

Report No.: ZR/2020/2003102-01

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### **FCC TEST REPORT**

Application No: ZR/2020/20031

**Applicant:** Fibocom Wireless Inc.

Address of Applicant: 5/F,Tower A,Technology Building II,1057# Nanhai Blvd,Shenzhen,China

**Manufacturer:** Fibocom Wireless Inc.

Address of Manufacturer: 5/F, Tower A, Technology Building II, 1057# Nanhai Blvd, Shenzhen, China

Factory: BYD Precision Manufacture Co.,Ltd

Address of Factory: No. 3001, Baohe Road, Baolong Industrial City, Longgang street,

Longgang District, Shenzhen

EUT Description: LTE Module

Model No.: SS808-NA

Trade Mark: Fibocom

FCC ID: ZMOSS808NA

Standards: 47 CFR FCC Part 2, Subpart J

47 CFR Part 15, Subpart C

Test Method: KDB558074 D01 15.247 Meas Guidance v05r02

ANSI C63.10 (2013)

**Date of Receipt:** 2020/2/26

**Date of Test:** 2020/2/27 to 2020/3/25

**Date of Issue:** 2021/4/17

Test Result: PASS \*

Authorized Signature:

Derek Yang Wireless Laboratory Manager

Derele yang



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<sup>.\*</sup> In the configuration tested, the EUT complied with the standards specified above.



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### 1 Version

Chapter	Date	Modifier	Remark
	2020/3/26		Original
	2021/4/17	Stephen liang	1.Add test site Information     2.Modify data conversion     error of antenna height     3.Update equipment list
		2020/3/26	2020/3/26

Authorized for issue by:	
Prepared By	Stophen lang (Stephen liang) / Engineer
Checked By	Dand Chen  (David Chen) /Reviewer



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### 2 Test Summary

Test Item	Test Requirement	Test Method	Test Result	Result	Test Lab*
AC Power Line Conducted Emission	15.207	ANSI C63.10 2013	Clause 4.2	PASS	В
Duty Cycle			Clause 4.3	PASS	Α
Conducted Output Power	15.247 (b)(3)	ANSI C63.10 2013	Clause 4.4	PASS	Α
DTS (6 dB) Bandwidth & 99% Occupied Bandwidth	15.247 (a)(2)	ANSI C63.10 2013	Clause 4.5	PASS	Α
Power Spectral Density	15.247 (e)	ANSI C63.10 2013	Clause 4.6	PASS	Α
Band-edge for RF Conducted Emissions	15.247(d)	ANSI C63.10 2013	Clause 4.7	PASS	Α
RF Conducted Spurious Emissions	15.247(d)	ANSI C63.10 2013	Clause 4.8	PASS	Α
Radiated Spurious Emissions	15.247(d);15.205/15.20 9	ANSI C63.10 2013	Clause 4.9	PASS	В
Restricted bands around fundamental frequency (Radiated Emission)	15.247(d);15.205/15.20 9	ANSI C63.10 2013	Clause 4.10	PASS	В

#### Remark:

All test were performed by Lab A and B. Parts of test items above were subcontracted to Lab B. Lab A SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch Lab B SGS-CSTC STANDARDS TECHNICAL SERVICES (XI 'AN) CO., LTD.



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#### **General Information** 3

#### 3.1 **Client Information**

Applicant:	Fibocom Wireless Inc.	
Address of Applicant:	5/F,Tower A,Technology Building II,1057# Nanhai Blvd,Shenzhen,China	
Manufacturer:	Fibocom Wireless Inc.	
Address of Manufacturer:	5/F,Tower A,Technology Building II,1057# Nanhai Blvd,Shenzhen,China	
Factory:	BYD Precision Manufacture Co.,Ltd	
Address of Factory:  No. 3001, Baohe Road, Baolong Industrial City, Longgang street, Longstrict, Shenzhen		

#### 3.2 Test Location

#### Lab A:

Company:	SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch		
Address:	No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China		
Post code:	518057		
Test engineer:	Adam Liang, Mike Hu		

#### Lab B:

Company:	SGS-CSTC STANDARDS TECHNICAL SERVICES (XI 'AN) CO., LTD.
Address:	1/F, Unit D, Building 1, Kanghong Orange Technology Park, No.137, Keyuan 3rd Road, Fengdong New City, Xi'an, Shaanxi China
Post code:	710086
Test engineer:	Ben Huang



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### 3.3 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

#### Lab A:

#### • A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

#### VCCI

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

#### • FCC -Designation Number: CN1178

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

#### • Innovation, Science and Economic Development Canada

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

#### Lab B:

#### A2LA (Certificate No. 4854.01)

SGS-CSTC STANDARDS TECHNICAL SERVICES (XI 'AN) CO., LTD. is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 4854.01.

#### • FCC -Designation Number: CN1271



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### 3.4 General Description of EUT

EUT Description:	LTE Module				
Model No.:	SS808-NA				
Trade Mark:	Fibocom				
Hardware Version:	V1.0.1				
Software Version:	SS808_NA_00_00-20200102-1				
IEEE 802.11 WLAN Mode Supported:	<ul> <li>■ 802.11B (20 MHz channel bandwidth),</li> <li>■ 802.11G (20 MHz channel bandwidth)</li> <li>■ 802.11N (20 MHz channel bandwidth),</li> <li>■ 802.11N (40 MHz channel bandwidth)</li> </ul>				
Operation Frequency:	2400 MHz -2483.5MHz fc = 2407 MHz + N * 5 MHz, where: -fc = "Operating Frequency" in MHz, -N = "Channel Number" with the range from 1 to 11 for the 20 MHz channel bandwidth, or 3 to 9 for the 40 MHz channel bandwidth.				
Type of Modulation:	IEEE for 802.11B: DSSS IEEE for 802.11G: OFDM IEEE for 802.11N(HT20): OFDM IEEE for 802.11N(HT40): OFDM				
Sample Type:	☐ Portable Device, ☑Module				
Antenna Type:	⊠ External, ☐ Integrated				
Antenna Ports					
Smart System:	<ul> <li>SISO (for 802.11B/G/N),</li> <li>         MIMO (for 802.11N): 2 Tx &amp;2 Rx,</li> <li>         Diversity (for 802.11B/G): Tx &amp; Rx     </li> </ul>				
Antenna Gain:	2.3dBi				
Power Supply:	☐ AC/DC Adapter; ☐ Battery ☐ PoE:; ☐ Other:				

	Operation Frequency of each channel (802.11B/G/N HT20)						
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2412MHz	4	2427MHz	7	2442MHz	10	2457MHz
2	2417MHz	5	2432MHz	8	2447MHz	11	2462MHz
3	2422MHz	6	2437MHz	9	2452MHz		
	Operation Frequency of each channel (802.11N HT40)						
Channel	Frequency	Channel	Frequency	Channel	Frequency		
3	2422MHz	6	2437MHz	9	2452MHz		
4	2427MHz	7	2442MHz				
5	2432MHz	8	2447MHz				

Remark:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the



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middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel Frequency for 802.11B/G/N (HT20)		Frequency for 802.11N (HT40)	
The Lowest channel	The Lowest channel 2412MHz		
The Middle channel	The Middle channel 2437MHz		
The Highest channel	2462MHz	2452MHz	

#### 3.5 Test Environment and Mode

Operating Environment:				
Temperature:	25.0 °C			
Humidity:	50 % RH			
Atmospheric Pressure:	101.30KPa			
Test mode:				
Transmitting mode:	Keep the EUT in transmitting mode with all kind of modulation and all kind of data rate.			

### 3.6 Description of Support Units

The EUT has been tested independent unit.



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#### 4 Test results and Measurement Data

#### 4.1 Antenna Requirement

Standard requirement: 47 CFR Part 15C Section 15.203 /247(c)

15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 2.3dBi.



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### 4.2 AC Power Line Conducted Emissions

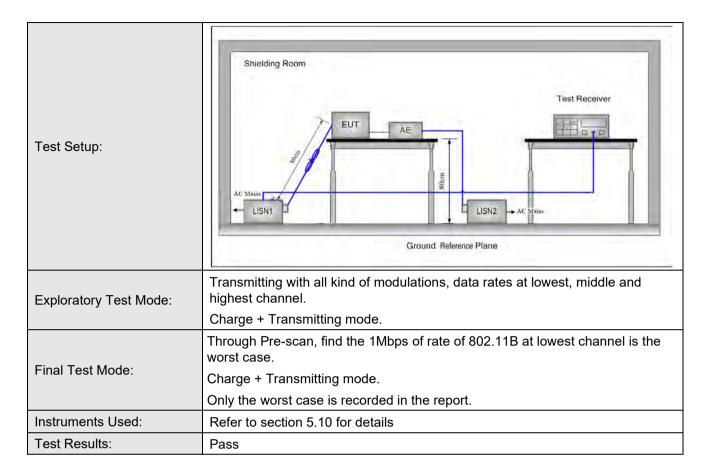
Test Requirement:	47 CFR Part 15C Section 15.207			
Test Method:	ANSI C63.10: 2013			
Test Frequency Range:	150kHz to 30MHz			
	Frequency range (MHz)	Limit (dBuV)		
		Quasi-peak	Average	
1 toute	0.15-0.5	66 to 56*	56 to 46*	
Limit:	0.5-5	56	46	
	5-30	60	50	
	* Decreases with the logarith	nm of the frequency.		
Test Procedure:				





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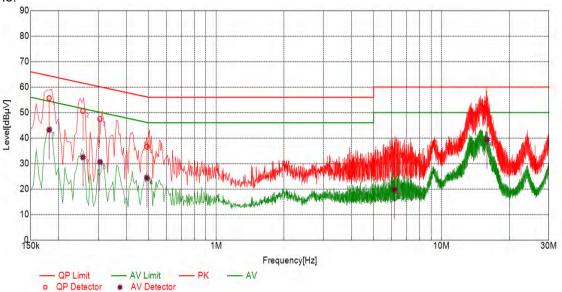
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#### Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

#### Live Line:



Fina	Final Data List								
NO.	Freq. [MHz]	Factor [dB]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]	Туре
1	0.1814	10.10	55.62	64.42	8.80	43.22	54.42	11.20	L
2	0.2562	10.10	50.66	61.55	10.89	32.44	51.55	19.11	L
3	0.3049	10.10	47.53	60.11	12.58	30.59	50.11	19.52	L
4	0.4934	10.10	36.59	56.11	19.52	24.36	46.11	21.75	L
5	6.1951	10.10	32.73	60.00	27.27	19.73	50.00	30.27	L
6	15.9641	10.11	49.94	60.00	10.06	39.43	50.00	10.57	L



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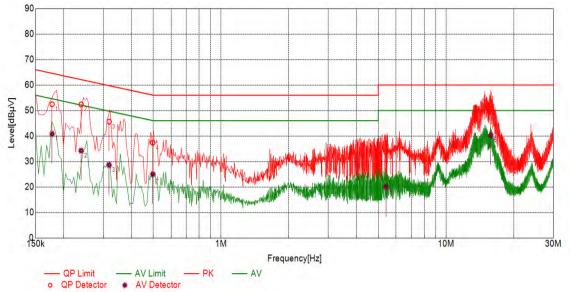
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#### **Neutral Line:**



Final	Final Data List								
NO.	Freq. [MHz]	Factor [dB]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	AV Value [dBµV]	ΑV Limit [dBμV]	AV Margin [dB]	Туре
1	0.1778	10.10	52.47	64.59	12.12	40.82	54.59	13.77	N
2	0.2392	10.10	52.40	62.12	9.72	34.24	52.12	17.88	N
3	0.3187	10.10	45.61	59.74	14.13	28.60	49.74	21.14	N
4	0.4977	10.10	37.36	56.04	18.68	25.05	46.04	20.99	N
5	5.4091	10.10	33.69	60.00	26.31	19.99	50.00	30.01	N
6	15.8101	10.11	50.47	60.00	9.53	40.32	50.00	9.68	N

#### Remarks:

- 1. The following Quasi-Peak and Average measurements were performed on the EUT:
- 2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.



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### 4.3 Duty Cycle

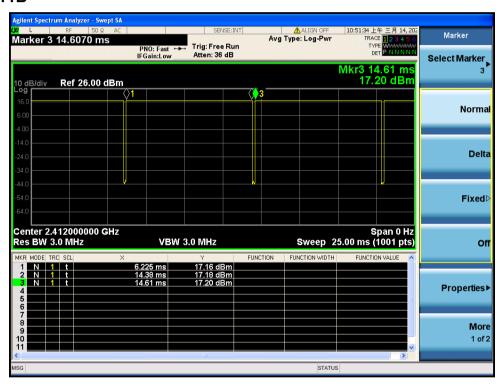
#### 4.3.1 Test Results

Test Mode	TX Freq. [MHz]	Duty cycle [%]
11B	Ant 1: CH1,CH6,CH11	97.26
11G	Ant 1: CH1,CH6,CH11	97.03
11N20	Ant 1: CH1,CH6,CH11	86.41
11N40	Ant 1: CH3,CH6,CH9	75.72

#### 4.3.1 Test Plots

#### 4.3.1.1 ANT1

#### 4.3.1.1.1 11B





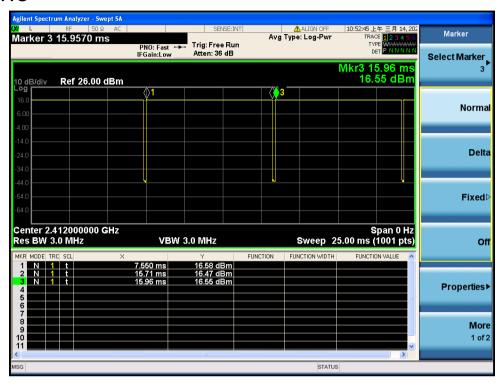
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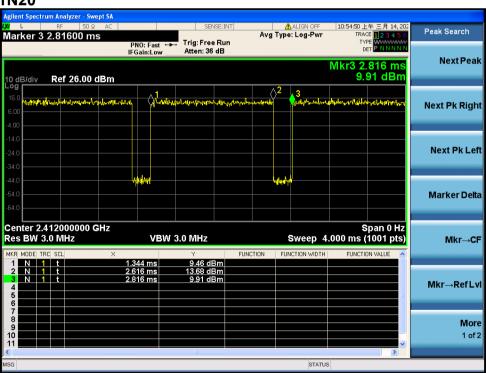
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#### 4.3.1.1.2 11G



#### 4.3.1.1.3 11N20





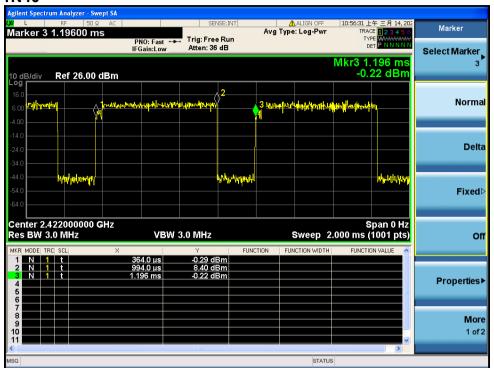
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#### 4.3.1.1.4 11N40





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### 4.4 Conducted Output Power

Test Requirement:	47 CFR Part 15C Section 15.247 (b)(3)				
Test Method:	ANSI C63.10 :2013 Section 11.9.1.3				
Test Setup:	Non-Conducted Table  Ground Reference Plane				
Test Instruments:	Refer to section 5.10 for details				
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates				
	Through Pre-scan, find the				
	1Mbps of rate is the worst case of 802.11B;				
Final Test Mode:	6Mbps of rate is the worst case of 802.11G;				
	6.5Mbps of rate is the worst case of 802.11N(HT20);				
	13.5Mbps of rate is the worst case of 802.11N(HT40).				
Limit:	30dBm				
Test Results:	Pass				



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#### 4.4.1 Test Results

Measurement Data of Average Power:

Mode	Test Channel	Average Output Power (dBm)	Result
	Lowest	16.01	Report purpose only
802.11B	Middle	16.36	Report purpose only
0022	Highest	16.64	Report purpose only
	Lowest	13.77	Report purpose only
802.11G	Middle	13.95	Report purpose only
332	Highest	13.92	Report purpose only
	Lowest	13.86	Report purpose only
802.11N20	Middle	14.06	Report purpose only
	Highest	13.98	Report purpose only
	Lowest	14.44	Report purpose only
802.11N40	Middle	15.00	Report purpose only
	Highest	14.68	Report purpose only

#### **Measurement Data of Peak Power:**

Suferifient Data of Fear Fower.							
Mode	Test Channel	Peak Output Power (dBm)	Limit (dBm)	Result			
	Lowest	22.11	30.00	Pass			
802.11B	Middle	24.25	30.00	Pass			
002.115	Highest	24.10	30.00	Pass			
	Lowest	24.17	30.00	Pass			
802.11G	Middle	24.36	30.00	Pass			
002.110	Highest	24.16	30.00	Pass			
	Lowest	24.25	30.00	Pass			
802.11N20	Middle	24.40	30.00	Pass			
002.111420	Highest	24.41	30.00	Pass			
	Lowest	24.33	30.00	Pass			
802.11N40	Middle	24.53	30.00	Pass			
302.11II	Highest	24.69	30.00	Pass			



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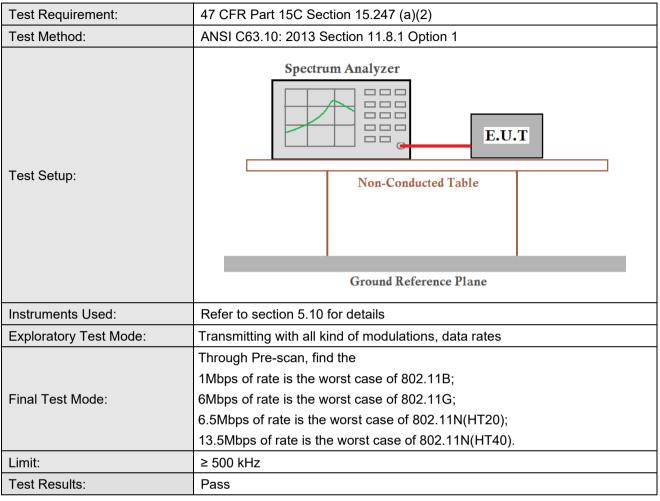
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### 4.5 DTS (6 dB) Bandwidth & 99% Occupied Bandwidth



#### 4.5.1 Test Results

Mode	Test Channel	Occupied Bandwidth (MHz)	6dB Emission Bandwidth (MHz)	Limit (kHz)	Result
	Lowest	12.071	7.197	≥500	Pass
802.11B	Middle	11.983	7.122	≥500	Pass
3322	Highest	11.978	7.156	≥500	Pass
	Lowest	16.856	16.370	≥500	Pass
802.11G	Middle	16.819	16.410	≥500	Pass
3323	Highest	16.794	16.535	≥500	Pass
	Lowest	17.902	17.560	≥500	Pass
802.11N20	Middle	17.855	17.580	≥500	Pass
002.111120	Highest	17.844	17.600	≥500	Pass
	Lowest	36.093	35.170	≥500	Pass
802.11N40	Middle	36.294	35.180	≥500	Pass
332	Highest	36.301	35.300	≥500	Pass



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#### 4.5.2 Test plots For Occupied Bandwidth

#### 4.5.2.1 ANT1

#### 4.5.2.1.1 802.11B Lowest Channel



#### 4.5.2.1.2 802.11B\_ Middle Channel





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#### 4.5.2.1.3 802.11B\_ Highest Channel



#### 4.5.2.1.4 802.11G\_Lowest Channel





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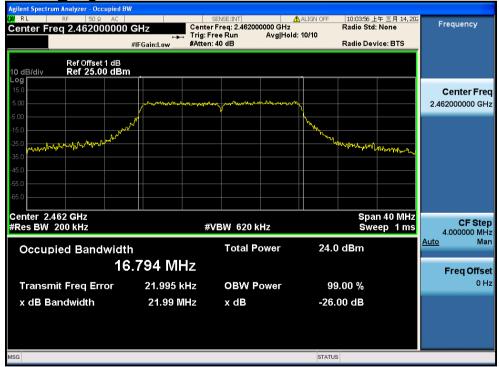
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#### 4.5.2.1.5 802.11G Middle Channel



### 4.5.2.1.6 802.11G\_ Highest Channel





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#### 4.5.2.1.7 802.11N20 Lowest Channel



#### 4.5.2.1.8 802.11 N20 Middle Channel





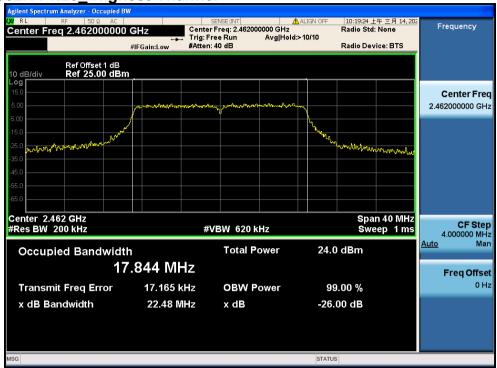
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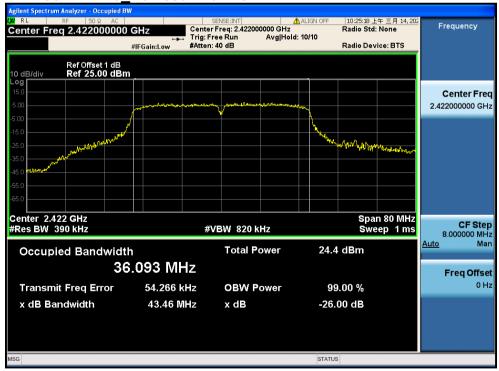
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### 4.5.2.1.9 802.11 N20\_ Highest Channel



### 4.5.2.1.10 802.11N40\_Lowest Channel





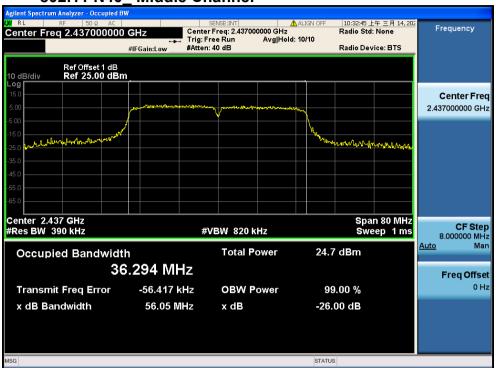
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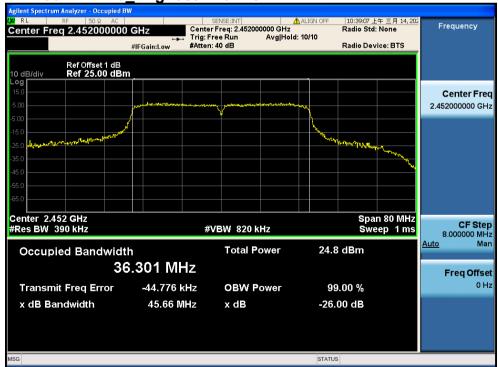
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#### 4.5.2.1.11 802.11 N40 Middle Channel



### 4.5.2.1.12 802.11 N40 Highest Channel





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#### 4.5.1 Test plots For 6dB Emission Bandwidth

#### 4.5.1.1 ANT1

#### 4.5.1.1.1 802.11B Lowest Channel



#### 4.5.1.1.2 802.11B\_ Middle Channel





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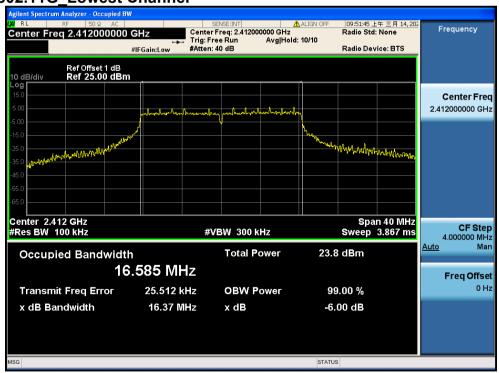
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#### 4.5.1.1.3 802.11B\_ Highest Channel



#### 4.5.1.1.4 802.11G\_Lowest Channel





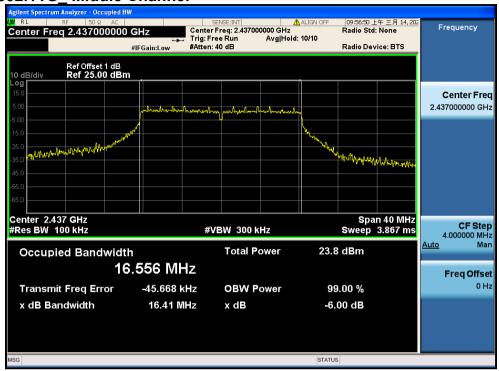
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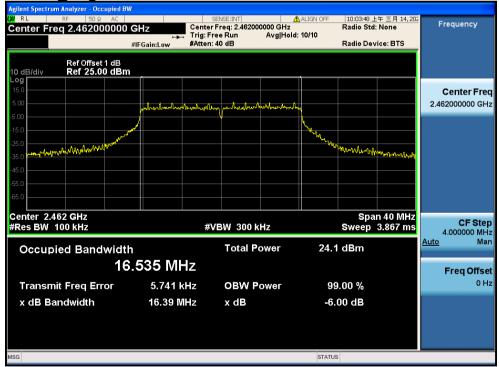
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### 4.5.1.1.5 802.11G Middle Channel



### 4.5.1.1.6 802.11G\_ Highest Channel





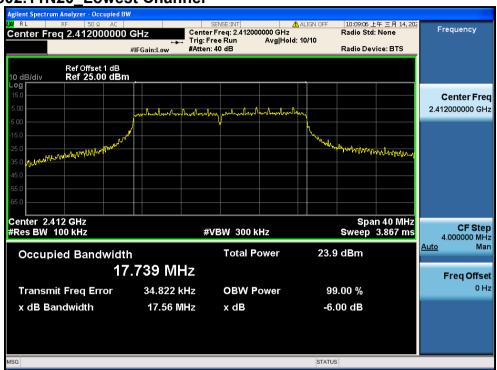
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#### 4.5.1.1.7 802.11N20 Lowest Channel



#### 4.5.1.1.8 802.11 N20 Middle Channel





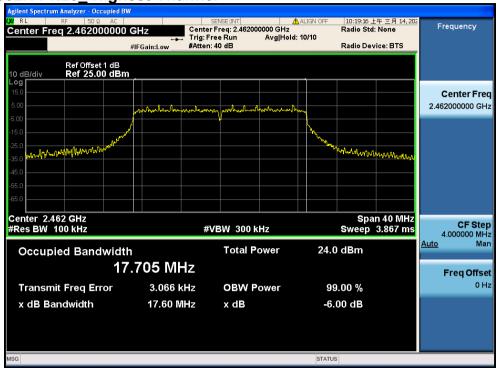
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### 4.5.1.1.9 802.11 N20\_ Highest Channel



### 4.5.1.1.10 802.11N40\_Lowest Channel





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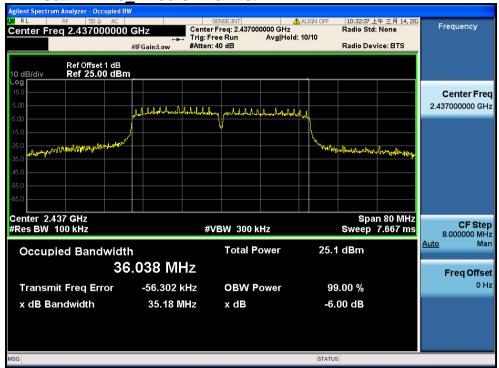
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#### 4.5.1.1.11 802.11 N40 Middle Channel



### 4.5.1.1.12 802.11 N40 Highest Channel





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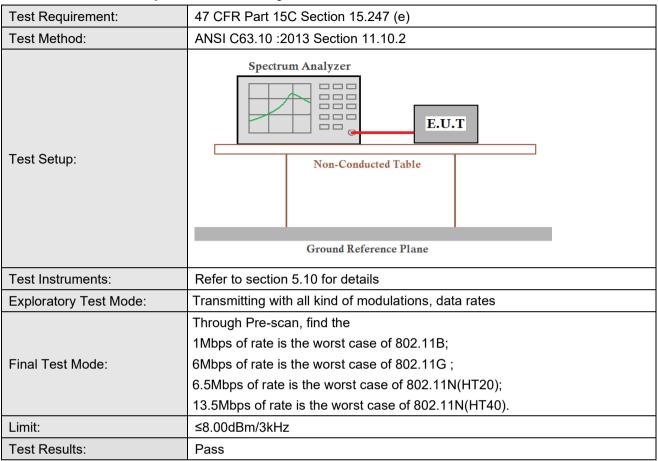
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### 4.6 Power Spectral Density



#### 4.6.1 Test Results

Mode	Test Channel	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
	Lowest	-4.901	≤8.00	Pass
802.11B	Middle	-2.818	≤8.00	Pass
0022	Highest	-2.381	≤8.00	Pass
	Lowest	-9.477	≤8.00	Pass
802.11G	Middle	-8.575	≤8.00	Pass
0020	Highest	-8.798	≤8.00	Pass
	Lowest	-9.044	≤8.00	Pass
802.11N20	Middle	-9.129	≤8.00	Pass
	Highest	-10.057	≤8.00	Pass
	Lowest	-11.993	≤8.00	Pass
802.11N40	Middle	-11.386	≤8.00	Pass
33=:7:00	Highest	-11.144	≤8.00	Pass



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#### 4.6.2 Test plots

#### ANT1 4.6.2.1

#### 4.6.2.1.1 802.11B Lowest Channel



### 4.6.2.1.2 802.11B\_ Middle Channel





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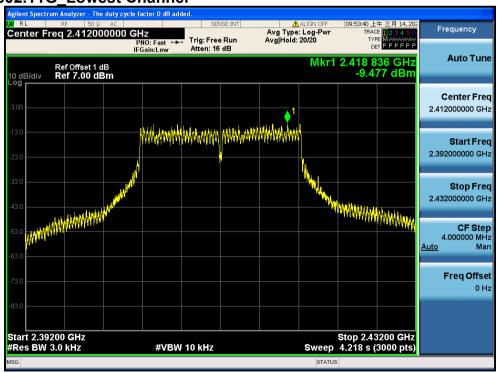
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#### 4.6.2.1.3 802.11B Highest Channel



#### 4.6.2.1.4 802.11G\_Lowest Channel





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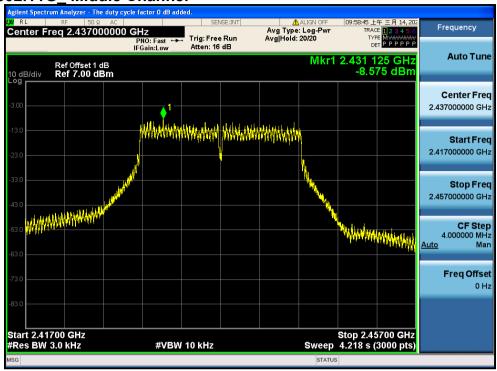
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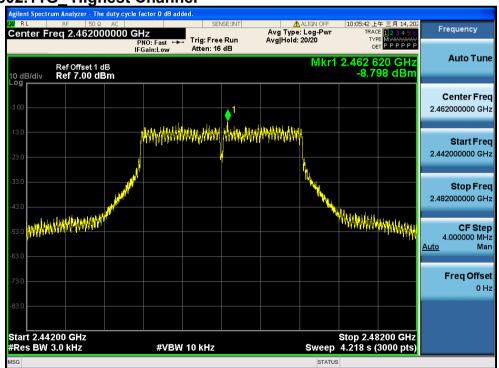
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#### 4.6.2.1.5 802.11G Middle Channel



### 4.6.2.1.6 802.11G\_ Highest Channel





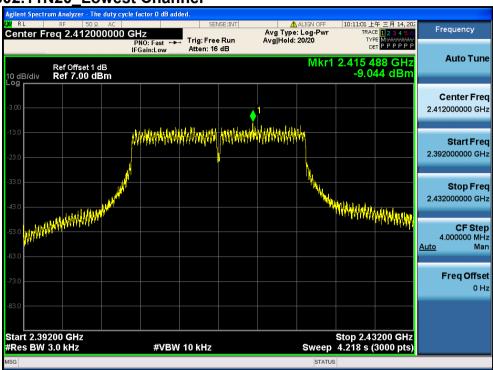
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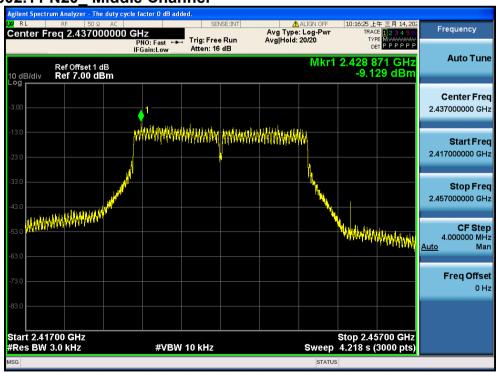
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#### 4.6.2.1.7 802.11N20 Lowest Channel



#### 4.6.2.1.8 802.11 N20\_ Middle Channel





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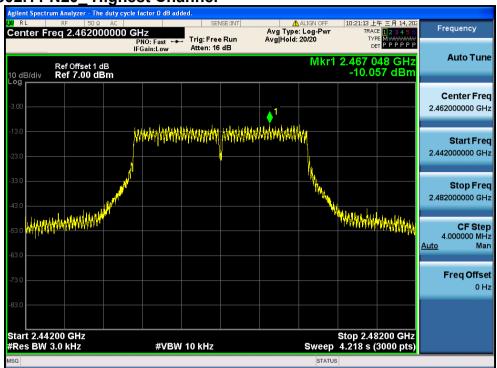
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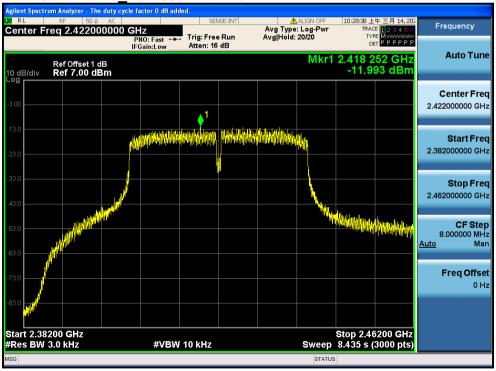
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#### 4.6.2.1.9 802.11 N20\_ Highest Channel



#### 4.6.2.1.10 802.11N40\_Lowest Channel





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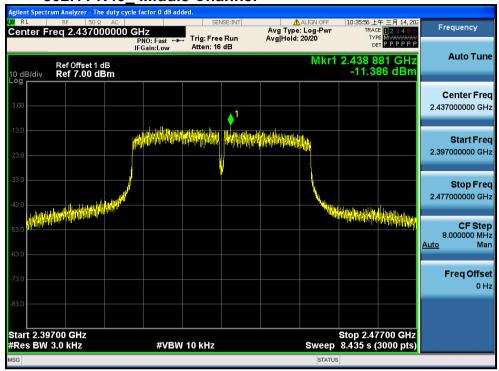
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#### 4.6.2.1.11 802.11 N40 Middle Channel



4.6.2.1.12 802.11 N40 Highest Channel





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#### 4.7 Band-edge for RF Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)
Test Method:	ANSI C63.10: 2013 Section 11.13
Test Setup:	Spectrum Analyzer  E.U.T  Non-Conducted Table  Ground Reference Plane
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates
Final Test Mode:	Through Pre-scan, find the  1Mbps of rate is the worst case of 802.11B;  6Mbps of rate is the worst case of 802.11G;  6.5Mbps of rate is the worst case of 802.11N(HT20);  13.5Mbps of rate is the worst case of 802.11N(HT40).
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiatedmeasurement.
Instruments Used:	Refer to section 5.10 for details
Test Results:	Pass



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#### 4.7.1 Test plots

#### 4.7.1.1 ANT1

#### 4.7.1.1.1 802.11B Lowest Channel



4.7.1.1.2 802.11B\_ Highest Channel





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#### 4.7.1.1.3 802.11G Lowest Channel



#### 4.7.1.1.4 802.11G\_ Highest Channel





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#### 4.7.1.1.5 802.11N20 Lowest Channel



#### 4.7.1.1.6 802.11 N20\_ Highest Channel





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#### 4.7.1.1.7 802.11N40 Lowest Channel



#### 4.7.1.1.8 802.11 N40\_ Highest Channel





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#### 4.8 RF Conducted Spurious Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)
Test Method:	ANSI C63.10: 2013 Section 11.11
Test Setup:	Spectrum Analyzer  E.U.T  Non-Conducted Table  Ground Reference Plane
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates
Final Test Mode:	Through Pre-scan, find the  1Mbps of rate is the worst case of 802.11B;  6Mbps of rate is the worst case of 802.11G;  6.5Mbps of rate is the worst case of 802.11N(HT20);  13.5Mbps of rate is the worst case of 802.11N(HT40).
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Instruments Used:	Refer to section 5.10 for details
Test Results:	Pass



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#### 4.8.1 Test plots

#### ANT1 4.8.1.1

#### 4.8.1.1.1 802.11B Lowest Channel





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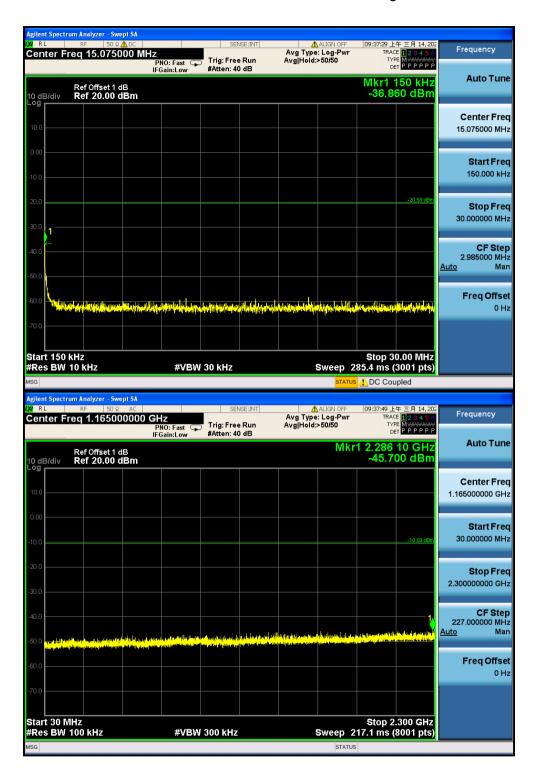
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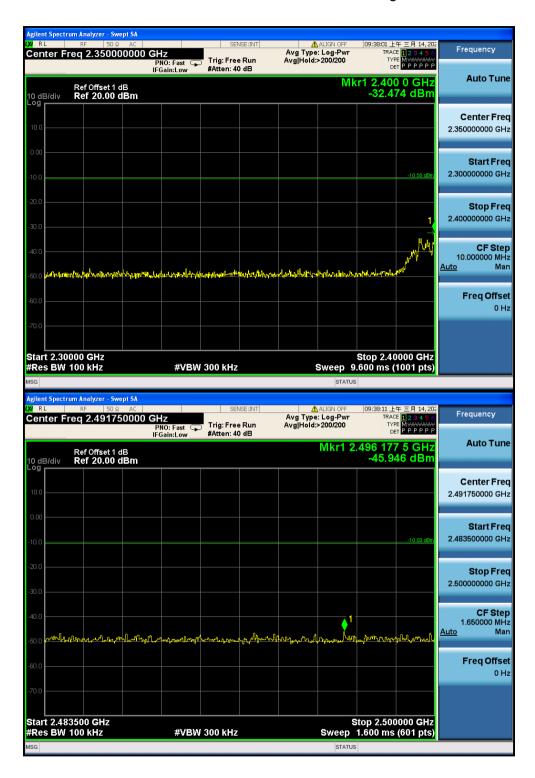
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#### 4.8.1.1.2 802.11B\_ Middle Channel



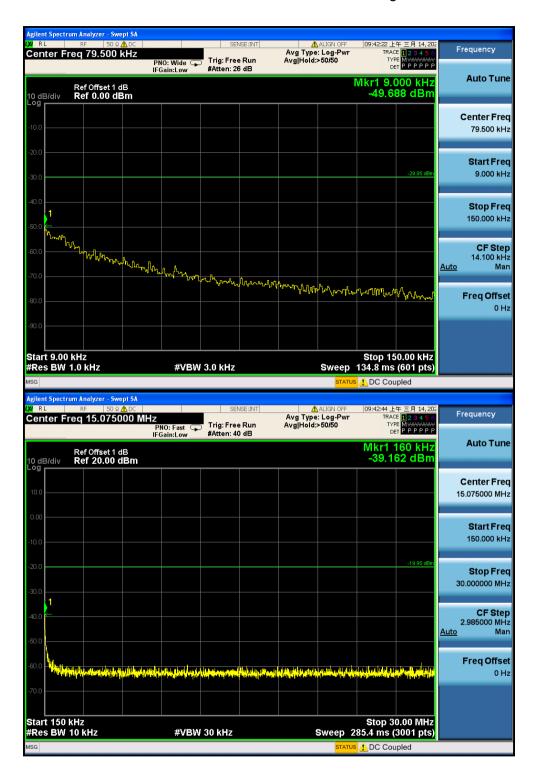


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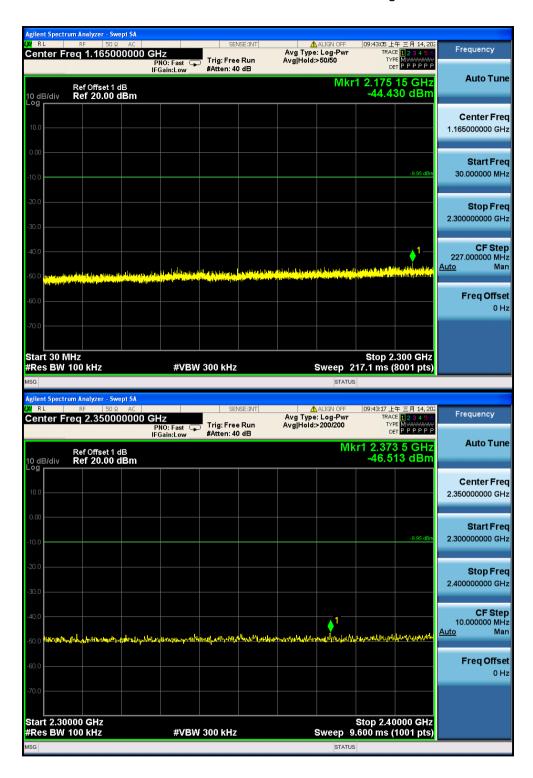
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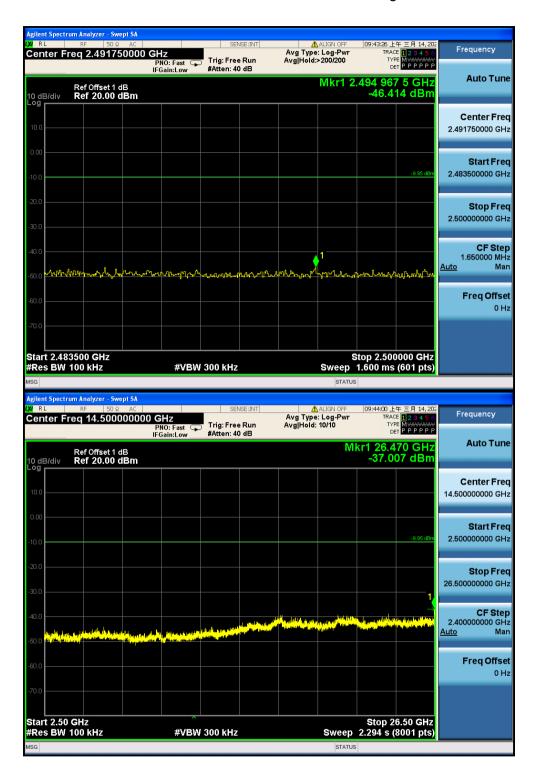
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#### 4.8.1.1.3 802.11B\_ Highest Channel



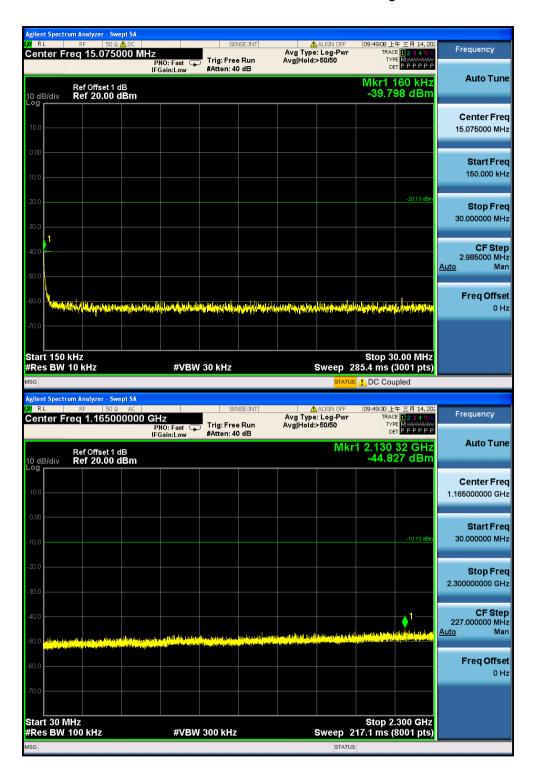


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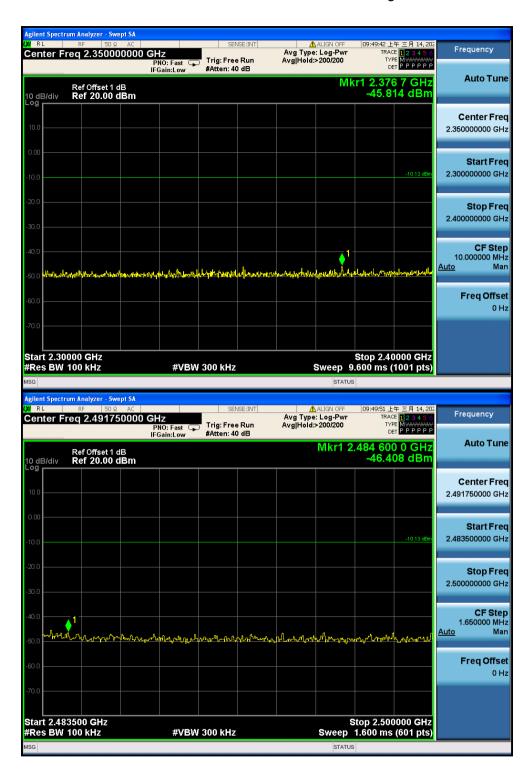
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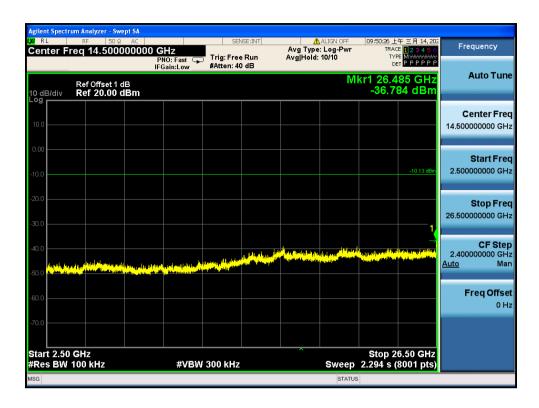


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#### 4.8.1.1.4 802.11G\_Lowest Channel



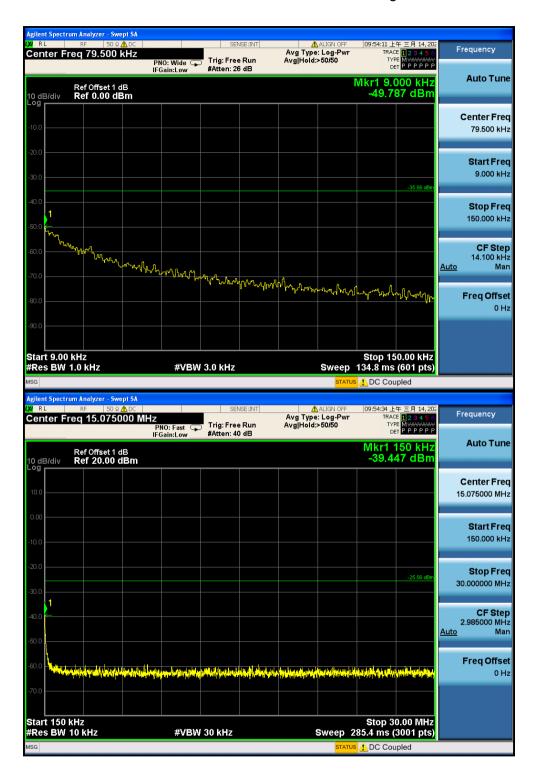


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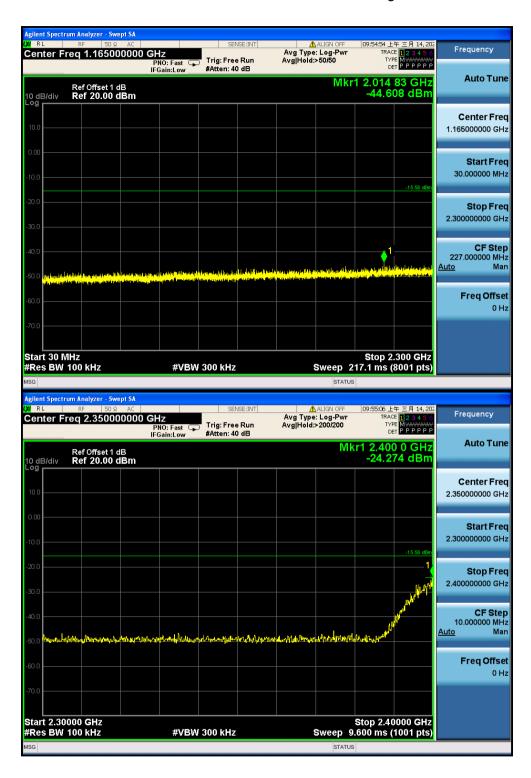


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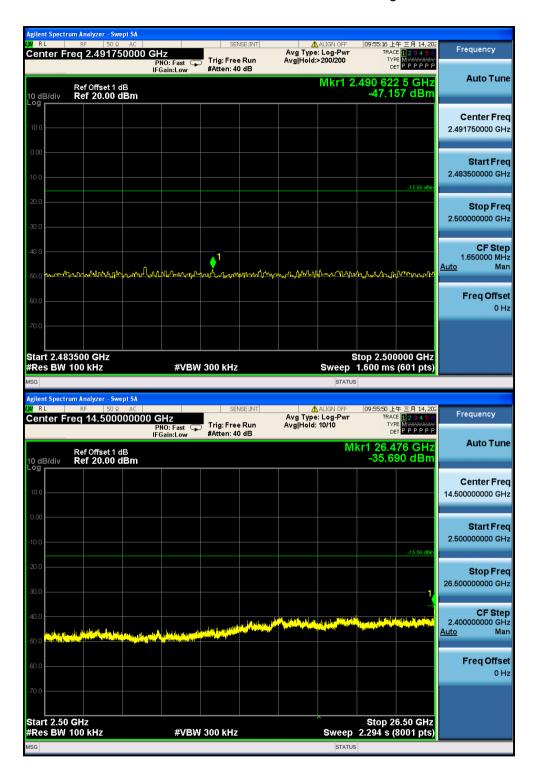
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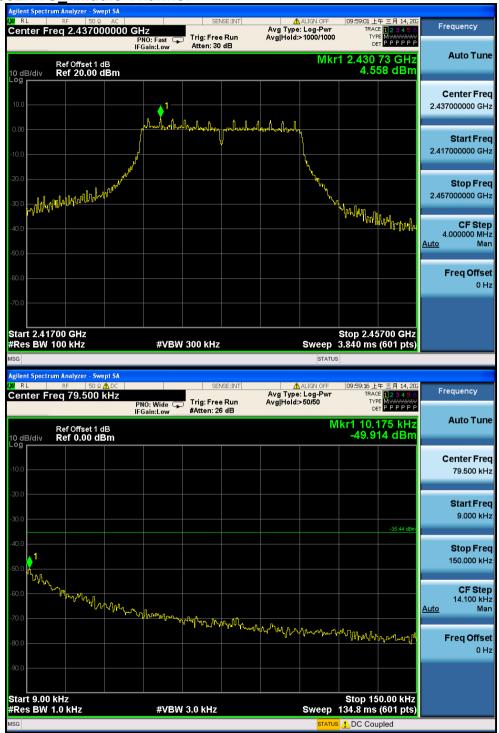
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#### 4.8.1.1.5 802.11G Middle Channel



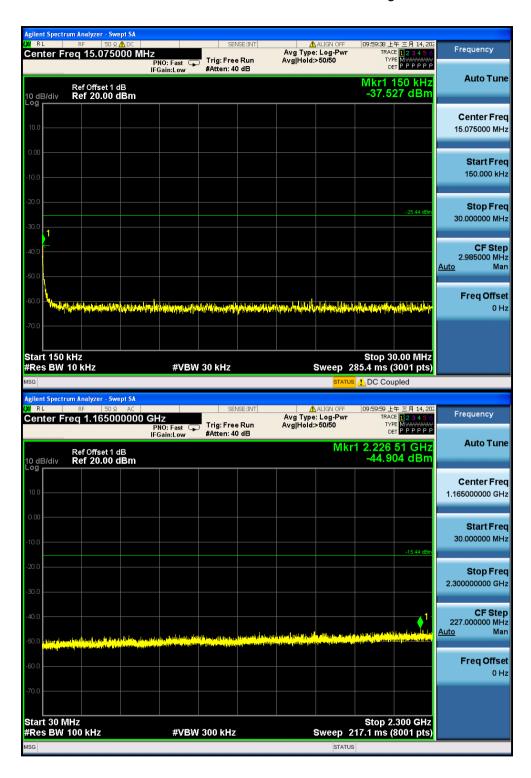


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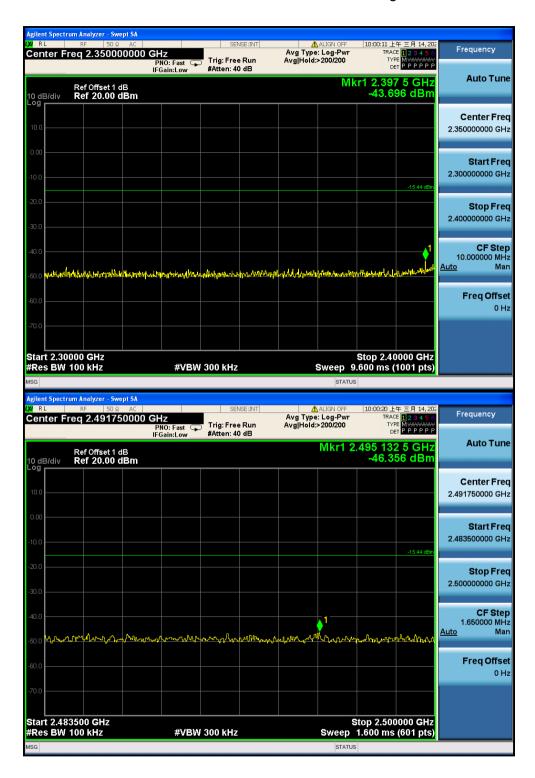


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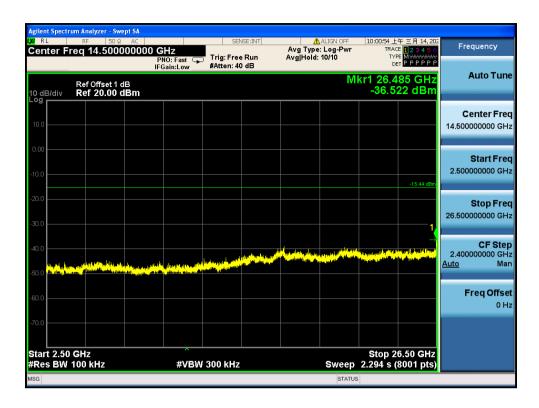


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4.8.1.1.6 802.11G\_ Highest Channel





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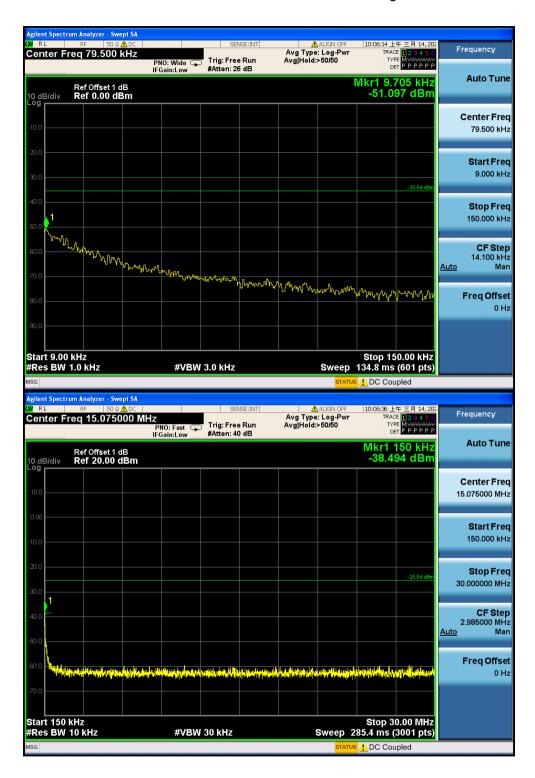
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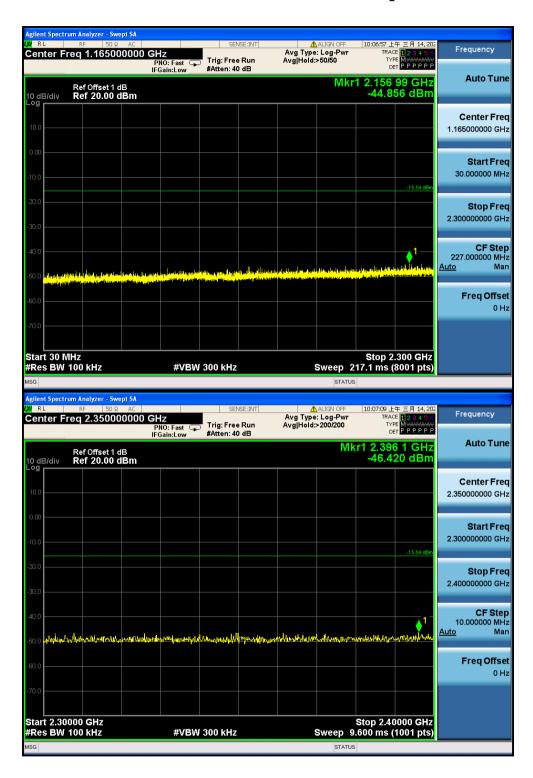
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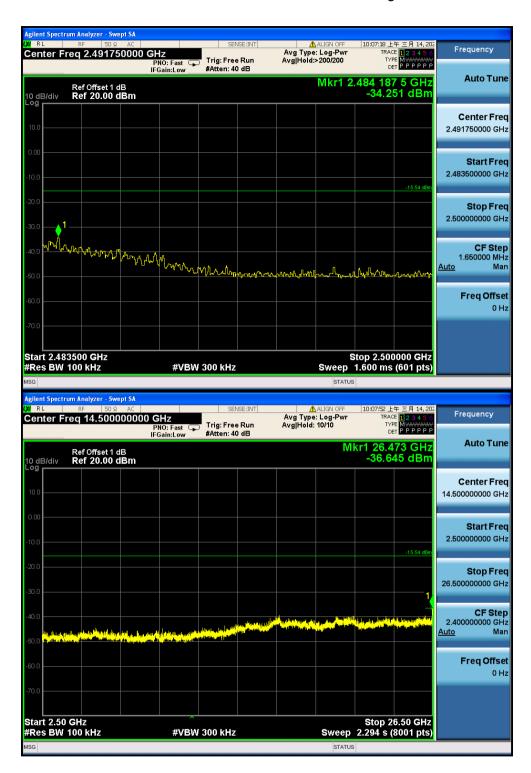


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#### 4.8.1.1.7 802.11N20 Lowest Channel



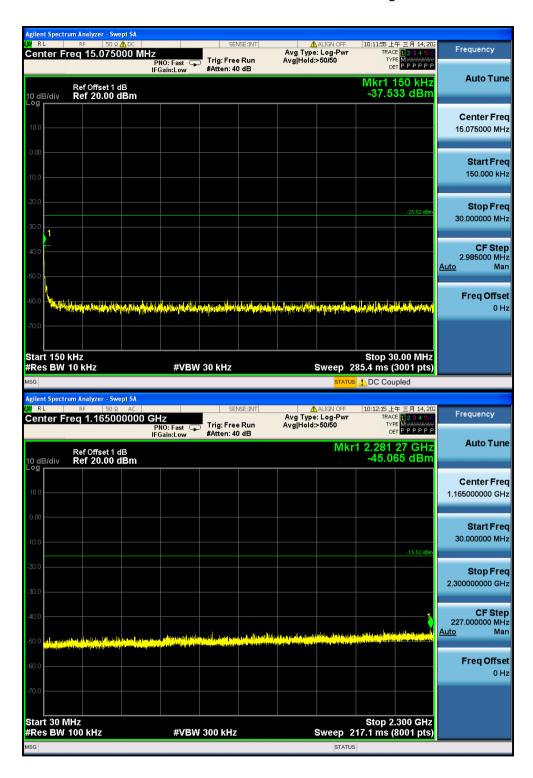


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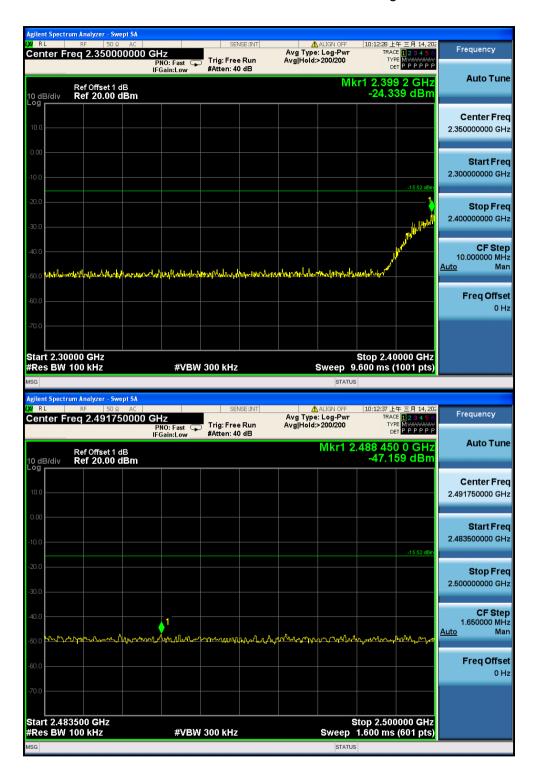


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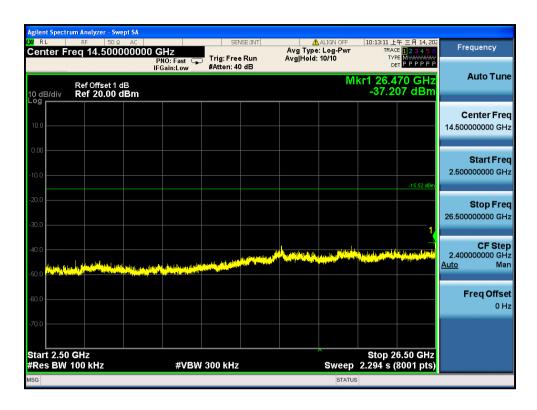


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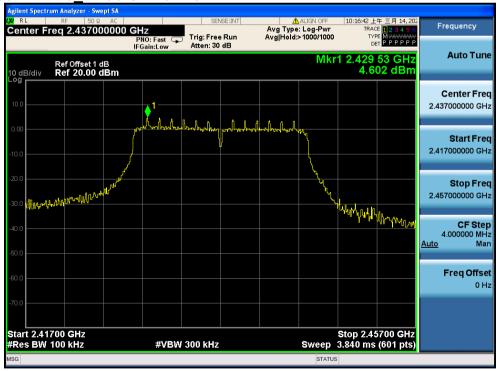


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#### 4.8.1.1.8 802.11N20\_ Middle Channel



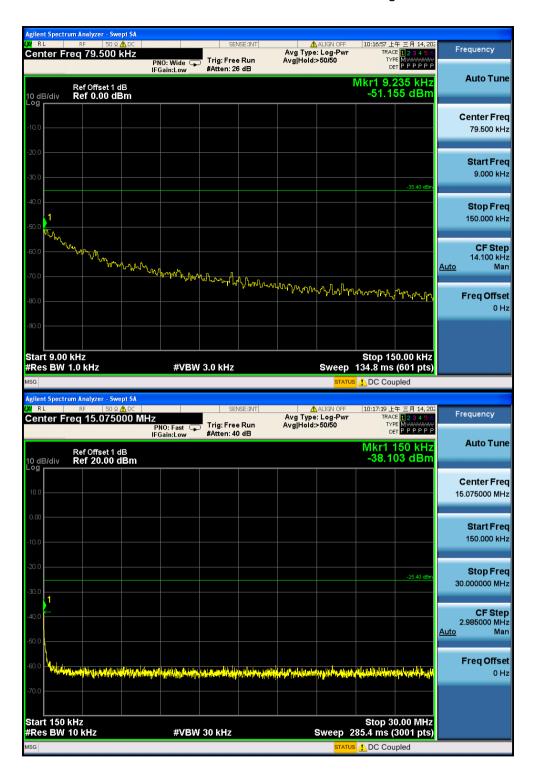


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