

FCC RF Test Report

APPLICANT : Getac Technology Corporation.
EQUIPMENT : Tablet
BRAND NAME : Getac
MODEL NAME : MX50
FCC ID : QYLAP6234M
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : (DTS) Digital Transmission System

The product was received on Aug. 10, 2016 and testing was completed on Oct. 04, 2016. 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



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
FR680937-02C	Rev. 01	Initial issue of report	Nov. 04, 2016

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	6dB Bandwidth	$\geq 0.5\text{MHz}$	Pass	-
3.1	-	99% Bandwidth	-	Pass	-
3.2	15.247(b)	Power Output Measurement	$\leq 30\text{dBm}$	Pass	-
3.3	15.247(e)	Power Spectral Density	$\leq 8\text{dBm}/3\text{kHz}$	Pass	-
3.4	15.247(d)	Conducted Band Edges	$\leq 20\text{dBc}$	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 1.80 dB at 2484.800 MHz
3.6	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 24.60 dB at 0.534 MHz
3.7	15.203 & 15.247(b)	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Getac Technology Corporation.

5F., Building A, No. 209, Sec.1, Nangang Rd., Nangang Dist., Taipei City 11568, Taiwan, R.O.C.

1.2 Manufacturer

Getac Technology(Kunshan)Co., LTD.

No. 269, No. 2 Avenue, Kunshan Comprehensive Free Trade Zone, Jiangsu Province, P.R.C

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Tablet
Brand Name	Getac
Model Name	MX50
Sample 1	SKU 1
Sample 2	SKU 2
FCC ID	QYLAP6234M
EUT supports Radios application	WLAN 11b/g/n HT20 WLAN 11a/n HT20/HT40 Bluetooth BR/EDR/LE
EUT Stage	Production Unit

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. All the tests were performed with Sample 2.

Sample Information					
SKU	Wifi+BT	GPS	WWAN	RFID	eMMC
SKU 1	Brand name: AMPAK Model name: AP6234	Brand name: Ublox Model name: MAX-M8Q	not support	not support	64G
SKU 2	Brand name: AMPAK Model name: AP6234	Brand name: Ublox Model name: MAX-M8Q	not support	not support	128G

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx/Rx Channel Frequency Range	2412 MHz ~ 2462 MHz
Maximum (Peak) Output Power to antenna	802.11b : 16.87 dBm (0.0486 W) 802.11g : 21.27 dBm (0.1340 W) 802.11n HT20 : 20.98 dBm (0.1253 W)
99% Occupied Bandwidth	802.11b : 11.95MHz 802.11g : 17.20MHz 802.11n HT20 : 18.05MHz
Antenna Type / Gain	Chip Antenna type with gain 0.94 dBi
Type of Modulation	802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)

1.5 Modification of EUT

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

1.6 Testing Location

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation No. TW1022 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 1 st 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.



1.7 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 v03r05
- ♦ ANSI C63.10-2013

Remark:

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

2 Test Configuration of Equipment Under Test

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 kHz to 30 MHz) and radiated 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.

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

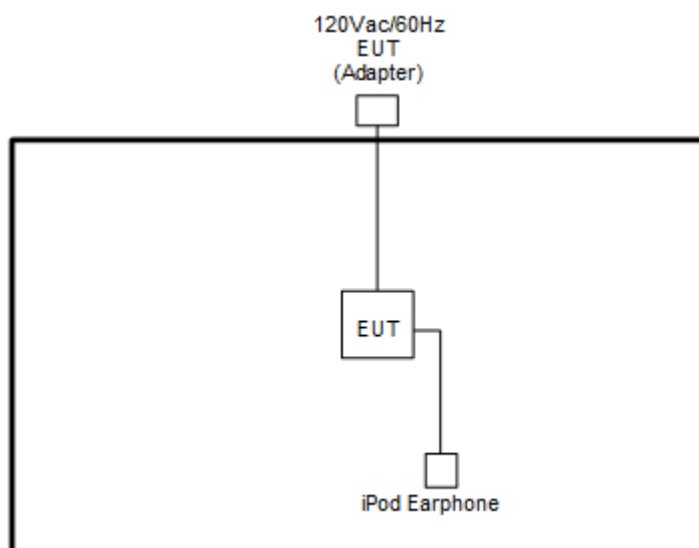
Final test mode of conducted test items and radiated spurious emissions are considering the modulation and worse data rates as below table.

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

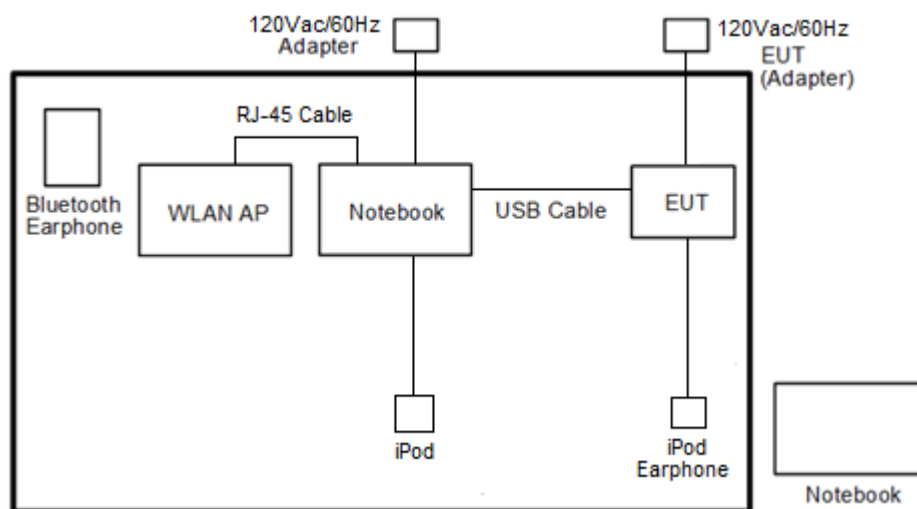
Test Cases	
AC Conducted Emission	Mode 1: Bluetooth Link + WLAN (2.4GHz) Link + Video Record (Rear) + Earphone + SD Card + UB Cable (Data transfer with Notebook) + Adapter

2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	iPod Earphone	Apple	N/A	Verification	Unshielded, 1.0 m	N/A
2.	Bluetooth Earphone	Sony Ericsson	MW600	PY7DDA-2029	N/A	N/A
3.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
4.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A
5.	Notebook	DELL	P20G	FCC DoC/ Contains FCC ID: QDS-BRCM1051	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
6.	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
7.	SD Card	SanDisk	MicroSD HC	FCC DoC	N/A	N/A

2.5 EUT Operation Test Setup

The programmed RF utility “RF TestTool”, is installed in EUT to provide channel selection, power level, data rate and the application type. RF Utility can send transmitting signal for all testing. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

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.

$$\begin{aligned}
 \text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)}. \\
 &= 4.2 + 10 = 14.2 \text{ (dB)}
 \end{aligned}$$

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 v03r05.
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.

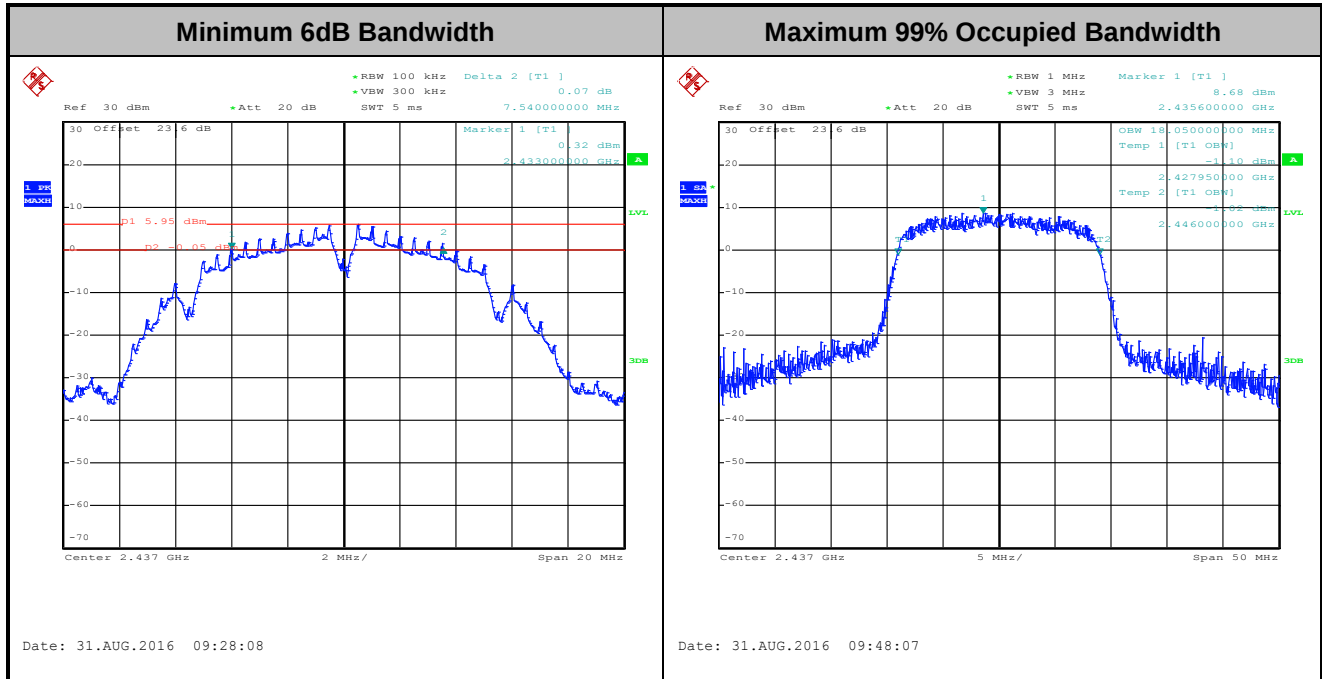
3.1.4 Test Setup





3.1.5 Test Result of 6dB and 99% Occupied Bandwidth

Please refer to Appendix A.



Note : The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

3.2 Output Power Measurement

3.2.1 Limit of Output Power

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

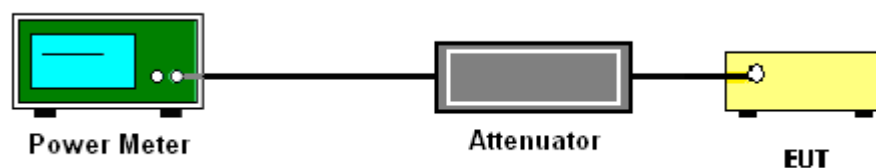
3.2.2 Measuring Instruments

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 v03r05 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.

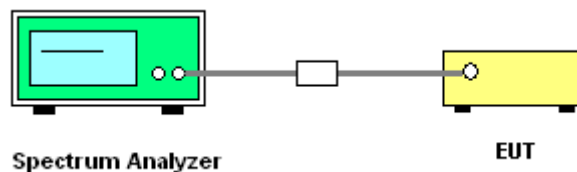
3.3.2 Measuring Instruments

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 v03r05
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.

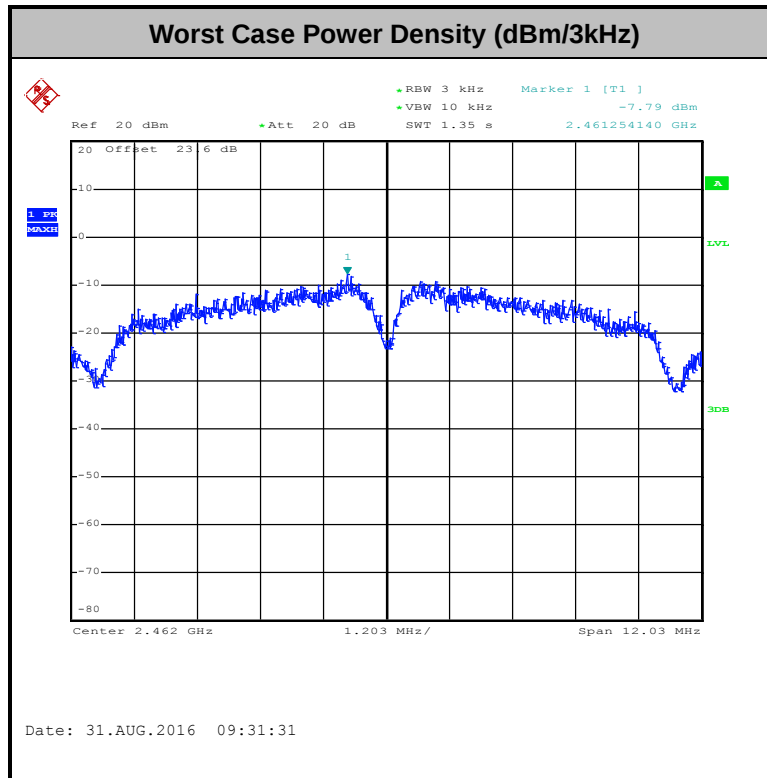
3.3.4 Test Setup





3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.



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 and radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

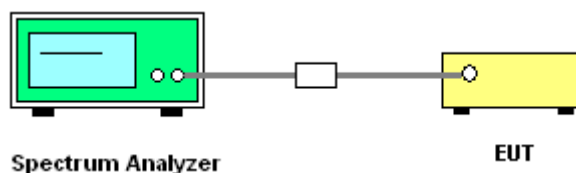
3.4.2 Measuring Instruments

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 v03r05.
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.

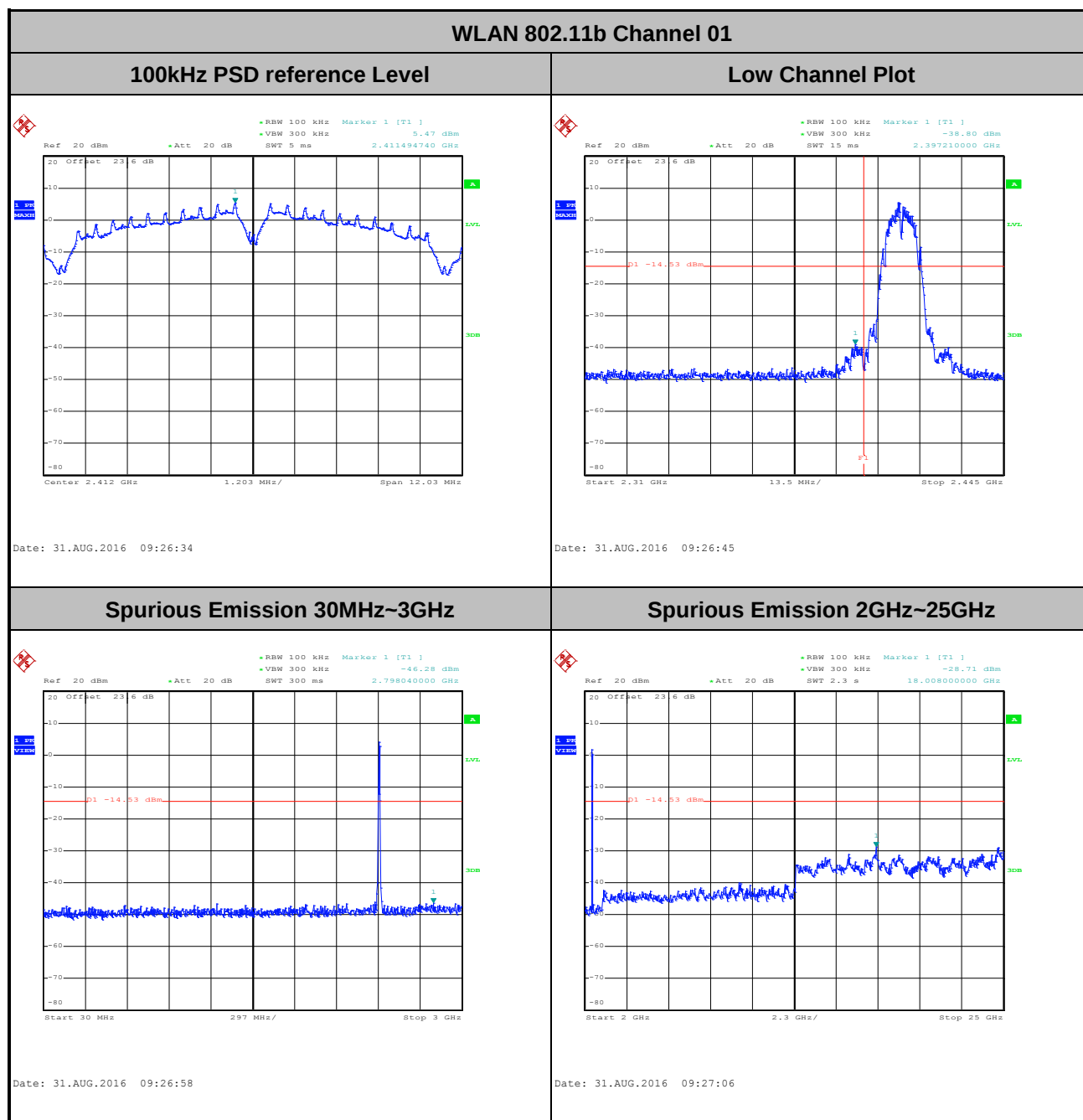
3.4.4 Test Setup





3.4.5 Test Result of Conducted Band Edges and Spurious Emission

Test Mode :	802.11b	Temperature :	21~25℃
Test Band :	2.4GHz Low	Relative Humidity :	51~54%
Test Channel :	01	Test Engineer :	AC Chang

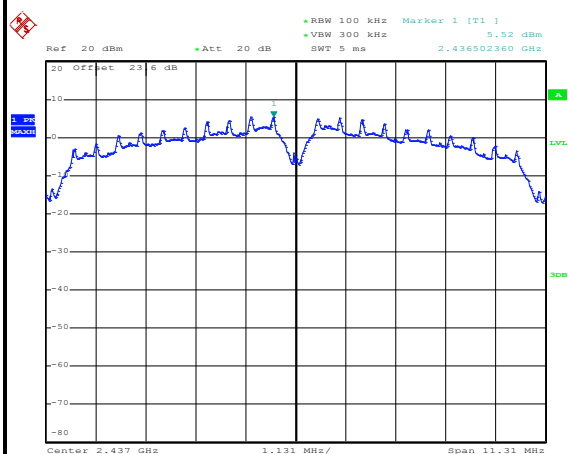




Test Mode :	802.11b	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~54%
Test Channel :	06	Test Engineer :	AC Chang

WLAN 802.11b Channel 06

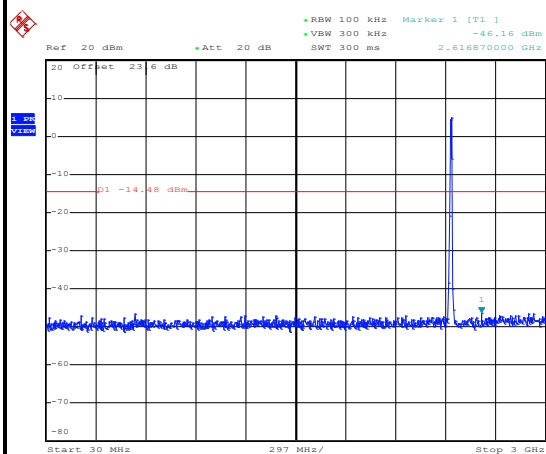
100kHz PSD reference Level



Date: 31.AUG.2016 09:29:13

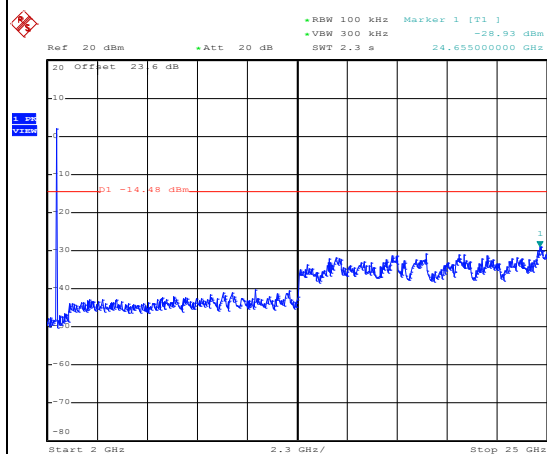
Mid Channel Plot

Spurious Emission 30MHz~3GHz



Date: 31.AUG.2016 09:29:27

Spurious Emission 2GHz~25GHz



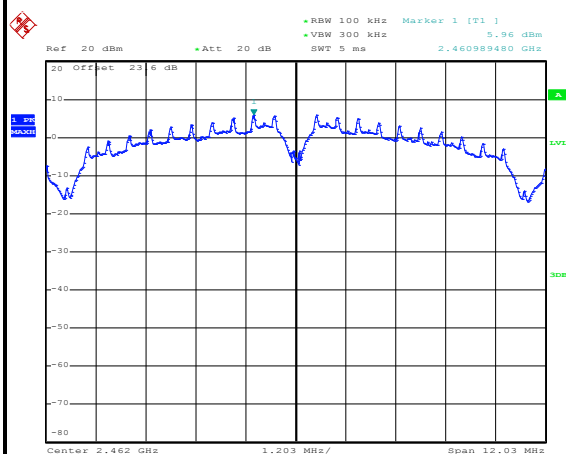
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Test Mode :	802.11b	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	11	Test Engineer :	AC Chang

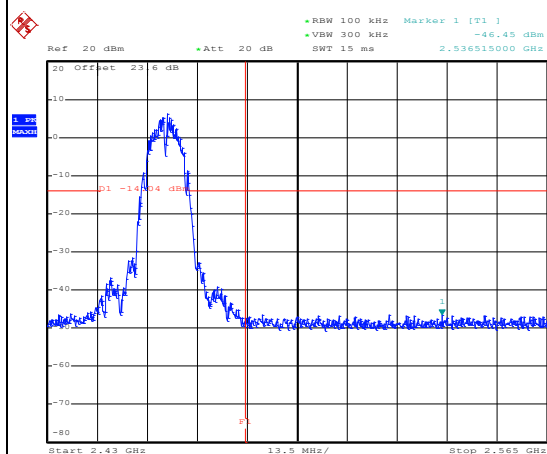
WLAN 802.11b Channel 11

100kHz PSD reference Level



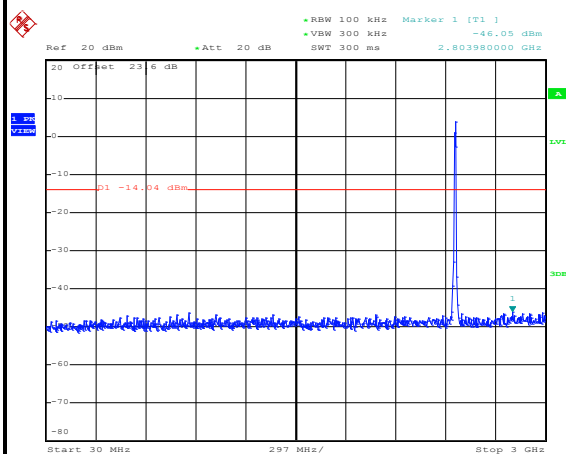
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High Channel Plot



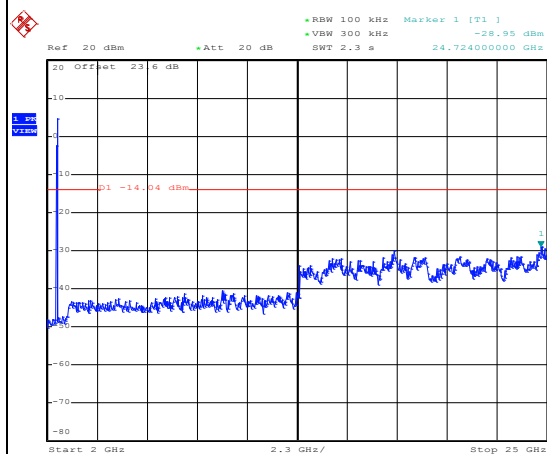
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Spurious Emission 30MHz~3GHz



Date: 31.AUG.2016 09:32:33

Spurious Emission 2GHz~25GHz



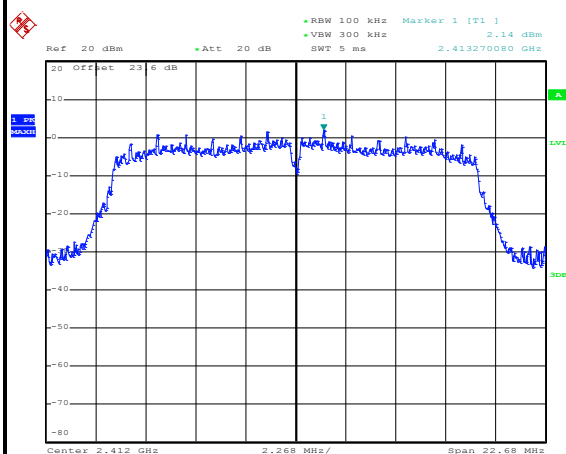
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Test Mode :	802.11g	Temperature :	21~25°C
Test Band :	2.4GHz Low	Relative Humidity :	51~54%
Test Channel :	01	Test Engineer :	AC Chang

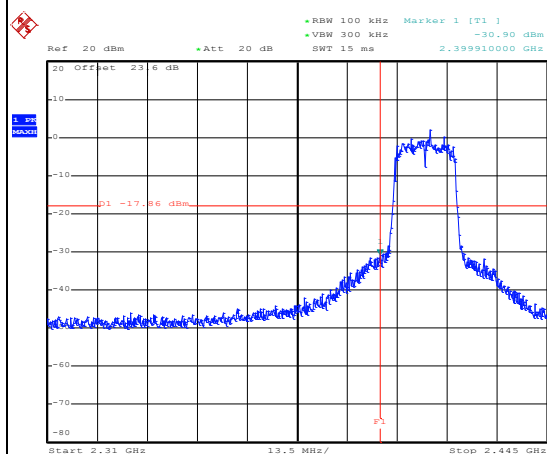
WLAN 802.11g Channel 01

100kHz PSD reference Level



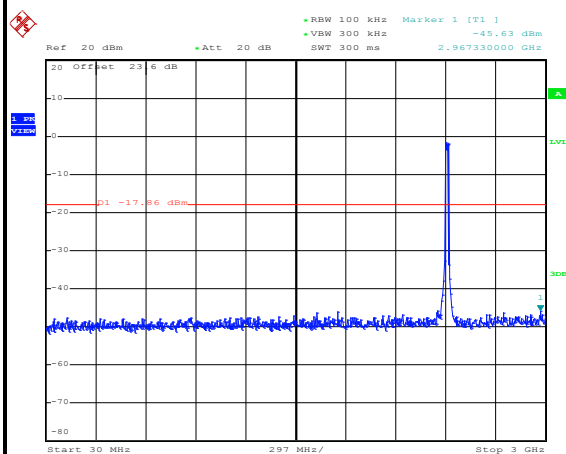
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Low Channel Plot



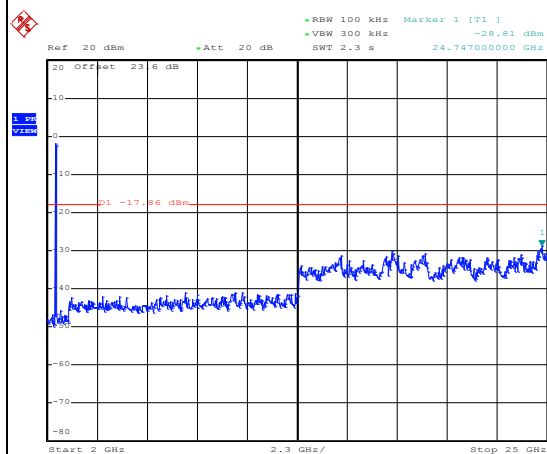
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Spurious Emission 30MHz~3GHz



Date: 31.AUG.2016 09:35:48

Spurious Emission 2GHz~25GHz



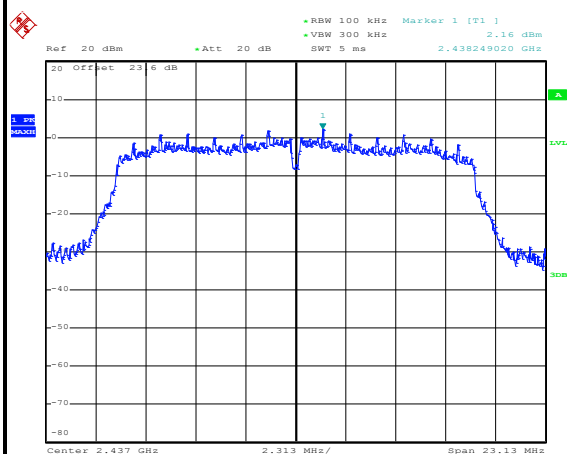
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Test Mode :	802.11g	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~54%
Test Channel :	06	Test Engineer :	AC Chang

WLAN 802.11g Channel 06

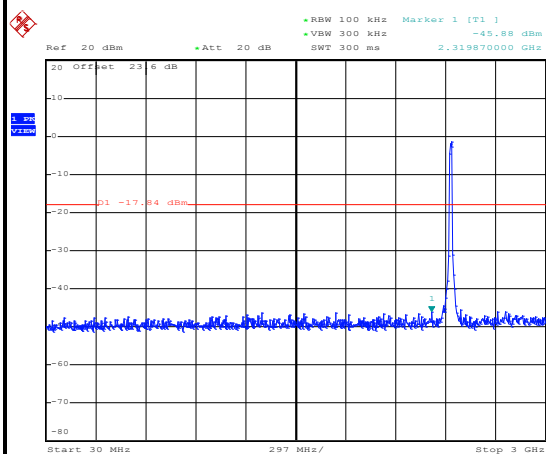
100kHz PSD reference Level



Date: 31.AUG.2016 09:38:16

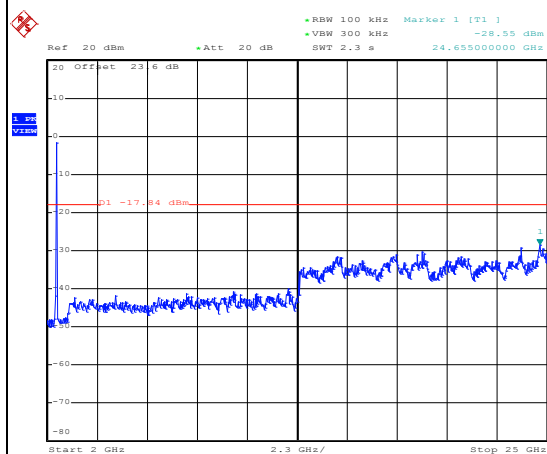
Mid Channel Plot

Spurious Emission 30MHz~3GHz



Date: 31.AUG.2016 09:38:35

Spurious Emission 2GHz~25GHz



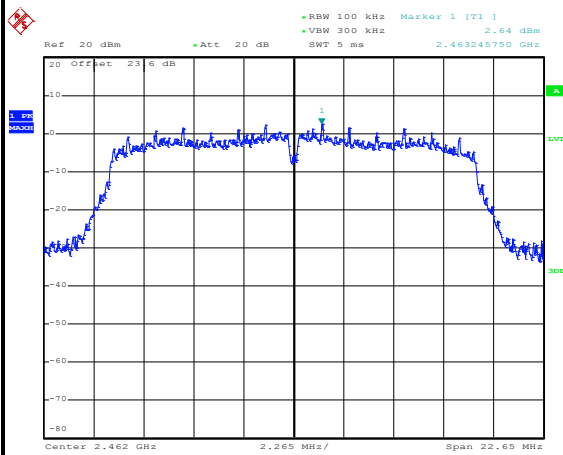
Date: 31.AUG.2016 09:38:43



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

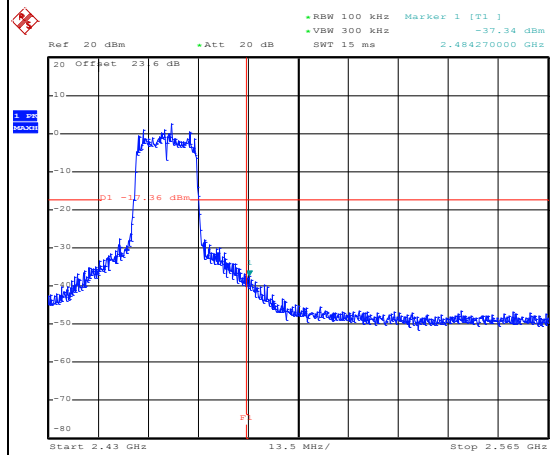
WLAN 802.11g Channel 11

100kHz PSD reference Level



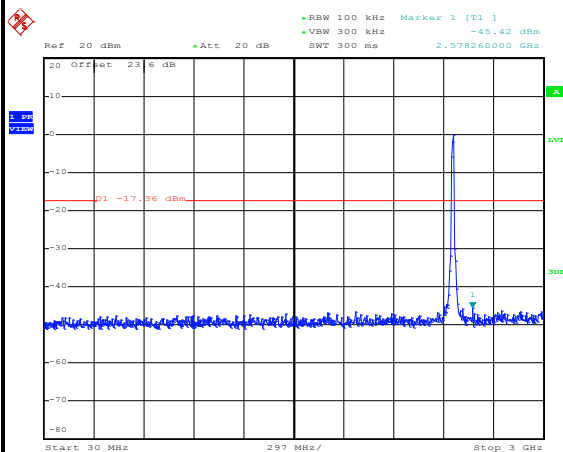
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High Channel Plot



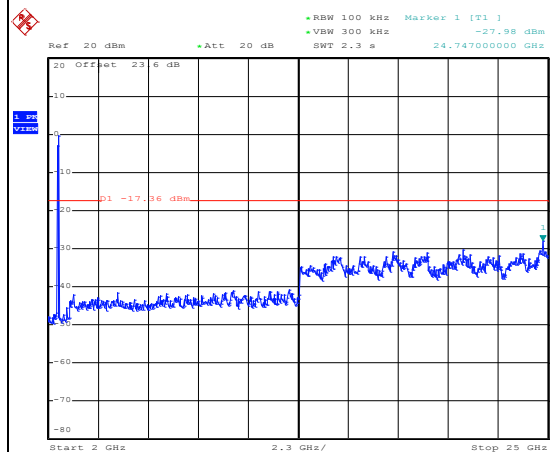
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Spurious Emission 30MHz~3GHz



Date: 31.AUG.2016 09:41:29

Spurious Emission 2GHz~25GHz



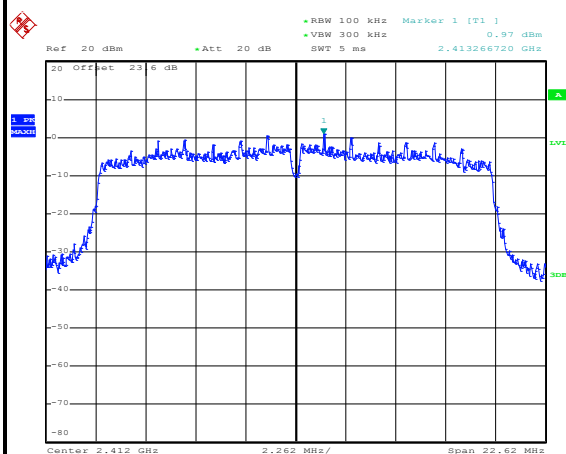
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Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz Low	Relative Humidity :	51~54%
Test Channel :	01	Test Engineer :	AC Chang

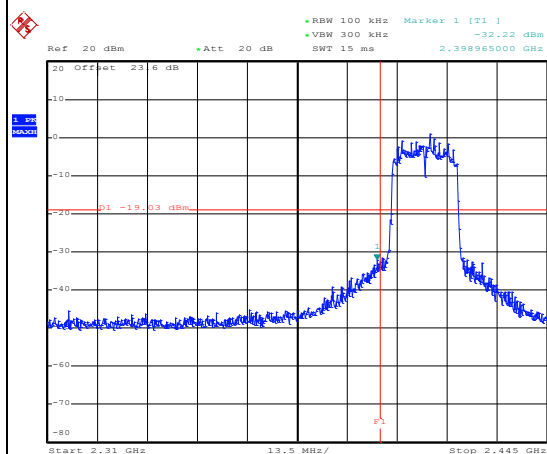
WLAN 802.11n HT20 Channel 01

100kHz PSD reference Level



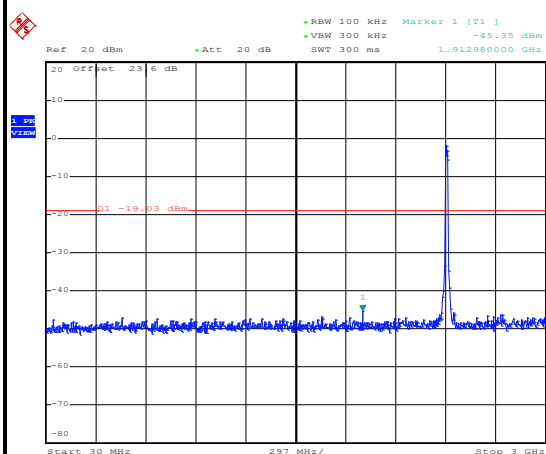
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Low Channel Plot



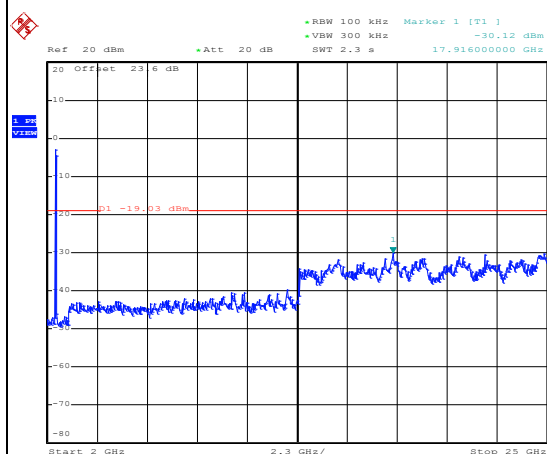
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Spurious Emission 30MHz~3GHz



Date: 31.AUG.2016 09:45:48

Spurious Emission 2GHz~25GHz



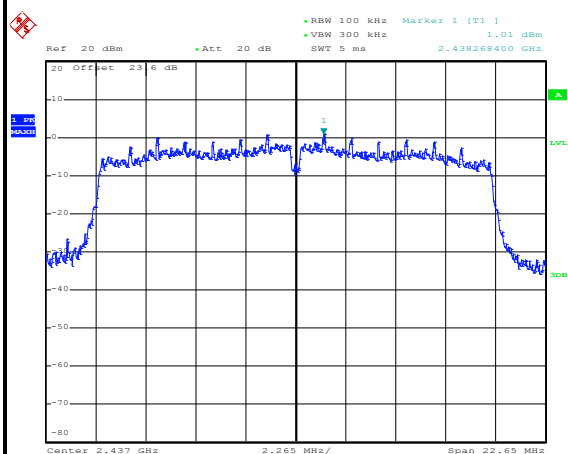
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Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~54%
Test Channel :	06	Test Engineer :	AC Chang

WLAN 802.11n HT20 Channel 06

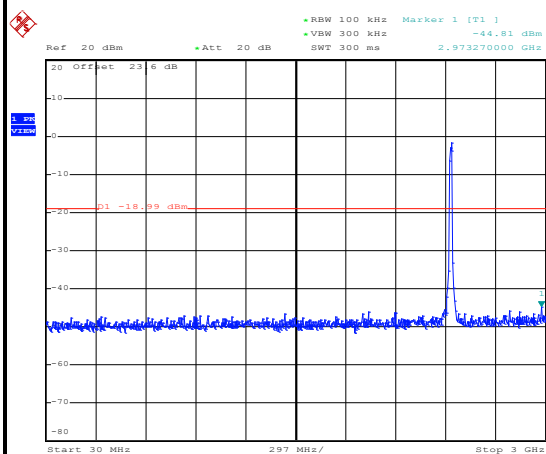
100kHz PSD reference Level



Date: 31.AUG.2016 09:48:48

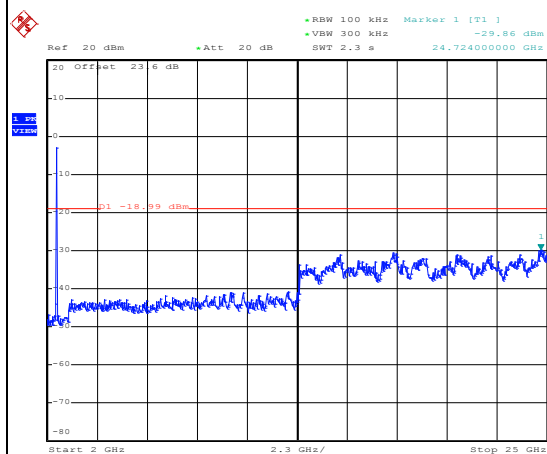
Mid Channel Plot

Spurious Emission 30MHz~3GHz



Date: 31.AUG.2016 09:49:00

Spurious Emission 2GHz~25GHz



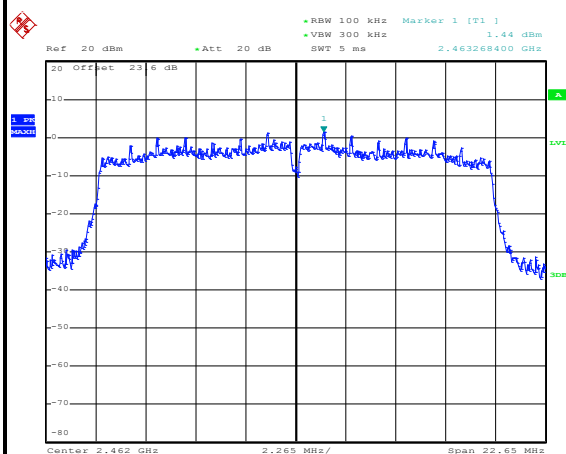
Date: 31.AUG.2016 09:49:08



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

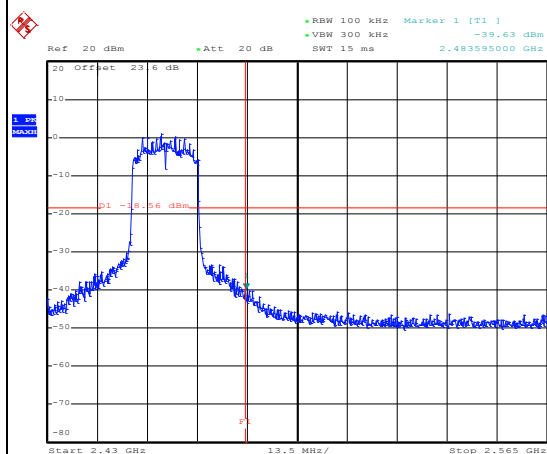
WLAN 802.11n HT20 Channel 11

100kHz PSD reference Level



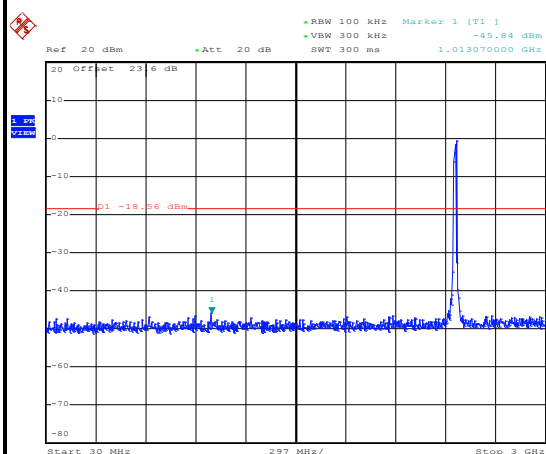
Date: 31.AUG.2016 09:51:08

High Channel Plot



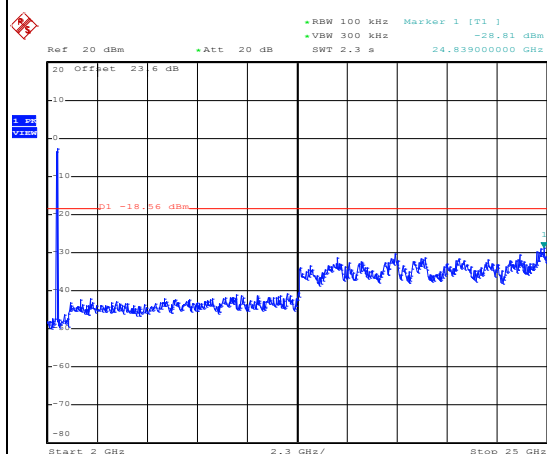
Date: 31.AUG.2016 09:51:25

Spurious Emission 30MHz~3GHz



Date: 31.AUG.2016 09:51:41

Spurious Emission 2GHz~25GHz



Date: 31.AUG.2016 09:51:49

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 FCC section 15.209 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

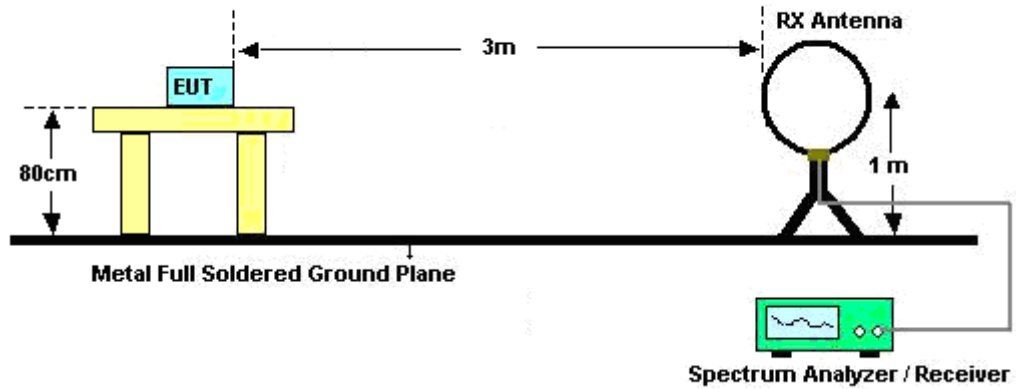
1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r05.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the 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 $\geq$ RBW; Sweep = auto; Detector function = peak; Trace = max hold;
 - (3) Set RBW = 1 MHz, VBW= 3MHz for $f \geq 1$ GHz for peak measurement.

For average measurement:

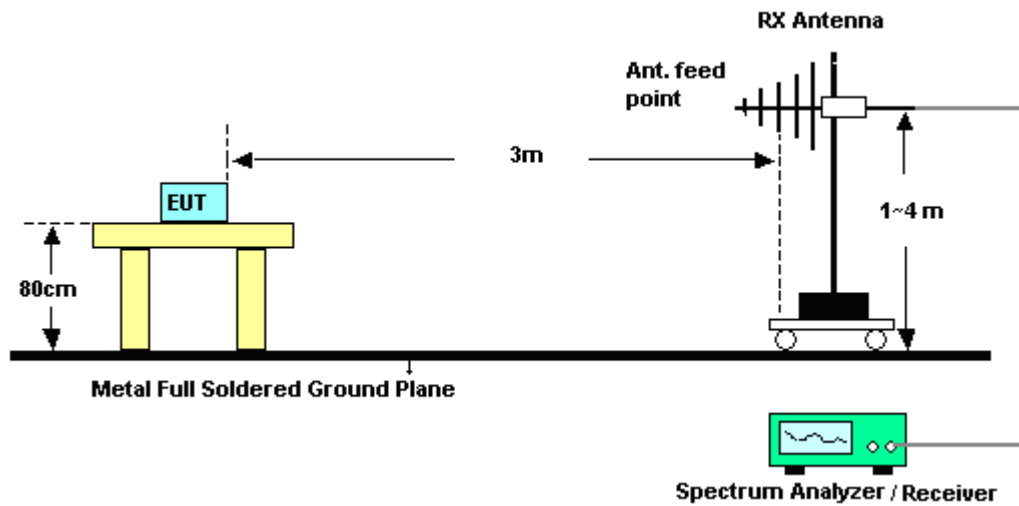
 - VBW = 10 Hz, when duty cycle is no less than 98 percent.
 - VBW $\geq 1/T$, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

3.5.4 Test Setup

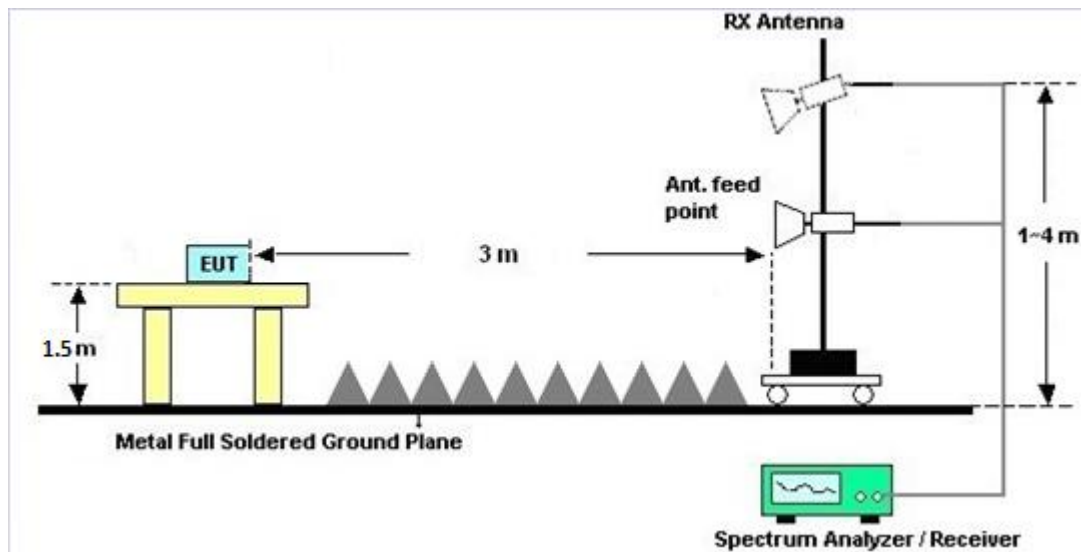
For radiated emissions below 30MHz



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 per 15.31(o) was not reported.

3.5.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix B and C.

3.5.7 Duty Cycle

Please refer to Appendix D.

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

Please refer to Appendix B and C.

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 (dB μ V)	
	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.

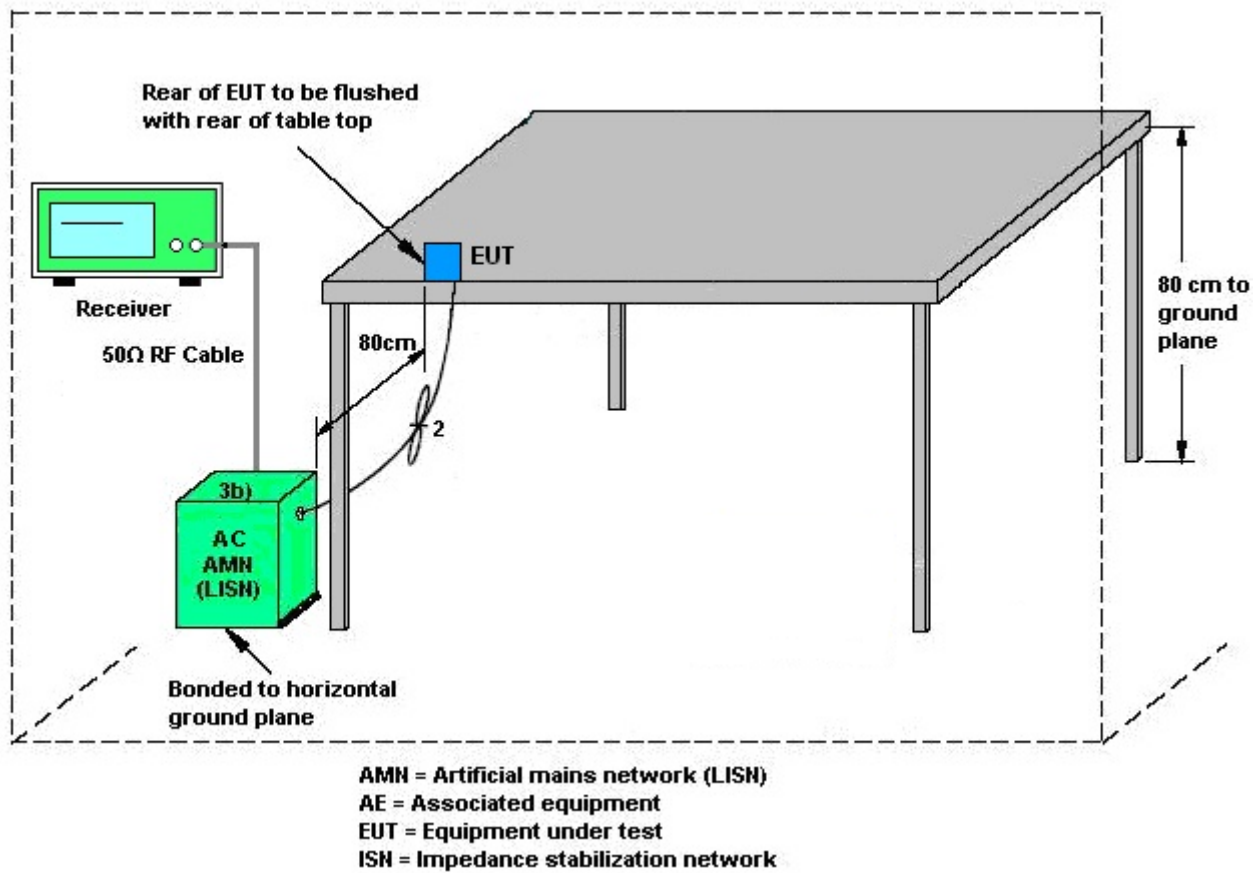
3.6.2 Measuring Instruments

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

3.6.3 Test Procedures

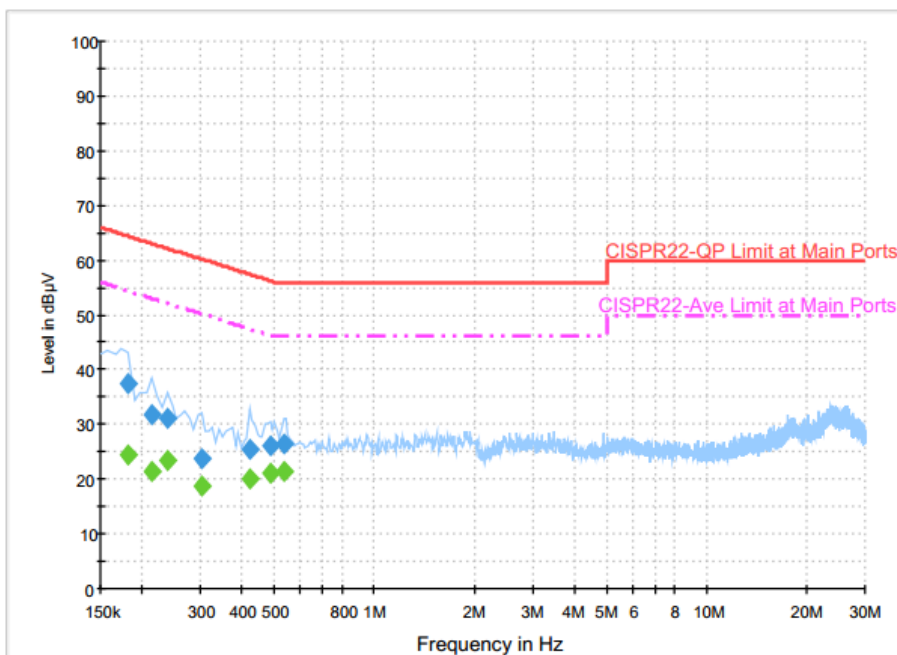
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other 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

Test Mode :	Mode 1	Temperature :	23~24℃
Test Engineer :	Arthur Hsieh	Relative Humidity :	51~52%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	Bluetooth Link + WLAN (2.4GHz) Link + Vedio Record (Rear) + Earphone + SD Card + UB Cable (Data transfer with Notebook) + Adapter		



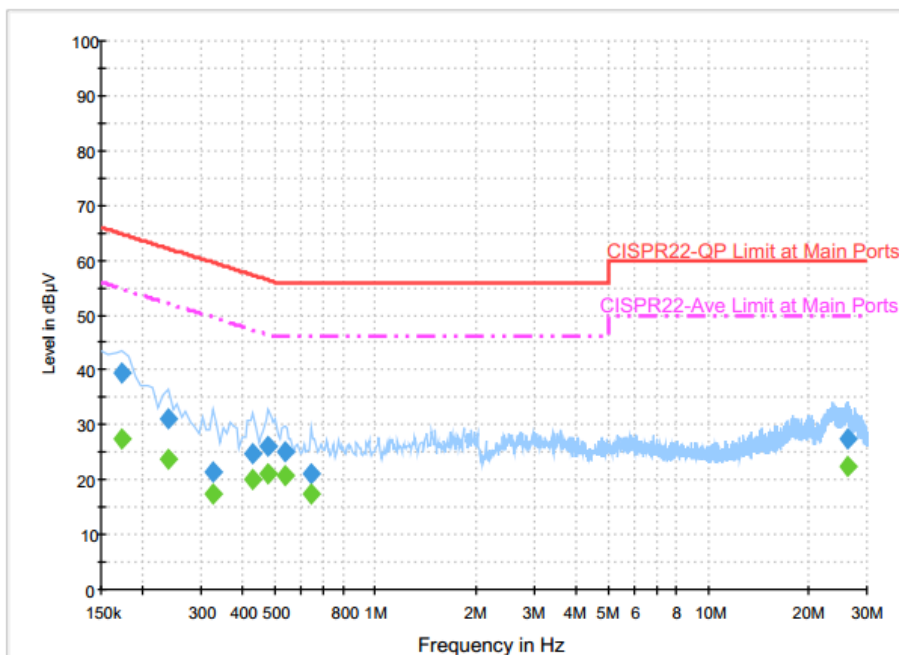
Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.182000	37.5	Off	L1	19.6	26.9	64.4
0.214000	31.7	Off	L1	19.6	31.3	63.0
0.238000	31.1	Off	L1	19.6	31.1	62.2
0.302000	23.9	Off	L1	19.6	36.3	60.2
0.422000	25.3	Off	L1	19.6	32.1	57.4
0.486000	26.1	Off	L1	19.6	30.1	56.2
0.534000	26.5	Off	L1	19.6	29.5	56.0

Final Result : Average

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.182000	24.3	Off	L1	19.6	30.1	54.4
0.214000	21.5	Off	L1	19.6	31.5	53.0
0.238000	23.5	Off	L1	19.6	28.7	52.2
0.302000	18.9	Off	L1	19.6	31.3	50.2
0.422000	20.2	Off	L1	19.6	27.2	47.4
0.486000	21.0	Off	L1	19.6	25.2	46.2
0.534000	21.4	Off	L1	19.6	24.6	46.0

Test Mode :	Mode 1	Temperature :	23~24°C
Test Engineer :	Arthur Hsieh	Relative Humidity :	51~52%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	Bluetooth Link + WLAN (2.4GHz) Link + Vedio Record (Rear) + Earphone + SD Card + UB Cable (Data transfer with Notebook) + Adapter		


Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.174000	39.3	Off	N	19.6	25.5	64.8
0.238000	31.0	Off	N	19.6	31.2	62.2
0.326000	21.4	Off	N	19.6	38.2	59.6
0.430000	24.9	Off	N	19.6	32.4	57.3
0.478000	26.0	Off	N	19.6	30.4	56.4
0.534000	25.2	Off	N	19.6	30.8	56.0
0.638000	21.2	Off	N	19.6	34.8	56.0
26.366000	27.3	Off	N	20.1	32.7	60.0

Final Result : Average

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.174000	27.3	Off	N	19.6	27.5	54.8
0.238000	23.9	Off	N	19.6	28.3	52.2
0.326000	17.4	Off	N	19.6	32.2	49.6
0.430000	20.0	Off	N	19.6	27.3	47.3
0.478000	21.1	Off	N	19.6	25.3	46.4
0.534000	20.8	Off	N	19.6	25.2	46.0
0.638000	17.3	Off	N	19.6	28.7	46.0
26.366000	22.4	Off	N	20.1	27.6	50.0



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 FCC 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	1132003	300MHz~40GHz	Aug. 04, 2016	Aug. 28, 2016 ~ Oct. 04, 2016	Aug. 03, 2017	Conducted (TH05-HY)
Power Sensor	Anritsu	MA2411B	1126017	300MHz~40GHz	Aug. 04, 2016	Aug. 28, 2016 ~ Oct. 04, 2016	Aug. 03, 2017	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100057	9kHz-40GHz	Nov. 23, 2015	Aug. 28, 2016 ~ Oct. 04, 2016	Nov. 22, 2016	Conducted (TH05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Sep. 12, 2016	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI 7	100724	9kHz~7GHz	Aug. 30, 2016	Sep. 12, 2016	Aug. 29, 2017	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Dec. 02, 2015	Sep. 12, 2016	Dec. 01, 2016	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100081	9kHz~30MHz	Dec. 14, 2015	Sep. 12, 2016	Dec. 13, 2016	Conduction (CO05-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Sep. 02, 2015	Sep. 19, 2016 ~ Sep. 23, 2016	Sep. 01, 2017	Radiation (03CH13-HY)
Amplifier	Sonoma-Instrument	310 N	187282	10MHz~1GHz	Dec. 31, 2015	Sep. 19, 2016 ~ Sep. 23, 2016	Dec. 30, 2016	Radiation (03CH13-HY)
Bilog Antenna	TESEQ	CBL 6111D	40103	30MHz to 1GHz	Jan. 13, 2016	Sep. 19, 2016 ~ Sep. 23, 2016	Jan. 12, 2017	Radiation (03CH13-HY)
EMI Test Receiver	Keysight	N9038A (MXE)	MY55420170	N/A	Mar. 10, 2016	Sep. 19, 2016 ~ Sep. 23, 2016	Mar. 09, 2017	Radiation (03CH13-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1241	1GHz ~ 18GHz	Apr. 25, 2016	Sep. 19, 2016 ~ Sep. 23, 2016	Apr. 24, 2017	Radiation (03CH13-HY)
Preamplifier	MITEQ	AMF-7D-0010 1800-30-10P	1590074	1GHz~18GHz	Jun. 27, 2016	Sep. 19, 2016 ~ Sep. 23, 2016	Jun. 26, 2017	Radiation (03CH13-HY)
Preamplifier	MITEQ	JS44-180040 00-33-8P	1840917	18GHz ~ 40GHz	Jun. 14, 2016	Sep. 19, 2016 ~ Sep. 23, 2016	Jun. 13, 2017	Radiation (03CH13-HY)
Preamplifier	Keysight	83017A	MY53270147	1GHz~26.5GHz	Jan. 30, 2016	Sep. 19, 2016 ~ Sep. 23, 2016	Jan. 29, 2017	Radiation (03CH13-HY)
Spectrum Analyzer	Keysight	N9010A	MY55370526	N/A	Mar. 14, 2016	Sep. 19, 2016 ~ Sep. 23, 2016	Mar. 13, 2017	Radiation (03CH13-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Sep. 19, 2016 ~ Sep. 23, 2016	N/A	Radiation (03CH13-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Sep. 19, 2016 ~ Sep. 23, 2016	N/A	Radiation (03CH13-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170584	18GHz- 40GHz	Nov. 02, 2015	Sep. 19, 2016 ~ Sep. 23, 2016	Nov. 01, 2016	Radiation (03CH13-HY)



5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.26
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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. Conducted Test Results

A1 - DTS Part

Test Engineer:	AC Chang	Temperature:	21~25	°C
Test Date:	2016/08/28 ~ 2016/10/04	Relative Humidity:	51~54	%

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

2.4GHz Band								
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	99% Occupied BW (MHz)	6dB BW (MHz)	6dB BW Limit (MHz)	Pass/Fail
11b	1Mbps	1	1	2412	11.95	8.02	0.50	Pass
11b	1Mbps	1	6	2437	11.95	7.54	0.50	Pass
11b	1Mbps	1	11	2462	11.95	8.02	0.50	Pass
11g	6Mbps	1	1	2412	17.20	15.12	0.50	Pass
11g	6Mbps	1	6	2437	17.15	15.42	0.50	Pass
11g	6Mbps	1	11	2462	17.20	15.10	0.50	Pass
HT20	MCS0	1	1	2412	18.00	15.08	0.50	Pass
HT20	MCS0	1	6	2437	18.05	15.10	0.50	Pass
HT20	MCS0	1	11	2462	18.05	15.10	0.50	Pass

TEST RESULTS DATA
Peak Power Table

2.4GHz Band										
Mod.	Data Rate	N _{TX}	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	16.36	30.00	0.94	17.30	36.00	Pass
11b	1Mbps	1	6	2437	16.65	30.00	0.94	17.59	36.00	Pass
11b	1Mbps	1	11	2462	16.87	30.00	0.94	17.81	36.00	Pass
11g	6Mbps	1	1	2412	20.97	30.00	0.94	21.91	36.00	Pass
11g	6Mbps	1	6	2437	21.21	30.00	0.94	22.15	36.00	Pass
11g	6Mbps	1	11	2462	21.27	30.00	0.94	22.21	36.00	Pass
HT20	MCS0	1	1	2412	20.72	30.00	0.94	21.66	36.00	Pass
HT20	MCS0	1	6	2437	20.81	30.00	0.94	21.75	36.00	Pass
HT20	MCS0	1	11	2462	20.98	30.00	0.94	21.92	36.00	Pass

TEST RESULTS DATA
Average Power Table
(Reporting Only)

2.4GHz Band						
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)
11b	1Mbps	1	1	2412	0.00	13.18
11b	1Mbps	1	6	2437	0.00	13.24
11b	1Mbps	1	11	2462	0.00	13.63
11g	6Mbps	1	1	2412	0.09	12.62
11g	6Mbps	1	6	2437	0.09	12.91
11g	6Mbps	1	11	2462	0.09	13.00
HT20	MCS0	1	1	2412	0.16	11.62
HT20	MCS0	1	6	2437	0.16	11.90
HT20	MCS0	1	11	2462	0.16	12.09

TEST RESULTS DATA
Peak Power Density

2.4GHz Band								
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	Peak PSD (dBm /3kHz)	DG (dBi)	Peak PSD Limit (dBm /3kHz)	Pass/Fail
11b	1Mbps	1	1	2412	-8.57	0.94	8.00	Pass
11b	1Mbps	1	6	2437	-9.16	0.94	8.00	Pass
11b	1Mbps	1	11	2462	-7.79	0.94	8.00	Pass
11g	6Mbps	1	1	2412	-12.74	0.94	8.00	Pass
11g	6Mbps	1	6	2437	-12.06	0.94	8.00	Pass
11g	6Mbps	1	11	2462	-11.12	0.94	8.00	Pass
HT20	MCS0	1	1	2412	-13.83	0.94	8.00	Pass
HT20	MCS0	1	6	2437	-13.68	0.94	8.00	Pass
HT20	MCS0	1	11	2462	-11.81	0.94	8.00	Pass



Appendix B. Radiated Spurious Emission

Test Engineer :	Bill Chang, Wilson Wu and Alex Jeng	Temperature :	24.5~25.3°C
		Relative Humidity :	55~57%

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 01 2412MHz		2386.65	54.28	-19.72	74	51.43	27.15	6.98	31.28	204	50	P	H
		2386.23	44.27	-9.73	54	41.42	27.15	6.98	31.28	204	50	A	H
	*	2412	103.28	-	-	100.36	27.19	7	31.27	204	50	P	H
	*	2412	100.07	-	-	97.15	27.19	7	31.27	204	50	A	H
													H
													H
		2346.855	52.92	-21.08	74	50.27	27.03	6.91	31.29	366	91	P	V
		2386.125	44.28	-9.72	54	41.43	27.15	6.98	31.28	366	91	A	V
	*	2412	104.06	-	-	101.14	27.19	7	31.27	366	91	P	V
	*	2412	100.82	-	-	97.9	27.19	7	31.27	366	91	A	V
													V
													V
802.11b CH 06 2437MHz		2322.88	53.63	-20.37	74	51.05	26.99	6.89	31.3	199	50	P	H
		2357.18	42.06	-11.94	54	39.35	27.07	6.93	31.29	199	50	A	H
	*	2438	104.18	-	-	101.13	27.28	7.03	31.26	199	50	P	H
	*	2436	100.89	-	-	97.9	27.23	7.02	31.26	199	50	A	H
		2493.56	53	-21	74	49.75	27.4	7.09	31.24	199	50	P	H
		2489.08	42.34	-11.66	54	39.1	27.4	7.09	31.25	199	50	A	H
		2352	53.24	-20.76	74	50.53	27.07	6.93	31.29	284	82	P	V
		2357.18	42.23	-11.77	54	39.52	27.07	6.93	31.29	284	82	A	V
	*	2438	104.38	-	-	101.33	27.28	7.03	31.26	284	82	P	V
	*	2438	101.03	-	-	97.98	27.28	7.03	31.26	284	82	A	V
		2484.04	53.18	-20.82	74	50	27.36	7.07	31.25	284	82	P	V
		2488.94	42.36	-11.64	54	39.12	27.4	7.09	31.25	284	82	A	V



802.11b CH 11 2462MHz	*	2462	104.68	-	-	101.57	27.32	7.05	31.26	221	48	P	H
	*	2462	101.3	-	-	98.19	27.32	7.05	31.26	221	48	A	H
		2487.44	54.27	-19.73	74	51.09	27.36	7.07	31.25	221	48	P	H
		2487.68	45.9	-8.1	54	42.66	27.4	7.09	31.25	221	48	A	H
													H
													H
	*	2462	104.72	-	-	101.61	27.32	7.05	31.26	251	97	P	V
	*	2462	101.42	-	-	98.31	27.32	7.05	31.26	251	97	A	V
		2489	54.71	-19.29	74	51.47	27.4	7.09	31.25	251	97	P	V
		2487.76	45.96	-8.04	54	42.72	27.4	7.09	31.25	251	97	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11b (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 01 2412MHz		4824	49.55	-24.45	74	64.8	31.22	10.07	56.54	100	0	P	H
													H
													H
													H
		4824	48.1	-25.9	74	63.35	31.22	10.07	56.54	100	0	P	V
													V
													V
													V
802.11b CH 06 2437MHz		4874	49.23	-24.77	74	64.28	31.31	10.11	56.47	100	0	P	H
		7311	42.76	-31.24	74	51.16	36.27	12.53	57.2	100	0	P	H
													H
													H
		4874	47.82	-26.18	74	62.87	31.31	10.11	56.47	100	0	P	V
		7311	42.65	-31.35	74	51.05	36.27	12.53	57.2	100	0	P	V
													V
													V
802.11b CH 11 2462MHz		4924	48.22	-25.78	74	63.09	31.39	10.14	56.4	100	0	P	H
		7386	43.12	-30.88	74	51.21	36.51	12.73	57.33	100	0	P	H
													H
													H
		4924	46.98	-27.02	74	61.85	31.39	10.14	56.4	100	0	P	V
		7386	42.73	-31.27	74	50.82	36.51	12.73	57.33	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11g (Band Edge @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 01 2412MHz		2390	66.57	-44.63	111.2	63.71	27.15	6.98	31.27	204	51	P	H
		2390	52.02	-1.98	54	49.16	27.15	6.98	31.27	204	51	A	H
	*	2412	104.43	-	-	101.51	27.19	7	31.27	204	51	P	H
	*	2412	97.07	-	-	94.15	27.19	7	31.27	204	51	A	H
													H
													H
		2390	67.24	-6.76	74	64.38	27.15	6.98	31.27	366	92	P	V
		2390	52.17	-1.83	54	49.31	27.15	6.98	31.27	366	92	A	V
	*	2412	105.55	-	-	102.63	27.19	7	31.27	366	92	P	V
	*	2412	97.66	-	-	94.74	27.19	7	31.27	366	92	A	V
													V
													V
802.11g CH 06 2437MHz		2388.26	58.34	-15.66	74	55.49	27.15	6.98	31.28	199	51	P	H
		2389.94	45.98	-8.02	54	43.12	27.15	6.98	31.27	199	51	A	H
	*	2437	106.24	-	-	103.19	27.28	7.03	31.26	199	51	P	H
	*	2437	98.33	-	-	95.28	27.28	7.03	31.26	199	51	A	H
		2484.04	56.13	-17.87	74	52.95	27.36	7.07	31.25	199	51	P	H
		2483.48	45.17	-86.03	131.2	41.99	27.36	7.07	31.25	199	51	A	H
		2388.12	57.77	-16.23	74	54.92	27.15	6.98	31.28	284	82	P	V
		2389.94	46.1	-7.9	54	43.24	27.15	6.98	31.27	284	82	A	V
	*	2437	105.63	-	-	102.58	27.28	7.03	31.26	284	82	P	V
	*	2437	98.06	-	-	95.01	27.28	7.03	31.26	284	82	A	V
		2484.39	56.08	-17.92	74	52.9	27.36	7.07	31.25	284	82	P	V
		2483.55	45.2	-8.8	54	42.02	27.36	7.07	31.25	284	82	A	V



802.11g CH 11 2462MHz	*	2462	106.34	-	-	103.23	27.32	7.05	31.26	220	47	P	H
	*	2462	98.7	-	-	95.59	27.32	7.05	31.26	220	47	A	H
		2483.76	69.17	-4.83	74	65.99	27.36	7.07	31.25	220	47	P	H
		2483.52	51.23	-2.77	54	48.05	27.36	7.07	31.25	220	47	A	H
													H
													H
	*	2462	106.14	-	-	103.03	27.32	7.05	31.26	343	90	P	V
	*	2462	98.69	-	-	95.58	27.32	7.05	31.26	343	90	A	V
		2485.12	67.71	-6.29	74	64.53	27.36	7.07	31.25	343	90	P	V
		2483.52	51.45	-2.55	54	48.27	27.36	7.07	31.25	343	90	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	44.79	-29.21	74	60.04	31.22	10.07	56.54	100	0	P	H
													H
													H
													H
		4824	43.29	-30.71	74	58.54	31.22	10.07	56.54	100	0	P	V
													V
													V
													V
802.11g CH 06 2437MHz		4874	46.19	-27.81	74	61.24	31.31	10.11	56.47	100	0	P	H
		7311	42.58	-31.42	74	50.98	36.27	12.53	57.2	100	0	P	H
													H
													H
		4874	42.71	-31.29	74	57.76	31.31	10.11	56.47	100	0	P	V
		7311	43.74	-30.26	74	52.14	36.27	12.53	57.2	100	0	P	V
													V
													V
802.11g CH 11 2462MHz		4924	43.56	-30.44	74	58.43	31.39	10.14	56.4	100	0	P	H
		7386	43.17	-30.83	74	51.26	36.51	12.73	57.33	100	0	P	H
													H
													H
		4924	41.33	-32.67	74	56.2	31.39	10.14	56.4	100	0	P	V
		7386	42.32	-31.68	74	50.41	36.51	12.73	57.33	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 01 2412MHz		2389.59	66.37	-7.63	74	63.52	27.15	6.98	31.28	226	48	P	H
		2389.38	51.92	-2.08	54	49.07	27.15	6.98	31.28	226	48	A	H
	*	2412	102.93	-	-	100.01	27.19	7	31.27	226	48	P	H
	*	2412	95.43	-	-	92.51	27.19	7	31.27	226	48	A	H
													H
													H
		2389.695	66.34	-7.66	74	63.49	27.15	6.98	31.28	364	93	P	V
		2389.905	50.5	-3.5	54	47.64	27.15	6.98	31.27	364	93	A	V
	*	2412	103.13	-	-	100.21	27.19	7	31.27	364	93	P	V
	*	2412	95.48	-	-	92.56	27.19	7	31.27	364	93	A	V
													V
													V
802.11n HT20 CH 06 2437MHz		2389.1	55.79	-18.21	74	52.94	27.15	6.98	31.28	200	49	P	H
		2389.1	45.64	-8.36	54	42.79	27.15	6.98	31.28	200	49	A	H
	*	2437	103.71	-	-	100.66	27.28	7.03	31.26	200	49	P	H
	*	2437	96.22	-	-	93.17	27.28	7.03	31.26	200	49	A	H
		2483.83	55.43	-18.57	74	52.25	27.36	7.07	31.25	200	49	P	H
		2485.37	44.87	-9.13	54	41.69	27.36	7.07	31.25	200	49	A	H
		2386.72	54.78	-19.22	74	51.93	27.15	6.98	31.28	282	94	P	V
		2389.8	45.52	-8.48	54	42.66	27.15	6.98	31.27	282	94	A	V
	*	2437	103.67	-	-	100.62	27.28	7.03	31.26	282	94	P	V
	*	2437	96.22	-	-	93.17	27.28	7.03	31.26	282	94	A	V
		2485.37	54.79	-19.21	74	51.61	27.36	7.07	31.25	282	94	P	V
		2483.5	45.32	-8.68	54	42.14	27.36	7.07	31.25	282	94	A	V



802.11n HT20 CH 11 2462MHz	*	2462	102.13	-	-	99.02	27.32	7.05	31.26	187	132	P	H
	*	2462	94.61	-	-	91.5	27.32	7.05	31.26	187	132	A	H
		2484.12	65.76	-8.24	74	62.58	27.36	7.07	31.25	187	132	P	H
		2483.96	50.5	-3.5	54	47.32	27.36	7.07	31.25	187	132	A	H
													H
													H
	*	2462	104.19	-	-	101.08	27.32	7.05	31.26	306	94	P	V
	*	2462	96.54	-	-	93.43	27.32	7.05	31.26	306	94	A	V
		2485.68	68.47	-5.53	74	65.29	27.36	7.07	31.25	306	94	P	V
		2484.8	52.2	-1.8	54	49.02	27.36	7.07	31.25	306	94	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 01 2412MHz		4824	43.57	-30.43	74	58.82	31.22	10.07	56.54	100	0	P	H
													H
													H
													H
		4824	44.13	-29.87	74	59.38	31.22	10.07	56.54	100	0	P	V
													V
													V
													V
802.11n HT20 CH 06 2437MHz		4874	42.88	-31.12	74	57.93	31.31	10.11	56.47	100	0	P	H
		7311	42.56	-31.44	74	50.96	36.27	12.53	57.2	100	0	P	H
													H
													H
		4874	42.38	-31.62	74	57.43	31.31	10.11	56.47	100	0	P	V
		7311	42.49	-31.51	74	50.89	36.27	12.53	57.2	100	0	P	V
													V
													V
802.11n HT20 CH 11 2462MHz		4924	43.46	-30.54	74	58.33	31.39	10.14	56.4	100	0	P	H
		7386	44.09	-29.91	74	52.18	36.51	12.73	57.33	100	0	P	H
													H
													H
		4924	41.25	-32.75	74	56.12	31.39	10.14	56.4	100	0	P	V
		7386	42.47	-31.53	74	50.56	36.51	12.73	57.33	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 HT20 (LF)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
2.4GHz 802.11n HT20 LF		30.27	24.51	-15.49	40	29.87	25.9	0.69	31.95	-	-	P	H
		156.09	29.92	-13.58	43.5	43.38	17.08	1.31	31.85	-	-	P	H
		284.34	29.85	-16.15	46	40.6	19.22	1.79	31.76	-	-	P	H
		316.8	33.27	-12.73	46	43.12	20.02	1.88	31.75	100	53	P	H
		672.4	27.73	-18.27	46	30.91	25.88	2.95	32.01	-	-	P	H
		946.1	31.88	-14.12	46	29.58	30.01	3.44	31.15	-	-	P	H
													H
													H
													H
													H
													H
													H
		36.21	35.45	-4.55	40	44.24	22.52	0.63	31.94	100	66	P	V
		153.12	34.42	-9.08	43.5	47.68	17.29	1.3	31.85	-	-	P	V
		227.64	22.32	-23.68	46	35.77	16.72	1.62	31.79	-	-	P	V
		319.6	26.94	-19.06	46	36.69	20.11	1.89	31.75	-	-	P	V
		600.3	27.19	-18.81	46	31.06	25.3	2.78	31.95	-	-	P	V
		941.9	32.13	-13.87	46	29.97	29.91	3.44	31.19	-	-	P	V
													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	Peak or Average
H/V	Horizontal or Vertical



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		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		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 C. Radiated Spurious Emission Plots

Test Engineer :	Bill Chang, Wilson Wu and Alex Jeng	Temperature :	24.5~25.3°C
		Relative Humidity :	55~57%

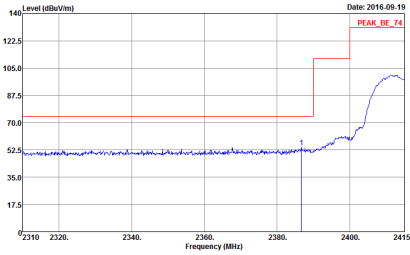
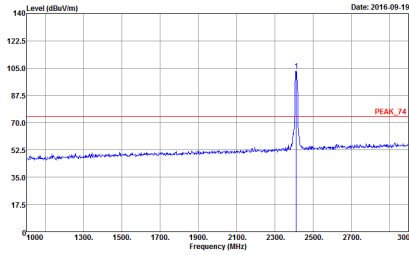
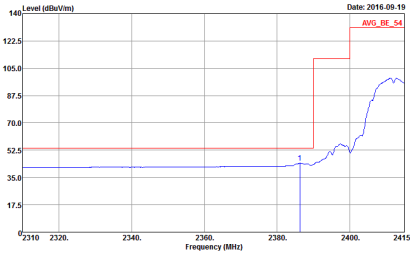
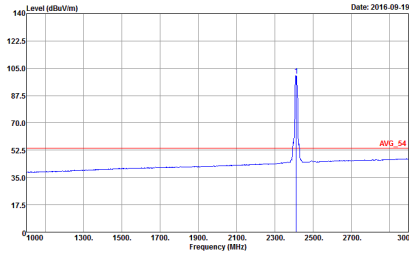
Note symbol

-L	Low channel location
-R	High channel location

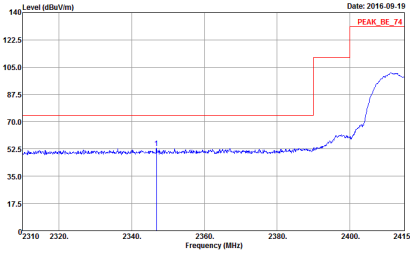
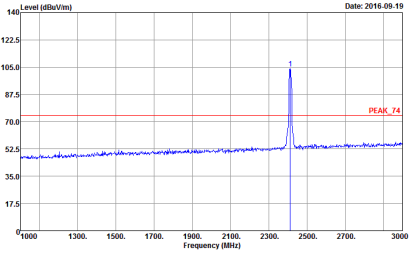
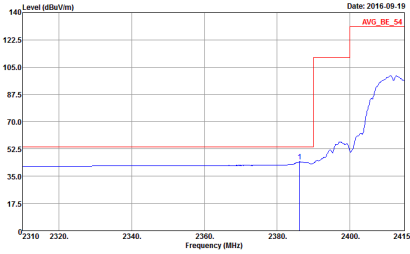
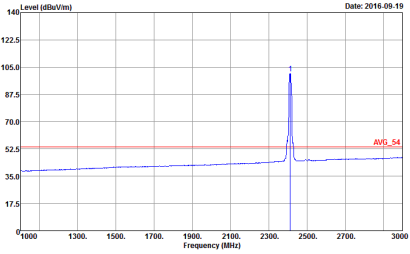


2.4GHz 2400~2483.5MHz

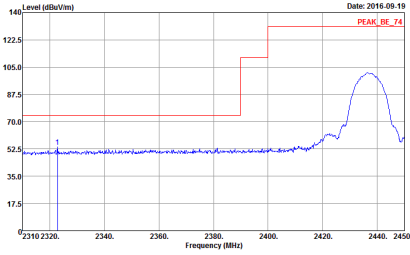
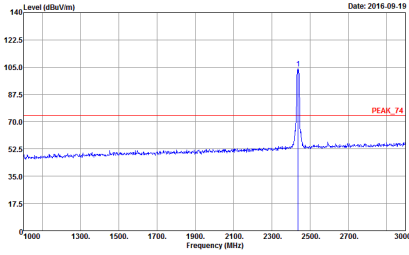
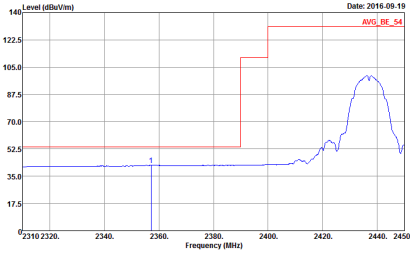
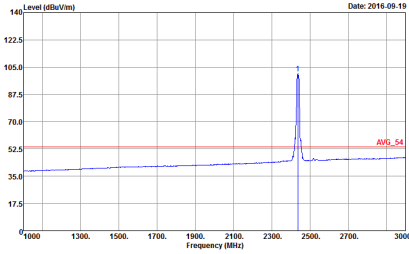
WIFI 802.11b (Band Edge @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_91200_1241 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 680937 Mode : 9	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 680937 Mode : 9
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_91200_1241 HORIZONTAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak Project : 680937 Mode : 9	 Site : 03CH13-HY Condition : AVG_54 3m HORN_91200_1241 HORIZONTAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak Project : 680937 Mode : 9

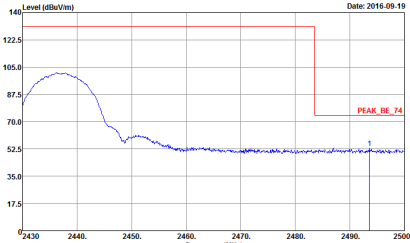
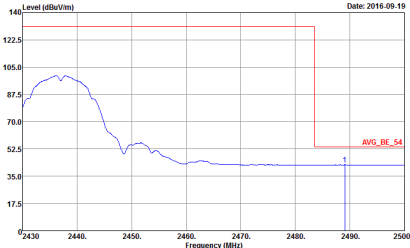


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_91200_1241 VERTICAL Detector : Peak Project : 680937 Mode : 9	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 VERTICAL Detector : Peak Project : 680937 Mode : 9
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_91200_1241 VERTICAL Detector : Peak Project : 680937 Mode : 9	 Site : 03CH13-HY Condition : AVG_54 3m HORN_91200_1241 VERTICAL Detector : Peak Project : 680937 Mode : 9

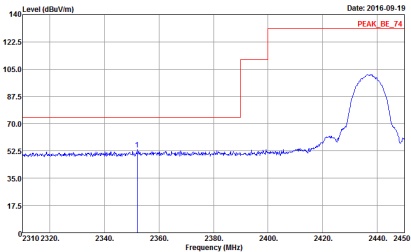
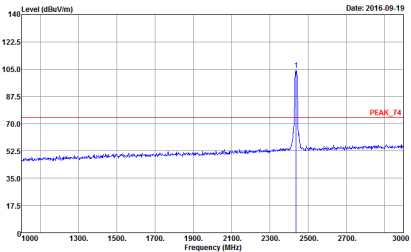
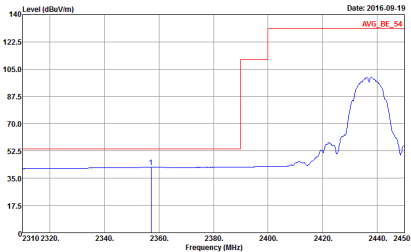
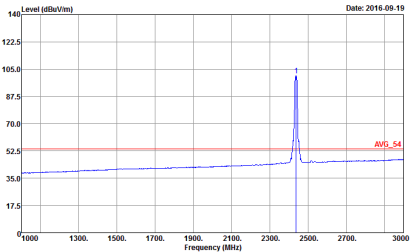


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_91200_1241 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 680937 Mode : 10	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 680937 Mode : 10
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_91200_1241 HORIZONTAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak Project : 680937 Mode : 10	 Site : 03CH13-HY Condition : AVG_54 3m HORN_91200_1241 HORIZONTAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak Project : 680937 Mode : 10

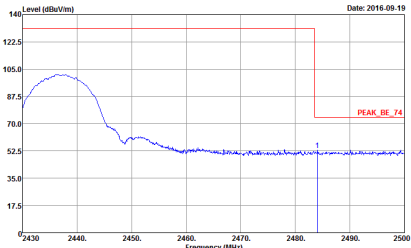
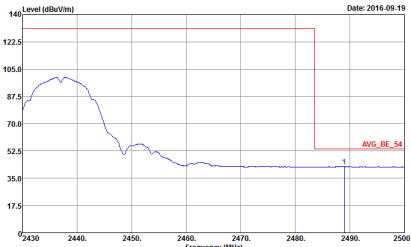


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - R	
1	Horizontal	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_91200_1241 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 680937 Mode : 10	Left blank
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_91200_1241 HORIZONTAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak Project : 680937 Mode : 10	Left blank

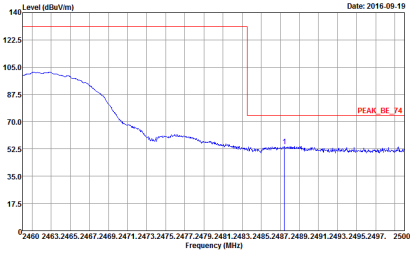
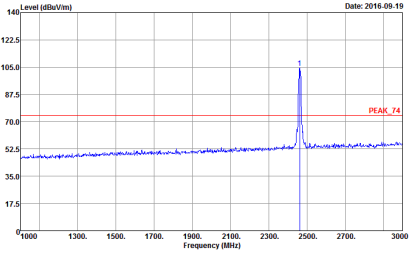
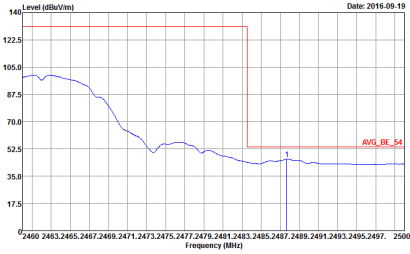
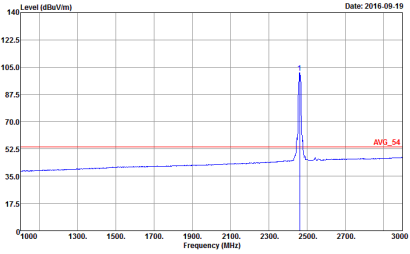


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - L	
1	Vertical	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_91200_1241 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 680937 Mode : 10	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 680937 Mode : 10
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_91200_1241 VERTICAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak Project : 680937 Mode : 10	 Site : 03CH13-HY Condition : AVG_54 3m HORN_91200_1241 VERTICAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak Project : 680937 Mode : 10

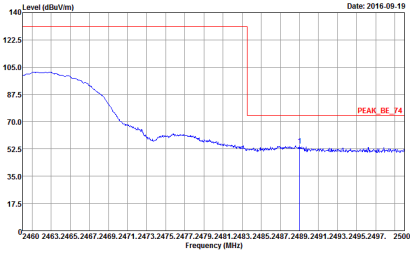
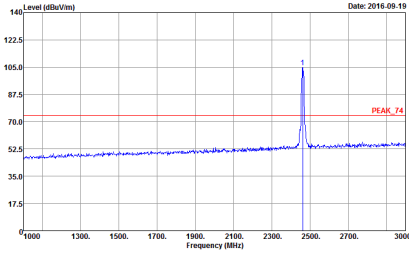
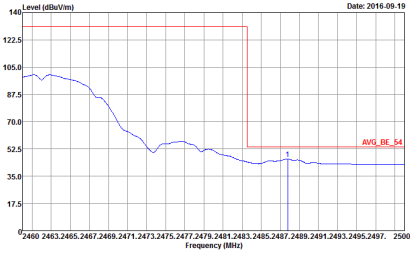
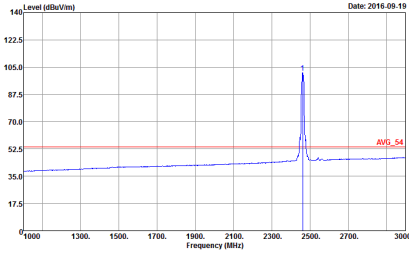


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - R	
1	Vertical	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_91200_1241 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 680937 Mode : 10	Left blank
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_91200_1241 VERTICAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak Project : 680937 Mode : 10	Left blank



WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_91200_1241 HORIZONTAL Detector : Peak Project : 680937 Mode : 11	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 HORIZONTAL Detector : Peak Project : 680937 Mode : 11
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_91200_1241 HORIZONTAL Detector : Peak Project : 680937 Mode : 11	 Site : 03CH13-HY Condition : AVG_54 3m HORN_91200_1241 HORIZONTAL Detector : Peak Project : 680937 Mode : 11

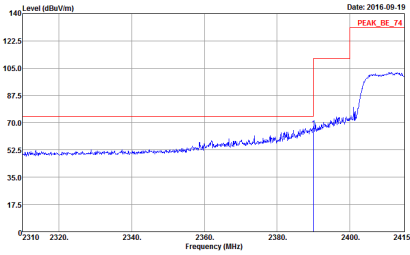
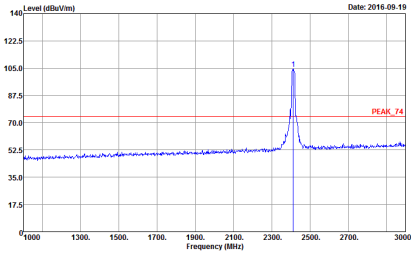
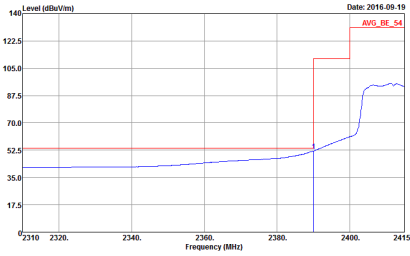
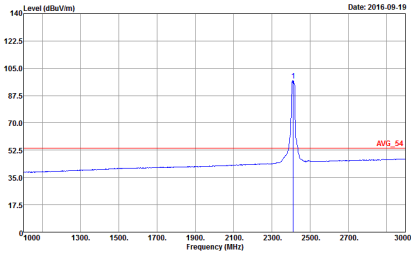


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
1	Vertical	Fundamental
Peak	 Level (dBuV/m) vs Frequency (MHz) plot for Vertical Peak. The plot shows a blue line representing the spectrum with a red box highlighting the peak area. The peak is labeled 'PEAK_BE_74'. The x-axis ranges from 2460 to 2500 MHz, and the y-axis ranges from 0 to 140 dBuV/m. Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_91200_1241 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 680937 Mode : 11	 Level (dBuV/m) vs Frequency (MHz) plot for Vertical Fundamental. The plot shows a blue line representing the spectrum with a red box highlighting the peak area. The peak is labeled 'PEAK_74'. The x-axis ranges from 1000 to 3000 MHz, and the y-axis ranges from 0 to 140 dBuV/m. Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 680937 Mode : 11
Avg.	 Level (dBuV/m) vs Frequency (MHz) plot for Vertical Average. The plot shows a blue line representing the spectrum with a red box highlighting the peak area. The peak is labeled 'AVG_BE_54'. The x-axis ranges from 2460 to 2500 MHz, and the y-axis ranges from 0 to 140 dBuV/m. Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_91200_1241 VERTICAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak Project : 680937 Mode : 11	 Level (dBuV/m) vs Frequency (MHz) plot for Vertical Average. The plot shows a blue line representing the spectrum with a red box highlighting the peak area. The peak is labeled 'AVG_54'. The x-axis ranges from 1000 to 3000 MHz, and the y-axis ranges from 0 to 140 dBuV/m. Site : 03CH13-HY Condition : AVG_54 3m HORN_91200_1241 VERTICAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak Project : 680937 Mode : 11

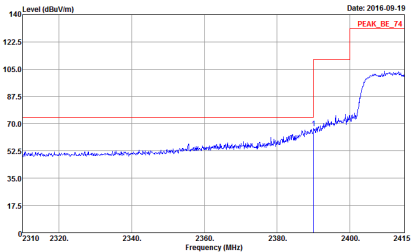
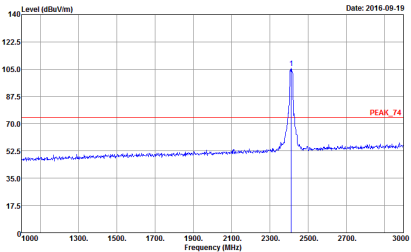
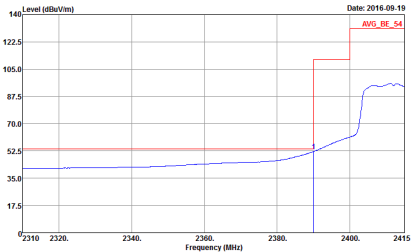
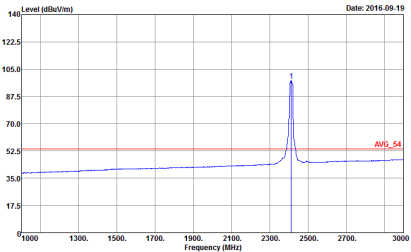


2.4GHz 2400~2483.5MHz

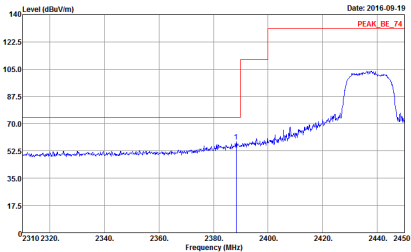
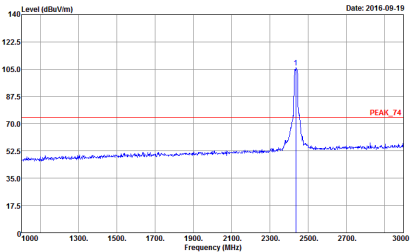
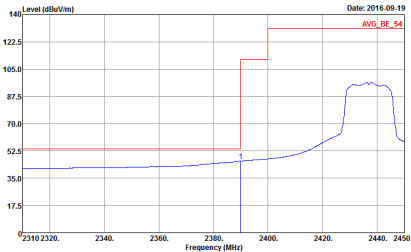
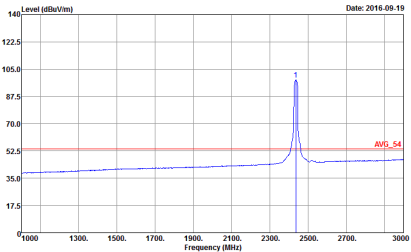
WIFI 802.11g (Band Edge @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_91200_1241 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 680937 Mode : 12	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 680937 Mode : 12
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_91200_1241 HORIZONTAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak Project : 680937 Mode : 12	 Site : 03CH13-HY Condition : AVG_54 3m HORN_91200_1241 HORIZONTAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak Project : 680937 Mode : 12

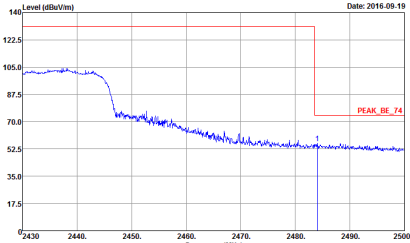
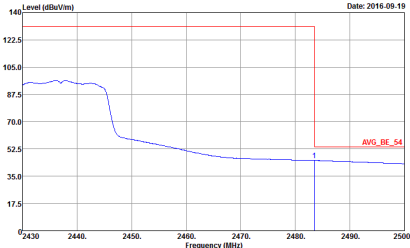


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_91200_1241 VERTICAL Detector : Peak Project : 680937 Mode : 12	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 VERTICAL Detector : Peak Project : 680937 Mode : 12
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_91200_1241 VERTICAL Detector : Peak Project : 680937 Mode : 12	 Site : 03CH13-HY Condition : AVG_54 3m HORN_91200_1241 VERTICAL Detector : Peak Project : 680937 Mode : 12

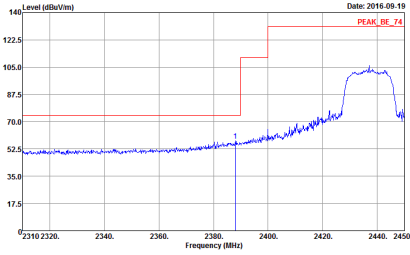
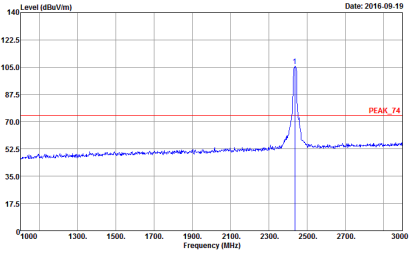
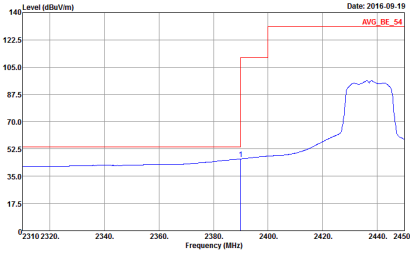
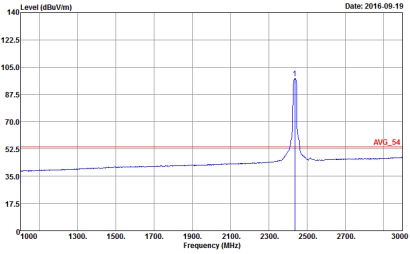


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_91200_1241 HORIZONTAL Detector : Peak Project : 680937 Mode : 13	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 HORIZONTAL Detector : Peak Project : 680937 Mode : 13
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_91200_1241 HORIZONTAL Detector : Peak Project : 680937 Mode : 13	 Site : 03CH13-HY Condition : AVG_54 3m HORN_91200_1241 HORIZONTAL Detector : Peak Project : 680937 Mode : 13

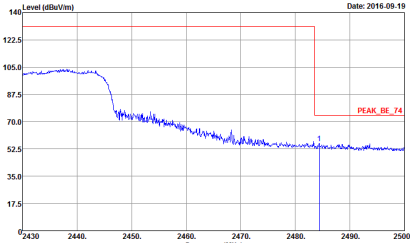
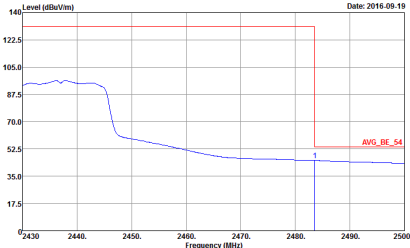


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - R	
1	Horizontal	Fundamental
Peak	 Date: 2016-09-19 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_91200_1241 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 680937 Mode : 13	Left blank
Avg.	 Date: 2016-09-19 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_91200_1241 HORIZONTAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak Project : 680937 Mode : 13	Left blank

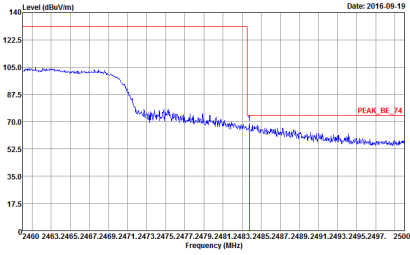
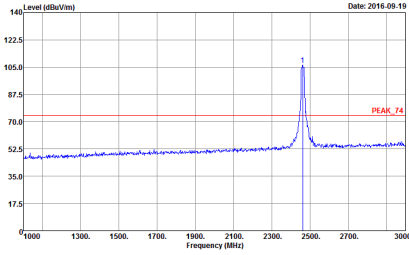
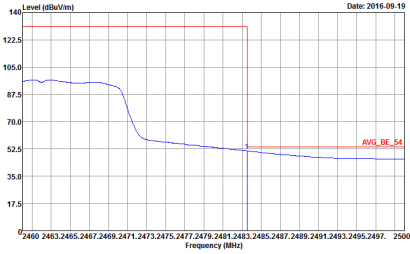
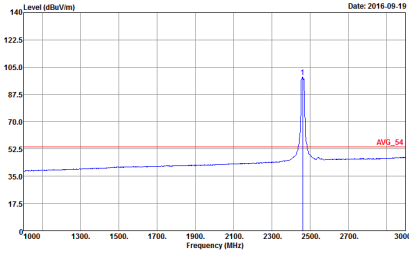


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - L	
1	Vertical	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_91200_1241 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 680937 Mode : 13	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 680937 Mode : 13
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_91200_1241 VERTICAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak Project : 680937 Mode : 13	 Site : 03CH13-HY Condition : AVG_54 3m HORN_91200_1241 VERTICAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak Project : 680937 Mode : 13

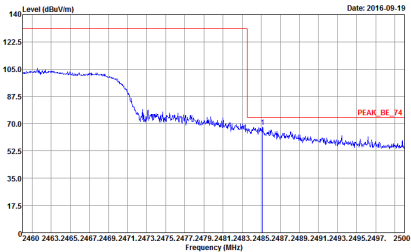
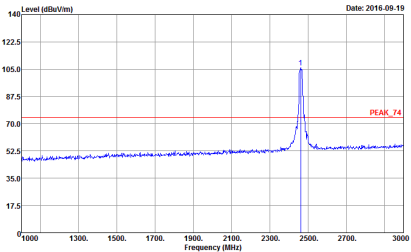
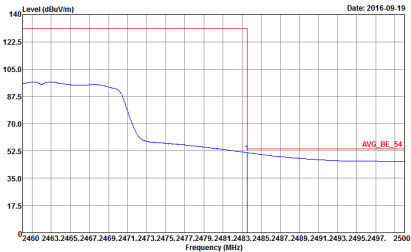
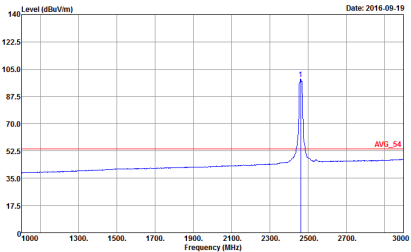


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - R	
1	Vertical	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_91200_1241 VERTICAL Detector : Peak Project : 680937 Mode : 13	Left Blank
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_91200_1241 VERTICAL Detector : Peak Project : 680937 Mode : 13	Left Blank



WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_91200_1241 HORIZONTAL Detector : Peak Project : 680937 Mode : 14	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 HORIZONTAL Detector : Peak Project : 680937 Mode : 14
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_91200_1241 HORIZONTAL Detector : Peak Project : 680937 Mode : 14	 Site : 03CH13-HY Condition : AVG_54 3m HORN_91200_1241 HORIZONTAL Detector : Peak Project : 680937 Mode : 14

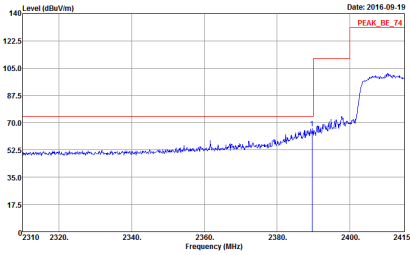
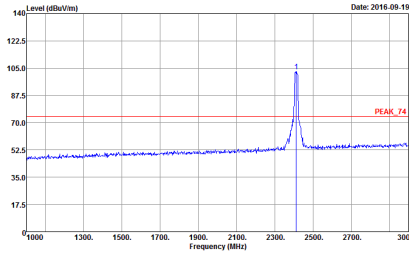
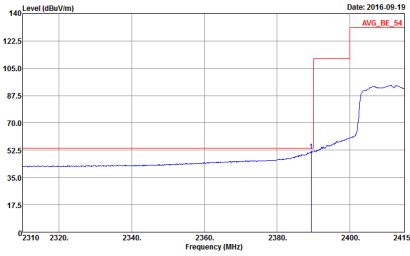
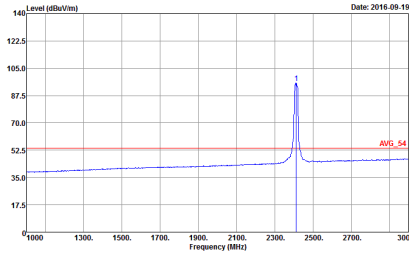


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_91200_1241 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 680937 Mode : 14	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 680937 Mode : 14
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_91200_1241 VERTICAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak Project : 680937 Mode : 14	 Site : 03CH13-HY Condition : AVG_54 3m HORN_91200_1241 VERTICAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak Project : 680937 Mode : 14

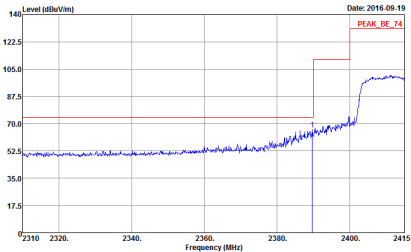
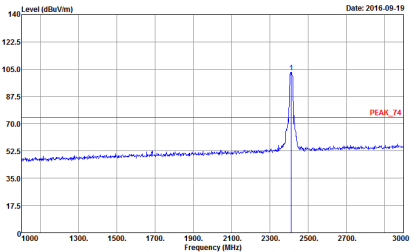
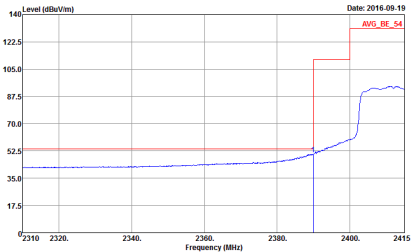
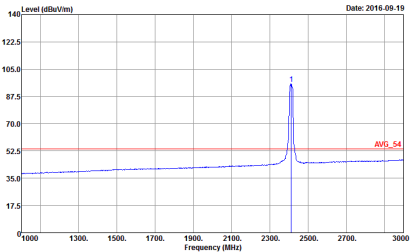


2.4GHz 2400~2483.5MHz

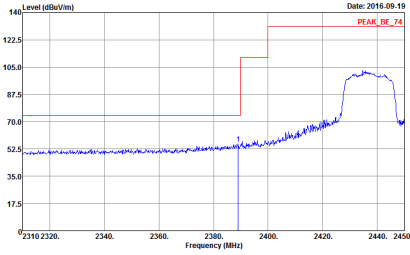
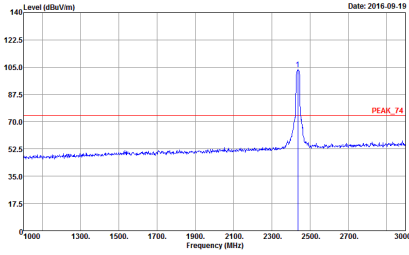
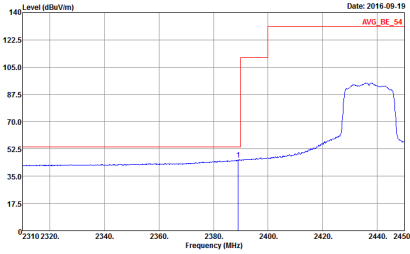
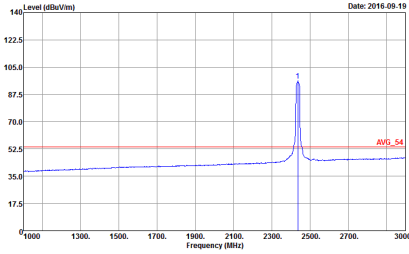
WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_91200_1241 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 680937 Mode : 15	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 680937 Mode : 15
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_91200_1241 HORIZONTAL RBW:1000.000KHz VBW:1000KHz SWT:Auto Detector : Peak Project : 680937 Mode : 15	 Site : 03CH13-HY Condition : AVG_54 3m HORN_91200_1241 HORIZONTAL RBW:1000.000KHz VBW:1000KHz SWT:Auto Detector : Peak Project : 680937 Mode : 15

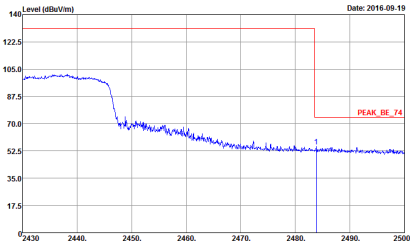
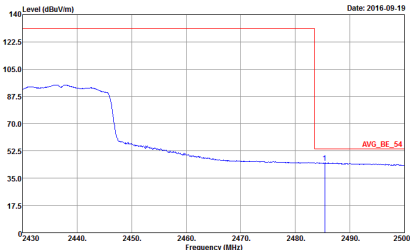


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_91200_1241 VERTICAL Detector : Peak Project : 680937 Mode : 15	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 VERTICAL Detector : Peak Project : 680937 Mode : 15
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_91200_1241 VERTICAL Detector : Peak Project : 680937 Mode : 15	 Site : 03CH13-HY Condition : AVG_54 3m HORN_91200_1241 VERTICAL Detector : Peak Project : 680937 Mode : 15

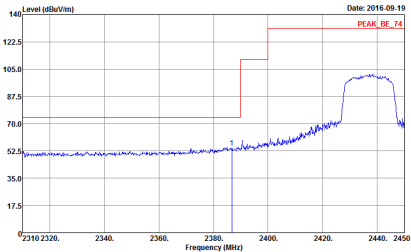
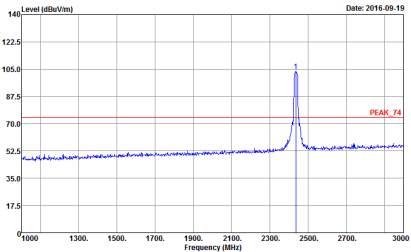
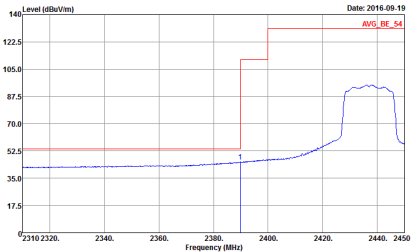
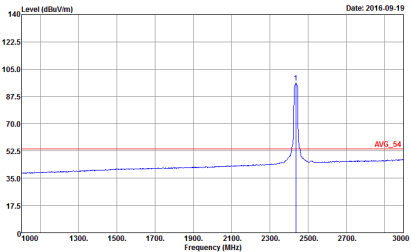


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak	 Date: 2016-09-19 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_91200_1241 HORIZONTAL Detector : Peak Project : 680937 Mode : 16	 Date: 2016-09-19 Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 HORIZONTAL Detector : Peak Project : 680937 Mode : 16
Avg.	 Date: 2016-09-19 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_91200_1241 HORIZONTAL Detector : Peak Project : 680937 Mode : 16	 Date: 2016-09-19 Site : 03CH13-HY Condition : AVG_54 3m HORN_91200_1241 HORIZONTAL Detector : Peak Project : 680937 Mode : 16

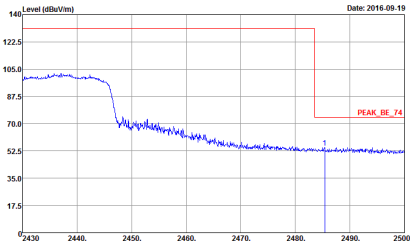
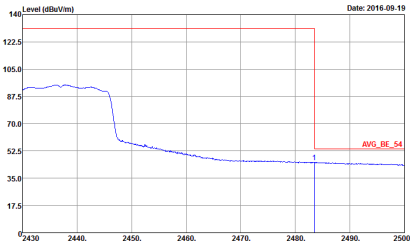


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - R	
1	Horizontal	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_91200_1241 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 680937 Mode : 16	Left blank
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_91200_1241 HORIZONTAL RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak Project : 680937 Mode : 16	Left blank

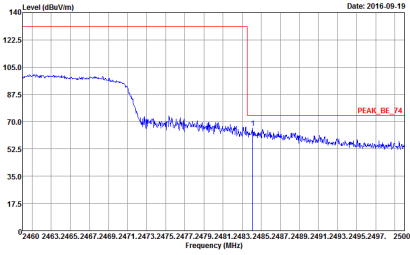
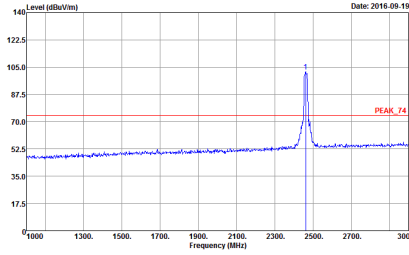
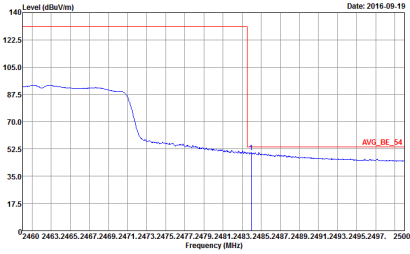
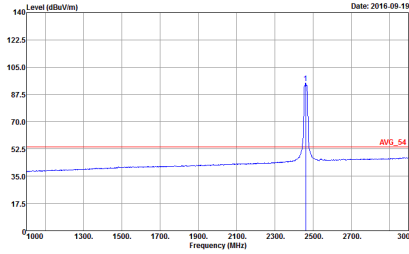


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - L	
1	Vertical	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_91200_1241 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 680937 Mode : 16	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 680937 Mode : 16
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_91200_1241 VERTICAL RBW:1000.000KHz VBW:1000KHz SWT:Auto Detector : Peak Project : 680937 Mode : 16	 Site : 03CH13-HY Condition : AVG_54 3m HORN_91200_1241 VERTICAL RBW:1000.000KHz VBW:1000KHz SWT:Auto Detector : Peak Project : 680937 Mode : 16

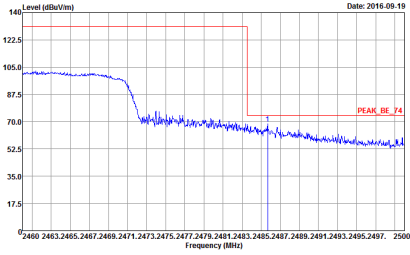
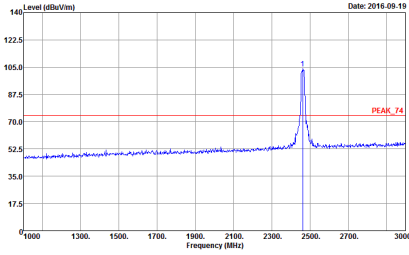
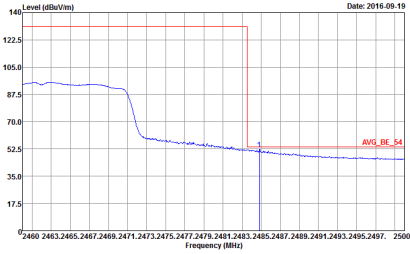
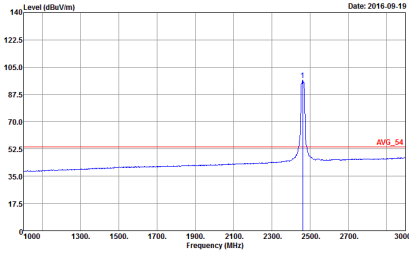


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - R	
1	Vertical	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_91200_1241 VERTICAL Detector : Peak Project : 680937 Mode : 16	Left Blank
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_91200_1241 VERTICAL Detector : Peak Project : 680937 Mode : 16	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_91200_1241 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 680937 Mode : 17	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 680937 Mode : 17
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_91200_1241 HORIZONTAL RBW:1000.000KHz VBW:1000KHz SWT:Auto Detector : Peak Project : 680937 Mode : 17	 Site : 03CH13-HY Condition : AVG_54 3m HORN_91200_1241 HORIZONTAL RBW:1000.000KHz VBW:1000KHz SWT:Auto Detector : Peak Project : 680937 Mode : 17

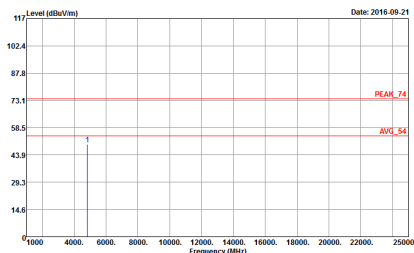
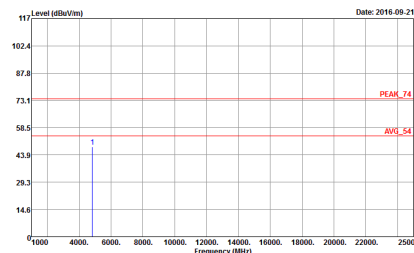


WIFI	2.4GHz 2400~2483.5MHz Fundamental @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_91200_1241 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 680937 Mode : 17	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 680937 Mode : 17
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_91200_1241 VERTICAL RBW:1000.000KHz VBW:1000KHz SWT:Auto Detector : Peak Project : 680937 Mode : 17	 Site : 03CH13-HY Condition : AVG_54 3m HORN_91200_1241 VERTICAL RBW:1000.000KHz VBW:1000KHz SWT:Auto Detector : Peak Project : 680937 Mode : 17

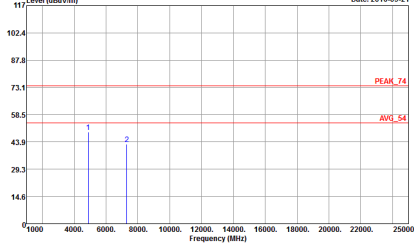
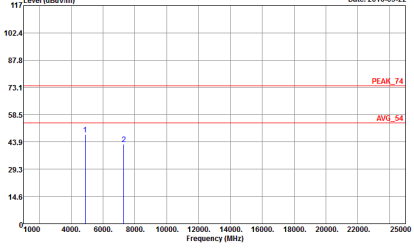


2.4GHz 2400~2483.5MHz

WIFI 802.11b (Harmonic @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH01 2412MHz	
1	Horizontal	Vertical
Peak Avg.	 Site : 03CH13-HY Condition : PEAK_74 3m SHF_HORN_584 HORIZONTAL Detector : Peak Project : 680937 Mode : 9	 Site : 03CH13-HY Condition : PEAK_74 3m SHF_HORN_584 VERTICAL Detector : Peak Project : 680937 Mode : 9



WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH06 2437MHz	
1	Horizontal	Vertical
Peak Avg.	117 Level (dBuV/m) Date: 2016-09-21  Site : 03CH13-HY Condition : PEAK_74 3m SHF_HORN_584 HORIZONTAL Detector : Peak Project : 680937 Mode : 10	117 Level (dBuV/m) Date: 2016-09-22  Site : 03CH13-HY Condition : PEAK_74 3m SHF_HORN_584 VERTICAL Detector : Peak Project : 680937 Mode : 10

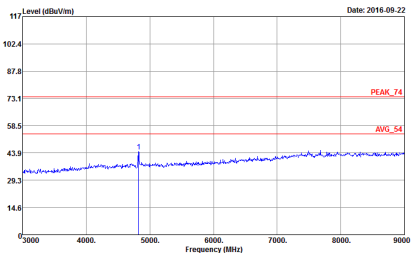
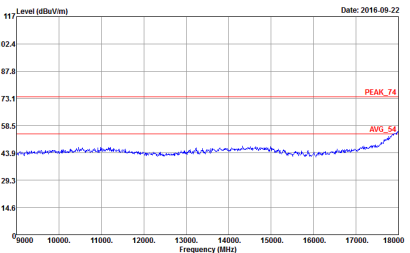


WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH11 2462MHz	
1	Horizontal	Vertical
Peak Avg.	Level (dBu/m) Date: 2016-09-22 Site : 03CH13-HY Condition : PEAK_74 3m SHF_HORN_584 HORIZONTAL Detector : Peak Project : 680937 Mode : 11	Level (dBu/m) Date: 2016-09-22 Site : 03CH13-HY Condition : PEAK_74 3m SHF_HORN_584 VERTICAL Detector : Peak Project : 680937 Mode : 11

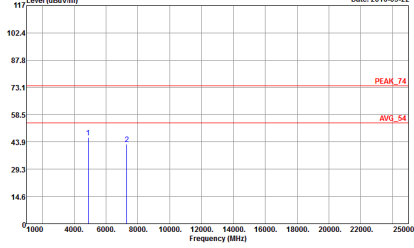
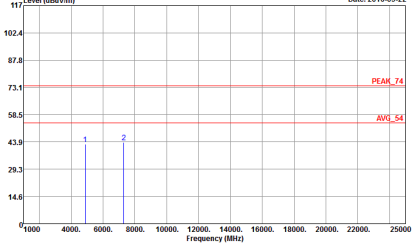


2.4GHz 2400~2483.5MHz

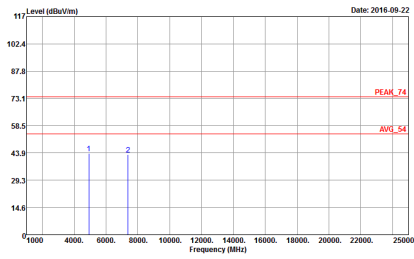
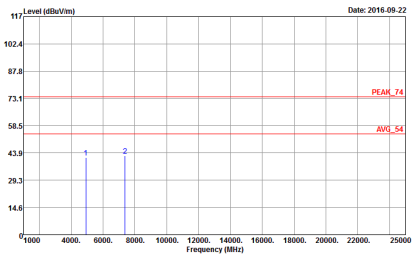
WIFI 802.11g (Harmonic @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH01 2412MHz	
1	Horizontal	Vertical
Peak Avg.	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_9120D_1241 HORIZONTAL Detector : Peak Project : 680937 Mode : 12	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_9120D_1241 HORIZONTAL Detector : Peak Project : 680937 Mode : 12



WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH06 2437MHz	
1	Horizontal	Vertical
Peak Avg.	117 Level (dBuV/m) Date: 2016-09-22  Site : 03CH13-HY Condition : PEAK_74 3m SHF_HORN_584 HORIZONTAL Detector : Peak Project : 680937 Mode : 13	117 Level (dBuV/m) Date: 2016-09-22  Site : 03CH13-HY Condition : PEAK_74 3m SHF_HORN_584 VERTICAL Detector : Peak Project : 680937 Mode : 13

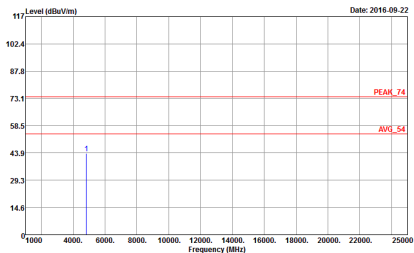
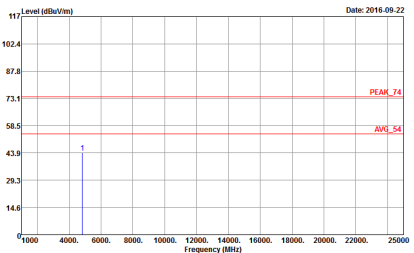


WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH11 2462MHz	
1	Horizontal	Vertical
Peak Avg.	117 Level (dBuV/m) Date: 2016-09-22  Site : 03CH13-HY Condition : PEAK_74 3m SHF_HORN_584 HORIZONTAL Detector : Peak Project : 680937 Mode : 14	117 Level (dBuV/m) Date: 2016-09-22  Site : 03CH13-HY Condition : PEAK_74 3m SHF_HORN_584 VERTICAL Detector : Peak Project : 680937 Mode : 14

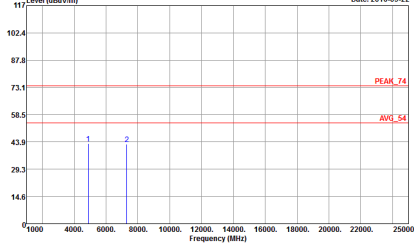
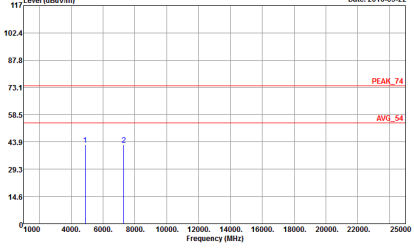


2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
1	Horizontal	Vertical
Peak Avg.	 Site : 03CH13-HY Condition : PEAK_74 3m SHF_HORN_584 HORIZONTAL Detector : Peak Project : 680937 Mode : 15	 Site : 03CH13-HY Condition : PEAK_74 3m SHF_HORN_584 VERTICAL Detector : Peak Project : 680937 Mode : 15



WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH06 2437MHz	
1	Horizontal	Vertical
Peak Avg.	117 Level (dBuV/m) Date: 2016-09-22  Site : 03CH13-HY Condition : PEAK_74 3m SHF_HORN_584 HORIZONTAL Detector : Peak Project : 680937 Mode : 16	117 Level (dBuV/m) Date: 2016-09-22  Site : 03CH13-HY Condition : PEAK_74 3m SHF_HORN_584 VERTICAL Detector : Peak Project : 680937 Mode : 16



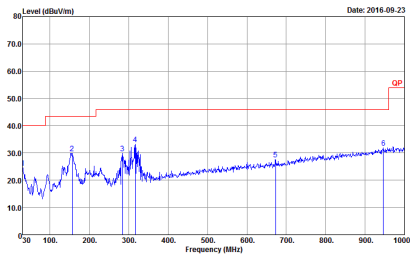
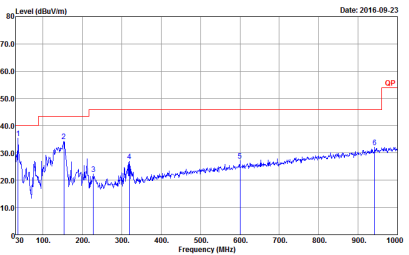
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
1	Horizontal	Vertical
Peak Avg.	Level (dBu/m) Date: 2016-09-22 Frequency (MHz) Site : 03CH13-HY Condition : PEAK_74 3m SHF_HORN_584 HORIZONTAL Detector : Peak Project : 680937 Mode : 17	Level (dBu/m) Date: 2016-09-22 Frequency (MHz) Site : 03CH13-HY Condition : PEAK_74 3m SHF_HORN_584 VERTICAL Detector : Peak Project : 680937 Mode : 17



2.4GHz 2400~2483.5MHz

Emission below 1GHz

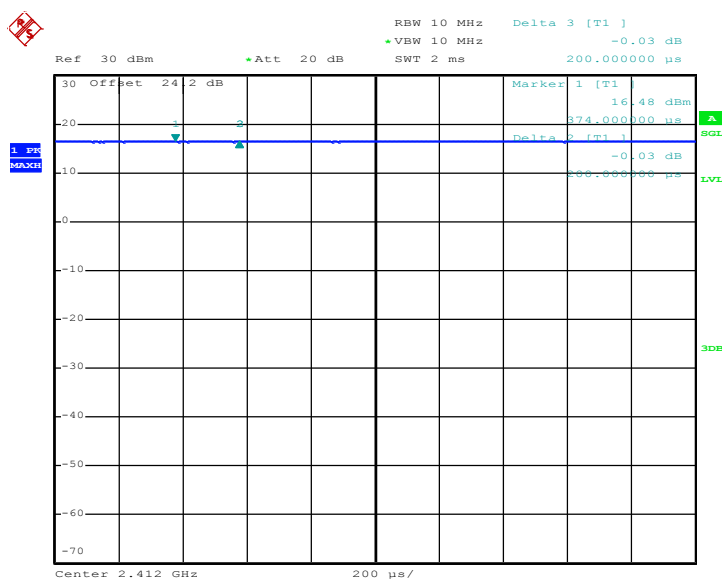
2.4GHz WIFI 802.11n HT20 (LF)

WIFI	2.4GHz 2400~2483.5MHz	
ANT	802.11n HT20 LF	
1	Horizontal	Vertical
QP / Peak	 Site : 03CH13-HY Condition : QP 3m BTLOG_40103 HORIZONTAL Detector : Peak Project : 680937 Mode : 18	 Site : 03CH13-HY Condition : QP 3m BTLOG_40103 VERTICAL Detector : Peak Project : 680937 Mode : 18

Appendix D. Duty Cycle Plots

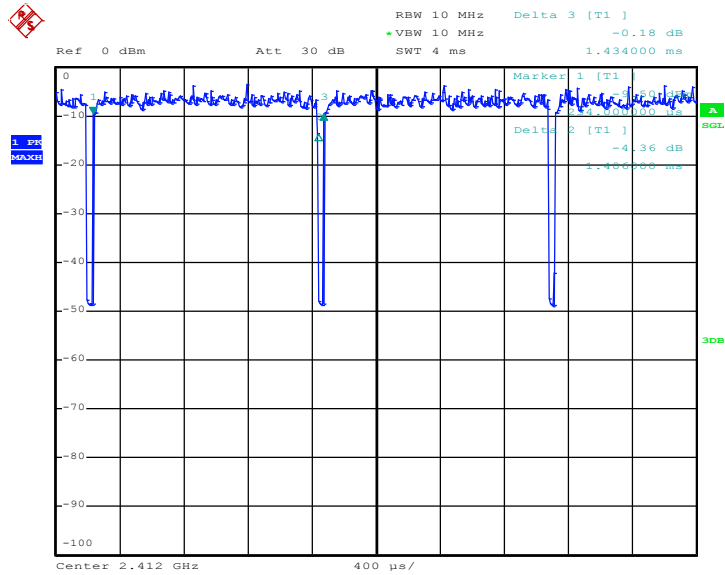
Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
802.11b	100.00	-	-	10Hz
802.11g	98.05	-	-	10Hz
2.4GHz 802.11n HT20	96.32	1310	0.76	1kHz

802.11b



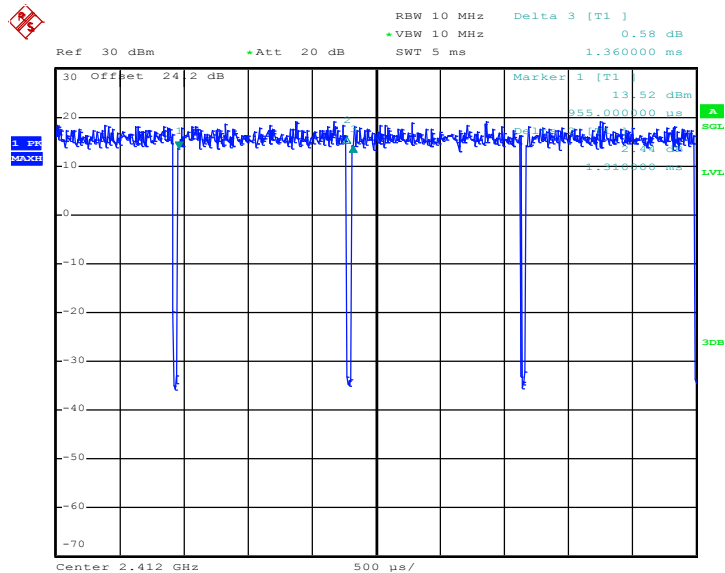
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802.11g



Date: 4.OCT.2016 11:52:55

802.11n HT20



Date: 29.AUG.2016 09:41:39