



FCC RF Test Report

APPLICANT : Nauto Corporation
EQUIPMENT : Nauto 2
BRAND NAME : Nauto 2
MODEL NAME : Nauto 2
MARKETING NAME : Nauto 2
FCC ID : 2AKJ5-N2
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : (DTS) Digital Transmission System

The product was received on Dec. 22, 2016 and testing was completed on Jan. 06, 2017. We, Sporton International (KunShan) 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 (KunShan) INC., the test report shall not be reproduced except in full.

Prepared by: James Huang / Manager

Approved by: Jones Tsai / Manager



Sporton International (KunShan) INC.
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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR6D2204C	Rev. 01	Initial issue of report	May 03, 2017



SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	RSS-247 5.2(a)	6dB Bandwidth	$\geq 0.5\text{MHz}$	Pass	-
3.1	-	RSS-Gen 6.6	99% Bandwidth	-	Pass	-
3.2	15.247(b)	RSS-247 5.4(d)	Power Output Measurement	$\leq 30\text{dBm}$	Pass	-
3.3	15.247(e)	RSS-247 5.2(b)	Power Spectral Density	$\leq 8\text{dBm}/3\text{kHz}$	Pass	-
3.4	15.247(d)	RSS-247 5.5	Conducted Band Edges	$\leq 20\text{dBc}$	Pass	-
			Conducted Spurious Emission		Pass	-
3.5	15.247(d)	RSS-247 5.5	Radiated Band Edges and Radiated Spurious Emission	15.209(a) & 15.247(d)	Pass	Under limit 3.01 dB at 2484.520 MHz
3.6	15.203 & 15.247(b)	N/A	Antenna Requirement	N/A	Pass	-



1 General Description

1.1 Applicant

Nauto Corporation

380 Portage Avenue Palo Alto, CA 94306

1.2 Manufacturer

Qisda Corporation

18 Jihu Road. Neihu, Taipei 114, Taiwan

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Nauto 2
Brand Name	Nauto 2
Model Name	Nauto 2
Marketing Name	Nauto 2
FCC ID	2AKJ5-N2
EUT supports Radios application	WCDMA/HSPA/ HSPA+(16QAM uplink is not supported)/DC-HSDPA/LTE/ WLAN2.4GHz 802.11b/g/n HT20/HT40/ Bluetooth v3.0+EDR/Bluetooth v4.0 LE
IMEI Code	Conducted: 014711000023081 Radiation: 014711000027132
HW Version	DVT01
SW Version	2.006
EUT Stage	Production Unit

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

Standards-related Product Specification	
Tx/Rx Channel Frequency Range	2412 MHz ~ 2462 MHz
Maximum (Peak) Output Power to antenna	802.11b : 18.55 dBm (0.0716 W) 802.11g : 19.35 dBm (0.0861 W) 802.11n HT20 : 19.87 dBm (0.0971 W) 802.11n HT40 : 18.73 dBm (0.0746 W)
99% Occupied Bandwidth	802.11b : 13.39MHz 802.11g : 17.28MHz 802.11n HT20 : 18.23MHz 802.11n HT40 : 36.66MHz
Antenna Type / Gain	Monopole Antenna with gain 3.6 dBi
Type of Modulation	802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)

1.5 Modification of EUT

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



1.6 Testing Location

Test Site	Sporton International (KunShan) INC.		
Test Site Location	No.3-2, Pingxiang Road, Kunshan Development Zone, Jiangsu, China TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958		
Test Site No.	Sporton Site No.		FCC Registration No.
	TH01-KS	03CH02-KS	418269/4086E

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 v04
- ♦ ANSI C63.10-2013
- ♦ IC RSS-247 Issue 2
- ♦ IC RSS-Gen Issue 4

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

2.1 Carrier Frequency and Channel

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



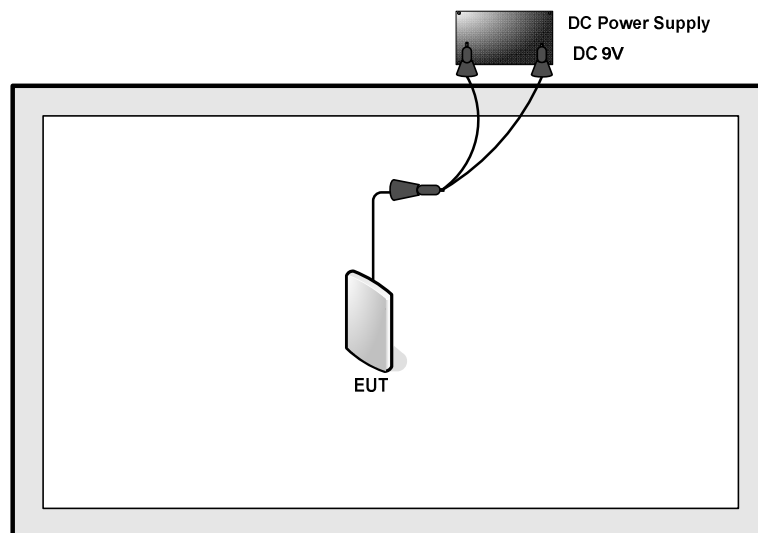
2.2 Test Mode

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

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

2.3 Connection Diagram of Test System

<WLAN Tx Mode>



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	DC Power Supply	GW	GPS-3030D	N/A	N/A	Unshielded, 1.8 m

2.5 EUT Operation Test Setup

For WLAN function, the engineering test program was provided and enabled to make EUT continuous transmit/receive.



2.6 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss 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.

Offset = RF cable loss.

Following shows an offset computation example with cable loss 5.7 dB.

$$\begin{aligned}\text{Offset(dB)} &= \text{RF cable loss(dB)}. \\ &= 5.7 \text{ (dB)}\end{aligned}$$

3 Test Result

3.1 6dB and 99% Bandwidth Measurement

3.1.1 Limit of 6dB and 99% Bandwidth

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

3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

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

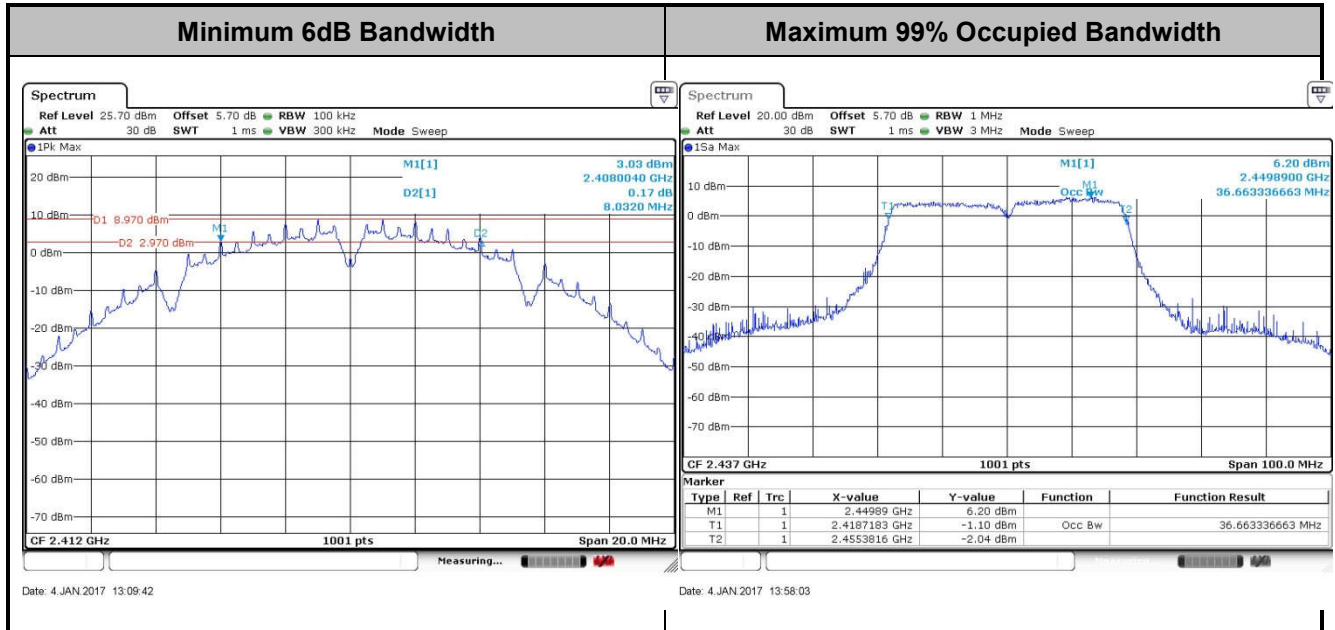
3.1.4 Test Setup





3.1.5 Test Result of 6dB and 99% Occupied Bandwidth

Please refer to Appendix A.



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

3.2 Output Power Measurement

3.2.1 Limit of Output Power

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

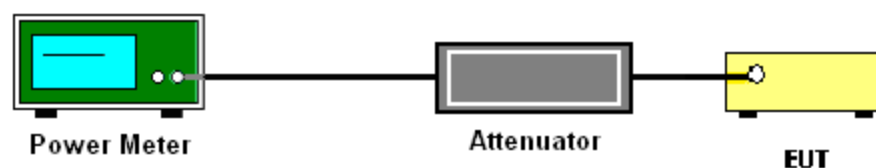
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

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

3.2.4 Test Setup





3.2.5 Test Result of Peak Output Power

Please refer to Appendix A.

3.2.6 Test Result of Average output Power (Reporting Only)

Please refer to Appendix A.

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

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

3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

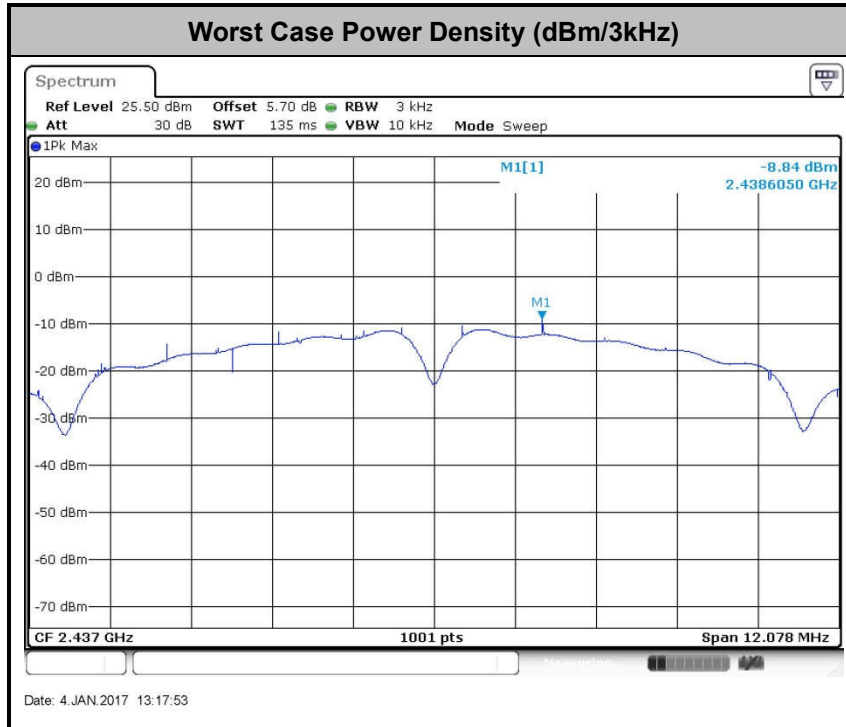
1. The testing follows Measurement Procedure 10.2 Method PKPSD of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v04
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum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

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.



3.4 Conducted Band Edges and Spurious Emission Measurement

3.4.1 Limit of Conducted Band Edges and Spurious Emission Measurement

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

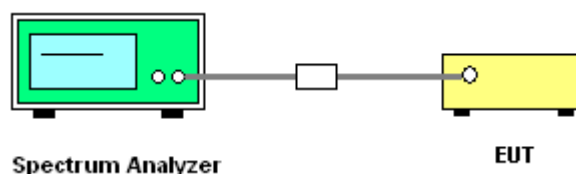
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

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

3.4.4 Test Setup



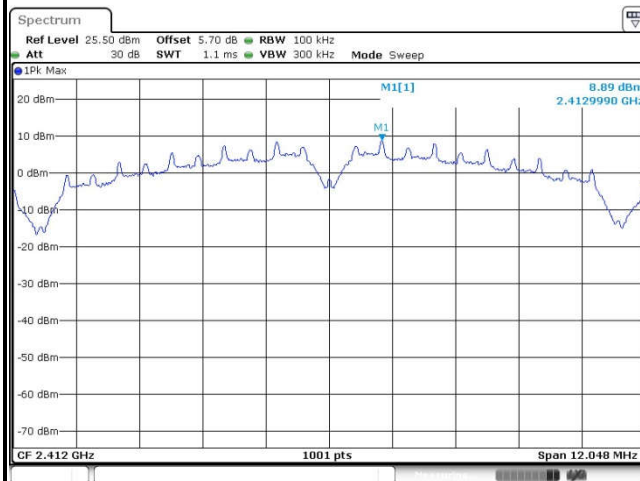


3.4.5 Test Result of Conducted Band Edges and Spurious Emission

Test Mode :	802.11b	Temperature :	21~25℃
Test Band :	2.4GHz Low	Relative Humidity :	51~55%
Test Channel :	01	Test Engineer :	Silent Hai

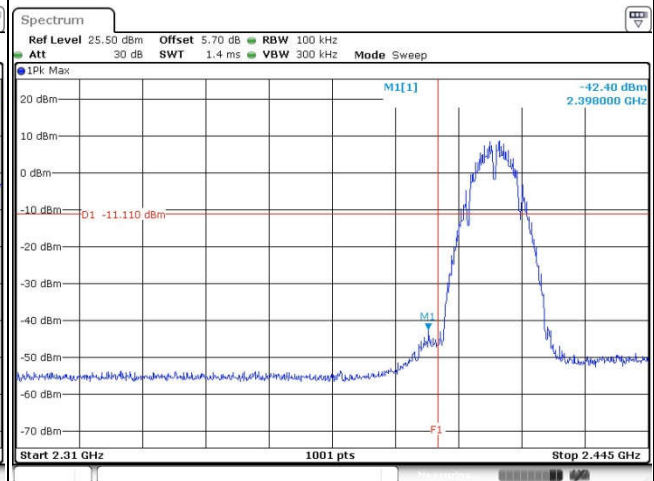
WLAN 802.11b Channel 01

100kHz PSD reference Level



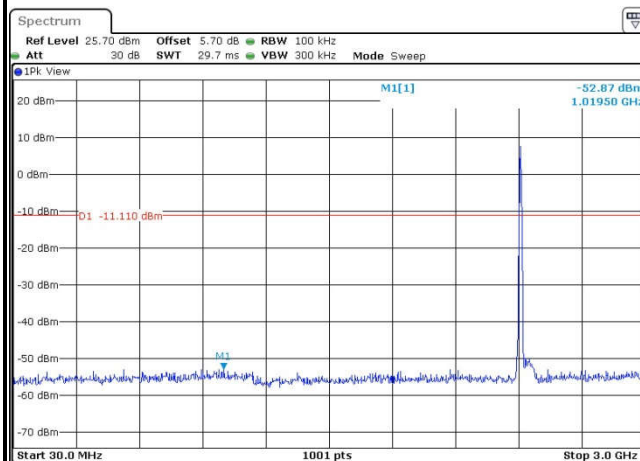
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Low Channel Plot



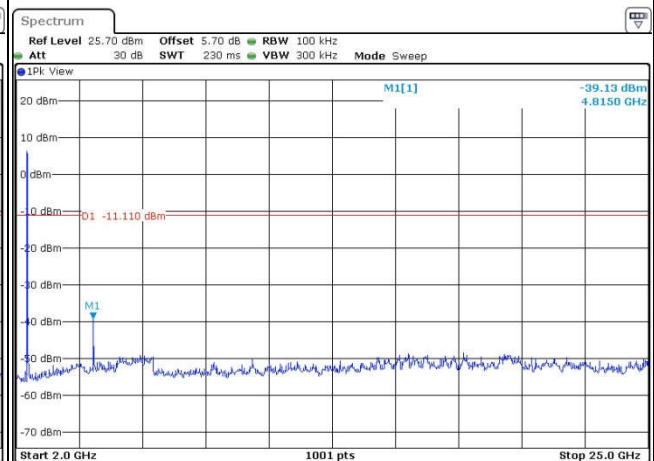
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Spurious Emission 30MHz~3GHz



Date: 4 JAN 2017 13:11:16

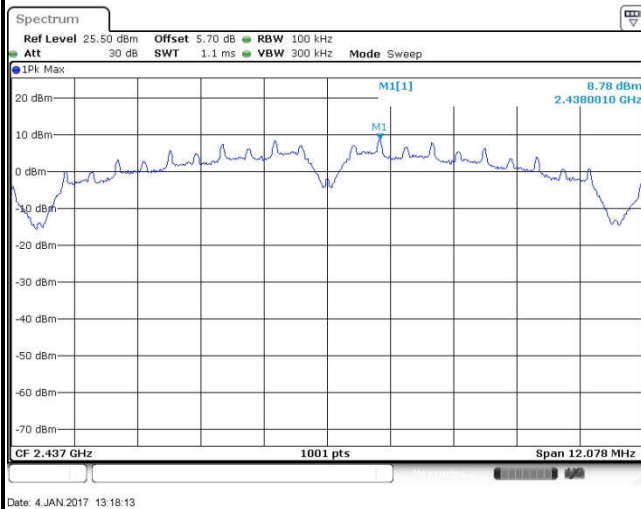
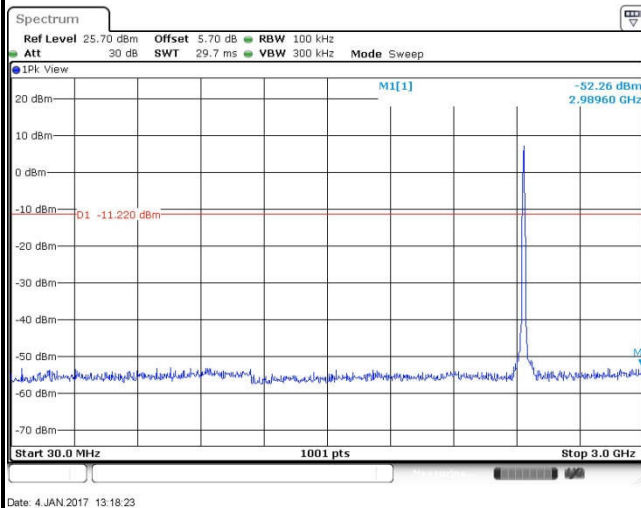
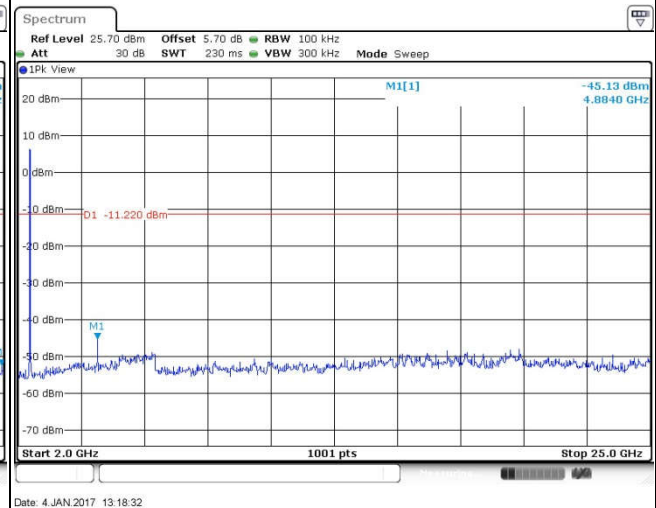
Spurious Emission 2GHz~25GHz



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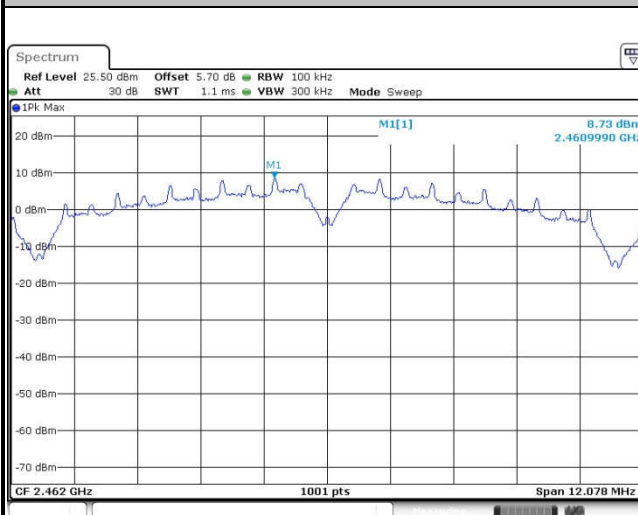


Test Mode :	802.11b	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~55%
Test Channel :	06	Test Engineer :	Silent Hai

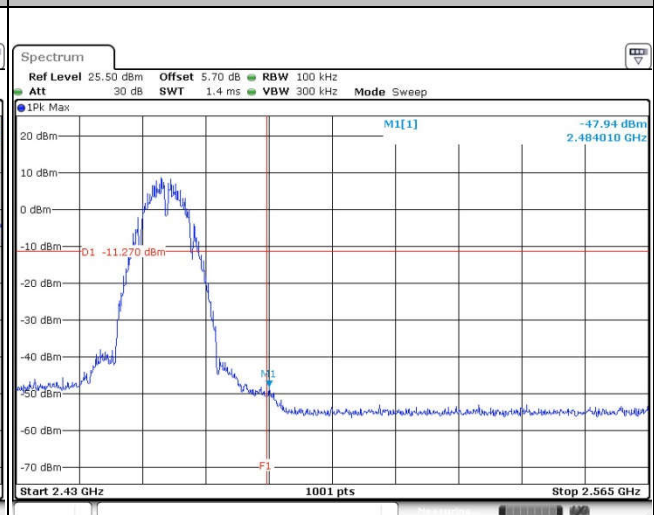
WLAN 802.11b Channel 06**100kHz PSD reference Level****Spurious Emission 30MHz~3GHz****Spurious Emission 2GHz~25GHz**



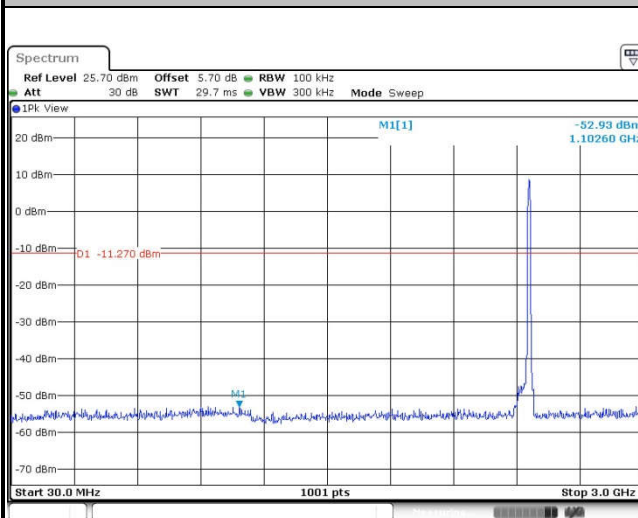
Test Mode :	802.11b	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~55%
Test Channel :	11	Test Engineer :	Silent Hai

WLAN 802.11b Channel 11**100kHz PSD reference Level**

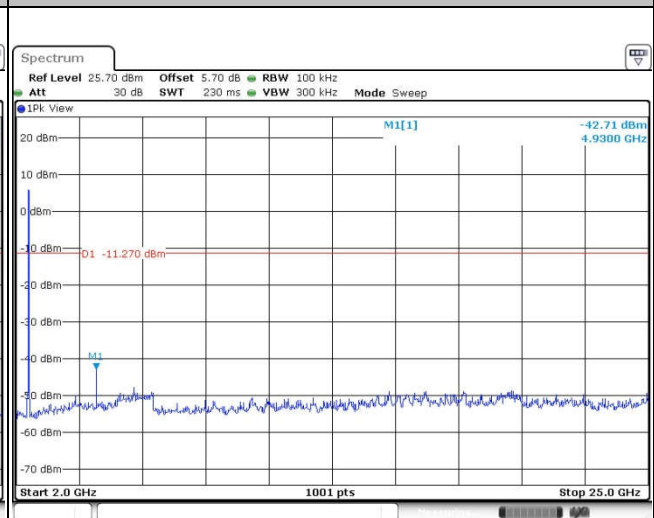
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High Channel Plot

Date: 4 JAN 2017 13:21:05

Spurious Emission 30MHz~3GHz

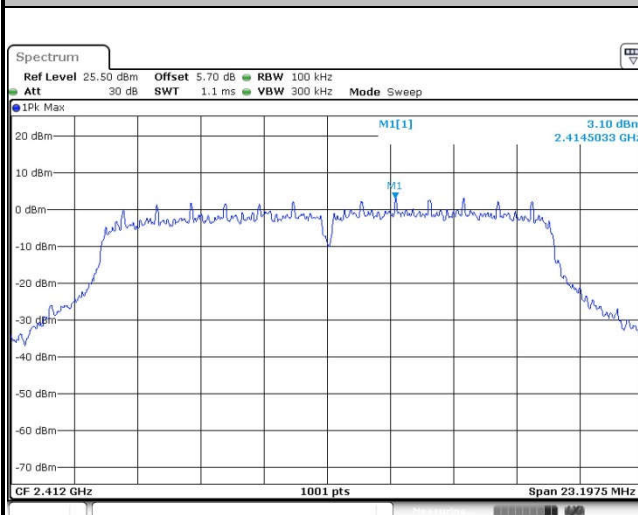
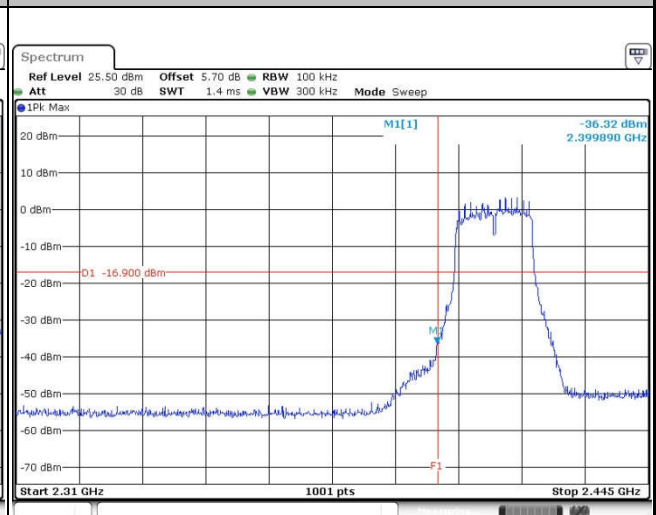
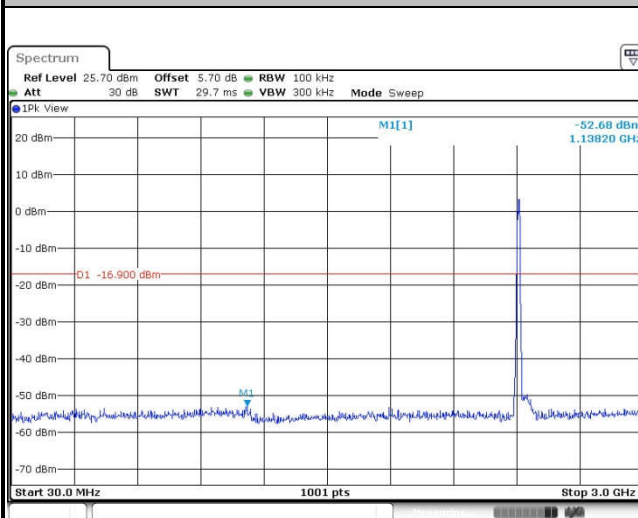
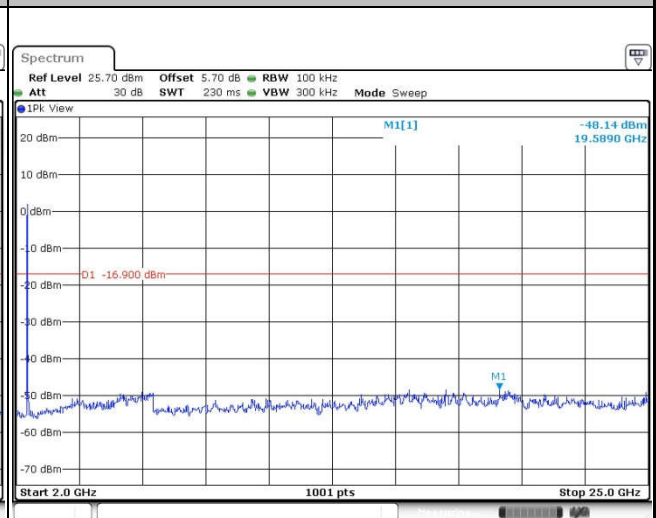
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Spurious Emission 2GHz~25GHz

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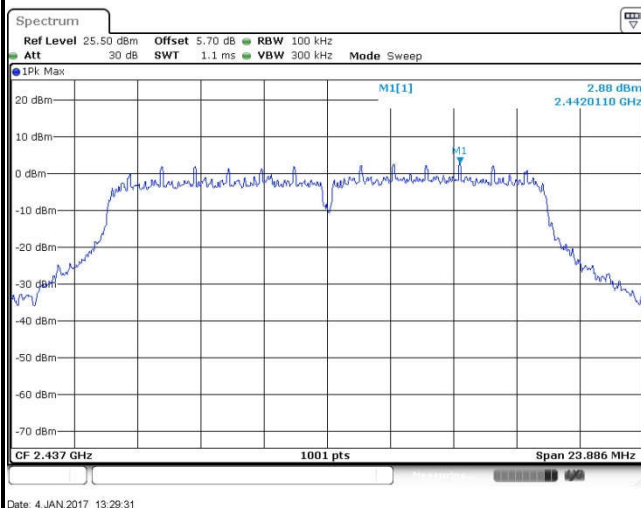
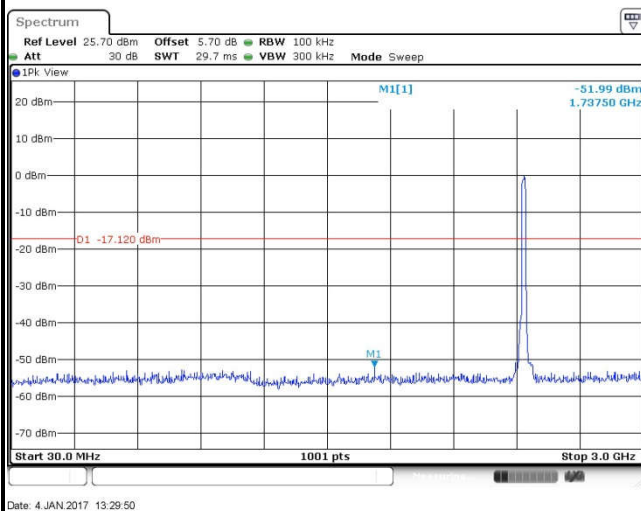
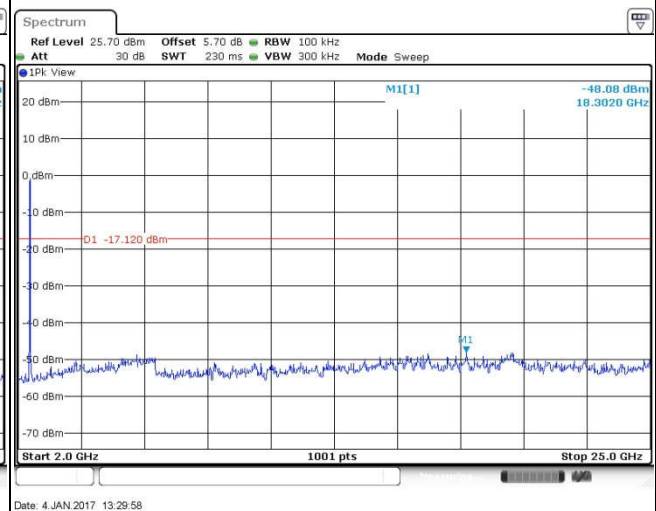


Test Mode :	802.11g	Temperature :	21~25°C
Test Band :	2.4GHz Low	Relative Humidity :	51~55%
Test Channel :	01	Test Engineer :	Silent Hai

WLAN 802.11g Channel 01**100kHz PSD reference Level****Low Channel Plot****Spurious Emission 30MHz~3GHz****Spurious Emission 2GHz~25GHz**

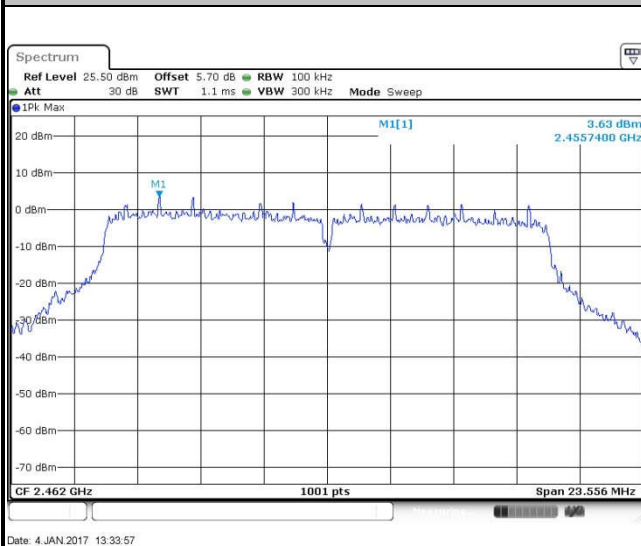
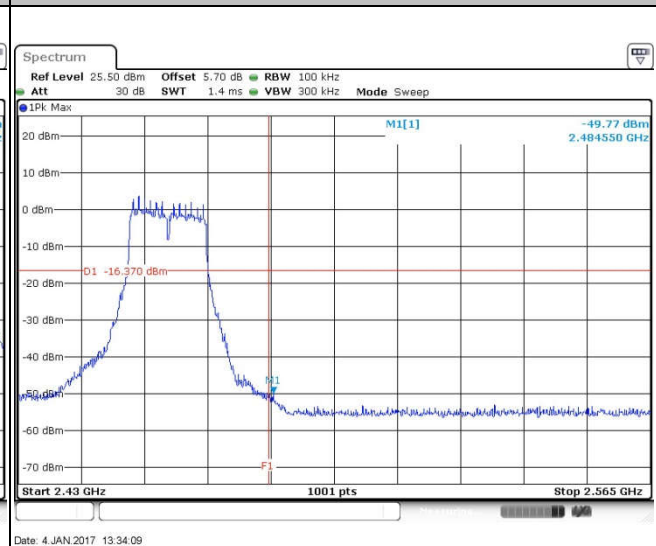
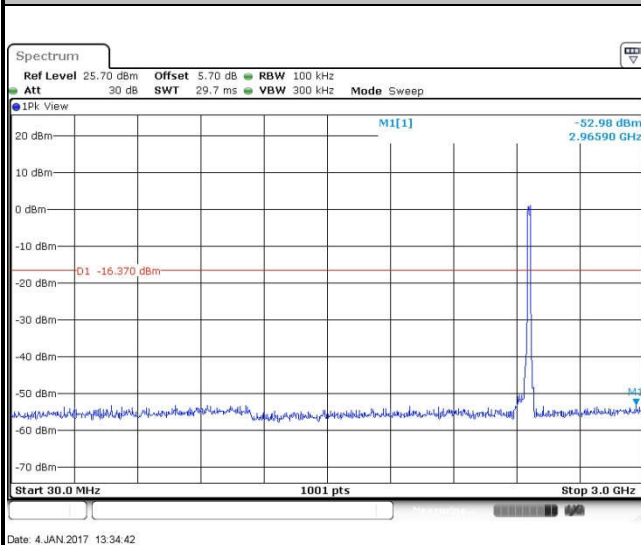
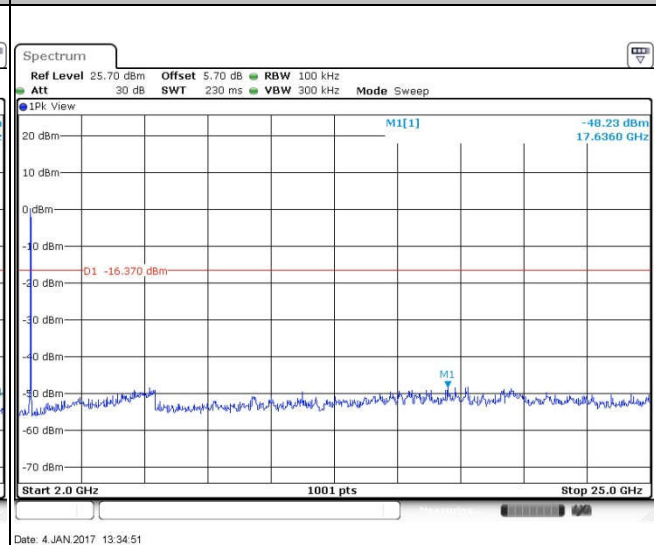


Test Mode :	802.11g	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~55%
Test Channel :	06	Test Engineer :	Silent Hai

WLAN 802.11g Channel 06**100kHz PSD reference Level****Spurious Emission 30MHz~3GHz****Spurious Emission 2GHz~25GHz**

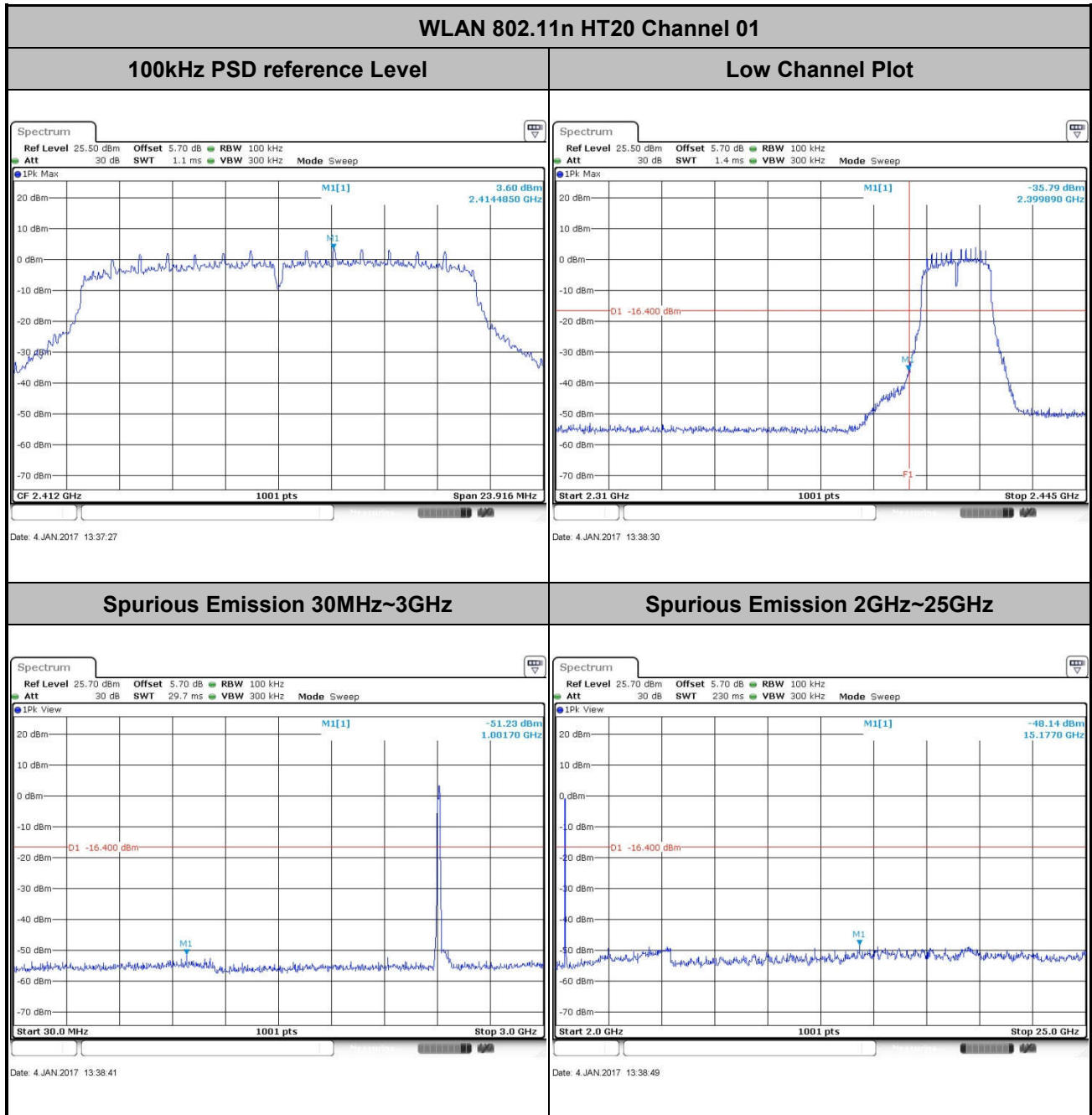


Test Mode :	802.11g	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~55%
Test Channel :	11	Test Engineer :	Silent Hai

WLAN 802.11g Channel 11**100kHz PSD reference Level****High Channel Plot****Spurious Emission 30MHz~3GHz****Spurious Emission 2GHz~25GHz**

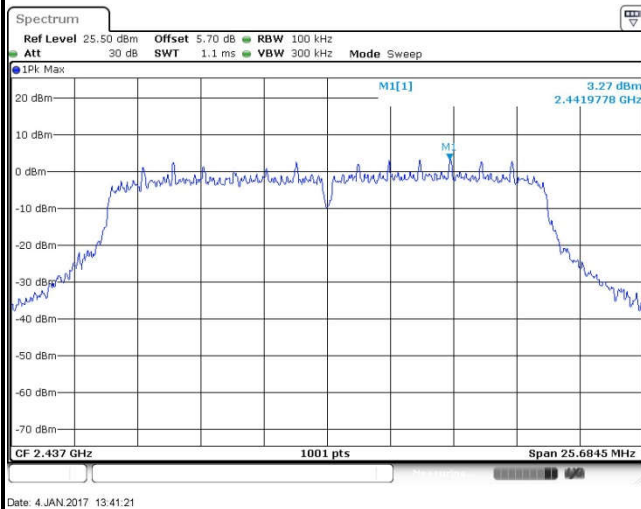
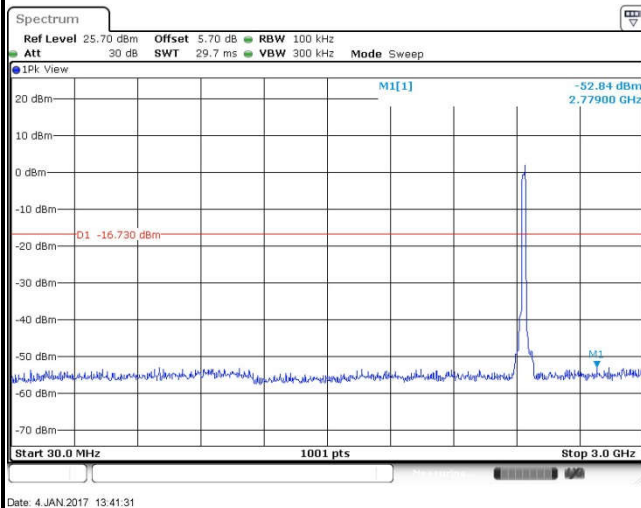
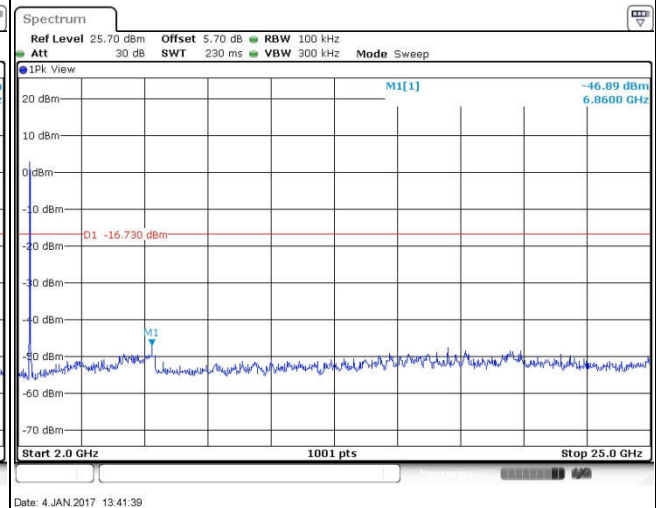


Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz Low	Relative Humidity :	51~55%
Test Channel :	01	Test Engineer :	Silent Hai



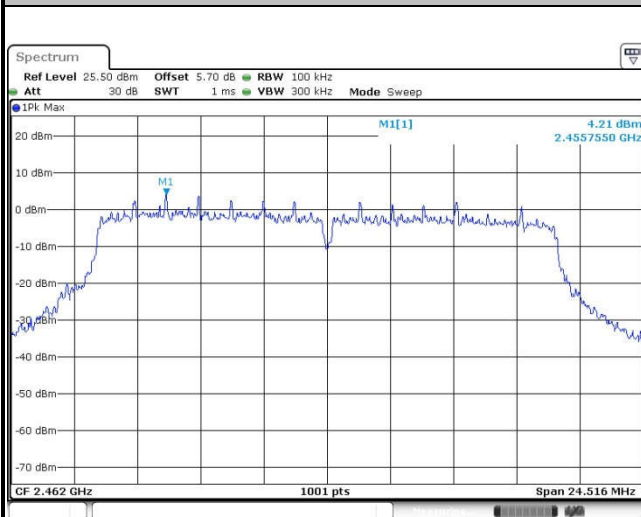
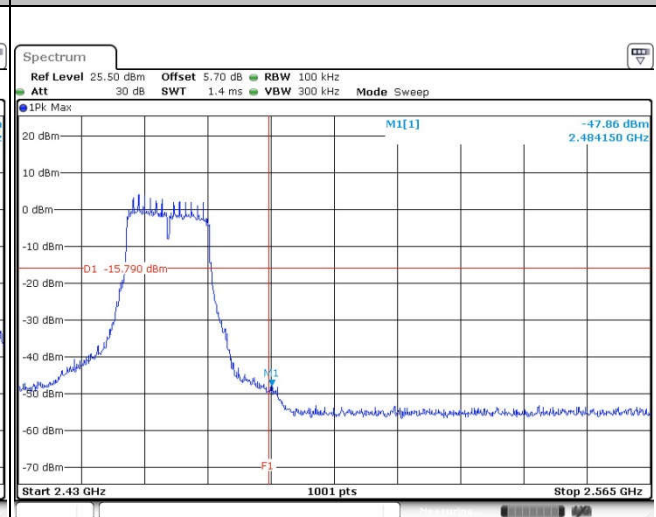
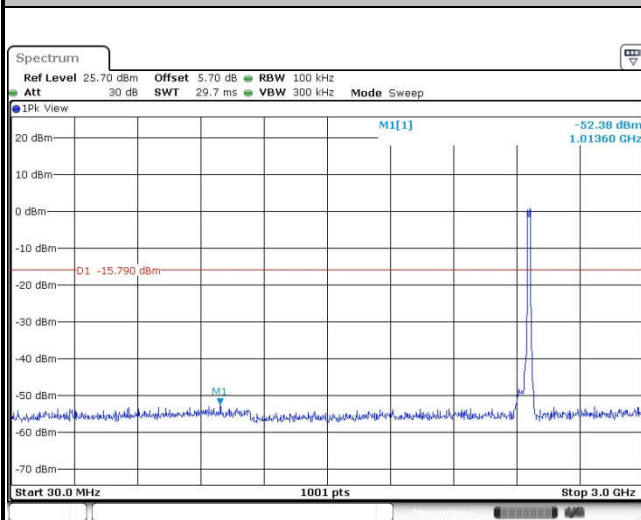
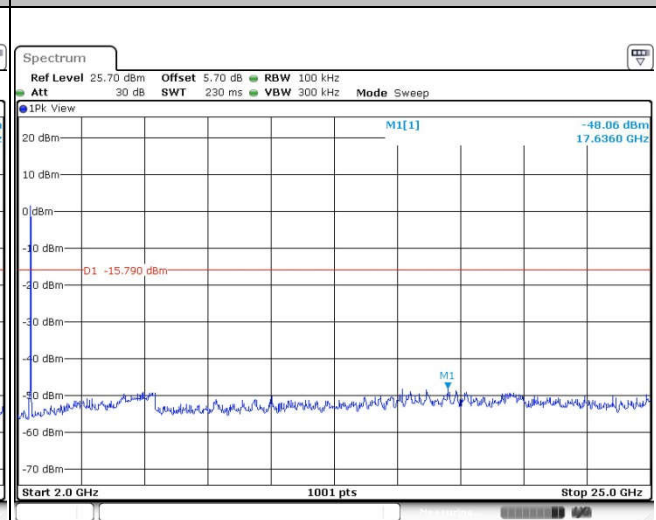


Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~55%
Test Channel :	06	Test Engineer :	Silent Hai

WLAN 802.11n HT20 Channel 06**100kHz PSD reference Level****Spurious Emission 30MHz~3GHz****Spurious Emission 2GHz~25GHz**

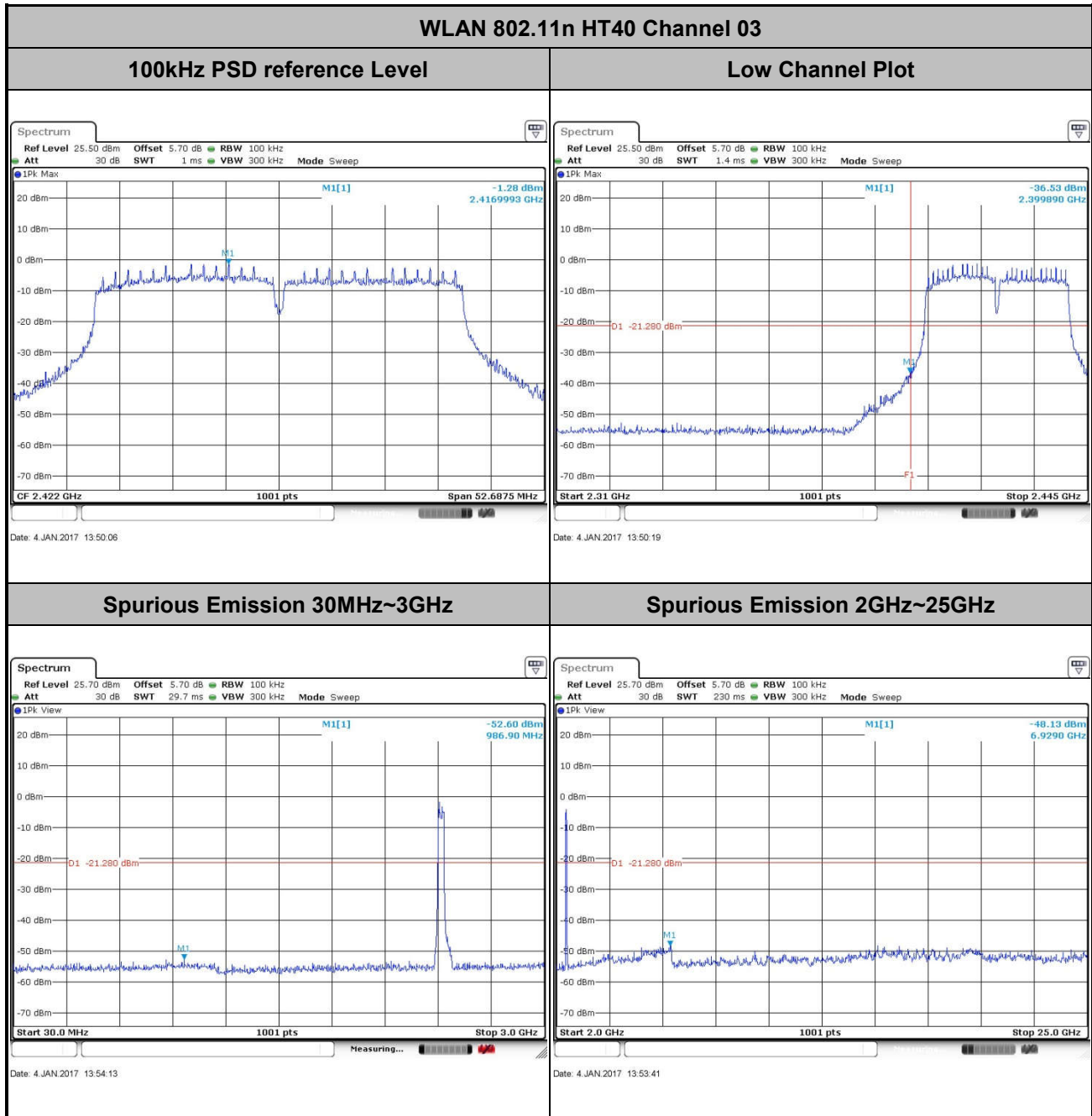


Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~55%
Test Channel :	11	Test Engineer :	Silent Hai

WLAN 802.11n HT20 Channel 11**100kHz PSD reference Level****High Channel Plot****Spurious Emission 30MHz~3GHz****Spurious Emission 2GHz~25GHz**

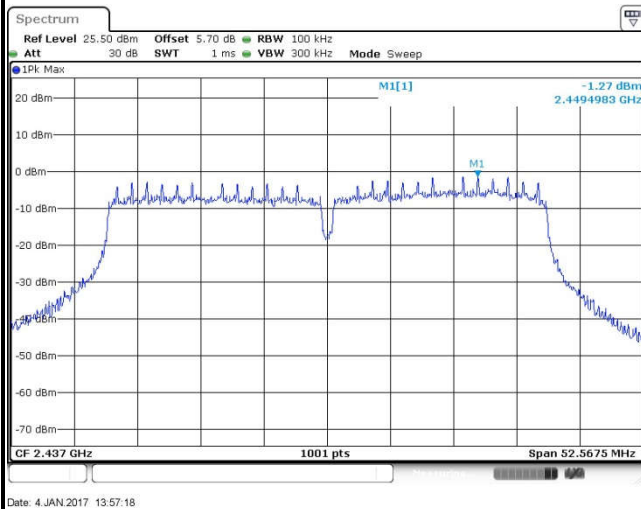
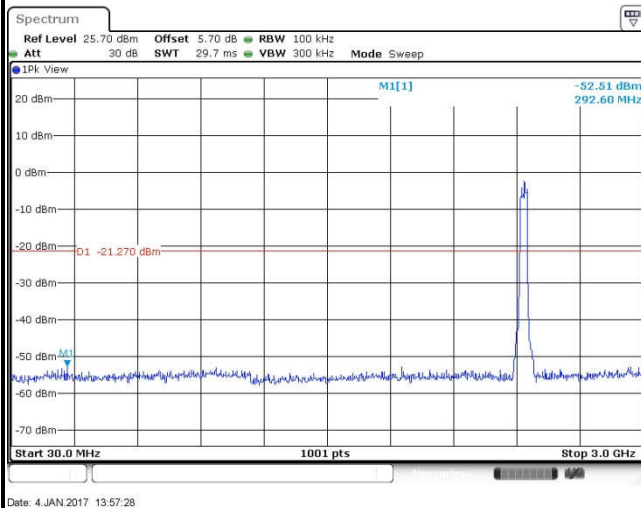
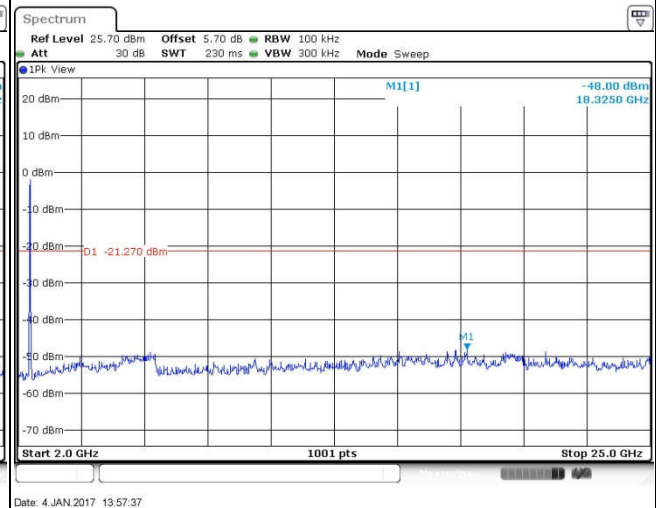


Test Mode :	802.11n HT40	Temperature :	21~25°C
Test Band :	2.4GHz Low	Relative Humidity :	51~55%
Test Channel :	03	Test Engineer :	Silent Hai



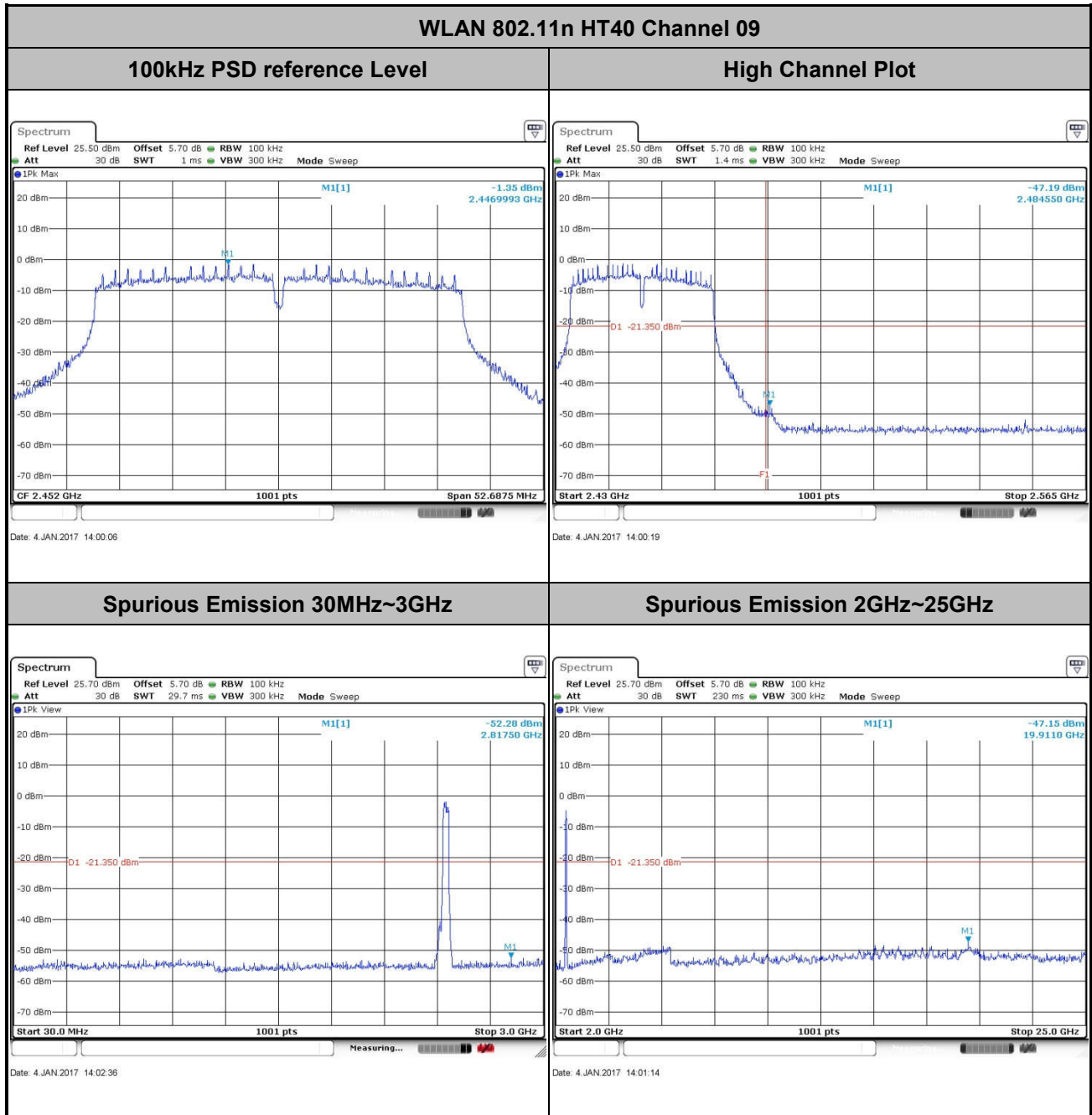


Test Mode :	802.11n HT40	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~55%
Test Channel :	06	Test Engineer :	Silent Hai

WLAN 802.11n HT40 Channel 06**100kHz PSD reference Level****Spurious Emission 30MHz~3GHz****Spurious Emission 2GHz~25GHz**



Test Mode :	802.11n HT40	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~55%
Test Channel :	09	Test Engineer :	Silent Hai



3.5 Radiated Band Edges and Spurious Emission Measurement

3.5.1 Limit of Radiated band edge and Spurious Emission Measurement

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

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

3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v04.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
7. Use the following spectrum analyzer settings:
 - (1) Span shall wide enough to fully capture the emission being measured;
 - (2) Set RBW=100 kHz for $f < 1$ GHz; VBW \geq RBW; Sweep = auto; Detector function = peak; Trace = max hold;
 - (3) Set RBW = 1 MHz, VBW= 3MHz for $f \geq 1$ GHz for peak measurement.

For average measurement:

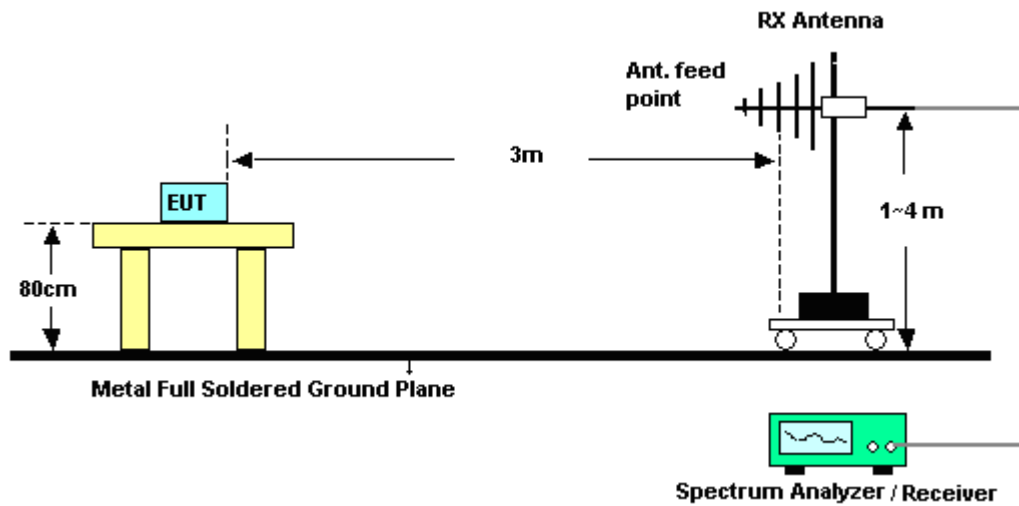
 - VBW = 10 Hz, when duty cycle is no less than 98 percent.
 - VBW $\geq 1/T$, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

3.5.4 Test Setup

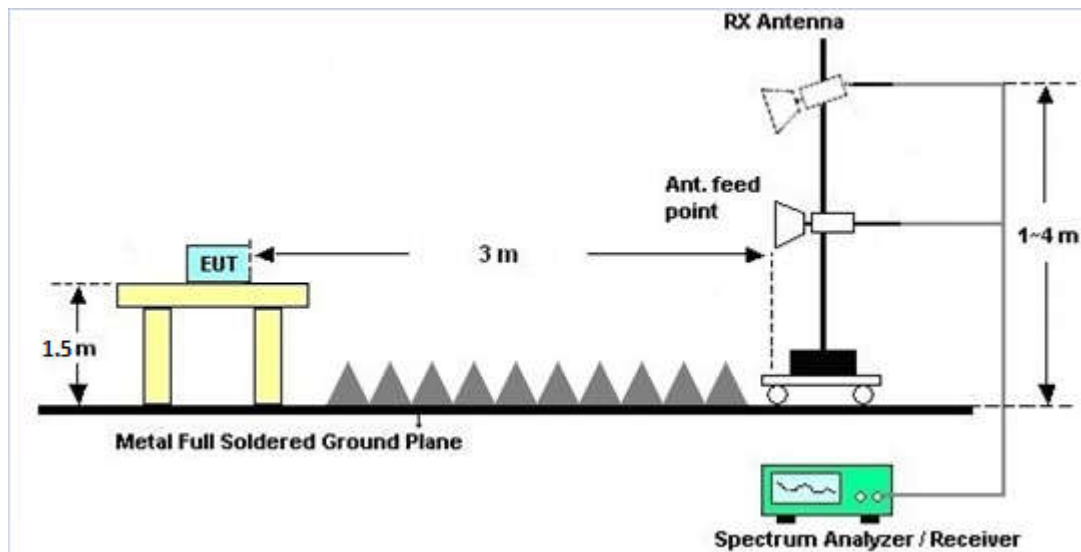
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

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

3.5.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix B.

3.5.7 Duty Cycle

Please refer to Appendix C.

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

Please refer to Appendix B.



3.6 Antenna Requirements

3.6.1 Standard Applicable

If directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the rule.

3.6.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.6.3 Antenna Gain

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



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Aug. 09, 2016	Jan. 04, 2017	Aug. 08, 2017	Conducted (TH01-KS)
Pulse Power Sensor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 19, 2016	Jan. 04, 2017	Jan. 18, 2017	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 19, 2016	Jan. 04, 2017	Jan. 18, 2017	Conducted (TH01-KS)
EMI Test Receiver	R&S	ESR7	101403	9kHz~7GHz; Max 30dBm	Aug. 09, 2016	Jan. 06, 2017	Aug. 08, 2017	Radiation (03CH02-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150208	10Hz~44GHz, MAX 30dB	Apr. 22, 2016	Jan. 06, 2017	Apr. 21, 2017	Radiation (03CH02-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Nov. 23, 2016	Jan. 06, 2017	Nov. 22, 2017	Radiation (03CH02-KS)
Bilog Antenna	TeseQ	CBL6112D	37879	30MHz~2GHz	Aug. 20, 2016	Jan. 06, 2017	Aug. 19, 2017	Radiation (03CH02-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75957	1GHz~18GHz	Oct. 22, 2016	Jan. 06, 2017	Oct. 21, 2017	Radiation (03CH02-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15GHz~40GHz	Feb. 15, 2016	Jan. 06, 2017	Feb. 14, 2017	Radiation (03CH02-KS)
Amplifier	com-power	PA-103A	161069	1kHz~1000MHz / 32 dB	Apr. 22, 2016	Jan. 06, 2017	Apr. 21, 2017	Radiation (03CH02-KS)
Amplifier	Agilent	8449B	3008A02384	1GHz~26.5GHz	Oct. 13, 2016	Jan. 06, 2017	Oct. 12, 2017	Radiation (03CH02-KS)
Amplifier	MITEQ	TTA1840-35-HG	1887435	18GHz~40GHz	Oct. 13, 2016	Jan. 06, 2017	Oct. 12, 2017	Radiation (03CH02-KS)
AC Power Source	Chroma	61601	616010002473	N/A	NCR	Jan. 06, 2017	NCR	Radiation (03CH02-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	NCR	Jan. 06, 2017	NCR	Radiation (03CH02-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	NCR	Jan. 06, 2017	NCR	Radiation (03CH02-KS)

NCR: No Calibration Required



5 Uncertainty of Evaluation

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

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

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.7dB
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Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.3dB
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Appendix A. Conducted Test Results

A1 - DTS Part

Test Engineer:	Silent Haig	Temperature:	21~25	°C
Test Date:	2017/1/4	Relative Humidity:	51~55	%

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

2.4GHz Band								
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Occupied BW (MHz)	6dB BW (MHz)	6dB BW Limit (MHz)	Pass/Fail
11b	1Mbps	1	1	2412	12.79	8.03	0.50	Pass
11b	1Mbps	1	6	2437	13.14	8.05	0.50	Pass
11b	1Mbps	1	11	2462	13.39	8.05	0.50	Pass
11g	6Mbps	1	1	2412	16.88	15.47	0.50	Pass
11g	6Mbps	1	6	2437	17.13	15.92	0.50	Pass
11g	6Mbps	1	11	2462	17.28	15.70	0.50	Pass
HT20	MCS0	1	1	2412	17.93	15.94	0.50	Pass
HT20	MCS0	1	6	2437	18.18	17.12	0.50	Pass
HT20	MCS0	1	11	2462	18.23	16.34	0.50	Pass
HT40	MCS0	1	3	2422	36.36	35.13	0.50	Pass
HT40	MCS0	1	6	2437	36.66	35.05	0.50	Pass
HT40	MCS0	1	9	2452	36.26	35.13	0.50	Pass

TEST RESULTS DATA
Peak Power Table

2.4GHz Band										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak Conducted Power (dBm)	Conducted Power Limit (dBm)	DG (dBi)	EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
11b	1Mbps	1	1	2412	18.55	30.00	3.60	22.15	36.00	Pass
11b	1Mbps	1	6	2437	18.49	30.00	3.60	22.09	36.00	Pass
11b	1Mbps	1	11	2462	18.34	30.00	3.60	21.94	36.00	Pass
11g	6Mbps	1	1	2412	19.35	30.00	3.60	22.95	36.00	Pass
11g	6Mbps	1	6	2437	19.31	30.00	3.60	22.91	36.00	Pass
11g	6Mbps	1	11	2462	19.22	30.00	3.60	22.82	36.00	Pass
HT20	MCS0	1	1	2412	19.87	30.00	3.60	23.47	36.00	Pass
HT20	MCS0	1	6	2437	19.79	30.00	3.60	23.39	36.00	Pass
HT20	MCS0	1	11	2462	19.67	30.00	3.60	23.27	36.00	Pass
HT40	MCS0	1	3	2422	18.73	30.00	3.60	22.33	36.00	Pass
HT40	MCS0	1	6	2437	18.28	30.00	3.60	21.88	36.00	Pass
HT40	MCS0	1	9	2452	18.16	30.00	3.60	21.76	36.00	Pass

TEST RESULTS DATA
Average Power Table
(Reporting Only)

2.4GHz Band						
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)
11b	1Mbps	1	1	2412	0.00	15.94
11b	1Mbps	1	6	2437	0.00	15.92
11b	1Mbps	1	11	2462	0.00	15.86
11g	6Mbps	1	1	2412	0.21	12.89
11g	6Mbps	1	6	2437	0.21	12.86
11g	6Mbps	1	11	2462	0.21	12.80
HT20	MCS0	1	1	2412	0.25	13.23
HT20	MCS0	1	6	2437	0.25	13.18
HT20	MCS0	1	11	2462	0.25	13.12
HT40	MCS0	1	3	2422	0.47	11.25
HT40	MCS0	1	6	2437	0.47	11.08
HT40	MCS0	1	9	2452	0.47	11.01

TEST RESULTS DATA
Peak Power Density

2.4GHz Band								
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak PSD (dBm /3kHz)	DG (dBi)	Peak PSD Limit (dBm /3kHz)	Pass/Fail
11b	1Mbps	1	1	2412	-9.15	3.60	8.00	Pass
11b	1Mbps	1	6	2437	-8.84	3.60	8.00	Pass
11b	1Mbps	1	11	2462	-9.41	3.60	8.00	Pass
11g	6Mbps	1	1	2412	-13.12	3.60	8.00	Pass
11g	6Mbps	1	6	2437	-13.29	3.60	8.00	Pass
11g	6Mbps	1	11	2462	-14.33	3.60	8.00	Pass
HT20	MCS0	1	1	2412	-13.20	3.60	8.00	Pass
HT20	MCS0	1	6	2437	-12.30	3.60	8.00	Pass
HT20	MCS0	1	11	2462	-12.72	3.60	8.00	Pass
HT40	MCS0	1	3	2422	-17.40	3.60	8.00	Pass
HT40	MCS0	1	6	2437	-17.05	3.60	8.00	Pass
HT40	MCS0	1	9	2452	-17.81	3.60	8.00	Pass



Appendix B. Radiated Spurious Emission

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2389.69	49.32	-24.68	74	50.68	25.4	4.76	31.52	200	99	P	H
		2389.95	39.14	-14.86	54	40.5	25.4	4.76	31.52	200	99	A	H
	*	2412	106.8	-	-	107.98	25.54	4.78	31.5	200	99	P	H
	*	2414	103.7	-	-	104.88	25.54	4.78	31.5	200	99	A	H
		2389.3	47.19	-26.81	74	48.55	25.4	4.76	31.52	224	224	P	V
		2389.95	36.91	-17.09	54	38.27	25.4	4.76	31.52	224	224	A	V
	*	2414	101.57	-	-	102.75	25.54	4.78	31.5	224	224	P	V
	*	2414	98.54	-	-	99.72	25.54	4.78	31.5	224	224	A	V
802.11b CH 06 2437MHz		2389.17	48.45	-25.55	74	49.81	25.4	4.76	31.52	211	104	P	H
		2389.95	38.54	-15.46	54	39.9	25.4	4.76	31.52	211	104	A	H
	*	2438	107.64	-	-	108.47	25.83	4.82	31.48	211	104	P	H
	*	2438	104.55	-	-	105.38	25.83	4.82	31.48	211	104	A	H
		2483.92	52.81	-21.19	74	53.3	26.11	4.86	31.46	211	104	P	H
		2483.51	42.12	-11.88	54	42.61	26.11	4.86	31.46	211	104	A	H
		2385.66	47.44	-26.56	74	48.8	25.4	4.76	31.52	142	277	P	V
		2389.95	36.35	-17.65	54	37.71	25.4	4.76	31.52	142	277	A	V
	*	2438	101.78	-	-	102.61	25.83	4.82	31.48	142	277	P	V
	*	2438	98.52	-	-	99.35	25.83	4.82	31.48	142	277	A	V
		2483.98	48.67	-25.33	74	49.16	26.11	4.86	31.46	142	277	P	V
		2483.51	37.6	-16.4	54	38.09	26.11	4.86	31.46	142	277	A	V



802.11b CH 11 2462MHz		2484.16	53.05	-20.95	74	53.54	26.11	4.86	31.46	208	99	P	H
		2483.5	42.63	-11.37	54	43.12	26.11	4.86	31.46	208	99	A	H
	*	2462	106.69	-	-	107.35	25.97	4.84	31.47	208	99	P	H
	*	2460	103.49	-	-	104.15	25.97	4.84	31.47	208	99	A	H
		2483.5	52.11	-21.89	74	52.6	26.11	4.86	31.46	300	75	P	V
		2483.5	41.04	-12.96	54	41.53	26.11	4.86	31.46	300	75	A	V
	*	2462	103.3	-	-	103.96	25.97	4.84	31.47	300	75	P	V
	*	2462	100.02	-	-	100.68	25.97	4.84	31.47	300	75	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11b (Harmonic @ 3m)

WIFI	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	41.73	-32.27	74	63.34	30.9	6.87	59.38	100	261	P	H
		4824	38.78	-35.22	74	60.39	30.9	6.87	59.38	200	360	P	V
802.11b CH 06 2437MHz		4872	40.65	-33.35	74	61.92	31.01	6.86	59.14	150	360	P	H
		7311	41.5	-32.5	74	56.24	35.34	8.47	58.55	150	360	P	H
		4872	42.32	-31.68	74	63.59	31.01	6.86	59.14	150	360	P	V
		7311	40.37	-33.63	74	55.11	35.34	8.47	58.55	150	360	P	V
802.11b CH 11 2462MHz		4926	41.21	-32.79	74	62.15	31.12	6.84	58.9	150	360	P	H
		7386	40.75	-33.25	74	55.69	35.55	8.49	58.98	150	360	P	H
		4926	43.73	-30.27	74	64.67	31.12	6.84	58.9	150	360	P	V
		7386	40.71	-33.29	74	55.65	35.55	8.49	58.98	150	360	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz
WIFI 802.11g (Band Edge @ 3m)

WIFI	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		2389.56	55.85	-18.15	74	57.21	25.4	4.76	31.52	101	15	P	H
		2389.95	43.55	-10.45	54	44.91	25.4	4.76	31.52	101	15	A	H
	*	2416	106.14	-	-	107.32	25.54	4.78	31.5	101	15	P	H
	*	2416	97.38	-	-	98.56	25.54	4.78	31.5	101	15	A	H
		2389.95	49.08	-24.92	74	50.44	25.4	4.76	31.52	100	88	P	V
		2389.95	38.13	-15.87	54	39.49	25.4	4.76	31.52	100	88	A	V
	*	2418	101.35	-	-	102.53	25.54	4.78	31.5	100	88	P	V
	*	2416	93.56	-	-	94.74	25.54	4.78	31.5	100	88	A	V
802.11g CH 06 2437MHz		2389.82	45.32	-28.68	74	46.68	25.4	4.76	31.52	293	98	P	H
		2389.95	35.86	-18.14	54	37.22	25.4	4.76	31.52	293	98	A	H
	*	2440	106.36	-	-	107.19	25.83	4.82	31.48	293	98	P	H
	*	2440	98.38	-	-	99.21	25.83	4.82	31.48	293	98	A	H
		2483.68	49.15	-24.85	74	49.64	26.11	4.86	31.46	293	98	P	H
		2483.51	39.7	-14.3	54	40.19	26.11	4.86	31.46	293	98	A	H
		2389.56	42.82	-31.18	74	44.18	25.4	4.76	31.52	126	271	P	V
		2389.82	32.72	-21.28	54	34.08	25.4	4.76	31.52	126	271	A	V
	*	2440	101.77	-	-	102.6	25.83	4.82	31.48	126	271	P	V
	*	2440	93.67	-	-	94.5	25.83	4.82	31.48	126	271	A	V
		2483.62	43.61	-30.39	74	44.1	26.11	4.86	31.46	126	271	P	V
		2483.56	33.81	-20.19	54	34.3	26.11	4.86	31.46	126	271	A	V



802.11g CH 11 2462MHz		2483.8	54.91	-19.09	74	55.4	26.11	4.86	31.46	220	119	P	H
		2483.56	44.7	-9.3	54	45.19	26.11	4.86	31.46	220	119	A	H
	*	2460	106.43	-	-	107.09	25.97	4.84	31.47	220	119	P	H
	*	2456	98.72	-	-	99.38	25.97	4.84	31.47	220	119	A	H
		2483.74	51.07	-22.93	74	51.56	26.11	4.86	31.46	121	77	P	V
		2483.8	40.92	-13.08	54	41.41	26.11	4.86	31.46	121	77	A	V
	*	2456	102.8	-	-	103.46	25.97	4.84	31.47	121	77	P	V
	*	2458	94.92	-	-	95.58	25.97	4.84	31.47	121	77	A	V
Remark	<ol style="list-style-type: none">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	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	42.22	-31.78	74	63.83	30.9	6.87	59.38	150	360	P	H
		4824	42.77	-31.23	74	64.38	30.9	6.87	59.38	150	360	P	V
802.11g CH 06 2437MHz		4872	38.06	-35.94	74	59.33	31.01	6.86	59.14	150	360	P	H
		7311	42.54	-31.46	74	57.28	35.34	8.47	58.55	150	360	P	H
		4872	37.61	-36.39	74	58.88	31.01	6.86	59.14	150	360	P	V
		7311	40.35	-33.65	74	55.09	35.34	8.47	58.55	150	360	P	V
802.11g CH 11 2462MHz		4926	37.1	-36.9	74	58.04	31.12	6.84	58.9	150	360	P	H
		7386	41.5	-32.5	74	56.44	35.55	8.49	58.98	150	360	P	H
		4924	36.59	-37.41	74	57.53	31.12	6.84	58.9	150	360	P	V
		7386	40.52	-33.48	74	55.46	35.55	8.49	58.98	150	360	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 01 2412MHz		2389.95	55.15	-18.85	74	56.51	25.4	4.76	31.52	106	127	P	H
		2389.95	43.74	-10.26	54	45.1	25.4	4.76	31.52	106	127	A	H
	*	2416	105.55	-	-	106.73	25.54	4.78	31.5	106	127	P	H
	*	2416	97.53	-	-	98.71	25.54	4.78	31.5	106	127	A	H
		2389.82	55.25	-18.75	74	56.61	25.4	4.76	31.52	258	168	P	V
		2389.95	44.49	-9.51	54	45.85	25.4	4.76	31.52	258	168	A	V
	*	2416	105.71	-	-	106.89	25.54	4.78	31.5	258	168	P	V
	*	2416	97.74	-	-	98.92	25.54	4.78	31.5	258	168	A	V
802.11n HT20 CH 06 2437MHz		2389.82	45.14	-28.86	74	46.5	25.4	4.76	31.52	114	130	P	H
		2389.82	36.3	-17.7	54	37.66	25.4	4.76	31.52	114	130	A	H
	*	2442	105.37	-	-	106.2	25.83	4.82	31.48	114	130	P	H
	*	2442	97.45	-	-	98.28	25.83	4.82	31.48	114	130	A	H
		2484.16	52.66	-21.34	74	53.15	26.11	4.86	31.46	114	130	P	H
		2483.51	43.1	-10.9	54	43.59	26.11	4.86	31.46	114	130	A	H
		2389.56	44.8	-29.2	74	46.16	25.4	4.76	31.52	135	126	P	V
		2389.82	33.66	-20.34	54	35.02	25.4	4.76	31.52	135	126	A	V
	*	2440	100.76	-	-	101.59	25.83	4.82	31.48	135	126	P	V
	*	2442	92.88	-	-	93.71	25.83	4.82	31.48	135	126	A	V
		2483.68	46.68	-27.32	74	47.17	26.11	4.86	31.46	135	126	P	V
		2483.51	37.07	-16.93	54	37.56	26.11	4.86	31.46	135	126	A	V



802.11n HT20 CH 11 2462MHz		2484.16	57.45	-16.55	74	57.94	26.11	4.86	31.46	100	126	P	H
		2483.5	47.26	-6.74	54	47.75	26.11	4.86	31.46	100	126	A	H
	*	2456	107.41	-	-	108.07	25.97	4.84	31.47	100	126	P	H
	*	2458	99.41	-	-	100.07	25.97	4.84	31.47	100	126	A	H
		2483.68	53.2	-20.8	74	53.69	26.11	4.86	31.46	249	178	P	V
		2483.56	43.09	-10.91	54	43.58	26.11	4.86	31.46	249	178	A	V
	*	2456	105	-	-	105.66	25.97	4.84	31.47	249	178	P	V
	*	2458	96.89	-	-	97.55	25.97	4.84	31.47	249	178	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz
WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI	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	40.94	-33.06	74	62.55	30.9	6.87	59.38	150	360	P	H
													V
		4824	37.65	-36.35	74	59.26	30.9	6.87	59.38	150	360	P	
802.11n HT20 CH 06 2437MHz		4872	40.14	-33.86	74	61.41	31.01	6.86	59.14	150	360	P	H
		7308	40.8	-33.2	74	55.54	35.34	8.47	58.55	150	360	P	H
		4872	37.85	-36.15	74	59.12	31.01	6.86	59.14	150	360	P	V
		7308	43.1	-30.9	74	57.84	35.34	8.47	58.55	150	360	P	V
802.11n HT20 CH 11 2462MHz		4920	40.18	-33.82	74	61.12	31.12	6.84	58.9	150	360	P	H
		7386	40.86	-33.14	74	55.8	35.55	8.49	58.98	150	360	P	H
		4926	35.37	-38.63	74	56.31	31.12	6.84	58.9	150	360	P	V
		7386	41.08	-32.92	74	56.02	35.55	8.49	58.98	150	360	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI	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		2389.82	61.23	-12.77	74	62.59	25.4	4.76	31.52	134	102	P	H
	!	2389.82	50.83	-3.17	54	52.19	25.4	4.76	31.52	134	102	A	H
	*	2416	104.4	-	-	105.58	25.54	4.78	31.5	134	102	P	H
	*	2416	96.47	-	-	97.65	25.54	4.78	31.5	134	102	A	H
		2483.98	62.04	-11.96	74	62.53	26.11	4.86	31.46	134	102	P	H
		2483.74	45.01	-8.99	54	45.5	26.11	4.86	31.46	134	102	A	H
		2388.91	55.48	-18.52	74	56.84	25.4	4.76	31.52	291	156	P	V
		2389.95	45.52	-8.48	54	46.88	25.4	4.76	31.52	291	156	A	V
	*	2420	100.14	-	-	101.14	25.69	4.8	31.49	291	156	P	V
	*	2418	92.31	-	-	93.49	25.54	4.78	31.5	291	156	A	V
		2483.98	55.89	-18.11	74	56.38	26.11	4.86	31.46	291	156	P	V
		2483.74	39.13	-14.87	54	39.62	26.11	4.86	31.46	291	156	A	V
802.11n HT40 CH 06 2437MHz		2389.43	57.25	-16.75	74	58.61	25.4	4.76	31.52	131	101	P	H
		2389.82	42.87	-11.13	54	44.23	25.4	4.76	31.52	131	101	A	H
	*	2450	104.84	-	-	105.67	25.83	4.82	31.48	131	101	P	H
	*	2450	97.18	-	-	98.01	25.83	4.82	31.48	131	101	A	H
		2483.5	62.78	-11.22	74	63.27	26.11	4.86	31.46	131	101	P	H
		2483.56	47.26	-6.74	54	47.75	26.11	4.86	31.46	131	101	A	H
		2389.69	51.24	-22.76	74	52.6	25.4	4.76	31.52	286	156	P	V
		2389.95	38.17	-15.83	54	39.53	25.4	4.76	31.52	286	156	A	V
	*	2450	100.79	-	-	101.62	25.83	4.82	31.48	286	156	P	V
	*	2450	93.08	-	-	93.91	25.83	4.82	31.48	286	156	A	V
		2483.8	56.06	-17.94	74	56.55	26.11	4.86	31.46	286	156	P	V
		2483.5	41.51	-12.49	54	42	26.11	4.86	31.46	286	156	A	V



802.11n HT40 CH 09 2452MHz		2389.43	56.09	-17.91	74	57.45	25.4	4.76	31.52	133	101	P	H
		2389.69	39.26	-14.74	54	40.62	25.4	4.76	31.52	133	101	A	H
	*	2450	104.91	-	-	105.74	25.83	4.82	31.48	133	101	P	H
	*	2450	97.06	-	-	97.89	25.83	4.82	31.48	133	101	A	H
		2485.12	66.47	-7.53	74	66.96	26.11	4.86	31.46	133	101	P	H
	!	2484.52	50.99	-3.01	54	51.48	26.11	4.86	31.46	133	101	A	H
		2389.43	50.79	-23.21	74	52.15	25.4	4.76	31.52	289	158	P	V
		2389.56	36.13	-17.87	54	37.49	25.4	4.76	31.52	289	158	A	V
	*	2450	100.81	-	-	101.64	25.83	4.82	31.48	289	158	P	V
	*	2450	92.94	-	-	93.77	25.83	4.82	31.48	289	158	A	V
		2483.62	59.66	-14.34	74	60.15	26.11	4.86	31.46	289	158	P	V
		2483.8	45.04	-8.96	54	45.53	26.11	4.86	31.46	289	158	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	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	38.35	-35.65	74	59.85	30.93	6.87	59.3	100	360	P	H
		7266	41.52	-32.48	74	56.18	35.26	8.46	58.38	100	360	P	H
		4842	38.36	-35.64	74	59.86	30.93	6.87	59.3	100	360	P	V
		7266	40.37	-33.63	74	55.03	35.26	8.46	58.38	100	360	P	V
802.11n HT40 CH 06 2437MHz		4872	36.89	-37.11	74	58.16	31.01	6.86	59.14	150	360	P	H
		7308	40.78	-33.22	74	55.52	35.34	8.47	58.55	150	360	P	H
		4872	36.09	-37.91	74	57.36	31.01	6.86	59.14	150	360	P	V
		7308	41.75	-32.25	74	56.49	35.34	8.47	58.55	150	360	P	V
802.11n HT40 CH 09 2452MHz		4902	37.22	-36.78	74	58.27	31.08	6.85	58.98	100	360	P	H
		7356	40.73	-33.27	74	55.58	35.47	8.49	58.81	100	360	P	H
		4902	36.17	-37.83	74	57.22	31.08	6.85	58.98	100	360	P	V
		7356	41.04	-32.96	74	55.89	35.47	8.49	58.81	100	360	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

Emission below 1GHz

2.4GHz WIFI 802.11n HT40 (LF)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz 802.11n HT40 LF		30	20.58	-19.42	40	28.63	21.8	0.65	30.5	-	-	P	H
		89.17	18.51	-24.99	43.5	35.64	11.52	1.01	29.66	-	-	P	H
		419.94	21.81	-24.19	46	29.81	16.92	2.16	27.08	-	-	P	H
		662.44	26.31	-19.69	46	28.91	20.9	2.67	26.17	-	-	P	H
		777.87	29.14	-16.86	46	29.72	22.16	2.91	25.65	-	-	P	H
		943.74	39.41	-6.59	46	36.44	24.91	3.21	25.15	100	324	P	H
		30	21.88	-18.12	40	29.93	21.8	0.65	30.5	-	-	P	V
		89.17	19.51	-23.99	43.5	36.64	11.52	1.01	29.66	-	-	P	V
		495.6	24.49	-21.51	46	29.85	19.06	2.35	26.77	-	-	P	V
		617.82	25.44	-20.56	46	28.92	20.22	2.61	26.31	-	-	P	V
		890.39	31.34	-14.66	46	30.03	23.4	3.17	25.26	-	-	P	V
		942.77	35.92	-10.08	46	32.98	24.88	3.21	25.15	100	214	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												



Note symbol

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



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

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Level(dBμV/m) =

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

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

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)

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

= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)

= 55.45 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m) – 74(dBμV/m)

= -18.55(dB)

For Average Limit @ 2390MHz:

1. Level(dBμV/m)

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

= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)

= 43.54 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 43.54(dBμV/m) – 54(dBμV/m)

= -10.46(dB)

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



Appendix B. Radiated Spurious Emission

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2389.69	49.32	-24.68	74	50.68	25.4	4.76	31.52	200	99	P	H
		2389.95	39.14	-14.86	54	40.5	25.4	4.76	31.52	200	99	A	H
	*	2412	106.8	-	-	107.98	25.54	4.78	31.5	200	99	P	H
	*	2414	103.7	-	-	104.88	25.54	4.78	31.5	200	99	A	H
		2389.3	47.19	-26.81	74	48.55	25.4	4.76	31.52	224	224	P	V
		2389.95	36.91	-17.09	54	38.27	25.4	4.76	31.52	224	224	A	V
	*	2414	101.57	-	-	102.75	25.54	4.78	31.5	224	224	P	V
	*	2414	98.54	-	-	99.72	25.54	4.78	31.5	224	224	A	V
802.11b CH 06 2437MHz		2389.17	48.45	-25.55	74	49.81	25.4	4.76	31.52	211	104	P	H
		2389.95	38.54	-15.46	54	39.9	25.4	4.76	31.52	211	104	A	H
	*	2438	107.64	-	-	108.47	25.83	4.82	31.48	211	104	P	H
	*	2438	104.55	-	-	105.38	25.83	4.82	31.48	211	104	A	H
		2483.92	52.81	-21.19	74	53.3	26.11	4.86	31.46	211	104	P	H
		2483.51	42.12	-11.88	54	42.61	26.11	4.86	31.46	211	104	A	H
		2385.66	47.44	-26.56	74	48.8	25.4	4.76	31.52	142	277	P	V
		2389.95	36.35	-17.65	54	37.71	25.4	4.76	31.52	142	277	A	V
	*	2438	101.78	-	-	102.61	25.83	4.82	31.48	142	277	P	V
	*	2438	98.52	-	-	99.35	25.83	4.82	31.48	142	277	A	V
		2483.98	48.67	-25.33	74	49.16	26.11	4.86	31.46	142	277	P	V
		2483.51	37.6	-16.4	54	38.09	26.11	4.86	31.46	142	277	A	V



802.11b CH 11 2462MHz		2484.16	53.05	-20.95	74	53.54	26.11	4.86	31.46	208	99	P	H
		2483.5	42.63	-11.37	54	43.12	26.11	4.86	31.46	208	99	A	H
	*	2462	106.69	-	-	107.35	25.97	4.84	31.47	208	99	P	H
	*	2460	103.49	-	-	104.15	25.97	4.84	31.47	208	99	A	H
		2483.5	52.11	-21.89	74	52.6	26.11	4.86	31.46	300	75	P	V
		2483.5	41.04	-12.96	54	41.53	26.11	4.86	31.46	300	75	A	V
	*	2462	103.3	-	-	103.96	25.97	4.84	31.47	300	75	P	V
	*	2462	100.02	-	-	100.68	25.97	4.84	31.47	300	75	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11b (Harmonic @ 3m)

WIFI	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	41.73	-32.27	74	63.34	30.9	6.87	59.38	100	261	P	H
		4824	38.78	-35.22	74	60.39	30.9	6.87	59.38	200	360	P	V
802.11b CH 06 2437MHz		4872	40.65	-33.35	74	61.92	31.01	6.86	59.14	150	360	P	H
		7311	41.5	-32.5	74	56.24	35.34	8.47	58.55	150	360	P	H
		4872	42.32	-31.68	74	63.59	31.01	6.86	59.14	150	360	P	V
		7311	40.37	-33.63	74	55.11	35.34	8.47	58.55	150	360	P	V
802.11b CH 11 2462MHz		4926	41.21	-32.79	74	62.15	31.12	6.84	58.9	150	360	P	H
		7386	40.75	-33.25	74	55.69	35.55	8.49	58.98	150	360	P	H
		4926	43.73	-30.27	74	64.67	31.12	6.84	58.9	150	360	P	V
		7386	40.71	-33.29	74	55.65	35.55	8.49	58.98	150	360	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz
WIFI 802.11g (Band Edge @ 3m)

WIFI	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		2389.56	55.85	-18.15	74	57.21	25.4	4.76	31.52	101	15	P	H
		2389.95	43.55	-10.45	54	44.91	25.4	4.76	31.52	101	15	A	H
	*	2416	106.14	-	-	107.32	25.54	4.78	31.5	101	15	P	H
	*	2416	97.38	-	-	98.56	25.54	4.78	31.5	101	15	A	H
		2389.95	49.08	-24.92	74	50.44	25.4	4.76	31.52	100	88	P	V
		2389.95	38.13	-15.87	54	39.49	25.4	4.76	31.52	100	88	A	V
	*	2418	101.35	-	-	102.53	25.54	4.78	31.5	100	88	P	V
	*	2416	93.56	-	-	94.74	25.54	4.78	31.5	100	88	A	V
802.11g CH 06 2437MHz		2389.82	45.32	-28.68	74	46.68	25.4	4.76	31.52	293	98	P	H
		2389.95	35.86	-18.14	54	37.22	25.4	4.76	31.52	293	98	A	H
	*	2440	106.36	-	-	107.19	25.83	4.82	31.48	293	98	P	H
	*	2440	98.38	-	-	99.21	25.83	4.82	31.48	293	98	A	H
		2483.68	49.15	-24.85	74	49.64	26.11	4.86	31.46	293	98	P	H
		2483.51	39.7	-14.3	54	40.19	26.11	4.86	31.46	293	98	A	H
		2389.56	42.82	-31.18	74	44.18	25.4	4.76	31.52	126	271	P	V
		2389.82	32.72	-21.28	54	34.08	25.4	4.76	31.52	126	271	A	V
	*	2440	101.77	-	-	102.6	25.83	4.82	31.48	126	271	P	V
	*	2440	93.67	-	-	94.5	25.83	4.82	31.48	126	271	A	V
		2483.62	43.61	-30.39	74	44.1	26.11	4.86	31.46	126	271	P	V
		2483.56	33.81	-20.19	54	34.3	26.11	4.86	31.46	126	271	A	V



802.11g CH 11 2462MHz		2483.8	54.91	-19.09	74	55.4	26.11	4.86	31.46	220	119	P	H
		2483.56	44.7	-9.3	54	45.19	26.11	4.86	31.46	220	119	A	H
	*	2460	106.43	-	-	107.09	25.97	4.84	31.47	220	119	P	H
	*	2456	98.72	-	-	99.38	25.97	4.84	31.47	220	119	A	H
		2483.74	51.07	-22.93	74	51.56	26.11	4.86	31.46	121	77	P	V
		2483.8	40.92	-13.08	54	41.41	26.11	4.86	31.46	121	77	A	V
	*	2456	102.8	-	-	103.46	25.97	4.84	31.47	121	77	P	V
	*	2458	94.92	-	-	95.58	25.97	4.84	31.47	121	77	A	V
Remark	<ol style="list-style-type: none">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	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	42.22	-31.78	74	63.83	30.9	6.87	59.38	150	360	P	H
		4824	42.77	-31.23	74	64.38	30.9	6.87	59.38	150	360	P	V
802.11g CH 06 2437MHz		4872	38.06	-35.94	74	59.33	31.01	6.86	59.14	150	360	P	H
		7311	42.54	-31.46	74	57.28	35.34	8.47	58.55	150	360	P	H
		4872	37.61	-36.39	74	58.88	31.01	6.86	59.14	150	360	P	V
		7311	40.35	-33.65	74	55.09	35.34	8.47	58.55	150	360	P	V
802.11g CH 11 2462MHz		4926	37.1	-36.9	74	58.04	31.12	6.84	58.9	150	360	P	H
		7386	41.5	-32.5	74	56.44	35.55	8.49	58.98	150	360	P	H
		4924	36.59	-37.41	74	57.53	31.12	6.84	58.9	150	360	P	V
		7386	40.52	-33.48	74	55.46	35.55	8.49	58.98	150	360	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 01 2412MHz		2389.95	55.15	-18.85	74	56.51	25.4	4.76	31.52	106	127	P	H
		2389.95	43.74	-10.26	54	45.1	25.4	4.76	31.52	106	127	A	H
	*	2416	105.55	-	-	106.73	25.54	4.78	31.5	106	127	P	H
	*	2416	97.53	-	-	98.71	25.54	4.78	31.5	106	127	A	H
		2389.82	55.25	-18.75	74	56.61	25.4	4.76	31.52	258	168	P	V
		2389.95	44.49	-9.51	54	45.85	25.4	4.76	31.52	258	168	A	V
	*	2416	105.71	-	-	106.89	25.54	4.78	31.5	258	168	P	V
	*	2416	97.74	-	-	98.92	25.54	4.78	31.5	258	168	A	V
802.11n HT20 CH 06 2437MHz		2389.82	45.14	-28.86	74	46.5	25.4	4.76	31.52	114	130	P	H
		2389.82	36.3	-17.7	54	37.66	25.4	4.76	31.52	114	130	A	H
	*	2442	105.37	-	-	106.2	25.83	4.82	31.48	114	130	P	H
	*	2442	97.45	-	-	98.28	25.83	4.82	31.48	114	130	A	H
		2484.16	52.66	-21.34	74	53.15	26.11	4.86	31.46	114	130	P	H
		2483.51	43.1	-10.9	54	43.59	26.11	4.86	31.46	114	130	A	H
		2389.56	44.8	-29.2	74	46.16	25.4	4.76	31.52	135	126	P	V
		2389.82	33.66	-20.34	54	35.02	25.4	4.76	31.52	135	126	A	V
	*	2440	100.76	-	-	101.59	25.83	4.82	31.48	135	126	P	V
	*	2442	92.88	-	-	93.71	25.83	4.82	31.48	135	126	A	V
		2483.68	46.68	-27.32	74	47.17	26.11	4.86	31.46	135	126	P	V
		2483.51	37.07	-16.93	54	37.56	26.11	4.86	31.46	135	126	A	V



802.11n HT20 CH 11 2462MHz		2484.16	57.45	-16.55	74	57.94	26.11	4.86	31.46	100	126	P	H
		2483.5	47.26	-6.74	54	47.75	26.11	4.86	31.46	100	126	A	H
	*	2456	107.41	-	-	108.07	25.97	4.84	31.47	100	126	P	H
	*	2458	99.41	-	-	100.07	25.97	4.84	31.47	100	126	A	H
		2483.68	53.2	-20.8	74	53.69	26.11	4.86	31.46	249	178	P	V
		2483.56	43.09	-10.91	54	43.58	26.11	4.86	31.46	249	178	A	V
	*	2456	105	-	-	105.66	25.97	4.84	31.47	249	178	P	V
	*	2458	96.89	-	-	97.55	25.97	4.84	31.47	249	178	A	V
Remark	<ol style="list-style-type: none">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	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	40.94	-33.06	74	62.55	30.9	6.87	59.38	150	360	P	H
													V
		4824	37.65	-36.35	74	59.26	30.9	6.87	59.38	150	360	P	
802.11n HT20 CH 06 2437MHz		4872	40.14	-33.86	74	61.41	31.01	6.86	59.14	150	360	P	H
		7308	40.8	-33.2	74	55.54	35.34	8.47	58.55	150	360	P	H
		4872	37.85	-36.15	74	59.12	31.01	6.86	59.14	150	360	P	V
		7308	43.1	-30.9	74	57.84	35.34	8.47	58.55	150	360	P	V
802.11n HT20 CH 11 2462MHz		4920	40.18	-33.82	74	61.12	31.12	6.84	58.9	150	360	P	H
		7386	40.86	-33.14	74	55.8	35.55	8.49	58.98	150	360	P	H
		4926	35.37	-38.63	74	56.31	31.12	6.84	58.9	150	360	P	V
		7386	41.08	-32.92	74	56.02	35.55	8.49	58.98	150	360	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI	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		2389.82	61.23	-12.77	74	62.59	25.4	4.76	31.52	134	102	P	H
	!	2389.82	50.83	-3.17	54	52.19	25.4	4.76	31.52	134	102	A	H
	*	2416	104.4	-	-	105.58	25.54	4.78	31.5	134	102	P	H
	*	2416	96.47	-	-	97.65	25.54	4.78	31.5	134	102	A	H
		2483.98	62.04	-11.96	74	62.53	26.11	4.86	31.46	134	102	P	H
		2483.74	45.01	-8.99	54	45.5	26.11	4.86	31.46	134	102	A	H
		2388.91	55.48	-18.52	74	56.84	25.4	4.76	31.52	291	156	P	V
		2389.95	45.52	-8.48	54	46.88	25.4	4.76	31.52	291	156	A	V
	*	2420	100.14	-	-	101.14	25.69	4.8	31.49	291	156	P	V
	*	2418	92.31	-	-	93.49	25.54	4.78	31.5	291	156	A	V
		2483.98	55.89	-18.11	74	56.38	26.11	4.86	31.46	291	156	P	V
		2483.74	39.13	-14.87	54	39.62	26.11	4.86	31.46	291	156	A	V
802.11n HT40 CH 06 2437MHz		2389.43	57.25	-16.75	74	58.61	25.4	4.76	31.52	131	101	P	H
		2389.82	42.87	-11.13	54	44.23	25.4	4.76	31.52	131	101	A	H
	*	2450	104.84	-	-	105.67	25.83	4.82	31.48	131	101	P	H
	*	2450	97.18	-	-	98.01	25.83	4.82	31.48	131	101	A	H
		2483.5	62.78	-11.22	74	63.27	26.11	4.86	31.46	131	101	P	H
		2483.56	47.26	-6.74	54	47.75	26.11	4.86	31.46	131	101	A	H
		2389.69	51.24	-22.76	74	52.6	25.4	4.76	31.52	286	156	P	V
		2389.95	38.17	-15.83	54	39.53	25.4	4.76	31.52	286	156	A	V
	*	2450	100.79	-	-	101.62	25.83	4.82	31.48	286	156	P	V
	*	2450	93.08	-	-	93.91	25.83	4.82	31.48	286	156	A	V
		2483.8	56.06	-17.94	74	56.55	26.11	4.86	31.46	286	156	P	V
		2483.5	41.51	-12.49	54	42	26.11	4.86	31.46	286	156	A	V



802.11n HT40 CH 09 2452MHz		2389.43	56.09	-17.91	74	57.45	25.4	4.76	31.52	133	101	P	H
		2389.69	39.26	-14.74	54	40.62	25.4	4.76	31.52	133	101	A	H
	*	2450	104.91	-	-	105.74	25.83	4.82	31.48	133	101	P	H
	*	2450	97.06	-	-	97.89	25.83	4.82	31.48	133	101	A	H
		2485.12	66.47	-7.53	74	66.96	26.11	4.86	31.46	133	101	P	H
	!	2484.52	50.99	-3.01	54	51.48	26.11	4.86	31.46	133	101	A	H
		2389.43	50.79	-23.21	74	52.15	25.4	4.76	31.52	289	158	P	V
		2389.56	36.13	-17.87	54	37.49	25.4	4.76	31.52	289	158	A	V
	*	2450	100.81	-	-	101.64	25.83	4.82	31.48	289	158	P	V
	*	2450	92.94	-	-	93.77	25.83	4.82	31.48	289	158	A	V
		2483.62	59.66	-14.34	74	60.15	26.11	4.86	31.46	289	158	P	V
		2483.8	45.04	-8.96	54	45.53	26.11	4.86	31.46	289	158	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	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	38.35	-35.65	74	59.85	30.93	6.87	59.3	100	360	P	H
		7266	41.52	-32.48	74	56.18	35.26	8.46	58.38	100	360	P	H
		4842	38.36	-35.64	74	59.86	30.93	6.87	59.3	100	360	P	V
		7266	40.37	-33.63	74	55.03	35.26	8.46	58.38	100	360	P	V
802.11n HT40 CH 06 2437MHz		4872	36.89	-37.11	74	58.16	31.01	6.86	59.14	150	360	P	H
		7308	40.78	-33.22	74	55.52	35.34	8.47	58.55	150	360	P	H
		4872	36.09	-37.91	74	57.36	31.01	6.86	59.14	150	360	P	V
		7308	41.75	-32.25	74	56.49	35.34	8.47	58.55	150	360	P	V
802.11n HT40 CH 09 2452MHz		4902	37.22	-36.78	74	58.27	31.08	6.85	58.98	100	360	P	H
		7356	40.73	-33.27	74	55.58	35.47	8.49	58.81	100	360	P	H
		4902	36.17	-37.83	74	57.22	31.08	6.85	58.98	100	360	P	V
		7356	41.04	-32.96	74	55.89	35.47	8.49	58.81	100	360	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

Emission below 1GHz

2.4GHz WIFI 802.11n HT40 (LF)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz 802.11n HT40 LF		30	20.58	-19.42	40	28.63	21.8	0.65	30.5	-	-	P	H
		89.17	18.51	-24.99	43.5	35.64	11.52	1.01	29.66	-	-	P	H
		419.94	21.81	-24.19	46	29.81	16.92	2.16	27.08	-	-	P	H
		662.44	26.31	-19.69	46	28.91	20.9	2.67	26.17	-	-	P	H
		777.87	29.14	-16.86	46	29.72	22.16	2.91	25.65	-	-	P	H
		943.74	39.41	-6.59	46	36.44	24.91	3.21	25.15	100	324	P	H
		30	21.88	-18.12	40	29.93	21.8	0.65	30.5	-	-	P	V
		89.17	19.51	-23.99	43.5	36.64	11.52	1.01	29.66	-	-	P	V
		495.6	24.49	-21.51	46	29.85	19.06	2.35	26.77	-	-	P	V
		617.82	25.44	-20.56	46	28.92	20.22	2.61	26.31	-	-	P	V
		890.39	31.34	-14.66	46	30.03	23.4	3.17	25.26	-	-	P	V
		942.77	35.92	-10.08	46	32.98	24.88	3.21	25.15	100	214	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												



Note symbol

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



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

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Level(dBμV/m) =

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

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

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)

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

= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)

= 55.45 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m) – 74(dBμV/m)

= -18.55(dB)

For Average Limit @ 2390MHz:

1. Level(dBμV/m)

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

= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)

= 43.54 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 43.54(dBμV/m) – 54(dBμV/m)

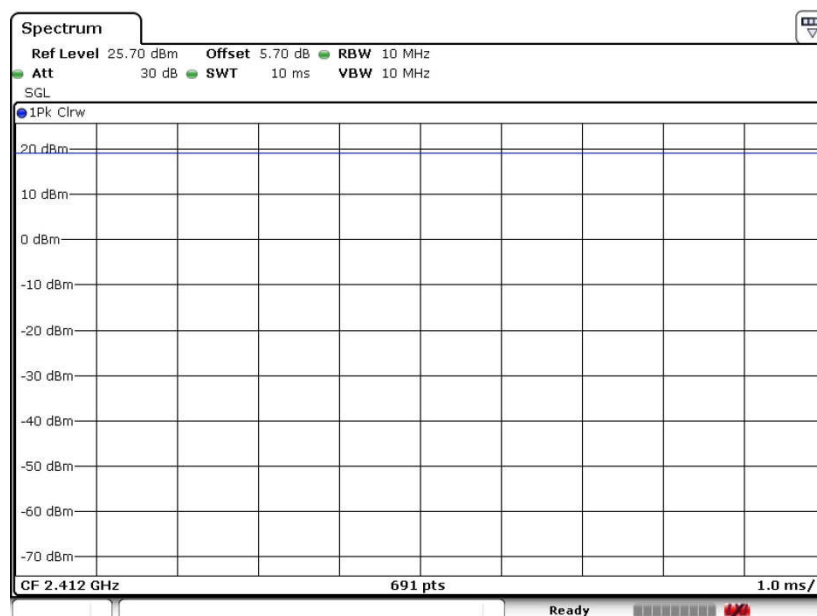
= -10.46(dB)

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

Appendix C. Duty Cycle Plots

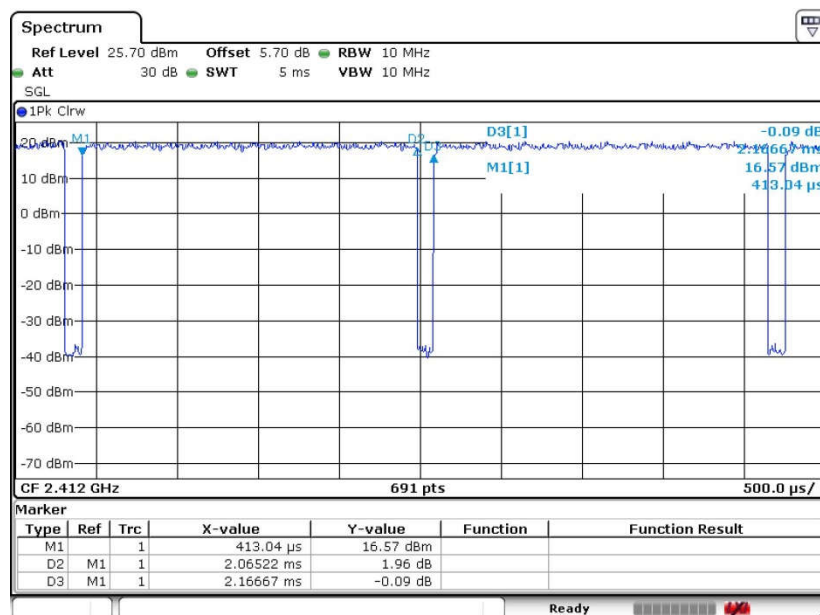
Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
802.11b	100	-	-	10Hz
802.11g	95.32	2.065	0.484	1kHz
802.11n HT20	94.33	1.928	0.519	1kHz
802.11n HT40	89.73	0.949	1.053	3kHz

802.11b

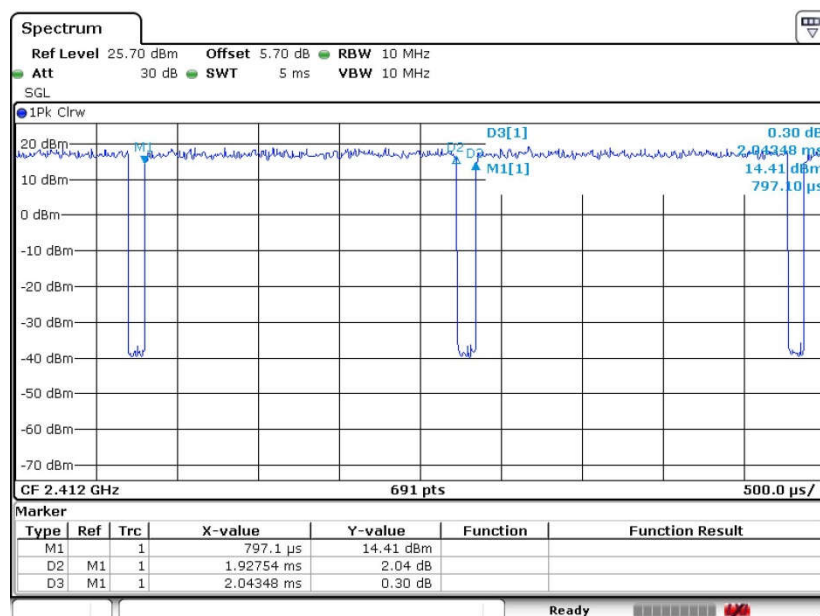




802.11g



802.11n HT20





802.11n HT40

