



FCC TEST REPORT

Application No:	ZR/2019/60026
Applicant:	TCL Communication Ltd.
Address of Applicant	7/F, Block F4, TCL Communication Technology Building, TCL International E City, Zhong Shan Yuan Road, Nanshan District, Shenzhen, Guangdong, P.R. China 518052
Manufacturer:	TCL Communication Ltd.
Address of Manufacturer	7/F, Block F4, TCL Communication Technology Building, TCL International E City, Zhong Shan Yuan Road, Nanshan District, Shenzhen, Guangdong, P.R. China 518052
Factory:	Huizhou TCL Mobile Communication Co, Ltd
Address of Factory:	No. 86, Hechang 7th West Road, Zhongkai Hi-Tech Development District, Huizhou, Guangdong
EUT Description:	LTE/UMTS/GSM mobile phone
Model No.:	5048A
Trade Mark:	alcatel
FCC ID:	2ACCJH107
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:	2019/8/2
Date of Test:	2019/8/2 to 2019/8/21
Date of Issue:	2019/8/21
Test Result:	PASS *

* In the configuration tested, the EUT complied with the standards specified above.

Derek Yang
Wireless Laboratory Manager



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Shenzhen Branch Inspection & Testing Services Laboratory

No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 | (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
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1 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
00		2019/8/21		Original

Authorized for issue by:			
Tested By		<i>Mike Hu</i>	2019/8/21
		(Mike Hu) /Project Engineer	Date
Checked By		<i>David Chen</i>	2019/8/21
		(David Chen) /Reviewer	Date



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2 Test Summary

Test Item	Test Requirement	Test method	Test Result	Result
AC Power Line Conducted Emission	15.207	ANSI C63.10 2013	Clause 4.2	PASS
Duty Cycle	--	--	Clause 4.3	PASS
Conducted Output Power	15.247 (b)(3)	ANSI C63.10 2013	Clause 4.4	PASS
DTS (6 dB) Bandwidth & 99% Occupied Bandwidth	15.247 (a)(2)	ANSI C63.10 2013	Clause 4.5	PASS
Power Spectral Density	15.247 (e)	ANSI C63.10 2013	Clause 4.6	PASS
Band-edge for RF Conducted Emissions	15.247(d)	ANSI C63.10 2013	Clause 4.7	PASS
RF Conducted Spurious Emissions	15.247(d)	ANSI C63.10 2013	Clause 4.8	PASS
Radiated Spurious Emissions	15.247(d); 15.205/15.209	ANSI C63.10 2013	Clause 4.9	PASS
Restricted bands around fundamental frequency (Radiated Emission)	15.247(d); 15.205/15.209	ANSI C63.10 2013	Clause 4.10	PASS



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3 General Information

3.1 Client Information

Applicant:	TCL Communication Ltd.
Address of Applicant:	7/F, Block F4, TCL Communication Technology Building, TCL International E City, Zhong Shan Yuan Road, Nanshan District, Shenzhen, Guangdong, P.R. China 518052
Manufacturer:	TCL Communication Ltd.
Address of Manufacturer:	7/F, Block F4, TCL Communication Technology Building, TCL International E City, Zhong Shan Yuan Road, Nanshan District, Shenzhen, Guangdong, P.R. China 518052
Factory:	Huizhou TCL Mobile Communication Co, Ltd
Address of Factory:	No. 86, Hechang 7th West Road, Zhongkai Hi-Tech Development District, Huizhou, Guangdong

3.2 Test Location

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
Telephone:	+86 (0) 755 2601 2053
Fax:	+86 (0) 755 2671 0594
E-mail:	ee.shenzhen@sgs.com

3.3 Test Facility

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

• CNAS (No. CNAS L2929)

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• 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.

• Industry Canada (IC)



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Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.

3.4 General Description of EUT

EUT Description::	LTE/UMTS/GSM mobile phone	
Model No.:	5048A	
Trade Mark:	alcatel	
Hardware Version:	PIO	
Software Version:	v2B54	
IEEE 802.11 WLAN Mode Supported	<input checked="" type="checkbox"/> 802.11B (20 MHz channel bandwidth), <input checked="" type="checkbox"/> 802.11G (20 MHz channel bandwidth) <input checked="" type="checkbox"/> 802.11N (20 MHz channel bandwidth), <input checked="" type="checkbox"/> 802.11N (40 MHz channel bandwidth)	
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:	<input checked="" type="checkbox"/> Portable Device, <input type="checkbox"/> Module	
Antenna Type:	<input type="checkbox"/> External, <input checked="" type="checkbox"/> Integrated	
Antenna Ports	<input checked="" type="checkbox"/> Ant 1, <input type="checkbox"/> Ant 2, <input type="checkbox"/> Ant 3	
Smart System	<input checked="" type="checkbox"/> SISO (for 802.11B/G/N), <input type="checkbox"/> MIMO (for 802.11N): 2 Tx & 2 Rx, <input type="checkbox"/> Diversity (for 802.11B/G) : Tx & Rx	
Antenna Gain:	0.25dBi	
Power Supply	<input checked="" type="checkbox"/> AC/DC Adapter; <input type="checkbox"/> Battery <input type="checkbox"/> PoE;; <input type="checkbox"/> Other:	
Adaptor	P/N	Remark
	CBA0059AGAC5	5.0 V,2000 mA UC13US,PUAN
USB cable	CBA0059AGACT7	5.0 V,2000 mA UC13US,CHENYANG
	CDA000123C2	SHENGHUA
	CDA000123C1	JUWEI
	CCB0049A10C1	JUWEI; alcatel Logo
Headset	CCB0049A12C1	JUWEI; Is same with CCB0049A10C1, only remove alcatel logo
	CCB0023A12C1	JUWEI; alcatel Logo
	CCB0023A14C1	JUWEI; Is same with CCB0023A12C1, only remove alcatel logo
	CCB0049A10C4	MEIHAO; alcatel Logo
	CCB0049A12C4	MEIHAO; Is same with CCB0049A10C4, only remove alcatel logo
Battery	CAC3860014C7	TLp038C7; VEKEN;
	CAC3860022C7	TLp038C7; VEKEN; Is same with CAC3860014C7, only add TCL logo

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	CAC3860010C1	TLp038C1; BYD;
--	--------------	----------------

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 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	2412MHz	2422MHz
The Middle channel	2437MHz	2437MHz
The Highest channel	2462MHz	2452MHz

3.5 Test Environment and Mode

Operating Environment:	
Temperature:	25.0 °C
Humidity:	50 % RH
Atmospheric Pressure:	101.30 KPa
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 0.25dBi.



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邮编: 518057 t (86-755) 26012053 f (86-755) 26710594

sgs.china@sgs.com

4.2 AC Power Line Conducted Emissions

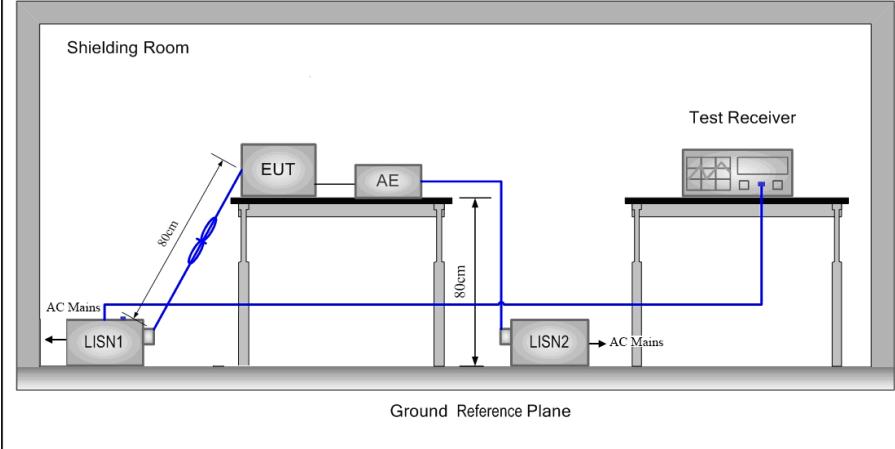
Test Requirement:	47 CFR Part 15C Section 15.207		
Test Method:	ANSI C63.10: 2013		
Test Frequency Range:	150kHz to 30MHz		
Limit:	Frequency range (MHz)		Limit (dBuV)
			Quasi-peak Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
* Decreases with the logarithm of the frequency.			
Test Procedure:	<ol style="list-style-type: none">1) The mains terminal disturbance voltage test was conducted in a shielded room.2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a $50\Omega/50\mu\text{H} + 5\Omega$ linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement.		

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Test Setup:	
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates at lowest, middle and highest channel. Charge + Transmitting mode.
Final Test Mode:	Through Pre-scan, find the 1Mbps of rate of 802.11B at lowest channel is the worst case. Charge + Transmitting mode. Only the worst case is recorded in the report.
Instruments Used:	Refer to section 5.10 for details
Test Results:	Pass

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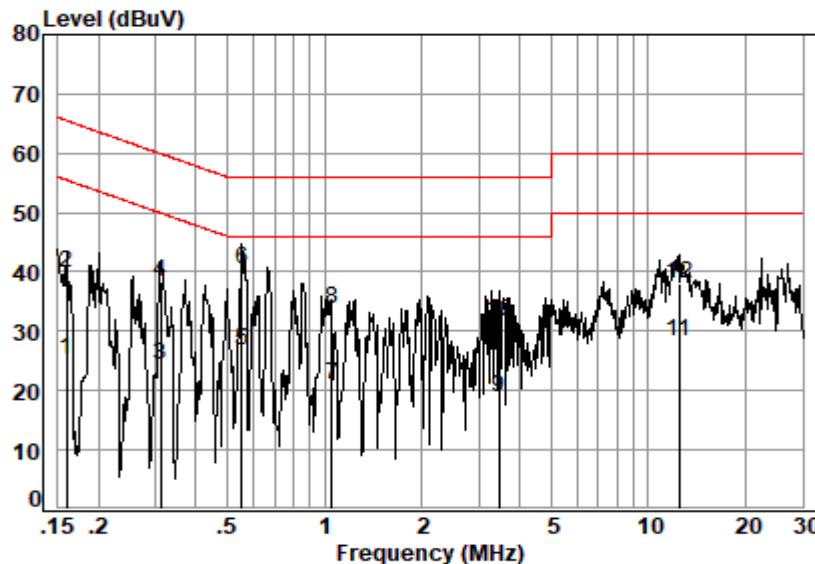
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Measurement Data

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:



Site : Shielding Room

Condition: Line

Job No. : 16957CR

Test mode: d

Freq	Cable	LISN	Read	Limit	Over	Remark	
	Freq	Loss	Factor				
MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.1598	0.01	9.66	15.48	25.15	55.47	-30.32 Average
2	0.1598	0.01	9.66	30.05	39.72	65.47	-25.75 QP
3	0.3116	0.04	9.67	14.67	24.38	49.93	-25.55 Average
4	0.3116	0.04	9.67	28.55	38.26	59.93	-21.67 QP
5	0.5552	0.06	9.67	17.11	26.84	46.00	-19.16 Average
6	0.5552	0.06	9.67	30.84	40.57	56.00	-15.43 QP
7	1.0485	0.09	9.74	11.06	20.89	46.00	-25.11 Average
8	1.0485	0.09	9.74	23.87	33.70	56.00	-22.30 QP
9	3.4538	0.16	9.71	8.85	18.72	46.00	-27.28 Average
10	3.4538	0.16	9.71	21.80	31.67	56.00	-24.33 QP
11	12.4495	0.19	10.12	17.96	28.27	50.00	-21.73 Average
12	12.4495	0.19	10.12	27.63	37.94	60.00	-22.06 QP



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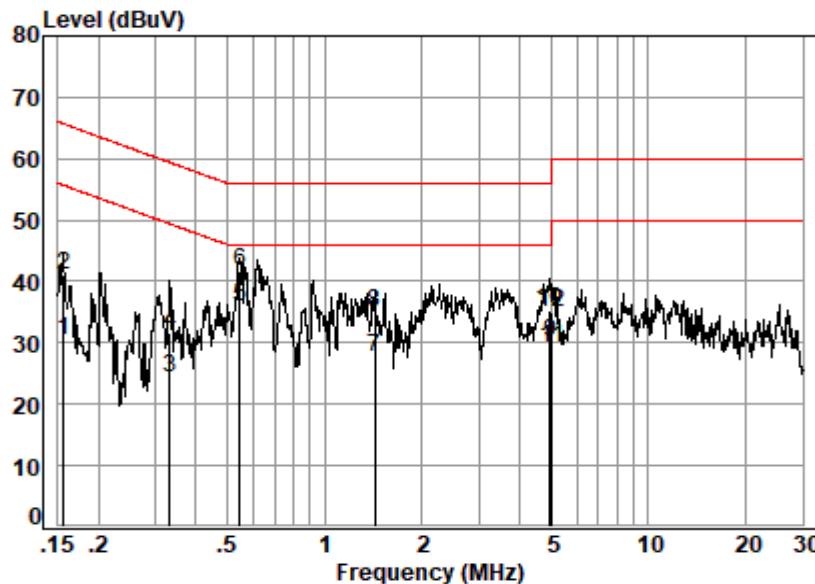
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Neutral Line:



Site : Shielding Room

Condition: Neutral

Job No. : 16957CR

Test mode: d

Freq	Cable	LISN	Read	Limit		Over	Remark
	Freq	Loss	Factor	Level	Level	Line	
	MHz	dB	dB	dBuV	dBuV	dBuV	
1	0.1557	0.01	9.63	20.67	30.31	55.69	-25.38 Average
2	0.1557	0.01	9.63	31.28	40.92	65.69	-24.77 QP
3	0.3321	0.04	9.64	14.58	24.26	49.40	-25.14 Average
4	0.3321	0.04	9.64	21.85	31.53	59.40	-27.87 QP
5	0.5464	0.06	9.64	26.28	35.98	46.00	-10.02 Average
6	0.5464	0.06	9.64	31.98	41.68	56.00	-14.32 QP
7	1.4257	0.13	9.70	17.70	27.53	46.00	-18.47 Average
8	1.4257	0.13	9.70	25.29	35.12	56.00	-20.88 QP
9	4.9519	0.17	9.71	20.20	30.08	46.00	-15.92 Average
10	4.9519	0.17	9.71	25.48	35.36	56.00	-20.64 QP
11	5.0312	0.17	9.71	19.40	29.28	50.00	-20.72 Average
12	5.0312	0.17	9.71	24.98	34.86	60.00	-25.14 QP

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

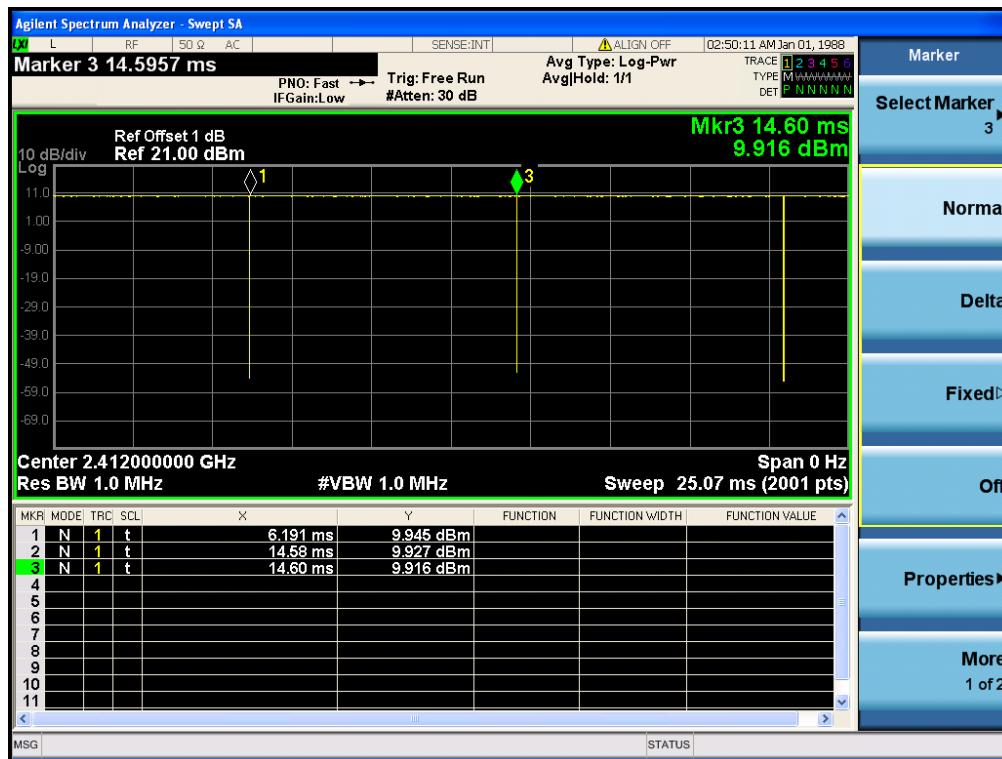
4.3.1 Test Results

Test Mode	TX Freq. [MHz]	Duty cycle [%]
11B	Ant 1: CH1	99.86
11G	Ant 1: CH1	98.70
11N20	Ant 1: CH1	98.86
11N40	Ant 1: CH3	97.35

4.3.1 Test Plots

4.3.1.1 ANT1

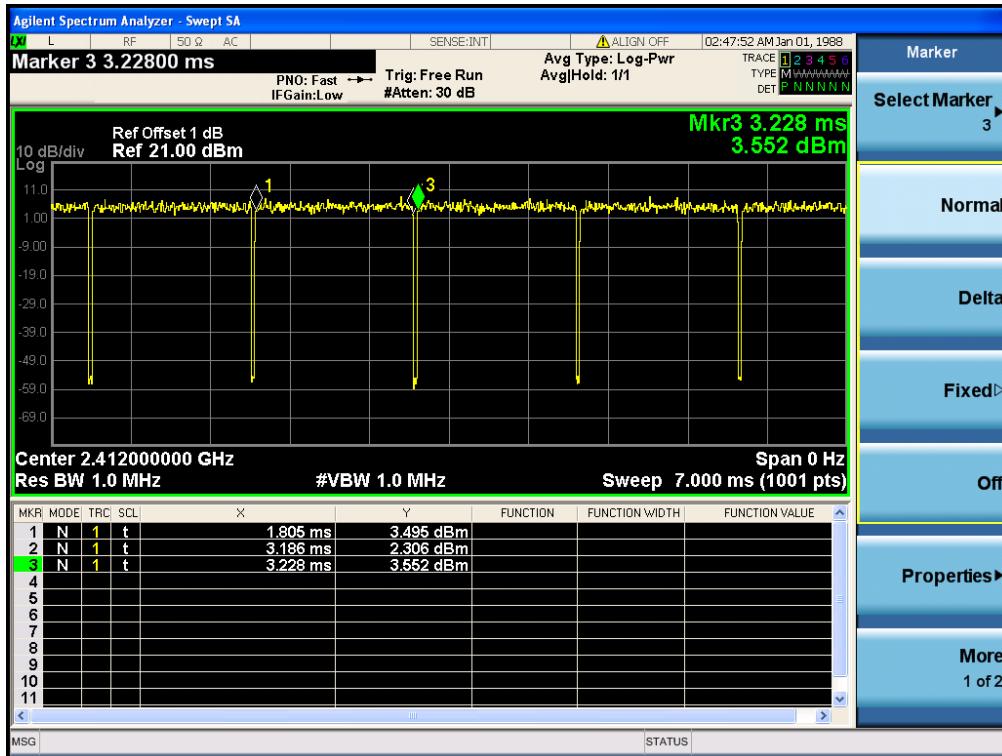
4.3.1.1.1 11B



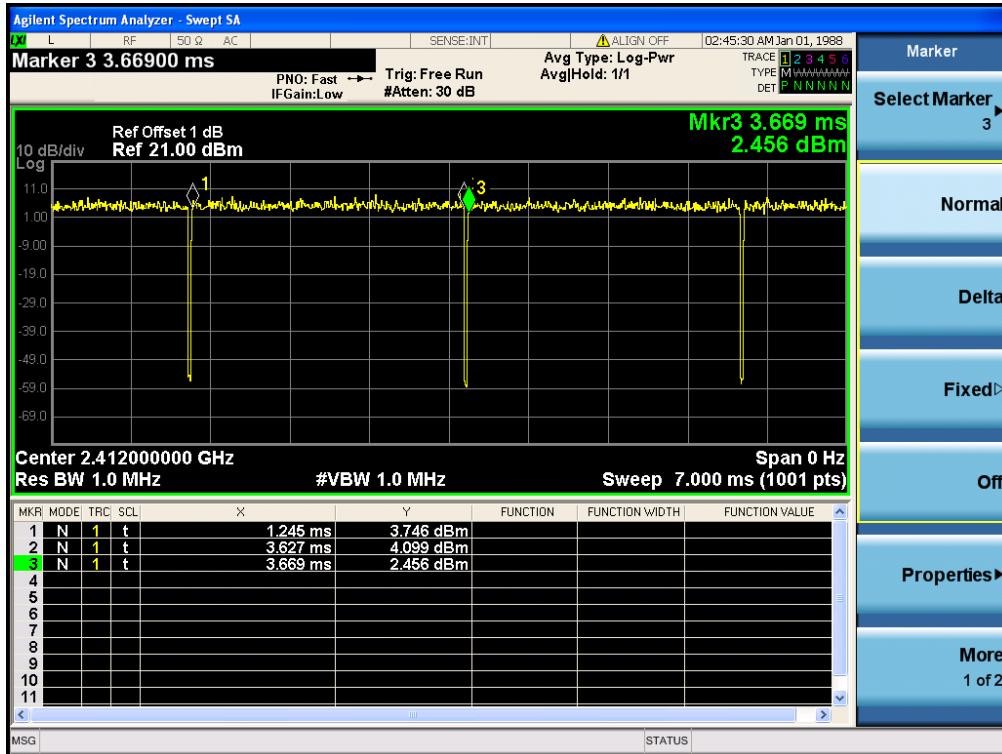
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4.3.1.1.2 11G



4.3.1.1.3 11N20



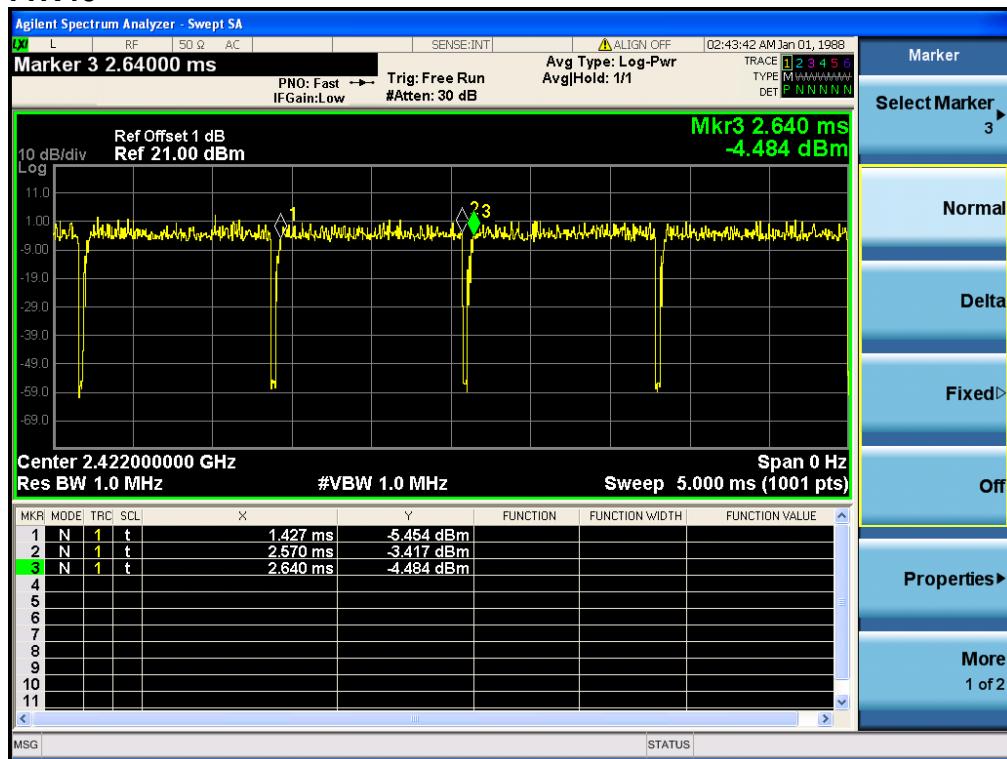
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4.3.1.1.4 11N40



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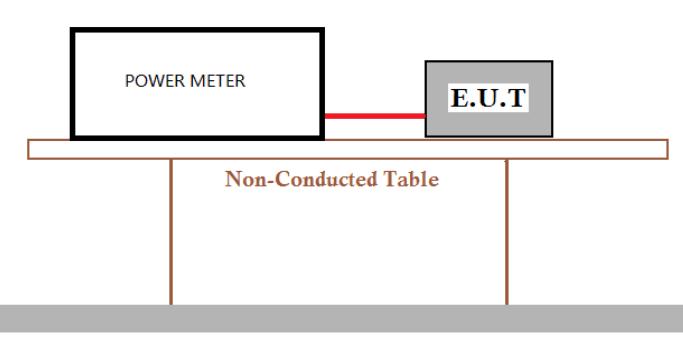
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4.4 Conducted Output Power

Test Requirement:	47 CFR Part 15C Section 15.247 (b)(3)
Test Method:	ANSI C63.10 :2013 Section 11.9.1.3
Test Setup:	
Test Instruments:	Refer to section 5.10 for details
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:	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
802.11B	Lowest	17.35	Report purpose only
	Middle	17.28	Report purpose only
	Highest	17.16	Report purpose only
802.11G	Lowest	16.34	Report purpose only
	Middle	16.54	Report purpose only
	Highest	16.48	Report purpose only
802.11N20	Lowest	15.53	Report purpose only
	Middle	15.61	Report purpose only
	Highest	15.38	Report purpose only
802.11N40	Lowest	15.68	Report purpose only
	Middle	15.74	Report purpose only
	Highest	15.51	Report purpose only

Measurement Data of Peak Power:

Mode	Test Channel	Peak Output Power (dBm)	Limit (dBm)	Result
802.11B	Lowest	22.34	30.00	Pass
	Middle	22.44	30.00	Pass
	Highest	22.10	30.00	Pass
802.11G	Lowest	20.54	30.00	Pass
	Middle	22.61	30.00	Pass
	Highest	22.21	30.00	Pass
802.11N20	Lowest	20.52	30.00	Pass
	Middle	21.78	30.00	Pass
	Highest	21.37	30.00	Pass
802.11N40	Lowest	20.34	30.00	Pass
	Middle	20.24	30.00	Pass
	Highest	19.93	30.00	Pass

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

Test Requirement:	47 CFR Part 15C Section 15.247 (a)(2)
Test Method:	ANSI C63.10: 2013 Section 11.8.1 Option 1
Test Setup:	<p style="text-align: center;">Spectrum Analyzer</p> <p style="text-align: center;">Non-Conducted Table</p> <p style="text-align: center;">Ground Reference Plane</p>
Instruments Used:	Refer to section 5.10 for details
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:	≥ 500 kHz
Test Results:	Pass

4.5.1 Test Results

Mode	Test Channel	Occupied Bandwidth (MHz)	6dB Emission Bandwidth (MHz)	Limit (kHz)	Result
802.11B	Lowest	22.50	24.40	≥ 500	Pass
	Middle	22.60	24.50	≥ 500	Pass
	Highest	22.30	24.20	≥ 500	Pass
802.11G	Lowest	19.90	20.10	≥ 500	Pass
	Middle	22.10	22.10	≥ 500	Pass
	Highest	21.70	21.70	≥ 500	Pass
802.11N20	Lowest	20.00	20.10	≥ 500	Pass
	Middle	21.10	21.10	≥ 500	Pass
	Highest	20.80	20.90	≥ 500	Pass
802.11N40	Lowest	19.20	19.60	≥ 500	Pass
	Middle	19.20	19.50	≥ 500	Pass
	Highest	18.80	19.30	≥ 500	Pass

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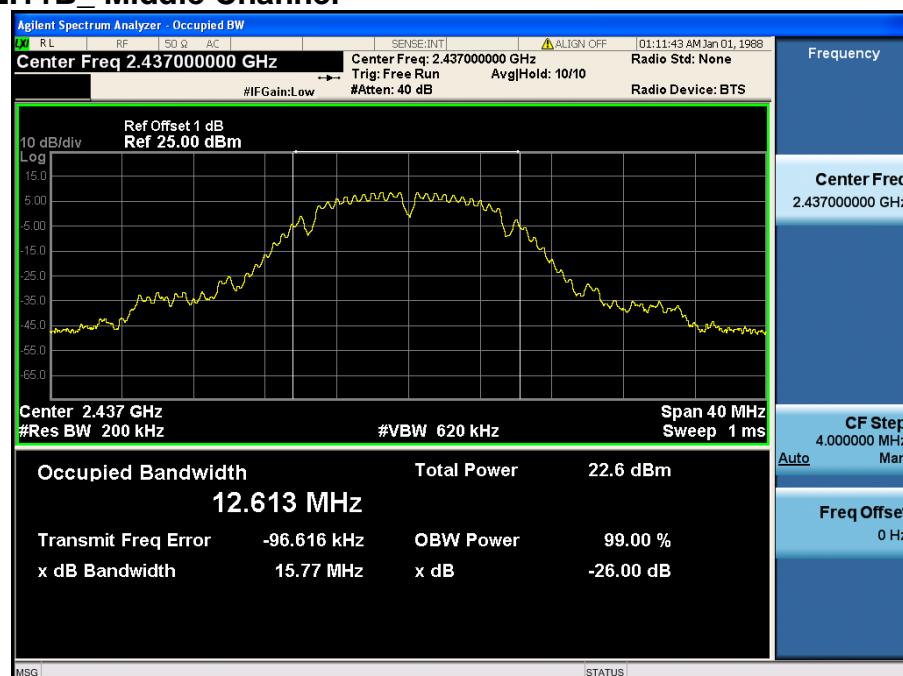
4.5.2 Test plots

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

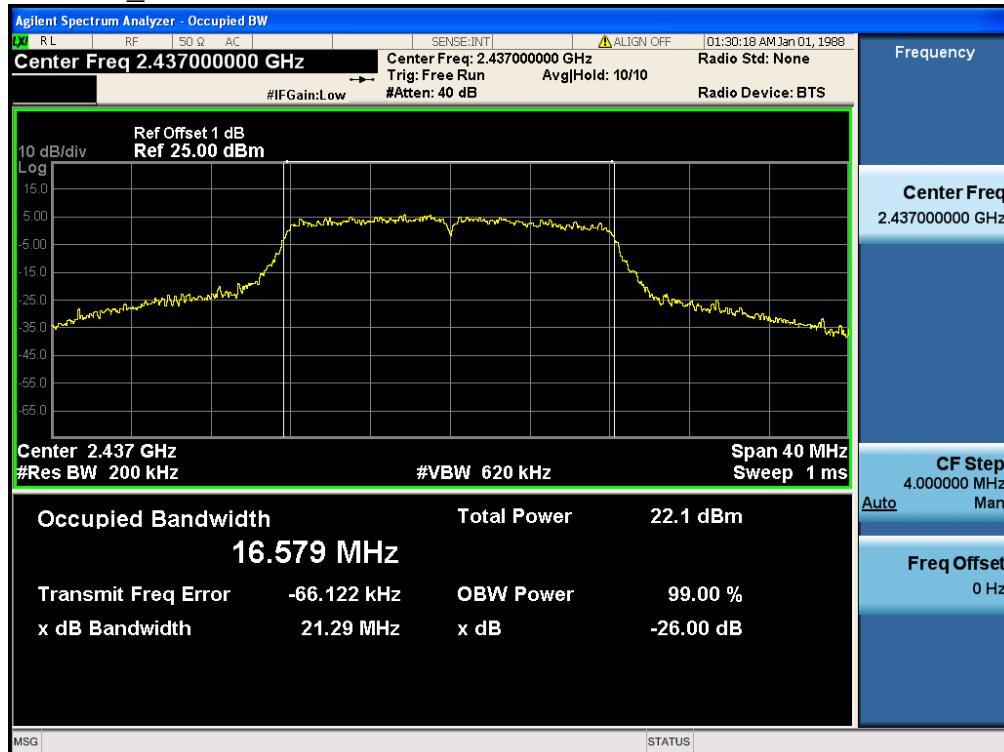


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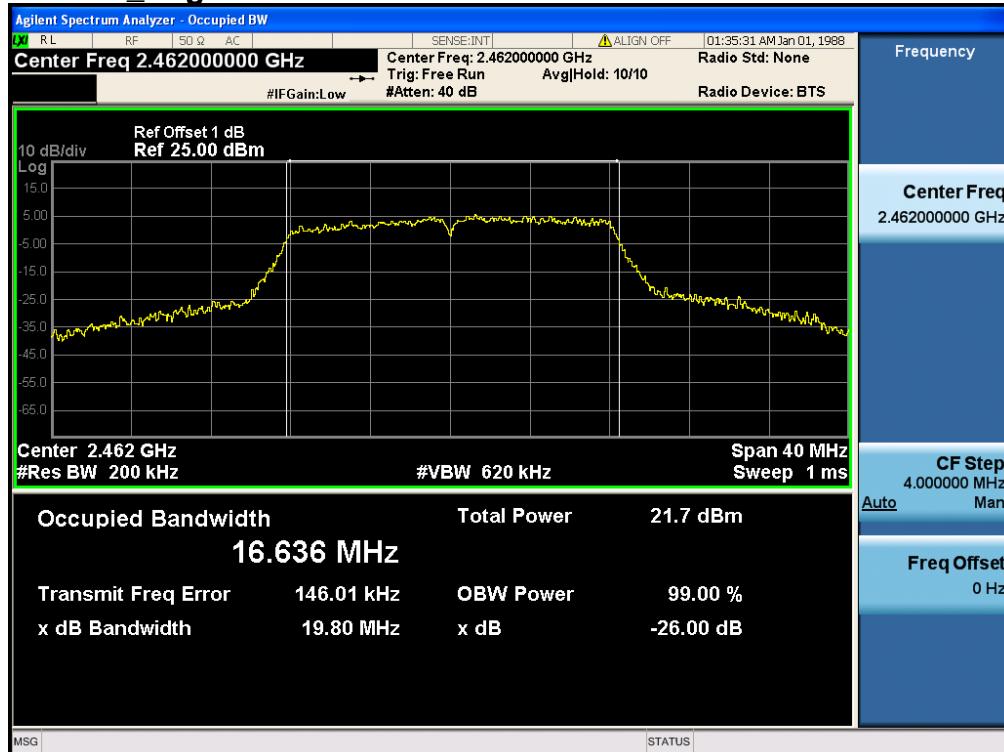
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4.5.2.1.5 802.11G_Middle Channel



4.5.2.1.6 802.11G_Highest Channel



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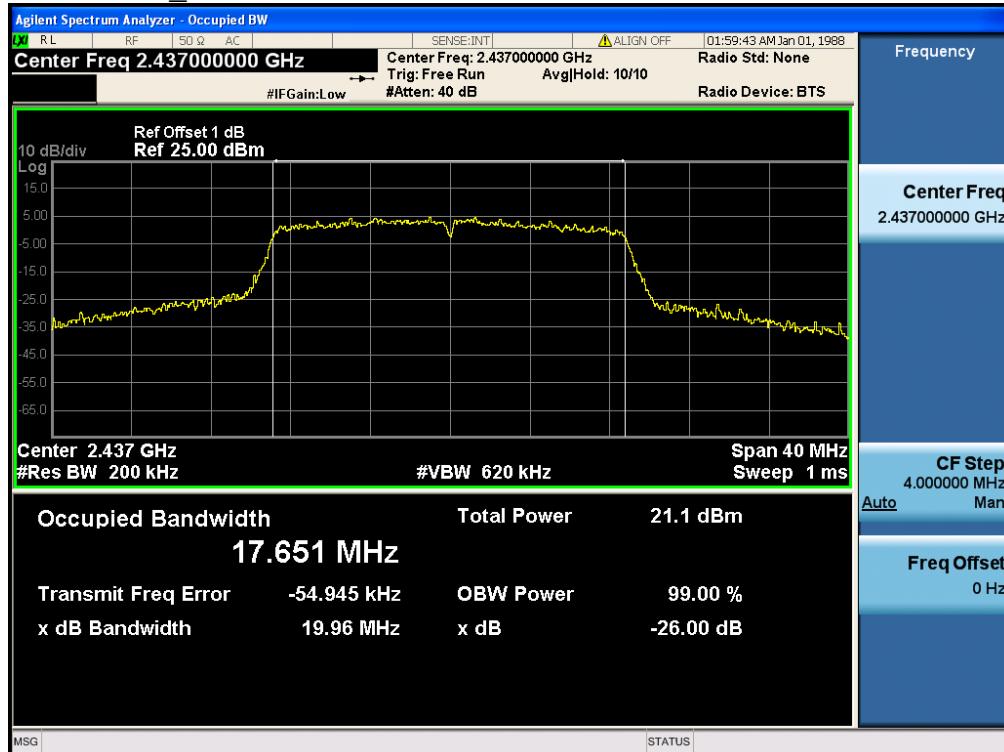


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4.5.2.1.7 802.11N20_Lowest Channel



4.5.2.1.8 802.11 N20_Middle Channel



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4.5.2.1.9 802.11 N20_Highest Channel



4.5.2.1.10 802.11N40_Lowest Channel



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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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4.6 Power Spectral Density

Test Requirement:	47 CFR Part 15C Section 15.247 (e)
Test Method:	ANSI C63.10 :2013 Section 11.10.2
Test Setup:	<p>The diagram illustrates the test setup. A 'Spectrum Analyzer' is shown with a grid display showing a signal. It is connected by a red line to a 'E.U.T' (Equipment Under Test) box. This box sits on a 'Non-Conducted Table'. Below the table is a thick grey bar labeled 'Ground Reference Plane'.</p>
Test Instruments:	Refer to section 5.10 for details
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:	$\leq 8.00 \text{dBm}/3\text{kHz}$
Test Results:	Pass

4.6.1 Test Results

Mode	Test Channel	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
802.11B	Lowest	-4.36	≤ 8.00	Pass
	Middle	-4.29	≤ 8.00	Pass
	Highest	-5.36	≤ 8.00	Pass
802.11G	Lowest	-9.87	≤ 8.00	Pass
	Middle	-9.68	≤ 8.00	Pass
	Highest	-9.40	≤ 8.00	Pass
802.11N20	Lowest	-10.46	≤ 8.00	Pass
	Middle	-10.03	≤ 8.00	Pass
	Highest	-9.80	≤ 8.00	Pass
802.11N40	Lowest	-14.25	≤ 8.00	Pass
	Middle	-14.51	≤ 8.00	Pass
	Highest	-14.59	≤ 8.00	Pass

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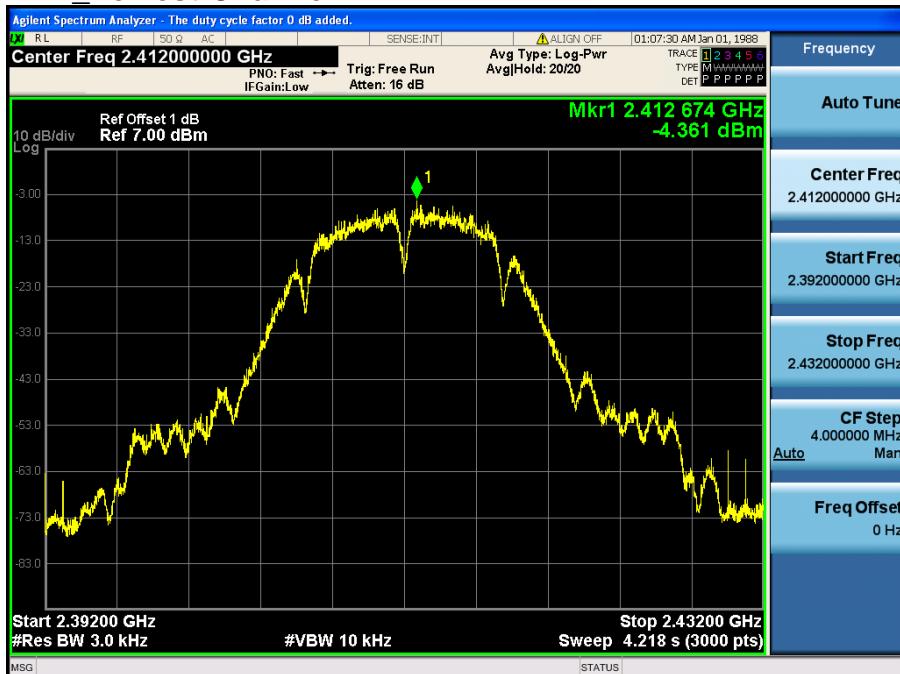
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4.6.2 Test plots

4.6.2.1 ANT1

4.6.2.1.1 802.11B_Lowest Channel

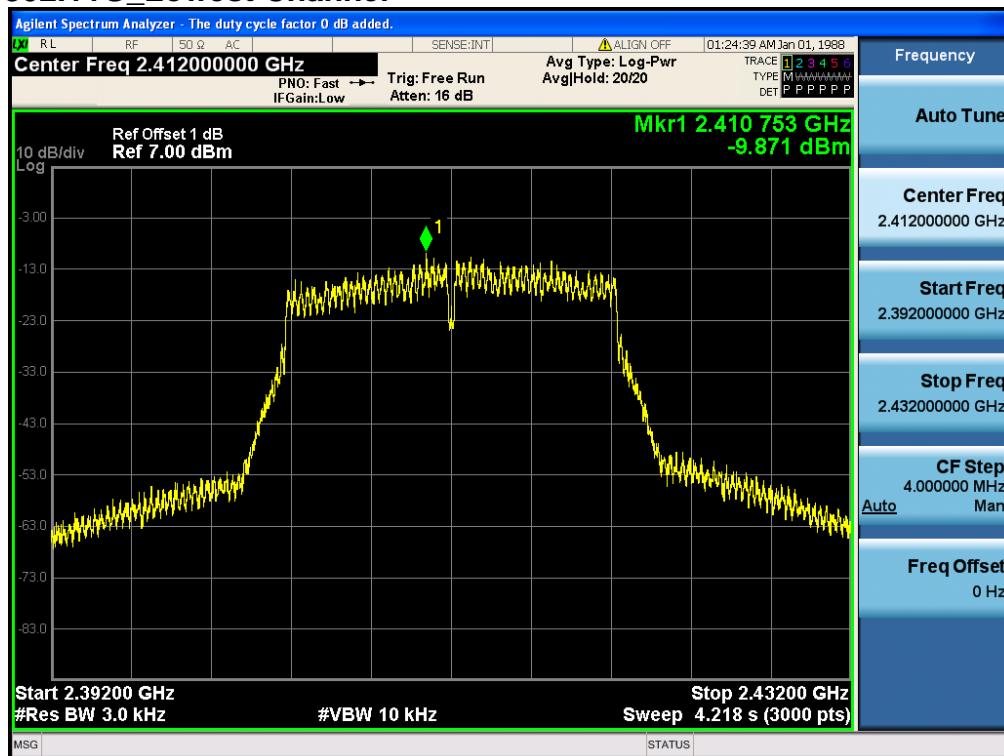


4.6.2.1.2 802.11B_Middle Channel



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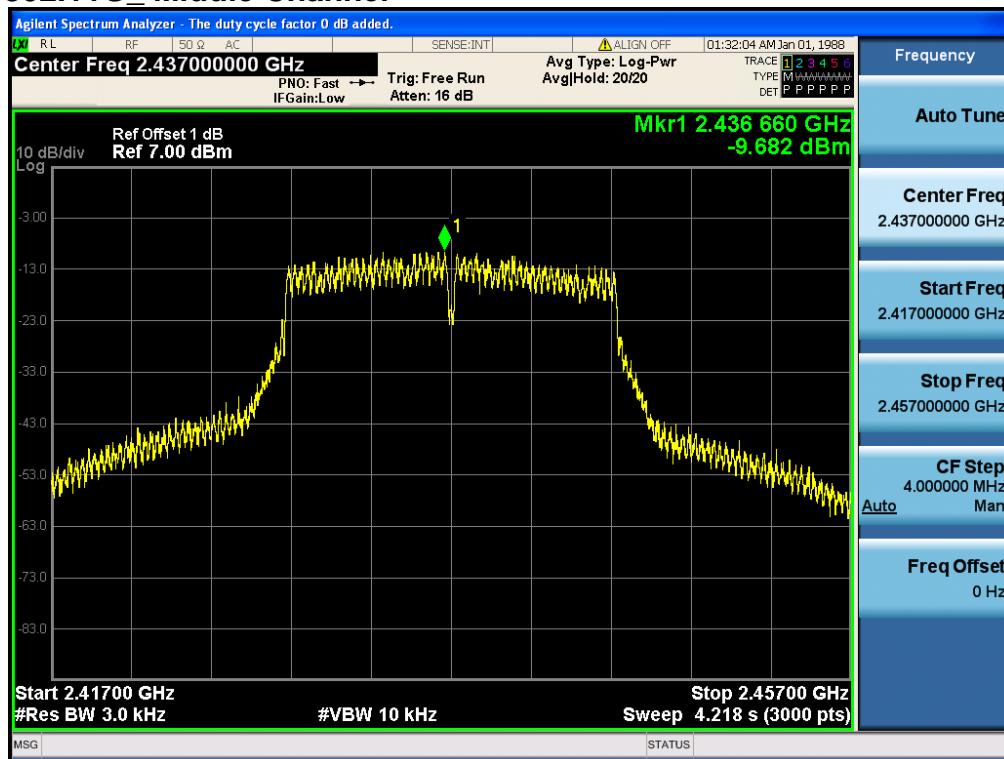
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4.6.2.1.3 802.11B_Highest Channel**4.6.2.1.4 802.11G_Lowest Channel**

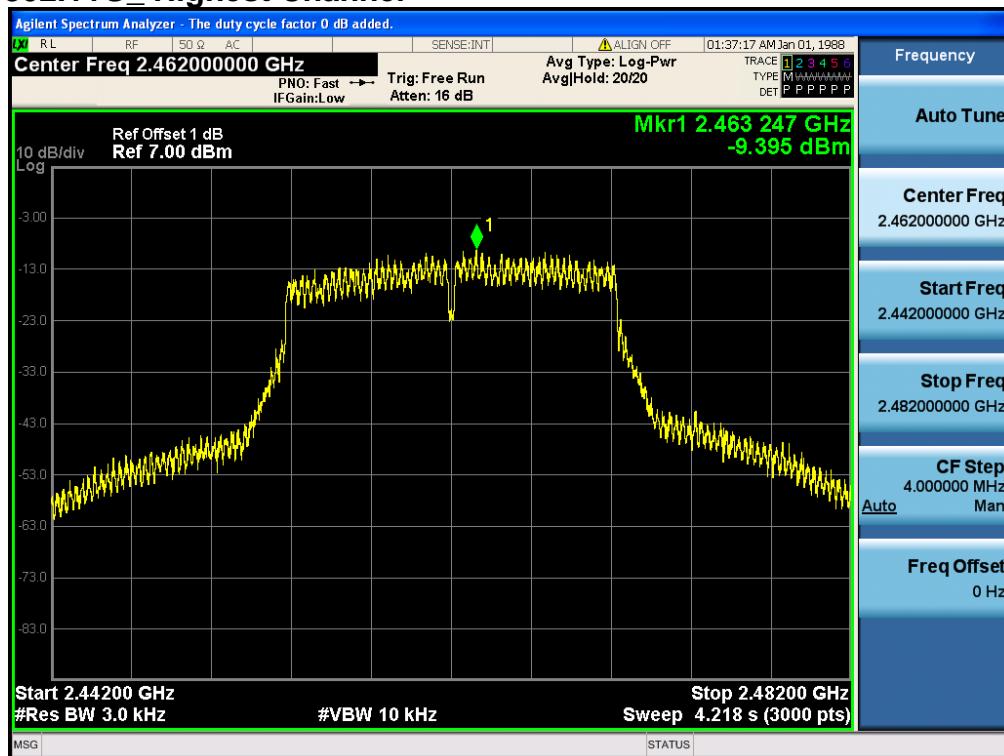
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4.6.2.1.5 802.11G_Middle Channel



4.6.2.1.6 802.11G_Highest Channel

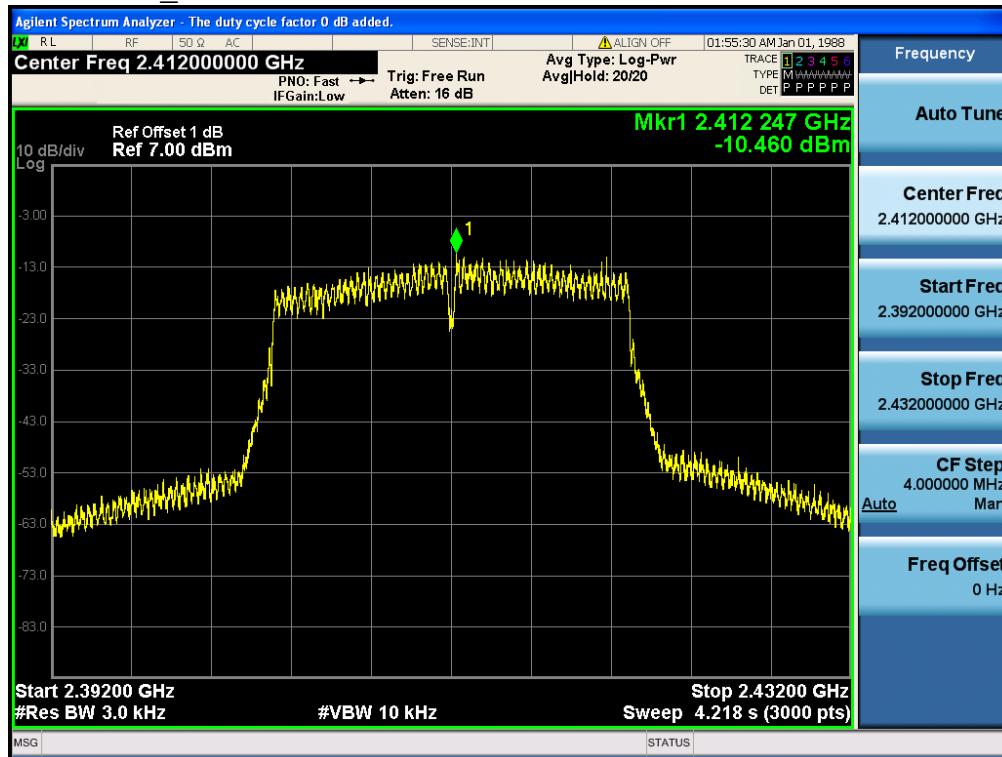


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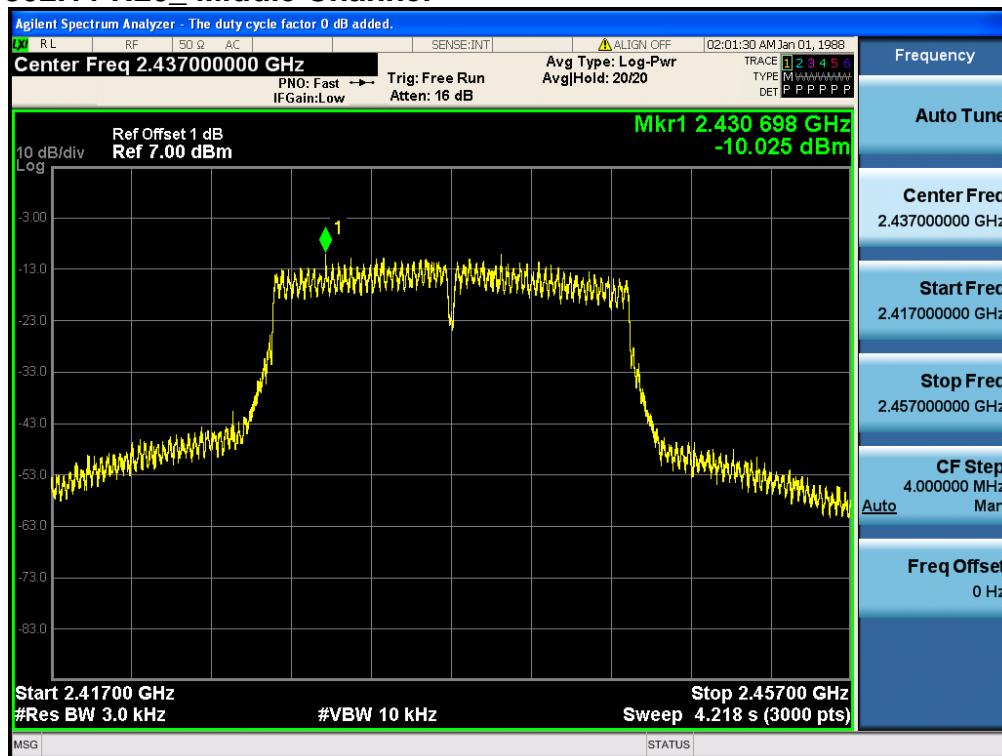
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4.6.2.1.7 802.11N20_Lowest Channel



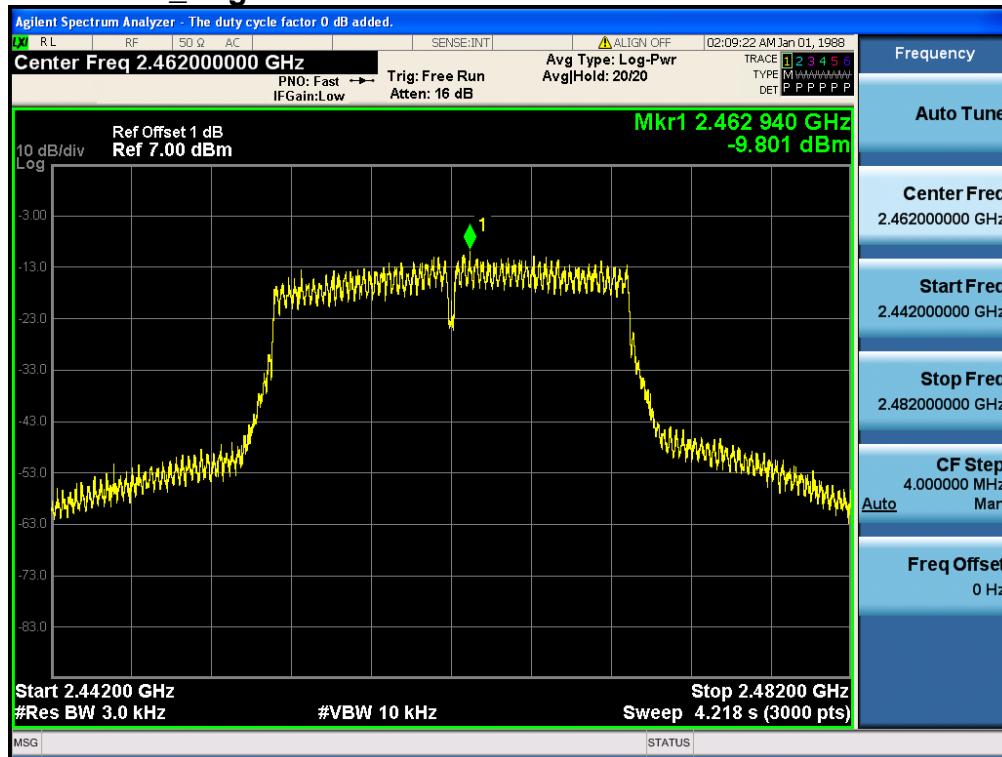
4.6.2.1.8 802.11 N20_Middle Channel



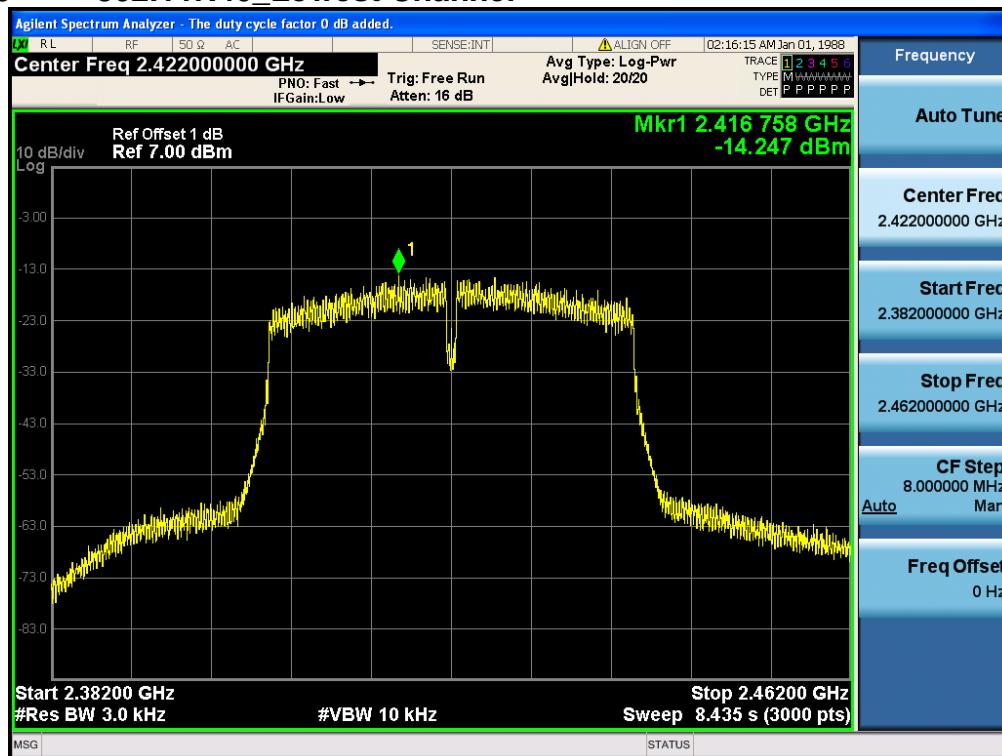
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4.6.2.1.9 802.11 N20_Highest Channel



4.6.2.1.10 802.11N40_Lowest Channel

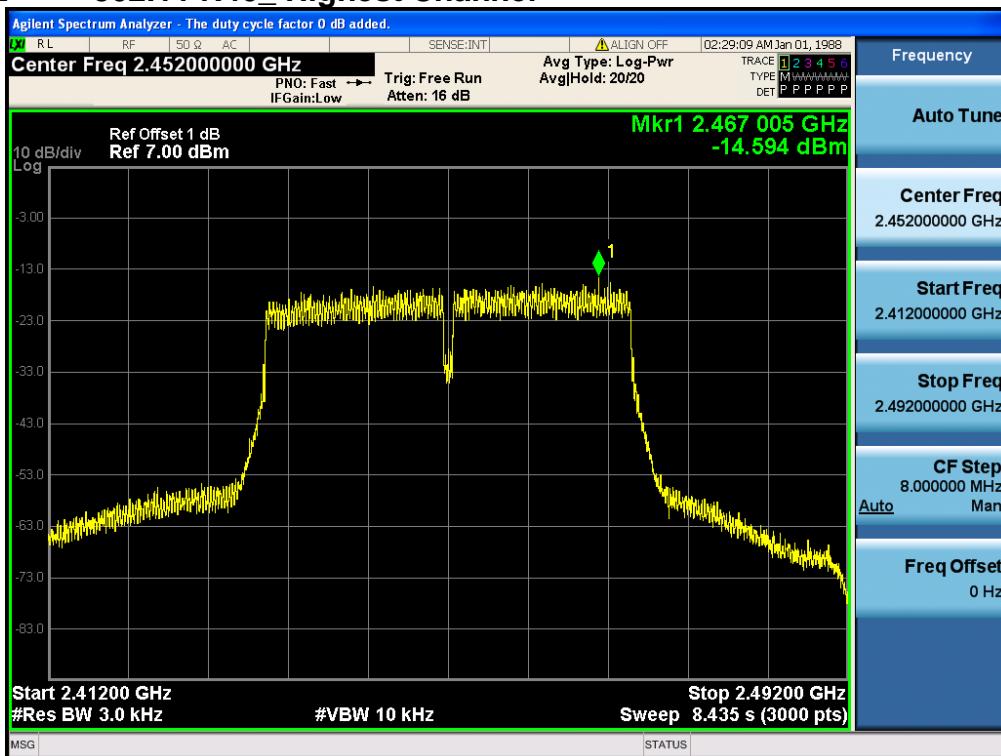


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4.6.2.1.11 802.11 N40 Middle Channel**4.6.2.1.12 802.11 N40 Highest Channel**

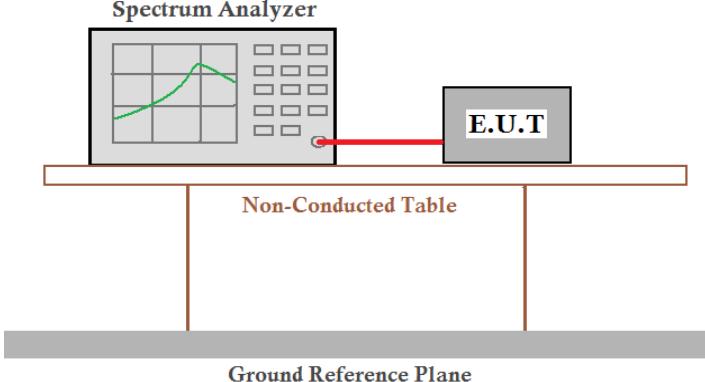
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4.7 Band-edge for RF Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)
Test Method:	ANSI C63.10: 2013 Section 11.13
Test Setup:	
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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4.7.1 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

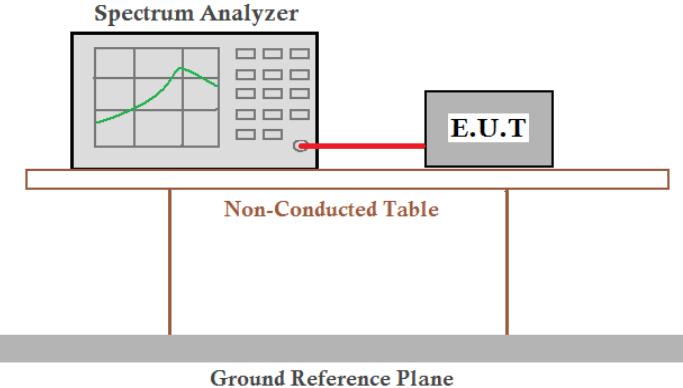


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4.8 RF Conducted Spurious Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)
Test Method:	ANSI C63.10: 2013 Section 11.11
Test Setup:	
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

4.8.1.1 ANT1

4.8.1.1.1 802.11B_Lowest Channel

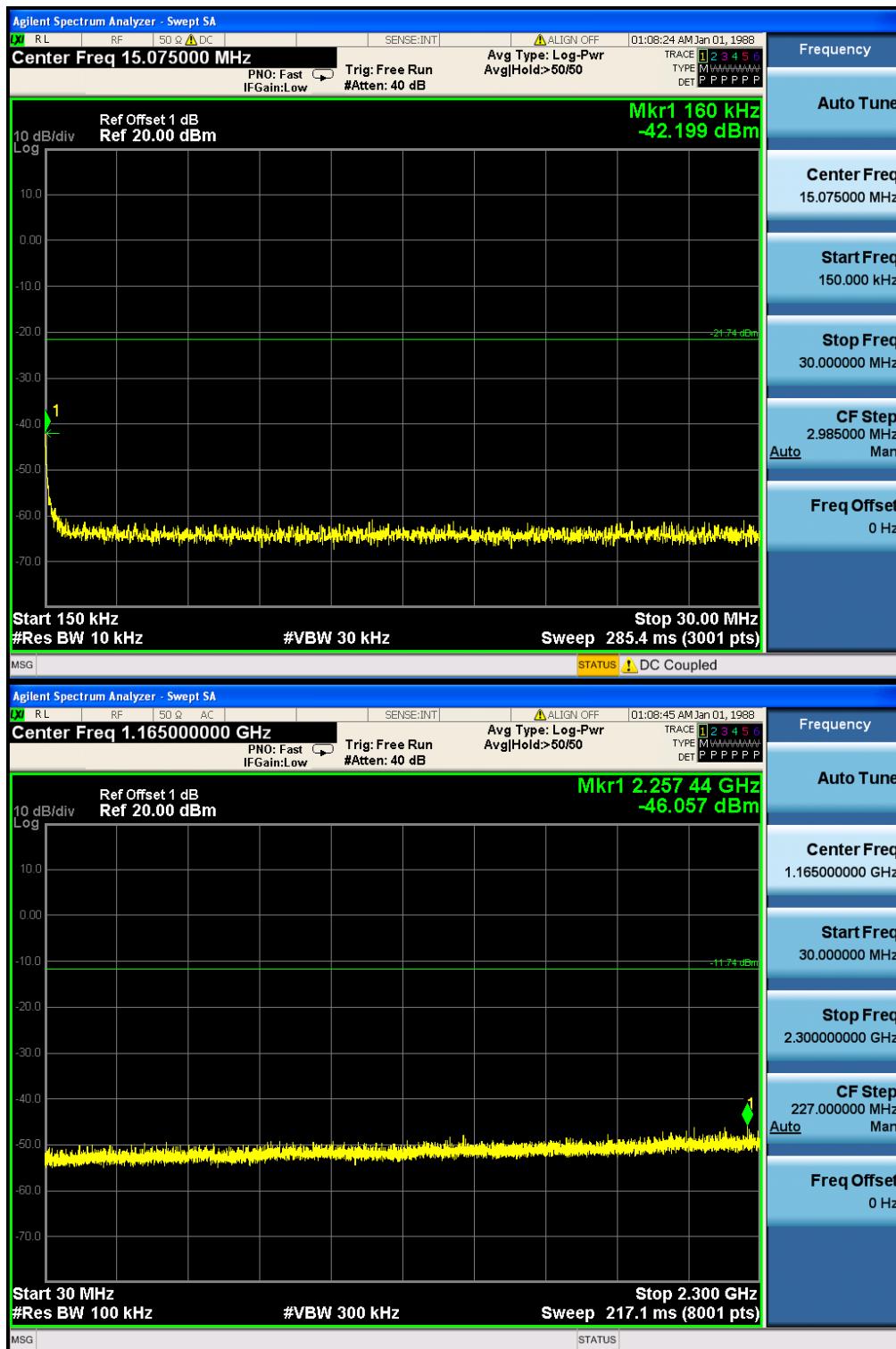


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4.8.1.1.2 802.11B_ Middle Channel



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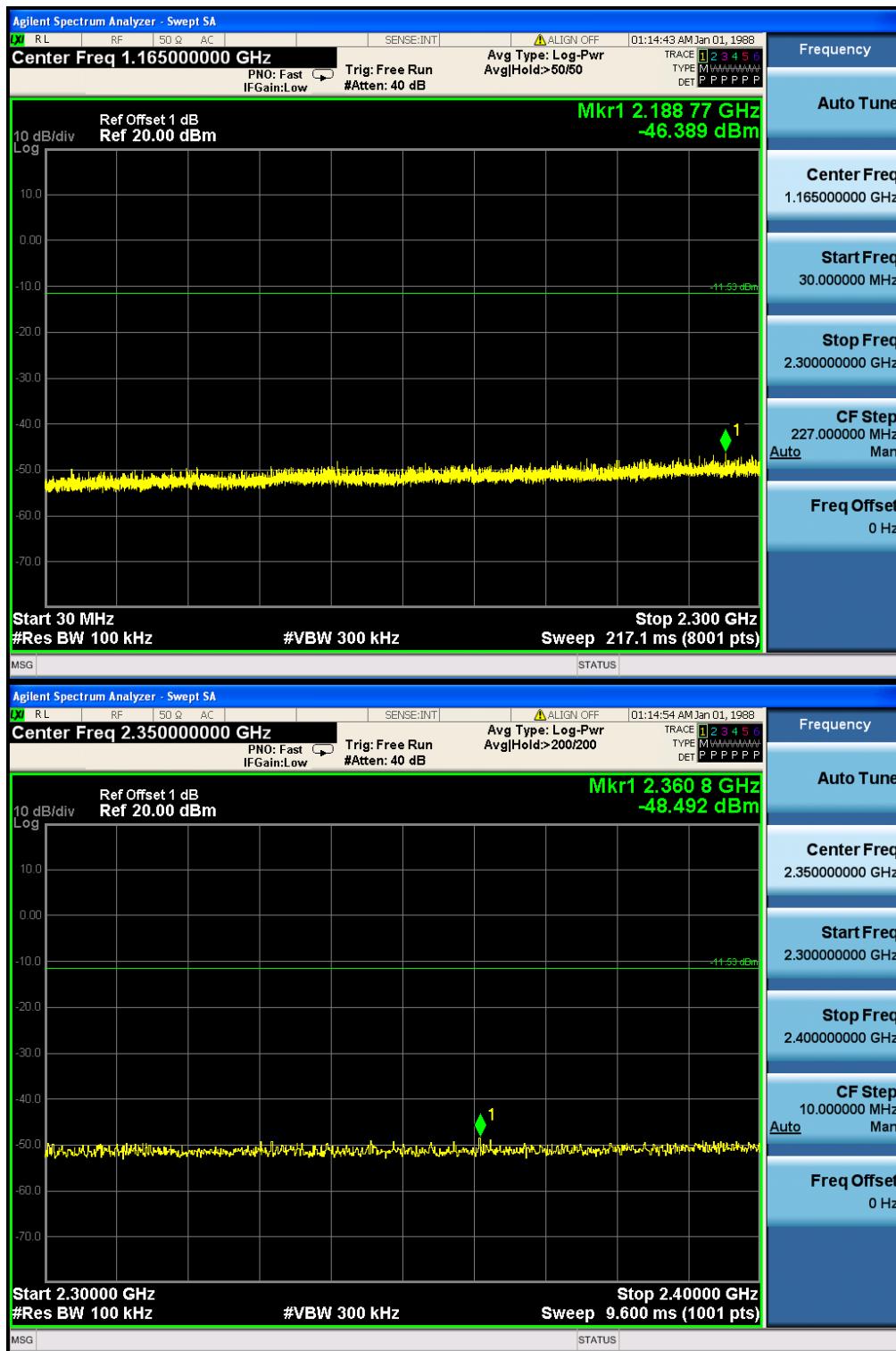
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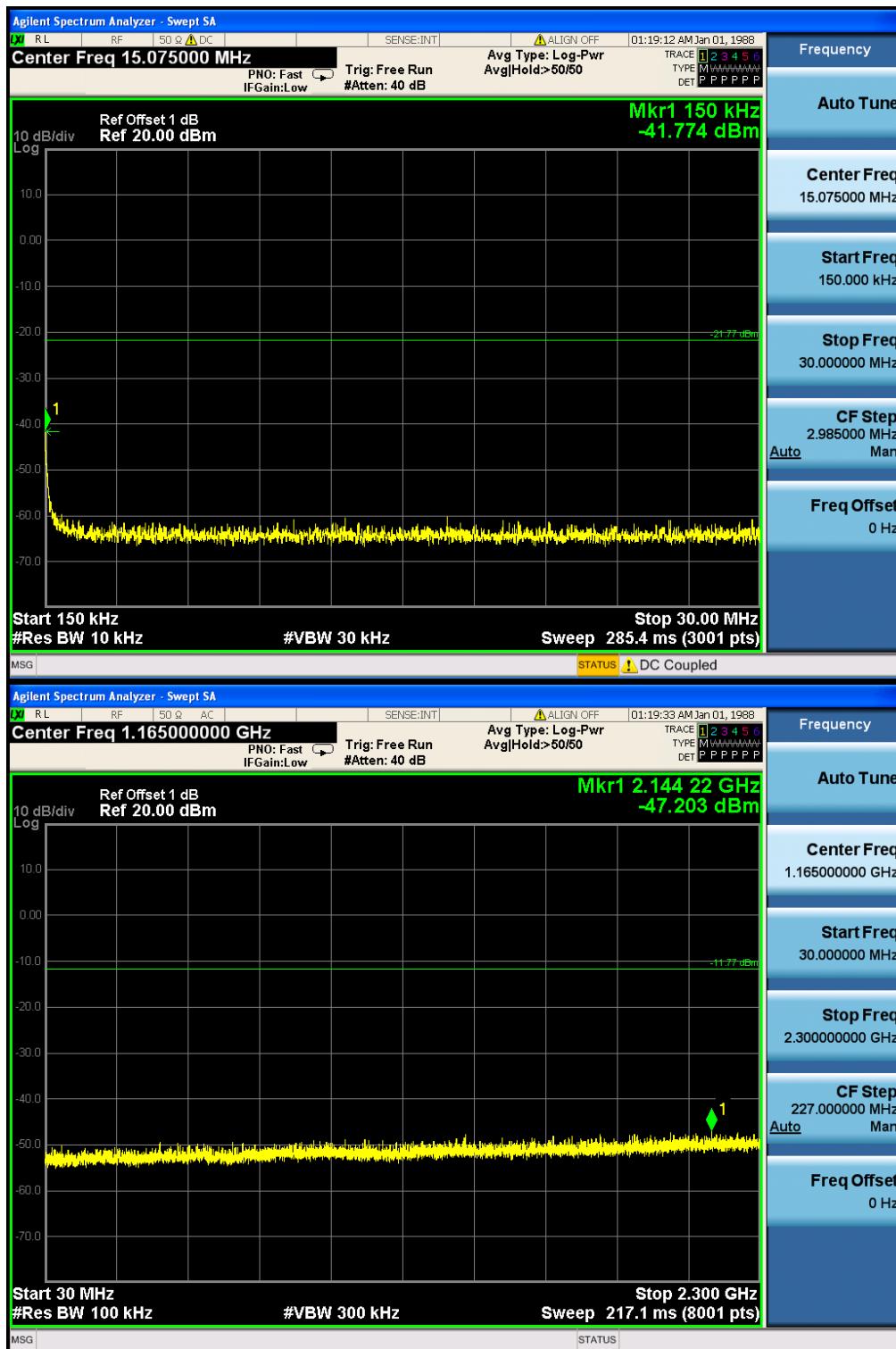
4.8.1.1.3 802.11B_Highest Channel



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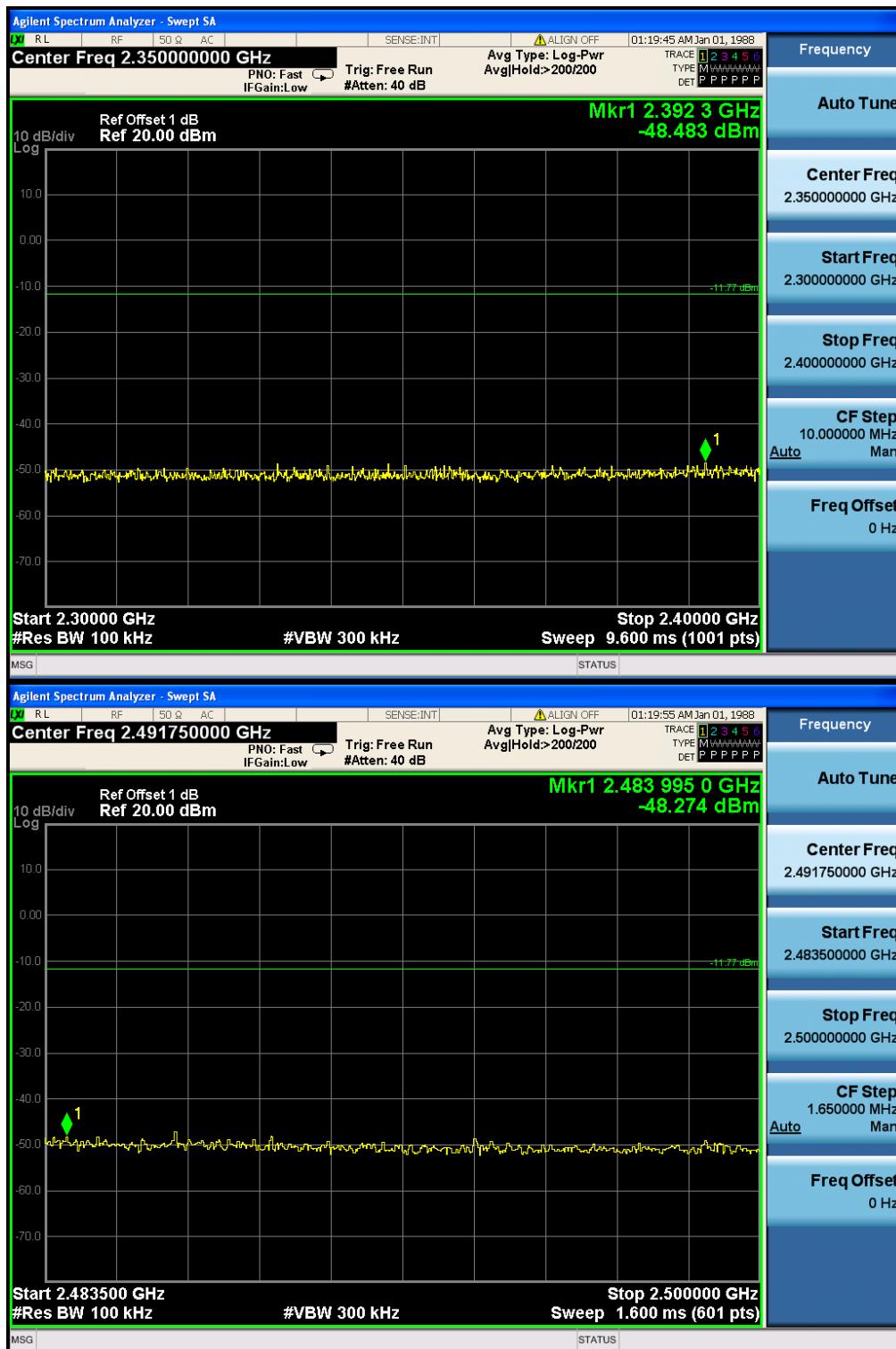
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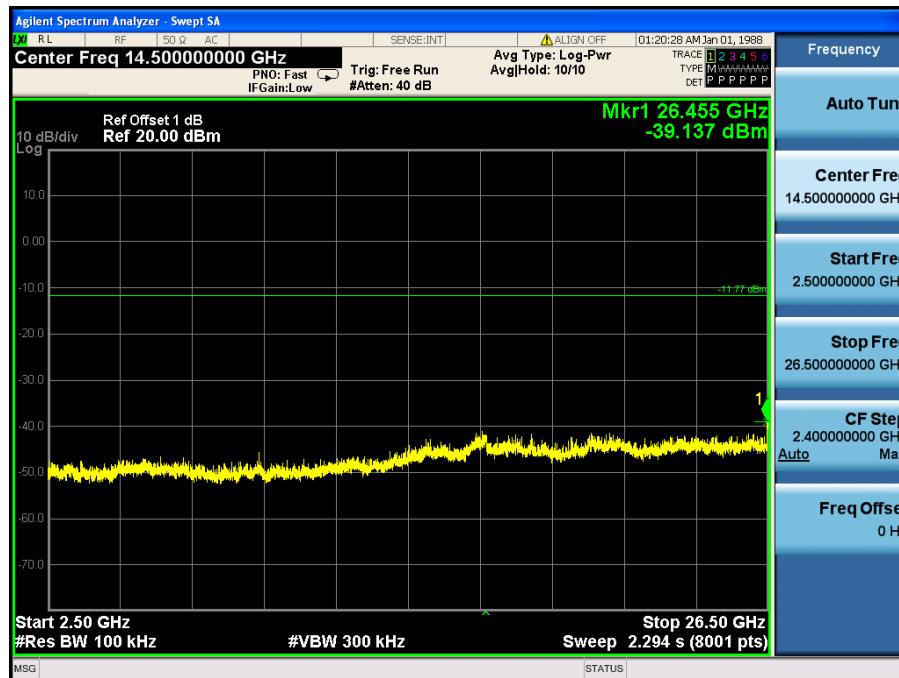
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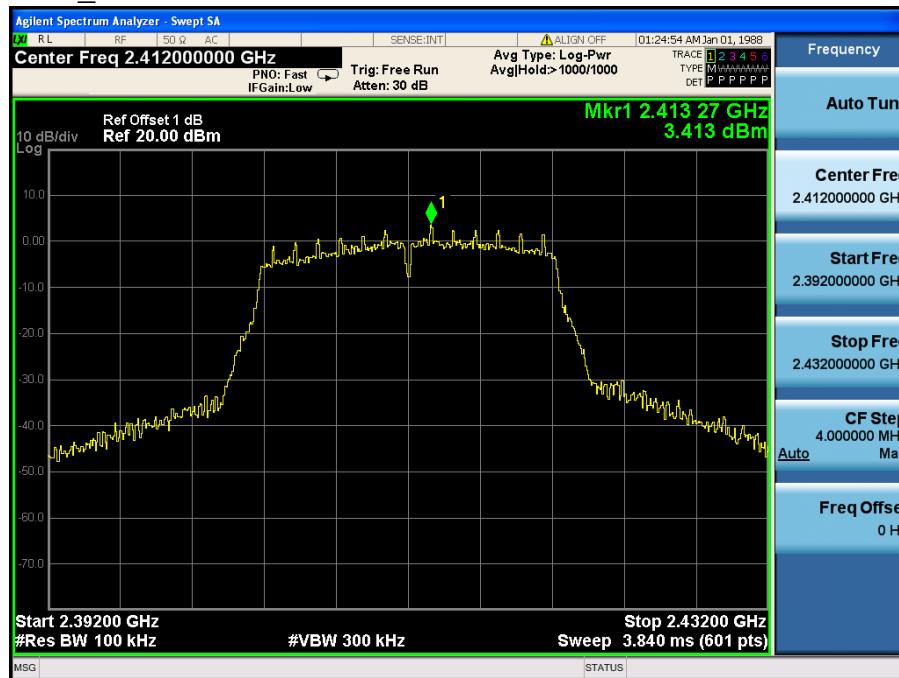


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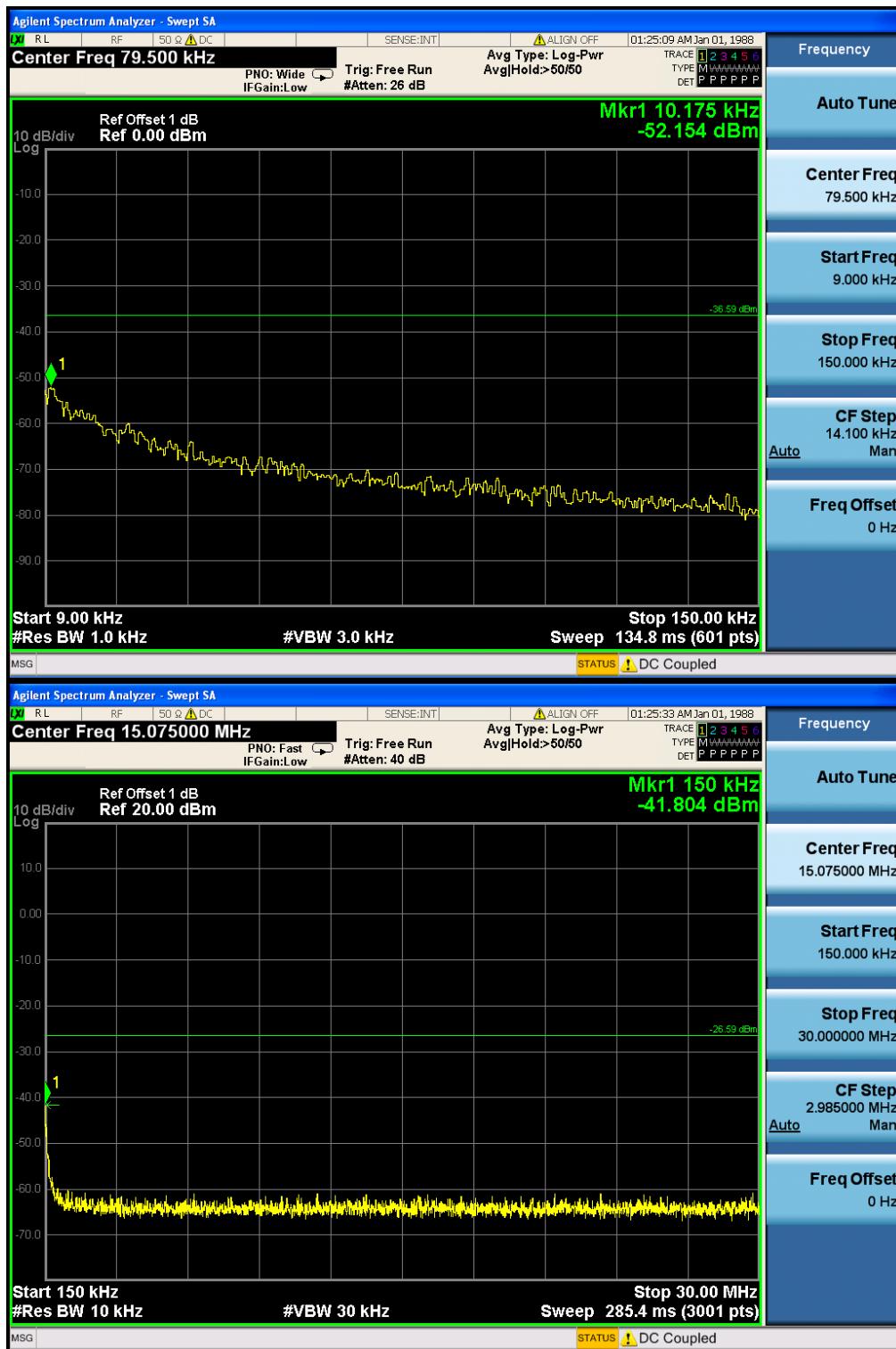


4.8.1.1.4 802.11G_Lowest Channel



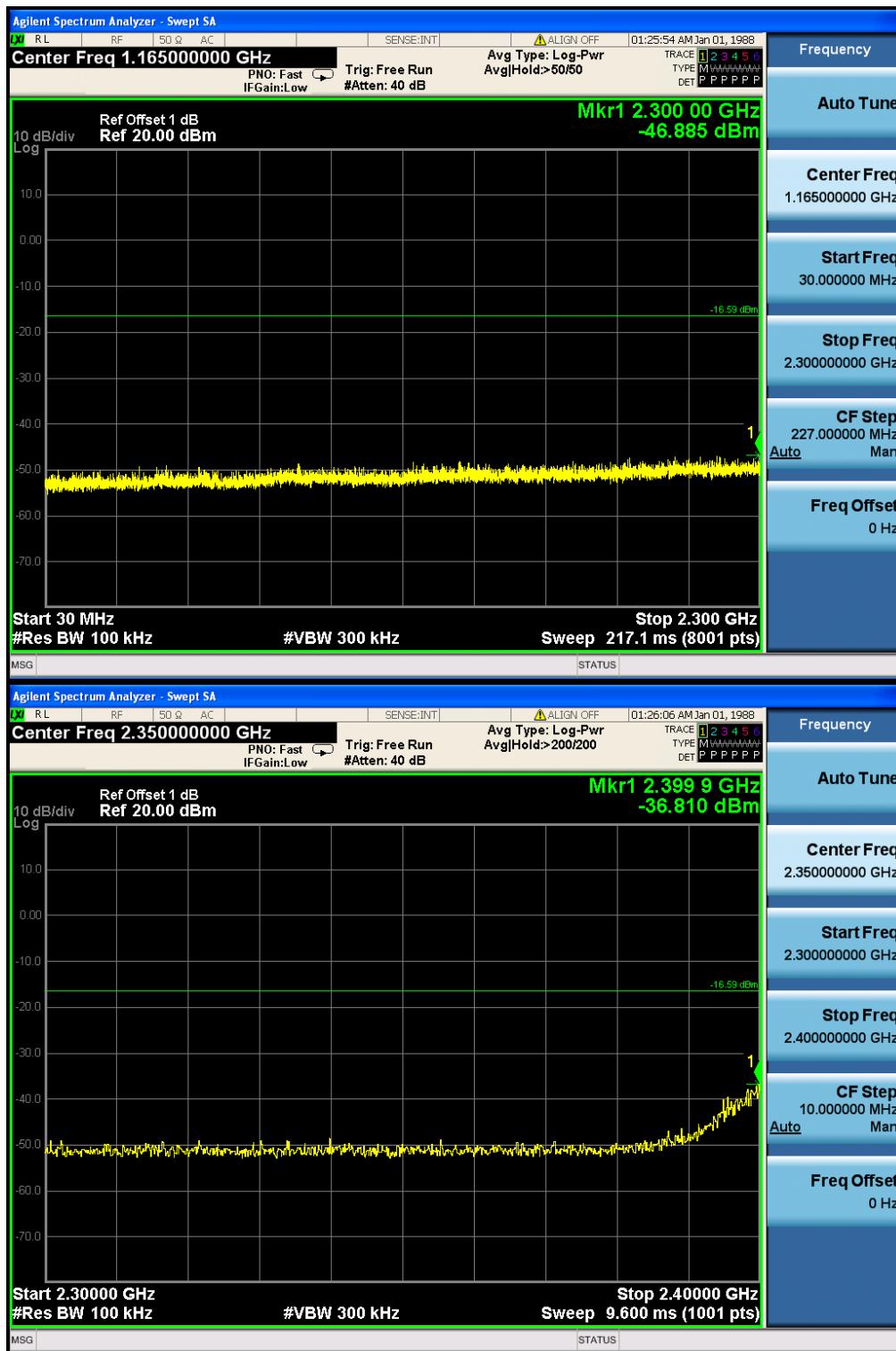
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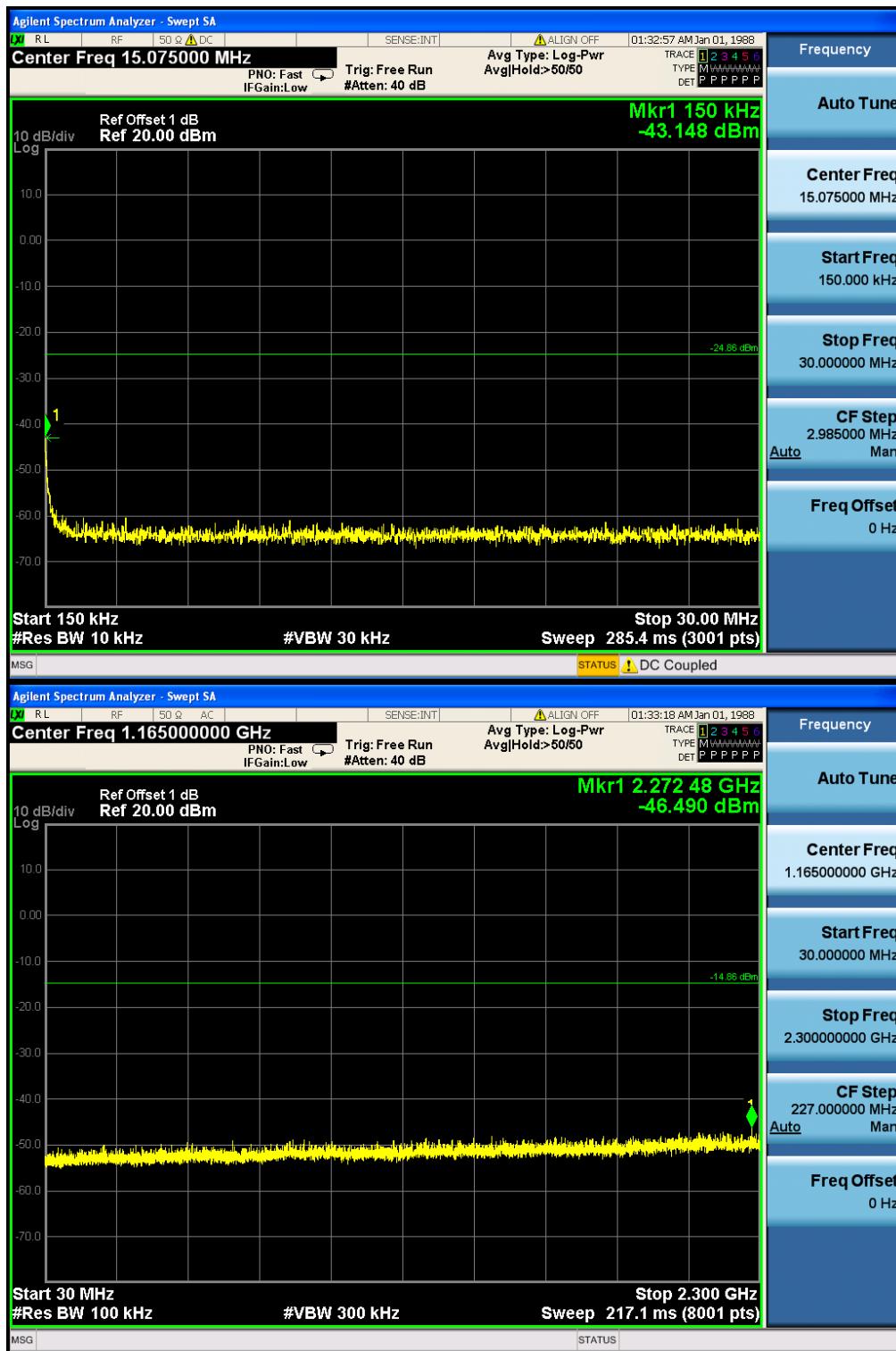


4.8.1.1.5 802.11G_Middle Channel



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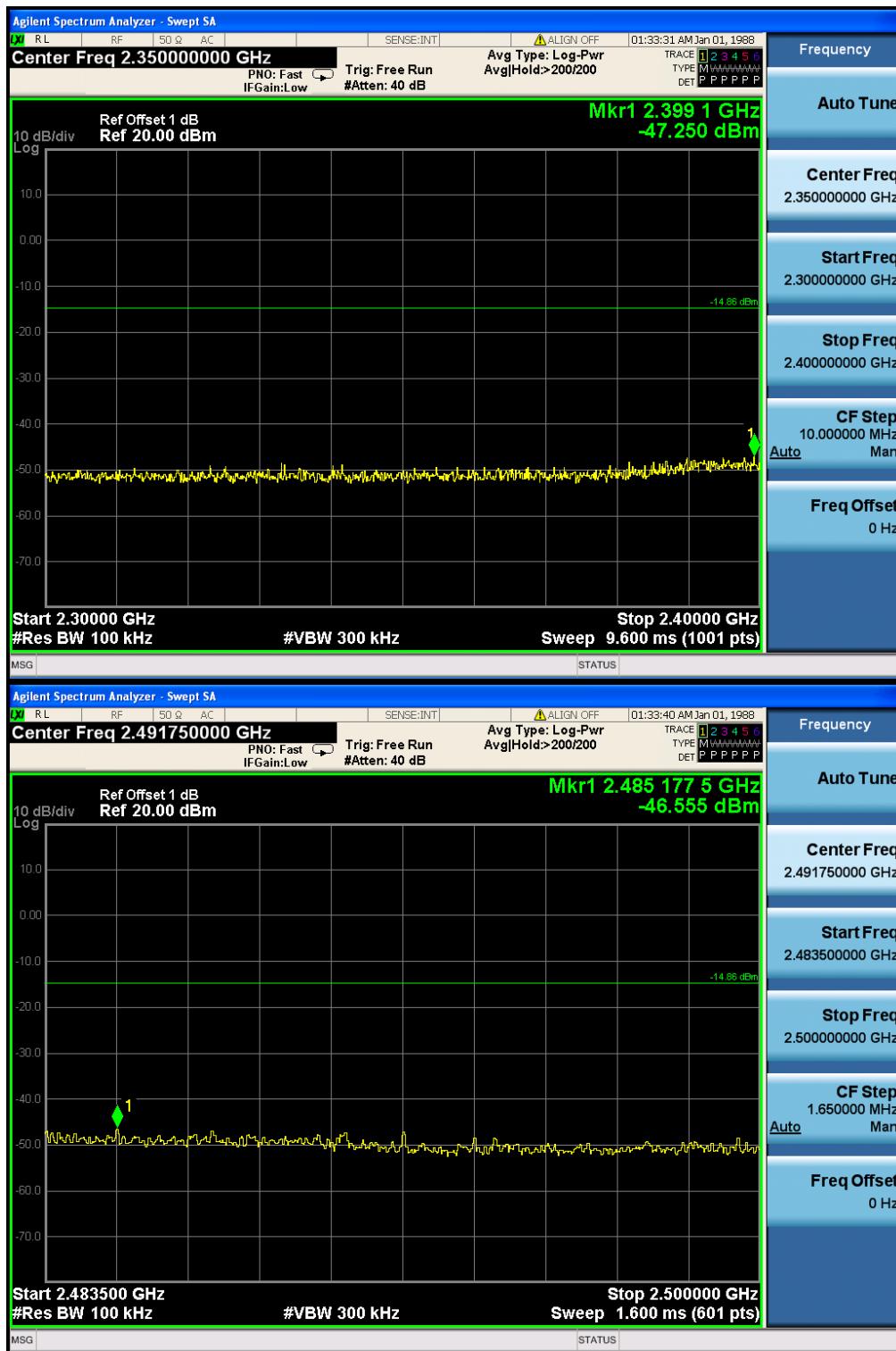


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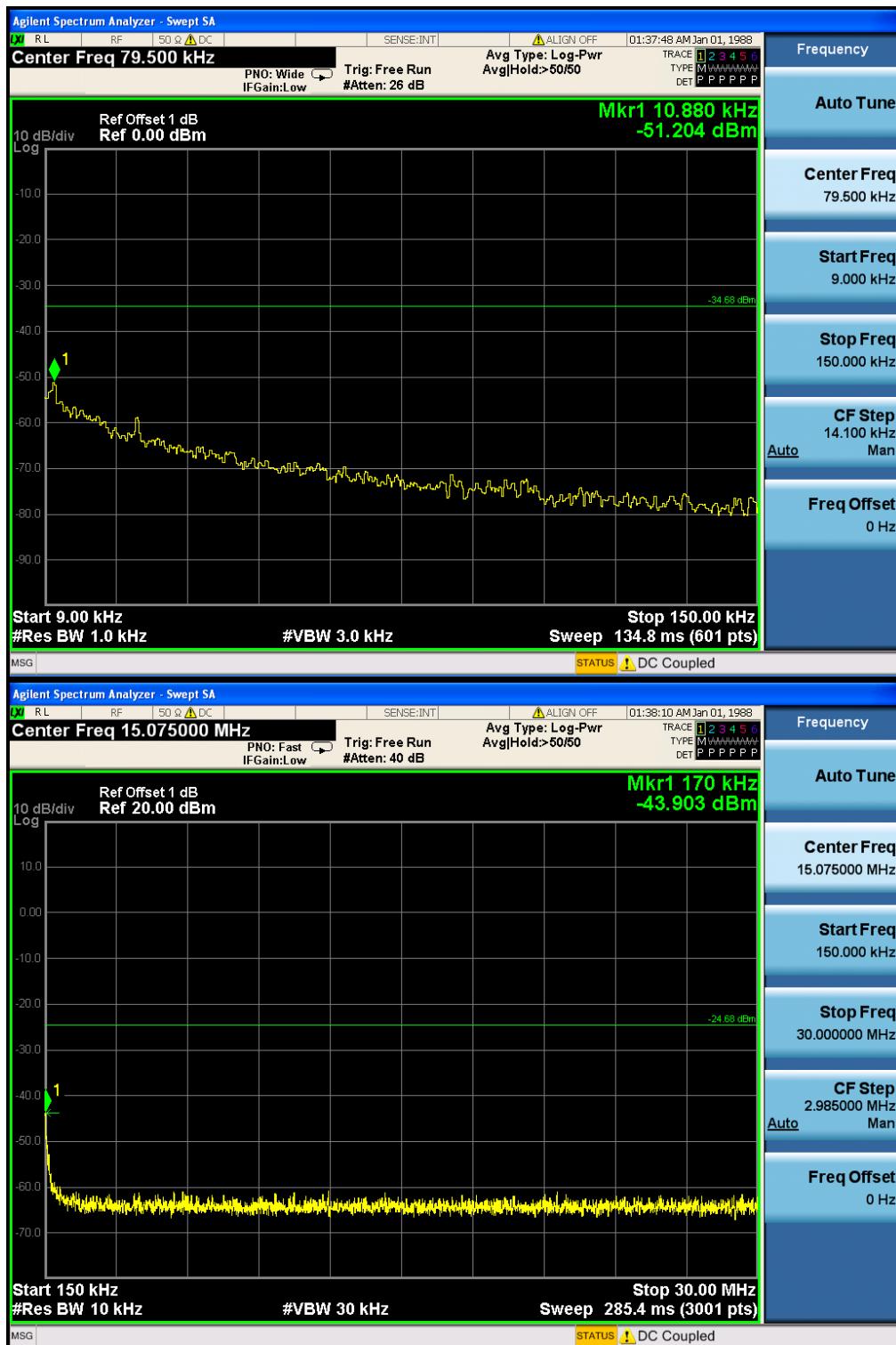


4.8.1.1.6 802.11G_Highest Channel



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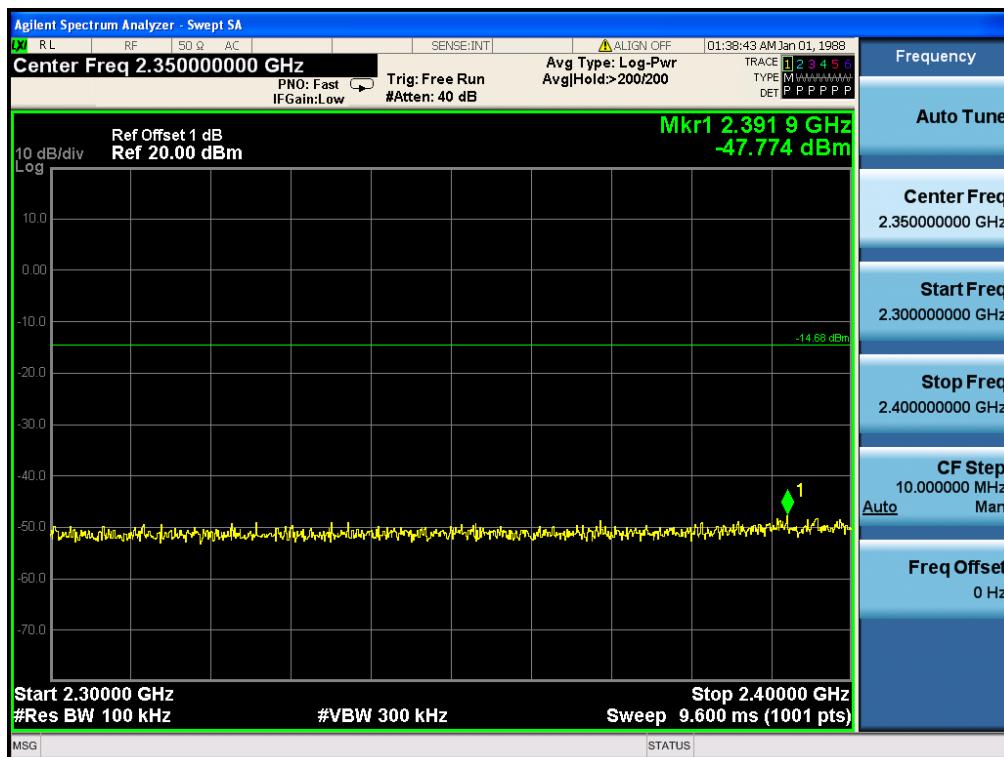


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Shenzhen Branch, SGS-CSTC Laboratory
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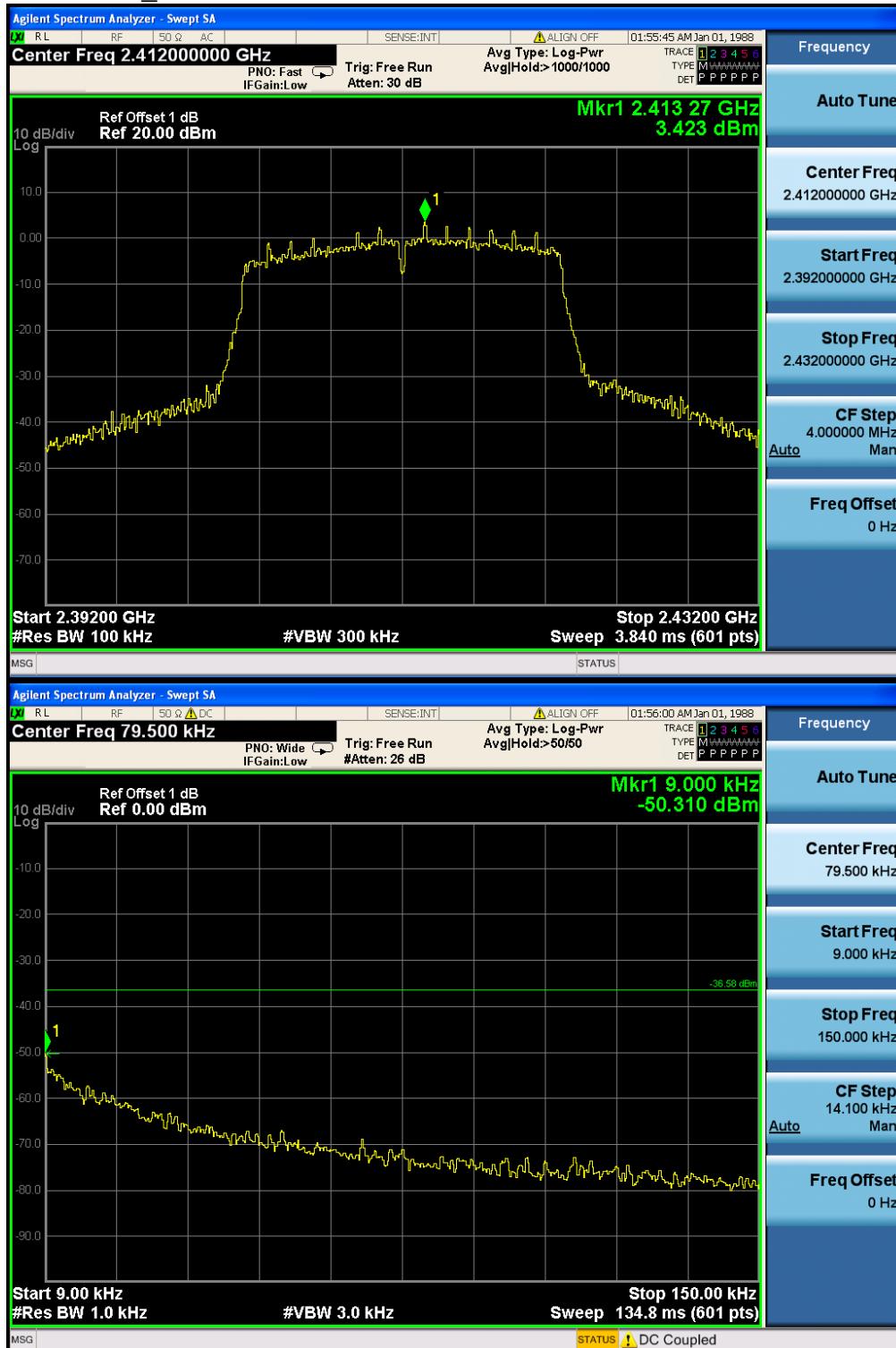
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4.8.1.1.7 802.11N20_Lowest Channel

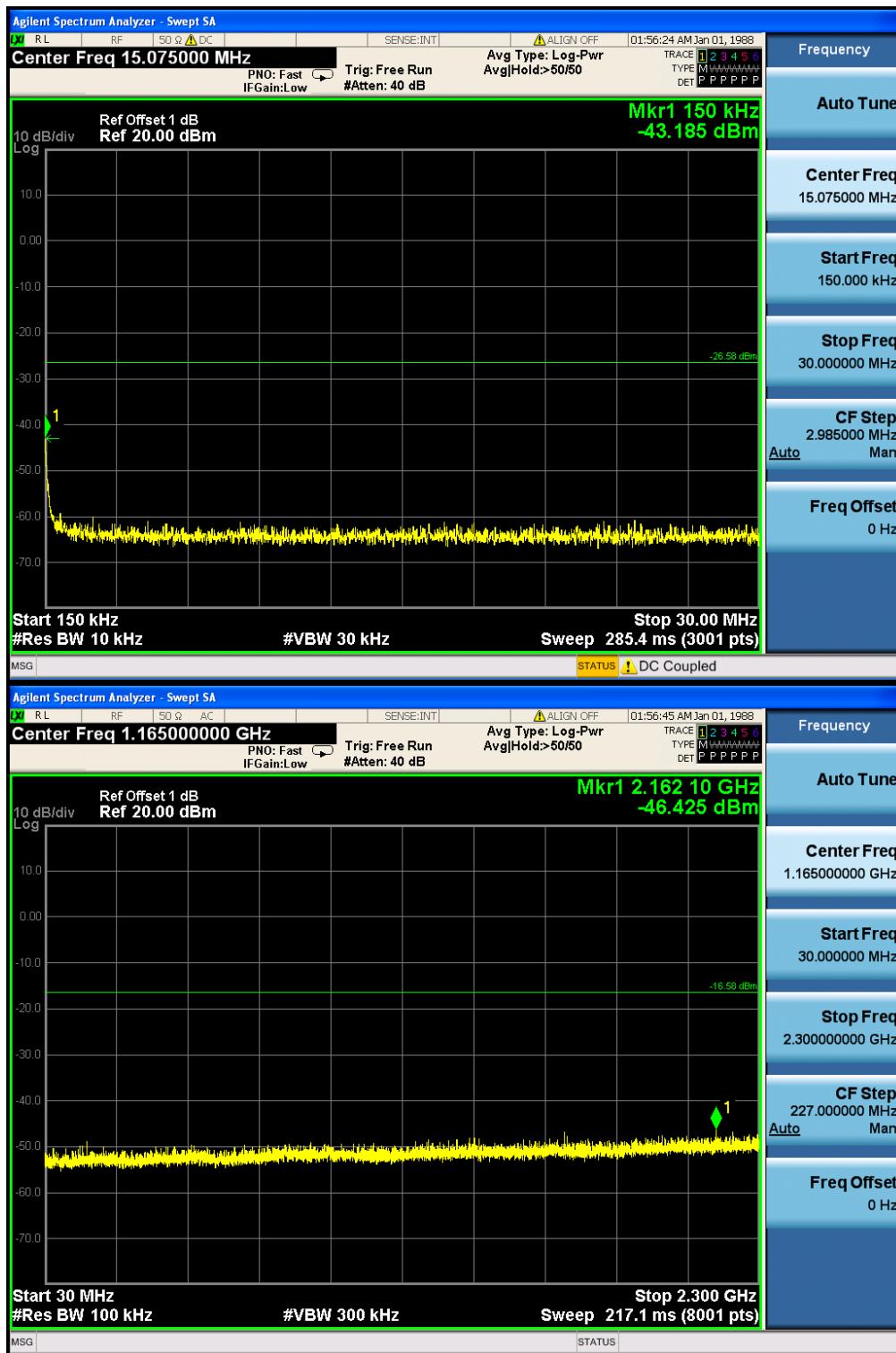


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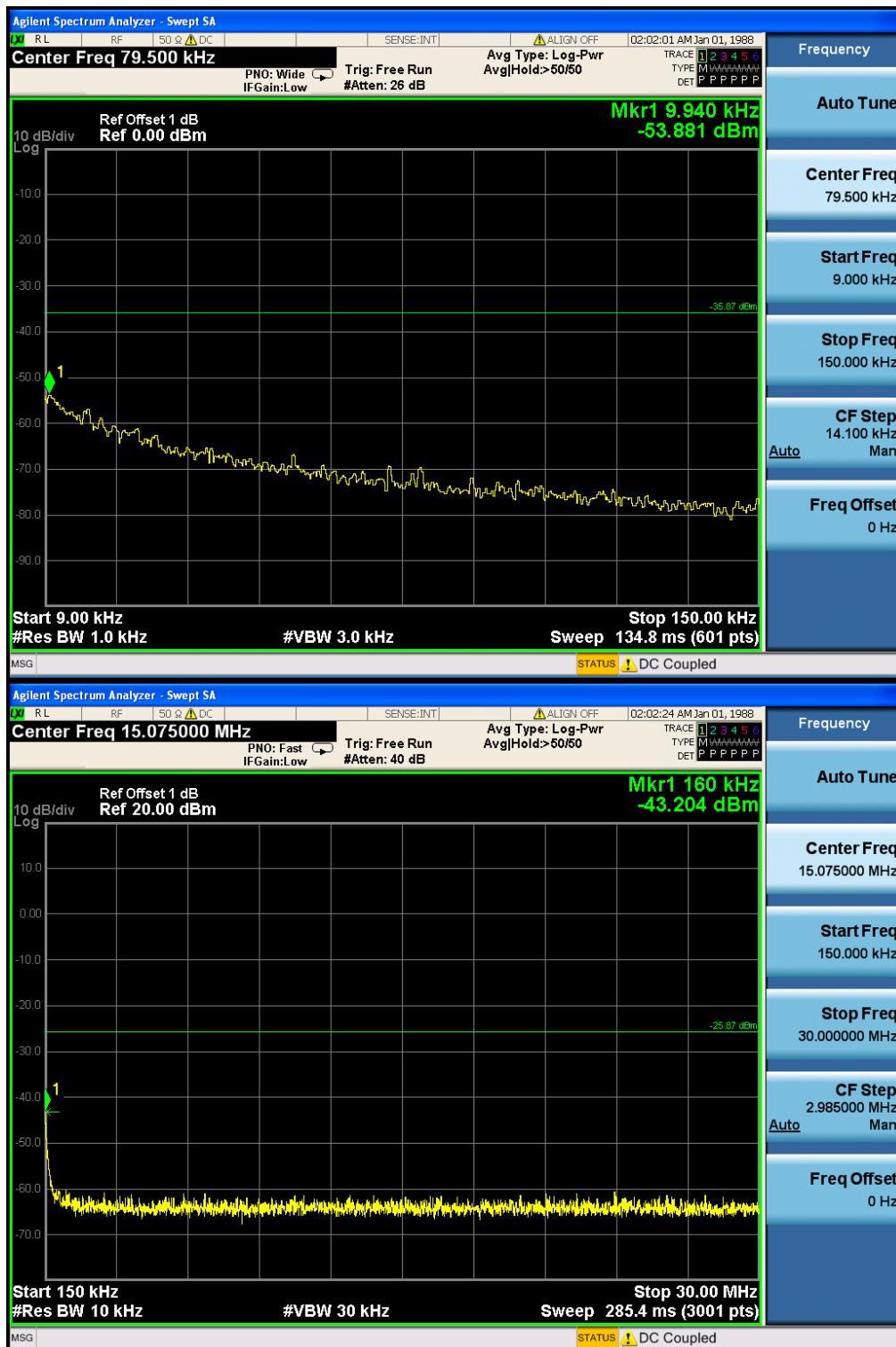


4.8.1.1.8 802.11 N20_Middle Channel



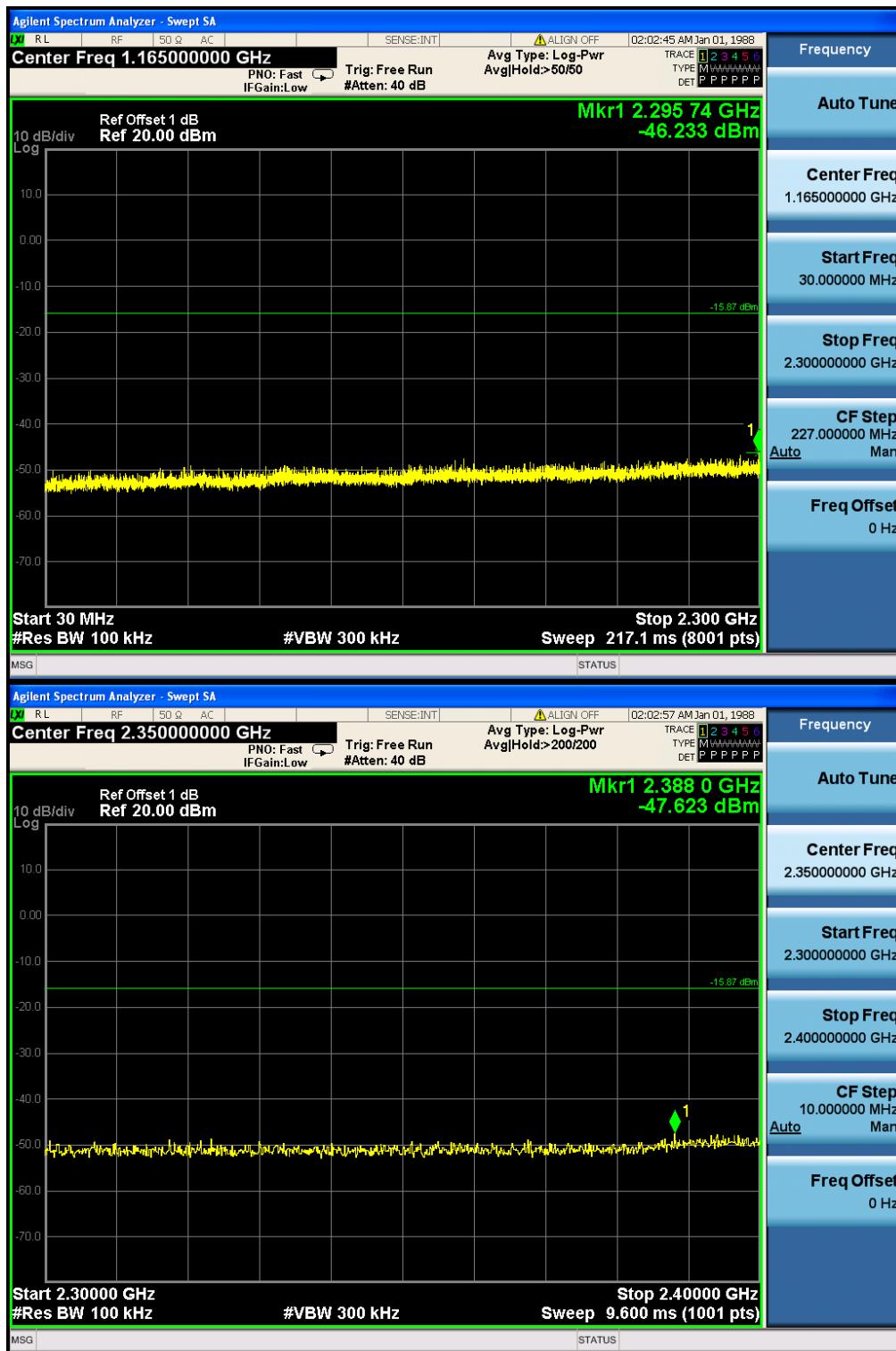
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