



FCC RF Test Report

APPLICANT : ZTE CORPORATION
EQUIPMENT : LTE Ufi
BRAND NAME : ZTE
MODEL NAME : MF920VS
FCC ID : SRQ-MF920VS
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : (DTS) Digital Transmission System

The product was received on Dec. 19, 2016 and testing was completed on Jan. 24, 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.

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FCC ID : SRQ-MF920VS

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SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	6dB Bandwidth	$\geq 0.5\text{MHz}$	Pass	-
3.2	15.247(b)	Power Output Measurement	$\leq 30\text{dBm}$	Pass	-
3.3	15.247(e)	Power Spectral Density	$\leq 8\text{dBm}/3\text{kHz}$	Pass	-
3.4	15.247(d)	Conducted Band Edges	$\leq 20\text{dBc}$	Pass	-
		Conducted Spurious Emission		Pass	-
3.5	15.247(d)	Radiated Band Edges and Radiated Spurious Emission	15.209(a) & 15.247(d)	Pass	Under limit 3.33 dB at 62.010 MHz
3.6	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 9.82 dB at 0.469 MHz
3.7	15.203 & 15.247(b)	Antenna Requirement	N/A	Pass	-



1 General Description

1.1 Applicant

ZTE CORPORATION

ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China

1.2 Manufacturer

ZTE CORPORATION

ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	LTE Ufi
Brand Name	ZTE
Model Name	MF920VS
FCC ID	SRQ-MF920VS
EUT supports Radios application	LTE WLAN2.4GHz 802.11b/g/n HT20/HT40
MEID Code	Conducted: 99000883002010 Radiated: 99000883002013 Condatation: 99000883002007
HW Version	MF920VSHW1.0
SW Version	MF920VSV1.0B01
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

Standards-related Product Specification			
Tx/Rx Channel Frequency Range	2412 MHz ~ 2462 MHz		
Maximum (Peak) Output Power to antenna	<Chain Port 1> 802.11b : 17.34 dBm (0.0542 W) 802.11g : 22.91 dBm (0.1954 W) 802.11n HT20 : 21.41 dBm (0.1384 W) 802.11n HT40 : 22.44 dBm (0.1754 W) <Chain Port 2> 802.11b : 18.28 dBm (0.0673 W) 802.11g : 24.33 dBm (0.2710 W) 802.11n HT20 : 22.98 dBm (0.1986 W) 802.11n HT40 : 23.96 dBm (0.2489 W) MIMO <Chain Port 1 + 2> 802.11n HT20 : 24.09 dBm (0.2564 W) 802.11n HT40 : 25.32 dBm (0.3404 W)		
Antenna Type / Gain	<Chain Port 1> PIFA Antenna with gain 1.50 dBi <Chain Port 2> PIFA Antenna with gain 1.50 dBi		
Type of Modulation	802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)		
Antenna Function for Transmitter		Chain Port 1	Chain Port 2
	802.11 b/g/n SISO	V	V
	802.11 n MIMO	V	V

Note: MIMO Chain Port 1+2 is a calculated result from sum of the power MIMO Chain Port 1 and MIMO Chain Port 2.

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, Jiangsu Province, P. R. China TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958			
Test Site No.	Sporton Site No.			FCC Registration No.
	TH01-KS	03CH03-KS	CO01-KS	306251

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

1.7 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart C §15.247
- FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r05
- 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/Z plane) were recorded in this report.

2.1 Carrier Frequency and Channel

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



2.2 Test Mode

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

Single Antenna

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

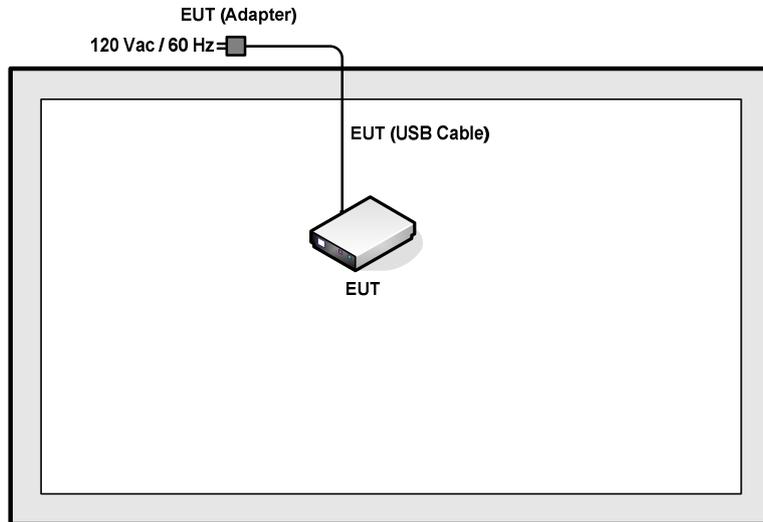
MIMO Antenna

Modulation	Data Rate
802.11n HT20	MCS0
802.11n HT40	MCS0

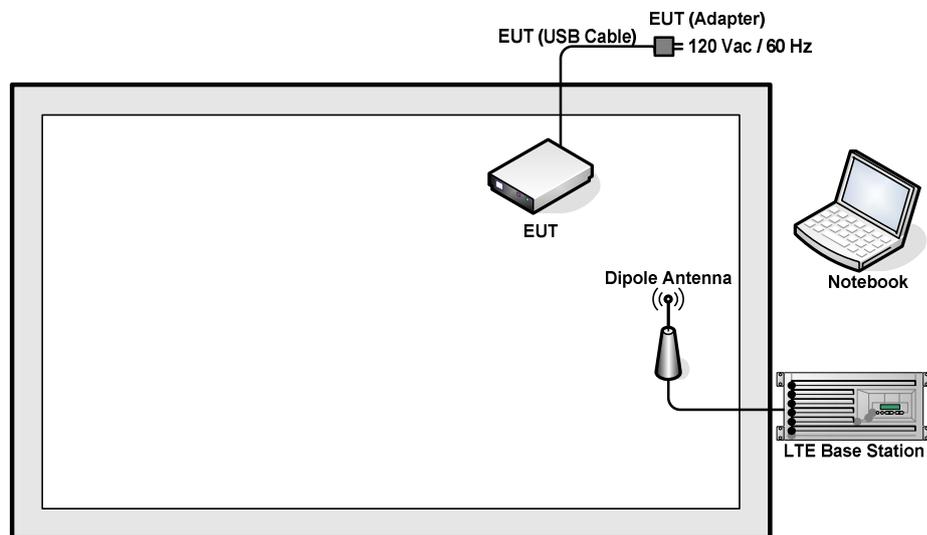
Test Cases	
AC Conducted Emission	Mode 1 : LTE Band 2 Idle + WLAN Link + USB Cable (Charging from Adapter 1) Mode 2 : LTE Band 2 Idle + WLAN Link + USB Cable (Charging from Adapter 2)
Remark: The worst case of conducted emission is mode 1; only the test data of it was reported.	

2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>





2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	LTE Base Station	Anritus	MT8820C	N/A	N/A	Unshielded, 1.8 m
2.	Notebook	Lenovo	G480	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m

2.5 EUT Operation Test Setup

For WLAN RF test items, an engineering test program was provided and enabled to make EUT continuous transmit/receive.

For AC power line conducted emissions, the EUT was set to connect with the WLAN AP under large package sizes transmission.



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 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 RF cable loss.

Offset = RF cable loss.

Following shows an offset computation example with cable loss 5.8 dB.

$$\begin{aligned} \text{Offset(dB)} &= \text{RF cable loss(dB)}. \\ &= 5.8 \text{ (dB)} \end{aligned}$$

3 Test Result

3.1 6dB Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

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

3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 DTS D01 Meas. Guidance v03r05.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 kHz.
5. Measure and record the results in the test report.

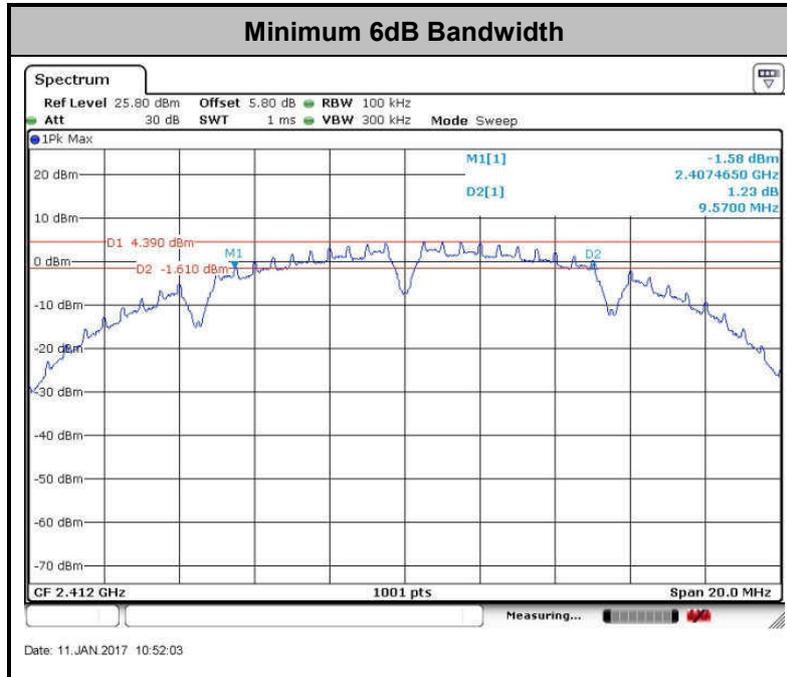
3.1.4 Test Setup





3.1.5 Test Result of 6dB Bandwidth

Please refer to Appendix A.



3.2 Peak Output Power Measurement

3.2.1 Limit of Peak Output Power

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

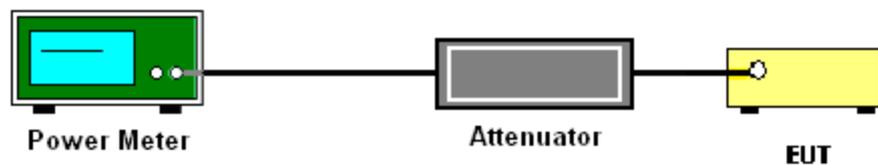
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

1. The testing follows the Measurement Procedure of FCC KDB No. 558074 DTS D01 Meas. Guidance v03r05 section 9.1.2 PKPM1 Peak power meter method.
2. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Measure the conducted output power and record the results in the test report.
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 Peak Output Power

Please refer to Appendix A.

3.2.6 Test Result of Average output Power (Reporting Only)

Please refer to Appendix A



3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

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

3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

1. The testing follows Measurement Procedure 10.2 Method PKPSD of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r05.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyser'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.
7. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

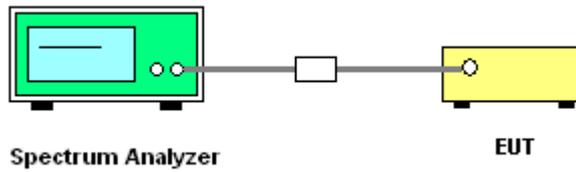
If measurements performed using method (2) plus $10 \log(N)$ exceeds the emission limit, the test should choose method (1) before declaring that the device fails the emission limit.

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.

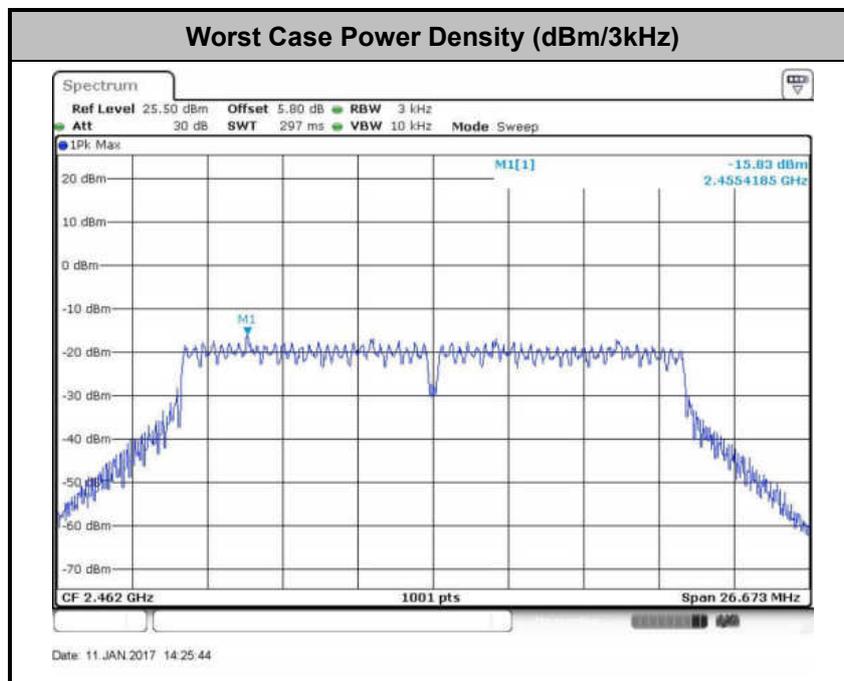
Method (2): Measure and add $10 \log(N)$ dB, where N is the number of outputs. (N=2)

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.



3.4 Conducted Band Edges and Spurious Emission Measurement

3.4.1 Limit of Conducted Band Edges and Spurious Emission Measurement

In any 100 kHz bandwidth outside of the authorized frequency band, the emissions which fall in the non-restricted bands shall be attenuated at least 20 dB / 30dB relative to the maximum PSD level in 100 kHz by RF conducted measurement and radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

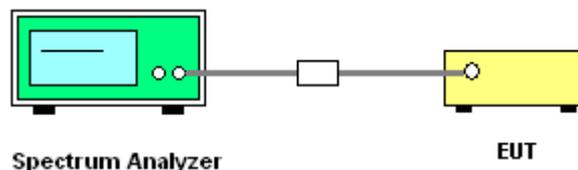
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r05.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d).
5. Measure and record the results in the test report.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

3.4.4 Test Setup

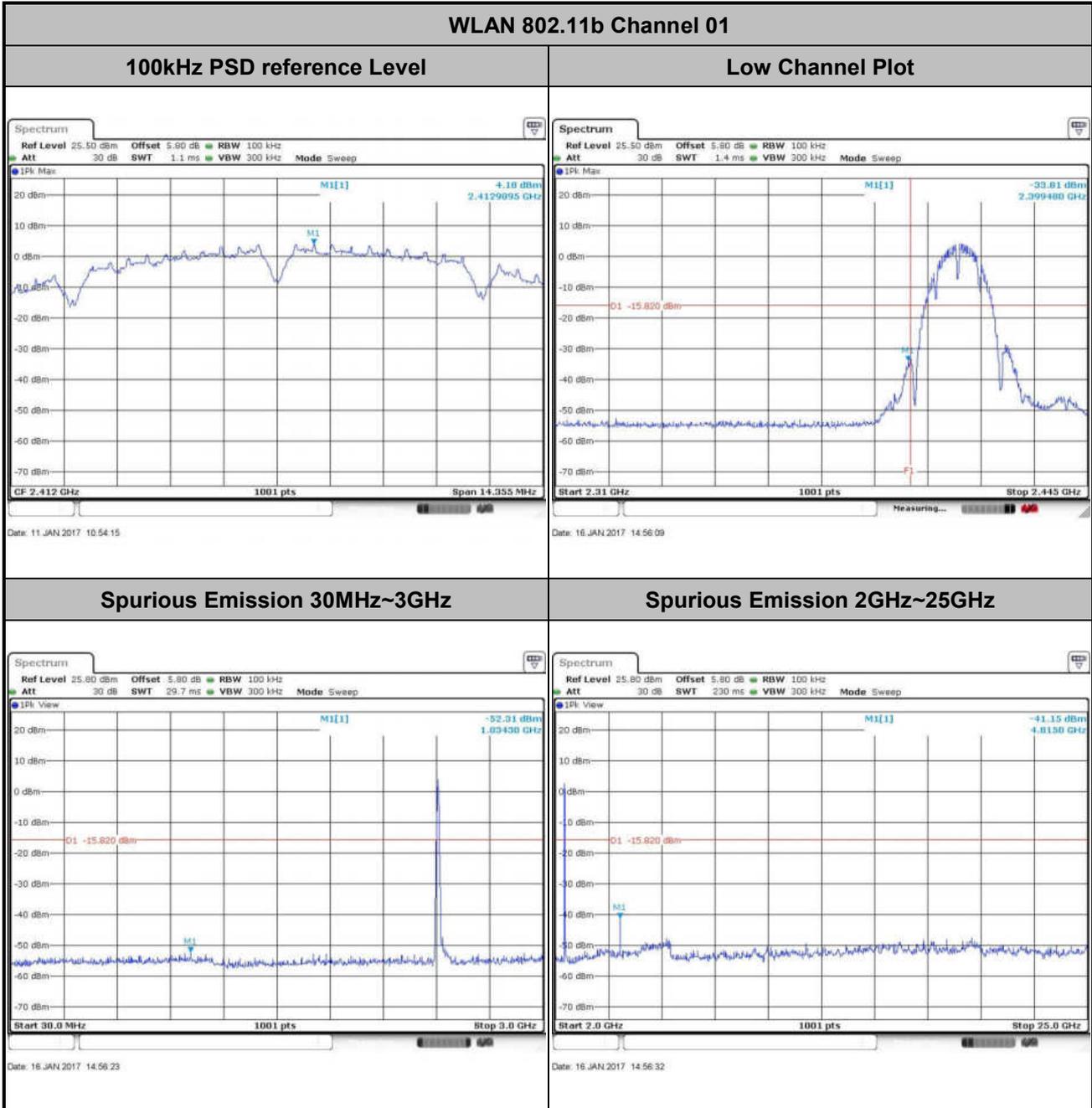




3.4.5 Test Result of Conducted Band Edges and Spurious Emission

Number of TX = 1, Chain Port 2 (Measured)

Number of TX	1	Chain Port :	2
Test Mode :	802.11b	Temperature :	21~25°C
Test Band :	2.4GHz Low	Relative Humidity :	51~55%
Test Channel :	01	Test Engineer :	Silent Hai

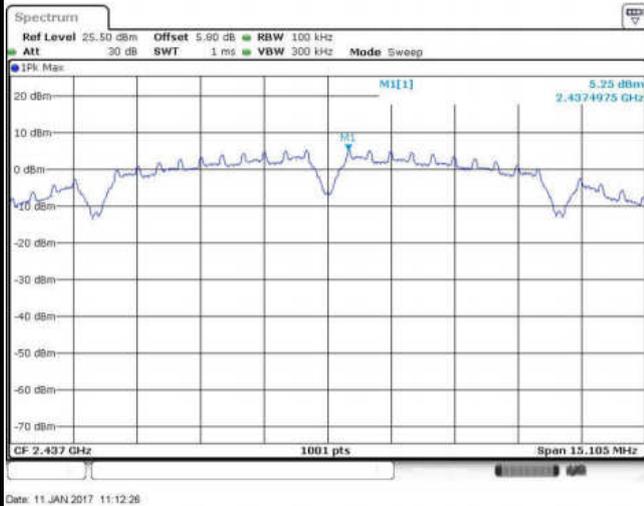




Number of TX :	1	Chain Port :	2
Test Mode :	802.11b	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~55%
Test Channel :	06	Test Engineer :	Silent Hai

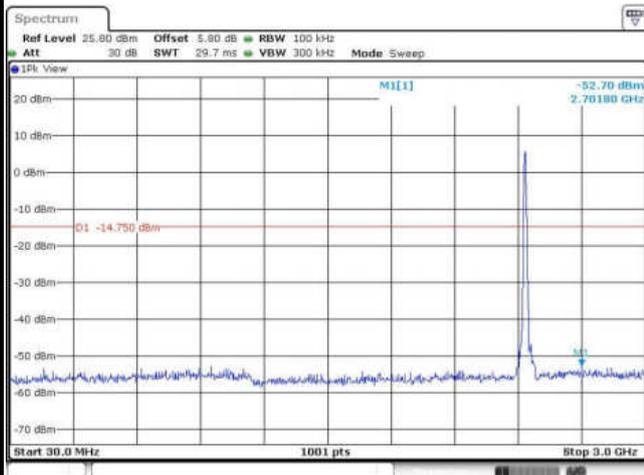
WLAN 802.11b Channel 06

100kHz PSD reference Level



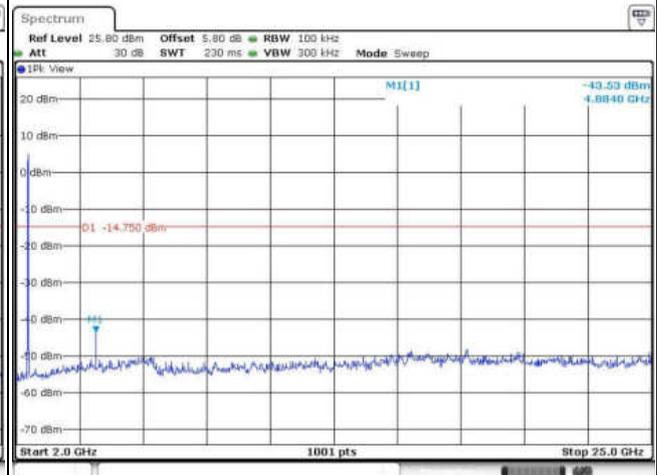
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Spurious Emission 30MHz~3GHz



Date: 11 JAN 2017 11:13:18

Spurious Emission 2GHz~25GHz



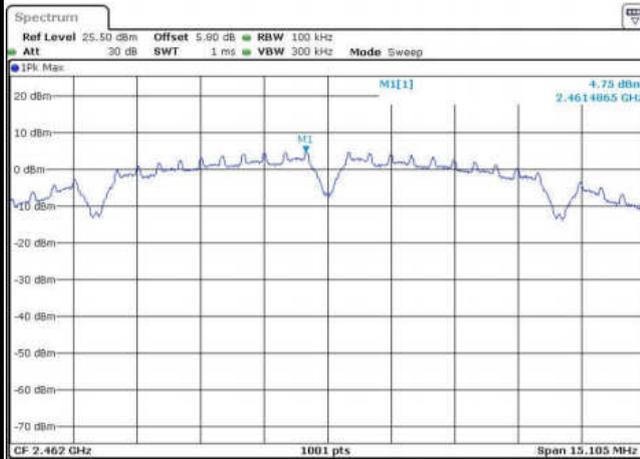
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Number of TX :	1	Chain Port :	2
Test Mode :	802.11b	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~55%
Test Channel :	11	Test Engineer :	Silent Hai

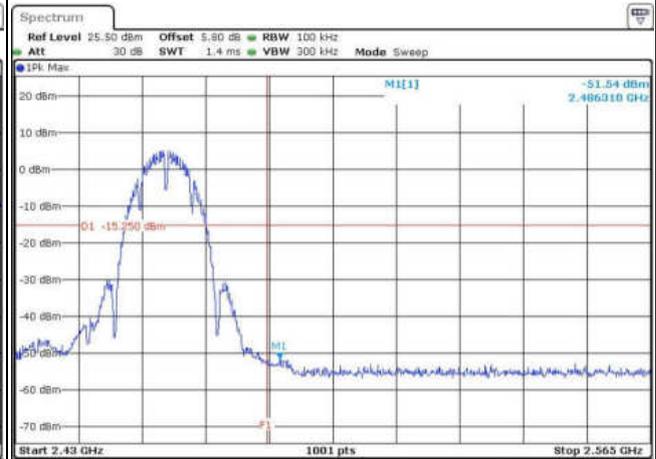
WLAN 802.11b Channel 11

100kHz PSD reference Level



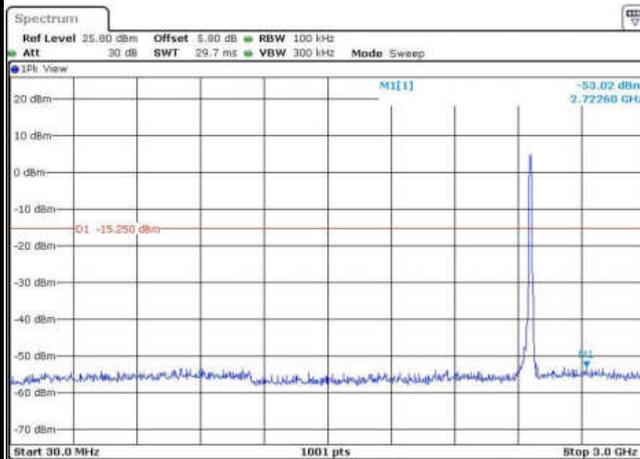
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High Channel Plot



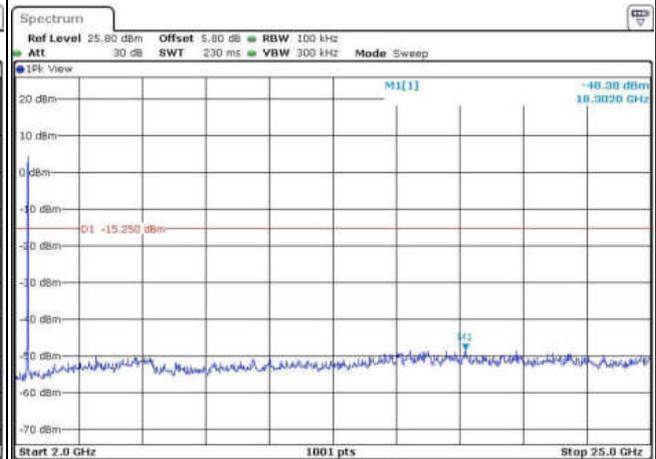
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Spurious Emission 30MHz~3GHz



Date: 11 JAN 2017 11:51:51

Spurious Emission 2GHz~25GHz



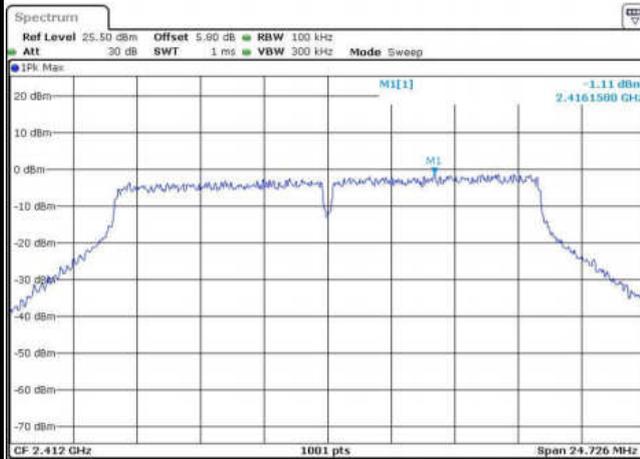
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Number of TX :	1	Chain Port :	2
Test Mode :	802.11g	Temperature :	21~25°C
Test Band :	2.4GHz Low	Relative Humidity :	51~55%
Test Channel :	01	Test Engineer :	Silent Hai

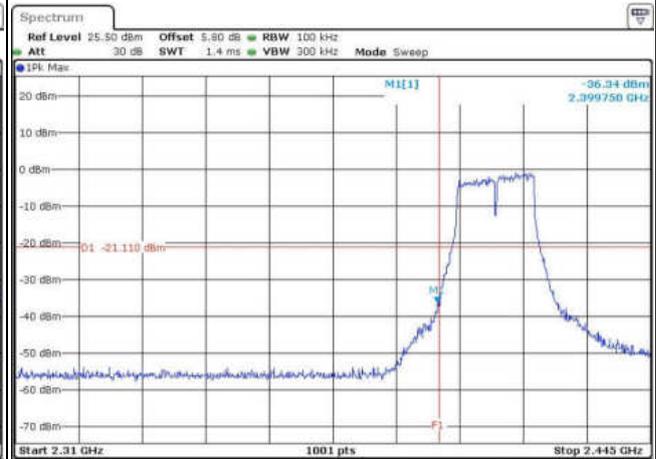
WLAN 802.11g Channel 01

100kHz PSD reference Level



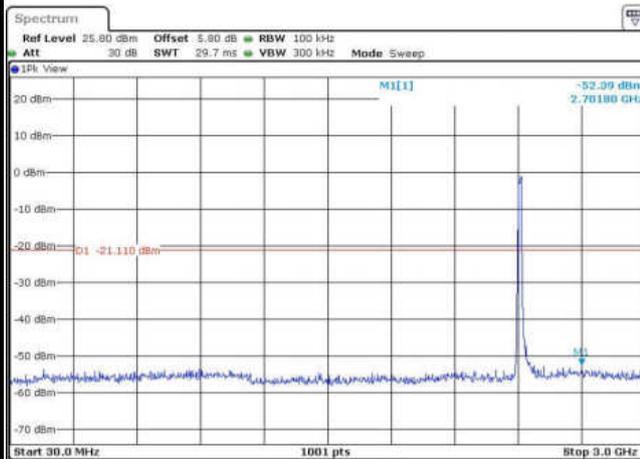
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Low Channel Plot



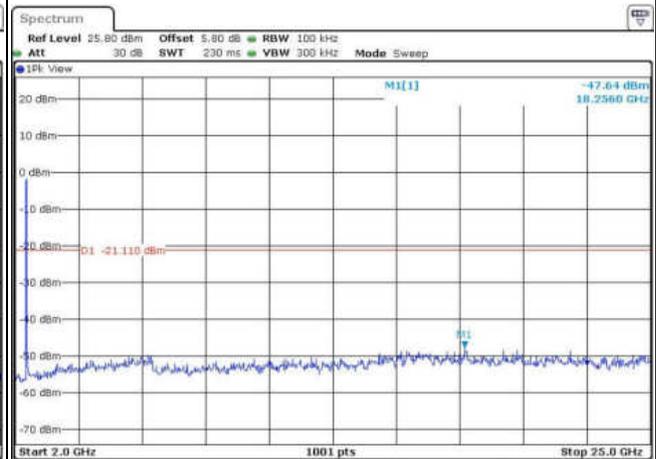
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Spurious Emission 30MHz~3GHz



Date: 11 JAN 2017 11:56:24

Spurious Emission 2GHz~25GHz



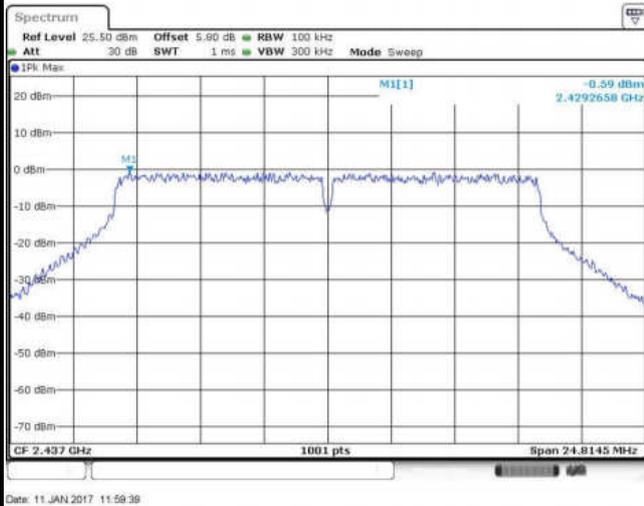
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Number of TX :	1	Chain Port :	2
Test Mode :	802.11g	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~55%
Test Channel :	06	Test Engineer :	Silent Hai

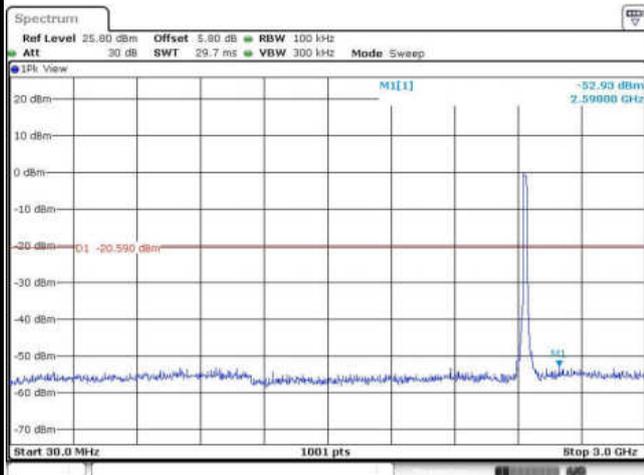
WLAN 802.11g Channel 06

100kHz PSD reference Level



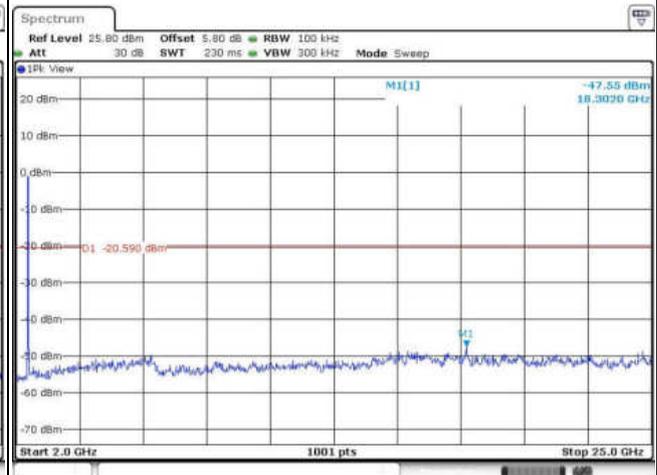
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Spurious Emission 30MHz~3GHz



Date: 11 JAN 2017 11:59:49

Spurious Emission 2GHz~25GHz



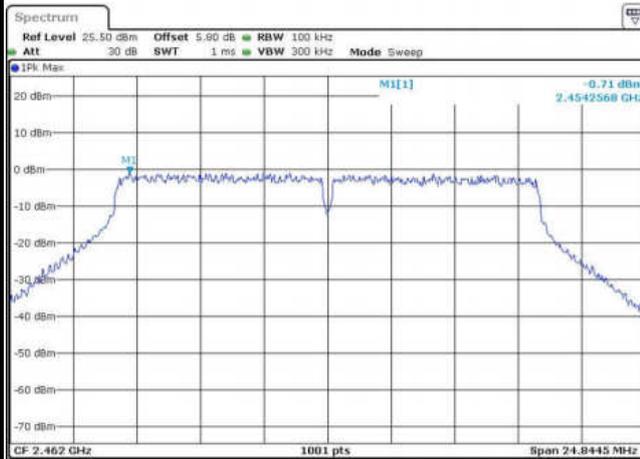
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Number of TX :	1	Chain Port :	2
Test Mode :	802.11g	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~55%
Test Channel :	11	Test Engineer :	Silent Hai

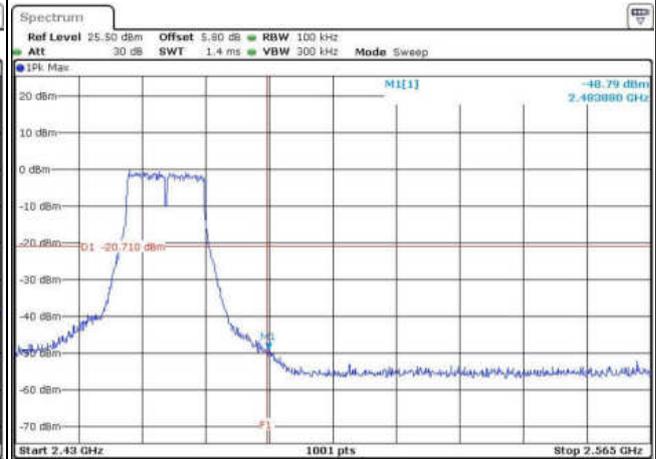
WLAN 802.11g Channel 11

100kHz PSD reference Level



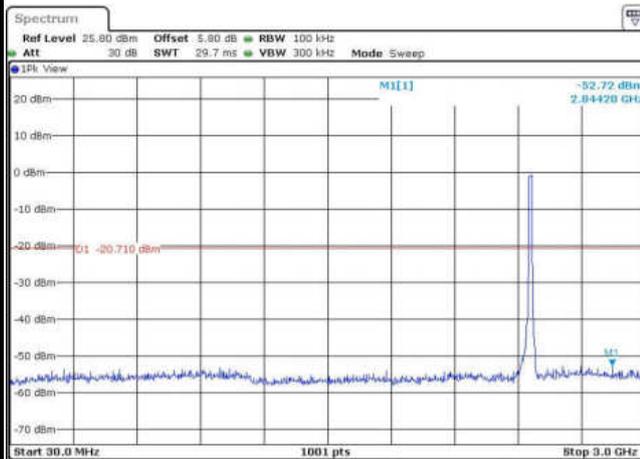
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High Channel Plot



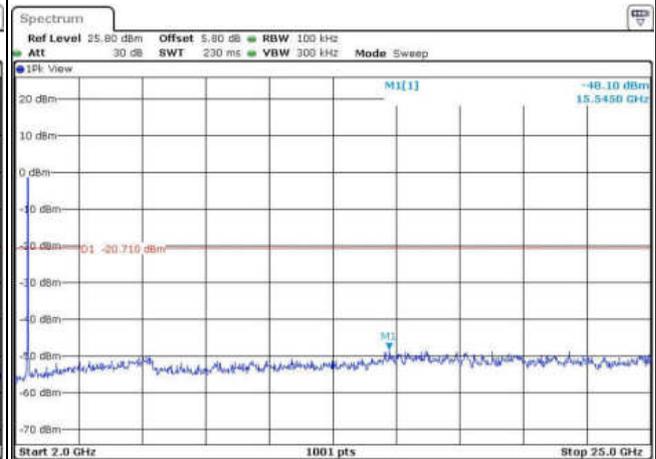
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Spurious Emission 30MHz~3GHz



Date: 11 JAN 2017 12:02:05

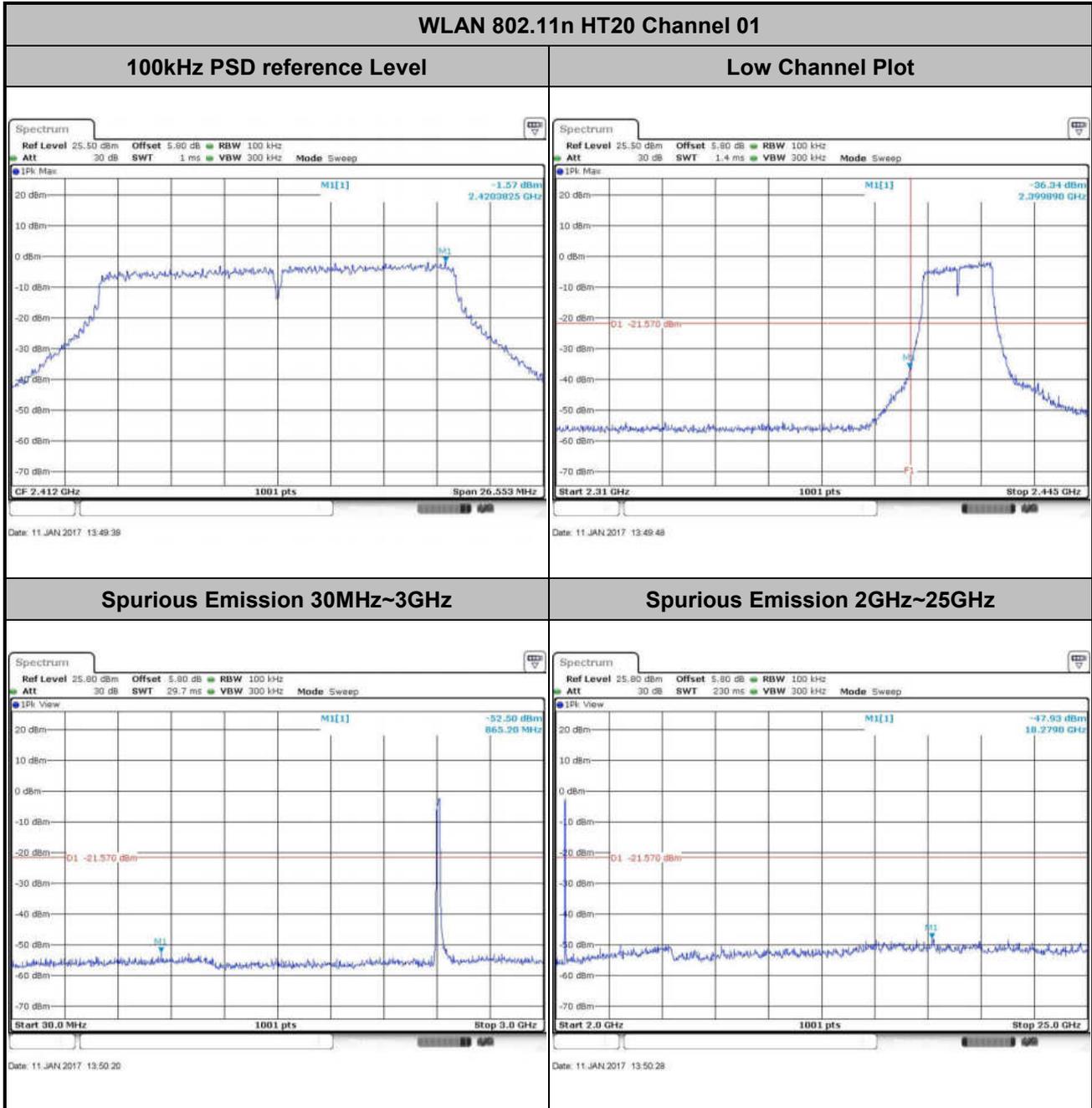
Spurious Emission 2GHz~25GHz



Date: 11 JAN 2017 12:02:13



Number of TX :	1	Chain Port :	2
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

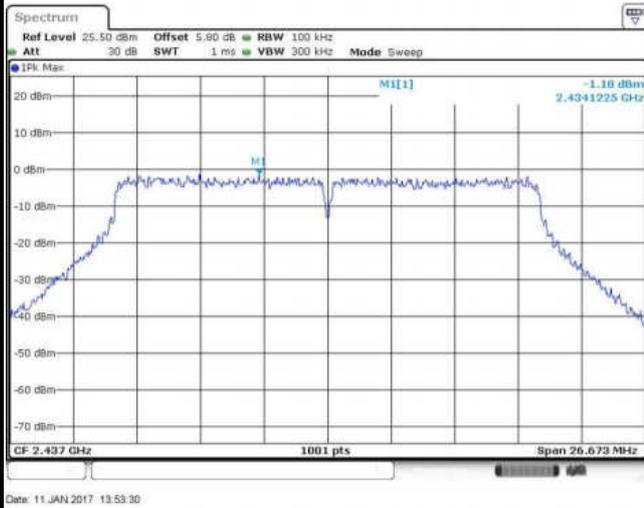




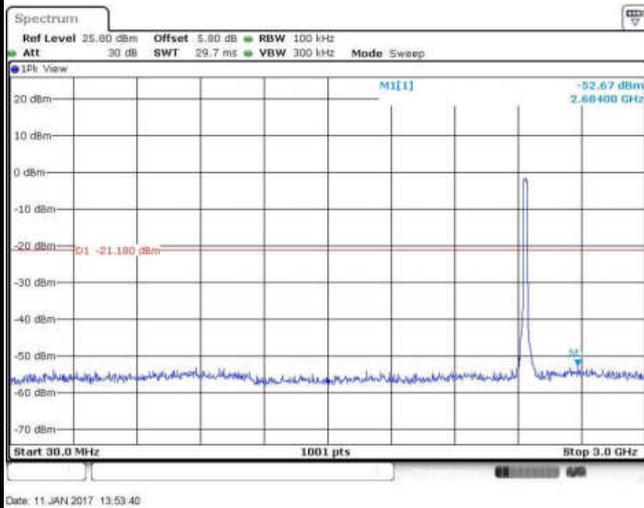
Number of TX :	1	Chain Port :	2
Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~55%
Test Channel :	06	Test Engineer :	Silent Hai

WLAN 802.11n HT20 Channel 06

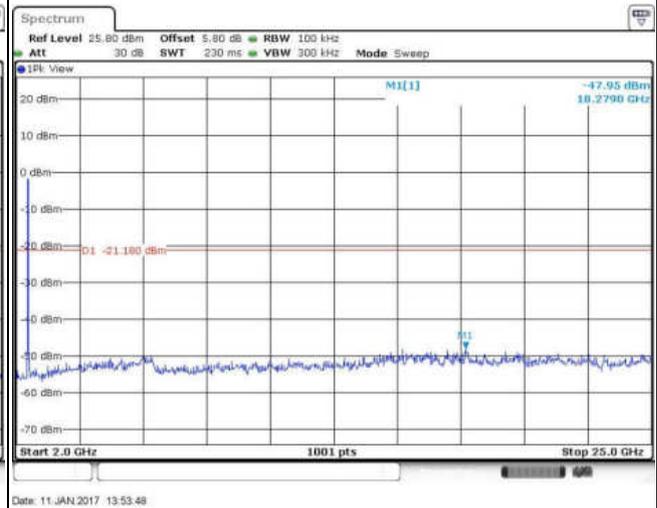
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz

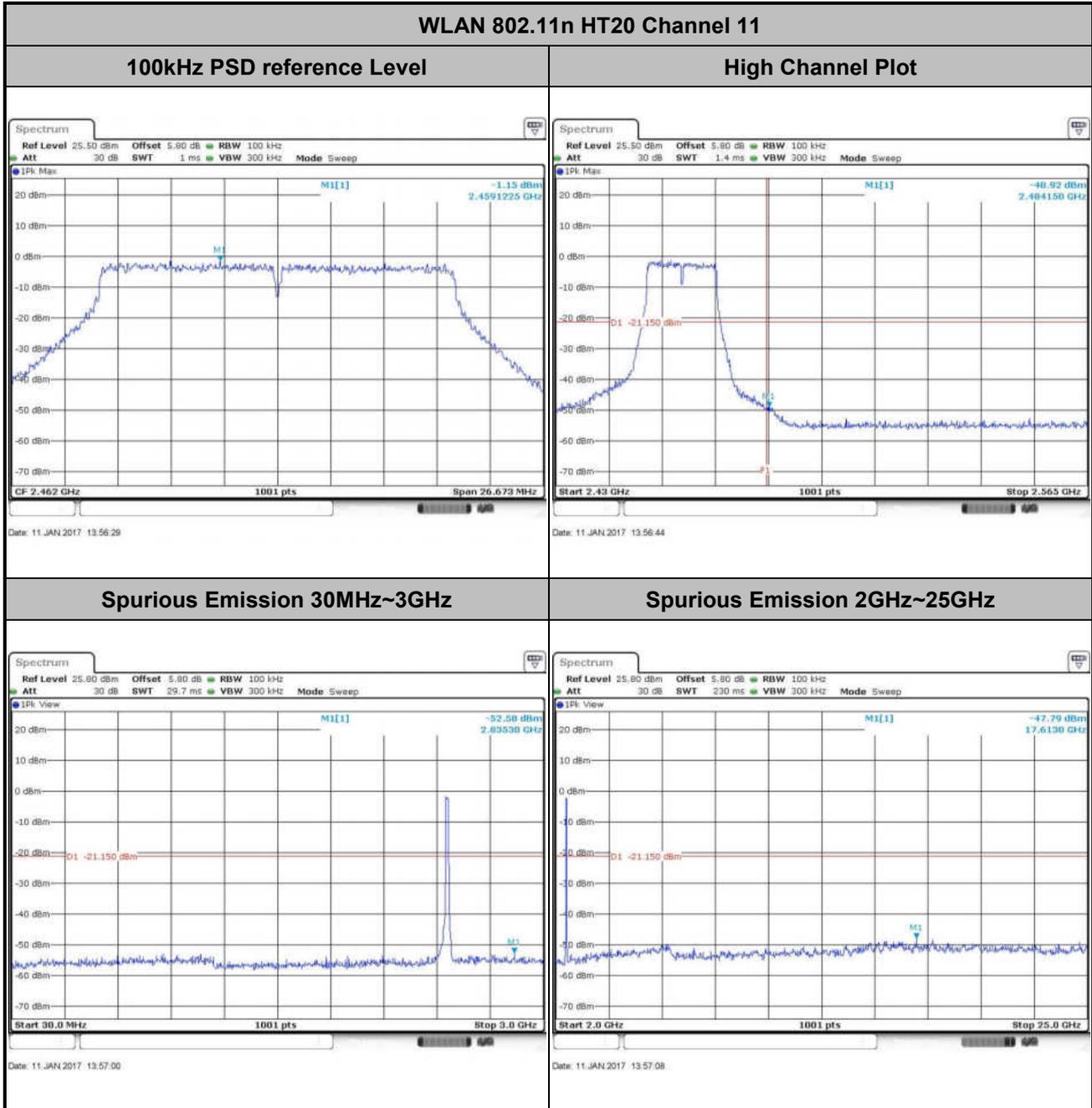


Spurious Emission 2GHz~25GHz





Number of TX :	1	Chain Port :	2
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

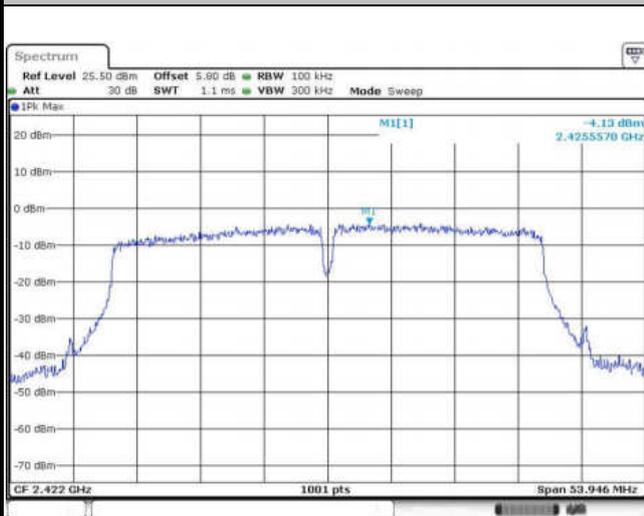




Number of TX :	1	Chain Port :	2
Test Mode :	802.11n HT40	Temperature :	21~25°C
Test Band :	2.4GHz Low	Relative Humidity :	51~55%
Test Channel :	03	Test Engineer :	Silent Hai

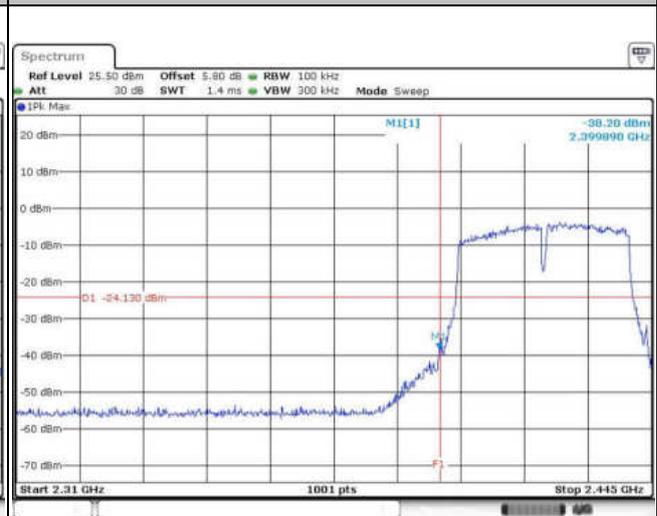
WLAN 802.11n HT40 Channel 03

100kHz PSD reference Level



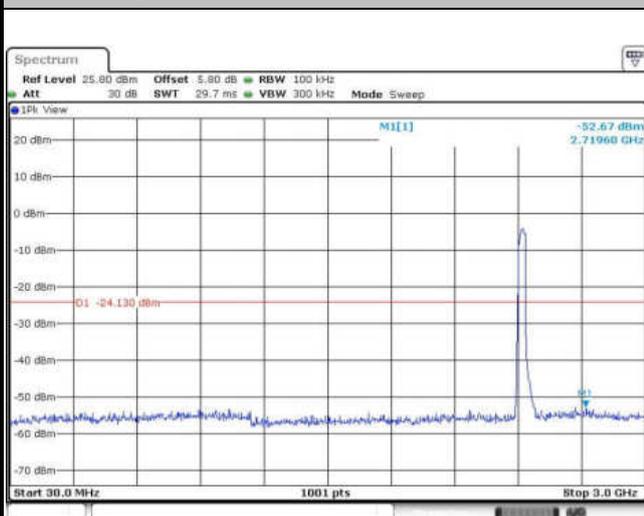
Date: 11 JAN 2017 14:34:39

Low Channel Plot



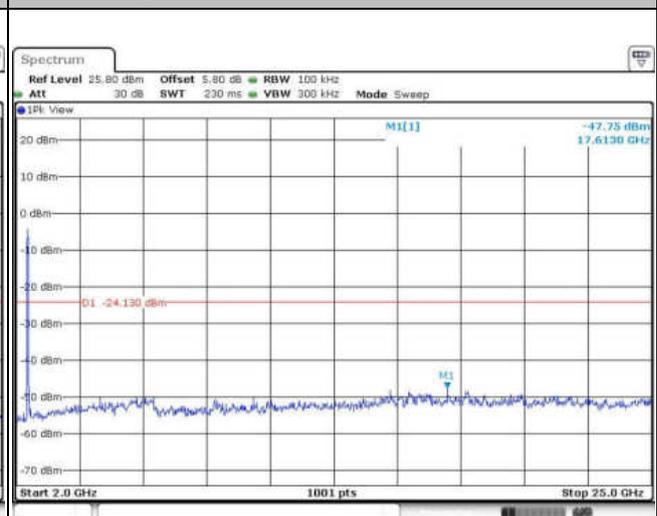
Date: 11 JAN 2017 14:36:18

Spurious Emission 30MHz~3GHz



Date: 11 JAN 2017 14:36:28

Spurious Emission 2GHz~25GHz



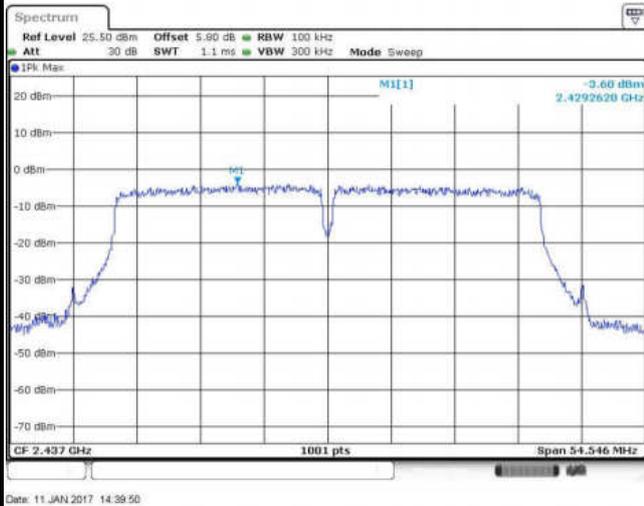
Date: 11 JAN 2017 14:36:37



Number of TX :	1	Chain Port :	2
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

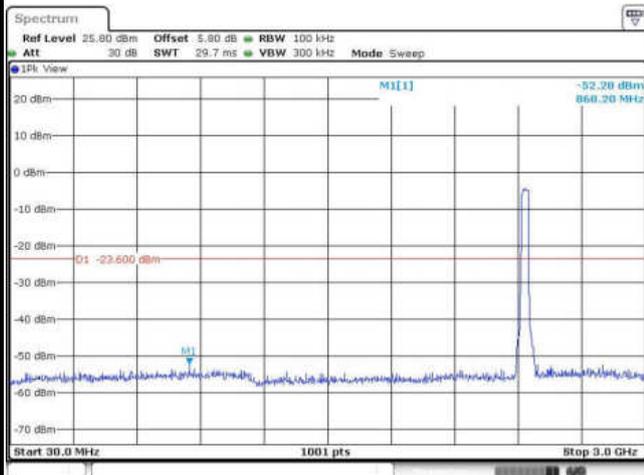
WLAN 802.11n HT40 Channel 06

100kHz PSD reference Level



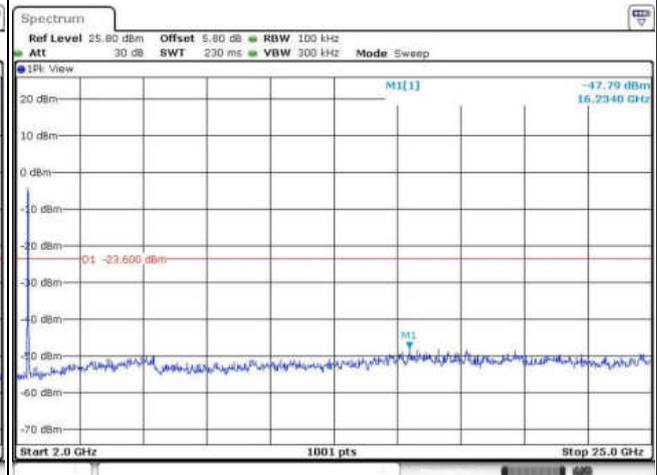
Date: 11 JAN 2017 14:39:50

Spurious Emission 30MHz~3GHz



Date: 11 JAN 2017 14:40:08

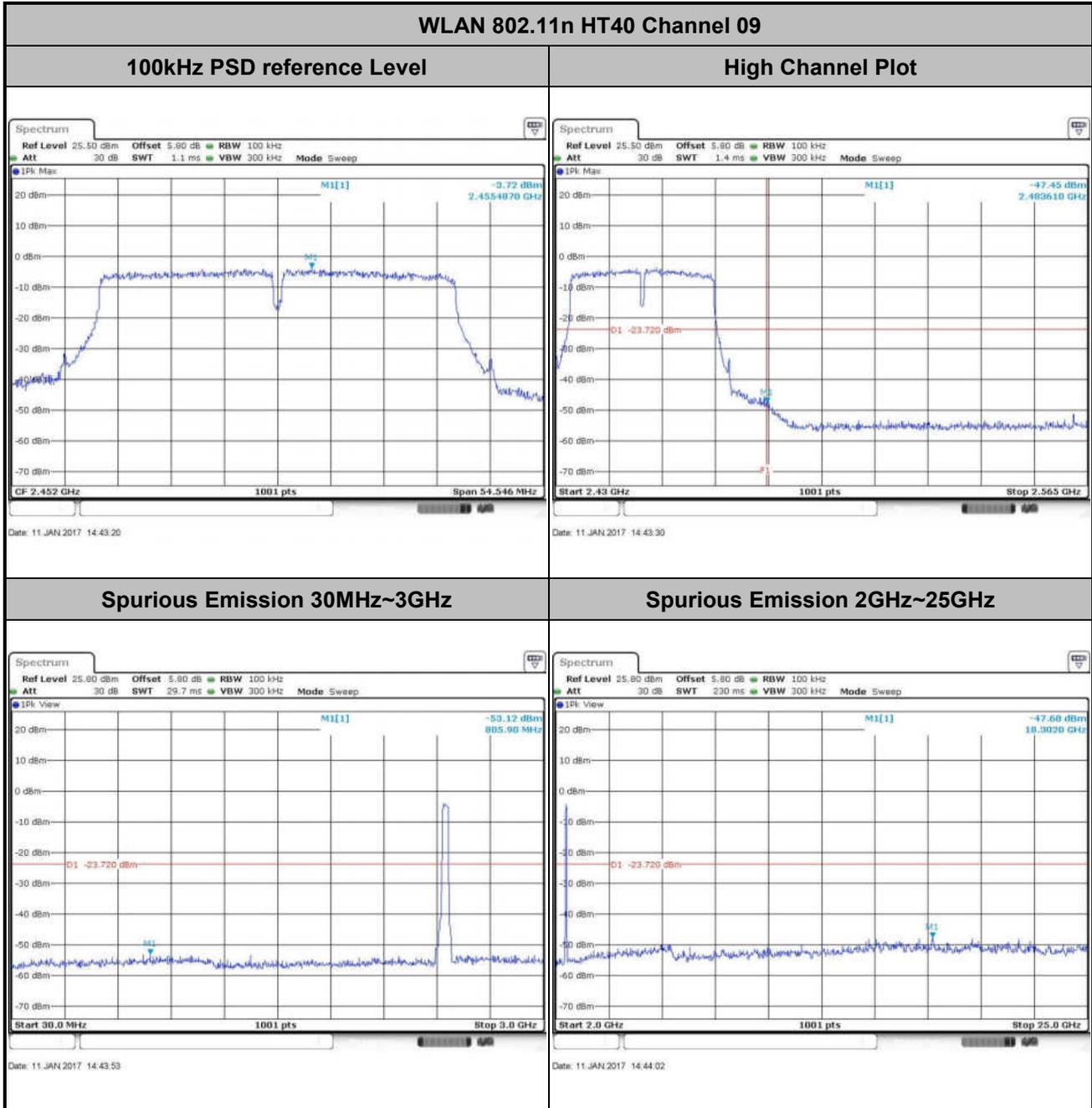
Spurious Emission 2GHz~25GHz



Date: 11 JAN 2017 14:40:17



Number of TX :	1	Chain Port :	2
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



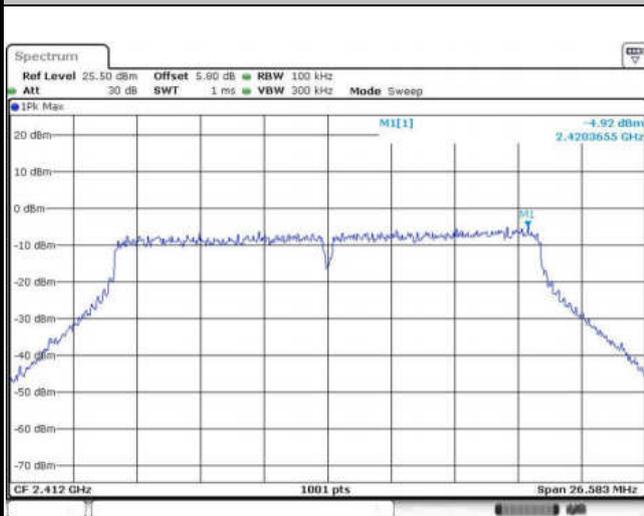


Number of TX = 2, Chain Port 1 (Measured)

Number of TX :	2	Chain Port :	1
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

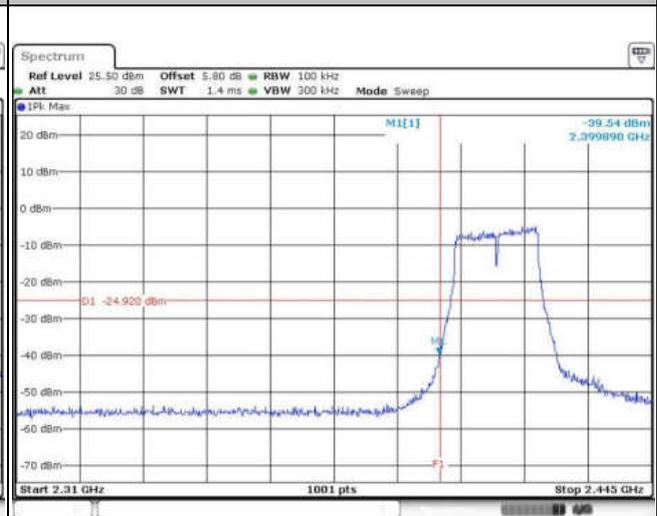
WLAN 802.11n HT20 Channel 01

100kHz PSD reference Level



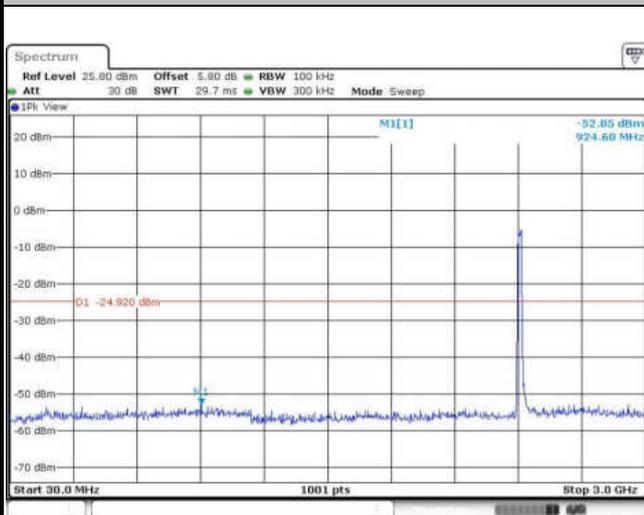
Date: 11 JAN 2017 14:01:58

Low Channel Plot



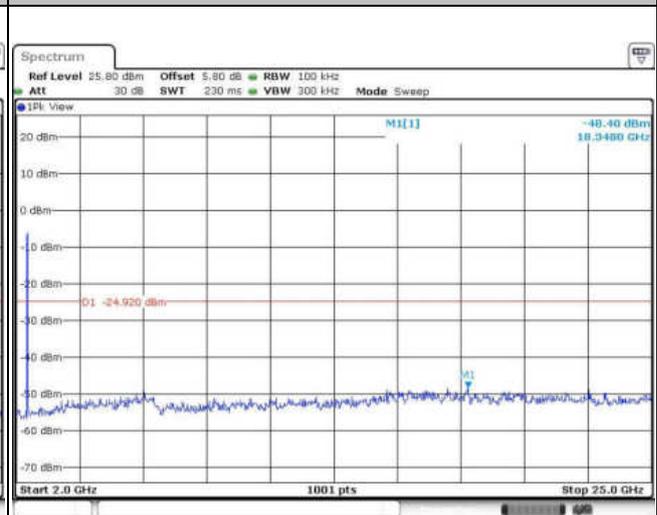
Date: 11 JAN 2017 14:02:54

Spurious Emission 30MHz~3GHz



Date: 11 JAN 2017 14:03:05

Spurious Emission 2GHz~25GHz



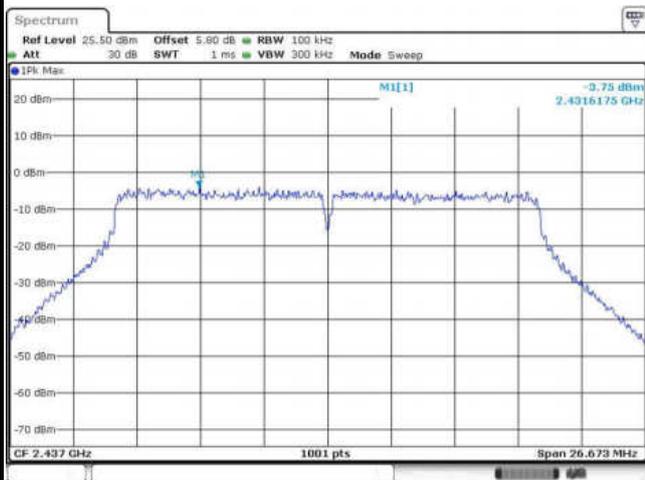
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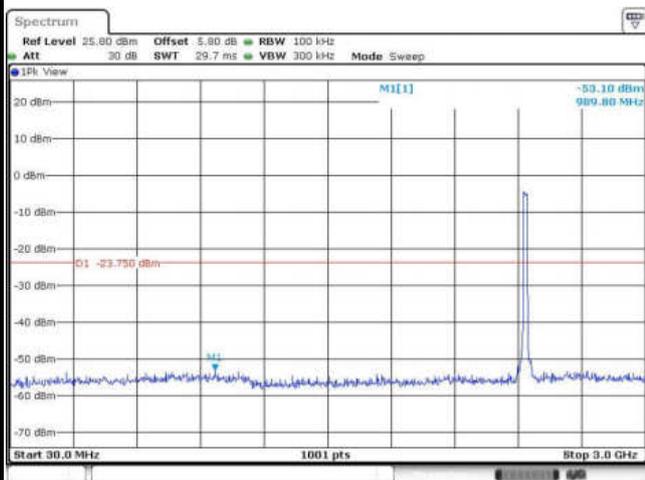
Number of TX :	2	Chain Port :	1
Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~55%
Test Channel :	06	Test Engineer :	Silent Hai

WLAN 802.11n HT20 Channel 06

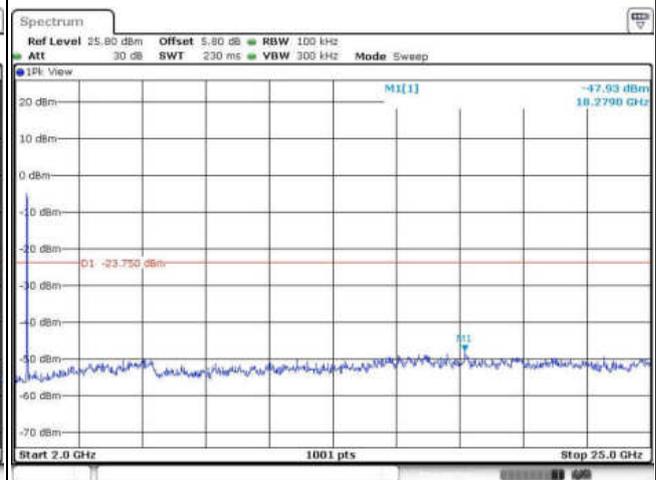
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz

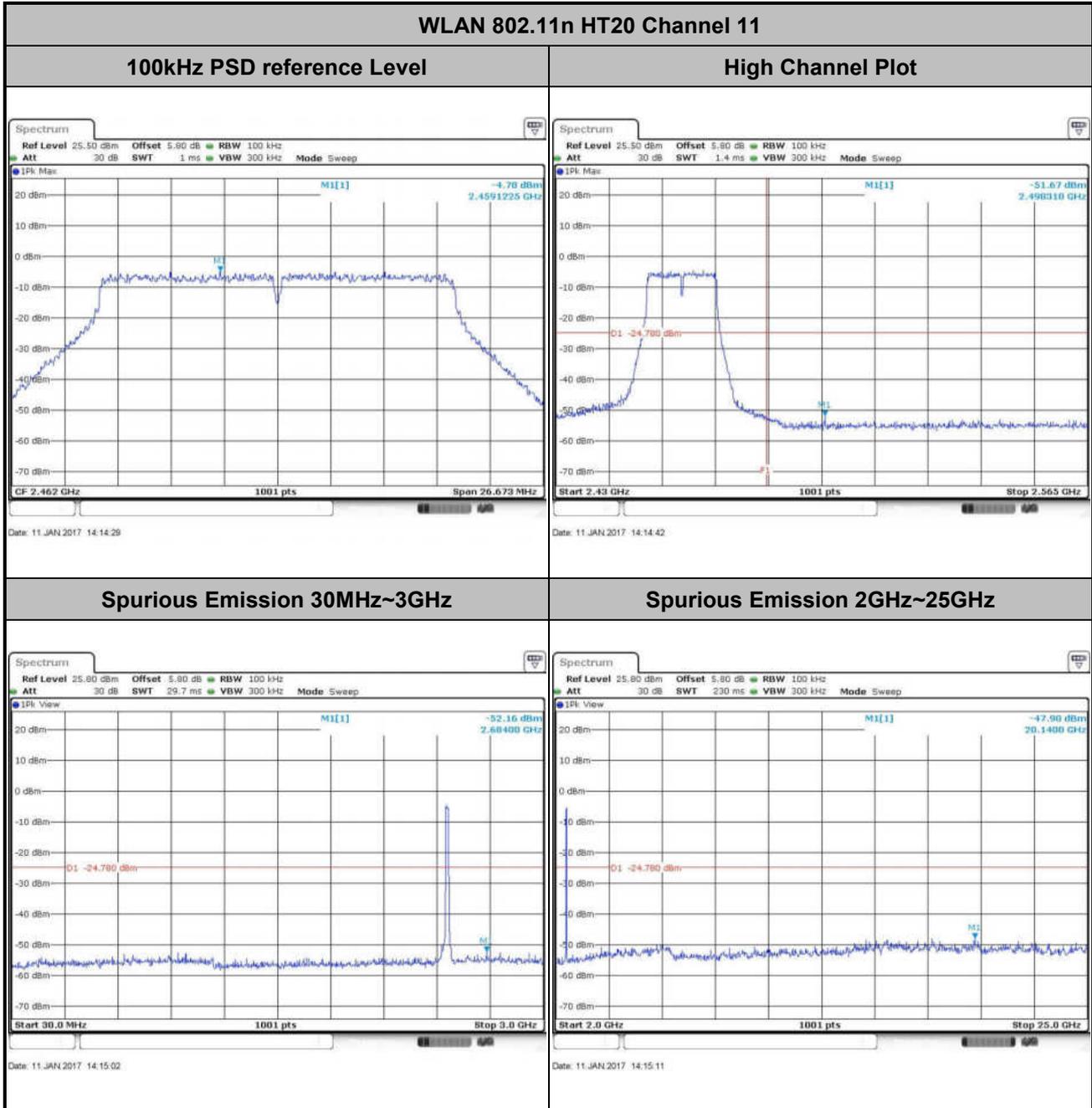


Spurious Emission 2GHz~25GHz



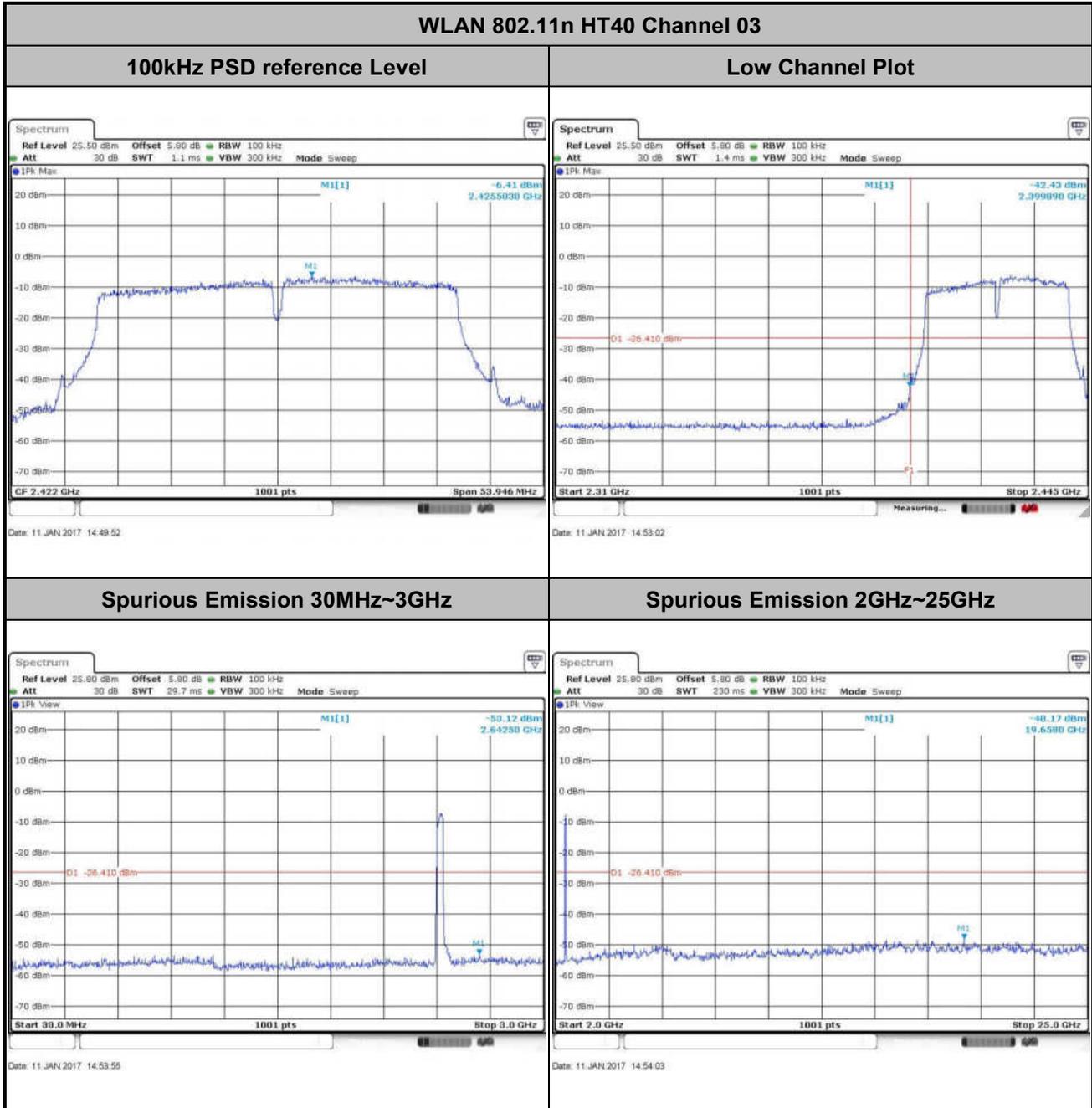


Number of TX :	2	Chain Port :	1
Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~55%
Test Channel :	11	Test Engineer :	Silent Hai





Number of TX :	2	Chain Port :	1
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

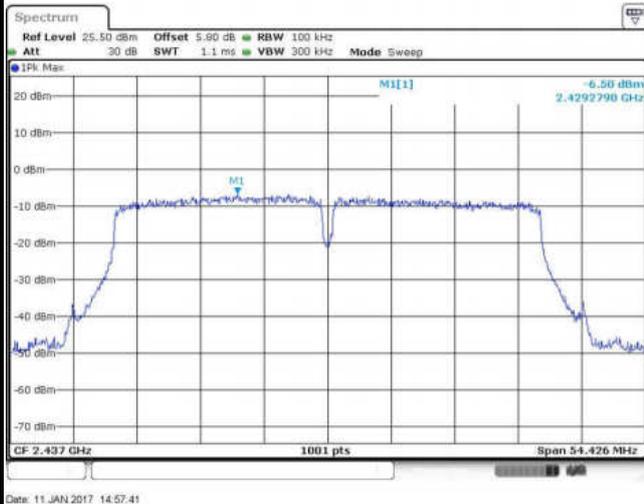




Number of TX :	2	Chain Port :	1
Test Mode :	802.11n HT40	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~55%
Test Channel :	06	Test Engineer :	Silent Hai

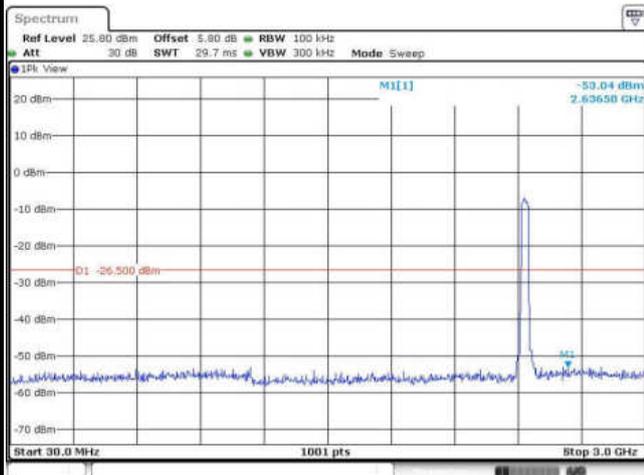
WLAN 802.11n HT40 Channel 06

100kHz PSD reference Level



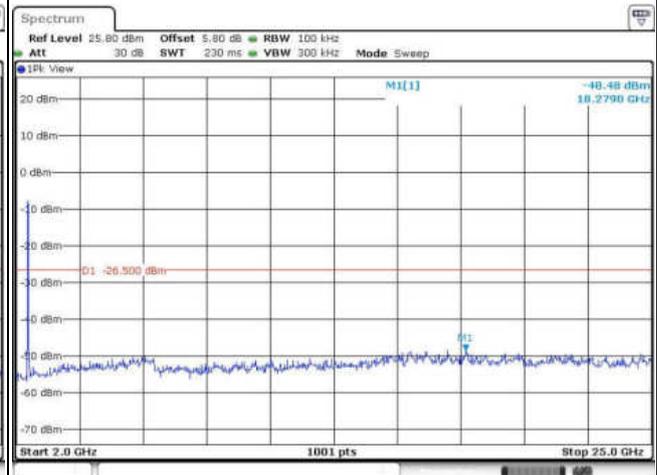
Date: 11 JAN 2017 14:57:41

Spurious Emission 30MHz~3GHz



Date: 11 JAN 2017 14:57:53

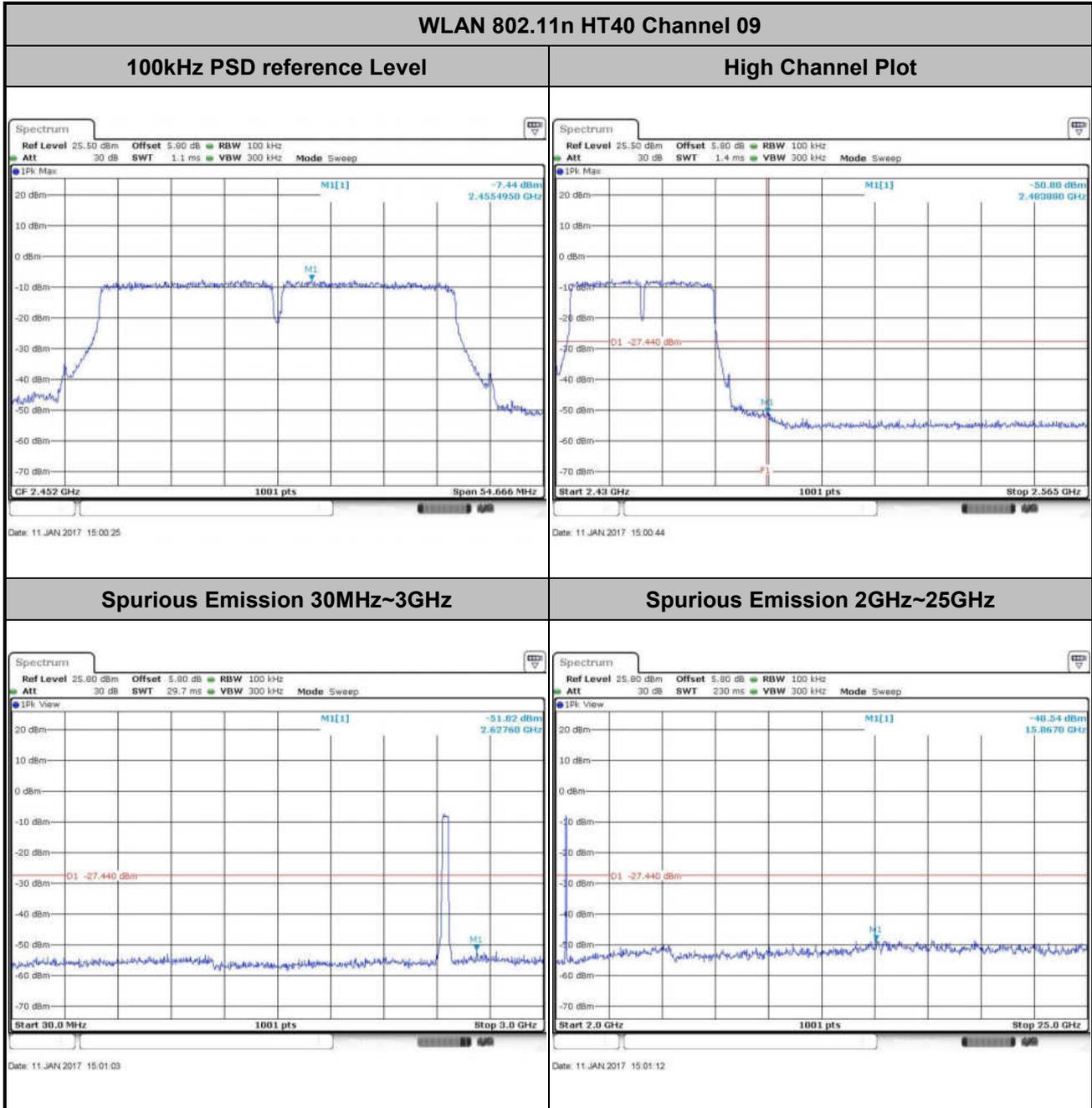
Spurious Emission 2GHz~25GHz



Date: 11 JAN 2017 14:58:01



Number of TX :	2	Chain Port :	1
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



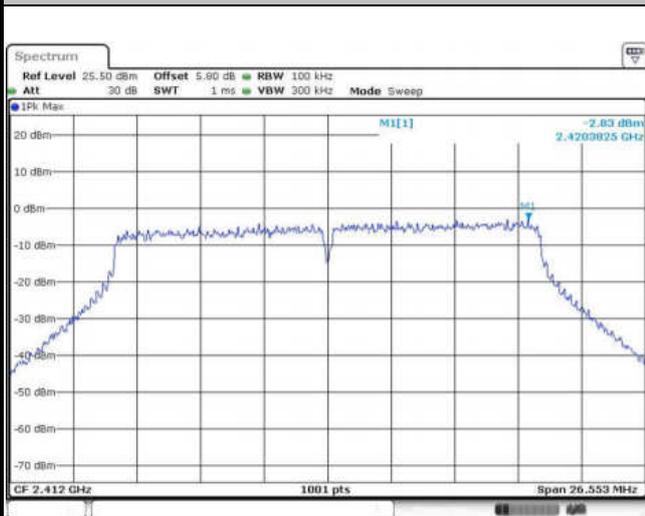


Number of TX = 2, Chain Port 2 (Measured)

Number of TX :	2	Chain Port :	2
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

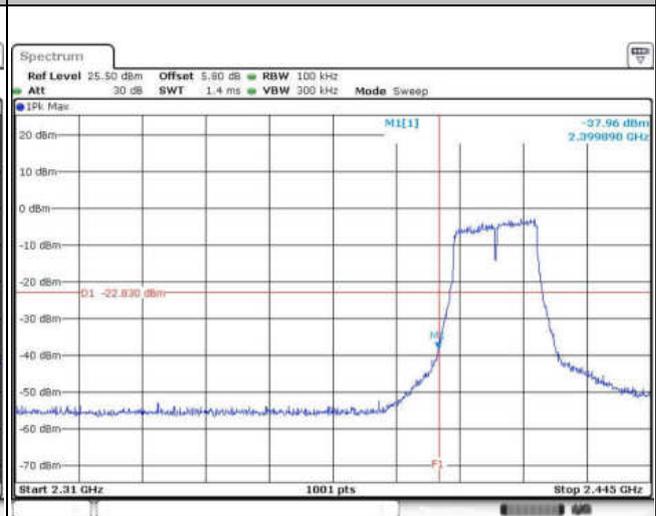
WLAN 802.11n HT20 Channel 01

100kHz PSD reference Level



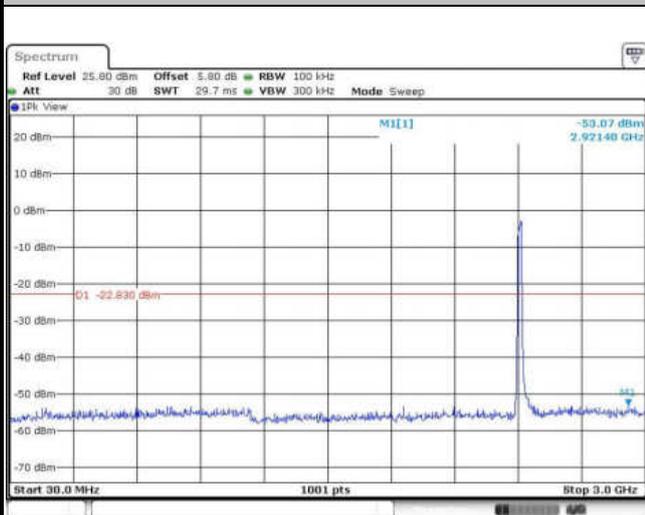
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Low Channel Plot



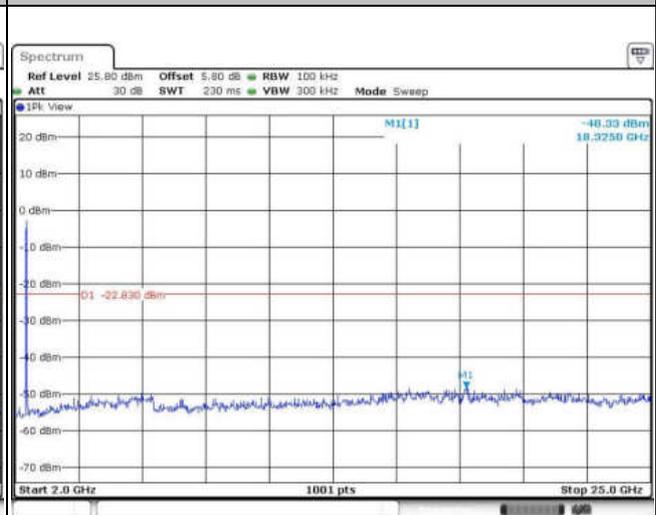
Date: 11 JAN 2017 14:18:59

Spurious Emission 30MHz~3GHz



Date: 11 JAN 2017 14:19:10

Spurious Emission 2GHz~25GHz



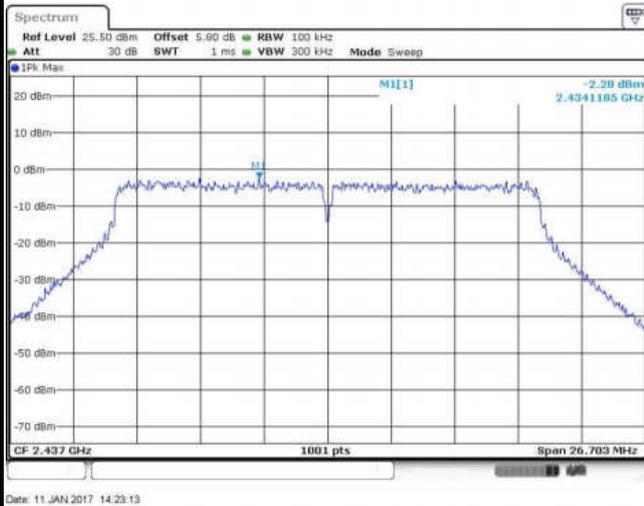
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Number of TX :	2	Chain Port :	2
Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~55%
Test Channel :	06	Test Engineer :	Silent Hai

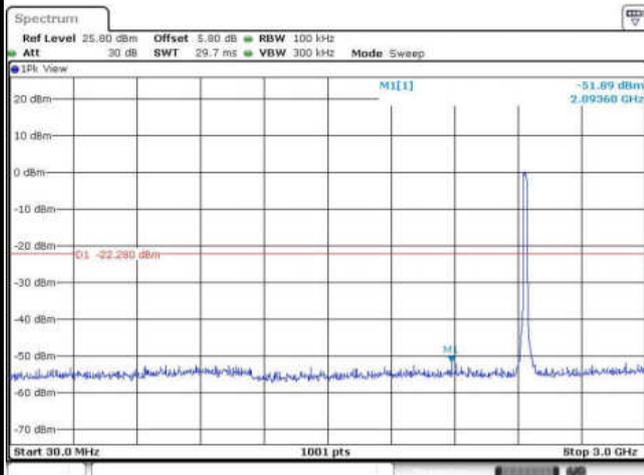
WLAN 802.11n HT20 Channel 06

100kHz PSD reference Level



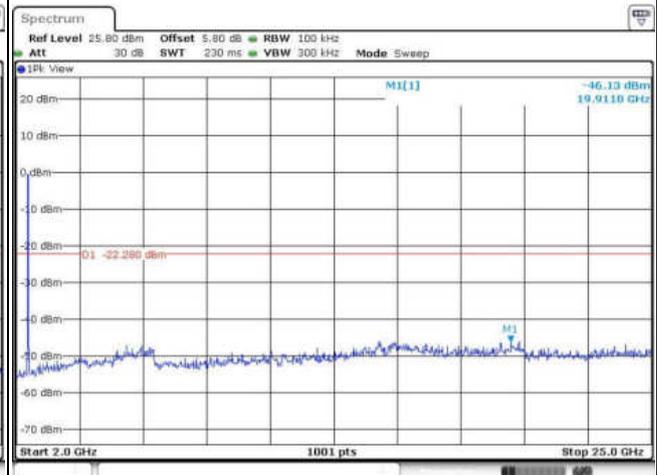
Date: 11 JAN 2017 14:23:13

Spurious Emission 30MHz~3GHz



Date: 17 JAN 2017 14:22:08

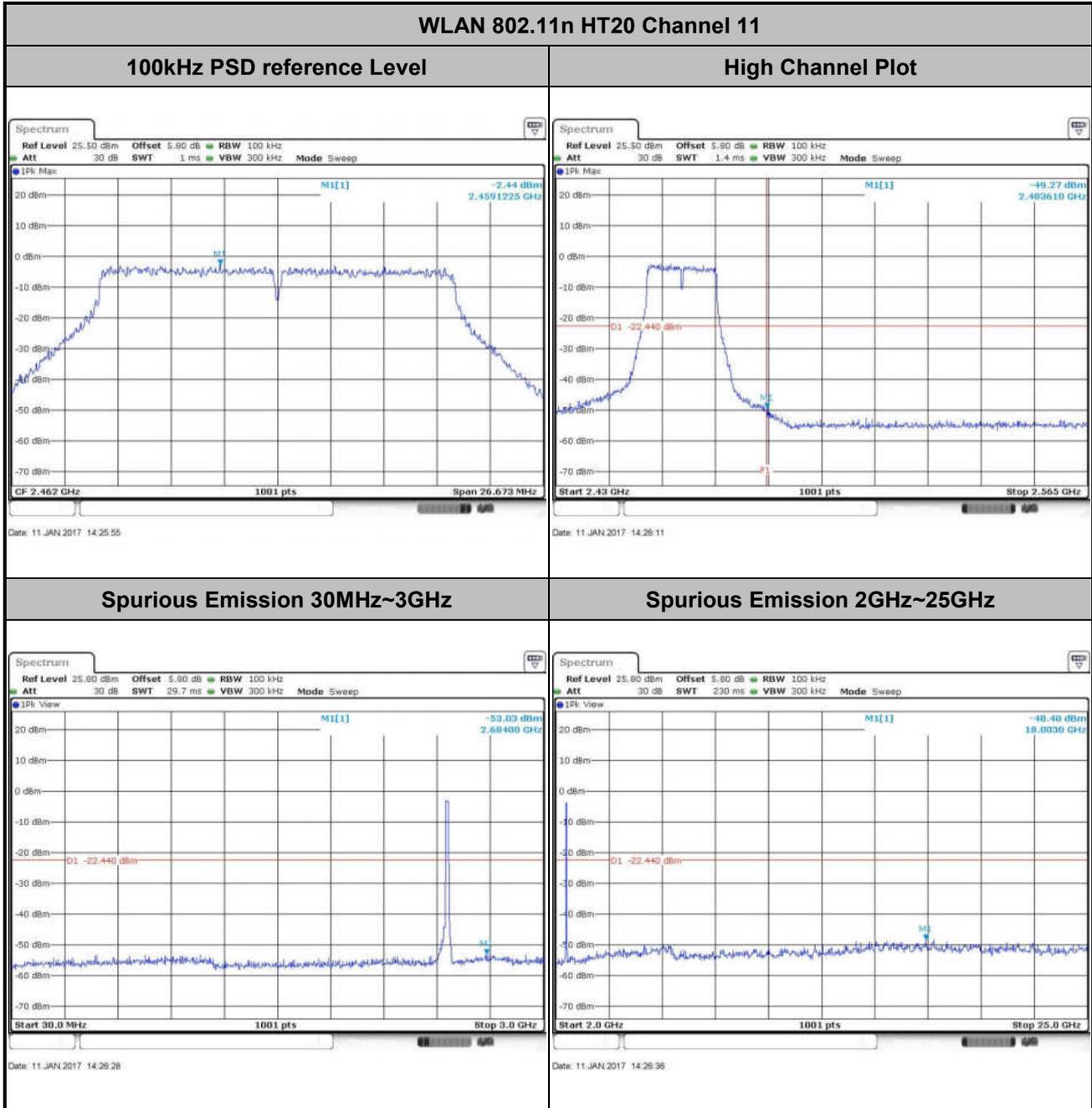
Spurious Emission 2GHz~25GHz



Date: 17 JAN 2017 14:22:14

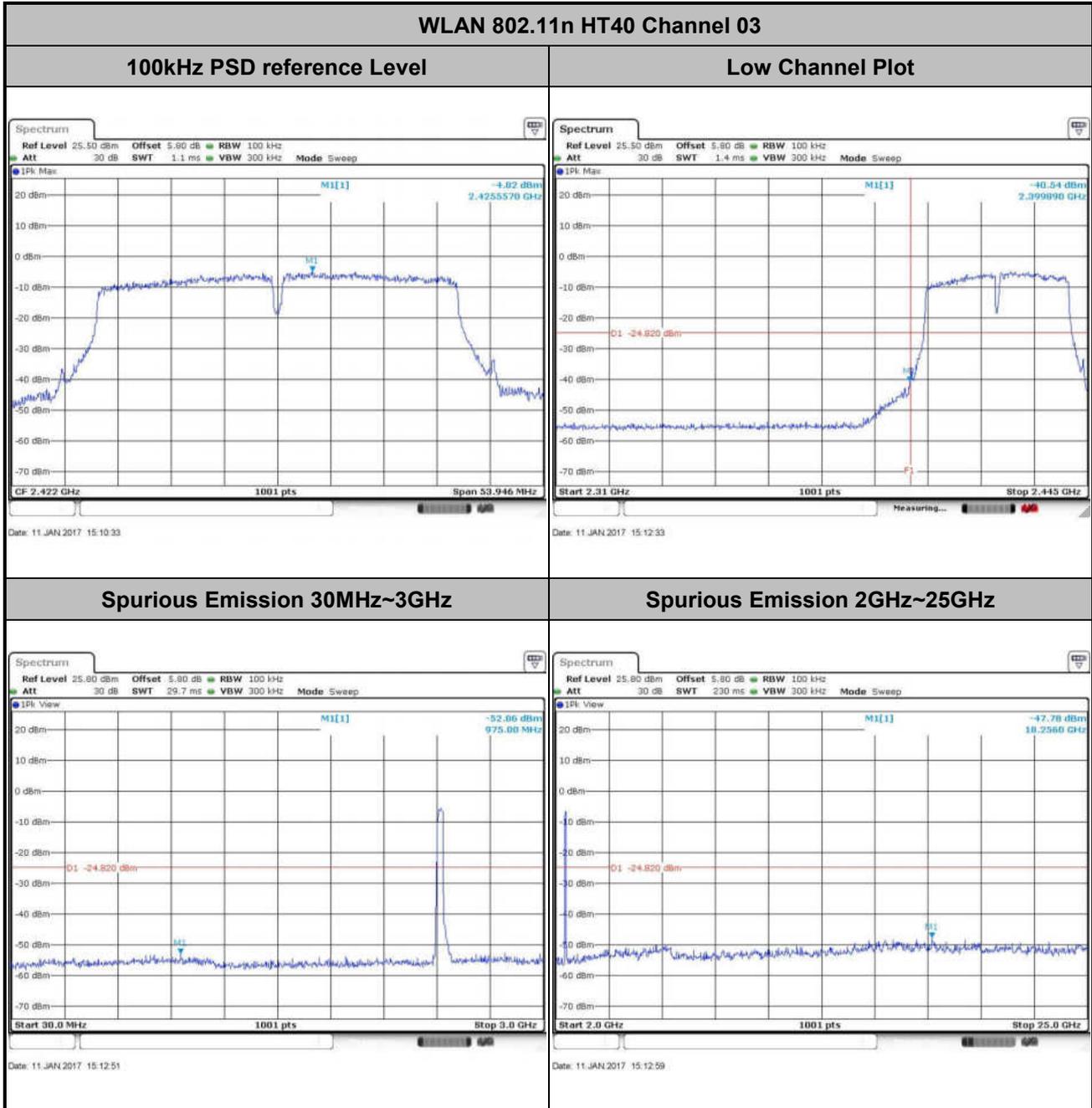


Number of TX :	2	Chain Port :	2
Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~55%
Test Channel :	11	Test Engineer :	Silent Hai





Number of TX :	2	Chain Port :	2
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

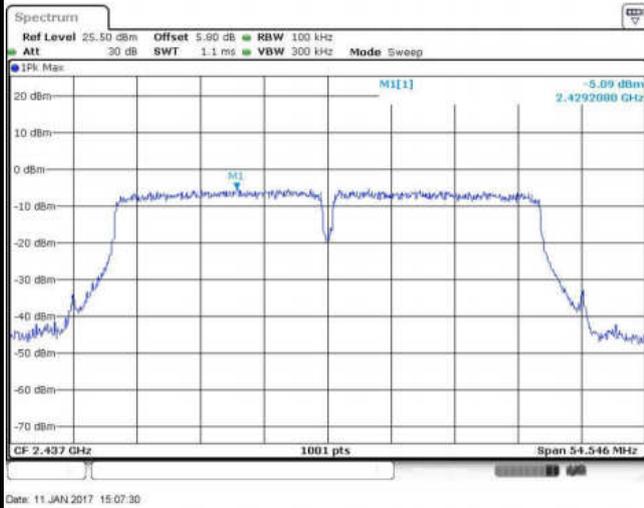




Number of TX :	2	Chain Port :	2
Test Mode :	802.11n HT40	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~55%
Test Channel :	06	Test Engineer :	Silent Hai

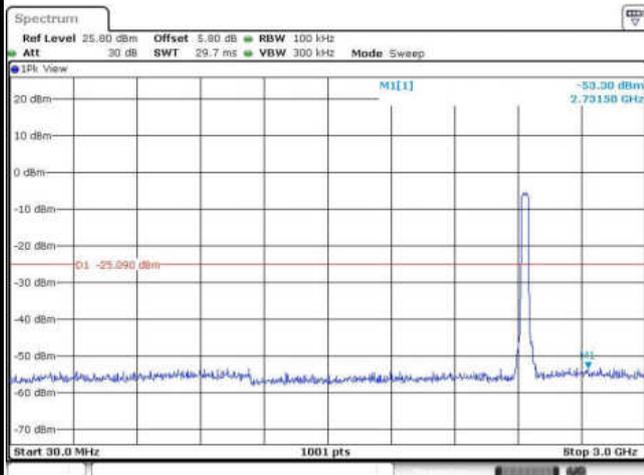
WLAN 802.11n HT40 Channel 06

100kHz PSD reference Level



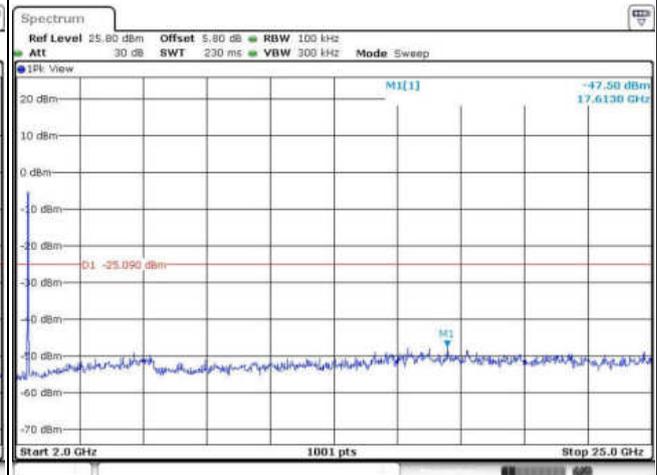
Date: 11 JAN 2017 15:07:30

Spurious Emission 30MHz~3GHz



Date: 11 JAN 2017 15:07:42

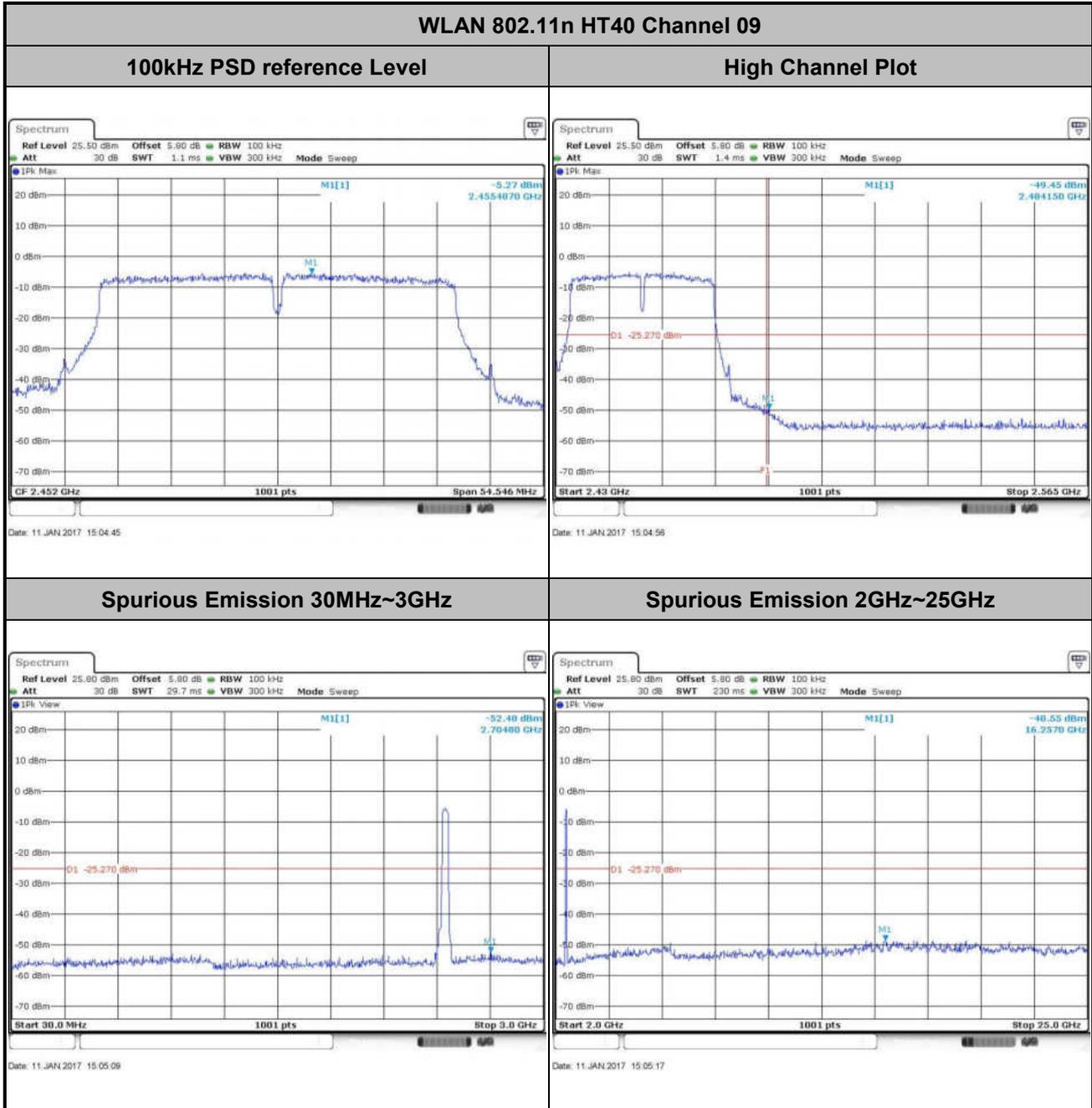
Spurious Emission 2GHz~25GHz



Date: 11 JAN 2017 15:07:50



Number of TX :	2	Chain Port :	2
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 FCC section 15.209 limits as below.

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

3.5.2 Measuring Instruments

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

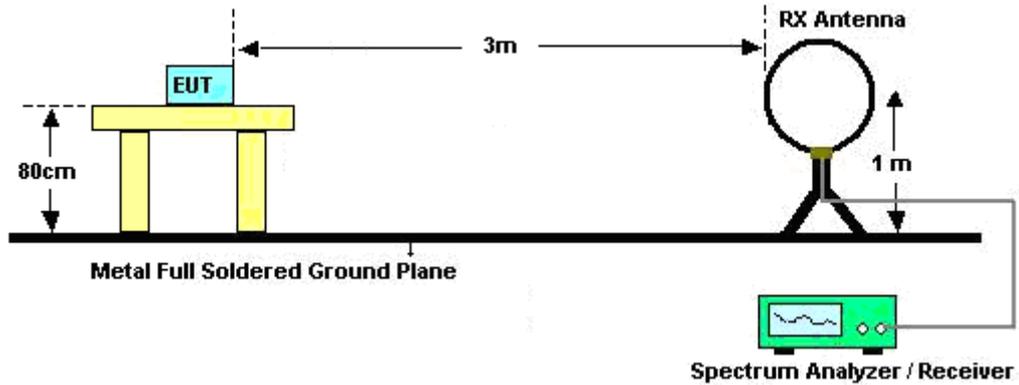


3.5.3 Test Procedures

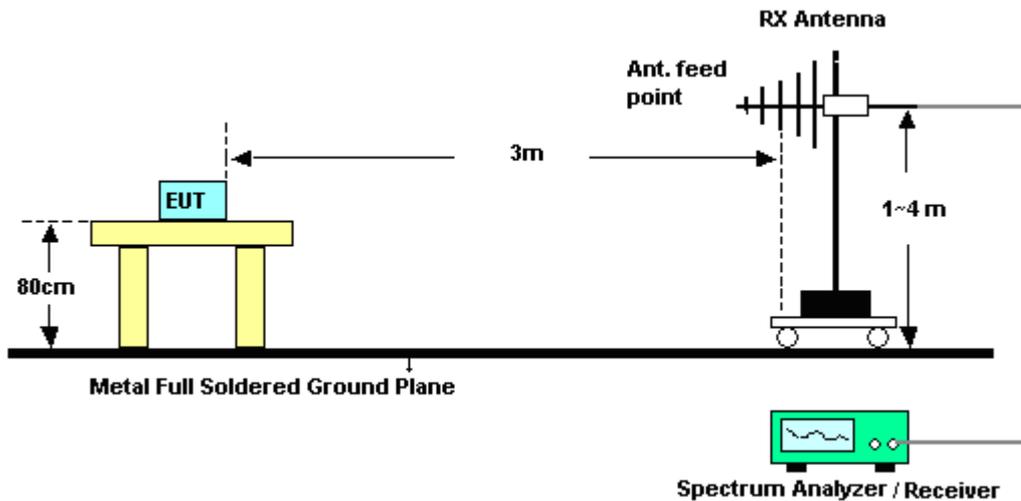
1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r05.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
7. Use the following spectrum analyzer settings:
 - (1) Span shall wide enough to fully capture the emission being measured;
 - (2) Set RBW=100 kHz for $f < 1$ GHz; VBW \geq RBW; Sweep = auto; Detector function = peak; Trace = max hold;
 - (3) Set RBW = 1 MHz, VBW= 3MHz for $f \geq 1$ GHz for peak measurement.
For average measurement:
 - VBW = 10 Hz, when duty cycle is no less than 98 percent.
 - VBW $\geq 1/T$, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

3.5.4 Test Setup

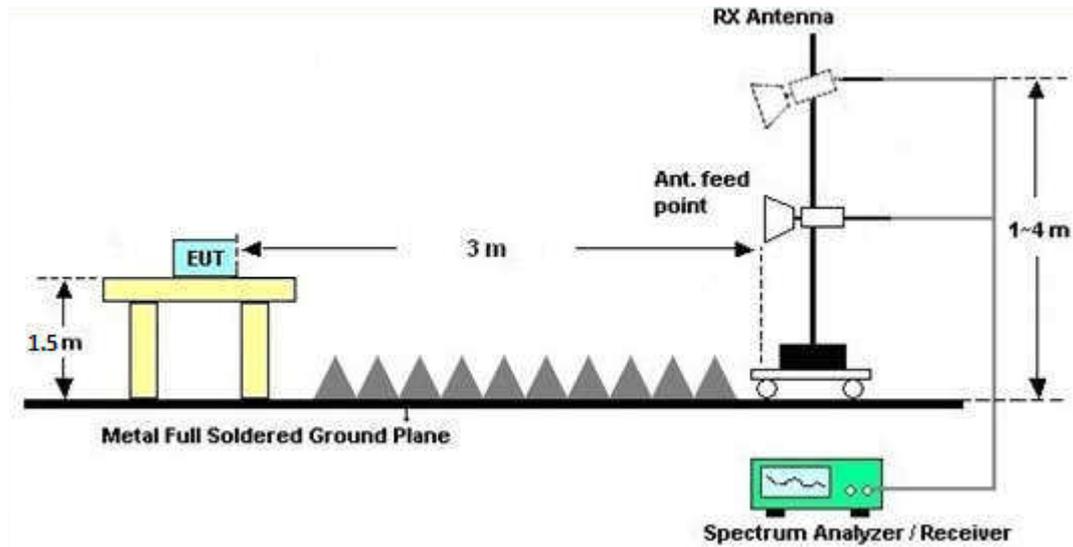
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

3.5.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix B.

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 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

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

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

*Decreases with the logarithm of the frequency.

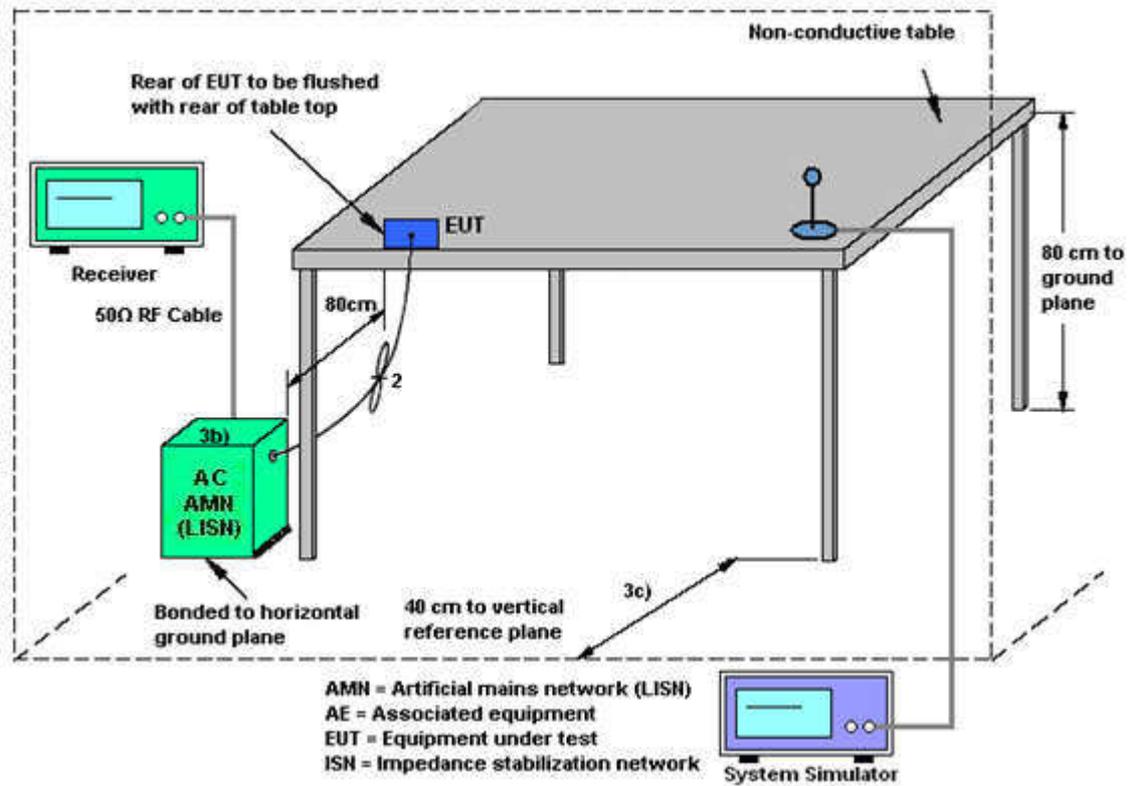
3.6.2 Measuring Instruments

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

3.6.3 Test Procedures

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

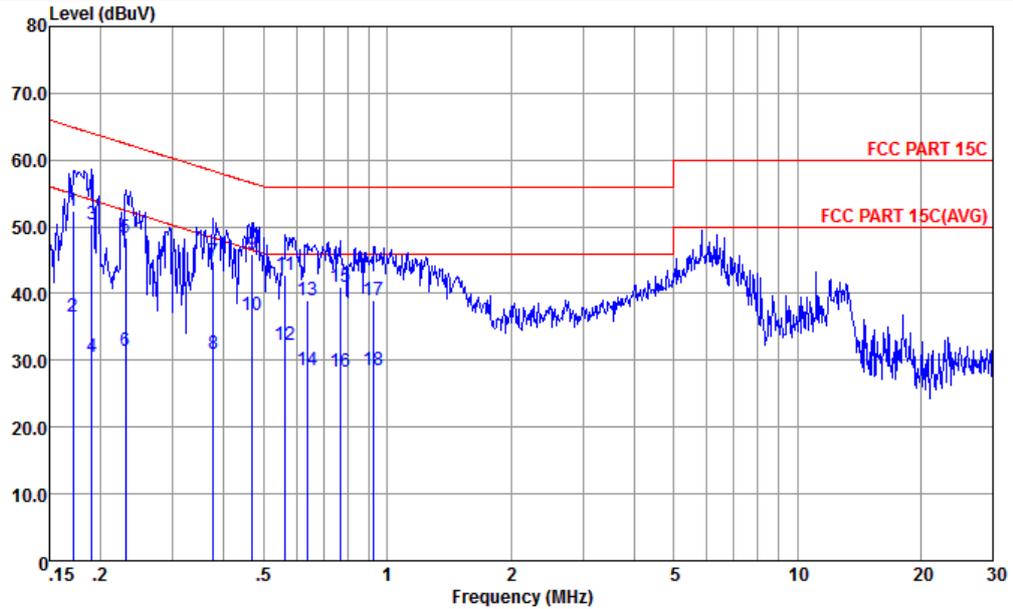
3.6.4 Test Setup





3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Peter Wei	Relative Humidity :	40~42%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	LTE Band 2 Idle + WLAN Link + USB Cable (Charging from Adapter 1)		

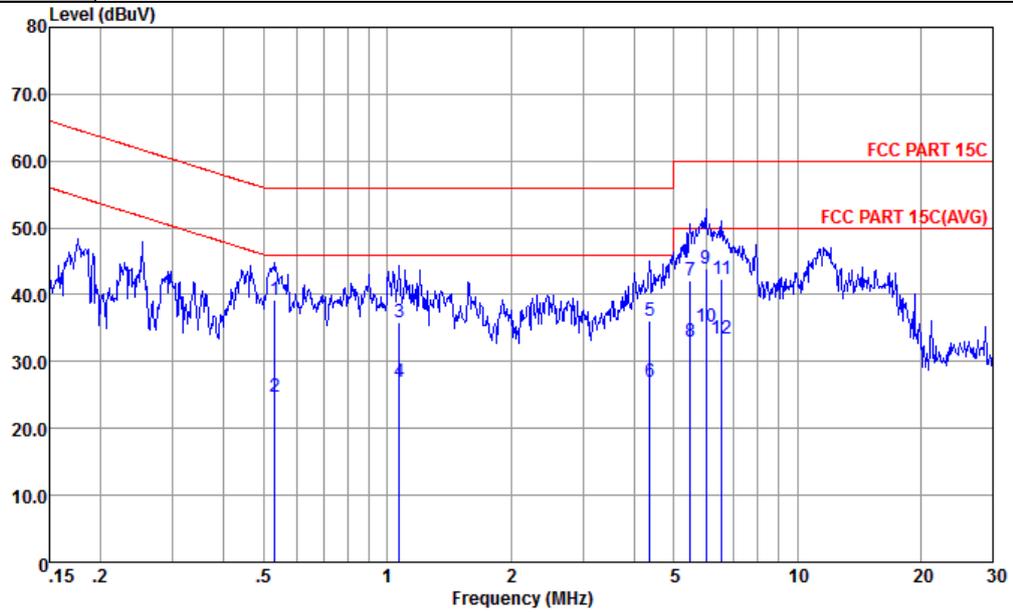


Site : CO01-KS
 Condition : FCC PART 15C LISN-L-20151024 LINE
 Project : (FR) 6D1905
 mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.171	52.45	-12.45	64.90	41.69	0.39	10.37	QP
2	0.171	36.65	-18.25	54.90	25.89	0.39	10.37	Average
3	0.190	50.42	-13.60	64.02	39.81	0.27	10.34	QP
4	0.190	30.62	-23.40	54.02	20.01	0.27	10.34	Average
5	0.230	48.33	-14.11	62.44	37.80	0.22	10.31	QP
6	0.230	31.43	-21.01	52.44	20.90	0.22	10.31	Average
7	0.377	44.84	-13.50	58.34	34.40	0.23	10.21	QP
8	0.377	30.94	-17.40	48.34	20.50	0.23	10.21	Average
9	0.469	45.82	-10.72	56.54	35.40	0.23	10.19	QP
10 *	0.469	36.72	-9.82	46.54	26.30	0.23	10.19	Average
11	0.564	42.72	-13.28	56.00	32.31	0.23	10.18	QP
12	0.564	32.32	-13.68	46.00	21.91	0.23	10.18	Average
13	0.637	38.92	-17.08	56.00	28.50	0.24	10.18	QP
14	0.637	28.62	-17.38	46.00	18.20	0.24	10.18	Average
15	0.767	40.92	-15.08	56.00	30.51	0.24	10.17	QP
16	0.767	28.22	-17.78	46.00	17.81	0.24	10.17	Average
17	0.928	39.03	-16.97	56.00	28.60	0.25	10.18	QP
18	0.928	28.53	-17.47	46.00	18.10	0.25	10.18	Average



Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Peter Wei	Relative Humidity :	40~42%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	LTE Band 2 Idle + WLAN Link + USB Cable (Charging from Adapter 1)		



Site : CO01-KS
 Condition : FCC PART 15C LISN-N-20151024 NEUTRAL
 Project : (FR) 6D1905
 mode : Mode 1

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.532	39.21	-16.79	56.00	28.70	0.32	10.19	QP
2	0.532	24.81	-21.19	46.00	14.30	0.32	10.19	Average
3	1.071	35.96	-20.04	56.00	25.40	0.37	10.19	QP
4	1.071	26.96	-19.04	46.00	16.40	0.37	10.19	Average
5	4.361	36.10	-19.90	56.00	25.50	0.36	10.24	QP
6	4.361	26.90	-19.10	46.00	16.30	0.36	10.24	Average
7	5.476	42.19	-17.81	60.00	31.60	0.34	10.25	QP
8	5.476	32.99	-17.01	50.00	22.40	0.34	10.25	Average
9	5.993	43.98	-16.02	60.00	33.40	0.32	10.26	QP
10 *	5.993	35.18	-14.82	50.00	24.60	0.32	10.26	Average
11	6.557	42.38	-17.62	60.00	31.81	0.30	10.27	QP
12	6.557	33.48	-16.52	50.00	22.91	0.30	10.27	Average



3.7 Antenna Requirements

3.7.1 Standard Applicable

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

3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.7.3 Antenna Gain

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

Directional gain = $G_{ANT} + \text{Array Gain}$, 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.

For power, the directional gain G_{ANT} is set equal to the antenna having the highest gain, i.e., F)2)f)i).

For PSD, the directional gain calculation is following F)2)f)ii) of KDB 662911 D01 v02r01.

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.

			DG	DG	Power	PSD
	Ant. 1	Ant. 2	for	for	Limit	Limit
	(dBi)	(dBi)	Power	PSD	Reduction	Reduction
			(dBi)	(dBi)	(dB)	(dB)
2.4 GHz	1.50	1.50	1.50	4.51	0.00	0.00

$Power\ Limit\ Reduction = DG(Power) - 6dBi, (min = 0)$

$PSD\ Limit\ Reduction = DG(PSD) - 6dBi, (min = 0)$



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Aug. 09, 2016	Jan. 11, 2017~ Jan. 17, 2017	Aug. 08, 2017	Conducted (TH01-KS)
Pulse Power Senor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 20, 2016	Jan. 11, 2017~ Jan. 17, 2017	Jan. 19, 2017	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 20, 2016	Jan. 11, 2017~ Jan. 17, 2017	Jan. 19, 2017	Conducted (TH01-KS)
EMI Test Receiver	R&S	ESR7	101403	9kHz~7GHz; Max 30dBm	Aug. 09, 2016	Jan. 24, 2017	Aug. 08, 2017	Radiation (03CH03-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz~44GHz	Apr. 22, 2016	Jan. 24, 2017	Apr. 21, 2017	Radiation (03CH03-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Nov. 23, 2016	Jan. 24, 2017	Nov. 22, 2017	Radiation (03CH03-KS)
Bilog Antenna	TeseQ	CBL6112D	35406	25MHz~2GHz	Apr. 16, 2016	Jan. 24, 2017	Apr. 15, 2017	Radiation (03CH03-KS)
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1356	1GHz~18GHz	Apr. 16, 2016	Jan. 24, 2017	Apr. 15, 2017	Radiation (03CH03-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15GHz~40GHz	Mar. 03, 2016	Jan. 24, 2017	Mar. 02, 2017	Radiation (03CH03-KS)
Amplifier	SONOMA	310N	187289	9kHz~1GHz	Aug. 09, 2016	Jan. 24, 2017	Aug. 08, 2017	Radiation (03CH03-KS)
Amplifier	MITEQ	TTA1840-35-HG	1887435	18GHz~40GHz	Oct. 13, 2016	Jan. 24, 2017	Oct. 12, 2017	Radiation (03CH03-KS)
High Gain Amplifier	MITEQ	AMF-7D-0010 1800-30-10P	1943529	1GHz~18GHz	Jan. 19, 2017	Jan. 24, 2017	Jan. 18, 2018	Radiation (03CH03-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Oct. 13, 2016	Jan. 24, 2017	Oct. 12, 2017	Radiation (03CH03-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Jan. 24, 2017	NCR	Radiation (03CH03-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Jan. 24, 2017	NCR	Radiation (03CH03-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Jan. 24, 2017	NCR	Radiation (03CH03-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz	Apr. 29, 2016	Jan. 05, 2017	Apr. 28, 2017	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060103	9kHz~30MHz	Oct. 13, 2016	Jan. 05, 2017	Oct. 12, 2017	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060105	9kHz~30MHz	Oct. 13, 2016	Jan. 05, 2017	Oct. 12, 2017	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	AC 0V~300V, 45Hz~1000Hz	Oct. 13, 2016	Jan. 05, 2017	Oct. 12, 2017	Conduction (CO01-KS)

NCR: No Calibration Required



5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.3 dB
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.5dB
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Uncertainty of Radiated Emission Measurement (1GHz ~ 18GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.5dB
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Uncertainty of Radiated Emission Measurement (18GHz ~ 40GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.6dB
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Appendix A. Conducted Test Results

Test Engineer:	Silent Hai	Temperature:	21~25	°C
Test Date:	Jan. 11, 2017 ~ Jan. 17, 2017	Relative Humidity:	51~55	%

TEST RESULTS DATA
6dB Bandwidth

2.4GHz Band								
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	6dB BW (MHz)		6dB BW Limit (MHz)	Pass/Fail
					Ant 1	Ant 2		
11b	1Mbps	1	1	2412		9.57	0.50	Pass
11b	1Mbps	1	6	2437		10.07	0.50	Pass
11b	1Mbps	1	11	2462		10.07	0.50	Pass
11g	6Mbps	1	1	2412		16.48	0.50	Pass
11g	6Mbps	1	6	2437		16.54	0.50	Pass
11g	6Mbps	1	11	2462		16.56	0.50	Pass
HT20	MCS0	1	1	2412		17.70	0.50	Pass
HT20	MCS0	1	6	2437		17.78	0.50	Pass
HT20	MCS0	1	11	2462		17.78	0.50	Pass
HT40	MCS0	1	3	2422		35.96	0.50	Pass
HT40	MCS0	1	6	2437		36.36	0.50	Pass
HT40	MCS0	1	9	2452		36.36	0.50	Pass
HT20	MCS0	2	1	2412	17.72	17.70	0.50	Pass
HT20	MCS0	2	6	2437	17.78	17.80	0.50	Pass
HT20	MCS0	2	11	2462	17.78	17.78	0.50	Pass
HT40	MCS0	2	3	2422	35.96	35.96	0.50	Pass
HT40	MCS0	2	6	2437	36.28	36.36	0.50	Pass
HT40	MCS0	2	9	2452	36.44	36.36	0.50	Pass

TEST RESULTS DATA
Peak Output Power

2.4GHz Band																
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak Conducted Power (dBm)			Conducted Power Limit (dBm)		DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)		Pass /Fail
					Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	
11b	1Mbps	1	1	2412	15.51	16.93		30.00	30.00	1.50	1.50	17.01	18.43	36.00	36.00	Pass
11b	1Mbps	1	6	2437	17.34	18.28		30.00	30.00	1.50	1.50	18.84	19.78	36.00	36.00	Pass
11b	1Mbps	1	11	2462	16.62	18.17		30.00	30.00	1.50	1.50	18.12	19.67	36.00	36.00	Pass
11g	6Mbps	1	1	2412	21.13	23.02		30.00	30.00	1.50	1.50	22.63	24.52	36.00	36.00	Pass
11g	6Mbps	1	6	2437	22.91	24.33		30.00	30.00	1.50	1.50	24.41	25.83	36.00	36.00	Pass
11g	6Mbps	1	11	2462	22.18	24.11		30.00	30.00	1.50	1.50	23.68	25.61	36.00	36.00	Pass
HT20	MCS0	1	1	2412	19.78	21.89		30.00	30.00	1.50	1.50	21.28	23.39	36.00	36.00	Pass
HT20	MCS0	1	6	2437	21.41	22.98		30.00	30.00	1.50	1.50	22.91	24.48	36.00	36.00	Pass
HT20	MCS0	1	11	2462	20.82	22.78		30.00	30.00	1.50	1.50	22.32	24.28	36.00	36.00	Pass
HT40	MCS0	1	3	2422	21.48	22.99		30.00	30.00	1.50	1.50	22.98	24.49	36.00	36.00	Pass
HT40	MCS0	1	6	2437	22.44	23.96		30.00	30.00	1.50	1.50	23.94	25.46	36.00	36.00	Pass
HT40	MCS0	1	9	2452	21.57	23.36		30.00	30.00	1.50	1.50	23.07	24.86	36.00	36.00	Pass
HT20	MCS0	2	1	2412	18.67	20.72	22.83	30.00	30.00	1.50	1.50	24.33	25.83	36.00	36.00	Pass
HT20	MCS0	2	6	2437	20.17	21.83	24.09	30.00	30.00	1.50	1.50	25.59	27.09	36.00	36.00	Pass
HT20	MCS0	2	11	2462	19.52	21.41	23.58	30.00	30.00	1.50	1.50	25.08	26.58	36.00	36.00	Pass
HT40	MCS0	2	3	2422	20.16	22.28	24.36	30.00	30.00	1.50	1.50	25.86	27.36	36.00	36.00	Pass
HT40	MCS0	2	6	2437	21.29	23.14	25.32	30.00	30.00	1.50	1.50	26.82	28.32	36.00	36.00	Pass
HT40	MCS0	2	9	2452	20.43	22.63	24.68	30.00	30.00	1.50	1.50	26.18	28.18	36.00	36.00	Pass

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

TEST RESULTS DATA
Average Output Power

2.4GHz Band									
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)		
					Ant 1	Ant 2	Ant 1	Ant 2	SUM
11b	1Mbps	1	1	2412	0.00	0.00	13.16	14.75	
11b	1Mbps	1	6	2437	0.00	0.00	15.07	16.04	
11b	1Mbps	1	11	2462	0.00	0.00	14.30	15.71	
11g	6Mbps	1	1	2412	0.00	0.00	11.02	13.32	
11g	6Mbps	1	6	2437	0.00	0.00	12.82	14.64	
11g	6Mbps	1	11	2462	0.00	0.00	12.18	14.45	
HT20	MCS0	1	1	2412	0.00	0.00	10.04	12.29	
HT20	MCS0	1	6	2437	0.00	0.00	11.86	13.61	
HT20	MCS0	1	11	2462	0.00	0.00	11.17	13.34	
HT40	MCS0	1	3	2422	0.00	0.00	11.66	13.55	
HT40	MCS0	1	6	2437	0.00	0.00	12.15	14.05	
HT40	MCS0	1	9	2452	0.00	0.00	11.71	13.83	
HT20	MCS0	2	1	2412	0.00	0.00	8.92	11.06	13.13
HT20	MCS0	2	6	2437	0.00	0.00	10.64	12.34	14.58
HT20	MCS0	2	11	2462	0.00	0.00	9.93	12.06	14.13
HT40	MCS0	2	3	2422	0.00	0.00	10.64	12.66	14.78
HT40	MCS0	2	6	2437	0.00	0.00	11.08	13.38	15.39
HT40	MCS0	2	9	2452	0.00	0.00	10.56	13.04	14.98

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

TEST RESULTS DATA
Peak Power Spectral Density

2.4GHz Band												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak PSD (dBm/3kHz)			DG (dBi)		Peak PSD Limit (dBm/3kHz)		Pass/Fail
					Ant 1	Ant 2	Worse + 3.01	Ant 1	Ant 2	Ant 1	Ant 2	
11b	1Mbps	1	1	2412		-15.87		1.50	1.50	8.00	8.00	Pass
11b	1Mbps	1	6	2437		-14.87		1.50	1.50	8.00	8.00	Pass
11b	1Mbps	1	11	2462		-15.36		1.50	1.50	8.00	8.00	Pass
11g	6Mbps	1	1	2412		-15.85		1.50	1.50	8.00	8.00	Pass
11g	6Mbps	1	6	2437		-14.74		1.50	1.50	8.00	8.00	Pass
11g	6Mbps	1	11	2462		-14.96		1.50	1.50	8.00	8.00	Pass
HT20	MCS0	1	1	2412		-15.70		1.50	1.50	8.00	8.00	Pass
HT20	MCS0	1	6	2437		-14.67		1.50	1.50	8.00	8.00	Pass
HT20	MCS0	1	11	2462		-15.30		1.50	1.50	8.00	8.00	Pass
HT40	MCS0	1	3	2422		-16.59		1.50	1.50	8.00	8.00	Pass
HT40	MCS0	1	6	2437		-16.61		1.50	1.50	8.00	8.00	Pass
HT40	MCS0	1	9	2452		-17.27		1.50	1.50	8.00	8.00	Pass
HT20	MCS0	2	1	2412	-19.04	-16.78	-13.77	4.51		8.00		Pass
HT20	MCS0	2	6	2437	-17.45	-16.14	-13.13	4.51		8.00		Pass
HT20	MCS0	2	11	2462	-18.76	-15.83	-12.82	4.51		8.00		Pass
HT40	MCS0	2	3	2422	-19.74	-17.99	-14.98	4.51		8.00		Pass
HT40	MCS0	2	6	2437	-19.65	-16.54	-13.53	4.51		8.00		Pass
HT40	MCS0	2	9	2452	-19.82	-18.50	-15.49	4.51		8.00		Pass

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



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.
Chain Port 1		(MHz)	(dBμV/m)	(dB)	Line (dBμV/m)	Level (dBμV)	Factor (dB/m)	Loss (dB)	Factor (dB)	Pos (cm)	Pos (deg)	Avg. (P/A)	(H/V)
802.11b CH 01 2412MHz		2364.08	51.1	-22.9	74	55.78	26.91	5.43	37.02	100	75	P	H
		2389.95	39.7	-14.3	54	44.25	27	5.47	37.02	100	75	A	H
	*	2412	104.57	-	-	108.97	27.13	5.47	37	100	75	P	H
	*	2414	100.7	-	-	105.1	27.13	5.47	37	100	75	A	H
		2373.18	51.9	-22.1	74	56.52	26.95	5.45	37.02	102	323	P	V
		2389.95	39.48	-14.52	54	44.03	27	5.47	37.02	102	323	A	V
	*	2412	97.99	-	-	102.39	27.13	5.47	37	102	323	P	V
	*	2410	94.18	-	-	98.58	27.13	5.47	37	102	323	A	V
802.11b CH 06 2437MHz		2370.45	50.47	-23.53	74	55.09	26.95	5.45	37.02	100	83	P	H
		2389.95	39.47	-14.53	54	44.02	27	5.47	37.02	100	83	A	H
	*	2436	106.89	-	-	111.14	27.26	5.48	36.99	100	83	P	H
	*	2438	103.17	-	-	107.26	27.39	5.49	36.97	100	83	A	H
		2483.8	52.65	-21.35	74	56.44	27.64	5.51	36.94	100	83	P	H
		2483.5	41.2	-12.8	54	44.99	27.64	5.51	36.94	100	83	A	H
		2382.67	51.11	-22.89	74	55.73	26.95	5.45	37.02	103	342	P	V
		2389.95	39.52	-14.48	54	44.07	27	5.47	37.02	103	342	A	V
	*	2438	100.48	-	-	104.57	27.39	5.49	36.97	103	342	P	V
	*	2438	96.12	-	-	100.21	27.39	5.49	36.97	103	342	A	V
		2487.88	52.01	-21.99	74	55.65	27.77	5.52	36.93	103	342	P	V
	2483.56	40.49	-13.51	54	44.28	27.64	5.51	36.94	103	342	A	V	



802.11b CH 11 2462MHz	*	2462	103.15	-	-	107.1	27.51	5.5	36.96	100	88	P	H
	*	2464	99.71	-	-	103.66	27.51	5.5	36.96	100	88	A	H
		2484.1	64.28	-9.72	74	68.07	27.64	5.51	36.94	100	88	P	H
		2483.5	42.75	-11.25	54	46.54	27.64	5.51	36.94	100	88	A	H
	*	2462	100.05	-	-	104	27.51	5.5	36.96	100	360	P	V
	*	2464	96.59	-	-	100.54	27.51	5.5	36.96	100	360	A	V
		2483.62	60.47	-13.53	74	64.26	27.64	5.51	36.94	100	360	P	V
		2483.56	41.35	-12.65	54	45.14	27.64	5.51	36.94	100	360	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 Chain Port 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 01 2412MHz		4824	44.38	-29.62	74	41.83	31.51	7.72	36.68	100	360	P	H
		4824	42.39	-31.61	74	39.84	31.51	7.72	36.68	100	360	P	V
802.11b CH 06 2437MHz		4872	43.24	-30.76	74	40.55	31.59	7.76	36.66	100	360	P	H
		7308	46.49	-27.51	74	39.39	34.03	9.76	36.69	100	360	P	H
		4872	43.54	-30.46	74	40.85	31.59	7.76	36.66	100	360	P	V
		7308	46.18	-27.82	74	39.08	34.03	9.76	36.69	100	360	P	V
802.11b CH 11 2462MHz		4926	43.25	-30.75	74	40.43	31.67	7.8	36.65	100	360	P	H
		7386	45.78	-28.22	74	38.41	34.29	9.86	36.78	100	360	P	H
		4926	42.46	-31.54	74	39.64	31.67	7.8	36.65	100	360	P	V
		7386	46.3	-27.7	74	38.93	34.29	9.86	36.78	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
WIFI 802.11g (Band Edge @ 3m)**

WIFI Chain Port 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 01 2412MHz		2361.35	50.44	-23.56	74	55.12	26.91	5.43	37.02	100	285	P	H
		2389.95	39.38	-14.62	54	43.93	27	5.47	37.02	100	285	A	H
	*	2410	101.4	-	-	105.8	27.13	5.47	37	100	285	P	H
	*	2410	93.51	-	-	97.91	27.13	5.47	37	100	285	A	H
		2370.58	50.39	-23.61	74	55.01	26.95	5.45	37.02	100	113	P	V
		2389.95	39.29	-14.71	54	43.84	27	5.47	37.02	100	113	A	V
	*	2410	96.62	-	-	101.02	27.13	5.47	37	100	113	P	V
	*	2410	88.08	-	-	92.48	27.13	5.47	37	100	113	A	V
802.11g CH 06 2437MHz		2366.03	50.56	-23.44	74	55.24	26.91	5.43	37.02	100	284	P	H
		2389.95	39.23	-14.77	54	43.78	27	5.47	37.02	100	284	A	H
	*	2434	105.55	-	-	109.8	27.26	5.48	36.99	100	284	P	H
	*	2436	94.93	-	-	99.18	27.26	5.48	36.99	100	284	A	H
		2499.58	51.42	-22.58	74	55.06	27.77	5.52	36.93	100	284	P	H
		2483.5	40.5	-13.5	54	44.29	27.64	5.51	36.94	100	284	A	H
		2375.39	50.73	-23.27	74	55.35	26.95	5.45	37.02	100	54	P	V
		2388.13	39.2	-14.8	54	43.75	27	5.47	37.02	100	54	A	V
	*	2440	100.4	-	-	104.49	27.39	5.49	36.97	100	54	P	V
	*	2438	92.71	-	-	96.8	27.39	5.49	36.97	100	54	A	V
		2485.12	51.58	-22.42	74	55.37	27.64	5.51	36.94	100	54	P	V
		2483.68	40.37	-13.63	54	44.16	27.64	5.51	36.94	100	54	A	V
802.11g CH 11 2462MHz	*	2470	102.71	-	-	106.66	27.51	5.5	36.96	100	54	P	H
	*	2468	94.57	-	-	98.52	27.51	5.5	36.96	100	54	A	H
		2484.4	53.96	-20.04	74	57.75	27.64	5.51	36.94	100	54	P	H
		2483.5	43.43	-10.57	54	47.22	27.64	5.51	36.94	100	54	A	H
	*	2470	98.78	-	-	102.73	27.51	5.5	36.96	104	54	P	V
	*	2468	91.1	-	-	95.05	27.51	5.5	36.96	104	54	A	V
		2483.5	52.39	-21.61	74	56.18	27.64	5.51	36.94	104	54	P	V
		2483.5	42.19	-11.81	54	45.98	27.64	5.51	36.94	104	54	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 802.11g (Harmonic @ 3m)

Table with 14 columns: WIFI Chain Port 1, Note, Frequency (MHz), Level (dBµV/m), Over Limit (dB), Limit Line (dBµV/m), Read Level (dBµV), Antenna Factor (dB/m), Cable Loss (dB), Preamp Factor (dB), Ant Pos (cm), Table Pos (deg), Peak Avg. (P/A), Pol. (H/V). Rows include data for 802.11g CH 01, CH 06, and CH 11.



2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI Chain Port 2	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		2374.09	50.81	-23.19	74	55.43	26.95	5.45	37.02	100	210	P	H
		2389.95	39.69	-14.31	54	44.24	27	5.47	37.02	100	210	A	H
	*	2412	101.88	-	-	106.28	27.13	5.47	37	100	210	P	H
	*	2414	98.62	-	-	103.02	27.13	5.47	37	100	210	A	H
		2335.35	50.68	-23.32	74	55.42	26.86	5.41	37.01	365	70	P	V
		2389.95	39.48	-14.52	54	44.03	27	5.47	37.02	365	70	A	V
	*	2412	97.6	-	-	102	27.13	5.47	37	365	70	P	V
	*	2414	94.22	-	-	98.62	27.13	5.47	37	365	70	A	V
802.11b CH 06 2437MHz		2347.96	51.28	-22.72	74	56.02	26.86	5.41	37.01	157	232	P	H
		2389.43	39.57	-14.43	54	44.12	27	5.47	37.02	157	232	A	H
	*	2438	104.64	-	-	108.73	27.39	5.49	36.97	157	232	P	H
	*	2436	100.82	-	-	105.07	27.26	5.48	36.99	157	232	A	H
		2483.62	52.24	-21.76	74	56.03	27.64	5.51	36.94	157	232	P	H
		2483.56	41.14	-12.86	54	44.93	27.64	5.51	36.94	157	232	A	H
		2348.09	50.84	-23.16	74	55.58	26.86	5.41	37.01	316	65	P	V
		2389.56	39.46	-14.54	54	44.01	27	5.47	37.02	316	65	A	V
	*	2438	99.95	-	-	104.04	27.39	5.49	36.97	316	65	P	V
	*	2436	95.08	-	-	99.33	27.26	5.48	36.99	316	65	A	V
		2496.22	51.46	-22.54	74	55.1	27.77	5.52	36.93	316	65	P	V
		2483.5	40.49	-13.51	54	44.28	27.64	5.51	36.94	316	65	A	V



802.11b CH 11 2462MHz	*	2462	106.07	-	-	110.02	27.51	5.5	36.96	100	232	P	H
	*	2464	100.8	-	-	104.75	27.51	5.5	36.96	100	232	A	H
		2484.88	52.59	-21.41	74	56.38	27.64	5.51	36.94	100	232	P	H
		2483.5	42.54	-11.46	54	46.33	27.64	5.51	36.94	100	232	A	H
	*	2462	100.99	-	-	104.94	27.51	5.5	36.96	349	91	P	V
	*	2464	97.54	-	-	101.49	27.51	5.5	36.96	349	91	A	V
		2486.26	51.7	-22.3	74	55.49	27.64	5.51	36.94	349	91	P	V
		2483.5	41.11	-12.89	54	44.9	27.64	5.51	36.94	349	91	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)

Table with 14 columns: WIFI Chain Port 2, 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). Rows include data for 802.11b CH 01 (2412MHz), 802.11b CH 06 (2437MHz), and 802.11b CH 11 (2462MHz). A Remark section at the bottom states: '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 Chain Port 2	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		2375.65	50.8	-23.2	74	55.42	26.95	5.45	37.02	100	322	P	H
		2389.95	40.12	-13.88	54	44.67	27	5.47	37.02	100	322	A	H
	*	2420	103.56	-	-	107.81	27.26	5.48	36.99	100	322	P	H
	*	2420	95.64	-	-	99.89	27.26	5.48	36.99	100	322	A	H
		2342.63	51.16	-22.84	74	55.9	26.86	5.41	37.01	100	243	P	V
		2389.95	39.76	-14.24	54	44.31	27	5.47	37.02	100	243	A	V
	*	2420	99.74	-	-	103.99	27.26	5.48	36.99	100	243	P	V
	*	2420	91.39	-	-	95.64	27.26	5.48	36.99	100	243	A	V
802.11g CH 06 2437MHz		2388.91	51.06	-22.94	74	55.61	27	5.47	37.02	188	214	P	H
		2389.82	39.68	-14.32	54	44.23	27	5.47	37.02	188	214	A	H
	*	2432	104.06	-	-	108.31	27.26	5.48	36.99	188	214	P	H
	*	2430	96.07	-	-	100.32	27.26	5.48	36.99	188	214	A	H
		2483.92	51.93	-22.07	74	55.72	27.64	5.51	36.94	188	214	P	H
		2483.5	41.32	-12.68	54	45.11	27.64	5.51	36.94	188	214	A	H
		2325.73	51.47	-22.53	74	56.27	26.82	5.39	37.01	100	243	P	V
		2389.95	39.61	-14.39	54	44.16	27	5.47	37.02	100	243	A	V
	*	2432	100.33	-	-	104.58	27.26	5.48	36.99	100	243	P	V
	*	2430	93.73	-	-	97.98	27.26	5.48	36.99	100	243	A	V
		2489.14	52.08	-21.92	74	55.72	27.77	5.52	36.93	100	243	P	V
		2483.5	41	-13	54	44.79	27.64	5.51	36.94	100	243	A	V
802.11g CH 11 2462MHz	*	2464	106.35	-	-	110.3	27.51	5.5	36.96	100	310	P	H
	*	2464	98.3	-	-	102.25	27.51	5.5	36.96	100	310	A	H
		2483.74	60.4	-13.6	74	64.19	27.64	5.51	36.94	100	310	P	H
		2483.5	46.51	-7.49	54	50.3	27.64	5.51	36.94	100	310	A	H
	*	2464	102.99	-	-	106.94	27.51	5.5	36.96	100	295	P	V
	*	2464	94.54	-	-	98.49	27.51	5.5	36.96	100	295	A	V
		2484.34	56.22	-17.78	74	60.01	27.64	5.51	36.94	100	295	P	V
		2483.5	43.74	-10.26	54	47.53	27.64	5.51	36.94	100	295	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 802.11g (Harmonic @ 3m)**

WIFI Chain Port 2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 01 2412MHz		4824	44.11	-29.89	74	41.56	31.51	7.72	36.68	100	360	P	H
		4824	44	-30	74	41.45	31.51	7.72	36.68	100	360	P	V
802.11g CH 06 2437MHz		4872	44.33	-29.67	74	41.64	31.59	7.76	36.66	100	360	P	H
		7308	46.17	-27.83	74	39.07	34.03	9.76	36.69	100	360	P	H
		4872	42.65	-31.35	74	39.96	31.59	7.76	36.66	100	360	P	V
		7308	46.34	-27.66	74	39.24	34.03	9.76	36.69	100	360	P	V
802.11g CH 11 2462MHz		4926	43.35	-30.65	74	40.53	31.67	7.8	36.65	100	360	P	H
		7386	46.44	-27.56	74	39.07	34.29	9.86	36.78	100	360	P	H
		4926	43.44	-30.56	74	40.62	31.67	7.8	36.65	100	360	P	V
		7386	47.09	-26.91	74	39.72	34.29	9.86	36.78	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
WIFI 802.11n HT20 (Band Edge @ 3m)**

WIFI Chain Port 1+2	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		2378.64	51.19	-22.81	74	55.81	26.95	5.45	37.02	125	319	P	H
		2389.95	40.96	-13.04	54	45.51	27	5.47	37.02	125	319	A	H
	*	2420	105.82	-	-	110.07	27.26	5.48	36.99	125	319	P	H
	*	2420	96.79	-	-	101.04	27.26	5.48	36.99	125	319	A	H
		2389.95	52.84	-21.16	74	57.39	27	5.47	37.02	100	97	P	V
		2389.95	39.98	-14.02	54	44.53	27	5.47	37.02	100	97	A	V
	*	2410	101.68	-	-	106.08	27.13	5.47	37	100	97	P	V
	*	2410	93.42	-	-	97.82	27.13	5.47	37	100	97	A	V
802.11n HT20 CH 06 2437MHz		2384.75	51.51	-22.49	74	56.13	26.95	5.45	37.02	104	315	P	H
		2389.95	39.95	-14.05	54	44.5	27	5.47	37.02	104	315	A	H
	*	2430	106.29	-	-	110.54	27.26	5.48	36.99	104	315	P	H
	*	2430	98.1	-	-	102.35	27.26	5.48	36.99	104	315	A	H
		2488.18	56.86	-17.14	74	60.5	27.77	5.52	36.93	104	315	P	H
		2483.5	41.45	-12.55	54	45.24	27.64	5.51	36.94	104	315	A	H
		2382.41	50.96	-23.04	74	55.58	26.95	5.45	37.02	118	92	P	V
		2389.95	39.81	-14.19	54	44.36	27	5.47	37.02	118	92	A	V
	*	2434	101.24	-	-	105.49	27.26	5.48	36.99	118	92	P	V
	*	2438	93.06	-	-	97.15	27.39	5.49	36.97	118	92	A	V
802.11n HT20 CH 11 2462MHz		2493.22	51.95	-22.05	74	55.59	27.77	5.52	36.93	118	92	P	V
		2483.5	40.79	-13.21	54	44.58	27.64	5.51	36.94	118	92	A	V
	*	2464	106.48	-	-	110.43	27.51	5.5	36.96	100	318	P	H
	*	2464	98.03	-	-	101.98	27.51	5.5	36.96	100	318	A	H
		2483.56	57.23	-16.77	74	61.02	27.64	5.51	36.94	100	318	P	H
		2483.5	45.79	-8.21	54	49.58	27.64	5.51	36.94	100	318	A	H
	*	2466	101.13	-	-	105.08	27.51	5.5	36.96	251	259	P	V
*	2466	93.17	-	-	97.12	27.51	5.5	36.96	251	259	A	V	
	2483.62	53.47	-20.53	74	57.26	27.64	5.51	36.94	251	259	P	V	
	2483.5	41.92	-12.08	54	45.71	27.64	5.51	36.94	251	259	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 Chain Port 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 01 2412MHz		4824	43.28	-30.72	74	40.73	31.51	7.72	36.68	100	360	P	H
		4824	43.83	-30.17	74	41.28	31.51	7.72	36.68	100	360	P	V
802.11n HT20 CH 06 2437MHz		4872	43.05	-30.95	74	40.36	31.59	7.76	36.66	100	360	P	H
		7308	46.66	-27.34	74	39.56	34.03	9.76	36.69	100	360	P	H
		4872	43.57	-30.43	74	40.88	31.59	7.76	36.66	100	360	P	V
		7308	47.03	-26.97	74	39.93	34.03	9.76	36.69	100	360	P	V
802.11n HT20 CH 11 2462MHz		4926	43.2	-30.8	74	40.38	31.67	7.8	36.65	100	360	P	H
		7386	46.36	-27.64	74	38.99	34.29	9.86	36.78	100	360	P	H
		4926	43.04	-30.96	74	40.22	31.67	7.8	36.65	100	360	P	V
		7386	48.07	-25.93	74	40.7	34.29	9.86	36.78	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
WIFI 802.11n HT40 (Band Edge @ 3m)**

WIFI Chain Port 1+2	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		2388.78	53.06	-20.94	74	57.61	27	5.47	37.02	186	100	P	H
		2389.95	43	-11	54	47.55	27	5.47	37.02	186	100	A	H
	*	2428	105.61	-	-	109.86	27.26	5.48	36.99	186	100	P	H
	*	2430	97.18	-	-	101.43	27.26	5.48	36.99	186	100	A	H
		2484.64	52.5	-21.5	74	56.29	27.64	5.51	36.94	186	100	P	H
		2483.56	41.79	-12.21	54	45.58	27.64	5.51	36.94	186	100	A	H
		2381.11	50.63	-23.37	74	55.25	26.95	5.45	37.02	100	347	P	V
		2389.95	39.74	-14.26	54	44.29	27	5.47	37.02	100	347	A	V
	*	2434	94.26	-	-	98.51	27.26	5.48	36.99	100	347	P	V
	*	2432	86.26	-	-	90.51	27.26	5.48	36.99	100	347	A	V
		2484.64	51.69	-22.31	74	55.48	27.64	5.51	36.94	100	347	P	V
		2483.68	40.37	-13.63	54	44.16	27.64	5.51	36.94	100	347	A	V
802.11n HT40 CH 06 2437MHz		2365.12	51.25	-22.75	74	55.93	26.91	5.43	37.02	156	116	P	H
		2389.95	40.5	-13.5	54	45.05	27	5.47	37.02	156	116	A	H
	*	2434	104.99	-	-	109.24	27.26	5.48	36.99	156	116	P	H
	*	2434	96.74	-	-	100.99	27.26	5.48	36.99	156	116	A	H
		2483.68	53.72	-20.28	74	57.51	27.64	5.51	36.94	156	116	P	H
		2483.5	42.92	-11.08	54	46.71	27.64	5.51	36.94	156	116	A	H
		2377.73	51.38	-22.62	74	56	26.95	5.45	37.02	178	102	P	V
		2389.95	39.74	-14.26	54	44.29	27	5.47	37.02	178	102	A	V
	*	2434	99.21	-	-	103.46	27.26	5.48	36.99	178	102	P	V
	*	2432	91.3	-	-	95.55	27.26	5.48	36.99	178	102	A	V
	2486.5	51.83	-22.17	74	55.62	27.64	5.51	36.94	178	102	P	V	
	2483.5	41.12	-12.88	54	44.91	27.64	5.51	36.94	178	102	A	V	



802.11n HT40 CH 09 2452MHz		2375.65	51.09	-22.91	74	55.71	26.95	5.45	37.02	107	96	P	H
		2389.95	39.7	-14.3	54	44.25	27	5.47	37.02	107	96	A	H
	*	2440	102.51	-	-	106.6	27.39	5.49	36.97	107	96	P	H
	*	2440	94.39	-	-	98.48	27.39	5.49	36.97	107	96	A	H
		2483.62	57.36	-16.64	74	61.15	27.64	5.51	36.94	107	96	P	H
		2483.5	44.78	-9.22	54	48.57	27.64	5.51	36.94	107	96	A	H
		2361.22	51.3	-22.7	74	55.98	26.91	5.43	37.02	231	117	P	V
		2389.82	39.55	-14.45	54	44.1	27	5.47	37.02	231	117	A	V
	*	2436	96.87	-	-	101.12	27.26	5.48	36.99	231	117	P	V
	*	2438	88.91	-	-	93	27.39	5.49	36.97	231	117	A	V
		2484.22	52.83	-21.17	74	56.62	27.64	5.51	36.94	231	117	P	V
		2483.5	42.53	-11.47	54	46.32	27.64	5.51	36.94	231	117	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 Chain Port 1+2	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		4842	42.27	-31.73	74	39.68	31.53	7.74	36.68	100	360	P	H
HT40		7266	46.05	-27.95	74	39.06	33.93	9.72	36.66	100	360	P	H
CH 03		4842	42.93	-31.07	74	40.34	31.53	7.74	36.68	100	360	P	V
2422MHz		7266	45.84	-28.16	74	38.85	33.93	9.72	36.66	100	360	P	V
802.11n		4872	43.02	-30.98	74	40.33	31.59	7.76	36.66	100	360	P	H
HT40		7308	46.1	-27.9	74	39	34.03	9.76	36.69	100	360	P	H
CH 06		4872	42.96	-31.04	74	40.27	31.59	7.76	36.66	100	360	P	V
2437MHz		7308	47.64	-26.36	74	40.54	34.03	9.76	36.69	100	360	P	V
802.11n		4902	43.25	-30.75	74	40.48	31.64	7.78	36.65	100	360	P	H
HT40		7356	45.27	-28.73	74	38.01	34.19	9.82	36.75	100	360	P	H
CH 09		4902	43.32	-30.68	74	40.55	31.64	7.78	36.65	100	360	P	V
2452MHz		7356	46.94	-27.06	74	39.68	34.19	9.82	36.75	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 802.11g (LF)

WIFI Chain Port 2	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		30.97	28.52	-11.48	40	32.29	26.86	0.66	31.29	100	250	P	H
		61.04	27.04	-12.96	40	44.49	13.06	0.93	31.44	-	-	P	H
		127	21.75	-21.75	43.5	33.54	18.35	1.36	31.5	-	-	P	H
		216.24	23.96	-22.04	46	37.48	16.23	1.73	31.48	-	-	P	H
		448.07	26.9	-19.1	46	30.1	25.41	2.63	31.24	-	-	P	H
		881.66	33.96	-12.04	46	32.35	28.68	3.8	30.87	-	-	P	H
		30	35.26	-4.74	40	38.68	27.2	0.65	31.27	-	-	P	V
		62.01	36.67	-3.33	40	54.06	13.12	0.94	31.45	200	250	P	V
		161.92	26.26	-17.24	43.5	38.85	17.41	1.54	31.54	-	-	P	V
		216.24	24.1	-21.9	46	37.62	16.23	1.73	31.48	-	-	P	V
		306.45	25.61	-20.39	46	35.47	19.32	2.16	31.34	-	-	P	V
		323.91	28.02	-17.98	46	36.98	20.13	2.21	31.3	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												



2.4GHz 2400~2483.5MHz

Note symbol

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



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

WIFI Chain Port 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 01		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
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”.



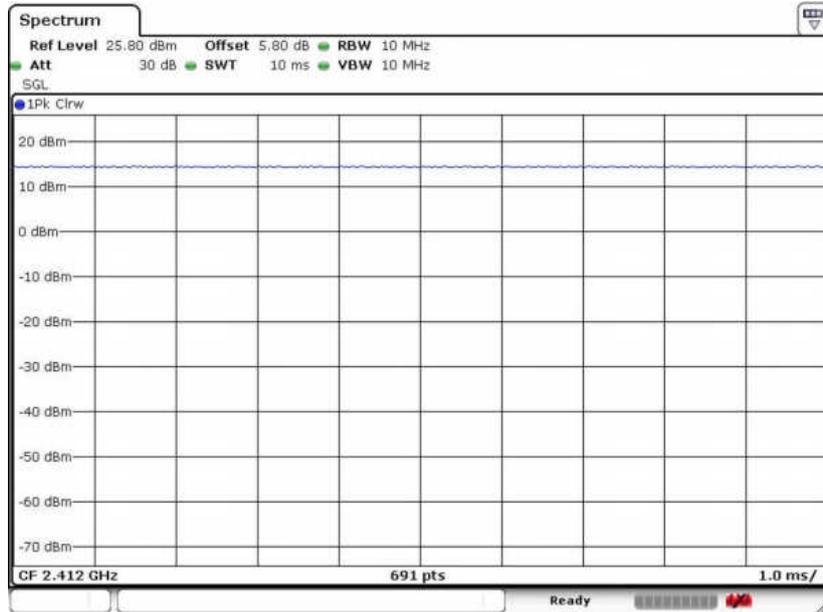
Appendix C. Duty Cycle Plots

Chain Port	Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
1	802.11b	100	-	-	10Hz
1	802.11g	100	-	-	10Hz
2	802.11b	100	-	-	10Hz
2	802.11g	100	-	-	10Hz
1+2	2.4GHz 802.11n HT20	100	-	-	10Hz
1+2	2.4GHz 802.11n HT40	100	-	-	10Hz

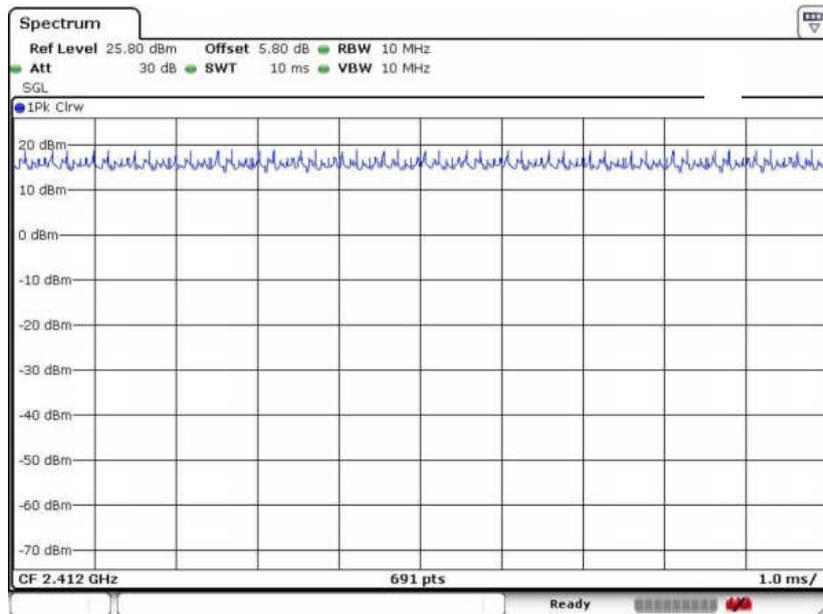


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802.11b



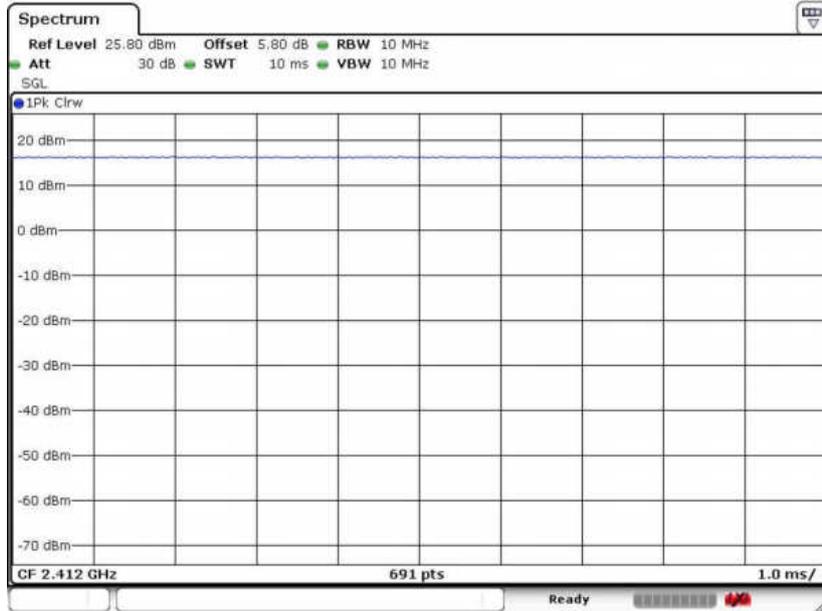
802.11g



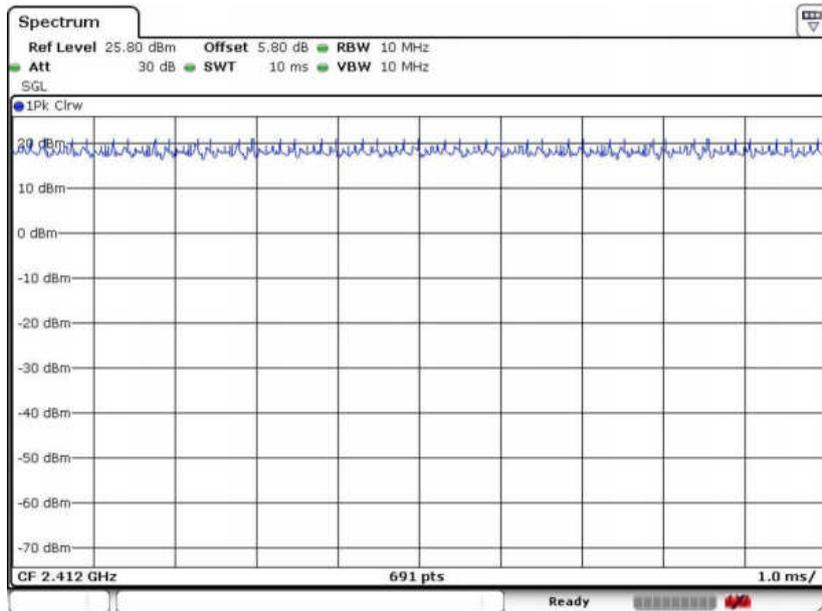


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802.11b



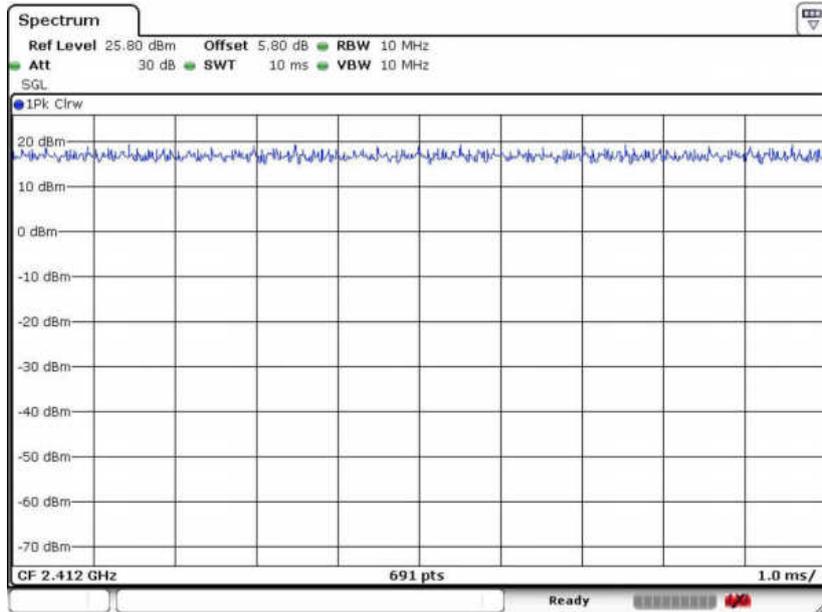
802.11g





<Chain Port 1+2>

802.11n HT20



802.11n HT40

