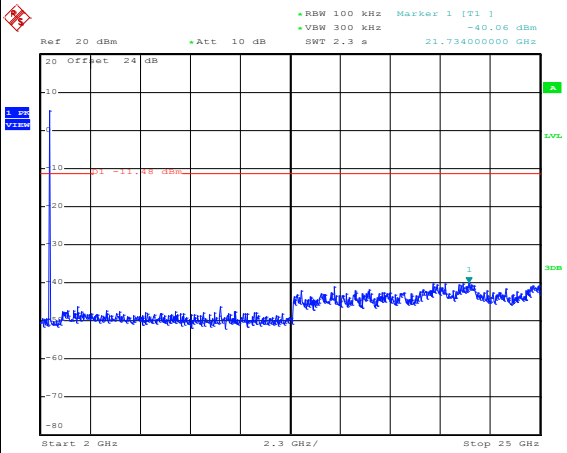
Spurious Emission 2GHz~25GHz

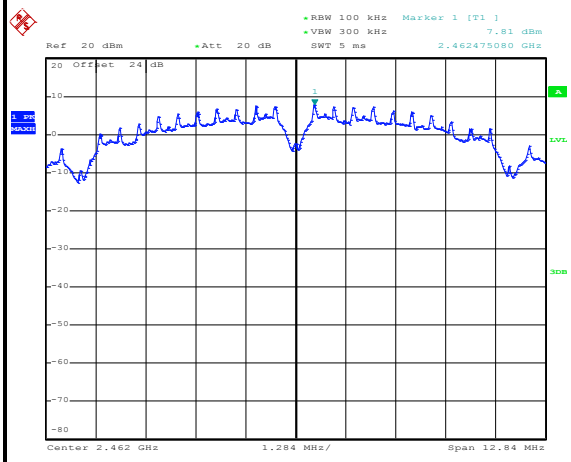


Date: 30.MAR.2017 17:53:50

Test Mode :	802.11b	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	11	Test Engineer :	Derek Hsu

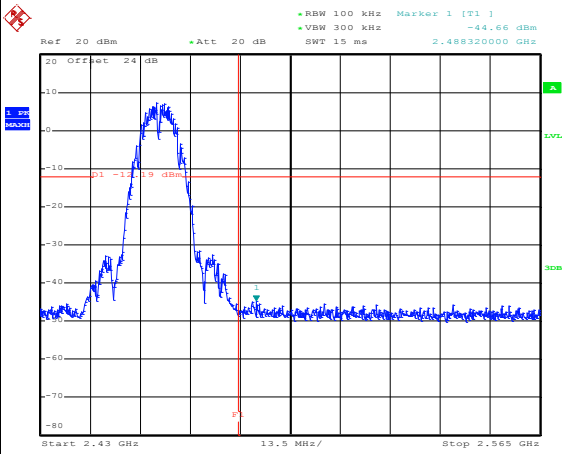
WLAN 802.11b Channel 11

100kHz PSD reference Level



Date: 30.MAR.2017 17:56:20

High Channel Plot



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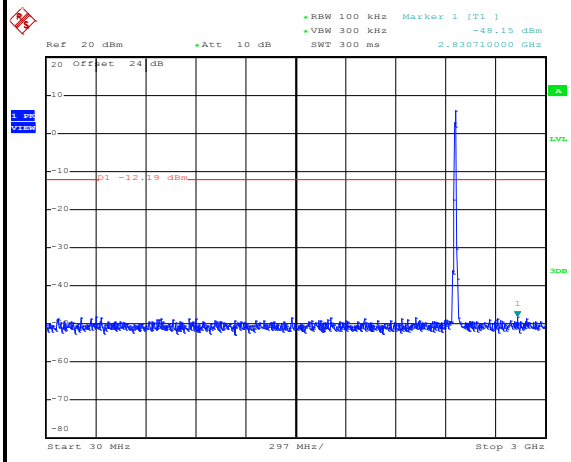
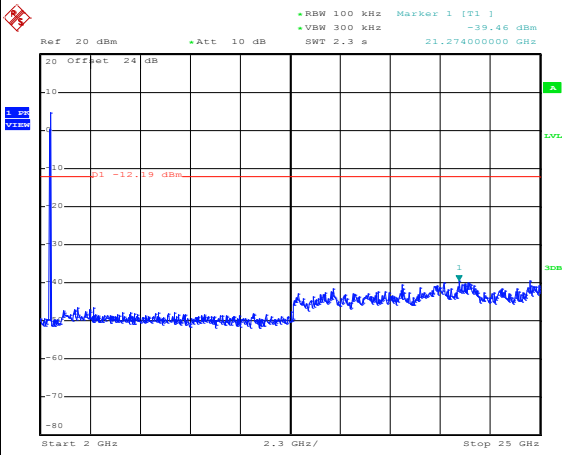
Spurious Emission 30MHz~3GHz



Date: 30.MAR.2017 17:57:32

Spurious Emission 2GHz~25GHz

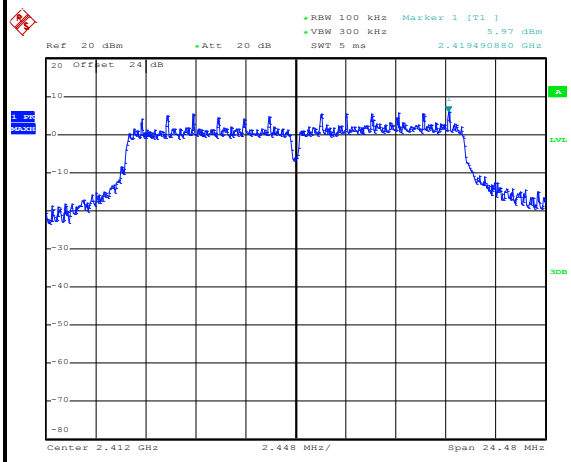


Date: 30.MAR.2017 17:57:41

Test Mode :	802.11g	Temperature :	21~25°C
Test Band :	2.4GHz Low	Relative Humidity :	51~54%
Test Channel :	01	Test Engineer :	Derek Hsu

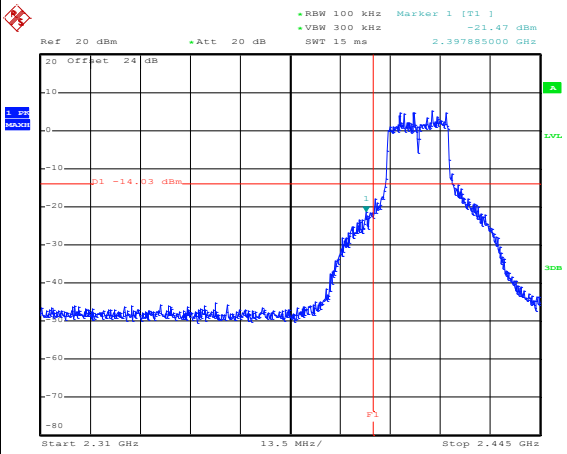
WLAN 802.11g Channel 01

100kHz PSD reference Level



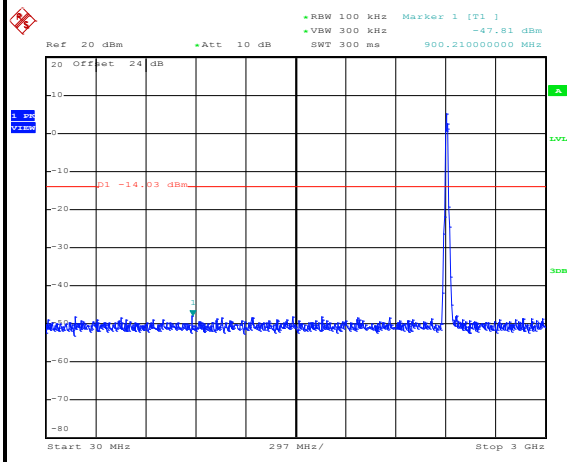
Date: 30.MAR.2017 18:00:54

Low Channel Plot



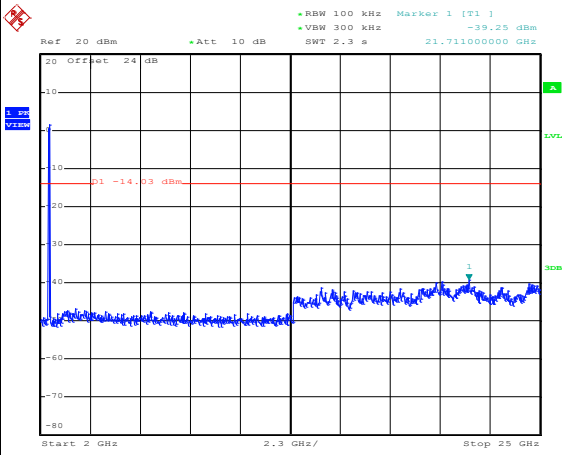
Date: 30.MAR.2017 18:01:06

Spurious Emission 30MHz~3GHz



Date: 30.MAR.2017 18:01:20

Spurious Emission 2GHz~25GHz

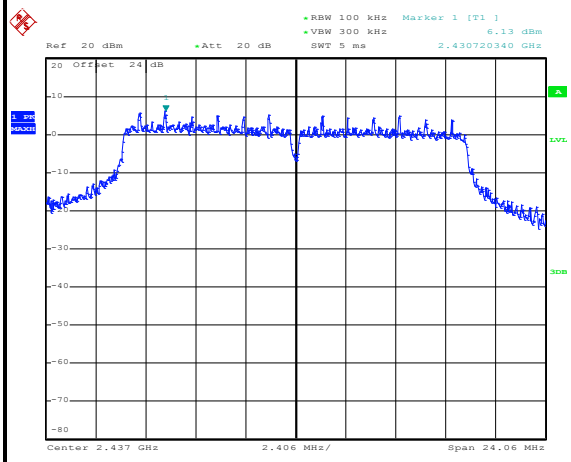


Date: 30.MAR.2017 18:01:28

Test Mode :	802.11g	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~54%
Test Channel :	06	Test Engineer :	Derek Hsu

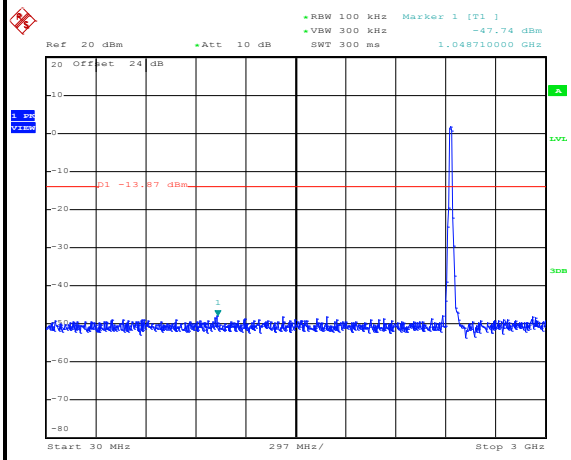
WLAN 802.11g Channel 06

100kHz PSD reference Level



Date: 30.MAR.2017 18:04:18

Spurious Emission 30MHz~3GHz



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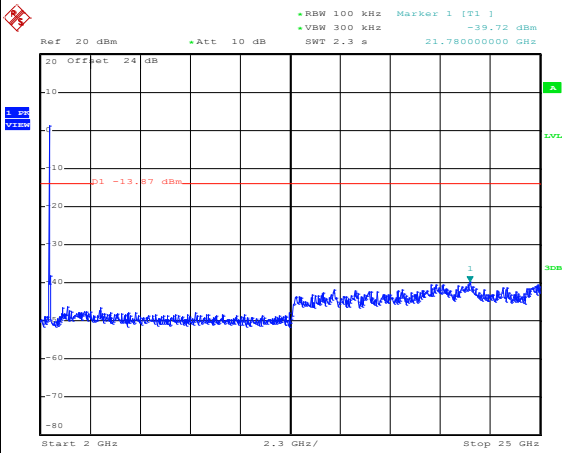
Spurious Emission 2GHz~25GHz

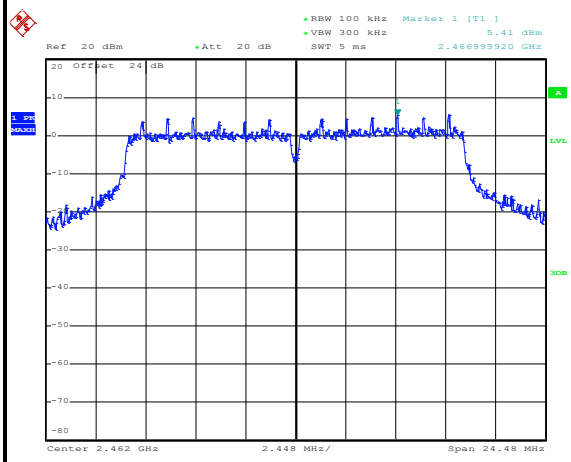


Date: 30.MAR.2017 18:04:39

Test Mode :	802.11g	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	11	Test Engineer :	Derek Hsu

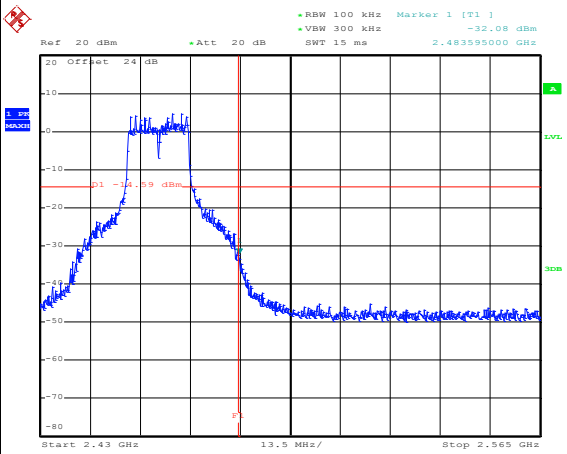
WLAN 802.11g Channel 11

100kHz PSD reference Level



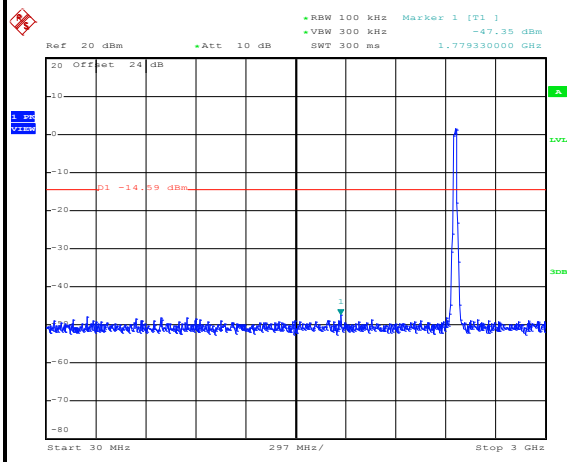
Date: 30.MAR.2017 18:07:49

High Channel Plot



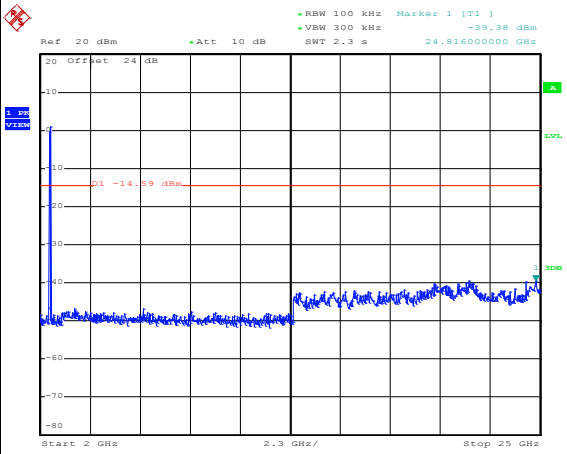
Date: 30.MAR.2017 18:08:05

Spurious Emission 30MHz~3GHz



Date: 30.MAR.2017 18:08:17

Spurious Emission 2GHz~25GHz

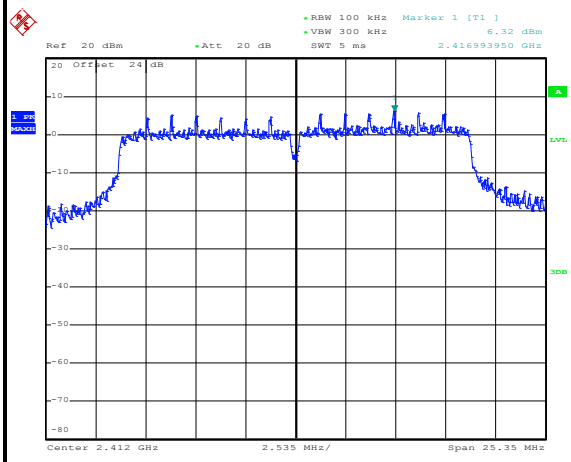


Date: 30.MAR.2017 18:08:26

Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz Low	Relative Humidity :	51~54%
Test Channel :	01	Test Engineer :	Derek Hsu

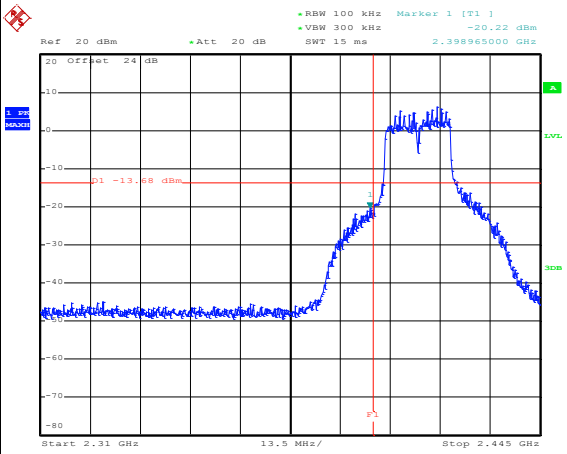
WLAN 802.11n HT20 Channel 01

100kHz PSD reference Level



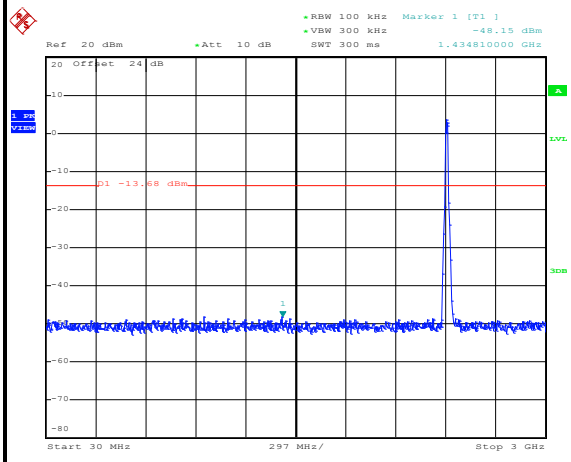
Date: 30.MAR.2017 18:11:29

Low Channel Plot



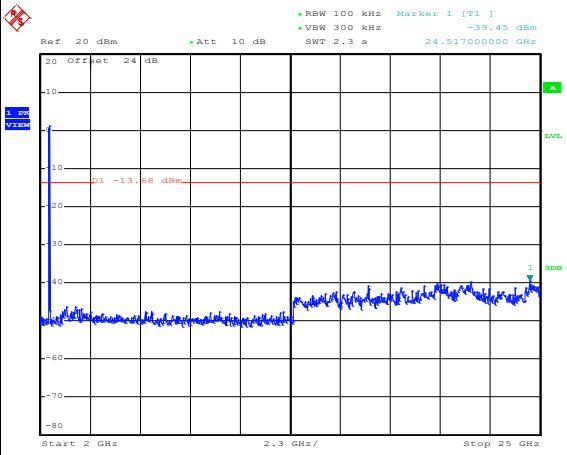
Date: 30.MAR.2017 18:11:45

Spurious Emission 30MHz~3GHz



Date: 30.MAR.2017 18:11:59

Spurious Emission 2GHz~25GHz

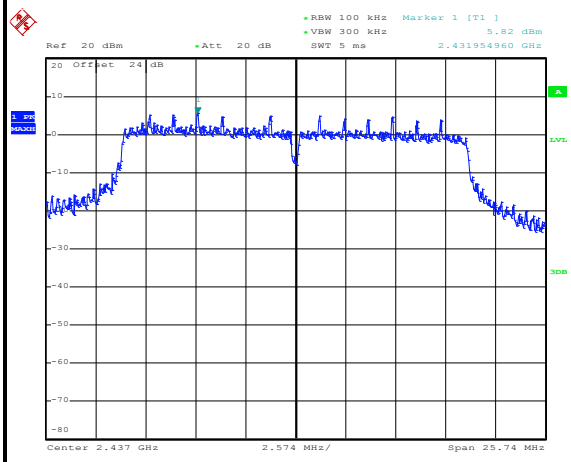


Date: 30.MAR.2017 18:12:07

Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~54%
Test Channel :	06	Test Engineer :	Derek Hsu

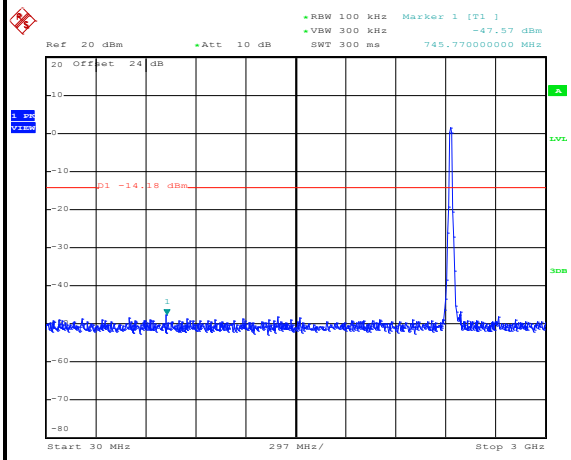
WLAN 802.11n HT20 Channel 06

100kHz PSD reference Level



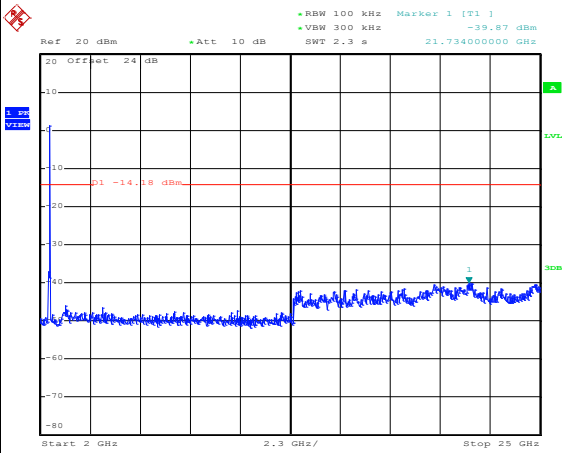
Date: 30.MAR.2017 18:51:46

Spurious Emission 30MHz~3GHz



Date: 30.MAR.2017 18:52:54

Spurious Emission 2GHz~25GHz

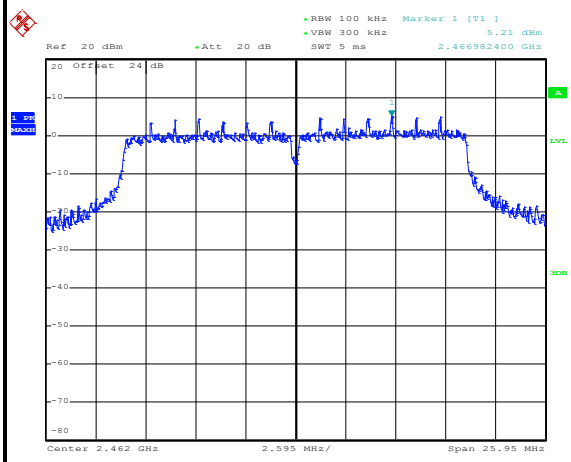


Date: 30.MAR.2017 18:53:03

Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	11	Test Engineer :	Derek Hsu

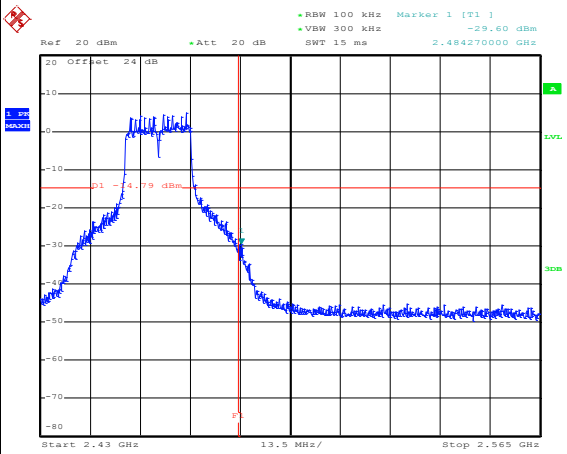
WLAN 802.11n HT20 Channel 11

100kHz PSD reference Level



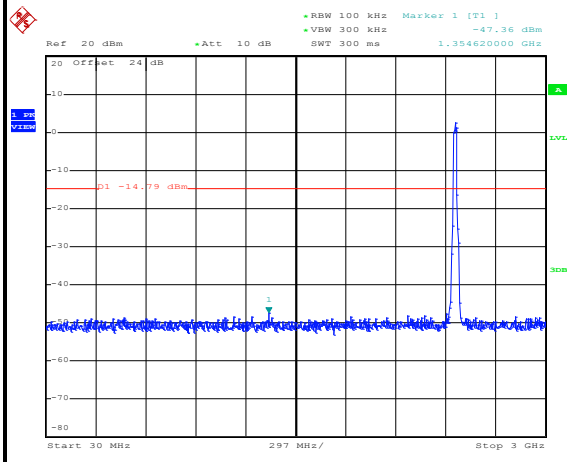
Date: 30.MAR.2017 18:19:17

High Channel Plot



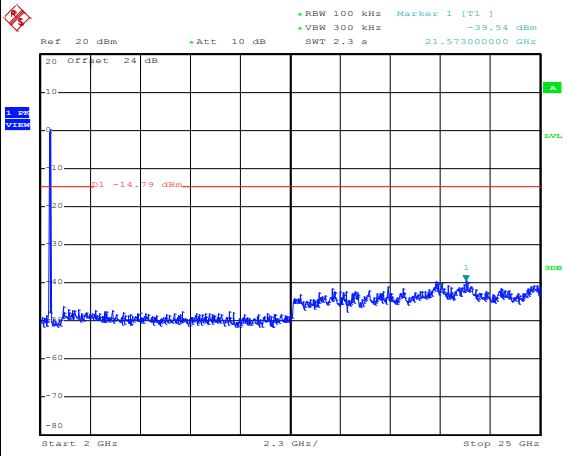
Date: 30.MAR.2017 18:19:46

Spurious Emission 30MHz~3GHz



Date: 30.MAR.2017 18:19:57

Spurious Emission 2GHz~25GHz

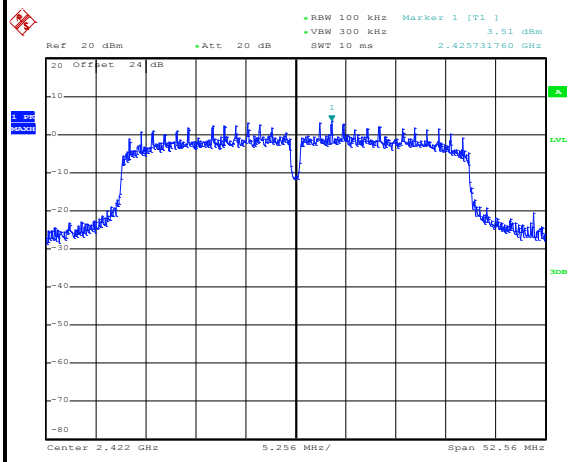


Date: 30.MAR.2017 18:20:06

Test Mode :	802.11n HT40	Temperature :	21~25°C
Test Band :	2.4GHz Low	Relative Humidity :	51~54%
Test Channel :	03	Test Engineer :	Derek Hsu

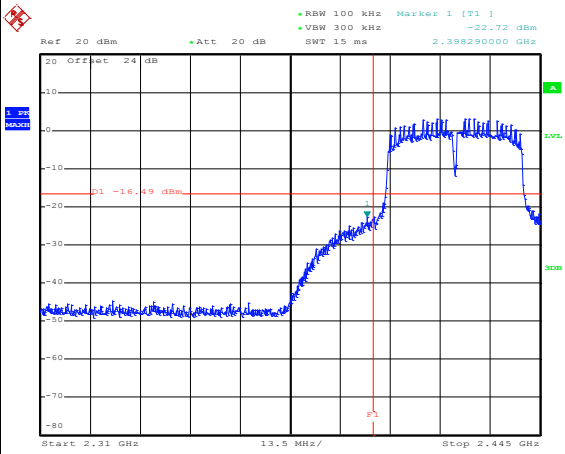
WLAN 802.11n HT40 Channel 03

100kHz PSD reference Level



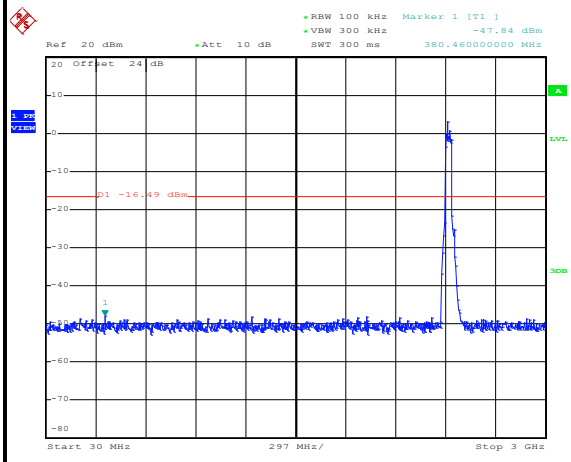
Date: 30.MAR.2017 18:26:34

Low Channel Plot



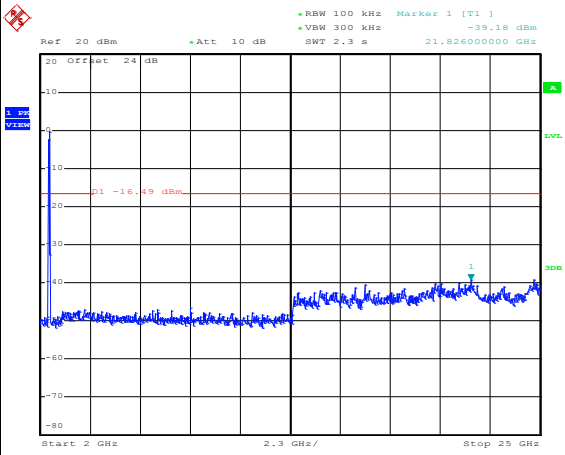
Date: 30.MAR.2017 18:27:12

Spurious Emission 30MHz~3GHz



Date: 30.MAR.2017 18:27:29

Spurious Emission 2GHz~25GHz

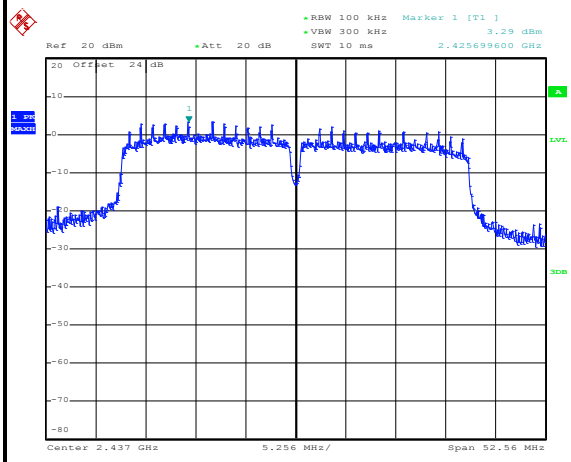


Date: 30.MAR.2017 18:27:38

Test Mode :	802.11n HT40	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~54%
Test Channel :	06	Test Engineer :	Derek Hsu

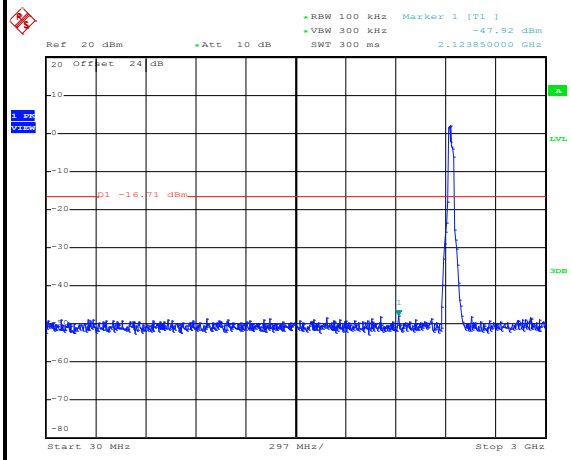
WLAN 802.11n HT40 Channel 06

100kHz PSD reference Level



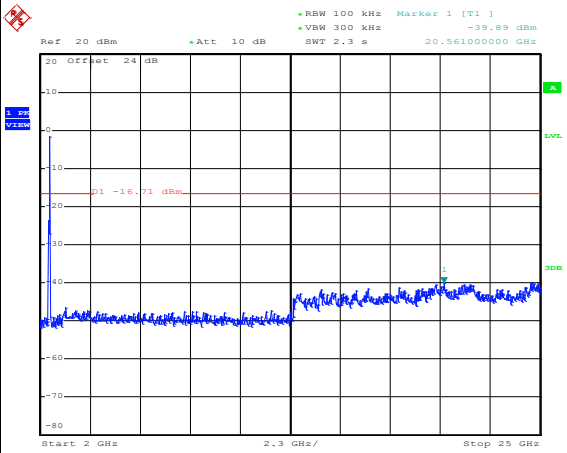
Date: 30.MAR.2017 18:33:11

Spurious Emission 30MHz~3GHz



Date: 30.MAR.2017 18:33:32

Spurious Emission 2GHz~25GHz

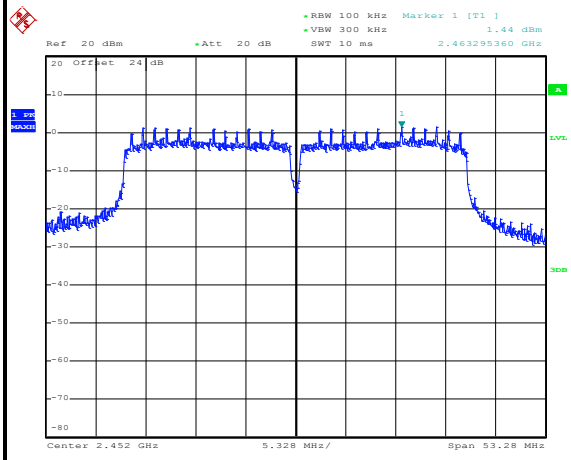


Date: 30.MAR.2017 18:33:40

Test Mode :	802.11n HT40	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	09	Test Engineer :	Derek Hsu

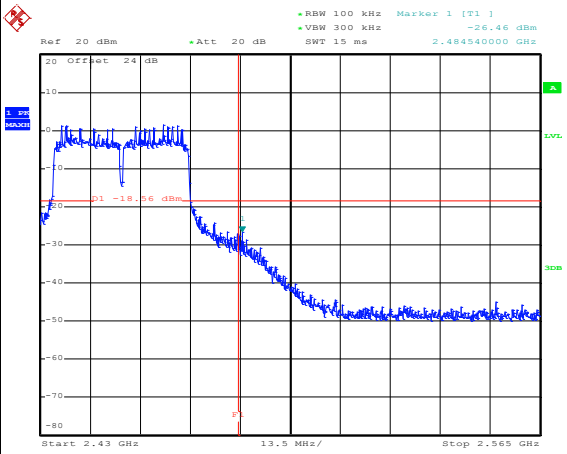
WLAN 802.11n HT40 Channel 09

100kHz PSD reference Level



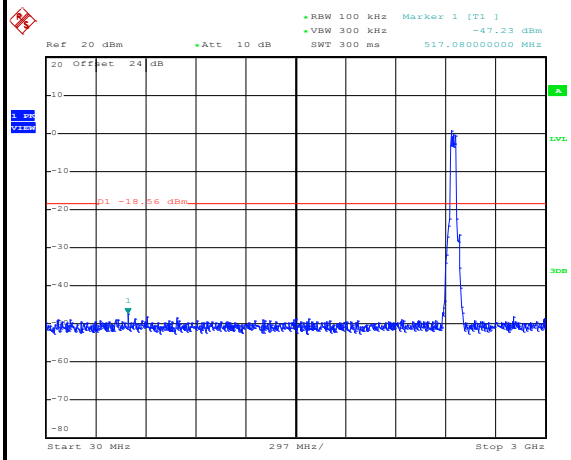
Date: 30.MAR.2017 18:37:31

High Channel Plot



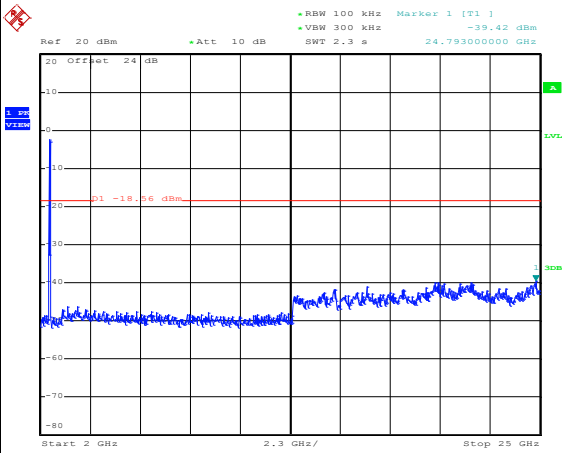
Date: 30.MAR.2017 18:37:42

Spurious Emission 30MHz~3GHz



Date: 30.MAR.2017 18:39:07

Spurious Emission 2GHz~25GHz



Date: 30.MAR.2017 18:39:16

3.5 Radiated Band Edges and Spurious Emission Measurement

3.5.1 Limit of Radiated band edge and Spurious Emission Measurement

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

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

3.5.2 Measuring Instruments

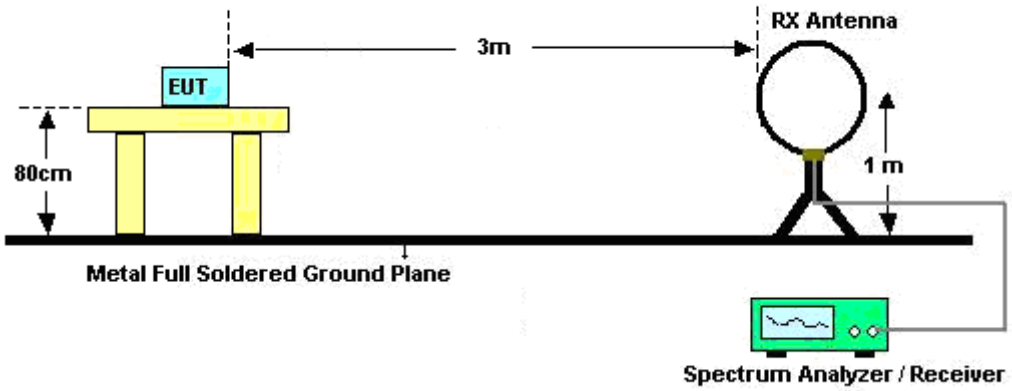
The measuring equipment is listed in the section 4 of this test report.

3.5.3 Test Procedures

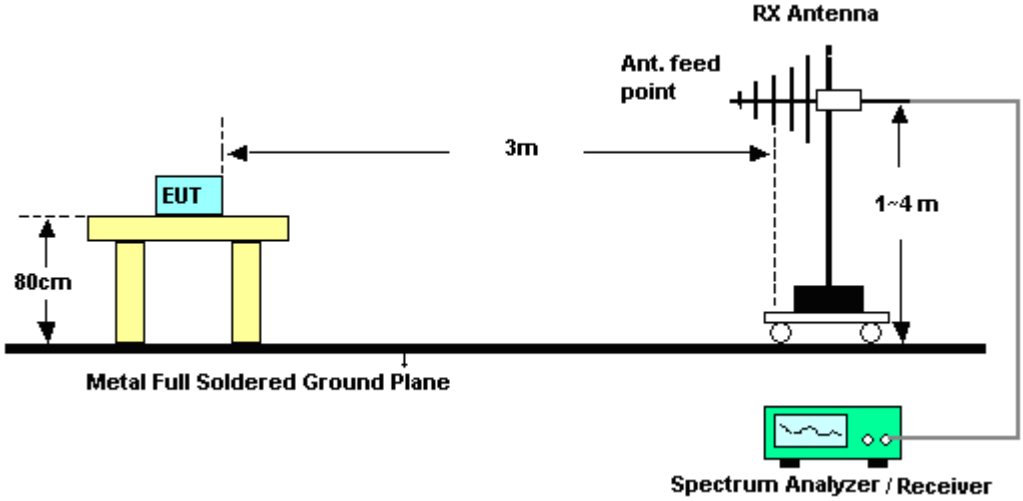
1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v04.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test 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.

3.5.4 Test Setup

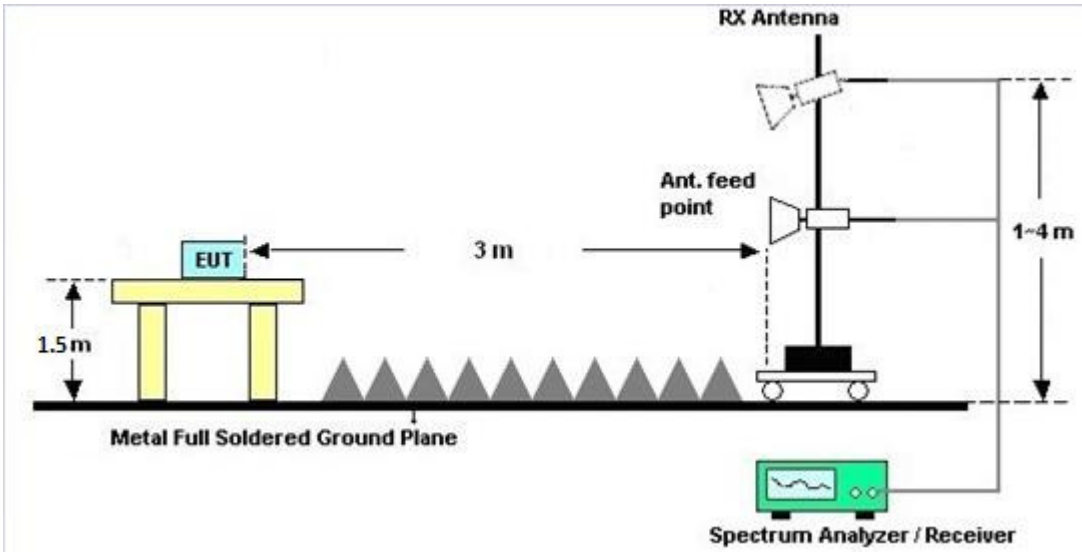
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

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

3.5.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix C and D.

3.5.7 Duty Cycle

Please refer to Appendix E.

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

Please refer to Appendix C and D.

3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

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

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

*Decreases with the logarithm of the frequency.

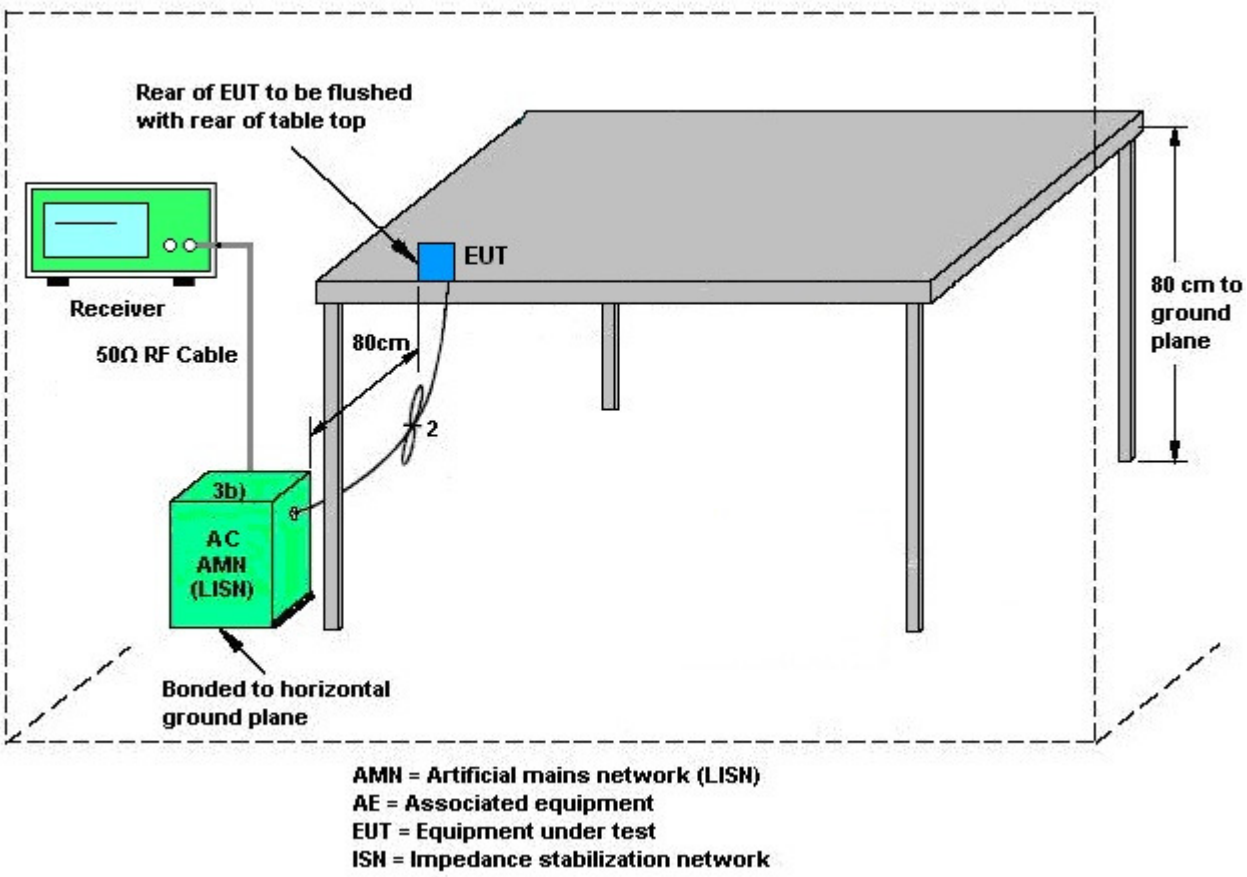
3.6.2 Measuring Instruments

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

3.6.3 Test Procedures

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

3.6.4 Test Setup



3.6.5 Test Result of AC Conducted Emission

Please refer to Appendix B.

3.7 Antenna Requirements

3.7.1 Standard Applicable

If directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. 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.

3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.7.3 Antenna Gain

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

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Power Meter	Anritsu	ML2495A	0932001	300MHz~40GHz	Sep. 29, 2016	Mar. 30, 2017	Sep. 28, 2017	Conducted (TH05-HY)
Power Sensor	Anritsu	MA2411B	0846202	300MHz~40GHz	Sep. 29, 2016	Mar. 30, 2017	Sep. 28, 2017	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100055	9kHz-40GHz	Jul. 17, 2016	Mar. 30, 2017	Jul. 16, 2017	Conducted (TH05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Mar. 30, 2017	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI 7	100724	9kHz~7GHz	Aug. 30, 2016	Mar. 30, 2017	Aug. 29, 2017	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Nov. 29, 2016	Mar. 30, 2017	Nov. 28, 2017	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100081	9kHz~30MHz	Dec. 06, 2016	Mar. 30, 2017	Dec. 05, 2017	Conduction (CO05-HY)
Amplifier	Sonoma-Instrument	310 N	187282	9KHz~1GHz	Dec. 21, 2016	Mar. 21, 2017 ~ Mar. 30, 2017	Dec. 20, 2017	Radiation (03CH13-HY)
Bilog Antenna	TESEQ	CBL 6111D&00800N1D01N-06	40103&04	30MHz to 1GHz	Jan. 07, 2017	Mar. 21, 2017 ~ Mar. 30, 2017	Jan. 06, 2018	Radiation (03CH13-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1241	1GHz ~ 18GHz	Apr. 25, 2016	Mar. 21, 2017 ~ Mar. 30, 2017	Apr. 24, 2017	Radiation (03CH13-HY)
Preamplifier	Keysight	83017A	MY53270147	1GHz~26.5GHz	Jan. 09, 2017	Mar. 21, 2017 ~ Mar. 30, 2017	Jan. 08, 2018	Radiation (03CH13-HY)
Spectrum Analyzer	Keysight	N9010A	MY55370526	N/A	Mar. 15, 2017	Mar. 21, 2017 ~ Mar. 30, 2017	Mar. 14, 2018	Radiation (03CH13-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Mar. 21, 2017 ~ Mar. 30, 2017	N/A	Radiation (03CH13-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Mar. 21, 2017 ~ Mar. 30, 2017	N/A	Radiation (03CH13-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	18GHz- 40GHz	Nov. 08, 2016	Mar. 21, 2017 ~ Mar. 30, 2017	Nov. 07, 2017	Radiation (03CH13-HY)
EMI Test Receiver	Keysight	N9038A(MXE)	MY55420170	N/A	Mar. 03, 2017	Mar. 21, 2017 ~ Mar. 30, 2017	Mar. 02, 2018	Radiation (03CH13-HY)
Preamplifier	MITEQ	AMF-7D-00101800	2025787	1GHZ~18GHZ	Feb. 13, 2017	Mar. 21, 2017 ~ Mar. 30, 2017	Feb. 12, 2018	Radiation (03CH13-HY)
Preamplifier	MITEQ	AMF-7D-00101800-30-10P	1815698	1GHz~18GHz	Dec. 01, 2016	Mar. 21, 2017 ~ Mar. 30, 2017	Nov. 30, 2017	Radiation (03CH13-HY)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.70**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.90**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.40**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.30**

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Derek Hsu	Temperature:	21~25	°C
Test Date:	2017/3/30	Relative Humidity:	51~54	%

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

2.4GHz Band								
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Occupied BW (MHz)	6dB BW (MHz)	6dB BW Limit (MHz)	Pass/Fail
11b	1Mbps	1	1	2412	13.75	8.48	0.50	Pass
11b	1Mbps	1	6	2437	13.70	8.52	0.50	Pass
11b	1Mbps	1	11	2462	13.70	8.56	0.50	Pass
11g	6Mbps	1	1	2412	19.70	16.32	0.50	Pass
11g	6Mbps	1	6	2437	19.10	16.04	0.50	Pass
11g	6Mbps	1	11	2462	19.20	16.32	0.50	Pass
HT20	MCS0	1	1	2412	20.00	16.90	0.50	Pass
HT20	MCS0	1	6	2437	20.40	17.16	0.50	Pass
HT20	MCS0	1	11	2462	19.75	17.30	0.50	Pass
HT40	MCS0	1	3	2422	36.70	35.04	0.50	Pass
HT40	MCS0	1	6	2437	37.50	35.04	0.50	Pass
HT40	MCS0	1	9	2452	37.60	35.52	0.50	Pass

TEST RESULTS DATA
Peak Power Table

2.4GHz Band										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak Conducted Power (dBm)	Conducted Power Limit (dBm)	DG (dBi)	EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
11b	1Mbps	1	1	2412	18.96	30.00	2.00	20.96	36.00	Pass
11b	1Mbps	1	6	2437	19.25	30.00	2.00	21.25	36.00	Pass
11b	1Mbps	1	11	2462	18.66	30.00	2.00	20.66	36.00	Pass
11g	6Mbps	1	1	2412	21.72	30.00	2.00	23.72	36.00	Pass
11g	6Mbps	1	6	2437	22.38	30.00	2.00	24.38	36.00	Pass
11g	6Mbps	1	11	2462	22.35	30.00	2.00	24.35	36.00	Pass
HT20	MCS0	1	1	2412	21.75	30.00	2.00	23.75	36.00	Pass
HT20	MCS0	1	6	2437	22.40	30.00	2.00	24.40	36.00	Pass
HT20	MCS0	1	11	2462	22.13	30.00	2.00	24.13	36.00	Pass
HT40	MCS0	1	3	2422	22.18	30.00	2.00	24.18	36.00	Pass
HT40	MCS0	1	6	2437	22.32	30.00	2.00	24.32	36.00	Pass
HT40	MCS0	1	9	2452	21.78	30.00	2.00	23.78	36.00	Pass

TEST RESULTS DATA
Average Power Table
(Reporting Only)

2.4GHz Band						
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)
11b	1Mbps	1	1	2412	0.00	16.57
11b	1Mbps	1	6	2437	0.00	16.75
11b	1Mbps	1	11	2462	0.00	16.08
11g	6Mbps	1	1	2412	0.05	16.50
11g	6Mbps	1	6	2437	0.05	16.57
11g	6Mbps	1	11	2462	0.05	16.05
HT20	MCS0	1	1	2412	0.05	16.50
HT20	MCS0	1	6	2437	0.05	16.65
HT20	MCS0	1	11	2462	0.05	15.93
HT40	MCS0	1	3	2422	0.11	16.61
HT40	MCS0	1	6	2437	0.11	16.67
HT40	MCS0	1	9	2452	0.11	15.45

TEST RESULTS DATA
Peak Power Density

2.4GHz Band								
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak PSD (dBm /3kHz)	DG (dBi)	Peak PSD Limit (dBm /3kHz)	Pass/Fail
11b	1Mbps	1	1	2412	-4.42	2.00	8.00	Pass
11b	1Mbps	1	6	2437	-5.63	2.00	8.00	Pass
11b	1Mbps	1	11	2462	-5.73	2.00	8.00	Pass
11g	6Mbps	1	1	2412	-8.22	2.00	8.00	Pass
11g	6Mbps	1	6	2437	-8.64	2.00	8.00	Pass
11g	6Mbps	1	11	2462	-7.91	2.00	8.00	Pass
HT20	MCS0	1	1	2412	-9.01	2.00	8.00	Pass
HT20	MCS0	1	6	2437	-7.24	2.00	8.00	Pass
HT20	MCS0	1	11	2462	-9.89	2.00	8.00	Pass
HT40	MCS0	1	3	2422	-11.03	2.00	8.00	Pass
HT40	MCS0	1	6	2437	-9.84	2.00	8.00	Pass
HT40	MCS0	1	9	2452	-13.23	2.00	8.00	Pass

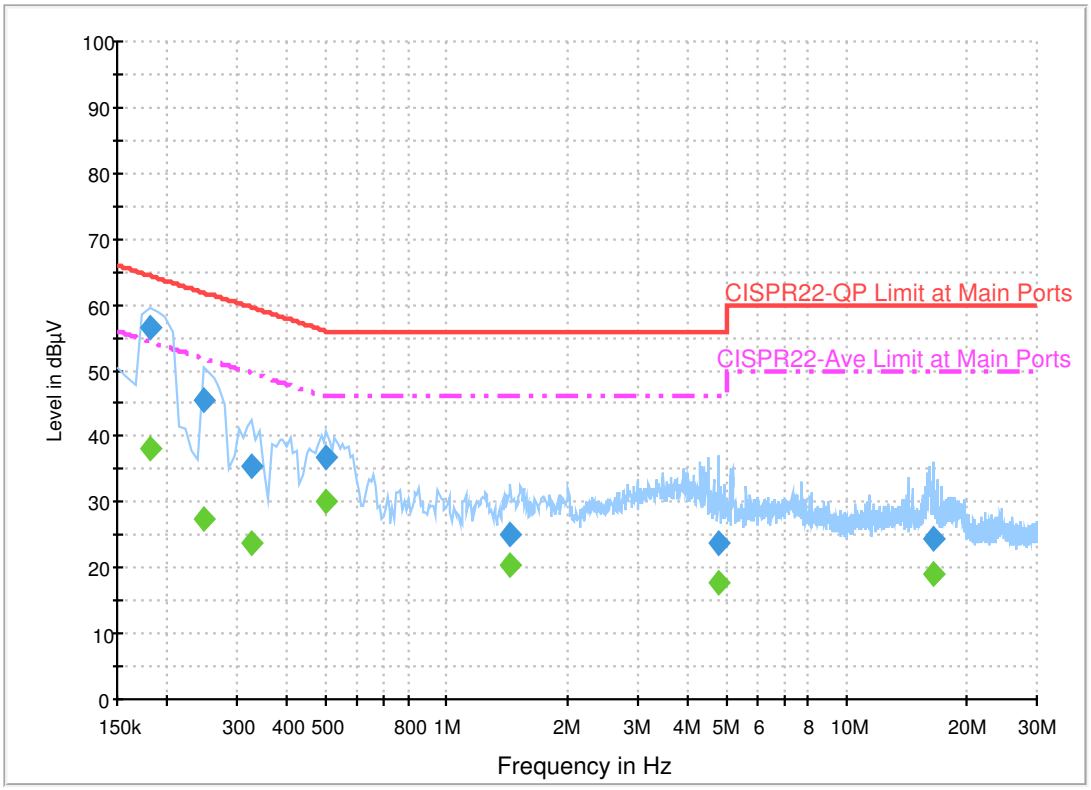
Appendix B. AC Conducted Emission Test Results

Test Engineer :	Kai-Chun Chu	**Temperature :**	21~24℃
		Relative Humidity :	51~53%

EUT Information

Report NO :	W164257
Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Line

ENV216 Auto Test-L



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.182000	56.4	Off	L1	19.5	8.0	64.4
0.246000	45.6	Off	L1	19.5	16.3	61.9
0.326000	35.4	Off	L1	19.5	24.2	59.6
0.502000	36.8	Off	L1	19.5	19.2	56.0
1.446000	25.1	Off	L1	19.5	30.9	56.0
4.782000	23.8	Off	L1	19.6	32.2	56.0
16.526000	24.3	Off	L1	19.7	35.7	60.0

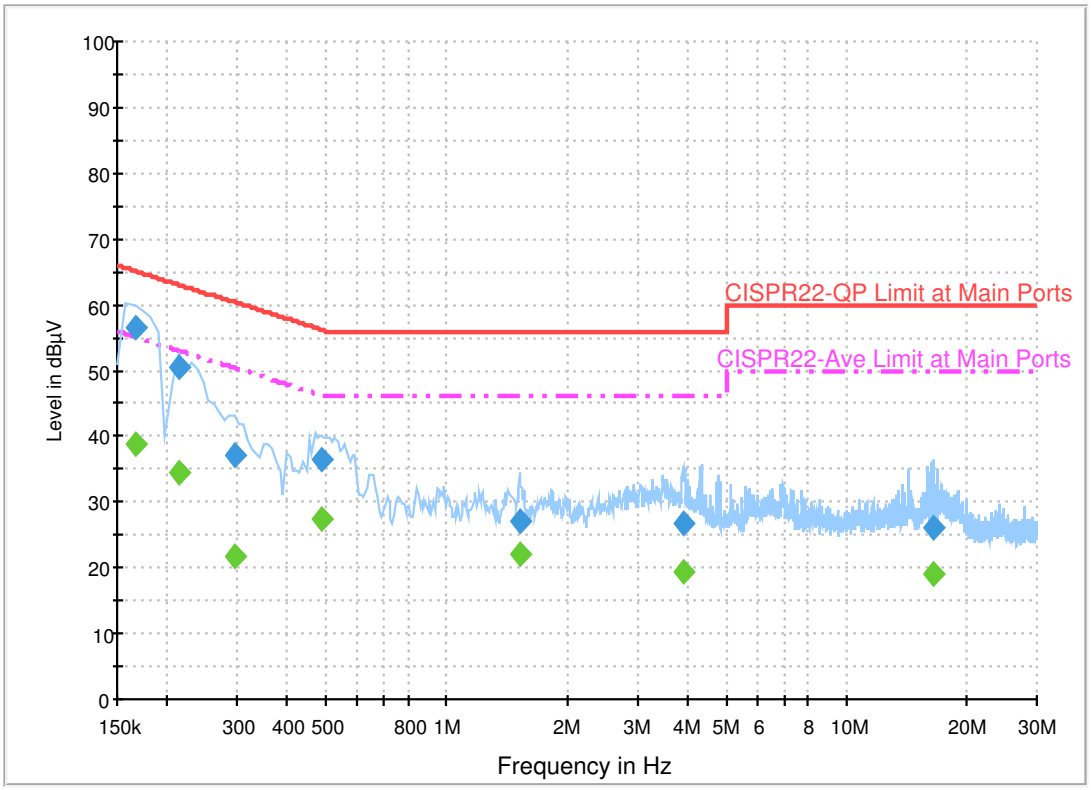
Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.182000	38.3	Off	L1	19.5	16.1	54.4
0.246000	27.5	Off	L1	19.5	24.4	51.9
0.326000	23.6	Off	L1	19.5	26.0	49.6
0.502000	30.2	Off	L1	19.5	15.8	46.0
1.446000	20.5	Off	L1	19.5	25.5	46.0
4.782000	17.7	Off	L1	19.6	28.3	46.0
16.526000	19.1	Off	L1	19.7	30.9	50.0

EUT Information

Report NO :	W164257
Test Mode :	Mode 1
Test Voltage :	Power Form System
Phase :	Neutral

ENV216 Auto Test-N



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.166000	56.4	Off	N	19.5	8.8	65.2
0.214000	50.5	Off	N	19.5	12.5	63.0
0.294000	37.0	Off	N	19.5	23.4	60.4
0.486000	36.4	Off	N	19.5	19.8	56.2
1.526000	27.2	Off	N	19.5	28.8	56.0
3.894000	26.6	Off	N	19.6	29.4	56.0
16.462000	26.0	Off	N	19.8	34.0	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.166000	38.7	Off	N	19.5	16.5	55.2
0.214000	34.4	Off	N	19.5	18.6	53.0
0.294000	21.6	Off	N	19.5	28.8	50.4
0.486000	27.3	Off	N	19.5	18.9	46.2
1.526000	22.2	Off	N	19.5	23.8	46.0
3.894000	19.6	Off	N	19.6	26.4	46.0
16.462000	19.2	Off	N	19.8	30.8	50.0

Appendix C. Radiated Spurious Emission

Test Engineer :	Alex Jeng, Bill Chang, and Wilson Wu	Temperature :	24~25°C
		Relative Humidity :	48~50%

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

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		2383.29	52.43	-21.57	74	49.35	27.11	6.96	30.99	107	12	P	H
		2386.23	41.69	-12.31	54	38.55	27.15	6.98	30.99	107	12	A	H
	*	2412	95.77	-	-	92.57	27.19	7	30.99	107	12	P	H
	*	2412	92.55	-	-	89.35	27.19	7	30.99	107	12	A	H
													H
													H
		2370.375	52.32	-21.68	74	49.24	27.11	6.96	30.99	171	358	P	V
		2385.6	41.33	-12.67	54	38.19	27.15	6.98	30.99	171	358	A	V
	*	2412	84.16	-	-	80.96	27.19	7	30.99	171	358	P	V
	*	2412	80.88	-	-	77.68	27.19	7	30.99	171	358	A	V
													V
													V
802.11b CH 06 2437MHz		2365.3	53.19	-20.81	74	50.18	27.07	6.93	30.99	106	11	P	H
		2383.78	41.41	-12.59	54	38.33	27.11	6.96	30.99	106	11	A	H
	*	2437	99.93	-	-	96.6	27.28	7.03	30.98	106	11	P	H
	*	2437	96.95	-	-	93.62	27.28	7.03	30.98	106	11	A	H
		2485.79	52.4	-21.6	74	48.94	27.36	7.07	30.97	106	11	P	H
		2492.37	42.03	-11.97	54	38.5	27.4	7.09	30.96	106	11	A	H
		2349.06	52.53	-21.47	74	49.59	27.03	6.91	31	243	19	P	V
		2379.02	41.31	-12.69	54	38.23	27.11	6.96	30.99	243	19	A	V
	*	2438	89.73	-	-	86.39	27.28	7.03	30.97	243	19	P	V
	*	2438	86.75	-	-	83.41	27.28	7.03	30.97	243	19	A	V
		2497.83	52.35	-21.65	74	48.82	27.4	7.09	30.96	243	19	P	V
		2494.05	41.7	-12.3	54	38.17	27.4	7.09	30.96	243	19	A	V

802.11b CH 11 2462MHz	*	2462	97.85	-	-	94.45	27.32	7.05	30.97	153	9	P	H
	*	2462	94.65	-	-	91.25	27.32	7.05	30.97	153	9	A	H
		2487.08	53.11	-20.89	74	49.65	27.36	7.07	30.97	153	9	P	H
		2487.6	43.72	-10.28	54	40.19	27.4	7.09	30.96	153	9	A	H
													H
													H
	*	2462	88.81	-	-	85.41	27.32	7.05	30.97	212	8	P	V
	*	2462	85.53	-	-	82.13	27.32	7.05	30.97	212	8	A	V
		2497.32	52.79	-21.21	74	49.26	27.4	7.09	30.96	212	8	P	V
		2487.8	42.03	-11.97	54	38.5	27.4	7.09	30.96	212	8	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	53.33	-20.67	74	70.35	31.22	10.07	58.31	232	349	P	H
		4824	52.04	-1.96	54	69.06	31.22	10.07	58.31	232	349	A	H
													H
													H
		4824	52.47	-21.53	74	69.49	31.22	10.07	58.31	290	31	P	V
		4824	51.08	-2.92	54	68.1	31.22	10.07	58.31	290	31	A	V
													V
													V
802.11b CH 06 2437MHz		4874	48.08	-25.92	74	64.9	31.31	10.11	58.24	260	345	P	H
		4874	45.52	-8.48	54	62.34	31.31	10.11	58.24	260	345	A	H
		7311	44.34	-29.66	74	54.63	36.27	12.53	59.09	100	0	P	H
													H
		4874	43.59	-30.41	74	60.41	31.31	10.11	58.24	100	0	P	V
		7311	45.05	-28.95	74	55.34	36.27	12.53	59.09	100	0	P	V
													V
													V
802.11b CH 11 2462MHz		4924	45.91	-28.09	74	62.56	31.39	10.14	58.18	100	0	P	H
		7386	45.22	-28.78	74	55.12	36.51	12.73	59.14	100	0	P	H
		9848	51.47	-22.53	74	55.8	38.88	14.78	57.99	100	0	P	H
													H
		4924	45.49	-28.51	74	62.14	31.39	10.14	58.18	100	0	P	V
		7386	45.48	-28.52	74	55.38	36.51	12.73	59.14	100	0	P	V
		9848	49.09	-24.91	74	53.42	38.88	14.78	57.99	100	0	P	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11g (Band Edge @ 3m)

WIFI Ant. 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		2390	65.34	-8.66	74	62.2	27.15	6.98	30.99	159	9	P	H
		2390	50.6	-3.4	54	47.46	27.15	6.98	30.99	159	9	A	H
	*	2412	97.81	-	-	94.61	27.19	7	30.99	159	9	P	H
	*	2412	89.96	-	-	86.76	27.19	7	30.99	159	9	A	H
													H
													H
		2389.8	53.26	-20.74	74	50.12	27.15	6.98	30.99	100	34	P	V
		2390	43.14	-10.86	54	40	27.15	6.98	30.99	100	34	A	V
	*	2412	85.59	-	-	82.39	27.19	7	30.99	100	34	P	V
	*	2412	77.96	-	-	74.76	27.19	7	30.99	100	34	A	V
													V
													V
802.11g CH 06 2437MHz		2374.12	53.89	-20.11	74	50.81	27.11	6.96	30.99	159	10	P	H
		2384.76	41.82	-12.18	54	38.74	27.11	6.96	30.99	159	10	A	H
	*	2437	101.33	-	-	98	27.28	7.03	30.98	159	10	P	H
	*	2437	93.87	-	-	90.54	27.28	7.03	30.98	159	10	A	H
		2489.43	53.1	-20.9	74	49.57	27.4	7.09	30.96	159	10	P	H
		2489.36	43.24	-10.76	54	39.71	27.4	7.09	30.96	159	10	A	H
		2316.44	52.74	-21.26	74	49.95	26.94	6.86	31.01	244	18	P	V
		2385.04	41.37	-12.63	54	38.29	27.11	6.96	30.99	244	18	A	V
	*	2437	90.21	-	-	86.88	27.28	7.03	30.98	244	18	P	V
	*	2437	82.61	-	-	79.28	27.28	7.03	30.98	244	18	A	V
		2488.52	52.27	-21.73	74	48.74	27.4	7.09	30.96	244	18	P	V
		2489.29	41.92	-12.08	54	38.39	27.4	7.09	30.96	244	18	A	V

802.11g CH 11 2462MHz	*	2462	100.03	-	-	96.63	27.32	7.05	30.97	153	8	P	H
	*	2462	92.27	-	-	88.87	27.32	7.05	30.97	153	8	A	H
		2483.56	66.25	-7.75	74	62.79	27.36	7.07	30.97	153	8	P	H
		2483.52	51.32	-2.68	54	47.86	27.36	7.07	30.97	153	8	A	H
													H
													H
	*	2462	89.25	-	-	85.85	27.32	7.05	30.97	107	9	P	V
	*	2462	81.56	-	-	78.16	27.32	7.05	30.97	107	9	A	V
		2484.4	56.05	-17.95	74	52.59	27.36	7.07	30.97	107	9	P	V
		2483.52	43.6	-10.4	54	40.14	27.36	7.07	30.97	107	9	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	48.7	-25.3	74	65.72	31.22	10.07	58.31	231	45	P	H
		4824	40.02	-13.98	54	57.04	31.22	10.07	58.31	231	45	A	H
													H
													H
		4824	48.18	-25.82	74	65.2	31.22	10.07	58.31	290	30	P	V
		4824	39.66	-14.34	54	56.68	31.22	10.07	58.31	290	30	A	V
													V
													V
802.11g CH 06 2437MHz		4874	45.49	-28.51	74	62.31	31.31	10.11	58.24	100	31	P	H
		7311	45.58	-28.42	74	55.87	36.27	12.53	59.09	100	0	P	H
													H
													H
		4874	42.75	-31.25	74	59.57	31.31	10.11	58.24	100	0	P	V
		7311	43.69	-30.31	74	53.98	36.27	12.53	59.09	100	0	P	V
													V
													V
802.11g CH 11 2462MHz		4924	43.21	-30.79	74	59.86	31.39	10.14	58.18	100	0	P	H
		7386	44.84	-29.16	74	54.74	36.51	12.73	59.14	100	0	P	H
		9848	49.5	-24.5	74	53.83	38.88	14.78	57.99	100	0	P	H
													H
		4924	40.92	-33.08	74	57.57	31.39	10.14	58.18	100	0	P	V
		7386	44.45	-29.55	74	54.35	36.51	12.73	59.14	100	0	P	V
		9848	48.16	-25.84	74	52.49	38.88	14.78	57.99	100	0	P	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11n 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)
		2389.8	68.89	-5.11	74	65.75	27.15	6.98	30.99	186	10	P	H
		2390	52.58	-1.42	54	49.44	27.15	6.98	30.99	186	10	A	H
	*	2412	97.76	-	-	94.56	27.19	7	30.99	186	10	P	H
	*	2412	89.73	-	-	86.53	27.19	7	30.99	186	10	A	H
802.11n													H
HT20													H
CH 01		2389.8	57.18	-16.82	74	54.04	27.15	6.98	30.99	116	32	P	V
2412MHz		2390	44.43	-9.57	54	41.29	27.15	6.98	30.99	116	32	A	V
	*	2412	85.32	-	-	82.12	27.19	7	30.99	116	32	P	V
	*	2412	77.72	-	-	74.52	27.19	7	30.99	116	32	A	V
													V
													V
		2381.82	53.19	-20.81	74	50.11	27.11	6.96	30.99	181	10	P	H
		2385.32	41.97	-12.03	54	38.89	27.11	6.96	30.99	181	10	A	H
	*	2437	102.18	-	-	98.85	27.28	7.03	30.98	181	10	P	H
	*	2437	94.16	-	-	90.83	27.28	7.03	30.98	181	10	A	H
802.11n		2483.69	53.74	-20.26	74	50.28	27.36	7.07	30.97	181	10	P	H
HT20		2488.66	43.75	-10.25	54	40.22	27.4	7.09	30.96	181	10	A	H
CH 06		2330.3	51.94	-22.06	74	49.07	26.99	6.89	31.01	137	31	P	V
2437MHz		2385.6	41.42	-12.58	54	38.28	27.15	6.98	30.99	137	31	A	V
	*	2437	89.78	-	-	86.45	27.28	7.03	30.98	137	31	P	V
	*	2437	82.21	-	-	78.88	27.28	7.03	30.98	137	31	A	V
		2487.61	52.89	-21.11	74	49.36	27.4	7.09	30.96	137	31	P	V
		2488.66	41.92	-12.08	54	38.39	27.4	7.09	30.96	137	31	A	V

	*	2462	99.64	-	-	96.24	27.32	7.05	30.97	129	12	P	H
	*	2462	91.88	-	-	88.48	27.32	7.05	30.97	129	12	A	H
		2483.68	67.26	-6.74	74	63.8	27.36	7.07	30.97	129	12	P	H
		2483.52	53.52	-0.48	54	50.06	27.36	7.07	30.97	129	12	A	H
802.11n													H
HT20													H
CH 11	*	2462	88.85	-	-	85.45	27.32	7.05	30.97	186	10	P	V
2462MHz	*	2462	80.99	-	-	77.59	27.32	7.05	30.97	186	10	A	V
		2483.72	58.77	-15.23	74	55.31	27.36	7.07	30.97	186	10	P	V
		2483.52	45.01	-8.99	54	41.55	27.36	7.07	30.97	186	10	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)
		4824	49.61	-24.39	74	66.63	31.22	10.07	58.31	232	347	P	H
		4824	40.44	-13.56	54	57.46	31.22	10.07	58.31	232	347	A	H
802.11n													H
HT20													H
CH 01		4824	48.97	-25.03	74	65.99	31.22	10.07	58.31	274	21	P	V
2412MHz		4824	39.35	-14.65	54	56.37	31.22	10.07	58.31	274	21	A	V
													V
													V
		4874	46.32	-27.68	74	63.14	31.31	10.11	58.24	173	330	P	H
		7311	44.58	-29.42	74	54.87	36.27	12.53	59.09	100	0	P	H
802.11n													H
HT20													H
CH 06		4874	43.26	-30.74	74	60.08	31.31	10.11	58.24	100	0	P	V
2437MHz		7311	43.33	-30.67	74	53.62	36.27	12.53	59.09	100	0	P	V
													V
													V
		4924	42.1	-31.9	74	58.75	31.39	10.14	58.18	100	0	P	H
		7386	45.81	-28.19	74	55.71	36.51	12.73	59.14	100	0	P	H
802.11n		9848	50.96	-23.04	74	55.29	38.88	14.78	57.99	100	0	P	H
HT20													H
CH 11		4924	40.27	-33.73	74	56.92	31.39	10.14	58.18	100	0	P	V
2462MHz		7386	43.1	-30.9	74	53	36.51	12.73	59.14	100	0	P	V
		9848	47.13	-26.87	74	51.46	38.88	14.78	57.99	100	0	P	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11n 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)
		2389.66	64.67	-9.33	74	61.53	27.15	6.98	30.99	158	9	P	H
		2389.94	53.13	-0.87	54	49.99	27.15	6.98	30.99	158	9	A	H
	*	2422	96.87	-	-	93.6	27.23	7.02	30.98	158	9	P	H
	*	2422	89.44	-	-	86.17	27.23	7.02	30.98	158	9	A	H
802.11n		2485.02	53.03	-20.97	74	49.57	27.36	7.07	30.97	158	9	P	H
HT40		2483.55	42.49	-11.51	54	39.03	27.36	7.07	30.97	158	9	A	H
CH 03		2387.7	54.63	-19.37	74	51.49	27.15	6.98	30.99	137	30	P	V
2422MHz		2389.8	43.94	-10.06	54	40.8	27.15	6.98	30.99	137	30	A	V
	*	2422	85.65	-	-	82.38	27.23	7.02	30.98	137	30	P	V
	*	2422	77.79	-	-	74.52	27.23	7.02	30.98	137	30	A	V
		2485.16	52.17	-21.83	74	48.71	27.36	7.07	30.97	137	30	P	V
		2494.61	41.71	-12.29	54	38.18	27.4	7.09	30.96	137	30	A	V
		2388.96	57.1	-16.9	74	53.96	27.15	6.98	30.99	210	8	P	H
		2389.94	44.07	-9.93	54	40.93	27.15	6.98	30.99	210	8	A	H
	*	2437	99.51	-	-	96.18	27.28	7.03	30.98	210	8	P	H
	*	2437	90.91	-	-	87.58	27.28	7.03	30.98	210	8	A	H
802.11n		2483.55	61.37	-12.63	74	57.91	27.36	7.07	30.97	210	8	P	H
HT40		2483.5	48.67	-5.33	54	45.21	27.36	7.07	30.97	210	8	A	H
CH 06		2372.3	52.33	-21.67	74	49.25	27.11	6.96	30.99	116	34	P	V
2437MHz		2389.94	41.77	-12.23	54	38.63	27.15	6.98	30.99	116	34	A	V
	*	2437	87.92	-	-	84.59	27.28	7.03	30.98	116	34	P	V
	*	2437	79.78	-	-	76.45	27.28	7.03	30.98	116	34	A	V
		2483.62	54.02	-19.98	74	50.56	27.36	7.07	30.97	116	34	P	V
		2483.5	43.07	-10.93	54	39.61	27.36	7.07	30.97	116	34	A	V

802.11n HT40 CH 09 2452MHz		2358.86	51.81	-22.19	74	48.81	27.07	6.93	31	180	9	P	H
		2389.8	41.6	-12.4	54	38.46	27.15	6.98	30.99	180	9	A	H
	*	2452	97.12	-	-	93.78	27.28	7.03	30.97	180	9	P	H
	*	2452	89.45	-	-	86.11	27.28	7.03	30.97	180	9	A	H
		2483.9	66.36	-7.64	74	62.9	27.36	7.07	30.97	180	9	P	H
		2483.5	53.06	-0.94	54	49.6	27.36	7.07	30.97	180	9	A	H
		2337.16	52.76	-21.24	74	49.83	27.03	6.91	31.01	139	14	P	V
		2388.68	41.41	-12.59	54	38.27	27.15	6.98	30.99	139	14	A	V
	*	2452	87.4	-	-	84.06	27.28	7.03	30.97	139	14	P	V
	*	2452	79.68	-	-	76.34	27.28	7.03	30.97	139	14	A	V
		2484.18	58.68	-15.32	74	55.22	27.36	7.07	30.97	139	14	P	V
		2483.5	46.1	-7.9	54	42.64	27.36	7.07	30.97	139	14	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)
		4844	42.92	-31.08	74	59.88	31.25	10.08	58.29	265	2	P	H
		4844	31.43	-22.57	54	48.39	31.25	10.08	58.29	265	2	A	H
802.11n		7266	42.27	-31.73	74	52.71	36.17	12.46	59.07	100	0	P	H
HT40													H
CH 03		4844	43.71	-30.29	74	60.67	31.25	10.08	58.29	256	21	P	V
2422MHz		4844	34.46	-19.54	54	51.42	31.25	10.08	58.29	256	21	A	V
		7266	41.34	-32.66	74	51.78	36.17	12.46	59.07	100	0	P	V
													V
		4874	44.03	-29.97	74	60.85	31.31	10.11	58.24	100	0	P	H
		7311	43	-31	74	53.29	36.27	12.53	59.09	100	0	P	H
802.11n													H
HT40													H
CH 06		4874	41.37	-32.63	74	58.19	31.31	10.11	58.24	100	0	P	V
2437MHz		7311	42.86	-31.14	74	53.15	36.27	12.53	59.09	100	0	P	V
													V
													V
		4904	42.33	-31.67	74	59.04	31.36	10.13	58.2	100	0	P	H
		7356	43.93	-30.07	74	53.99	36.41	12.65	59.12	100	0	P	H
802.11n													H
HT40													H
CH 09		4904	37.78	-36.22	74	54.49	31.36	10.13	58.2	100	0	P	V
2452MHz		7356	43.63	-30.37	74	53.69	36.41	12.65	59.12	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

Emission below 1GHz

2.4GHz WIFI 802.11n HT40 (LF)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
		105.7	35.94	-7.56	43.5	53.03	14.14	1.06	32.29	100	44	QP	H
		105.7	40.82	-2.68	43.5	57.91	14.14	1.06	32.29	100	44	P	H
		209.52	34.79	-8.71	43.5	53.92	11.58	1.55	32.26	100	113	QP	H
		209.52	42.29	-1.21	43.5	61.42	11.58	1.55	32.26	100	113	P	H
		228.04	36.77	-9.23	46	54.83	12.55	1.62	32.23	100	113	QP	H
		228.04	43.49	-2.51	46	61.55	12.55	1.62	32.23	100	113	P	H
		343.4	37.55	-8.45	46	50.68	17.03	1.98	32.14	-	-	P	H
		475	29.14	-16.86	46	38.65	20.26	2.42	32.19	-	-	P	H
		951.7	30.5	-15.5	46	30.07	28.02	3.45	31.04	-	-	P	H
													H
2.4GHz													H
802.11n													H
HT40		53.76	34.45	-5.55	40	55.61	10.36	0.8	32.32	100	0	P	V
LF		106.68	37.66	-5.84	43.5	54.64	14.24	1.07	32.29	-	-	P	V
		191.19	33.41	-10.09	43.5	52.63	11.58	1.47	32.27	-	-	P	V
		346.2	33.13	-12.87	46	46.2	17.08	1.99	32.14	-	-	P	V
		561.1	28.81	-17.19	46	35.54	22.78	2.7	32.21	-	-	P	V
		729.1	29.04	-16.96	46	33.48	24.61	3.07	32.12	-	-	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 D. Radiated Spurious Emission Plots

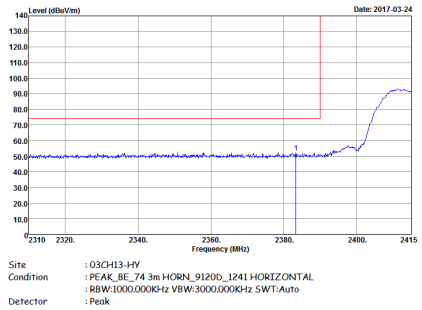
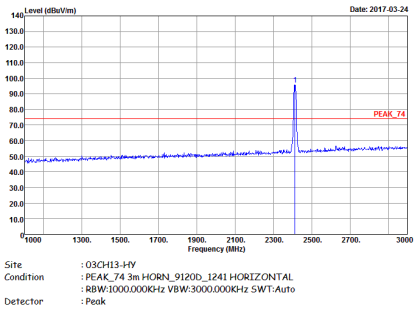
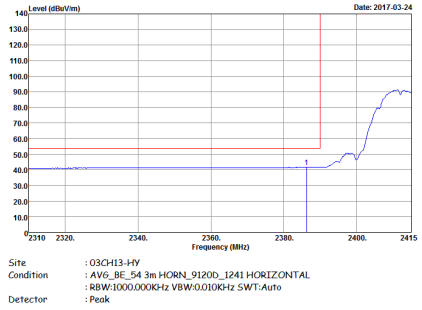
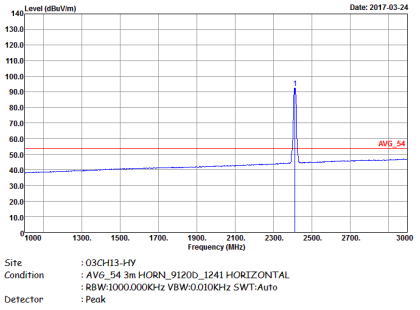
Test Engineer :	Alex Jeng, Bill Chang, and Wilson Wu	**Temperature :**	24~25°C
		Relative Humidity :	48~50%

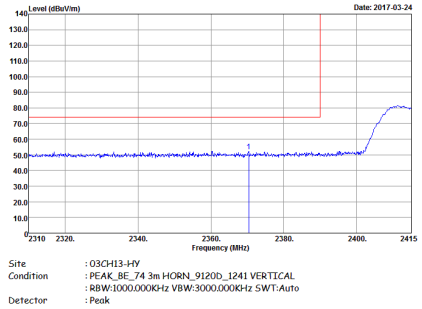
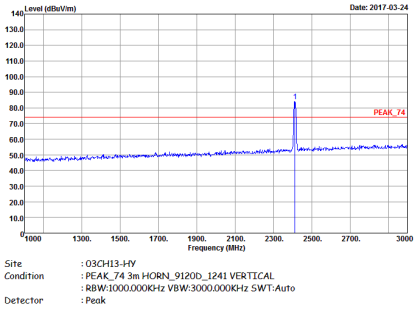
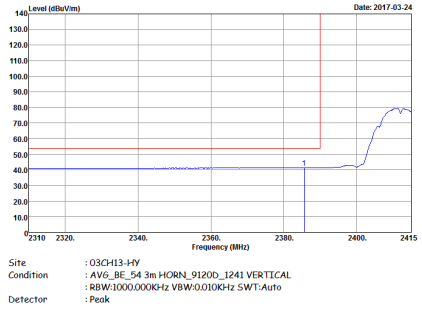
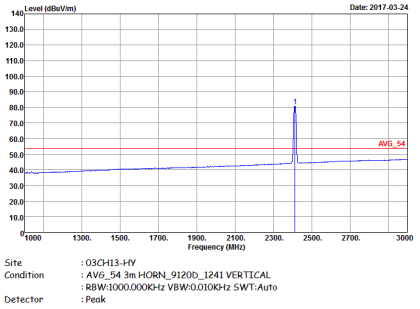
Note symbol

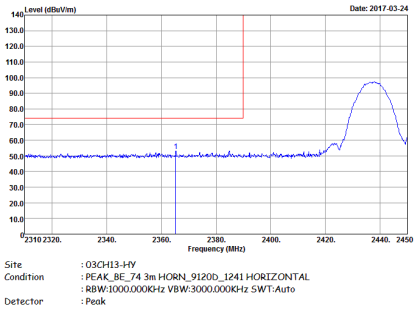
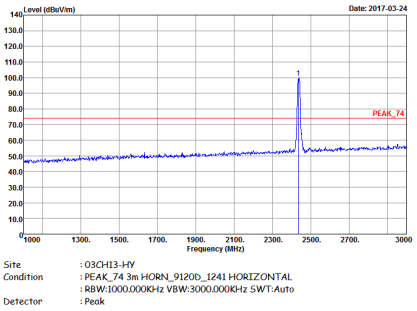
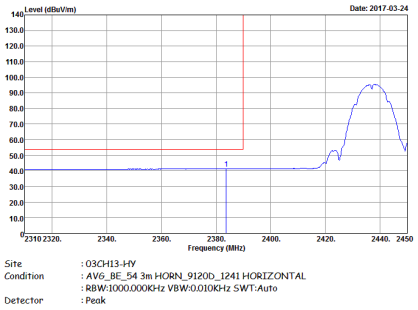
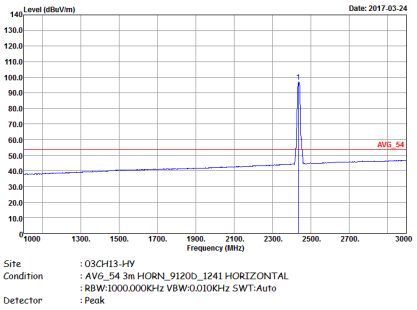
-L	**Low channel location**
-R	**High channel location**

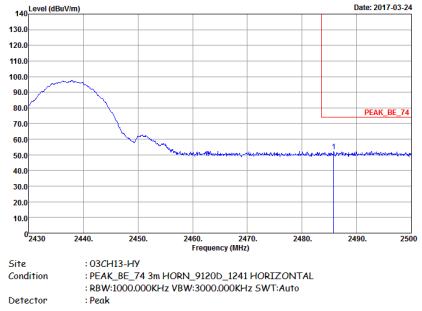
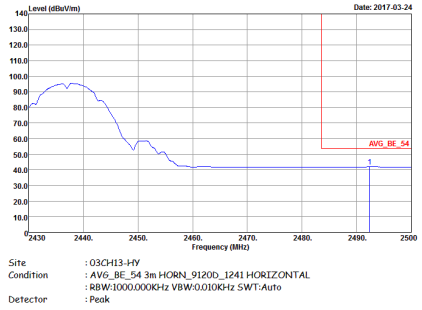
2.4GHz 2400~2483.5MHz

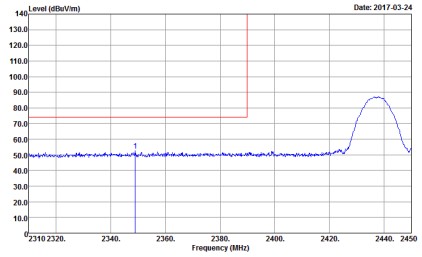
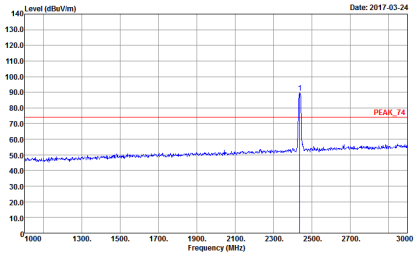
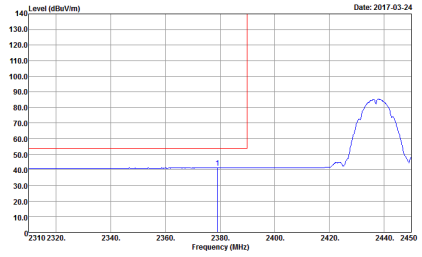
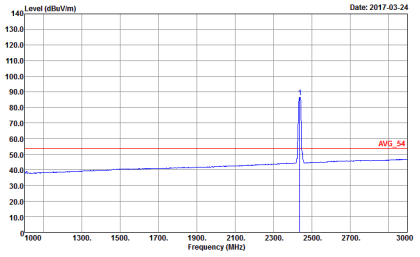
WIFI 802.11b (Band Edge @ 3m)

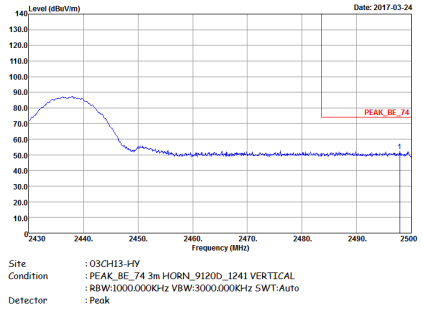
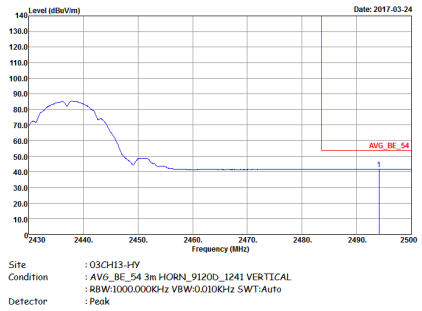
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

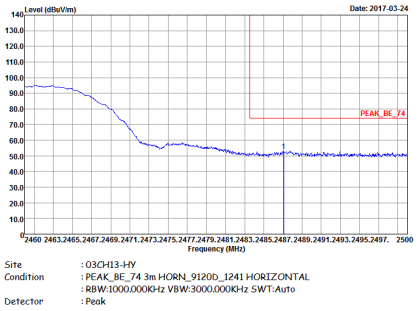
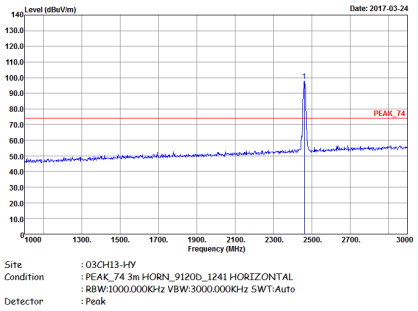
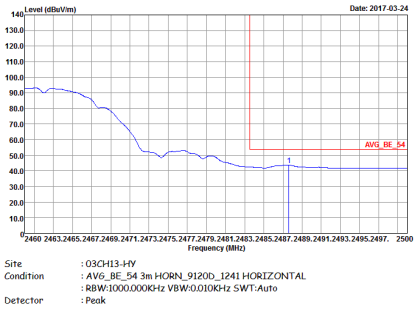
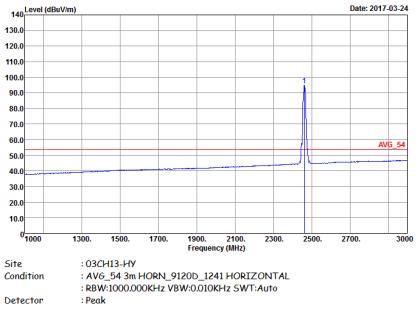
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
1	Vertical	Fundamental
Peak		
Avg.		

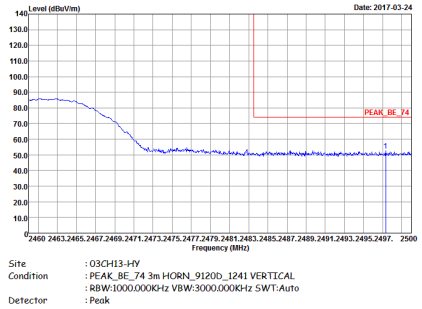
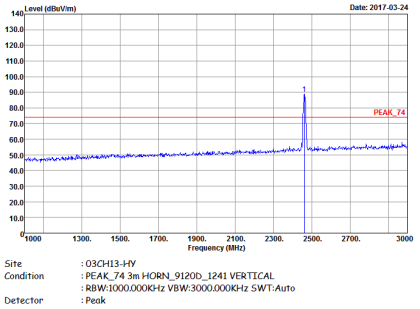
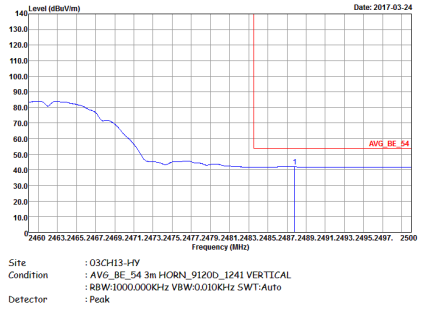
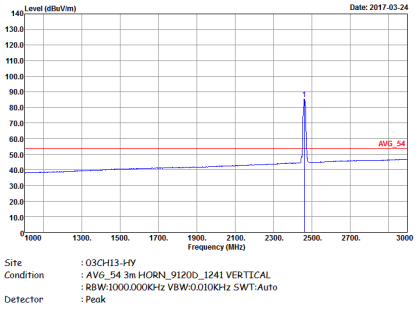
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak	 Site : 03CH13-HY Condition : AVG_54 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak

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 : 03CH13-HY Condition : PEAK_BE_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak	 Site : 03CH13-HY Condition : AVG_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak

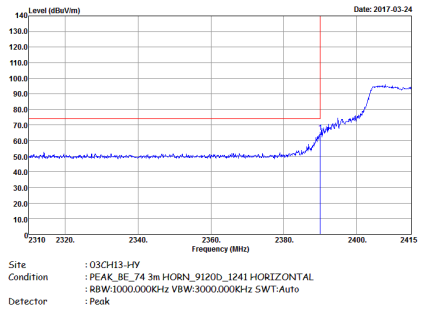
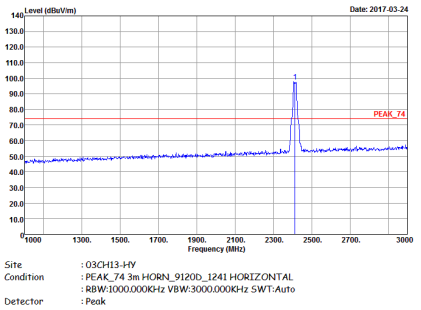
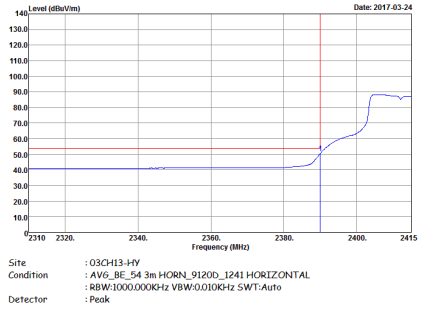
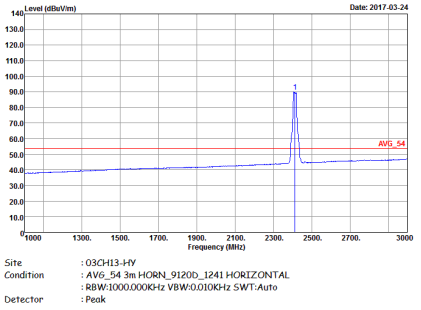
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

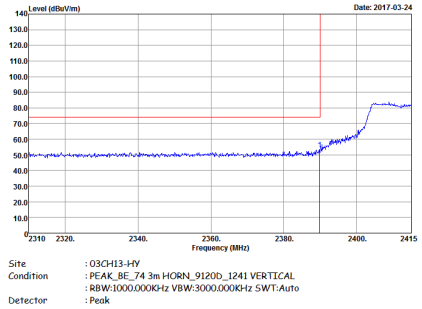
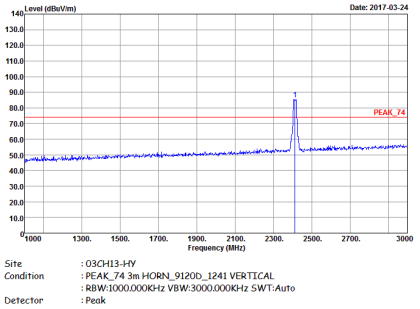
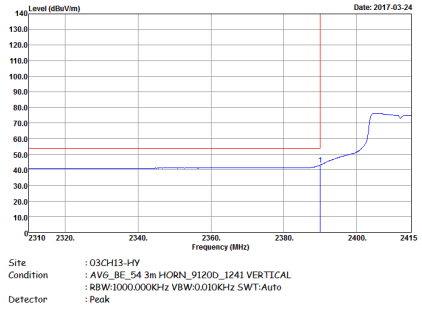
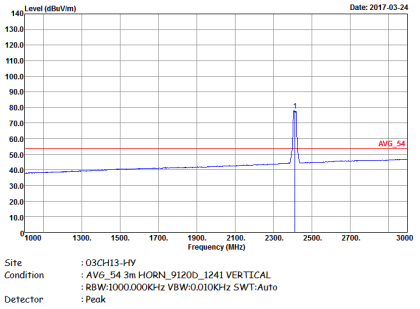
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

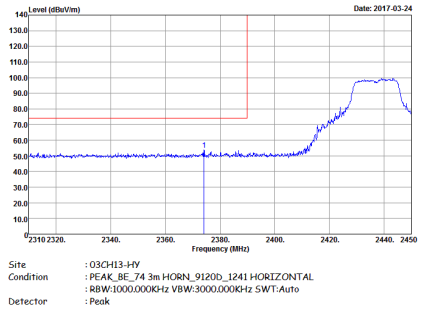
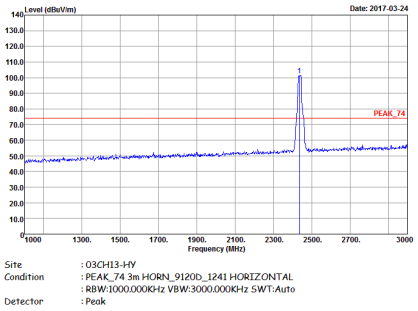
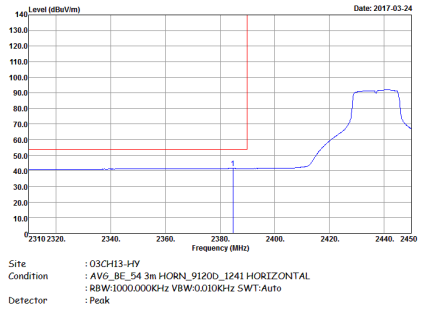
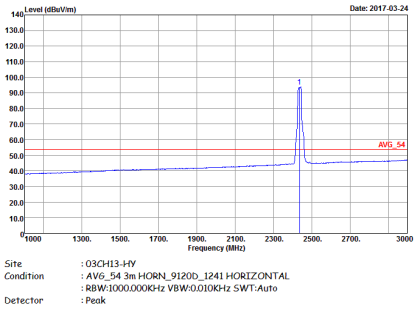
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak	 Site : 03CH13-HY Condition : AVG_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak

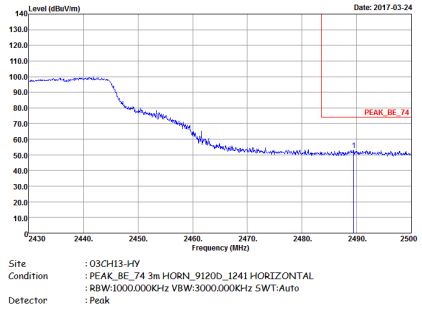
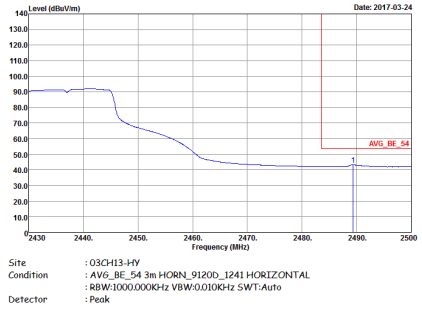
2.4GHz 2400~2483.5MHz

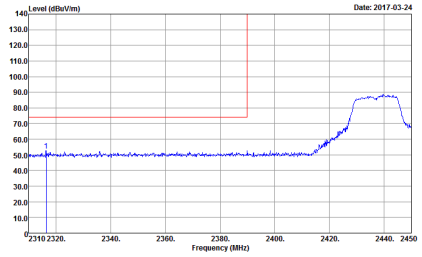
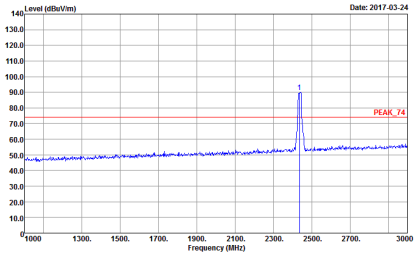
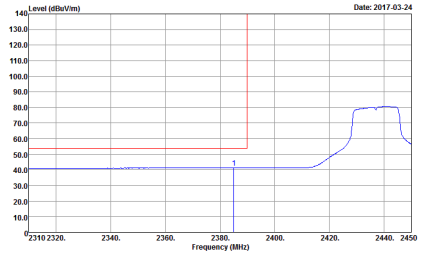
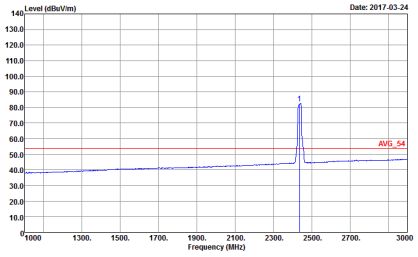
WIFI 802.11g (Band Edge @ 3m)

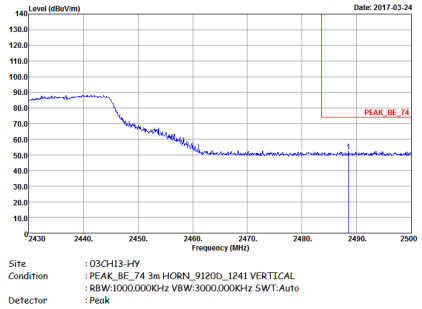
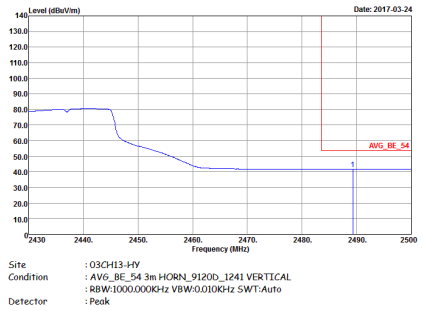
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

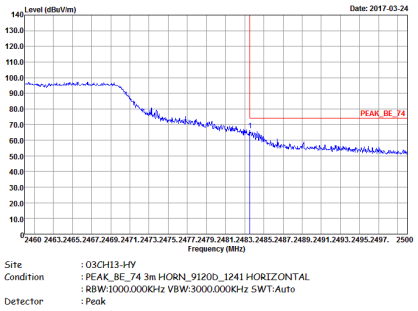
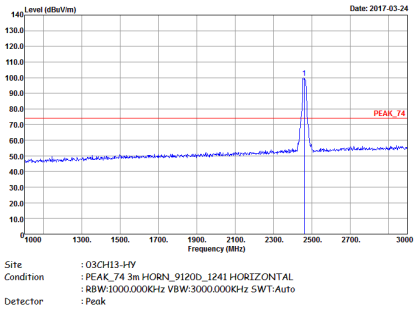
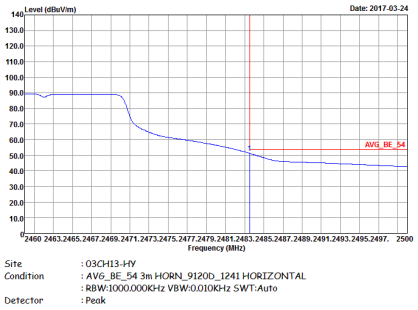
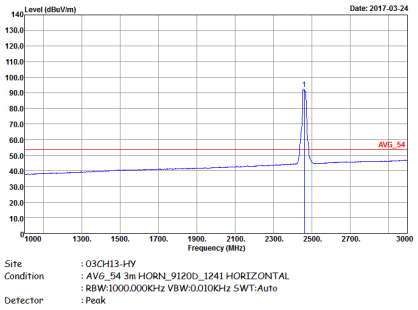
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
1	Vertical	Fundamental
Peak		
Avg.		

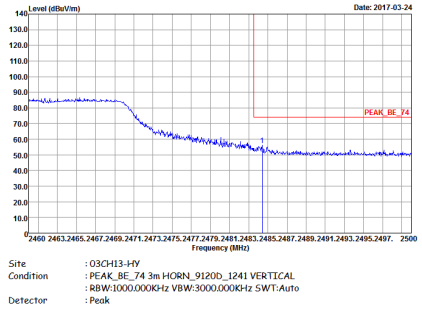
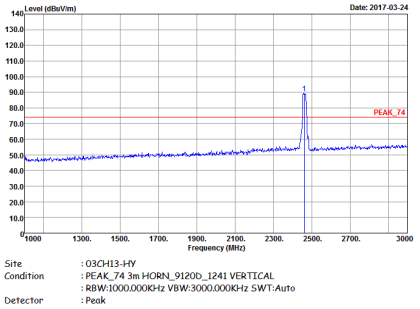
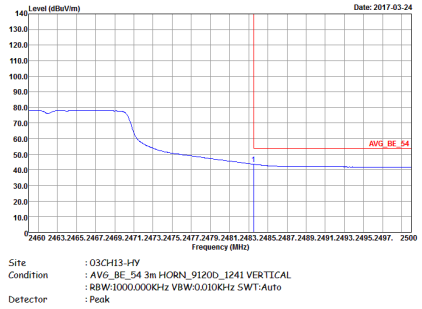
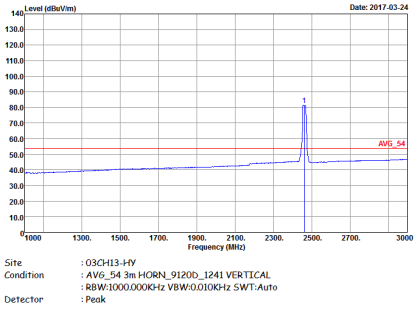
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		

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	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH13-HY Condition : AV6_BE_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak	 Site : 03CH13-HY Condition : AV6_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak

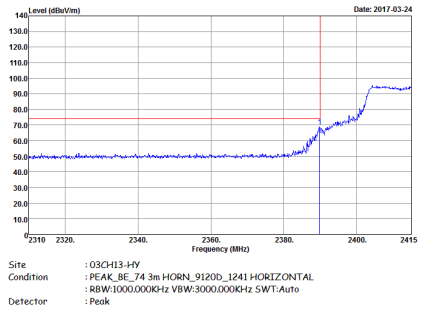
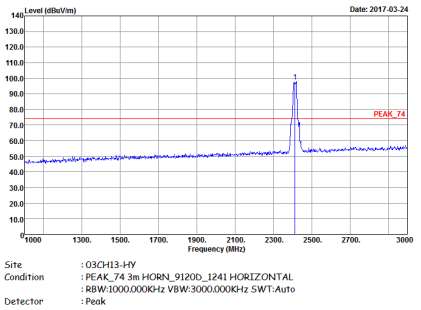
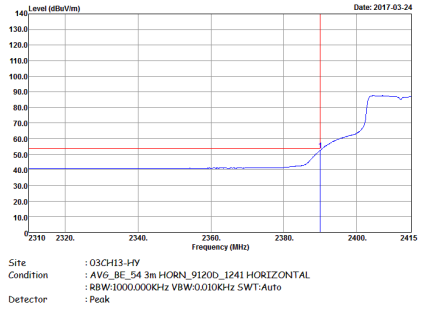
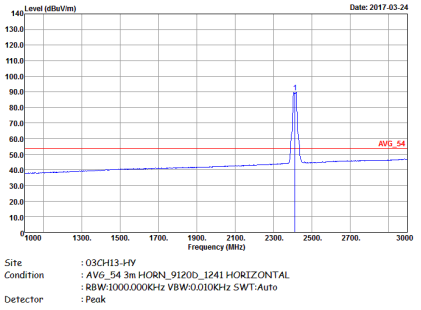
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - R	
1	Vertical	Fundamental
Peak		Left Blank
Avg.		Left Blank

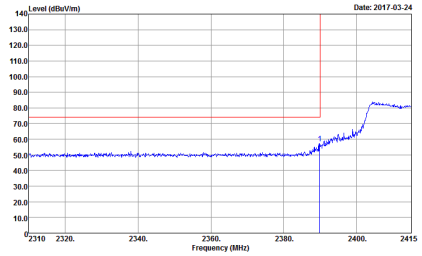
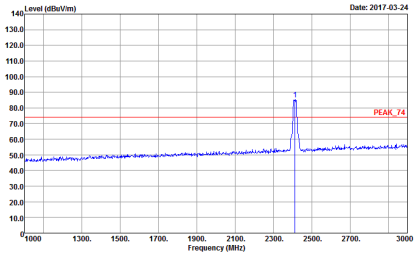
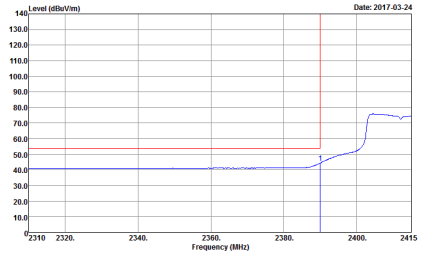
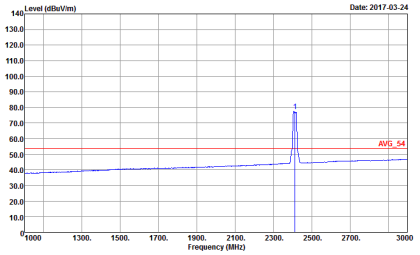
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

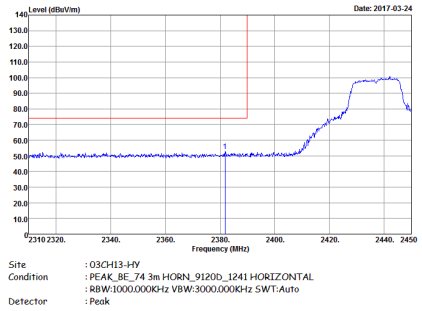
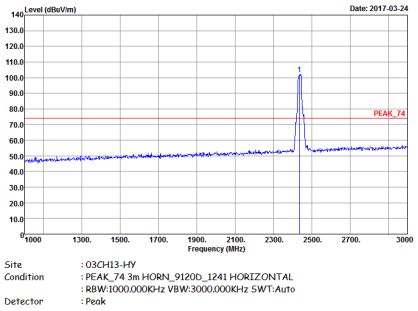
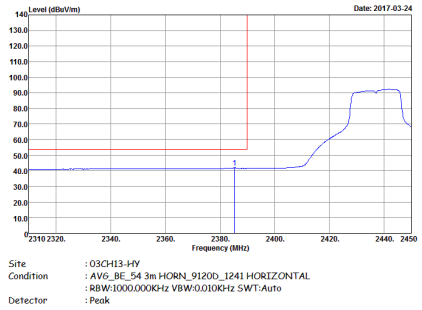
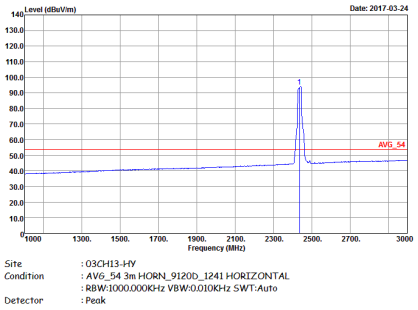
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak	 Site : 03CH13-HY Condition : AVG_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak

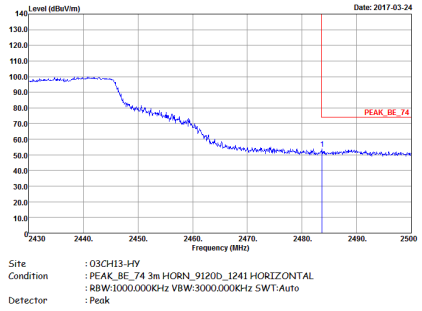
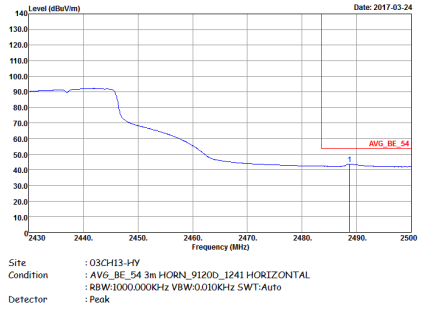
2.4GHz 2400~2483.5MHz

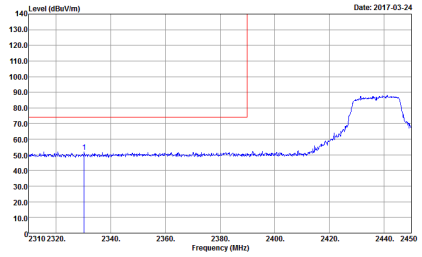
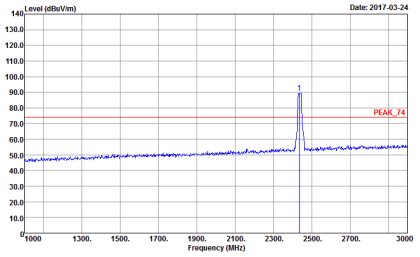
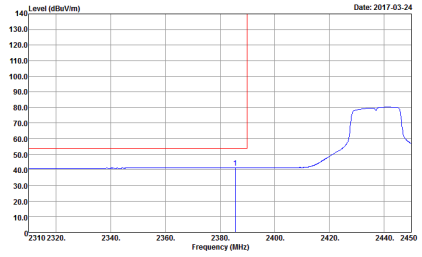
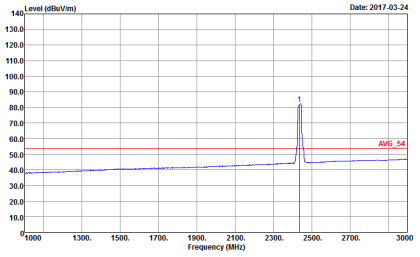
WIFI 802.11n HT20 (Band Edge @ 3m)

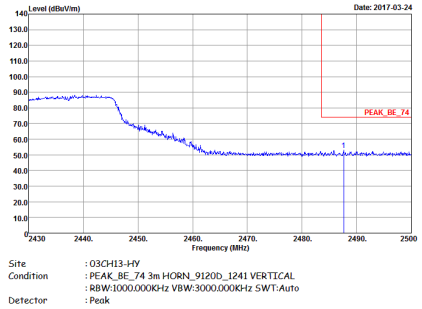
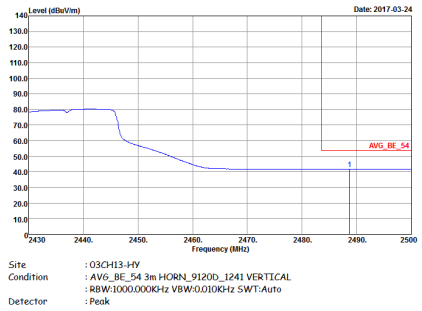
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

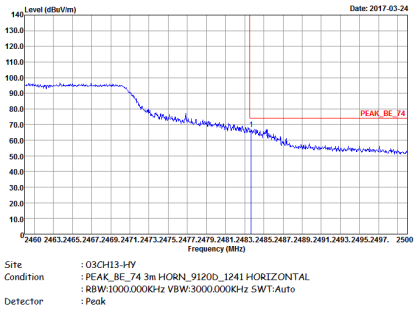
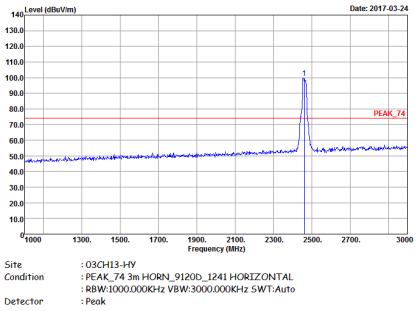
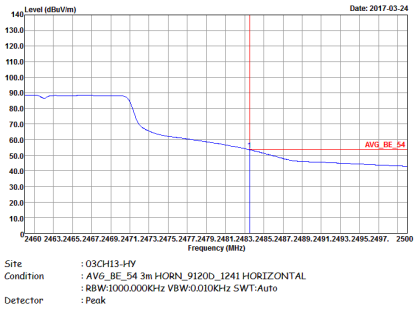
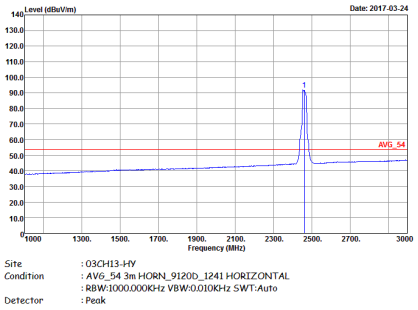
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
1	Vertical	Fundamental
Peak		
Avg.		

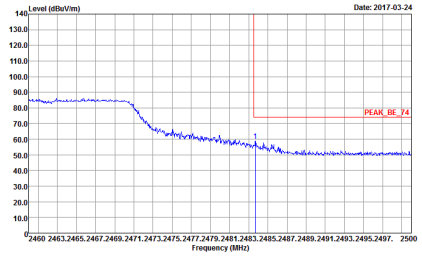
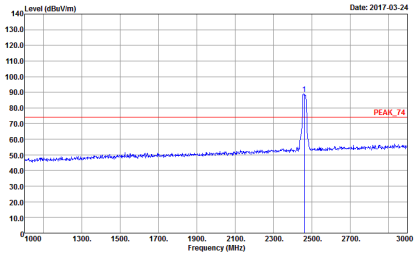
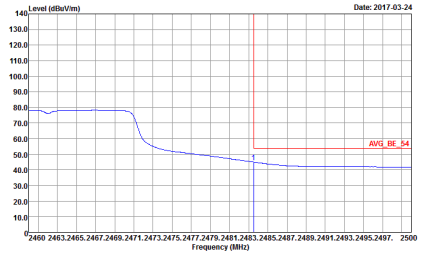
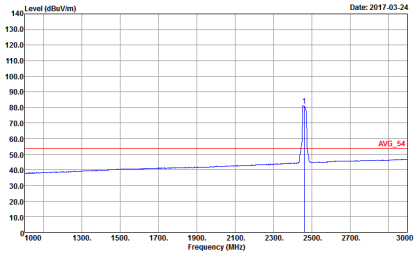
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		

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.		

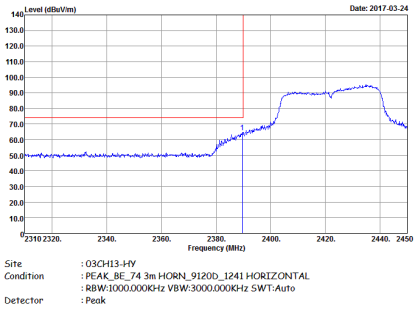
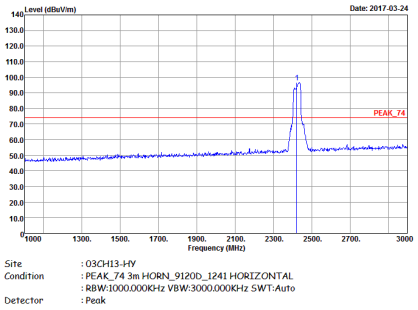
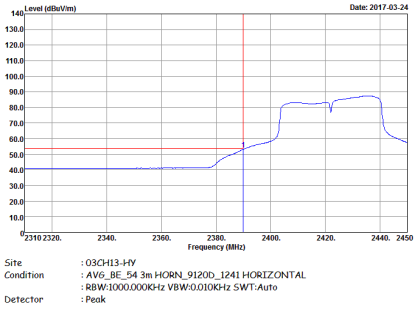
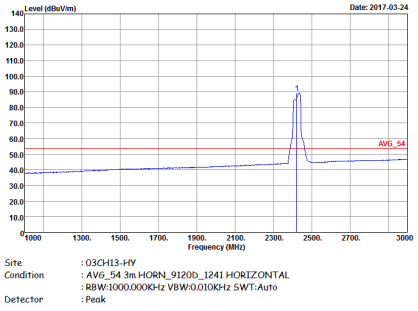
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - R	
1	Vertical	Fundamental
Peak		Left Blank
Avg.		Left Blank

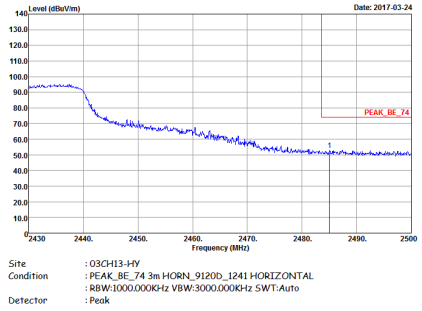
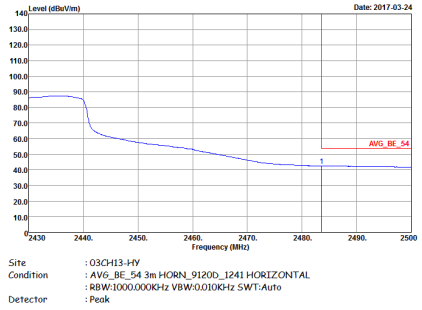
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak	 Site : 03CH13-HY Condition : AVG_54 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak

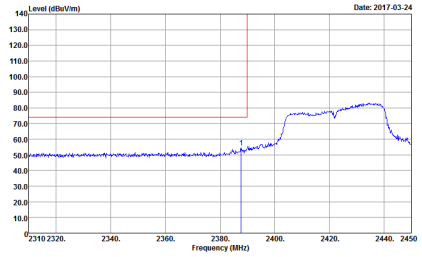
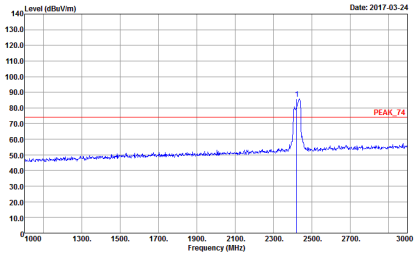
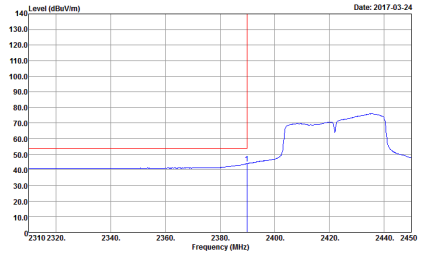
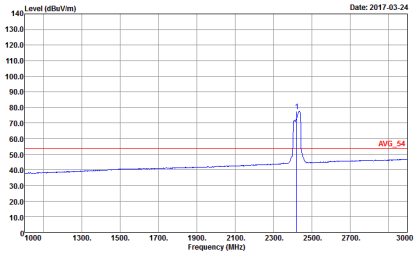
WIFI	2.4GHz 2400~2483.5MHz Fundamental @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak	 Site : 03CH13-HY Condition : AVG_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak

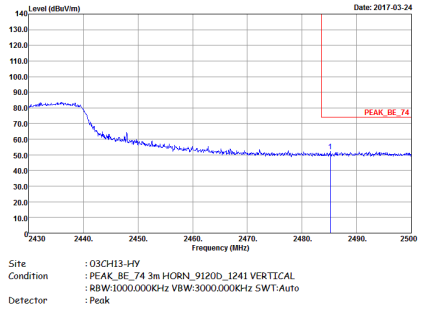
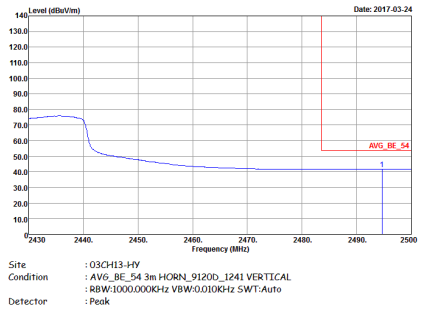
2.4GHz 2400~2483.5MHz

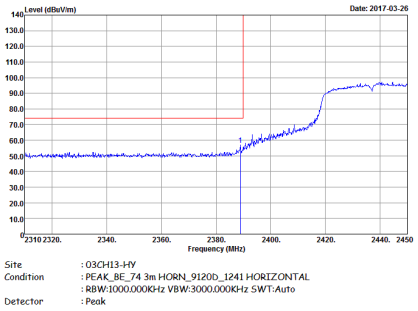
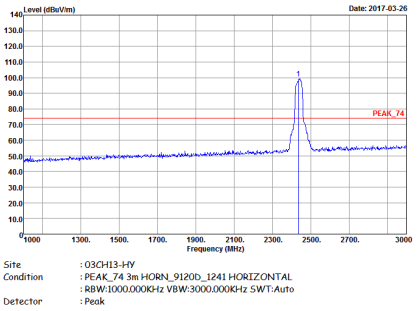
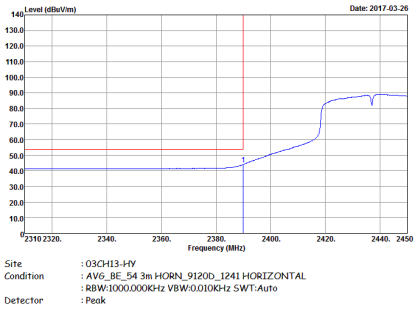
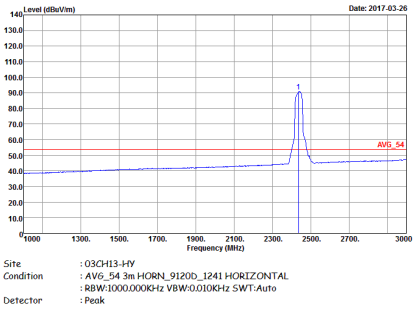
WIFI 802.11n HT40 (Band Edge @ 3m)

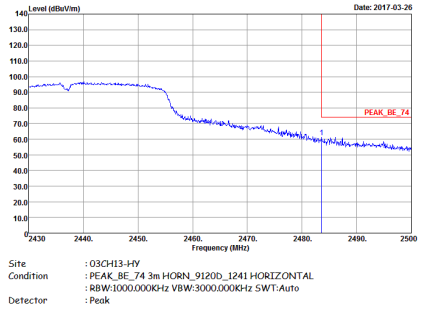
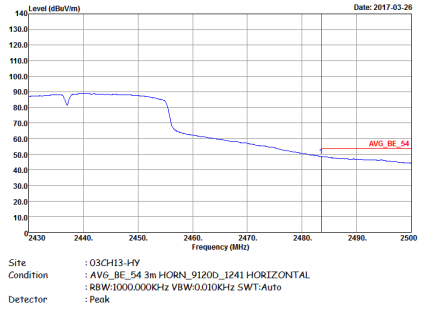
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH03 2422MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		

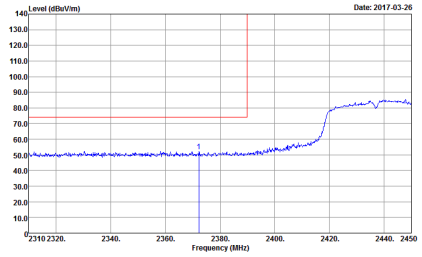
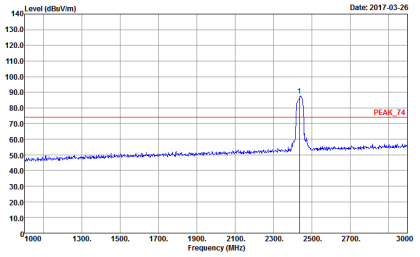
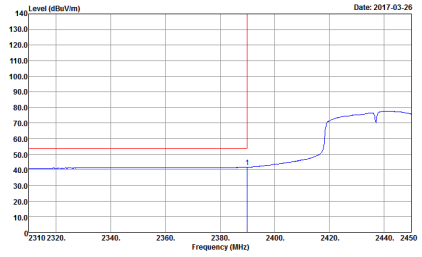
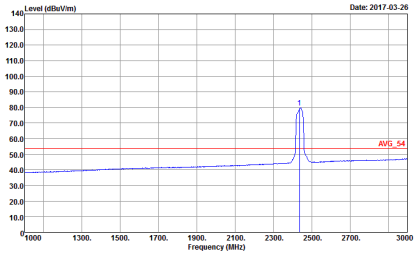
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH03 2422MHz - R	
1	Horizontal	Fundamental
Peak		Left Blank
Avg.		Left Blank

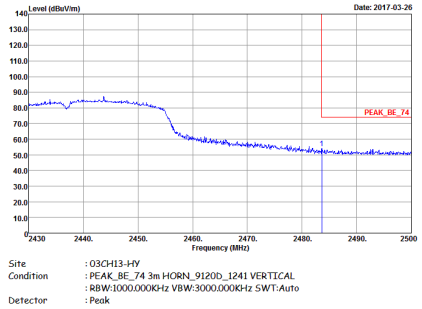
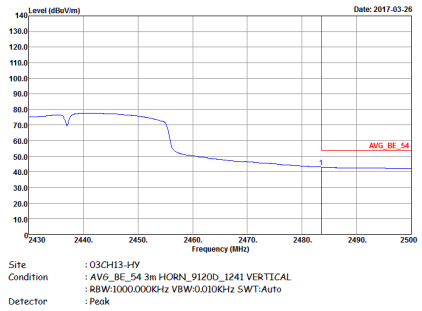
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH03 2422MHz - L	
1	Vertical	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak	 Site : 03CH13-HY Condition : AVG_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak

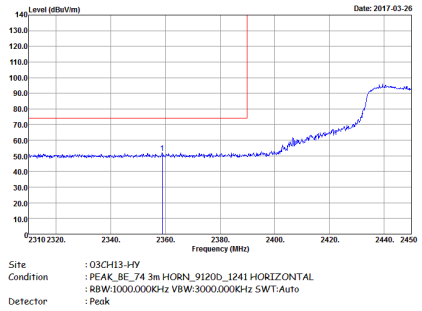
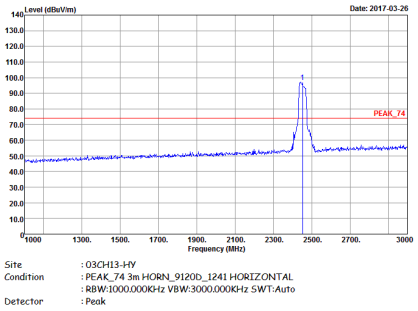
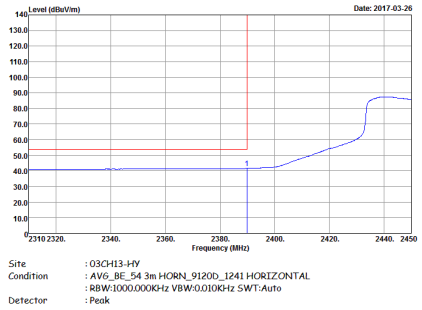
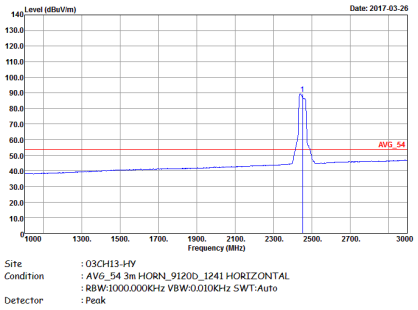
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH03 2422MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

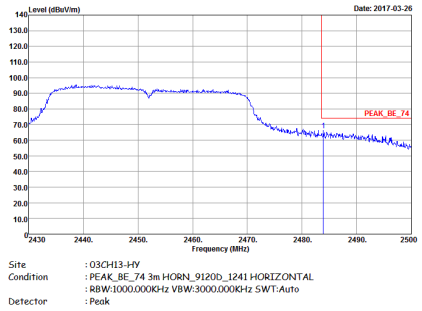
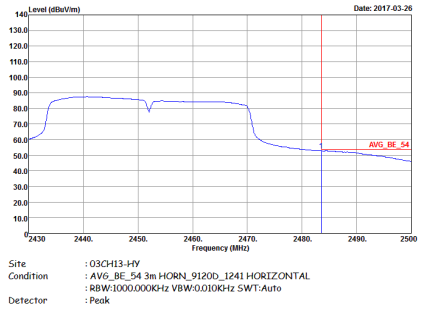
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		

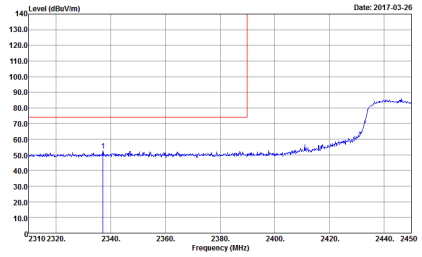
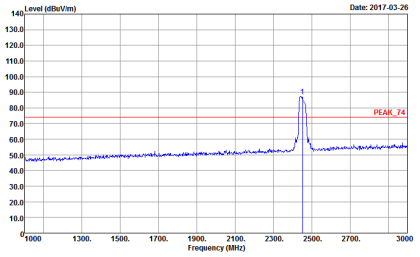
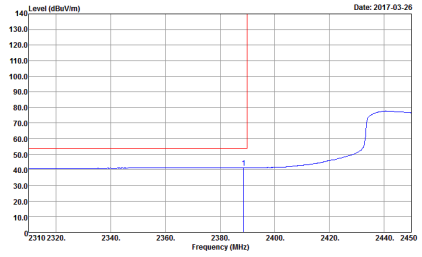
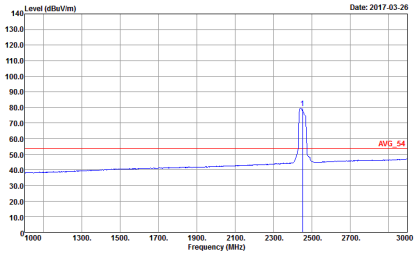
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH06 2437MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

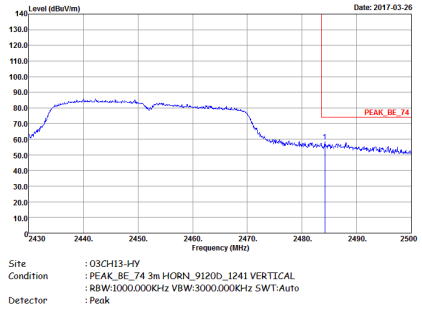
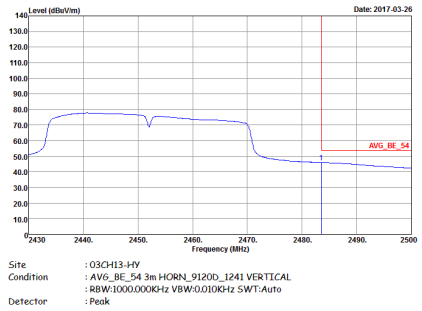
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH06 2437MHz - L	
1	Vertical	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak	 Site : 03CH13-HY Condition : AVG_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak

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

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

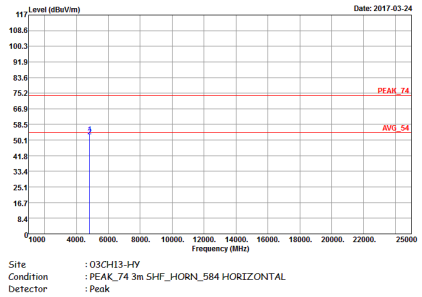
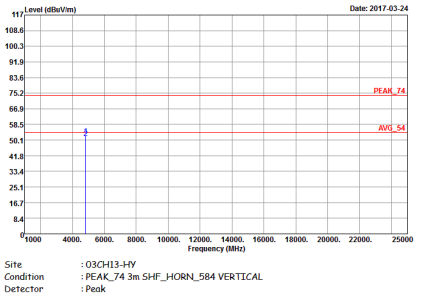
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH09 2452MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

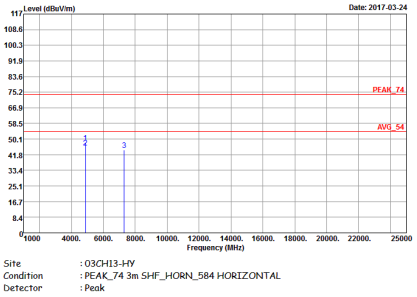
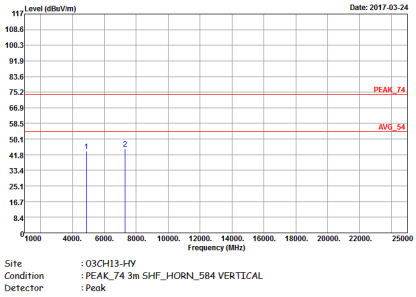
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH09 2452MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		

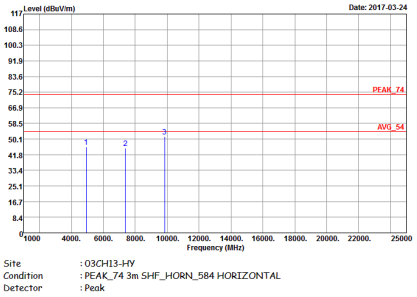
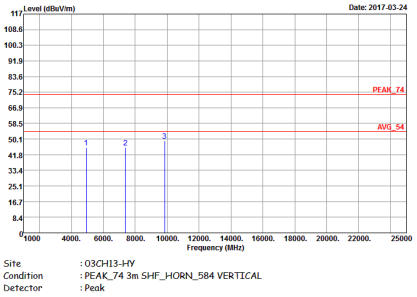
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH09 2452MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Harmonic @ 3m)

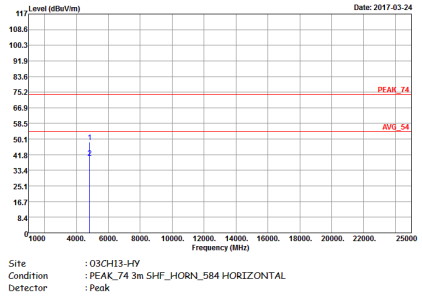
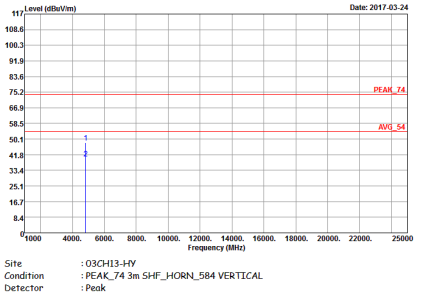
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH01 2412MHz	
1	Horizontal	Vertical
Peak Avg.		

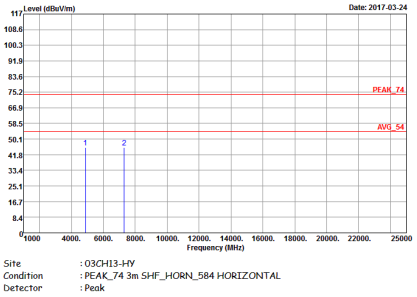
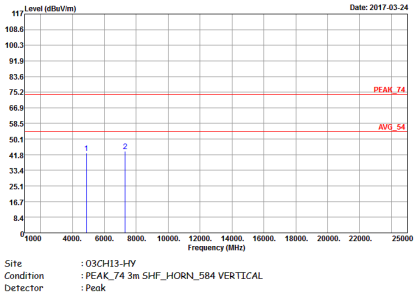
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH06 2437MHz	
1	Horizontal	Vertical
Peak Avg.		

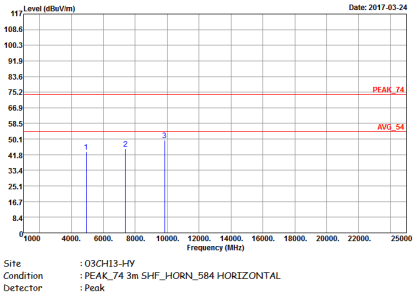
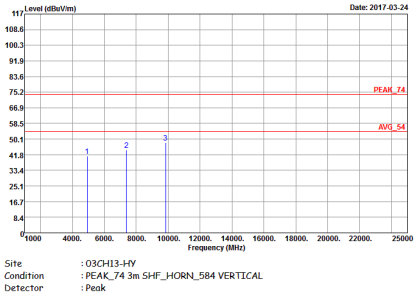
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH11 2462MHz	
1	Horizontal	Vertical
Peak Avg.		

2.4GHz 2400~2483.5MHz

WIFI 802.11g (Harmonic @ 3m)

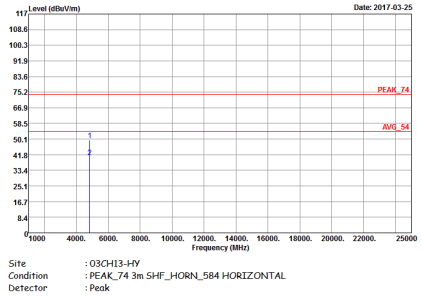
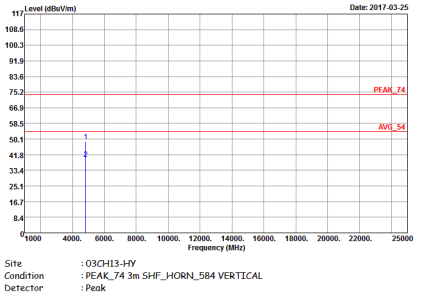
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH01 2412MHz	
1	Horizontal	Vertical
Peak Avg.		

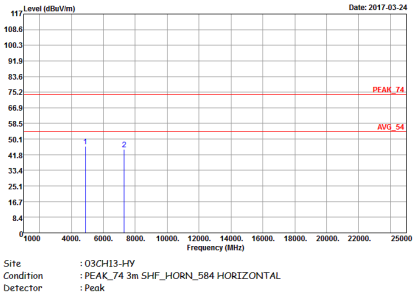
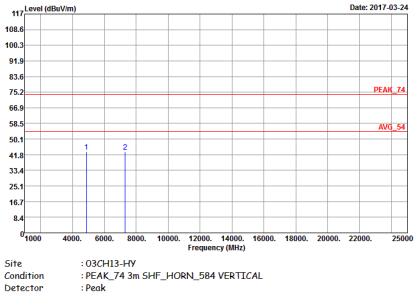
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH06 2437MHz	
1	Horizontal	Vertical
Peak Avg.		

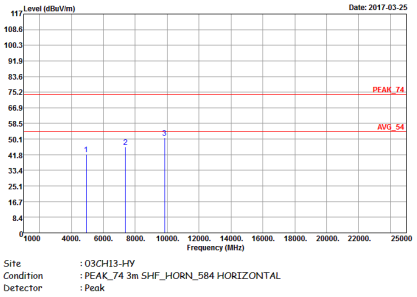
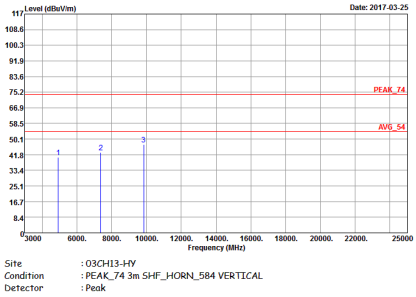
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH11 2462MHz	
1	Horizontal	Vertical
Peak Avg.		

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

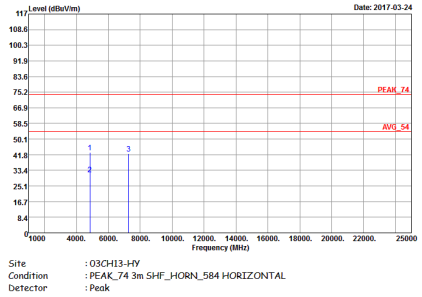
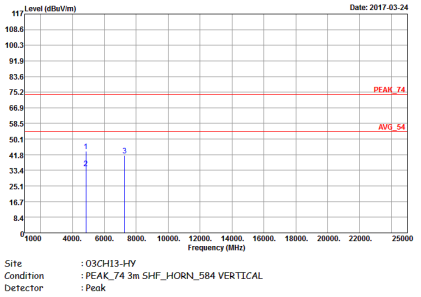
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
1	Horizontal	Vertical
Peak Avg.		

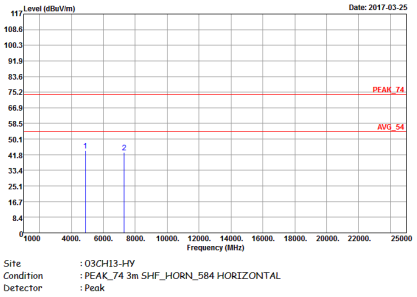
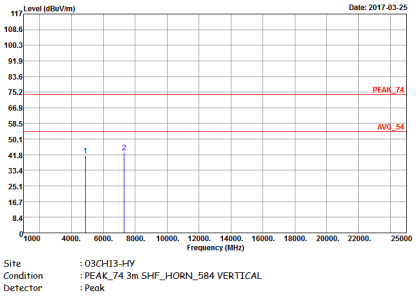
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH06 2437MHz	
1	Horizontal	Vertical
Peak Avg.		

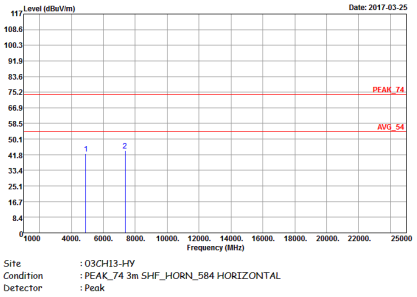
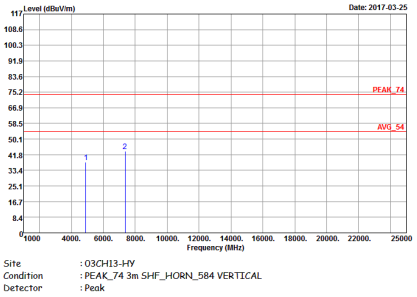
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
1	Horizontal	Vertical
Peak Avg.		

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT40 (Harmonic @ 3m)

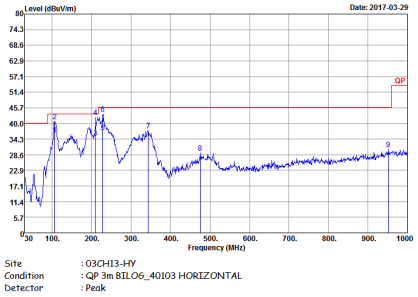
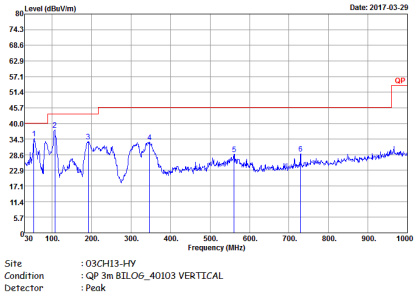
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT40 CH03 2422MHz	
1	Horizontal	Vertical
Peak Avg.		

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

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

Emission below 1GHz

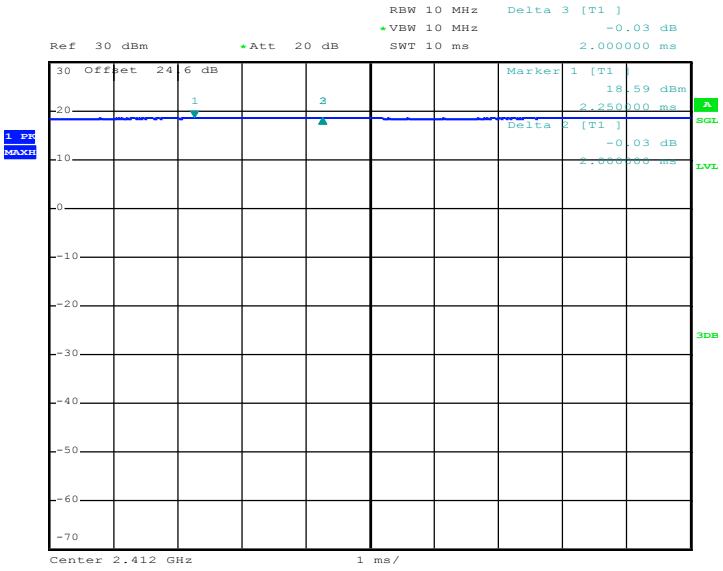
2.4GHz WIFI 802.11n HT40 (LF)

WIFI	2.4GHz 2400~2483.5MHz	
ANT	802.11n HT40 LF	
1	Horizontal	Vertical
QP / Peak		

Appendix E. Duty Cycle Plots

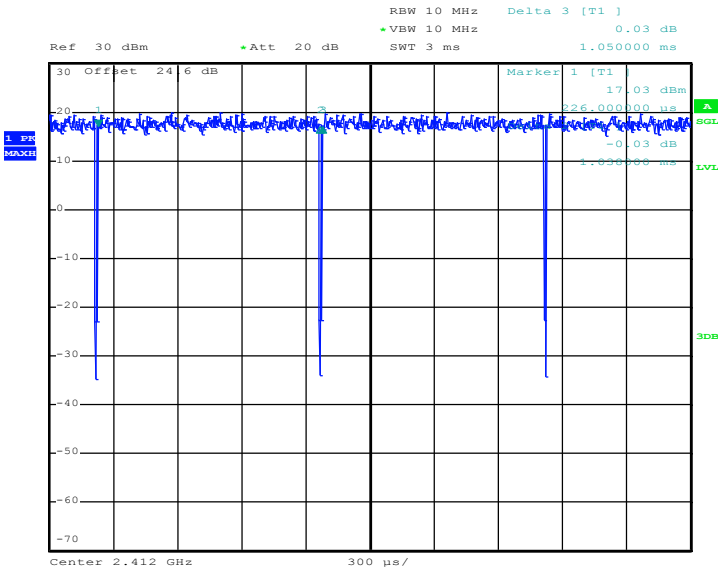
Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
802.11b	100	-	-	10Hz
802.11g	98.86	-	-	10Hz
2.4GHz 802.11n HT20	98.78	-	-	10Hz
2.4GHz 802.11an HT40	97.58	484	2.07	3kHz

802.11b



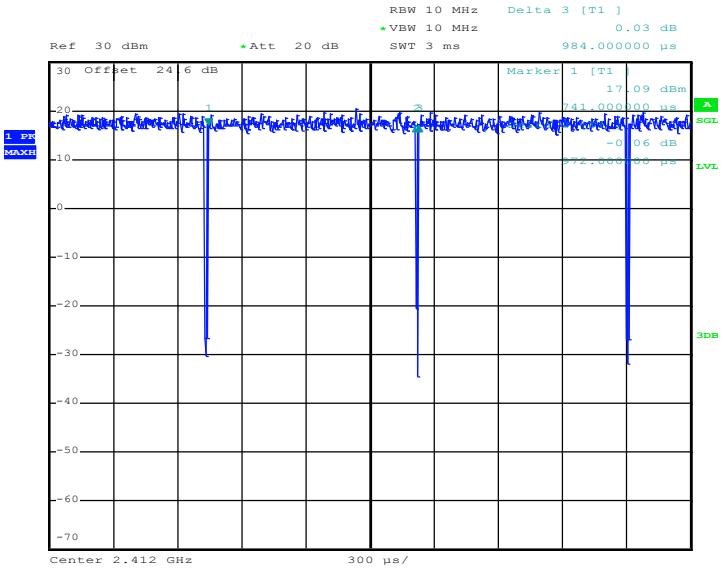
Date: 23.MAR.2017 09:58:34

802.11g



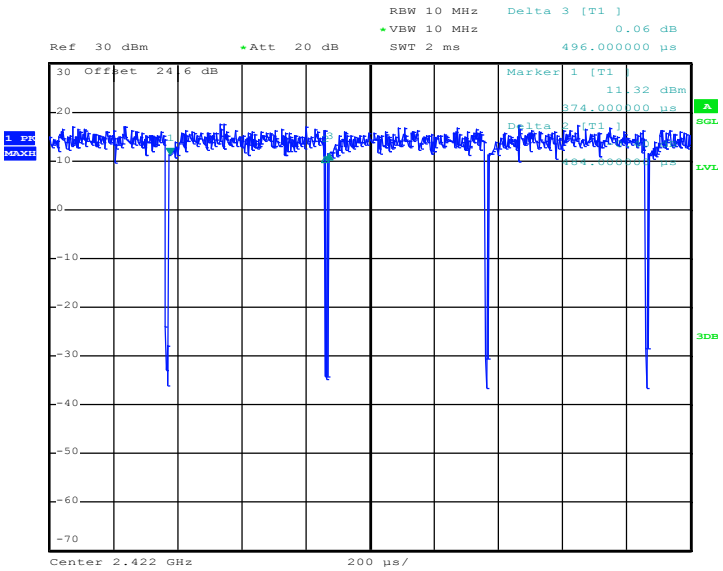
Date: 23.MAR.2017 10:29:36

802.11n HT20



Date: 23.MAR.2017 10:30:34

802.11n HT40



Date: 23.MAR.2017 10:31:52