TEST REPORT

DT&C Co., Ltd. 42, Yurim-ro, 154Beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea Tel : 031-321-2664, Fax : 031-321-1664	Report No : DRTFCC1607-0104 Pages:(1) / (218) page	Dt&C

1. Customer
   - Name : LG Electronics USA, Inc.
   - Address : 1000 Sylvan Avenue, Englewood Cliffs, New Jersey 07632
2. Use of Report : FCC & IC Original Grant
3. Product Name (FCC ID / IC): RF Module (BEJLGSWFAC73 / 2703H-LGSWFAC73)
4. Date of Test : 2016-06-22 ~ 2016-07-21
5. Test Method Used: FCC Part 15.407 Subpart E,
   RSS-247 Issue 1 (2015-05), RSS-GEN Issue 4 (2014-11)
6. Testing Environment : See appended test report
7. Test Result : ☒ Pass ☐ Fail

The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This Test Report cannot be reproduced, except in full.

Affirmation	Tested by Name : JungWoo Kim (Signature)	Technical Manager Name : GeunKi Son (Signature)

2016. 07. 22

DT&C Co., Ltd.

* If this test report is required to confirmation of authenticity, please contact to report@dtnc.net

Test Report Version

Test Report No.	Date	Description
DRTFCC1607-0104	Jul. 22, 2016	Initial issue

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1. EUT DESCRIPTION

FCC Equipment Class	Unlicensed National Information Infrastructure (UNII)
Product	RF Module
Model Name	LGSWFAC73
Add Model Name	N/A
Software version	1.0
Hardware version	1.0
Power Supply	DC 3.3 V
Frequency Range	**U-NII 1(5150 ~ 5250 MHz)** ▪ 802.11a/n(HT20)/ac(VHT20): 5180 ~ 5240 MHz ▪ 802.11n(HT40)/ac(VHT40): 5190 ~ 5230 MHz ▪ 802.11ac(VHT80): 5210 MHz **U-NII 2A(5250 ~ 5350 MHz)** ▪ 802.11a/n(HT20)/ac(VHT20): 5260 ~ 5320 MHz ▪ 802.11n(HT40)/ac(VHT40): 5270 ~ 5310 MHz ▪ 802.11ac(VHT80): 5290 MHz **U-NII 2C(5470 ~ 5725 MHz)** ▪ 802.11a/n(HT20)/ac(VHT20): 5500 ~ 5720 MHz ▪ 802.11n(HT40)/ac(VHT40): 5510 ~ 5710 MHz ▪ 802.11ac(VHT80): 5530, 5690 MHz **U-NII 3(5725 ~ 5850MHz)** ▪ 802.11a/n(HT20)/ac(VHT20): 5745 ~ 5825 MHz ▪ 802.11n(HT40)/ac(VHT40): 5755 ~ 5795 MHz ▪ 802.11ac(VHT80): 5775 MHz
Modulation type	OFDM
Antenna Specification	**Antenna type**: FPCB wireless Antenna **Antenna gain** ▪ U-NII 1 band: ANT 1: 0.75 dBi & ANT 2: 1.19 dBi ▪ U-NII 2A band: ANT 1: 0.62 dBi & ANT 2: 1.10 dBi ▪ U-NII 2C band: ANT 1: 0.92 dBi & ANT 2: -0.60 dBi ▪ U-NII 3 band: ANT 1: 0.94 dBi & ANT 2: -0.78 dBi **Antenna Configuration** ▪ 802.11a: Single Transmitting (ANT 1 or ANT 2) ▪ 802.11a: Multiple Transmitting (ANT 1 and ANT 2) ▪ 802.11a/n(MCS 0 ~ 7, HT20/40) : Single Transmitting (ANT 1 or ANT 2) ▪ 802.11n(MCS 8 ~ 15, HT20/40) : Multiple Transmitting (ANT 1 and ANT 2) ▪ 802.11ac(NSS1 MCS 0 ~ 8, VHT20) : Single Transmitting (ANT 1 or ANT 2) ▪ 802.11ac(NSS2 MCS 0 ~ 8, VHT20) : Multiple Transmitting (ANT 1 and ANT 2) ▪ 802.11ac(NSS1 MCS 0 ~ 9, VHT40/80) : Single Transmitting (ANT 1 or ANT 2) ▪ 802.11ac(NSS2 MCS 0 ~ 9, VHT40/80) : Multiple Transmitting (ANT 1 and ANT 2)

2. Information about test items

2.1 Test mode / Channel Information

5GHz Band	Mode	Data Rate
		Multiple transmitting
U-NII 1	802.11a	6Mbps
	802.11n(HT20)	MCS 8
	802.11n(HT40)	MCS 8
	802.11ac(VHT20)	NSS2 MCS 0
	802.11ac(VHT40)	NSS2 MCS 0
	802.11ac(VHT80)	NSS2 MCS 0
U-NII 2A	802.11a	6Mbps
	802.11n(HT20)	MCS 8
	802.11n(HT40)	MCS 8
	802.11ac(VHT20)	NSS2 MCS 0
	802.11ac(VHT40)	NSS2 MCS 0
	802.11ac(VHT80)	NSS2 MCS 0
U-NII 2C	802.11a	6Mbps
	802.11n(HT20)	MCS 8
	802.11n(HT40)	MCS 8
	802.11ac(VHT20)	NSS2 MCS 0
	802.11ac(VHT40)	NSS2 MCS 0
	802.11ac(VHT80)	NSS2 MCS 0
U-NII 3	802.11a	6Mbps
	802.11n(HT20)	MCS 8
	802.11n(HT40)	MCS 8
	802.11ac(VHT20)	NSS2 MCS 0
	802.11ac(VHT40)	NSS2 MCS 0
	802.11ac(VHT80)	NSS2 MCS 0

Note 1: The worst case data rate is determined as above test mode according to the power measurements.
And all test items were performed at the worst case data rate.
Note 2: In case of radiated test, we have done all tx case. We attached the result of only MIMO mode (Worst case).

2.2 Tested Channel Information

5GHz Band	802.11a/n(HT20)		802.11ac(VHT40)		802.11ac(VHT80)	
	Channel	Frequency [MHz]	Channel	Frequency [MHz]	Channel	Frequency [MHz]
U-NII 1	36	5180	38	5190	-	-
	40	5200	-	-	42	5210
	48	5240	46	5230	-	-
U-NII 2A	52	5260	54	5270	-	-
	60	5300	-	-	58	5290
	64	5320	62	5310	-	-
U-NII 2C	100	5500	102	5510	-	-
	116	5580	118	5590	106	5530
	-	-	-	-	-	-
U-NII 3	149	5745	151	5755	-	-
	157	5785	-	-	155	5775
	165	5825	159	5795	-	-

5GHz Band	802.11a/ac(VHT20)		802.11ac(VHT40)		802.11ac(VHT80)	
	Channel	Frequency [MHz]	Channel	Frequency [MHz]	Channel	Frequency [MHz]
U-NII 2C & U-NII 3	144	5720	142	5710	138	5690

Note : Above channel is applied the KDB644545 D03.

2.3 Auxiliary equipment

Equipment	Model No.	Serial No.	Manufacturer	Note
Laptop	20135	OB05651368	Lenov	-

2.4 Tested environment

Temperature	:	22 °C ~ 25 °C
Relative humidity content	:	41 % ~ 47 % R.H.
Details of power supply	:	DC 3.3 V

2.5 EMI Suppression Device(s)/Modifications

EMI suppression device(s) added and/or modifications made during testing
→ None

3. SUMMARY OF TESTS

FCC Part Section(s)	RSS Std.	Parameter	Limit	Test Condition	Status Note 1
I. Transmitter Mode (TX)					
15.407(a)	-	Emission Bandwidth (26 dB Bandwidth)	N/A	Conducted	C
15.407(e)	RSS-247[6.2.4]	Minimum Emission Bandwidth (6 dB Bandwidth)	> 500 kHz in 5725 ~ 5850 MHz		C
-	RSS GEN[6.6]	Occupied Bandwidth (99%)	N/A		C
15.407(a)	RSS-247[6.2]	Maximum Conducted Output Power	5150 ~ 5250 MHz : < 30 dBm or < 23.97 dBm (FCC) < 200 mW or 10 + 10log$_{10}$(B) dBm whichever power is less. (IC) 5250 ~ 5350 & 5470 ~ 5725 MHz : <250 mW or < 11 + 10 log$_{10}$(B) dBm, whichever power is less. (FCC & IC) 5725 ~ 5850 MHz : < 30 dBm (FCC & IC) Note: B is the 99 % BW(IC) or 26dB BW(FCC).		C Note 3
15.407(a)	RSS-247[6.2]	Peak Power Spectral Density	5150 ~ 5250 MHz : 11 dBm/MHz or 17 dBm/MHz(FCC) 5150 ~ 5250 MHz: < 10 dBm/MHz (IC) 5250 ~ 5350 & 5470 ~ 5725 MHz: 11 dBm/MHz (FCC & IC) 5725 ~ 5850 MHz: 30 dBm/500kHz(FCC & IC)		C Note 4
15.407(g)	RSS GEN[6.11]	Frequency Stability	N/A		C
15.407(b)	RSS-247[6.2]	Undesirable Emissions	5150 ~ 5725 MHz: < -27 dBm/MHz EIRP 5725 ~ 5850 MHz: < -17 dBm/MHz EIRP or < -27 dBm/MHz EIRP	Radiated	C Note 5
15.205 15.209 15.407(b)	RSS-247[6.2] RSS-GEN[8.9] RSS-GEN[8.10]	General Field Strength Limits(Restricted Bands and Radiated Emission Limits)	Emissions in restricted bands must meet the radiated limits detailed in 15.209		C Note 6
15.407(h)	RSS-247[6.3]	Dynamic Frequency Selection	FCC 15.407(h)	Conducted	C Note 7
15.207	RSS-GEN[8.8]	AC Conducted Emissions	FCC 15.207	AC Line Conducted	C
15.203	RSS-GEN[8.3]	Antenna Requirements	FCC 15.203	-	C

Note 1: **C** = Comply **NC** = Not Comply **NT** = Not Tested **NA** = Not Applicable

Note 2: The test items were performed according to the KDB789033 D02 V01r02, KDB662911 D01 v02r01, KDB644545 D03 v01 and ANSI C63.10-2013

Note 3: (i) For access point operating in the band 5.15 - 5.25 GHz: < 30 dBm
(ii) For mobile and portable client devices in the 5.15 - 5.25 GHz band: < 23.97 dBm

Note 4: (i) For access point operating in the band 5.15 - 5.25 GHz: < 17 dBm/MHz
(ii) For mobile and portable client devices in the 5.15 - 5.25 GHz band: < 11 dBm/MHz

Note 5: For transmitters operating in the 5.725 - 5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of −17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of −27 dBm/MHz

Note 6: These test items were performed in each axis and the worst case data was reported.

Note 7: Refer to the DFS test report.

4. TEST METHODOLOGY

Generally the tests were performed according to the KDB789033 D02 v01r02. And ANSI C63.10-2013 was used to reference appropriate EUT setup and maximizing procedures of radiated spurious emission and AC line conducted emission testing

4.1 EUT configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

4.2 EUT exercise

The EUT was operated in the test mode to fix the Tx frequency that was for the purpose of the measurements. According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.407 under the FCC Rules Part 15 Subpart C.

4.3 General test procedures

Conducted Emissions

The power-line conducted emission test procedure is not described on the KDB789033 D02. So this test was fulfilled with the requirements in Section 6.2 of ANSI C63.10-2013.

The EUT is placed on the wooden table, which is 0.8 m above ground plane and the conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-peak and Average detector.

Radiated Emissions

Basically the radiated tests were performed with KDB789033 D02. But some requirements and procedures like test site requirements, EUT setup and maximizing procedure were fulfilled with the requirements in Section 5 and 6 of the ANSI C63.10-2013 as stated on KDB789033 D02.

The EUT is placed on a non-conductive table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 1 or 3 m away from the receiving antenna, which varied from 1 m to 4 m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the highest emission, the relative positions of the EUT were rotated through three orthogonal axis.

4.4 Description of test modes

A test program is used to control the EUT for staying in continuous transmitting mode with maximum fixed duty cycle.

5. INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipments, which is traceable to recognized national standards.

6. FACILITIES AND ACCREDITATIONS

6.1 Facilities

The open area test site(OATS) or semi anechoic chamber and conducted measurement facility used to collect the radiated and conducted test data are located at the 42, Yurim-ro, 154beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea 449-935. The site is constructed in conformance with the requirements.

- Semi anechoic chamber registration Number: 165783 (FCC) & 5740A-3 (IC)

6.2 Equipment

Radiated emissions are measured with one or more of the following types of Linearly polarized antennas: tuned dipole, bi-conical, log periodic, bi-log, loop, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and peak, quasi-peak detectors are used to perform radiated measurements. Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers. Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements. All receiving equipment conforms to CISPR Publication 16-1, “Radio Interference Measuring Apparatus and Measurement Methods.”

7. ANTENNA REQUIREMENTS

7.1 According to FCC 47 CFR §15.203:

An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can 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 shall be considered sufficient to comply with the provisions of this section.

The EUT used two unique antennas.

Therefore this module complies with the requirement of §15.203

7.2 Directional antenna gain(Worst case):

Bands	ANT 1 [dBi]	ANT 2 [dBi]	Directional Gain [dBi]
U-NII 1	0.750	1.190	3.983 Note 1.
U-NII 2A	0.620	1.100	3.874 Note 1.
U-NII 2C	0.920	-0.600	3.204 Note 1.
U-NII 3	0.940	-0.780	3.133 Note 1.

Note 1. Directional gain(correlated signal with unequal antenna gain and equal transmit power)

$$10 \log [(10^{G_1/20} + 10^{G_2/20} + \ldots + 10^{G_N/20})^2 / N^{ANT}] \text{ dBi}$$

Note 2. Directional gain(completely uncorrelated signal with unequal antenna gain and equal transmit power)

$$10 \log [(10^{G_1/10} + 10^{G_2/10} + \ldots + 10^{G_N/10}) / N^{ANT}] \text{ dBi}$$

Note 3. Directional gain(spatial multiplexing)

$$G_{ANT\,MAX} + 10 \log (N_{ANT} / N_{SS}) \text{ dBi}$$

8. TEST RESULT

8.1 Emission Bandwidth (26 dB Bandwidth)

▣ Test Requirements

The bandwidth at 26 dB down from the highest in-band spectral density is measured with a spectrum analyzer connected to the antenna terminal while the EUT is operating in transmission mode at the appropriate frequencies. The 26 dB bandwidth is used to determine the conducted output power limit.

▣ Test Configuration

Refer to the APPENDIX I.

▣ Test Procedure

The transmitter output is connected to the Spectrum Analyzer and used following test procedure of **KDB789033 D02**.
1. Set resolution bandwidth (RBW) = approximately **1 %** of the EBW.
2. Set the video bandwidth **(VBW) > RBW**.
3. Detector = **Peak**.
4. Trace mode = **max hold**.
   Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

▣ TEST RESULTS: Comply

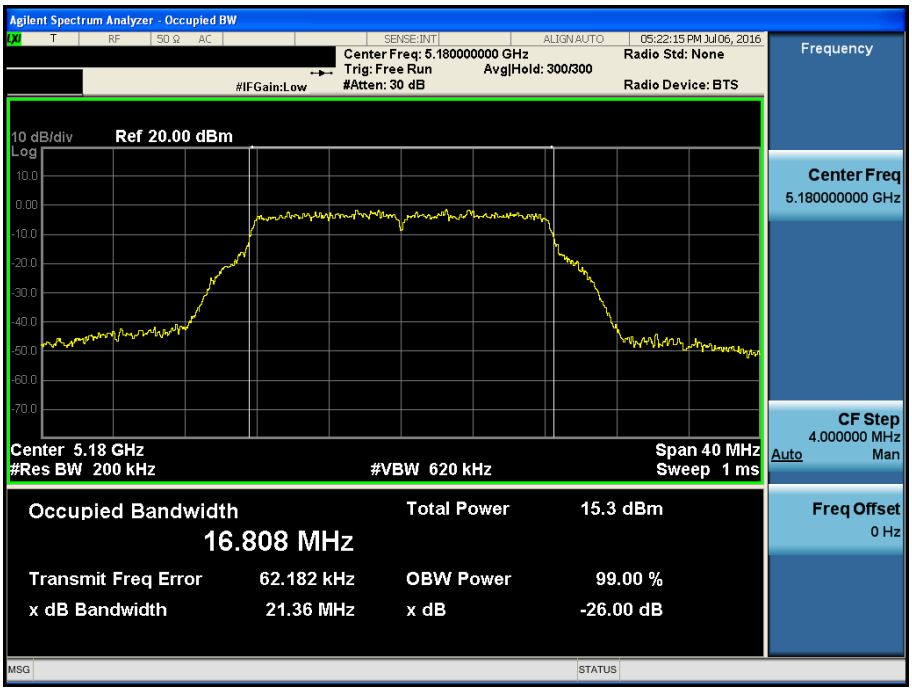
Multiple Transmit

Mode	Band	Channel	Frequency [MHz]	Test Result [MHz]	
				ANT 1	ANT 2
802.11a	U-NII 1	36	5180	21.360	21.330
		40	5200	21.480	21.540
		48	5240	21.300	21.520
	U-NII 2A	52	5260	21.380	21.510
		60	5300	21.370	21.450
		64	5320	21.270	21.260
	U-NII 2C	100	5500	21.230	21.570
		116	5580	21.420	21.460
		-	-	-	-
802.11n (HT20)	U-NII 1	36	5180	21.660	21.600
		40	5200	21.670	21.600
		48	5240	21.540	21.630
	U-NII 2A	52	5260	21.560	21.840
		60	5300	21.500	21.840
		64	5320	21.750	21.640
	U-NII 2C	100	5500	21.640	21.700
		116	5580	21.740	21.880
		-	-	-	-
802.11ac (VHT40)	U-NII 1	38	5190	40.120	40.070
		46	5230	39.820	40.020
	U-NII 2A	54	5270	40.150	40.180
		62	5310	40.080	40.160
	U-NII 2C	102	5510	39.920	39.920
		118	5590	40.340	40.030
		-	-	-	-
802.11ac (VHT80)	U-NII 1	42	5210	81.040	81.600
		-	-	-	-
	U-NII 2A	58	5290	81.710	81.570
		-	-	-	-
	U-NII 2C	106	5530	81.570	81.800
802.11a	U-NII 2C Cross Band	144	5720	15.580	15.835
		-	-	-	-
802.11ac(VHT20)	U-NII 2C Cross Band	144	5720	15.655	15.725
		-	-	-	-
802.11ac(VHT40)	U-NII 2C Cross Band	142	5710	34.850	35.070
		-	-	-	-
802.11ac (VHT80)	U-NII 2C Cross Band	138	5690	75.980	75.940
		-	-	-	-
802.11a	U-NII 3 Cross Band	144	5720	5.545	5.780
		-	-	-	-
802.11ac(VHT20)	U-NII 3 Cross Band	144	5720	5.675	5.885
		-	-	-	-
802.11ac(VHT40)	U-NII 3 Cross Band	142	5710	4.890	5.170
		-	-	-	-
802.11ac (VHT80)	U-NII 3 Cross Band	138	5690	5.680	6.040
		-	-	-	-

▣ Result Plots

Multiple Transmit

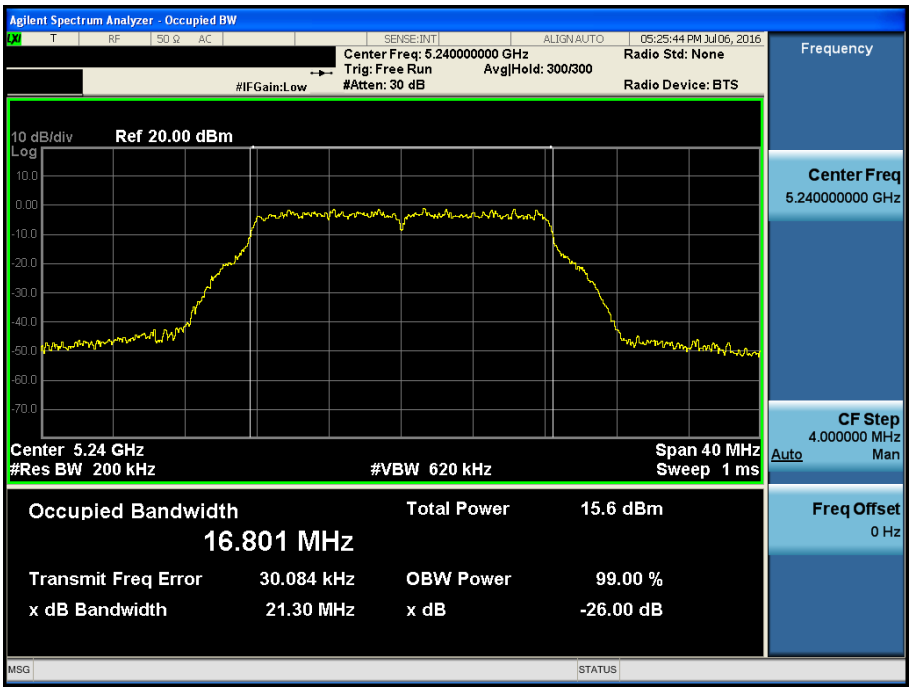
26 dB Bandwidth Test Mode: 802.11a & ANT 1 & Ch.36



26 dB Bandwidth Test Mode: 802.11a & ANT 1 & Ch.40

26 dB Bandwidth

Test Mode: 802.11a & ANT 1 & Ch.48

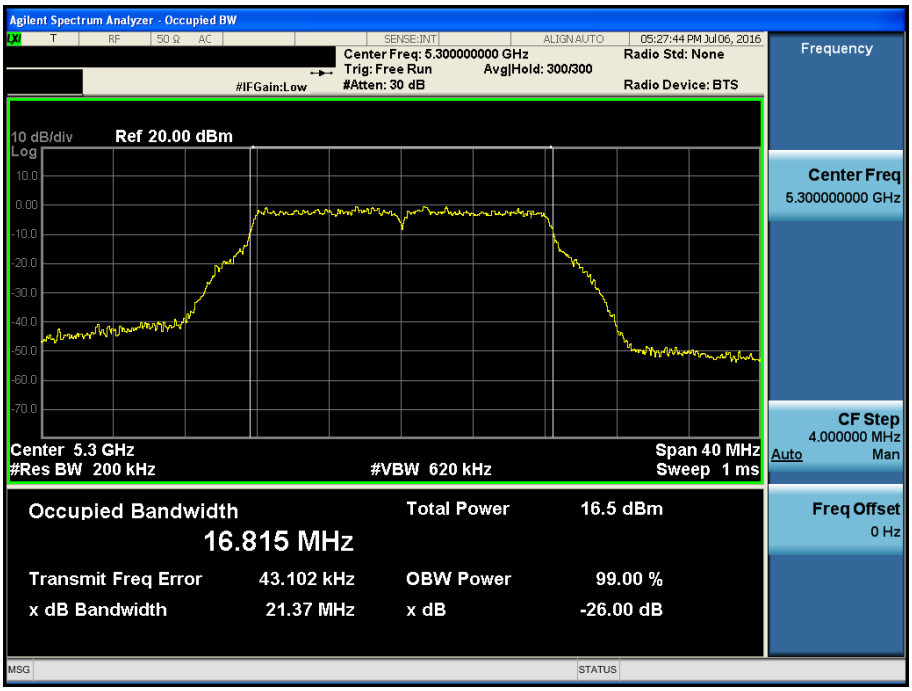


26 dB Bandwidth

Test Mode: 802.11a & ANT 1 & Ch.52

26 dB Bandwidth

Test Mode: 802.11a & ANT 1 & Ch.60



26 dB Bandwidth

Test Mode: 802.11a & ANT 1 & Ch.64

26 dB Bandwidth

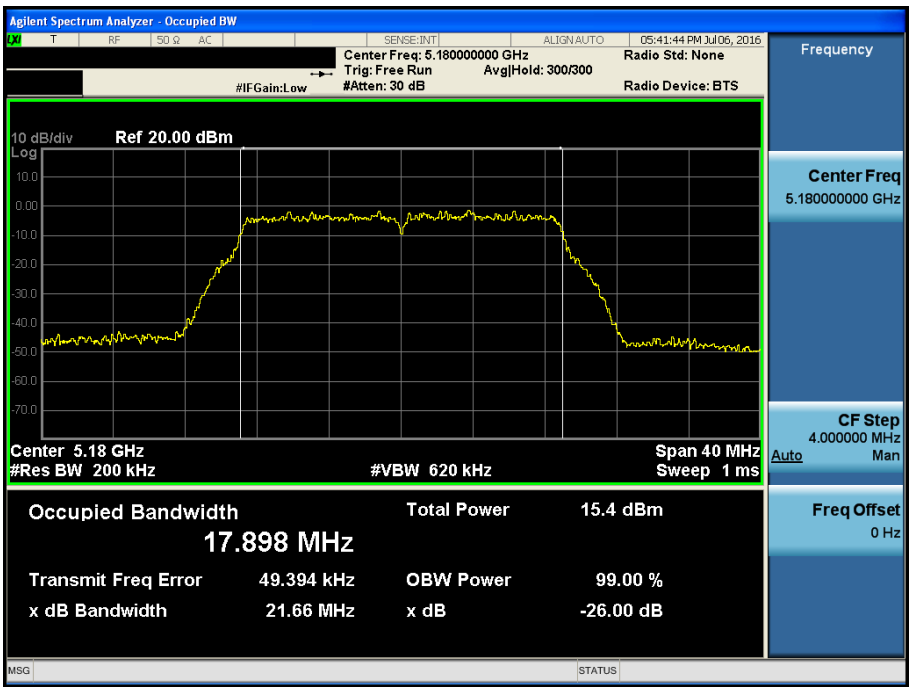
Test Mode: 802.11a & ANT 1 & Ch.100

26 dB Bandwidth

Test Mode: 802.11a & ANT 1 & Ch.116

26 dB Bandwidth

Test Mode: 802.11n HT20 & ANT 1 & Ch.36

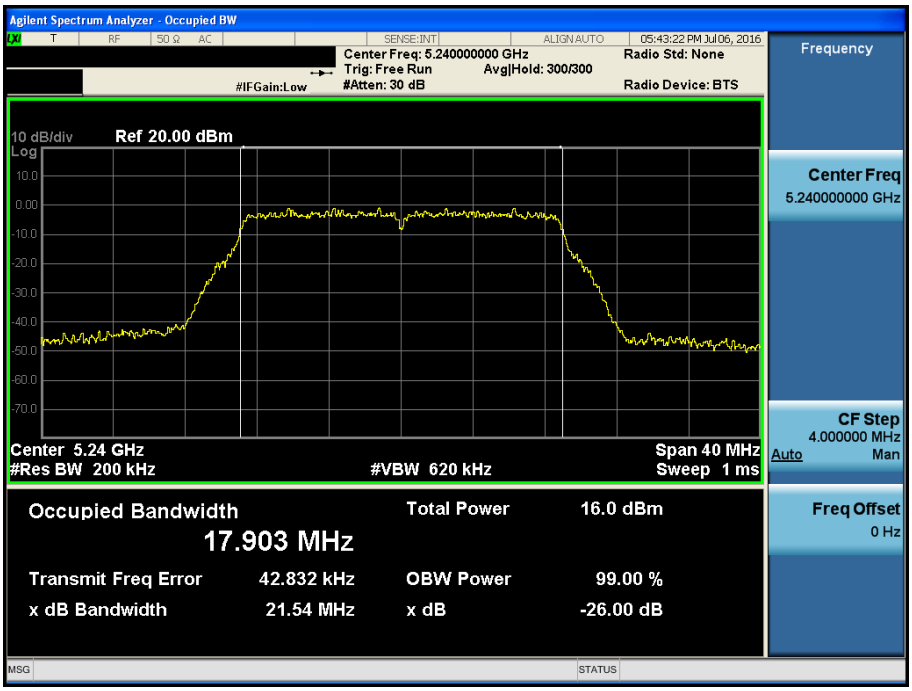


26 dB Bandwidth

Test Mode: 802.11n HT20 & ANT 1 & Ch.40

26 dB Bandwidth

Test Mode: 802.11n HT20 & ANT 1 & Ch.48



26 dB Bandwidth

Test Mode: 802.11n HT20 & ANT 1 & Ch.52

26 dB Bandwidth

Test Mode: 802.11n HT20 & ANT 1 & Ch.60

26 dB Bandwidth

Test Mode: 802.11n HT20 & ANT 1 & Ch.64

26 dB Bandwidth

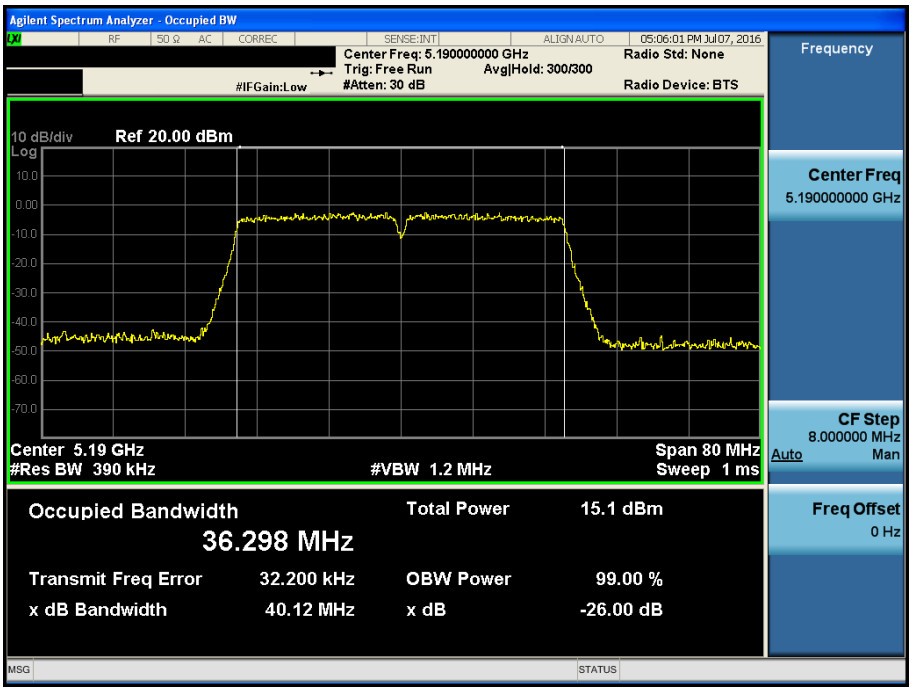
Test Mode: 802.11n HT20 & ANT 1 & Ch.100

26 dB Bandwidth

Test Mode: 802.11n HT20 & ANT 1 & Ch.116

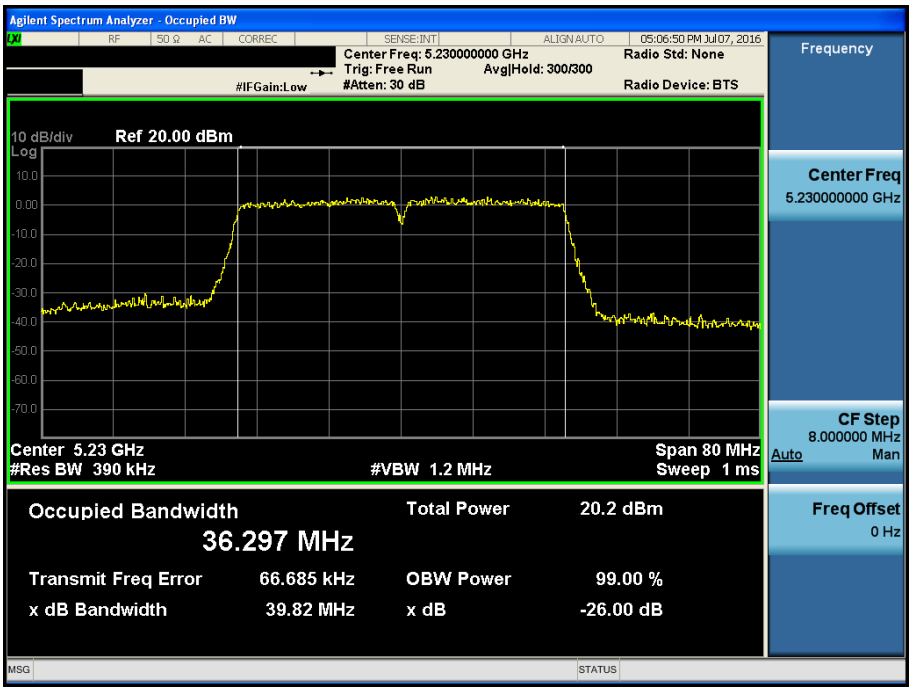
26 dB Bandwidth

Test Mode: 802.11ac VHT40 & ANT 1 &Ch.38



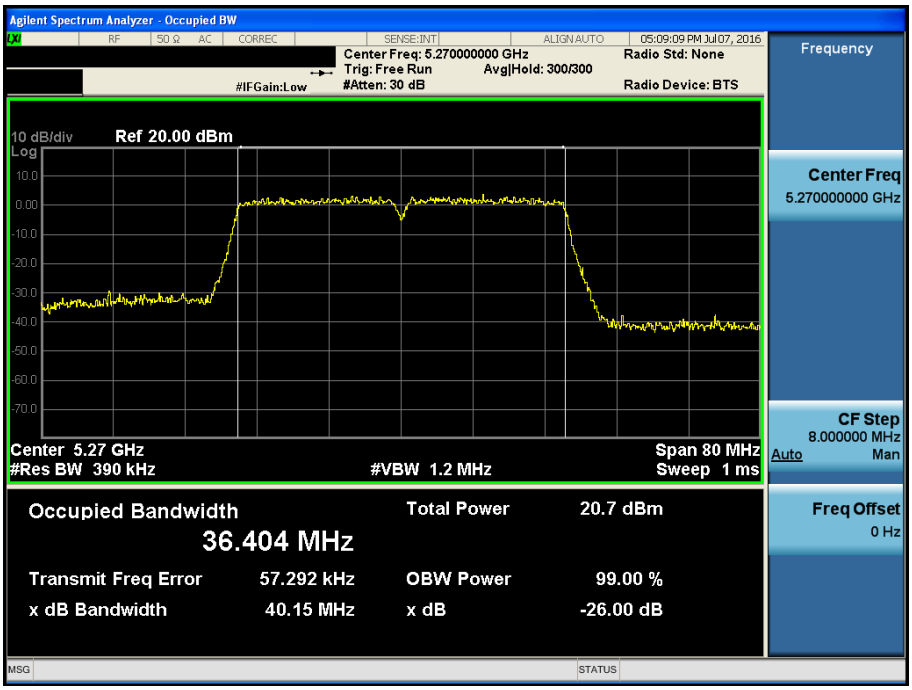
26 dB Bandwidth

Test Mode: 802.11ac VHT40 & ANT 1 & Ch.46



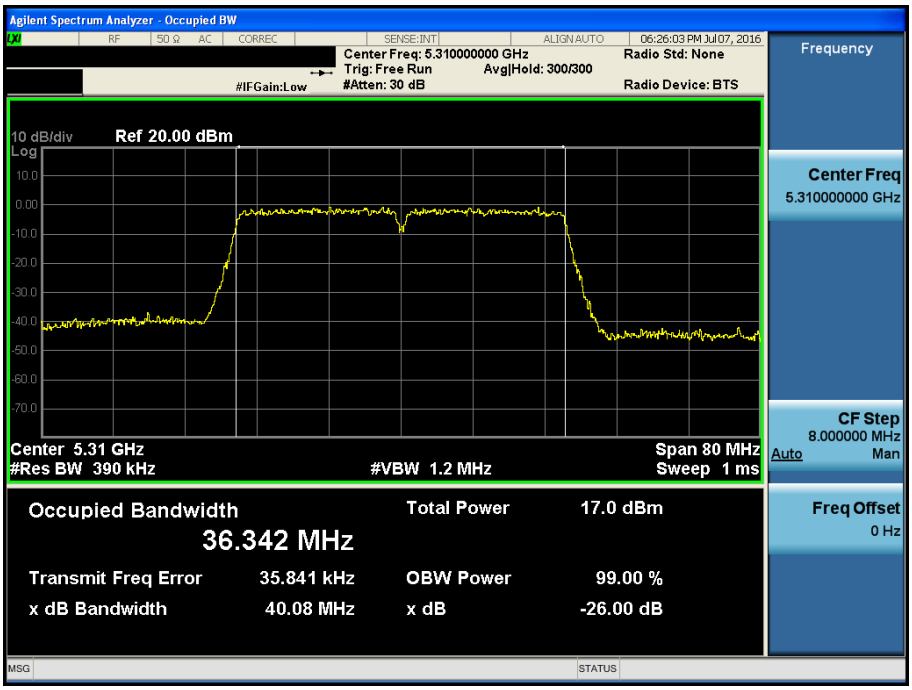
26 dB Bandwidth

Test Mode: 802.11ac VHT40 & ANT 1 &Ch.54



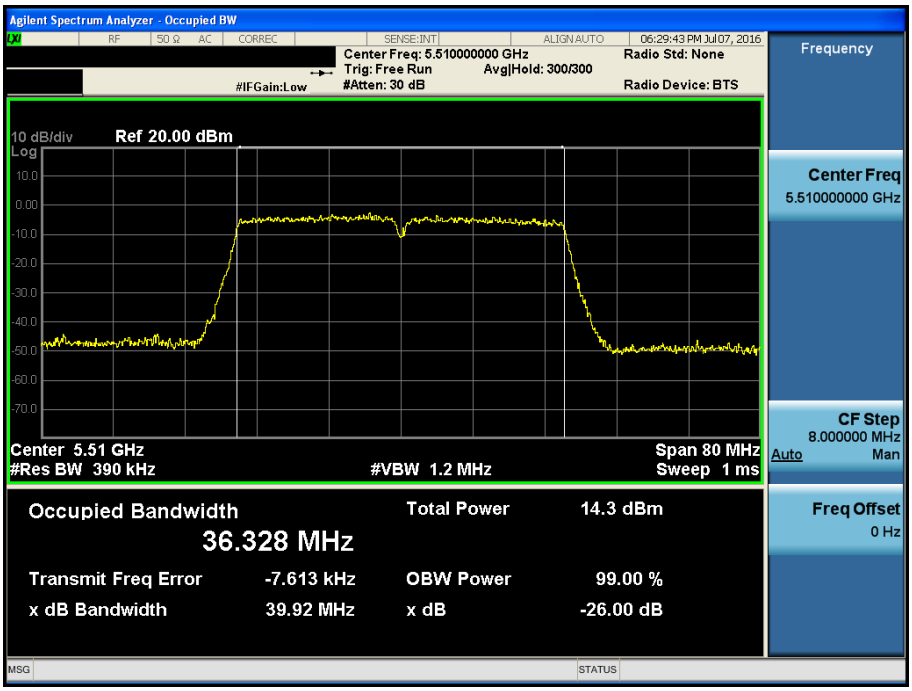
26 dB Bandwidth

Test Mode: 802.11ac VHT40 & ANT 1 & Ch.62



26 dB Bandwidth

Test Mode: 802.11ac VHT40 & ANT 1 &Ch.102

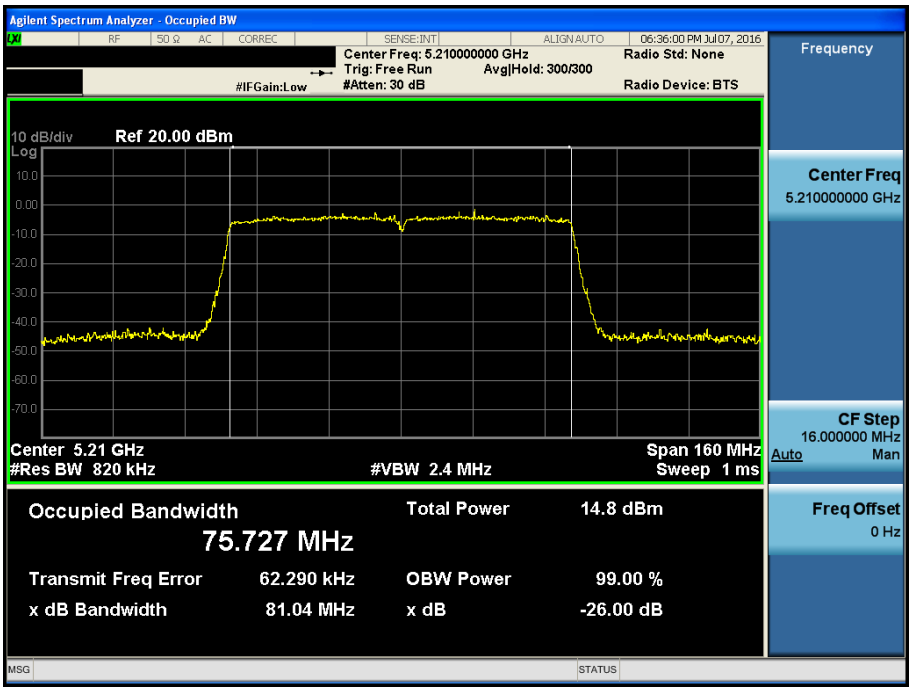


26 dB Bandwidth

Test Mode: 802.11ac VHT40 & ANT 1 & Ch.118

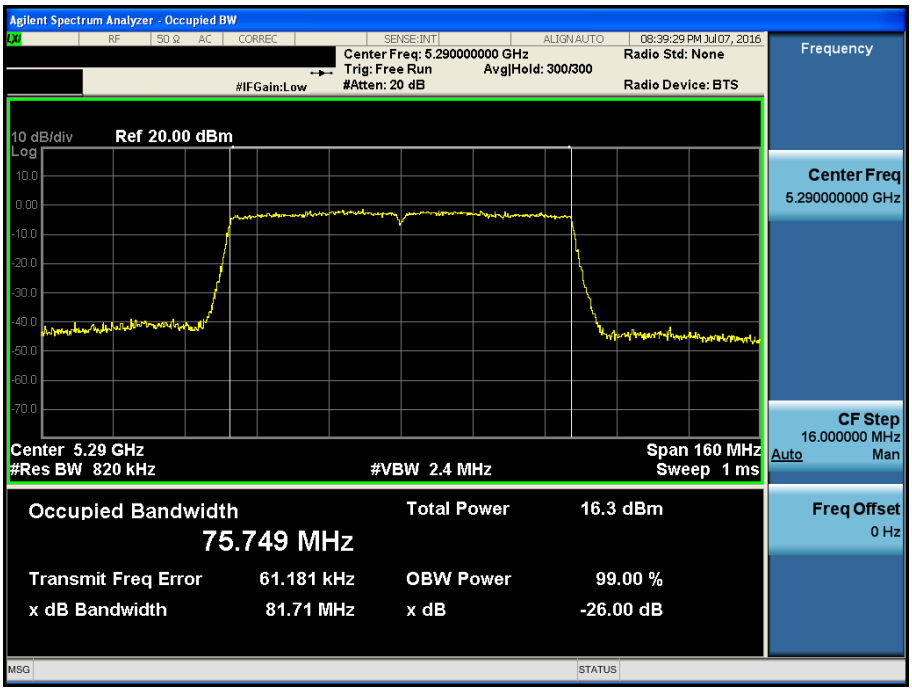
26 dB Bandwidth

Test Mode: 802.11ac VHT80 & ANT 1 &Ch.42



26 dB Bandwidth

Test Mode: 802.11ac VHT80 & ANT 1 &Ch.58



26 dB Bandwidth

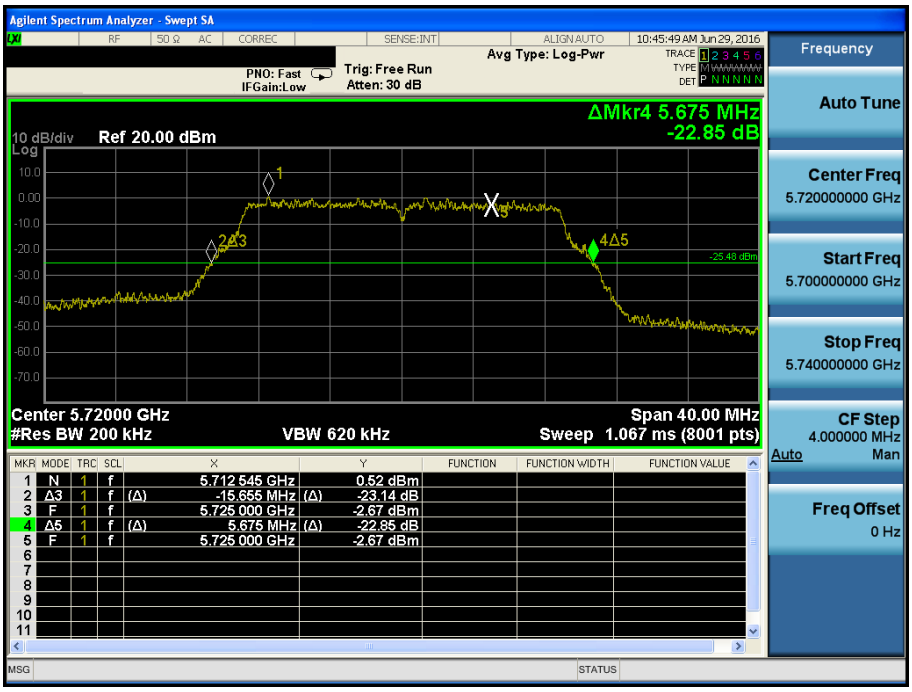
Test Mode: 802.11ac VHT80 & ANT 1 &Ch.106

26 dB Bandwidth

Test Mode: 802.11a & ANT 1 & Ch.144

26 dB Bandwidth

Test Mode: 802.11ac VHT20 & ANT 1 & Ch.144

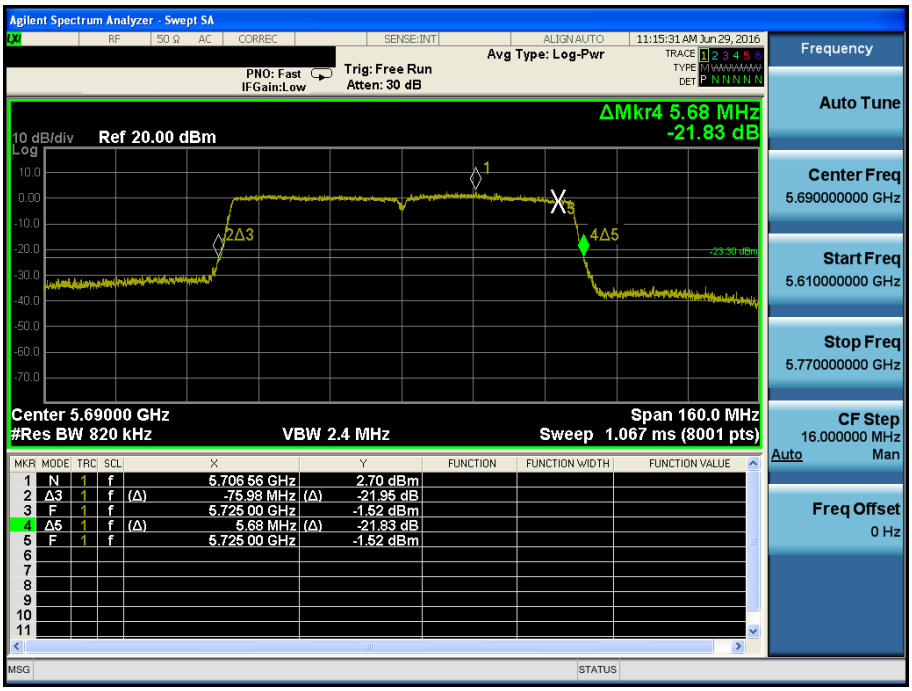


26 dB Bandwidth

Test Mode: 802.11ac VHT40 & ANT 1 & Ch.142

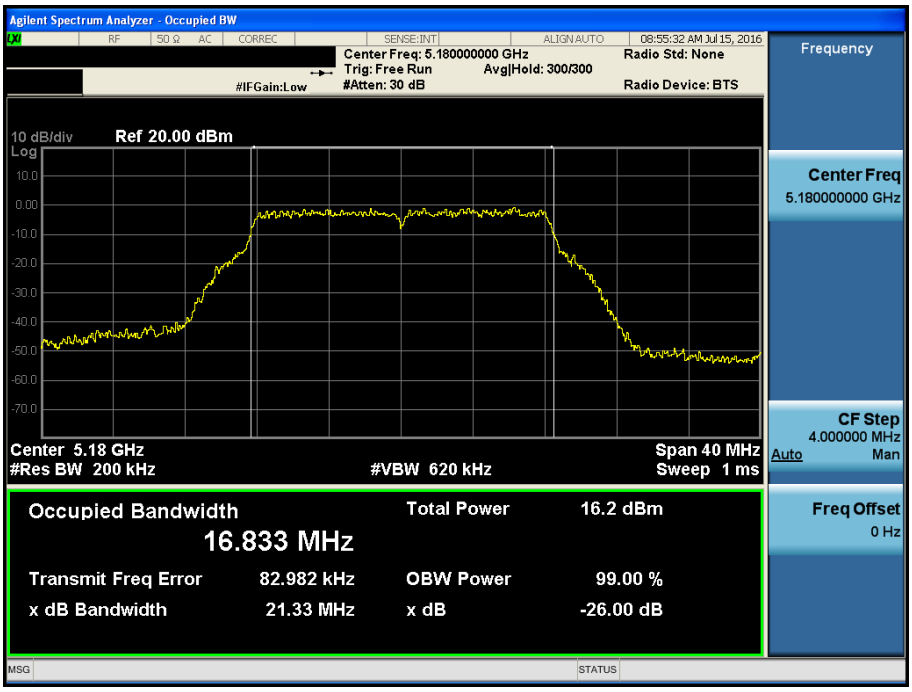
26 dB Bandwidth

Test Mode: 802.11ac VHT80 & ANT 1 &Ch.138



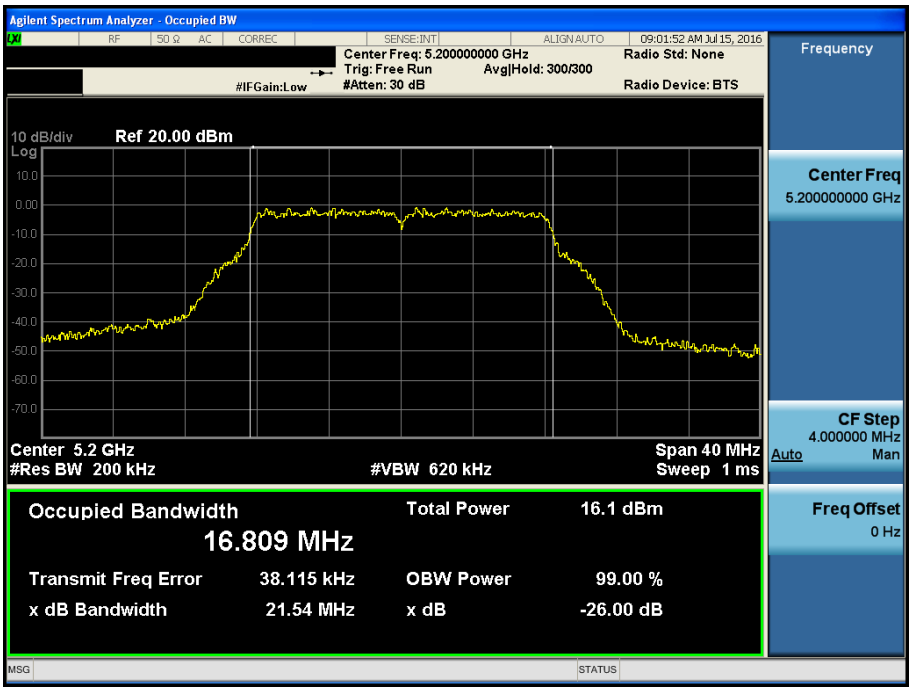
26 dB Bandwidth

Test Mode: 802.11a & ANT 2 & Ch.36



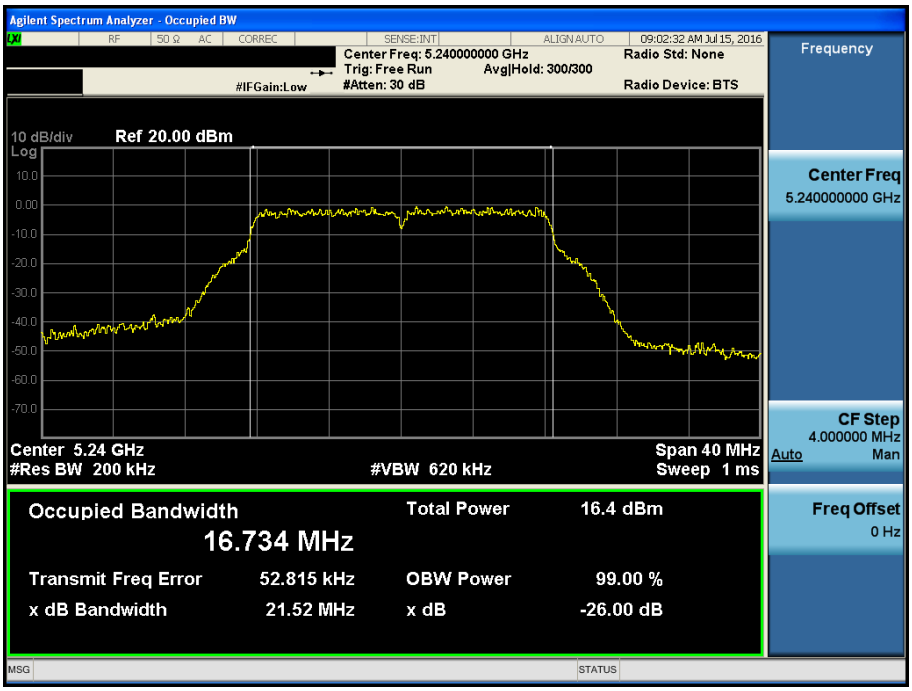
26 dB Bandwidth

Test Mode: 802.11a & ANT 2 & Ch.40



26 dB Bandwidth

Test Mode: 802.11a & ANT 2 & Ch.48

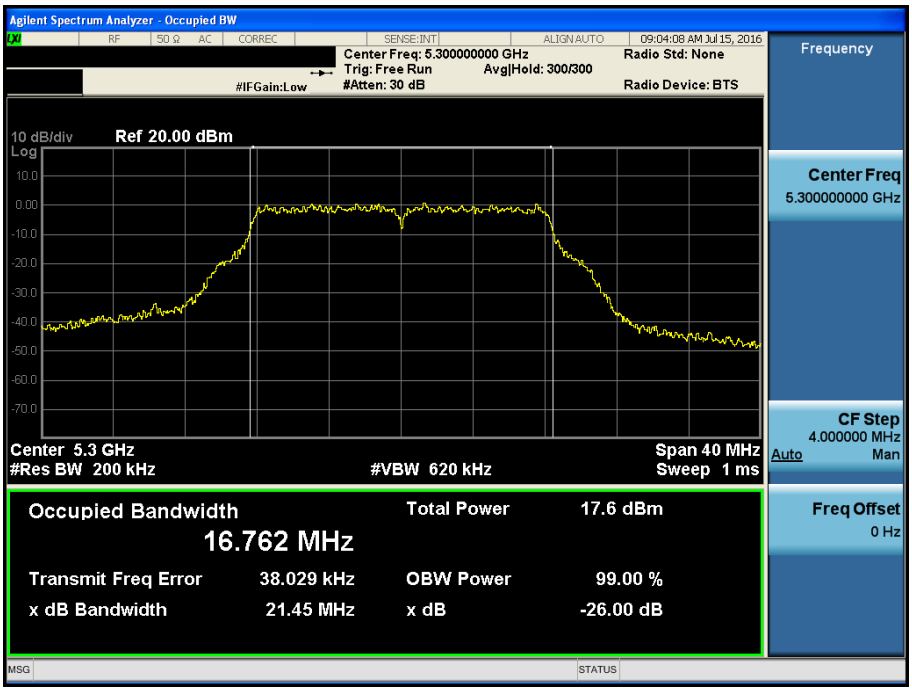


26 dB Bandwidth

Test Mode: 802.11a & ANT 2 & Ch.52

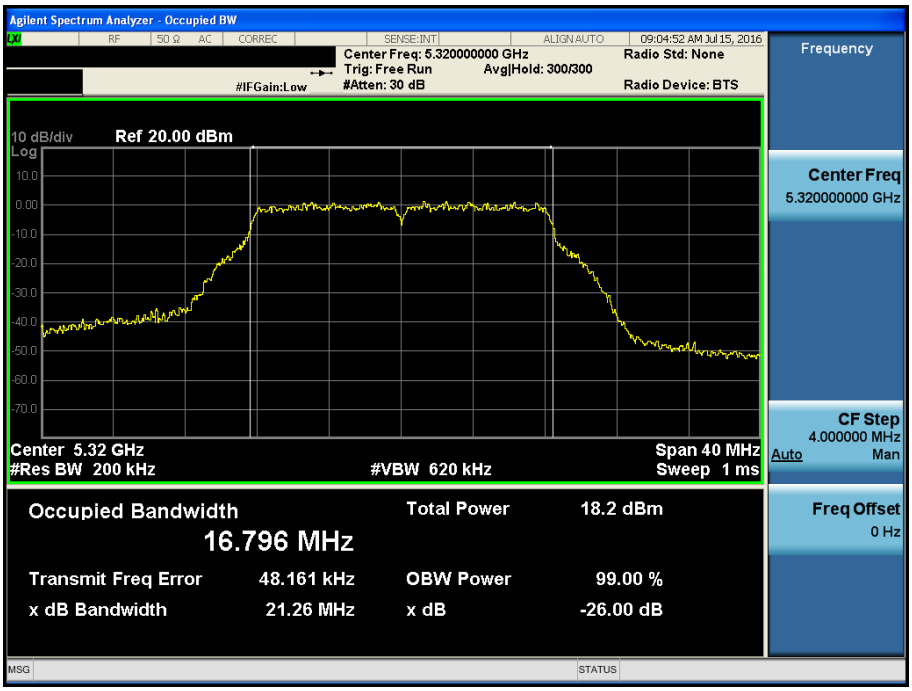
26 dB Bandwidth

Test Mode: 802.11a & ANT 2 & Ch.60



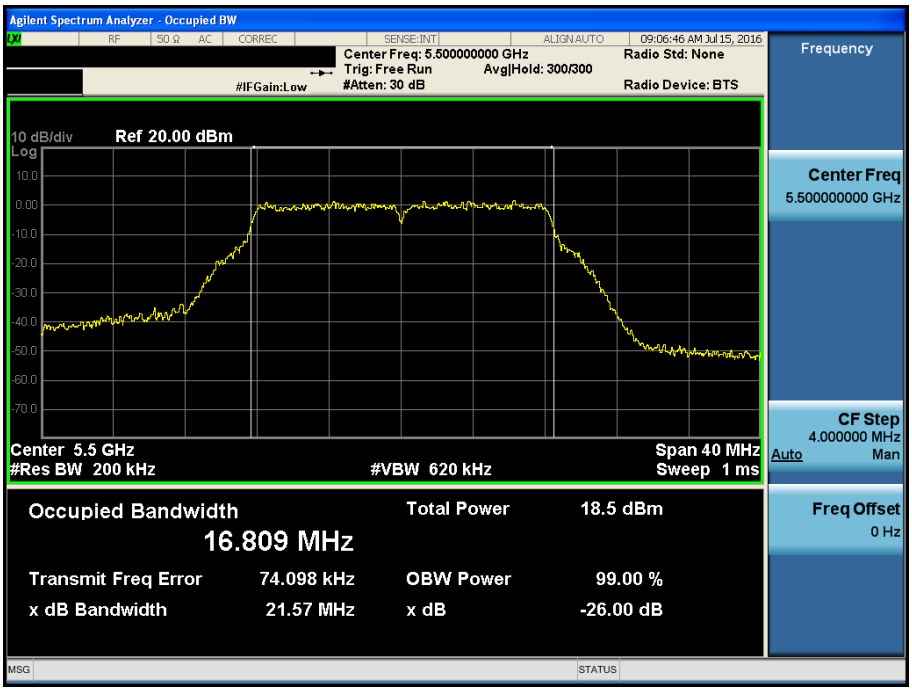
26 dB Bandwidth

Test Mode: 802.11a & ANT 2 & Ch.64



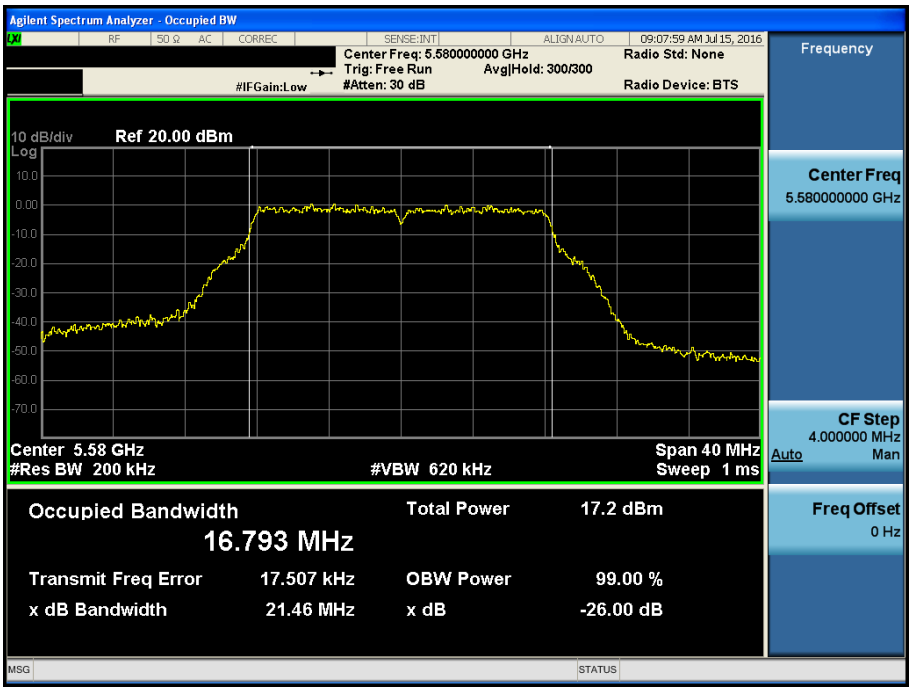
26 dB Bandwidth

Test Mode: 802.11a & ANT 2 & Ch.100



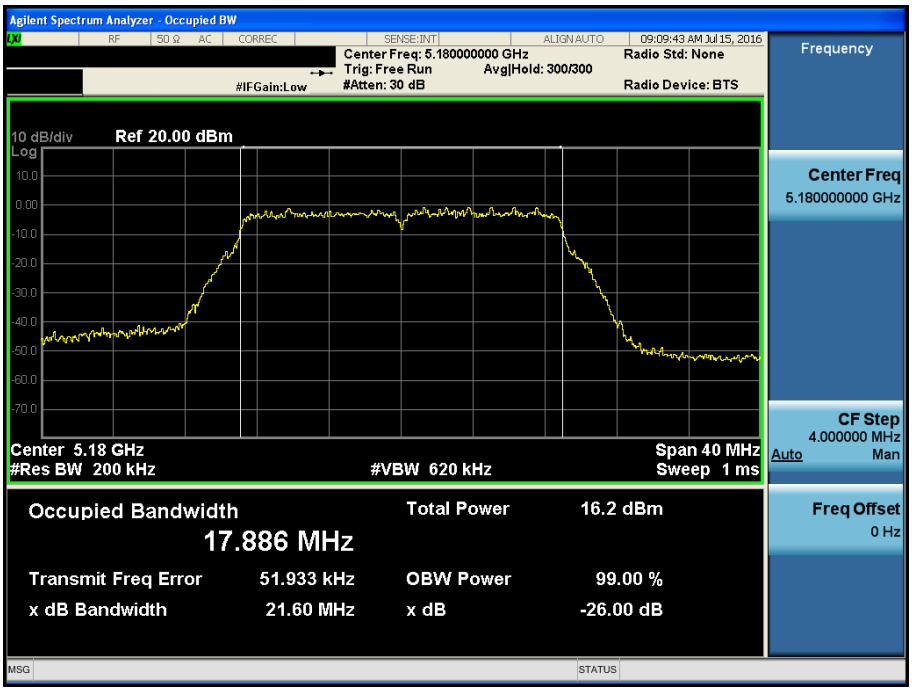
26 dB Bandwidth

Test Mode: 802.11a & ANT 2 & Ch.116



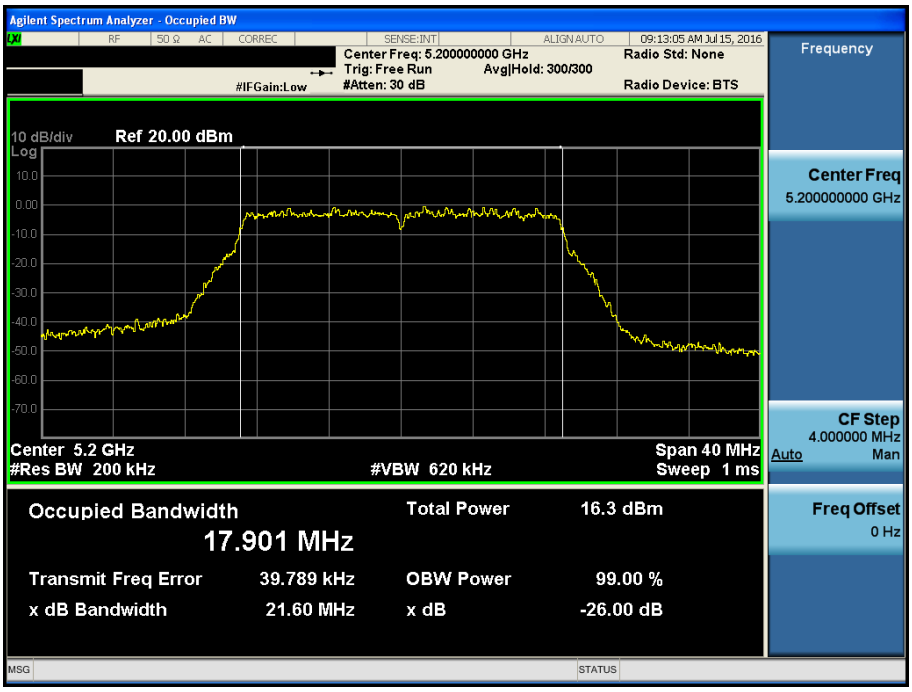
26 dB Bandwidth

Test Mode: 802.11n HT20 & ANT 2 & Ch.36



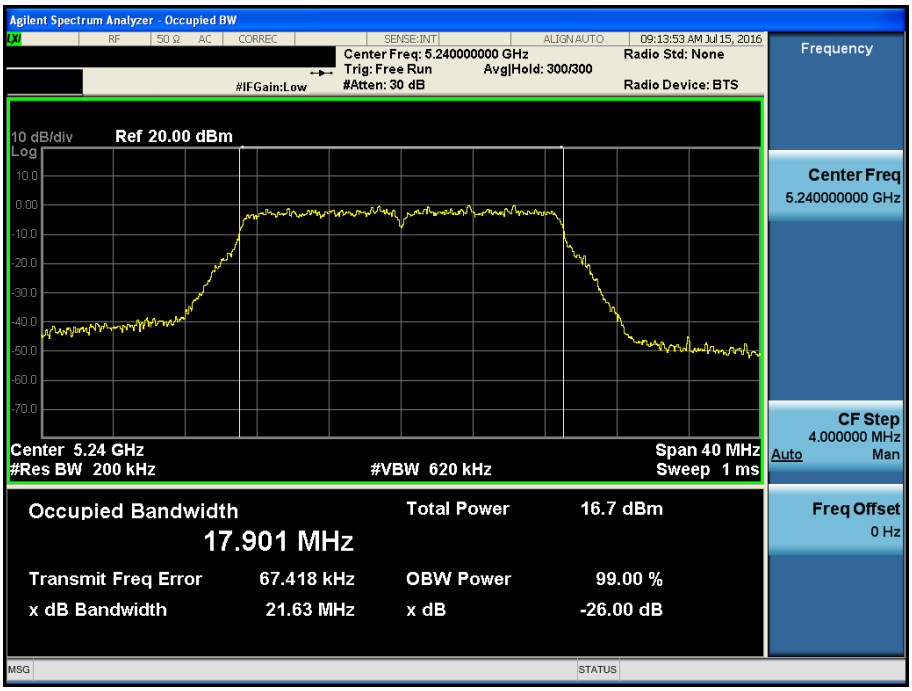
26 dB Bandwidth

Test Mode: 802.11n HT20 & ANT 2 & Ch.40



26 dB Bandwidth

Test Mode: 802.11n HT20 & ANT 2 & Ch.48

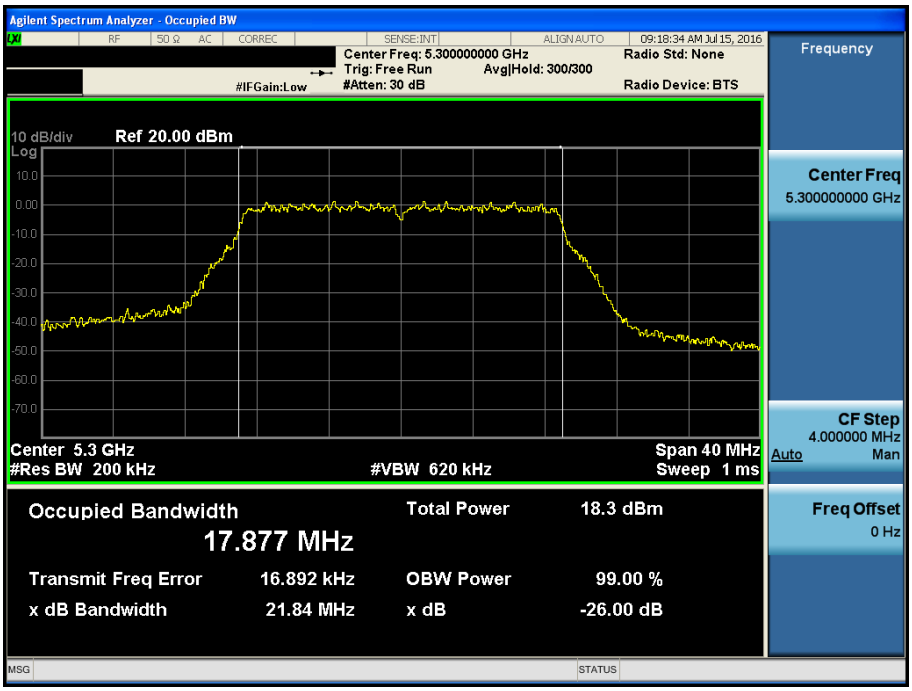


26 dB Bandwidth

Test Mode: 802.11n HT20 & ANT 2 & Ch.52

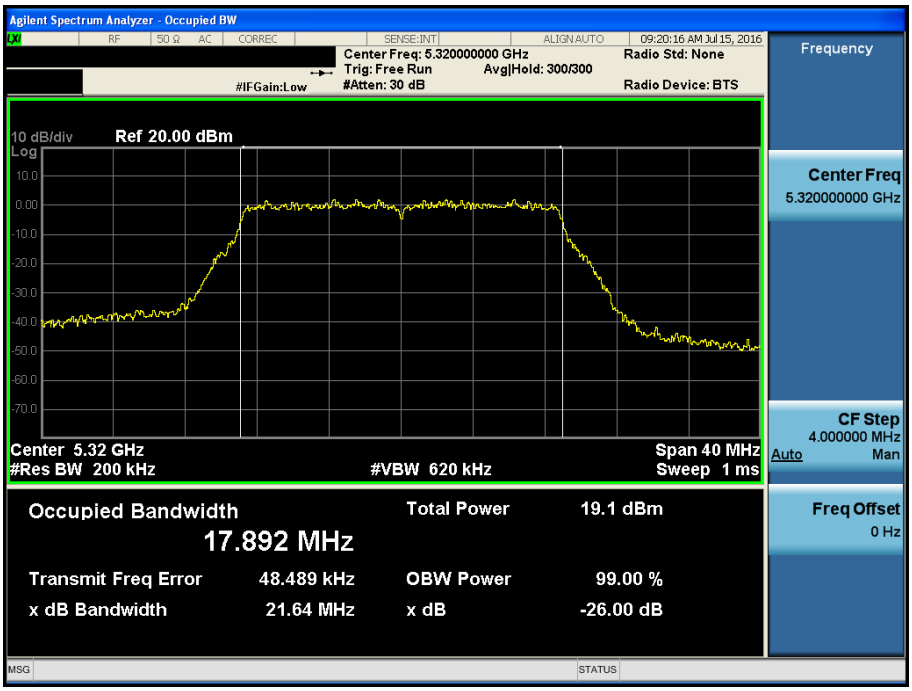
26 dB Bandwidth

Test Mode: 802.11n HT20 & ANT 2 & Ch.60



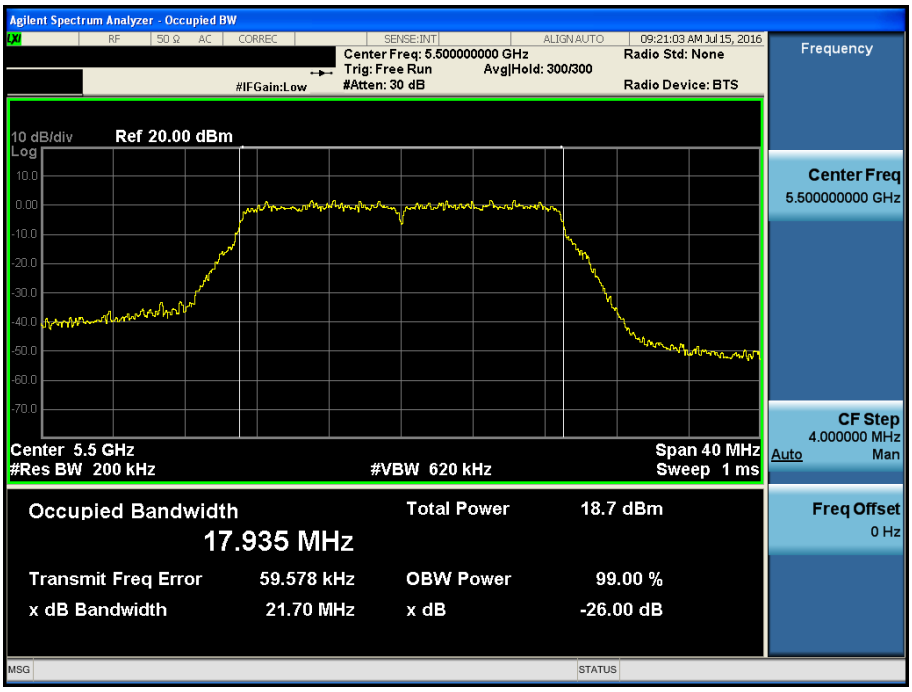
26 dB Bandwidth

Test Mode: 802.11n HT20 & ANT 2 & Ch.64



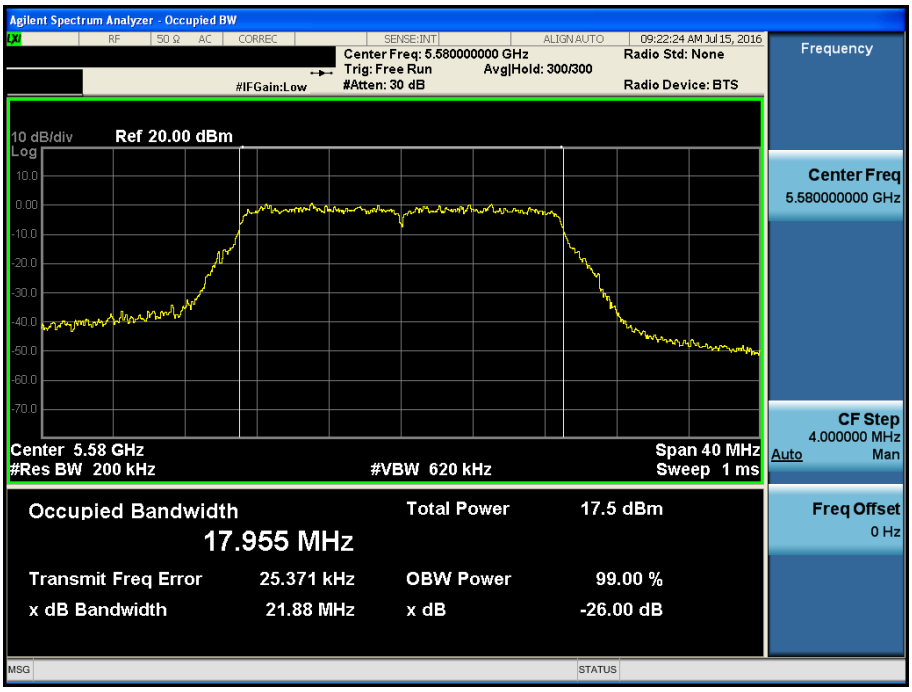
26 dB Bandwidth

Test Mode: 802.11n HT20 & ANT 2 & Ch.100



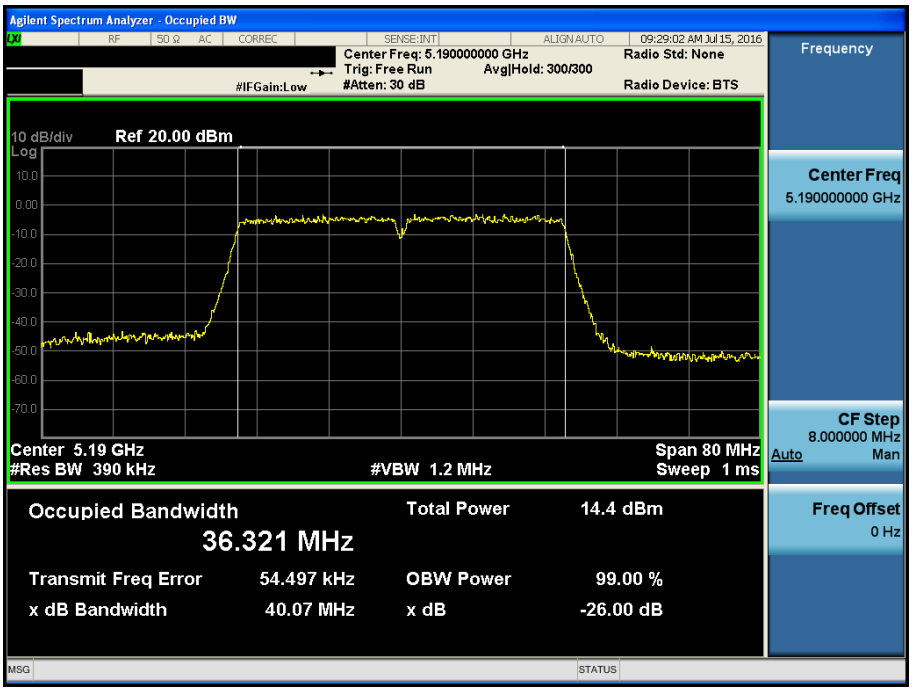
26 dB Bandwidth

Test Mode: 802.11n HT20 & ANT 2 & Ch.116



26 dB Bandwidth

Test Mode: 802.11ac VHT40 & ANT 2 &Ch.38

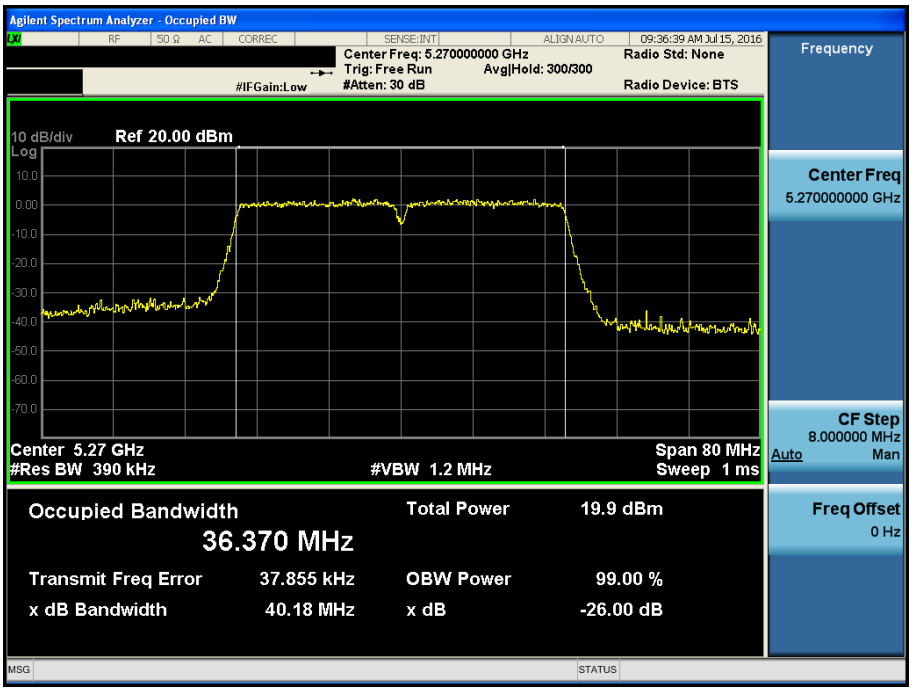


26 dB Bandwidth

Test Mode: 802.11ac VHT40 & ANT 2 &Ch.46

26 dB Bandwidth

Test Mode: 802.11ac VHT40 & ANT 2 &Ch.54

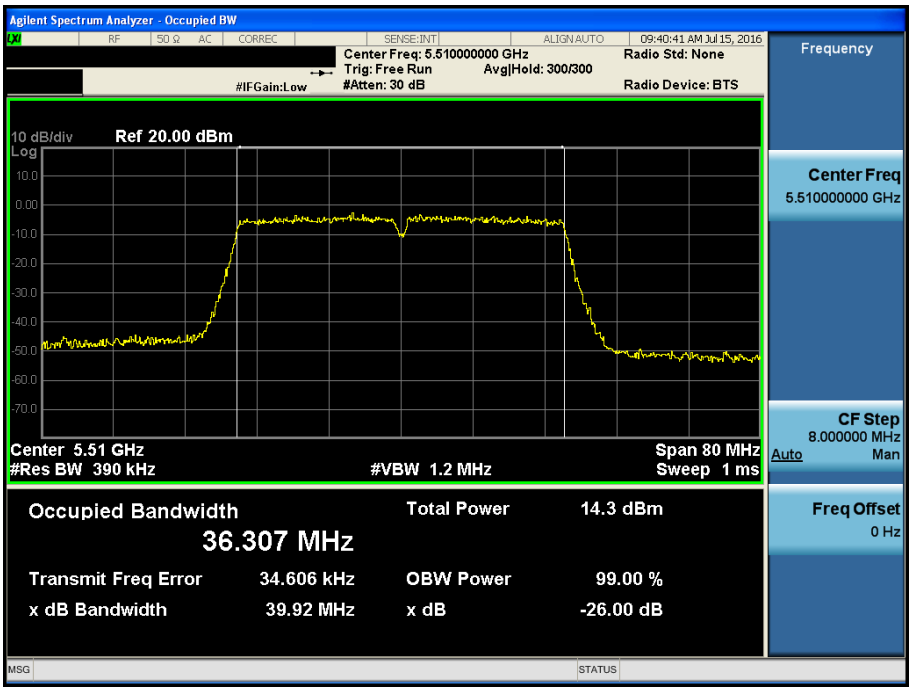


26 dB Bandwidth

Test Mode: 802.11ac VHT40 & ANT 2 & Ch.62

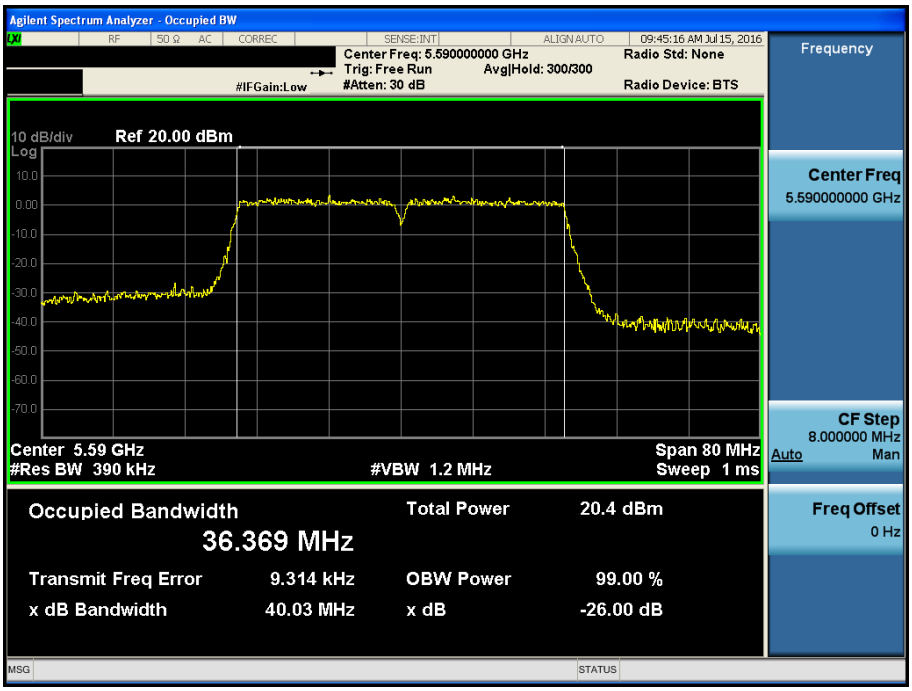
26 dB Bandwidth

Test Mode: 802.11ac VHT40 & ANT 2 &Ch.102



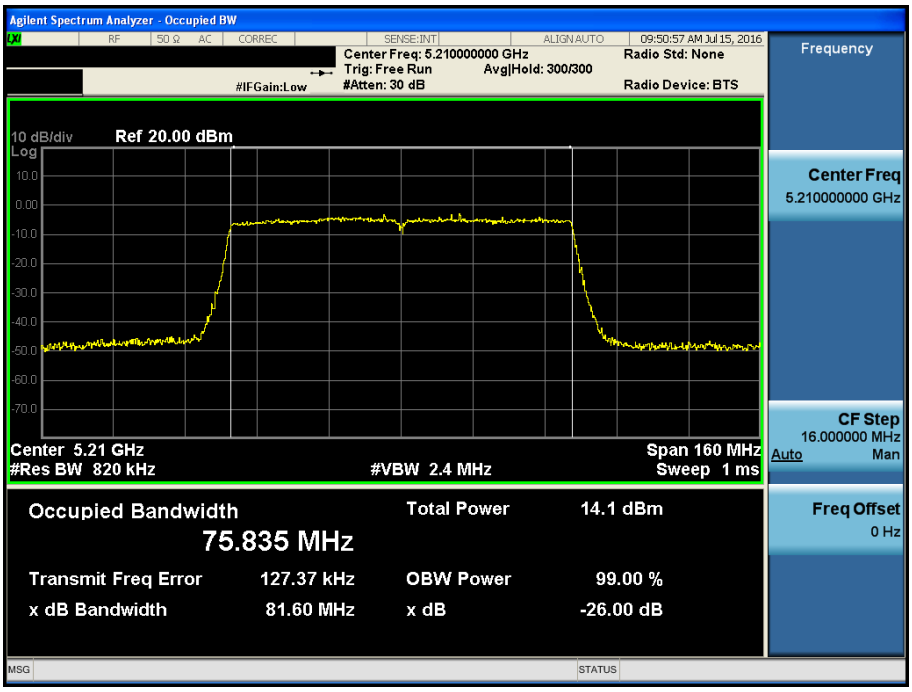
26 dB Bandwidth

Test Mode: 802.11ac VHT40 & ANT 2 & Ch.118



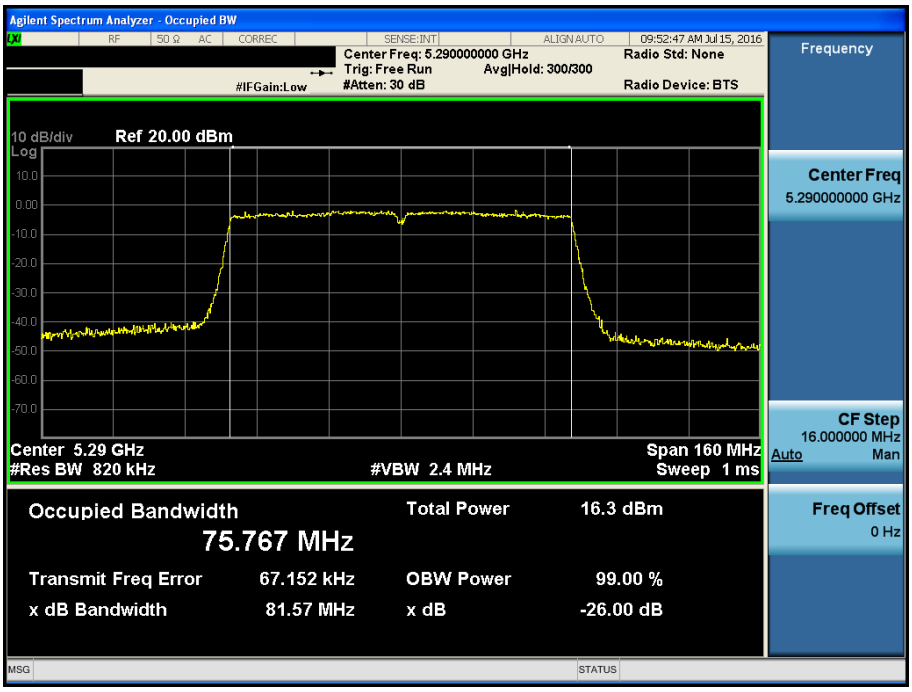
26 dB Bandwidth

Test Mode: 802.11ac VHT80 & ANT 2 &Ch.42



26 dB Bandwidth

Test Mode: 802.11ac VHT80 & ANT 2 &Ch.58



26 dB Bandwidth

Test Mode: 802.11ac VHT80 & ANT 2 &Ch.106

26 dB Bandwidth

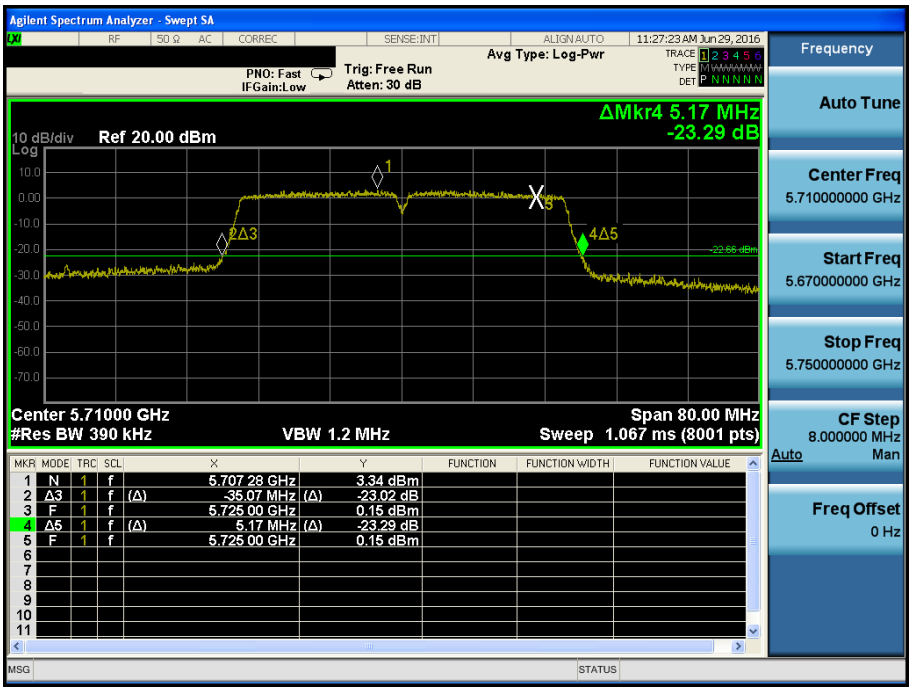
Test Mode: 802.11a & ANT 2 & Ch.144

26 dB Bandwidth

Test Mode: 802.11ac VHT20 & ANT 2 & Ch.144

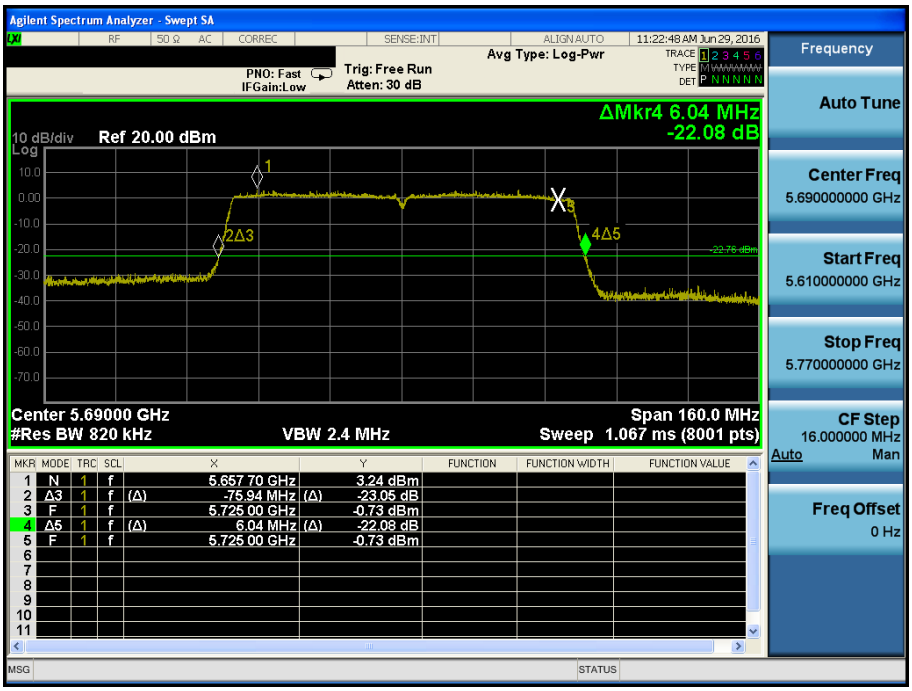
26 dB Bandwidth

Test Mode: 802.11ac VHT40 & ANT 2 & Ch.142



26 dB Bandwidth

Test Mode: 802.11ac VHT80 & ANT 2 &Ch.138



8.2 Minimum Emission Bandwidth (6 dB Bandwidth)

▣ Test Requirements

Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

▣ Test Configuration

Refer to the APPENDIX I.

▣ TEST PROCEDURE

The transmitter output is connected to the Spectrum Analyzer and used following test procedure of **KDB789033 D02**.

1. Set resolution bandwidth (RBW) = 100 kHz
2. Set the video bandwidth **≥ 3 x RBW**.
3. Detector = **Peak**.
4. Trace mode = **max hold**.
   Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

▣ TEST RESULTS: Comply

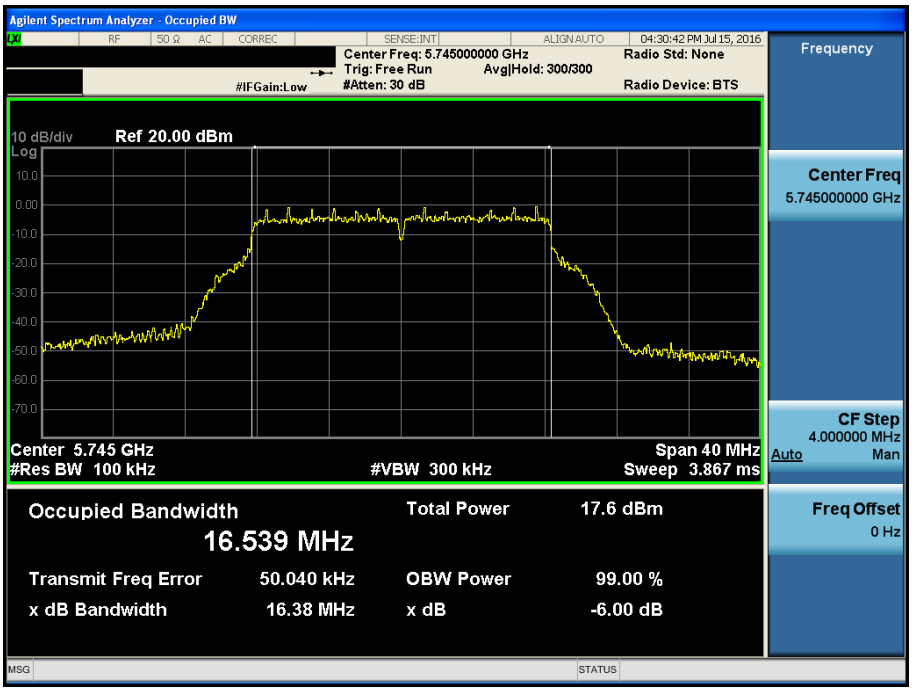
Multiple Transmit

Mode	Band	Channel	Frequency [MHz]	Test Result [MHz]	
				ANT 1	ANT 2
802.11a	U-NII 3	149	5745	16.380	16.390
		157	5785	16.380	16.400
		165	5825	16.380	16.380
802.11n (HT20)	U-NII 3	149	5745	17.340	17.570
		157	5785	17.630	17.630
		165	5825	17.620	17.640
802.11ac (VHT40)	U-NII 3	151	5755	35.990	35.870
		159	5795	36.120	36.350
802.11ac (VHT80)	U-NII 3	155	5775	75.590	75.680

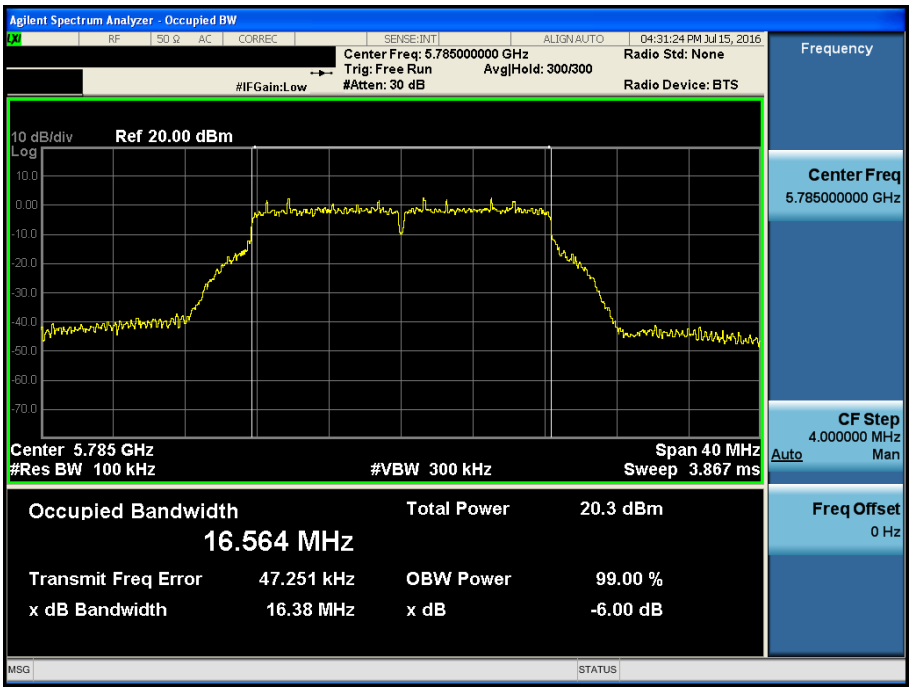
▣ RESULT PLOTS

Multiple Transmit

6 dB Bandwidth Test Mode: 802.11a & ANT 1 & Ch.149

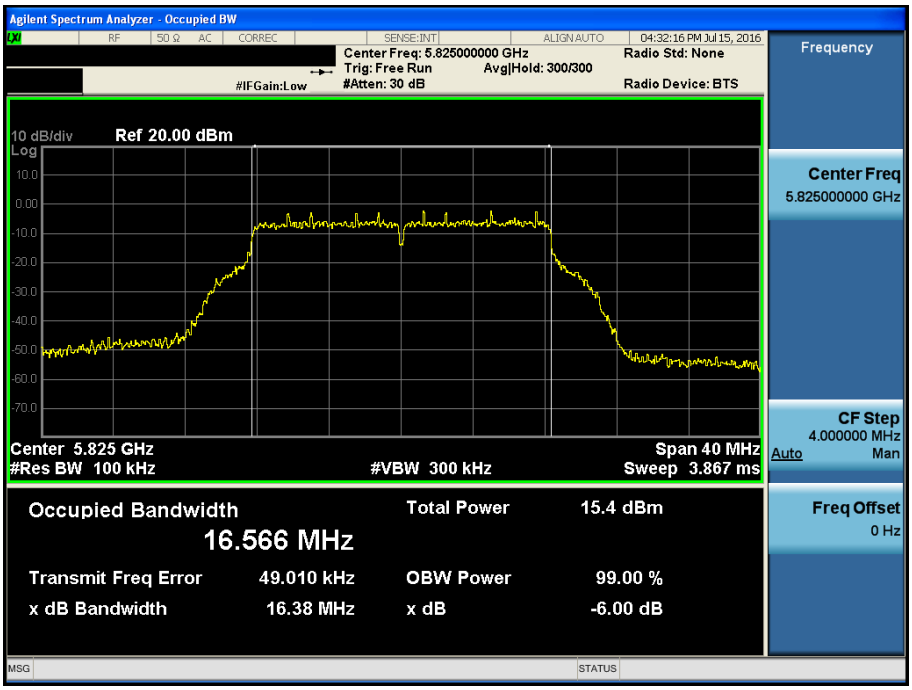


6 dB Bandwidth Test Mode: 802.11a & ANT 1 & Ch.157



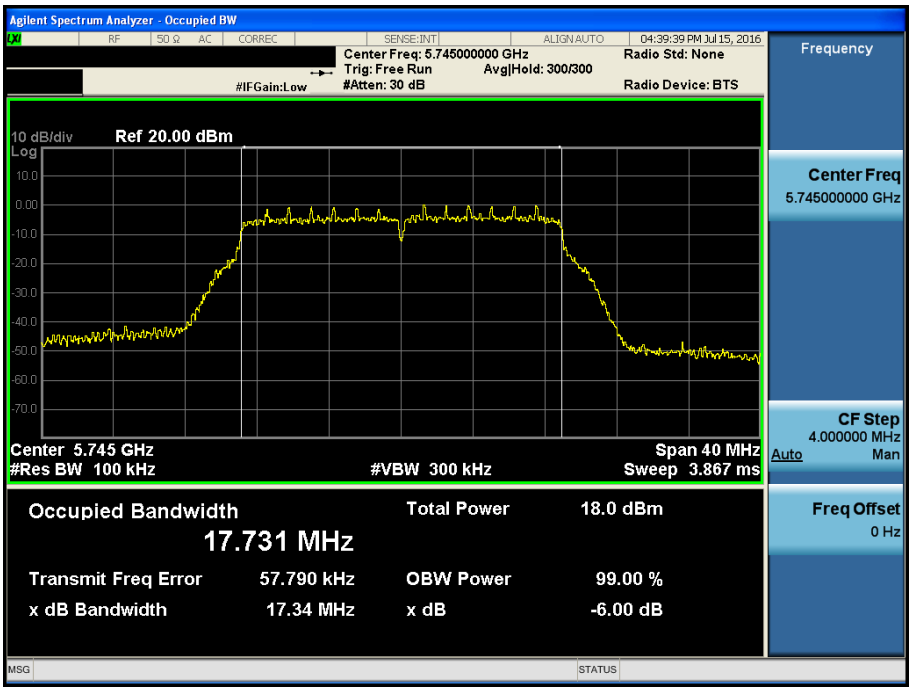
6 dB Bandwidth

Test Mode: 802.11a & ANT 1 & Ch.165



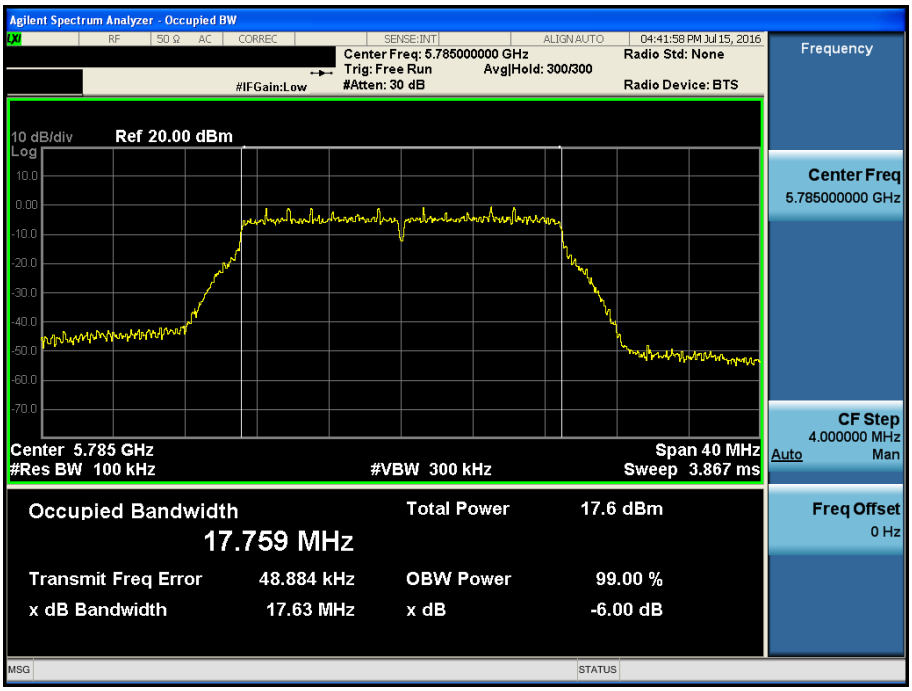
6 dB Bandwidth

Test Mode: 802.11n HT20 & ANT 1 & Ch.149



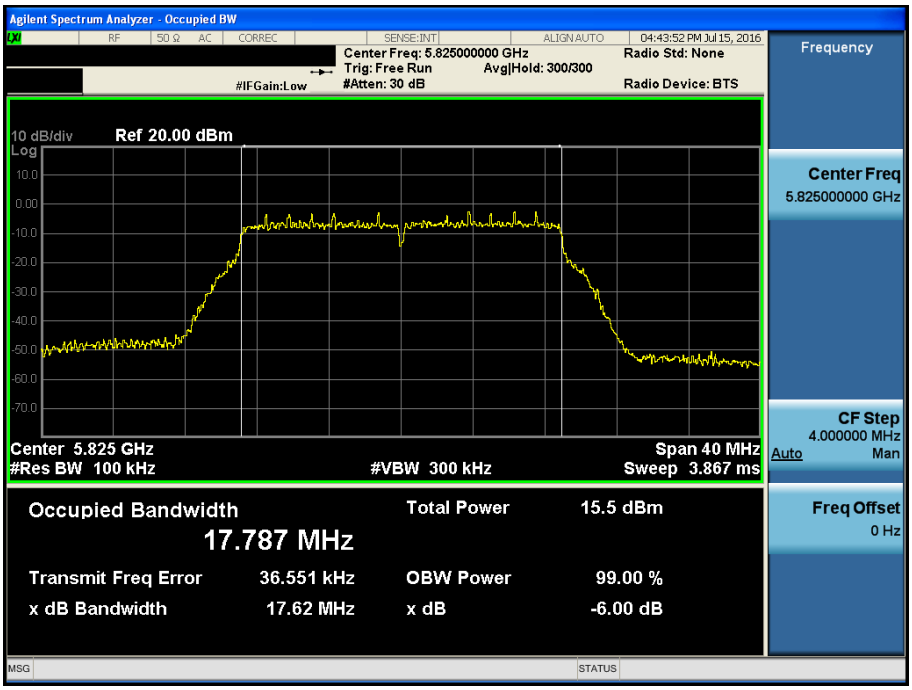
6 dB Bandwidth

Test Mode: 802.11n HT20 & ANT 1 & Ch.157



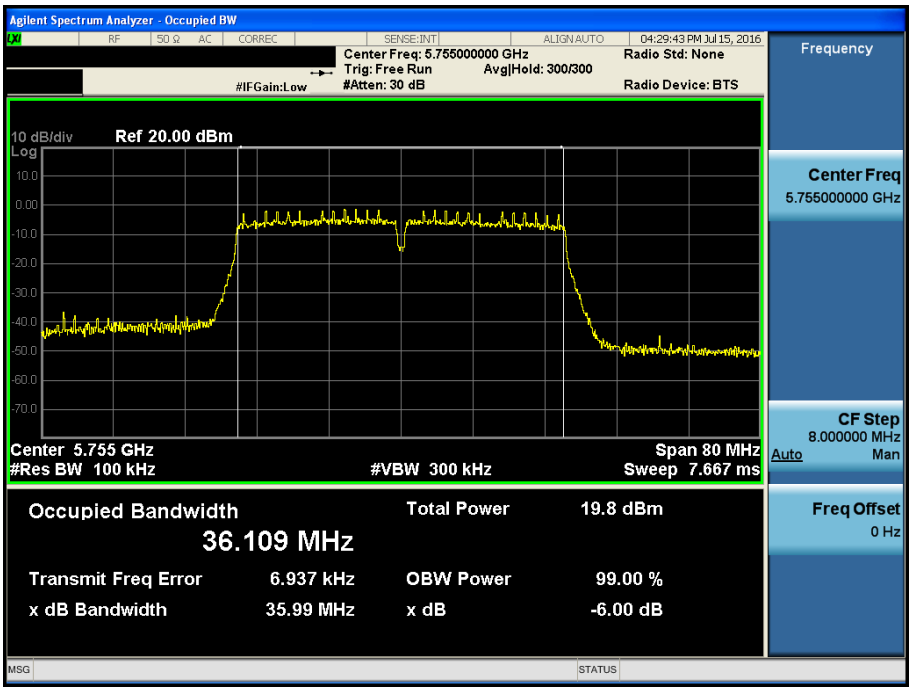
6 dB Bandwidth

Test Mode: 802.11n HT20 & ANT 1 & Ch.165



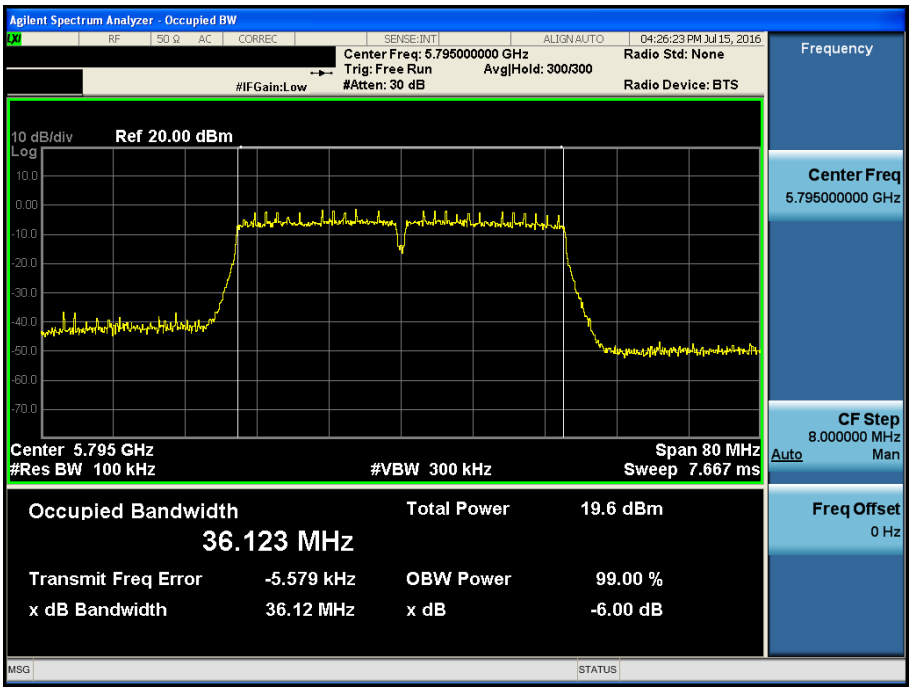
6 dB Bandwidth

Test Mode: 802.11ac VHT40 & ANT 1 & Ch.151



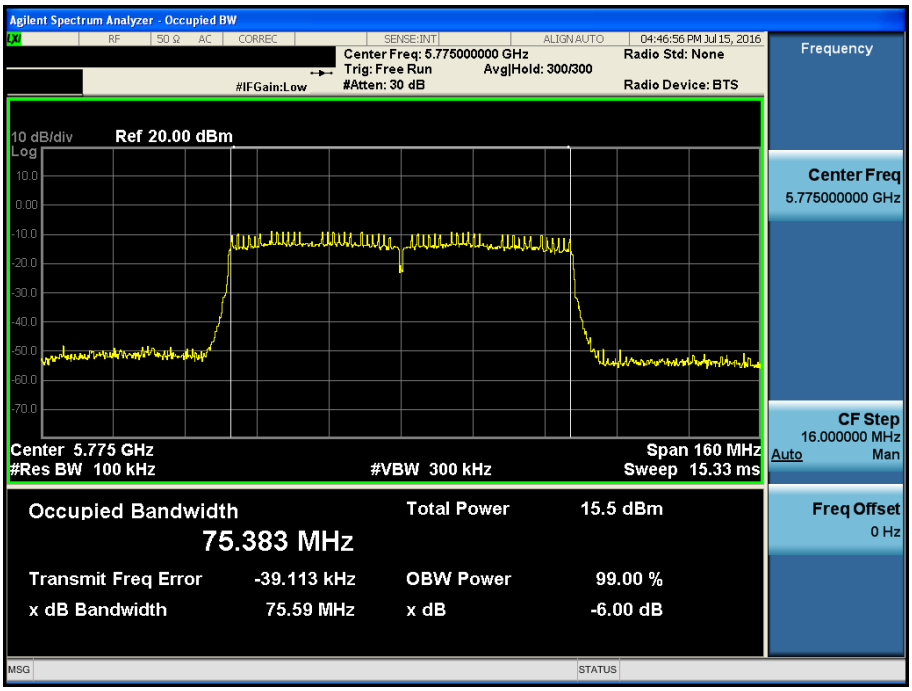
6 dB Bandwidth

Test Mode: 802.11ac VHT40 & ANT 1 & Ch.159



6 dB Bandwidth

Test Mode: 802.11ac VHT80 & ANT 1 & Ch.155

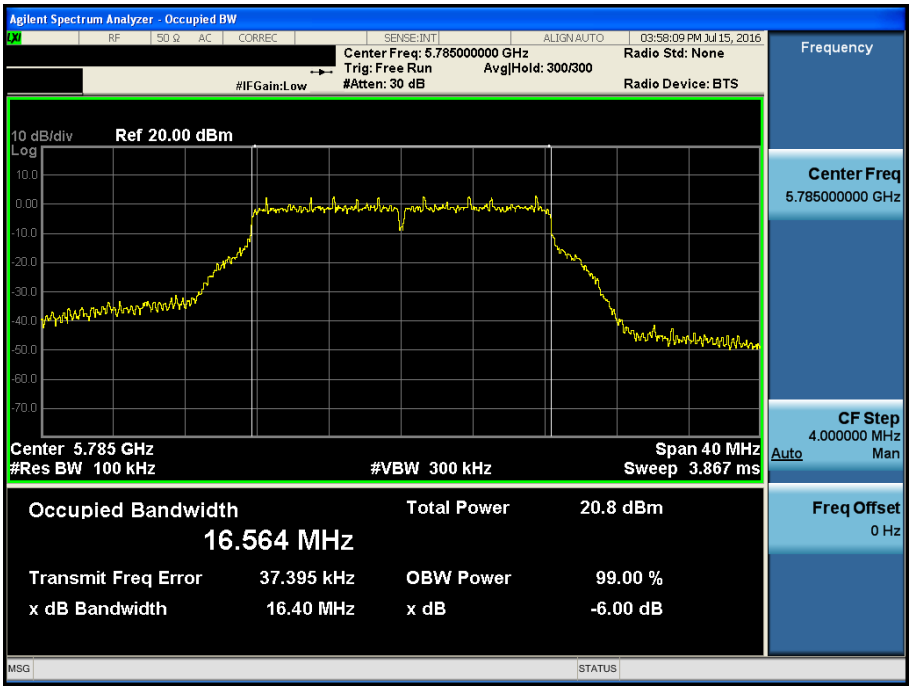


6 dB Bandwidth

Test Mode: 802.11a & ANT 2 & Ch.149

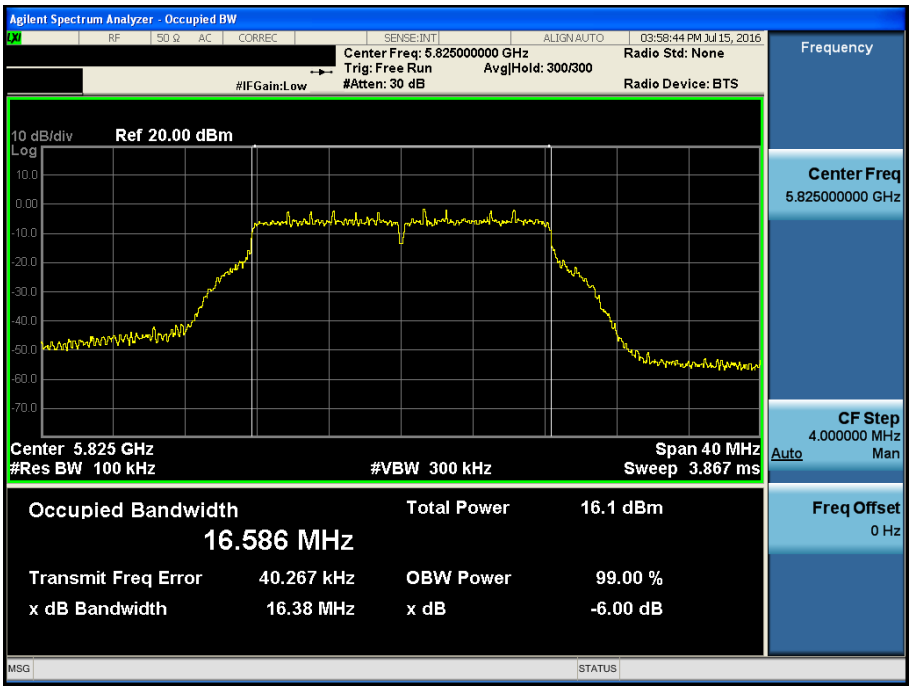
6 dB Bandwidth

Test Mode: 802.11a & ANT 2 & Ch.157



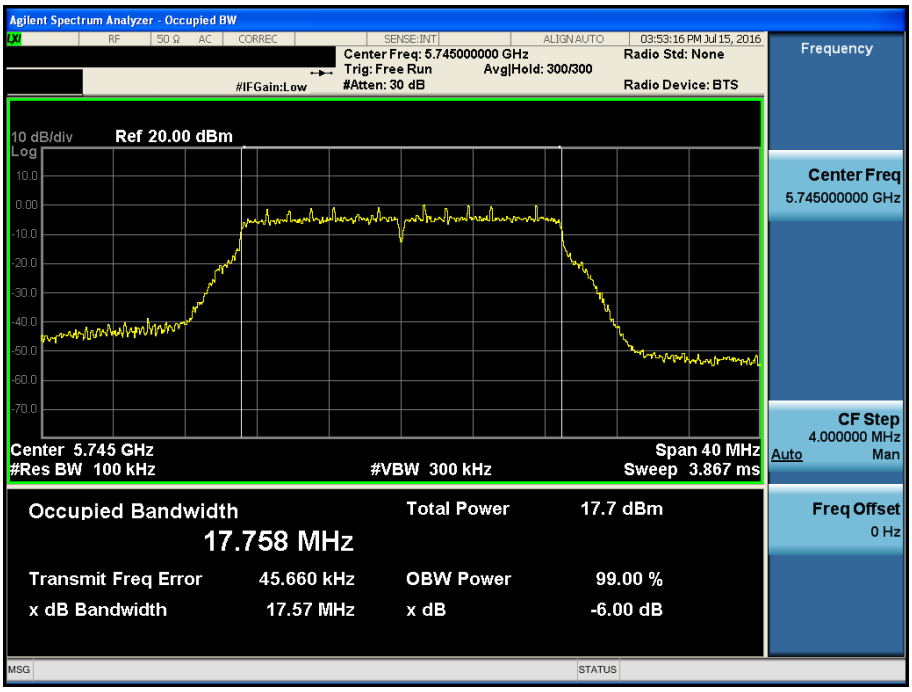
6 dB Bandwidth

Test Mode: 802.11a & ANT 2 & Ch.165



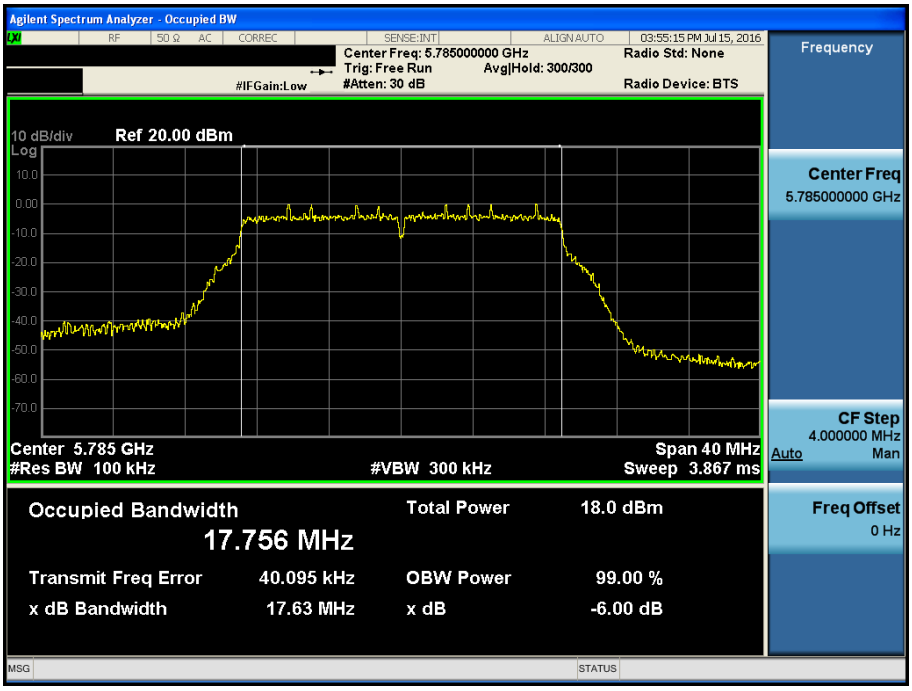
6 dB Bandwidth

Test Mode: 802.11n HT20 & ANT 2 & Ch.149



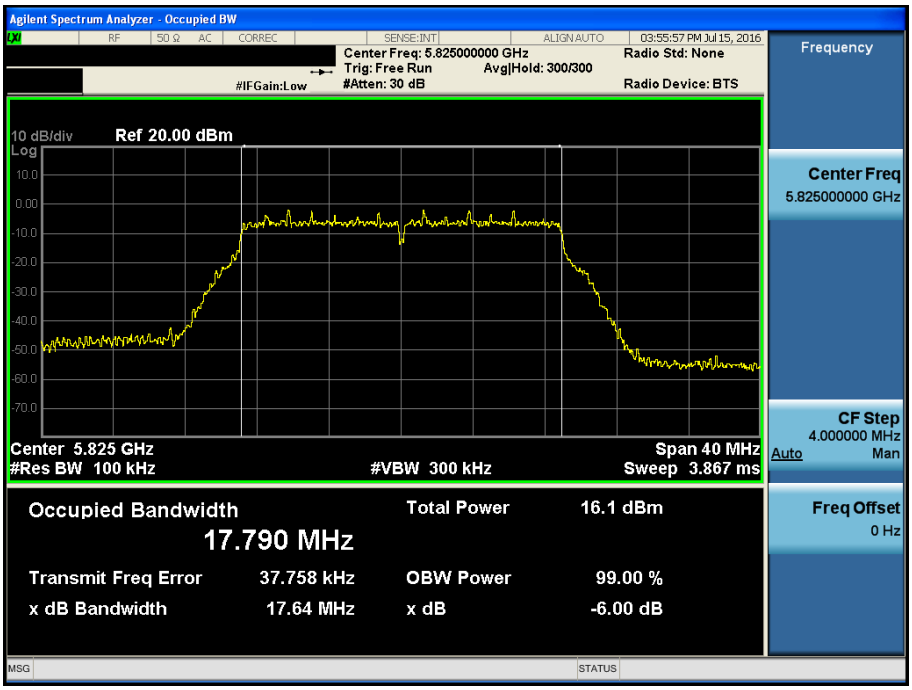
6 dB Bandwidth

Test Mode: 802.11n HT20 & ANT 2 & Ch.157



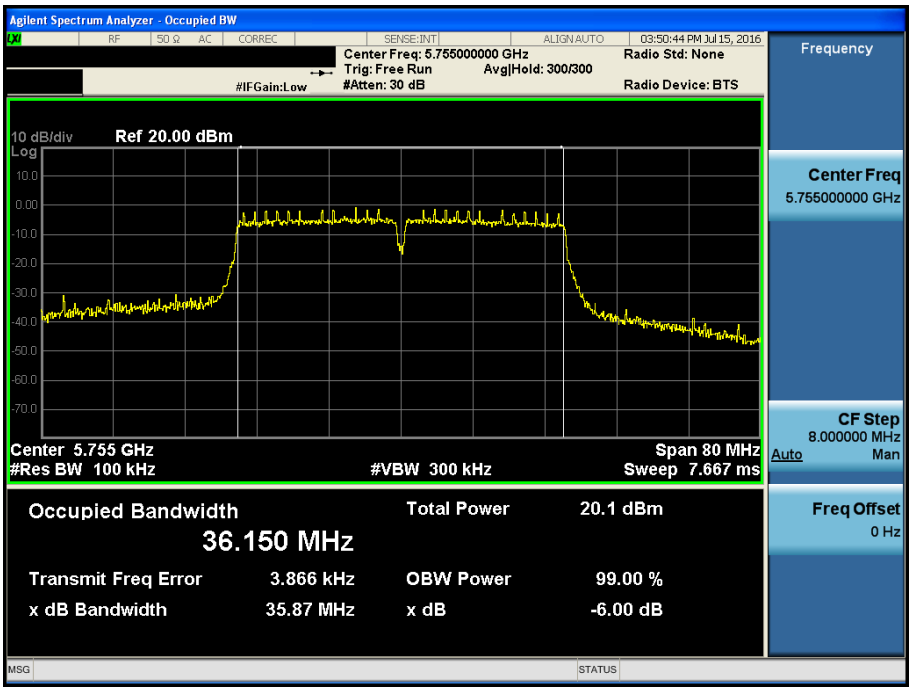
6 dB Bandwidth

Test Mode: 802.11n HT20 & ANT 2 & Ch.165



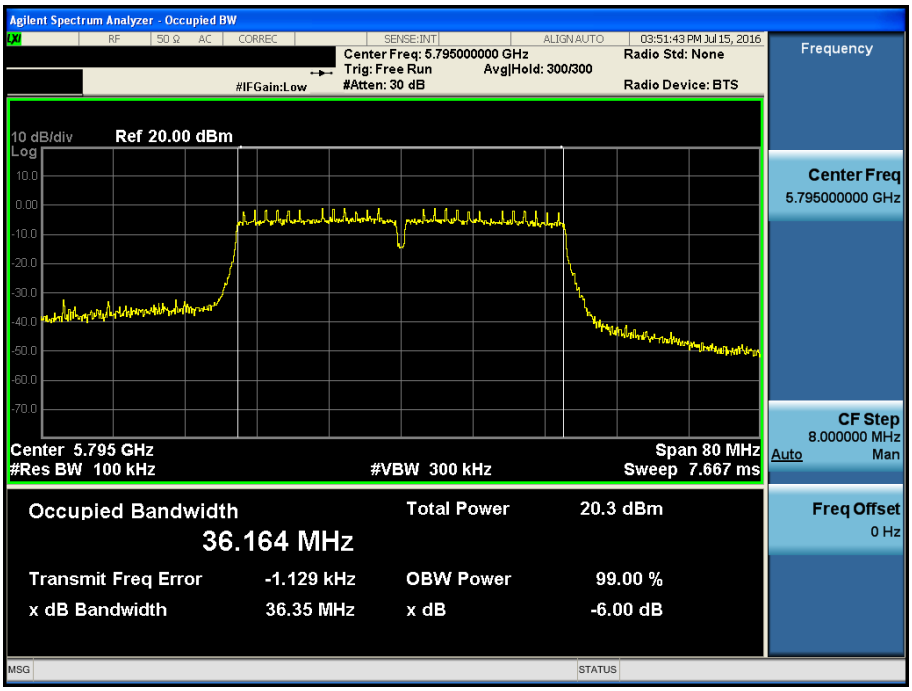
6 dB Bandwidth

Test Mode: 802.11ac VHT40 & ANT 2 & Ch.151



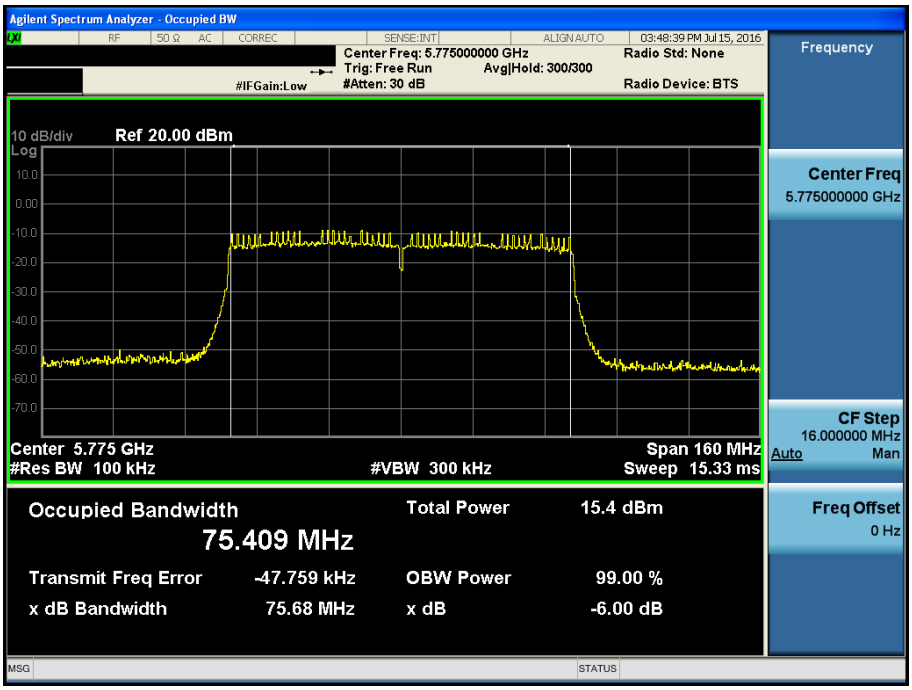
6 dB Bandwidth

Test Mode: 802.11ac VHT40 & ANT 2 & Ch.159



6 dB Bandwidth

Test Mode: 802.11ac VHT80 & ANT 2 & Ch.155



8.3 Maximum Conducted Output Power

▣ Test Requirements

Part. 15.407(a)

(1) For the band 5.15 - 5.25 GHz.

(i) For an outdoor access point operating in the band 5.15 - 5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15 - 5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15 - 5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15 - 5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(2) For the 5.25 - 5.35 GHz and 5.47 - 5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725 - 5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

- Output power Limit Calculation (FCC)

Bands	Mode	Power Limit [mW]	Calculated Limit [dBm]	Antenna Gain (Worst case)	Determined Limit [dBm]
U-NII 1	802.11a	250	23.97	**3.983**	**23.97**
	802.11n(HT20)				
	802.11ac(VHT40)				
	802.11ac(VHT80)				

Bands	Mode	Power Limit [mW] / Least 26 dBc BW [MHz]	Calculated Limit [dBm]	Antenna Gain (Worst case)	Determined Limit [dBm]
U-NII 2A	802.11a	250	23.97	**3.874**	**23.97**
		21.26	24.27		
	802.11n(HT20)	250	23.97		**23.97**
		21.50	24.32		
	802.11ac(VHT40)	250	23.97		**23.97**
		40.08	27.02		
	802.11ac(VHT80)	250	23.97		**23.97**
		81.57	30.11		
U-NII 2C	802.11a	250	23.97	**3.204**	**23.97**
		21.23	24.26		
	802.11n(HT20)	250	23.97		**23.97**
		21.64	24.35		
	802.11ac(VHT40)	250	23.97		**23.97**
		39.92	27.01		
	802.11ac(VHT80)	250	23.97		**23.97**
		81.57	30.11		

Bands	Mode	Power Limit [mW] / Least 26 dBc BW [MHz]	Calculated Limit [dBm]	Antenna Gain (Worst case)	Determined Limit [dBm]
U-NII 2C (band-crossing channels)	802.11a	250	23.97	2.440	22.92
		15.580	22.92		
	802.11ac(VHT20)	250	23.97		22.94
		15.655	22.94		
	802.11ac(VHT40)	250	23.97		27.53
		34.85	26.42		
	802.11ac(VHT80)	250	23.97		27.53
		75.98	29.80		
U-NII 3 (band-crossing channels)	802.11a	1000	30.00	2.440	30.00
	802.11ac(VHT20)				
	802.11ac(VHT40)				
	802.11ac(VHT80)				

Bands	Mode	Power Limit [mW]	Calculated Limit [dBm]	Antenna Gain (Worst case)	Determined Limit [dBm]
U-NII 3	802.11a	1000	30.00	3.133	30.00
	802.11n(HT20)				
	802.11ac(VHT40)				
	802.11ac(VHT80)				

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(1) For band 5150 - 5250 MHz
The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log B, dBm, whichever power is less. B is the 99 % emission bandwidth in MHz.

(2) For band 5250 - 5350 MHz
The maximum conducted output power shall not exceed 250 mW or 11 + 10 log B, dBm, whichever power is less.
The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99 % emission bandwidth in MHz.

(3) For band 5470 - 5600 MHz and 5650 - 5725 MHz
The maximum conducted output power shall not exceed 250 mW or 11 + 10 log B, dBm, whichever power is less.
The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99 % emission bandwidth in MHz.

(4) For band 5725 - 5850 MHz
The maximum conducted output power shall not exceed 1 W.

-Output power Limit Calculation(IC)

Band	Mode	Power Limit [mW] / Least 99 % BW [MHz]	Calculated Limit [dBm]	Antenna Gain (Worst case)	Determined Limit [dBm]
U-NII 1	802.11a	200	23.01	3.983	22.37
		17.272	22.37		
	802.11n(HT20)	200	23.01		22.61
		18.258	22.61		
	802.11ac(VHT40)	200	23.01		23.01
		36.398	25.61		
	802.11ac(VHT80)	200	23.01		23.01
		75.872	28.80		
U-NII 2A	802.11a	250	23.97	3.874	23.38
		17.300	23.38		
	802.11n(HT20)	250	23.97		23.62
		18.305	23.62		
	802.11ac(VHT40)	250	23.97		23.97
		36.498	26.62		
	802.11ac(VHT80)	250	23.97		23.97
		75.784	29.79		
U-NII 2C	802.11a	250	23.97	3.204	23.38
		17.317	23.38		
	802.11n(HT20)	250	23.97		23.62
		18.285	23.62		
	802.11ac(VHT40)	250	23.97		23.97
		36.401	26.61		
	802.11ac(VHT80)	250.000	23.97		23.97
		75.784	29.79		

Bands	Mode	Power Limit [mW] / Least 99 % BW [MHz]	Calculated Limit [dBm]	Antenna Gain (Worst case)	Determined Limit [dBm]
U-NII 2C (band-crossing channels)	802.11a	250	23.97	2.440	23.40
		17.382	23.40		
	802.11n(HT20)	250	23.97		23.63
		18.346	23.63		
	802.11ac(VHT40)	250	23.97		23.97
		36.399	26.61		
	802.11ac(VHT80)	250	23.97		23.97
		75.734	29.79		

Band	Mode	Power Limit [mW]	Calculated Limit [dBm]	Antenna Gain (Worst case)	Determined Limit [dBm]
U-NII 3	802.11a	1000	30.00	**1.295**	**30.00**
	802.11n(HT20)				
	802.11ac(VHT40)				
	802.11ac(VHT80)				

▣ Test Results: Comply

Mode	CH	Freq. [MHz]	Test Result [dBm]		
			ANT 1	ANT 2	SUM
802.11a (Multiple Transmit)	36	5180	11.390	10.520	13.987
	40	5200	11.520	10.730	14.153
	48	5240	12.040	11.330	14.710
	52	5260	12.080	11.310	14.722
	60	5300	12.680	11.740	15.246
	64	5320	13.340	12.390	15.901
	100	5500	12.290	11.790	15.057
	116	5580	10.460	10.730	13.607
	-	-	-	-	-
	149	5745	10.660	10.640	13.660
	157	5785	13.335	13.260	16.308
	165	5825	8.670	9.250	11.980

Mode	CH	Freq. [MHz]	Test Result [dBm]		
			ANT 1	ANT 2	SUM
802.11n(HT20) (Multiple Transmit)	36	5180	11.430	10.410	13.960
	40	5200	11.450	10.440	13.985
	48	5240	12.270	11.530	14.926
	52	5260	12.810	11.870	15.376
	60	5300	13.240	12.610	15.947
	64	5320	13.780	13.200	16.510
	100	5500	12.310	11.800	15.073
	116	5580	10.940	11.040	14.001
	-	-	-	-	-
	149	5745	10.710	10.930	13.832
	157	5785	10.480	10.510	13.505
	165	5825	8.470	9.140	11.828

Mode	CH	Freq. [MHz]	Test Result [dBm]		
			ANT 1	ANT 2	SUM
802.11n(HT40) (Multiple Transmit)	38	5190	9.470	8.710	12.117
	46	5230	14.670	13.870	17.299
	54	5270	11.460	10.640	14.080
	62	5310	10.810	9.760	13.327
	102	5510	7.560	7.210	10.399
	118	5590	13.520	13.180	16.364
	-	-	-	-	-
	151	5755	12.870	12.190	15.554
	159	5795	11.810	12.340	15.093

Mode	CH	Freq. [MHz]	Test Result [dBm]		
			ANT 1	ANT 2	SUM
802.11ac(VHT20) (Multiple Transmit)	36	5180	11.600	10.530	14.108
	40	5200	11.580	10.560	14.110
	48	5240	12.290	11.710	15.020
	52	5260	12.840	11.610	15.279
	60	5300	13.300	12.530	15.942
	64	5320	13.870	13.090	16.508
	100	5500	10.940	11.630	14.309
	116	5580	10.830	10.860	13.855
	-	-	-	-	-
	149	5745	10.760	10.820	13.800
	157	5785	10.560	10.530	13.555
	165	5825	8.750	9.210	11.996

Mode	CH	Freq. [MHz]	Test Result [dBm]		
			ANT 1	ANT 2	SUM
802.11ac(VHT40) (Multiple Transmit)	38	5190	9.540	8.810	12.201
	46	5230	14.670	13.910	17.317
	54	5270	14.840	14.740	17.801
	62	5310	10.830	9.840	13.373
	102	5510	7.310	7.240	10.285
	118	5590	13.270	13.160	16.226
	-	-	-	-	-
	151	5755	12.870	12.250	15.581
	159	5795	11.830	12.310	15.087

Mode	CH	Freq. [MHz]	Test Result [dBm]		
			ANT 1	ANT 2	SUM
802.11ac(VHT80) (Multiple Transmit)	42	5210	8.870	7.710	11.339
	58	5290	11.320	10.400	13.895
	106	5530	7.610	7.250	10.444
	155	5775	8.46	7.71	11.111

Band-Crossing Channels (U-NII 2C)

Mode	CH	Freq. [MHz]	Reading value [dBm]			DCF [dB]	Test Result [dBm]
			ANT 1	ANT 2	SUM		
802.11a (Multiple Transmit)	144	5720	9.390	9.710	12.563	0.220	12.783
802.11n(HT20) (Multiple Transmit)	144	5720	9.090	9.290	12.201	0.430	12.631
802.11n(HT40) (Multiple Transmit)	142	5710	11.170	11.360	14.276	0.800	15.076
802.11ac(VHT20) (Multiple Transmit)	144	5720	9.310	9.620	12.478	0.140	12.618
802.11ac(VHT40) (Multiple Transmit)	142	5710	12.720	13.130	15.940	0.260	16.200
802.11ac(VHT80) (Multiple Transmit)	138	5690	11.730	12.060	14.908	0.480	15.388

Note: Please refer to Appendix II for the duty correction factor

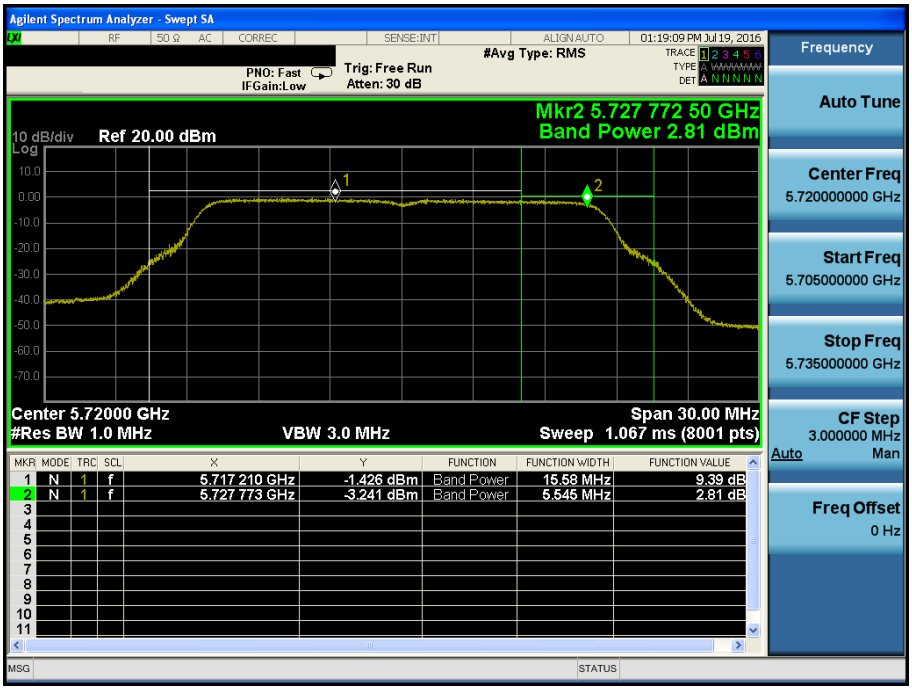
Band-Crossing Channels (U-NII 3)

Mode	CH	Freq. [MHz]	Reading value [dBm]			DCF [dB]	Test Result [dBm]
			ANT 1	ANT 2	SUM		
802.11a (Multiple Transmit)	144	5720	2.810	3.190	6.014	0.220	6.234
802.11n(HT20) (Multiple Transmit)	144	5720	2.960	3.130	6.056	0.430	6.486
802.11n(HT40) (Multiple Transmit)	142	5710	0.230	0.760	3.513	0.800	4.313
802.11ac(VHT20) (Multiple Transmit)	144	5720	3.190	3.420	6.317	0.140	6.457
802.11ac(VHT40) (Multiple Transmit)	142	5710	1.770	2.410	5.112	0.260	5.372
802.11ac(VHT80) (Multiple Transmit)	138	5690	-3.160	-2.670	0.102	0.480	0.582

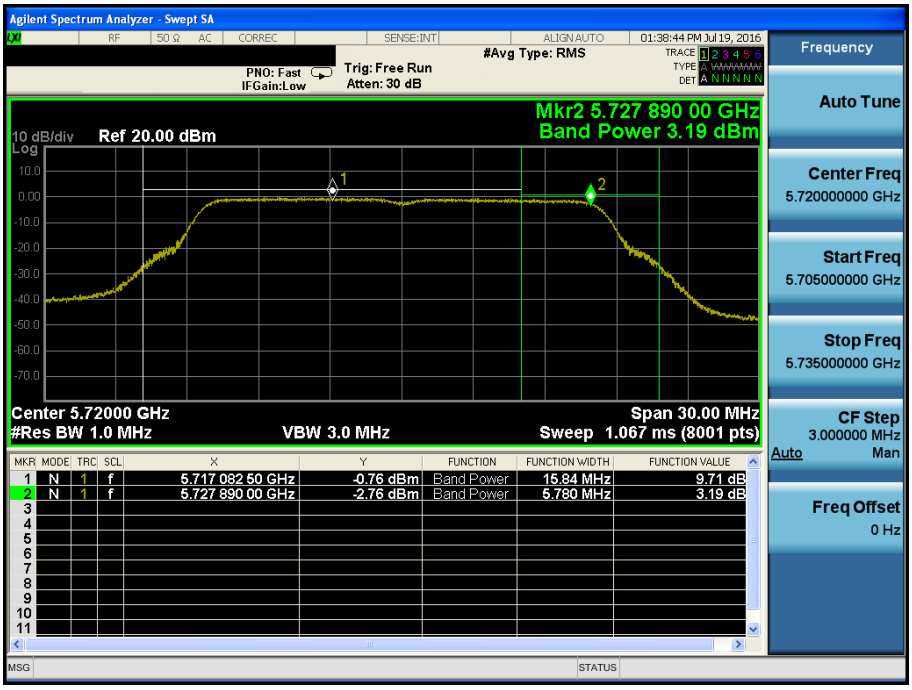
Note1: See next pages for actual measured spectrum plots.
Note2: Please refer to Appendix II for the duty correction factor

▣ RESULT PLOTS(U-NII 2C & U-NII 3 & Band-Crossing Channels & Multiple Transmit)

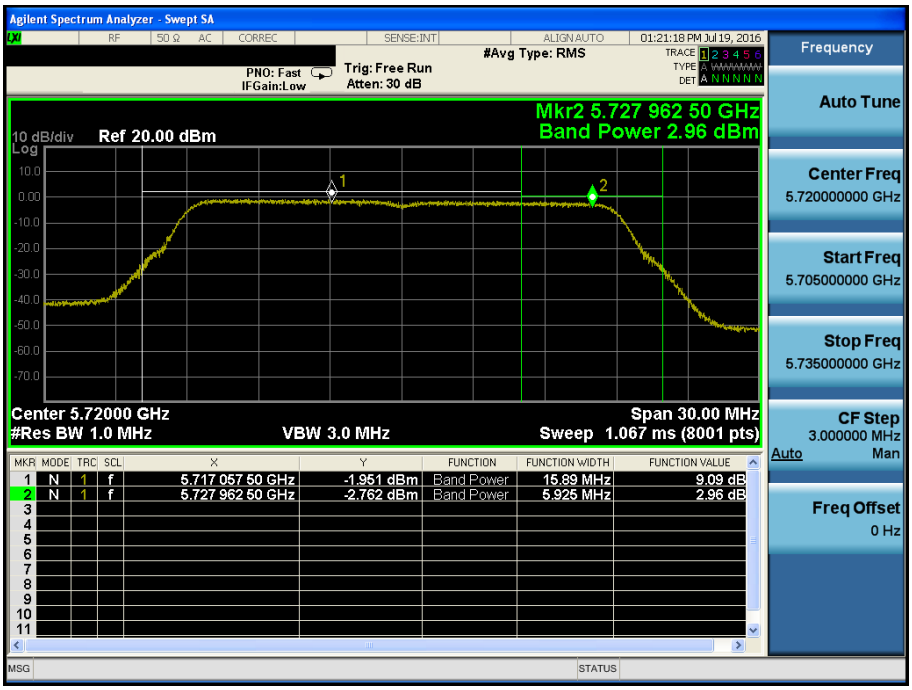
Maximum Conducted Output Power Test Mode: 802.11a & Ch.144 & ANT 1



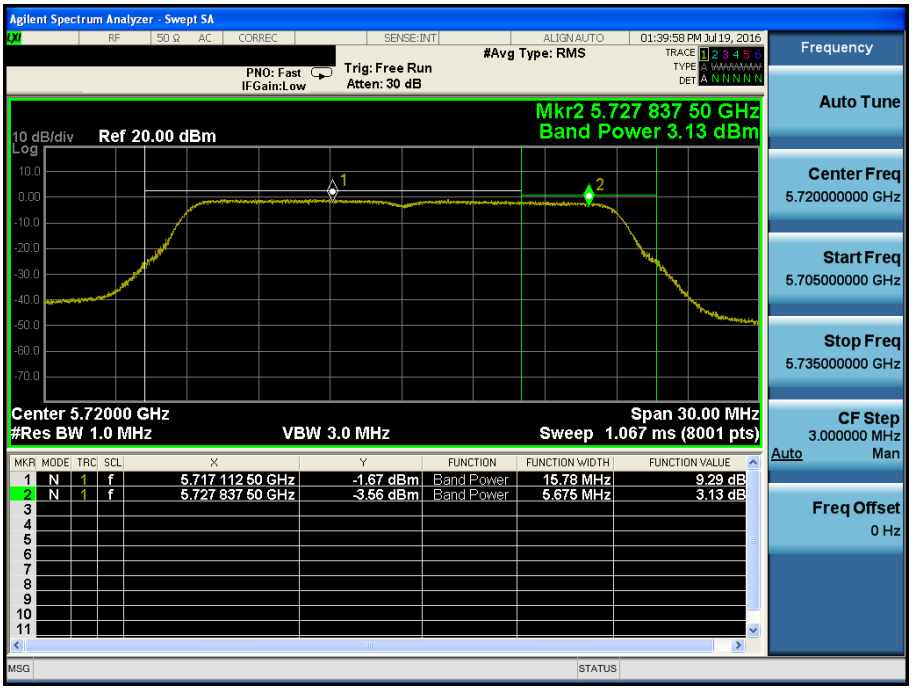
Maximum Conducted Output Power Test Mode: 802.11a & Ch.144 & ANT 2



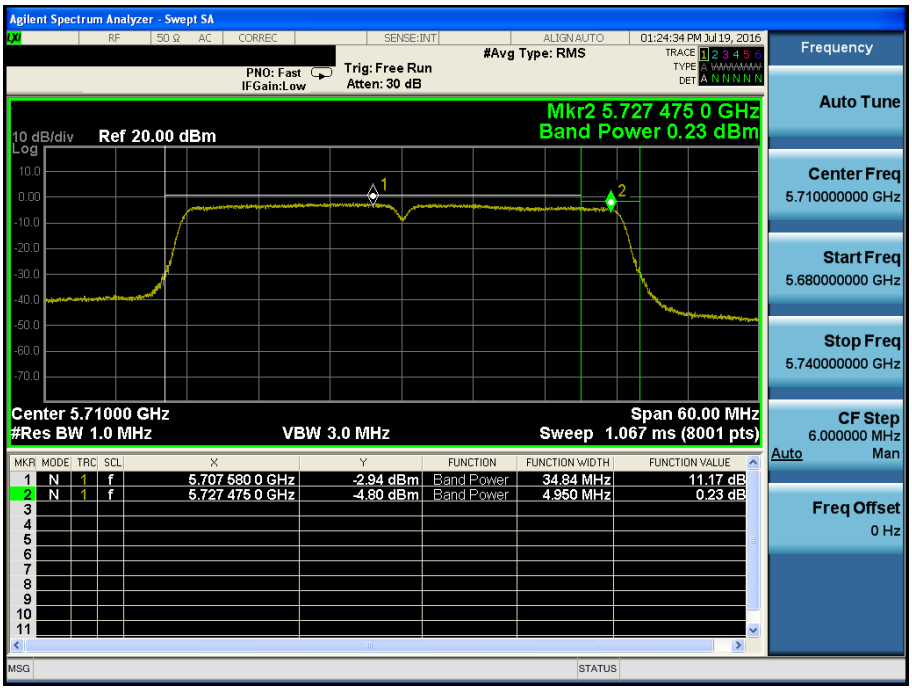
Maximum Conducted Output Power Test Mode: 802.11n HT20 & Ch.144 & ANT 1



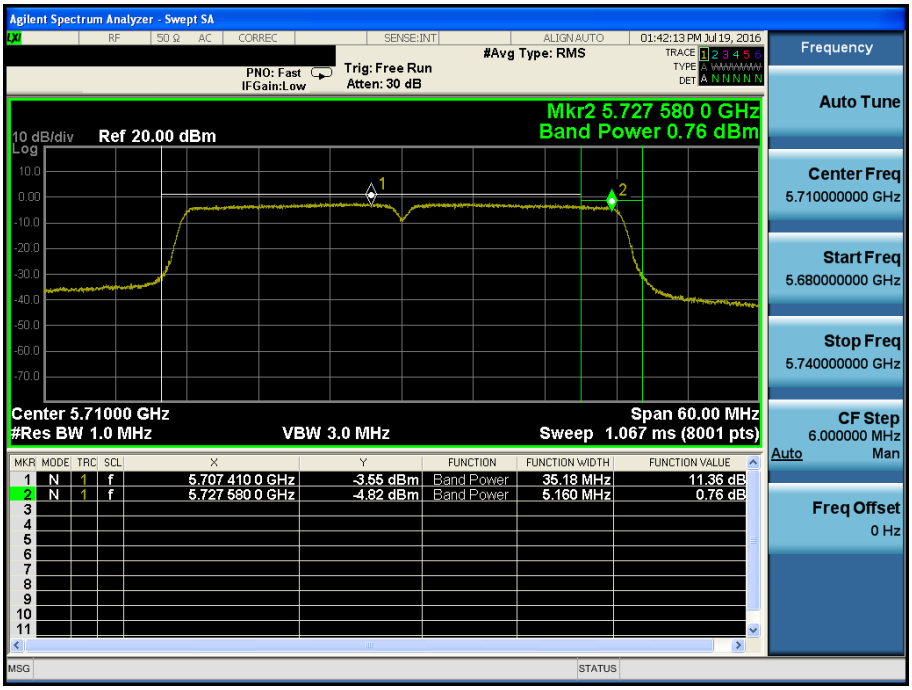
Maximum Conducted Output Power Test Mode: 802.11n HT20 & Ch.144 & ANT 2



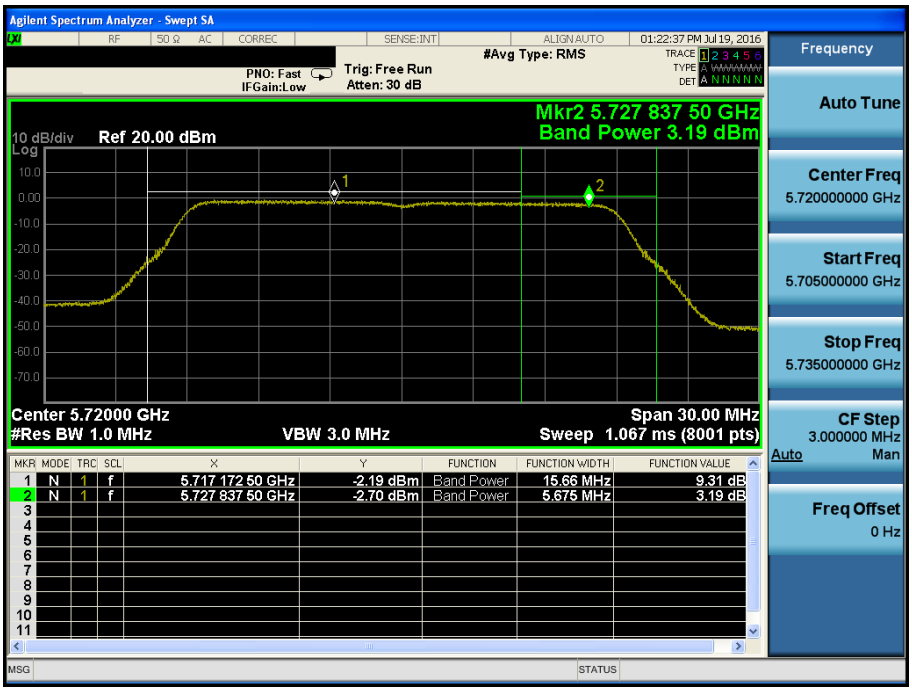
Maximum Conducted Output Power Test Mode: 802.11n HT40 & Ch.142 & ANT 1



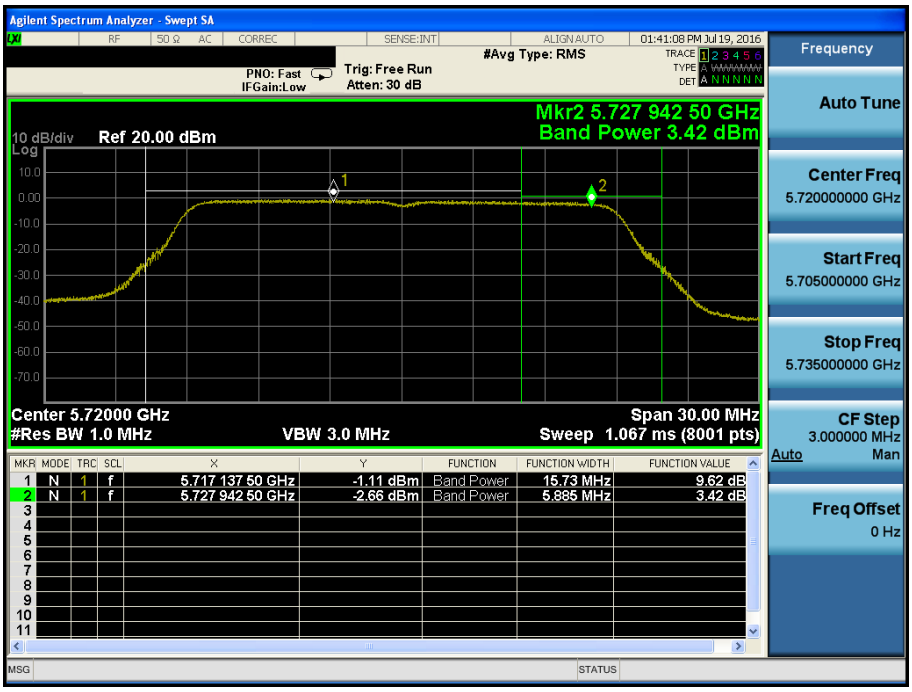
Maximum Conducted Output Power Test Mode: 802.11n HT40 & Ch.142 & ANT 2



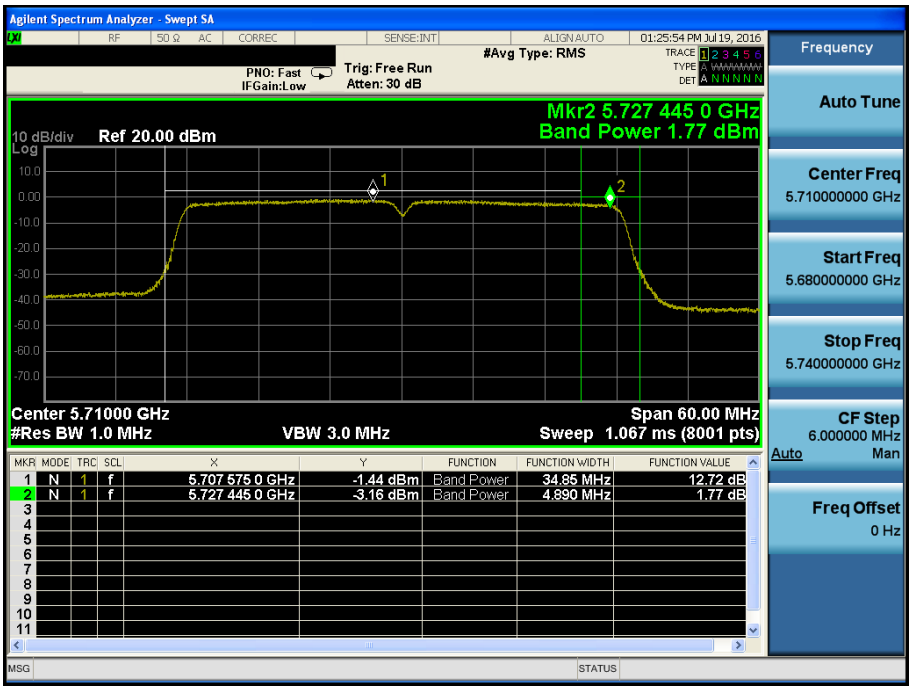
Maximum Conducted Output Power Test Mode: 802.11ac VHT20 & Ch.144 & ANT 1



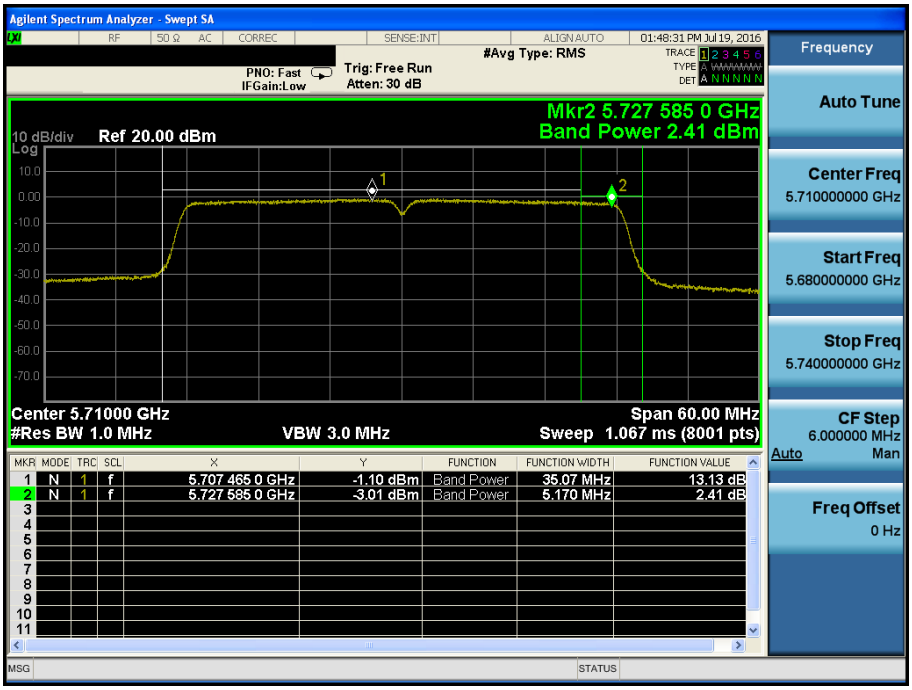
Maximum Conducted Output Power Test Mode: 802.11ac VHT20 & Ch.144 & ANT 2



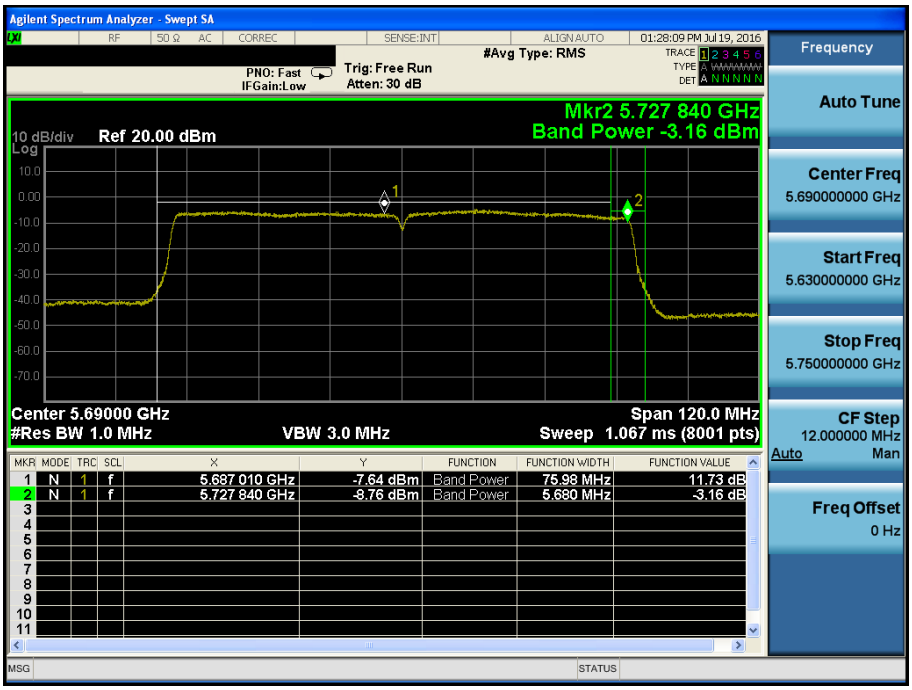
Maximum Conducted Output Power Test Mode: 802.11ac VHT40 & Ch.142 & ANT 1



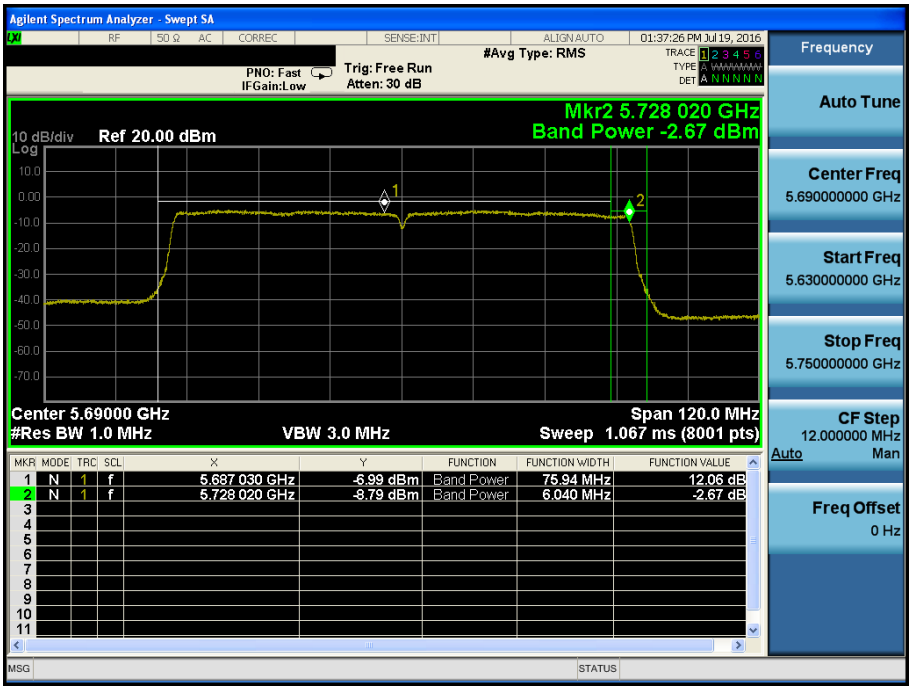
Maximum Conducted Output Power Test Mode: 802.11ac VHT40 & Ch.142 & ANT 2



Maximum Conducted Output Power Test Mode: 802.11ac VHT80 & Ch.138 & ANT 1



Maximum Conducted Output Power Test Mode: 802.11 ac VHT80 & Ch.138 & ANT 2



8.4 Maximum Power Spectral Density

▣ Test requirements

Part. 15.407(a)

(1) For the band 5.15 - 5.25 GHz.

(i) For an outdoor access point operating in the band 5.15 - 5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 MHz band. [note1]

(ii) For an indoor access point operating in the band 5.15 - 5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 MHz band. [note1]

(iii) For fixed point-to-point access points operating in the band 5.15 - 5.25 GHz, transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi.

(iv) For mobile and portable client devices in the 5.15 - 5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 MHz band. [note1]

(2) For the 5.25 - 5.35 GHz and 5.47 - 5.725 GHz bands, the peak power spectral density shall not exceed 11 dBm in any 1 MHz band. [note1]

(3) For the band 5.725 - 5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500 kHz band. [note1,note2]

Note1: If transmitting antennas of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Note2: Fixed point - to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information.

- Peak Power Spectral Density Limit Calculation

Band	Limit [dBm]	Antenna Gain (Worst case)	Determined Limit [dBm]
U-NII 1	11	3.983	11
U-NII 2A	11	3.874	11
U-NII 2C	11	3.204	11
U-NII 3	30	3.133	30

▣ Test Configuration

Refer to the APPENDIX I.

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(1) For band 5150 - 5250 MHz
The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

(2) For band 5250 - 5350 MHz
The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

(3) For band 5470 - 5600 MHz and 5650 - 5725 MHz
The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

(4) For band 5725 - 5850 MHz
The power spectral density shall not exceed 30 dBm in any 500 kHz band.

- Peak Power Spectral Density Limit Calculation(IC)

Band	Limit [dBm]	ANT Gain [dBi]	Determined Limit [dBm]
U-NII 1	10	3.983	10
U-NII 2A	11	3.874	11
U-NII 2C	11	3.204	11
U-NII 3	30	3.133	30

▣ Test procedure

Maximum Power Spectral Density is measured using Measurement Procedure **of KDB789033 D02**

1) Create an average power spectrum for the EUT operating mode being tested by following the instructions in section II.E.2. for measuring maximum conducted output power using a spectrum analyzer or EMI receiver: select the appropriate test method (SA - 1, SA - 2, SA - 3, or alternatives to each) and apply it up to, but not including, the step labeled, "Compute power…". (This procedure is required even if the maximum conducted output power measurement was performed using a power meter, method PM.)

2) Use the peak search function on the instrument to find the peak of the spectrum and record its value.

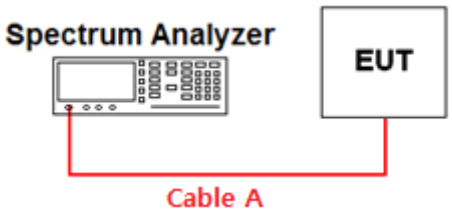
3) Make the following adjustments to the peak value of the spectrum, if applicable:
   a) If Method SA - 2 or SA - 2 Alternative was used, add 10 log(1 / x), where x is the duty cycle, to the peak of the spectrum.
   b) If Method SA - 3 Alternative was used and the linear mode was used in step II.E.2.g (viii), add 1 dB to the final result to compensate for the difference between linear averaging and power averaging.

4) The result is the Maximum PSD over 1 MHz reference bandwidth.

5) For devices operating in the bands 5.15 - 5.25 GHz, 5.25 - 5.35 GHz, and 5.47 - 5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in §15.407(a)(5). For devices operating in the band 5.725 - 5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, "provided that the measured power is integrated over the full reference bandwidth" to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 kHz bandwidth, the following adjustments to the procedures apply:
   a) Set RBW ≥ 1 / T, where T is defined in section II.B.1.a). (Refer to Appendix II)
   b) Set VBW ≥ 3 RBW.
   c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10 log(500 kHz / RBW) to the measured result, whereas RBW (< 500 kHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
   d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add 10 log(1 MHz / RBW) to the measured result, whereas RBW (< 1 MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement.
   e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

Note: As a practical matter, it is recommended to use reduced RBW of 100 kHz for the sections 5.c) and 5.d) above, since RBW = 100 kHz is available on nearly all spectrum analyzers.

▣ Test configuration



▣ **Test results: Comply**

Multiple Transmit

Mode	Channel	Frequency [MHz]	Reading [dBm]			T.F [dB] Note 1	Test Result [dBm]
			ANT 1	ANT 2	SUM		SUM
802.11a	36	5180	-9.320	-9.850	-6.567	10.220	3.653
	40	5200	-9.310	-10.600	-6.897		3.323
	48	5240	-9.680	-10.100	-6.875		3.345
	52	5260	-9.080	-9.960	-6.487		3.733
	60	5300	-8.680	-9.430	-6.029		4.191
	64	5320	-7.540	-8.470	-4.970		5.250
	100	5500	-7.870	-7.940	-4.895		5.325
	116	5580	-9.700	-9.230	-6.448		3.772
	-	-	-	-	-		-
	149	5745	-9.680	-9.750	-6.705	7.210	0.505
	157	5785	-6.770	-6.530	-3.638		3.572
	165	5825	-11.460	-10.730	-8.069		-0.860
802.11n HT20	36	5180	-10.040	-10.740	-7.366	10.430	3.064
	40	5200	-9.790	-10.840	-7.273		3.157
	48	5240	-9.550	-10.410	-6.948		3.482
	52	5260	-8.490	-9.280	-5.857		4.573
	60	5300	-7.620	-9.010	-5.249		5.181
	64	5320	-6.700	-7.930	-4.261		6.169
	100	5500	-8.200	-8.370	-5.274		5.156
	116	5580	-9.330	-9.820	-6.558		3.872
	-	-	-	-	-		-
	149	5745	-9.260	-9.530	-6.383	7.420	1.037
	157	5785	-9.330	-9.460	-6.384		1.035
	165	5825	-12.350	-11.500	-8.894		-1.474
802.11ac VHT40	38	5190	-14.670	-15.330	-11.977	10.260	-1.717
	46	5230	-9.410	-10.440	-6.884		3.376
	54	5270	-9.070	-9.960	-6.482		3.778
	62	5310	-13.140	-13.770	-10.433		-0.173
	102	5510	-15.500	-15.450	-12.465		-2.205
	118	5590	-9.550	-9.610	-6.570		3.690
	-	-	-	-	-		-
	151	5755	-10.400	-10.280	-7.329	7.250	-0.080
	159	5795	-11.070	-9.660	-7.298		-0.048
802.11ac VHT80	42	5210	-18.830	-19.050	-15.928	10.480	-5.448
	-	-	-	-			-
	58	5290	-15.800	-16.750	-13.239		-2.759
	-	-	-	-			-
	106	5530	-18.940	-19.180	-16.048		-5.568
	-	-	-	-			-
	-	-	-	-			-
	155	5775	-18.240	-18.630	-15.420	7.470	-7.951
	-	-	-	-	-		-

Note 1: "Band 1, 2A, 2C [T.F] = 10*LOG(1000/100) + D.C.F"
"Band 3 [T.F] = 10*LOG(500/100) + D.C.F"
For D.C.F., please refer to appendix II.
Note 2: Test Result = Measurement Data + T.F

Multiple Transmit

Mode		Channel	Frequency [MHz]	Reading [dBm]			T.F [dB]	Test Result [dBm]
				ANT 1	ANT 2	SUM		
802.11a	U-NII 2C	144	5720	-9.620	-9.270	-6.431	10.220	3.789
	U-NII 3	144	5720	-10.470	-10.200	-7.323	7.210	-0.113
802.11ac VHT20	U-NII 2C	144	5720	-9.580	-9.690	-6.624	10.140	3.516
	U-NII 3	144	5720	-10.400	-10.620	-7.498	7.130	-0.369
802.11ac VHT40	U-NII 2C	142	5710	-9.650	-9.360	-6.492	10.260	3.768
	U-NII 3	142	5710	-11.560	-10.880	-8.196	7.250	-0.947
802.11ac VHT80	U-NII 2C	138	5690	-13.200	-13.360	-10.269	10.480	0.211
	U-NII 3	138	5690	-15.950	-15.330	-12.619	7.470	-5.149

Note 1: "Band 1, 2A, 2C [T.F] = 10*LOG(1000/100) + D.C.F"
"Band 3 [T.F] = 10*LOG(500/100) + D.C.F"
For D.C.F., please refer to appendix II.
Note 2: Test Result = Measurement Data + T.F