FCC RF Test Report

APPLICANT	:	TP-LINK TECHNOLOGIES CO., LTD.
EQUIPMENT	:	450Mbps High Power Wireless N Router
BRAND NAME	:	TP-LINK
MODEL NAME	:	TL-WR941HP
FCC ID	:	TE7WR941HP
STANDARD	:	FCC Part 15 Subpart C §15.247
CLASSIFICATION	:	(DTS) Digital Transmission System

The product was received on Jan. 20, 2016 and testing was completed on Apr. 23, 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

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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APPENDIX A. CONDUCTED TEST RESULTS

APPENDIX B. RADIATED TEST RESULTS

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR612010	Rev. 01	Initial issue of report	Apr. 07, 2016
FR612010	Rev. 02	Revising the description in the section 3.2, 3.2.1, 3.2.3, and 3.3.3 and the conducted peak power to average power in the section 1.4 and 2.2	Apr. 15, 2016
FR612010	Rev. 03	Revising the description in the section 3.2.3 and 3.3.3. Adding the data of Power Spectral Density Measurement in the section 3.3.5 and Radiated Band Edges and Spurious Emission Measurement in Appendix B and C.	Apr. 26, 2016
FR612010	Rev. 04	Revising the description in the section 3.4.3. Adding the data of conducted power in Appendix A.	May 03, 2016

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 0.12 dB at 2483.600 MHz
3.6	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 15.60 dB at 17.694 MHz
3.7	15.203 & 15.247(b)	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

TP-LINK TECHNOLOGIES CO., LTD.
Building 24 (floors 1,3,4,5) and 28 (floors1-4) Central Science and Technology Park, Shennan Rd, Nanshan, Shenzhen, China

1.2 Manufacturer

TP-LINK TECHNOLOGIES CO., LTD.
Building 24 (floors 1,3,4,5) and 28 (floors1-4) Central Science and Technology Park, Shennan Rd, Nanshan, Shenzhen, China

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	450Mbps High Power Wireless N Router
Brand Name	TP-LINK
Model Name	TL-WR941HP
FCC ID	TE7WR941HP
EUT supports Radios application	WLAN 11b/g/n HT20/HT40
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Product Specification of Equipment Under Test

<table>
<tr><th colspan="2">Standards-related Product Specification</th></tr>
<tr><td>Tx/Rx Channel Frequency Range</td><td>802.11b/g/n : 2412 MHz ~ 2462 MHz</td></tr>
<tr><td>Maximum (Average) Output Power to antenna</td><td><MIMO Ant. 1+2+3>
802.11b : 28.00 dBm (0.6301 W)
802.11g : 26.84 dBm (0.4831 W)
802.11n HT20 : 24.66 dBm (0.2924 W)
802.11n HT40 : 22.28 dBm (0.1690 W)</td></tr>
<tr><td>99% Occupied Bandwidth</td><td>802.11b : 13.80MHz
802.11g : 16.80MHz
802.11n HT20 : 17.85MHz
802.11n HT40 : 36.00MHz</td></tr>
<tr><td>Antenna Type</td><td><Ant 1>
802.11b/g/n : Dipole Antenna type with gain 7.50 dBi
<Ant 2>
802.11b/g/n : Dipole Antenna type with gain 7.50 dBi
<Ant 3>
802.11b/g/n : Dipole Antenna type with gain 7.50 dBi</td></tr>
<tr><td>Type of Modulation</td><td>802.11b : DSSS (DBPSK / DQPSK / CCK)
802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)</td></tr>
<tr><td>Antenna Function for Transmitter</td><td><table>
<tr><th></th><th>Ant. 1</th><th>Ant. 2</th><th>Ant. 2</th></tr>
<tr><td>802.11 b MIMO</td><td>V</td><td>V</td><td>V</td></tr>
<tr><td>802.11 g MIMO</td><td>V</td><td>V</td><td>V</td></tr>
<tr><td>802.11 n MIMO</td><td>V</td><td>V</td><td>V</td></tr>
</table></td></tr>
</table>

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 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, Alley. 75, Lane 564, Wenhua 3rd Rd. Kwei-Shan District, Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-0838
Test Site No.	**Sporton Site No.**
	03CH10-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 v03r04
- FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ANSI C63.10-2013

Remark:

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

2 Test Configuration of Equipment Under Test

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 (X plane) were recorded in this report.

The final configuration from all the combinations and the worst-case data rates were investigated by measuring the maximum power across all the data rates and modulation modes under section 2.2.

Based on the worst configuration found above, the RF power setting is set individually to meet FCC compliance limit for the final conducted and radiated tests shown in section 2.3.

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 Pre-Scanned RF Power

Preliminary tests were performed in different data rate and data rate associated with the highest power were chosen for full test shown in the following tables.

<MIMO Ant. 1+2+3>

802.11b				
Data Rate (MHz)	1M bps	2M bps	5.5M bps	11M bps
Average Power (dBm)	28.00	27.52	27.78	27.63

802.11g								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Average Power (dBm)	26.84	25.82	25.66	25.59	24.74	24.71	24.63	24.92

2.4GHz 802.11n HT20								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Average Power (dBm)	24.66	23.66	23.65	22.65	23.47	22.64	22.68	22.66

2.4GHz 802.11n HT40								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Average Power (dBm)	22.28	21.21	21.24	20.40	20.42	20.20	20.37	20.15

Note: MIMO Ant. 1+2+3 is a calculated result from sum of the power MIMO Ant. 1, MIMO Ant. 2, and MIMO Ant. 3.

2.3 Test Mode

Final test mode of conducted test items and radiated spurious emissions are considering the modulation and worse data rates from the power table described in section 2.2.

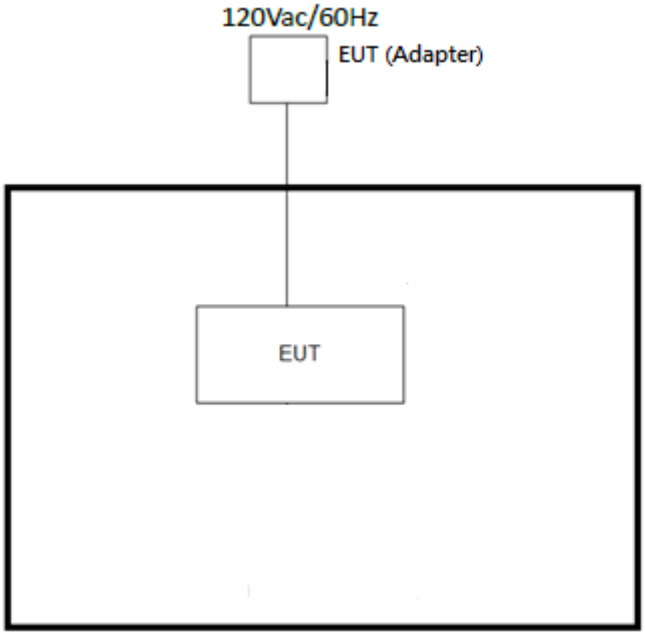
MIMO Antenna

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

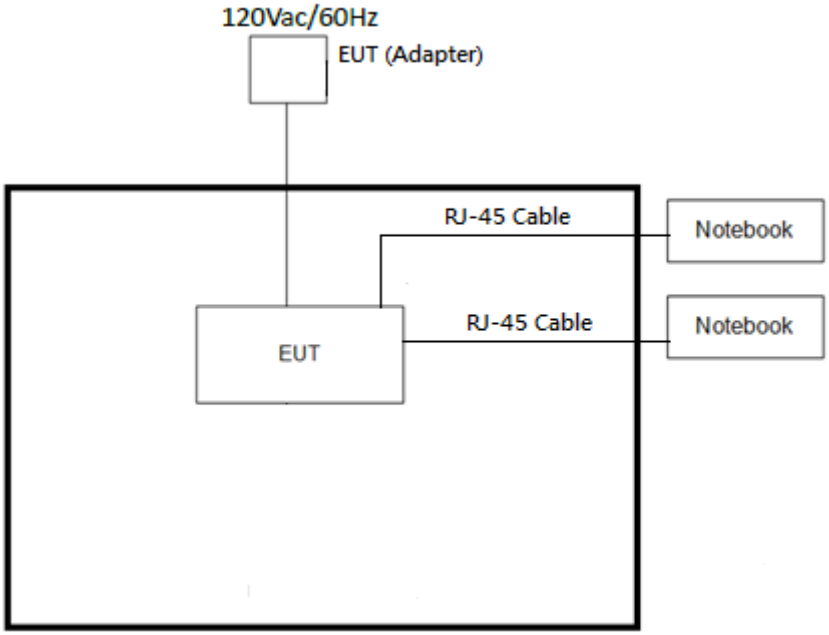
Test Cases	
AC Conducted Emission	Mode 1 : WLAN (2.4GHz) Idle + TC
Remark: TC stands for Test Configuration, and consists of Adapter and RJ-45.	

2.4 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.5 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	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.	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

2.6 EUT Operation Test Setup

The programmed RF utility “Cart.exe” 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.

2.7 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.

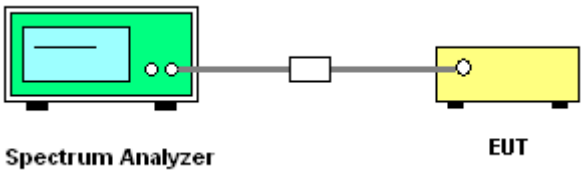
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

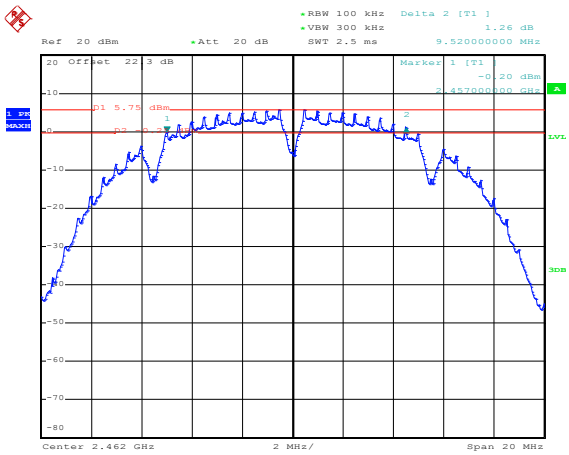
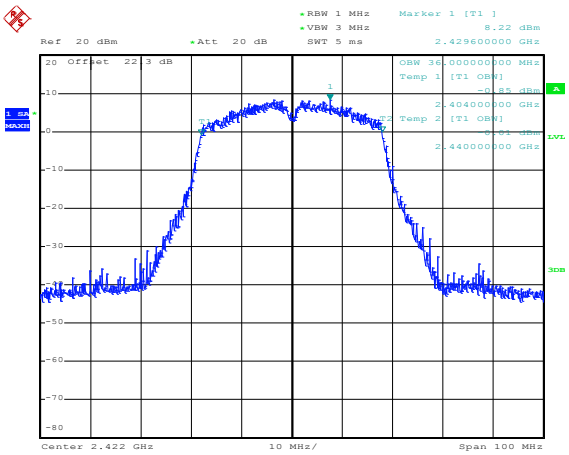
1. The testing follows FCC KDB Publication No. 558074 DTS D01 Meas. Guidance v03r04.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit 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 of this test report.

Minimum 6dB Bandwidth	Maximum 99% Occupied Bandwidth
	

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

3.2 Maximum Average Output Power Measurement

3.2.1 Limit of Average Output Power

For systems using digital modulation in the 2400-2483.5MHz, the limit for average output power is 30dBm. If transmitting antenna with directional gain greater than 6dBi is used, the average 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.

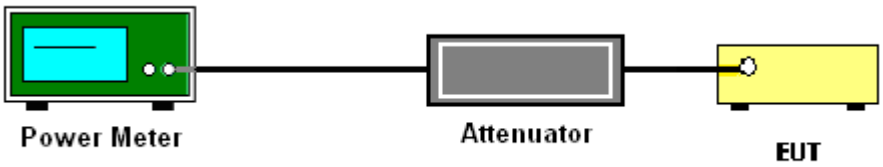
3.2.2 Measuring Instruments

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 v03r04 section 9.2.3.1 Method AVGPM (Measurement using an RF average power meter).
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.
5. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

3.2.4 Test Setup



3.2.5 Test Result of Average output Power

Please refer to Appendix A of this test report.

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 AVGSA-3 of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r04.
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 = RMS, Sweep time = auto couple. Allow max hold to run for at least 60 s, or longer as needed to allow the trace to stabilize. Use the peak marker function to determine the maximum power level.
6. Measure and record the results in the test report.
7. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

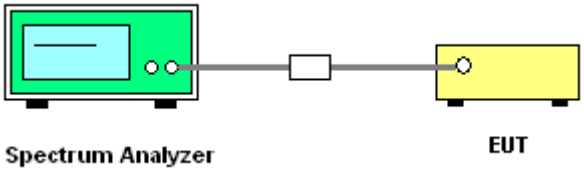
   If measurements performed using method (2) plus 10 log (N) exceeds the emission limit, the test should choose method (1) before declaring that the device fails the emission limit.

   Method (1): Measure and sum the spectra across the outputs.

   The total final Power Spectral Density is from a device with 2 transmitter outputs. The spectrum measurements of the individual outputs are all performed with the same span and number of points, the spectrum value in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 to obtain the value for the first frequency bin of the summed spectrum.

   Method (2): Measure and add 10 log (N) dB, where N is the number of outputs. (N=2)

3.3.4 Test Setup

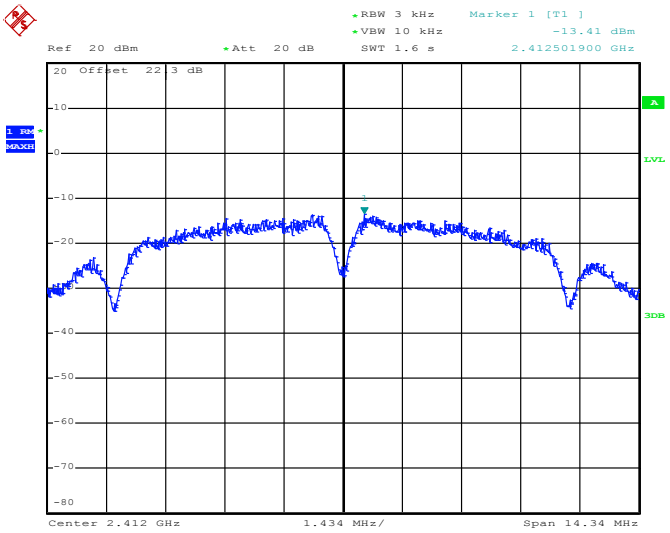


3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A of this test report.

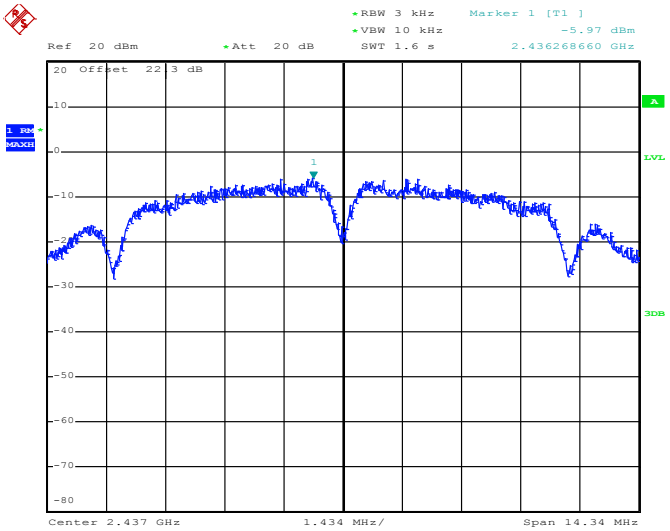
<Ant. 1>

802.11b CH01 (dBm/3kHz)



Date: 21.MAR.2016 22:08:29

802.11b CH06 (dBm/3kHz)



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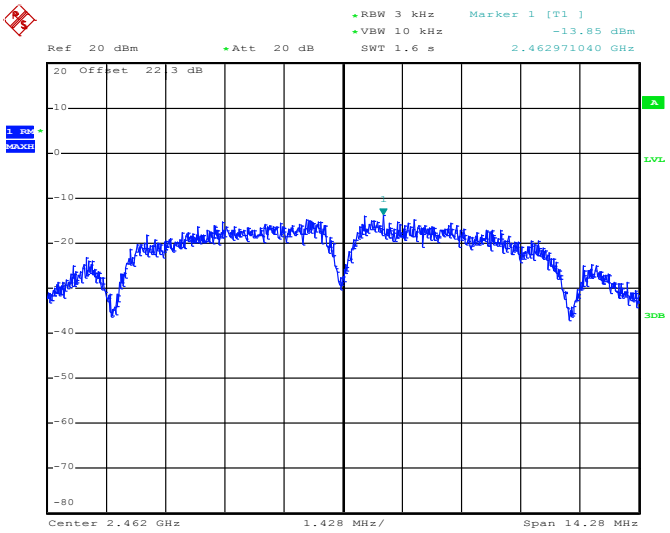
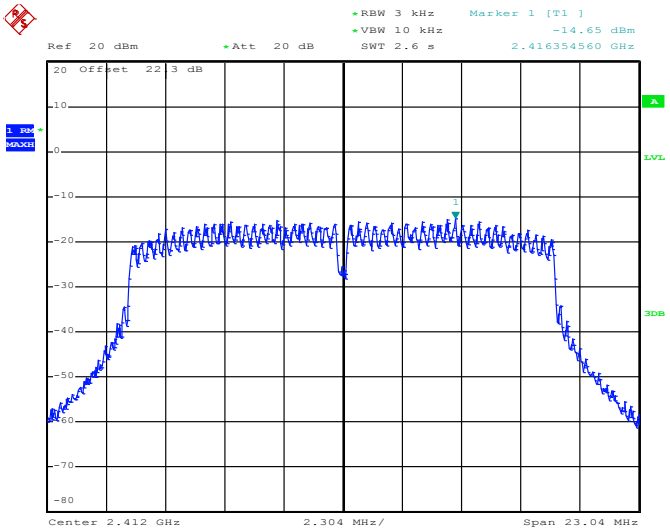
802.11b CH11 (dBm/3kHz)



Date: 21.MAR.2016 22:23:59

802.11g CH01 (dBm/3kHz)



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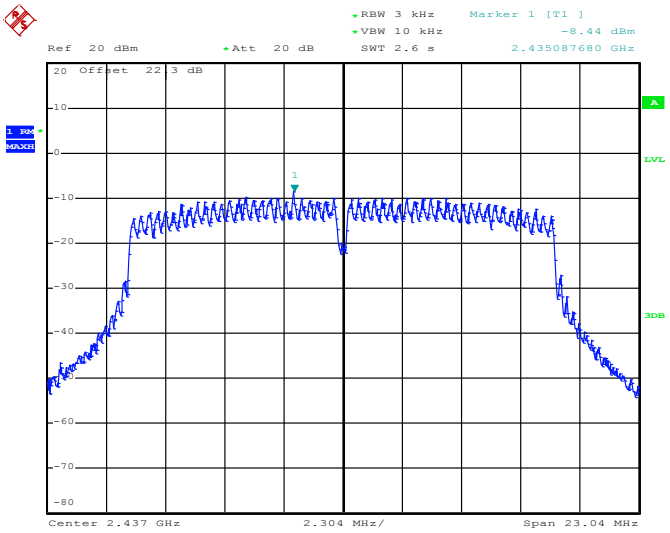
802.11g CH06 (dBm/3kHz)



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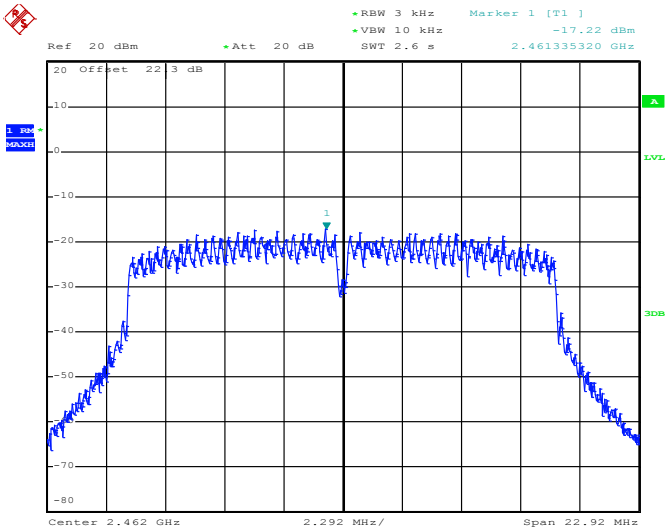
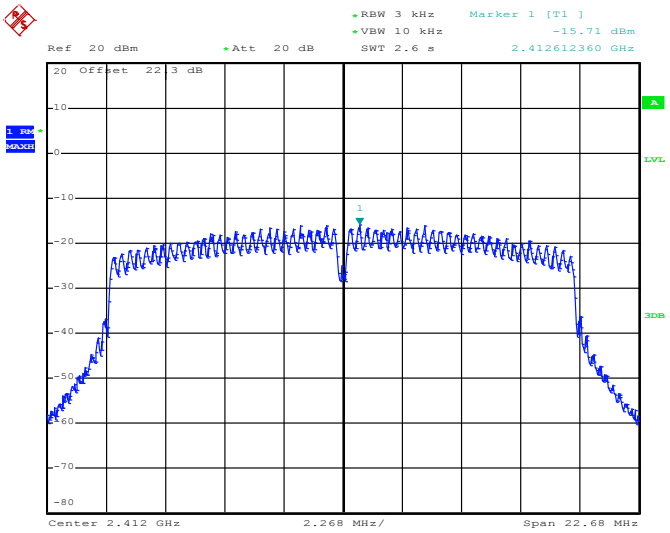
802.11g CH11 (dBm/3kHz)



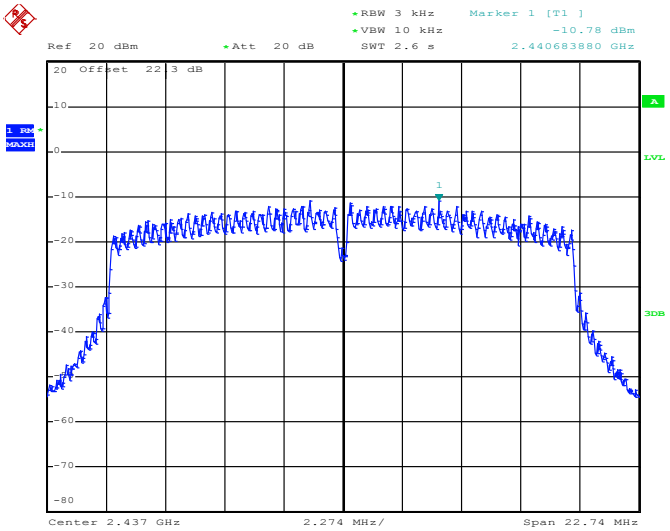
Date: 21.MAR.2016 23:10:33

802.11n HT20 CH01 (dBm/3kHz)



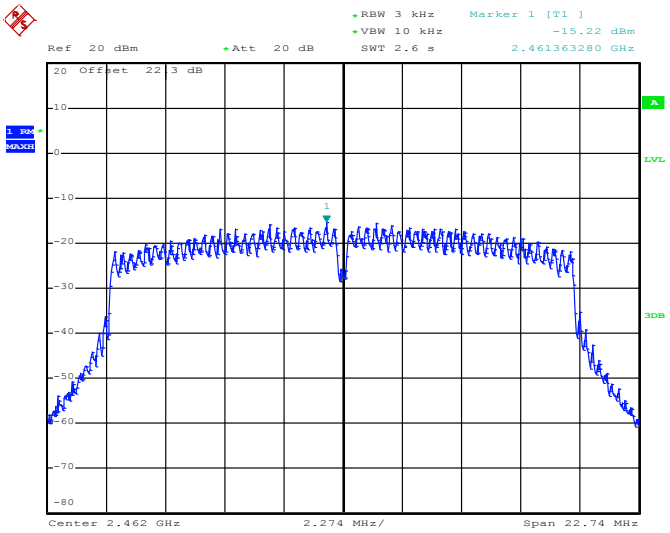
Date: 21.MAR.2016 23:31:13

802.11n HT20 CH06 (dBm/3kHz)



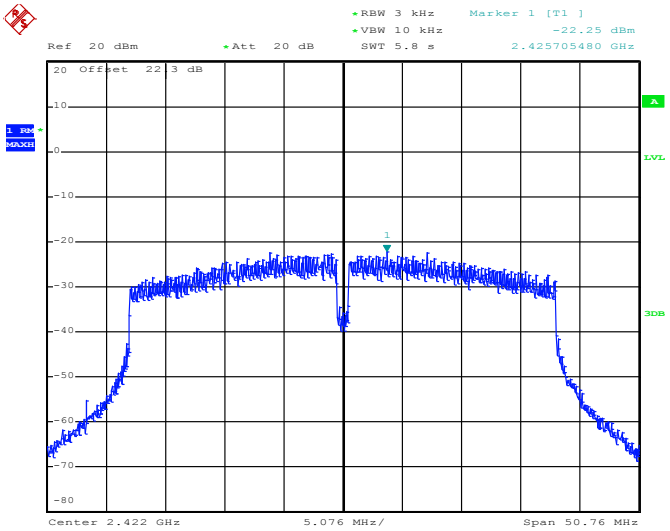
Date: 21.MAR.2016 23:48:09

802.11n HT20 CH11 (dBm/3kHz)



Date: 22.MAR.2016 00:02:02

802.11n HT40 CH03 (dBm/3kHz)



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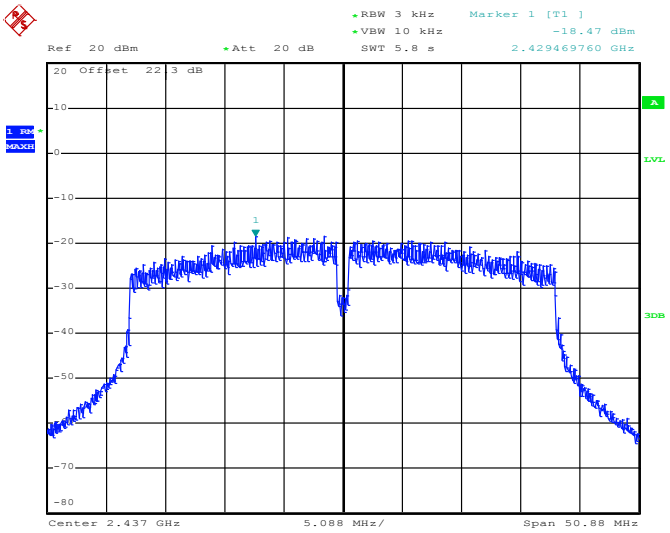
802.11n HT40 CH06 (dBm/3kHz)



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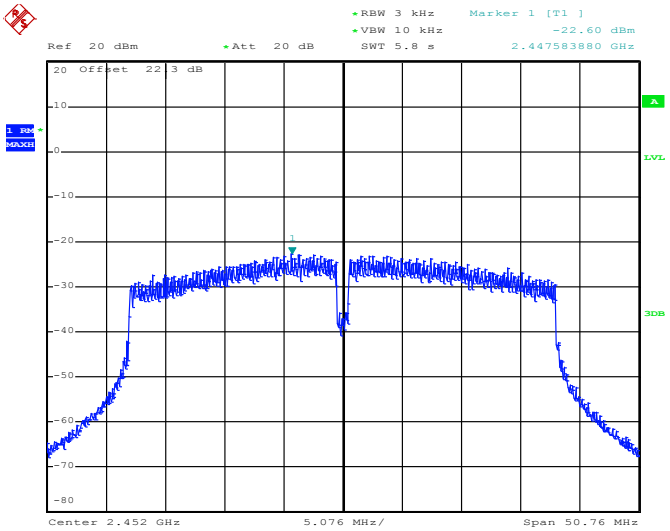
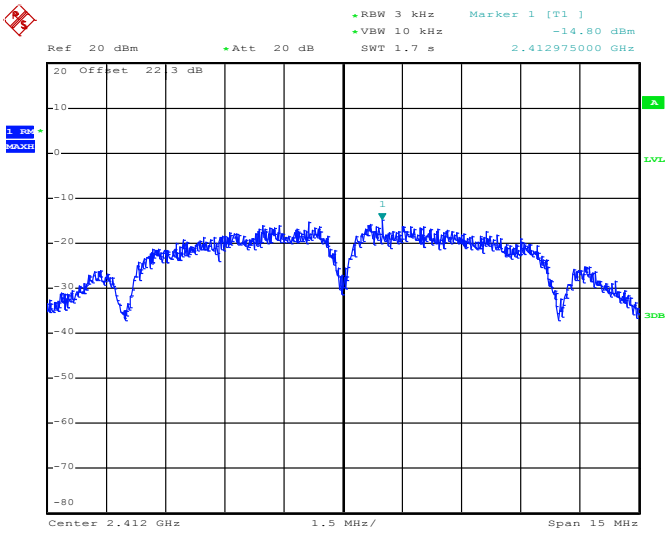
802.11n HT40 CH09 (dBm/3kHz)



Date: 22.MAR.2016 00:38:16

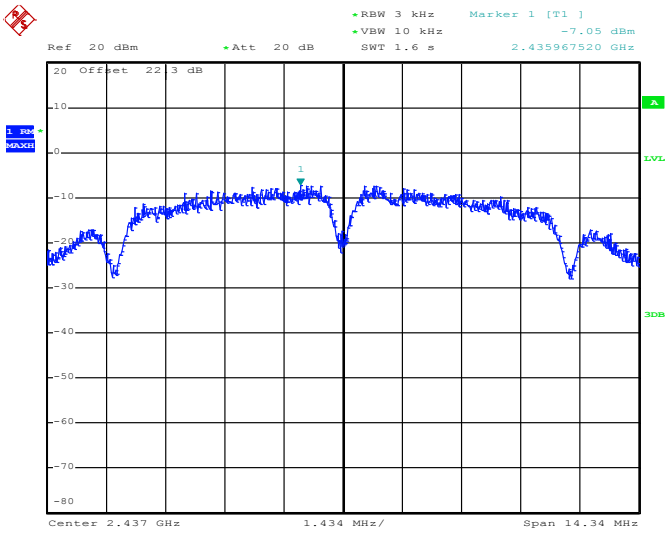
<Ant. 2>

802.11b CH01 (dBm/3kHz)



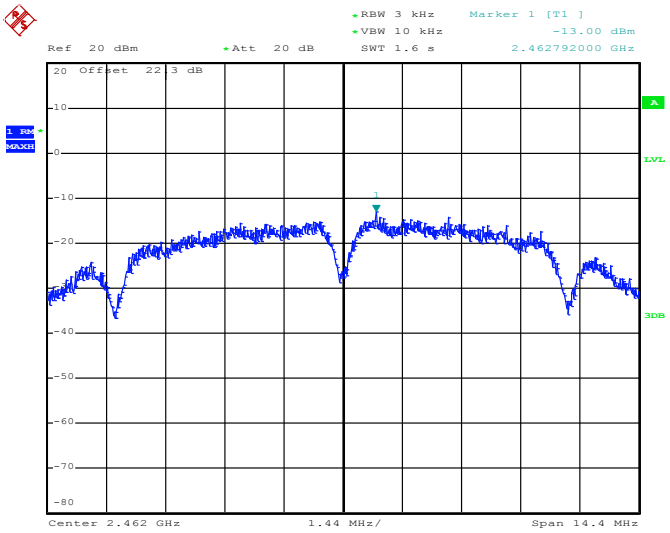
Date: 21.MAR.2016 22:16:18

802.11b CH06 (dBm/3kHz)



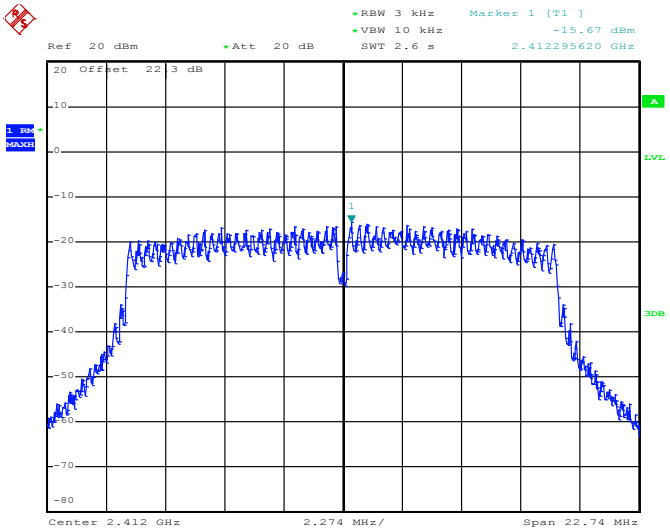
Date: 22.MAR.2016 20:01:25

802.11b CH11 (dBm/3kHz)



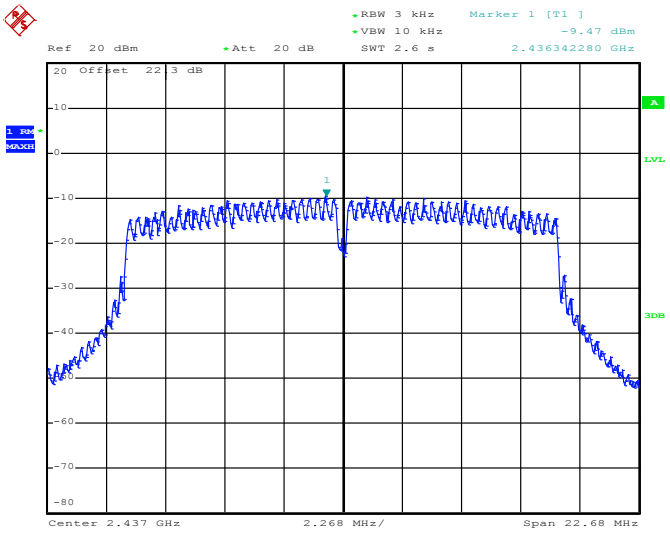
Date: 21.MAR.2016 22:27:36

802.11g CH01 (dBm/3kHz)



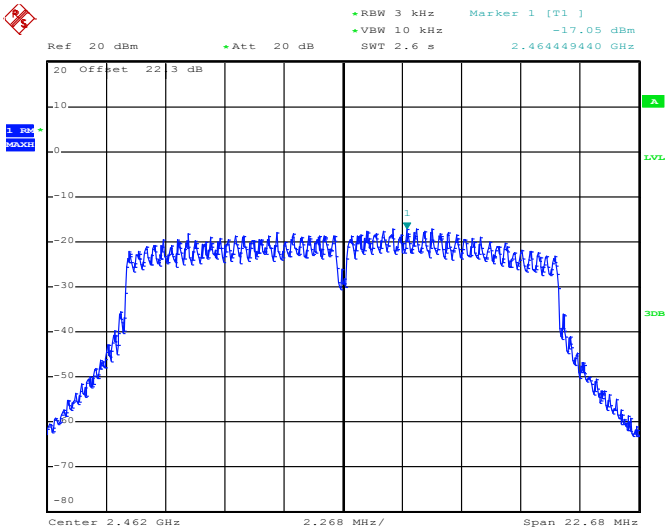
Date: 21.MAR.2016 22:44:00

802.11g CH06 (dBm/3kHz)



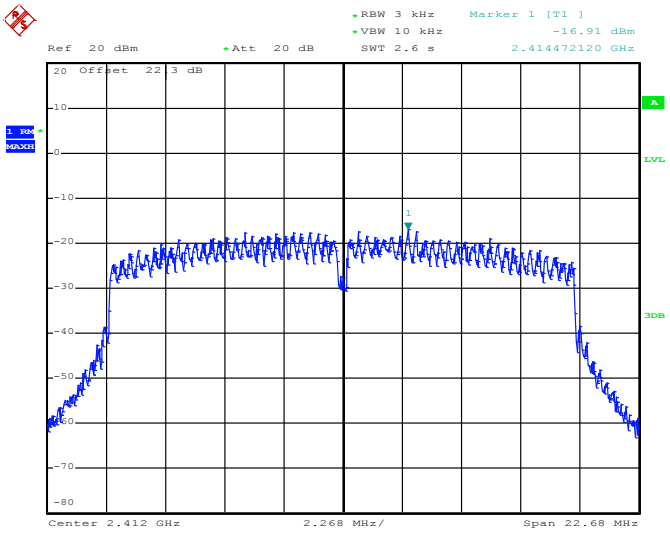
Date: 21.MAR.2016 23:02:25

802.11g CH11 (dBm/3kHz)



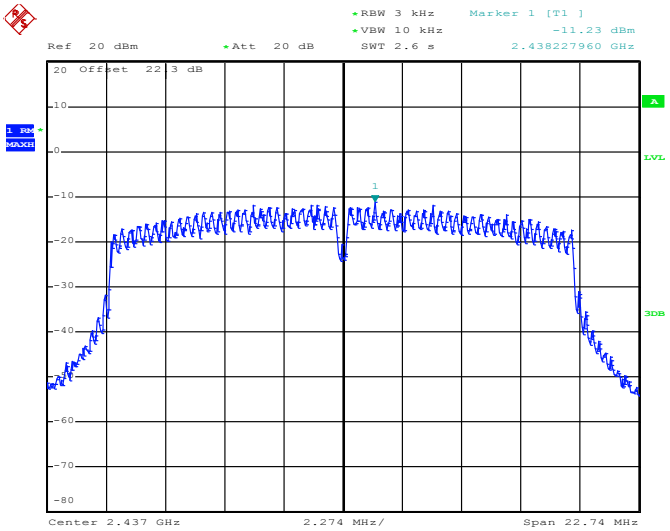
Date: 21.MAR.2016 23:15:32

802.11n HT20 CH01 (dBm/3kHz)



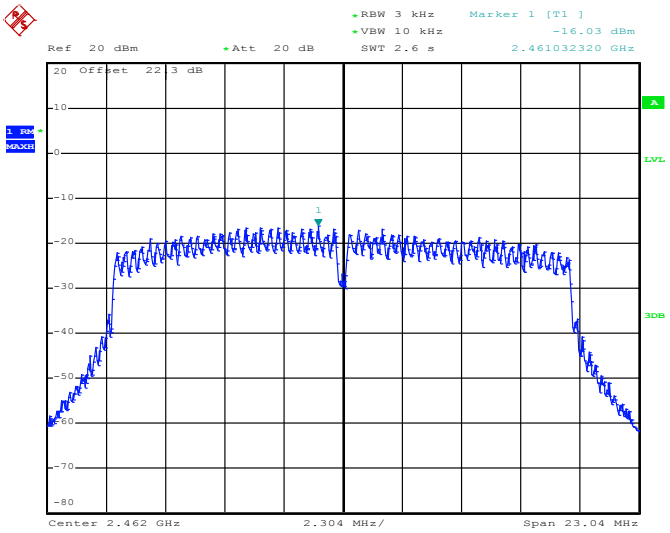
Date: 21.MAR.2016 23:37:16

802.11n HT20 CH06 (dBm/3kHz)



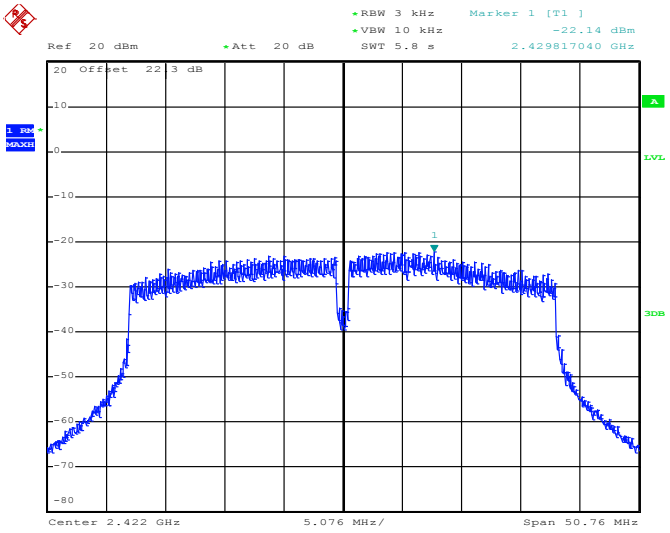
Date: 21.MAR.2016 23:53:14

802.11n HT20 CH11 (dBm/3kHz)



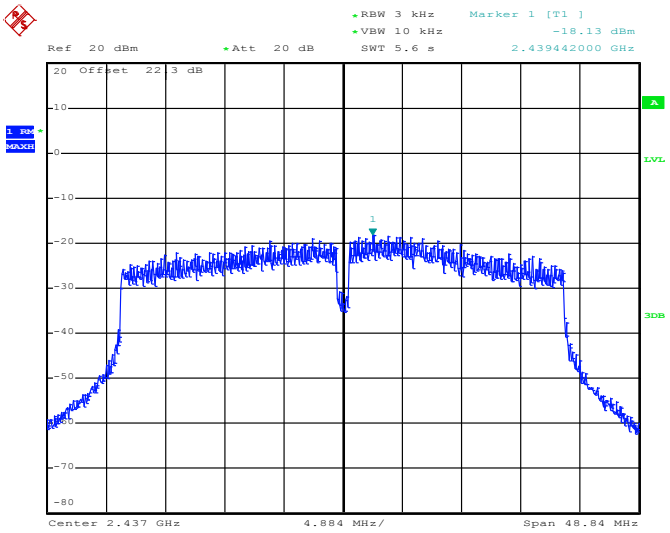
Date: 22.MAR.2016 00:07:52

802.11n HT40 CH03 (dBm/3kHz)



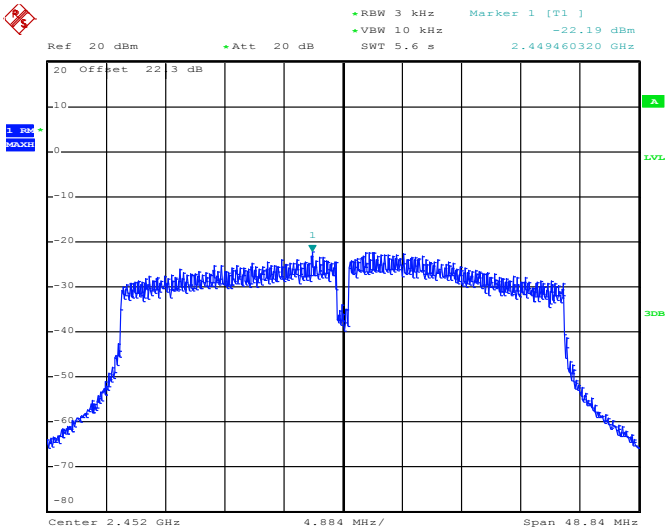
Date: 22.MAR.2016 00:28:32

802.11n HT40 CH06 (dBm/3kHz)



Date: 22.MAR.2016 01:49:58

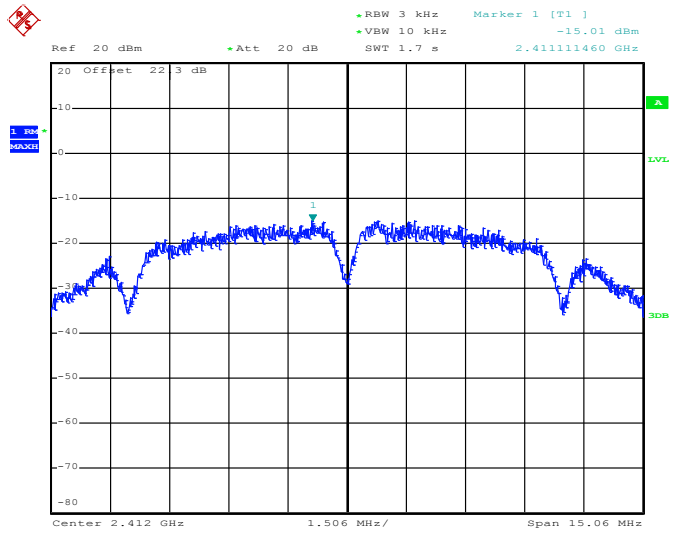
802.11n HT40 CH09 (dBm/3kHz)



Date: 22.MAR.2016 00:42:59

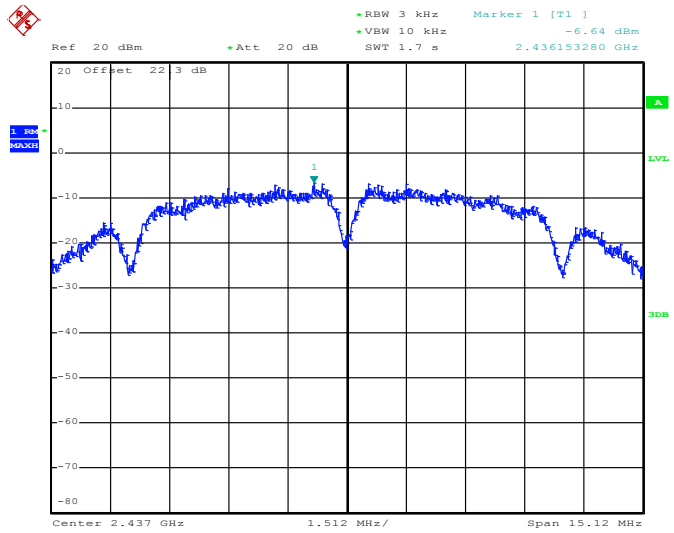
<Ant. 3>

802.11b CH01 (dBm/3kHz)



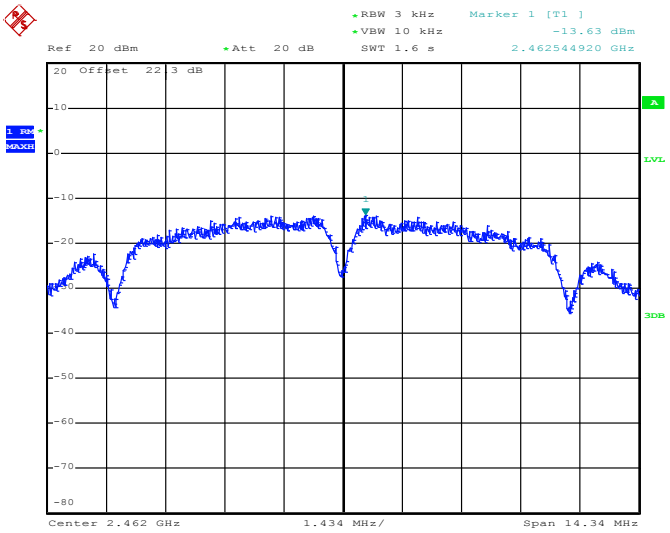
Date: 21.MAR.2016 22:19:29

802.11b CH06 (dBm/3kHz)



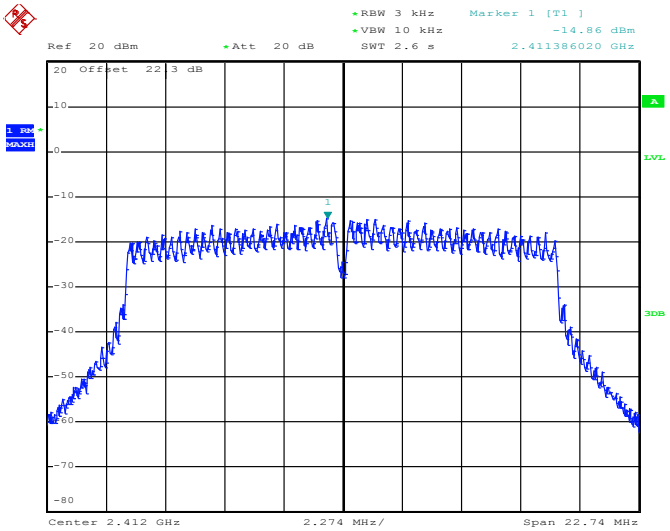
Date: 22.MAR.2016 20:07:29

802.11b CH11 (dBm/3kHz)



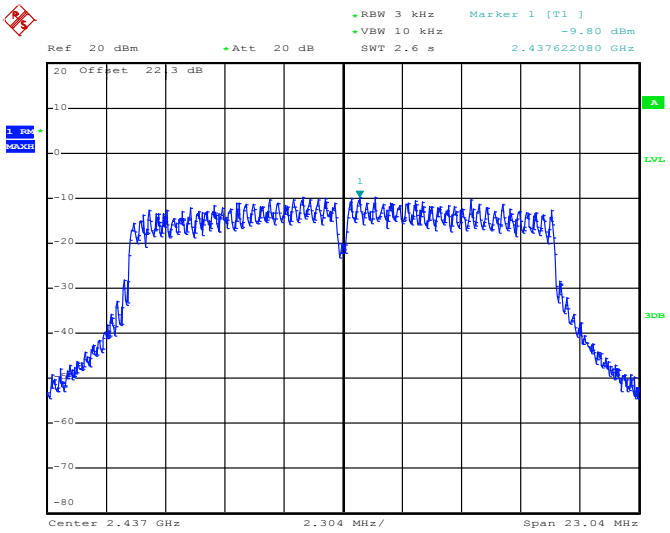
Date: 21.MAR.2016 22:31:47

802.11g CH01 (dBm/3kHz)



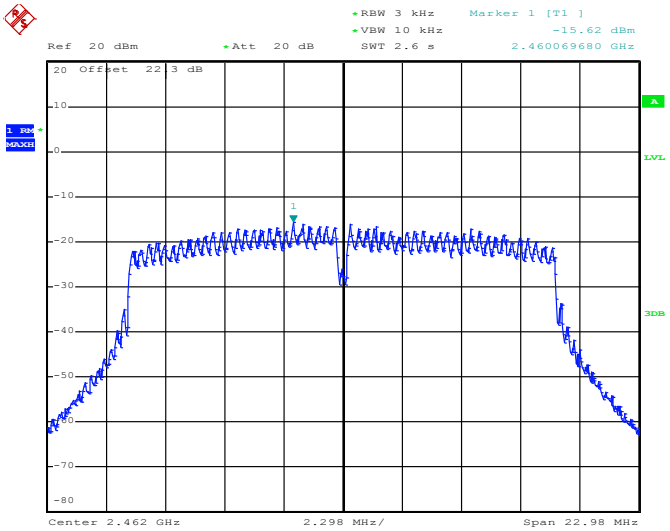
Date: 21.MAR.2016 22:47:42

802.11g CH06 (dBm/3kHz)



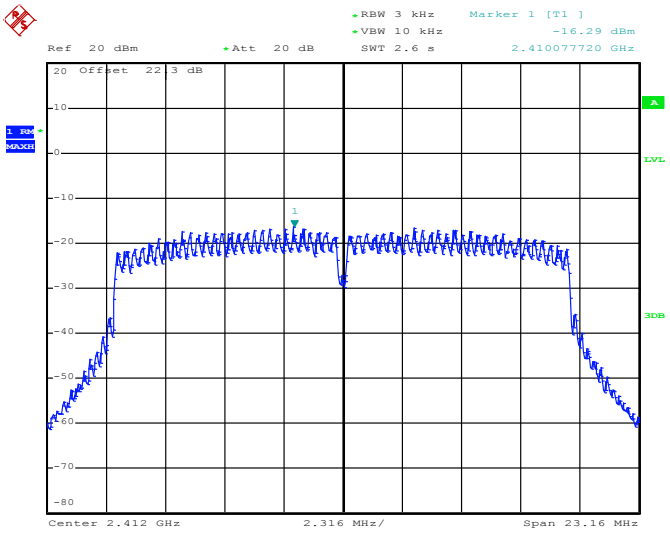
Date: 21.MAR.2016 23:07:13

802.11g CH11 (dBm/3kHz)



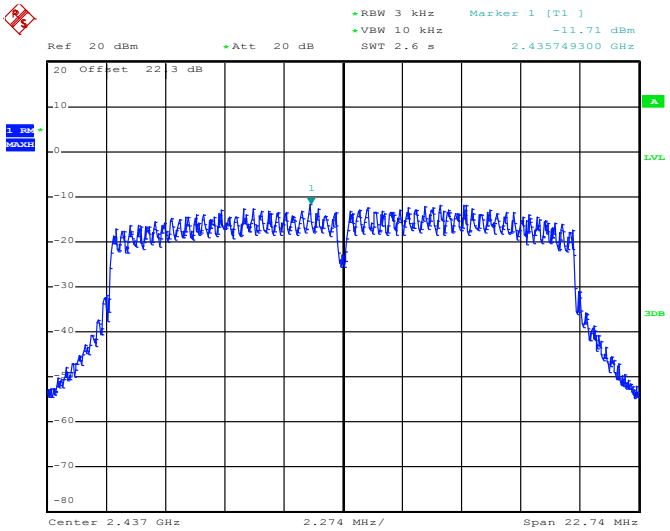
Date: 21.MAR.2016 23:21:22

802.11n HT20 CH01 (dBm/3kHz)



Date: 21.MAR.2016 23:42:00

802.11n HT20 CH06 (dBm/3kHz)



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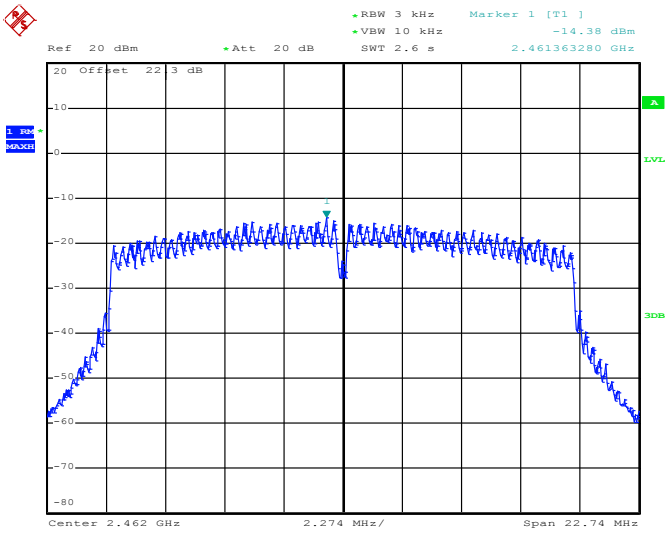
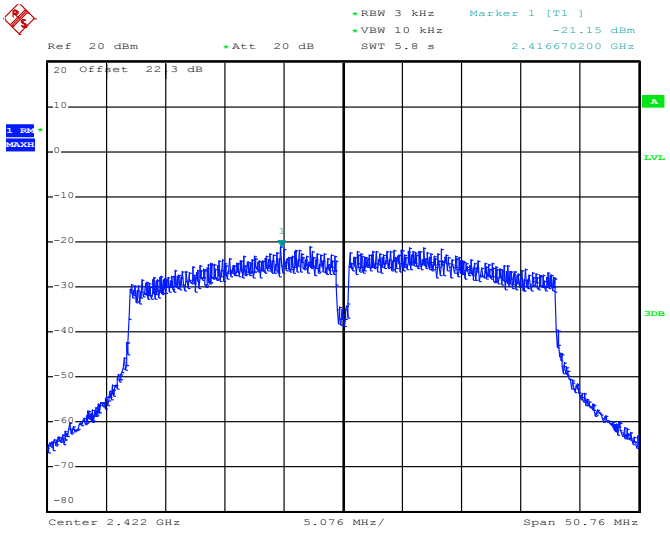
802.11n HT20 CH11 (dBm/3kHz)



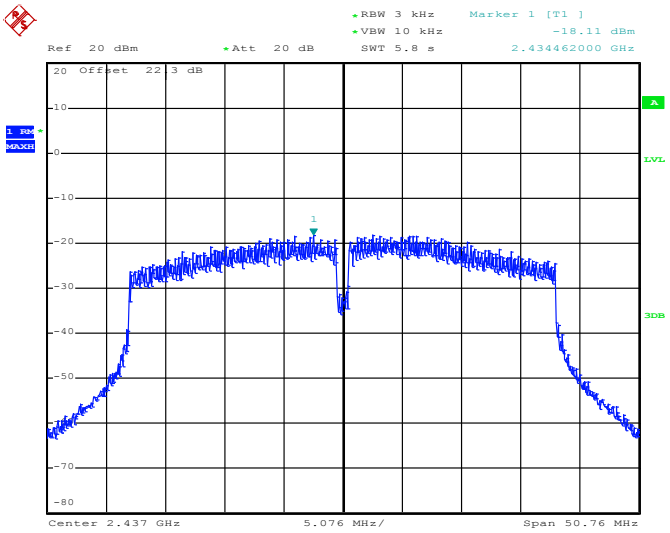
Date: 22.MAR.2016 00:15:39

802.11n HT40 CH03 (dBm/3kHz)



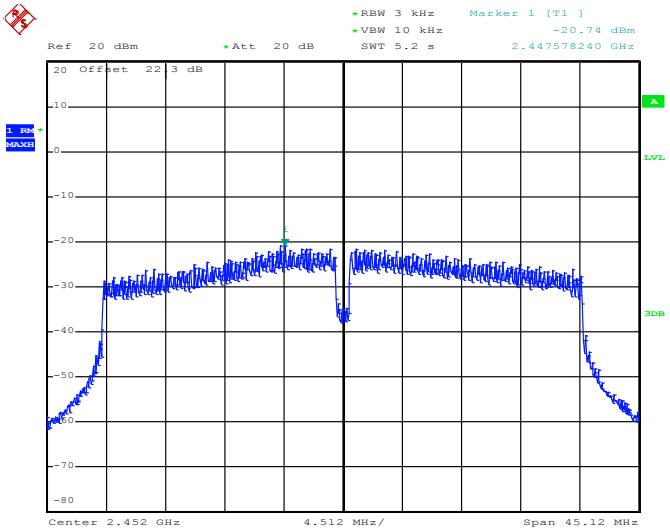
Date: 22.MAR.2016 00:32:31

802.11n HT40 CH06 (dBm/3kHz)



Date: 22.MAR.2016 01:54:39

802.11n HT40 CH09 (dBm/3kHz)



Date: 22.MAR.2016 00:47:49

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).

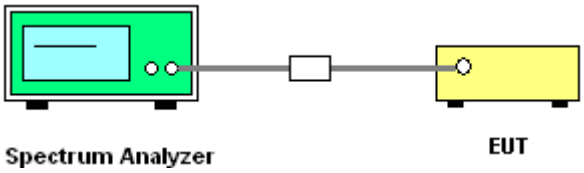
3.4.2 Measuring Instruments

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 v03r04.
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 30 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum average 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



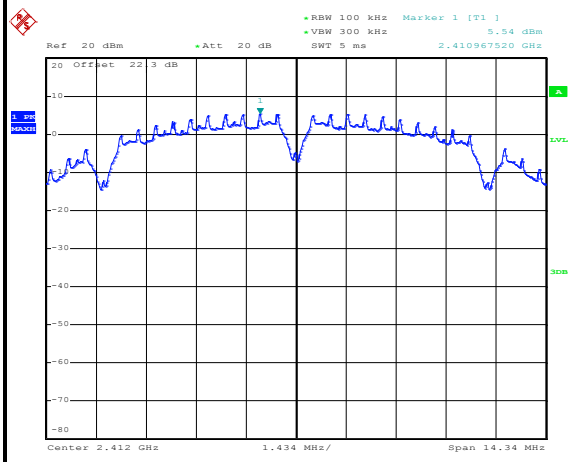
3.4.5 Test Result of Conducted Band Edges and Spurious Emission

Number of TX = 3, Ant. 1 (Measured)

Number of TX	3	**Ant. :**	1
Test Mode :	802.11b	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	01	**Test Engineer :**	Osolemio Chang

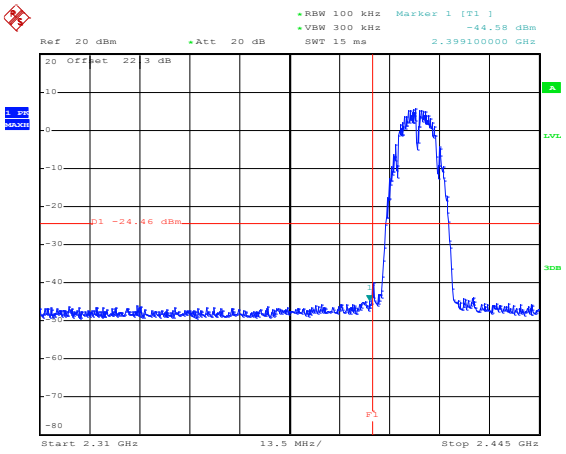
WLAN 802.11b Channel 01

100kHz PSD reference Level



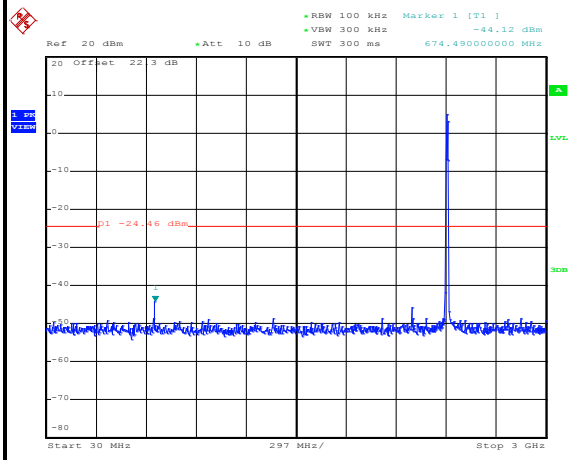
Date: 21.MAR.2016 22:09:13

Low Channel Plot



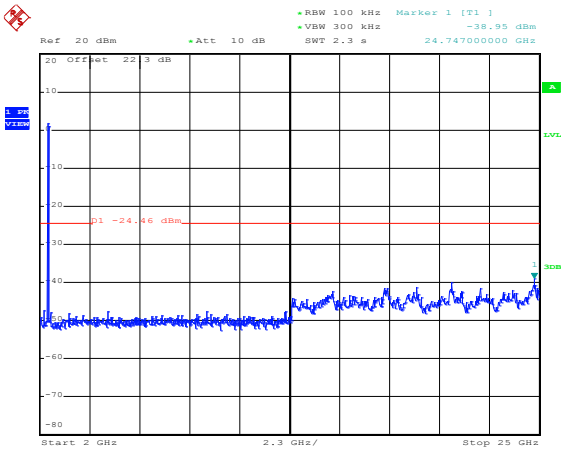
Date: 21.MAR.2016 22:11:19

Spurious Emission 30MHz~3GHz



Date: 21.MAR.2016 22:11:51

Spurious Emission 2GHz~25GHz

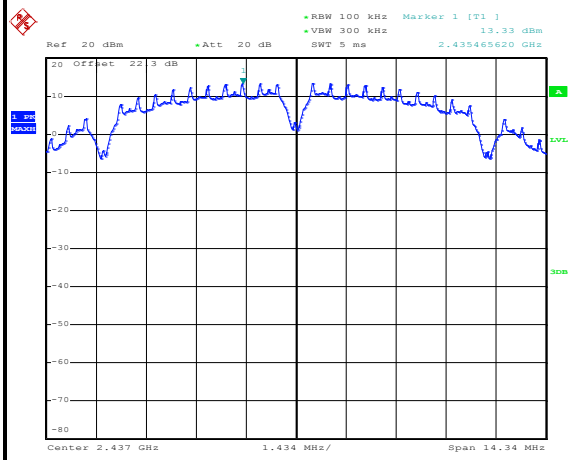


Date: 21.MAR.2016 22:11:59

Number of TX :	3	**Ant. :**	1
Test Mode :	802.11b	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Osolemio Chang

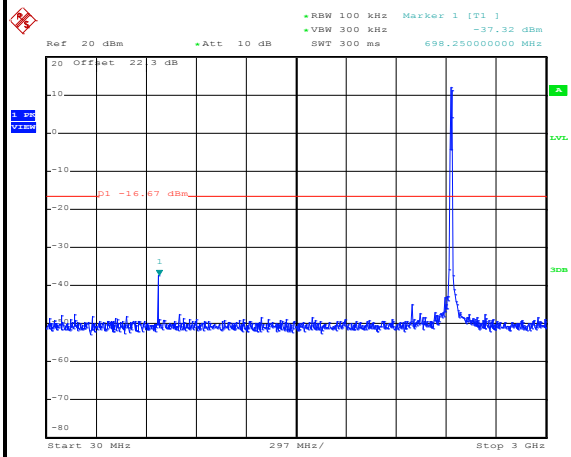
WLAN 802.11b Channel 06

100kHz PSD reference Level



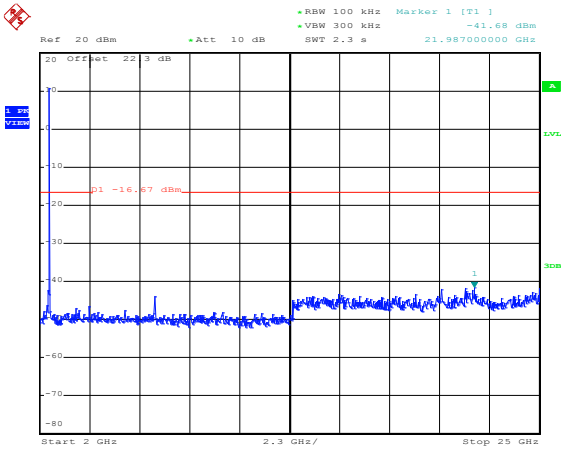
Date: 22.MAR.2016 19:56:43

Spurious Emission 30MHz~3GHz



Date: 22.MAR.2016 19:56:58

Spurious Emission 2GHz~25GHz

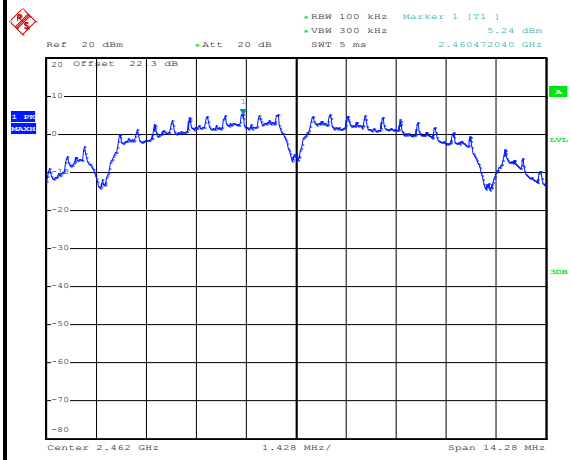


Date: 22.MAR.2016 19:57:07

Number of TX :	3	**Ant. :**	1
Test Mode :	802.11b	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	11	**Test Engineer :**	Osolemio Chang

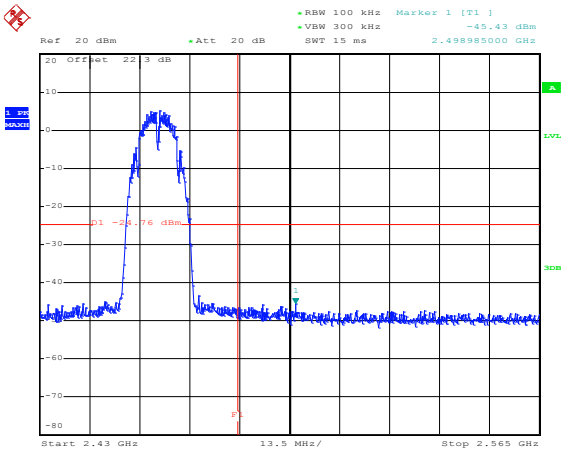
WLAN 802.11b Channel 11

100kHz PSD reference Level



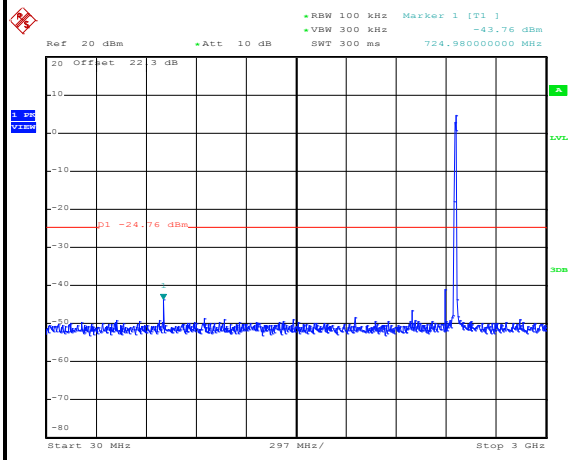
Date: 21.MAR.2016 22:24:14

High Channel Plot



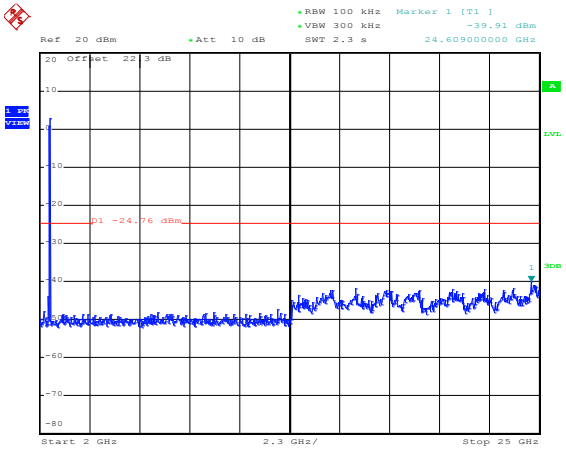
Date: 21.MAR.2016 22:24:30

Spurious Emission 30MHz~3GHz



Date: 21.MAR.2016 22:25:45

Spurious Emission 2GHz~25GHz

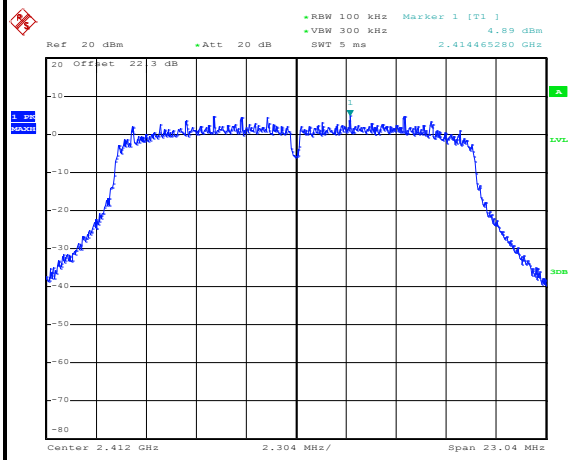


Date: 21.MAR.2016 22:25:14

Number of TX :	3	**Ant. :**	1
Test Mode :	802.11g	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	01	**Test Engineer :**	Osolemio Chang

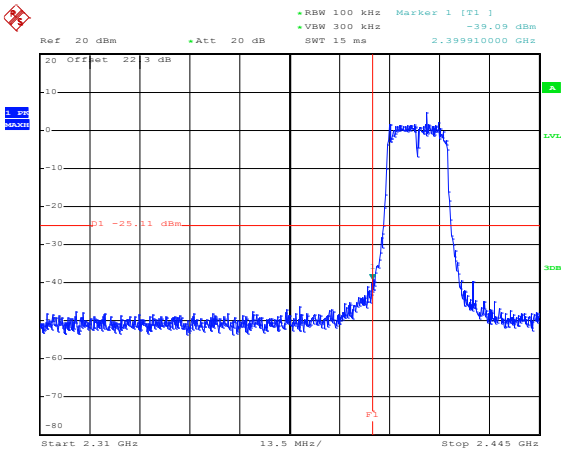
WLAN 802.11g Channel 01

100kHz PSD reference Level



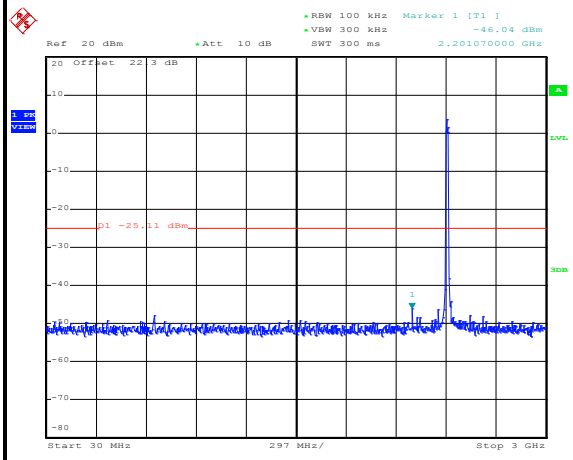
Date: 21.MAR.2016 22:39:52

Low Channel Plot



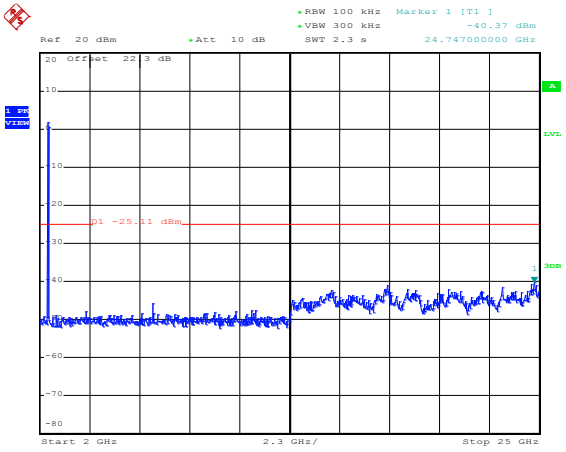
Date: 21.MAR.2016 22:40:31

Spurious Emission 30MHz~3GHz



Date: 21.MAR.2016 22:40:45

Spurious Emission 2GHz~25GHz

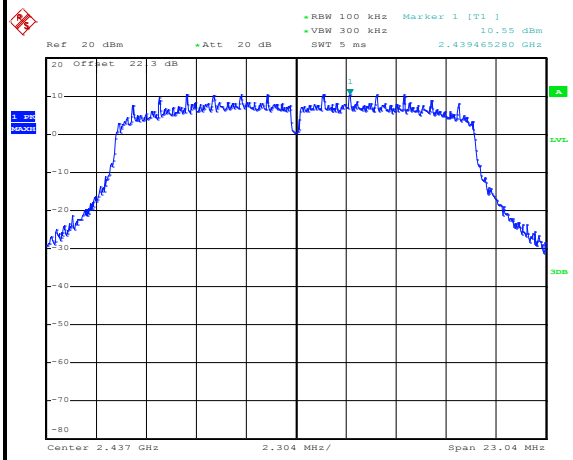


Date: 21.MAR.2016 22:40:53

Number of TX :	3	**Ant. :**	1
Test Mode :	802.11g	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Osolemio Chang

WLAN 802.11g Channel 06

100kHz PSD reference Level



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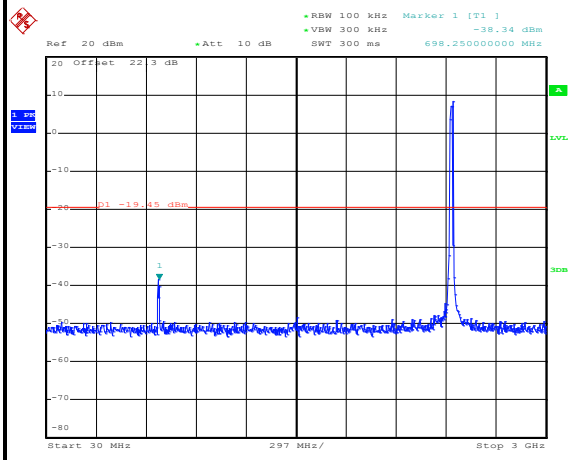
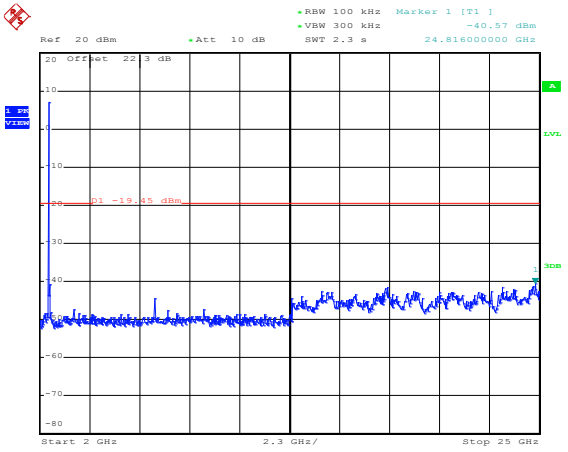
Spurious Emission 30MHz~3GHz



Date: 21.MAR.2016 22:57:07

Spurious Emission 2GHz~25GHz

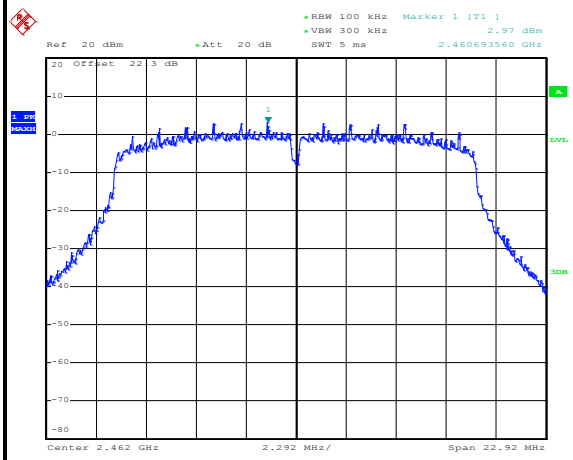


Date: 21.MAR.2016 22:57:16

Number of TX :	3	**Ant. :**	1
Test Mode :	802.11g	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	11	**Test Engineer :**	Osolemio Chang

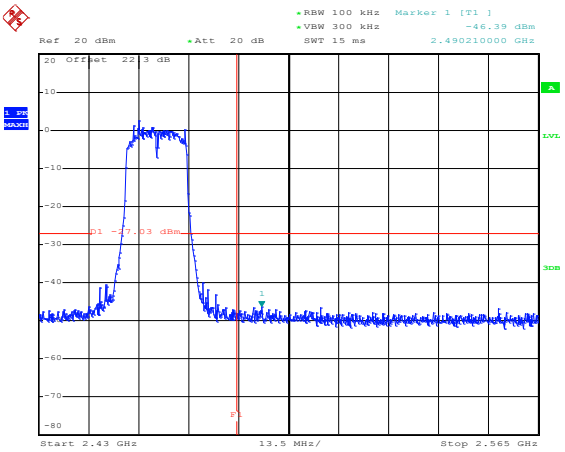
WLAN 802.11g Channel 11

100kHz PSD reference Level



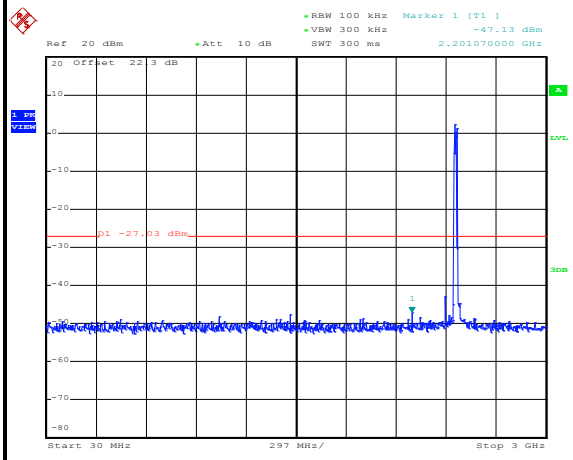
Date: 21.MAR.2016 23:10:55

High Channel Plot



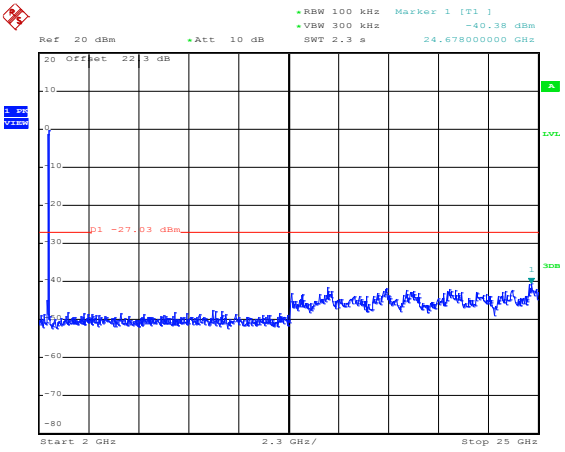
Date: 21.MAR.2016 23:13:31

Spurious Emission 30MHz~3GHz



Date: 21.MAR.2016 23:12:43

Spurious Emission 2GHz~25GHz

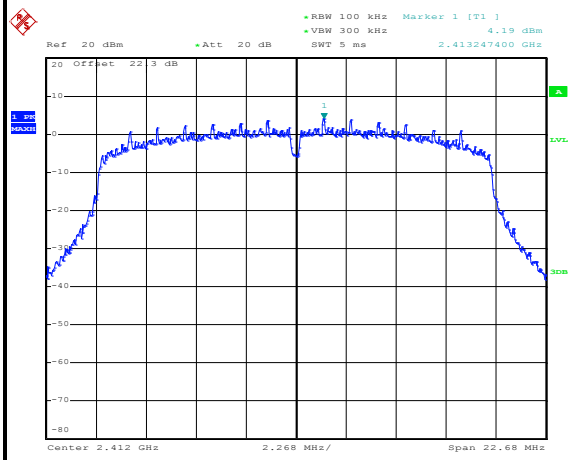


Date: 21.MAR.2016 23:12:06

Number of TX :	3	**Ant. :**	1
Test Mode :	802.11n HT20	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	01	**Test Engineer :**	Osolemio Chang

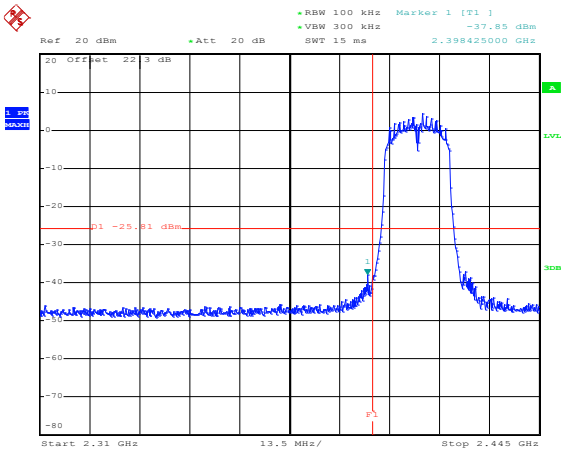
WLAN 802.11n HT20 Channel 01

100kHz PSD reference Level



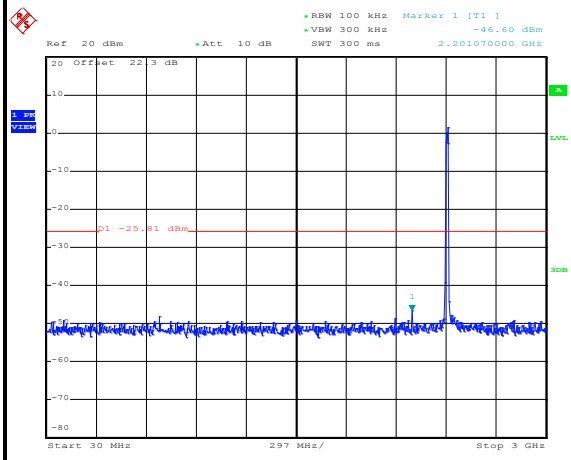
Date: 21.MAR.2016 23:31:59

Low Channel Plot



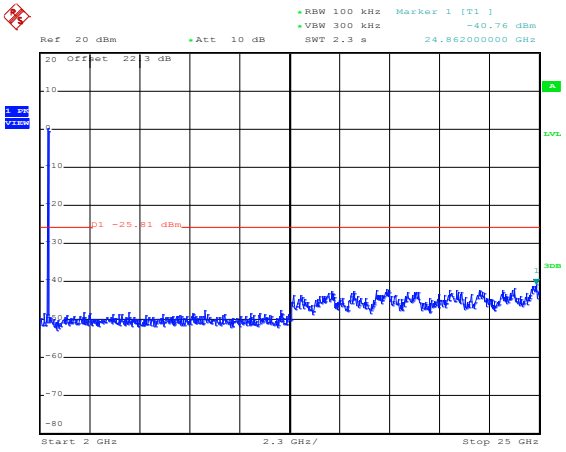
Date: 21.MAR.2016 23:34:10

Spurious Emission 30MHz~3GHz



Date: 21.MAR.2016 23:34:46

Spurious Emission 2GHz~25GHz

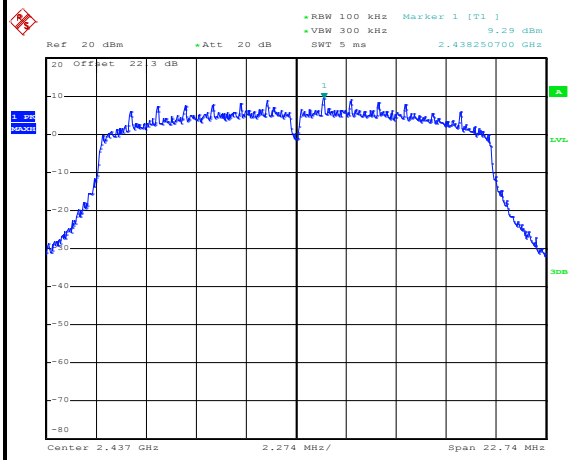


Date: 21.MAR.2016 23:34:54

Number of TX :	3	**Ant. :**	1
Test Mode :	802.11n HT20	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Osolemio Chang

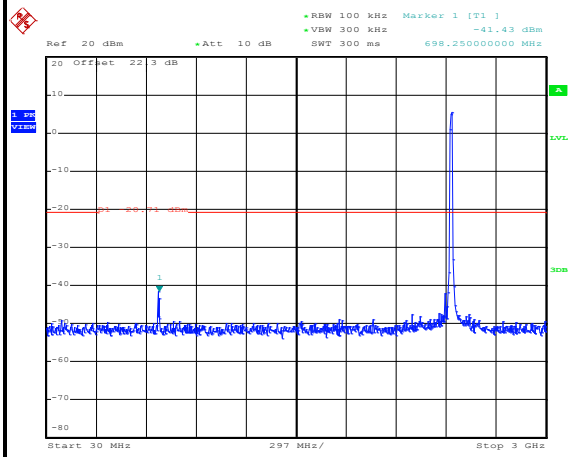
WLAN 802.11n HT20 Channel 06

100kHz PSD reference Level



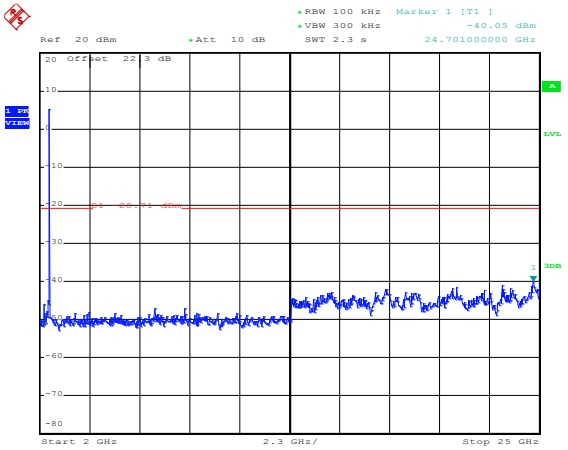
Date: 21.MAR.2016 23:49:16

Spurious Emission 30MHz~3GHz



Date: 21.MAR.2016 23:49:40

Spurious Emission 2GHz~25GHz

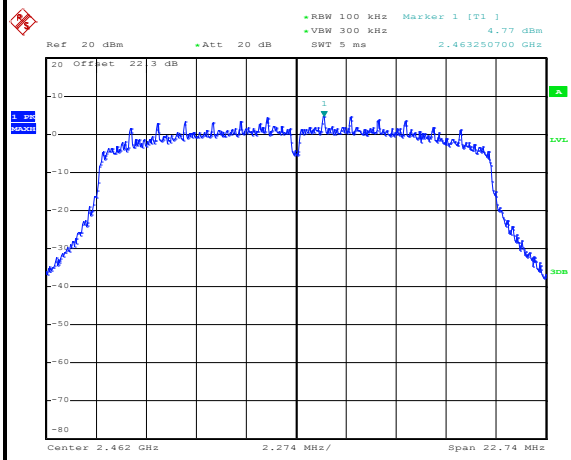


Date: 21.MAR.2016 23:49:49

Number of TX :	3	**Ant. :**	1
Test Mode :	802.11n HT20	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	11	**Test Engineer :**	Osolemio Chang

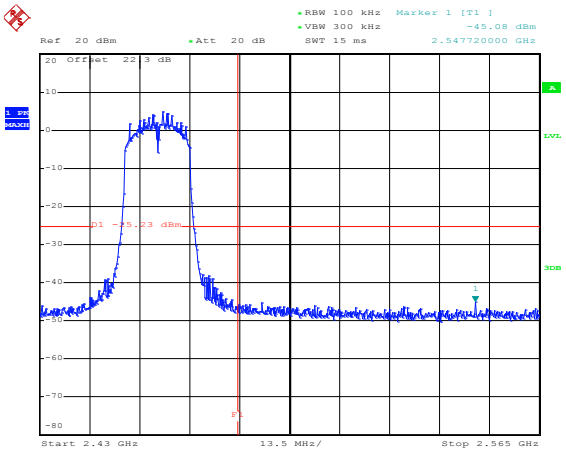
WLAN 802.11n HT20 Channel 11

100kHz PSD reference Level



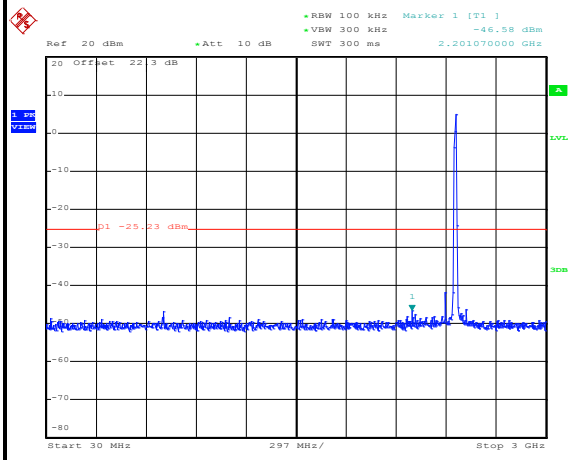
Date: 22.MAR.2016 00:02:31

High Channel Plot



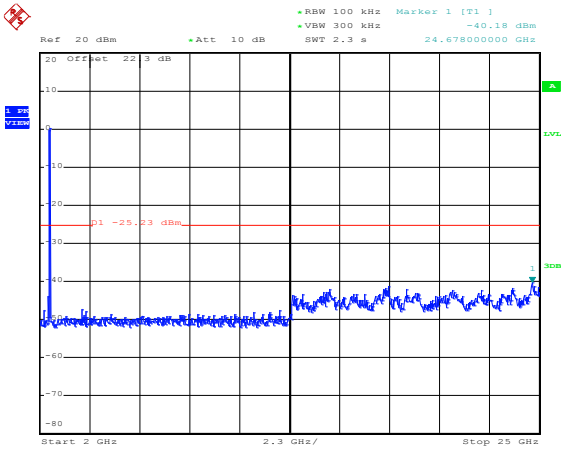
Date: 22.MAR.2016 00:03:14

Spurious Emission 30MHz~3GHz



Date: 22.MAR.2016 00:06:03

Spurious Emission 2GHz~25GHz

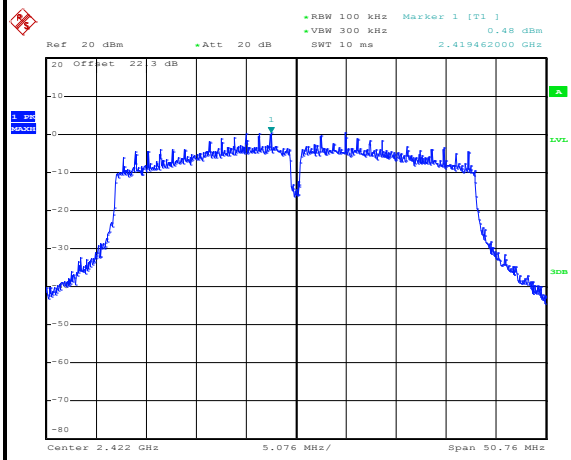


Date: 22.MAR.2016 00:05:05

Number of TX :	3	**Ant. :**	1
Test Mode :	802.11n HT40	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	03	**Test Engineer :**	Osolemio Chang

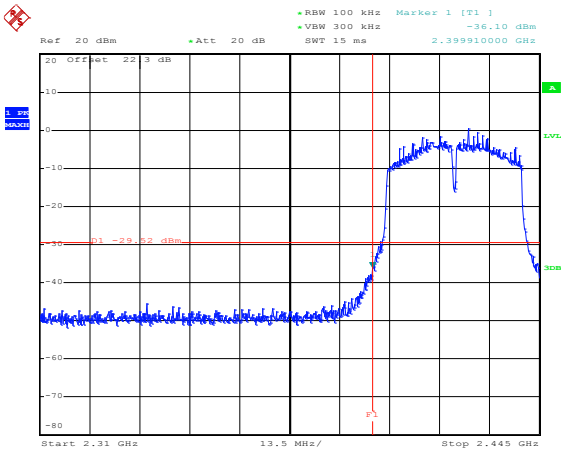
WLAN 802.11n HT40 Channel 03

100kHz PSD reference Level



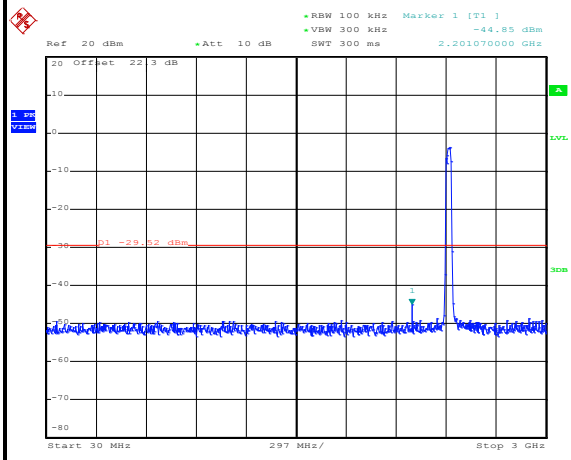
Date: 22.MAR.2016 00:24:50

Low Channel Plot



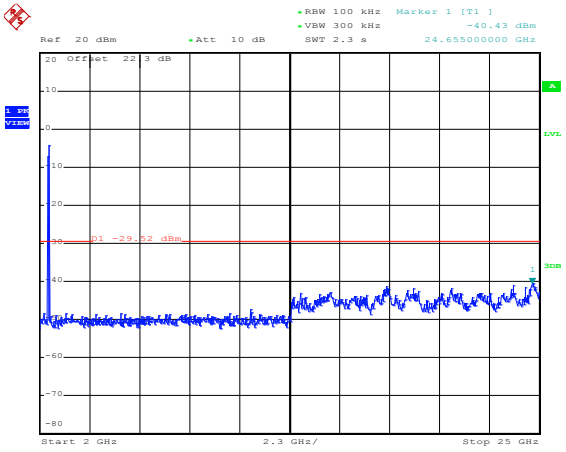
Date: 22.MAR.2016 00:26:01

Spurious Emission 30MHz~3GHz



Date: 22.MAR.2016 00:26:15

Spurious Emission 2GHz~25GHz

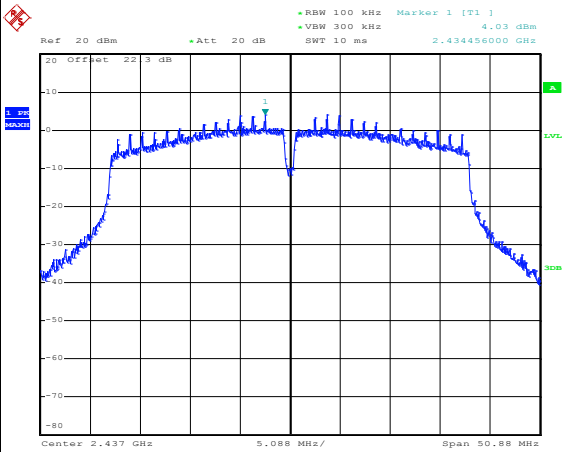


Date: 22.MAR.2016 00:26:23

Number of TX :	3	**Ant. :**	1
Test Mode :	802.11n HT40	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Osolemio Chang

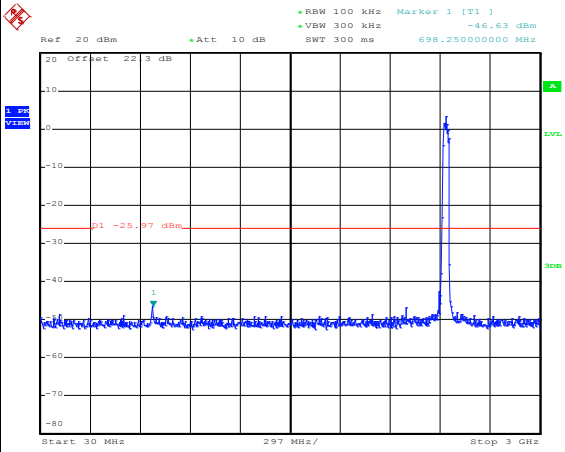
WLAN 802.11n HT40 Channel 06

100kHz PSD reference Level



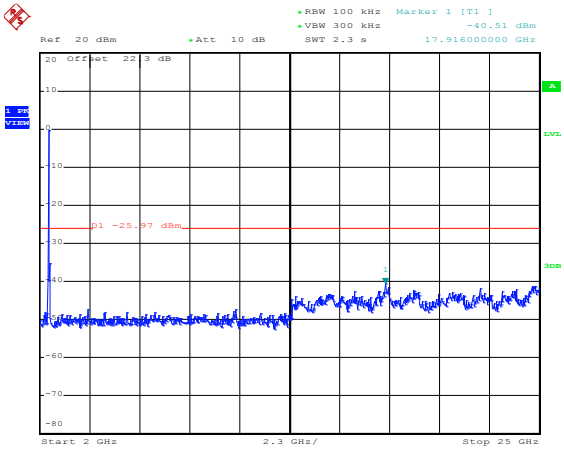
Date: 22.MAR.2016 01:46:44

Spurious Emission 30MHz~3GHz



Date: 22.MAR.2016 01:47:37

Spurious Emission 2GHz~25GHz

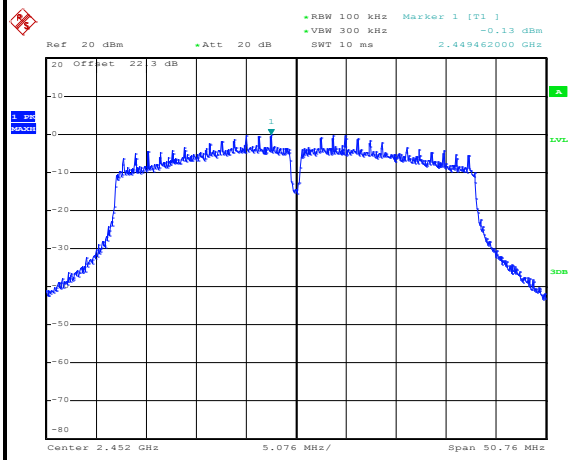


Date: 22.MAR.2016 01:47:09

Number of TX :	3	**Ant. :**	1
Test Mode :	802.11n HT40	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	09	**Test Engineer :**	Osolemio Chang

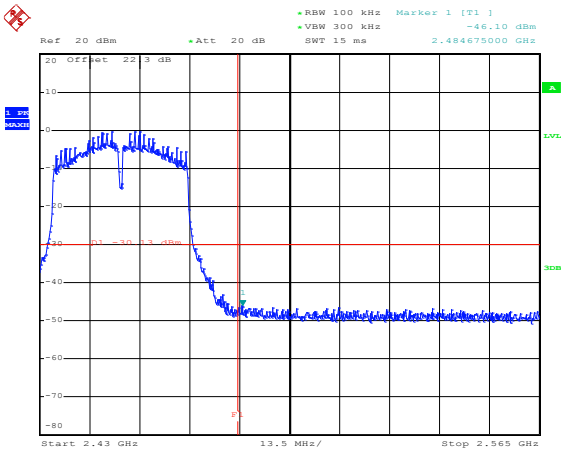
WLAN 802.11n HT40 Channel 09

100kHz PSD reference Level



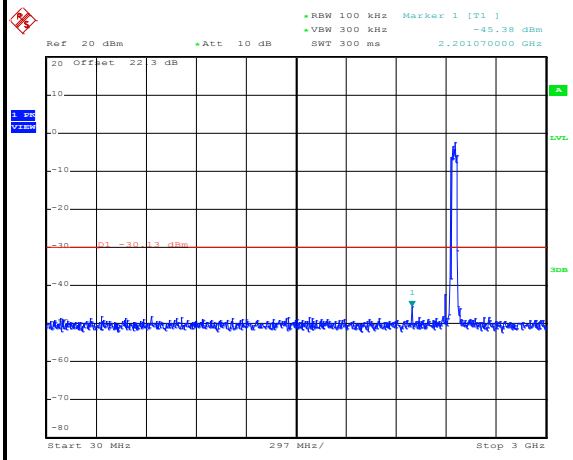
Date: 22.MAR.2016 00:39:06

High Channel Plot



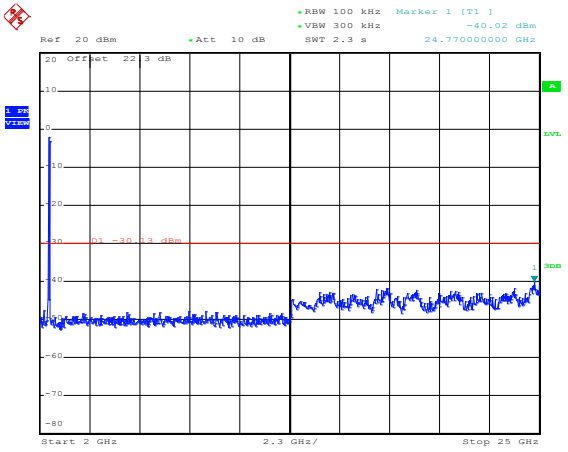
Date: 22.MAR.2016 00:39:26

Spurious Emission 30MHz~3GHz



Date: 22.MAR.2016 21:00:45

Spurious Emission 2GHz~25GHz



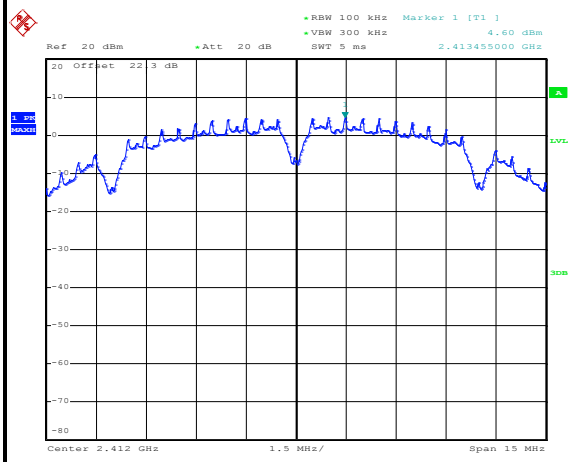
Date: 22.MAR.2016 00:39:48

Number of TX = 3, Ant. 2 (Measured)

Number of TX :	3	**Ant. :**	2
Test Mode :	802.11b	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	01	**Test Engineer :**	Osolemio Chang

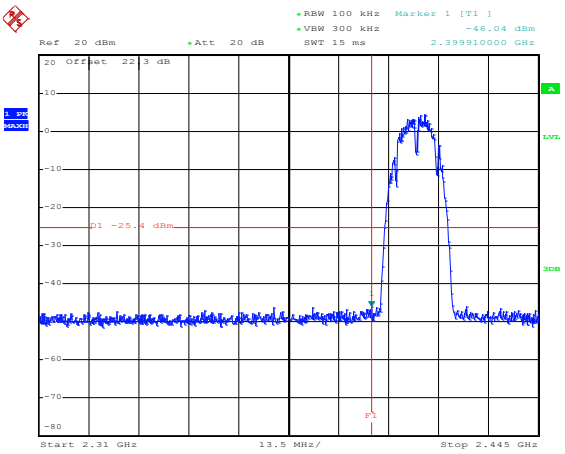
WLAN 802.11b Channel 01

100kHz PSD reference Level



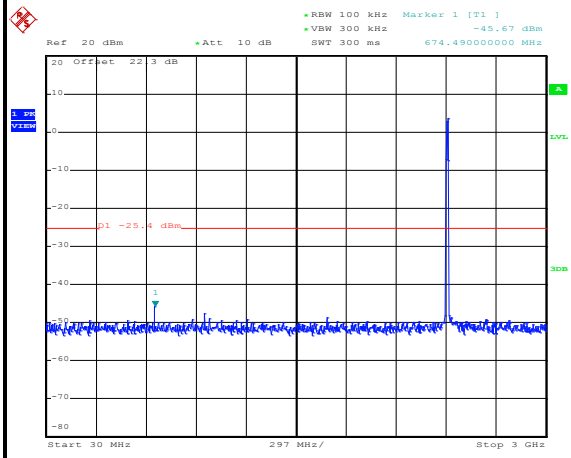
Date: 21.MAR.2016 22:15:58

Low Channel Plot



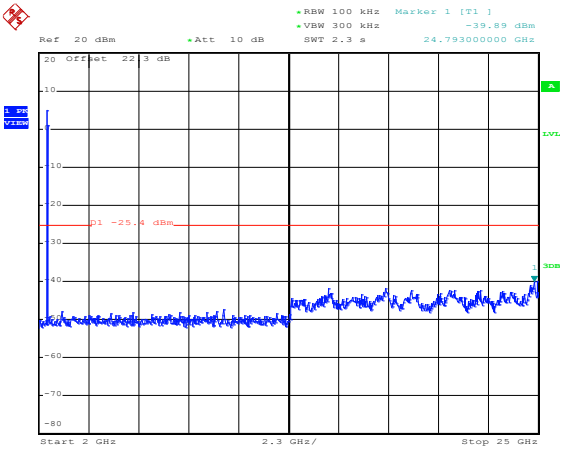
Date: 21.MAR.2016 22:16:42

Spurious Emission 30MHz~3GHz



Date: 21.MAR.2016 22:16:58

Spurious Emission 2GHz~25GHz

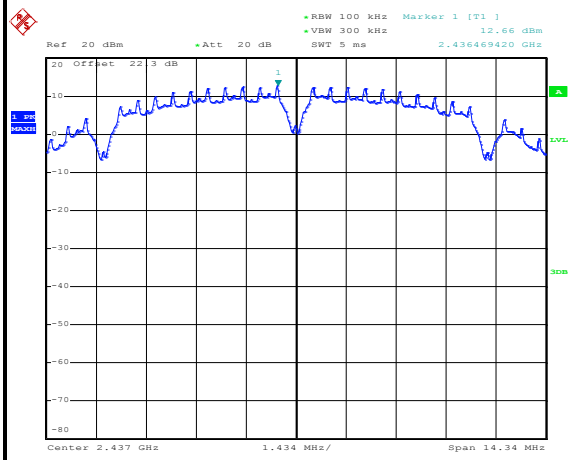


Date: 21.MAR.2016 22:17:07

Number of TX :	3	**Ant. :**	2
Test Mode :	802.11b	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Osolemio Chang

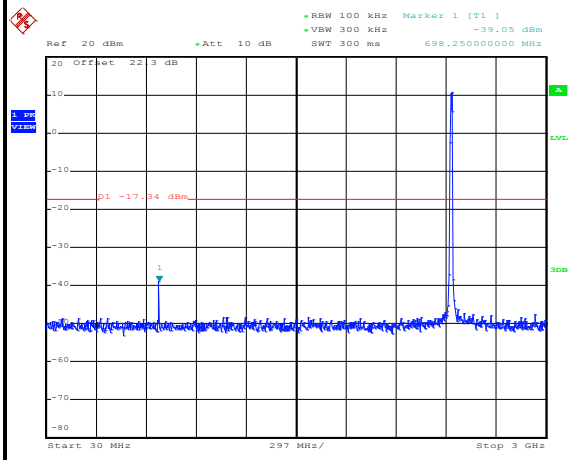
WLAN 802.11b Channel 06

100kHz PSD reference Level



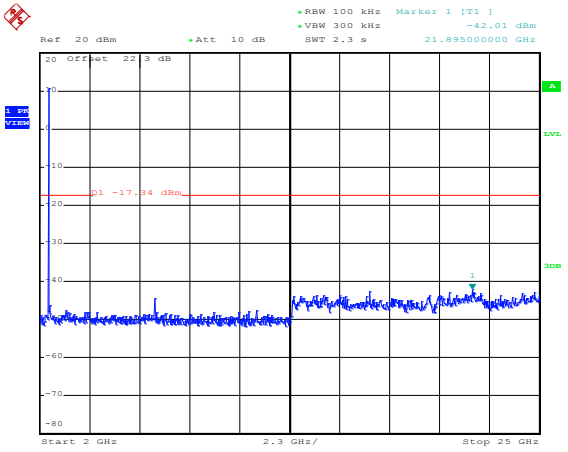
Date: 22.MAR.2016 20:02:15

Spurious Emission 30MHz~3GHz



Date: 22.MAR.2016 20:02:51

Spurious Emission 2GHz~25GHz

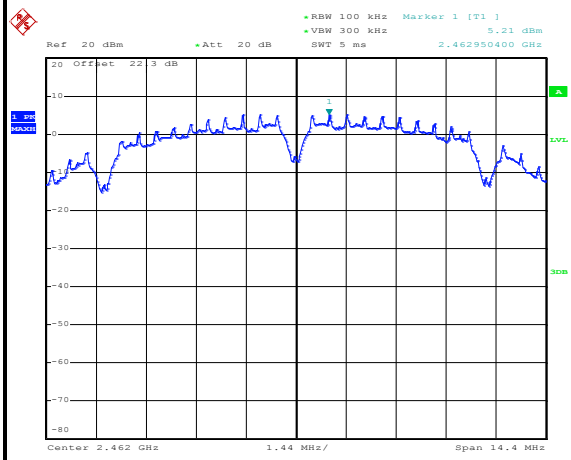


Date: 22.MAR.2016 20:03:00

Number of TX :	3	**Ant. :**	2
Test Mode :	802.11b	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	11	**Test Engineer :**	Osolemio Chang

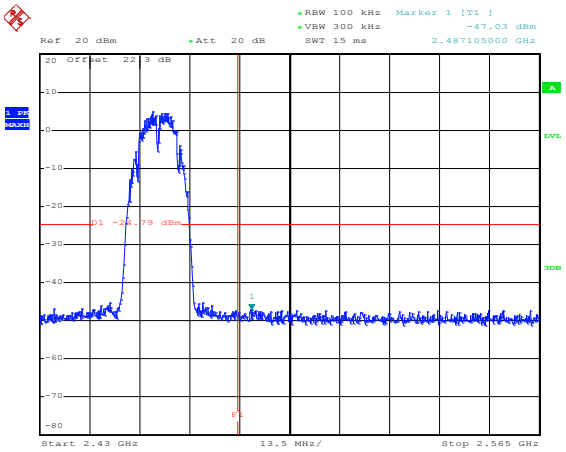
WLAN 802.11b Channel 11

100kHz PSD reference Level



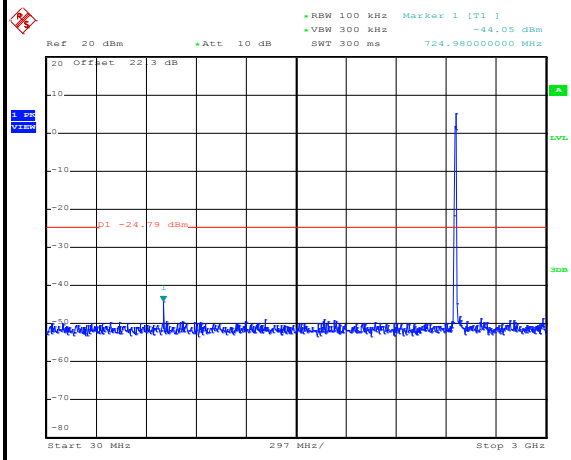
Date: 21.MAR.2016 22:28:15

High Channel Plot



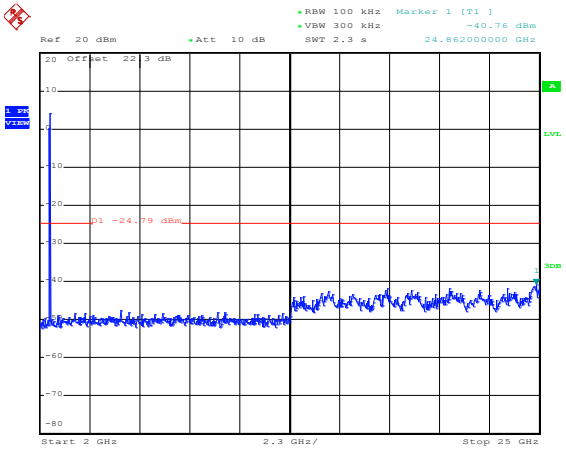
Date: 21.MAR.2016 22:28:31

Spurious Emission 30MHz~3GHz



Date: 21.MAR.2016 22:28:43

Spurious Emission 2GHz~25GHz

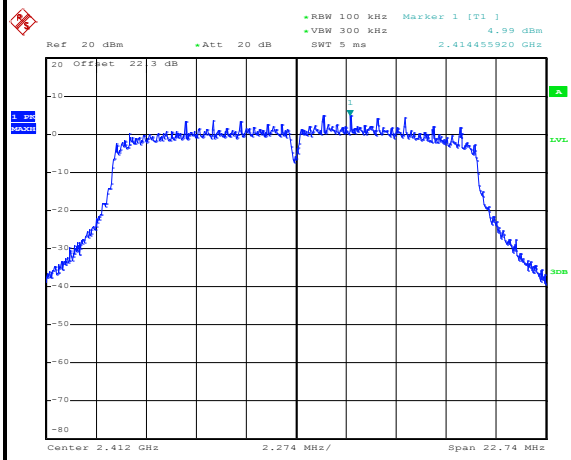


Date: 21.MAR.2016 22:28:51

Number of TX :	3	**Ant. :**	2
Test Mode :	802.11g	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	01	**Test Engineer :**	Osolemio Chang

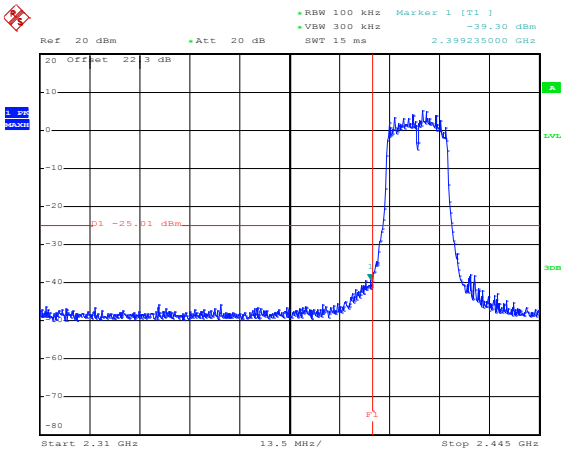
WLAN 802.11g Channel 01

100kHz PSD reference Level



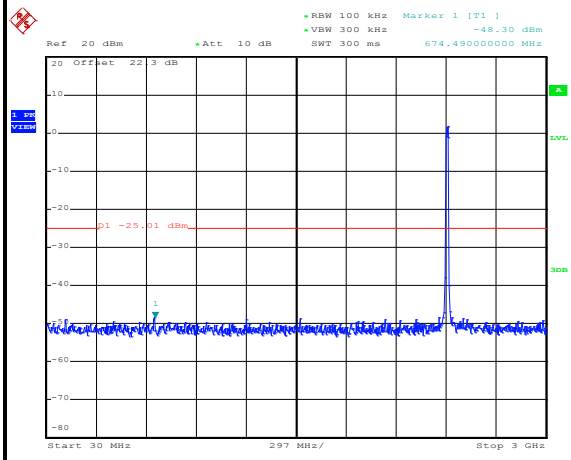
Date: 21.MAR.2016 22:44:15

Low Channel Plot



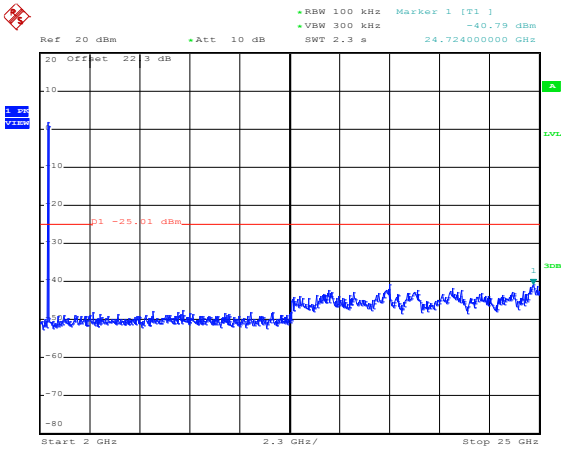
Date: 21.MAR.2016 22:44:38

Spurious Emission 30MHz~3GHz



Date: 21.MAR.2016 22:44:51

Spurious Emission 2GHz~25GHz

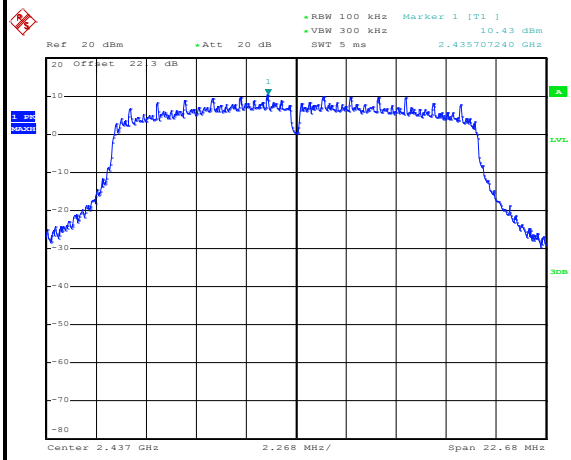


Date: 21.MAR.2016 22:45:00

Number of TX :	3	**Ant. :**	2
Test Mode :	802.11g	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Osolemio Chang

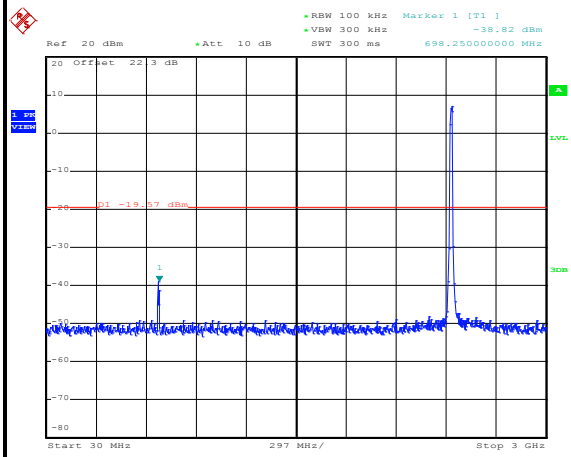
WLAN 802.11g Channel 06

100kHz PSD reference Level



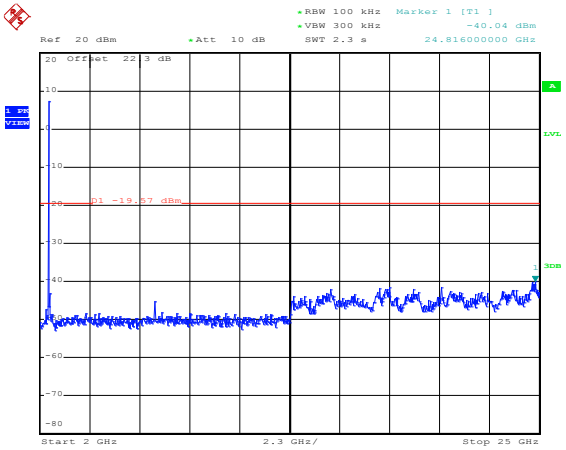
Date: 21.MAR.2016 23:03:46

Spurious Emission 30MHz~3GHz



Date: 21.MAR.2016 23:04:04

Spurious Emission 2GHz~25GHz

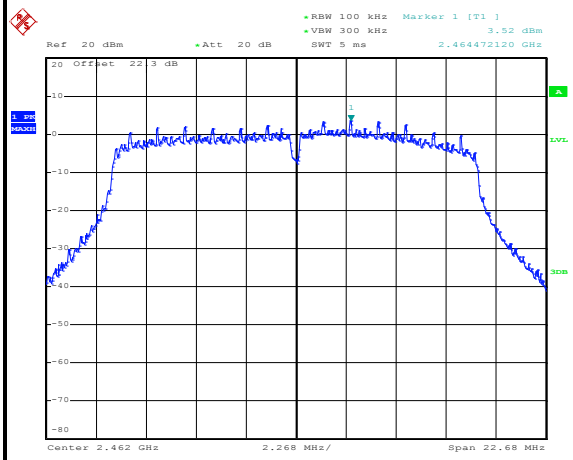


Date: 21.MAR.2016 23:04:12

Number of TX :	3	**Ant. :**	2
Test Mode :	802.11g	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	11	**Test Engineer :**	Osolemio Chang

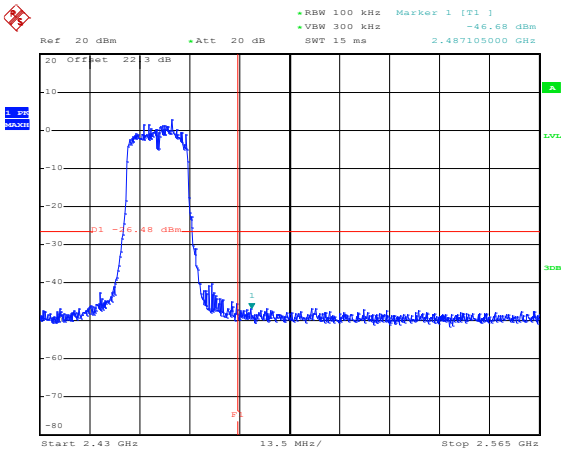
WLAN 802.11g Channel 11

100kHz PSD reference Level



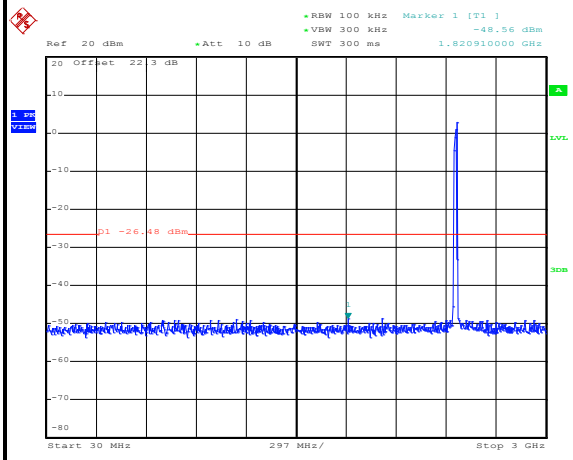
Date: 21.MAR.2016 23:16:09

High Channel Plot



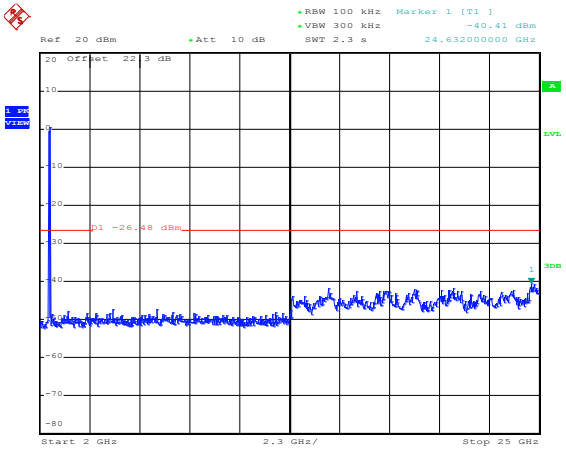
Date: 21.MAR.2016 23:16:24

Spurious Emission 30MHz~3GHz



Date: 21.MAR.2016 23:18:21

Spurious Emission 2GHz~25GHz

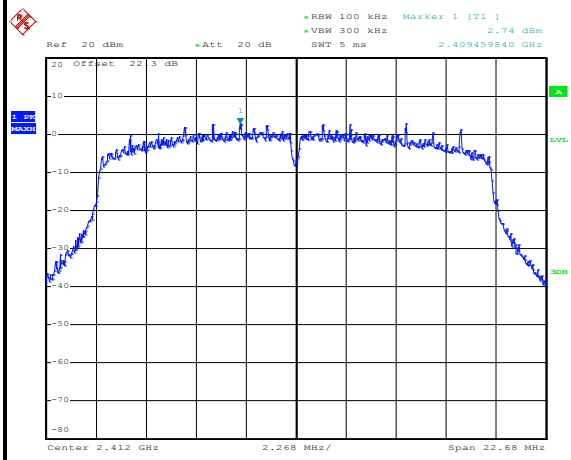


Date: 21.MAR.2016 23:18:30

Number of TX :	3	**Ant. :**	2
Test Mode :	802.11n HT20	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	01	**Test Engineer :**	Osolemio Chang

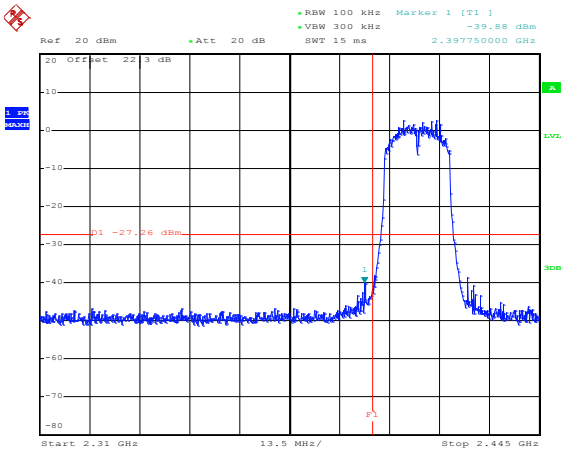
WLAN 802.11n HT20 Channel 01

100kHz PSD reference Level



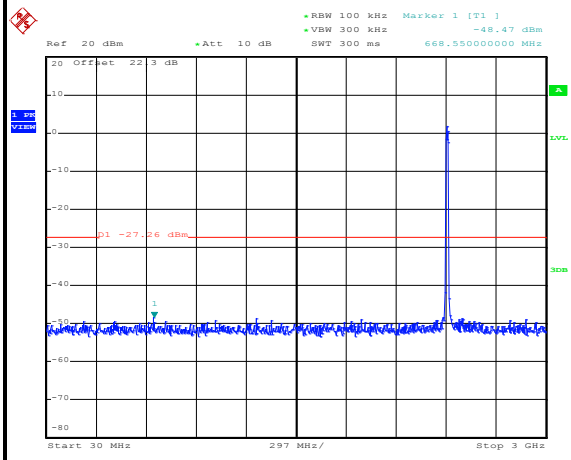
Date: 21.MAR.2016 23:37:28

Low Channel Plot



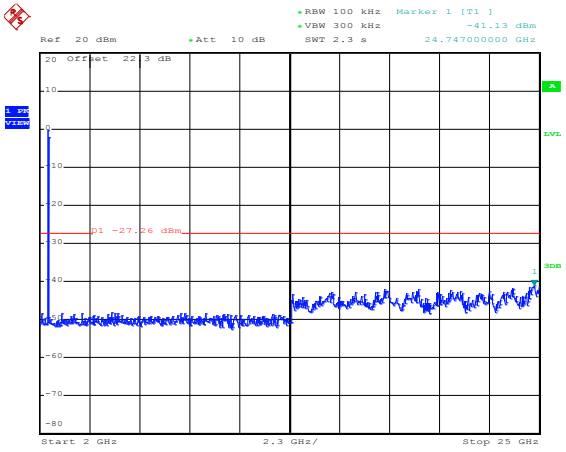
Date: 21.MAR.2016 23:37:53

Spurious Emission 30MHz~3GHz



Date: 21.MAR.2016 23:38:05

Spurious Emission 2GHz~25GHz

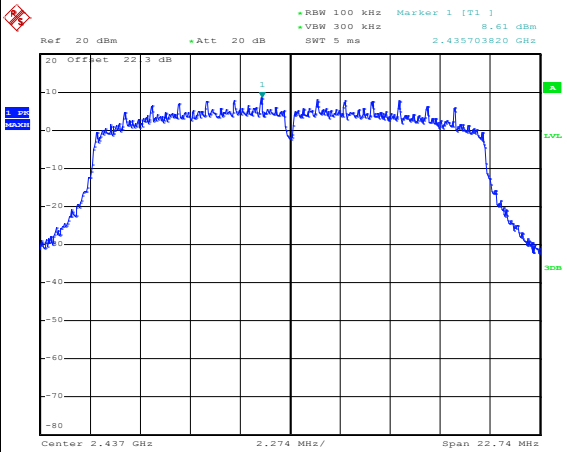


Date: 21.MAR.2016 23:38:13

Number of TX :	3	**Ant. :**	2
Test Mode :	802.11n HT20	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Osolemio Chang

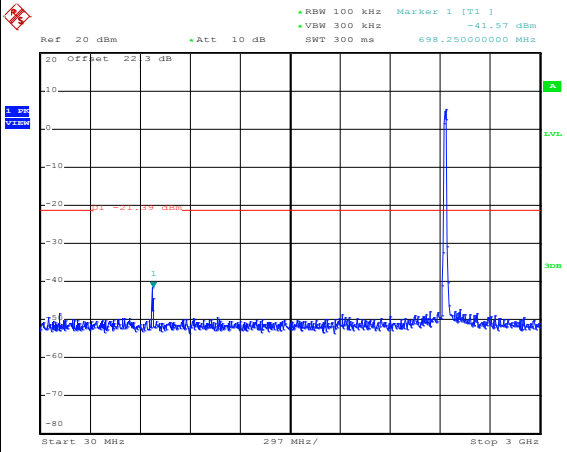
WLAN 802.11n HT20 Channel 06

100kHz PSD reference Level



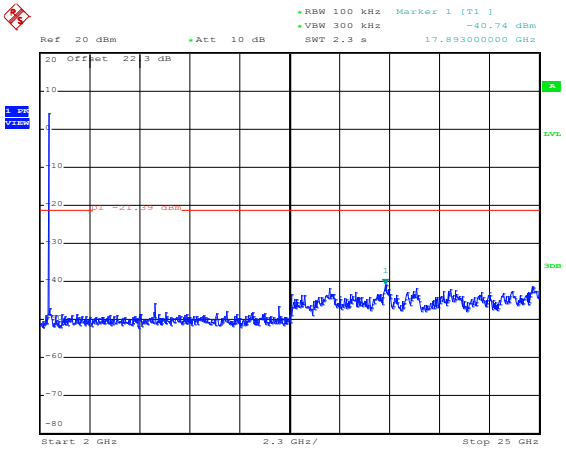
Date: 21.MAR.2016 23:53:35

Spurious Emission 30MHz~3GHz



Date: 21.MAR.2016 23:53:59

Spurious Emission 2GHz~25GHz

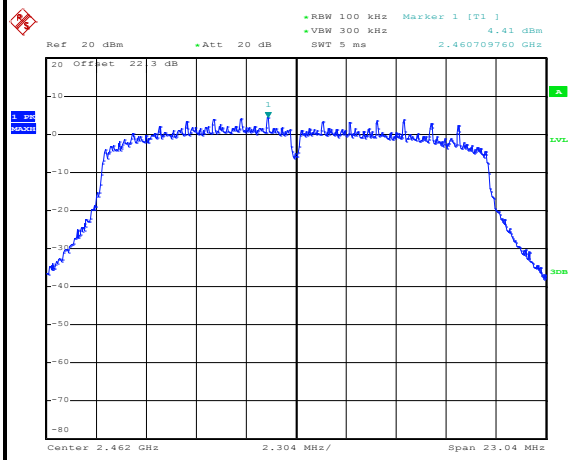


Date: 21.MAR.2016 23:54:08

Number of TX :	3	**Ant. :**	2
Test Mode :	802.11n HT20	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	11	**Test Engineer :**	Osolemio Chang

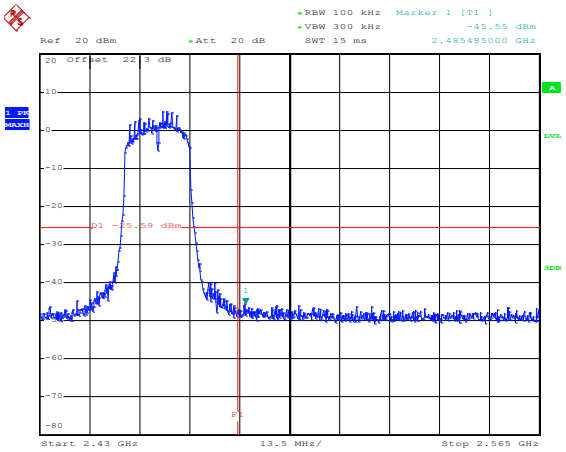
WLAN 802.11n HT20 Channel 11

100kHz PSD reference Level



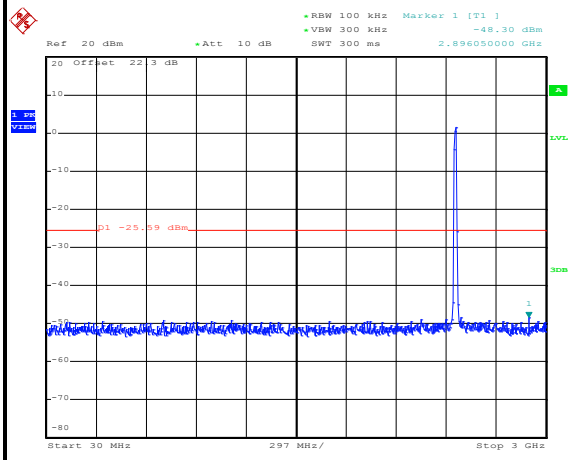
Date: 22.MAR.2016 00:09:35

High Channel Plot



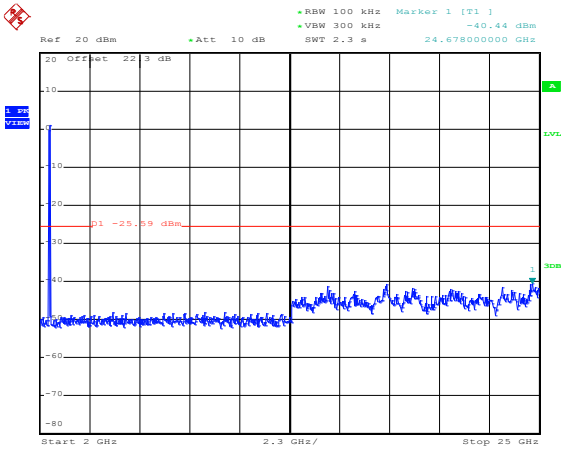
Date: 22.MAR.2016 00:12:07

Spurious Emission 30MHz~3GHz



Date: 22.MAR.2016 00:12:20

Spurious Emission 2GHz~25GHz

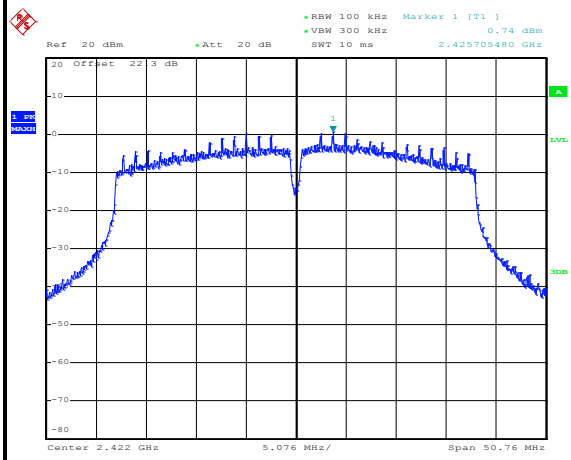


Date: 22.MAR.2016 00:12:29

Number of TX :	3	**Ant. :**	2
Test Mode :	802.11n HT40	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	03	**Test Engineer :**	Osolemio Chang

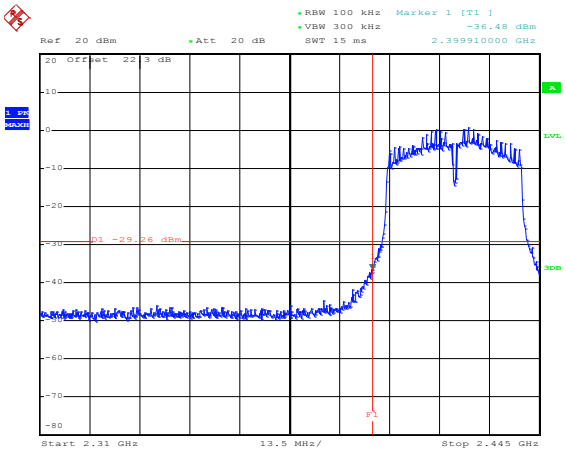
WLAN 802.11n HT40 Channel 03

100kHz PSD reference Level



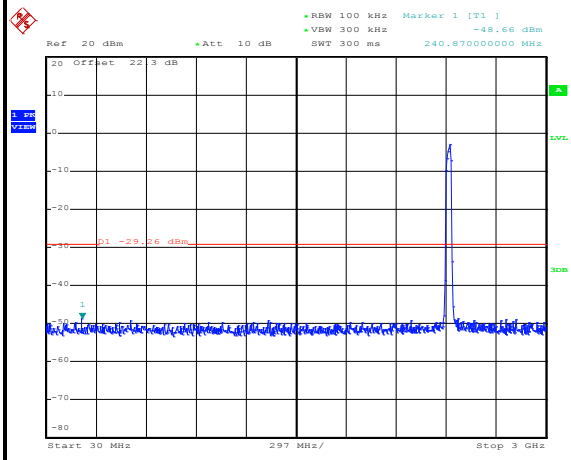
Date: 22.MAR.2016 00:28:53

Low Channel Plot



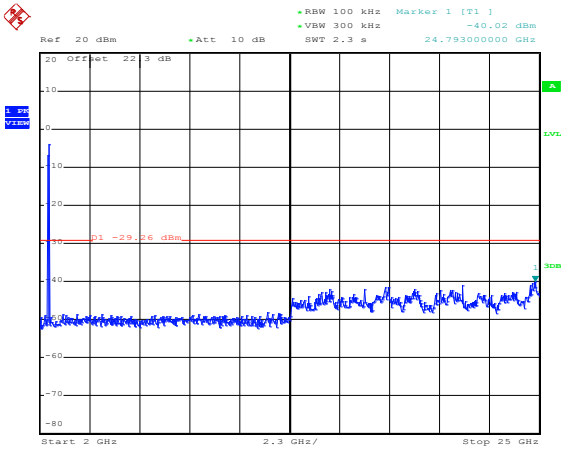
Date: 22.MAR.2016 00:29:26

Spurious Emission 30MHz~3GHz



Date: 22.MAR.2016 00:29:40

Spurious Emission 2GHz~25GHz

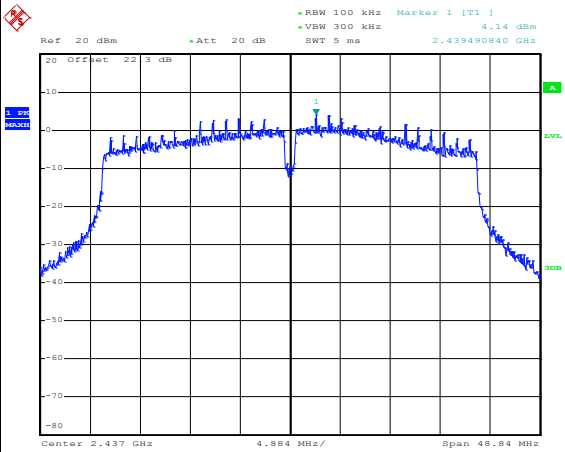


Date: 22.MAR.2016 00:29:48

Number of TX :	3	**Ant. :**	2
Test Mode :	802.11n HT40	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Osolemio Chang

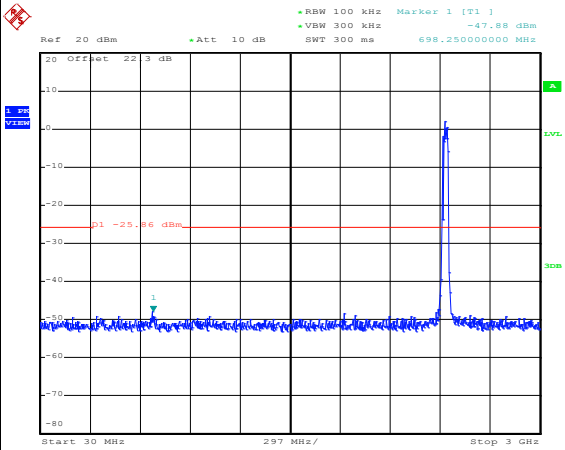
WLAN 802.11n HT40 Channel 06

100kHz PSD reference Level



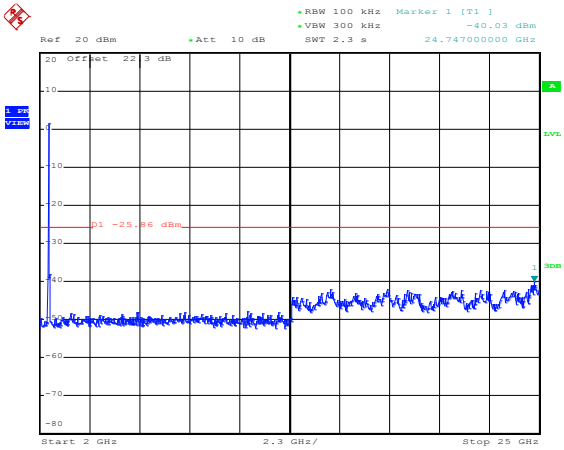
Date: 22.MAR.2016 01:50:12

Spurious Emission 30MHz~3GHz



Date: 22.MAR.2016 01:51:05

Spurious Emission 2GHz~25GHz

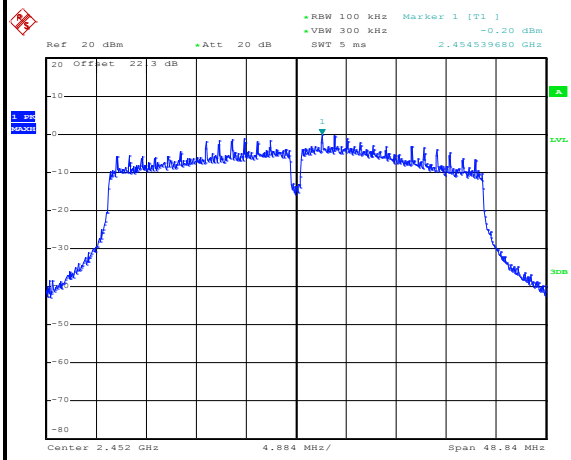


Date: 22.MAR.2016 01:51:14

Number of TX :	3	**Ant. :**	2
Test Mode :	802.11n HT40	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	09	**Test Engineer :**	Osolemio Chang

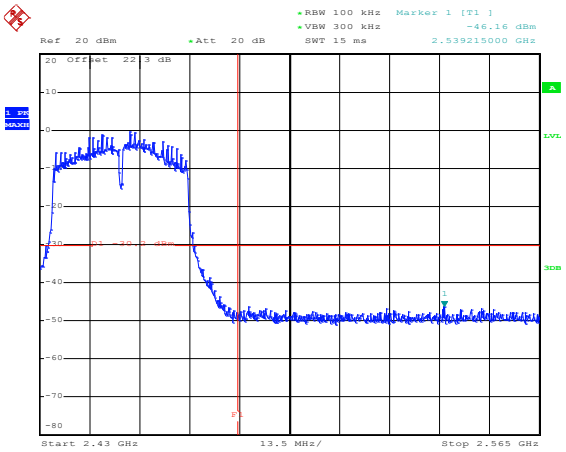
WLAN 802.11n HT40 Channel 09

100kHz PSD reference Level



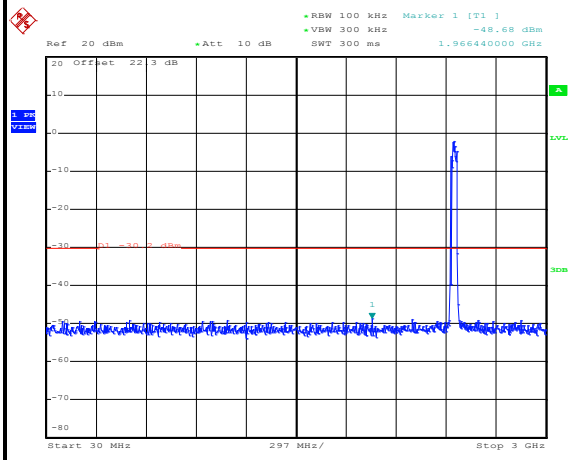
Date: 22.MAR.2016 00:44:10

High Channel Plot



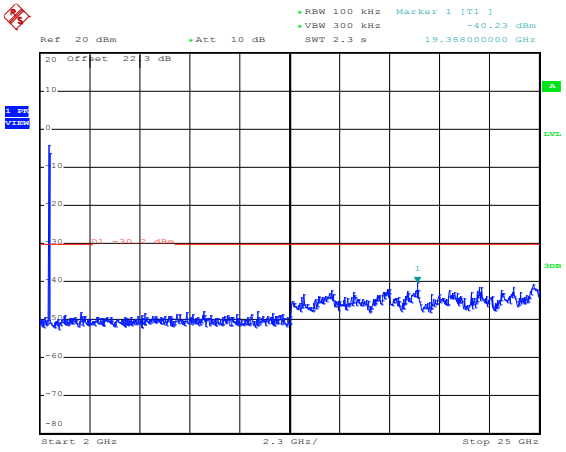
Date: 22.MAR.2016 00:44:25

Spurious Emission 30MHz~3GHz



Date: 22.MAR.2016 00:44:41

Spurious Emission 2GHz~25GHz



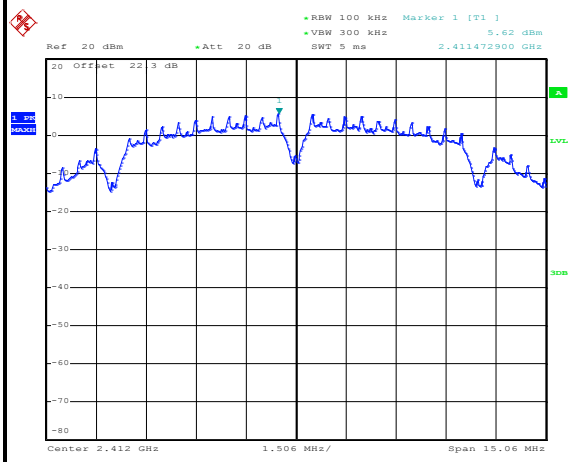
Date: 22.MAR.2016 00:44:49

Number of TX = 3, Ant. 3 (Measured)

Number of TX :	3	**Ant. :**	3
Test Mode :	802.11b	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	01	**Test Engineer :**	Osolemio Chang

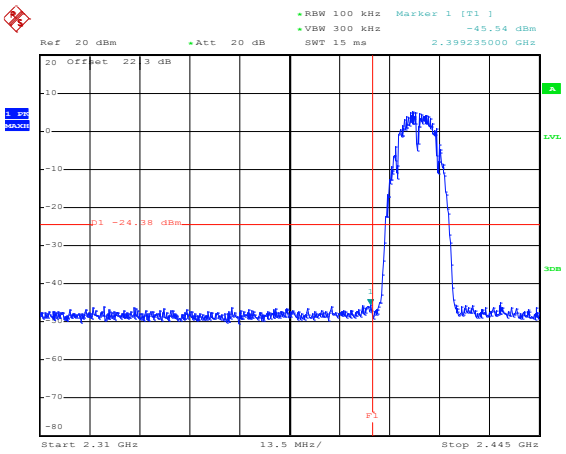
WLAN 802.11b Channel 01

100kHz PSD reference Level



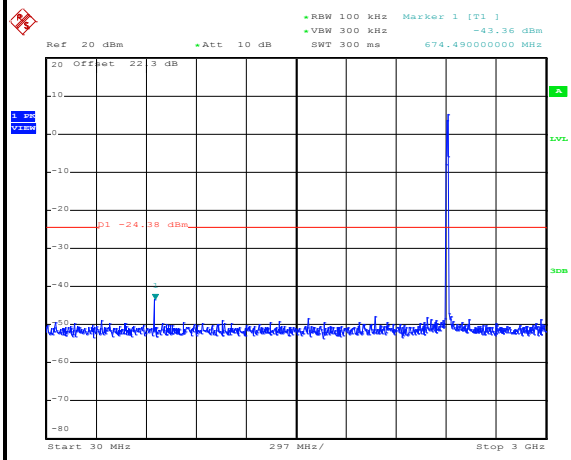
Date: 21.MAR.2016 22:19:44

Low Channel Plot



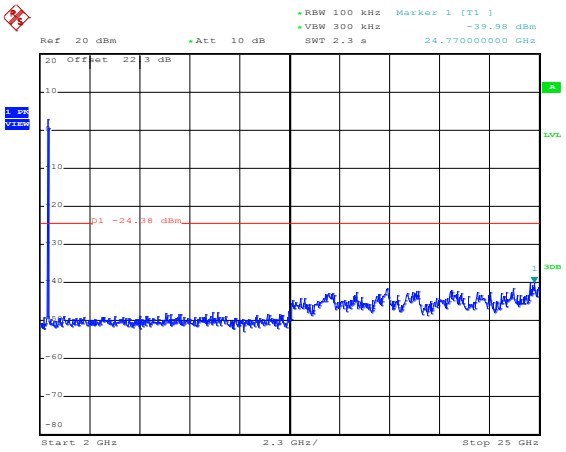
Date: 21.MAR.2016 22:20:08

Spurious Emission 30MHz~3GHz



Date: 21.MAR.2016 22:20:20

Spurious Emission 2GHz~25GHz

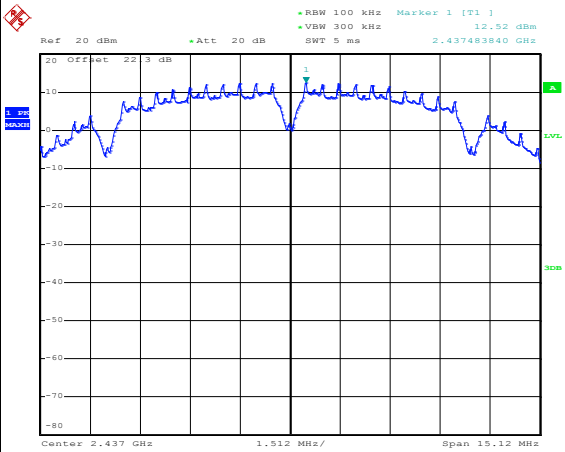


Date: 21.MAR.2016 22:20:29

Number of TX :	3	**Ant. :**	3
Test Mode :	802.11b	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Osolemio Chang

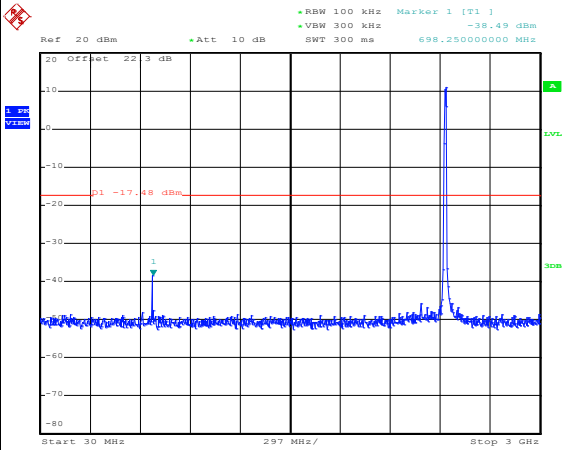
WLAN 802.11b Channel 06

100kHz PSD reference Level



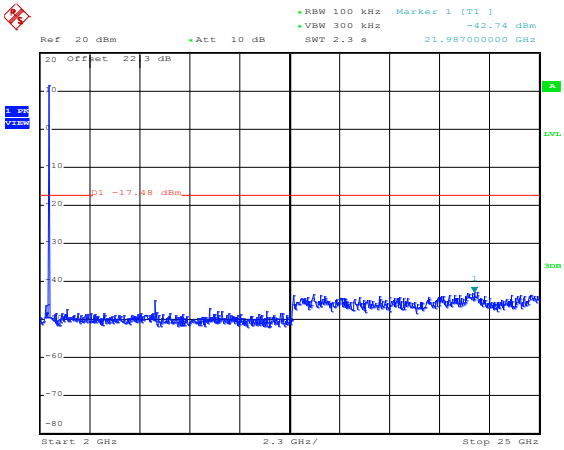
Date: 22.MAR.2016 20:08:29

Spurious Emission 30MHz~3GHz



Date: 22.MAR.2016 20:08:59

Spurious Emission 2GHz~25GHz

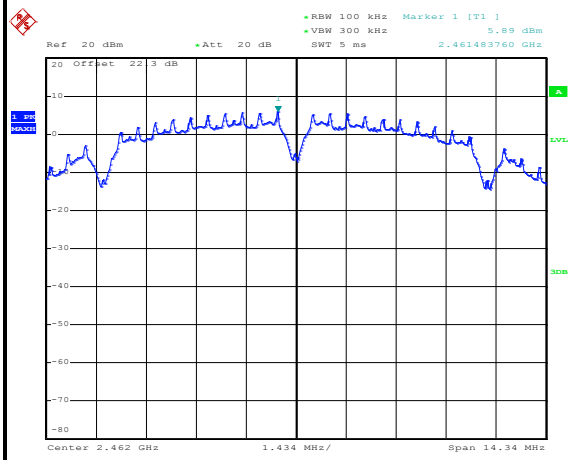


Date: 22.MAR.2016 20:09:07

Number of TX :	3	**Ant. :**	3
Test Mode :	802.11b	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	11	**Test Engineer :**	Osolemio Chang

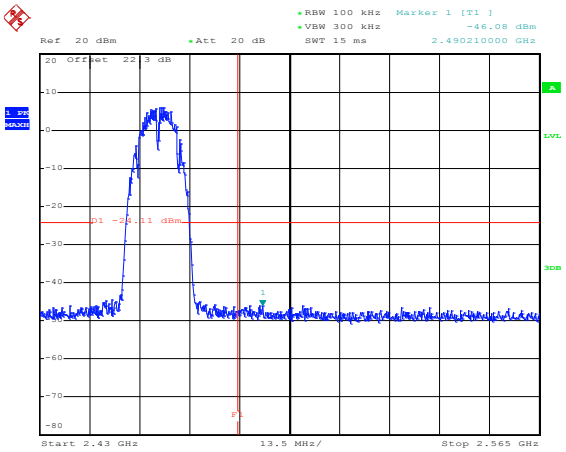
WLAN 802.11b Channel 11

100kHz PSD reference Level



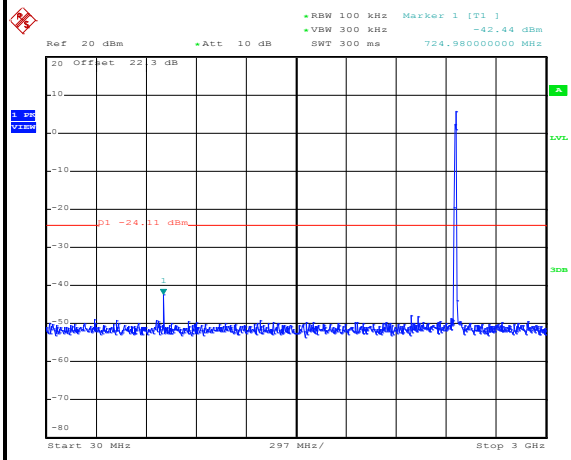
Date: 21.MAR.2016 22:32:00

High Channel Plot



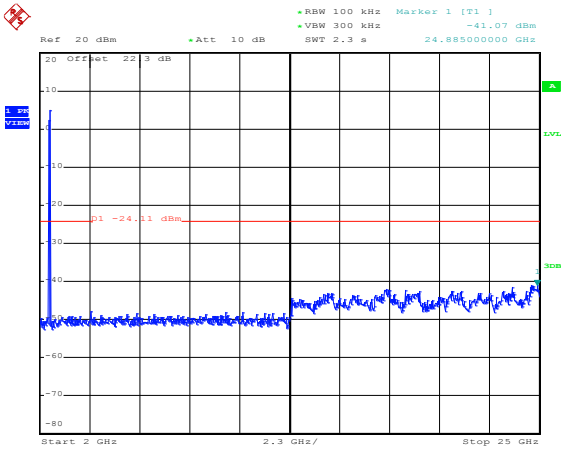
Date: 21.MAR.2016 22:32:26

Spurious Emission 30MHz~3GHz



Date: 21.MAR.2016 22:32:39

Spurious Emission 2GHz~25GHz

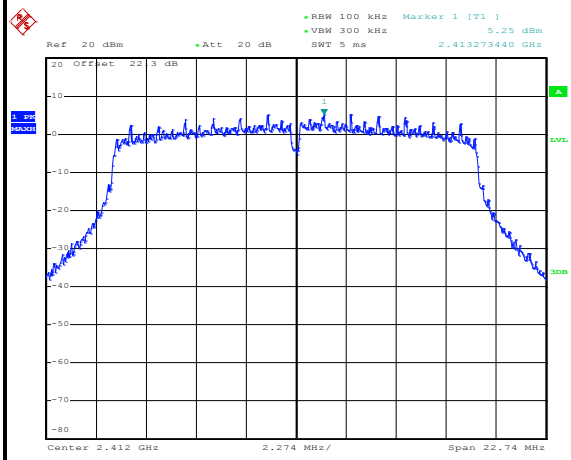


Date: 21.MAR.2016 22:32:47

Number of TX :	3	**Ant. :**	3
Test Mode :	802.11g	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	01	**Test Engineer :**	Osolemio Chang

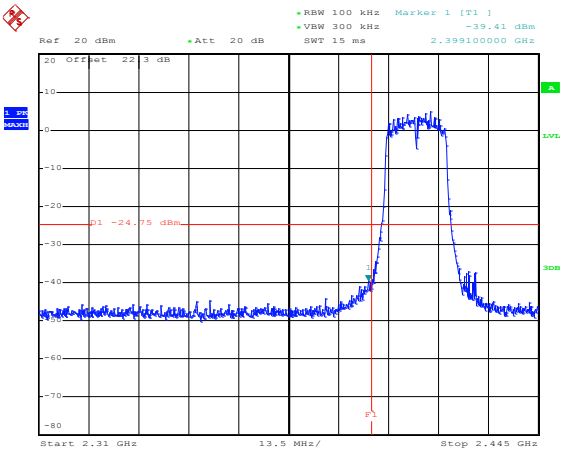
WLAN 802.11g Channel 01

100kHz PSD reference Level



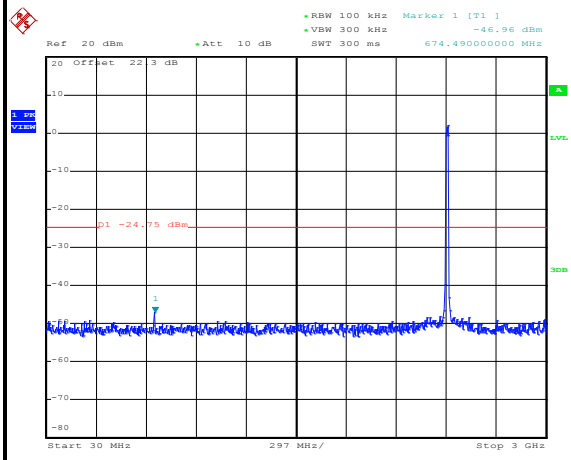
Date: 21.MAR.2016 22:48:00

Low Channel Plot



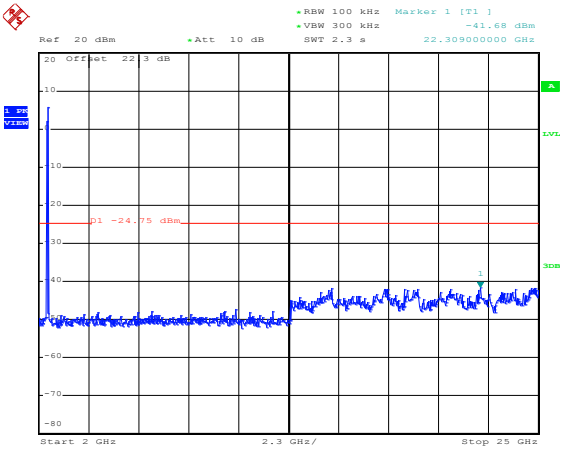
Date: 21.MAR.2016 22:48:15

Spurious Emission 30MHz~3GHz



Date: 21.MAR.2016 22:48:37

Spurious Emission 2GHz~25GHz

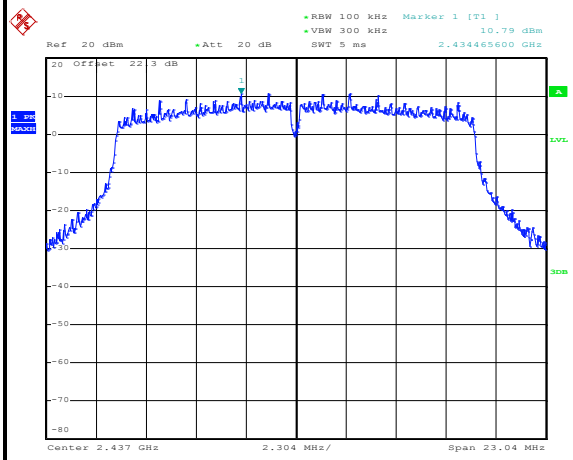


Date: 21.MAR.2016 22:48:46

Number of TX :	3	**Ant. :**	3
Test Mode :	802.11g	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Osolemio Chang

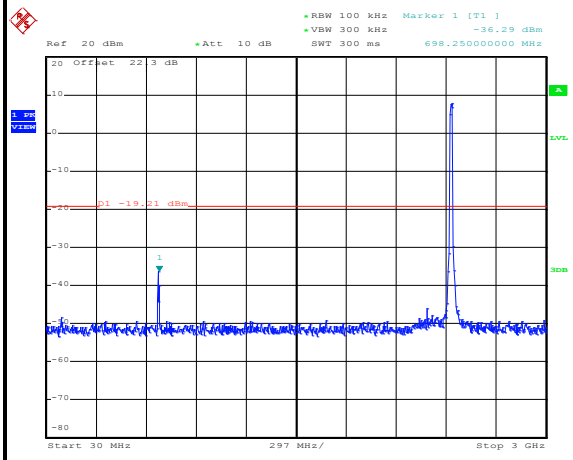
WLAN 802.11g Channel 06

100kHz PSD reference Level



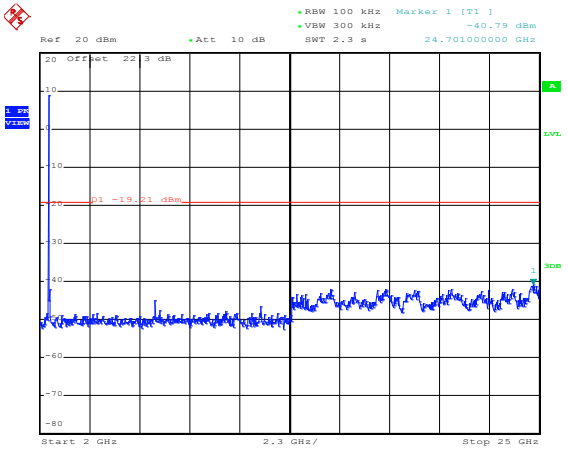
Date: 21.MAR.2016 23:07:26

Spurious Emission 30MHz~3GHz



Date: 21.MAR.2016 23:07:40

Spurious Emission 2GHz~25GHz

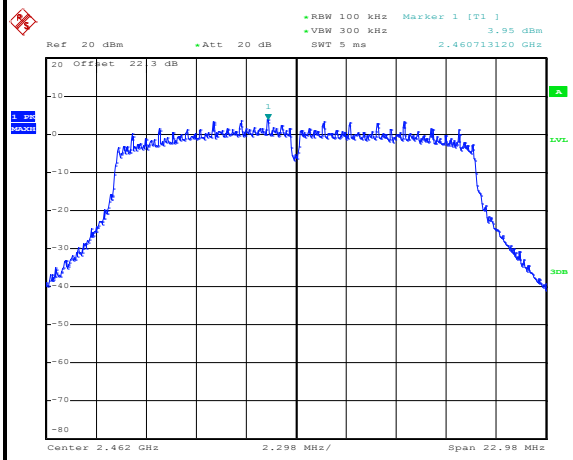


Date: 21.MAR.2016 23:07:48

Number of TX :	3	**Ant. :**	3
Test Mode :	802.11g	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	11	**Test Engineer :**	Osolemio Chang

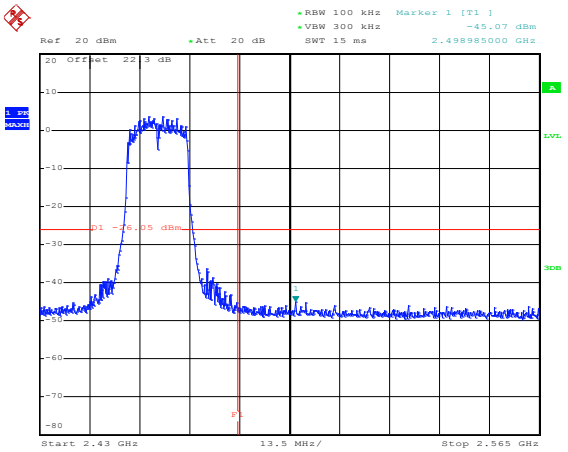
WLAN 802.11g Channel 11

100kHz PSD reference Level



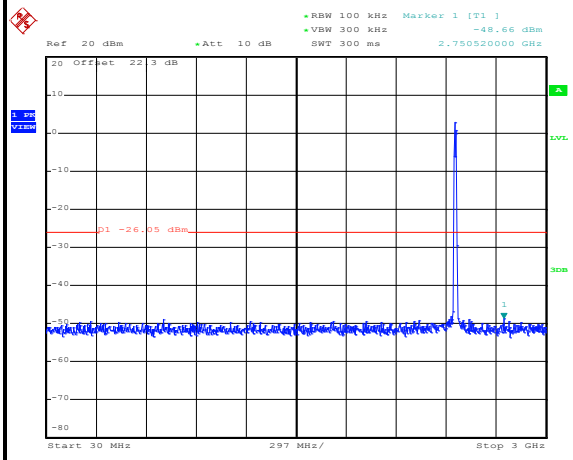
Date: 21.MAR.2016 23:21:45

High Channel Plot



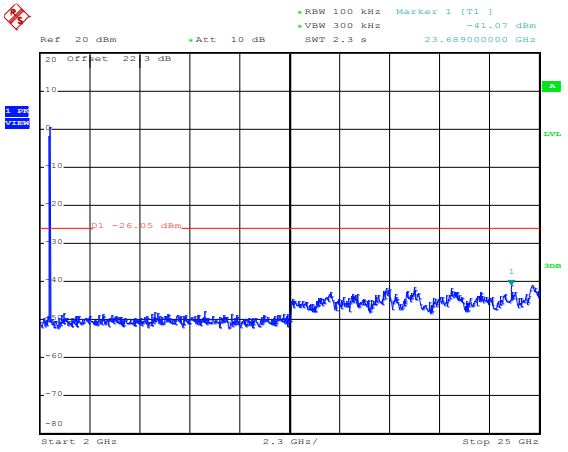
Date: 21.MAR.2016 23:22:40

Spurious Emission 30MHz~3GHz



Date: 21.MAR.2016 23:24:01

Spurious Emission 2GHz~25GHz

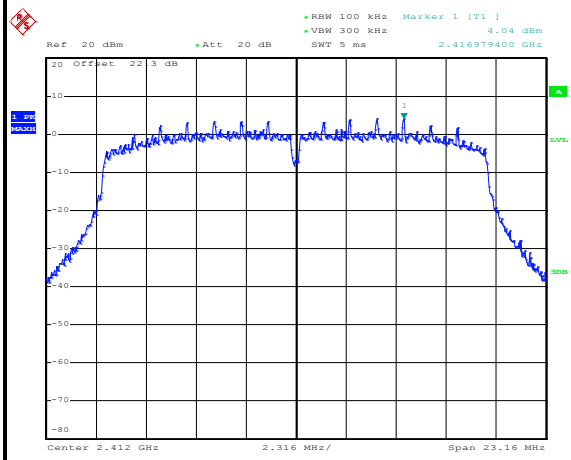


Date: 21.MAR.2016 23:24:10

Number of TX :	3	**Ant. :**	3
Test Mode :	802.11n HT20	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	01	**Test Engineer :**	Osolemio Chang

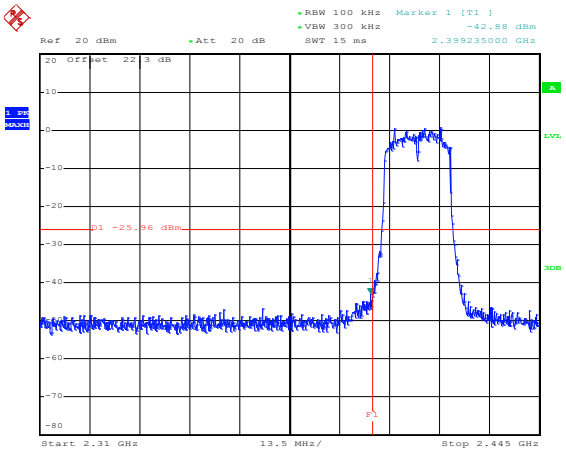
WLAN 802.11n HT20 Channel 01

100kHz PSD reference Level



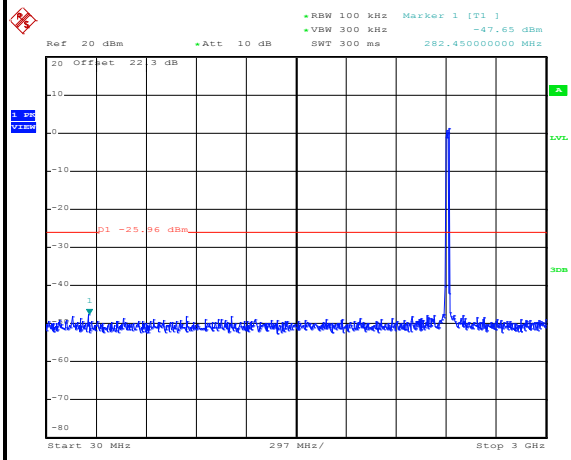
Date: 21.MAR.2016 23:42:31

Low Channel Plot



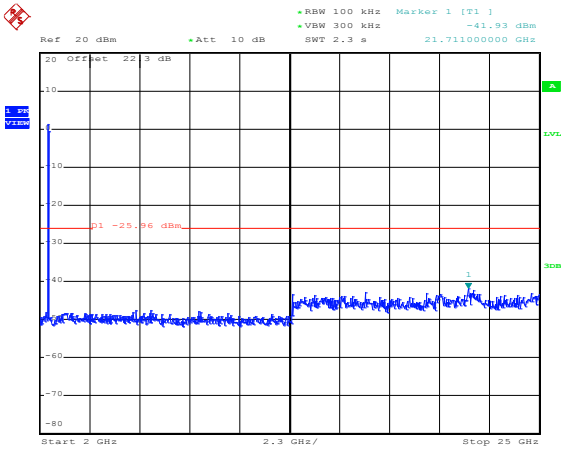
Date: 21.MAR.2016 23:43:12

Spurious Emission 30MHz~3GHz



Date: 22.MAR.2016 20:53:27

Spurious Emission 2GHz~25GHz

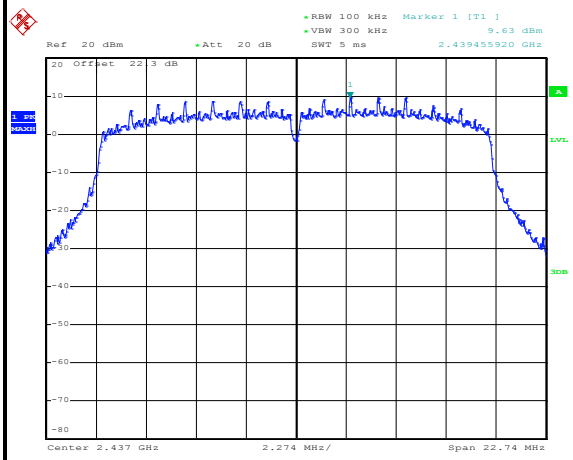


Date: 22.MAR.2016 20:53:36

Number of TX :	3	**Ant. :**	3
Test Mode :	802.11n HT20	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Osolemio Chang

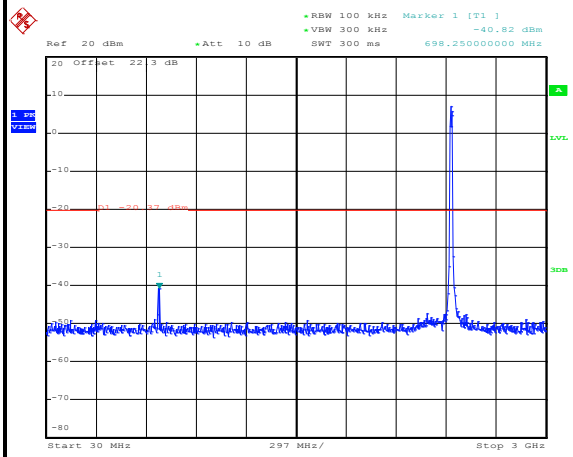
WLAN 802.11n HT20 Channel 06

100kHz PSD reference Level



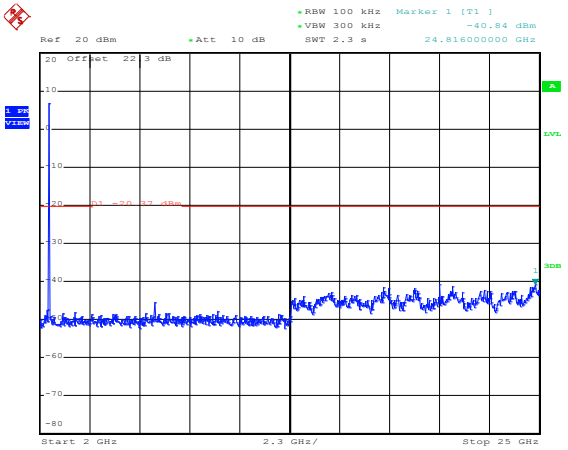
Date: 21.MAR.2016 23:58:52

Spurious Emission 30MHz~3GHz



Date: 21.MAR.2016 23:59:07

Spurious Emission 2GHz~25GHz

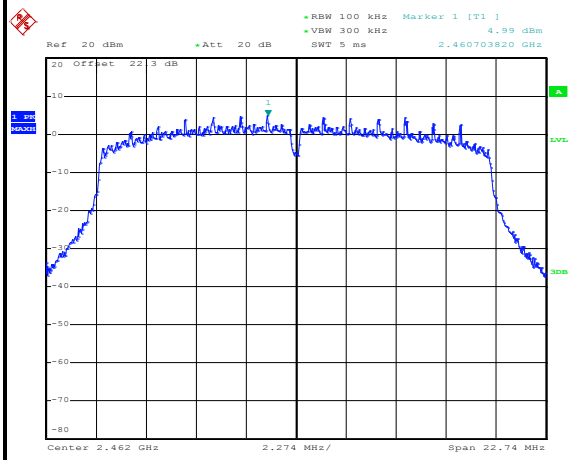


Date: 21.MAR.2016 23:59:16

Number of TX :	3	**Ant. :**	3
Test Mode :	802.11n HT20	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	11	**Test Engineer :**	Osolemio Chang

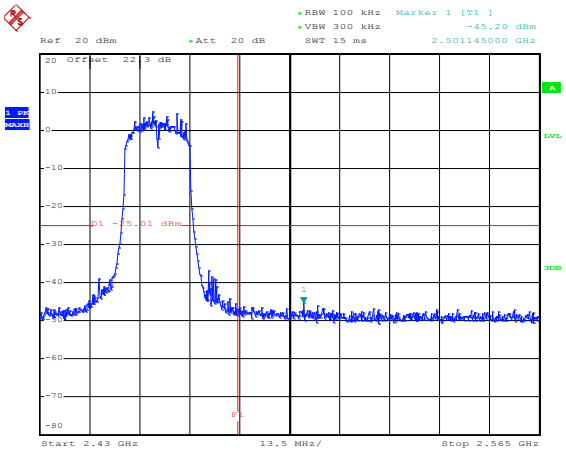
WLAN 802.11n HT20 Channel 11

100kHz PSD reference Level



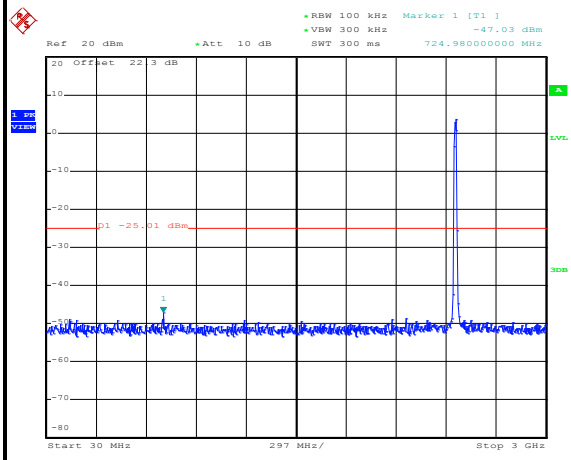
Date: 22.MAR.2016 00:17:31

High Channel Plot



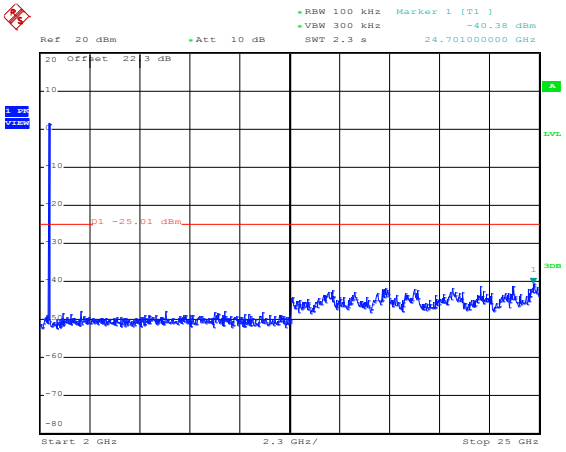
Date: 22.MAR.2016 00:18:21

Spurious Emission 30MHz~3GHz



Date: 22.MAR.2016 00:19:14

Spurious Emission 2GHz~25GHz

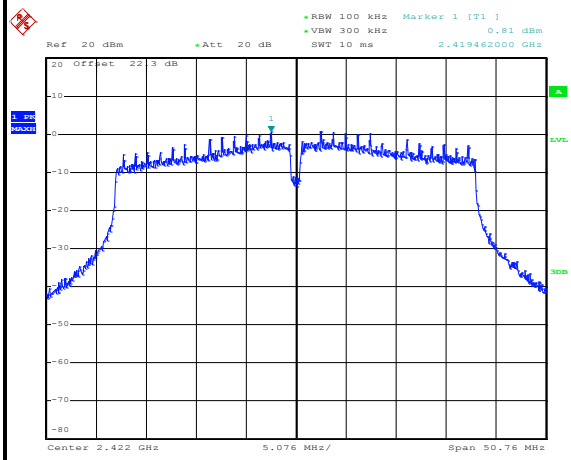


Date: 22.MAR.2016 00:19:23

Number of TX :	3	**Ant. :**	3
Test Mode :	802.11n HT40	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	03	**Test Engineer :**	Osolemio Chang

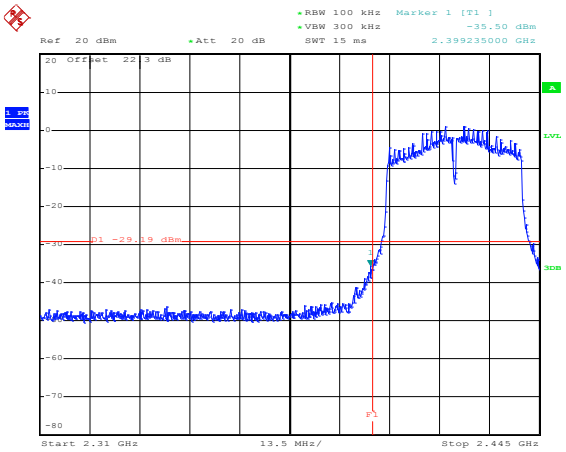
WLAN 802.11n HT40 Channel 03

100kHz PSD reference Level



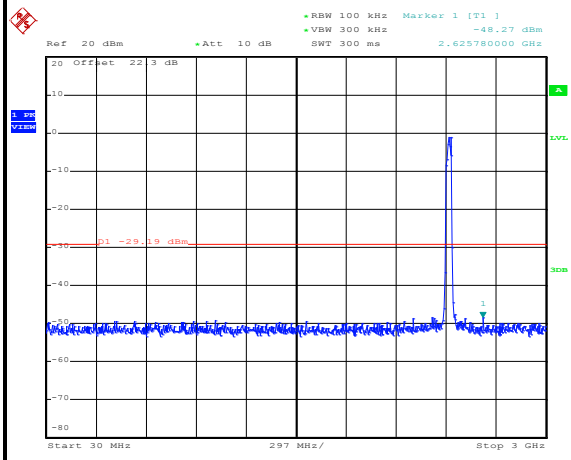
Date: 22.MAR.2016 00:32:58

Low Channel Plot



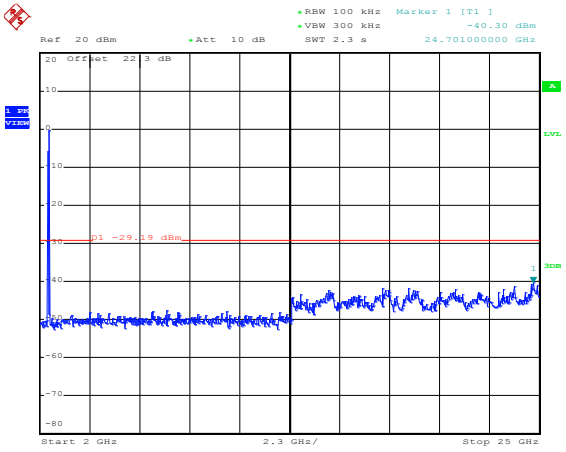
Date: 22.MAR.2016 00:33:49

Spurious Emission 30MHz~3GHz



Date: 22.MAR.2016 00:34:44

Spurious Emission 2GHz~25GHz

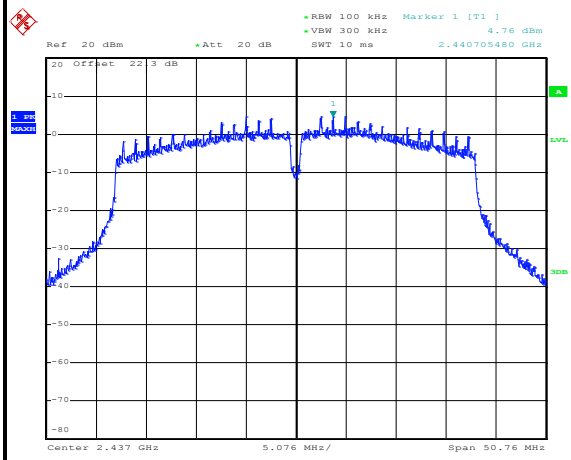


Date: 22.MAR.2016 00:34:52

Number of TX :	3	**Ant. :**	3
Test Mode :	802.11n HT40	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Osolemio Chang

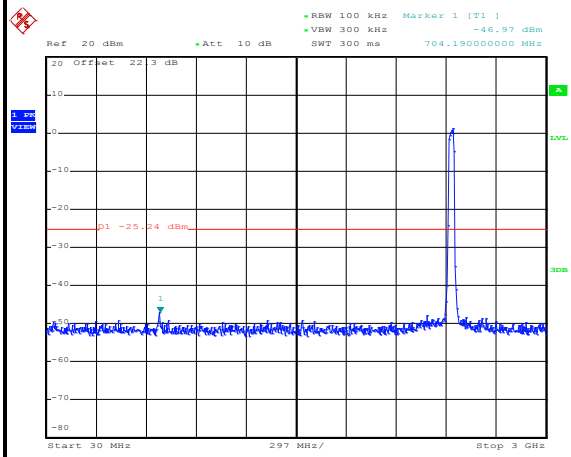
WLAN 802.11n HT40 Channel 06

100kHz PSD reference Level



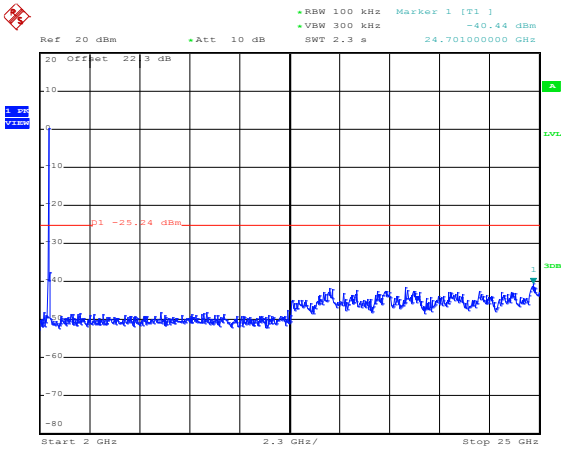
Date: 22.MAR.2016 01:54:57

Spurious Emission 30MHz~3GHz



Date: 22.MAR.2016 01:55:12

Spurious Emission 2GHz~25GHz

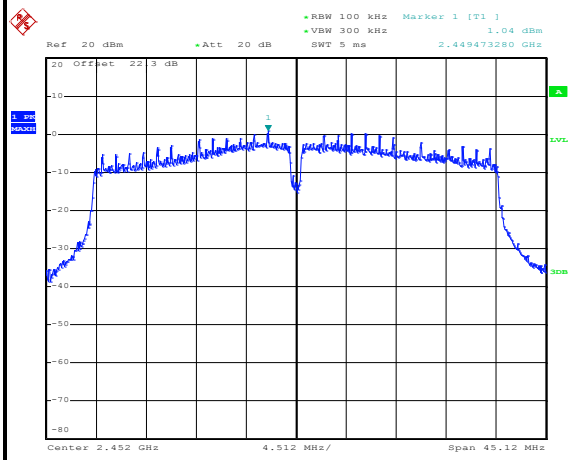


Date: 22.MAR.2016 01:55:20

Number of TX :	3	**Ant. :**	3
Test Mode :	802.11n HT40	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	09	**Test Engineer :**	Osolemio Chang

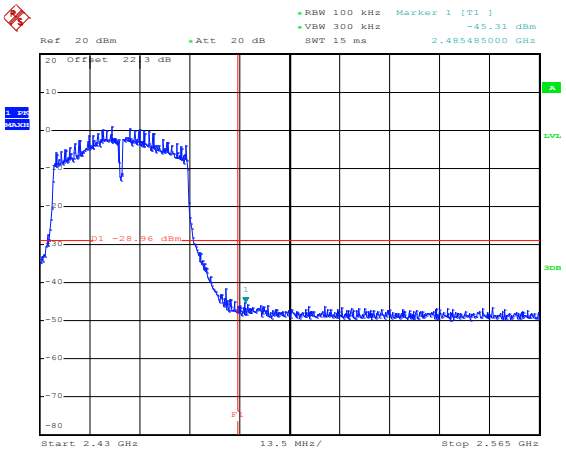
WLAN 802.11n HT40 Channel 09

100kHz PSD reference Level



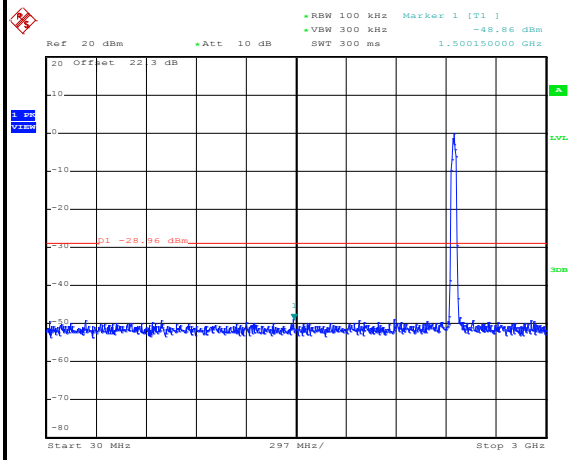
Date: 22.MAR.2016 00:48:09

High Channel Plot



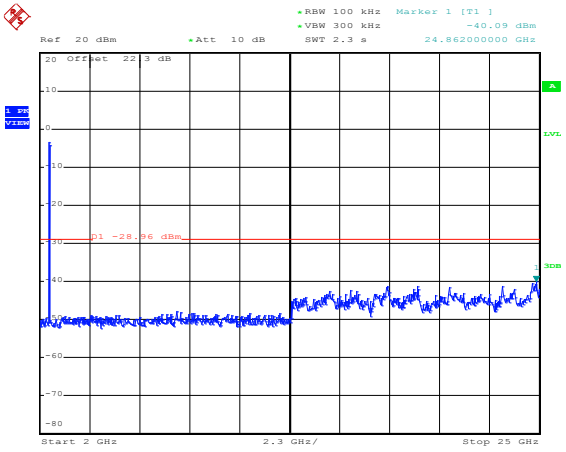
Date: 22.MAR.2016 00:48:49

Spurious Emission 30MHz~3GHz



Date: 22.MAR.2016 00:49:01

Spurious Emission 2GHz~25GHz



Date: 22.MAR.2016 00:49:09

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.

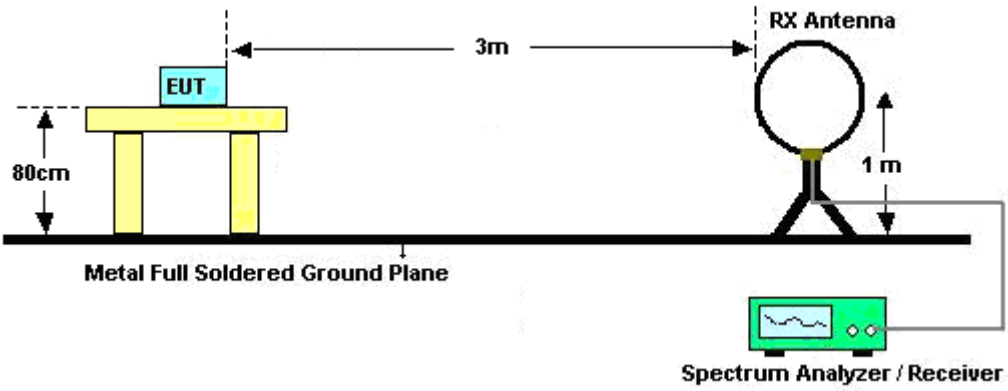
3.5.3 Test Procedure

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r04.
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.

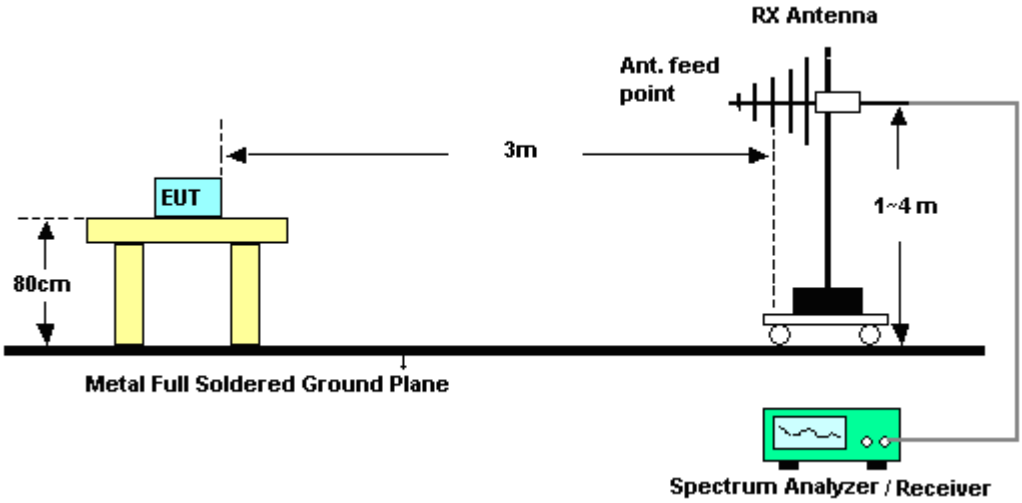
Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
1+2+3 (1)	802.11b	100	-	-	10Hz
1+2+3 (2)	802.11b	100	-	-	10Hz
1+2+3 (3)	802.11b	100	-	-	10Hz
1+2+3 (1)	802.11g	97.12	2020	0.495049505	1kHz
1+2+3 (2)	802.11g	97.12	2020	0.495049505	1kHz
1+2+3 (3)	802.11g	97.12	2020	0.495049505	1kHz
1+2+3 (1)	802.11g HT20	96.94	1900	0.526315789	1kHz
1+2+3 (2)	802.11g HT20	96.91	1880	0.531914894	1kHz
1+2+3 (3)	802.11g HT20	96.94	1900	0.526315789	1kHz
1+2+3 (1)	802.11g HT40	95.87	928	1.077586207	3kHz
1+2+3 (2)	802.11g HT40	95.87	928	1.077586207	3kHz
1+2+3 (3)	802.11g HT40	95.87	928	1.077586207	3kHz

3.5.4 Test Setup

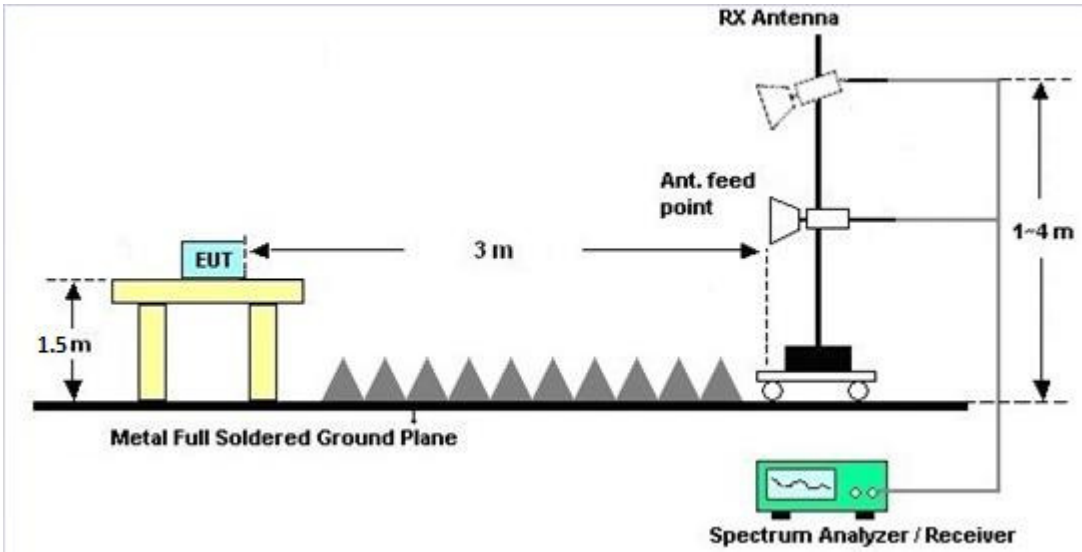
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.5.5 Test Results of Radiated 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 of this test report.

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

Please refer to Appendix B and C of this test report.

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.

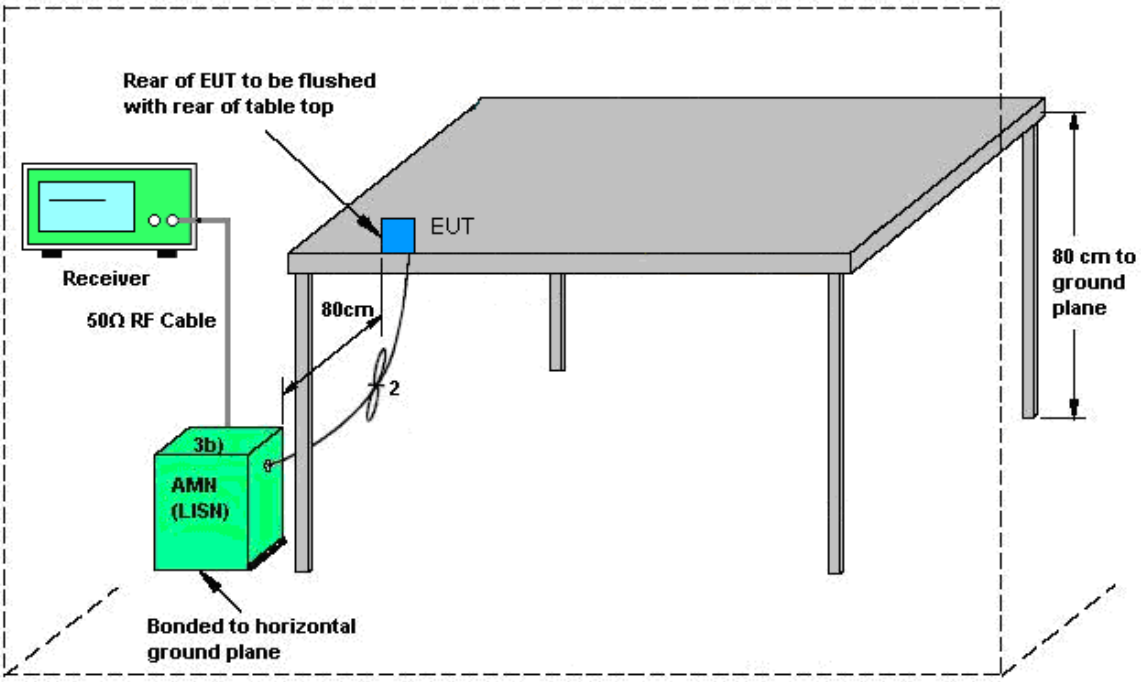
3.6.2 Measuring Instruments

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.

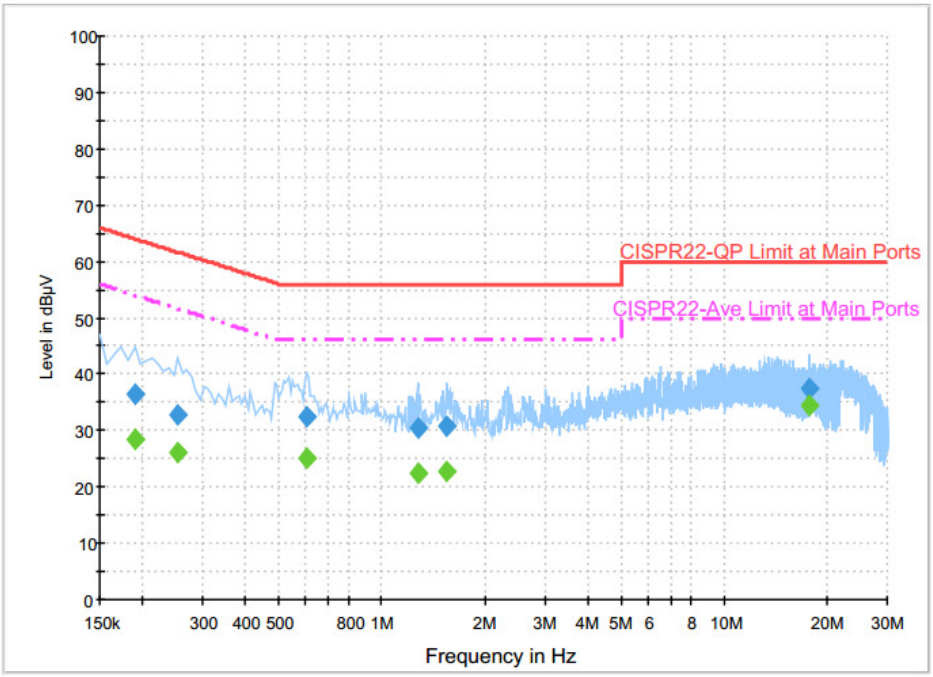
3.6.4 Test Setup



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

3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	**Temperature :**	20~21℃
Test Engineer :	Derreck Chen	**Relative Humidity :**	52~53%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	WLAN (2.4GHz) Idle + TC		



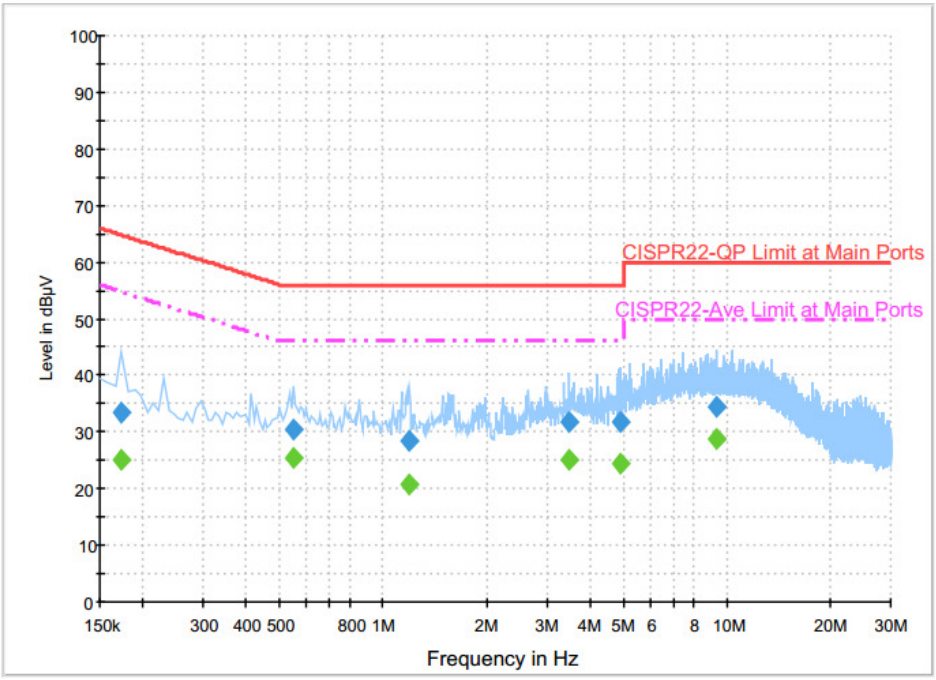
Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.190000	36.5	Off	L1	19.6	27.5	64.0
0.254000	32.9	Off	L1	19.6	28.7	61.6
0.606000	32.4	Off	L1	19.6	23.6	56.0
1.278000	30.4	Off	L1	19.6	25.6	56.0
1.550000	30.7	Off	L1	19.6	25.3	56.0
17.694000	37.6	Off	L1	19.8	22.4	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.190000	28.3	Off	L1	19.6	25.7	54.0
0.254000	26.2	Off	L1	19.6	25.4	51.6
0.606000	25.0	Off	L1	19.6	21.0	46.0
1.278000	22.5	Off	L1	19.6	23.5	46.0
1.550000	22.7	Off	L1	19.6	23.3	46.0
17.694000	34.4	Off	L1	19.8	15.6	50.0

Test Mode :	Mode 1	**Temperature :**	20~21℃
Test Engineer :	Derreck Chen	**Relative Humidity :**	52~53%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	WLAN (2.4GHz) Idle + TC		



Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.174000	33.3	Off	N	19.6	31.5	64.8
0.550000	30.4	Off	N	19.6	25.6	56.0
1.190000	28.6	Off	N	19.6	27.4	56.0
3.486000	31.6	Off	N	19.6	24.4	56.0
4.926000	31.7	Off	N	19.7	24.3	56.0
9.310000	34.3	Off	N	19.8	25.7	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.174000	25.0	Off	N	19.6	29.8	54.8
0.550000	25.3	Off	N	19.6	20.7	46.0
1.190000	20.8	Off	N	19.6	25.2	46.0
3.486000	25.2	Off	N	19.6	20.8	46.0
4.926000	24.5	Off	N	19.7	21.5	46.0
9.310000	28.7	Off	N	19.8	21.3	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

Non-standard antenna connector is used.

3.7.3 Antenna Gain

FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

For CDD transmissions, directional gain is calculated as

Directional gain = G_{ANT} + Array Gain, where Array Gain is as follows.

For power spectral density (PSD) measurements on all devices,

Array Gain = 10 log(N_{ANT}/N_{SS}=1) dB.

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$.

Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain;

The EUT supports CDD mode.

The power and PSD limit should be modified if the directional gain of EUT is over 6 dBi,

The directional gain “DG” is calculated as following table.

2.4G Band Antenna	DG for Power (dBi)	DG for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
1	7.50	7.50	1.50	1.50
2	7.50	7.50	1.50	1.50
3	7.50	7.50	1.50	1.50
1+2	7.50	10.51	1.50	4.51
1+3	7.50	10.51	1.50	4.51
2+3	7.50	10.51	1.50	4.51
1+2+3	7.50	12.27	1.50	6.27

Power Limit Reduction = DG(Power) – 6dBi, (min = 0)

PSD Limit Reduction = DG(PSD) – 6dBi, (min = 0)

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. 12, 2015	Feb. 16, 2016 ~ Mar. 22, 2016	Aug. 11, 2016	Conducted (TH05-HY)
Power Sensor	Anritsu	MA2411B	1126017	300MHz~40GHz	Aug. 12, 2015	Feb. 16, 2016 ~ Mar. 22, 2016	Aug. 11, 2016	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100057	9kHz-40GHz	Nov. 23, 2015	Feb. 16, 2016 ~ Mar. 22, 2016	Nov. 22, 2016	Conducted (TH05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Feb. 16, 2016	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI 7	100724	9kHz~7GHz	Aug. 26, 2015	Feb. 16, 2016	Aug. 25, 2016	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Dec. 02, 2015	Feb. 16, 2016	Dec. 01, 2016	Conduction (CO05-HY)
LF Cable	HUBER + SUHNER	RG-214/U	LF01	N/A	Jan. 06, 2016	Feb. 16, 2016	Jan. 05, 2017	Conduction (CO05-HY)
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100851	N/A	Jan. 08, 2016	Feb. 16, 2016	Jan. 07, 2017	Conduction (CO05-HY)
EMI Test Receiver	Keysight	N9038A(MXE)	MY54130085	20Hz ~ 8.4GHz	Nov. 04, 2015	Mar. 12, 2016 ~ Apr. 23, 2016	Nov. 03, 2016	Radiation (03CH10-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Sep. 02, 2015	Mar. 12, 2016 ~ Apr. 23, 2016	Sep. 01, 2016	Radiation (03CH10-HY)
Amplifier	SONOMA	310N	187311	9kHz~1GHz	Nov. 16, 2015	Mar. 12, 2016 ~ Apr. 23, 2016	Nov. 15, 2016	Radiation (03CH10-HY)
Bilog Antenna	TESEQ	CBL 6111D	35413	30MHz~1GHz	Jan. 13, 2016	Mar. 12, 2016 ~ Apr. 23, 2016	Jan. 12, 2017	Radiation (03CH10-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1325	1GHz ~ 18GHz	Sep. 30, 2015	Mar. 12, 2016 ~ Apr. 23, 2016	Sep. 29, 2016	Radiation (03CH10-HY)
Preamplifier	Keysight	83017A	MY53270078	1GHz~26.5GHz	Nov. 13, 2015	Mar. 12, 2016 ~ Apr. 23, 2016	Nov. 12, 2016	Radiation (03CH10-HY)
Preamplifier	MITEQ	AMF-7D-00101800-30-10P	1902246	1GHz~18GHz	Nov. 16, 2015	Mar. 12, 2016 ~ Apr. 23, 2016	Nov. 15, 2016	Radiation (03CH10-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200485	10Hz ~ 44GHz	Oct. 15, 2015	Mar. 12, 2016 ~ Apr. 23, 2016	Oct. 14, 2016	Radiation (03CH10-HY)
Controller	EMEC	EM 1000	N/A	Control Turn table & Ant Mast	N/A	Mar. 12, 2016 ~ Apr. 23, 2016	N/A	Radiation (03CH10-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1~4m	N/A	Mar. 12, 2016 ~ Apr. 23, 2016	N/A	Radiation (03CH10-HY)
Turn Table	EMEC	TT 2200	N/A	0~360 Degree	N/A	Mar. 12, 2016 ~ Apr. 23, 2016	N/A	Radiation (03CH10-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170584	18GHz- 40GHz	Nov. 02, 2015	Mar. 12, 2016 ~ Apr. 23, 2016	Nov. 01, 2016	Radiation (03CH10-HY)
Preamplifier	MITEQ	JS44-18004000-33-8P	1840917	18GHz ~ 40GHz	Jun. 02, 2015	Mar. 12, 2016 ~ Apr. 23, 2016	Jun. 01, 2016	Radiation (03CH10-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

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

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

Appendix A. Conducted Test Results

Report Number : FR612010

Test Engineer:	Osolemio Chang	Temperature:	21~25	°C
Test Date:	2016/02/16 ~ 2016/03/22	Relative Humidity:	51~54	%

Report Number : FR612010

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

2.4GHz Band												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Occupied BW (MHz)			6dB BW (MHz)			6dB BW Limit (MHz)	Pass/Fail
					Ant 1	Ant 2	Ant 3	Ant 1	Ant 2	Ant 3		
11b	1Mbps	3	1	2412	13.40	13.65	13.75	9.56	10.00	10.04	0.50	Pass
11b	1Mbps	3	6	2437	13.55	13.75	13.80	9.56	9.56	10.08	0.50	Pass
11b	1Mbps	3	11	2462	13.50	13.60	13.55	9.52	9.60	9.56	0.50	Pass
11g	6Mbps	3	1	2412	16.75	16.75	16.80	15.36	15.16	15.16	0.50	Pass
11g	6Mbps	3	6	2437	16.70	16.75	16.80	15.36	15.12	15.36	0.50	Pass
11g	6Mbps	3	11	2462	16.70	16.85	16.75	15.28	15.12	15.32	0.50	Pass
HT20	MCS0	3	1	2412	17.65	17.85	17.85	15.12	15.12	15.44	0.50	Pass
HT20	MCS0	3	6	2437	17.65	17.70	17.75	15.16	15.16	15.16	0.50	Pass
HT20	MCS0	3	11	2462	17.65	17.70	17.70	15.16	15.36	15.16	0.50	Pass
HT40	MCS0	3	3	2422	36.00	36.00	36.00	33.84	33.84	33.84	0.50	Pass
HT40	MCS0	3	6	2437	35.90	36.00	35.80	33.92	32.56	33.84	0.50	Pass
HT40	MCS0	3	9	2452	35.90	36.00	36.00	33.84	32.56	30.08	0.50	Pass

TEST RESULTS DATA
Peak Output Power
(Reporting Only)

2.4GHz Band											
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak Conducted Power (dBm)				DG (dBi)		
					Ant 1	Ant 2	Ant 3	SUM	Ant 1	Ant 2	Ant 3
11b	1Mbps	3	1	2412	17.35	17.66	17.95	22.43	7.50		
11b	1Mbps	3	2	2417	18.05	19.05	18.43	23.30	7.50		
11b	1Mbps	3	6	2437	26.12	25.97	26.67	31.04	7.50		
11b	1Mbps	3	10	2457	17.85	18.35	18.41	22.98	7.50		
11b	1Mbps	3	11	2462	17.56	17.42	17.86	22.39	7.50		
11g	6Mbps	3	1	2412	25.71	25.24	25.48	30.25	7.50		
11g	6Mbps	3	2	2417	25.10	24.87	25.03	29.77	7.50		
11g	6Mbps	3	6	2437	30.36	30.07	30.27	35.01	7.50		
11g	6Mbps	3	10	2457	23.64	24.02	23.32	28.44	7.50		
11g	6Mbps	3	11	2462	23.34	23.44	23.55	28.22	7.50		
HT20	MCS0	3	1	2412	23.97	23.82	24.33	28.82	7.50		
HT20	MCS0	3	2	2417	23.99	23.84	23.81	28.65	7.50		
HT20	MCS0	3	6	2437	28.58	28.14	28.62	33.22	7.50		
HT20	MCS0	3	10	2457	23.38	23.93	23.67	28.44	7.50		
HT20	MCS0	3	11	2462	23.78	23.84	24.41	28.79	7.50		
HT40	MCS0	3	3	2422	22.17	22.15	23.14	27.28	7.50		
HT40	MCS0	3	4	2427	22.44	22.75	22.37	27.29	7.50		
HT40	MCS0	3	6	2437	25.95	26.10	26.64	31.01	7.50		
HT40	MCS0	3	8	2447	21.91	22.58	21.74	26.86	7.50		
HT40	MCS0	3	9	2452	21.91	21.63	22.42	26.77	7.50		

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

Report Number : FR612010

TEST RESULTS DATA
Average Output Power

2.4GHz Band															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)			Average Conducted Power with Duty Factor (dBm)				Conducted Power Limit (dBm)			Pass /Fail
					Ant 1	Ant 2	Ant 3	Ant 1	Ant 2	Ant 3	SUM	Ant 1	Ant 2	Ant 3	
11b	1Mbps	3	1	2412	0.00	0.00	0.00	14.83	15.10	15.42	19.89	28.50			Pass
11b	1Mbps	3	2	2417	0.00	0.00	0.00	14.94	15.82	15.22	20.11	28.50			Pass
11b	1Mbps	3	6	2437	0.00	0.00	0.00	23.17	22.83	23.66	28.00	28.50			Pass
11b	1Mbps	3	10	2457	0.00	0.00	0.00	14.68	15.18	15.20	19.80	28.50			Pass
11b	1Mbps	3	11	2462	0.00	0.00	0.00	15.02	14.97	15.45	19.92	28.50			Pass
11g	6Mbps	3	1	2412	0.13	0.13	0.13	16.63	16.37	16.55	21.29	28.50			Pass
11g	6Mbps	3	2	2417	0.13	0.13	0.13	16.72	16.15	16.37	21.19	28.50			Pass
11g	6Mbps	3	6	2437	0.13	0.13	0.13	22.07	21.84	22.30	26.84	28.50			Pass
11g	6Mbps	3	10	2457	0.13	0.13	0.13	14.86	15.31	14.84	19.78	28.50			Pass
11g	6Mbps	3	11	2462	0.13	0.13	0.13	14.86	14.69	15.07	19.64	28.50			Pass
HT20	MCS0	3	1	2412	0.14	0.14	0.14	15.13	14.95	15.17	19.85	28.50			Pass
HT20	MCS0	3	2	2417	0.14	0.14	0.14	14.89	14.78	14.65	19.54	28.50			Pass
HT20	MCS0	3	6	2437	0.14	0.14	0.14	20.12	19.58	19.95	24.66	28.50			Pass
HT20	MCS0	3	10	2457	0.14	0.14	0.14	14.46	14.87	14.56	19.40	28.50			Pass
HT20	MCS0	3	11	2462	0.14	0.14	0.14	15.15	14.90	15.63	20.00	28.50			Pass
HT40	MCS0	3	3	2422	0.18	0.18	0.18	13.64	13.44	14.37	18.61	28.50			Pass
HT40	MCS0	3	4	2427	0.18	0.18	0.18	13.58	14.21	13.80	18.65	28.50			Pass
HT40	MCS0	3	6	2437	0.18	0.18	0.18	17.45	17.21	17.83	22.28	28.50			Pass
HT40	MCS0	3	8	2447	0.18	0.18	0.18	13.11	13.55	12.99	18.00	28.50			Pass
HT40	MCS0	3	9	2452	0.18	0.18	0.18	13.04	12.82	13.65	17.96	28.50			Pass

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

Report Number : FR612010

TEST RESULTS DATA
Average Power Spectral Density

2.4GHz Band															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average PSD (dBm/3kHz)				DG (dBi)			Average PSD Limit (dBm/3kHz)			Pass/Fail
					Ant 1	Ant 2	Ant 3	Worse + 3.01	Ant 1	Ant 2	Ant 3	Ant 1	Ant 2	Ant 3	
11b	1Mbps	3	1	2412	-13.41	-14.80	-15.01	-8.64	12.27			1.73			Pass
11b	1Mbps	3	6	2437	-5.97	-7.05	-6.64	-1.20	12.27			1.73			Pass
11b	1Mbps	3	11	2462	-13.85	-13.00	-13.63	-8.23	12.27			1.73			Pass
11g	6Mbps	3	1	2412	-14.65	-15.67	-14.86	-9.88	12.27			1.73			Pass
11g	6Mbps	3	6	2437	-8.44	-9.47	-9.80	-3.67	12.27			1.73			Pass
11g	6Mbps	3	11	2462	-17.22	-17.05	-15.62	-10.85	12.27			1.73			Pass
HT20	MCS0	3	1	2412	-15.71	-16.91	-16.29	-10.94	12.27			1.73			Pass
HT20	MCS0	3	6	2437	-10.78	-11.23	-11.71	-6.01	12.27			1.73			Pass
HT20	MCS0	3	11	2462	-15.22	-16.03	-14.38	-9.61	12.27			1.73			Pass
HT40	MCS0	3	3	2422	-22.25	-22.14	-21.15	-16.38	12.27			1.73			Pass
HT40	MCS0	3	6	2437	-18.47	-18.13	-18.11	-13.34	12.27			1.73			Pass
HT40	MCS0	3	9	2452	-22.60	-22.19	-20.74	-15.97	12.27			1.73			Pass

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

Appendix B. Radiated Spurious Emission

Test Engineer :	Tsung Lee and Stan Hsieh	Temperature :	23~25°C
		Relative Humidity :	45~47%

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

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+2+3		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2385.6	51.02	-22.98	74	51.64	27.23	5.39	33.24	243	18	P	H
		2389.65	39.86	-14.14	54	40.48	27.23	5.39	33.24	243	18	A	H
	*	2410.604	99.05	-	-	99.57	27.28	5.42	33.22	243	18	P	H
	*	2411.105	96.08	-	-	96.6	27.28	5.42	33.22	243	18	A	H
													H
													H
		2388.39	64.06	-9.94	74	64.68	27.23	5.39	33.24	184	182	P	V
		2389.2	53.47	-0.53	54	54.09	27.23	5.39	33.24	184	182	A	V
	*	2410.855	118.89	-	-	119.41	27.28	5.42	33.22	184	182	P	V
	*	2411.105	115.96	-	-	116.48	27.28	5.42	33.22	184	182	A	V
													V
													V
802.11b CH 06 2437MHz		2339.97	51.18	-22.82	74	52	27.1	5.33	33.25	200	74	P	H
		2385.96	40.12	-13.88	54	40.74	27.23	5.39	33.24	200	74	A	H
	*	2438.493	106.35	-	-	106.77	27.37	5.42	33.21	200	74	P	H
	*	2438.243	103.33	-	-	103.75	27.37	5.42	33.21	200	74	A	H
		2492.4	51.92	-22.08	74	52.13	27.5	5.46	33.17	200	74	P	H
		2488.44	40.8	-13.2	54	41.02	27.5	5.46	33.18	200	74	A	H
		2362.47	65.7	-8.3	74	66.48	27.14	5.33	33.25	185	208	P	V
		2388.93	50.54	-3.46	54	51.16	27.23	5.39	33.24	185	208	A	V
	*	2437.074	125.36	-	-	125.78	27.37	5.42	33.21	185	208	P	V
	*	2437.825	121.73	-	-	122.15	27.37	5.42	33.21	185	208	A	V
		2485.88	65.45	-8.55	74	65.71	27.46	5.46	33.18	185	208	P	V
		2487.88	53.47	-0.53	54	53.69	27.5	5.46	33.18	185	208	A	V

802.11b CH 11 2462MHz	*	2463.627	99.06	-	-	99.41	27.41	5.44	33.2	207	0	P	H
	*	2463.627	96.07	-	-	96.42	27.41	5.44	33.2	207	0	A	H
		2484.68	51.75	-22.25	74	52.01	27.46	5.46	33.18	207	0	P	H
		2484.64	40.7	-13.3	54	40.96	27.46	5.46	33.18	207	0	A	H
													H
													H
	*	2463.71	118.65	-	-	119	27.41	5.44	33.2	186	355	P	V
	*	2464	115.91	-	-	116.26	27.41	5.44	33.2	186	355	A	V
		2487.92	64.39	-9.61	74	64.61	27.5	5.46	33.18	186	355	P	V
		2487.68	53.54	-0.46	54	53.76	27.5	5.46	33.18	186	355	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+2+3	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	35.12	-38.88	74	56.69	31.46	7.58	60.61	100	0	P	H
													H
													H
													H
		4824	35.7	-38.3	74	57.27	31.46	7.58	60.61	100	0	P	V
													V
													V
													V
802.11b CH 06 2437MHz		4872	41.18	-32.82	74	62.44	31.56	7.7	60.52	100	0	P	H
		7309	40.9	-33.1	74	56.16	36.18	9.49	60.93	100	0	P	H
													H
													H
		4872	46.46	-27.54	74	67.72	31.56	7.7	60.52	100	0	P	V
		7309	41.07	-32.93	74	56.33	36.18	9.49	60.93	100	0	P	V
													V
													V
802.11b CH 11 2462MHz		4926	35.92	-38.08	74	56.75	31.66	7.93	60.42	100	0	P	H
		7386	39.89	-34.11	74	55.18	36.37	9.53	61.19	100	0	P	H
													H
													H
		4926	40.01	-33.99	74	60.84	31.66	7.93	60.42	100	0	P	V
		7386	39.92	-34.08	74	55.21	36.37	9.53	61.19	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+2+3	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		2389.92	53.41	-20.59	74	54.01	27.23	5.39	33.22	200	75	P	H
		2387.49	41.11	-12.89	54	41.73	27.23	5.39	33.24	200	75	A	H
	*	2408.1	105.7	-	-	106.22	27.28	5.42	33.22	200	75	P	H
	*	2408.1	97.13	-	-	97.65	27.28	5.42	33.22	200	75	A	H
													H
													H
		2388.12	70.21	-3.79	74	70.83	27.23	5.39	33.24	188	187	P	V
		2389.83	53.07	-0.93	54	53.67	27.23	5.39	33.22	188	187	A	V
	*	2414	122.03	-	-	122.55	27.28	5.42	33.22	188	187	P	V
	*	2410	113.71	-	-	114.23	27.28	5.42	33.22	188	187	A	V
													V
													V
802.11g CH 06 2437MHz		2354.82	52.5	-21.5	74	53.28	27.14	5.33	33.25	249	6	P	H
		2388.66	40.86	-13.14	54	41.48	27.23	5.39	33.24	249	6	A	H
	*	2439	108.84	-	-	109.26	27.37	5.42	33.21	249	6	P	H
	*	2439	100.01	-	-	100.43	27.37	5.42	33.21	249	6	A	H
		2496.28	51.89	-22.11	74	52.1	27.5	5.46	33.17	249	6	P	H
		2485.8	41.31	-12.69	54	41.57	27.46	5.46	33.18	249	6	A	H
		2357.52	64.64	-9.36	74	65.42	27.14	5.33	33.25	157	42	P	V
		2386.05	52.34	-1.66	54	52.96	27.23	5.39	33.24	157	42	A	V
	*	2439	127.31	-	-	127.73	27.37	5.42	33.21	157	42	P	V
	*	2439	119.52	-	-	119.94	27.37	5.42	33.21	157	42	A	V
		2483.52	63.74	-10.26	74	64	27.46	5.46	33.18	157	42	P	V
		2483.6	53.88	-0.12	54	54.14	27.46	5.46	33.18	157	42	A	V

802.11g CH 11 2462MHz	*	2464	101.81	-	-	102.16	27.41	5.44	33.2	233	20	P	H
	*	2463.042	93.59	-	-	93.94	27.41	5.44	33.2	233	20	A	H
		2489.92	56.87	-17.13	74	57.09	27.5	5.46	33.18	233	20	P	H
		2484.88	46.05	-7.95	54	46.31	27.46	5.46	33.18	233	20	A	H
													H
													H
	*	2464	120.19	-	-	120.54	27.41	5.44	33.2	200	189	P	V
	*	2464	111.88	-	-	112.23	27.41	5.44	33.2	200	189	A	V
		2486.56	73.51	-0.49	74	73.77	27.46	5.46	33.18	200	189	P	V
		2490.48	52.21	-1.79	54	52.43	27.5	5.46	33.18	200	189	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+2+3	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	36.66	-37.34	74	58.23	31.46	7.58	60.61	100	0	P	H
													H
													H
													H
		4824	35.31	-38.69	74	56.88	31.46	7.58	60.61	100	0	P	V
													V
													V
													V
802.11g CH 06 2437MHz		4872	37.33	-36.67	74	58.59	31.56	7.7	60.52	100	0	P	H
		7309	40.1	-33.9	74	55.36	36.18	9.49	60.93	100	0	P	H
													H
													H
		4872	43.71	-30.29	74	64.97	31.56	7.7	60.52	100	0	P	V
		7309	41.4	-32.6	74	56.66	36.18	9.49	60.93	100	0	P	V
													V
													V
802.11g CH 11 2462MHz		4926	36.46	-37.54	74	57.29	31.66	7.93	60.42	100	0	P	H
		7386	40.13	-33.87	74	55.42	36.37	9.53	61.19	100	0	P	H
													H
													H
		4926	36.6	-37.4	74	57.43	31.66	7.93	60.42	100	0	P	V
		7386	40.22	-33.78	74	55.51	36.37	9.53	61.19	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+2+3	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		2344.38	50.93	-23.07	74	51.75	27.1	5.33	33.25	211	360	P	H
		2389.47	40.46	-13.54	54	41.08	27.23	5.39	33.24	211	360	A	H
	*	2410	103.26	-	-	103.78	27.28	5.42	33.22	211	360	P	H
	*	2410	95	-	-	95.52	27.28	5.42	33.22	211	360	A	H
													H
													H
		2388.57	70.39	-3.61	74	71.01	27.23	5.39	33.24	183	189	P	V
		2389.92	53.31	-0.69	54	53.91	27.23	5.39	33.22	183	189	A	V
	*	2410	122.64	-	-	123.16	27.28	5.42	33.22	183	189	P	V
	*	2410	114.01	-	-	114.53	27.28	5.42	33.22	183	189	A	V
													V
													V
802.11n HT20 CH 06 2437MHz		2374.53	51.39	-22.61	74	52.05	27.19	5.39	33.24	209	0	P	H
		2388.84	40.32	-13.68	54	40.94	27.23	5.39	33.24	209	0	A	H
	*	2437.575	107.79	-	-	108.21	27.37	5.42	33.21	209	0	P	H
	*	2435	99.05	-	-	99.52	27.32	5.42	33.21	209	0	A	H
		2485.24	52.12	-21.88	74	52.38	27.46	5.46	33.18	209	0	P	H
		2483.76	41.52	-12.48	54	41.78	27.46	5.46	33.18	209	0	A	H
		2361.12	64.53	-9.47	74	65.31	27.14	5.33	33.25	186	188	P	V
		2388.39	51.88	-2.12	54	52.5	27.23	5.39	33.24	186	188	A	V
	*	2435	126.95	-	-	127.42	27.32	5.42	33.21	186	188	P	V
	*	2435	118.5	-	-	118.97	27.32	5.42	33.21	186	188	A	V
		2483.6	63.91	-10.09	74	64.17	27.46	5.46	33.18	186	188	P	V
		2484.24	53.77	-0.23	54	54.03	27.46	5.46	33.18	186	188	A	V

	*	2460.287	103.08	-	-	103.43	27.41	5.44	33.2	200	360	P	H
	*	2459.535	94.14	-	-	94.49	27.41	5.44	33.2	200	360	A	H
		2485.24	55.47	-18.53	74	55.73	27.46	5.46	33.18	200	360	P	H
		2483.52	41.44	-12.56	54	41.7	27.46	5.46	33.18	200	360	A	H
802.11n													H
HT20													H
CH 11	*	2464	120.48	-	-	120.83	27.41	5.44	33.2	190	166	P	V
2462MHz	*	2464	112.32	-	-	112.67	27.41	5.44	33.2	190	166	A	V
		2485.16	72.88	-1.12	74	73.14	27.46	5.46	33.18	190	166	P	V
		2489.32	51.93	-2.07	54	52.15	27.5	5.46	33.18	190	166	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+2+3	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	35.45	-38.55	74	57.02	31.46	7.58	60.61	100	0	P	H
													H
													H
													H
		4824	35.5	-38.5	74	57.07	31.46	7.58	60.61	100	0	P	V
													V
													V
													V
802.11n HT20 CH 06 2437MHz		4872	37	-37	74	58.26	31.56	7.7	60.52	100	0	P	H
		7309	41.5	-32.5	74	56.76	36.18	9.49	60.93	100	0	P	H
													H
													H
		4876	40.73	-33.27	74	61.99	31.56	7.7	60.52	100	0	P	V
		7309	40.31	-33.69	74	55.57	36.18	9.49	60.93	100	0	P	V
													V
													V
802.11n HT20 CH 11 2462MHz		4926	36.14	-37.86	74	56.97	31.66	7.93	60.42	100	0	P	H
		7386	41.48	-32.52	74	56.77	36.37	9.53	61.19	100	0	P	H
													H
													H
		4926	37.37	-36.63	74	58.2	31.66	7.93	60.42	100	0	P	V
		7386	41.32	-32.68	74	56.61	36.37	9.53	61.19	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI Ant. 1+2+3	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 03 2422MHz		2388.03	51.8	-22.2	74	52.42	27.23	5.39	33.24	239	3	P	H
		2382.99	41.94	-12.06	54	42.6	27.19	5.39	33.24	239	3	A	H
	*	2424	101.64	-	-	102.11	27.32	5.42	33.21	239	3	P	H
	*	2424	93.45	-	-	93.92	27.32	5.42	33.21	239	3	A	H
		2499.04	51.24	-22.76	74	51.45	27.5	5.46	33.17	239	3	P	H
		2496.88	41.48	-12.52	54	41.69	27.5	5.46	33.17	239	3	A	H
		2386.41	67.24	-6.76	74	67.86	27.23	5.39	33.24	191	164	P	V
		2389.92	53.31	-0.69	54	53.91	27.23	5.39	33.22	191	164	A	V
	*	2420.541	116.39	-	-	116.86	27.32	5.42	33.21	191	164	P	V
	*	2420.291	108.28	-	-	108.75	27.32	5.42	33.21	191	164	A	V
		2496	62.56	-11.44	74	62.77	27.5	5.46	33.17	191	164	P	V
		2484.92	49.58	-4.42	54	49.84	27.46	5.46	33.18	191	164	A	V
802.11n HT40 CH 06 2437MHz		2359.86	51.42	-22.58	74	52.2	27.14	5.33	33.25	206	20	P	H
		2377.68	41.31	-12.69	54	41.97	27.19	5.39	33.24	206	20	A	H
	*	2435	102.71	-	-	103.18	27.32	5.42	33.21	206	20	P	H
	*	2435	94.77	-	-	95.24	27.32	5.42	33.21	206	20	A	H
		2499.36	52.04	-21.96	74	52.25	27.5	5.46	33.17	206	20	P	H
		2484.84	41.69	-12.31	54	41.95	27.46	5.46	33.18	206	20	A	H
		2353.47	66.61	-7.39	74	67.39	27.14	5.33	33.25	184	188	P	V
		2387.58	52.19	-1.81	54	52.81	27.23	5.39	33.24	184	188	A	V
	*	2439	122.35	-	-	122.77	27.37	5.42	33.21	184	188	P	V
	*	2439	114.44	-	-	114.86	27.37	5.42	33.21	184	188	A	V
		2498.92	64.84	-9.16	74	65.05	27.5	5.46	33.17	184	188	P	V
		2483.8	53.22	-0.78	54	53.48	27.46	5.46	33.18	184	188	A	V

802.11n HT40 CH 09 2452MHz		2367.06	51.01	-22.99	74	51.72	27.14	5.39	33.24	205	360	P	H
		2387.22	41.01	-12.99	54	41.63	27.23	5.39	33.24	205	360	A	H
	*	2450.601	99.51	-	-	99.9	27.37	5.44	33.2	205	360	P	H
	*	2450	91.14	-	-	91.53	27.37	5.44	33.2	205	360	A	H
		2483.52	55.86	-18.14	74	56.12	27.46	5.46	33.18	205	360	P	H
		2488.96	41.81	-12.19	54	42.03	27.5	5.46	33.18	205	360	A	H
		2376.24	62.35	-11.65	74	63.01	27.19	5.39	33.24	187	188	P	V
		2374.89	48.65	-5.35	54	49.31	27.19	5.39	33.24	187	188	A	V
	*	2450	119.07	-	-	119.46	27.37	5.44	33.2	187	188	P	V
	*	2450	110.77	-	-	111.16	27.37	5.44	33.2	187	188	A	V
		2487.52	71.52	-2.48	74	71.74	27.5	5.46	33.18	187	188	P	V
		2486.76	53.85	-0.15	54	54.11	27.46	5.46	33.18	187	188	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+2+3	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 03 2422MHz		4842	35.85	-38.15	74	57.24	31.49	7.7	60.58	100	0	P	H
		7266	40.14	-33.86	74	55.4	36.11	9.46	60.83	100	0	P	H
													H
													H
		4842	35.33	-38.67	74	56.72	31.49	7.7	60.58	100	0	P	V
		7266	40.45	-33.55	74	55.71	36.11	9.46	60.83	100	0	P	V
													V
													V
802.11n HT40 CH 06 2437MHz		4872	36.82	-37.18	74	58.08	31.56	7.7	60.52	100	0	P	H
		7309	40.02	-33.98	74	55.28	36.18	9.49	60.93	100	0	P	H
													H
													H
		4872	36.39	-37.61	74	57.65	31.56	7.7	60.52	100	0	P	V
		7309	41.77	-32.23	74	57.03	36.18	9.49	60.93	100	0	P	V
													V
													V
802.11n HT40 CH 09 2452MHz		4902	36.49	-37.51	74	57.5	31.63	7.82	60.46	100	0	P	H
		7356	40.1	-33.9	74	55.38	36.3	9.51	61.09	100	0	P	H
													H
													H
		4902	36.36	-37.64	74	57.37	31.63	7.82	60.46	100	0	P	V
		7356	39.95	-34.05	74	55.23	36.3	9.51	61.09	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Emission below 1GHz

2.4GHz WIFI 802.11g (LF)

WIFI Ant. 1+2+3	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 802.11g LF		30.54	24.85	-15.15	40	31.48	25.54	0.65	32.82			P	H
		137.46	38.55	-4.95	43.5	51.89	18	1.33	32.67	100	54	P	H
		200.1	27.65	-15.85	43.5	42.9	16	1.48	32.73			P	H
		400.1	38.02	-7.98	46	46.31	22.42	2.13	32.84			P	H
		600.3	32.57	-13.43	46	37.53	25.5	2.57	33.03			P	H
		799.8	37.45	-8.55	46	39.46	27.9	2.97	32.88			P	H
													H
													H
													H
													H
													H
													H
		37.83	32.46	-7.54	40	42.99	21.62	0.65	32.8			P	V
		76.44	27.41	-12.59	40	45.75	13.43	0.93	32.7			P	V
		149.88	33.19	-10.31	43.5	46.84	17.7	1.33	32.68			P	V
		400.1	40.03	-5.97	46	48.32	22.42	2.13	32.84	100	0	P	V
		600.3	32.47	-13.53	46	37.43	25.5	2.57	33.03			P	V
		799.8	32.92	-13.08	46	34.93	27.9	2.97	32.88			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+2+3		(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”.

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

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+2+3		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 02 2417MHz		2349.6	50.57	-23.43	74	51.39	27.1	5.33	33.25	157	200	P	H
		2389.56	39.34	-14.66	54	39.96	27.23	5.39	33.24	157	200	A	H
	*	2415	94.07	-	-	94.59	27.28	5.42	33.22	157	200	P	H
	*	2415	91.45	-	-	91.97	27.28	5.42	33.22	157	200	A	H
													H
													H
		2380.92	61.26	-12.74	74	61.92	27.19	5.39	33.24	177	218	P	V
		2390	50.74	-3.26	54	51.34	27.23	5.39	33.22	177	218	A	V
	*	2415.865	118.49	-	-	119	27.28	5.42	33.21	177	218	P	V
	*	2415.948	115.53	-	-	116.04	27.28	5.42	33.21	177	218	A	V
													V
													V
802.11b CH 10 2457MHz	*	2458.617	99.05	-	-	99.4	27.41	5.44	33.2	103	113	P	H
	*	2458.784	96.07	-	-	96.42	27.41	5.44	33.2	103	113	A	H
		2493.56	51.9	-22.1	74	52.11	27.5	5.46	33.17	103	113	P	H
		2483.52	40.51	-13.49	54	40.77	27.46	5.46	33.18	103	113	A	H
													H
													H
	*	2458.617	118.78	-	-	119.13	27.41	5.44	33.2	190	88	P	V
	*	2459	115.66	-	-	116.01	27.41	5.44	33.2	190	88	A	V
		2484.56	63.53	-10.47	74	63.79	27.46	5.46	33.18	190	88	P	V
		2483.6	53.39	-0.61	54	53.65	27.46	5.46	33.18	190	88	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 (Band Edge @ 3m)

WIFI Ant. 1+2+3	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 02 2417MHz		2385.69	51.82	-22.18	74	52.44	27.23	5.39	33.24	163	12	P	H
		2387.67	40.69	-13.31	54	41.31	27.23	5.39	33.24	163	12	A	H
	*	2419	104.88	-	-	105.39	27.28	5.42	33.21	163	12	P	H
	*	2419	96.71	-	-	97.22	27.28	5.42	33.21	163	12	A	H
													H
													H
		2388.57	69.35	-4.65	74	69.97	27.23	5.39	33.24	167	181	P	V
		2387.4	53.07	-0.93	54	53.69	27.23	5.39	33.24	167	181	A	V
	*	2419	123.26	-	-	123.77	27.28	5.42	33.21	167	181	P	V
	*	2415	114.99	-	-	115.51	27.28	5.42	33.22	167	181	A	V
													V
													V
802.11g CH 10 2457MHz	*	2459	103.23	-	-	103.58	27.41	5.44	33.2	105	114	P	H
	*	2458.533	94.69	-	-	95.04	27.41	5.44	33.2	105	114	A	H
		2499.68	57.09	-16.91	74	57.3	27.5	5.46	33.17	105	114	P	H
		2495.96	46.07	-7.93	54	46.28	27.5	5.46	33.17	105	114	A	H
													H
													H
	*	2457.865	121.43	-	-	121.78	27.41	5.44	33.2	184	214	P	V
	*	2457.698	112.78	-	-	113.13	27.41	5.44	33.2	184	214	A	V
		2485.12	69.4	-4.6	74	69.66	27.46	5.46	33.18	184	214	P	V
		2483.72	52.75	-1.25	54	53.01	27.46	5.46	33.18	184	214	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 (Band Edge @ 3m)

WIFI Ant. 1+2+3	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 02 2417MHz		2386.5	50.8	-23.2	74	51.42	27.23	5.39	33.24	169	356	P	H
		2387.85	40.37	-13.63	54	40.99	27.23	5.39	33.24	169	356	A	H
	*	2415	101.47	-	-	101.99	27.28	5.42	33.22	169	356	P	H
	*	2415	93.24	-	-	93.76	27.28	5.42	33.22	169	356	A	H
													H
													H
		2386.5	66.34	-7.66	74	66.96	27.23	5.39	33.24	183	179	P	V
		2374.89	52.57	-1.43	54	53.23	27.19	5.39	33.24	183	179	A	V
	*	2415	121.89	-	-	122.41	27.28	5.42	33.22	183	179	P	V
	*	2415	112.46	-	-	112.98	27.28	5.42	33.22	183	179	A	V
													V
													V
802.11n HT20 CH 10 2457MHz	*	2459	101.88	-	-	102.23	27.41	5.44	33.2	161	356	P	H
	*	2459	93.33	-	-	93.68	27.41	5.44	33.2	161	356	A	H
		2492.12	51.73	-22.27	74	51.94	27.5	5.46	33.17	161	356	P	H
		2487.48	40.8	-13.2	54	41.06	27.46	5.46	33.18	161	356	A	H
													H
													H
	*	2458.366	120.13	-	-	120.48	27.41	5.44	33.2	187	151	P	V
	*	2458.116	111.72	-	-	112.07	27.41	5.44	33.2	187	151	A	V
		2485.52	69.61	-4.39	74	69.87	27.46	5.46	33.18	187	151	P	V
		2483.6	51.76	-2.24	54	52.02	27.46	5.46	33.18	187	151	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 HT40 (Band Edge @ 3m)

WIFI Ant. 1+2+3	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 04 2427MHz		2355.81	50.96	-23.04	74	51.74	27.14	5.33	33.25	165	358	P	H
		2390	40.98	-13.02	54	41.58	27.23	5.39	33.22	165	358	A	H
	*	2429	98.73	-	-	99.2	27.32	5.42	33.21	165	358	P	H
	*	2429	90.72	-	-	91.19	27.32	5.42	33.21	165	358	A	H
		2490.24	50.83	-23.17	74	51.05	27.5	5.46	33.18	165	358	P	H
		2484.6	41.31	-12.69	54	41.57	27.46	5.46	33.18	165	358	A	H
		2389.92	67.19	-6.81	74	67.79	27.23	5.39	33.22	185	177	P	V
		2389.83	53.26	-0.74	54	53.86	27.23	5.39	33.22	185	177	A	V
	*	2425	116.64	-	-	117.11	27.32	5.42	33.21	185	177	P	V
	*	2429	108.35	-	-	108.82	27.32	5.42	33.21	185	177	A	V
		2495.16	63.99	-10.01	74	64.2	27.5	5.46	33.17	185	177	P	V
		2483.76	48.8	-5.2	54	49.06	27.46	5.46	33.18	185	177	A	V
802.11n HT40 CH 08 2447MHz		2353.83	50.78	-23.22	74	51.56	27.14	5.33	33.25	210	356	P	H
		2385.87	41.11	-12.89	54	41.73	27.23	5.39	33.24	210	356	A	H
	*	2445	98.37	-	-	98.76	27.37	5.44	33.2	210	356	P	H
	*	2445	89.65	-	-	90.04	27.37	5.44	33.2	210	356	A	H
		2498.96	51.68	-22.32	74	51.89	27.5	5.46	33.17	210	356	P	H
		2483.6	41.78	-12.22	54	42.04	27.46	5.46	33.18	210	356	A	H
		2367.42	63.71	-10.29	74	64.42	27.14	5.39	33.24	175	178	P	V
		2374.89	49.15	-4.85	54	49.81	27.19	5.39	33.24	175	178	A	V
	*	2445	117.65	-	-	118.04	27.37	5.44	33.2	175	178	P	V
	*	2445	109.51	-	-	109.9	27.37	5.44	33.2	175	178	P	V
		2486.48	69.25	-4.75	74	69.51	27.46	5.46	33.18	175	178	P	V
		2483.88	52.64	-1.36	54	52.9	27.46	5.46	33.18	175	178	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Note symbol

*	**Fundamental Frequency** which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is **over limit** line.
P/A	**P**eak or **A**verage
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+2		(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 C. Radiated Spurious Emission Plots

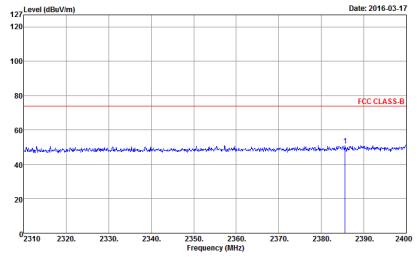
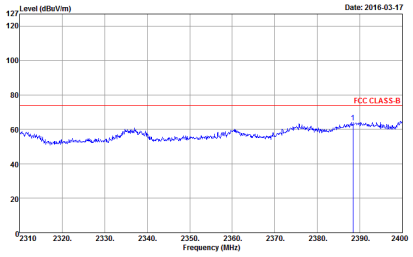
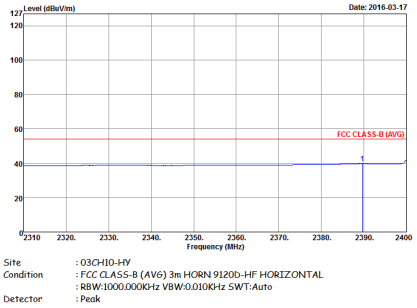
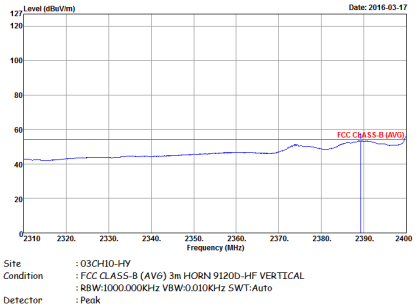
Test Engineer :	Tsung Lee and Stan Hsieh	**Temperature :**	23~25°C
		Relative Humidity :	45~47%

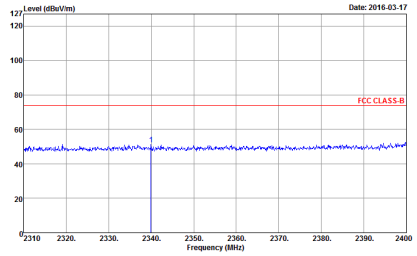
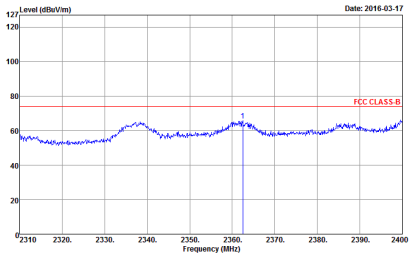
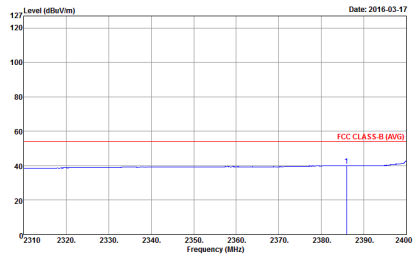
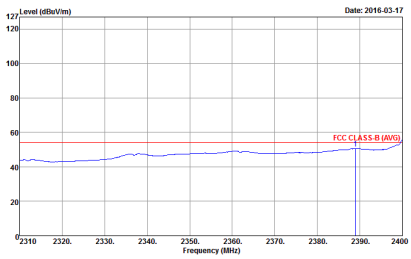
Note symbol

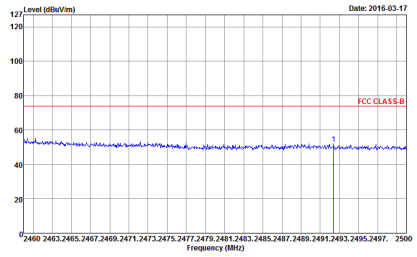
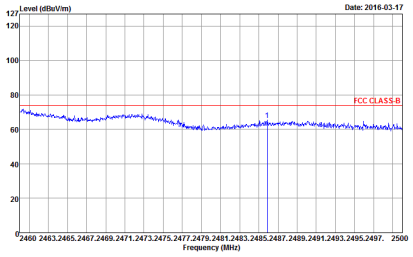
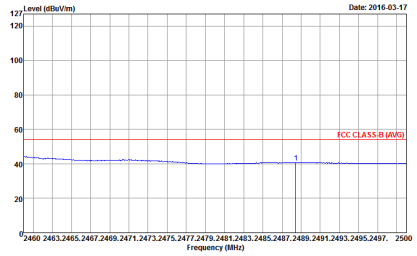
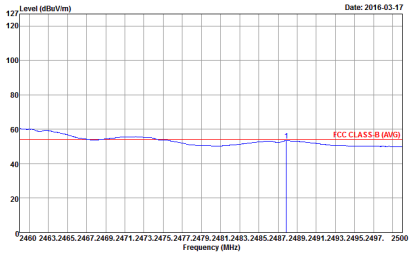
-L	**Low channel location**
-R	**High channel location**

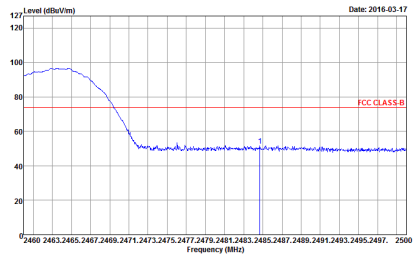
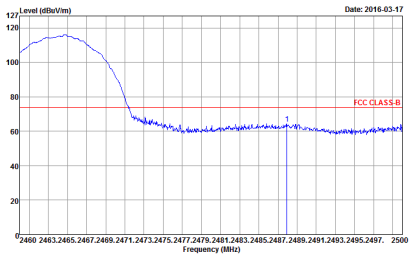
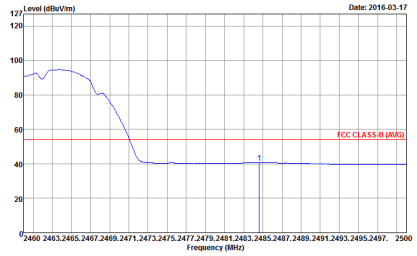
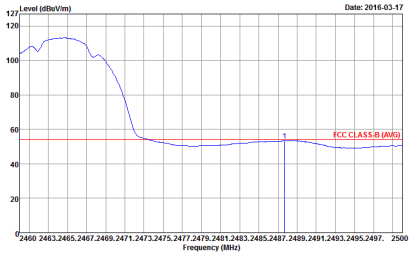
2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
1+2+3	Horizontal	Vertical
Peak		
Avg.		

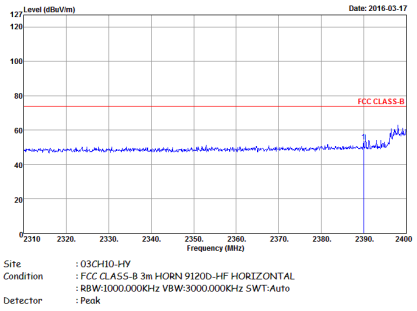
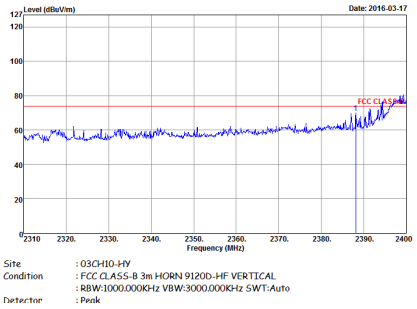
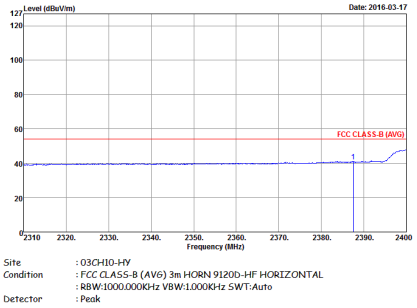
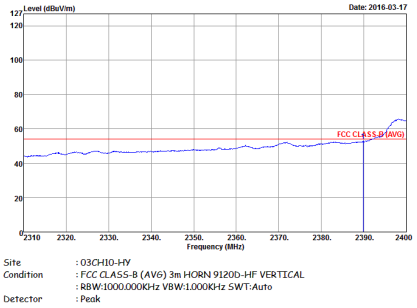
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - L	
1+2+3	Horizontal	Vertical
Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak

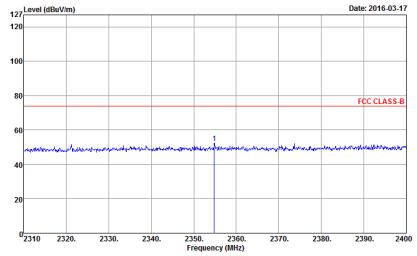
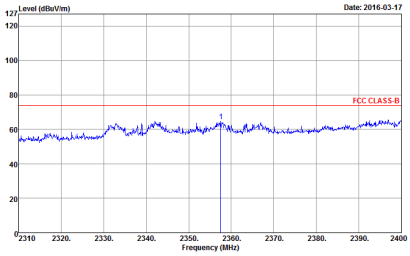
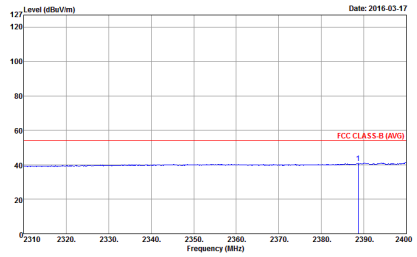
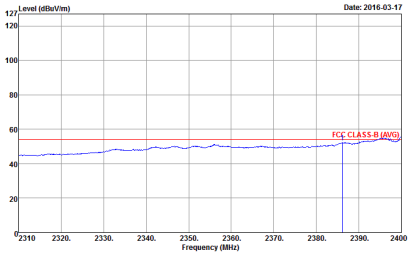
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - R	
1+2+3	Horizontal	Vertical
Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak

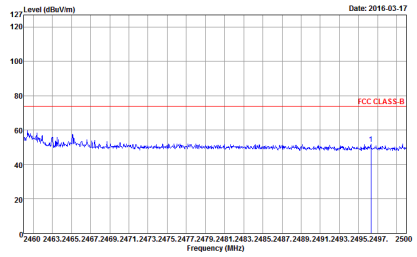
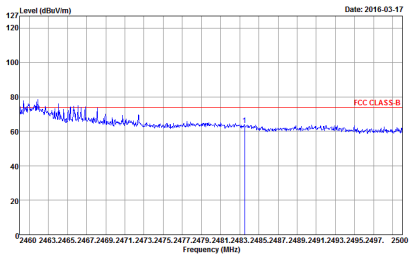
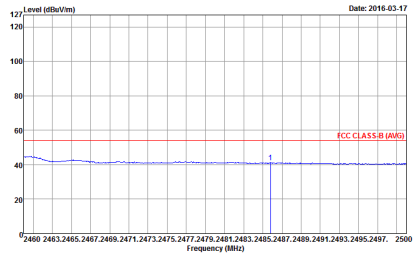
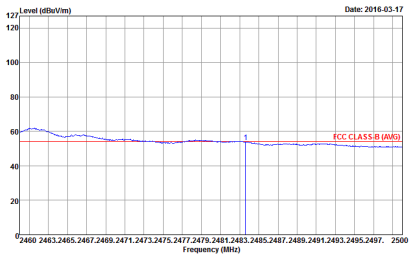
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
1+2+3	Horizontal	Vertical
Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak

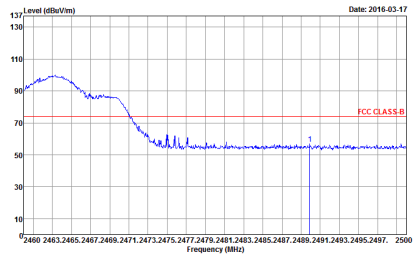
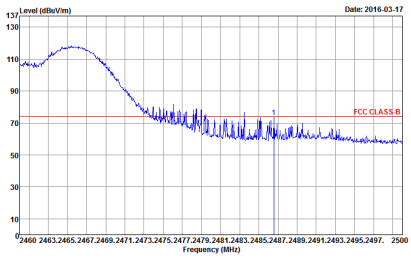
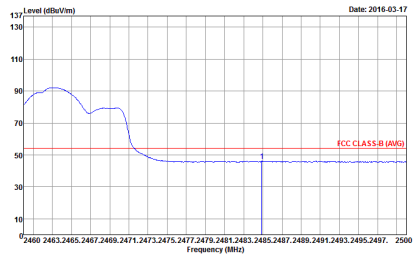
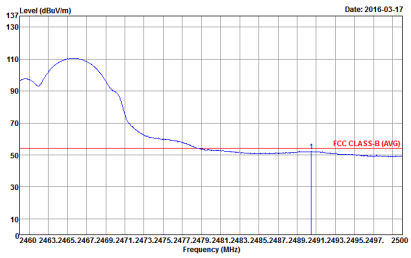
2.4GHz 2400~2483.5MHz

WIFI 802.11g (Band Edge @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
1+2+3	Horizontal	Vertical
Peak		
Avg.		

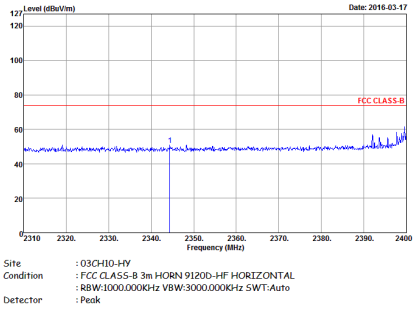
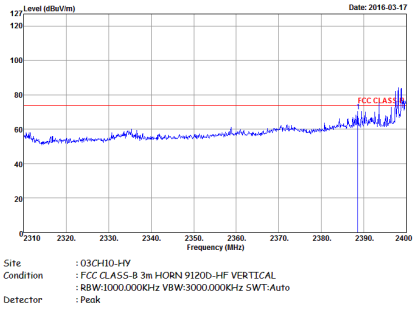
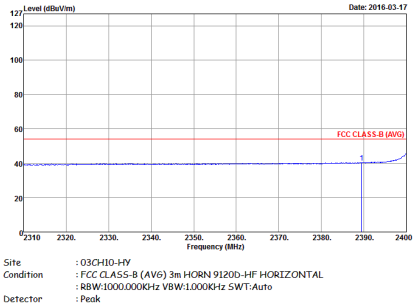
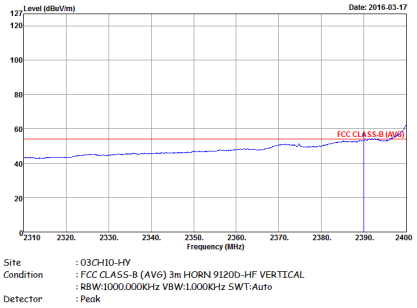
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - L	
1+2+3	Horizontal	Vertical
Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak

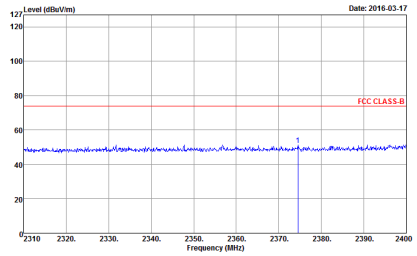
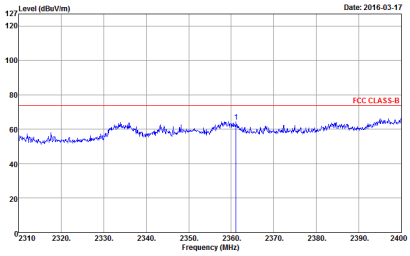
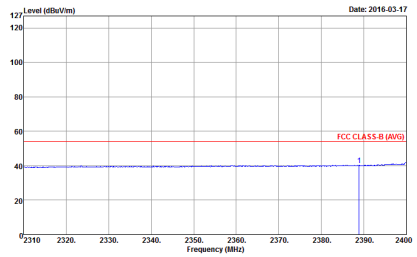
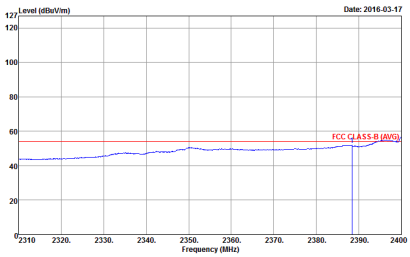
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - R	
1+2+3	Horizontal	Vertical
Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak

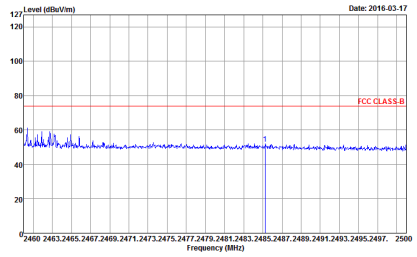
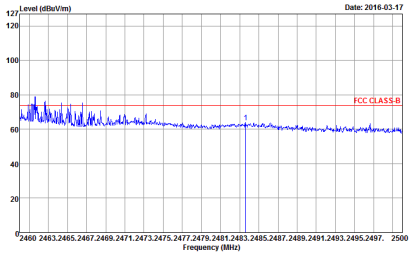
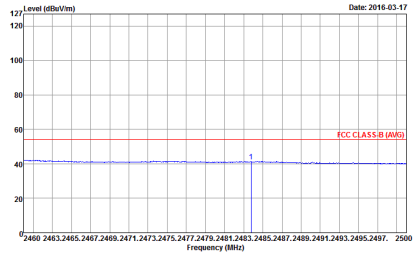
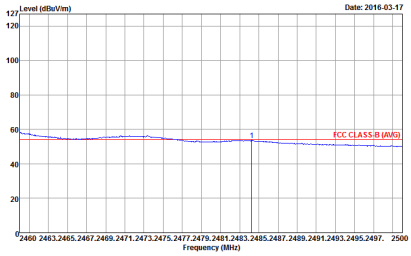
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz	
1+2+3	Horizontal	Vertical
Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak

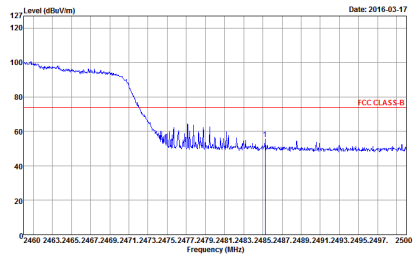
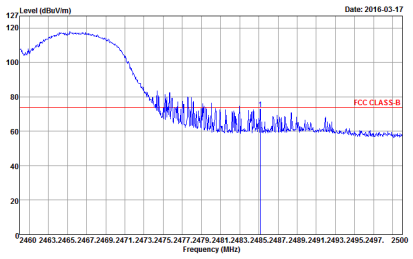
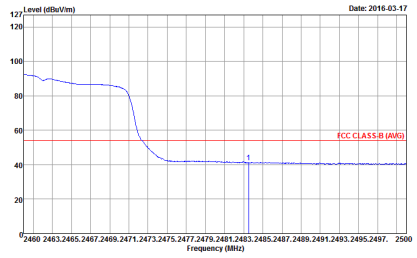
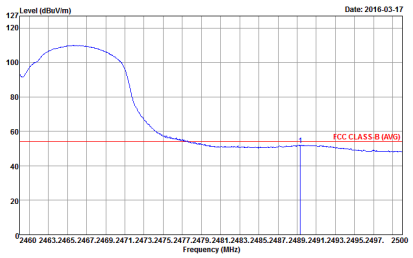
2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
1+2+3	Horizontal	Vertical
Peak		
Avg.		

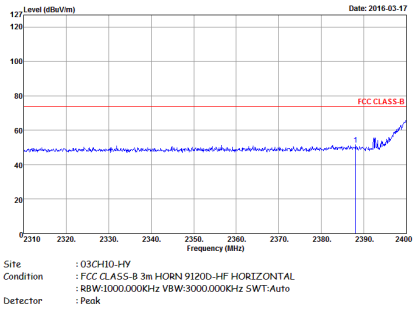
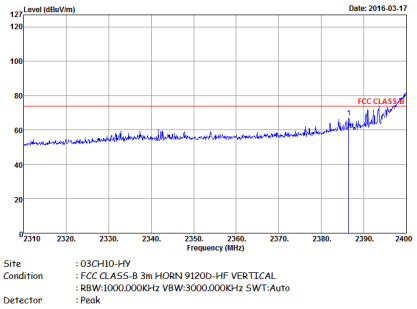
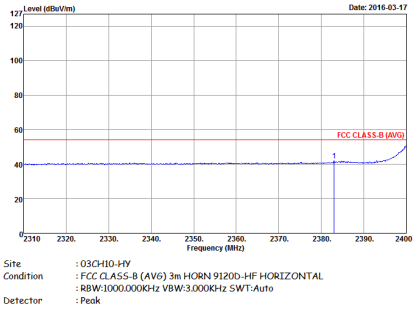
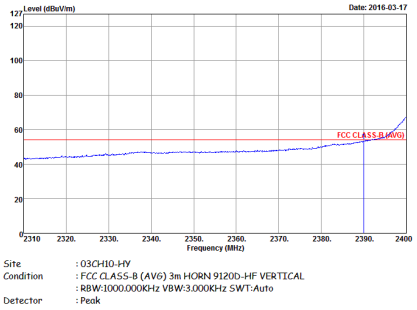
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - L	
1+2+3	Horizontal	Vertical
Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak

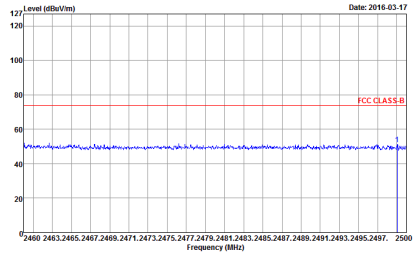
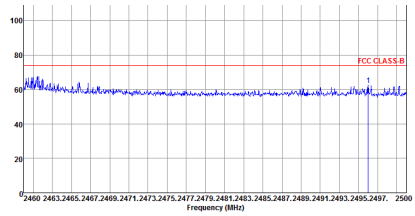
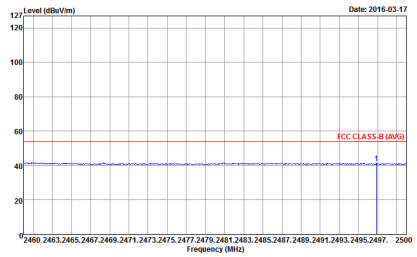
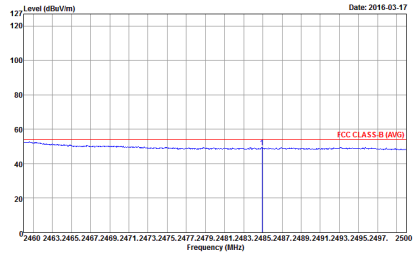
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - R	
1+2+3	Horizontal	Vertical
Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak

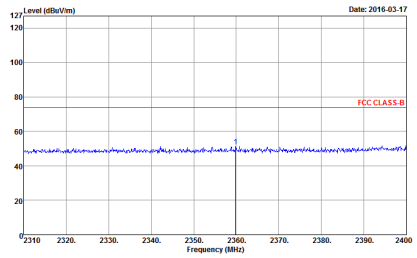
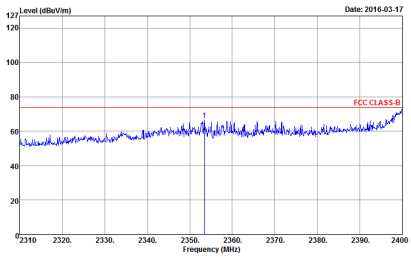
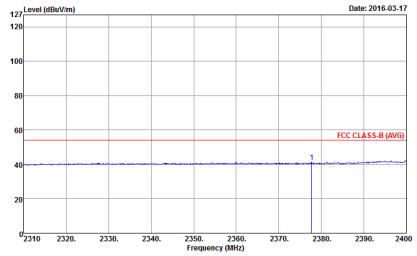
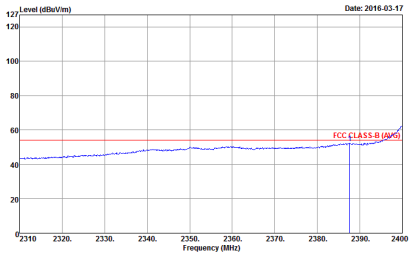
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
1+2+3	Horizontal	Vertical
Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak

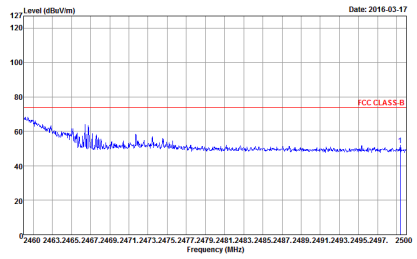
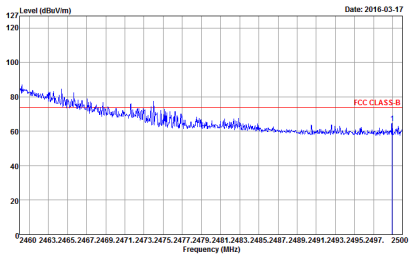
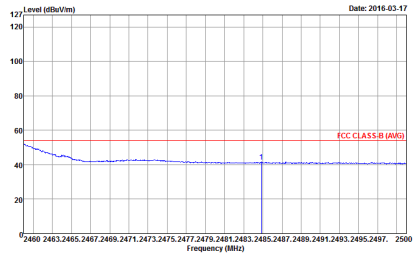
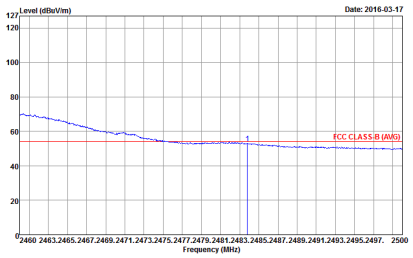
2.4GHz 2400~2483.5MHz

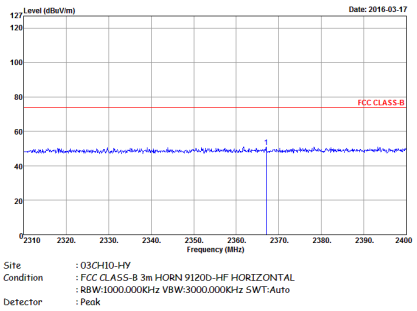
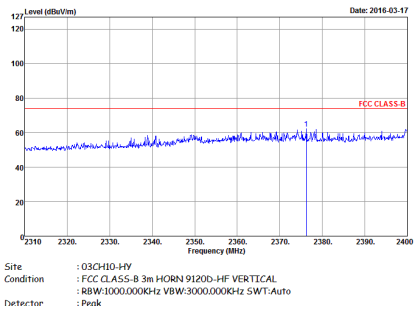
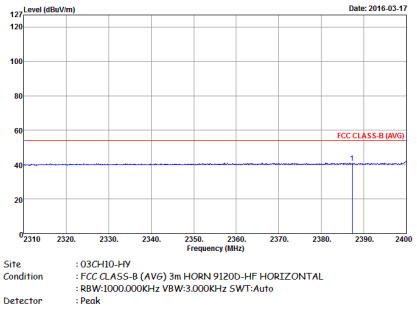
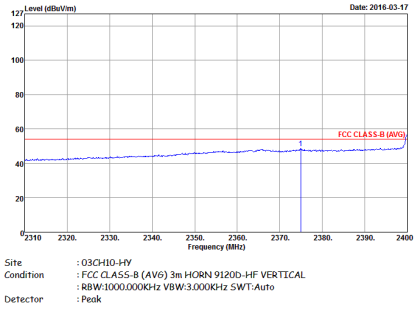
WIFI 802.11n HT40 (Band Edge @ 3m)

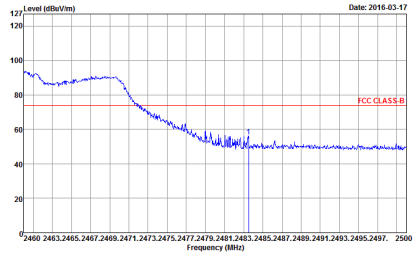
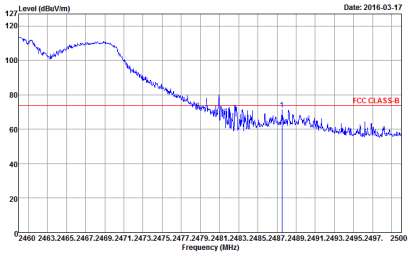
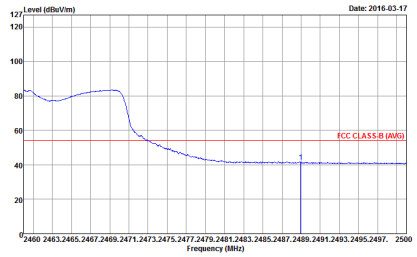
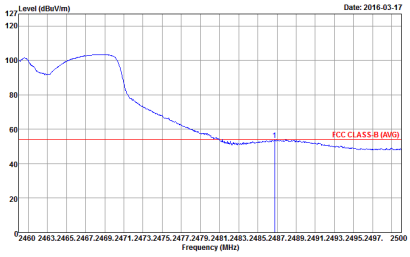
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH03 2422MHz - L	
1+2+3	Horizontal	Vertical
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH03 2422MHz - R	
1+2+3	Horizontal	Vertical
Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto Detector : Peak

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH06 2437MHz - L	
1+2+3	Horizontal	Vertical
Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto Detector : Peak

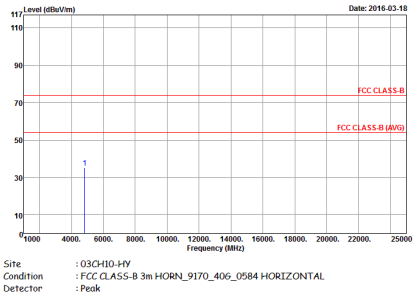
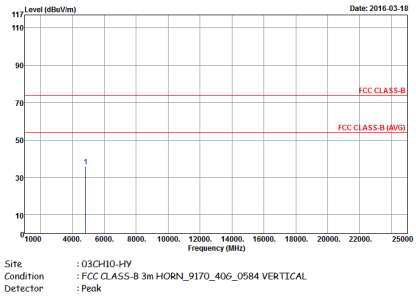
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH06 2437MHz - R	
1+2+3	Horizontal	Vertical
Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto Detector : Peak

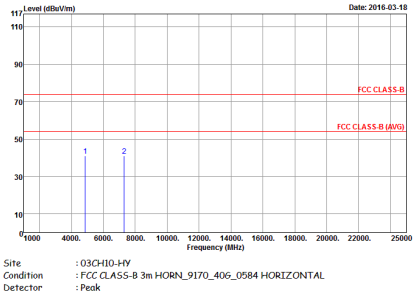
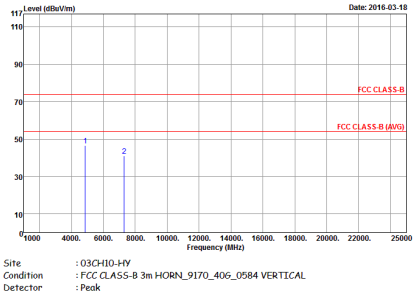
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH09 2452MHz - L	
1+2+3	Horizontal	Vertical
Peak		
Avg.		

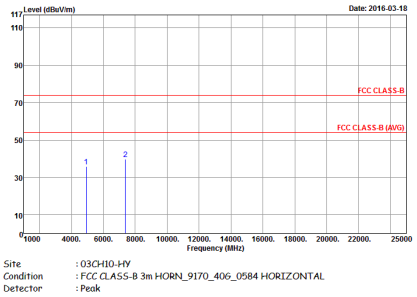
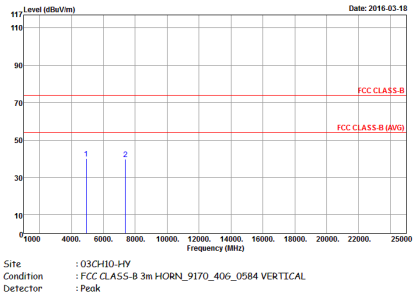
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH09 2452MHz - R	
1+2+3	Horizontal	Vertical
Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto Detector : Peak

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Harmonic @ 3m)

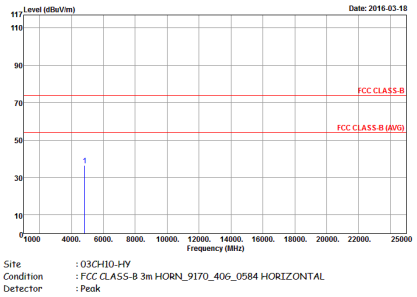
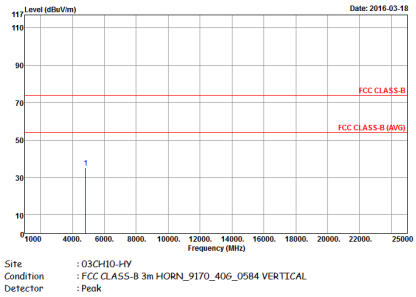
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH01 2412MHz	
1+2+3	Horizontal	Vertical
Peak Avg.		

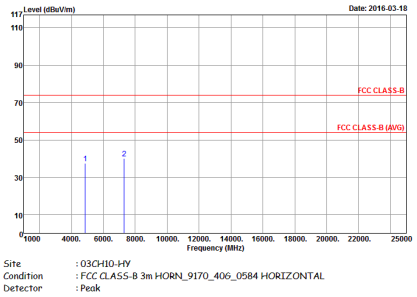
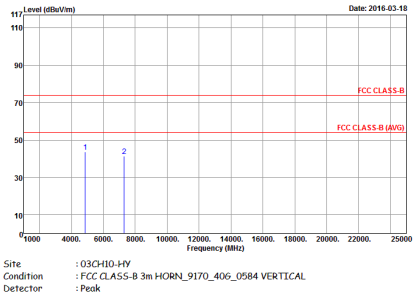
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH06 2437MHz	
1+2+3	Horizontal	Vertical
Peak Avg.		

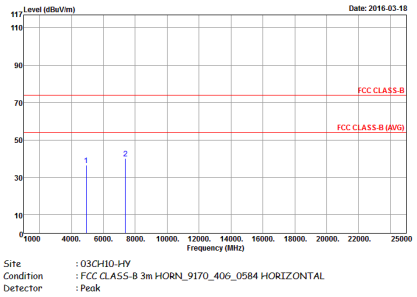
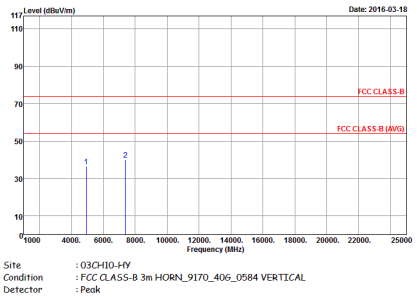
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH11 2462MHz	
1+2+3	Horizontal	Vertical
Peak Avg.		

2.4GHz 2400~2483.5MHz

WIFI 802.11g (Harmonic @ 3m)

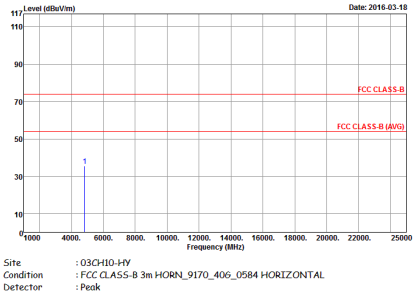
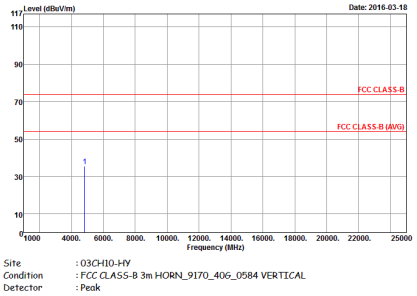
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH01 2412MHz	
1+2+3	Horizontal	Vertical
Peak Avg.		

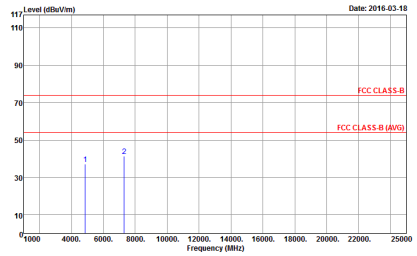
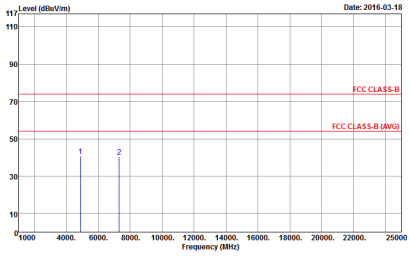
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH06 2437MHz	
1+2+3	Horizontal	Vertical
Peak Avg.		

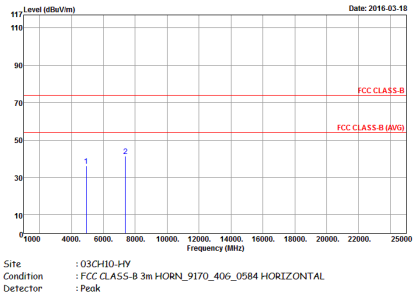
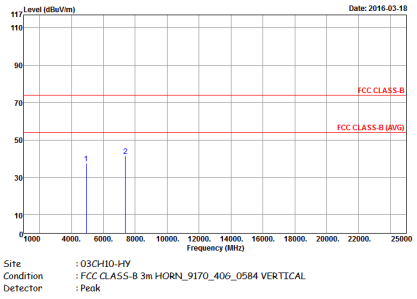
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH11 2462MHz	
1+2+3	Horizontal	Vertical
Peak Avg.		

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

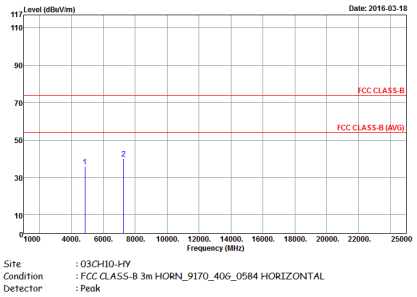
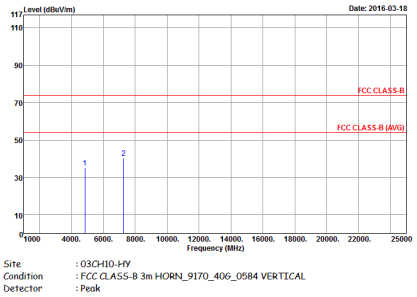
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
1+2+3	Horizontal	Vertical
Peak Avg.		

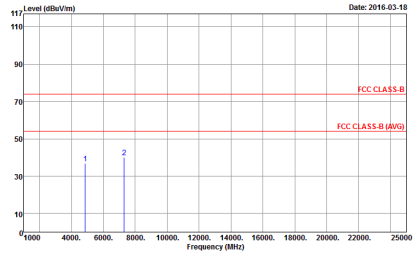
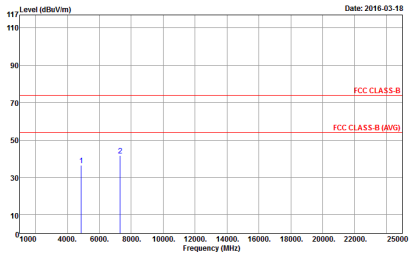
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH06 2437MHz	
1+2+3	Horizontal	Vertical
Peak Avg.		

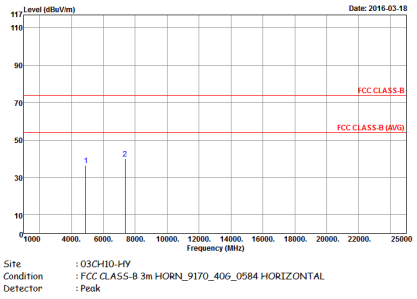
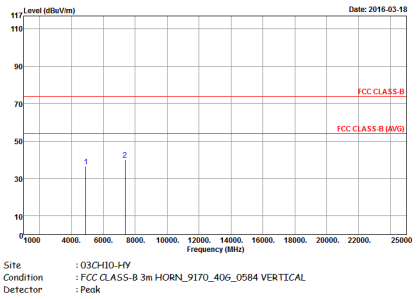
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
1+2+3	Horizontal	Vertical
Peak Avg.		

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+2+3	Horizontal	Vertical
Peak Avg.		

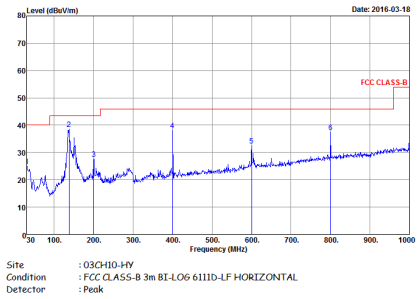
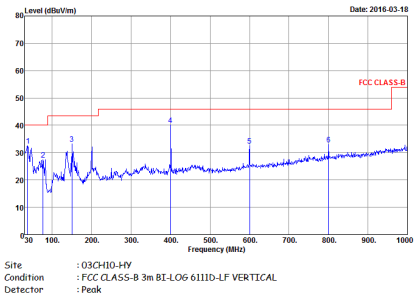
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT40 CH06 2437MHz	
1+2+3	Horizontal	Vertical
Peak Avg.		

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT40 CH09 2452MHz	
1+2+3	Horizontal	Vertical
Peak Avg.		

2.4GHz 2400~2483.5MHz

Emission below 1GHz

2.4GHz WIFI 802.11g (LF)

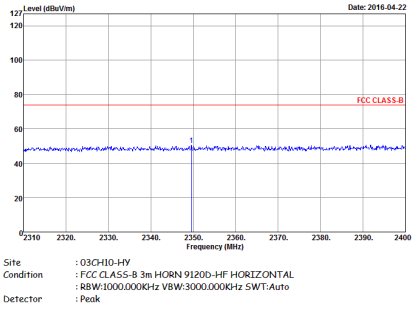
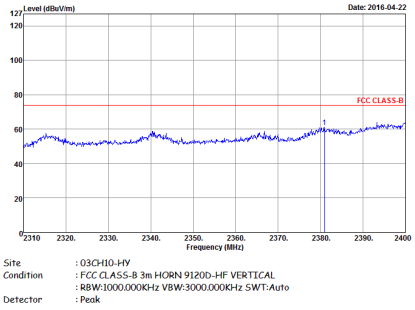
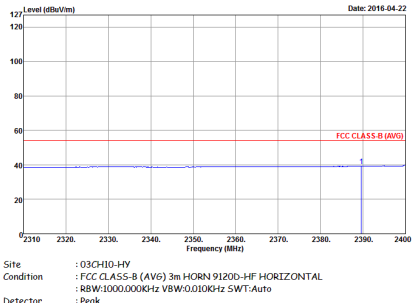
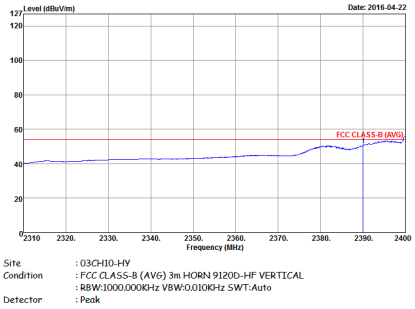
WIFI	2.4GHz 2400~2483.5MHz	
ANT	802.11g LF	
1+2+3	Horizontal	Vertical
QP / Peak		

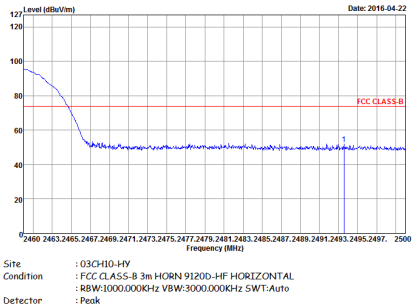
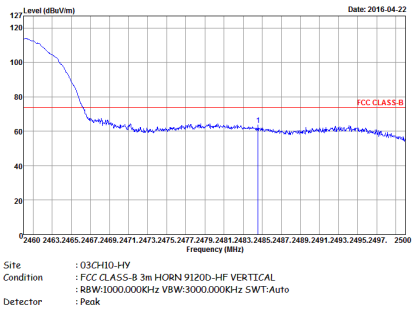
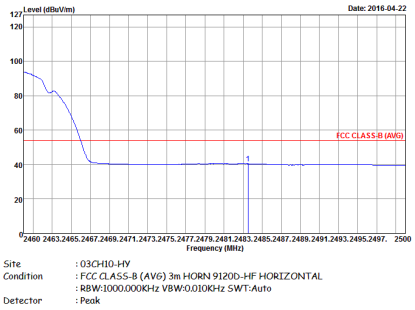
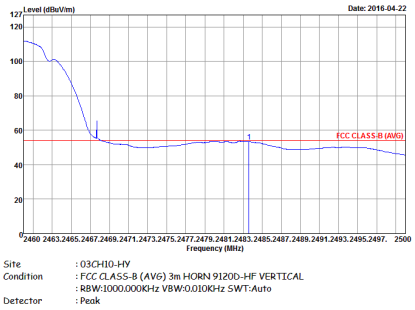
Note symbol

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

2.4GHz 2400~2483.5MHz

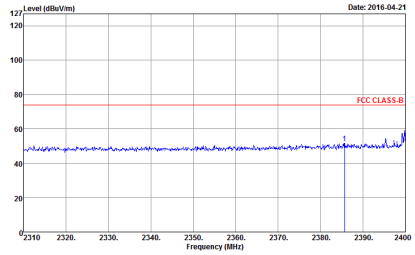
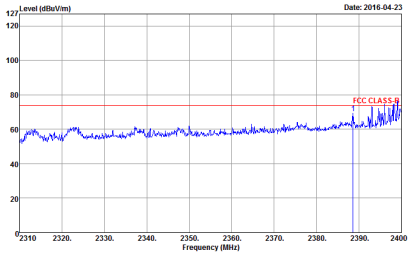
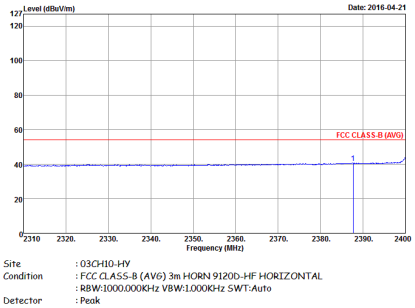
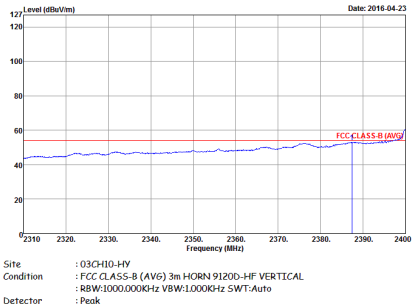
WIFI 802.11b (Band Edge @ 3m)

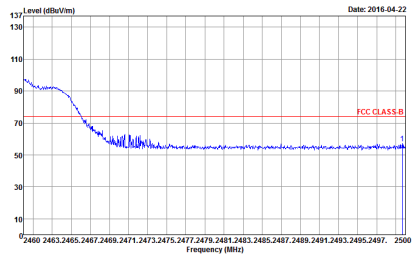
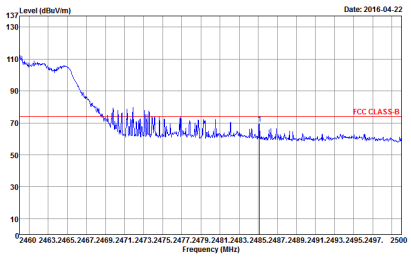
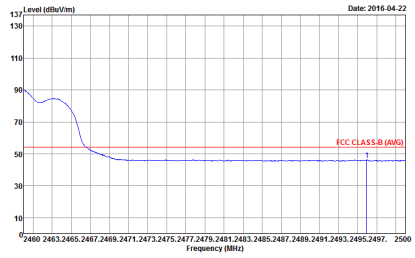
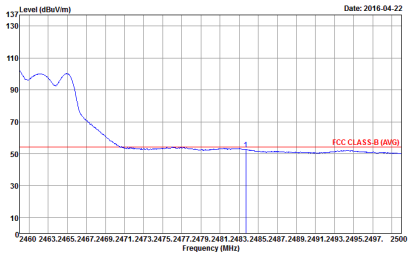
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH02 2417MHz	
1+2+3	Horizontal	Vertical
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH10 2457MHz	
1+2+3	Horizontal	Vertical
Peak		
Avg.		

2.4GHz 2400~2483.5MHz

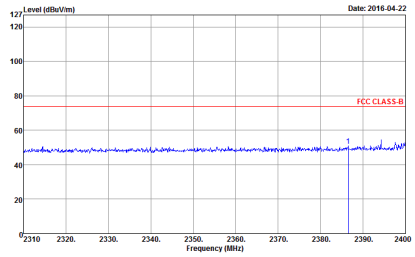
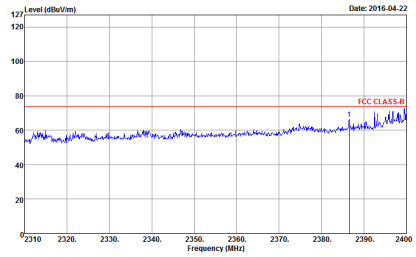
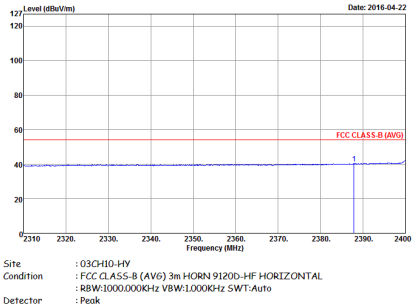
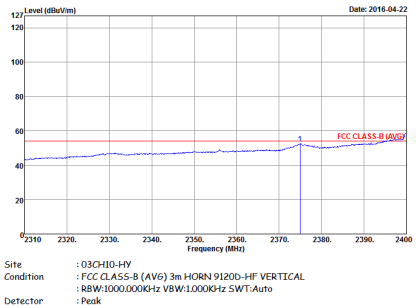
WIFI 802.11g (Band Edge @ 3m)

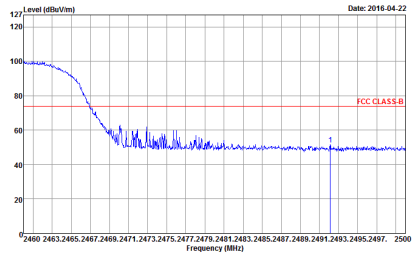
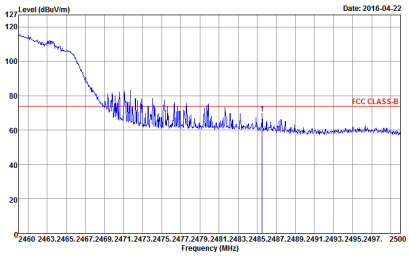
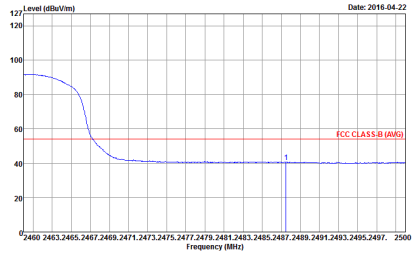
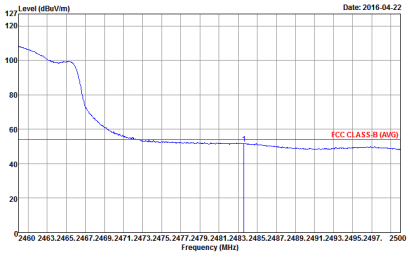
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH02 2417MHz	
1+2+3	Horizontal	Vertical
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH10 2457MHz	
1+2+3	Horizontal	Vertical
Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak

2.4GHz 2400~2483.5MHz

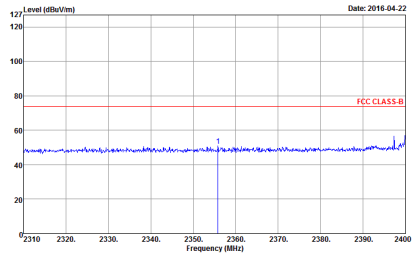
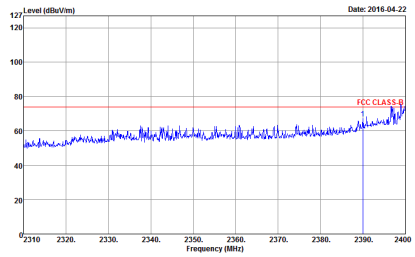
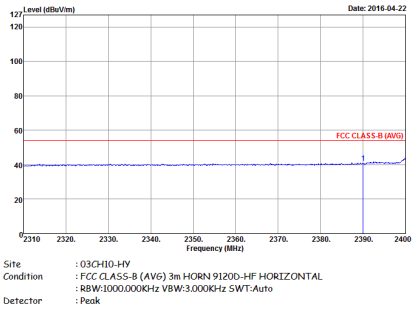
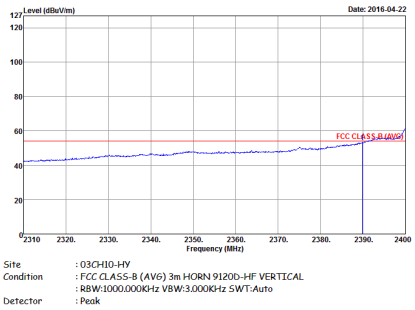
WIFI 802.11n HT20 (Band Edge @ 3m)

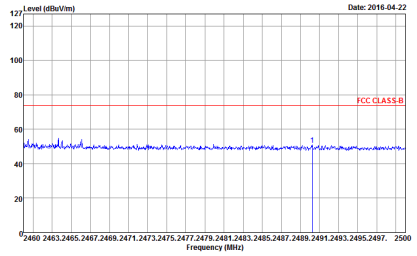
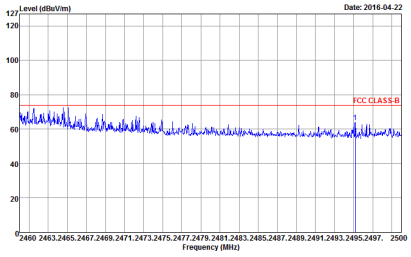
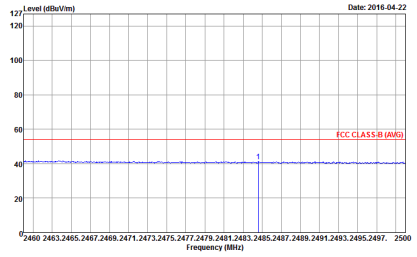
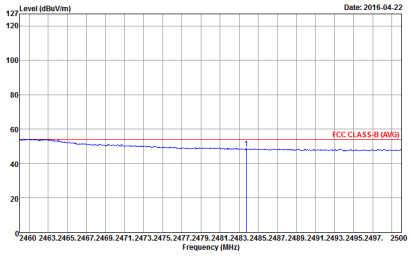
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH02 2417MHz	
1+2+3	Horizontal	Vertical
Peak		
Avg.		

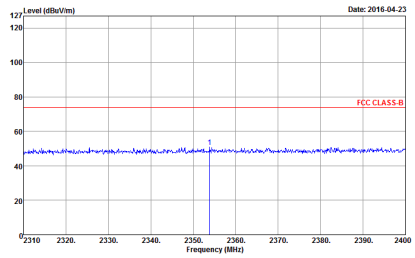
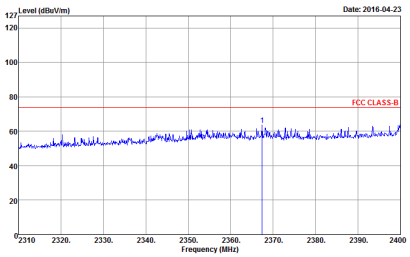
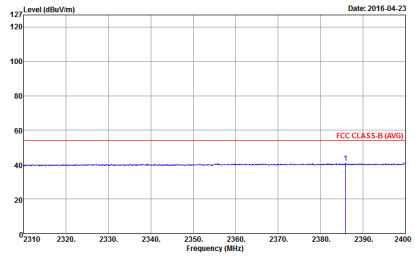
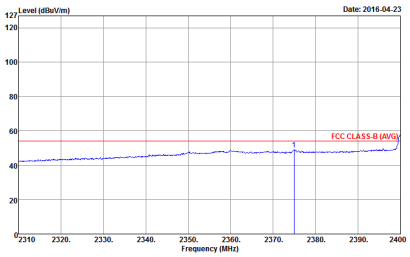
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH10 2457MHz	
1+2+3	Horizontal	Vertical
Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak

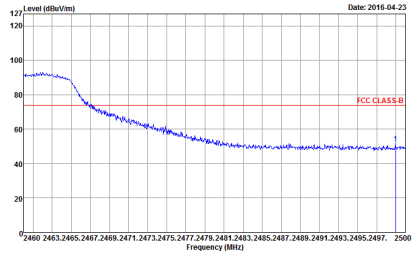
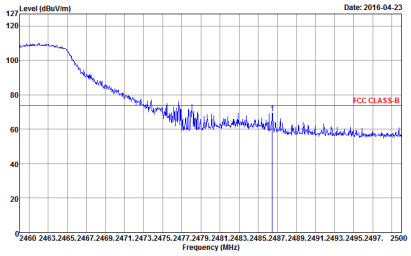
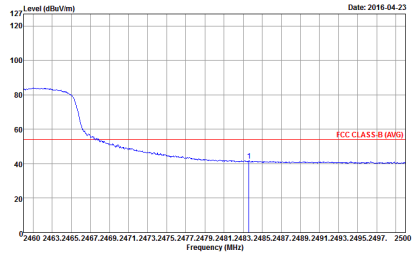
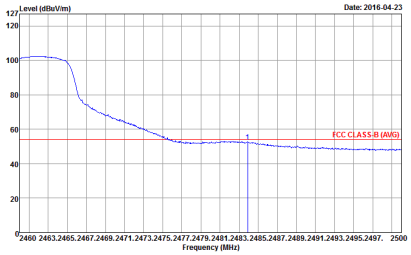
2.4GHz 2400~2483.5MHz

WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH04 2427MHz - L	
1+2+3	Horizontal	Vertical
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH04 2427MHz - R	
1+2+3	Horizontal	Vertical
Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto Detector : Peak

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH08 2447MHz - L	
1+2+3	Horizontal	Vertical
Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto Detector : Peak

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH08 2447MHz - R	
1+2+3	Horizontal	Vertical
Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto Detector : Peak